

BARCO PROJECTION SYSTEMS

BARCO

BARCO GRAPHICS
800

90 00560 (220V AC)

90 00569 (110V AC)

SERVICE MANUAL

DATE :01/07/91

revision 01

ART. NR. : 59 75983

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BARCO Projection Systems

SECTION A

service sheet

BARCO PROJECTION SYSTEMS

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SAFETY NOTICE

DATE :01/10/90

ART. NR. : 59 75983




PRODUCT SAFETY NOTICE

Components identified by  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  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

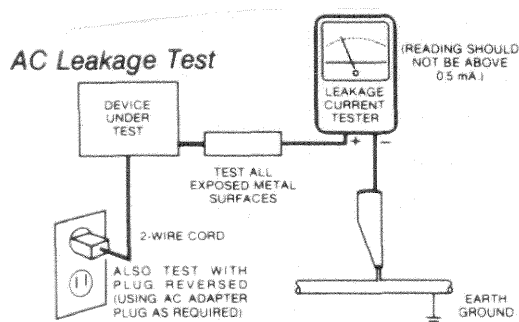
1. **Before returning an instrument to the customer**, always make a safety check of the entire instrument, including, but not limited to, the following items :

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, nonmetallic control knobs, insulating fishpapers, adjustment and compartment 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 cabinet back cover.

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 milliamp. 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.



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 receiver 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 transformer. Components bridging this transformer 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:

- near sharp edges,
- near thermally hot parts - be sure that leads and components do not touch thermally hot parts,
- the AC supply,
- 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 TV 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 instrument 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. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminium foil, 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 500°F to 600°F.
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 (500°F to 600°F).
- 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:

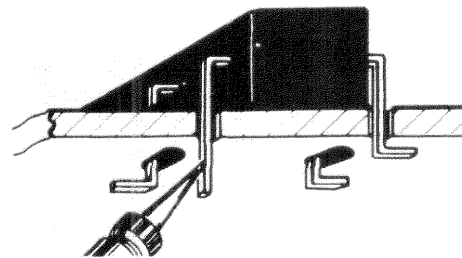
- a. Allow the soldering iron tip to reach normal temperature (500°F to 600°F).

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.



Use Soldering Iron To Pry Leads



BARCO Projection Systems

SECTION **B**

service sheet

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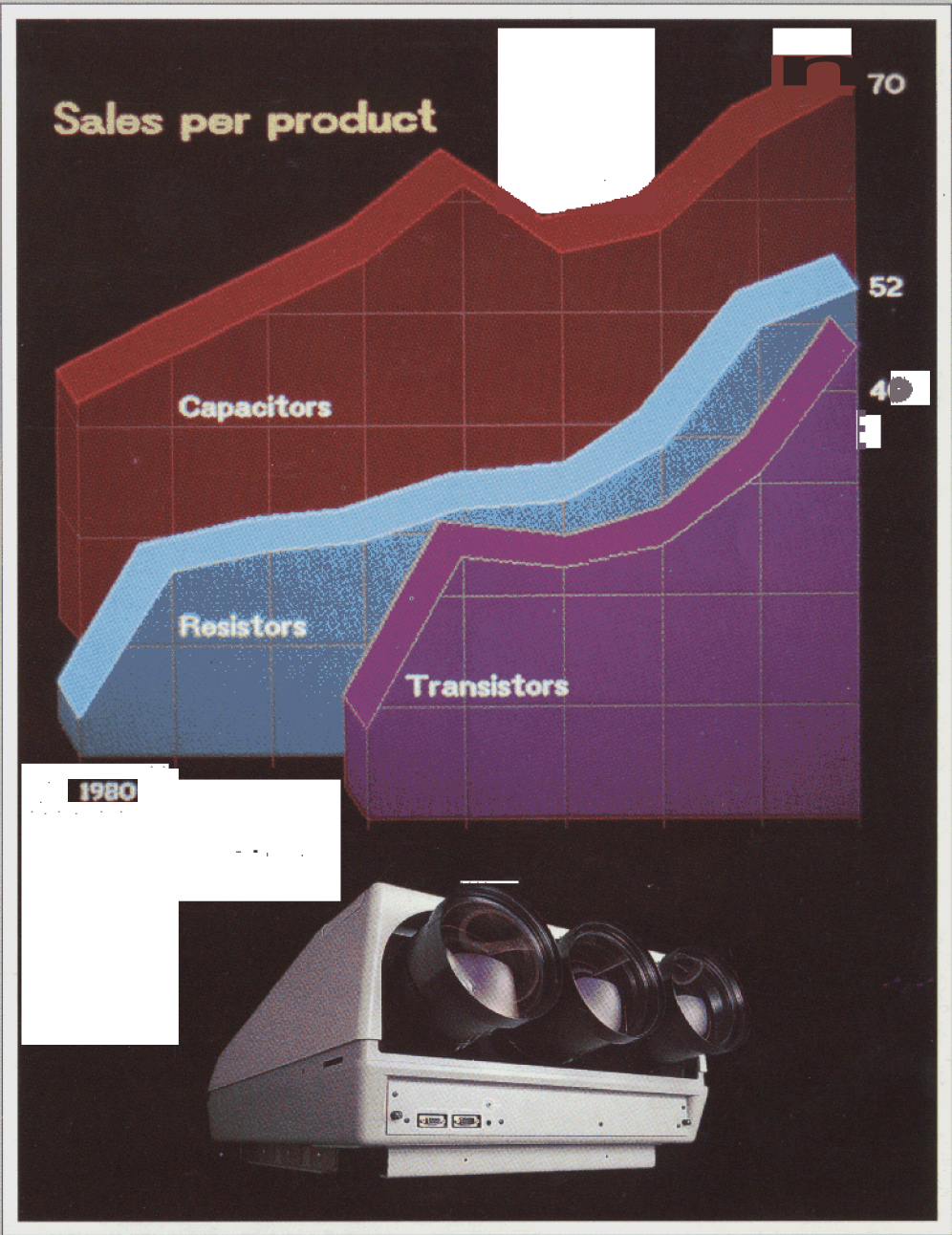
GENERAL INFORMATION

DATE :01/07/91

revision 01

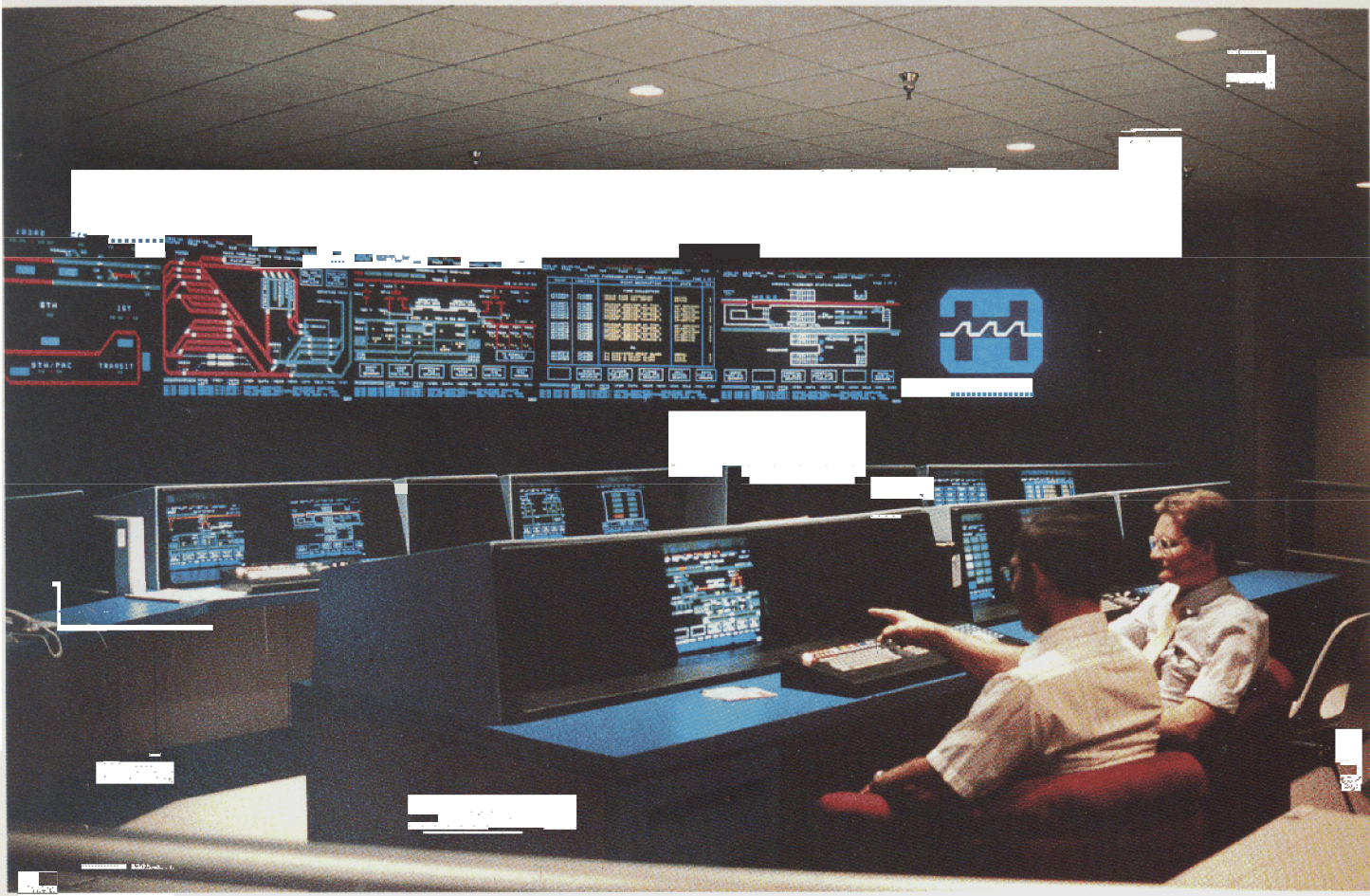
ART. NR. : 59 75983

REMOTE CONTROLLED, DIGITAL LARGE SCREEN PROJECTORS



BARCODATA 800
BARCOGRAPHICS 800





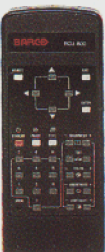
The wide A
autolock facilities
and high optical
resolution of the
BARCOGRAPHICS 800
make it an ideal tool for
large screen process
control/monitoring
applications.

Photo - Los Angeles
County Transportation
Commission.

THE POWER OF STATE-OF-THE-ART DIGITAL TECHNOLOGY

Based on an advanced digital architecture, the BARCO 800 series projectors offer an outstanding array of performance specifications including a number of special features designed to simplify the use and installation of the projector.

On-screen displays, menu-driven installation adjustments, infrared remote control, LDI (Linear Digital Interpolation), internal memory banks and automatic storing of user settings are just a few features of the user-friendly BARCO 800 series projectors.





◀ The extreme flexibility of the BARCODATA 800 makes it the *perfect* solution for dynamic large audience presentations.
Photo :EBES, Antwerp
(Installation: Comsys)

The BARCODATA 800 is ideal for the projection of high quality computer data for boardroom meetings, training sessions, software presentations,...

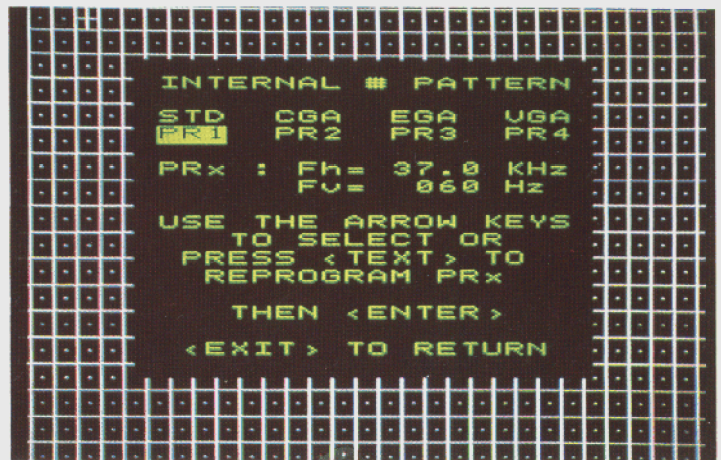
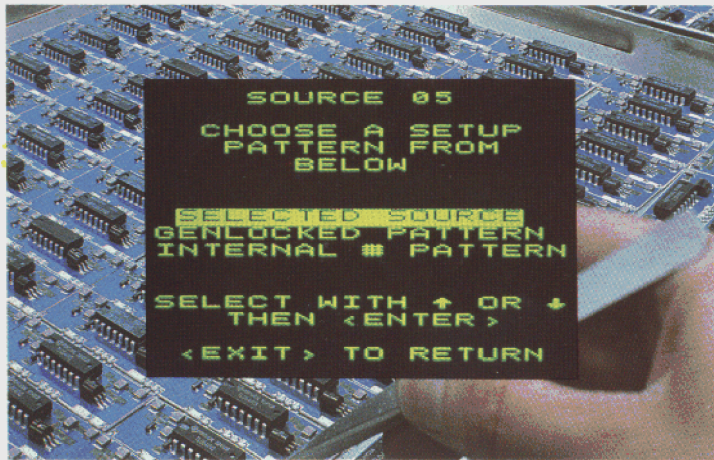


HIGH GRADE OPTICAL SYSTEM SUPERB PICTURE QUALITY

The implementation of an advanced, state-of-the-art optical system allows the BARCO 800 projectors to deliver razor sharp images, with a high light output of 825 lumens, on screens from 1.2 m (4ft.) up to 6 m (20ft.) wide.

- High-definition, liquid cooled 8" square CRTs with stabilized pressure chambers offer a consistently superb picture.
- F1.06 color corrected, hybrid lenses deliver an optical resolution of 10lp/mm and improved image contrast,

▲ The wide autolock circuitry of the BARCOGRAPHICS 800 (15-90 kHz horizontal, 37-140 Hz vertical) make it ideally suited for ultra high-resolution applications, like CAD/CAM/CAE imaging, process control/monitoring, and simulation.



Convenient, well organized on-screen menus (available in several languages), combined with the user-friendly infrared remote control unit, simplifies all adjustments of the BARCOGRAPHICS 800 and the BARCODATA 800, even for first-time and non-skilled users.

MENU-DRIVEN CONTROL UNEQUALLED USER-FRIENDLINESS

For easy geometry and convergence adjustment, the BARCO 800 projectors combine a user-friendly remote control unit with logical on-screen menus.

The projectors offer a guided adjustment program for first-time or non-skilled users, and a random adjustment mode for more efficient alignment of image parameters by experienced users.

Image adjustments may be accomplished 'on source', or through the use of an internally generated pattern, genlocked on the connected source or to a pre-programmed frequency, to allow for adjustment of the projector in the absence of an external source.

All image adjustments are individually set for each source and stored in one of the projector's 38 frequency related memory banks. Once image parameters are designated for each source, the BARCO 800 projectors will automatically select the correct settings for the source in use, giving you a perfect picture.

Once parameters are selected for at least two sources, the LDI (Linear Digital Interpolation) feature of the BARCO 800 projectors will automatically calculate the image parameters of all additional sources by comparing them to previously set source settings.



COMPUTER DRIVEN ASSISTANCE PROJECTOR SUPPORT SOFTWARE PACKAGE

Thanks to BARCO's optional proprietary 'Control 800' software package, it is possible to adjust brightness, contrast, hue, color, sharpness and geometry and convergence settings for up to 256 projectors from one central point. It is even possible to store image settings for each source for future

use on a computer hard disk or diskette.

The 'Control 800' software is available for use with IBM PC, PS/2 (or compatible), Macintosh, Intergraph Clipper Workstation or computers working with the X-Window operating system.



▲ *Mouse-driven pull-down menus and dialogue boxes facilitate the adjustment of the projectors connected to the central computer*



◀ *The IRIS 800 has a light-weight, rugged enclosure, and can be easily installed to the front of the projector:*

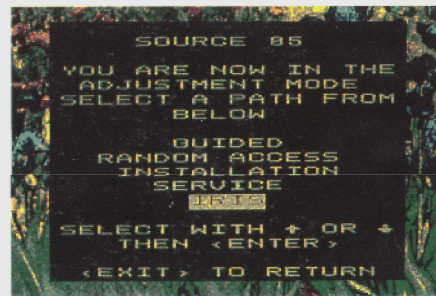
IRIS 800 : INTELLIGENT REGISTRATION INTERFACE SYSTEM

The IRIS 800 is an optional user-friendly, automatic convergence system designed to automatically align the projected image on the screen faster and more accurately than ever before possible through the conventional 'manual' convergence process,

The IRIS 800 incorporates a unique hardware/software system, which utilizes a high resolution CCD camera in

conjunction with an ultra light, high quality front-surface mirror assembly. Together with built-in digital enhancement software this guarantees both a quick and highly accurate alignment of the three projected images on the screen, even under heavy ambient lighting conditions.

The flexible design of the IRIS 800 allows it to operate either in a table or ceiling mount installation.



▲ *The IRIS 800's automatic convergence process is easily initiated by selecting the appropriate option from the projector's on-screen menu, using the infrared remote control.*

The RCVDS 800 allows for the connection of up to 10 different video and data sources to one BARCO 800 series projector, and the adjustment of all picture settings via a convenient infrared remote control.



ADDITIONAL PERIPHERAL DEVICES

BARCO offers a wide range of additional peripheral devices, which further enhance the flexibility and versatility of the BARCO 800 series projectors.

RCVDS 800 versatile source selector

The Remote Controlled Video and Data Source Selector RCVDS 800 makes it possible to connect up to ten sources to the projector and to adjust all picture settings via the projector's infrared remote control.

For expanded use of the 800-series projectors, it is possible to connect up to ten RCVDS 800 source selectors in series, so that up to 90 different sources may be connected simultaneously to a single projector,

RCU 800-U

The RCU 800-U is a simplified executive infrared remote control unit, designed to accommodate source selection and adjustment

of user settings without allowing changes to the projector's geometry and convergence settings.

Remote infrared receiver

An additional remote infrared receiver facilitates the use of the projector's infrared remote control in difficult installations.

Communication cables

Additional RS232/422 cables (D9/D9), with a length of 15 or 30 m are available.

Suspension system

BARCO's suspension system allows any BARCO 800 series projector to be mounted from the ceiling, adapting the projector perfectly to the local mounting requirements.

Flight case

Sturdy, easily transportable flight case, for the packing of the BARCO 800 projectors,

The convenient RCU 800-U allows easy control of source switching and user settings per source.



TECHNICAL SPECIFICATIONS

800 SERIES	BARCODATA 800	BARCOGRAPHICS 800
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Scan frequencies :

Horizontal	15-58 kHz autolock	15-90kHz autolock
Vertical	37-140 Hz autolock	37-140 Hz autolock

Minimal retrace time :

Horizontal	< 3.3 μs	< 2.6 μs
Vertical	< 300 μs	< 200 μs

RGB bandwidth :	> 50 MHz	> 60 MHz
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Optical **Scheimpflug** correction :

BARCODATA 800	No	BARCOGRAPHICS 800	Yes
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COMMON SPECIFICATIONS 800 SERIES

Light output* :

At 10% peak white :	825 lumen
At 20% peak white :	575 lumen

CRTs:

High brightness, high definition liquid cooled 8" CRTs.

Lenses:

High definition, fully color corrected F1.06 hybrid lenses, with centre+edge focus adjustment.

Optical **resolution** :

10 lp/mm at 50 % MTF throughout the field.

Screen size :

Min. : 1.2m x 0.9 m (4' x 3')
Max. : 6 m x 4.5m (19.8' x 14.8')

Horizontal linearity :

> 97% accuracy in the full horizontal frequency range.

Remote control :

User-friendly infrared remote control RCU 800 controls :

- source switching
- user settings per source (sharpness, hue, color, brightness, contrast)

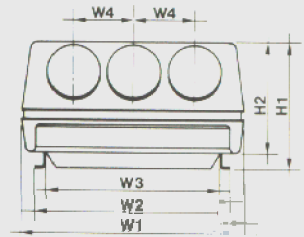
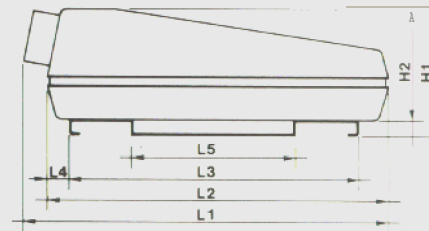
- geometry per source (password protected)
- convergence per source (password protected)

Inputs :

- RGB analog (BNC-connectors), sync on green or separate sync
- RGB TTL/EGA (D9-subconnector)
- Video (PAL, SECAM, NTSC 4.43, NTSC 3.58), looped through (2xBNC), with 75 Ohm termination switch
- 4 pin S-Video input, looped through with 75 Ohm termination switch.

Optical **Scheimpflug** correction :

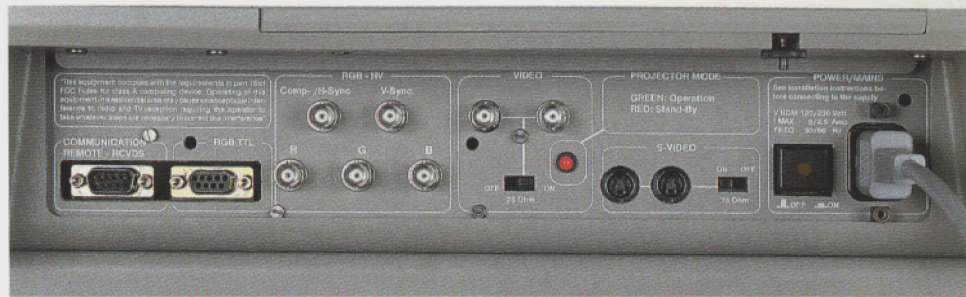
The BARCOGRAPHICS 800 is provided with a built-in Scheimpflug optical correction! with stepless adjustments for both horizontal and vertical axis. This feature guarantees optimal optical focus from left to right and top to bottom for projection under non-standard angles, and is particularly useful for specialized installations.



Dimensions

	MM	INCH
L 1	1000	39.37
L 2	870	34.25
L 3	735	28.94
L 4	60	2.36
L 5	415	16.34
H 1	342	13.40
H 2	295	11.61
W 1	575	22.64
w 2	494	19.45
w 3	442	17.40
w 4	180	7.09

* Measurement method available upon request



Special features :

- 38 frequency-related memory banks.
- L.D.I. (Linear Digital Interpolation).
- Effective on-screen display : installation screens, help screens, barscale display of user settings, on-screen display of source frequencies.
- Automatic storing of all adjustments.
- Ability to set parameters to midposition,
- Color temperature adjustment : 3200 K, 6500 K, 9300 K, or custom).
- Special sharpness control : improves picture quality for high-frequency sources.
- Text generators for other languages.

- A BARCODATA 800 can be upgraded to a BARCOGRAPHICS 800.

Weight :

Net weight : 64 kg. (141 lbs.)
Shipping weight : 80 kg. (176 lbs.)

Power consumption : 350 W.

Safety regulations :

The BARCODATA 800 and BARCOGRAPHICS 800 comply with UL 1950 and IEC 950.

Order information :

- BARCODATA 800 :
220 V : 90 00540
110 V : 90 00549
- BARCOGRAPHICS 800 :
220 V : 90 00560
110 V : 90 00569

- RCVDS 800 :

- 220 V : 98 27450
- 110 V : 98 27459

- Control 800 Software :

- PC, PS/2 : 98 27530
- Mac : 98 27540
- Intergraph Clipper : 98 27580
- X-Window system : 98 27710

- IRIS 800 : 98 27690

- RCU 800-U : 98 27440

- Remote infrared receiver : 98 27510

- Communication cables :

- 15 m : 98 27560
- 30 m : 98 27570
- Suspension system : 98 27340
- Flight case : 98 27520

**BARCO Projection Systems
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- IBM PS/2 is a registered trademark of International Business Machines Corporation.
- Apple and Macintosh are registered trademarks of Apple Computer, Inc.
- Intergraph Clipper is a registered trademark of Intergraph Corporation.
- X-Window is a trademark of the Massachusetts Institute of Technology

The information and data given are typical for the equipment. However any individual item is subject to change without any notice.

Ref. nr. 59 9045 - Photographs S. Depraetere



BARCO Projection Systems

SECTION C

service sheet

BARCO PROJECTION SYSTEMS

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800

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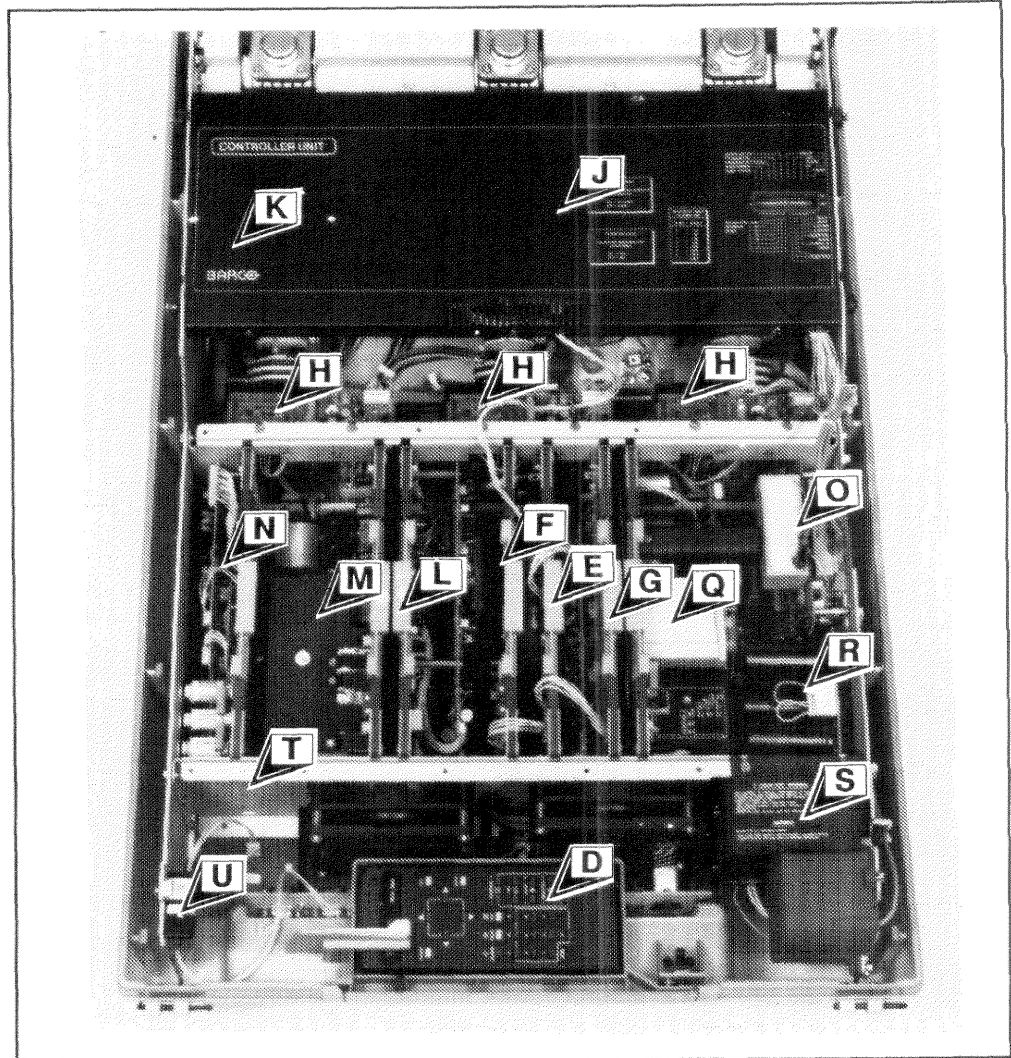
PARTS LIST ON BOARD LEVEL

DATE :01/07/91

revision 01

ART. NR. : 59 75983

**PROJECTOR
TOP VIEW**



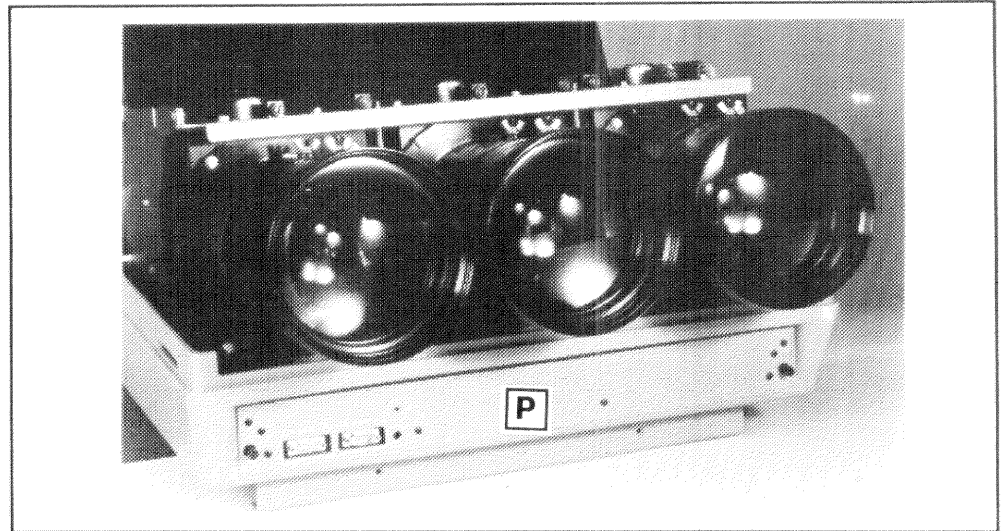
SHEET REF.

D	79 1637	TRANSMITTER WIRED RCU800
E	76 1748	INPUT RGB ANALOG + SWITCH
F	76 1749	INPUT RGB TTL
G₂	76 1822	Q DEC + RGB Gain-CTRL
G₁	(76 1753)	QUAD DECODER)
H	76 1750	R-G-B OUTPUT
J	76 1773	CONTROLLER+PLL
K	76 1756	PLL
L	76 1768	SYNC+VERT DEFLECTION

SHEET REF.

M	76 1766	HOR DEFLECTION
N	76 1765	N-S CORRECTION
O	76 1745	FOCUS CONTROL
Q	76 1770	SM POWER SUPPLY
R	76 15485	POWER INPUT
S	76 1742	EHT GENERATOR
T	76 1775	FRAME
U	76 1781	IR REC REAR

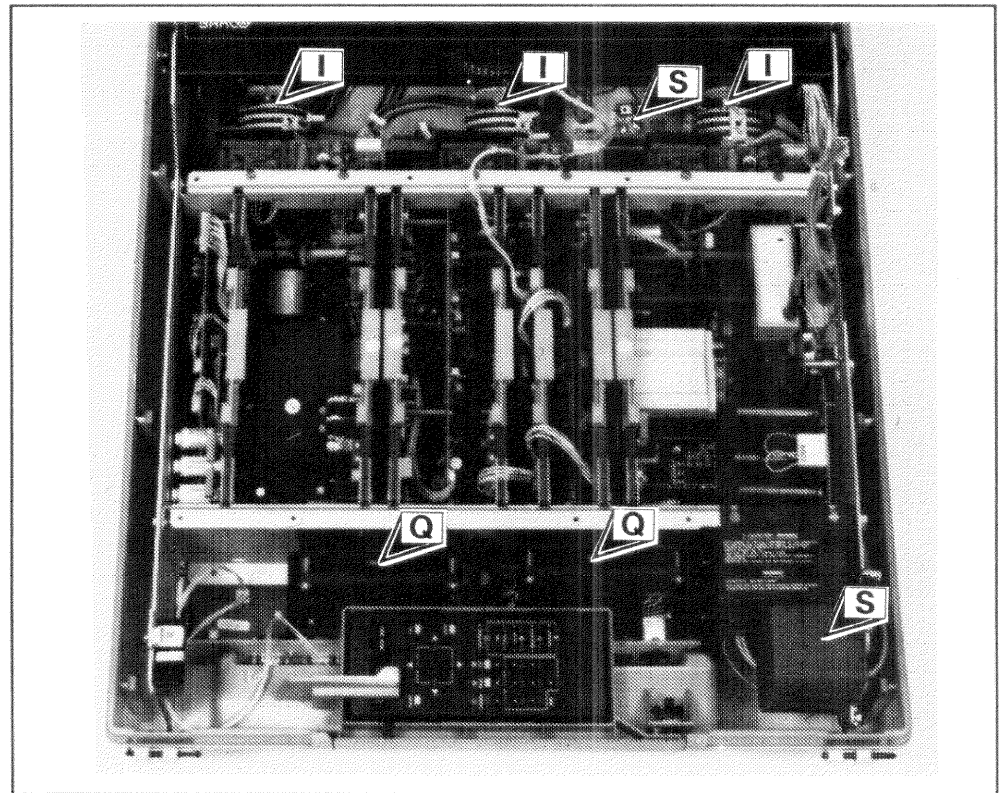
PROJECTOR
FRONT VIEW



SHEET REF.

P 76 1772 CONV PJ 49 GR800 CPL **□** 13 0938 LENS USPL HD8

PROJECTOR
TOP VIEW



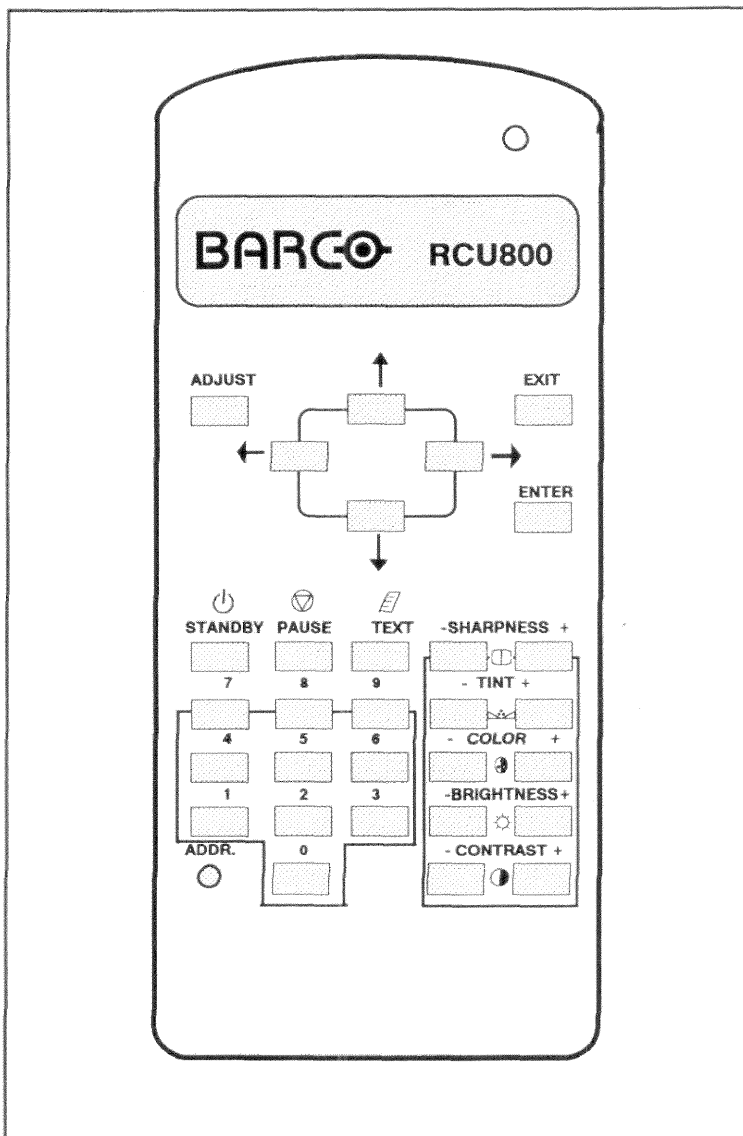
SHEET REF.

S 76 1743 EHT QUADRUPLER
I 76 17802 CRT UNIT RED
76 17805 CRT UNIT GREEN
76 17806 CRT UNIT BLUE
Q 76 1740 FAN 12V

SHEET REF.

S 76 17447 EHT SPLITTER
I 76 17592 CRT SOCKET RED
76 17595 CRT SOCKET GREEN
76 17596 CRT SOCKET BLUE

TRANSMITTER 79 1636



SHEET REF.

D 79 1636 TRANSMITTER IR RCU800

SPARE PARTS ON MODULE LEVEL

76 1742	UN EHT PJ 49 GR800	76 1765	UN N-S PJ 49 GR800
76 1743	UN EHT PJ 49 GR800 QUADRUPLER	76 1766	UN HOR PJ 49 GR800
76 17447	UN EHT PJ 49 GR800 SPLITTER	76 1768	UN VER+ SYN PJ 49 GR800
76 1745	UN FOC CTRL PJ 49 GR800	76 1770	UN SMP PJ 49 GR800
76 1748	UN INP PJ 49 GR800 RGB+ SWITCH	76 1772	UN CONV PJ 49 GR800
76 15485	UN MAINS PJ 49 GR800 INP	76 1773	UN CTRL PJ 49 GR800
76 1749	UN INP PJ 49 GR800 TTL	76 1775	UN FRAME PJ 49 -UN GR800
76 1750	UN RGB PJ 49 GR800 OUTPUT	76 17802	UN CRT PJ 49 07MP DEF GR800 R
76 1722	UN DEC PJ 49 RGB GAIN CONTROL	76 17805	UN CRT PJ 49 07MP DEF GR800 G
76 17592	UN CRT SOC PJ R 49 GR800	76 17806	UN CRT PJ 49 07MP DEF GR800 B
76 17595	UN CRT SOC PJ G 49 GR800	76 1781	UN REC PJ 49 GR800 REAR
76 17596	UN CRT SOC PJ B 49 GR800		

SUGGESTED SPARE PARTS LIST BG800

a) First level Parts

ART NO.	DESCRIPTION	QUANTITY
76 1743	EHT Quadrupler	
76 17447	EHT splitter	
76 17792	CRT Red	
76 17795	CRT Green	
76 17796	CRT Blue	

b) Second Level Modules

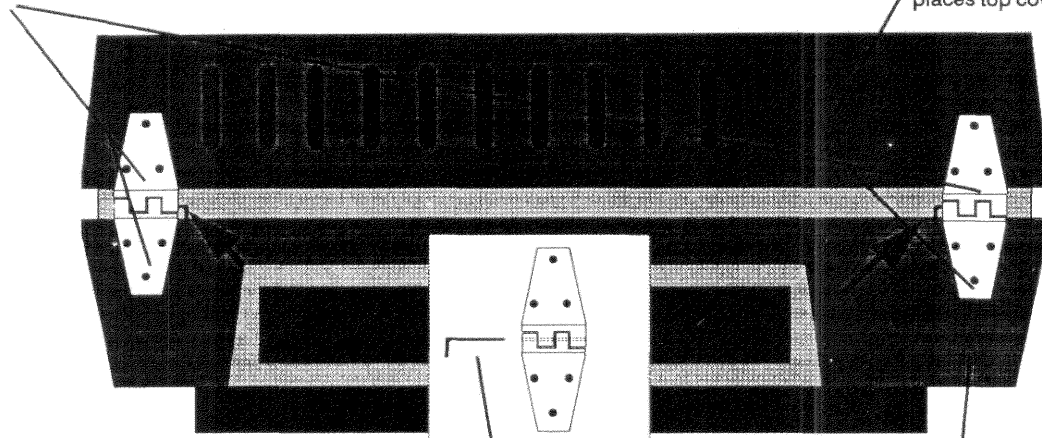
ART NO.	DESCRIPTION	QUANTITY
76 1770	SM Power Supply	
76 1766	Hor. Deflection	
76 1742	EHT generator	
76 1748	RGB Ana+ Switching	
76 1750	RGB Output	

c) Third Level Modules

ART NO.	DESCRIPTION	QUANTITY
76 1768	Sync + Vertical Deflection Controller	
76 1773	Controller	
76 1765	North/South + Hor. Shift	
76 1772	Convergence	
76 1822	Decoder + RGB Gain control	
76 1636	IR Transmitter	

72 1721 HINGE

72 22927 CASE UP
76 1894 CASE UP (Replaces top cover 72 22927)

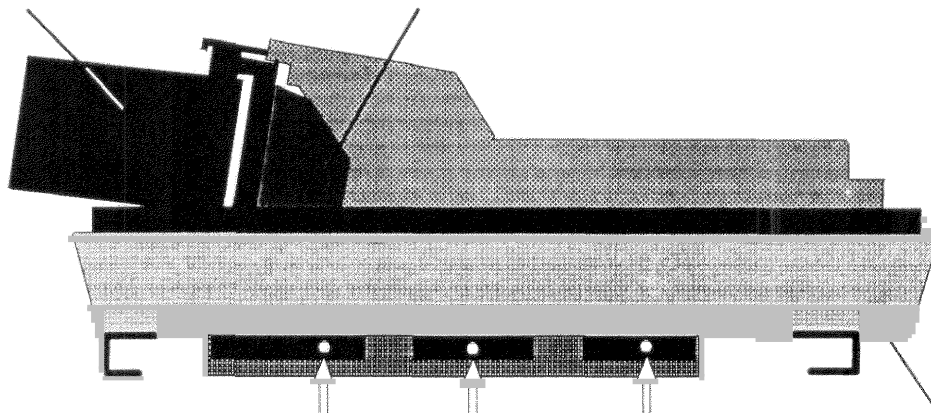


80 0308 HINGE PIN

72 2293 CASE DOWN

13 0938 LENS USPL HD8

76 17792 PICTURE TUBE RED
76 17795 PICTURE TUBEGREEN
76 17796 PICTURE TUBE BLUE



80 2776 SCREW M5

72 2201 CASE DOWN

XX XXXXX	XXXX	XXXXXXXX	XXX	XX	XXXX
art. nr.	sequence nr	description	value	raster tolerance	capacity or voltage

Example : 10 11209 R..9 RES CFFUL 47E J 0W25
 11 37121 C..1 CAP POME 10K K5 100

VALUE

Resistors : 47E = 47 Ohm
 4K7 = 4,7K = 4,7 KOhm = 4700 Ohm
 47K = 47 KOhm = 47000 Ohm
 47M = 47 MOhm = 47000000 Ohm

Capacitors : 470P = 470 pF
 4K7 = 4,7K = 4,7 nF
 470K = 470 nF
 470M = 470 uF

TOLERANCE

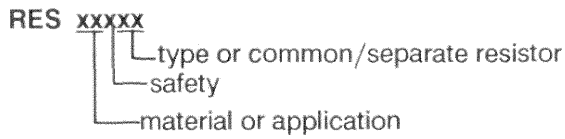
A non standard
 B plus min 0.1 %
 C plus min 0.25 %
 D plus min 0.5 %
 F plus min 1 %
 G plus min 2 %
 H plus min 2.5 %
 J plus min 5 %
 K plus min 10 %
 M plus min 20 %
 N plus min 30 %
 Q plus 30 min 10 %
 T plus 50 min 10 %
 S plus 50 min 20 %
 U plus 80 min 20 %
 V plus 100 min 10 %
 Z plus 80 min 20 %

RASTER

2 raster 2,5
 5 raster 5
 7 raster 7.5

DESCRIPTION

* RESISTORS



Material :

- CA : carbon
- CC : carbon comp.
- CE : ceramic
- CF : carbon film
- MF : metal film
- MO : metal oxide
- WT : wire wound tapped
- WW : wire wound

Application

- HV : high voltage
- LDR : light dependent resistor
- NTC : negative temp. coeff.
- PTC : positive temp. coeff.
- TF : thick film
- VDR : voltage dependent resistor

Safety

- F : safety resistor
- : no safety resistor

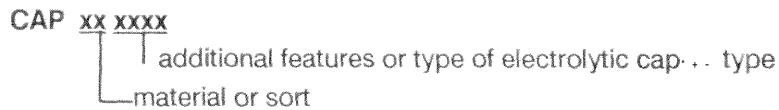
Type

- H : horizontal
- V : vertical
- UL : American quality mark
- : not specified

Common or separate resistors :

- COM : common pin
- SEP : separate resistors

* CAPACITORS



Material

CE : ceramic
 PO : polyester
 PC : polycarbonate
 PE : polyethylene
 PP : polypropylene
 PS : polystyrene
 PA : paper
 SR : styroflex
 ST : steatiet

Sort

COG = NPO
 EL : electrolytic
 HV : high voltage
 NPO : class 1 ntc* ptc** : 0 ppm/k
 N150 : class 1 ntc : orange : - 150 ppm/k
 N152 : class 1 ntc : orange/orange : - 1500 ppm/k
 N222 : class 1 ntc : yellow : - 2200 ppm/k
 N470 : class 1 ntc : blue : - 470 ppm/k
 N750 : class 1 ntc : violet : - 750 ppm/k
 P100 : class 1 ptc : red/violet: : + 100 ppm/k
 R104 : class 2 : temp. coeff. D9000 or R10000
 R472 : class 2 : temp. coeff. N4700 or R7000
 R202 : class 2 : yellow
 R402 : class 2 : blue
 TRIM : trimmer capacitor

Additional features

HV : high voltage
 KT : type order number
 MC : micro
 ME : metal

Type of electrolytic capacitor

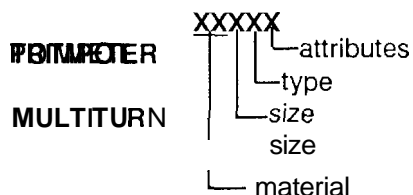
BI : bipolar
 PR : printed wiring electrolytic capacitor
 SN : axial
 TA : tantal

Type

AX : axial
 DI : disc
 FF : film foil
 FP : flat pack
 FT : feed through
 MI : miniature
 MO : molded
 MU : multilayer
 PE : pearl
 PO : potted
 RA : radial
 TR : trapezium-trimmer
 TU : tubular
 UL : Americal quality mark
 UM : up right mount
 X : cap. between 2 mains (power) leads
 Y : cap. between a mains (power) lead and earth
 XY : cap. between mains (power) leads/earth (ground)

*ntc : neg. temp. coeff.
 **ptc : pos. temp. coeff.

- * TRIMMER POTENTIOMETERS
- * POTENTIOMETERS
- * MULTITURNS



Material

CA : carbon
CC : carboncomp.
CE : ceramic
CF : carbon film
MF : metal film
MO : metal oxide
WT : wire wound tapped
WW : wirewound

Size :

J : jumbo
M : miniature
R : rectangular
S : standard
- : not specified

Type :

H : horizontal
V : vertical
S : slider
- : not specified

Attributes

K : knob
P : protected
S : switch
T : twin
W : wheel driving
- : not specified

Abbreviations used on schematic diagrams and PCB lay-outs

A

AC Mains AC

B

B Blue
B ⊥ Blue ground
B1 Blue primary
B2 Blue secondary
BCL Beam current limiter
BHH Blue convergence coil horizontal high
BHL Blue convergence coil horizontal low
BL Blanking
BVH Blue convergence coil vertical high
BVL Blue convergence coil vertical low

C

C Chroma
C ⊥ Chroma ground
COIN Coincidence
CP Clamp pulse
CTS C Clear to send - computer

D

D HV Drain connection to high voltage transformer
DTR C Data terminal ready - computer

E

E-W East-west modulation

F

FBHD Feedback horizontal deflection
FBHV Feedback high voltage
Fil1 Heater
Fil2 Heater
F/S Fast/slow time constant switching

G

G Green
G ⊥ Green ground
G1 Green primary
G₁ G1 picture tubes
G2 Green secondary

G2B G2 blue picture tube
G2G G2 green picture tube
G2R G2 red picture tube
GHH Green convergence coil horizontal high
GHL Green convergence coil horizontal low
GND Ground
GNDM ground mains related
GVH Green convergence coil vertical high
GVL Green convergence coil vertical low

H

HA Horizontal amplitude
HDH B Horizontal deflection high blue
HDH G Horizontal deflection high green
HDH R Horizontal deflection high red
HDL Horizontal deflection low
HDL B Horizontal deflection low blue
HDL G Horizontal deflection low green
HDL R Horizontal deflection low red
HDR Horizontal drive pulses
HP Horizontal pulses
HPAR Horizontal parabola
HS Horizontal sync
HS T Horizontal sync from TTL input
HTHD High tension for horizontal deflection
HVL High voltage transformer low

I

IBCL B Individual beam current limiter blue
IBCL G Individual beam current limiter green
IBCL R Individual beam current limiter red
IR RC Infra red information from IR receiver in projector

L

LP Positive 350 V Line flyback pulses

N

NSH B North south high blue
NSH G North south high green
NSH R North south high red
NSL B North south low blue
NSL G North south low green
NSL R North south low red



O

OFF ON OFF (stand by)

R

R Red
 R ⊥ Red ground
 R1 Red primary
 R2 Red secondary
 RHH **Red** convergence coil horizontal high
 RHL Red convergence coil horizontal low
 RVH Red convergence coil vertical high
 RVL **Red** convergence coil vertical low
 RXD C Receive data - computer

S

SC Sand castle
 SCL Clock 12C
 SDA Data 12C communication
 SF Scan fail
 SF 1 Scan fail node 1
 SF 2 Scan fail node 2
 SF 3 Scan fail node 3
 SF 5 Scan fail node 5
 SF 6 Scan fail node 6

T

TXD C Transmit data - computer

V

V BL Vertical blanking
 V **PAR** Vertical parabola
 VBL Vertical blanking
 VDH B Vertical deflection high blue
 VDH G Vertical deflection high green
 VDH R Vertical deflection high red
 VDL B Vertical deflection low blue
 VDL G Vertical deflection low green
 VDL R Vertical deflection low red
 VF Vertical flyback pulses
 VID Video
 VS Vertical sync
 VS T Vertical sync from TTL input

Y

Y Y-signal
 Y ⊥ Y-signal ground

+17 +17 V supply
 +17M +17V supply voltage mains related
 +17(C) +17 V supply voltage convergence
 +230 +230V supply voltage
 +30 +30 V supply voltage
 +300HV +300V mains related supply voltage to high voltage transformer
 +300M +300 V supply voltage mains related
 +5 SB +5V supply voltage stand by
 +9 +9 V supply voltage
 +9 SB +9V supply voltage stand by
 +9SB +9 V supply voltage stand by
 +FAN Supply voltage for fans
 +RGSB +RGSB switching voltage
 +S VID +S VID switching voltage
 +SH Positive supply voltage for shift
 +TTL +TTL swithing voltage
 +VID +VID switching voltage
 +VID +VID switching voltage
 -17 -17 V supply
 -17 -17V supply voltage
 -8 -8 V supply voltage
 -9 SB -9V supply voltage stand by
 -9SB -9 V supply voltage stand by
 -SH Negative supply voltage for shift



BARCO Projection Systems

SECTION D

service sheet

BARCO PROJECTION SYSTEMS

BARCO

BARCO **GRAPHICS**
800

90 00560 (220V AC)

90 00569 (110V AC)

SERVICE SHEETS

DATE :01/07/91

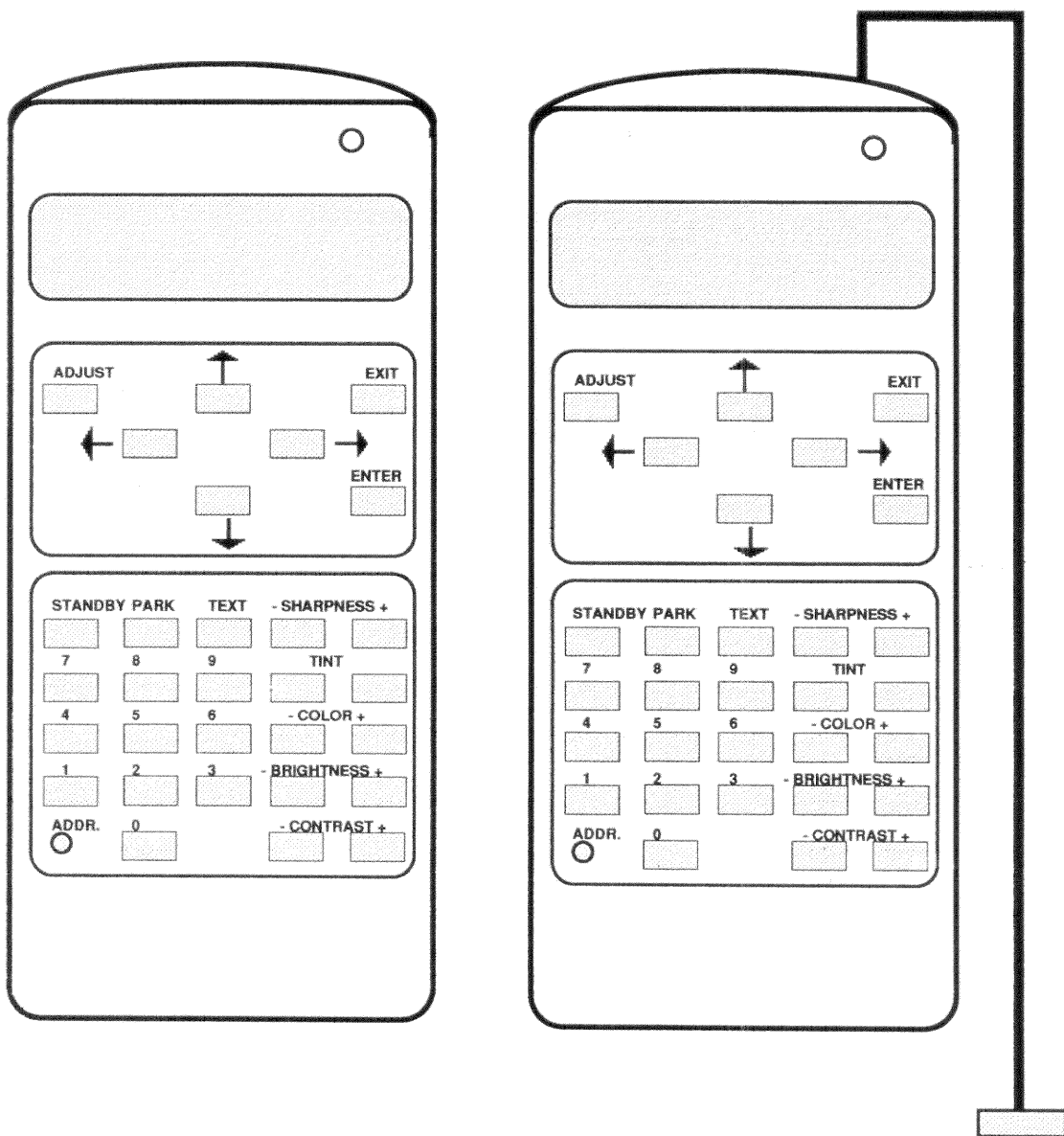
revision 01

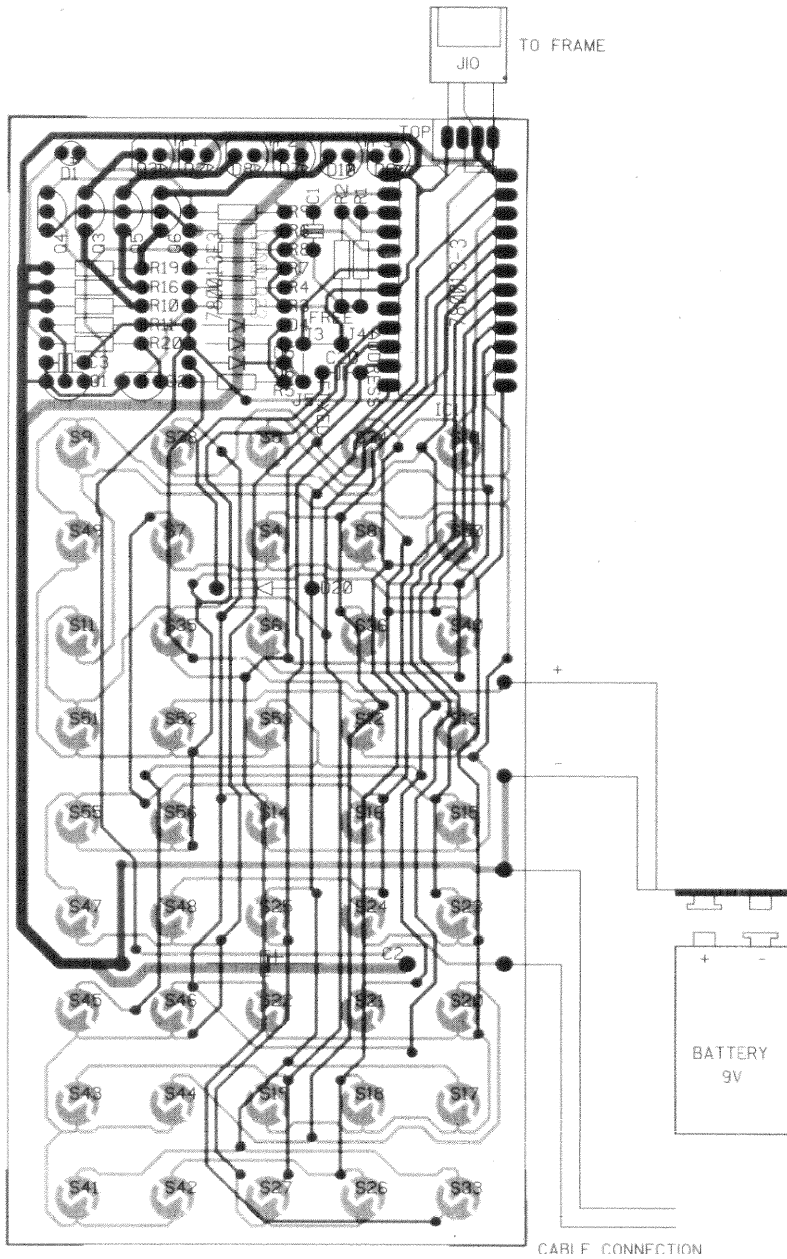
ART. NR. : 59 75983

79 1636 Infra Red remote control
79 1637 Internal Control unit

79 1636

79 1637

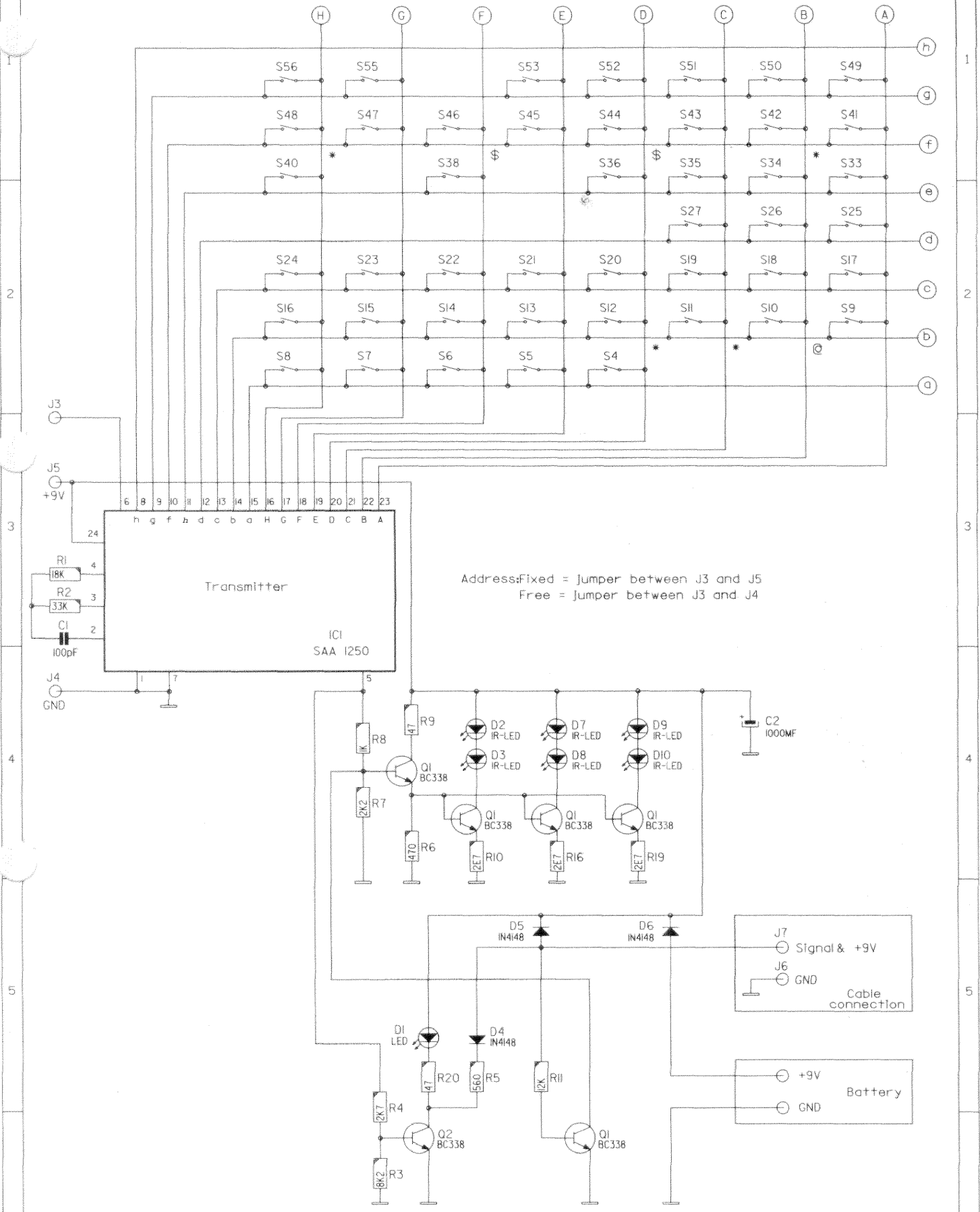




COMPONE	LOCATION
C1	E 2
C2	C 2
C3	E 1
C20	E 2
D1	E 1
D2	E 2
D3	E 1
D4	E 2
D5	E 2
D6	E 2
D7	E 2
D8	E 2
D9	E 2
D10	E 2
D20	D 2
IC1	E 2
J1	C 2
J2	D 2
J3	E 2
J4	E 2
J5	E 2
J6	C 2
J7	C 2
J8	E 2
Q1	E 1
Q2	E 1
Q3	E 1
Q4	E 1
Q5	E 1
Q6	E 2
R1	E 2
R2	E 2
R3	E 2
R4	E 2
R5	E 2
R6	E 2
R7	E 2
R8	E 2
R9	E 2
R10	E 1
R11	E 1
R16	E 1
R19	E 1
R20	E 1
S4	D 2
S5	D 2
S6	D 2
S7	D 1
S8	D 2
S9	D 1
S10	D 2
S11	D 1
S12	D 2
S13	D 2
S14	C 2
S15	C 2
S16	C 2
S17	B 2
S18	B 2
S19	B 2
S20	C 2
S21	C 2
S22	C 2
S23	C 2
S24	C 2
S25	C 2
S26	B 2
S27	B 2
S33	B 2
S34	D 2
S35	D 1
S36	D 2
S38	D 1
S40	D 2
S41	B 1
S42	B 1
S43	B 1
S44	B 1
S45	C 1
S46	C 1
S47	C 1
S48	C 1
S49	D 1
S50	D 2
S51	D 1
S52	D 1
S53	D 2
S55	C 1
S56	C 1

CABLE CONNECTION

Name	Remote control	Article nr.	791636 - 791637
Date	17/07/1991	Drawn	PCOE
		Checked	SCG
BARCO PROJECTION SYSTEMS			



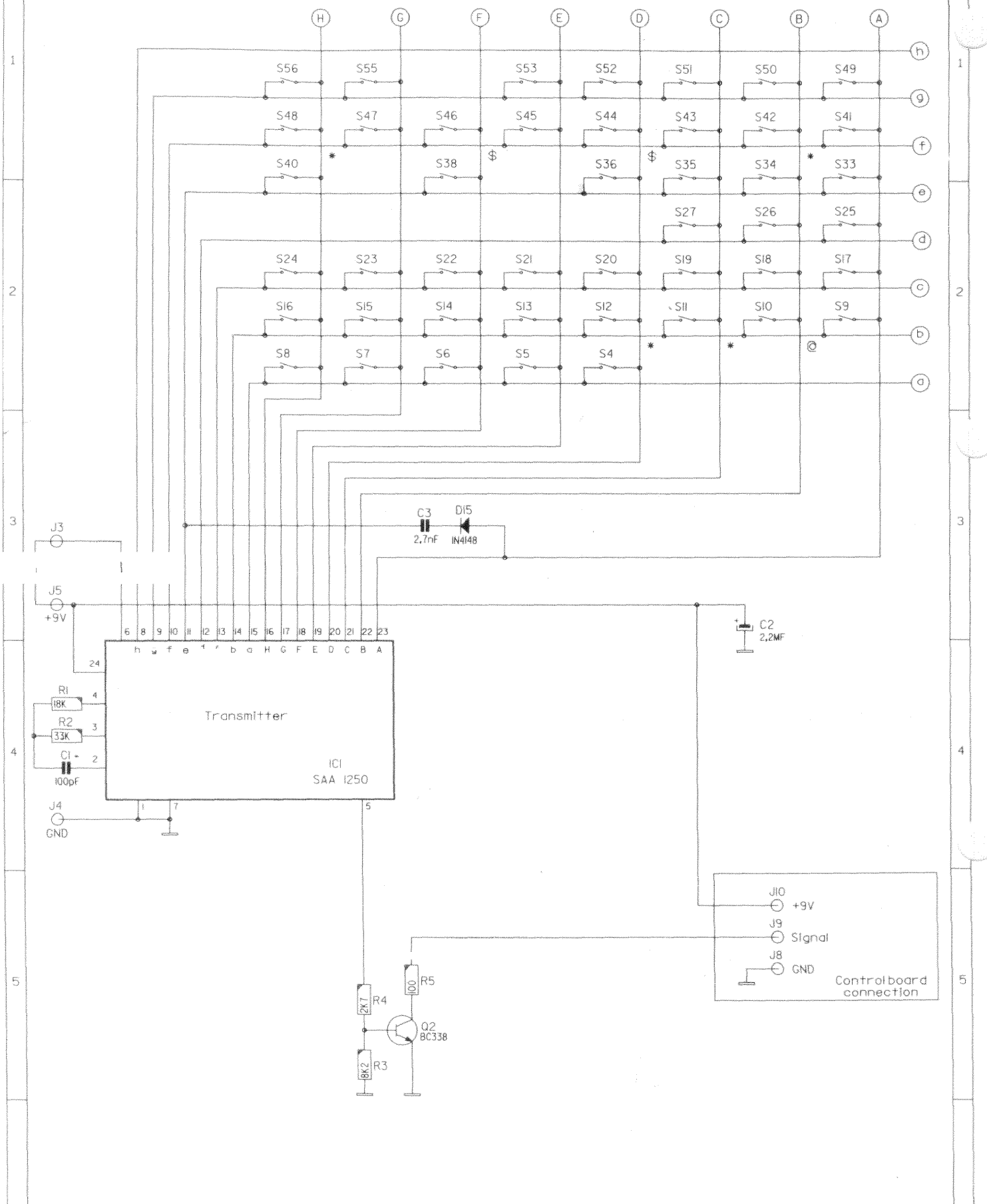
Address: Fixed = Jumper between J3 and J5
 Free = Jumper between J3 and J4

- Codes on row h are reserved, but the keys are not implemented.
- Codes marked with * reset the SAA1250 address flip flop.
- Codes marked with \$ reset the SAA1250 address flip flop when pressed simultaneously.
- Codes marked with @ emits command 00 and will be ignored by the receiver when accompanied by address 0.

Name Transmitter		Article nr. 791636 00	
Date 15/09/1990	Drawn PG	Checked SCG	

Modifications reserved

BARCO PROJECTION SYSTEMS



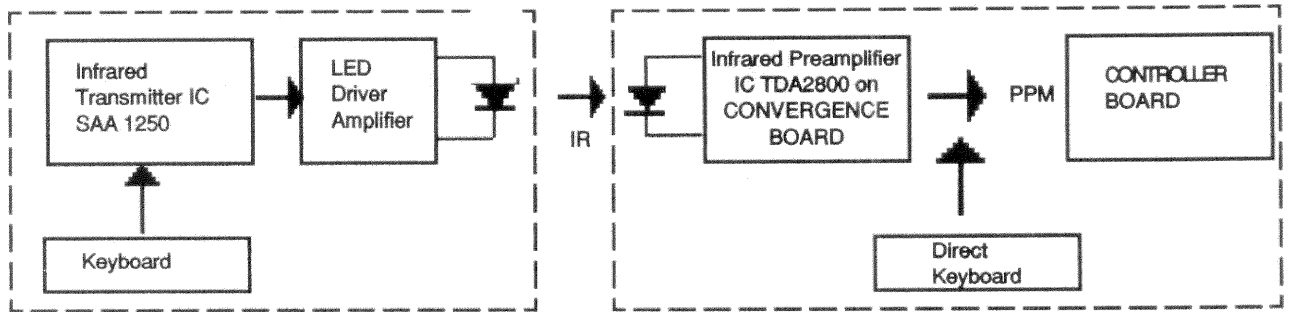
- Codes on row h are reserved, but the keys are not implemented.
- Codes marked with * reset the SAA1250 address flip flop.
- Codes marked with \$ reset the SAA1250 address flip flop when pressed simultaneously.
- Codes marked with @ emits command 00 and will be ignored by the receiver when accompanied by address 0.

Name Transmitter		Article nr. 791637 00
Date 15/04/1991	Drawn PGOE	Checked SCG

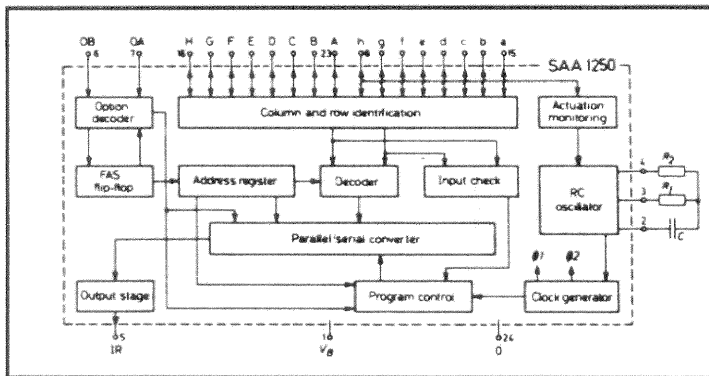
BARCO PROJECTION SYSTEMS

Modifications reserved

BLOCK DIAGRAM



BLOCK DIAGRAM IC SAA1250



Code for the OA and OB address inputs

input	OA	OB
option I	H	H
option II	H	L
option III	L	H
free address selection	L*	L*

* L impulse (min.30us)

Used options:

- Option III: alle commands are sent with address 10
- Option: free address selection

Command table of the infrared transmitter IC SAA 1250

Command	Input code		Option III	Free Address Selection
No	a b c d e f g h	A B C D E F G H	Address 10	OA and OB to L potential
S5 Down	x			
S6 Up	x			
S7 Right	x			
S8 Left	x			
S9 Exit	x	x		
S10 Adjust	x	x		
S11 Enter	x	x		
S14 Text	x			
S15 Stdbyp	x			
S16 Pause	x			

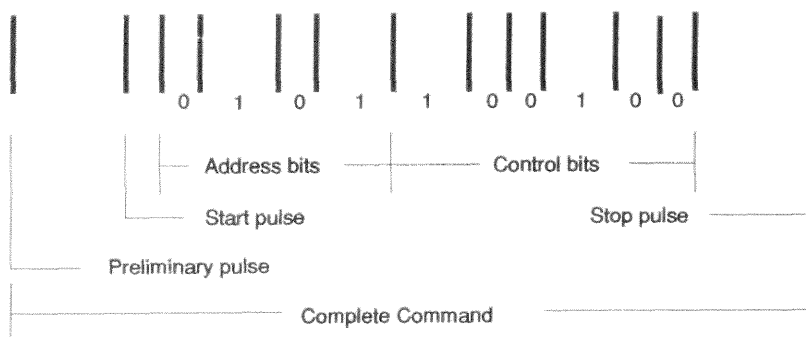
Command table of the infrared transmitter IC SAA 1250 (continu)

Command	Input code		Option III	Free Address Selection
No	a b c d e f g h	A B C D E F G H	Address 10	OA and OB to L potential
S17 1	x	x		Address 1
S18 2	x	x		Address 2
S19 3	x	x		Address 3
S20 4	x	x		Address 4
S21 5	x	x		Address 5
S22 6	x	x		Address 6
S23 7	x	x		Address 7
S24 8	x	x		Address 8
S25 9	x	x		Address 9
S26 0	x	x		Address 10
S27 Toggle	x	x		Address 11
S33 Address	x	x		FAS OFF
S41 Contr+	x	x	█	
S42 Contr -	x	x		
S43 Bright+	x	x		
S44 Bright -	x	x		
S45 Sat+	x	x		
S46 Sat -	x	x		
S47 Tint+	x	x		
S48 Tint -	x	x		
S55 Sharp+	x	x		
S56 Sharp -	x	x		

Operational mode

According to Table above, the SAA 1250 operates in two modes, which are determined via the OA and OB address input (see table on preceding page).

The first command is given about 20ms after contact actuation. All following commands are sent periodically every 130 ms.



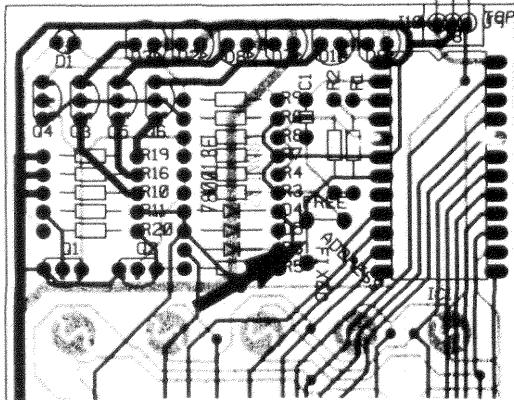
The signals are transmitted by means of infrared light in the shape of packages pulses. For the transmission of a 10-bit word, 14 pulses are required. The binary information of a bit is contained in the time interval between two pulses. We define the time T (approx. 100us) as the basis for the code to be employed.

duration T = binary digit "0"
duration 2T = binary digit "1"

Spacing between preliminary pulse and start pulse 3T. This is followed after a 1T by the 11 data pulses and terminated after a 3T interval by the stop pulse.

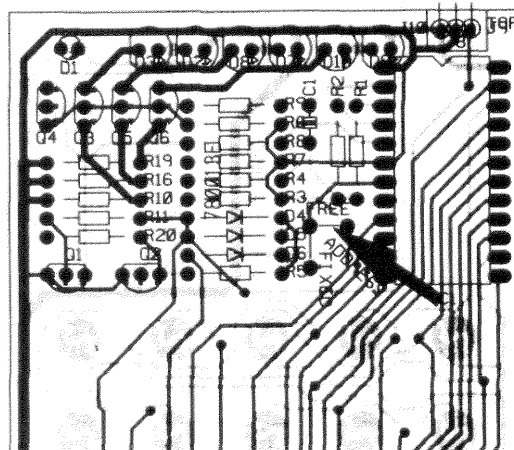
The OPTION III and the FREE ADDRESS SELECTION (FAS) are defined in the remote control RCU800 by means of an inserted jumper on the printed circuit board, see PCB lay-out.

FIXED ADDRESS SELECTION MODE



First signal is transmitted 20ms after key depression, further signals periodically in a distance of 130ms with Address **10**.

FREE ADDRESS SELECTION MODE



First signal is transmitted 20ms after key depression, further signals every 130ms.

The commands can be transmitted consecutively to various addresses with free address selection.

In this mode the required address must be initially entered into the address register of the transmitter IC SAA1250, using one of the commands 17 to 32. Then all following commands are transmitted together with the stored address, including commands 17 to 32.

The command 33 (FAS off) clear, under the conditions of a L signal permanently applied to both address inputs, only the address register.

TRANSMITTER RCU800

79 1636
79 1637

ITEM NO.	SIT	DESCRIPTION	ITEM NO	SIT	DESCRIPTION
11 2242	C..1	C NPO MI 100P J 63E2	13 1424	Q..2	Q BC338 N SS TO92 025A8
11 1135	C..2	C EL AX1000M T 10	13 1424	Q..3	Q BC338 N SS TO92 025A8
11 2744	C.20	C CE MI 2N7K 63E2	13 1424	Q..4	Q BC338 N SS TO92 025A8
13 1662	D..1	D LED D3 T RED	13 1424	Q..5	Q BC338 N SS TO92 025A8
13 16666	D..2	D LED D5 T IR 89A2	13 1424	Q..6	Q BC338 N SS TO92 025A8
13 16666	D..3	D LED D5 T IR 89A2	10 11512	R..1	R CF H 18K G 0W25
13 1621	D..4	D 1N4148 SW DO35	10 1154	R..2	R CF H 33K J 0W25
13 1621	D..5	D 1N4148 SW DO35	10 1147	R..3	R CF H 8K2 J 0W25
13 1621	D..6	D 1N4148 SW DO35	10 1141	R..4	R CF H 2K7 J 0W25
13 16666	D..7	D LED D5 T IR 89A2	10 1133	R..5	R CF H560E J 0W25
13 16666	D..8	D LED D5 T IR 89A2	10 1132	R..6	R CF H470E J 0W25
13 16666	D..9	D LED D5 T IR 89A2	10 1141	R..7	R CF H 2K7 J 0W25
13 16666	D.10	D LED D5 T IR 89A2	10 1136	R..8	R CF H 1K J 0W25
13 1621	D.20	D 1N4148 SW DO35	10 1120	R..9	R CF H 47E J 0W25
13 7371	L.1	U 1250 SAA DIP24 PIRTRA	10 1105	R.10	R CF H 2E7 J 0W25 R25X
34 8100	J..1	W JUMP 0.6 AUTOM	10 1149	R.11	R CF H 12K J 0W25
78 0013	PC	PCB PJ49 TX *800 791636	10 1105	R.16	R CF H 2E7 J 0W25 R25X
13 1424	Q..1	Q BC338 N SS TO92 025A8	10 1105	R.19	R CF H 2E7 J 0W25 R25X
			10 1120	R.20	R CF H 47E J 0W25

TRANSMITTER RCU800

79 1636
79 1637

ART.NO.	DESCRIPTION	QUANTITY	ART.NO.	DESCRIPTION	QUANTITY
13 1424	Q BC338 N SS TO92 025A8	6	59 75064	LEAFLET RCU800 TX	1
13 1621	D 1N4148 SW DO35	4	72 1671	HSG TV40 TX CVR DN	1
13 1662	D LED D3 T RED	1	72 1672	HSG TV40 TX DOOR	1
13 16666	D LED D5 T IR 89A2	6	72 1673	HSG TV40 WDW IR	1
13 7371	U 1250 SAA DIP24 PIRTRA	1	72 1676	KNOB PUSH TX 40	5
31 3042	J PHONE FCT D 2,5 MONO	1	72 16762	KNOB PUSH TX 40 RED	1
31 3196	J BAT NWS P 2 9V	1	72 16768	KNOB PUSH TX 40 GRA	24
32 7000	BAT 9V PP3 ALKALINE	1	80 0181	SW TV 40 MATRIX TX	1
36 15075	SCR DIN7981 3,2X 9,5	2	80 0349	HSG TV40 TX WDW LEAFLET	1
59 3529	BAG PE 100X 220X 0,07	1	80 2652	DPL PJ49 TX CPL	1
			80 2683	KNOB PUSH TX PJ49 ADDRESS	1
			80 2862	HSG PJ49 TX CVR UP	1

