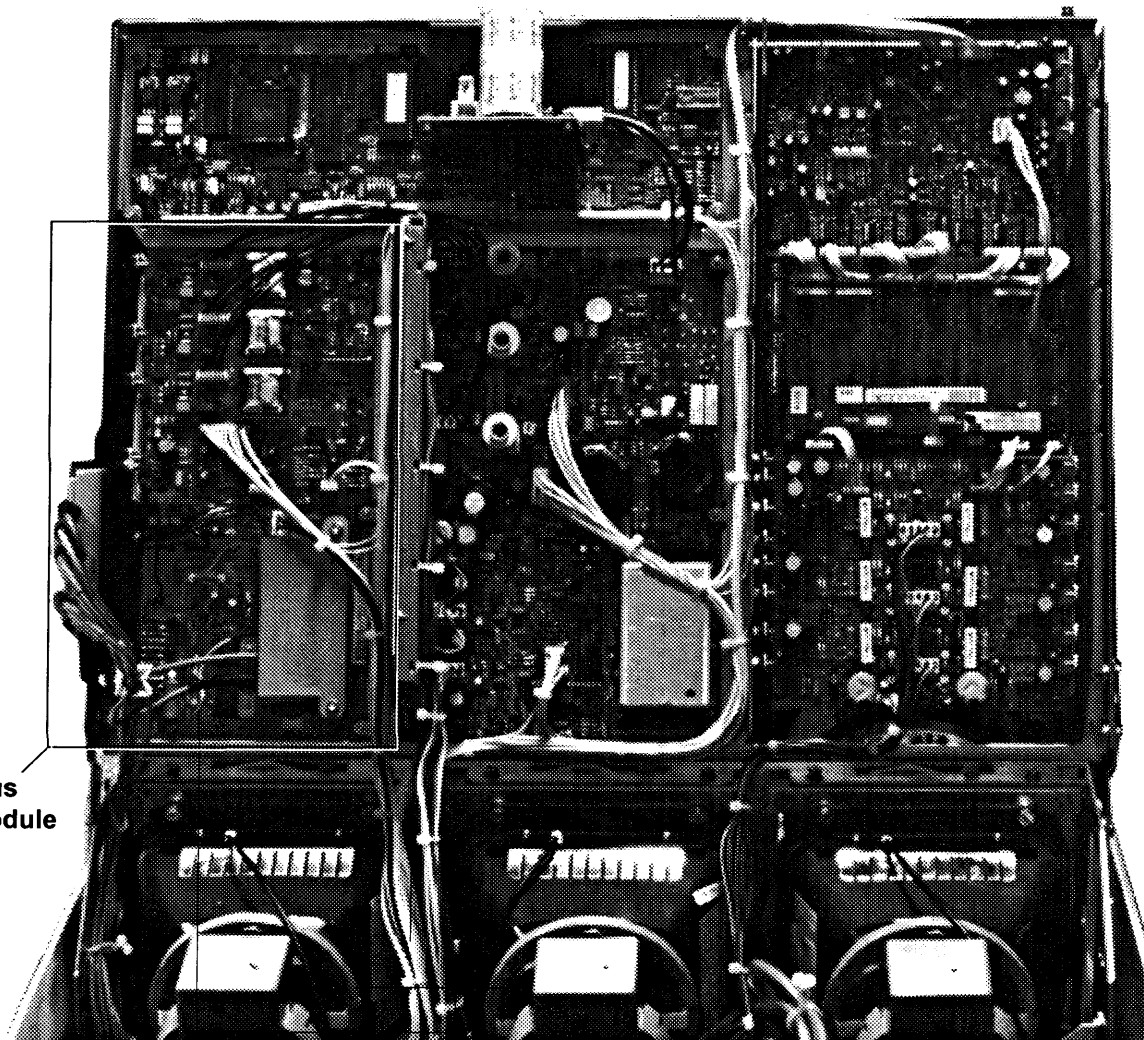




BARCO Projection Systems

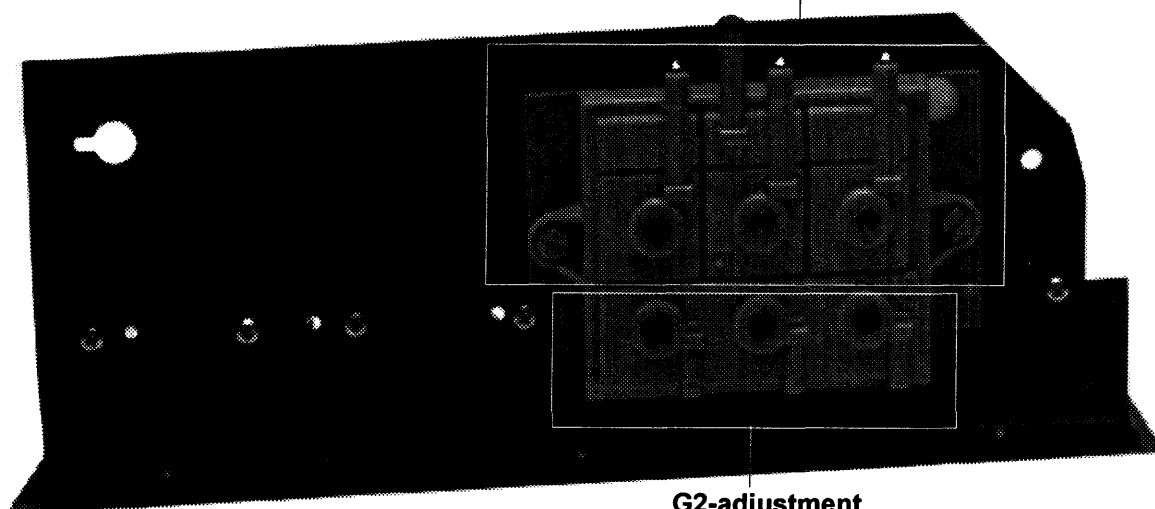
**SECTION I**

**service sheet**

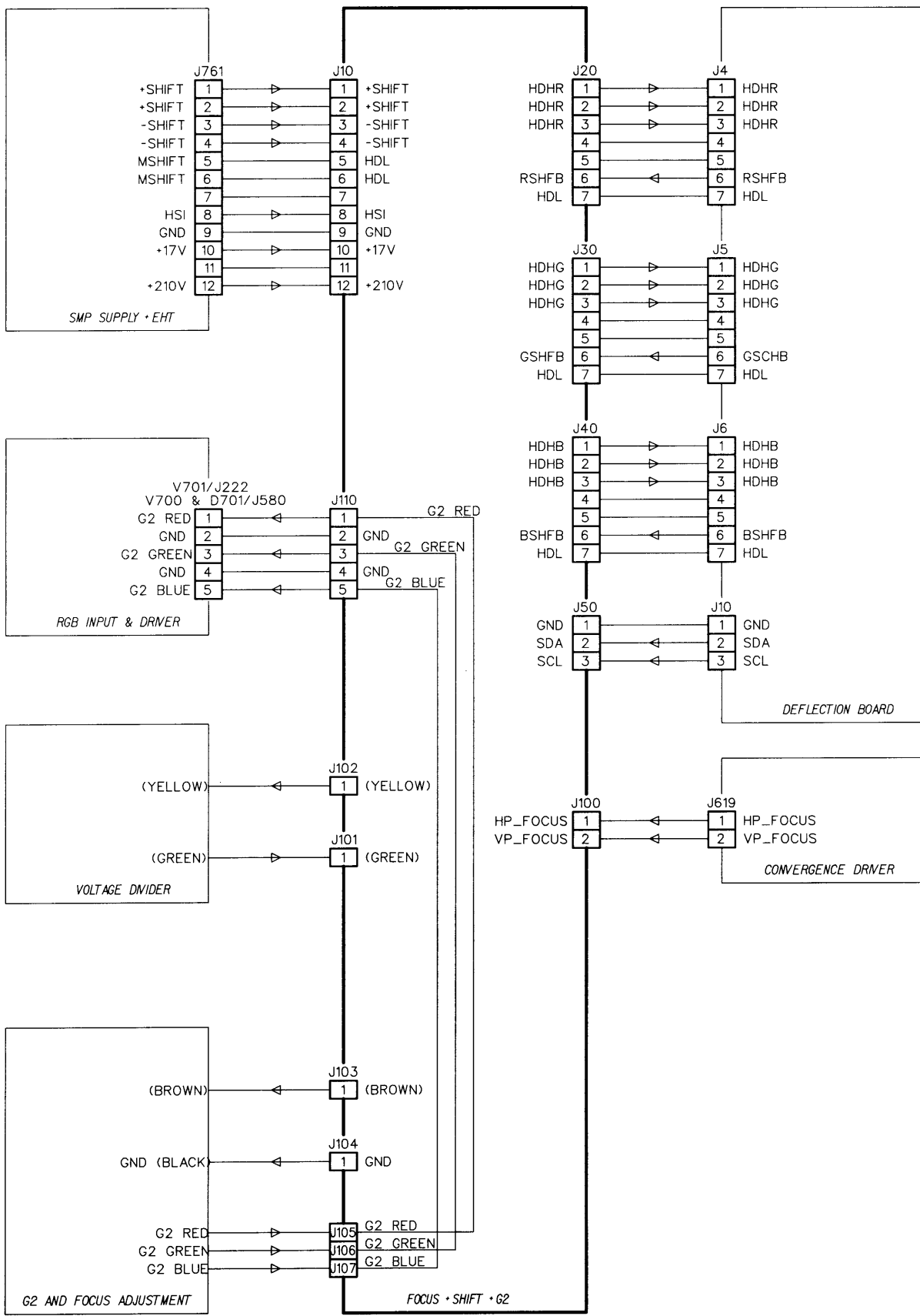


Shift+Focus  
control module

Focus control module



G2-adjustment



Name Interconnection		Article nr.
FOCUS + SHIFT + G2		76 2488
Date	Drawn	Checked
18-04-1995	JVDY	WBU

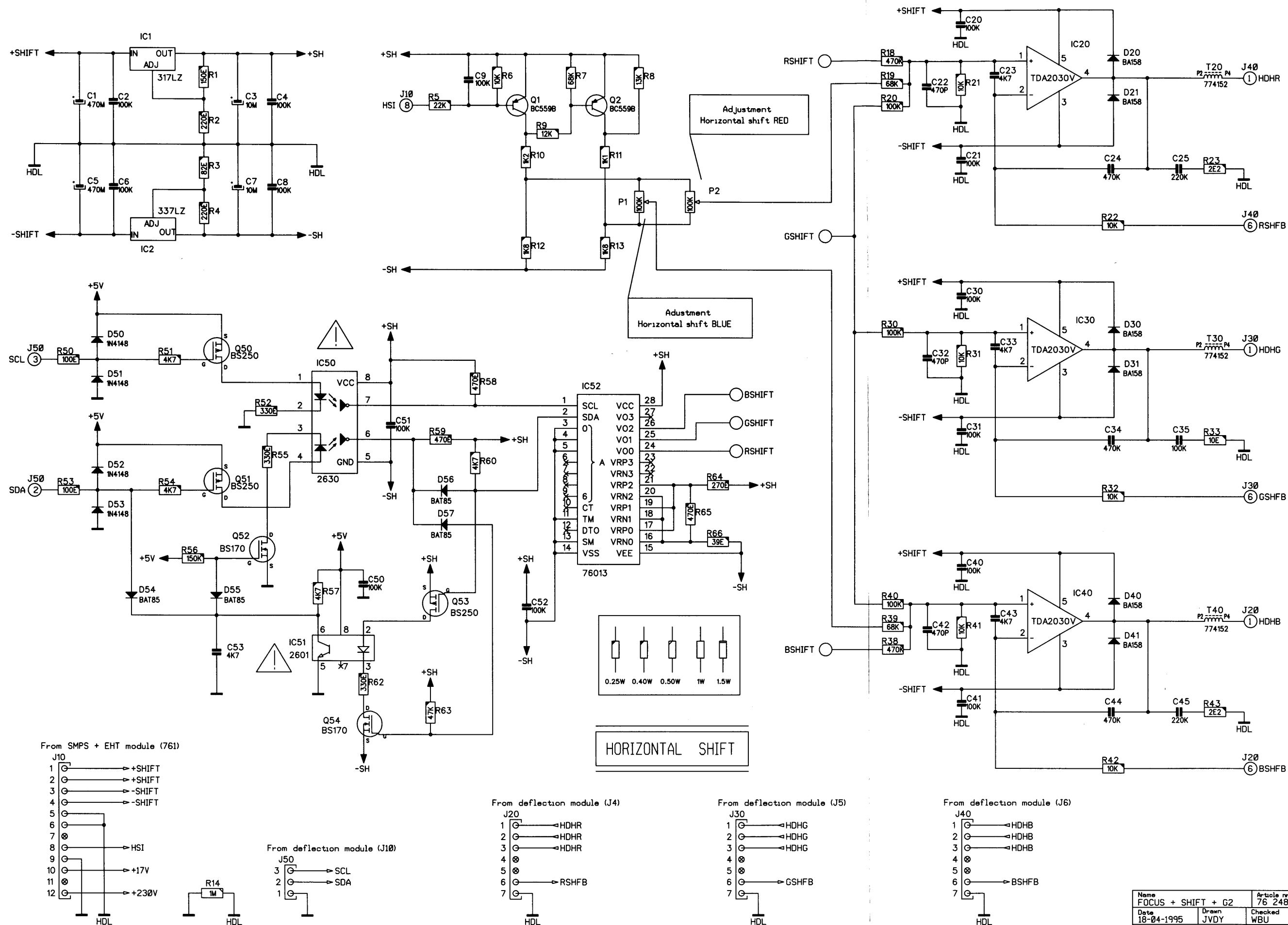
BARCO PROJECTION SYSTEMS

Modifications reserved

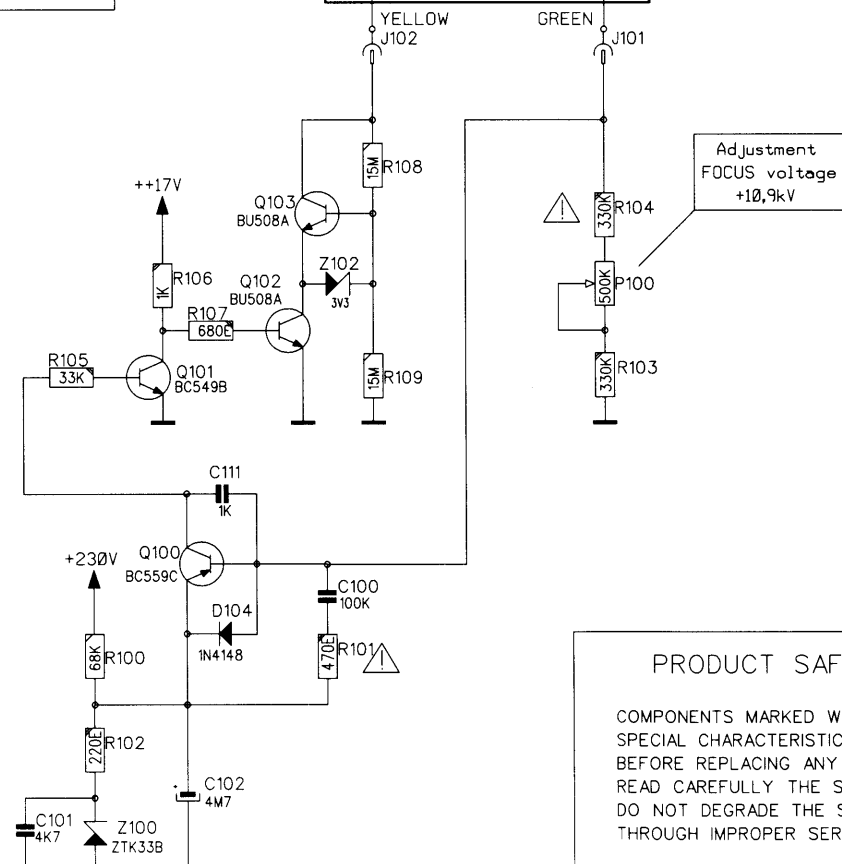
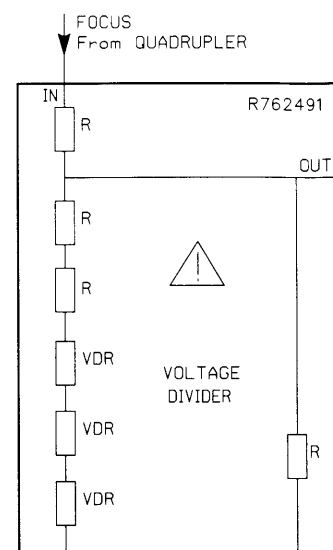
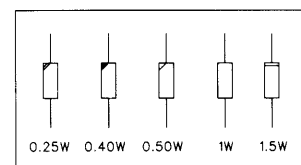






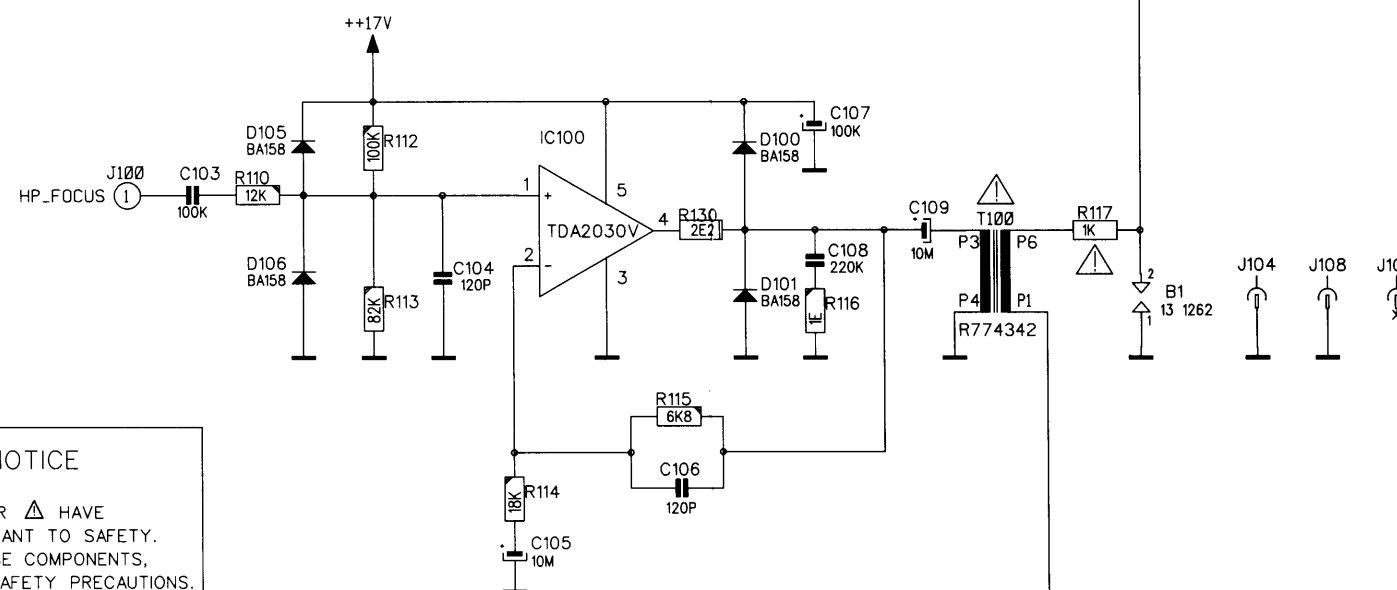
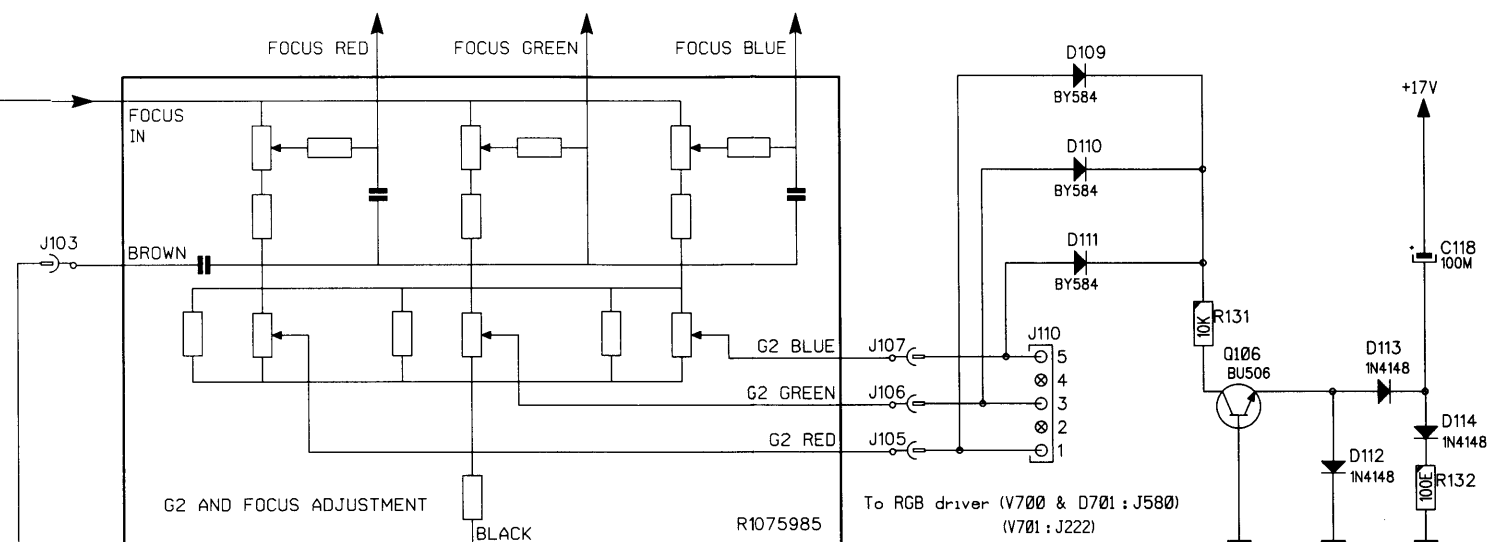
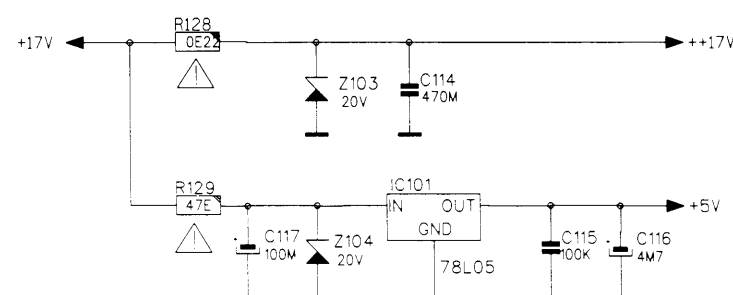


## ELECTRICAL FOCUS

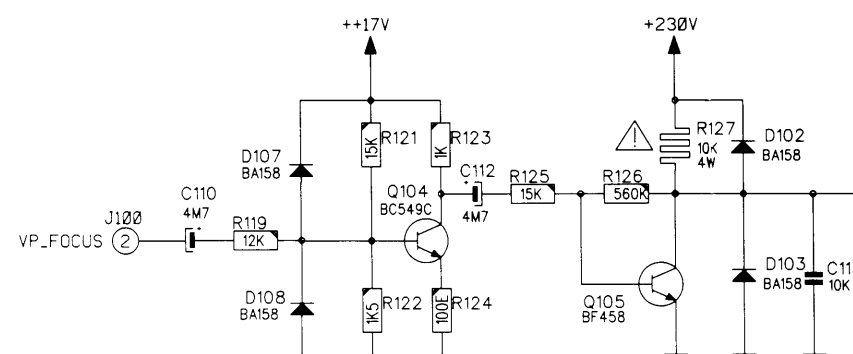


## PRODUCT SAFETY NOTICE

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 convergence driver (J619)  
J100  
1 → HP\_FOCUS  
2 → VP\_FOCUS



Name	FOCUS + SHIFT + G2	Article nr.	76 2488-2
Date	18-04-1995	Drawn	JVDY
		Checked	WBU
BARCO PROJECTION SYSTEMS			

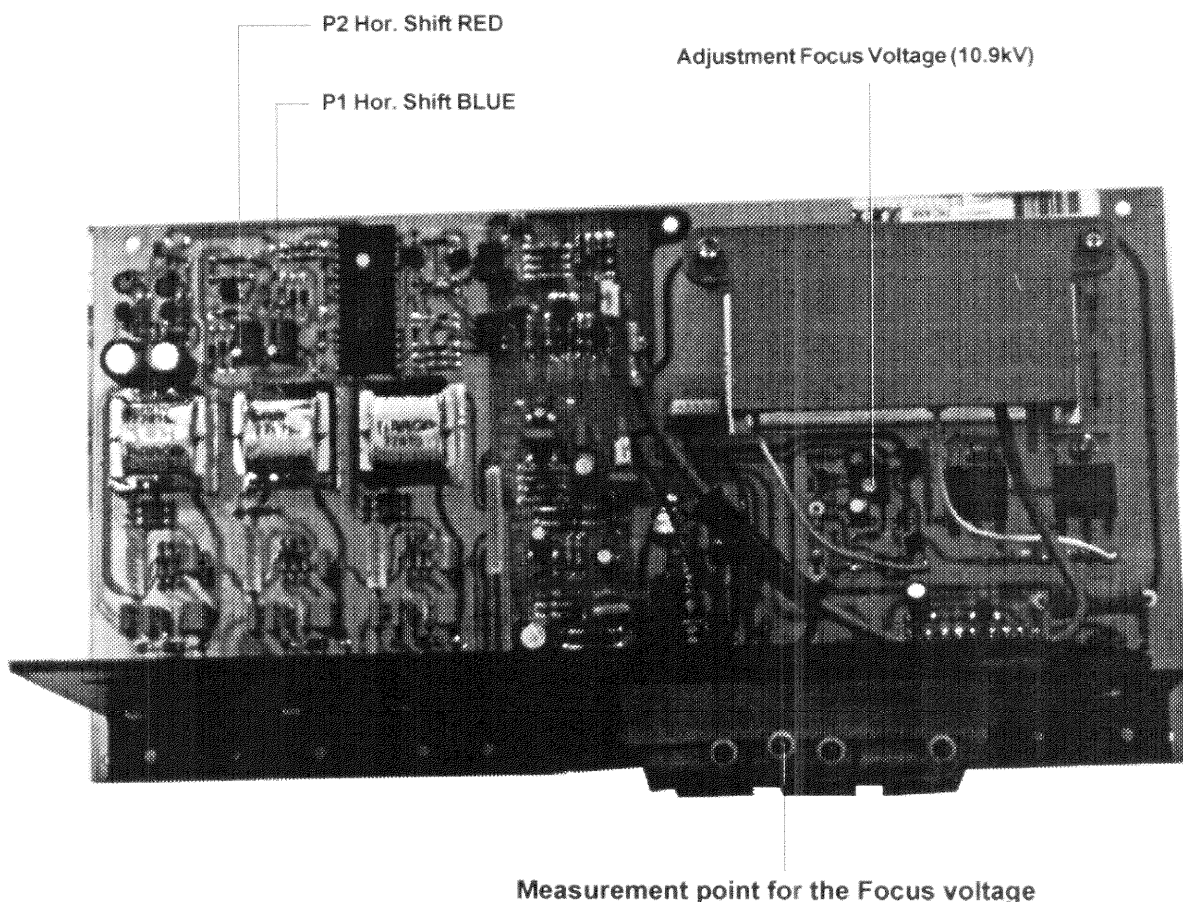


COMP.	LOC.	SHEET		COMP.	LOC.	SHEET	
B1	H 4	sheet	2	Q1	D 1	sheet	1
C1	A 1	sheet	1	Q2	D 1	sheet	1
C2	A 1	sheet	1	Q50	B 3	sheet	1
C3	B 1	sheet	1	Q51	B 4	sheet	1
C4	B 1	sheet	1	Q52	B 4	sheet	1
C5	A 2	sheet	1	Q53	C 4	sheet	1
C6	A 2	sheet	1	Q54	C 5	sheet	1
C7	B 2	sheet	1	Q100	B 4	sheet	2
C8	B 2	sheet	1	Q101	B 4	sheet	2
C9	C 1	sheet	1	Q102	B 3	sheet	2
C20	F 1	sheet	1	Q103	B 3	sheet	2
C21	F 2	sheet	1	Q104	E 6	sheet	2
C22	F 1	sheet	1	Q105	F 6	sheet	2
C23	G 1	sheet	1	Q106	H 2	sheet	2
C24	G 2	sheet	1	R1	B 1	sheet	1
C25	H 2	sheet	1	R2	B 1	sheet	1
C30	F 2	sheet	1	R3	B 2	sheet	1
C31	F 3	sheet	1	R4	B 2	sheet	1
C32	F 3	sheet	1	R5	C 1	sheet	1
C33	G 3	sheet	1	R6	D 1	sheet	1
C34	G 3	sheet	1	R7	D 1	sheet	1
C35	H 3	sheet	1	R8	D 1	sheet	1
C40	F 4	sheet	1	R9	D 1	sheet	1
C41	F 5	sheet	1	R10	D 2	sheet	1
C42	F 4	sheet	1	R11	D 2	sheet	1
C43	G 4	sheet	1	R12	D 2	sheet	1
C44	G 5	sheet	1	R13	D 2	sheet	1
C45	H 5	sheet	1	R14	B 6	sheet	1
C50	C 4	sheet	1	R18	F 1	sheet	1
C51	C 3	sheet	1	R19	F 1	sheet	1
C52	D 4	sheet	1	R20	F 1	sheet	1
C53	B 5	sheet	1	R21	F 1	sheet	1
C100	B 4	sheet	2	R22	G 2	sheet	1
C101	A 5	sheet	2	R23	H 2	sheet	1
C102	B 5	sheet	2	R30	F 3	sheet	1
C103	E 4	sheet	2	R31	F 3	sheet	1
C104	E 4	sheet	2	R32	G 4	sheet	1
C105	F 5	sheet	2	R33	H 3	sheet	1
C106	F 4	sheet	2	R38	F 5	sheet	1
C107	G 3	sheet	2	R39	F 4	sheet	1
C108	G 4	sheet	2	R40	F 4	sheet	1
C109	G 4	sheet	2	R41	F 4	sheet	1
C110	E 6	sheet	2	R42	G 5	sheet	1
C111	B 4	sheet	2	R43	H 5	sheet	1
C112	E 6	sheet	2	R50	A 3	sheet	1
C113	G 6	sheet	2	R51	B 3	sheet	1
C114	B 5	sheet	2	R52	B 3	sheet	1
C115	B 6	sheet	2	R53	A 4	sheet	1
C116	C 6	sheet	2	R54	B 4	sheet	1
C117	A 6	sheet	2	R55	B 3	sheet	1
C118	H 2	sheet	2	R56	B 4	sheet	1
D20	G 1	sheet	1	R57	C 4	sheet	1
D21	G 1	sheet	1	R58	C 3	sheet	1
D30	G 3	sheet	1	R59	C 3	sheet	1
D31	G 3	sheet	1	R60	C 3	sheet	1
D40	G 4	sheet	1	R62	C 5	sheet	1
D41	G 5	sheet	1	R63	C 5	sheet	1
D50	A 3	sheet	1	R64	E 4	sheet	1
D51	A 3	sheet	1	R65	E 4	sheet	1
D52	A 3	sheet	1	R66	E 4	sheet	1
D53	A 4	sheet	1	R100	B 4	sheet	2
D54	A 4	sheet	1	R101	B 4	sheet	2
D55	B 4	sheet	1	R102	B 5	sheet	2
D56	C 4	sheet	1	R103	C 3	sheet	2
D57	C 4	sheet	1	R104	C 3	sheet	2
D100	F 3	sheet	2	R105	B 3	sheet	2
D101	F 4	sheet	2	R106	B 3	sheet	2
D102	F 5	sheet	2	R107	B 3	sheet	2
D103	F 6	sheet	2	R108	C 3	sheet	2
D104	B 4	sheet	2	R109	C 4	sheet	2
D105	E 3	sheet	2	R110	E 4	sheet	2
D106	E 4	sheet	2	R112	E 3	sheet	2
D107	E 5	sheet	2	R113	E 4	sheet	2
D108	E 6	sheet	2	R114	F 4	sheet	2
D109	G 1	sheet	2	R115	F 4	sheet	2
D110	G 1	sheet	2	R116	G 4	sheet	2
D111	G 2	sheet	2	R117	G 4	sheet	2
D112	H 2	sheet	2	R119	E 6	sheet	2
D113	H 2	sheet	2	R121	E 5	sheet	2
D114	H 2	sheet	2	R122	E 6	sheet	2
IC1	A 1	sheet	1	R123	E 5	sheet	2
IC2	A 2	sheet	1	R124	E 6	sheet	2
IC20	G 1	sheet	1	R125	F 6	sheet	2
IC30	G 3	sheet	1	R126	F 6	sheet	2
IC40	G 4	sheet	1	R127	F 5	sheet	2
IC50	B 3	sheet	1	R128	A 5	sheet	2
IC51	B 5	sheet	1	R129	A 6	sheet	2
IC52	D 3	sheet	1	R130	F 4	sheet	2
IC100	F 3	sheet	2	R131	H 2	sheet	2
IC101	B 6	sheet	2	R132	H 2	sheet	2
J10	A 5	sheet	1	T20	H 1	sheet	1
J20	D 6	sheet	1	T30	H 3	sheet	1
J30	E 6	sheet	1	T40	H 4	sheet	1
J40	F 6	sheet	1	T100	G 4	sheet	2
J50	B 6	sheet	1	Z100	B 5	sheet	2
J100	G 5	sheet	2	Z102	B 3	sheet	2
J101	C 3	sheet	2	Z103	B 5	sheet	2
J102	B 3	sheet	2	Z104	B 6	sheet	2
J103	D 2	sheet	2				
J104	H 4	sheet	2				
J105	G 2	sheet	2				
J106	G 2	sheet	2				
J107	G 2	sheet	2				
J108	H 4	sheet	2				
J109	H 4	sheet	2				
J110	G 2	sheet	2				
P1	D 2	sheet	1				
P2	E 2	sheet	1				
P100	C 3	sheet	2				

## 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 standard line- and frame frequency.

- Adjust for the RED and BLUE picture, by means of the RCU800 (refer to the Owner's manual of the projector), 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.



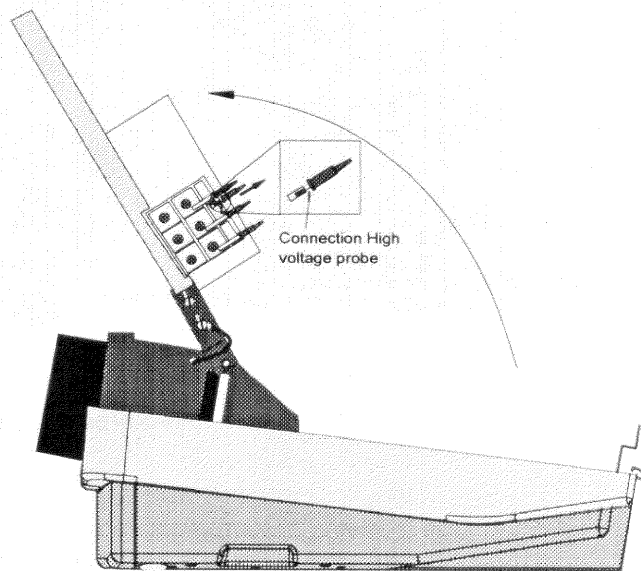
## FOCUS Voltage adjustment P100

**Important** The potentiometer P100 'Focus Voltage adjustment' is factory pre-adjusted. A re-adjustment of the latter is only necessary after replacement of a defective unit 76 2155 (Focus stabilizer).

- Adjustment**
- Switch OFF the projector.
  - Remove top cover and open main frame.
  - Slide the protection cap on the focus input connection cable on the focus unit upwards (refer to illustration).
  - 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 measure point.**

After the connection is established, **switch ON** the projector.



692\_DRW

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.

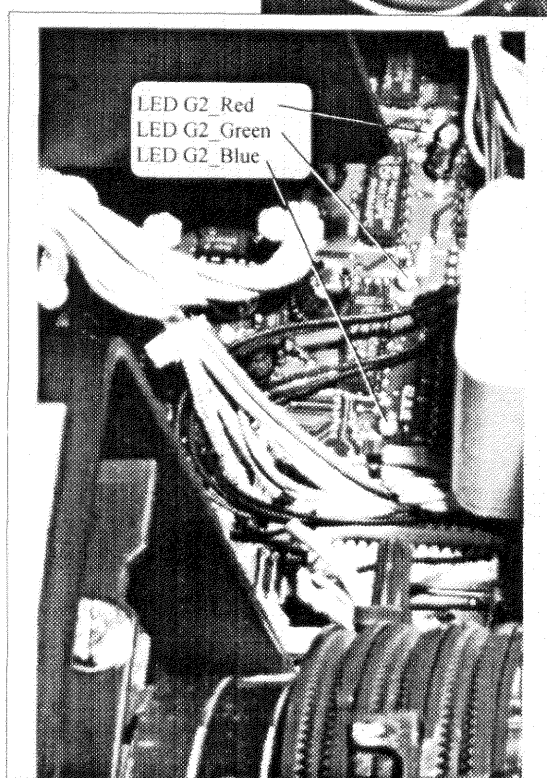
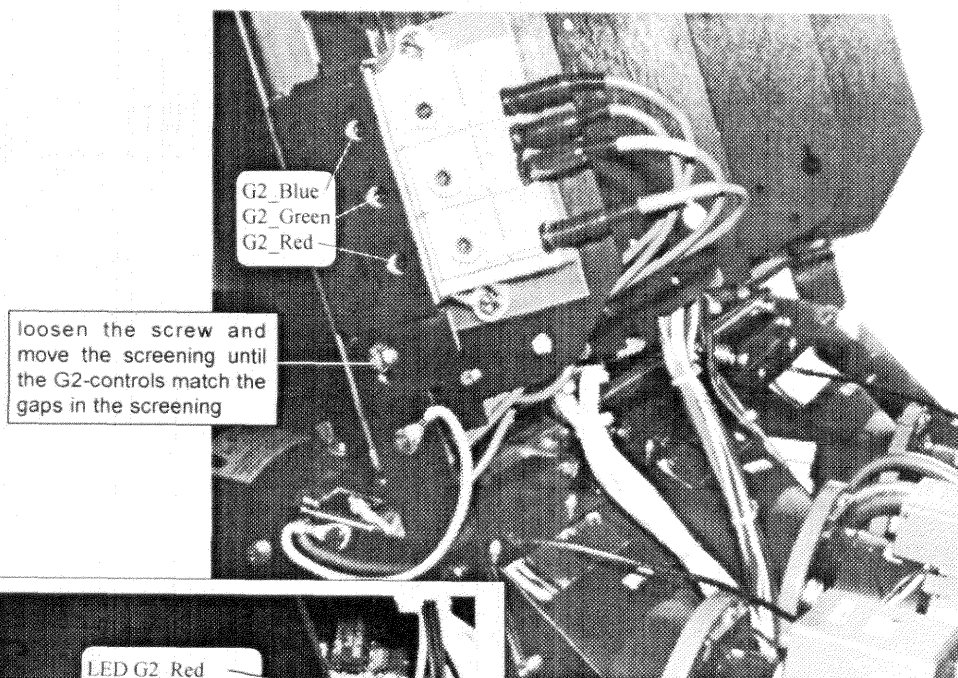
## G2-Voltage adjustment

**Preparation** Proceed to **Service mode** and highlights **G2-Adjustment**, press ENTER.

If you are qualified, press ENTER to continue with the G2-Adjustment. (refer to the installation manual of the projector).

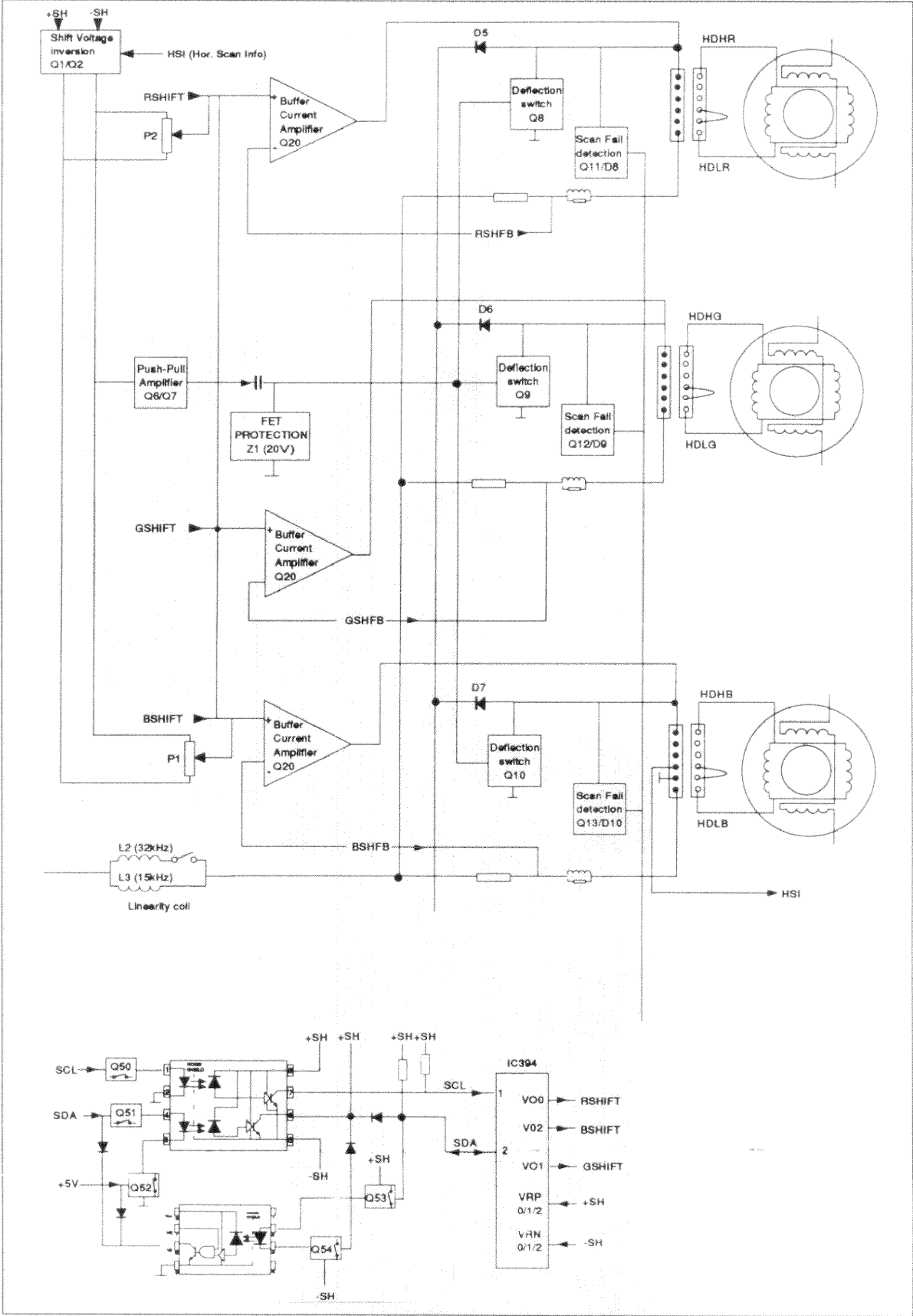
(When the G2 ADJUSTMENT menu is selected, the controller automatically sets the Contrast, White and Black balance to mid-position=50).

**Adjustment** Adjust successively the three G2-controls until the corresponding LED on the RGB Input+Driver module, starting from illumination, just stops illuminating.

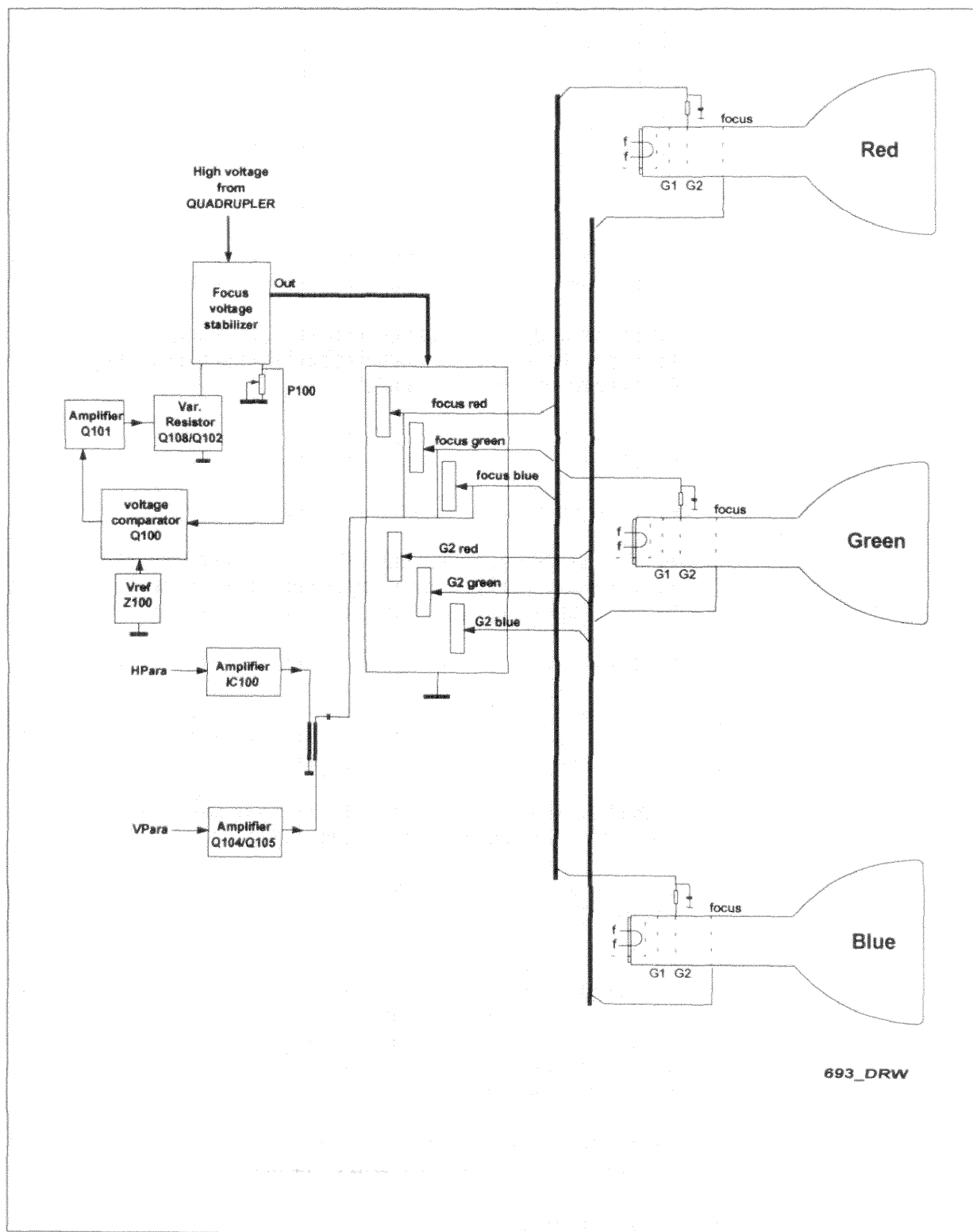




Blockdiagram Shift controls



## Blockdiagram Electrical focus/G2 control





## 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 uni-directional 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 bi-directional due to the acknowledgment bit.

When Data is sent, the data passes the Mosfet Q51, the Optocoupler IC50 (IN pin 4-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

The focus voltage from the quadrupler unit is applied across a network of high voltage (HRV) and VDR resistors (76 2155) 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/P1 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 HPara (horizontal parabola) and VPara (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 HPara signal is amplified by the amplifier IC100 (TDA2030V). Its output current flows in the primary winding of the transformer T100.

The VPara signal is inverted by the transistor Q104 and amplified by the transistor Q105. Its collector voltage is added to the HPara signal on the secondary side of the transformer.

The sum is capacitively coupled to the sliders of the focus potentiometers.

#### **G2 Voltages**

These screen grid voltages are derived from the focus voltage and adjusted with the potentiometers G2 to leave for the CRT sockets.

## Parts listing Shift+Focus module 76 2488

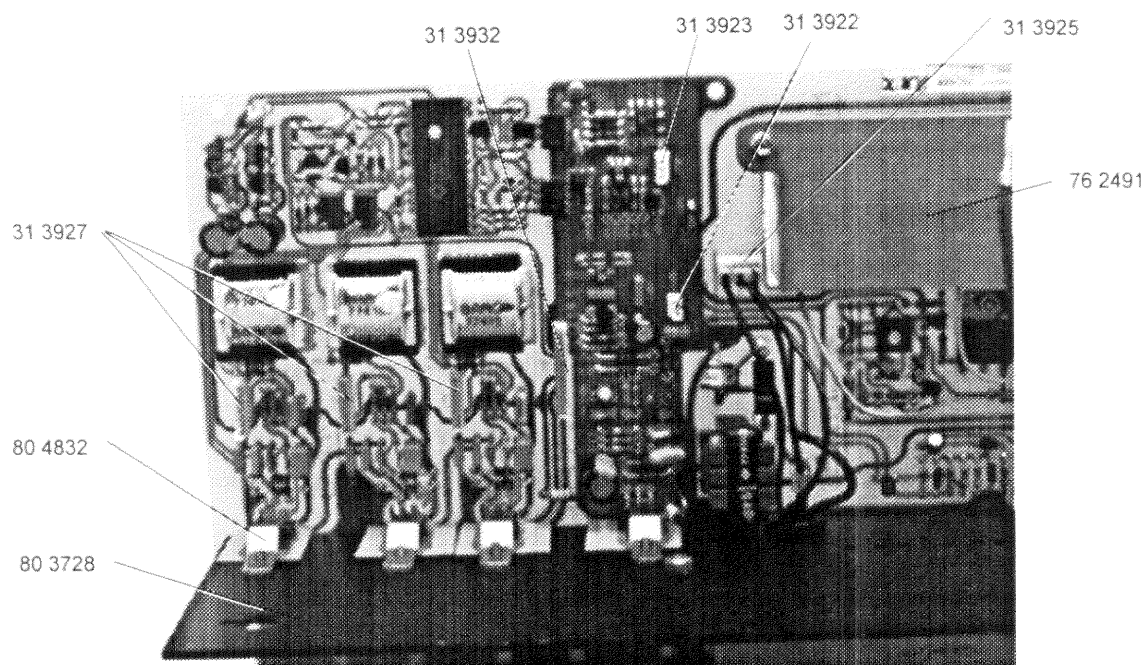
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10 75985		R M_UN FOC RGB -RDCN 12KV	13 16361	D.55	D Y BAT85 030200 DO35
76 2491		UN FOC+S PJ53 V700 STAB	13 16361	D.56	D Y BAT85 030200 DO35
13 1262	B..1	TUBE SURGE PROT 1000V	13 16361	D.57	D Y BAT85 030200 DO35
11 1479	C..1	C EL RA 470M Z 25E2 85	13 1637	D100	DR BA158 600400 DO7
11 2774	C..2	C CE MI 100N S 63E2	13 1637	D101	DR BA158 600400 DO7
11 1531	C..3	C EL RA 10M M 35E2 85	13 1637	D102	DR BA158 600400 DO7
11 2774	C..4	C CE MI 100N S 63E2	13 1637	D103	DR BA158 600400 DO7
11 1479	C..5	C EL RA 470M Z 25E2 85	13 1621	D104	DS 1N4148 075150 DO35
11 2774	C..6	C CE MI 100N S 63E2	13 1637	D105	DR BA158 600400 DO7
11 1531	C..7	C EL RA 10M M 35E2 85	13 1637	D106	DR BA158 600400 DO7
11 2774	C..8	C CE MI 100N S 63E2	13 1637	D107	DR BA158 600400 DO7
11 3724	C.20	C POMERA 100N K 63E2	13 1637	D108	DR BA158 600400 DO7
11 3724	C.21	C POMERA 100N K 63E2	13 4028	I..1	U 317LZ TO92 PSTAB
11 2735	C.22	C CE MI 470P K100E2	13 4029	I..2	U 337LZ TO92 PSTAB
11 27475	C.23	C CE MI 4N7K 63E2	13 2751	I.20	U 2030V TDA TO220T PAUD12
11 3732	C.24	C POMERA 470N K 63E2	13 2751	I.30	U 2030V TDA TO220T PAUD12
11 3728	C.25	C POMERA 220N K 63E2	13 2751	I.40	U 2030V TDA TO220T PAUD12
11 3724	C.30	C POMERA 100N K 63E2	13 1684	I.50	U 2630 HCPL DIP8 POPTOC
11 3724	C.31	C POMERA 100N K 63E2	13 1683	I.51	U 2601 HCPL DIP8 POPTOC
11 2735	C.32	C CE MI 470P K100E2	13 2833	I.52	U 76013 SC DIP28 PD_POT
11 27475	C.33	C CE MI 4N7K 63E2	13 2751	I100	U 2030V TDA TO220T PAUD12
11 3732	C.34	C POMERA 470N K 63E2	13 4032	I101	U 78L05 TO92 PSTAB
11 3724	C.35	C POMERA 100N K 63E2	31 3932	J.10	J CT MBT P12 M2SN
11 3724	C.40	C POMERA 100N K 63E2	31 3927	J.20	J CT MBT P 7 M2SN
11 3724	C.41	C POMERA 100N K 63E2	31 3927	J.30	J CT MBT P 7 M2SN
11 2735	C.42	C CE MI 470P K100E2	31 3927	J.40	J CT MBT P 7 M2SN
11 27475	C.43	C CE MI 4N7K 63E2	31 3923	J.50	J CT MBT P 3 M2SN
11 3732	C.44	C POMERA 470N K 63E2	31 3922	J100	J CT MBT P 2 M2SN
11 3728	C.45	C POMERA 220N K 63E2	31 5302	J108	J PIN MBT D 1.3L 5.5+3
11 2774	C.50	C CE MI 100N S 63E2	31 3729	J109	J PIN MBT D 2 TESTEYE
11 2774	C.51	C CE MI 100N S 63E2	31 3925	J110	J CT MBT P 5 M2SN
11 2774	C.52	C CE MI 100N S 63E2	10 7530	P..1	R MCE V100K K 0W5 M10TS3299W
11 27475	C.53	C CE MI 4N7K 63E2	10 7530	P..2	R MCE V100K K 0W5 M10TS3299W
11 3724	C100	C POMERA 100N K 63E2	10 6737	P100	RTCE H 1M K 0W5 S10TS3386P
11 27475	C101	C CE MI 4N7K 63E2	78 0358	PC..	PCD PJ53 D 700 FOC+SHIFT 01
11 1550	C102	C EL RA 4M7M 50E2 85	13 14181	Q..1	Q BC559B P SS TO92 030A1
11 3724	C103	C POMERA 100N K 63E2	13 14181	Q..2	Q BC559B P SS TO92 030A1
11 2243	C104	C NPO MI 120P J 63E2	13 2916	Q.50	Q BS250 FN SS TO92 045A2
11 1531	C105	C EL RA 10M M 35E2 85	13 2916	Q.51	Q BS250 FN SS TO92 045A2
11 2243	C106	C NPO MI 120P J 63E2	13 29105	Q.52	Q BS170 FN SS TO92 060A5
11 3724	C107	C POMERA 100N K 63E2	13 2916	Q.53	Q BS250 FN SS TO92 045A2
11 3728	C108	C POMERA 220N K 63E2	13 29105	Q.54	Q BS170 FN SS TO92 060A5
11 1531	C109	C EL RA 10M M 35E2 85	13 14182	Q100	Q BC559C P SS TO92 030A1
11 15915	C110	C EL5 RA 4M7M 35E2 85	13 14295	Q101	Q BC549B N SS TO92 030A1
11 27391	C111	C CE MI 1N K100E1	13 25096	Q102	Q ON4046 N P SOT93 15208
11 1550	C112	C EL RA 4M7M 50E2 85	13 25096	Q103	Q ON4046 N P SOT93 15208
11 4120	C113	C POMERA 10N K250E4	13 1411	Q104	Q BC549C N SS TO92 030A1
11 1479	C114	C EL RA 470M Z 25E2 85	13 1471	Q105	Q BF458 N P TO126 250A1
11 3724	C115	C POMERA 100N K 63E2	10 1126	R..1	R CF H150E J 0W25
11 15915	C116	C EL5 RA 4M7M 35E2 85	10 1128	R..2	R CF H220E J 0W25
11 1477	C117	C EL RA 100M Z 25E2 85	10 1123	R..3	R CF H 82E J 0W25
13 1637	D.20	DR BA158 600400 DO7	10 1128	R..4	R CF H220E J 0W25
13 1637	D.21	DR BA158 600400 DO7	10 1152	R..5	R CF H 22K J 0W25
13 1637	D.30	DR BA158 600400 DO7	10 1148	R..6	R CF H 10K J 0W25
13 1637	D.31	DR BA158 600400 DO7	10 1158	R..7	R CF H 68K J 0W25
13 1637	D.40	DR BA158 600400 DO7	10 15501	R..8	R MF H 13K F 0W4 E2
13 1637	D.41	DR BA158 600400 DO7	10 1549	R..9	R MF H 12K F 0W4 E2
13 1621	D.50	DS 1N4148 075150 DO35	10 1537	R.10	R MF H 1K2 F 0W4 E2
13 1621	D.51	DS 1N4148 075150 DO35	10 15371	R.11	R MF H 1K1 F 0W4 E2
13 1621	D.52	DS 1N4148 075150 DO35			
13 1621	D.53	DS 1N4148 075150 DO35			
13 16361	D.54	D Y BAT85 030200 DO35			

10 1539	R.12	R MF H 1K8 F 0W4 E2		77 4342	T100	T PJ53 FOC V 700
10 1539	R.13	R MF H 1K8 F 0W4 E2				
10 4654	R.14	R HV H 1M J 0W5 3500 242		13 2102	Z100	U 33B ZTK DO35 PSTAB
10 1168	R.18	R CF H 470K J 0W25		13 1754	Z102	D ZEN 3V3 0W5 C DO35
10 1158	R.19	R CF H 68K J 0W25		13 1730	Z103	D ZEN 20V 0W5 C DO35
10 1160	R.20	R CF H 100K J 0W25		13 1730	Z104	D ZEN 20V 0W5 C DO35
10 1148	R.21	R CF H 10K J 0W25				
10 1148	R.22	R CF H 10K J 0W25				
10 1104	R.23	R CF H 2E2 J 0W25	181			
10 1160	R.30	R CF H 100K J 0W25				
10 1148	R.31	R CF H 10K J 0W25				
10 1148	R.32	R CF H 10K J 0W25				
10 1112	R.33	R CF H 10E J 0W25				
10 1168	R.38	R CF H 470K J 0W25				
10 1158	R.39	R CF H 68K J 0W25				
10 1160	R.40	R CF H 100K J 0W25				
10 1148	R.41	R CF H 10K J 0W25				
10 1148	R.42	R CF H 10K J 0W25				
10 1104	R.43	R CF H 2E2 J 0W25	181			
10 1124	R.50	R CF H 100E J 0W25				
10 1144	R.51	R CF H 4K7 J 0W25				
10 1130	R.52	R CF H 330E J 0W25				
10 1124	R.53	R CF H 100E J 0W25				
10 1144	R.54	R CF H 4K7 J 0W25				
10 1130	R.55	R CF H 330E J 0W25				
10 1162	R.56	R CF H 150K J 0W25				
10 1144	R.57	R CF H 4K7 J 0W25				
10 1132	R.58	R CF H 470E J 0W25				
10 1132	R.59	R CF H 470E J 0W25				
10 1144	R.60	R CF H 4K7 J 0W25				
10 1130	R.62	R CF H 330E J 0W25				
10 1162	R.63	R CF H 150K J 0W25				
10 1129	R.64	R CF H 270E J 0W25				
10 1132	R.65	R CF H 470E J 0W25				
10 1119	R.66	R CF H 39E J 0W25				
10 3158	R100	R MO H 68K J 0W7				
10 1132	R101	R CF H 470E J 0W25				
10 1128	R102	R CF H 220E J 0W25				
10 1566	R103	R MF H 330K F 0W4 E2				
10 1566	R104	R MF H 330K F 0W4 E2				
10 1154	R105	R CF H 33K J 0W25				
10 1136	R106	R CF H 1K J 0W25				
10 1134	R107	R CF H 680E J 0W25				
10 4682	R108	R HV H 15M J 0W5 3500				
10 4682	R109	R HV H 15M J 0W5 3500				
10 1149	R110	R CF H 12K J 0W25				
10 1160	R112	R CF H 100K J 0W25				
10 1159	R113	R CF H 82K J 0W25				
10 1151	R114	R CF H 18K J 0W25				
10 1146	R115	R CF H 6K8 J 0W25				
10 1100	R116	R CF H 1E J 0W25	211			
10 2136	R117	R CC H 1K K 1W				
13 1262	R118	TUBE SURGE PROT 1000V				
10 1149	R119	R CF H 12K J 0W25				
10 1150	R121	R CF H 15K J 0W25				
10 1138	R122	R CF H 1K5 J 0W25				
10 1136	R123	R CF H 1K J 0W25				
10 1124	R124	R CF H 100E J 0W25				
10 1150	R125	R CF H 15K J 0W25				
10 1169	R126	R CF H 560K J 0W25				
10 3348	R127	R MO H 10K J 4W				
10 11917△	R128	R CFFH E22K 0W4				
10 11209△	R129	R CFFH 47E J 0W25				
10 1404	R130	R CF H 2E2 J 1W5	194			
77 4152	T.20	COIL SHF PJ45 HOR DHR				
77 4152	T.30	COIL SHF PJ45 HOR DHR				
77 4152	T.40	COIL SHF PJ45 HOR DHR				




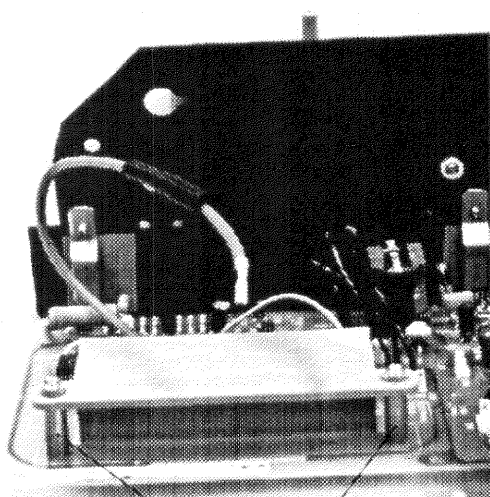
## Spare parts Shift+Focus module 76 2488

ART.NO.	DESCRIPTION	QUANTITY	ART.NO.	DESCRIPTION	QUANTITY
10 11209	R CFFH 47E J 0W25	1	80 1485	SPR L17 D 6 D 4 A	2
10 11917	R CFFH E22K 0W4	1	80 3728	HTSNK PJ53 DEF+SHF	02 1
10 1404	R CF H 2E2 J 1W5 194	1	80 3761	SCRN PJ53 HTSNK FOC	01 1
10 3158	R MO H 68K J 0W7	1	80 4832	Q ACC SPG 1XM3 LONG	03 5
10 3348	R MO H 10K J 4W	1			
10 4654	R HV H 1M J 0W5 3500 242	1			
10 4682	R HV H 15M J 0W5 3500	2			
10 6737	RTCE H 1M K 0W5 S10TS3386P	1			
10 7530	RMCE V100K K 0W5 M10TS3299W	2			
10 75985	RM_UN FOC RGB -RDCN 12KV	1			
11 4120	C POMERA 10N K250E4	1			
13 1262	TUBE SURGE PROT 1000V	2			
13 1411	Q BC549C N SS TO92 030A1	1			
13 14181	Q BC559B P SS TO92 030A1	2			
13 14182	Q BC559C P SS TO92 030A1	1			
13 14295	Q BC549B N SS TO92 030A1	1			
13 1471	Q BF458 N P TO126 250A1	1			
13 1621	D S 1N4148 075150 DO35	5			
13 16361	D Y BAT85 030200 DO35	4			
13 1637	D R BA158 600400 DO7	14			
13 1683	U 2601 HCPL DIP8 POPTOC	1			
13 1684	U 2630 HCPL DIP8 POPTOC	1			
13 1730	D ZEN 20V 0W5 C DO35	2			
13 1754	D ZEN 3V3 0W5 C DO35	1			
13 2102	U 33B ZTK DO35 PSTAB	1			
13 25096	Q ON4046 N P SOT93 15208	2			
13 2751	U 2030V TDA TO220T PAUD12	4			
13 2833	U 76013 SC DIP28 PD_POT	1			
13 29105	Q BS170 FN SS TO92 060A5	2			
13 2916	Q BS250 FN SS TO92 045A2	3			
13 3039	SPR L 8 D 4 D 1.2 C CER	5			
13 4028	U 317LZ TO92 PSTAB	1			
13 4029	U 337LZ TO92 PSTAB	1			
13 4032	U 78L05 TO92 PSTAB	1			
31 3729	J PIN MBT D 2 TESTEYE	1			
31 3922	J CT MBT P 2 M2SN	1			
31 3923	J CT MBT P 3 M2SN	1			
31 3925	J CT MBT P 5 M2SN	1			
31 3927	J CT MBT P 7 M2SN	3			
31 3932	J CT MBT P 12 M2SN	1			
31 5302	J PIN MBT D 1.3L 5.5+3	1			
34 8069	GRMT T3 D10	1			
36 20216	SCR D84 M 3 X 6 SI	5			
36 20226	SCR D84 M 3 X 8 SI	2			
36 2158	SCR D7985 M 4 X 25 PS Z	2			
36 31059	SCR D933 M 3 X 8 XIC	5			
36 31239	SCR D933 M 4 X 10 XIC	2			
36 61026	NUT D934 M 3 I	2			
36 6103	NUT D934 M 4 S Z	2			
36 74391	RVT POP D3.2 L 7.4 P ASW	3			
36 7502	WSHR D6798 A 3.2 S Z	2			
36 7503	WSHR D6798 A 4.3 S Z	2			
76 2491	UN FOC+S PJ53 V700 STAB	1			
77 4152	COIL SHF PJ45 HOR DHR	3			
77 4342	T PJ53 FOC V 700	1			
78 0358	PCD PJ53 D 700 FOC+SHIFT 01	1			

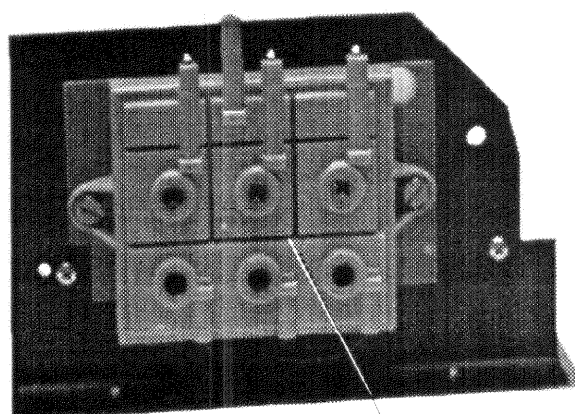


## PRODUCT SAFETY NOTICE

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



80 1485



31 3927

