

Safety notice	1
General information	2
Parts list on board level Summary of used components	3
Transmitter R791664	4
Video & RGB Input + Driver R7627661 Video & RGB Input + Driver R7627665	5
Quad Decoder & Combfilter R7627455 Quad Decoder & Combfilter R7627452	6
Synchronisation Unit R7624895 Synchronisation Unit R7624896	7
RGB Output & CRT Socket R762559 EHT Splitter R762210	8
SM Power Supply & EHT R7624461 Quadrupler R7622091	9
Deflection Module R762447 Horizontal Linearity Control R762449	10
Focus + Shift + G2 R762450 Voltage Stabiliser R762155	11
Convergence Driver R762454 GREEN Convergence Driver R7625128	12
Convergence Output R762455	13
Infra Red Receiver R762215	14
RS232 Comm. Interface R762227	15
CPU Module R7624525	16
Frame R762945	17
Iris Control R762722 Iris CAM CCD R7627241	18
Line Doubler (Option) R7625625 Line Doubler Itf (Option) R7625615	19
Contrast Modulation (Option) ... R7624845	20
IR Remote Receiver 800 R9827515	21
Replacement of a Picture Tube	22
Failure - I ² C Error	23



**SCHEMATIC
SURVEY**

BARCO

BARCO PROJECTION SYSTEMS



BARCO VISION 708

R9002321

R9002328

R9002322

R9000745

R9002327

SERVICE MANUAL

Safety notice **section 1**

General information **section 2**

Parts list on board level **section 3**

Summary of Used Components **section 3**

Service sheets

Transmitter (Infra Red) **R791664** **section 4**

Video & RGB Input + Driver **R7627661** **section 5**

..... *Input BELLA Protection* R762228S *section 5*

..... *IBCL + Temp Protection* R762766S *section 5*

..... *RGB Matrix* R762902 *section 5*

Video & RGB Input + Driver **R7627665** **section 5**

Quad Decoder & Combfilter **R7627455** **section 6**

Quad Decoder & Combfilter **R7627452** **section 6**

Synchronisation Unit **R7624895** **section 7**

Synchronisation Unit **R7624896** **section 7**

RGB Output & CRT Socket **R762559** **section 8**

..... *EHT Splitter* R762210 *section 8*

SM Power Supply & EHT **R7624461** **section 9**

..... *Sub fil* R762446S *section 9*

..... *Slow go* R762200S *section 9*

..... *Quadrupler* R7622091 *section 9*

Deflection Module **R762447** **section 10**

..... *Non Retractable Vertical Oscillator* R7621127T *section 10*

..... *Horizontal Linearity Control* R762449 *section 10*

Focus + Shift + G2 **R762450** **section 11**

..... *Voltage Stabiliser* R762155 *section 11*

Convergence Driver **R762454** **section 12**

..... *Green Convergence Driver (Option)* R7625128 *section 12*

Convergence Output **R762455** **section 13**

Infra Red Receiver **R762215** **section 14**

RS232 Comm. Interface **R762227** **section 15**

CPU Module **R7624525** **section 16**

Frame **R762945** **section 17**

Iris Control **R762722** **section 18**

..... *Iris CAM CCD* R7627241 *section 18*

Line Doubler (Option) **R7625625** **section 19**

..... *Line Doubler Interface (Option)* R7625615 *section 19*

Contrast Modulation (Option) **R7624845** **section 20**

IR Remote Receiver 800 **R9827515** **section 21**

Replacement of a Picture Tube **section 22**

Failure - I²C Error **section 23**

BARCO

BARCO PROJECTION SYSTEMS



BARCO VISION 708

R9002321

R9002328

R9002322

R9000745

R9002327

SAFETY NOTICE

PRODUCT SAFETY NOTICE

Components identified by \triangle or * have **SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY**. Before replacing any of these components, read carefully the service safety precautions.

DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

SAFETY NOTICE

Components having special safety characteristics are identified by \triangle on schematics and on the parts list in this **SERVICE MANUAL** and its supplements and bulletins. Before servicing this apparatus, it is important that the service technician read and follow the "**SAFETY PRECAUTIONS**" and "**PRODUCT SAFETY NOTICES**" in this Service Manual.

SAFETY PRECAUTIONS

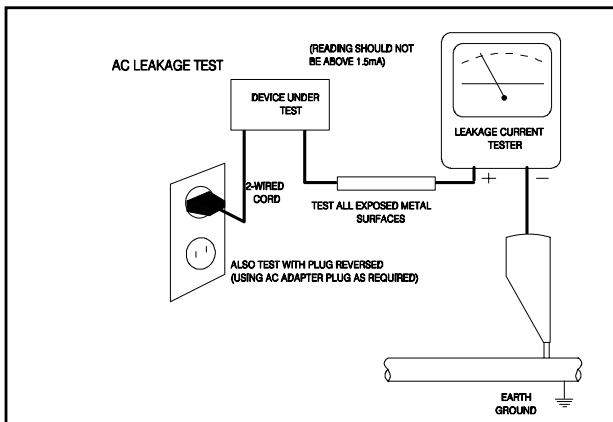
1. **Before returning an instrument to the customer**, always make a safety check of the entire instrument, including, but not limited to, the following items :

a. Be sure that no built-in protective devices are defective and/or have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, insulating materials, barriers, covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**

b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) excessively wide cabinet ventilation slots, and (2) an improperly fitted and/or incorrectly secured cover panels.

c. **Leakage Current Hot Check** - With the instrument completely reassembled, plug the AC line cord directly into a 220 V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.0 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle bracket, metal cabinet, screwheads, metallic overlays, control shafts, etc.). especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 1.5 milliapp. Reverse the instrument power cord plug in the outlet and repeat test.

ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING ACCESSORIES.



WARNING: RISK OF ELECTRIC SHOCK DURING THIS TEST. THE PROJECTOR IS NOT CONNECTED TO GROUND. DO NOT TOUCH THE PROJECTOR AND USE WELL INSULATED TEST PROBES.

d. **X-Radiation and High Voltage** - Because the picture tubes are the primary potential source of X-radiation in solid-state projectors, they are specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place.

After replacement of any X-ray radiation related safety components (marked in this manual with an *), the EHT voltage board must be checked.

2. Read and comply with all caution and safety-related notes on or inside the projector cabinet or on the projector chassis, or on the picture tube.

3. **Design Alteration Warning** - Do not alter or add to the mechanical or electrical design of this apparatus. Design alterations and additions, including, but not limited to, circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this apparatus and create a hazard to the user. Any design alterations or additions may void the manufacturer's warranty and may make you, the servicer responsible for personal injury or property damage resulting therefrom.

4. **Picture Tube Implosion Protection Warning** - The picture tube in this projector encloses a high vacuum. Do **not** remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. For continued implosion protection, replace the picture tube only with one of the same type number.

5. **Hot Chassis Warning** - This projector chassis has two ground systems: the primary ground system is formed by the negative voltage of the rectified mains (power) and is only used as a reference in primary circuits; the secondary ground system is connected to earth ground via the earth conductor in the mains (power) lead.

Separation between primary and secondary circuits is performed by the safety isolation transformers. Components bridging this transformers are also safety components and must never be defeated or altered.

All user-accessible conductive parts must be connected to earth ground, or are kept at SELV (Safety Extra Low Voltage).

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas:

- a. near sharp edges,
- b. near thermally hot parts - be sure that leads and components do not touch thermally hot parts,
- c. the AC supply,
- d. high voltage.

Always inspect in all areas for pinched, out-of-face, or frayed wiring. Do not change spacing between components, and between components and the printed-circuit board. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. **PRODUCT SAFETY NOTICE** - Many electrical and mechanical parts have special safety-related characteristics some of which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified in BARCO service data by Δ on schematics and in the parts list. Use of a substitute replacement that does not have the same safety

characteristics as the recommended replacement part in BARCO service data parts list might create shock, fire, and/or other hazards. Product Safety is under review continuously and new instructions are issued whenever appropriate. For the latest information, always consult the appropriate current BARCO service literature.

SERVICING PRECAUTIONS

CAUTION: Before servicing instruments covered by this service data and its supplements and addendums, read and follow the SAFETY PRECAUTIONS of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 2 of this publication, always follow the safety precautions.

Remember: Safety First.

General Servicing Precautions

1. Always unplug the instrument AC power cord from the AC power source before:

- a. Removing or reinstalling any component, circuit board, module, or any other instrument assembly.
- b. Disconnecting or reconnecting any instrument electrical plug or other electrical connection.
- c. Connecting a test substitute in parallel with an electrolytic capacitor in the instrument.

Caution: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Do not spray chemical on or near this instrument or any of its assemblies.
3. Unless specified otherwise in this service data, clean electrical contacts by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator: 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength). **Caution:** *This is a flammable mixture.*

Unless specified otherwise in this service data, lubrication of contacts is not required.

4. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service data might be equipped.
5. Do not apply AC power to this apparatus and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
6. Always connect the test instrument ground lead to the appropriate instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.
7. Use with this instrument only the test fixtures specified in this service data.

CAUTION: Do not connect the test fixture ground strap to any heatsink in this instrument.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Wear a commercially available high impedance discharging wrist strap device.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a static dissipative surface such as a 3M No 8210 table mat, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminium foil or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range 260°C to 315°C.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a small wire-bristle (0.5 inch, or 1.25 cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique:
 - a. Allow the soldering iron tip to reach normal temperature (260°C to 315°C).
 - b. Heat the component lead until the solder melts.
 - c. Quickly draw away the melted solder with an anti-static, suction-type solder removal device or with solder braid.

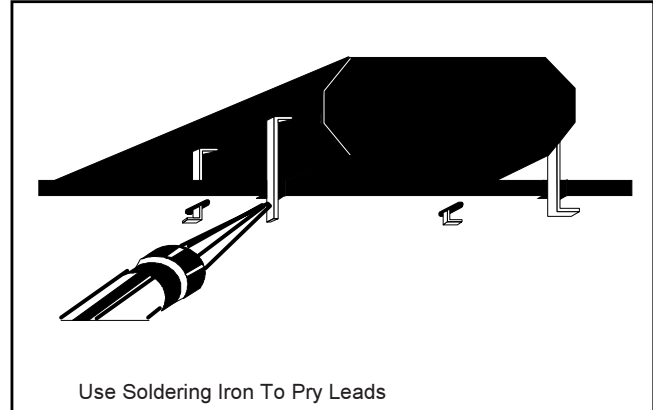
CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique:
 - a. Allow the soldering iron tip to reach normal temperature (260°C to 315°C).

- b. First, hold the soldering iron tip and solder strand against the component lead until the solder melts.

- c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.

CAUTION: Work quickly to avoid overheating the circuit board printed foil or components.

- d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.



BARCO

BARCO PROJECTION SYSTEMS



BARCO VISION 708

R9002321

R9002328

R9002322

R9000745

R9002327

GENERAL INFORMATION

BARCO

BARCO PROJECTION SYSTEMS



BARCO VISION 708

R9002321

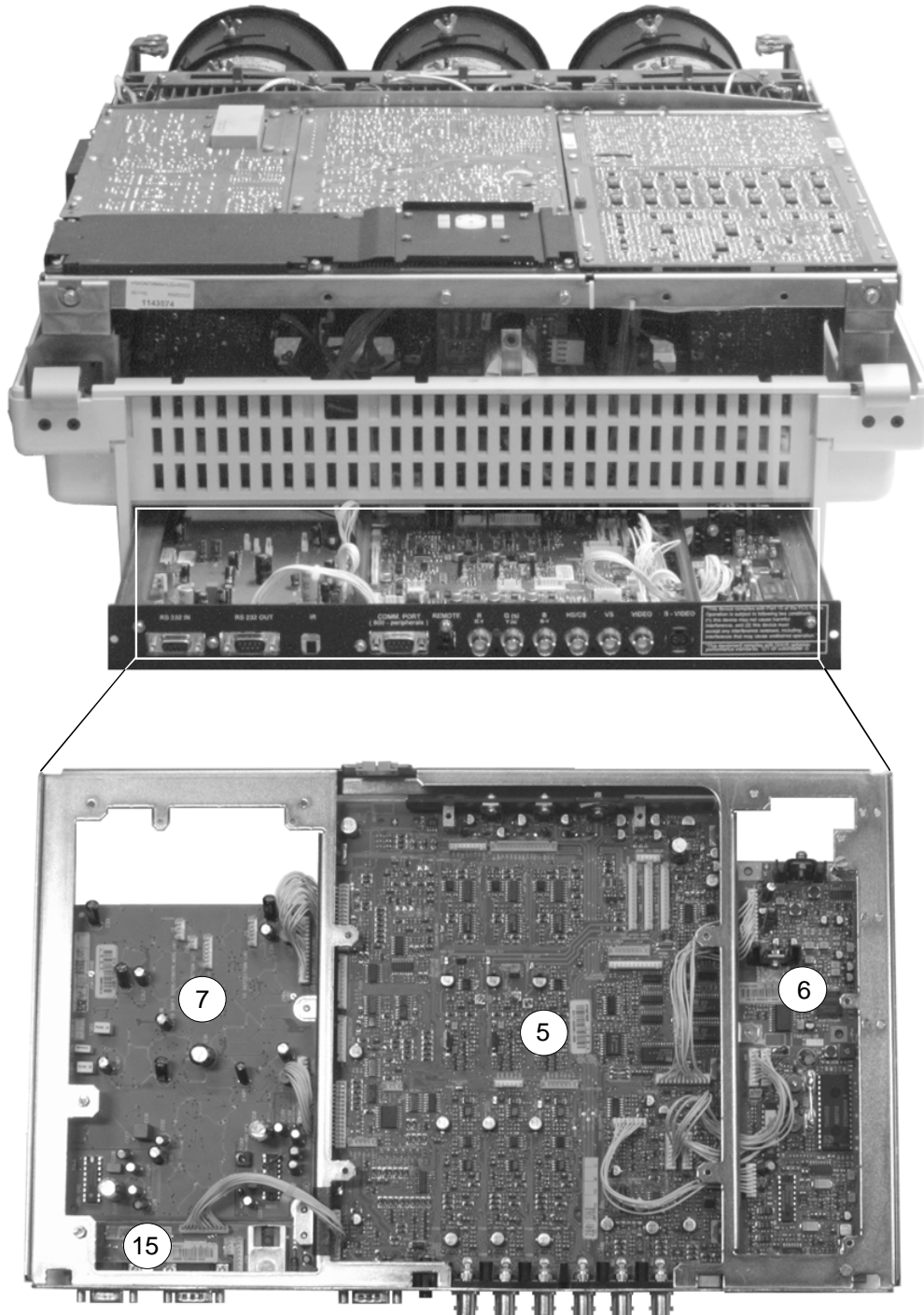
R9002328

R9002322

R9000745

R9002327

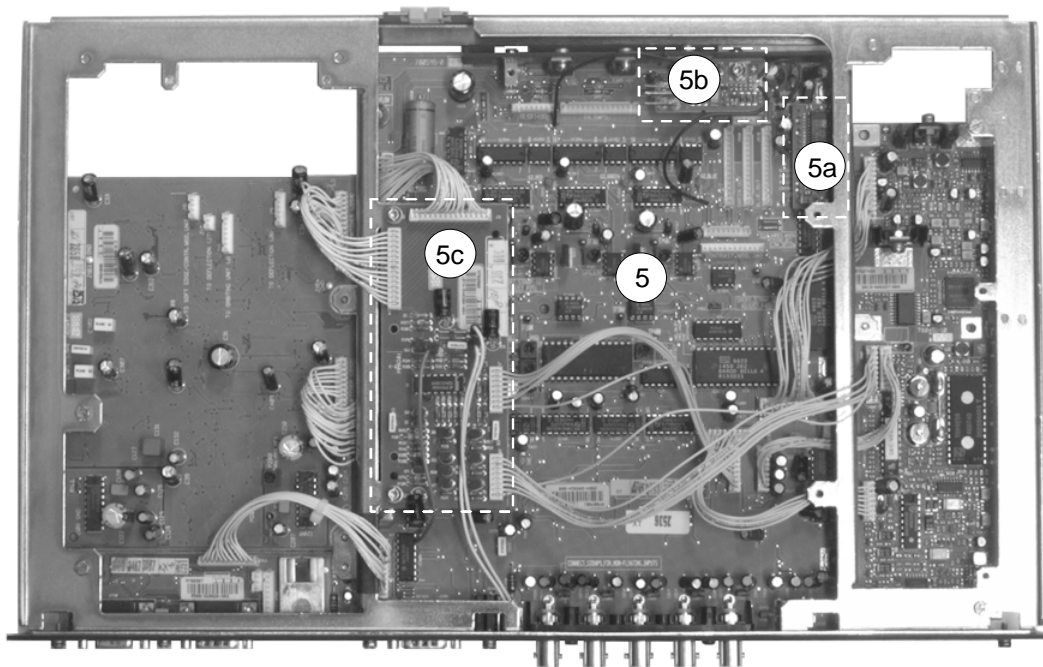
PARTS LIST ON BOARD LEVEL
SUMMARY OF USED COMPONENTS



Sheet reference n°

⑤	R7627665	Video & RGB Input + Driver	⑦	R7624895	Synchronisation Unit
			⑦	R7624896	Synchronisation Unit (New version)
⑥	R7627455	Quad Decoder & Combfilter			
⑥	R7627452	Quad Decoder & Combfilter (for R9000745)			
			⑮	R762227	RS232 Comm. Interface

With the old input board R7627661:



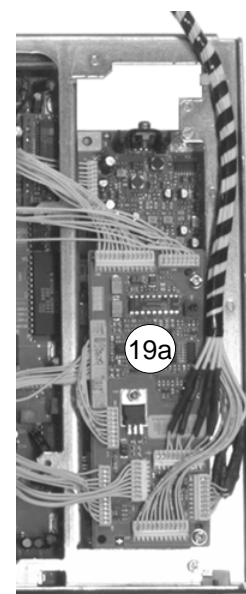
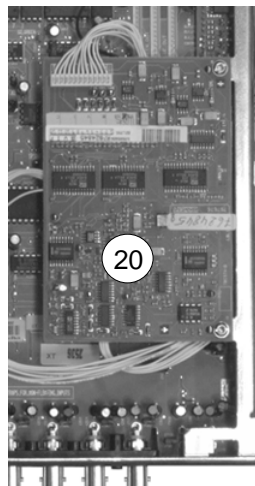
Sheet reference n°

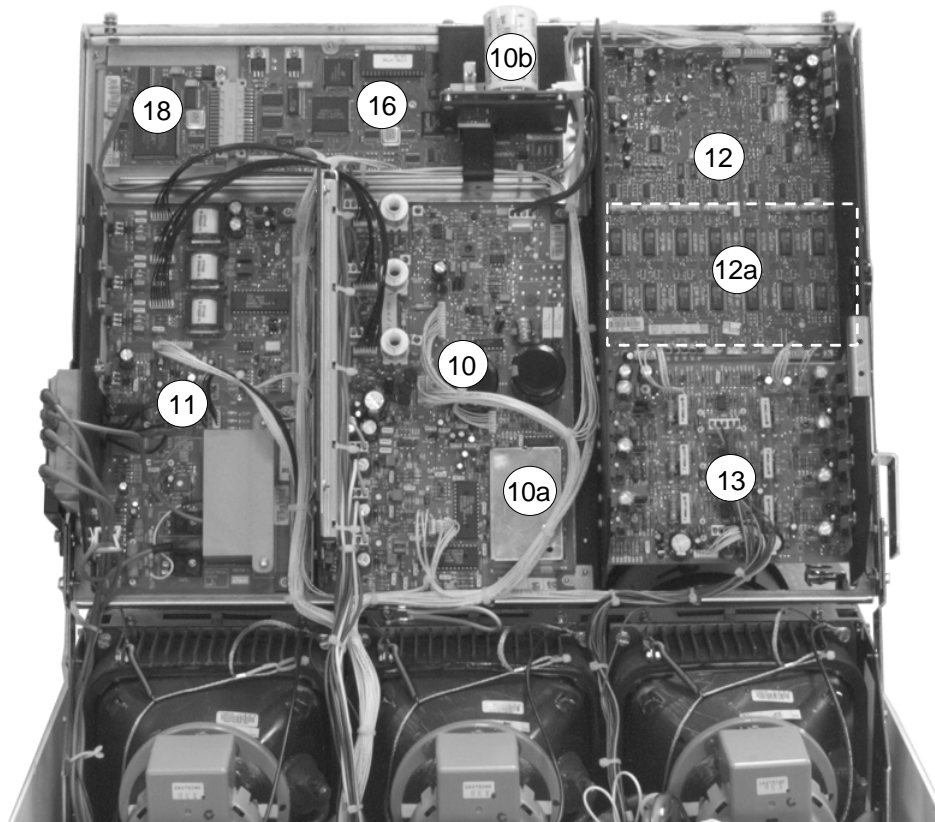
- ⑤ R7627661 Video & RGB Input + Driver
- ⑤a R762228S Input BELLA Protection
- ⑤b R762766S IBCL + Temp Protection
- ⑤c R762902 RGB Matrix

Option Modules:

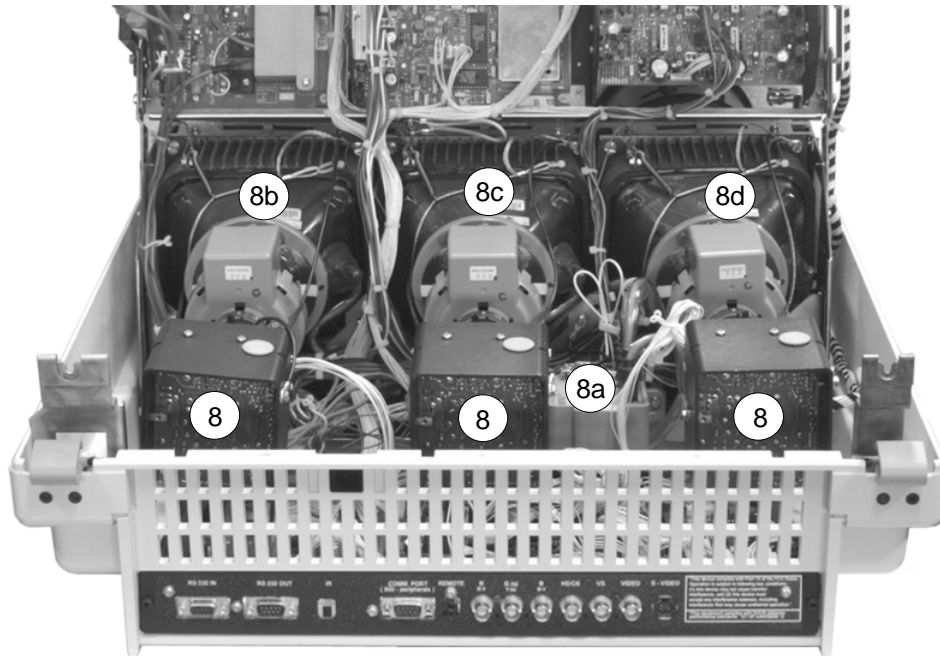
Sheet reference n°

- ②0 R7624845 Contrast Modulation (Option)
- ①9a R7625615 Lido Interface (Option)

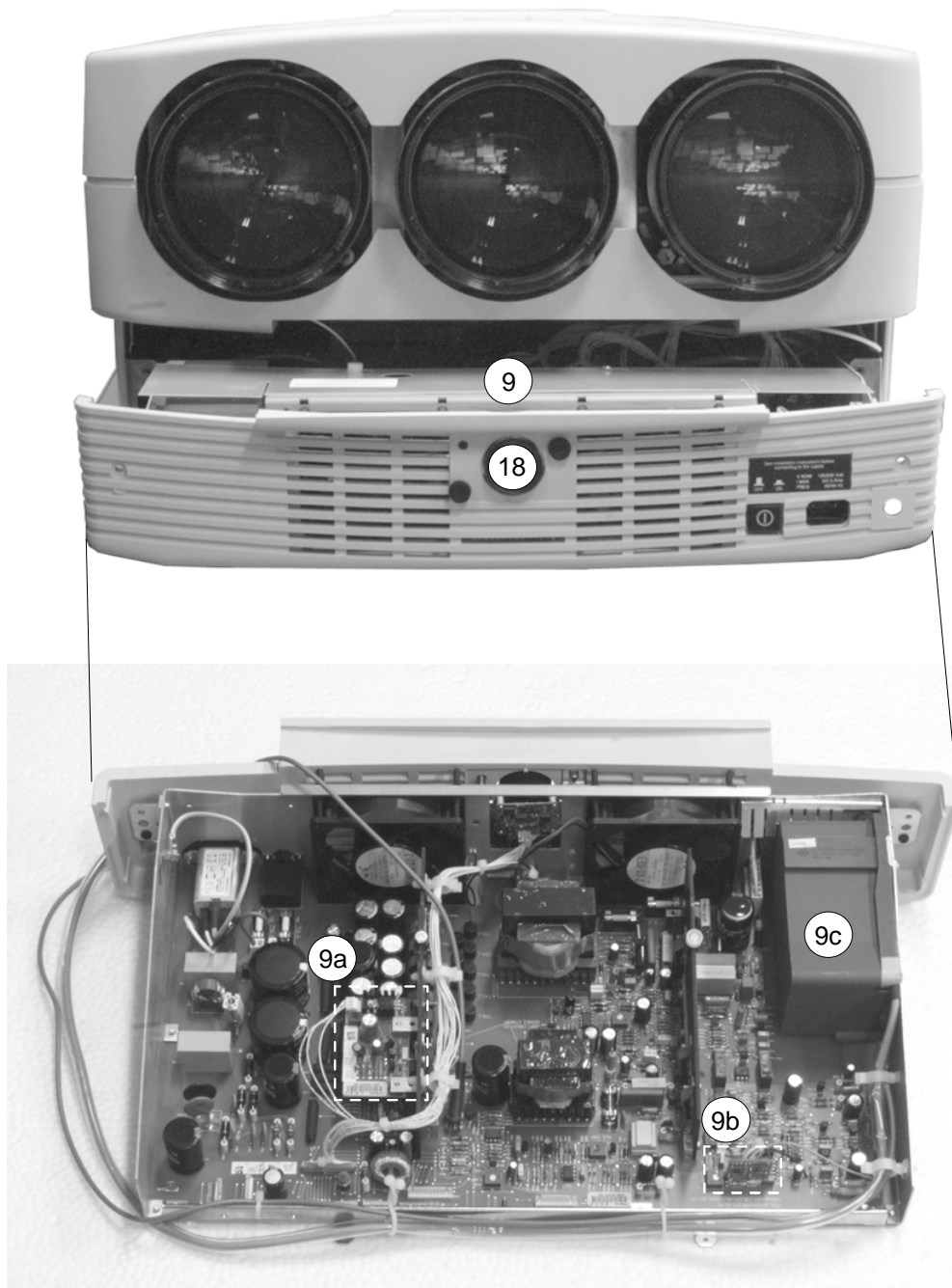


**Sheet reference n°**

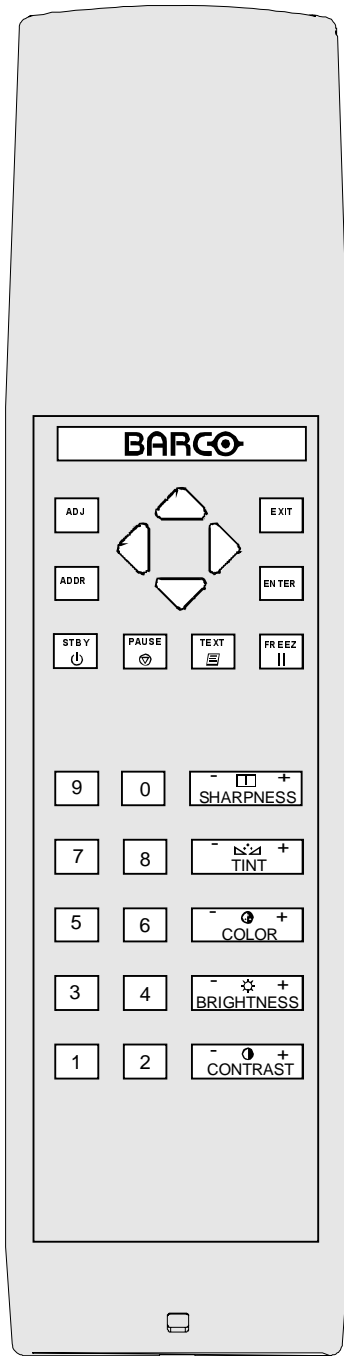
- ⑩ R762447 Deflection Module**
- ⑩a R7621127T Non Retrigable Vertical Oscillator**
- ⑩b R762449 Horizontal Linearity Control**
- ⑪ R762450 Focus + Shift + G2**
- ⑫ R762454 Convergence Driver**
- ⑫a R7625128 GREEN Convergence Driver**
- ⑬ R762455 Convergence Output**
- ⑯ R7624525 CPU Module**
- ⑱ R762722 Iris Control**

**Sheet reference n°**

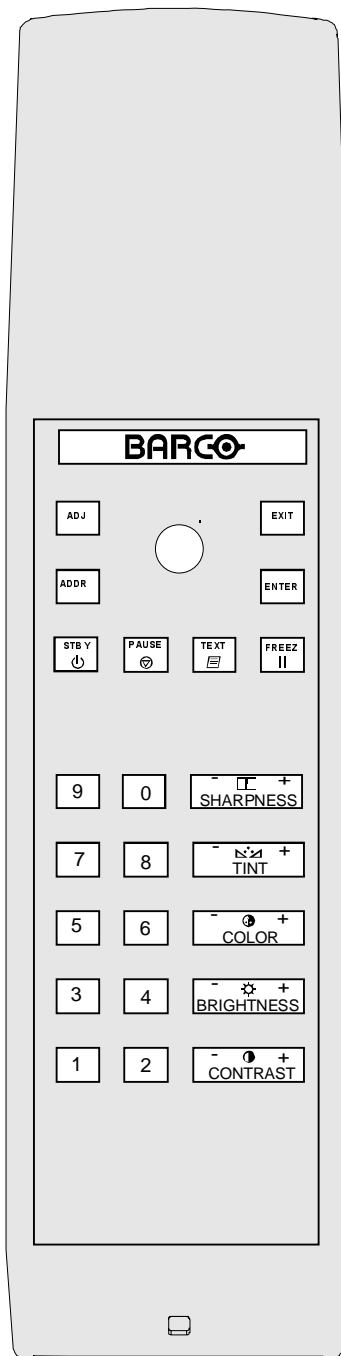
- ⑧ R762559 RGB Output & CRT Socket
- ⑧a R762210 EHT Splitter
- ⑧b R7629442 Picture Tube Unit Red
- ⑧c R7629445 Picture Tube Unit Green
- ⑧d R7629446 Picture Tube Unit Blue

**Sheet reference n°**

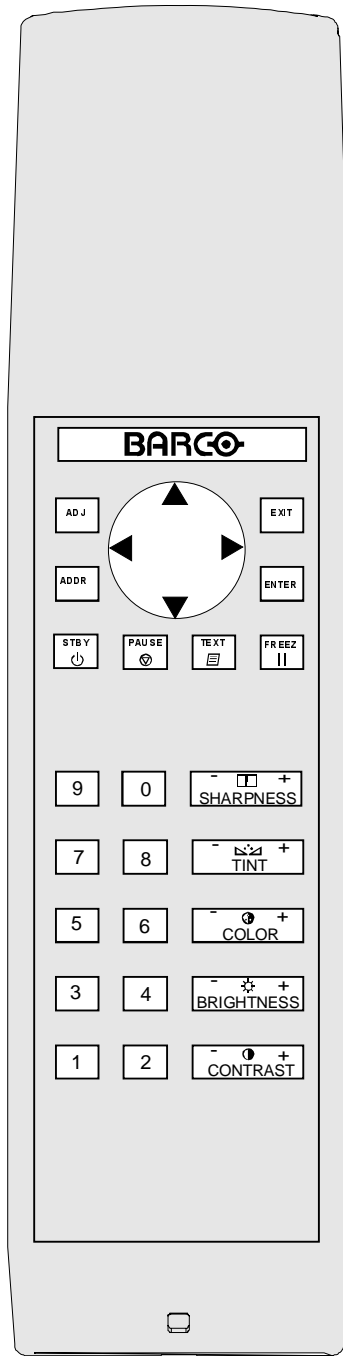
- | | | | | | |
|----|----------|-----------------------|----|----------|--------------|
| 9 | R7624461 | SM Power Supply & EHT | 9c | R7622091 | Quadrupler |
| 9a | R762446S | Sub Fil | 18 | R7627241 | Iris CAM CCD |
| 9b | R762200S | Slow go | | | |



(A)



(B)

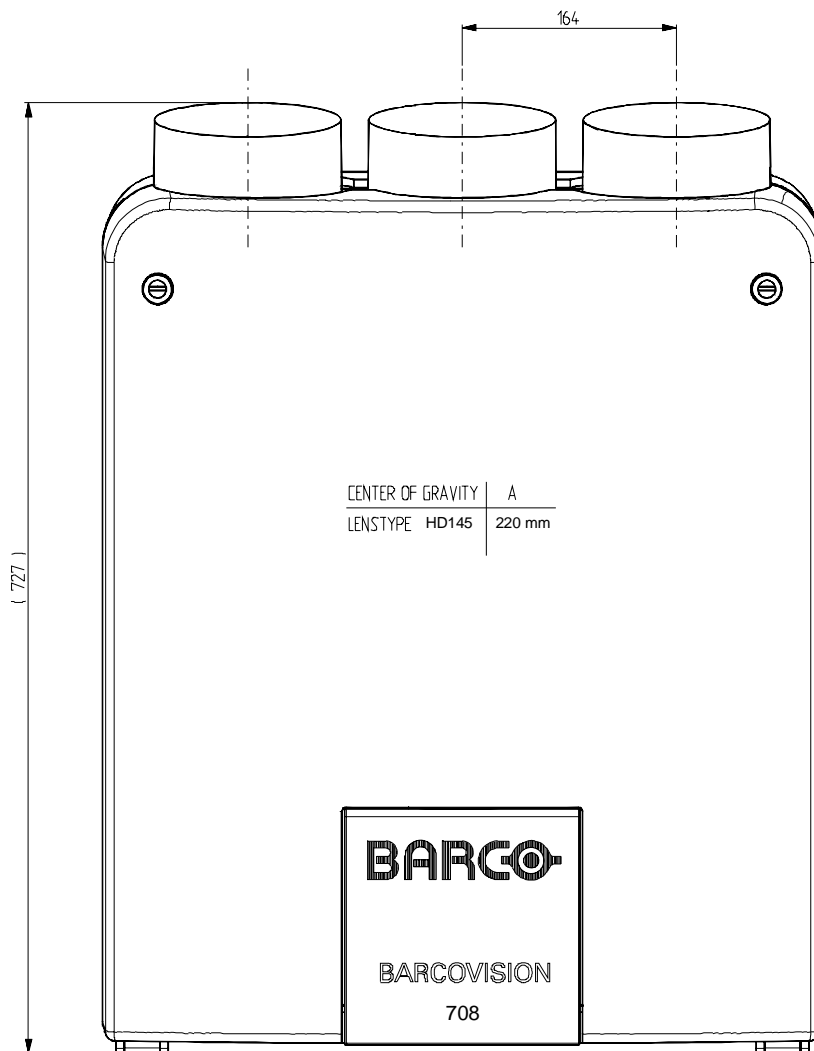
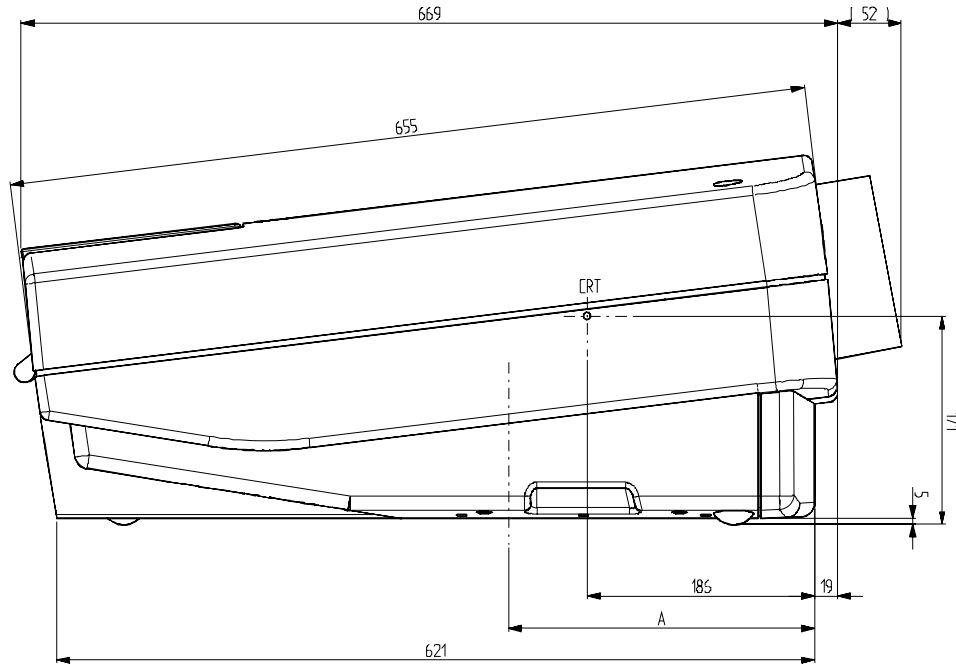


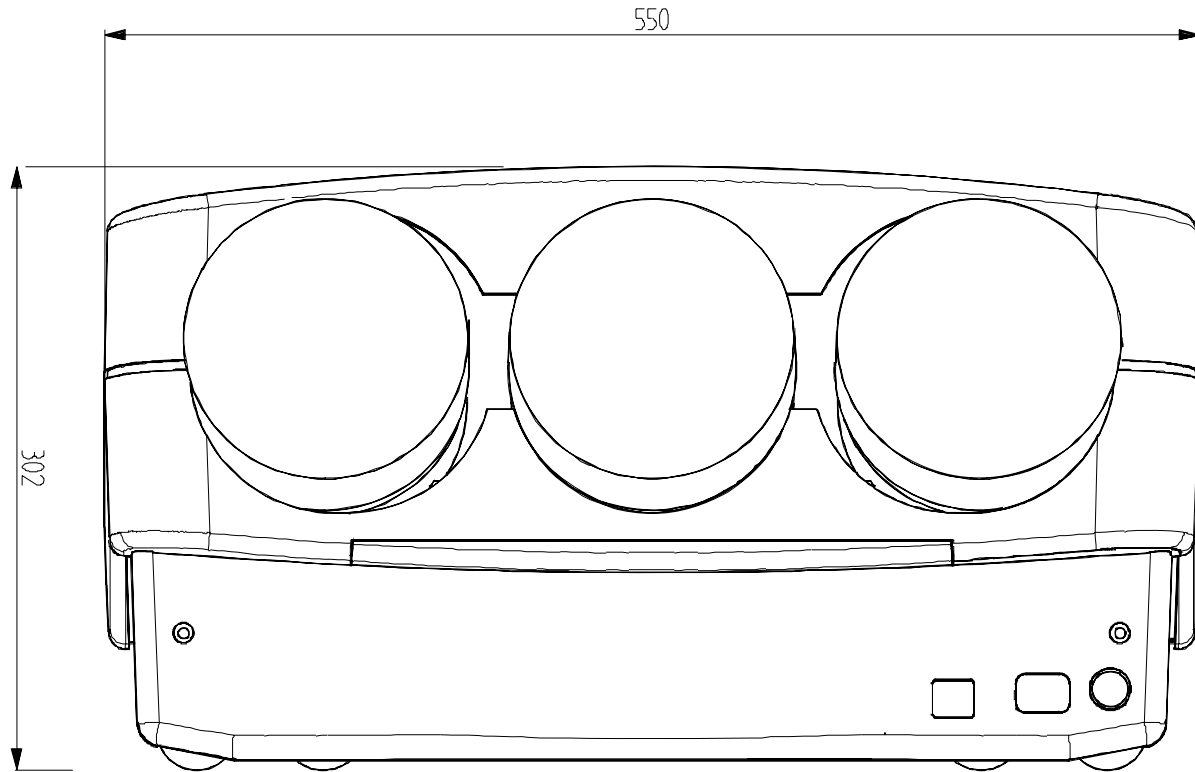
(C)

Sheet reference n°

④ R791664 IR Remote Control

- A RCU with arrow keys
- B RCU with joy stick
- C RCU with control button





Summary of used components BV708

Art. No.	Description	Quantity	Art. No.	Description	Quantity	Art. No.	Description	Quantity
A551625	R MF H110E F0W6 E4	1	P201055	R#CEH47E F0W120805	16	P201392	R#TCEH200E M0W25S4TS	3
A573379	Q BD242B P P T0220	1	P201056	R#CEH51E F0W120805	12	P201393	R#TCEH50K M0W25S4TS	15
B1319054	DRBYW97G 14203ASOD64	3	P201059	R#CEH68E F0W120805	3	P205266	R#CEH10K F0W060603	1
B1329351	Q BUX87P NP S0T82	1	P201060	R#CEH75E F0W120805	5	P205282	R#CEH47K F0W060603	1
B133153	Q2SA1723 P S S T0126	3	P201061	R#CEH82E F0W120805	3	P210001	C#COG MU 10P G50 0805	5
B133338	U 2631 HCPL DIP8 P	1	P201062	R#CEH91E F0W120805	1	P210005	C#X7R MU 39N K50 1206	2
B305922	CH MNS 32 MH 2X V 6A	1	P201063	R#CEH100E F0W120805	53	P210007	C#COG MU 1N F50 1206	2
B332120	J BNC FBS P3 50E SIP	2	P201064	R#CEH110E F0W120805	10	P210013	C#COG MU 1N J50 1206	5
B338800	J PHN FBS D 3.5MON P	2	P201065	R#CEH120E F0W120805	1	P210016	C#COG MU 15P J50 0805	7
K1114777	C EL RA 100MM 25E2 105	11	P201067	R#CEH150E F0W120805	3	P2100170	C#COG MU 22P J50 0805	3
P200339	R#CEH 1E F0W25 1206	4	P201068	R#CEH160E F0W120805	1	P210018	C#COG MU 33P J50 0805	3
P200355	R#CEH 4E7 F0W25 1206	1	P201070	R#CEH300E F0W120805	5	P210019	C#COG MU 47P J50 0805	2
P200361	R#CEH 8E2 F0W25 1206	1	P201071	R#CEH220E F0W120805	11	P2100190	C#COG MU 47P J50 0805	1
P200363	R#CEH10E F0W25 1206	16	P201072	R#CEH240E F0W120805	2	P210020	C#COG MU 68P J50 0805	1
P200371	R#CEH22E F0W25 1206	2	P201073	R#CEH270E F0W120805	9	P210021	C#COG MU 100P J50 0805	23
P200375	R#CEH33E F0W25 1206	1	P201074	R#CEH300E F0W120805	1	P210022	C#COG MU 150P J50 0805	1
P200379	R#CEH47E F0W25 1206	2	P201075	R#CEH330E F0W120805	8	P210023	C#COG MU 220P J50 0805	4
P200380	R#CEH51E F0W25 1206	1	P201077	R#CEH390E F0W120805	3	P210024	C#COG MU 330P J50 0805	1
P200381	R#CEH56E F0W25 1206	1	P201078	R#CEH430E F0W120805	4	P210025	C#COG MU 470P J50 0805	10
P200386	R#CEH91E F0W25 1206	1	P201079	R#CEH470E F0W120805	42	P2100250	C#COG MU 470P J50 0805	10
P200387	R#CEH100E F0W25 1206	70	P201080	R#CEH510E F0W120805	4	P210026	C#COG MU 680P J50 1206	1
P200389	R#CEH120E F0W25 1206	1	P201081	R#CEH560E F0W120805	14	P210029	C#COG MU 2N2J 50 1206	4
P200391	R#CEH150E F0W25 1206	5	P201083	R#CEH680E F0W120805	4	P210035	C#X7R MU 1N K50 0805	10
P200393	R#CEH180E F0W25 1206	5	P201084	R#CEH750E F0W120805	1	P210036	C#X7R MU 1N5K 50 0805	1
P200395	R#CEH220E F0W25 1206	4	P201085	R#CEH820E F0W120805	10	P210041	C#X7R MU 10N K50 0805	21
P200397	R#CEH270E F0W25 1206	8	P201086	R#CEH910E F0W120805	2	P210043	C#X7R MU 22N K50 0805	1
P200398	R#CEH300E F0W25 1206	4	P201087	R#CEH 1K F0W120805	80	P210045	C#X7R MU 47N K50 1206	3
P200399	R#CEH330E F0W25 1206	2	P201089	R#CEH 1K2F0W120805	13	P210064	C#COG MU 22P J50 1206	1
P200401	R#CEH390E F0W25 1206	6	P201090	R#CEH 1K3F0W120805	1	P210068	C#X7R MU 22N K50 1206	2
P200403	R#CEH470E F0W25 1206	37	P201091	R#CEH 1K5F0W120805	16	P210070	C#COG MU 680P J50 0805	2
P200404	R#CEH510E F0W25 1206	1	P201092	R#CEH 1K6F0W120805	1	P210071	C#COG MU 220P F50 0805	2
P200405	R#CEH560E F0W25 1206	1	P201093	R#CEH 1K8F0W120805	23	P210073	C#COG MU 82P J50 1206	3
P200407	R#CEH680E F0W25 1206	17	P201094	R#CEH 2K F0W120805	14	P210076	C#COG MU 220P J50 1206	5
P200409	R#CEH820E F0W25 1206	2	P201095	R#CEH 2K2F0W120805	23	P210079	C#COG MU 18P J50 0805	4
P200411	R#CEH 1K F0W25 1206	98	P201097	R#CEH 2K7F0W120805	12	P210081	C#COG MU 180P J50 0805	3
P200412	R#CEH 1K1 F0W25 1206	1	P201098	R#CEH 3K F0W120805	1	P210092	C#X7R MU 10N K50 1206	15
P200413	R#CEH 1K2F0W25 1206	9	P201099	R#CEH 3K3F0W120805	21	P210095	C#X7R MU 300N M50 1812	3
P200415	R#CEH 1K5F0W25 1206	9	P201100	R#CEH 3K6F0W120805	1	P210097	C#X7R MU 33N K50 1206	2
P200417	R#CEH 1K8F0W25 1206	17	P201101	R#CEH 3K9F0W120805	2	P210102	C#COG MU 470P J50 1206	3
P200419	R#CEH 2K2F0W25 1206	65	P201102	R#CEH 4K3F0W120805	6	P210107	C#X7R MU 10N J50 1206	1
P200421	R#CEH 2K7 F0W25 1206	1	P201103	R#CEH 4K7F0W120805	37	P210111	C#X7R MU 47N K50 0805	1
P200422	R#CEH 3K F0W25 1206	1	P201105	R#CEH 5K6F0W120805	9	P210112	C#COG MU 1N2J 50 1206	1
P200423	R#CEH 3K3F0W25 1206	23	P201106	R#CEH 6K2F0W120805	3	P210115	C#COG MU 6P8D 50 0805	1
P200425	R#CEH 3K9F0W25 1206	10	P201107	R#CEH 6K8F0W120805	6	P210116	C#COG MU 27P J50 0805	6
P200426	R#CEH 4K3F0W25 1206	1	P201108	R#CEH 7K5F0W120805	4	P210117	C#COG MU 47P G50 1206	6
P200427	R#CEH 4K7 F0W25 1206	50	P201109	R#CEH 8K2F0W120805	1	P210121	C#COG MU 330P J50 1206	2
P200429	R#CEH 5K6F0W25 1206	23	P201111	R#CEH 10K F0W120805	91	P210122	C#X7R MU 100N K50 1206	244
P200431	R#CEH 6K8F0W25 1206	11	P201112	R#CEH 11K F0W120805	3	P210124	C#X7R MU 100N K50 0805	3
P200433	R#CEH 8K2F0W25 1206	10	P201113	R#CEH 12K F0W120805	10	P210125	C#X7R MU 22N K100 1206	1
P200435	R#CEH 10K F0W25 1206	79	P201114	R#CEH 13K F0W120805	2	P210130	C#COG MU 2P2D 50 0805	2
P200437	R#CEH 12K F0W25 1206	30	P201115	R#CEH 15K F0W120805	12	P210132	C#COG MU 3P3D 50 0805	3
P200439	R#CEH 15K F0W25 1206	60	P201117	R#CEH 18K F0W120805	1	P210136	C#Y5V MU 330N Z25 1206	7
P200441	R#CEH 18K F0W25 1206	36	P201118	R#CEH 20K F0W120805	1	P210137	C#COG MU 100P J50 1206	19
P200443	R#CEH 22K F0W25 1206	23	P201119	R#CEH 22K F0W120805	27	P210138	C#COG MU 10P J50 1206	10
P200445	R#CEH 27K F0W25 1206	4	P201120	R#CEH 24K F0W120805	1	P210140	C#X7R MU 4N7K 50 1206	3
P200446	R#CEH 30K F0W25 1206	1	P201121	R#CEH 27K F0W120805	9	P210148	C#Y5V MU 470N Z25 1206	23
P200447	R#CEH 33K F0W25 1206	3	P201122	R#CEH 30K F0W120805	1	P210150	C#X7R MU 3N3K 50 1206	1
P200449	R#CEH 39K F0W25 1206	8	P201123	R#CEH 33K F0W120805	11	P210151	C#X7R MU 18N K50 1206	2
P200451	R#CEH 47K F0W25 1206	9	P201125	R#CEH 39K F0W120805	6	P210153	C#Z5U MU 1M M50 1812	2
P200453	R#CEH 56K F0W25 1206	8	P201126	R#CEH 43K F0W120805	1	P210158	C#COG MU 150P J50 1206	1
P200455	R#CEH 68K F0W25 1206	4	P201127	R#CEH 47K F0W120805	31	P210161	C#COG MU 120P J50 1206	3
P200457	R#CEH 82K F0W25 1206	4	P201129	R#CEH 56K F0W120805	16	P210163	C#COG MU 1N8J 50 1206	1
P200459	R#CEH 100K F0W25 1206	24	P201130	R#CEH 62K F0W120805	4	P210167	C#X7R MU 150N K50 1210	3
P200460	R#CEH 110K F0W25 1206	2	P201131	R#CEH 68K F0W120805	4	P210169	C#X7R MU 220N K50 1210	5
P200461	R#CEH 120K F0W25 1206	2	P201132	R#CEH 75K F0W120805	1	P210170	C#COG MU 56P J50 1206	2
P200463	R#CEH 150K F0W25 1206	2	P201133	R#CEH 82K F0W120805	11	P210173	C#COG MU 1N K100 1206	1
P200465	R#CEH 180K F0W25 1206	4	P201135	R#CEH 100K F0W120805	38	P210178	C#Y5V MU 1M Z 16 1206	38
P200466	R#CEH 200K F0W25 1206	1	P201137	R#CEH 120K F0W120805	6	P210203	C#COG MU 5P6D 50 1206	1
P200467	R#CEH 220K F0W25 1206	1	P201138	R#CEH 130K F0W120805	3	P210211	C#X7R MU 4N7K200 1206	3
P200469	R#CEH 270K F0W25 1206	9	P201139	R#CEH 150K F0W120805	7	P210213	C#Y5V MU 100N Z25 0805	82
P200470	R#CEH 300K F0W25 1206	1	P201141	R#CEH 180K F0W120805	1	P210217	C#COG MU 82P J50 0805	1
P200471	R#CEH 330K F0W25 1206	6	P201143	R#CEH 220K F0W120805	19	P210227	C#Z5U MU 100N Z50 0805	132
P200473	R#CEH 390K F0W25 1206	1	P201144	R#CEH 240K F0W120805	1	P210252	C#X7R MU 220N K52 1206	4
P200475	R#CEH 470K F0W25 1206	5	P201145	R#CEH 270K F0W120805	3	P210295	C#Y5V MU 1M Z 16 0805	3
P200477	R#CEH 560K F0W25 1206	4	P201147	R#CEH 330K F0W120805	6	P212005	C# TA 47M M 10 7343	3
P200479	R#CEH 680K F0W25 1206	3	P201149	R#CEH 390K F0W120805	2	P212006	C# TA 4M7M 16 3528	4
P200481	R#CEH 820K F0W25 1206	1	P201151	R#CEH 470K F0W120805	15	P212009	C# TA 1M M 16 3216	2
P200483	R#CEH 1M F0W25 1206	6	P201155	R#CEH 680K F0W120805	1	P212015	C# TA 33M K 16 7343	1
P200489	R#CEH 110K F0W25 1206	1	P201156	R#CEH 750K F0W120805	4	P212018	C# TA 10M M 16 6032	6
P200507	R#CEH 10M F0W25 1206	1	P201157	R#CEH 820K F0W120805	2	P212040	C# TA 100MM 6 7343	1
P201015	R#CEH 1E F0W120805	14	P201158	R#CEH 910K F0W120805	3	P212047	C# TA 4M7M 6 3216	3
P201031	R#CEH 4E7 F0W120805	14	P201159	R#CEH 1M F0W120805	3	P212060	C# TA 10M M 16 3528	1
P201039	R#CEH 10E F0W120805	35	P201181	R#CEH 8M2F0W120805	1	P213505	C# EL RA 100MM 16 85	4
P201047	R#CEH 22E F0W120805	1	P201352	R#CEH 10M K0W120805	3	P213508	C# EL RA 10M M 16 85	11
P201049	R#CEH 27E F0W120805	3	P201353	R#CEH 0E 0W25 1206	1	P213509	C# EL RA 47M M 16 85	2
P201051	R#CEH 33E F0W120805	3	P201354	R#CEH 0E 0W120805	3	P213512	C# EL RA 1M M 50 85	1

Art. No.	Description	Quantity	Art. No.	Description	Quantity
R774154	CH D**HR HOR	3	V132527	Q 2SC3600E NP TO126	3
R774306	T G800 LIN CTRL	1	V132575	Q BC517 DN SS TO92	1
R7743425	TV700FOCMK2T100	1	V1325851	Q BUT11AF NP SOT186	1
R774345	T D700 SMP FIX	1	V132599	Q BU2525A NP SOT93	1
R774346	T D700 SMP VAR	1	V306541	DL 180NS 1K	2
R775164	CH AXNS 0,5 51	2	V3132823	FLTR MNS 250V 6A T6	1
V1011984	R MF H E22J 0W6 E4	1	V3135931	JEUR2R2FBSP32E1C2S1,6	1
V1026000	R MF H 10M F 0W6 E4	1	Z34217311	WUUL1007AWG24STOR110	1
V1026003	R MF H 1E F 0W6 E4	1	Z34217405	WUUL1007AWG24STYE 50	1
V1026004	R MF H 10E F 0W6 E4	3	Z34217505	WUUL1007AWG24STGN 50	1
V1026005	R MF H100E F 0W6 E4	21			
V1026006	R MF H 1K F 0W6 E4	35			
V1026007	R MF H 10K F 0W6 E4	25			
V1026008	R MF H100K F 0W6 E4	14			
V1026009	R MF H 1M F 0W6 E4	3			
V1026085	R MF H121E F 0W6 E4	1			
V1026086	R MF H 1K21F 0W6 E4	11			
V1026087	R MF H 12K1 F 0W6 E4	4			
V1026117	R MF H 13K F 0W6 E4	1			
V1026174	R MF H 15E F 0W6 E4	1			
V1026175	R MF H150E F 0W6 E4	4			
V1026176	R MF H 1K5 F 0W6 E4	3			
V1026177	R MF H 15K F 0W6 E4	2			
V1026178	R MF H150K F 0W6 E4	1			
V1026255	R MF H182E F 0W6 E4	3			
V1026256	R MF H 1K82F 0W6 E4	2			
V1026257	R MF H 18K2 F 0W6 E4	5			
V1026258	R MF H182K F 0W6 E4	4			
V1026259	R MF H 1M82F 0W6 E4	2			
V1026333	R MF H 2E21F 0W6 E4	2			
V1026334	R MF H 22E1 F 0W6 E4	3			
V1026335	R MF H221E F 0W6 E4	6			
V1026336	R MF H 2K21F 0W6 E4	9			
V1026337	R MF H 22K1 F 0W6 E4	11			
V1026338	R MF H221K F 0W6 E4	4			
V1026376	R MF H 2K43F 0W6 E4	1			
V1026423	R MF H 2E74F 0W6 E4	1			
V1026424	R MF H 27E4 F 0W6 E4	2			
V1026425	R MF H274E F 0W6 E4	3			
V1026426	R MF H 2K74F 0W6 E4	7			
V1026428	R MF H274K F 0W6 E4	4			
V1026505	R MF H332E F 0W6 E4	7			
V1026506	R MF H 3K32F 0W6 E4	19			
V1026507	R MF H 33K2 F 0W6 E4	7			
V1026508	R MF H332K F 0W6 E4	1			
V1026574	R MF H 39E2 F 0W6 E4	2			
V1026575	R MF H392E F 0W6 E4	3			
V1026576	R MF H 3K92F 0W6 E4	12			
V1026578	R MF H392K F 0W6 E4	2			
V1026617	R MF H 43K2 F 0W6 E4	1			
V1026654	R MF H 47E5 F 0W6 E4	1			
V1026655	R MF H475E F 0W6 E4	12			
V1026656	R MF H 4K75F 0W6 E4	19			
V1026657	R MF H 47K5 F 0W6 E4	13			
V1026658	R MF H475K F 0W6 E4	5			
V1026686	R MF H 5K11F 0W6 E4	1			
V1026726	R MF H 5K62F 0W6 E4	7			
V1026728	R MF H562K F 0W6 E4	1			
V1026805	R MF H681E F 0W6 E4	8			
V1026806	R MF H 6K81F 0W6 E4	5			
V1026807	R MF H 68K1 F 0W6 E4	5			
V1026808	R MF H681K F 0W6 E4	1			
V1026845	R MF H750E F 0W6 E4	1			
V1026884	R MF H 82E5 F 0W6 E4	1			
V1026885	R MF H825E F 0W6 E4	3			
V1026886	R MF H 8K25F 0W6 E4	3			
V1026887	R MF H 82K5 F 0W6 E4	2			
V1026889	R MF H 8M25F 0W6 E4	1			
V1026926	R MF H 9K09F 0W6 E4	2			
V102913	R MF H 12E J 2W E7	1			
V102946	R MF H 6K8 J 2W E7	1			
V1114705	C EL RA1000M M 16E2 105	3			
V1114718	C EL RA1000M M 25E2 LE	2			
V111475	C EL RA 2M2M400E2 105	1			
V1114874	C EL RA 100M M 50M3 105	2			
V1115109	C EL RA 22M M 25E2 105	3			
V1115119	C EL RA 47M M 25E2 105	3			
V1115319	C EL RA 10M M 50E2 105	2			
V1115469	C EL RA 1M M 50E2 105	12			
V1115489	C EL RA 2M2M 50E2 105	3			
V1115509	C EL RA 4M7M 63E2 105	2			
V111598	C EL RA1000M M200E4 85	2			
V1116505	C EL RA 100M M385E4 85	1			
V111679	C EL BRA 10M M 25E2 105	2			
V1120516	FLTR EMI 1N M100— 85	3			
V1127830	C X7R MU 100N K 50E2 125	7			
V1140426	C POMERA 100N K250E2 85	1			
V114098	C POMERA 2M2M 50E2 85	2			
V1151652	C PP RA 3N3H 63E2 85	1			

BARCO

BARCO PROJECTION SYSTEMS



BARCO VISION 708

R9002321

R9002328

R9002322

R9000745

R9002327

SCHEMATIC SHEETS

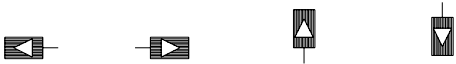
Nomenclature :

Schematics

Linking signals on a sheet.



These symbols indicate a signal (name) which is generated in another place on the same sheet.

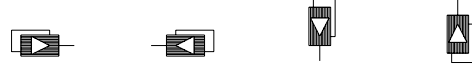


These symbols indicate a signal (name) which is generated in this location and used further on the same sheet.

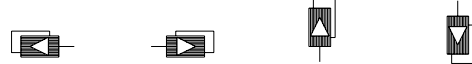


These symbols indicate a signal (name) which is bidirectional and used in the same sheet only.

Linking signals across sheets.



These symbols indicate a signal (name) which is generated on another sheet.



These symbols indicate a signal (name) which is generated in this location and always used further on other sheets, and possibly on the same.

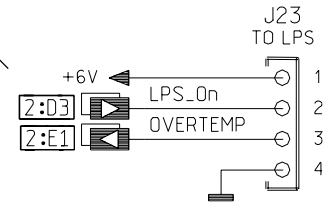


These symbols indicate a signal (name) which is bidirectional and used on other sheets.

Explanation about sheet pointer text.

The sheet pointer text gives us the sheet number and the coordinates from, or to where a signal flows. It contains two parts separated by ":". The first part is a digit which represents the sheet number. The second part contains a character followed by a digit, those are respectively the horizontal and the vertical coordinates.

Sheet pointer text



Nomenclature about voltage supplies

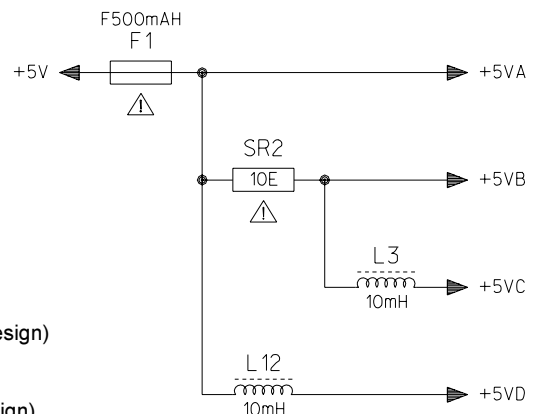
	Supply voltage	-12VB	+12V	+380VMA
	Ground	+19VB	--13V	++22VMA
	Mains ground	GNDM		
	Protected earth	GNCB		GNDMA

PREFIX

- + Positive supply voltage
- Negative supply voltage
- ++ Positive standby voltage
- Negative standby voltage

SUFFIX

- A Part "A" or Analog (depends on design)
- B Part "B"
- C Part "C"
- D Part "D" or Digital (depends on design)
- M Mains
- V Volt



Infra Red Remote Control Unit R791664

RCU with Control button



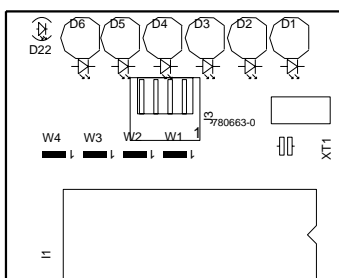
A B C D

TOP VIEW

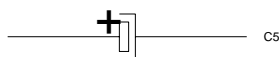
BOTTOM VIEW

BARCO

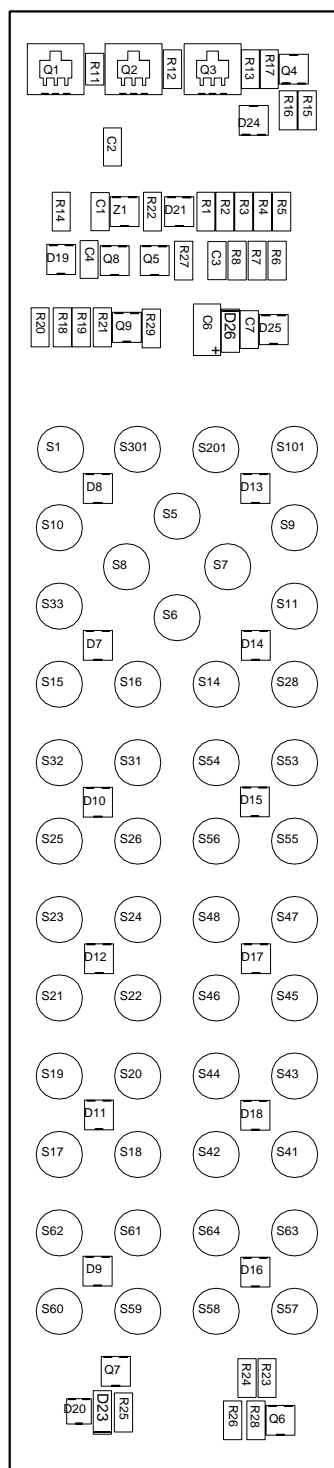
1



2

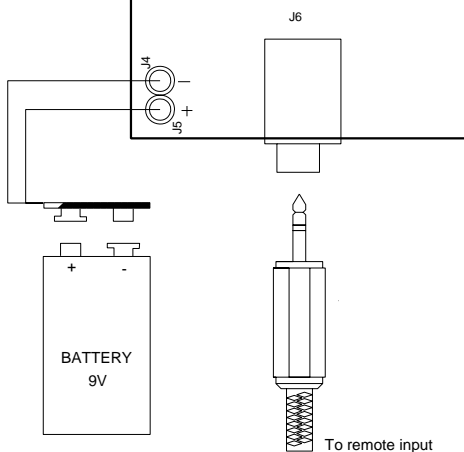


3



4

5



6

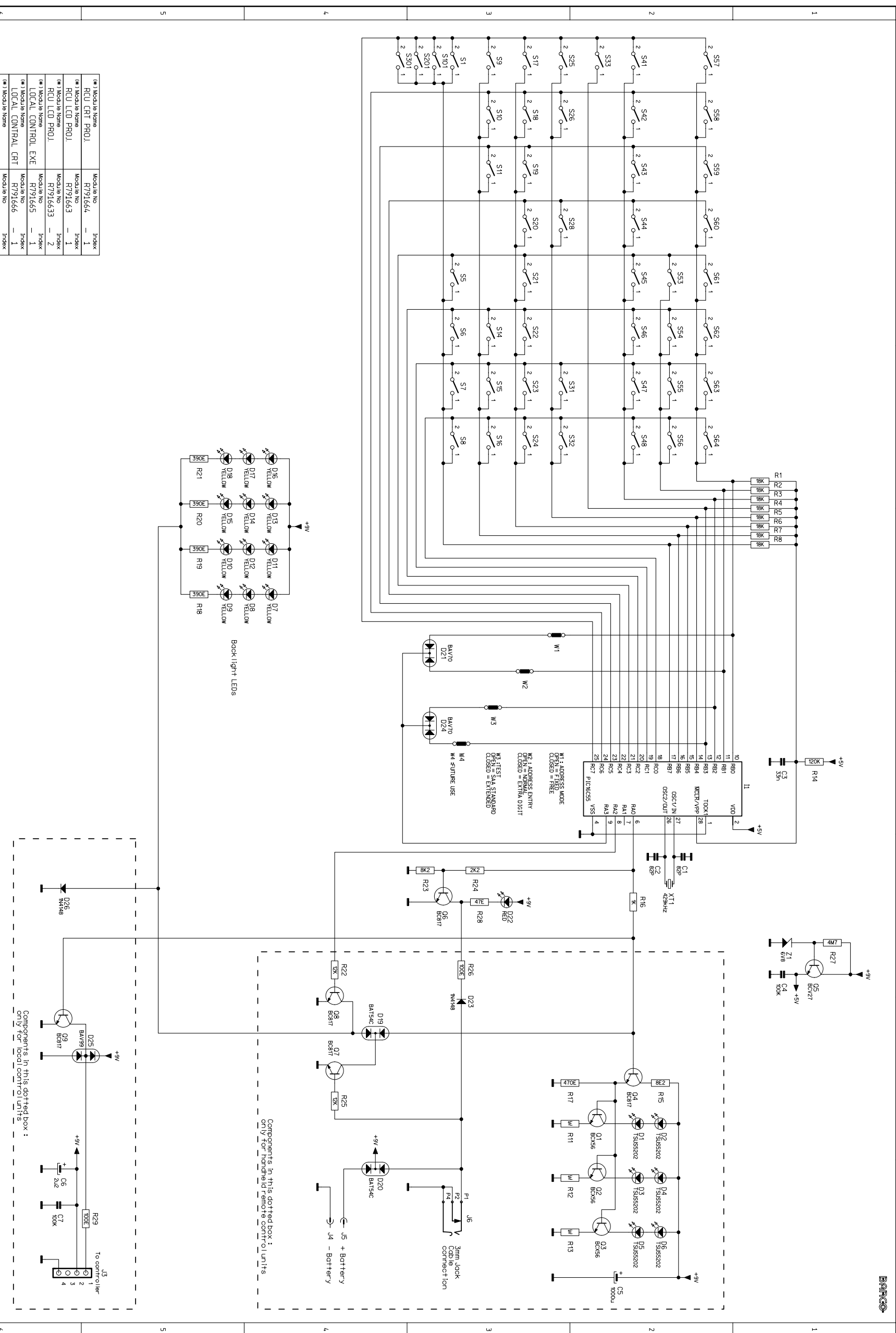
Name TRANSMITTER		Sheet 1 / 1	
Module No R762900	Index 0	PCB No R78663	Rev 0
Date 05-01-1998	Drawn JVDY	Checked SCG	

BARCO PROJECTION SYSTEMS

Modifications reserved

A B C D

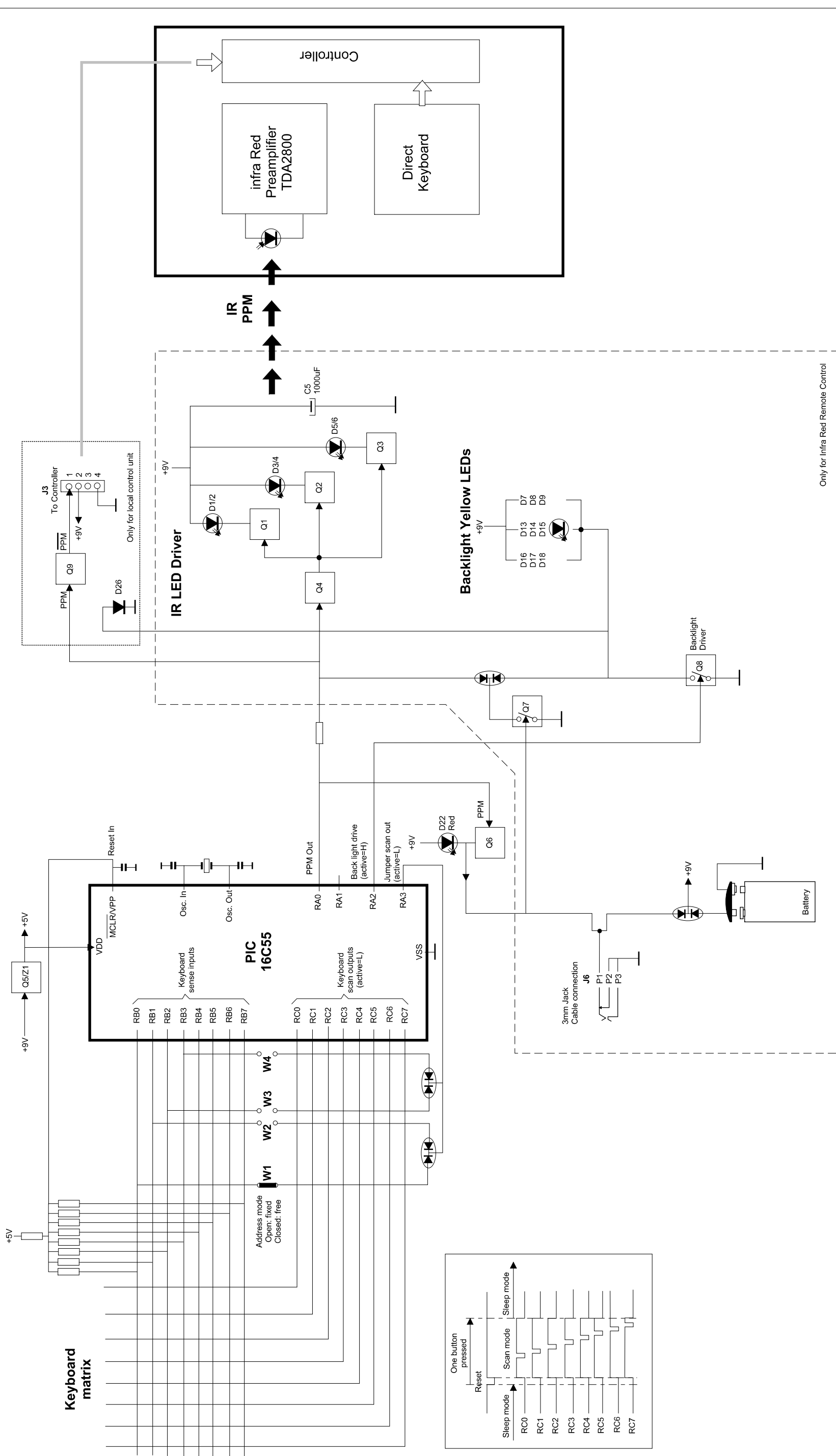
COMP.	LOC.
C1	F1
C2	F2
C3	F3
C4	F4
C5	F5
C6	F6
C7	F7
D1	F8
D2	F9
D3	F10
D4	F11
D5	F12
D6	F13
D7	F14
D8	F15
D9	F16
D10	F17
D11	F18
D12	F19
D13	F20
D14	F21
D15	F22
D16	F23
D17	F24
D18	F25
D19	F26
D20	F27
D21	F28
D22	F29
D23	F30
D24	F31
D25	F32
D26	F33
D27	F34
D28	F35
D29	F36
D30	F37
D31	F38
D32	F39
D33	F40
D34	F41
D35	F42
D36	F43
D37	F44
D38	F45
D39	F46
D40	F47
D41	F48
D42	F49
D43	F50
D44	F51
D45	F52
D46	F53
D47	F54
D48	F55
D49	F56
D50	F57
D51	F58
D52	F59
D53	F60
D54	F61
D55	F62
D56	F63
D57	F64
D58	F65
D59	F66
D60	F67
D61	F68
D62	F69
D63	F70
D64	F71
D65	F72
D66	F73
D67	F74
D68	F75
D69	F76
D70	F77
D71	F78
D72	F79
D73	F80
D74	F81
D75	F82
D76	F83
D77	F84
D78	F85
D79	F86
D80	F87
D81	F88
D82	F89
D83	F90
D84	F91
D85	F92
D86	F93
D87	F94
D88	F95
D89	F96
D90	F97
D91	F98
D92	F99
D93	F100



Module Name	Module No.	Index
RCU CRT PROJ.	F791664	1
RCU LCD PROJ.	F791663	1
RCU LCD PROJ.	F791663	1
RCU LCD PROJ.	F791663	2
RCU LCD PROJ.	F791663	2
LOCAL CONTROL EXE	F791665	1
LOCAL CONTROL EXE	F791665	1
LOCAL CONTROL CRT	F791666	1
LOCAL CONTROL CRT	F791666	1
LOCAL CONTROL 808	F791672	0
LOCAL CONTROL 808	F791672	0
LOCAL CONTROL 808	F791672	1
LOCAL CONTROL 808	F791672	1
RCU PROJ. + SOUND	F791673	0
RCU PROJ. + SOUND	F791673	1
RCU PROJ. V701	F791674	0
RCU PROJ. V701	F791674	0

Name	IR TRANSMITTER	Sheet
Module No.	F762900	1/1
Rev.	0	0
Date	05-01-1998	Checked
	JVDV	SCG
	BARCO NV	Division
		BPS

Modifications reserved



Only for Infra Red Remote Control

Technical description of the Infra Red transmitter

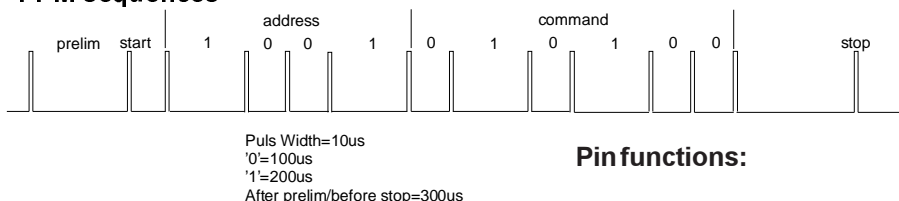
Introduction:

The SAA1250 in the RCU R791664 is replaced by the PIC16C55, an EPROM-Based 8-Bit CMOS Microcontroller with hardware selectable enhancements.

PIC16C55

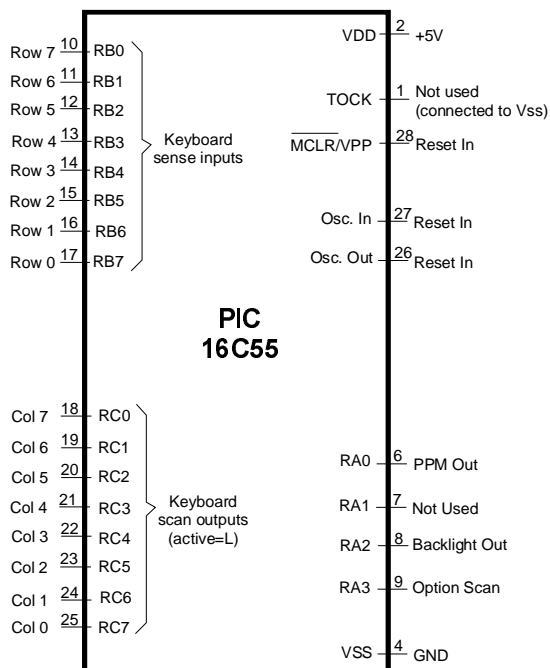
Pin functions:

PPM sequences



Pin functions:

- VDD:** Power Supply
- Vss:** Ground connection
- Oscillator:** Use of a 429kHz Ceramic resonator with 2 load capacitors of 82pF.
- MCLR Reset Input :** to be activated in 2 cases:
 - *Power On:* all memory locations are initialised.
 - *Awake from sleep:* option jumpers are scanned and memorised, keyboard matrix is scanned, key entries are processed, and the device goes back to sleep.
- RA0: IR-Pulse driver Output:** active=H
- RA2: Backlight driver Output:** active=high
 Turns on for 13s when key on row0/column0 is hit. This period is retrigged when any key is hit. During this period, the PIC doesn't enter to sleep.
- RA3: 'Option jumpers' scan Output:** active=high
- RB0..RB7: Keyboard Sense Inputs**
- RC0..RC7: Keyboard Scan Outputs** active=low



Operating

During the idle time of the RCU, the IC PIC is in the sleep mode and all scan outputs are low.

Any key action will discharge the RESET timing capacitor C3 through the involved sense input pull up resistor (R1..R8). When the C3 voltage drops to $0.15V_{DD}$, the PIC resets and puts the scan outputs in the Hi_Z state. The capacitor C3 recharges through the resistor R14 and when the $0.15V_{DD}$ is reached, the PIC starts running.

Since this is a reset from sleep, a 'warm reset' procedure is started, which reads 'in' the option jumpers: the scan pin is put to low momentarily, during which time the 8 sense inputs are read and stored in the memory. After that, key debounce is done by a 20ms delay loop.

Next, the keyboard matrix is scanned: one after another the columns are forced to low through the scan pins RC0..RC7, and each time, the bit pattern of the column is read through the sense inputs RB0..RB7.

The whole matrix is always scanned to detect simultaneously pressed keys, in which case the scan results are ignored. The scan pulses only last 20 oscillator periods, short enough to have no influence on the reset pin voltage.

Depending on which key was pressed, the following actions can be taken:

1. Backlight key:

Backlight is lit, the 13 seconds countdown starts, the sleep mode is not entered during this time. The countdown retriggers at any key actuation while the backlight is on.

2. Address key:

The 'ADDR' command is transmitted along with the 'always listen' address value (address '10'). A 5 seconds countdown starts, during which 1 or 2 numeric key entries are expected. Each numeric key entry is followed by a 260 ms holdoff and restarts the countdown, but now for 2 seconds. If the initial time window elapses without a numeric key entry, or if an invalid address (e.g. >16) is entered, the RCU address is reset to the 'always listen' value.

3. Other keys:

The corresponding command is transmitted along with the address last entered. The command bits are related to the matrix co-ordinates as follows:

$$\text{command} = \text{row} * 8 + \text{column}$$

e.g. button S41 pressed

$$\text{command} = (\text{row})2 \times 8 + (\text{column})7 = 23$$

After transmitting, the keyboard is scanned once more to detect if a key is still pressed. This keeps the repetition rate controllable at exactly 130ms, because the reset timing is offside now.

Power Supply

The IC1 needs to run from the +5V typically, which should be made from the 9V-battery voltage. The circuit around the transistor Q5 and the zener Z1 is very common, but its transistor has an extremely high current gain, because zener bias should be very low to prevent excessive quiescent current, and so extend battery life.

IR LED Driving

The transistors Q1, Q2 and Q3 drive the IR LED's in a constant current figuration. The current is determined from the battery voltage by the emitter resistor.

An emitter follower Q4, which follows the pulse output RA0 of IC1, provides the drive current for the base of the three IR LED's drivers.

The base signal of the transistor Q4 is short-circuited to ground by the saturated transistor Q7 through the diode D19 when the Jack Cable is inserted between the RCU and a powered-up Projector. The transistor Q7 is driven through R25 from the projector's +9V.

The capacitor C5 acts as a buffer for delivering the high current pulses. The battery can not supply high currents, due to its internal resistance.

Backlight LED driving

The transistor Q8 drives the 12 LED's via their load resistors R18..R21. The On/Off status is imposed by IC1, output RA2, which handles the switch-on criteria. When the Jack cable connection is installed, the transistor Q8 is shunted by the saturated transistor Q7 (see above) through D19, causing the backlight to be lit continuously.

Indicator LED driving

The transistor Q6 drives the

LED D22 via the resistor R28. The latter needs to have a rather small value because the driving pulses are very short.

3.5mm Jack Cable Connection

The 'hot' conductor of the Jack cable, is also driven by the transistor Q6. This line is supplied on the RS232 Communication Interface by the +9VSB. The resistor R26 determines the amplitude of the current pulses, detected on the series resistor of the pulse detection circuit built around the transistor Q52 on the RS232 Com. Interface. The series diode D23 ensure that the transistor Q7 is only driven if the jack connection is installed, and not via R28/D22.

Field Service

The IC1 RESET (pin28): needed to wake up the microcontroller. A downward pulse should be visible at pin 28 each time a key is pressed (except while an address entry is expected, or when the backlight is still lit).

Oscillator (pin 26,27) : as soon as IC1 wakes up, its oscillator should start .

PPM Output (pin 6): after a debounce time of about 20ms, a train of 13 pulses of 10us should be present at pin 6, repeating itself every 130ms. (Except while the IC waits for an address entry, or after pressing the backlight key).

Only for the Infra Red Remote control

Enhancements:

Jumper W1 'Address Mode' Installed?

- Yes: command send with free address
- No: command send with fixed address

Jumper W2 'Address Entry' Installed?

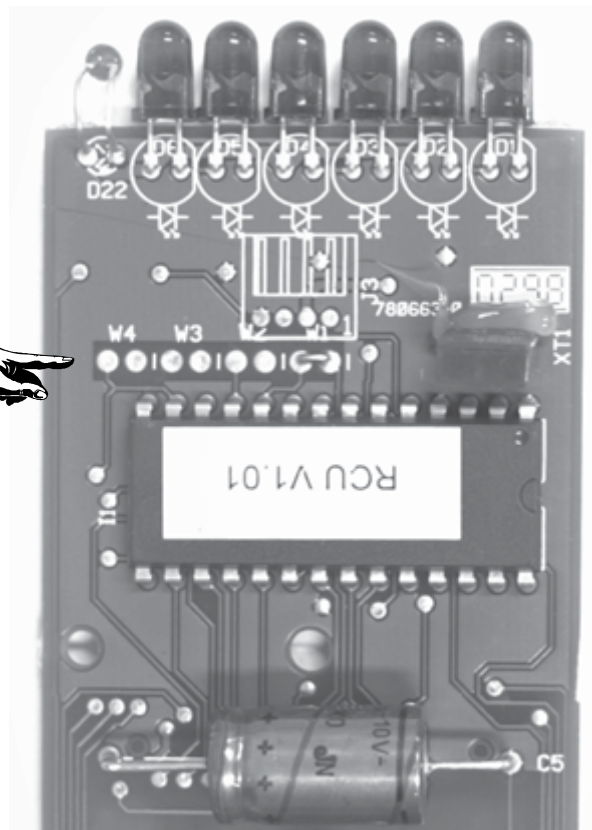
- Yes: entering address with 2 digits (0..16)
- No: entering address with 1 digit (0..9)



Jumper W3 'Extend' Installed?

- Yes: PPM protocol extended (7 addr bits +7 data bits)
- No: Standard PPM protocol (4 addr bits +6 data bits)

Jumper W4 : further expansion

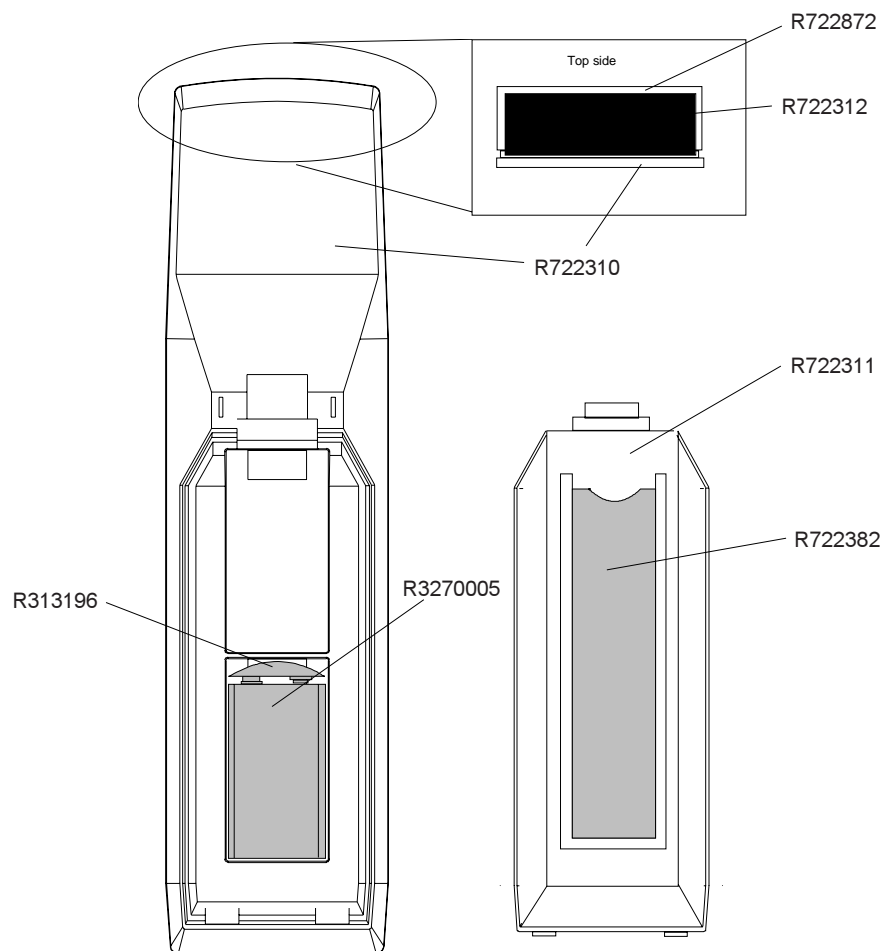
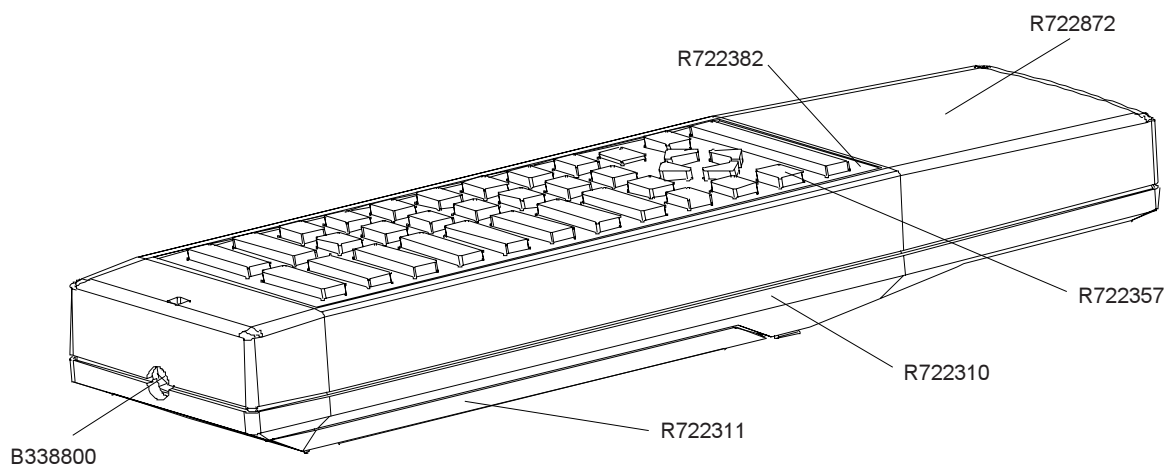


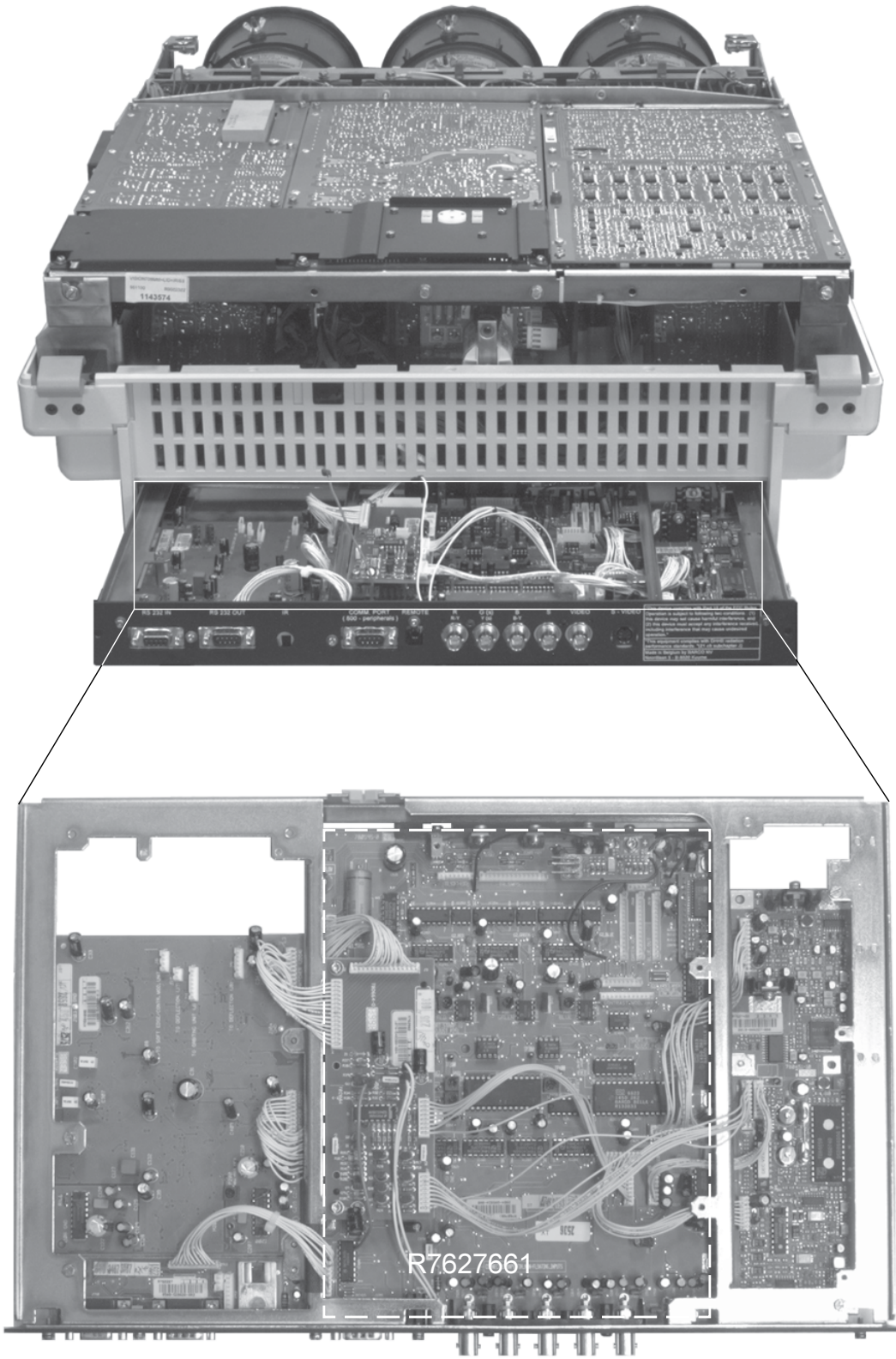
Parts listing Transmitter RCU R791664

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R3615075	SCR HILO_R 3,2X 7,9STZB	1	J 4	R313196	BAT ACC SNAP-ON CLP 6LR61	0,5
	R593540	BAG PE 85X 270X0,07	1	J 5	R313196	BAT ACC SNAP-ON CLP 6LR61	0,5
	R5975045	LFLT RCU700 TX	1	J 6	B338800	J PHN FBS D 3.5MON P	1
	R722310	HSG G800 RCU2 CVR DN	1	PC	R780663	PCB****RCU	1
	R722311	HSG G800 RCU2 CVR BAT	1	Q 1	P232122	Q#BCX56 N P SOT89	1
	R722312	HSG G800 RCU2 WDW IR	1	Q 2	P232122	Q#BCX56 N P SOT89	1
	R722382	HSG *800 RCU2 LFLT WDW	1	Q 3	P232122	Q#BCX56 N P SOT89	1
	R722872	HSG G808 RCU2 CVR UP RND	1	Q 4	P232026	Q#BC817-40 N SS SOT23	1
	R722873	SW D5000 KYBD TX ROUND	1	Q 5	P232054	Q#BCV27 DN SS SOT23	1
	R722877	FRM V701S RCU2 FOIL3	1	Q 6	P232026	Q#BC817-40 N SS SOT23	1
C 1	P210073	C# COG MU 82P J 50 1206	1	Q 7	P232026	Q#BC817-40 N SS SOT23	1
C 2	P210073	C# COG MU 82P J 50 1206	1	Q 8	P232026	Q#BC817-40 N SS SOT23	1
C 3	P210097	C# X7R MU 33N K 50 1206	1	R 1	P200441	R# CE H 18K F 0W25 1206	1
C 4	P210122	C# X7R MU 100N K 50 1206	1	R 2	P200441	R# CE H 18K F 0W25 1206	1
C 5	R1111355	C EL AX1000M M 10E10 85	1	R 3	P200441	R# CE H 18K F 0W25 1206	1
D 1	R1316666	D O TSUS5202 T IR	1	R 4	P200441	R# CE H 18K F 0W25 1206	1
D 2	R1316666	D O TSUS5202 T IR	1	R 5	P200441	R# CE H 18K F 0W25 1206	1
D 3	R1316666	D O TSUS5202 T IR	1	R 6	P200441	R# CE H 18K F 0W25 1206	1
D 4	R1316666	D O TSUS5202 T IR	1	R 7	P200441	R# CE H 18K F 0W25 1206	1
D 5	R1316666	D O TSUS5202 T IR	1	R 8	P200441	R# CE H 18K F 0W25 1206	1
D 6	R1316666	D O TSUS5202 T IR	1	R 11	P200339	R# CE H 1E F 0W25 1206	1
D 7	P234062	D#LED LYS260 YEL SOT23	1	R 12	P200339	R# CE H 1E F 0W25 1206	1
D 8	P234062	D#LED LYS260 YEL SOT23	1	R 13	P200339	R# CE H 1E F 0W25 1206	1
D 9	P234062	D#LED LYS260 YEL SOT23	1	R 14	P200461	R# CE H 120K F 0W25 1206	1
D 10	P234062	D#LED LYS260 YEL SOT23	1	R 15	P200361	R# CE H 8E2 F 0W25 1206	1
D 11	P234062	D#LED LYS260 YEL SOT23	1	R 16	P200411	R# CE H 1K F 0W25 1206	1
D 12	P234062	D#LED LYS260 YEL SOT23	1	R 17	P200403	R# CE H 470E F 0W25 1206	1
D 13	P234062	D#LED LYS260 YEL SOT23	1	R 18	P200401	R# CE H 390E F 0W25 1206	1
D 14	P234062	D#LED LYS260 YEL SOT23	1	R 19	P200401	R# CE H 390E F 0W25 1206	1
D 15	P234062	D#LED LYS260 YEL SOT23	1	R 20	P200401	R# CE H 390E F 0W25 1206	1
D 16	P234062	D#LED LYS260 YEL SOT23	1	R 21	P200401	R# CE H 390E F 0W25 1206	1
D 17	P234062	D#LED LYS260 YEL SOT23	1	R 22	P200437	R# CE H 12K F 0W25 1206	1
D 18	P234062	D#LED LYS260 YEL SOT23	1	R 23	P200433	R# CE H 8K2 F 0W25 1206	1
D 19	P234205	D#BAT54C SCH SOT23	1	R 24	P200419	R# CE H 2K2 F 0W25 1206	1
D 20	P234205	D#BAT54C SCH SOT23	1	R 25	P200437	R# CE H 12K F 0W25 1206	1
D 21	P234004	D#BAV70 C-C SOT23	1	R 26	P200387	R# CE H 100E F 0W25 1206	1
D 22	R131662	D LED D3 T RD	1	R 27	P200499	R# CE H 4M7 F 0W25 1206	1
D 23	P234099	D#4148 R DMMELF	1	R 28	P200379	R# CE H 47E F 0W25 1206	1
D 24	P234004	D#BAV70 C-C SOT23	1	XT 1	R306819	RSN CE 0M429 P 2	1
I 1	R32850701	U_S***** RCU V101	1	Z 1	P234094	D#ZEN 6V8 0W3 C SOT23	1
				W1	A557159	WU JUMP 0,6 2,5	1

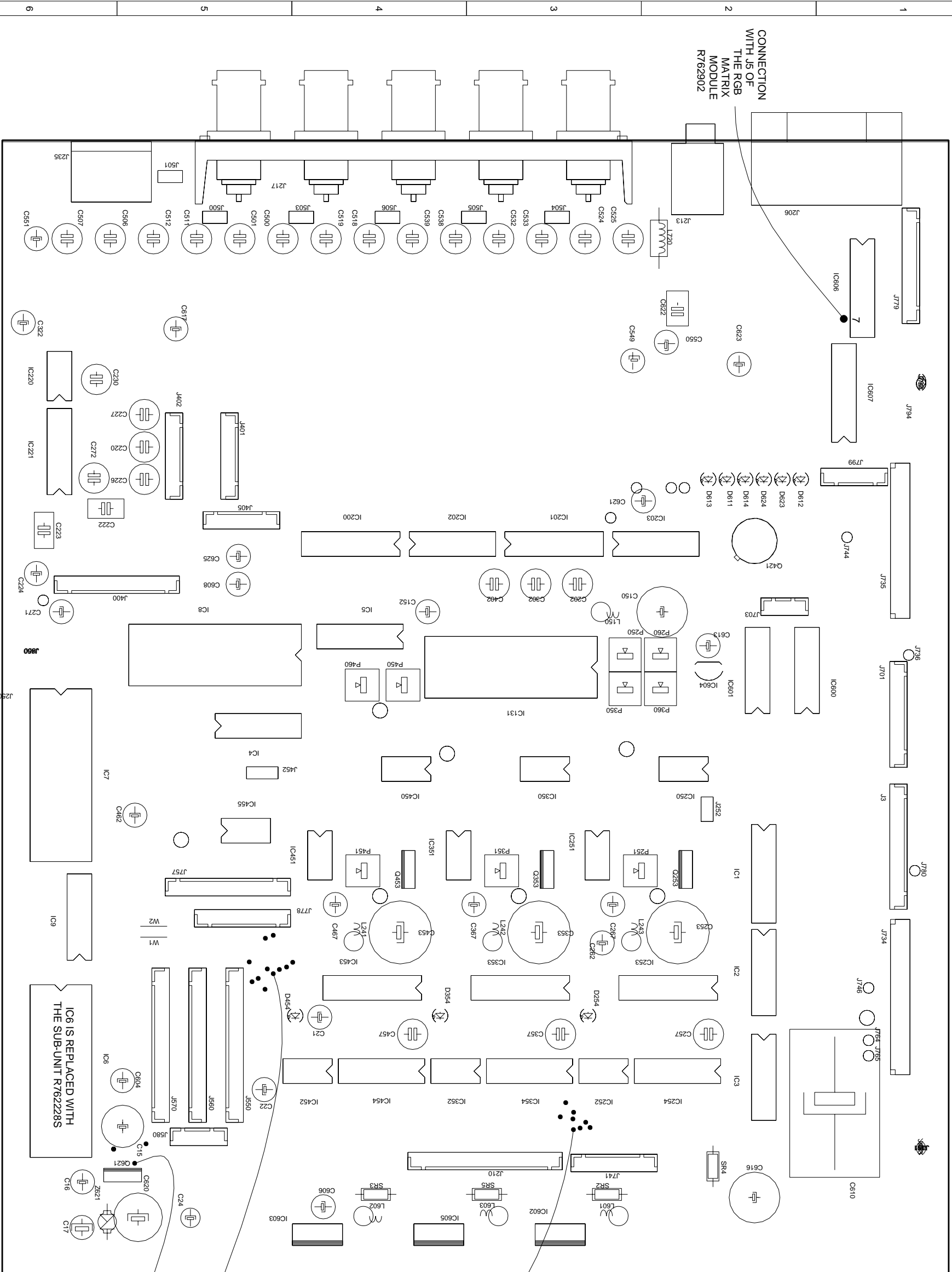
Note: Pxxxxx = in SMD mounted components

Parts listing Transmitter RCU R791664





TOP VIEW



CONNECTION WITH
M901 ON THE
SUB-UNIT
R762766S

CONNECTION WITH
M900 ON THE
SUB-UNIT
R762766S

CONNECTION WITH
M902 ON THE
SUB-UNIT
R762766S

IC6 IS REPLACED WITH
THE SUB-UNIT R762228S

CONNECTION
WITH J5 OF
THE RGB
MATRIX
MODULE
R762902

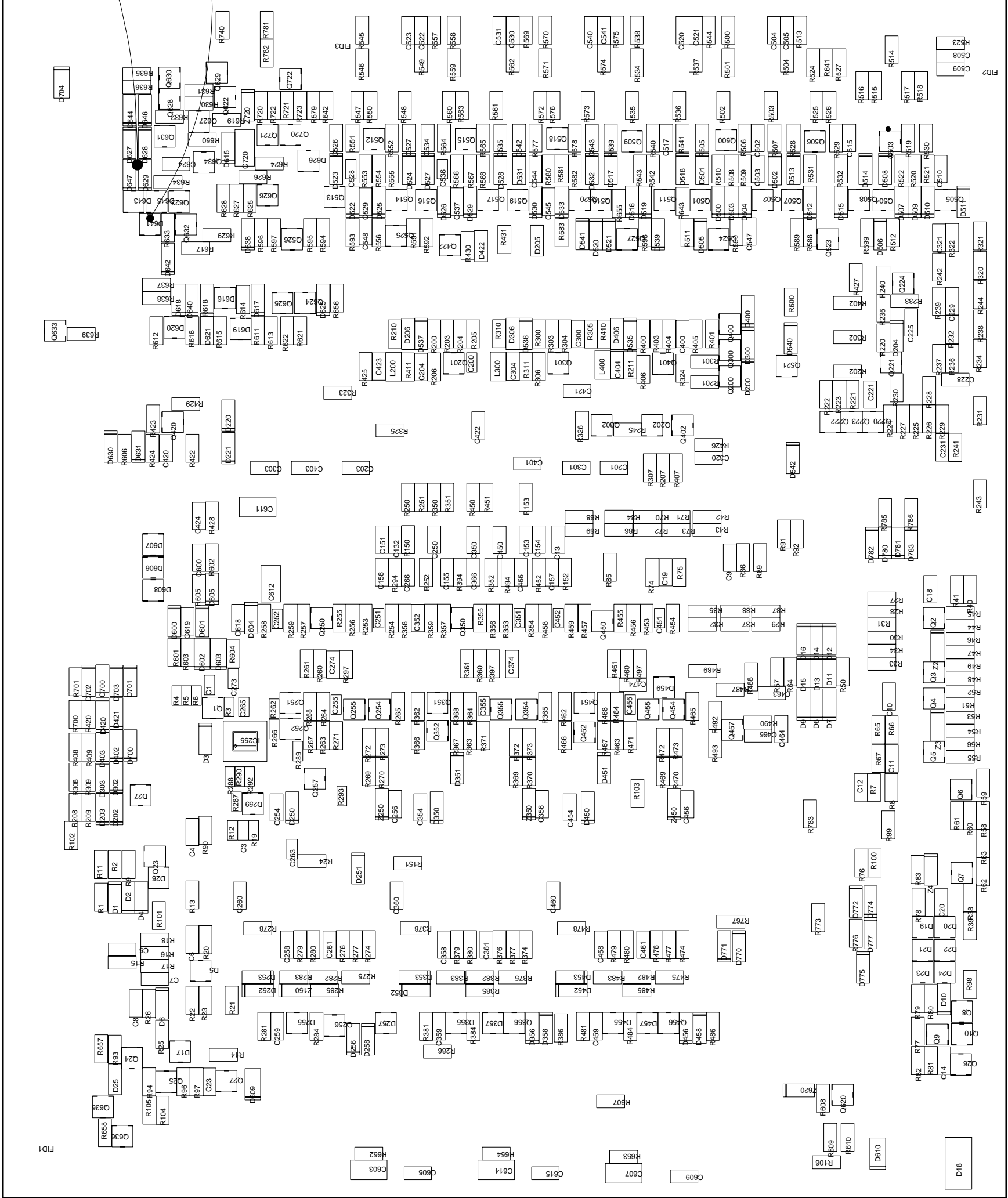
Modifications reserved

Name	INPUT & DRIVER	Sheet	1 / 2
Module No.	R7627661	PCB No.	R762905
Date	18-03-1999	Index	6
		Rev	0
		Drawn	JUDY
		Checked	PNBY
BARCO PROJECTION SYSTEMS			

CONNECTION WITH J6 OF THE RGB MATRIX MODULE

CONNECTION WITH J7 OF THE RGB MATRIX MODULE

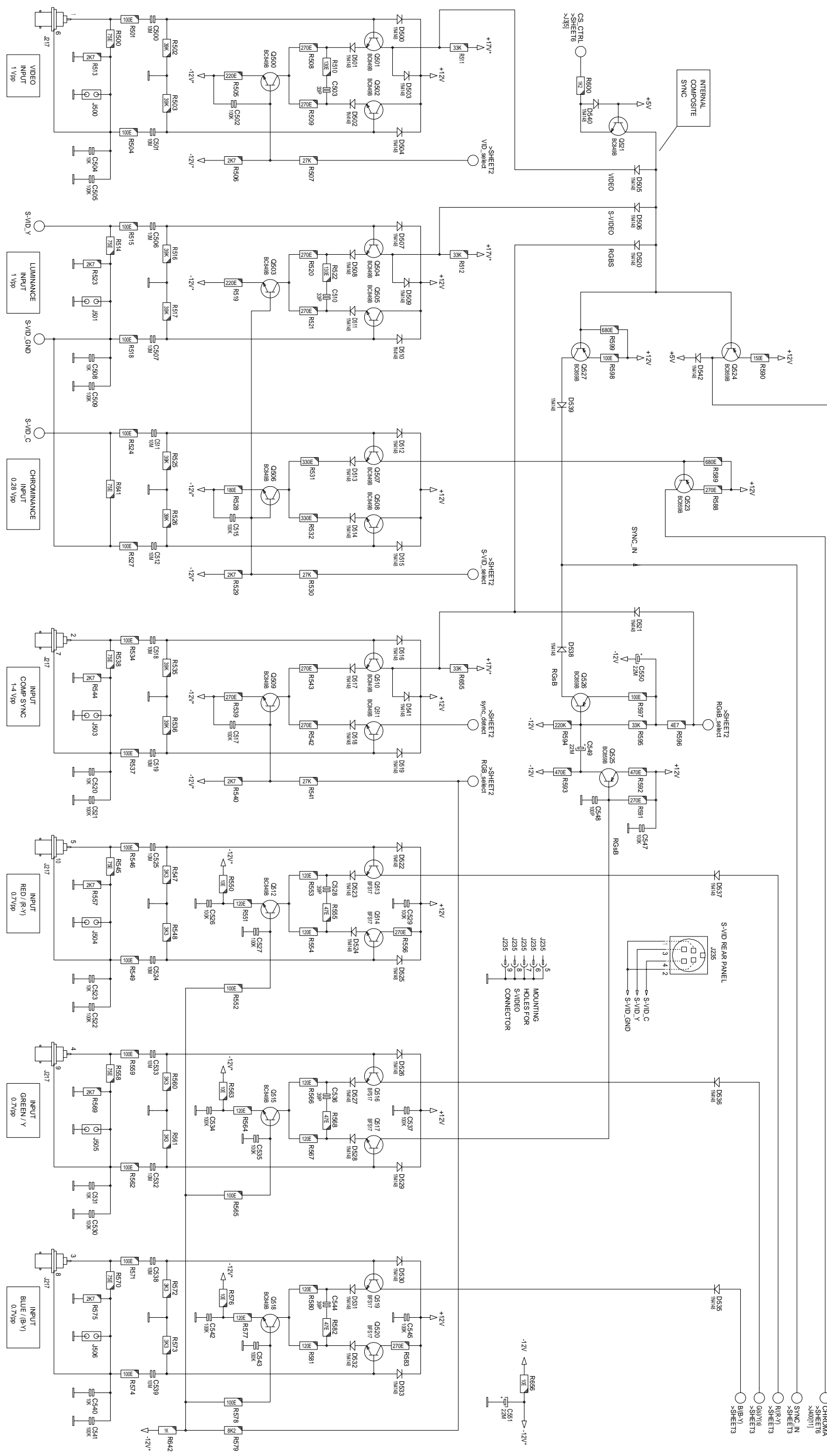
BOTTOM VIEW



Name	INPUT & DRIVER	Sheet	2 / 2
Module No	R7827861	PCB No	R780995
Date	18-03-1999	Index	6
Drawn	JVDY	Rev	0
Checked		Drawn	JVDY
PCB		Checked	
PCBY		PCBY	

DIFFERENTIAL INPUTS

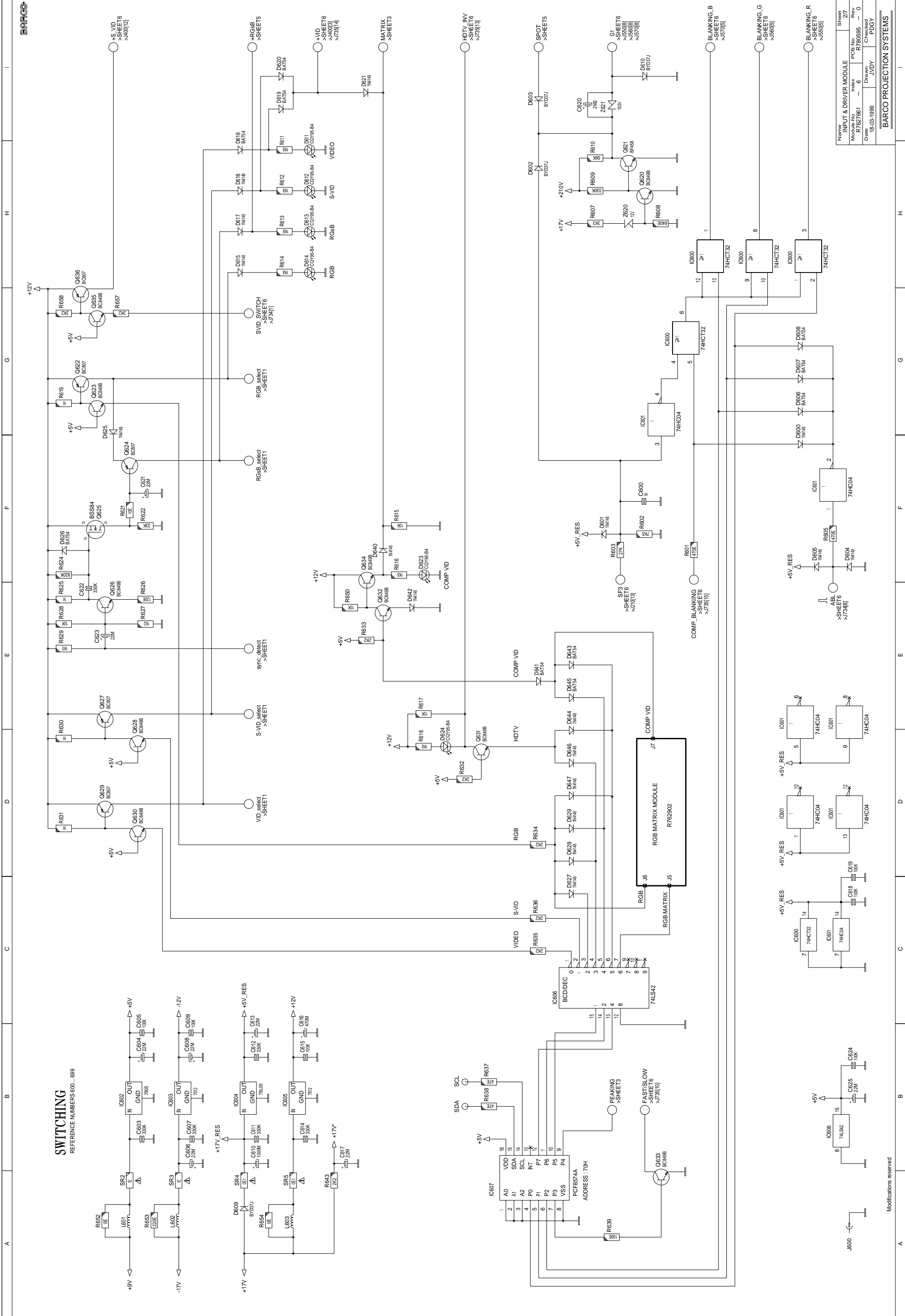
REFERENCE NUMBERS - 500..599



NAME	INPUT & DRIVER MODULE	SHEET	1/7
NO.	6	PCB NO.	R780595
REV.	6	DATE	18-03-1999
DATE	18-03-1999	DRAWN	JVDV
		CHECKED	PDGY

BARCO PROJECTION SYSTEMS

Modifications reserved

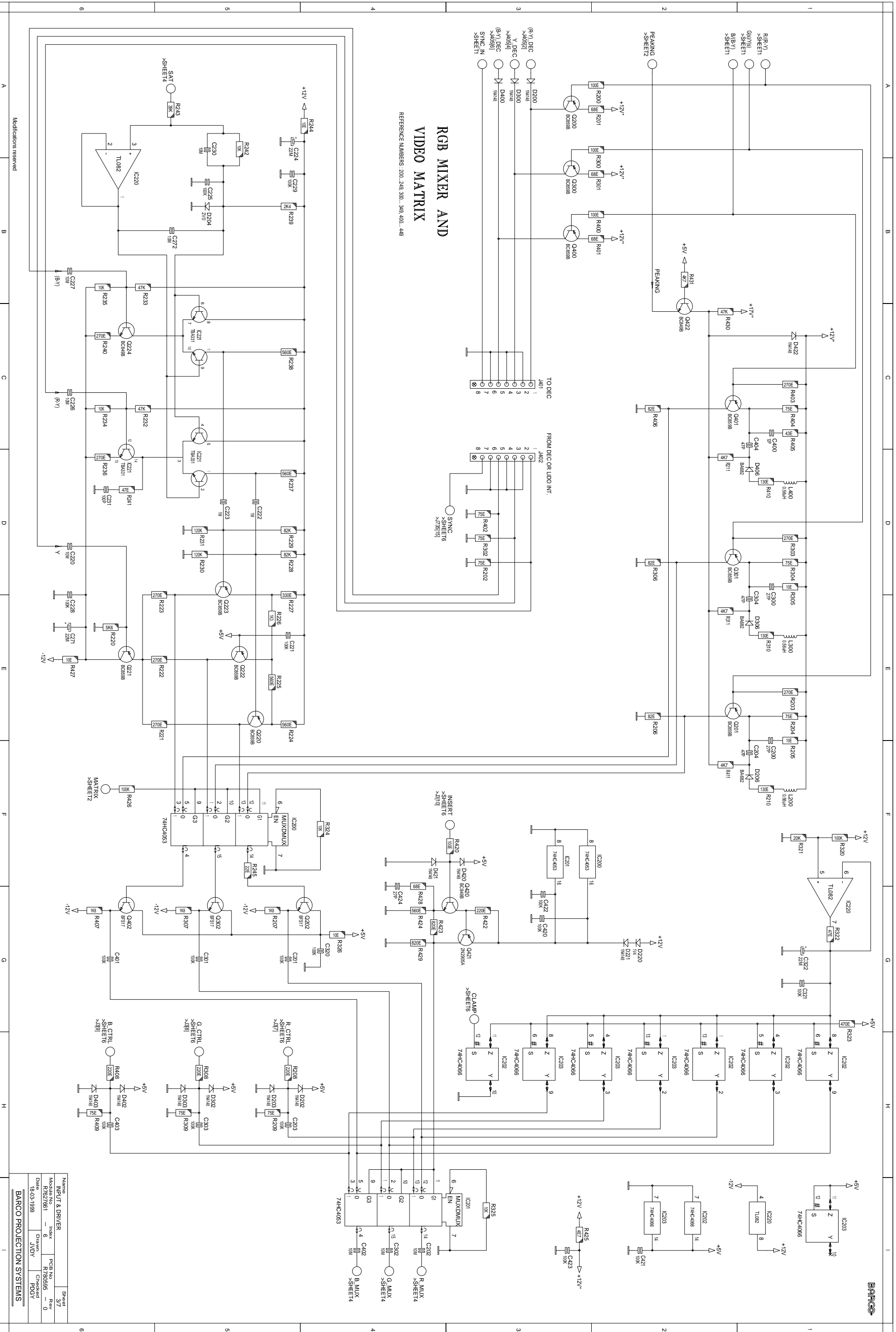


SWITCHING
REFERENCE NUMBERS 600... 699

Name: INPUT & DRIVER MODULE			Sheet: 2/7
Module No: R7627861			PCB No: R780695
Date: 18-03-1999	Index: 6	Rev: 0	Checked: PGDY
Drawn: JVDY	Checked: PGDY		

Modifications reserved

BARCO PROJECTION SYSTEMS



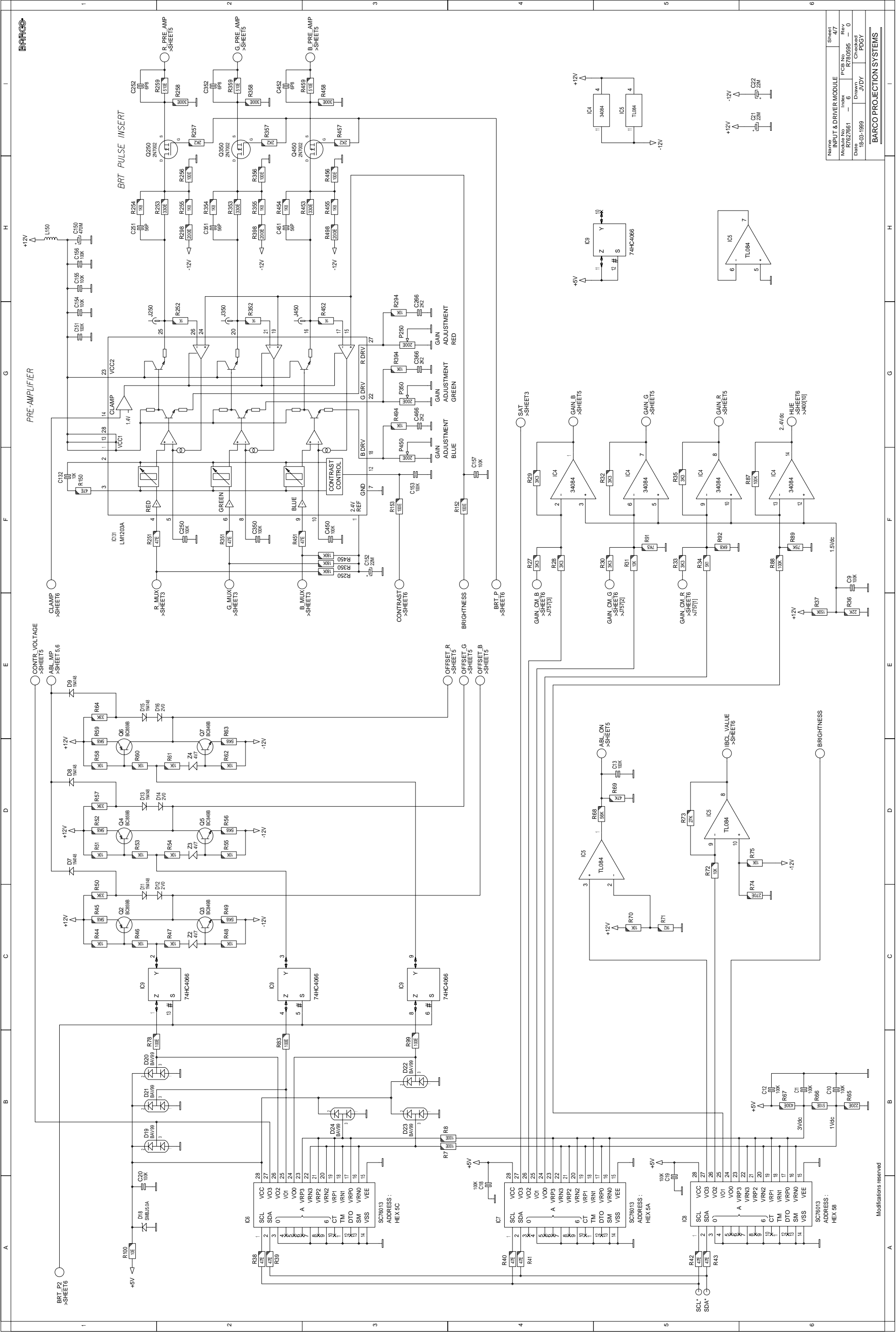
RGB MIXER AND VIDEO MATRIX

REFERENCE NUMBERS 200, 249, 300, 349, 400, 449

Modifications reserved

NUMBER	REVISION	DATE	BY	CHECKED
BARCO PROJECTION SYSTEMS	6	18-03-1998	JVDV	PDGV

BARCO PROJECTION SYSTEMS

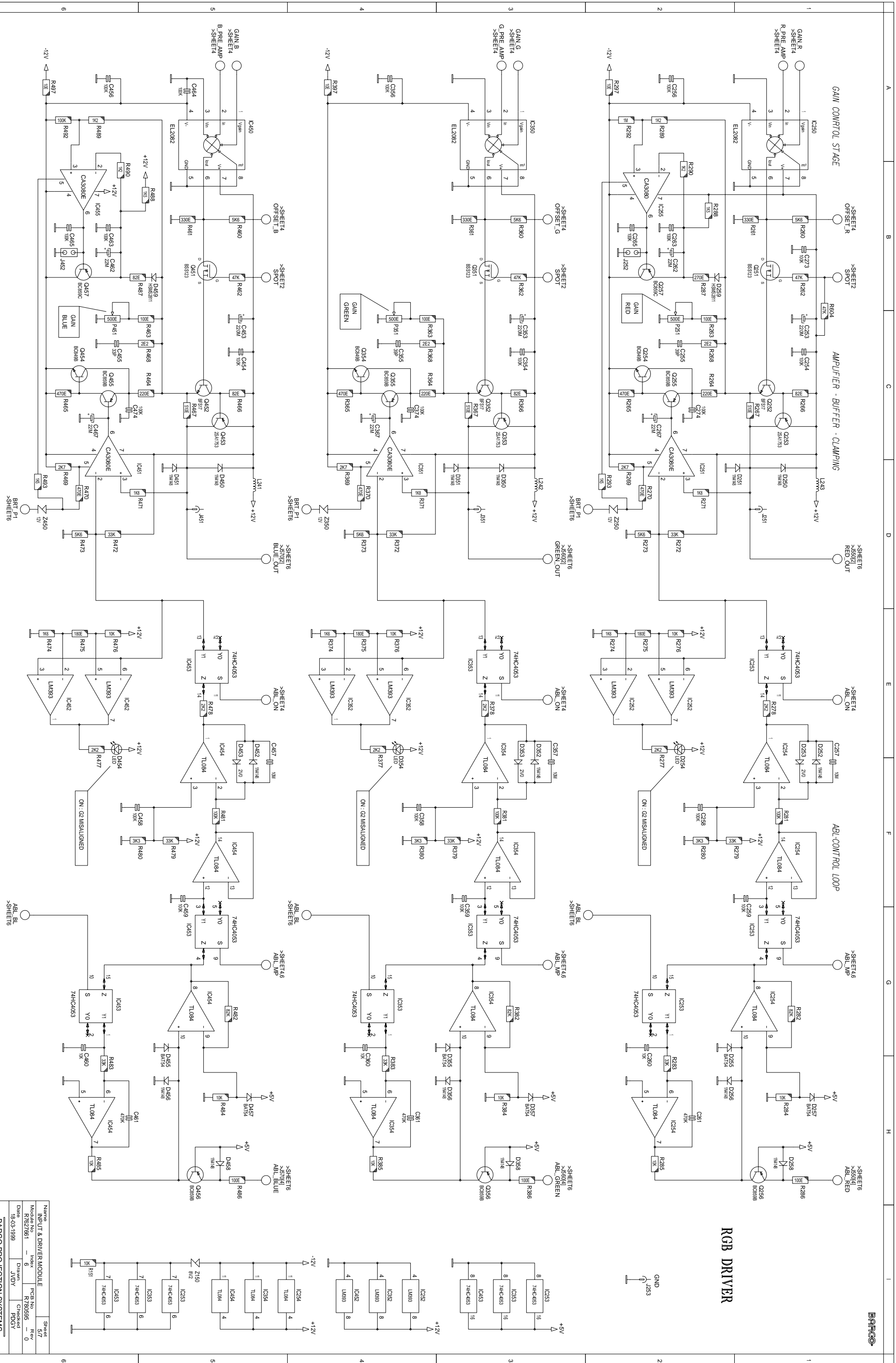


Title		Sheet	
INPUT & DRIVER MODULE		47	
Module No	Index	PCB No	Rev
R7627661	6	R780595	0
Date	Drawn	Checked	
18-03-1999	JVDY		PDGY

BARCO PROJECTION SYSTEMS

Modifications reserved

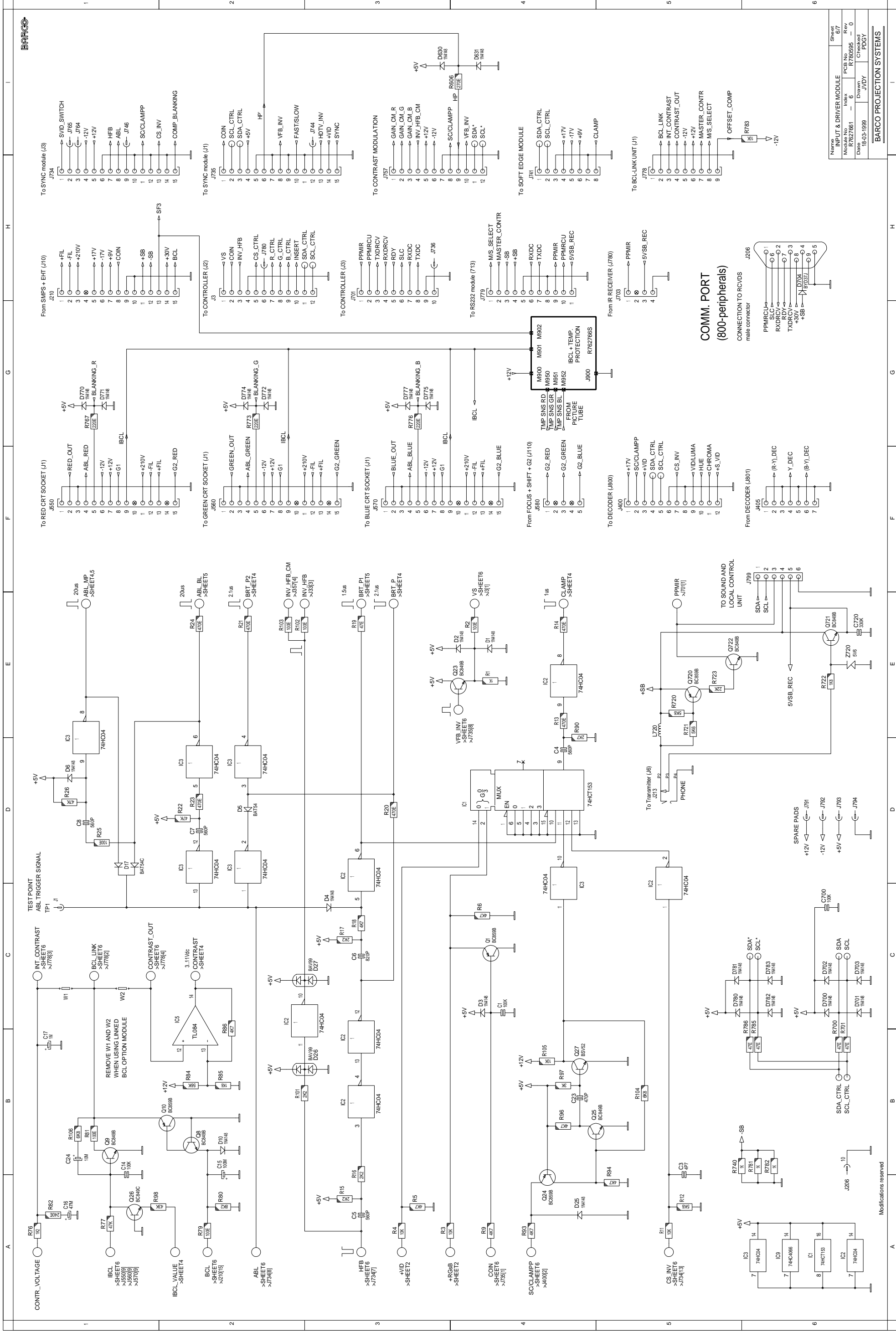
RGB DRIVER



Module No.	Index	PCB No.	Sheet
R7627981	6	R780595	57
Date	Drawn	Checked	Rev
18-03-1999	JVDV	PGGY	0

BARCO PROJECTION SYSTEMS

Modifications reserved

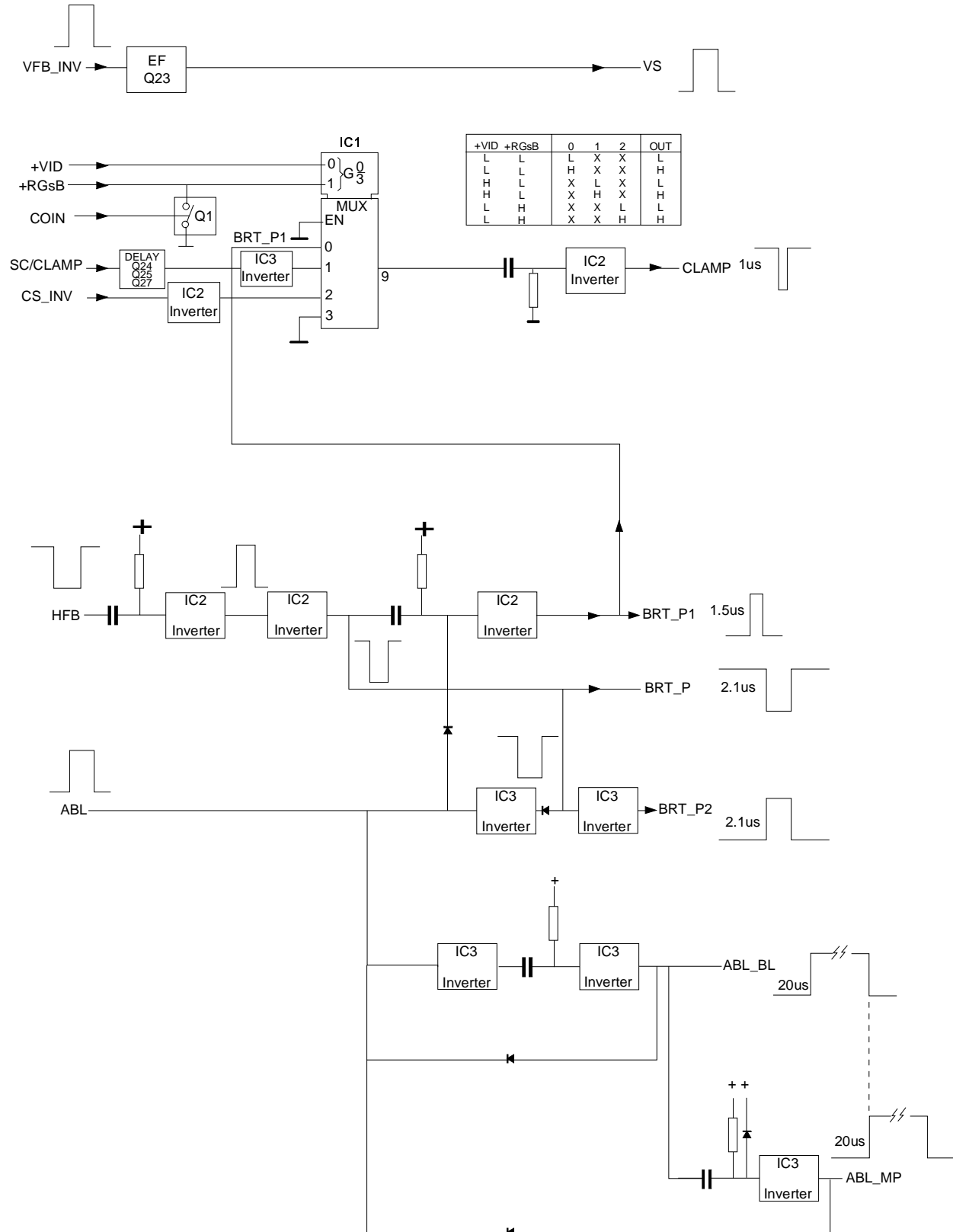


Name		Sheet	
Module No.		Rev	
R7627661 - 6		R780595 - 0	
Date	Drawn	Checked	PDGY
18-03-1998	JVDY		

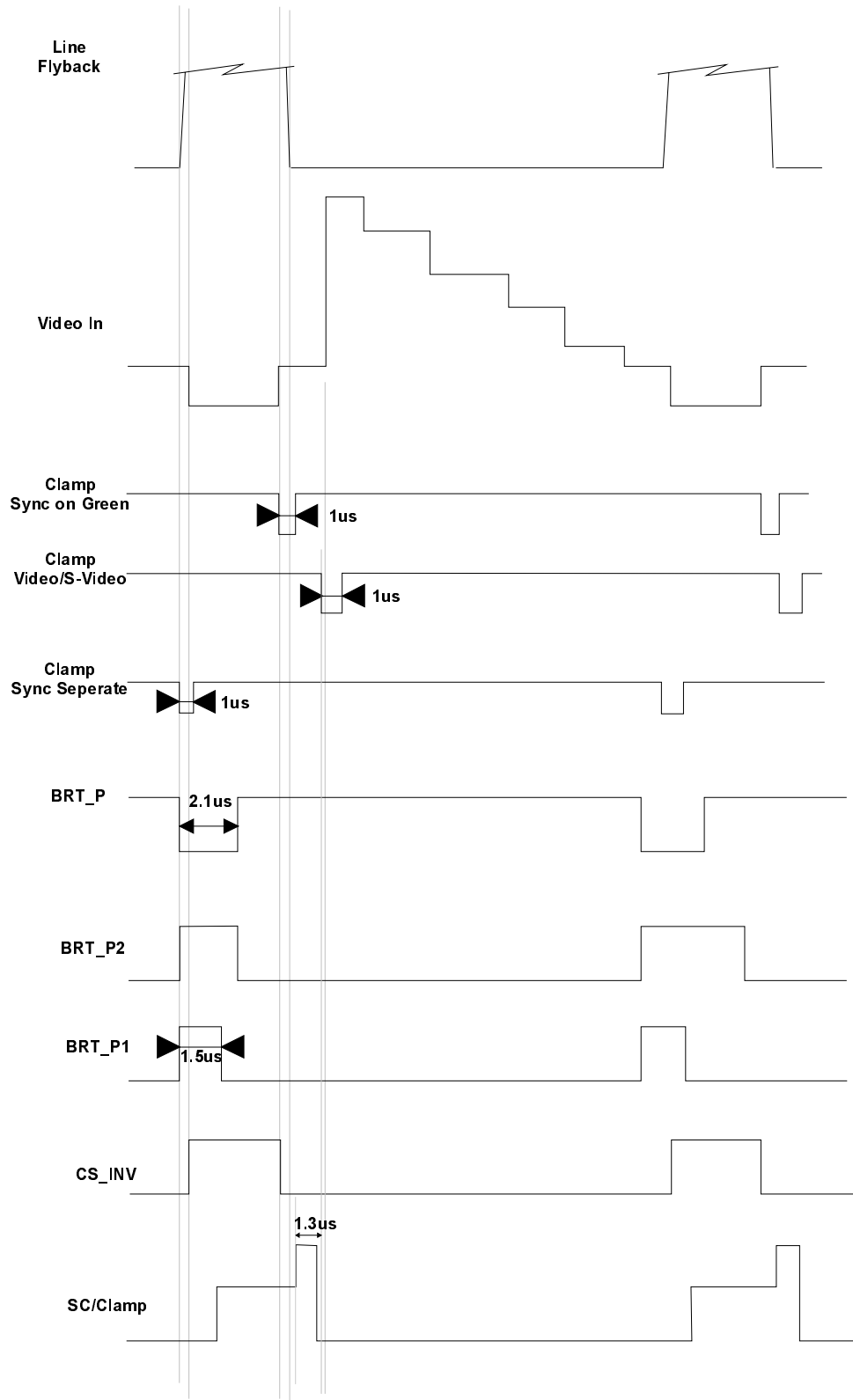
Modifications reserved

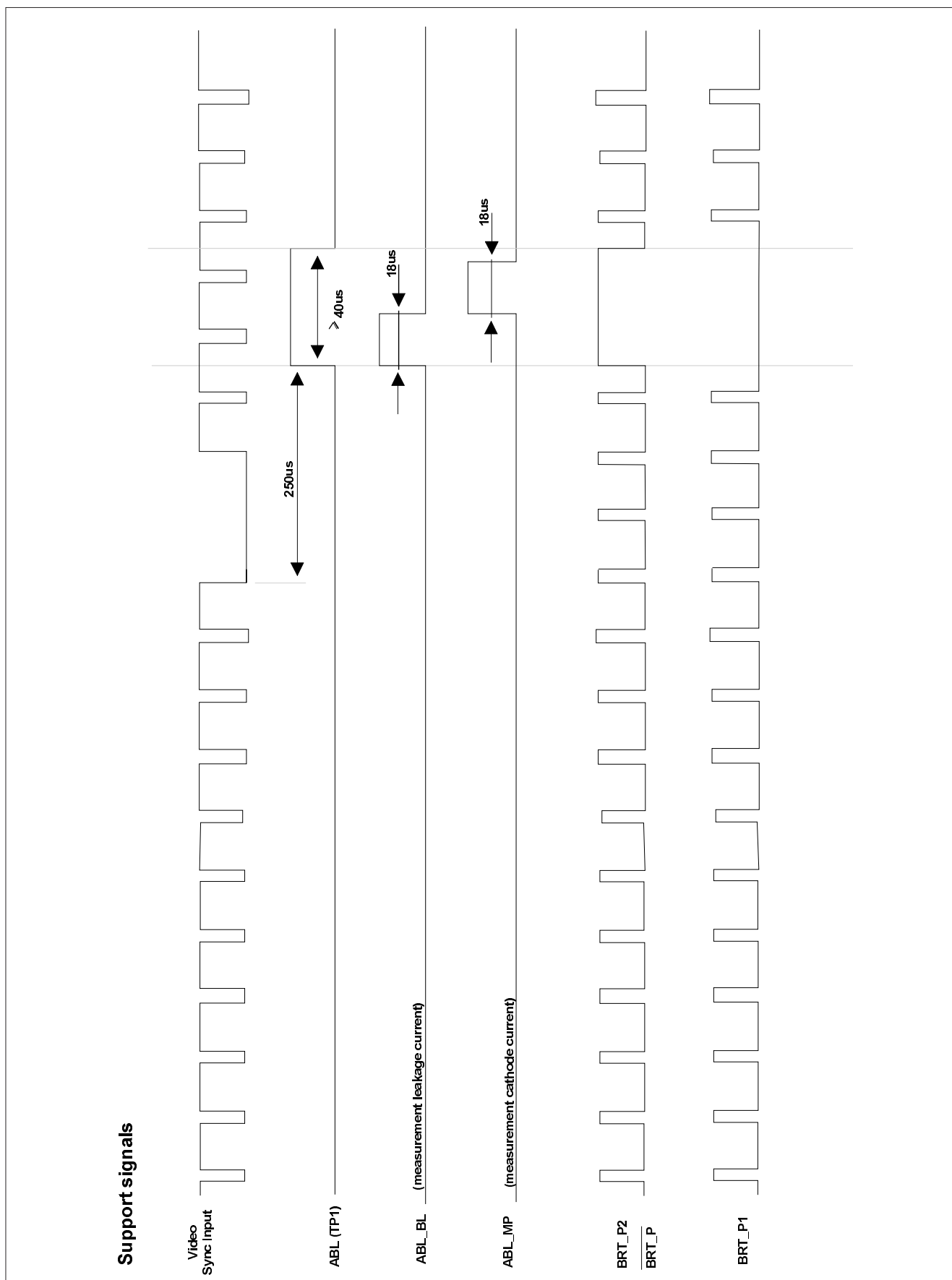
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25											
COMP.	LOC.	SHT.	COMP.	LOC.	SHT.	COMP.	LOC.	SHT.	COMP.	LOC.	SHT.	COMP.	LOC.	SHT.	COMP.	LOC.	SHT.	COMP.	LOC.	SHT.	COMP.	LOC.	SHT.	COMP.	LOC.	SHT.	COMP.	LOC.	SHT.	COMP.	LOC.	SHT.			
C1	C4	6	C450	F3	4	D10	B2	6	D538	D3	1	IC202	H2	3	1400	F5	6	Q422	C2	3	R48	C2	4	R253	H1	4	R401	B2	3	R536	E5	1	R663	A1	2
C2	C5	6	C451	H2	4	D11	C1	4	D539	C3	1	IC203	H3	3	1401	D3	3	Q450	B5	5	R49	C1	4	R254	H2	4	R402	D3	3	R537	E5	1	R664	A2	1
C3	D4	6	C452	I2	4	D12	C1	4	D540	A2	1	IC203	H2	3	1402	D3	3	Q451	B5	5	R50	C1	4	R255	H1	4	R403	C1	3	R538	E5	1	R665	A3	1
C4	A3	6	C453	C5	5	D13	D1	4	D541	C2	1	IC203	H1	3	1405	G2	4	Q452	C5	5	R51	D1	4	R256	H2	4	R404	C1	3	R539	E5	1	R666	I3	1
C5	C3	6	C454	C5	5	D14	D2	4	D542	E4	1	IC203	H2	3	1451	G2	4	Q453	C6	5	R52	D1	4	R257	H2	4	R405	C1	3	R540	E5	1	R667	G1	2
C6	D2	6	C455	C6	5	D15	E1	4	D543	F6	2	IC203	H2	3	1451	D5	5	Q454	C6	5	R53	D1	4	R258	H2	4	R406	C2	3	R541	E4	1	R668	G1	2
C7	D1	6	C456	A8	5	D16	E1	4	D544	F4	4	IC220	B6	3	1452	D5	5	Q455	C6	5	R54	D2	4	R259	H2	4	R407	G6	3	R542	E4	1	R669	G1	2
C8	F6	4	C457	E5	5	D17	D1	4	D545	H4	2	IC220	B1	3	1452	B6	3	Q456	H5	5	R55	D2	4	R260	H2	4	R408	G6	3	R543	E4	1	R670	G1	2
C9	B6	4	C458	E5	5	D18	D1	4	D546	H4	2	IC220	B1	3	1452	B6	3	Q457	H5	5	R56	D2	4	R261	H2	4	R409	G6	3	R544	E4	1	R671	G1	2
C10	B6	4	C459	E5	5	D19	A1	4	D547	H4	2	IC220	B1	3	1452	B6	3	Q457	H5	5	R57	D2	4	R262	H2	4	R410	D1	4	R545	E4	1	R672	G1	2
C11	B6	4	C460	H6	5	D20	B1	4	D548	F6	2	IC221	C5	3	1504	E5	3	Q500	A4	1	R58	D1	4	R263	H2	4	R411	F2	3	R546	E4	1	R673	G1	2
C12	D5	6	C461	H6	5	D21	B1	4	D549	F6	2	IC221	C5	3	1504	E5	3	Q501	A4	1	R59	D1	4	R264	H2	4	R412	F2	3	R547	E4	1	R674	G1	2
C13	B1	6	C462	B6	5	D22	B3	4	D550	G6	2	IC221	C5	3	1504	E5	3	Q502	A4	1	R60	D1	4	R265	H2	4	R413	F2	3	R548	E4	1	R675	G1	2
C14	B1	6	C463	B6	5	D23	B3	4	D551	G6	2	IC221	C5	3	1504	E5	3	Q503	B4	1	R61	D2	4	R266	H2	4	R414	F2	3	R549	E4	1	R676	G1	2
C15	B1	6	C464	B6	5	D24	B3	4	D552	G6	2	IC250	A1	5	1550	F2	3	Q504	B4	1	R62	D2	4	R267	H2	4	R415	F2	3	R550	E4	1	R677	G1	2
C16	A1	6	C465	A6	5	D25	A4	4	D553	A2	2	IC251	D2	5	1550	F2	3	Q505	B4	1	R63	E2	4	R268	H2	4	R416	F2	3	R551	E4	1	R678	G1	2
C17	B1	6	C466	A6	5	D26	A4	4	D554	A2	2	IC251	D2	5	1550	F2	3	Q506	C4	1	R64	E1	4	R269	H2	4	R417	F2	3	R552	E4	1	R679	G1	2
C18	A4	4	C467	G3	4	D27	A3	6	D555	A2	2	IC251	D2	5	1550	F2	3	Q507	C4	1	R65	B6	4	R270	H2	4	R418	F2	3	R553	E4	1	R680	G1	2
C19	A5	4	C468	G3	4	D28	B3	6	D556	A2	2	IC252	E2	5	1600	F4	6	Q508	D4	1	R66	B6	4	R271	H2	4	R419	F2	3	R554	E4	1	R681	G1	2
C20	A1	4	C469	A5	4	D29	A3	6	D557	A2	2	IC253	I5	5	1703	H3	6	Q509	E4	1	R67	B6	4	R272	H2	4	R420	F2	3	R555	E4	1	R682	G1	2
C21	A5	4	C470	A5	4	D30	A3	6	D558	A2	2	IC253	I5	5	1703	H3	6	Q510	E4	1	R68	B6	4	R273	H2	4	R421	F2	3	R556	E4	1	R683	G1	2
C22	B4	6	C471	A5	4	D31	H4	2	D559	H2	2	IC253	I3	5	1734	H1	6	Q511	E4	1	R69	D5	4	R274	H2	4	R422	F2	3	R557	E4	1	R684	G1	2
C23	B4	6	C472	A5	4	D32	H4	2	D560	H2	2	IC253	I3	5	1734	H1	6	Q512	E4	1	R70	D5	4	R275	H2	4	R423	F2	3	R558	E4	1	R685	G1	2
C24	B1	6	C473	A5	4	D33	H4	2	D561	H2	2	IC253	I3	5	1736	H3	6	Q513	F4	1	R71	D5	4	R276	H2	4	R424	F2	3	R559	E4	1	R686	G1	2
C25	B1	6	C474	A5	4	D34	H4	2	D562	H2	2	IC253	I3	5	1741	H4	6	Q514	F4	1	R72	D5	4	R277	H2	4	R425	F2	3	R560	E4	1	R687	G1	2
C26	B1	6	C475	A5	4	D35	H4	2	D563	H2	2	IC254	H2	2	1744	I3	6	Q515	G4	1	R73	D5	4	R278	H2	4	R426	F2	3	R561	E4	1	R688	G1	2
C27	B1	6	C476	A5	4	D36	H4	2	D564	H2	2	IC254	H2	2	1746	I3	6	Q516	G4	1	R74	D5	4	R279	H2	4	R427	F2	3	R562	E4	1	R689	G1	2
C28	B1	6	C477	A5	4	D37	H4	2	D565	H2	2	IC254	H2	2	1764	H3	6	Q517	G4	1	R75	D6	4	R280	H2	4	R428	F2	3	R563	E4	1	R690	G1	2
C29	B1	6	C478	A5	4	D38	H4	2	D566	H2	2	IC254	H2	2	1774	H3	6	Q518	H4	1	R76	D6	4	R281	H2	4	R429	F2	3	R564	E4	1	R691	G1	2
C30	B1	6	C479	A5	4	D39	H4	2	D567	H2	2	IC254	H2	2	1777	H5	5	Q519	H4	1	R77	A1	6	R282	H2	4	R430	F2	3	R565	E4	1	R692	G1	2
C31	B1	6	C480	H6	5	D40	A3	6	D568	H2	2	IC351	A3	5	1778	H5	5	Q520	H4	1	R78	A1	6	R283	H2	4	R431	F2	3	R566	E4	1	R693	G1	2
C32	B1	6	C481	H6	5	D41	A3	6	D569	H2	2	IC351	A3	5	1778	H5	5	Q521	H4	1	R79	A1	6	R284	H2	4	R432	F2	3	R567	E4	1	R694	G1	2
C33	B1	6	C482	H6	5	D42	A3	6	D570	H2	2	IC352	D4	2	1779	H4	6	Q522	A2	1	R80	B1	6	R285	H2	4	R433	F2	3	R568	E4	1	R695	G1	2
C34	B1	6	C483	H6	5	D43	A3	6	D571	H2	2	IC352	D4	2	1791	D6	6	Q523	A2	1	R81	B1	6	R286	H2	4	R434	F2	3	R569	E4	1	R696	G1	2
C35	B1	6	C484	H6	5	D44	A3	6	D572	H2	2	IC352	D4	2	1792	D6	6	Q524	C2	1	R82	A1	6	R287	H2	4	R435	F2	3	R570	E4	1	R697	G1	2
C36	B1	6	C485	H6	5	D45	A3	6	D573	H2	2	IC353	G3	5	1793	D6	6	Q525	C2	1	R83	B2	6	R288	H2	4	R436	F2	3	R571	E4	1	R698	G1	2
C37	B1	6	C486	H6	5	D46	A3	6	D574	H2	2	IC353	G3	5	1794	D6	6	Q526	C3	1	R84	B2	6	R289	H2	4	R437	F2	3	R572	E4	1	R699	G1	2
C38	D1	6	C487	H6	5	D47	A3	6	D575	H2	2	IC353	G4	5	1799	F6	6	Q527	C3	1	R85	B2	6	R290	H2	4	R438	F2	3	R573	E4	1	R700	G1	2
C39	D1	6	C488	H6	5	D48	A3	6	D576	H2	2	IC353	G4	5	1799	F6	6	Q528	H5	2	R86	B2	6	R291	H2	4	R439	F2	3	R574	E4	1	R701	G1	2
C40	D1	6	C489	H6	5	D49	A3	6	D577	H2	2	IC353	I3	5	1802	E6	5	Q529	H5	2	R87	B2	6	R292	A2	5	R440	F2	3	R575	E4	1	R702	G1	2
C41	D1	6	C490	H6	5	D50	A3	6	D578	H2	2	IC353	I3	5	1802	E6	5	Q530	D1	4	R88	F6	4	R293	A2	5	R441	F2	3	R576	E4	1	R703	G1	2
C42	D1	6	C491	H6	5	D51	A3	6	D579	H2	2	IC353	I3	5	1802	E6	5	Q531	D1	4	R89	F6	4	R294	A2	5	R442	F2	3	R577	E4	1	R704	G1	2
C43	D1	6	C492	H6	5	D52	A3	6	D580	H2	2	IC353	I3	5	1802	E6	5	Q532	D1	4	R90	F6	4	R295	A2	5	R443	F2	3	R578	E4	1	R705	G1	2
C44	D1	6	C493	H6	5	D53	A3	6	D581	H2	2	IC353	I3	5	1802	E6	5	Q533	D1	4	R91	F6	4	R296	A2	5	R444	F2	3	R579	E4	1	R706	G1	2
C45	D1	6	C494	H6	5	D54	A3	6	D582	H2	2	IC353	I3	5	1802	E6	5	Q534	D1	4	R92	F6	4	R297	A2	5	R445	F2	3	R580	E4	1	R707	G1	2
C46	D1	6	C495	H6	5	D55	A3	6	D583	H2	2	IC353	I3	5	1802	E6	5	Q535	D1																

Blockdiagram Support signals



Support signals



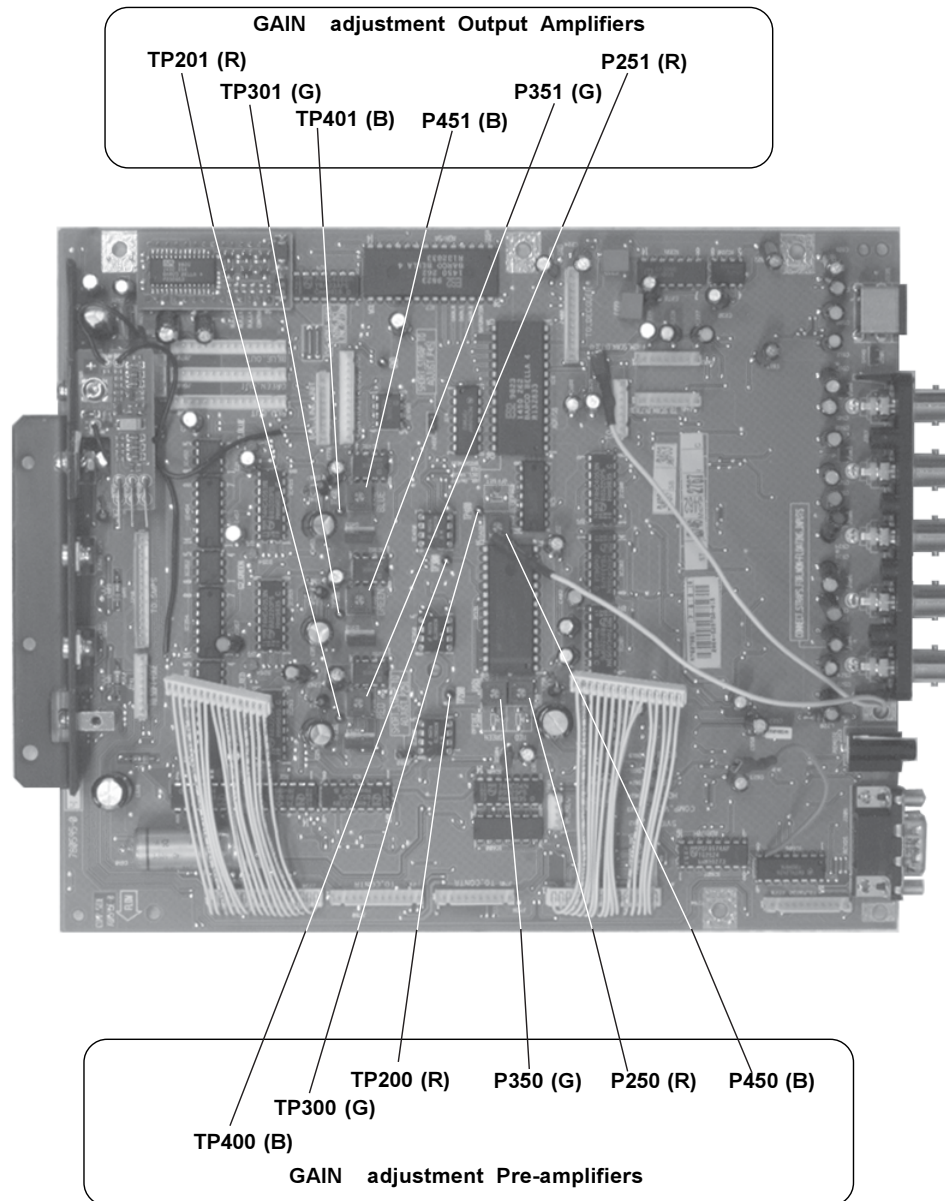


ADJUSTMENT PROCEDURE

Adjustments on the Module

- Adjustment of the GAIN of the Pre-amplifiers for Red (P250), Green (P350) and Blue (P450)
- Adjustment of the GAIN of the output Amplifiers for Red (P251), Green (P351) and Blue (P451)

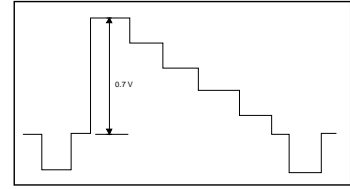
Location of the Controls



Adjusting conditions

1. Signal input

- Connect a RGB signal (0.7Vpp Bl&Wh) to the projector and select the corresponding input (refer to the manuals of the projector).



2. Contrast and Brightness setting (refer to the Owner's manual of the projector)

- Adjust the Contrast level until the bar scale on the screen indicates 100.
- Adjust the Brightness level until the bar scale on the screen indicates 50.

3. GAIN adjustment For Red, Green and Blue (refer to the Owner's manual of the projector)

- Proceed to Random Access Adjustment mode and select the Picture tuning.
- Highlight *Color Balance* with the arrow keys and press ENTER to display the Color Balance menu.
- Proceed to adjust RED & BLUE or GREEN.
 - *Adjust the GAIN for RED* until the bar scale on the screen indicates 60.
 - *Adjust the GAIN for GREEN* until the bar scale on the screen indicates 50.
 - *Adjust the GAIN for BLUE* until the bar scale on the screen indicates 100.

Adjustments

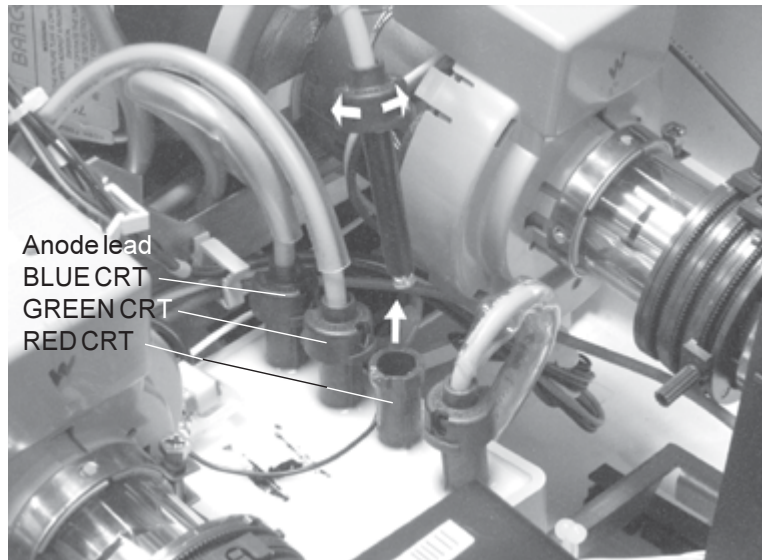
Attention: To eliminate Beam Current Limiting (BCL) while adjusting the GAIN potentiometers, remove the anode lead of the three picture tubes on the EHT Splitter.

WARNING

The power must be OFF before removing any connector from EHT splitter. Failure to do so may result in DANGER TO LIFE and severe damage to the projection unit.

Removing the anode lead of the three picture tubes

- Switch OFF the projector and unplug the power cord from the power input on the front panel.
- Unlock the anode lead cap by turning it counter clockwise.
- Pull out, by the cap, the anode lead for each picture tube from the EHT splitter and discharge the picture tube anode by touching the top of the lead to the aquadag grounding shield.
- Reinstall Power connection and switch ON the projector.



1. Adjustment of the RED channel

Pre-amplifier P250

- Connect the probe of the oscilloscope to the test point TP200.
- Adjust the potentiometer P250 for a video signal amplitude of 4V (refer to fig.1)
- (The black level is at about 2V DC)

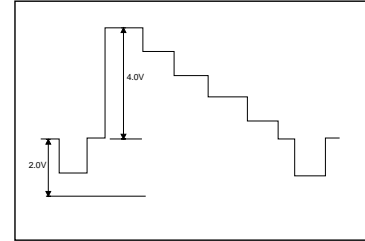


Fig. 1

Output Amplifier P251

- Connect the probe of the oscilloscope to the test point TP201.
- Short-circuit the 2 pins of the connector J252.
- Adjust the potentiometer P251 for a video signal amplitude of 4V (refer to fig.2)

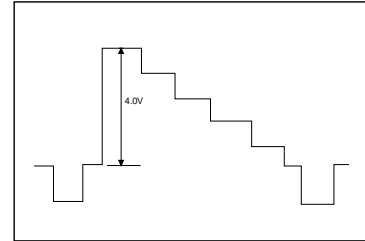
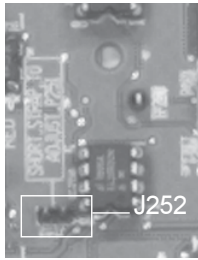


Fig. 2



2. Adjustment of the GREEN channel

Pre-amplifier P350

- Connect the probe of the oscilloscope to the test point TP300.
- Adjust the potentiometer P350 for a video signal amplitude of 4V (refer to fig.1)
- (the black level is at about 2V DC)

Output Amplifier P351

- Connect the probe of the oscilloscope to the test point TP301.
- Adjust the potentiometer P351 for a video signal amplitude of 4V (refer to fig.2)

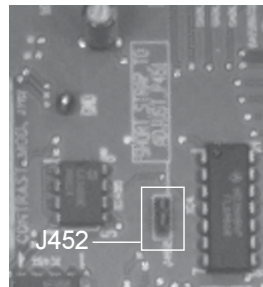
3. Adjustment of the BLUE channel

Pre-amplifier P450

- Connect the probe of the oscilloscope to the test point T400.
- Adjust the potentiometer P450 for a video signal amplitude of 4V (refer to fig.1)
- (the black level is at about 2V DC)

Output Amplifier P451

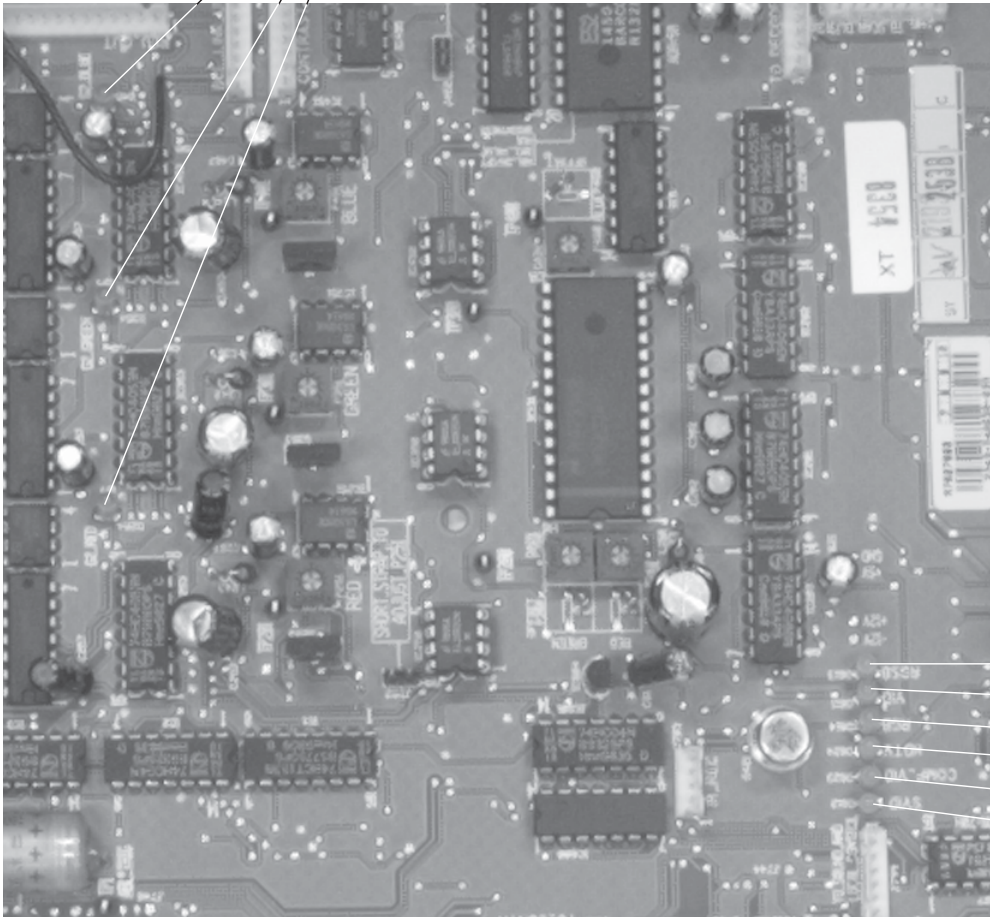
- Connect the probe of the oscilloscope to the test point TP401.
- Short-circuit the two pins of the connector J452.
- Adjust the potentiometer P451 for a video signal amplitude of 4V (refer to fig.2)



Control LED's on the module

G2 Adjustments

RED
GREEN
BLUE



Input Selection

RGsB
VID
RGB
HDTV
COMP_VID
SVID

TECHNICAL DESCRIPTION
Introduction

The projector can operate in one of the following modes by pushing the corresponding numeric button or by means of the identification of the input board of a switcher RCVS800 or RCVDS05 :

- 1) Video Composite
- 2) Super Video
- 3) RGB Analog level with Bi-Level Sync (with automatic sync detection)
- 4) RGB Analog level with Tri-Level Sync (with automatic sync detection)
- 5) Component input: Y, R-Y, B-Y with Bi-Level Sync
- 6) Component input: Y, R-Y, B-Y with Tri-Level Sync

The selection between the standard BI-level sync and the HDTV TRI-level is NOT automatic but is done by the selection of the corresponding input.

The selection of the sync signal between RGBS and RGSB however is automatic and there is always priority for the separate sync if both are applied.

Input selection

The different signals are selected by means of 7 current generators activating each time a differential input. All of these 7 inputs are switchable between non-differential or differential, and are factory preset for non-differential.

The electronic circuit comprises different sheets. On sheet 2 the selection voltages are generated by a BCD/DEC decoder which is directed from a BCD coded info using three output ports of the I²C interface. The spot suppression circuit and the combined blanking is also represented on this sheet.

Sheet 1 is purely representing the signal input amplifiers.

a) Mode selection

IC607 (PCF8574A) is connected to the I²C Interface IC607 and outputs P5...P7 are connected with the BCD ---> DEC decoder IC606 (74LS42) . The respective output of the decoder IC drives one or more switching transistors. Five switching voltages and 4 **_select* lines have to be generated. These **_select* lines are used to select an input source. Six green LEDs supply a visual indication of the status of these switching voltages as a kind of service information.

Hereafter we discuss the different modes in more detail.

b) Video Composite

The output pin 1 of the BCD/DEC decoder goes low and turns on Q630 and Q629 to provide the *VID_select* voltage. This voltage selects the video composite input by activating Q501/Q502/Q500.

The same +VID voltage also must switch high the *MATRIX* line through D621 since the MUXDMUX needs to select the matrixed RGB signal (see sheet 3).

The video is now passed on to Q527 and the synchronization to connector J401. This connector is wired pin to pin with J402 if no module is inserted between the connectors, and the sync is now referred to as *SYNC_SD* to be applied to the SYNC module.

The same video signal is also applied to Q524 and further proceeds to the DECODER module (LUMA/VID line).

The decoder module will be handled separately, as it is a different module. The output of this module is a component signal $Y / (R-Y) / (B-Y)$ and returns to the input module on connector J401 (same connector of *SYNC_EXT*).

Note that these signals are accompanied by a DC voltage which must forward bias the series diodes D200, D300 and D400.

The component signals *(R-Y)_DEC*, *Y_DEC* and *(B-Y)_DEC* from the decoder are now matrixed and the chrominance is adjusted in amplitude (saturation control) and they proceed then to the MUXDMUX IC200 (see sheet 3). Because the *MATRIX* line is high this IC200 selects these R/G/B signals for further processing.

c) Super Video

When S-Video is selected, pin 2 of IC606 becomes low and the *S-VID_select*, *+VID* and *MATRIX* lines all switch to high. The luminance input is selected by the *S-VID_select* line and flows through the same circuit as video. The chrominance input is sent straight to the DECODER module via Q523. As the signal on the Y-input follows the same circuit as video, it can also be supplied with a video composite signal in stead of a Y signal. The projector has then two video composite inputs. The decoder uses the *+S-VID* and *+VID* lines to switch from a composite video to a S-Video mode. The level of the *+S-VID* line is set depending on the *SVID_SWITCH* line as determined in the picture tuning menu.

d) RGB Analog level with Bi-Level Sync

Pin 3 of IC606 becomes low for this selection. This causes both Q622 and Q623 to be conducting and the *RGB_select* line is activated. External composite sync pulses, if present, are picked up from the collector of Q511 (*sync_detect* line, see sheet 1/7) and is amplified by Q626.

C622, R624, D626 is a peak detector. With external pulses, the voltage drop across R624 reaches the G-S threshold level of Q625 which gets forward biased and C621 is charged up and Q624 is switched off. The *RGsB_select* line comes low. If no external pulses are presented, the *RGsB_select* line is high active and the green signal is selected for synchronisation.

The R, G and B analog signals are selected by the three input differential amplifiers and proceed now to the MUXDMUX IC200 (sheet 3) via three current drivers Q201, Q301 and Q401. Since the *+MATRIX* line is low here, these signals are selected by the MUXDMUX IC200 and are further handled as will be described later on in 'Selection of RGB-signals - Clamping'.

e) RGB Analog level with Tri-Level Sync (HDTV)

In this case output 4 or pin 3 is switched to a low level. Via D628 the *RGB_select* voltage becomes high and via D646 transistor Q631 is fully on to pull the */HDTV* line at a low level (active low!).

The RGB signal is passing exactly the same flow as described above. The sync signal however is now passing the HDTV or TRI-level processing circuit on the SYNC module. For a more detailed description refer to the section of the synchronisation board.

f) Component input: Y, R-Y, B-Y with Bi-Level Sync

The Y-signal must be connected to the G - input, the R-Y and B-Y to the respective R and B inputs of the projector. Here, two lines must be high level : the *MATRIX* and *RGB_select* lines. Output 5 or pin 4 is switched low and via D629 the *RGB_select* voltage can be generated same as described before.

Via D645 transistor Q632 is blocked and this turns on Q634 to light up the green *COMP*

VID LED and put a high level on the +*MATRIX* line.

Sync is treated exactly the same way as for 'RGB with Bi-Level sync'. (refer to paragraph d)

The three signals arrive at the bases of Q200, Q300 and Q400 (sheet 3). The DC level of these signals block the diodes D200/D300/D400 and pass now to the matrix / saturation circuit. Since the *MATRIX* line is high, the matrixed R, G and B signals are selected by the MUXDMUX IC200.

g) Component input: Y, R-Y, B-Y with Tri-Level Sync

In this case three lines must be active : the /*HDTV*, *MATRIX* and *RGB_select*. Output 6, or pin 5 is switched low level. Via D547 the *RGB_select* voltage is generated. D644 turns on Q631 to pull the /*HDTV* line at a low level. Finally, D643 blocks Q632 and the *MATRIX* line is put at a high level.

The component signals are handled just like described in paragraph F but the Tri-level sync processing on the sync board is switched on via the /*HDTV* line.

Blanking - Spot Suppression

The composite blanking (*COMP BLANKING*) is combined with SF3 (Scan Fail), ABL (Automatic Black Level), and the software blanking to form a complete blanking signal to send to the output amplifiers.

The *COMP BLANKING* is composed of the flyback pulses HFB, the user adjusted left/right and top/bottom blankings and the coincidence information. The composition of this signal will be discussed in the SYNC module description.

The output ports P0, P1 and P2 can be switched at a high level via I²C. The high output level of this I²C interface output is cancelled by the ABL pulse output pin 2 of IC601 as we need to unblank during the ABL measurement time.

This is necessary in order not to disturb the current measurement during this measuring time.

The composite blanking must also be cancelled during this ABL interval and this is realized with D600, a diode connected from the ABL pulse output to the composite sync input.

In case of a scan fail, the SF3 line is switched low, the Schmitt trigger output then becomes high (pin 4 of IC601) and all the blanking outputs also become high.

Spot Suppression

The spot suppression circuit is built around Q620 / Q621 and senses the +17V at the moment the projector is switched off.

The moment the projector is turned off, the +17V drops the quickest compared to the other voltages due to the heavier load on the +17V.

Normally the transistor Q620 is in saturation and cuts off Q621. The electrolytic capacitor C620 is charged to the zener voltage of 150V.

At switching off, the Q620 turns off very rapidly and Q621 is thereby turned on. The sudden drop of the collector voltage of the latter is coupled to the G1's and causes the G1 to go to -150V. This high negative G1 voltage means an efficient spot suppression.

Notes :

a) An inaccurate alignment of the +17V (too low) can cause intermittent blanking with heavy loads (plain white pictures).

b) The spot suppression can only behave correctly on condition the two required voltages (+17V and +210V) are present and correct at the moment of turning off the projector.

c) An incorrect alignment of the G2 voltages (too high) reduces the efficiency of the spot suppression.

The drop of the collector voltage of Q621 is also coupled to the Schmidt trigger input pin 3 (same as for the SF3) via diode D602 to cause an immediate blanking. Finally, diode D603 applies this (*SPOT*) voltage to the gates of Q251, Q351, Q451 (see sheet 4) in order to switch off the output stages to prevent any video to reach the output amplifiers.

Matrix - Saturation control

The matrix - saturation control is done by the circuit Q220 - Q224 and IC221 (TBA331) on sheet 3 of the diagrams.

The saturation voltage (*SAT*) is delivered by the VO3 output of IC7 (sheet 5) and buffered by the OPAMP TL082. Each of the color difference signals is applied to the common emitter current source of one of two identical differential amplifiers. The outputs are then respectively mixed with the Y signal in Q220 and Q223. On the collectors of these transistors we find the Red and Blue signals. These are now applied to the MUXDMUX IC200 on the pins 3 and 13.

The G-Y is formed by adding (R-Y) via R225 and (B-Y) via R226. The Green is obtained by adding this signal to the Y-signal. This Green signal is also sent to the MUXDMUX IC200 on pin 1.

Selection of the RGB signals - Clamping

The MUXDMUX IC200 selects between the RGB Analog coming straight from the BNC inputs and the RGB which is the result of the matrix. This selection is done by the switching voltage "*MATRIX*". A low level selects the RGB coming from the BNC inputs, a high level for the RGB resulting from the matrix.

The next MUXDMUX (IC201) has as task to select between the RGB signals and the text (*R_CTRL*, *G_CTRL*, *B_CTRL*) informations coming from the Controller board. This selection is done by the *INSERT* voltage accompanying the above pixel information. In order to obtain the same brightness level, these 6 available signals at the select inputs are clamped by a "*CLAMP*" pulse as follows.

The divider R320/R321 determines the clamping DC level which is then buffered and is available at the inputs of the six bilateral switches in IC202 and IC203. At the moment the *CLAMP* is presented the above DC level is used to clamp the black level of the 6 available signals to the same level. The text is correctly inserted irrelevant the fluctuations of the input signals.

The outputs of the MUXDMUX are referred to as *R_MUX*, *G_MUX* and *B_MUX* and proceed now to the contrast and brightness adjustments (see sheet 4).

Generation of the supporting pulsesCLAMP pulse :

The position of this clamping pulse for the brightness control depends on the active mode of the projector. There are three different pulses available to determine the start of the CLAMP pulse (= leading edge). These pulses are :

- * SC/CLAMP pulse
- * CS_INV
- * HFB or BRT_P1 pulse

- a) The *SC/CLAMP* pulse is the Sandcastle pulse provided by the TDA2595 of the sync board. This pulse is used when the +*VID* line is high. (video or S-video)
- b) The *CS_INV* is the composite sync, used when +*RGsB* is high (RGB with sync on green). The clamping pulse starts the moment the sync pulse is terminated (trailing edge of the positive sync pulse).
- c) When neither +*VID* nor +*RGsB* are high, the *BRT_P1* pulse is used. *BRT_P1* is coincident with the flyback pulse. This means that the pulse position varies with the phase control. On other terms, the phase control has an influence on the clamping position and can affect the brightness.

When in the Sync on Green mode, the composite sync is selected to produce the clamping pulse and no sync is applied to the projector, there is no clamp pulse and the output of the LM1203 is undefined. In fact, when there is no sync, the picture is blanked, but, the moment the sync is back it would take too long to revert to normal conditions. Therefore, the *CS_INV* is replaced by the *BRT_P1* pulse when there is no coincidence in the Sync on Green mode.

For that reason, the COIN (coincidence) signal is sent to the base of Q1 and the latter pulls pin 1 at ground level. As then both switching pins are at low level, the *BRT_P1* pulse is selected instead.

The *CLAMP* pulse is used to restore the black level of the signals before entering the MUXDMUX IC201 and for the brightness control in the LM1203.

BRT_P pulse

The negative HFB pulse is differentiated by C5/R15 in order to reduce the width to 2.1 μ S. These pulses are used to drive the MOSFETs Q250/Q350/Q450 into cutoff and install a zero DC level at their Sources during the cutoff time thus inserting a brightness pulse for the preparation of the brightness control.

BRT_P2 pulse

This is the same as *BRT_P* but with opposite polarity, thus, a positive pulse of 2.1 μ S long.

Both these pulses are used to install the DC level of a brightness pulse with respect to the black level of the video signal. Note that the ABL pulse of 20 μ S is added to both of these pulses.

BRT_P1 pulse

The BRT_P pulse is differentiated by C8/R17 to reduce the width to 1.5 μ S. After inversion we get a positive BRT_P1 pulse, smaller than the former pulses and used in the clamping circuits around IC251 / IC351 / IC451.

Note that these pulses are cancelled during the ABL time by applying the ABL pulse via D4 to the input of the inverter, pin 5.

ABL - ABL_BL - ABL_MP

An ABL pulse of 40 μ S, positioned at the end of the vertical flyback time, is generated on the DEFLECTION module.

This pulse is inverted by an inverter in IC3 and then differentiated by C7 / R22 to determine a pulswidth of 20 μ s. The next inverter changes the polarity and generates the *ABL_BL* pulse. This pulse determines the time of the leakage or black current measurement.

This positive pulse is once again differentiated by C8/R26 to generate in association with the inverter, another positive *ABL_MP* pulse of the same width but this one is coming just after the former one.

During the total 40 μ S ABL time the first 20 μ s the CRT leakage current is measured, followed by a second 20 μ s interval in which a 10 μ A cathode current is measured and processed (see ABL description in the coming RGB DRIVER section).

RGB Amplifier - Driver - ABL

The R, G and B signals are all three adjusted in amplitude and the DC level is varied by the respective contrast and brightness controls in the LM1203. These are the *general* contrast and brightness controls before the individual adjustments per color are applied. There are three identical circuits, one for Red, one for Green and one for Blue. We limit the description to the green channel. The Red and Blue channel are slightly different as they each have an additional gamma correction.

The black level of the video signal at the output of the LM1203 is determined by the brightness voltage. It is 2 volts for 50% brightness.

The divider R253/R256 reduces the video amplitude at the output of the LM1203 since it is too big to drive the amplifier EL2082. With the -12V applied through R298 and R255, the DC-level is set to 0V (for 50% brightness).

Because an user's adjustable brightness and contrast control per color is required to compensate the tolerances, the three signals will undergo now an adaptation of these levels.

Gain control per color :

The individual gain control is realized by means of an EL2082 (IC250 / IC350 / IC450). The waveforms for the optional contrast modulation are also applied to these gain control inputs, in combination with a DC level between 0 - 2 V for the individual gain controls.

Black level control per color :

An offset on the black levels (color temperature adjustment) is obtained in two steps. In a first stage, a zero DC level is installed. In a second stage this level is altered (offset) by the user. In a third stage, a comparison-clamping circuit varies the DC level of the video in accordance with this offset. The ABL circuit has as task to stabilize this color temperature in the time, or to correct the normal wear and tear of the picture tubes.

Q250 is blocked during the BRT_P pulse time and because the Source is then at ground level via R258, a 'brightness pulse' of zero volt is inserted in the video signal on the

backporch. This zero level is also implemented during the ABL time, since the ABL pulse is added to the BRT_P pulses via D5.

The signal passes then the amplifier IC250 and proceeds to the darlington Q252 / Q253. The OFFSET_R can shift this previously inserted level in a positive or negative sense as follows.

On sheet 4 we have the electronic diagram for the OFFSET_R/G/B lines. The IC6 VO0 DC output level output is switched to the node R60/R61 during the BRT_P2 pulse time and also during the ABL time. The ABL pulse is therefore added to the BRT_P2 via D5 (see diagram BRT_P2 generation, same sheet).

The current generator Q6/Q7 provides a variable current to the resistors R64 / D15 / D16 / R260 / R261. The drain voltage is consequently altered in a positive or negative sense in accordance with the named VO0 output. During the ABL_MP time slot diode D9 gets blocked and an additional current flows through D15/D16 and R64. This is the current that will be measured for the ABL control.

This divider is designed to implement a cathode voltage to all the three tubes which must result in a small 10 μ A current. The offset voltage however can change this implemented current. The measured current during the ABL_MP (Measurement Period) time slot depends on the offset adjusted by the user.

This level will be stabilized in the time by a sample and hold circuit.

IC251 is a Norton amplifier. It compares the instant DC levels at the inputs the moment pin 5 is lifted up. This pin 5 is supplied with the BRT_P1 pulses.

When pin 5 is at a low level, the output is very high impedance.

Consequently, during the BRT_P1 pulse time the instant DC level of the video is compared to the ABL voltage (=output of the analog switcher IC253).

A correction and stabilization of the DC level of the video signal is realized by the above loop circuit.

When the ABL voltage is switched off a resistive divider R272 / R273 guarantees a correct DC level output for the video signal.

Automatic Black Level (ABL)

The automatic Black level is done in two steps : a leakage measurement, followed by a small current measurement.

Leakage measurement

The cathode current is returned to the RGB drive module via pin 4 of the J550 connector as *ABL RED*. The voltage developed across R285 is applied to the non-inverting input pin 10 of the OPAMP IC254. The gain of this OPAMP is determined by the feedback R282 / R284 and the input is limited by two diodes.

The output of the OPAMP is sampled by the ABL_BL pulse and held on the capacitor C260. IC254 compares this voltage with ground and adjusts the bottom side of R285 until the voltage on C260 is zero.

ABL-current measurement

After this time slot ABL_BL goes low and ABL_MP goes high for a certain time. During this period a small puls is inserted on the video-signal via OFFSET_R, OFFSET_G and OFFSET_B. This should result in a small cathode current of 20 μ A which should develop a voltage of approximately 0,2 V across R258. This voltage is amplified by IC254 pin 8, 9 & 10 and comes over C259. Via buffer IC254 pin 12, 13 & 14 this voltage is applied to the regulator IC254 pin 1, 2 & 3 which compares this voltage to a reference. Th DC-level of the output is adapted until a balance is reached.

G2 adjustment :

The correct behavior of the ABL (on other terms, the implemented cathode current during the ABL_MP time is really 10 μ A) is only guaranteed when the G2 voltages are correctly adjusted.

In the service menu, when activating the G2 ADJUST item, the special conditions to align the G2's are switched on by software :

- internal pattern on 15 khz
- brightness and contrast at 50%
- no video (= black)

The developed ABL voltage under the above conditions is applied to two level detectors. Three resistors R274/275/276 determine a minimum and maximum voltage for the level detectors. Only when the ABL voltage is in the accepted zone, the LED is off and the G2 is correctly adjusted.

Note :

The LEDs do not play any significant role in the normal operating modes. They can be on, off or go on and off depending on different parameters. Disregard the

PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R133076	HTSNA TO5 MNT PAD 3P	1	C250	P210122	C# X7R MU 100N K 50 1206	1
20	R3133921	JMDSHUNT F P2 E1SNI	6	C251	P210090	C# COG MU 56P J 50 0805	1
30	R367600	NUT TRAD M3 BLOCK BRNI	2	C252	P210115	C# COG MU 6P8D 50 0805	1
40	Z3440002	CD REC2- 1007G24YE 190	2	C253	R111478	C EL RA 220M M 25E2 105	
50	Z3440001	CD REC2- 1007G24RD 110	1	C254	P210122	C# X7R MU 100N K 50 1206	1
100	R805375	HTSN V700 MK2	1	C255	P210074	C# COG MU 39P K 50 0805	1
120	R3631049	SCR Z933 M 3 X 6 SS	7	C256	P210122	C# X7R MU 100N K 50 1206	1
130	B360863	SCR Z\$7985M 3 X 10 STZY	1	C257	R111678	C EL BRA 10M M 25E2 85	
140	R367502	SPR D6798AD 3,2D 6 STZN	1	C258	P210122	C# X7R MU 100N K 50 1206	1
150	R3661026	NUT D934 M 3 SS	1	C259	P210122	C# X7R MU 100N K 50 1206	1
160	B133004	HTSN A TO220 I-KAP° 18X23	1	C260	P210092	C# X7R MU 10N K 50 1206	1
161	B133003	HTSN A TO220 I-BUSH 6/3,1	1	C261	P210148	C# Y5V MU 470N Z 25 1206	1
170	V3134911	J U0.3 FBT P 8 E1AU TLP	3	C262	R111510	C EL RA 22M M 25E2 85	1
180	R348102	WU JUMP 0,6 7,5	2	C263	P210227	C# Z5U MU 100N Z 50 0805	1
200	R7123023	SPRCL 0,5 D 3,2D 7 PLBK	1	C265	P210227	C# Z5U MU 100N Z 50 0805	1
				C266	P210029	C# COG MU 2N2J 50 1206	1
C 1	P210227	C# Z5U MU 100N Z 50 0805	1	C267	R111510	C EL RA 22M M 25E2 85	
C 3	P210061	C# COG MU 4P7D 50 0805	1	C271	R111510	C EL RA 22M M 25E2 85	
C 4	P210101	C# COG MU 560P J 50 1206	1	C272	R111678	C EL BRA 10M M 25E2 85	1
C 5	P210101	C# COG MU 560P J 50 1206	1	C273	P210227	C# Z5U MU 100N Z 50 0805	1
C 6	P210006	C# COG MU 820P J 50 1206	1	C274	P210122	C# X7R MU 100N K 50 1206	1
C 7	P210101	C# COG MU 560P J 50 1206	1	C300	P210141	C# COG MU 27P J 50 1206	1
C 8	P210101	C# COG MU 560P J 50 1206	1	C301	P210122	C# X7R MU 100N K 50 1206	1
C 9	P210122	C# X7R MU 100N K 50 1206	1	C302	R111678	C EL BRA 10M M 25E2 85	
C 10	P210122	C# X7R MU 100N K 50 1206	1	C303	P210122	C# X7R MU 100N K 50 1206	1
C 11	P210122	C# X7R MU 100N K 50 1206	1	C304	P210100	C# COG MU 47P J 50 1206	1
C 12	P210122	C# X7R MU 100N K 50 1206	1	C320	P210122	C# X7R MU 100N K 50 1206	1
C 13	P210122	C# X7R MU 100N K 50 1206	1	C321	P210122	C# X7R MU 100N K 50 1206	1
C 14	P210122	C# X7R MU 100N K 50 1206	1	C322	R111510	C EL RA 22M M 25E2 85	
C 15	R111477	C EL RA 100M M 25E2 85		C350	P210122	C# X7R MU 100N K 50 1206	1
C 16	R111476	C EL RA 47M M 25E2 85		C351	P210090	C# COG MU 56P J 50 0805	1
C 17	V1115469	C EL RA 1M M 50E2 105		C352	P210236	C# COG MU 6P8D 50 1206	1
C 18	P210122	C# X7R MU 100N K 50 1206	1	C353	R111478	C EL RA 220M M 25E2 105	
C 19	P210122	C# X7R MU 100N K 50 1206	1	C354	P210122	C# X7R MU 100N K 50 1206	1
C 20	P210122	C# X7R MU 100N K 50 1206	1	C355	P210074	C# COG MU 39P K 50 0805	1
C 21	R111510	C EL RA 22M M 25E2 85		C356	P210122	C# X7R MU 100N K 50 1206	1
C 22	R111510	C EL RA 22M M 25E2 85		C357	R111678	C EL BRA 10M M 25E2 85	
C 23	P210102	C# COG MU 470P J 50 1206	1	C358	P210122	C# X7R MU 100N K 50 1206	1
C 24	R111531	C EL RA 10M M 35E2 85		C359	P210122	C# X7R MU 100N K 50 1206	1
C132	P210092	C# X7R MU 10N K 50 1206	1	C360	P210092	C# X7R MU 10N K 50 1206	1
C150	R111468	C EL RA 470M M 16E2 105	1	C361	P210148	C# Y5V MU 470N Z 25 1206	1
C151	P210122	C# X7R MU 100N K 50 1206	1	C366	P210029	C# COG MU 2N2J 50 1206	1
C152	R111510	C EL RA 22M M 25E2 85		C367	R111510	C EL RA 22M M 25E2 85	
C153	P210122	C# X7R MU 100N K 50 1206	1	C374	P210122	C# X7R MU 100N K 50 1206	1
C154	P210122	C# X7R MU 100N K 50 1206	1	C400	P210075	C# COG MU 12P J 50 1206	1
C155	P210122	C# X7R MU 100N K 50 1206	1	C401	P210122	C# X7R MU 100N K 50 1206	1
C156	P210122	C# X7R MU 100N K 50 1206	1	C402	R111678	C EL BRA 10M M 25E2 85	
C157	P210122	C# X7R MU 100N K 50 1206	1	C403	P210122	C# X7R MU 100N K 50 1206	1
C200	P210116	C# COG MU 27P J 50 0805	1	C404	P210100	C# COG MU 47P J 50 1206	1
C201	P210122	C# X7R MU 100N K 50 1206	1	C420	P210122	C# X7R MU 100N K 50 1206	1
C202	R111678	C EL BRA 10M M 25E2 85		C421	P210122	C# X7R MU 100N K 50 1206	1
C203	P210122	C# X7R MU 100N K 50 1206	1	C422	P210122	C# X7R MU 100N K 50 1206	1
C204	P210100	C# COG MU 47P J 50 1206	1	C423	P210122	C# X7R MU 100N K 50 1206	1
C220	R111678	C EL BRA 10M M 25E2 85		C424	P210141	C# COG MU 27P J 50 1206	1
C221	P210122	C# X7R MU 100N K 50 1206	1	C450	P210122	C# X7R MU 100N K 50 1206	1
C222	R114090	C POMERA 1M K 63E2 85		C451	P210090	C# COG MU 56P J 50 0805	1
C223	R114090	C POMERA 1M K 63E2 85		C452	P210115	C# COG MU 6P8D 50 0805	1
C224	R111510	C EL RA 22M M 25E2 85		C453	R111478	C EL RA 220M M 25E2 105	
C225	P210122	C# X7R MU 100N K 50 1206	1	C454	P210122	C# X7R MU 100N K 50 1206	1
C226	R111678	C EL BRA 10M M 25E2 85		C455	P210018	C# COG MU 33P J 50 0805	1
C227	R111678	C EL BRA 10M M 25E2 85		C456	P210122	C# X7R MU 100N K 50 1206	1
C228	P210122	C# X7R MU 100N K 50 1206	1	C457	R111678	C EL BRA 10M M 25E2 85	
C229	P210122	C# X7R MU 100N K 50 1206	1	C458	P210122	C# X7R MU 100N K 50 1206	1
C230	R111678	C EL BRA 10M M 25E2 85	1	C459	P210122	C# X7R MU 100N K 50 1206	1
C231	P210137	C# COG MU 100P J 50 1206	1	C460	P210092	C# X7R MU 10N K 50 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C461	P210148	C# Y5V MU 470N Z 25 1206	1	C613	R111510	C EL RA 22M M 25E2 85	
C462	R111510	C EL RA 22M M 25E2 85		C614	P210095	C# X7R MU 330N M 50 1812	1
C463	P210122	C# X7R MU 100N K 50 1206	1	C615	P210122	C# X7R MU 100N K 50 1206	1
C464	P210122	C# X7R MU 100N K 50 1206	1	C616	R111468	C EL RA 470M M 16E2 105	1
C465	P210122	C# X7R MU 100N K 50 1206	1	C617	R111510	C EL RA 22M M 25E2 85	
C466	P210029	C# C0G MU 2N2J 50 1206	1	C618	P210122	C# X7R MU 100N K 50 1206	1
C467	R111510	C EL RA 22M M 25E2 85		C619	P210122	C# X7R MU 100N K 50 1206	1
C474	P210122	C# X7R MU 100N K 50 1206	1	C620	R111571	C EL RA 2M2M350E2 105	1
C500	R111678	C EL BRA 10M M 25E2 85		C621	R111510	C EL RA 22M M 25E2 85	
C501	R111678	C EL BRA 10M M 25E2 85		C622	R114085	C POMERA 330N K 63E2 85	
C502	P210122	C# X7R MU 100N K 50 1206	1	C623	R111510	C EL RA 22M M 25E2 85	
C503	P210139	C# C0G MU 33P J 50 1206	1	C624	P210122	C# X7R MU 100N K 50 1206	1
C504	P210092	C# X7R MU 10N K 50 1206	1	C625	R111510	C EL RA 22M M 25E2 85	
C505	P210122	C# X7R MU 100N K 50 1206	1	C700	P210122	C# X7R MU 100N K 50 1206	1
C506	R111678	C EL BRA 10M M 25E2 85		C720	P210095	C# X7R MU 330N M 50 1812	1
C507	R111678	C EL BRA 10M M 25E2 85		D 1	P234099	D#4148 RDMMELF	1
C508	P210092	C# X7R MU 10N K 50 1206	1	D 2	P234099	D#4148 RDMMELF	1
C509	P210122	C# X7R MU 100N K 50 1206	1	D 3	P234099	D#4148 RDMMELF	1
C510	P210139	C# C0G MU 33P J 50 1206	1	D 4	P234099	D#4148 RDMMELF	1
C511	R111678	C EL BRA 10M M 25E2 85		D 5	P234055	D#BAT54 SCH SOT23	1
C512	R111678	C EL BRA 10M M 25E2 85		D 6	P234099	D#4148 RDMMELF	1
C515	P210122	C# X7R MU 100N K 50 1206	1	D 7	P234099	D#4148 RDMMELF	1
C517	P210122	C# X7R MU 100N K 50 1206	1	D 8	P234099	D#4148 RDMMELF	1
C518	R111678	C EL BRA 10M M 25E2 85		D 9	P234099	D#4148 RDMMELF	1
C519	R111678	C EL BRA 10M M 25E2 85		D 10	P234099	D#4148 RDMMELF	1
C520	P210092	C# X7R MU 10N K 50 1206	1	D 11	P234099	D#4148 RDMMELF	1
C521	P210122	C# X7R MU 100N K 50 1206	1	D 12	P234088	D#BZV87-2V0 STA DMMELF	1
C522	P210122	C# X7R MU 100N K 50 1206	1	D 13	P234099	D#4148 RDMMELF	1
C523	P210092	C# X7R MU 10N K 50 1206	1	D 14	P234088	D#BZV87-2V0 STA DMMELF	1
C524	R111678	C EL BRA 10M M 25E2 85		D 15	P234099	D#4148 RDMMELF	1
C525	R111678	C EL BRA 10M M 25E2 85		D 16	P234088	D#BZV87-2V0 STA DMMELF	1
C526	P210122	C# X7R MU 100N K 50 1206	1	D 17	P234205	D#BAT54C SCH SOT23	1
C527	P210122	C# X7R MU 100N K 50 1206	1	D 18	P234188	D#SMBJ5.0A TVS SOD6	1
C528	P210074	C# C0G MU 39P K 50 0805	1	D 19	P234047	D#BAV99 SER SOT23	1
C529	P210122	C# X7R MU 100N K 50 1206	1	D 20	P234047	D#BAV99 SER SOT23	1
C530	P210122	C# X7R MU 100N K 50 1206	1	D 21	P234047	D#BAV99 SER SOT23	1
C531	P210092	C# X7R MU 10N K 50 1206	1	D 22	P234047	D#BAV99 SER SOT23	1
C532	R111678	C EL BRA 10M M 25E2 85		D 23	P234047	D#BAV99 SER SOT23	1
C533	R111678	C EL BRA 10M M 25E2 85		D 24	P234047	D#BAV99 SER SOT23	1
C534	P210122	C# X7R MU 100N K 50 1206	1	D 25	P234099	D#4148 RDMMELF	1
C535	P210122	C# X7R MU 100N K 50 1206	1	D 26	P234047	D#BAV99 SER SOT23	1
C536	P210074	C# C0G MU 39P K 50 0805	1	D 27	P234047	D#BAV99 SER SOT23	1
C537	P210122	C# X7R MU 100N K 50 1206	1	D200	P234099	D#4148 RDMMELF	1
C538	R111678	C EL BRA 10M M 25E2 85		D202	P234099	D#4148 RDMMELF	1
C539	R111678	C EL BRA 10M M 25E2 85		D203	P234099	D#4148 RDMMELF	1
C540	P210092	C# X7R MU 10N K 50 1206	1	D204	P234088	D#BZV87-2V0 STA DMMELF	1
C541	P210122	C# X7R MU 100N K 50 1206	1	D206	P234259	D#BA682 S035A1 DMMELF	1
C542	P210122	C# X7R MU 100N K 50 1206	1	D220	P234219	D#BZV87-1V4 STA DMMELF	1
C543	P210122	C# X7R MU 100N K 50 1206	1	D221	P234099	D#4148 RDMMELF	1
C544	P210165	C# C0G MU 39P J 50 1206	1	D250	P234099	D#4148 RDMMELF	1
C545	P210122	C# X7R MU 100N K 50 1206	1	D251	P234099	D#4148 RDMMELF	1
C547	P210122	C# X7R MU 100N K 50 1206	1	D252	P234099	D#4148 RDMMELF	1
C548	P210137	C# C0G MU 100P J 50 1206	1	D253	P234088	D#BZV87-2V0 STA DMMELF	1
C549	R111510	C EL RA 22M M 25E2 85		D254	R131667	D LED D3 T GN	1
C550	R111510	C EL RA 22M M 25E2 85		D255	P234055	D#BAT54 SCH SOT23	1
C551	R111510	C EL RA 22M M 25E2 85		D256	P234099	D#4148 RDMMELF	1
C600	P210013	C# C0G MU 1N J 50 1206	1	D257	P234055	D#BAT54 SCH SOT23	1
C603	P210095	C# X7R MU 330N M 50 1812	1	D258	P234099	D#4148 RDMMELF	1
C604	R111510	C EL RA 22M M 25E2 85		D259	P234289	D#HSMS2814 SCH SOT23	1
C605	P210122	C# X7R MU 100N K 50 1206	1	D300	P234099	D#4148 RDMMELF	1
C606	R111510	C EL RA 22M M 25E2 85		D302	P234099	D#4148 RDMMELF	1
C607	P210095	C# X7R MU 330N M 50 1812	1	D303	P234099	D#4148 RDMMELF	1
C608	R111510	C EL RA 22M M 25E2 85		D306	P234259	D#BA682 S035A1 DMMELF	1
C609	P210122	C# X7R MU 100N K 50 1206	1	D350	P234099	D#4148 RDMMELF	1
C610	R111164	C EL AX1000M T 25E14 85	1	D351	P234099	D#4148 RDMMELF	1
C611	P210095	C# X7R MU 330N M 50 1812	1	D352	P234099	D#4148 RDMMELF	1
C612	P210095	C# X7R MU 330N M 50 1812	1				

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D353	P234088	D#BZV87-2V0 STA DMMELF	1	D602	P234196	D#BYD37J AVA SOD87	1
D354	R131667	D LED D3 T GN	1	D603	P234196	D#BYD37J AVA SOD87	1
D355	P234055	D#BAT54 SCH SOT23	1	D604	P234099	D#4148 RDMMELF	1
D356	P234099	D#4148 RDMMELF	1	D605	P234099	D#4148 RDMMELF	1
D357	P234055	D#BAT54 SCH SOT23	1	D606	P234055	D#BAT54 SCH SOT23	1
D358	P234099	D#4148 RDMMELF	1	D607	P234055	D#BAT54 SCH SOT23	1
D400	P234099	D#4148 RDMMELF	1	D608	P234055	D#BAT54 SCH SOT23	1
D402	P234099	D#4148 RDMMELF	1	D609	P234196	D#BYD37J AVA SOD87	1
D403	P234099	D#4148 RDMMELF	1	D610	P234196	D#BYD37J AVA SOD87	1
D406	P234259	D#BA682 S035A1 DMMELF	1	D611	R131667	D LED D3 T GN	1
D420	P234099	D#4148 RDMMELF	1	D612	R131667	D LED D3 T GN	1
D421	P234099	D#4148 RDMMELF	1	D613	R131667	D LED D3 T GN	1
D422	P234099	D#4148 RDMMELF	1	D614	R131667	D LED D3 T GN	1
D450	P234099	D#4148 RDMMELF	1	D615	P234099	D#4148 RDMMELF	1
D451	P234099	D#4148 RDMMELF	1	D616	P234055	D#BAT54 SCH SOT23	1
D452	P234099	D#4148 RDMMELF	1	D617	P234099	D#4148 RDMMELF	1
D453	P234088	D#BZV87-2V0 STA DMMELF	1	D618	P234099	D#4148 RDMMELF	1
D454	R131667	D LED D3 T GN	1	D619	P234055	D#BAT54 SCH SOT23	1
D455	P234055	D#BAT54 SCH SOT23	1	D620	P234055	D#BAT54 SCH SOT23	1
D456	P234099	D#4148 RDMMELF	1	D621	P234099	D#4148 RDMMELF	1
D457	P234055	D#BAT54 SCH SOT23	1	D623	R131667	D LED D3 T GN	1
D458	P234099	D#4148 RDMMELF	1	D624	R131667	D LED D3 T GN	1
D459	P234289	D#HSMS2814 SCH SOT23	1	D625	P234099	D#4148 RDMMELF	1
D500	P234099	D#4148 RDMMELF	1	D626	P234055	D#BAT54 SCH SOT23	1
D501	P234099	D#4148 RDMMELF	1	D627	P234099	D#4148 RDMMELF	1
D502	P234099	D#4148 RDMMELF	1	D628	P234099	D#4148 RDMMELF	1
D503	P234099	D#4148 RDMMELF	1	D629	P234099	D#4148 RDMMELF	1
D504	P234099	D#4148 RDMMELF	1	D630	P234099	D#4148 RDMMELF	1
D505	P234099	D#4148 RDMMELF	1	D631	P234099	D#4148 RDMMELF	1
D506	P234099	D#4148 RDMMELF	1	D640	P234099	D#4148 RDMMELF	1
D507	P234099	D#4148 RDMMELF	1	D641	P234055	D#BAT54 SCH SOT23	1
D508	P234099	D#4148 RDMMELF	1	D642	P234099	D#4148 RDMMELF	1
D509	P234099	D#4148 RDMMELF	1	D643	P234055	D#BAT54 SCH SOT23	1
D510	P234099	D#4148 RDMMELF	1	D644	P234099	D#4148 RDMMELF	1
D511	P234099	D#4148 RDMMELF	1	D645	P234055	D#BAT54 SCH SOT23	1
D512	P234099	D#4148 RDMMELF	1	D646	P234099	D#4148 RDMMELF	1
D513	P234099	D#4148 RDMMELF	1	D647	P234099	D#4148 RDMMELF	1
D514	P234099	D#4148 RDMMELF	1	D700	P234099	D#4148 RDMMELF	1
D515	P234099	D#4148 RDMMELF	1	D701	P234099	D#4148 RDMMELF	1
D516	P234099	D#4148 RDMMELF	1	D702	P234099	D#4148 RDMMELF	1
D517	P234099	D#4148 RDMMELF	1	D703	P234099	D#4148 RDMMELF	1
D518	P234099	D#4148 RDMMELF	1	D704	P234196	D#BYD37J AVA SOD87	1
D519	P234099	D#4148 RDMMELF	1	D770	P234099	D#4148 RDMMELF	1
D520	P234099	D#4148 RDMMELF	1	D771	P234099	D#4148 RDMMELF	1
D521	P234099	D#4148 RDMMELF	1	D772	P234099	D#4148 RDMMELF	1
D522	P234099	D#4148 RDMMELF	1	D774	P234099	D#4148 RDMMELF	1
D523	P234099	D#4148 RDMMELF	1	D775	P234099	D#4148 RDMMELF	1
D524	P234099	D#4148 RDMMELF	1	D777	P234099	D#4148 RDMMELF	1
D525	P234099	D#4148 RDMMELF	1	D780	P234099	D#4148 RDMMELF	1
D526	P234099	D#4148 RDMMELF	1	D781	P234099	D#4148 RDMMELF	1
D527	P234099	D#4148 RDMMELF	1	D782	P234099	D#4148 RDMMELF	1
D528	P234099	D#4148 RDMMELF	1	D783	P234099	D#4148 RDMMELF	1
D529	P234099	D#4148 RDMMELF	1				
D530	P234099	D#4148 RDMMELF	1	I 1	R137011	U 74HCT153 DIP16 P	1
D531	P234099	D#4148 RDMMELF	1	I 2	R137598	U 74HC04 DIP14 P	1
D532	P234099	D#4148 RDMMELF	1	I 3	R137598	U 74HC04 DIP14 P	1
D533	P234099	D#4148 RDMMELF	1	I 4	R134125	U 34084 DIP14 P	1
D535	P234099	D#4148 RDMMELF	1	I 5	R134113	U 084 TL DIP14 P	1
D536	P234099	D#4148 RDMMELF	1	I 7	R132833	U BELLA 4 DIP28 P	1
D537	P234099	D#4148 RDMMELF	1	I 8	R132833	U BELLA 4 DIP28 P	1
D538	P234099	D#4148 RDMMELF	1	I 9	R136600	U 74HC4066 DIP14 P	1
D539	P234099	D#4148 RDMMELF	1	I131	R1328265	U 1203A LM DIP28 P	1
D540	P234099	D#4148 RDMMELF	1	I200	R137583	U 74HC4053 DIP16 P	1
D541	P234099	D#4148 RDMMELF	1	I201	R137583	U 74HC4053 DIP16 P	1
D542	P234099	D#4148 RDMMELF	1	I202	R136600	U 74HC4066 DIP14 P	1
D600	P234099	D#4148 RDMMELF	1	I203	R136600	U 74HC4066 DIP14 P	1
D601	P234099	D#4148 RDMMELF	1	I220	R134124	U 082 TL DIP8 P	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
I221	R132134	U 3046 CA DIP14 P	1	L720	R3061582	CH AX NS 1.5 MH	1
I250	R134225	U 2082 EL DIP8 P	1	P250	R107004	R TCE H200E K 0W5 S 7TS	1
I251	R134145	U 3080E CA DIP8 P	1	P251	R107005	R TCE H500E K 0W5 S 7TS	1
I252	R134114	U 393 LM DIP8 P	1	P350	R107004	R TCE H200E K 0W5 S 7TS	1
I253	R137583	U 74HC4053 DIP16 P	1	P351	R107005	R TCE H500E K 0W5 S 7TS	1
I254	R134113	U 084 TL DIP14 P	1	P450	R107004	R TCE H200E K 0W5 S 7TS	1
I255	P230100	U#3080 CA SO8 P	1	P451	R107005	R TCE H500E K 0W5 S 7TS	1
I350	R134225	U 2082 EL DIP8 P	1	PC	R780595	PCBD708INP	1
I351	R134145	U 3080E CA DIP8 P	1	Q 1	P232044	Q#BC859B P SS SOT23	1
I352	R134114	U 393 LM DIP8 P	1	Q 2	P232044	Q#BC859B P SS SOT23	1
I353	R137583	U 74HC4053 DIP16 P	1	Q 3	P232043	Q#BC849B N SS SOT23	1
I354	R134113	U 084 TL DIP14 P	1	Q 4	P232044	Q#BC859B P SS SOT23	1
I450	R134225	U 2082 EL DIP8 P	1	Q 5	P232043	Q#BC849B N SS SOT23	1
I451	R134145	U 3080E CA DIP8 P	1	Q 6	P232044	Q#BC859B P SS SOT23	1
I452	R134114	U 393 LM DIP8 P	1	Q 7	P232043	Q#BC849B N SS SOT23	1
I453	R137583	U 74HC4053 DIP16 P	1	Q 8	P232043	Q#BC849B N SS SOT23	1
I454	R134113	U 084 TL DIP14 P	1	Q 9	P232043	Q#BC849B N SS SOT23	1
I455	R134145	U 3080E CA DIP8 P	1	Q 10	P232044	Q#BC859B P SS SOT23	1
I600	R137546	U 74HCT32 DIP14 P	1	Q 23	P232043	Q#BC849B N SS SOT23	1
I601	R137598	U 74HC04 DIP14 P	1	Q 24	P232044	Q#BC859B P SS SOT23	1
I602	R134001	U 7805 TO220 P	1	Q 25	P232043	Q#BC849B N SS SOT23	1
I603	R134016	U 7912 TO220 P	1	Q 26	P232004	Q#BC849C N SS SOT23	1
I604	R134032	U 78L05AC TO92 P	1	Q 27	P232033	Q#BSV52 N SS SOT23	1
I605	R134002	U 7812 TO220 P	1	Q200	P232044	Q#BC859B P SS SOT23	1
I606	R137492	U 74LS42 DIP16 P	1	Q201	P232044	Q#BC859B P SS SOT23	1
I607	R132832	U 8574A PCF DIP16 P	1	Q202	P232076	Q#BFS17 N SS SOT23	1
J 3	R313932	J C T H MBT P12 M2SN WH	1	Q220	P232044	Q#BC859B P SS SOT23	1
J206	R3135005	J DE P8 MBS P 9 FUMBLPGDB	1	Q221	P232044	Q#BC859B P SS SOT23	1
J210	R313935	J C T H MBT P15 M2SN WH	1	Q222	P232044	Q#BC859B P SS SOT23	1
J213	B338800	J PHN FBS D 3.5MON P	1	Q223	P232044	Q#BC859B P SS SOT23	1
J217	B332142	J BNC FBS P5 SHLD SIP	1	Q224	P232043	Q#BC849B N SS SOT23	1
J235	R313851	J CIRC A FBS P 4 MDIN MS	1	Q250	P2320460	Q#2N7002 F SS SOT23	1
J252	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	Q251	P232046	Q#BSS123 F SS SOT23	1
J400	R313932	J C T H MBT P12 M2SN WH	1	Q252	P232076	Q#BFS17 N SS SOT23	1
J401	R313928	J C T H MBT P 8 M2SN WH	1	Q253	B133153	Q 2SA1723 P SS TO126	1
J402	R313928	J C T H MBT P 8 M2SN WH	1	Q254	P232043	Q#BC849B N SS SOT23	1
J405	R313927	J C T H MBT P 7 M2SN WH	1	Q255	P232044	Q#BC859B P SS SOT23	1
J452	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	Q256	P232044	Q#BC859B P SS SOT23	1
J500	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	Q257	P232101	Q#BC859C P SS SOT23	1
J501	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	Q300	P232044	Q#BC859B P SS SOT23	1
J503	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	Q301	P232044	Q#BC859B P SS SOT23	1
J504	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	Q302	P232076	Q#BFS17 N SS SOT23	1
J505	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	Q350	P2320460	Q#2N7002 F SS SOT23	1
J506	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	Q351	P232046	Q#BSS123 F SS SOT23	1
J550	R313935	J C T H MBT P15 M2SN WH	1	Q352	P232076	Q#BFS17 N SS SOT23	1
J560	R313935	J C T H MBT P15 M2SN WH	1	Q353	B133153	Q 2SA1723 P SS TO126	1
J570	R313935	J C T H MBT P15 M2SN WH	1	Q354	P232043	Q#BC849B N SS SOT23	1
J580	R313925	J C T H MBT P 5 M2SN WH	1	Q355	P232044	Q#BC859B P SS SOT23	1
J701	R313930	J C T H MBT P10 M2SN WH	1	Q356	P232044	Q#BC859B P SS SOT23	1
J703	R313924	J C T H MBT P 4 M2SN WH	1	Q400	P232044	Q#BC859B P SS SOT23	1
J734	R3485154	CD CT FTMS P15 70	1	Q401	P232044	Q#BC859B P SS SOT23	1
J735	R3485154	CD CT FTMS P15 70	1	Q402	P232076	Q#BFS17 N SS SOT23	1
J741	R313928	J C T H MBT P 8 M2SN WH	1	Q420	P232043	Q#BC849B N SS SOT23	1
J757	R313932	J C T H MBT P12 M2SN WH	1	Q421	R132904	Q 2N2905A P SS TO39	1
J778	R313929	J C T H MBT P 9 M2SN WH	1	Q422	P232043	Q#BC849B N SS SOT23	1
J779	R313931	J C T H MBT P11 M2SN WH	1	Q450	P2320460	Q#2N7002 F SS SOT23	1
J799	R313926	J C T H MBT P 6 M2SN WH	1	Q451	P232046	Q#BSS123 F SS SOT23	1
L150	R3061322	CH AX NS 10 UH	1	Q452	P232076	Q#BFS17 N SS SOT23	1
L200	P250534	CH# 560 NH L1210	1	Q453	B133153	Q 2SA1723 P SS TO126	1
L241	R3061322	CH AX NS 10 UH	1	Q454	P232043	Q#BC849B N SS SOT23	1
L242	R3061322	CH AX NS 10 UH	1	Q455	P232044	Q#BC859B P SS SOT23	1
L243	R3061322	CH AX NS 10 UH	1	Q456	P232044	Q#BC859B P SS SOT23	1
L300	P250534	CH# 560 NH L1210	1	Q457	P232101	Q#BC859C P SS SOT23	1
L400	P250534	CH# 560 NH L1210	1	Q500	P232043	Q#BC849B N SS SOT23	1
L602	R3061322	CH AX NS 10 UH	1	Q501	P232043	Q#BC849B N SS SOT23	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
Q502	P232043	Q#BC849B N SS SOT23	1	R 23	P200403	R# CE H470E F 0W25 1206	1
Q503	P232043	Q#BC849B N SS SOT23	1	R 24	P200403	R# CE H470E F 0W25 1206	1
Q504	P232043	Q#BC849B N SS SOT23	1	R 25	P200387	R# CE H100E F 0W25 1206	1
Q505	P232043	Q#BC849B N SS SOT23	1	R 26	P200451	R# CE H 47K F 0W25 1206	1
Q506	P232043	Q#BC849B N SS SOT23	1	R 27	P200423	R# CE H 3K3 F 0W25 1206	1
Q507	P232043	Q#BC849B N SS SOT23	1	R 28	P200423	R# CE H 3K3 F 0W25 1206	1
Q508	P232043	Q#BC849B N SS SOT23	1	R 29	P200423	R# CE H 3K3 F 0W25 1206	1
Q509	P232043	Q#BC849B N SS SOT23	1	R 30	P200423	R# CE H 3K3 F 0W25 1206	1
Q510	P232043	Q#BC849B N SS SOT23	1	R 31	P200435	R# CE H 10K F 0W25 1206	1
Q511	P232043	Q#BC849B N SS SOT23	1	R 32	P200423	R# CE H 3K3 F 0W25 1206	1
Q512	P232043	Q#BC849B N SS SOT23	1	R 33	P200423	R# CE H 3K3 F 0W25 1206	1
Q513	P232076	Q#BFS17 N SS SOT23	1	R 34	P200428	R# CE H 5K1 F 0W25 1206	1
Q514	P232076	Q#BFS17 N SS SOT23	1	R 35	P200423	R# CE H 3K3 F 0W25 1206	1
Q515	P232043	Q#BC849B N SS SOT23	1	R 36	P200443	R# CE H 22K F 0W25 1206	1
Q516	P232076	Q#BFS17 N SS SOT23	1	R 37	P200463	R# CE H150K F 0W25 1206	1
Q517	P232076	Q#BFS17 N SS SOT23	1	R 38	P200379	R# CE H 47E F 0W25 1206	1
Q518	P232043	Q#BC849B N SS SOT23	1	R 39	P200379	R# CE H 47E F 0W25 1206	1
Q519	P232076	Q#BFS17 N SS SOT23	1	R 40	P200379	R# CE H 47E F 0W25 1206	1
Q520	P232076	Q#BFS17 N SS SOT23	1	R 41	P200379	R# CE H 47E F 0W25 1206	1
Q521	P232043	Q#BC849B N SS SOT23	1	R 42	P200379	R# CE H 47E F 0W25 1206	1
Q523	P232044	Q#BC859B P SS SOT23	1	R 43	P200379	R# CE H 47E F 0W25 1206	1
Q524	P232044	Q#BC859B P SS SOT23	1	R 44	P200435	R# CE H 10K F 0W25 1206	1
Q525	P232044	Q#BC859B P SS SOT23	1	R 45	P200429	R# CE H 5K6 F 0W25 1206	1
Q526	P232044	Q#BC859B P SS SOT23	1	R 46	P200435	R# CE H 10K F 0W25 1206	1
Q527	P232044	Q#BC859B P SS SOT23	1	R 47	P200435	R# CE H 10K F 0W25 1206	1
Q620	P232043	Q#BC849B N SS SOT23	1	R 48	P200435	R# CE H 10K F 0W25 1206	1
Q621	R131471	Q BF458 N P TO126	1	R 49	P200429	R# CE H 5K6 F 0W25 1206	1
Q622	P232042	Q#BC807-25 P SS SOT23	1	R 50	P200447	R# CE H 33K F 0W25 1206	1
Q623	P232043	Q#BC849B N SS SOT23	1	R 51	P200435	R# CE H 10K F 0W25 1206	1
Q624	P232042	Q#BC807-25 P SS SOT23	1	R 52	P200429	R# CE H 5K6 F 0W25 1206	1
Q625	P232079	Q#BSS84 F SS SOT23	1	R 53	P200435	R# CE H 10K F 0W25 1206	1
Q626	P232043	Q#BC849B N SS SOT23	1	R 54	P200435	R# CE H 10K F 0W25 1206	1
Q627	P232042	Q#BC807-25 P SS SOT23	1	R 55	P200435	R# CE H 10K F 0W25 1206	1
Q628	P232043	Q#BC849B N SS SOT23	1	R 56	P200429	R# CE H 5K6 F 0W25 1206	1
Q629	P232042	Q#BC807-25 P SS SOT23	1	R 57	P200447	R# CE H 33K F 0W25 1206	1
Q630	P232043	Q#BC849B N SS SOT23	1	R 58	P200435	R# CE H 10K F 0W25 1206	1
Q631	P232043	Q#BC849B N SS SOT23	1	R 59	P200429	R# CE H 5K6 F 0W25 1206	1
Q632	P232043	Q#BC849B N SS SOT23	1	R 60	P200435	R# CE H 10K F 0W25 1206	1
Q633	P232043	Q#BC849B N SS SOT23	1	R 61	P200435	R# CE H 10K F 0W25 1206	1
Q634	P232043	Q#BC849B N SS SOT23	1	R 62	P200435	R# CE H 10K F 0W25 1206	1
Q635	P232043	Q#BC849B N SS SOT23	1	R 63	P200429	R# CE H 5K6 F 0W25 1206	1
Q636	P232042	Q#BC807-25 P SS SOT23	1	R 64	P200447	R# CE H 33K F 0W25 1206	1
Q720	P232044	Q#BC859B P SS SOT23	1	R 65	P200395	R# CE H220E F 0W25 1206	1
Q721	P232043	Q#BC849B N SS SOT23	1	R 66	P200404	R# CE H510E F 0W25 1206	1
Q722	P232043	Q#BC849B N SS SOT23	1	R 67	P200402	R# CE H430E F 0W25 1206	1
R 1	P200411	R# CE H 1K F 0W25 1206	1	R 68	P200453	R# CE H 56K F 0W25 1206	1
R 2	P200387	R# CE H100E F 0W25 1206	1	R 69	P200451	R# CE H 47K F 0W25 1206	1
R 3	P201111	R# CE H 10K F 0W12 0805	1	R 70	P200435	R# CE H 10K F 0W25 1206	1
R 4	P201111	R# CE H 10K F 0W12 0805	1	R 71	P200413	R# CE H 1K2 F 0W25 1206	1
R 5	P201103	R# CE H 4K7 F 0W12 0805	1	R 72	P200435	R# CE H 10K F 0W25 1206	1
R 6	P201103	R# CE H 4K7 F 0W12 0805	1	R 73	P200445	R# CE H 27K F 0W25 1206	1
R 7	P200387	R# CE H100E F 0W25 1206	1	R 74	P200397	R# CE H270E F 0W25 1206	1
R 8	P200387	R# CE H100E F 0W25 1206	1	R 75	P200435	R# CE H 10K F 0W25 1206	1
R 9	P200427	R# CE H 4K7 F 0W25 1206	1	R 76	P200413	R# CE H 1K2 F 0W25 1206	1
R 11	P200435	R# CE H 10K F 0W25 1206	1	R 77	P200451	R# CE H 47K F 0W25 1206	1
R 12	P201105	R# CE H 5K6 F 0W12 0805	1	R 78	P200387	R# CE H100E F 0W25 1206	1
R 13	P200403	R# CE H470E F 0W25 1206	1	R 79	P200387	R# CE H100E F 0W25 1206	1
R 14	P200403	R# CE H470E F 0W25 1206	1	R 80	P200433	R# CE H 8K2 F 0W25 1206	1
R 15	P200419	R# CE H 2K2 F 0W25 1206	1	R 81	P200387	R# CE H100E F 0W25 1206	1
R 16	P200419	R# CE H 2K2 F 0W25 1206	1	R 82	P200396	R# CE H240E F 0W25 1206	1
R 17	P200419	R# CE H 2K2 F 0W25 1206	1	R 83	P200387	R# CE H100E F 0W25 1206	1
R 18	P200427	R# CE H 4K7 F 0W25 1206	1	R 84	P200453	R# CE H 56K F 0W25 1206	1
R 19	P201055	R# CE H 47E F 0W12 0805	1	R 85	P200416	R# CE H 1K6 F 0W25 1206	1
R 20	P200403	R# CE H470E F 0W25 1206	1	R 86	P200427	R# CE H 4K7 F 0W25 1206	1
R 21	P200403	R# CE H470E F 0W25 1206	1	R 87	P200459	R# CE H100K F 0W25 1206	1
R 22	P200451	R# CE H 47K F 0W25 1206	1	R 88	P200459	R# CE H100K F 0W25 1206	1
				R 89	P200456	R# CE H 75K F 0W25 1206	1


SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 90	P200421	R# CE H 2K7 F 0W25 1206	1	R259	P200404	R# CE H510E F 0W25 1206	1
R 91	P200432	R# CE H 7K5 F 0W25 1206	1	R260	P200429	R# CE H 5K6 F 0W25 1206	1
R 92	P200431	R# CE H 6K8 F 0W25 1206	1	R261	P200399	R# CE H330E F 0W25 1206	1
R 93	P200427	R# CE H 4K7 F 0W25 1206	1	R262	P201127	R# CE H 47K F 0W12 0805	1
R 94	P200427	R# CE H 4K7 F 0W25 1206	1	R263	P200387	R# CE H100E F 0W25 1206	1
R 96	P200427	R# CE H 4K7 F 0W25 1206	1	R264	P200395	R# CE H220E F 0W25 1206	1
R 97	P200422	R# CE H 3K F 0W25 1206	1	R265	P200403	R# CE H470E F 0W25 1206	1
R 98	P200450	R# CE H 43K F 0W25 1206	1	R266	P201061	R# CE H 82E F 0W12 0805	1
R 99	P200387	R# CE H100E F 0W25 1206	1	R267	P200404	R# CE H510E F 0W25 1206	1
R100	P200363	R# CE H 10E F 0W25 1206	1	R268	P200347	R# CE H 2E2 F 0W25 1206	1
R101	P200419	R# CE H 2K2 F 0W25 1206	1	R269	P200421	R# CE H 2K7 F 0W25 1206	1
R102	P200387	R# CE H100E F 0W25 1206	1	R270	P200403	R# CE H470E F 0W25 1206	1
R103	P200387	R# CE H100E F 0W25 1206	1	R271	P200417	R# CE H 1K8 F 0W25 1206	1
R104	P200431	R# CE H 6K8 F 0W25 1206	1	R272	P200447	R# CE H 33K F 0W25 1206	1
R105	P200435	R# CE H 10K F 0W25 1206	1	R273	P200429	R# CE H 5K6 F 0W25 1206	1
R106	P200431	R# CE H 6K8 F 0W25 1206	1	R274	P200416	R# CE H 1K6 F 0W25 1206	1
R150	P200379	R# CE H 47E F 0W25 1206	1	R275	P200393	R# CE H180E F 0W25 1206	1
R151	P200435	R# CE H 10K F 0W25 1206	1	R276	P200435	R# CE H 10K F 0W25 1206	1
R152	P200387	R# CE H100E F 0W25 1206	1	R277	P200419	R# CE H 2K2 F 0W25 1206	1
R153	P200387	R# CE H100E F 0W25 1206	1	R278	P200419	R# CE H 2K2 F 0W25 1206	1
R200	P200387	R# CE H100E F 0W25 1206	1	R279	P200447	R# CE H 33K F 0W25 1206	1
R201	P200383	R# CE H 68E F 0W25 1206	1	R280	P200423	R# CE H 3K3 F 0W25 1206	1
R202	P200384	R# CE H 75E F 0W25 1206	1	R281	P200459	R# CE H100K F 0W25 1206	1
R203	P200397	R# CE H270E F 0W25 1206	1	R282	P200457	R# CE H 82K F 0W25 1206	1
R204	P200384	R# CE H 75E F 0W25 1206	1	R283	P200447	R# CE H 33K F 0W25 1206	1
R205	P200363	R# CE H 10E F 0W25 1206	1	R284	P200435	R# CE H 10K F 0W25 1206	1
R206	P200385	R# CE H 82E F 0W25 1206	1	R285	P200435	R# CE H 10K F 0W25 1206	1
R207	P200417	R# CE H 1K8 F 0W25 1206	1	R286	P200387	R# CE H100E F 0W25 1206	1
R208	P200395	R# CE H220E F 0W25 1206	1	R287	P201073	R# CE H270E F 0W12 0805	1
R209	P200384	R# CE H 75E F 0W25 1206	1	R288	P201091	R# CE H 1K5 F 0W12 0805	1
R210	P200390	R# CE H130E F 0W25 1206	1	R289	P201089	R# CE H 1K2 F 0W12 0805	1
R211	P200427	R# CE H 4K7 F 0W25 1206	1	R290	P201089	R# CE H 1K2 F 0W12 0805	1
R220	P200429	R# CE H 5K6 F 0W25 1206	1	R292	P201159	R# CE H 1M F 0W12 0805	1
R221	P200397	R# CE H270E F 0W25 1206	1	R293	P201091	R# CE H 1K5 F 0W12 0805	1
R222	P200397	R# CE H270E F 0W25 1206	1	R294	P200435	R# CE H 10K F 0W25 1206	1
R223	P200397	R# CE H270E F 0W25 1206	1	R297	P200363	R# CE H 10E F 0W25 1206	1
R224	P200405	R# CE H560E F 0W25 1206	1	R298	R1015281	R MF H200E F 0W4 E3	1
R225	P200405	R# CE H560E F 0W25 1206	1	R300	P200387	R# CE H100E F 0W25 1206	1
R226	P200414	R# CE H 1K3 F 0W25 1206	1	R301	P200383	R# CE H 68E F 0W25 1206	1
R227	P200399	R# CE H330E F 0W25 1206	1	R302	P200384	R# CE H 75E F 0W25 1206	1
R228	P200457	R# CE H 82K F 0W25 1206	1	R303	P200397	R# CE H270E F 0W25 1206	1
R229	P200457	R# CE H 82K F 0W25 1206	1	R304	P200384	R# CE H 75E F 0W25 1206	1
R230	P200461	R# CE H120K F 0W25 1206	1	R305	P200363	R# CE H 10E F 0W25 1206	1
R231	P200461	R# CE H120K F 0W25 1206	1	R306	P200385	R# CE H 82E F 0W25 1206	1
R232	P200451	R# CE H 47K F 0W25 1206	1	R307	P200417	R# CE H 1K8 F 0W25 1206	1
R233	P200451	R# CE H 47K F 0W25 1206	1	R308	P200395	R# CE H220E F 0W25 1206	1
R234	P200435	R# CE H 10K F 0W25 1206	1	R309	P200384	R# CE H 75E F 0W25 1206	1
R235	P200435	R# CE H 10K F 0W25 1206	1	R310	P200390	R# CE H130E F 0W25 1206	1
R236	P200397	R# CE H270E F 0W25 1206	1	R311	P200427	R# CE H 4K7 F 0W25 1206	1
R237	P200405	R# CE H560E F 0W25 1206	1	R320	P200459	R# CE H100K F 0W25 1206	1
R238	P200405	R# CE H560E F 0W25 1206	1	R321	P200442	R# CE H 20K F 0W25 1206	1
R239	P200420	R# CE H 2K4 F 0W25 1206	1	R322	P200379	R# CE H 47E F 0W25 1206	1
R240	P200397	R# CE H270E F 0W25 1206	1	R323	P200403	R# CE H470E F 0W25 1206	1
R241	P200379	R# CE H 47E F 0W25 1206	1	R324	P200435	R# CE H 10K F 0W25 1206	1
R242	P200435	R# CE H 10K F 0W25 1206	1	R325	P200435	R# CE H 10K F 0W25 1206	1
R243	P200449	R# CE H 39K F 0W25 1206	1	R326	P200363	R# CE H 10E F 0W25 1206	1
R244	P200363	R# CE H 10E F 0W25 1206	1	R350	P200465	R# CE H180K F 0W25 1206	1
R245	P200371	R# CE H 22E F 0W25 1206	1	R351	P200379	R# CE H 47E F 0W25 1206	1
R250	P200465	R# CE H180K F 0W25 1206	1	R352	P200411	R# CE H 1K F 0W25 1206	1
R251	P200379	R# CE H 47E F 0W25 1206	1	R353	P200399	R# CE H330E F 0W25 1206	1
R252	P200411	R# CE H 1K F 0W25 1206	1	R354	P200417	R# CE H 1K8 F 0W25 1206	1
R253	P200399	R# CE H330E F 0W25 1206	1	R355	P200417	R# CE H 1K8 F 0W25 1206	1
R254	P200417	R# CE H 1K8 F 0W25 1206	1	R356	P200387	R# CE H100E F 0W25 1206	1
R255	P200417	R# CE H 1K8 F 0W25 1206	1	R357	P200419	R# CE H 2K2 F 0W25 1206	1
R256	P200387	R# CE H100E F 0W25 1206	1	R358	P200398	R# CE H300E F 0W25 1206	1
R257	P200419	R# CE H 2K2 F 0W25 1206	1	R359	P200404	R# CE H510E F 0W25 1206	1
R258	P200398	R# CE H300E F 0W25 1206	1	R360	P200429	R# CE H 5K6 F 0W25 1206	1

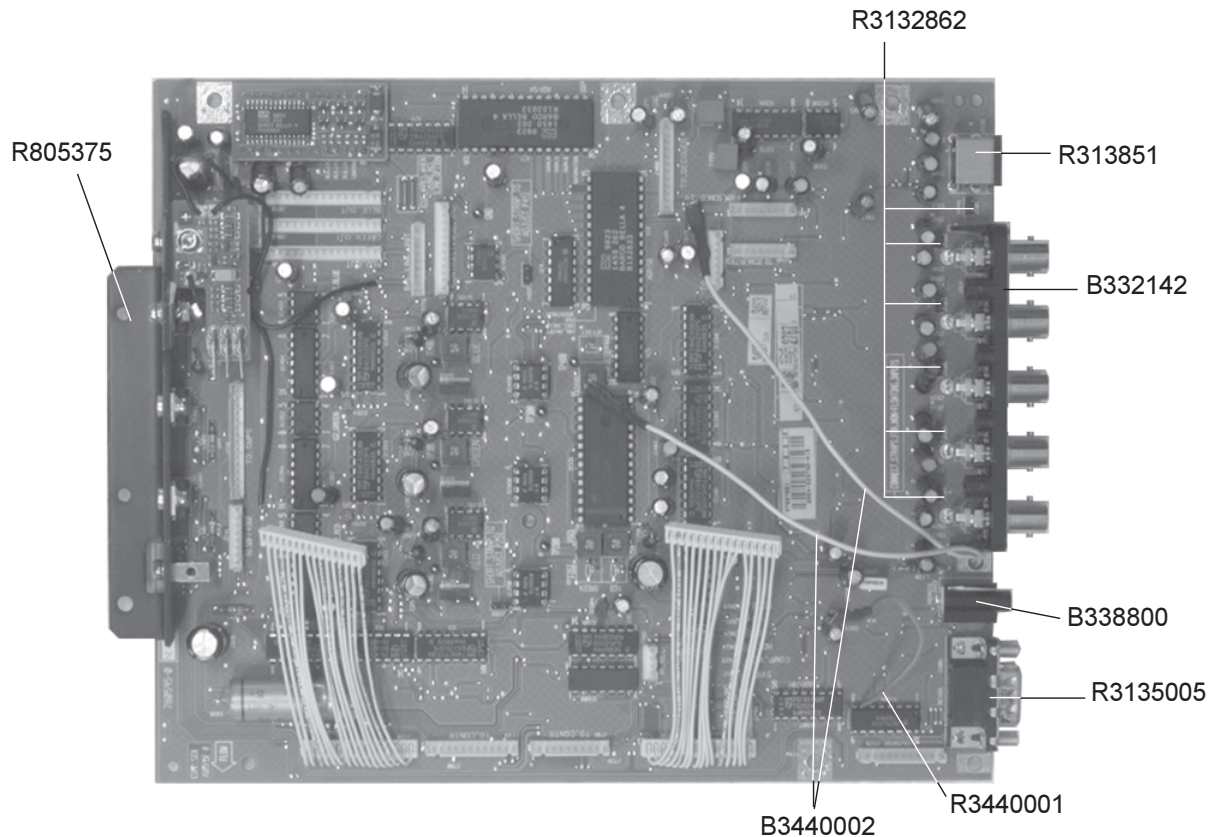
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R361	P200399	R# CE H330E F 0W25 1206	1	R465	P200403	R# CE H470E F 0W25 1206	1
R362	P200451	R# CE H 47K F 0W25 1206	1	R466	P200385	R# CE H 82E F 0W25 1206	1
R363	P200387	R# CE H100E F 0W25 1206	1	R467	P200404	R# CE H510E F 0W25 1206	1
R364	P200395	R# CE H220E F 0W25 1206	1	R468	P200347	R# CE H 2E2 F 0W25 1206	1
R365	P200403	R# CE H470E F 0W25 1206	1	R469	P200421	R# CE H 2K7 F 0W25 1206	1
R366	P200385	R# CE H 82E F 0W25 1206	1	R470	P200403	R# CE H470E F 0W25 1206	1
R367	P200404	R# CE H510E F 0W25 1206	1	R471	P200417	R# CE H 1K8 F 0W25 1206	1
R368	P200347	R# CE H 2E2 F 0W25 1206	1	R472	P200447	R# CE H 33K F 0W25 1206	1
R369	P200421	R# CE H 2K7 F 0W25 1206	1	R473	P200429	R# CE H 5K6 F 0W25 1206	1
R370	P200403	R# CE H470E F 0W25 1206	1	R474	P200416	R# CE H 1K6 F 0W25 1206	1
R371	P200417	R# CE H 1K8 F 0W25 1206	1	R475	P200393	R# CE H180E F 0W25 1206	1
R372	P200447	R# CE H 33K F 0W25 1206	1	R476	P200435	R# CE H 10K F 0W25 1206	1
R373	P200429	R# CE H 5K6 F 0W25 1206	1	R477	P200419	R# CE H 2K2 F 0W25 1206	1
R374	P200416	R# CE H 1K6 F 0W25 1206	1	R478	P200419	R# CE H 2K2 F 0W25 1206	1
R375	P200393	R# CE H180E F 0W25 1206	1	R479	P200447	R# CE H 33K F 0W25 1206	1
R376	P200435	R# CE H 10K F 0W25 1206	1	R480	P200423	R# CE H 3K3 F 0W25 1206	1
R377	P200419	R# CE H 2K2 F 0W25 1206	1	R481	P200459	R# CE H100K F 0W25 1206	1
R378	P200419	R# CE H 2K2 F 0W25 1206	1	R482	P200457	R# CE H 82K F 0W25 1206	1
R379	P200447	R# CE H 33K F 0W25 1206	1	R483	P200447	R# CE H 33K F 0W25 1206	1
R380	P200423	R# CE H 3K3 F 0W25 1206	1	R484	P200435	R# CE H 10K F 0W25 1206	1
R381	P200459	R# CE H100K F 0W25 1206	1	R485	P200435	R# CE H 10K F 0W25 1206	1
R382	P200457	R# CE H 82K F 0W25 1206	1	R486	P200387	R# CE H100E F 0W25 1206	1
R383	P200447	R# CE H 33K F 0W25 1206	1	R487	P200385	R# CE H 82E F 0W25 1206	1
R384	P200435	R# CE H 10K F 0W25 1206	1	R488	P200415	R# CE H 1K5 F 0W25 1206	1
R385	P200435	R# CE H 10K F 0W25 1206	1	R489	P200413	R# CE H 1K2 F 0W25 1206	1
R386	P200387	R# CE H100E F 0W25 1206	1	R490	P200413	R# CE H 1K2 F 0W25 1206	1
R394	P200435	R# CE H 10K F 0W25 1206	1	R492	P200459	R# CE H100K F 0W25 1206	1
R397	P200363	R# CE H 10E F 0W25 1206	1	R493	P200415	R# CE H 1K5 F 0W25 1206	1
R398	R1015281	R MF H200E F 0W4 E3	1	R494	P200435	R# CE H 10K F 0W25 1206	1
R400	P200387	R# CE H100E F 0W25 1206	1	R497	P200363	R# CE H 10E F 0W25 1206	1
R401	P200383	R# CE H 68E F 0W25 1206	1	R498	R1015281	R MF H200E F 0W4 E3	1
R402	P200384	R# CE H 75E F 0W25 1206	1	R500	P200384	R# CE H 75E F 0W25 1206	1
R403	P200397	R# CE H270E F 0W25 1206	1	R501	P200387	R# CE H100E F 0W25 1206	1
R404	P200384	R# CE H 75E F 0W25 1206	1	R502	P200449	R# CE H 39K F 0W25 1206	1
R405	P200378	R# CE H 43E F 0W25 1206	1	R503	P200449	R# CE H 39K F 0W25 1206	1
R406	P200385	R# CE H 82E F 0W25 1206	1	R504	P200387	R# CE H100E F 0W25 1206	1
R407	P200417	R# CE H 1K8 F 0W25 1206	1	R505	P200395	R# CE H220E F 0W25 1206	1
R408	P200395	R# CE H220E F 0W25 1206	1	R506	P200421	R# CE H 2K7 F 0W25 1206	1
R409	P200384	R# CE H 75E F 0W25 1206	1	R507	P200445	R# CE H 27K F 0W25 1206	1
R410	P200390	R# CE H130E F 0W25 1206	1	R508	P200397	R# CE H270E F 0W25 1206	1
R411	P200427	R# CE H 4K7 F 0W25 1206	1	R509	P200397	R# CE H270E F 0W25 1206	1
R420	P200387	R# CE H100E F 0W25 1206	1	R510	P200390	R# CE H130E F 0W25 1206	1
R422	P200395	R# CE H220E F 0W25 1206	1	R511	P200447	R# CE H 33K F 0W25 1206	1
R423	P200409	R# CE H820E F 0W25 1206	1	R512	P200447	R# CE H 33K F 0W25 1206	1
R424	P200405	R# CE H560E F 0W25 1206	1	R513	P200421	R# CE H 2K7 F 0W25 1206	1
R425	P200355	R# CE H 4E7 F 0W25 1206	1	R514	P200384	R# CE H 75E F 0W25 1206	1
R426	P200459	R# CE H100K F 0W25 1206	1	R515	P200387	R# CE H100E F 0W25 1206	1
R427	P200363	R# CE H 10E F 0W25 1206	1	R516	P200449	R# CE H 39K F 0W25 1206	1
R428	P200383	R# CE H 68E F 0W25 1206	1	R517	P200449	R# CE H 39K F 0W25 1206	1
R429	P200409	R# CE H820E F 0W25 1206	1	R518	P200387	R# CE H100E F 0W25 1206	1
R430	P200451	R# CE H 47K F 0W25 1206	1	R519	P200395	R# CE H220E F 0W25 1206	1
R431	P200427	R# CE H 4K7 F 0W25 1206	1	R520	P200397	R# CE H270E F 0W25 1206	1
R450	P200465	R# CE H180K F 0W25 1206	1	R521	P200397	R# CE H270E F 0W25 1206	1
R451	P200379	R# CE H 47E F 0W25 1206	1	R522	P200390	R# CE H130E F 0W25 1206	1
R452	P200411	R# CE H 1K F 0W25 1206	1	R523	P200421	R# CE H 2K7 F 0W25 1206	1
R453	P200399	R# CE H330E F 0W25 1206	1	R524	P200387	R# CE H100E F 0W25 1206	1
R454	P200417	R# CE H 1K8 F 0W25 1206	1	R525	P200449	R# CE H 39K F 0W25 1206	1
R455	P200417	R# CE H 1K8 F 0W25 1206	1	R526	P200449	R# CE H 39K F 0W25 1206	1
R456	P200387	R# CE H100E F 0W25 1206	1	R527	P200387	R# CE H100E F 0W25 1206	1
R457	P200419	R# CE H 2K2 F 0W25 1206	1	R528	P200393	R# CE H180E F 0W25 1206	1
R458	P200398	R# CE H300E F 0W25 1206	1	R529	P200421	R# CE H 2K7 F 0W25 1206	1
R459	P200404	R# CE H510E F 0W25 1206	1	R530	P200445	R# CE H 27K F 0W25 1206	1
R460	P200429	R# CE H 5K6 F 0W25 1206	1	R531	P200399	R# CE H330E F 0W25 1206	1
R461	P200399	R# CE H330E F 0W25 1206	1	R532	P200399	R# CE H330E F 0W25 1206	1
R462	P200451	R# CE H 47K F 0W25 1206	1	R534	P200387	R# CE H100E F 0W25 1206	1
R463	P200387	R# CE H100E F 0W25 1206	1	R535	P200449	R# CE H 39K F 0W25 1206	1
R464	P200395	R# CE H220E F 0W25 1206	1	R536	P200449	R# CE H 39K F 0W25 1206	1

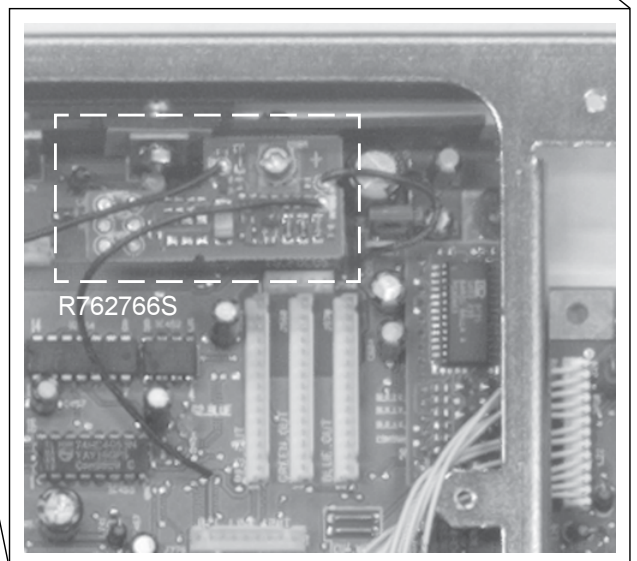
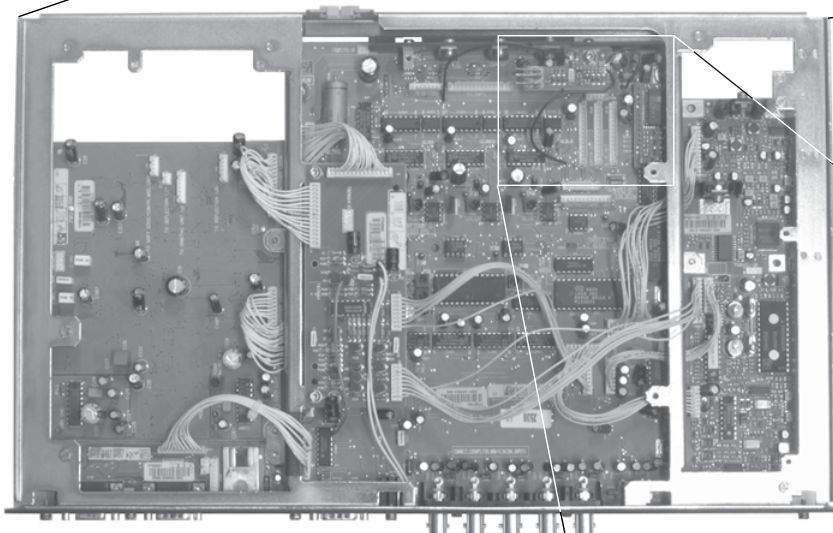
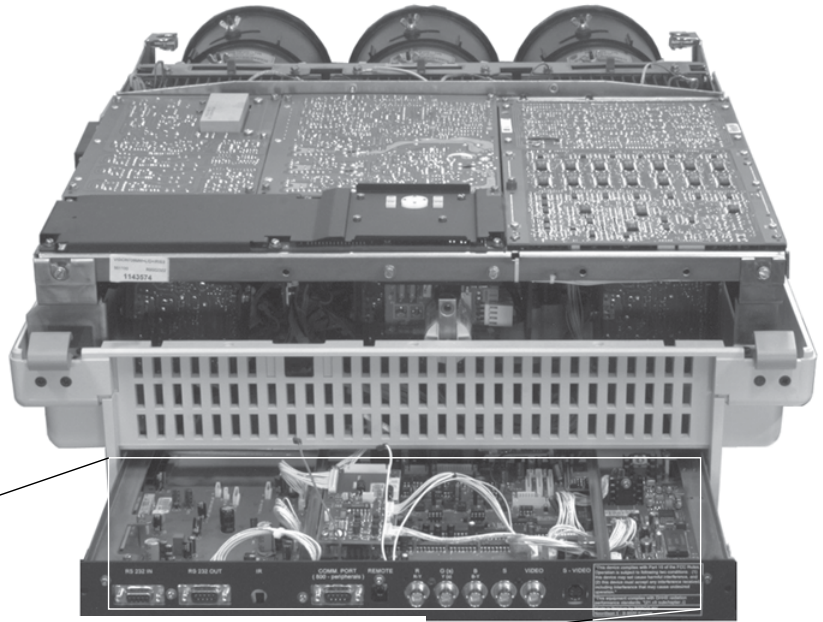
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R537	P200387	R# CE H100E F 0W25 1206	1	R608	P200407	R# CE H680E F 0W25 1206	1
R538	P200384	R# CE H 75E F 0W25 1206	1	R609	P200471	R# CE H330K F 0W25 1206	1
R539	P200397	R# CE H270E F 0W25 1206	1	R610	P200453	R# CE H 56K F 0W25 1206	1
R540	P200421	R# CE H 2K7 F 0W25 1206	1	R611	P200417	R# CE H 1K8 F 0W25 1206	1
R541	P200445	R# CE H 27K F 0W25 1206	1	R612	P200417	R# CE H 1K8 F 0W25 1206	1
R542	P200397	R# CE H270E F 0W25 1206	1	R613	P200417	R# CE H 1K8 F 0W25 1206	1
R543	P200397	R# CE H270E F 0W25 1206	1	R614	P200417	R# CE H 1K8 F 0W25 1206	1
R544	P200421	R# CE H 2K7 F 0W25 1206	1	R615	P200435	R# CE H 10K F 0W25 1206	1
R545	P200384	R# CE H 75E F 0W25 1206	1	R616	P200417	R# CE H 1K8 F 0W25 1206	1
R546	P200387	R# CE H100E F 0W25 1206	1	R617	P200435	R# CE H 10K F 0W25 1206	1
R547	P200423	R# CE H 3K3 F 0W25 1206	1	R618	P200417	R# CE H 1K8 F 0W25 1206	1
R548	P200423	R# CE H 3K3 F 0W25 1206	1	R619	P200411	R# CE H 1K F 0W25 1206	1
R549	P200387	R# CE H100E F 0W25 1206	1	R621	P200363	R# CE H 10E F 0W25 1206	1
R550	P200363	R# CE H 10E F 0W25 1206	1	R622	P200447	R# CE H 33K F 0W25 1206	1
R551	P200389	R# CE H120E F 0W25 1206	1	R624	P200481	R# CE H820K F 0W25 1206	1
R552	P200387	R# CE H100E F 0W25 1206	1	R625	P200411	R# CE H 1K F 0W25 1206	1
R553	P200389	R# CE H120E F 0W25 1206	1	R626	P200389	R# CE H120E F 0W25 1206	1
R554	P200389	R# CE H120E F 0W25 1206	1	R627	P200413	R# CE H 1K2 F 0W25 1206	1
R555	P200379	R# CE H 47E F 0W25 1206	1	R628	P200435	R# CE H 10K F 0W25 1206	1
R556	P200397	R# CE H270E F 0W25 1206	1	R629	P200415	R# CE H 1K5 F 0W25 1206	1
R557	P200421	R# CE H 2K7 F 0W25 1206	1	R630	P200411	R# CE H 1K F 0W25 1206	1
R558	P200384	R# CE H 75E F 0W25 1206	1	R631	P200411	R# CE H 1K F 0W25 1206	1
R559	P200387	R# CE H100E F 0W25 1206	1	R632	P200419	R# CE H 2K2 F 0W25 1206	1
R560	P200423	R# CE H 3K3 F 0W25 1206	1	R633	P200419	R# CE H 2K2 F 0W25 1206	1
R561	P200423	R# CE H 3K3 F 0W25 1206	1	R634	P200419	R# CE H 2K2 F 0W25 1206	1
R562	P200387	R# CE H100E F 0W25 1206	1	R635	P200419	R# CE H 2K2 F 0W25 1206	1
R563	P200363	R# CE H 10E F 0W25 1206	1	R636	P200419	R# CE H 2K2 F 0W25 1206	1
R564	P200389	R# CE H120E F 0W25 1206	1	R637	P200379	R# CE H 47E F 0W25 1206	1
R565	P200387	R# CE H100E F 0W25 1206	1	R638	P200379	R# CE H 47E F 0W25 1206	1
R566	P200389	R# CE H120E F 0W25 1206	1	R639	P200387	R# CE H100E F 0W25 1206	1
R567	P200389	R# CE H120E F 0W25 1206	1	R641	P200384	R# CE H 75E F 0W25 1206	1
R568	P200379	R# CE H 47E F 0W25 1206	1	R642	P200411	R# CE H 1K F 0W25 1206	1
R569	P200421	R# CE H 2K7 F 0W25 1206	1	R643	P200419	R# CE H 2K2 F 0W25 1206	1
R570	P200384	R# CE H 75E F 0W25 1206	1	R650	P200435	R# CE H 10K F 0W25 1206	1
R571	P200387	R# CE H100E F 0W25 1206	1	R652	P201353	R# CE H 0E 0W25 1206	1
R572	P200423	R# CE H 3K3 F 0W25 1206	1	R653	P200395	R# CE H220E F 0W25 1206	1
R573	P200423	R# CE H 3K3 F 0W25 1206	1	R654	P201353	R# CE H 0E 0W25 1206	1
R574	P200387	R# CE H100E F 0W25 1206	1	R655	P200447	R# CE H 33K F 0W25 1206	1
R575	P200421	R# CE H 2K7 F 0W25 1206	1	R656	P200363	R# CE H 10E F 0W25 1206	1
R576	P200363	R# CE H 10E F 0W25 1206	1	R657	P200419	R# CE H 2K2 F 0W25 1206	1
R577	P200389	R# CE H120E F 0W25 1206	1	R658	P200419	R# CE H 2K2 F 0W25 1206	1
R578	P200387	R# CE H100E F 0W25 1206	1	R700	P200379	R# CE H 47E F 0W25 1206	1
R579	P200433	R# CE H 8K2 F 0W25 1206	1	R701	P200379	R# CE H 47E F 0W25 1206	1
R580	P200389	R# CE H120E F 0W25 1206	1	R720	P200429	R# CE H 5K6 F 0W25 1206	1
R581	P200389	R# CE H120E F 0W25 1206	1	R721	P200429	R# CE H 5K6 F 0W25 1206	1
R582	P200379	R# CE H 47E F 0W25 1206	1	R722	P200417	R# CE H 1K8 F 0W25 1206	1
R583	P200397	R# CE H270E F 0W25 1206	1	R723	P200443	R# CE H 22K F 0W25 1206	1
R588	P200397	R# CE H270E F 0W25 1206	1	R740	P200411	R# CE H 1K F 0W25 1206	1
R589	P200407	R# CE H680E F 0W25 1206	1	R767	P200395	R# CE H220E F 0W25 1206	1
R590	P200391	R# CE H150E F 0W25 1206	1	R773	P200395	R# CE H220E F 0W25 1206	1
R591	P200397	R# CE H270E F 0W25 1206	1	R776	P200395	R# CE H220E F 0W25 1206	1
R592	P200403	R# CE H470E F 0W25 1206	1	R781	P200411	R# CE H 1K F 0W25 1206	1
R593	P200403	R# CE H470E F 0W25 1206	1	R782	P200411	R# CE H 1K F 0W25 1206	1
R594	P200467	R# CE H220K F 0W25 1206	1	R783	P200435	R# CE H 10K F 0W25 1206	1
R595	P200447	R# CE H 33K F 0W25 1206	1	R785	P200379	R# CE H 47E F 0W25 1206	1
R596	P200355	R# CE H 4E7 F 0W25 1206	1	R786	P200379	R# CE H 47E F 0W25 1206	1
R597	P200387	R# CE H100E F 0W25 1206	1				
R598	P200387	R# CE H100E F 0W25 1206	1	SR 2	R1011008	R CFFH 1E J 0W25 Δ	1
R599	P200407	R# CE H680E F 0W25 1206	1	SR 3	R1011008	R CFFH 1E J 0W25 Δ	1
R600	P200413	R# CE H 1K2 F 0W25 1206	1	SR 4	R1011907	R CFFH E1 K 0W35 Δ	1
R601	P200403	R# CE H470E F 0W25 1206	1	SR 5	R1011907	R CFFH E1 K 0W35 Δ	1
R602	P200432	R# CE H 7K5 F 0W25 1206	1				
R603	P200445	R# CE H 27K F 0W25 1206	1	T 1	R313729	J TESTEYE D2,1 H3,1 SN BK	1
R604	P200451	R# CE H 47K F 0W25 1206	1	T200	R313729	J TESTEYE D2,1 H3,1 SN BK	1
R605	P200403	R# CE H470E F 0W25 1206	1	T201	R313729	J TESTEYE D2,1 H3,1 SN BK	1
R606	P200397	R# CE H270E F 0W25 1206	1	T300	R313729	J TESTEYE D2,1 H3,1 SN BK	1
R607	P200423	R# CE H 3K3 F 0W25 1206	1	T301	R313729	J TESTEYE D2,1 H3,1 SN BK	1

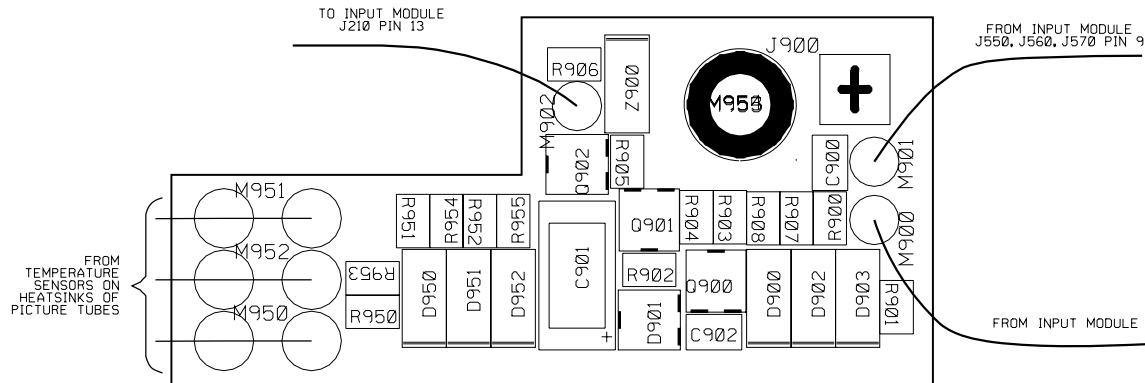
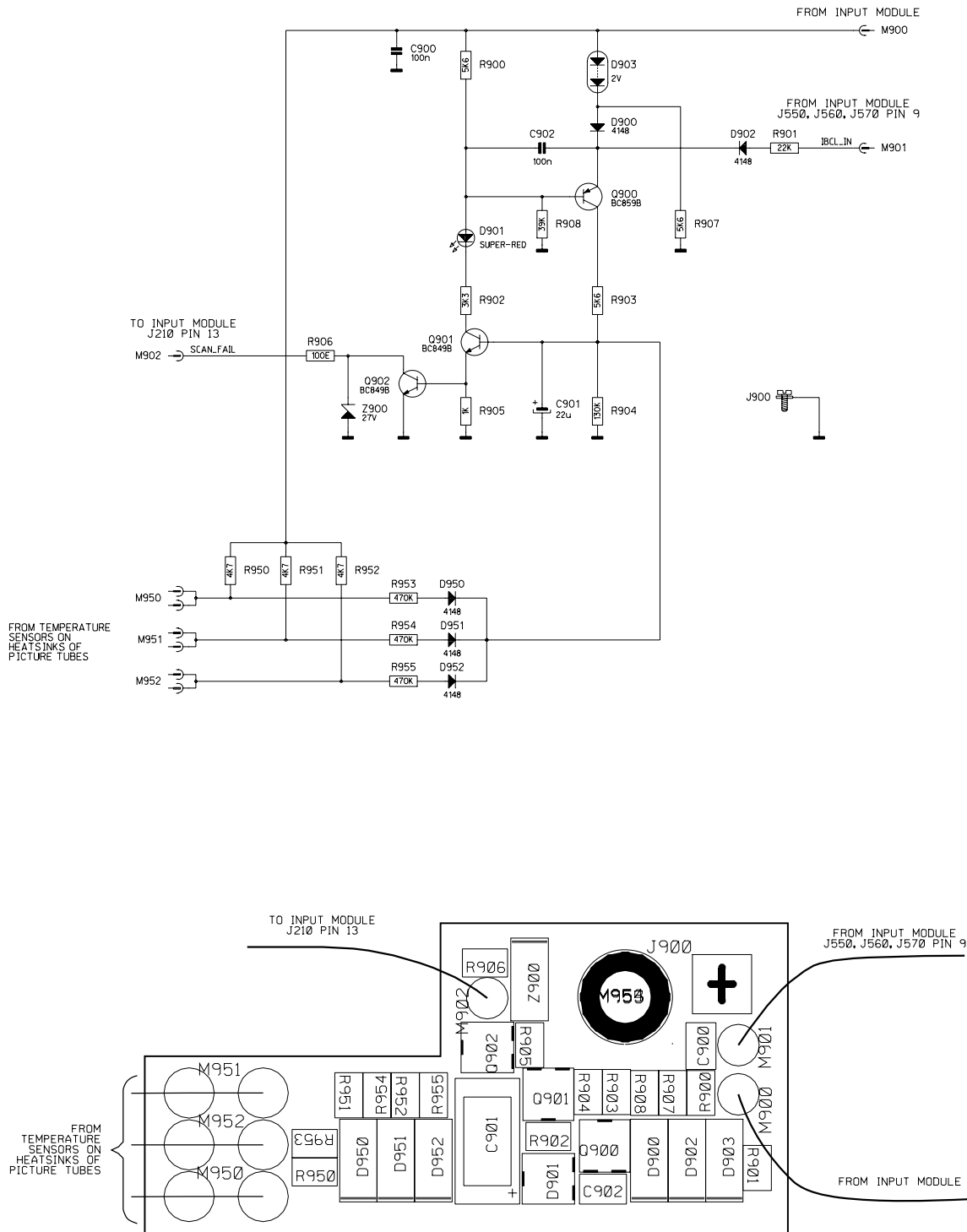
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
T400	R313729	J TESTEYE D2,1 H3,1 SN BK	1
T401	R313729	J TESTEYE D2,1 H3,1 SN BK	1
TGND	R313729	J TESTEYE D2,1 H3,1 SN BK	1
Z 2	P234165	D#ZEN 4V7 0W5 C DMMELF	1
Z 3	P234165	D#ZEN 4V7 0W5 C DMMELF	1
Z 4	P234165	D#ZEN 4V7 0W5 C DMMELF	1
Z150	P234057	D#ZEN 8V2 0W5 C DMMELF	1
Z250	P234046	D#ZEN 12V 0W5 C DMMELF	1
Z350	P234046	D#ZEN 12V 0W5 C DMMELF	1
Z450	P234046	D#ZEN 12V 0W5 C DMMELF	1
Z620	P234271	D#ZEN 12V 0W5 B DMMELF	1
Z621	R131771	D ZEN 150V 3W25 C SOD57	1
Z720	P234164	D#ZEN 5V6 0W5 C DMMELF	1
	R3631049	SCR Z933 M 3 X 6 SS	1
	R762228S	UN D700 INP BELLA PROT	1
	R762766A	UN D708 INP+IBCL PROT	1
	R762766P	UN D708 INP+IBCL PROT	1
	R762766S	UN D708 IBCL PROT	1

PRODUCT SAFETY NOTICE

Components identified by  have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.







Name IBCL + TEMP PROTECTION		Sheet 1 / 1	
Module No R762766S	Index 1	PCB No R780751	Rev 1
Date 21-09-1998	Drawn JVJY	Checked PDGY	
BARCO PROJECTION SYSTEMS			

Modifications reserved

TECHNICAL DESCRIPTION

In normal conditions all transistors are reverse biased and the *SCAN_FAIL* is high. The *SCAN_FAIL* can be activated due to two reasons: IBCL is too high or temperature of the picture tubes is too high.

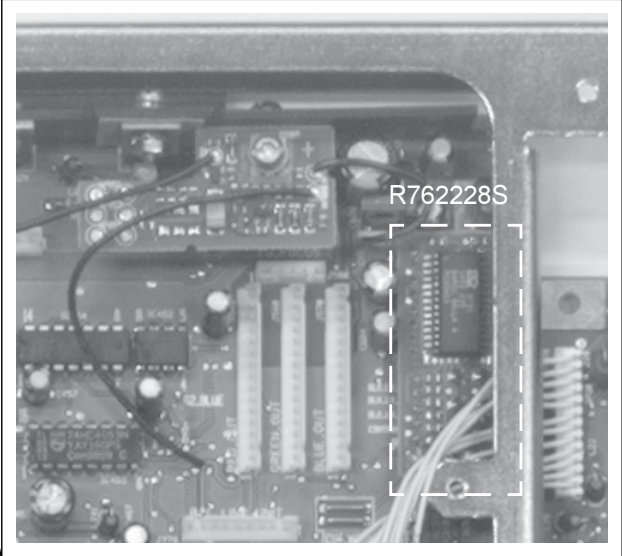
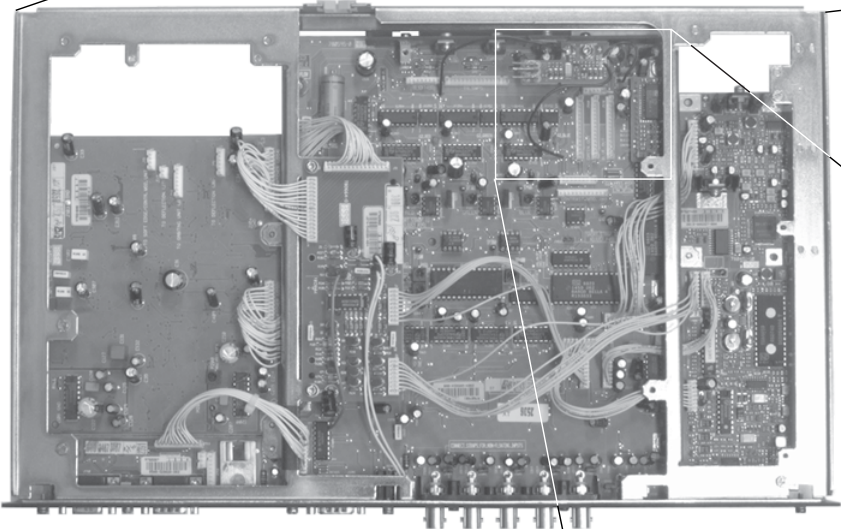
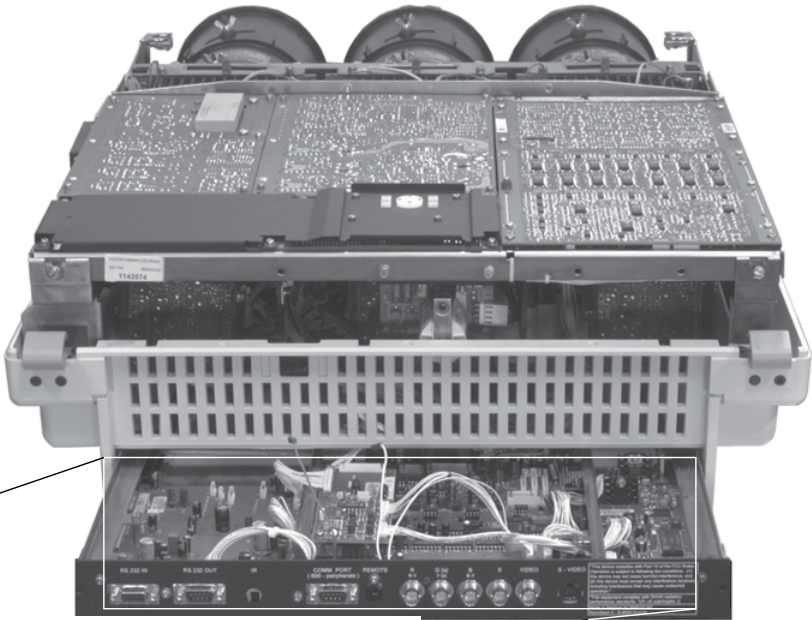
IBCL Protection When the voltage proportional with the beam current, coming from the CRT socket is too high, Q900 gets forward biased. This turns on Q901 which in turn turns on Q902. This one pulls the *SCAN_FAIL* low.

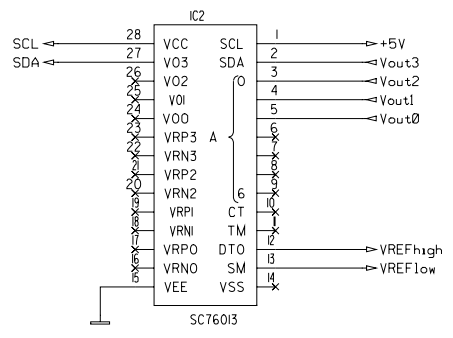
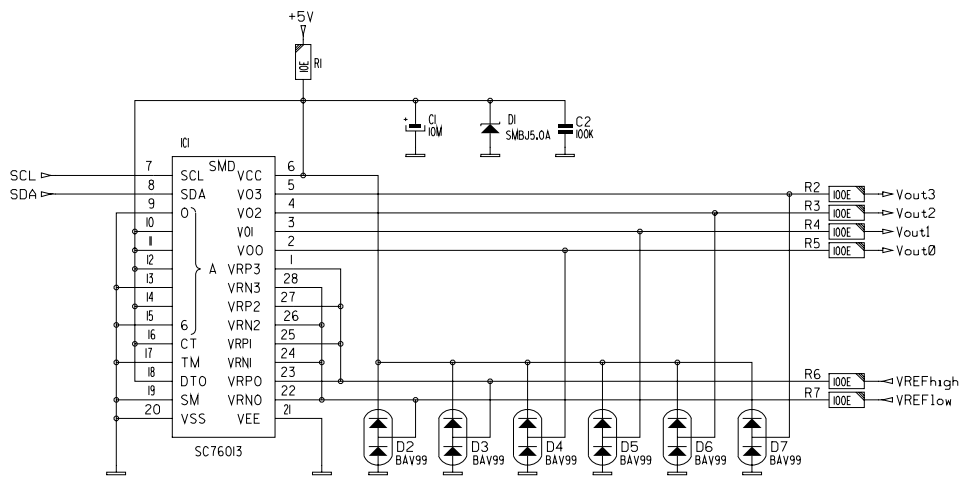
Temp protection The temperature of each of the heatsinks of the picture tubes is sensed with a PTC resistor. When the temperature is normal, the diodes D950, D951 and D952 are reversed biased. As soon as the temperature of one of the CRT's gets too high, the corresponding diode gets forward biased and turns on Q901. This one turns on both Q900 and Q902. The latter pulls the *SCAN_FAIL* low.

In both cases, Q900 and Q901 'encourage' each other once they are on. This way the circuit gets locked. The *SCAN_FAIL* stays low even when the cause of the activation has disappeared. The projector has to be turned OFF and ON again, to deactivate the *SCAN_FAIL*.

PARTS LISTING

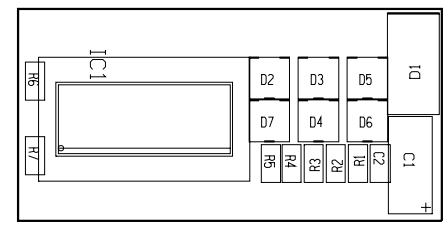
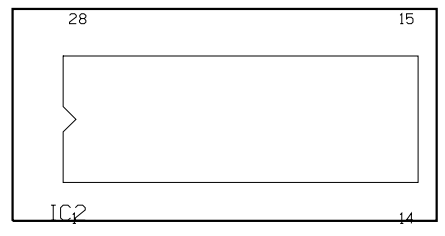
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C900	P210227	C# Z5U MU 100N Z 50 0805	1	R953	P201151	R# CE H470K F 0W12 0805	1
C901	P212044	C# TA 22M M 6 6032	1	R954	P201151	R# CE H470K F 0W12 0805	1
C902	P210227	C# Z5U MU 100N Z 50 0805	1	R955	P201151	R# CE H470K F 0W12 0805	1
D900	P234099	D#4148 RDMMELF	1	Z900	P234185	D#ZEN 27V 0W5 C DMMELF	1
D901	P234040	D#LED LSS260 RED SOT23	1				
D902	P234099	D#4148 RDMMELF	1		R762766SP	UND708IBCLPROT	1
D903	P234088	D#BZV87-2V0 STA DMMELF	1				
D950	P234099	D#4148 RDMMELF	1				
D951	P234099	D#4148 RDMMELF	1				
D952	P234099	D#4148 RDMMELF	1				
M900	Z34214010	WU UL1007 AWG24 SO BK 100	1				
M901	Z34214006	WU UL1007 AWG24 SO BK 60	1				
M902	Z34214010	WU UL1007 AWG24 SO BK 100	1				
M950	R315353	J TAB1 BS H2,8S0,5	1				
M951	R315353	J TAB1 BS H2,8S0,5	1				
M952	R315353	J TAB1 BS H2,8S0,5	1				
PC	R780751	PCBD708INP IBCLPROTECT	1				
Q900	P232044	Q#BC859B P SS SOT23	1				
Q901	P232043	Q#BC849B N SS SOT23	1				
Q902	P232043	Q#BC849B N SS SOT23	1				
R900	P201105	R# CE H 5K6 F 0W12 0805	1				
R901	P201119	R# CE H 22K F 0W12 0805	1				
R902	P201099	R# CE H 3K3 F 0W12 0805	1				
R903	P201145	R# CE H270K F 0W12 0805	1				
R904	P201138	R# CE H130K F 0W12 0805	1				
R905	P201087	R# CE H 1K F 0W12 0805	1				
R906	P201063	R# CE H100E F 0W12 0805	1				
R907	P201105	R# CE H 5K6 F 0W12 0805	1				
R908	P201125	R# CE H 39K F 0W12 0805	1				
R950	P201103	R# CE H 4K7 F 0W12 0805	1				
R951	P201103	R# CE H 4K7 F 0W12 0805	1				
R952	P201103	R# CE H 4K7 F 0W12 0805	1				





TOP VIEW

BOTTOM VIEW



Modifications reserved

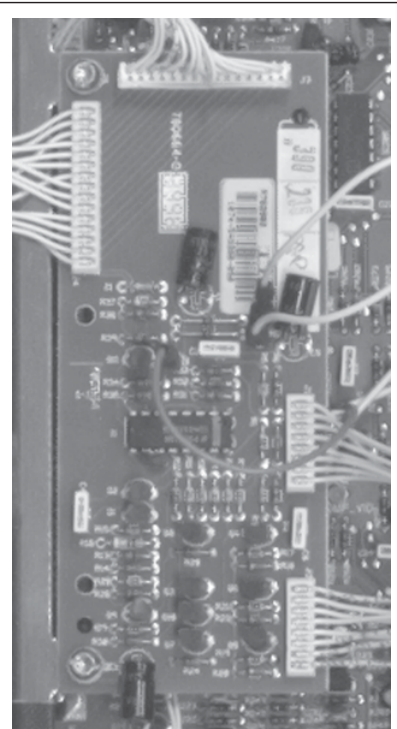
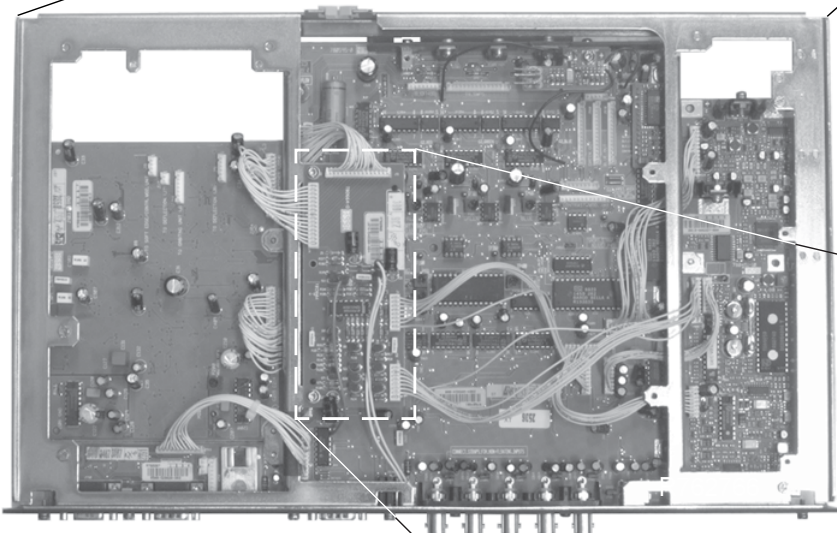
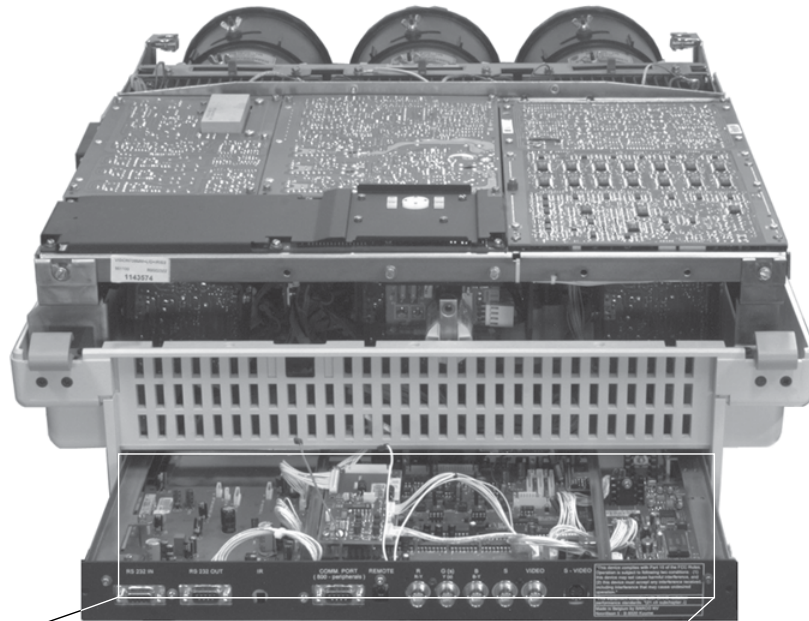
Name SUB-UNIT BELLA PROTECTION			Sheet 1 / 1
Module No R762228S	Index 0	PCB No R780537	Rev 0
Date 17-12-1998	Drawn JVJDY	Checked PDGY	
BARCO PROJECTION SYSTEMS			

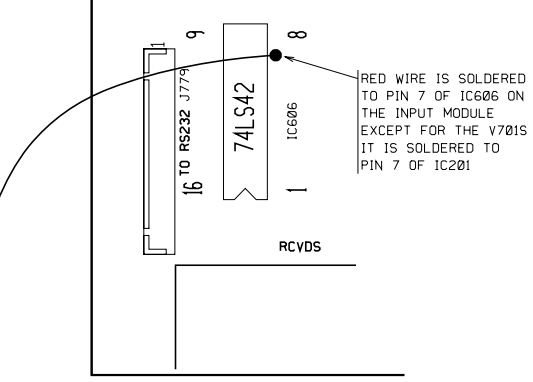
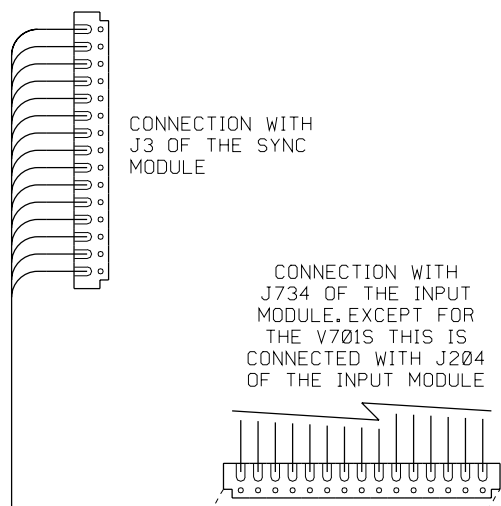
TECHNICAL DESCRIPTION

This subunit consists of a Bella and a series of diodes to protect this IC against flashes.

PARTS LISTING

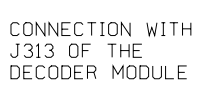
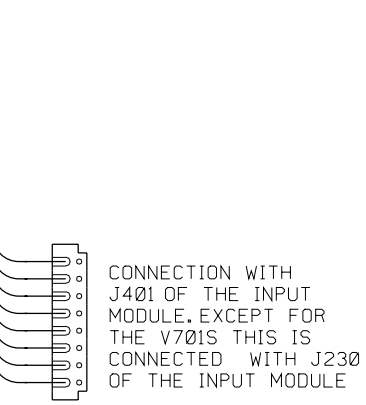
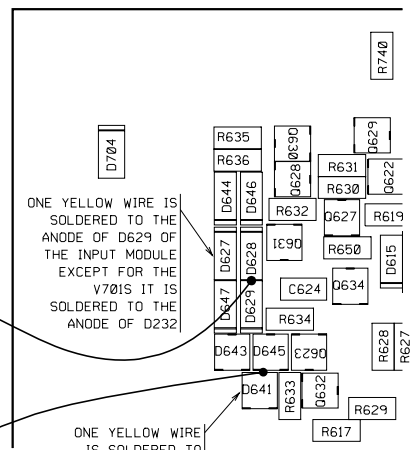
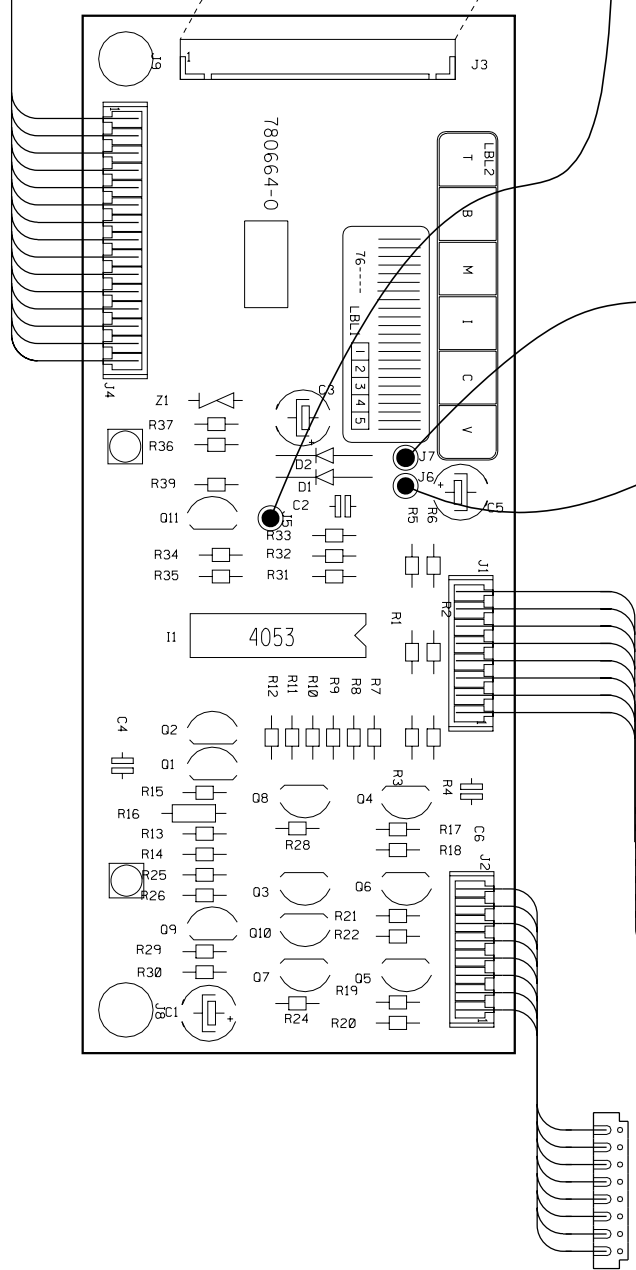
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 1	V313554	J U0.6 HDR P28 E1SN 4,3	1
C 2	P212018	C# TA 10M M 16 6032	1
D 1	P210227	C# Z5U MU 100N Z 50 0805	1
D 2	P234188	D#SMBJ5.0A TVS SOD6	1
D 3	P234047	D#BAV99 SER SOT23	1
D 4	P234047	D#BAV99 SER SOT23	1
D 5	P234047	D#BAV99 SER SOT23	1
D 6	P234047	D#BAV99 SER SOT23	1
D 7	P234047	D#BAV99 SER SOT23	1
I 1	P234047	D#BAV99 SER SOT23	1
I 2	R762228SP	UND700 INP BELLA PROT	1
PC	P230653	U#BELLA 5 SOL28 P	1
R 1	R780537	PCB G1200 RGB BELLA	1
R 2	P201039	R# CE H 10E F 0W12 0805	1
R 3	P201063	R# CE H100E F 0W12 0805	1
R 4	P201063	R# CE H100E F 0W12 0805	1
R 5	P201063	R# CE H100E F 0W12 0805	1
R 6	P201063	R# CE H100E F 0W12 0805	1
R 7	P201063	R# CE H100E F 0W12 0805	1
	P201063	R# CE H100E F 0W12 0805	1





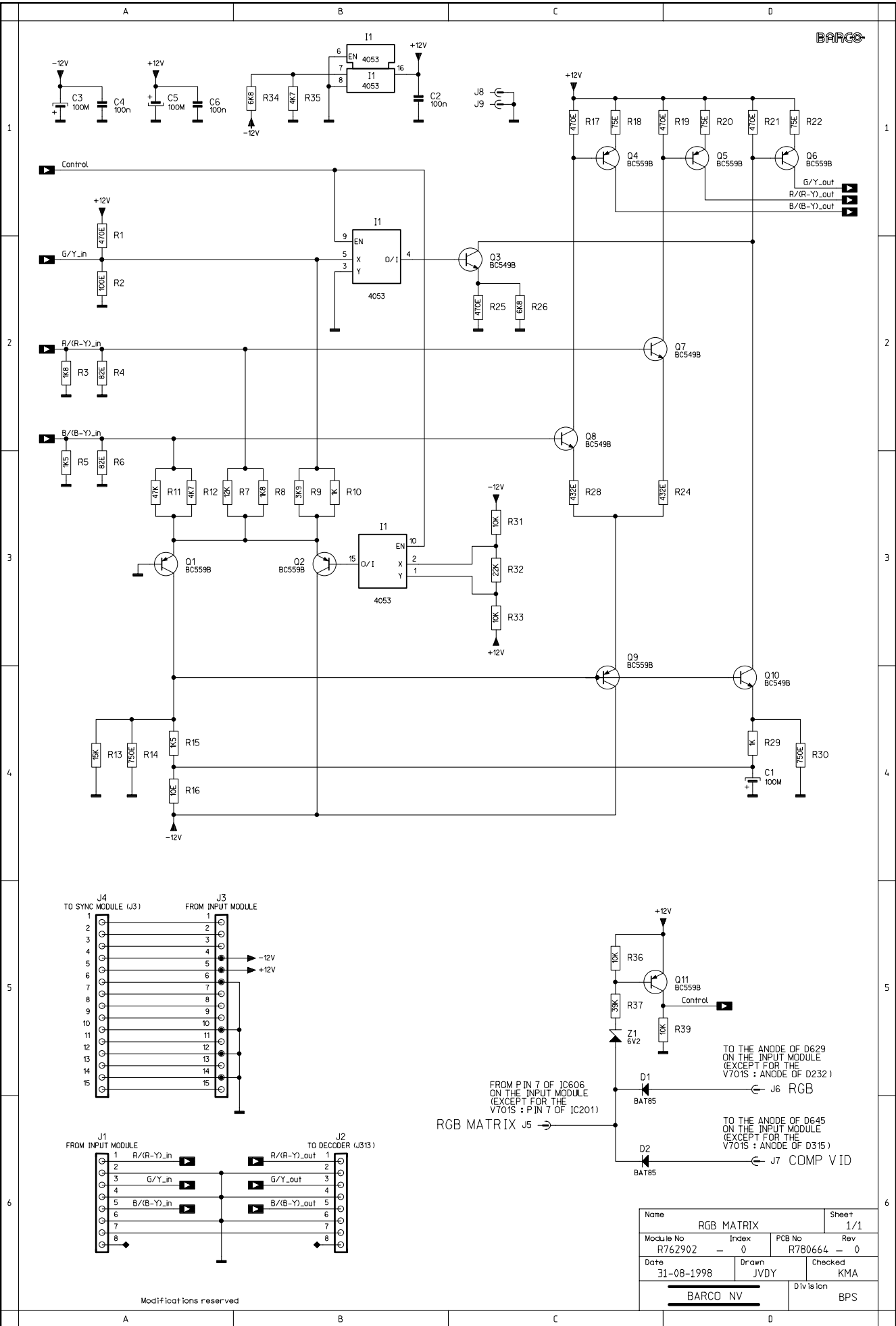
TOP VIEW INPUT MODULE

BOTTOM VIEW INPUT MODULE



Modifications reserved

Name RGB MATRIX		Sheet 1 / 1	
Module No R762902	Index 1	PCB No R780664	Rev 0
Date 01-09-1998	Drawn JVDY	Checked KMA	
BARCO PROJECTION SYSTEMS			



Modifications reserved

Name		RGB MATRIX		Sheet		1/1	
Module No		Index		PCB No		Rev	
R762902		-		R780664		-	
Date		Drawn		Checked		KMA	
31-08-1998		JVDY					
BARCO NV				Division			
				BPS			

TECHNICAL DESCRIPTION

Introduction

In order to be able to use the option 'line doubling' on a RGB-source, the RGB-signals need to be converted into Y, R-Y and B-Y. Therefore an extra module, the RGB-matrix, is placed between the input and the decoder. The R/R-Y, G/Y and B/B-Y signals are put through this module and depending on the selected source and on the fact whether 'line-doubling' is ON or OFF, these signals are converted or switched through without modification.

Selection

When an RGB-source is selected and the option line-doubling has been enabled via the menu, the RGB-signals have to be converted. Therefore the *RGB-MATRIX* line on the input goes low. This signal is sent to the RGB-matrix module where it switches the *Control*-line high thus enabling the conversion of the RGB-signals to Y, U, V. At the same time the *RGB* and *COMP VID* lines that are fed back to the input go low, switching respectively the *RGB-select* high and the *COMP VID* line low (to switch on a LED indicating the signal is processed as component video). In all other cases the *RGB-MATRIX* line is high, switching the *Control*-line low. In this case the incoming signals are switched through without modification.

Conversion of RGB

When the *Control*-line is high, R, G and B are fed to Q1 via respectively R7/R8, R9/R10 and R11/R12 thus forming the Y-signal. This signal is switched to Y-out via Q10 and Q6.

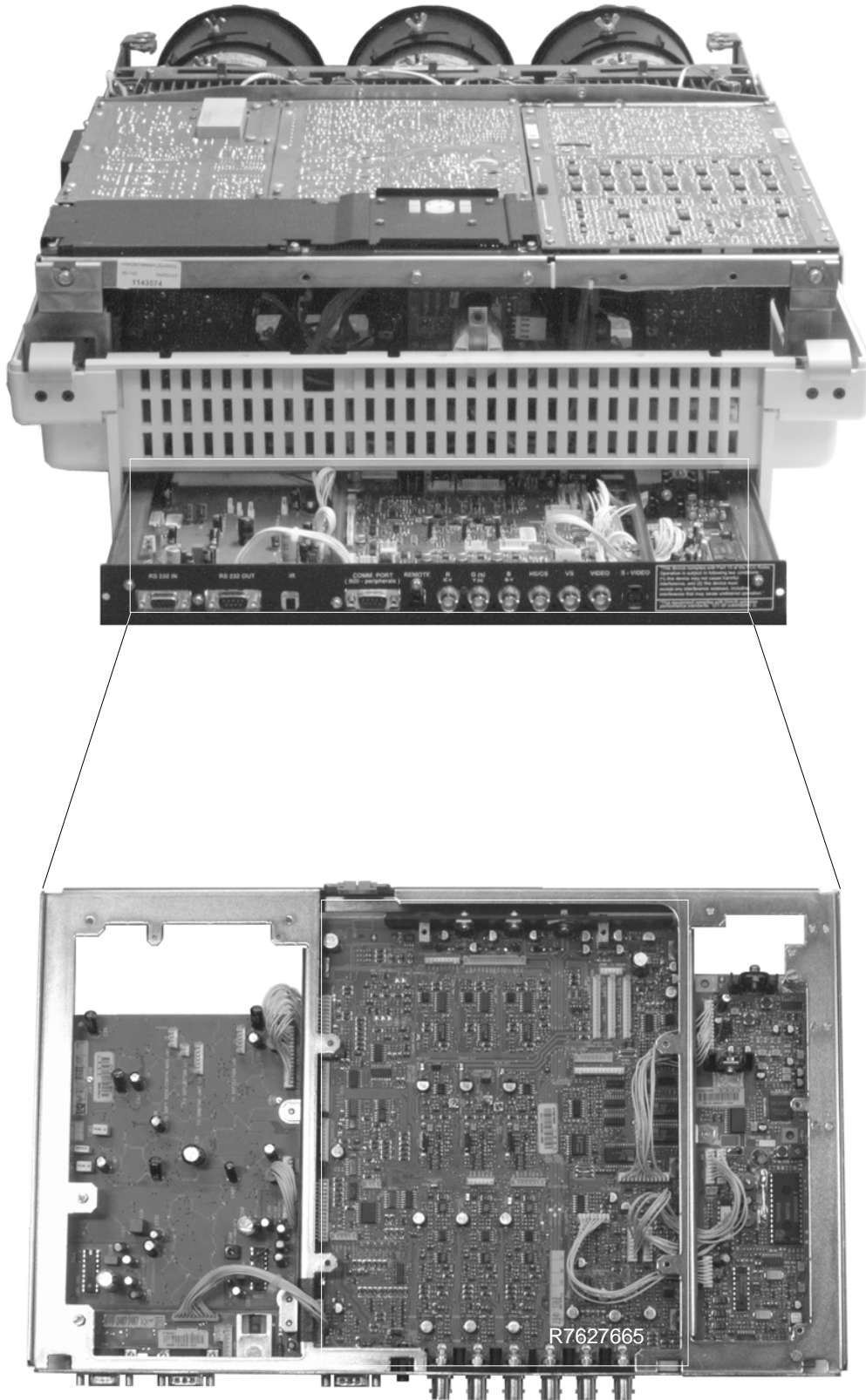
Y is also subtracted from R and from B via respectively Q7 and Q8. The resulting R-Y and B-Y are switched to the outputs via Q5 and Q4.

Switching the signals through without conversion

In this case the generation of the Y-signal is stopped and the G/Y-in signal is switched through to the output via Q3. The generation of the Y-signal is prevented by blocking Q1. This is done by Q2, which starts conducting.

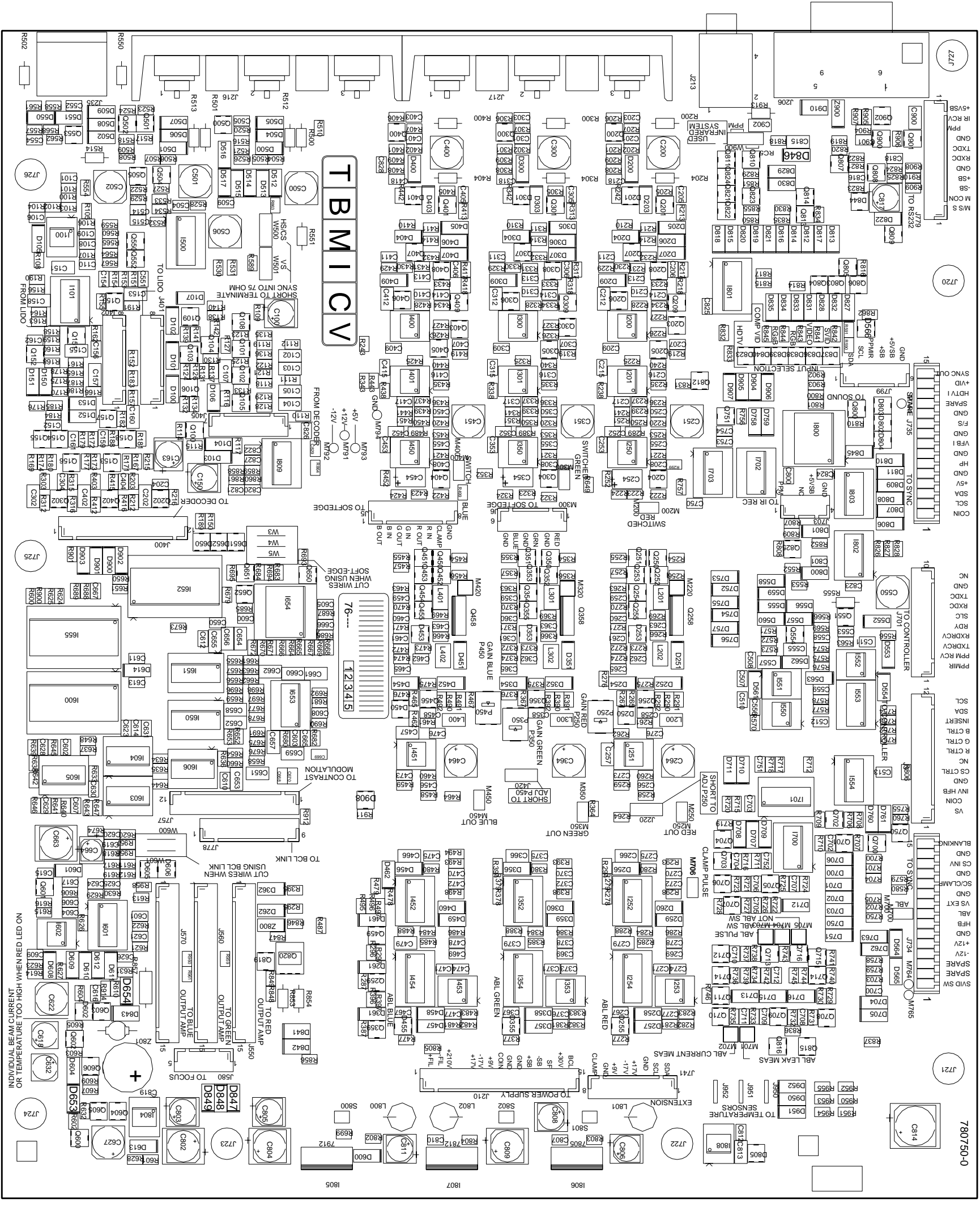
PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 2	R113724	C POMERA 100N K 63E2 85		R 34	R101546	R MF H 6K8 F 0W4 E3	
C 4	R113724	C POMERA 100N K 63E2 85		R 35	R101544	R MF H 4K7 F 0W4 E3	
C 6	R113724	C POMERA 100N K 63E2 85		R 36	R101548	R MF H 10K F 0W4 E3	
C 1	K1114777	C EL RA 100M M 25E2 105	1	R 37	R101555	R MF H 39K F 0W4 E3	
C 3	K1114777	C EL RA 100M M 25E2 105	1	R 39	R101548	R MF H 10K F 0W4 E3	
C 5	K1114777	C EL RA 100M M 25E2 105	1	Z 1	R131720	D ZEN 6V2 0W5 C DO35	
D 1	R1316361	D Y BAT85 030200 DO34			R762902A	UN*701S RGB MATRIX	1
D 2	R1316361	D Y BAT85 030200 DO34					
I 1	R137391	U 4053B DIP16 P	1				
J 1	Z3486080	CD CT FTMS P 8 140	1				
J 2	Z3484080	CD CT FTMS P 8 200	1				
J 3	R313935	J CT H MBT P15 M2SN WH	1				
J 4	R3485154	CD CT FTMS P15 70	1				
J 5	A576621	J TAB1 MBT H2,8S0,8 SN	1				
J 6	A576621	J TAB1 MBT H2,8S0,8 SN	1				
J 7	A576621	J TAB1 MBT H2,8S0,8 SN	1				
PC	R780664	PCB*701S RGB MATRIX	1				
Q 1	R1314181	Q BC559B P SS TO92					
Q 2	R1314181	Q BC559B P SS TO92					
Q 3	R1314295	Q BC549B N SS TO92					
Q 4	R1314181	Q BC559B P SS TO92					
Q 5	R1314181	Q BC559B P SS TO92					
Q 6	R1314181	Q BC559B P SS TO92					
Q 7	R1314295	Q BC549B N SS TO92					
Q 8	R1314295	Q BC549B N SS TO92					
Q 9	R1314181	Q BC559B P SS TO92					
Q 10	R1314295	Q BC549B N SS TO92					
Q 11	R1314181	Q BC559B P SS TO92					
R 1	R101532	R MF H470E F 0W4 E3					
R 2	R101524	R MF H100E F 0W4 E3					
R 3	R101539	R MF H 1K8 F 0W4 E3					
R 4	R101523	R MF H 82E F 0W4 E3					
R 5	R101538	R MF H 1K5 F 0W4 E3					
R 6	R101523	R MF H 82E F 0W4 E3					
R 7	R101549	R MF H 12K F 0W4 E3					
R 8	R101539	R MF H 1K8 F 0W4 E3					
R 9	R101543	R MF H 3K9 F 0W4 E3					
R 10	R101536	R MF H 1K F 0W4 E3					
R 11	R101556	R MF H 47K F 0W4 E3					
R 12	R101544	R MF H 4K7 F 0W4 E3					
R 13	R101550	R MF H 15K F 0W4 E3					
R 14	R1015351	R MF H750E F 0W4 E3					
R 15	R101538	R MF H 1K5 F 0W4 E3					
R 16	R1011129	R CFFH 10E J 0W25					
R 17	R101532	R MF H470E F 0W4 E3					
R 18	R1015231	R MF H 75E F 0W4 E3					
R 19	R101532	R MF H470E F 0W4 E3					
R 20	R1015231	R MF H 75E F 0W4 E3					
R 21	R101532	R MF H470E F 0W4 E3					
R 22	R1015231	R MF H 75E F 0W4 E3					
R 24	R1015615	R MF H432E F 0W4 E3	1				
R 25	R101532	R MF H470E F 0W4 E3					
R 26	R101546	R MF H 6K8 F 0W4 E3					
R 28	R1015615	R MF H432E F 0W4 E3	1				
R 29	R101536	R MF H 1K F 0W4 E3					
R 30	R1015351	R MF H750E F 0W4 E3					
R 31	R101548	R MF H 10K F 0W4 E3					
R 32	R101552	R MF H 22K F 0W4 E3					
R 33	R101548	R MF H 10K F 0W4 E3					



R7627665

TOP VIEW



Name	RGB INPUT & SWITCHING	Sheet	1/2
Module No.	R787765	PCB No.	R787750
Rev	0	Rev	0
Date	16-03-1999	Drawn	JVDY
		Checked	PDGY

BARCO PROJECTION SYSTEMS

Modifications reserved

A	B	C	D	E	F	G	H
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6

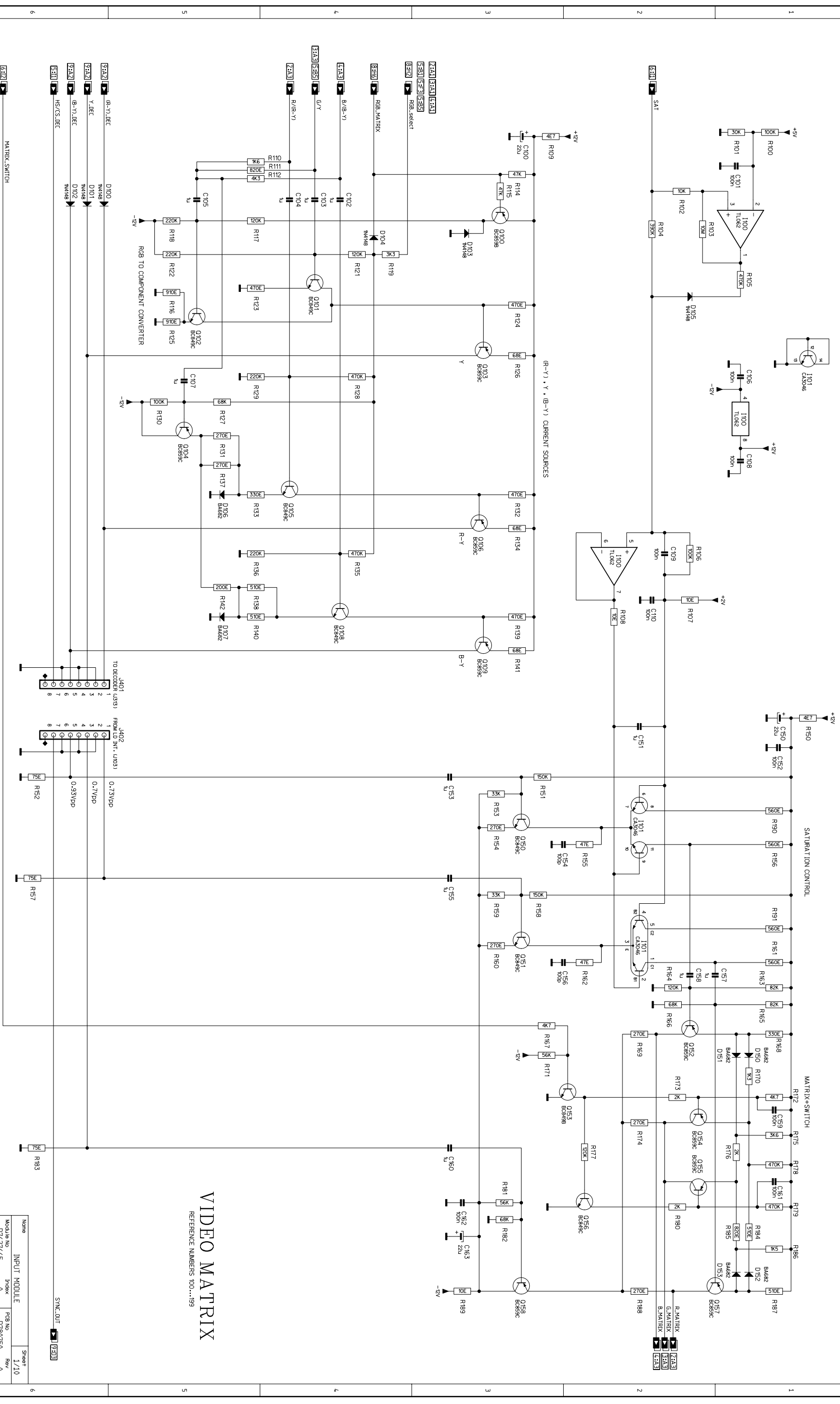
BARCO

COMP. LOCATION

Name	RGE INPUT & SWITCHING	Sheet	2 / 2
Module No	R7627665	PCB No	R780750
Date	16-03-1999	Drawn	JVDY
		Checked	PGDY

BARCO PROJECTION SYSTEMS

Modifications reserved



VIDEO MATRIX

REFERENCE NUMBERS 100...199

INPUT MODULE

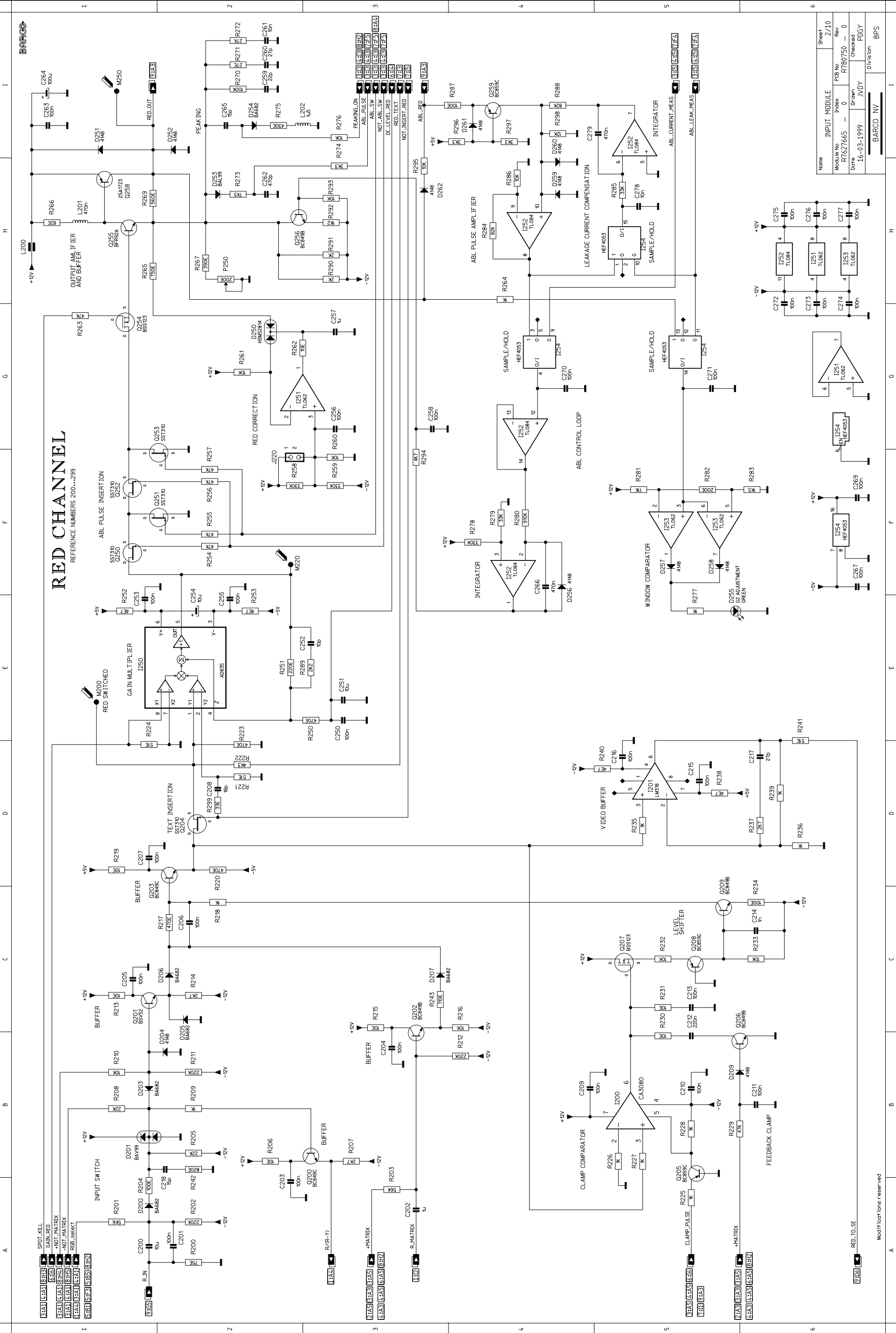
Name	INPUT MODULE	Sheet	1/10
Module No	R76Z1665	Index	0
Rev	R76Z1665	Rev	0
Date	16-03-1999	Drawn	JVDY
		Checked	JVDY
		Division	BPS

Modification reserved

6 A B C D E F G H I 6

RED CHANNEL

REFERENCE NUMBERS 200...299

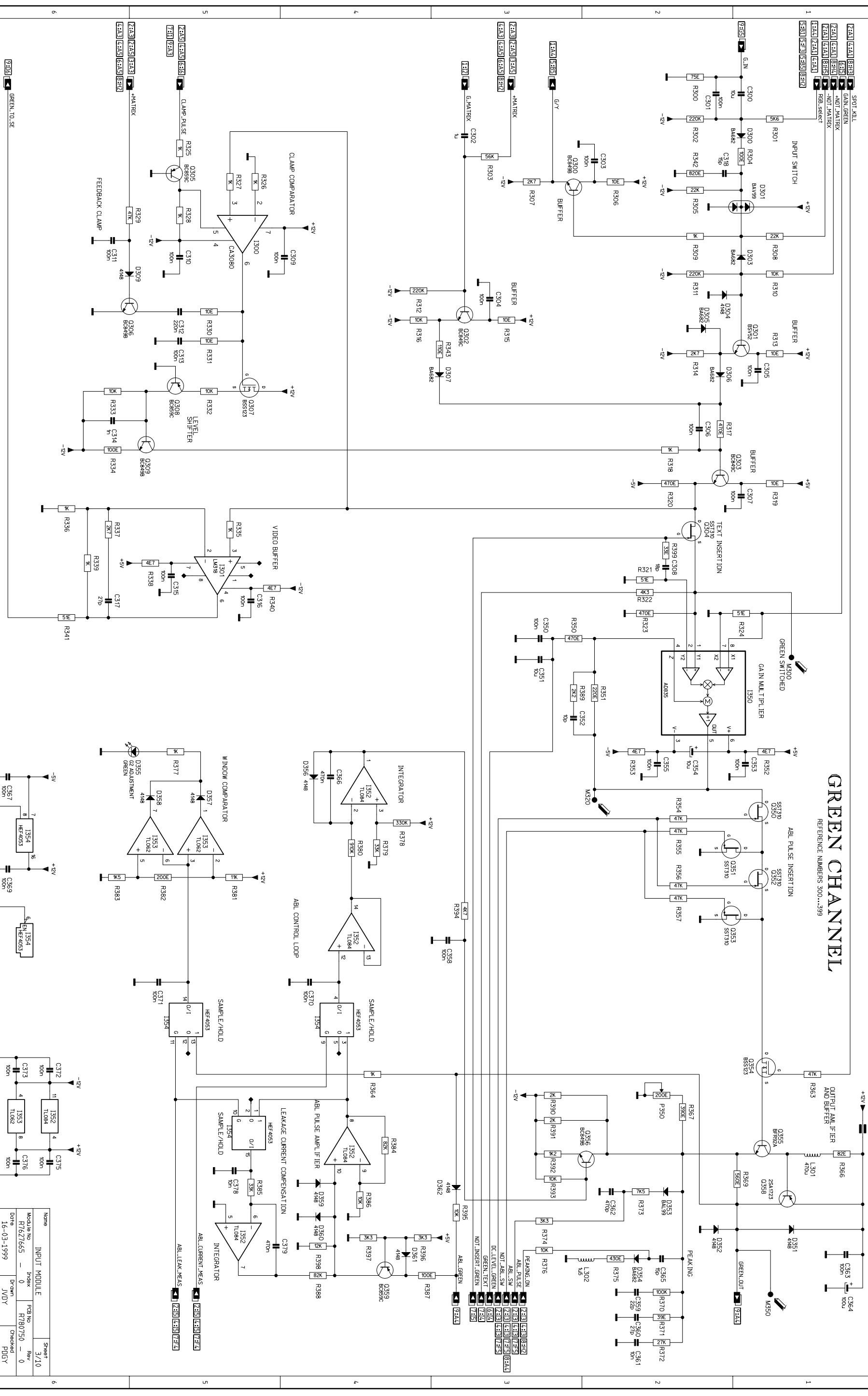


Name	INPUT MODULE	Sheet	2/10
Module No	Index	PCB No	Rev
R76271665	0	H760750	0
Date	Drawn	Checked	PUGY
16-03-1999	JVDY		
BARCO NV		Division	BPS

Modifications reserved

GREEN CHANNEL

REFERENCE NUMBERS 300...399

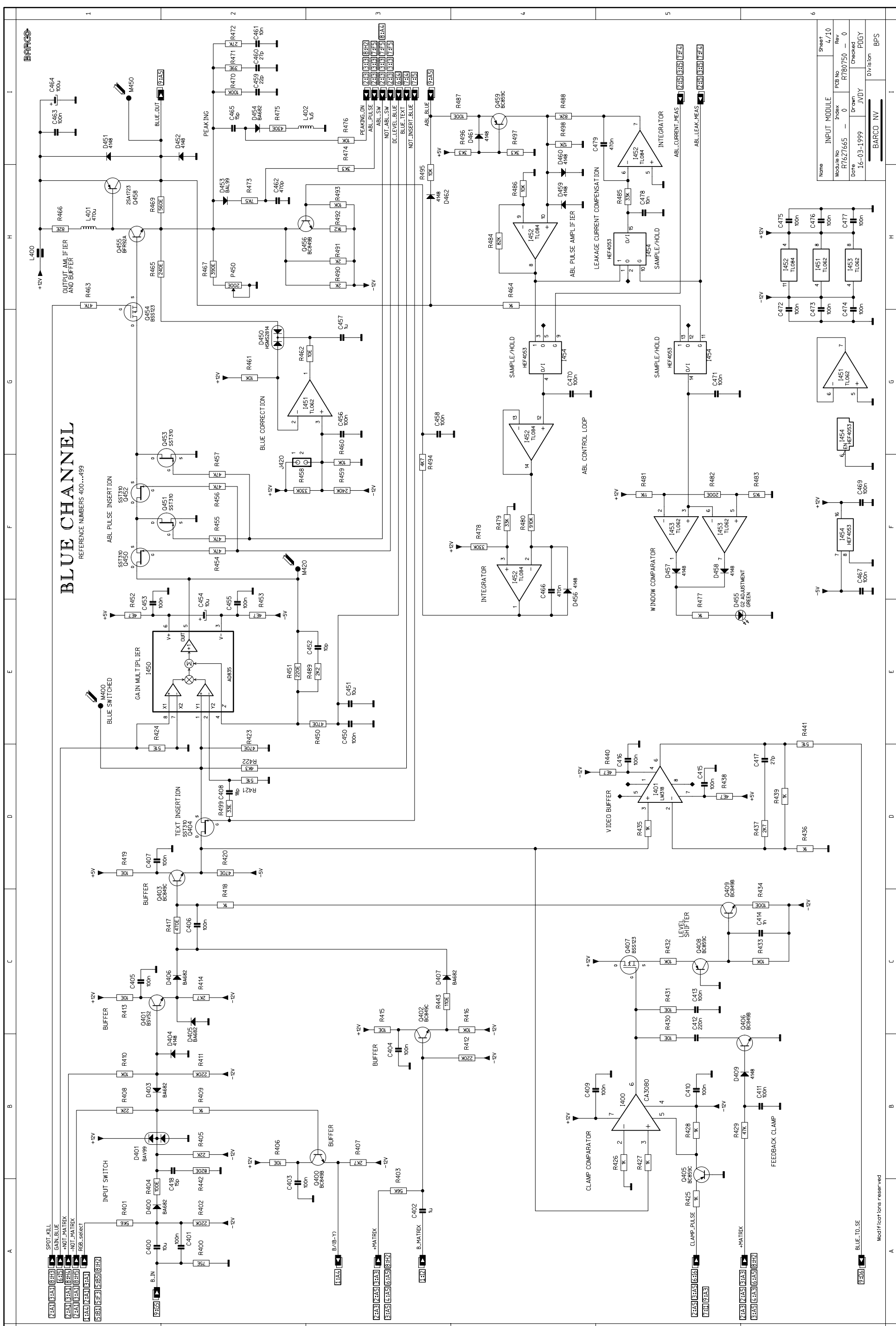


Name	Index	Sheet
INPUT MODULE	3/10	
Module No	R16/21665	Rev No
Date	16-03-1999	Drawn
		Checked
		PD/GY
		Division
		BPS

Modification reserved

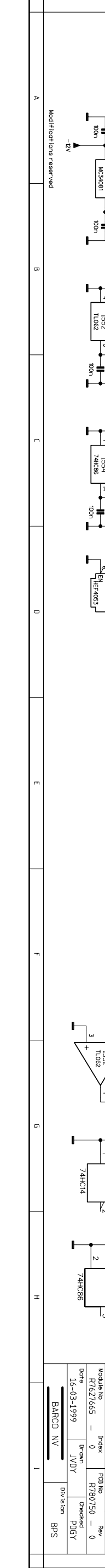
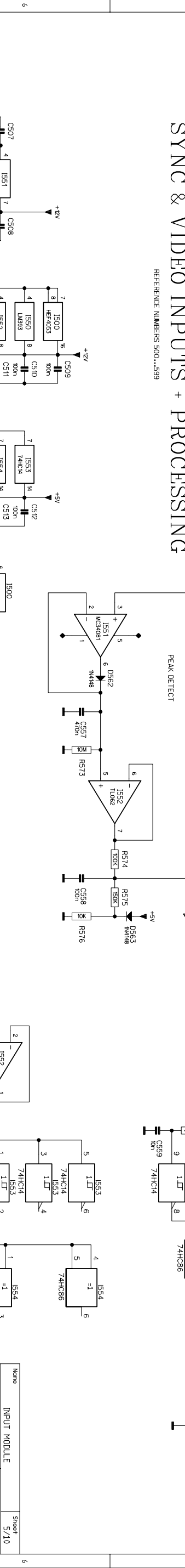
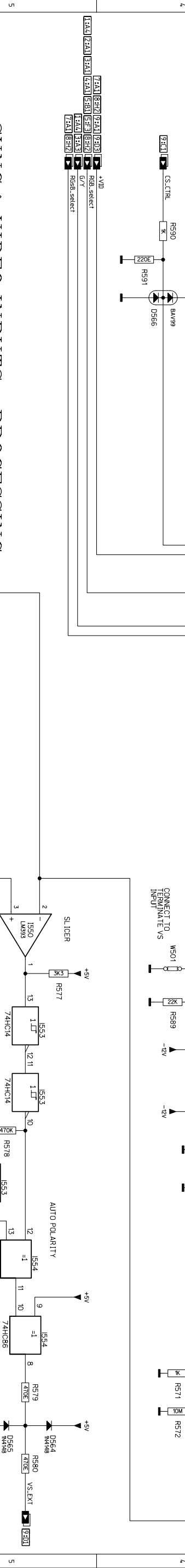
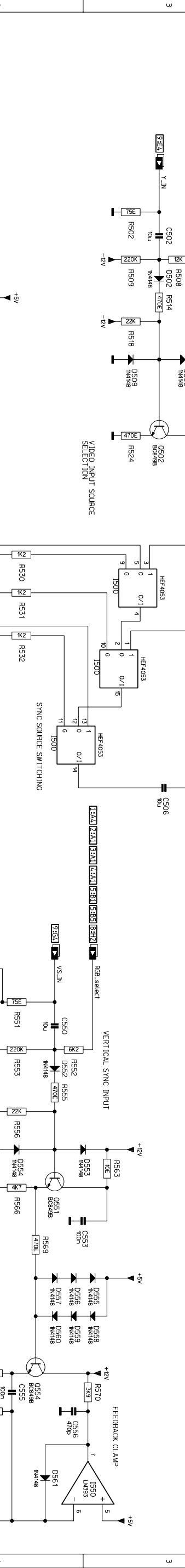
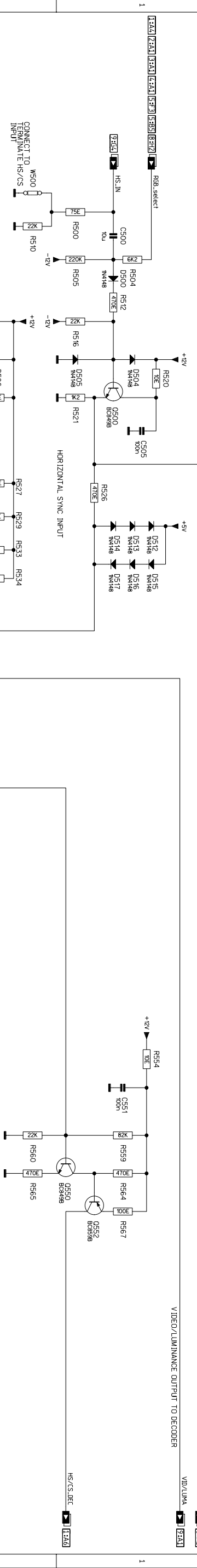
BLUE CHANNEL

REFERENCE NUMBERS 400...499



Name	INPUT MODULE	Sheet	4/10
Module No	R7627665	PCB No	H760750
Index	0	Rev	0
Date	16-03-1999	Drawn	JVDY
Checked			PUGY
Division	BARCO NV		BPS

Modifications reserved

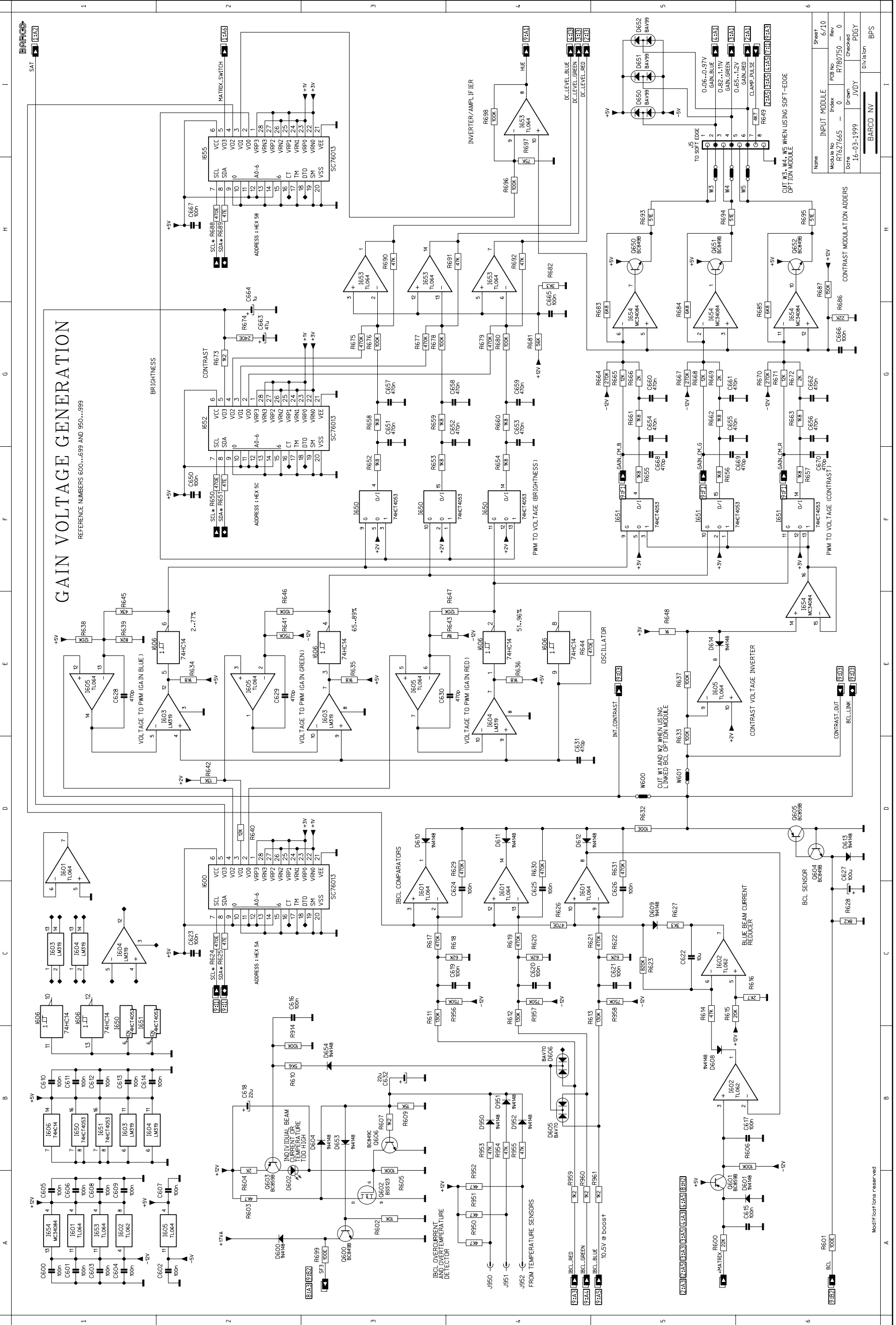


SYNC & VIDEO INPUTS + PROCESSING

REFERENCE NUMBERS 500...599

Modifications reserved

Name	INPUT MODULE	Sheet
Module No	R76Z1665	5/10
Index	0	
Rev	R760750	0
Date	16-03-1999	
Drawn	JVDY	
Checked		
PD/GY		
Division		
BPS		

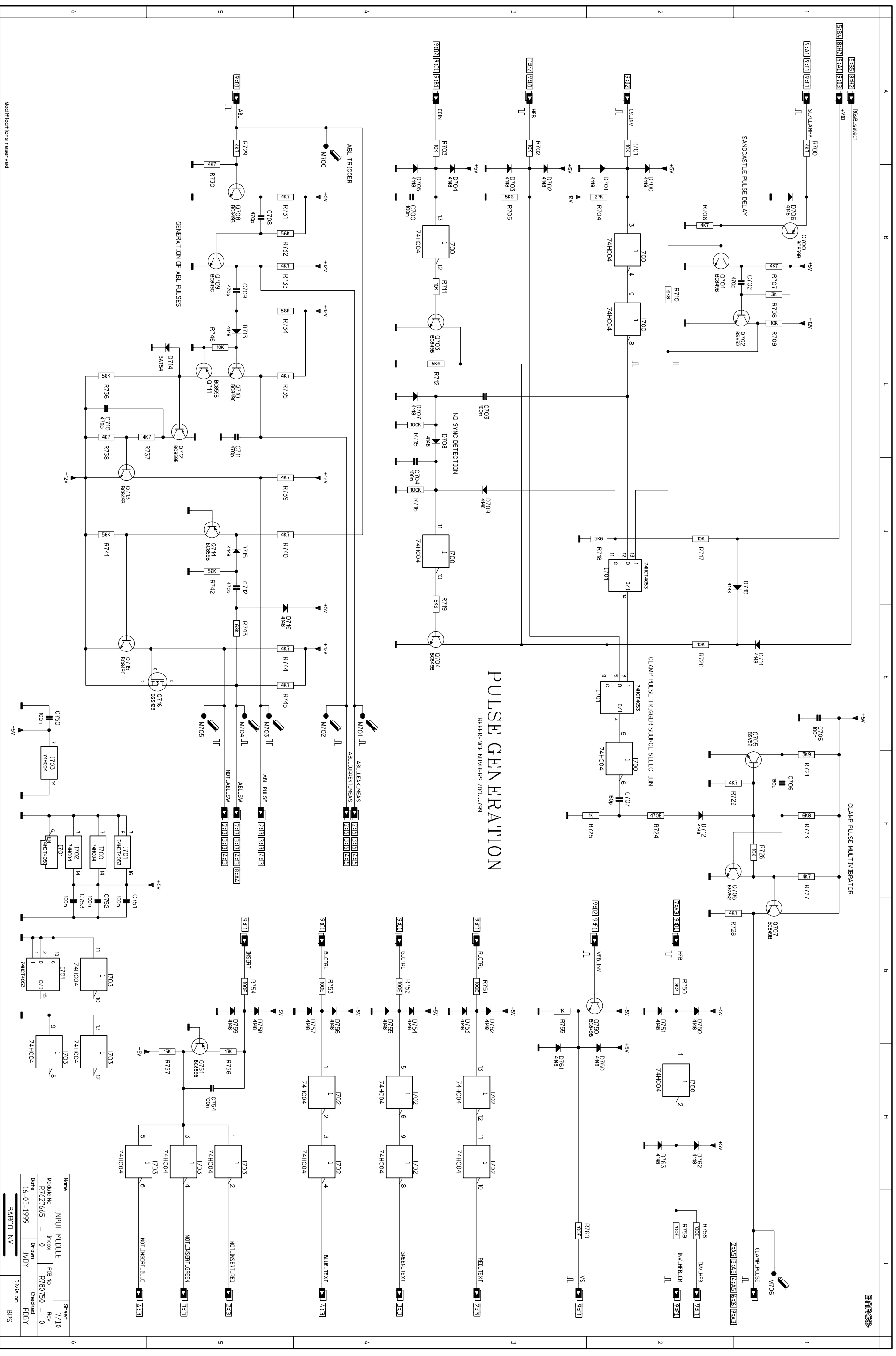


GAIN VOLTAGE GENERATION

REFERENCE NUMBERS 600...699 AND 950...999

Name	INPUT MODULE
Module No	R76271655
Index	0
PCB No	H760750
Rev	0
Date	16-03-1999
Drawn	JVDY
Checked	PUGY
DIVISION	BARCO NV
Sheet	6/10

Modifications reserved



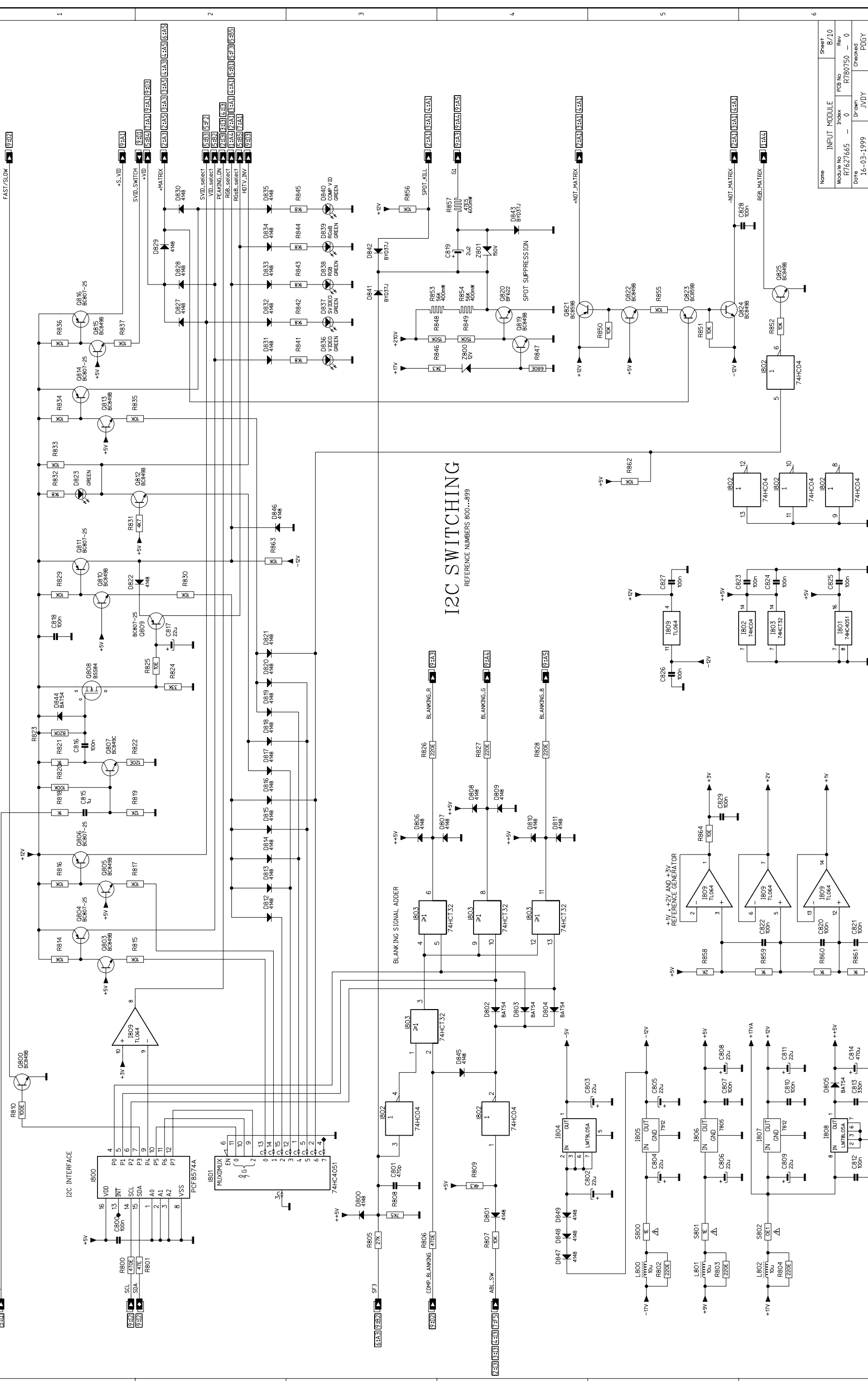
PULSE GENERATION

REFERENCE NUMBERS 700...799

Modification: none reserved

Name	INPUT MODULE	Sheet	7/10
Module No	R762/665	Index	0
Rev	R760/750	Checked	0
Date	16-03-1999	Drawn	JVDY
		Checked	PJG
		Division	BPS

BARCODE NV



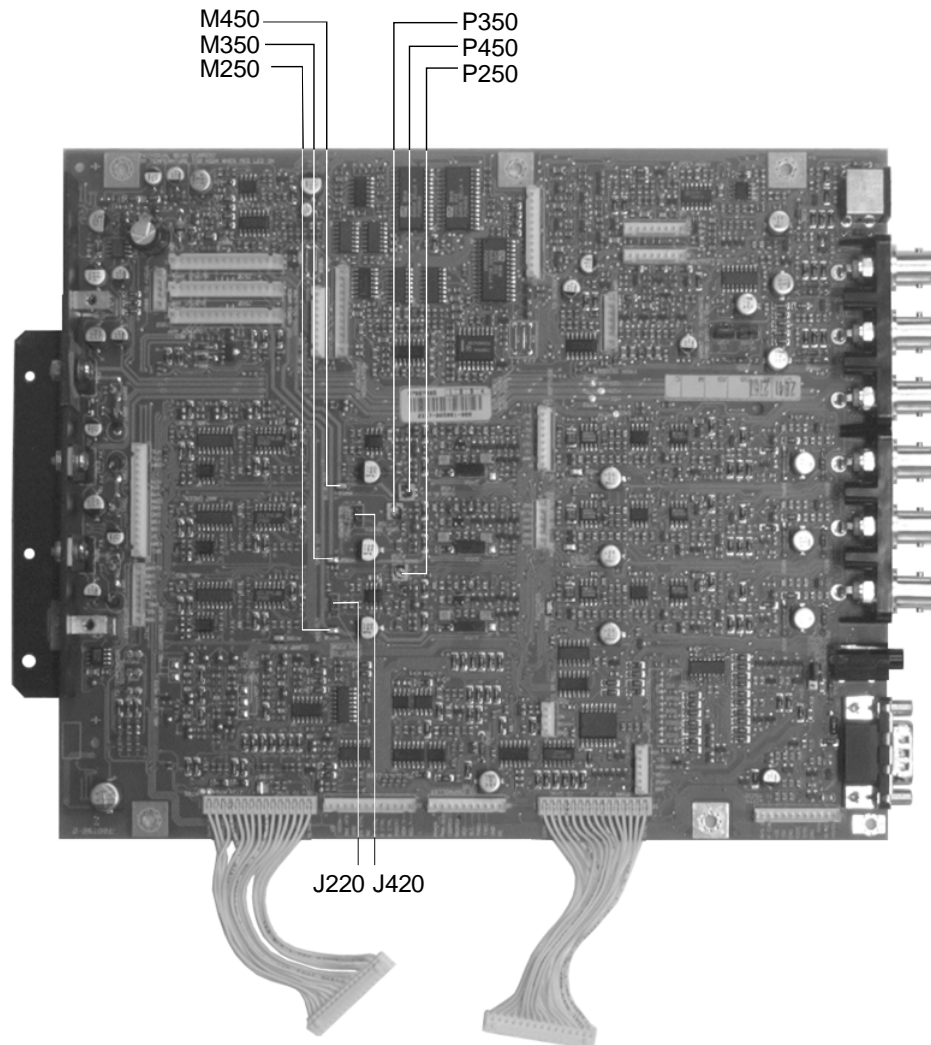
Name	INPUT MODULE	Sheet	8/10
Module No	Index	PCB No	Rev
R7627665	0	H760750	0
Date	Drawn	Checked	PUGY
16-03-1999	JVDY		
BARCO NV		Division	BPS

ADJUSTMENT PROCEDURE

Adjustments on the Module

Adjustment of the GAIN of the output Amplifiers for Red (P250), Green (P350) and Blue (P450)

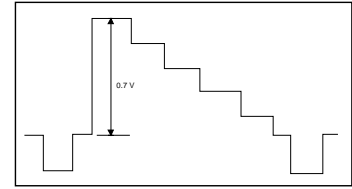
Location of the Controls



Adjusting conditions

1. Signal input

- Connect a RGB signal (0.7Vpp BI&Wh) to the projector and select the corresponding input (refer to the manuals of the projector).



2. Contrast and Brightness setting (refer to the Owner's manual of the projector)

- Adjust the Contrast level until the bar scale on the screen indicates 100.
- Adjust the Brightness level until the bar scale on the screen indicates 50.

3. GAIN adjustment For Red, Green and Blue

(refer to the Owner's manual of the projector)

- Proceed to Random Access Adjustment mode and select the Picture tuning.
- Highlight *Color Balance* with the arrow keys and press ENTER to display the Color Balance menu.
- Proceed to adjust RED & BLUE or GREEN.
 - *Adjust the GAIN for RED* until the bar scale on the screen indicates 60.
 - *Adjust the GAIN for GREEN* until the bar scale on the screen indicates 50.
 - *Adjust the GAIN for BLUE* until the bar scale on the screen indicates 100.

Adjustments

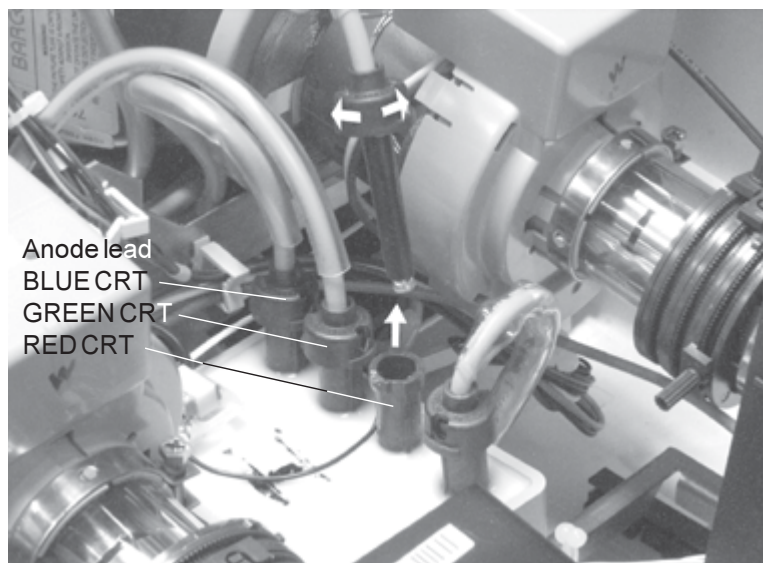
Attention: To eliminate Beam Current Limiting (BCL) while adjusting the GAIN potentiometers, remove the anode lead of the three picture tubes on the EHT Splitter.

WARNING

The power must be OFF before removing any connector from EHT splitter. Failure to do so may result in DANGER TO LIFE and severe damage to the projection unit.

Removing the anode lead of the three picture tubes

- Switch OFF the projector and unplug the power cord from the power input on the front panel.
- Unlock the anode lead cap by turning it counter clockwise.
- Pull out, by the cap, the anode lead for each picture tube from the EHT splitter and discharge the picture tube anode by touching the top of the lead to the aquadag grounding shield.
- Reinstall Power connection and switch ON the projector.



1. Adjustment of the RED channel

- Connect the probe of the oscilloscope to the test point M250
- Short-circuit the 2 pins of the connector J220 (refer to fig. 1)
- Adjust the potentiometer P250 for a video signal amplitude of 4V (refer to fig.2)
- (The black level is at about 3V DC)

2. Adjustment of the GREEN channel

- Connect the probe of the oscilloscope to the test point M350
- Adjust the potentiometer P350 for a video signal amplitude of 4V (refer to fig.2)
- (the black level is at about 3V DC)

3. Adjustment of the BLUE channel

- Connect the probe of the oscilloscope to the test point M450.
- Short-circuit the 2 pins of the connector J420 (refer to fig. 1).
- Adjust the potentiometer P450 for a video signal amplitude of 4V (refer to fig.2)
- (the black level is at about 3V DC)

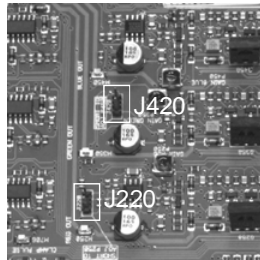


Fig. 1

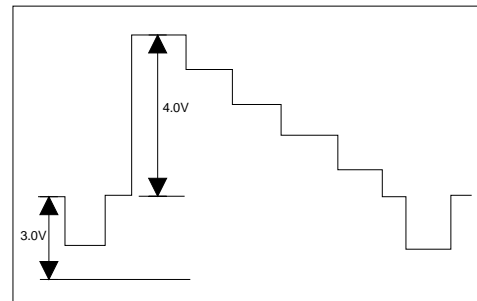
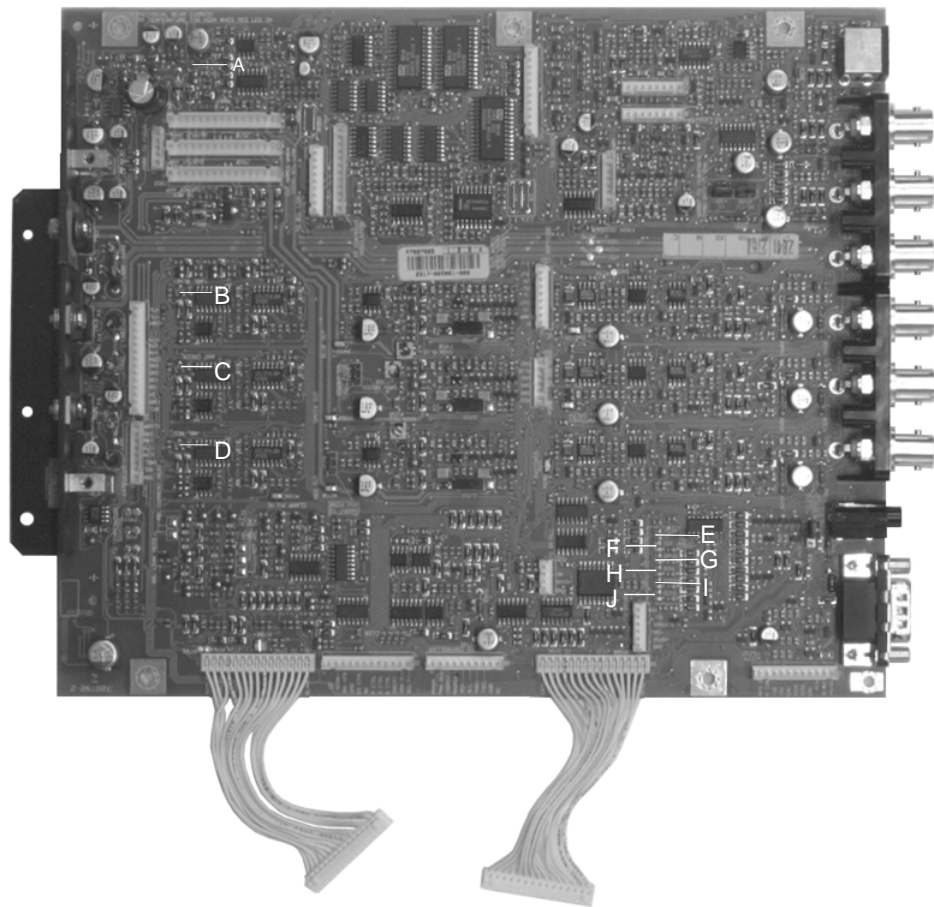


Fig. 2

Control LED's on the module

A	IBCL or overtemperature indication
B	G2 LED Blue
C	G2 LED Green
D	G2 LED Red
E	HDTV
F	COMP VID
G	RGsB
H	RGB
I	VID
J	SVID



TECHNICAL DESCRIPTION
Introduction

The projector can operate in one of the following modes by pushing the corresponding numeric button or by means of the identification of the input board of a switcher RCVS800 or RCVDS05 :

- 1) Video Composite
- 2) Super Video
- 3) RGB Analog level with Bi-Level Sync (with automatic sync detection)
- 4) RGB Analog level with Tri-Level Sync (with automatic sync detection)
- 5) Component input: Y, R-Y, B-Y with Bi-Level Sync
- 6) Component input: Y, R-Y, B-Y with Tri-Level Sync

The selection between the standard Bi-level sync and the HDTV Tri-level is NOT automatic but is done by the selection of the corresponding input.

The selection of the sync signal between RGBS and RGsB however is automatic and there is always priority for the separate sync if both are applied.

(R-Y), Y, (B-Y) current sources

The task of these current sources is to switch between (R-Y), Y, (B-Y), matrixed R, G, B and (R-Y)_DEC, Y_DEC, (B-Y)_DEC depending on the software settings. One of these software settings is the selected input, indicated by the *RGB-select* line. The other one is the state of line-multiplier option (if present) and this is indicated by the *RGB-MATRIX* line.

Video Composite or Super Video

When either of these inputs is selected, the *RGB-select* line is low and the *RGB-MATRIX* line is default high. The (R-Y), Y, (B-Y) current sources are switched off and the (R-Y)_DEC, Y_DEC, (B-Y)_DEC-signals from the decoder are applied to J401 via respectively D100, D101 and D102.

Component input

Both the *RGB-select* line and the *RGB-MATRIX* line are high when this input is selected. Q105 and Q108 are conducting due to high level on *RGB-select* line, Q101 is conducting due to the high level on both lines. The fact that the *RGB-MATRIX* line is high, switches off Q100, Q102 and Q104. This means that the only current flowing through Q103, Q106 and Q109 is respectively Y via Q101, R-Y via Q105 and B-Y via Q109. These signals are applied to J401.

RGB-input

The *RGB-select* line is high when this input is selected which means that Q105 and Q108 are conducting.

When a line-multiplier is present and the input frequency is 15 kHz, then the LIDO option can be turned ON or OFF. This respectively puts the *RGB-MATRIX* line low or high. When no line-multiplier is present the *RGB-MATRIX* line is high.

In case of a high level on the *RGB-MATRIX* line, the signals follow exactly the same way as described above for Component input.

In case of a low level on the *RGB-MATRIX* line, Q101 is turned off and Q100, Q102 and Q104 are conducting.

The Y-signal is made by adding together R, G and B in the right proportions via

R110, R111 and R112. This signal is applied to the base of Q103 via Q102 and to the base of Q104. Q103 sends this signal to J401. The current flowing through Q106 is a current composed in Q105 by the R-signal that is applied to its base and the Y signal applied to its emitter via Q104. This results in the R-Y signal which is sent to J401. In an analog way the B-Y signal is formed at the collector of Q109, which is also sent to J401.

Saturation Control

The R-Y signal coming from J402 pin 1, goes to the base of Q151 via C155. This transistor inverts the signal and converts the voltage to a current. A part, proportional to the potential difference between pin 2 and 4 of IC101, of the -(R-Y) signal is flowing through R161.

The B-Y signal is converted to a current through R156 in an analog way, via Q150 and proportional to the potential difference between pin 6 and 9 of IC101.

These potential differences determine the attenuation of the -(R-Y) and -(B-Y) signal and is software-controlled with the saturation-button on the remote control (**refer to the Owners Manual - Location and functions of control**).

This control-voltage *SAT* is divided by R104/R106, buffered by IC100 pin 5, 6, 7 and decoupled by R108, C151 before it is presented to bases of the differential amplifiers. IC100 pin 1, 2, 3 compares the control-voltage *SAT* with a reference voltage of 1,05Vdc. As soon as the control-voltage drops below this level, the output of IC100 goes low and pulls, via D105 and R105, the voltage at pin 7 of IC100 even lower. In this case no more current flows in R156 and R161 which guarantees that the colour saturation can be adjusted to an absolute zero level. R190 and R191 assure that all transistors in IC101 have approximately an equal dissipation and this way prevents the distortion of the video signal by thermal effects.

In the meantime the Y-signal, that comes on the emitter-follower Q158 via C160, is applied to the bottom of R169, R174 and R188. The output signals are taken from the top of the resistors. Q152, Q154, Q155 and Q157 can add an extra signal to this Y-signal. Via C157, the adjusted -(R-Y) signal is applied to the base of Q157. Q157 inverts this signal and the resulting *R_MATRIX* signal at the top of R188 is the sum of R-Y and Y. The *B_MATRIX* signal at the top of R169 is formed in a similar way with the adjusted -(B-Y) signal via C158 and Q152. The *G_MATRIX* signal at the top of R174 can be formed in two different ways according to the chosen option: EBU MATRIX or ANSI MATRIX. This is obtained by switching between Q154 and Q155.

EBU MATRIX

the *MATRIX_SWITCH* line is high (+3V). Q153 conducts, Q156 is blocked. This causes D150, D152, Q152, Q154 and Q157 to be active and D151, D153 and Q155 to be blocked. The emitter resistor of Q152 is formed by R168 and R170 in parallel and the emitter resistor of Q157 by R187 and R184 in parallel. The adjusted voltages -(R-Y) and -(B-Y) are branched off at the emitters of respectively Q152 and Q157 and are transformed to the emitter current of Q154 by R170 and R184. This current is added to the Y-signal through R174 and results in the *G_MATRIX* signal.

ANSI MATRIX

the *MATRIX_SWITCH* line is low (+1V). Q153 is blocked, Q156 is conducts. This causes D151, D153, Q152, Q155 and Q157 to be active and D150, D152 and Q154 to be blocked. The emitter resistor of Q152 is now formed by R168, R175 and R176 in parallel and the emitter resistor of Q157 by R187, R185 and R186 in parallel. The adjusted voltages -(R-Y) and -(B-Y) are again branched off at the emitters of respectively Q152 and Q157 and are transformed to the emitter current of Q155 by R176 and R185. This current is added to the Y-signal through R174 and results in the

G_MATRIX signal.

RED video channel

RED input switching

In case of RGB without line doubling and in case of HDTV, the signal on the BNC input can be used as it is for further processing. In all other cases the signal on the BNC input has to go to the LIDO (if present) and the saturation-control first and the resulting *R_MATRIX* signal has to be used.

This is obtained as follows:

For RGB without line doubling and in case of HDTV, the *RGB_select* and the *+NOT_MATRIX* lines are at +12V and the *-NOT_MATRIX* line is at -12V. Due to these levels D200 and D203 are both conducting. Via C200, C201, D200, R204 and D203 the signal on the BNC input is applied to the base of Q201. From the emitter of Q201 it goes to the base of Q203 via D206, R217 and C206.

In all other cases the *+NOT_MATRIX* and the *-NOT_MATRIX* lines have a high-impedance which causes D203 to be blocked and D204 to be conducting via R211. This turns off Q201. Via D205, the emitter of Q201 comes on a -0,6V level. D206 is also blocked via R214. This way a very good isolation of the signal is obtained between the cathode of D203 and D206. In these cases the *+MATRIX* line is high which turns ON Q202. This way the *+R_MATRIX* signal is applied to the base of Q203.

The *R_IN* signal from the BNC input is branched off via R209 and buffered by Q200 to send it to the R/R-Y current sources.

Clamp circuit

The voltage on the emitter of Q203 is applied to the + input of the comparator IC200 via R227. Here it is compared to ground on pin 2 of IC200. The comparator is only active when the signal *CLAMP_PULSE* signal, applied to pin 5 of IC200, is high (+3V). Depending on the difference the comparator detects, there is a current in or out of C213. The voltage over this clamping capacitor is converted to current by Q207 which, via Q208 and R233 results in a driver voltage for the current source Q209, R234. The current from this source flows through R218 and R217, lowering the voltage on the base of Q203 to about +0,6V and to exactly 0V on its emitter. For video-applications, the clamping capacitor can be enlarged by putting C212 in parallel with C213 via Q206. This is driven by the *+MATRIX* line that switches Q206 ON and OFF.

Soft-edge video buffer

The red signal on the emitter of Q203, which is exactly clamped on 0V, is amplified with a factor 2 by IC201 and then sent to the soft-edge via R241. R237 and C217 enhance the pulse-response of the output signal of this opamp.

Text insertion

Normally the *NOT_INSERT_RED* line, thus the gate of Q204, is at 0V and the FET is conducting. The red signal is applied to pin 1 of IC250. When the *NOT_INSERT_RED* line goes to -5V, Q204 will not conduct and R223 will keep pin 1 of Q250 at ground level. Now the controller can insert text on this pin via R222 and the *RED_TEXT* line. The switching signals *NOT_INSERT_RED* cause extra over- and undershoot on pin 1 of IC250. This is compensated by applying the same over- and undershoot to pin 2 of IC250.

Gain multiplier

In IC250, the red signal is multiplied with a certain factor, determined by the voltage on pin 8 of IC250 (*GAIN_RED*). This voltage is between 0V and +1,2V and is determined by the contrast and the gain adjustment. It can externally influenced by the contrast-modulation and the soft-edge option. By feeding back a part of the output signal to pin 4, IC250 can also amplify. This feedback is done via R251. Via R250, a DC-level proportional to the brightness and gain adjustments is also applied to this pin 4 (*DC_LEVEL_RED*).

Output amplifier

After the gain multiplier, the signal is fed to the output amplifier via Q250, Q252 and Q254.

A non-inverting amplifier with low output impedance is built around Q255 and Q258. The gain is determined by the feedback resistor R269 and initially also R290, R291, R267 and P250. R270, C259, R271, C260, R272 and C261 are speed-ups. Additionally, with the line *PEAKING_ON*, a critically damped RLC circuit formed by C265, D254, R275 and L202 can be put in parallel.

The output amplifier is put out of service when the spot-suppression becomes active. This is done by applying a low level to the gate of Q254 via the *SPOT_KILL* line. Q254 is then open and no signal is applied to the base of Q255 anymore.

ABL interval insertion, ABL leakage measurement and ABL current measurement

The ABL interval is inserted in the video signal by bringing the base of Q255 to 0V. Therefore, during the 40 μ s of the ABL interval, Q250 and Q252 are switched off via the *NOT_ABL_SW* line and Q251 and Q253 are switched on via the *ABL_SW* line. This also provides a good isolation between I250 and Q255.

The ABL leakage is measured during the first 20 μ s of the ABL interval. The possible leakage current, *ABL_RED*, coming from the picture tube flows via R287 and Q259 through R288 and R298. The bottom of R288 (pin 7 IC252) is initially at 0 level. The voltage over R288 is amplified by IC252 pin 8, 9 and 10 and is then applied to pin 1 of IC254. The gate is closed during this leakage measurement via *ABL_LEAK_MEAS* which is high during this interval, and the voltage comes over C278 (sample and hold). This voltage is compared to ground with the regulator IC252 pin 5, 6 and 7 and the output pin 7 is adjusted until the voltage across C278 is 0V. This can take more than one field (ABL interval). When there is no leakage current, pin 7 will be at 0V. When there is a leakage current, pin 7 will be negative. Without this leakage compensation, the leakage current would cause a fault in the ABL measurement and the low-lights would not be stable.

The next 20 μ s of the ABL interval the line *ABL_CURRENT_MEAS* is high and the *ABL_PULSE* line becomes -12V. This line inserts a little pulse in the red video output and this is converted to a small beam current (10 to 15 μ A). This current also flows through R288 causing a voltage of 0,11V across it, which is then amplified to about 1V. This voltage is now put across C270 via the gate IC254 pin 3, 4, 5, 9 (sample & hold) and is buffered with IC252 pin 12, 13, 14. This voltage is compared by the integrator IC252 pin 1, 2, 3 with the 1,08V reference made by R278 and R279. Via R294, the output is driving the current source Q256, which provides an extra DC-offset to the output amplifier. This way the beam current for the low lights is kept constant.

To assure the correct functioning of the board when no output amplifier or no picture tube is connected, an extra feedback of the video signal to the ABL input is foreseen via D262 and R295. The ABL regulator will then cause the DC-level of the output signal to increase until the ABL measurement pulse also causes a feedback current

through D262, R295 and R287 of about 10 μ A. (For this, the top of the ABL pulse in the video signal has to go about 3,7V.

G2 LED

During the leakage current measurement, the output is at black level. This level is applied to C271 via R264 and I254 pins 11, 12, 13, 14 and then compared to two reference voltages by IC253. These reference voltage are symmetrically distributed around +1,7Vdc. If the black level is within this window, LED D255 is not lit. The output stage is adjusted in such a way that the cathode is at 185V, when the output signal of the RGB input is at +1,7V.

Gamma correction

Because the red picture tube has a flatter gamma-curve than the green one, the gain of red has to increase a little for the higher output values. With R258, R259, R260 the correct reference voltage is created at pin 3 of IC251. This voltage is also found at the left anode of D250. When the voltage at the emitter of Q255 rises above this reference, then R265 is put in parallel on the emitter of Q255 via the right diode of D250 and the gain of the output amplifier increases. The video-signal was amplified to 2Vpp by IC250 because it is then easier to determine the breaking point more accurately and with less temperature dependency.

Green video channel

This is identical to the red video channel but there is no gamma correction.

Blue video channel

This is identical to the red video channel. The gain (R465) and the breaking point of the gamma correction are adapted to compensate the saturation of the blue phosphor.

Sync + video inputs

Video and S-video inputs

When the video input is selected, the +*VID_select* line is high and the +*S_VID_select* line is low. The signal arriving at the video BNC comes across the terminating resistor R501. Via D501 and R513 it is applied to the base of Q501, which converts the signal to a current.

When the S-video input is selected, the +*VID_select* line is low. D501 is blocked now and D507 shortens the base of Q501 to ground. The +*S_VID_select* line is high and the luminance signal is applied to the base of Q502 via C502, D502 and R514. This one converts the signal to a current.

The current flowing through either Q501 or Q502 is being convert to a voltage again by R522 and sent to the decoder board via Q505. C514, C515, R533, R534 enhance the pulse response of this output. Q504 sends the video or luminance signal through R528 where it is further used as sync signal. The chroma signal is applied to R550 and via C552 and R558 to the base of the current source Q553. This one sends the chroma to the decoder print.

Sync switching + output

IC500 switches between the different sync sources and sends the correct to Q550 via C506. Afterwards Q552 sends the signal to pin 7 on J401.

The horizontal and composite sync input is constituted around Q500. With W500, the terminating resistor can be set to either 75 Ω or 22K (for TTL pulses). The sync pulses arrive at C500. Depending on the state of the *RGB_select* line they are

applied to Q500 via D500 or they are not put through. Q500 is buffering the signals and the diodes D512 to D517 limit the maximum amplitude of these pulses. The signal at the emitter of Q500 is switched by IC500 but is also used to automatically detect the separate sync via the *sync_detect* line.

Vertical sync input

The pulses of the vertical separate sync BNC connector arrive on C550. With W501, the terminating resistor can be set to either 75Ω or 22K (for TTL pulses). Depending on the state of the *RGB_select* line the pulses are applied to Q551 via D552 or they are not put through. Q551 is buffering the signals and the diodes D555 to D560 limit the maximum amplitude of these pulses. Via the buffer Q554, the pulses are fed to a clamping circuit which clamps the minimum of the pulses to +5V. This clamping circuit is built up with C555, R572, D561 and IC550 pin 5, 6, 7. C555 is discharging to ground via R572. As soon as pin 6 is below the +5V reference of pin 5, the output pin 7 becomes high and C555 is charged via D561.

The circuit with IC551 pin 2, 3, D562, C557, R573 is a peak detector. The top of the pulses is detected and held on C557. The voltage over this capacitor is compared to the level of the pulses. As soon as the pulse level is higher than the voltage over C557, the output of IC250, pin 6, goes high and C557 is charged via D562. This goes on until both voltages are equal again. R573 slowly discharges C557. The resulting signal goes to IC552, where it is buffered. With R574, R575, R576 and D563 a voltage is made that lies about halfway the minimum and maximum value of the pulses after the clamping circuit. In other words, the IC550 pin 1, 2, 3 separates the sync pulses at about 50% of the pulse amplitude. D563 ensures that the reference voltage for the comparator is not exactly 5V but a little less in order to avoid oscillations when there is no signal at the input. The resulting pulses at pin 1 of C550 are cleaned up by the two inverters of IC553 and via R578 and C559 the mean value of the signal is determined. For negative sync pulses the level on pin 9 of IC553 is low, for positive syncs it is about +5V. This is inverted and then fed to pin 13 of IC554. Depending on the level of this signal, IC554 pin 11, 12, 13 inverts or doesn't invert the sync pulses. This then goes through the buffer IC554 pin 8, 9, 10 and the resulting VS_EXT signal is a signal consisting of positive pulses at TTL-level which is sent to the sync processing unit.

Gain voltage generation

General

The purpose is to generate the voltages needed for the gain multipliers IC250, IC350 and IC450. These voltages are respectively proportional to the product of the gain and the contrast and to the product of gain and brightness for that colour.

Pulse width modulators

Inverter IC606 pin 8, 9 is an RC oscillator. When pin 8 is high, C631 charges until the upper threshold of the schmitt-trigger input is reached. Then the output goes low and C631 discharges until the lower threshold is reached.

The non-linear sawtooth that is generated over C631 this way is applied to pin 9 of IC605. To the other input, pin 10, a certain DC-level is applied coming from the integrator IC605 pin 5, 6, 7. The resulting output, at pin 7 of IC604, is a pulse train with a certain duty-cycle. These pulses are enhanced and inverted by IC606 pin 1 and 2. The mean value of these pulses is now compared to the reference at pin 2 of the Bellini IC600 (which is a measure for the gain that is set for that colour). IC605 will now adapt its output until both voltages at its input are equal. When this is reached we have a pulse train with a duty cycle proportional to the reference at pin 2 of IC600

divided by 5V. R643 gives the system a certain offset. The duty cycle is between 51 and 96% for the red channel.

For the green channel, a pulse train is generated in an analog way. The duty cycle of this signal is between 65 and 89%. These limits are determined by R640, R642 and R641.

For the blue channel, R638 and R639 determine the adjustment range: 2 to 77%.

PWM to voltage converters

The three pulses that have now been generated are used to drive two groups of each three switches to switch the contrast and the brightness pulses. IC651 pin 11, 12, 13, 14 is driven at pin 11 with the PWM signal of the red gain. This switch switches between the contrast voltage and +3Vdc (which equals to the minimum contrast level). With the gain at maximum the duty cycle is 96% and almost the entire contrastvoltage is put on the output pin 14 of IC651. With the gain at minimum, the output will be at +3V during 49% of the period and during 51% at the level of the contrastvoltage. The mean value of these pulses, which is obtained after R657, C656, R663 and C662 is now processed as a DC-voltage by the sommator IC654. The result is the *GAIN_RED* signal.

In an analog way IC651 also makes the *GAIN_GREEN* and the *GAIN_BLUE* signal. The *DC_LEVEL_** signals are produced in the same way by IC651. These signals are the product of gain and brightness for that color.

Contrast modulation sommators

The gain voltage for the red signal is offered to the sommator IC654 pin 10, 11, 12 via R672. This one also adds the voltage coming from the contrast modulation via R672 and a DC-offset which is applied via R670. This results at the output in a voltage between 0 and 2,4V which is then buffered by Q652 and applied to pin 5 of J5 over 51Ω. From there it can either go to the soft-edge module or via W5 straight to IC250 where it is again terminated at 50Ω. So, the multiplier gets a voltage between 0 and +1,2V. The same goes for green and blue.

DC-level sommators

To the voltage, which is a product of gain and brightness, that is fed to the sommator IC653 pin 5, 6, 7 a DC-offset coming from the Bella IC652 pin 2 is added via R679. This is the cut-off value for red. The same thing is done for the green and the blue channel.

IBCL circuit

IBCL comparators

The voltage on pin 4 of the Bella IC655 qualifies the beamcurrent corresponding the CRT DRIVE MODE economic, normal, boost. This voltage is compared by IC601 pin 1, 2, 3 with the IBCL voltage *IBCL_RED* coming from the red endstage. This voltage is appropriately distributed by R611, R956, and R618. If this voltage is too high, then the comparator pulls the contrastvoltage on node W600, W601 low via D610. R629 and C624 ensure a damped transition in this case. The green beam current is limited in the same way with comparator IC601 pin 12, 13, 14. For normal RGB or HDTV sources this is also the case.

Often VCR's in standby give a full blue picture. When this signal is fed to the projector during a longer period of time, this can lead to an exaggerated use of the blue picture tube. Therefore, in this case, it is recommended to gradually reduce the beam current. Initially D609 is not conducting and the IBCL value is at the same level as the value for red and green. For video, S-video, component video and RGB

doubled images, the +*MATRIX* line is high and Q601 is conducting. The transistor saturates and the level of its collector comes at +5,5Vdc. This level is applied to pin 3 of IC602 and is compared with voltage at pin 8 of IC601. For a full blue picture the level of this pin is low until D612 keeps the contrast voltage sufficiently low and the beam current corresponds to the voltage coming from the bella IC655. Because this contrast voltage is between 1 and 3 Volts, the level of pin 8 (IC601) will be between 0,4 and 2,4V on this moment. This means that the output of IC601 pin 1, 2, 3 is becomes high and D608 will block. The output of integrator IC602 pin 5, 6, 7 will now, in a timespan of about 5 minutes, go down until the voltage on the anode of D609 is equal to the reference made by R615, R616. This reference determines the lower beam current value for a long blue image. When this blue image is gone for a short time, pin 8 of IC601 becomes high (about +11V), so pin 1 of IC602 becomes negativ and C622 is discharged very quickly through D608 and R614. This way the output of the integrator IC602 pin 5, 6, 7 becomes high and D609 is blocked. The beam current for blue is now normal again and everything can start over. For normal RGB and HDTV, the +*MATRIX* line is low and the output pin 1 of comparator IC602 is negative all the time. The integrator is then eliminated.

BCL overcurrent + overtemperature detection

When a low, safe beam current is flowing, D605 and D606 are blocked, Q603 is conducting via R914 and the gate of Q602 is high. Q600 and Q606 are not conducting. When the beam current of one of the channels is too high, one of the diodes D605, D606 will start conducting and the voltage on the base of Q603 will rise. Q603 is cut off and C618 is slowly discharging over R605. The level at the gate of Q602 goes down and in the end Q602 will stop conducting. Due to this C632 is charged via D604, R603. After a short time Q606 will starts conducting via R607 and afterwards Q600 starts conducting via D653. The scanfail line (*SF3*) is pulled low and the high tension is swithced off. Now Q606 will keep the gate of Q602 at a low level and the cicuit blokcs itself in the current state. Since the beam current is gone now, Q603 starts conducting again and now lights the LED D602. C618, C616, C632 make sure the circuit isn't triggered by short beam current peaks or flashes. When the temperature of a picture tube is abnormally high, the voltage on one of the connectors J950...952 rises. One of the diodes D950...952 starts conducting and forward biases Q606 which in his turn, turns of Q602 and activates the scanfail as described above.

BCL sensor and contrast voltage inverter

When the total beam current becomes high, the voltage on the BCL line becomes negative and this way Q604 starts conducting. This pulls, via Q605, the contrast voltage low until a balance is reached. The contrast voltage on W600, W601, which is between 1 and 3V, is inverted to 3 ... 1V by IC605 pin 8, 9, 10. D614 and R648 make sure the outgoing voltage at pin 16 IC654 is never higher then +3V. Otherwise there is the risk of a negative voltage being applioed to pin 8 of the multipliers IC250, IC350, IC450 and the video signal would come through inverted. W600, W601 are cut when the BCL link opiton module is used.

Clamppuls trigger selection and generation

Trigger selection

IC701 switches between different possible sources to trigger the clamp pulse generation.

If there is no source, no internal pattern or no seperate sync, then the HFB pulses are used. In this case pin 9 of IC701 is low and the HFB pulses arriving at pin 5 are

put through to the output pin 4 of IC701.

For RGSB or video pin 9 IC701 is pulled high via D710, D711 and R720. Now the pulses coming from pin 14 IC701 are switched through to the output.

For sync on green the CS_INV pulses at pin 12 of IC701 are used. R701 and R704 convert these 12V pulses to TTL level. Via C703 these pulses are also applied to the sync detector: without sync pin 11 of IC700 is low, so pin 10 is high and Q704 is conducting. This means pin 9 of IC701 is pulled low and the HFB pulses are again used to trigger. As soon as sync pulses are present, C704 is charged via D708 to about 4V. Q704 stops conducting, pin 9 of IC701 goes high and the sync pulses are used again to trigger.

For video the top of the Sandcastle signal is used to trigger the clamping generation. The sandcastle signal is fed to the emitter of Q700. Its base is set at +5V. This way Q700 only conducts during the top of the sandcastle. When Q700 conducts, Q701 also conducts and the base of Q702 becomes negative via C702 which blocks this transistor. C702 charges via R708 and Q702 starts conducting again. This way a positive pulse, starting on the positive transition of the top of the sandcastle signal, with a certain width is generated at the collector of Q702. R710 makes sure that Q701 continues conducting until Q702 conducts again. For video, the COIN line indicates whether there is coincidence or not. When there is no coincidence, the COIN line goes low and Q703 starts conducting. Pin 9 of IC701 is pulled low and the HFB pulses are used to trigger.

In all cases, the signal at the output pin 4 of IC701 is inverted by IC700 pin 5, 6.

Clamp pulse multivibrator

Normally Q706 is conducting and Q705 is not. Via C707, R724 and D712 a differentiated trigger pulse is fed to the base of Q705. This way its collector goes low, making the base of Q706 negative via C706. The collector of this one now becomes high and keeps Q705 forward biased via R726. C706 charges through R723 and after about 1 μ s, Q706 conducts again and the base of Q705 is pulled low. The signal generated at the collector of Q706 is buffered by Q707 and used as CLAMP_PULSE.

ABL pulse generation + supporting signals

ABL pulse generation

Different pulses at different levels are needed for the ABL circuit. During the approximately 40 μ s of the ABL interval, the ABL line is high. This signal is applied to the base of Q708 via R729. When the line is high, Q708 starts conducting thus pulling the base of Q709 low via C708. This transistor is cut off and its collector becomes high (+12V). C708 starts charging through R732 and after 20 μ s Q709 starts conducting again, switching its collector back to low. The pulses generated this way are used as ABL_LEAK_MEAS to drive the switches of the leakage current measurement.

This signal is also passed on to the anode of D713 via C709. On the negative transition D713 and thus also Q710 and Q711 stop conducting. The line ABL_CURRENT_MEAS comes at +12V. Q712 starts conducting via R736 and forward biases Q713. This brings the ABL_PULSE to -12V. In the meantime C709 starts charging via R734 after 20 μ s, D713, Q710 and Q711 start conducting again. C710 makes sure that Q713 keeps on conducting a little longer so that the line ABL_PULSE stays active a little longer than the line ABL_CURRENT_MEAS. The line ABL also forward biases Q714 via R740. Due to this Q715 starts conducting and the line NOT_ABL_SW goes low. Q716 stops conducting and the line ABL_SW becomes high. The same line is also used to keep Q714 and Q708 forward biased, via R743, C712 and D715, for at least 40 μ s in case the incoming ABL triggerpulse would be shorter.

Supporting signals

IC700 pin 1, 2 inverts the HFB pulses and sends them to the controller (*INV_HFB*) and to the contrast modulation (*INV_HFB_CM*).

Q750 buffers the *VFB_INV* line and sends the pulses as *VS* to the controller.

IC702 buffers the lines of text coming from the controller and cleans up the signals.

Q751 changes the level of the *INSERT* signal. If the *INSERT* line is low, Q751 doesn't conduct and its collector is at -5V. If the line goes high the collector level becomes 0V. C754 takes care of the pulse respons. IC703, fed between 0 and -5V, buffers the signal to feed the JFET's Q204, Q304 and Q404.

Switching

IC800 is connected to the I²C bus. P5...7 is connected to a 3 to 8 decoder IC801.

When the video input is selected, pin 13 of this IC801 is low and forward biases Q803 and Q804 via R815. This switches the *+VID_select* line and via D828, D829 also the *+VID* and *+MATRIX* line to high.

In the same way, for S-video the *+S_VID_select*, *+VID* and *+MATRIX* lines are switches high. Q815 and Q816 can be switched on and off via the *SVID_SWITCH* line. This line is coming from the sync print and allows for the *s_video* input to be used as normal video input by switching the decoder between video and s-video. The composite video-signal is then put on the luminance line.

For the RGB inputs, Q810, Q811 and Q809 become active and thus *RGB_select* and *RGsB_select* become high. If there are external separate HS/CS sync pulses then they are available on the *sync_detect* line. Q807 amplifies these pulses and with C816, R821, D844 a peak detection is done. With this Q808 is forward biased, C817 gets charged and Q809 stops conducting. The RGsB line goes low.

For HDTV, the RGB functions are active and Q812 is conducting. The output *HDTV_INV* then becomes low.

For component video (HDTV or not) Q813 and Q814 start conducting. The *+MATRIX* line becomes high via D830.

For an RGB linedoubled signal, pin 2 of IC801 and activates same lines as RGB and component video activate. Via IC802 pin 5, 6 and Q825, the switching signal *RGB_MATRIX* is made. Q821, Q822, Q823, Q824 convert the *+MATRIX* signal to the +12V/-12V signals *+NOT_MATRIX* and *-NOT_MATRIX*.

IC802, IC803 combine the three composite blanking signals with suppression of colours (via IC800 P0, P1,P2), ABL, SF and spotsuppression. During ABL no blanking is allowed. This is obtained by pulling the color switching signals low during ABL via D802, D803, D804 and keeping the *COMP_BLANKING* line low via D845, R806. When the SF3 line is low, there is always blanking.

Q800 switches the FAST/SLOW line via P3 of IC800. P4 switches the PEAKING function on and off. I809 pin 8, 9, 10 inverts and changes the swicthing levels for the *PEAKING_ON* line.

The spotsuppression is activated when the +17V is too low to keep Q819 forward biased via R846, Z800. When this is the case, Q820 starts conducting and pulls the positive side of C819 (which was in the meantime loaded to 150V via R853, R854, Z801 and D843) to ground. The line G1 comes at -150V, which is enough to blank the picture tubes. The line SPOT_KILL is also pulled low via D842 to switch off the output amplifiers of this board. Pin 3 of IC802 must be pulled low to activate the blanking. This is done via D841.

IC809 is used to buffer the reference voltages +1V, +2V, +3V, which are used on different places.

Wired remote control

When the remote control is not plugged in then P1 and P2 of J213 are connected together and the +SB voltage comes on Z900 via R907. This voltage is buffered by Q902 and there is +5V left to feed the IR receivers via the *5VSB_REC* line. When the remote control is plugged in, the contact between P1 and P2 is opened and the *5VSB_REC* line goes low. The IR receivers are not used anymore.

The +SB powersupply is delivered by P1 J213 to the remote control when this one is plugged in. The remote control on its turn, puts pulses on this line containing the code of the button pressed. This code can be PPM or RC5.

W900 is open for PPM. The short negative pulses are fed to the base of Q900 via R904 and C902. This one inverts the pulses and sends them to the controller over the *PPMIR* line.

For RC5 these pulses are much longer but they can have a 36kHz modulation superposed, depending on the type remote control. In this case W900 must be shorted and C901 is put over the collector of Q900. At the first transition of the signal Q900 starts conducting and C901 charges. It discharges slowly through R906. The possible 36kHz modulation keeps the level of the collector of Q900 high and Q902 in conduction. The result is cleaned up and rectified signal that is free of 36 kHz modulation.

PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R367600	NUT TRAD M3 BLOCK BRNI	2	C262	P2100250	C# C0G MU 470P J 50 0805	1
20	R805375	HTSN V700 MK2	1	C263	P210227	C# Z5U MU 100N Z 50 0805	1
30	R3631049	SCR Z933 M3 X 6 SS	6	C264	P213505	C# EL RA 100M M 16 85	1
40	B360863	SCR Z\$7985M 3 X 10 STZY	1	C265	P210016	C# C0G MU 15P J 50 0805	1
50	R367502	SPR D6798AD 3,2D 6 STZN	1	C266	P210148	C# Y5V MU 470N Z 25 1206	1
60	R3661026	NUT D934 M3 SS	1	C267	P210227	C# Z5U MU 100N Z 50 0805	1
70	B133004	HTSN A TO220 I-KAP [®] 18X23	1	C269	P210227	C# Z5U MU 100N Z 50 0805	1
80	B133003	HTSN A TO220 I-BUSH 6/3,1	1	C270	P210035	C# X7R MU 1N K 50 0805	1
C100	P213514	C# EL RA 22M M 16 85	1	C271	P210227	C# Z5U MU 100N Z 50 0805	1
C101	P210213	C# Y5V MU 100N Z 25 0805	1	C272	P210227	C# Z5U MU 100N Z 50 0805	1
C102	P210178	C# Y5V MU 1M Z 16 1206	1	C273	P210227	C# Z5U MU 100N Z 50 0805	1
C103	P210178	C# Y5V MU 1M Z 16 1206	1	C274	P210227	C# Z5U MU 100N Z 50 0805	1
C104	P210178	C# Y5V MU 1M Z 16 1206	1	C275	P210227	C# Z5U MU 100N Z 50 0805	1
C105	P210178	C# Y5V MU 1M Z 16 1206	1	C276	P210227	C# Z5U MU 100N Z 50 0805	1
C106	P210213	C# Y5V MU 100N Z 25 0805	1	C277	P210227	C# Z5U MU 100N Z 50 0805	1
C107	P210178	C# Y5V MU 1M Z 16 1206	1	C278	P210041	C# X7R MU 10N K 50 0805	1
C108	P210213	C# Y5V MU 100N Z 25 0805	1	C279	P210148	C# Y5V MU 470N Z 25 1206	1
C109	P210213	C# Y5V MU 100N Z 25 0805	1	C300	P213526	C# EL BRA 10M M 35 105	1
C110	P210213	C# Y5V MU 100N Z 25 0805	1	C301	P210227	C# Z5U MU 100N Z 50 0805	1
C150	P213514	C# EL RA 22M M 16 85	1	C302	P210178	C# Y5V MU 1M Z 16 1206	1
C151	P210178	C# Y5V MU 1M Z 16 1206	1	C303	P210227	C# Z5U MU 100N Z 50 0805	1
C152	P210213	C# Y5V MU 100N Z 25 0805	1	C304	P210227	C# Z5U MU 100N Z 50 0805	1
C153	P210178	C# Y5V MU 1M Z 16 1206	1	C305	P210227	C# Z5U MU 100N Z 50 0805	1
C154	P210021	C# C0G MU 100P J 50 0805	1	C306	P210227	C# Z5U MU 100N Z 50 0805	1
C155	P210178	C# Y5V MU 1M Z 16 1206	1	C307	P210227	C# Z5U MU 100N Z 50 0805	1
C156	P210021	C# C0G MU 100P J 50 0805	1	C308	P210079	C# C0G MU 18P J 50 0805	1
C157	P210178	C# Y5V MU 1M Z 16 1206	1	C309	P210227	C# Z5U MU 100N Z 50 0805	1
C158	P210178	C# Y5V MU 1M Z 16 1206	1	C310	P210227	C# Z5U MU 100N Z 50 0805	1
C159	P210213	C# Y5V MU 100N Z 25 0805	1	C311	P210227	C# Z5U MU 100N Z 50 0805	1
C160	P210178	C# Y5V MU 1M Z 16 1206	1	C312	P210252	C# X7R MU 220N K 25 1206	1
C161	P210213	C# Y5V MU 100N Z 25 0805	1	C313	P210227	C# Z5U MU 100N Z 50 0805	1
C162	P210213	C# Y5V MU 100N Z 25 0805	1	C314	P210035	C# X7R MU 1N K 50 0805	1
C163	P213514	C# EL RA 22M M 16 85	1	C315	P210227	C# Z5U MU 100N Z 50 0805	1
C200	P213526	C# EL BRA 10M M 35 105	1	C316	P210227	C# Z5U MU 100N Z 50 0805	1
C201	P210227	C# Z5U MU 100N Z 50 0805	1	C317	P210116	C# C0G MU 27P J 50 0805	1
C202	P210178	C# Y5V MU 1M Z 16 1206	1	C318	P210016	C# C0G MU 15P J 50 0805	1
C203	P210227	C# Z5U MU 100N Z 50 0805	1	C350	P210227	C# Z5U MU 100N Z 50 0805	1
C204	P210227	C# Z5U MU 100N Z 50 0805	1	C351	P213526	C# EL BRA 10M M 35 105	1
C205	P210227	C# Z5U MU 100N Z 50 0805	1	C352	P210001	C# C0G MU 10P G 50 0805	1
C206	P210227	C# Z5U MU 100N Z 50 0805	1	C353	P210227	C# Z5U MU 100N Z 50 0805	1
C207	P210227	C# Z5U MU 100N Z 50 0805	1	C354	P212060	C# TA 10M M 16 3528	1
C208	P210079	C# C0G MU 18P J 50 0805	1	C355	P210227	C# Z5U MU 100N Z 50 0805	1
C209	P210227	C# Z5U MU 100N Z 50 0805	1	C358	P210227	C# Z5U MU 100N Z 50 0805	1
C210	P210227	C# Z5U MU 100N Z 50 0805	1	C359	P2100170	C# C0G MU 22P J 50 0805	1
C211	P210227	C# Z5U MU 100N Z 50 0805	1	C360	P210116	C# C0G MU 27P J 50 0805	1
C212	P210252	C# X7R MU 220N K 25 1206	1	C361	P210041	C# X7R MU 10N K 50 0805	1
C213	P210227	C# Z5U MU 100N Z 50 0805	1	C362	P2100250	C# C0G MU 470P J 50 0805	1
C214	P210035	C# X7R MU 1N K 50 0805	1	C363	P210227	C# Z5U MU 100N Z 50 0805	1
C215	P210227	C# Z5U MU 100N Z 50 0805	1	C364	P213505	C# EL RA 100M M 16 85	1
C216	P210227	C# Z5U MU 100N Z 50 0805	1	C365	P210016	C# C0G MU 15P J 50 0805	1
C217	P210116	C# C0G MU 27P J 50 0805	1	C366	P210148	C# Y5V MU 470N Z 25 1206	1
C218	P210016	C# C0G MU 15P J 50 0805	1	C367	P210227	C# Z5U MU 100N Z 50 0805	1
C250	P210227	C# Z5U MU 100N Z 50 0805	1	C369	P210227	C# Z5U MU 100N Z 50 0805	1
C251	P213526	C# EL BRA 10M M 35 105	1	C370	P210035	C# X7R MU 1N K 50 0805	1
C252	P210001	C# C0G MU 10P G 50 0805	1	C371	P210227	C# Z5U MU 100N Z 50 0805	1
C253	P210227	C# Z5U MU 100N Z 50 0805	1	C372	P210227	C# Z5U MU 100N Z 50 0805	1
C254	P212060	C# TA 10M M 16 3528	1	C373	P210227	C# Z5U MU 100N Z 50 0805	1
C255	P210227	C# Z5U MU 100N Z 50 0805	1	C375	P210227	C# Z5U MU 100N Z 50 0805	1
C256	P210227	C# Z5U MU 100N Z 50 0805	1	C376	P210227	C# Z5U MU 100N Z 50 0805	1
C257	P210178	C# Y5V MU 1M Z 16 1206	1	C378	P210041	C# X7R MU 10N K 50 0805	1
C258	P210227	C# Z5U MU 100N Z 50 0805	1	C379	P210148	C# Y5V MU 470N Z 25 1206	1
C259	P2100170	C# C0G MU 22P J 50 0805	1	C400	P213526	C# EL BRA 10M M 35 105	1
C260	P210116	C# C0G MU 27P J 50 0805	1	C401	P210227	C# Z5U MU 100N Z 50 0805	1
C261	P210041	C# X7R MU 10N K 50 0805	1	C402	P210178	C# Y5V MU 1M Z 16 1206	1
				C403	P210227	C# Z5U MU 100N Z 50 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C404	P210227	C# Z5U MU 100N Z 50 0805	1	C558	P210213	C# Y5V MU 100N Z 25 0805	1
C405	P210227	C# Z5U MU 100N Z 50 0805	1	C559	P210041	C# X7R MU 10N K 50 0805	1
C406	P210227	C# Z5U MU 100N Z 50 0805	1	C600	P210227	C# Z5U MU 100N Z 50 0805	1
C407	P210227	C# Z5U MU 100N Z 50 0805	1	C601	P210227	C# Z5U MU 100N Z 50 0805	1
C408	P210079	C# C0G MU 18P J 50 0805	1	C602	P210227	C# Z5U MU 100N Z 50 0805	1
C409	P210227	C# Z5U MU 100N Z 50 0805	1	C603	P210227	C# Z5U MU 100N Z 50 0805	1
C410	P210227	C# Z5U MU 100N Z 50 0805	1	C604	P210227	C# Z5U MU 100N Z 50 0805	1
C411	P210227	C# Z5U MU 100N Z 50 0805	1	C605	P210227	C# Z5U MU 100N Z 50 0805	1
C412	P210252	C# X7R MU 220N K 25 1206	1	C606	P210227	C# Z5U MU 100N Z 50 0805	1
C413	P210227	C# Z5U MU 100N Z 50 0805	1	C607	P210227	C# Z5U MU 100N Z 50 0805	1
C414	P210035	C# X7R MU 1N K 50 0805	1	C608	P210227	C# Z5U MU 100N Z 50 0805	1
C415	P210227	C# Z5U MU 100N Z 50 0805	1	C609	P210227	C# Z5U MU 100N Z 50 0805	1
C416	P210227	C# Z5U MU 100N Z 50 0805	1	C610	P210227	C# Z5U MU 100N Z 50 0805	1
C417	P210116	C# C0G MU 27P J 50 0805	1	C611	P210227	C# Z5U MU 100N Z 50 0805	1
C418	P210016	C# C0G MU 15P J 50 0805	1	C612	P210227	C# Z5U MU 100N Z 50 0805	1
C450	P210227	C# Z5U MU 100N Z 50 0805	1	C613	P210227	C# Z5U MU 100N Z 50 0805	1
C451	P213526	C# EL BRA 10M M 35 105	1	C614	P210227	C# Z5U MU 100N Z 50 0805	1
C452	P210001	C# C0G MU 10P G 50 0805	1	C615	P210227	C# Z5U MU 100N Z 50 0805	1
C453	P210227	C# Z5U MU 100N Z 50 0805	1	C616	P210227	C# Z5U MU 100N Z 50 0805	1
C454	P212060	C# TA 10M M 16 3528	1	C617	P210227	C# Z5U MU 100N Z 50 0805	1
C455	P210227	C# Z5U MU 100N Z 50 0805	1	C618	P213514	C# EL RA 22M M 16 85	1
C456	P210227	C# Z5U MU 100N Z 50 0805	1	C619	P210227	C# Z5U MU 100N Z 50 0805	1
C457	P210178	C# Y5V MU 1M Z 16 1206	1	C620	P210227	C# Z5U MU 100N Z 50 0805	1
C458	P210227	C# Z5U MU 100N Z 50 0805	1	C621	P210227	C# Z5U MU 100N Z 50 0805	1
C459	P2100170	C# C0G MU 22P J 50 0805	1	C622	P213526	C# EL BRA 10M M 35 105	1
C460	P210116	C# C0G MU 27P J 50 0805	1	C623	P210227	C# Z5U MU 100N Z 50 0805	1
C461	P210041	C# X7R MU 10N K 50 0805	1	C624	P210227	C# Z5U MU 100N Z 50 0805	1
C462	P2100250	C# C0G MU 470P J 50 0805	1	C625	P210227	C# Z5U MU 100N Z 50 0805	1
C463	P210227	C# Z5U MU 100N Z 50 0805	1	C626	P210227	C# Z5U MU 100N Z 50 0805	1
C464	P213505	C# EL RA 100M M 16 85	1	C627	P213505	C# EL RA 100M M 16 85	1
C465	P210016	C# C0G MU 15P J 50 0805	1	C628	P210025	C# C0G MU 470P J 50 0805	1
C466	P210148	C# Y5V MU 470N Z 25 1206	1	C629	P210025	C# C0G MU 470P J 50 0805	1
C467	P210227	C# Z5U MU 100N Z 50 0805	1	C630	P210025	C# C0G MU 470P J 50 0805	1
C469	P210227	C# Z5U MU 100N Z 50 0805	1	C631	P210025	C# C0G MU 470P J 50 0805	1
C470	P210035	C# X7R MU 1N K 50 0805	1	C632	P213514	C# EL RA 22M M 16 85	1
C471	P210227	C# Z5U MU 100N Z 50 0805	1	C650	P210227	C# Z5U MU 100N Z 50 0805	1
C472	P210227	C# Z5U MU 100N Z 50 0805	1	C651	P210148	C# Y5V MU 470N Z 25 1206	1
C473	P210227	C# Z5U MU 100N Z 50 0805	1	C652	P210148	C# Y5V MU 470N Z 25 1206	1
C474	P210227	C# Z5U MU 100N Z 50 0805	1	C653	P210148	C# Y5V MU 470N Z 25 1206	1
C475	P210227	C# Z5U MU 100N Z 50 0805	1	C654	P210148	C# Y5V MU 470N Z 25 1206	1
C476	P210227	C# Z5U MU 100N Z 50 0805	1	C655	P210148	C# Y5V MU 470N Z 25 1206	1
C477	P210227	C# Z5U MU 100N Z 50 0805	1	C656	P210148	C# Y5V MU 470N Z 25 1206	1
C478	P210041	C# X7R MU 10N K 50 0805	1	C657	P210148	C# Y5V MU 470N Z 25 1206	1
C479	P210148	C# Y5V MU 470N Z 25 1206	1	C658	P210148	C# Y5V MU 470N Z 25 1206	1
C500	P213526	C# EL BRA 10M M 35 105	1	C659	P210148	C# Y5V MU 470N Z 25 1206	1
C501	P213526	C# EL BRA 10M M 35 105	1	C660	P210148	C# Y5V MU 470N Z 25 1206	1
C502	P213526	C# EL BRA 10M M 35 105	1	C661	P210148	C# Y5V MU 470N Z 25 1206	1
C504	P210213	C# Y5V MU 100N Z 25 0805	1	C662	P210148	C# Y5V MU 470N Z 25 1206	1
C505	P210213	C# Y5V MU 100N Z 25 0805	1	C663	P213509	C# EL RA 47M M 16 85	1
C506	P213526	C# EL BRA 10M M 35 105	1	C664	P213512	C# EL RA 1M M 50 85	1
C507	P210213	C# Y5V MU 100N Z 25 0805	1	C665	P210227	C# Z5U MU 100N Z 50 0805	1
C508	P210213	C# Y5V MU 100N Z 25 0805	1	C666	P210227	C# Z5U MU 100N Z 50 0805	1
C509	P210213	C# Y5V MU 100N Z 25 0805	1	C667	P210227	C# Z5U MU 100N Z 50 0805	1
C510	P210213	C# Y5V MU 100N Z 25 0805	1	C668	P210025	C# C0G MU 470P J 50 0805	1
C511	P210213	C# Y5V MU 100N Z 25 0805	1	C669	P210025	C# C0G MU 470P J 50 0805	1
C512	P210213	C# Y5V MU 100N Z 25 0805	1	C670	P210025	C# C0G MU 470P J 50 0805	1
C513	P210213	C# Y5V MU 100N Z 25 0805	1	C700	P210227	C# Z5U MU 100N Z 50 0805	1
C514	P210020	C# C0G MU 68P J 50 0805	1	C702	P2100250	C# C0G MU 470P J 50 0805	1
C515	P210079	C# C0G MU 18P J 50 0805	1	C703	P210227	C# Z5U MU 100N Z 50 0805	1
C550	P213526	C# EL BRA 10M M 35 105	1	C704	P210227	C# Z5U MU 100N Z 50 0805	1
C551	P210213	C# Y5V MU 100N Z 25 0805	1	C705	P210227	C# Z5U MU 100N Z 50 0805	1
C552	P210213	C# Y5V MU 100N Z 25 0805	1	C706	P210081	C# C0G MU 180P J 50 0805	1
C553	P210213	C# Y5V MU 100N Z 25 0805	1	C707	P210081	C# C0G MU 180P J 50 0805	1
C554	P210213	C# Y5V MU 100N Z 25 0805	1	C708	P2100250	C# C0G MU 470P J 50 0805	1
C555	P210122	C# X7R MU 100N K 50 1206	1	C709	P2100250	C# C0G MU 470P J 50 0805	1
C556	P210025	C# C0G MU 470P J 50 0805	1	C710	P2100250	C# C0G MU 470P J 50 0805	1
C557	P210148	C# Y5V MU 470N Z 25 1206	1	C711	P2100250	C# C0G MU 470P J 50 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C712	P2100250	C# C0G MU 470P J 50 0805	1	D257	P234099	D#4148 RDMMELF	1
C750	P210227	C# Z5U MU 100N Z 50 0805	1	D258	P234099	D#4148 RDMMELF	1
C751	P210227	C# Z5U MU 100N Z 50 0805	1	D259	P234099	D#4148 RDMMELF	1
C752	P210227	C# Z5U MU 100N Z 50 0805	1	D260	P234099	D#4148 RDMMELF	1
C753	P210227	C# Z5U MU 100N Z 50 0805	1	D261	P234099	D#4148 RDMMELF	1
C754	P210227	C# Z5U MU 100N Z 50 0805	1	D262	P234099	D#4148 RDMMELF	1
C800	P210227	C# Z5U MU 100N Z 50 0805	1	D300	P234259	D#BA682 S035A1 DMMELF	1
C801	P2100250	C# C0G MU 470P J 50 0805	1	D301	P234047	D#BAV99 SER SOT23	1
C802	P213513	C# EL RA 22M M 35 85	1	D303	P234259	D#BA682 S035A1 DMMELF	1
C803	P213514	C# EL RA 22M M 16 85	1	D304	P234099	D#4148 RDMMELF	1
C804	P213513	C# EL RA 22M M 35 85	1	D305	P234259	D#BA682 S035A1 DMMELF	1
C805	P213514	C# EL RA 22M M 16 85	1	D306	P234259	D#BA682 S035A1 DMMELF	1
C806	P213514	C# EL RA 22M M 16 85	1	D307	P234259	D#BA682 S035A1 DMMELF	1
C807	P210227	C# Z5U MU 100N Z 50 0805	1	D309	P234099	D#4148 RDMMELF	1
C808	P213514	C# EL RA 22M M 16 85	1	D351	P234099	D#4148 RDMMELF	1
C809	P213513	C# EL RA 22M M 35 85	1	D352	P234099	D#4148 RDMMELF	1
C810	P210227	C# Z5U MU 100N Z 50 0805	1	D353	P234011	D#BAL99 SW SOT23	1
C811	P213514	C# EL RA 22M M 16 85	1	D354	P234259	D#BA682 S035A1 DMMELF	1
C812	P210227	C# Z5U MU 100N Z 50 0805	1	D355	P234063	D#LED LGS260 GRE SOT23	1
C813	P210136	C# Y5V MU 330N Z 25 1206	1	D356	P234099	D#4148 RDMMELF	1
C814	P213520	C# EL RA 470M M 16 85	1	D357	P234099	D#4148 RDMMELF	1
C815	P210178	C# Y5V MU 1M Z 16 1206	1	D358	P234099	D#4148 RDMMELF	1
C816	P210227	C# Z5U MU 100N Z 50 0805	1	D359	P234099	D#4148 RDMMELF	1
C817	P213514	C# EL RA 22M M 16 85	1	D360	P234099	D#4148 RDMMELF	1
C818	P210227	C# Z5U MU 100N Z 50 0805	1	D361	P234099	D#4148 RDMMELF	1
C819	V111475	C EL RA 2M2M400E2 105	1	D362	P234099	D#4148 RDMMELF	1
C820	P210227	C# Z5U MU 100N Z 50 0805	1	D400	P234259	D#BA682 S035A1 DMMELF	1
C821	P210227	C# Z5U MU 100N Z 50 0805	1	D401	P234047	D#BAV99 SER SOT23	1
C822	P210227	C# Z5U MU 100N Z 50 0805	1	D403	P234259	D#BA682 S035A1 DMMELF	1
C823	P210227	C# Z5U MU 100N Z 50 0805	1	D404	P234099	D#4148 RDMMELF	1
C824	P210227	C# Z5U MU 100N Z 50 0805	1	D405	P234259	D#BA682 S035A1 DMMELF	1
C825	P210227	C# Z5U MU 100N Z 50 0805	1	D406	P234259	D#BA682 S035A1 DMMELF	1
C826	P210227	C# Z5U MU 100N Z 50 0805	1	D407	P234259	D#BA682 S035A1 DMMELF	1
C827	P210227	C# Z5U MU 100N Z 50 0805	1	D409	P234099	D#4148 RDMMELF	1
C828	P210227	C# Z5U MU 100N Z 50 0805	1	D450	P234289	D#HSMS2814 SCH SOT23	1
C829	P210227	C# Z5U MU 100N Z 50 0805	1	D451	P234099	D#4148 RDMMELF	1
C900	P210148	C# Y5V MU 470N Z 25 1206	1	D452	P234099	D#4148 RDMMELF	1
C901	P210036	C# X7R MU 1N5K 50 0805	1	D453	P234011	D#BAL99 SW SOT23	1
C902	P210178	C# Y5V MU 1M Z 16 1206	1	D454	P234259	D#BA682 S035A1 DMMELF	1
				D455	P234063	D#LED LGS260 GRE SOT23	1
D100	P234099	D#4148 RDMMELF	1	D456	P234099	D#4148 RDMMELF	1
D101	P234099	D#4148 RDMMELF	1	D457	P234099	D#4148 RDMMELF	1
D102	P234099	D#4148 RDMMELF	1	D458	P234099	D#4148 RDMMELF	1
D103	P234099	D#4148 RDMMELF	1	D459	P234099	D#4148 RDMMELF	1
D104	P234099	D#4148 RDMMELF	1	D460	P234099	D#4148 RDMMELF	1
D105	P234099	D#4148 RDMMELF	1	D461	P234099	D#4148 RDMMELF	1
D106	P234259	D#BA682 S035A1 DMMELF	1	D462	P234099	D#4148 RDMMELF	1
D107	P234259	D#BA682 S035A1 DMMELF	1	D500	P234099	D#4148 RDMMELF	1
D150	P234259	D#BA682 S035A1 DMMELF	1	D501	P234099	D#4148 RDMMELF	1
D151	P234259	D#BA682 S035A1 DMMELF	1	D502	P234099	D#4148 RDMMELF	1
D152	P234259	D#BA682 S035A1 DMMELF	1	D504	P234099	D#4148 RDMMELF	1
D153	P234259	D#BA682 S035A1 DMMELF	1	D505	P234099	D#4148 RDMMELF	1
D200	P234259	D#BA682 S035A1 DMMELF	1	D506	P234099	D#4148 RDMMELF	1
D201	P234047	D#BAV99 SER SOT23	1	D507	P234099	D#4148 RDMMELF	1
D203	P234259	D#BA682 S035A1 DMMELF	1	D508	P234099	D#4148 RDMMELF	1
D204	P234099	D#4148 RDMMELF	1	D509	P234099	D#4148 RDMMELF	1
D205	P234259	D#BA682 S035A1 DMMELF	1	D512	P234099	D#4148 RDMMELF	1
D206	P234259	D#BA682 S035A1 DMMELF	1	D513	P234099	D#4148 RDMMELF	1
D207	P234259	D#BA682 S035A1 DMMELF	1	D514	P234099	D#4148 RDMMELF	1
D209	P234099	D#4148 RDMMELF	1	D515	P234099	D#4148 RDMMELF	1
D250	P234289	D#HSMS2814 SCH SOT23	1	D516	P234099	D#4148 RDMMELF	1
D251	P234099	D#4148 RDMMELF	1	D517	P234099	D#4148 RDMMELF	1
D252	P234099	D#4148 RDMMELF	1	D550	P234099	D#4148 RDMMELF	1
D253	P234011	D#BAL99 SW SOT23	1	D551	P234099	D#4148 RDMMELF	1
D254	P234259	D#BA682 S035A1 DMMELF	1	D552	P234099	D#4148 RDMMELF	1
D255	P234063	D#LED LGS260 GRE SOT23	1	D553	P234099	D#4148 RDMMELF	1
D256	P234099	D#4148 RDMMELF	1	D554	P234099	D#4148 RDMMELF	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D555	P234099	D#4148 RDMMELF	1	D806	P234099	D#4148 RDMMELF	1
D556	P234099	D#4148 RDMMELF	1	D807	P234099	D#4148 RDMMELF	1
D557	P234099	D#4148 RDMMELF	1	D808	P234099	D#4148 RDMMELF	1
D558	P234099	D#4148 RDMMELF	1	D809	P234099	D#4148 RDMMELF	1
D559	P234099	D#4148 RDMMELF	1	D810	P234099	D#4148 RDMMELF	1
D560	P234099	D#4148 RDMMELF	1	D811	P234099	D#4148 RDMMELF	1
D561	P234099	D#4148 RDMMELF	1	D812	P234099	D#4148 RDMMELF	1
D562	P234099	D#4148 RDMMELF	1	D813	P234099	D#4148 RDMMELF	1
D563	P234099	D#4148 RDMMELF	1	D814	P234099	D#4148 RDMMELF	1
D564	P234099	D#4148 RDMMELF	1	D815	P234099	D#4148 RDMMELF	1
D565	P234099	D#4148 RDMMELF	1	D816	P234099	D#4148 RDMMELF	1
D566	P234047	D#BAV99 SER SOT23	1	D817	P234099	D#4148 RDMMELF	1
D600	P234099	D#4148 RDMMELF	1	D818	P234099	D#4148 RDMMELF	1
D601	P234099	D#4148 RDMMELF	1	D819	P234099	D#4148 RDMMELF	1
D602	P234040	D#LED LSS260 RED SOT23	1	D820	P234099	D#4148 RDMMELF	1
D604	P234099	D#4148 RDMMELF	1	D821	P234099	D#4148 RDMMELF	1
D605	P234004	D#BAV70 C-C SOT23	1	D822	P234099	D#4148 RDMMELF	1
D606	P234004	D#BAV70 C-C SOT23	1	D823	P234063	D#LED LGS260 GRE SOT23	1
D608	P234099	D#4148 RDMMELF	1	D827	P234099	D#4148 RDMMELF	1
D609	P234099	D#4148 RDMMELF	1	D828	P234099	D#4148 RDMMELF	1
D610	P234099	D#4148 RDMMELF	1	D829	P234099	D#4148 RDMMELF	1
D611	P234099	D#4148 RDMMELF	1	D830	P234099	D#4148 RDMMELF	1
D612	P234099	D#4148 RDMMELF	1	D831	P234099	D#4148 RDMMELF	1
D613	P234099	D#4148 RDMMELF	1	D832	P234099	D#4148 RDMMELF	1
D614	P234099	D#4148 RDMMELF	1	D833	P234099	D#4148 RDMMELF	1
D650	P234047	D#BAV99 SER SOT23	1	D834	P234099	D#4148 RDMMELF	1
D651	P234047	D#BAV99 SER SOT23	1	D835	P234099	D#4148 RDMMELF	1
D652	P234047	D#BAV99 SER SOT23	1	D836	P234063	D#LED LGS260 GRE SOT23	1
D653	P234099	D#4148 RDMMELF	1	D837	P234063	D#LED LGS260 GRE SOT23	1
D654	P234099	D#4148 RDMMELF	1	D838	P234063	D#LED LGS260 GRE SOT23	1
D700	P234099	D#4148 RDMMELF	1	D839	P234063	D#LED LGS260 GRE SOT23	1
D701	P234099	D#4148 RDMMELF	1	D840	P234063	D#LED LGS260 GRE SOT23	1
D702	P234099	D#4148 RDMMELF	1	D841	P234196	D#BYD37J AVA SOD87	1
D703	P234099	D#4148 RDMMELF	1	D842	P234196	D#BYD37J AVA SOD87	1
D704	P234099	D#4148 RDMMELF	1	D843	P234196	D#BYD37J AVA SOD87	1
D705	P234099	D#4148 RDMMELF	1	D844	P234055	D#BAT54 SCH SOT23	1
D706	P234099	D#4148 RDMMELF	1	D845	P234099	D#4148 RDMMELF	1
D707	P234099	D#4148 RDMMELF	1	D846	P234099	D#4148 RDMMELF	1
D708	P234099	D#4148 RDMMELF	1	D847	P234099	D#4148 RDMMELF	1
D709	P234099	D#4148 RDMMELF	1	D848	P234099	D#4148 RDMMELF	1
D710	P234099	D#4148 RDMMELF	1	D849	P234099	D#4148 RDMMELF	1
D711	P234099	D#4148 RDMMELF	1	D900	P234099	D#4148 RDMMELF	1
D712	P234099	D#4148 RDMMELF	1	D901	P234099	D#4148 RDMMELF	1
D713	P234099	D#4148 RDMMELF	1	D902	P234099	D#4148 RDMMELF	1
D714	P234055	D#BAT54 SCH SOT23	1	D903	P234099	D#4148 RDMMELF	1
D715	P234099	D#4148 RDMMELF	1	D904	P234099	D#4148 RDMMELF	1
D716	P234099	D#4148 RDMMELF	1	D905	P234099	D#4148 RDMMELF	1
D750	P234099	D#4148 RDMMELF	1	D906	P234099	D#4148 RDMMELF	1
D751	P234099	D#4148 RDMMELF	1	D907	P234099	D#4148 RDMMELF	1
D752	P234099	D#4148 RDMMELF	1	D908	P234047	D#BAV99 SER SOT23	1
D753	P234099	D#4148 RDMMELF	1	D910	P234196	D#BYD37J AVA SOD87	1
D754	P234099	D#4148 RDMMELF	1	D950	P234099	D#4148 RDMMELF	1
D755	P234099	D#4148 RDMMELF	1	D951	P234099	D#4148 RDMMELF	1
D756	P234099	D#4148 RDMMELF	1	D952	P234099	D#4148 RDMMELF	1
D757	P234099	D#4148 RDMMELF	1				
D758	P234099	D#4148 RDMMELF	1	I100	P230006	U#062 TL SO8 P	1
D759	P234099	D#4148 RDMMELF	1	I101	P231013	U#3046 CA SO14 I	1
D760	P234099	D#4148 RDMMELF	1	I200	P230100	U#3080 CA SO8 P	1
D761	P234099	D#4148 RDMMELF	1	I201	P230477	U#318 LM SO8 P	1
D762	P234099	D#4148 RDMMELF	1	I250	P231489	U#835 AD SO8 I	1
D763	P234099	D#4148 RDMMELF	1	I251	P230006	U#062 TL SO8 P	1
D800	P234099	D#4148 RDMMELF	1	I252	P230203	U#084 TL SO14 P	1
D801	P234099	D#4148 RDMMELF	1	I253	P230006	U#062 TL SO8 P	1
D802	P234055	D#BAT54 SCH SOT23	1	I254	P230030	U#4053 SO16 I	1
D803	P234055	D#BAT54 SCH SOT23	1	I300	P230100	U#3080 CA SO8 P	1
D804	P234055	D#BAT54 SCH SOT23	1	I301	P230477	U#318 LM SO8 P	1
D805	P234055	D#BAT54 SCH SOT23	1	I350	P231489	U#835 AD SO8 I	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
I352	P230203	U#084 TL SO14 P	1	J741	R313928	JCTH MBT P8 M2SN WH	1
I353	P230006	U#062 TL SO8 P	1	J757	R313932	JCTH MBT P12 M2SN WH	1
I354	P230030	U#4053 SO16 I	1	J778	R313929	JCTH MBT P9 M2SN WH	1
I400	P230100	U#3080 CA SO8 P	1	J779	R313931	JCTH MBT P11 M2SN WH	1
I401	P230477	U#318 LM SO8 P	1	J799	R313926	JCTH MBT P6 M2SN WH	1
I450	P231489	U#835 AD SO8 I	1	J950	R3153102	JTAB1 MBT H2,8S0,5	1
I451	P230006	U#062 TL SO8 P	1	J951	R3153102	JTAB1 MBT H2,8S0,5	1
I452	P230203	U#084 TL SO14 P	1	J952	R3153102	JTAB1 MBT H2,8S0,5	1
I453	P230006	U#062 TL SO8 P	1				
I454	P230030	U#4053 SO16 I	1	L200	P251006	FLTR# BEAD 600E 1206	1
I500	P230030	U#4053 SO16 I	1	L201	P250005	CH# 0.47UH L1210	1
I550	P230028	U#393 LM SO8 P	1	L202	P250509	CH# 1.5 UH L1210	1
I551	P230453	U#34081 MC SO8 P	1	L300	P251006	FLTR# BEAD 600E 1206	1
I552	P230006	U#062 TL SO8 P	1	L301	P250005	CH# 0.47UH L1210	1
I553	P230173	U#74HC14 SO14 I	1	L302	P250509	CH# 1.5 UH L1210	1
I554	P230218	U#74HC86 SO14 I	1	L400	P251006	FLTR# BEAD 600E 1206	1
I600	P230653	U#BELLA 5 SOL28 P	1	L401	P250005	CH# 0.47UH L1210	1
I601	P230328	U#064 TL SO14 I	1	L402	P250509	CH# 1.5 UH L1210	1
I602	P230006	U#062 TL SO8 P	1	L800	R3061322	CH AX NS 10 UH	1
I603	P230528	U#319 LM SO14 P	1	L801	R3061322	CH AX NS 10 UH	1
I604	P230528	U#319 LM SO14 P	1	L802	R3061322	CH AX NS 10 UH	1
I605	P230328	U#064 TL SO14 I	1				
I606	P230173	U#74HC14 SO14 I	1	M200	P322036	J#TESTPIN HK-2-STOYO/HK	1
I650	P230465	U#74HCT4053 SO16 I	1	M250	P322036	J#TESTPIN HK-2-STOYO/HK	1
I651	P230465	U#74HCT4053 SO16 I	1	M300	P322036	J#TESTPIN HK-2-STOYO/HK	1
I652	P230653	U#BELLA 5 SOL28 P	1	M350	P322036	J#TESTPIN HK-2-STOYO/HK	1
I653	P230328	U#064 TL SO14 I	1	M400	P322036	J#TESTPIN HK-2-STOYO/HK	1
I654	P230705	U#34084 MC SOL16 P	1	M450	P322036	J#TESTPIN HK-2-STOYO/HK	1
I655	P230653	U#BELLA 5 SOL28 P	1	M700	P322036	J#TESTPIN HK-2-STOYO/HK	1
I700	P230021	U#74HC04 SO14 I	1	M706	P322036	J#TESTPIN HK-2-STOYO/HK	1
I701	P230465	U#74HCT4053 SO16 I	1				
I702	P230021	U#74HC04 SO14 I	1	P250	P201392	R#TCE H200E M0W25 S4 TS	1
I703	P230021	U#74HC04 SO14 I	1	P350	P201392	R#TCE H200E M0W25 S4 TS	1
I800	P230911	U#8574A PCF SOL16 P	1	P450	P201392	R#TCE H200E M0W25 S4 TS	1
I801	P230886	U#74HC4051 SO16 I	1	PC	R780750	PCBD708INP/2	1
I802	P230021	U#74HC04 SO14 I	1				
I803	P230424	U#74HCT32 SO14 I	1	Q100	P232044	Q#BC859B P SS SOT23	1
I804	P230273	U#79L05A LM SO8 P	1	Q101	P232004	Q#BC849C N SS SOT23	1
I805	R134016	U7912 TO220 P	1	Q102	P232004	Q#BC849C N SS SOT23	1
I806	R134001	U7805 TO220 P	1	Q103	P232101	Q#BC859C P SS SOT23	1
I807	R134002	U7812 TO220 P	1	Q104	P232101	Q#BC859C P SS SOT23	1
I808	P230062	U#78L05A LM SO8 P	1	Q105	P232004	Q#BC849C N SS SOT23	1
I809	P230328	U#064 TL SO14 I	1	Q106	P232101	Q#BC859C P SS SOT23	1
J 3	R313932	JCTH MBT P12 M2SN WH	1	Q108	P232004	Q#BC849C N SS SOT23	1
J 5	R313928	JCTH MBT P8 M2SN WH	1	Q109	P232101	Q#BC859C P SS SOT23	1
J 6	R313926	JCTH MBT P6 M2SN WH	1	Q150	P232004	Q#BC849C N SS SOT23	1
J206	R3135005	JDEP8MBSP9FUMBLPGDB	1	Q151	P232004	Q#BC849C N SS SOT23	1
J210	R313935	JCTH MBT P15 M2SN WH	1	Q152	P232101	Q#BC859C P SS SOT23	1
J213	B338800	JPHN FBS D3.5MON P	1	Q153	P232043	Q#BC849B N SS SOT23	1
J216	B332120	JBNC FBS P3 50E SIP	1	Q154	P232101	Q#BC859C P SS SOT23	1
J217	B332120	JBNC FBS P3 50E SIP	1	Q155	P232101	Q#BC859C P SS SOT23	1
J220	R3132862	JMD1C MBT P2 E1SN 6,7	1	Q156	P232004	Q#BC849C N SS SOT23	1
J235	R313851	JCIRCA FBS P4 MDIN MS	1	Q157	P232101	Q#BC859C P SS SOT23	1
J400	R313932	JCTH MBT P12 M2SN WH	1	Q158	P232101	Q#BC859C P SS SOT23	1
J401	R313928	JCTH MBT P8 M2SN WH	1	Q200	P232004	Q#BC849C N SS SOT23	1
J402	R313928	JCTH MBT P8 M2SN WH	1	Q201	P232033	Q#BSV52 N SS SOT23	1
J405	R313927	JCTH MBT P7 M2SN WH	1	Q202	P232043	Q#BC849B N SS SOT23	1
J420	R3132862	JMD1C MBT P2 E1SN 6,7	1	Q203	P232004	Q#BC849C N SS SOT23	1
J550	R313935	JCTH MBT P15 M2SN WH	1	Q204	P232168	Q#SST310 F SS SOT23	1
J560	R313935	JCTH MBT P15 M2SN WH	1	Q205	P232101	Q#BC859C P SS SOT23	1
J570	R313935	JCTH MBT P15 M2SN WH	1	Q206	P232043	Q#BC849B N SS SOT23	1
J580	R313925	JCTH MBT P5 M2SN WH	1	Q207	P232046	Q#BSS123 F SS SOT23	1
J701	R313930	JCTH MBT P10 M2SN WH	1	Q208	P232101	Q#BC859C P SS SOT23	1
J703	R313924	JCTH MBT P4 M2SN WH	1	Q209	P232043	Q#BC849B N SS SOT23	1
J734	R3485154	CDCT FTMS P15 70	1	Q250	P232168	Q#SST310 F SS SOT23	1
J735	R3485154	CDCT FTMS P15 70	1	Q251	P232168	Q#SST310 F SS SOT23	1
				Q252	P232168	Q#SST310 F SS SOT23	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
Q253	P232168	Q#SST310 F SS SOT23	1	Q703	P232043	Q#BC849B N SS SOT23	1
Q254	P232046	Q#BSS123 F SS SOT23	1	Q704	P232043	Q#BC849B N SS SOT23	1
Q255	P232090	Q#BFR92A N SS SOT23	1	Q705	P232033	Q#BSV52 N SS SOT23	1
Q256	P232043	Q#BC849B N SS SOT23	1	Q706	P232033	Q#BSV52 N SS SOT23	1
Q258	B133153	Q 2SA1723 P SS TO126	1	Q707	P232043	Q#BC849B N SS SOT23	1
Q259	P232101	Q#BC859C P SS SOT23	1	Q708	P232043	Q#BC849B N SS SOT23	1
Q300	P232043	Q#BC849B N SS SOT23	1	Q709	P232004	Q#BC849C N SS SOT23	1
Q301	P232033	Q#BSV52 N SS SOT23	1	Q710	P232004	Q#BC849C N SS SOT23	1
Q302	P232004	Q#BC849C N SS SOT23	1	Q711	P232044	Q#BC859B P SS SOT23	1
Q303	P232004	Q#BC849C N SS SOT23	1	Q712	P232044	Q#BC859B P SS SOT23	1
Q304	P232168	Q#SST310 F SS SOT23	1	Q713	P232043	Q#BC849B N SS SOT23	1
Q305	P232101	Q#BC859C P SS SOT23	1	Q714	P232044	Q#BC859B P SS SOT23	1
Q306	P232043	Q#BC849B N SS SOT23	1	Q715	P232004	Q#BC849C N SS SOT23	1
Q307	P232046	Q#BSS123 F SS SOT23	1	Q716	P232046	Q#BSS123 F SS SOT23	1
Q308	P232101	Q#BC859C P SS SOT23	1	Q750	P232043	Q#BC849B N SS SOT23	1
Q309	P232043	Q#BC849B N SS SOT23	1	Q751	P232044	Q#BC859B P SS SOT23	1
Q350	P232168	Q#SST310 F SS SOT23	1	Q800	P232043	Q#BC849B N SS SOT23	1
Q351	P232168	Q#SST310 F SS SOT23	1	Q803	P232043	Q#BC849B N SS SOT23	1
Q352	P232168	Q#SST310 F SS SOT23	1	Q804	P232042	Q#BC807-25 P SS SOT23	1
Q353	P232168	Q#SST310 F SS SOT23	1	Q805	P232043	Q#BC849B N SS SOT23	1
Q354	P232046	Q#BSS123 F SS SOT23	1	Q806	P232042	Q#BC807-25 P SS SOT23	1
Q355	P232090	Q#BFR92A N SS SOT23	1	Q807	P232004	Q#BC849C N SS SOT23	1
Q356	P232043	Q#BC849B N SS SOT23	1	Q808	P232079	Q#BSS84 F SS SOT23	1
Q358	B133153	Q 2SA1723 P SS TO126	1	Q809	P232042	Q#BC807-25 P SS SOT23	1
Q359	P232101	Q#BC859C P SS SOT23	1	Q810	P232043	Q#BC849B N SS SOT23	1
Q400	P232043	Q#BC849B N SS SOT23	1	Q811	P232042	Q#BC807-25 P SS SOT23	1
Q401	P232033	Q#BSV52 N SS SOT23	1	Q812	P232043	Q#BC849B N SS SOT23	1
Q402	P232004	Q#BC849C N SS SOT23	1	Q813	P232043	Q#BC849B N SS SOT23	1
Q403	P232004	Q#BC849C N SS SOT23	1	Q814	P232042	Q#BC807-25 P SS SOT23	1
Q404	P232168	Q#SST310 F SS SOT23	1	Q815	P232043	Q#BC849B N SS SOT23	1
Q405	P232101	Q#BC859C P SS SOT23	1	Q816	P232042	Q#BC807-25 P SS SOT23	1
Q406	P232043	Q#BC849B N SS SOT23	1	Q819	P232043	Q#BC849B N SS SOT23	1
Q407	P232046	Q#BSS123 F SS SOT23	1	Q820	P232062	Q#BF622 N SS SOT89	1
Q408	P232101	Q#BC859C P SS SOT23	1	Q821	P232044	Q#BC859B P SS SOT23	1
Q409	P232043	Q#BC849B N SS SOT23	1	Q822	P232043	Q#BC849B N SS SOT23	1
Q450	P232168	Q#SST310 F SS SOT23	1	Q823	P232044	Q#BC859B P SS SOT23	1
Q451	P232168	Q#SST310 F SS SOT23	1	Q824	P232043	Q#BC849B N SS SOT23	1
Q452	P232168	Q#SST310 F SS SOT23	1	Q825	P232043	Q#BC849B N SS SOT23	1
Q453	P232168	Q#SST310 F SS SOT23	1	Q900	P232044	Q#BC859B P SS SOT23	1
Q454	P232046	Q#BSS123 F SS SOT23	1	Q901	P232043	Q#BC849B N SS SOT23	1
Q455	P232090	Q#BFR92A N SS SOT23	1	Q902	P232043	Q#BC849B N SS SOT23	1
Q456	P232043	Q#BC849B N SS SOT23	1				
Q458	B133153	Q 2SA1723 P SS TO126	1	R100	P201135	R# CE H100K F 0W12 0805	1
Q459	P232101	Q#BC859C P SS SOT23	1	R101	P201122	R# CE H 30K F 0W12 0805	1
Q500	P232043	Q#BC849B N SS SOT23	1	R102	P201111	R# CE H 10K F 0W12 0805	1
Q501	P232043	Q#BC849B N SS SOT23	1	R103	P201352	R# CE H 10M K 0W12 0805	1
Q502	P232043	Q#BC849B N SS SOT23	1	R104	P201149	R# CE H390K F 0W12 0805	1
Q504	P232044	Q#BC859B P SS SOT23	1	R105	P201151	R# CE H470K F 0W12 0805	1
Q505	P232044	Q#BC859B P SS SOT23	1	R106	P201135	R# CE H100K F 0W12 0805	1
Q550	P232043	Q#BC849B N SS SOT23	1	R107	P201039	R# CE H 10E F 0W12 0805	1
Q551	P232043	Q#BC849B N SS SOT23	1	R108	P201039	R# CE H 10E F 0W12 0805	1
Q552	P232044	Q#BC859B P SS SOT23	1	R109	P201031	R# CE H 4E7 F 0W12 0805	1
Q553	P232044	Q#BC859B P SS SOT23	1	R110	P201092	R# CE H 1K6 F 0W12 0805	1
Q554	P232043	Q#BC849B N SS SOT23	1	R111	P201085	R# CE H820E F 0W12 0805	1
Q600	P232043	Q#BC849B N SS SOT23	1	R112	P201102	R# CE H 4K3 F 0W12 0805	1
Q601	P232044	Q#BC859B P SS SOT23	1	R114	P201127	R# CE H 47K F 0W12 0805	1
Q602	P232046	Q#BSS123 F SS SOT23	1	R115	P201127	R# CE H 47K F 0W12 0805	1
Q603	P232044	Q#BC859B P SS SOT23	1	R116	P201086	R# CE H910E F 0W12 0805	1
Q604	P232043	Q#BC849B N SS SOT23	1	R117	P201137	R# CE H120K F 0W12 0805	1
Q605	P232044	Q#BC859B P SS SOT23	1	R118	P201143	R# CE H220K F 0W12 0805	1
Q606	P232004	Q#BC849C N SS SOT23	1	R119	P201099	R# CE H 3K3 F 0W12 0805	1
Q650	P232043	Q#BC849B N SS SOT23	1	R121	P201137	R# CE H120K F 0W12 0805	1
Q651	P232043	Q#BC849B N SS SOT23	1	R122	P201143	R# CE H220K F 0W12 0805	1
Q652	P232043	Q#BC849B N SS SOT23	1	R123	P201079	R# CE H470E F 0W12 0805	1
Q700	P232044	Q#BC859B P SS SOT23	1	R124	P201079	R# CE H470E F 0W12 0805	1
Q701	P232043	Q#BC849B N SS SOT23	1	R125	P201086	R# CE H910E F 0W12 0805	1
Q702	P232033	Q#BSV52 N SS SOT23	1	R126	P201059	R# CE H 68E F 0W12 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R127	P201131	R# CE H 68K F 0W12 0805	1	R209	P201087	R# CE H 1K F 0W12 0805	1
R128	P201151	R# CE H470K F 0W12 0805	1	R210	P201111	R# CE H 10K F 0W12 0805	1
R129	P201143	R# CE H220K F 0W12 0805	1	R211	P201143	R# CE H220K F 0W12 0805	1
R130	P201135	R# CE H100K F 0W12 0805	1	R212	P201143	R# CE H220K F 0W12 0805	1
R131	P201073	R# CE H270E F 0W12 0805	1	R213	P201039	R# CE H 10E F 0W12 0805	1
R132	P201079	R# CE H470E F 0W12 0805	1	R214	P201097	R# CE H 2K7 F 0W12 0805	1
R133	P201075	R# CE H330E F 0W12 0805	1	R215	P201039	R# CE H 10E F 0W12 0805	1
R134	P201059	R# CE H 68E F 0W12 0805	1	R216	P201111	R# CE H 10K F 0W12 0805	1
R135	P201151	R# CE H470K F 0W12 0805	1	R217	P201079	R# CE H470E F 0W12 0805	1
R136	P201143	R# CE H220K F 0W12 0805	1	R218	P201087	R# CE H 1K F 0W12 0805	1
R137	P201073	R# CE H270E F 0W12 0805	1	R219	P201039	R# CE H 10E F 0W12 0805	1
R138	P201080	R# CE H510E F 0W12 0805	1	R220	P201079	R# CE H470E F 0W12 0805	1
R139	P201079	R# CE H470E F 0W12 0805	1	R221	P201056	R# CE H 51E F 0W12 0805	1
R140	P201080	R# CE H510E F 0W12 0805	1	R222	P201102	R# CE H 4K3 F 0W12 0805	1
R141	P201059	R# CE H 68E F 0W12 0805	1	R223	P201079	R# CE H470E F 0W12 0805	1
R142	P201070	R# CE H200E F 0W12 0805	1	R224	P201056	R# CE H 51E F 0W12 0805	1
R150	P201031	R# CE H 4E7 F 0W12 0805	1	R225	P201087	R# CE H 1K F 0W12 0805	1
R151	P201139	R# CE H150K F 0W12 0805	1	R226	P201087	R# CE H 1K F 0W12 0805	1
R152	P201060	R# CE H 75E F 0W12 0805	1	R227	P201087	R# CE H 1K F 0W12 0805	1
R153	P201123	R# CE H 33K F 0W12 0805	1	R228	P201087	R# CE H 1K F 0W12 0805	1
R154	P201073	R# CE H270E F 0W12 0805	1	R229	P201127	R# CE H 47K F 0W12 0805	1
R155	P201055	R# CE H 47E F 0W12 0805	1	R230	P201039	R# CE H 10E F 0W12 0805	1
R156	P201081	R# CE H560E F 0W12 0805	1	R231	P201039	R# CE H 10E F 0W12 0805	1
R157	P201060	R# CE H 75E F 0W12 0805	1	R232	P201111	R# CE H 10K F 0W12 0805	1
R158	P201139	R# CE H150K F 0W12 0805	1	R233	P201111	R# CE H 10K F 0W12 0805	1
R159	P201123	R# CE H 33K F 0W12 0805	1	R234	P201063	R# CE H100E F 0W12 0805	1
R160	P201073	R# CE H270E F 0W12 0805	1	R235	P201087	R# CE H 1K F 0W12 0805	1
R161	P201081	R# CE H560E F 0W12 0805	1	R236	P201087	R# CE H 1K F 0W12 0805	1
R162	P201055	R# CE H 47E F 0W12 0805	1	R237	P201097	R# CE H 2K7 F 0W12 0805	1
R163	P201133	R# CE H 82K F 0W12 0805	1	R238	P201031	R# CE H 4E7 F 0W12 0805	1
R164	P201137	R# CE H120K F 0W12 0805	1	R239	P201087	R# CE H 1K F 0W12 0805	1
R165	P201133	R# CE H 82K F 0W12 0805	1	R240	P201031	R# CE H 4E7 F 0W12 0805	1
R166	P201131	R# CE H 68K F 0W12 0805	1	R241	P201056	R# CE H 51E F 0W12 0805	1
R167	P201103	R# CE H 4K7 F 0W12 0805	1	R242	P201085	R# CE H820E F 0W12 0805	1
R168	P201075	R# CE H330E F 0W12 0805	1	R243	P201064	R# CE H110E F 0W12 0805	1
R169	P201073	R# CE H270E F 0W12 0805	1	R250	P201079	R# CE H470E F 0W12 0805	1
R170	P201090	R# CE H 1K3 F 0W12 0805	1	R251	P201071	R# CE H220E F 0W12 0805	1
R171	P201129	R# CE H 56K F 0W12 0805	1	R252	P201031	R# CE H 4E7 F 0W12 0805	1
R172	P201103	R# CE H 4K7 F 0W12 0805	1	R253	P201031	R# CE H 4E7 F 0W12 0805	1
R173	P201094	R# CE H 2K F 0W12 0805	1	R254	P201127	R# CE H 47K F 0W12 0805	1
R174	P201073	R# CE H270E F 0W12 0805	1	R255	P201127	R# CE H 47K F 0W12 0805	1
R175	P201100	R# CE H 3K6 F 0W12 0805	1	R256	P201127	R# CE H 47K F 0W12 0805	1
R176	P201094	R# CE H 2K F 0W12 0805	1	R257	P201127	R# CE H 47K F 0W12 0805	1
R177	P201137	R# CE H120K F 0W12 0805	1	R258	P201147	R# CE H330K F 0W12 0805	1
R178	P201151	R# CE H470K F 0W12 0805	1	R259	P201147	R# CE H330K F 0W12 0805	1
R179	P201151	R# CE H470K F 0W12 0805	1	R260	P201111	R# CE H 10K F 0W12 0805	1
R180	P201094	R# CE H 2K F 0W12 0805	1	R261	P201111	R# CE H 10K F 0W12 0805	1
R181	P201129	R# CE H 56K F 0W12 0805	1	R262	P201039	R# CE H 10E F 0W12 0805	1
R182	P201131	R# CE H 68K F 0W12 0805	1	R263	P201127	R# CE H 47K F 0W12 0805	1
R183	P201060	R# CE H 75E F 0W12 0805	1	R264	P201087	R# CE H 1K F 0W12 0805	1
R184	P201080	R# CE H510E F 0W12 0805	1	R265	P201084	R# CE H750E F 0W12 0805	1
R185	P201085	R# CE H820E F 0W12 0805	1	R266	P201061	R# CE H 82E F 0W12 0805	1
R186	P201091	R# CE H 1K5 F 0W12 0805	1	R267	P201077	R# CE H390E F 0W12 0805	1
R187	P201080	R# CE H510E F 0W12 0805	1	R269	P201081	R# CE H560E F 0W12 0805	1
R188	P201073	R# CE H270E F 0W12 0805	1	R270	P201135	R# CE H100K F 0W12 0805	1
R189	P201039	R# CE H 10E F 0W12 0805	1	R271	P201049	R# CE H 27E F 0W12 0805	1
R190	P201081	R# CE H560E F 0W12 0805	1	R272	P201121	R# CE H 27K F 0W12 0805	1
R191	P201081	R# CE H560E F 0W12 0805	1	R273	P201108	R# CE H 7K5 F 0W12 0805	1
R200	R1015231	R MF H 75E F 0W4 E3	1	R274	P201099	R# CE H 3K3 F 0W12 0805	1
R201	P201105	R# CE H 5K6 F 0W12 0805	1	R275	P201078	R# CE H430E F 0W12 0805	1
R202	P201143	R# CE H220K F 0W12 0805	1	R276	P201111	R# CE H 10K F 0W12 0805	1
R203	P201129	R# CE H 56K F 0W12 0805	1	R277	P201087	R# CE H 1K F 0W12 0805	1
R204	R101524	R MF H100E F 0W4 E3	1	R278	P201147	R# CE H330K F 0W12 0805	1
R205	P201119	R# CE H 22K F 0W12 0805	1	R279	P201123	R# CE H 33K F 0W12 0805	1
R206	P201039	R# CE H 10E F 0W12 0805	1	R280	P201158	R# CE H910K F 0W12 0805	1
R207	P201097	R# CE H 2K7 F 0W12 0805	1	R281	P201112	R# CE H 11K F 0W12 0805	1
R208	P201119	R# CE H 22K F 0W12 0805	1	R282	P201070	R# CE H200E F 0W12 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R283	P201091	R# CE H 1K5 F 0W12 0805	1	R356	P201127	R# CE H 47K F 0W12 0805	1
R284	P201133	R# CE H 82K F 0W12 0805	1	R357	P201127	R# CE H 47K F 0W12 0805	1
R285	P201123	R# CE H 33K F 0W12 0805	1	R363	P201127	R# CE H 47K F 0W12 0805	1
R286	P201111	R# CE H 10K F 0W12 0805	1	R364	P201087	R# CE H 1K F 0W12 0805	1
R287	P201063	R# CE H100E F 0W12 0805	1	R366	P201061	R# CE H 82E F 0W12 0805	1
R288	P201133	R# CE H 82K F 0W12 0805	1	R367	P201077	R# CE H390E F 0W12 0805	1
R289	P201095	R# CE H 2K2 F 0W12 0805	1	R369	P201081	R# CE H560E F 0W12 0805	1
R290	P201094	R# CE H 2K F 0W12 0805	1	R370	P201135	R# CE H100K F 0W12 0805	1
R291	P201094	R# CE H 2K F 0W12 0805	1	R371	P201049	R# CE H 27E F 0W12 0805	1
R292	P201089	R# CE H 1K2 F 0W12 0805	1	R372	P201121	R# CE H 27K F 0W12 0805	1
R293	P201111	R# CE H 10K F 0W12 0805	1	R373	P201108	R# CE H 7K5 F 0W12 0805	1
R294	P201103	R# CE H 4K7 F 0W12 0805	1	R374	P201099	R# CE H 3K3 F 0W12 0805	1
R295	P201111	R# CE H 10K F 0W12 0805	1	R375	P201078	R# CE H430E F 0W12 0805	1
R296	P201099	R# CE H 3K3 F 0W12 0805	1	R376	P201111	R# CE H 10K F 0W12 0805	1
R297	P201099	R# CE H 3K3 F 0W12 0805	1	R377	P201087	R# CE H 1K F 0W12 0805	1
R298	P201113	R# CE H 12K F 0W12 0805	1	R378	P201147	R# CE H330K F 0W12 0805	1
R299	P201051	R# CE H 33E F 0W12 0805	1	R379	P201123	R# CE H 33K F 0W12 0805	1
R300	R1015231	R MF H 75E F 0W4 E3	1	R380	P201158	R# CE H910K F 0W12 0805	1
R301	P201105	R# CE H 5K6 F 0W12 0805	1	R381	P201112	R# CE H 11K F 0W12 0805	1
R302	P201143	R# CE H220K F 0W12 0805	1	R382	P201070	R# CE H200E F 0W12 0805	1
R303	P201129	R# CE H 56K F 0W12 0805	1	R383	P201091	R# CE H 1K5 F 0W12 0805	1
R304	R101524	R MF H100E F 0W4 E3	1	R384	P201133	R# CE H 82K F 0W12 0805	1
R305	P201119	R# CE H 22K F 0W12 0805	1	R385	P201123	R# CE H 33K F 0W12 0805	1
R306	P201039	R# CE H 10E F 0W12 0805	1	R386	P201111	R# CE H 10K F 0W12 0805	1
R307	P201097	R# CE H 2K7 F 0W12 0805	1	R387	P201063	R# CE H100E F 0W12 0805	1
R308	P201119	R# CE H 22K F 0W12 0805	1	R388	P201133	R# CE H 82K F 0W12 0805	1
R309	P201087	R# CE H 1K F 0W12 0805	1	R389	P201095	R# CE H 2K2 F 0W12 0805	1
R310	P201111	R# CE H 10K F 0W12 0805	1	R390	P201094	R# CE H 2K F 0W12 0805	1
R311	P201143	R# CE H220K F 0W12 0805	1	R391	P201094	R# CE H 2K F 0W12 0805	1
R312	P201143	R# CE H220K F 0W12 0805	1	R392	P201089	R# CE H 1K2 F 0W12 0805	1
R313	P201039	R# CE H 10E F 0W12 0805	1	R393	P201111	R# CE H 10K F 0W12 0805	1
R314	P201097	R# CE H 2K7 F 0W12 0805	1	R394	P201103	R# CE H 4K7 F 0W12 0805	1
R315	P201039	R# CE H 10E F 0W12 0805	1	R395	P201111	R# CE H 10K F 0W12 0805	1
R316	P201111	R# CE H 10K F 0W12 0805	1	R396	P201099	R# CE H 3K3 F 0W12 0805	1
R317	P201079	R# CE H470E F 0W12 0805	1	R397	P201099	R# CE H 3K3 F 0W12 0805	1
R318	P201087	R# CE H 1K F 0W12 0805	1	R398	P201113	R# CE H 12K F 0W12 0805	1
R319	P201039	R# CE H 10E F 0W12 0805	1	R399	P201051	R# CE H 33E F 0W12 0805	1
R320	P201079	R# CE H470E F 0W12 0805	1	R400	R1015231	R MF H 75E F 0W4 E3	1
R321	P201056	R# CE H 51E F 0W12 0805	1	R401	P201105	R# CE H 5K6 F 0W12 0805	1
R322	P201102	R# CE H 4K3 F 0W12 0805	1	R402	P201143	R# CE H220K F 0W12 0805	1
R323	P201079	R# CE H470E F 0W12 0805	1	R403	P201129	R# CE H 56K F 0W12 0805	1
R324	P201056	R# CE H 51E F 0W12 0805	1	R404	R101524	R MF H100E F 0W4 E3	1
R325	P201087	R# CE H 1K F 0W12 0805	1	R405	P201119	R# CE H 22K F 0W12 0805	1
R326	P201087	R# CE H 1K F 0W12 0805	1	R406	P201039	R# CE H 10E F 0W12 0805	1
R327	P201087	R# CE H 1K F 0W12 0805	1	R407	P201097	R# CE H 2K7 F 0W12 0805	1
R328	P201087	R# CE H 1K F 0W12 0805	1	R408	P201119	R# CE H 22K F 0W12 0805	1
R329	P201127	R# CE H 47K F 0W12 0805	1	R409	P201087	R# CE H 1K F 0W12 0805	1
R330	P201039	R# CE H 10E F 0W12 0805	1	R410	P201111	R# CE H 10K F 0W12 0805	1
R331	P201039	R# CE H 10E F 0W12 0805	1	R411	P201143	R# CE H220K F 0W12 0805	1
R332	P201111	R# CE H 10K F 0W12 0805	1	R412	P201143	R# CE H220K F 0W12 0805	1
R333	P201111	R# CE H 10K F 0W12 0805	1	R413	P201039	R# CE H 10E F 0W12 0805	1
R334	P201063	R# CE H100E F 0W12 0805	1	R414	P201097	R# CE H 2K7 F 0W12 0805	1
R335	P201087	R# CE H 1K F 0W12 0805	1	R415	P201039	R# CE H 10E F 0W12 0805	1
R336	P201087	R# CE H 1K F 0W12 0805	1	R416	P201111	R# CE H 10K F 0W12 0805	1
R337	P201097	R# CE H 2K7 F 0W12 0805	1	R417	P201079	R# CE H470E F 0W12 0805	1
R338	P201031	R# CE H 4E7 F 0W12 0805	1	R418	P201087	R# CE H 1K F 0W12 0805	1
R339	P201087	R# CE H 1K F 0W12 0805	1	R419	P201039	R# CE H 10E F 0W12 0805	1
R340	P201031	R# CE H 4E7 F 0W12 0805	1	R420	P201079	R# CE H470E F 0W12 0805	1
R341	P201056	R# CE H 51E F 0W12 0805	1	R421	P201056	R# CE H 51E F 0W12 0805	1
R342	P201085	R# CE H820E F 0W12 0805	1	R422	P201102	R# CE H 4K3 F 0W12 0805	1
R343	P201064	R# CE H110E F 0W12 0805	1	R423	P201079	R# CE H470E F 0W12 0805	1
R350	P201079	R# CE H470E F 0W12 0805	1	R424	P201056	R# CE H 51E F 0W12 0805	1
R351	P201071	R# CE H220E F 0W12 0805	1	R425	P201087	R# CE H 1K F 0W12 0805	1
R352	P201031	R# CE H 4E7 F 0W12 0805	1	R426	P201087	R# CE H 1K F 0W12 0805	1
R353	P201031	R# CE H 4E7 F 0W12 0805	1	R427	P201087	R# CE H 1K F 0W12 0805	1
R354	P201127	R# CE H 47K F 0W12 0805	1	R428	P201087	R# CE H 1K F 0W12 0805	1
R355	P201127	R# CE H 47K F 0W12 0805	1	R429	P201127	R# CE H 47K F 0W12 0805	1

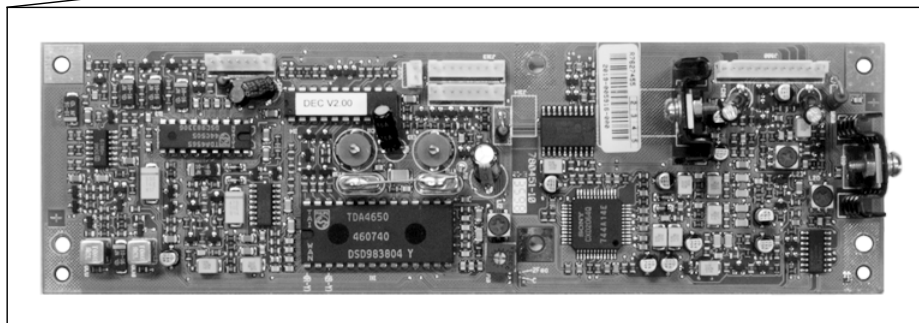
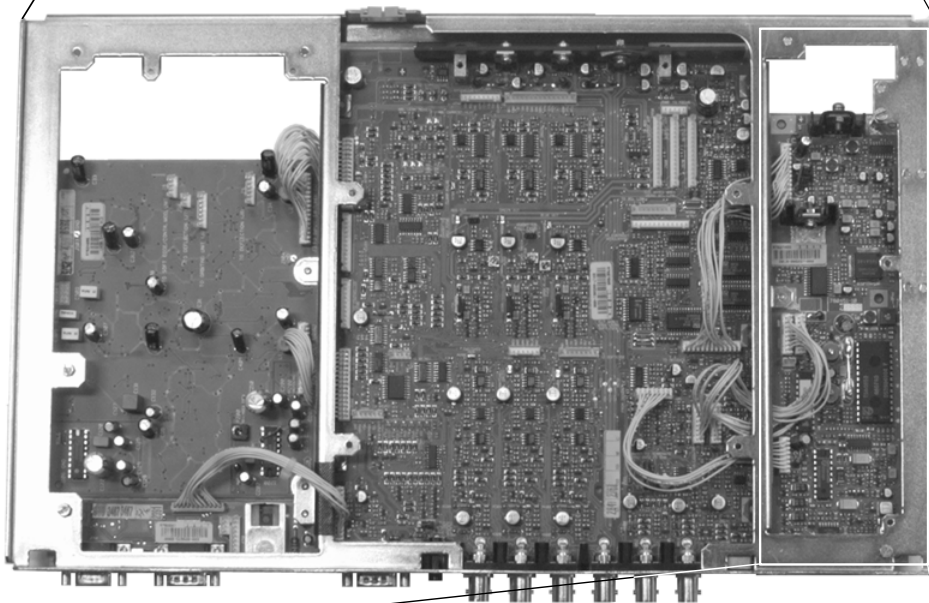
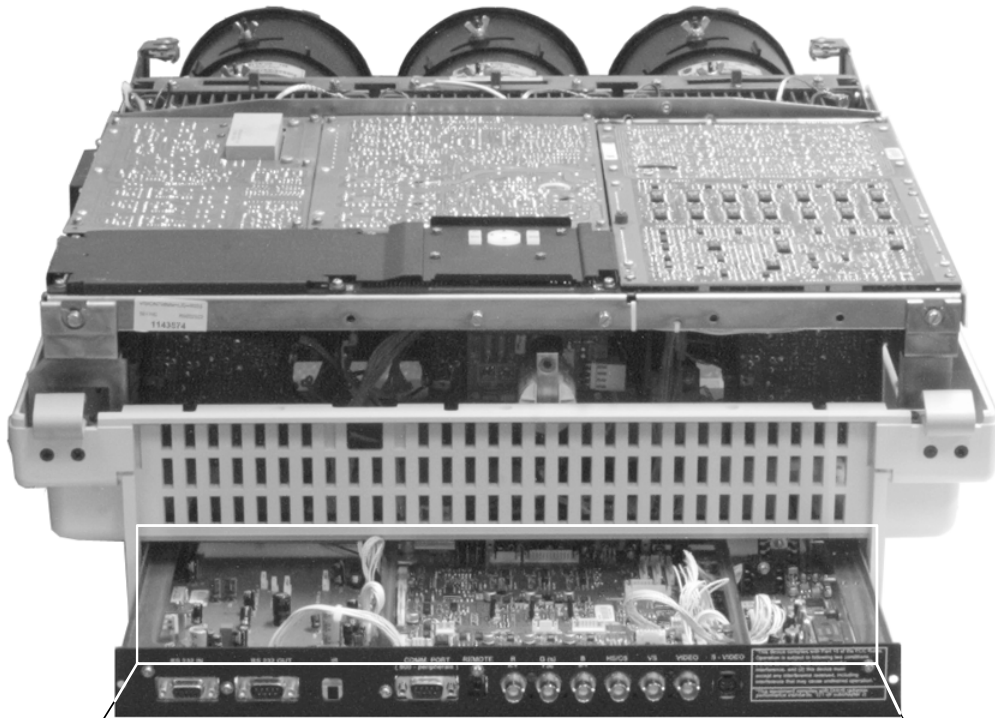
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R430	P201039	R# CE H 10E F 0W12 0805	1	R505	P201143	R# CE H220K F 0W12 0805	1
R431	P201039	R# CE H 10E F 0W12 0805	1	R506	P201113	R# CE H 12K F 0W12 0805	1
R432	P201111	R# CE H 10K F 0W12 0805	1	R507	P201143	R# CE H220K F 0W12 0805	1
R433	P201111	R# CE H 10K F 0W12 0805	1	R508	P201113	R# CE H 12K F 0W12 0805	1
R434	P201063	R# CE H100E F 0W12 0805	1	R509	P201143	R# CE H220K F 0W12 0805	1
R435	P201087	R# CE H 1K F 0W12 0805	1	R510	P201119	R# CE H 22K F 0W12 0805	1
R436	P201087	R# CE H 1K F 0W12 0805	1	R512	R101532	R MF H470E F 0W4 E3	1
R437	P201097	R# CE H 2K7 F 0W12 0805	1	R513	R101532	R MF H470E F 0W4 E3	1
R438	P201031	R# CE H 4E7 F 0W12 0805	1	R514	R101532	R MF H470E F 0W4 E3	1
R439	P201087	R# CE H 1K F 0W12 0805	1	R516	P201119	R# CE H 22K F 0W12 0805	1
R440	P201031	R# CE H 4E7 F 0W12 0805	1	R517	P201119	R# CE H 22K F 0W12 0805	1
R441	P201056	R# CE H 51E F 0W12 0805	1	R518	P201119	R# CE H 22K F 0W12 0805	1
R442	P201085	R# CE H820E F 0W12 0805	1	R520	P201039	R# CE H 10E F 0W12 0805	1
R443	P201064	R# CE H110E F 0W12 0805	1	R521	P201089	R# CE H 1K2 F 0W12 0805	1
R450	P201079	R# CE H470E F 0W12 0805	1	R522	P201081	R# CE H560E F 0W12 0805	1
R451	P201071	R# CE H220E F 0W12 0805	1	R523	P201079	R# CE H470E F 0W12 0805	1
R452	P201031	R# CE H 4E7 F 0W12 0805	1	R524	P201079	R# CE H470E F 0W12 0805	1
R453	P201031	R# CE H 4E7 F 0W12 0805	1	R526	P201079	R# CE H470E F 0W12 0805	1
R454	P201127	R# CE H 47K F 0W12 0805	1	R527	P201081	R# CE H560E F 0W12 0805	1
R455	P201127	R# CE H 47K F 0W12 0805	1	R528	P201081	R# CE H560E F 0W12 0805	1
R456	P201127	R# CE H 47K F 0W12 0805	1	R529	P201068	R# CE H160E F 0W12 0805	1
R457	P201127	R# CE H 47K F 0W12 0805	1	R530	P201089	R# CE H 1K2 F 0W12 0805	1
R458	P201147	R# CE H330K F 0W12 0805	1	R531	P201089	R# CE H 1K2 F 0W12 0805	1
R459	P201144	R# CE H240K F 0W12 0805	1	R532	P201089	R# CE H 1K2 F 0W12 0805	1
R460	P201111	R# CE H 10K F 0W12 0805	1	R533	P201062	R# CE H 91E F 0W12 0805	1
R461	P201111	R# CE H 10K F 0W12 0805	1	R534	P201106	R# CE H 6K2 F 0W12 0805	1
R462	P201039	R# CE H 10E F 0W12 0805	1	R550	R1015231	R MF H 75E F 0W4 E3	1
R463	P201127	R# CE H 47K F 0W12 0805	1	R551	R1015231	R MF H 75E F 0W4 E3	1
R464	P201087	R# CE H 1K F 0W12 0805	1	R552	P201106	R# CE H 6K2 F 0W12 0805	1
R465	P201072	R# CE H240E F 0W12 0805	1	R553	P201143	R# CE H220K F 0W12 0805	1
R466	P201061	R# CE H 82E F 0W12 0805	1	R554	P201039	R# CE H 10E F 0W12 0805	1
R467	P201077	R# CE H390E F 0W12 0805	1	R555	R101532	R MF H470E F 0W4 E3	1
R469	P201081	R# CE H560E F 0W12 0805	1	R556	P201119	R# CE H 22K F 0W12 0805	1
R470	P201135	R# CE H100K F 0W12 0805	1	R557	P201039	R# CE H 10E F 0W12 0805	1
R471	P201049	R# CE H 27E F 0W12 0805	1	R558	P201079	R# CE H470E F 0W12 0805	1
R472	P201121	R# CE H 27K F 0W12 0805	1	R559	P201133	R# CE H 82K F 0W12 0805	1
R473	P201108	R# CE H 7K5 F 0W12 0805	1	R560	P201119	R# CE H 22K F 0W12 0805	1
R474	P201099	R# CE H 3K3 F 0W12 0805	1	R561	P201117	R# CE H 18K F 0W12 0805	1
R475	P201078	R# CE H430E F 0W12 0805	1	R562	P201135	R# CE H100K F 0W12 0805	1
R476	P201111	R# CE H 10K F 0W12 0805	1	R563	P201039	R# CE H 10E F 0W12 0805	1
R477	P201087	R# CE H 1K F 0W12 0805	1	R564	P201079	R# CE H470E F 0W12 0805	1
R478	P201147	R# CE H330K F 0W12 0805	1	R565	P201079	R# CE H470E F 0W12 0805	1
R479	P201123	R# CE H 33K F 0W12 0805	1	R566	P201103	R# CE H 4K7 F 0W12 0805	1
R480	P201158	R# CE H910K F 0W12 0805	1	R567	P201063	R# CE H100E F 0W12 0805	1
R481	P201112	R# CE H 11K F 0W12 0805	1	R568	P201075	R# CE H330E F 0W12 0805	1
R482	P201070	R# CE H200E F 0W12 0805	1	R569	P201079	R# CE H470E F 0W12 0805	1
R483	P201091	R# CE H 1K5 F 0W12 0805	1	R570	P201101	R# CE H 3K9 F 0W12 0805	1
R484	P201133	R# CE H 82K F 0W12 0805	1	R571	P201087	R# CE H 1K F 0W12 0805	1
R485	P201123	R# CE H 33K F 0W12 0805	1	R572	P201352	R# CE H 10M K 0W12 0805	1
R486	P201111	R# CE H 10K F 0W12 0805	1	R573	P201352	R# CE H 10M K 0W12 0805	1
R487	P201063	R# CE H100E F 0W12 0805	1	R574	P201135	R# CE H100K F 0W12 0805	1
R488	P201133	R# CE H 82K F 0W12 0805	1	R575	P201139	R# CE H150K F 0W12 0805	1
R489	P201095	R# CE H 2K2 F 0W12 0805	1	R576	P201111	R# CE H 10K F 0W12 0805	1
R490	P201094	R# CE H 2K F 0W12 0805	1	R577	P201099	R# CE H 3K3 F 0W12 0805	1
R491	P201094	R# CE H 2K F 0W12 0805	1	R578	P201151	R# CE H470K F 0W12 0805	1
R492	P201089	R# CE H 1K2 F 0W12 0805	1	R579	P201079	R# CE H470E F 0W12 0805	1
R493	P201111	R# CE H 10K F 0W12 0805	1	R580	P201079	R# CE H470E F 0W12 0805	1
R494	P201103	R# CE H 4K7 F 0W12 0805	1	R589	P201119	R# CE H 22K F 0W12 0805	1
R495	P201111	R# CE H 10K F 0W12 0805	1	R590	P201087	R# CE H 1K F 0W12 0805	1
R496	P201099	R# CE H 3K3 F 0W12 0805	1	R591	P201071	R# CE H220E F 0W12 0805	1
R497	P201099	R# CE H 3K3 F 0W12 0805	1	R600	P201119	R# CE H 22K F 0W12 0805	1
R498	P201113	R# CE H 12K F 0W12 0805	1	R601	P201063	R# CE H100E F 0W12 0805	1
R499	P201051	R# CE H 33E F 0W12 0805	1	R602	P201111	R# CE H 10K F 0W12 0805	1
R500	R1015231	R MF H 75E F 0W4 E3	1	R603	P201103	R# CE H 4K7 F 0W12 0805	1
R501	R1015231	R MF H 75E F 0W4 E3	1	R604	P201094	R# CE H 2K F 0W12 0805	1
R502	R1015231	R MF H 75E F 0W4 E3	1	R605	P201135	R# CE H100K F 0W12 0805	1
R504	P201106	R# CE H 6K2 F 0W12 0805	1	R606	P201135	R# CE H100K F 0W12 0805	1

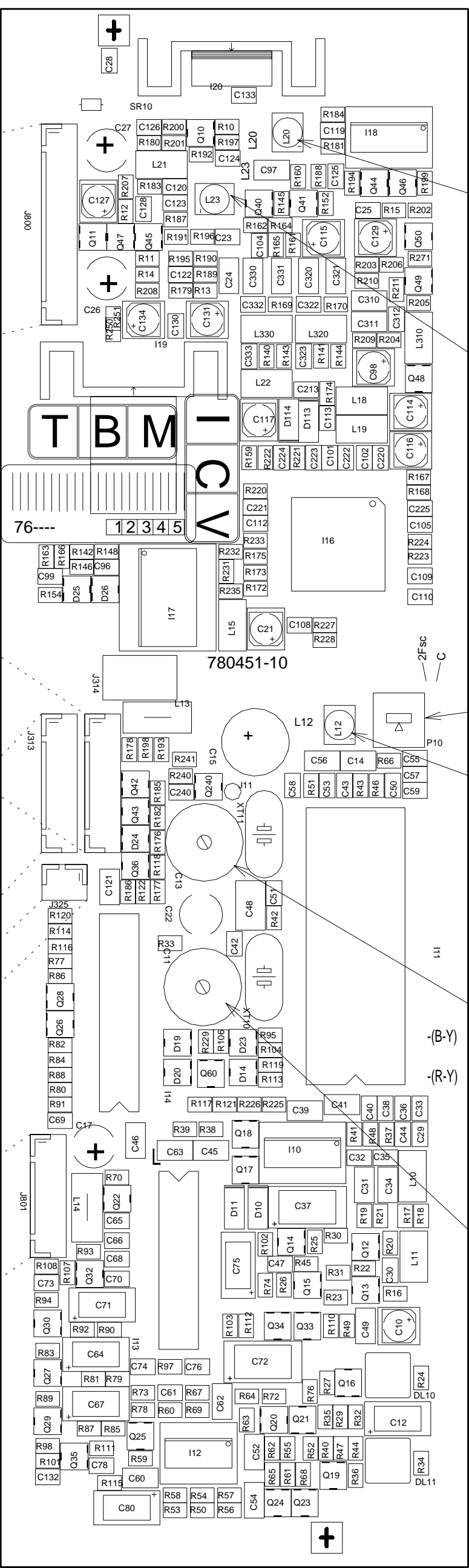
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R607	P201089	R# CE H 1K2 F 0W12 0805	1	R675	P201151	R# CE H470K F 0W12 0805	1
R609	P201115	R# CE H 15K F 0W12 0805	1	R676	P201135	R# CE H100K F 0W12 0805	1
R610	P201105	R# CE H 5K6 F 0W12 0805	1	R677	P201151	R# CE H470K F 0W12 0805	1
R611	P201138	R# CE H130K F 0W12 0805	1	R678	P201135	R# CE H100K F 0W12 0805	1
R612	P201138	R# CE H130K F 0W12 0805	1	R679	P201151	R# CE H470K F 0W12 0805	1
R613	P201138	R# CE H130K F 0W12 0805	1	R680	P201135	R# CE H100K F 0W12 0805	1
R614	P201127	R# CE H 47K F 0W12 0805	1	R681	P201129	R# CE H 56K F 0W12 0805	1
R615	P201118	R# CE H 20K F 0W12 0805	1	R682	P201099	R# CE H 3K3 F 0W12 0805	1
R616	P201097	R# CE H 2K7 F 0W12 0805	1	R683	P201107	R# CE H 6K8 F 0W12 0805	1
R617	P201151	R# CE H470K F 0W12 0805	1	R684	P201107	R# CE H 6K8 F 0W12 0805	1
R618	P201130	R# CE H 62K F 0W12 0805	1	R685	P201107	R# CE H 6K8 F 0W12 0805	1
R619	P201151	R# CE H470K F 0W12 0805	1	R686	P201119	R# CE H 22K F 0W12 0805	1
R620	P201130	R# CE H 62K F 0W12 0805	1	R687	P201139	R# CE H150K F 0W12 0805	1
R621	P201151	R# CE H470K F 0W12 0805	1	R688	P201079	R# CE H470E F 0W12 0805	1
R622	P201130	R# CE H 62K F 0W12 0805	1	R689	P201055	R# CE H 47E F 0W12 0805	1
R623	P201157	R# CE H820K F 0W12 0805	1	R690	P201127	R# CE H 47K F 0W12 0805	1
R624	P201079	R# CE H470E F 0W12 0805	1	R691	P201127	R# CE H 47K F 0W12 0805	1
R625	P201055	R# CE H 47E F 0W12 0805	1	R692	P201127	R# CE H 47K F 0W12 0805	1
R626	P201079	R# CE H470E F 0W12 0805	1	R693	P201056	R# CE H 51E F 0W12 0805	1
R627	P201099	R# CE H 3K3 F 0W12 0805	1	R694	P201056	R# CE H 51E F 0W12 0805	1
R628	P201109	R# CE H 8K2 F 0W12 0805	1	R695	P201056	R# CE H 51E F 0W12 0805	1
R629	P201151	R# CE H470K F 0W12 0805	1	R696	P201135	R# CE H100K F 0W12 0805	1
R630	P201151	R# CE H470K F 0W12 0805	1	R697	P201132	R# CE H 75K F 0W12 0805	1
R631	P201151	R# CE H470K F 0W12 0805	1	R698	P201135	R# CE H100K F 0W12 0805	1
R632	P201063	R# CE H100E F 0W12 0805	1	R699	P201063	R# CE H100E F 0W12 0805	1
R633	P201135	R# CE H100K F 0W12 0805	1	R700	P201103	R# CE H 4K7 F 0W12 0805	1
R634	P201093	R# CE H 1K8 F 0W12 0805	1	R701	P201111	R# CE H 10K F 0W12 0805	1
R635	P201093	R# CE H 1K8 F 0W12 0805	1	R702	P201111	R# CE H 10K F 0W12 0805	1
R636	P201093	R# CE H 1K8 F 0W12 0805	1	R703	P201111	R# CE H 10K F 0W12 0805	1
R637	P201135	R# CE H100K F 0W12 0805	1	R704	P201121	R# CE H 27K F 0W12 0805	1
R638	P201137	R# CE H120K F 0W12 0805	1	R705	P201105	R# CE H 5K6 F 0W12 0805	1
R639	P201133	R# CE H 82K F 0W12 0805	1	R706	P201103	R# CE H 4K7 F 0W12 0805	1
R640	P201113	R# CE H 12K F 0W12 0805	1	R707	P201103	R# CE H 4K7 F 0W12 0805	1
R641	P201156	R# CE H750K F 0W12 0805	1	R708	P201098	R# CE H 3K F 0W12 0805	1
R642	P201114	R# CE H 13K F 0W12 0805	1	R709	P201111	R# CE H 10K F 0W12 0805	1
R643	P201159	R# CE H 1M F 0W12 0805	1	R710	P201107	R# CE H 6K8 F 0W12 0805	1
R644	P201079	R# CE H470E F 0W12 0805	1	R711	P201111	R# CE H 10K F 0W12 0805	1
R645	P201126	R# CE H 43K F 0W12 0805	1	R712	P201105	R# CE H 5K6 F 0W12 0805	1
R646	P201135	R# CE H100K F 0W12 0805	1	R715	P201135	R# CE H100K F 0W12 0805	1
R647	P201137	R# CE H120K F 0W12 0805	1	R716	P201135	R# CE H100K F 0W12 0805	1
R648	P201087	R# CE H 1K F 0W12 0805	1	R717	P201111	R# CE H 10K F 0W12 0805	1
R649	P201103	R# CE H 4K7 F 0W12 0805	1	R718	P201105	R# CE H 5K6 F 0W12 0805	1
R650	P201079	R# CE H470E F 0W12 0805	1	R719	P201105	R# CE H 5K6 F 0W12 0805	1
R651	P201055	R# CE H 47E F 0W12 0805	1	R720	P201111	R# CE H 10K F 0W12 0805	1
R652	P201093	R# CE H 1K8 F 0W12 0805	1	R721	P201101	R# CE H 3K9 F 0W12 0805	1
R653	P201093	R# CE H 1K8 F 0W12 0805	1	R722	P201103	R# CE H 4K7 F 0W12 0805	1
R654	P201093	R# CE H 1K8 F 0W12 0805	1	R723	P201107	R# CE H 6K8 F 0W12 0805	1
R655	P201093	R# CE H 1K8 F 0W12 0805	1	R724	P201079	R# CE H470E F 0W12 0805	1
R656	P201093	R# CE H 1K8 F 0W12 0805	1	R725	P201087	R# CE H 1K F 0W12 0805	1
R657	P201093	R# CE H 1K8 F 0W12 0805	1	R726	P201111	R# CE H 10K F 0W12 0805	1
R658	P201093	R# CE H 1K8 F 0W12 0805	1	R727	P201103	R# CE H 4K7 F 0W12 0805	1
R659	P201093	R# CE H 1K8 F 0W12 0805	1	R728	P201103	R# CE H 4K7 F 0W12 0805	1
R660	P201093	R# CE H 1K8 F 0W12 0805	1	R729	P201103	R# CE H 4K7 F 0W12 0805	1
R661	P201093	R# CE H 1K8 F 0W12 0805	1	R730	P201103	R# CE H 4K7 F 0W12 0805	1
R662	P201093	R# CE H 1K8 F 0W12 0805	1	R731	P201103	R# CE H 4K7 F 0W12 0805	1
R663	P201093	R# CE H 1K8 F 0W12 0805	1	R732	P201129	R# CE H 56K F 0W12 0805	1
R664	P201145	R# CE H270K F 0W12 0805	1	R733	P201103	R# CE H 4K7 F 0W12 0805	1
R665	P201113	R# CE H 12K F 0W12 0805	1	R734	P201129	R# CE H 56K F 0W12 0805	1
R666	P201094	R# CE H 2K F 0W12 0805	1	R735	P201103	R# CE H 4K7 F 0W12 0805	1
R667	P201145	R# CE H270K F 0W12 0805	1	R736	P201129	R# CE H 56K F 0W12 0805	1
R668	P201113	R# CE H 12K F 0W12 0805	1	R737	P201103	R# CE H 4K7 F 0W12 0805	1
R669	P201094	R# CE H 2K F 0W12 0805	1	R738	P201103	R# CE H 4K7 F 0W12 0805	1
R670	P201145	R# CE H270K F 0W12 0805	1	R739	P201103	R# CE H 4K7 F 0W12 0805	1
R671	P201113	R# CE H 12K F 0W12 0805	1	R740	P201103	R# CE H 4K7 F 0W12 0805	1
R672	P201094	R# CE H 2K F 0W12 0805	1	R741	P201129	R# CE H 56K F 0W12 0805	1
R673	P201089	R# CE H 1K2 F 0W12 0805	1	R742	P201129	R# CE H 56K F 0W12 0805	1
R674	P201072	R# CE H240E F 0W12 0805	1	R743	P201131	R# CE H 68K F 0W12 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R744	P201103	R# CE H 4K7 F 0W12 0805	1	R859	P201087	R# CE H 1K F 0W12 0805	1
R745	P201103	R# CE H 4K7 F 0W12 0805	1	R860	P201087	R# CE H 1K F 0W12 0805	1
R746	P201111	R# CE H 10K F 0W12 0805	1	R861	P201087	R# CE H 1K F 0W12 0805	1
R750	P201095	R# CE H 2K2 F 0W12 0805	1	R862	P201111	R# CE H 10K F 0W12 0805	1
R751	P201063	R# CE H100E F 0W12 0805	1	R863	P201111	R# CE H 10K F 0W12 0805	1
R752	P201063	R# CE H100E F 0W12 0805	1	R864	P201039	R# CE H 10E F 0W12 0805	1
R753	P201063	R# CE H100E F 0W12 0805	1	R900	P201055	R# CE H 47E F 0W12 0805	1
R754	P201063	R# CE H100E F 0W12 0805	1	R901	P201055	R# CE H 47E F 0W12 0805	1
R755	P201087	R# CE H 1K F 0W12 0805	1	R902	P201055	R# CE H 47E F 0W12 0805	1
R756	P201114	R# CE H 13K F 0W12 0805	1	R903	P201055	R# CE H 47E F 0W12 0805	1
R757	P201115	R# CE H 15K F 0W12 0805	1	R904	P201105	R# CE H 5K6 F 0W12 0805	1
R758	P201063	R# CE H100E F 0W12 0805	1	R905	P201135	R# CE H100K F 0W12 0805	1
R759	P201063	R# CE H100E F 0W12 0805	1	R906	P201119	R# CE H 22K F 0W12 0805	1
R760	P201063	R# CE H100E F 0W12 0805	1	R907	P201093	R# CE H 1K8 F 0W12 0805	1
R800	P201079	R# CE H470E F 0W12 0805	1	R908	P201087	R# CE H 1K F 0W12 0805	1
R801	P201055	R# CE H 47E F 0W12 0805	1	R909	P201087	R# CE H 1K F 0W12 0805	1
R802	P201071	R# CE H220E F 0W12 0805	1	R910	P201087	R# CE H 1K F 0W12 0805	1
R803	P201071	R# CE H220E F 0W12 0805	1	R911	P201073	R# CE H270E F 0W12 0805	1
R804	P201071	R# CE H220E F 0W12 0805	1	R912	P201111	R# CE H 10K F 0W12 0805	1
R805	P201121	R# CE H 27K F 0W12 0805	1	R913	R101520	R MF H 47E F 0W4 E3	1
R806	P201079	R# CE H470E F 0W12 0805	1	R914	P201135	R# CE H100K F 0W12 0805	1
R807	P201111	R# CE H 10K F 0W12 0805	1	R950	P201103	R# CE H 4K7 F 0W12 0805	1
R808	P201108	R# CE H 7K5 F 0W12 0805	1	R951	P201103	R# CE H 4K7 F 0W12 0805	1
R809	P201102	R# CE H 4K3 F 0W12 0805	1	R952	P201103	R# CE H 4K7 F 0W12 0805	1
R810	P201063	R# CE H100E F 0W12 0805	1	R953	P201127	R# CE H 47K F 0W12 0805	1
R814	P201111	R# CE H 10K F 0W12 0805	1	R954	P201127	R# CE H 47K F 0W12 0805	1
R815	P201111	R# CE H 10K F 0W12 0805	1	R955	P201127	R# CE H 47K F 0W12 0805	1
R816	P201111	R# CE H 10K F 0W12 0805	1	R956	P201156	R# CE H750K F 0W12 0805	1
R817	P201111	R# CE H 10K F 0W12 0805	1	R957	P201156	R# CE H750K F 0W12 0805	1
R818	P201087	R# CE H 1K F 0W12 0805	1	R958	P201156	R# CE H750K F 0W12 0805	1
R819	P201113	R# CE H 12K F 0W12 0805	1	R959	P201089	R# CE H 1K2 F 0W12 0805	1
R820	P201135	R# CE H100K F 0W12 0805	1	R960	P201089	R# CE H 1K2 F 0W12 0805	1
R821	P201087	R# CE H 1K F 0W12 0805	1	R961	P201089	R# CE H 1K2 F 0W12 0805	1
R822	P201065	R# CE H120E F 0W12 0805	1	S800	R1011008	R CFFH 1E J 0W25	△ 1
R823	P201157	R# CE H820K F 0W12 0805	1	S801	R1011008	R CFFH 1E J 0W25	△ 1
R824	P201123	R# CE H 33K F 0W12 0805	1	S802	R1011907	R CFFH E1 K 0W35	△ 1
R825	P201039	R# CE H 10E F 0W12 0805	1	W 3	R348102	WU JUMP 0,6 7,5	1
R826	P201071	R# CE H220E F 0W12 0805	1	W 4	R348102	WU JUMP 0,6 7,5	1
R827	P201071	R# CE H220E F 0W12 0805	1	W 5	R348102	WU JUMP 0,6 7,5	1
R828	P201071	R# CE H220E F 0W12 0805	1	W500	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
R829	P201111	R# CE H 10K F 0W12 0805	1	W500	R3133921	J MD SHUNT F P2 E1SN I	1
R830	P201111	R# CE H 10K F 0W12 0805	1	W501	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
R831	P201103	R# CE H 4K7 F 0W12 0805	1	W501	R3133921	J MD SHUNT F P2 E1SN I	1
R832	P201093	R# CE H 1K8 F 0W12 0805	1	W600	R348102	WU JUMP 0,6 7,5	1
R833	P201111	R# CE H 10K F 0W12 0805	1	W601	R348102	WU JUMP 0,6 7,5	1
R834	P201111	R# CE H 10K F 0W12 0805	1	W900	R313286	J MO1 C MBT P 3 R1SN 7,5	1
R835	P201111	R# CE H 10K F 0W12 0805	1	W900	R3133921	J MD SHUNT F P2 E1SN I	1
R836	P201111	R# CE H 10K F 0W12 0805	1	Z800	P234271	D#ZEN 12V 0W5 B DMMELF	1
R837	P201111	R# CE H 10K F 0W12 0805	1	Z801	R131771	D ZEN 150V 3W25 C SOD57	1
R841	P201093	R# CE H 1K8 F 0W12 0805	1	Z900	P234164	D#ZEN 5V6 0W5 C DMMELF	1
R842	P201093	R# CE H 1K8 F 0W12 0805	1		R7627665P	UND708 INP/2	1
R843	P201093	R# CE H 1K8 F 0W12 0805	1				
R844	P201093	R# CE H 1K8 F 0W12 0805	1				
R845	P201093	R# CE H 1K8 F 0W12 0805	1				
R846	P201099	R# CE H 3K3 F 0W12 0805	1				
R847	P201083	R# CE H680E F 0W12 0805	1				
R848	P201139	R# CE H150K F 0W12 0805	1				
R849	P201139	R# CE H150K F 0W12 0805	1				
R850	P201111	R# CE H 10K F 0W12 0805	1				
R851	P201111	R# CE H 10K F 0W12 0805	1				
R852	P201111	R# CE H 10K F 0W12 0805	1				
R853	R101557	R MF H 56K F 0W4 E3	1				
R854	R101557	R MF H 56K F 0W4 E3	1				
R855	P201111	R# CE H 10K F 0W12 0805	1				
R856	P201111	R# CE H 10K F 0W12 0805	1				
R857	V1026654	R MF H 47E5 F 0W6 E4	1				
R858	P201094	R# CE H 2K F 0W12 0805	1				

PRODUCT SAFETY NOTICE

Components identified by △ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.





SECAM CHROMA REJECTION

SECAM REFERENCE (R-Y)

ADJUSTMENT SECAM BELL FILTER

SECAM REFERENCE (B-Y)

REFERENCE OSCILLATOR NTSC 3.58

REFERENCE OSCILLATOR PAL & NTSC 4.43

FROM INPUT MODULE

TO INPUT MODULE

FROM INPUT MODULE

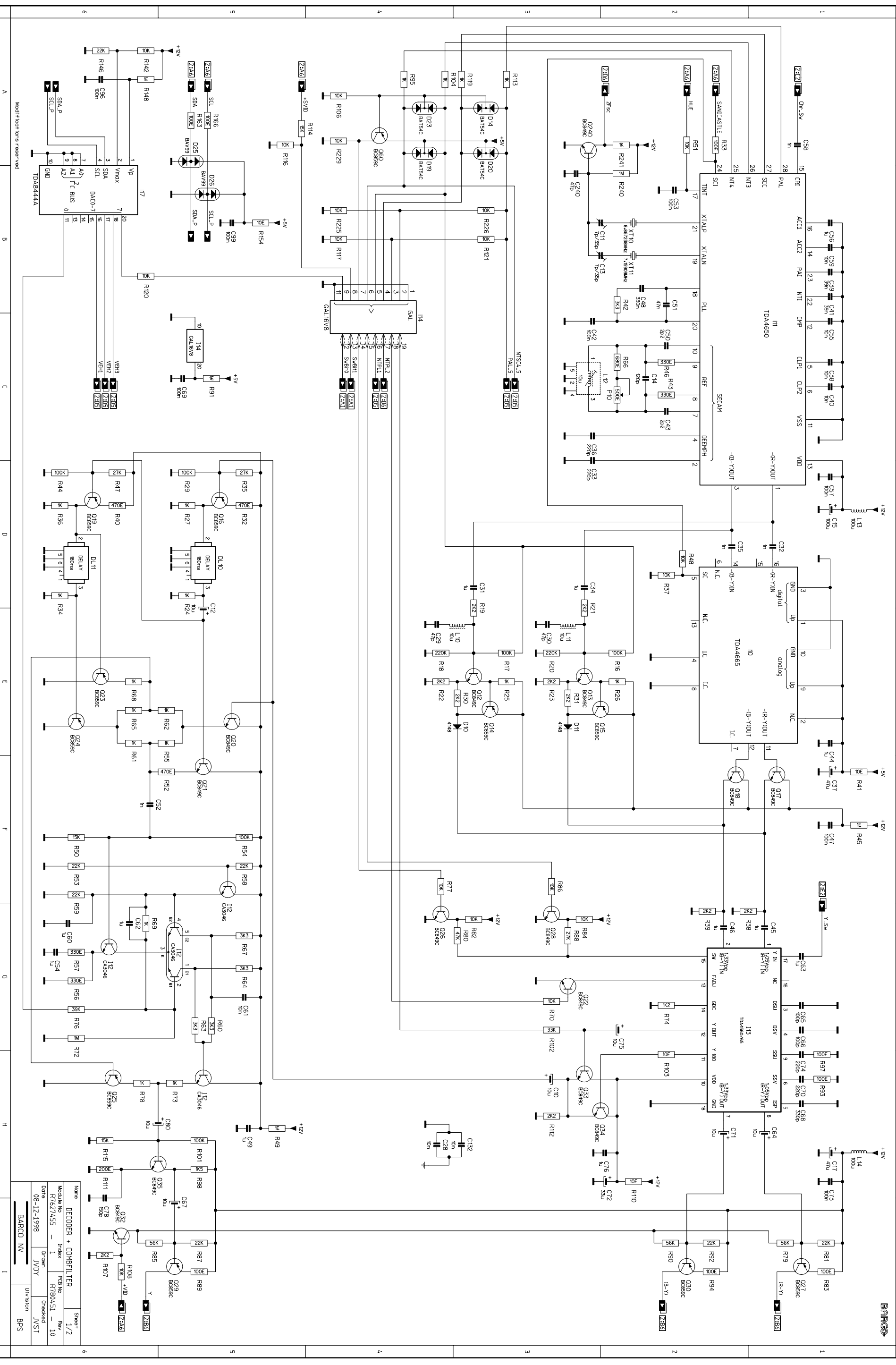
SYNC FOR D2100 & INTERFACES ONLY

TO INPUT MODULE

Name	DECODER + COMB FILTER	Sheet	1/1
Modul. No.	Index	PCB No.	Rev.
R7627465	1	R760451	10
Date	Drawn	Checked	
08-12-1998	JVDY	JVST	

BARCO PROJECTION SYSTEMS

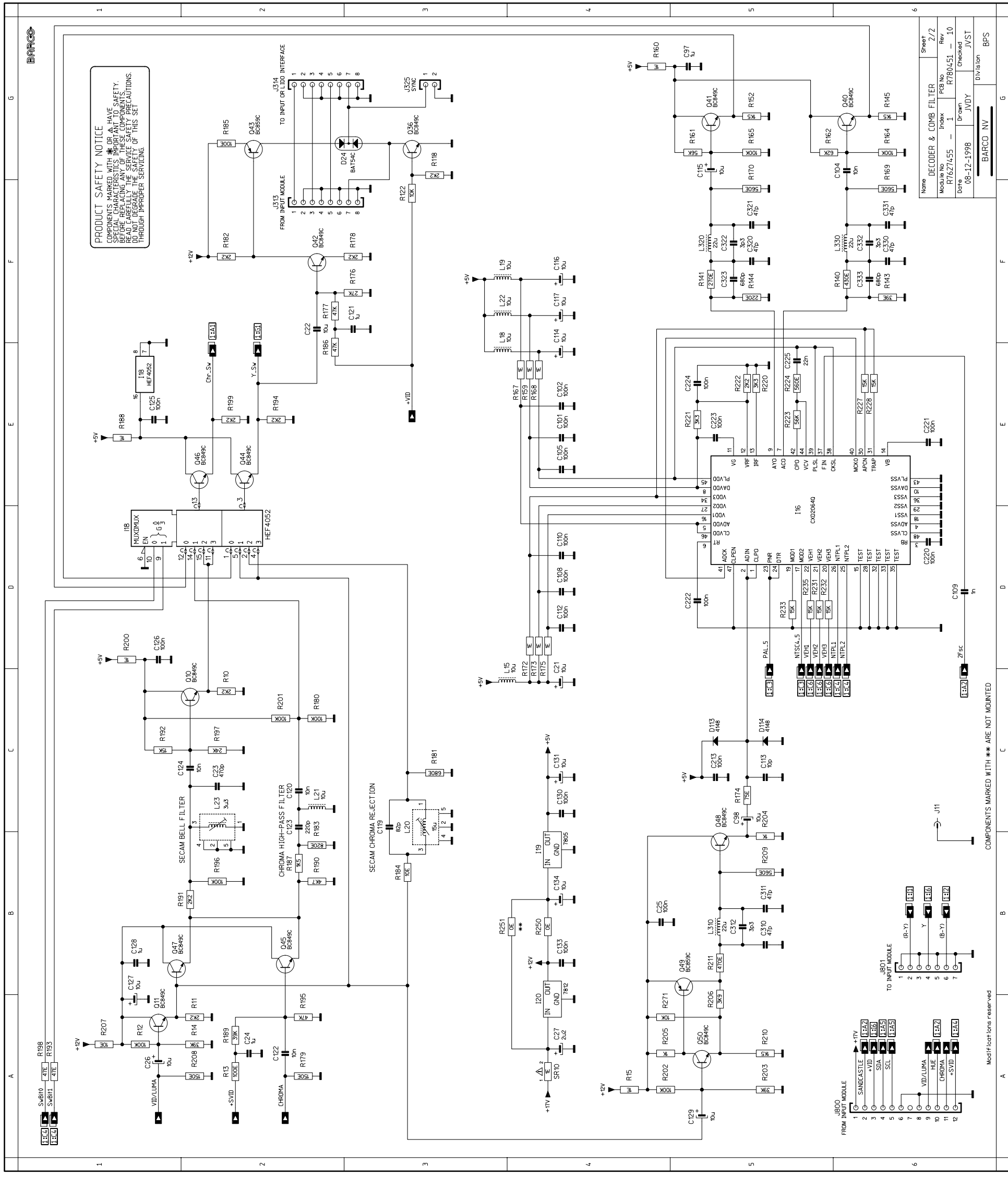
Modifications reserved



Name	DECODER + COMBFILTER	Sheet	1/2
Module No	R76Z1/455	Index	1
Date	08-12-1998	PCB No	R760/451
		Rev	10
		Drawn	JVDV
		Checked	JVST
Barcode NV		Division	BPS

Modifications reserved

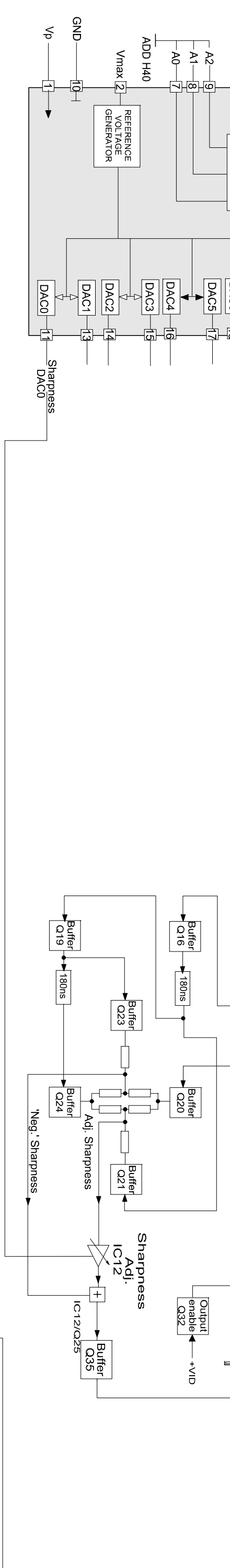
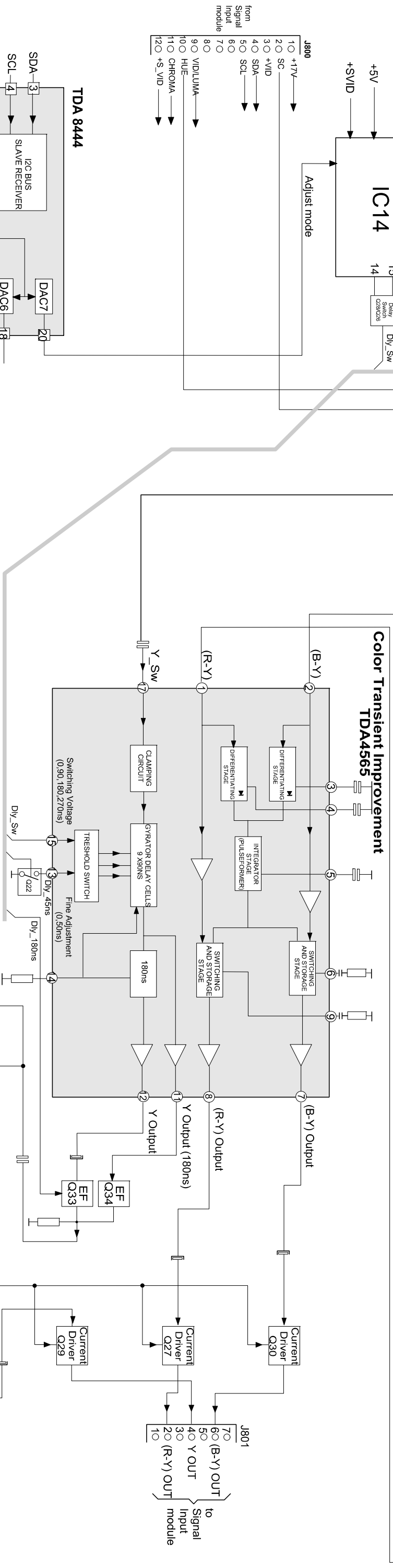
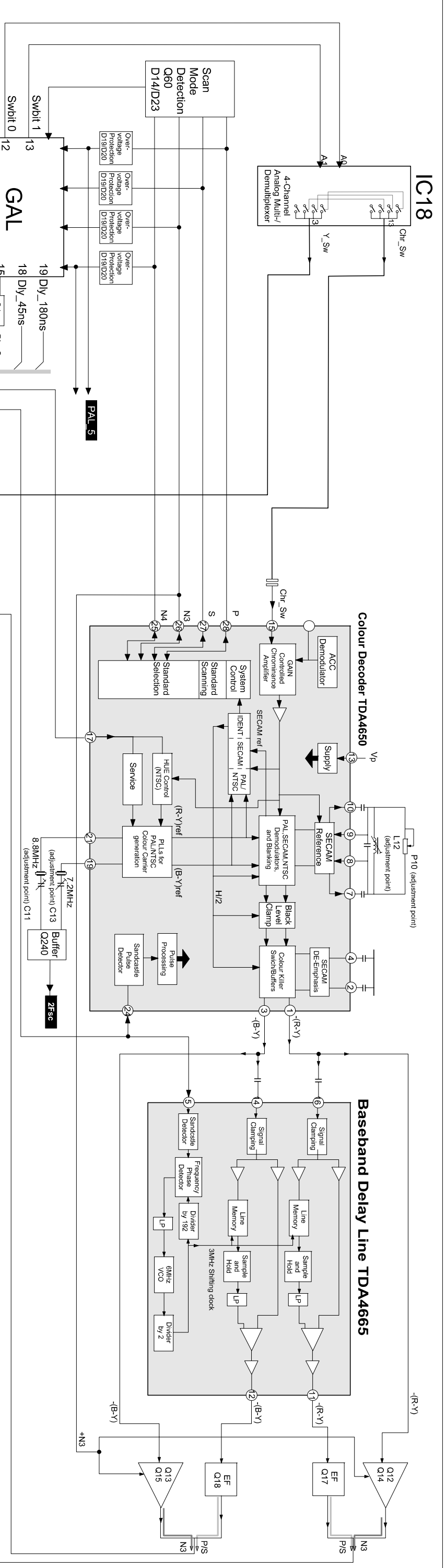
COMP.	LOC. SH.	COMP.	LOC. SH.	COMP.	LOC. SH.
01	H01	01	H01	01	H01
02	H02	02	H02	02	H02
03	H03	03	H03	03	H03
04	H04	04	H04	04	H04
05	H05	05	H05	05	H05
06	H06	06	H06	06	H06
07	H07	07	H07	07	H07
08	H08	08	H08	08	H08
09	H09	09	H09	09	H09
10	H10	10	H10	10	H10
11	H11	11	H11	11	H11
12	H12	12	H12	12	H12
13	H13	13	H13	13	H13
14	H14	14	H14	14	H14
15	H15	15	H15	15	H15
16	H16	16	H16	16	H16
17	H17	17	H17	17	H17
18	H18	18	H18	18	H18
19	H19	19	H19	19	H19
20	H20	20	H20	20	H20
21	H21	21	H21	21	H21
22	H22	22	H22	22	H22
23	H23	23	H23	23	H23
24	H24	24	H24	24	H24
25	H25	25	H25	25	H25
26	H26	26	H26	26	H26
27	H27	27	H27	27	H27
28	H28	28	H28	28	H28
29	H29	29	H29	29	H29
30	H30	30	H30	30	H30
31	H31	31	H31	31	H31
32	H32	32	H32	32	H32
33	H33	33	H33	33	H33
34	H34	34	H34	34	H34
35	H35	35	H35	35	H35
36	H36	36	H36	36	H36
37	H37	37	H37	37	H37
38	H38	38	H38	38	H38
39	H39	39	H39	39	H39
40	H40	40	H40	40	H40
41	H41	41	H41	41	H41
42	H42	42	H42	42	H42
43	H43	43	H43	43	H43
44	H44	44	H44	44	H44
45	H45	45	H45	45	H45
46	H46	46	H46	46	H46
47	H47	47	H47	47	H47
48	H48	48	H48	48	H48
49	H49	49	H49	49	H49
50	H50	50	H50	50	H50
51	H51	51	H51	51	H51
52	H52	52	H52	52	H52
53	H53	53	H53	53	H53
54	H54	54	H54	54	H54
55	H55	55	H55	55	H55
56	H56	56	H56	56	H56
57	H57	57	H57	57	H57
58	H58	58	H58	58	H58
59	H59	59	H59	59	H59
60	H60	60	H60	60	H60
61	H61	61	H61	61	H61
62	H62	62	H62	62	H62
63	H63	63	H63	63	H63
64	H64	64	H64	64	H64
65	H65	65	H65	65	H65
66	H66	66	H66	66	H66
67	H67	67	H67	67	H67
68	H68	68	H68	68	H68
69	H69	69	H69	69	H69
70	H70	70	H70	70	H70
71	H71	71	H71	71	H71
72	H72	72	H72	72	H72
73	H73	73	H73	73	H73
74	H74	74	H74	74	H74
75	H75	75	H75	75	H75
76	H76	76	H76	76	H76
77	H77	77	H77	77	H77
78	H78	78	H78	78	H78
79	H79	79	H79	79	H79
80	H80	80	H80	80	H80
81	H81	81	H81	81	H81
82	H82	82	H82	82	H82
83	H83	83	H83	83	H83
84	H84	84	H84	84	H84
85	H85	85	H85	85	H85
86	H86	86	H86	86	H86
87	H87	87	H87	87	H87
88	H88	88	H88	88	H88
89	H89	89	H89	89	H89
90	H90	90	H90	90	H90
91	H91	91	H91	91	H91
92	H92	92	H92	92	H92
93	H93	93	H93	93	H93
94	H94	94	H94	94	H94
95	H95	95	H95	95	H95
96	H96	96	H96	96	H96
97	H97	97	H97	97	H97
98	H98	98	H98	98	H98
99	H99	99	H99	99	H99
100	H100	100	H100	100	H100

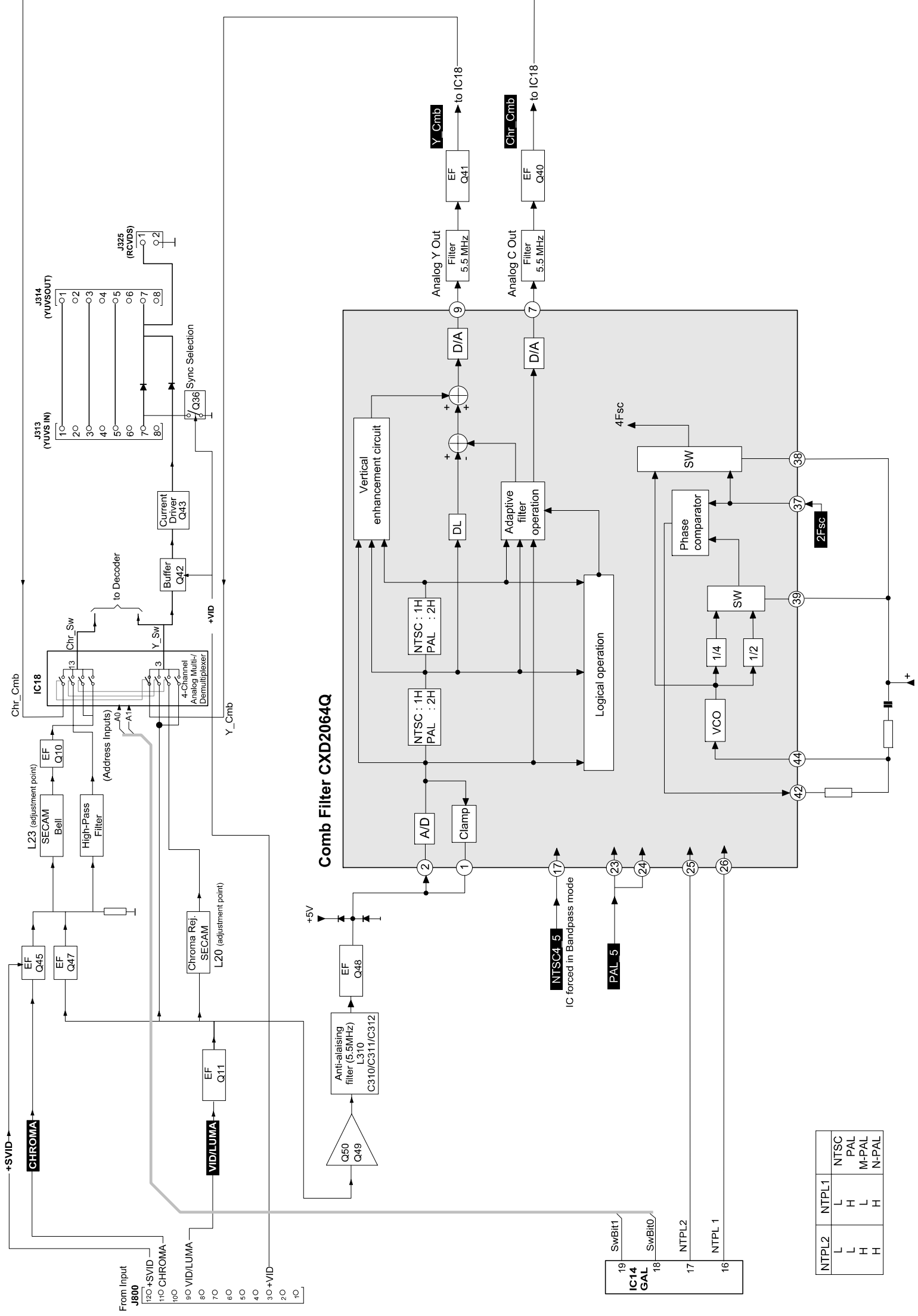


PRODUCT SAFETY NOTICE
 COMPONENTS MARKED WITH OR A HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

Name	DECODER & COMB FILTER	Sheet	2/2
Module No.	R7627455 - 1	Index	R760451 - 10
Date	08-12-1998	Rev	
Drawn	JVDY	Checked	
Division			

COMPONENTS MARKED WITH *** ARE NOT MOUNTED
 Modifications reserved





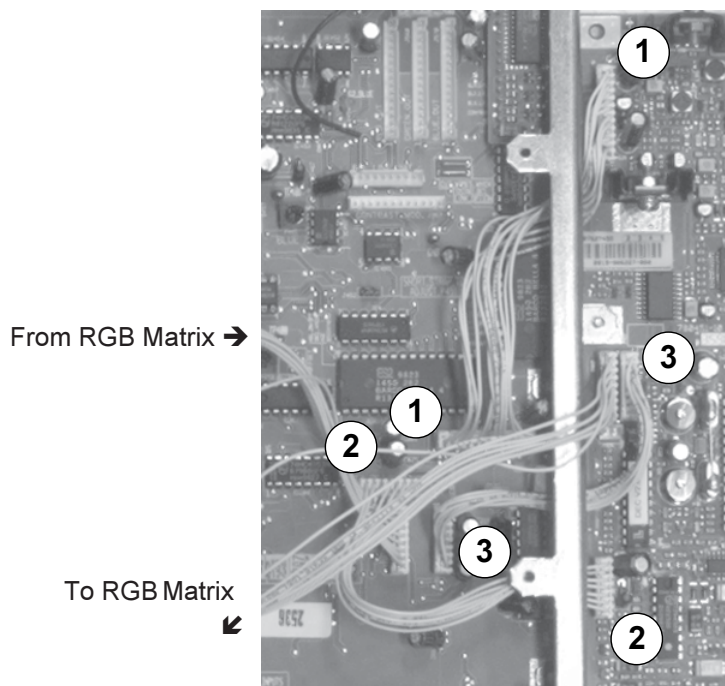
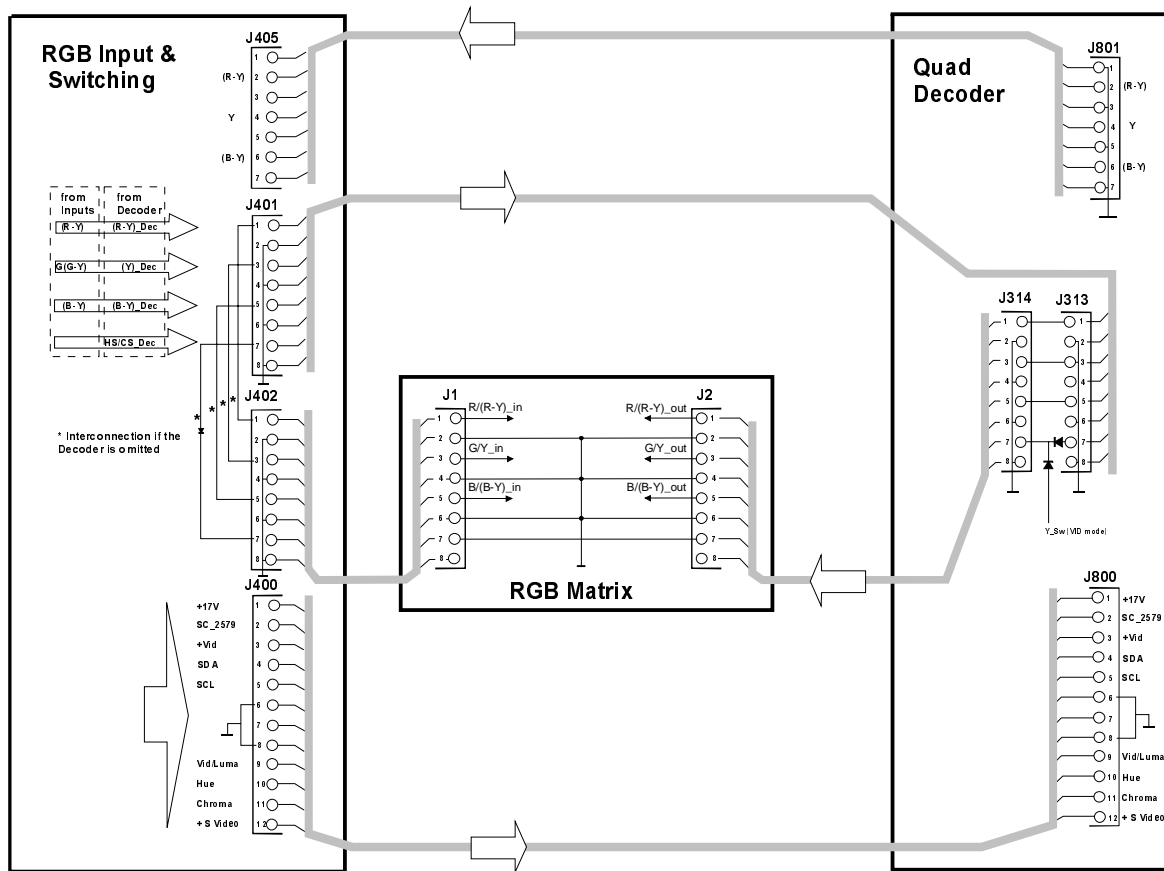
NTPL2	NTPL1	NTSC
L	L	NTSC
L	H	PAL
H	L	M-PAL
H	H	N-PAL

4-Channel Analog Multi-Demultiplexer IC18	
Filter Switching	
Mode	Chroma
Scanning	all pass
SVideo PAL, NTSC3.58, NTSC4.43	High pass
SVideo SECAM	Bell filter
Video SECAM	Bell filter
Video PAL, NTSC3.58	4.43MHz Rejector
Video NTSC4.43	Luma Comb
	Chroma Comb
	Chroma Comb

(The Comb Filter is switched to Bandpass filter in case of Video NTSC4.43)

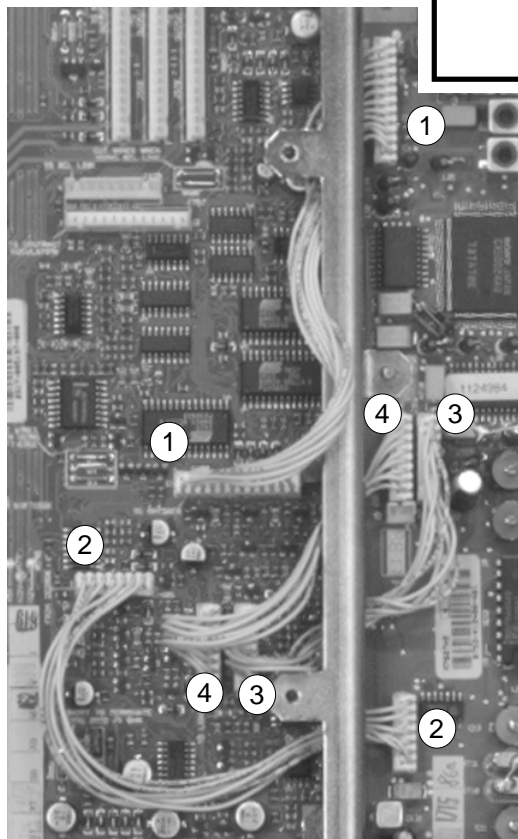
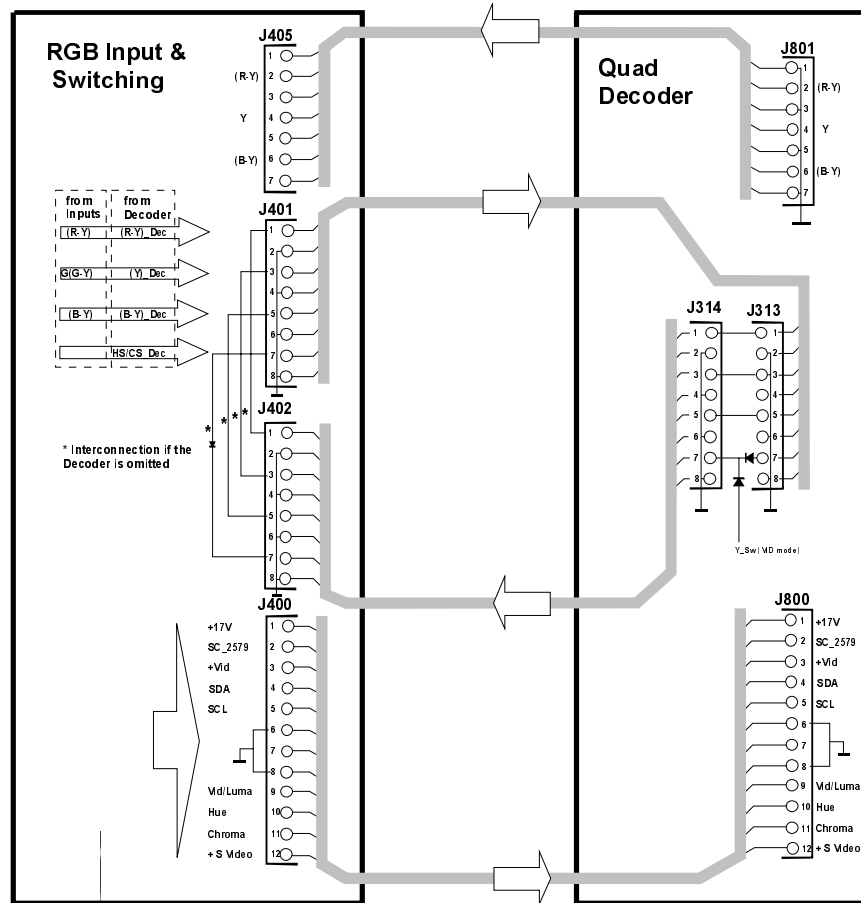
INTERCONNECTION RGB INPUT & SWITCH AND QUAD DECODER

When using the input board R7627661



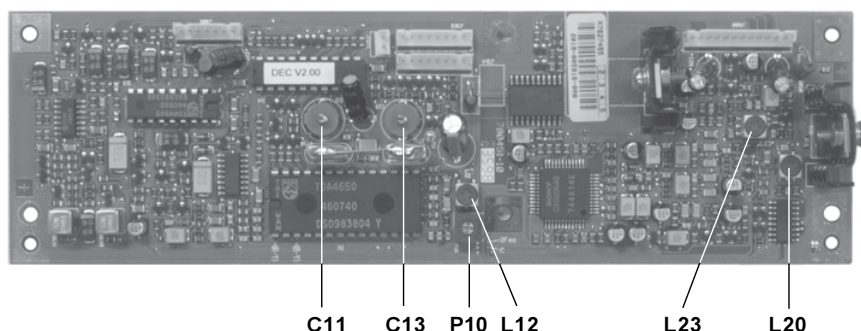
INTERCONNECTION RGB INPUT & SWITCH AND QUAD DECODER

When using the input board R7627665



ADJUSTMENT PROCEDURE

Location of controls

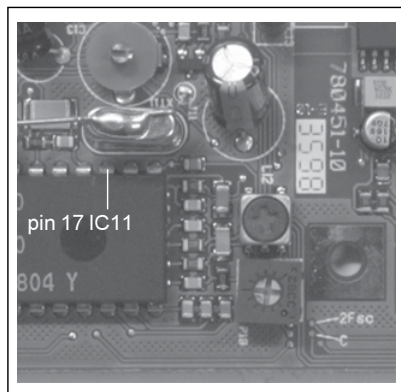


1. Reference Oscillator NTSC3.58

- Connect to the VIDEO input e.g. an electronic **NTSC3.58** color test video signal.
- Switch the projector in the VIDEO MODE. Press digit button 1 on RCU.
- if there is no colour, adjust trimming capacitor C13 for color display.
- short circuit pin 17 of IC11 to ground.
- adjust trimming capacitor C13 for a colour zero beat.
- remove the short-circuit.

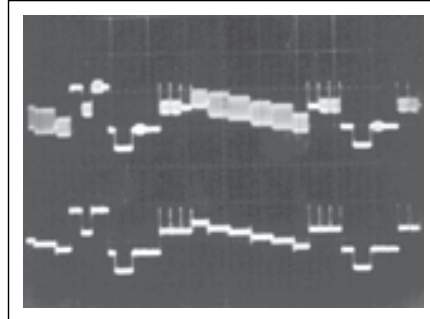
2. Reference Oscillator PAL

- Connect to the VIDEO input e.g. an electronic **PAL** test video signal.
- if there is no colour, adjust trimming capacitor C11 for color display.
- short circuit pin 17 of IC11 to ground.
- adjust trimming capacitor C11 for a colour zero beat.
- remove the short-circuit.



3. Chroma rejector Secam L20

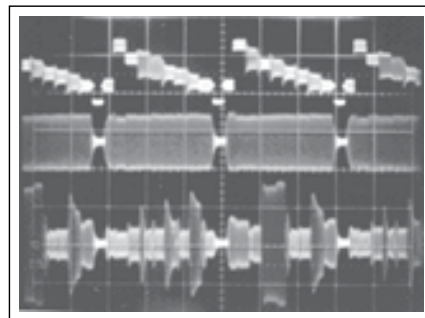
- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect an oscilloscope to the capacitor C22.
- adjust the core of coil L20 for a minimum of chroma in the video signal.



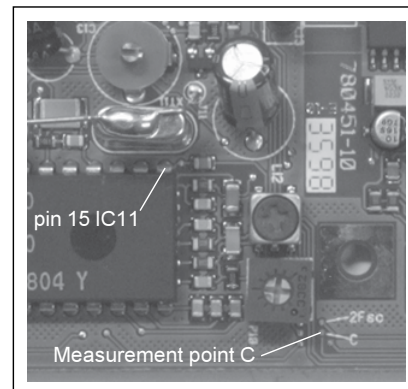
UPPER TRACK: VIEWED VIDEO LINE
LOWER TRACK: Y SIGNAL

4. SECAM BELL Filter L23

- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect an oscilloscope to the provided **Measurement point C** or to pin 15 of IC11 (Chr_Sw).
- adjust L23 for a flat amplitude of the signal during two successive lines.

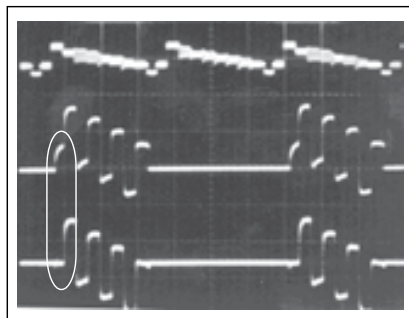


UPPER TRACK: VIEWED VIDEO LINE
LOWER TRACK:
1: CORRECT SETTING
2: INCORRECT SETTING

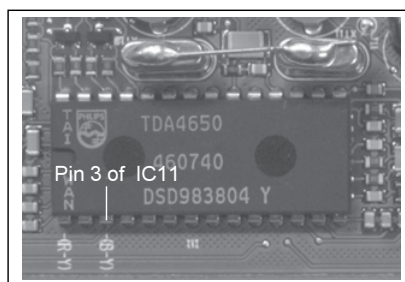


5. Secam Reference circuit (L12 - P10)

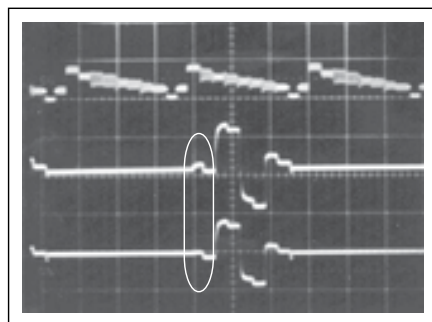
- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect the oscilloscope to pin 3 of IC11 (B-Y).
- adjust L12 so that the level of the (B-Y) signal without colour information is the same as the level during blanking.



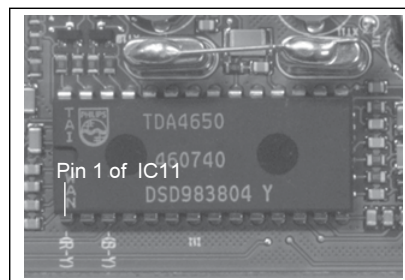
UPPER TRACK: VIEWED VIDEO LINE
 LOWER TRACK:
 1: INCORRECT SETTING
 2: CORRECT SETTING



- connect the oscilloscope to the coil pin 1 of IC11 (R-Y).
- adjust P10 so that the level of the (R-Y) signal without colour information is the same as the level during blanking.



UPPER TRACK: VIEWED VIDEO LINE
 LOWER TRACK:
 1: INCORRECT SETTING
 2: CORRECT SETTING



- If necessary the level in (B-Y) channel has to readjust to zero with the coil L12.

TECHNICAL DESCRIPTION

General

This board carries the same number of the former R762745 version with digital comb filter, only a /5 is added. This simply means that this board is a fully downwards compatible and redesigned board.

The decoder section of this board with comb filtering uses the decoder chips TDA4650 / TDA4665 / TDA 4565.

The new digital comb filter IC integrates all the necessary circuits for the sampling clock and the adaptive intra-field Y/C separation. There is no more a separate IC for sync processing.

General Signal Flow

The composite video must always be split into its luminance and chrominance components. The filter used for this Y/C split depends on the colour system. For PAL and NTSC 3.58 this is done by an adaptive digital comb filter. For SECAM this is done by passive filtering (like in the former decoder). For NTSC4.43 the digital comb filter is forced in bandpass mode.

If the input is S-Video, this split is no more necessary.

The multistandard Decoder chip IC 11 is sequentially checking the color burst on the backporch of the horizontal sync. As soon the right system is identified, the appropriate output PAL/SECAM/NTSC4.43 or NTSC3.58 of the TDA4650 is put at a high level.

These switching outputs are supplied to a GAL (IC14), where the decoder mode will be recognized. The programmed GAL IC14 ensures, using the two outputs SwBit0 and SwBit1 as address inputs for the IC18, that the correct signal on the 4-channel Analog Multi-/Demultiplexer IC18 is switched through.

The two output signals of the 4-channel Analog Multi-/Demultiplexer IC18, respectively Chr_Sw and Y_Sw, are the supply signals for the Decoder IC's. The selected chrominance signal is applied to the decoder IC which provides the colour difference signals $-(R-Y)$ and $-(B-Y)$.

These output signals are then sent to the "baseband delay line" IC13 where the chrominance information of two subsequent lines is added using a CCD analog delay line.

This adding means in NTSC that the IC acts like an analog comb filtering. But, when it is NTSC3.58 the digital comb filter has already done a similar action. Therefore, the delay line IC is bypassed for NTSC3.58.

The next IC13 is supplied in any case with the colour difference signals and the luminance Y_{sw} . The colour undergoes an CTI (Colour Transient Improvement) and the delay of the luminance is adjusted per color standard (DC controlled delay).

Finally, the luminance passes a "sharpness control" and the three signals leave the decoder via current sources.

Comb Filter CXD2064Q

The CXD2064Q is an adaptive intra-field comb filter compatible with NTSC, PAL, PAL-M and PAL-N systems, and can provide high precision Y/C separation with a single chip.

To generate the sampling clock, which should be locked to the color subcarrier, the PLL in the chip must receive a reference. Here, the $2F_{sc}$ oscillator signal is used as it is available from the crystal oscillator of the color decoder. It is taken via Q240 and fed to pin 37 via C109. To tell the IC that the FIN is $2F_{sc}$, pins 38 and 39 are both high level.

The IC can work in three different modes

- adaptive processing mode (digital comb filtering)
- BPF (BandPass Filtering) separation mode (NTSC4.43)
- Through mode (not applicable).

The mode is determined by the voltage level of pin17 (MOD2) and pin 19 (MOD1). Here, pin 19 is ground level and pin 17 is the 'NTSC 4.5' line.

When this line is high level (=NTSC4.43) the IC works in the BPF mode

In the adaptive processing mode, the Y/C separation is performed by detecting the correlation between three consecutive lines and switching between comb filter and BPF processing.

In the BPF separation mode, the Y/C separation is performed only by BPF processing.

The video signal supplied to pin 2 of the comb filter, has passed through an anti-aliasing filter that suppresses all frequencies above 5,5 MHz.

The AYO (luminance) output at pin 9 passes through a low pass filter and is then buffered with Q41 to feed the 4-channel Analog Multi-/Demultiplexer IC18, at pin A1 with Y_Comb.

The filter prevent the clock frequencies of the DA converter to pass through.

The ACO (Chrominance) output undergoes also a frequency limitation for the same reason, before supplying Chr_Comb to the pin B1 of the 4-channel Analog Multi-/Demultiplexer IC18.

The voltage at pin 12 and the current at pin 13 determines the amplitude of the output current-sources for chrominance (pin 7) and luminance (pin 9).

NTPL1 on pin 25 and NTPL2 pin 26 tell the IC which colour system is used.

NTPL 1	NTPL 2	
L	L	NTSC
H	L	PAL
L	H	PAL-M
H	H	PAL-N

The vertical enhancing setting is here not implemented, the corresponding three lines VEH are not used.

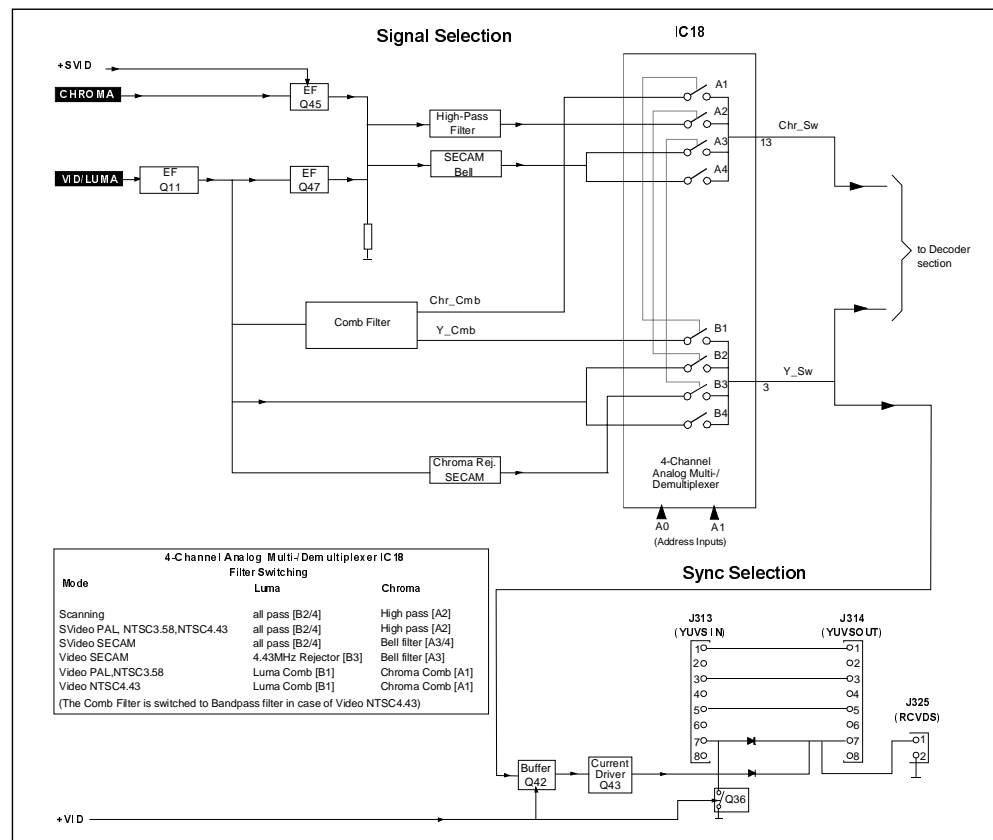
Filter Switching

a) Video or S-Video

A first selection is the switching between composite video and S-Video. In case of S-Video the +S-Video line is high. This voltage forward biases Q45 and the CHROMA is sent to the HIGH-PASS FILTER and SECAM BELL filter. For composite video the +S-Video line is low, which causes Q45 to be reverse biased and the CHROMA signal is not sent on. In both cases the VID/LUMA signal is sent to the CHROMA REJECTOR and to pin 2 and 4 of IC18.

b) Filter Switching

Depending on the color standard selected by the decoder, the filters are switched in the following way:



Synchronisation

The first selection of the sync signal is done in the source input selection. The result of this selection is the SYNC-EX which is available at pin 7 of the J313 connector.

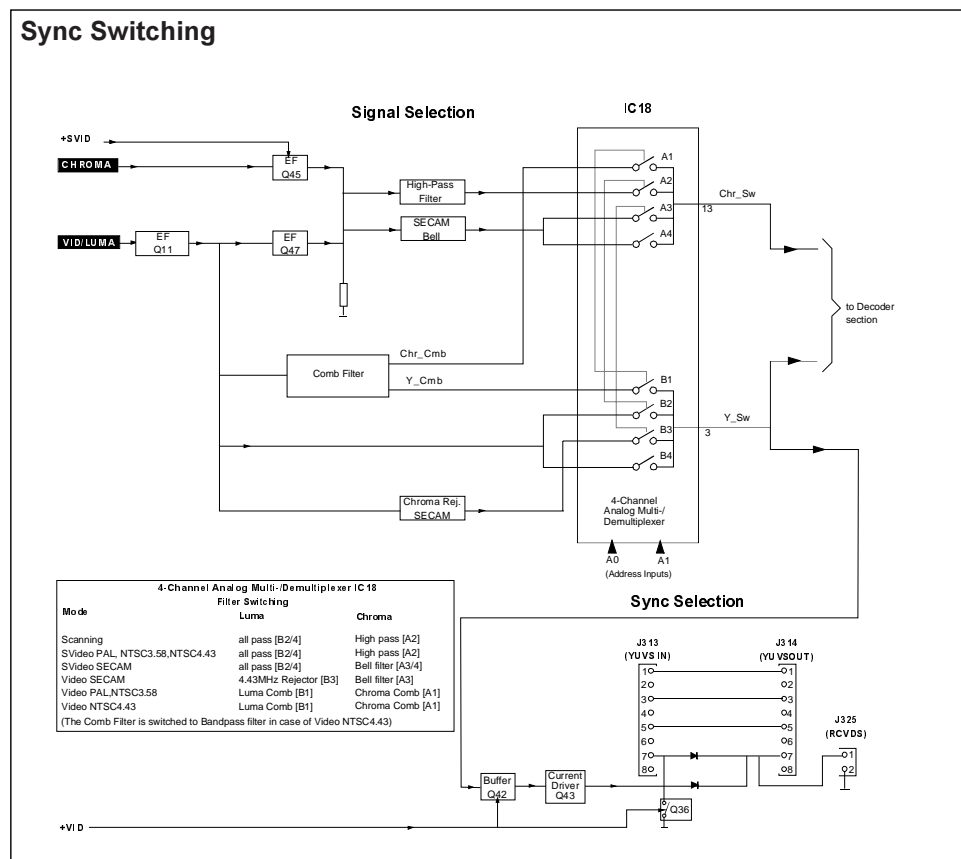
a) Video / S-Video :

When a video composite or S-Video source is selected the +VID voltage is high and the transistor Q42 gets forward biased just like Q43. Pin 7 of the connector J314 then receives the Y_sw signal, selected by the multiplexer, via these transistors. This signal may have undergone some delays depending on the standard.

To ensure that the SYNC-EX does not get through, Q36 is saturated to short the SYNC-EX line to ground. The collector DC voltage of Q43 is blocked with D24.

b) RGB .

The selection of an RGB source simply means that the SYNC-EX signal is passed through D24 and feeds the Synchronisation board.



CTI - Luminance delay The (B-Y) and (R-Y) colour difference channels consist of a buffer amplifier at the input, a switching stage and an output amplifier. The switching stages, which are controlled by transient detection stages (differentiators) switch to a value that has been stored at the beginning of the transients. Two parallel storage stages are incorporated in which the color difference signals are stored during the transient time of the signal. After a time of about 600ns they are switched immediately to the outputs.

The other part of this IC consists of a DC adjustable delay for the luminance signal. The luminance is capacitively coupled to the clamping circuit. Gyrator delay cells provide a maximum delay of 810 ns including the additional delay of 45 ns via the *Fine Adj* pin 13 (when Q22 is saturated). As seen in the bloc diagram, three delay cells are switched with interstage switches controlled by the voltage at pin 15. The *DLsw* voltage is made from two GAL outputs and the transistors Q26 /Q28. This GAL receives the color standard information to install the correct delay for each standard. Two other GAL outputs are used for respectively the additional 45ns delay via the *FADJ* pin and a delay of 180 ns on the *Yout* by forward or reverse biasing Q33.

The initial level of it's emitter voltage is set by the DC output of pin 11. Q33 is conducting from the moment it's base voltage is 0.6V higher As seen in the bloc diagram, output 12 has an additional delay compared with the pin 11 output. As a conclusion, with 4 GAL outputs the required delay per standard is installed in an automatic way.

Decoder - Sharpness This sharpness control is designed to enhance or diminish sharpness. We foresee the possibility to diminish sharpness (= negative sharpness) in order to reduce eventual noise on the signal. To realize this we start from a signal with maximum negative sharpness and add then a variable "sharpness" signal.

This signal with maximum negative sharpness is formed at the node R62, R65 and R68.

This signal is composed of :

- the original one, via buffer Q20
- delayed by 180ns but opposite polarity, via Q23.
- delayed by 2x180ns via Q24.

Q16 and Q19 restore the amplitudes and adapt the signal to the impedance (1k) of the delay lines.

The "sharpness" signal is then applied as current source to the differential amplifier in IC12. The signal is split into the two collector resistors.

Pin 5 is decoupled by C61. This will prevent DC variations in the Y signal when adjusting the SHARPNESS.

At the node R73 / R78 the sharpness signal from the amplifier and the original negative sharpness signal are mixed and inverted/amplified with Q35.

The three outputs signals are now output via current drivers.


In case the decoder is not active (indicated by a low level on the +VID line), Q32 is not active, which causes the outputs to be disabled.

PARTS LISTING


SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R133072	HTSN Q TO220 24X 7 L 20	2	C 74	P210023	C# C0G MU 220P J 50 0805	1
30	R3661026	NUT D934 M 3 SS	2	C 75	P212018	C# TA 10M M 16 6032	1
40	B360862	SCR Z\$7985M 3 X 8 STZY	2	C 76	P210295	C# Y5V MU 1M Z 16 0805	1
100	R348110	WU JUMP 0,6 27,5	1	C 78	P210022	C# C0G MU 150P J 50 0805	1
C 10	P213508	C# EL RA 10M M 16 85	1	C 80	P212018	C# TA 10M M 16 6032	1
C 11	R117001	C T 7 -35P 160	1	C 96	P210213	C# Y5V MU 100N Z 25 0805	1
C 12	P212018	C# TA 10M M 16 6032	1	C 97	P210178	C# Y5V MU 1M Z 16 1206	1
C 13	R117001	C T 7 -35P 160	1	C 98	P213508	C# EL RA 10M M 16 85	1
C 14	P210161	C# C0G MU 120P J 50 1206	1	C 99	P210213	C# Y5V MU 100N Z 25 0805	1
C 15	K1114777	C EL RA 100M M 25E2 105	1	C101	P210213	C# Y5V MU 100N Z 25 0805	1
C 17	V1115119	C EL RA 47M M 25E2 105	1	C102	P210213	C# Y5V MU 100N Z 25 0805	1
C 21	P213508	C# EL RA 10M M 16 85	1	C104	P210041	C# X7R MU 10N K 50 0805	1
C 22	V111679	C EL BRA 10M M 25E2 105	1	C105	P210213	C# Y5V MU 100N Z 25 0805	1
C 23	P210025	C# C0G MU 470P J 50 0805	1	C108	P210213	C# Y5V MU 100N Z 25 0805	1
C 24	P210178	C# Y5V MU 1M Z 16 1206	1	C109	P210035	C# X7R MU 1N K 50 0805	1
C 25	P210213	C# Y5V MU 100N Z 25 0805	1	C110	P210213	C# Y5V MU 100N Z 25 0805	1
C 26	V1115319	C EL RA 10M M 50E2 105	1	C112	P210213	C# Y5V MU 100N Z 25 0805	1
C 27	V1115489	C EL RA 2M2M 50E2 105	1	C113	P210001	C# C0G MU 10P G 50 0805	1
C 28	P210041	C# X7R MU 10N K 50 0805	1	C114	P213508	C# EL RA 10M M 16 85	1
C 29	P210019	C# C0G MU 47P J 50 0805	1	C115	P213508	C# EL RA 10M M 16 85	1
C 30	P210019	C# C0G MU 47P J 50 0805	1	C116	P213508	C# EL RA 10M M 16 85	1
C 31	P210178	C# Y5V MU 1M Z 16 1206	1	C117	P213508	C# EL RA 10M M 16 85	1
C 32	P210035	C# X7R MU 1N K 50 0805	1	C119	P210217	C# C0G MU 82P J 50 0805	1
C 33	P210071	C# C0G MU 220P F 50 0805	1	C120	P210041	C# X7R MU 10N K 50 0805	1
C 34	P210178	C# Y5V MU 1M Z 16 1206	1	C121	P210178	C# Y5V MU 1M Z 16 1206	1
C 35	P210035	C# X7R MU 1N K 50 0805	1	C122	P210041	C# X7R MU 10N K 50 0805	1
C 36	P210071	C# C0G MU 220P F 50 0805	1	C123	P210023	C# C0G MU 220P J 50 0805	1
C 37	P212005	C# TA 47M M 10 7343	1	C124	P210041	C# X7R MU 10N K 50 0805	1
C 38	P210041	C# X7R MU 10N K 50 0805	1	C125	P210213	C# Y5V MU 100N Z 25 0805	1
C 39	P210005	C# X7R MU 39N K 50 1206	1	C126	P210213	C# Y5V MU 100N Z 25 0805	1
C 40	P210041	C# X7R MU 10N K 50 0805	1	C127	P213508	C# EL RA 10M M 16 85	1
C 41	P210005	C# X7R MU 39N K 50 1206	1	C128	P210295	C# Y5V MU 1M Z 16 0805	1
C 42	P210124	C# X7R MU 100N K 50 0805	1	C129	P213508	C# EL RA 10M M 16 85	1
C 43	P210130	C# C0G MU 2P2D 50 0805	1	C130	P210213	C# Y5V MU 100N Z 25 0805	1
C 44	P210295	C# Y5V MU 1M Z 16 0805	1	C131	P213508	C# EL RA 10M M 16 85	1
C 45	P210178	C# Y5V MU 1M Z 16 1206	1	C132	P210041	C# X7R MU 10N K 50 0805	1
C 46	P210178	C# Y5V MU 1M Z 16 1206	1	C133	P210213	C# Y5V MU 100N Z 25 0805	1
C 47	P210213	C# Y5V MU 100N Z 25 0805	1	C134	P213508	C# EL RA 10M M 16 85	1
C 48	P210095	C# X7R MU 330N M 50 1812	1	C213	P210213	C# Y5V MU 100N Z 25 0805	1
C 49	P210178	C# Y5V MU 1M Z 16 1206	1	C220	P210213	C# Y5V MU 100N Z 25 0805	1
C 50	P210130	C# C0G MU 2P2D 50 0805	1	C221	P210213	C# Y5V MU 100N Z 25 0805	1
C 51	P210111	C# X7R MU 47N K 50 0805	1	C222	P210213	C# Y5V MU 100N Z 25 0805	1
C 52	P210007	C# C0G MU 1N F 50 1206	1	C223	P210213	C# Y5V MU 100N Z 25 0805	1
C 53	P210124	C# X7R MU 100N K 50 0805	1	C224	P210213	C# Y5V MU 100N Z 25 0805	1
C 54	P210178	C# Y5V MU 1M Z 16 1206	1	C225	P210043	C# X7R MU 22N K 50 0805	1
C 55	P210041	C# X7R MU 10N K 50 0805	1	C240	P2100190	C# C0G MU 47P J 50 0805	1
C 56	P210178	C# Y5V MU 1M Z 16 1206	1	C310	P210117	C# C0G MU 47P G 50 1206	1
C 57	P210124	C# X7R MU 100N K 50 0805	1	C311	P210117	C# C0G MU 47P G 50 1206	1
C 58	P210035	C# X7R MU 1N K 50 0805	1	C312	P210132	C# C0G MU 3P3D 50 0805	1
C 59	P210041	C# X7R MU 10N K 50 0805	1	C320	P210117	C# C0G MU 47P G 50 1206	1
C 60	P210178	C# Y5V MU 1M Z 16 1206	1	C321	P210117	C# C0G MU 47P G 50 1206	1
C 61	P210041	C# X7R MU 10N K 50 0805	1	C322	P210132	C# C0G MU 3P3D 50 0805	1
C 62	P210178	C# Y5V MU 1M Z 16 1206	1	C323	P210070	C# C0G MU 680P J 50 0805	1
C 63	P210178	C# Y5V MU 1M Z 16 1206	1	C330	P210117	C# C0G MU 47P G 50 1206	1
C 64	P212018	C# TA 10M M 16 6032	1	C331	P210117	C# C0G MU 47P G 50 1206	1
C 65	P210021	C# C0G MU 100P J 50 0805	1	C332	P210132	C# C0G MU 3P3D 50 0805	1
C 66	P210021	C# C0G MU 100P J 50 0805	1	C333	P210070	C# C0G MU 680P J 50 0805	1
C 67	P212018	C# TA 10M M 16 6032	1	D 10	P234099	D#4148 RDMMELF	1
C 68	P210024	C# C0G MU 330P J 50 0805	1	D 11	P234099	D#4148 RDMMELF	1
C 69	P210213	C# Y5V MU 100N Z 25 0805	1	D 14	P234205	D#BAT54C SCH SOT23	1
C 70	P210023	C# C0G MU 220P J 50 0805	1	D 19	P234205	D#BAT54C SCH SOT23	1
C 71	P212018	C# TA 10M M 16 6032	1	D 20	P234205	D#BAT54C SCH SOT23	1
C 72	P212015	C# TA 33M K 16 7343	1	D 23	P234205	D#BAT54C SCH SOT23	1
C 73	P210213	C# Y5V MU 100N Z 25 0805	1	D 24	P234205	D#BAT54C SCH SOT23	1

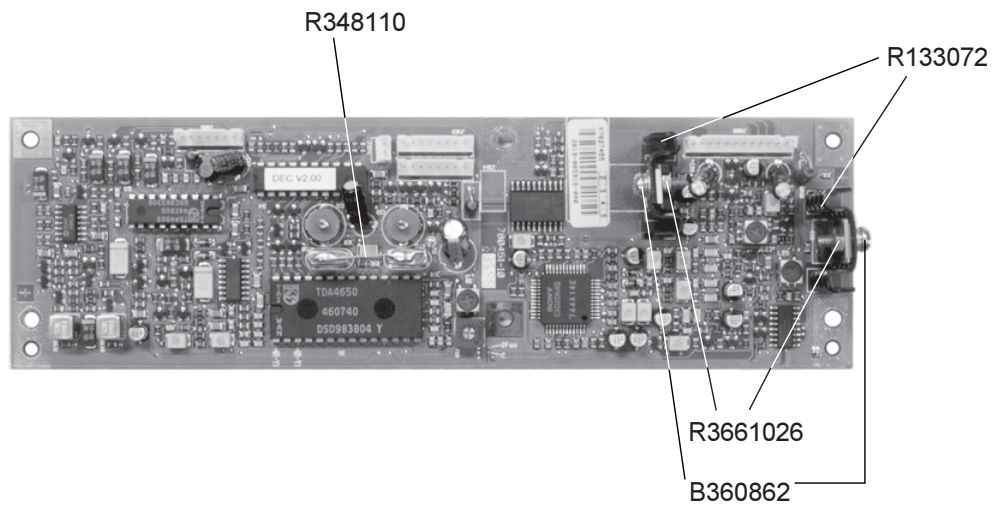
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D 25	P234047	D#BAV99 SER SOT23	1	Q 34	P232004	Q#BC849C N SS SOT23	1
D 26	P234047	D#BAV99 SER SOT23	1	Q 35	P232004	Q#BC849C N SS SOT23	1
D113	P234099	D#4148 RDMMELF	1	Q 36	P232004	Q#BC849C N SS SOT23	1
D114	P234099	D#4148 RDMMELF	1	Q 40	P232004	Q#BC849C N SS SOT23	1
DL10	V306541	DL 180NS 1K	1	Q 41	P232004	Q#BC849C N SS SOT23	1
DL11	V306541	DL 180NS 1K	1	Q 42	P232004	Q#BC849C N SS SOT23	1
I 10	P231329	U#4665 TDA SO16 P	1	Q 43	P232101	Q#BC859C P SS SOT23	1
I 11	R132828	U 4650 TDA DIP28 P	1	Q 44	P232004	Q#BC849C N SS SOT23	1
I 12	P231013	U#3046 CA SO14 I	1	Q 45	P232004	Q#BC849C N SS SOT23	1
I 13	R132773	U 4565 TDA DIP18 P	1	Q 46	P232004	Q#BC849C N SS SOT23	1
I 14	R32858600	US G808S DEC 200	1	Q 47	P232004	Q#BC849C N SS SOT23	1
I 16	P231830	U#2064 CXD QFP48 P	1	Q 48	P232004	Q#BC849C N SS SOT23	1
I 17	P230936	U#8444A TDA SOL20 P	1	Q 49	P232101	Q#BC859C P SS SOT23	1
I 18	P230064	U#4052 SO16 I	1	Q 50	P232004	Q#BC849C N SS SOT23	1
I 19	R134001	U 7805 TO220 P	1	Q 60	P232101	Q#BC859C P SS SOT23	1
I 20	R134002	U 7812 TO220 P	1	Q240	P232004	Q#BC849C N SS SOT23	1
J313	R313928	J C T H MBT P 8 M2SN WH	1	R 10	P201095	R# CE H 2K2 F 0W12 0805	1
J314	R313928	J C T H MBT P 8 M2SN WH	1	R 11	P201095	R# CE H 2K2 F 0W12 0805	1
J325	R313922	J C T H MBT P 2 M2SN WH	1	R 12	P201135	R# CE H100K F 0W12 0805	1
J800	R313932	J C T H MBT P12 M2SN WH	1	R 13	P201063	R# CE H100E F 0W12 0805	1
J801	R313927	J C T H MBT P 7 M2SN WH	1	R 14	P201125	R# CE H 39K F 0W12 0805	1
L 10	P250583	CH# 10 UH L1812	1	R 15	P201015	R# CE H 1E F 0W12 0805	1
L 11	P250583	CH# 10 UH L1812	1	R 16	P201135	R# CE H100K F 0W12 0805	1
L 12	P250586	CH# 10 UH TOKO614	1	R 17	P201135	R# CE H100K F 0W12 0805	1
L 13	R3061341	CH AX NS 100 UH	1	R 18	P201143	R# CE H220K F 0W12 0805	1
L 14	R3061341	CH AX NS 100 UH	1	R 19	P201095	R# CE H 2K2 F 0W12 0805	1
L 15	P250583	CH# 10 UH L1812	1	R 20	P201143	R# CE H220K F 0W12 0805	1
L 18	P250583	CH# 10 UH L1812	1	R 21	P201095	R# CE H 2K2 F 0W12 0805	1
L 19	P250583	CH# 10 UH L1812	1	R 22	P201095	R# CE H 2K2 F 0W12 0805	1
L 20	P250588	CH# 15 UH TOKO614	1	R 23	P201095	R# CE H 2K2 F 0W12 0805	1
L 21	P250583	CH# 10 UH L1812	1	R 24	P201087	R# CE H 1K F 0W12 0805	1
L 22	P250583	CH# 10 UH L1812	1	R 25	P201087	R# CE H 1K F 0W12 0805	1
L 23	P250587	CH# 3.3 UH TOKO614	1	R 26	P201087	R# CE H 1K F 0W12 0805	1
L310	P250511	CH# 22 UH L1812	1	R 27	P201087	R# CE H 1K F 0W12 0805	1
L320	P250511	CH# 22 UH L1812	1	R 29	P201135	R# CE H100K F 0W12 0805	1
L330	P250511	CH# 22 UH L1812	1	R 30	P201095	R# CE H 2K2 F 0W12 0805	1
P 10	R107005	R TCE H500E K 0W5 S 7TS	1	R 31	P201095	R# CE H 2K2 F 0W12 0805	1
PC	R780451	PCB*701DEC_COMB	1	R 32	P201079	R# CE H470E F 0W12 0805	1
Q 10	P232004	Q#BC849C N SS SOT23	1	R 33	P201063	R# CE H100E F 0W12 0805	1
Q 11	P232004	Q#BC849C N SS SOT23	1	R 34	P201087	R# CE H 1K F 0W12 0805	1
Q 12	P232004	Q#BC849C N SS SOT23	1	R 35	P201121	R# CE H 27K F 0W12 0805	1
Q 13	P232004	Q#BC849C N SS SOT23	1	R 36	P201087	R# CE H 1K F 0W12 0805	1
Q 14	P232101	Q#BC859C P SS SOT23	1	R 37	P201111	R# CE H 10K F 0W12 0805	1
Q 15	P232101	Q#BC859C P SS SOT23	1	R 38	P201095	R# CE H 2K2 F 0W12 0805	1
Q 16	P232101	Q#BC859C P SS SOT23	1	R 39	P201095	R# CE H 2K2 F 0W12 0805	1
Q 17	P232004	Q#BC849C N SS SOT23	1	R 40	P201079	R# CE H470E F 0W12 0805	1
Q 18	P232004	Q#BC849C N SS SOT23	1	R 41	P201039	R# CE H 10E F 0W12 0805	1
Q 19	P232101	Q#BC859C P SS SOT23	1	R 42	P201099	R# CE H 3K3 F 0W12 0805	1
Q 20	P232004	Q#BC849C N SS SOT23	1	R 43	P201075	R# CE H330E F 0W12 0805	1
Q 21	P232004	Q#BC849C N SS SOT23	1	R 44	P201135	R# CE H100K F 0W12 0805	1
Q 22	P232004	Q#BC849C N SS SOT23	1	R 45	P201015	R# CE H 1E F 0W12 0805	1
Q 23	P232101	Q#BC859C P SS SOT23	1	R 46	P201075	R# CE H330E F 0W12 0805	1
Q 24	P232101	Q#BC859C P SS SOT23	1	R 47	P201121	R# CE H 27K F 0W12 0805	1
Q 25	P232101	Q#BC859C P SS SOT23	1	R 48	P201111	R# CE H 10K F 0W12 0805	1
Q 26	P232004	Q#BC849C N SS SOT23	1	R 49	P201015	R# CE H 1E F 0W12 0805	1
Q 27	P232101	Q#BC859C P SS SOT23	1	R 50	P201115	R# CE H 15K F 0W12 0805	1
Q 28	P232004	Q#BC849C N SS SOT23	1	R 51	P201111	R# CE H 10K F 0W12 0805	1
Q 29	P232101	Q#BC859C P SS SOT23	1	R 52	P201079	R# CE H470E F 0W12 0805	1
Q 30	P232101	Q#BC859C P SS SOT23	1	R 53	P201119	R# CE H 22K F 0W12 0805	1
Q 32	P232004	Q#BC849C N SS SOT23	1	R 54	P201135	R# CE H100K F 0W12 0805	1
Q 33	P232004	Q#BC849C N SS SOT23	1	R 55	P201087	R# CE H 1K F 0W12 0805	1
				R 56	P201075	R# CE H330E F 0W12 0805	1
				R 57	P201075	R# CE H330E F 0W12 0805	1
				R 58	P201119	R# CE H 22K F 0W12 0805	1
				R 59	P201119	R# CE H 22K F 0W12 0805	1
				R 60	P201099	R# CE H 3K3 F 0W12 0805	1

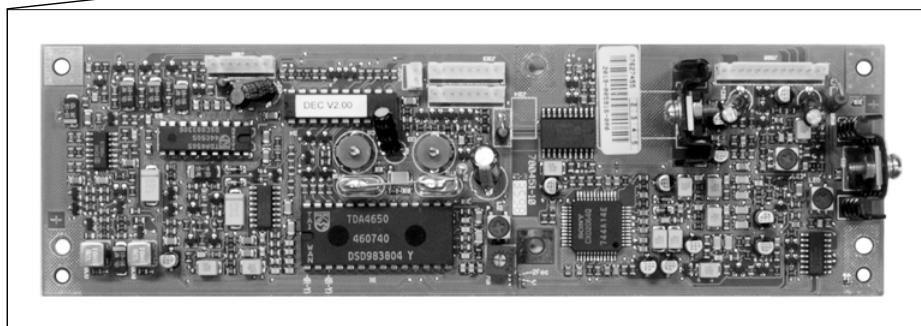
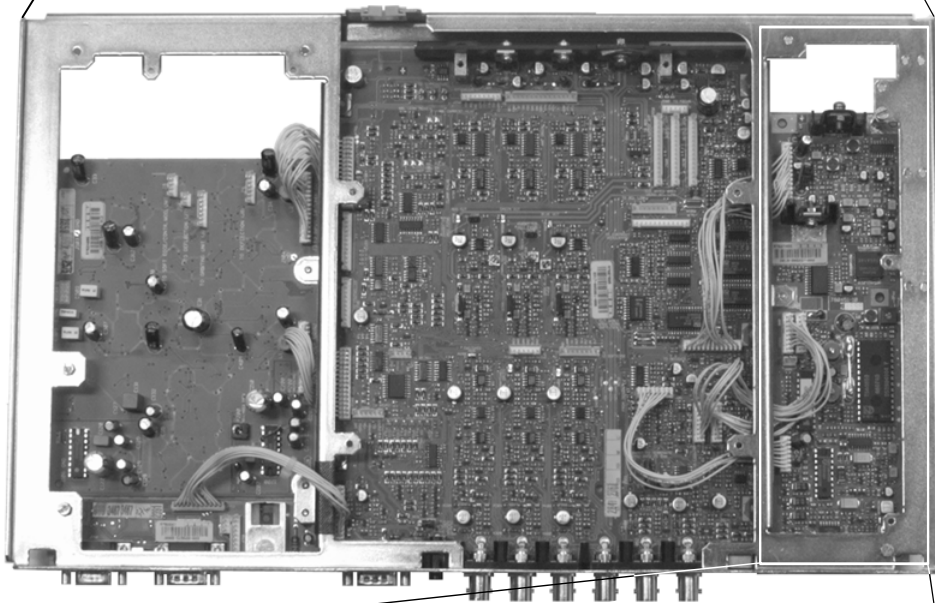
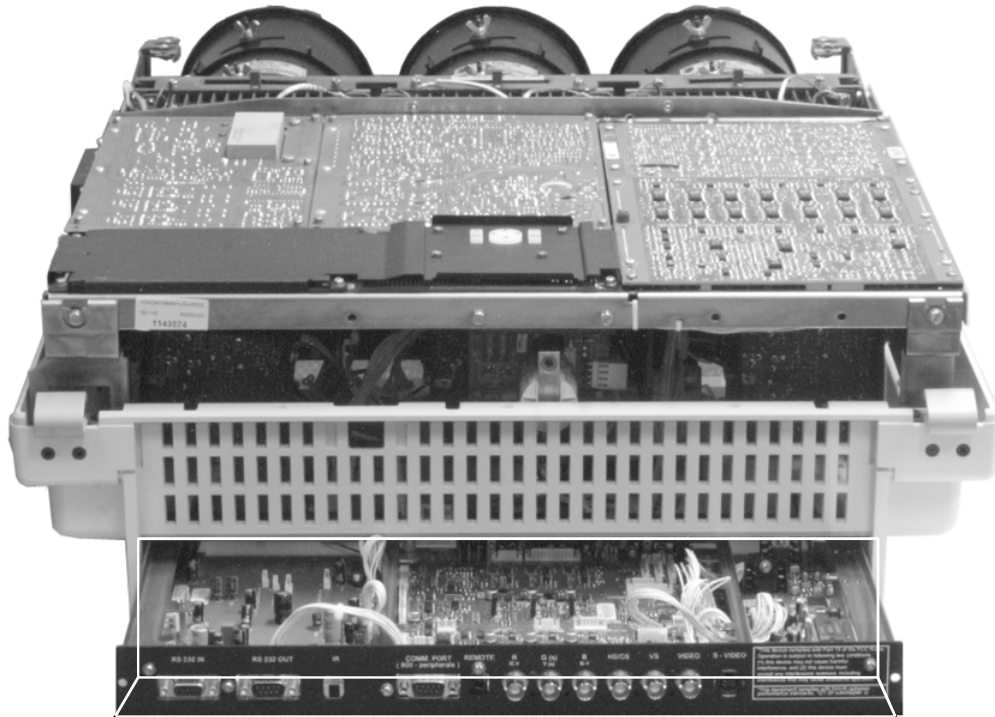
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 61	P201087	R# CE H 1K F 0W12 0805	1	R161	P201129	R# CE H 56K F 0W12 0805	1
R 62	P201087	R# CE H 1K F 0W12 0805	1	R162	P201130	R# CE H 62K F 0W12 0805	1
R 63	P201099	R# CE H 3K3 F 0W12 0805	1	R163	P201063	R# CE H100E F 0W12 0805	1
R 64	P201099	R# CE H 3K3 F 0W12 0805	1	R164	P201135	R# CE H100K F 0W12 0805	1
R 65	P201087	R# CE H 1K F 0W12 0805	1	R165	P201135	R# CE H100K F 0W12 0805	1
R 66	P201083	R# CE H680E F 0W12 0805	1	R166	P201063	R# CE H100E F 0W12 0805	1
R 67	P201099	R# CE H 3K3 F 0W12 0805	1	R167	P201015	R# CE H 1E F 0W12 0805	1
R 68	P201087	R# CE H 1K F 0W12 0805	1	R168	P201015	R# CE H 1E F 0W12 0805	1
R 69	P201087	R# CE H 1K F 0W12 0805	1	R169	P201081	R# CE H560E F 0W12 0805	1
R 70	P201111	R# CE H 10K F 0W12 0805	1	R170	P201081	R# CE H560E F 0W12 0805	1
R 72	P201159	R# CE H 1M F 0W12 0805	1	R172	P201015	R# CE H 1E F 0W12 0805	1
R 73	P201087	R# CE H 1K F 0W12 0805	1	R173	P201015	R# CE H 1E F 0W12 0805	1
R 74	P201089	R# CE H 1K2 F 0W12 0805	1	R174	P201060	R# CE H 75E F 0W12 0805	1
R 76	P201125	R# CE H 39K F 0W12 0805	1	R175	P201015	R# CE H 1E F 0W12 0805	1
R 77	P201111	R# CE H 10K F 0W12 0805	1	R176	P201121	R# CE H 27K F 0W12 0805	1
R 78	P201087	R# CE H 1K F 0W12 0805	1	R177	P201127	R# CE H 47K F 0W12 0805	1
R 79	P201129	R# CE H 56K F 0W12 0805	1	R178	P201095	R# CE H 2K2 F 0W12 0805	1
R 80	P201127	R# CE H 47K F 0W12 0805	1	R179	P201067	R# CE H150E F 0W12 0805	1
R 81	P201119	R# CE H 22K F 0W12 0805	1	R180	P201135	R# CE H100K F 0W12 0805	1
R 82	P201111	R# CE H 10K F 0W12 0805	1	R181	P201083	R# CE H680E F 0W12 0805	1
R 83	P201063	R# CE H100E F 0W12 0805	1	R182	P201095	R# CE H 2K2 F 0W12 0805	1
R 84	P201111	R# CE H 10K F 0W12 0805	1	R183	P201085	R# CE H820E F 0W12 0805	1
R 85	P201129	R# CE H 56K F 0W12 0805	1	R184	P201039	R# CE H 10E F 0W12 0805	1
R 86	P201111	R# CE H 10K F 0W12 0805	1	R185	P201063	R# CE H100E F 0W12 0805	1
R 87	P201119	R# CE H 22K F 0W12 0805	1	R186	P201127	R# CE H 47K F 0W12 0805	1
R 88	P201121	R# CE H 27K F 0W12 0805	1	R187	P201091	R# CE H 1K5 F 0W12 0805	1
R 89	P201063	R# CE H100E F 0W12 0805	1	R188	P201015	R# CE H 1E F 0W12 0805	1
R 90	P201129	R# CE H 56K F 0W12 0805	1	R189	P201125	R# CE H 39K F 0W12 0805	1
R 91	P201015	R# CE H 1E F 0W12 0805	1	R190	P201103	R# CE H 4K7 F 0W12 0805	1
R 92	P201119	R# CE H 22K F 0W12 0805	1	R191	P201095	R# CE H 2K2 F 0W12 0805	1
R 93	P201063	R# CE H100E F 0W12 0805	1	R192	P201115	R# CE H 15K F 0W12 0805	1
R 94	P201063	R# CE H100E F 0W12 0805	1	R193	P201055	R# CE H 47E F 0W12 0805	1
R 95	P201087	R# CE H 1K F 0W12 0805	1	R194	P201095	R# CE H 2K2 F 0W12 0805	1
R 97	P201063	R# CE H100E F 0W12 0805	1	R195	P201127	R# CE H 47K F 0W12 0805	1
R 98	P201091	R# CE H 1K5 F 0W12 0805	1	R196	P201135	R# CE H100K F 0W12 0805	1
R101	P201135	R# CE H100K F 0W12 0805	1	R197	P201120	R# CE H 24K F 0W12 0805	1
R102	P201123	R# CE H 33K F 0W12 0805	1	R198	P201055	R# CE H 47E F 0W12 0805	1
R103	P201039	R# CE H 10E F 0W12 0805	1	R199	P201095	R# CE H 2K2 F 0W12 0805	1
R104	P201087	R# CE H 1K F 0W12 0805	1	R200	P201015	R# CE H 1E F 0W12 0805	1
R106	P201111	R# CE H 10K F 0W12 0805	1	R201	P201135	R# CE H100K F 0W12 0805	1
R107	P201095	R# CE H 2K2 F 0W12 0805	1	R202	P201135	R# CE H100K F 0W12 0805	1
R108	P201111	R# CE H 10K F 0W12 0805	1	R203	P201125	R# CE H 39K F 0W12 0805	1
R110	P201039	R# CE H 10E F 0W12 0805	1	R204	P201087	R# CE H 1K F 0W12 0805	1
R111	P201070	R# CE H200E F 0W12 0805	1	R205	P201087	R# CE H 1K F 0W12 0805	1
R112	P201095	R# CE H 2K2 F 0W12 0805	1	R206	P201101	R# CE H 3K9 F 0W12 0805	1
R113	P201087	R# CE H 1K F 0W12 0805	1	R207	P201039	R# CE H 10E F 0W12 0805	1
R114	P201115	R# CE H 15K F 0W12 0805	1	R208	P201067	R# CE H150E F 0W12 0805	1
R115	P201115	R# CE H 15K F 0W12 0805	1	R209	P201081	R# CE H560E F 0W12 0805	1
R116	P201111	R# CE H 10K F 0W12 0805	1	R210	P201091	R# CE H 1K5 F 0W12 0805	1
R117	P201111	R# CE H 10K F 0W12 0805	1	R211	P201079	R# CE H470E F 0W12 0805	1
R118	P201095	R# CE H 2K2 F 0W12 0805	1	R220	P201099	R# CE H 3K3 F 0W12 0805	1
R119	P201087	R# CE H 1K F 0W12 0805	1	R221	P201099	R# CE H 3K3 F 0W12 0805	1
R120	P201111	R# CE H 10K F 0W12 0805	1	R222	P201095	R# CE H 2K2 F 0W12 0805	1
R121	P201111	R# CE H 10K F 0W12 0805	1	R223	P201129	R# CE H 56K F 0W12 0805	1
R122	P201111	R# CE H 10K F 0W12 0805	1	R224	P201081	R# CE H560E F 0W12 0805	1
R140	P201078	R# CE H430E F 0W12 0805	1	R225	P201111	R# CE H 10K F 0W12 0805	1
R141	P201073	R# CE H270E F 0W12 0805	1	R226	P201111	R# CE H 10K F 0W12 0805	1
R142	P201111	R# CE H 10K F 0W12 0805	1	R227	P201115	R# CE H 15K F 0W12 0805	1
R143	P201053	R# CE H 39E F 0W12 0805	1	R228	P201115	R# CE H 15K F 0W12 0805	1
R144	P201071	R# CE H220E F 0W12 0805	1	R229	P201111	R# CE H 10K F 0W12 0805	1
R145	P201091	R# CE H 1K5 F 0W12 0805	1	R231	P201115	R# CE H 15K F 0W12 0805	1
R146	P201119	R# CE H 22K F 0W12 0805	1	R232	P201115	R# CE H 15K F 0W12 0805	1
R148	P201015	R# CE H 1E F 0W12 0805	1	R233	P201115	R# CE H 15K F 0W12 0805	1
R152	P201091	R# CE H 1K5 F 0W12 0805	1	R235	P201115	R# CE H 15K F 0W12 0805	1
R154	P201039	R# CE H 10E F 0W12 0805	1	R240	P201159	R# CE H 1M F 0W12 0805	1
R159	P201015	R# CE H 1E F 0W12 0805	1	R241	P201087	R# CE H 1K F 0W12 0805	1
R160	P201015	R# CE H 1E F 0W12 0805	1	R250	P201354	R# CE H 0E 0W12 0805	1

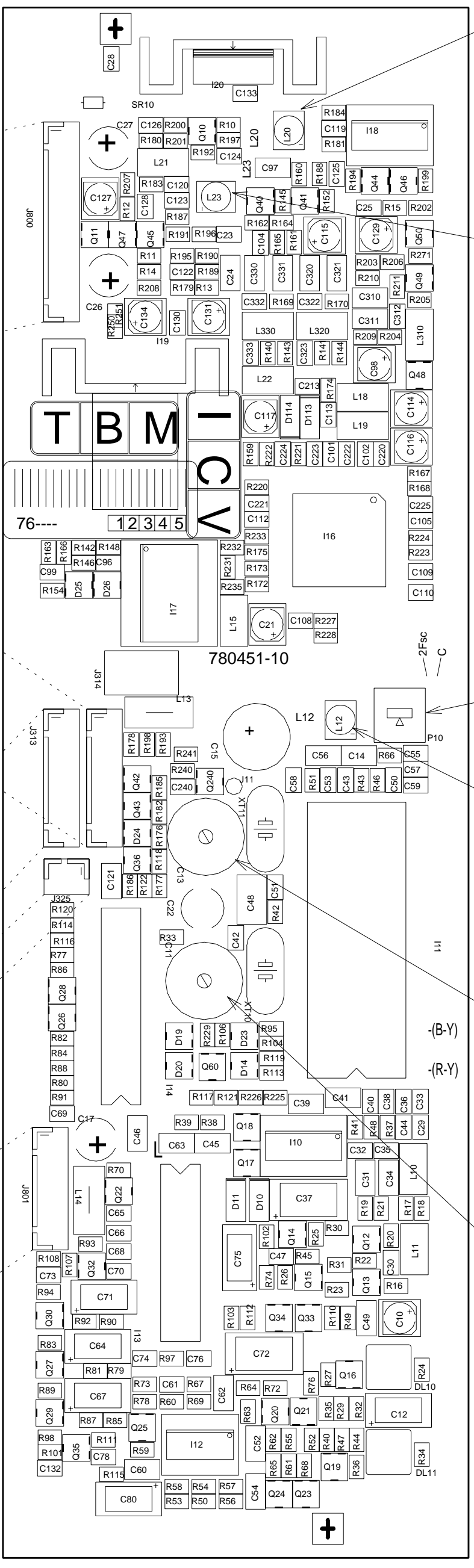
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R271	P201111	R# CE H 10K F 0W12 0805	1
SR10	R1012009	R CFFH 1E J 0W5 	1
XT10	R306816	X 8M867238 20 HC49	1
XT11	R306849	X 7M159090 20 HC49	1
	R7627455P	UN *808S DEC COMB_F /2	1

PRODUCT SAFETY NOTICE

Components identified by  have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.







SECAM CHROMA
REJECTION

ADJUSTMENT
SECAM BELL
FILTER

SECAM
REFERENCE
(R-Y)

SECAM
REFERENCE
(B-Y)

REFERENCE
OSCILLATOR
NTSC 3.58

REFERENCE
OSCILLATOR
PAL &
NTSC 4.43

FROM
INPUT MODULE

TO INPUT
MODULE

FROM INPUT
MODULE

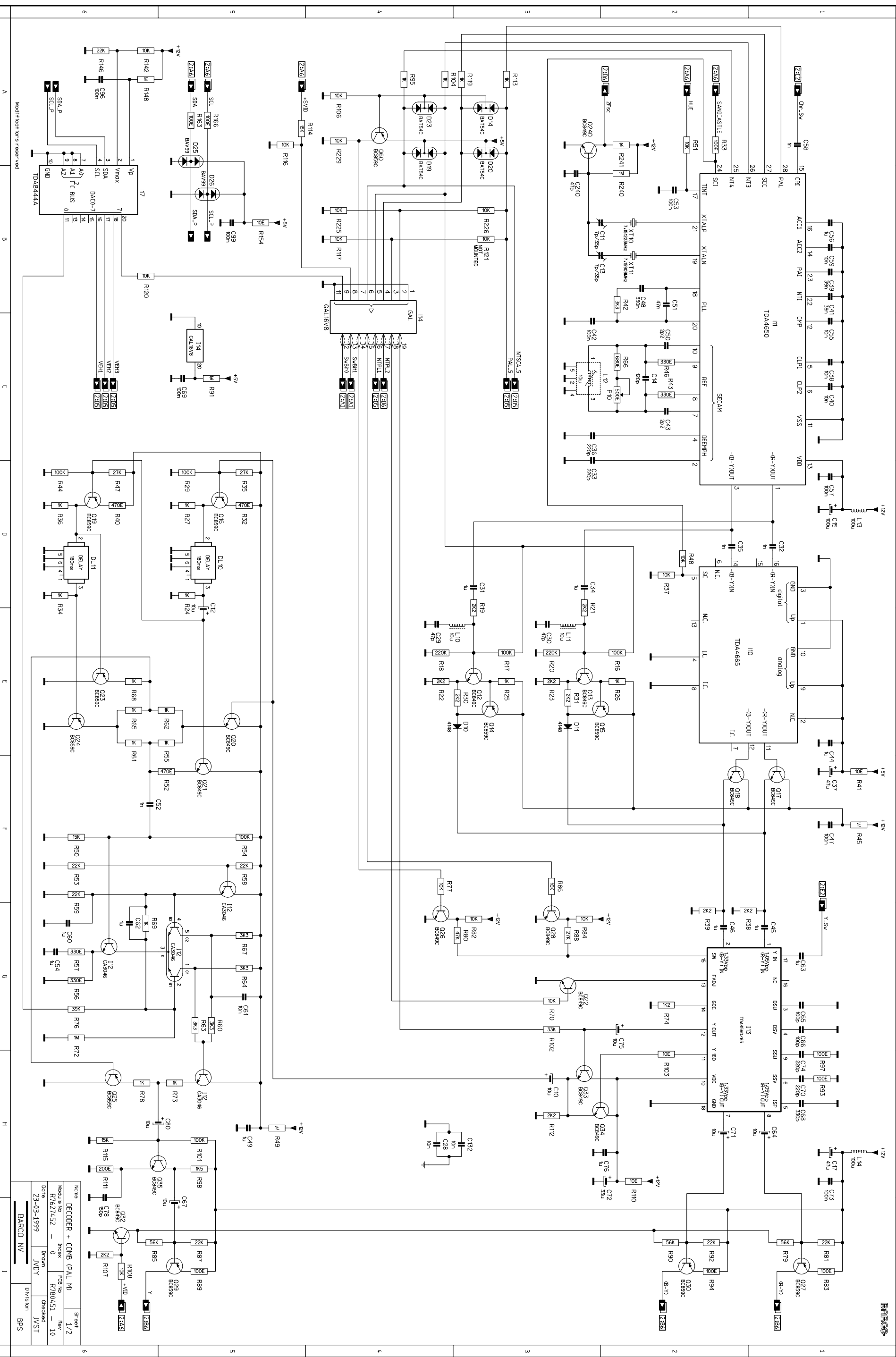
SYNC
FOR D2100 &
INTERFACES
ONLY

TO INPUT
MODULE

COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.														
C10	H2	C39	G2	C64	H3	C110	D2	C221	D3	D25	D3	L10	G2	Q17	G3	Q46	B2	R27	H2	R53	I3	R80	G4	R110	H2	R161	B2	R187	B3	R220	C3
C11	H2	C40	G2	C65	H3	C111	D2	C222	D3	D26	D3	L11	G2	Q18	G3	Q47	B2	R28	H2	R54	I3	R81	H3	R111	H2	R162	B2	R188	B2	R221	C2
C12	H2	C41	G2	C66	H3	C112	D2	C223	D3	D27	D3	L12	G2	Q19	H2	Q48	B2	R29	H2	R55	I3	R82	H3	R112	H2	R163	B2	R189	B2	R222	C2
C13	H2	C42	G2	C67	H3	C113	D2	C224	D3	D28	D3	L13	G2	Q20	H2	Q49	B2	R30	H2	R56	I3	R83	H3	R113	H2	R164	B2	R190	B2	R223	C2
C14	H2	C43	G2	C68	H3	C114	D2	C225	D3	D29	D3	L14	G2	Q21	H2	Q50	B2	R31	H2	R57	I3	R84	H3	R114	H2	R165	B2	R191	B2	R224	C2
C15	H2	C44	G2	C69	H3	C115	D2	C226	D3	D30	D3	L15	G2	Q22	G3	Q51	B2	R32	H2	R58	I3	R85	H3	R115	H2	R166	B2	R192	B2	R225	C2
C16	H2	C45	G2	C70	H3	C116	D2	C227	D3	D31	D3	L16	G2	Q23	I2	Q52	B2	R33	H2	R59	I3	R86	H3	R116	H2	R167	B2	R193	B2	R226	C2
C17	H2	C46	G2	C71	H3	C117	D2	C228	D3	D32	D3	L17	G2	Q24	I2	Q53	B2	R34	H2	R60	I3	R87	H3	R117	H2	R168	B2	R194	B2	R227	C2
C18	H2	C47	G2	C72	H3	C118	D2	C229	D3	D33	D3	L18	G2	Q25	I2	Q54	B2	R35	H2	R61	I3	R88	H3	R118	H2	R169	B2	R195	B2	R228	C2
C19	H2	C48	G2	C73	H3	C119	D2	C230	D3	D34	D3	L19	G2	Q26	H4	Q55	B2	R36	H2	R62	I3	R89	H3	R119	H2	R170	B2	R196	B2	R229	C2
C20	H2	C49	G2	C74	H3	C120	D2	C231	D3	D35	D3	L20	G2	Q27	H4	Q56	B2	R37	H2	R63	I3	R90	H3	R120	H2	R171	B2	R197	B2	R230	C2
C21	H2	C50	G2	C75	H3	C121	D2	C232	D3	D36	D3	L21	G2	Q28	H4	Q57	B2	R38	H2	R64	I3	R91	H3	R121	H2	R172	B2	R198	B2	R231	C2
C22	H2	C51	G2	C76	H3	C122	D2	C233	D3	D37	D3	L22	G2	Q29	H4	Q58	B2	R39	H2	R65	I3	R92	H3	R122	H2	R173	B2	R199	B2	R232	C2
C23	H2	C52	G2	C77	H3	C123	D2	C234	D3	D38	D3	L23	G2	Q30	H4	Q59	B2	R40	H2	R66	I3	R93	H3	R123	H2	R174	B2	R200	B2	R233	C2
C24	H2	C53	G2	C78	H3	C124	B2	C235	D3	D39	D3	L24	G2	Q31	H4	Q60	B2	R41	H2	R67	I3	R94	H3	R124	H2	R175	B2	R201	B2	R234	C2
C25	H2	C54	G2	C79	H3	C125	B2	C236	D3	D40	D3	L25	G2	Q32	H4	Q61	B2	R42	H2	R68	I3	R95	H3	R125	H2	R176	B2	R202	B2	R235	C2
C26	H2	C55	G2	C80	H3	C126	B2	C237	D3	D41	D3	L26	G2	Q33	H4	Q62	B2	R43	H2	R69	I3	R96	H3	R126	H2	R177	B2	R203	B2	R236	C2
C27	H2	C56	G2	C81	H3	C127	B2	C238	D3	D42	D3	L27	G2	Q34	H4	Q63	B2	R44	H2	R70	I3	R97	H3	R127	H2	R178	B2	R204	B2	R237	C2
C28	H2	C57	G2	C82	H3	C128	B2	C239	D3	D43	D3	L28	G2	Q35	H4	Q64	B2	R45	H2	R71	I3	R98	H3	R128	H2	R179	B2	R205	B2	R238	C2
C29	H2	C58	G2	C83	H3	C129	B2	C240	D3	D44	D3	L29	G2	Q36	H4	Q65	B2	R46	H2	R72	I3	R99	H3	R129	H2	R180	B2	R206	B2	R239	C2
C30	H2	C59	G2	C84	H3	C130	B2	C241	D3	D45	D3	L30	G2	Q37	H4	Q66	B2	R47	H2	R73	I3	R100	H3	R130	H2	R181	B2	R207	B2	R240	C2
C31	H2	C60	G2	C85	H3	C131	B2	C242	D3	D46	D3	L31	G2	Q38	H4	Q67	B2	R48	H2	R74	I3	R101	H3	R131	H2	R182	B2	R208	B2	R241	C2
C32	H2	C61	G2	C86	H3	C132	B2	C243	D3	D47	D3	L32	G2	Q39	H4	Q68	B2	R49	H2	R75	I3	R102	H3	R132	H2	R183	B2	R209	B2	R242	C2
C33	H2	C62	G2	C87	H3	C133	B2	C244	D3	D48	D3	L33	G2	Q40	H4	Q69	B2	R50	H2	R76	I3	R103	H3	R133	H2	R184	B2	R210	B2	R243	C2
C34	H2	C63	G2	C88	H3	C134	B2	C245	D3	D49	D3	L34	G2	Q41	H4	Q70	B2	R51	H2	R77	I3	R104	H3	R134	H2	R185	B2	R211	B2	R244	C2
C35	H2	C64	G2	C89	H3	C135	B2	C246	D3	D50	D3	L35	G2	Q42	H4	Q71	B2	R52	H2	R78	I3	R105	H3	R135	H2	R186	B2	R212	B2	R245	C2
C36	H2	C65	G2	C90	H3	C136	B2	C247	D3	D51	D3	L36	G2	Q43	H4	Q72	B2	R53	H2	R79	I3	R106	H3	R136	H2	R187	B2	R213	B2	R246	C2
C37	H2	C66	G2	C91	H3	C137	B2	C248	D3	D52	D3	L37	G2	Q44	H4	Q73	B2	R54	H2	R80	I3	R107	H3	R137	H2	R188	B2	R214	B2	R247	C2
C38	H2	C67	G2	C92	H3	C138	B2	C249	D3	D53	D3	L38	G2	Q45	H4	Q74	B2	R55	H2	R81	I3	R108	H3	R138	H2	R189	B2	R215	B2	R248	C2

Modifications reserved

Name	DECODER + COMB FILTER		PCB No.	R790u51		Sheet	1 / 1	
Module No.	0		Index	R790u51		Rev	10	
Date	23-03-1999	Drawn	JVDY	Checked	JVST			
BARCO PROJECTION SYSTEMS								

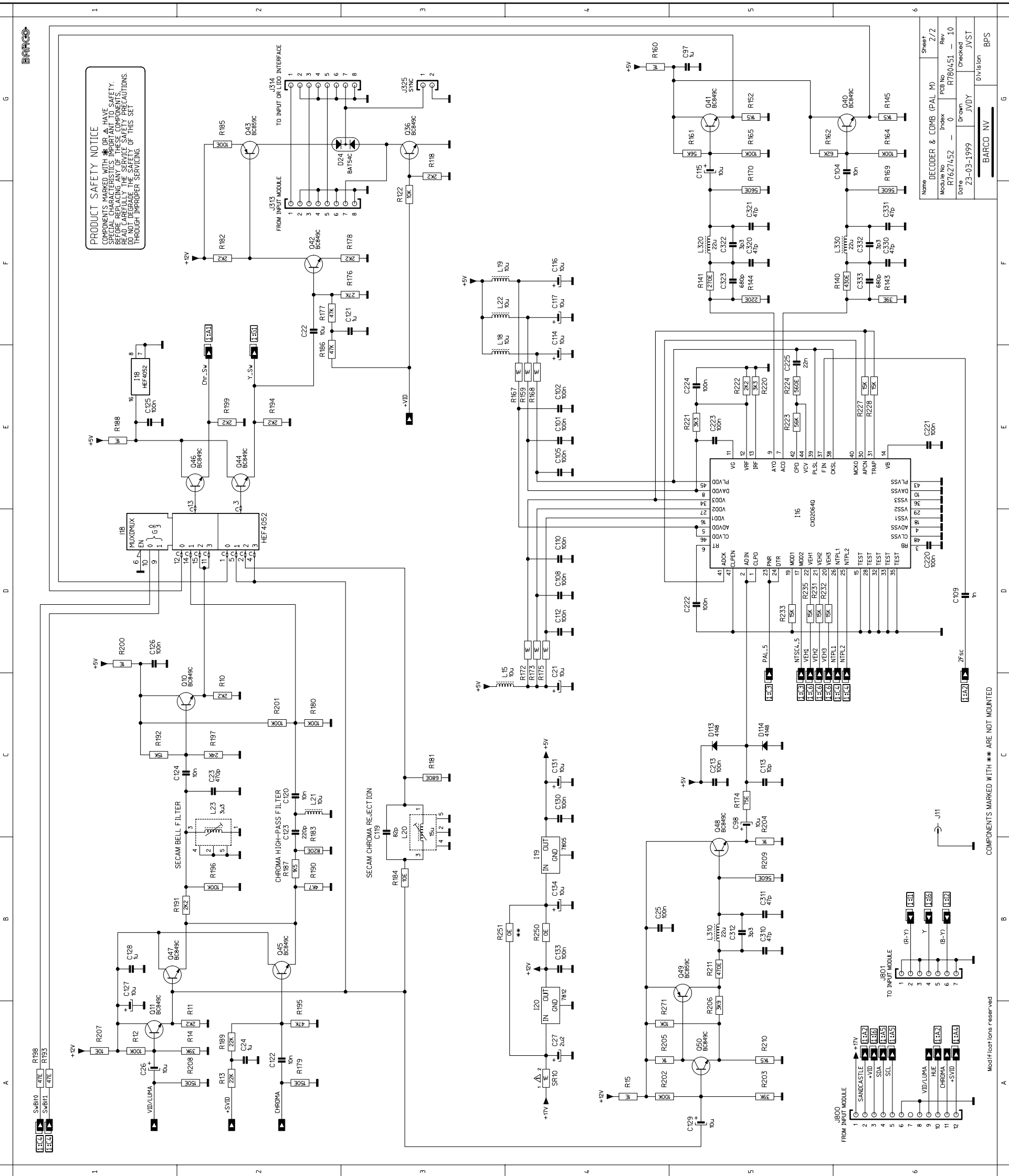


Modification: none reserved

Name	DECODER + COMB (PAL M)	Sheet	1/2
Module No.	R76Z1/52	Index	0
Date	Z3-03-1999	Drawn	JVDV
		Checked	JVST

Barcode NV	Division	BPS

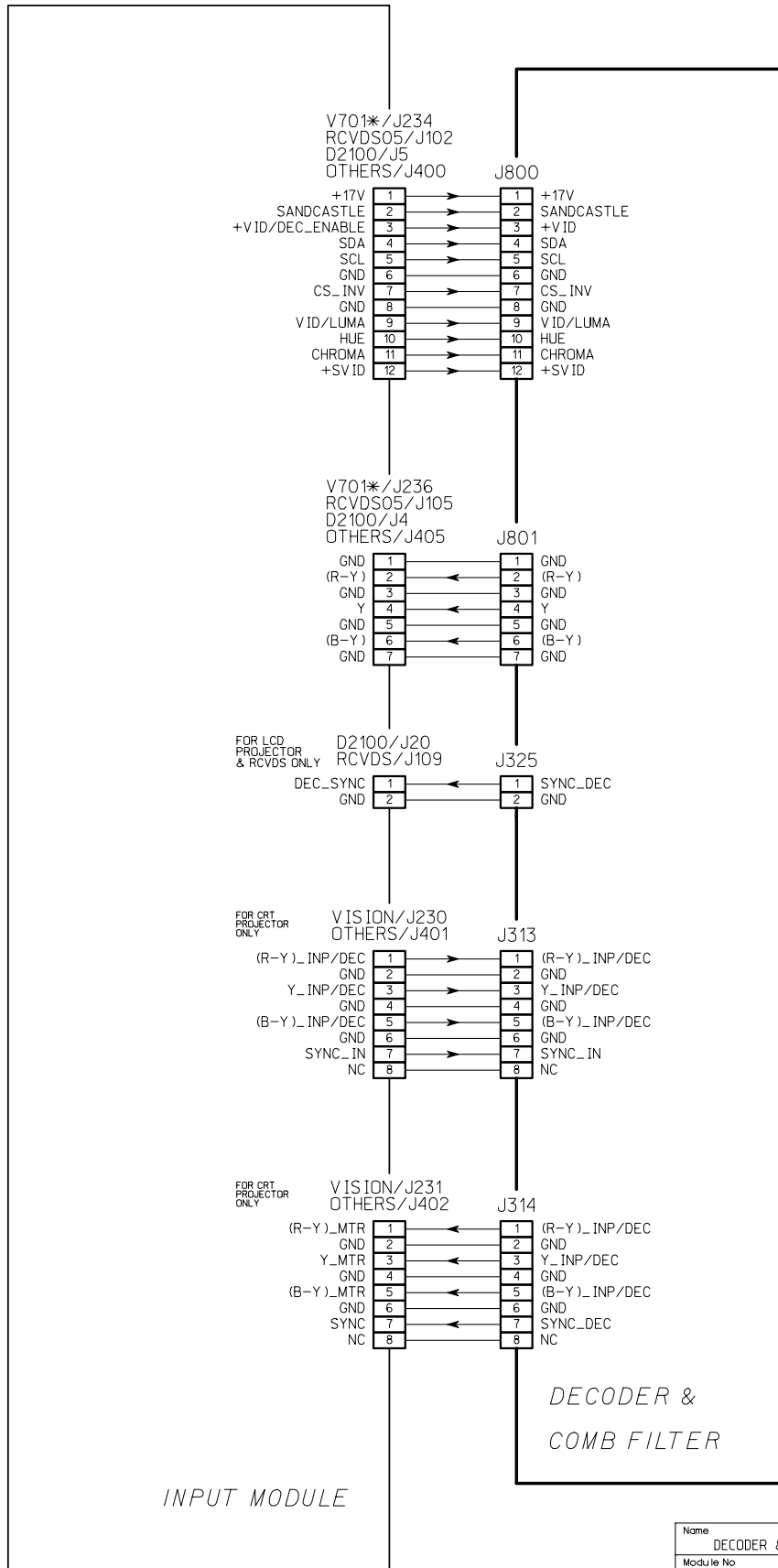
COMP.	LOC. SH.	COMP.	LOC. SH.	COMP.	LOC. SH.
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



PRODUCT SAFETY NOTICE
 COMPONENTS MARKED WITH OR A HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

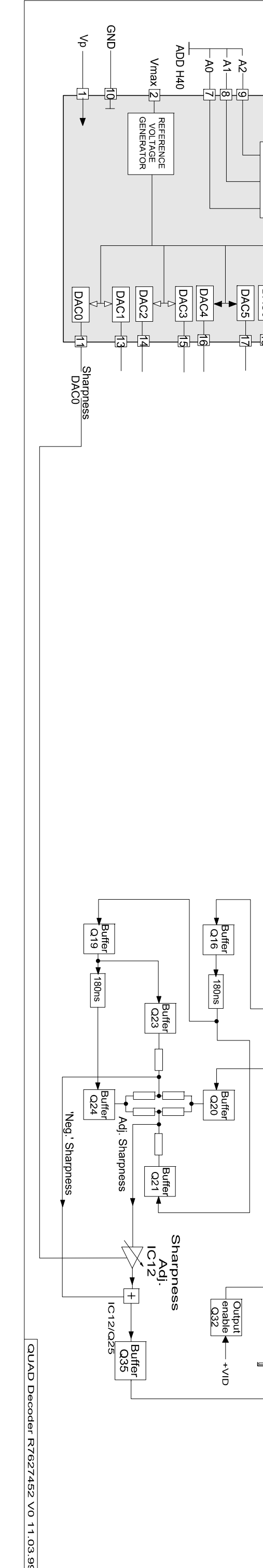
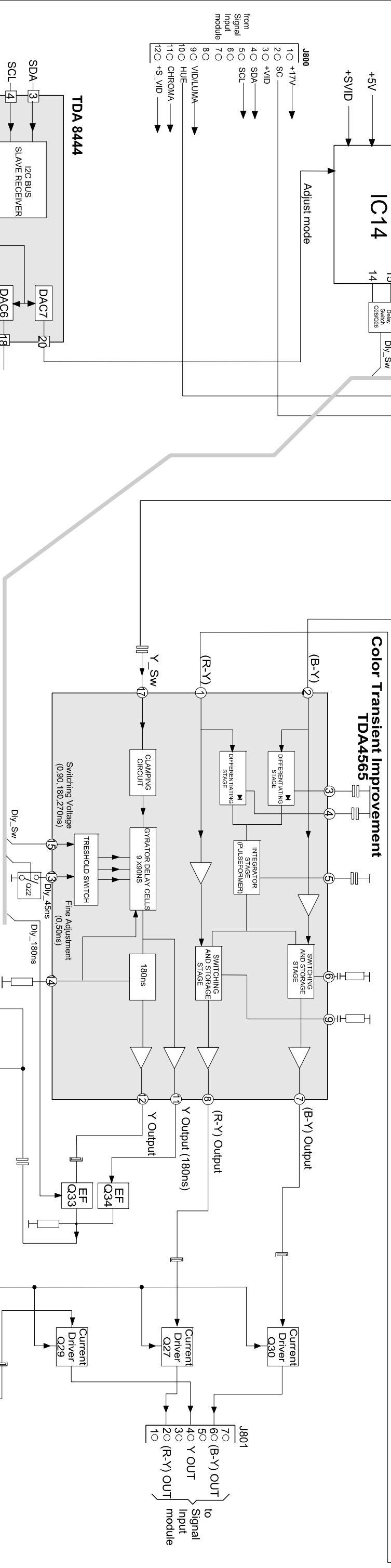
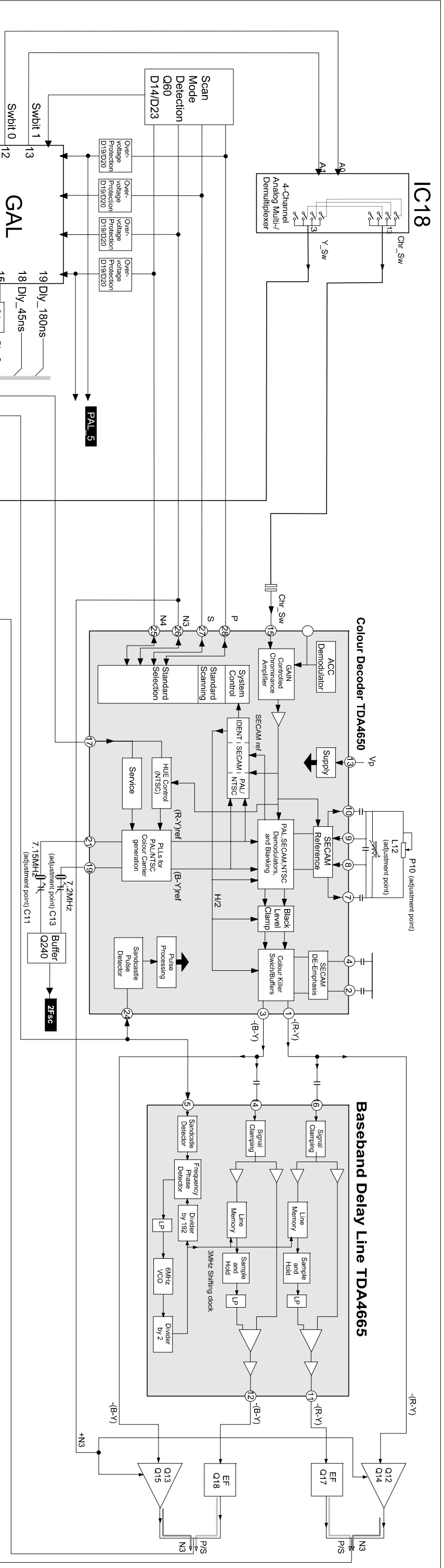
Name	DECODER & COMB (PAL M)	Sheet	2/2
Module No.	R7627452	Index	0
Rev.	10	Rev.	10
Date	23-03-1999	Drawn	JVST
		Checked	
		Division	BPS
			BARCO NV

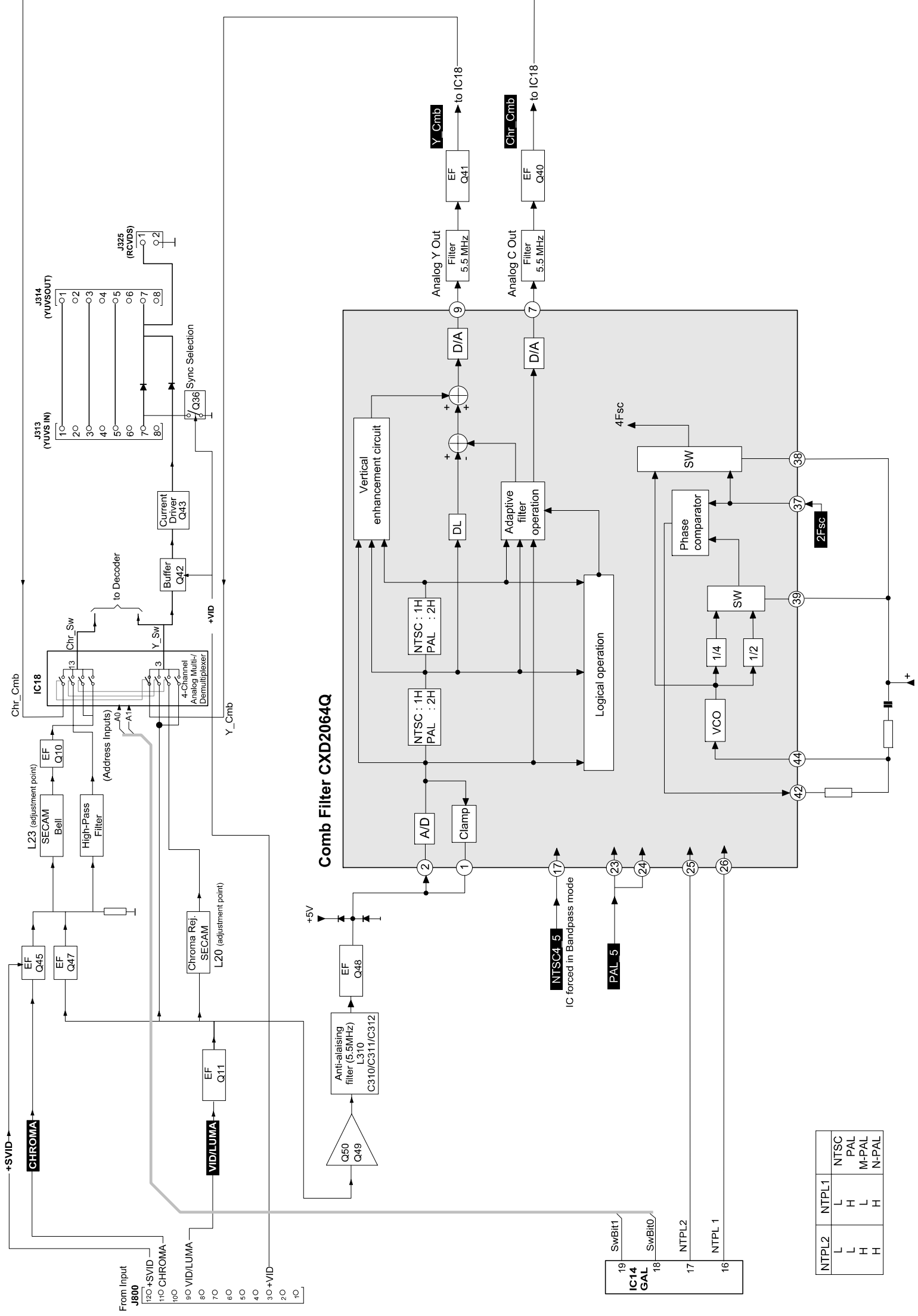
COMPONENTS MARKED WITH ** ARE NOT MOUNTED
 Modifications reserved



Modifications reserved

Name DECODER & COMB FILTER		Sheet 1/1	
Module No R7627452	Index 0	PCB No R780451	Rev 10
Date 23-03-1999	Drawn JV DY	Checked JVST	
BARCO NV		Division BPS	





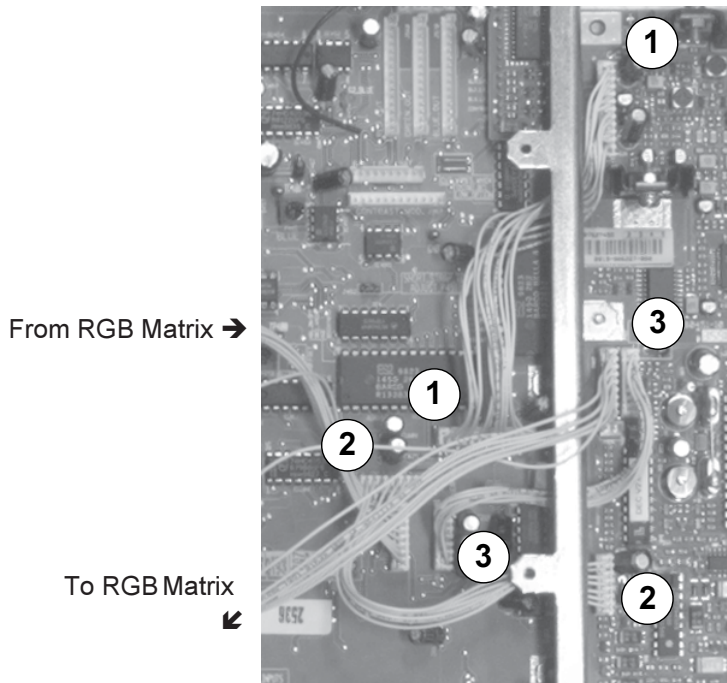
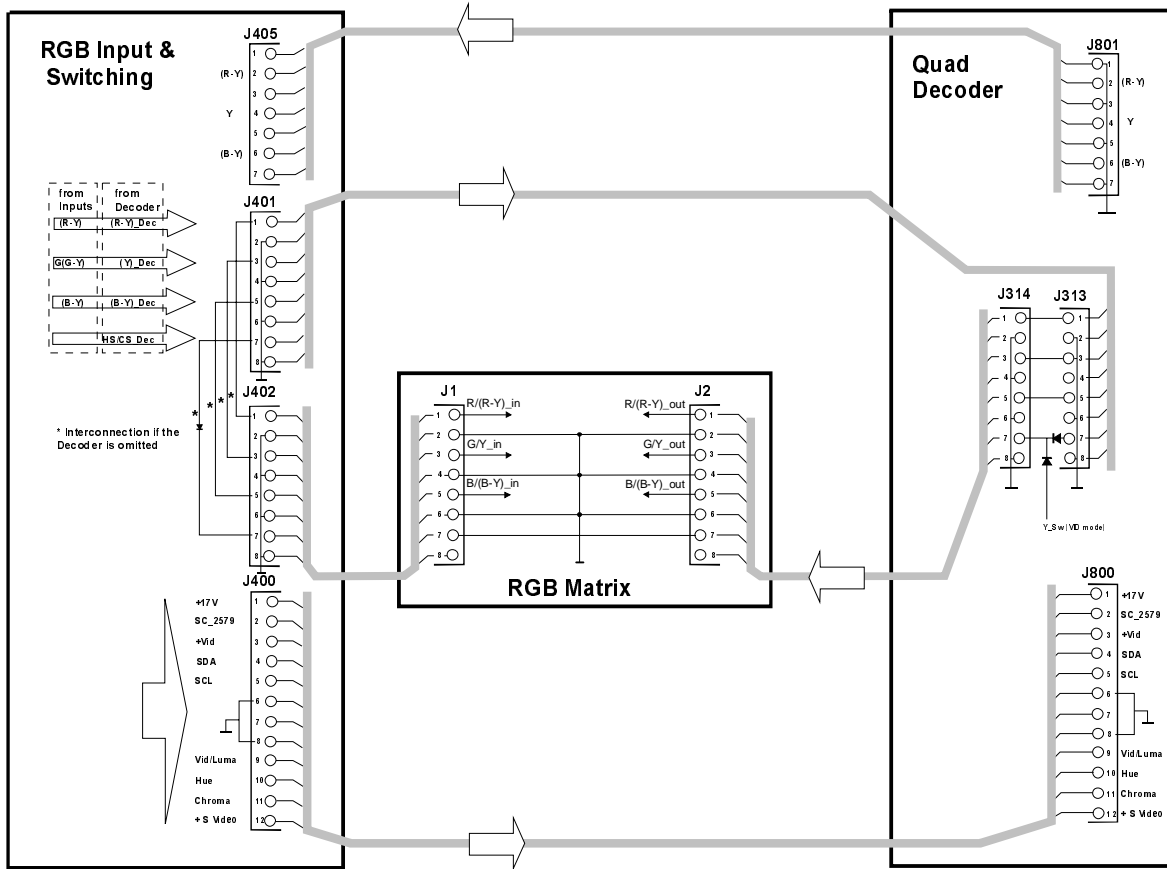
NTPL2	NTPL1	NTSC
L	L	NTSC
L	H	PAL
H	L	M-PAL
H	H	N-PAL

4-Channel Analog Multi-Demultiplexer IC18	
Filter Switching	
Mode	Chroma
Scanning	all pass
SVideo PAL, NTSC3.58, NTSC4.43	High pass
SVideo SECAM	Bell filter
Video SECAM	Bell filter
Video PAL, NTSC3.58	4.43MHz Rejector
Video NTSC4.43	Luma Comb
	Luma Comb
	Chroma Comb
	Chroma Comb

(The Comb Filter is switched to Bandpass filter in case of Video NTSC4.43)

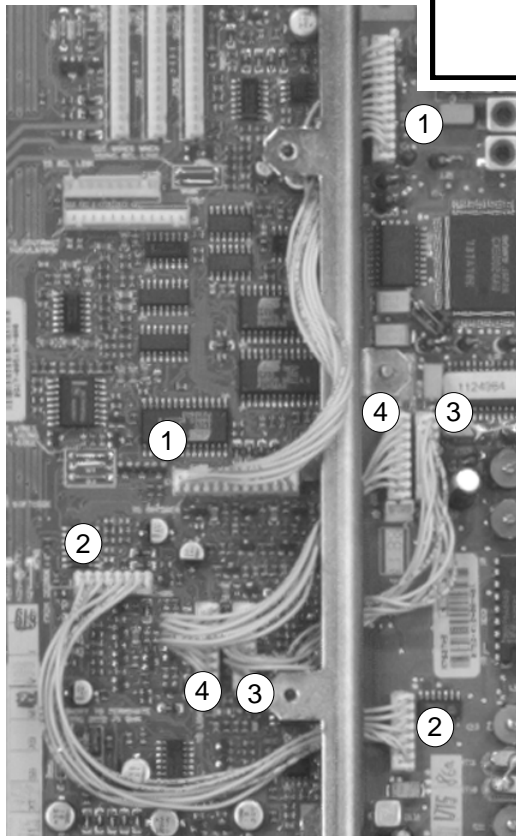
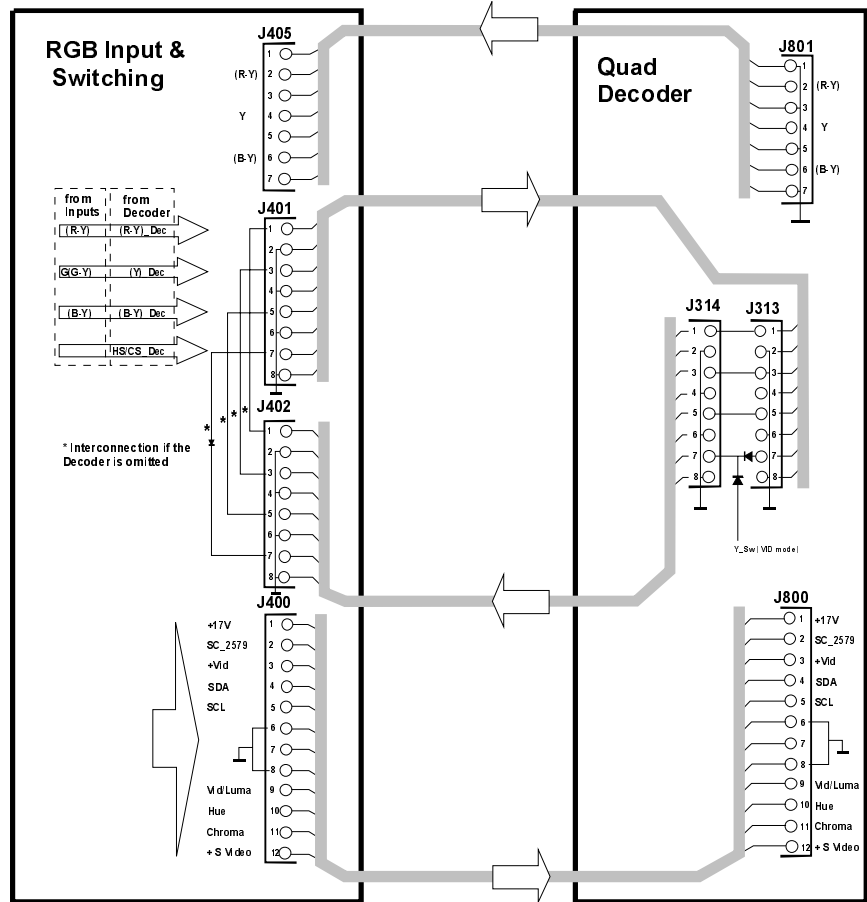
INTERCONNECTION RGB INPUT & SWITCH AND QUAD DECODER

When using input board R7627661



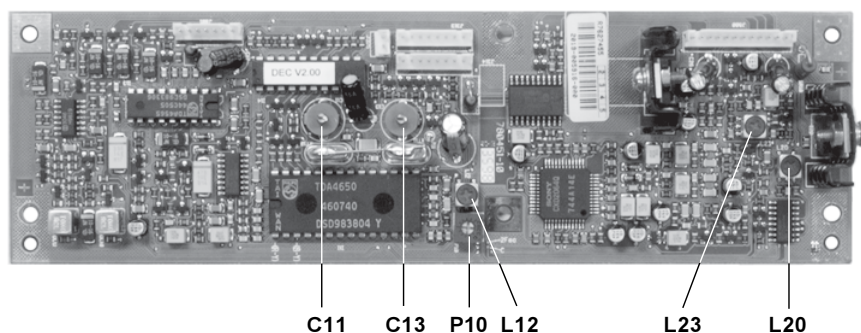
INTERCONNECTION RGB INPUT & SWITCH AND QUAD DECODER

When using input board R7627665



ADJUSTMENT PROCEDURE

Location of controls

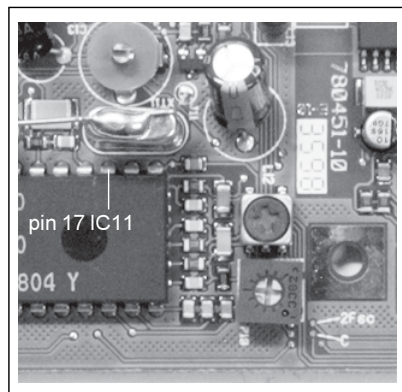


1. Reference Oscillator NTSC3.58

- Connect to the VIDEO input e.g. an electronic **NTSC3.58** color test video signal.
- Switch the projector in the VIDEO MODE. Press digit button 1 on RCU.
- if there is no colour, adjust trimming capacitor C13 for color display.
- short circuit pin 17 of IC11 to ground.
- adjust trimming capacitor C13 for a colour zero beat.
- remove the short-circuit.

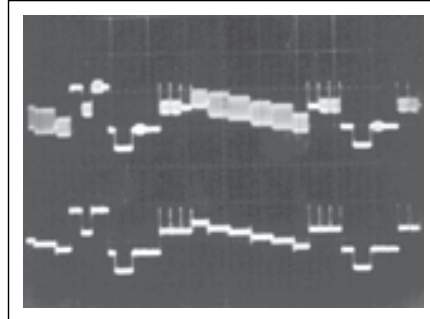
2. Reference Oscillator PAL

- Connect to the VIDEO input e.g. an electronic **PAL-M** test video signal.
- if there is no colour, adjust trimming capacitor C11 for color display.
- short circuit pin 17 of IC11 to ground.
- adjust trimming capacitor C11 for a colour zero beat.
- remove the short-circuit.



3. Chroma rejector Secam L20

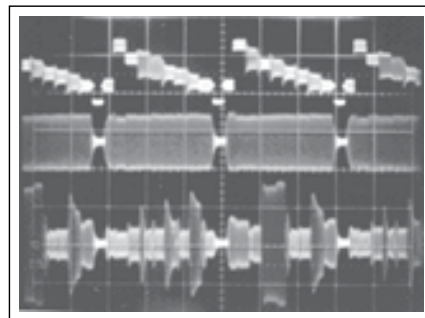
- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect an oscilloscope to the capacitor C22.
- adjust the core of coil L20 for a minimum of chroma in the video signal.



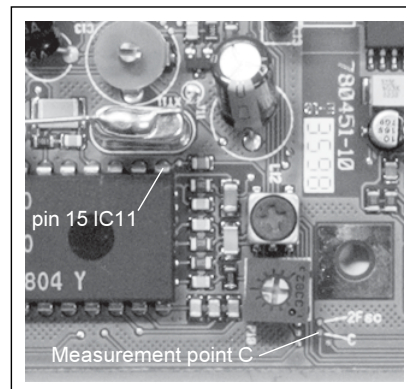
UPPER TRACK: VIEWED VIDEO LINE
LOWER TRACK: Y SIGNAL

4. SECAM BELL Filter L23

- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect an oscilloscope to the provided **Measurement point C** or to pin 15 of IC11 (Chr_Sw).
- adjust L23 for a flat amplitude of the signal during two successive lines.

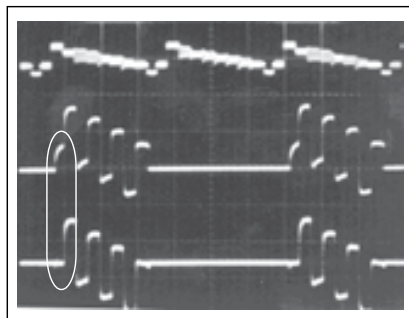


UPPER TRACK: VIEWED VIDEO LINE
LOWER TRACK:
1: CORRECT SETTING
2: INCORRECT SETTING

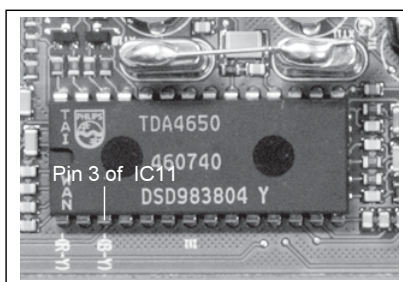


5. Secam Reference circuit (L12 - P10)

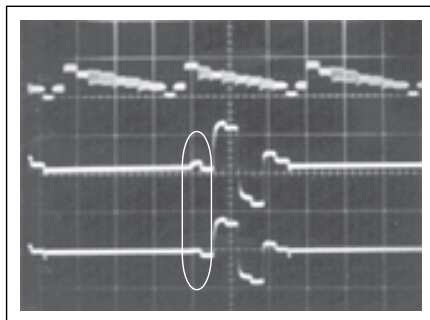
- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect the oscilloscope to pin 3 of IC11 (B-Y).
- adjust L12 so that the level of the (B-Y) signal without colour information is the same as the level during blanking.



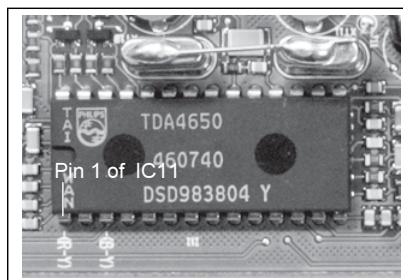
UPPER TRACK: VIEWED VIDEO LINE
 LOWER TRACK:
 1: INCORRECT SETTING
 2: CORRECT SETTING



- connect the oscilloscope to the coil pin 1 of IC11 (R-Y).
- adjust P10 so that the level of the (R-Y) signal without colour information is the same as the level during blanking.



UPPER TRACK: VIEWED VIDEO LINE
 LOWER TRACK:
 1: INCORRECT SETTING
 2: CORRECT SETTING



- If necessary the level in (B-Y) channel has to readjust to zero with the coil L12.

TECHNICAL DESCRIPTION

General

This board carries the same number of the former R762745 version with digital comb filter, only a /2 is added. This simply means that this board is a fully downwards compatible and redesigned board used to decode PAL-M/SECAM and NTSC3.58.

The decoder section of this board with comb filtering uses the decoder chips TDA4650 / TDA4665 / TDA 4565.

The new digital comb filter IC integrates all the necessary circuits for the sampling clock and the adaptive intra-field Y/C separation. There is no more a separate IC for sync processing.

General Signal Flow

The composite video must always be split into its luminance and chrominance components. The filter used for this Y/C split depends on the colour system. For PAL-M and NTSC 3.58 this is done by an adaptive digital comb filter. For SECAM this is done by passive filtering (like in the former decoder).

If the input is S-Video, this split is no more necessary.

The multistandard Decoder chip IC 11 is sequentially checking the color burst on the backporch of the horizontal sync. As soon as the right system is identified, the appropriate output PAL-M/SECAM or NTSC3.58 of the TDA4650 is put at a high level.

These switching outputs are supplied to a GAL (IC14), where the decoder mode will be recognized. The programmed GAL IC14 ensures, using the two outputs SwBit0 and SwBit1 as address inputs for the IC18, that the correct signal on the 4-channel Analog Multi-/Demultiplexer IC18 is switched through.

The two output signals of the 4-channel Analog Multi-/Demultiplexer IC18, respectively Chr_Sw and Y_Sw, are the supply signals for the Decoder IC's. The selected chrominance signal is applied to the decoder IC which provides the colour difference signals -(R-Y) and -(B-Y).

These output signals are then sent to the "baseband delay line" IC13 where the chrominance information of two subsequent lines is added using a CCD analog delay line.

This adding means in NTSC that the IC acts like an analog comb filtering. But, when it is NTSC3.58 the digital comb filter has already done a similar action. Therefore, the delay line IC is bypassed for NTSC3.58.

The next IC13 is supplied in any case with the colour difference signals and the luminance Y_sw. The colour undergoes an CTI (Colour Transient Improvement) and the delay of the luminance is adjusted per color standard (DC controlled delay).

Finally, the luminance passes a "sharpness control" and the three signals leave the decoder via current sources.

Comb Filter CXD2064Q

The CXD2064Q is an adaptive intra-field comb filter compatible with NTSC, PAL, PAL-M and PAL-N systems, and can provide high precision Y/C separation with a single chip.

To generate the sampling clock, which should be locked to the color subcarrier, the PLL in the chip must receive a reference. Here, the $2F_{sc}$ oscillator signal is used as it is available from the crystal oscillator of the color decoder. It is taken via Q240 and fed to pin 37 via C109. To tell the IC that the FIN is $2F_{sc}$, pins 38 and 39 are both high level.

The IC can work in three different modes

- adaptive processing mode (digital comb filtering)
- BPF (BandPass Filtering) separation mode (not applicable)
- Through mode (not applicable).

The mode is determined by the voltage level of pin17 (MOD2) and pin 19 (MOD1). Here, pin 19 is ground level and pin 17 is the 'NTSC 4.5' line.

In the adaptive processing mode, the Y/C separation is performed by detecting the correlation between three consecutive lines and switching between comb filter and BPF processing.

In the BPF separation mode, the Y/C separation is performed only by BPF processing.

The video signal supplied to pin 2 of the comb filter, has passed through an anti-aliasing filter that suppresses all frequencies above 5,5 MHz.

The AYO (luminance) output at pin 9 passes through a low pass filter and is then buffered with Q41 to feed the 4-channel Analog Multi-/Demultiplexer IC18, at pin A1 with Y_Comb.

The filter prevent the clock frequencies of the DA converter to pass through.

The ACO (Chrominance) output undergoes also a frequency limitation for the same reason, before supplying Chr_Comb to the pin B1 of the 4-channel Analog Multi-/Demultiplexer IC18.

The voltage at pin 12 and the current at pin 13 determines the amplitude of the output current-sources for chrominance (pin 7) and luminance (pin 9).

NTPL1 on pin 25 and NTPL2 pin 26 tell the IC which colour system is used.

NTPL 1	NTPL 2	
L	L	NTSC
H	L	PAL
L	H	PAL-M
H	H	PAL-N

The vertical enhancing setting is here not implemented, the corresponding three lines VEH are not used.

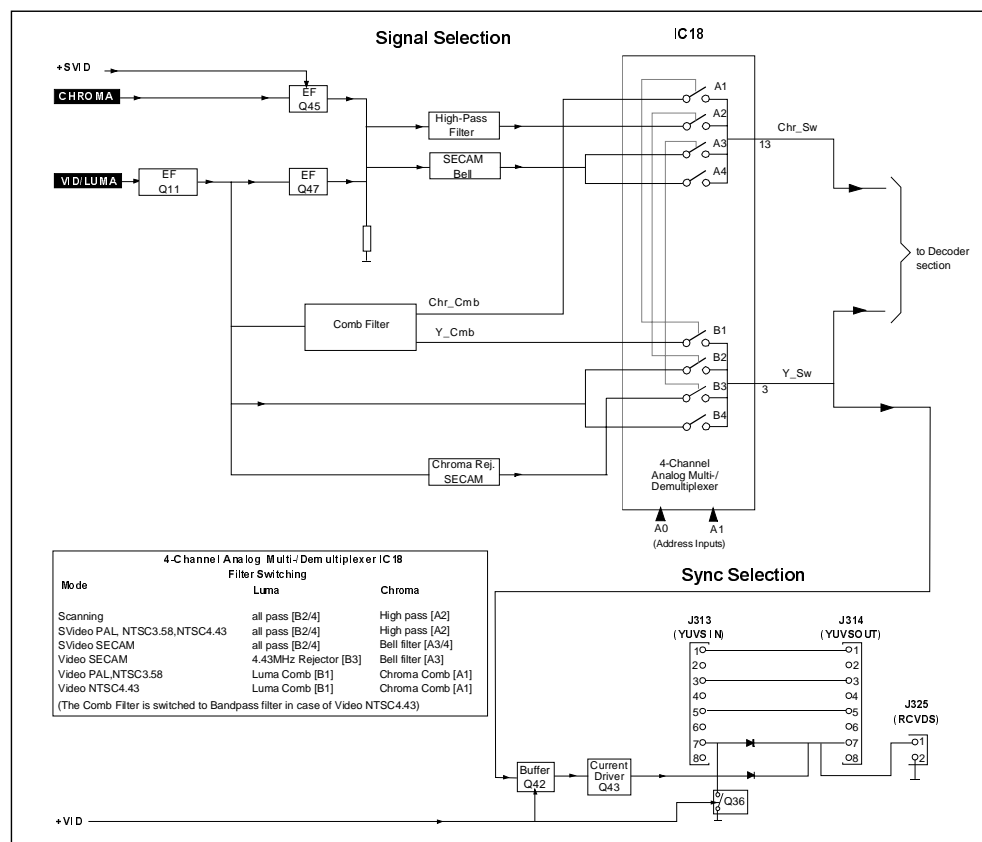
Filter Switching

a) Video or S-Video

A first selection is the switching between composite video and S-Video. In case of S-Video the +S-Video line is high. This voltage forward biases Q45 and the CHROMA is sent to the HIGH-PASS FILTER and SECAM BELL filter. For composite video the +S-Video line is low, which causes Q45 to be reverse biased and the CHROMA signal is not sent on. In both cases the VID/LUMA signal is sent to the CHROMA REJECTOR and to pin 2 and 4 of IC18.

b) Filter Switching

Depending on the color standard selected by the decoder, the filters are switched in the following way:



Synchronisation

The first selection of the sync signal is done in the source input selection. The result of this selection is the SYNC-EX which is available at pin 7 of the J313 connector.

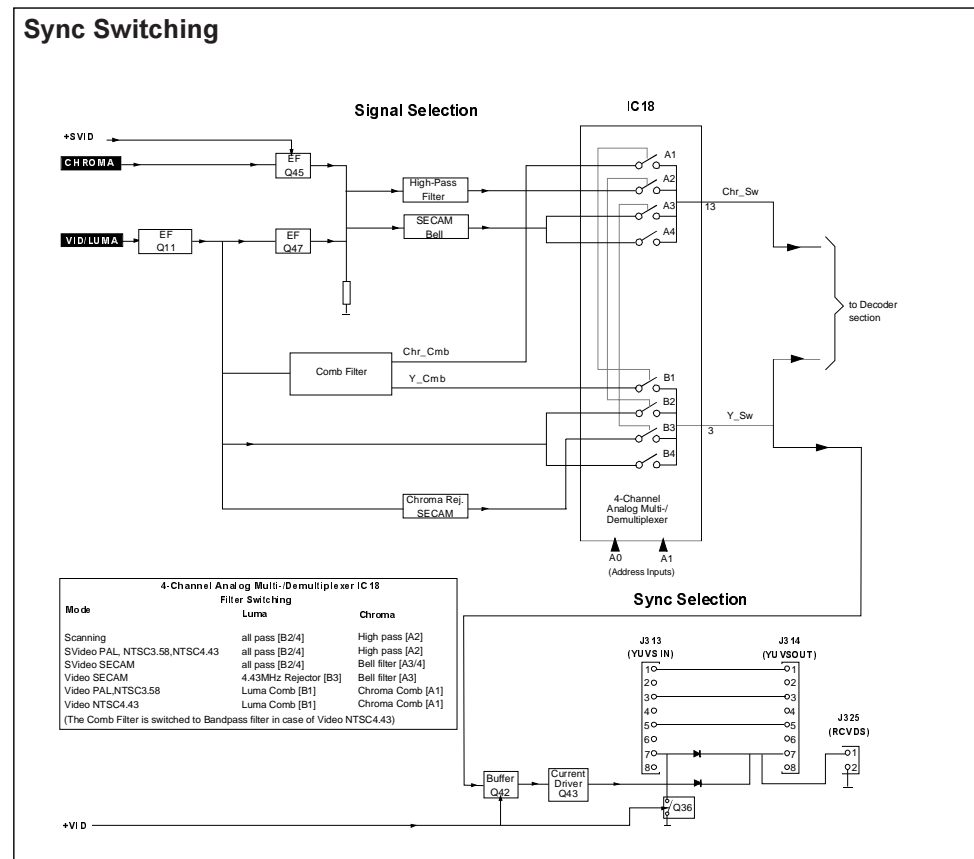
a) Video / S-Video :

When a video composite or S-Video source is selected the +VID voltage is high and the transistor Q42 gets forward biased just like Q43. Pin 7 of the connector J314 then receives the Y_sw signal, selected by the multiplexer, via these transistors. This signal may have undergone some delays depending on the standard.

To ensure that the SYNC-EX does not get through, Q36 is saturated to short the SYNC-EX line to ground. The collector DC voltage of Q43 is blocked with D24.

b) RGB .

The selection of an RGB source simply means that the SYNC-EX signal is passed through D24 and feeds the Synchronisation board.



CTI - Luminance delay The (B-Y) and (R-Y) colour difference channels consist of a buffer amplifier at the input, a switching stage and an output amplifier. The switching stages, which are controlled by transient detection stages (differentiators) switch to a value that has been stored at the beginning of the transients. Two parallel storage stages are incorporated in which the color difference signals are stored during the transient time of the signal. After a time of about 600ns they are switched immediately to the outputs.

The other part of this IC consists of a DC adjustable delay for the luminance signal. The luminance is capacitively coupled to the clamping circuit. Gyrator delay cells provide a maximum delay of 810 ns including the additional delay of 45 ns via the *Fine Adj* pin 13 (when Q22 is saturated). As seen in the bloc diagram, three delay cells are switched with interstage switches controlled by the voltage at pin 15. The *DLsw* voltage is made from two GAL outputs and the transistors Q26 /Q28. This GAL receives the color standard information to install the correct delay for each standard. Two other GAL outputs are used for respectively the additional 45ns delay via the *FADJ* pin and a delay of 180 ns on the *Yout* by forward or reverse biasing Q33.

The initial level of it's emitter voltage is set by the DC output of pin 11. Q33 is conducting from the moment it's base voltage is 0.6V higher As seen in the bloc diagram, output 12 has an additional delay compared with the pin 11 output. As a conclusion, with 4 GAL outputs the required delay per standard is installed in an automatic way.

Decoder - Sharpness This sharpness control is designed to enhance or diminish sharpness. We foresee the possibility to diminish sharpness (= negative sharpness) in order to reduce eventual noise on the signal. To realize this we start from a signal with maximum negative sharpness and add then a variable "sharpness" signal.

This signal with maximum negative sharpness is formed at the node R62, R65 and R68.

This signal is composed of :

- the original one, via buffer Q20
- delayed by 180ns but opposite polarity, via Q23.
- delayed by 2x180ns via Q24.

Q16 and Q19 restore the amplitudes and adapt the signal to the impedance (1k) of the delay lines.

The "sharpness" signal is then applied as current source to the differential amplifier in IC12. The signal is split into the two collector resistors.

Pin 5 is decoupled by C61. This will prevent DC variations in the Y signal when adjusting the SHARPNESS.

At the node R73 / R78 the sharpness signal from the amplifier and the original negative sharpness signal are mixed and inverted/amplified with Q35.

The three outputs signals are now output via current drivers.

In case the decoder is not active (indicated by a low level on the +VID line), Q32 is not active, which causes the outputs to be disabled.

PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R133072	HTSN Q TO220 24X 7 L 20	2	C 74	P210023	C# C0G MU 220P J 50 0805	1
30	R3661026	NUT D934 M 3 SS	2	C 75	P212018	C# TA 10M M 16 6032	1
40	B360862	SCR Z\$7985M 3 X 8 STZY	2	C 76	P210295	C# Y5V MU 1M Z 16 0805	1
100	R348110	WU JUMP 0,6 27,5	1	C 78	P210022	C# C0G MU 150P J 50 0805	1
C 10	P213508	C# EL RA 10M M 16 85	1	C 80	P212018	C# TA 10M M 16 6032	1
C 11	R117001	C T 7 -35P 160	1	C 96	P210213	C# Y5V MU 100N Z 25 0805	1
C 12	P212018	C# TA 10M M 16 6032	1	C 97	P210178	C# Y5V MU 1M Z 16 1206	1
C 13	R117001	C T 7 -35P 160	1	C 98	P213508	C# EL RA 10M M 16 85	1
C 14	P210161	C# C0G MU 120P J 50 1206	1	C 99	P210213	C# Y5V MU 100N Z 25 0805	1
C 15	K1114777	C EL RA 100M M 25E2 105	1	C101	P210213	C# Y5V MU 100N Z 25 0805	1
C 17	V1115119	C EL RA 47M M 25E2 105	1	C102	P210213	C# Y5V MU 100N Z 25 0805	1
C 21	P213508	C# EL RA 10M M 16 85	1	C104	P210041	C# X7R MU 10N K 50 0805	1
C 22	V111679	C EL BRA 10M M 25E2 105	1	C105	P210213	C# Y5V MU 100N Z 25 0805	1
C 23	P210025	C# C0G MU 470P J 50 0805	1	C108	P210213	C# Y5V MU 100N Z 25 0805	1
C 24	P210178	C# Y5V MU 1M Z 16 1206	1	C109	P210035	C# X7R MU 1N K 50 0805	1
C 25	P210213	C# Y5V MU 100N Z 25 0805	1	C110	P210213	C# Y5V MU 100N Z 25 0805	1
C 26	V1115319	C EL RA 10M M 50E2 105	1	C112	P210213	C# Y5V MU 100N Z 25 0805	1
C 27	V1115489	C EL RA 2M2M 50E2 105	1	C113	P210001	C# C0G MU 10P G 50 0805	1
C 28	P210041	C# X7R MU 10N K 50 0805	1	C114	P213508	C# EL RA 10M M 16 85	1
C 29	P210019	C# C0G MU 47P J 50 0805	1	C115	P213508	C# EL RA 10M M 16 85	1
C 30	P210019	C# C0G MU 47P J 50 0805	1	C116	P213508	C# EL RA 10M M 16 85	1
C 31	P210178	C# Y5V MU 1M Z 16 1206	1	C117	P213508	C# EL RA 10M M 16 85	1
C 32	P210035	C# X7R MU 1N K 50 0805	1	C119	P210217	C# C0G MU 82P J 50 0805	1
C 33	P210071	C# C0G MU 220P F 50 0805	1	C120	P210041	C# X7R MU 10N K 50 0805	1
C 34	P210178	C# Y5V MU 1M Z 16 1206	1	C121	P210178	C# Y5V MU 1M Z 16 1206	1
C 35	P210035	C# X7R MU 1N K 50 0805	1	C122	P210041	C# X7R MU 10N K 50 0805	1
C 36	P210071	C# C0G MU 220P F 50 0805	1	C123	P210023	C# C0G MU 220P J 50 0805	1
C 37	P212005	C# TA 47M M 10 7343	1	C124	P210041	C# X7R MU 10N K 50 0805	1
C 38	P210041	C# X7R MU 10N K 50 0805	1	C125	P210213	C# Y5V MU 100N Z 25 0805	1
C 39	P210005	C# X7R MU 39N K 50 1206	1	C126	P210213	C# Y5V MU 100N Z 25 0805	1
C 40	P210041	C# X7R MU 10N K 50 0805	1	C127	P213508	C# EL RA 10M M 16 85	1
C 41	P210005	C# X7R MU 39N K 50 1206	1	C128	P210295	C# Y5V MU 1M Z 16 0805	1
C 42	P210124	C# X7R MU 100N K 50 0805	1	C129	P213508	C# EL RA 10M M 16 85	1
C 43	P210130	C# C0G MU 2P2D 50 0805	1	C130	P210213	C# Y5V MU 100N Z 25 0805	1
C 44	P210295	C# Y5V MU 1M Z 16 0805	1	C131	P213508	C# EL RA 10M M 16 85	1
C 45	P210178	C# Y5V MU 1M Z 16 1206	1	C132	P210041	C# X7R MU 10N K 50 0805	1
C 46	P210178	C# Y5V MU 1M Z 16 1206	1	C133	P210213	C# Y5V MU 100N Z 25 0805	1
C 47	P210213	C# Y5V MU 100N Z 25 0805	1	C134	P213508	C# EL RA 10M M 16 85	1
C 48	P210095	C# X7R MU 330N M 50 1812	1	C213	P210213	C# Y5V MU 100N Z 25 0805	1
C 49	P210178	C# Y5V MU 1M Z 16 1206	1	C220	P210213	C# Y5V MU 100N Z 25 0805	1
C 50	P210130	C# C0G MU 2P2D 50 0805	1	C221	P210213	C# Y5V MU 100N Z 25 0805	1
C 51	P210111	C# X7R MU 47N K 50 0805	1	C222	P210213	C# Y5V MU 100N Z 25 0805	1
C 52	P210007	C# C0G MU 1N F 50 1206	1	C223	P210213	C# Y5V MU 100N Z 25 0805	1
C 53	P210124	C# X7R MU 100N K 50 0805	1	C224	P210213	C# Y5V MU 100N Z 25 0805	1
C 54	P210178	C# Y5V MU 1M Z 16 1206	1	C225	P210043	C# X7R MU 22N K 50 0805	1
C 55	P210041	C# X7R MU 10N K 50 0805	1	C240	P2100190	C# C0G MU 47P J 50 0805	1
C 56	P210178	C# Y5V MU 1M Z 16 1206	1	C310	P210117	C# C0G MU 47P G 50 1206	1
C 57	P210124	C# X7R MU 100N K 50 0805	1	C311	P210117	C# C0G MU 47P G 50 1206	1
C 58	P210035	C# X7R MU 1N K 50 0805	1	C312	P210132	C# C0G MU 3P3D 50 0805	1
C 59	P210041	C# X7R MU 10N K 50 0805	1	C320	P210117	C# C0G MU 47P G 50 1206	1
C 60	P210178	C# Y5V MU 1M Z 16 1206	1	C322	P210132	C# C0G MU 3P3D 50 0805	1
C 61	P210041	C# X7R MU 10N K 50 0805	1	C323	P210070	C# C0G MU 680P J 50 0805	1
C 62	P210178	C# Y5V MU 1M Z 16 1206	1	C330	P210117	C# C0G MU 47P G 50 1206	1
C 63	P210178	C# Y5V MU 1M Z 16 1206	1	C331	P210117	C# C0G MU 47P G 50 1206	1
C 64	P212018	C# TA 10M M 16 6032	1	C332	P210132	C# C0G MU 3P3D 50 0805	1
C 65	P210021	C# C0G MU 100P J 50 0805	1	C333	P210070	C# C0G MU 680P J 50 0805	1
C 66	P210021	C# C0G MU 100P J 50 0805	1	D 10	P234099	D#4148 RDMMELF	1
C 67	P212018	C# TA 10M M 16 6032	1	D 11	P234099	D#4148 RDMMELF	1
C 68	P210024	C# C0G MU 330P J 50 0805	1	D 14	P234205	D#BAT54C SCH SOT23	1
C 69	P210213	C# Y5V MU 100N Z 25 0805	1	D 19	P234205	D#BAT54C SCH SOT23	1
C 70	P210023	C# C0G MU 220P J 50 0805	1	D 20	P234205	D#BAT54C SCH SOT23	1
C 71	P212018	C# TA 10M M 16 6032	1	D 23	P234205	D#BAT54C SCH SOT23	1
C 72	P212015	C# TA 33M K 16 7343	1	D 24	P234205	D#BAT54C SCH SOT23	1
C 73	P210213	C# Y5V MU 100N Z 25 0805	1				

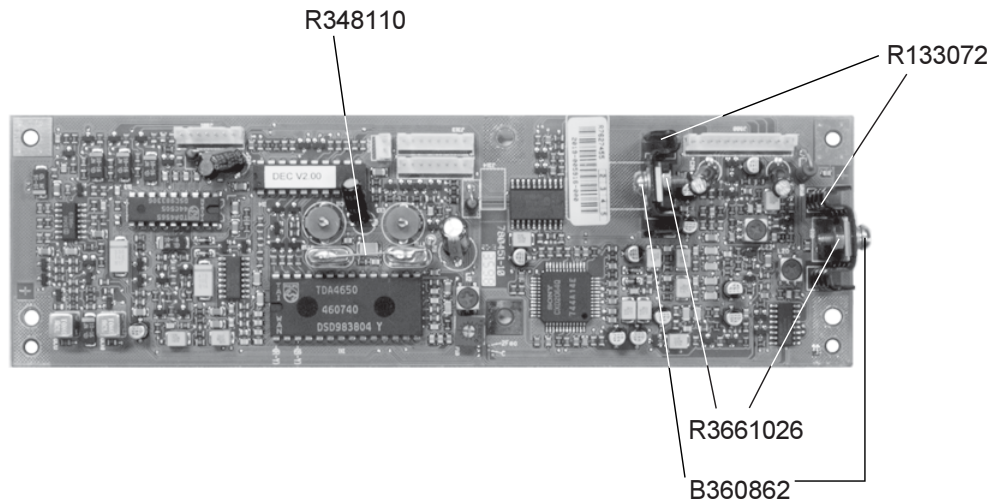
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D 25	P234047	D#BAV99 SER SOT23	1	Q 35	P232004	Q#BC849C N SS SOT23	1
D 26	P234047	D#BAV99 SER SOT23	1	Q 36	P232004	Q#BC849C N SS SOT23	1
D113	P234099	D#4148 RDMMELF	1	Q 40	P232004	Q#BC849C N SS SOT23	1
D114	P234099	D#4148 RDMMELF	1	Q 41	P232004	Q#BC849C N SS SOT23	1
DL10	V306541	DL 180NS 1K	1	Q 42	P232004	Q#BC849C N SS SOT23	1
DL11	V306541	DL 180NS 1K	1	Q 43	P232101	Q#BC859C P SS SOT23	1
I 10	P231329	U#4665 TDA SO16 P	1	Q 44	P232004	Q#BC849C N SS SOT23	1
I 11	R132828	U 4650 TDA DIP28 P	1	Q 45	P232004	Q#BC849C N SS SOT23	1
I 12	P231013	U#3046 CA SO14 I	1	Q 46	P232004	Q#BC849C N SS SOT23	1
I 13	R132773	U 4565 TDA DIP18 P	1	Q 47	P232004	Q#BC849C N SS SOT23	1
I 14	R32858600	US G808S DEC 200	1	Q 48	P232004	Q#BC849C N SS SOT23	1
I 16	P231830	U#2064 CXD QFP48 P	1	Q 49	P232101	Q#BC859C P SS SOT23	1
I 17	P230936	U#8444A TDA SOL20 P	1	Q 50	P232004	Q#BC849C N SS SOT23	1
I 18	P230064	U#4052 SO16 I	1	Q 60	P232101	Q#BC859C P SS SOT23	1
I 19	R134001	U 7805 TO220 P	1	Q240	P232004	Q#BC849C N SS SOT23	1
I 20	R134002	U 7812 TO220 P	1	R 10	P201095	R# CE H 2K2 F 0W12 0805	1
J313	R313928	J C T H MBT P 8 M2SN WH	1	R 11	P201095	R# CE H 2K2 F 0W12 0805	1
J314	R313928	J C T H MBT P 8 M2SN WH	1	R 12	P201135	R# CE H100K F 0W12 0805	1
J325	R313922	J C T H MBT P 2 M2SN WH	1	R 13	P201119	R# CE H 22K F 0W12 0805	1
J800	R313932	J C T H MBT P12 M2SN WH	1	R 14	P201125	R# CE H 39K F 0W12 0805	1
J801	R313927	J C T H MBT P 7 M2SN WH	1	R 15	P201015	R# CE H 1E F 0W12 0805	1
L 10	P250583	CH# 10 UH L1812	1	R 16	P201135	R# CE H100K F 0W12 0805	1
L 11	P250583	CH# 10 UH L1812	1	R 17	P201135	R# CE H100K F 0W12 0805	1
L 12	P250586	CH# 10 UH TOKO614	1	R 18	P201143	R# CE H220K F 0W12 0805	1
L 13	R3061341	CH AX NS 100 UH	1	R 19	P201095	R# CE H 2K2 F 0W12 0805	1
L 14	R3061341	CH AX NS 100 UH	1	R 20	P201143	R# CE H220K F 0W12 0805	1
L 15	P250583	CH# 10 UH L1812	1	R 21	P201095	R# CE H 2K2 F 0W12 0805	1
L 18	P250583	CH# 10 UH L1812	1	R 22	P201095	R# CE H 2K2 F 0W12 0805	1
L 19	P250583	CH# 10 UH L1812	1	R 23	P201095	R# CE H 2K2 F 0W12 0805	1
L 20	P250588	CH# 15 UH TOKO614	1	R 24	P201087	R# CE H 1K F 0W12 0805	1
L 21	P250583	CH# 10 UH L1812	1	R 25	P201087	R# CE H 1K F 0W12 0805	1
L 22	P250583	CH# 10 UH L1812	1	R 26	P201087	R# CE H 1K F 0W12 0805	1
L 23	P250587	CH# 3.3 UH TOKO614	1	R 27	P201087	R# CE H 1K F 0W12 0805	1
L310	P250511	CH# 22 UH L1812	1	R 29	P201135	R# CE H100K F 0W12 0805	1
L320	P250511	CH# 22 UH L1812	1	R 30	P201095	R# CE H 2K2 F 0W12 0805	1
L330	P250511	CH# 22 UH L1812	1	R 31	P201095	R# CE H 2K2 F 0W12 0805	1
P 10	R107005	R TCE H500E K 0W5 S 7TS	1	R 32	P201079	R# CE H470E F 0W12 0805	1
PC	R780451	PCB*701DEC_COMB	1	R 33	P201063	R# CE H100E F 0W12 0805	1
Q 10	P232004	Q#BC849C N SS SOT23	1	R 34	P201087	R# CE H 1K F 0W12 0805	1
Q 11	P232004	Q#BC849C N SS SOT23	1	R 35	P201121	R# CE H 27K F 0W12 0805	1
Q 12	P232004	Q#BC849C N SS SOT23	1	R 36	P201087	R# CE H 1K F 0W12 0805	1
Q 13	P232004	Q#BC849C N SS SOT23	1	R 37	P201111	R# CE H 10K F 0W12 0805	1
Q 14	P232101	Q#BC859C P SS SOT23	1	R 38	P201095	R# CE H 2K2 F 0W12 0805	1
Q 15	P232101	Q#BC859C P SS SOT23	1	R 39	P201095	R# CE H 2K2 F 0W12 0805	1
Q 16	P232101	Q#BC859C P SS SOT23	1	R 40	P201079	R# CE H470E F 0W12 0805	1
Q 17	P232004	Q#BC849C N SS SOT23	1	R 41	P201039	R# CE H 10E F 0W12 0805	1
Q 18	P232004	Q#BC849C N SS SOT23	1	R 42	P201099	R# CE H 3K3 F 0W12 0805	1
Q 19	P232101	Q#BC859C P SS SOT23	1	R 43	P201075	R# CE H330E F 0W12 0805	1
Q 20	P232004	Q#BC849C N SS SOT23	1	R 44	P201135	R# CE H100K F 0W12 0805	1
Q 21	P232004	Q#BC849C N SS SOT23	1	R 45	P201015	R# CE H 1E F 0W12 0805	1
Q 22	P232004	Q#BC849C N SS SOT23	1	R 46	P201075	R# CE H330E F 0W12 0805	1
Q 23	P232101	Q#BC859C P SS SOT23	1	R 47	P201121	R# CE H 27K F 0W12 0805	1
Q 24	P232101	Q#BC859C P SS SOT23	1	R 48	P201111	R# CE H 10K F 0W12 0805	1
Q 25	P232101	Q#BC859C P SS SOT23	1	R 49	P201015	R# CE H 1E F 0W12 0805	1
Q 26	P232004	Q#BC849C N SS SOT23	1	R 50	P201115	R# CE H 15K F 0W12 0805	1
Q 27	P232101	Q#BC859C P SS SOT23	1	R 51	P201111	R# CE H 10K F 0W12 0805	1
Q 28	P232004	Q#BC849C N SS SOT23	1	R 52	P201079	R# CE H470E F 0W12 0805	1
Q 29	P232101	Q#BC859C P SS SOT23	1	R 53	P201119	R# CE H 22K F 0W12 0805	1
Q 30	P232101	Q#BC859C P SS SOT23	1	R 54	P201135	R# CE H100K F 0W12 0805	1
Q 32	P232004	Q#BC849C N SS SOT23	1	R 55	P201087	R# CE H 1K F 0W12 0805	1
Q 33	P232004	Q#BC849C N SS SOT23	1	R 56	P201075	R# CE H330E F 0W12 0805	1
Q 34	P232004	Q#BC849C N SS SOT23	1	R 57	P201075	R# CE H330E F 0W12 0805	1
				R 58	P201119	R# CE H 22K F 0W12 0805	1
				R 59	P201119	R# CE H 22K F 0W12 0805	1
				R 60	P201099	R# CE H 3K3 F 0W12 0805	1
				R 61	P201087	R# CE H 1K F 0W12 0805	1

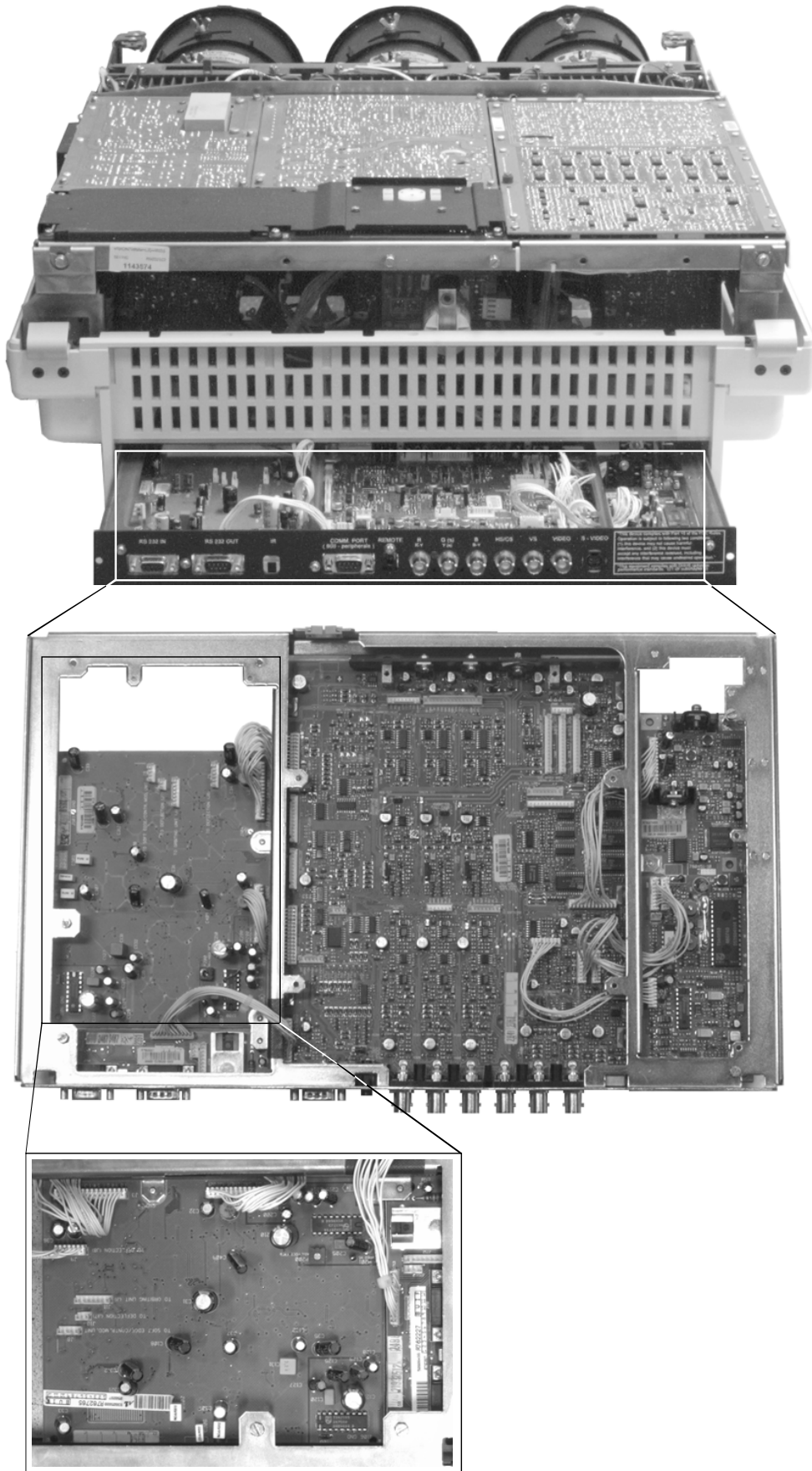
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 62	P201087	R# CE H 1K F 0W12 0805	1	R163	P201063	R# CE H100E F 0W12 0805	1
R 63	P201099	R# CE H 3K3 F 0W12 0805	1	R164	P201135	R# CE H100K F 0W12 0805	1
R 64	P201099	R# CE H 3K3 F 0W12 0805	1	R165	P201135	R# CE H100K F 0W12 0805	1
R 65	P201087	R# CE H 1K F 0W12 0805	1	R166	P201063	R# CE H100E F 0W12 0805	1
R 66	P201083	R# CE H680E F 0W12 0805	1	R167	P201015	R# CE H 1E F 0W12 0805	1
R 67	P201099	R# CE H 3K3 F 0W12 0805	1	R168	P201015	R# CE H 1E F 0W12 0805	1
R 68	P201087	R# CE H 1K F 0W12 0805	1	R169	P201081	R# CE H560E F 0W12 0805	1
R 69	P201087	R# CE H 1K F 0W12 0805	1	R170	P201081	R# CE H560E F 0W12 0805	1
R 70	P201111	R# CE H 10K F 0W12 0805	1	R172	P201015	R# CE H 1E F 0W12 0805	1
R 72	P201159	R# CE H 1M F 0W12 0805	1	R173	P201015	R# CE H 1E F 0W12 0805	1
R 73	P201087	R# CE H 1K F 0W12 0805	1	R174	P201060	R# CE H 75E F 0W12 0805	1
R 74	P201089	R# CE H 1K2 F 0W12 0805	1	R175	P201015	R# CE H 1E F 0W12 0805	1
R 76	P201125	R# CE H 39K F 0W12 0805	1	R176	P201121	R# CE H 27K F 0W12 0805	1
R 77	P201111	R# CE H 10K F 0W12 0805	1	R177	P201127	R# CE H 47K F 0W12 0805	1
R 78	P201087	R# CE H 1K F 0W12 0805	1	R178	P201095	R# CE H 2K2 F 0W12 0805	1
R 79	P201129	R# CE H 56K F 0W12 0805	1	R179	P201067	R# CE H150E F 0W12 0805	1
R 80	P201127	R# CE H 47K F 0W12 0805	1	R180	P201135	R# CE H100K F 0W12 0805	1
R 81	P201119	R# CE H 22K F 0W12 0805	1	R181	P201083	R# CE H680E F 0W12 0805	1
R 82	P201111	R# CE H 10K F 0W12 0805	1	R182	P201095	R# CE H 2K2 F 0W12 0805	1
R 83	P201063	R# CE H100E F 0W12 0805	1	R183	P201085	R# CE H820E F 0W12 0805	1
R 84	P201111	R# CE H 10K F 0W12 0805	1	R184	P201039	R# CE H 10E F 0W12 0805	1
R 85	P201129	R# CE H 56K F 0W12 0805	1	R185	P201063	R# CE H100E F 0W12 0805	1
R 86	P201111	R# CE H 10K F 0W12 0805	1	R186	P201127	R# CE H 47K F 0W12 0805	1
R 87	P201119	R# CE H 22K F 0W12 0805	1	R187	P201091	R# CE H 1K5 F 0W12 0805	1
R 88	P201121	R# CE H 27K F 0W12 0805	1	R188	P201015	R# CE H 1E F 0W12 0805	1
R 89	P201063	R# CE H100E F 0W12 0805	1	R189	P201119	R# CE H 22K F 0W12 0805	1
R 90	P201129	R# CE H 56K F 0W12 0805	1	R190	P201103	R# CE H 4K7 F 0W12 0805	1
R 91	P201015	R# CE H 1E F 0W12 0805	1	R191	P201095	R# CE H 2K2 F 0W12 0805	1
R 92	P201119	R# CE H 22K F 0W12 0805	1	R192	P201115	R# CE H 15K F 0W12 0805	1
R 93	P201063	R# CE H100E F 0W12 0805	1	R193	P201055	R# CE H 47E F 0W12 0805	1
R 94	P201063	R# CE H100E F 0W12 0805	1	R194	P201095	R# CE H 2K2 F 0W12 0805	1
R 95	P201087	R# CE H 1K F 0W12 0805	1	R195	P201127	R# CE H 47K F 0W12 0805	1
R 97	P201063	R# CE H100E F 0W12 0805	1	R196	P201135	R# CE H100K F 0W12 0805	1
R 98	P201091	R# CE H 1K5 F 0W12 0805	1	R197	P201120	R# CE H 24K F 0W12 0805	1
R101	P201135	R# CE H100K F 0W12 0805	1	R198	P201055	R# CE H 47E F 0W12 0805	1
R102	P201123	R# CE H 33K F 0W12 0805	1	R199	P201095	R# CE H 2K2 F 0W12 0805	1
R103	P201039	R# CE H 10E F 0W12 0805	1	R200	P201015	R# CE H 1E F 0W12 0805	1
R104	P201087	R# CE H 1K F 0W12 0805	1	R201	P201135	R# CE H100K F 0W12 0805	1
R106	P201111	R# CE H 10K F 0W12 0805	1	R202	P201135	R# CE H100K F 0W12 0805	1
R107	P201095	R# CE H 2K2 F 0W12 0805	1	R203	P201125	R# CE H 39K F 0W12 0805	1
R108	P201111	R# CE H 10K F 0W12 0805	1	R204	P201087	R# CE H 1K F 0W12 0805	1
R110	P201039	R# CE H 10E F 0W12 0805	1	R205	P201087	R# CE H 1K F 0W12 0805	1
R111	P201070	R# CE H200E F 0W12 0805	1	R206	P201101	R# CE H 3K9 F 0W12 0805	1
R112	P201095	R# CE H 2K2 F 0W12 0805	1	R207	P201039	R# CE H 10E F 0W12 0805	1
R113	P201087	R# CE H 1K F 0W12 0805	1	R208	P201067	R# CE H150E F 0W12 0805	1
R114	P201115	R# CE H 15K F 0W12 0805	1	R209	P201081	R# CE H560E F 0W12 0805	1
R115	P201115	R# CE H 15K F 0W12 0805	1	R210	P201091	R# CE H 1K5 F 0W12 0805	1
R116	P201111	R# CE H 10K F 0W12 0805	1	R211	P201079	R# CE H470E F 0W12 0805	1
R117	P201111	R# CE H 10K F 0W12 0805	1	R220	P201099	R# CE H 3K3 F 0W12 0805	1
R118	P201095	R# CE H 2K2 F 0W12 0805	1	R221	P201099	R# CE H 3K3 F 0W12 0805	1
R119	P201087	R# CE H 1K F 0W12 0805	1	R222	P201095	R# CE H 2K2 F 0W12 0805	1
R120	P201111	R# CE H 10K F 0W12 0805	1	R223	P201129	R# CE H 56K F 0W12 0805	1
R122	P201111	R# CE H 10K F 0W12 0805	1	R224	P201081	R# CE H560E F 0W12 0805	1
R140	P201078	R# CE H430E F 0W12 0805	1	R225	P201111	R# CE H 10K F 0W12 0805	1
R141	P201073	R# CE H270E F 0W12 0805	1	R226	P201111	R# CE H 10K F 0W12 0805	1
R142	P201111	R# CE H 10K F 0W12 0805	1	R227	P201115	R# CE H 15K F 0W12 0805	1
R143	P201053	R# CE H 39E F 0W12 0805	1	R228	P201115	R# CE H 15K F 0W12 0805	1
R144	P201071	R# CE H220E F 0W12 0805	1	R229	P201111	R# CE H 10K F 0W12 0805	1
R145	P201091	R# CE H 1K5 F 0W12 0805	1	R231	P201115	R# CE H 15K F 0W12 0805	1
R146	P201119	R# CE H 22K F 0W12 0805	1	R232	P201115	R# CE H 15K F 0W12 0805	1
R148	P201015	R# CE H 1E F 0W12 0805	1	R233	P201115	R# CE H 15K F 0W12 0805	1
R152	P201091	R# CE H 1K5 F 0W12 0805	1	R235	P201115	R# CE H 15K F 0W12 0805	1
R154	P201039	R# CE H 10E F 0W12 0805	1	R240	P201159	R# CE H 1M F 0W12 0805	1
R159	P201015	R# CE H 1E F 0W12 0805	1	R241	P201087	R# CE H 1K F 0W12 0805	1
R160	P201015	R# CE H 1E F 0W12 0805	1	R250	P201354	R# CE H 0E 0W12 0805	1
R161	P201129	R# CE H 56K F 0W12 0805	1	R271	P201111	R# CE H 10K F 0W12 0805	1
R162	P201130	R# CE H 62K F 0W12 0805	1				

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
SR10	R1012009	R CFFH 1E J 0W5	△ 1
XT10	R306844	X 7M151223 20 HC49	1
XT11	R306849	X 7M159090 20 HC49	1
	R7627452P	UN*808S DEC COMB_F PM/2	1

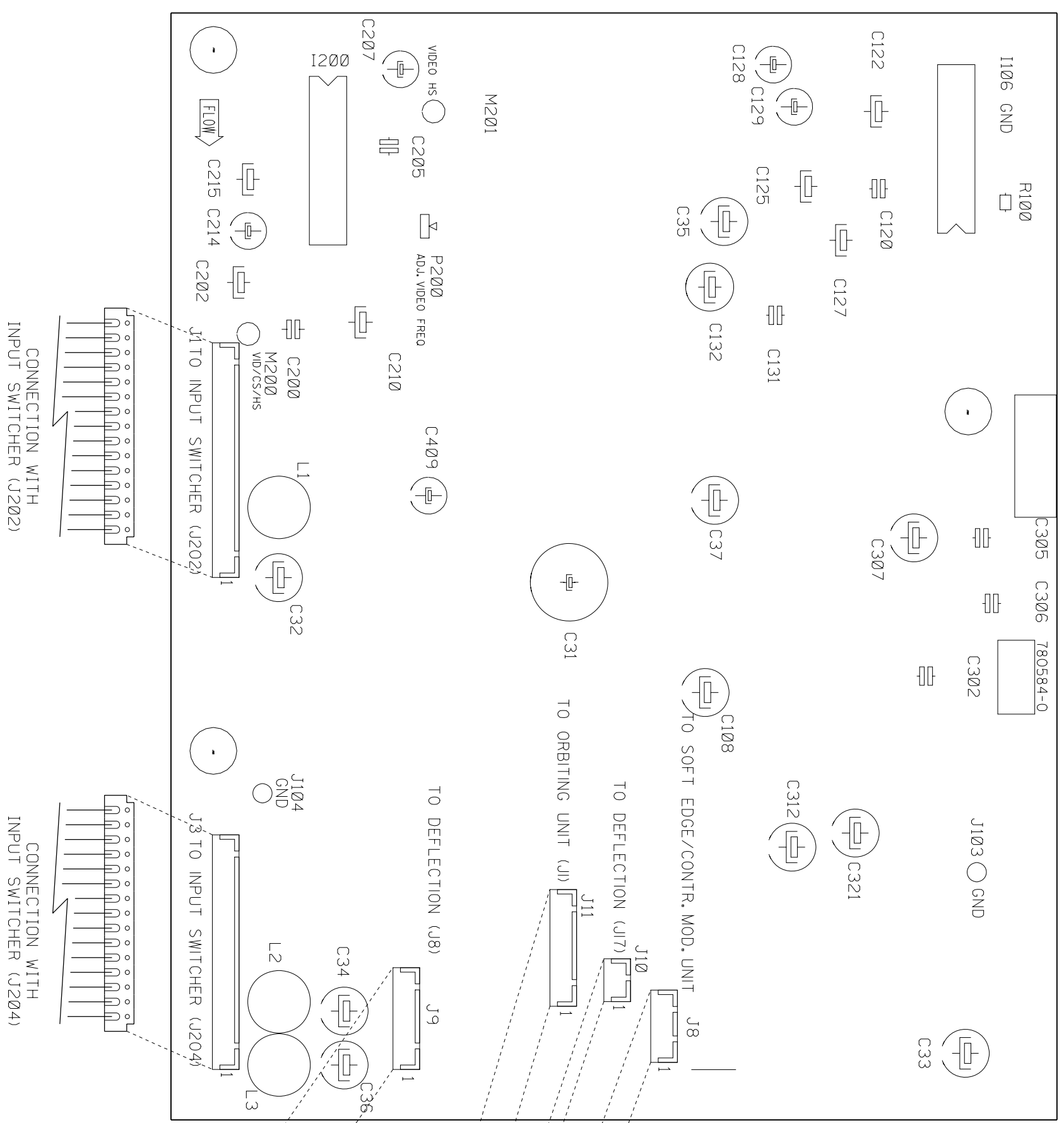
PRODUCT SAFETY NOTICE

Components identified by △ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.





TOP VIEW



CONNECTION WITH INPUT SWITCHER (J202)

CONNECTION WITH INPUT SWITCHER (J204)

CONNECTION WITH DEFLECTION (J8)

CONNECTION WITH ORBITING (J1)

CONNECTION WITH DEFLECTION (J17)

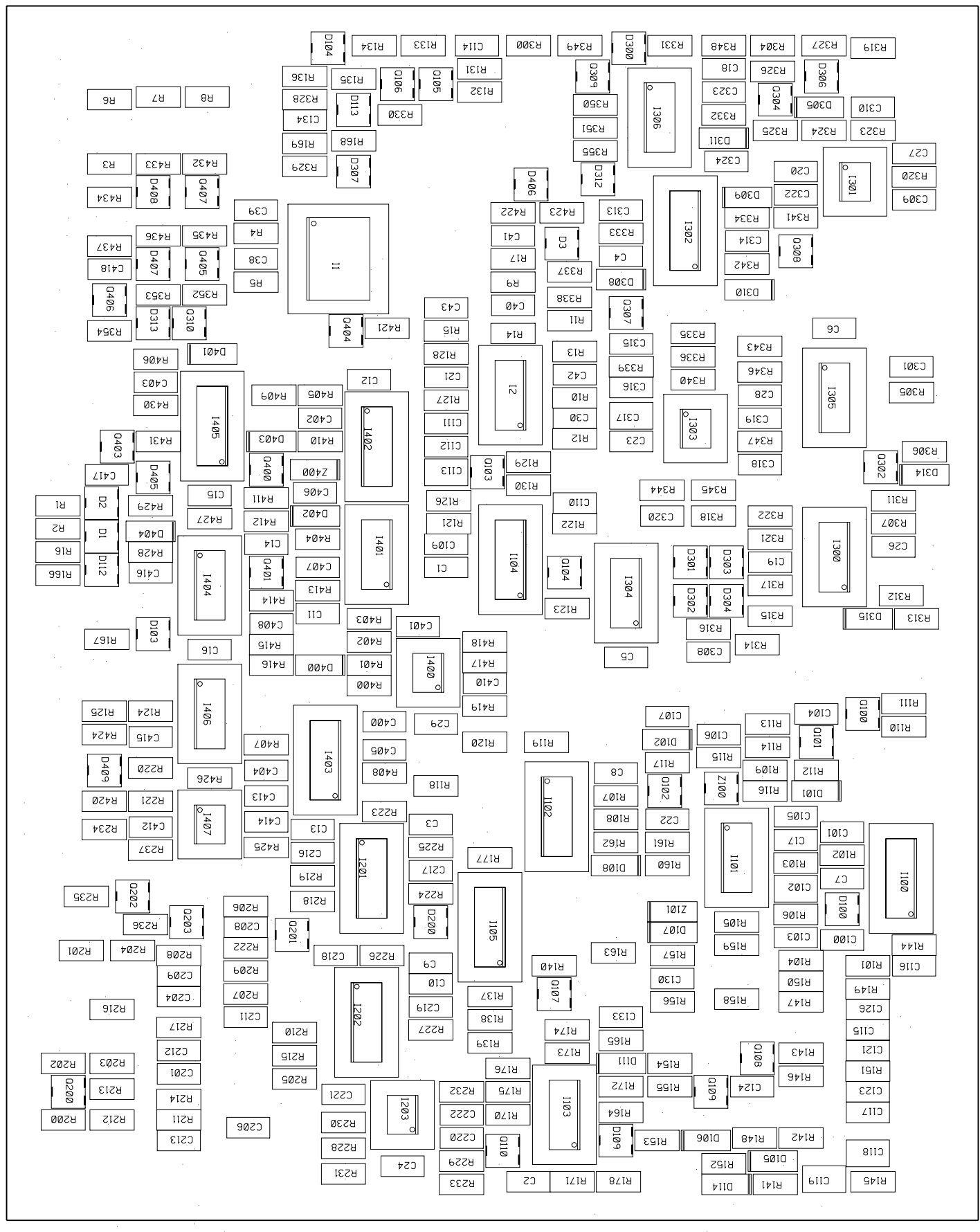
CONNECTION WITH CONTRAST MODULATION

Modifications reserved

Name	SWINGROUNSATIION UNIT	Sheet	1 / 2
Module No	R7524895	Index	2
PCB No	R730584	Rev	0
Date	29-09-1998	Drawn	JVDY
		Checked	CHT

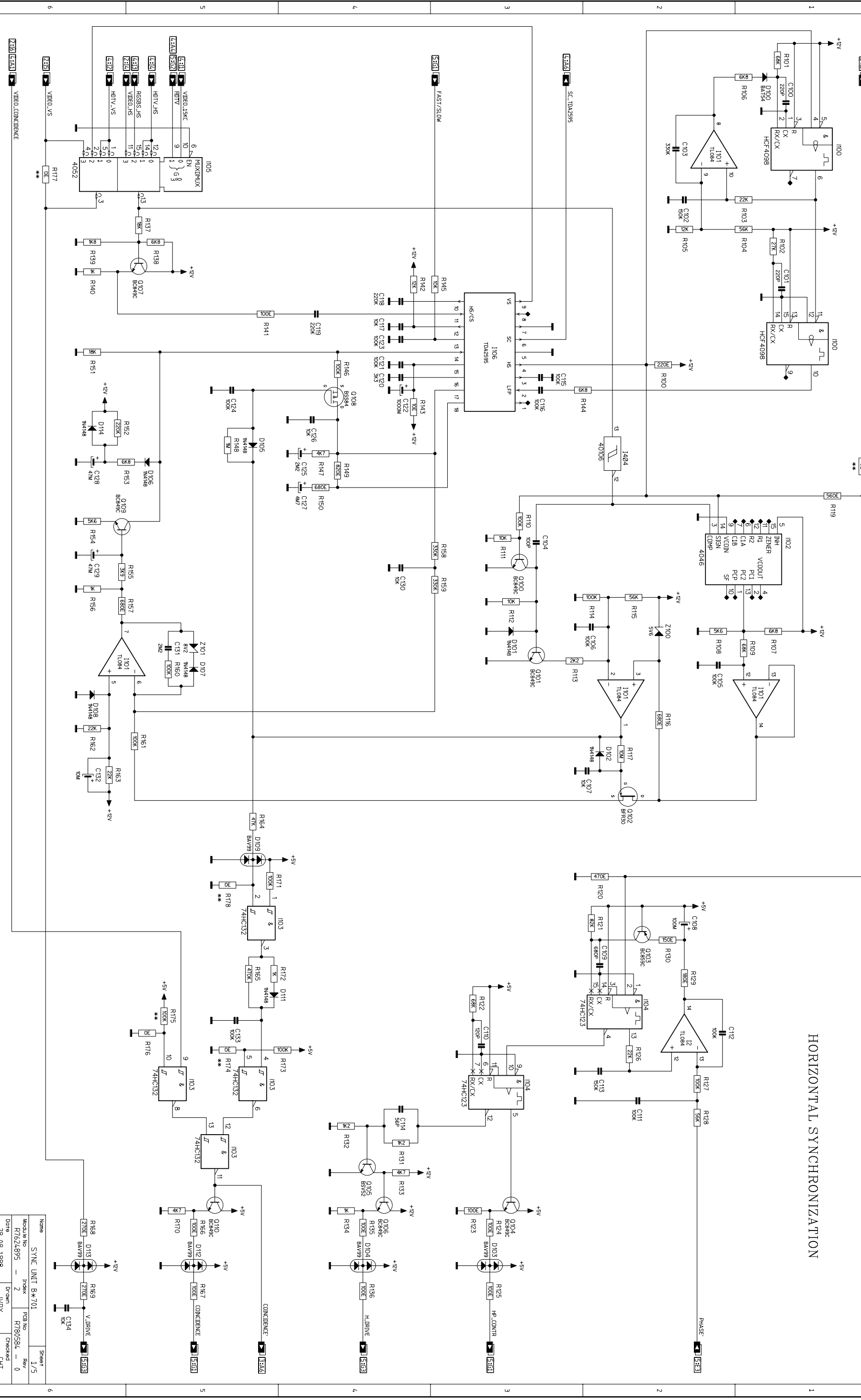
BARCO PROJECTION SYSTEMS

BOTTOM VIEW



Name	SYNCHRONISATION UNIT	Sheet	2 / 2
Module No	R7624895	PCB No	R769584
Index	2	Rev	0
Date	21-05-1998	Drawn	JYD
		Checked	CHT

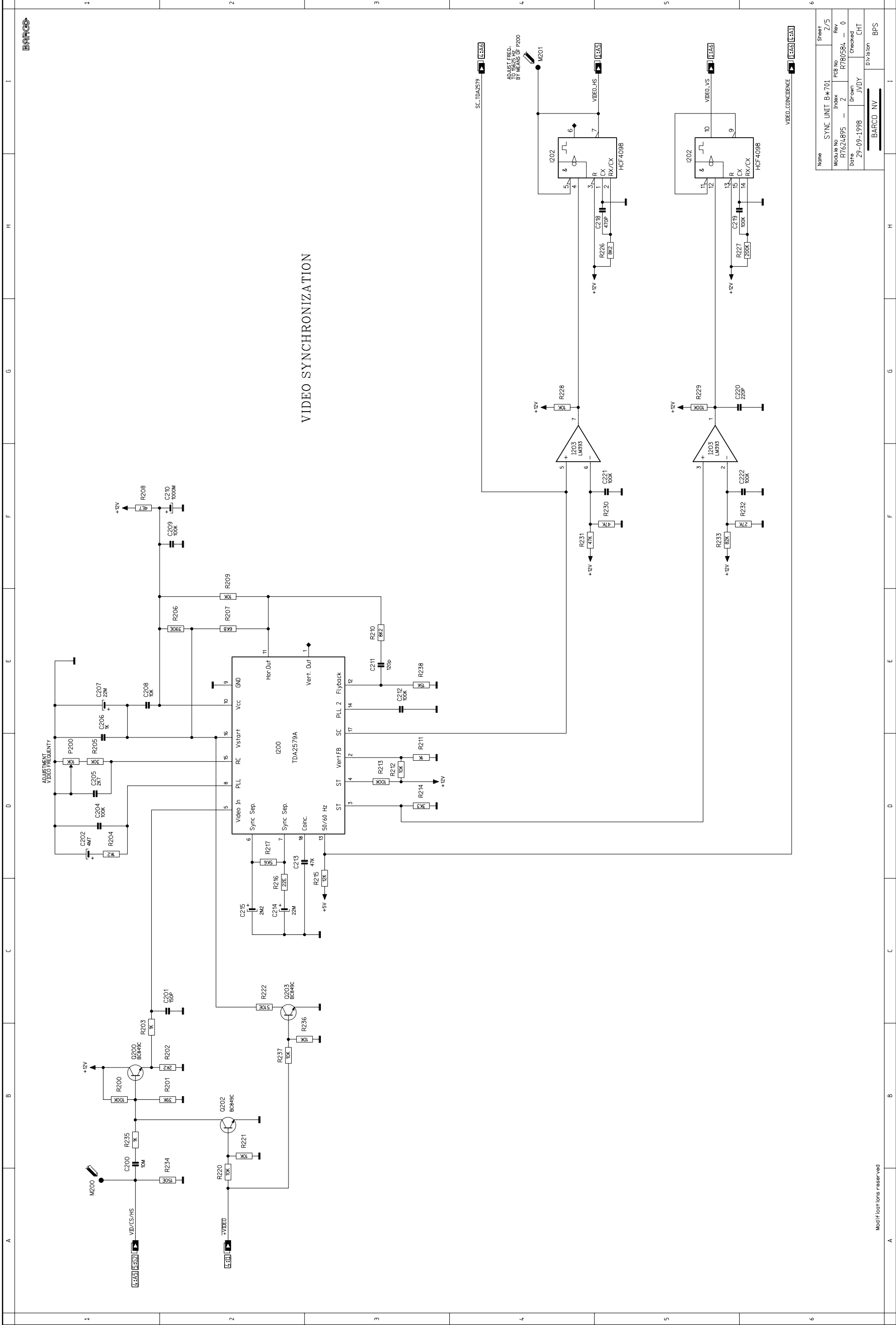
HORIZONTAL SYNCHRONIZATION



Modifications reserved

REMARK : COMPONENTS MARKED WITH ** ARE NOT MOUNTED

Name		SYNC UNIT B*701		Sheet	
Module No	Index	PCB No	Rev	1/5	
R7624895	2	R780584	0		
Date	Drawn	Checked			
29-09-1998	JVDY	CHT			
BARCO NV			DVS Icon		
			BPS		



SC_TDA2579 [E2A6]

VIDEO_CONCURRENCE [E2A6] [E2A3]

Name	SYNC UNIT B*701	Sheet	Z/5
Module No	R7624895	Index	2
Rev	R780584	Rev	0
Date	29-09-1998	Drawn	JVDY
Checked	CHT	Division	Television
BARCO NV		BPS	

Modifications reserved

TOP BLANKING

BOTTOM BLANKING

LEFT BLANKING

RIGHT BLANKING

CONFERENCE

REMARK : COMPONENTS MARKED WITH (*) ARE NOT MOUNTED

VERTICAL AND HORIZONTAL
BLANKING GENERATION

BARCO NV

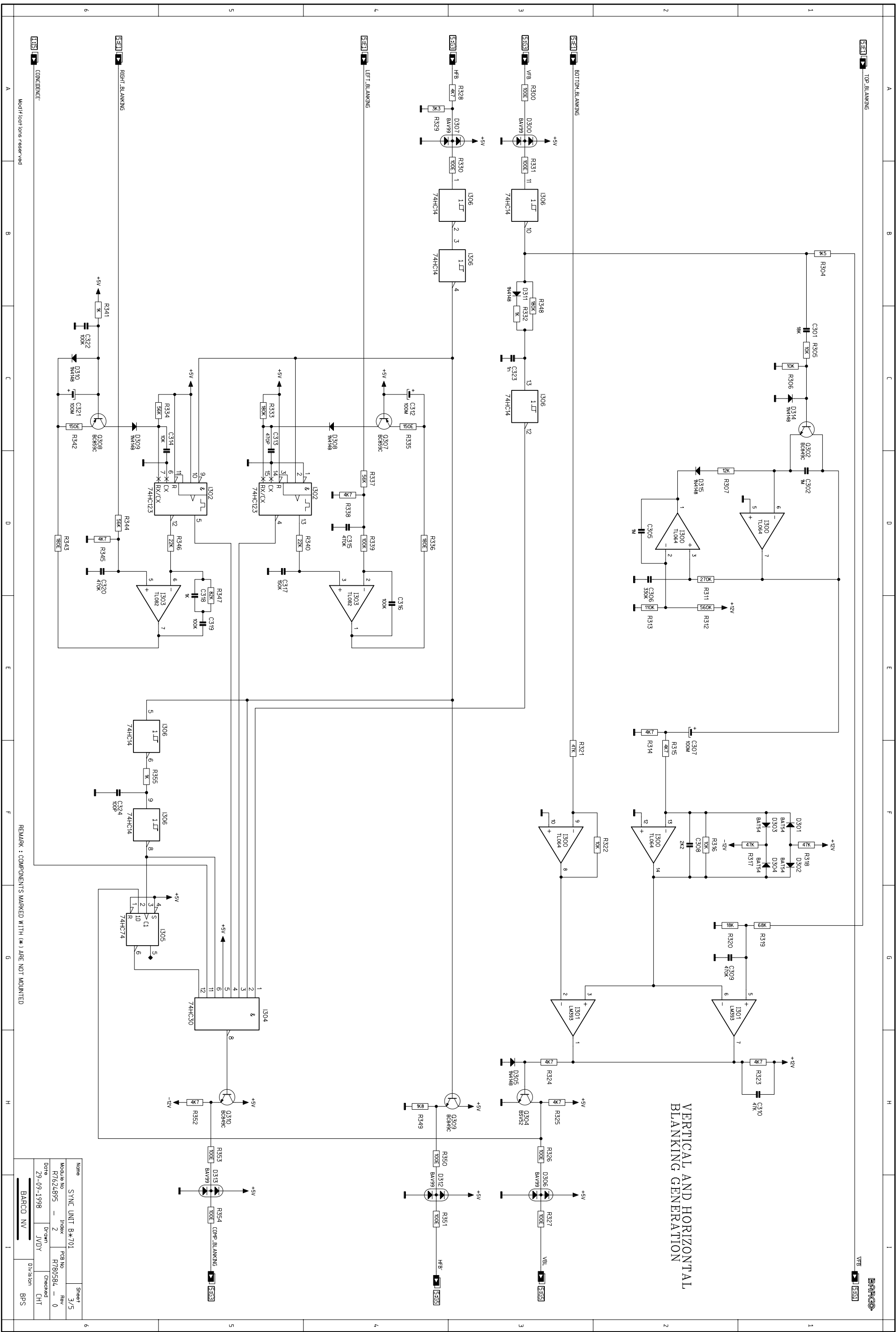
3/75

R7624895 - 2

29-09-1998

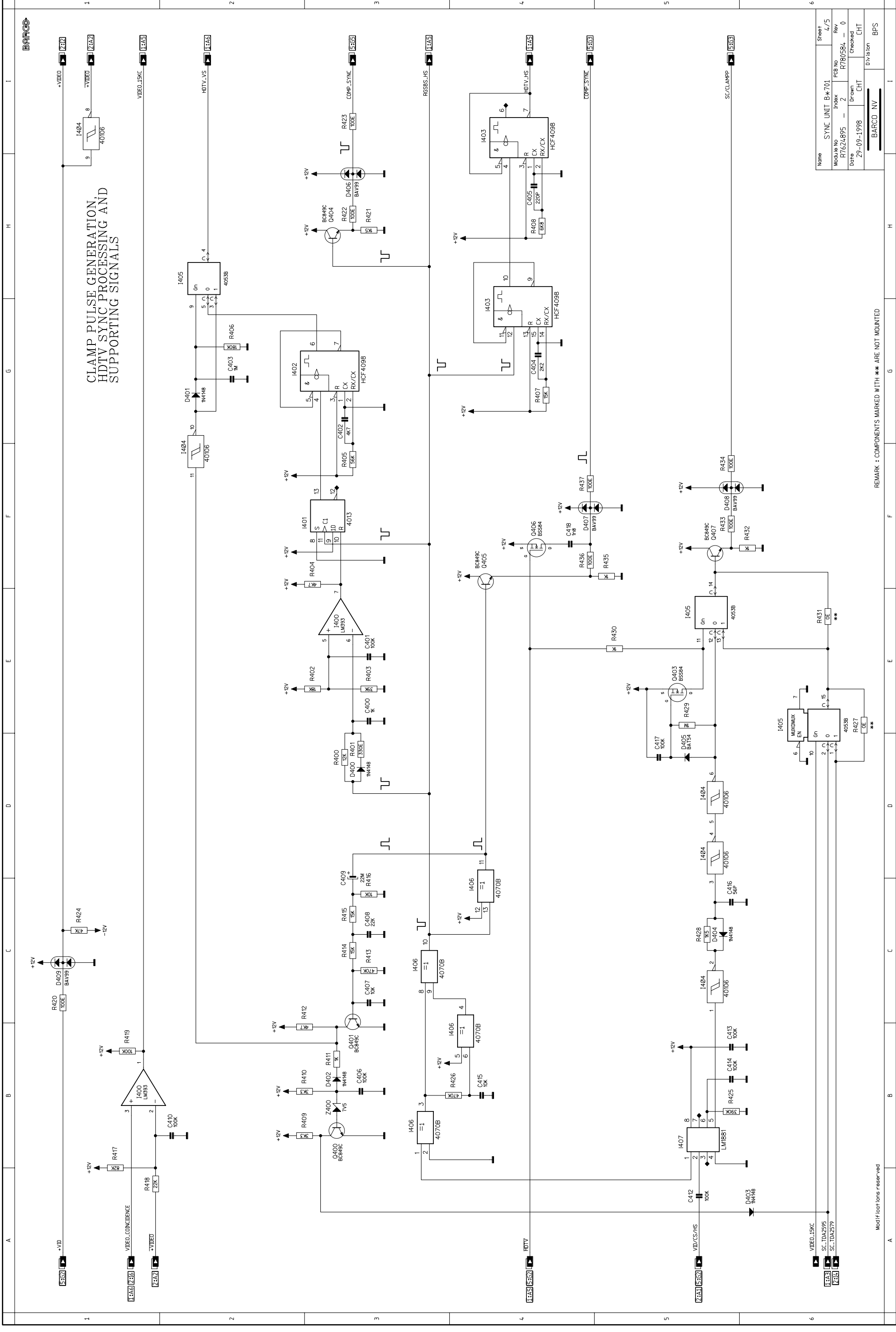
JVDY

BPS



Name	SYNC UNIT B*701	Sheet	3/75
Module No.	R7624895	Index	2
Date	29-09-1998	Rev	R7780584 - 0
		Drawn	JVDY
		Checked	CHT
		Dwg Size	BPS

Modifications reserved

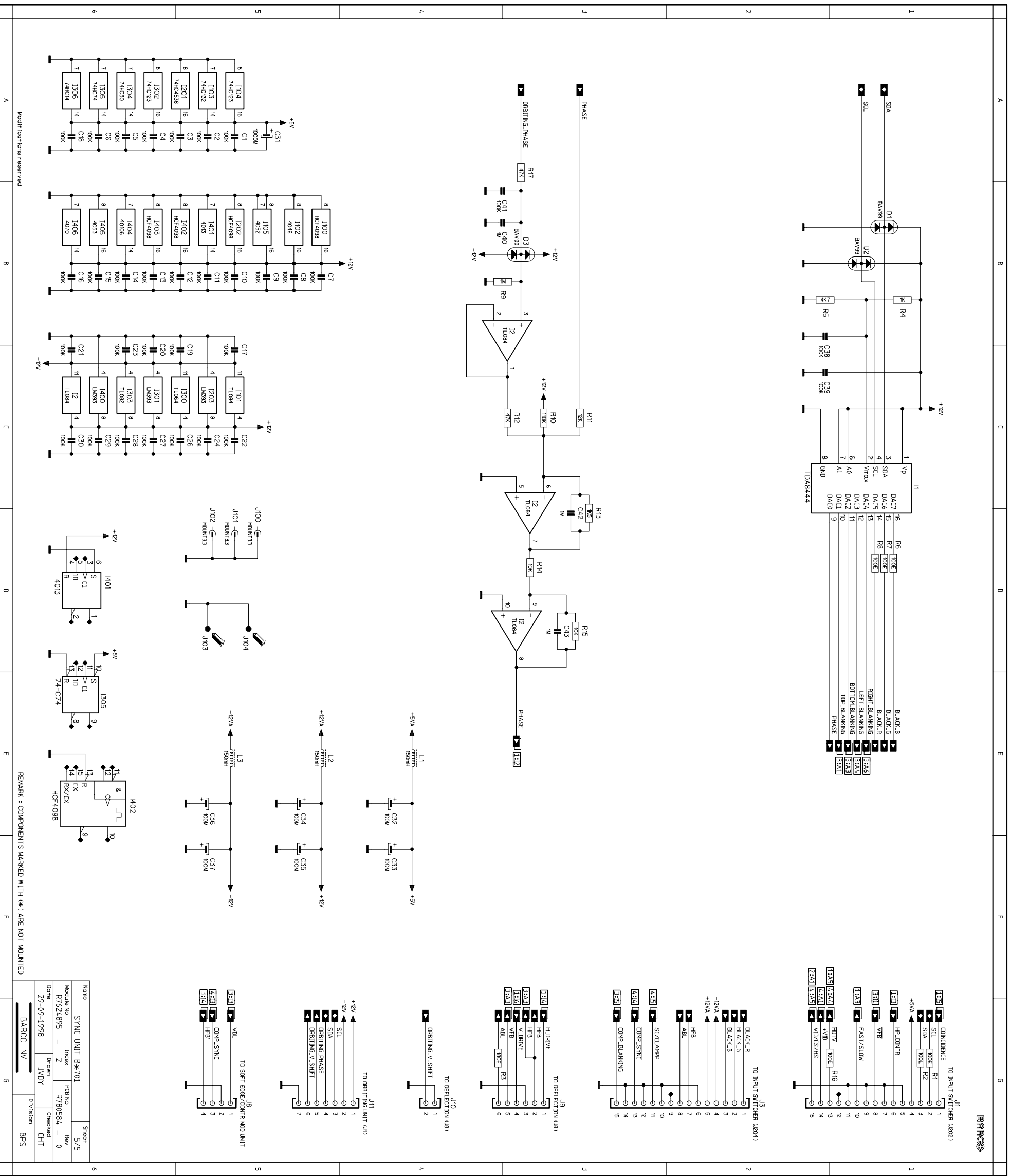


**CLAMP PULSE GENERATION,
HDTV SYNC PROCESSING AND
SUPPORTING SIGNALS**

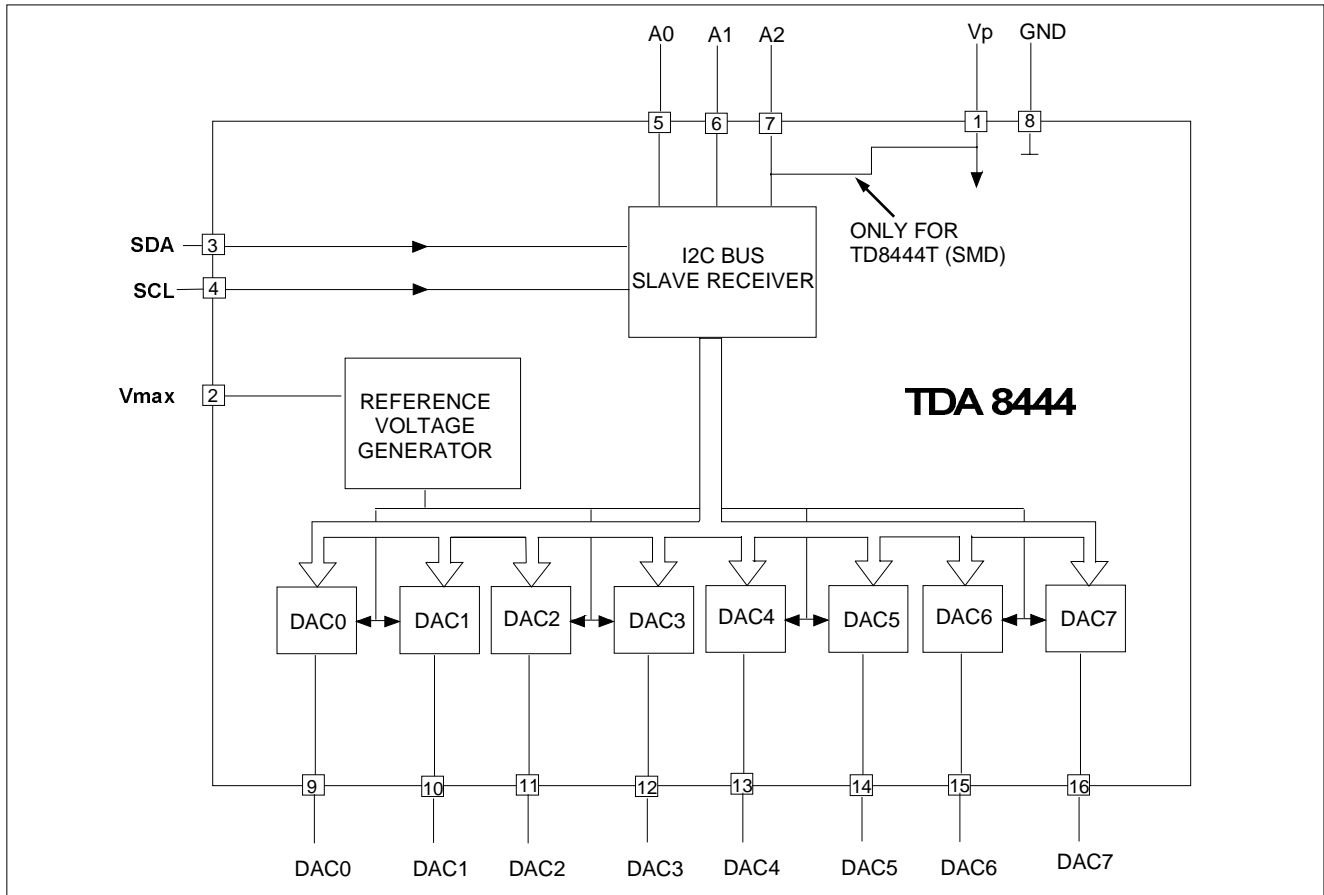
Name	SYNC UNIT B*701	Sheet	4/5
Module No	R7624895	Index	R780584
Doc#	29-09-1998	Drawn	CHT
		Checked	CHT
		Division	BPS
		BARCO NV	

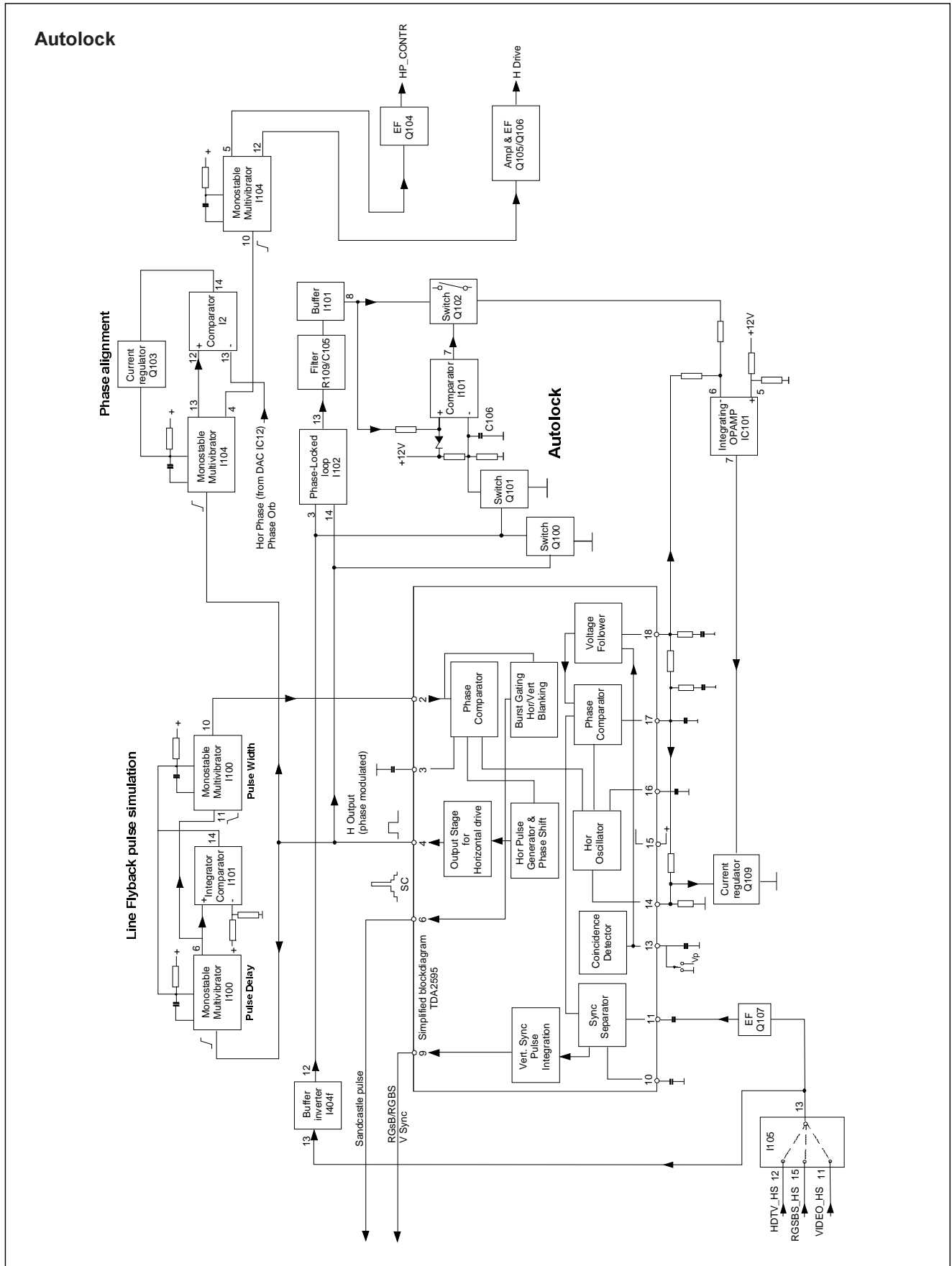
REMARK : COMPONENTS MARKED WITH ** ARE NOT MOUNTED

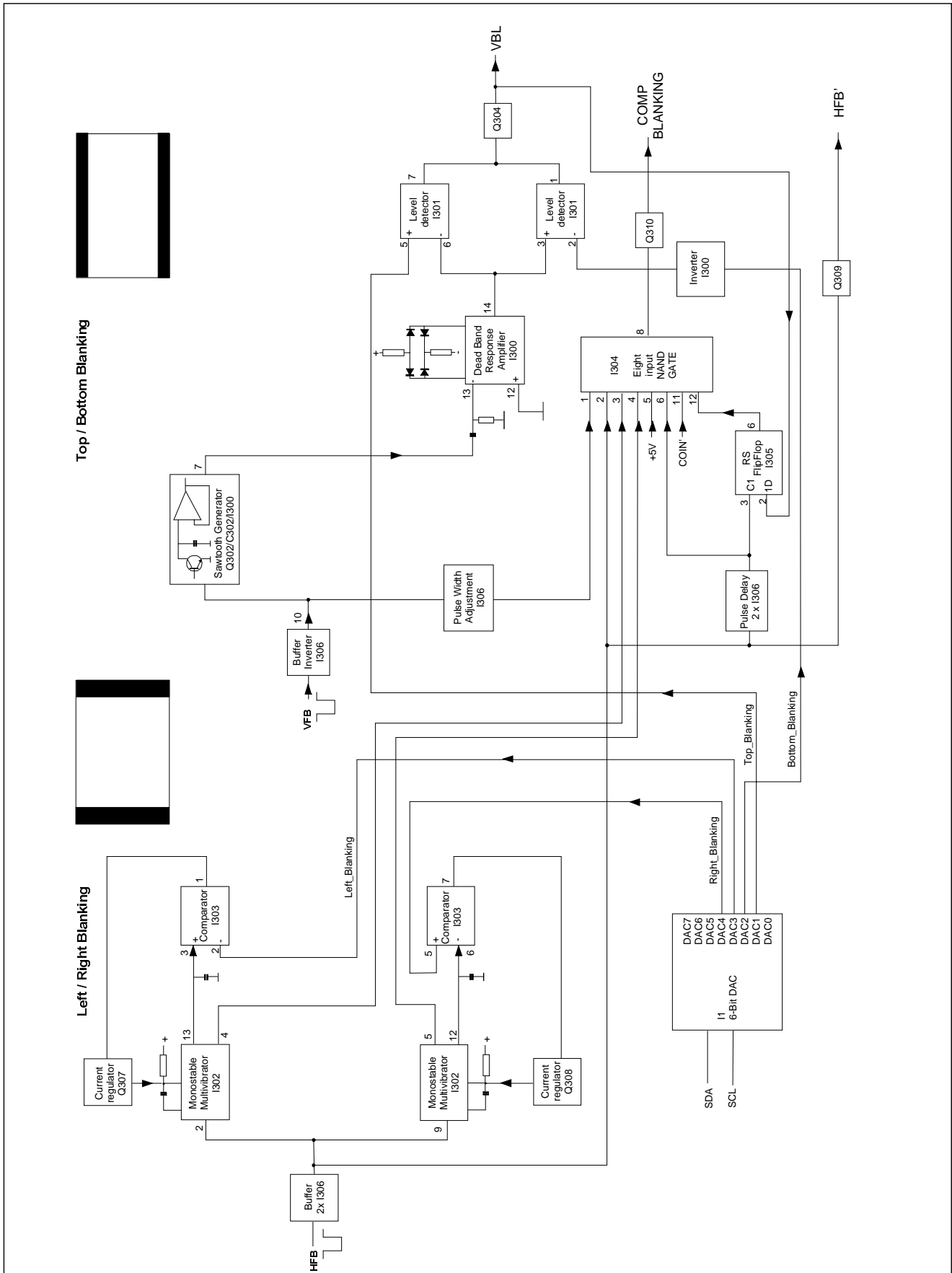
Modifications reserved



COMP.	LOC. SH.	COMP.	LOC. SH.	COMP.	LOC. SH.	COMP.	LOC. SH.
C1	11	D1	11	R1	11	R2	11
C2	12	D2	12	R3	12	R3	12
C3	13	D3	13	R4	13	R4	13
C4	14	D4	14	R5	14	R5	14
C5	15	D5	15	R6	15	R6	15
C6	16	D6	16	R7	16	R7	16
C7	17	D7	17	R8	17	R8	17
C8	18	D8	18	R9	18	R9	18
C9	19	D9	19	R10	19	R10	19
C10	20	D10	20	R11	20	R11	20
C11	21	D11	21	R12	21	R12	21
C12	22	D12	22	R13	22	R13	22
C13	23	D13	23	R14	23	R14	23
C14	24	D14	24	R15	24	R15	24
C15	25	D15	25	R16	25	R16	25
C16	26	D16	26	R17	26	R17	26
C17	27	D17	27	R18	27	R18	27
C18	28	D18	28	R19	28	R19	28
C19	29	D19	29	R20	29	R20	29
C20	30	D20	30	R21	30	R21	30
C21	31	D21	31	R22	31	R22	31
C22	32	D22	32	R23	32	R23	32
C23	33	D23	33	R24	33	R24	33
C24	34	D24	34	R25	34	R25	34
C25	35	D25	35	R26	35	R26	35
C26	36	D26	36	R27	36	R27	36
C27	37	D27	37	R28	37	R28	37
C28	38	D28	38	R29	38	R29	38
C29	39	D29	39	R30	39	R30	39
C30	40	D30	40	R31	40	R31	40
C31	41	D31	41	R32	41	R32	41
C32	42	D32	42	R33	42	R33	42
C33	43	D33	43	R34	43	R34	43
C34	44	D34	44	R35	44	R35	44
C35	45	D35	45	R36	45	R36	45
C36	46	D36	46	R37	46	R37	46
C37	47	D37	47	R38	47	R38	47
C38	48	D38	48	R39	48	R39	48
C39	49	D39	49	R40	49	R40	49
C40	50	D40	50	R41	50	R41	50
C41	51	D41	51	R42	51	R42	51
C42	52	D42	52	R43	52	R43	52
C43	53	D43	53	R44	53	R44	53
C44	54	D44	54	R45	54	R45	54
C45	55	D45	55	R46	55	R46	55
C46	56	D46	56	R47	56	R47	56
C47	57	D47	57	R48	57	R48	57
C48	58	D48	58	R49	58	R49	58
C49	59	D49	59	R50	59	R50	59
C50	60	D50	60	R51	60	R51	60
C51	61	D51	61	R52	61	R52	61
C52	62	D52	62	R53	62	R53	62
C53	63	D53	63	R54	63	R54	63
C54	64	D54	64	R55	64	R55	64
C55	65	D55	65	R56	65	R56	65
C56	66	D56	66	R57	66	R57	66
C57	67	D57	67	R58	67	R58	67
C58	68	D58	68	R59	68	R59	68
C59	69	D59	69	R60	69	R60	69
C60	70	D60	70	R61	70	R61	70
C61	71	D61	71	R62	71	R62	71
C62	72	D62	72	R63	72	R63	72
C63	73	D63	73	R64	73	R64	73
C64	74	D64	74	R65	74	R65	74
C65	75	D65	75	R66	75	R66	75
C66	76	D66	76	R67	76	R67	76
C67	77	D67	77	R68	77	R68	77
C68	78	D68	78	R69	78	R69	78
C69	79	D69	79	R70	79	R70	79
C70	80	D70	80	R71	80	R71	80
C71	81	D71	81	R72	81	R72	81
C72	82	D72	82	R73	82	R73	82
C73	83	D73	83	R74	83	R74	83
C74	84	D74	84	R75	84	R75	84
C75	85	D75	85	R76	85	R76	85
C76	86	D76	86	R77	86	R77	86
C77	87	D77	87	R78	87	R78	87
C78	88	D78	88	R79	88	R79	88
C79	89	D79	89	R80	89	R80	89
C80	90	D80	90	R81	90	R81	90
C81	91	D81	91	R82	91	R82	91
C82	92	D82	92	R83	92	R83	92
C83	93	D83	93	R84	93	R84	93
C84	94	D84	94	R85	94	R85	94
C85	95	D85	95	R86	95	R86	95
C86	96	D86	96	R87	96	R87	96
C87	97	D87	97	R88	97	R88	97
C88	98	D88	98	R89	98	R89	98
C89	99	D89	99	R90	99	R90	99
C90	100	D90	100	R91	100	R91	100

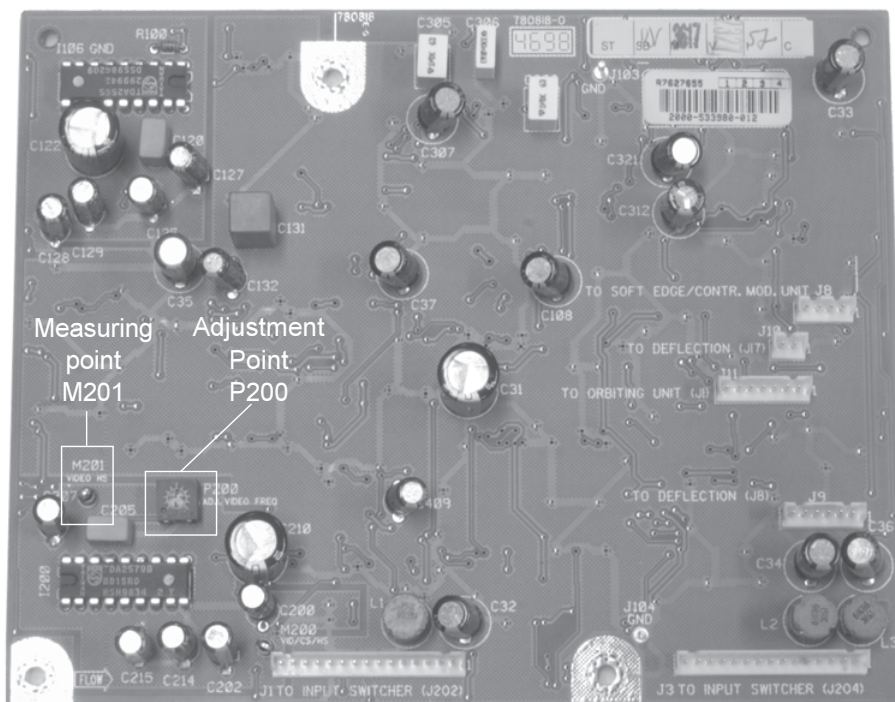






ADJUSTMENT OF PLL OF THE TDA2579A (I200)

Location of Adjustment



Adjustment Procedure

The free loop frequency of the oscillator of the TDA2579A is factory preset at 15625 ± 50 Hz. This is the optimum setting for that IC. If the free loop frequency is outside this range, the PLL will be able to lock, but for video tapes with big phase shifts one will see this clearly on the image.

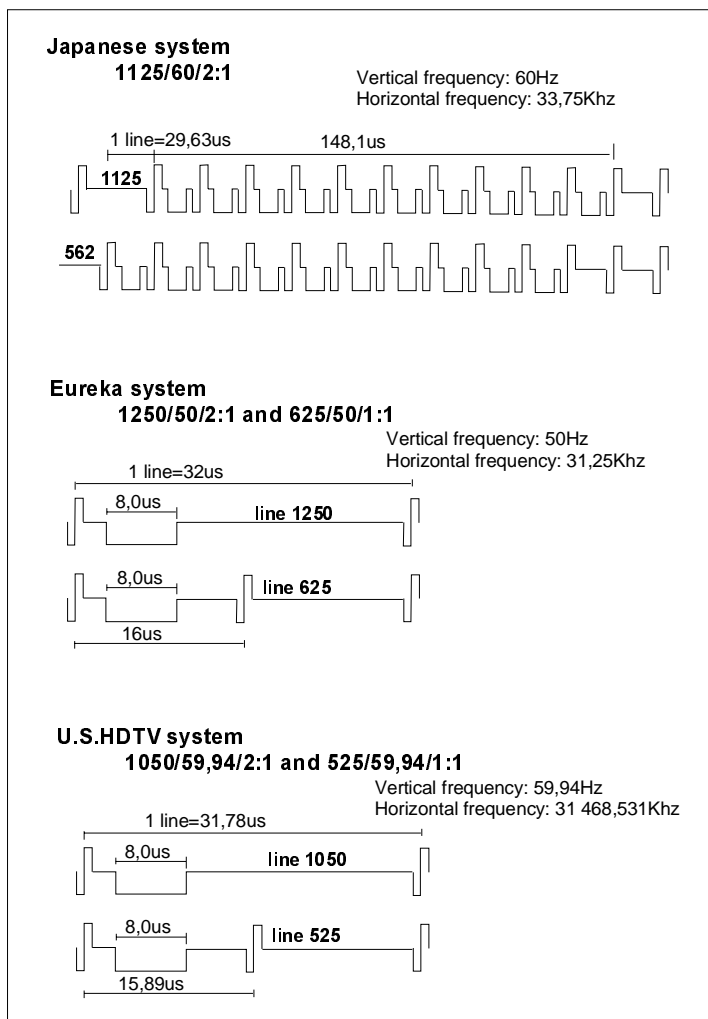
To adjust the free loop frequency, proceed as follows :

- Connect a frequency meter or a probe of an oscilloscope to the measuring point M201.
- Select Source 1 and remove the video source.
- Wait a few seconds and adjust P200 until the frequency of the negative pulses coming as close as possible to 15625 Hz.

REPLACEMENT OF CRITICAL COMPONENTS

C120 and C205 are capacitors with a tolerance of 2.5% and must if possible be replaced by capacitors with the same tolerance.

TECHNICAL DESCRIPTION



Horizontal synchronization

The following sources can come in through a current source on the termination resistor R234.

SOURCE	+VID	HDTV
Composite video	H	H
Sync on green	L	H
Sync on Y	L	H
Separate composite sync	L	H
Tri-level sync on green or Y	L	L
Separate composite tri-level sync	L	L

For the composite video source the I200(TDA2579A) synchronizes its horizontal and vertical oscillators on this source. Through I203(LM393) and I202(HCF4098) new horizontal sync and vertical pulse drive signals are derived respectively from the sandcastle at pin 17 and the vertical pulse at pin3 of the I200 oscillator. For all other sources, the input of I200 is pulled down by R235 and Q202, the I200 is switched off via Q203.

Through the I105(4052) the desired input signal for the I106(TDA2595) is selected. This signal can be the new horizontal sync developed via I200, I203 and I202 for the composite video ; or the composite sync separated from the input signal by I407(LM1881) for the RGB source; or the through I403 decoded horizontal sync pulse for a HDTV source.

The above selected sync pulses are then supplied to I106 via the emitter follower. I106 together with I100, I101 and I102 and all their peripheral components form the AUTOLOCK. This system makes the PLL of the TDA2595(I106) coincide with the frequency of the source, and then let the PLL locked and ensure that it remains locked.

*As more than once the same IC is presented in the schematic sheets, we distinguish them by adding suffix a, b, c and so on to it. ICa starts with the lowest number.

I100 and I101c* and all their peripheral components form the FLYBACK SIMULATION. This is a system which ensures that the horizontal pulses from pin 4 of I106 are delayed and with a determined width returned to pin 2 (LFP). The second PLL makes sure that the middle of this simulated flyback pulse coincides with the middle of the horizontal sync of the input. The PLL realizes this by bringing the horizontal pulse earlier to pin 4. This means that you get from pin 4 a 'horizontal drive pulse' that arrives 't' periode earlier than the sync of the input signal wherein 't' is constrained by R104 and R105 and counts about 18% of the line period.

The AUTOLOCK, further, consists of three loops and each of them has a specific function. Loop 1 is the TDA2595(I106) and its phase comparator which has a function of following quickly small phase shifts in a locked situation. The speed of the loop is constrained by the status of the FAST/SLOW line. If the line is shorted to ground then the loop is in FAST status. If the line is high impedance, then the loop is in SLOW status.

Loop 2 contains R158, R159, I101b and the components around. The function of Loop 2 is to make sure that the phase comparator operates in the middle of its adjustment range in a long period. By this way, the oscillator remains locked on a defined frequency. Loop 2 and Loop 1 keep working all the time.

The third loop is build up with I102, I101a, I101b, I101c and their peripheral components. Its function is to control if I106 is locked or not and when the I106 is not locked it makes the oscillator coincides with the frequency of the source.

The frequency of the oscillator I106 depends on the value of the oscillator capacity at pin 16 and the current drained out from pin 14. Pin 14 is always at 6V. R151 is selected in such a way to have a free loop frequency of about 15 kHz.

I103b, I103c and I103d set the coincidence levels to 0 and +5V.

I104 and I2d form the PHASE ADJUSTMENT which bases on the same principle as the LEFT BLANKING (adjusting the pulse width by means of a DC voltage).

Vertical drive	<p>I105b switches the different inputs over to the output depending on the VIDEO_15kc and HDTV levels. The VIDEO_15kc is only high when the +VID line is high and when the video synchronization I200 (TDA2579A) is locked.</p> <p>If there is a composite video source, then the vertical drive pulse, developed through I200, I203 and I202, is switched over. In case of a RGB source, the vertical drive pulse separated by I106(TDA2595), is switched over. For a HDTV source, the vertical drive pulse decoded from the HDTV source, is switched over.</p>
Horizontal blanking	<p>The horizontal flyback pulse (HFB) is converted to +5V. After being buffered and delayed by Schmitt-triggers(I306), it is then used as FIXED HORIZONTAL BLANKING.</p> <p>The LEFT BLANKING is built around I302a and I303a. The horizontal flyback pulse HFB triggers the monostable I302a. This supplies a pulse with a certain width which in great parts is determined by the current of the source current Q307. The pulse is transformed to a DC voltage by R340 and C317. The voltage is compared with a voltage to be established and will be kept equalized by I303a. By this way, one gets the pulse width adjustment.</p> <p>The RIGHT BLANKING is built around I302b and I303b and works according to the same principle as the LEFT BLANKING. The RIGHT BLANKING has to start somewhere before the end of the line and to end at the beginning of the horizontal flyback. Therefore, I302a is triggered with the start of the horizontal flyback and a pulse is generated which gives NO BLANKING. By using the other output of the I302b one gets then a pulse that indicates the BLANKING. This inverse use results in that the modulator has to work in a opposite way.</p>
Vertical blanking	<p>The vertical flyback pulse (VFB) is buffered and prolonged by Schmitt-triggers(I306) and then is used as FIXED VERTICAL BLANKING.</p> <p>Through I300a and I300b a sawtooth is developed. I300a functions as integrator and I300b keeps the amplitude at 4V independent of the frequency. This sawtooth is AC-coupled through C307 and R314, and is further amplified by a Dead Band Amplifier. This is a amplifier which works only when the input voltage $V_i > V_{th}$, with V_{th} as a threshold voltage determined by the peripheral components. By this way, one gets at both sides of the scan a triangle with in between a zero voltage. The comparator I301s compare this signal with 2 DC voltages coming from a I²C controlled DAC I1. By adjusting these DAC outputs, the TOP & BOTTOM BLANKING are adjusted. At the end the vertical blanking waveform is clocked on horizontal flyback pulses through I305.</p> <p>All (negative) blanking signals are summed to the COMPOSITE BLANKING by I304.</p>
Decoding horizontal tri-level sync of HDTV sources	<p>The decoding of the horizontal sync is the same for the 3 HDTV standards, i.e. EUREKA(European), US HDTV and MUSE (Japanese).</p> <p>Through I403a, a window is made which has 3/4 line time so that very short vertical pulses from EUREKA and US HDTV do not come out. Afterwards, new horizontal sync pulses with a specific width are generated from the edges of these windows.</p>

Decoding vertical tri-level sync of HDTV sources1. EUREKA and US HDTV

The vertical sync can not by normal integration be separated from the composite sync signal because they are much too short (8 μ s less than a line). Nevertheless the switching uses the difference in time between the vertical and horizontal sync. The starting falling edge of the sync pulse is sharply integrated and the ending rising edge is quickly restored. Horizontal pulses are too short to reach a determined threshold, whereas vertical pulses which are 10 times longer do reach the same threshold. This threshold is compared with the integrated sync by I400b so that a pulse comes into existence at the position of the vertical sync. The pulse resets a flip-flop which will be set by the first following horizontal sync. The rising edge from setting the flip-flop is transformed by I402 into a vertical drive with a certain duration.

2. MUSE

The vertical sync of MUSE HDTV is 10 lines long (interrupted by tri-level horizontal serration pulses) and can thus easily be separated from the composite sync signal through double integration. This separation takes place through R415, C408, R414, C407 and Q401. The separated pulse is buffered by means of a Schmitt-trigger inverter.

The obtained drive pulses are switched over by means of I405 to the analog multiplexer I105. The D401, C403 and R406 detects whether there are MUSE vertical pulses. If that is the case, they are switched over. In other cases, the EURAKA or US vertical pulses are switched over.

COMP_SYNC signal

The input switcher(R762228) makes use of the inverted (positive) composite sync pulses to generate a new clamp pulse. This COMP_SYNC signal is integrated , in case of HDTV, by means of C418 and Q406 so that the clamp pulse starts after the positive section of the tri-level pulse.

Video sandcastle

The derived sandcastle of a video is sent to I405a. As the VIDEO_15kc line is high now, the I405a switches the sandcastle over to the input of I405c. This sandcastle passes through the I405c and will be used by the decoder and the input switcher(R762228) to generate a clamp pulse. In case of a RGB or HDTV source the SC/CLAMP output signal is not used in the projector except for the V701s projector.

Autopolarity

At the VID/CS line, the positive as well as the negative composite sync signals can come in. I406 and its peripheral components buffer the negative pulses through and transform the positive pulses to negative ones.

Orbiting-phase

The slowly transient DC voltage, which has to modulate the phase, come in through the low pass filter R17 and C41. After being buffered, the voltage is added to the phase voltage and thereafter the sum is inverted. With this voltage the phase is then aligned.

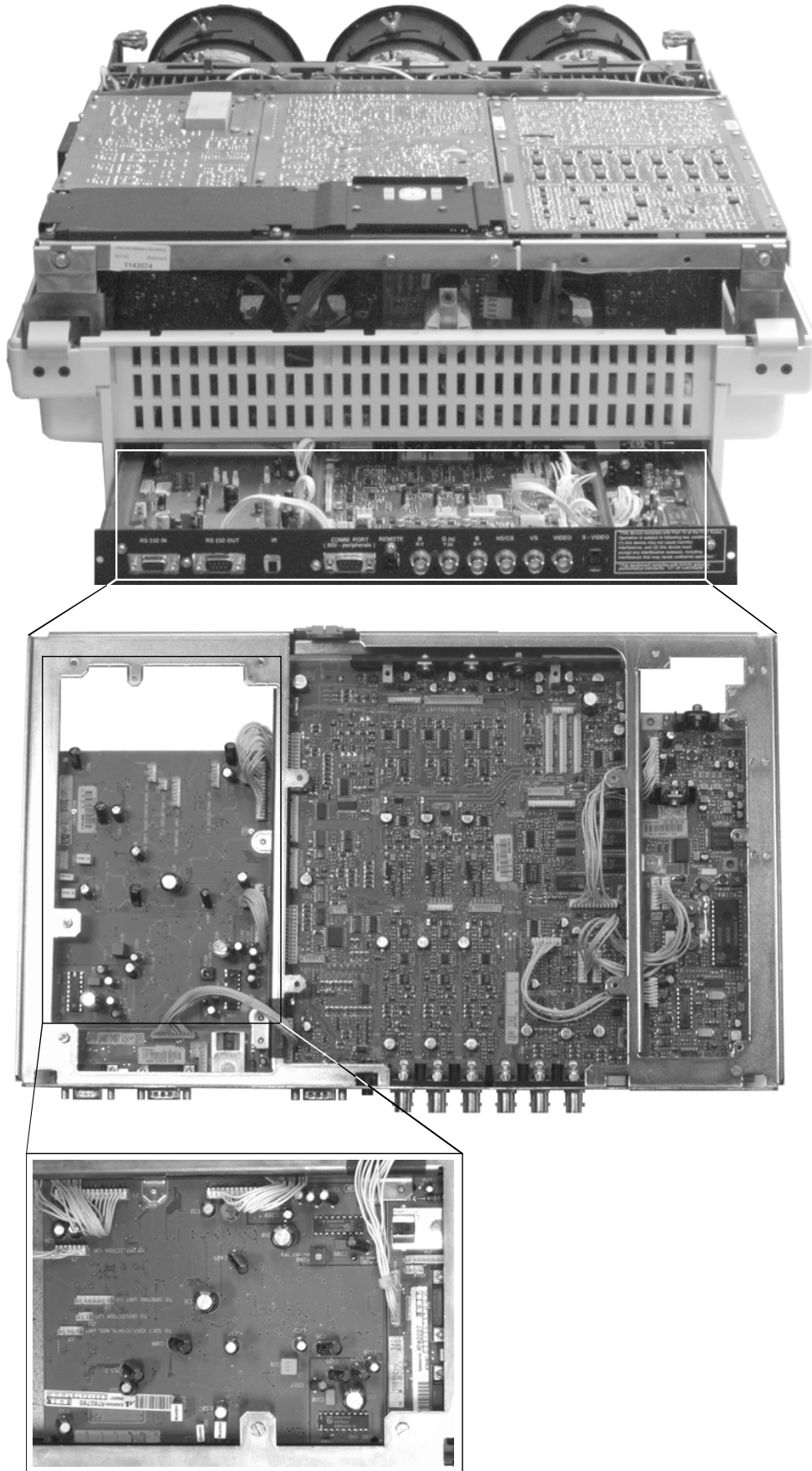
PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 1	P210122	C# X7R MU 100N K 50 1206	1	C123	P210122	C# X7R MU 100N K 50 1206	1
C 2	P210122	C# X7R MU 100N K 50 1206	1	C124	P210122	C# X7R MU 100N K 50 1206	1
C 3	P210122	C# X7R MU 100N K 50 1206	1	C125	R111548	C EL RA 2M2M 50E2 85	
C 4	P210122	C# X7R MU 100N K 50 1206	1	C126	P210092	C# X7R MU 10N K 50 1206	1
C 5	P210122	C# X7R MU 100N K 50 1206	1	C127	R111550	C EL RA 4M7M 50E2 85	
C 6	P210122	C# X7R MU 100N K 50 1206	1	C128	R111476	C EL RA 47M M 25E2 85	
C 7	P210122	C# X7R MU 100N K 50 1206	1	C129	R111476	C EL RA 47M M 25E2 85	
C 8	P210122	C# X7R MU 100N K 50 1206	1	C130	P210092	C# X7R MU 10N K 50 1206	1
C 9	P210122	C# X7R MU 100N K 50 1206	1	C131	V114098	C POMERA 2M2M 50E2 85	
C 10	P210122	C# X7R MU 100N K 50 1206	1	C132	R111531	C EL RA 10M M 35E2 85	
C 11	P210122	C# X7R MU 100N K 50 1206	1	C133	P210122	C# X7R MU 100N K 50 1206	1
C 12	P210122	C# X7R MU 100N K 50 1206	1	C134	P210092	C# X7R MU 10N K 50 1206	1
C 13	P210122	C# X7R MU 100N K 50 1206	1	C200	R111678	C EL BRA 10M M 25E2 85	
C 14	P210122	C# X7R MU 100N K 50 1206	1	C201	P210158	C# C0G MU 150P J 50 1206	1
C 15	P210122	C# X7R MU 100N K 50 1206	1	C202	R111550	C EL RA 4M7M 50E2 85	
C 16	P210122	C# X7R MU 100N K 50 1206	1	C204	P210122	C# X7R MU 100N K 50 1206	1
C 17	P210122	C# X7R MU 100N K 50 1206	1	C205	R115926	C PP RA 2N7J100E2 85	
C 18	P210122	C# X7R MU 100N K 50 1206	1	C206	P210013	C# C0G MU 1N J 50 1206	1
C 19	P210122	C# X7R MU 100N K 50 1206	1	C207	R111510	C EL RA 22M M 25E2 85	
C 20	P210122	C# X7R MU 100N K 50 1206	1	C208	P210092	C# X7R MU 10N K 50 1206	1
C 21	P210122	C# X7R MU 100N K 50 1206	1	C209	P210122	C# X7R MU 100N K 50 1206	1
C 22	P210122	C# X7R MU 100N K 50 1206	1	C210	R111469	C EL RA1000M M 16E2 85	1
C 23	P210122	C# X7R MU 100N K 50 1206	1	C211	P210161	C# C0G MU 120P J 50 1206	1
C 24	P210122	C# X7R MU 100N K 50 1206	1	C212	P210122	C# X7R MU 100N K 50 1206	1
C 26	P210122	C# X7R MU 100N K 50 1206	1	C213	P210045	C# X7R MU 47N K 50 1206	1
C 27	P210122	C# X7R MU 100N K 50 1206	1	C214	R111510	C EL RA 22M M 25E2 85	
C 28	P210122	C# X7R MU 100N K 50 1206	1	C215	R111548	C EL RA 2M2M 50E2 85	
C 29	P210122	C# X7R MU 100N K 50 1206	1	C218	P210102	C# C0G MU 470P J 50 1206	1
C 30	P210122	C# X7R MU 100N K 50 1206	1	C219	P210122	C# X7R MU 100N K 50 1206	1
C 31	R111453	C EL RA1000M M 10E2 85	1	C220	P210076	C# C0G MU 220P J 50 1206	1
C 32	R111477	C EL RA 100M M 25E2 85		C221	P210122	C# X7R MU 100N K 50 1206	1
C 33	R111477	C EL RA 100M M 25E2 85		C222	P210122	C# X7R MU 100N K 50 1206	1
C 34	R111477	C EL RA 100M M 25E2 85		C301	P210151	C# X7R MU 18N K 50 1206	1
C 35	R111477	C EL RA 100M M 25E2 85		C302	R114090	C POMERA 1M K 63E2 85	
C 36	R111477	C EL RA 100M M 25E2 85		C305	R114090	C POMERA 1M K 63E2 85	
C 37	R111477	C EL RA 100M M 25E2 85		C306	R114085	C POMERA 330N K 63E2 85	
C 38	P210122	C# X7R MU 100N K 50 1206	1	C307	R111477	C EL RA 100M M 25E2 85	
C 39	P210122	C# X7R MU 100N K 50 1206	1	C308	P210029	C# C0G MU 2N2J 50 1206	1
C 40	P210178	C# Y5V MU 1M Z 16 1206	1	C309	P210148	C# Y5V MU 470N Z 25 1206	1
C 41	P210122	C# X7R MU 100N K 50 1206	1	C310	P210045	C# X7R MU 47N K 50 1206	1
C 42	P210178	C# Y5V MU 1M Z 16 1206	1	C312	R111466	C EL RA 100M M 16E2 105	
C 43	P210178	C# Y5V MU 1M Z 16 1206	1	C313	P210102	C# C0G MU 470P J 50 1206	1
C100	P210076	C# C0G MU 220P J 50 1206	1	C314	P210092	C# X7R MU 10N K 50 1206	1
C101	P210076	C# C0G MU 220P J 50 1206	1	C315	P210148	C# Y5V MU 470N Z 25 1206	1
C102	P210167	C# X7R MU 150N K 50 1210	1	C316	P210122	C# X7R MU 100N K 50 1206	1
C103	P210136	C# Y5V MU 330N Z 25 1206	1	C317	P210167	C# X7R MU 150N K 50 1210	1
C104	P210137	C# C0G MU 100P J 50 1206	1	C318	P210013	C# C0G MU 1N J 50 1206	1
C105	P210122	C# X7R MU 100N K 50 1206	1	C319	P210122	C# X7R MU 100N K 50 1206	1
C106	P210122	C# X7R MU 100N K 50 1206	1	C320	P210148	C# Y5V MU 470N Z 25 1206	1
C107	P210092	C# X7R MU 10N K 50 1206	1	C321	R111466	C EL RA 100M M 16E2 105	
C108	R111477	C EL RA 100M M 25E2 85		C322	P210122	C# X7R MU 100N K 50 1206	1
C109	P210026	C# C0G MU 680P J 50 1206	1	C323	P210007	C# C0G MU 1N F 50 1206	1
C110	P210161	C# C0G MU 120P J 50 1206	1	C324	P210137	C# C0G MU 100P J 50 1206	1
C111	P210122	C# X7R MU 100N K 50 1206	1	C400	P210013	C# C0G MU 1N J 50 1206	1
C112	P210122	C# X7R MU 100N K 50 1206	1	C401	P210122	C# X7R MU 100N K 50 1206	1
C113	P210167	C# X7R MU 150N K 50 1210	1	C402	P210140	C# X7R MU 4N7K 50 1206	1
C114	P210170	C# C0G MU 56P J 50 1206	1	C403	P210178	C# Y5V MU 1M Z 16 1206	1
C115	P210122	C# X7R MU 100N K 50 1206	1	C404	P210029	C# C0G MU 2N2J 50 1206	1
C116	P210122	C# X7R MU 100N K 50 1206	1	C405	P210076	C# C0G MU 220P J 50 1206	1
C117	P210092	C# X7R MU 10N K 50 1206	1	C406	P210122	C# X7R MU 100N K 50 1206	1
C118	P210169	C# X7R MU 220N K 50 1210	1	C407	P210092	C# X7R MU 10N K 50 1206	1
C119	P210169	C# X7R MU 220N K 50 1210	1	C408	P210125	C# X7R MU 22N K100 1206	1
C120	V1151652	C PP RA 3N3H 63E2 85		C409	R111510	C EL RA 22M M 25E2 85	
C121	P210122	C# X7R MU 100N K 50 1206	1	C410	P210122	C# X7R MU 100N K 50 1206	1
C122	R111469	C EL RA1000M M 16E2 85	1	C412	P210122	C# X7R MU 100N K 50 1206	1

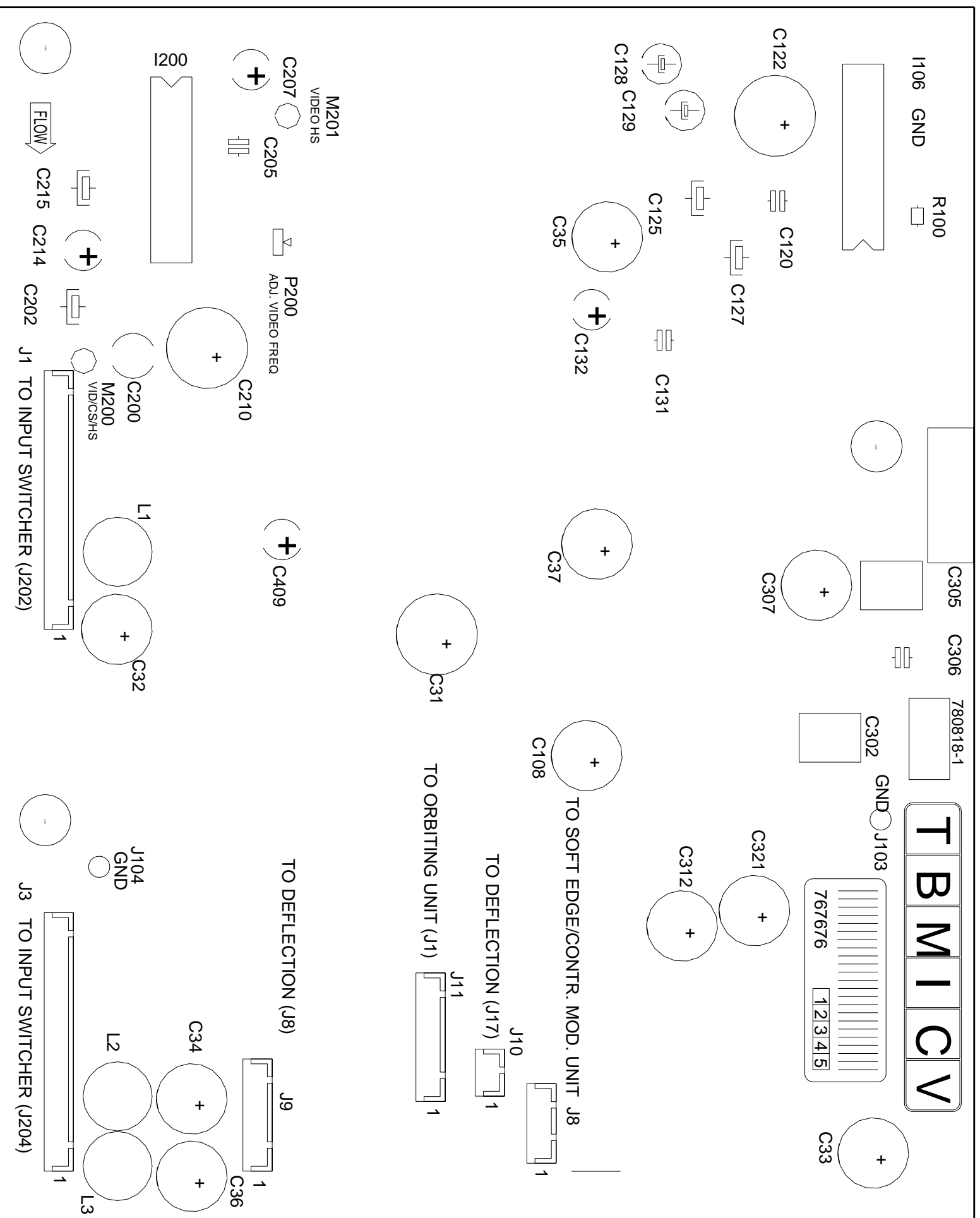
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C413	P210122	C# X7R MU 100N K 50 1206	1	I304	P230206	U#74HC30 SO14 I	1
C414	P210122	C# X7R MU 100N K 50 1206	1	I305	P230052	U#74HC74 SO14 I	1
C415	P210092	C# X7R MU 10N K 50 1206	1	I306	P230173	U#74HC14 SO14 I	1
C416	P210170	C# C0G MU 56P J 50 1206	1	I400	P230028	U#393 LM SO8 P	1
C417	P210122	C# X7R MU 100N K 50 1206	1	I401	P230034	U#4013 SO14 I	1
C418	P210163	C# C0G MU 1N8J 50 1206	1	I402	P230451	U#4098 HCF SO16 I	1
				I403	P230451	U#4098 HCF SO16 I	1
D 1	P234047	D#BAV99 SER SOT23	1	I404	P230669	U#40106B SO14 I	1
D 2	P234047	D#BAV99 SER SOT23	1	I405	P230030	U#4053 SO16 I	1
D 3	P234047	D#BAV99 SER SOT23	1	I406	P230040	U#4070 SO14 I	1
D100	P234055	D#BAT54 SCH SOT23	1	I407	P230969	U#1881 LM SO8 P	1
D101	P234099	D#4148 RDMMELF	1	J 1	R313935	J CT H MBT P15 M2SN WH	1
D102	P234099	D#4148 RDMMELF	1	J 3	R313935	J CT H MBT P15 M2SN WH	1
D103	P234047	D#BAV99 SER SOT23	1	J 8	R313924	J CT H MBT P 4 M2SN WH	1
D104	P234047	D#BAV99 SER SOT23	1	J 9	R313926	J CT H MBT P 6 M2SN WH	1
D105	P234099	D#4148 RDMMELF	1	J 10	R313922	J CT H MBT P 2 M2SN WH	1
D106	P234099	D#4148 RDMMELF	1	J 11	R313927	J CT H MBT P 7 M2SN WH	1
D107	P234099	D#4148 RDMMELF	1	J103	R315302	JPIN PR D1,3L 5,5+3	1
D108	P234099	D#4148 RDMMELF	1	J104	R315302	JPIN PR D1,3L 5,5+3	1
D109	P234047	D#BAV99 SER SOT23	1	L 1	R3060522	CH RA NS 150 UH 0A75	1
D111	P234099	D#4148 RDMMELF	1	L 2	R3060522	CH RA NS 150 UH 0A75	1
D112	P234047	D#BAV99 SER SOT23	1	L 3	R3060522	CH RA NS 150 UH 0A75	1
D113	P234047	D#BAV99 SER SOT23	1	M200	R313729	J TESTEYE D2,1 H3,1 SNBK	1
D114	P234099	D#4148 RDMMELF	1	M201	R313729	J TESTEYE D2,1 H3,1 SNBK	1
D300	P234047	D#BAV99 SER SOT23	1	P200	R107009	R TCE H 10K K 0W5 S 7TS	1
D301	P234055	D#BAT54 SCH SOT23	1	PC	R780584	PCB D708 SYN	1
D302	P234055	D#BAT54 SCH SOT23	1	Q100	P232004	Q#BC849C N SS SOT23	1
D303	P234055	D#BAT54 SCH SOT23	1	Q101	P232004	Q#BC849C N SS SOT23	1
D304	P234055	D#BAT54 SCH SOT23	1	Q102	P232012	Q#BFR30 SS SOT23	1
D305	P234099	D#4148 RDMMELF	1	Q103	P232101	Q#BC859C P SS SOT23	1
D306	P234047	D#BAV99 SER SOT23	1	Q104	P232004	Q#BC849C N SS SOT23	1
D307	P234047	D#BAV99 SER SOT23	1	Q105	P232033	Q#BSV52 N SS SOT23	1
D308	P234099	D#4148 RDMMELF	1	Q106	P232004	Q#BC849C N SS SOT23	1
D309	P234099	D#4148 RDMMELF	1	Q107	P232004	Q#BC849C N SS SOT23	1
D310	P234099	D#4148 RDMMELF	1	Q108	P232079	Q#BSS84 F SS SOT23	1
D311	P234099	D#4148 RDMMELF	1	Q109	P232004	Q#BC849C N SS SOT23	1
D312	P234047	D#BAV99 SER SOT23	1	Q110	P232004	Q#BC849C N SS SOT23	1
D313	P234047	D#BAV99 SER SOT23	1	Q200	P232004	Q#BC849C N SS SOT23	1
D314	P234099	D#4148 RDMMELF	1	Q202	P232004	Q#BC849C N SS SOT23	1
D315	P234099	D#4148 RDMMELF	1	Q203	P232004	Q#BC849C N SS SOT23	1
D400	P234099	D#4148 RDMMELF	1	Q302	P232004	Q#BC849C N SS SOT23	1
D401	P234099	D#4148 RDMMELF	1	Q304	P232033	Q#BSV52 N SS SOT23	1
D402	P234099	D#4148 RDMMELF	1	Q307	P232101	Q#BC859C P SS SOT23	1
D403	P234099	D#4148 RDMMELF	1	Q308	P232101	Q#BC859C P SS SOT23	1
D404	P234099	D#4148 RDMMELF	1	Q309	P232004	Q#BC849C N SS SOT23	1
D405	P234055	D#BAT54 SCH SOT23	1	Q310	P232004	Q#BC849C N SS SOT23	1
D406	P234047	D#BAV99 SER SOT23	1	Q400	P232004	Q#BC849C N SS SOT23	1
D407	P234047	D#BAV99 SER SOT23	1	Q401	P232004	Q#BC849C N SS SOT23	1
D408	P234047	D#BAV99 SER SOT23	1	Q403	P232079	Q#BSS84 F SS SOT23	1
D409	P234047	D#BAV99 SER SOT23	1	Q404	P232004	Q#BC849C N SS SOT23	1
I 1	P230983	U#8444T TDA SOL16 P	1	Q405	P232004	Q#BC849C N SS SOT23	1
I 2	P230203	U#084 TL SO14 P	1	Q406	P232079	Q#BSS84 F SS SOT23	1
I100	P230451	U#4098 HCF SO16 I	1	Q407	P232004	Q#BC849C N SS SOT23	1
I101	P230203	U#084 TL SO14 P	1	R 1	P200387	R# CE H100E F 0W25 1206	1
I102	P230009	U#4046 SO16 I	1	R 2	P200387	R# CE H100E F 0W25 1206	1
I103	P230163	U#74HC132 SO14 I	1	R 3	P200393	R# CE H180E F 0W25 1206	1
I104	P230025	U#74HC123 SO16 I	1	R 4	P200411	R# CE H 1K F 0W25 1206	1
I105	P230064	U#4052 SO16 I	1	R 5	P200427	R# CE H 4K7 F 0W25 1206	1
I106	R132762	U 2595 TDA DIP18 P	1	R 6	P200387	R# CE H100E F 0W25 1206	1
I200	R132874	U 2579A TDA DIP18 P	1	R 7	P200387	R# CE H100E F 0W25 1206	1
I202	P230451	U#4098 HCF SO16 I	1				
I203	P230028	U#393 LM SO8 P	1				
I300	P230887	U#064 TL SO14 P	1				
I301	P230028	U#393 LM SO8 P	1				
I302	P230025	U#74HC123 SO16 I	1				
I303	P230293	U#082 TL SO8 P	1				

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 8	P200387	R# CE H100E F 0W25 1206	1	R158	P200471	R# CE H330K F 0W25 1206	1
R 9	P200483	R# CE H 1M F 0W25 1206	1	R159	P200471	R# CE H330K F 0W25 1206	1
R 10	P200460	R# CE H110K F 0W25 1206	1	R160	P200459	R# CE H100K F 0W25 1206	1
R 11	P200437	R# CE H 12K F 0W25 1206	1	R161	P200459	R# CE H100K F 0W25 1206	1
R 12	P200451	R# CE H 47K F 0W25 1206	1	R162	P200443	R# CE H 22K F 0W25 1206	1
R 13	P200415	R# CE H 1K5 F 0W25 1206	1	R163	P200443	R# CE H 22K F 0W25 1206	1
R 14	P200435	R# CE H 10K F 0W25 1206	1	R164	P200451	R# CE H 47K F 0W25 1206	1
R 15	P200435	R# CE H 10K F 0W25 1206	1	R165	P200475	R# CE H470K F 0W25 1206	1
R 16	P200387	R# CE H100E F 0W25 1206	1	R166	P200387	R# CE H100E F 0W25 1206	1
R 17	P200451	R# CE H 47K F 0W25 1206	1	R167	P200387	R# CE H100E F 0W25 1206	1
R100	R101528	R MF H220E F 0W4 E3	1	R168	P200397	R# CE H270E F 0W25 1206	1
R101	P200455	R# CE H 68K F 0W25 1206	1	R169	P200397	R# CE H270E F 0W25 1206	1
R102	P200445	R# CE H 27K F 0W25 1206	1	R170	P200427	R# CE H 4K7 F 0W25 1206	1
R103	P200443	R# CE H 22K F 0W25 1206	1	R171	P200459	R# CE H100K F 0W25 1206	1
R104	P200453	R# CE H 56K F 0W25 1206	1	R172	P200411	R# CE H 1K F 0W25 1206	1
R105	P200437	R# CE H 12K F 0W25 1206	1	R173	P200459	R# CE H100K F 0W25 1206	1
R106	P200431	R# CE H 6K8 F 0W25 1206	1	R176	P201353	R# CE H 0E 0W25 1206	1
R107	P200431	R# CE H 6K8 F 0W25 1206	1	R200	P200459	R# CE H100K F 0W25 1206	1
R108	P200429	R# CE H 5K6 F 0W25 1206	1	R201	P200449	R# CE H 39K F 0W25 1206	1
R109	P200455	R# CE H 68K F 0W25 1206	1	R202	P200419	R# CE H 2K2 F 0W25 1206	1
R110	P200459	R# CE H100K F 0W25 1206	1	R203	P200411	R# CE H 1K F 0W25 1206	1
R111	P200435	R# CE H 10K F 0W25 1206	1	R204	P200413	R# CE H 1K2 F 0W25 1206	1
R112	P200435	R# CE H 10K F 0W25 1206	1	R205	P200446	R# CE H 30K F 0W25 1206	1
R113	P200419	R# CE H 2K2 F 0W25 1206	1	R206	P200401	R# CE H390E F 0W25 1206	1
R114	P200459	R# CE H100K F 0W25 1206	1	R207	P200431	R# CE H 6K8 F 0W25 1206	1
R115	P200453	R# CE H 56K F 0W25 1206	1	R208	P200355	R# CE H 4E7 F 0W25 1206	1
R116	P200407	R# CE H680E F 0W25 1206	1	R209	P200435	R# CE H 10K F 0W25 1206	1
R117	P200507	R# CE H 10M F 0W25 1206	1	R210	P200433	R# CE H 8K2 F 0W25 1206	1
R119	P200405	R# CE H560E F 0W25 1206	1	R211	P200411	R# CE H 1K F 0W25 1206	1
R120	P200403	R# CE H470E F 0W25 1206	1	R212	P200435	R# CE H 10K F 0W25 1206	1
R121	P200457	R# CE H 82K F 0W25 1206	1	R213	P200459	R# CE H100K F 0W25 1206	1
R122	P200455	R# CE H 68K F 0W25 1206	1	R214	P200423	R# CE H 3K3 F 0W25 1206	1
R123	P200387	R# CE H100E F 0W25 1206	1	R215	P200437	R# CE H 12K F 0W25 1206	1
R124	P200387	R# CE H100E F 0W25 1206	1	R216	P200371	R# CE H 22E F 0W25 1206	1
R125	P200387	R# CE H100E F 0W25 1206	1	R217	P200429	R# CE H 5K6 F 0W25 1206	1
R126	P200443	R# CE H 22K F 0W25 1206	1	R220	P200435	R# CE H 10K F 0W25 1206	1
R127	P200459	R# CE H100K F 0W25 1206	1	R221	P200435	R# CE H 10K F 0W25 1206	1
R128	P200453	R# CE H 56K F 0W25 1206	1	R222	P200404	R# CE H510E F 0W25 1206	1
R129	P200393	R# CE H180E F 0W25 1206	1	R226	P200433	R# CE H 8K2 F 0W25 1206	1
R130	P200391	R# CE H150E F 0W25 1206	1	R227	P200466	R# CE H200K F 0W25 1206	1
R131	P200413	R# CE H 1K2 F 0W25 1206	1	R228	P200435	R# CE H 10K F 0W25 1206	1
R132	P200413	R# CE H 1K2 F 0W25 1206	1	R229	P200459	R# CE H100K F 0W25 1206	1
R133	P200427	R# CE H 4K7 F 0W25 1206	1	R230	P200451	R# CE H 47K F 0W25 1206	1
R134	P200411	R# CE H 1K F 0W25 1206	1	R231	P200451	R# CE H 47K F 0W25 1206	1
R135	P200387	R# CE H100E F 0W25 1206	1	R232	P200445	R# CE H 27K F 0W25 1206	1
R136	P200387	R# CE H100E F 0W25 1206	1	R233	P200457	R# CE H 82K F 0W25 1206	1
R137	P200441	R# CE H 18K F 0W25 1206	1	R234	P200391	R# CE H150E F 0W25 1206	1
R138	P200431	R# CE H 6K8 F 0W25 1206	1	R235	P200411	R# CE H 1K F 0W25 1206	1
R139	P200417	R# CE H 1K8 F 0W25 1206	1	R236	P200435	R# CE H 10K F 0W25 1206	1
R140	P200411	R# CE H 1K F 0W25 1206	1	R237	P200435	R# CE H 10K F 0W25 1206	1
R141	P200387	R# CE H100E F 0W25 1206	1	R238	R101550	R MF H 15K F 0W4 E3	1
R142	P200437	R# CE H 12K F 0W25 1206	1	R300	P200387	R# CE H100E F 0W25 1206	1
R143	P200363	R# CE H 10E F 0W25 1206	1	R304	P200415	R# CE H 1K5 F 0W25 1206	1
R144	P200431	R# CE H 6K8 F 0W25 1206	1	R305	P200435	R# CE H 10K F 0W25 1206	1
R145	P200435	R# CE H 10K F 0W25 1206	1	R306	P200435	R# CE H 10K F 0W25 1206	1
R146	P200459	R# CE H100K F 0W25 1206	1	R307	P200437	R# CE H 12K F 0W25 1206	1
R147	P200427	R# CE H 4K7 F 0W25 1206	1	R311	P200469	R# CE H270K F 0W25 1206	1
R148	P200483	R# CE H 1M F 0W25 1206	1	R312	P200477	R# CE H560K F 0W25 1206	1
R149	P200409	R# CE H820E F 0W25 1206	1	R313	P200460	R# CE H110K F 0W25 1206	1
R150	P200407	R# CE H680E F 0W25 1206	1	R314	P200427	R# CE H 4K7 F 0W25 1206	1
R151	P200441	R# CE H 18K F 0W25 1206	1	R315	P200422	R# CE H 3K F 0W25 1206	1
R152	P200467	R# CE H220K F 0W25 1206	1	R316	P200427	R# CE H 4K7 F 0W25 1206	1
R153	P200431	R# CE H 6K8 F 0W25 1206	1	R317	P200451	R# CE H 47K F 0W25 1206	1
R154	P200429	R# CE H 5K6 F 0W25 1206	1	R318	P200451	R# CE H 47K F 0W25 1206	1
R155	P200425	R# CE H 3K9 F 0W25 1206	1	R319	P200455	R# CE H 68K F 0W25 1206	1
R156	P200411	R# CE H 1K F 0W25 1206	1	R320	P200441	R# CE H 18K F 0W25 1206	1
R157	P200407	R# CE H680E F 0W25 1206	1	R321	P200451	R# CE H 47K F 0W25 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R322	P200435	R# CE H 10K F 0W25 1206	1	R435	P200411	R# CE H 1K F 0W25 1206	1
R323	P200427	R# CE H 4K7 F 0W25 1206	1	R436	P200387	R# CE H100E F 0W25 1206	1
R324	P200427	R# CE H 4K7 F 0W25 1206	1	R437	P200387	R# CE H100E F 0W25 1206	1
R325	P200427	R# CE H 4K7 F 0W25 1206	1				
R326	P200387	R# CE H100E F 0W25 1206	1	Z100	P234036	D#ZEN 5V6 0W3 B SOT23	1
R327	P200387	R# CE H100E F 0W25 1206	1	Z101	P234057	D#ZEN 8V2 0W5 C DMMELF	1
R328	P200427	R# CE H 4K7 F 0W25 1206	1	Z400	P234184	D#ZEN 7V5 0W5 C DMMELF	1
R329	P200423	R# CE H 3K3 F 0W25 1206	1				
R330	P200387	R# CE H100E F 0W25 1206	1		R7624895A	UN V701MM SYN	1
R331	P200387	R# CE H100E F 0W25 1206	1		R7624895P	UN V701MM SYN	1
R332	P200411	R# CE H 1K F 0W25 1206	1				
R333	P200465	R# CE H180K F 0W25 1206	1				
R334	P200453	R# CE H 56K F 0W25 1206	1				
R335	P200391	R# CE H150E F 0W25 1206	1				
R336	P200393	R# CE H180E F 0W25 1206	1				
R337	P200453	R# CE H 56K F 0W25 1206	1				
R338	P200427	R# CE H 4K7 F 0W25 1206	1				
R339	P200459	R# CE H100K F 0W25 1206	1				
R340	P200443	R# CE H 22K F 0W25 1206	1				
R341	P200411	R# CE H 1K F 0W25 1206	1				
R342	P200391	R# CE H150E F 0W25 1206	1				
R343	P200393	R# CE H180E F 0W25 1206	1				
R344	P200453	R# CE H 56K F 0W25 1206	1				
R345	P200427	R# CE H 4K7 F 0W25 1206	1				
R346	P200443	R# CE H 22K F 0W25 1206	1				
R347	P200457	R# CE H 82K F 0W25 1206	1				
R348	P200465	R# CE H180K F 0W25 1206	1				
R349	P200417	R# CE H 1K8 F 0W25 1206	1				
R350	P200387	R# CE H100E F 0W25 1206	1				
R351	P200387	R# CE H100E F 0W25 1206	1				
R352	P200427	R# CE H 4K7 F 0W25 1206	1				
R353	P200387	R# CE H100E F 0W25 1206	1				
R354	P200387	R# CE H100E F 0W25 1206	1				
R355	P200411	R# CE H 1K F 0W25 1206	1				
R400	P200437	R# CE H 12K F 0W25 1206	1				
R401	P200399	R# CE H330E F 0W25 1206	1				
R402	P200441	R# CE H 18K F 0W25 1206	1				
R403	P200449	R# CE H 39K F 0W25 1206	1				
R404	P200427	R# CE H 4K7 F 0W25 1206	1				
R405	P200453	R# CE H 56K F 0W25 1206	1				
R406	P200465	R# CE H180K F 0W25 1206	1				
R407	P200439	R# CE H 15K F 0W25 1206	1				
R408	P200431	R# CE H 6K8 F 0W25 1206	1				
R409	P200423	R# CE H 3K3 F 0W25 1206	1				
R410	P200423	R# CE H 3K3 F 0W25 1206	1				
R411	P200411	R# CE H 1K F 0W25 1206	1				
R412	P200427	R# CE H 4K7 F 0W25 1206	1				
R413	P200475	R# CE H470K F 0W25 1206	1				
R414	P200439	R# CE H 15K F 0W25 1206	1				
R415	P200439	R# CE H 15K F 0W25 1206	1				
R416	P200435	R# CE H 10K F 0W25 1206	1				
R417	P200457	R# CE H 82K F 0W25 1206	1				
R418	P200443	R# CE H 22K F 0W25 1206	1				
R419	P200459	R# CE H100K F 0W25 1206	1				
R420	P200387	R# CE H100E F 0W25 1206	1				
R421	P200415	R# CE H 1K5 F 0W25 1206	1				
R422	P200387	R# CE H100E F 0W25 1206	1				
R423	P200387	R# CE H100E F 0W25 1206	1				
R424	P200451	R# CE H 47K F 0W25 1206	1				
R425	P200473	R# CE H390K F 0W25 1206	1				
R426	P200475	R# CE H470K F 0W25 1206	1				
R428	P200415	R# CE H 1K5 F 0W25 1206	1				
R429	P200483	R# CE H 1M F 0W25 1206	1				
R430	P200411	R# CE H 1K F 0W25 1206	1				
R432	P200411	R# CE H 1K F 0W25 1206	1				
R433	P200387	R# CE H100E F 0W25 1206	1				
R434	P200387	R# CE H100E F 0W25 1206	1				



TOP VIEW



COMP. LOC.

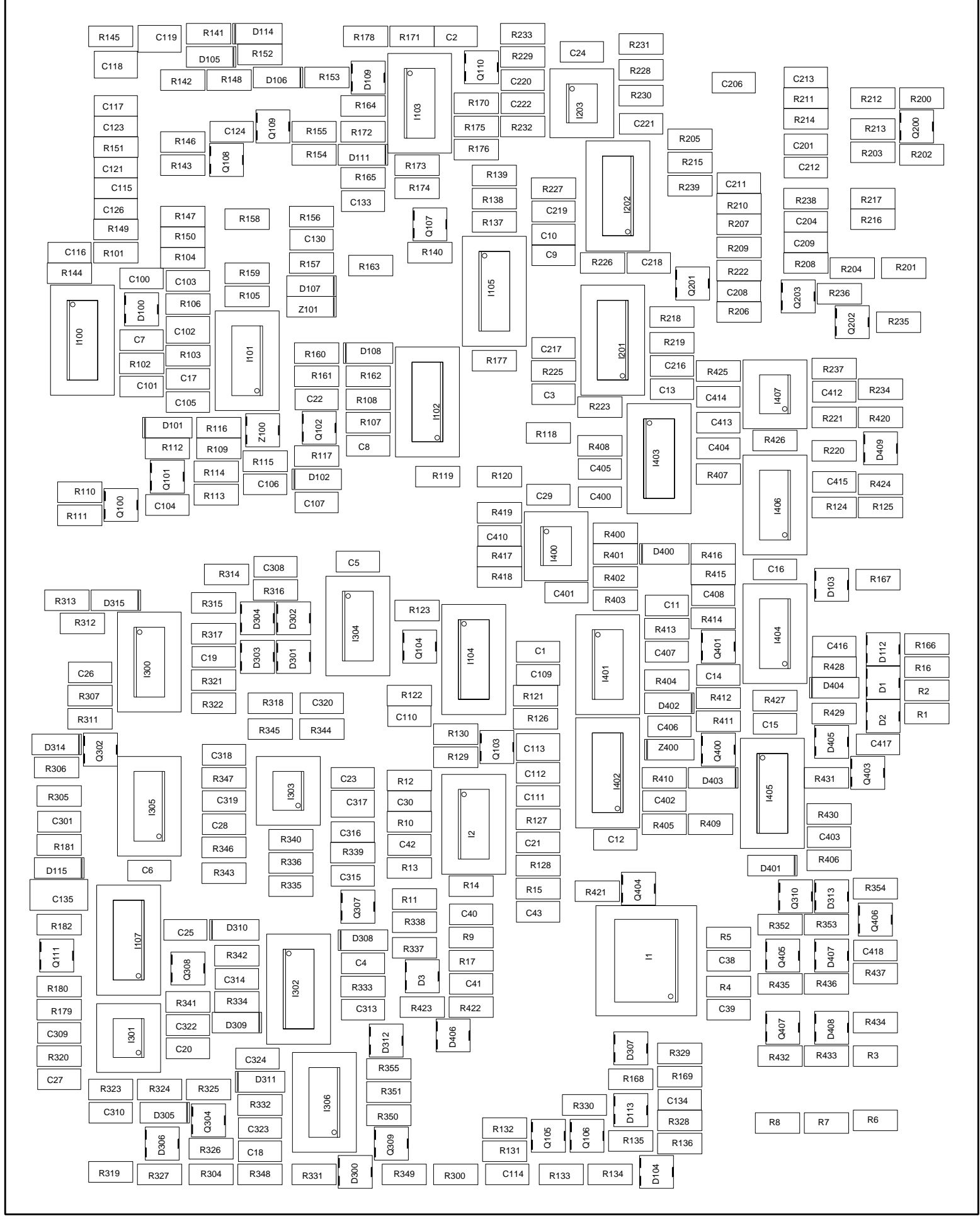
C31	D4
C32	D5
C33	F2
C34	B3
C35	B3
C36	G5
C37	D3
C108	B3
C125	A2
C127	B3
C128	A3
C129	A3
C131	C3
C132	C3
C200	C5
C202	B6
C207	B4
C210	C5
C214	B6
C215	B6
C302	D1
C306	D1
C307	D2
C312	E2
C321	D4
C332	D4
C333	D4
C336	D4
C409	A5
I106	A1
I200	A5
J1	C6
J3	B6
J8	F3
J9	F4
J10	F4
J11	F4
J110	A4
J111	A4
J101	B6
J102	C1
J103	C1
J104	B1
J104	B5
L1	C5
L2	F5
L3	G5
M200	C6
M201	A4
P200	B4
R100	B1

Name	SYNC MODULE	Sheet	1/2
Module No.	87324898	Index	0
Date	23-03-1989	FCENP	R730818
		Rev	1
		Drawn	JNDY
		Checked	CHT

BARCO PROJECTION SYSTEMS

Modifications reserved

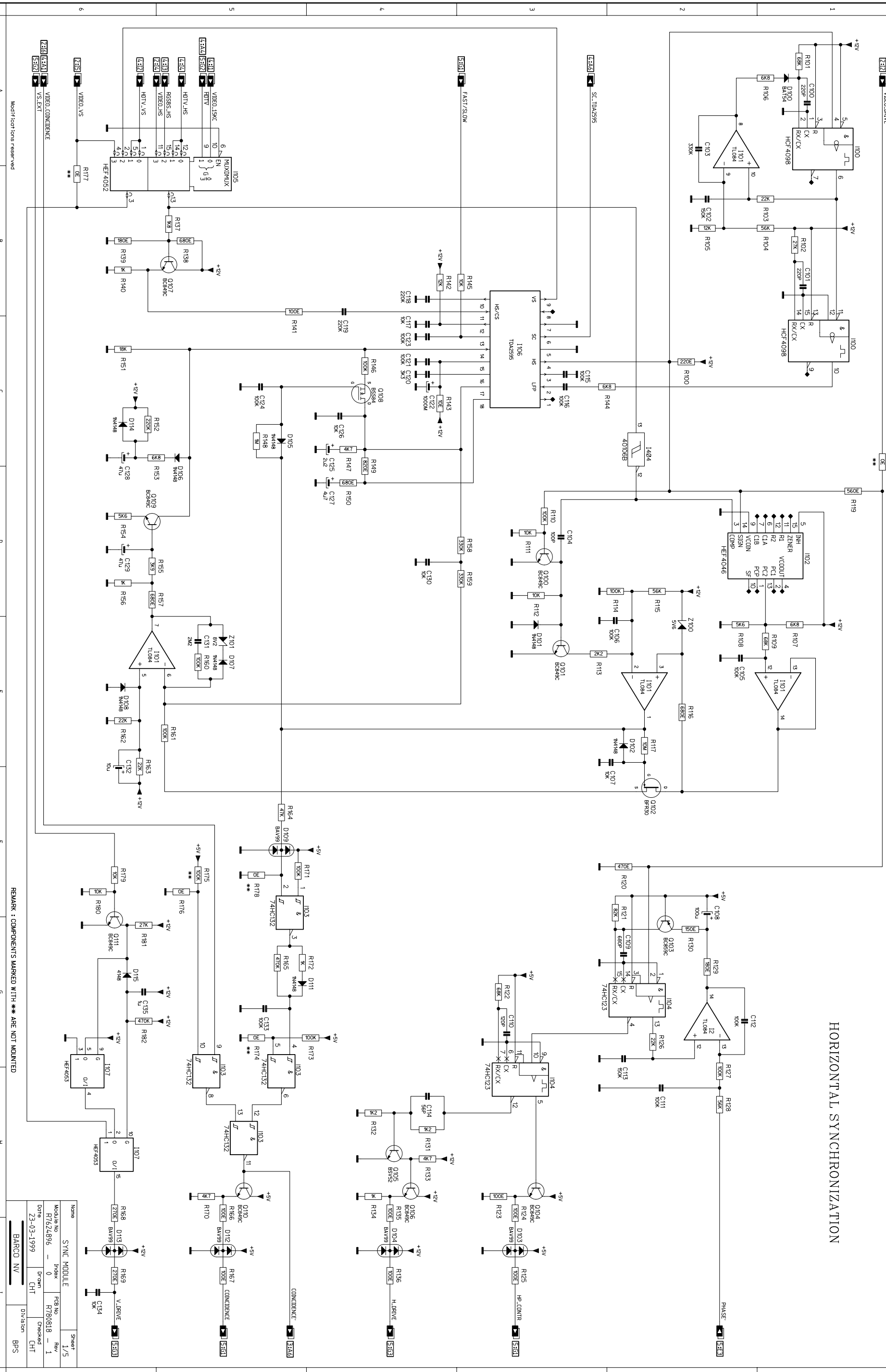
BOTTOM VIEW



COMP. LOC.	COMP. LOC.	COMP. LOC.	COMP. LOC.
C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22 C23 C24 C25 C26 C27 C28 C29 C30 C31 C32 C33 C34 C35 C36 C37 C38 C39 C40 C41 C42 C43 C44 C45 C46 C47 C48 C49 C50	D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D43 D44 D45 D46 D47 D48 D49 D50	D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D43 D44 D45 D46 D47 D48 D49 D50	D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D43 D44 D45 D46 D47 D48 D49 D50

Name	Sheet
SYNC MODULE	
Module No. R7524896	Index R750818
Date 23-03-1989	Drawn JVDY
	Checked
	CHT

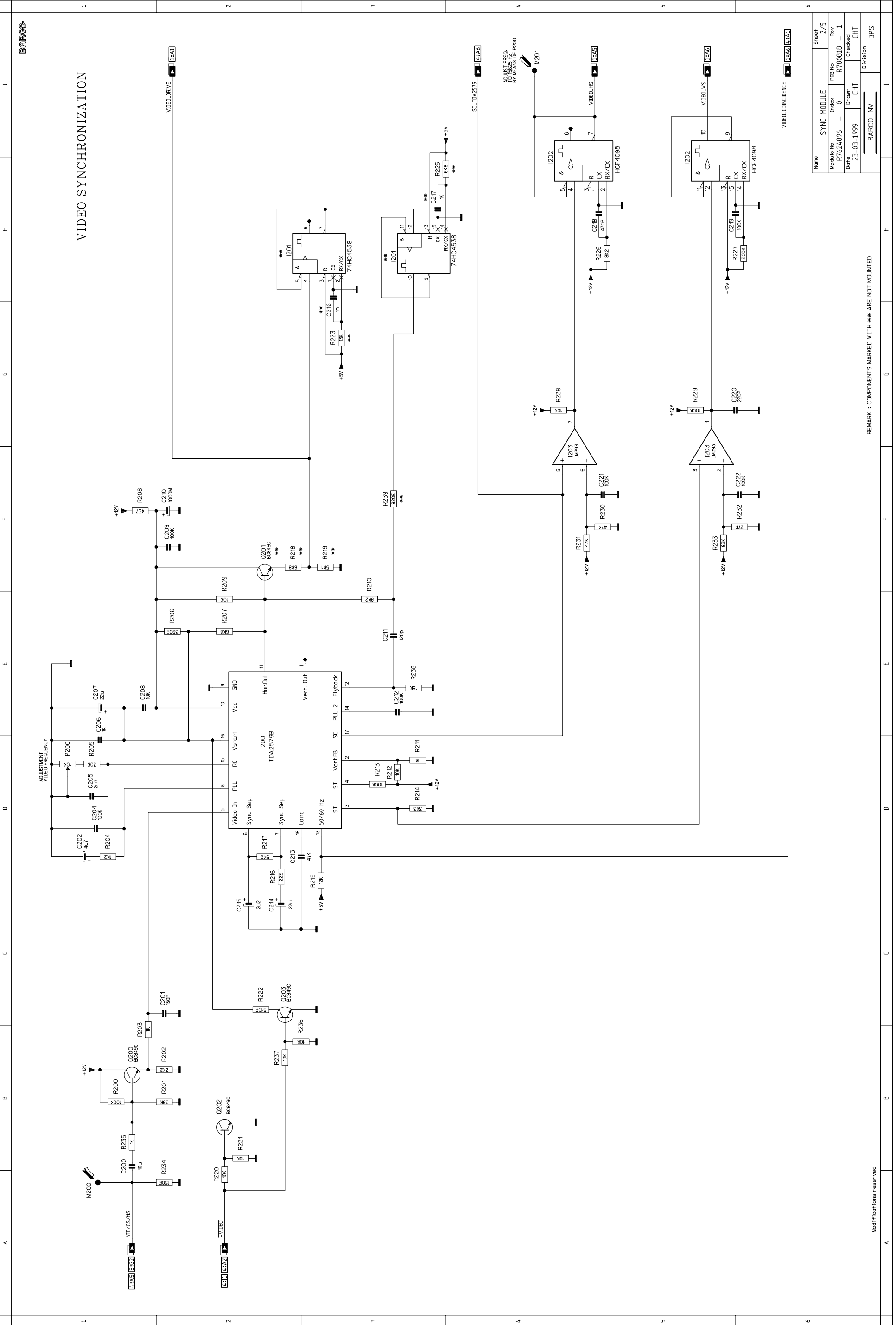
HORIZONTAL SYNCHRONIZATION



REMARK : COMPONENTS MARKED WITH *** ARE NOT MOUNTED

Name	SYNCH MODULE	Sheet	1/5
Module No	R7624896	Index	0
Rev	F780818	Drawn	1
Date	Z3-03-1999	Checked	CHT
	BARCO NV	Division	BPS

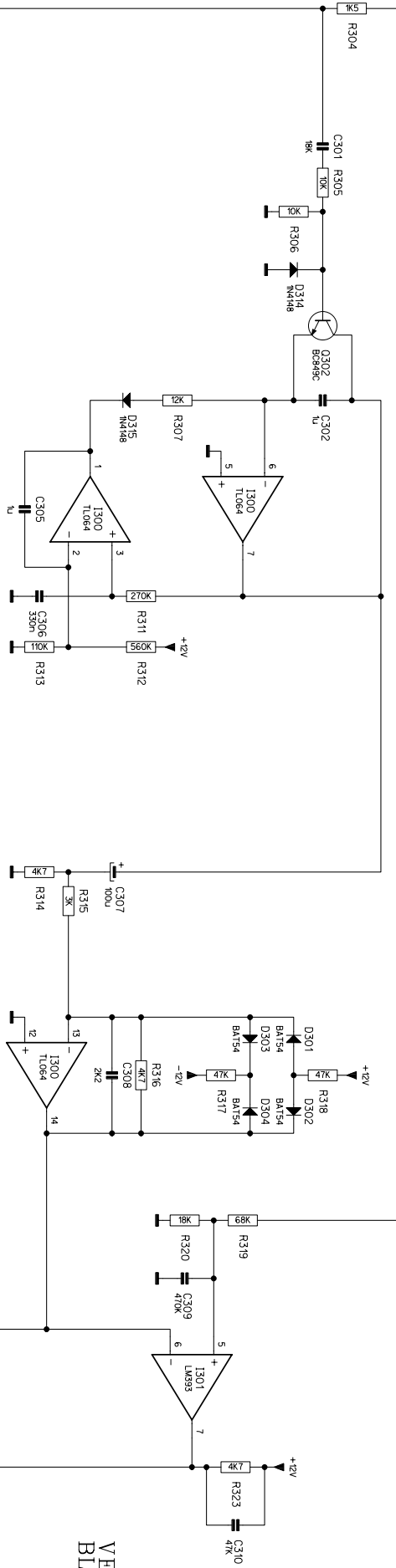
Component	Value	Part No.
CONDUCTANCE	100k	3360
H.DRIVE	100k	5331
H.P. CONTR	100k	5331
V.DRIVE	10k	5331



Name	SYNC MODULE	Sheet	2/5
Module No	R7624896	PCB No	H760818
Index	0	Rev	1
Date	23-03-1999	Drawn	CHT
		Checked	CHT
		Division	BPS

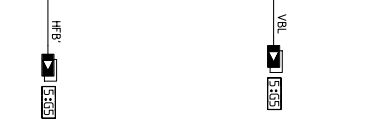
Modifications reserved

TOP-BLANKING



VERTICAL AND HORIZONTAL
BLANKING GENERATION

BOTTOM-BLANKING



LEFT-BLANKING



RIGHT-BLANKING



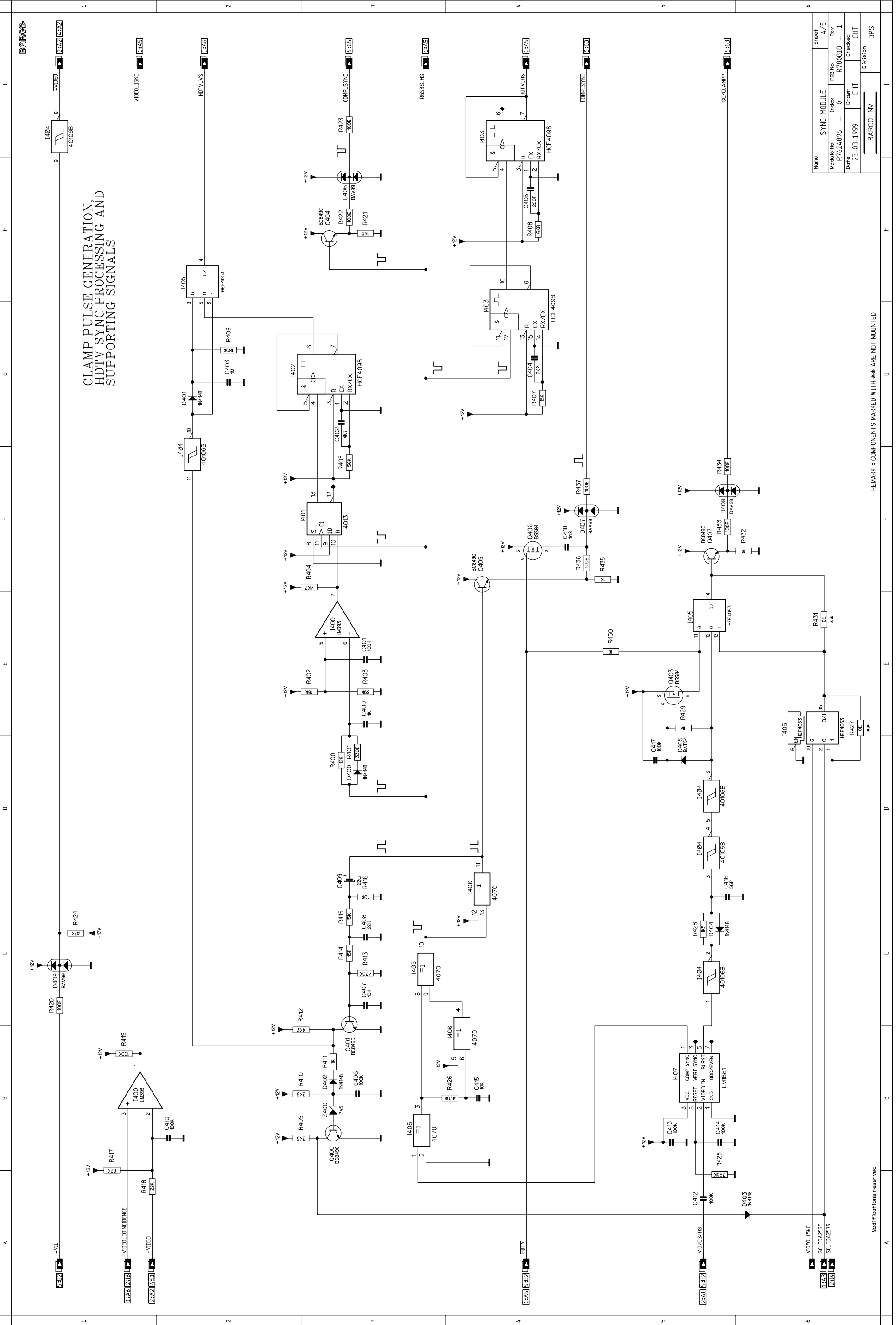
CONCURRENCE



Modification: none reserved

REMARK : COMPONENTS MARKED WITH (*) ARE NOT MOUNTED

Name	SYNC MODULE			Sheet	3/5
Module No	R7624896	Index	0	PCB No	F7/00818
Date	Z3-03-1999	Drawn	CHT	Checked	CHT
Barcode NV				Division	BPS

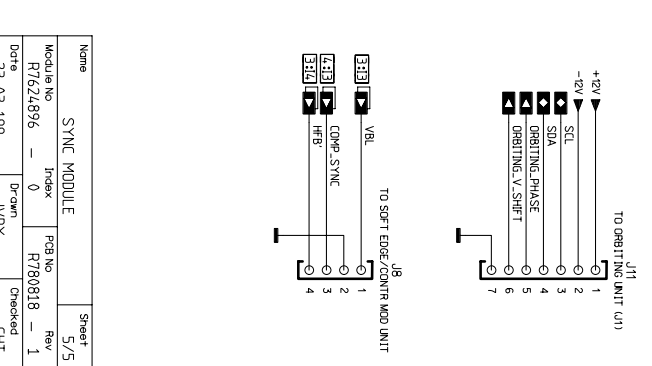
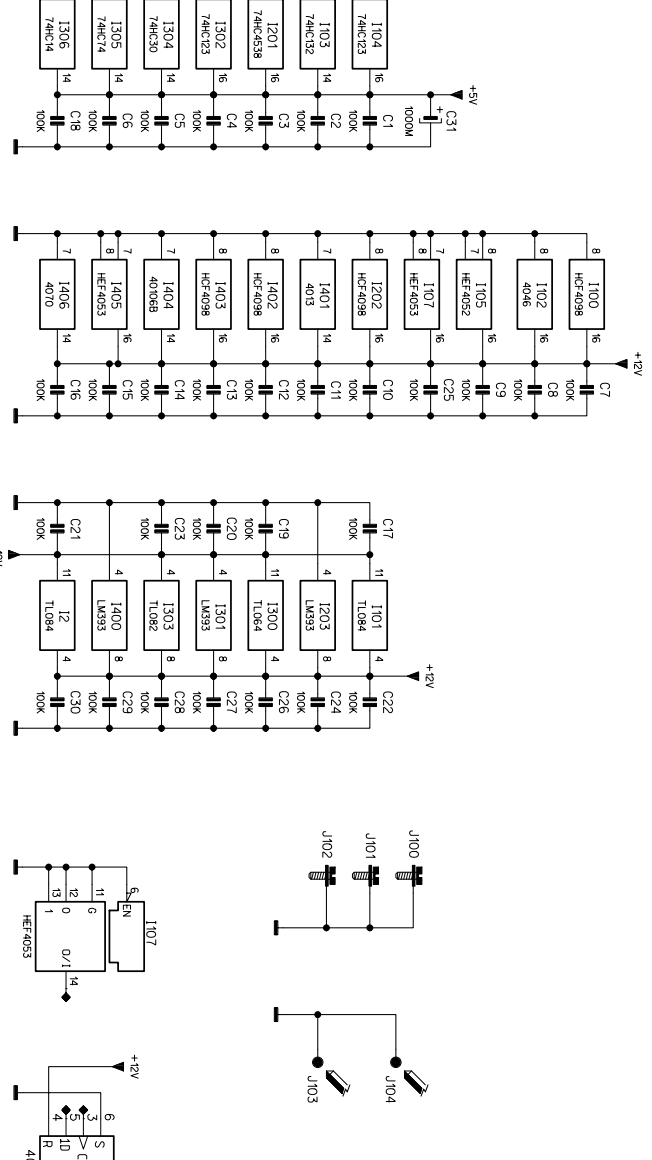
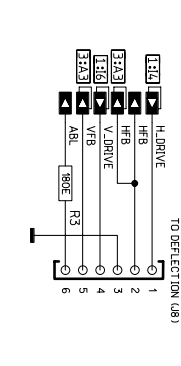
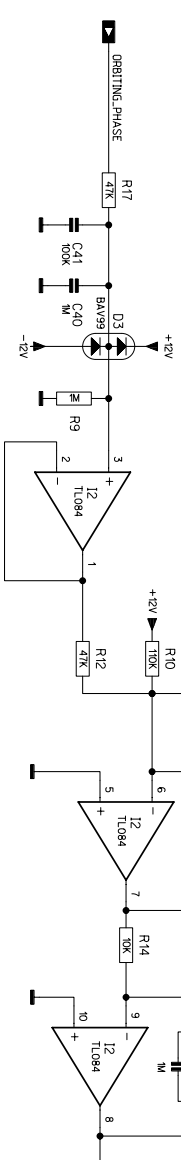
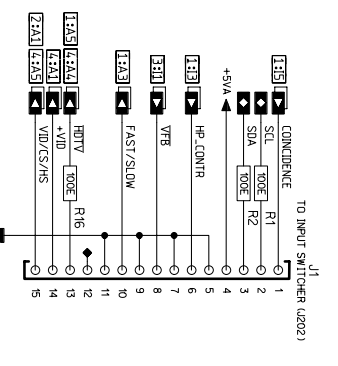
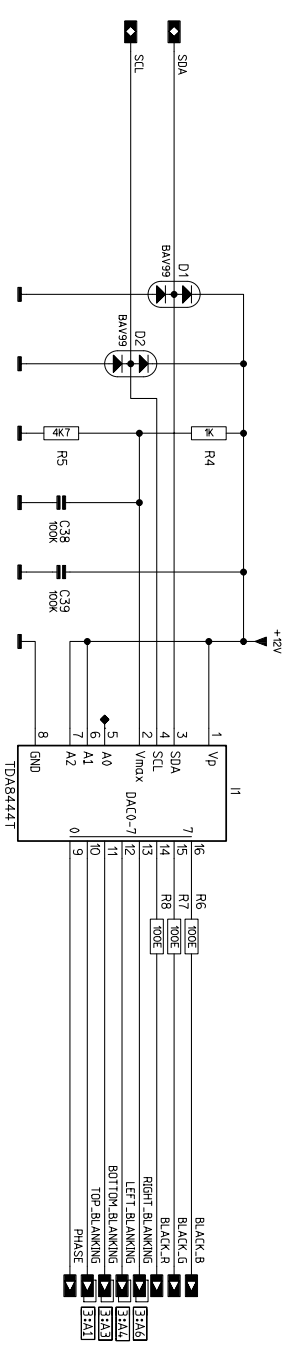


CLAMP PULSE GENERATION,
HDTV SYNC PROCESSING AND
SUPPORTING SIGNALS

Name	SYNC MODULE	Sheet	4/5
Module No	Index	PCB No	Rev
R7624896	0	H760818	1
Date	Drawn	Checked	CHT
23-03-1999	CHT		
BARCO NV		Division	BPS

REMARK : COMPONENTS MARKED WITH ** ARE NOT MOUNTED

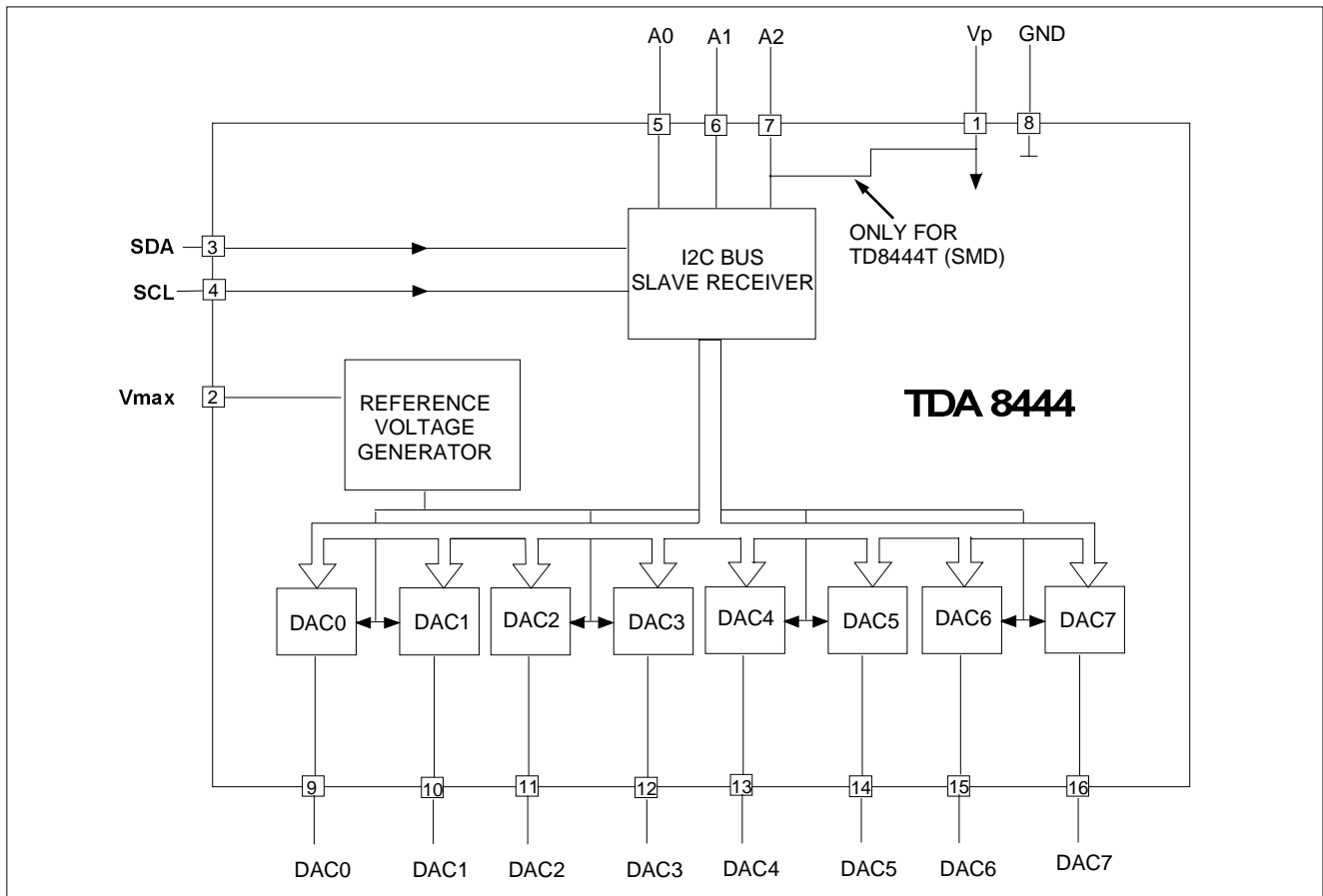
Modifications reserved

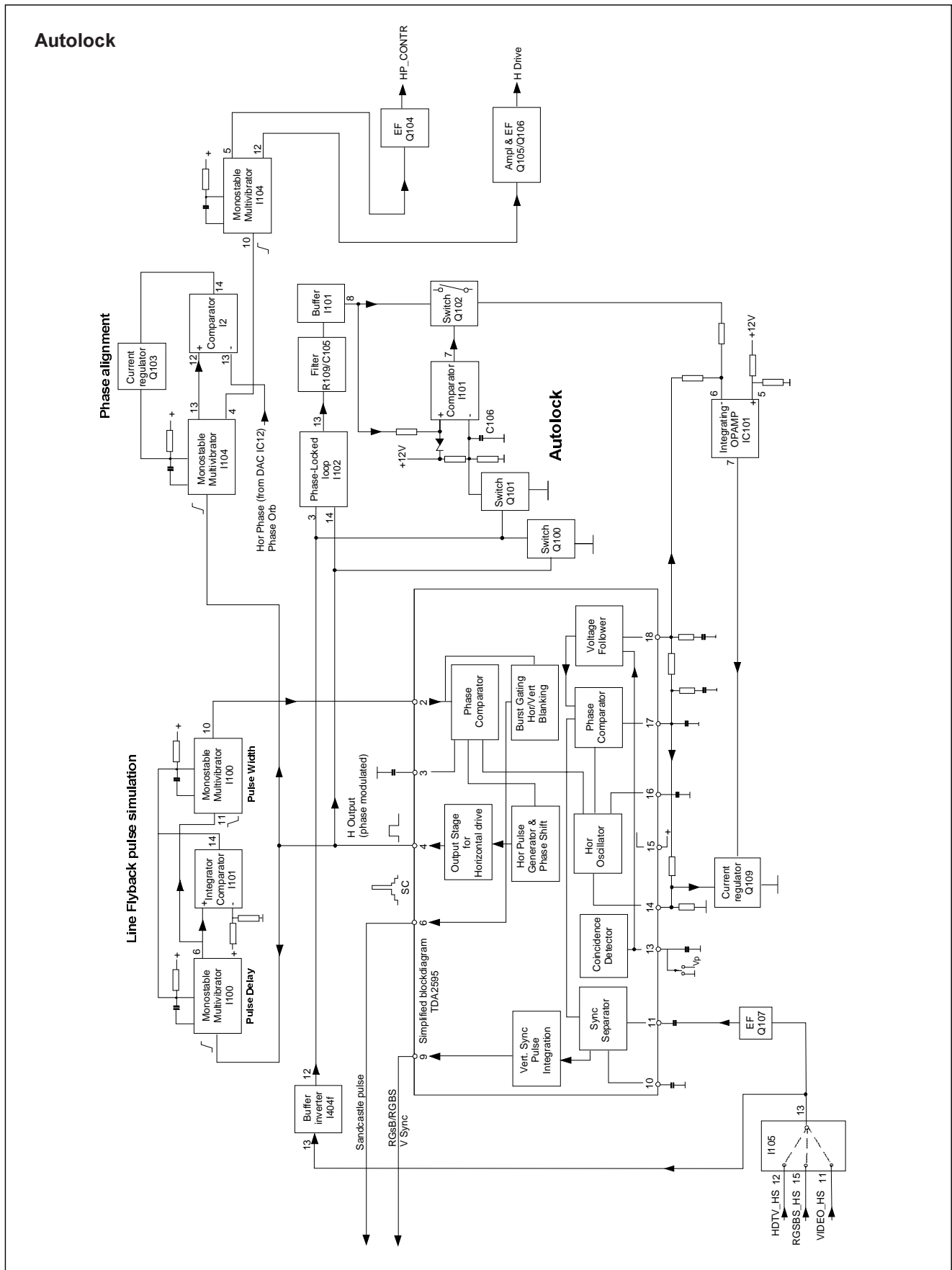


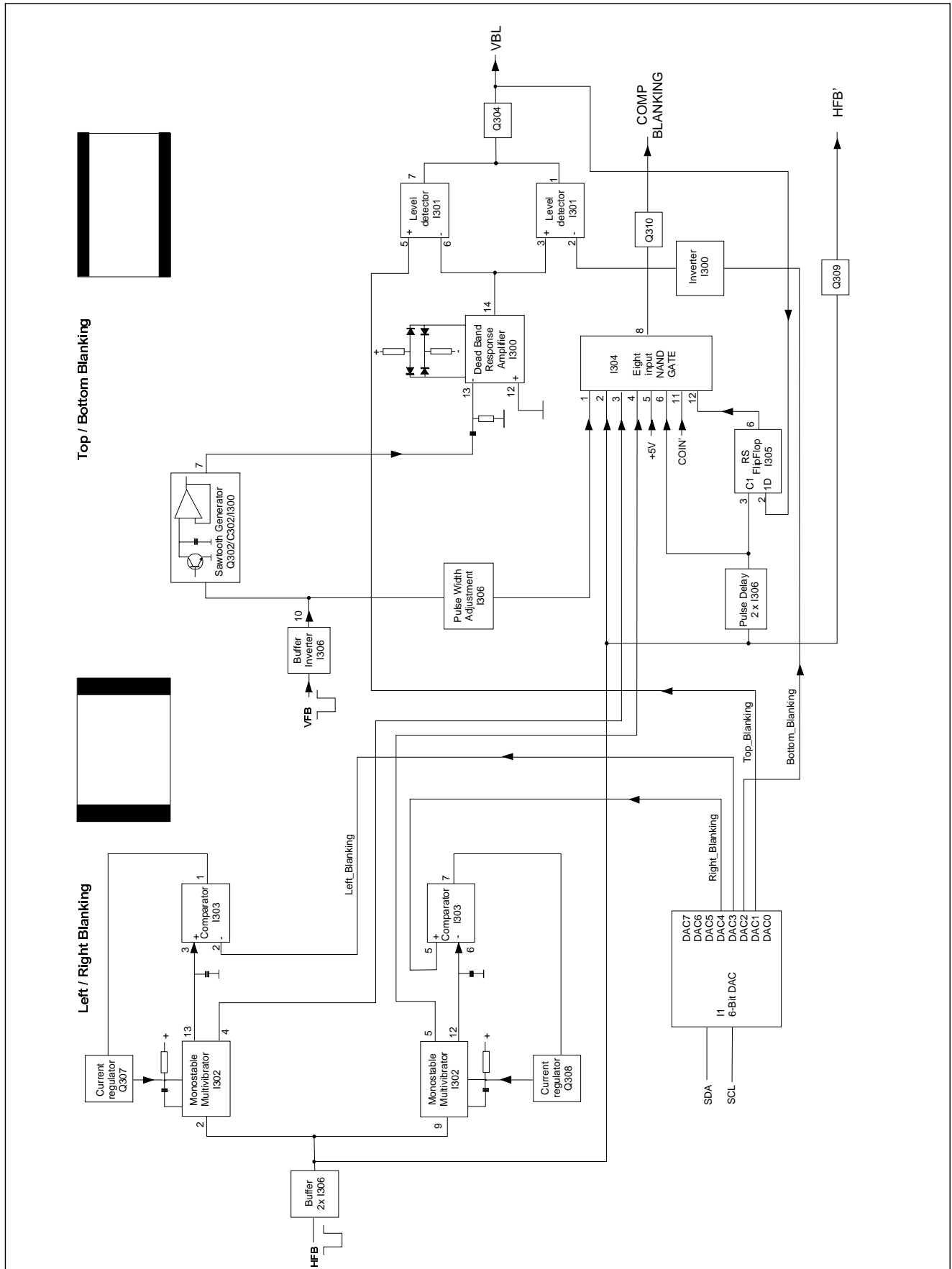
Modification: reserved

REMARK : COMPONENTS MARKED WITH (***) ARE NOT MOUNTED

Name	SYNCH MODULE	Sheet
Module No	Index	Rev
H7524896	0	H780818
Date	23-03-199	Drawn
	JVDV	Checked
		CHT
		Division
	BARCO NV	BPS

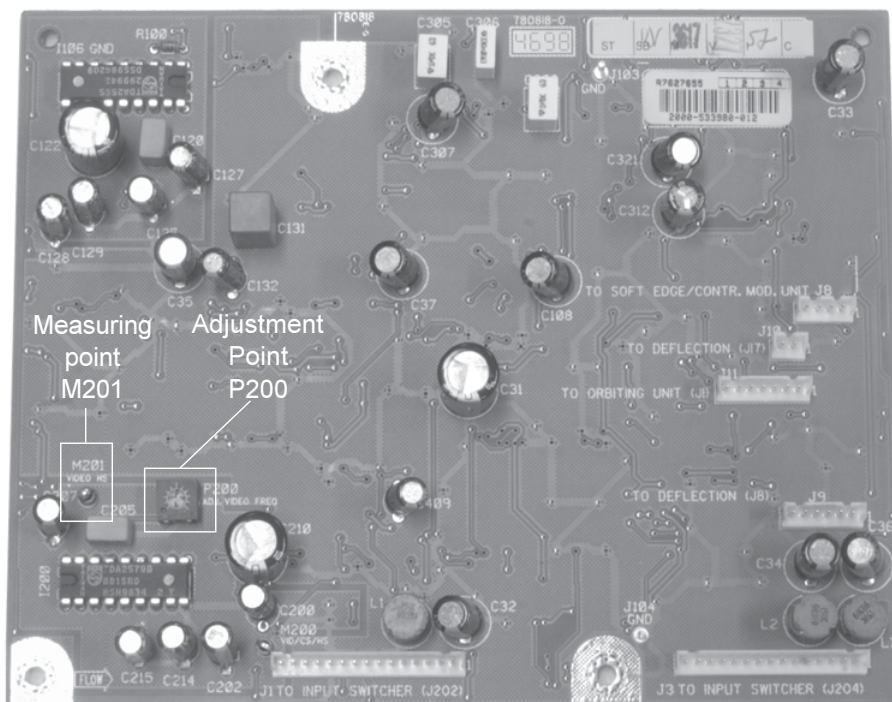






ADJUSTMENT OF PLL OF THE TDA2579B (I200)

Location of Adjustment



Adjustment Procedure

The free loop frequency of the oscillator of the TDA2579B is factory preset at 15625 ± 50 Hz. This is the optimum setting for that IC. If the free loop frequency is outside this range, the PLL will be able to lock, but for video tapes with big phase shifts one will see this clearly on the image.

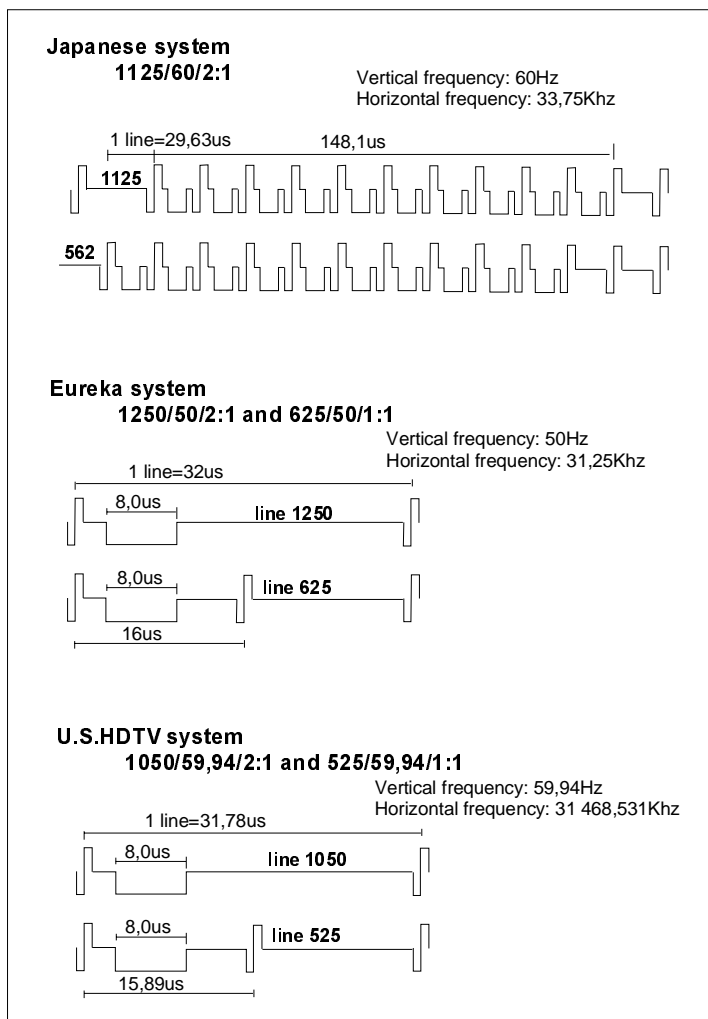
To adjust the free loop frequency, proceed as follows :

- Connect a frequency meter or a probe of an oscilloscope to the measuring point M201.
- Select Source 1 and remove the video source.
- Wait a few seconds and adjust P200 until the frequency of the negative pulses coming as close as possible to 15625 Hz.

Replacement of critical components

C120 and C205 are capacitors with a tolerance of 2.5% and must if possible be replaced by capacitors with the same tolerance.

TECHNICAL DESCRIPTION



Horizontal synchronization

The following sources can come in through a current source on the termination resistor R234.

SOURCE	+VID	HDTV
Composite video	H	H
Sync on green	L	H
Sync on Y	L	H
Separate composite sync	L	H
Tri-level sync on green or Y	L	L
Separate composite tri-level sync	L	L

For the composite video source the I200(TDA2579B) synchronizes its horizontal and vertical oscillators on this source. Through I203(LM393) and I202(HCF4098) new horizontal sync and vertical pulse drive signals are derived respectively from the sandcastle at pin 17 and the vertical pulse at pin3 of the I200 oscillator. For all other sources, the input of I200 is pulled down by R235 and Q202, the I200 is switched off via Q203.

Through the I105(4052) the desired input signal for the I106(TDA2595) is selected. This signal can be the new horizontal sync developed via I200, I203 and I202 for the composite video ; or the composite sync separated from the input signal by I407(LM1881) for the RGB source; or the through I403 decoded horizontal sync pulse for a HDTV source.

The above selected sync pulses are then supplied to I106 via the emitter follower. I106 together with I100, I101 and I102 and all their peripheral components form the AUTOLOCK. This system makes the PLL of the TDA2595(I106) coincide with the frequency of the source, and then let the PLL locked and ensure that it remains locked.

I100 and I101c* and all their peripheral components form the FLYBACK SIMULATION. This is a system which ensures that the horizontal pulses from pin 4 of I106 are delayed and with a determined width returned to pin 2 (LFP). The second PLL makes sure that the middle of this simulated flyback pulse coincides with the middle of the horizontal sync of the input. The PLL realizes this by bringing the horizontal pulse earlier to pin 4. This means that you get from pin 4 a 'horizontal drive pulse' that arrives 't' periode earlier than the sync of the input signal wherein 't' is constrained by R104 and R105 and counts about 18% of the line period.

The AUTOLOCK, further, consists of three loops and each of them has a specific function. Loop 1 is the TDA2595(I106) and its phase comparator which has a function of following quickly small phase shifts in a locked situation. The speed of the loop is constrained by the status of the FAST/SLOW line. If the line is shorted to ground then the loop is in FAST status. If the line is high impedance, then the loop is in SLOW status.

Loop 2 contains R158, R159, I101b and the components around. The function of Loop 2 is to make sure that the phase comparator operates in the middle of its adjustment range in a long period. By this way, the oscillator remains locked on a defined frequency. Loop 2 and Loop 1 keep working all the time.

The third loop is build up with I102, I101a, I101b, I101c and their peripheral components. Its function is to control if I106 is locked or not and when the I106 is not locked it makes the oscillator coincides with the frequency of the source.

The frequency of the oscillator I106 depends on the value of the oscillator capacity at pin 16 and the current drained out from pin 14. Pin 14 is always at 6V. R151 is selected in such a way to have a free loop frequency of about 15 kHz.

I103b, I103c and I103d set the coincidence levels to 0 and +5V.

I104 and I2d form the PHASE ADJUSTMENT which bases on the same principle as the LEFT BLANKING (adjusting the pulse width by means of a DC voltage).

*As more than once the same IC is presented in the schematic sheets, we distinguish them by adding suffix a, b, c and so on to it. ICa starts with the lowest number.

Vertical drive	<p>The vertical drive pulses can either be coming from an external (= not on the synchronisation module) source or can be generated internally (= on the synchronisation module).</p> <p>If an external vertical sync signal is detected, then I107 will always switch this one through, otherwise the internal signal coming from I105b is switched over.</p> <p>I105b receives the different internal vertical pulses and switches them over to the output depending on the VIDEO_15kc and HDTV levels. The VIDEO_15kc is only high when the +VID line is high and when the video synchronization I200 (TDA2579B) is locked.</p> <p>If there is a composite video source, then the vertical drive pulse, developed through I200, I203 and I202, is switched over. In case of a RGB source, the vertical drive pulse separated by I106(TDA2595), is switched over. For a HDTV source, the vertical drive pulse decoded from the HDTV source, is switched over.</p>
Horizontal blanking	<p>The horizontal flyback pulse (HFB) is converted to +5V. After being buffered and delayed by Schmitt-triggers(I306), it is then used as FIXED HORIZONTAL BLANKING.</p> <p>The LEFT BLANKING is built around I302a and I303a. The horizontal flyback pulse HFB triggers the monostable I302a. This supplies a pulse with a certain width which in great parts is determined by the current of the source current Q307. The pulse is transformed to a DC voltage by R340 and C317. The voltage is compared with a voltage to be established and will be kept equalized by I303a. By this way, one gets the pulse width adjustment.</p> <p>The RIGHT BLANKING is built around I302b and I303b and works according to the same principle as the LEFT BLANKING. The RIGHT BLANKING has to start somewhere before the end of the line and to end at the beginning of the horizontal flyback. Therefore, I302a is triggered with the start of the horizontal flyback and a pulse is generated which gives NO BLANKING. By using the other output of the I302b one gets then a pulse that indicates the BLANKING. This inverse use results in that the modulator has to work in a opposite way.</p>
Vertical blanking	<p>The vertical flyback pulse (VFB) is buffered and prolonged by Schmitt-triggers(I306) and then is used as FIXED VERTICAL BLANKING.</p> <p>Through I300a and I300b a sawtooth is developed. I300a functions as integrator and I300b keeps the amplitude at 4V independent of the frequency. This sawtooth is AC-coupled through C307 and R314, and is further amplified by a Dead Band Amplifier. This is a amplifier which works only when the input voltage $V_i > V_{th}$, with V_{th} as a threshold voltage determined by the peripheral components. By this way, one gets at both sides of the scan a triangle with in between a zero voltage. The comparator I301s compare this signal with 2 DC voltages coming from a I²C controlled DAC I1. By adjusting these DAC outputs, the TOP & BOTTOM BLANKING are adjusted. At the end the vertical blanking waveform is clocked on horizontal flyback pulses through I305.</p> <p>All (negative) blanking signals are summed to the COMPOSITE BLANKING by I304.</p>
Decoding horizontal tri-level sync of HDTV sources	<p>The decoding of the horizontal sync is the same for the 3 HDTV standards, i.e. EUREKA(European), US HDTV and MUSE (Japanese).</p> <p>Through I403a, a window is made which has 3/4 line time so that very short vertical pulses from EUREKA and US HDTV do not come out. Afterwards, new horizontal sync pulses with a specific width are generated from the edges of these windows.</p>

Decoding vertical tri-level sync of HDTV sources

1. EUREKA and US HDTV

The vertical sync can not by normal integration be separated from the composite sync signal because they are much too short (8us less than a line).

Nevertheless the switching uses the difference in time between the vertical and horizontal sync. The starting falling edge of the sync pulse is sharply integrated and the ending rising edge is quickly restored. Horizontal pulses are too short to reach a determined threshold, whereas vertical pulses which are 10 times longer do reach the same threshold. This threshold is compared with the integrated sync by I400b so that a pulse comes into existence at the position of the vertical sync. The pulse resets a flip-flop which will be set by the first following horizontal sync. The rising edge from setting the flip-flop is transformed by I402 into a vertical drive with a certain duration.

2. MUSE

The vertical sync of MUSE HDTV is 10 lines long (interrupted by tri-level horizontal serration pulses) and can thus easily be separated from the composite sync signal through double integration. This separation takes place through R415, C408, R414, C407 and Q401. The separated pulse is buffered by means of a Schmitt-trigger inverter.

The obtained drive pulses are switched over by means of I405 to the analog multiplexer I105. The D401, C403 and R406 detects whether there are MUSE vertical pulses. If that is the case, they are switched over. In other cases, the EURAKA or US vertical pulses are switched over.

COMP_SYNC signal

The input switcher(R762228) makes use of the inverted (positive) composite sync pulses to generate a new clamp pulse. This COMP_SYNC signal is integrated , in case of HDTV, by means of C418 and Q406 so that the clamp pulse starts after the positive section of the tri-level pulse.

Video sandcastle

The derived sandcastle of a video is sent to I405a. As the VIDEO_15kc line is high now, the I405a switches the sandcastle over to the input of I405c. This sandcastle passes through the I405c and will be used by the decoder and the input switcher(R762228) to generate a clamp pulse. In case of a RGB or HDTV source the SC/CLAMP output signal is not used in the projector except for the V701s projector.

Autopolarity

At the VID/CS line, the positive as well as the negative composite sync signals can come in. I406 and its peripheral components buffer the negative pulses through and transform the positive pulses to negative ones.

Orbiting-phase

The slowly transient DC voltage, which has to modulate the phase, come in through the low pass filter R17 and C41. After being buffered, the voltage is added to the phase voltage and thereafter the sum is inverted. With this voltage the phase is then aligned.

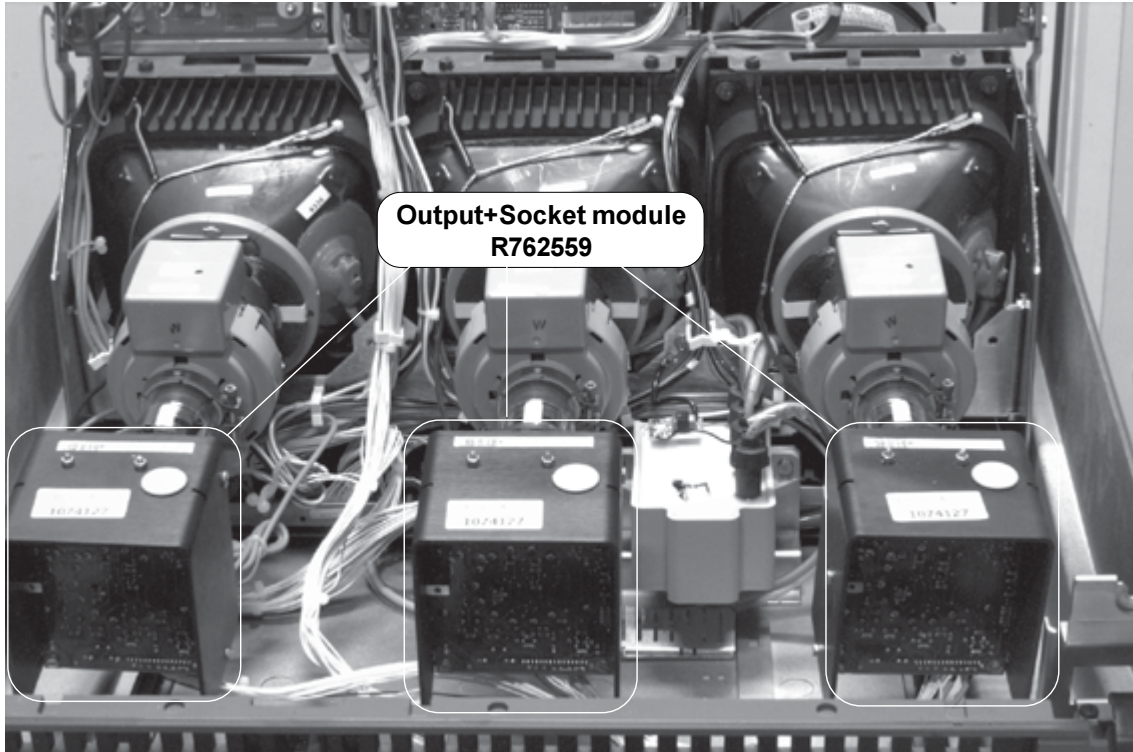
PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 1	P210122	C# X7R MU 100N K 50 1206	1	C122	V1114705	C EL RA1000M M 16E2 105	1
C 2	P210122	C# X7R MU 100N K 50 1206	1	C123	P210122	C# X7R MU 100N K 50 1206	1
C 3	P210122	C# X7R MU 100N K 50 1206	1	C124	P210122	C# X7R MU 100N K 50 1206	1
C 4	P210122	C# X7R MU 100N K 50 1206	1	C125	V1115489	C EL RA 2M2M 50E2 105	1
C 5	P210122	C# X7R MU 100N K 50 1206	1	C126	P210092	C# X7R MU 10N K 50 1206	1
C 6	P210122	C# X7R MU 100N K 50 1206	1	C127	V1115509	C EL RA 4M7M 63E2 105	1
C 7	P210122	C# X7R MU 100N K 50 1206	1	C128	V1115119	C EL RA 47M M 25E2 105	1
C 8	P210122	C# X7R MU 100N K 50 1206	1	C129	V1115119	C EL RA 47M M 25E2 105	1
C 9	P210122	C# X7R MU 100N K 50 1206	1	C130	P210092	C# X7R MU 10N K 50 1206	1
C 10	P210122	C# X7R MU 100N K 50 1206	1	C131	V114098	C POMERA 2M2M 50E2 85	1
C 11	P210122	C# X7R MU 100N K 50 1206	1	C132	V1115319	C EL RA 10M M 50E2 105	1
C 12	P210122	C# X7R MU 100N K 50 1206	1	C133	P210122	C# X7R MU 100N K 50 1206	1
C 13	P210122	C# X7R MU 100N K 50 1206	1	C134	P210092	C# X7R MU 10N K 50 1206	1
C 14	P210122	C# X7R MU 100N K 50 1206	1	C135	P210153	C# Z5U MU 1M M 50 1812	1
C 15	P210122	C# X7R MU 100N K 50 1206	1	C200	V111679	C EL BRA 10M M 25E2 105	1
C 16	P210122	C# X7R MU 100N K 50 1206	1	C201	P210158	C# C0G MU 150P J 50 1206	1
C 17	P210122	C# X7R MU 100N K 50 1206	1	C202	V1115509	C EL RA 4M7M 63E2 105	1
C 18	P210122	C# X7R MU 100N K 50 1206	1	C204	P210122	C# X7R MU 100N K 50 1206	1
C 19	P210122	C# X7R MU 100N K 50 1206	1	C205	R115926	C PP RA 2N7J100E2 85	1
C 20	P210122	C# X7R MU 100N K 50 1206	1	C206	P210013	C# C0G MU 1N J 50 1206	1
C 21	P210122	C# X7R MU 100N K 50 1206	1	C207	V1115109	C EL RA 22M M 25E2 105	1
C 22	P210122	C# X7R MU 100N K 50 1206	1	C208	P210092	C# X7R MU 10N K 50 1206	1
C 23	P210122	C# X7R MU 100N K 50 1206	1	C209	P210122	C# X7R MU 100N K 50 1206	1
C 24	P210122	C# X7R MU 100N K 50 1206	1	C210	V1114705	C EL RA1000M M 16E2 105	1
C 25	P210122	C# X7R MU 100N K 50 1206	1	C211	P210161	C# C0G MU 120P J 50 1206	1
C 26	P210122	C# X7R MU 100N K 50 1206	1	C212	P210122	C# X7R MU 100N K 50 1206	1
C 27	P210122	C# X7R MU 100N K 50 1206	1	C213	P210045	C# X7R MU 47N K 50 1206	1
C 28	P210122	C# X7R MU 100N K 50 1206	1	C214	V1115109	C EL RA 22M M 25E2 105	1
C 29	P210122	C# X7R MU 100N K 50 1206	1	C215	V1115489	C EL RA 2M2M 50E2 105	1
C 30	P210122	C# X7R MU 100N K 50 1206	1	C218	P210102	C# C0G MU 470P J 50 1206	1
C 31	V1114705	C EL RA1000M M 16E2 105	1	C219	P210122	C# X7R MU 100N K 50 1206	1
C 32	K1114777	C EL RA 100M M 25E2 105	1	C220	P210076	C# C0G MU 220P J 50 1206	1
C 33	K1114777	C EL RA 100M M 25E2 105	1	C221	P210122	C# X7R MU 100N K 50 1206	1
C 34	K1114777	C EL RA 100M M 25E2 105	1	C222	P210122	C# X7R MU 100N K 50 1206	1
C 35	K1114777	C EL RA 100M M 25E2 105	1	C301	P210151	C# X7R MU 18N K 50 1206	1
C 36	K1114777	C EL RA 100M M 25E2 105	1	C302	R114090	C POMERA 1M K 63E2 85	1
C 37	K1114777	C EL RA 100M M 25E2 105	1	C305	R114090	C POMERA 1M K 63E2 85	1
C 38	P210122	C# X7R MU 100N K 50 1206	1	C306	R114085	C POMERA 330N K 63E2 85	1
C 39	P210122	C# X7R MU 100N K 50 1206	1	C307	K1114777	C EL RA 100M M 25E2 105	1
C 40	P210178	C# Y5V MU 1M Z 16 1206	1	C308	P210029	C# C0G MU 2N2J 50 1206	1
C 41	P210122	C# X7R MU 100N K 50 1206	1	C309	P210148	C# Y5V MU 470N Z 25 1206	1
C 42	P210178	C# Y5V MU 1M Z 16 1206	1	C310	P210045	C# X7R MU 47N K 50 1206	1
C 43	P210178	C# Y5V MU 1M Z 16 1206	1	C312	K1114777	C EL RA 100M M 25E2 105	1
C100	P210076	C# C0G MU 220P J 50 1206	1	C313	P210102	C# C0G MU 470P J 50 1206	1
C101	P210076	C# C0G MU 220P J 50 1206	1	C314	P210092	C# X7R MU 10N K 50 1206	1
C102	P210167	C# X7R MU 150N K 50 1210	1	C315	P210148	C# Y5V MU 470N Z 25 1206	1
C103	P210136	C# Y5V MU 330N Z 25 1206	1	C316	P210122	C# X7R MU 100N K 50 1206	1
C104	P210137	C# C0G MU 100P J 50 1206	1	C317	P210167	C# X7R MU 150N K 50 1210	1
C105	P210122	C# X7R MU 100N K 50 1206	1	C318	P210013	C# C0G MU 1N J 50 1206	1
C106	P210122	C# X7R MU 100N K 50 1206	1	C319	P210122	C# X7R MU 100N K 50 1206	1
C107	P210092	C# X7R MU 10N K 50 1206	1	C320	P210148	C# Y5V MU 470N Z 25 1206	1
C108	K1114777	C EL RA 100M M 25E2 105	1	C321	K1114777	C EL RA 100M M 25E2 105	1
C109	P210026	C# C0G MU 680P J 50 1206	1	C322	P210122	C# X7R MU 100N K 50 1206	1
C110	P210161	C# C0G MU 120P J 50 1206	1	C323	P210007	C# C0G MU 1N F 50 1206	1
C111	P210122	C# X7R MU 100N K 50 1206	1	C324	P210137	C# C0G MU 100P J 50 1206	1
C112	P210122	C# X7R MU 100N K 50 1206	1	C400	P210013	C# C0G MU 1N J 50 1206	1
C113	P210167	C# X7R MU 150N K 50 1210	1	C401	P210122	C# X7R MU 100N K 50 1206	1
C114	P210170	C# C0G MU 56P J 50 1206	1	C402	P210140	C# X7R MU 4N7K 50 1206	1
C115	P210122	C# X7R MU 100N K 50 1206	1	C403	P210178	C# Y5V MU 1M Z 16 1206	1
C116	P210122	C# X7R MU 100N K 50 1206	1	C404	P210029	C# C0G MU 2N2J 50 1206	1
C117	P210092	C# X7R MU 10N K 50 1206	1	C405	P210076	C# C0G MU 220P J 50 1206	1
C118	P210169	C# X7R MU 220N K 50 1210	1	C406	P210122	C# X7R MU 100N K 50 1206	1
C119	P210169	C# X7R MU 220N K 50 1210	1	C407	P210092	C# X7R MU 10N K 50 1206	1
C120	V1151652	C PP RA 3N3H 63E2 85	1	C408	P210125	C# X7R MU 22N K100 1206	1
C121	P210122	C# X7R MU 100N K 50 1206	1	C409	V1115109	C EL RA 22M M 25E2 105	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C410	P210122	C# X7R MU 100N K 50 1206	1	I300	P230887	U#064 TL SO14 P	1
C412	P210122	C# X7R MU 100N K 50 1206	1	I301	P230028	U#393 LM SO8 P	1
C413	P210122	C# X7R MU 100N K 50 1206	1	I302	P230025	U#74HC123 SO16 I	1
C414	P210122	C# X7R MU 100N K 50 1206	1	I303	P230293	U#082 TL SO8 P	1
C415	P210092	C# X7R MU 10N K 50 1206	1	I304	P230206	U#74HC30 SO14 I	1
C416	P210170	C# C0G MU 56P J 50 1206	1	I305	P230052	U#74HC74 SO14 I	1
C417	P210122	C# X7R MU 100N K 50 1206	1	I306	P230173	U#74HC14 SO14 I	1
C418	P210163	C# C0G MU 1N8J 50 1206	1	I400	P230028	U#393 LM SO8 P	1
				I401	P230034	U#4013 SO14 I	1
D 1	P234047	D#BAV99 SER SOT23	1	I402	P230451	U#4098 HCF SO16 I	1
D 2	P234047	D#BAV99 SER SOT23	1	I403	P230451	U#4098 HCF SO16 I	1
D 3	P234047	D#BAV99 SER SOT23	1	I404	P230669	U#40106B SO14 I	1
D100	P234055	D#BAT54 SCH SOT23	1	I405	P230030	U#4053 SO16 I	1
D101	P234099	D#4148 RDMMELF	1	I406	P230040	U#4070 SO14 I	1
D102	P234099	D#4148 RDMMELF	1	I407	P230969	U#1881 LM SO8 P	1
D103	P234047	D#BAV99 SER SOT23	1				
D104	P234047	D#BAV99 SER SOT23	1	J 1	R313935	J CT H MBT P15 M2SN WH	1
D105	P234099	D#4148 RDMMELF	1	J 3	R313935	J CT H MBT P15 M2SN WH	1
D106	P234099	D#4148 RDMMELF	1	J 8	R313924	J CT H MBT P 4 M2SN WH	1
D107	P234099	D#4148 RDMMELF	1	J 9	R313926	J CT H MBT P 6 M2SN WH	1
D108	P234099	D#4148 RDMMELF	1	J 10	R313922	J CT H MBT P 2 M2SN WH	1
D109	P234047	D#BAV99 SER SOT23	1	J 11	R313927	J CT H MBT P 7 M2SN WH	1
D111	P234099	D#4148 RDMMELF	1	J103	R315302	JPIN PR D1,3L 5,5+3	1
D112	P234047	D#BAV99 SER SOT23	1	J104	R315302	JPIN PR D1,3L 5,5+3	1
D113	P234047	D#BAV99 SER SOT23	1				
D114	P234099	D#4148 RDMMELF	1	L 1	R3060522	CH RA NS 150 UH 0A75	1
D115	P234099	D#4148 RDMMELF	1	L 2	R3060522	CH RA NS 150 UH 0A75	1
D300	P234047	D#BAV99 SER SOT23	1	L 3	R3060522	CH RA NS 150 UH 0A75	1
D301	P234055	D#BAT54 SCH SOT23	1				
D302	P234055	D#BAT54 SCH SOT23	1	M200	R313729	J TESTEYE D2,1 H3,1 SNBK	1
D303	P234055	D#BAT54 SCH SOT23	1	M201	R313729	J TESTEYE D2,1 H3,1 SNBK	1
D304	P234055	D#BAT54 SCH SOT23	1				
D305	P234099	D#4148 RDMMELF	1	P200	R107009	RTCE H 10K K 0W5 S 7TS	1
D306	P234047	D#BAV99 SER SOT23	1	PC	R780818	PCB D708 SYN/2	1
D307	P234047	D#BAV99 SER SOT23	1				
D308	P234099	D#4148 RDMMELF	1	Q100	P232004	Q#BC849C N SS SOT23	1
D309	P234099	D#4148 RDMMELF	1	Q101	P232004	Q#BC849C N SS SOT23	1
D310	P234099	D#4148 RDMMELF	1	Q102	P232012	Q#BFR30 SS SOT23	1
D311	P234099	D#4148 RDMMELF	1	Q103	P232101	Q#BC859C P SS SOT23	1
D312	P234047	D#BAV99 SER SOT23	1	Q104	P232004	Q#BC849C N SS SOT23	1
D313	P234047	D#BAV99 SER SOT23	1	Q105	P232033	Q#BSV52 N SS SOT23	1
D314	P234099	D#4148 RDMMELF	1	Q106	P232004	Q#BC849C N SS SOT23	1
D315	P234099	D#4148 RDMMELF	1	Q107	P232004	Q#BC849C N SS SOT23	1
D400	P234099	D#4148 RDMMELF	1	Q108	P232079	Q#BSS84 F SS SOT23	1
D401	P234099	D#4148 RDMMELF	1	Q109	P232004	Q#BC849C N SS SOT23	1
D402	P234099	D#4148 RDMMELF	1	Q110	P232004	Q#BC849C N SS SOT23	1
D403	P234099	D#4148 RDMMELF	1	Q111	P232004	Q#BC849C N SS SOT23	1
D404	P234099	D#4148 RDMMELF	1	Q200	P232004	Q#BC849C N SS SOT23	1
D405	P234055	D#BAT54 SCH SOT23	1	Q202	P232004	Q#BC849C N SS SOT23	1
D406	P234047	D#BAV99 SER SOT23	1	Q203	P232004	Q#BC849C N SS SOT23	1
D407	P234047	D#BAV99 SER SOT23	1	Q302	P232004	Q#BC849C N SS SOT23	1
D408	P234047	D#BAV99 SER SOT23	1	Q304	P232033	Q#BSV52 N SS SOT23	1
D409	P234047	D#BAV99 SER SOT23	1	Q307	P232101	Q#BC859C P SS SOT23	1
				Q308	P232101	Q#BC859C P SS SOT23	1
I 1	P230983	U#8444T TDA SOL16 P	1	Q309	P232004	Q#BC849C N SS SOT23	1
I 2	P230203	U#084 TL SO14 P	1	Q310	P232004	Q#BC849C N SS SOT23	1
I100	P230451	U#4098 HCF SO16 I	1	Q400	P232004	Q#BC849C N SS SOT23	1
I101	P230203	U#084 TL SO14 P	1	Q401	P232004	Q#BC849C N SS SOT23	1
I102	P230009	U#4046 SO16 I	1	Q403	P232079	Q#BSS84 F SS SOT23	1
I103	P230163	U#74HC132 SO14 I	1	Q404	P232004	Q#BC849C N SS SOT23	1
I104	P230025	U#74HC123 SO16 I	1	Q405	P232004	Q#BC849C N SS SOT23	1
I105	P230064	U#4052 SO16 I	1	Q406	P232079	Q#BSS84 F SS SOT23	1
I106	R132762	U 2595 TDA DIP18 P	1	Q407	P232004	Q#BC849C N SS SOT23	1
I107	P230030	U#4053 SO16 I	1				
I200	R1328741	U 2579B TDA DIP18 P	1	R 1	P200387	R# CE H100E F 0W25 1206	1
I202	P230451	U#4098 HCF SO16 I	1	R 2	P200387	R# CE H100E F 0W25 1206	1
I203	P230028	U#393 LM SO8 P	1	R 3	P200393	R# CE H180E F 0W25 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 4	P200411	R# CE H 1K F 0W25 1206	1	R154	P200429	R# CE H 5K6 F 0W25 1206	1
R 5	P200427	R# CE H 4K7 F 0W25 1206	1	R155	P200425	R# CE H 3K9 F 0W25 1206	1
R 6	P200387	R# CE H100E F 0W25 1206	1	R156	P200411	R# CE H 1K F 0W25 1206	1
R 7	P200387	R# CE H100E F 0W25 1206	1	R157	P200407	R# CE H680E F 0W25 1206	1
R 8	P200387	R# CE H100E F 0W25 1206	1	R158	P200471	R# CE H330K F 0W25 1206	1
R 9	P200483	R# CE H 1M F 0W25 1206	1	R159	P200471	R# CE H330K F 0W25 1206	1
R 10	P200460	R# CE H110K F 0W25 1206	1	R160	P200459	R# CE H100K F 0W25 1206	1
R 11	P200437	R# CE H 12K F 0W25 1206	1	R161	P200459	R# CE H100K F 0W25 1206	1
R 12	P200451	R# CE H 47K F 0W25 1206	1	R162	P200443	R# CE H 22K F 0W25 1206	1
R 13	P200415	R# CE H 1K5 F 0W25 1206	1	R163	P200443	R# CE H 22K F 0W25 1206	1
R 14	P200435	R# CE H 10K F 0W25 1206	1	R164	P200451	R# CE H 47K F 0W25 1206	1
R 15	P200435	R# CE H 10K F 0W25 1206	1	R165	P200475	R# CE H470K F 0W25 1206	1
R 16	P200387	R# CE H100E F 0W25 1206	1	R166	P200387	R# CE H100E F 0W25 1206	1
R 17	P200451	R# CE H 47K F 0W25 1206	1	R167	P200387	R# CE H100E F 0W25 1206	1
R100	R101528	R MF H220E F 0W4 E3	1	R168	P200397	R# CE H270E F 0W25 1206	1
R101	P200455	R# CE H 68K F 0W25 1206	1	R169	P200397	R# CE H270E F 0W25 1206	1
R102	P200445	R# CE H 27K F 0W25 1206	1	R170	P200427	R# CE H 4K7 F 0W25 1206	1
R103	P200443	R# CE H 22K F 0W25 1206	1	R171	P200459	R# CE H100K F 0W25 1206	1
R104	P200453	R# CE H 56K F 0W25 1206	1	R172	P200411	R# CE H 1K F 0W25 1206	1
R105	P200437	R# CE H 12K F 0W25 1206	1	R173	P200459	R# CE H100K F 0W25 1206	1
R106	P200431	R# CE H 6K8 F 0W25 1206	1	R176	P201353	R# CE H 0E 0W25 1206	1
R107	P200431	R# CE H 6K8 F 0W25 1206	1	R179	P200435	R# CE H 10K F 0W25 1206	1
R108	P200429	R# CE H 5K6 F 0W25 1206	1	R180	P200435	R# CE H 10K F 0W25 1206	1
R109	P200455	R# CE H 68K F 0W25 1206	1	R181	P200445	R# CE H 27K F 0W25 1206	1
R110	P200459	R# CE H100K F 0W25 1206	1	R182	P200475	R# CE H470K F 0W25 1206	1
R111	P200435	R# CE H 10K F 0W25 1206	1	R200	P200459	R# CE H100K F 0W25 1206	1
R112	P200435	R# CE H 10K F 0W25 1206	1	R201	P200449	R# CE H 39K F 0W25 1206	1
R113	P200419	R# CE H 2K2 F 0W25 1206	1	R202	P200419	R# CE H 2K2 F 0W25 1206	1
R114	P200459	R# CE H100K F 0W25 1206	1	R203	P200411	R# CE H 1K F 0W25 1206	1
R115	P200453	R# CE H 56K F 0W25 1206	1	R204	P200413	R# CE H 1K2 F 0W25 1206	1
R116	P200407	R# CE H680E F 0W25 1206	1	R205	P200446	R# CE H 30K F 0W25 1206	1
R117	P200507	R# CE H 10M F 0W25 1206	1	R206	P200401	R# CE H390E F 0W25 1206	1
R119	P200405	R# CE H560E F 0W25 1206	1	R207	P200431	R# CE H 6K8 F 0W25 1206	1
R120	P200403	R# CE H470E F 0W25 1206	1	R208	P200355	R# CE H 4E7 F 0W25 1206	1
R121	P200457	R# CE H 82K F 0W25 1206	1	R209	P200435	R# CE H 10K F 0W25 1206	1
R122	P200455	R# CE H 68K F 0W25 1206	1	R210	P200433	R# CE H 8K2 F 0W25 1206	1
R123	P200387	R# CE H100E F 0W25 1206	1	R211	P200411	R# CE H 1K F 0W25 1206	1
R124	P200387	R# CE H100E F 0W25 1206	1	R212	P200435	R# CE H 10K F 0W25 1206	1
R125	P200387	R# CE H100E F 0W25 1206	1	R213	P200459	R# CE H100K F 0W25 1206	1
R126	P200443	R# CE H 22K F 0W25 1206	1	R214	P200423	R# CE H 3K3 F 0W25 1206	1
R127	P200459	R# CE H100K F 0W25 1206	1	R215	P200437	R# CE H 12K F 0W25 1206	1
R128	P200453	R# CE H 56K F 0W25 1206	1	R216	P200371	R# CE H 22E F 0W25 1206	1
R129	P200393	R# CE H180E F 0W25 1206	1	R217	P200429	R# CE H 5K6 F 0W25 1206	1
R130	P200391	R# CE H150E F 0W25 1206	1	R220	P200435	R# CE H 10K F 0W25 1206	1
R131	P200413	R# CE H 1K2 F 0W25 1206	1	R221	P200435	R# CE H 10K F 0W25 1206	1
R132	P200413	R# CE H 1K2 F 0W25 1206	1	R222	P200404	R# CE H510E F 0W25 1206	1
R133	P200427	R# CE H 4K7 F 0W25 1206	1	R226	P200433	R# CE H 8K2 F 0W25 1206	1
R134	P200411	R# CE H 1K F 0W25 1206	1	R227	P200466	R# CE H200K F 0W25 1206	1
R135	P200387	R# CE H100E F 0W25 1206	1	R228	P200435	R# CE H 10K F 0W25 1206	1
R136	P200387	R# CE H100E F 0W25 1206	1	R229	P200459	R# CE H100K F 0W25 1206	1
R137	P200417	R# CE H 1K8 F 0W25 1206	1	R230	P200451	R# CE H 47K F 0W25 1206	1
R138	P200407	R# CE H680E F 0W25 1206	1	R231	P200451	R# CE H 47K F 0W25 1206	1
R139	P200393	R# CE H180E F 0W25 1206	1	R232	P200445	R# CE H 27K F 0W25 1206	1
R140	P200411	R# CE H 1K F 0W25 1206	1	R233	P200457	R# CE H 82K F 0W25 1206	1
R141	P200387	R# CE H100E F 0W25 1206	1	R234	P200391	R# CE H150E F 0W25 1206	1
R142	P200437	R# CE H 12K F 0W25 1206	1	R235	P200411	R# CE H 1K F 0W25 1206	1
R143	P200363	R# CE H 10E F 0W25 1206	1	R236	P200435	R# CE H 10K F 0W25 1206	1
R144	P200431	R# CE H 6K8 F 0W25 1206	1	R237	P200435	R# CE H 10K F 0W25 1206	1
R145	P200435	R# CE H 10K F 0W25 1206	1	R238	P200439	R# CE H 15K F 0W25 1206	1
R146	P200459	R# CE H100K F 0W25 1206	1	R300	P200387	R# CE H100E F 0W25 1206	1
R147	P200427	R# CE H 4K7 F 0W25 1206	1	R304	P200415	R# CE H 1K5 F 0W25 1206	1
R148	P200483	R# CE H 1M F 0W25 1206	1	R305	P200435	R# CE H 10K F 0W25 1206	1
R149	P200409	R# CE H820E F 0W25 1206	1	R306	P200435	R# CE H 10K F 0W25 1206	1
R150	P200407	R# CE H680E F 0W25 1206	1	R307	P200437	R# CE H 12K F 0W25 1206	1
R151	P200441	R# CE H 18K F 0W25 1206	1	R311	P200469	R# CE H270K F 0W25 1206	1
R152	P200467	R# CE H220K F 0W25 1206	1	R312	P200477	R# CE H560K F 0W25 1206	1
R153	P200431	R# CE H 6K8 F 0W25 1206	1	R313	P200460	R# CE H110K F 0W25 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R314	P200427	R# CE H 4K7 F 0W25 1206	1	R425	P200473	R# CE H390K F 0W25 1206	1
R315	P200422	R# CE H 3K F 0W25 1206	1	R426	P200475	R# CE H470K F 0W25 1206	1
R316	P200427	R# CE H 4K7 F 0W25 1206	1	R428	P200415	R# CE H 1K5 F 0W25 1206	1
R317	P200451	R# CE H 47K F 0W25 1206	1	R429	P200483	R# CE H 1M F 0W25 1206	1
R318	P200451	R# CE H 47K F 0W25 1206	1	R430	P200411	R# CE H 1K F 0W25 1206	1
R319	P200455	R# CE H 68K F 0W25 1206	1	R432	P200411	R# CE H 1K F 0W25 1206	1
R320	P200441	R# CE H 18K F 0W25 1206	1	R433	P200387	R# CE H100E F 0W25 1206	1
R321	P200451	R# CE H 47K F 0W25 1206	1	R434	P200387	R# CE H100E F 0W25 1206	1
R322	P200435	R# CE H 10K F 0W25 1206	1	R435	P200411	R# CE H 1K F 0W25 1206	1
R323	P200427	R# CE H 4K7 F 0W25 1206	1	R436	P200387	R# CE H100E F 0W25 1206	1
R324	P200427	R# CE H 4K7 F 0W25 1206	1	R437	P200387	R# CE H100E F 0W25 1206	1
R325	P200427	R# CE H 4K7 F 0W25 1206	1	Z100	P234036	D#ZEN 5V6 0W3 B SOT23	1
R326	P200387	R# CE H100E F 0W25 1206	1	Z101	P234057	D#ZEN 8V2 0W5 C DMMELF	1
R327	P200387	R# CE H100E F 0W25 1206	1	Z400	P234184	D#ZEN 7V5 0W5 C DMMELF	1
R328	P200427	R# CE H 4K7 F 0W25 1206	1				
R329	P200423	R# CE H 3K3 F 0W25 1206	1				
R330	P200387	R# CE H100E F 0W25 1206	1		R7624896A	UN V701MM SYN/2	1
R331	P200387	R# CE H100E F 0W25 1206	1		R7624896P	UN V701MM SYN/2	1
R332	P200411	R# CE H 1K F 0W25 1206	1				
R333	P200465	R# CE H180K F 0W25 1206	1				
R334	P200453	R# CE H 56K F 0W25 1206	1				
R335	P200391	R# CE H150E F 0W25 1206	1				
R336	P200393	R# CE H180E F 0W25 1206	1				
R337	P200453	R# CE H 56K F 0W25 1206	1				
R338	P200427	R# CE H 4K7 F 0W25 1206	1				
R339	P200459	R# CE H100K F 0W25 1206	1				
R340	P200443	R# CE H 22K F 0W25 1206	1				
R341	P200411	R# CE H 1K F 0W25 1206	1				
R342	P200391	R# CE H150E F 0W25 1206	1				
R343	P200393	R# CE H180E F 0W25 1206	1				
R344	P200453	R# CE H 56K F 0W25 1206	1				
R345	P200427	R# CE H 4K7 F 0W25 1206	1				
R346	P200443	R# CE H 22K F 0W25 1206	1				
R347	P200457	R# CE H 82K F 0W25 1206	1				
R348	P200465	R# CE H180K F 0W25 1206	1				
R349	P200417	R# CE H 1K8 F 0W25 1206	1				
R350	P200387	R# CE H100E F 0W25 1206	1				
R351	P200387	R# CE H100E F 0W25 1206	1				
R352	P200427	R# CE H 4K7 F 0W25 1206	1				
R353	P200387	R# CE H100E F 0W25 1206	1				
R354	P200387	R# CE H100E F 0W25 1206	1				
R355	P200411	R# CE H 1K F 0W25 1206	1				
R400	P200437	R# CE H 12K F 0W25 1206	1				
R401	P200399	R# CE H330E F 0W25 1206	1				
R402	P200441	R# CE H 18K F 0W25 1206	1				
R403	P200449	R# CE H 39K F 0W25 1206	1				
R404	P200427	R# CE H 4K7 F 0W25 1206	1				
R405	P200453	R# CE H 56K F 0W25 1206	1				
R406	P200465	R# CE H180K F 0W25 1206	1				
R407	P200439	R# CE H 15K F 0W25 1206	1				
R408	P200431	R# CE H 6K8 F 0W25 1206	1				
R409	P200423	R# CE H 3K3 F 0W25 1206	1				
R410	P200423	R# CE H 3K3 F 0W25 1206	1				
R411	P200411	R# CE H 1K F 0W25 1206	1				
R412	P200427	R# CE H 4K7 F 0W25 1206	1				
R413	P200475	R# CE H470K F 0W25 1206	1				
R414	P200439	R# CE H 15K F 0W25 1206	1				
R415	P200439	R# CE H 15K F 0W25 1206	1				
R416	P200435	R# CE H 10K F 0W25 1206	1				
R417	P200457	R# CE H 82K F 0W25 1206	1				
R418	P200443	R# CE H 22K F 0W25 1206	1				
R419	P200459	R# CE H100K F 0W25 1206	1				
R420	P200387	R# CE H100E F 0W25 1206	1				
R421	P200415	R# CE H 1K5 F 0W25 1206	1				
R422	P200387	R# CE H100E F 0W25 1206	1				
R423	P200387	R# CE H100E F 0W25 1206	1				
R424	P200451	R# CE H 47K F 0W25 1206	1				

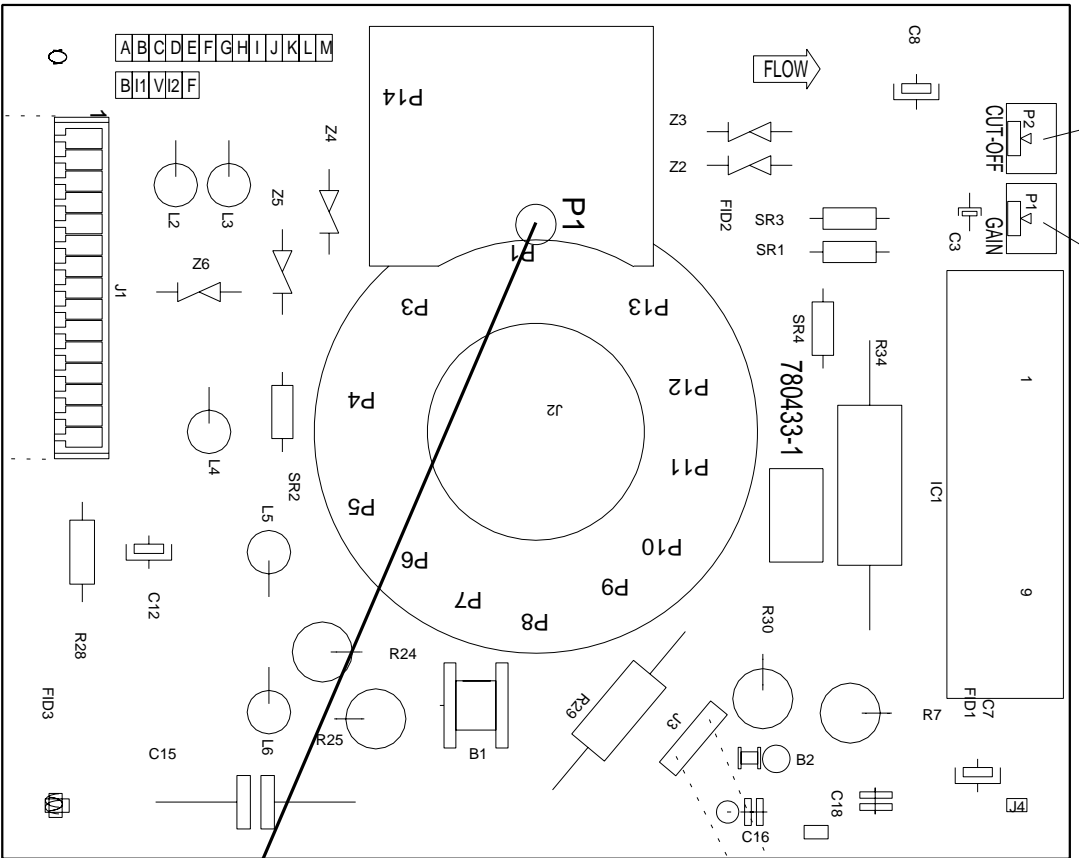


CUT OFF
ADJUSTMENT

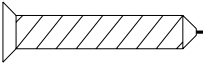
GAIN
ADJUSTMENT

TOP VIEW

To X-Ray shield



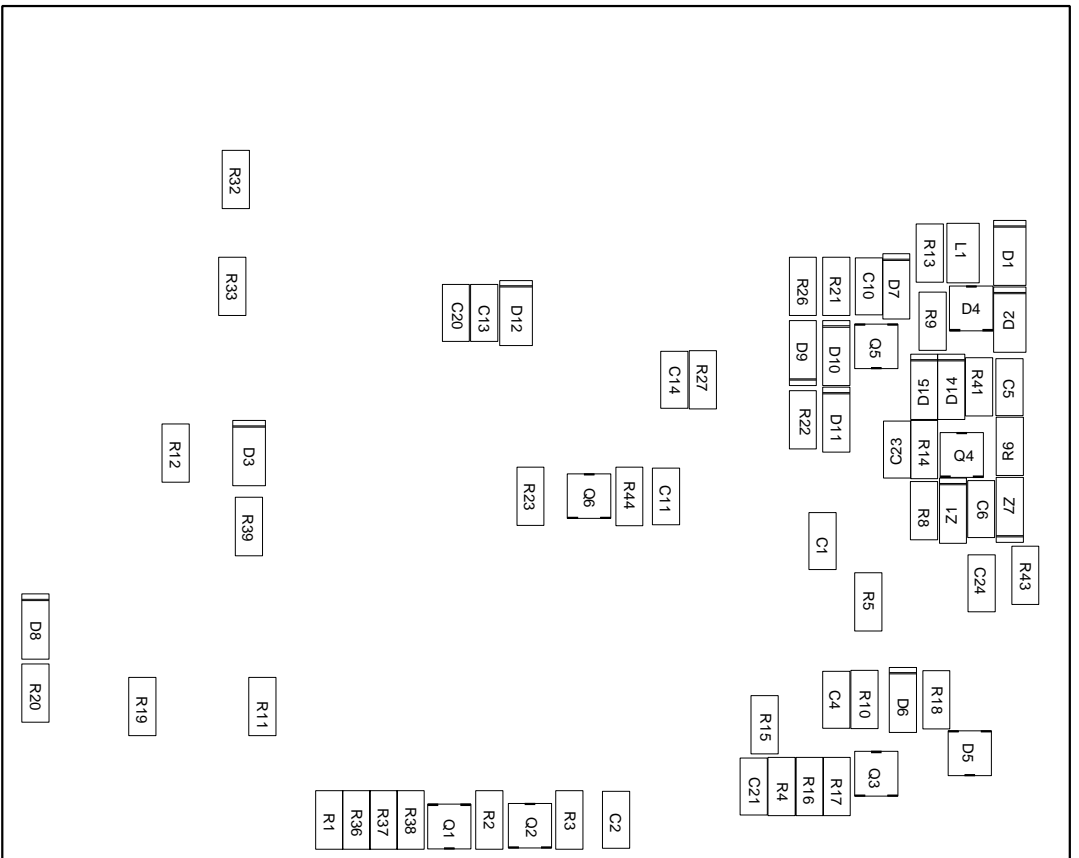
From RGB INPUT
AND DRIVER
(RED : J550)
(GREEN : J560)
(BLUE : J570)



FOCUS

From FOCUS + SHIFT MODULE

BOTTOM VIEW



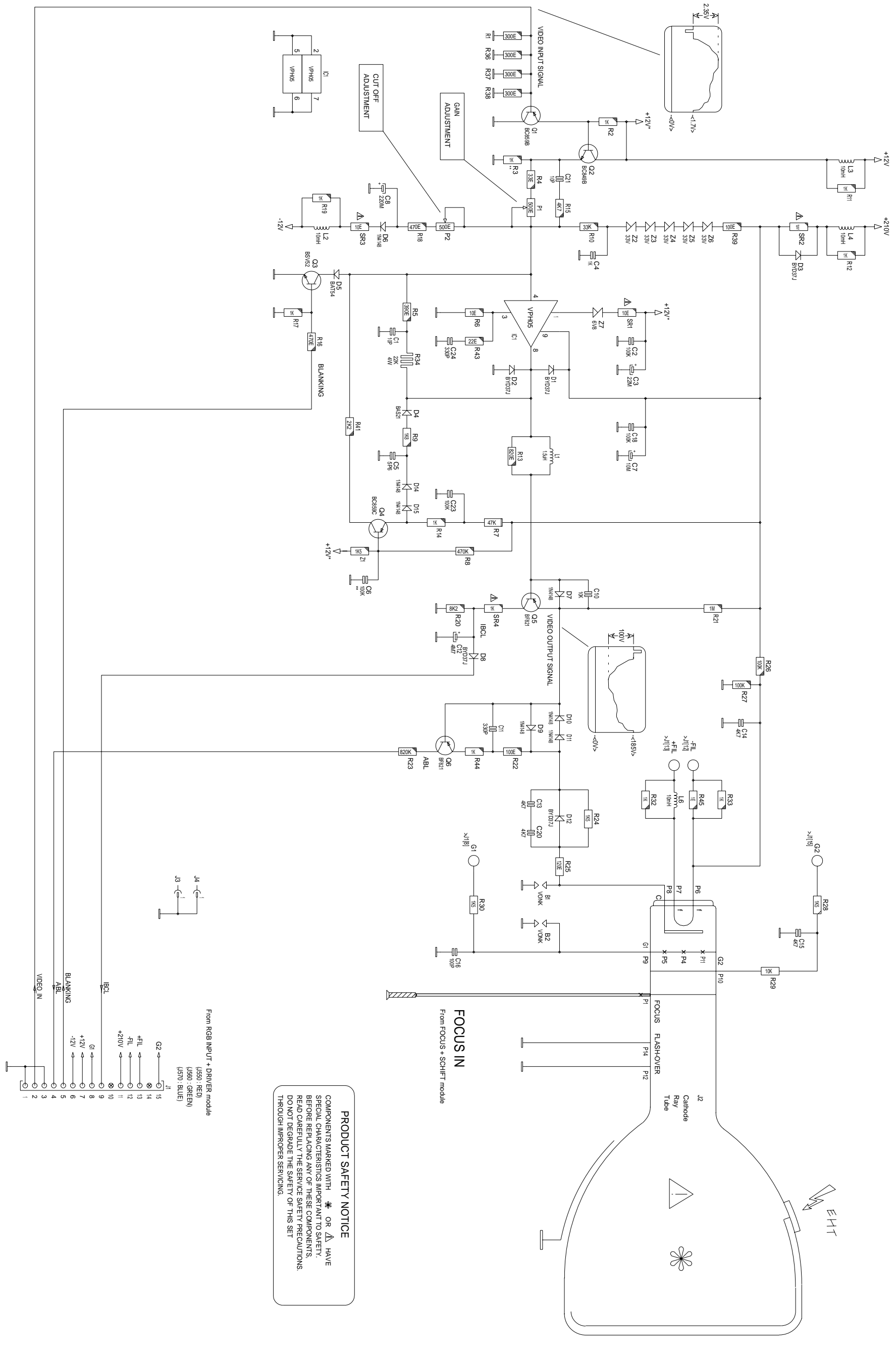
Name	RGB OUTPUT + SOCKET	Sheet	1/1
Module No.	Index	PCB No.	Rev.
R762559	1	780433	1
Date	Drawn	Checked	PDGY
23-03-1989	JVDY		

BARCO PROJECTION SYSTEMS

Modifications reserved

COMP. LOC.

B1	C3	G2
B2	C2	G2
C1	G2	G2
C2	H3	G2
C3	H3	G2
C4	B2	G2
C5	B2	G2
C6	B2	G2
C7	B2	G2
C8	A2	G2
C9	A2	G2
C10	F2	G2
C11	F2	G2
C12	G3	G2
C13	G3	G2
C14	G3	G2
C15	G4	G2
C16	D3	G2
C17	D3	G2
C18	C2	G2
C19	C2	G2
C20	G3	G2
C21	H3	G2
C22	H3	G2
C23	G2	G2
C24	G2	G2
D1	F2	G2
D2	G2	G2
D3	G4	G2
D4	G2	G2
D5	H2	G2
D6	H2	G2
D7	F2	G2
D8	G5	G2
D9	G2	G2
D10	G2	G2
D11	G2	G2
D12	G3	G2
D13	G2	G2
D14	G2	G2
D15	G2	G2
F1D1	C2	G2
F1D2	B3	G2
F1D3	B3	G2
F1D3	C3	G2
IC1	C2	G2
J1	B5	G2
J2	B3	G2
J3	C3	G2
J4	D2	G2
L1	F2	G2
L2	B4	G2
L3	B4	G2
L4	B4	G2
L5	C4	G2
L6	C4	G2
P1	B2	G2
P2	A2	G2
P3	H4	G2
P4	H4	G2
P5	H3	G2
P6	H3	G2
P7	H2	G2
P8	H2	G2
P9	H2	G2
P10	H2	G2
P11	H2	G2
P12	H2	G2
P13	H2	G2
P14	H4	G2
Q1	H4	G2
Q2	H2	G2
Q3	H2	G2
R1	H4	G2
R2	H3	G2
R3	H3	G2
R4	H2	G2
R5	H2	G2
R6	H2	G2
R7	H2	G2
R8	H2	G2
R9	H2	G2
R10	H2	G2
R11	H4	G2
R12	G4	G2
R13	F2	G2
R14	G2	G2
R15	H3	G2
R16	H2	G2
R17	H2	G2
R18	H2	G2
R19	H4	G2
R20	H5	G2
R21	F2	G2
R22	G2	G2
R23	G3	G2
R24	G3	G2
R25	C4	G2
R26	C4	G2
R27	F4	G2
R28	F4	G2
R29	F4	G2
R30	C3	G2
R31	C3	G2
R32	C3	G2
R33	C3	G2
R34	F4	G2
R35	F4	G2
R36	H4	G2
R37	H4	G2
R38	H4	G2
R39	G4	G2
R40	G2	G2
R41	G2	G2
R42	G3	G2
R43	G3	G2
R44	G3	G2
SR1	B3	G2
SR2	C1	G2
SR3	B1	G2
SR4	B2	G2
Z1	G2	G2
Z2	B3	G2
Z3	A3	G2
Z4	A4	G2
Z5	B4	G2
Z6	B4	G2
Z7	G2	G2



PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH * OR Δ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

From RGB INPUT + DRIVER module
 (U550 : RED)
 (U560 : GREEN)
 (U570 : BLUE)

J4 -
 J3 -

From FOCUS + SHIFT module

FOCUS IN

COMP.	LOC.
B1	F3
B2	F3
C1	F3
C2	F3
C3	F3
C4	F3
C5	F3
C6	F3
C7	F3
C8	F3
C9	F3
C10	F3
C11	F3
C12	F3
C13	F3
C14	F3
C15	F3
D1	F3
D2	F3
D3	F3
D4	F3
D5	F3
D6	F3
D7	F3
D8	F3
D9	F3
D10	F3
D11	F3
D12	F3
D13	F3
D14	F3
D15	F3
E1	F3
E2	F3
E3	F3
E4	F3
E5	F3
E6	F3
E7	F3
E8	F3
E9	F3
E10	F3
E11	F3
E12	F3
E13	F3
E14	F3
E15	F3
E16	F3
E17	F3
E18	F3
E19	F3
E20	F3
E21	F3
E22	F3
E23	F3
E24	F3
E25	F3
E26	F3
E27	F3
F1	F3
F2	F3
F3	F3
F4	F3
F5	F3
F6	F3
F7	F3
F8	F3
F9	F3
F10	F3
F11	F3
F12	F3
F13	F3
F14	F3
F15	F3
F16	F3
F17	F3
F18	F3
F19	F3
F20	F3
F21	F3
F22	F3
F23	F3
F24	F3
F25	F3
F26	F3
F27	F3
G1	F3
G2	F3
G3	F3
G4	F3
G5	F3
G6	F3
G7	F3
G8	F3
G9	F3
G10	F3
G11	F3
G12	F3
G13	F3
G14	F3
G15	F3
G16	F3
G17	F3
G18	F3
G19	F3
G20	F3
G21	F3
G22	F3
G23	F3
G24	F3
G25	F3
G26	F3
G27	F3

Name	Sheet
RGB OUTPUT & SOCKET	1/1
Module No	Rev
K102539	1
PCB No	Rev
N10043	1
Date	Drawn
23-03-1999	JVDY
	Chk
	PDGY

BARCO PROJECTION SYSTEMS

Modifications reserved

COMPONENTS MARKED WITH * ARE NOT MOUNTED

ADJUSTMENT PROCEDURE

Attention: To eliminate Beam Current Limiting (BCL) while adjusting the GAIN and CUT OFF potentiometers, remove the anode lead of the three picture tubes on the EHT Splitter.

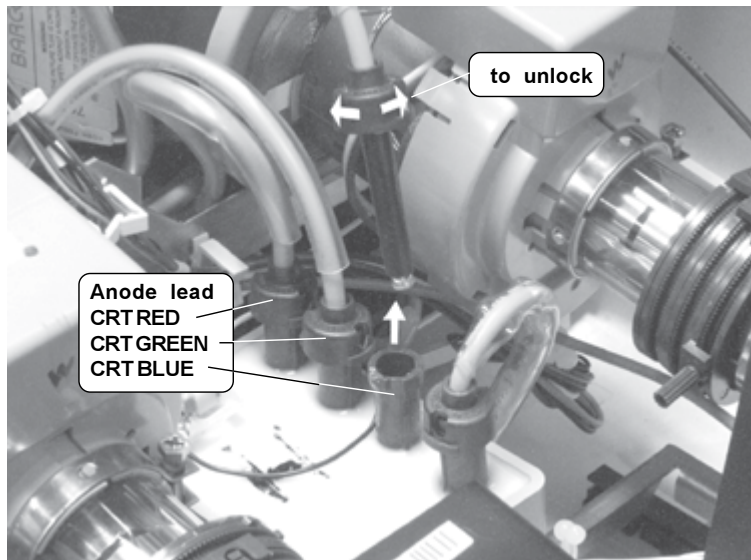
WARNING

The power must be OFF before removing any connector from EHT splitter. Failure to do so may result in DANGER TO LIFE and severe damage to the projection unit.

Removing the anode lead of the three picture tubes:

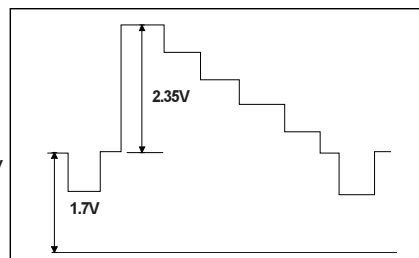
- Switch OFF the projector and unplug the power cord from the power input on the front panel.
- Unlock the anode lead cap by turning it counter clockwise.
- Pull out, by the cap, the anode lead for each picture tube from the EHT splitter and discharge the picture tube anode by touching the top of the lead to the aquadag grounding shield.
- Reinstall Power connection and switch ON the projector.

e.g. Removing the anode lead of the Blue picture tube



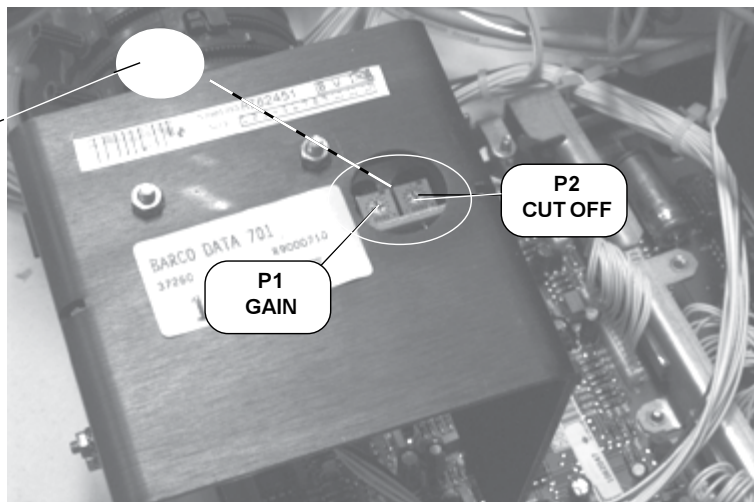
Adjustment of the input signal

- Connect the probe of the oscilloscope to pin 2 of the connector J1 on the output module.
- Adjust Contrast and Brightness levels by means of the RCU or the local keypad for an input signal with amplitude of 2.35V and a black level on 1.7V



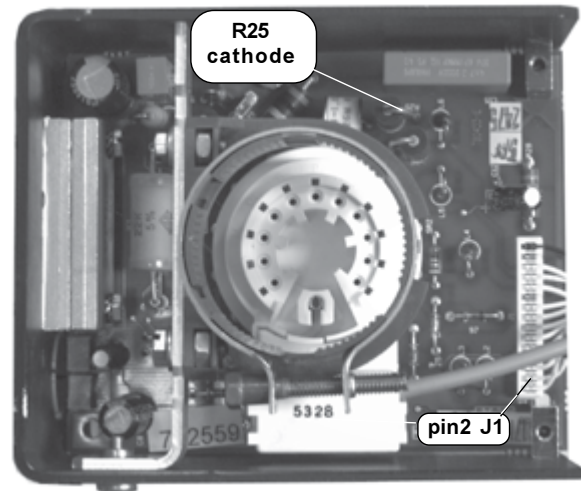
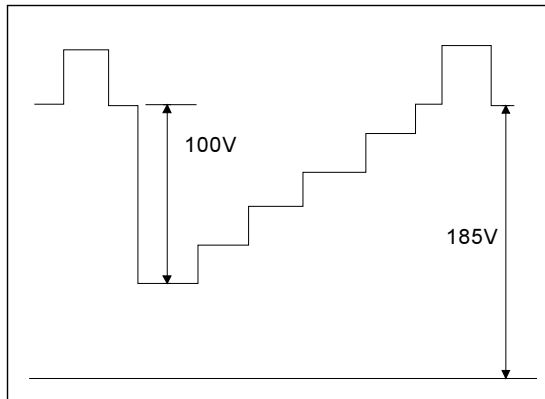
Location of the controls

Remove the plastic cover to access the controls



Adjustments

- Connect the probe of the oscilloscope to the cathode of the respective picture tube (resistor R25).
- Adjust the potentiometer P1 for a video signal amplitude of 100V and the potentiometer P2 for a DC level of 185V (refer to fig.)
- As both adjustments affect each other, repeat the adjustment of both potentiometers.
- Repeat the adjustment procedure for each picture tube.



End of the adjustments

At the end of the adjustment procedure, reinsert the anode lead of each picture tube. Proceed as follows:

Inserting the anode lead of each picture tube

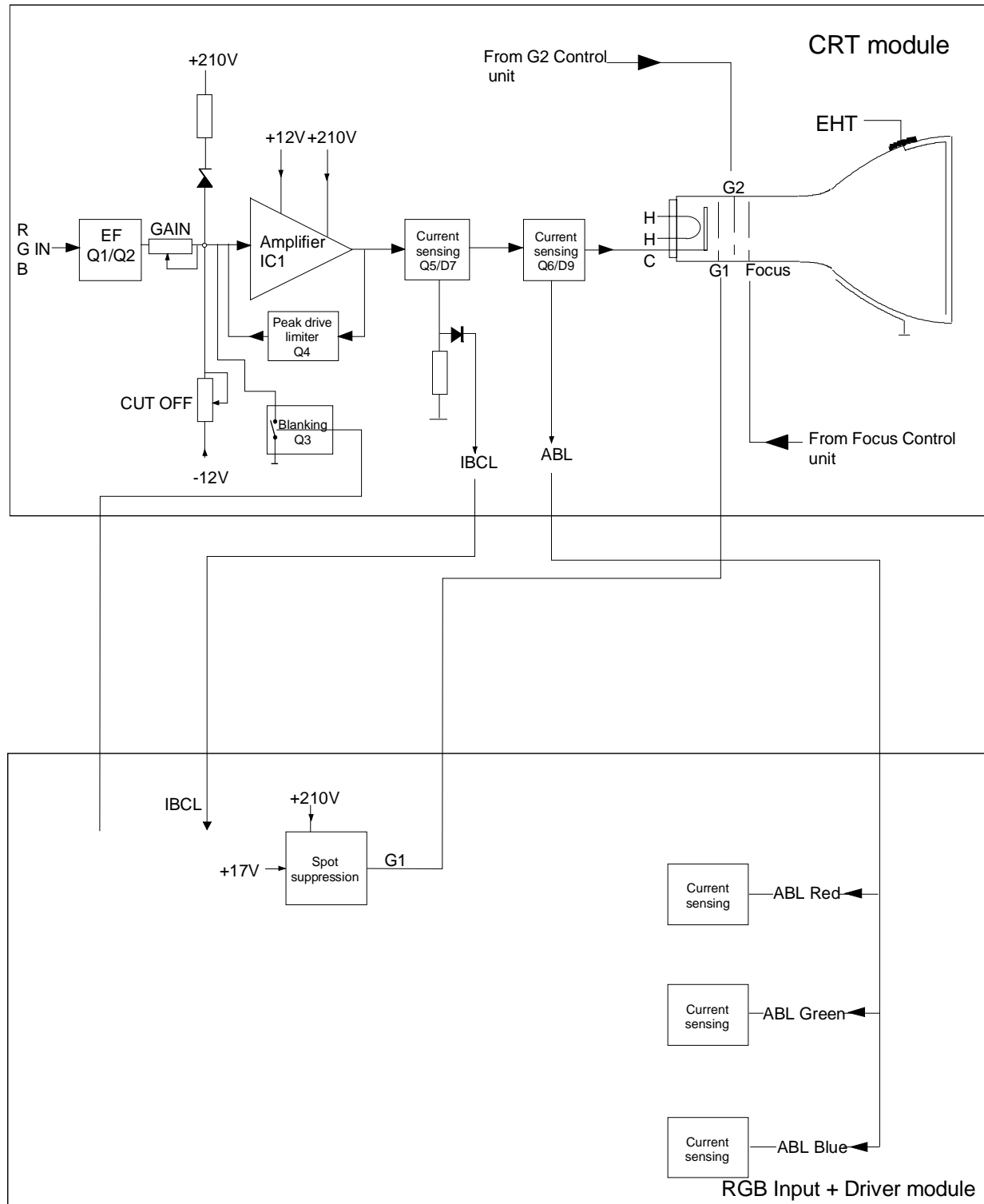
WARNING

**The power must be OFF before inserting any connector on the EHT splitter.
Failure to do so may result in DANGER TO LIFE and
severe damage to the projection unit.**

Inserting the anode lead of the three picture tubes

- Switch OFF the projector and unplug the power cord from the power input on the front panel.
- Insert the anode lead of each picture tube into the EHT splitter
- Lock the anode lead cap by turning it clockwise.
- Reinstall Power connection and switch ON the projector.

BLOCKDIAGRAM



TECHNICAL DESCRIPTION

Introduction	<p>These modules receive the prepared Red, Green and Blue signals from the RGB Input+Driver module. The signals are amplified to a level sufficient to drive the cathodes of the respective CRT's.</p>
Red, Green and Blue Amplifiers	<p>It is obvious that the three drivers are identical and we limit the description to only one output stage.</p> <p>The video signal is first buffered by the emitter followers Q1/Q2 and then feeding the input of the Video Amplifier IC1 VPH03, pin 4, via the gain control P1.</p> <p>The cut-off, on other terms the black level, is adjusted by the cut-off control P2 which determines the DC-level at the input of the Video Amplifier and consequently of the output voltage, pin 8.</p>
Individual Beam Current limitation (IBCL)	<p>As the averaged video signal is found across C10, and, as the capacitor is connected between base-emitter of the transistor Q5, the collector current of the latter is proportional with the average beam current.</p> <p>The voltage across R20 is integrated and serves as IBCL (Individual Beam Current Limiting) information and is led out to the RGB Input + Driver module where it can reduce the Contrast if the beam current increases beyond some level.</p>
Leakage current/ABL measurement control	<p>Current sensing for leakage current and ABL measurement control occurs with the transistor Q6 and the diode D9.</p> <p>The first measurement is the leakage current measurement. The three outputs are set at ultra-black and the sum of the three cathode currents, sensed by Q6 on each CRT module, (if any) and flowing through the RGB Input + Driver module, is measured.</p> <p>Then, successively the Red, Green and Blue output signals are set to the cut-off level and via the same circuit as for the leakage measurement, the cathode current of each CRT is measured.</p>

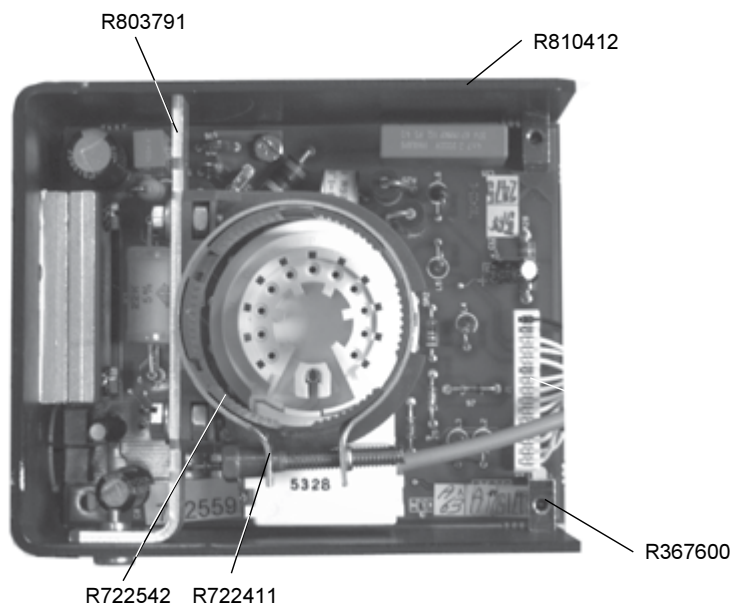
PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R803791	FRM V700 RGB FIX	1	L 4	R3061322	CH AX NS 10 UH	1
20	R810412	HTSND708 CRT SKT	1	L 6	R3061322	CH AX NS 10 UH	1
30	R367600	NUT TRAD M3 BLOCK BRNI	3				
40	B360862	SCR Z\$7985M 3 X 8 STZY	6	P 1	R107025	R TCE V500E K 0W5 S 7SS	1
50	R811576	FRMD708 ICMNT PLT	1	P 2	R107025	R TCE V500E K 0W5 S 7SS	1
51	V3621247	SCR \$7500CM 3 X 12 STZN	2	PC	R780433	PCB *701 RGB O+S T180	1
80	R722411	FSTNR PJ53 RGB OUT	1				
90	R3631239	SCR Z933 M 4 X 10 SS	2	Q 1	P232044	Q#BC859B P SS SOT23	1
100	R366103	NUT D934 M 4 STZN	2	Q 2	P232043	Q#BC849B N SS SOT23	1
110	R3626696	SCR D921 M 3 X 8 SS	1	Q 3	P232033	Q#BSV52 N SS SOT23	1
130	B360863	SCR Z\$7985M 3 X 10 STZY	1	Q 4	P232101	Q#BC859C P SS SOT23	1
				Q 5	P232149	Q#BF821 P SS SOT23	1
200	B337704	J TAB1 MCS H4,8S0,5 D4	1	Q 6	P232149	Q#BF821 P SS SOT23	1
210	A576162	SPR L 2 D 3,2D 6 BRNI	1	R 1	P200398	R# CE H300E F 0W25 1206	1
				R 2	P200411	R# CE H 1K F 0W25 1206	1
1000	R762559X	UN D701 RGB O+S T180	1	R 4	P200375	R# CE H 33E F 0W25 1206	1
				R 5	P200401	R# CE H390E F 0W25 1206	1
B 1	R131262	SURGE ARRESTER 1000V AX	1	R 6	P200363	R# CE H 10E F 0W25 1206	1
B 2	R1312651	SURGE ARRESTER 300V RA	1	R 7	R103256	R MO H 47K J 2W E10	1
				R 8	P200475	R# CE H470K F 0W25 1206	1
C 1	P210138	C# C0G MU 10P J 50 1206	1	R 9	P200417	R# CE H 1K8 F 0W25 1206	1
C 2	P210122	C# X7R MU 100N K 50 1206	1	R 10	P200447	R# CE H 33K F 0W25 1206	1
C 3	R111510	C EL RA 22M M 25E2 85	1	R 11	P200411	R# CE H 1K F 0W25 1206	1
C 4	P210013	C# C0G MU 1N J 50 1206	1	R 12	P200411	R# CE H 1K F 0W25 1206	1
C 5	P210203	C# C0G MU 5P6D 50 1206	1	R 13	P200409	R# CE H820E F 0W25 1206	1
C 7	R1115695	C EL RA 10M M250E2 85	1	R 14	P200411	R# CE H 1K F 0W25 1206	1
C 8	R111478	C EL RA 220M M 25E2 105	1	R 15	P200427	R# CE H 4K7 F 0W25 1206	1
C 10	P210092	C# X7R MU 10N K 50 1206	1	R 16	P200403	R# CE H470E F 0W25 1206	1
C 11	P210121	C# C0G MU 330P J 50 1206	1	R 17	P200411	R# CE H 1K F 0W25 1206	1
C 12	R111550	C EL RA 4M7M 50E2 85	1	R 18	P200403	R# CE H470E F 0W25 1206	1
C 13	P210211	C# X7R MU 4N7K200 1206	1	R 19	P200411	R# CE H 1K F 0W25 1206	1
C 14	P210211	C# X7R MU 4N7K200 1206	1	R 20	P200433	R# CE H 8K2 F 0W25 1206	1
C 15	R111773	C PPMERA 4N7J162E9 HV	1	R 21	P200483	R# CE H 1M F 0W25 1206	1
C 16	R1120902	C CE DI 100P K202E3 HV	1	R 22	P200387	R# CE H100E F 0W25 1206	1
C 18	V1140426	C POMERA 100N K250E2 85	1	R 23	P200481	R# CE H820K F 0W25 1206	1
C 20	P210211	C# X7R MU 4N7K200 1206	1	R 24	R102138	R CC H 1K5 K 1W E8	1
C 21	P210138	C# C0G MU 10P J 50 1206	1	R 25	R102125	R CC H120E K 1W E8	1
C 23	P210122	C# X7R MU 100N K 50 1206	1	R 26	P200459	R# CE H100K F 0W25 1206	1
C 24	P210121	C# C0G MU 330P J 50 1206	1	R 27	P200459	R# CE H100K F 0W25 1206	1
				R 28	R102038	R CC H 1K5 K 0W5 E6	1
D 1	P234196	D#BYD37J AVA SOD87	1	R 29	R102148	R CC H 10K K 1W E8	1
D 2	P234196	D#BYD37J AVA SOD87	1	R 30	R102138	R CC H 1K5 K 1W E8	1
D 3	P234196	D#BYD37J AVA SOD87	1	R 32	P200411	R# CE H 1K F 0W25 1206	1
D 4	P234195	D#BAS21 SW SOT23	1	R 33	P200411	R# CE H 1K F 0W25 1206	1
D 5	P234055	D#BAT54 SCH SOT23	1	R 34	R1033521	R MO H 22K J 4W E10	1
D 6	P234099	D#4148 RDMMELF	1	R 36	P200398	R# CE H300E F 0W25 1206	1
D 7	P234099	D#4148 RDMMELF	1	R 37	P200398	R# CE H300E F 0W25 1206	1
D 8	P234196	D#BYD37J AVA SOD87	1	R 38	P200398	R# CE H300E F 0W25 1206	1
D 9	P234099	D#4148 RDMMELF	1	R 39	P200387	R# CE H100E F 0W25 1206	1
D 10	P234099	D#4148 RDMMELF	1	R 41	P200419	R# CE H 2K2 F 0W25 1206	1
D 11	P234099	D#4148 RDMMELF	1	R 43	P200371	R# CE H 22E F 0W25 1206	1
D 12	P234196	D#BYD37J AVA SOD87	1	R 44	P200411	R# CE H 1K F 0W25 1206	1
D 14	P234099	D#4148 RDMMELF	1	R 45	R101500	R MF H 1E F 0W4 E3	1
D 15	P234099	D#4148 RDMMELF	1				
				SR 1	R1011129	R CFFH 10E J 0W25	△ 1
I 1	R134304	U 05 VPJ	1	SR 2	R1011008	R CFFH 1E J 0W25	△ 1
				SR 3	R1011129	R CFFH 10E J 0W25	△ 1
J 1	R762208D	CDS V700 O+S T180	1	SR 4	R1011369	R CFFH 1K J 0W25	△ 1
J 2	R311044	J CRT FBT E8509 SKT	1				
J 3	R313454	J TAB1 MBT H4,8S0,5 SN	1	Z 1	P200415	R# CE H 1K5 F 0W25 1206	1
				Z 2	R132102	U 33B ZTK DO35	1
L 1	P250509	CH# 1.5 UH L1210	1	Z 3	R132102	U 33B ZTK DO35	1
L 2	R3061322	CH AX NS 10 UH	1	Z 4	R132102	U 33B ZTK DO35	1
L 3	R3061322	CH AX NS 10 UH	1				

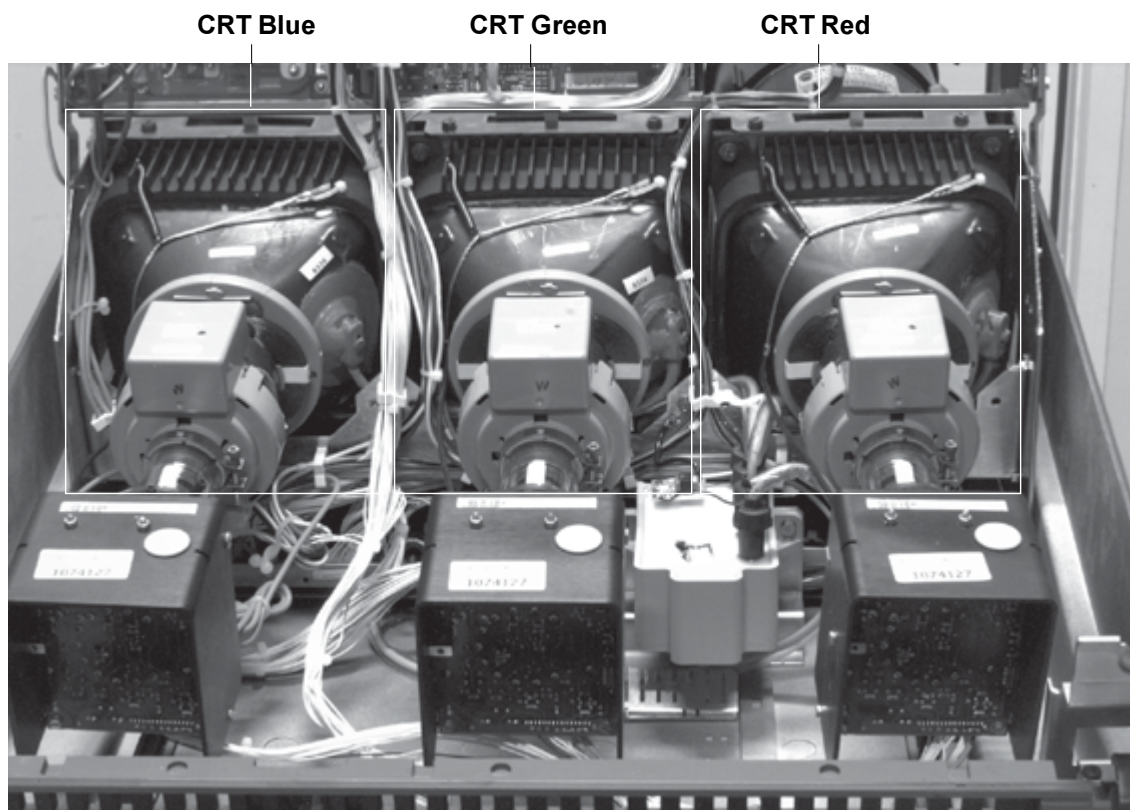
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
Z 5	R132102	U 33B ZTK DO35	1
Z 6	R132102	U 33B ZTK DO35	1
Z 7	P234268	D#ZEN 6V8 0W5 C DMMELF	1
	R762559P	UN D701 RGB O+S T180	1
	V3673761	SPR D9021 D 3,2D 9 STZN	2

PRODUCT SAFETY NOTICE

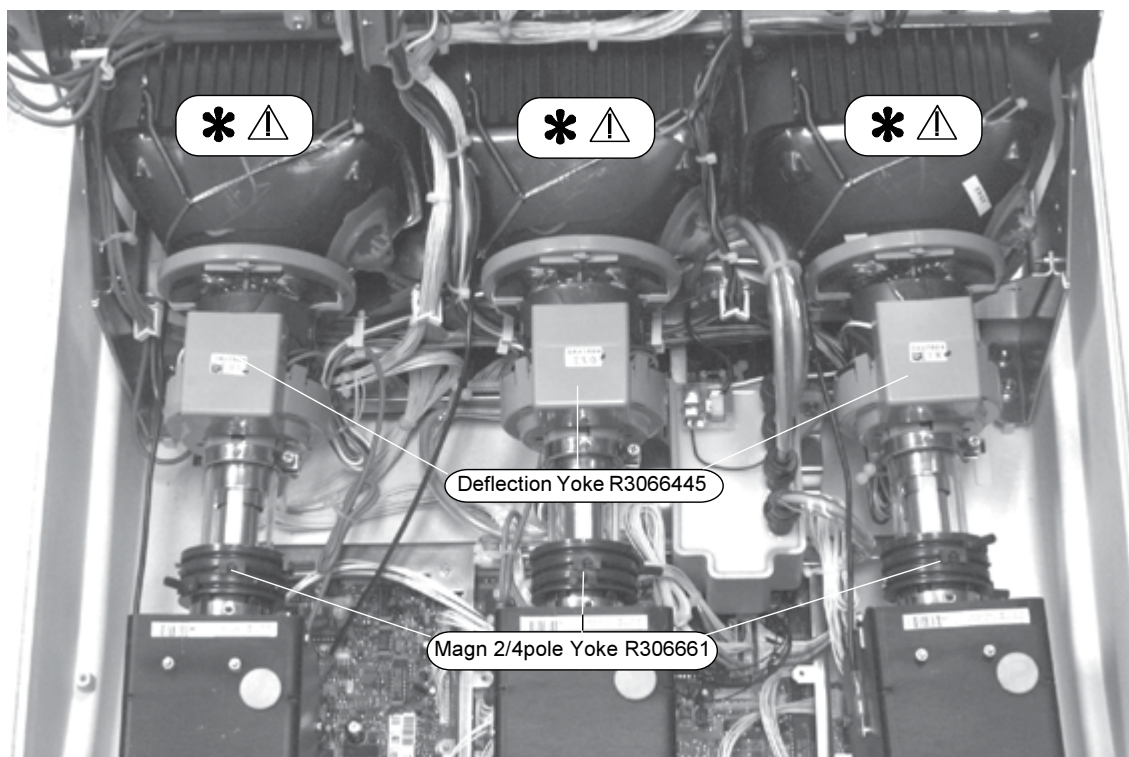
Components identified by  have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.




CRT UNIT



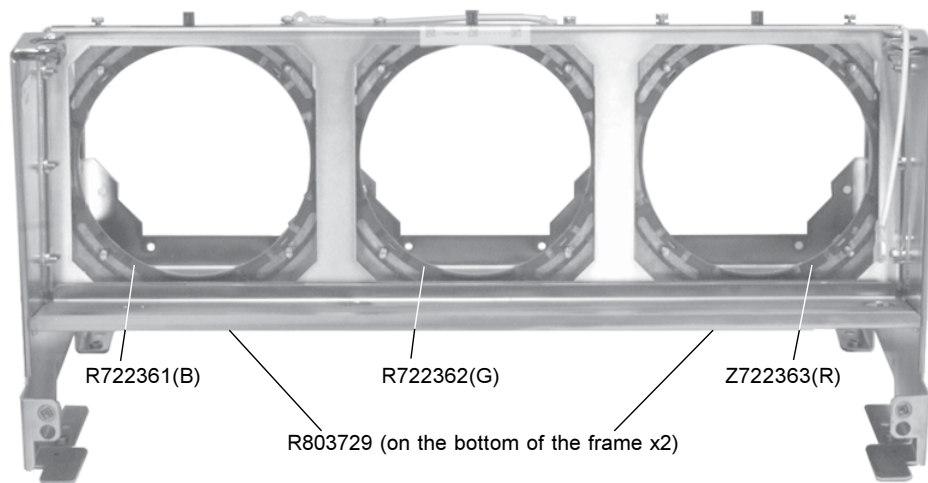
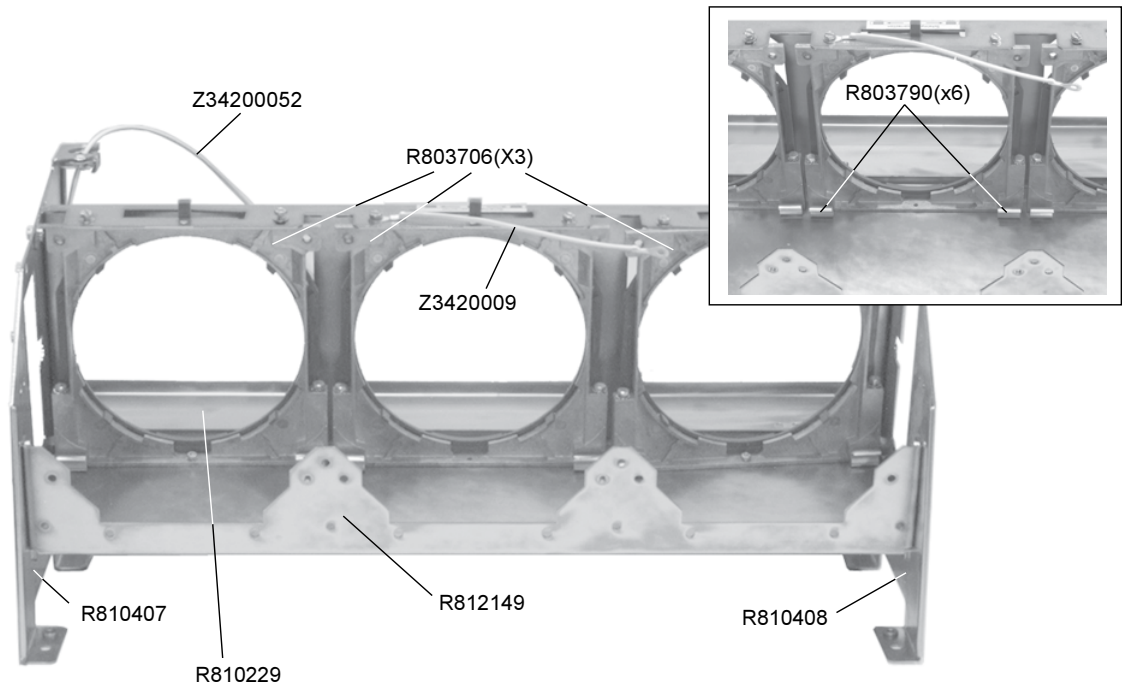
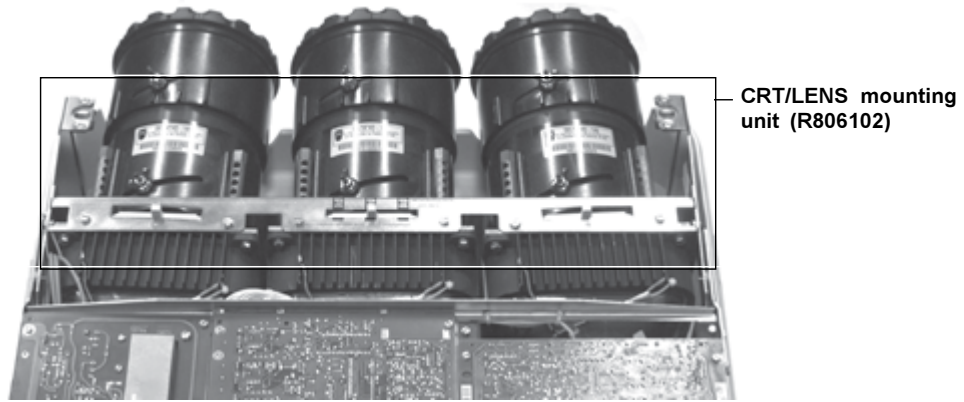
CRT DEFLECTION/MOUNTING PARTS

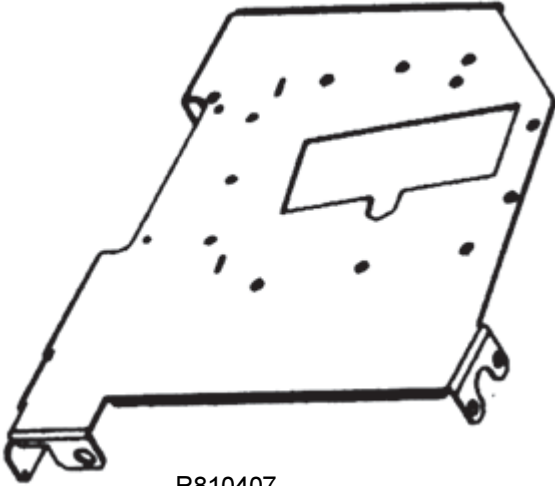


PRODUCT SAFETY NOTICE

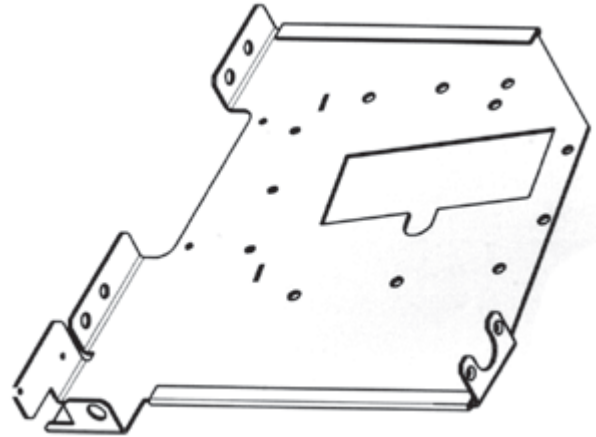
Components identified by  have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.

CRT/LENS MOUNTING UNIT

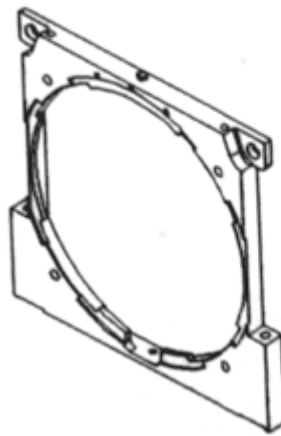




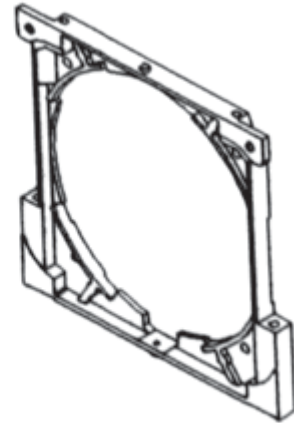
R810407



R810408



R803706



R722361



R722362



R722363



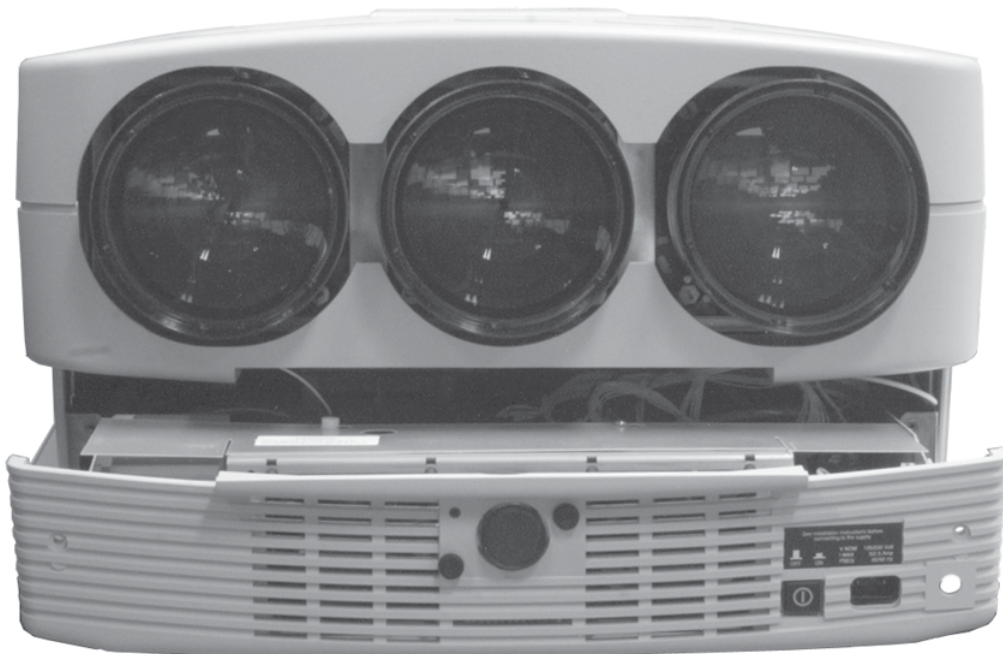
R803729

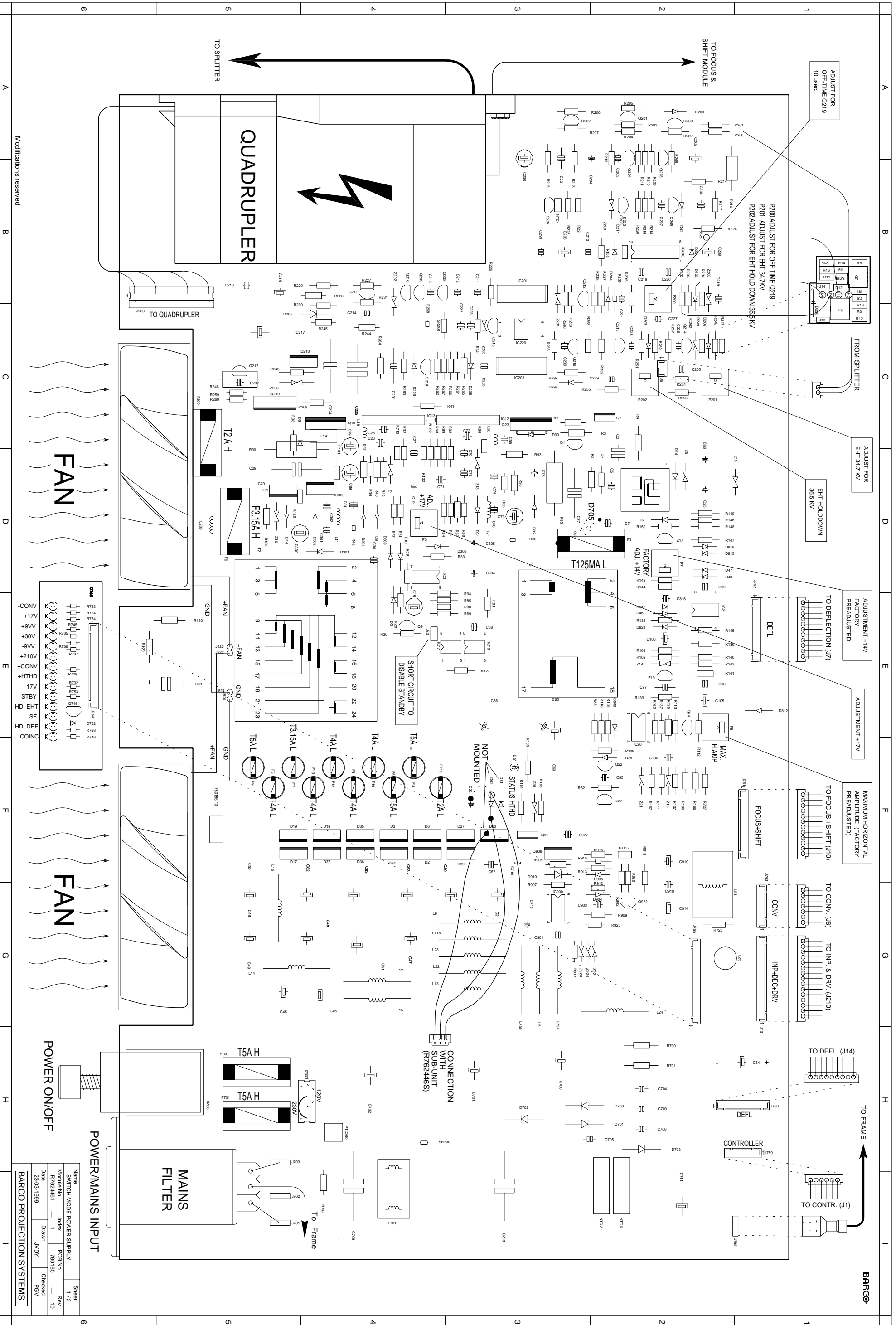
WARNING

THIS CIRCUIT BOARD IS HOT TO AC. THIS POWER SUPPLY, LIKE THE HIGH VOLTAGE POWER SUPPLY, DOES NOT USE A LINE ISOLATION TRANSFORMER, MEANING A PORTION OF THE CIRCUITRY IS HOT-TO-LINE AND SHOULD BE TREATED WITH CAUTION.

WARNING

To Avoid DANGER TO LIFE, do not attempt to service the chassis until all precautions necessary for working on HIGH VOLTAGE equipment have been observed. In order to prevent damage to solid state device, do not arc picture tube anode lead to chassis or earth ground.





Name	SWITCH MODE POWER SUPPLY	Sheet	1 / 2
Module No.	F7624461	FCB No.	760185
Index	1	Rev	10
Date	23-03-1999	Checked	PGV
Drawn	JYDY		

BARCO PROJECTION SYSTEMS

Modifications reserved

- CONV +17V
- +9V
- +30V
- 9V
- +210V
- CONV
- +HTHD
- 17V
- STBY
- HD_EHT
- SF
- HD_DEF
- COINC

POWER ON/OFF

POWER MAINS INPUT

MAINS FILTER

T5A H

T5A H

120V

230V

To Frame

CONNECTION WITH SUB-UNIT (R7624465)

NOT MOUNTED

STATUS HTHD

SHORT CIRCUIT TO DISABLE STANDBY

ADU +17V

MAX HAMP

DEFL

CONV

INP-DEC-DRV

FAN

FAN

FAN

FAN

FAN

TO QUADRUPLER

TO SPLITTER

TO FOCUS & SHIFT MODULE

ADJUST FOR OFF-TIME Q219 10 usec.

ADJUST FOR EHT 34.7 KV

EHT HOLD-DOWN 36.5 KV

ADJUSTMENT +14V FACTORY PRE-ADJUSTED

ADJUSTMENT +17V

MAXIMUM HORIZONTAL AMPLITUDE (FACTORY PRE-ADJUSTED)

TO FOCUS +SHIFT (J10)

TO CONV. (J6)

TO INP. & DRV. (J210)

TO DEF. (J14)

TO CONTR. (J1)

TO FRAME

TO DEFLECTION (J7)

FROM SPLITTER

QUADRUPLER

T2AH

F3.15AH

T125MA L

ADU +14V

FACTORY ADU +14V

DEFL

CONV

INP-DEC-DRV

TO DEF. (J14)

TO CONTR. (J1)

TO FRAME

TO DEFLECTION (J7)

FROM SPLITTER

ADJUST FOR OFF-TIME Q219

ADJUST FOR EHT 34.7KV

P202-ADJUST FOR EHT HOLD-DOWN 36.5KV

P200-ADJUST FOR OFF-TIME Q219

TO QUADRUPLER

TO SPLITTER

TO FOCUS & SHIFT MODULE

ADJUST FOR OFF-TIME Q219

ADJUST FOR EHT 34.7KV

EHT HOLD-DOWN 36.5KV

ADJUSTMENT +14V FACTORY PRE-ADJUSTED

ADJUSTMENT +17V

MAXIMUM HORIZONTAL AMPLITUDE (FACTORY PRE-ADJUSTED)

TO FOCUS +SHIFT (J10)

TO CONV. (J6)

TO INP. & DRV. (J210)

TO DEF. (J14)

TO CONTR. (J1)

TO FRAME

TO DEFLECTION (J7)

FROM SPLITTER

ADJUST FOR OFF-TIME Q219

TO QUADRUPLER

TO SPLITTER

TO FOCUS & SHIFT MODULE

ADJUST FOR OFF-TIME Q219

ADJUST FOR EHT 34.7KV

EHT HOLD-DOWN 36.5KV

ADJUSTMENT +14V FACTORY PRE-ADJUSTED

ADJUSTMENT +17V

MAXIMUM HORIZONTAL AMPLITUDE (FACTORY PRE-ADJUSTED)

TO FOCUS +SHIFT (J10)

TO CONV. (J6)

TO INP. & DRV. (J210)

TO DEF. (J14)

TO CONTR. (J1)

TO FRAME

TO DEFLECTION (J7)

FROM SPLITTER

ADJUST FOR OFF-TIME Q219



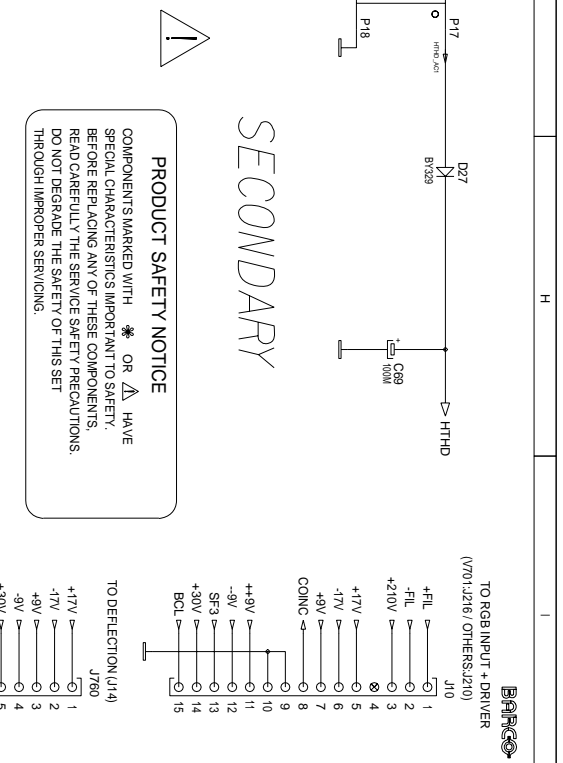
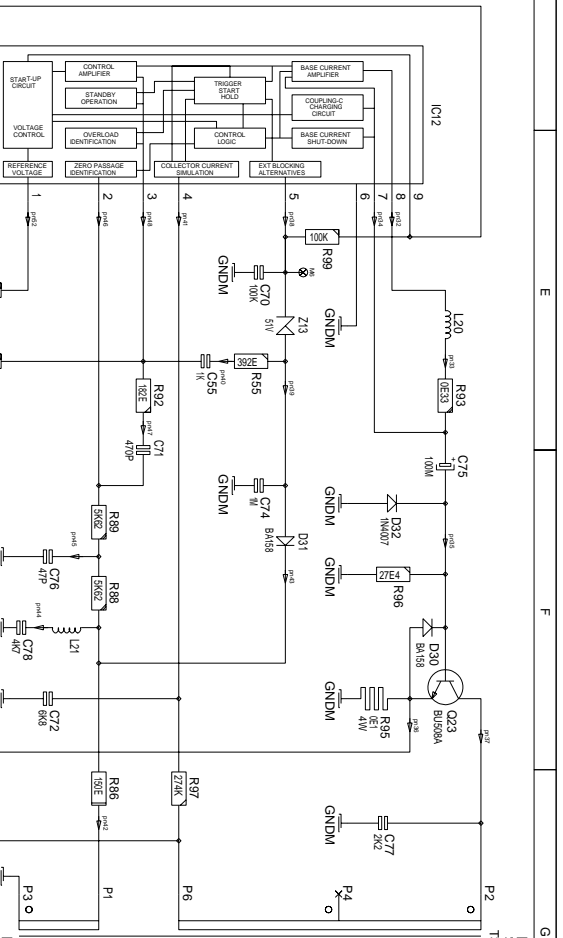
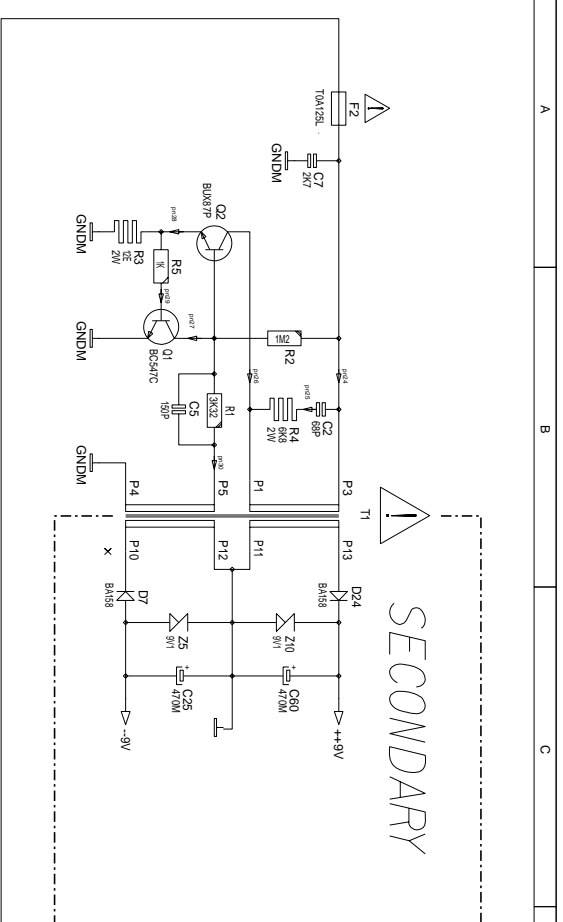
COMP. LOC. COMP. LOC. COMP. LOC. COMP. LOC. COMP. LOC. COMP. LOC.

1	C2 C2	C302 D4	F2 D2	Q201 A2	R164 F3	R918 F2
	C5 D2	C304 D3	F4 F4	Q202 A3	R165 F3	R925 G2
	C7 D2	C305 D3	F5 F4	Q203 B2	R166 F2	R926 F2
	C18 E4	C700 H3	F6 D5	Q204 B2	R167 F2	
	C19 D4	C701 H3	F7 F5	Q205 B2	R200 A1	S700 H5
	C20 F4	C702 H4	F8 F5	Q206 B2	R201 A1	
	C20 F4	C703 H2	F9 F5	Q207 B3	R202 A2	SR200 C4
	C21 G3	C704 H2	F10 F4	Q208 B4	R203 A2	SR700 H4
	C21 G3	C705 H2	F11 F4	Q209 B4	R204 A2	
	C22 F3	C706 H2	F12 F4	Q210 B4	R205 A2	T1 D2
	C25 D2	C708 I3	F13 F4	Q211 B4	R206 A2	T2 D5
	C26 C4	C709 I4	F200 C5	Q212 B3	R207 A2	T3 D3
	C27 C4	C711 I2	F700 H5	Q213 C3	R208 A2	
	C28 C4	C715 G3	F701 H5	Q214 C2	R209 B2	TH1 D5
	C29 D5	C716 F3	F719 F4	Q215 C2	R210 B2	
	C29 D5	C816 E2		Q216 C3	R211 B2	Z1 D4
	C30 D4	C901 G3	IC3 D4	Q217 C5	R212 A2	Z5 D2
	C31 D4	C903 G3	IC10 E3	Q218 C4	R213 B3	Z10 D1
	C45 G5	C910 F2	IC12 C3	Q219 C5	R214 B2	Z13 D3
	C46 G4	C914 G2	IC13 C4	Q746 E6	R215 B3	Z14 E2
	C47 G4	C919 G2	IC17 E4	Q908 F3	R216 B2	Z15 F2
	C47 G4	C927 F3	IC20 F2	Q922 G2	R217 B2	Z16 D5
	C48 G4		IC21 E2		R218 B2	Z17 D2
	C48 G4	D2 F4	IC200 B2	R1 D2	R219 B2	Z19 E2
	C49 G5	D3 F4	IC201 B3	R2 D2	R220 B2	Z20 F3
	C49 G5	D5 E4	IC202 C2	R3 C2	R221 B3	Z21 F2
	C50 F5	D6 F4	IC203 C3	R4 C2	R222 B3	Z200 B2
	C51 G4	D7 D2	IC220 C3	R5 C3	R223 B2	Z202 B4
	C52 F3	D8 C5	IC300 D4	R28 E4	R224 B2	Z203 B2
	C53 F4	D9 D4	IC900 G3	R29 D4	R226 B3	Z204 C3
	C53 F4	D10 D4		R31 D4	R227 B4	Z205 C3
	C54 H1	D17 F5	J6 C2	R32 C4	R228 B4	Z206 C5
	C55 C3	D18 F4	J10 H1	R33 D3	R229 B5	Z920 G3
	C60 C2	D19 F5	J20 E4	R36 E4	R230 C5	Z921 G2
	C61 E5	D24 D2	J200 C6	R37 C4	R231 B4	Z924 G3
	C65 E3	D27 F3	J700 H4	R38 C5	R232 B2	
	C66 E3	D28 F2	J701 I5	R39 D4	R233 B2	
	C68 E3	D30 C3	J702 I5	R40 D4	R234 B2	
	C69 F3	D31 D3	J703 H5	R41 C3	R235 B2	
	C70 D3	D32 D3	J754 E6	R42 D4	R236 B2	
	C71 D4	D34 F4	J759 H1	R43 D4	R237 B2	
	C72 C3	D35 F4	J760 H1	R55 D3	R238 B2	
	C73 D3	D36 F4	J761 F1	R68 C4	R239 C3	
	C74 D3	D37 F4	J762 D1	R69 E3	R240 C3	
	C75 D3	D39 F3	J763 F1	R81 E3	R241 C3	
	C76 D3	D42 B2	J765 G2	R82 F3	R243 C5	
	C77 D3	D44 D5	J795 I1	R83 E2	R244 C4	
	C77 D3	D46 E2	J822 E5	R84 D4	R245 C4	
	C78 D3	D47 D2	J823 E5	R85 E3	R246 C5	
	C79 C4	D48 D2	J824 E5	R86 D3	R247 C2	
	C82 F4	D51 F3	J825 B2	R87 D4	R248 C2	
	C82 F4	D60 F3	J826 E5	R88 D3	R249 C2	
	C83 F4	D61 F3		R89 C4	R250 C2	
	C83 F4	D62 F3	L5 G3	R90 D5	R251 C2	
	C85 F2	D200 A2	L6 G4	R91 D3	R252 C2	
	C89 D4	D201 B2	L11 D4	R92 C3	R253 C2	
	C97 E2	D202 D6	L12 G4	R93 D3	R254 C2	
	C98 E2	D203 B2	L13 G4	R94 E3	R255 C3	
	C99 D2	D204 B2	L14 G5	R95 D3	R256 C3	
	C100 F2	D205 C5	L15 G4	R96 D3	R257 C2	
	C105 E2	D206 C2	L16 F5	R97 D3	R258 C3	
	C106 E2	D207 C2	L18 C4	R98 E3	R259 C5	
	C200 B3	D208 C3	L19 C4	R99 C3	R260 C5	
	C201 B3	D209 C4	L20 C3	R100 C4	R261 C3	
	C202 A2	D210 C4	L21 D3	R101 D4	R262 C4	
	C203 B2	D211 B2	L22 G4	R102 D4	R263 C4	
	C204 B2	D298 C3	L23 G4	R105 E2	R264 C4	
	C205 C2	D300 D4	L24 G2	R106 F2	R265 C3	
	C206 B2	D301 D4	L25 G1	R107 F2	R266 C3	
	C207 B2	D302 D4	L200 D5	R108 F2	R267 C4	
	C208 B3	D303 D3	L701 I4	R110 E2	R268 C4	
	C209 B2	D304 D4	L718 G4	R111 F2	R269 C4	
	C210 B3	D600 E2	L756 G3	R112 F2	R299 C3	
	C211 B3	D700 H2	L757 G3	R113 E2	R700 H2	
	C212 B3	D701 H2	L911 G1	R125 D5	R701 H2	
	C213 B4	D702 H3		R126 D5	R702 I4	
	C214 C4	D703 H2	NTC4 B3	R127 E3	R713 C4	
	C215 B5	D726 D6	NTC5 F2	R129 E6	R723 G2	
	C216 B5	D738 D6	NTC6 I2	R130 E5	R724 E6	
	C217 C5	D739 D6	NTC7 I2	R135 E2	R727 F2	
	C218 B2	D740 D6		R136 E2	R728 E6	
	C219 B2	D741 D6	P3 D4	R137 E2	R729 E6	
	C220 B2	D742 D6	P7 D2	R138 E2	R732 E6	
	C221 C2	D743 D6	P8 E2	R139 E2	R733 E6	
	C222 C3	D744 D6	P200 B2	R140 E2	R734 E6	
	C223 C3	D747 D6	P201 C2	R141 E2	R735 E6	
	C224 C4	D749 D6	P202 C2	R142 D2	R736 E6	
	C225 C4	D750 D6		R143 E2	R737 E6	
	C225 C4	D751 D6	PTC300H4	R144 D2	R745 E6	
	C226 C2	D752 E6		R145 E2	R748 E6	
	C227 C2	D755 D6	Q1 C3	R146 D2	R753 E6	
	C228 C2	D812 E1	Q2 C2	R147 D2	R902 G2	
	C229 C2	D815 D2	Q9 E4	R148 D2	R906 F3	
	C230 C3	D818 D2	Q10 C4	R149 D2	R907 G3	
	C231 C4	D819 E2	Q22 F2	R150 D2	R909 G2	
	C232 C5	D821 E2	Q23 C3	R155 B2	R912 G2	
	C233 C3	D904 G2	Q24 E2	R160 E2	R913 F3	
	C299 B3	D905 F2	Q27 F2	R161 E2	R915 F3	
	C300 D5	D910 F3	Q31 F3	R162 E2	R916 F2	
	C301 D4		Q200 A2	R163 F3	R917 G3	

COMPONENT LOCATION

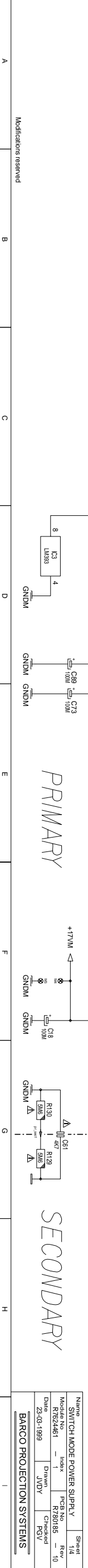
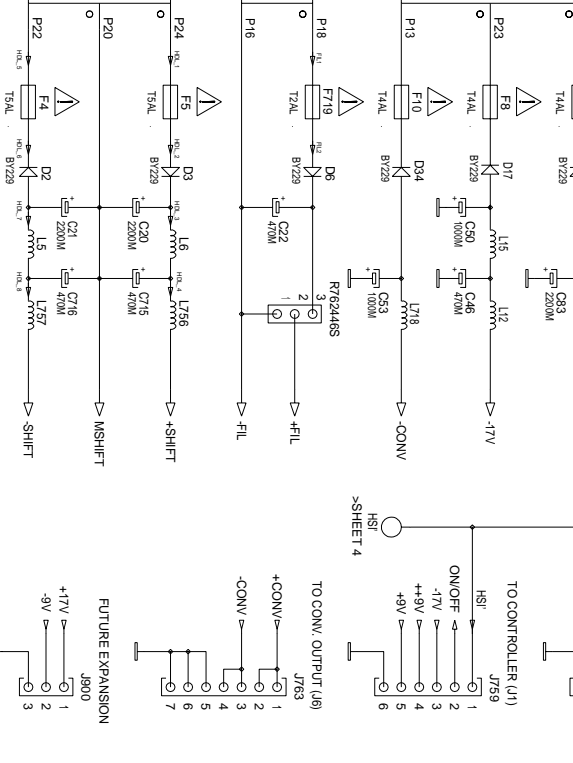
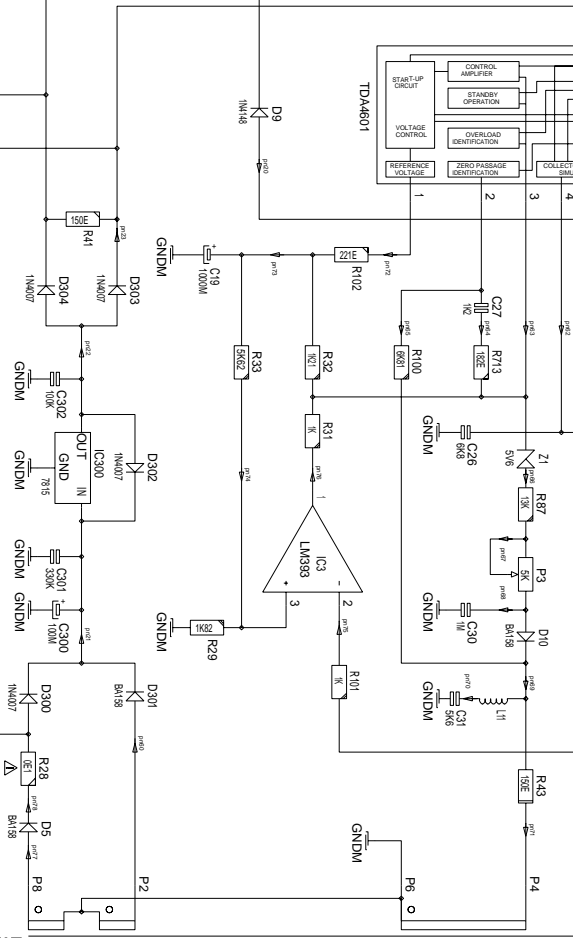
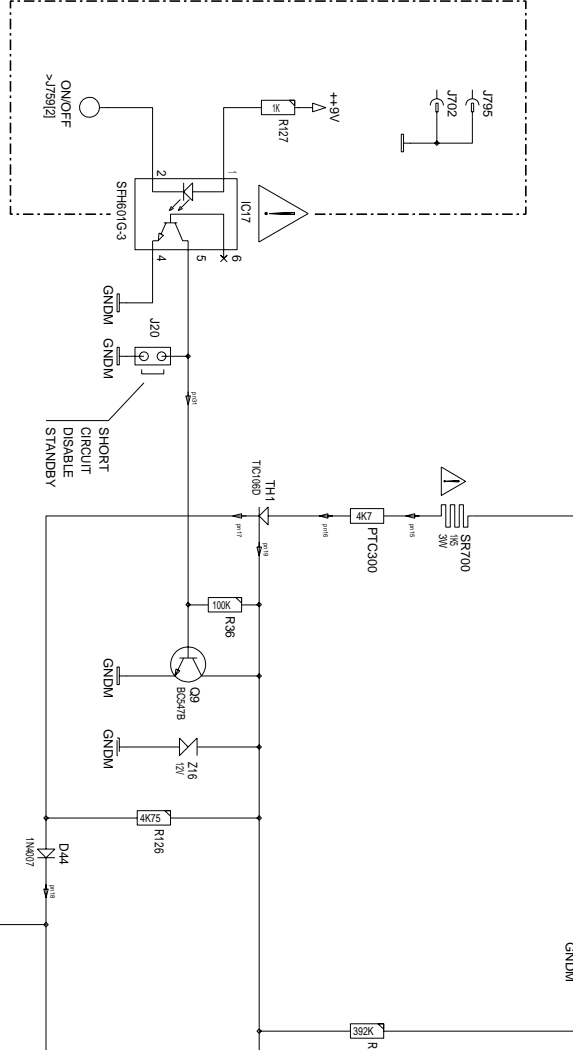
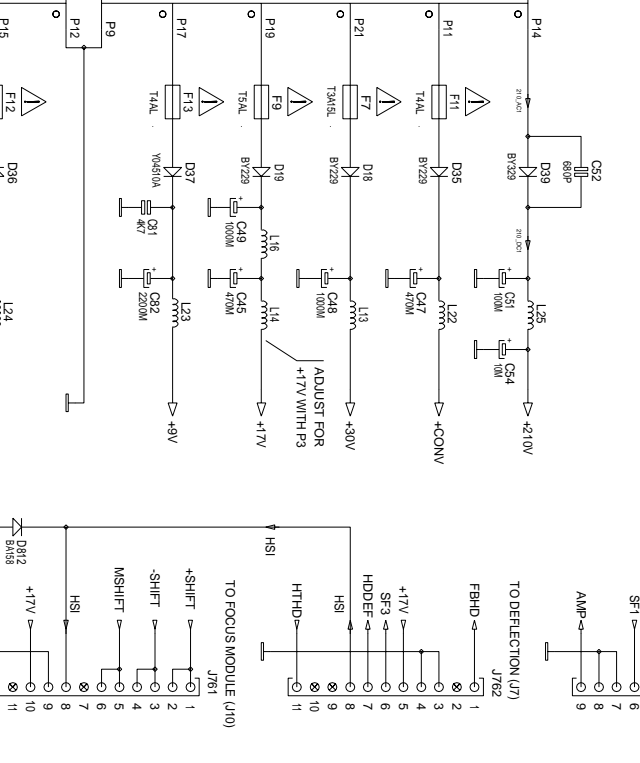
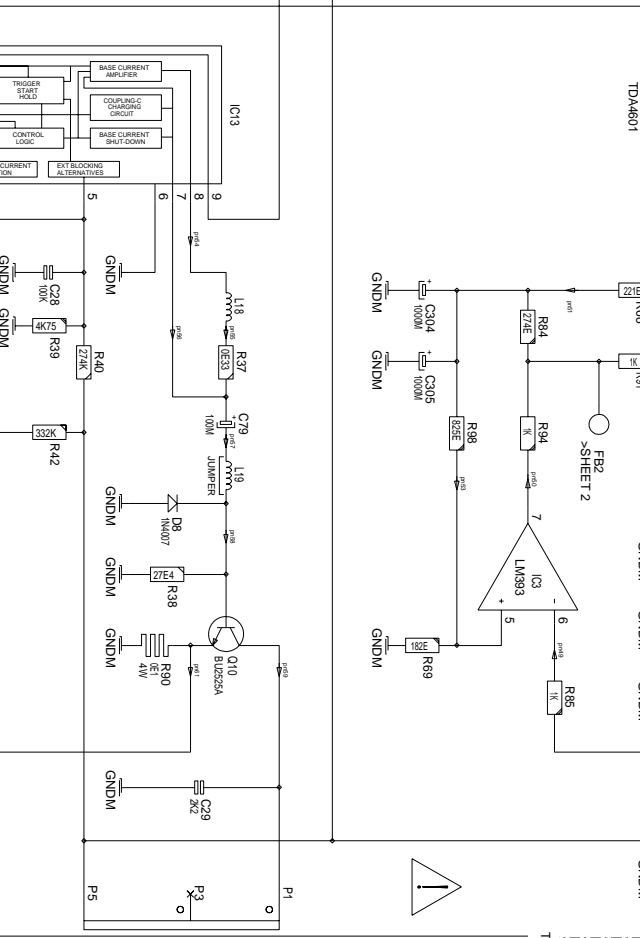
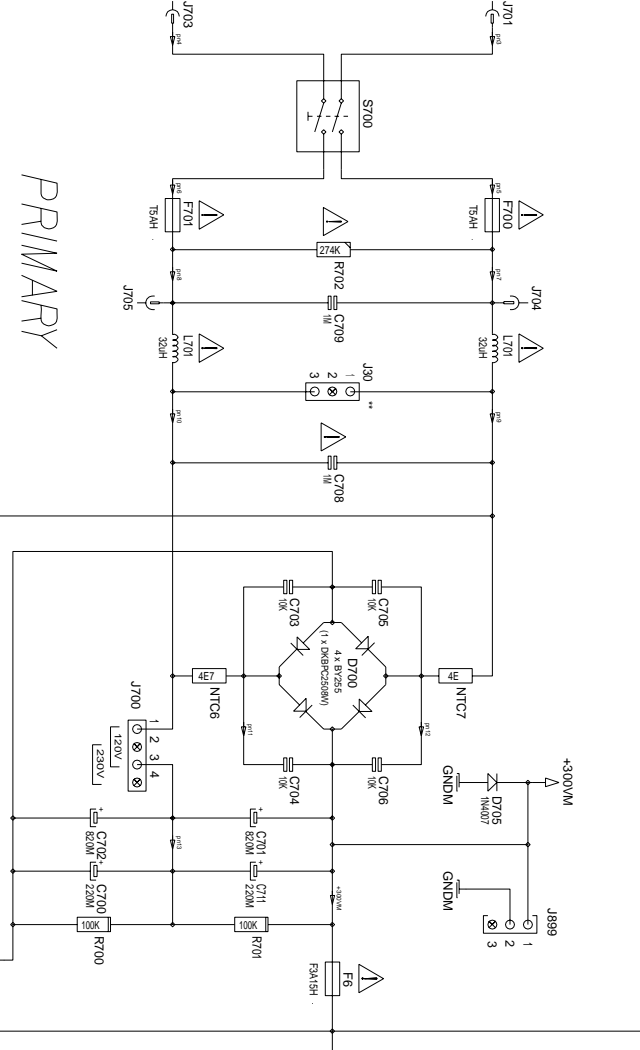
Modifications reserved

Name SWITCH MODE POWER SUPPLY		Sheet 2 / 2	
Module No R7624461	Index 1	PCB No R780185	Rev 10
Date 23-03-1999	Drawn JVJY	Checked PGV	
BARCO PROJECTION SYSTEMS			



PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH * OR Δ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.



NAME	SWITCH MODE POWER SUPPLY	Sheet No.	10
Model No.	R7624461	PCB No.	R780165
Date	23-03-1999	Drawn	Checked
		JVDV	PGV

BARCO PROJECTION SYSTEMS

Modifications reserved

TO RGB INPUT + DRIVER (V70/J216/OTHERS/J210)

J10

+FL 1

-FL 2

+210V 3

+17V 4

-17V 5

+9V 6

+30V 7

CONV 8

+9V 9

-9V 10

BCI 11

TO DEFLECTION (U14)

J760

+17V 1

-17V 2

+9V 3

-9V 4

+30V 5

ST1 6

AMP 7

TO DEFLECTION (U7)

J762

FBHD 1

TO FOCUS MODULE (U10)

J751

+SHIFT 1

-SHIFT 2

MSHIFT 3

HSI 4

HSI 5

HSI 6

HSI 7

HSI 8

HSI 9

HSI 10

HSI 11

HSI 12

TO CONTROLLER (U1)

J759

HSI 1

ON/OFF 2

-17V 3

+9V 4

+9V 5

+9V 6

TO CONV. OUTPUT (U6)

J763

+CONV 1

-CONV 2

CONV 3

CONV 4

CONV 5

CONV 6

CONV 7

CONV 8

FUTURE EXPANSION

J800

+17V 1

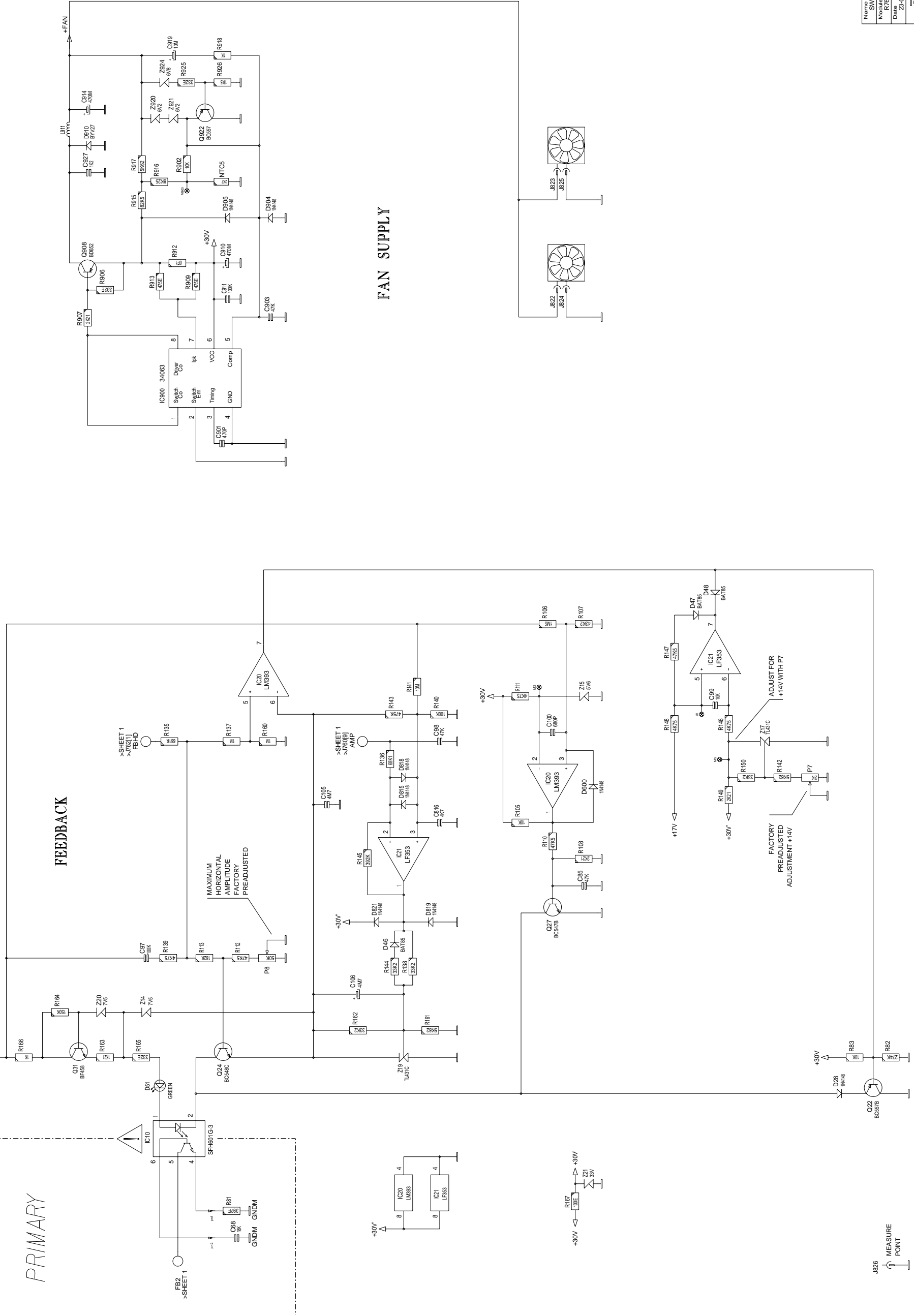
-9V 2

CONV 3

PRIMARY

FEEDBACK

FAN SUPPLY



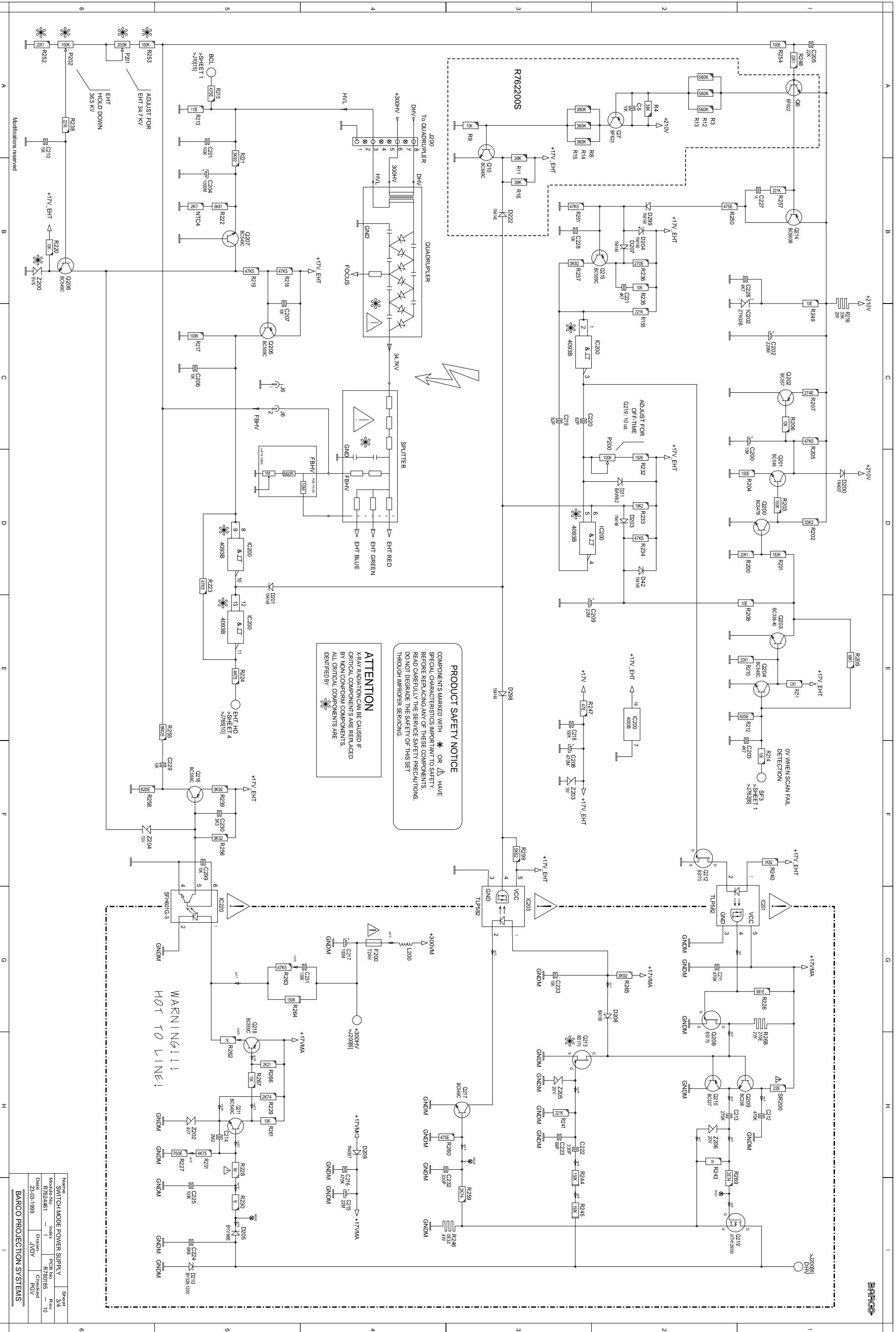
Name	SWITCH MODE POWER SUPPLY	Sheet	2/4
Module No.	R7624461	PCB No.	R780185
Date	23-03-1999	Drawn	JVDY
		Checked	PGV

REV
- 10

(COMPONENTS MARKED WITH * ARE NOT MOUNTED)

BARCO PROJECTION SYSTEMS

Modifications reserved



PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH * OR Δ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

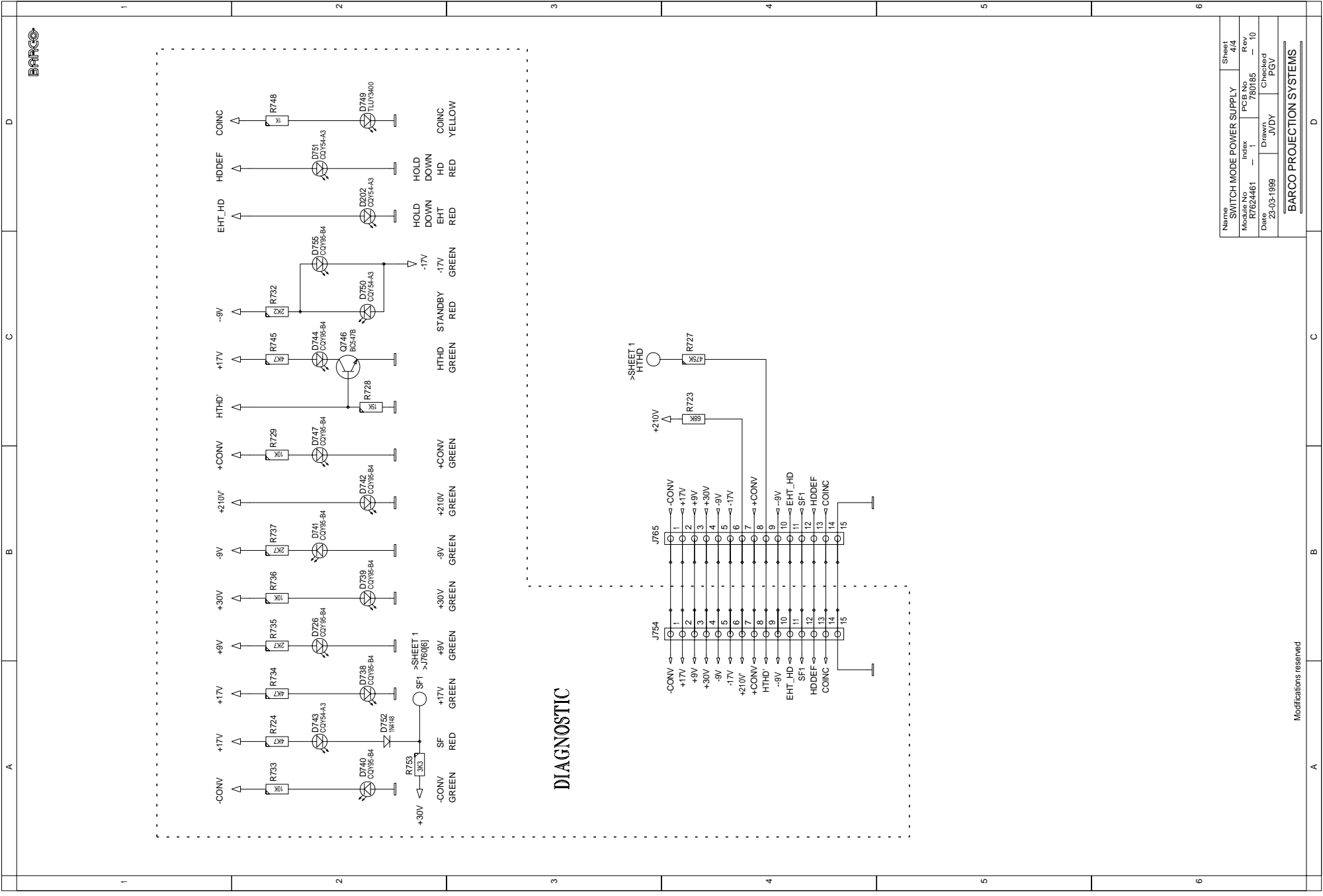
ATTENTION

X-RAY RADIATION CAN BE CAUSED IF CRITICAL COMPONENTS ARE REPLACED BY NON CONFORM COMPONENTS. ALL CRITICAL COMPONENTS ARE IDENTIFIED BY *

WARNING!!!
HOT TO LINE!

NAME	SWITCH MODE POWER SUPPLY	Sheet	44
Model No.	R7624461	Rev.	REV
Date	23-03-1999	Checked	PGV
BARCO PROJECTION SYSTEMS		Drawn	JVDV

Modifications reserved



COMP. LOC. SHT.	COMP. LOC. SHT.	COMP. LOC. SHT.	COMP. LOC. SHT.	COMP. LOC. SHT.	COMP. LOC. SHT.
C2	B1	D2	D203	D2	R162
C5	A2	D3	D204	D3	R163
C6	A2	D3	D205	D3	R164
C7	A1	D3	D206	D3	R165
C8	F6	D3	D207	D3	R166
C9	H6	D3	D208	D3	R167
C21	H6	D3	D209	D3	R168
C22	H5	D3	D210	D3	R169
C23	H5	D3	D211	D3	R170
C24	H5	D3	D212	D3	R171
C25	H5	D3	D213	D3	R172
C26	H5	D3	D214	D3	R173
C27	H5	D3	D215	D3	R174
C28	H5	D3	D216	D3	R175
C29	H5	D3	D217	D3	R176
C30	F5	D3	D218	D3	R177
C31	F5	D3	D219	D3	R178
C32	H3	D3	D220	D3	R179
C46	H5	D3	D221	D3	R180
C47	H3	D3	D222	D3	R181
C48	H3	D3	D223	D3	R182
C49	H3	D3	D224	D3	R183
C50	H5	D3	D225	D3	R184
C51	H3	D3	D226	D3	R185
C52	H2	D3	D227	D3	R186
C53	H5	D3	D228	D3	R187
C54	H5	D3	D229	D3	R188
C55	E1	D3	D230	D3	R189
C60	C1	D3	D231	D3	R190
C61	G6	D3	D232	D3	R191
C62	G6	D3	D233	D3	R192
C63	G6	D3	D234	D3	R193
C64	G6	D3	D235	D3	R194
C65	G6	D3	D236	D3	R195
C66	G6	D3	D237	D3	R196
C67	G6	D3	D238	D3	R197
C68	A2	D3	D239	D3	R198
C69	A2	D3	D240	D3	R199
C70	E1	D3	D241	D3	R200
C71	E1	D3	D242	D3	R201
C72	F2	D3	D243	D3	R202
C73	F2	D3	D244	D3	R203
C74	F2	D3	D245	D3	R204
C75	F2	D3	D246	D3	R205
C76	F2	D3	D247	D3	R206
C77	G1	D3	D248	D3	R207
C78	G1	D3	D249	D3	R208
C79	G1	D3	D250	D3	R209
C80	G1	D3	D251	D3	R210
C81	H4	D3	D252	D3	R211
C82	H4	D3	D253	D3	R212
C83	H4	D3	D254	D3	R213
C84	H4	D3	D255	D3	R214
C85	H4	D3	D256	D3	R215
C86	H4	D3	D257	D3	R216
C87	H4	D3	D258	D3	R217
C88	H4	D3	D259	D3	R218
C89	H4	D3	D260	D3	R219
C90	D5	D3	D261	D3	R220
C91	D5	D3	D262	D3	R221
C92	D5	D3	D263	D3	R222
C93	D5	D3	D264	D3	R223
C94	D5	D3	D265	D3	R224
C95	D5	D3	D266	D3	R225
C96	D5	D3	D267	D3	R226
C97	D5	D3	D268	D3	R227
C98	D3	D3	D269	D3	R228
C99	D3	D3	D270	D3	R229
C100	D3	D3	D271	D3	R230
C101	D3	D3	D272	D3	R231
C102	D3	D3	D273	D3	R232
C103	D3	D3	D274	D3	R233
C104	D3	D3	D275	D3	R234
C105	D3	D3	D276	D3	R235
C106	D3	D3	D277	D3	R236
C107	D3	D3	D278	D3	R237
C108	D3	D3	D279	D3	R238
C109	D3	D3	D280	D3	R239
C110	D3	D3	D281	D3	R240
C111	D3	D3	D282	D3	R241
C112	D3	D3	D283	D3	R242
C113	D3	D3	D284	D3	R243
C114	D3	D3	D285	D3	R244
C115	D3	D3	D286	D3	R245
C116	D3	D3	D287	D3	R246
C117	D3	D3	D288	D3	R247
C118	D3	D3	D289	D3	R248
C119	D3	D3	D290	D3	R249
C120	D3	D3	D291	D3	R250
C121	D3	D3	D292	D3	R251
C122	D3	D3	D293	D3	R252
C123	D3	D3	D294	D3	R253
C124	D3	D3	D295	D3	R254
C125	D3	D3	D296	D3	R255
C126	D3	D3	D297	D3	R256
C127	D3	D3	D298	D3	R257
C128	D3	D3	D299	D3	R258
C129	D3	D3	D300	D3	R259
C130	D3	D3	D301	D3	R260
C131	D3	D3	D302	D3	R261
C132	D3	D3	D303	D3	R262
C133	D3	D3	D304	D3	R263
C134	D3	D3	D305	D3	R264
C135	D3	D3	D306	D3	R265
C136	D3	D3	D307	D3	R266
C137	D3	D3	D308	D3	R267
C138	D3	D3	D309	D3	R268
C139	D3	D3	D310	D3	R269
C140	D3	D3	D311	D3	R270
C141	D3	D3	D312	D3	R271
C142	D3	D3	D313	D3	R272
C143	D3	D3	D314	D3	R273
C144	D3	D3	D315	D3	R274
C145	D3	D3	D316	D3	R275
C146	D3	D3	D317	D3	R276
C147	D3	D3	D318	D3	R277
C148	D3	D3	D319	D3	R278
C149	D3	D3	D320	D3	R279
C150	D3	D3	D321	D3	R280
C151	D3	D3	D322	D3	R281
C152	D3	D3	D323	D3	R282
C153	D3	D3	D324	D3	R283
C154	D3	D3	D325	D3	R284
C155	D3	D3	D326	D3	R285
C156	D3	D3	D327	D3	R286
C157	D3	D3	D328	D3	R287
C158	D3	D3	D329	D3	R288
C159	D3	D3	D330	D3	R289
C160	D3	D3	D331	D3	R290
C161	D3	D3	D332	D3	R291
C162	D3	D3	D333	D3	R292
C163	D3	D3	D334	D3	R293
C164	D3	D3	D335	D3	R294
C165	D3	D3	D336	D3	R295
C166	D3	D3	D337	D3	R296
C167	D3	D3	D338	D3	R297
C168	D3	D3	D339	D3	R298
C169	D3	D3	D340	D3	R299
C170	D3	D3	D341	D3	R300
C171	D3	D3	D342	D3	R301
C172	D3	D3	D343	D3	R302
C173	D3	D3	D344	D3	R303
C174	D3	D3	D345	D3	R304
C175	D3	D3	D346	D3	R305
C176	D3	D3	D347	D3	R306
C177	D3	D3	D348	D3	R307
C178	D3	D3	D349	D3	R308
C179	D3	D3	D350	D3	R309
C180	D3	D3	D351	D3	R310
C181	D3	D3	D352	D3	R311
C182	D3	D3	D353	D3	R312
C183	D3	D3	D354	D3	R313
C184	D3	D3	D355	D3	R314
C185	D3	D3	D356	D3	R315
C186	D3	D3	D357	D3	R316
C187	D3	D3	D358	D3	R317
C188	D3	D3	D359	D3	R318
C189	D3	D3	D360	D3	R319
C190	D3	D3	D361	D3	R320
C191	D3	D3	D362	D3	R321
C192	D3	D3	D363	D3	R322
C193	D3	D3	D364	D3	R323
C194	D3	D3	D365	D3	R324
C195	D3	D3	D366	D3	R325
C196	D3	D3	D367	D3	R326
C197	D3	D3	D368	D3	R327
C198	D3	D3	D369	D3	R328
C199	D3	D3	D370	D3	R329
C200	D3	D3	D371	D3	R330
C201	D3	D3	D372	D3	R331
C202	D3	D3	D373	D3	R332
C203	D3	D3	D374	D3	R333
C204	D3	D3	D375	D3	R334
C205	D3	D3	D376	D3	R335
C206	D3	D3	D377	D3	R336
C207	D3	D3	D378	D3	R337
C208	D3	D3	D379	D3	R338
C209	D3	D3	D380	D3	R339
C210	D3	D3	D381	D3	R340
C211	D3	D3	D382	D3	R341
C212	D3	D3	D383	D3	R342
C213	D3	D3	D384	D3	R343
C214	D3	D3	D385	D3	R344
C215	D3	D3	D386	D3	R345
C216	D3	D3	D387	D3	R346
C217	D3	D3	D388	D3	R347
C218	D3	D3	D389	D3	R348
C219	D3	D3	D390	D3	R349
C220	D3	D3	D391	D3	R350
C221	D3	D3	D392	D3	R351
C222	D3	D3	D393	D3	R352
C223	D3	D3	D394	D3	R353
C224	D3	D3	D395	D3	R354
C225	D3	D3	D396	D3	R355
C226	D3	D3	D397	D3	R356
C227	D3	D3	D398	D3	R357
C228	D3	D3	D399	D3	R358
C229	D3	D3	D400	D3	R359
C230	D3	D3	D401	D3	R360
C231	D3	D3	D402	D3	R361
C232	D3	D3	D403	D3	R362
C233	D3	D3	D404	D3	R363
C234	D3	D3	D405	D3	R364
C235	D3	D3	D406	D3	R365
C236	D3	D3	D407	D3	R366
C237	D3	D3	D408	D3	R367
C238	D3	D3	D409	D3	R368
C239	D3	D3	D410	D3	R369
C240	D3	D3	D411	D3	R370
C241	D3	D3	D412	D3	R371
C242	D3	D3	D413	D3	R372
C243	D3	D3	D414	D3	R373
C244	D3	D3	D415	D3	R374
C245	D3	D3	D416	D3	R375
C246	D3	D3	D417	D3	R376
C247	D3	D3	D418	D3	R377
C248	D3	D3	D419	D3	R378
C249	D3	D3	D420	D3	R379
C250	D3	D3	D421	D3	R380
C251	D3	D3	D422	D3	R381
C252	D3	D3	D423	D3	R382
C253	D3	D3	D424	D3	R383
C254	D3	D3	D425	D3	R384
C255	D3	D3	D426	D3	R385
C256	D3	D3	D427	D3	R386
C257	D3	D3	D428	D3	R387
C258	D3	D3	D429	D3	R388
C259	D3	D3	D430	D3	R389
C260	D3	D3	D431	D3	R390
C261	D3	D3	D432	D3	R391
C262	D3	D3	D433	D3	R392
C263	D3	D3	D434	D3	R393
C264	D3	D3	D435	D3	R394
C265	D3	D3	D436	D3	R395
C266	D3	D3	D437	D3	R396
C267	D3	D3	D438	D3	R397
C268	D3	D3	D439	D3	R398
C269	D3	D3	D440	D3	R399
C270	D3	D3	D441	D3	R400
C271	D3	D3	D442	D3	R401
C272	D3	D3	D443	D3	R402
C273	D3	D3	D444	D3	R403
C274	D3	D3	D445	D3	R404
C275	D3	D3	D446	D3	R405
C276	D3	D3	D447	D3	R406
C277	D3	D3	D448	D3	R407
C278	D3	D3	D449	D3	R408
C279	D3	D3	D450	D3	R409
C280	D3	D3	D451	D3	R410
C281	D3	D3	D452	D3	R411
C282	D3	D3	D453	D3	R412
C283	D3	D3	D454	D3	R413
C284	D3	D3	D455	D3	R414
C285	D3	D3	D456	D3	R415
C286	D3	D3	D457	D3	R416
C287	D3	D3	D458	D3	R417
C288	D3	D3	D459	D3	R418
C289	D3	D3	D460	D3	R419
C290	D3	D3			

ADJUSTMENT PROCEDURE SM POWER SUPPLY + EHT MODULE

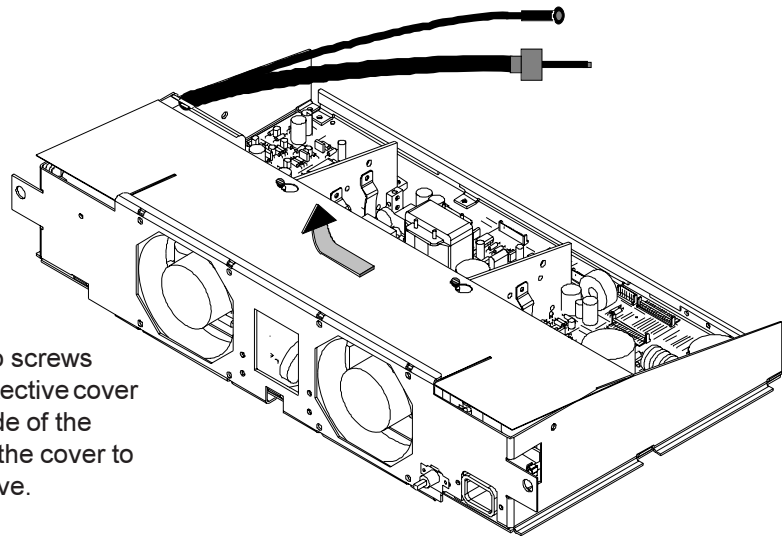
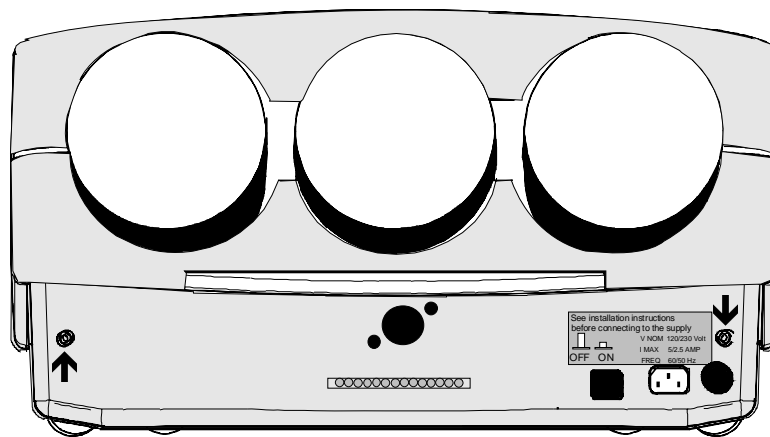
Important

The SM Power Supply has to be adjusted when the projector displays a picture of the internal generated testpattern or of an input signal at **standard line- and frame frequency**.

Preparation

Access to adjustments:

- Unplug the power cord from the power input on the front panel.
- Remove the two screws holding the front panel to the projector.
- Remove the front panel.
- Slide the SM Power Supply + EHT module out of the main frame as far as all adjustment controls are accessible.

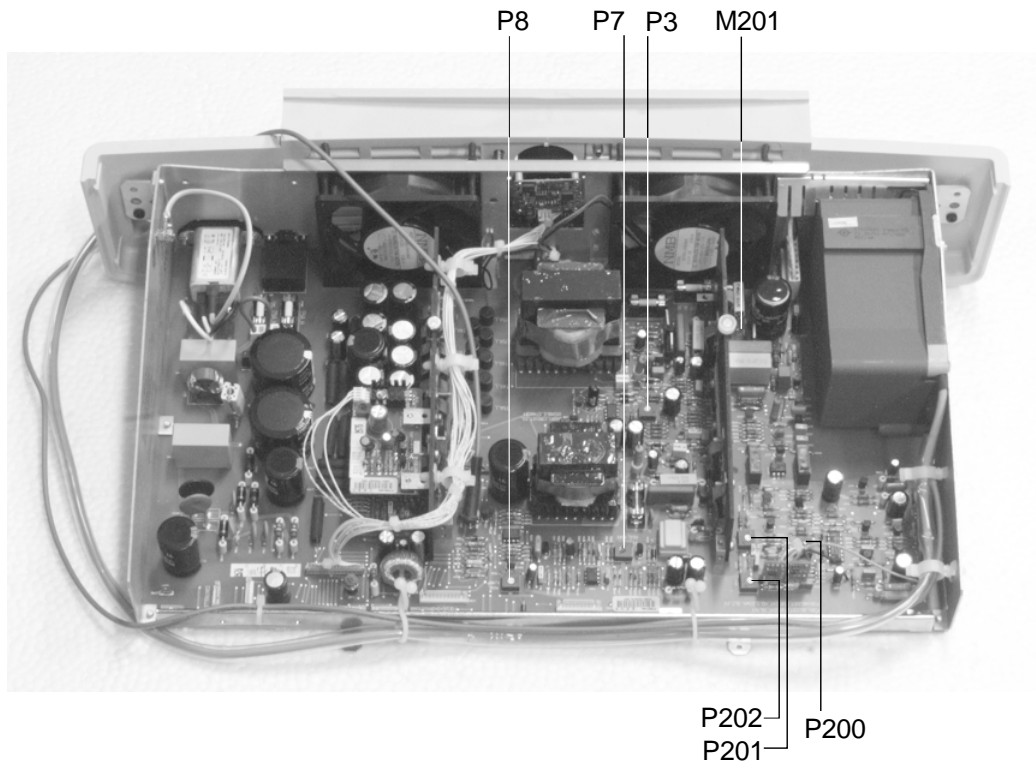


- Loosen the two screws holding the protective cover to the upper side of the module. Slide the cover to the left to remove.

- Reinstall power connection and switch ON the projector
- Select the internal generated test pattern or an input source at standard frequency (refer to owner's and installation manual of the projector)
- Put the BRIGHTNESS and the CONTRAST level in mid-position (refer to owner's manual of the projector)

Proceed to the adjustments.

Location of adjustment controls



Adjustments of SM Power Supply

a) Adjusting Vout P3 (adjusted voltage +17V)

- Connect a voltmeter to the top of the coil L14 (+17V)
- Adjust potentiometer P3 for +17V read out

b) Adjusting the Reference voltage of the drop circuit P7

Important: Potentiometer P7 is factory pre-adjusted. A readjustment is only necessary after a replacement of a defective component in the +17V drop circuit

- Connect a voltmeter to the node R146/R150 (cathode Z17)
- Adjust potentiometer P7 for +14V read out

c) Adjusting the MAXIMUM Horizontal Amplitude P8

Starting-point: projector operates on a standard NTSC video signal (15.6kHz)

- Adjust the Horizontal Amplitude (Horizontal Size) of the displayed picture by means of the RCU until the bar scale on screen indicates 90. (Refer to the owner's manual of the projector to select the corresponding menu for adjustment)
- Now adjust the potentiometer P8 until the horizontal size of the displayed picture matches the horizontal size of the screen

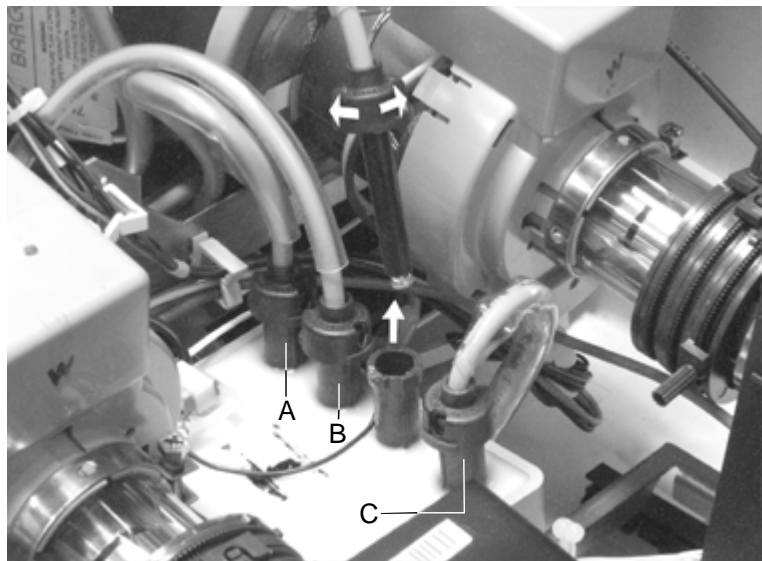
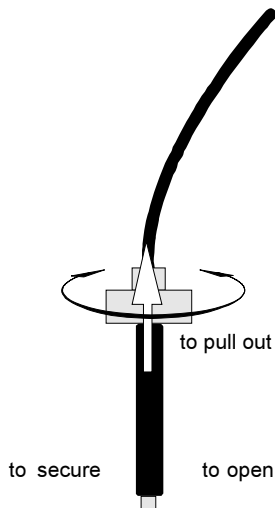
Adjustments of the EHT Power Supply

Preparation

WARNING: The power must be OFF before removing any connector from circuit board or unit. Failure to do so may result in severe damage to the projection unit

- Turn the projector OFF
- Put the potentiometers P201 and P202 in their minimum position (turning clockwise!)
- Pull out one CRT-EHT cable from the EHT splitter
- Insert in the free EHT connector the **precision** EHT probe (ratio 1000/1)

Caution: read carefully all safety instructions, mentioned in the user's manual of the precision high voltage probe.

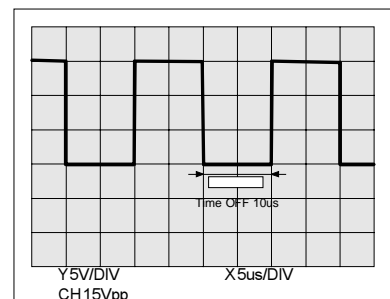


A: Anode lead BLUE CRT
 B: Anode lead GREEN CRT
 C: Anode lead RED CRT

Adjustments

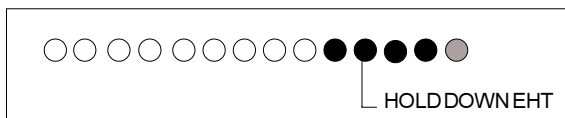
a) Adjusting Switching transistor 'time OFF' P200

- Remove Fuse 'F200' out of fuseholder
- Connect the oscilloscope to the measurement point M201 (= gate of the switching transistor Q219)
- Switch ON the projector
- Adjust potentiometer P200 for a pulse 'time OFF' width of 10 μ s



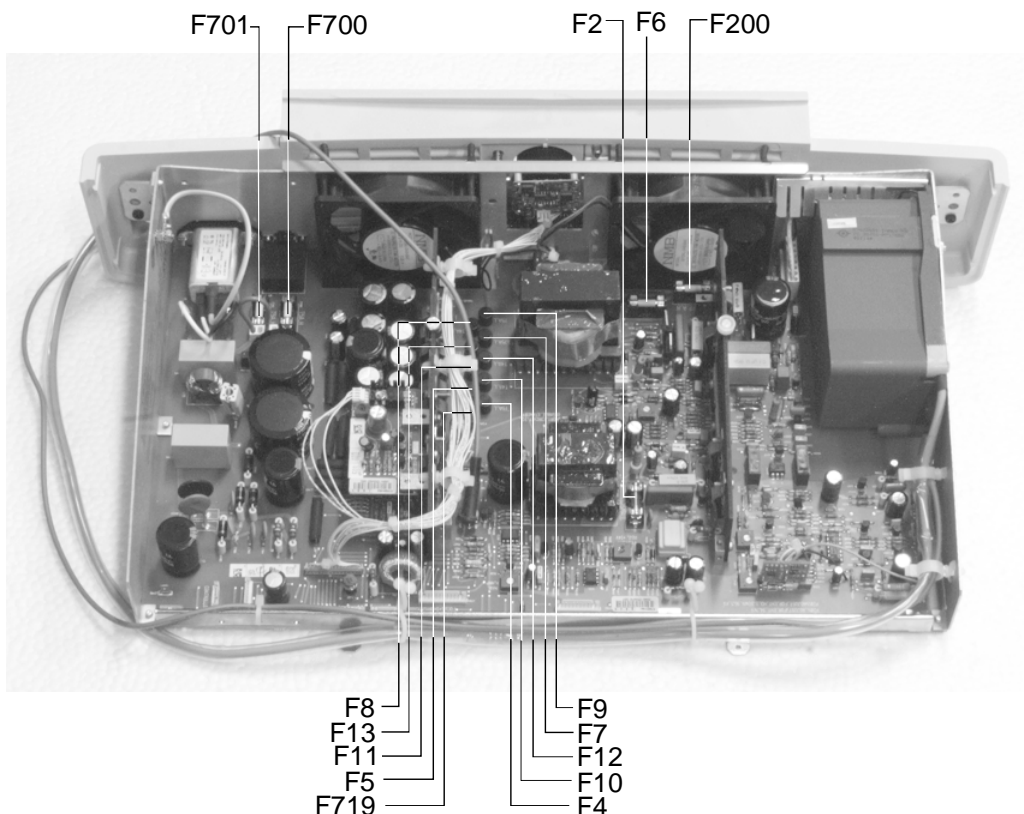
b) Adjusting P201 'High Voltage' and P202 'Hold Down'

- Switch OFF the projector
- Put the fuse F200 on its place
- Switch on the projector
- Adjust potentiometer P201 'High Voltage adj.' until the EHT voltage reaches 36.5kV
- Turn the potentiometer P202 'Hold Down' until the Hold Down EHT LED lights up (Hold Down EHT LED located on the diagnostic panel, visible on the front panel)
The projector switches at that moment into Hold Down mode, picture disappears.



- Put the potentiometer P201 again in its minimum position (turning clockwise!)
- Switch OFF and ON the projector
- Adjust the potentiometer P201 for an EHT voltage of 34.7kV

Location of fuses



PRODUCT SAFETY NOTICE

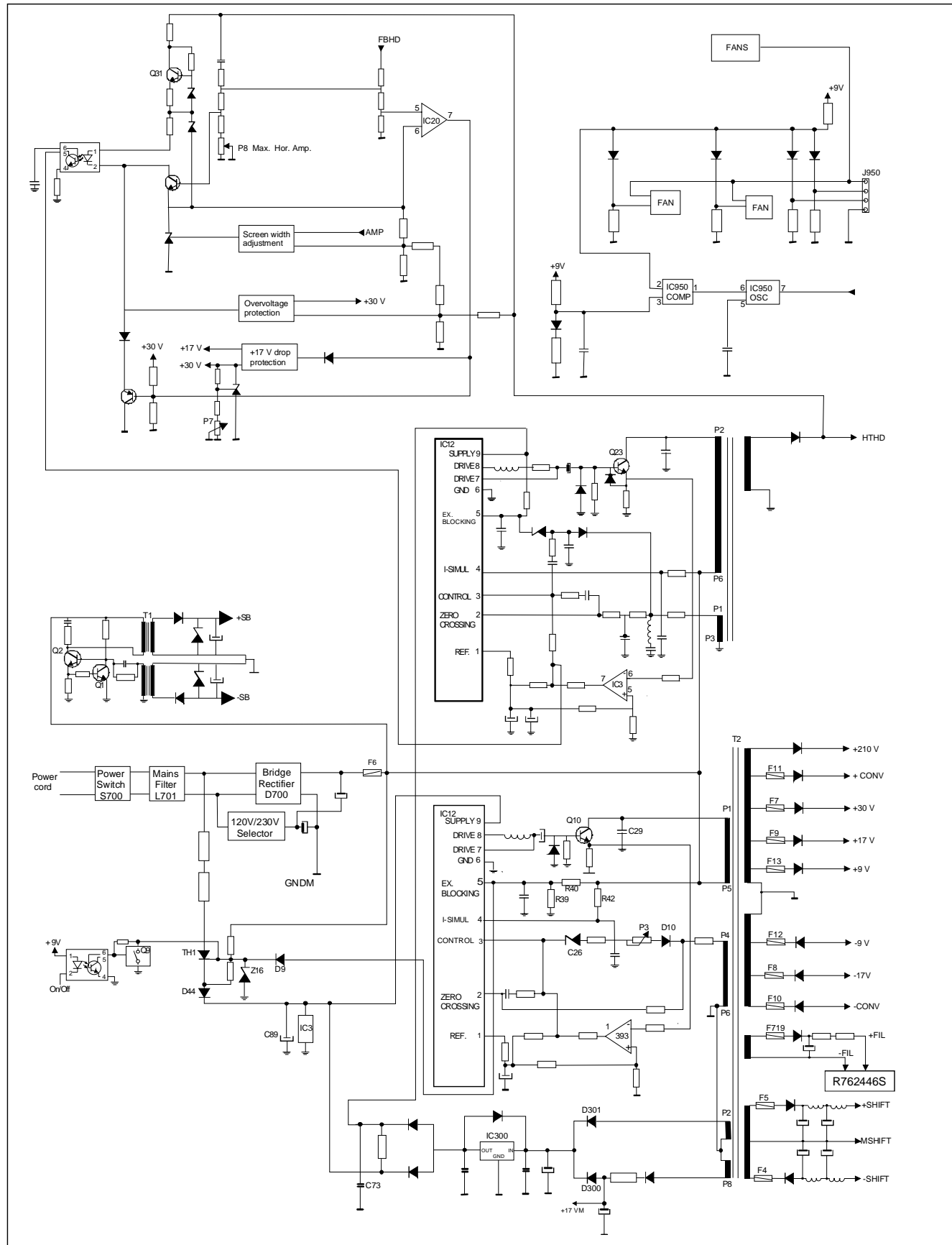
Components identified by have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.



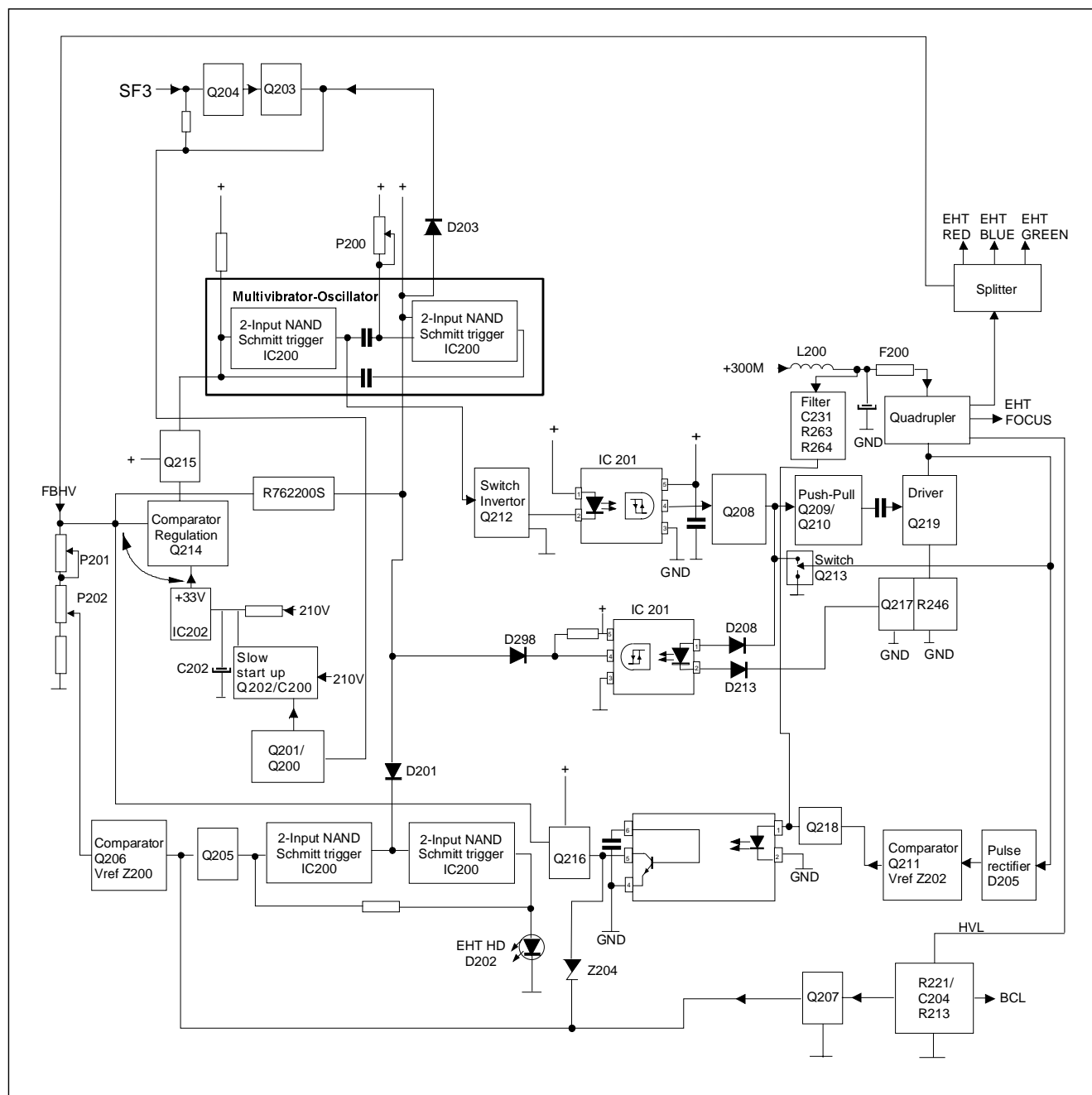
R31 4142	F..2	F 5X20 T 0A125L UL
R31 4183	F..4	F TR5 T 5A L UL
R31 4183	F..5	F TR5 T 5A L UL
R31 4147	F..6	F 5X20 F 3A15 H UL
R31 4187	F..7	F TR5 T 3A15 L UL
R31 4188	F..8	F TR5 T 4A L UL
R31 4183	F..9	F TR5 T 5A L UL

R31 4188	F..10	F TR5 T 4A L UL
R31 4188	F..11	F TR5 T 4A L UL
R31 4188	F..12	F TR5 T 4A L UL
R31 4188	F..13	F TR5 T 4A L UL
R31 4116	F200	F 5X20 T 2A H UL
R31 4104	F700	F 5X20 T 5A H UL
R31 4104	F701	F 5X20 T 5A H UL
R31 4186	F719	F TR5 T 2A L UL

BLOCKDIAGRAM SM POWER SUPPLY



BLOCKDIAGRAM EHT POWER SUPPLY



TECHNICAL DESCRIPTION OF THE SM POWER SUPPLY

Introduction

On this module we find the generation of the stand-by voltage, the fixed voltages (we mean voltages independent of the line frequency), the variable +HTHD voltage (referred to as the second SMPS) and the generation of the EHT voltage.

The mains voltage is rectified with D700 and the +300 volts (+300M) is now the supply voltage for both SPMS's and for the stand-by voltage.

The ON/OFF voltage delivered by the controller module can stop or start up these 2 Switched Mode Power Supplies.

The second SMPS is linked with the horizontal deflection module as the +HTHD voltage (horizontal scan voltage) is linearly proportional to the line frequency.

Because the 'second' SMPS utilizes the rectified voltage from the windings P2-P6 and P6-P8, this SMPS totally depends on the 'first one', or in other words, if the first SMPS is down, the second one 'follows'.

The module comprises also the DC-fan control, the regulation circuit for the +HTHD, its Overvoltage protection circuit, low FBHD protection and the +17volts drop protection.

Stand-by Supply

An oscillator is built up around Q1/Q2 and the transformer T1.

Q2 gets its base current via R2. The collector current of the transistor flows in the winding P1-P3 and induces a voltage in the winding P5-P4 'encouraging' the base current.

As soon as the emitter voltage of Q2 can drive Q1 and saturate it, this transistor clamps the base of Q2 at ground level and cuts off Q2. The cycle starts all-over again.

Two opposite polarity SB voltages (+/- 9 volts) are available at the secondary side.

a) Stand-by mode (OFF)

The voltage at contact 2 of the J759 connector ('OFF') is in this case 'high' and this means for the optocoupler IC17 that the phototransistor in IC17 is not conducting. The transistor Q9 is thus saturated as R36 can provide the required base current. The collector of Q9 is 'low', which blocks thyristor TH1, thus preventing IC13 to start up.

As a conclusion, only the standby voltages +/- 9 SB voltages are available.

b) Operational mode (ON)

The I/O block of the controller module (collector of a transistor) pulls now contact 2 of J759 at a low level to light the LED in the opto-coupler IC17.

Now, the phototransistor of the latter is saturated and brings the base of Q9 at nearly ground level. This means now for this transistor an OFF state.

The zener Z16 can now install +12 volts at the gate of the thyristor allowing the SMPS's to start.

Generation of the line frequency independent voltages

a) Start-up

For IC13 to start up and to stay in operation once it is started up, pin 9 should be at least +12V.

This energy can come from:

- SR700, PTC300, TH1 (only during start-up)
- winding 2-6 of the transformer T2 via D301
- winding 8-6 of the transformer T2 via D300

At start up C89 will deliver the energy. Once charged to approximately +12 V it will be able to do this. It is charged from the mains voltage via thyristor TH1 and diode D44. Of course this requires the thyristor to be conducting, which is the case since zener Z16 has brought the gate at +12 volts. (see explanation stan-by/ON-OFF switching). IC13 can now start driving the base of the power switch Q10.

As soon as Q10 is on, pin 9 of IC13 starts receiving its supply voltage from winding 2-6 of transformer T2 via D301. This winding can only deliver energy during the 'on' time of Q10.

During the off time of Q10, winding 6-8 of transformer T2 delivers the supply voltage to pin 9 of IC13 via D300.

This winding is also delivering the **+17VM**, a voltage related to the **Mains** ground and not the chassis ground. This voltage is utilized on the EHT board, because the drive circuit for the power switcher is on the primary side. (see description EHT board).

b) Operation

Once the start up phase is completed, the supply voltage to pin 9 of IC13 can come from both winding 2-6 via D301 or from winding 6-8 via D300. This depends on the level of the mains voltage.

The feedback winding 4-6 of transformer T2 provides two informations for the control IC13 :

- The rectified negative voltage is added to the reference 4 volts that is available at pin 1. The resulting error voltage is now sent to pin 3 and serves as a control voltage to adjust the duty cycle and frequency of the switcher.
- The waveform is sent to pin 2 where the **zero passages** are detected, useful to drive the power switch on at the exact moment. The base drive is delayed until the energy in the transformer has been completely transferred to the secondary side. By this measure, the current through the power switch is reduced to a minimum.

The over current protection, is build around comparator 393 (IC3). The current through the power switch is checked at all times and if it is too high (in the event of a short on the secondary side) the comparator 393 (IC3) output drops the error voltage at pin 3 in order to adapt the duty cycle of the switcher.

c) Switching off the projector

The voltage at contact 2 of the J759 connector ('OFF') is in this case put to 'high' and this means for the optocoupler IC17 that the phototransistor in IC17 is not conducting.

The transistor Q9 is thus saturated as R36 can provide the required base current. The collector of Q9 is 'low', putting pin 5 of IC13 below its active level via D9. This disables the drive output thus stopping the SMPS's.

Generation of the +HTHD voltage (scan voltage)

This voltage is linked with the horizontal deflection board as it has to be adapted to the scanning frequency. A feedback voltage from the horizontal deflection (FBHD) is for that reason arriving on the module.

This feedback voltage, at contact 1 of connector J762, is sent to the base of the error amplifier Q24. The potentiometer P8 allows an adjustment of this feedback, or in other words, the maximum horizontal amplitude can be aligned with P8.

The emitter of Q24 is set at a reference zener voltage, adjustable with the voltage at the regulating pin of Z19. This voltage is the output of the DC-amplifier- buffer 353 (IC21). The inputs of this DC amplifier-buffer are the +HTHD voltage and the AMP signal coming from the deflection.

By applying the +HTHD voltage via a 10M Ω resistor, we reduce the range of the maximum horizontal amplitude at high scanning frequencies thus providing more range for adjustment via the AMP signal.

The collector current of the regulating transistor Q24 flows into the opto-coupler IC10 and the phototransistor of this insulating device is now regulating the DC voltage at pin 3 of IC12, in order to stabilize the +HTHD voltage for one typical line frequency and amplitude setting.

Q31 is a 5mA current generator and D51 a green LED to visualise the +HTHD voltage.

HTHD overvoltage protection

Pin 2 of the 393 (IC20) is set at 5.6 volts with Z15 and, the other input, pin 3 is the scan voltage +HTHD divided by R106/R107.

As soon as this input exceeds the zener voltage, the output switches high and saturates transistor Q27. Via IC10 (pin 5) the +HTHD voltage is dropped to a low level.

The original overvoltage protection is now causing a low FBHD protection.

Low FBHD protection

The stabilized zener voltage with Z19 is used as reference voltage for the comparator 393 (IC20), pin 6. Now, the other pin 5 is the FBHD voltage.

If the pin 5 drops below the reference voltage, the output switches low, and the transistor Q22 saturates, pulling pin 2 of IC10 low. Again via pin 5 of IC10 the +HTHD is dropped to a low level.

Protection against too low +17 volts

If, for some reason, the +17 volts (and all the other voltages as well) are, even temporarily, too low, it is then advised to shut down the +HTHD voltage (coming from the other SMPS) to protect the MOSFETS of the deflection.

Pin 6 of IC21 is preadjusted, ex factory, at 14 volts with P7. IC 21 is used to compare this reference voltage with the level of the +17V. When the +17V is too low the output of the comparator, pin 7 of IC 21, saturates Q22 which again pullpin 2 of IC10 low.

DC Fan control of the fans

The speed of the fans is regulated by means of a sensor (NTC resistor, mounted close to the heatsink of the SMPS board).

IC900 is an integrated circuit regulating the speed of the fans by adapting the duty cycle of the output drive for the power transistor Q908.

The duty cycle depends on the DC voltage that is built up as follows :

- It is determined by the output voltage via R917 / R916 / R902 in order to stabilize the latter for a well-determined value of the NTC resistor.
- It is equally influenced by any change of the NTC resistor itself, sensing the heatsink of the SMPS board.

The minimum voltage is set by Z924 at approximately 7.5 volts and the maximum voltage by Z920 + Z921. at 15 volts.
The maximum current output is limited by R909, and an RC feedback straight from the output to pin 5 provides a more regular speed at any time.

Filament stabilisation (subunit R762446S)

With this subunit the +FIL and -FIL voltages are stabilised. All diodes used are anti-flash diodes.

Power supply for the EHT generator

The EHT generator is supplied directly from the rectified mains voltage +300M volts. By above measure, we eliminate the influence of the EHT load on the performance of the power supply, and the maximum peak current of the EHT generator is increased.

TECHNICAL DESCRIPTION OF THE EHT POWER SUPPLY

Introduction

On this part of the module, the EHT drive pulses for the EHT power supply are generated. The primary circuit for the EHT power supply receives its 300VDC supply from the Mains. In the event of a failure, either because the EHT is too high, too much current in the EHT circuit or a horizontal or vertical scan failure condition exists, the EHT voltage is discontinued. We will discuss the generation of the EHT pulses, the regulation of the high voltage and the different protection circuits.

DC controlled multivibrator

The EHT multivibrator is configured around two Schmidt Trigger NAND gates in IC200. Two time constants are involved in this circuit : C220 / P200 / R232 and in the feedback loop C219 / R155 + transistor Q215 (=current source).

The first time constant is fixed and determines the OFF time of the power switch Q219 and is tuned with P200 to 10 μ S. The second time constant is variable and depends on the current flow through Q215. By varying the bias on transistor Q215, the time constant can be varied. Q215 is driven by the comparator Q214. This Q214 receives its base bias voltage from FBHV (feedback high voltage from the divider by 1000 circuit on the splitter). The emitter of Q214 is set at +33 volts by zener IC202. The duty cycle or the on/off time of the power switcher Q219 is regulated by the voltage difference detected by Q214, between the fixed emitter and the FBHV from the splitter.

The frequency of this oscillator is typically 80 khz.

The squared waveform at pin 3 (IC200) of the NAND gate is, via a fast switching and inverting FET Q212, sent to the opto-coupler IC201. This opto-coupler is necessary because the remainder of the circuit is supplied with the +DN (+17M) and the +300M which are not isolated from the Mains. The +17M voltage is obtained from a special winding on the SMPS and the +300M is the main bridge rectified mains voltage (**GNDM** is mains or hot ground).

Caution : Any servicing on a module that uses both a Mains Ground and a Chassis ground should involve the use of an Isolation Transformer, especially when using an oscilloscope, or other equipment connected to the main AC source. Do not connect the Main and Chassis Ground together at any time.

The output drives of IC201 a FET Q208 which on its turn drives the push-pull stage Q209/Q210. The pulses are capacitively coupled with C213 to the gate of Q219. The 20 volts zener Z206 has two purposes: the negative level of the pulses is clamped at -0.6 volt, and on the other hand the gate-source voltage is limited (protected) to 20 volt DC, in order to protect the switcher Q219.

The drain DHV of the switcher is connected with the primary winding of the EHT transformer. Transformer and quadrupler are one in the same unit. The +300M enters the board and is passing a filter L200/C217 and a fuse F200 before it supplies the Transformer/Quadrupler.

Protections

a) EHT Hold down

The EHT of the projector must be switched off in the event of a failure in the regulating circuit or a loss of the feedback. Moreover, when the required current of one or more tubes is excessively high, the EHT voltage is inhibited. We'll discuss these protections in more detail.

1. EHT Hold Down due to fault in the regulating circuit

The slider voltage of P202 ("hold down adjust" potentiometer) is sent to the base of Q206 and Q206's emitter is set to a threshold of 5.6 volt by Z200. As soon as the EHT rises beyond 36.5kV, transistor Q206 starts conducting, turning on Q205. The Schmidt-trigger pins 8 and 9 of IC200 go high and its output pin 10 goes low. The diode D201 pulls pin 6 of IC200 low in order to stop the EHT multivibrator, halting the EHT.

The output of IC200, pin 11 goes high at the same time (inverting) to forward biases LED D202 to indicate the EHT HOLD DOWN condition. The feedback resistor R223 keeps the hold down condition on (lock-down), until the projector is powered off to reset the circuit.

2. EHT Hold Down due to a feedback loop fault condition

The EHT hold down must equally operate when there is an "open loop" situation, or no EHT feedback voltage from the splitter. If that were the condition, there would be no way for the circuit to monitor the EHT, and it could go higher than the 36.5kV. The detection for "open loop" is built around the EHT "flyback" pulses on the drain of Q219.

These pulses are rectified by D205 and the resulting pulsating DC is filtered by C225 divided down with R228/R231+R227 and sent to the base of Q211. A threshold level of 4.7 volt is set at the emitter with Z202.

From 5.6 volt base voltage onwards Q211 starts conducting, turning fully on Q218. The base voltage of Q216 is set at 14 volt in normal conditions, but, is now decreased, as pin 5 is pulled to a saturating level with the photo-transistor in the opto-coupler IC220.

Via Z204 (13 volt) the collector of Q206 is dropped to approx. 13 volts, sufficient to introduce the conduction of Q205. The further actions are now similar to what is explained above.

Note that the same optocoupler and transistor Q216 are used for mains hum suppression. The +300M is via a filter C231/R263/R264 sent to pin 1 of IC203. The isolated feedback voltage (mains hum) is (via optocoupler) taken from the collector of Q216 and capacitively coupled to the FBHV voltage.

3. EHT Hold Down in the event of an excessive amount of CRT beam currents

Finally, in the event of an excessive amount of CRT beam current, with a long duration, this duration is determined by the time constant R221/C204, the collector of Q206 is pulled low via Q207, resulting in EHT Hold Down.

The base of Q207 is connected to ground, and HVL is in the ground return of the Quadrupler, so as the emitter of Q207 goes more negative as the total beam current increases, Q207 is more forward biased and starts to conduct, pulling the collector low and activating the EHT hold down. If any one CRT begins to draw too much current i.e. shorted CRT, Q207 turns on causing HV hold down.

Note that the beam current proportional voltage is sent to the RGB-Decoder drive board to reduce the contrast and brightness from some level onwards.

In conclusion, the EHT Hold Down is active for :

- too high EHT, information coming from the feedback line FBHV
- too high EHT in "open loop" via Q211/Q218 and the opto-coupler IC203.
- too high beam current lasting for some time (short in a crt).

b) Switching off the EHT when a Horizontal or Vertical scan failure occurs

In the event of a horizontal and vertical scan failure Q204 is blocked turning on Q203. D203 becomes forward biased and pulls pin 6 of the multivibrator at ground level, stopping the EHT (SF = 3V or lower).

c) Overcurrent protection of the Q219 switcher

The drain-source current of Q219 is measured by the resistor R246 in series with the source. This voltage is applied to the base of Q217 via a divider R259/R260.

The purpose of the circuit is to stop temporarily the drive when the current through Q219 tends to go beyond a maximum.

The pin 4 output of the opto-coupler IC203 may only halt the EHT multivibrator when there is a drive pulse on the common bases of the push-pull stage. For that reason, the drive pulses at the bases of Q209/Q210 are coupled with D208 to pin 1 of the opto-coupler. When the drain of Q208 is at low level, D208 is forward biased and inhibits the supply voltage +DN for the LED in the opto-coupler.

A stop of the multivibrator via the opto-coupler is thus only possible when a drive pulse is present at the push-pull stage.

Slow start up of the EHT (subunit R762200S)

When the projector is switched on, a slow start up of the EHT voltage is provided. This is accomplished by the circuit around Q202 (Power voltage +DJ). The voltage for the reference zener IC202 is taken from the +210V line via R216.

When the unit is switched on, until C200 is fully charged, Q202 will be forward biased and inhibits C200 from charging. This gives a slow rise to the voltage for IC202, and this is the voltage the FBHV is referenced to, so therefore the EHT will also have a slow rise.

When the unit is switched off, C200 is quickly discharged via D200, because the 210VDC line drops quickly, taking the EHT reference voltage on IC202 quickly down, and therefore the EHT itself goes down. C200 discharging, turns on Q202 because its base is pulled in a negative direction. If a scan fail condition is met, Q200 sees a low at its base and turns off. The base of Q201 then goes "high" and C200 is dis-

charged, pulling down the reference voltage.

The circuit around Q221 and Q222 is preventing the EHT from raising faster than its reference voltage IC202, when starting up. The moment the base of Q220 (=FBHV) becomes higher than its emitter (= reference voltage), Q220 starts conducting. This one switches on Q221, which on its turn switches on Q222. This last one stops the oscillator for a moment - until FBHV is lower than the reference voltage (which becomes *slowly* higher).
Previous actions keep on repeating until the EHT voltage reaches 34,7 kV.

Delay of the power switch drive.

The Fet Q213 is used to keep a drive pulse from driving Q219, until the EHT pulse on the Drain of Q219 has not fully dropped to its minimum. The EHT pulse is coupled to the gate of Q213 keeps the drain of Q208 low until the drive pulse is zero, turning off Q213. Then the next pulse can pass.

PARTS LISTING R7624461

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R133036	SPR L 6 D 2,4D 6 CE	6	2050	Z348803	CD CT FT P 3 250	1
20	R133039	SPR L 8 D 1,2D 4 CE	20	7000	R590266	LBLPJ SMP CAUTION CVR	1
30	R1330391	SPR L 8 D 1,5D 4 CE	8				
40	R314519	F A HLD 10A 5X20 BOD	5	C 2	R1128111	C N750DI 68P K102E3 HV	1
50	R721850	RACCCLIPSTCEVPROTECT		C 5	R112815	C CE DI 150P M400E3	1
60	R315315	J RVT MBT D 2 L14	2	C 7	R112830	C CE DI 2N7S400E3 85	1
80	B360862	SCR Z\$7985M 3 X 8 STZY	3	C 18	R111477	C EL RA 100M M 25E2 85	
90	R722545	FRM V700 LED ACC HLR	1	C 19	R111453	C EL RA1000M M 10E2 85	1
100	R7123024	SPRCL 1 D 3,2D 7 PLBK	1	C 20	R1114708	C EL RA2200M M 16E3 LE	1
120	R133039	SPR L 8 D 1,2D 4 CE	2	C 21	R1114708	C EL RA2200M M 16E3 LE	1
200	R803700	HTSNV700 SMPE	1	C 22	R111468	C EL RA 470M M 16E2 105	1
201	R367600	NUT TRAD M3 BLOCK BRNI	2	C 25	R111468	C EL RA 470M M 16E2 105	1
202	R803746	HTSNV700 SMPE TDA4601	1	C 26	R115936	C PP RA 6N8J 63E2 85	
203	B360862	SCR Z\$7985M 3 X 8 STZY	8	C 27	R112740	C CE MI 1N2K100E2	1
204	R369996	SCR D84 M 3 X 12 PLWH	1	C 28	R113724	C POMERA 100N K 63E2 85	
205	R366988	NUT TRAD M3 EDGE PLBK	1	C 29	R1150051	C PPMERA 2N2J162E9 HV	1
205	R721607	SPRCL 5 D 7 D10 PL	1	C 30	R114090	C POMERA 1M K 63E2 85	1
206	R133063	HTSNA SOT93 I-MICA 25X28	4	C 31	R115934	C PP RA 5N6J 63E2 85	1
207	R804832	HTSNA GEN SPG1 M3 SS LG	4	C 45	R111489	C EL RA 470M M 35E2 105	1
208	R366102	NUT D934 M 3 STZN	2	C 46	R111489	C EL RA 470M M 35E2 105	1
220	B360862	SCR Z\$7985M 3 X 8 STZY	1	C 47	R111556	C EL RA 470M M100E3 85	1
290	R804832	HTSNA GEN SPG1 M3 SS LG	2	C 48	R1114909	C EL RA1000M M 50E3 LE	1
300	R803700	HTSNV700 SMPE	1	C 49	R1114909	C EL RA1000M M 50E3 LE	1
301	R367600	NUT TRAD M3 BLOCK BRNI	2	C 50	R1114909	C EL RA1000M M 50E3 LE	1
302	B360861	SCR Z\$7985M 3 X 6 STZY	2	C 51	R111575	C EL RA 100M M315E4 105	1
303	R3626696	SCR D921 M 3 X 8 SS	1	C 52	R111716	C CE DI 680P M202E3 HV	1
304	R366988	NUT TRAD M3 EDGE PLBK	1	C 53	R1114909	C EL RA1000M M 50E3 LE	1
305	R133074	HTSNA I-SIL W30	0,11	C 54	R1114169	C EL RA 10M M350E2 105	1
306	R133074	HTSNA I-SIL W30	0,12	C 55	R112739	C CE MI 1N K100E2	1
308	R804833	HTSNA GEN SPG3 3,1 SS LG	2	C 60	R111468	C EL RA 470M M 16E2 105	1
309	R804834	HTSNA GEN SPG3 M3 SS LG	2	C 61	R1147009	C CE DI 4N7M250E5 Y1	△ 1
310	R348086	CBLA TWIST LOCK D 8,9	2	C 68	R1137151	C POMERA 18N K100E2 85	1
311	B360861	SCR Z\$7985M 3 X 6 STZY	2	C 69	V1116505	C EL RA 100M M385E4 85	1
312	B360862	SCR Z\$7985M 3 X 8 STZY	4	C 70	R113724	C POMERA 100N K 63E2 85	1
313	R3631079	SCR Z933 M 3 X 12 SS	4	C 71	R112735	C CE MI 470P K100E2	1
400	R810409	FRMD708 DN SMP	1	C 72	R115936	C PP RA 6N8J 63E2 85	
401	R324386	FAN AX 12V 24LS 36DB S 92	2	C 73	R111477	C EL RA 100M M 25E2 85	
402	R347965	FAN A FIX RUB L37 BK	8	C 74	R114090	C POMERA 1M K 63E2 85	
403	R803085	BTN PUSH 49R*800 MNS	1	C 75	V1114874	C EL RA 100M M 50M3 105	1
404	R348086	CBLA TWIST LOCK D 8,9	1	C 76	R112238	C NP0 MI 47P G100E2	1
405	R312869	SPR PCB L 9,5D4 D4 DUAL	4	C 77	R1150051	C PPMERA 2N2J162E9 HV	1
406	R348087	CBLA CLP+SNR SLCSE D12	2	C 78	R112744	C CE MI 2N7K100E2	
407	R809852	FRM V701S SMP FIX	2	C 78	R112747	C CE MI 4N7K100E2 85	
408	R3674391	RVT BLND_R3,2C3,2WSTAL	4	C 79	V1114874	C EL RA 100M M 50M3 105	1
500	R803703	FRM V700 SMP SCRNI	1	C 81	R112762	C CE MI 4N7Z 63E2 85	1
600	R811151	FRMD708 SMP SUP	1	C 82	R1114708	C EL RA2200M M 16E3 LE	1
602	R3674411	RVT BLND_R3,2C6,4WSTAL	1	C 83	R1114708	C EL RA2200M M 16E3 LE	1
610	R367504	SPR D6798AD 5,3D10 STZN	5	C 85	R112772	REPLACED BY V1127810	
611	R806328	FRM*701 SPGEARTH	1	C 89	R111477	C EL RA 100M M 25E2 85	
612	R3674391	RVT BLND_R3,2C3,2WSTAL	9	C 97	R114132	C POMERA 100N K250E4 85	1
613	R3631239	SCR Z933 M 4 X 10 SS	1	C 98	R113720	C POMERA 47N K 63E2 85	
614	R366103	NUT D934 M 4 STZN	5	C 99	R1137121	C POMERA 10N K250E2 85	
615	R3631249	SCR Z933 M 4 X 12 SS	1	C100	R112737	C CE MI 680P K100E2	
616	R3674391	RVT BLND_R3,2C3,2WSTAL	1	C105	R111550	C EL RA 4M7M 50E2 85	
700	R367434	RVT BLND_R2,4C 3,2 ALAL	2	C106	R111550	C EL RA 4M7M 50E2 85	
710	R348019	CBLA TIE B L100 W2,4 -	1	C200	R111531	C EL RA 10M M 35E2 85	
750	R7123046	SPRCL 1,5 D 4,2D10 CEM1	1	C201	R114100	C POMERA 100N K100E4 85	1
800	R7622091	UN V700 EHT QDR SD	1	C202	R111488	C EL RA 220M M 50E2 85	1
1000	R3480051	CBLA TIE TWIST D14/16	2	C203	R112747	C CE MI 4N7K100E2 85	
1001	R348019	CBLA TIE B L100 W2,4 -	3	C204	R111453	C EL RA1000M M 10E2 85	1
2000	R3480051	CBLA TIE TWIST D14/16	1	C205	R1137161	C POMERA 22N K100E2 85	
2010	R348019	CBLA TIE B L100 W2,4 -	3	C206	R1137121	C POMERA 10N K250E2 85	
2020	R3153151	J RVT MBT D 2.3L12.7	4	C207	R1137121	C POMERA 10N K250E2 85	
2030	R348019	CBLA TIE B L100 W2,4 -	1	C208	R111479	C EL RA 470M M 25E2 105	1
2040	R302108	CORE TUBE 3,5/1,3 X 3	2	C209	R111532	REPLACED BY V1114855	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C210	R112763	C CE MI 10N Z 63E2 85		D 9	R131621	D S 1N4148 075150 DO35	
C211	R114087	C POMERA 470N K 63E2 85		D 10	R131637	D R BA158 600400 DO7	
C212	R114087	C POMERA 470N K 63E2 85		D 17	R131927	D R BY229 60007A TO220C	1
C213	R113729	C POMERA 270N K 63E2 85		D 18	R131927	D R BY229 60007A TO220C	1
C214	V114098	C POMERA 2M2M 50E2 85	1	D 19	R131927	D R BY229 60007A TO220C	1
C215	R111532	REPLACED BY V1114855		D 24	R131637	D R BA158 600400 DO7	
C216	R114087	C POMERA 470N K 63E2 85		D 27	R131913	D R BY329 10208A TO220C	1
C217	R111578	C EL RA 100M M400E4 105	1	D 28	R131621	D S 1N4148 075150 DO35	
C218	R113724	C POMERA 100N K 63E2 85		D 30	R131637	D R BA158 600400 DO7	
C219	R1122415	C NP0 MI 82P G100E2		D 31	R131637	D R BA158 600400 DO7	
C220	R1122415	C NP0 MI 82P G100E2		D 32	R131646	D R 1N4007 10201A DO41	
C221	R112747	C CE MI 4N7K100E2 85		D 34	R131927	D R BY229 60007A TO220C	1
C222	R112819	C CE DI 330P M400E3	1	D 35	R131927	D R BY229 60007A TO220C	1
C223	R112240	C NP0 MI 68P G100E2		D 36	R131927	D R BY229 60007A TO220C	1
C224	R111720	C PPMERA 6N8J162E9 HV	1	D 37	R131914	D Y 04510A TO220	1
C225	R114603	C POMERA 100N M102E9 HV	1	D 39	R131913	D R BY329 10208A TO220C	1
C226	R112747	C CE MI 4N7K100E2 85		D 42	R131621	D S 1N4148 075150 DO35	
C227	R112739	C CE MI 1N K100E2		D 44	R131646	D R 1N4007 10201A DO41	
C228	R112763	C CE MI 10N Z 63E2 85		D 46	R1316361	D Y BAT85 030200 DO34	
C229	R112763	C CE MI 10N Z 63E2 85		D 47	R1316361	D Y BAT85 030200 DO34	
C230	R112760	C CE MI 3N3K100E2		D 48	R1316361	D Y BAT85 030200 DO34	
C231	R114162	C POMERA 100N K400E6 85	1	D 51	R131667	D LED D3 T GN	1
C232	R112733	C CE MI 330P K100E2		D200	R131646	D R 1N4007 10201A DO41	
C233	R1137121	C POMERA 10N K250E2 85		D201	R131621	D S 1N4148 075150 DO35	
C299	R112763	C CE MI 10N Z 63E2 85		D202	R131662	D LED D3 T RD	1
C300	R111477	C EL RA 100M M 25E2 85		D203	R131621	D S 1N4148 075150 DO35	
C301	R113730	C POMERA 330N K 63E2 85	1	D204	R131621	D S 1N4148 075150 DO35	
C302	R113724	C POMERA 100N K 63E2 85		D205	R131906	D R BYV96E 1021A5 SOD57	1
C304	R111453	C EL RA1000M M 10E2 85	1	D206	R762200S	UNV700 SMPE SLOW_GO	1
C305	R111453	C EL RA1000M M 10E2 85	1	D207	R131621	D S 1N4148 075150 DO35	
C700	R111564	C EL RA 220M M200E4 105	1	D208	R131637	D R BA158 600400 DO7	
C701	V111598	C EL RA1000M M200E4 85	1	D209	R131646	D R 1N4007 10201A DO41	
C702	V111598	C EL RA1000M M200E4 85	1	D210	R131958	D R BY329 12208A TO220C	1
C703	R112837	C CE DI 10N S500E3 85	1	D211	R131628	D BAW62 SW DO35	
C704	R112837	C CE DI 10N S500E3 85	1	D298	R131621	D S 1N4148 075150 DO35	
C705	R112837	C CE DI 10N S500E3 85	1	D299	R131621	D S 1N4148 075150 DO35	1
C706	R112837	C CE DI 10N S500E3 85	1	D300	R131646	D R 1N4007 10201A DO41	
C708	R114716	C PO RA 1M K250E11 X2	△ 1	D301	R131637	D R BA158 600400 DO7	
C709	R114716	C PO RA 1M K250E11 X2	△ 1	D302	R131646	D R 1N4007 10201A DO41	
C711	R111564	C EL RA 220M M200E4 105	1	D303	R131646	D R 1N4007 10201A DO41	
C715	R111468	C EL RA 470M M 16E2 105	1	D304	R131646	D R 1N4007 10201A DO41	
C716	R111468	C EL RA 470M M 16E2 105	1	D600	R131621	D S 1N4148 075150 DO35	
C781	R1159181	C PP RA 1N2J100E2 85		D700	R1319025	D R BY255 1323A0 DO201	1
C782	R115940	C PP RA 10N J 63E2 85		D701	R1319025	D R BY255 1323A0 DO201	1
C783	R115940	C PP RA 10N J 63E2 85		D702	R1319025	D R BY255 1323A0 DO201	1
C784	R1159181	C PP RA 1N2J100E2 85		D703	R1319025	D R BY255 1323A0 DO201	1
C787	R1115915	C EL5 RA 4M7M 35E2 85		D705	R131646	D R 1N4007 10201A DO41	1
C788	R1115915	C EL5 RA 4M7M 35E2 85		D726	R131667	D LED D3 T GN	1
C789	R111476	C EL RA 47M M 25E2 85		D738	R131667	D LED D3 T GN	1
C790	R111476	C EL RA 47M M 25E2 85		D739	R131667	D LED D3 T GN	1
C816	R112747	C CE MI 4N7K100E2 85		D740	R131667	D LED D3 T GN	1
C901	R1159081	C PP RA 470P J100E2 85		D741	R131667	D LED D3 T GN	1
C903	R113720	C POMERA 47N K 63E2 85		D742	R131667	D LED D3 T GN	1
C910	R111489	C EL RA 470M M 35E2 105	1	D743	R131667	D LED D3 T GN	1
C911	R113724	C POMERA 100N K 63E2 85	1	D744	R131667	D LED D3 T GN	1
C914	R111479	C EL RA 470M M 25E2 105	1	D747	R131662	D LED D3 T RD	1
C919	R111678	C EL BRA 10M M 25E2 85		D749	R1316581	D LED D3 T YL	1
C927	R112740	C CE MI 1N2K100E2	1	D750	R131662	D LED D3 T RD	1
C928	R1127741	C Z5U MU 100N Z 50E2 85		D751	R131662	D LED D3 T RD	1
C929	R1127741	C Z5U MU 100N Z 50E2 85		D752	R131621	D S 1N4148 075150 DO35	
D 2	R131927	D R BY229 60007A TO220C	1	D755	R131667	D LED D3 T GN	1
D 3	R131927	D R BY229 60007A TO220C	1	D793	R131681	DO BPW41N PIN	1
D 5	R131637	D R BA158 600400 DO7		D794	R131681	DO BPW41N PIN	1
D 6	R131927	D R BY229 60007A TO220C	1	D812	R131637	D R BA158 600400 DO7	
D 7	R131637	D R BA158 600400 DO7		D815	R131621	D S 1N4148 075150 DO35	
D 8	R131646	D R 1N4007 10201A DO41		D818	R131621	D S 1N4148 075150 DO35	
				D819	R131621	D S 1N4148 075150 DO35	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D821	R131621	D S 1N4148 075150 DO35		L 18	R302108	CORE TUBE 3,5/1,3 X 3	1
D904	R131621	D S 1N4148 075150 DO35		L 19	R302102	CORE TUBE 4,95/1,3 X40,5	1
D905	R131621	D S 1N4148 075150 DO35		L 19	R348104	WU JUMP 0,6 12,5	1
D910	R131950	D R BYV27 1502A0 SOD57		L 20	R302108	CORE TUBE 3,5/1,3 X 3	1
F 2	R314142	F 5X20 T 0A125L UL	△ 1	L 21	R3061322	CH AX NS 10 UH	1
F 4	R314183	F TR5 T 5A L UL	△ 1	L 22	R305913	CH MNS AX NS 12 UH 3A	1
F 5	R314183	F TR5 T 5A L UL	△ 1	L 23	R305913	CH MNS AX NS 12 UH 3A	1
F 6	R314147	F 5X20 F 3A15 H UL	△ 1	L 24	R305913	CH MNS AX NS 12 UH 3A	1
F 7	R314187	F TR5 T 3A15 L UL	△ 1	L 25	R3060522	CH RA NS 150 UH 0A75	1
F 8	R314188	F TR5 T 4A L UL	△ 1	L200	R305913	CH MNS AX NS 12 UH 3A	1
F 9	R314183	F TR5 T 5A L UL	△ 1	L701	B305922	CH MNS 32 MH 2X V 6A	△ 1
F 10	R314188	F TR5 T 4A L UL	△ 1	L718	R305913	CH MNS AX NS 12 UH 3A	1
F 11	R314188	F TR5 T 4A L UL	△ 1	L756	R305913	CH MNS AX NS 12 UH 3A	1
F 12	R314188	F TR5 T 4A L UL	△ 1	L757	R305913	CH MNS AX NS 12 UH 3A	1
F 13	R314188	F TR5 T 4A L UL	△ 1	L791	R3061582	CH AX NS 1.5 MH	1
F200	R314116	F 5X20 T 2A H UL	△ 1	L792	R3061582	CH AX NS 1.5 MH	1
F700	R314104	F 5X20 T 5A H UL	△ 1	L911	R305909	CH TOR V 1200 UH 2A	1
F701	R314104	F 5X20 T 5A H UL	△ 1	NTC4	R105016	R NTC 2K7 0W25	1
F719	R314186	F TR5 T 2A L UL	△ 1	NTC5	R105016	R NTC 2K7 0W25	1
I 3	R134114	U 393 LM DIP8 P	1	NTC6	R105018	R NTCR 4E7 2W6 E3	1
I 10	R131691	U 601-3 SFH DIP6 P	△ 1	NTC7	R105020	R NTCR 4E M 5W1 E3 UL	1
I 12	R132787	U 4601-5 TDA SIP9 P	1	P 3	R106728	R TCE H 5K K 0W5 S10TS	1
I 13	R132787	U 4601-5 TDA SIP9 P	1	P 7	R106727	R TCE H 2K K 0W5 S10TS	1
I 17	R131691	U 601-3 SFH DIP6 P	△ 1	P 8	R106732	R TCE H 50K K 0W5 S10TS	1
I 20	R134114	U 393 LM DIP8 P	1	P200	R106733	R TCE H100K K 0W5 S10TS	* 1
I 21	R134116	U 353 LF DIP8 P	1	P201	R106734	R TCE H200K K 0W5 S10TS	* 1
I200	R1373945	U 4093B DIP14 P	* 1	P202	R106733	R TCE H100K K 0W5 S10TS	1
I201	R134224	U 582 TLP 1119A1 P	△ 1	P300	R105211	R PTCR 5K 14MA	1
I202	R132102	U 33B ZTK DO35	* 1	PC	R780185	PCBV700 SMP+EHT	1
I203	R134224	U 582 TLP 1119A1 P	△ 1	Q 1	R1314073	Q BC547C N SS TO92	
I220	R131691	U 601-3 SFH DIP6 P	△ 1	Q 2	B1329351	Q BUX87P N P SOT82	1
I300	R134010	U 7815 TO220 P	1	Q 9	R1314071	Q BC547B N SS TO92	
I777	R132824	U 2800 TBA DIP14 P	1	Q 10	V132599	Q BU2525A N P SOT93	1
I778	R132824	U 2800 TBA DIP14 P	1	Q 22	R1314131	Q BC557B P SS TO92	
I900	R137625	U 34063 DIP8 P	1	Q 23	R1325096	Q BU508A N P SOT93	1
J 6	R313922	J CT H MBT P 2 M2SN WH	1	Q 24	R131428	Q BC548C N SS TO92	
J A	R34554911	CD REC4-.5 1672G22WT 110	1	Q 27	R1314071	Q BC547B N SS TO92	
J B	R34594918	CD RNG4 1015G18YG 180	1	Q 31	R131471	Q BF458 N P TO126	1
J C	R34554011	CD REC4-.5 1672G22BK 110	1	Q200	R1314071	Q BC547B N SS TO92	
J D	R34704702	SLVU SHR D 6,4/3,2 BK 20	3	Q201	R132924	Q BC546 N SS TO92	
J 10	R313935	J CT H MBT P15 M2SN WH	1	Q202	R131413	Q BC557 P SS TO92	
J 20	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	Q203	R1314245	Q BC338-40 N SS TO92	
J200	R3136078	J MTA MBT P 8 M3,96 FL RO	1	Q204	R131411	Q BC549C N SS TO92	
J700	R3137241	J MTA MBT P 4 M3,96SN RO	1	Q205	R1314182	Q BC559C P SS TO92	
J701	R313454	J TAB1 MBT H4,8S0,5 SN	1	Q206	R131411	Q BC549C N SS TO92	
J703	R313454	J TAB1 MBT H4,8S0,5 SN	1	Q207	R131411	Q BC549C N SS TO92	
J710	V3132823	FLTR MNS 250V 6A T6	1	Q208	R132910	Q BS170 FN SS TO92	1
J759	R313926	J CT H MBT P 6 M2SN WH	1	Q209	R131424	Q BC338 N SS TO92	
J760	R313929	J CT H MBT P 9 M2SN WH	1	Q210	R1314311	Q BC327 P SS TO92	
J761	R313932	J CT H MBT P12 M2SN WH	1	Q211	R131411	Q BC549C N SS TO92	
J762	R313931	J CT H MBT P11 M2SN WH	1	Q212	R132910	Q BS170 FN SS TO92	1
J763	R313927	J CT H MBT P 7 M2SN WH	1	Q213	R1329105	Q BS170 FN SS TO92	* 1
J779	R313944	J CT H MBS P 4 M2SN WH	1	Q214	R132590	Q BC560B P SS TO92	1
J780	R313944	J CT H MBS P 4 M2SN WH	1	Q215	R1314182	Q BC559C P SS TO92	
J795	R313454	J TAB1 MBT H4,8S0,5 SN	1	Q216	R1314182	Q BC559C P SS TO92	
L 5	R305913	CH MNS AX NS 12 UH 3A	1	Q217	R131411	Q BC549C N SS TO92	
L 6	R305913	CH MNS AX NS 12 UH 3A	1	Q218	R1314182	Q BC559C P SS TO92	
L 11	R3061322	CH AX NS 10 UH	1	Q219	R132918	Q IXTH12N100 FN P TO247	1
L 12	R305913	CH MNS AX NS 12 UH 3A	1	Q746	R1314071	Q BC547B N SS TO92	
L 13	R305913	CH MNS AX NS 12 UH 3A	1	Q908	R132909	Q BD652 DP P TO220	1
L 14	R305913	CH MNS AX NS 12 UH 3A	1	Q922	R131413	Q BC557 P SS TO92	
L 15	R305913	CH MNS AX NS 12 UH 3A	1	R 1	V1026506	R MF H 3K32F 0W6 E4	
L 16	R305913	CH MNS AX NS 12 UH 3A	1	R 2	R104656	R HV H 1M2 J 0W5 3500	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 3	V102913	R MF H 12E J 2W E7	1	R148	V1026656	R MF H 4K75F 0W6 E4	
R 4	V102946	R MF H 6K8 J 2W E7	1	R149	V1026336	R MF H 2K21F 0W6 E4	
R 5	V1026006	R MF H 1K F 0W6 E4		R150	V1026507	R MF H 33K2 F 0W6 E4	
R 28	R1011907	R CFFH E1 K 0W35	△	R155	V1026338	R MF H221K F 0W6 E4	
R 29	V1026256	R MF H 1K82F 0W6 E4		R160	V1026009	R MF H 1M F 0W6 E4	
R 31	V1026006	R MF H 1K F 0W6 E4		R161	V1026726	R MF H 5K62F 0W6 E4	
R 32	V1026086	R MF H 1K21F 0W6 E4		R162	V1026507	R MF H 33K2 F 0W6 E4	
R 33	V1026726	R MF H 5K62F 0W6 E4		R163	V1026086	R MF H 1K21F 0W6 E4	
R 36	V1026008	R MF H100K F 0W6 E4		R164	V1026178	R MF H150K F 0W6 E4	
R 37	V1011984	R MF H E22J 0W6 E4	1	R165	V1026505	R MF H332E F 0W6 E4	
R 38	V1026424	R MF H 27E4 F 0W6 E4		R166	V1026006	R MF H 1K F 0W6 E4	1
R 39	V1026656	R MF H 4K75F 0W6 E4		R167	R1011246	R CFFH100E J 0W35	1
R 40	V1026428	R MF H274K F 0W6 E4		R200	V1026337	R MF H 22K1 F 0W6 E4	
R 41	V1026175	R MF H150E F 0W6 E4		R201	V1026258	R MF H182K F 0W6 E4	
R 42	V1026508	R MF H332K F 0W6 E4		R202	V1026507	R MF H 33K2 F 0W6 E4	
R 43	R103226	R MO H150E J 2W E10	1	R203	V1026008	R MF H100K F 0W6 E4	
R 55	V1026575	R MF H392E F 0W6 E4	1	R204	R1011269	R CFFH150E J 0W25	1
R 68	V1026335	R MF H221E F 0W6 E4		R205	V1026657	R MF H 47K5 F 0W6 E4	
R 69	V1026255	R MF H182E F 0W6 E4		R206	V1026007	R MF H 10K F 0W6 E4	
R 81	V1026575	R MF H392E F 0W6 E4		R207	V1026425	R MF H274E F 0W6 E4	
R 82	V1026428	R MF H274K F 0W6 E4		R208	V1026004	R MF H 10E F 0W6 E4	
R 83	V1026007	R MF H 10K F 0W6 E4		R209	V1026807	R MF H 68K1 F 0W6 E4	
R 84	V1026425	R MF H274E F 0W6 E4		R210	V1026337	R MF H 22K1 F 0W6 E4	
R 85	V1026006	R MF H 1K F 0W6 E4		R211	V1026087	R MF H 12K1 F 0W6 E4	
R 86	R103226	R MO H150E J 2W E10	1	R212	V1026885	R MF H825E F 0W6 E4	
R 87	V1026117	R MF H 13K F 0W6 E4		R213	A551625	R MF H110E F 0W6 E4	1
R 88	V1026726	R MF H 5K62F 0W6 E4		R214	V1026007	R MF H 10K F 0W6 E4	
R 89	V1026726	R MF H 5K62F 0W6 E4		R215	V1026655	R MF H475E F 0W6 E4	1
R 90	R103600	R WW H E1 J 4W E10	1	R216	R103254	R MO H 33K J 2W E10	1
R 91	V1026006	R MF H 1K F 0W6 E4		R217	V1026008	R MF H100K F 0W6 E4	
R 92	V1026255	R MF H182E F 0W6 E4		R218	V1026657	R MF H 47K5 F 0W6 E4	
R 93	R102499	R MF H E33J 0W6		R219	V1026657	R MF H 47K5 F 0W6 E4	
R 94	V1026006	R MF H 1K F 0W6 E4		R220	V1026007	R MF H 10K F 0W6 E4	
R 95	R103600	R WW H E1 J 4W E10	1	R221	V1026576	R MF H 3K92F 0W6 E4	
R 96	V1026424	R MF H 27E4 F 0W6 E4		R222	V1026806	R MF H 6K81F 0W6 E4	
R 97	V1026428	R MF H274K F 0W6 E4		R223	V1026657	R MF H 47K5 F 0W6 E4	
R 98	V1026885	R MF H825E F 0W6 E4		R224	V1026656	R MF H 4K75F 0W6 E4	
R 99	V1026008	R MF H100K F 0W6 E4		R226	V1026805	R MF H681E F 0W6 E4	
R100	V1026806	R MF H 6K81F 0W6 E4		R227	V1026845	R MF H750E F 0W6 E4	
R101	V1026006	R MF H 1K F 0W6 E4		R228	R104654	R HV H 1M J 0W5 3500	△ 1
R102	V1026335	R MF H221E F 0W6 E4		R229	V1026426	R MF H 2K74F 0W6 E4	
R105	V1026007	R MF H 10K F 0W6 E4		R230	R1011008	R CFFH 1E J 0W25	1
R106	R104658	R HV H 1M5 J 0W5 3500	1	R231	V1026656	R MF H 4K75F 0W6 E4	
R107	V1026617	R MF H 43K2 F 0W6 E4		R232	V1026258	R MF H182K F 0W6 E4	
R108	V1026336	R MF H 2K21F 0W6 E4		R233	V1026257	R MF H 18K2 F 0W6 E4	
R110	V1026657	R MF H 47K5 F 0W6 E4		R234	V1026657	R MF H 47K5 F 0W6 E4	
R111	V1026656	R MF H 4K75F 0W6 E4		R235	V1026007	R MF H 10K F 0W6 E4	
R112	V1026657	R MF H 47K5 F 0W6 E4	1	R236	R101529	R MF H270E F 0W4 E3	
R113	V1026258	R MF H182K F 0W6 E4		R237	V1026576	R MF H 3K92F 0W6 E4	
R125	V1026578	R MF H392K F 0W6 E4		R238	V1026338	R MF H221K F 0W6 E4	
R126	V1026656	R MF H 4K75F 0W6 E4		R239	V1026576	R MF H 3K92F 0W6 E4	
R127	V1026006	R MF H 1K F 0W6 E4		R240	V1026256	R MF H 1K82F 0W6 E4	
R129	R104672	R HV H 5M6 J 0W5 3500	△	R241	V1026338	R MF H221K F 0W6 E4	
R130	R104672	R HV H 5M6 J 0W5 3500	△	R243	V1026006	R MF H 1K F 0W6 E4	
R135	V1026808	R MF H681K F 0W6 E4		R244	R101462	R MF H150K J 2W E7	1
R136	V1026807	R MF H 68K1 F 0W6 E4	1	R245	R101462	R MF H150K J 2W E7	1
R137	V1026009	R MF H 1M F 0W6 E4		R246	R103606	R WW H E33K 4W E10	1
R138	V1026507	R MF H 33K2 F 0W6 E4		R247	R1011209	R CFFH 47E J 0W25	
R139	V1026656	R MF H 4K75F 0W6 E4		R248	V1026337	R MF H 22K1 F 0W6 E4	
R140	V1026008	R MF H100K F 0W6 E4		R249	V1026004	R MF H 10E F 0W6 E4	
R141	V1026000	R MF H 10M F 0W6 E4		R250	V1026655	R MF H475E F 0W6 E4	1
R142	V1026726	R MF H 5K62F 0W6 E4		R250	V1026655	R MF H475E F 0W6 E4	
R143	V1026658	R MF H475K F 0W6 E4		R251	V1026657	R MF H 47K5 F 0W6 E4	
R144	V1026507	R MF H 33K2 F 0W6 E4		R252	V1026337	R MF H 22K1 F 0W6 E4	*
R145	V1026578	R MF H392K F 0W6 E4		R253	V1026008	R MF H100K F 0W6 E4	*
R146	V1026656	R MF H 4K75F 0W6 E4		R254	V1026005	R MF H100E F 0W6 E4	
R147	V1026657	R MF H 47K5 F 0W6 E4		R255	V1026889	R MF H 8M25F 0W6 E4	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R256	V1026506	R MF H 3K32F 0W6 E4		Z 17	R134031	U 431C TL TO92 P	1
R257	V1026338	R MF H221K F 0W6 E4		Z 19	R134031	U 431C TL TO92 P	1
R258	V1026885	R MF H825E F 0W6 E4		Z 20	R131756	D ZEN 7V5 0W5 C DO35	
R259	V1026426	R MF H 2K74F 0W6 E4		Z 21	R131790	D ZEN 33V 1W3 C DO41	*
R260	V1026655	R MF H475E F 0W6 E4		Z200	R131734	D ZEN 5V6 0W5 B DO35	*
R261	V1026007	R MF H 10K F 0W6 E4		Z202	R131865	D ZEN 4V7 0W5 B DO35	
R262	V1026006	R MF H 1K F 0W6 E4		Z203	R131745	D ZEN 18V 1W3 C DO41	
R263	V1026657	R MF H 47K5 F 0W6 E4		Z204	R131721	D ZEN 13V 0W5 C DO35	
R264	R101462	R MF H150K J 2W E7	1	Z205	R131730	D ZEN 20V 0W5 C DO35	
R265	V1026576	R MF H 3K92F 0W6 E4		Z206	R131730	D ZEN 20V 0W5 C DO35	
R266	V1026336	R MF H 2K21F 0W6 E4		Z920	R131791	D ZEN 6V2 0W5 B DO35	
R267	V1026177	R MF H 15K F 0W6 E4		Z921	R131791	D ZEN 6V2 0W5 B DO35	
R268	R103229	R MO H270E J 2W E10	1	Z924	R131742	D ZEN 6V8 0W5 C DO35	
R269	V1026423	R MF H 2E74F 0W6 E4		Z932	R131744	D ZEN 5V6 0W5 C DO35	1
R299	V1026726	R MF H 5K62F 0W6 E4		Z933	R131744	D ZEN 5V6 0W5 C DO35	
R700	R101460	R MF H100K J 2W E7	1				
R701	R101460	R MF H100K J 2W E7	1	R131429	Q BC548B N SS TO92		1
R702	V1026428	R MF H274K F 0W6 E4	1	R302108	CORE TUBE 3,5/1,3 X 3		2
R713	V1026255	R MF H182E F 0W6 E4		R3153151	J RVT MBT D 2.3L12.7		
R723	R103058	R MF H 68K J 1W E6	1	R3484156	CD CT MSMT P15 370		1
R724	R101544	R MF H 4K7 F 0W4 E3		R762200A	UN V700 SMPE		1
R727	V1026658	R MF H475K F 0W6 E4		R762200TD	CD SHUNT SL 2-4P4 230/120		1
R728	R101550	R MF H 15K F 0W4 E3		R762446S	UN V708 SMP SUB FIL		1
R729	R101548	R MF H 10K F 0W4 E3		Z34699401	SLVU SHR D 4,8/2,4 BK 10		1
R732	R101540	R MF H 2K2 F 0W4 E3					
R733	R101548	R MF H 10K F 0W4 E3					
R734	R101544	R MF H 4K7 F 0W4 E3					
R735	R101541	R MF H 2K7 F 0W4 E3					
R736	R101548	R MF H 10K F 0W4 E3					
R737	R101541	R MF H 2K7 F 0W4 E3					
R745	R101544	R MF H 4K7 F 0W4 E3					
R748	R101536	R MF H 1K F 0W4 E3					
R753	R101542	R MF H 3K3 F 0W4 E3					
R785	R101560	R MF H100K F 0W4 E3					
R786	R101560	R MF H100K F 0W4 E3					
R902	V1026007	R MF H 10K F 0W6 E4					
R906	V1026505	R MF H332E F 0W6 E4					
R907	V1026336	R MF H 2K21F 0W6 E4					
R909	V1026655	R MF H475E F 0W6 E4					
R912	R1011907	R CFFH E1 K 0W35					
R913	V1026655	R MF H475E F 0W6 E4					
R915	V1026887	R MF H 82K5 F 0W6 E4	1				
R916	V1026886	R MF H 8K25F 0W6 E4					
R917	V1026726	R MF H 5K62F 0W6 E4	1				
R918	V1026006	R MF H 1K F 0W6 E4					
R925	V1026505	R MF H332E F 0W6 E4					
R926	V1026176	R MF H 1K5 F 0W6 E4					
R930	R101520	R MF H 47E F 0W4 E3					
R931	R101520	R MF H 47E F 0W4 E3					
S700	R324792	SW MNS JPZ 2A TV5 BS	△ 1				
SR2*	R1011169	R CFFH 22E J 0W25	△ 1				
SR7*	R1041698	R WWFV 1K5 K 2W	△ 1				
T 1	R306718	T 300MA SMP STAND-BY	△ 1				
T 2	R774345	T D700 SMP FIX	△ 1				
T 3	R774346	T D700 SMP VAR	△ 1				
TH 1	R1322101	Q TIC106D TH P TO66	1				
Z 1	R131734	D ZEN 5V6 0W5 B DO35	1				
Z 5	R131706	D ZEN 9V1 1W3 C DO41	1				
Z 10	R131706	D ZEN 9V1 1W3 C DO41	1				
Z 13	R131787	D ZEN 51V 0W5 C DO35					
Z 14	R131756	D ZEN 7V5 0W5 C DO35					
Z 15	R131734	D ZEN 5V6 0W5 B DO35					
Z 16	R131740	D ZEN 12V 0W5 C DO35					

ATTENTION

X-ray radiation can be caused if critical components are replaced by non conform components. All critical components are identified by *.

PRODUCT SAFETY NOTICE

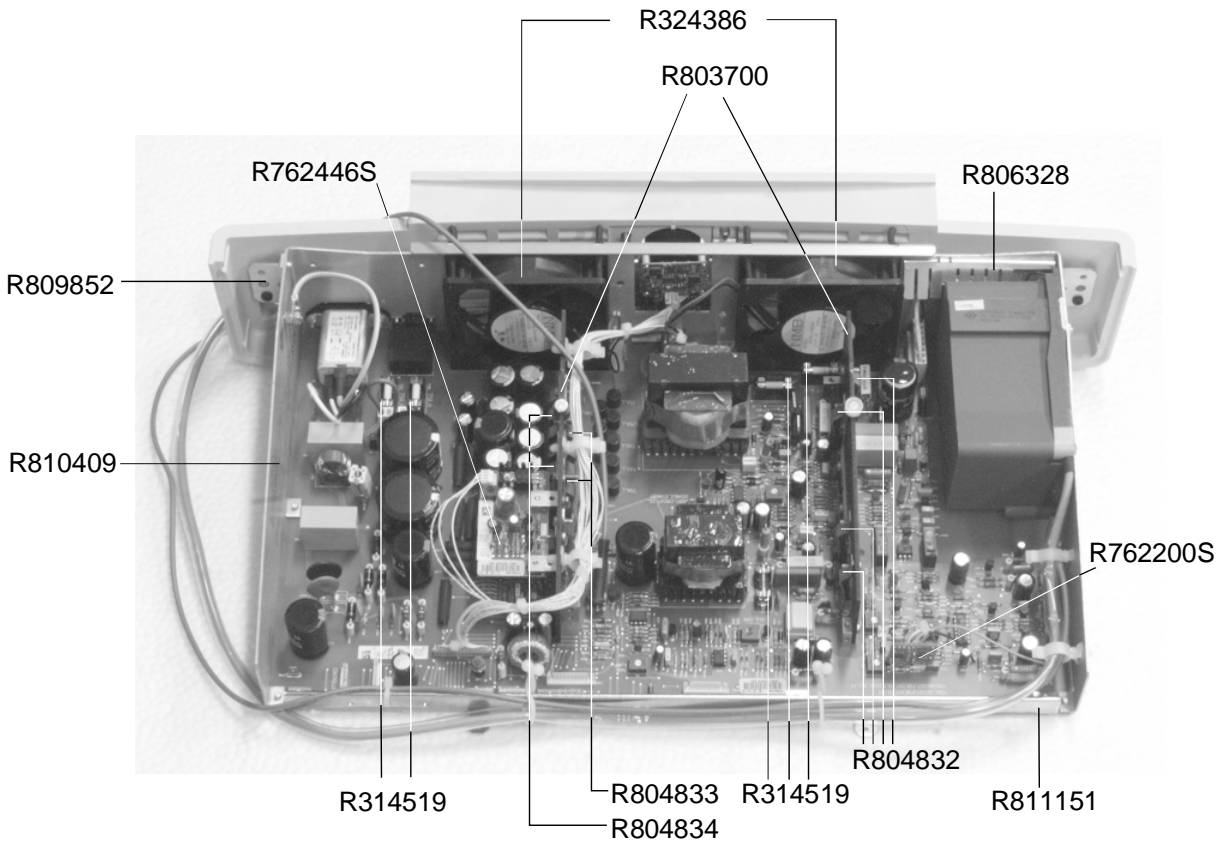
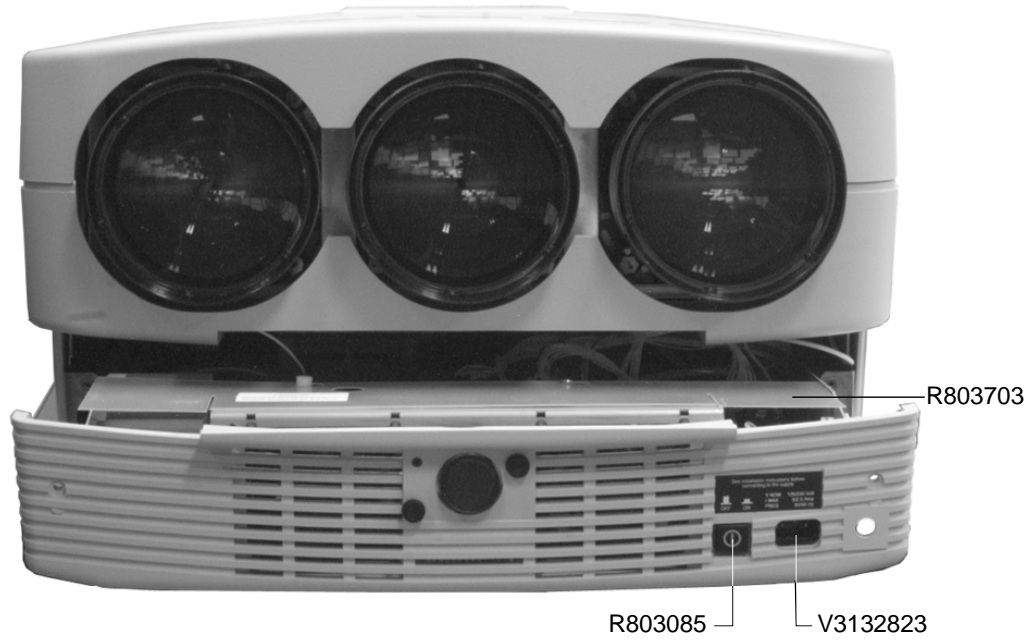
Components identified by △ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.

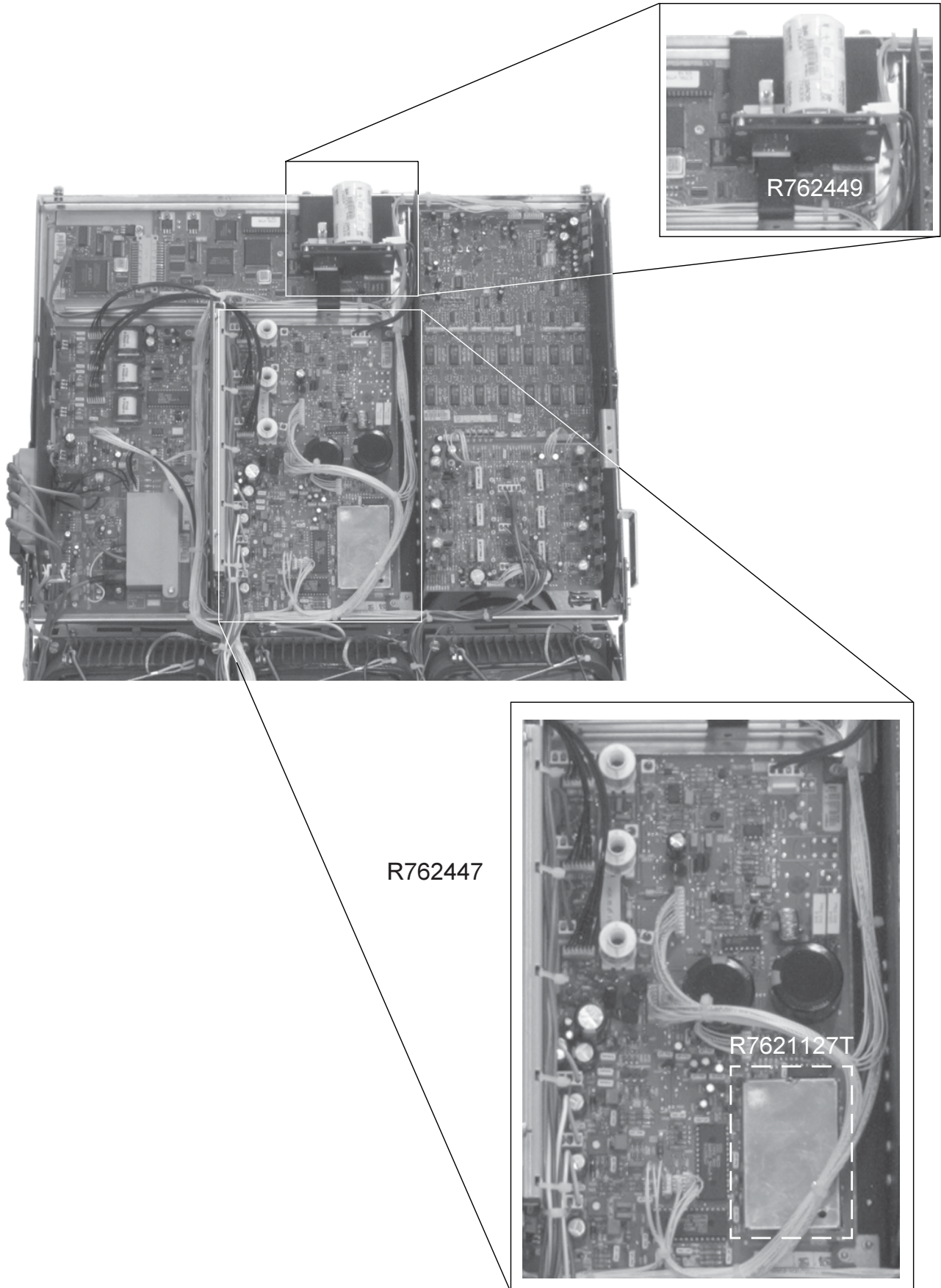
PARTS LISTING R762200S

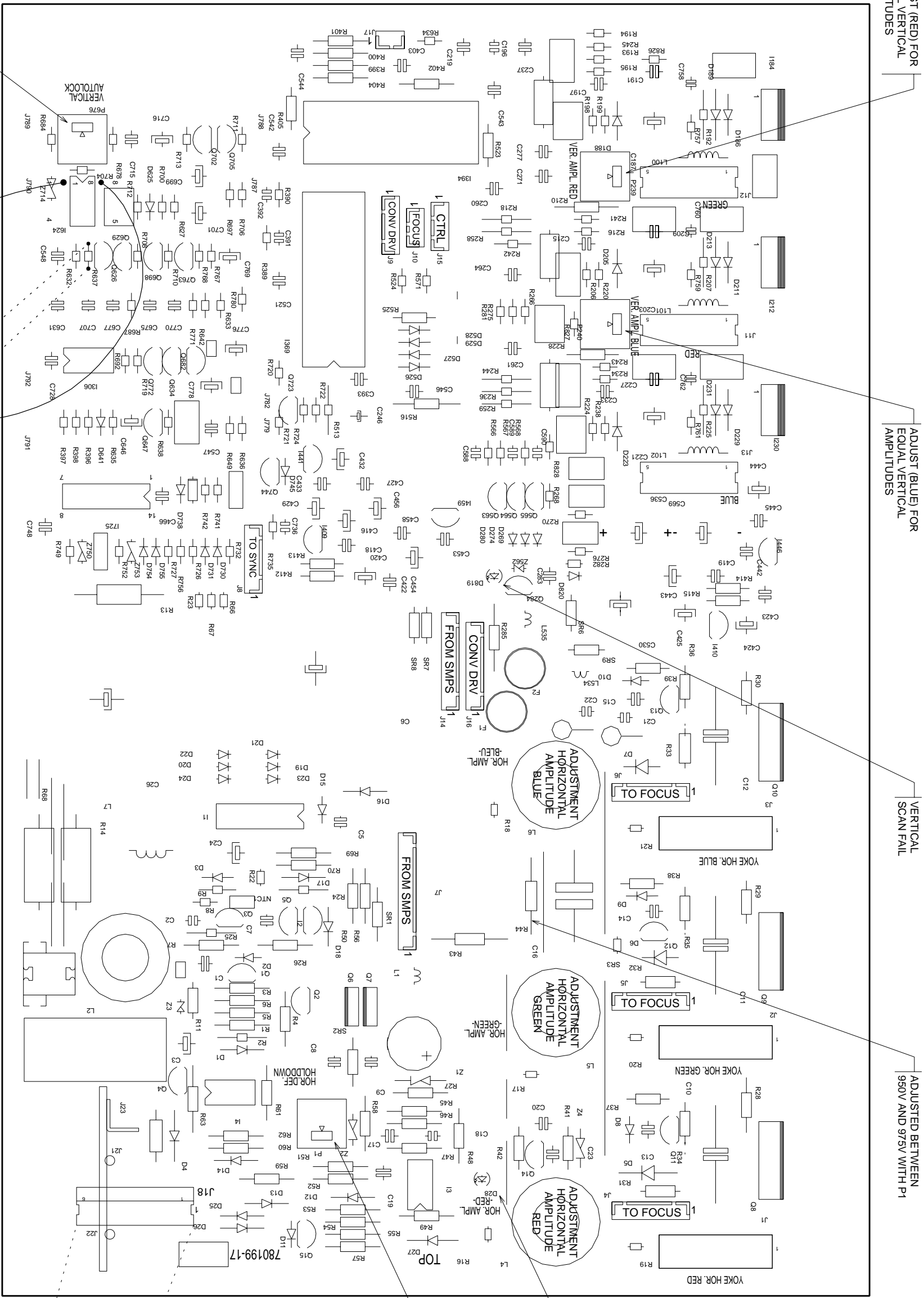
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 5	P210092	C# X7R MU 10N K 50 1206	1
D 12	P234099	D#4148 RDMMELF	1
J 13	R3132845	J CISMBS P 5 R1SN LONG	0,2
J 14	R3132845	J CISMBS P 5 R1SN LONG	0,2
J 15	Z34217505	WU UL1007 AWG24 ST GN 50	1
J 16	Z34217405	WU UL1007 AWG24 ST YE 50	1
J 17	Z34217311	WU UL1007 AWG24 ST OR 110	1
J 18	R34217006	WU UL1007 AWG24 ST BK 60	1
PC	R780507	PCB*700 EHT SLOW_GO	1
Q 6	P232062	Q#BF622 N SS SOT89	1
Q 7	P232092	Q#BF623 P SS SOT89	1
Q 10	P232004	Q#BC849C N SS SOT23	1
R 3	P200477	R# CE H560K F 0W25 1206	1
R 4	P200449	R# CE H 39K F 0W25 1206	1
R 8	P200479	R# CE H680K F 0W25 1206	1
R 9	P200435	R# CE H 10K F 0W25 1206	1
R 11	P200449	R# CE H 39K F 0W25 1206	1
R 12	P200477	R# CE H560K F 0W25 1206	1
R 13	P200477	R# CE H560K F 0W25 1206	1
R 14	P200479	R# CE H680K F 0W25 1206	1
R 15	P200479	R# CE H680K F 0W25 1206	1
R 16	P200449	R# CE H 39K F 0W25 1206	1
	R762200SP	UN V700 SMPE SLOW_GO	1

PARTS LISTING R762446S

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	V1330911	HTSN Q TO220 13X10 L 19	1
11	B360862	SCR Z\$7985M 3 X 8 STZY	1
12	R3661026	NUT D934 M 3 SS	1
13	R367502	SPR D6798AD 3,2D 6 STZN	1
20	R367600	NUT TRAD M 3 BLOCK BRNI	2
21	B360862	SCR Z\$7985M 3 X 8 STZY	4
C 71	R111476	C EL RA 47M M 25E2 85	1
C 72	V1115469	C EL RA 1M M 50E2 105	1
C 73	R111477	C EL RA 100M M 25E2 85	1
C 74	R111479	C EL RA 470M M 25E2 105	1
D 70	R131906	D R BYV96E 1021A5 SOD57	1
D 71	R131621	D S 1N4148 075150 DO35	1
D 72	R131621	D S 1N4148 075150 DO35	1
D 73	R131621	D S 1N4148 075150 DO35	1
D 74	R131906	D R BYV96E 1021A5 SOD57	1
J 10	R313943	J CT H MBS P 3 M2SN WH	1
P 70	R107005	R TCE H500E K 0W5 S 7TS	1
PC	R780703	PCB V708 SMP SUB FIL	1
Q 70	A573379	Q BD242B P P TO220	1
Q 71	R131411	Q BC549C N SS TO92	1
R 70	V1026175	R MF H150E F 0W6 E4	1
R 71	V1026174	R MF H 15E F 0W6 E4	1
R 72	V1026686	R MF H 5K11F 0W6 E4	1
R 76	V1026376	R MF H 2K43F 0W6 E4	1
Z 70	R134031	U 431C TL TO92 P	1
	R762446SA	UN V708 SMP SUB FIL	1





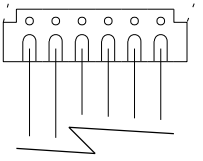


ADJUSTMENT
VERTICAL HOLD
(AUTOLOCK)

SUB-UNIT
R7621127T

Modifications reserved

CONNECTION
WITH
HORIZONTAL
LINEARITY
CONTROL (J1)

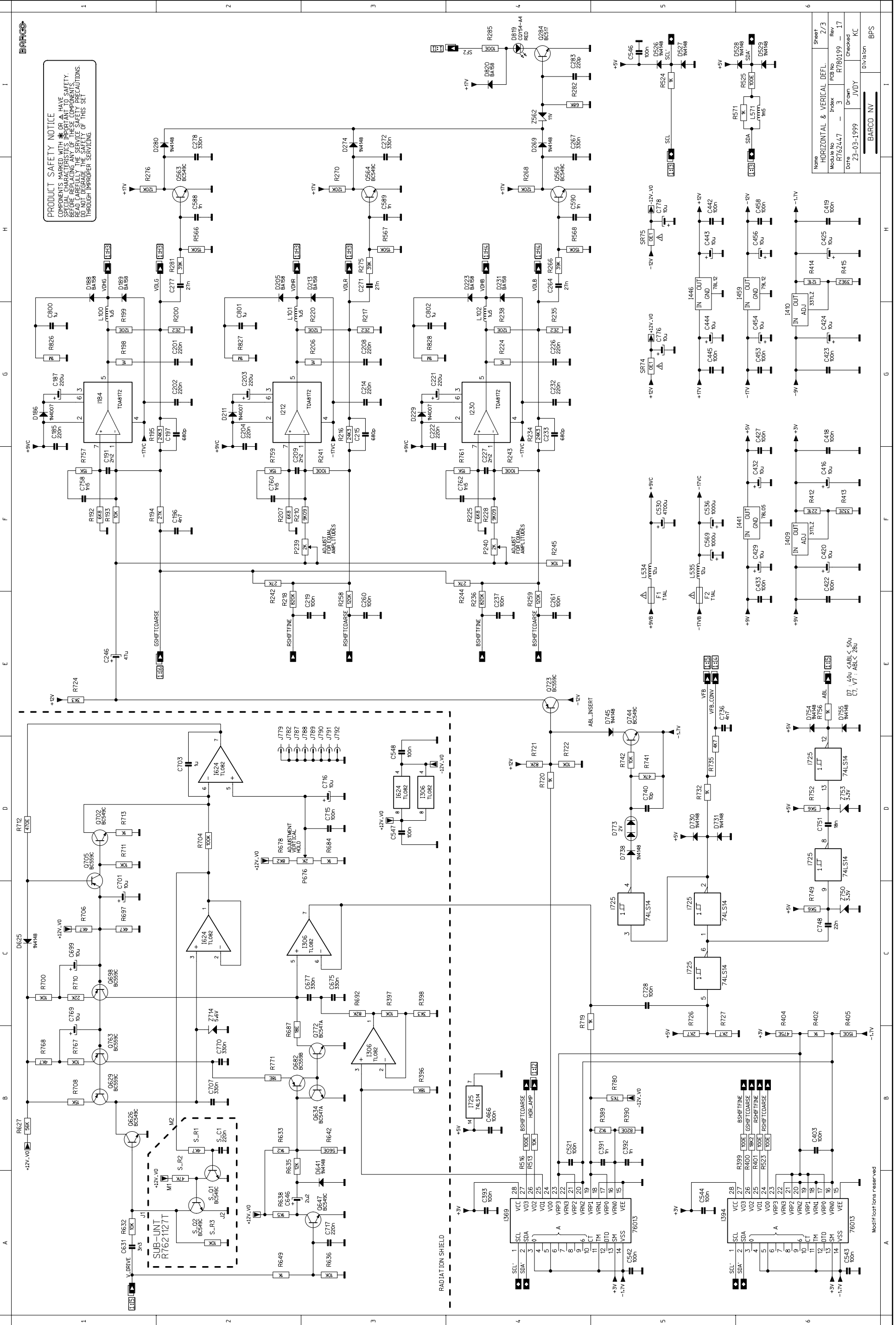


Name	HORIZONTAL & VERTICAL DEF.	Sheet	1/2
Module No.	8702447	PCB No.	R720199
Date	23-03-1989	Rev	17
Drawn	JUDY	Checked	KC

BARCO PROJECTION SYSTEMS

PRODUCT SAFETY NOTICE
COMPONENTS MARKED WITH * OR A HAVE SPECIAL HANDLING REQUIREMENTS. SPECIAL PRECAUTIONS MUST BE OBSERVED. READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

Name	HORIZONTAL & VERTICAL DEF.	Sheet	27/3
Module No	R762447	PCB No	H760199
Index	3	Rev	17
Date	23-03-1999	Drawn	Checked
		JVDY	KC
		Division	BPS

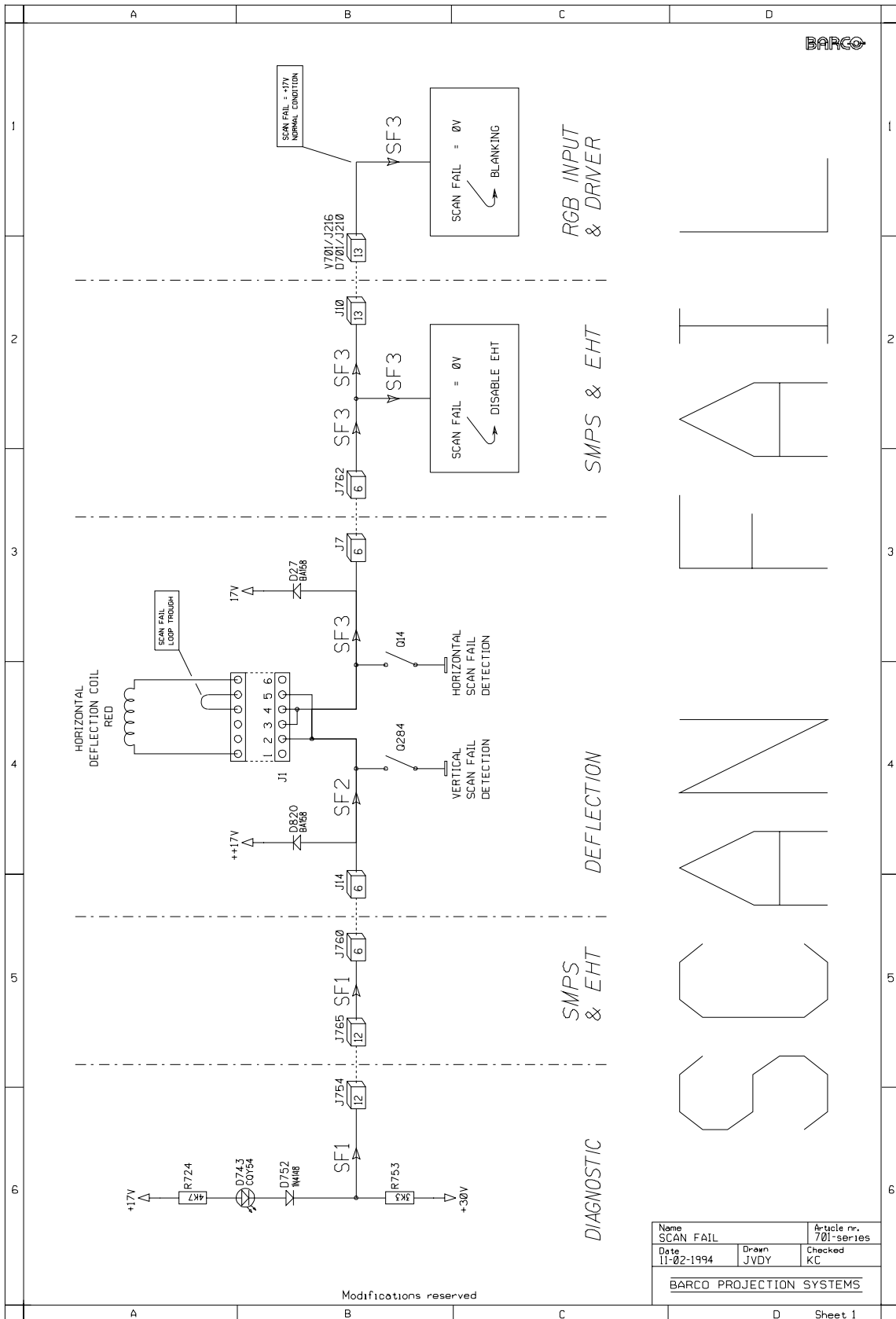


Modifications reserved

A	B	C	D
1	COMP. LOC. SH.	COMP. LOC. SH.	COMP. LOC. SH.
2	COMP. LOC. SH.	COMP. LOC. SH.	COMP. LOC. SH.
3	COMP. LOC. SH.	COMP. LOC. SH.	COMP. LOC. SH.
4	COMP. LOC. SH.	COMP. LOC. SH.	COMP. LOC. SH.
5	COMP. LOC. SH.	COMP. LOC. SH.	COMP. LOC. SH.
6	COMP. LOC. SH.	COMP. LOC. SH.	COMP. LOC. SH.

Modificat ions reserved

Name		Sheet	
HORIZONTAL & VERTICAL DEFL.		3/3	
Module No	Index	PCB No	Rev
R762447	3	R780199	17
Date	Drawn	Checked	
23-03-1999	JVDY	KC	
BARCO NV		Division	
		BPS	

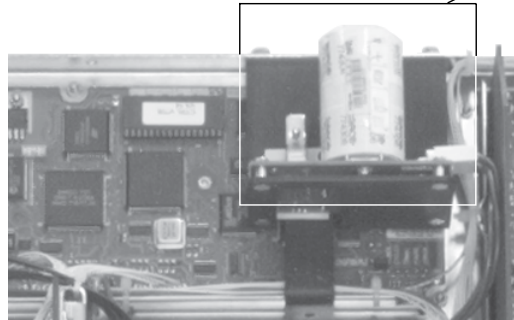
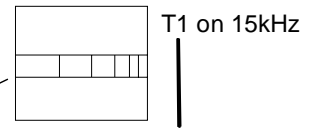


SCHEMATIC NAME: scanFail.sch SHEET NUMBER: 1 DATE: Mar 15, 1996

ADJUSTMENT PROCEDURE

Location of Adjustments

Horizontal linearity



P1 Fold Down
Hor. Deflection

D5 (950V)

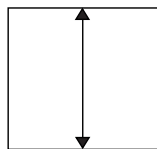
Picture Width
adjustment

L4 R Coil

L5 G Coil

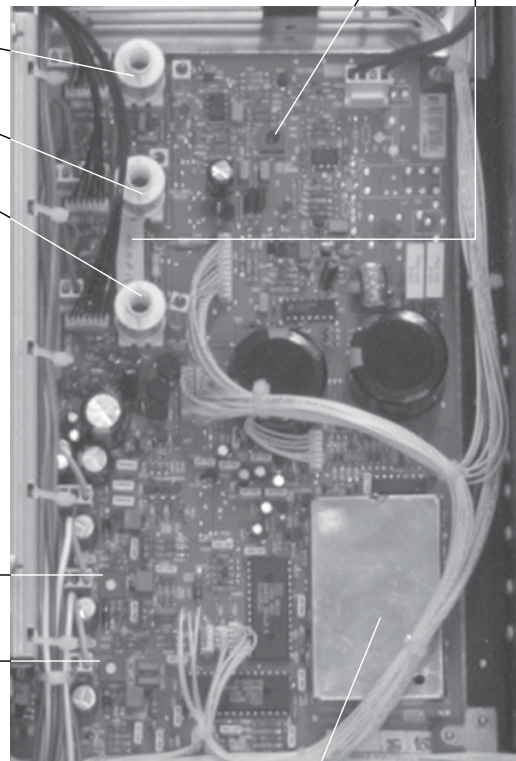
L6 B Coil

Vert. Amplitude

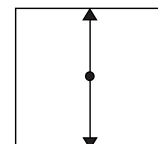


P240 BLUE

P239 RED



P676
Adj. Vert. Hold



Vertical deflection

Vertical oscillator adjustment P676

- Projector has to operate on an input signal (the frequency is irrelevant).
- Adjust potentiometer P676 for synchronization of the picture (Vertical lock).

Vertical Amplitude correction for the RED (P239) and BLUE (P240) picture

Readjustment of these potentiometers may be necessary when the respective picture tube has been replaced.

- The vertical amplitude (picture height) of the GREEN image has to be taken as reference.
- Adjust the respective potentiometer for the same picture height.

Horizontal deflection

T1 Horizontal linearity adjustment on 15kHz

- Projector has to operate on a crosshatch signal with 15kHz scan frequency.
- Adjust linearity coil T1 so that the left half of the screen has the same width as the right half.

P1 Hold down Horizontal Deflection

- Projector has to operate on a signal with 15kHz scan frequency.
- Adjust the potentiometer P8 (MAX Hor. Amplitude) **on the 'SM Power Supply+EHT' module** to its minimum position by turning counter clockwise.
- Adjust the Horizontal Amplitude of the displayed image by means of the RCU until the bar scale on screen indicates 50. (Refer to the projector owner's manual to select the corresponding menu for adjustment).
- Adjust the potentiometer P1 (Hold Down) to its minimum position by turning counter clockwise.
- Connect a voltmeter to the cathode of the diode D5 and adjust potentiometer P8 **on the 'SM Power Supply+EHT' module** for a readout of +950V.
- Adjust potentiometer P1 (Hold Down) for horizontal deflection hold down (LED 'HOLD DOWN HD' on front panel lights up).
- Adjust the potentiometer P8 again (MAX Hor. Amplitude) **on the 'SM Power Supply+EHT' module** to its minimum position by turning counter clockwise.
- Switch OFF/ON the projector to restart the projector operation.
- Use the RCU to set the Horizontal Amplitude of the displayed image to its maximum, i.e. bar scale on screen indicates 99. (Refer to the projector owner's manual to select the corresponding menu for adjustment).
- Adjust potentiometer P8 until the horizontal amplitude reaches its end of size range (Picture size stabilizes).

- Turn the potentiometer P8 a little backwards to assure proper operation of the regulating circuit.

Horizontal picture width Preparation

- Projector has to operate on the highest used line and frame frequency (32kHz).
- Decrease the Contrast and increase the Brightness to reveal the (background) raster.
- Turn the core of the coils L4, L5 and L6 fully inside the coil.

Referring to the Owner's manual

- If necessary, adjust picture coincidence in the center of the picture.
- To proceed to the adjustment, select the GEOMETRY menu.

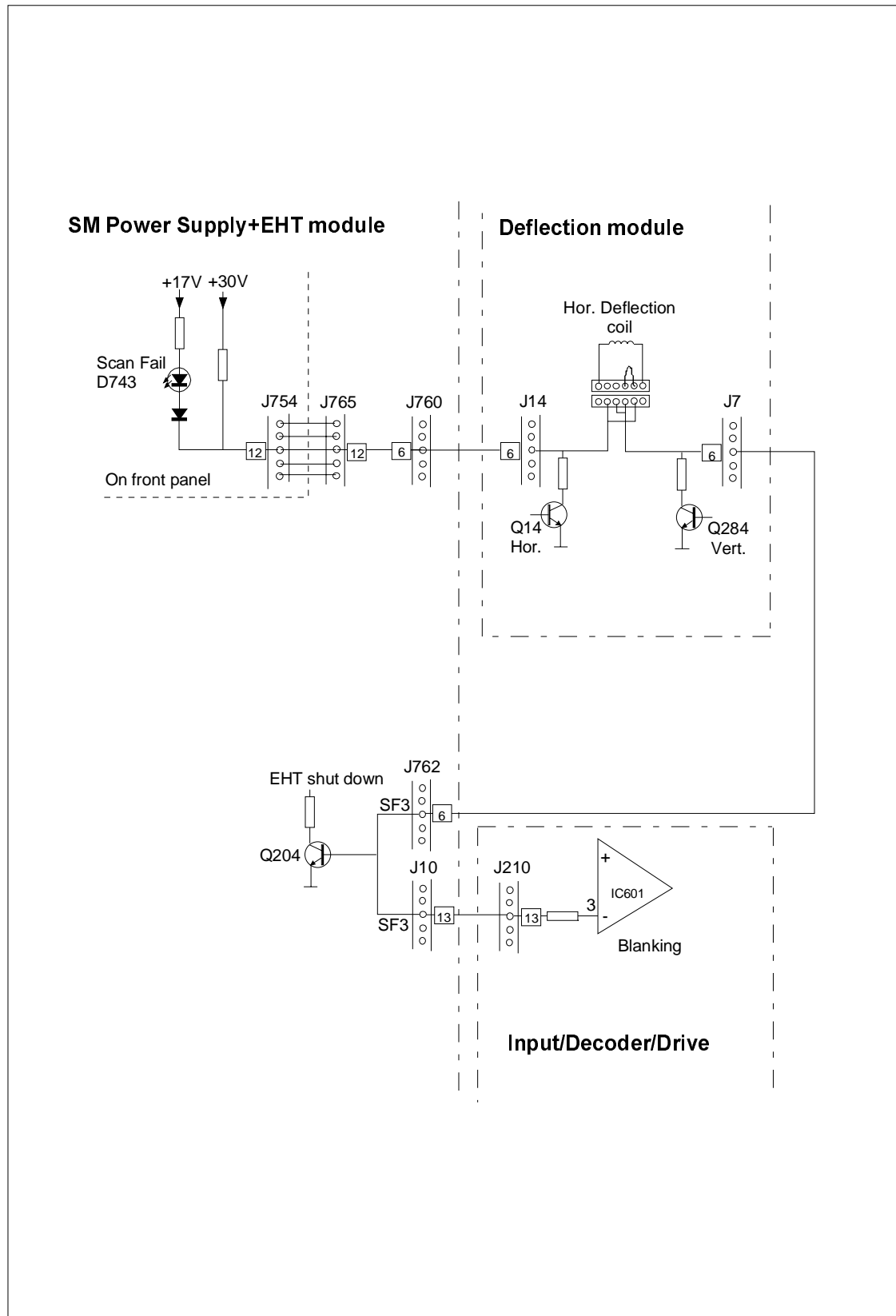
The picture with the smallest raster width should be taken as the reference width.

Adjustment

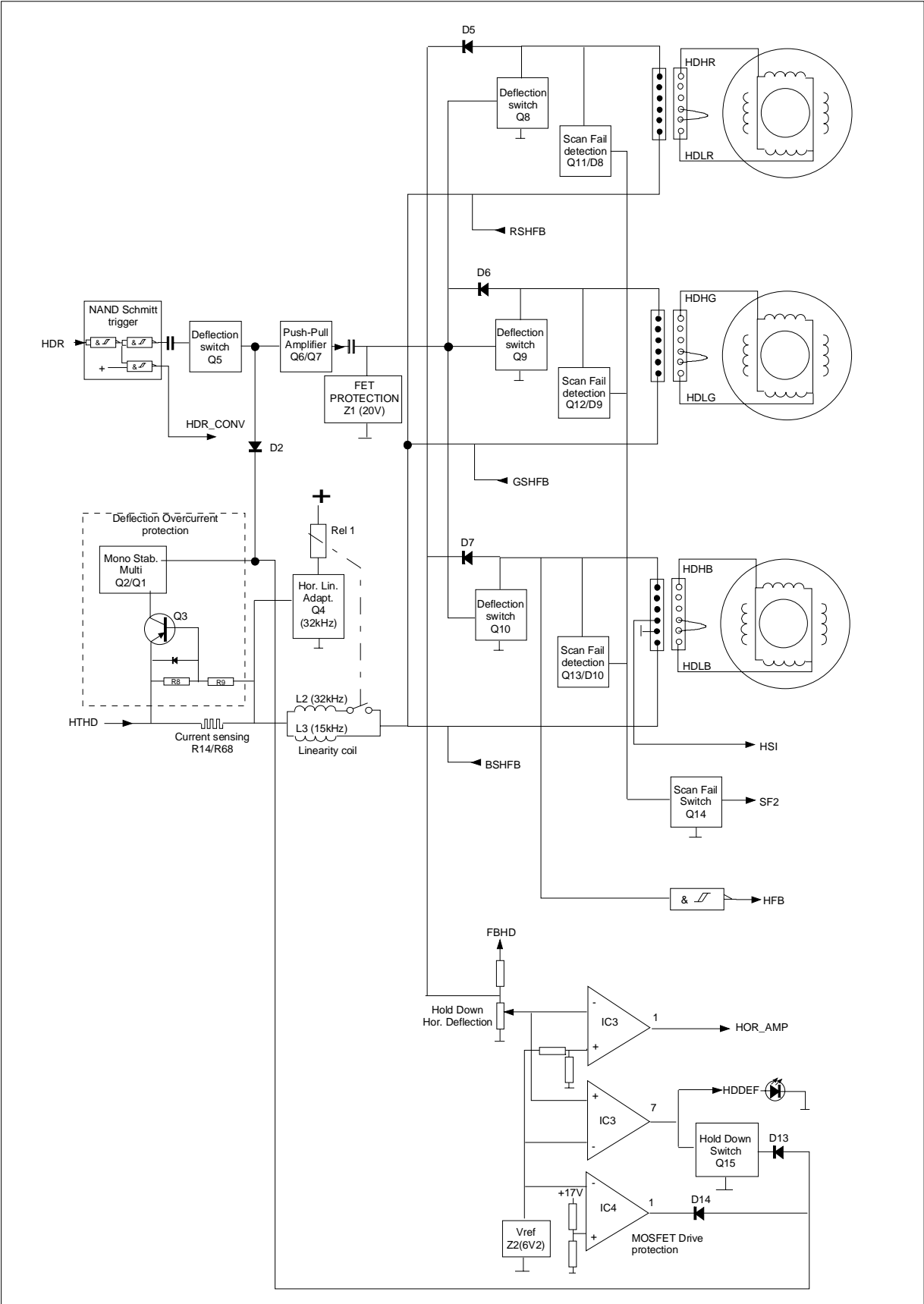
- Adjust the two other coils in order to match the raster with the reference raster.

Important: one of the three coils must have a core fully turned in.

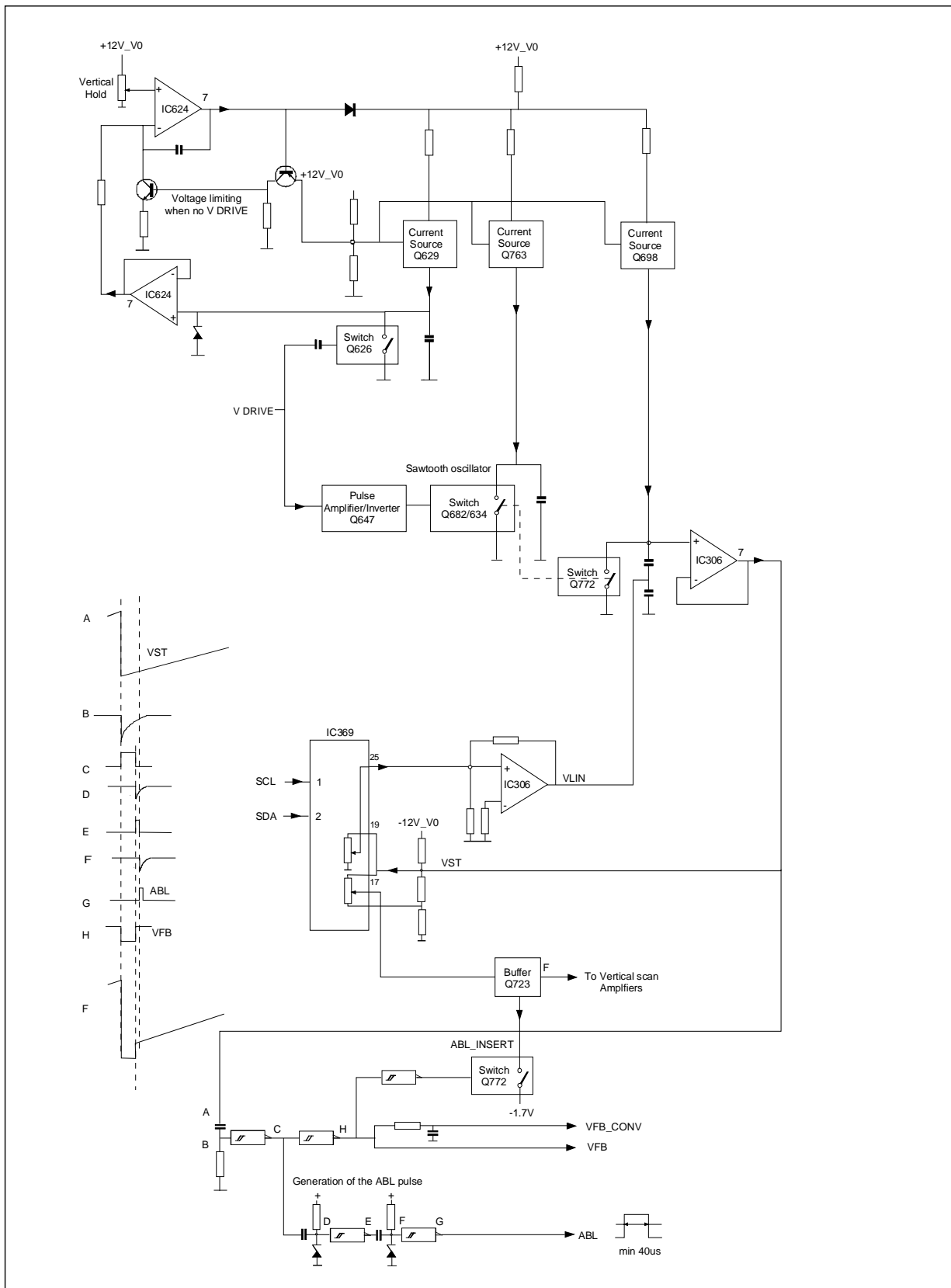
SCAN FAIL INTERCONNECTION



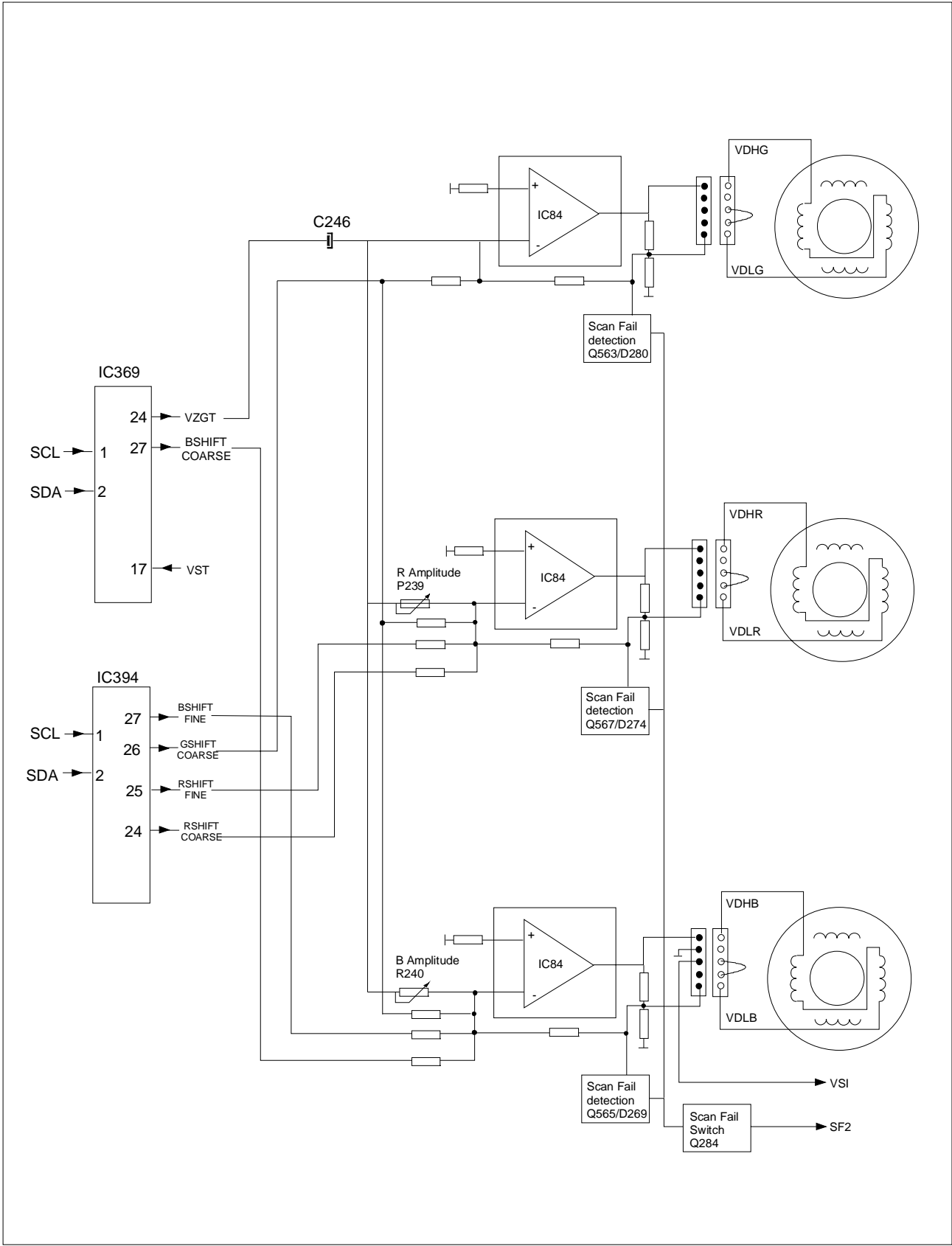
BLOCKDIAGRAM HORIZONTAL DEFLECTION



BLOCKDIAGRAM VERTICAL OSCILLATOR



BLOCKDIAGRAM VERTICAL DEFLECTION



TECHNICAL DESCRIPTION**Introduction**

On this board we find the MOSFET switching transistors for the horizontal scanning and the vertical oscillator with the power amplifiers.

Pulses are derived from the deflection waveforms for blanking, triggering and ABL. In the event of a scan failure, either horizontal or vertical, the scan fail line SF is activated and the EHT is cut off next to an immediate blanking of the CRT's.

Vertical oscillatorVertical oscillator

The principle of the oscillator is to determine the appropriated charging current of the real oscillator, proportional to the vertical frequency, by generating a stable simulated vertical sawtooth.

We find three current sources Q629, Q763 and Q698 driven by the output of the Miller integrator output pin 7 of IC624. The minimum or initial charge current is determined by R627. The capacitor C707 is charged up and discharged when Q626 is driven on with the V drive pulse. The sawtooth is buffered and integrated (= average) and the obtained voltage is compared with the level set by P676 (ADJUSTMENT VERTICAL HOLD). The charging current is adapted via R712 / D625 until both voltages at the input are identical. When the feedback is stable, the three current sources send current to three circuits :

1. Sawtooth simulator as explained above.
2. Two sawtooth oscillators split by a transistor to avoid influence on the trigger when linearity control is applied.

With P676 we can adjust the average output voltage of the integrator. The potentiometer must be adjusted in order to obtain vertical lock, the frequency is irrelevant.

The sawtooth is buffered and feeds two potentiometers in IC369.

The VO1 output (V LIN sawtooth) is applied to the node of the two series capacitors in the oscillator in order to compress or decompress the ramp at the top or bottom. The VO0 output is buffered with Q723 and AC coupled to the power amplifiers.

Sub-unit R7621127T

This sub-unit makes the vertical oscillator non retriggerable. In order to avoid that the vertical oscillator gets retriggered by noise on the V_DRIVE pulses, these pulses are blocked for a time-interval bigger than one V_DRIVE puls width.

The sawtooth at the output pin 7 of IC624 is fed to S_Q1 on the sub-unit. Normally S_C1 is charged and S_Q1 is in saturation. This cuts off S_Q2, which allows the V_DRIVE pulses to be fed to Q626.

The moment a V_DRIVE pulse arrives Q626 is switched ON and C707 is discharged very quickly. Due to this S_Q1 stops conducting as S_C1 gets discharged. As soon as this starts, S_Q2 starts conducting thus putting the base of Q626 to ground level. This means that Q626 is no longer driven by the V_DRIVE pulses.

Once S_C1 is discharged it re-starts charging up. S_Q1 starts conducting again and once in saturation, S_Q2 is cut off. The V_DRIVE pulses are now fed to Q626 again.

Power amplifiers

Three identical amplifiers TDA8172 feed the vertical deflection coils. The input waveform is AC coupled and accompanied by a DC voltage to allow a shift of the picture. This DC voltage is composed of a SHIFTCOARSE and SHIFTFINE voltage provided by IC369 and IC394 except for the green beam which receives only a SHIFTCOARSE voltage.

This DC voltage for the green is also sent to the red and blue in order to let the red and blue beam follow the green shift. The shift voltages vary between +3V and -1.7V.

Two potentiometers P239 and P240 in the red and blue input allow an equilibration of the three amplitudes in order to reduce the corrections in the convergence with the convergence coils.

The ground returns for the amplified sawtooth is via a small 2.2 Ohm resistor. The amplitude across these feedback resistors is proportional to the scanning current and can be used for a feedback stabilization and scan fail detection.

The TDA8172 allows for a short vertical retrace time by doubling the supply voltage during the retrace time. During the flyback, the voltage across the capacitors C187, C203 and C221 reaches a maximum and they are switched in series with the supply voltage of +9V.

Vertical scan fail detection

The sawtooth across the feedback resistor is applied via a capacitor and resistive divider, to the base of a transistor. The transistor is forward biased during a time proportional to the amplitude. The collector voltage of the transistor is low when the amplitude is sufficiently high and turns high when the amplitude is too weak or there is no deflection any more.

Via three gating diodes, the collector voltage is sent to the base of Q284. The scan fail line SF2 is turned low level as soon as the transistor is saturated.

When the scan fail line is low level, the EHT is cut off (see SMPS + EHT board description), the picture tubes are blanked, and the red SF LED comes on.

Generation of pulses derived from the VSTa) ABL

At the end of the vertical retrace time, the cathodes are driven black and the currents are sensed by the ABL circuit. The time to drive black the CRT's must coincide with the end of the retrace time. For that purpose the VST sawtooth is differentiated with C728 / R727. The Schmidt trigger output pin 6 of IC725 is a squared pulse which is not yet at the correction position and width. Two more differentiators and Schmidt triggers generate the ABL pulse for the RGB DRIVE during which the leakage and black currents will be measured (see description ABL on the RGB DRIVE module).

b) VFB_CONV and VFB pulses

The VFB_CONV is sent to the driver board of the convergence for trigger purposes. The VFB pulse is sent to the SYNC module to trigger the sawtooth generator for the generation of the blanking pulses.

c) ABL_INSERT - Overshoot

During the ABL time the three CRT's are unblanked to allow a correct measurement of the black currents. The beams are not blanked any more during the line retrace time and the beams become visible.

To prevent above, the deflection current receives an overshoot and the unblanked lines, if visible, will appear beyond the screen borders.

The pulse at pin 2 of IC725 is passed to another Schmidt trigger for speeding up and

inversion. Q744 is switched on with the output pulse and the base of the buffer Q723 is pulled low via D745 to realize a heavy current in the deflection coils.

Horizontal Deflection

The H DRIVE pulses, which are developed on the SYNC module, are shaped by two Schmidt triggers in IC1 and coupled with C7 to the base of Q5. By connecting R25 to the +HTHD a drive pulse is automatically generated the moment a H DRIVE pulse would be absent.

A push-pull current source Q6/Q7 charges and discharges the coupling capacitor C9 to develop an alternating voltage across R27. This voltage is limited by the zener Z1 at -0.7V and +20V.

When the MOSFETs are driven on, the deflection currents flow in the respective coils. There is a common linearity coil but each coil has its own AMPLITUDE ADJUSTMENT coil L4, L5 and L6. These coils allow an equilibration of the horizontal amplitudes before a convergence correction is applied.

Linearity control - Tracking with the line frequency

The sum of the three deflection coils flows through the "standard" linearity coil. "Standard" relates here to the standard frequency of 15kHz. This linearity correction is no more sufficient for the higher scanning frequencies. The correction and tracking for the higher frequencies is realized on the unit 76 2449. The deflection current flows in the circuit Z1 / R1+R2 / R3 / P2 and P1 (and the zeners). The gate voltage of Q1 is determined by the amplitude of the HTHD voltage from the moment the voltage is beyond the zener Z1 threshold of 30V.

For a further increase of the HTHD voltage the stabistor D2 limits the voltage across P2 and P2 does not play a role any more. The tracking for the high range is then done with the remaining biasing resistors in the gate.

Remark: The schematics indicate P1 and P2 as potentiometers, in reality they are each replaced by a resistor.

Protection circuits

a) Overcurrent protection

If for some reason, the current in the sum of the horizontal scan coils exceeds a predetermined level, the drive is inhibited as follows :

The voltage across R14 // R68 is the base-emitter voltage of Q3. When the 0.6V level is reached, Q3 conducts and triggers the monoflop Q1 / Q2. The heavy collector drop of Q1 inhibits the pulses at the push-pull base via D2. The inhibition is resumed after some time (time constant of the monoflop). Above protection is seldom activated during normal operation. Only during switching off it can become active.

b) Overvoltage protection (scan or deflection Hold Down)

The flyback pulses on each of the MOSFETs are checked by the rectifier network consisting of the diodes D5 / D6 / D7 and the C16 decoupling capacitor. The resulting voltage is divided by R44 / P1 / R45 and sent to the voltage comparator in IC3. The threshold is set by the zener Z2 at 6.2V. At the moment pin 5 exceeds this level, the output pin 7 switches "high" and consequently :

1. The H Drive is inhibited through D13.
2. The input is kept high with D12 to maintain the situation. This requires that the set be powered off, to reset this circuit.
3. The red LED " DEF HOLD DOWN" on the front of the projector is illuminated in order to show that "hold down" has occurred.
4. As the deflection is stopped, there will be also horizontal scan fail (see hereafter), so, the EHT will be cut off and the picture tubes blanked.

The same voltage is also applied to the other input pin 2 of IC3 and the appropriated threshold is a bit lower. The output pin 1 affects the HOR AMP voltage in order to reduce the width of the picture from that predetermined level onwards and avoid scan hold down when switching from the highest to the lowest frequency.

c) Too low drive protection (less than 14 volts)

It is imperative that the MOSFETs are fully switched on, so that the internal resistance will be as low as possible. The MOSFET drive pulse amplitude depends largely on the +17V supply.

The drive signals are developed from the +17V supply and to prevent damage, due to insufficient drive, if this voltage becomes too low, IC4 pin 1 output goes low.

Via D14 the drive is inhibited. The situation is restored as soon as the +17V raises above the 14V level. At the same time, the scan fail circuit is immediately triggered, but, the red "Hold Down" LED will not light up.

d) Scan fail detection

Horizontal flyback pulses are fed into transistors Q11, Q12 and Q13. As long as there are horizontal pulses on the base of these transistors, they are conducting for each horizontal period, and the collector voltage across the capacitors is low. If a horizontal pulse is missing, that collector will go to +17V and through D8, D9 or D10 transistor Q14 will be turned on. The scan fail SF2 will be pulled low level and the scan fail signal condition will be met.

PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R348105	WU JUMP 0,6	15	C260	R113724	C POMERA 100N K 63E2 85	
10	R804832	HTSN A GEN SPG1 M3 SS LG	6	C261	R113724	C POMERA 100N K 63E2 85	
11	R348106	WU JUMP 0,6 17,5		C264	R1137171	C POMERA 27N K100E2 85	
12	R348103	WU JUMP 0,6 10 H10		C267	R114085	C POMERA 330N K 63E2 85	
20	R3153151	J RVT MBT D 2.3L12.7		C271	R1137171	C POMERA 27N K100E2 85	
20	V3621227	SCR \$7500CM 3 X 8 STZN	6	C272	R114085	C POMERA 330N K 63E2 85	
30	R133036	SPR L 6 D 2,4D 6 CE	6	C277	R1137171	C POMERA 27N K100E2 85	
40	R3674391	RVT BLND_R3,2C 3,2WSTAL	3	C278	R114085	C POMERA 330N K 63E2 85	
50	R3481147	WU JUMP 0,51 37,5 ISO	1	C283	R112731	C CE MI 220P K100E2	1
60	R3481135	WU JUMP 0,51 35 ISO	1	C391	R112739	C CE MI 1N K100E2	1
70	R803728	HTSN V700 DEF+SHF	1	C392	R112739	C CE MI 1N K100E2	1
80	R133085	HTSN A GEN I-SHT CRA 30	0,1	C393	R113724	C POMERA 100N K 63E2 85	
90	R133074	HTSN A I-SIL W30	0,11	C403	R113724	C POMERA 100N K 63E2 85	
110	R805776	FRM D700 DEF SCR N UP	1	C416	R111531	C EL RA 10M M 35E2 85	1
120	R805774	FRM D700 DEF SCR N	1	C418	R113724	C POMERA 100N K 63E2 85	
121	R3674391	RVT BLND_R3,2C 3,2WSTAL	1	C419	R113724	C POMERA 100N K 63E2 85	
130	R348019	CBLA TIE B L100 W2,4 -	1	C420	R111531	C EL RA 10M M 35E2 85	
1000	R762447X	UN D700 DEF	1	C422	R113724	C POMERA 100N K 63E2 85	
C 1	R1159121	C PP RA 680P J100E2 85	1	C423	R113724	C POMERA 100N K 63E2 85	
C 2	R112739	C CE MI 1N K100E2		C424	R111531	C EL RA 10M M 35E2 85	
C 4	R111489	C EL RA 470M M 35E2 105	1	C425	R111531	C EL RA 10M M 35E2 85	
C 5	R114087	C POMERA 470N K 63E2 85		C427	R113724	C POMERA 100N K 63E2 85	
C 6	R111566	C EL RA 820M M200E4 85	1	C429	R111531	C EL RA 10M M 35E2 85	
C 7	R115922	C PP RA 1N8J100E2 85		C432	R111531	C EL RA 10M M 35E2 85	
C 8	R114087	C POMERA 470N K 63E2 85		C433	R113724	C POMERA 100N K 63E2 85	
C 9	R114087	C POMERA 470N K 63E2 85		C442	R113724	C POMERA 100N K 63E2 85	
C 10	R111775	C PPMERA 5N6J162E9 HV	1	C443	R111531	C EL RA 10M M 35E2 85	
C 11	R111775	C PPMERA 5N6J162E9 HV	1	C444	R111531	C EL RA 10M M 35E2 85	
C 12	R111775	C PPMERA 5N6J162E9 HV	1	C445	R113724	C POMERA 100N K 63E2 85	
C 13	R1137131	C POMERA 12N K100E2 85	1	C453	R113724	C POMERA 100N K 63E2 85	
C 14	R1137131	C POMERA 12N K100E2 85	1	C454	R111531	C EL RA 10M M 35E2 85	
C 15	R1137131	C POMERA 12N K100E2 85	1	C456	R111531	C EL RA 10M M 35E2 85	
C 16	R114603	C POMERA 100N M102E9 HV	1	C458	R113724	C POMERA 100N K 63E2 85	
C 17	R112362	C N750MI 100P G100E2		C466	R113724	C POMERA 100N K 63E2 85	
C 18	R112763	C CE MI 10N Z 63E2 85		C521	R113724	C POMERA 100N K 63E2 85	
C 19	R1159141	C PP RA 820P J100E2 85	1	C530	R1114729	C EL RA4700M M 16E3 105	1
C 20	R1137161	C POMERA 22N K100E2 85		C536	V1114718	C EL RA1000M M 25E2 LE	1
C 21	R112681	C N750MI 15P G500E2		C542	R113724	C POMERA 100N K 63E2 85	
C 22	R112681	C N750MI 15P G500E2		C543	R113724	C POMERA 100N K 63E2 85	
C 23	R1137161	C POMERA 22N K100E2 85		C544	R113724	C POMERA 100N K 63E2 85	
C 24	V1115469	C EL RA 1M M 50E2 105		C546	R113724	C POMERA 100N K 63E2 85	
C 26	R111566	C EL RA 820M M200E4 85	1	C547	R113724	C POMERA 100N K 63E2 85	
C185	R113841	C POMERA 220N K 63E2 85		C548	R113724	C POMERA 100N K 63E2 85	
C187	R111488	C EL RA 220M M 50E2 85	1	C569	V1114718	C EL RA1000M M 25E2 LE	1
C191	R112743	C CE MI 2N2K100E2	1	C588	R112739	C CE MI 1N K100E2	1
C196	R112747	C CE MI 4N7K100E2 85		C589	R112739	C CE MI 1N K100E2	1
C197	R112737	C CE MI 680P K100E2	1	C590	R112739	C CE MI 1N K100E2	1
C201	R113841	C POMERA 220N K 63E2 85		C631	R115928	C PP RA 3N3J 63E2 85	
C202	R113841	C POMERA 220N K 63E2 85		C646	R111548	C EL RA 2M2M 50E2 85	
C203	R111488	C EL RA 220M M 50E2 85	1	C675	R114085	C POMERA 330N K 63E2 85	
C204	R113841	C POMERA 220N K 63E2 85		C677	R114085	C POMERA 330N K 63E2 85	
C208	R113841	C POMERA 220N K 63E2 85		C699	R111531	C EL RA 10M M 35E2 85	
C209	R112743	C CE MI 2N2K100E2		C701	R111531	C EL RA 10M M 35E2 85	
C214	R113841	C POMERA 220N K 63E2 85		C703	R114090	C POMERA 1M K 63E2 85	
C215	R112737	C CE MI 680P K100E2	1	C707	R114085	C POMERA 330N K 63E2 85	
C219	R113724	C POMERA 100N K 63E2 85		C715	R113724	C POMERA 100N K 63E2 85	
C221	R111488	C EL RA 220M M 50E2 85	1	C716	R111531	C EL RA 10M M 35E2 85	
C222	R113841	C POMERA 220N K 63E2 85		C717	R113841	C POMERA 220N K 63E2 85	
C226	R113841	C POMERA 220N K 63E2 85		C728	R113724	C POMERA 100N K 63E2 85	
C227	R112743	C CE MI 2N2K100E2		C736	R112747	C CE MI 4N7K100E2 85	1
C232	R113841	C POMERA 220N K 63E2 85		C740	R112230	C NP0 MI 10P G100E2	1
C233	R112737	C CE MI 680P K100E2	1	C748	R1137161	C POMERA 22N K100E2 85	1
C237	R113724	C POMERA 100N K 63E2 85		C751	R1137151	C POMERA 18N K100E2 85	1
C246	R111476	C EL RA 47M M 25E2 85		C758	R112741	C CE MI 1N5K100E2	
				C760	R112741	C CE MI 1N5K100E2	

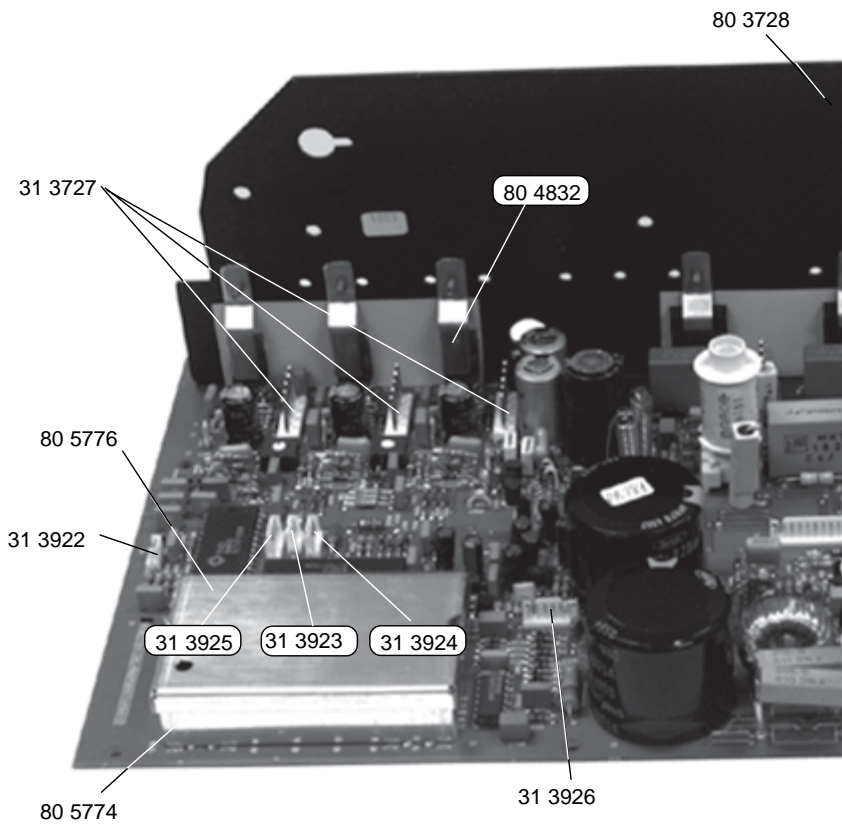
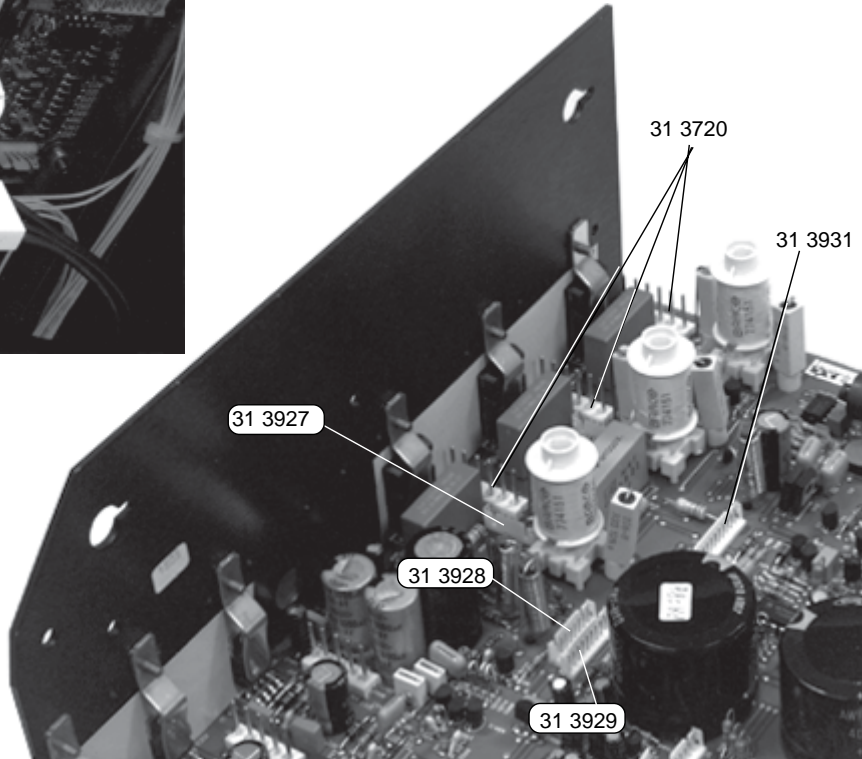
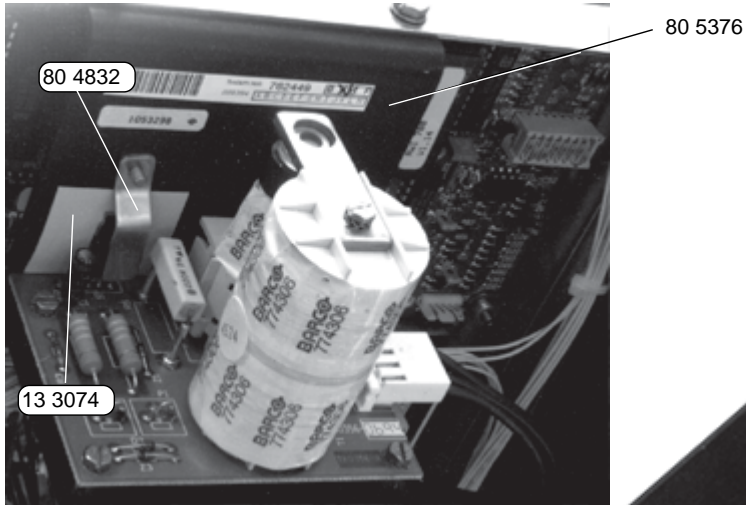
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C762	R112741	C CE MI 1N5K100E2		I 1	R137394	U 4093B DIP14 P	1
C769	R111531	C EL RA 10M M 35E2 85		I 2	R134033	U 78L12AC TO92 P	1
C770	R114085	C POMERA 330N K 63E2 85		I 3	R134114	U 393 LM DIP8 P	1
C776	R111531	C EL RA 10M M 35E2 85		I 4	R134114	U 393 LM DIP8 P	1
C778	R111531	C EL RA 10M M 35E2 85		I184	R132827	U 8172 TDA H_W P	1
C800	R114090	C POMERA 1M K 63E2 85		I212	R132827	U 8172 TDA H_W P	1
C801	R114090	C POMERA 1M K 63E2 85		I230	R132827	U 8172 TDA H_W P	1
C802	R114090	C POMERA 1M K 63E2 85		I306	R134124	U 082 TL DIP8 P	1
D 1	R131621	D S 1N4148 075150 DO35		I369	R132833	U BELLA 4 DIP28 P	1
D 2	R131621	D S 1N4148 075150 DO35		I394	R132833	U BELLA 4 DIP28 P	1
D 3	R131621	D S 1N4148 075150 DO35		I409	R134028	U 317LZ LM TO92 P	1
D 5	B1319054	D R BYW97G 14203A SOD64	1	I410	R134029	U 337LZ TO92 P	1
D 6	B1319054	D R BYW97G 14203A SOD64	1	I441	R134032	U 78L05AC TO92 P	1
D 7	B1319054	D R BYW97G 14203A SOD64	1	I446	R134033	U 78L12AC TO92 P	1
D 8	R131621	D S 1N4148 075150 DO35		I459	R134034	U 79L12 TO92 P	1
D 9	R131621	D S 1N4148 075150 DO35		I624	R134124	U 082 TL DIP8 P	1
D 10	R131621	D S 1N4148 075150 DO35		I725	R137353	U 74LS14 DIP14 P	1
D 11	R1316361	D Y BAT85 030200 DO34		J 1	R313720	J MTA MBT P 6 M3,96SN RO	1
D 12	R131621	D S 1N4148 075150 DO35		J 2	R313720	J MTA MBT P 6 M3,96SN RO	1
D 13	R131621	D S 1N4148 075150 DO35		J 3	R313720	J MTA MBT P 6 M3,96SN RO	1
D 14	R131621	D S 1N4148 075150 DO35		J 4	R313927	J CT H MBT P 7 M2SN WH	1
D 15	R131621	D S 1N4148 075150 DO35		J 5	R313927	J CT H MBT P 7 M2SN WH	1
D 16	R131621	D S 1N4148 075150 DO35		J 6	R313927	J CT H MBT P 7 M2SN WH	1
D 17	R131621	D S 1N4148 075150 DO35		J 7	R313931	J CT H MBT P11 M2SN WH	1
D 18	R131637	D R BA158 600400 DO7		J 8	R313926	J CT H MBT P 6 M2SN WH	1
D 19	R1316217	D S 1N4148V 075150 DO35		J 9	R313925	J CT H MBT P 5 M2SN WH	1
D 20	R1316217	D S 1N4148V 075150 DO35		J 10	R313923	J CT H MBT P 3 M2SN WH	1
D 21	R1316217	D S 1N4148V 075150 DO35		J 11	R3137271	J MTA MBT P 5 M3,96SN RO	1
D 22	R1316217	D S 1N4148V 075150 DO35		J 12	R3137271	J MTA MBT P 5 M3,96SN RO	1
D 23	R1316217	D S 1N4148V 075150 DO35		J 13	R3137271	J MTA MBT P 5 M3,96SN RO	1
D 24	R1316217	D S 1N4148V 075150 DO35		J 14	R313929	J CT H MBT P 9 M2SN WH	1
D 25	R131621	D S 1N4148 075150 DO35		J 15	R313924	J CT H MBT P 4 M2SN WH	1
D 26	R131621	D S 1N4148 075150 DO35		J 16	R313928	J CT H MBT P 8 M2SN WH	1
D 27	R131637	D R BA158 600400 DO7		J 17	R313922	J CT H MBT P 2 M2SN WH	1
D 28	R131662	D LED D3 T RD	1	J 18	R313724	J MTA MBT P 4 M3,96 FL RO	1
D186	R131646	D R 1N4007 10201A DO41		L 1	R305913	CH MNS AX NS 12 UH 3A	1
D188	R131637	D R BA158 600400 DO7		L 4	R774151	COIL AMP PJ45 HOR DATA	1
D189	R131637	D R BA158 600400 DO7		L 5	R774151	COIL AMP PJ45 HOR DATA	1
D205	R131637	D R BA158 600400 DO7		L 6	R774151	COIL AMP PJ45 HOR DATA	1
D211	R131646	D R 1N4007 10201A DO41		L 7	R306222	CH TOR V 80 UH 2A	1
D213	R131637	D R BA158 600400 DO7		L100	R3061222	CH AX NS 1.5 UH	1
D223	R131637	D R BA158 600400 DO7		L101	R3061222	CH AX NS 1.5 UH	1
D229	R131646	D R 1N4007 10201A DO41		L102	R3061222	CH AX NS 1.5 UH	1
D231	R131637	D R BA158 600400 DO7		L534	R305913	CH MNS AX NS 12 UH 3A	1
D269	R1316217	D S 1N4148V 075150 DO35		L535	R305913	CH MNS AX NS 12 UH 3A	1
D274	R1316217	D S 1N4148V 075150 DO35		L571	R3061582	CH AX NS 1.5 MH	1
D280	R1316217	D S 1N4148V 075150 DO35		NTC1	R105016	R NTC 2K7 0W25	1
D526	R131621	D S 1N4148 075150 DO35		P 1	R106733	R TCE H100K K 0W5 S10TS	1
D527	R131621	D S 1N4148 075150 DO35		P239	R106727	R TCE H 2K K 0W5 S10TS	1
D528	R131621	D S 1N4148 075150 DO35		P240	R106727	R TCE H 2K K 0W5 S10TS	1
D529	R131621	D S 1N4148 075150 DO35		P676	R106727	R TCE H 2K K 0W5 S10TS	1
D625	R131621	D S 1N4148 075150 DO35		PC	R780199	PCB V700 DEF	1
D641	R131621	D S 1N4148 075150 DO35		Q 1	R1314295	Q BC549B N SS TO92	1
D730	R131621	D S 1N4148 075150 DO35		Q 2	R131411	Q BC549C N SS TO92	1
D731	R131621	D S 1N4148 075150 DO35		Q 3	R132552	Q BF423 P SS TO92	1
D738	R131621	D S 1N4148 075150 DO35		Q 5	R131411	Q BC549C N SS TO92	1
D745	R131621	D S 1N4148 075150 DO35		Q 6	R1314446	Q BD237 N P TO126	1
D754	R131621	D S 1N4148 075150 DO35		Q 7	R1314451	Q BD238 P P TO126	1
D755	R131621	D S 1N4148 075150 DO35		Q 8	R132918	Q IXTH12N100 FN P TO247	1
D773	R131733	D STB 2V 0W33 DO35		Q 9	R132918	Q IXTH12N100 FN P TO247	1
D819	R131662	D LED D3 T RD	1	Q 10	R132918	Q IXTH12N100 FN P TO247	1
D820	R131637	D R BA158 600400 DO7	1	Q 11	R131411	Q BC549C N SS TO92	1
F 1	R314184	F TR5 T 1A L UL	1				
F 2	R314184	F TR5 T 1A L UL	1				

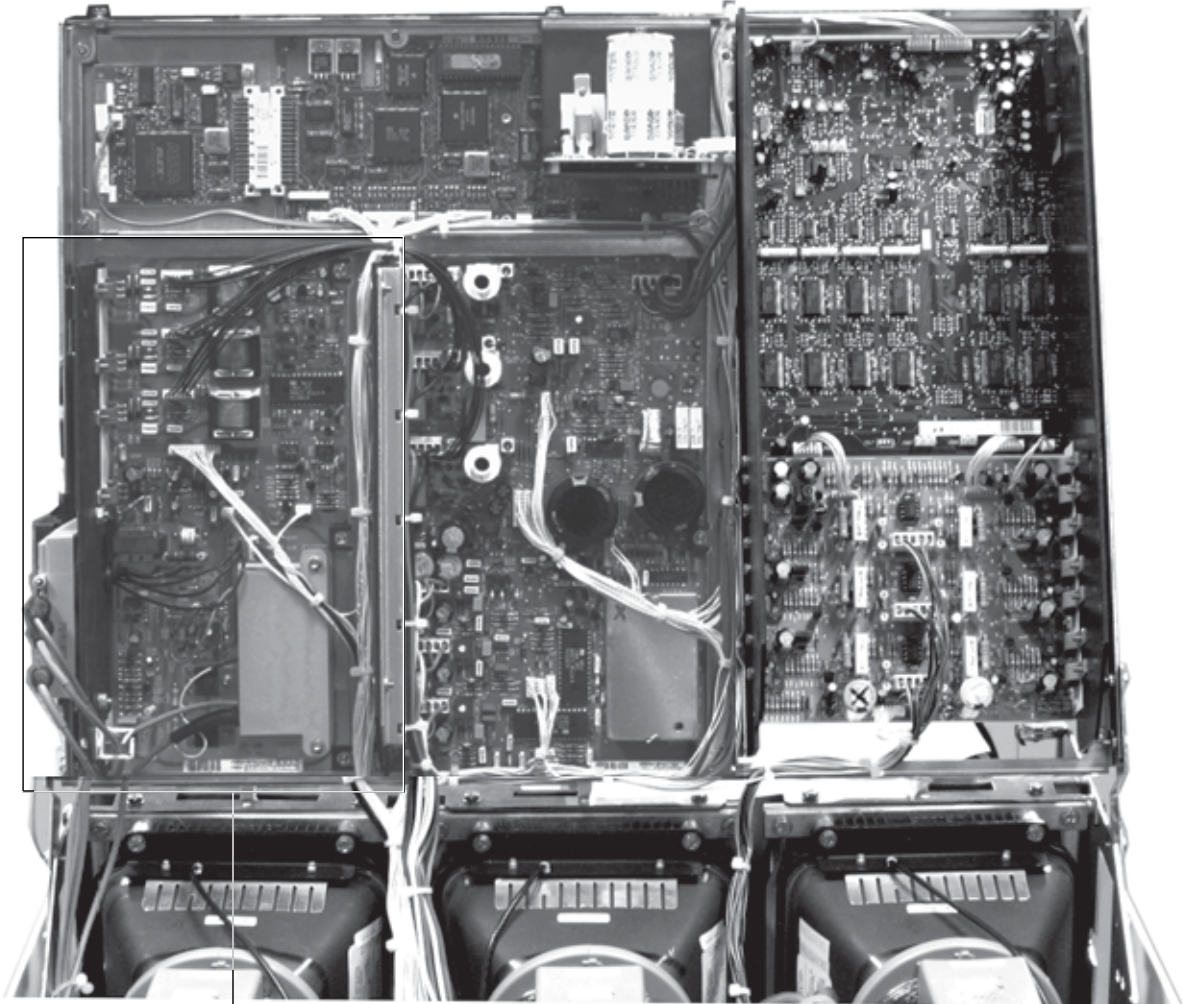
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
Q 12	R131411	Q BC549C N SS TO92		R 52	V1026337	R MF H 22K1 F 0W6 E4	
Q 13	R131411	Q BC549C N SS TO92		R 53	V1026506	R MF H 3K32F 0W6 E4	
Q 14	R131411	Q BC549C N SS TO92		R 54	V1026656	R MF H 4K75F 0W6 E4	
Q 15	R131411	Q BC549C N SS TO92	1	R 55	V1026657	R MF H 47K5 F 0W6 E4	
Q284	V132575	Q BC517 DN SS TO92		R 56	V1026806	R MF H 6K81F 0W6 E4	
Q563	R131411	Q BC549C N SS TO92		R 57	V1026657	R MF H 47K5 F 0W6 E4	
Q564	R131411	Q BC549C N SS TO92	1	R 58	V1026006	R MF H 1K F 0W6 E4	
Q565	R131411	Q BC549C N SS TO92		R 59	V1026576	R MF H 3K92F 0W6 E4	
Q626	R131411	Q BC549C N SS TO92	1	R 60	V1026886	R MF H 8K25F 0W6 E4	
Q629	R1314182	Q BC559C P SS TO92	1	R 61	V1026886	R MF H 8K25F 0W6 E4	
Q634	R1314072	Q BC547A N SS TO92	1	R 62	V1026008	R MF H100K F 0W6 E4	
Q647	R131411	Q BC549C N SS TO92	1	R 63	V1026506	R MF H 3K32F 0W6 E4	
Q682	R1314181	Q BC559B P SS TO92		R 64	R101462	R MF H150K J 2W E7	1
Q698	R1314182	Q BC559C P SS TO92	1	R 65	R101462	R MF H150K J 2W E7	1
Q702	R131411	Q BC549C N SS TO92		R 66	R100131	R MF V390E J 0W6 E2	1
Q705	R1314182	Q BC559C P SS TO92		R 67	R100136	R MF V 1K J 0W6 E2	1
Q723	R1314182	Q BC559C P SS TO92	1	R 68	R103600	R VVW H E1 J 4W E10	1
Q744	R131411	Q BC549C N SS TO92	1	R 69	V1026005	R MF H100E F 0W6 E4	
Q763	R1314182	Q BC559C P SS TO92	1	R 70	V1026008	R MF H100K F 0W6 E4	
Q772	R1314072	Q BC547A N SS TO92		R192	R101546	R MF H 6K8 F 0W4 E3	
R 1	V1026337	R MF H 22K1 F 0W6 E4		R193	R101548	R MF H 10K F 0W4 E3	
R 2	R101549	R MF H 12K F 0W4 E3		R194	R101553	R MF H 27K F 0W4 E3	
R 3	V1026575	R MF H392E F 0W6 E4		R195	R1015377	R MF H 24K3 F 0W4 E3	
R 4	V1026006	R MF H 1K F 0W6 E4		R198	R101500	R MF H 1E F 0W4 E3	
R 5	V1026657	R MF H 47K5 F 0W6 E4		R199	R101525	R MF H120E F 0W4 E3	
R 6	V1026008	R MF H100K F 0W6 E4		R200	R101404	R MF H 2E2 J 2W E7	1
R 7	V1026507	R MF H 33K2 F 0W6 E4		R206	R101500	R MF H 1E F 0W4 E3	
R 8	R101540	R MF H 2K2 F 0W4 E3		R207	R101546	R MF H 6K8 F 0W4 E3	
R 9	R101536	R MF H 1K F 0W4 E3		R210	V1026926	R MF H 9K09F 0W6 E4	1
R 13	R103248	R MO H 10K J 2W E10	1	R216	R1015377	R MF H 24K3 F 0W4 E3	
R 14	R103600	R VVW H E1 J 4W E10	1	R217	R101404	R MF H 2E2 J 2W E7	1
R 16	R103606	R VVW H E33K 4W E10	1	R218	R101571	R MF H820K F 0W4 E3	
R 17	R103606	R VVW H E33K 4W E10	1	R220	R101525	R MF H120E F 0W4 E3	
R 18	R103606	R VVW H E33K 4W E10	1	R224	R101500	R MF H 1E F 0W4 E3	
R 19	R103660	R VVW H 1K K 4W E10	1	R225	R101546	R MF H 6K8 F 0W4 E3	
R 20	R103660	R VVW H 1K K 4W E10	1	R228	V1026926	R MF H 9K09F 0W6 E4	1
R 21	R103660	R VVW H 1K K 4W E10	1	R234	R1015377	R MF H 24K3 F 0W4 E3	
R 22	R100130	R MF V330E J 0W6 E2	1	R235	R101404	R MF H 2E2 J 2W E7	1
R 23	R100131	R MF V390E J 0W6 E2	1	R236	R101571	R MF H820K F 0W4 E3	
R 24	R101568	R MF H470K F 0W4 E3		R238	R101525	R MF H120E F 0W4 E3	
R 25	R101564	R MF H220K F 0W4 E3		R241	R101524	R MF H100E F 0W4 E3	
R 26	V1026176	R MF H 1K5 F 0W6 E4		R242	R101553	R MF H 27K F 0W4 E3	
R 27	V1026006	R MF H 1K F 0W6 E4		R243	R101524	R MF H100E F 0W4 E3	
R 28	V1026334	R MF H 22E1 F 0W6 E4		R244	R101553	R MF H 27K F 0W4 E3	
R 29	V1026334	R MF H 22E1 F 0W6 E4		R245	R101548	R MF H 10K F 0W4 E3	
R 30	V1026334	R MF H 22E1 F 0W6 E4		R258	R101561	R MF H120K F 0W4 E3	
R 31	R104654	R HV H 1M J 0W5 3500	1	R259	R101561	R MF H120K F 0W4 E3	
R 32	R104654	R HV H 1M J 0W5 3500	1	R266	R101555	R MF H 39K F 0W4 E3	
R 33	R104654	R HV H 1M J 0W5 3500	1	R268	R101561	R MF H120K F 0W4 E3	
R 34	V1026086	R MF H 1K21F 0W6 E4		R270	R101561	R MF H120K F 0W4 E3	
R 35	V1026086	R MF H 1K21F 0W6 E4		R275	R101555	R MF H 39K F 0W4 E3	
R 36	V1026086	R MF H 1K21F 0W6 E4		R276	R101561	R MF H120K F 0W4 E3	
R 37	V1026257	R MF H 18K2 F 0W6 E4		R281	R101555	R MF H 39K F 0W4 E3	
R 38	V1026257	R MF H 18K2 F 0W6 E4		R282	R100158	R MF V 68K J 0W6 E2	1
R 39	V1026257	R MF H 18K2 F 0W6 E4		R285	V1026005	R MF H100E F 0W6 E4	
R 41	V1026576	R MF H 3K92F 0W6 E4		R389	R101537	R MF H 1K2 F 0W4 E3	
R 42	V1026005	R MF H100E F 0W6 E4		R390	R101535	R MF H820E F 0W4 E3	
R 43	R104664	R HV H 2M7 J 0W5 3500		R396	R101551	R MF H 18K F 0W4 E3	
R 44	R104690	R HV H 33M J 0W5 3500		R397	R101548	R MF H 10K F 0W4 E3	
R 45	V1026258	R MF H182K F 0W6 E4		R398	R101542	R MF H 3K3 F 0W4 E3	
R 46	V1026337	R MF H 22K1 F 0W6 E4		R399	V1026005	R MF H100E F 0W6 E4	
R 47	V1026655	R MF H475E F 0W6 E4		R400	V1026257	R MF H 18K2 F 0W6 E4	
R 48	V1026007	R MF H 10K F 0W6 E4		R401	V1026005	R MF H100E F 0W6 E4	
R 49	V1026007	R MF H 10K F 0W6 E4		R402	V1026006	R MF H 1K F 0W6 E4	
R 50	V1026006	R MF H 1K F 0W6 E4		R404	V1026655	R MF H475E F 0W6 E4	
R 51	V1026337	R MF H 22K1 F 0W6 E4		R405	V1026175	R MF H150E F 0W6 E4	
				R412	V1026335	R MF H221E F 0W6 E4	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY	
R413	V1026505	R MF H332E F 0W6 E4		R732	R101536	R MF H 1K F 0W4 E3		
R414	V1026085	R MF H121E F 0W6 E4		R735	R101544	R MF H 4K7 F 0W4 E3		
R415	V1026574	R MF H 39E2 F 0W6 E4		R741	R101556	R MF H 47K F 0W4 E3		
R513	R101548	R MF H 10K F 0W4 E3		R742	R101548	R MF H 10K F 0W4 E3		
R516	V1026005	R MF H100E F 0W6 E4		R749	R101545	R MF H 5K6 F 0W4 E3		
R523	V1026005	R MF H100E F 0W6 E4		R752	R101545	R MF H 5K6 F 0W4 E3		
R524	R101536	R MF H 1K F 0W4 E3		R756	R101536	R MF H 1K F 0W4 E3		
R525	V1026005	R MF H100E F 0W6 E4		R757	R101550	R MF H 15K F 0W4 E3		
R566	R101562	R MF H150K F 0W4 E3		R759	R101550	R MF H 15K F 0W4 E3		
R567	R101562	R MF H150K F 0W4 E3		R761	R101550	R MF H 15K F 0W4 E3		
R568	R101562	R MF H150K F 0W4 E3		R767	R101548	R MF H 10K F 0W4 E3		
R571	R101536	R MF H 1K F 0W4 E3		R768	R101544	R MF H 4K7 F 0W4 E3		
R627	R101557	R MF H 56K F 0W4 E3		R771	R101515	R MF H 18E F 0W4 E3		
R632	R101548	R MF H 10K F 0W4 E3		R774	R1001909	R CFFV E1 K 0W4 E1	1	
R633	R101537	R MF H 1K2 F 0W4 E3		R775	R1001909	R CFFV E1 K 0W4 E1	1	
R634	R101536	R MF H 1K F 0W4 E3		R780	R1015471	R MF H 7K5 F 0W4 E3		
R635	R101549	R MF H 12K F 0W4 E3		R826	R101572	R MF H 1M F 0W4 E3		
R636	R101548	R MF H 10K F 0W4 E3		R827	R101572	R MF H 1M F 0W4 E3		
R637	R7621127TUN G1209S NONRETRIG VOSC		1	R828	R101572	R MF H 1M F 0W4 E3		
R638	R101538	R MF H 1K5 F 0W4 E3		SR 1	R1011907	R CFFH E1 K 0W35	△	
R642	R101533	R MF H560E F 0W4 E3		SR 2	R1011169	R CFFH 22E J 0W25	△△	
R649	R101536	R MF H 1K F 0W4 E3		SR 3	R1003009	R CFFV 1E J 0W25 E1	△	1
R678	R101547	R MF H 8K2 F 0W4 E3		SR 6	R1011907	R CFFH E1 K 0W35	△	
R684	R101536	R MF H 1K F 0W4 E3		SR 7	R1011907	R CFFH E1 K 0W35	△	
R687	R101515	R MF H 18E F 0W4 E3		SR 8	R1011907	R CFFH E1 K 0W35	△	
R692	R101559	R MF H 82K F 0W4 E3		SR 9	R1011907	R CFFH E1 K 0W35	△	
R697	R101544	R MF H 4K7 F 0W4 E3		W186	R348108	WU JUMP 0,6 22,5		1
R700	R101548	R MF H 10K F 0W4 E3		Z 1	R131730	D ZEN 20V 0W5 C DO35		
R704	R101560	R MF H100K F 0W4 E3		Z 2	R131720	D ZEN 6V2 0W5 C DO35		
R706	R101544	R MF H 4K7 F 0W4 E3		Z 4	R131720	D ZEN 6V2 0W5 C DO35		
R708	R101550	R MF H 15K F 0W4 E3		Z562	R131728	D ZEN 11V 0W5 C DO35		1
R710	R101552	R MF H 22K F 0W4 E3		Z714	R131744	D ZEN 5V6 0W5 C DO35		
R711	R101548	R MF H 10K F 0W4 E3		Z750	R131754	D ZEN 3V3 0W5 C DO35		
R712	R101532	R MF H470E F 0W4 E3		Z753	R131754	D ZEN 3V3 0W5 C DO35		
R713	R101536	R MF H 1K F 0W4 E3			R762447A	UN D700 DEF		1
R719	R101536	R MF H 1K F 0W4 E3		PRODUCT SAFETY NOTICE Components identified by △ have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.				
R720	R101536	R MF H 1K F 0W4 E3						
R721	R101559	R MF H 82K F 0W4 E3						
R722	R101548	R MF H 10K F 0W4 E3						
R724	R101542	R MF H 3K3 F 0W4 E3						
R726	R101541	R MF H 2K7 F 0W4 E3	1					
R727	R101541	R MF H 2K7 F 0W4 E3	1					

Parts listing Sub module 762449

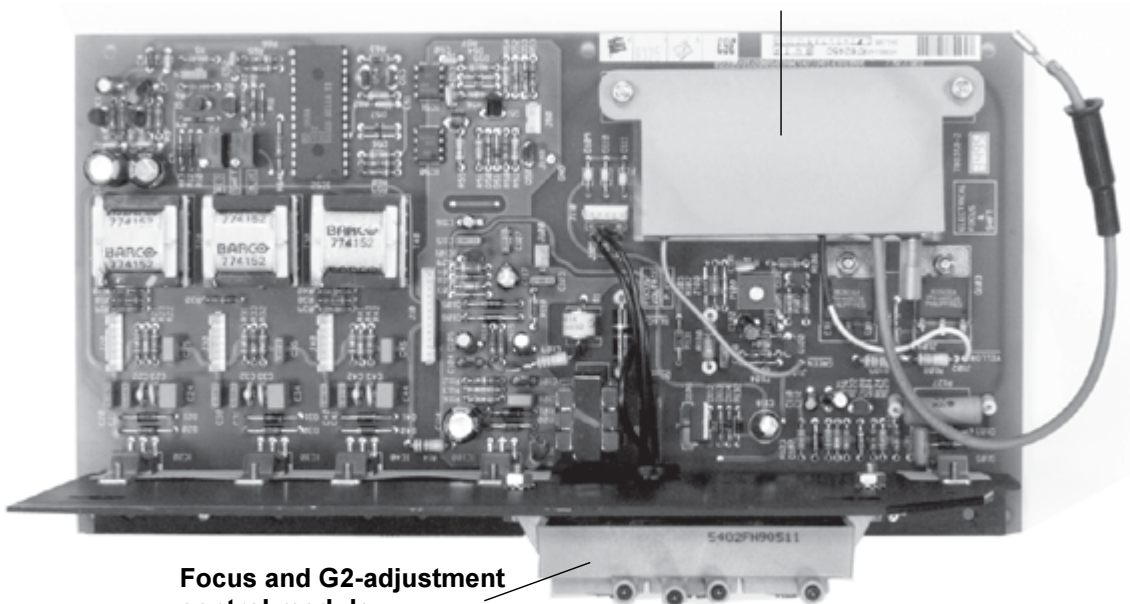
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R805060	SPRCL 1 D6 D10 FIYE	1	P 1	R101550	R MF H 15K F 0W4 E3	1
110	R315315	J RVT MBT D2 L14	2	P 2	R1015401	R MF H 2K F 0W4 E3	1
120	R805376	HTSN C PJ53 D700 LIN C	1	PC	R780356	PCB *700 DEF LIN_CTRL	1
130	R3631059	SCR Z933 M 3 X 8 SS	4	Q 1	R132593	Q BUZ74A FN P TO220	1
140	R804832	HTSN A GEN SPG 1XM3 LG	1	R 1	R103254	R MO H 33K J 2W E10	1
160	R3631059	SCR Z933 M 3 X 8 SS	1	R 2	R103254	R MO H 33K J 2W E10	1
170	R133074	HTSN@A _L_SIL W30		R 3	R101538	R MF H 1K5 F 0W4 E3	1
180	R802827	FRM V700 LIN CTRL CPL	1	R 4	R103224	R MO H100E J 2W	1
190	R802665	FRM49 HOR CORE LIN FIX	1	R 5	R103640	R WW H220E J 4W E10	1
200	R802751	COIL LIN PJ49 POSITION	1	T 1	R774306	T G800 LIN CTRL	1
210	R362020	SCR D84 M 3 X 4 STZN	2	T 1E	R774153	COIL D**HR HOR LIN	1
211	R367502	SPR D6798AD 3,2D 6 STZN	2	Z 1	R131765	D ZEN 27V 0W5 B DO35	1
C 1	R111546	C EL RA 1M M 50E2 85	1	Z 3	R131729	D ZEN 4V7 0W5 C DO35	1
D 1	R131906	D R BYV96E 1021A5 SOD57	1				
D 2	R131733	D STB 2V 0W33 DO35	1				
J 1	R313725	J MTA MBS P 4 M3,96SN SQ	1				





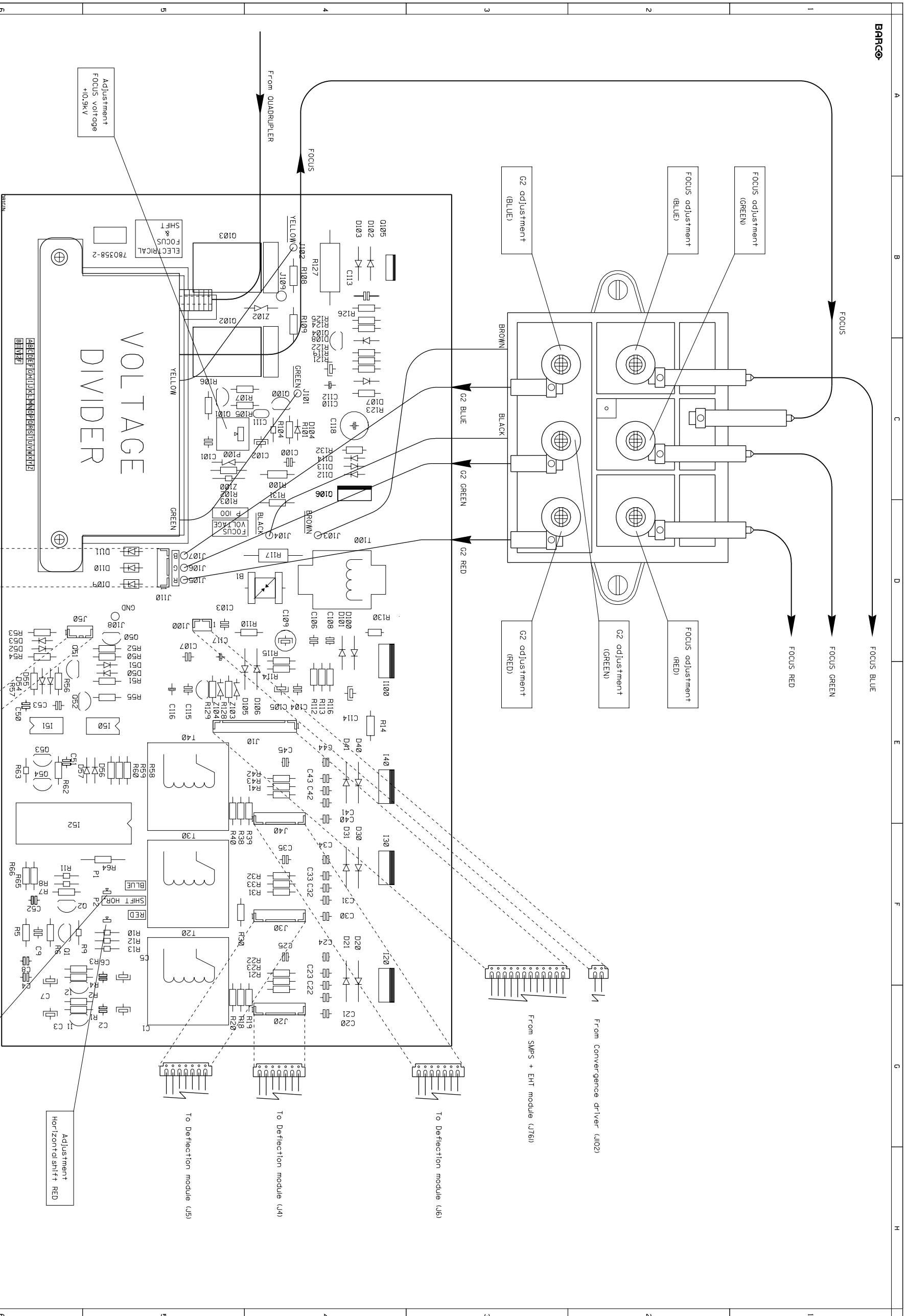
Shift + Focus control module

Focus Stabilizer R762155



Focus and G2-adjustment control module

Art No.: R762450 Rev.: 01



Name	FOCUS + SHIFT MODULE			Sheet	1/1
Module No.	index	PCB No.	Rev.		
D01 76 2450	5	780358	2		
D01 14-01-1998	Drwan	Checked	MBU		

BARCO PROJECTION SYSTEMS

To RGB DRIVER (V701-J222)
(V700 & D701-J580)

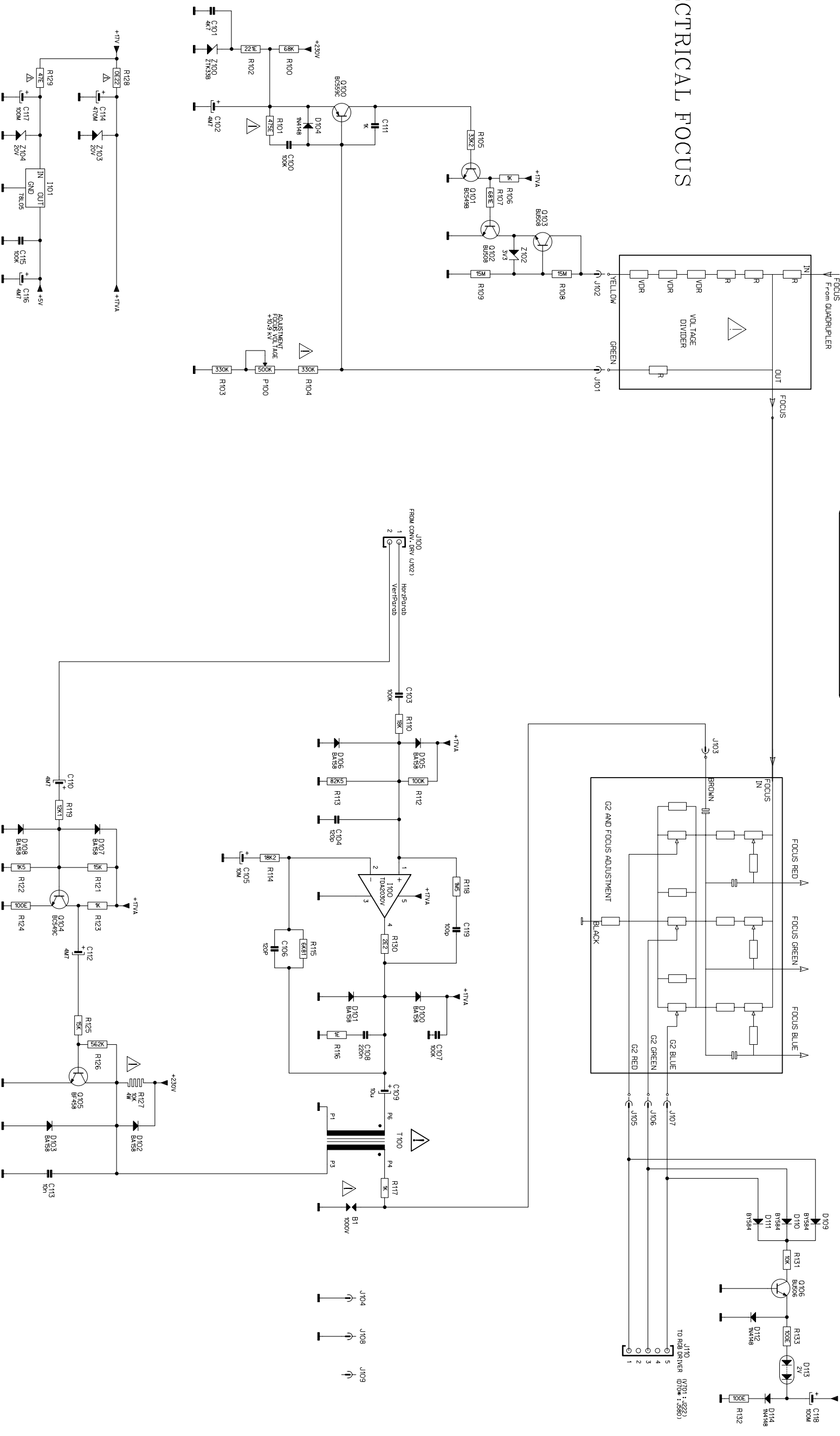
Modifications reserved

Modifications reserved

COMP.	LOC.	COMP.	LOC.
B1	D 5	R21	F 4
C1	D 5	R23	F 4
C3	F 6	R30	F 5
C4	F 6	R31	F 5
C5	F 5	R32	F 4
C6	F 5	R33	F 4
C7	F 6	R34	F 5
C8	F 6	R35	F 5
C9	F 6	R36	F 4
C10	F 6	R37	F 4
C11	F 6	R38	F 4
C12	F 6	R39	F 4
C13	F 6	R40	F 4
C14	F 6	R41	F 4
C15	F 6	R42	F 4
C16	F 6	R43	F 4
C17	F 6	R44	F 4
C18	F 6	R45	F 4
C19	F 6	R46	F 4
C20	F 6	R47	F 4
C21	F 6	R48	F 4
C22	F 6	R49	F 4
C23	F 6	R50	F 4
C24	F 6	R51	F 4
C25	F 6	R52	F 4
C26	F 6	R53	F 4
C27	F 6	R54	F 4
C28	F 6	R55	F 4
C29	F 6	R56	F 4
C30	F 6	R57	F 4
C31	F 6	R58	F 4
C32	F 6	R59	F 4
C33	F 6	R60	F 4
C34	F 6	R61	F 4
C35	F 6	R62	F 4
C36	F 6	R63	F 4
C37	F 6	R64	F 4
C38	F 6	R65	F 4
C39	F 6	R66	F 4
C40	F 6	R67	F 4
C41	F 6	R68	F 4
C42	F 6	R69	F 4
C43	F 6	R70	F 4
C44	F 6	R71	F 4
C45	F 6	R72	F 4
C46	F 6	R73	F 4
C47	F 6	R74	F 4
C48	F 6	R75	F 4
C49	F 6	R76	F 4
C50	F 6	R77	F 4
C51	F 6	R78	F 4
C52	F 6	R79	F 4
C53	F 6	R80	F 4
C54	F 6	R81	F 4
C55	F 6	R82	F 4
C56	F 6	R83	F 4
C57	F 6	R84	F 4
C58	F 6	R85	F 4
C59	F 6	R86	F 4
C60	F 6	R87	F 4
C61	F 6	R88	F 4
C62	F 6	R89	F 4
C63	F 6	R90	F 4
C64	F 6	R91	F 4
C65	F 6	R92	F 4
C66	F 6	R93	F 4
C67	F 6	R94	F 4
C68	F 6	R95	F 4
C69	F 6	R96	F 4
C70	F 6	R97	F 4
C71	F 6	R98	F 4
C72	F 6	R99	F 4
C73	F 6	R00	F 4
C74	F 6	R01	F 4
C75	F 6	R02	F 4
C76	F 6	R03	F 4
C77	F 6	R04	F 4
C78	F 6	R05	F 4
C79	F 6	R06	F 4
C80	F 6	R07	F 4
C81	F 6	R08	F 4
C82	F 6	R09	F 4
C83	F 6	R10	F 4
C84	F 6	R11	F 4
C85	F 6	R12	F 4
C86	F 6	R13	F 4
C87	F 6	R14	F 4
C88	F 6	R15	F 4
C89	F 6	R16	F 4
C90	F 6	R17	F 4
C91	F 6	R18	F 4
C92	F 6	R19	F 4
C93	F 6	R20	F 4
C94	F 6	R21	F 4
C95	F 6	R22	F 4
C96	F 6	R23	F 4
C97	F 6	R24	F 4
C98	F 6	R25	F 4
C99	F 6	R26	F 4
C100	F 6	R27	F 4
C101	F 6	R28	F 4
C102	F 6	R29	F 4
C103	F 6	R30	F 4
C104	F 6	R31	F 4
C105	F 6	R32	F 4
C106	F 6	R33	F 4
C107	F 6	R34	F 4
C108	F 6	R35	F 4
C109	F 6	R36	F 4
C110	F 6	R37	F 4
C111	F 6	R38	F 4
C112	F 6	R39	F 4
C113	F 6	R40	F 4
C114	F 6	R41	F 4
C115	F 6	R42	F 4
C116	F 6	R43	F 4
D1	F 6	R44	F 4
D2	F 6	R45	F 4
D3	F 6	R46	F 4
D4	F 6	R47	F 4
D5	F 6	R48	F 4
D6	F 6	R49	F 4
D7	F 6	R50	F 4
D8	F 6	R51	F 4
D9	F 6	R52	F 4
D10	F 6	R53	F 4
D11	F 6	R54	F 4
D12	F 6	R55	F 4
D13	F 6	R56	F 4
D14	F 6	R57	F 4
D15	F 6	R58	F 4
D16	F 6	R59	F 4
D17	F 6	R60	F 4
D18	F 6	R61	F 4
D19	F 6	R62	F 4
D20	F 6	R63	F 4
D21	F 6	R64	F 4
D22	F 6	R65	F 4
D23	F 6	R66	F 4
D24	F 6	R67	F 4
D25	F 6	R68	F 4
D26	F 6	R69	F 4
D27	F 6	R70	F 4
D28	F 6	R71	F 4
D29	F 6	R72	F 4
D30	F 6	R73	F 4
D31	F 6	R74	F 4
D32	F 6	R75	F 4
D33	F 6	R76	F 4
D34	F 6	R77	F 4
D35	F 6	R78	F 4
D36	F 6	R79	F 4
D37	F 6	R80	F 4
D38	F 6	R81	F 4
D39	F 6	R82	F 4
D40	F 6	R83	F 4
D41	F 6	R84	F 4
D42	F 6	R85	F 4
D43	F 6	R86	F 4
D44	F 6	R87	F 4
D45	F 6	R88	F 4
D46	F 6	R89	F 4
D47	F 6	R90	F 4
D48	F 6	R91	F 4
D49	F 6	R92	F 4
D50	F 6	R93	F 4
D51	F 6	R94	F 4
D52	F 6	R95	F 4
D53	F 6	R96	F 4
D54	F 6	R97	F 4
D55	F 6	R98	F 4
D56	F 6	R99	F 4
D57	F 6	R00	F 4
D58	F 6	R01	F 4
D59	F 6	R02	F 4
D60	F 6	R03	F 4
D61	F 6	R04	F 4
D62	F 6	R05	F 4
D63	F 6	R06	F 4
D64	F 6	R07	F 4
D65	F 6	R08	F 4
D66	F 6	R09	F 4
D67	F 6	R10	F 4
D68	F 6	R11	F 4
D69	F 6	R12	F 4
D70	F 6	R13	F 4
D71	F 6	R14	F 4
D72	F 6	R15	F 4
D73	F 6	R16	F 4
D74	F 6	R17	F 4
D75	F 6	R18	F 4
D76	F 6	R19	F 4
D77	F 6	R20	F 4
D78	F 6	R21	F 4
D79	F 6	R22	F 4
D80	F 6	R23	F 4
D81	F 6	R24	F 4
D82	F 6	R25	F 4
D83	F 6	R26	F 4
D84	F 6	R27	F 4
D85	F 6	R28	F 4
D86	F 6	R29	F 4
D87	F 6	R30	F 4
D88	F 6	R31	F 4
D89	F 6	R32	F 4
D90	F 6	R33	F 4
D91	F 6	R34	F 4
D92	F 6	R35	F 4
D93	F 6	R36	F 4
D94	F 6	R37	F 4
D95	F 6	R38	F 4
D96	F 6	R39	F 4
D97	F 6	R40	F 4
D98	F 6	R41	F 4
D99	F 6	R42	F 4
D00	F 6	R43	F 4
D01	F 6	R44	F 4
D02	F 6	R45	F 4
D03	F 6	R46	F 4
D04	F 6	R47	F 4
D05	F 6	R48	F 4
D06	F 6	R49	F 4
D07	F 6	R50	F 4
D08	F 6	R51	F 4
D09	F 6	R52	F 4
D10	F 6	R53	F 4
D11	F 6	R54	F 4
D12	F 6	R55	F 4
D13	F 6	R56	F 4
D14	F 6	R57	F 4
D15	F 6	R58	F 4
D16	F 6	R59	F 4
D17	F 6	R60	F 4
D18	F 6	R61	F 4
D19	F 6	R62	F 4
D20	F 6	R63	F 4
D21	F 6	R64	F 4
D22	F 6	R65	F 4
D23	F 6	R66	F 4
D24	F 6	R67	F 4
D25	F 6	R68	F 4
D26	F 6	R69	F 4
D27	F 6	R70	F 4
D28	F 6	R71	F 4
D29	F 6	R72	F 4
D30	F 6	R73	F 4
D31	F 6	R74	F 4
D32	F 6	R75	F 4
D33	F 6	R76	F 4
D34	F 6	R77	F 4
D35	F 6	R78	F 4
D36	F 6	R79	F 4
D37	F 6	R80	F 4
D38	F 6	R81	F 4
D39	F 6	R82	F 4
D40	F 6	R83	F 4
D41	F 6	R84	F 4
D42	F 6	R85	F 4
D43	F 6	R86	F 4
D44	F 6	R87	F 4
D45	F 6	R88	F 4
D46	F 6	R89	F 4
D47	F 6	R90	F 4
D48	F 6	R91	F 4
D49	F 6	R92	F 4
D50	F 6	R93	F 4
D51	F 6	R94	F 4
D52	F 6	R95	F 4
D53	F 6	R96	F 4
D54	F 6	R97	F 4
D55	F 6	R98	F 4
D56	F 6	R99	F 4
D57	F 6	R00	F 4
D58	F 6	R01	F 4
D59	F 6	R02	F 4
D60	F 6	R03	F 4
D61	F 6	R04	F 4
D62	F 6	R05	F 4
D63	F 6	R06	F 4
D64	F 6	R07	F 4
D65	F 6	R08	F 4
D66	F 6	R09	F 4
D67	F 6	R10	F 4
D68	F 6	R11	F 4
D69	F 6	R12	F 4
D70	F 6	R13	F 4
D71	F 6	R14	F 4
D72	F 6	R15	F 4
D73	F 6	R16	F 4
D74	F 6	R17	F 4
D75	F 6	R18	F 4
D76	F 6	R19	F 4
D77	F 6	R20	F 4
D78	F 6	R21	F 4
D79	F 6	R22	F 4
D80	F 6	R23	F 4
D81	F 6	R24	F 4
D82	F 6	R25	F 4
D83	F 6	R26	F 4
D84	F 6	R27	F 4
D85	F 6	R28	F 4
D86	F 6	R29	F 4
D87	F 6	R30	F 4
D88	F 6	R31	F 4
D89	F 6	R32	F 4
D90	F 6	R33	F 4
D91	F 6	R34	F 4
D92	F 6	R35	F 4
D93	F 6	R36	F 4
D94	F 6	R37	F 4
D95	F 6	R38	F 4
D96	F 6	R39	F 4
D97	F 6	R40	F 4
D98	F 6	R41	F 4
D99	F 6	R42	F 4
D00	F 6	R43	F 4
D01	F 6	R44	F 4
D02	F 6	R45	F 4
D03	F 6	R46	F 4
D04	F 6	R47	F 4
D05	F 6	R48	F 4
D06	F 6	R49	F 4
D07	F 6	R50	F 4
D08	F 6	R51	F 4
D09	F 6	R52	F 4
D10	F 6	R53	F 4
D11	F 6	R54	F 4
D12	F 6	R55	F 4
D13	F 6	R56	F 4
D14	F 6	R57	F 4
D15	F 6	R58	F 4
D16	F 6	R59	F 4
D17	F 6	R60	F 4
D18	F 6	R61	F 4
D19	F 6	R62	F 4
D20	F 6	R63	F 4
D21	F 6	R64	F 4
D22	F 6	R65	F 4
D23	F 6	R66	F 4
D24	F 6	R67	F 4
D25	F 6	R68	F 4
D26	F 6	R69	F 4
D27	F 6	R70	F 4
D28	F 6	R71	F 4
D29	F 6	R72	F 4
D30	F 6	R73	F 4
D31	F 6	R74	F 4
D32			

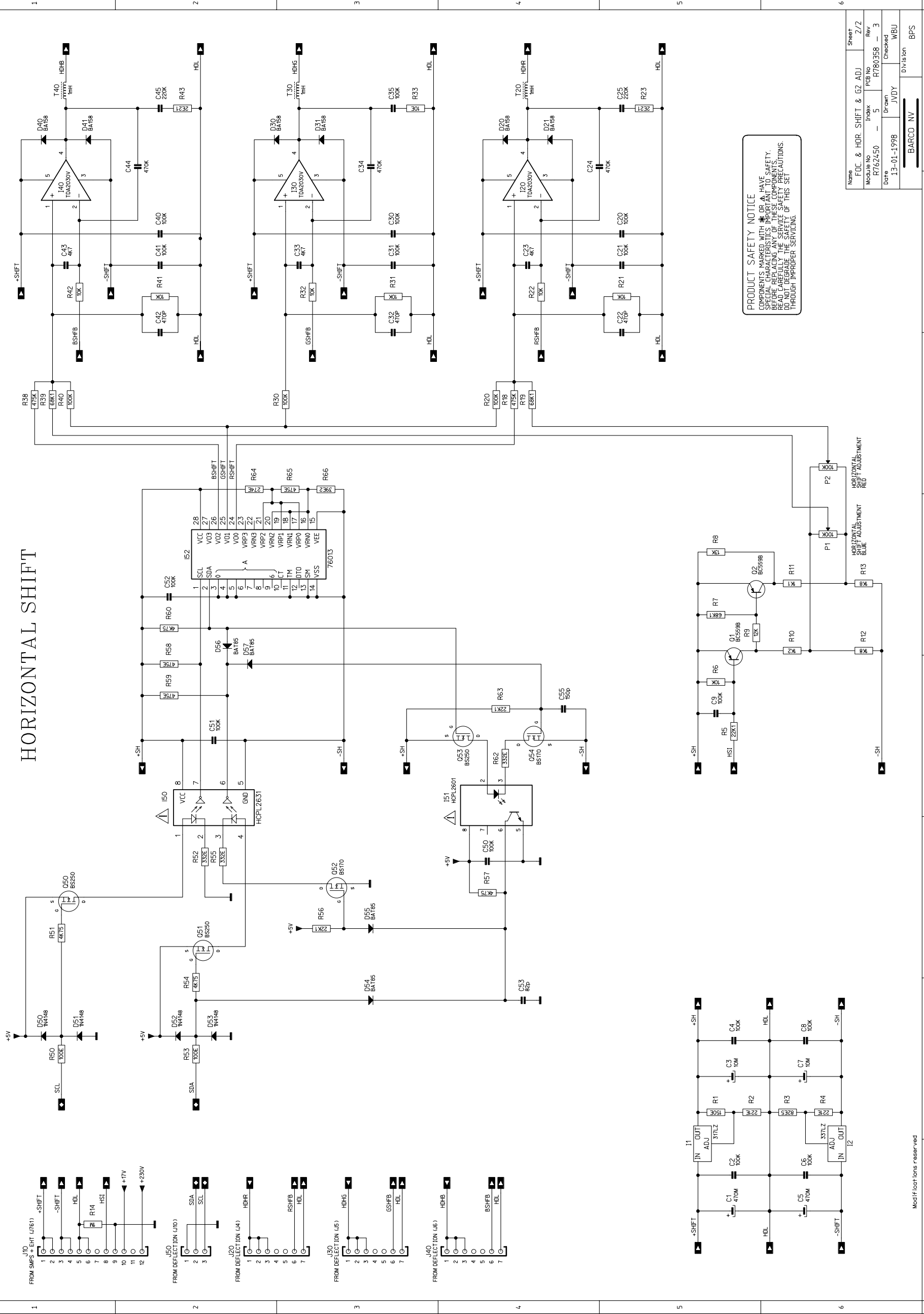
PRODUCT SAFETY NOTICE
 COMPONENTS MARKED WITH * OR A HAVE SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SOLDERING.

ELECTRICAL FOCUS



Name		FOCUS & SHFT & G2 ADJ		Sheet	
Module No		R762450		1/2	
Index		5		Rev	
Date		13-01-1998		3	
Checked		JVDY		WBUL	
Dwg Size		BARCO NV		BPS	

HORIZONTAL SHIFT



COMP.	LOC. SH.	LOC. SH.
B1	1	1
B2	2	2
B3	3	3
B4	4	4
B5	5	5
B6	6	6
B7	7	7
B8	8	8
B9	9	9
B10	10	10
B11	11	11
B12	12	12
B13	13	13
B14	14	14
B15	15	15
B16	16	16
B17	17	17
B18	18	18
B19	19	19
B20	20	20
B21	21	21
B22	22	22
B23	23	23
B24	24	24
B25	25	25
B26	26	26
B27	27	27
B28	28	28
B29	29	29
B30	30	30
B31	31	31
B32	32	32
B33	33	33
B34	34	34
B35	35	35
B36	36	36
B37	37	37
B38	38	38
B39	39	39
B40	40	40
B41	41	41
B42	42	42
B43	43	43
B44	44	44
B45	45	45
B46	46	46
B47	47	47
B48	48	48
B49	49	49
B50	50	50
B51	51	51
B52	52	52
B53	53	53
B54	54	54
B55	55	55
B56	56	56
B57	57	57
B58	58	58
B59	59	59
B60	60	60
B61	61	61
B62	62	62
B63	63	63
B64	64	64
B65	65	65
B66	66	66
B67	67	67
B68	68	68
B69	69	69
B70	70	70
B71	71	71
B72	72	72
B73	73	73
B74	74	74
B75	75	75
B76	76	76
B77	77	77
B78	78	78
B79	79	79
B80	80	80
B81	81	81
B82	82	82
B83	83	83
B84	84	84
B85	85	85
B86	86	86
B87	87	87
B88	88	88
B89	89	89
B90	90	90
B91	91	91
B92	92	92
B93	93	93
B94	94	94
B95	95	95
B96	96	96
B97	97	97
B98	98	98
B99	99	99
B100	100	100

Name	FOC. & HOR. SHIFT & GZ ADJ	Sheet	2/2
Module No	R762450	Index	5
Date	13-01-1998	Rev	R780358 - 3
Drawn	JVDY	Checked	WBU
Division	BARCO NV		

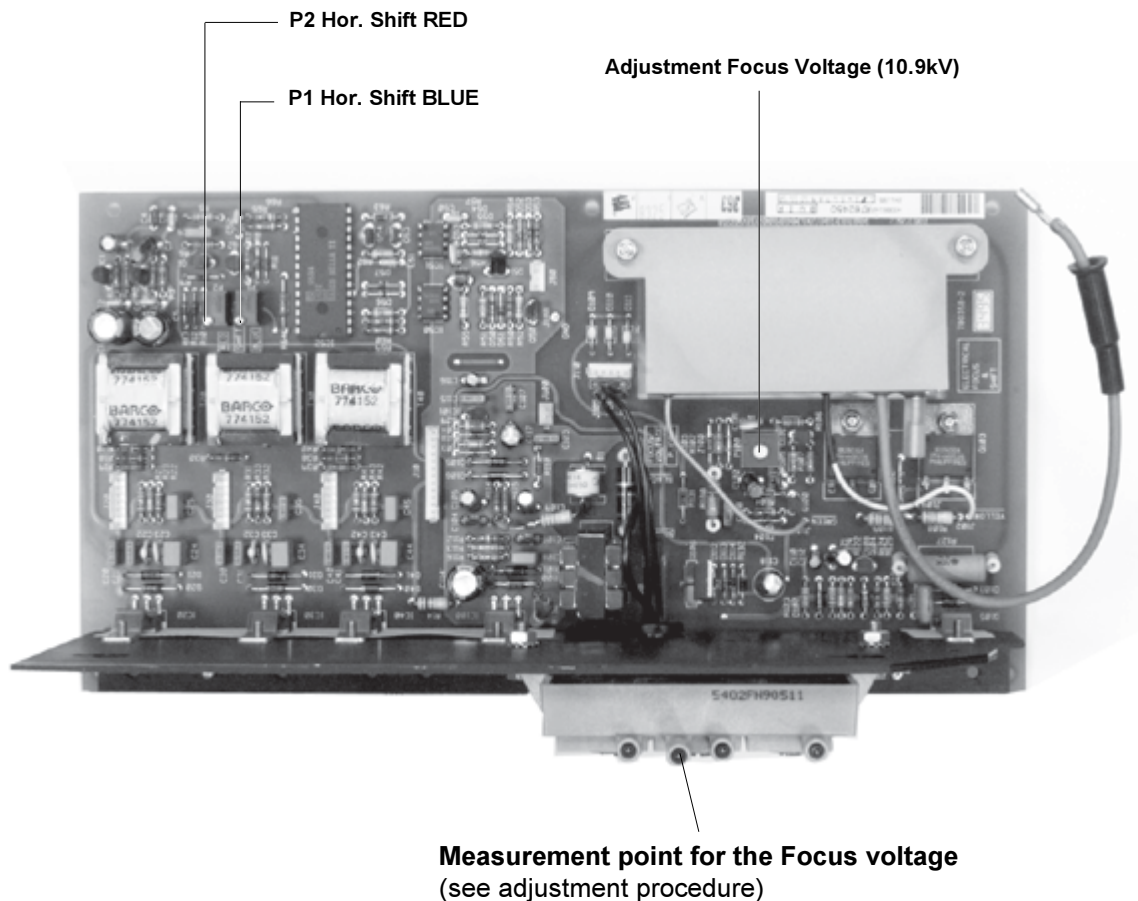
PRODUCT SAFETY NOTICE
 COMPONENTS MARKED WITH * OR A HAVE SAFETY CRITICAL FUNCTIONS. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

Modifications reserved

Adjustment procedure

Adjustments

Location of adjustment controls



Introduction

The following adjustments are provided on the module:

- Pre-adjustment of the Horizontal Shift range for the RED (P2) and BLUE (P1) picture.
- Adjustment of the FOCUS Voltage P100.

Horizontal Shift range P1-P2

Preparation - Projector has to operate on a crosshatch input signal with a standard line and frame frequency.

- Adjust for the RED and BLUE picture, by means of the RCU (refer to the projector Owner's manual), the Horizontal Shift adjustments in their mid-position (50% on the bar scale).

Adjustment Adjust the Horizontal Shift control for Red and Blue picture separately for coincidence of the vertical center line with green.

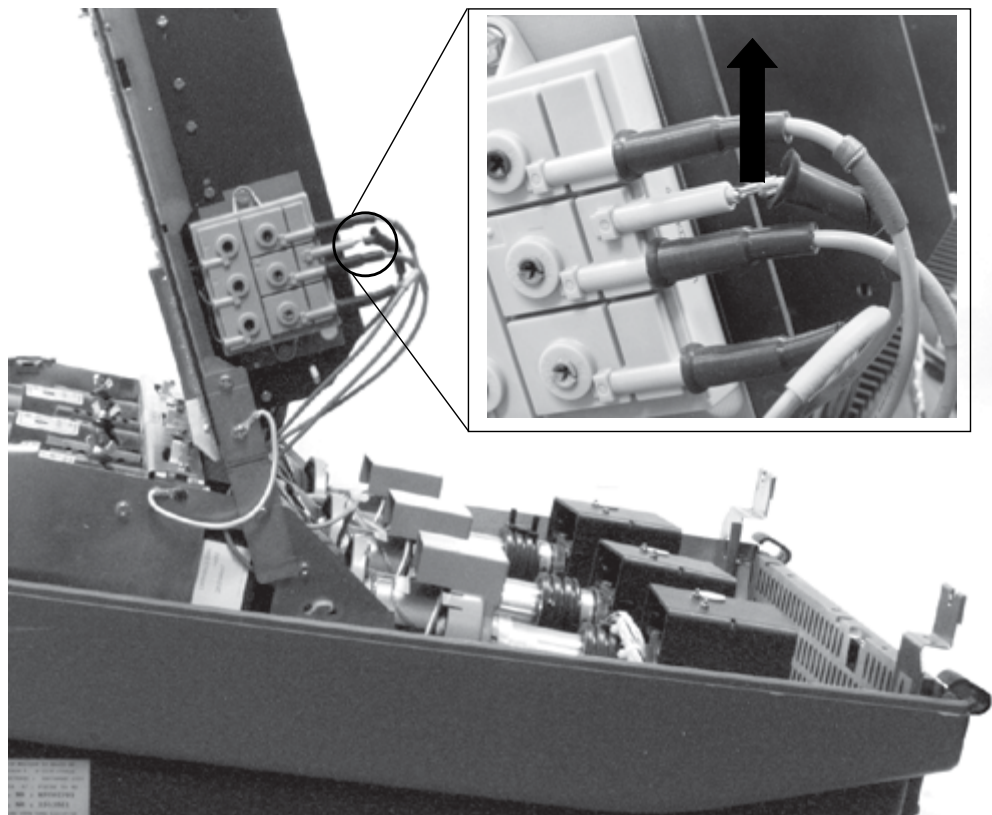
FOCUS Voltage adjustment P100

Important The potentiometer P100 'Focus Voltage adjustment' is factory pre-adjusted. A readjustment is only necessary after replacement of a defective unit R762155 (Focus stabilizer).

- Adjustment procedure**
- Switch OFF the projector.
 - Remove the top cover and open the main frame.
 - Slide the protection cap on the focus input connection cable on the focus unit upwards (refer to illustration below).
 - Connect a high voltage probe with an internal impedance of min. 1000 MOhm to the input connector (indicated on illustration).

Safety notice: remember to ground the meter to the chassis, and use extreme caution: approx. 10 kV on that measuring point.

After the connection is set up, **switch ON** the projector.



Adjust the potentiometer P100 'Focus Voltage adj.' for a focus Voltage of 10.9 kV on the mentioned input.

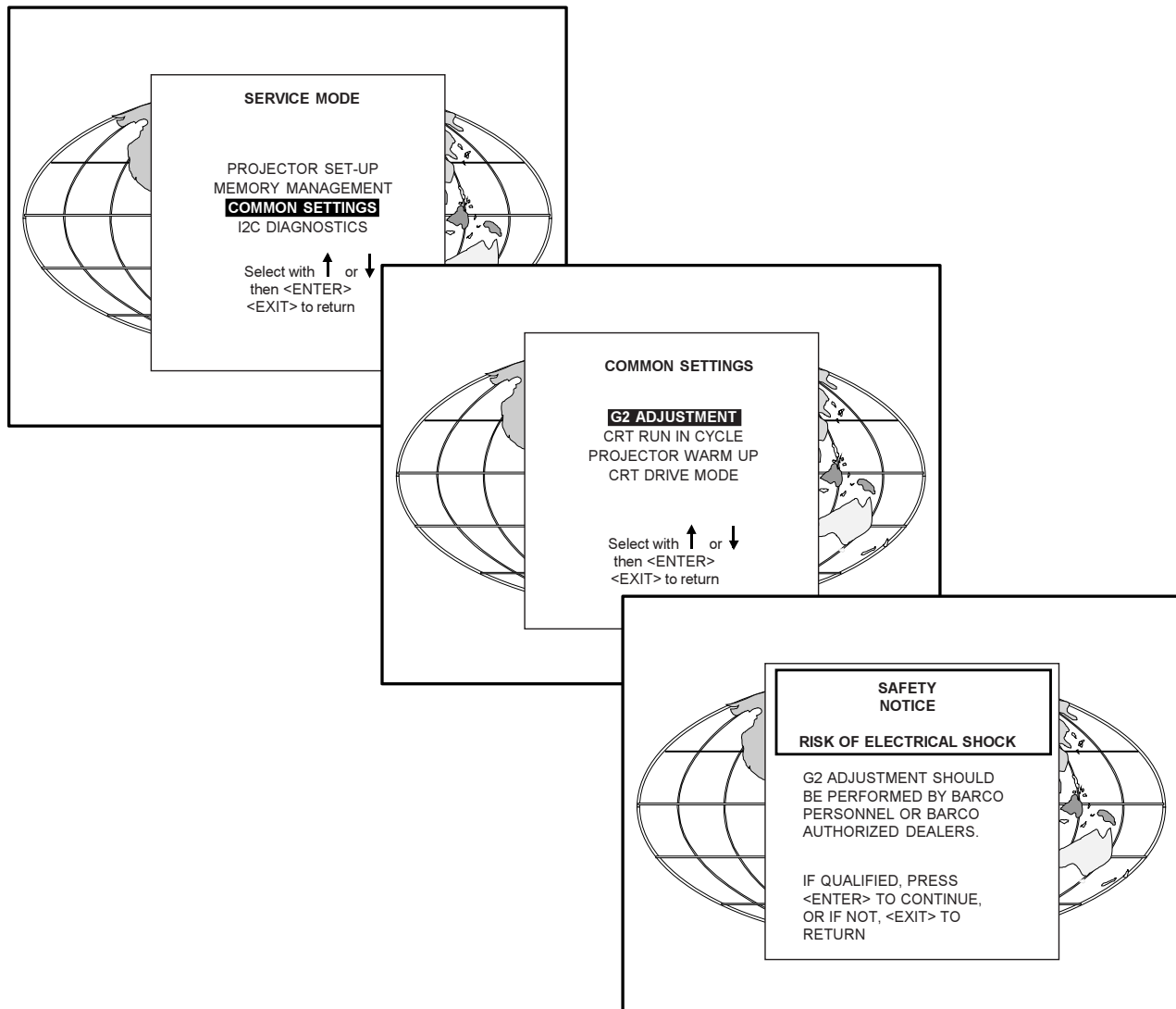
Control of the adjustment:

Adjust the CONTRAST control from low to high level a few times and watch the voltage indication on the high voltage meter. If the focus voltage changes, increase or decrease the focus voltage a little bit and repeat the Contrast variation until focus voltage stabilization is established.

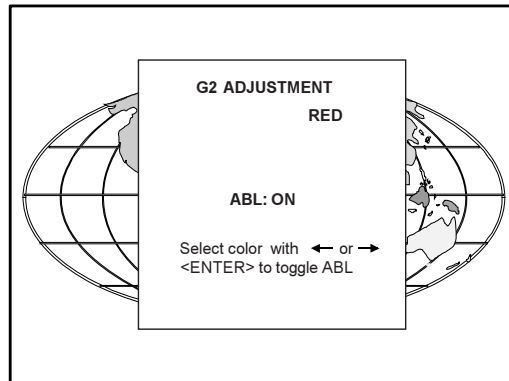
G2-Voltage adjustment

Preparation Proceed to **Service mode** and highlight **Common Settings**, then press ENTER.

Highlight **G2 Adjustment** and press ENTER. If you are qualified, press ENTER to continue with the G2-Adjustment (refer to the projector installation manual). The Controller automatically increases Brightness and Contrast until the RASTER image behind the displayed text becomes visible.

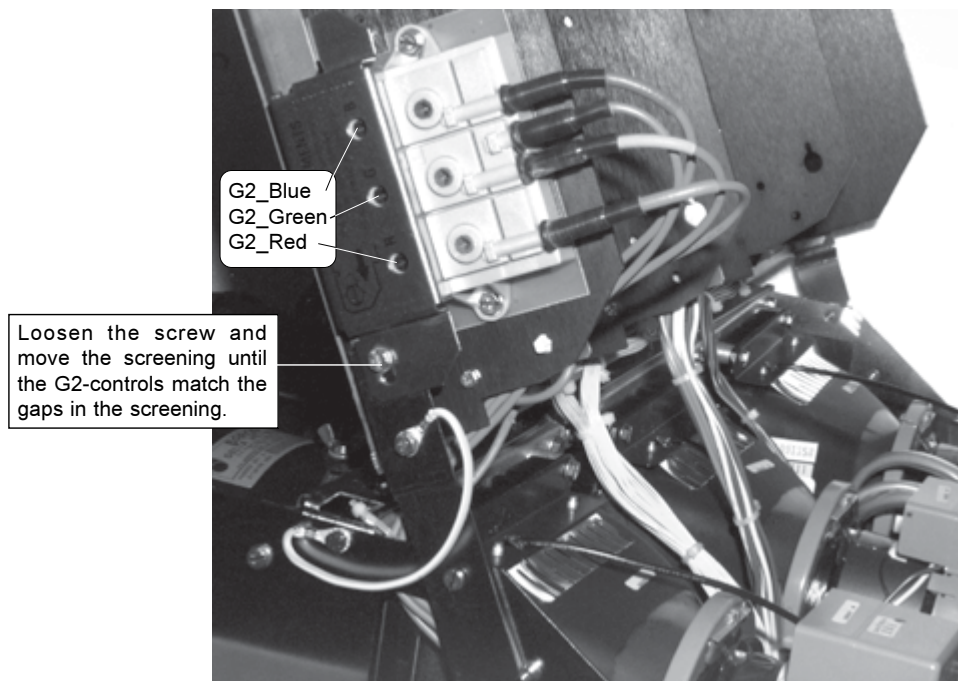


- Adjustment**
- Observe the RASTER image brightness while the ABL function is ON.
 - Switch ABL to OFF by pressing ENTER and adjust the G2-Control until the RASTER brightness looks the same as when the ABL function is ON.
 - Toggle, while adjusting, between the two RASTER images by pressing ENTER until both RASTER images have the same brightness.

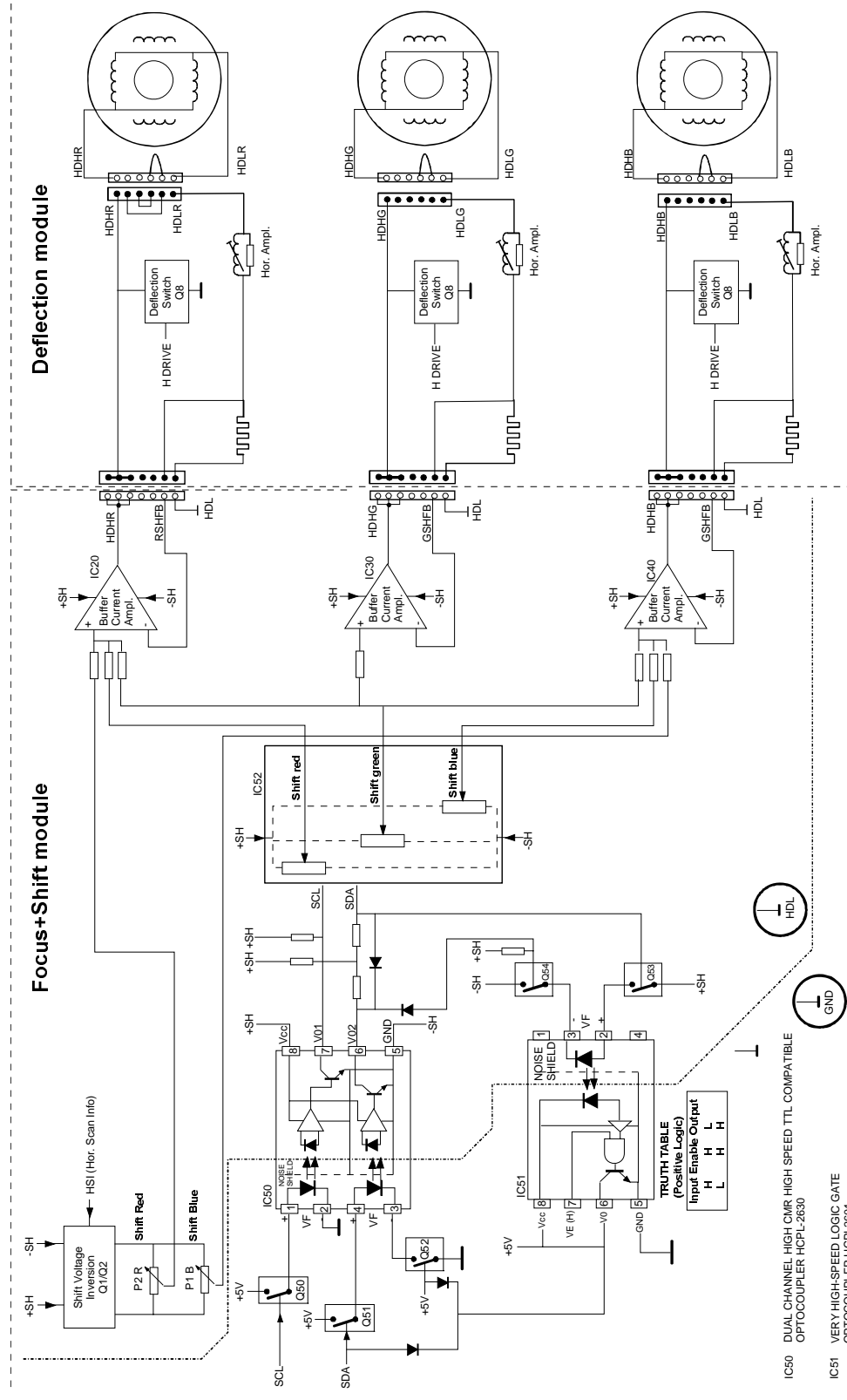


Continue with the other colors. Use the right or left arrow key to select the next color.

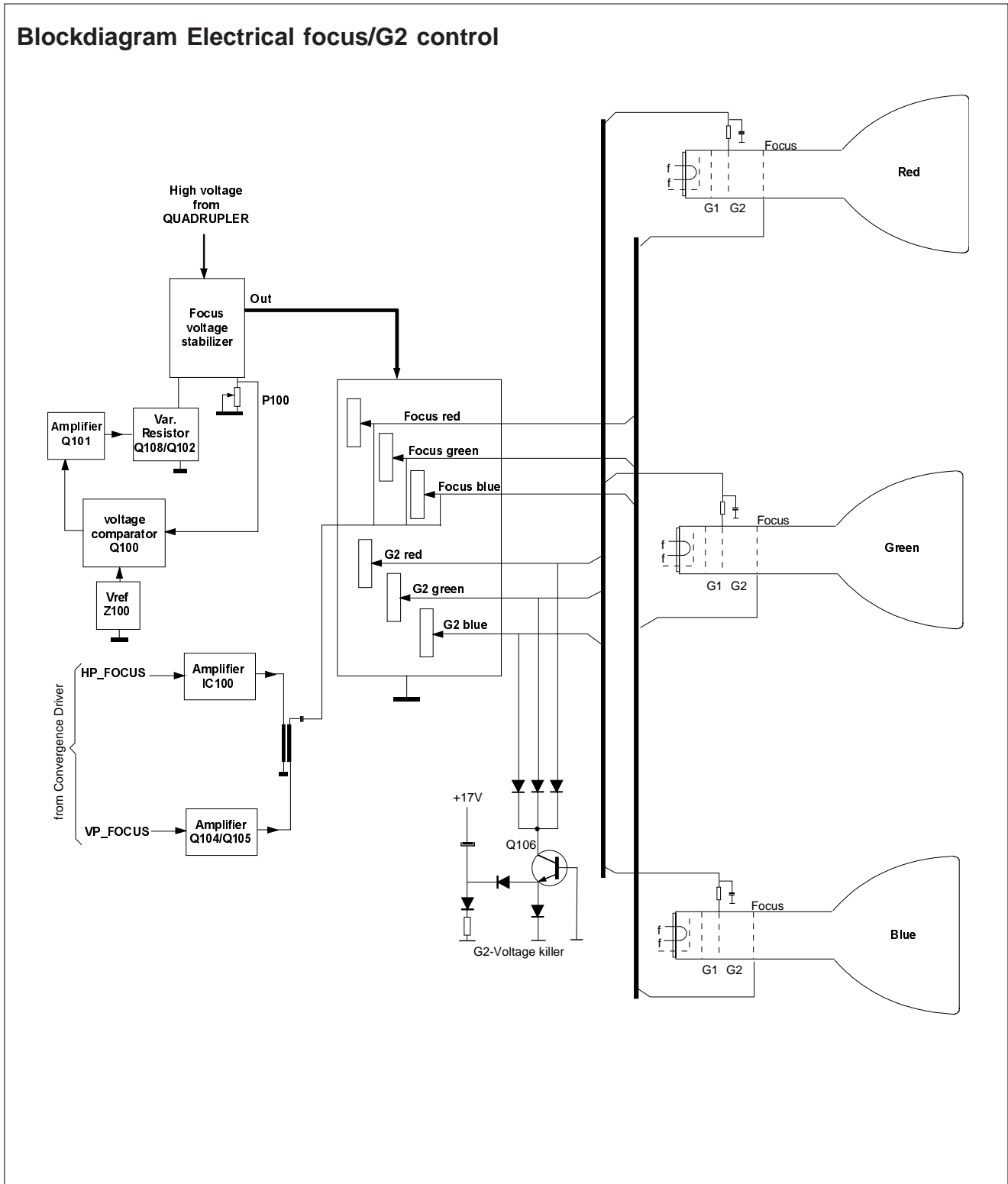
Note: The best result will be obtained in a completely dark room or by looking into the lenses, but be aware that the Brightness and the Contrast are on a high level.



Blockdiagram Shift controls



IC50 DUAL CHANNEL HIGH CMR HIGH SPEED TTL COMPATIBLE OPTOCOUPLER HCLP-2630
 IC51 VERY HIGH-SPEED LOGIC GATE OPTOCOUPLER HCLP2801



Technical description Shift+Focus module

Introduction

This module contains:

- The circuits for the horizontal shift of the three pictures. A coarse alignment compensates the tolerances on deflection yokes and stigmatizing magnetic rings, furthermore, the steps of the digital potentiometers can then be smaller.
- The focus control potentiometers and the stabilization circuit, the G2 potentiometers and the modulation circuit of the focus voltage.

Horizontal Shift

The + and - Shift voltages are not referred to the chassis ground, but have their own ground, indicated on diagrams with HDL.

The + and - Shift voltages from the SM Power Supply+EHT module are stabilized on the module at + and - SH Voltage, using respectively IC1 and IC2.

On the other hand, the I2C bus has the chassis ground as ground. The VSS (ground) of the chip IC52 may not be connected at the chassis ground, thus we need to apply the I2C info via an insulating optocoupler.

The SCL signal is unidirectional and passes the MOSFET Q50, the Optocoupler IC50 (IN pin 1-OUT pin 7), and enters the Digital potentiometer IC52 at pin 1.

The SDA signal is bidirectional due to the acknowledgment bit.

When Data is sent, the data passes the MOSFET Q51, the Optocoupler IC50 (IN pin4-OUT pin 6), and enters the Digital potentiometer IC52 at pin 2 via the diode D56. (The MOSFET Q52, connected at pin 3 of the Optocoupler is conductive during Data transfer).

The acknowledgment bit, sent by IC52 (pulling the SDA line at ground level), passes the MOSFET Q53 and the Optocoupler IC51. The output of the Optocoupler is at ground level, pulling the SDA line at ground level via D54 and blocking the MOSFET Q52 via the diode D55. The MOSFET Q52 is blocked when the acknowledgment bit is sent by IC52 and prevents a return to the IC52 via the Optocoupler IC50.

The Mosfet Q54 is blocked via the diode D57 during Data sending in order to prevent return to the controller via the Optocoupler IC51.

The R-, B- and G-SHIFT voltages from the IC52 reach now the buffer-current amplifiers IC20, IC30 and IC40.

To reduce the voltage steps of the digital potentiometers in IC52, a coarse alignment is first set with a multiturn potentiometer, this is for RED P2 and for BLUE P1.

Two transistors, Q1 and Q2, invert the +SH and -SH voltages when the user changes from ceiling to table projection. The information for inversion HSI (ground or open) is set by the deflection connector for Blue which is plugged in on the connector J3 on the 'Deflection module'.

Note that moving the Green raster means equally a movement of the Red and Blue raster via the resistors R20 and R40.

Focus Control/ Stabilizing/Modulation

Focus Control/Stabilizing

The focus voltage from the quadrupler unit is applied across a network of high voltage (HRV) and VDR resistors (R762155) and is further divided down to reach the base of the transistor Q103.

On the other hand, the focus voltage at the resistor divider R104/P100 is sent to the base of the transistor Q100 where it is compared to the reference voltage of 33V (Z100).

This error amplifier feeds the inverter-amplifier Q101 and the latter drives on its turn the coupled transistor pair Q103/Q102.

This transistor pair Q103/Q102 acts as a variable resistor to compensate for any variation of the voltage at the input.

Focus modulation

As the path of the electron beam to the borders is longer at the borders than in the center, a different focus voltage is required along the horizontal and the vertical axes.

The focus voltage at the sliders of focus potentiometers is thus modulated by a parabolic shaped signal. The HP_FOCUS (horizontal parabola) and VP_FOCUS (vertical parabola) signals, prepared at the Convergence Driver module (76 2203), are sent to this module at the contacts 1 and 2 of connector J100.

The HP_FOCUS signal is amplified by the amplifier IC100 (TDA2030V). Its output current flows in the primary winding of the transformer T100.

The VP_FOCUS signal is inverted by the transistor Q104 and amplified by the transistor Q105. Its collector voltage is added to the HP_FOCUS signal on the secondary side of the transformer.

The sum is capacitively coupled to the sliders of the focus potentiometers.

G2 Voltages/Killer

These screen grid voltages are derived from the focus voltage and adjusted with the potentiometers G2 to leave for the CRT sockets.

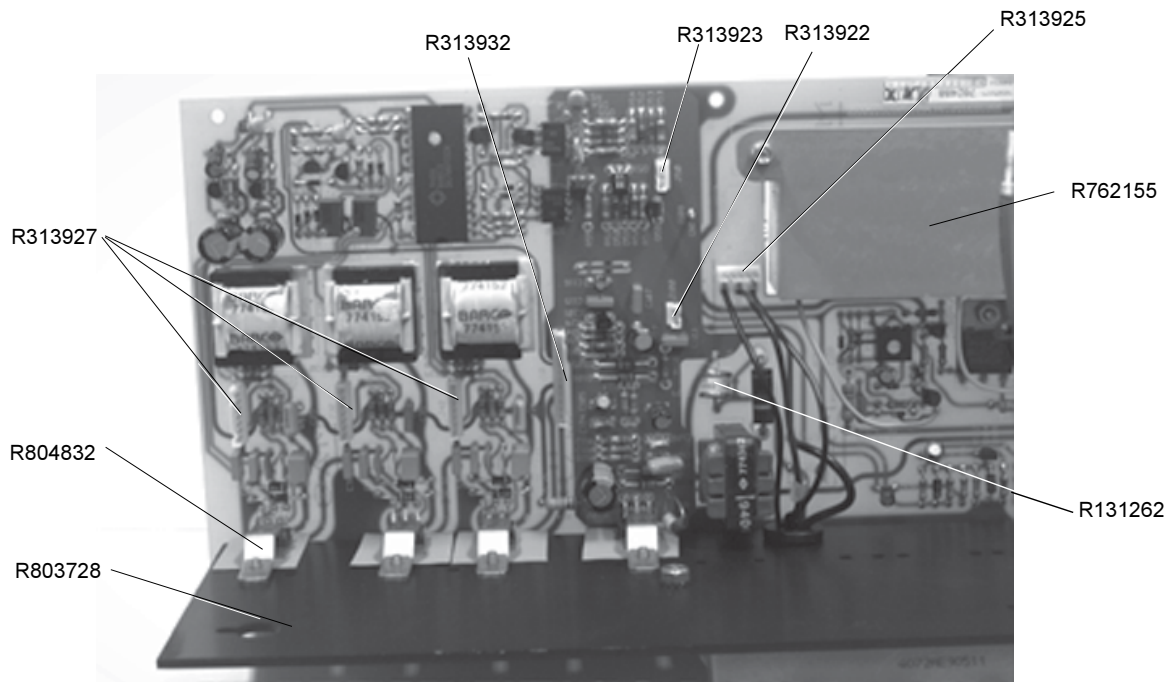
To prevent Phosphor burn-in when switching OFF the projector, a G2-Voltage killer is built-in (Q106/C118).

The three G2-Voltages are connected through a diode to the collector of the transistor Q106. During start-up and operation of the projector, the transistor Q106 is OFF and the capacitor C118 is charged. When turning OFF the projector, the +17V drops quickly and the charge on the capacitor C118 puts the emitter of the transistor Q106 on a negative level. The transistor Q106 saturates and drops the G2-Voltage quickly to a low level.


Parts listing Shift+Focus module R762450

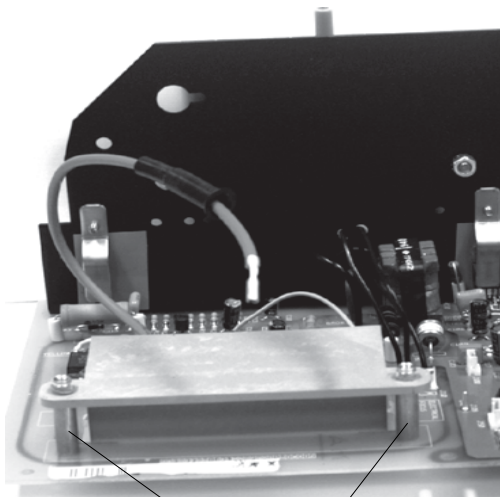
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
100	R803728	HTSN C PJ53 DEF+SHF	1	C108	R113728	C POMERA 220N K 63E2 85	
101	R803761	HTSN C PJ53 FOC	1	C109	R111531	C EL RA 10M M 35E2 85	
110	R804832	HTSN A GEN SPG 1XM3 LG	5	C110	R1115915	C EL5 RA 4M7M 35E2 85	
111	V3621217	SCR \$7500CM 3 X 6 STZN	5	C111	R1127391	C CE MI 1N K100E1	1
120	R348069	GRMT T3 W 8 G11	1	C112	R111550	C EL RA 4M7M 50E2 85	
130	R3631249	SCR Z933 M 4 X 12 SS	2	C113	R114120	C POMERA 10N K400E4 85	1
140	R801485	SPRCL17 D 4 D 6 AL	2	C114	R111479	C EL RA 470M M 25E2 85	1
141	R366103	NUT D934 M 4 STZN	2	C115	R113724	C POMERA 100N K 63E2 85	
142	R367503	SPR D6798AD 4,3D 8 STZN	2	C116	R1115915	C EL5 RA 4M7M 35E2 85	
143	R362158	SCR D7985 M 4 X 25 STZN	2	C117	R111477	C EL RA 100M M 25E2 85	
150	R3631059	SCR Z933 M 3 X 8 SS	5	C118	R111477	C EL RA 100M M 25E2 85	
160	R3620226	SCR D84 M 3 X 8 SS	2	C119	R112813	C CE DI 100P M400E3	1
170	R367502	SPR D6798AD 3,2D 6 STZN	2				
180	R3661026	NUT D934 M 3 SS	2	D 20	R131637	D R BA158 600400 DO7	
190	R133039	SPR L 8 D 1,2D 4 CE	5	D 21	R131637	D R BA158 600400 DO7	
400	R3674391	RVT BLND_R3,2C 3,2WSTAL	3	D 30	R131637	D R BA158 600400 DO7	
401	R34699302	SLVU SHR D 9,6/4,8 BK 20	1	D 31	R131637	D R BA158 600400 DO7	
	R1075985	R M_UN FOC RGB -RDCN 12KV	1	D 40	R131637	D R BA158 600400 DO7	
	R3137093	J HV HO ACC SEAL	1	D 41	R131637	D R BA158 600400 DO7	
	R762155	UN V700 FOC+SH	1	D 50	R131621	D S 1N4148 075150 DO35	
B 1	R131262	SURGE ARRESTER 1000V AX	1	D 51	R131621	D S 1N4148 075150 DO35	
C 1	R111479	C EL RA 470M M 25E2 85	1	D 52	R131621	D S 1N4148 075150 DO35	
C 2	V1127830	C X7R MU 100N K 50E2 125		D 53	R131621	D S 1N4148 075150 DO35	
C 3	R111531	C EL RA 10M M 35E2 85		D 54	R1316361	D Y BAT85 030200 DO34	
C 4	V1127830	C X7R MU 100N K 50E2 125	1	D 55	R1316361	D Y BAT85 030200 DO34	
C 5	R111479	C EL RA 470M M 25E2 85	1	D 56	R1316361	D Y BAT85 030200 DO34	
C 6	V1127830	C X7R MU 100N K 50E2 125		D 57	R1316361	D Y BAT85 030200 DO34	
C 7	R111531	C EL RA 10M M 35E2 85		D100	R131637	D R BA158 600400 DO7	
C 8	V1127830	C X7R MU 100N K 50E2 125		D101	R131637	D R BA158 600400 DO7	
C 9	R113724	C POMERA 100N K 63E2 85	1	D102	R131637	D R BA158 600400 DO7	
C 20	R113724	C POMERA 100N K 63E2 85		D103	R131637	D R BA158 600400 DO7	
C 21	R113724	C POMERA 100N K 63E2 85		D104	R131621	D S 1N4148 075150 DO35	
C 22	R112735	C CE MI 470P K100E2		D105	R131637	D R BA158 600400 DO7	
C 23	R112747	C CE MI 4N7K100E2 85		D106	R131637	D R BA158 600400 DO7	
C 24	R113732	C POMERA 470N K 63E2 85		D107	R131637	D R BA158 600400 DO7	1
C 25	R113728	C POMERA 220N K 63E2 85		D108	R131637	D R BA158 600400 DO7	1
C 30	R113724	C POMERA 100N K 63E2 85		D109	R131907	D R BY584 182085 SOD61A	1
C 31	R113724	C POMERA 100N K 63E2 85		D110	R131907	D R BY584 182085 SOD61A	1
C 32	R112735	C CE MI 470P K100E2		D111	R131907	D R BY584 182085 SOD61A	1
C 33	R112747	C CE MI 4N7K100E2 85		D112	R131621	D S 1N4148 075150 DO35	
C 34	R113732	C POMERA 470N K 63E2 85		D113	R131714	D STB 1V4 0W33 DO35	1
C 35	R113724	C POMERA 100N K 63E2 85		D114	R131621	D S 1N4148 075150 DO35	
C 40	R113724	C POMERA 100N K 63E2 85		I 1	R134028	U 317LZ LM TO92 P	1
C 41	R113724	C POMERA 100N K 63E2 85		I 2	R134029	U 337LZ TO92 P	1
C 42	R112735	C CE MI 470P K100E2		I 20	R132751	U 2030V TDA TO220T P	1
C 43	R112747	C CE MI 4N7K100E2 85		I 30	R132751	U 2030V TDA TO220T P	1
C 44	R113732	C POMERA 470N K 63E2 85		I 40	R132751	U 2030V TDA TO220T P	1
C 45	R113728	C POMERA 220N K 63E2 85		I 50	B133338	U 2631 HCPL DIP8 P	1
C 50	V1127830	C X7R MU 100N K 50E2 125		I 51	R131683	U 2601 HCPL DIP8 P	1
C 51	V1127830	C X7R MU 100N K 50E2 125		I 52	R132833	U BELLA 4 DIP28 P	1
C 52	V1127830	C X7R MU 100N K 50E2 125		I100	R132751	U 2030V TDA TO220T P	1
C 53	R1122415	C NP0 MI 82P G100E2		I101	R134032	U 78L05AC TO92 P	1
C 55	R112364	C N750MI 150P G100E2	1	J 10	R313932	J CT H MBT P12 M2SN WH	1
C100	R113724	C POMERA 100N K 63E2 85		J 20	R313927	J CT H MBT P 7 M2SN WH	1
C101	R112747	C CE MI 4N7K100E2 85		J 30	R313927	J CT H MBT P 7 M2SN WH	1
C102	R111550	C EL RA 4M7M 50E2 85		J 40	R313927	J CT H MBT P 7 M2SN WH	1
C103	R113724	C POMERA 100N K 63E2 85		J 50	R313923	J CT H MBT P 3 M2SN WH	1
C104	R112243	C NP0 MI 120P G100E2		J100	R313922	J CT H MBT P 2 M2SN WH	1
C105	R111531	C EL RA 10M M 35E2 85		J108	R315302	J PIN PR D1,3L 5,5+3	1
C106	R112243	C NP0 MI 120P G100E2		J109	R313729	J TESTEYE D2.1 H3.1 SN BK	1
C107	R113724	C POMERA 100N K 63E2 85		J110	R313925	J CT H MBT P 5 M2SN WH	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
P 1	R107530	R MCE V100K K 0W5 M10TS	1	R 66	V1026574	R MF H 39E2 F 0W6 E4	
P 2	R107530	R MCE V100K K 0W5 M10TS	1	R100	R103158	R MO H 68K J 1W	1
P100	R106736	R TCE H500K K 0W5 S10TS	1	R101	V1026655	R MF H475E F 0W6 E4	
PC	R780358	PCB V700 FOC+SHIFT	1	R102	V1026335	R MF H221E F 0W6 E4	
Q 1	R1314181	Q BC559B P SS TO92		R103	R101566	R MF H330K F 0W4 E3	
Q 2	R1314181	Q BC559B P SS TO92		R104	R101566	R MF H330K F 0W4 E3	
Q 50	R132916	Q BS250 FN SS TO92	1	R105	V1026507	R MF H 33K2 F 0W6 E4	
Q 51	R132916	Q BS250 FN SS TO92	1	R106	V1026006	R MF H 1K F 0W6 E4	
Q 52	R1329105	Q BS170 FN SS TO92	1	R107	V1026805	R MF H681E F 0W6 E4	
Q 53	R132916	Q BS250 FN SS TO92	1	R108	R104682	R HV H 15M J 0W5 3500	1
Q 54	R1329105	Q BS170 FN SS TO92	1	R109	R104682	R HV H 15M J 0W5 3500	1
Q100	R1314182	Q BC559C P SS TO92		R110	R101551	R MF H 18K F 0W4 E3	
Q101	R1314295	Q BC549B N SS TO92		R112	V1026008	R MF H100K F 0W6 E4	
Q102	R1325096	Q BU508A N P SOT93	1	R113	V1026887	R MF H 82K5 F 0W6 E4	
Q103	R1325096	Q BU508A N P SOT93	1	R114	V1026257	R MF H 18K2 F 0W6 E4	
Q104	R131411	Q BC549C N SS TO92		R115	V1026806	R MF H 6K81F 0W6 E4	
Q105	R131471	Q BF458 N P TO126	1	R116	V1026003	R MF H 1E F 0W6 E4	
Q106	V132637	Q BU506 N P TO220	1	R117	R102136	R CC H 1K K 1W E8	1
R 1	V1026175	R MF H150E F 0W6 E4		R118	R104658	R HV H 1M5 J 0W5 3500	1
R 2	V1026335	R MF H221E F 0W6 E4		R119	V1026087	R MF H 12K1 F 0W6 E4	
R 3	V1026884	R MF H 82E5 F 0W6 E4		R121	V1026177	R MF H 15K F 0W6 E4	
R 4	V1026335	R MF H221E F 0W6 E4		R122	V1026176	R MF H 1K5 F 0W6 E4	
R 5	V1026337	R MF H 1K2 F 0W6 E4		R123	V1026006	R MF H 1K F 0W6 E4	
R 6	V1026007	R MF H 10K F 0W6 E4		R124	V1026005	R MF H100E F 0W6 E4	
R 7	V1026807	R MF H 68K1 F 0W6 E4		R125	V1026177	R MF H 15K F 0W6 E4	
R 8	R1015501	R MF H 13K F 0W4 E3		R126	V1026728	R MF H562K F 0W6 E4	
R 9	R101549	R MF H 12K F 0W4 E3		R127	R103348	R MO H 10K J 4W	1
R 10	R101537	R MF H 1K2 F 0W4 E3		R128	R1011917	R CFFH E22K 0W35	
R 11	R1015371	R MF H 1K1 F 0W4 E3		R129	R1011209	R CFFH 47E J 0W25	
R 12	R101539	R MF H 1K8 F 0W4 E3		R130	R101404	R MF H 2E2 J 2W E7	1
R 13	R101539	R MF H 1K8 F 0W4 E3		R131	R101548	R MF H 10K F 0W4 E3	
R 14	R104654	R HV H 1M J 0W5 3500	1	R132	R101524	R MF H100E F 0W4 E3	
R 18	V1026658	R MF H475K F 0W6 E4		R133	V1026005	R MF H100E F 0W6 E4	1
R 19	V1026807	R MF H 68K1 F 0W6 E4		T 20	R774152	COIL D**HR HOR SHF	1
R 20	V1026008	R MF H100K F 0W6 E4		T 30	R774152	COIL D**HR HOR SHF	1
R 21	V1026007	R MF H 10K F 0W6 E4		T 40	R774152	COIL D**HR HOR SHF	1
R 22	V1026007	R MF H 10K F 0W6 E4		T100	R7743425	T V700 FOC MK2 T100	1
R 23	V1026333	R MF H 2E21F 0W6 E4		Z100	R132102	U 33B ZTK DO35	
R 30	V1026008	R MF H100K F 0W6 E4		Z102	R131754	D ZEN 3V3 0W5 C DO35	
R 31	V1026007	R MF H 10K F 0W6 E4		Z103	R131730	D ZEN 20V 0W5 C DO35	
R 32	V1026007	R MF H 10K F 0W6 E4		Z104	R131730	D ZEN 20V 0W5 C DO35	
R 33	V1026004	R MF H 10E F 0W6 E4					
R 38	V1026658	R MF H475K F 0W6 E4					
R 39	V1026807	R MF H 68K1 F 0W6 E4					
R 40	V1026008	R MF H100K F 0W6 E4					
R 41	V1026007	R MF H 10K F 0W6 E4					
R 42	V1026007	R MF H 10K F 0W6 E4					
R 43	V1026333	R MF H 2E21F 0W6 E4					
R 50	V1026005	R MF H100E F 0W6 E4					
R 51	V1026656	R MF H 4K75F 0W6 E4					
R 52	V1026505	R MF H332E F 0W6 E4					
R 53	V1026005	R MF H100E F 0W6 E4					
R 54	V1026656	R MF H 4K75F 0W6 E4					
R 55	V1026505	R MF H332E F 0W6 E4					
R 56	V1026337	R MF H 22K1 F 0W6 E4					
R 57	V1026656	R MF H 4K75F 0W6 E4					
R 58	V1026655	R MF H475E F 0W6 E4					
R 59	V1026655	R MF H475E F 0W6 E4					
R 60	V1026656	R MF H 4K75F 0W6 E4					
R 62	V1026505	R MF H332E F 0W6 E4					
R 63	V1026337	R MF H 22K1 F 0W6 E4					
R 63	V1026337	R MF H 22K1 F 0W6 E4					
R 64	V1026425	R MF H274E F 0W6 E4					
R 65	V1026655	R MF H475E F 0W6 E4					

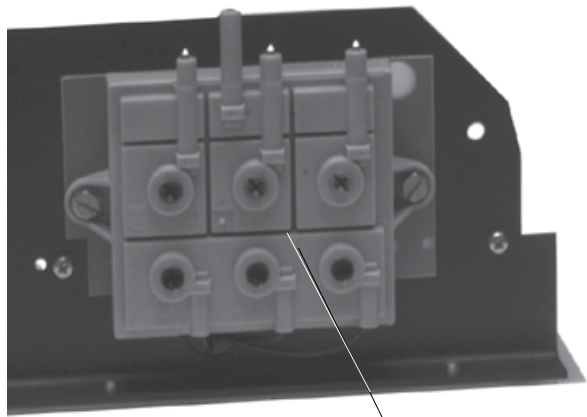


PRODUCT SAFETY NOTICE

Components identified by  have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.



R801485



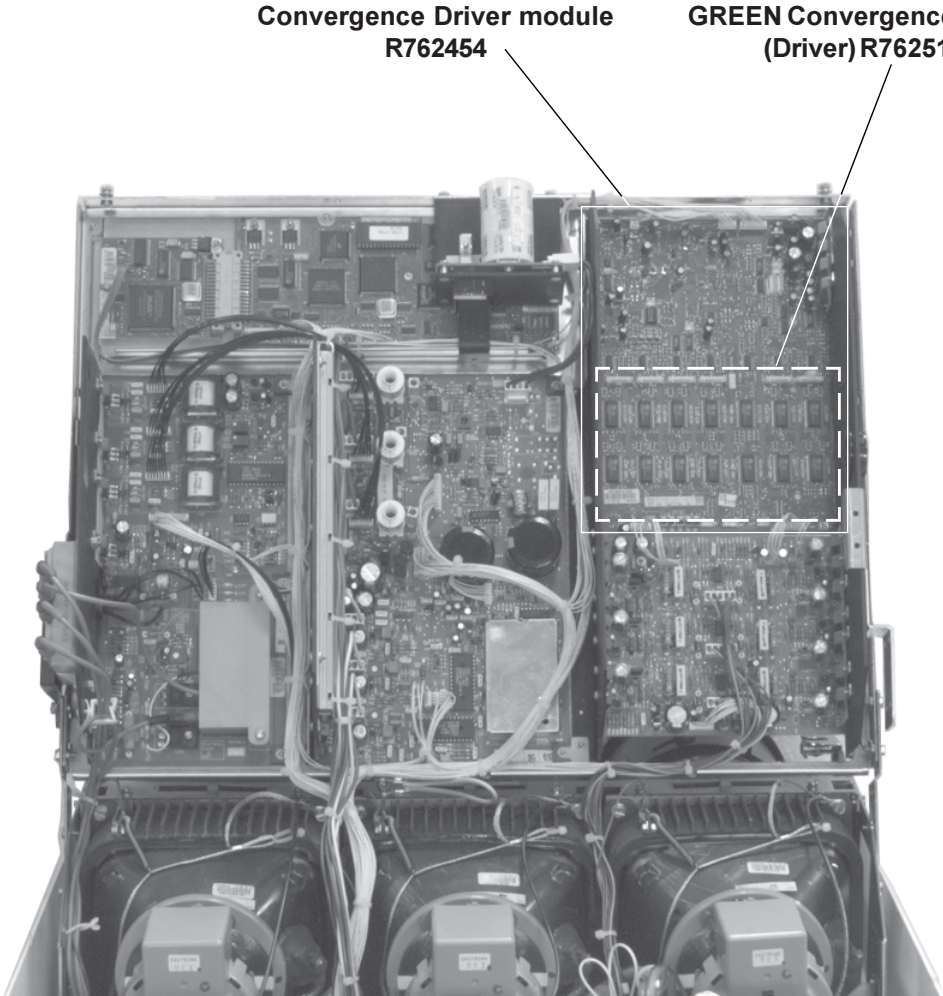
R1075985

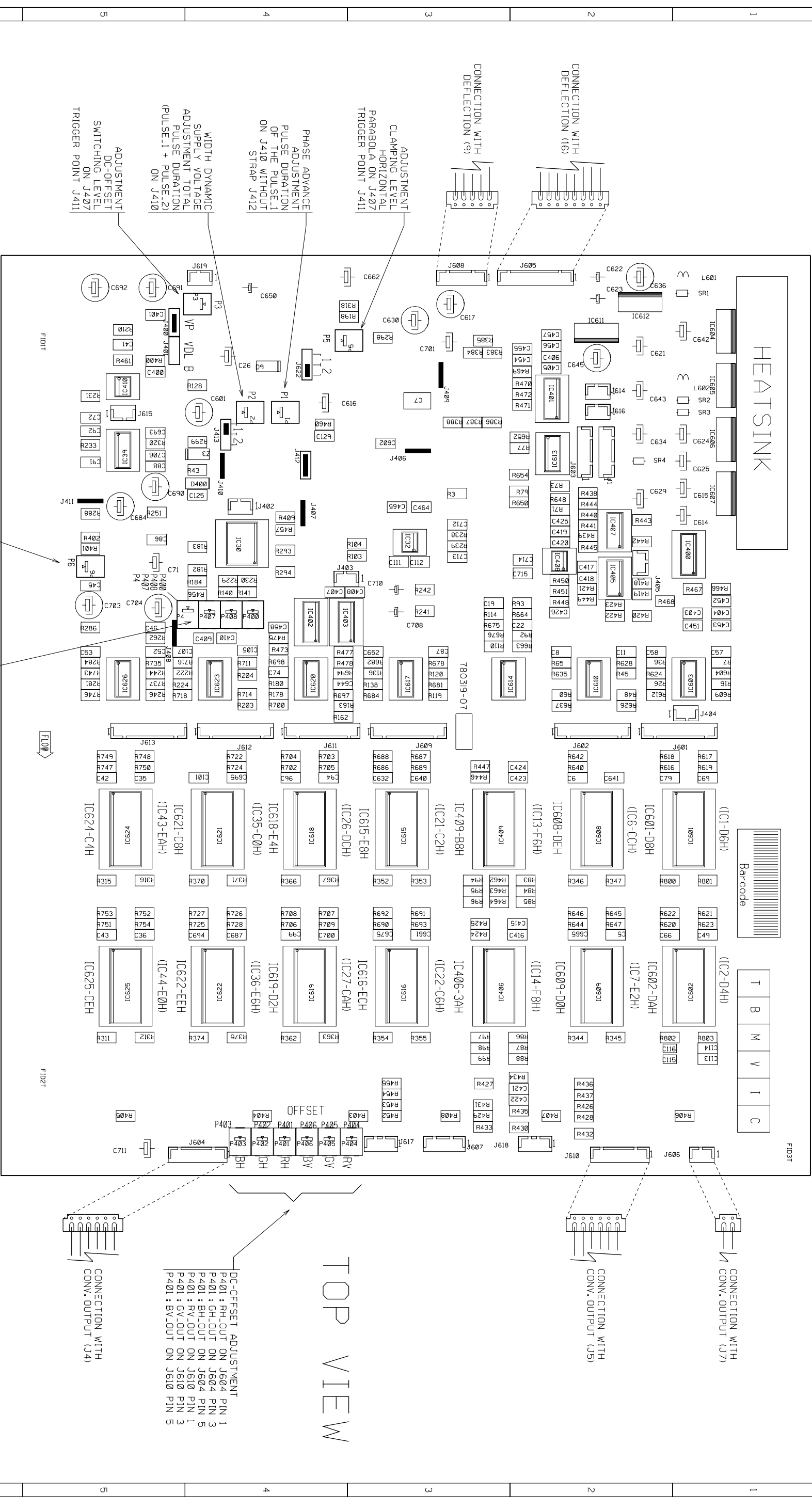
Convergence Driver module

GREEN Convergence module (Option)

R762454

R7625128





TOP VIEW

ADJUSTMENT CLAMPING LEVEL VERTICAL PARABOLA ON J406 TRIGGER POINT J411

DC-OFFSET ADJUSTMENT
 P400 : HSVP ON J409
 P408 : HSVP ON J406
 P407 : HPVP ON J408
 P4 : HPVS ON J407
 TRIGGER POINT J411

TOP VIEW

DC-OFFSET ADJUSTMENT
 P401 : RH. OUT ON J604 PIN 1
 P401 : GH. OUT ON J604 PIN 3
 P401 : BH. OUT ON J604 PIN 5
 P401 : RV. OUT ON J610 PIN 1
 P401 : GV. OUT ON J610 PIN 3
 P401 : BV. OUT ON J610 PIN 5

CONNECTION WITH CONV. OUTPUT (J4)

CONNECTION WITH CONV. OUTPUT (J5)

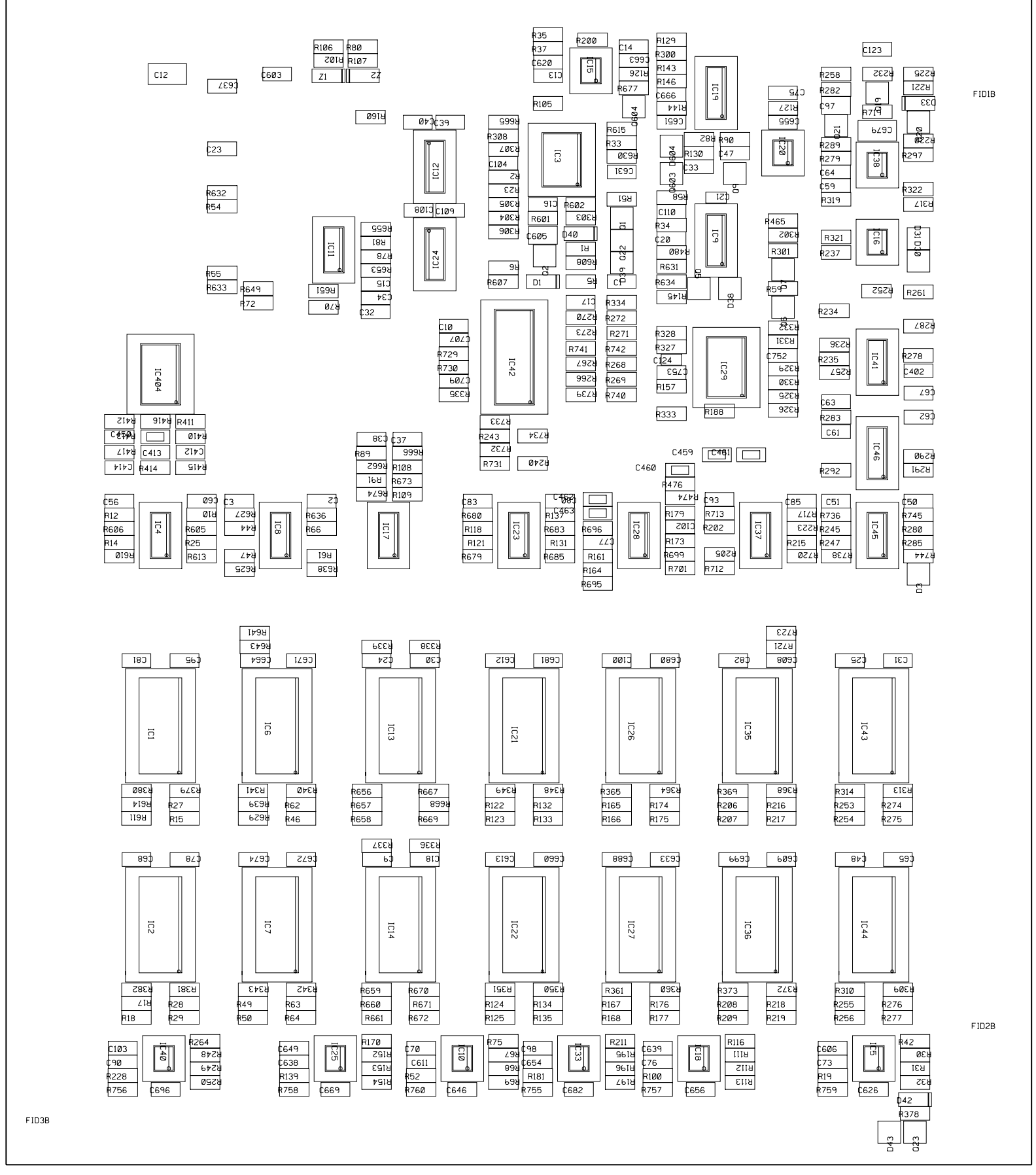
CONNECTION WITH CONV. OUTPUT (J7)

Modifications reserved

Name	CONVERGENCE DRIVER	Sheet	1 / 2
Module No	R762454	Index	4
Date	09-01-1997	PCB No	R780319
		Rev	7
		Checked	GM
		Drawn	JVDV

BARCO PROJECTION SYSTEMS

Name	CONVERGENCE DRIVER	Sheet	2 / 2
Module No	R782454	FCB No	R780319
Date	09-01-1997	Index	4
Rev		Drawn	JVDY
Checked	GM		
BARCO PROJECTION SYSTEMS			

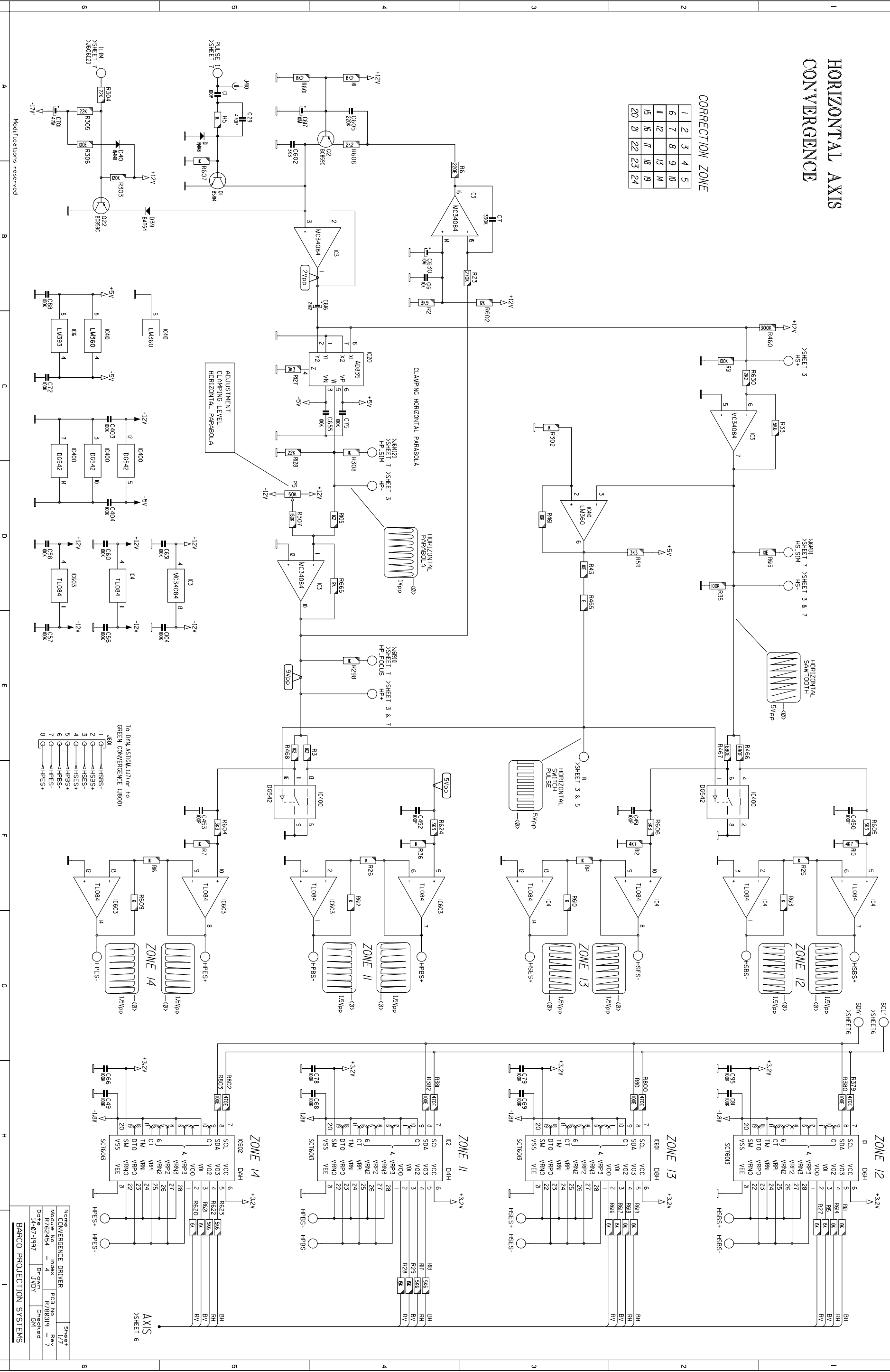


BOTTOM VIEW

HORIZONTAL AXIS CONVERGENCE

CORRECTION ZONE

1	2	3	4	5
6	7	8	9	10
11	12	13	14	
15	16	17	18	19
20	21	22	23	24



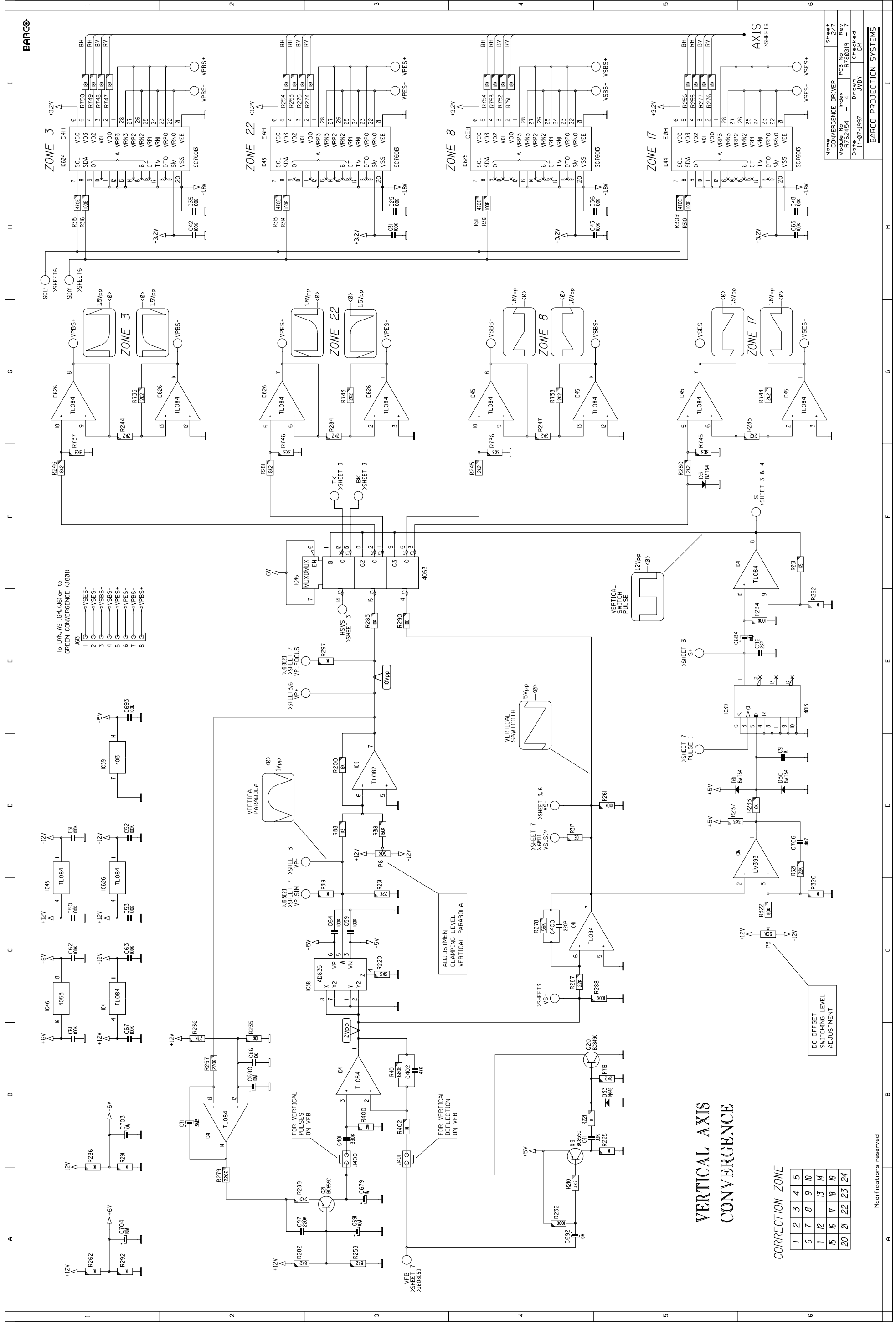
- To DMM ASTROL UTI or 14 GREEN CONVERGENCE (4800)
- 1 ○ -HSSBS-
 - 2 ○ -HSSBS+
 - 3 ○ -HSES-
 - 4 ○ -HSES+
 - 5 ○ -HPRS-
 - 6 ○ -HPRS+
 - 7 ○ -HPES-
 - 8 ○ -HPES+

Nome		CONVERGENCE DRIVER		Sheet	
Module No	Index	PCB No	TV/28319	Rev	7
Date	14-07-1997	Dr-OWN	JYDY	CNM	

BARCO PROJECTION SYSTEMS

AXIS
>SHEET 6

Modifications reserved



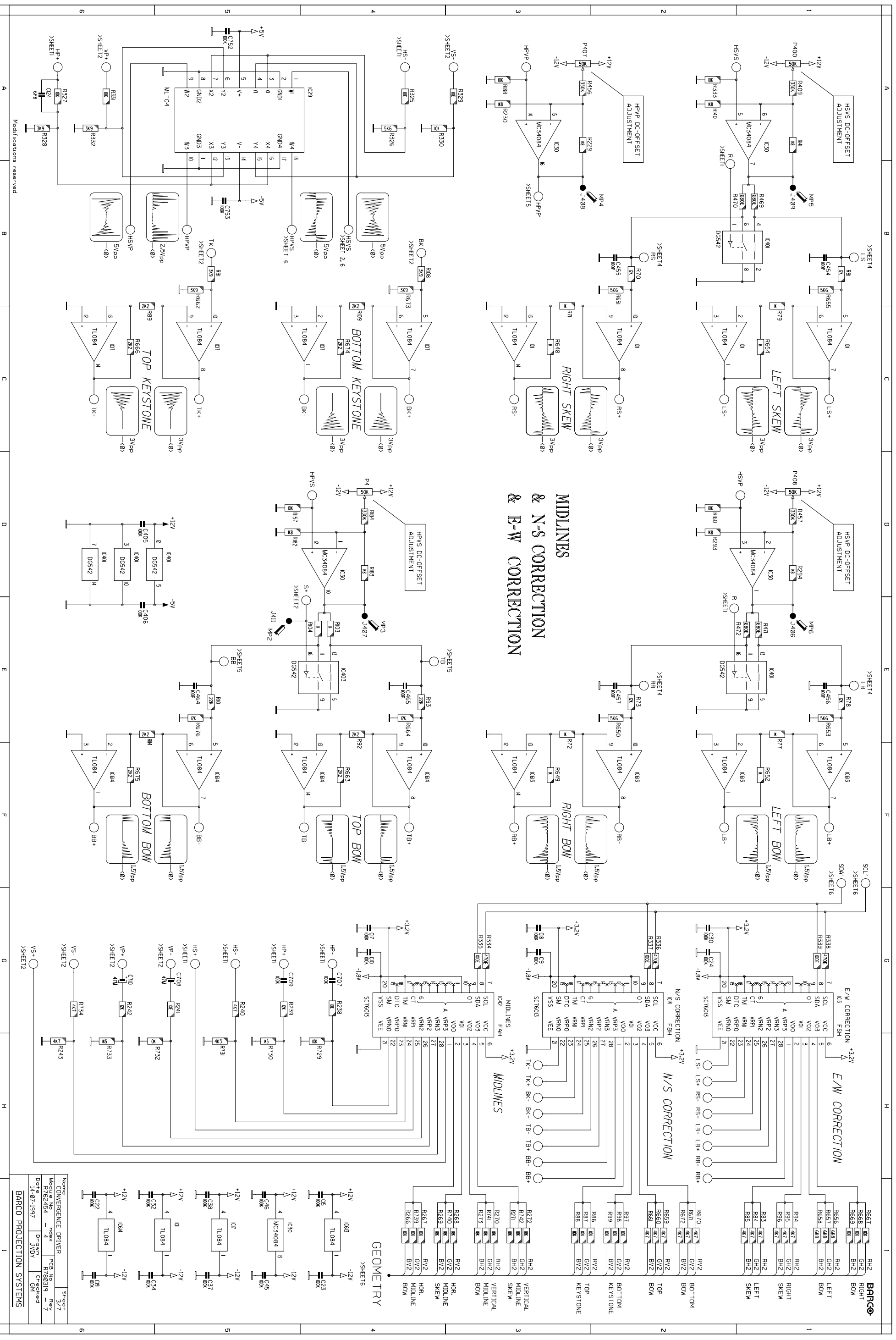
VERTICAL AXIS CONVERGENCE

CORRECTION ZONE

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	

Name	CONVERGENCE DRIVER	Sheet	2/7
Module No	R762454	Index	R766316
Doc No	14-07-1987	Drawn by	JWJDY
Checked		Checked	

BARCO PROJECTION SYSTEMS



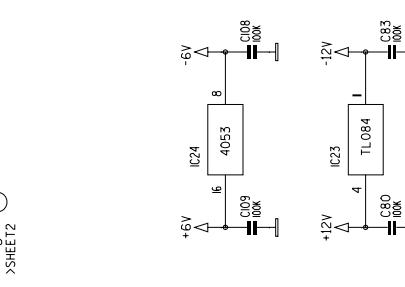
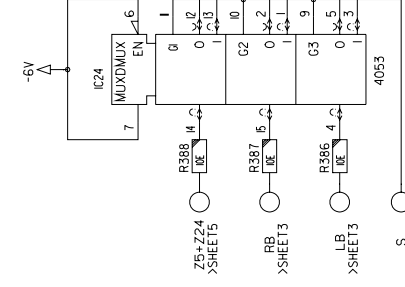
**MIDLINES
& N-S CORRECTION
& E-W CORRECTION**

Modifications reserved

Name	CONVERGENCE DRIVER	Sheet	3/7
Model No	Index	PCB No	NS319
Date	14-07-1997	Drawn	Chand
		GM	

BARCO PROJECTION SYSTEMS

CORNER CONVERGENCE

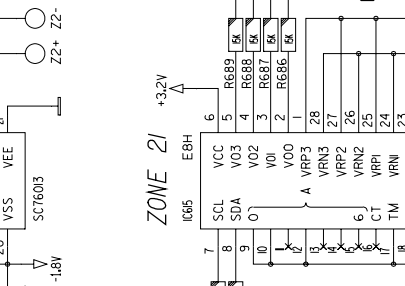
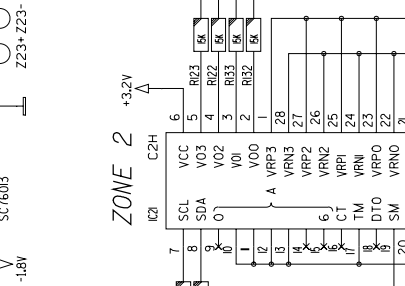
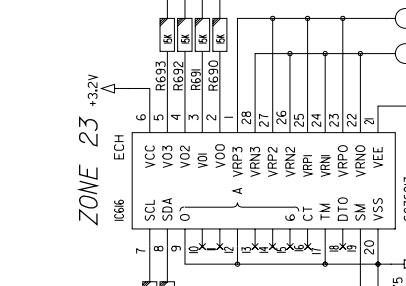
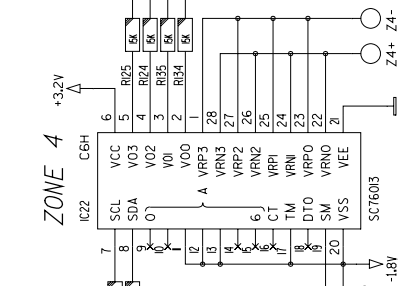


CORRECTION ZONE

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	

To GREEN CONV. (J603)

1	J603	Z21-
2	J603	Z21+
3	J603	Z22-
4	J603	Z22+
5	J603	Z23-
6	J603	Z23+
7	J603	Z24-
8	J603	Z24+

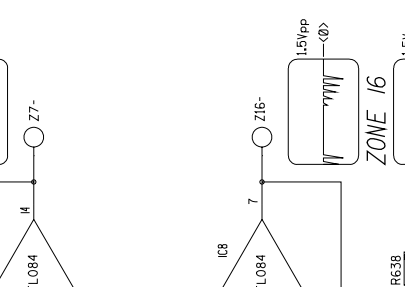
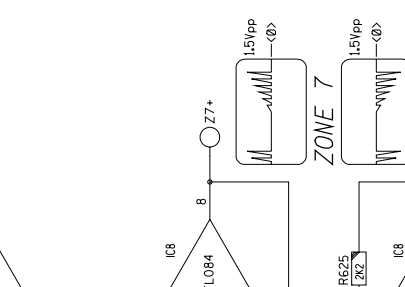
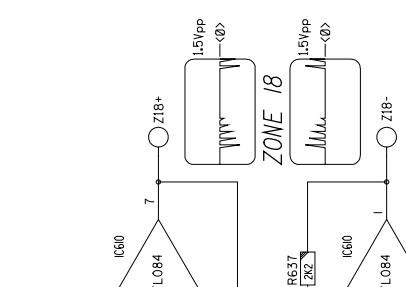
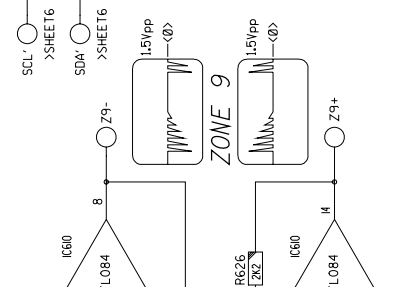


CORRECTION ZONE

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	

To GREEN CONV. (J603)

1	J603	Z21-
2	J603	Z21+
3	J603	Z22-
4	J603	Z22+
5	J603	Z23-
6	J603	Z23+
7	J603	Z24-
8	J603	Z24+

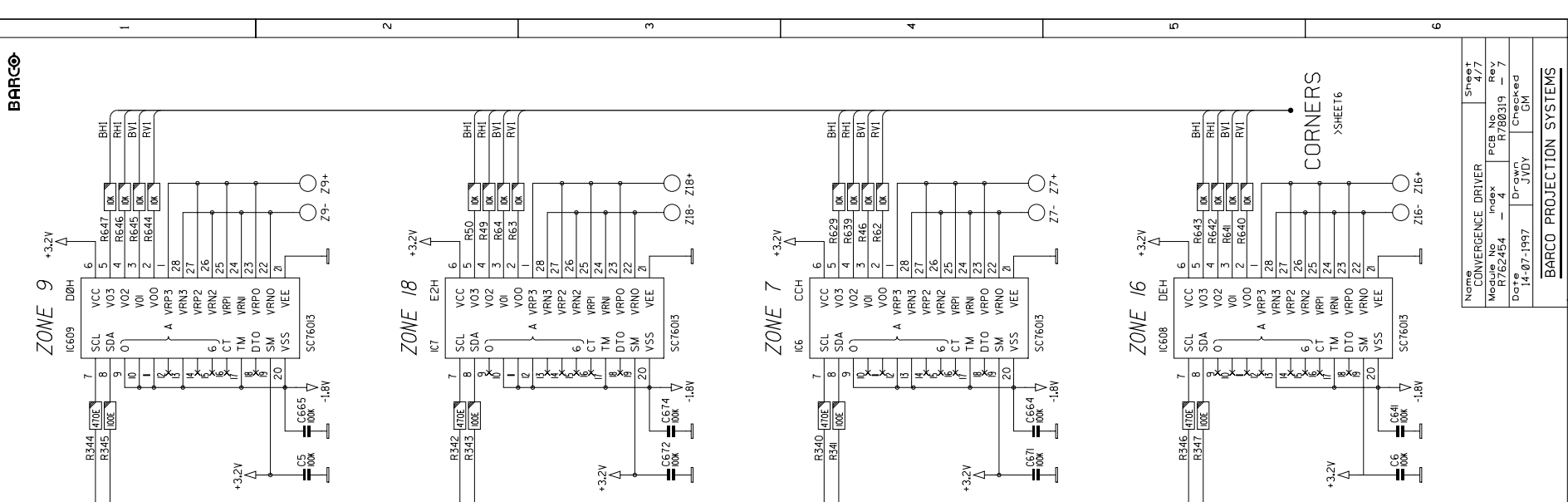


CORRECTION ZONE

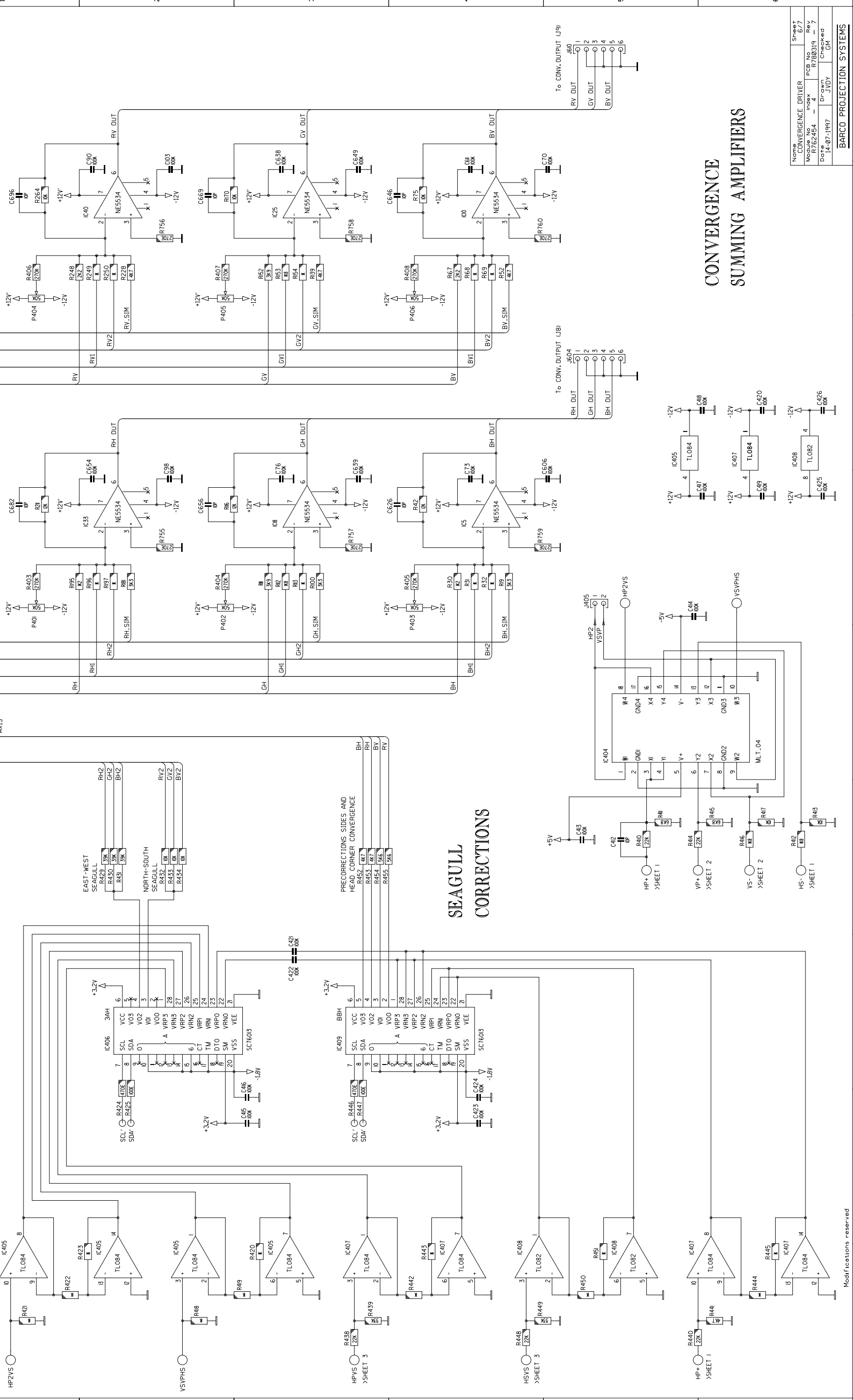
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	

To GREEN CONV. (J602)

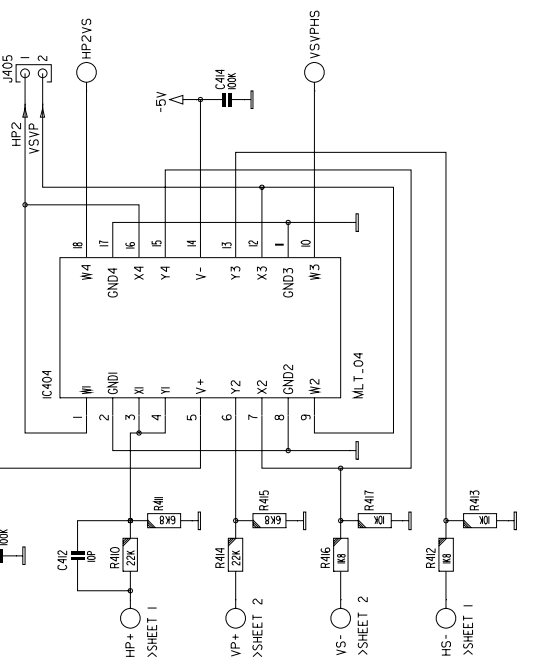
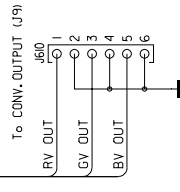
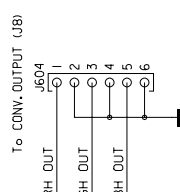
1	J602	Z16+
2	J602	Z16-
3	J602	Z17+
4	J602	Z17-
5	J602	Z18-
6	J602	Z18+
7	J602	Z19-
8	J602	Z19+



SIMULATORS
GEOMETRY
CORNERS
AXIS



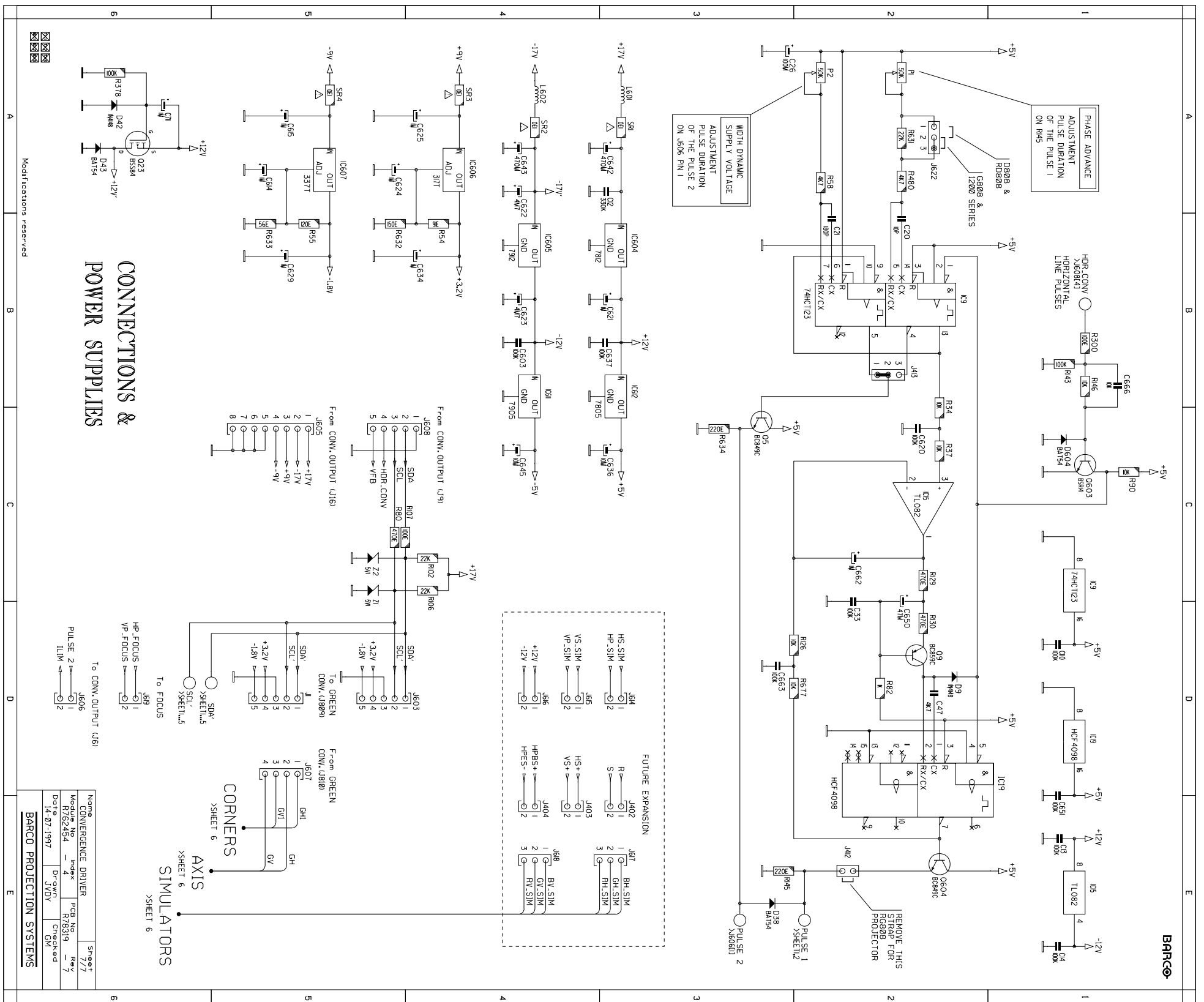
CONVERGENCE SUMMING AMPLIFIERS



Name	CONVERGENCE DRIVER	Sheet	6/7
Mod. No.	Rev. 4	Fig. No.	R768319
Part No.	R762464	Rev.	7
Date	14-07-1997	Drawn	Checked
	JYD		GM

BARCO PROJECTION SYSTEMS

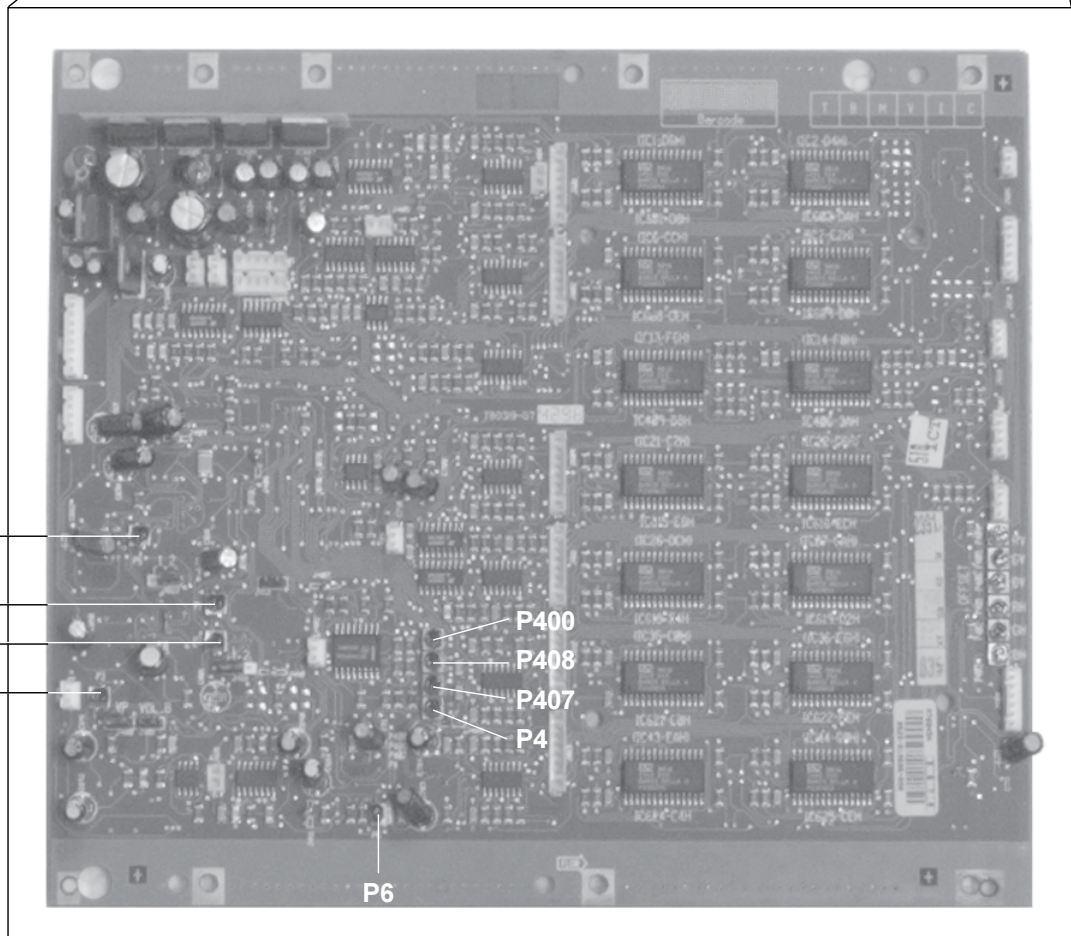
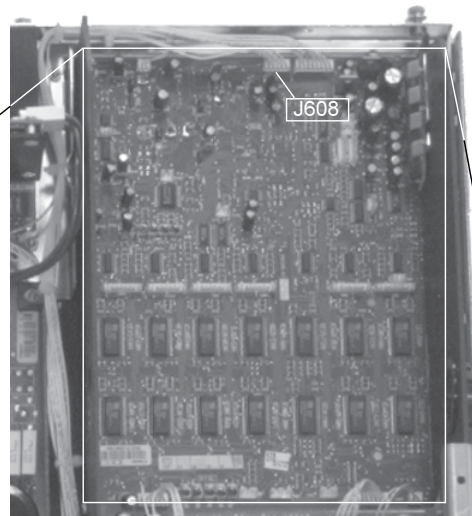
Modifications reserved



Component	Value	Component	Value	Component	Value	Component	Value
C1	100K	C103	100K	R23	10K	C204	100K
C2	100K	C104	100K	R24	10K	C205	100K
C3	100K	C105	100K	R25	10K	C206	100K
C4	100K	C106	100K	R26	10K	C207	100K
C5	100K	C107	100K	R27	10K	C208	100K
C6	100K	C108	100K	R28	10K	C209	100K
C7	100K	C109	100K	R29	10K	C210	100K
C8	100K	C110	100K	R30	10K	C211	100K
C9	100K	C111	100K	R31	10K	C212	100K
C10	100K	C112	100K	R32	10K	C213	100K
C11	100K	C113	100K	R33	10K	C214	100K
C12	100K	C114	100K	R34	10K	C215	100K
C13	100K	C115	100K	R35	10K	C216	100K
C14	100K	C116	100K	R36	10K	C217	100K
C15	100K	C117	100K	R37	10K	C218	100K
C16	100K	C118	100K	R38	10K	C219	100K
C17	100K	C119	100K	R39	10K	C220	100K
C18	100K	C120	100K	R40	10K	C221	100K
C19	100K	C121	100K	R41	10K	C222	100K
C20	100K	C122	100K	R42	10K	C223	100K
C21	100K	C123	100K	R43	10K	C224	100K
C22	100K	C124	100K	R44	10K	C225	100K
C23	100K	C125	100K	R45	10K	C226	100K
C24	100K	C126	100K	R46	10K	C227	100K
C25	100K	C127	100K	R47	10K	C228	100K
C26	100K	C128	100K	R48	10K	C229	100K
C27	100K	C129	100K	R49	10K	C230	100K
C28	100K	C130	100K	R50	10K	C231	100K
C29	100K	C131	100K	R51	10K	C232	100K
C30	100K	C132	100K	R52	10K	C233	100K
C31	100K	C133	100K	R53	10K	C234	100K
C32	100K	C134	100K	R54	10K	C235	100K
C33	100K	C135	100K	R55	10K	C236	100K
C34	100K	C136	100K	R56	10K	C237	100K
C35	100K	C137	100K	R57	10K	C238	100K
C36	100K	C138	100K	R58	10K	C239	100K
C37	100K	C139	100K	R59	10K	C240	100K
C38	100K	C140	100K	R60	10K	C241	100K
C39	100K	C141	100K	R61	10K	C242	100K
C40	100K	C142	100K	R62	10K	C243	100K
C41	100K	C143	100K	R63	10K	C244	100K
C42	100K	C144	100K	R64	10K	C245	100K
C43	100K	C145	100K	R65	10K	C246	100K
C44	100K	C146	100K	R66	10K	C247	100K
C45	100K	C147	100K	R67	10K	C248	100K
C46	100K	C148	100K	R68	10K	C249	100K
C47	100K	C149	100K	R69	10K	C250	100K
C48	100K	C150	100K	R70	10K	C251	100K
C49	100K	C151	100K	R71	10K	C252	100K
C50	100K	C152	100K	R72	10K	C253	100K
C51	100K	C153	100K	R73	10K	C254	100K
C52	100K	C154	100K	R74	10K	C255	100K
C53	100K	C155	100K	R75	10K	C256	100K
C54	100K	C156	100K	R76	10K	C257	100K
C55	100K	C157	100K	R77	10K	C258	100K
C56	100K	C158	100K	R78	10K	C259	100K
C57	100K	C159	100K	R79	10K	C260	100K
C58	100K	C160	100K	R80	10K	C261	100K
C59	100K	C161	100K	R81	10K	C262	100K
C60	100K	C162	100K	R82	10K	C263	100K
C61	100K	C163	100K	R83	10K	C264	100K
C62	100K	C164	100K	R84	10K	C265	100K
C63	100K	C165	100K	R85	10K	C266	100K
C64	100K	C166	100K	R86	10K	C267	100K
C65	100K	C167	100K	R87	10K	C268	100K
C66	100K	C168	100K	R88	10K	C269	100K
C67	100K	C169	100K	R89	10K	C270	100K
C68	100K	C170	100K	R90	10K	C271	100K
C69	100K	C171	100K	R91	10K	C272	100K
C70	100K	C172	100K	R92	10K	C273	100K
C71	100K	C173	100K	R93	10K	C274	100K
C72	100K	C174	100K	R94	10K	C275	100K
C73	100K	C175	100K	R95	10K	C276	100K
C74	100K	C176	100K	R96	10K	C277	100K
C75	100K	C177	100K	R97	10K	C278	100K
C76	100K	C178	100K	R98	10K	C279	100K
C77	100K	C179	100K	R99	10K	C280	100K
C78	100K	C180	100K	R100	10K	C281	100K
C79	100K	C181	100K	R101	10K	C282	100K
C80	100K	C182	100K	R102	10K	C283	100K
C81	100K	C183	100K	R103	10K	C284	100K
C82	100K	C184	100K	R104	10K	C285	100K
C83	100K	C185	100K	R105	10K	C286	100K
C84	100K	C186	100K	R106	10K	C287	100K
C85	100K	C187	100K	R107	10K	C288	100K
C86	100K	C188	100K	R108	10K	C289	100K
C87	100K	C189	100K	R109	10K	C290	100K
C88	100K	C190	100K	R110	10K	C291	100K
C89	100K	C191	100K	R111	10K	C292	100K
C90	100K	C192	100K	R112	10K	C293	100K
C91	100K	C193	100K	R113	10K	C294	100K
C92	100K	C194	100K	R114	10K	C295	100K
C93	100K	C195	100K	R115	10K	C296	100K
C94	100K	C196	100K	R116	10K	C297	100K
C95	100K	C197	100K	R117	10K	C298	100K
C96	100K	C198	100K	R118	10K	C299	100K
C97	100K	C199	100K	R119	10K	C300	100K
C98	100K	C200	100K	R120	10K	C301	100K
C99	100K	C201	100K	R121	10K	C302	100K
C100	100K	C202	100K	R122	10K	C303	100K
C101	100K	C203	100K	R123	10K	C304	100K
C102	100K	C204	100K	R124	10K	C305	100K
C103	100K	C205	100K	R125	10K	C306	100K
C104	100K	C206	100K	R126	10K	C307	100K
C105	100K	C207	100K	R127	10K	C308	100K
C106	100K	C208	100K	R128	10K	C309	100K
C107	100K	C209	100K	R129	10K	C310	100K
C108	100K	C210	100K	R130	10K	C311	100K
C109	100K	C211	100K	R131	10K	C312	100K
C110	100K	C212	100K	R132	10K	C313	100K
C111	100K	C213	100K	R133	10K	C314	100K
C112	100K	C214	100K	R134	10K	C315	100K
C113	100K	C215	100K	R135	10K	C316	100K
C114	100K	C216	100K	R136	10K	C317	100K
C115	100K	C217	100K	R137	10K	C318	100K
C116	100K	C218	100K	R138	10K	C319	100K
C117	100K	C219	100K	R139	10K	C320	100K
C118	100K	C220	100K	R140	10K	C321	100K
C119	100K	C221	100K	R141	10K	C322	100K
C120	100K	C222	100K	R142	10K	C323	100K
C121	100K	C223	100K	R143	10K	C324	100K
C122	100K	C224	100K	R144	10K	C325	100K
C123	100K	C225	100K	R145	10K	C326	100K
C124	100K	C226	100K	R146	10K	C327	100K
C125	100K	C227	100K	R147	10K	C328	100K
C126	100K	C228	100K	R148	10K	C329	100K
C127	100K	C229	100K	R149	10K	C330	100K
C128	100K	C230	100K	R150	10K	C331	100K
C129	100K	C231	100K	R151	10K	C332	100K
C130	100K	C232	100K	R152	10K	C333	100K
C131	100K	C233	100K	R153	10K	C334	100K
C132	100K	C234	100K	R154	10K	C335	100K
C133	100K	C235	100K	R155	10K	C336	100K
C134	100K	C236	100K	R156	10K	C337	100K
C135	100K	C237	100K	R157	10K	C338	100K
C136	100K	C238	100K	R158	10K	C339	100K
C137	100K	C239	100K	R159	10K	C340	100K
C138	100K	C240	100K	R160	10K	C341	100K
C139	100K	C241	100K	R161	10K	C342	100K
C140	100K	C242	100K	R162	10K	C343	100K
C141	100K	C243	100K	R163	10K	C344	100K
C142	100K	C244	100K	R164	10K	C345	100K
C143	100K	C245	100K	R165	10K	C346	100K
C144	100K	C246	100K	R166	10K	C347	100K
C145	100K	C247	100K	R167	10K	C348	100K
C146	100K	C248	100K	R168	10K	C349	100K
C147	100K	C249	100K	R169	10K	C350	100K
C148	100K	C250	100K	R170	10K	C351	100K
C149	100K	C251	100K	R171	10K	C352	100K
C150	100K	C252	100K	R172	10K	C353	100K
C151	100K	C253	100K	R173	10K	C354	100K
C152	100K	C254	100K	R174	10K	C355	100K
C153	100K	C255	100K	R175	10K	C356	100K
C154	100K	C256	100K	R176	10K	C357	100K
C155	100K	C257	100K	R177	10K	C358	100K
C156	100K	C258	100K	R178	10K	C359	100K
C157	100K	C259	100K	R179	10K	C360	100K
C158	100K	C260	100K	R180	10K	C361	100K
C159	100K	C261	100K	R181	10K	C362	100K
C160	100K	C262	100K	R182	10K	C363	100K
C161	100K	C263	100K	R183	10K	C364	100K
C162	100K	C264	100K	R184	10K	C365	100K
C163	100K	C265	100K	R185	10K	C366	100K
C164	100K	C266	100K	R186	10K	C367	100K
C165	100K	C267	100K	R187	10K	C368	100K
C166	100K	C268	100K	R188	10K	C369	100K
C167	100K	C269	100K	R189	10K	C370	100K
C168	100K	C270	100K	R190	10K	C371	100K
C169	100K	C271	100K	R191	10K	C372	100K
C170	100K	C272	100K	R192	10K	C373	100K

ADJUSTMENT PROCEDURE

Location of Adjustments



Preparation

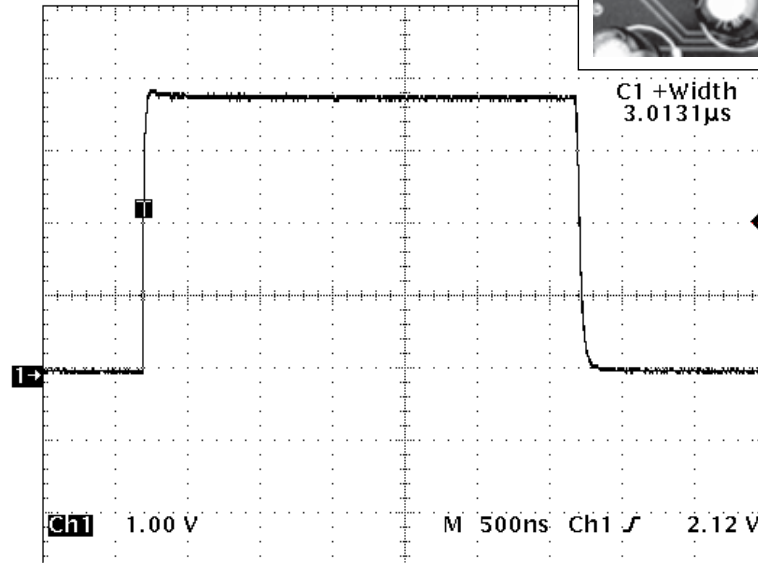
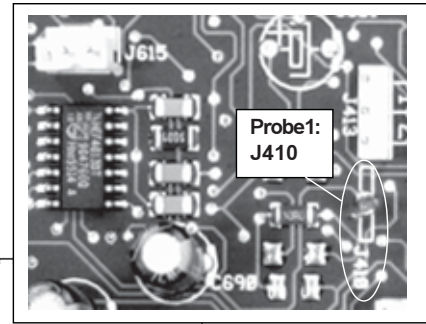
IMPORTANT

For all the adjustments on the module, the projector has to operate on a signal with the highest line frequency being used.

Adjustments

1. Adjustment of the pulse width of PULSE 2

- Connect Probe1 of an oscilloscope to the measuring point marked as J410.
- Set the oscilloscope to 500nsec/div and 1V/div.
- Adjust the potentiometer P2 for Pulse 2 with a duration of 3 μ s.



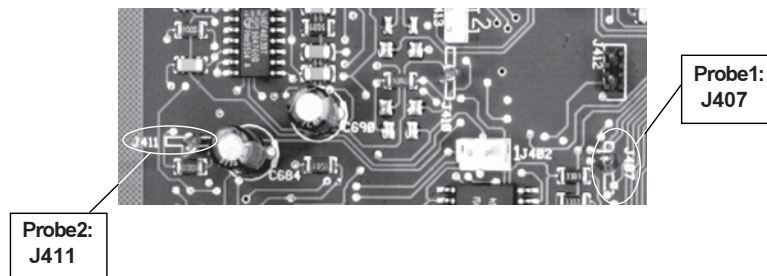
2. Adjustment of the potentiometers

P3: DC Offset switching level

P4: Hor-Par/Vert-Sawt DC Offset

P5: Clamping level Hor Parabola

Measuring points for the adjustments

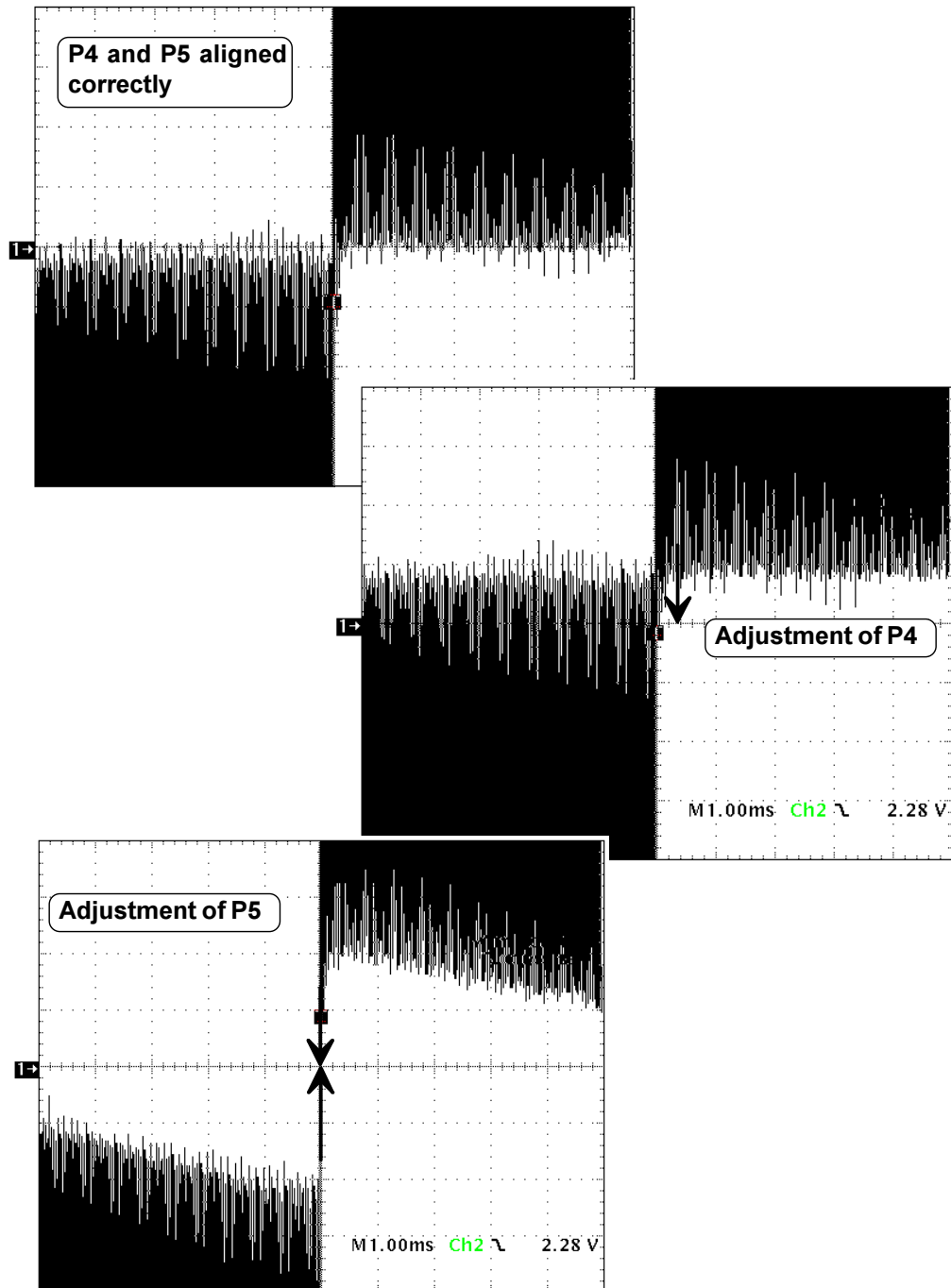


2.1. Adjustment of the potentiometers

P4: Hor-Par/Vert-Sawt DC Offset

P5: Clamping level Hor Parabola

- Connect Probe 1 of an oscilloscope to the measuring point J407 and set the oscilloscope to 1msec/div and 50mV/div.
- Connect Probe 2 of the oscilloscope to the measuring point J411 and set the oscilloscope to 1msec/div and 1mV/div.
- Adjust the potentiometer P4 until the DC Offset is at GROUND-level.
- Adjust the potentiometer P5 until the clamping level of the Horizontal parabolas are at GROUND-level.

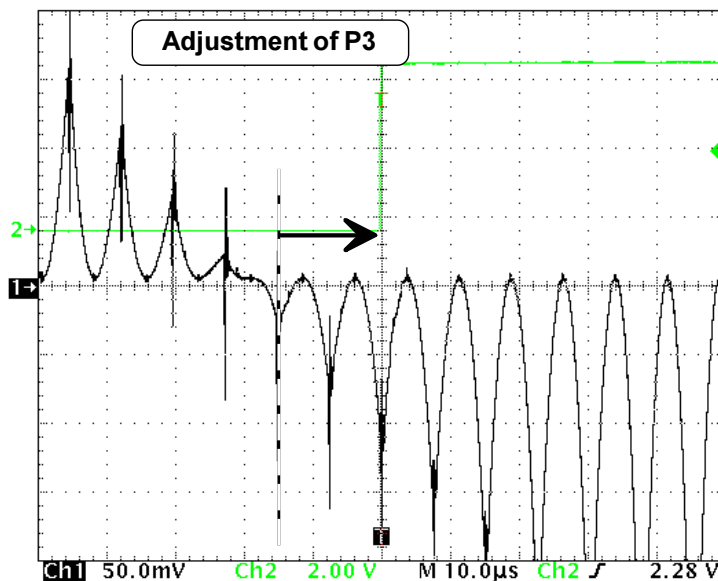
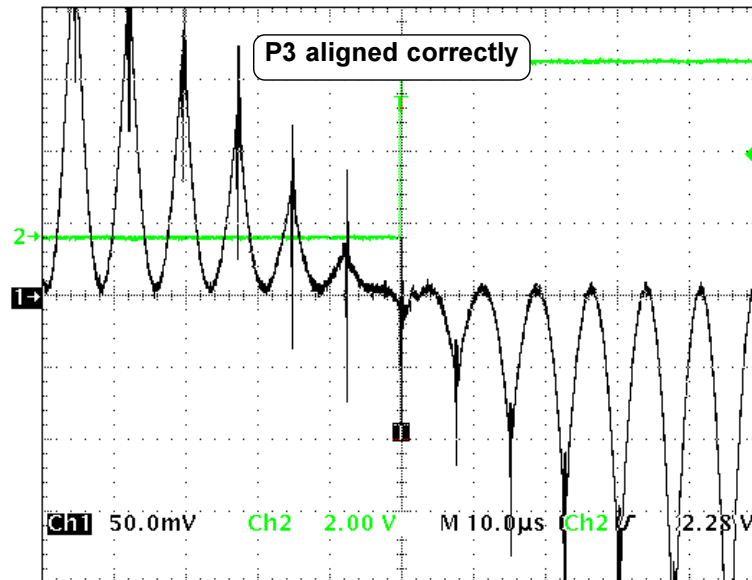


2.2. Adjustment of the potentiometer

P3: DC Offset switching level

Attention: be sure that the input signal for adjustment operates on the highest used line frequency.

- Connect Probe 1 of an oscilloscope to the measuring point J407.
- Connect Probe 2 of the oscilloscope to the measuring point J411.
- Adjust the potentiometer P3 until the switching transient matches horizontal parabola inversion point.

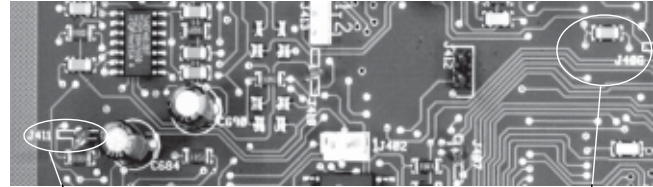


3. Adjustment of the potentiometers

P6: Clamping level Vert Parabola

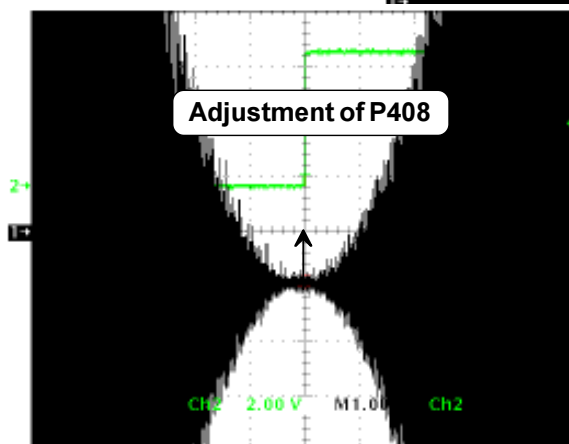
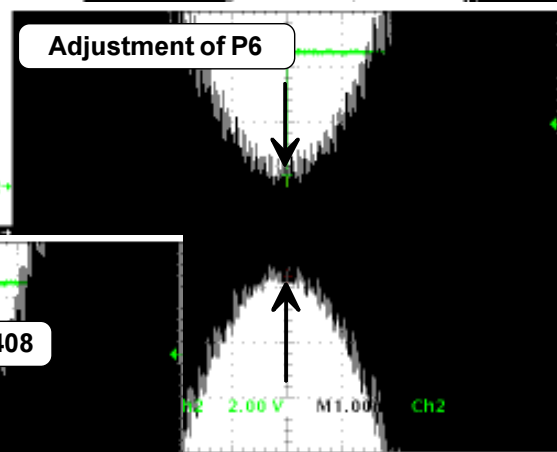
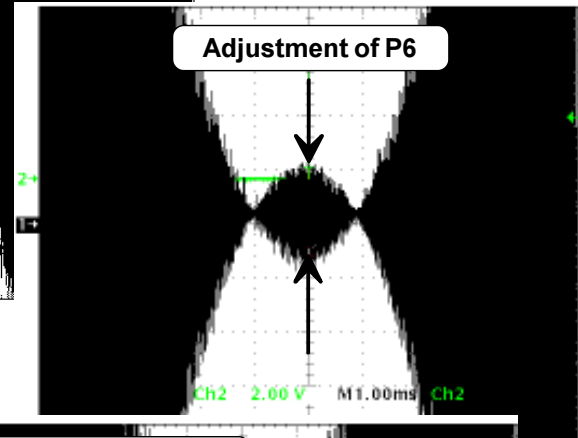
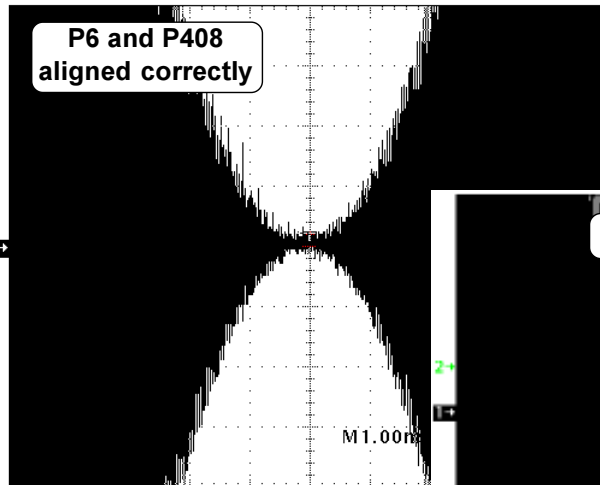
P408: Hor-Sawt/Vert-Par DC Offset

- Connect Probe 1 of an oscilloscope to the measuring point J406 and set the oscilloscope to 1msec/div & 50mV/div.
- Connect Probe 2 of the oscilloscope to the measuring point J411.
- Adjust the potentiometer P6 until two parabolas are just touching each other(see below).
- Adjust the potentiometer P408 until the DC Offset is at GROUND-level.



Probe2:
J411

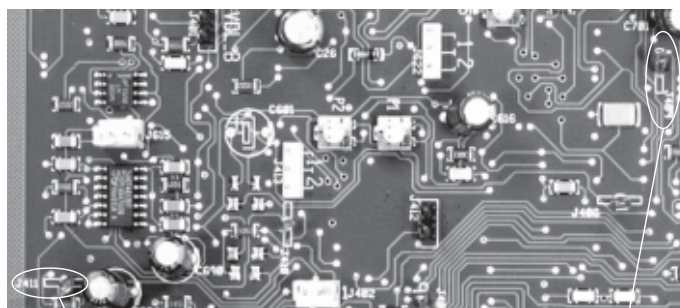
Probe1:
J406



4. Adjustment of the potentiometer

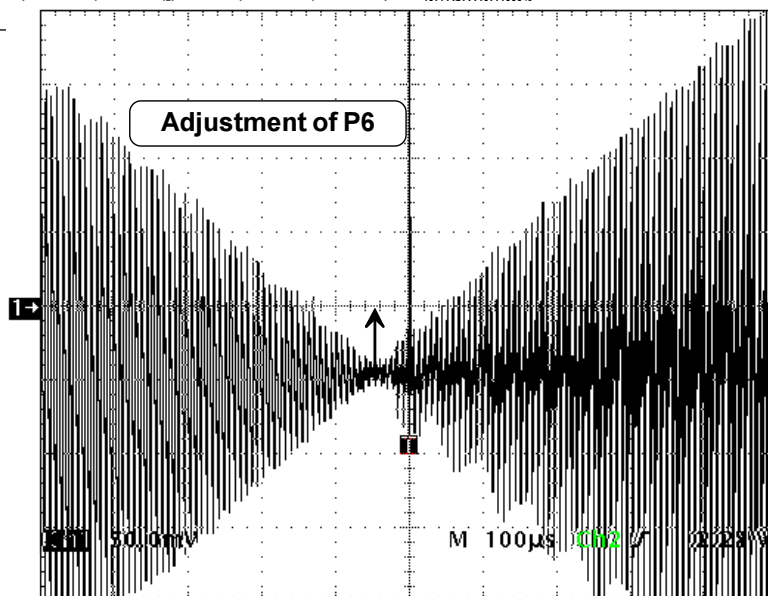
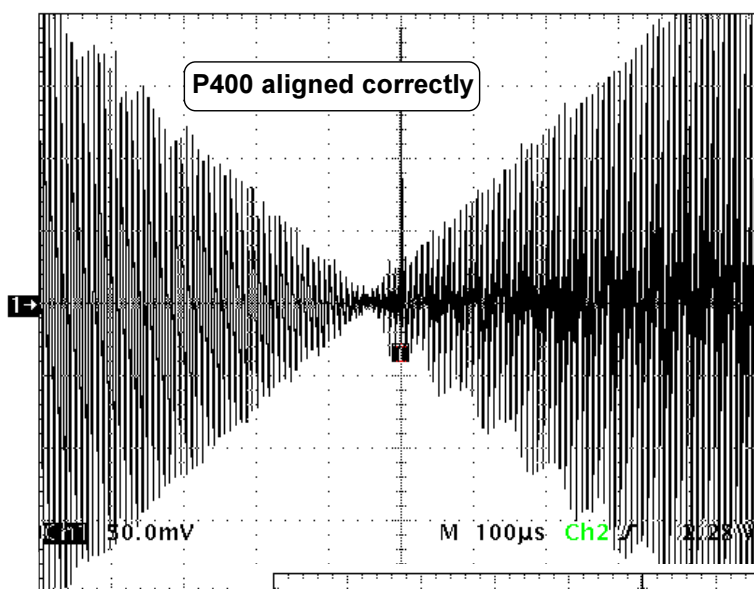
P400: Hor-Sawt/Vert-Sawt DC Offset

- Connect Probe 1 of an oscilloscope to the measuring point J409 and set the oscilloscope to 50mV/div.
- Connect Probe 2 of the oscilloscope to the measuring point J411.
- Adjust the potentiometer P400 until the DC Offset is at GROUND-level.



Probe2:
J411

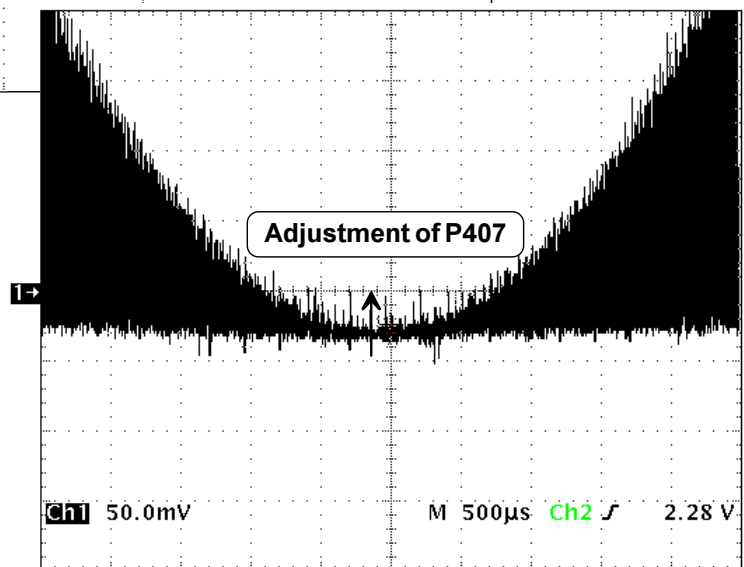
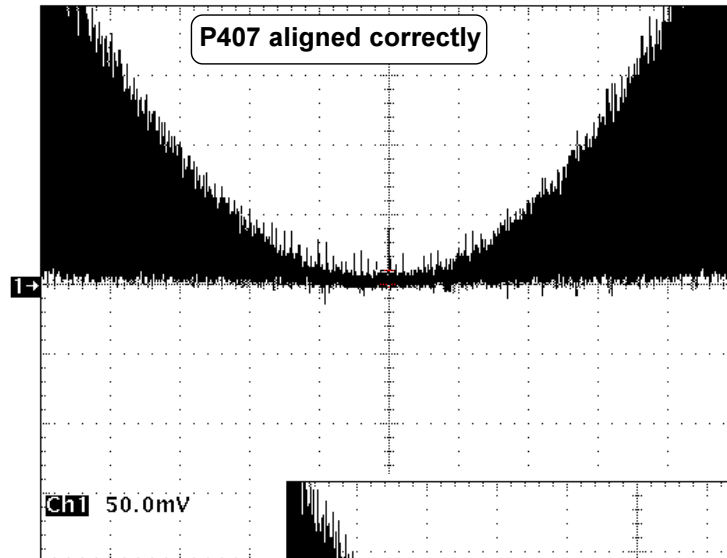
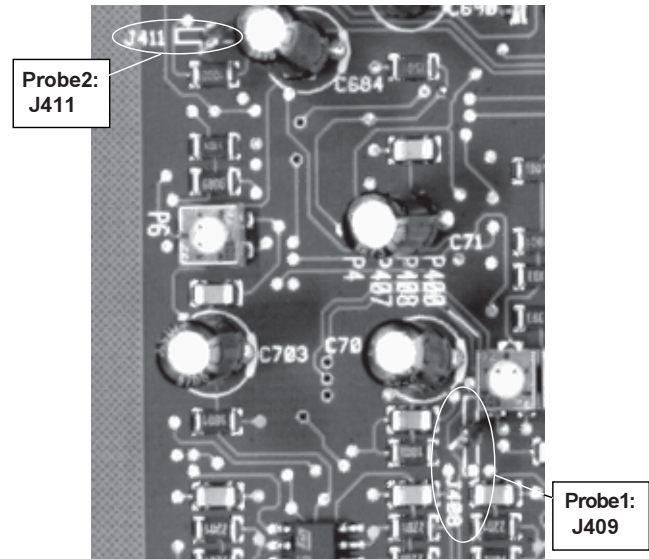
Probe1:
J409



5. Adjustment of the potentiometer

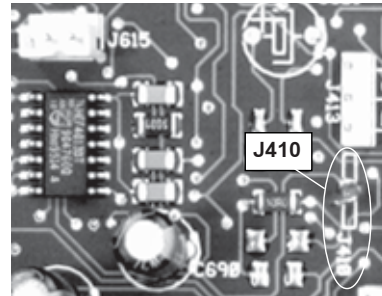
P407: Hor-Par/Vert-Par DC Offset

- Connect Probe 1 of an oscilloscope to the measuring point J408 and set the oscilloscope to 50mV/div.
- Connect Probe 2 of the oscilloscope to the measuring point J411. Adjust the potentiometer P407 until the DC Offset is at GROUND-level.



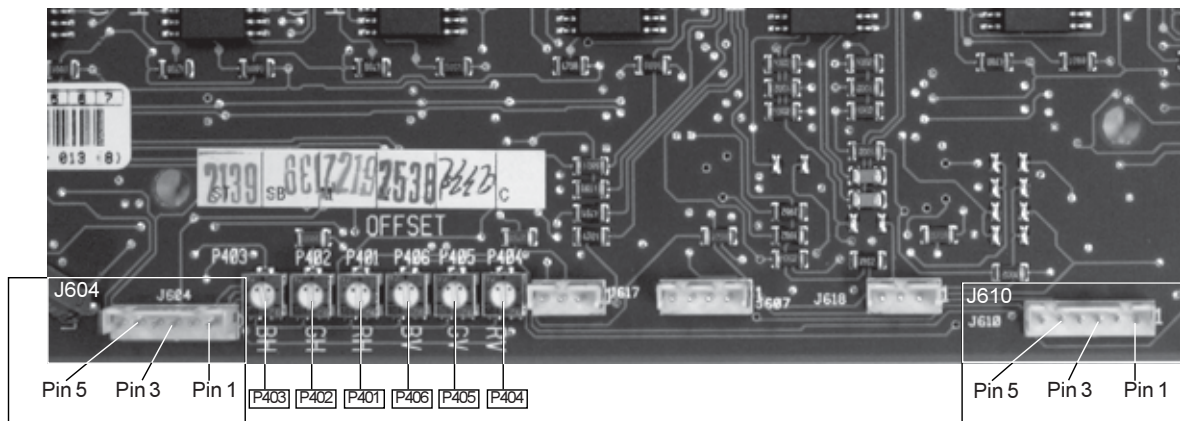
Adjustments of DC-offset at outputs

- Disconnect the connector on J608 (see p. 12).
- Set the oscilloscope to 50mV/div.
- Connect the blade J410 to GROUND.



- Measure RH OUT (Pin 1 of J604) and adjust the potentiometer P401 until the output voltage is 0V.
- Measure GH OUT (Pin 3 of J604) and adjust the potentiometer P402 until the output voltage is 0V.
- Measure BH OUT (Pin 5 of J604) and adjust the potentiometer P403 until the output voltage is 0V.
- Measure RV OUT (Pin 1 of J610) and adjust the potentiometer P404 until the output voltage is 0V.
- Measure GV OUT (Pin 3 of J610) and adjust the potentiometer P405 until the output voltage is 0V.
- Measure BV OUT (Pin 5 of J610) and adjust the potentiometer P406 until the output voltage is 0V.

After finishing the above adjustments, remove the GROUND connection of J410 and reconnect the connector J608.



TECHNICAL DESCRIPTION

Introduction The Surface Mounted Device (SMD) technology applied in the driver module makes servicing of the module not easy and requires the correct tools. The description of the schematics will then also be limited to the essential functions.

The function of this board is to generate the necessary waveforms for geometry and convergence corrections. These waveforms are supplied to the convergence end stages, which convert them into a current for the convergence coils.

We can divide the board in different parts :

- Generation of horizontal waveforms, used for horizontal midlines corrections and horizontal axis convergence.
- Generation of vertical waveforms, used for vertical midlines corrections and vertical axis convergence.
- Generation of modulation products, used for vertical N/S and E/W corrections and for corner convergence.
- Some additional circuits.

Sheet 1: Generation of horizontal frequency waveforms

Q2 acts as the current source to generate 2Vpp horizontal sawtooth, which is multiplied through IC20 to become a horizontal parabola. Pulse 1 is used to create retrace of the horizontal sawtooth.

Both horizontal waveforms are amplified with IC3: 5Vpp horizontal sawtooth at pin 7 and 9Vpp horizontal parabola at pin 10. After horizontal switching on these waveforms, performed by IC400, they are buffered and inverted before going to the bella's IC1, IC601, IC2 and IC602. These signals are used to do horizontal axis convergence.

The horizontal switching signal R is generated through comparator IC410, which is comparing the horizontal sawtooth with ground level.

The ILIM signal is used to shut off the horizontal sawtooth when overcurrent is detected in the convergence end stages.

Sheet 2: Generation of vertical frequency waveforms

Q21 acts as the current source to generate 2Vpp vertical sawtooth, which is multiplied through IC38 to become a vertical parabola. VFB signal is used to create retrace of the vertical sawtooth.

The vertical sawtooth is amplified by IC41: 5Vpp vertical sawtooth at pin 7. The vertical parabola is amplified by IC15: 10Vpp vertical parabola at pin 7. After vertical switching on these waveforms, performed by IC46, they are buffered and inverted before going to the bella's IC624, IC43, IC625 and IC44. These signals are used to do vertical axis convergence.

The vertical switching signal S is generated through comparator IC16. IC 39 is synchronizing the edges of the S-signal with the horizontal retrace.

Sheet 3: Generation of modulation products IC29 generates the 4 possible modulation products: HSVS, HSVP, HPVS and HPVP. All 4 of them are amplified through IC30 :

- 10Vpp HSVS-signal at pin 7.
- 10Vpp HSVP-signal at pin 1.
- 10Vpp HPVS-signal at pin 10.
- 5Vpp HPVP-signal at pin 16 (= HPVP').

Horizontal switching on the HSVS-signal, performed by IC401, generates the signals for left skew and right skew.

Horizontal switching on the HSVP-signal, also performed by IC401, generates the signals for left bow and right bow.

These 4 signals are led to bella IC13, to do E/W correction.

Vertical switching on the HPVS-signal, performed by IC403, generates the signals for top and bottom bow.

Vertical switching on the HSVS-signal (pin 1, IC29), performed by IC46 on [Sheet 2](#), generates the signals for top and bottom keystone.

These 4 signals are led to bella IC14, to do N/S correction.

Bella IC42, accepts all horizontal and vertical frequency waveforms, to perform Midlines correction.

Sheet 4: First part of corner convergence Vertical switching on the left bow and right bow signals (LB and RB), performed by IC 24, generates the necessary signals to do convergence in the zones 4, 23, 2 and 21 (Bella IC22, IC616, IC21 and IC615).

Vertical switching on the left skew and right skew signals (LS and RS), performed by IC 12, generates the necessary signals to do convergence in the zones 9, 18, 7 and 16 (Bella IC609, IC7, IC6 and IC608).

Sheet 5: Second part of corner convergence Horizontal switching on the top bow and bottom bow signals (TB and BB), performed by IC 402, generates the necessary signals to do convergence in the zones 15, 19, 6 and 10 (Bella IC26, IC618, IC27 and IC619).

Horizontal switching on the HPVP' signal, performed by IC 403, generates the signals Z1+Z20 and Z5+Z24. Vertical switching on these two signals, performed by IC 24 and IC12 on [Sheet 4](#), provides the necessary signals to do convergence in the zones 1, 20, 5 and 24 (Bella IC35, IC36, IC621 and IC622).

**Sheet 6:
Seagull corrections and
summing OPAMPs**

IC404 generates the necessary modulation products to perform N/S-Seagull (HP2VS) and E/W-Seagull (VSVPHS').

These waveforms are buffered and inverted before going to bella IC406.

IC33, IC18, IC5, IC40, IC25 and IC10 are the summing OPAMPs for the six different convergence channels RH, GH, BH, RV, GV and BV. Inputs for these groups are the outputs of the bella's, grouped in axis, corner and geometry corrections. The simulation input is not in use on this board.

The output of the OPAMP is connected to the convergence end stages through J604 (horizontal end stages) and J610 (vertical end stages).

Tip: Disconnecting these two connections gives you the image on the screen as it is without geometry and convergence corrections.

**Sheet 7:
Phase advancing
system and Supply
voltages connectors**

Pulse 1

The width of the positive output pulse at pin 13 of IC9 is adjusted with P1. The pulse train is integrated with IC15 determining the current of the source Q9. This current adjusts the width of the pulse at the output pin 5 of IC19. This width is a bit less than the line period. When the opposite polarity output is taken from pin 7, this pulse starts just before the end of the scanning and can be used to trigger the horizontal sawtooth generator.

Pulse 2

The pulse output at pin 13 triggers on the positive going transient the second monoflop in IC9. The width of the output pulse at pin 5 is adjusted with P2. Through the buffer Q5 the pulse is available for boosting up the supply voltage of the power end stages. Note that this pulse is also added via D38 to pulse 1.

Pulse 2 is connected to the end stages through J606, pin 1.

The second pin of J606 provides the ILIM signal (overcurrent protection), used on [Sheet 1](#).

Generation of +12V, -12V, +5V and -5V supply for different IC's (opamps, multipliers, comparators, etc.)

Generation of +3.2V and -1.8V supply for bella's.

Input connectors J608 with horizontal and vertical drive pulses, I²C-signals and ground.

J605 with supply voltages +17V, -17V, +9V, -9V.

PARTS LISTING CONVERGENCE DRIVER MODULE R762454

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
70	R3133921	JMD SHUNT F P2 E1SNIRD	4	C 70	P210122	C# X7R MU 100N K 50 1206	1
	R34700802	SLVU GLCL OIL D 1,5RD 20	1	C 71	R111549	C EL RA 3M3M 50E2 85	1
C 1	P210137	C# COG MU 100P J 50 1206	1	C 72	P210122	C# X7R MU 100N K 50 1206	1
C 2	P210122	C# X7R MU 100N K 50 1206	1	C 73	P210122	C# X7R MU 100N K 50 1206	1
C 3	P210122	C# X7R MU 100N K 50 1206	1	C 74	P210122	C# X7R MU 100N K 50 1206	1
C 5	P210122	C# X7R MU 100N K 50 1206	1	C 75	P210122	C# X7R MU 100N K 50 1206	1
C 6	P210122	C# X7R MU 100N K 50 1206	1	C 76	P210122	C# X7R MU 100N K 50 1206	1
C 7	P210095	C# X7R MU 330N M 50 1812	1	C 77	P210122	C# X7R MU 100N K 50 1206	1
C 8	P210122	C# X7R MU 100N K 50 1206	1	C 78	P210122	C# X7R MU 100N K 50 1206	1
C 9	P210122	C# X7R MU 100N K 50 1206	1	C 79	P210122	C# X7R MU 100N K 50 1206	1
C 10	P210122	C# X7R MU 100N K 50 1206	1	C 80	P210122	C# X7R MU 100N K 50 1206	1
C 11	P210122	C# X7R MU 100N K 50 1206	1	C 81	P210122	C# X7R MU 100N K 50 1206	1
C 12	P210095	C# X7R MU 330N M 50 1812	1	C 82	P210122	C# X7R MU 100N K 50 1206	1
C 13	P210122	C# X7R MU 100N K 50 1206	1	C 83	P210122	C# X7R MU 100N K 50 1206	1
C 14	P210122	C# X7R MU 100N K 50 1206	1	C 85	P210122	C# X7R MU 100N K 50 1206	1
C 15	P210122	C# X7R MU 100N K 50 1206	1	C 86	P210092	C# X7R MU 10N K 50 1206	1
C 16	P210092	C# X7R MU 10N K 50 1206	1	C 87	P210122	C# X7R MU 100N K 50 1206	1
C 17	P210122	C# X7R MU 100N K 50 1206	1	C 88	P210122	C# X7R MU 100N K 50 1206	1
C 18	P210122	C# X7R MU 100N K 50 1206	1	C 90	P210122	C# X7R MU 100N K 50 1206	1
C 19	P210122	C# X7R MU 100N K 50 1206	1	C 91	P210013	C# COG MU 1N J 50 1206	1
C 20	P210138	C# COG MU 10P J 50 1206	1	C 92	P210064	C# COG MU 22P J 50 1206	1
C 21	P210081	C# COG MU 180P J 50 0805	1	C 93	P210122	C# X7R MU 100N K 50 1206	1
C 22	P210122	C# X7R MU 100N K 50 1206	1	C 94	P210122	C# X7R MU 100N K 50 1206	1
C 23	P210122	C# X7R MU 100N K 50 1206	1	C 95	P210122	C# X7R MU 100N K 50 1206	1
C 24	P210122	C# X7R MU 100N K 50 1206	1	C 96	P210122	C# X7R MU 100N K 50 1206	1
C 25	P210122	C# X7R MU 100N K 50 1206	1	C 97	P210169	C# X7R MU 220N K 50 1210	1
C 26	R111466	C EL RA 100M M 16E2 85	1	C 98	P210122	C# X7R MU 100N K 50 1206	1
C 30	P210122	C# X7R MU 100N K 50 1206	1	C 99	P210122	C# X7R MU 100N K 50 1206	1
C 31	P210122	C# X7R MU 100N K 50 1206	1	C100	P210122	C# X7R MU 100N K 50 1206	1
C 32	P210122	C# X7R MU 100N K 50 1206	1	C101	P210122	C# X7R MU 100N K 50 1206	1
C 33	P210122	C# X7R MU 100N K 50 1206	1	C102	P210122	C# X7R MU 100N K 50 1206	1
C 34	P210122	C# X7R MU 100N K 50 1206	1	C103	P210122	C# X7R MU 100N K 50 1206	1
C 35	P210122	C# X7R MU 100N K 50 1206	1	C104	P210122	C# X7R MU 100N K 50 1206	1
C 36	P210122	C# X7R MU 100N K 50 1206	1	C105	P210122	C# X7R MU 100N K 50 1206	1
C 37	P210122	C# X7R MU 100N K 50 1206	1	C107	P210122	C# X7R MU 100N K 50 1206	1
C 38	P210122	C# X7R MU 100N K 50 1206	1	C108	P210122	C# X7R MU 100N K 50 1206	1
C 39	P210122	C# X7R MU 100N K 50 1206	1	C109	P210122	C# X7R MU 100N K 50 1206	1
C 40	P210122	C# X7R MU 100N K 50 1206	1	C110	P210122	C# X7R MU 100N K 50 1206	1
C 41	P210097	C# X7R MU 33N K 50 1206	1	C111	P210122	C# X7R MU 100N K 50 1206	1
C 42	P210122	C# X7R MU 100N K 50 1206	1	C112	P210122	C# X7R MU 100N K 50 1206	1
C 43	P210122	C# X7R MU 100N K 50 1206	1	C124	P210115	C# COG MU 6P8D 50 0805	1
C 45	P210122	C# X7R MU 100N K 50 1206	1	C129	P210102	C# COG MU 470P J 50 1206	1
C 46	P210122	C# X7R MU 100N K 50 1206	1	C400	P210076	C# COG MU 220P J 50 1206	1
C 47	P210140	C# X7R MU 4N7K 50 1206	1	C401	P210136	C# Y5V MU 330N Z 50 1206	1
C 48	P210122	C# X7R MU 100N K 50 1206	1	C402	P210045	C# X7R MU 47N K 50 1206	1
C 49	P210122	C# X7R MU 100N K 50 1206	1	C403	P210122	C# X7R MU 100N K 50 1206	1
C 50	P210122	C# X7R MU 100N K 50 1206	1	C404	P210122	C# X7R MU 100N K 50 1206	1
C 51	P210122	C# X7R MU 100N K 50 1206	1	C405	P210122	C# X7R MU 100N K 50 1206	1
C 52	P210122	C# X7R MU 100N K 50 1206	1	C406	P210122	C# X7R MU 100N K 50 1206	1
C 53	P210122	C# X7R MU 100N K 50 1206	1	C407	P210122	C# X7R MU 100N K 50 1206	1
C 56	P210122	C# X7R MU 100N K 50 1206	1	C408	P210122	C# X7R MU 100N K 50 1206	1
C 57	P210122	C# X7R MU 100N K 50 1206	1	C409	P210122	C# X7R MU 100N K 50 1206	1
C 58	P210122	C# X7R MU 100N K 50 1206	1	C410	P210122	C# X7R MU 100N K 50 1206	1
C 59	P210122	C# X7R MU 100N K 50 1206	1	C412	P210138	C# COG MU 10P J 50 1206	1
C 60	P210122	C# X7R MU 100N K 50 1206	1	C413	P210122	C# X7R MU 100N K 50 1206	1
C 61	P210122	C# X7R MU 100N K 50 1206	1	C414	P210122	C# X7R MU 100N K 50 1206	1
C 62	P210122	C# X7R MU 100N K 50 1206	1	C415	P210122	C# X7R MU 100N K 50 1206	1
C 63	P210122	C# X7R MU 100N K 50 1206	1	C416	P210122	C# X7R MU 100N K 50 1206	1
C 64	P210122	C# X7R MU 100N K 50 1206	1	C417	P210122	C# X7R MU 100N K 50 1206	1
C 65	P210122	C# X7R MU 100N K 50 1206	1	C418	P210122	C# X7R MU 100N K 50 1206	1
C 66	P210122	C# X7R MU 100N K 50 1206	1	C419	P210122	C# X7R MU 100N K 50 1206	1
C 67	P210122	C# X7R MU 100N K 50 1206	1	C420	P210122	C# X7R MU 100N K 50 1206	1
C 68	P210122	C# X7R MU 100N K 50 1206	1	C421	P210122	C# X7R MU 100N K 50 1206	1
C 69	P210122	C# X7R MU 100N K 50 1206	1	C422	P210122	C# X7R MU 100N K 50 1206	1
				C423	P210122	C# X7R MU 100N K 50 1206	1

Convergence Driver module

GREEN Convergence module (Option)

R762454

R7625128

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C424	P210122	C# X7R MU 100N K 50 1206	1	C663	P210122	C# X7R MU 100N K 50 1206	1
C425	P210122	C# X7R MU 100N K 50 1206	1	C664	P210122	C# X7R MU 100N K 50 1206	1
C426	P210122	C# X7R MU 100N K 50 1206	1	C665	P210122	C# X7R MU 100N K 50 1206	1
C450	P210137	C# COG MU 100P J 50 1206	1	C666	P210092	C# X7R MU 10N K 50 1206	1
C451	P210137	C# COG MU 100P J 50 1206	1	C669	P210138	C# COG MU 10P J 50 1206	1
C452	P210137	C# COG MU 100P J 50 1206	1	C671	P210122	C# X7R MU 100N K 50 1206	1
C453	P210137	C# COG MU 100P J 50 1206	1	C672	P210122	C# X7R MU 100N K 50 1206	1
C454	P210137	C# COG MU 100P J 50 1206	1	C674	P210122	C# X7R MU 100N K 50 1206	1
C455	P210137	C# COG MU 100P J 50 1206	1	C675	P210122	C# X7R MU 100N K 50 1206	1
C456	P210137	C# COG MU 100P J 50 1206	1	C679	P210153	C# Z5U MU 1M M 63 1812	1
C457	P210137	C# COG MU 100P J 50 1206	1	C680	P210122	C# X7R MU 100N K 50 1206	1
C458	P210137	C# COG MU 100P J 50 1206	1	C681	P210122	C# X7R MU 100N K 50 1206	1
C459	P210137	C# COG MU 100P J 50 1206	1	C682	P210138	C# COG MU 10P J 50 1206	1
C460	P210137	C# COG MU 100P J 50 1206	1	C684	R111531	C EL RA 10M M 35E2 85	1
C461	P210137	C# COG MU 100P J 50 1206	1	C687	P210122	C# X7R MU 100N K 50 1206	1
C462	P210137	C# COG MU 100P J 50 1206	1	C688	P210122	C# X7R MU 100N K 50 1206	1
C463	P210137	C# COG MU 100P J 50 1206	1	C690	R111531	C EL RA 10M M 35E2 85	1
C464	P210137	C# COG MU 100P J 50 1206	1	C691	R111531	C EL RA 10M M 35E2 85	1
C465	P210137	C# COG MU 100P J 50 1206	1	C692	R111531	C EL RA 10M M 35E2 85	1
C602	P210150	C# X7R MU 3N3K 50 1206	1	C693	P210122	C# X7R MU 100N K 50 1206	1
C603	P210122	C# X7R MU 100N K 50 1206	1	C694	P210122	C# X7R MU 100N K 50 1206	1
C605	P210169	C# X7R MU 220N K 50 1210	1	C695	P210122	C# X7R MU 100N K 50 1206	1
C606	P210122	C# X7R MU 100N K 50 1206	1	C696	P210138	C# COG MU 10P J 50 1206	1
C608	P210122	C# X7R MU 100N K 50 1206	1	C699	P210122	C# X7R MU 100N K 50 1206	1
C609	P210122	C# X7R MU 100N K 50 1206	1	C700	P210122	C# X7R MU 100N K 50 1206	1
C611	P210122	C# X7R MU 100N K 50 1206	1	C701	R111486	C EL RA 47M M 50E2 85	1
C612	P210122	C# X7R MU 100N K 50 1206	1	C703	R111531	C EL RA 10M M 35E2 85	1
C613	P210122	C# X7R MU 100N K 50 1206	1	C704	R111531	C EL RA 10M M 35E2 85	1
C614	R111546	C EL RA 1M M 50E2 85	1	C706	P210140	C# X7R MU 4N7K 50 1206	1
C615	R111546	C EL RA 1M M 50E2 85	1	C707	P210122	C# X7R MU 100N K 50 1206	1
C616	R111548	C EL RA 2M2M 50E2 85	1	C708	R111476	C EL RA 47M M 25E2 85	1
C617	R111531	C EL RA 10M M 35E2 85	1	C709	P210122	C# X7R MU 100N K 50 1206	1
C620	P210122	C# X7R MU 100N K 50 1206	1	C710	R111476	C EL RA 47M M 25E2 85	1
C621	R111546	C EL RA 1M M 50E2 85	1	C711	R111546	C EL RA 1M M 50E2 85	1
C622	R1115915	C EL5 RA 4M7M 35E2 85	1	C752	P210122	C# X7R MU 100N K 50 1206	1
C623	R1115915	C EL5 RA 4M7M 35E2 85	1	C753	P210122	C# X7R MU 100N K 50 1206	1
C624	R111546	C EL RA 1M M 50E2 85	1				
C625	R111546	C EL RA 1M M 50E2 85	1	D 1	P234099	D#4148 R DMMELF	1
C626	P210138	C# COG MU 10P J 50 1206	1	D 3	P234055	D#BAT54 SCH SOT23	1
C629	R111546	C EL RA 1M M 50E2 85	1	D 9	P234099	D#4148 R DMMELF	1
C630	R111531	C EL RA 10M M 35E2 85	1	D 30	P234055	D#BAT54 SCH SOT23	1
C631	P210122	C# X7R MU 100N K 50 1206	1	D 31	P234055	D#BAT54 SCH SOT23	1
C632	P210122	C# X7R MU 100N K 50 1206	1	D 33	P234099	D#4148 R DMMELF	1
C633	P210122	C# X7R MU 100N K 50 1206	1	D 38	P234055	D#BAT54 SCH SOT23	1
C634	R111546	C EL RA 1M M 50E2 85	1	D 39	P234055	D#BAT54 SCH SOT23	1
C636	R111531	C EL RA 10M M 35E2 85	1	D 40	P234099	D#4148 R DMMELF	1
C637	P210122	C# X7R MU 100N K 50 1206	1	D 42	P234099	D#4148 R DMMELF	1
C638	P210122	C# X7R MU 100N K 50 1206	1	D 43	P234055	D#BAT54 SCH SOT23	1
C639	P210122	C# X7R MU 100N K 50 1206	1	D604	P234055	D#BAT54 SCH SOT23	1
C640	P210122	C# X7R MU 100N K 50 1206	1				
C641	P210122	C# X7R MU 100N K 50 1206	1	I 1	P230653	U#BELLA 4 SOL28 P	1
C642	R111479	C EL RA 470M M 25E2 85	1	I 2	P230653	U#BELLA 4 SOL28 P	1
C643	R111479	C EL RA 470M M 25E2 85	1	I 3	P230705	U#34084 MC SOL16 P	1
C644	P210122	C# X7R MU 100N K 50 1206	1	I 4	P230203	U#084 TL SO14 P	1
C645	R111531	C EL RA 10M M 35E2 85	1	I 5	P230768	U#5534 NE SO8 P	1
C646	P210138	C# COG MU 10P J 50 1206	1	I 6	P230653	U#BELLA 4 SOL28 P	1
C649	P210122	C# X7R MU 100N K 50 1206	1	I 7	P230653	U#BELLA 4 SOL28 P	1
C650	R111476	C EL RA 47M M 25E2 85	1	I 8	P230203	U#084 TL SO14 P	1
C651	P210122	C# X7R MU 100N K 50 1206	1	I 9	P230073	U#74HCT123 SO16 I	1
C652	P210122	C# X7R MU 100N K 50 1206	1	I 10	P230768	U#5534 NE SO8 P	1
C654	P210122	C# X7R MU 100N K 50 1206	1	I 11	P230203	U#084 TL SO14 P	1
C655	P210122	C# X7R MU 100N K 50 1206	1	I 12	P230030	U#4053 SO16 I	1
C656	P210138	C# COG MU 10P J 50 1206	1	I 13	P230653	U#BELLA 4 SOL28 P	1
C660	P210122	C# X7R MU 100N K 50 1206	1	I 14	P230653	U#BELLA 4 SOL28 P	1
C661	P210122	C# X7R MU 100N K 50 1206	1	I 15	P230293	U#082 TL SO8 P	1
C662	R111546	C EL RA 1M M 50E2 85	1	I 16	P230028	U#393 LM SO8 P	1

Convergence Driver module

GREEN Convergence module (Option)

R762454

R7625128

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
I 17	P230203	U#084 TL SO14 P	1	J 1	R313925	J CT H MBT P 5 M2SN WH	1
I 18	P230768	U#5534 NE SO8 P	1	J400	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
I 19	P230451	U#4098 HCF SO16 I	1	J401	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
I 20	P231489	U#835 AD SO8 I	1	J402	R313922	J CT H MBT P 2 M2SN WH	1
I 21	P230653	U#BELLA 4 SOL28 P	1	J403	R313922	J CT H MBT P 2 M2SN WH	1
I 22	P230653	U#BELLA 4 SOL28 P	1	J404	R313922	J CT H MBT P 2 M2SN WH	1
I 23	P230203	U#084 TL SO14 P	1	J405	R313922	J CT H MBT P 2 M2SN WH	1
I 24	P230030	U#4053 SO16 I	1	J406	R315310	J TAB1 MBT H2,8S0,5 F1	1
I 25	P230768	U#5534 NE SO8 P	1	J407	R315310	J TAB1 MBT H2,8S0,5 F1	1
I 26	P230653	U#BELLA 4 SOL28 P	1	J408	R315310	J TAB1 MBT H2,8S0,5 F1	1
I 27	P230653	U#BELLA 4 SOL28 P	1	J409	R315310	J TAB1 MBT H2,8S0,5 F1	1
I 28	P230203	U#084 TL SO14 P	1	J410	R315310	J TAB1 MBT H2,8S0,5 F1	1
I 29	P230912	U#04 MLT SOL18 I	1	J411	R315310	J TAB1 MBT H2,8S0,5 F1	1
I 30	P230705	U#34084 MC SOL16 P	1	J412	R3132862	J MD1 C MBT P 2 E1SN 6,7	1
I 32	P230293	U#082 TL SO8 P	1	J413	R313286	J MO1 C MBT P 3 R1SN 7,5	1
I 33	P230768	U#5534 NE SO8 P	1	J601	R313928	J CT H MBT P 8 M2SN WH	1
I 35	P230653	U#BELLA 4 SOL28 P	1	J602	R313928	J CT H MBT P 8 M2SN WH	1
I 36	P230653	U#BELLA 4 SOL28 P	1	J603	R313925	J CT H MBT P 5 M2SN WH	1
I 37	P230203	U#084 TL SO14 P	1	J604	R313926	J CT H MBT P 6 M2SN WH	1
I 38	P231489	U#835 AD SO8 I	1	J605	R313928	J CT H MBT P 8 M2SN WH	1
I 39	P230034	U#4013 SO14 I	1	J606	R313922	J CT H MBT P 2 M2SN WH	1
I 40	P230768	U#5534 NE SO8 P	1	J607	R313924	J CT H MBT P 4 M2SN WH	1
I 41	P230203	U#084 TL SO14 P	1	J608	R313925	J CT H MBT P 5 M2SN WH	1
I 42	P230653	U#BELLA 4 SOL28 P	1	J609	R313928	J CT H MBT P 8 M2SN WH	1
I 43	P230653	U#BELLA 4 SOL28 P	1	J610	R313926	J CT H MBT P 6 M2SN WH	1
I 44	P230653	U#BELLA 4 SOL28 P	1	J611	R313928	J CT H MBT P 8 M2SN WH	1
I 45	P230203	U#084 TL SO14 P	1	J612	R313928	J CT H MBT P 8 M2SN WH	1
I 46	P230030	U#4053 SO16 I	1	J613	R313928	J CT H MBT P 8 M2SN WH	1
I400	P231479	U#542 DG SO16 I	1	J614	R313922	J CT H MBT P 2 M2SN WH	1
I401	P231479	U#542 DG SO16 I	1	J615	R313922	J CT H MBT P 2 M2SN WH	1
I402	P231479	U#542 DG SO16 I	1	J616	R313922	J CT H MBT P 2 M2SN WH	1
I403	P231479	U#542 DG SO16 I	1	J617	R313923	J CT H MBT P 3 M2SN WH	1
I404	P230912	U#04 MLT SOL18 I	1	J618	R313923	J CT H MBT P 3 M2SN WH	1
I405	P230203	U#084 TL SO14 P	1	J619	R313922	J CT H MBT P 2 M2SN WH	1
I406	P230653	U#BELLA 4 SOL28 P	1	J622	R313286	J MO1 C MBT P 3 R1SN 7,5	1
I407	P230203	U#084 TL SO14 P	1	L601	R774154	CH D**HR HOR	1
I408	P230293	U#082 TL SO8 P	1	L602	R774154	CH D**HR HOR	1
I409	P230653	U#BELLA 4 SOL28 P	1				
I410	P231527	U#360 LM SO8 P	1	P 1	P201393	R#TCE H 50K M 0W25 S4 TS	1
I601	P230653	U#BELLA 4 SOL28 P	1	P 2	P201393	R#TCE H 50K M 0W25 S4 TS	1
I602	P230653	U#BELLA 4 SOL28 P	1	P 3	P201393	R#TCE H 50K M 0W25 S4 TS	1
I603	P230203	U#084 TL SO14 P	1	P 4	P201393	R#TCE H 50K M 0W25 S4 TS	1
I604	R134002	U 7812 TO220 P	1	P 5	P201393	R#TCE H 50K M 0W25 S4 TS	1
I605	R134016	U 7912 TO220 P	1	P 6	P201393	R#TCE H 50K M 0W25 S4 TS	1
I606	R134026	U 317T LM TO220 P	1	P400	P201393	R#TCE H 50K M 0W25 S4 TS	1
I607	R134027	U 337T TO220 P	1	P401	P201393	R#TCE H 50K M 0W25 S4 TS	1
I608	P230653	U#BELLA 4 SOL28 P	1	P402	P201393	R#TCE H 50K M 0W25 S4 TS	1
I609	P230653	U#BELLA 4 SOL28 P	1	P403	P201393	R#TCE H 50K M 0W25 S4 TS	1
I610	P230203	U#084 TL SO14 P	1	P404	P201393	R#TCE H 50K M 0W25 S4 TS	1
I611	R134011	U 7905C TO220 P	1	P405	P201393	R#TCE H 50K M 0W25 S4 TS	1
I612	R134001	U 7805 TO220 P	1	P406	P201393	R#TCE H 50K M 0W25 S4 TS	1
I613	P230203	U#084 TL SO14 P	1	P407	P201393	R#TCE H 50K M 0W25 S4 TS	1
I614	P230203	U#084 TL SO14 P	1	P408	P201393	R#TCE H 50K M 0W25 S4 TS	1
I615	P230653	U#BELLA 4 SOL28 P	1				
I616	P230653	U#BELLA 4 SOL28 P	1	PC	R780319	PCB D700 CNV DVR	1
I617	P230203	U#084 TL SO14 P	1				
I618	P230653	U#BELLA 4 SOL28 P	1	Q 1	P232066	Q#BSR14 N SS SOT23	1
I619	P230653	U#BELLA 4 SOL28 P	1	Q 2	P232101	Q#BC859C P SS SOT23	1
I620	P230203	U#084 TL SO14 P	1	Q 5	P232004	Q#BC849C N SS SOT23	1
I621	P230653	U#BELLA 4 SOL28 P	1	Q 9	P232101	Q#BC859C P SS SOT23	1
I622	P230653	U#BELLA 4 SOL28 P	1	Q 19	P232101	Q#BC859C P SS SOT23	1
I623	P230203	U#084 TL SO14 P	1	Q 20	P232004	Q#BC849C N SS SOT23	1
I624	P230653	U#BELLA 4 SOL28 P	1	Q 21	P232101	Q#BC859C P SS SOT23	1
I625	P230653	U#BELLA 4 SOL28 P	1	Q 22	P232101	Q#BC859C P SS SOT23	1
I626	P230203	U#084 TL SO14 P	1	Q 23	P232079	Q#BSS84 F SS SOT23	1
				Q603	P232066	Q#BSR14 N SS SOT23	1
				Q604	P232004	Q#BC849C N SS SOT23	1

Convergence Driver module

GREEN Convergence module (Option)

R762454

R7625128

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 1	P200433	R# CE H 8K2 F 0W12 1206	1	R 86	P200435	R# CE H 10K F 0W12 1206	1
R 2	P200425	R# CE H 3K9 F 0W12 1206	1	R 87	P200435	R# CE H 10K F 0W12 1206	1
R 3	P200413	R# CE H 1K2 F 0W12 1206	1	R 88	P200435	R# CE H 10K F 0W12 1206	1
R 5	P200411	R# CE H 1K F 0W12 1206	1	R 89	P200419	R# CE H 2K2 F 0W12 1206	1
R 6	P200395	R# CE H220E F 0W12 1206	1	R 90	P200435	R# CE H 10K F 0W12 1206	1
R 7	P200411	R# CE H 1K F 0W12 1206	1	R 91	P200425	R# CE H 3K9 F 0W12 1206	1
R 10	P200427	R# CE H 4K7 F 0W12 1206	1	R 92	P200419	R# CE H 2K2 F 0W12 1206	1
R 12	P200427	R# CE H 4K7 F 0W12 1206	1	R 93	P200443	R# CE H 22K F 0W12 1206	1
R 14	P200411	R# CE H 1K F 0W12 1206	1	R 94	P200427	R# CE H 4K7 F 0W12 1206	1
R 15	P200439	R# CE H 15K F 0W12 1206	1	R 95	P200427	R# CE H 4K7 F 0W12 1206	1
R 16	P200411	R# CE H 1K F 0W12 1206	1	R 96	P200427	R# CE H 4K7 F 0W12 1206	1
R 17	P200429	R# CE H 5K6 F 0W12 1206	1	R 97	P200435	R# CE H 10K F 0W12 1206	1
R 18	P200429	R# CE H 5K6 F 0W12 1206	1	R 98	P200435	R# CE H 10K F 0W12 1206	1
R 19	P200423	R# CE H 3K3 F 0W12 1206	1	R 99	P200435	R# CE H 10K F 0W12 1206	1
R 23	P200469	R# CE H270K F 0W12 1206	1	R100	P200423	R# CE H 3K3 F 0W12 1206	1
R 25	P200411	R# CE H 1K F 0W12 1206	1	R102	P200443	R# CE H 22K F 0W12 1206	1
R 26	P200411	R# CE H 1K F 0W12 1206	1	R103	P200411	R# CE H 1K F 0W12 1206	1
R 27	P200439	R# CE H 15K F 0W12 1206	1	R104	P200411	R# CE H 1K F 0W12 1206	1
R 28	P200439	R# CE H 15K F 0W12 1206	1	R105	P200413	R# CE H 1K2 F 0W12 1206	1
R 29	P200439	R# CE H 15K F 0W12 1206	1	R106	P200443	R# CE H 22K F 0W12 1206	1
R 30	P200413	R# CE H 1K2 F 0W12 1206	1	R107	P200387	R# CE H100E F 0W12 1206	1
R 31	P200411	R# CE H 1K F 0W12 1206	1	R108	P200425	R# CE H 3K9 F 0W12 1206	1
R 32	P200411	R# CE H 1K F 0W12 1206	1	R109	P200419	R# CE H 2K2 F 0W12 1206	1
R 33	P200429	R# CE H 5K6 F 0W12 1206	1	R110	P200443	R# CE H 22K F 0W12 1206	1
R 34	P200435	R# CE H 10K F 0W12 1206	1	R111	P200425	R# CE H 3K9 F 0W12 1206	1
R 35	P200459	R# CE H100K F 0W12 1206	1	R112	P200417	R# CE H 1K8 F 0W12 1206	1
R 36	P200411	R# CE H 1K F 0W12 1206	1	R113	P200411	R# CE H 1K F 0W12 1206	1
R 37	P200435	R# CE H 10K F 0W12 1206	1	R114	P200419	R# CE H 2K2 F 0W12 1206	1
R 42	P200437	R# CE H 12K F 0W12 1206	1	R116	P200437	R# CE H 12K F 0W12 1206	1
R 43	P200363	R# CE H 10E F 0W12 1206	1	R118	P200437	R# CE H 12K F 0W12 1206	1
R 44	P200437	R# CE H 12K F 0W12 1206	1	R119	P200437	R# CE H 12K F 0W12 1206	1
R 45	P200437	R# CE H 12K F 0W12 1206	1	R120	P200419	R# CE H 2K2 F 0W12 1206	1
R 46	P200435	R# CE H 10K F 0W12 1206	1	R121	P200419	R# CE H 2K2 F 0W12 1206	1
R 47	P200419	R# CE H 2K2 F 0W12 1206	1	R122	P200439	R# CE H 15K F 0W12 1206	1
R 48	P200419	R# CE H 2K2 F 0W12 1206	1	R123	P200439	R# CE H 15K F 0W12 1206	1
R 49	P200435	R# CE H 10K F 0W12 1206	1	R124	P200439	R# CE H 15K F 0W12 1206	1
R 50	P200435	R# CE H 10K F 0W12 1206	1	R125	P200439	R# CE H 15K F 0W12 1206	1
R 51	P200459	R# CE H100K F 0W12 1206	1	R126	P200435	R# CE H 10K F 0W12 1206	1
R 52	P200427	R# CE H 4K7 F 0W12 1206	1	R127	P200423	R# CE H 3K3 F 0W12 1206	1
R 54	P200386	R# CE H 91E F 0W12 1206	1	R128	P200443	R# CE H 22K F 0W12 1206	1
R 55	P200389	R# CE H120E F 0W12 1206	1	R129	P200403	R# CE H470E F 0W12 1206	1
R 58	P200427	R# CE H 4K7 F 0W12 1206	1	R130	P200403	R# CE H470E F 0W12 1206	1
R 59	P200423	R# CE H 3K3 F 0W12 1206	1	R131	P200419	R# CE H 2K2 F 0W12 1206	1
R 60	P200419	R# CE H 2K2 F 0W12 1206	1	R132	P200439	R# CE H 15K F 0W12 1206	1
R 61	P200419	R# CE H 2K2 F 0W12 1206	1	R133	P200439	R# CE H 15K F 0W12 1206	1
R 62	P200435	R# CE H 10K F 0W12 1206	1	R134	P200439	R# CE H 15K F 0W12 1206	1
R 63	P200435	R# CE H 10K F 0W12 1206	1	R135	P200439	R# CE H 15K F 0W12 1206	1
R 64	P200435	R# CE H 10K F 0W12 1206	1	R136	P200419	R# CE H 2K2 F 0W12 1206	1
R 65	P200437	R# CE H 12K F 0W12 1206	1	R137	P200437	R# CE H 12K F 0W12 1206	1
R 66	P200437	R# CE H 12K F 0W12 1206	1	R138	P200437	R# CE H 12K F 0W12 1206	1
R 67	P200419	R# CE H 2K2 F 0W12 1206	1	R139	P200427	R# CE H 4K7 F 0W12 1206	1
R 68	P200411	R# CE H 1K F 0W12 1206	1	R140	P200417	R# CE H 1K8 F 0W12 1206	1
R 69	P200411	R# CE H 1K F 0W12 1206	1	R141	P200417	R# CE H 1K8 F 0W12 1206	1
R 70	P200437	R# CE H 12K F 0W12 1206	1	R143	P200459	R# CE H100K F 0W12 1206	1
R 71	P200411	R# CE H 1K F 0W12 1206	1	R145	P200395	R# CE H220E F 0W12 1206	1
R 72	P200411	R# CE H 1K F 0W12 1206	1	R146	P200435	R# CE H 10K F 0W12 1206	1
R 73	P200437	R# CE H 12K F 0W12 1206	1	R152	P200425	R# CE H 3K9 F 0W12 1206	1
R 75	P200435	R# CE H 10K F 0W12 1206	1	R153	P200417	R# CE H 1K8 F 0W12 1206	1
R 77	P200411	R# CE H 1K F 0W12 1206	1	R154	P200411	R# CE H 1K F 0W12 1206	1
R 78	P200437	R# CE H 12K F 0W12 1206	1	R157	P200435	R# CE H 10K F 0W12 1206	1
R 79	P200411	R# CE H 1K F 0W12 1206	1	R160	P200435	R# CE H 10K F 0W12 1206	1
R 80	P200403	R# CE H470E F 0W12 1206	1	R161	P200427	R# CE H 4K7 F 0W12 1206	1
R 81	P200437	R# CE H 12K F 0W12 1206	1	R162	P200427	R# CE H 4K7 F 0W12 1206	1
R 82	P200411	R# CE H 1K F 0W12 1206	1	R163	P200411	R# CE H 1K F 0W12 1206	1
R 83	P200427	R# CE H 4K7 F 0W12 1206	1	R164	P200419	R# CE H 2K2 F 0W12 1206	1
R 84	P200427	R# CE H 4K7 F 0W12 1206	1	R165	P200439	R# CE H 15K F 0W12 1206	1
R 85	P200427	R# CE H 4K7 F 0W12 1206	1	R166	P200439	R# CE H 15K F 0W12 1206	1

Convergence Driver module

GREEN Convergence module (Option)

R762454

R7625128

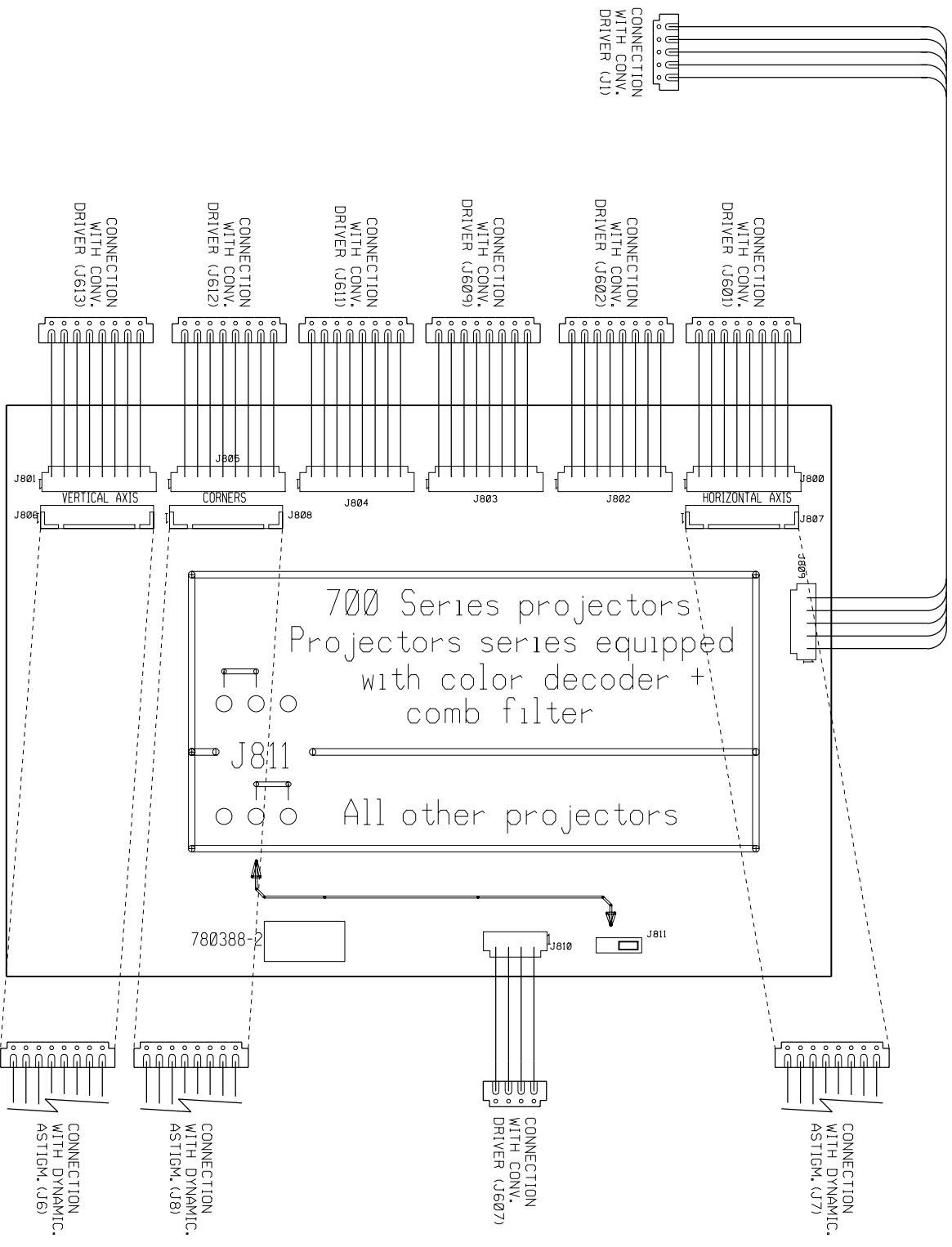
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R167	P200439	R# CE H 15K F 0W12 1206	1	R253	P200441	R# CE H 18K F 0W12 1206	1
R168	P200439	R# CE H 15K F 0W12 1206	1	R254	P200441	R# CE H 18K F 0W12 1206	1
R170	P200435	R# CE H 10K F 0W12 1206	1	R255	P200441	R# CE H 18K F 0W12 1206	1
R173	P200419	R# CE H 2K2 F 0W12 1206	1	R256	P200441	R# CE H 18K F 0W12 1206	1
R174	P200439	R# CE H 15K F 0W12 1206	1	R257	P200469	R# CE H270K F 0W12 1206	1
R175	P200439	R# CE H 15K F 0W12 1206	1	R258	P200433	R# CE H 8K2 F 0W12 1206	1
R176	P200439	R# CE H 15K F 0W12 1206	1	R261	P200459	R# CE H100K F 0W12 1206	1
R177	P200439	R# CE H 15K F 0W12 1206	1	R262	P200411	R# CE H 1K F 0W12 1206	1
R178	P200411	R# CE H 1K F 0W12 1206	1	R264	P200435	R# CE H 10K F 0W12 1206	1
R179	P200427	R# CE H 4K7 F 0W12 1206	1	R266	P200435	R# CE H 10K F 0W12 1206	1
R180	P200427	R# CE H 4K7 F 0W12 1206	1	R267	P200435	R# CE H 10K F 0W12 1206	1
R181	P200423	R# CE H 3K3 F 0W12 1206	1	R268	P200441	R# CE H 18K F 0W12 1206	1
R182	P200417	R# CE H 1K8 F 0W12 1206	1	R269	P200441	R# CE H 18K F 0W12 1206	1
R183	P200417	R# CE H 1K8 F 0W12 1206	1	R270	P200441	R# CE H 18K F 0W12 1206	1
R184	P200471	R# CE H330K F 0W12 1206	1	R271	P200441	R# CE H 18K F 0W12 1206	1
R188	P200435	R# CE H 10K F 0W12 1206	1	R272	P200441	R# CE H 18K F 0W12 1206	1
R195	P200413	R# CE H 1K2 F 0W12 1206	1	R273	P200441	R# CE H 18K F 0W12 1206	1
R196	P200411	R# CE H 1K F 0W12 1206	1	R274	P200441	R# CE H 18K F 0W12 1206	1
R197	P200411	R# CE H 1K F 0W12 1206	1	R275	P200441	R# CE H 18K F 0W12 1206	1
R198	P200413	R# CE H 1K2 F 0W12 1206	1	R276	P200441	R# CE H 18K F 0W12 1206	1
R200	P200437	R# CE H 12K F 0W12 1206	1	R277	P200441	R# CE H 18K F 0W12 1206	1
R202	P200427	R# CE H 4K7 F 0W12 1206	1	R278	P200453	R# CE H 56K F 0W12 1206	1
R203	P200427	R# CE H 4K7 F 0W12 1206	1	R279	P200395	R# CE H220E F 0W12 1206	1
R204	P200419	R# CE H 2K2 F 0W12 1206	1	R280	P200419	R# CE H 2K2 F 0W12 1206	1
R205	P200419	R# CE H 2K2 F 0W12 1206	1	R281	P200433	R# CE H 8K2 F 0W12 1206	1
R206	P200439	R# CE H 15K F 0W12 1206	1	R282	P200433	R# CE H 8K2 F 0W12 1206	1
R207	P200439	R# CE H 15K F 0W12 1206	1	R283	P200435	R# CE H 10K F 0W12 1206	1
R208	P200439	R# CE H 15K F 0W12 1206	1	R284	P200419	R# CE H 2K2 F 0W12 1206	1
R209	P200439	R# CE H 15K F 0W12 1206	1	R285	P200419	R# CE H 2K2 F 0W12 1206	1
R210	P200427	R# CE H 4K7 F 0W12 1206	1	R286	P200411	R# CE H 1K F 0W12 1206	1
R211	P200437	R# CE H 12K F 0W12 1206	1	R287	P200443	R# CE H 22K F 0W12 1206	1
R215	P200419	R# CE H 2K2 F 0W12 1206	1	R288	P200459	R# CE H100K F 0W12 1206	1
R216	P200439	R# CE H 15K F 0W12 1206	1	R289	P200419	R# CE H 2K2 F 0W12 1206	1
R217	P200439	R# CE H 15K F 0W12 1206	1	R290	P200363	R# CE H 10E F 0W12 1206	1
R218	P200439	R# CE H 15K F 0W12 1206	1	R291	P200411	R# CE H 1K F 0W12 1206	1
R219	P200439	R# CE H 15K F 0W12 1206	1	R292	P200411	R# CE H 1K F 0W12 1206	1
R220	P200423	R# CE H 3K3 F 0W12 1206	1	R293	P200417	R# CE H 1K8 F 0W12 1206	1
R221	P200411	R# CE H 1K F 0W12 1206	1	R294	P200417	R# CE H 1K8 F 0W12 1206	1
R222	P200419	R# CE H 2K2 F 0W12 1206	1	R297	P200411	R# CE H 1K F 0W12 1206	1
R223	P200427	R# CE H 4K7 F 0W12 1206	1	R298	P200411	R# CE H 1K F 0W12 1206	1
R224	P200427	R# CE H 4K7 F 0W12 1206	1	R300	P200387	R# CE H100E F 0W12 1206	1
R225	P200411	R# CE H 1K F 0W12 1206	1	R302	P200411	R# CE H 1K F 0W12 1206	1
R228	P200427	R# CE H 4K7 F 0W12 1206	1	R303	P200461	R# CE H120K F 0W12 1206	1
R229	P200417	R# CE H 1K8 F 0W12 1206	1	R304	P200443	R# CE H 22K F 0W12 1206	1
R230	P200417	R# CE H 1K8 F 0W12 1206	1	R305	P200443	R# CE H 22K F 0W12 1206	1
R231	P200443	R# CE H 22K F 0W12 1206	1	R306	P200387	R# CE H100E F 0W12 1206	1
R232	P200459	R# CE H100K F 0W12 1206	1	R307	P200463	R# CE H150K F 0W12 1206	1
R233	P200435	R# CE H 10K F 0W12 1206	1	R308	P200411	R# CE H 1K F 0W12 1206	1
R234	P200459	R# CE H100K F 0W12 1206	1	R309	P200403	R# CE H470E F 0W12 1206	1
R235	P200435	R# CE H 10K F 0W12 1206	1	R310	P200387	R# CE H100E F 0W12 1206	1
R236	P200445	R# CE H 27K F 0W12 1206	1	R311	P200403	R# CE H470E F 0W12 1206	1
R237	P200423	R# CE H 3K3 F 0W12 1206	1	R312	P200387	R# CE H100E F 0W12 1206	1
R238	P200363	R# CE H 10E F 0W12 1206	1	R313	P200403	R# CE H470E F 0W12 1206	1
R239	P200437	R# CE H 12K F 0W12 1206	1	R314	P200387	R# CE H100E F 0W12 1206	1
R240	P200427	R# CE H 4K7 F 0W12 1206	1	R315	P200403	R# CE H470E F 0W12 1206	1
R241	P200363	R# CE H 10E F 0W12 1206	1	R316	P200387	R# CE H100E F 0W12 1206	1
R242	P200437	R# CE H 12K F 0W12 1206	1	R317	P200363	R# CE H 10E F 0W12 1206	1
R243	P200427	R# CE H 4K7 F 0W12 1206	1	R318	P200463	R# CE H150K F 0W12 1206	1
R244	P200419	R# CE H 2K2 F 0W12 1206	1	R319	P200411	R# CE H 1K F 0W12 1206	1
R245	P200419	R# CE H 2K2 F 0W12 1206	1	R320	P200411	R# CE H 1K F 0W12 1206	1
R246	P200433	R# CE H 8K2 F 0W12 1206	1	R321	P200443	R# CE H 22K F 0W12 1206	1
R247	P200419	R# CE H 2K2 F 0W12 1206	1	R322	P200465	R# CE H180K F 0W12 1206	1
R248	P200419	R# CE H 2K2 F 0W12 1206	1	R325	P200363	R# CE H 10E F 0W12 1206	1
R249	P200411	R# CE H 1K F 0W12 1206	1	R326	P200429	R# CE H 5K6 F 0W12 1206	1
R250	P200411	R# CE H 1K F 0W12 1206	1	R327	P200435	R# CE H 10K F 0W12 1206	1
R251	P200415	R# CE H 1K5 F 0W12 1206	1	R328	P200425	R# CE H 3K9 F 0W12 1206	1
R252	P200411	R# CE H 1K F 0W12 1206	1	R329	P200363	R# CE H 10E F 0W12 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R330	P200435	R# CE H 10K F 0W12 1206	1	R414	P200443	R# CE H 22K F 0W12 1206	1
R331	P200435	R# CE H 10K F 0W12 1206	1	R415	P200431	R# CE H 6K8 F 0W12 1206	1
R332	P200425	R# CE H 3K9 F 0W12 1206	1	R416	P200417	R# CE H 1K8 F 0W12 1206	1
R333	P200435	R# CE H 10K F 0W12 1206	1	R417	P200435	R# CE H 10K F 0W12 1206	1
R334	P200403	R# CE H470E F 0W12 1206	1	R418	P200411	R# CE H 1K F 0W12 1206	1
R335	P200387	R# CE H100E F 0W12 1206	1	R419	P200411	R# CE H 1K F 0W12 1206	1
R336	P200403	R# CE H470E F 0W12 1206	1	R420	P200411	R# CE H 1K F 0W12 1206	1
R337	P200387	R# CE H100E F 0W12 1206	1	R421	P200411	R# CE H 1K F 0W12 1206	1
R338	P200403	R# CE H470E F 0W12 1206	1	R422	P200411	R# CE H 1K F 0W12 1206	1
R339	P200387	R# CE H100E F 0W12 1206	1	R423	P200411	R# CE H 1K F 0W12 1206	1
R340	P200403	R# CE H470E F 0W12 1206	1	R424	P200403	R# CE H470E F 0W12 1206	1
R341	P200387	R# CE H100E F 0W12 1206	1	R425	P200387	R# CE H100E F 0W12 1206	1
R342	P200403	R# CE H470E F 0W12 1206	1	R429	P200449	R# CE H 39K F 0W12 1206	1
R343	P200387	R# CE H100E F 0W12 1206	1	R430	P200449	R# CE H 39K F 0W12 1206	1
R344	P200403	R# CE H470E F 0W12 1206	1	R431	P200449	R# CE H 39K F 0W12 1206	1
R345	P200387	R# CE H100E F 0W12 1206	1	R432	P200435	R# CE H 10K F 0W12 1206	1
R346	P200403	R# CE H470E F 0W12 1206	1	R433	P200435	R# CE H 10K F 0W12 1206	1
R347	P200387	R# CE H100E F 0W12 1206	1	R434	P200435	R# CE H 10K F 0W12 1206	1
R348	P200403	R# CE H470E F 0W12 1206	1	R438	P200443	R# CE H 22K F 0W12 1206	1
R349	P200387	R# CE H100E F 0W12 1206	1	R439	P200447	R# CE H 33K F 0W12 1206	1
R350	P200403	R# CE H470E F 0W12 1206	1	R440	P200443	R# CE H 22K F 0W12 1206	1
R351	P200387	R# CE H100E F 0W12 1206	1	R441	P200427	R# CE H 4K7 F 0W12 1206	1
R352	P200403	R# CE H470E F 0W12 1206	1	R442	P200411	R# CE H 1K F 0W12 1206	1
R353	P200387	R# CE H100E F 0W12 1206	1	R443	P200411	R# CE H 1K F 0W12 1206	1
R354	P200403	R# CE H470E F 0W12 1206	1	R444	P200411	R# CE H 1K F 0W12 1206	1
R355	P200387	R# CE H100E F 0W12 1206	1	R445	P200411	R# CE H 1K F 0W12 1206	1
R360	P200403	R# CE H470E F 0W12 1206	1	R446	P200403	R# CE H470E F 0W12 1206	1
R361	P200387	R# CE H100E F 0W12 1206	1	R447	P200387	R# CE H100E F 0W12 1206	1
R362	P200403	R# CE H470E F 0W12 1206	1	R448	P200443	R# CE H 22K F 0W12 1206	1
R363	P200387	R# CE H100E F 0W12 1206	1	R449	P200447	R# CE H 33K F 0W12 1206	1
R364	P200403	R# CE H470E F 0W12 1206	1	R450	P200411	R# CE H 1K F 0W12 1206	1
R365	P200387	R# CE H100E F 0W12 1206	1	R451	P200411	R# CE H 1K F 0W12 1206	1
R366	P200403	R# CE H470E F 0W12 1206	1	R452	P200427	R# CE H 4K7 F 0W12 1206	1
R367	P200387	R# CE H100E F 0W12 1206	1	R453	P200427	R# CE H 4K7 F 0W12 1206	1
R368	P200403	R# CE H470E F 0W12 1206	1	R454	P200429	R# CE H 5K6 F 0W12 1206	1
R369	P200387	R# CE H100E F 0W12 1206	1	R455	P200429	R# CE H 5K6 F 0W12 1206	1
R370	P200403	R# CE H470E F 0W12 1206	1	R456	P200471	R# CE H330K F 0W12 1206	1
R371	P200387	R# CE H100E F 0W12 1206	1	R457	P200471	R# CE H330K F 0W12 1206	1
R372	P200403	R# CE H470E F 0W12 1206	1	R460	P200470	R# CE H300K F 0W12 1206	1
R373	P200387	R# CE H100E F 0W12 1206	1	R461	P200435	R# CE H 10K F 0W12 1206	1
R374	P200403	R# CE H470E F 0W12 1206	1	R465	P200339	R# CE H 1E F 0W12 1206	1
R375	P200387	R# CE H100E F 0W12 1206	1	R466	P200407	R# CE H680E F 0W12 1206	1
R378	P200459	R# CE H100K F 0W12 1206	1	R467	P200407	R# CE H680E F 0W12 1206	1
R379	P200403	R# CE H470E F 0W12 1206	1	R468	P200413	R# CE H 1K2 F 0W12 1206	1
R380	P200387	R# CE H100E F 0W12 1206	1	R469	P200407	R# CE H680E F 0W12 1206	1
R381	P200403	R# CE H470E F 0W12 1206	1	R470	P200407	R# CE H680E F 0W12 1206	1
R382	P200387	R# CE H100E F 0W12 1206	1	R471	P200407	R# CE H680E F 0W12 1206	1
R383	P200363	R# CE H 10E F 0W12 1206	1	R472	P200407	R# CE H680E F 0W12 1206	1
R384	P200363	R# CE H 10E F 0W12 1206	1	R473	P200407	R# CE H680E F 0W12 1206	1
R385	P200363	R# CE H 10E F 0W12 1206	1	R474	P200407	R# CE H680E F 0W12 1206	1
R386	P200363	R# CE H 10E F 0W12 1206	1	R475	P200407	R# CE H680E F 0W12 1206	1
R387	P200363	R# CE H 10E F 0W12 1206	1	R476	P200407	R# CE H680E F 0W12 1206	1
R388	P200363	R# CE H 10E F 0W12 1206	1	R477	P200407	R# CE H680E F 0W12 1206	1
R400	P200483	R# CE H 1M F 0W12 1206	1	R478	P200407	R# CE H680E F 0W12 1206	1
R401	P200407	R# CE H680E F 0W12 1206	1	R480	P200427	R# CE H 4K7 F 0W12 1206	1
R402	P200412	R# CE H 1K1 F 0W12 1206	1	R601	P200433	R# CE H 8K2 F 0W12 1206	1
R403	P200469	R# CE H270K F 0W12 1206	1	R602	P200437	R# CE H 12K F 0W12 1206	1
R404	P200469	R# CE H270K F 0W12 1206	1	R604	P200423	R# CE H 3K3 F 0W12 1206	1
R405	P200469	R# CE H270K F 0W12 1206	1	R605	P200423	R# CE H 3K3 F 0W12 1206	1
R406	P200469	R# CE H270K F 0W12 1206	1	R606	P200423	R# CE H 3K3 F 0W12 1206	1
R407	P200469	R# CE H270K F 0W12 1206	1	R607	P200411	R# CE H 1K F 0W12 1206	1
R408	P200469	R# CE H270K F 0W12 1206	1	R608	P200419	R# CE H 2K2 F 0W12 1206	1
R409	P200471	R# CE H330K F 0W12 1206	1	R609	P200411	R# CE H 1K F 0W12 1206	1
R410	P200443	R# CE H 22K F 0W12 1206	1	R610	P200411	R# CE H 1K F 0W12 1206	1
R411	P200431	R# CE H 6K8 F 0W12 1206	1	R611	P200435	R# CE H 10K F 0W12 1206	1
R412	P200417	R# CE H 1K8 F 0W12 1206	1	R612	P200411	R# CE H 1K F 0W12 1206	1
R413	P200435	R# CE H 10K F 0W12 1206	1	R613	P200411	R# CE H 1K F 0W12 1206	1

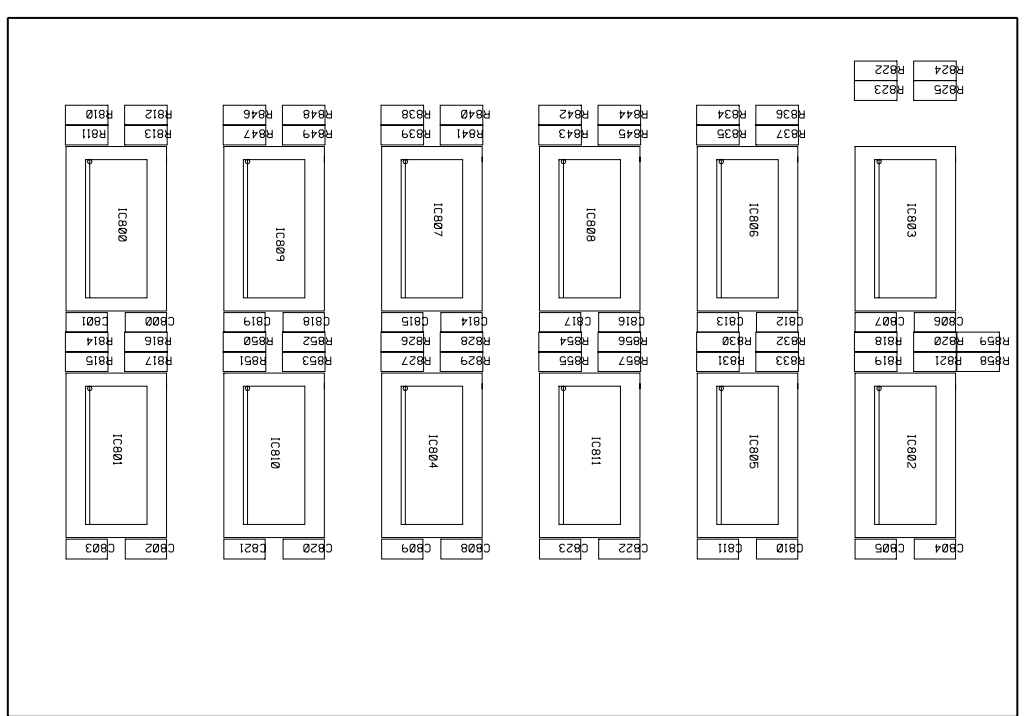
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R614	P200435	R# CE H 10K F 0W12 1206	1	R681	P200429	R# CE H 5K6 F 0W12 1206	1
R615	P200363	R# CE H 10E F 0W12 1206	1	R682	P200419	R# CE H 2K2 F 0W12 1206	1
R616	P200439	R# CE H 15K F 0W12 1206	1	R683	P200429	R# CE H 5K6 F 0W12 1206	1
R617	P200439	R# CE H 15K F 0W12 1206	1	R684	P200429	R# CE H 5K6 F 0W12 1206	1
R618	P200435	R# CE H 10K F 0W12 1206	1	R685	P200419	R# CE H 2K2 F 0W12 1206	1
R619	P200435	R# CE H 10K F 0W12 1206	1	R686	P200439	R# CE H 15K F 0W12 1206	1
R620	P200439	R# CE H 15K F 0W12 1206	1	R687	P200439	R# CE H 15K F 0W12 1206	1
R621	P200439	R# CE H 15K F 0W12 1206	1	R688	P200439	R# CE H 15K F 0W12 1206	1
R622	P200429	R# CE H 5K6 F 0W12 1206	1	R689	P200439	R# CE H 15K F 0W12 1206	1
R623	P200429	R# CE H 5K6 F 0W12 1206	1	R690	P200439	R# CE H 15K F 0W12 1206	1
R624	P200423	R# CE H 3K3 F 0W12 1206	1	R691	P200439	R# CE H 15K F 0W12 1206	1
R625	P200419	R# CE H 2K2 F 0W12 1206	1	R692	P200439	R# CE H 15K F 0W12 1206	1
R626	P200419	R# CE H 2K2 F 0W12 1206	1	R693	P200439	R# CE H 15K F 0W12 1206	1
R627	P200429	R# CE H 5K6 F 0W12 1206	1	R694	P200411	R# CE H 1K F 0W12 1206	1
R628	P200429	R# CE H 5K6 F 0W12 1206	1	R695	P200419	R# CE H 2K2 F 0W12 1206	1
R629	P200435	R# CE H 10K F 0W12 1206	1	R696	P200419	R# CE H 2K2 F 0W12 1206	1
R630	P200419	R# CE H 2K2 F 0W12 1206	1	R697	P200419	R# CE H 2K2 F 0W12 1206	1
R631	P200443	R# CE H 22K F 0W12 1206	1	R698	P200411	R# CE H 1K F 0W12 1206	1
R632	P200391	R# CE H150E F 0W12 1206	1	R699	P200419	R# CE H 2K2 F 0W12 1206	1
R633	P200381	R# CE H 56E F 0W12 1206	1	R700	P200419	R# CE H 2K2 F 0W12 1206	1
R634	P200395	R# CE H220E F 0W12 1206	1	R701	P200419	R# CE H 2K2 F 0W12 1206	1
R635	P200429	R# CE H 5K6 F 0W12 1206	1	R702	P200439	R# CE H 15K F 0W12 1206	1
R636	P200429	R# CE H 5K6 F 0W12 1206	1	R703	P200439	R# CE H 15K F 0W12 1206	1
R637	P200419	R# CE H 2K2 F 0W12 1206	1	R704	P200439	R# CE H 15K F 0W12 1206	1
R638	P200419	R# CE H 2K2 F 0W12 1206	1	R705	P200439	R# CE H 15K F 0W12 1206	1
R639	P200435	R# CE H 10K F 0W12 1206	1	R706	P200439	R# CE H 15K F 0W12 1206	1
R640	P200435	R# CE H 10K F 0W12 1206	1	R707	P200439	R# CE H 15K F 0W12 1206	1
R641	P200435	R# CE H 10K F 0W12 1206	1	R708	P200439	R# CE H 15K F 0W12 1206	1
R642	P200435	R# CE H 10K F 0W12 1206	1	R709	P200439	R# CE H 15K F 0W12 1206	1
R643	P200435	R# CE H 10K F 0W12 1206	1	R711	P200419	R# CE H 2K2 F 0W12 1206	1
R644	P200435	R# CE H 10K F 0W12 1206	1	R712	P200419	R# CE H 2K2 F 0W12 1206	1
R645	P200435	R# CE H 10K F 0W12 1206	1	R713	P200419	R# CE H 2K2 F 0W12 1206	1
R646	P200435	R# CE H 10K F 0W12 1206	1	R714	P200419	R# CE H 2K2 F 0W12 1206	1
R647	P200435	R# CE H 10K F 0W12 1206	1	R716	P200419	R# CE H 2K2 F 0W12 1206	1
R648	P200411	R# CE H 1K F 0W12 1206	1	R717	P200419	R# CE H 2K2 F 0W12 1206	1
R649	P200411	R# CE H 1K F 0W12 1206	1	R718	P200419	R# CE H 2K2 F 0W12 1206	1
R650	P200429	R# CE H 5K6 F 0W12 1206	1	R719	P200419	R# CE H 2K2 F 0W12 1206	1
R651	P200429	R# CE H 5K6 F 0W12 1206	1	R720	P200419	R# CE H 2K2 F 0W12 1206	1
R652	P200411	R# CE H 1K F 0W12 1206	1	R721	P200439	R# CE H 15K F 0W12 1206	1
R653	P200429	R# CE H 5K6 F 0W12 1206	1	R722	P200439	R# CE H 15K F 0W12 1206	1
R654	P200411	R# CE H 1K F 0W12 1206	1	R723	P200439	R# CE H 15K F 0W12 1206	1
R655	P200429	R# CE H 5K6 F 0W12 1206	1	R724	P200439	R# CE H 15K F 0W12 1206	1
R656	P200431	R# CE H 6K8 F 0W12 1206	1	R725	P200439	R# CE H 15K F 0W12 1206	1
R657	P200431	R# CE H 6K8 F 0W12 1206	1	R726	P200439	R# CE H 15K F 0W12 1206	1
R658	P200431	R# CE H 6K8 F 0W12 1206	1	R727	P200439	R# CE H 15K F 0W12 1206	1
R659	P200427	R# CE H 4K7 F 0W12 1206	1	R728	P200439	R# CE H 15K F 0W12 1206	1
R660	P200427	R# CE H 4K7 F 0W12 1206	1	R729	P200435	R# CE H 10K F 0W12 1206	1
R661	P200427	R# CE H 4K7 F 0W12 1206	1	R730	P200415	R# CE H 1K5 F 0W12 1206	1
R662	P200425	R# CE H 3K9 F 0W12 1206	1	R731	P200426	R# CE H 4K3 F 0W12 1206	1
R663	P200419	R# CE H 2K2 F 0W12 1206	1	R732	P200435	R# CE H 10K F 0W12 1206	1
R664	P200437	R# CE H 12K F 0W12 1206	1	R733	P200415	R# CE H 1K5 F 0W12 1206	1
R665	P200437	R# CE H 12K F 0W12 1206	1	R734	P200427	R# CE H 4K7 F 0W12 1206	1
R666	P200419	R# CE H 2K2 F 0W12 1206	1	R735	P200419	R# CE H 2K2 F 0W12 1206	1
R667	P200435	R# CE H 10K F 0W12 1206	1	R736	P200423	R# CE H 3K3 F 0W12 1206	1
R668	P200435	R# CE H 10K F 0W12 1206	1	R737	P200423	R# CE H 3K3 F 0W12 1206	1
R669	P200435	R# CE H 10K F 0W12 1206	1	R738	P200419	R# CE H 2K2 F 0W12 1206	1
R670	P200427	R# CE H 4K7 F 0W12 1206	1	R739	P200435	R# CE H 10K F 0W12 1206	1
R671	P200427	R# CE H 4K7 F 0W12 1206	1	R740	P200441	R# CE H 18K F 0W12 1206	1
R672	P200427	R# CE H 4K7 F 0W12 1206	1	R741	P200441	R# CE H 18K F 0W12 1206	1
R673	P200425	R# CE H 3K9 F 0W12 1206	1	R742	P200441	R# CE H 18K F 0W12 1206	1
R674	P200419	R# CE H 2K2 F 0W12 1206	1	R743	P200419	R# CE H 2K2 F 0W12 1206	1
R675	P200419	R# CE H 2K2 F 0W12 1206	1	R744	P200419	R# CE H 2K2 F 0W12 1206	1
R676	P200437	R# CE H 12K F 0W12 1206	1	R745	P200423	R# CE H 3K3 F 0W12 1206	1
R677	P200435	R# CE H 10K F 0W12 1206	1	R746	P200423	R# CE H 3K3 F 0W12 1206	1
R678	P200419	R# CE H 2K2 F 0W12 1206	1	R747	P200441	R# CE H 18K F 0W12 1206	1
R679	P200419	R# CE H 2K2 F 0W12 1206	1	R748	P200441	R# CE H 18K F 0W12 1206	1
R680	P200429	R# CE H 5K6 F 0W12 1206	1	R749	P200441	R# CE H 18K F 0W12 1206	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R750	P200441	R# CE H 18K F 0W12 1206	1
R751	P200441	R# CE H 18K F 0W12 1206	1
R752	P200441	R# CE H 18K F 0W12 1206	1
R753	P200441	R# CE H 18K F 0W12 1206	1
R754	P200441	R# CE H 18K F 0W12 1206	1
R755	P200397	R# CE H270E F 0W12 1206	1
R756	P200397	R# CE H270E F 0W12 1206	1
R757	P200397	R# CE H270E F 0W12 1206	1
R758	P200397	R# CE H270E F 0W12 1206	1
R759	P200397	R# CE H270E F 0W12 1206	1
R760	P200397	R# CE H270E F 0W12 1206	1
R800	P200403	R# CE H470E F 0W12 1206	1
R801	P200387	R# CE H100E F 0W12 1206	1
R802	P200403	R# CE H470E F 0W12 1206	1
R803	P200387	R# CE H100E F 0W12 1206	1
SR 1	R1001909	R CFFV E1 K 0W4 E1	1
SR 2	R1001909	R CFFV E1 K 0W4 E1	1
SR 3	R1001909	R CFFV E1 K 0W4 E1	1
SR 4	R1001909	R CFFV E1 K 0W4 E1	1
Z 1	P234127	D#ZEN 5V1 0W5 C DMMELF	1
Z 2	P234127	D#ZEN 5V1 0W5 C DMMELF	1

TOP VIEW



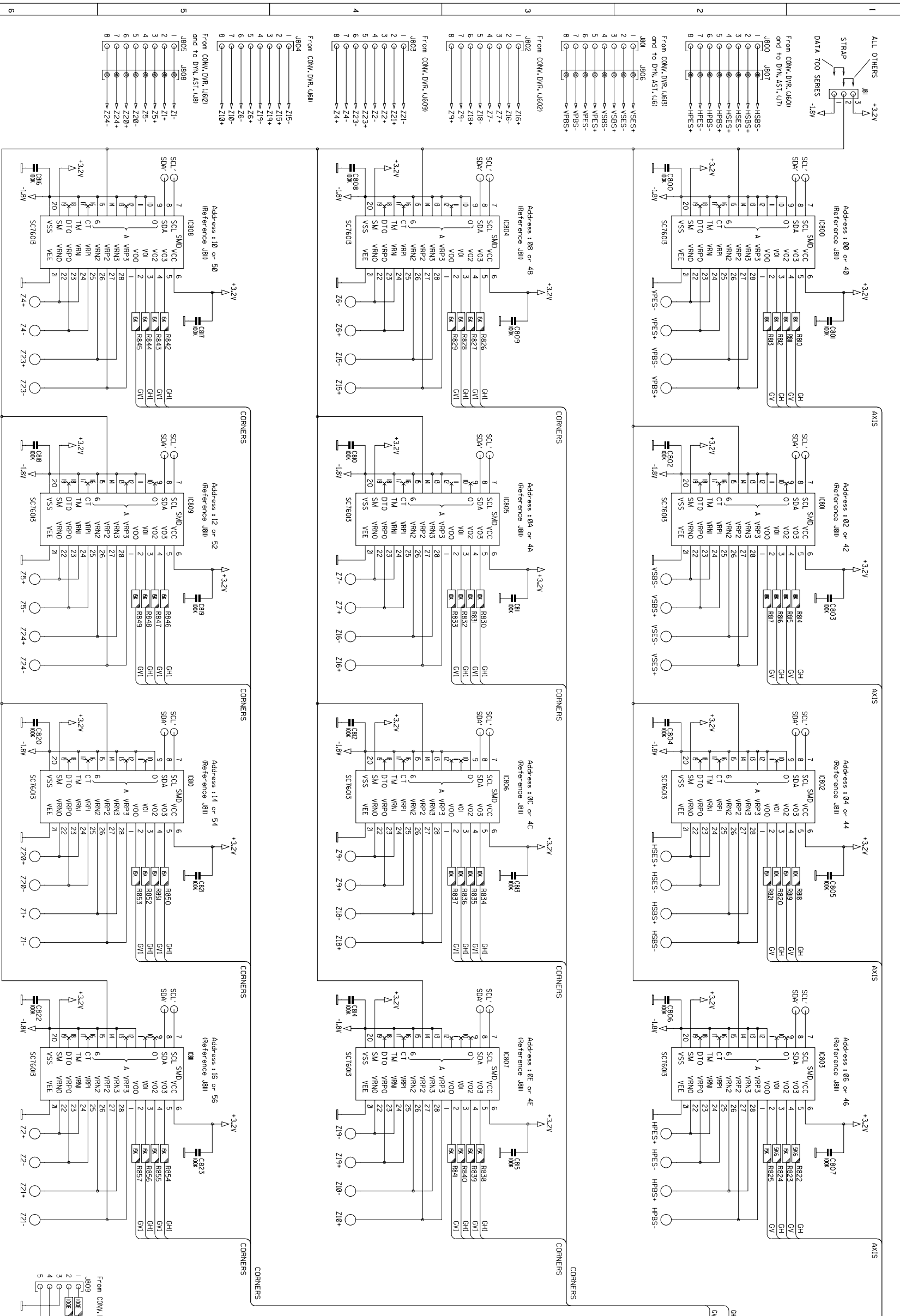
BOTTOM VIEW



Modifications reserved

Name	GREEN CONVERGENCE	Sheet	1 / 1
Module No	R7/80388	Index	0
Date	24-11-1997	Rev	2
Drawn	JVDV	Checked	GM
BARCO PROJECTION SYSTEMS			

DATA 700 SERIES : ADDRESS STARTS FROM HEX 00 UNTIL HEX 16
ALL OTHERS : ADDRESS STARTS FROM HEX 40 UNTIL HEX 56



- 1
ALL OTHERS
STRAP
DATA 700 SERIES

- 2
From CONN. DWR. (J603)
and to DYN. AST. (J7)
J800 J807
1 ○ → HSBS-
2 ○ → HSBS+
3 ○ → HSBS-
4 ○ → HSBS+
5 ○ → HPBS-
6 ○ → HPBS+
7 ○ → HPBS-
8 ○ → HPBS+

- 3
From CONN. DWR. (J602)
J802
1 ○ → VSES+
2 ○ → VSES-
3 ○ → VSBS+
4 ○ → VSBS-
5 ○ → VPES+
6 ○ → VPES-
7 ○ → VPBS-
8 ○ → VPBS+

- 4
From CONN. DWR. (J609)
J803
1 ○ → Z21-
2 ○ → Z21+
3 ○ → Z22-
4 ○ → Z22+
5 ○ → Z23-
6 ○ → Z23+
7 ○ → Z24-
8 ○ → Z24+

- 5
From CONN. DWR. (J602)
and to DYN. AST. (J8)
J805 J808
1 ○ → Z1-
2 ○ → Z1+
3 ○ → Z5+
4 ○ → Z5-
5 ○ → Z20-
6 ○ → Z20+
7 ○ → Z24+
8 ○ → Z24-

- 6
From CONN. DWR. (J609)
J809
1 ○ → SDA
2 ○ → SCL
3 ○ → DIO
4 ○ → VSS

Modifications reserved

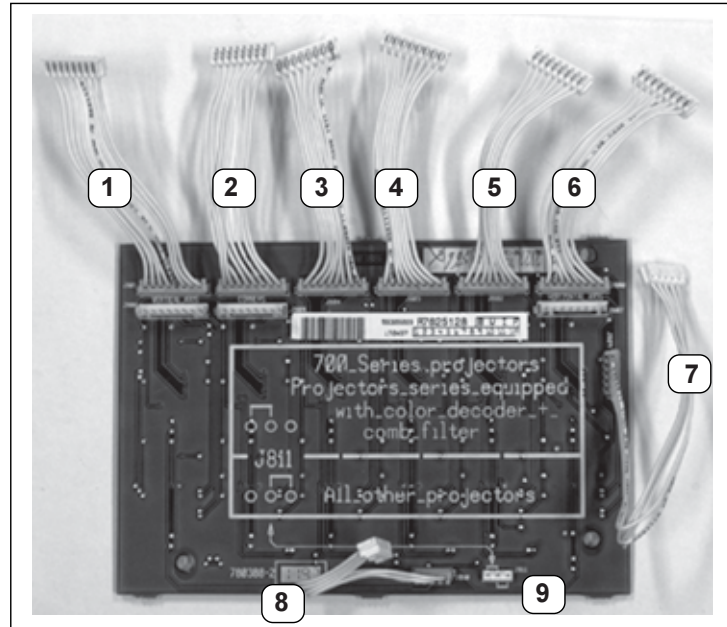
Nome	GREEN CONVERGENCE	Sheet	1/1
Module No.	TV/90388	Rev	2
Date	24-11-1997	Dr	JVDV
		CM	

BARCO PROJECTION SYSTEMS

IC800	A	J800	A
IC801	B	J802	A
IC802	C	J803	A
IC803	D	J804	A
IC804	E	J805	A
IC805	F	J807	A
IC806	G	J809	A
IC807	H	J811	A
IC808	A	J812	B
IC809	B	J813	B
IC810	C	J814	B
IC811	D	J815	B
IC812	E	J817	B
IC813	F	J818	B
IC814	G	J819	B
IC815	H	J821	B
IC816	A	J822	B
IC817	B	J823	B
IC818	C	J824	B
IC819	D	J825	B
IC820	E	J826	B
IC821	F	J827	B
IC822	G	J828	B
IC823	H	J829	B
IC824	A	J830	B
IC825	B	J831	B
IC826	C	J832	B
IC827	D	J833	B
IC828	E	J834	B
IC829	F	J835	B
IC830	G	J836	B
IC831	H	J837	B
IC832	A	J838	B
IC833	B	J839	B
IC834	C	J840	B
IC835	D	J841	B
IC836	E	J842	B
IC837	F	J843	B
IC838	G	J844	B
IC839	H	J845	B
IC840	A	J846	B
IC841	B	J847	B
IC842	C	J848	B
IC843	D	J849	B
IC844	E	J850	B
IC845	F	J851	B
IC846	G	J852	B
IC847	H	J853	B
IC848	A	J854	B
IC849	B	J855	B
IC850	C	J856	B
IC851	D	J857	B
IC852	E	J858	B
IC853	F	J859	B
IC854	G	J860	B
IC855	H	J861	B
IC856	A	J862	B
IC857	B	J863	B
IC858	C	J864	B
IC859	D	J865	B
IC860	E	J866	B
IC861	F	J867	B
IC862	G	J868	B
IC863	H	J869	B
IC864	A	J870	B
IC865	B	J871	B
IC866	C	J872	B
IC867	D	J873	B
IC868	E	J874	B
IC869	F	J875	B
IC870	G	J876	B
IC871	H	J877	B
IC872	A	J878	B
IC873	B	J879	B
IC874	C	J880	B
IC875	D	J881	B
IC876	E	J882	B
IC877	F	J883	B
IC878	G	J884	B
IC879	H	J885	B
IC880	A	J886	B
IC881	B	J887	B
IC882	C	J888	B
IC883	D	J889	B
IC884	E	J890	B
IC885	F	J891	B
IC886	G	J892	B
IC887	H	J893	B
IC888	A	J894	B
IC889	B	J895	B
IC890	C	J896	B
IC891	D	J897	B
IC892	E	J898	B
IC893	F	J899	B
IC894	G	J900	B
IC895	H	J901	B

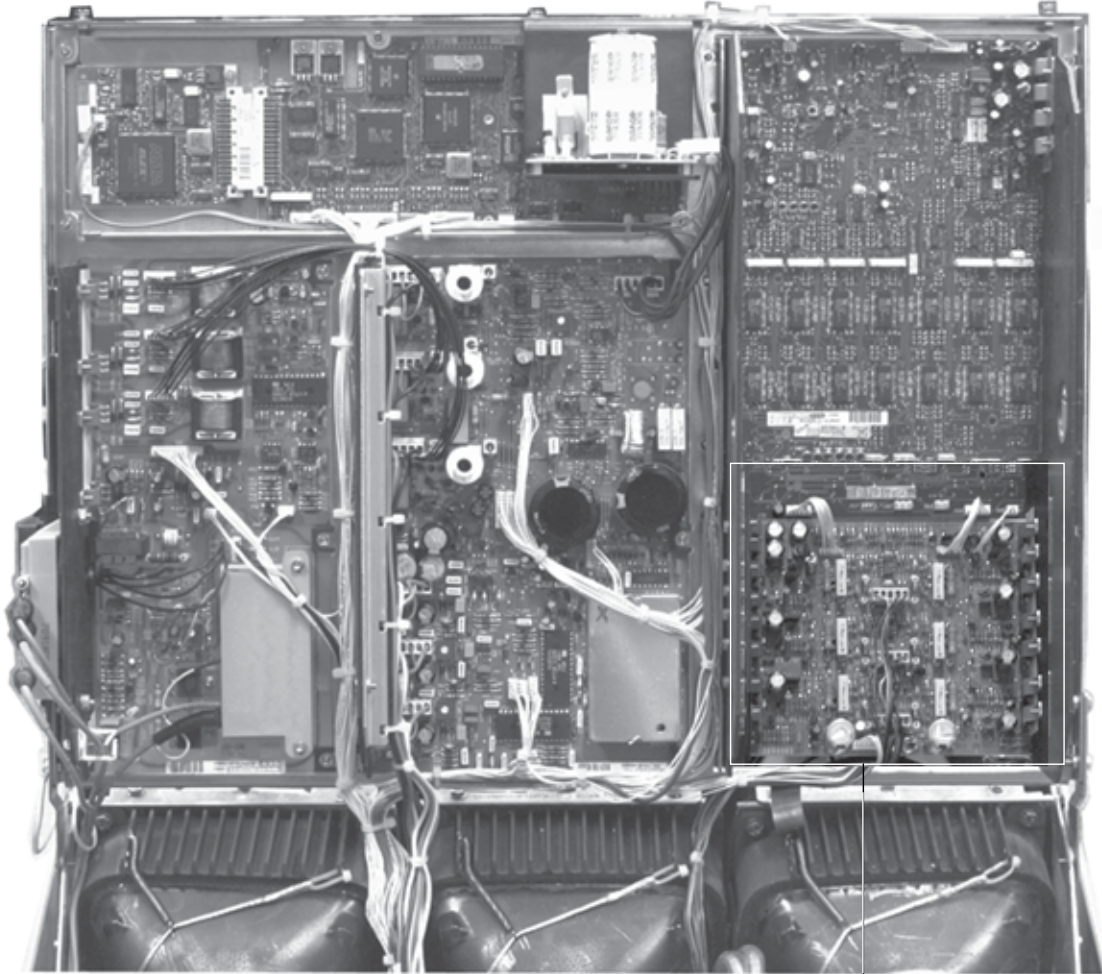
MOUNTING GUIDELINES FOR THE GREEN CONVERGENCE MODULE R7625128

- Place a strap on the connector **9** (J811) as instructed on the module.
- Plug the connectors into the corresponding connectors on the Convergence Driver module.
Connector **1** (J801) to Connector J613.
Connector **2** (J805) to Connector J612.
Connector **3** (J804) to Connector J611.
Connector **4** (J803) to Connector J609.
Connector **5** (J802) to Connector J602.
Connector **6** (J800) to Connector J601.
Connector **7** (J809) to Connector J1.
Connector **8** (J810) to Connector J607.



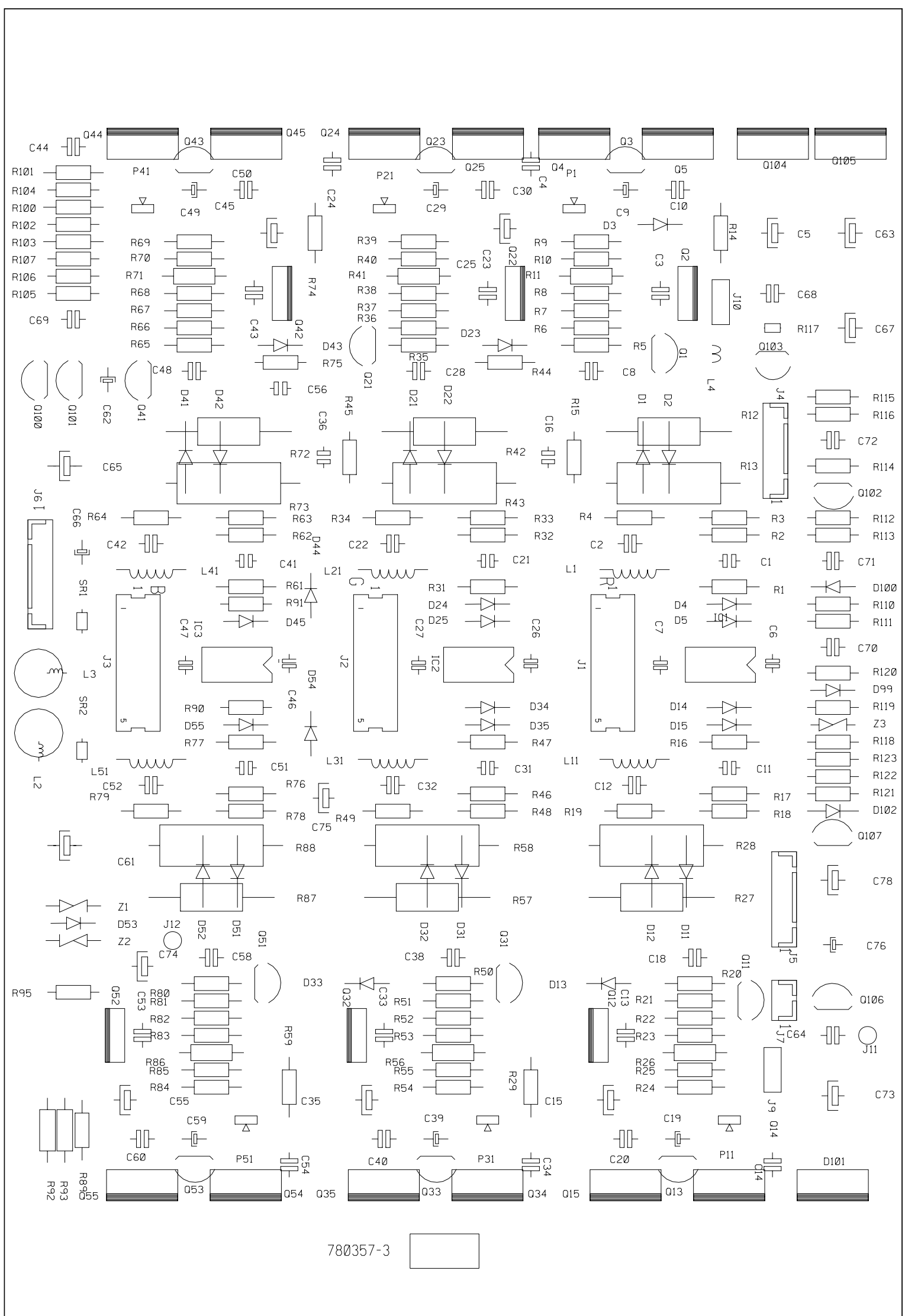
PARTS LISTING GREEN CONVERGENCE MODULE R7625128

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
1000	R3133921	J MDSHUNT F P2 E1SNIRD	1	R817	P200441	R# CE H 18K F 0W12 1206	1
1010	R312868	SPR PCB L 6,4D4 D4 DUAL	4	R818	P200435	R# CE H 10K F 0W12 1206	1
	R590280	LBL *808S CNV STRAP J811	1	R819	P200439	R# CE H 15K F 0W12 1206	1
C800	P210122	C# X7R MU 100N K 50 1206	1	R820	P200435	R# CE H 10K F 0W12 1206	1
C801	P210122	C# X7R MU 100N K 50 1206	1	R821	P200439	R# CE H 15K F 0W12 1206	1
C802	P210122	C# X7R MU 100N K 50 1206	1	R822	P200429	R# CE H 5K6 F 0W12 1206	1
C803	P210122	C# X7R MU 100N K 50 1206	1	R823	P200439	R# CE H 15K F 0W12 1206	1
C804	P210122	C# X7R MU 100N K 50 1206	1	R824	P200429	R# CE H 5K6 F 0W12 1206	1
C805	P210122	C# X7R MU 100N K 50 1206	1	R825	P200439	R# CE H 15K F 0W12 1206	1
C806	P210122	C# X7R MU 100N K 50 1206	1	R826	P200439	R# CE H 15K F 0W12 1206	1
C807	P210122	C# X7R MU 100N K 50 1206	1	R827	P200439	R# CE H 15K F 0W12 1206	1
C808	P210122	C# X7R MU 100N K 50 1206	1	R828	P200439	R# CE H 15K F 0W12 1206	1
C809	P210122	C# X7R MU 100N K 50 1206	1	R829	P200439	R# CE H 15K F 0W12 1206	1
C810	P210122	C# X7R MU 100N K 50 1206	1	R830	P200435	R# CE H 10K F 0W12 1206	1
C811	P210122	C# X7R MU 100N K 50 1206	1	R831	P200435	R# CE H 10K F 0W12 1206	1
C812	P210122	C# X7R MU 100N K 50 1206	1	R832	P200435	R# CE H 10K F 0W12 1206	1
C813	P210122	C# X7R MU 100N K 50 1206	1	R833	P200435	R# CE H 10K F 0W12 1206	1
C814	P210122	C# X7R MU 100N K 50 1206	1	R834	P200435	R# CE H 10K F 0W12 1206	1
C815	P210122	C# X7R MU 100N K 50 1206	1	R835	P200435	R# CE H 10K F 0W12 1206	1
C816	P210122	C# X7R MU 100N K 50 1206	1	R836	P200435	R# CE H 10K F 0W12 1206	1
C817	P210122	C# X7R MU 100N K 50 1206	1	R837	P200435	R# CE H 10K F 0W12 1206	1
C818	P210122	C# X7R MU 100N K 50 1206	1	R838	P200439	R# CE H 15K F 0W12 1206	1
C819	P210122	C# X7R MU 100N K 50 1206	1	R839	P200439	R# CE H 15K F 0W12 1206	1
C820	P210122	C# X7R MU 100N K 50 1206	1	R840	P200439	R# CE H 15K F 0W12 1206	1
C821	P210122	C# X7R MU 100N K 50 1206	1	R841	P200439	R# CE H 15K F 0W12 1206	1
C822	P210122	C# X7R MU 100N K 50 1206	1	R842	P200439	R# CE H 15K F 0W12 1206	1
C823	P210122	C# X7R MU 100N K 50 1206	1	R843	P200439	R# CE H 15K F 0W12 1206	1
I800	P230653	U#BELLA 4 SOL28 P	1	R844	P200439	R# CE H 15K F 0W12 1206	1
I801	P230653	U#BELLA 4 SOL28 P	1	R845	P200439	R# CE H 15K F 0W12 1206	1
I802	P230653	U#BELLA 4 SOL28 P	1	R846	P200439	R# CE H 15K F 0W12 1206	1
I803	P230653	U#BELLA 4 SOL28 P	1	R847	P200439	R# CE H 15K F 0W12 1206	1
I804	P230653	U#BELLA 4 SOL28 P	1	R848	P200439	R# CE H 15K F 0W12 1206	1
I805	P230653	U#BELLA 4 SOL28 P	1	R849	P200439	R# CE H 15K F 0W12 1206	1
I806	P230653	U#BELLA 4 SOL28 P	1	R850	P200439	R# CE H 15K F 0W12 1206	1
I807	P230653	U#BELLA 4 SOL28 P	1	R851	P200439	R# CE H 15K F 0W12 1206	1
I808	P230653	U#BELLA 4 SOL28 P	1	R852	P200439	R# CE H 15K F 0W12 1206	1
I809	P230653	U#BELLA 4 SOL28 P	1	R853	P200439	R# CE H 15K F 0W12 1206	1
I810	P230653	U#BELLA 4 SOL28 P	1	R854	P200439	R# CE H 15K F 0W12 1206	1
I811	P230653	U#BELLA 4 SOL28 P	1	R855	P200439	R# CE H 15K F 0W12 1206	1
J800	R348408	CD CT FTMT P 8 60	1	R856	P200439	R# CE H 15K F 0W12 1206	1
J801	R348408	CD CT FTMT P 8 60	1	R857	P200439	R# CE H 15K F 0W12 1206	1
J802	R348408	CD CT FTMT P 8 60	1	R858	P200387	R# CE H100E F 0W12 1206	1
J803	R348408	CD CT FTMT P 8 60	1	R859	P200387	R# CE H100E F 0W12 1206	1
J804	R348408	CD CT FTMT P 8 60	1				
J805	R348408	CD CT FTMT P 8 60	1				
J806	R313928	J CT H MBT P 8 M2SN WH	1				
J807	R313928	J CT H MBT P 8 M2SN WH	1				
J808	R313928	J CT H MBT P 8 M2SN WH	1				
J809	R3485057	CD CT FTMT P 5 130	1				
J810	R3484048	CD CT FTMT P 4 60	1				
J811	R313286	J MO1 C MBT P 3 R1SN 7,5	1				
PC	R780388	PCB G808 CNV GRE	1				
R810	P200441	R# CE H 18K F 0W12 1206	1				
R811	P200441	R# CE H 18K F 0W12 1206	1				
R812	P200441	R# CE H 18K F 0W12 1206	1				
R813	P200441	R# CE H 18K F 0W12 1206	1				
R814	P200441	R# CE H 18K F 0W12 1206	1				
R815	P200441	R# CE H 18K F 0W12 1206	1				
R816	P200441	R# CE H 18K F 0W12 1206	1				



Convergence module (Output)
R762455

Art. No.: R762455 Rev.: 01

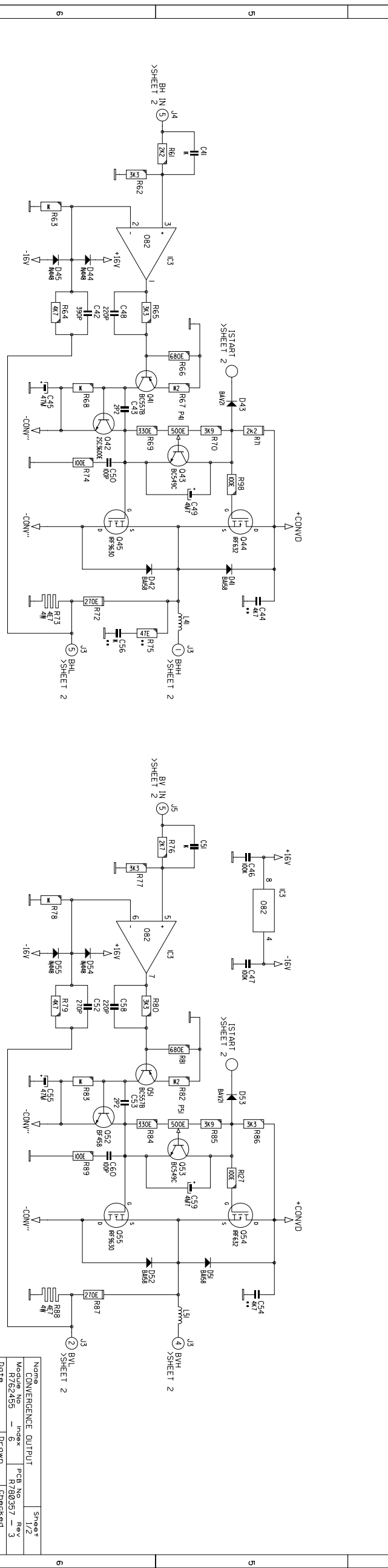
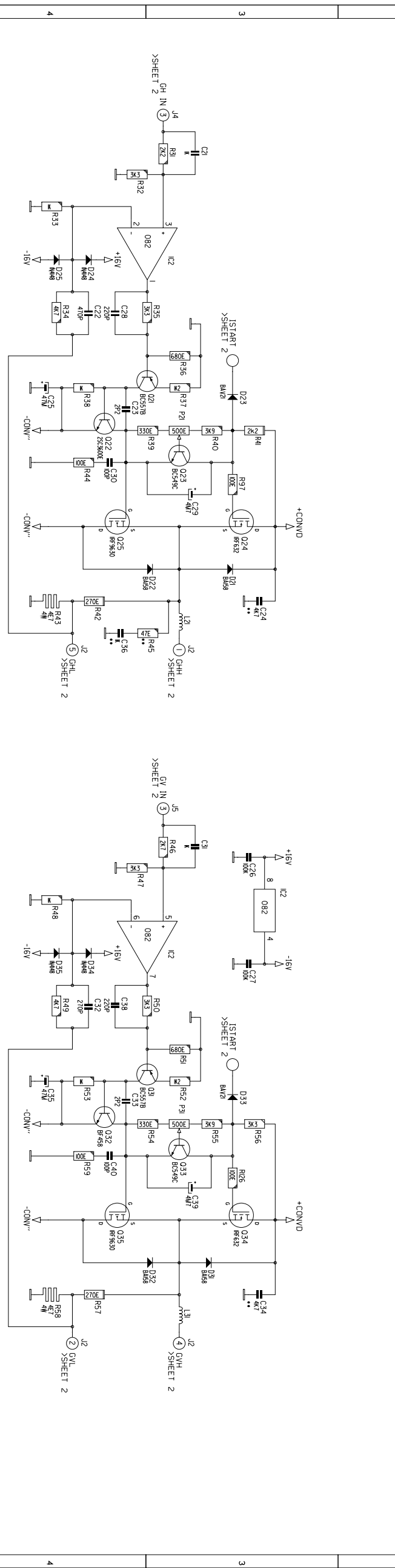
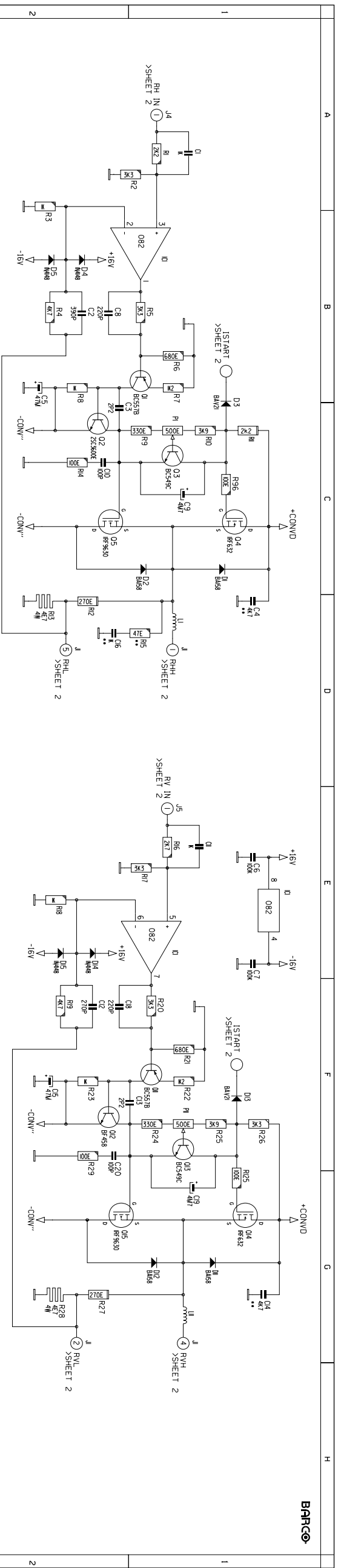


P1, P11, P21, P31, P41 AND P51:
 ADJUSTMENTS OF THE BIAS-CURRENT
 IN ENDSTAGES.
 FACTORY PREADJUSTED ON SMA

Modifications reserved

Name	CONVERGENCE OUTPUT	Sheet	1 / 1
Module No	R752495	Index	6
Date	15-01-1998	Drawn	JMOV
		Checked	GM

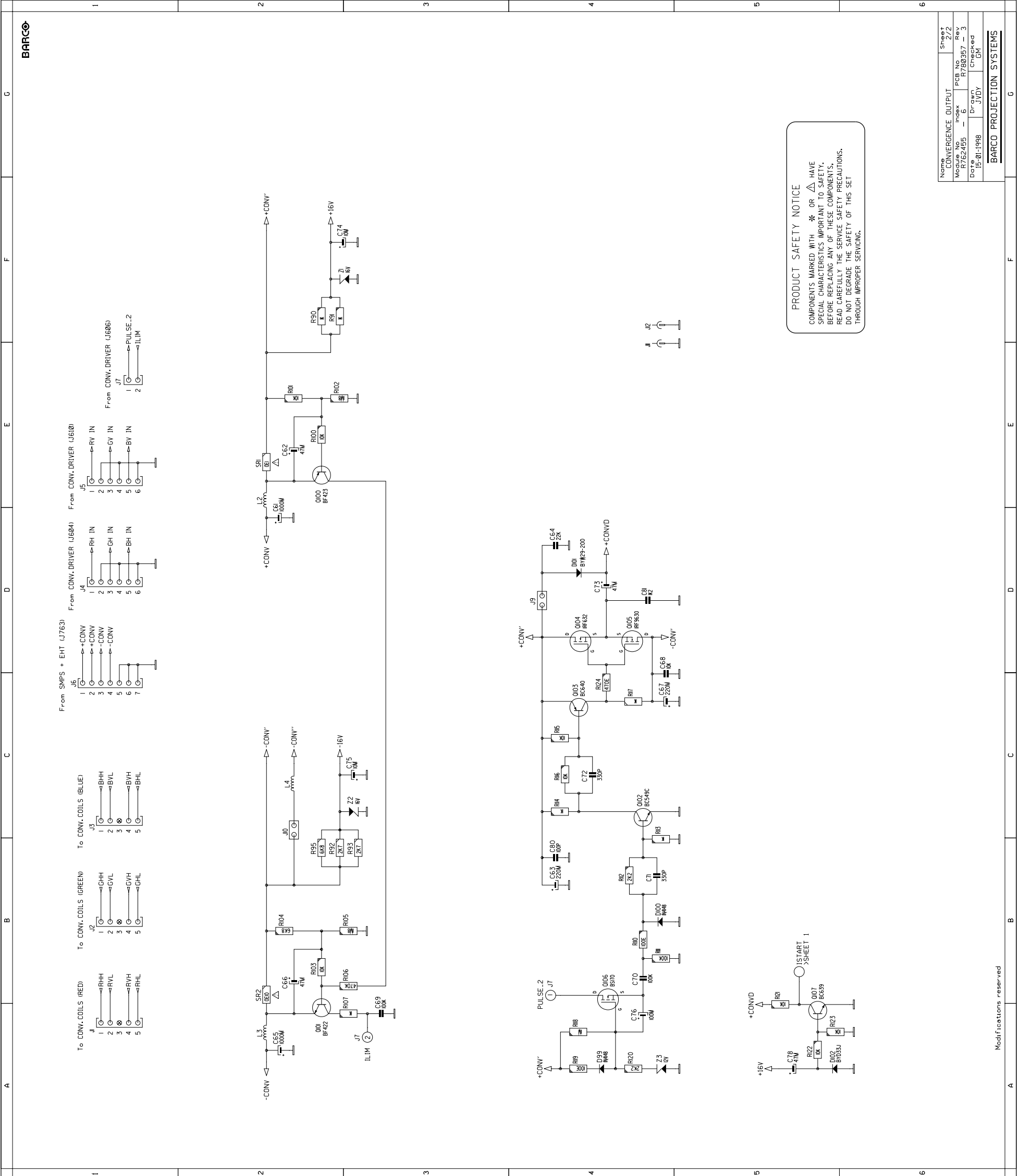
BARCO PROJECTION SYSTEMS



Name		CONVERGENCE OUTPUT		Sheet	
Module No.	Index	PCB No.	Rev	1/2	
R7/62459	6	R7/00357	Rev 3		
Doc No.	Dr	Chk	Cr		
15-01-1998	JVDY		GM		

BARCO PROJECTION SYSTEMS

Modifications reserved



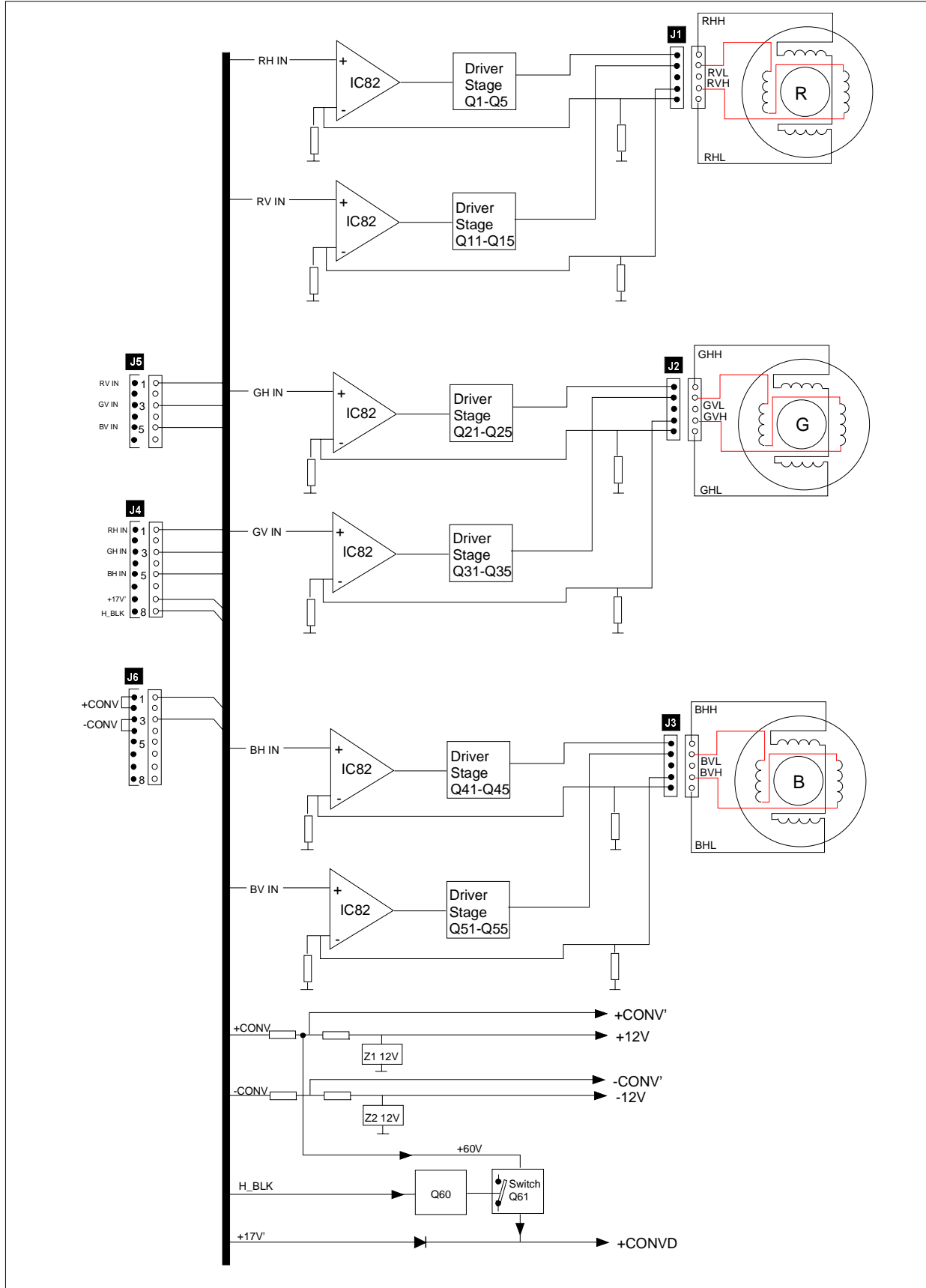
PRODUCT SAFETY NOTICE
 COMPONENTS MARKED WITH * OR Δ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

Name	CONVERGENCE OUTPUT	Sheet	2/2
Module No.	R762455	PCB NO.	R780357
Rev	3	Rev	3
Date	15-01-1998	Drawn	JUDY
		Checked	GM
BARCO PROJECTION SYSTEMS			

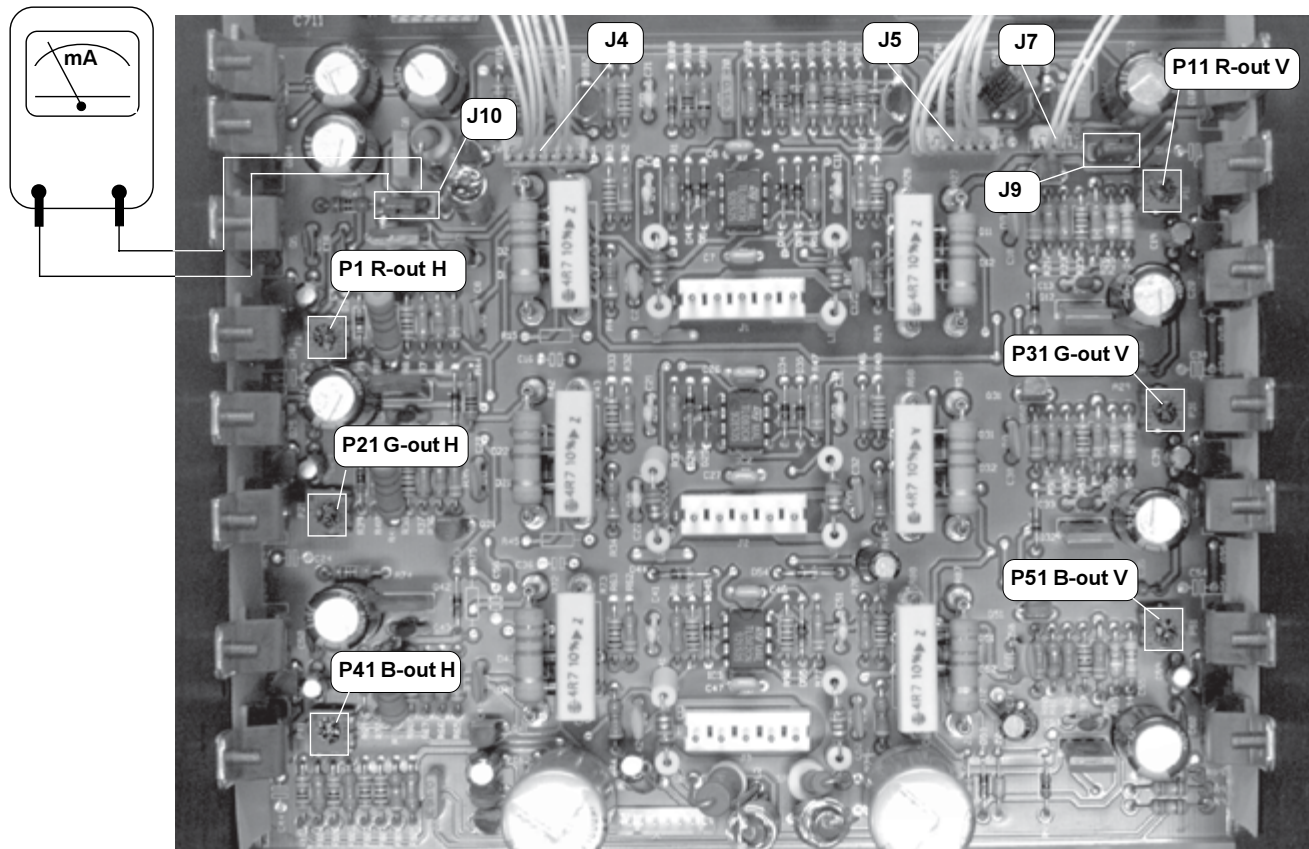
COMP. LOC.	SHT.	COMP. LOC.	SHT.	COMP. LOC.	SHT.
L31	3	L31	3	R97	3
L41	5	L41	5	R98	3
L51	5	L51	5	R99	3
P1	1	P1	1	R100	3
P2	1	P2	1	R101	3
P3	1	P3	1	R102	3
P4	1	P4	1	R103	3
P5	1	P5	1	R104	3
				R105	3
				R106	3
				R107	3
				R108	3
				R109	3
				R110	3
				R111	3
				R112	3
				R113	3
				R114	3
				R115	3
				R116	3
				R117	3
				R118	3
				R119	3
				R120	3
				R121	3
				R122	3
				R123	3
				R124	3
				R125	3
				R126	3
				R127	3
				SRI	3
				SRI	3
				Z1	3
				Z2	3
				Z3	3

Modifications reserved

Blockdiagram Power output stage convergences



Adjustment of the Bias-current in the Endstages



Adjustment

Starting-point

- Switch OFF the projector.
- Disconnect Output module from Driver module by pulling out the cable connectors J4, J5 (no input signal) and J7 (adjustment frequency independent).
- Turn **clockwise** the potentiometers P1, P21, P41 and P11, P31, P51 to their minimum position.
- Remove the strap on connector J10 (-CONV") and insert a current meter.

Adjustment

- The measured current at start up of the projector will be between 50 and 100mA.
- From the measured current value at start up, adjust consecutively the potentiometers P1, P21, P41, P11, P31 and P51 for each time a current increment of 5mA (the total measured value of the current will be between 80 and 130mA).
- Switch OFF the projector and reinstall the connections (J4, J5 and J7).

Technical description " OUTPUT" (76 2455).

Horizontal convergence coils We find three identical amplifiers for the Red, Green and Blue horizontal convergence coils.

The combined horizontal signals (RH, GH and BH) from the convergence driver module are applied, via a speed up network, to the (+) input of an OP Amplifier (respectively IC1, IC2 and IC3) on the convergence output module. On the other input arrives a feedback from the convergence coils (respectively via the feedback resistors R13, R43 and R73) to prevent oscillation of the output.

The output signals of the OP Amplifiers are sent to the base of the driver transistor via a buffer-inverter transistor.

The output driver, a combination of two FETs, feeds the convergence coils. The biasing is got with a transistor, operating as Zener, and the outputs are protected with diodes.

Vertical convergence coils The circuit is quite similar to this for the horizontal convergence output stage.

Dynamic Power Supply for the output stages To improve the slew rate (speed of variation of the output voltage, closely related to the full-power bandwidth) of the power amplifiers, a high supply voltage is necessary.

In reality, this high voltage is only required during the flyback time. The energy stocked in the convergence coils at the end of the scanning needs to vary very rapidly (in about 4 μ s=retrace time) to a new value at the begin of the scanning.

If the latter is not fully realized, there is too much influence from the end of the scanning on the start of the scanning. This causes problems in the convergence alignment.

During retrace time the +CONV supply voltage is increased by the circuit built around the FETs Q104 and Q105.

- During the scan time the FET Q105 is conducting. The supply current for the end stages flows through the diode D101 from the +CONV' Voltage (\pm 25V).
- During the retrace time the Fet Q104 is conducting (The diode D101 is blocked). The supply current for the end stages flows now through Q104 and C73. The supply voltage is increased to +CON'+(|+CON'|+|-CONV'|) (approx.+80V).

The switching information (pulse) for the MOSFETs is derived from the line pulses and is generated on the Convergence driver module 'Pulse-2'. These pulses are transferred to the gate of the MOSFETs Q104 and Q105 through the transistors Q102 and Q103.

The Circuit around the transistor Q106 provides a slow start of these dynamic power supply at starting up the projector.

The circuit around transistor Q107 'ISTART' inhibits a peak current through the end stage at starting up the projector.

Current limitation on the -CONV' and +CONV' Voltage The current of the -CONV' and +CONV' is permanently monitored by the transistors Q101, current sensing resistor SR2, and Q100, current sensing resistor SR1. If either one of these transistors is forward biased, the ILIM inhibits the horizontal sawtooth generator on the Convergence driver module.

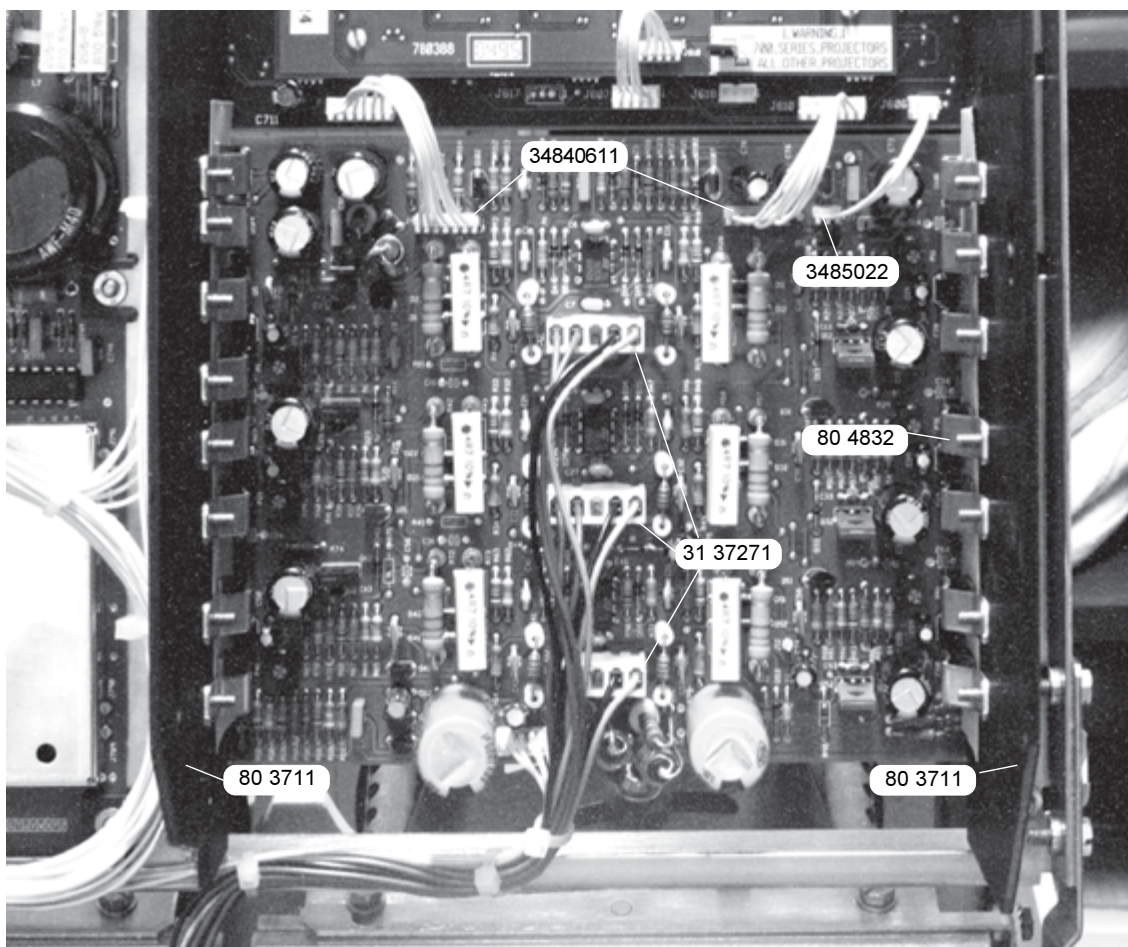
For service purpose the power supply -CONV' for the end stages can be removed with the straps J10, and +CONVD' with strap J9.

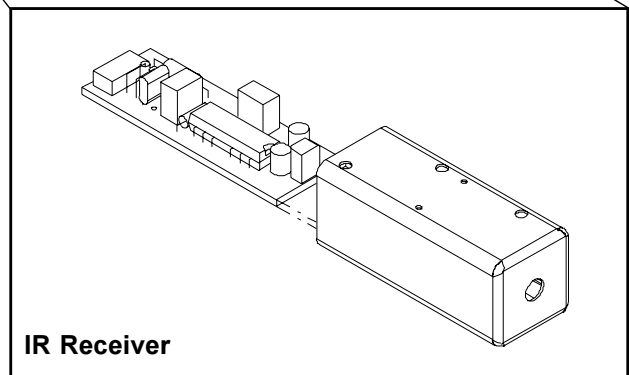
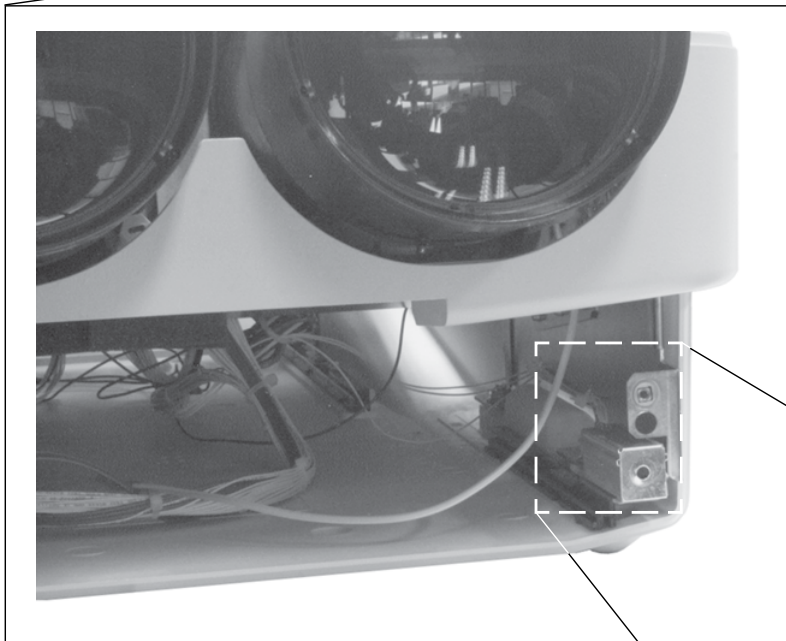
Parts listing Convergence module (Output) R762455

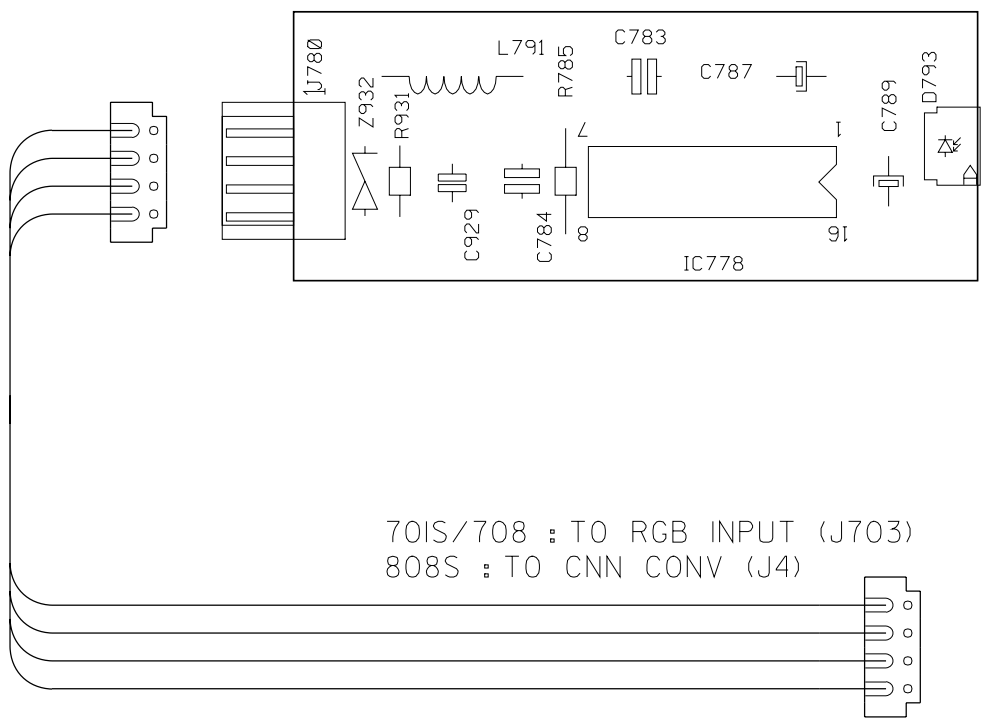
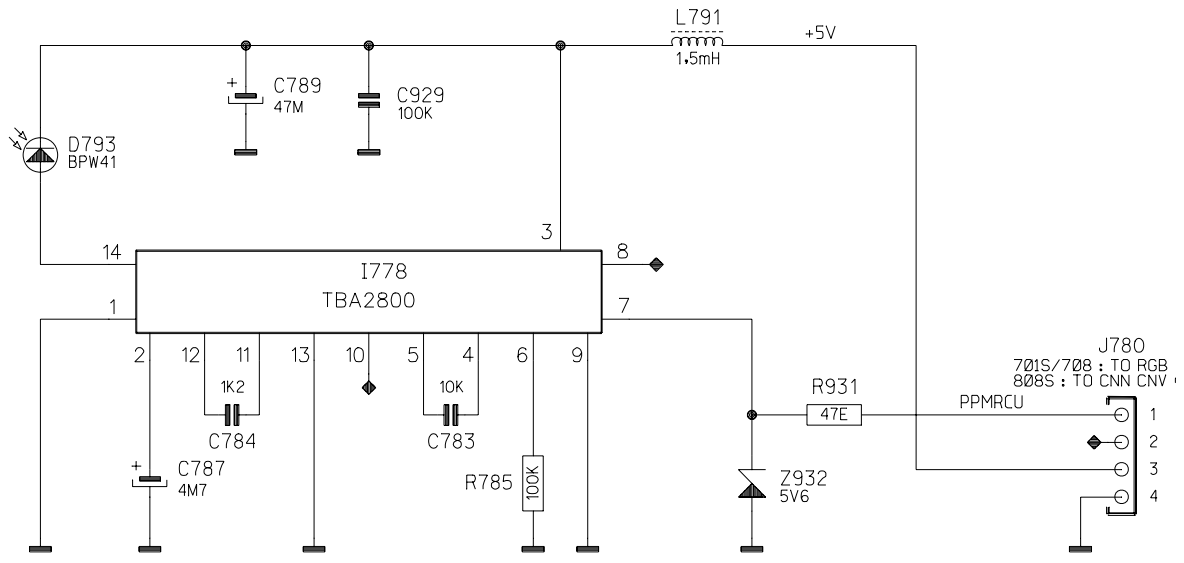
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
100	R133036	SPR L 6 D 2,4D 6 CE	3	C 59	R1115915	C EL5 RA 4M7M 35E2 85	
120	R3133921	J MD SHUNT F P2 E1SN I RD	2	C 60	R112242	C NP0 MI 100P G100E2	
130	R133039	SPR L 8 D 1,2D 4 CE	12	C 61	R1114909	C EL RA1000M M 50E3 SM	1
200	R133074	HTSN@A I_SIL W30	24000	C 62	R111476	C EL RA 47M M 25E2 85	
210	R804832	HTSN A GEN SPG 1XM3 LG	15	C 63	R111488	C EL RA 220M M 50E2 85	1
220	V3621217	SCR \$7500CM 3 X 6 STZN	15	C 64	R1137161	C POMERA 22N K100E2 85	
1000	R803711	HTSN C PJ53 CNV	2	C 65	R1114909	C EL RA1000M M 50E3 SM	1
1010	V3621217	SCR \$7500CM 3 X 6 STZN	10	C 66	R111476	C EL RA 47M M 25E2 85	
1100	R302108	CORE TUBE 3,5 /1,3 X 3	3	C 67	R111488	C EL RA 220M M 50E2 85	1
1110	R804769	HTSN A GEN SPG 2XM3 SH	1	C 68	R1137121	C POMERA 10N K250E2 85	
1120	R804674	HTSN A GEN SPG 1XM3 SH	1	C 69	R113724	C POMERA 100N K 63E2 85	
1130	V3621217	SCR \$7500CM 3 X 6 STZN	3	C 70	R113724	C POMERA 100N K 63E2 85	
	R34840611	CD CT FTMT P 6 65	2	C 71	R112733	C CE MI 330P K100E2	1
	R3485022	CD CT FTMT P 2 60	1	C 72	R112368	C N750MI 330P G100E2	
	Z348090	SLV SHR D 2,4/1,2 BK VW1	1	C 73	R1113889	C EL RA 47M M100E2 85	1
	R3153151	J RVT MBT D 2.3L12.7		C 74	R111531	C EL RA 10M M 35E2 85	
C 1	R112739	C CE MI 1N K100E2		C 75	R111531	C EL RA 10M M 35E2 85	
C 2	R112386	C N152MI 390P G100E2		C 76	R111477	C EL RA 100M M 25E2 85	1
C 3	R112222	C NP0 MI 2P2C100E2	1	C 78	R111486	C EL RA 47M M 50E2 85	1
C 5	R1113889	C EL RA 47M M100E2 85	1	C 80	R112362	C N750MI 100P G100E2	1
C 6	R1127741	C Z5U MU 100N Z 50E2 85		C 81	R112740	C CE MI 1N2K100E2	1
C 7	R1127741	C Z5U MU 100N Z 50E2 85		D 1	R131637	D R BA158 600400 DO7	
C 8	R112366	C N750MI 220P G100E2		D 2	R131637	D R BA158 600400 DO7	
C 9	R1115915	C EL5 RA 4M7M 35E2 85		D 3	R131627	D S BAV21 200250 DO35	
C 10	R112242	C NP0 MI 100P G100E2		D 4	R131621	D S 1N4148 075150 DO35	
C 11	R112739	C CE MI 1N K100E2		D 5	R131621	D S 1N4148 075150 DO35	
C 12	R112367	C N750MI 270P G100E2		D 11	R131637	D R BA158 600400 DO7	
C 13	R112222	C NP0 MI 2P2C100E2	1	D 12	R131637	D R BA158 600400 DO7	
C 15	R1113889	C EL RA 47M M100E2 85	1	D 13	R131627	D S BAV21 200250 DO35	
C 18	R112366	C N750MI 220P G100E2		D 14	R131621	D S 1N4148 075150 DO35	
C 19	R1115915	C EL5 RA 4M7M 35E2 85		D 15	R131621	D S 1N4148 075150 DO35	
C 20	R112242	C NP0 MI 100P G100E2		D 21	R131637	D R BA158 600400 DO7	
C 21	R112739	C CE MI 1N K100E2		D 22	R131637	D R BA158 600400 DO7	
C 22	R112735	C CE MI 470P K100E2		D 23	R131627	D S BAV21 200250 DO35	
C 23	R112222	C NP0 MI 2P2C100E2	1	D 24	R131621	D S 1N4148 075150 DO35	
C 25	R1113889	C EL RA 47M M100E2 85	1	D 25	R131621	D S 1N4148 075150 DO35	
C 26	R1127741	C Z5U MU 100N Z 50E2 85		D 31	R131637	D R BA158 600400 DO7	
C 27	R1127741	C Z5U MU 100N Z 50E2 85		D 32	R131637	D R BA158 600400 DO7	
C 28	R112366	C N750MI 220P G100E2		D 33	R131627	D S BAV21 200250 DO35	
C 29	R1115915	C EL5 RA 4M7M 35E2 85		D 34	R131621	D S 1N4148 075150 DO35	
C 30	R112242	C NP0 MI 100P G100E2		D 35	R131621	D S 1N4148 075150 DO35	
C 31	R112739	C CE MI 1N K100E2		D 41	R131637	D R BA158 600400 DO7	
C 32	R112367	C N750MI 270P G100E2		D 42	R131637	D R BA158 600400 DO7	
C 33	R112222	C NP0 MI 2P2C100E2	1	D 43	R131627	D S BAV21 200250 DO35	
C 35	R1113889	C EL RA 47M M100E2 85	1	D 44	R131621	D S 1N4148 075150 DO35	
C 38	R112366	C N750MI 220P G100E2		D 45	R131621	D S 1N4148 075150 DO35	
C 39	R1115915	C EL5 RA 4M7M 35E2 85		D 51	R131637	D R BA158 600400 DO7	
C 40	R112242	C NP0 MI 100P G100E2		D 52	R131637	D R BA158 600400 DO7	
C 41	R112739	C CE MI 1N K100E2		D 53	R131627	D S BAV21 200250 DO35	
C 42	R112386	C N152MI 390P G100E2		D 54	R131621	D S 1N4148 075150 DO35	
C 43	R112222	C NP0 MI 2P2C100E2	1	D 55	R131621	D S 1N4148 075150 DO35	
C 45	R1113889	C EL RA 47M M100E2 85	1	D 99	R131621	D S 1N4148 075150 DO35	
C 46	R1127741	C Z5U MU 100N Z 50E2 85		D100	R131621	D S 1N4148 075150 DO35	
C 47	R1127741	C Z5U MU 100N Z 50E2 85		D101	R131954	D R BYW29 20008A TO220	1
C 48	R112366	C N750MI 220P G100E2		D102	R1319481	D R BYD33J 6001A3 SOD81	1
C 49	R1115915	C EL5 RA 4M7M 35E2 85		I 1	R134124	U 082 TL DIP8 P	1
C 50	R112242	C NP0 MI 100P G100E2		I 2	R134124	U 082 TL DIP8 P	1
C 51	R112739	C CE MI 1N K100E2		I 3	R134124	U 082 TL DIP8 P	1
C 52	R112367	C N750MI 270P G100E2		J 1	R3137271	J MTA MBT P 5 M3,96SN RO	1
C 53	R112222	C NP0 MI 2P2C100E2	1	J 2	R3137271	J MTA MBT P 5 M3,96SN RO	1
C 55	R1113889	C EL RA 47M M100E2 85	1	J 3	R3137271	J MTA MBT P 5 M3,96SN RO	1
C 58	R112366	C N750MI 220P G100E2					

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
J 6	R313927	J CT H MBT P 7 M2SN WH	1	R 4	V1026656	R MF H 4K75F 0W6 E4	
J 9	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	R 5	V1026506	R MF H 3K32F 0W6 E4	
J 10	R3132862	J MD1 C MBT P 2 E1SN 6,7	1	R 6	V1026805	R MF H681E F 0W6 E4	
J 11	R315302	J PIN PR D1,3L 5,5+3	1	R 7	V1026086	R MF H 1K21F 0W6 E4	
J 12	R315302	J PIN PR D1,3L 5,5+3	1	R 8	V1026006	R MF H 1K F 0W6 E4	
L 1	R3061222	CH AX NS 1.5 UH	1	R 9	R101530	R MF H330E F 0W4 E3	
L 2	R775164	CH AX NS 0,5 51	1	R 10	V1026576	R MF H 3K92F 0W6 E4	
L 3	R775164	CH AX NS 0,5 51	1	R 11	R103240	R MO H 2K2 J 2W E10	1
L 4	R774154	CH D**HR HOR	1	R 12	R103229	R MO H270E J 2W E10	1
L 11	R3061222	CH AX NS 1.5 UH	1	R 13	R103620	R WW H 4E7 K 4W E10	1
L 21	R3061222	CH AX NS 1.5 UH	1	R 14	V1026005	R MF H100E F 0W6 E4	
L 31	R3061222	CH AX NS 1.5 UH	1	R 16	V1026426	R MF H 2K74F 0W6 E4	
L 41	R3061222	CH AX NS 1.5 UH	1	R 17	V1026506	R MF H 3K32F 0W6 E4	
L 51	R3061222	CH AX NS 1.5 UH	1	R 18	V1026006	R MF H 1K F 0W6 E4	
P 1	R107005	R TCE H500E K 0W5 S 7TS	1	R 19	V1026656	R MF H 4K75F 0W6 E4	
P 11	R107005	R TCE H500E K 0W5 S 7TS	1	R 20	V1026506	R MF H 3K32F 0W6 E4	
P 21	R107005	R TCE H500E K 0W5 S 7TS	1	R 21	V1026805	R MF H681E F 0W6 E4	
P 31	R107005	R TCE H500E K 0W5 S 7TS	1	R 22	V1026086	R MF H 1K21F 0W6 E4	
P 41	R107005	R TCE H500E K 0W5 S 7TS	1	R 23	V1026006	R MF H 1K F 0W6 E4	
P 51	R107005	R TCE H500E K 0W5 S 7TS	1	R 24	R101530	R MF H330E F 0W4 E3	
PC	R780357	PCB D700 CNV OUT		R 25	V1026576	R MF H 3K92F 0W6 E4	
Q 1	R1314131	Q BC557B P SS TO92		R 26	V1026506	R MF H 3K32F 0W6 E4	
Q 2	V132527	Q 2SC3600E N P TO126	1	R 27	R103229	R MO H270E J 2W E10	1
Q 3	R131411	Q BC549C N SS TO92		R 28	R103620	R WW H 4E7 K 4W E10	1
Q 4	R132941	Q IRF632 FN P TO220	1	R 29	V1026005	R MF H100E F 0W6 E4	
Q 5	R132942	Q IRF9630 FP P TO220	1	R 31	V1026336	R MF H 2K21F 0W6 E4	
Q 11	R1314131	Q BC557B P SS TO92		R 32	V1026506	R MF H 3K32F 0W6 E4	
Q 12	R131471	Q BF458 N P TO126	1	R 33	V1026006	R MF H 1K F 0W6 E4	
Q 13	R131411	Q BC549C N SS TO92		R 34	V1026656	R MF H 4K75F 0W6 E4	
Q 14	R132941	Q IRF632 FN P TO220	1	R 35	V1026506	R MF H 3K32F 0W6 E4	
Q 15	R132942	Q IRF9630 FP P TO220	1	R 36	V1026805	R MF H681E F 0W6 E4	
Q 21	R1314131	Q BC557B P SS TO92		R 37	V1026086	R MF H 1K21F 0W6 E4	
Q 22	V132527	Q 2SC3600E N P TO126	1	R 38	V1026006	R MF H 1K F 0W6 E4	
Q 23	R131411	Q BC549C N SS TO92		R 39	R101530	R MF H330E F 0W4 E3	
Q 24	R132941	Q IRF632 FN P TO220	1	R 40	V1026576	R MF H 3K92F 0W6 E4	
Q 25	R132942	Q IRF9630 FP P TO220	1	R 41	R103240	R MO H 2K2 J 2W E10	1
Q 31	R1314131	Q BC557B P SS TO92		R 42	R103229	R MO H270E J 2W E10	1
Q 32	R131471	Q BF458 N P TO126	1	R 43	R103620	R WW H 4E7 K 4W E10	1
Q 33	R131411	Q BC549C N SS TO92		R 44	V1026005	R MF H100E F 0W6 E4	
Q 34	R132941	Q IRF632 FN P TO220	1	R 46	V1026426	R MF H 2K74F 0W6 E4	
Q 35	R132942	Q IRF9630 FP P TO220	1	R 47	V1026506	R MF H 3K32F 0W6 E4	
Q 41	R1314131	Q BC557B P SS TO92		R 48	V1026006	R MF H 1K F 0W6 E4	
Q 42	V132527	Q 2SC3600E N P TO126	1	R 49	V1026656	R MF H 4K75F 0W6 E4	
Q 43	R131411	Q BC549C N SS TO92		R 50	V1026506	R MF H 3K32F 0W6 E4	
Q 44	R132941	Q IRF632 FN P TO220	1	R 51	V1026805	R MF H681E F 0W6 E4	
Q 45	R132942	Q IRF9630 FP P TO220	1	R 52	V1026086	R MF H 1K21F 0W6 E4	
Q 51	R1314131	Q BC557B P SS TO92		R 53	V1026006	R MF H 1K F 0W6 E4	
Q 52	R131471	Q BF458 N P TO126	1	R 54	R101530	R MF H330E F 0W4 E3	
Q 53	R131411	Q BC549C N SS TO92		R 55	V1026576	R MF H 3K92F 0W6 E4	
Q 54	R132941	Q IRF632 FN P TO220	1	R 56	V1026506	R MF H 3K32F 0W6 E4	
Q 55	R132942	Q IRF9630 FP P TO220	1	R 57	R103229	R MO H270E J 2W E10	1
Q100	R132552	Q BF423 P SS TO92		R 58	R103620	R WW H 4E7 K 4W E10	1
Q101	R132516	Q BF422 N SS TO92		R 59	V1026005	R MF H100E F 0W6 E4	
Q102	R131411	Q BC549C N SS TO92		R 61	V1026336	R MF H 2K21F 0W6 E4	
Q103	R132968	Q BC640 P SS TO92	1	R 62	V1026506	R MF H 3K32F 0W6 E4	
Q104	R132941	Q IRF632 FN P TO220	1	R 63	V1026006	R MF H 1K F 0W6 E4	
Q105	R132942	Q IRF9630 FP P TO220	1	R 64	V1026656	R MF H 4K75F 0W6 E4	
Q106	R132910	Q BS170 FN SS TO92	1	R 65	V1026506	R MF H 3K32F 0W6 E4	
Q107	R132922	Q BC639 N SS TO92	1	R 66	V1026805	R MF H681E F 0W6 E4	
R 1	V1026336	R MF H 2K21F 0W6 E4		R 67	V1026086	R MF H 1K21F 0W6 E4	
R 2	V1026506	R MF H 3K32F 0W6 E4		R 68	V1026006	R MF H 1K F 0W6 E4	
R 3	V1026006	R MF H 1K F 0W6 E4		R 69	R101530	R MF H330E F 0W4 E3	
				R 70	V1026576	R MF H 3K92F 0W6 E4	
				R 71	R103240	R MO H 2K2 J 2W E10	1
				R 72	R103229	R MO H270E J 2W E10	1
				R 73	R103620	R WW H 4E7 K 4W E10	1
				R 74	V1026005	R MF H100E F 0W6 E4	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 76	V1026426	R MF H 2K74F 0W6 E4		R106	V1026658	R MF H475K F 0W6 E4	
R 77	V1026506	R MF H 3K32F 0W6 E4		R107	V1026006	R MF H 1K F 0W6 E4	
R 78	V1026006	R MF H 1K F 0W6 E4		R110	V1026005	R MF H100E F 0W6 E4	
R 79	V1026656	R MF H 4K75F 0W6 E4		R111	V1026008	R MF H100K F 0W6 E4	
R 80	V1026506	R MF H 3K32F 0W6 E4		R112	V1026336	R MF H 2K21F 0W6 E4	
R 81	V1026805	R MF H681E F 0W6 E4		R113	V1026006	R MF H 1K F 0W6 E4	
R 82	V1026086	R MF H 1K21F 0W6 E4		R114	V1026006	R MF H 1K F 0W6 E4	
R 83	V1026006	R MF H 1K F 0W6 E4		R115	V1026007	R MF H 10K F 0W6 E4	
R 84	R101530	R MF H330E F 0W4 E3		R116	V1026007	R MF H 10K F 0W6 E4	
R 85	V1026576	R MF H 3K92F 0W6 E4		R117	R101336	R MF H 1K J 1W E6	1
R 86	V1026506	R MF H 3K32F 0W6 E4		R118	V1026009	R MF H 1M F 0W6 E4	
R 87	R103229	R MO H270E J 2W E10	1	R119	V1026005	R MF H100E F 0W6 E4	
R 88	R103620	R WW H 4E7 K 4W E10	1	R120	V1026336	R MF H 2K21F 0W6 E4	
R 89	V1026005	R MF H100E F 0W6 E4	1	R121	V1026007	R MF H 10K F 0W6 E4	
R 90	V1026006	R MF H 1K F 0W6 E4		R122	V1026007	R MF H 10K F 0W6 E4	
R 91	V1026006	R MF H 1K F 0W6 E4		R123	V1026007	R MF H 10K F 0W6 E4	
R 92	V1026426	R MF H 2K74F 0W6 E4	1	R124	R101532	R MF H470E F 0W4 E3	1
R 93	V1026426	R MF H 2K74F 0W6 E4	1	R125	R101524	R MF H100E F 0W4 E3	1
R 95	R101546	R MF H 6K8 F 0W4 E3		R126	R101524	R MF H100E F 0W4 E3	1
R 96	R101524	R MF H100E F 0W4 E3	1	R127	R101524	R MF H100E F 0W4 E3	1
R 97	R101524	R MF H100E F 0W4 E3	1				
R 98	R101524	R MF H100E F 0W4 E3	1	SR 1	R1013997	R CFFH E1 K 1W	1
R100	V1026007	R MF H 10K F 0W6 E4		SR 2	R1012997	R CFFH E1 K 0W7	1
R101	V1026007	R MF H 10K F 0W6 E4					
R102	V1026259	R MF H 1M82F 0W6 E4		Z 1	R131786	D ZEN 16V 0W5 B DO35	1
R103	V1026007	R MF H 10K F 0W6 E4		Z 2	R131786	D ZEN 16V 0W5 B DO35	1
R104	V1026806	R MF H 6K81F 0W6 E4		Z 3	R131740	D ZEN 12V 0W5 C DO35	
R105	V1026259	R MF H 1M82F 0W6 E4					







701S/708 : TO RGB INPUT (J703)
 808S : TO CNN CONV (J4)

Modifications reserved

Name INFRA RED RECEIVER			Sheet 1 / 1
Module No R762215	Index 0	PCB No R780185	Rev 6
Date 13-01-1998	Drawn JVDY	Checked SCG	
BARCO PROJECTION SYSTEMS			

TECHNICAL DESCRIPTION

TBA2800 Infrared Preamplifier IC (14-Pin Plastic Package TO-116)

Bipolar integrated circuit intended as a receiver preamplifier for the infrared-remote control systems designed with the SAA1250 integrated circuit.

The TBA2800 preamplifier IC contains four main parts:

- Gain-controlled amplifier I
- Amplifier II
- Pulse-separating amplifier III and
- Inverter IV

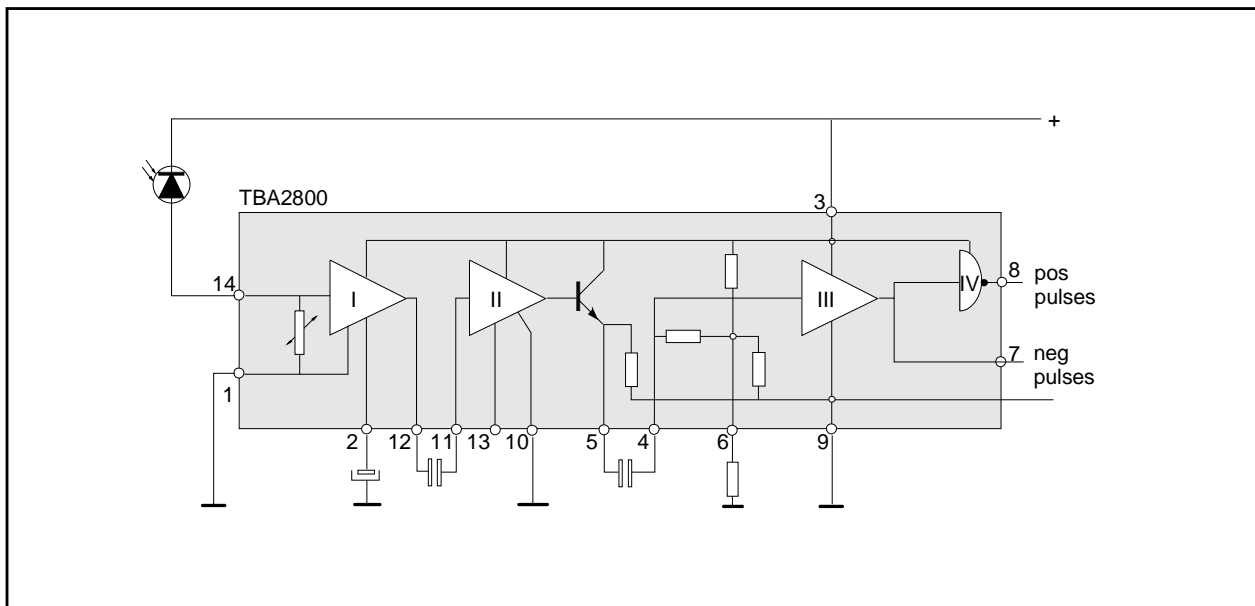
Amplifier I has a wide dynamic range and thus ensures interference-free operation, even at bright ambient light or at intensive infrared light as it comes from infrared sound transmissions or at bright 50 Hz modulated lights as it originates from fluorescent lamps.

It is also possible for the remote-control transmitter to be near the receiver without causing malfunctions by overdriving the receiver.

Amplifier II further amplifies the signal, and amplifier III separates the pulse-shaped intelligence signal from noise and other unwanted parts.

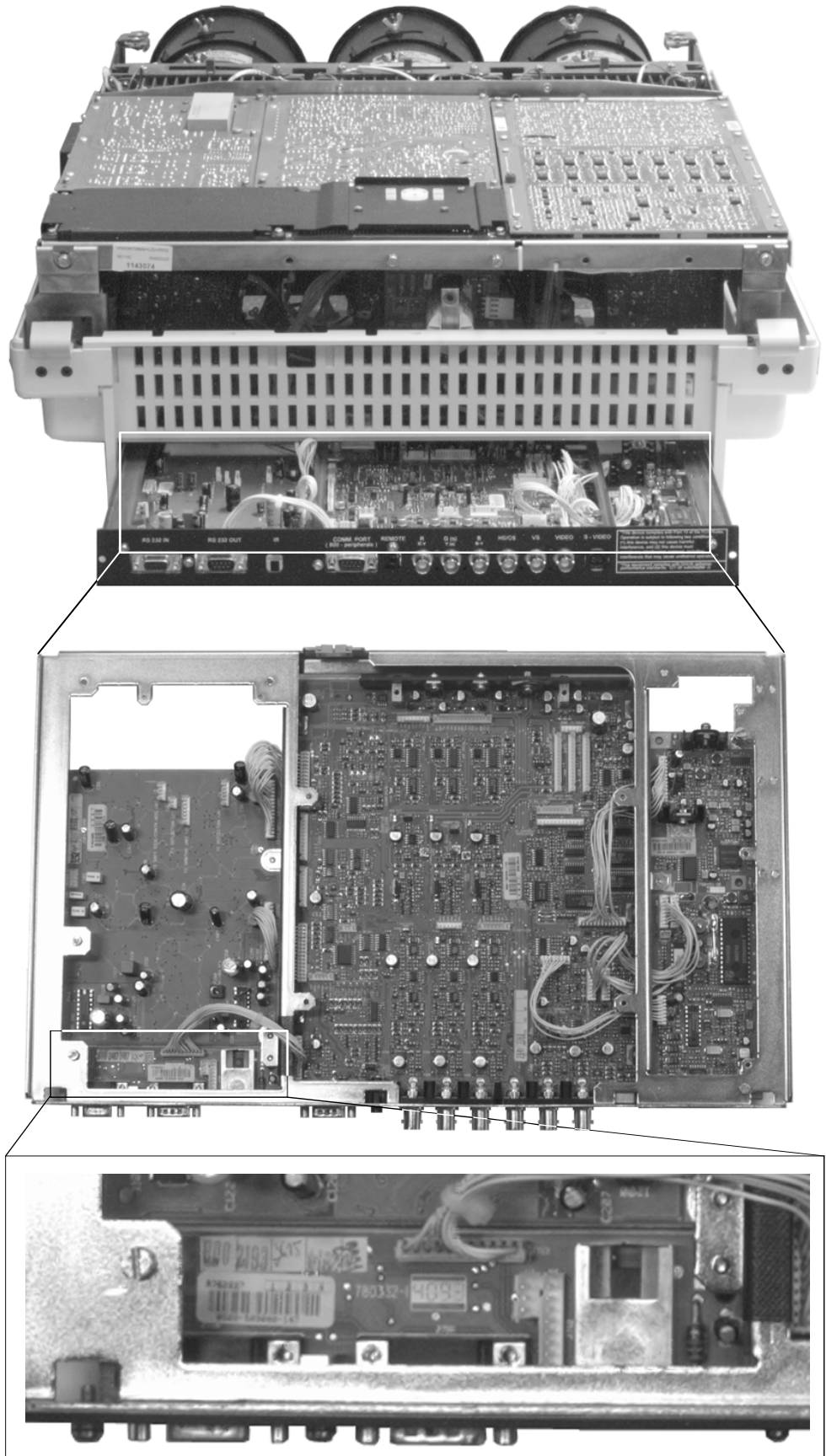
The additional inverter IV inverts the negative output pulses at pin 7 and thus delivers positive output pulses at pin 8.

If an additional resistor is inserted between pin 6 and GND, noise immunity is increased. But this is accompanied by decrease in sensitivity.

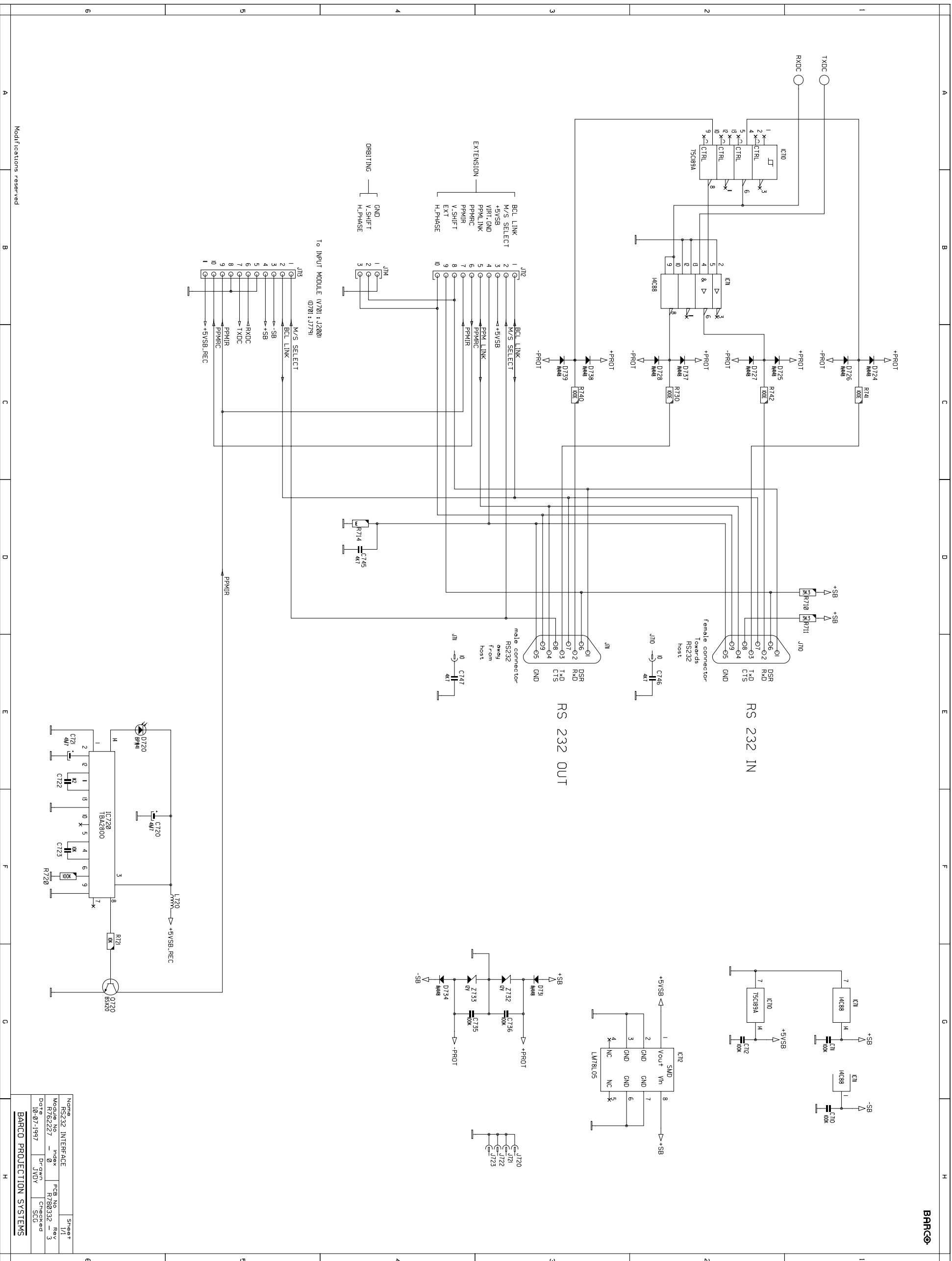


PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION
30	R315303	J REC FA T2,8 W0,2-0,35 A
4100	R803723	FRM V700 RX IR SCR N
C783	R115940	C PP RA 10N J 63E2 85
C784	R1159181	C PP RA 1N2J100E2 85
C787	R1115915	C EL5 RA 4M7M 35E2 85
C789	R111476	C EL RA 47M M 25E2 85
C929	R1127741	C Z5U MU 100N Z 50E2 85
D793	R131681	D O BPW41N PIN
I778	R132824	U 2800 TBA DIP14 P
J780	R313944	J CT H MBS P 4 M2SN WH
L791	R3061582	CH AX NS 1.5 MH
R785	R101560	R MF H100K F 0W4 E3
R931	R101520	R MF H 47E F 0W4 E3
Z932	R131744	D ZEN 5V6 OW5 C D035



OMP, L.O.C.
C710 H 1
C711 G 1
C720 G 2
C721 E 2
C722 E 6
C723 E 6
C736 C 3
C745 D 4
C747 E 2
D720 E 1
D724 C 1
D725 C 2
D757 C 2
D728 C 2
D731 C 3
D734 C 4
D733 C 2
D739 C 3
D738 C 3
IC710 G 2
IC710 G 2
IC710 A 1
IC711 G 1
IC711 G 1
IC711 B 2
IC712 G 2
IC720 G 6
J710 E 2
J711 E 3
J712 B 3
J713 B 5
J714 B 4
J720 H 3
J722 H 3
J723 H 3
L720 F 5
O720 G 6
R710 D 1
R711 D 1
R714 D 4
R720 F 6
R721 F 6
R722 F 6
R740 C 3
R741 C 2
R742 C 2
Z732 G 3
Z733 G 3

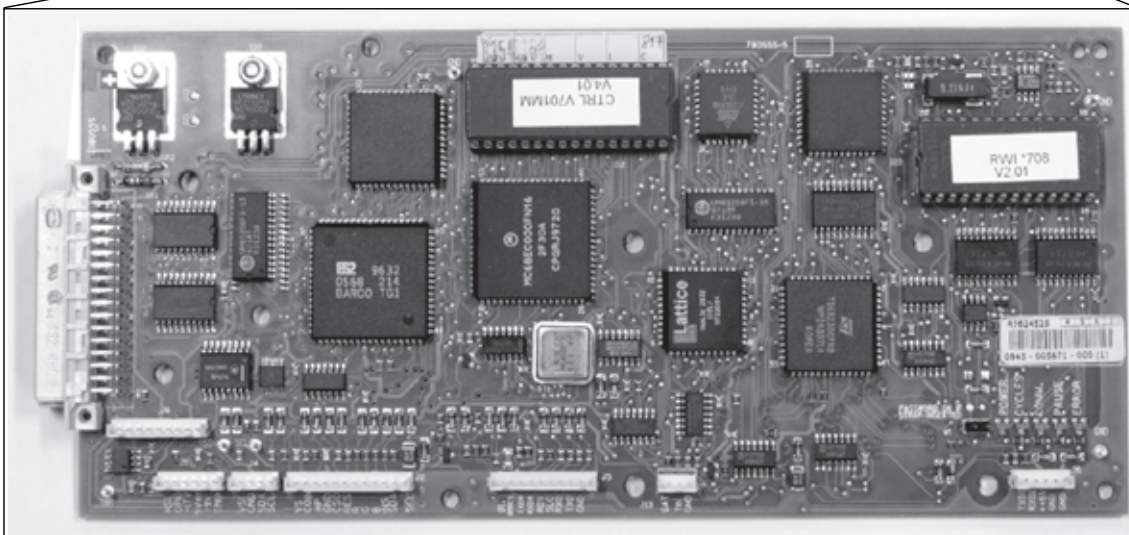
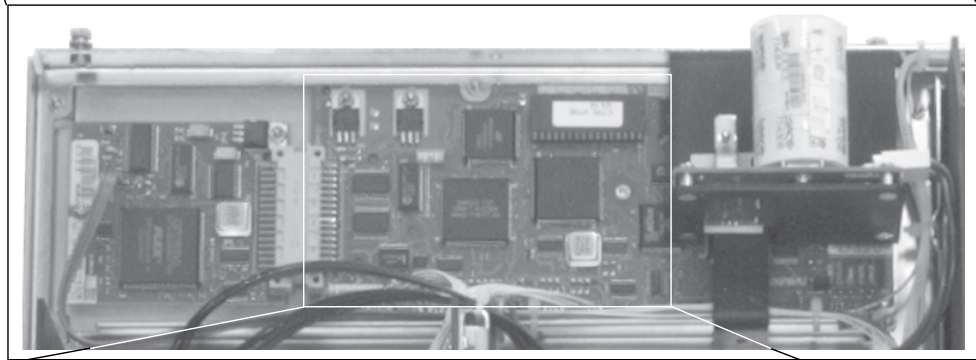
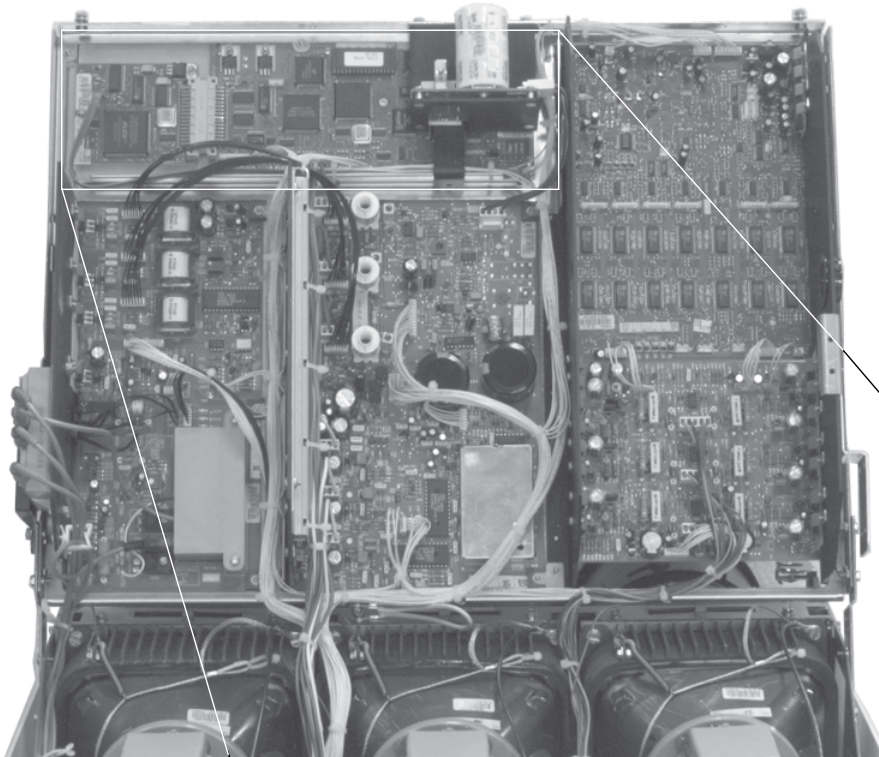


Modifications reserved

Name		RS232 INTERFACE		Sheet	
Module No.	Index	PCB No.	Rev	1/1	
02527		R73032	Rev 3		
DR-GND	DR-GND	DR-GND	DR-GND		
18-07-1997	JVDY	SCG	SCG		
BARCO PROJECTION SYSTEMS					

PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R805674	FRM V700 RX SCRN	1
20	R348019	CBLA TIE B L100 W2,4 -	1
30	R367600	NUT TRAD M3 BLOCK BRNI	1
40	B360862	SCR Z\$7985M 3 X 8 STZY	1
C710	P210122	C# X7R MU 100N K 50 1206	1
C711	P210122	C# X7R MU 100N K 50 1206	1
C712	P210122	C# X7R MU 100N K 50 1206	1
C720	R1115915	C EL5 RA 4M7M 35E2 85	1
C721	R1115915	C EL5 RA 4M7M 35E2 85	1
C722	P210112	C# C0G MU 1N2J 50 1206	1
C723	P210092	C# X7R MU 10N K 50 1206	1
C735	P210122	C# X7R MU 100N K 50 1206	1
C736	P210122	C# X7R MU 100N K 50 1206	1
C745	P210122	C# X7R MU 100N K 50 1206	1
C746	P210122	C# X7R MU 100N K 50 1206	1
C747	P210122	C# X7R MU 100N K 50 1206	1
D720	R131681	D O BPW41N PIN	1
D724	P234099	D#4148 RDMMELF	1
D725	P234099	D#4148 RDMMELF	1
D726	P234099	D#4148 RDMMELF	1
D727	P234099	D#4148 RDMMELF	1
D728	P234099	D#4148 RDMMELF	1
D731	P234099	D#4148 RDMMELF	1
D734	P234099	D#4148 RDMMELF	1
D737	P234099	D#4148 RDMMELF	1
D738	P234099	D#4148 RDMMELF	1
D739	P234099	D#4148 RDMMELF	1
I710	P230652	U#75C189A SN SO14 P	1
I711	P230561	U#14C88 MC SO14 P	1
I712	P230062	U#78L05A LM SO8 P	1
I720	R132824	U 2800 TBA DIP14 P	1
J710	R3135015	J DE P8 FBSP 9 FUMBLPGDB	1
J711	R3135005	J DE P8 MBSP 9 FUMBLPGDB	1
J712	R313930	J CT H MBT P10 M2SN WH	1
J714	R313923	J CT H MBT P 3 M2SN WH	1
L720	R3061582	CH AX NS 1.5 MH	1
PC	R780332	PCB V700 RS232	1
Q720	P232033	Q#BSV52 N SS SOT23	1
R710	P200423	R# CE H 3K3 F 0W25 1206	1
R711	P200423	R# CE H 3K3 F 0W25 1206	1
R714	R1011908	R CFFH 1E J 0W35	1
R720	P200459	R# CE H100K F 0W25 1206	1
R721	P200435	R# CE H 10K F 0W25 1206	1
R730	P200387	R# CE H100E F 0W25 1206	1
R740	P200387	R# CE H100E F 0W25 1206	1
R741	P200387	R# CE H100E F 0W25 1206	1
R742	P200387	R# CE H100E F 0W25 1206	1
Z732	P234046	D#ZEN 12V 0W5 C DMMELF	1
Z733	P234046	D#ZEN 12V 0W5 C DMMELF	1
	R3484115	CD CT FTMT P11 110	1
	R762227P	UN V700 RS232 MK2	1



IRIS2 CONNECTION

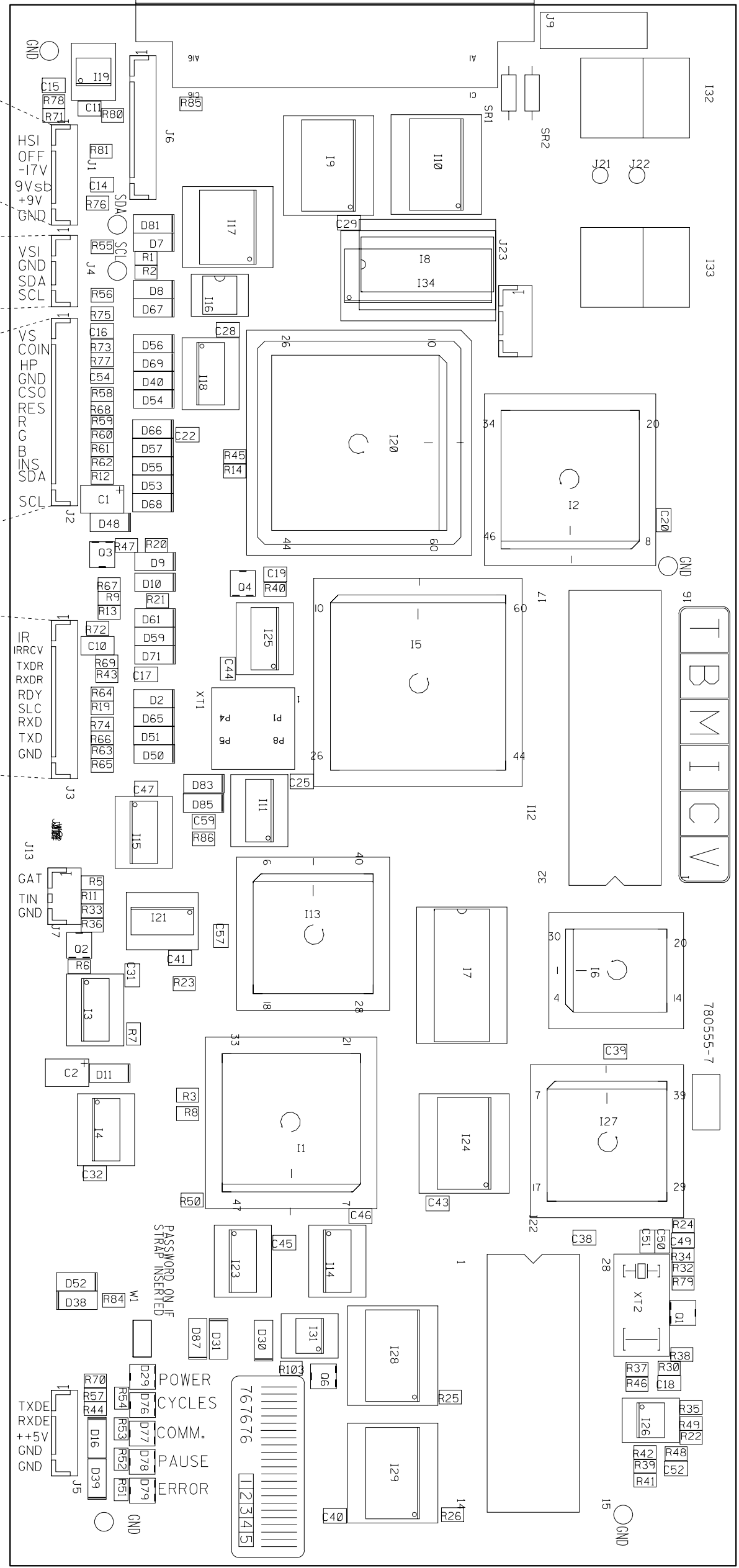
CONNECTION WITH SMPS (J759)

CONNECTION WITH DEF.L. MOD. (J15)

CONNECTION WITH INPUT MOD. (J3)

CONNECTION WITH INPUT MOD. (J701)

TOP VIEW

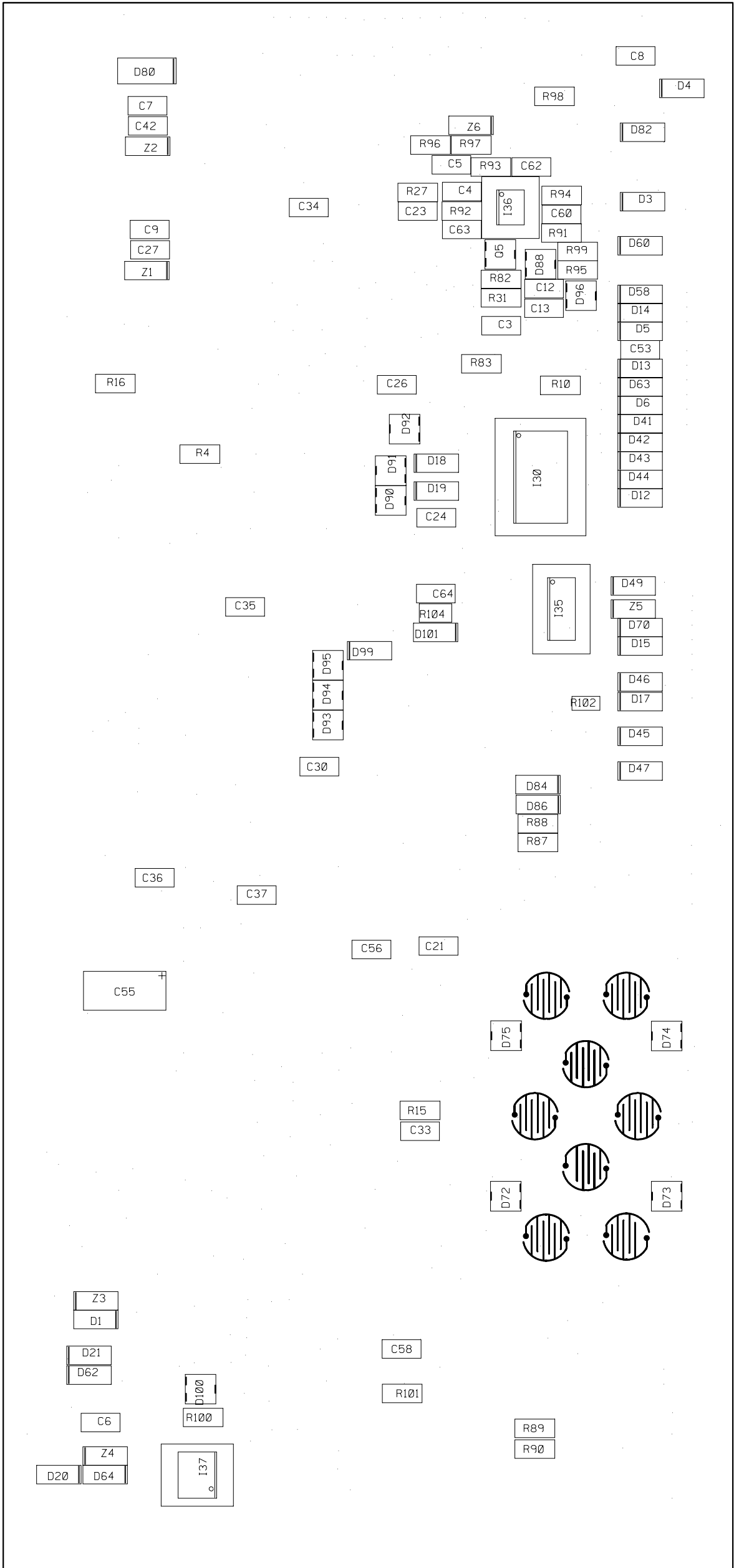


PASSWORD ON F
STRAP INSERTED

POWER CYCLES
COMM. PAUSE
ERROR

Modifications reserved

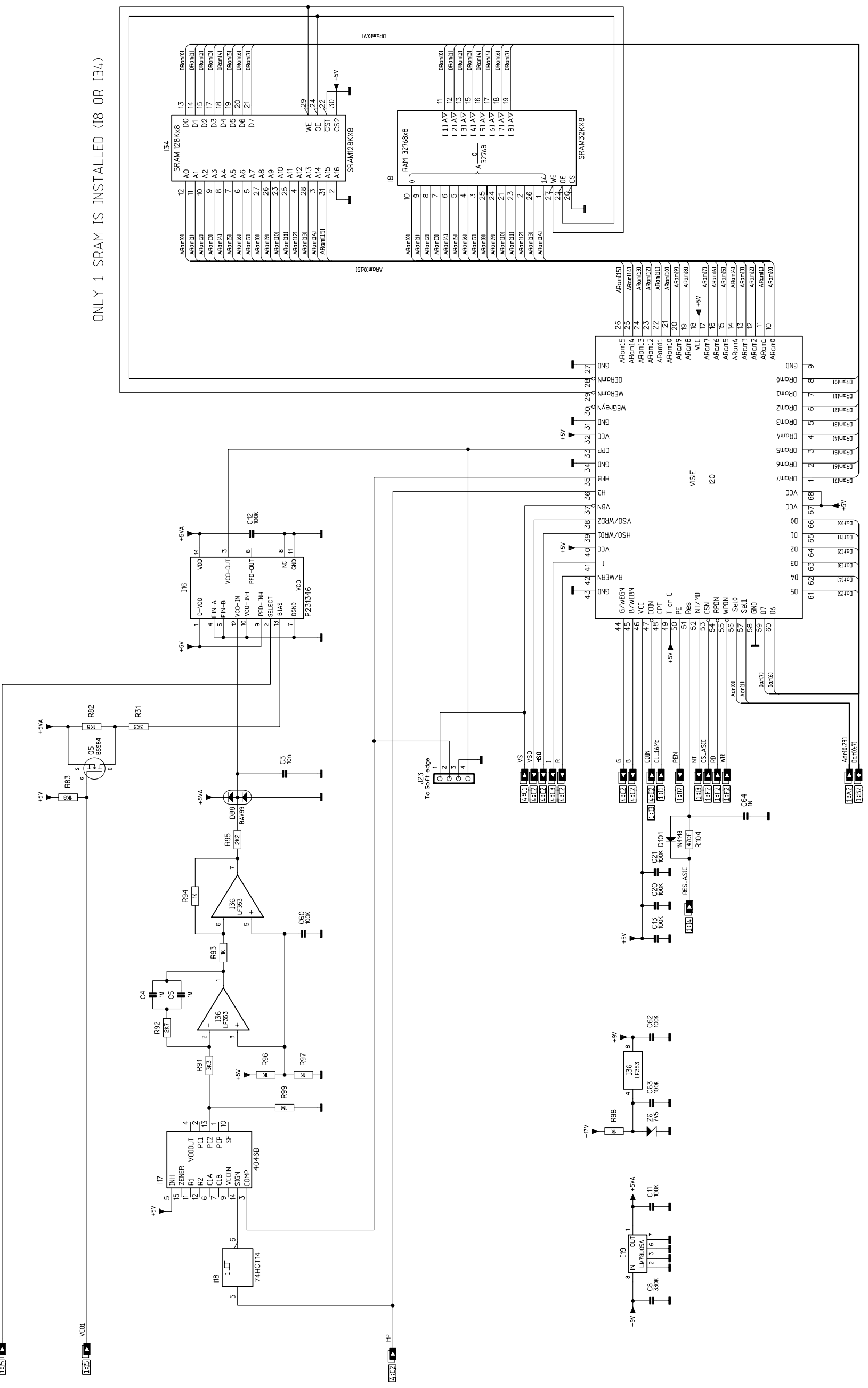
Name	CONROLLER	Sheet	1 / 2
Module No	R7624323	Index	5
Date	20-08-1998	Rev	7
Drawn	JUDY	Checked	DTA
BARCO PROJECTION SYSTEMS			



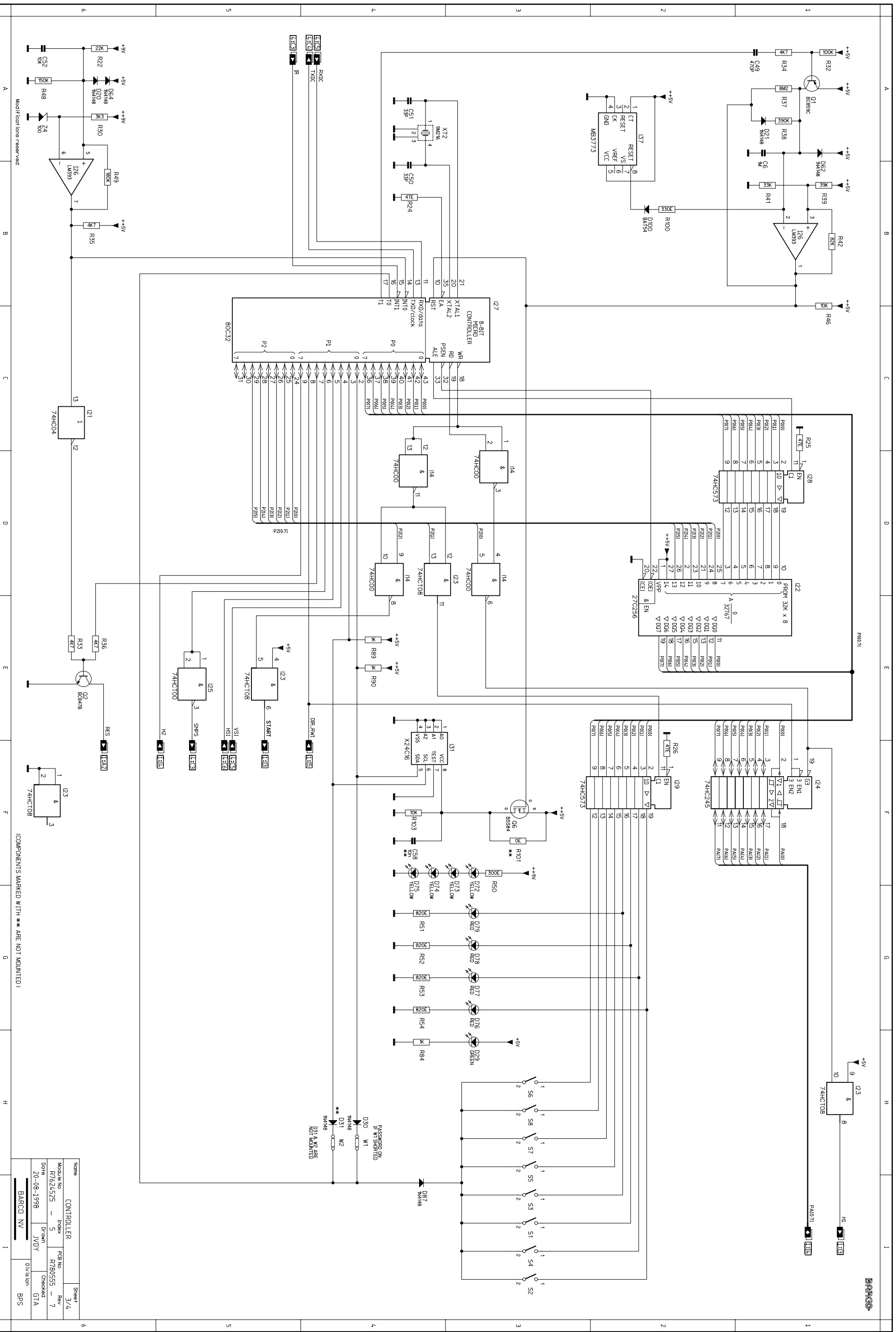
BOTTOM VIEW

Name	CONTROLLER	Sheet	2 / 2
Module No	87624525	PCB No	R78055
Index	5	Rev	7
Date	20-08-1998	Drawn	JDY
		Checked	GTA

ONLY 1 SRAM IS INSTALLED (I8 OR I34)



Name	CONTROLLER	Sheet	Z/4
Module No	R7624525	Index	5
Rev	R780555	PCB No	7
Doc	20-08-1998	Drawn	JVDY
Checked		Checked	GTA
Division	BARCO NV		
BPS			



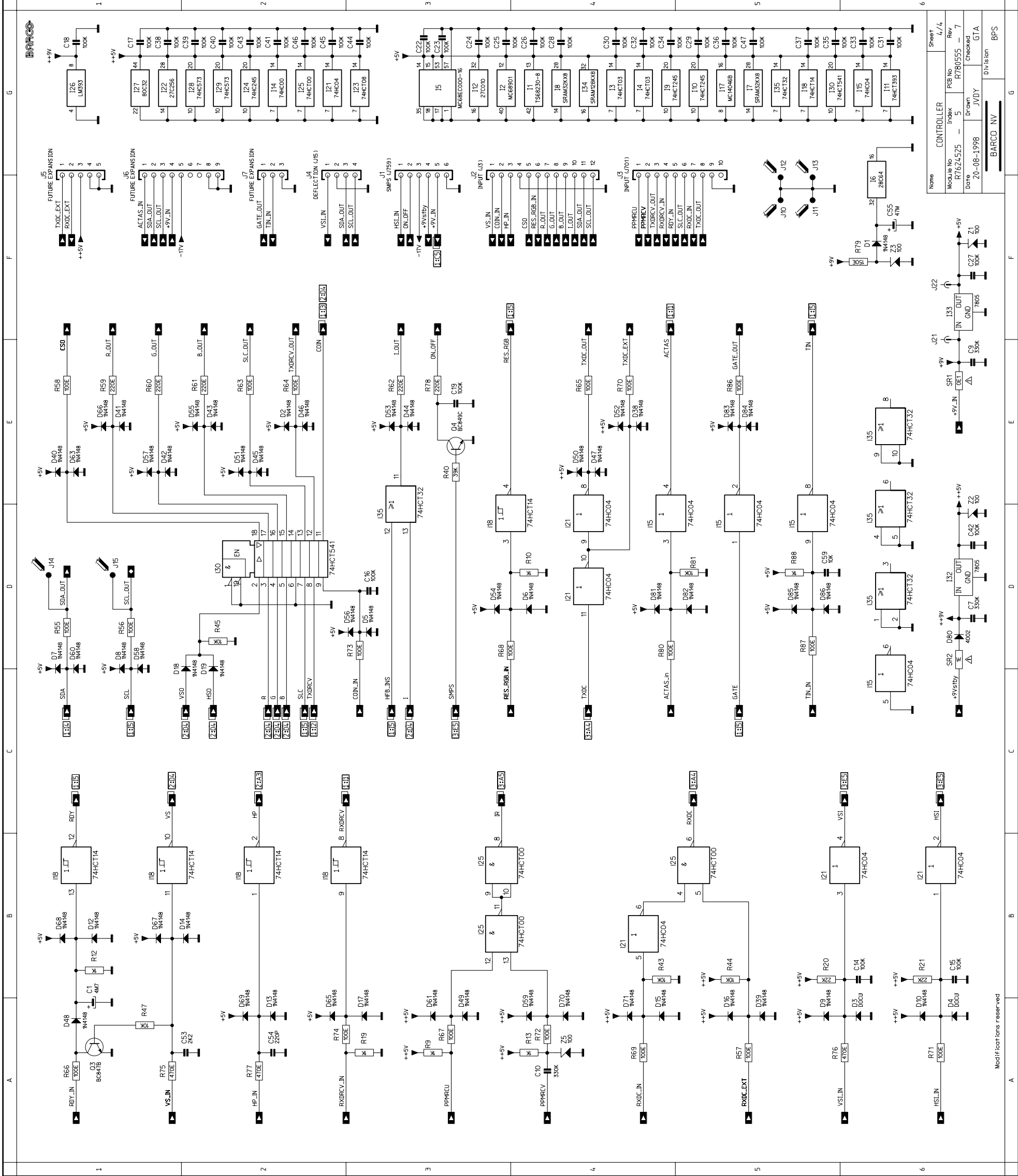
(COMPONENTS MARKED WITH ** ARE NOT MOUNTED)

Name		CONTROLLEER		Sheet	
Module No	R7624525	Index	5	Rev	3/4
Date	20-08-1998	Checked	JVDY	Checked	GTA
BARCO NV				BPS	

Modifications reserved

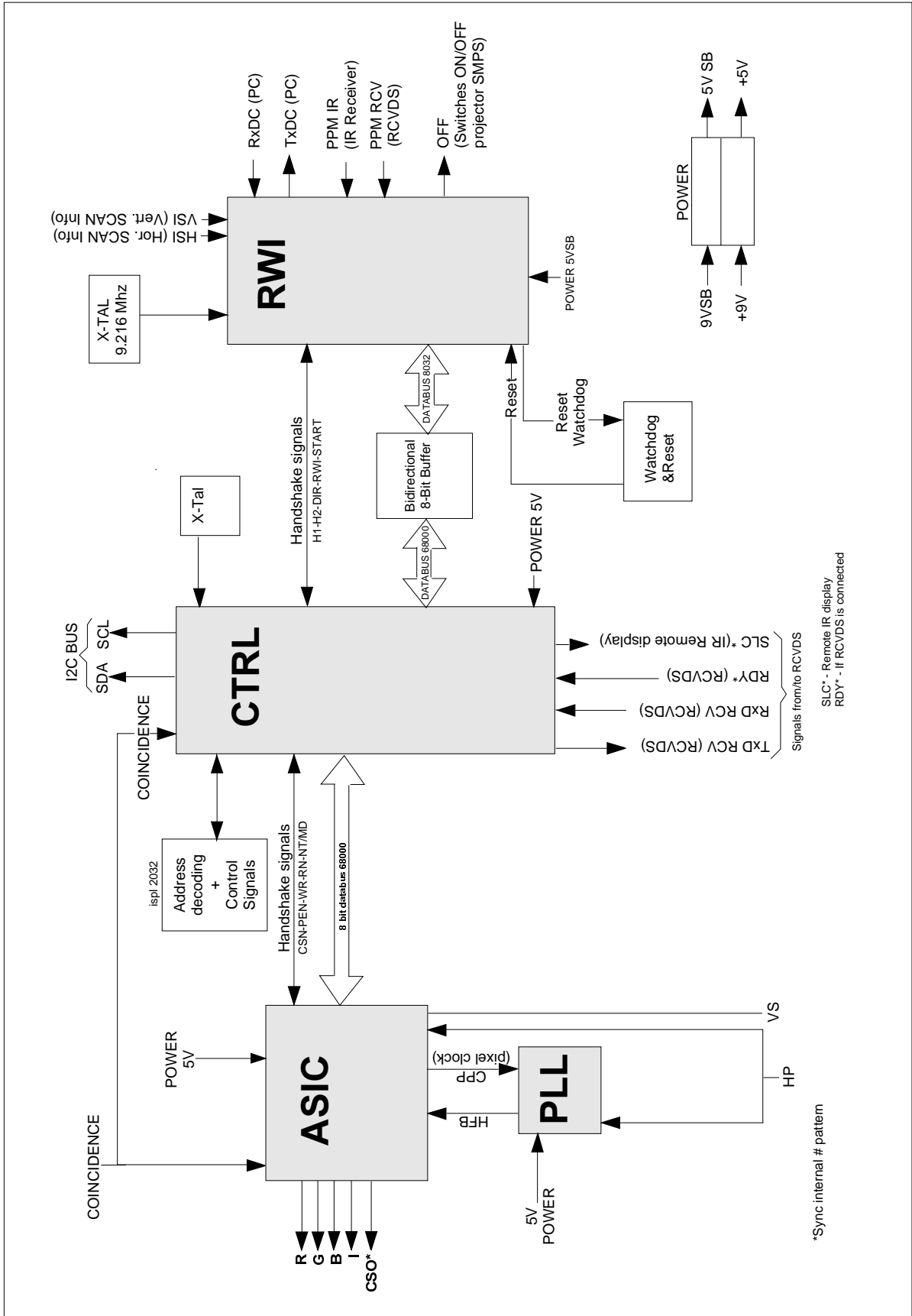
031 & 02 ARE NOT MOUNTED

PASSWORLD ON IF MOUNTED



COMP.	LOC. SH.	LOC. SH.	LOC. SH.
C1	4	1	1
C2	4	1	1
C3	4	1	1
C4	4	1	1
C5	4	1	1
C6	4	1	1
C7	4	1	1
C8	4	1	1
C9	4	1	1
C10	4	1	1
C11	4	1	1
C12	4	1	1
C13	4	1	1
C14	4	1	1
C15	4	1	1
C16	4	1	1
C17	4	1	1
C18	4	1	1
C19	4	1	1
C20	4	1	1
C21	4	1	1
C22	4	1	1
C23	4	1	1
C24	4	1	1
C25	4	1	1
C26	4	1	1
C27	4	1	1
C28	4	1	1
C29	4	1	1
C30	4	1	1
C31	4	1	1
C32	4	1	1
C33	4	1	1
C34	4	1	1
C35	4	1	1
C36	4	1	1
C37	4	1	1
C38	4	1	1
C39	4	1	1
C40	4	1	1
C41	4	1	1
C42	4	1	1
C43	4	1	1
C44	4	1	1
C45	4	1	1
C46	4	1	1
C47	4	1	1
C48	4	1	1
C49	4	1	1
C50	4	1	1
C51	4	1	1
C52	4	1	1
C53	4	1	1
C54	4	1	1
C55	4	1	1
C56	4	1	1
C57	4	1	1
C58	4	1	1
C59	4	1	1
C60	4	1	1
C61	4	1	1
C62	4	1	1
C63	4	1	1
C64	4	1	1
D1	4	1	1
D2	4	1	1
D3	4	1	1
D4	4	1	1
D5	4	1	1
D6	4	1	1
D7	4	1	1
D8	4	1	1
D9	4	1	1
D10	4	1	1
D11	4	1	1
D12	4	1	1
D13	4	1	1
D14	4	1	1
D15	4	1	1
D16	4	1	1
D17	4	1	1
D18	4	1	1
D19	4	1	1
D20	4	1	1
D21	4	1	1
D22	4	1	1
D23	4	1	1
D24	4	1	1
D25	4	1	1
D26	4	1	1
D27	4	1	1
D28	4	1	1
D29	4	1	1
D30	4	1	1
D31	4	1	1
D32	4	1	1
D33	4	1	1
D34	4	1	1
D35	4	1	1
D36	4	1	1
D37	4	1	1
D38	4	1	1
D39	4	1	1
D40	4	1	1
D41	4	1	1
D42	4	1	1
D43	4	1	1
D44	4	1	1
D45	4	1	1
D46	4	1	1
D47	4	1	1
D48	4	1	1
D49	4	1	1
D50	4	1	1
D51	4	1	1
D52	4	1	1
D53	4	1	1
D54	4	1	1
D55	4	1	1
D56	4	1	1
D57	4	1	1
D58	4	1	1
D59	4	1	1
D60	4	1	1
D61	4	1	1
D62	4	1	1
D63	4	1	1
D64	4	1	1
D65	4	1	1
D66	4	1	1
D67	4	1	1
D68	4	1	1
D69	4	1	1
D70	4	1	1
D71	4	1	1
D72	4	1	1
D73	4	1	1
D74	4	1	1
D75	4	1	1
D76	4	1	1
D77	4	1	1
D78	4	1	1
D79	4	1	1
D80	4	1	1
D81	4	1	1
D82	4	1	1
D83	4	1	1
D84	4	1	1
D85	4	1	1
D86	4	1	1
D87	4	1	1
D88	4	1	1
R1	4	1	1
R2	4	1	1
R3	4	1	1
R4	4	1	1
R5	4	1	1
R6	4	1	1
R7	4	1	1
R8	4	1	1
R9	4	1	1
R10	4	1	1
R11	4	1	1
R12	4	1	1
R13	4	1	1
R14	4	1	1
R15	4	1	1
R16	4	1	1
R17	4	1	1
R18	4	1	1
R19	4	1	1
R20	4	1	1
R21	4	1	1
R22	4	1	1
R23	4	1	1
R24	4	1	1
R25	4	1	1
R26	4	1	1
R27	4	1	1
R28	4	1	1
R29	4	1	1
R30	4	1	1
R31	4	1	1
R32	4	1	1
R33	4	1	1
R34	4	1	1
R35	4	1	1
R36	4	1	1
R37	4	1	1
R38	4	1	1
R39	4	1	1
R40	4	1	1
R41	4	1	1
R42	4	1	1
R43	4	1	1
R44	4	1	1
R45	4	1	1
R46	4	1	1
R47	4	1	1
R48	4	1	1
R49	4	1	1
R50	4	1	1
R51	4	1	1
R52	4	1	1
R53	4	1	1
R54	4	1	1
R55	4	1	1
R56	4	1	1
R57	4	1	1
R58	4	1	1
R59	4	1	1
R60	4	1	1
R61	4	1	1
R62	4	1	1
R63	4	1	1
R64	4	1	1
R65	4	1	1
R66	4	1	1
R67	4	1	1
R68	4	1	1
R69	4	1	1
R70	4	1	1
R71	4	1	1
R72	4	1	1
R73	4	1	1
R74	4	1	1
R75	4	1	1
R76	4	1	1
R77	4	1	1
R78	4	1	1
R79	4	1	1
R80	4	1	1
R81	4	1	1
R82	4	1	1
R83	4	1	1
R84	4	1	1
R85	4	1	1
R86	4	1	1
R87	4	1	1
R88	4	1	1
R89	4	1	1
R90	4	1	1
R91	4	1	1
R92	4	1	1
R93	4	1	1
R94	4	1	1
R95	4	1	1
R96	4	1	1
R97	4	1	1
R98	4	1	1
R99	4	1	1
R100	4	1	1
U1	4	1	1
U2	4	1	1
U3	4	1	1
U4	4	1	1
U5	4	1	1
U6	4	1	1
U7	4	1	1
U8	4	1	1
U9	4	1	1
U10	4	1	1
U11	4	1	1
U12	4	1	1
U13	4	1	1
U14	4	1	1
U15	4	1	1
U16	4	1	1
U17	4	1	1
U18	4	1	1
U19	4	1	1
U20	4	1	1
U21	4	1	1
U22	4	1	1
U23	4	1	1
U24	4	1	1
U25	4	1	1
U26	4	1	1
U27	4	1	1
U28	4	1	1
U29	4	1	1
U30	4	1	1
U31	4	1	1
U32	4	1	1
U33	4	1	1
U34	4	1	1
U35	4	1	1
U36	4	1	1
U37	4	1	1
U38	4	1	1
U39	4	1	1
U40	4	1	1
U41	4	1	1
U42	4	1	1
U43	4	1	1
U44	4	1	1
U45	4	1	1
U46	4	1	1
U47	4	1	1
U48	4	1	1
U49	4	1	1
U50	4	1	1
U51	4	1	1
U52	4	1	1
U53	4	1	1
U54	4	1	1
U55	4	1	1
U56	4	1	1
U57	4	1	1
U58	4	1	1
U59	4	1	1
U60	4	1	1
U61	4	1	1
U62	4	1	1
U63	4	1	1
U64	4	1	1
U65	4	1	1
U66	4	1	1
U67	4	1	1
U68			



BLOCKDIAGRAM




PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R313487	J U0.6 FBT P32 E1AU TLP	1	C 55	P212005	C# TA 47M M 10 7343	1
10	R367699	RVT AVTRON2.5L 8,1 AL	2	C 56	P210122	C# X7R MU 100N K 50 1206	1
20	R3132539	J U0.6 FBT P28 E1AU TLP	1	C 57	P210213	C# Y5V MU 100N Z 25 0805	1
40	B360862	SCR Z\$7985M 3 X 8 STZY	2	C 59	P210041	C# X7R MU 10N K 50 0805	1
41	R367502	SPR D6798AD 3,2D 6 STZN	2	C 60	P210122	C# X7R MU 100N K 50 1206	1
42	R3661026	NUT D934 M 3 SS	2	C 62	P210122	C# X7R MU 100N K 50 1206	1
50	R3685631	I NUT SO M3 - 4 PCB STSN	4	C 63	P210122	C# X7R MU 100N K 50 1206	1
60	R811562	FRM D708 CTRL SCR N UP	1	C 64	P210173	C# C0G MU 1N K100 1206	1
61	B360861	SCR Z\$7985M 3 X 6 STZY	4				
62	R722887	SW *708 KYBD RUB CTRL	1	D 1	P234099	D#4148 R DMMELF	1
70	R3133921	J MD SHUNT F P2 E1SN I	1	D 2	P234099	D#4148 R DMMELF	1
				D 3	P234099	D#4148 R DMMELF	1
C 1	P212006	C# TA 4M7M 16 3528	1	D 4	P234099	D#4148 R DMMELF	1
C 2	P212006	C# TA 4M7M 16 3528	1	D 5	P234099	D#4148 R DMMELF	1
C 3	P210107	C# X7R MU 10N J 50 1206	1	D 6	P234099	D#4148 R DMMELF	1
C 4	P210178	C# Y5V MU 1M Z 16 1206	1	D 7	P234099	D#4148 R DMMELF	1
C 5	P210178	C# Y5V MU 1M Z 16 1206	1	D 8	P234099	D#4148 R DMMELF	1
C 6	P210178	C# Y5V MU 1M Z 16 1206	1	D 9	P234099	D#4148 R DMMELF	1
C 7	P210136	C# Y5V MU 330N Z 25 1206	1	D 10	P234099	D#4148 R DMMELF	1
C 8	P210136	C# Y5V MU 330N Z 25 1206	1	D 11	P234099	D#4148 R DMMELF	1
C 9	P210136	C# Y5V MU 330N Z 25 1206	1	D 12	P234099	D#4148 R DMMELF	1
C 10	P210136	C# Y5V MU 330N Z 25 1206	1	D 13	P234099	D#4148 R DMMELF	1
C 11	P210213	C# Y5V MU 100N Z 25 0805	1	D 14	P234099	D#4148 R DMMELF	1
C 12	P210122	C# X7R MU 100N K 50 1206	1	D 15	P234099	D#4148 R DMMELF	1
C 13	P210122	C# X7R MU 100N K 50 1206	1	D 16	P234099	D#4148 R DMMELF	1
C 14	P210213	C# Y5V MU 100N Z 25 0805	1	D 17	P234099	D#4148 R DMMELF	1
C 15	P210213	C# Y5V MU 100N Z 25 0805	1	D 18	P234099	D#4148 R DMMELF	1
C 16	P210213	C# Y5V MU 100N Z 25 0805	1	D 19	P234099	D#4148 R DMMELF	1
C 17	P210213	C# Y5V MU 100N Z 25 0805	1	D 20	P234099	D#4148 R DMMELF	1
C 18	P210213	C# Y5V MU 100N Z 25 0805	1	D 21	P234099	D#4148 R DMMELF	1
C 19	P210213	C# Y5V MU 100N Z 25 0805	1	D 29	P234063	D#LED LGS260 GRE SOT23	1
C 20	P210213	C# Y5V MU 100N Z 25 0805	1	D 30	P234099	D#4148 R DMMELF	1
C 21	P210122	C# X7R MU 100N K 50 1206	1	D 38	P234099	D#4148 R DMMELF	1
C 22	P210213	C# Y5V MU 100N Z 25 0805	1	D 39	P234099	D#4148 R DMMELF	1
C 23	P210122	C# X7R MU 100N K 50 1206	1	D 40	P234099	D#4148 R DMMELF	1
C 24	P210122	C# X7R MU 100N K 50 1206	1	D 41	P234099	D#4148 R DMMELF	1
C 25	P210213	C# Y5V MU 100N Z 25 0805	1	D 42	P234099	D#4148 R DMMELF	1
C 26	P210122	C# X7R MU 100N K 50 1206	1	D 43	P234099	D#4148 R DMMELF	1
C 27	P210122	C# X7R MU 100N K 50 1206	1	D 44	P234099	D#4148 R DMMELF	1
C 28	P210213	C# Y5V MU 100N Z 25 0805	1	D 45	P234099	D#4148 R DMMELF	1
C 29	P210213	C# Y5V MU 100N Z 25 0805	1	D 46	P234099	D#4148 R DMMELF	1
C 30	P210122	C# X7R MU 100N K 50 1206	1	D 47	P234099	D#4148 R DMMELF	1
C 31	P210213	C# Y5V MU 100N Z 25 0805	1	D 48	P234099	D#4148 R DMMELF	1
C 32	P210213	C# Y5V MU 100N Z 25 0805	1	D 49	P234099	D#4148 R DMMELF	1
C 33	P210122	C# X7R MU 100N K 50 1206	1	D 50	P234099	D#4148 R DMMELF	1
C 34	P210122	C# X7R MU 100N K 50 1206	1	D 51	P234099	D#4148 R DMMELF	1
C 35	P210122	C# X7R MU 100N K 50 1206	1	D 52	P234099	D#4148 R DMMELF	1
C 36	P210122	C# X7R MU 100N K 50 1206	1	D 53	P234099	D#4148 R DMMELF	1
C 37	P210122	C# X7R MU 100N K 50 1206	1	D 54	P234099	D#4148 R DMMELF	1
C 38	P210213	C# Y5V MU 100N Z 25 0805	1	D 55	P234099	D#4148 R DMMELF	1
C 39	P210213	C# Y5V MU 100N Z 25 0805	1	D 56	P234099	D#4148 R DMMELF	1
C 40	P210213	C# Y5V MU 100N Z 25 0805	1	D 57	P234099	D#4148 R DMMELF	1
C 41	P210213	C# Y5V MU 100N Z 25 0805	1	D 58	P234099	D#4148 R DMMELF	1
C 42	P210122	C# X7R MU 100N K 50 1206	1	D 59	P234099	D#4148 R DMMELF	1
C 43	P210213	C# Y5V MU 100N Z 25 0805	1	D 60	P234099	D#4148 R DMMELF	1
C 44	P210213	C# Y5V MU 100N Z 25 0805	1	D 61	P234099	D#4148 R DMMELF	1
C 45	P210213	C# Y5V MU 100N Z 25 0805	1	D 62	P234099	D#4148 R DMMELF	1
C 46	P210213	C# Y5V MU 100N Z 25 0805	1	D 63	P234099	D#4148 R DMMELF	1
C 47	P210213	C# Y5V MU 100N Z 25 0805	1	D 64	P234099	D#4148 R DMMELF	1
C 49	P210025	C# C0G MU 470P J 50 0805	1	D 65	P234099	D#4148 R DMMELF	1
C 50	P210018	C# C0G MU 33P J 50 0805	1	D 66	P234099	D#4148 R DMMELF	1
C 51	P210018	C# C0G MU 33P J 50 0805	1	D 67	P234099	D#4148 R DMMELF	1
C 52	P210041	C# X7R MU 10N K 50 0805	1	D 68	P234099	D#4148 R DMMELF	1
C 53	P210029	C# C0G MU 2N2J 50 1206	1	D 69	P234099	D#4148 R DMMELF	1
C 54	P210023	C# C0G MU 220P J 50 0805	1	D 70	P234099	D#4148 R DMMELF	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D 71	P234099	D#4148 R DMMELF	1	I 37	P230378	U#3773 MB SOF8 I	1
D 72	P234062	D#LED LYS260 YL SOT23	1	J 1	R313926	J CT H MBT P 6 M2SN WH	1
D 73	P234062	D#LED LYS260 YL SOT23	1	J 2	R313932	J CT H MBT P12 M2SN WH	1
D 74	P234062	D#LED LYS260 YL SOT23	1	J 3	R313930	J CT H MBT P10 M2SN WH	1
D 75	P234062	D#LED LYS260 YL SOT23	1	J 4	R313924	J CT H MBT P 4 M2SN WH	1
D 76	P234040	D#LED LSS260 RED SOT23	1	J 5	R313925	J CT H MBT P 5 M2SN WH	1
D 77	P234040	D#LED LSS260 RED SOT23	1	J 6	R313929	J CT H MBT P 9 M2SN WH	1
D 78	P234040	D#LED LSS260 RED SOT23	1	J 7	R313923	J CT H MBT P 3 M2SN WH	1
D 79	P234040	D#LED LSS260 RED SOT23	1	J 9	V3135931	J EUR2R2FBS P32 E1C2S 1,6	1
D 80	P234056	D#4002 R DMELF	1	J 10	R315302	J PIN PR D1,3L 5,5+3	1
D 81	P234099	D#4148 R DMMELF	1	J 11	R315302	J PIN PR D1,3L 5,5+3	1
D 82	P234099	D#4148 R DMMELF	1	J 12	R315302	J PIN PR D1,3L 5,5+3	1
D 83	P234099	D#4148 R DMMELF	1	J 13	R315302	J PIN PR D1,3L 5,5+3	1
D 84	P234099	D#4148 R DMMELF	1	J 14	R315302	J PIN PR D1,3L 5,5+3	1
D 85	P234099	D#4148 R DMMELF	1	J 15	R315302	J PIN PR D1,3L 5,5+3	1
D 86	P234099	D#4148 R DMMELF	1	J 23	R313924	J CT H MBT P 4 M2SN WH	1
D 87	P234099	D#4148 R DMMELF	1	PC	R780555	PCB D708 CTRL 68000	1
D 88	P234047	D#BAV99 SER SOT23	1	Q 1	P232101	Q#BC859C P SS SOT23	1
D 90	P234047	D#BAV99 SER SOT23	1	Q 2	P232051	Q#BC847B N SS SOT23	1
D 91	P234047	D#BAV99 SER SOT23	1	Q 3	P232051	Q#BC847B N SS SOT23	1
D 92	P234047	D#BAV99 SER SOT23	1	Q 4	P232004	Q#BC849C N SS SOT23	1
D 93	P234055	D#BAT54 SCH SOT23	1	Q 5	P232079	Q#BSS84 F SS SOT23	1
D 94	P234047	D#BAV99 SER SOT23	1	Q 6	P232079	Q#BSS84 F SS SOT23	1
D 95	P234047	D#BAV99 SER SOT23	1	R 1	P201091	R# CE H 1K5 F 0W12 0805	1
D 96	P234047	D#BAV99 SER SOT23	1	R 2	P201091	R# CE H 1K5 F 0W12 0805	1
D 99	P234099	D#4148 R DMMELF	1	R 3	P201091	R# CE H 1K5 F 0W12 0805	1
D100	P234055	D#BAT54 SCH SOT23	1	R 4	P200415	R# CE H 1K5 F 0W25 1206	1
D101	P234099	D#4148 R DMMELF	1	R 5	P201091	R# CE H 1K5 F 0W12 0805	1
FI 1	V1120516	FLTR EMI 1N M100— 85	1	R 6	P201091	R# CE H 1K5 F 0W12 0805	1
FI 2	V1120516	FLTR EMI 1N M100— 85	1	R 7	P201091	R# CE H 1K5 F 0W12 0805	1
FI 3	V1120516	FLTR EMI 1N M100— 85	1	R 8	P201091	R# CE H 1K5 F 0W12 0805	1
I 1	P230625	U#68230-8 TS PLCC52 P	1	R 9	P201087	R# CE H 1K F 0W12 0805	1
I 2	P230506	U#68901 MK PLCC52 P	1	R 10	P200411	R# CE H 1K F 0W25 1206	1
I 3	P230498	U#74HCT03 SO14 I	1	R 11	P201087	R# CE H 1K F 0W12 0805	1
I 4	P230498	U#74HCT03 SO14 I	1	R 12	P201087	R# CE H 1K F 0W12 0805	1
I 5	P2309910	U#68EC000-16 MC PLCC68 P	1	R 13	P201087	R# CE H 1K F 0W12 0805	1
I 6	P231055	U#28C64B -15PLCC32 P	1	R 14	P201087	R# CE H 1K F 0W12 0805	1
I 7	P231268	U#SRAM 32KX8 15SOJ28 P	1	R 15	P200411	R# CE H 1K F 0W25 1206	1
I 8	P231268	U#SRAM 32KX8 15SOJ28 P	1	R 16	P200411	R# CE H 1K F 0W25 1206	1
I 9	P230051	U#74HCT245 SOL20 I	1	R 19	P201087	R# CE H 1K F 0W12 0805	1
I 10	P230051	U#74HCT245 SOL20 I	1	R 20	P201119	R# CE H 22K F 0W12 0805	1
I 11	P230388	U#74HCT393 SO14 I	1	R 21	P201119	R# CE H 22K F 0W12 0805	1
I 13	P231543	U#2032-110ISPLSI PLCC44 P	1	R 22	P201119	R# CE H 22K F 0W12 0805	1
I 14	P230072	U#74HC00 SO14 I	1	R 23	P201119	R# CE H 22K F 0W12 0805	1
I 15	P230021	U#74HC04 SO14 I	1	R 24	P201055	R# CE H 47E F 0W12 0805	1
I 16	P231346	U#2932 TLC SSO14 P	1	R 25	P201055	R# CE H 47E F 0W12 0805	1
I 17	P2300090	U#14046B MC SOL16 I	1	R 26	P201055	R# CE H 47E F 0W12 0805	1
I 18	P230499	U#74HCT14 SO14 I	1	R 27	P200379	R# CE H 47E F 0W25 1206	1
I 19	P230062	U#78L05A LM SO8 P	1	R 30	P201099	R# CE H 3K3 F 0W12 0805	1
I 20	R1328821	U#1 TG PLCC68 P	1	R 31	P200423	R# CE H 3K3 F 0W25 1206	1
I 21	P230021	U#74HC04 SO14 I	1	R 32	P201135	R# CE H100K F 0W12 0805	1
I 22	R32843601	US D708 RWI 201	1	R 33	P201103	R# CE H 4K7 F 0W12 0805	1
I 23	P230422	U#74HCT08 SO14 I	1	R 34	P201103	R# CE H 4K7 F 0W12 0805	1
I 24	P230318	U#74HC245 SOL20 I	1	R 35	P201103	R# CE H 4K7 F 0W12 0805	1
I 25	P230102	U#74HCT00 SO14 I	1	R 36	P201103	R# CE H 4K7 F 0W12 0805	1
I 26	P230028	U#393 LM SO8 P	1	R 37	P201181	R# CE H 8M2 F 0W12 0805	1
I 27	P230372	U#80C32 PLCC44 P	1	R 38	P201149	R# CE H390K F 0W12 0805	1
I 28	P230164	U#74HC573 SOL20 I	1	R 39	P201125	R# CE H 39K F 0W12 0805	1
I 29	P230164	U#74HC573 SOL20 I	1	R 40	P201125	R# CE H 39K F 0W12 0805	1
I 30	P230501	U#74HCT541 SOL20 I	1	R 41	P201123	R# CE H 33K F 0W12 0805	1
I 31	P230772	U#24C16 SO8 P	1	R 42	P201133	R# CE H 82K F 0W12 0805	1
I 32	R134001	U 7805 TO220 P	1	R 43	P201111	R# CE H 10K F 0W12 0805	1
I 33	R134001	U 7805 TO220 P	1	R 44	P201111	R# CE H 10K F 0W12 0805	1
I 35	P230424	U#74HCT32 SO14 I	1				
I 36	P230266	U#353 LF SO8 P	1				

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 45	P201111	R# CE H 10K F 0W12 0805	1	Z 1	P234164	D#ZEN 5V6 0W5 C DMMELF	1
R 46	P201111	R# CE H 10K F 0W12 0805	1	Z 2	P234164	D#ZEN 5V6 0W5 C DMMELF	1
R 47	P201111	R# CE H 10K F 0W12 0805	1	Z 3	P234164	D#ZEN 5V6 0W5 C DMMELF	1
R 48	P201139	R# CE H150K F 0W12 0805	1	Z 4	P234164	D#ZEN 5V6 0W5 C DMMELF	1
R 49	P201141	R# CE H180K F 0W12 0805	1	Z 5	P234126	D#ZEN 3V9 0W5 C DMMELF	1
R 50	P201074	R# CE H300E F 0W12 0805	1	Z 6	P234184	D#ZEN 7V5 0W5 C DMMELF	1
R 51	P201085	R# CE H820E F 0W12 0805	1				
R 52	P201085	R# CE H820E F 0W12 0805	1		R7624525P	UN D708 CTRL 68000	1
R 53	P201085	R# CE H820E F 0W12 0805	1				
R 54	P201085	R# CE H820E F 0W12 0805	1				
R 55	P201063	R# CE H100E F 0W12 0805	1				
R 56	P201063	R# CE H100E F 0W12 0805	1				
R 57	P201063	R# CE H100E F 0W12 0805	1				
R 58	P201063	R# CE H100E F 0W12 0805	1				
R 59	P201071	R# CE H220E F 0W12 0805	1				
R 60	P201071	R# CE H220E F 0W12 0805	1				
R 61	P201071	R# CE H220E F 0W12 0805	1				
R 62	P201071	R# CE H220E F 0W12 0805	1				
R 63	P201063	R# CE H100E F 0W12 0805	1				
R 64	P201063	R# CE H100E F 0W12 0805	1				
R 65	P201063	R# CE H100E F 0W12 0805	1				
R 66	P201063	R# CE H100E F 0W12 0805	1				
R 67	P201063	R# CE H100E F 0W12 0805	1				
R 68	P201063	R# CE H100E F 0W12 0805	1				
R 69	P201063	R# CE H100E F 0W12 0805	1				
R 70	P201063	R# CE H100E F 0W12 0805	1				
R 71	P201063	R# CE H100E F 0W12 0805	1				
R 72	P201063	R# CE H100E F 0W12 0805	1				
R 73	P201063	R# CE H100E F 0W12 0805	1				
R 74	P201063	R# CE H100E F 0W12 0805	1				
R 75	P201079	R# CE H470E F 0W12 0805	1				
R 76	P201079	R# CE H470E F 0W12 0805	1				
R 77	P201079	R# CE H470E F 0W12 0805	1				
R 78	P201071	R# CE H220E F 0W12 0805	1				
R 79	P201067	R# CE H150E F 0W12 0805	1				
R 80	P201063	R# CE H100E F 0W12 0805	1				
R 81	P201111	R# CE H 10K F 0W12 0805	1				
R 82	P200417	R# CE H 1K8 F 0W25 1206	1				
R 83	P200417	R# CE H 1K8 F 0W25 1206	1				
R 84	P201087	R# CE H 1K F 0W12 0805	1				
R 85	P201135	R# CE H100K F 0W12 0805	1				
R 86	P200387	R# CE H100E F 0W25 1206	1				
R 87	P200387	R# CE H100E F 0W25 1206	1				
R 88	P200411	R# CE H 1K F 0W25 1206	1				
R 89	P200411	R# CE H 1K F 0W25 1206	1				
R 90	P200411	R# CE H 1K F 0W25 1206	1				
R 91	P200423	R# CE H 3K3 F 0W25 1206	1				
R 92	P200421	R# CE H 2K7 F 0W25 1206	1				
R 93	P200411	R# CE H 1K F 0W25 1206	1				
R 94	P200411	R# CE H 1K F 0W25 1206	1				
R 95	P200419	R# CE H 2K2 F 0W25 1206	1				
R 96	P200411	R# CE H 1K F 0W25 1206	1				
R 97	P200411	R# CE H 1K F 0W25 1206	1				
R 98	P200411	R# CE H 1K F 0W25 1206	1				
R 99	P200483	R# CE H 1M F 0W25 1206	1				
R100	P200399	R# CE H330E F 0W25 1206	1				
R103	P201111	R# CE H 10K F 0W12 0805	1				
R104	P200403	R# CE H470E F 0W25 1206	1				
SR 1	R1011907	R CFFH E1 K 0W35 	1				
SR 2	R1011008	R CFFH 1E J 0W25 	1				
W 1	R3132862	J MD1 C MBT P 2 E1SN 6,7	1				
XT 1	R307122	XO 32M000000 CN-10DIP 8M	1				
XT 2	P252512	X# 9M216000 30 MG3A	1				

PRODUCT SAFETY NOTICE

Components identified by  have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.

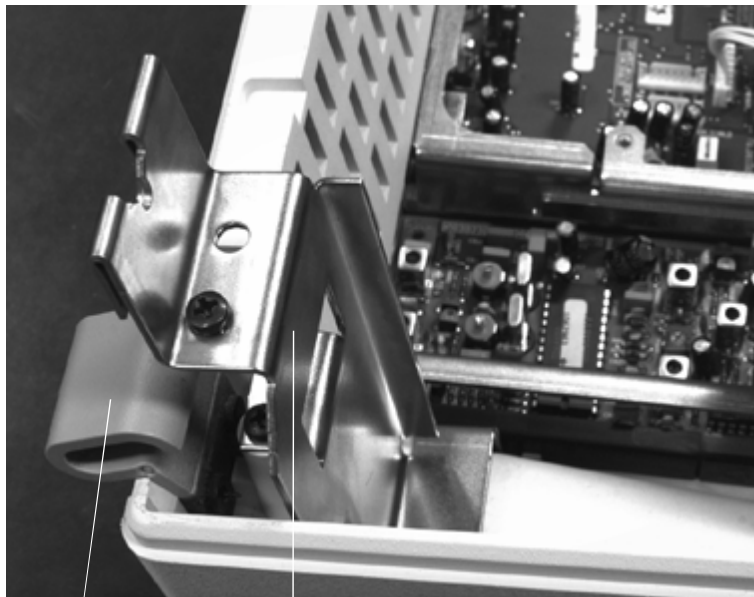
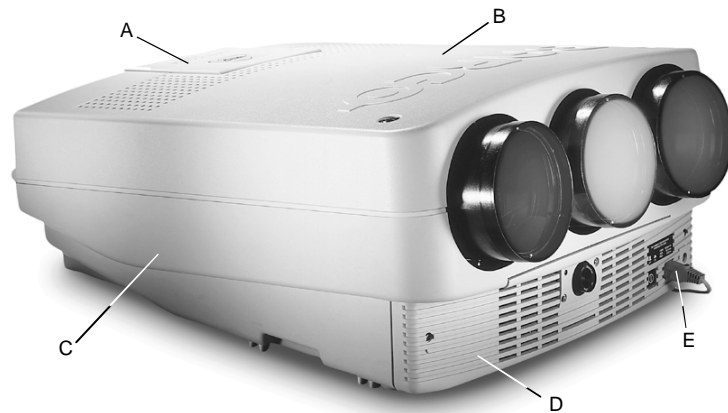
A: Projector Name Plate
 For R9002328 → R724038
 For R9002321 → R724038
 R9002322
 R9002327
 For R9000745 → R724085

B: Projector Top Cover
 R722379

C: Projector Bottom Case
 R722558

D: Projector Front-Bottom Case
 R722559

E: Power Cord
 For R9002321 → R326103
 R9002322
 For R9002327 → R3261115
 R9002328
 R9000745

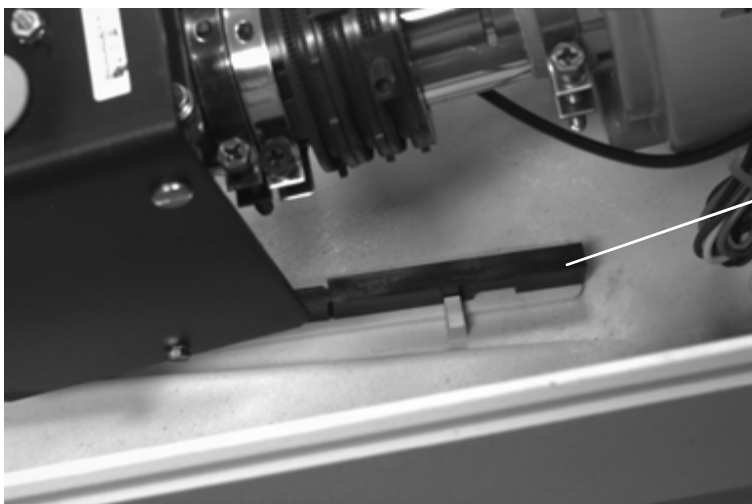
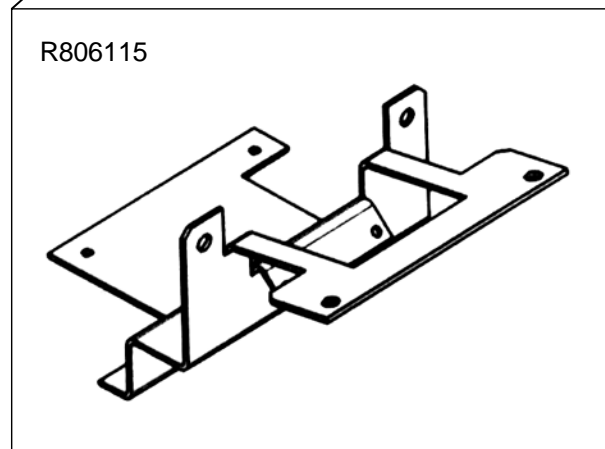
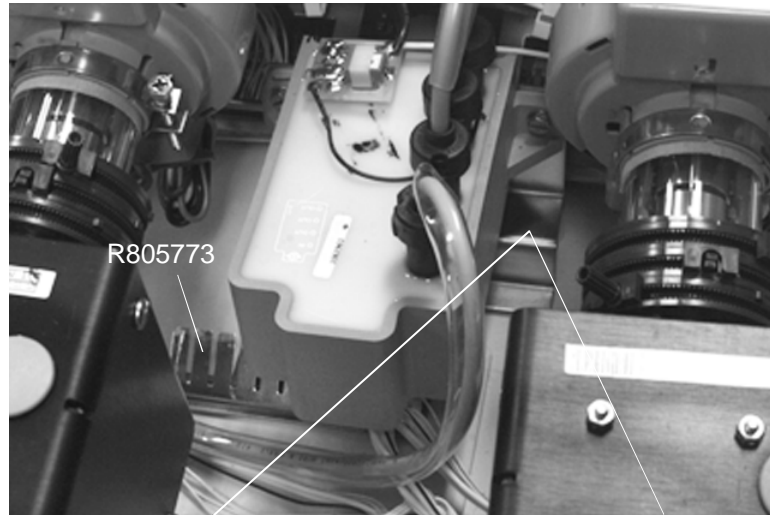


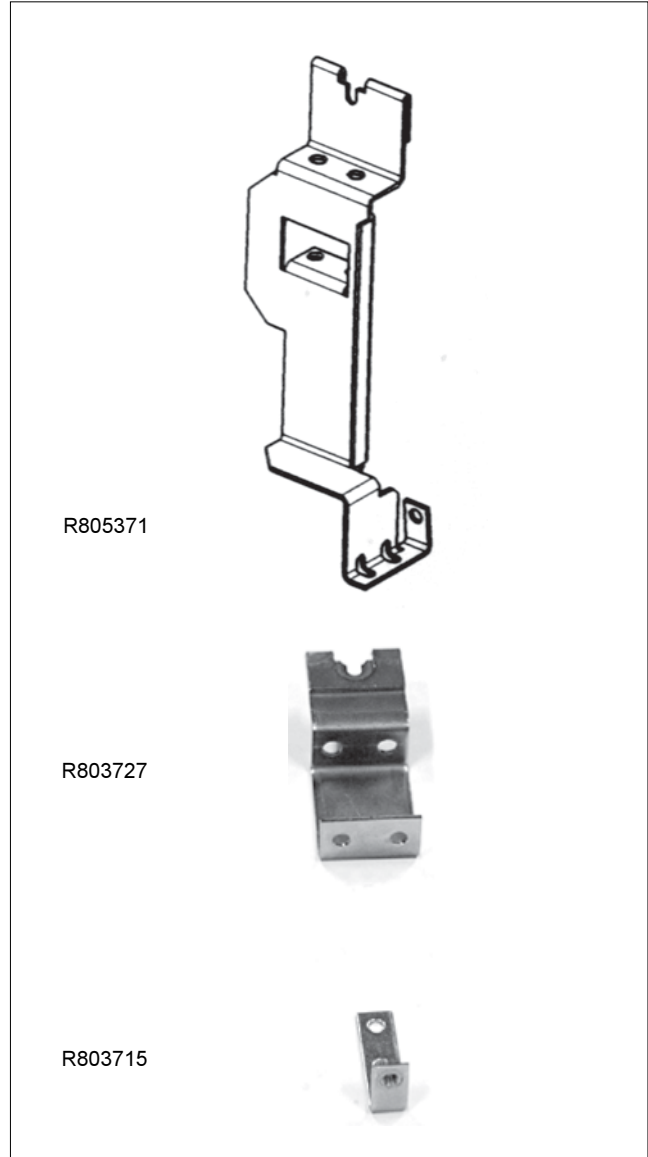
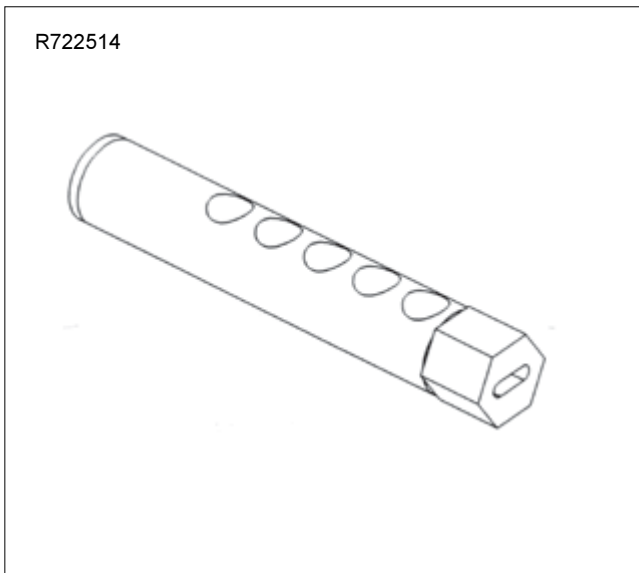
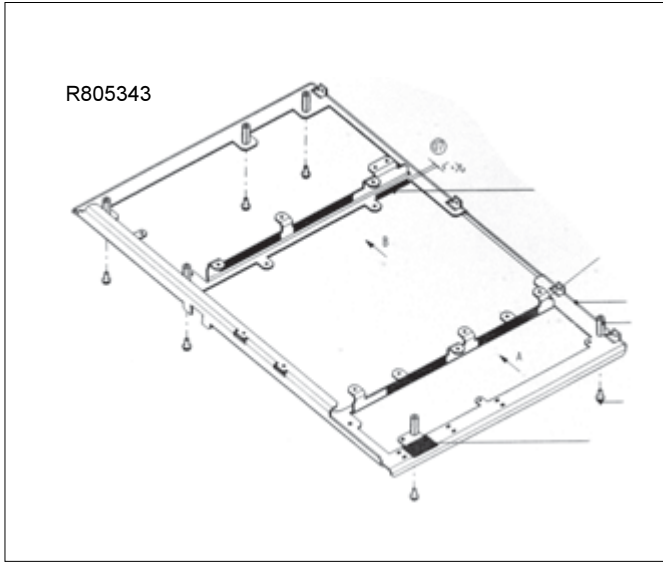
A: Hinge R722373

B: Module frame support
 left → R805371
 right → R803715 + R803727

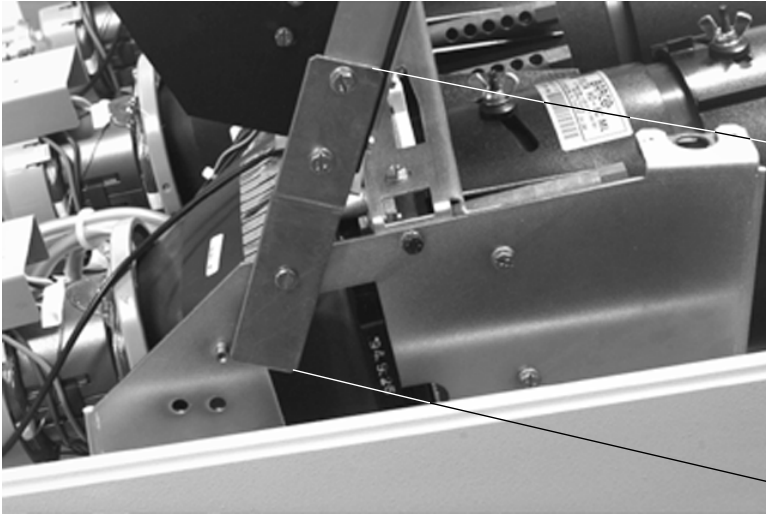
A

B

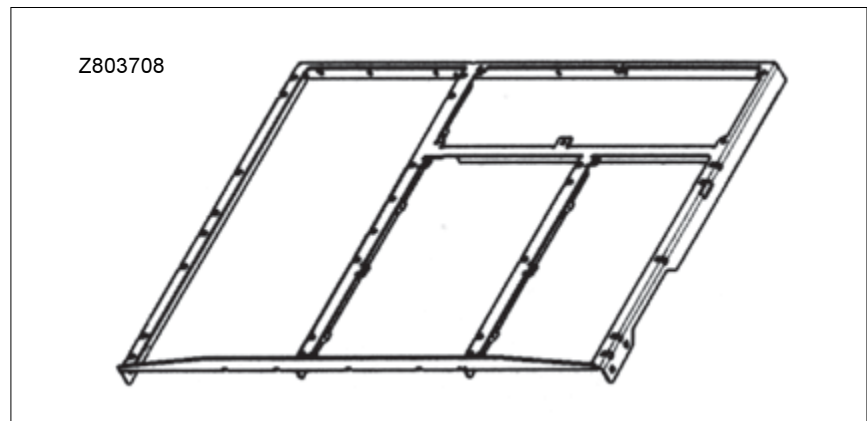
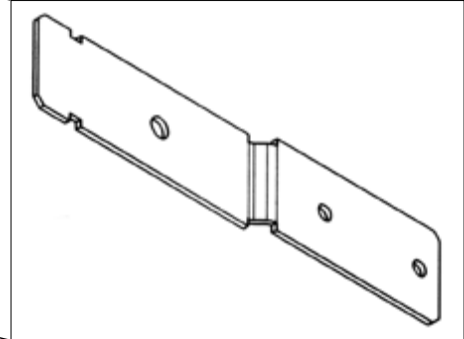




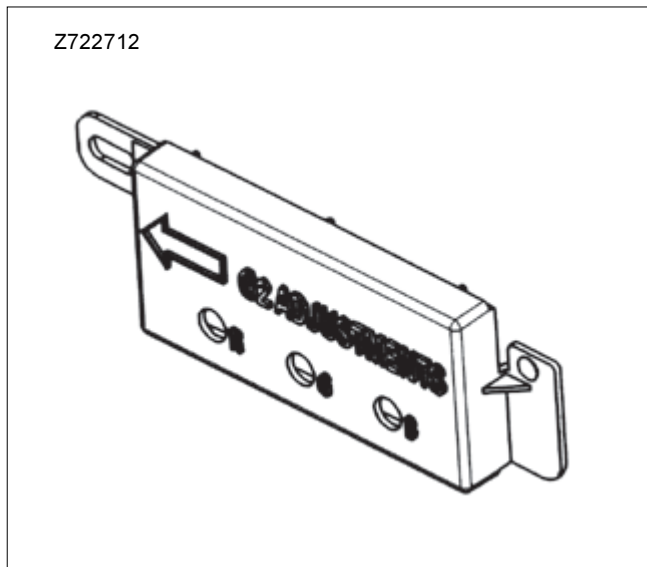
Module Frame R806103



R803726



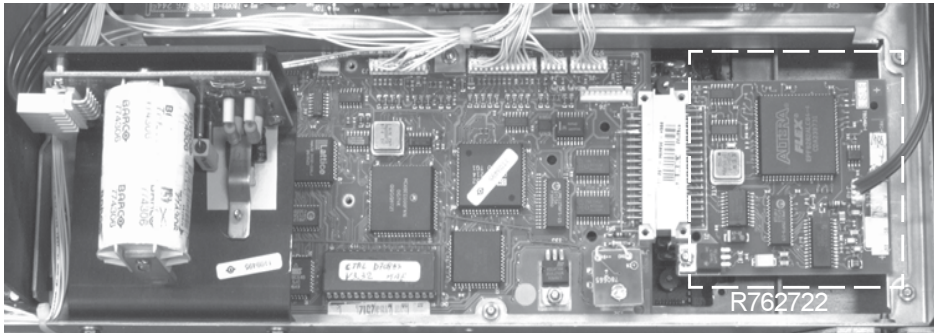
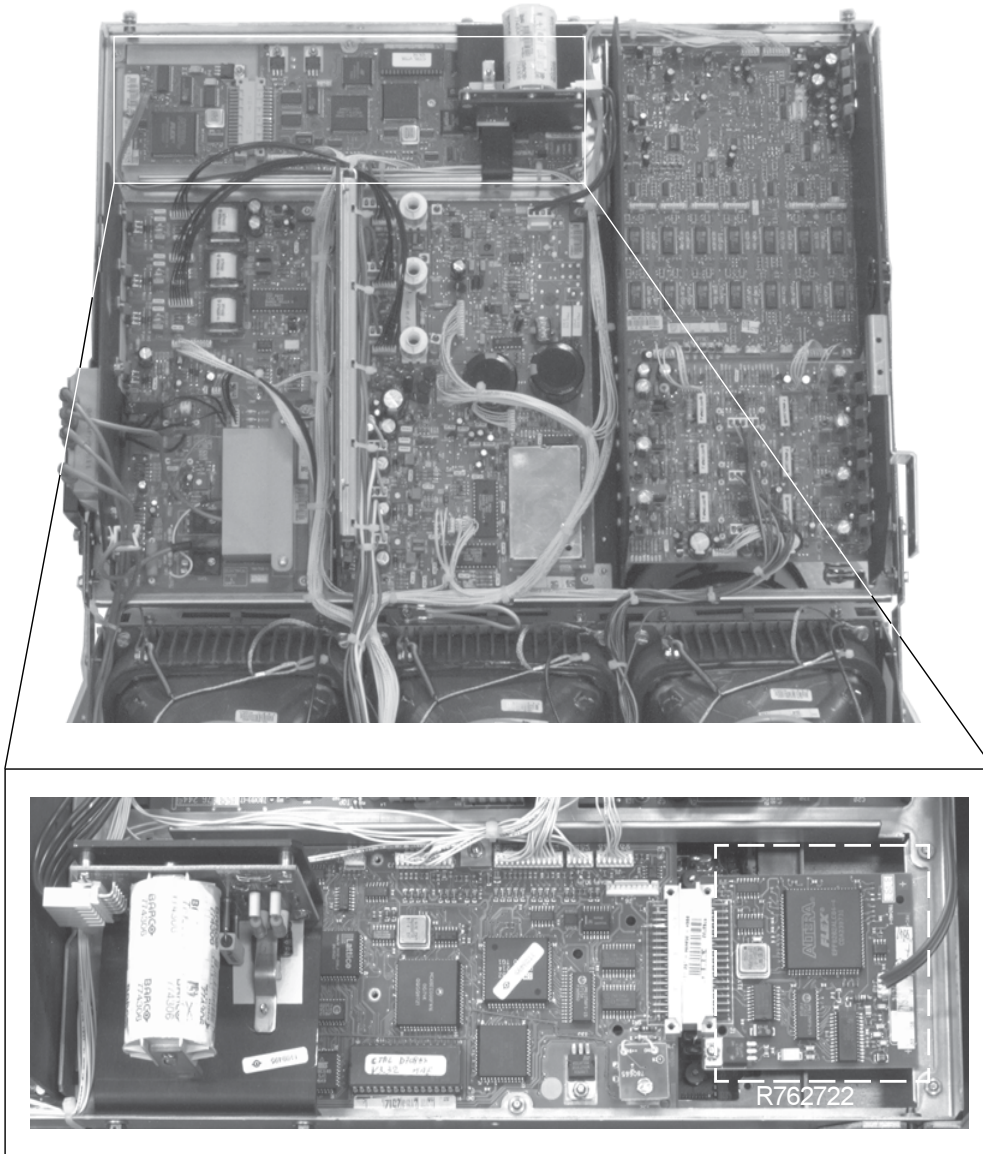
Z803708

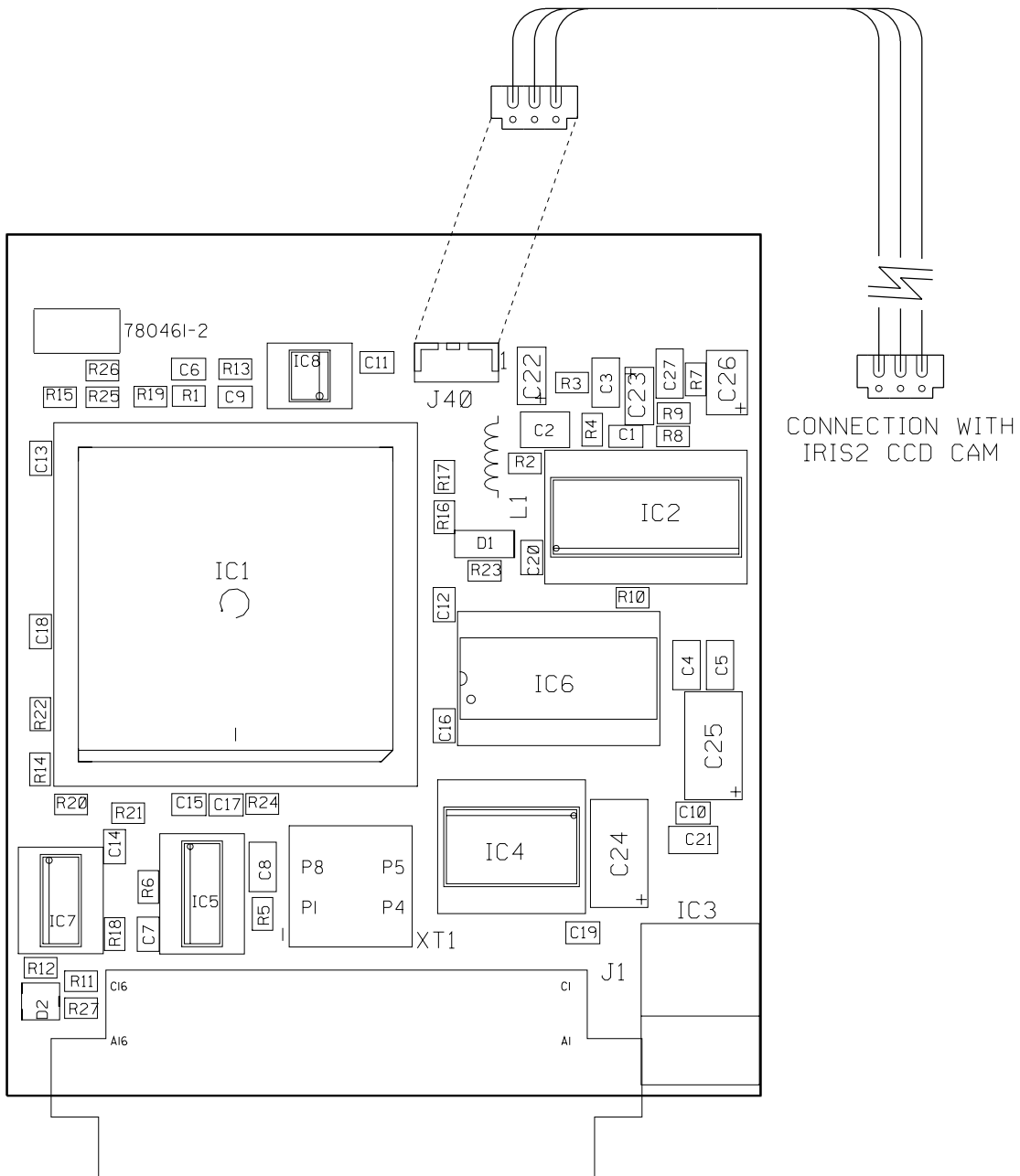


Z722712

PARTS LISTING

ITEM NO.	DESCRIPTION	QUANTITY	ITEM NO.	DESCRIPTION	QUANTITY
R3066445	YOKE DEF DAV7604	3	R367434	RVT BLND_R2,4C 3,2 ALAL	2
R306661	YOKE ACC MAGN 2P/4P SHSP	3	R3674391	RVT BLND_R3,2C 3,2WSTAL	2
			R367504	SPR D6798AD 5,3D10 STZN	12
R3480051	CBLA TIE TWIST D14/16	4			
R348019	CBLA TIE B L100 W2,4 -	3	R395140	GLUE CY PER.C2 20G -	0,01
R348019	CBLA TIE B L100 W2,4 -	69	R395196	GLUE STUD LOCK 270 -	
R348023	CBLA SAD ADH 4X3	1			
R348024	CBLA SAD SN LWS 1,6	10	R720901	WDW *700 IR REC 26	1
R3480264	CBLA EDG SAD P1,6X2 U20	1	R721620	SPRCL 5 D 4 D 8 PLYG	1
R34840710	CD CT FTFT P 7 120	1	R722338	G PCB V700	2
			R722338	G PCB V700	1
B360861	SCR Z\$7985M 3 X 6 STZY	17	R722338	G PCB V700	1
B360862	SCR Z\$7985M 3 X 8 STZY	14	R722358	SPRCPBL 1,5R1,7R3,7PLBK	5
B360863	SCR Z\$7985M 3 X 10 STZY	20	R722514	FRM V700 LNS FIX NUT	12
R361322	SCR CHIP_S 3 X 13 STZN	2			
R3613535	SCR CHIP_S 4 X 17 STZB	4	R762201D	CDS V700 DEF	1
R3615075	SCR HILO_R 3,2X 8,5STZB	2	R7629442	UN V708 CRT T07S R	1
R3615095	SCR HILO_R 4,2X 9,5STZB	4	R7629445	UN V708 CRT T07S G	1
R3615155	SCR HILO_R 4,8X 13 STZB	4	R7629446	UN V708 CRT T07S B	1
R3621535	SCR D7985 M 4 X 12 STZB	2			
R3621545	SCR D7985 M 4 X 16 STZB	2	R803715	FRM V700 CNN PLT FIX DN	1
R3623459	SCR D933 M 6 X 20 SS	4	R803727	FRM V700 FIX FRM UP/HSGDN	1
R3631079	SCR Z933 M 3 X 12 SS	1	R803765	FRM V700 DEF CBL FIX	1
R3631239	SCR Z933 M 4 X 10 SS	3	R804665	FRMRCVDS05 FIX DPL+LED	1
R3631239	SCR Z933 M 4 X 10 SS	1	R805056	TAPE FOAM 15 W30	1
R3631239	SCR Z933 M 4 X 10 SS	4	R805343	FRM D700 I+D+S+RX+RS	1
R3631459	SCR Z933 M 5 X 12 SS	3	R805371	FRM V700 INP GNDL	1
R3631469	SCR Z933 M 5 X 16 SS	3	R805773	FRM V700 INP SPG EARTH	1
R3661581	NUT \$6923 M 6 STZN	4			
R367080	FSTN CLMP HS 35- 50 M4 SS	3	Z344076	CDRNG5RNG5 1015G20BK 400	3
R3673481	SPR D126 D 5,5D10 STZN	2	Z3484120	CD CT FTFT P12 120	1
R3673764	SPR D125A D 3,2D 7 PLWH	1	Z3495081	CD CT FTFT P 8 100	2





CONNECTION WITH IRIS2 CCD CAM

CONNECTION WITH CONTROLLER

Modifications reserved

Name IRIS 2 MODULE			Sheet 1 / 1	
Module No R762722	Index 1	PCB No R780461	Rev 2	
Date 09-12-1998	Drawn JVJY	Checked CT		
BARCO PROJECTION SYSTEMS				

PARTS LISTING IRIS CONTROL R762722


Prf	Itemno	Description	Qty
10	R3631059	SCR Z933 M 3 X 8 SS 1	
	R3661026	NUT D934 M 3 SS 1	
	R367502	SPR D6798AD3,2D6 STZN	1
	R367699	RVT AVTRON2,5L 8,1 AL	2
C 1	P210041	C# X7R MU 10N K 50 0805	1
C 2	P210169	C# X7R MU 220N K 50 1210	1
C 3	P210151	C# X7R MU 18N K 50 1206	1
C 4	P210068	C# X7R MU 22N K 50 1206	1
C 5	P210068	C# X7R MU 22N K 50 1206	1
C 6	P210018	C# COG MU 33P J 50 0805	1
C 7	P210016	C# COG MU 15P J 50 0805	1
C 8	P210073	C# COG MU 82P J 50 1206	1
C 9	P210213	C# Y5V MU 100N Z 25 0805	1
C 10	P210213	C# Y5V MU 100N Z 25 0805	1
C 11	P210213	C# Y5V MU 100N Z 25 0805	1
C 12	P210213	C# Y5V MU 100N Z 25 0805	1
C 13	P210213	C# Y5V MU 100N Z 25 0805	1
C 14	P210213	C# Y5V MU 100N Z 25 0805	1
C 15	P210213	C# Y5V MU 100N Z 25 0805	1
C 16	P210213	C# Y5V MU 100N Z 25 0805	1
C 17	P210213	C# Y5V MU 100N Z 25 0805	1
C 18	P210213	C# Y5V MU 100N Z 25 0805	1
C 19	P210213	C# Y5V MU 100N Z 25 0805	1
C 20	P210001	C# COG MU 10P C 50 0805	1
C 21	P210136	C# Y5V MU 330N Z 50 1206	1
C 22	P212009	C# TA 1M M 16 3216 1	
C 23	P212009	C# TA 1M M 16 3216 1	
C 24	P212005	C# TA 47M M 10 7343	1
C 25	P212040	C# TA 100M M6V3 7343	1
C 26	P212006	C# TA 4M7M 16 3528	1
C 27	P210029	C# COG MU 2N2J 50 1206	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234063	D#LED LGS260 GRE SOT23	1
I 1	P231121	U#8282A-4 EPF PLCC84 P	1
I 2	P231025	U#8709A TDA SOL28 P	1
I 3	R134001	U 7805 TO220 P 1	
I 4	P230051	U#74HCT245 SOL20 I	1
I 5	P230073	U#74HCT123 SO16 I1	
I 6	P231268	U#SRAM 32KX8 15SOJ28 P	1
I 7	P230096	U#74HCT02 SO14 I1	
I 8	P230969	U#1881 LM SO8 P1	
J 1	R314071	J EUR2C2MBS P32 E1C2S 1,6	1
J 40	R313923	J CT H MBT P 3 M2SN WH	1
L 1	R3061222	CH AX NS 1.5 UH	1
PC	R780461	PCBIRIS2CTRL	1
R 1	P201063	R# CE H100E F 0W12 0805	1
R 2	P201075	R# CE H330E F 0W12 0805	1
R 3	P201107	R# CE H 6K8 F 0W12 0805	1
R 4	P201111	R# CE H 10K F 0W12 0805	1
R 5	P201111	R# CE H 10K F 0W12 0805	1
R 6	P201111	R# CE H 10K F 0W12 0805	1
R 7	P201060	R# CE H 75E F 0W12 0805	1
R 8	P201083	R# CE H680E F 0W12 0805	1
R 9	P201095	R# CE H 2K2 F 0W12 0805	1
R 10	P201047	R# CE H 22E F 0W12 0805	1
R 11	P201111	R# CE H 10K F 0W12 0805	1
R 13	P201155	R# CE H680K F 0W12 0805	1

R 14	P201087	R# CE H 1K F 0W12 0805	1
R 15	P201087	R# CE H 1K F 0W12 0805	1
R 16	P201087	R# CE H 1K F 0W12 0805	1
R 17	P201087	R# CE H 1K F 0W12 0805	1
R 18	P201087	R# CE H 1K F 0W12 0805	1
R 19	P201087	R# CE H 1K F 0W12 0805	1
R 20	P201103	R# CE H 4K7 F 0W12 0805	1
R 21	P201103	R# CE H 4K7 F 0W12 0805	1
R 22	P201103	R# CE H 4K7 F 0W12 0805	1
R 23	P201354	R# CE H 0E J 0W12 0805	1
R 26	P201354	R# CE H 0E J 0W12 0805	1
R 27	P201079	R# CE H470E F 0W12 0805	1
X 1	R307122	XO 32M000000 CN-10DIP 8M	1

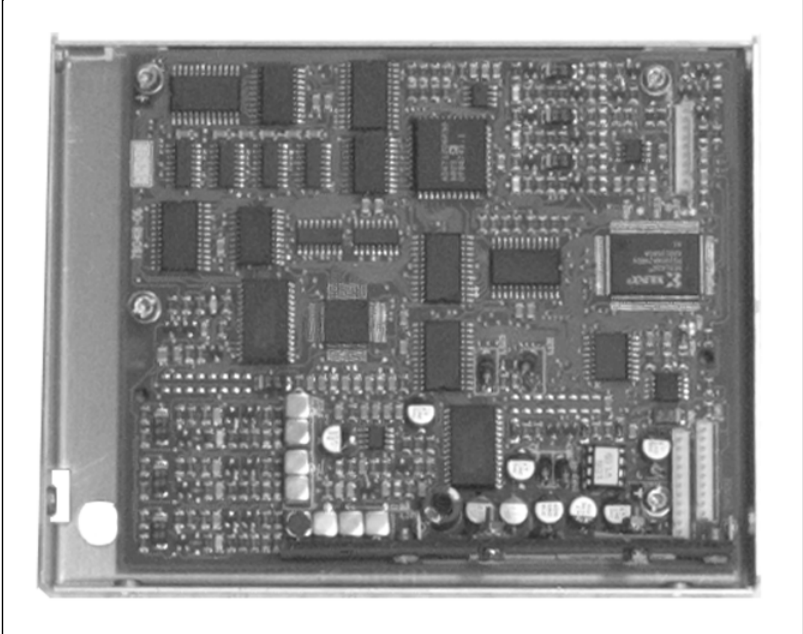
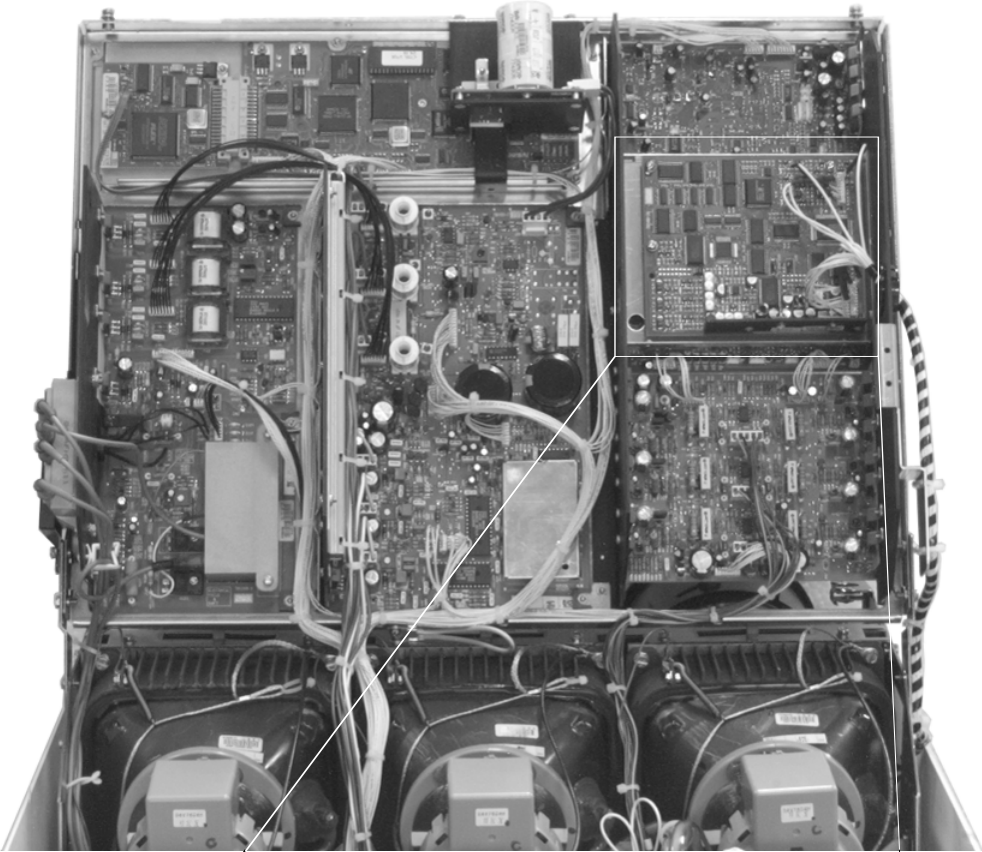
PARTS LISTING IRIS CAM CCD R7627241

Prf	Itemno	Description	Qty
1000	R322188	CAMERA CCD+LENS 4,3 MM 12V	1
1010	R811328	FRM G808 CNV FR IRISFIX/2	1
1020	B360425	SPR L 7,5 D 2,6D 4 PLWH	1
1030	V362004	SCR D84 M 2 X 10 STZN	1

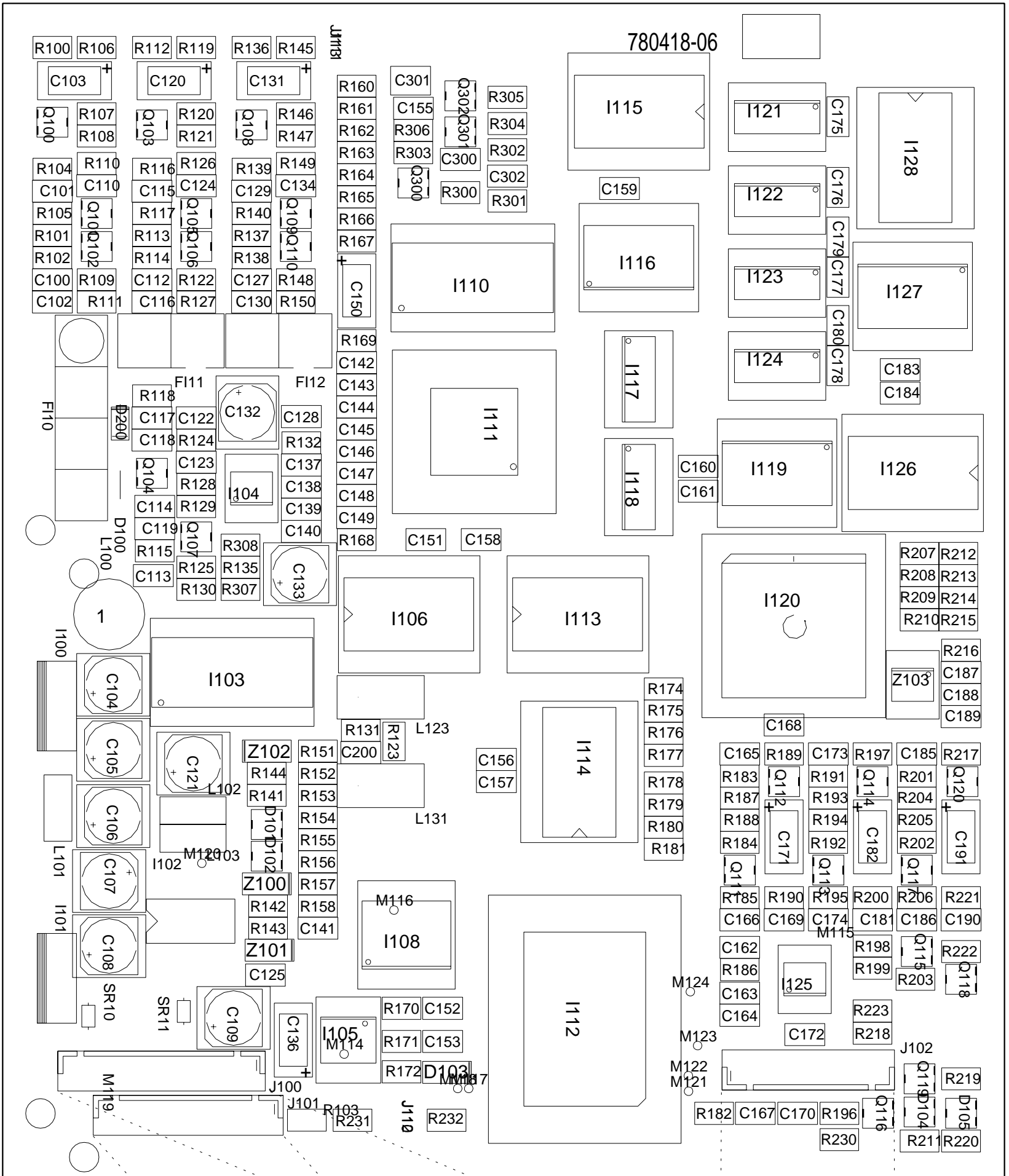
PRODUCT SAFETY NOTICE

Components identified by  have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the ser-vice safety precautions.

NOTE: FOR GRAPHICS 1209S
IRIS2 INSTALLATION & ADJUSTMENT KIT
ORDER NUMBER R9828270
IRIS2 INSTALLATION & ADJUSTMENT MANUAL
ORDER NUMBER R5975237



LINE DOUBLER

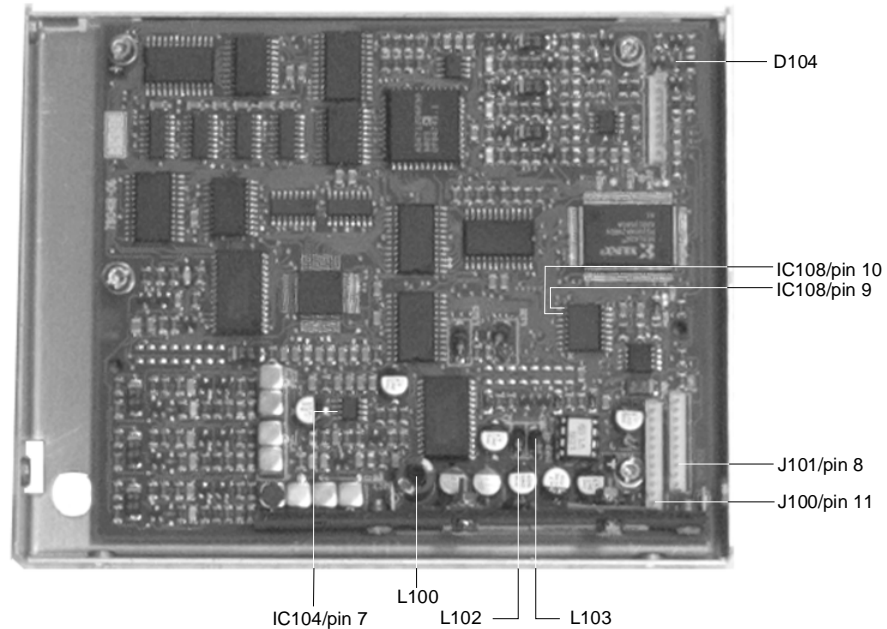


Modifications reserved

Name	LINE DOUBLER	Sheet	1/1
Module No.	RT20418	PCB No.	RT20418
Index	0	Rev	6
Date	17-07-1988	Drawn	JNDY
		Checked	JVST
BARCO PROJECTION SYSTEMS			

ADJUSTMENT PROCEDURE

Location of controls



Adjustment Conditions

- Connect a video source (15 kHz) and select the corresponding input
- In the menu, put the Lido option ON (**refer to installation manual of the Lido Kit**)

Power Supplies

- Connect a voltmeter to the top of coil L102, the read-out should be +5V.
- Connect a voltmeter to the top of coil L103, the read-out should be -5V.

Checks

- Connect an oscilloscope to IC108/pin 9 to check the level of the SD_ON line.

The lido can only work when the SD_ON line is high (+ 5V), if this is not the case, then two things can be checked:

Enable condition

- The ENABLE line should be put high (+5V) by the controller
- To check the level of the ENABLE line, connect an oscilloscope to IC108/pin 10

LOCK condition

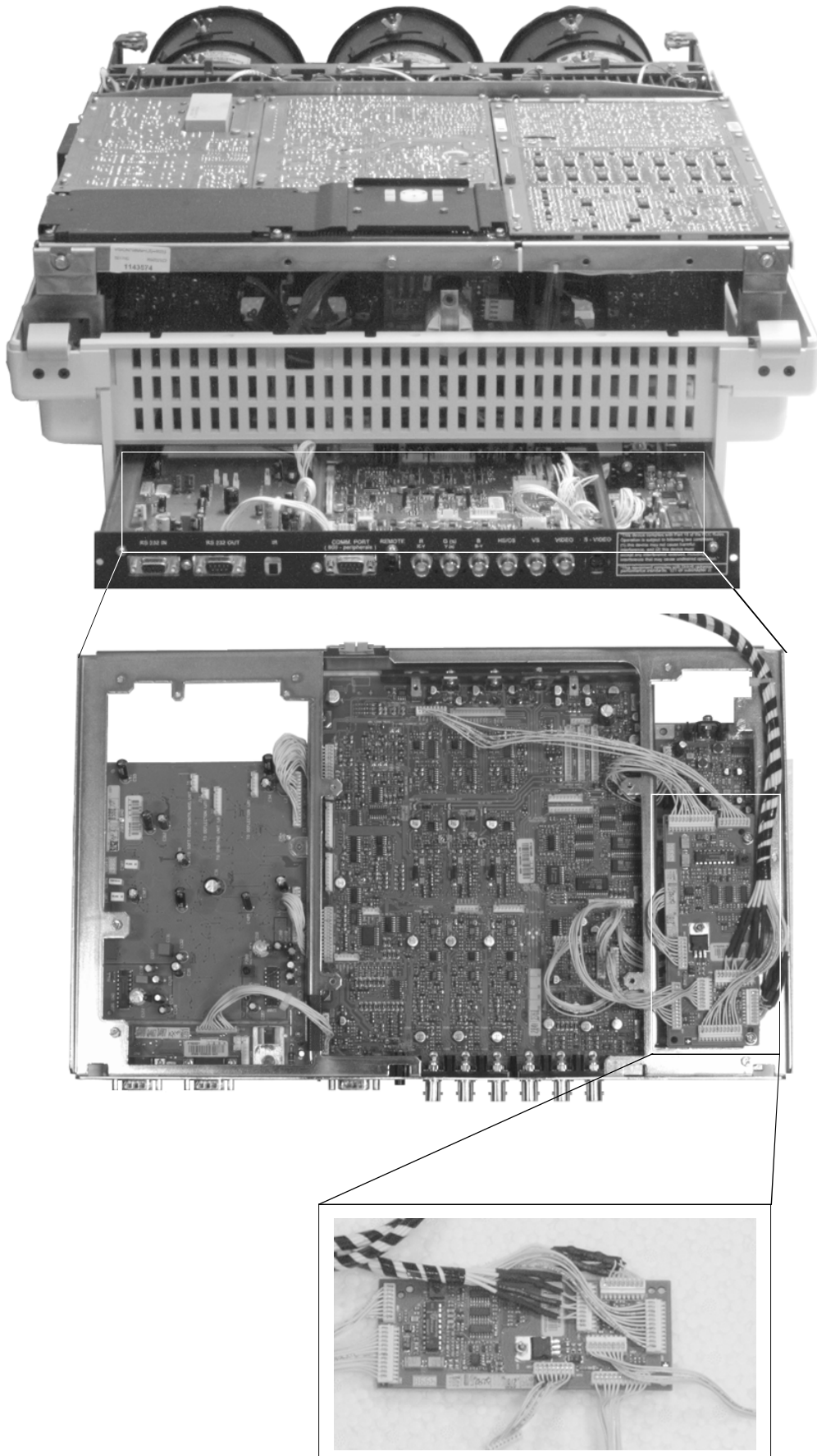
When D104 is lit, the LineDoubler is in LOCK. When this not the case check the following:

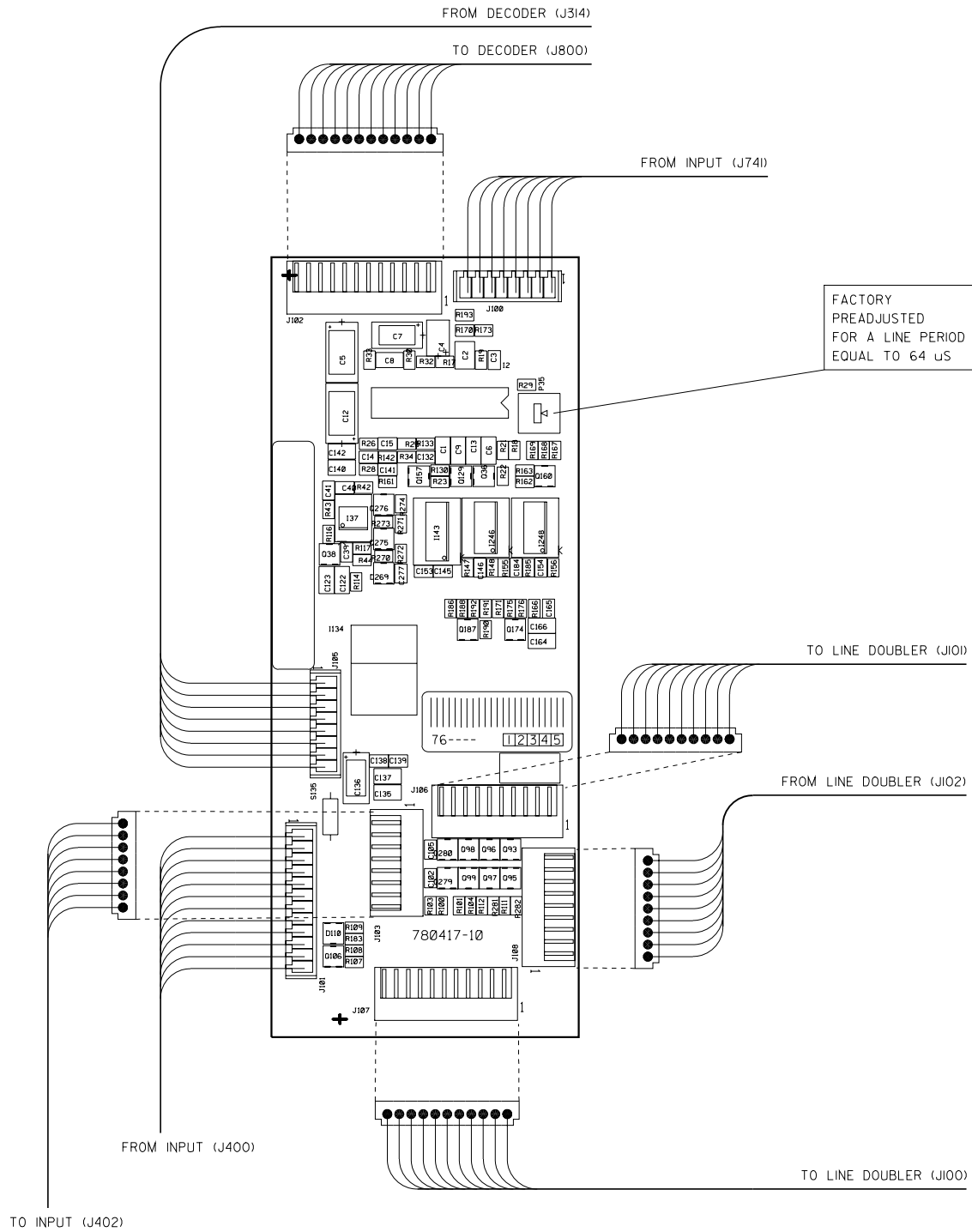
- On the CS-line, sync pulses of 1 Vpp at a rate of 15 kHz should be present
- To check the signal on the CS-line, connect an oscilloscope to J101/pin 8
- On the SC5-line a sandcastle signal with an amplitude of 5V should be present
- To check the signal on the SC5-line, connect an oscilloscope to J100/pin 11
- Connect an oscilloscope to IC104/pin7
- Adjust coil L100 until the DC-level of the measured signal is -1,4V

PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R802629	HTSNG800 RGB PR-AMP	1	C160	P210122	C# X7R MU 100N K 50 1206	1
20	R802692	HTSNG800 FIX HTSN	2	C161	P210122	C# X7R MU 100N K 50 1206	1
30	R3674391	RVT BLND_R3,2C 3,2WSTAL	2	C162	P210122	C# X7R MU 100N K 50 1206	1
40	B360863	SCR Z\$7985M 3 X 10 STZY	2	C163	P210122	C# X7R MU 100N K 50 1206	1
50	R3661026	NUT D934 M 3 SS	2	C164	P210122	C# X7R MU 100N K 50 1206	1
60	R367502	SPR D6798AD 3,2D 6 STZN	2	C165	P210159	C# C0G MU 18P J 50 1206	1
70	B133003	HTSNA TO220 I-BUSH 6/3,1	1	C166	P210290	C# Y5V MU 4M7Z 16 1206	1
80	B133004	HTSNA TO220 I-KAP° 18X23	1	C167	P210122	C# X7R MU 100N K 50 1206	1
				C168	P210122	C# X7R MU 100N K 50 1206	1
C100	P210290	C# Y5V MU 4M7Z 16 1206	1	C169	P210290	C# Y5V MU 4M7Z 16 1206	1
C101	P210139	C# C0G MU 33P J 50 1206	1	C170	P210122	C# X7R MU 100N K 50 1206	1
C102	P210290	C# Y5V MU 4M7Z 16 1206	1	C171	P212018	C# TA 10M M 16 6032	1
C103	P212018	C# TA 10M M 16 6032	1	C172	P210122	C# X7R MU 100N K 50 1206	1
C104	P213515	C# EL RA 47M M 25 85	1	C173	P210159	C# C0G MU 18P J 50 1206	1
C105	P213515	C# EL RA 47M M 25 85	1	C174	P210290	C# Y5V MU 4M7Z 16 1206	1
C106	P213505	C# EL RA 100M M 16 85	1	C175	P210122	C# X7R MU 100N K 50 1206	1
C107	P213509	C# EL RA 47M M 16 85	1	C176	P210122	C# X7R MU 100N K 50 1206	1
C108	P213509	C# EL RA 47M M 16 85	1	C177	P210122	C# X7R MU 100N K 50 1206	1
C109	P213509	C# EL RA 47M M 16 85	1	C178	P210122	C# X7R MU 100N K 50 1206	1
C110	P210010	C# C0G MU 68P J 50 1206	1	C179	P210122	C# X7R MU 100N K 50 1206	1
C112	P210290	C# Y5V MU 4M7Z 16 1206	1	C180	P210122	C# X7R MU 100N K 50 1206	1
C113	P210076	C# C0G MU 220P J 50 1206	1	C181	P210290	C# Y5V MU 4M7Z 16 1206	1
C114	P210158	C# C0G MU 150P J 50 1206	1	C182	P212018	C# TA 10M M 16 6032	1
C115	P210100	C# C0G MU 47P J 50 1206	1	C183	P210122	C# X7R MU 100N K 50 1206	1
C116	P210290	C# Y5V MU 4M7Z 16 1206	1	C184	P210122	C# X7R MU 100N K 50 1206	1
C117	P210204	C# C0G MU 8P2D 50 1206	1	C185	P210159	C# C0G MU 18P J 50 1206	1
C118	P210029	C# C0G MU 2N2J 50 1206	1	C186	P210290	C# Y5V MU 4M7Z 16 1206	1
C119	P210013	C# C0G MU 1N J 50 1206	1	C187	P210122	C# X7R MU 100N K 50 1206	1
C120	P212018	C# TA 10M M 16 6032	1	C188	P210122	C# X7R MU 100N K 50 1206	1
C121	P213509	C# EL RA 47M M 16 85	1	C189	P210122	C# X7R MU 100N K 50 1206	1
C122	P210013	C# C0G MU 1N J 50 1206	1	C190	P210290	C# Y5V MU 4M7Z 16 1206	1
C123	P210122	C# X7R MU 100N K 50 1206	1	C191	P212018	C# TA 10M M 16 6032	1
C124	P210170	C# C0G MU 56P J 50 1206	1	C200	P210007	C# C0G MU 1N F 50 1206	1
C125	P210122	C# X7R MU 100N K 50 1206	1	C300	P210007	C# C0G MU 1N F 50 1206	1
C127	P210290	C# Y5V MU 4M7Z 16 1206	1	C301	P210220	C# X7R MU 10N K500 1210	1
C128	P210122	C# X7R MU 100N K 50 1206	1	C302	P210138	C# C0G MU 10P J 50 1206	1
C129	P210139	C# C0G MU 33P J 50 1206	1				
C130	P210290	C# Y5V MU 4M7Z 16 1206	1	D101	P234055	D#BAT54 SCH SOT23	1
C131	P212018	C# TA 10M M 16 6032	1	D102	P234055	D#BAT54 SCH SOT23	1
C132	P213509	C# EL RA 47M M 16 85	1	D103	P234099	D#4148 RDMMELF	1
C133	P213509	C# EL RA 47M M 16 85	1	D104	P234040	D#LED LSS260 RED SOT23	1
C134	P210170	C# C0G MU 56P J 50 1206	1	D105	P234055	D#BAT54 SCH SOT23	1
C136	P212042	C# TA 2M2M 35 6032	1	D200	P234291	D#BB639 VAR SOD323	1
C137	P210122	C# X7R MU 100N K 50 1206	1				
C138	P210122	C# X7R MU 100N K 50 1206	1	FI10	V3060961	FLTR 6M750000	1
C139	P210122	C# X7R MU 100N K 50 1206	1	FI11	V3060981	FLTR 2,4/4,43MHZ	1
C140	P210122	C# X7R MU 100N K 50 1206	1	FI12	V3060981	FLTR 2,4/4,43MHZ	1
C141	P210122	C# X7R MU 100N K 50 1206	1				
C142	P210122	C# X7R MU 100N K 50 1206	1	I100	R134001	U 7805 TO220 P	1
C143	P210122	C# X7R MU 100N K 50 1206	1	I101	R134011	U 7905C TO220 P	1
C144	P210140	C# X7R MU 4N7K 50 1206	1	I102	R133024	J U0.3 FBT P 8 E1SN SPG	1
C145	P210122	C# X7R MU 100N K 50 1206	1	I102	R32837710	US *701 LIDO 110	1
C146	P210140	C# X7R MU 4N7K 50 1206	1	I103	P231253	U#518222 MSM 30SOJ28 P	1
C147	P210122	C# X7R MU 100N K 50 1206	1	I104	P230054	U#072 TL SO8 I	1
C148	P210140	C# X7R MU 4N7K 50 1206	1	I105	P230378	U#3773 MB SO8 I	1
C149	P210122	C# X7R MU 100N K 50 1206	1	I106	P2310190	U#485505-25UPD FP24 P	1
C150	P212018	C# TA 10M M 16 6032	1	I108	P230911	U#8574A PCF SOL16 P	1
C151	P210122	C# X7R MU 100N K 50 1206	1	I110	P231253	U#518222 MSM 30SOJ28 P	1
C152	P210122	C# X7R MU 100N K 50 1206	1	I111	P2315640	U#44251 MC QFP44 I	1
C153	P210122	C# X7R MU 100N K 50 1206	1	I112	P2310180	U#3142A-4 XC QFP100 I	1
C155	P210122	C# X7R MU 100N K 50 1206	1	I113	P2310190	U#485505-25UPD FP24 P	1
C156	P210122	C# X7R MU 100N K 50 1206	1	I114	P2310190	U#485505-25UPD FP24 P	1
C157	P210122	C# X7R MU 100N K 50 1206	1	I115	P2310190	U#485505-25UPD FP24 P	1
C158	P210122	C# X7R MU 100N K 50 1206	1	I116	P230464	U#74HCT574 SOL20 I	1
C159	P210122	C# X7R MU 100N K 50 1206	1	I117	P230031	U#74HCT157 SO16 I	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
I118	P230031	U#74HCT157 SO16 I	1	R118	P200405	R# CE H560E F 0W25 1206	1
I119	P230464	U#74HCT574 SOL20 I	1	R119	P200384	R# CE H 75E F 0W25 1206	1
I120	P231021	U#7120-30 ADV PLCC44 I	1	R120	P200417	R# CE H 1K8 F 0W25 1206	1
I121	P230628	U#74HCT153 SO16 I	1	R121	P200397	R# CE H270E F 0W25 1206	1
I122	P230628	U#74HCT153 SO16 I	1	R122	P200387	R# CE H100E F 0W25 1206	1
I123	P230628	U#74HCT153 SO16 I	1	R123	P200411	R# CE H 1K F 0W25 1206	1
I124	P230628	U#74HCT153 SO16 I	1	R124	P200435	R# CE H 10K F 0W25 1206	1
I125	P230969	U#1881 LM SO8 P	1	R125	P200413	R# CE H 1K2 F 0W25 1206	1
I126	P2310190	U#485505-25UPD FP24 P	1	R126	P200387	R# CE H100E F 0W25 1206	1
I127	P230464	U#74HCT574 SOL20 I	1	R127	P200411	R# CE H 1K F 0W25 1206	1
I128	P2310190	U#485505-25UPD FP24 P	1	R128	P200435	R# CE H 10K F 0W25 1206	1
J100	R313931	J C T H MBT P11 M2SN WH	1	R129	P200443	R# CE H 22K F 0W25 1206	1
J101	R313930	J C T H MBT P10 M2SN WH	1	R130	P200397	R# CE H270E F 0W25 1206	1
J102	R313929	J C T H MBT P 9 M2SN WH	1	R131	P200435	R# CE H 10K F 0W25 1206	1
L100	V775021	COIL WH-BLA-BLU-BLA	1	R132	P200439	R# CE H 15K F 0W25 1206	1
L101	R3061322	CH AX NS 10 UH	1	R135	P200443	R# CE H 22K F 0W25 1206	1
L102	R3061322	CH AX NS 10 UH	1	R136	P200453	R# CE H 56K F 0W25 1206	1
L103	R3061322	CH AX NS 10 UH	1	R137	P200411	R# CE H 1K F 0W25 1206	1
L123	R3061341	CH AX NS 100 UH	1	R138	P200405	R# CE H560E F 0W25 1206	1
L131	R3061341	CH AX NS 100 UH	1	R139	P200415	R# CE H 1K5 F 0W25 1206	1
PC	R780418	PCB*701LIDO	1	R140	P200445	R# CE H 27K F 0W25 1206	1
Q100	P232004	Q#BC849C N SS SOT23	1	R141	P200387	R# CE H100E F 0W25 1206	1
Q101	P232101	Q#BC859C P SS SOT23	1	R142	P200387	R# CE H100E F 0W25 1206	1
Q102	P232004	Q#BC849C N SS SOT23	1	R143	P200387	R# CE H100E F 0W25 1206	1
Q103	P232004	Q#BC849C N SS SOT23	1	R144	P200423	R# CE H 3K3 F 0W25 1206	1
Q104	P232090	Q#BFR92A N SS SOT23	1	R145	P200384	R# CE H 75E F 0W25 1206	1
Q105	P232101	Q#BC859C P SS SOT23	1	R146	P200417	R# CE H 1K8 F 0W25 1206	1
Q106	P232004	Q#BC849C N SS SOT23	1	R147	P200397	R# CE H270E F 0W25 1206	1
Q107	P232090	Q#BFR92A N SS SOT23	1	R148	P200387	R# CE H100E F 0W25 1206	1
Q108	P232004	Q#BC849C N SS SOT23	1	R149	P200387	R# CE H100E F 0W25 1206	1
Q109	P232101	Q#BC859C P SS SOT23	1	R150	P200411	R# CE H 1K F 0W25 1206	1
Q110	P232004	Q#BC849C N SS SOT23	1	R168	P200424	R# CE H 3K6 F 0W25 1206	1
Q111	P232101	Q#BC859C P SS SOT23	1	R169	P200363	R# CE H 10E F 0W25 1206	1
Q112	P232101	Q#BC859C P SS SOT23	1	R170	P200411	R# CE H 1K F 0W25 1206	1
Q113	P232101	Q#BC859C P SS SOT23	1	R171	P200467	R# CE H220K F 0W25 1206	1
Q114	P232101	Q#BC859C P SS SOT23	1	R172	P200419	R# CE H 2K2 F 0W25 1206	1
Q115	P232004	Q#BC849C N SS SOT23	1	R174	P200405	R# CE H560E F 0W25 1206	1
Q116	P232101	Q#BC859C P SS SOT23	1	R175	P200405	R# CE H560E F 0W25 1206	1
Q117	P232101	Q#BC859C P SS SOT23	1	R176	P200405	R# CE H560E F 0W25 1206	1
Q118	P232101	Q#BC859C P SS SOT23	1	R177	P200405	R# CE H560E F 0W25 1206	1
Q119	P232004	Q#BC849C N SS SOT23	1	R178	P200421	R# CE H 2K7 F 0W25 1206	1
Q120	P232101	Q#BC859C P SS SOT23	1	R179	P200421	R# CE H 2K7 F 0W25 1206	1
Q300	P232004	Q#BC849C N SS SOT23	1	R180	P200421	R# CE H 2K7 F 0W25 1206	1
Q301	P232101	Q#BC859C P SS SOT23	1	R181	P200421	R# CE H 2K7 F 0W25 1206	1
Q302	P232004	Q#BC849C N SS SOT23	1	R182	P200443	R# CE H 22K F 0W25 1206	1
R100	P200453	R# CE H 56K F 0W25 1206	1	R183	P200387	R# CE H100E F 0W25 1206	1
R101	P200409	R# CE H820E F 0W25 1206	1	R184	P200455	R# CE H 68K F 0W25 1206	1
R102	P200405	R# CE H560E F 0W25 1206	1	R185	P200383	R# CE H 68E F 0W25 1206	1
R103	P200384	R# CE H 75E F 0W25 1206	1	R186	P200479	R# CE H680K F 0W25 1206	1
R104	P200409	R# CE H820E F 0W25 1206	1	R187	P200427	R# CE H 4K7 F 0W25 1206	1
R105	P200444	R# CE H 24K F 0W25 1206	1	R188	P200451	R# CE H 47K F 0W25 1206	1
R106	P200384	R# CE H 75E F 0W25 1206	1	R189	P200387	R# CE H100E F 0W25 1206	1
R107	P200417	R# CE H 1K8 F 0W25 1206	1	R190	P200423	R# CE H 3K3 F 0W25 1206	1
R108	P200397	R# CE H270E F 0W25 1206	1	R191	P200387	R# CE H100E F 0W25 1206	1
R109	P200387	R# CE H100E F 0W25 1206	1	R192	P200455	R# CE H 68K F 0W25 1206	1
R110	P200387	R# CE H100E F 0W25 1206	1	R193	P200427	R# CE H 4K7 F 0W25 1206	1
R111	P200409	R# CE H820E F 0W25 1206	1	R194	P200451	R# CE H 47K F 0W25 1206	1
R112	P200453	R# CE H 56K F 0W25 1206	1	R195	P200383	R# CE H 68E F 0W25 1206	1
R113	P200411	R# CE H 1K F 0W25 1206	1	R196	P200411	R# CE H 1K F 0W25 1206	1
R114	P200405	R# CE H560E F 0W25 1206	1	R197	P200385	R# CE H 82E F 0W25 1206	1
R115	P200435	R# CE H 10K F 0W25 1206	1	R198	P200427	R# CE H 4K7 F 0W25 1206	1
R116	P200413	R# CE H 1K2 F 0W25 1206	1	R199	P200451	R# CE H 47K F 0W25 1206	1
R117	P200445	R# CE H 27K F 0W25 1206	1	R200	P200423	R# CE H 3K3 F 0W25 1206	1
				R201	P200387	R# CE H100E F 0W25 1206	1
				R202	P200455	R# CE H 68K F 0W25 1206	1
				R203	P200451	R# CE H 47K F 0W25 1206	1
				R204	P200427	R# CE H 4K7 F 0W25 1206	1
				R205	P200451	R# CE H 47K F 0W25 1206	1

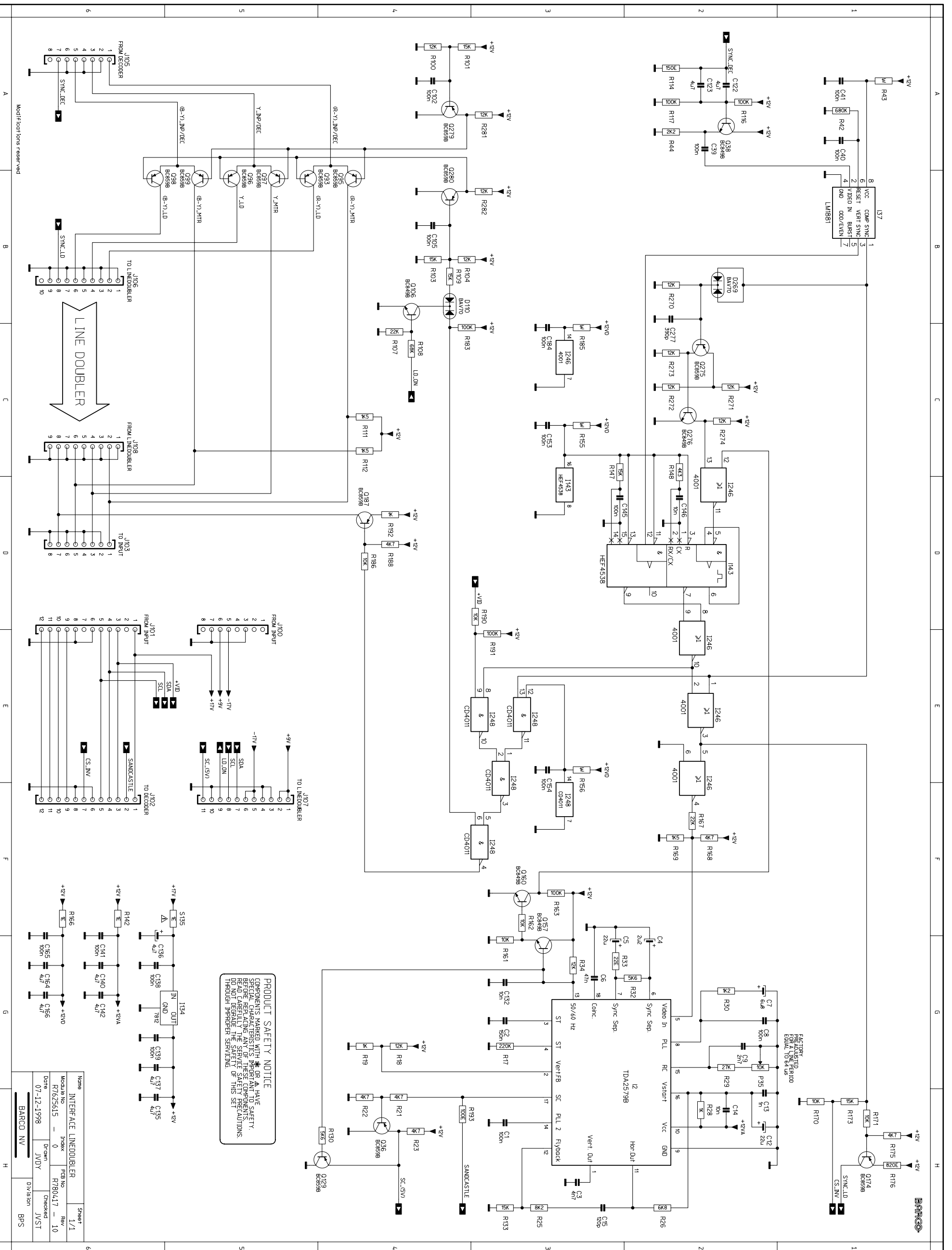




TOP VIEW

Modifications reserved

Name INTERFACE LINEDOUBLER		Sheet 1 / 1	
Module No R7625615	Index — 0	PCB No R780417	Rev — 10
Date 07-12-1998	Drawn JVJY	Checked JVST	
BARCO PROJECTION SYSTEMS			



PRODUCT SAFETY NOTICE
 COMPONENTS MARKED WITH OR HAVE SPECIFIC CHARACTERISTICS WHICH MUST BE TAKEN INTO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, PLEASE READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS THROUGH PROPER SERVICE THROUGH PROPER SERVICE.

Name		INTERFACE LINE DOUBLER	
Module No.	Index	Part No.	Rev.
R7625615	0	R780417	1.10
Date	Dr'n	Checked	
07-12-1998	JVDY	JVST	
BARCO NV		Division	BPS

COMP.	LOC.	COMP.	LOC.
C1	R282	B3	
C2	S135	F5	
C3			
C4			
C5			
C6			
C7			
C8			
C9			
C10			
C11			
C12			
C13			
C14			
C15			
C16			
C17			
C18			
C19			
C20			
C21			
C22			
C23			
C24			
C25			
C26			
C27			
C28			
C29			
C30			
C31			
C32			
C33			
C34			
C35			
C36			
C37			
C38			
C39			
C40			
C41			
C42			
C43			
C44			
C45			
C46			
C47			
C48			
C49			
C50			
C51			

TECHNICAL DESCRIPTION
General

The line doubler interface has three functions:

- Generating the Sandcastle signal needed by the LineDoubler (LIDO).
- Introducing SteadySync®
- Switching of the YUV signals coming from the decoder to the input or to the line doubler, based on the status of the *LD_ON* line. The YUV signals from the decoder only go through the LIDO before going to the input when the LIDO is active (*LD_ON* is high).

Sync Circuits

The sync input for this interface is the *SYNC_DEC* line from the decoder board. This line is the Y signal in case of a video signal and the looped through RGB sync signal (CS) in all other cases.

The *SYNC_DEC* signal is passed onto a buffer to feed the input of the sync separator LM1881. This one has two outputs, the separated composite sync at pin 1 and the vertical sync at pin 2. The sync pulses at pin 1 fed to IC2 (TDA2579B) via the SteadySync® circuit.

The TDA2579B produces the *SANDCASTLE* signal which is fed to the decoder and from which the *SC_5V* for the LineDoubler is derived. This signal is shorted to ground with Q129 in case of "no coincidence" in the TDA2579B. This is necessary because the TDA2579B still produces a sandcastle when there is no coincidence and the PLL in the LIDO would lock on a wrong sync.

The second synchronisation signal produced for the LIDO is the *SYNC_LD* signal. This signal is in fact the sync coming from IC37 that has gone through the SteadySync® circuit.

SteadySync®

More and more video sources are Digital Video Disc players. Signals from those sources have some extra pulses between the vertical sync pulse and the active video. These pulses can disturb the line doubler's PLL circuit. This is perceived as a top flutter or in general a bowing of the lines at the beginning of the vertical scan. In order to supply "clean" horizontal pulses to the Line Doubler (LIDO), the separated video sync is passed onto three circuits:

- to the monoflop 1 (I143) via the filter around Q275 / Q276 and the NOR gate I246(11-12-13)
- to the sync adder I246(1-2-3) to supply the TDA2579B and the Line Doubler
- the NAND gate pin 11-12-13 of I248 to further feed the sync board of the projector

The first monoflop in I143 is used as a non-retriggerable monostable. The time constant of this monoflop is a little less than the line period in video ($\approx 53\mu\text{s}$). Any pulses applied during that horizontal window do not affect the output.

Only real pulses can be used as trigger. These real pulses are detected by the circuit around Q275/276. As soon as a negative pulse is applied to the base of Q275, the delaying capacitor C277 start discharging. Only sync pulses of minimum $3.7\mu\text{s}$ (= real pulses) can sufficiently discharge C277, so that Q275 gets forward biased. This signal is fed to pin 13 of IC246 via Q276.

These pulses can only be passed onto the trigger input of the monoflop I143 when the TDA2579B oscillator has reached coincidence. In other words, the signal must be 15kHz and the line oscillator in the TDA2579B (IC2) must be locked.

The coincidence information is picked up at pin 13 of the above IC, buffered and then used to switch on or off Q160. When the TDA2579B is locked, pin 13 becomes

high. This means that Q160 is then saturated and pin 12 of the NOR gate I246 is low. In this case the sync at the collector of Q276 or pin 13 can pass through the gate to feed the trigger input of the monoflop. If there is no coincidence, pin 13 of IC2 is low, Q160 is off and pin 12 is high. The sync at the collector of Q276 is NOT passing through the gate.

The new negative pulses from the monoflop are then passed onto a next gate I246(8-9-10) for the following reason.

The SteadySync[®] circuit can not be used during the vertical sync nor during the normal active video time. Therefore the gate I246(8-9-10) is *open* only when a negative pulse is presented at pin 8. This negative pulse comes from monoflop 2 in IC143 which is triggered on the positive transition of the negative vertical sync from the LM1881 and has a time constant of approximately 1,8ms. So, the mentioned gate opens only when the vertical sync is finished and is closed again when the active video begins.

With the next gate (IC246/pin1-2-3), the separated sync from the IC37 is combined with the horizontal window from the monoflop 1 during the vertical window determined by the monoflop 2. The output of the gate is now applied to the Line doubler through Q174 (*SYNC_LD*) and the inverter gate I246(4-5-6) to feed the TDA2579B.

Switching

Sync selection

Depending on the *LD_ON* line either the sync from the SteadySync[®] circuit or the sync from the LIDO is send to the input. When the LIDO is active, the gate IC248/pin 4-5-6 is blocked and the sync from the LIDO is then applied via a current driver . When the LIDO is not active, the *LD_ON* line is low. This opens the gate IC248/pin 4-5-6. The sync from the SteadySync[®] circuit is passed onto the base of Q187 and put on the *CS₃₂* line. This sync is either the 'cleaned' sync or the sync from IC37. Via the gates IC248/1-2-3, 8-9-10 and 11-12-13 one of them is applied to pin 5 of IC248. This selection depends on the *+VID* line. For video and S-video, this line is high and the 'cleaned' sync is selected. In all other cases the sync from IC37 is selected.

YUV selection

If the line doubler is active, *LD_ON* is high, Q106 is saturated and the transistors Q93, Q96 and Q98 apply the component input to the line doubler inputs (J106). The line doubler outputs are connected straight to the input J103.


If the line doubler is not active, Q95, Q97 and Q99 are turned on and the input signals are now supplied straight to the input board.

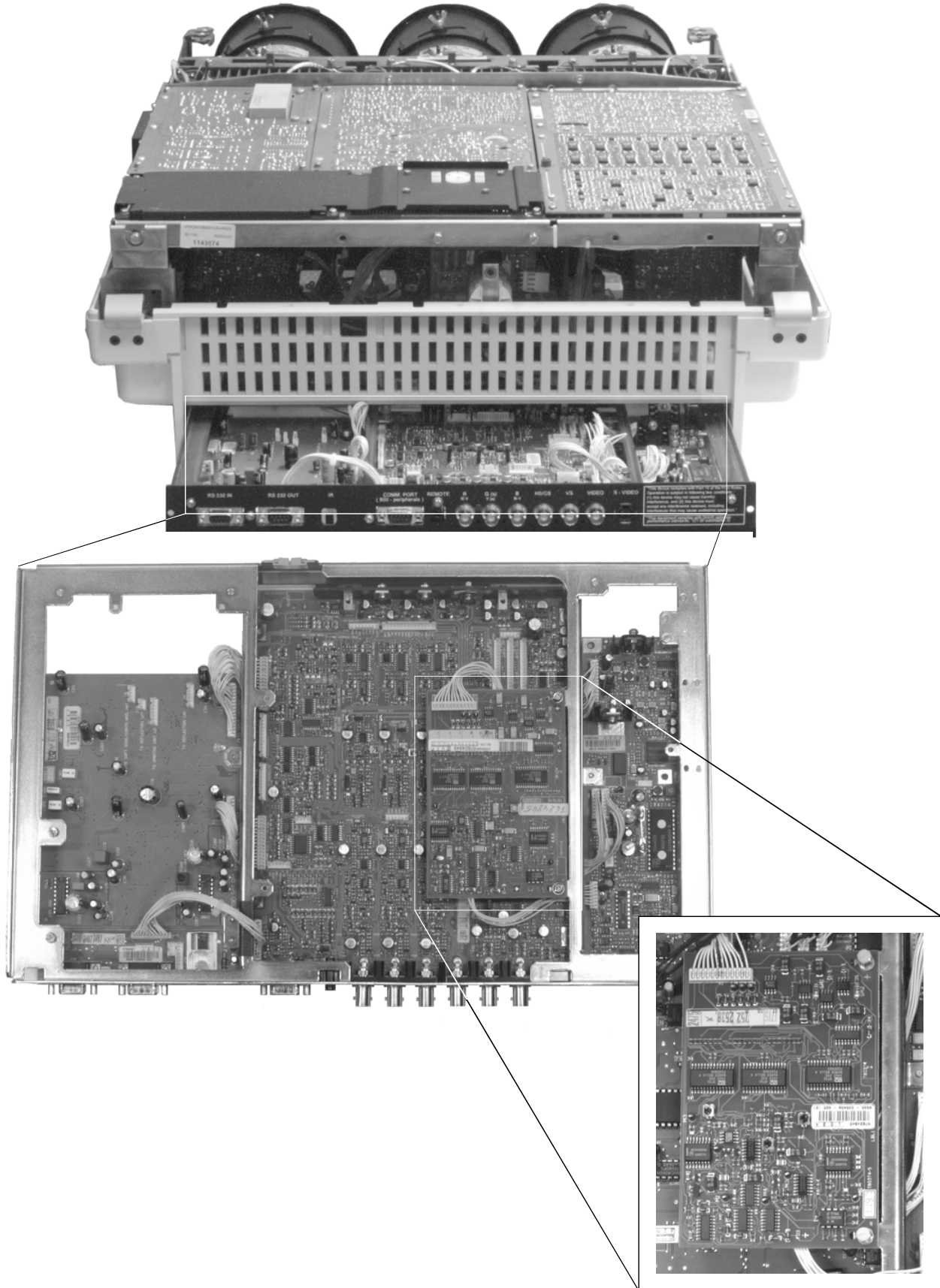
PARTS LISTING

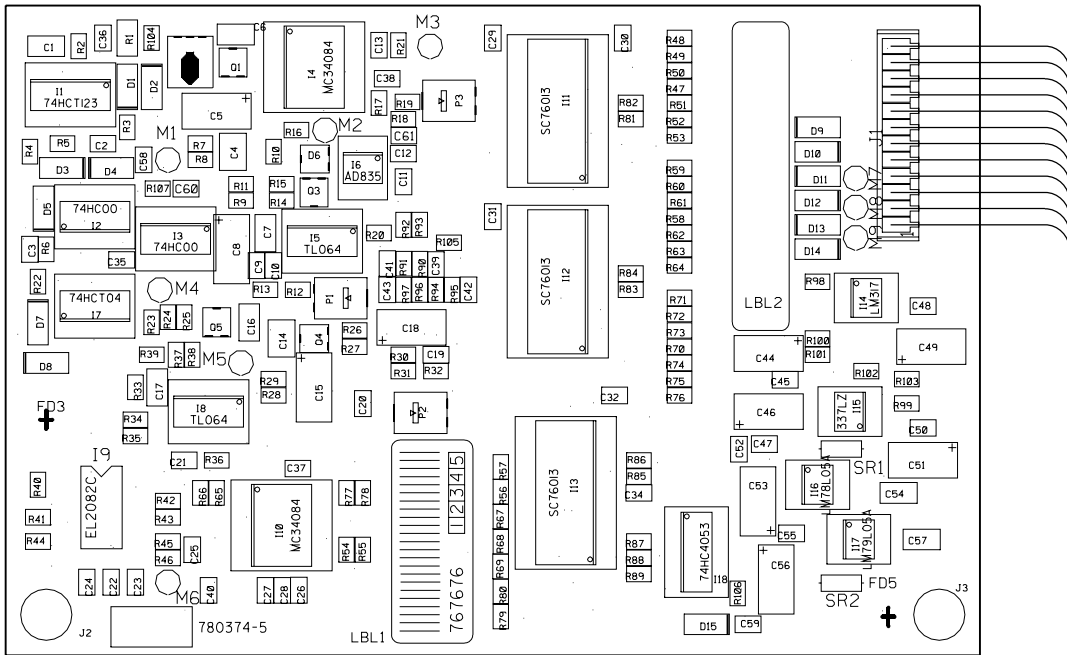
SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	B360862	SCR Z\$7985M 3 X 8 STZY	1	Q 38	P232043	Q#BC849B N SS SOT23	1
20	R3661026	NUT D934 M 3 SS	1	Q 93	P232044	Q#BC859B P SS SOT23	1
C 1	P2101220	C# X7R MU 100N K 50 1206	1	Q 95	P232044	Q#BC859B P SS SOT23	1
C 2	P210167	C# X7R MU 150N K 50 1210	1	Q 96	P232044	Q#BC859B P SS SOT23	1
C 3	P210039	C# X7R MU 4N7K 50 0805	1	Q 97	P232044	Q#BC859B P SS SOT23	1
C 4	P212001	C# TA 2M2M 20 3528	1	Q 98	P232044	Q#BC859B P SS SOT23	1
C 5	P212052	C# TA 22M M 25 7343	1	Q 99	P232044	Q#BC859B P SS SOT23	1
C 6	P210045	C# X7R MU 47N K 50 1206	1	Q106	P232043	Q#BC849B N SS SOT23	1
C 7	P212029	C# TA 6M8M 16 6032	1	Q129	P232044	Q#BC859B P SS SOT23	1
C 8	P2101220	C# X7R MU 100N K 50 1206	1	Q157	P232043	Q#BC849B N SS SOT23	1
C 9	P210147	C# C0G MU 2N7J 50 1206	1	Q160	P232043	Q#BC849B N SS SOT23	1
C 12	P212052	C# TA 22M M 25 7343	1	Q174	P232044	Q#BC859B P SS SOT23	1
C 13	P210007	C# C0G MU 1N F 50 1206	1	Q187	P232044	Q#BC859B P SS SOT23	1
C 14	P210041	C# X7R MU 10N K 50 0805	1	Q275	P232044	Q#BC859B P SS SOT23	1
C 15	P210183	C# C0G MU 120P J 50 0805	1	Q276	P232043	Q#BC849B N SS SOT23	1
C 39	P210124	C# X7R MU 100N K 50 0805	1	Q279	P232044	Q#BC859B P SS SOT23	1
C 40	P210124	C# X7R MU 100N K 50 0805	1	Q280	P232044	Q#BC859B P SS SOT23	1
C 41	P210124	C# X7R MU 100N K 50 0805	1	R 17	P201143	R# CE H220K F 0W12 0805	1
C102	P210124	C# X7R MU 100N K 50 0805	1	R 18	P201113	R# CE H 12K F 0W12 0805	1
C105	P210124	C# X7R MU 100N K 50 0805	1	R 19	P201087	R# CE H 1K F 0W12 0805	1
C122	P210290	C# Y5V MU 4M7Z 16 1206	1	R 21	P201103	R# CE H 4K7 F 0W12 0805	1
C123	P210290	C# Y5V MU 4M7Z 16 1206	1	R 22	P201103	R# CE H 4K7 F 0W12 0805	1
C132	P210041	C# X7R MU 10N K 50 0805	1	R 23	P201103	R# CE H 4K7 F 0W12 0805	1
C135	P210290	C# Y5V MU 4M7Z 16 1206	1	R 25	P201109	R# CE H 8K2 F 0W12 0805	1
C136	P212041	C# TA 4M7M 25 6032	1	R 26	P201107	R# CE H 6K8 F 0W12 0805	1
C137	P210290	C# Y5V MU 4M7Z 16 1206	1	R 28	P201087	R# CE H 1K F 0W12 0805	1
C138	P210124	C# X7R MU 100N K 50 0805	1	R 29	P201121	R# CE H 27K F 0W12 0805	1
C139	P210124	C# X7R MU 100N K 50 0805	1	R 30	P201089	R# CE H 1K2 F 0W12 0805	1
C140	P210290	C# Y5V MU 4M7Z 16 1206	1	R 32	P201105	R# CE H 5K6 F 0W12 0805	1
C141	P210124	C# X7R MU 100N K 50 0805	1	R 33	P201047	R# CE H 22E F 0W12 0805	1
C142	P210290	C# Y5V MU 4M7Z 16 1206	1	R 34	P201113	R# CE H 12K F 0W12 0805	1
C145	P210124	C# X7R MU 100N K 50 0805	1	R 42	P201155	R# CE H680K F 0W12 0805	1
C146	P210062	C# X7R MU 10N J 50 0805	1	R 43	P201015	R# CE H 1E F 0W12 0805	1
C153	P210124	C# X7R MU 100N K 50 0805	1	R 44	P201095	R# CE H 2K2 F 0W12 0805	1
C154	P210124	C# X7R MU 100N K 50 0805	1	R100	P201113	R# CE H 12K F 0W12 0805	1
C164	P210290	C# Y5V MU 4M7Z 16 1206	1	R101	P201115	R# CE H 15K F 0W12 0805	1
C165	P210124	C# X7R MU 100N K 50 0805	1	R103	P201115	R# CE H 15K F 0W12 0805	1
C166	P210290	C# Y5V MU 4M7Z 16 1206	1	R104	P201113	R# CE H 12K F 0W12 0805	1
C184	P210124	C# X7R MU 100N K 50 0805	1	R107	P201119	R# CE H 22K F 0W12 0805	1
C277	P210055	C# C0G MU 390P F 50 0805	1	R108	P201131	R# CE H 68K F 0W12 0805	1
D110	P234004	D#BAV70 C-C SOT23	1	R109	P201115	R# CE H 15K F 0W12 0805	1
D269	P234004	D#BAV70 C-C SOT23	1	R111	P201091	R# CE H 1K5 F 0W12 0805	1
I 2	R1328741	U 2579B TDA DIP18 P	1	R112	P201091	R# CE H 1K5 F 0W12 0805	1
I37	P230969	U#1881 LM SO8 P	1	R114	P201067	R# CE H150E F 0W12 0805	1
I134	R134002	U 7812 TO220 P	1	R116	P201135	R# CE H100K F 0W12 0805	1
I143	P230037	U#4538 SO16 I	1	R117	P201135	R# CE H100K F 0W12 0805	1
I246	P230077	U#4001 SO14 I	1	R130	P201105	R# CE H 5K6 F 0W12 0805	1
I248	P230016	U#4011 SO14 I	1	R133	P201115	R# CE H 15K F 0W12 0805	1
J100	Z3484080	CD CT FTMS P 8 200	1	R142	P201015	R# CE H 1E F 0W12 0805	1
J101	Z3485123	CD CT FTMS P12 130	1	R147	P201115	R# CE H 15K F 0W12 0805	1
J102	R313952	J CT H MBS P12 M2SN WH	1	R148	P201102	R# CE H 4K3 F 0W12 0805	1
J103	R313948	J CT H MBS P 8 M2SN WH	1	R155	P201015	R# CE H 1E F 0W12 0805	1
J105	Z3485082	CD CT FTMS P 8 60	1	R156	P201015	R# CE H 1E F 0W12 0805	1
J106	R313950	J CT H MBS P10 M2SN WH	1	R161	P201111	R# CE H 10K F 0W12 0805	1
J107	R313951	J CT H MBS P11 M2SN WH	1	R162	P201111	R# CE H 10K F 0W12 0805	1
J108	R313949	J CT H MBS P 9 M2SN WH	1	R163	P201135	R# CE H100K F 0W12 0805	1
P 35	R107009	R TCE H 10K K 0W5 S 7TS	1	R166	P201015	R# CE H 1E F 0W12 0805	1
PC	R780417	PCB *701 LIDOINT	1	R167	P201119	R# CE H 22K F 0W12 0805	1
Q 36	P232044	Q#BC859B P SS SOT23	1	R168	P201103	R# CE H 4K7 F 0W12 0805	1
				R169	P201091	R# CE H 1K5 F 0W12 0805	1
				R170	P201111	R# CE H 10K F 0W12 0805	1
				R171	P201111	R# CE H 10K F 0W12 0805	1
				R173	P201115	R# CE H 15K F 0W12 0805	1
				R175	P201103	R# CE H 4K7 F 0W12 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R176	P201085	R# CE H820E F 0W12 0805	1
R183	P201135	R# CE H100K F 0W12 0805	1
R185	P201015	R# CE H 1E F 0W12 0805	1
R186	P201111	R# CE H 10K F 0W12 0805	1
R188	P201103	R# CE H 4K7 F 0W12 0805	1
R190	P201111	R# CE H 10K F 0W12 0805	1
R191	P201135	R# CE H100K F 0W12 0805	1
R192	P201087	R# CE H 1K F 0W12 0805	1
R193	P201063	R# CE H100E F 0W12 0805	1
R270	P201113	R# CE H 12K F 0W12 0805	1
R271	P201113	R# CE H 12K F 0W12 0805	1
R272	P201113	R# CE H 12K F 0W12 0805	1
R273	P201113	R# CE H 12K F 0W12 0805	1
R274	P201113	R# CE H 12K F 0W12 0805	1
R281	P201113	R# CE H 12K F 0W12 0805	1
R282	P201113	R# CE H 12K F 0W12 0805	1
S135	R1011008	R CFFH 1E J 0W25	1
	R7625615P UN *701 LIDO INT	/2	1

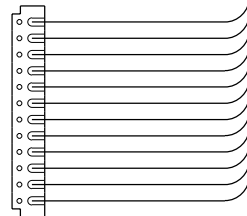
PRODUCT SAFETY NOTICE

Components identified by  have SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. Before replacing any of these components, read carefully the service safety precautions.



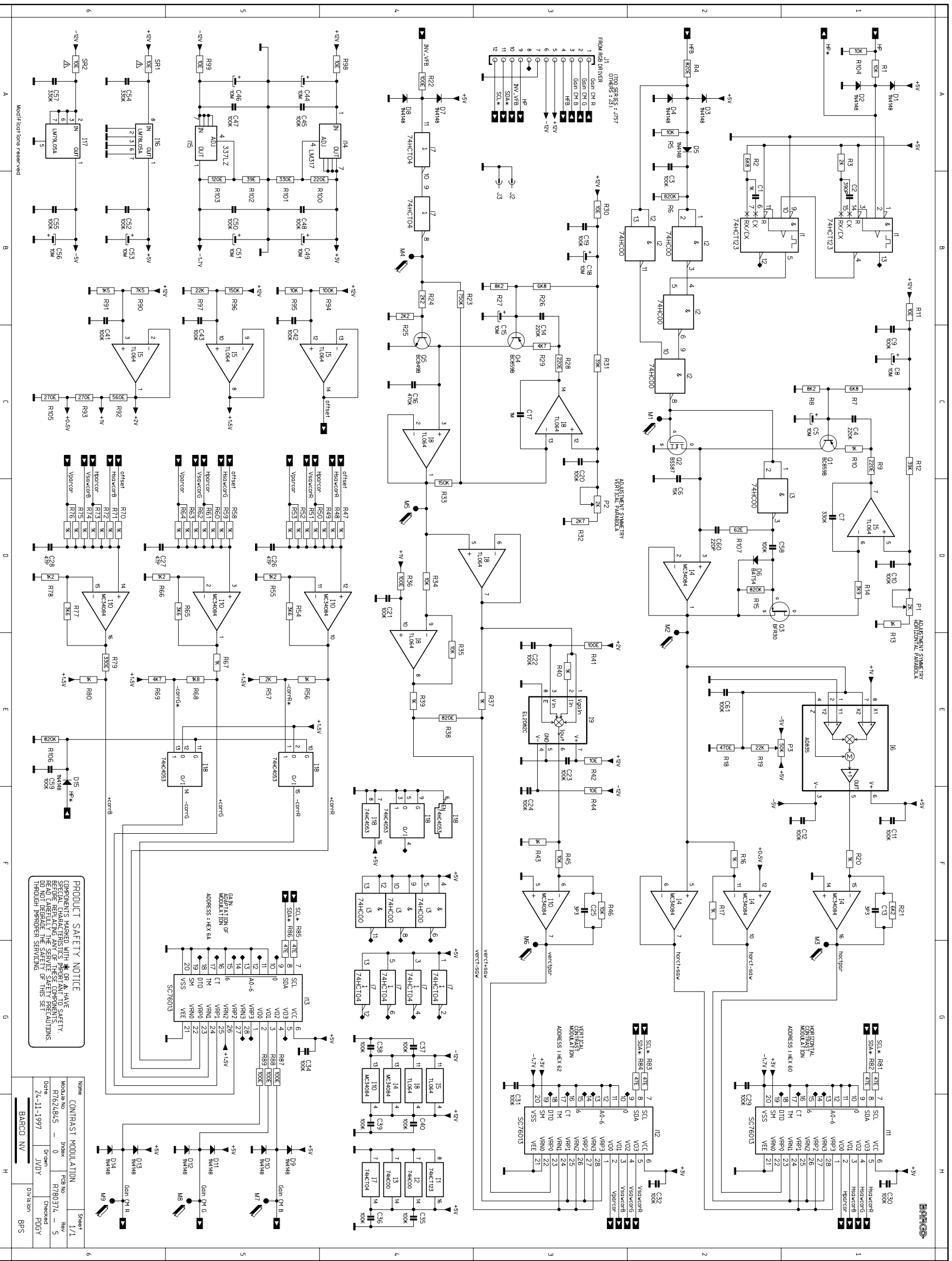


CONNECTION WITH
RGB DRIVER
(700 SERIES : J575)
(OTHERS : J3)



Modifications reserved

Name CONTRAST MODULATION			Sheet 1 / 1
Module No R7624845	Index 0	PCB No R780374	Rev 5
Date 24-11-1997	Drawn JVJDY	Checked PDGY	
BARCO PROJECTION SYSTEMS			

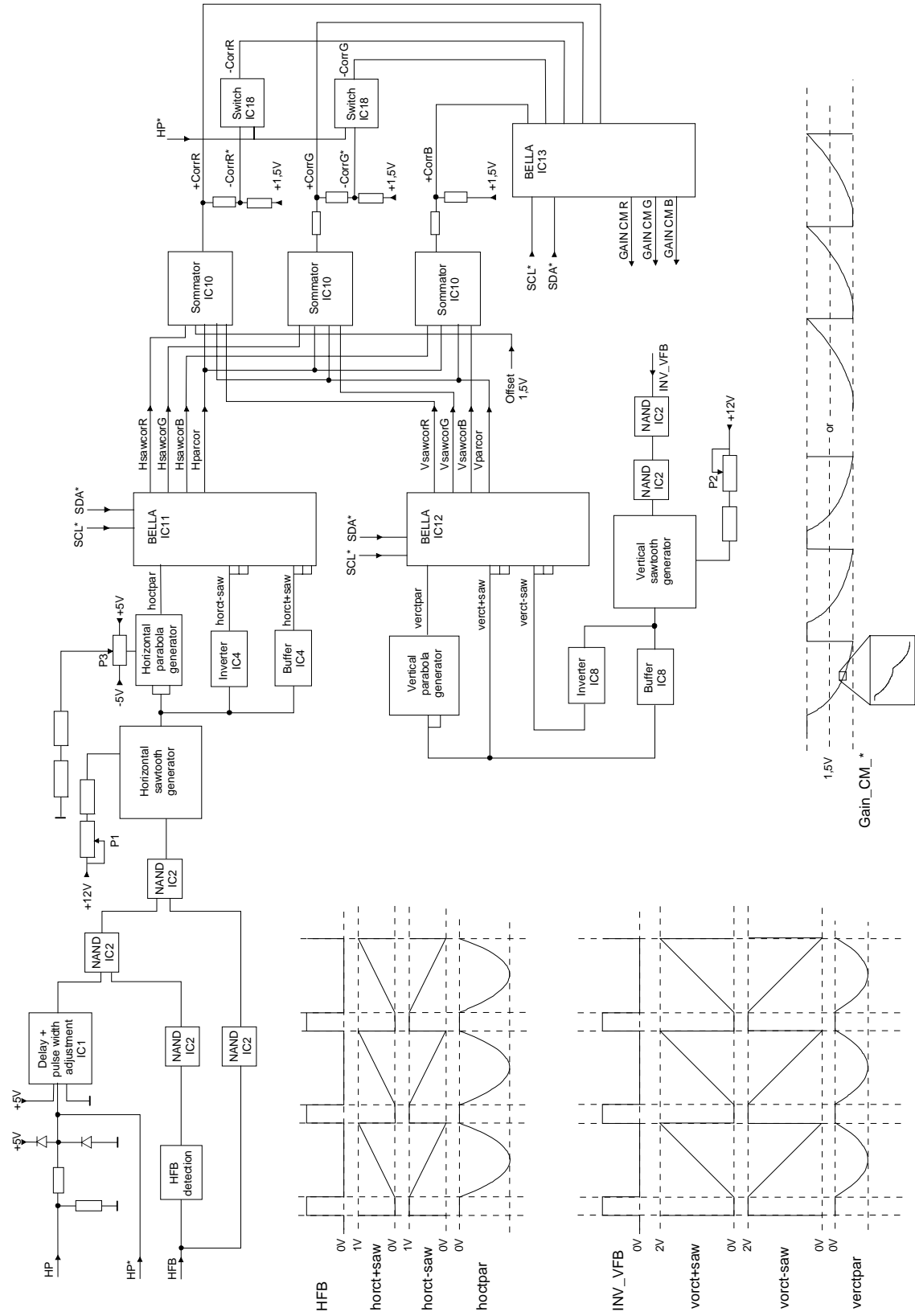


LOC.	COMP.	LOC.	COMP.
A1	C1	A1	C1
A2	C2	A2	C2
A3	C3	A3	C3
A4	C4	A4	C4
A5	C5	A5	C5
A6	C6	A6	C6
A7	C7	A7	C7
A8	C8	A8	C8
A9	C9	A9	C9
A10	C10	A10	C10
A11	C11	A11	C11
A12	C12	A12	C12
A13	C13	A13	C13
A14	C14	A14	C14
A15	C15	A15	C15
A16	C16	A16	C16
A17	C17	A17	C17
A18	C18	A18	C18
A19	C19	A19	C19
A20	C20	A20	C20
A21	C21	A21	C21
A22	C22	A22	C22
A23	C23	A23	C23
A24	C24	A24	C24
A25	C25	A25	C25
A26	C26	A26	C26
A27	C27	A27	C27
A28	C28	A28	C28
A29	C29	A29	C29
A30	C30	A30	C30
A31	C31	A31	C31
A32	C32	A32	C32
A33	C33	A33	C33
A34	C34	A34	C34
A35	C35	A35	C35
A36	C36	A36	C36
A37	C37	A37	C37
A38	C38	A38	C38
A39	C39	A39	C39
A40	C40	A40	C40
A41	C41	A41	C41
A42	C42	A42	C42
A43	C43	A43	C43
A44	C44	A44	C44
A45	C45	A45	C45
A46	C46	A46	C46
A47	C47	A47	C47
A48	C48	A48	C48
A49	C49	A49	C49
A50	C50	A50	C50
A51	C51	A51	C51
A52	C52	A52	C52
A53	C53	A53	C53
A54	C54	A54	C54
A55	C55	A55	C55
A56	C56	A56	C56
A57	C57	A57	C57
A58	C58	A58	C58
A59	C59	A59	C59
A60	C60	A60	C60
A61	C61	A61	C61
A62	C62	A62	C62
A63	C63	A63	C63
A64	C64	A64	C64
A65	C65	A65	C65
A66	C66	A66	C66
A67	C67	A67	C67
A68	C68	A68	C68
A69	C69	A69	C69
A70	C70	A70	C70
A71	C71	A71	C71
A72	C72	A72	C72
A73	C73	A73	C73
A74	C74	A74	C74
A75	C75	A75	C75
A76	C76	A76	C76
A77	C77	A77	C77
A78	C78	A78	C78
A79	C79	A79	C79
A80	C80	A80	C80
A81	C81	A81	C81
A82	C82	A82	C82
A83	C83	A83	C83
A84	C84	A84	C84
A85	C85	A85	C85
A86	C86	A86	C86
A87	C87	A87	C87
A88	C88	A88	C88
A89	C89	A89	C89
A90	C90	A90	C90
A91	C91	A91	C91
A92	C92	A92	C92
A93	C93	A93	C93
A94	C94	A94	C94
A95	C95	A95	C95
A96	C96	A96	C96
A97	C97	A97	C97
A98	C98	A98	C98
A99	C99	A99	C99
A100	C100	A100	C100

Name	Index	Rev	Checked
CONTRAST MODULATION	0	1/1	
Module No.	R762/845		
Part No.	R780/374		
Date	24-11-1997		
Checked	JVDY		
Drawn			
Div/Is/en	BPS		

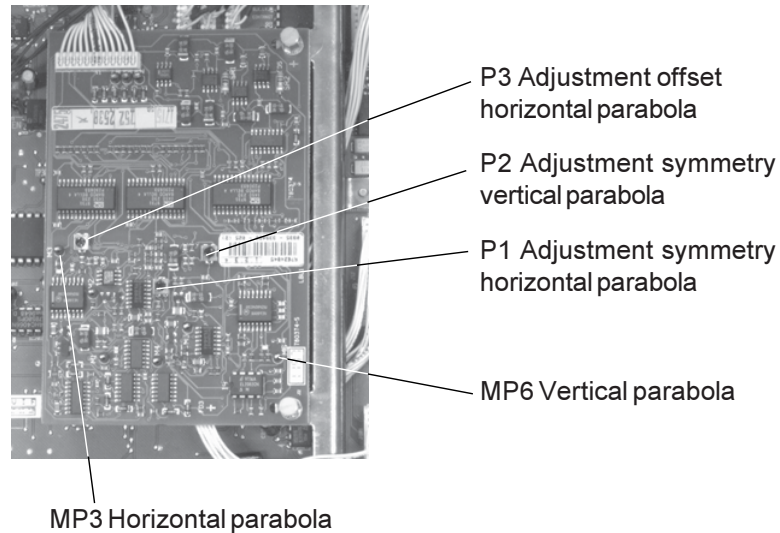
PRODUCT SAFETY NOTICE: COMPONENTS MARKED WITH * OR A HAVE SAFETY SPECIAL CHARACTERISTICS. REFER TO THE SAFETY DATA SHEET FOR THE SAFETY PRECAUTIONS TO TAKE TO AVOID DEGRADING THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.

BLOCK DIAGRAM



ADJUSTMENT PROCEDURE

Location of adjustments



Adjustments

- Connect a source to the projector and select the corresponding input (refer to owners manual of the projector)
- Connect the probe of the oscilloscope to MP3

Adjustment offset

- Adjust the potentiometer P3 so that the maximum level of the horizontal parabola is 0V

Adjustment horizontal sawtooth

- Adjust the potentiometer P1 so that the horizontal parabola is symmetrical

Adjustment vertical sawtooth

- Connect the probe of the oscilloscope to MP6
- Adjust the potentiometer P2 so that the vertical parabola is symmetrical

TECHNICAL DESCRIPTION : CIRCUIT

General

The contrast modulation unit R7624845 has been designed to be integrated in the BV701MM / BD701 / BD708 of the 701 series and the *808S / *1208S / *1209S (new input boards).

The unit is electrically connected with the J757 connector of the RGB INPUT + DRIVER of the BV701MM/BD701S/BD708 series (attention, not the BV701S !).

If used in the 800/1200*S series equipped with the new input and driver boards, the CM unit is connected with J3 of the RGB DRIVER 762720.

This optional board generates waveforms which are added to the gain control voltages of the multipliers on the driver board.

The waveforms are composed of a sawtooth at horizontal and vertical frequency for the left/right respectively top/bottom color shift.

Horizontal and vertical parabola waveforms are used for the hot spot problem.

In the menu, these electronic waveforms and their adjustments are referred to as :

- For the hot spot : "Contrast Edge Correction"

Horizontal : "Left and right"
Vertical : "Top and bottom".

- For the Color shading or color shift : "Contrast Equalisation".

Horizontal : "Red Horizontal"
" Green Horizontal"
" Blue Horizontal"
Vertical : "Vertical"

Horizontal sawtooth generator

It is important that the sawtooth starts immediately after a flyback pulse and ends when the scanning ends or the flyback starts.

The available trigger information on the connector is the HP pulse in the 701/708 chassis and HFB in the 808/1208/1209 series.

The HP pulse in the 700 chassis is the Hor. Drive pulse and because of the delay in the switchers the flyback pulse itself is approximately 500ns delayed. Hence the trigger pulse must be delayed and its width must be adapted to the real flyback time of the projector (4.7µs).

The delay of 500ns is installed with the first monoflop in IC1, 74HCT123.

The pulse width adjustment is realised with the second monoflop of the same IC1.

However, the pulse output pin 5 is ONLY selected when there are no HFB pulses, since these always have priority. Consequently, the pulse will only pass through the gate (NAND gate IC2) on condition there are no HFB pulses available.

For that purpose, the HFB pulses are detected with D5/C3/R6.

In case no HFB pulses are present, pin 1,2 of IC2 is low and the output high or, pin 4 is high. The modified positive HP pulses, output pin 5, can pass through the gates and trigger Q2.

If HFB pulses are presented as it is the case in the 808S series, the HP pulses are not passing through any more, conversely, the HFB pulses are passing the NAND gate 8-9-10 of I2 and trigger Q2.

The ramp is stopped when Q2 is switched on and C6 is discharged through Q2. This is at the end of the scanning and it also means the end of the generated sawtooth.

The same positive trigger pulse is inverted by IC3(1-2-3) where, at the output, the negative pulses are clamped with C58/D6/R15 and keep Q3 off during the pulse or flyback time. This must make certain that the sawtooth only starts at the end of the flyback.

The sawtooth across C6 is buffered with IC4(1-2-3) and integrated with IC5 (5-6-7) to be compared with the adjusted voltage at input pin 5.

Although P1 adjusts the amplitude of the sawtooth to 1Vpp, the symmetry of the parabola is of utmost importance (see schematic ADJUSTMENT SYMMETRY HORIZONTAL PARABOLA).

The sawtooth is buffered with IC4(5-6-7) and also inverted and DC-shifted to 1V with IC4(10-11-12). These opposite phase outputs are supplied to the VRP* respectively VRN* inputs of three registers in the Bella IC11 for the color shift adjustments.

Horizontal parabola generator

The multiplier AD835 (IC6) generates a horizontal parabola by multiplying two sawtooth-signals.

The offset (zero output when both inputs are zero) is adjusted with P3. IC4(14-15-16) inverts the signal and applies some gain in order to match the range of the Bella's. This signal is supplied to the VRP0 input of the BELLA IC11.

Vertical sawtooth generator

Just like for the horizontal sawtooth generator, the load current of the current generator Q4 is adjusted in order to keep the top-top amplitude of the output constant, irrelevant the input frequency.

Here, C16 is charged up via Q4 and discharged as soon Q5 is switched on. The INV_VFB is shaped before triggering Q5.

IC8(5-6-7) buffers the sawtooth and feeds the VRP* inputs of three registers in IC12. The sawtooth is also DC shifted (lifted up) to a minimum of +2V, and, inverted with IC8(1-2-3) to match the Bella's range.

This inverted vertical sawtooth feeds the VRN* inputs of the same three registers in IC12.

These controls are not accessible per color (see later, amplitude adjustments).

Vertical parabola generator

The multiplier IC9 (EL2082C) generates the parabola by multiplying two sawtooth-signals (same as for the horizontal parabola).

After inversion with IC10(5-6-7) the vertical parabola feeds the "0" register of IC12.

Amplitude adjustments 1. Horizontal

As the hot spot is not color related, the horizontal parabola is adjusted with register "0" of IC11 and the "Hparcor" is sent to the three adders.

For the color shift a Hsawcor* signals is sent for each color to the respective adders.

2. Vertical

The vertical hot spot is not color related and hence a Vparcor signal is sent to the three sommators.

The Vertical color shift per color is only required for special configurations. In a standard configuration the three registers receive exactly the same data thus generating 3 identical Vsawcor* signals.

Adders

The three adders combine the adjusted waveforms per color with the Hparcor and Vparcor waveforms.

Offset

If all waveforms are zero, the presence of the contrast modulation unit should not have any influence on the contrast of the projector.

Therefore, an offset voltage of +1.5V is added to the dynamic waveforms. This is the voltage choosen as the reference on the multipliers of the driver unit. Obviously, if all these waveforms are zero, only the DC offset is applied to the input of the OPAMP adder.

Compatibility 701/708 <-----> 808S / 120*S

As there is a small difference in the range between the above chassis, an adaptation of the amplitudes is necessary as follows.

For red and green the full amplitude is applied to the VRP0 and VRP1 respectively. The VRN0 and VRN1 inputs are :

- * +1.5V for the 800/1200 series
- * reduced signals for the 700 series.

This selection is done by the multiplexer IC18 and based on the presence or absence of the HP pulses.

(As explained before, in the 700 chassis we must use HP pulses and in the 800/1200 we must use HFB pulses.)

For the blue there is no adaptation needed.

Amplitude adjustments of the composite waveforms

As the corrective waveforms are added to the original DC_ gain voltages (and not multiplied) we need to vary the amplitude in function of the gain setting in the RGB drive board.

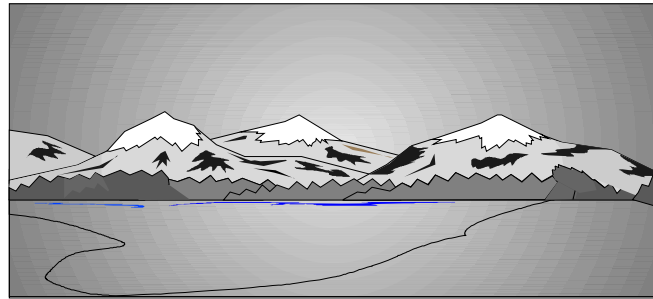
The registers 0, 1, and 2 receive the same data as the gain settings of the RGB DRIVE board (see description of the board).

TECHNICAL DESCRIPTION: SOFTWARE

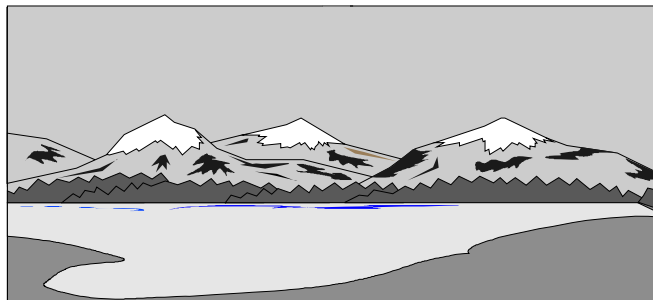
1. Introduction

Today, multi-screen installations are very popular for many applications (e.g. simulation, business). In these installations, the goal is to obtain a continuous matched image, forming one homogeneous field-of-view with overall light output uniformity.

The laws of physics applied to projection CRT and optics dictates that the center of the projected image will be brighter than the corners, this phenomenon is normally referred to as 'corner fall off'. Secondly, due to the normal off-axis projection of the red and blue images, CRT projection displays a phenomenon referred to as 'color shift', whereby one side of the screen is "redish" and the other "blueish".

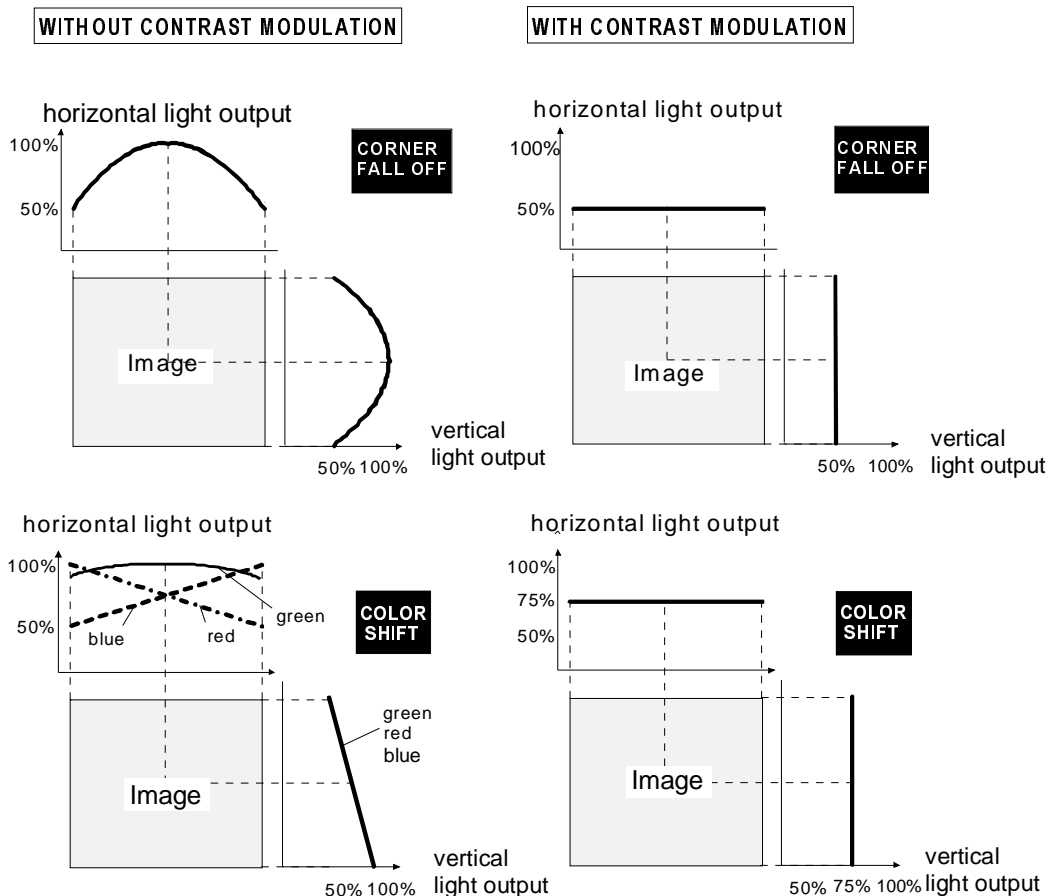


Picture without Contrast Modulation



Picture with Contrast Modulation

2. Basic Concept



3. Contrast Modulation Adjustment.

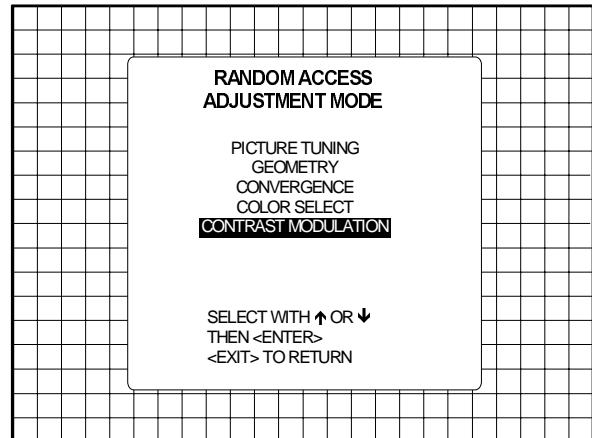
The Contrast Modulation option is automatically added to the Random Access Adjustment Mode menu. When the module is correctly installed, the projector software will detect this option and the selection line will be added in the menus. Refer to your owner's manual to start up the adjustment mode and to select the Random Access Adjustment mode.

Notes:

- An external generated white image will be useful during the following adjustments.

- Be sure the horizontal phase is correctly adjusted. The image must be centered on the raster with the horizontal phase adjustment, otherwise it is not possible to adjust the contrast modulation correctly.

Highlight *CONTRAST MODULATION* with the arrow keys and press "ENTER" to select.



"ENTER" selects the contrast modulation menu.
 "EXIT" returns to the Path selection menu.
 "ADJUST" returns to operational mode.

The first 3 adjustments (horizontal red, green, blue) are used for horizontal light equalisation for the three specific colors separately. This compensates the error due to the different horizontal positions of the picture tubes. One side of the image is reddish and the other side is blueish. This phenomenon is called *Color shift*.

The *VERTICAL* adjustment affects the three colors at the same time and corrects the vertical error in light output due to the projection angle (10.5 degrees).

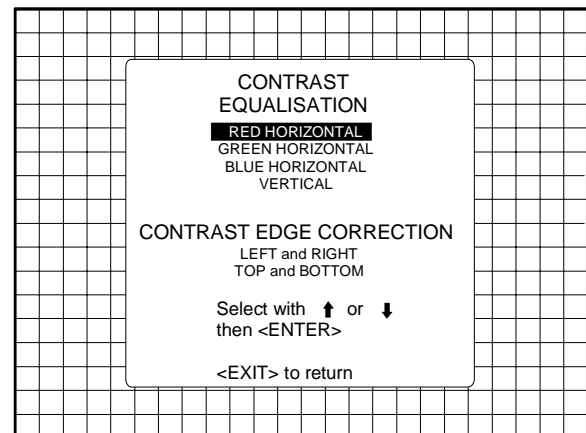
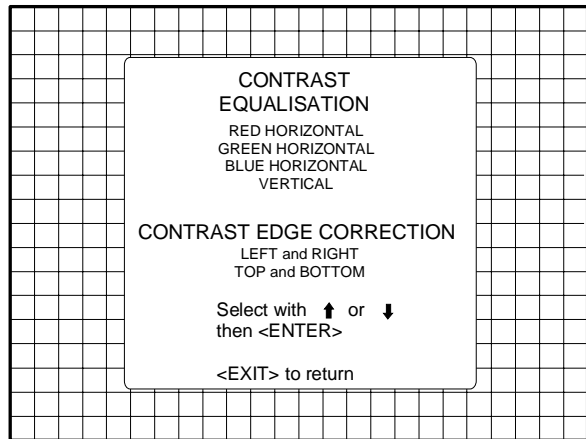
Left and right (horizontally) and top and bottom (vertically) adjustments improves the 'hot spot' in the center of the screen.

3.a Contrast equalisation ('Color Shift')

Highlight *RED HORIZONTAL* with the arrow keys and press "ENTER".

Only a red image is displayed. Use the arrow keys to equalise the light output on the left and right side of the image. The best result is obtained by looking on the left and the right side until both are equal, or by using a very sensitive light meter.

"ENTER" returns to the contrast modulation menu. Repeat this adjustment for green and blue by selecting first Green horizontal and then Blue horizontal.



Note: (only for non-ASIC controllers) When the end of adjustment range is reached for red and blue, the green image will also be displayed, to give you the message "end of adjustment range". The green image stays active until a new selection is made.

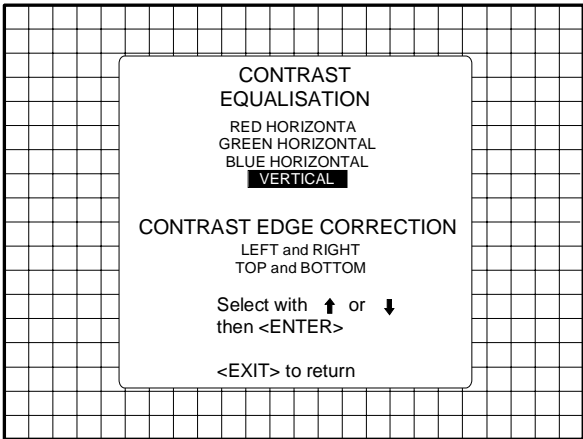
"ENTER" displays the red image.
"EXIT" returns to the Random access adjustment mode main menu
"ADJUST" returns to operational mode.

Highlight *VERTICAL* with the arrow keys and press **"ENTER"**. This adjustment is for all three colors at the same time.

Use the arrow keys to equalise the vertical light output and press **"ENTER"** to continue.

The best result is obtained on a white image by looking on the top and the bottom side until both are equal, or by using a very sensitive light meter.

"ENTER" selects the Vertical contrast equalisation option.
"EXIT" returns to the Random access adjustment mode main menu.
"ADJUST" returns to operational mode.



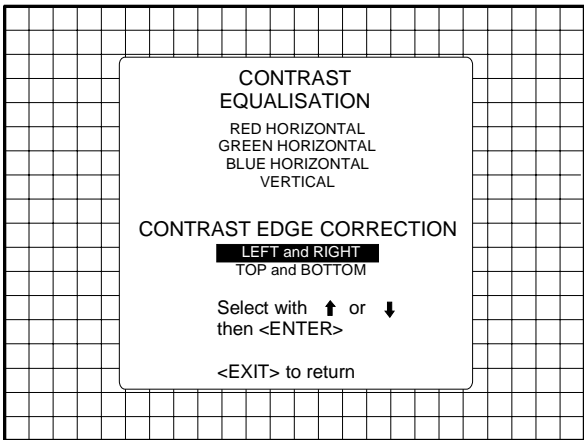
3.b Contrast edge correction ('hot spot')

Highlight *LEFT-RIGHT* with the arrow keys and press **"ENTER"** to start the horizontal 'hot spot' correction in the center of the screen. Adjust with the arrow keys for the same light output in the corners as in the center of the image.

This left-right adjustment must be done in combination with the top-bottom adjustment as both adjustments influence each other.

Note: these adjustments will reduce the total light output, so do not over adjust. A bar scale of 10 - 15 for both adjustments gives a good result.

Press **"ENTER"** to return to the contrast modulation menu.



ENTER starts the left-right contrast edge correction.
EXIT returns to the Random Access adjustment main menu.
ADJUST returns to operational mode.

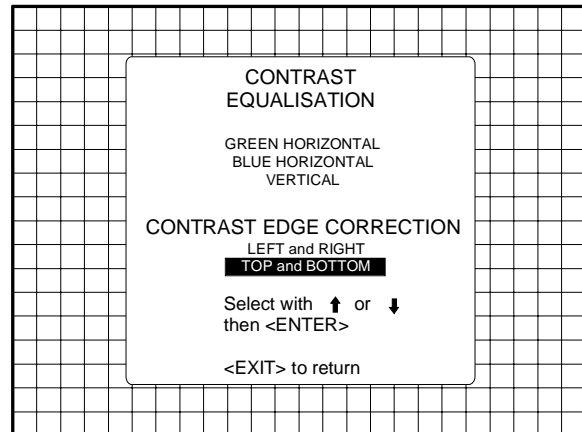
Highlight *TOP-BOTTOM* with the arrow keys and press "**ENTER**" to start the vertical '*hot spot*' correction in the center of the screen. Adjust with the arrow keys for the same light output in the corners as in the center of the image.

This top-bottom adjustment must be done in combination with the left-right adjustments as both adjustments influence each other.

Note : these adjustments will reduce the total light output, so do not over adjust. A bar scale of 10 - 15 for both adjustments gives a good result.

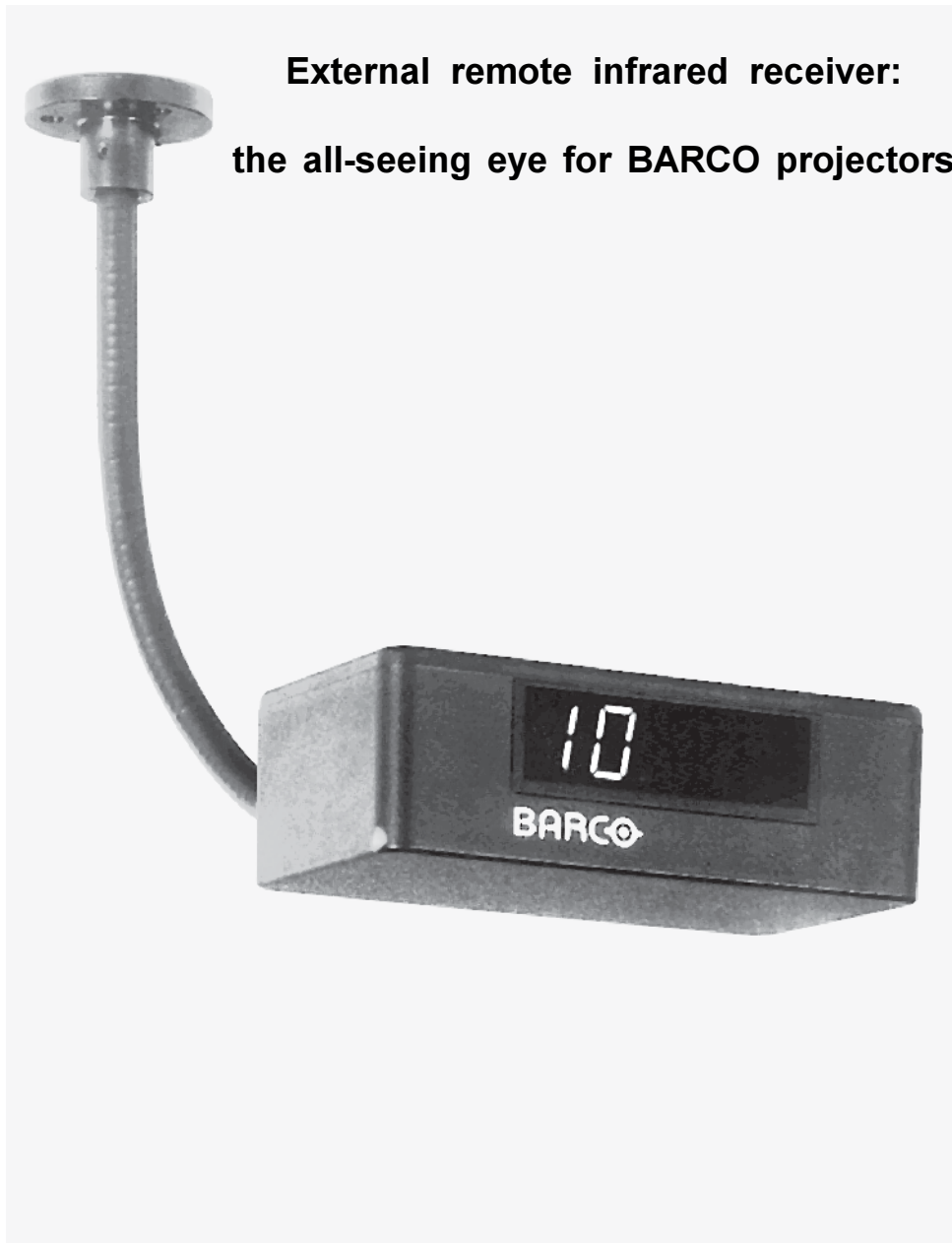
Press "**ENTER**" to return to the contrast modulation menu.

ENTER starts the top-bottom contrast edge correction.
EXIT returns to the Random Access adjustment main menu.
ADJUST returns to operational mode.



PARTS LISTING

SIT.	ITEM NO.	DESCRIPTION	QUANTITY	SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 1	P210013	C# C0G MU 1N J 50 1206	1	D 5	P234099	D#4148 RDMMELF	1
C 2	P210055	C# C0G MU 390P F 50 0805	1	D 6	P234055	D#BAT54 SCH SOT23	1
C 3	P210213	C# Y5V MU 100N Z 25 0805	1	D 7	P234099	D#4148 RDMMELF	1
C 4	P210169	C# X7R MU 220N K 50 1210	1	D 8	P234099	D#4148 RDMMELF	1
C 5	P212018	C# TA 10M M 16 6032	1	D 9	P234099	D#4148 RDMMELF	1
C 6	P210152	C# X7R MU 15N K 50 1206	1	D 10	P234099	D#4148 RDMMELF	1
C 7	P210136	C# Y5V MU 330N Z 25 1206	1	D 11	P234099	D#4148 RDMMELF	1
C 8	P212018	C# TA 10M M 16 6032	1	D 12	P234099	D#4148 RDMMELF	1
C 9	P210213	C# Y5V MU 100N Z 25 0805	1	D 13	P234099	D#4148 RDMMELF	1
C 10	P210213	C# Y5V MU 100N Z 25 0805	1	D 14	P234099	D#4148 RDMMELF	1
C 11	P210213	C# Y5V MU 100N Z 25 0805	1	D 15	P234099	D#4148 RDMMELF	1
C 12	P210213	C# Y5V MU 100N Z 25 0805	1				
C 13	P210132	C# C0G MU 3P3D 50 0805	1	I 1	P230073	U#74HCT123 SO16 I	1
C 14	P210169	C# X7R MU 220N K 50 1210	1	I 2	P230072	U#74HC00 SO14 I	1
C 15	P212018	C# TA 10M M 16 6032	1	I 3	P230072	U#74HC00 SO14 I	1
C 16	P210148	C# Y5V MU 470N Z 25 1206	1	I 4	P230705	U#34084 MC SOL16 P	1
C 17	P210178	C# Y5V MU 1M Z 16 1206	1	I 5	P230328	U#064 TL SO14 I	1
C 18	P212018	C# TA 10M M 16 6032	1	I 6	P231489	U#835 AD SO8 I	1
C 19	P210213	C# Y5V MU 100N Z 25 0805	1	I 7	P230103	U#74HCT04 SO14 I	1
C 20	P210213	C# Y5V MU 100N Z 25 0805	1	I 8	P230328	U#064 TL SO14 I	1
C 21	P210213	C# Y5V MU 100N Z 25 0805	1	I 9	R134225	U 2082 EL DIP8 P	1
C 22	P210213	C# Y5V MU 100N Z 25 0805	1	I 10	P230705	U#34084 MC SOL16 P	1
C 23	P210213	C# Y5V MU 100N Z 25 0805	1	I 11	P230653	U#BELLA 5 SOL28 P	1
C 24	P210213	C# Y5V MU 100N Z 25 0805	1	I 12	P230653	U#BELLA 5 SOL28 P	1
C 25	P210132	C# C0G MU 3P3D 50 0805	1	I 13	P230653	U#BELLA 5 SOL28 P	1
C 26	P210019	C# C0G MU 47P J 50 0805	1	I 14	P230374	U#317L LM SO8 P	1
C 27	P210019	C# C0G MU 47P J 50 0805	1	I 15	P230905	U#337L LM SO8 P	1
C 28	P210019	C# C0G MU 47P J 50 0805	1	I 16	P230062	U#78L05A LM SO8 P	1
C 29	P210213	C# Y5V MU 100N Z 25 0805	1	I 17	P230273	U#79L05A LM SO8 P	1
C 30	P210213	C# Y5V MU 100N Z 25 0805	1	I 18	P230216	U#74HC4053 SO16 I	1
C 31	P210213	C# Y5V MU 100N Z 25 0805	1				
C 32	P210213	C# Y5V MU 100N Z 25 0805	1	J 1	R3484128	CD CT FTMS P12 70	1
C 34	P210213	C# Y5V MU 100N Z 25 0805	1				
C 35	P210213	C# Y5V MU 100N Z 25 0805	1	M 1	R313729	JTESTEYE D2,1 H3,1 SNBK	1
C 36	P210213	C# Y5V MU 100N Z 25 0805	1	M 2	R313729	JTESTEYE D2,1 H3,1 SNBK	1
C 37	P210213	C# Y5V MU 100N Z 25 0805	1	M 3	R313729	JTESTEYE D2,1 H3,1 SNBK	1
C 38	P210213	C# Y5V MU 100N Z 25 0805	1	M 4	R313729	JTESTEYE D2,1 H3,1 SNBK	1
C 39	P210213	C# Y5V MU 100N Z 25 0805	1	M 5	R313729	JTESTEYE D2,1 H3,1 SNBK	1
C 40	P210213	C# Y5V MU 100N Z 25 0805	1	M 6	R313729	JTESTEYE D2,1 H3,1 SNBK	1
C 41	P210213	C# Y5V MU 100N Z 25 0805	1	M 7	R313729	JTESTEYE D2,1 H3,1 SNBK	1
C 42	P210213	C# Y5V MU 100N Z 25 0805	1	M 8	R313729	JTESTEYE D2,1 H3,1 SNBK	1
C 43	P210213	C# Y5V MU 100N Z 25 0805	1	M 9	R313729	JTESTEYE D2,1 H3,1 SNBK	1
C 44	P212018	C# TA 10M M 16 6032	1				
C 45	P210213	C# Y5V MU 100N Z 25 0805	1	P 1	P201390	R#TCE H 2K M 0W25 S4 TS	1
C 46	P212018	C# TA 10M M 16 6032	1	P 2	P201390	R#TCE H 2K M 0W25 S4 TS	1
C 47	P210213	C# Y5V MU 100N Z 25 0805	1	P 3	P201393	R#TCE H 50K M 0W25 S4 TS	1
C 48	P210213	C# Y5V MU 100N Z 25 0805	1				
C 49	P212018	C# TA 10M M 16 6032	1	PC	R780374	PCBD700C_M	1
C 50	P210213	C# Y5V MU 100N Z 25 0805	1				
C 51	P212018	C# TA 10M M 16 6032	1	Q 1	P232044	Q#BC859B P SS SOT23	1
C 52	P210213	C# Y5V MU 100N Z 25 0805	1	Q 2	P232118	Q#BSS87 F SS SOT89	1
C 53	P212018	C# TA 10M M 16 6032	1	Q 3	P232012	Q#BFR30 SS SOT23	1
C 54	P210136	C# Y5V MU 330N Z 25 1206	1	Q 4	P232044	Q#BC859B P SS SOT23	1
C 55	P210213	C# Y5V MU 100N Z 25 0805	1	Q 5	P232043	Q#BC849B N SS SOT23	1
C 56	P212018	C# TA 10M M 16 6032	1				
C 57	P210136	C# Y5V MU 330N Z 25 1206	1	R 1	P200435	R# CE H 10K F 0W25 1206	1
C 58	P210213	C# Y5V MU 100N Z 25 0805	1	R 2	P201107	R# CE H 6K8 F 0W12 0805	1
C 59	P210213	C# Y5V MU 100N Z 25 0805	1	R 3	P201094	R# CE H 2K F 0W12 0805	1
C 60	P210023	C# C0G MU 220P J 50 0805	1	R 4	P201085	R# CE H820E F 0W12 0805	1
C 61	P210213	C# Y5V MU 100N Z 25 0805	1	R 5	P201111	R# CE H 10K F 0W12 0805	1
				R 6	P201157	R# CE H820K F 0W12 0805	1
				R 7	P201107	R# CE H 6K8 F 0W12 0805	1
D 1	P234099	D#4148 RDMMELF	1	R 8	P201109	R# CE H 8K2 F 0W12 0805	1
D 2	P234099	D#4148 RDMMELF	1	R 9	P201071	R# CE H220E F 0W12 0805	1
D 3	P234099	D#4148 RDMMELF	1	R 10	P201087	R# CE H 1K F 0W12 0805	1
D 4	P234099	D#4148 RDMMELF	1				



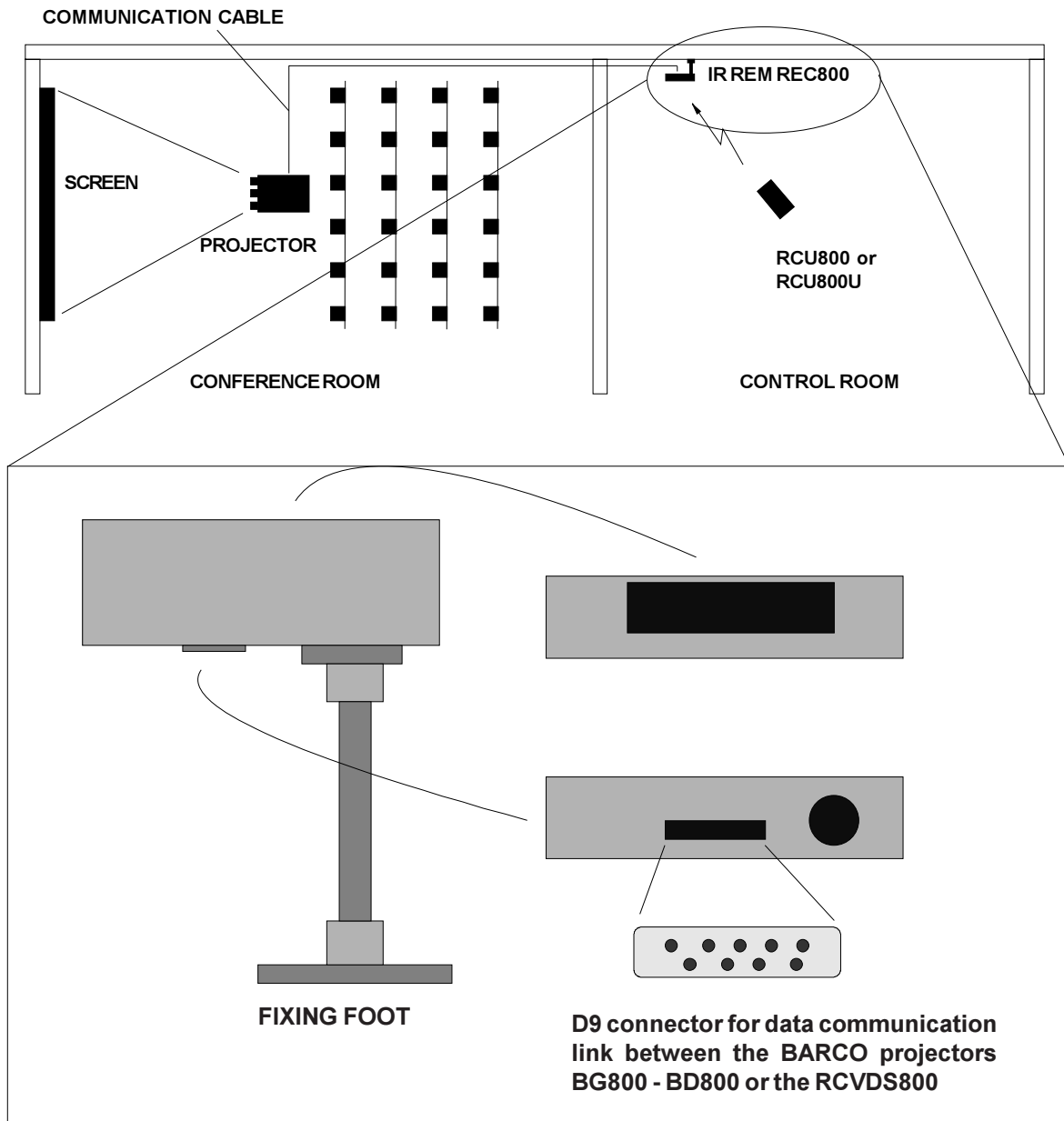
BARCO's external infrared remote receiver facilitates the use of the projector's infrared remote control in difficult installations.

The infrared receiver can be directly hardwired to any digitally controlled BARCO projector or through a switcher. A LED display indicates the selected source number. The special flexible fixation arm of the receiver allows to fix it in almost any position on the ceiling or wall.

R5975174 r02

MOUNTING INSTRUCTIONS for the INFRA RED REMOTE RECEIVER 800 (98 27515)

This stand-alone IR Receiver connected to the BG 800 - BD800 projectors or the RCVDS800 with the available D9-D9 communication cable, refer to info sheet 59 75134, allows to transfer the IR signals from the RCU800 or RCU800U to the projector and displaying the selected input.

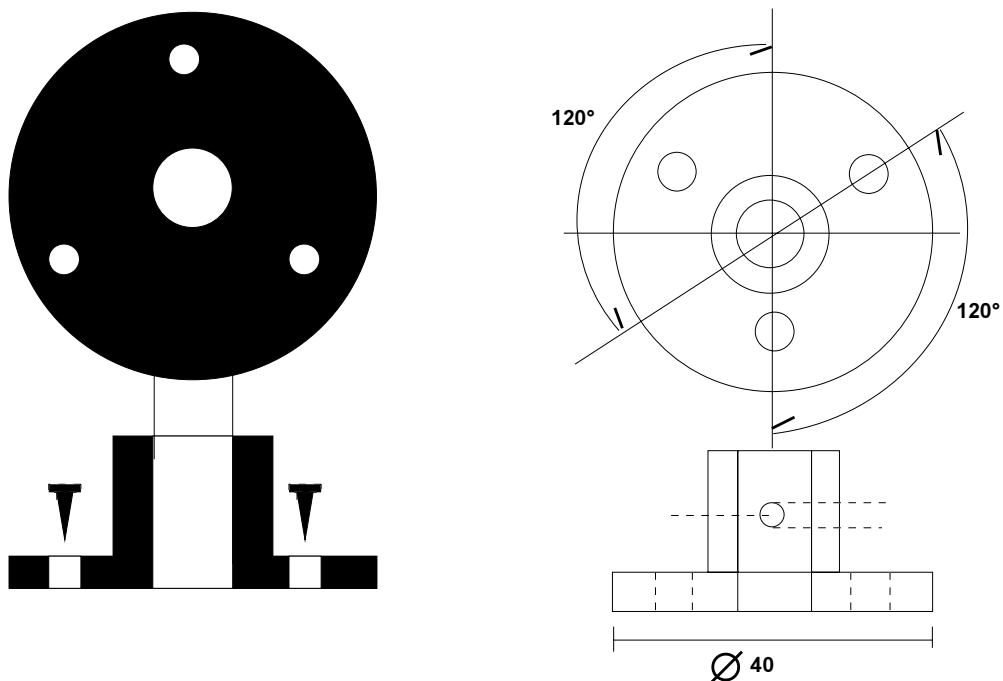


OPERATION

Point the IR transmitter RCU800 or RCU800U at the front side of the IR Remote Receiver 800 (face with window).

Refer to owner's manual of the respective projector or RCVDS800 for further instructions about the use of the IR remote control.

Mounting instructions:



Mount the fixing foot of the IR Remote Receiver on the wall by means of three screws.

Install the communication connection between IR REMOTE RECEIVER and the PROJECTOR 800 serie by means of the D9-D9 communication cable.

Parts listing R9827515

ITEM NO.	DESCRIPTION	QUANTITY	L 1	R3061341	CH AX NS 100 UH	1
R593082	BOX201 245X 130X130 4RB	1	PC	R780014	PCB PJ49 800 DSPL IR1	1
R593229	LS FOAM 700X140X15	1	Q 1	R1314295	Q BC549B N SS TO92	
R593545	BAG ASTSH 203X 305	1	Q 2	R1314295	Q BC549B N SS TO92	
R5975174	MAN INSPJ49 IR RX	1	Q 3	R1314295	Q BC549B N SS TO92	
R7617625	UN DSPL PJ49 G800 IR UNV	1	Q 4	R1314295	Q BC549B N SS TO92	

Parts listing 76 17625

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
142	R3621195	SCR D7985 M 2.5X 10 STZB	3
131	R362188	SCR D916 M 3 X 4 STBK	3
141	R362188	SCR D916 M 3 X 4 STBK	3
143	R366110	NUT D934 M 2.5 STZN	3
150	R593526	BAG PE 160X 220X0.06 WL	1
110	R721800	WDW IR REC+DIS RCVDS	1
	R761620	UN RX EP49 RCVDS800 IR	1
130	R800738	HSGEP RCVDS3 IR RX FIX	1
140	R800739	HSGEP RCVDS3 IR RX FIX	1
120	R800740	HSGEP RCVDS3 IR RX FLX	1
100	R802926	HSG49C DSPL HSG	1

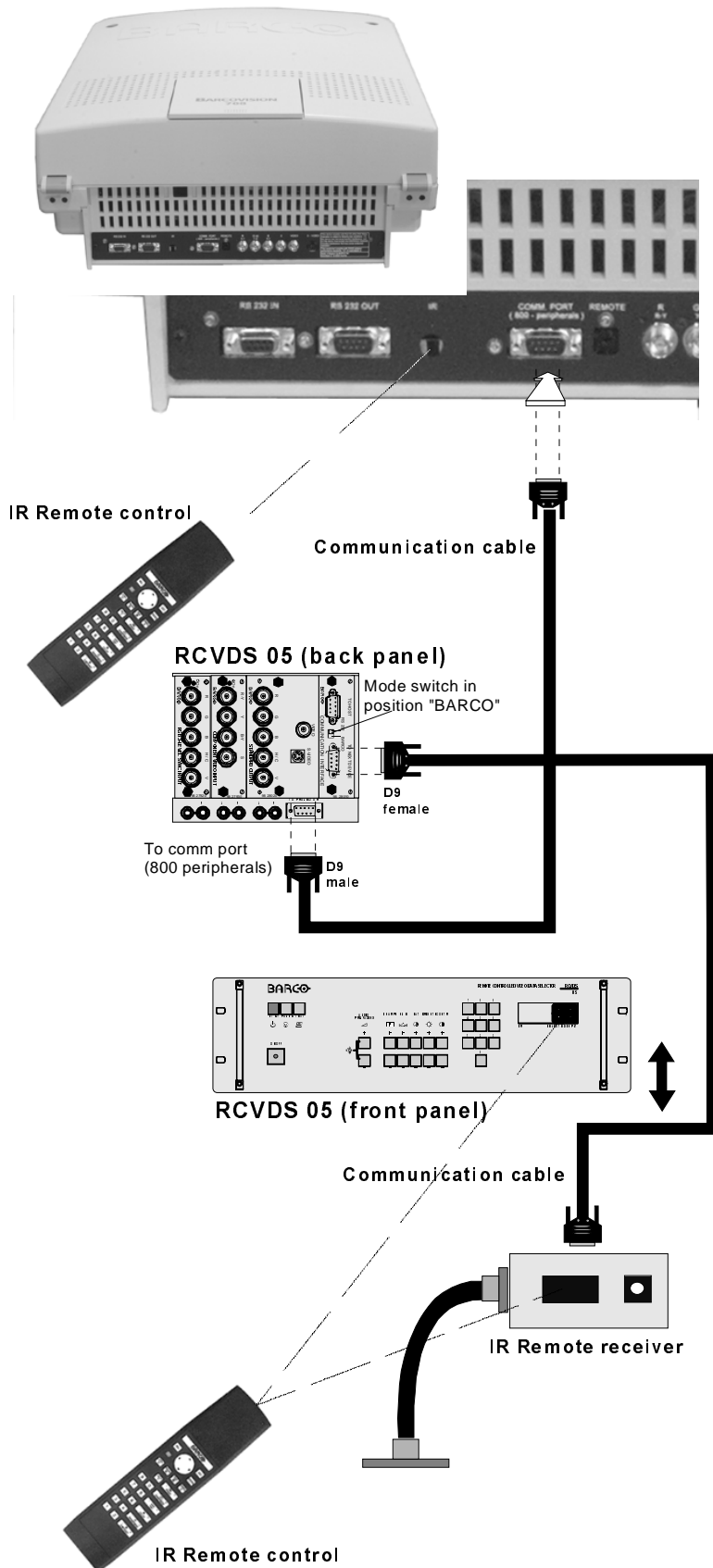
C 10	R111531	C EL RA 10M M 35E2 85	
C 11	R113730	C POMERA 330N K 63E2 85	
C 12	R113730	C POMERA 330N K 63E2 85	
C 13	R111468	C EL RA 470M Z 16E2 85	1
C 14	R112741	C CE MI 1N5K100E2	
C 15	R111486	C EL RA 47M M 50E2 85	
C 16	V1127830	C X7R MU 100N K 50E2 125	
C 17	R112242	C NP0 MI 100P G100E2	
D 1	R131685	LED 1DIG CA RD H 7.62	1
D 2	R131685	LED 1DIG CA RD H 7.62	1
D 10	R131950	D BYV27-150 AR SOD57	1
D 11	R131621	D S 1N4148 075150 DO35	
D 12	R131621	D S 1N4148 075150 DO35	
D 13	R131621	D S 1N4148 075150 DO35	
D 14	R131621	D S 1N4148 075150 DO35	
D 15	R131621	D S 1N4148 075150 DO35	
D 16	R131621	D S 1N4148 075150 DO35	
D 17	R1316361	D Y BAT85 030200 DO34	
I 1	R132825	U 1064 SAA DIP24 P	1
I 5	R134032	U 78L05AC TO92 P	1
I 6	R137625	U 34063 DIP8 P	1
I 7	R137516	U 74LS242 DIP14 P	1
J 1	R313284	J CIS MBS P 1 L6.2 RL	
J 2	R313284	J CIS MBS P 1 L6.2 RL	
J 3	R313284	J CIS MBS P 1 L6.2 RL	
J 4	R313284	J CIS MBS P 1 L6.2 RL	
J 5	R313284	J CIS MBS P 1 L6.2 RL	
J 6	R313284	J CIS MBS P 1 L6.2 RL	
J 7	R313284	J CIS MBS P 1 L6.2 RL	
J 13	R3135015	J DE P8 FBS P9 FUMBLPGDB	1
J 14	R313924	J CT H MBT P 4 M2SN WH	1

R 10	R101524	R MF H100E F 0W4 E3	
R 11	R101524	R MF H100E F 0W4 E3	
R 12	R101524	R MF H100E F 0W4 E3	
R 13	R101547	R MF H 8K2 F 0W4 E3	
R 14	V1026173	R MF H 1E5 F 0W6 E4	
R 15	R101541	R MF H 2K7 F 0W4 E3	
R 16	R101520	R MF H 47E F 0W4 E3	
R 17	R101558	R MF H 68K F 0W4 E3	
R 18	R101548	R MF H 10K F 0W4 E3	
R 19	R101548	R MF H 10K F 0W4 E3	
R 20	R101548	R MF H 10K F 0W4 E3	
R 21	R101560	R MF H100K F 0W4 E3	
R 22	R101534	R MF H680E F 0W4 E3	

Parts listing 76 1620

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
1	R805067	FRM52 RX IR SCRNFRL	1
	R761620D	CD CT FTMS P 4 130	1
C 2	R115940	C PP RA 10N J 63E2 85	1
C 3	R1159181	C PP RA 1N2J100E2 85	1
C 8	R1115915	C EL5 RA 4M7M 35E2 85	1
C 11	R111476	C EL RA 47M M 25E2 85	1
C 12	R1127741	C Z5U MU 100N Z 50E2 85	1
D 2	R131744	D ZEN 5V6 0W5 C DO35	1
D 4	R131681	D O BPW41N PIN	1
I 1	R132824	U 2800 TBA DIP14 P	1
L 1	R3061582	CH AX NS 1.5 MH	1
PC	R716581	PCDEP49 RCVDS800 RX IR	1
R 9	R101560	R MF H100K F 0W4 E3	1
R 10	R101520	R MF H 47E F 0W4 E3	1

Interconnection diagram



PIN CONFIGURATION

RS232 IN

- 1 --
- 2 PC_TxD (Transmit DATA)
- 3 PC_RxD (Receive DATA)
- 4 PC_CTS (Clear To Send)
- 5 ground
- 6 --
- 7 --
- 8 PC_DTR (Data Terminal Ready)
- 9 --

COMMUNICATION PORT

- 1 RCVDS_PPM (Pulse Position Mod.)
- 2 RCVDS_TxD (Transmit DATA)
- 3 RCVDS_RxD (Receive DATA)
- 4 +9V.I
- 5 ground
- 6 RCVDS_SCL (Serial Clock line)
- 7 RCVDS_RDY (Ready)
- 8 ++30V
- 9 ground

RCVDS 05

REMOTE PROJECTOR

- 1 RCVDS_PPM OUT (Pulse Position Mod.)
- 2 RCVDS_TxD (Transmit DATA)
- 3 RCVDS_RxD (Receive DATA)
- 4 +9V
- 5 ground
- 6 RCVDS_SCL IN (Serial Clock line)
- 7 RCVDS_RDY OUT (Ready)
- 8 ++30V
- 9 ground

EXTENSION

- 1 RCVDS_PPM IN (Pulse Position Mod.)
- 2 RCVDS_RxD (Receive DATA)
- 3 RCVDS_TxD (Transmit DATA)
- 4 +9V
- 5 ground
- 6 RCVDS_SCL OUT (Serial Clock line)
- 7 RCVDS_RDY IN (Ready)
- 8 ++30V
- 9 ground

IRREMOTE RECEIVER

- 1 RCVDS_PPM (Pulse Position Mod.)
- 2 ground
- 3 SDA (Serial DATA line)
- 4 +9V
- 5 ground
- 6 RCVDS_SCL (Serial Clock line)
- 7 ground
- 8 ++30V
- 9 ground

REPLACEMENT OF A PICTURE TUBE

WARNING: CRT HANDLING

The picture tube encloses a high vacuum and care must be taken not to bump or to scratch the picture tube as this may cause the tube to implode resulting in personal injury and property damage. Shatterproof goggles must always be worn by individuals while handling the CRT or installing it in the projector.

Do not handle the CRT by the neck.

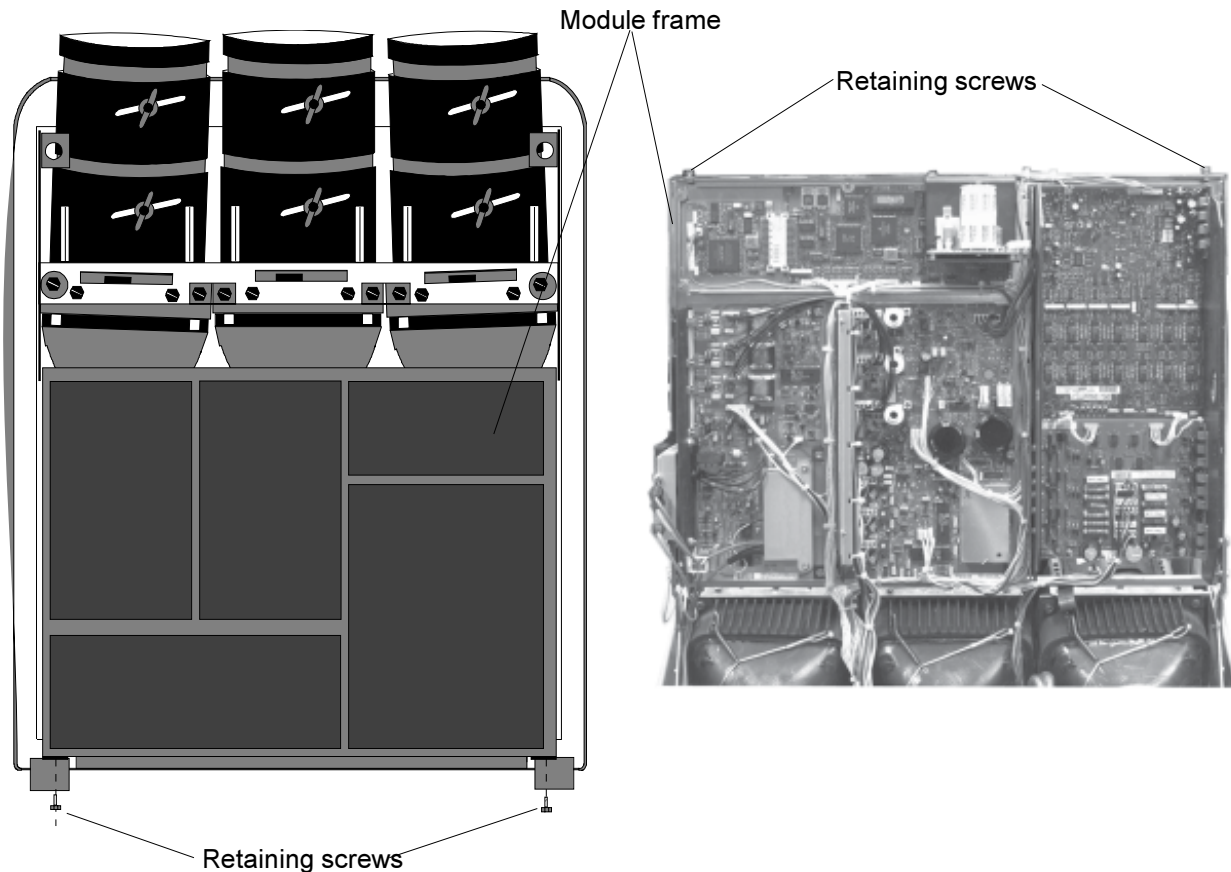
WARNING

TURN OFF THE PROJECTOR AND UNPLUG THE POWER CORD BEFORE PROCEEDING TO THE REPLACEMENT OF A PICTURE TUBE

I. Removing and disassembling the defective picture tube.

Getting Access to the picture tube

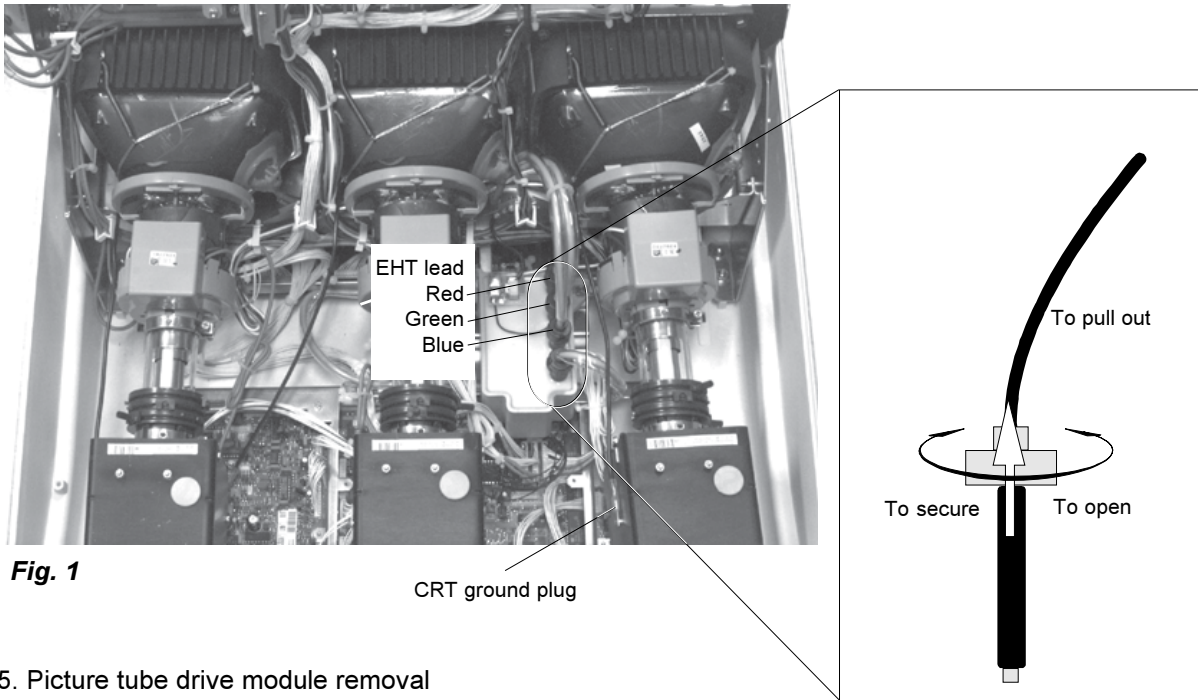
1. Remove the top cover of the projector (please refer to the projector installation manual).
2. Loosen the two locking screws of the module frame.
3. Open the module frame by pivoting it towards the front of projector.



Electrical disconnection

4. EHT lead disconnection

Pull out the EHT lead of the defective picture tube from the EHT splitter.

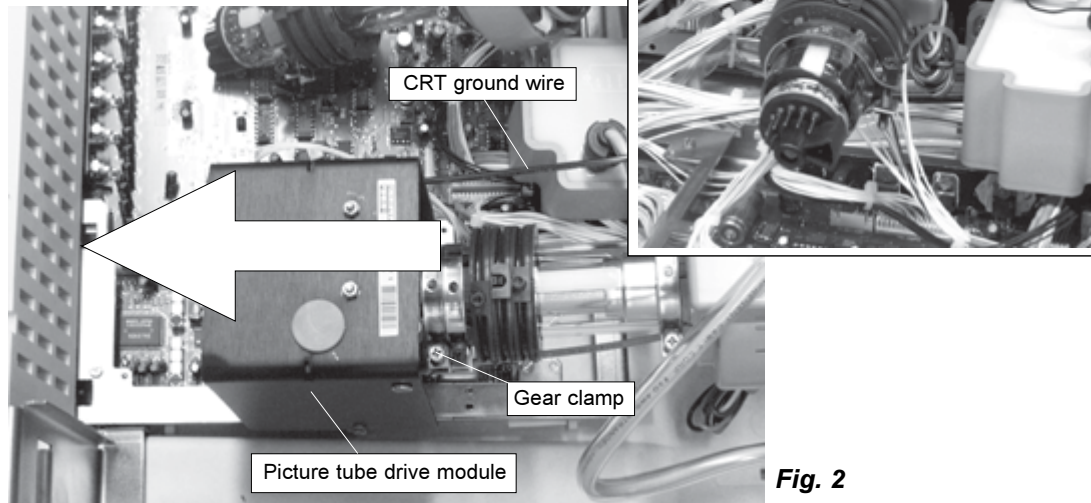


5. Picture tube drive module removal

Disconnect the CRT ground plug (black wire) of the defective picture tube.

Loosen the gear clamp of the Picture tube drive module.

Carefully pull the module back to slide the CRT socket off from the end of the CRT.



CRT unit removal

6. Remove the two bolts, holding the CRT unit to the CRT main frame.

Pull upwards the CRT unit while using a screw driver to push the CRT out of the clips at the bottom, to remove the CRT unit.

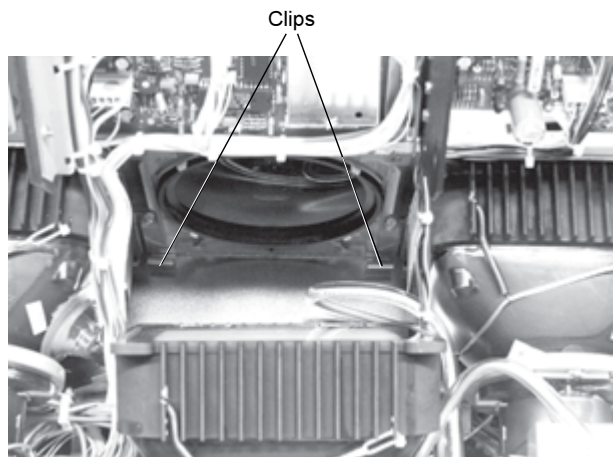
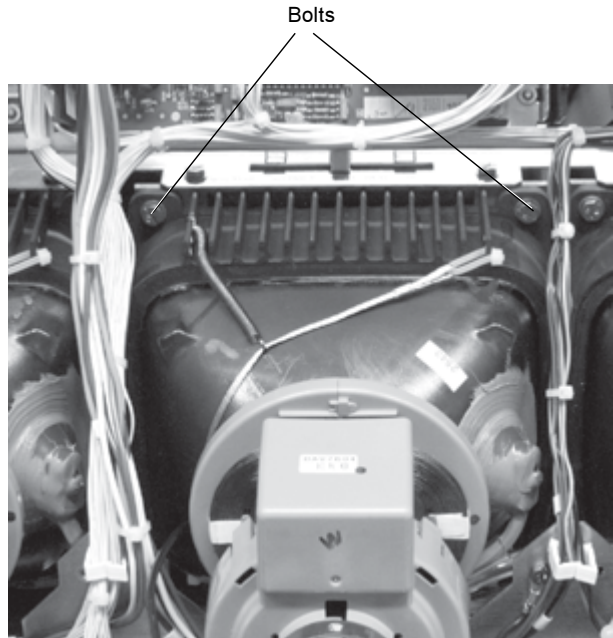
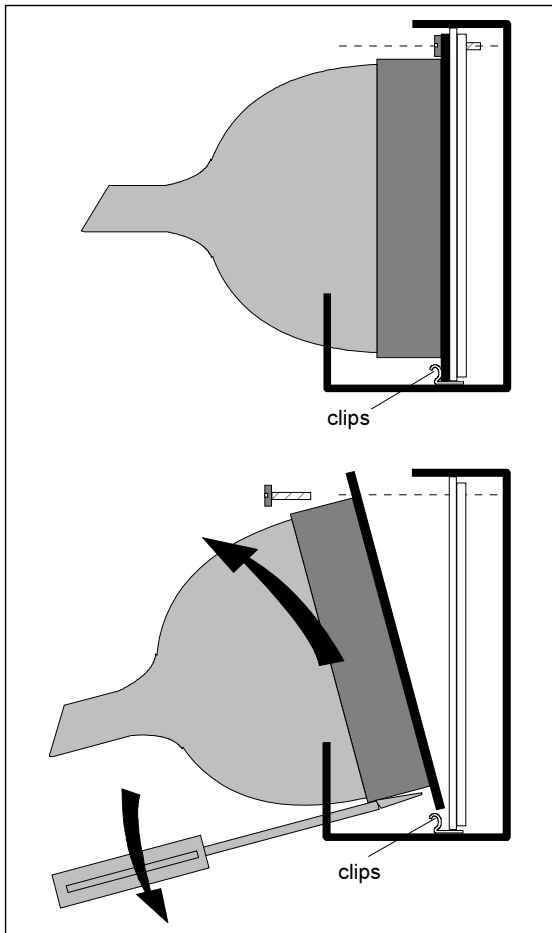


Fig. 3

Removing the deflection unit and the stigmator magnets

- Loosen the gear clamp of the stigmator magnets unit.
- Loosen the gear clamp of the deflection unit.
- Slide both units off from the end of the CRT.

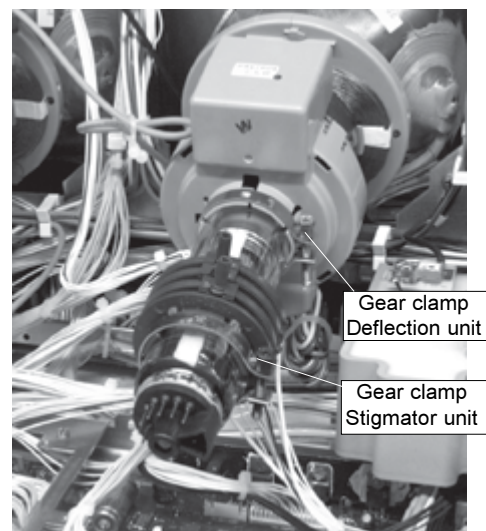
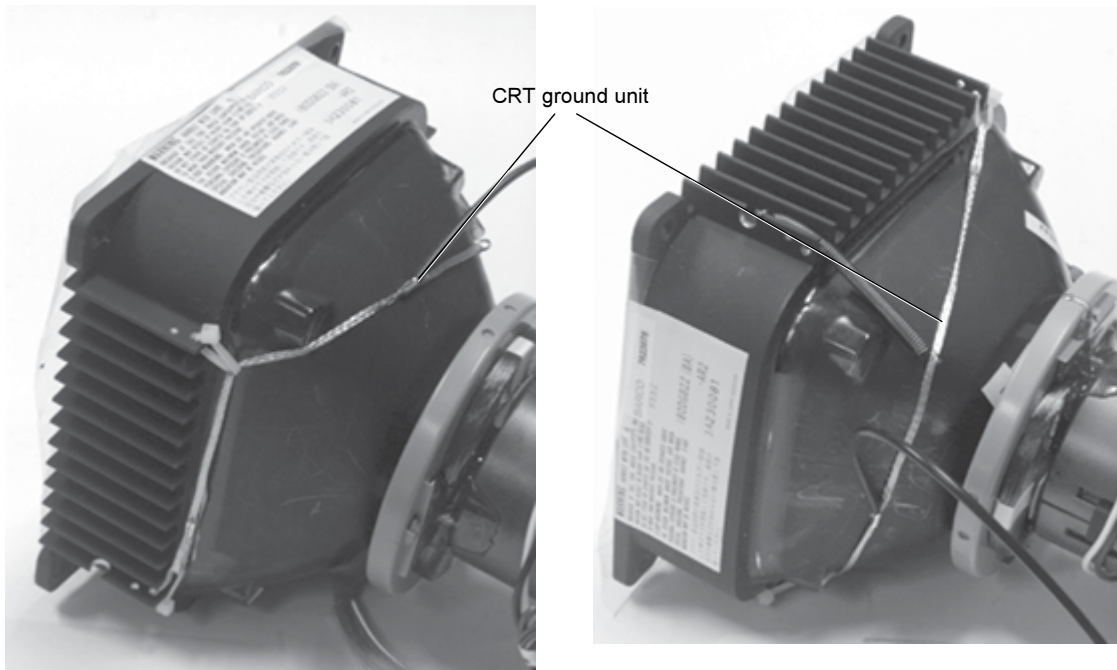


Fig. 4

II. Placement of the new picture tube.

1. Remove the CRT ground unit from the defective picture tube and reinstall it on the new picture tube.



2. Reinstall the two units, stigmator and deflection yoke, on the picture tube neck and secure the respective gear clamp (see Fig. 4).
3. Place the picture tube unit correctly on its two clips and push it downwards to fit. Secure the position with the two bolts (see Fig. 3).
4. Plug in the EHT lead of the installed picture tube on the EHT splitter and lock the connector (see Fig. 1).
5. Push the CRT Socket module on the picture tube (see Fig. 2).

III. Picture tube alignment

Introduction

Before starting the alignment of the new picture tube, the projector must warm up for at least 15 minutes at a medium brightness and contrast.

If a set of three tubes must be replaced, it is advisable to start with the replacement of the red and blue tubes first, and using the green as the reference.

Proceed then with the replacement of the green tube, using now one of the other colors tubes as the reference.

A. Replacement of a complete set of three tubes

Apply an external crosshatch pattern at 15 kHz or use the internal crosshatch.

Align the optical and electrical focus of the tube.

Rotate the deflection yoke until the horizontal lines of the crosshatch are levelled on the screen.

Tighten now carefully the screw of the gear clamp of the deflection yoke.

Center the picture on the CRT faceplate (refer to explanation 'Raster centering').

Note: alignment of the stigmators will change again its position, if so, realign raster centering.

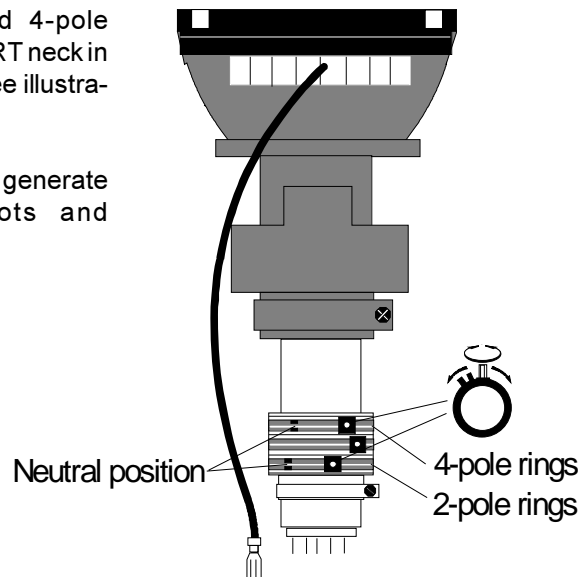
B. Replacement of one or two tubes

In such case, the remaining tube can be used as the reference for centering and positioning of the new tubes.

C. Adjustments applicable to the three tubes

Preparation

- Proceed to quick optical lens focusing (please refer to the projector installation manual).
- Adjust the 2-pole and 4-pole magnetic rings on the CRT neck in their neutral position (see illustration on next page).
- Select a source that will generate a field of small dots and crosshairs.

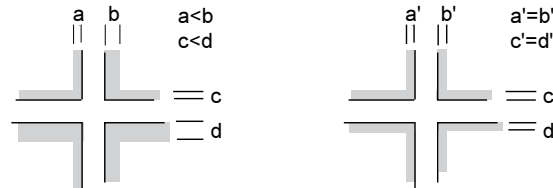


Adjustment of the stigmators (4-pole magnet ring closest to the deflection yoke)

- Lower the brightness and increase the contrast.
- Overdrive the midpoint focus by adjusting the lens focusing for the respective CRT.
- Adjust the four pole rings until the defocused dots are circular.
- Realign the electrical and optical focus.
- Reposition the raster as described earlier.
- Due to mutual influence between the stigmators, focus and centering, it is advised to repeat above a couple of times.

Adjustment of the 2-pole magnets (the rings closest to the CRT socket)

- Underdrive the electronic focus by adjusting the left arrow key of the RCU for the respective CRT.
- Adjust the 2-pole magnets rings by rotating one or both up to a point where the 'shading' of both sides of the vertical and horizontal lines is equal (see figure).



- Realign the electrical and optical focus.
- Repeat the alignment of the stigmators if necessary, as both adjustments (stigmator and 2-pole magnets) influence each other.

Re-alignment of the image width coil(s)

- Decrease the contrast and increase the brightness to reveal the background raster.
- Refer to sheet 'Deflection module R762447' in this manual for the alignment of the image width coils.

Note:

When only one tube has been replaced, you can use the image width of one of the other tubes as a reference, and obviously limit the adjustment to the core of the corresponding replaced tube.

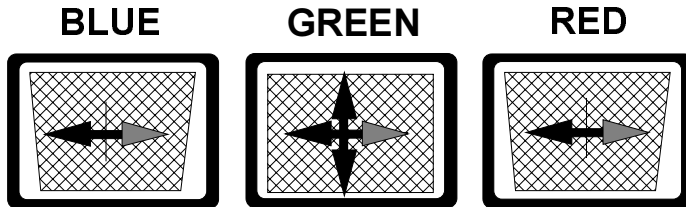
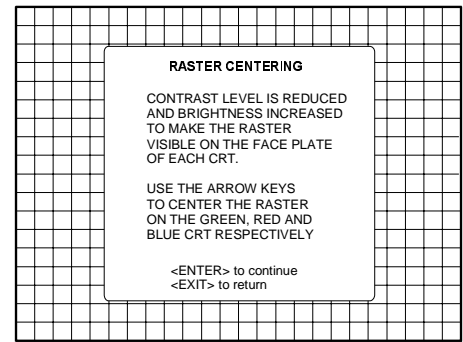
D. Raster centering

The raster must be centered on the CRT screen surface of each tube, therefore, it is necessary to look into the lenses.

Raster centering controls (please refer to the projector installation manual).

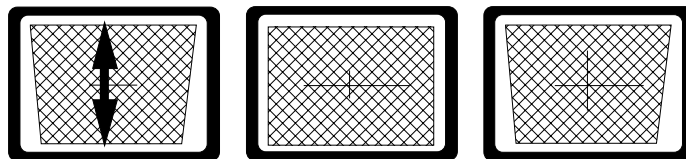
Picture movement when adjusting the arrow keys to center the **GREEN RASTER**

NOTICE: the RED and Blue raster are tracked with the GREEN raster horizontally.



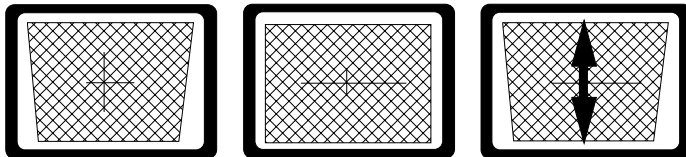
To center the **RED raster VERTICALLY**, press "ENTER"

Center the raster vertically, using the arrow keys of the RCU 'up' and 'down'



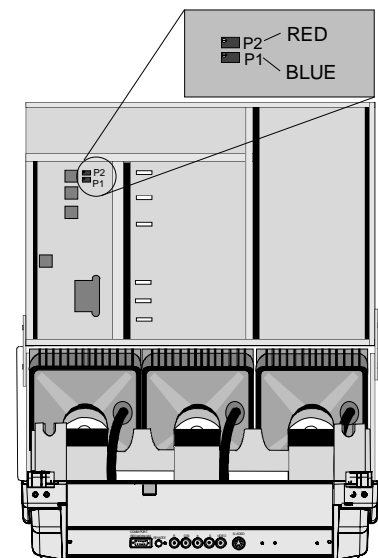
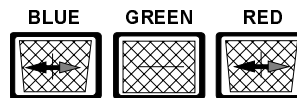
To center the **BLUE raster VERTICALLY**, press "ENTER"

Center the raster vertically, using the arrow keys of the RCU 'up' and 'down'



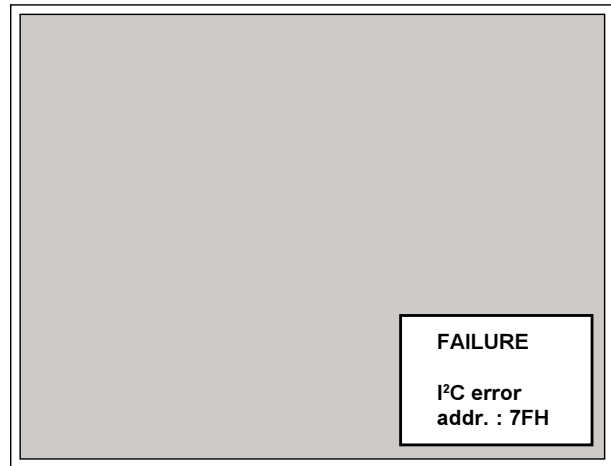
Additional HORIZONTAL corrections for the RED and BLUE raster after picture tube replacement only.

(Two multiturn potentiometers are provided on the module 'Focusing+Shift')



I²C error is displayed on the screen together with the respective address, as illustrated on screen picture:

The table below indicates which IC corresponds to the displayed address . Replacement of the indicated IC solves the I²C error.



Convergence module (Driver) R762454 - Green convergence sub module R7625128

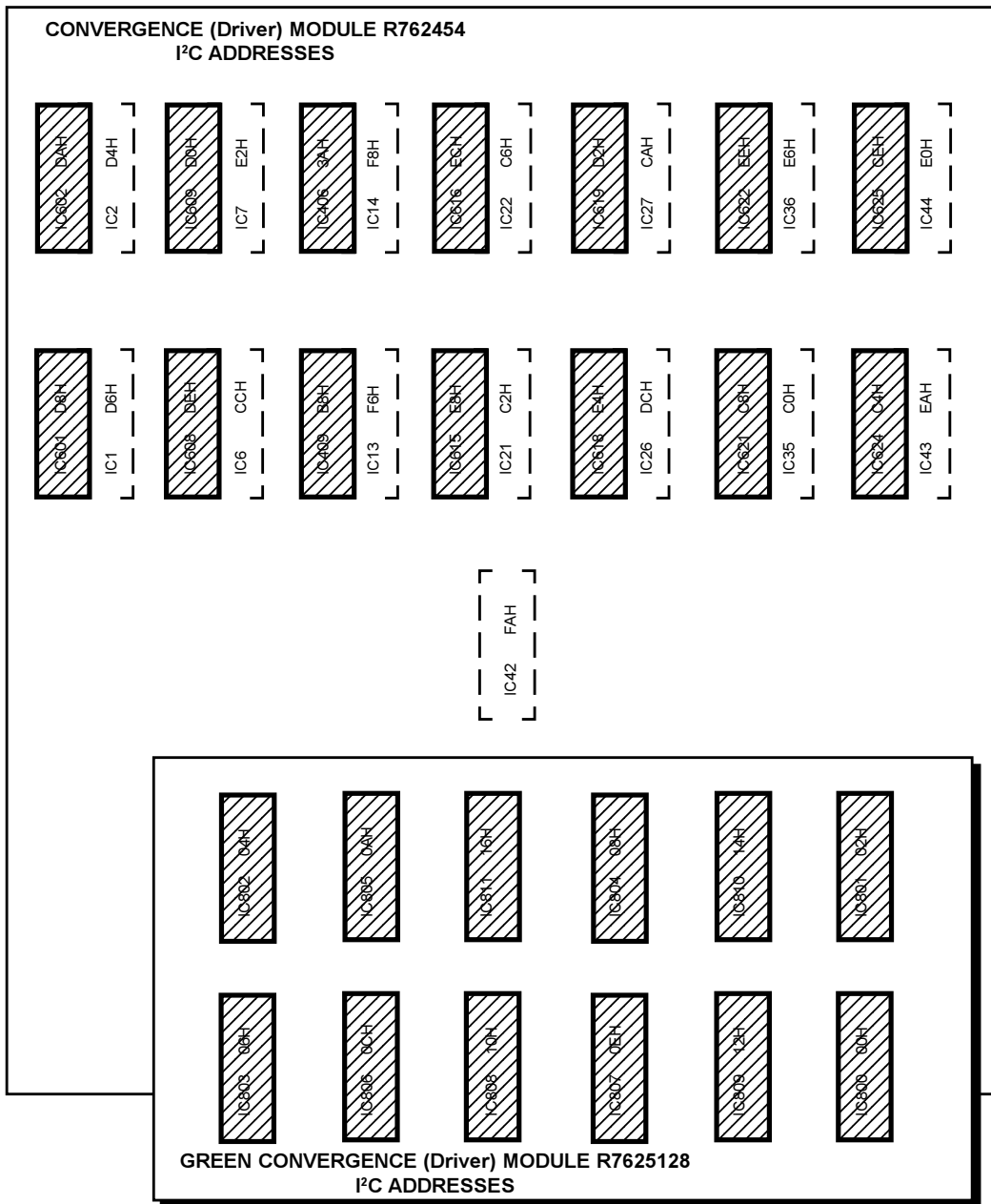
Convergence zones

1	2	3	4	5
6	7	8	9	10
11	12		13	14
15	16	17	18	19
20	21	22	23	24

E2H	IC7	18
E4H	IC618	19
E6H	IC36	20
E8H	IC615	21
EAH	IC43	22
ECH	IC616	23
EEH	IC622	24

HEX address	IC CORRECTION Red/Blue vert./hor.	ZONE
C0H	IC35	1
C2H	IC21	2
C4H	IC624	3
C6H	IC22	4
C8H	IC621	5
CAH	IC27	6
CCH	IC6	7
CEH	IC625	8
D0H	IC609	9
D2H	IC619	10
D4H	IC2	11
D6H	IC1	12
D8H	IC601	13
DAH	IC602	14
DCH	IC26	15
DEH	IC608	16
E0H	IC44	17

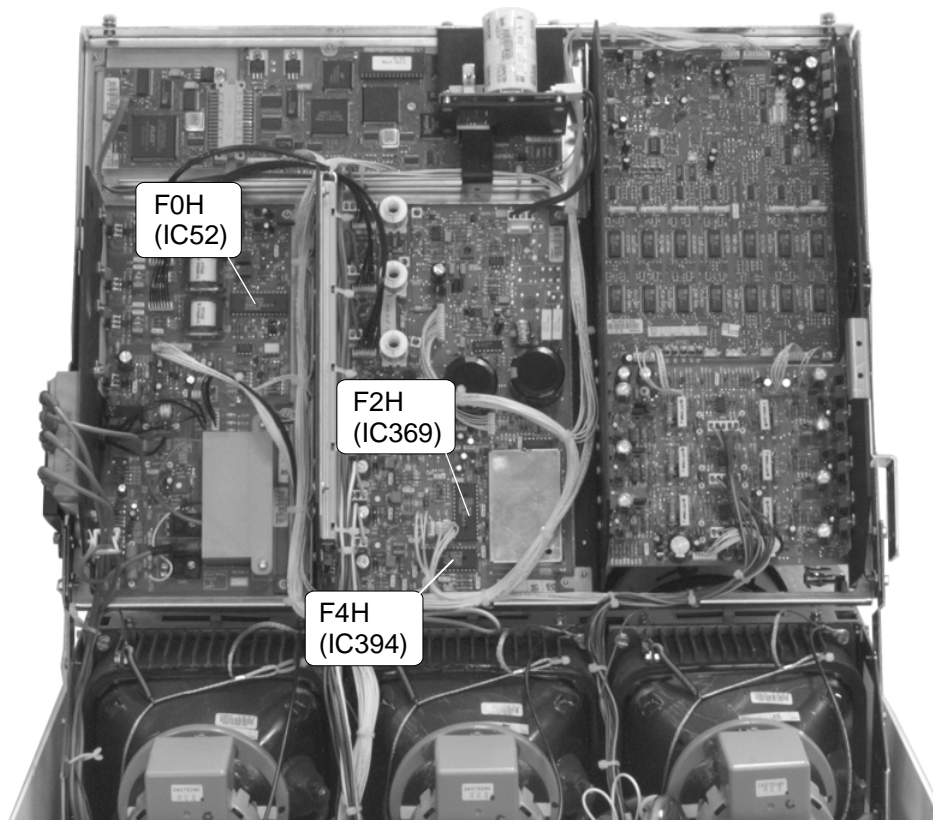
HEX address	IC CORRECTION Green vert./hor.	ZONE
00H	IC800	22
		3
02H	IC801	8
		17
04H	IC802	13
		12
06H	IC803	14
		11
08H	IC804	6
		15
0AH	IC805	7
		16
0CH	IC806	9
		18
0EH	IC807	19
		10
10H	IC808	4
		23
12H	IC809	5
		24
14H	IC810	20
		1
16H	IC811	2
		21



HEX address	IC	CORRECTION	HEX address	IC	CORRECTION
F6H	IC13	left keystone right keystone left bow right bow	B8H	IC409	coarse convergence RED vertical corners BLUE vertical corners RED horizontal sides BLUE horizontal sides
F8H	IC14	top keystone bottom keystone top bow bottom bow	FAH	IC42	horizontal midline bow horizontal midline skew vertical midline bow vertical midline skew
3AH	IC406	N_S Seagull E_W Seagull			

Horizontal and Vertical deflection module R762447

ADDRESS _{HEX}	IC	CORRECTION	ADDRESS _{HEX}	IC	CORRECTION
F2 H	IC394	Vert Coarse Shift Red Vert Fine Shift Red Vert Coarse Shift Green Vert Fine Shift Blue	F4 H	IC369	Vertical Amplitude Vertical Linearity Horizontal Amplitude Vert Coarse Shift Blue

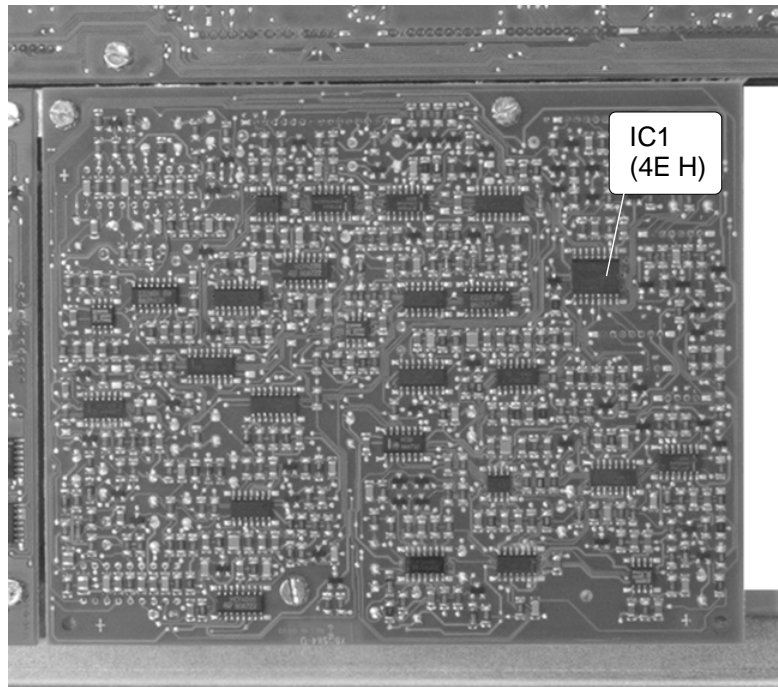


Horizontal Shift+Focus module R762450

ADDRESS _{HEX}	IC	CORRECTION
F0 H	IC52	Horizontal Shift Red Horizontal Shift Green Horizontal Shift Blue

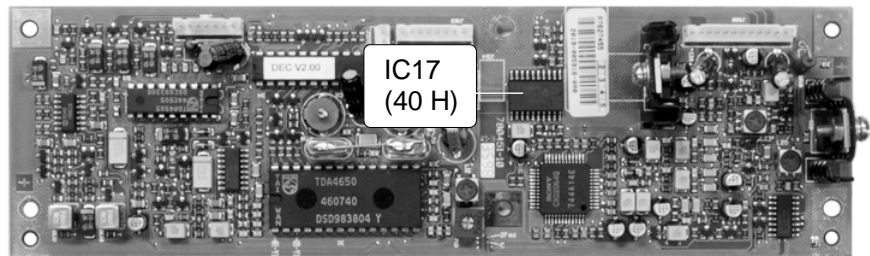
Synchronisation module R7624895 (or R7624896)

ADDRESS _{HEX}	IC	CORRECTION
4E H	IC1	Blanking Right Blanking Left Blanking Bottom Blanking Top Hor Phase



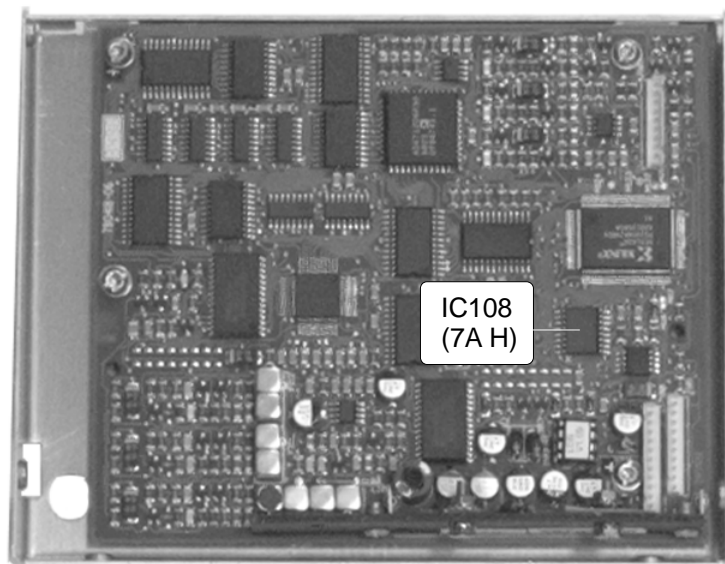
QUAD Decoder module R7627455 (or R7627452)

ADDRESS _{HEX}	IC	CORRECTION
40 H	IC17	SHARP_en Sharpness control



Line Doubler module R7625625 (Option)

ADDRESS _{HEX}	IC	CORRECTION
7A H	IC108	LIDO control

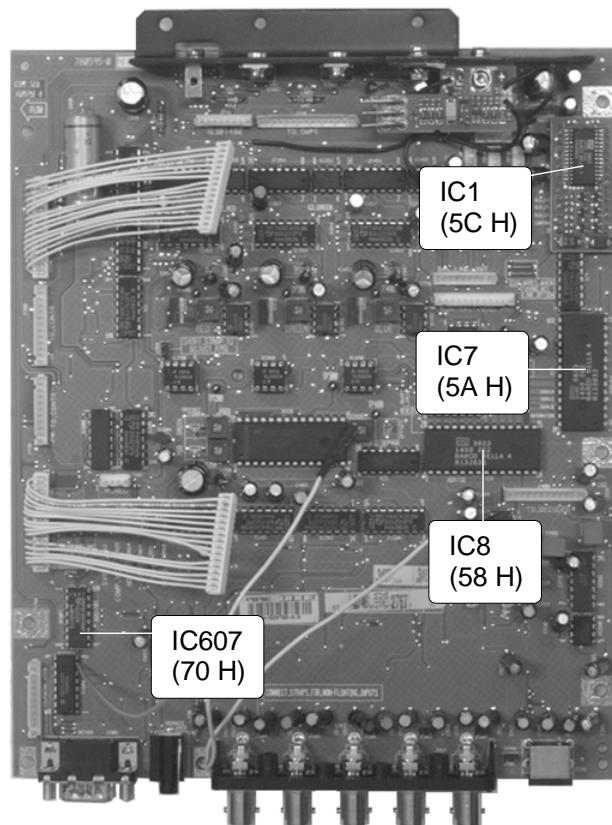


RGB Input+Drive module R7627661

ADDRESS _{HEX}	IC	CORRECTION	ADDRESS _{HEX}	IC	CORRECTION
5A H	IC7	White Balance Red White Balance Green White Balance Blue Saturation control	70 H	IC607	Color switching Fast/Slow Peaking Off/On Source Selection
58 H	IC8	Brightness control Tint (Hue) control IBCL control ABL On/Off			

Sub-unit BELLA protection R762228S

ADDRESS _{HEX}	IC	CORRECTION
5C H	IC1	Black balance R Black balance G Black balance B Contrast control



RGB Input+Drive module R7627665

ADDRESS _{HEX}	IC	CORRECTION	ADDRESS _{HEX}	IC	CORRECTION
5A H	IC600	White Balance Red White Balance Green White Balance Blue Saturation control	58 H	IC655	Brightness control Tint (Hue) control IBCL control ABL On/Off
5C H	IC652	Black balance R Black balance G Black balance B Contrast control	70 H	IC800	Color switching Fast/Slow Peaking Off/On Source Selection

