BARCO

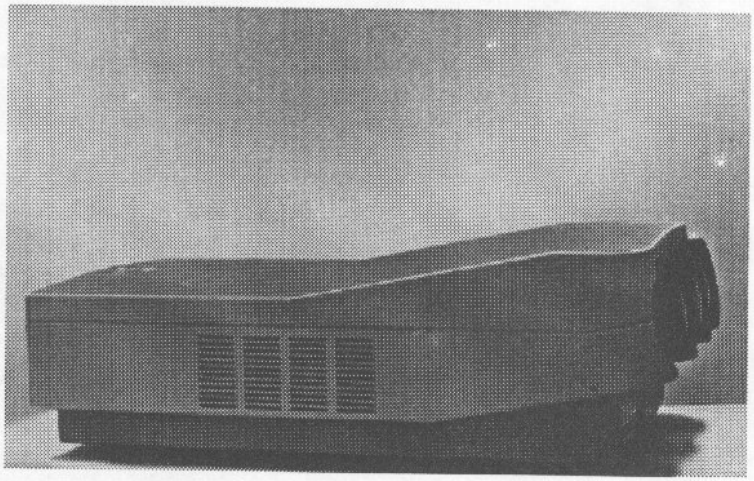
BARCO DATA 808

R9002030
R9002039

CONTENTS **Date : 15/11/95**

BARCO PROJECTION SYSTEMS

BARCO



BARCO DATA 808

R9002030 (230V AC)
R9002039 (120V AC)

SERVICE MANUAL

DATE: 15/11/95 revision 00 **Art. NR.: R5975766**

BARCO PROJECTION SYSTEMS

BARCO

BARCO DATA 808

R9002030 (230V AC)
R9002039 (120V AC)

SAFETY NOTICE

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.

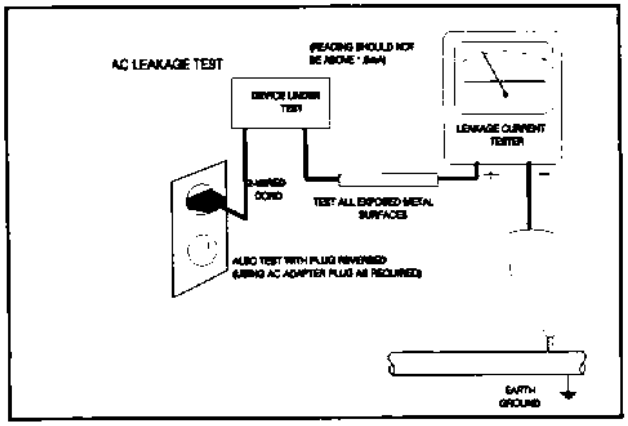
SAFETY PRECAUTIONS

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, 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 andult 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 alterated.
   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 ⚠ 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:

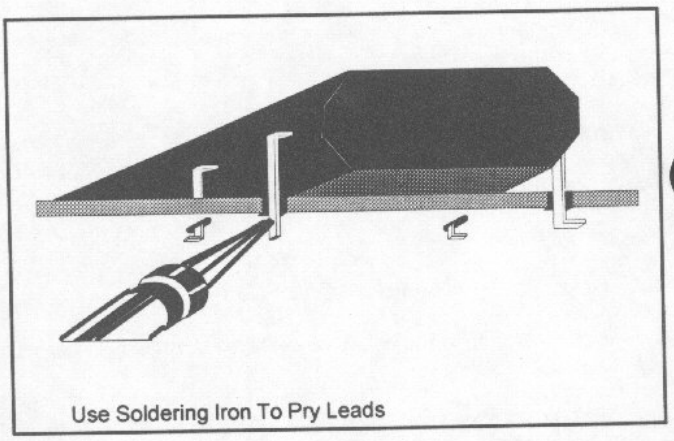
   a. Allow the soldering iron tip to reach normal temperature (260°C to 315°C).

   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.



Use Soldering Iron To Pry Leads

BARCO PROJECTION SYSTEMS

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BARCO DATA 808

R9002030 (230V AC)
R9002039 (120V AC)

GENERAL INFORMATION

INPUTS
- RGB analog (5xBNC-connectors), sync on green or separate sync
- RGB analog input on D9-connector (optional D9-BNC adapter is available)
- Video (PAL, SECAM, NTSC 3.58, NTSC 4.43), loop-through (2xBNC) with 75 Ohm termination switch
- S-Video input (4-pin mini-DIN), loop-through with 75 Ohm termination switch

SPECIAL FEATURES
- 32 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
- Colour temperature adjustment (3200 K, 6500 K, 9300 K or custom)
- Special RGB sharpness control: improves picture quality for high-frequency sources
- 100 % modular construction
- D.D.A. (Digital Dynamic Astigmatism) guarantees superb focus quality from centre to corners of projected image
- Built-in Scheimpflug optical correction (BG808 only), with stepless adjustments for both horizontal and vertical axis, guarantees optimal optical focus from left to right and top to bottom for projection under non-standard angles
- Text generators for other languages are available

WEIGHT

Net weight:	67 kg - 148 lbs.
Shipping weight:	83 kg - 183 lbs.

POWER CONSUMPTION
500 W

ELECTROMAGNETIC INTERFERENCE
The BARCODATA 808 and BARCOGRAPHICS 808 comply with FCC part 15 Class B and EN55022 Class B.

SAFETY REGULATIONS
The BARCODATA 808 and BARCOGRAPHICS 808 comply with UL 1950 and IEC 950.

RADIATION REGULATIONS
The BARCODATA 808 and BARCOGRAPHICS 808 comply with DHHS radiation performance standards 21 CFR Subchapter J.

ORDER INFORMATION

BARCODATA 808:	
230 V:	R9002030
120 V:	R9002039
BARCOGRAPHICS 808:	
230 V:	R9000900
120 V:	R9000909
RCVDS 800:	
230 V:	R9827450
120 V:	R9827459
RCVDS 05:	
230 V:	R982788(
120 V:	R9827889
Projector Control software (DOS):	R9827530
IRIS 800:	R9827695
Executive remote control:	R9827970
Remote infrared receiver:	R9827515
Communication cables:	
5 m (16 ft.):	R9827770
15 m (50 ft.):	R9827560
30 m (100 ft.):	R9827570
D9-BNC cable adapter:	R9827840
Suspension system:	R9827341
Flight case:	R9828110
Special add-in boards:	
- Soft-edge matching & contrast modulation kit:	R9827810
- Contrast modulation kit:	R9827800
- Orbiting kit:	R9827781
- Convergence on green:	R9828080

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

Photo on front page: BARCOGRAPHICS 808 in use at the Windows Software Show, Olympia, London. Photo Courtesy: Show Presentation Services Ltd. (SPS).

Ref. no. 59 94026 -Photographs: S.Depraetere/Studio DSP- Printed in Belgium - Issue date: May 1995

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BARCO 808 Series Projectors Universal, High-Resolution, Large Screen Projectors

KEY FEATURES
- ✓ Ultra-high resolution through precision optics, electromagnetic focus CRTs and state-of-the-art electronics
- ✓ Broad display compatibility
- ✓ Comply with FCC part 15 Class B and EN55022 Class B EMI/RFI specifications

High-performance data and graphics large screen projection systems

The BARCO 808 Series projectors are BARCO's new high performance data and graphics projectors designed to render razor sharp and crystal clear images from a wide range of computer graphics workstations and PC graphics boards on screens up to 6 m (20 ft) wide.
Two models are available: the BARCODATA 808, for presentation and training applications, and the BARCOGRAPHICS 808, for high-resolution applications such as CAD/CAM, process control, traffic control management, surveillance and simulation.

BROAD COMPATIBILITY

The BARCODATA 808 and the BARCOGRAPHICS 808 can display all worldwide Video standards (PAL, SECAM, NTSC 3.58, NTSC 4.43) as well as S-VHS (Y/C) signals.

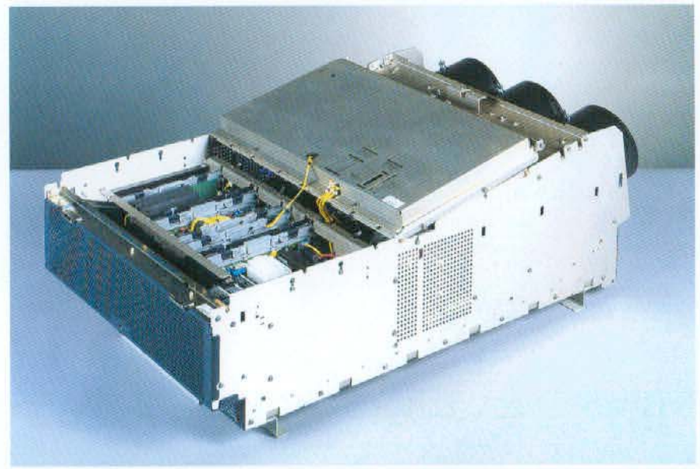
The BARCODATA 808 is compatible with a wide range of PC graphics boards from 15 to 69 kHz with resolutions up to 1180 by 900 pixels/60 Hz. This makes it ideally suited for a wide range of presentation and training applications such as multimedia events, trade shows, training sessions, boardroom meetings,...

The BARCOGRAPHICS 808 offers a broad autolock scan range of 15-105 kHz, which allows it to display all signals from a wide range of PC graphics boards and graphics workstations up to a resolution of 1600 by 1200 pixels /78 Hz (such as Cornerstone DualPage, Intergraph Interpro 2700,...). This makes the BARCOGRAPHICS 808 the product of choice for large screen process control, traffic control, surveillance and simulation applications.

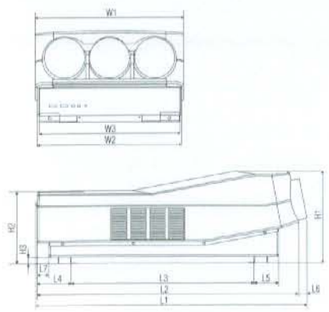
▲ *The ultra high resolution and broad compatibility of the BARCOGRAPHICS 808 make it the perfect solution for large screen simulation applications.*
Photo: SEOS PRODAS C1200, 360° display using SEOS 932, custom-adapted BARCOGRAPHICS projectors, on a full motion ship bridge simulator at Marine Safety International in Rotterdam, The Netherlands.

Technical specifications

▶ *The BARCO 808 Series projectors have been designed with a rugged enclosure for extremely low RFI/EMI radiations for demanding military and industrial applications. The 100 % modular construction of the projector allows easy access to all controls and facilitates quick servicing.*



Dimensions	mm	inch
L1	1076	42.36
L2	1040	40.94
L3	728	28.66
L4	136	5.35
L5	96	3.78
L6	32	1.26
L7	46	1.81
H1	362	14.25
H2	286	11.26
H3	27	1.06
W1	590	23.23
W2	576	22.68
W3	558	21.97



	BARCODATA 808	BARCOGRAPHICS 808
SCAN FREQUENCIES		
Horizontal:	15-69 kHz autolock	15-105 kHz autolock
Vertical:	37-140 Hz autolock	37-140 Hz autolock
MINIMAL RETRACE TIME		
Horizontal:	< 2.5 µs	< 2.5 µs
Vertical:	< 200 µs	< 200 µs
OPTICAL SCHEIMPFLUG CORRECTION	No	Yes

LIGHT OUTPUT
At 10 % peak white: 1000 lumen
ANSI lumen[1]: 210 lumen

CRTS
High brightness, high definition, liquid cooled 8" electromagnetic focus CRTs

LENSES
High definition, fully colour corrected F1.06 hybrid lenses, with centre+edge focus adjustments

OPTICAL RESOLUTION
10 lp/mm at 50 % MTF throughout the field

SCREEN SIZE
Minimum: 1.2 m x 0.9 m (4' x 3')
Maximum: 6.0 m x 4.5 m (20' x 15')

HORIZONTAL LINEARITY
< ±1.5 % distortion throughout the full horizontal frequency range

RGB BANDWIDTH
75 MHz

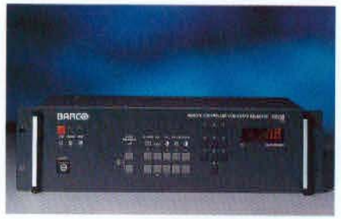
REMOTE CONTROL
A user-friendly backlit infrared remote control for control of:
- source switching
- user settings per source (sharpness, hue, colour, brightness, contrast)
- geometry per source (password protectable)
- convergence per source (password protectable)

An optional executive remote control unit is available for control of source switching and user settings per source

(1) Measurement method conforms to ANSI IT 7.215 standard.

Optional peripheral devices

BARCO offers a wide range of peripheral devices and options, which further enhance the flexibility and versatility of the BARCO 808 Series projectors.



▲ *The RCVDS 05 allows for the connection of a wide range of sources to one or more projectors, and the adjustment of all picture settings via a convenient infrared remote control.*

RCVDS 800 SWITCHER

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 projector, 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.

RCVDS 05 SWITCHER

The RCVDS 05 is a high-bandwidth (220 MHz) source selector which makes it possible to select a wide range of video, data and graphics sources to one or more projectors or monitors.

EXECUTIVE REMOTE CONTROL

An executive infrared remote control is available, to accommodate source selection and adjustment of user settings without allowing changes to the projector's geometry and convergence settings.

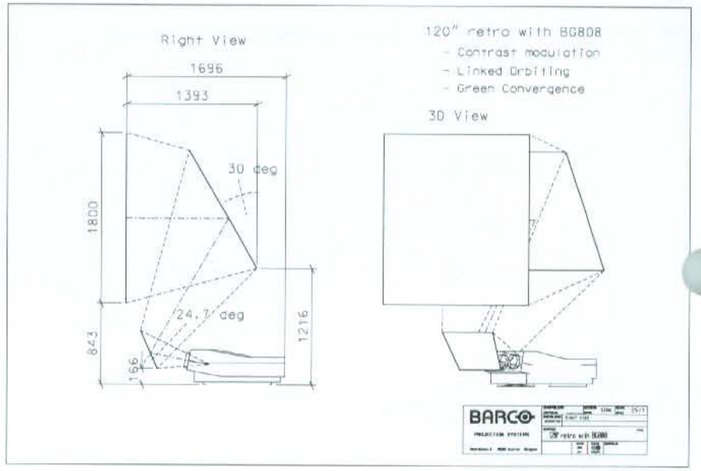
SUSPENSION SYSTEM

BARCO's suspension system allows the BARCO 808 Series projectors 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 a BARCO 808 Series projector.

▶ *Using sophisticated CAD systems, BARCO's application engineers produce detailed technical drawings of custom-made configurations.*



REMOTE INFRARED RECEIVER

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

COMMUNICATION CABLES

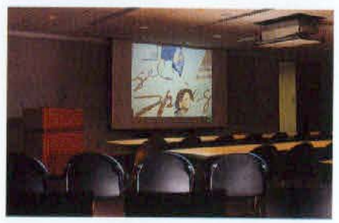
Additional RS232/422 cables (D9/D9), with a length of 5 m (16'), 15 m (50') or 30 m (100') are available.

SPECIAL OPTIONS

BARCO offers a series of special options for non-standard applications (multi-screen applications, non-standard projection angles,...): contrast modulation kit, soft-edge matching kit, orbiting kit, convergence on green, Automatic Colour Temperature Alignment System (ACTAS)...

For special applications, a team of highly trained application engineers are available to assist in developing custom-made product solutions and special projector configurations using BARCO's sophisticated CAD systems.

▶ *The BARCOGRAPHICS 808 is the product of choice for process control and surveillance applications. (Photo: New York City Police Department Command Center. Courtesy by General Audio-Visual, Inc.)*



▲ *The unit's unprecedented performance and wide versatility make the BARCODATA 808 the perfect solution for large screen presentation and training applications.*
Photo top: Spiegel's headquarters in Chicago.
Photo bottom: The Unipart 'U' University, Oxford, England. Courtesy of The Saville Group Ltd, Farnborough, UK.

EXTREMELY USER-FRIENDLY SET-UP AND CONTROL

The BARCO 808 Series projectors are based on BARCO's advanced digital architecture which provides user-friendly remote control of all set-up and display functions. Extremely precise, yet simple adjustments are accomplished through intuitive, on-screen menu-driven displays.

OUTSTANDING IMAGE QUALITY

An advanced, high-resolution optical system with 8" electromagnetic focus CRTs and high-definition optics delivers razor sharp and crystal clear images on screens up to 6 m (20 ft) wide.

Utilising BARCO's optional IRIS 800 Auto-Convergence unit, on-screen convergence can be achieved in less than three minutes. A sophisticated memory management system and auto-memory storage feature guarantee consistently sharp image quality.

▲ *A convenient backlit infrared remote control unit facilitates control and adjustment of the projector.*

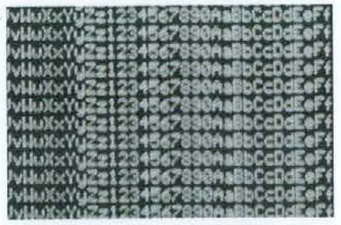
Ultra high-precision optical system
Brighter and sharper pictures

▶ *The BARCO 808 Series projectors incorporate a state-of-the-art optical system, which offers unmatched image quality with outstanding visual fidelity.*

▶ *The electrostatic focus system of conventional projectors offers good resolution only at moderate contrast levels.*
1) 50 % contrast
2) 100 % contrast

1.

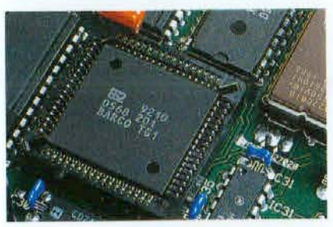
2.



▶ *BARCO's electromagnetic focus system guarantees projected images that are razor sharp, even at maximum contrast levels.*
3) 50 % contrast
4) 100 % contrast

3.

4.



▲ *The BARCO 808 Series projectors utilise microprocessor control and BARCO ASICs (Application Specific Integrated Circuits), which simplify adjustment and guarantee a consistent superb picture quality.*

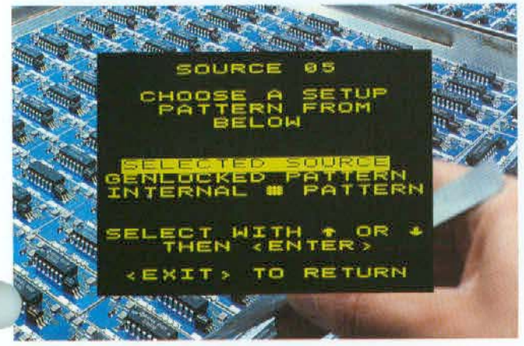
Incorporating an advanced, high resolution optical system, the BARCO 808 Series projectors deliver razor sharp images with very high light output on screens up to 6 m (20 ft.) wide.

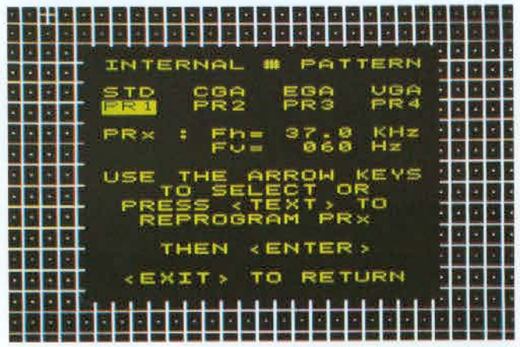
- The BARCO 808 Series projectors are provided with high brightness, high definition liquid cooled 8" electromagnetic focus CRTs with digitally controlled dynamic astigmatism, which offers consistently superb picture quality.

- High definition, fully colour corrected F1.06 hybrid lenses, with centre+edge focus adjustment, provide razor sharp images with improved contrast.

- The BARCOGRAPHICS 808 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 specialised installations.

Unequalled user-friendliness
Easy set-up and control





The BARCO 808 Series projectors are based on BARCO's advanced digital architecture. This offers not only outstanding specifications, but also facilitates the use and installation of the projectors.

LOGICAL ON-SCREEN MENUS

For simple geometry and convergence adjustments, the BARCO 808 Series projectors combine a user-friendly backlit remote control unit with logical on-screen menus.

GUIDED ADJUSTMENT PROGRAM

The projector offers a guided adjustment program which directs the user through the complete alignment procedure in the most efficient way, and a random adjustment mode which can be used for immediate access to one specific parameter.

INTERNAL PATTERN GENERATORS

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.

32 MEMORY BANKS

All image adjustments are individually set for each source and stored in one of the projector's 32 frequency related memory banks. Once image parameters are designated for each source, the projector will automatically select the correct settings for the source in use, thus providing consistently perfect image quality.

LDI: LINEAR DIGITAL INTERPOLATION

Once parameters are selected for at least two sources, the LDI (Linear Digital Interpolation) feature of the projector will automatically calculate the image parameters of all additional sources in order to approximate the new source settings. The LDI feature creates these new settings through the use of frequency dependent weighting algorithms, thus eliminating the need for time consuming readjustments.

IRIS 800 AUTOMATIC CONVERGENCE SYSTEM

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

PROJECTOR SUPPORT SOFTWARE PACKAGE

Thanks to BARCO's unique projector support software package, it is possible to adjust brightness, contrast, hue, colour, sharpness and geometry and convergence settings for up to 256 projectors from one central computer. It is even possible to store image settings for each source for future use on a computer hard disk or diskette. The software is available for IBM (or compatible) computers equipped with a DOS operating system.

▲ *The IRIS 800 has a lightweight, rugged enclosure, and can be easily installed to the front of the projector.*

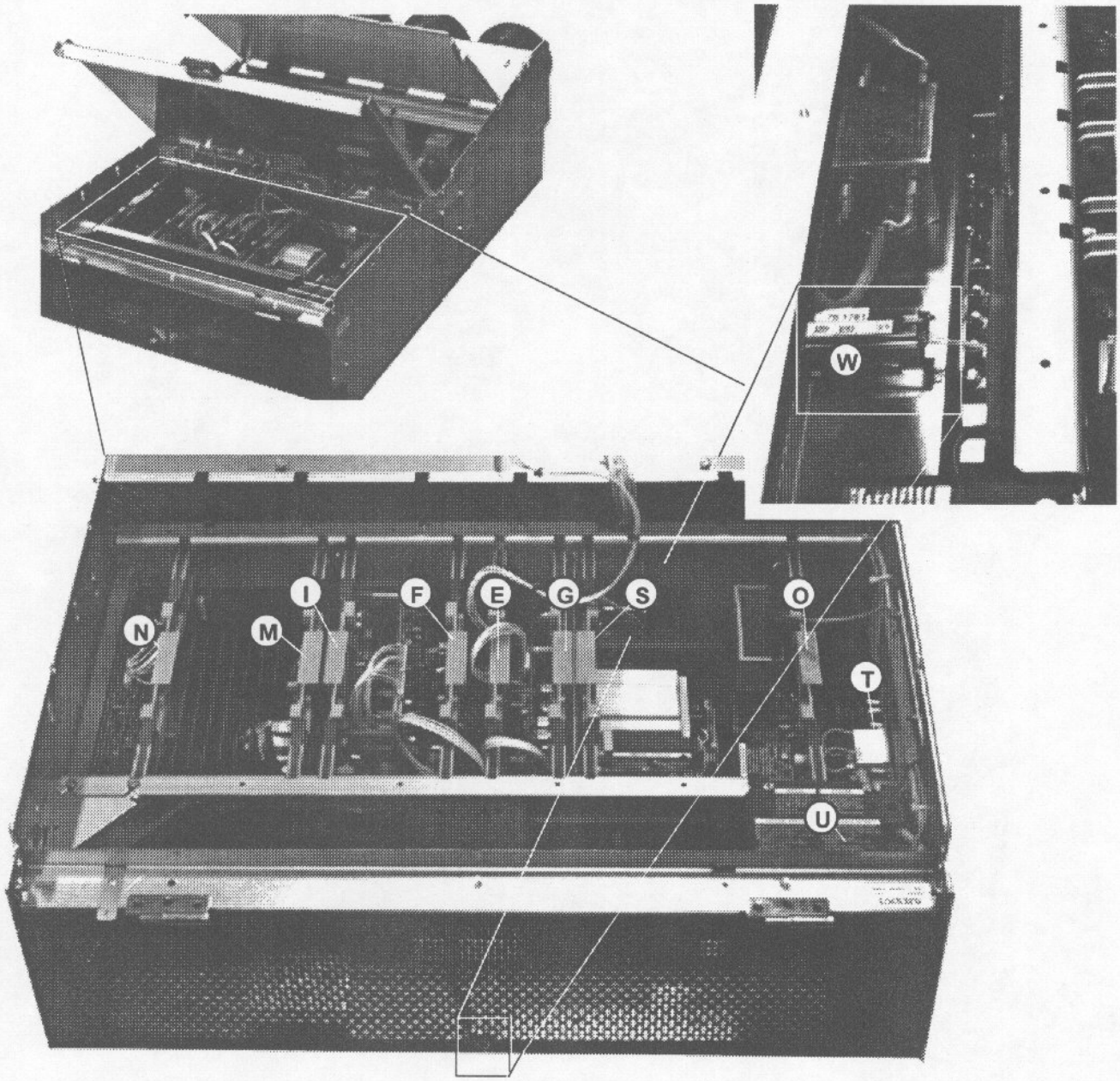
BARCO PROJECTION SYSTEMS

BARCO

BARCO DATA 808

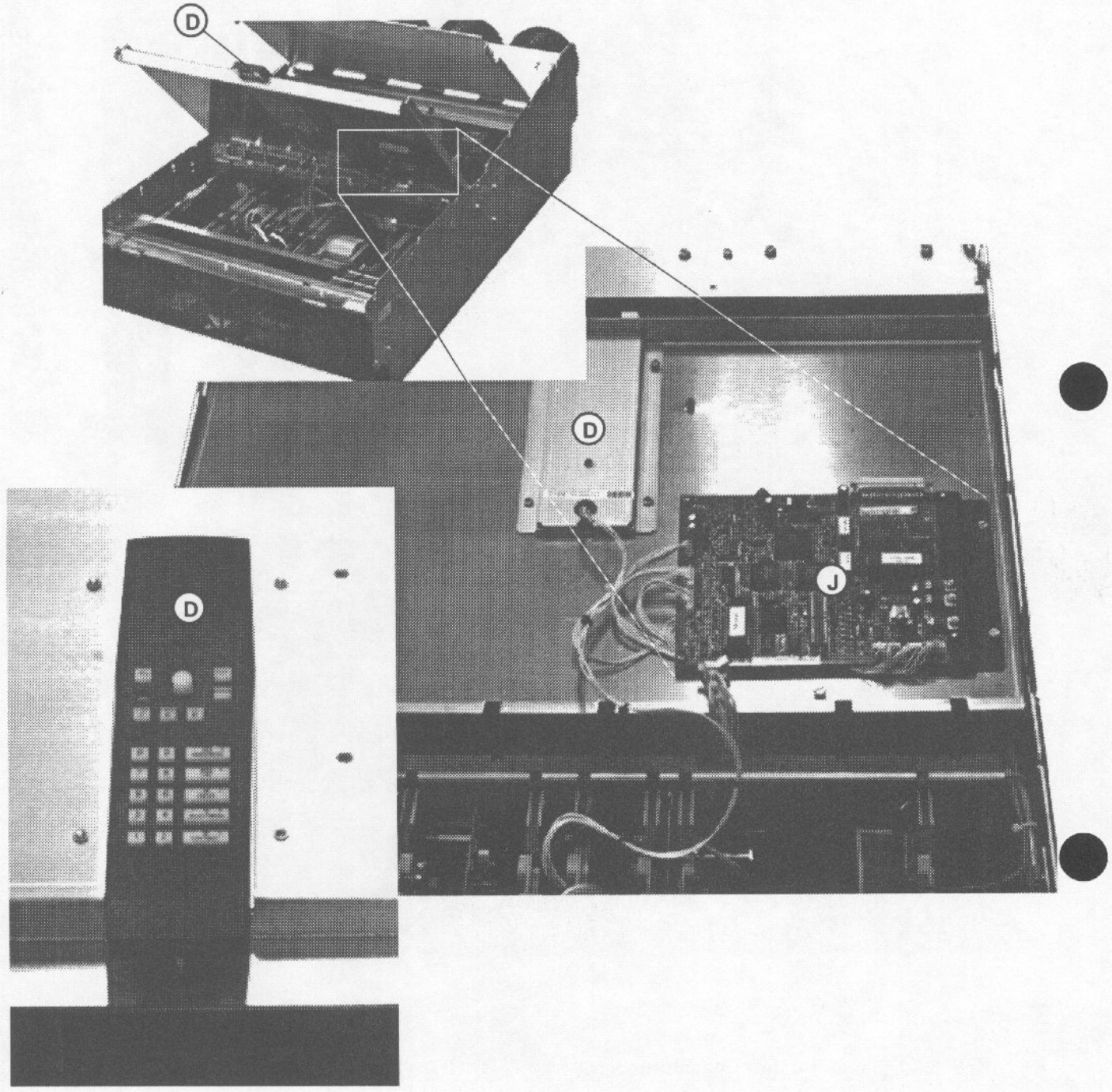
R9002030 (230V AC)
R9002039 (120V AC)

PARTS LIST ON BOARD LEVEL



Sheet reference		
N	R762503	Mag. Focus+Hor. Shift
M	R7617415	Horizontal Deflection
I	R7622695	Sync.+Vertical Deflection+ABL
F	R7621055	RGB Analog Auto Sync input
E	R7617481	RGB Input+Switching
W	R761781	IR Receiver

Sheet reference		
G	R7621745	Q Decoder+RGB GAIN Control
S	R7621705	SM Power Supply
O	R762506	SM Power Supply2+G2
T	R762507	Power Input
U	R7617427	EHT Generator

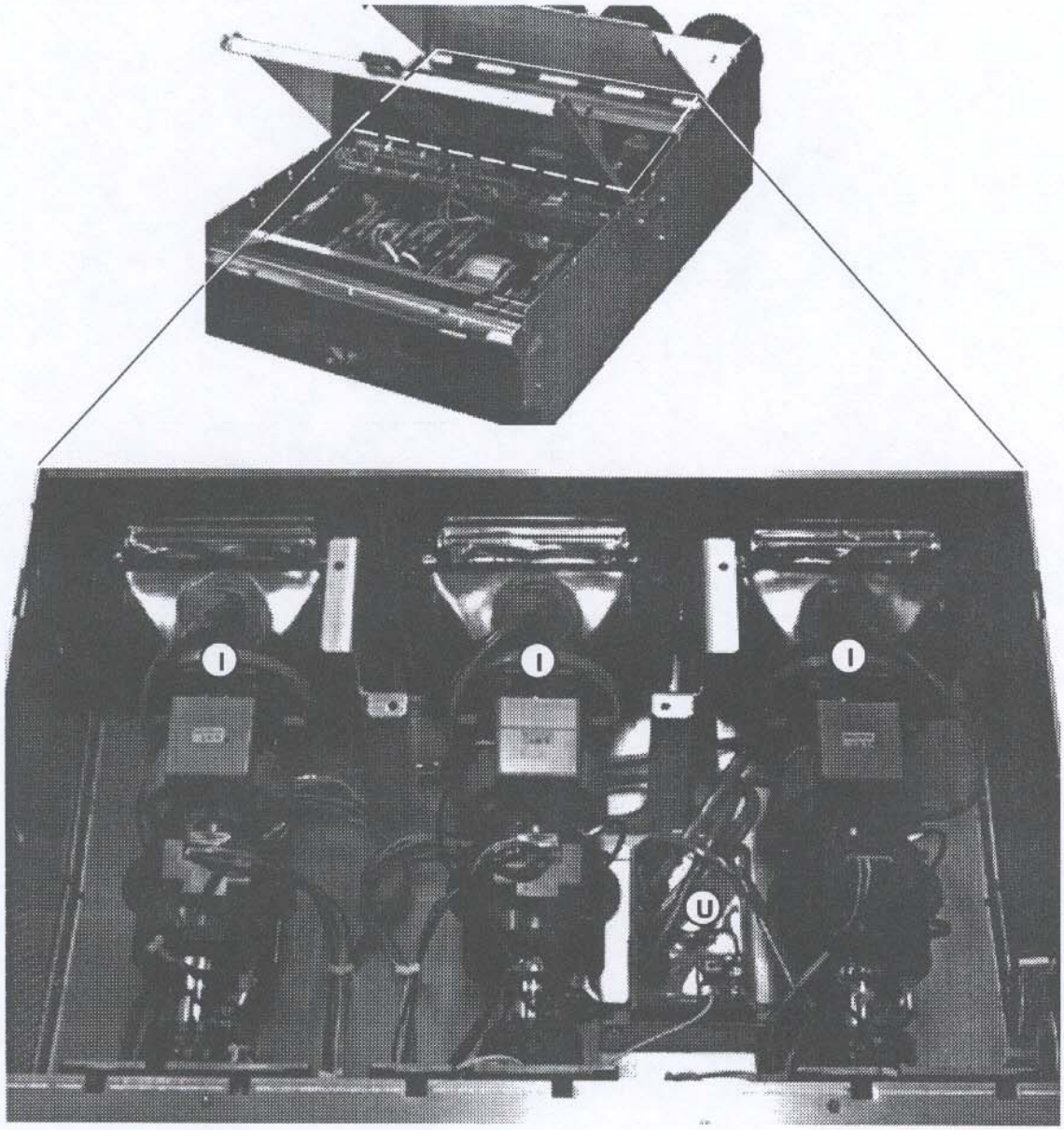


Sheet reference

(D) **R791664** **Internal Control Unit**

Sheet reference

(J) **R7625115** **Controller (Asic)**

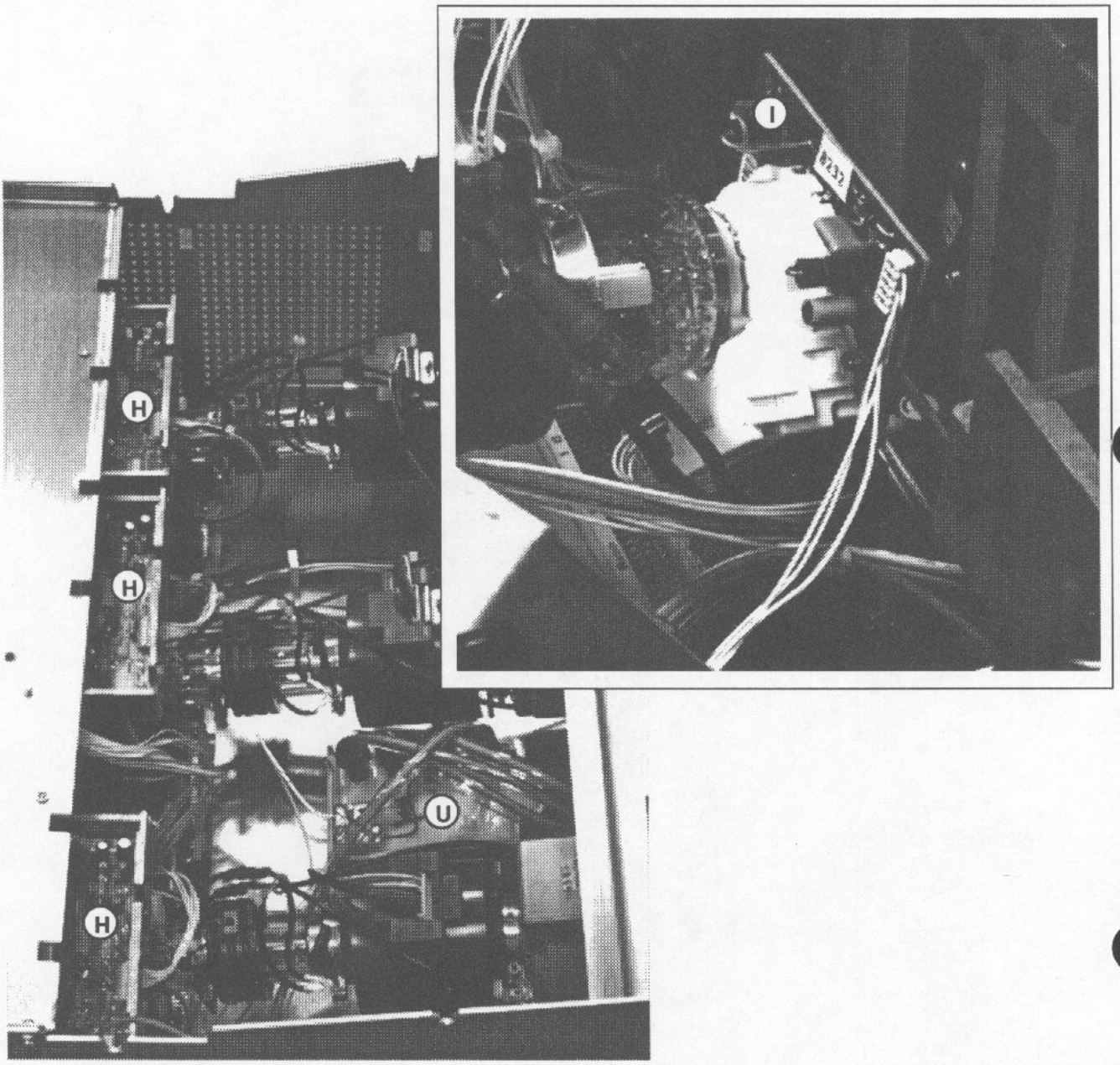


Sheet reference

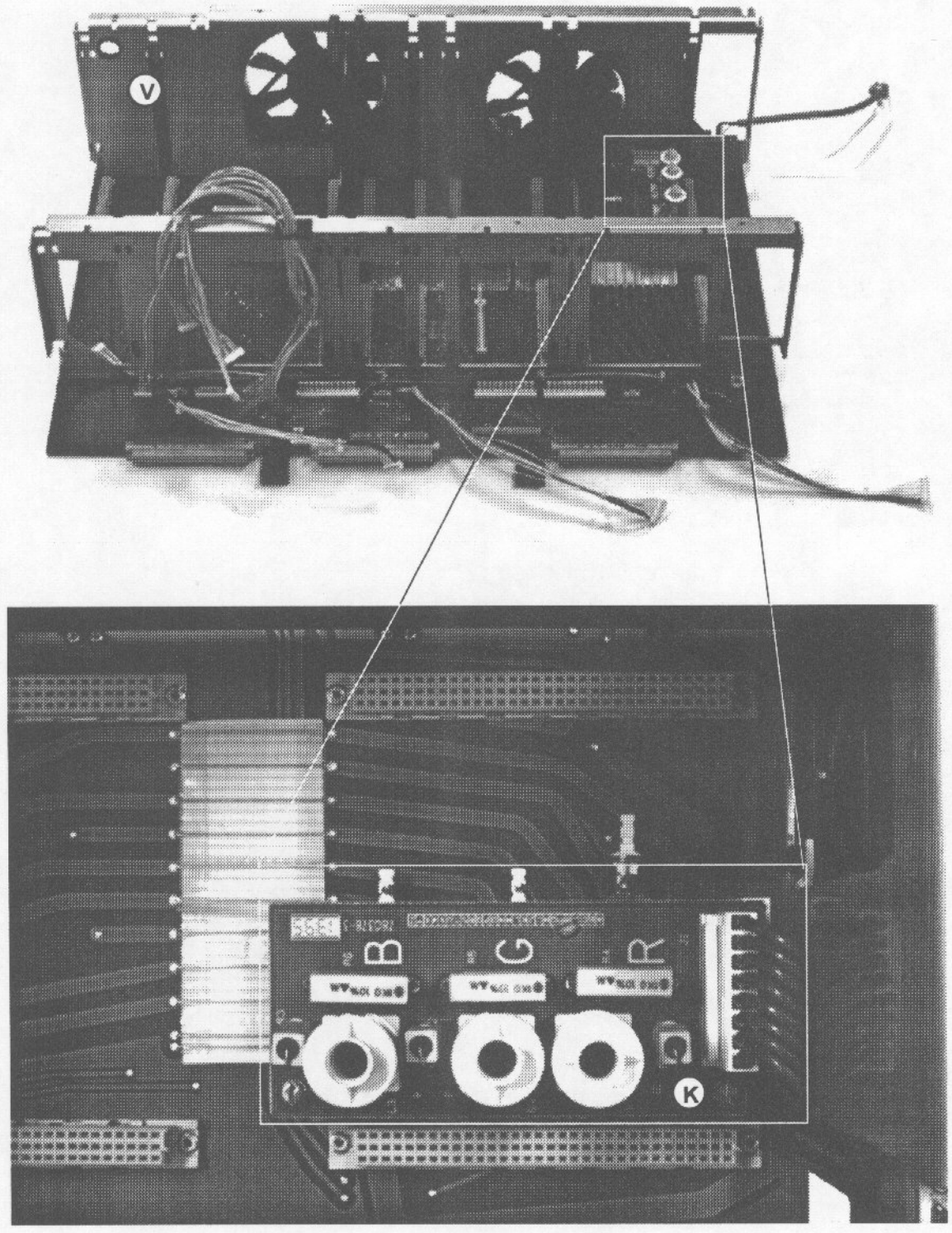
(I) **R7625202 CRT Unit Red**
R7625205 CRT Unit Green
R7625206 CRT Unit Blue

Sheet reference

(U) **R7617447 EHT Splitter**



Sheet reference			Sheet reference		
(H)	R761735	R/G/B Output Amplifier	(U)	R7617447	EHT Splitter
(I)	R762508	R/G/B CRT Socket			

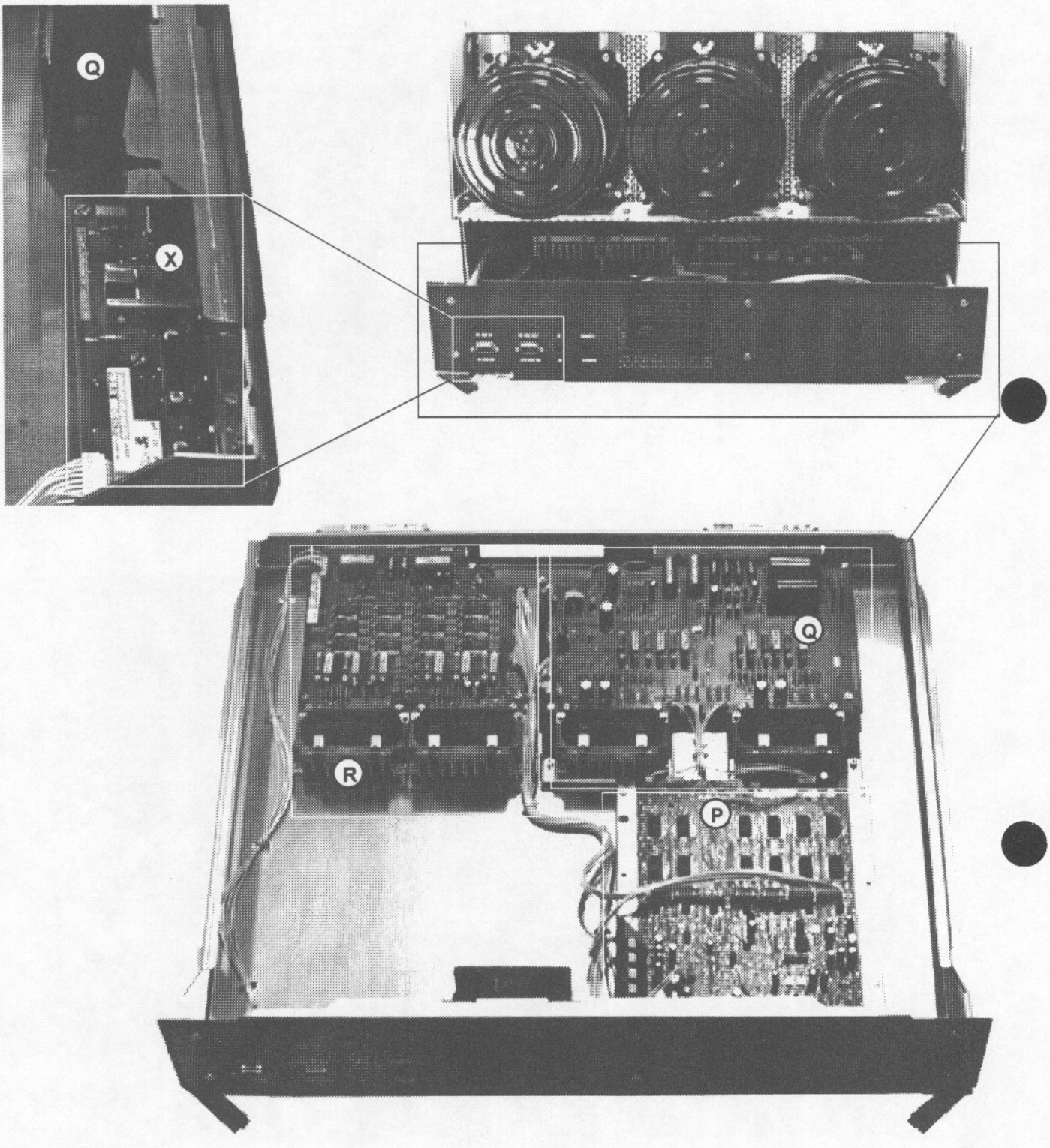


Sheet reference

(K) R762509 Deflection Switching

Sheet reference

(V) R762501 Frame

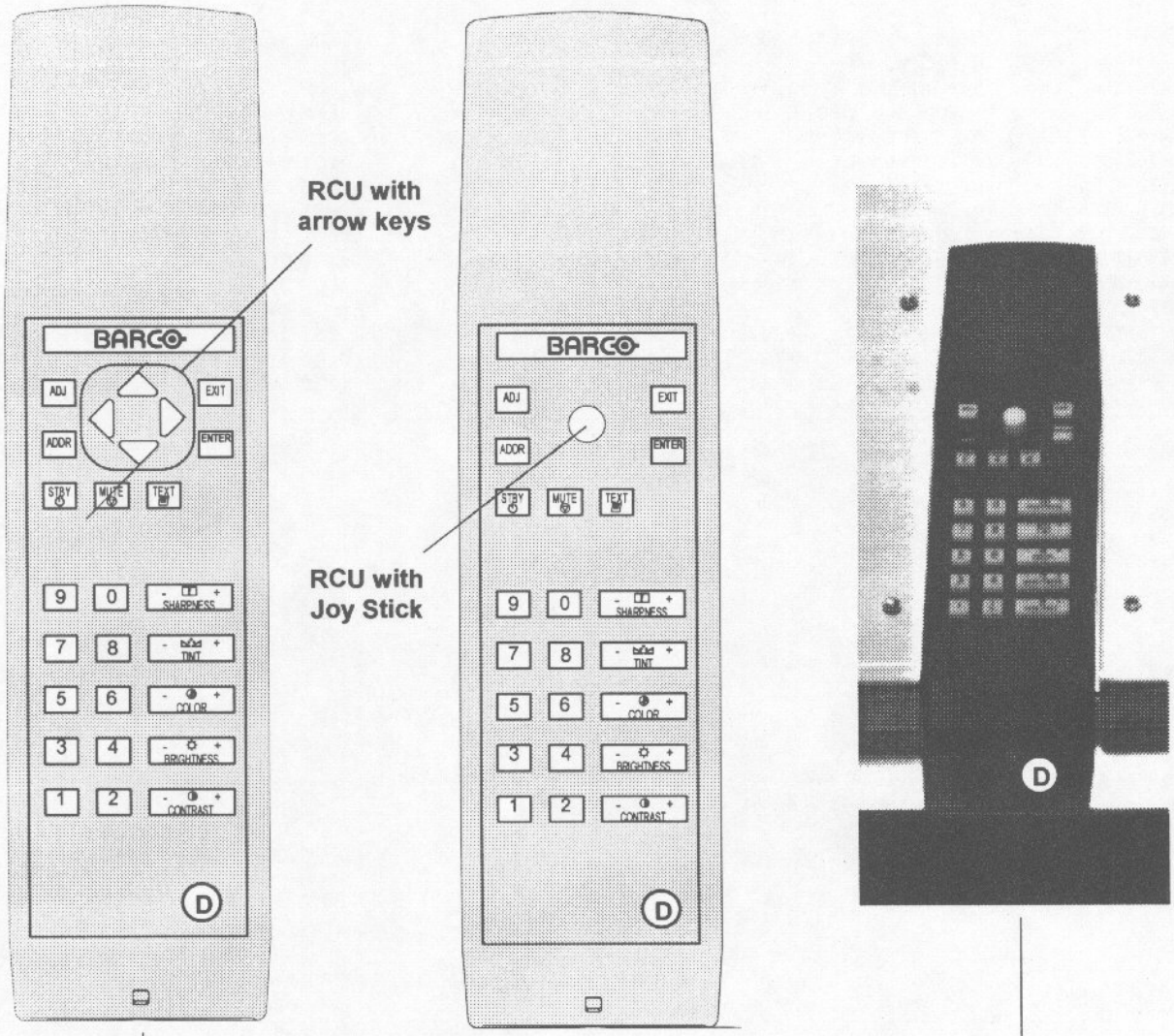


Sheet reference

P	R762518	Convergence (Driver)
Q	R762513	Convergence (Output)
Q	R762523	Fan (Convergence)

Sheet reference

R	R762514	Dynamic Astigmatism
X	R762510	RS232



Sheet reference

Ⓓ **R791664** **IR Transmitter**

Sheet reference

Ⓓ **R791672** **Internal Control Unit**

Spare parts on module level

Itemno	Description	Qty	Itemno	Description	Qty
R7617427	UN EHT PJ49 G800 MK2	1	R762507	UN MNS PJ56 G808	1
R7617447	UN EHT PJ49 G800 SPL	1	R762508	UN CRT SKT PJ56 G808	3
R7617481	UN RGB PJ51 G1200 SW +TLL	1	R762509	UN DEF PJ56 G808 SWITCH	1
R761781	UN RX PJ49 G800 IR RR	1	R762510	UN RS232 PJ56 G808	1
R7621042D	CDS CRT G1200 09MX	3	R7625115	UN CTRL PJ56 G808 68000	1
R7621055	UN INP PJ51 RGB A_S_TRACK	1	R762513	UN CNV PJ56 G808 OUT	1
R7621705	UN SMP1 PJ56 G808	1	R762514	UN AST PJ56 G808 DYN	1
R7621735	UN RGB PJ49 G801 OUT ABL	3	R762518	UN CNV PJ51 G1200 DVR	1
R7621745	UN RGB PJ49 G801 DVR+QMK2	1	R7625202	UN CRT G 808 M180 R	1
R7622091	UN EHT PJ53 V700 QDR SD	1	R7625205	UN CRT G 808 M180 G	1
R7617415	UN HOR PJ49 D801 MK2	1	R7625206	UN CRT G 808 M180 B	1
R7622695	UN VER+S PJ56 G80*	1	R762523	UN FAN PJ56 G808	1
R762501	UN FRM PJ56-UN G 802 M180	1			
R762503	UN FOC+S PJ56 G808	1	R791664	UN RCU PJ49 700 IR+LGHT	1
R762506	UN SMP2+G2 PJ56 G808	1	R791672	UN RCU PJ** **** TX WIRE	1

SUGGESTED SPARE PARTS LIST BD808

a) First level Parts

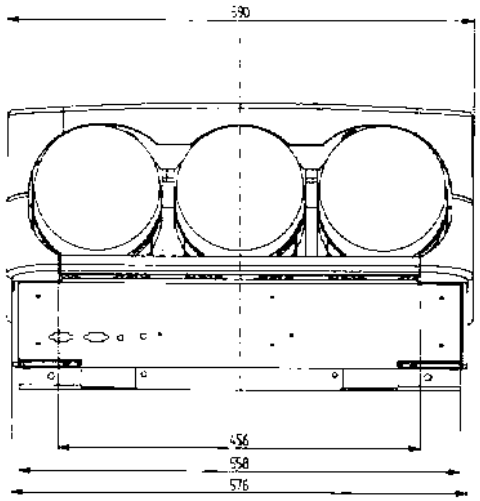
ART NO.	DESCRIPTION	QUANTITY
R7622091	EHT Quadrupler	
R7617447	EHT splitter	
R7624442	CRT Red	
R7624445	CRT Green	
R7624446	CRT Blue	

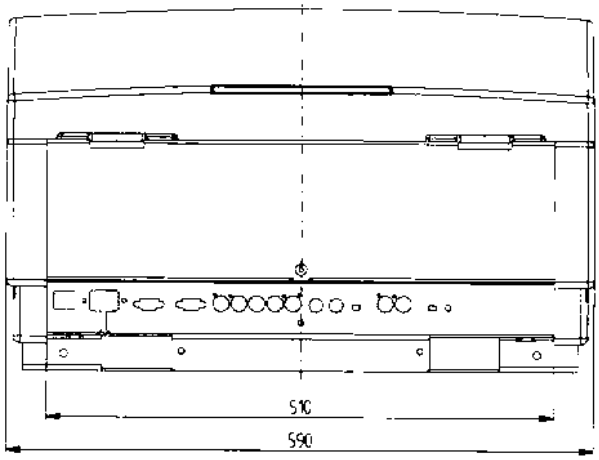
b) Second Level Modules

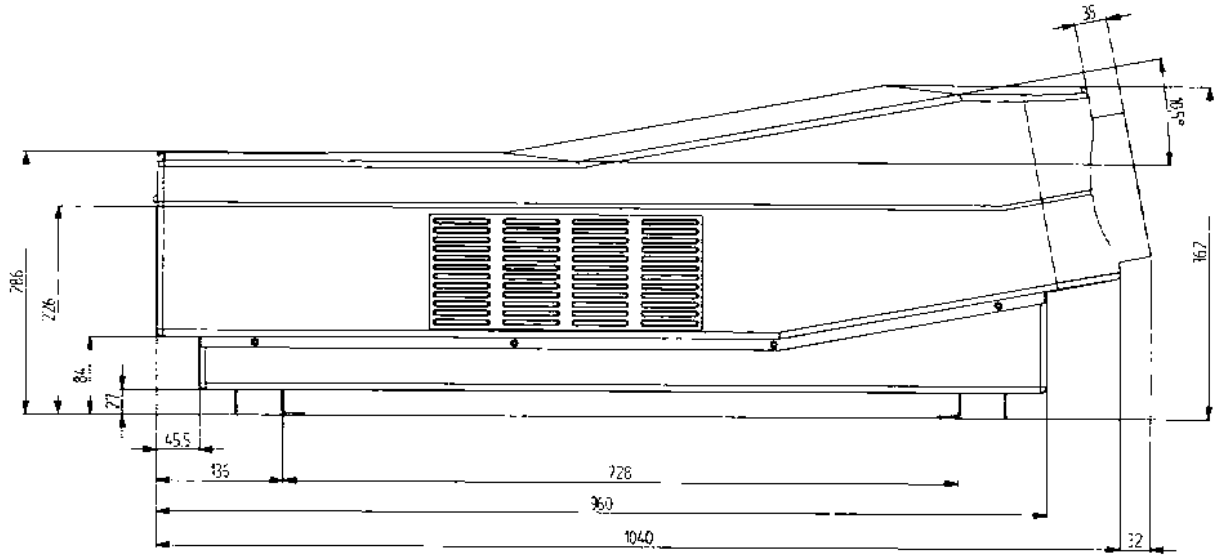
ART NO.	DESCRIPTION	QUANTITY
R7621705	SM Power Supply	
R7617415	Hor. Deflection	
R7617427	EHT generator	
R7617481	RGB Ana+ Switching	
R7621735	RGB Output Amplifier	

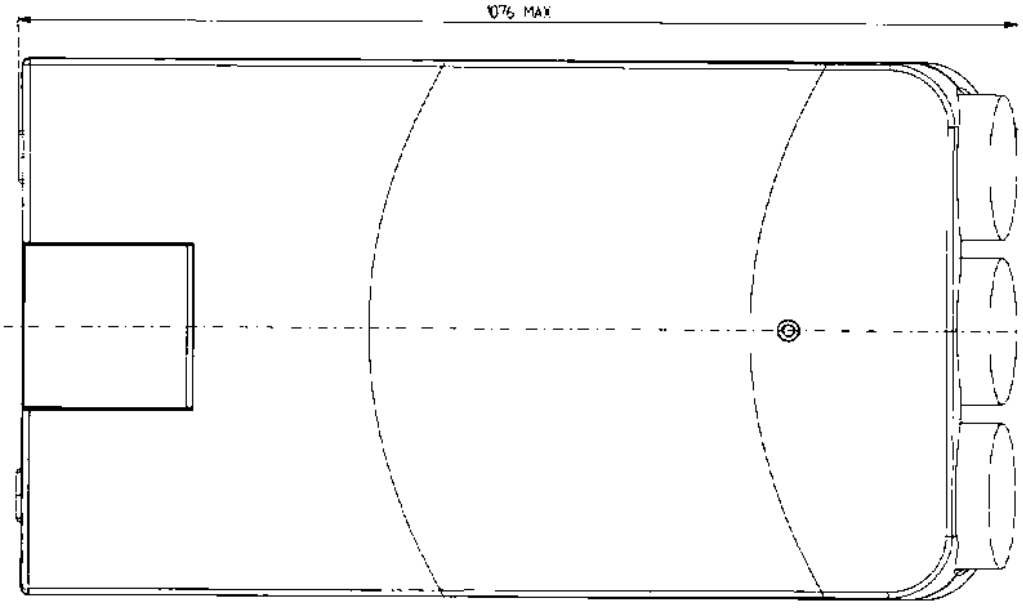
c) Third Level Modules

ART NO.	DESCRIPTION	QUANTITY
R7622695	Sync+Vertical Deflection	
R7625115	Controller (Asic)	
R762503	Mag. Focus+Hor.Shift	
R762518	Convergence (Driver)	
R762513	Convergence (Output)	
R762514	Dynamic Astigmatism	
R7621745	RGB driver+Quad decoder	
R791672	Internal control unit	
R791664	IR Transmitter	


590
456
558
576


510
590


35
458
167
786
226
84
27
455
135
728
960
1040
32


1076 MAX

BARCO PROJECTION SYSTEMS

BARCO

BARCO DATA 808

R9002030 (230V AC)
R9002039 (120V AC)

SERVICE SHEETS

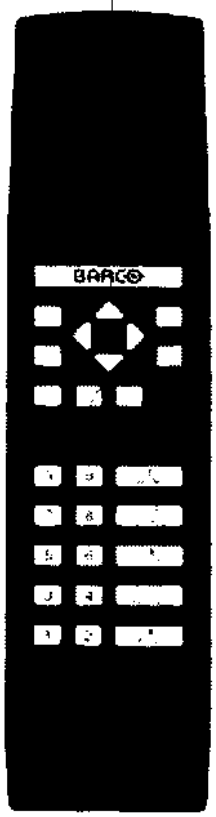
Transmitter RCU (remote control unit)

Internal Control Unit

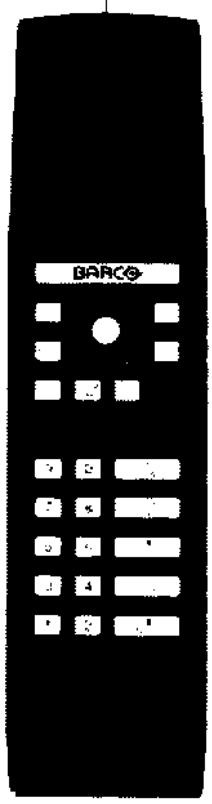
R791664
R791672

Infra Red Remote control
R791664

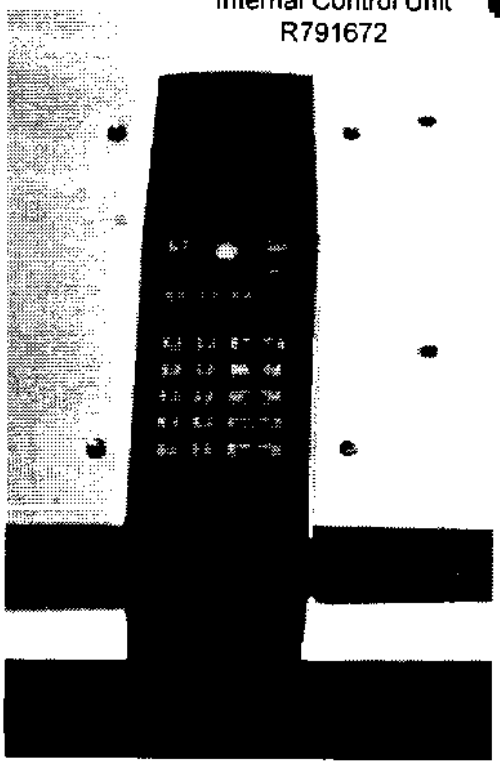
RCU with arrow keys

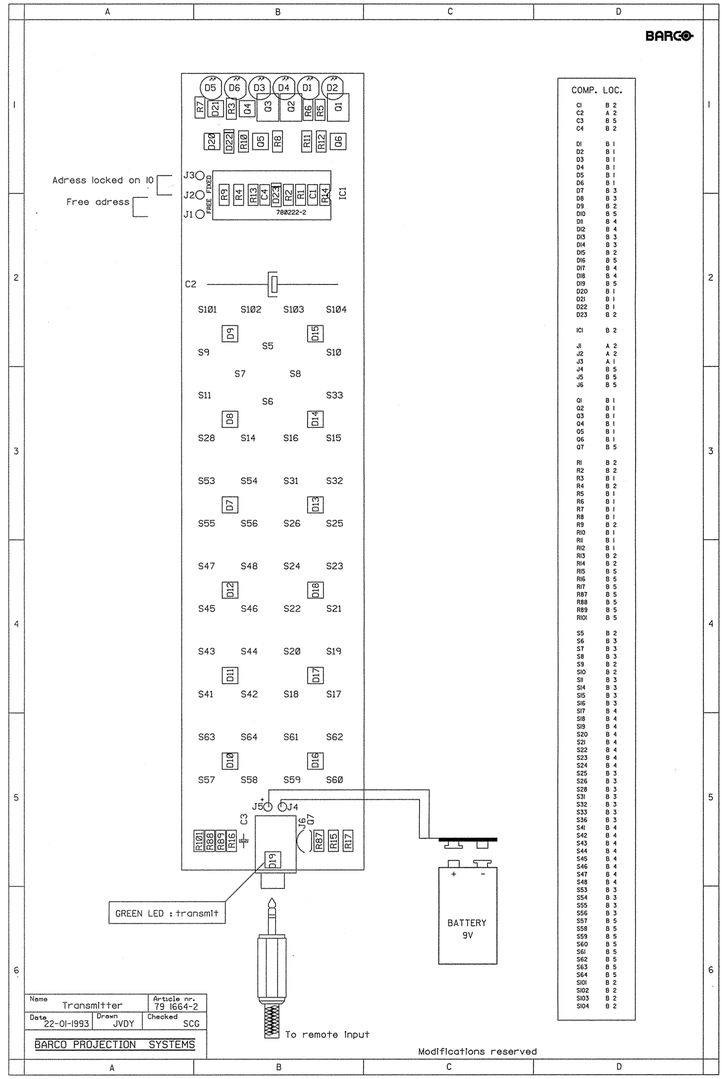


RCU with Joy stick

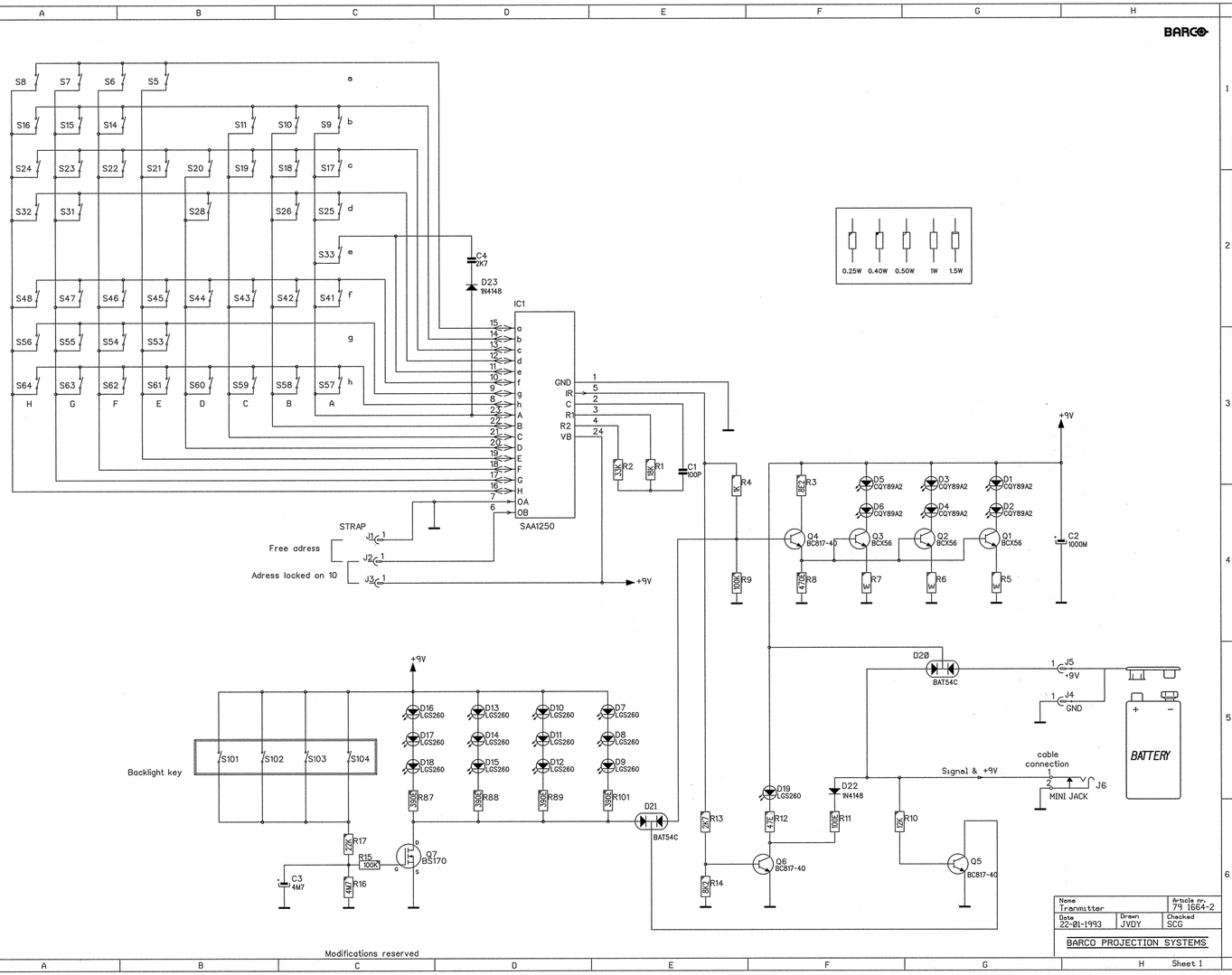


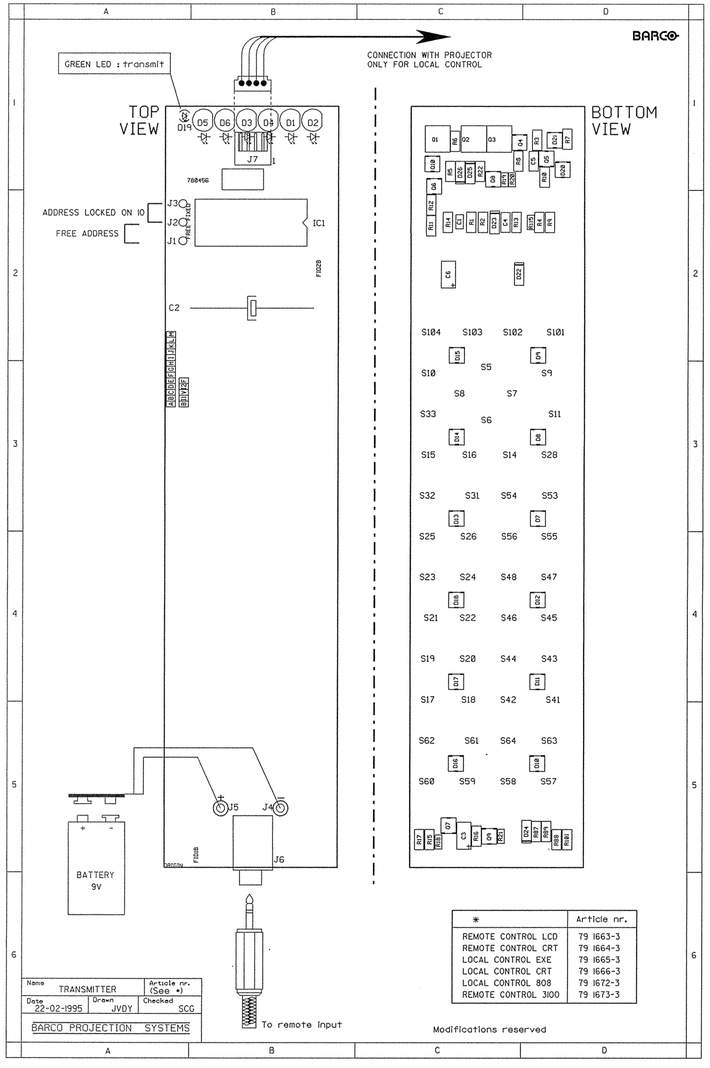
Internal Control Unit
R791672



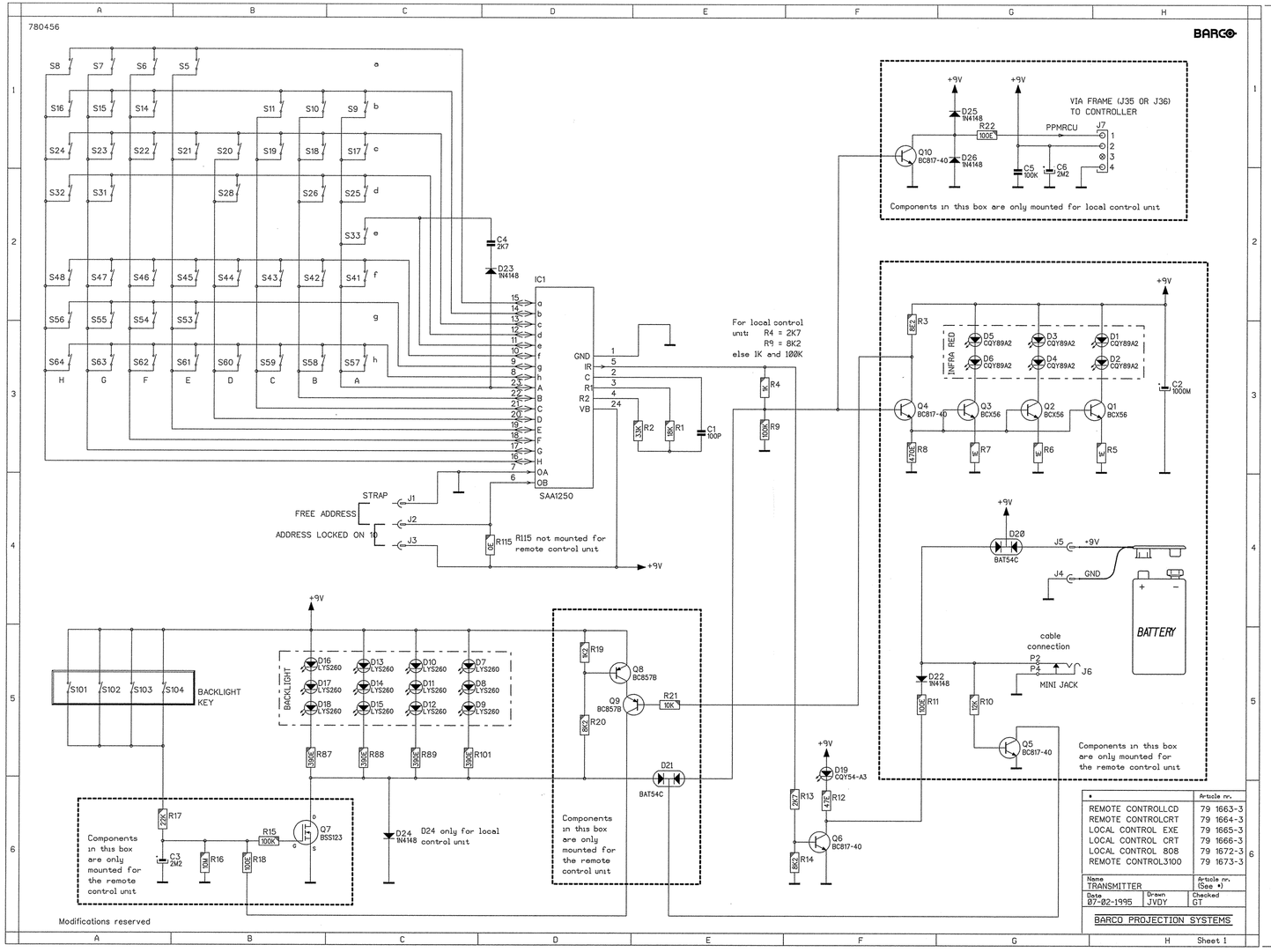


COMP.	LOC.
C1	E 3
C2	H 4
C3	C 6
C4	D 2
D1	G 3
D2	G 4
D3	G 3
D4	G 4
D5	F 3
D6	F 4
D7	E 5
D8	E 5
D9	E 5
D10	D 5
D11	D 5
D12	D 5
D13	D 5
D14	D 5
D15	D 5
D16	C 5
D17	C 5
D18	C 5
D19	F 5
D20	G 5
D21	E 6
D22	F 5
D23	D 2
IC1	D 2
J1	C 4
J2	C 4
J3	C 4
J4	G 5
J5	G 5
J6	G 5
Q1	G 4
Q2	G 4
Q3	F 4
Q4	F 4
Q5	G 6
Q6	F 6
Q7	C 6
R1	E 3
R2	E 3
R3	F 3
R4	F 3
R5	G 4
R6	G 4
R7	F 4
R8	F 4
R9	E 4
R10	F 6
R11	F 6
R12	F 6
R13	E 6
R14	E 6
R15	C 6
R16	C 6
R17	C 6
R87	C 5
R88	D 5
R89	D 5
R101	E 5
S5	B 1
S6	A 1
S7	A 1
S8	A 1
S9	C 1
S10	C 1
S11	B 1
S14	A 1
S15	A 1
S16	A 1
S17	C 1
S18	C 1
S19	B 1
S20	B 1
S21	B 1
S22	A 1
S23	A 1
S24	A 1
S25	C 2
S26	B 2
S28	B 2
S31	A 2
S32	A 2
S33	C 2
S41	C 2
S42	B 2
S43	B 2
S44	B 2
S45	B 2
S46	A 2
S47	A 2
S48	A 2
S53	B 3
S54	A 3
S55	A 3
S56	A 3
S57	C 3
S58	C 3
S59	B 3
S60	B 3
S61	B 3
S62	A 3
S63	A 3
S64	A 3
S101	B 5
S102	B 5
S103	C 5
S104	C 5





*	Artikle nr.
REMOTE CONTROL LCD	79 1663-3
REMOTE CONTROL CRT	79 1664-3
LOCAL CONTROL EXE	79 1665-3
LOCAL CONTROL CRT	79 1666-3
LOCAL CONTROL 808	79 1672-3
LOCAL CONTROL 3100	79 1673-3



*	Artikle nr.
REMOTE CONTROLLCD	79 1663-3
REMOTE CONTROLCRT	79 1664-3
LOCAL CONTROL EXE	79 1665-3
LOCAL CONTROL CRT	79 1666-3
LOCAL CONTROL 808	79 1672-3
REMOTE CONTROL3100	79 1673-3

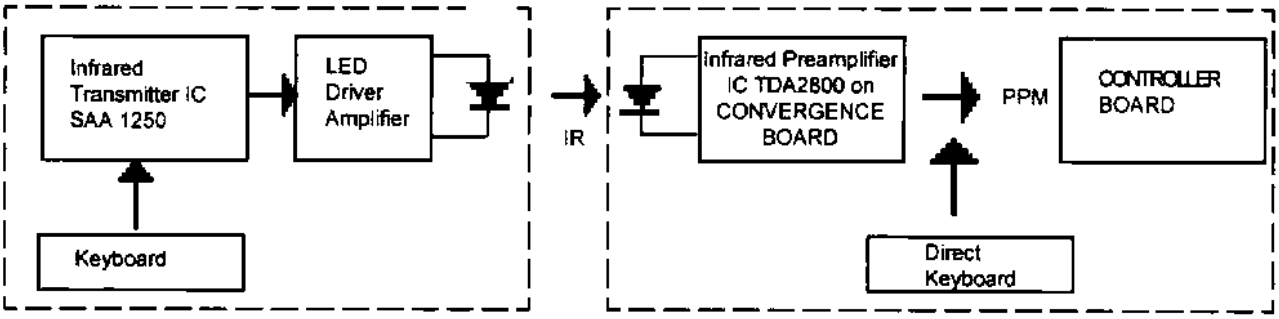
COMP.	LOC.	COMP.	LOC.
C1	E 3	S48	A 2
C2	H 3	S53	B 2
C3	A 6	S54	A 2
C4	D 2	S55	A 2
C5	G 1	S56	A 2
C6	G 1	S57	C 3
		S58	B 3
D1	H 3	S59	B 3
D2	H 3	S60	B 3
D3	G 3	S61	B 3
D4	G 3	S62	A 3
D5	G 3	S63	A 3
D6	G 3	S64	A 3
D7	C 5	S101	A 5
D8	C 5	S102	A 5
D9	C 5	S103	A 5
D10	C 5	S104	A 5
D11	C 5		
D12	C 5		
D13	C 5		
D14	C 5		
D15	C 5		
D16	B 5		
D17	B 5		
D18	B 5		
D19	F 5		
D20	G 4		
D21	E 5		
D22	F 5		
D23	D 2		
D24	C 6		
D25	G 1		
D26	G 1		
IC1	D 2		
J1	C 4		
J2	C 4		
J3	C 4		
J4	G 4		
J5	G 4		
J6	G 5		
J7	H 1		
Q1	H 3		
Q2	G 3		
Q3	G 3		
Q4	F 3		
Q5	G 5		
Q6	F 6		
Q7	B 6		
Q8	B 5		
Q9	D 5		
Q10	F 1		
R1	E 3		
R2	E 3		
R3	F 2		
R4	E 3		
R5	H 3		
R6	G 3		
R7	G 3		
R8	F 3		
R9	E 3		
R10	C 5		
R11	F 5		
R12	F 6		
R13	F 6		
R14	F 6		
R15	B 6		
R16	B 6		
R17	A 6		
R18	B 6		
R19	D 5		
R20	D 5		
R21	E 5		
R22	G 1		
R87	B 5		
R88	B 5		
R89	C 5		
R101	C 5		
R115	D 4		
S5	B 1		
S6	A 1		
S7	A 1		
S8	A 1		
S9	C 1		
S10	B 1		
S11	B 1		
S14	A 1		
S15	A 1		
S16	A 1		
S17	C 1		
S18	B 1		
S19	B 1		
S20	B 1		
S21	B 1		
S22	A 1		
S23	A 1		
S24	A 1		
S25	C 2		
S26	B 2		
S28	B 2		
S31	A 2		
S32	A 2		
S33	C 2		
S41	C 2		
S42	B 2		
S43	B 2		
S44	B 2		
S45	B 2		
S46	A 2		
S47	A 2		

Transmitter RCU (remote control unit)

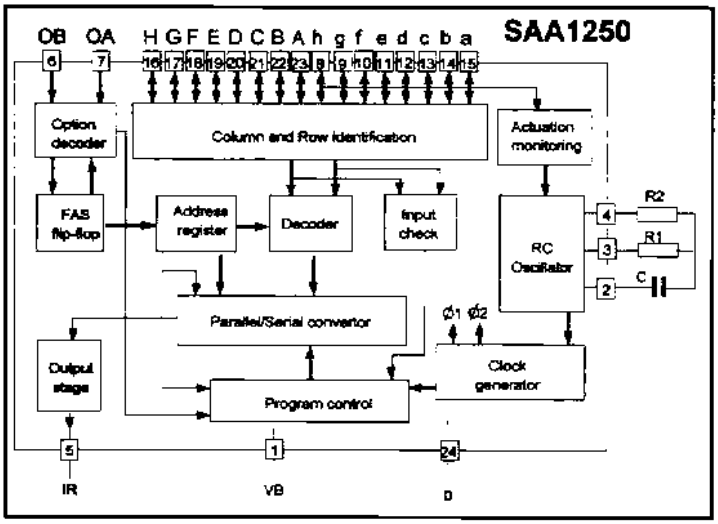
Internal Control Unit

R791664
R791672

BLOCK DIAGRAM



BLOCK DIAGRAM IC SAA1250



Code for the OA and OB address inputs

input	OA	OB
option I	H	H
option II	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	Up	x												x					
S6	Down	x													x				
S7	Right	x														x			
S8	Left	x															x		
S9	Exit		x							x									
S10	Adjust		x								x								
S11	Enter		x									x							
S14	Text		x												x				
S15	Stdby		x													x			
S16	Pause		x														x		

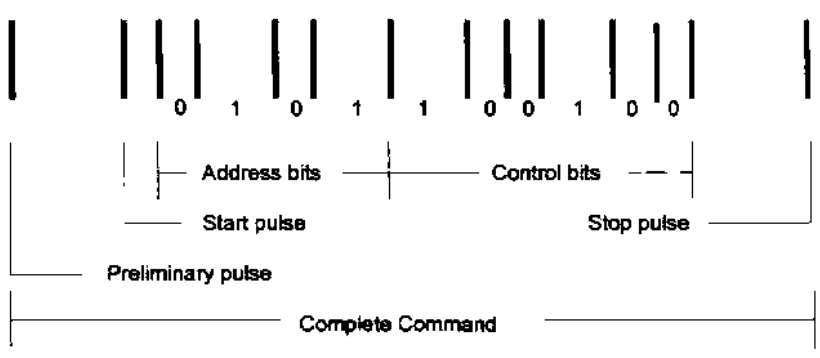
Command table of the infrared transmitter IC SAA 1250 (continu)

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																			
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.

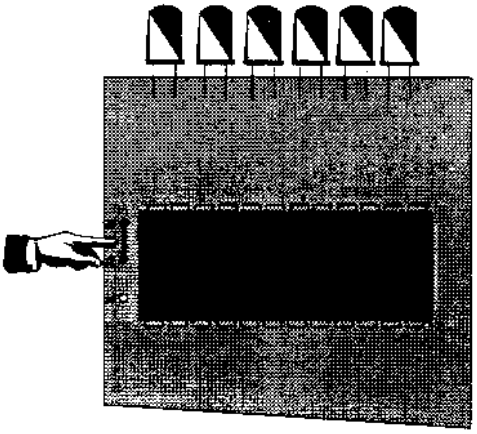
duration T = binary digit "0"
duration 2T = binary digit "1"

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.

Only for the Infra Red Remote control

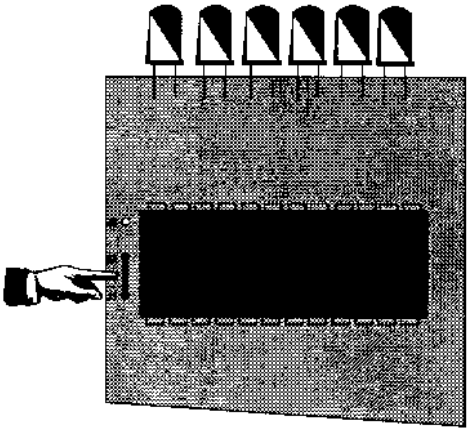
The OPTION III and the FREE ADDRESS SELECTION (FAS) are defined in the remote control RCU800 by means of an inserted jumper on the printed circuit board, see PCB lay-out.

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



311.DRW

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 RCU (remote control unit)

Internal Control Unit

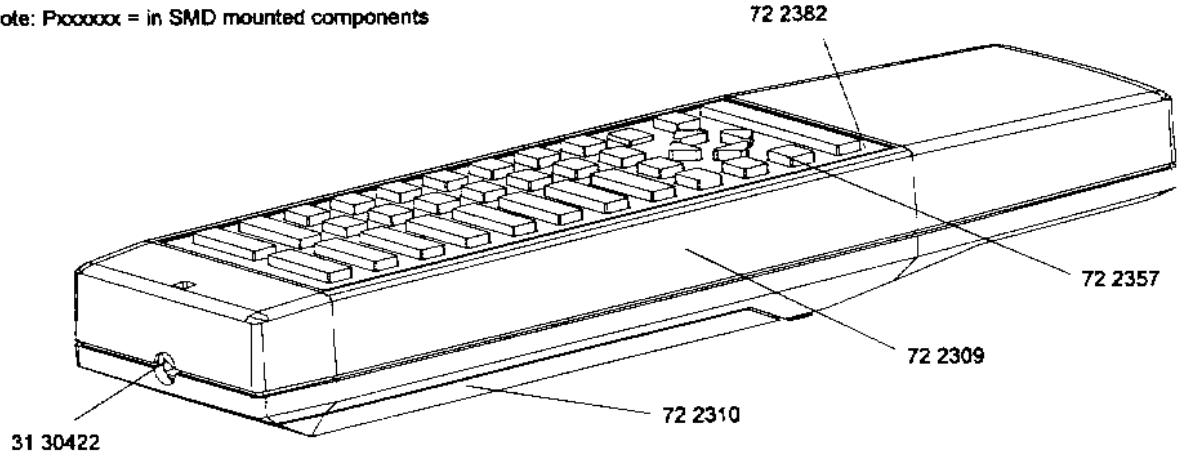
R791664
R791672

Parts listing Transmitter RCU 79 1664 (RCU with arrow keys)

ITEM NO.	SIT.	DESCRIPTION
P210137	C..1	C(S)CEC1CH1206COG101J 50
11 11355	C..2	C EL AX1000M T 10E14 85
11 15915	C..3	C EL5 RA 4M7M 35E2 85
P210147	C..4	C(S)CEC1CH1206COG272J 50
13 16666	D..1	D LED D5 T IR 89A2
13 16666	D..2	D LED D5 T IR 89A2
13 16666	D..3	D LED D5 T IR 89A2
13 16666	D..4	D LED D5 T IR 89A2
13 16666	D..5	D LED D5 T IR 89A2
13 16666	D..6	D LED D5 T IR 89A2
P234063	D..7	SMC(S)DIOLED LGS260
P234063	D..8	SMC(S)DIOLED LGS260
P234063	D..9	SMC(S)DIOLED LGS260
P234063	D.10	SMC(S)DIOLED LGS260
P234063	D.11	SMC(S)DIOLED LGS260
P234063	D.12	SMC(S)DIOLED LGS260
P234063	D.13	SMC(S)DIOLED LGS260
P234063	D.14	SMC(S)DIOLED LGS260
P234063	D.15	SMC(S)DIOLED LGS260
P234063	D.16	SMC(S)DIOLED LGS260
P234063	D.17	SMC(S)DIOLED LGS260
P234063	D.18	SMC(S)DIOLED LGS260
P234063	D.19	SMC(S)DIOLED LGS260
P234205	D.20	SMC(S)DISCH BAT54C SOT23
P234205	D.21	SMC(S)DISCH BAT54C SOT23
P234099	D.22	SMC(S)DIO 4148
P234099	D.23	SMC(S)DIO 4148
13 7371	I..1	U 1250 SAA DIP24 PIRTRA
31 30422	J...	J PHN FBS D 2.5MON P
31 3196	J...	J BAT NWS P 2 9V
78 0222	PC..	PCD#PJ52 D5000 TX

ITEM NO.	SIT.	DESCRIPTION
P232122	Q..1	SMC(S)TRNPN BCX56 SOT89
P232122	Q..2	SMC(S)TRNPN BCX56 SOT89
P232122	Q..3	SMC(S)TRNPN BCX56 SOT89
P232026	Q..4	SMC(S)TRA BC817-40
P232026	Q..5	SMC(S)TRA BC817-40
P232026	Q..6	SMC(S)TRA BC817-40
13 2910	Q..7	Q BS170 FN SS TO92 060A5
P200103	R..1	R# CE H 18K J 0W12 1206
P200109	R..2	R# CE H 33K J 0W12 1206
P200023	R..3	R# CE H 8E2 J 0W12 1206
P200073	R..4	R# CE H 1K J 0W12 1206
P200001	R..5	R# CE H 1E J 0W12 1206
P200001	R..6	R# CE H 1E J 0W12 1206
P200001	R..7	R# CE H 1E J 0W12 1206
P200065	R..8	R# CE H470E J 0W12 1206
P200121	R..9	R# CE H100K J 0W12 1206
P200099	R.10	R# CE H 12K J 0W12 1206
P200049	R.11	R# CE H100E J 0W12 1206
P200041	R.12	R# CE H 47E J 0W12 1206
P200083	R.13	R# CE H 2K7 J 0W12 1206
P200095	R.14	R# CE H 6K2 J 0W12 1206
P200121	R.15	R# CE H100K J 0W12 1206
P200161	R.16	R# CE H 4M7 J 0W12 1206
P200105	R.17	R# CE H 22K J 0W12 1206
P200063	R.87	R# CE H390E J 0W12 1206
P200063	R.88	R# CE H390E J 0W12 1206
P200063	R.89	R# CE H390E J 0W12 1206
P200063	R101	R# CE H390E J 0W12 1206

Note: Pxxxxxx = in SMD mounted components



Transmitter RCU (remote control unit) R791664

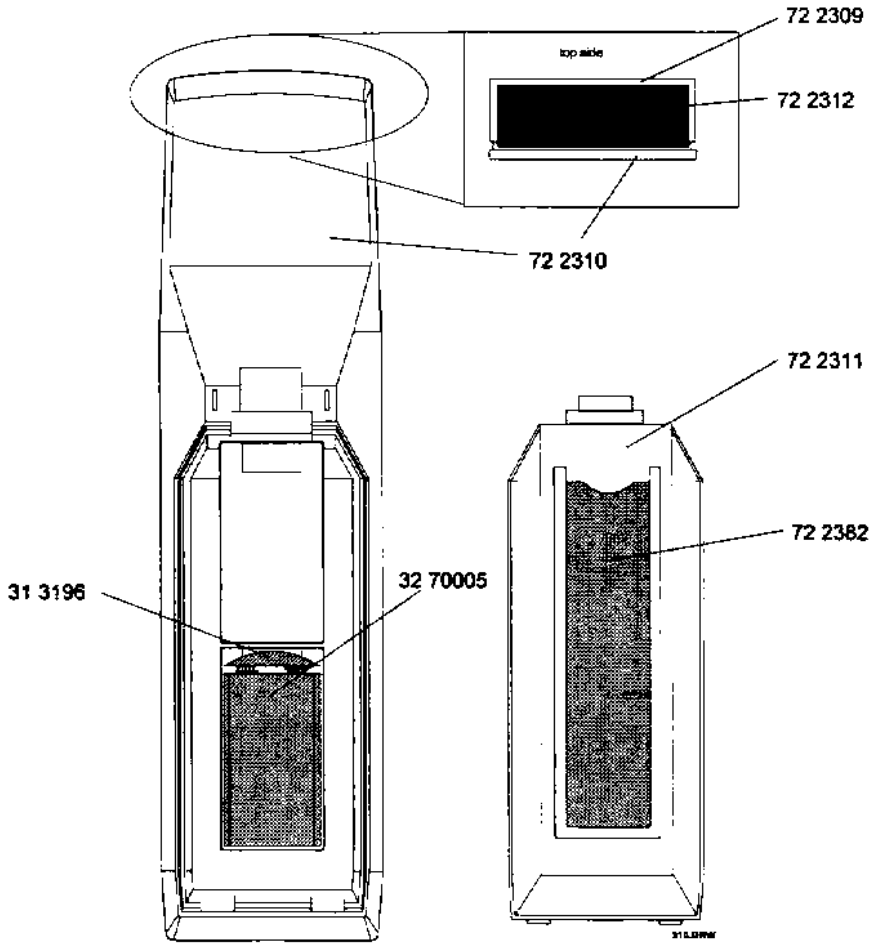
Internal Control Unit R791672

Spare parts Transmitter RCU 79 1664 (RCU with arrow keys)

ART.NO.	DESCRIPTION	QUANTITY
13 16666	D LED D5 T IR 89A2	6
13 2910	Q BS170 FN SS TO92 060A5	1
13 7371	U 1250 SAA DIP24 PIRTRA	1
31 30422	J PHN FBS D 2.5MON P	1
31 3196	J BAT NWS P 2 9V	1
32 70005	BAT 9V 6F22 ALK 0A525	1
36 15075	SCR HILO_P 3.2X 8.5HS B	1
59 75045	LFLT RCU700 TX	1

ART.NO.	DESCRIPTION	QUANTITY
72 2309	HSG PJ49 TX2 CVR UP	1
72 2310	HSG PJ49 TX2 CVR DN	1
72 2311	HSG PJ49 TX2 CVR BAT	1
72 2312	HSG PJ49 TX2 WDW IR	1
72 2353	HSG PJ53 TX2 FOIL V700	1
72 2357	SW KYBD RUB PJ53 TX V700	1
72 2382	HSG PJ49 TX2 LFLT WDW	1
78 0222	PCD#PJ52 D5000 TX	1

Note: Pxxxxxx = in SMD mounted components



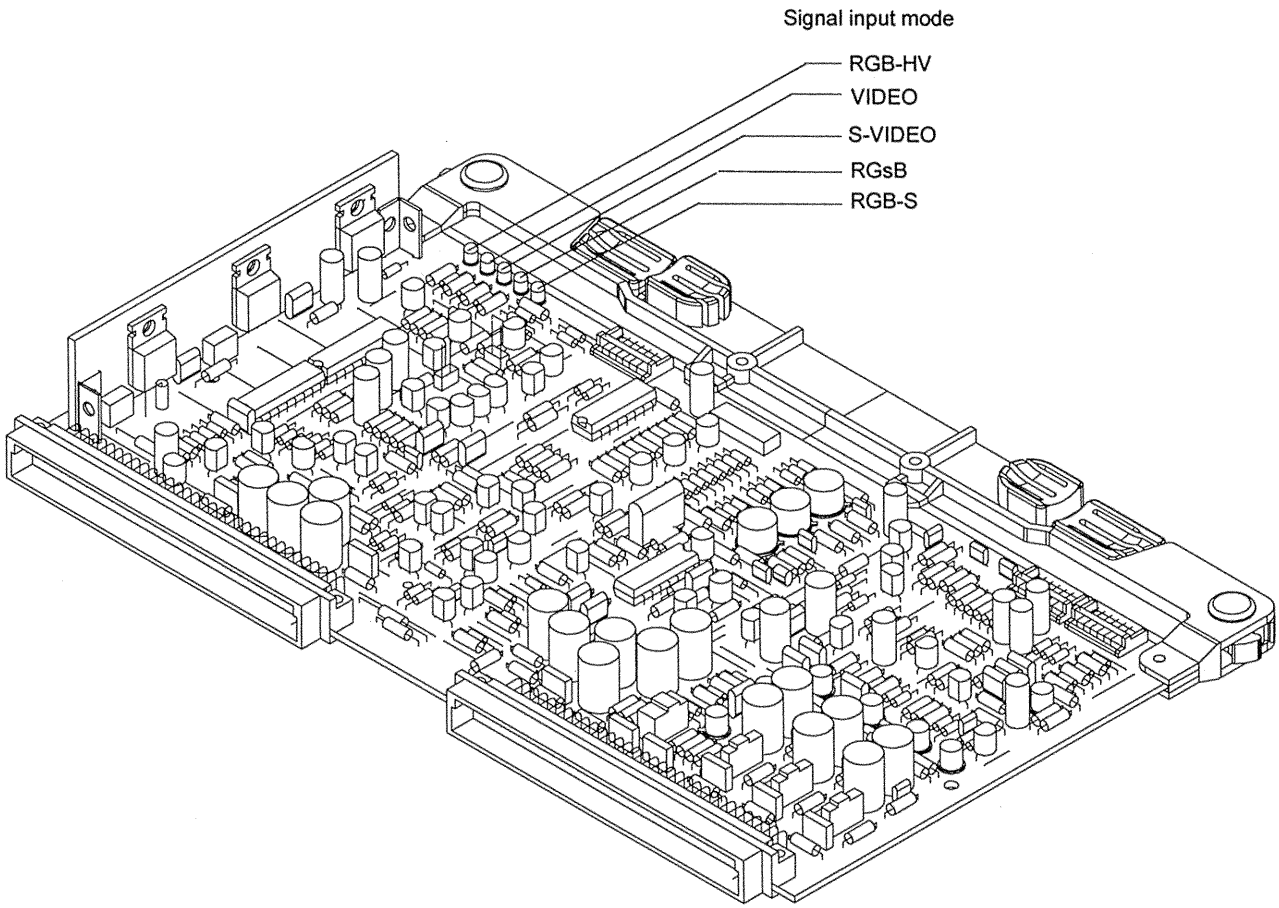
Parts listing Transmitter RCU 79 1664 (RCU with Joy stick)

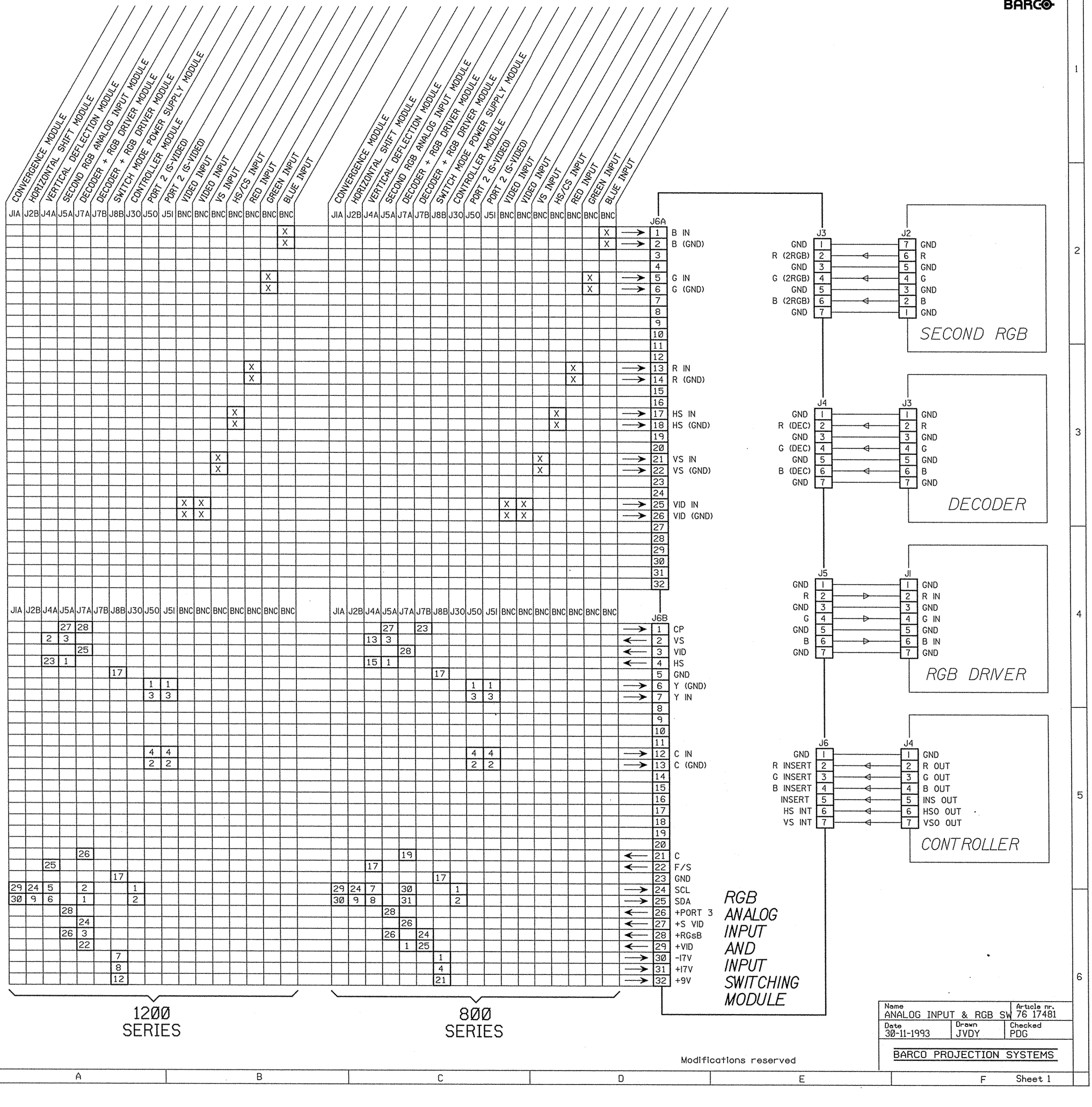
SIT.	ITEM NO. DESCRIPTION	QUANTITY
1000	R3615075SCR HILO_P 3.2X 8.5HS B	1
9000	R593540BAG PE 85X270	1
7000	R5975045LFLT RCU700 TX	1
5010	R722310HSG PJ49 TX2 CVR DN	1
5020	R722311HSG PJ49 TX2 CVR BAT	1
5030	R722312HSG PJ49 TX2 WDW IR	1
5021	R722382HSG PJ49 TX2 LFLT WDW	1
5000	R722686HSG PJ49 TX2 JOY CVR UP	1
4000	R722689SW KYBD PJ53 TX JOY V700	1
4010	R722690HSG PJ53 TX2 JOY FOIL	1
C 1	P210056C# COG MU 100P F 50 0805	1
C 2	R1111355C EL AX1000M M 10E9 85	1
C 3	P212001C# TA 2M2M 20 3528	1
C 4	P210147C# COG MU 2N7J 50 1206	1
D 1	R1316666D O LTE5208C T IR	1
D 2	R1316666D O LTE5208C T IR	1
D 3	R1316666D O LTE5208C T IR	1
D 4	R1316666D O LTE5208C T IR	1
D 5	R1316666D O LTE5208C T IR	1
D 6	R1316666D O LTE5208C T IR	1
D 7	P234062D#LED LYS260 YEL SOT23	1
D 8	P234062D#LED LYS260 YEL SOT23	1
D 9	P234062D#LED LYS260 YEL SOT23	1
D 10	P234062D#LED LYS260 YEL SOT23	1
D 11	P234062D#LED LYS260 YEL SOT23	1
D 12	P234062D#LED LYS260 YEL SOT23	1
D 13	P234062D#LED LYS260 YEL SOT23	1
D 14	P234062D#LED LYS260 YEL SOT23	1
D 15	P234062D#LED LYS260 YEL SOT23	1
D 16	P234062D#LED LYS260 YEL SOT23	1
D 17	P234062D#LED LYS260 YEL SOT23	1
D 18	P234062D#LED LYS260 YEL SOT23	1
D 19	R131662D LED D3 T RD	1
D 20	P234205D#BAT54C SCH SOT23	1
D 21	P234205D#BAT54C SCH SOT23	1
D 22	P234099D#4148 R DMMELF	1
D 23	P234099D#4148 R DMMELF	1
I 1	R137371U 1250 SAA DIP24 P	1
J	R313196J BAT WS P 2 T-TYPE 9V	1
J 6	B338800J PHN FBS D 3.5MON P	1
PC	R780456PCD#PJ53 V701 TX	1
Q 1	P232122Q#BCX56 N P SOT89	1
Q 2	P232122Q#BCX56 N P SOT89	1
Q 3	P232122Q#BCX56 N P SOT89	1
Q 4	P232026Q#BC817-40 N SS SOT23	1
Q 5	P232026Q#BC817-40 N SS SOT23	1
Q 6	P232026Q#BC817-40 N SS SOT23	1
Q 7	P232046Q#BSS123 F SS SOT23	1
Q 8	P232050Q#BC857B P SS SOT23	1
Q 9	P232050Q#BC857B P SS SOT23	1
R 1	P200103R# CE H 18K J 0W12 1206	1
R 2	P200109R# CE H 33K J 0W12 1206	1
R 3	P200023R# CE H 8E2 J 0W12 1206	1
R 4	P200073R# CE H 1K J 0W12 1206	1
R 5	P200001R# CE H 1E J 0W12 1206	1
R 6	P200001R# CE H 1E J 0W12 1206	1
R 7	P200001R# CE H 1E J 0W12 1206	1
R 8	P200065R# CE H470E J 0W12 1206	1
R 9	P200121R# CE H100K J 0W12 1206	1
R 10	P200099R# CE H 12K J 0W12 1206	1
R 11	P200049R# CE H100E J 0W12 1206	1
R 12	P200041R# CE H 47E J 0W12 1206	1
R 13	P200083R# CE H 2K7 J 0W12 1206	1
R 14	P200095R# CE H 8K2 J 0W12 1206	1
R 15	P200121R# CE H100K J 0W12 1206	1
R 16	P200676R# CE H 10M K 0W12 1206	1
R 17	P200105R# CE H 22K J 0W12 1206	1
R 18	P201063R# CE H100E F 0W1 0805	1
R 19	P201089R# CE H 1K2 F 0W1 0805	1
R 20	P201109R# CE H 8K2 F 0W1 0805	1
R 21	P201111R# CE H 10K F 0W1 0805	1
R 87	P200063R# CE H390E J 0W12 1206	1
R 88	P200063R# CE H390E J 0W12 1206	1
R 89	P200063R# CE H390E J 0W12 1206	1
R101	P200063R# CE H390E J 0W12 1206	1
W	R348100WU JUMP 0.6	1

Parts listing Internal Control Unit R791672 (RCU with Joy stick)

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
41	R348003	GRMT T1.5 D 9.5	1
55	R349504	CD CT FTFT P 4 400	1
50	R3615085	SCR HILO_P 3.2X 16 HS B	3
51	R367502	WSHR D6798 A 3.2 S Z	3
42	R395301	TAPE RUB W10X8 BLK	0,06
10	R722686	HSG PJ49 TX2 JOY CVR UP	1
30	R722704	SW KYBD RUB PJ56 TX G802/	1
20	R722705	HSG PJ56 G808 TX2 FOIL2	1
40	R805855	FRM PJ56 G808 CSB SCRN	1
C 1	P210056	C# COG MU 100P F 50 0805	1
C 4	P210147	C# COG MU 2N7J 50 1206	1
C 5	P210122	C# X7R MU 100N K 50 1206	1
C 6	P212001	C# TA 2M2M 20 3528	1
D 7	P234062	D#LED LYS260 YEL SOT23	1
D 8	P234062	D#LED LYS260 YEL SOT23	1
D 9	P234062	D#LED LYS260 YEL SOT23	1
D 10	P234062	D#LED LYS260 YEL SOT23	1
D 11	P234062	D#LED LYS260 YEL SOT23	1
D 12	P234062	D#LED LYS260 YEL SOT23	1
D 13	P234062	D#LED LYS260 YEL SOT23	1
D 14	P234062	D#LED LYS260 YEL SOT23	1
D 15	P234062	D#LED LYS260 YEL SOT23	1
D 16	P234062	D#LED LYS260 YEL SOT23	1
D 17	P234062	D#LED LYS260 YEL SOT23	1
D 18	P234062	D#LED LYS260 YEL SOT23	1
D 23	P234099	D#4148 R DMMELF	1
D 24	P234099	D#4148 R DMMELF	1
D 25	P234099	D#4148 R DMMELF	1
D 26	P234099	D#4148 R DMMELF	1
I 1	R137371	U 1250 SAA DIP24 P	1
J 1	R313944	J CT H MBS P 4 M2SN	1
PC	R780456	PCD#PJ53 V701 TX	1
Q 6	P232026	Q#BC817-40 N SS SOT23	1
Q 10	P232026	Q#BC817-40 N SS SOT23	1
R 1	P200103	R# CE H 18K J 0W12 1206	1
R 2	P200109	R# CE H 33K J 0W12 1206	1
R 4	P200083	R# CE H 2K7 J 0W12 1206	1
R 9	P200095	R# CE H 8K2 J 0W12 1206	1
R 12	P200041	R# CE H 47E J 0W12 1206	1
R 13	P200083	R# CE H 2K7 J 0W12 1206	1
R 14	P200095	R# CE H 8K2 J 0W12 1206	1
R 22	P200049	R# CE H100E J 0W12 1206	1
R 87	P200063	R# CE H390E J 0W12 1206	1
R 88	P200063	R# CE H390E J 0W12 1206	1
R 89	P200063	R# CE H390E J 0W12 1206	1
R101	P200063	R# CE H390E J 0W12 1206	1
R115	P201354	R# CE H 0E J 0W1 0805	1

RGB ANALOG INPUT & SWITCHING BOARD 76 17481



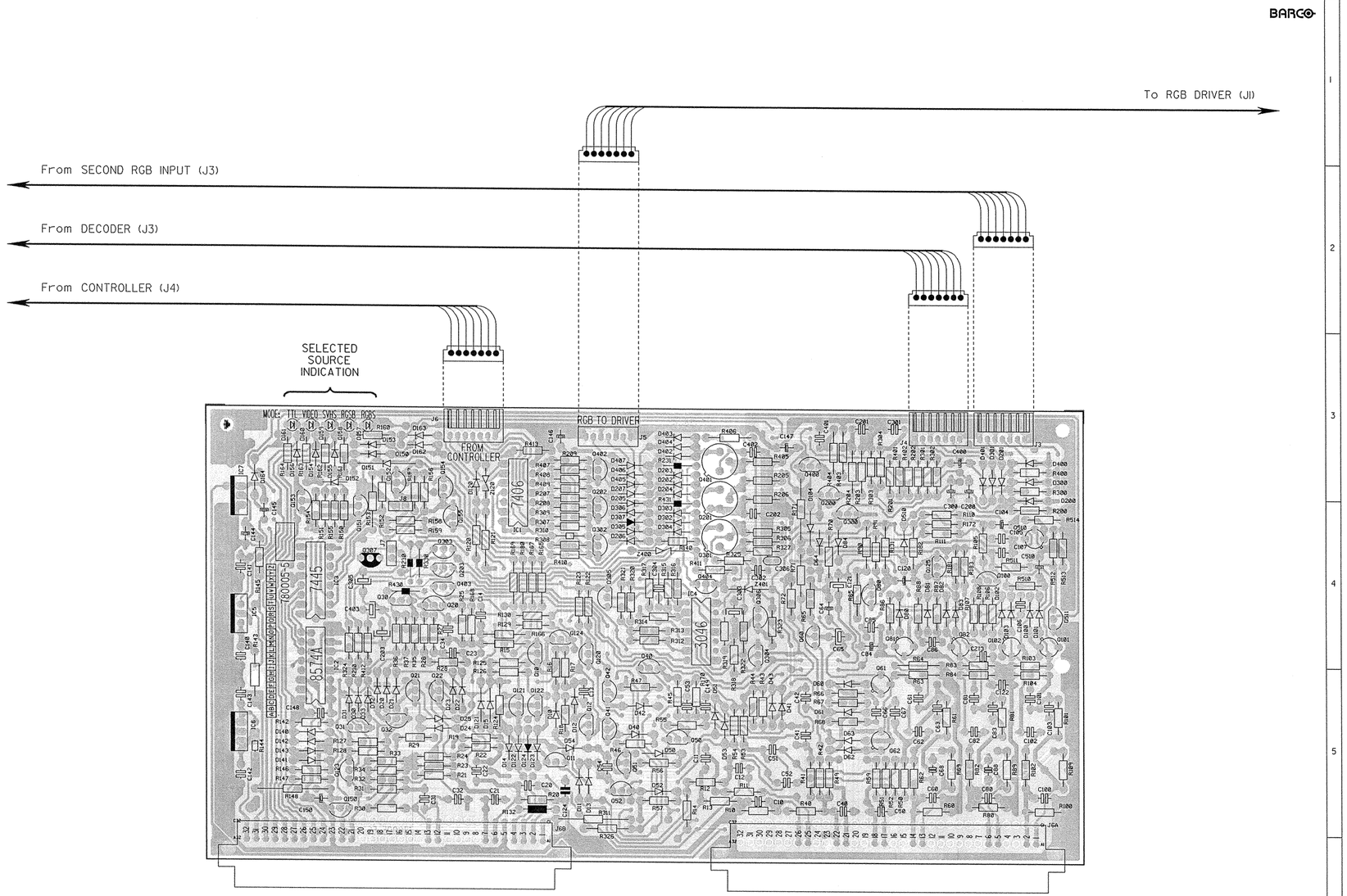


Modifications reserved

Name: ANALOG INPUT & RGB SW			Article nr.: 76 17481
Date: 30-11-1993	Drawn: JVDY	Checked: PDG	

BARCO PROJECTION SYSTEMS

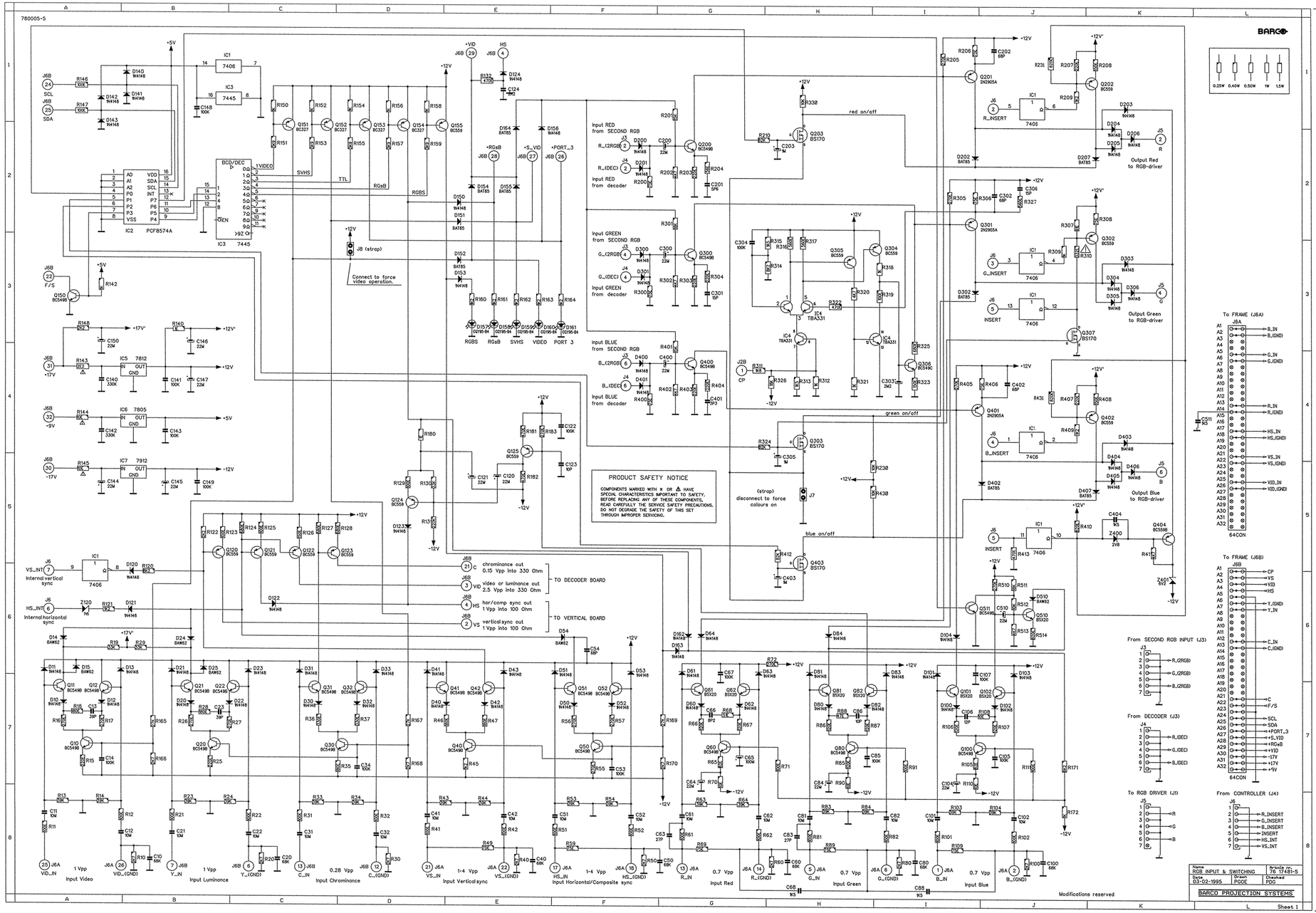
Sheet 1



Name	Article nr.
RGB INPUT + SWITCHING	76 1748I-5
Date: 23-02-1995 / Drawn: JVDY / Checked: PDG	

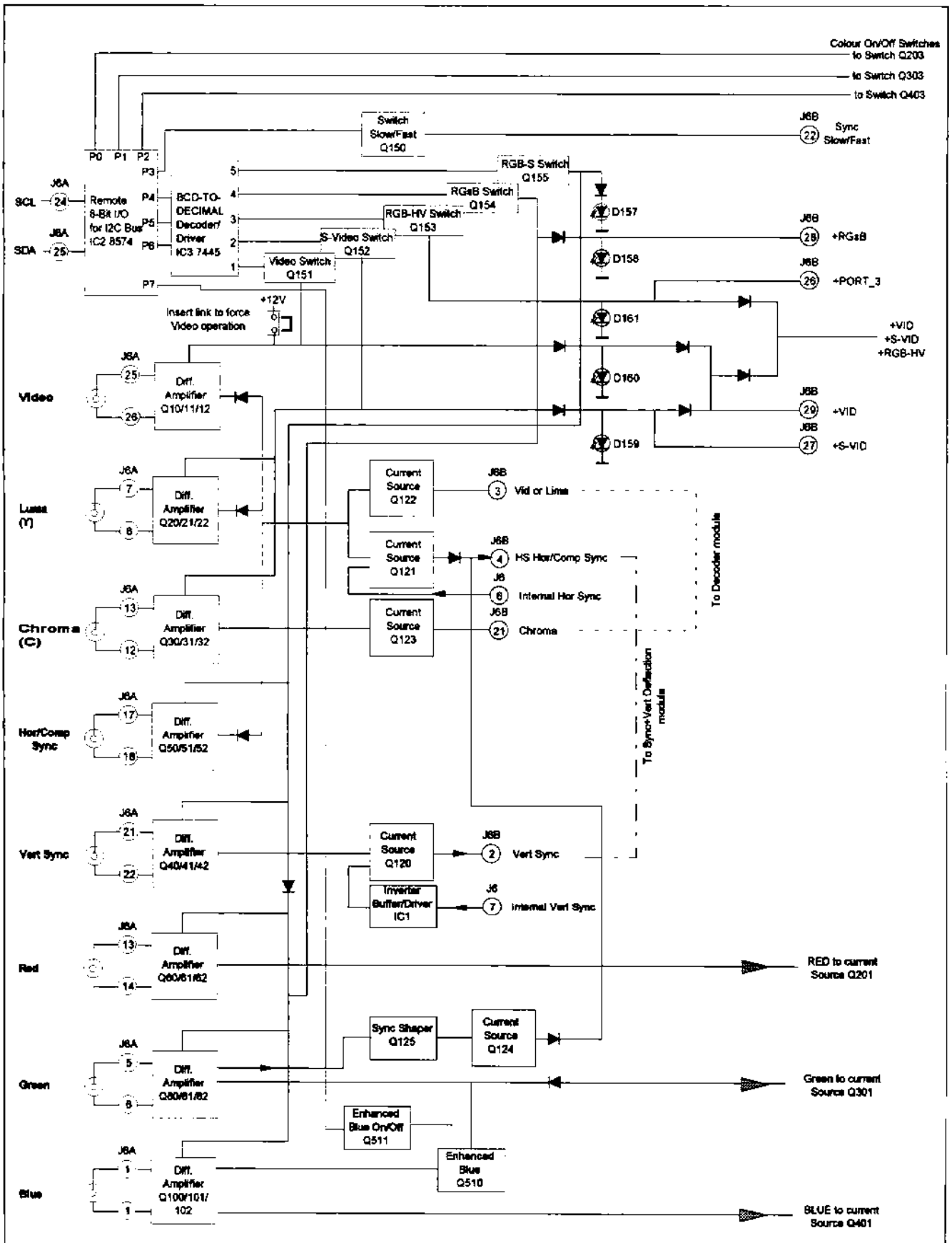
BARCO PROJECTION SYSTEMS

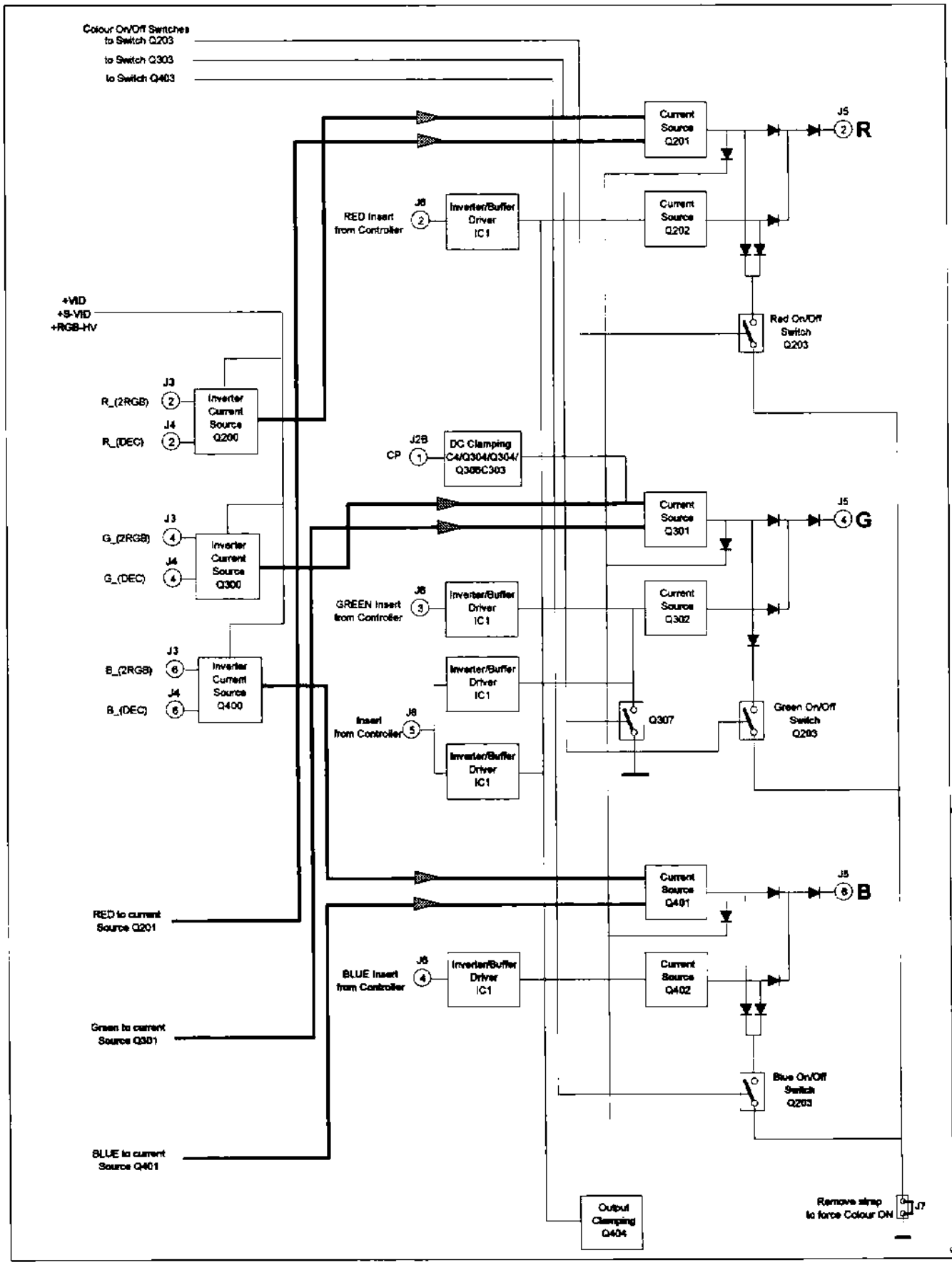
COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C10	E 5	D154	C 3	R31	C 5	R308	D 4
C11	E 5	D155	C 3	R32	C 5	R309	D 4
C12	E 5	D156	C 3	R33	C 5	R310	D 4
C13	D 5	D157	C 3	R34	C 5	R311	D 5
C14	D 4	D158	C 3	R35	C 5	R312	E 4
C20	D 5	D159	C 3	R36	C 5	R313	E 4
C21	D 5	D160	C 3	R37	C 5	R314	E 4
C22	D 5	D161	C 3	R40	E 5	R315	E 4
C23	D 4	D162	C 3	R41	E 5	R316	E 4
C31	C 5	D163	C 3	R42	F 5	R317	E 4
C32	C 5	D164	B 3	R43	E 5	R318	E 5
C34	C 4	D200	G 4	R44	E 5	R319	E 5
C40	F 5	D201	G 3	R45	E 5	R320	E 4
C41	E 5	D202	E 3	R46	D 5	R321	D 4
C42	E 5	D203	E 3	R47	D 5	R322	E 5
C50	F 5	D204	E 3	R49	F 5	R323	E 4
C51	E 5	D205	D 4	R50	F 5	R324	C 5
C52	E 5	D206	D 4	R51	F 5	R325	E 4
C53	E 5	D207	D 3	R52	F 5	R326	D 6
C54	D 5	D300	D 3	R53	E 5	R327	E 4
C60	F 5	D301	G 3	R54	E 5	R330	C 4
C61	F 5	D302	E 4	R55	E 5	R400	G 3
C62	F 5	D303	E 4	R56	E 5	R401	F 3
C63	F 5	D304	E 4	R57	E 5	R402	F 3
C64	F 4	D305	D 4	R59	F 5	R403	F 3
C65	F 4	D306	D 4	R60	F 5	R404	F 3
C66	F 5	D307	D 4	R61	F 5	R405	E 3
C67	F 5	D400	G 3	R62	F 5	R406	E 3
C68	F 5	D401	G 3	R63	F 5	R407	D 3
C80	G 5	D402	E 3	R64	F 4	R408	D 3
C81	F 5	D403	E 3	R65	F 4	R409	D 3
C82	F 5	D404	E 3	R66	F 5	R410	D 4
C83	G 5	D405	D 3	R67	F 5	R411	E 4
C84	F 4	D406	D 3	R68	F 5	R412	C 5
C85	F 4	D407	D 3	R69	F 5	R413	D 3
C86	F 4	D510	F 4	R70	F 4	R430	C 4
C88	G 5			R71	E 4	R431	E 4
C100	G 5	IC1	D 4	R72	E 4	R50	G 4
C101	G 5	IC2	C 5	R80	G 5	R58	G 4
C102	G 5	IC3	C 4	R81	G 5	R512	G 4
C103	G 5	IC4	E 4	R82	F 5	R513	G 4
C104	G 4	IC5	B 4	R83	F 4	R514	G 4
C105	G 4	IC6	B 5	R84	F 5		
C106	G 4	IC7	B 3	R85	F 4	ZI20	D 3
C107	G 4			R86	F 4	Z400	E 4
C200	F 4	J3	G 3	R87	F 4	Z401	E 4
C201	F 4	J4	F 3	R88	F 4		
C202	G 5	J5	E 3	R89	G 5		
C203	G 4	J6A	G 5	R90	F 4		
C204	D 5	J6B	D 5	R91	F 4		
C40	B 4	J6	C 3	R100	G 5		
C41	B 4	J7	C 4	R101	G 5		
C42	B 5	J8	C 4	R102	G 5		
C43	B 5			R103	G 4		
C44	B 4	Q10	D 5	R104	G 5		
C45	B 4	Q11	D 5	R105	F 4		
C46	D 3	Q12	D 5	R106	G 4		
C47	E 3	Q20	C 4	R107	F 4		
C48	C 5	Q21	C 5	R108	G 4		
C49	E 5	Q22	C 5	R109	G 5		
C50	C 5	Q30	C 4	R110	F 4		
C200	F 4	Q31	C 5	R111	F 4		
C201	F 3	Q32	C 5	R120	D 4		
C202	E 4	Q40	E 4	R121	D 4		
C203	C 4	Q41	D 5	R122	D 4		
C300	F 4	Q42	D 5	R123	D 4		
C301	F 3	Q50	D 5	R124	D 5		
C302	E 4	Q51	E 5	R125	D 4		
C303	E 4	Q52	D 5	R126	D 5		
C304	E 4	Q60	F 4	R127	C 5		
C305	C 4	Q61	F 5	R128	C 5		
C306	E 4	Q62	F 5	R129	D 4		
C400	F 3	Q80	F 4	R130	D 4		
C401	F 3	Q81	F 4	R131	F 4		
C402	E 3	Q82	F 4	R132	D 5		
C403	C 4	Q100	G 4	R140	C 4		
C510	G 4	Q101	G 4	R142	B 5		
		Q102	G 4	R143	B 4		
D10	D 5	Q120	D 4	R144	B 5		
D11	D 5	Q121	D 5	R145	B 4		
D12	D 5	Q122	D 5	R146	B 5		
D13	D 5	Q123	C 5	R147	B 5		
D14	D 5	Q124	D 4	R148	C 5		
D15	D 5	Q125	F 4	R150	C 4		
D20	D 5	Q150	D 5	R151	C 4		
D21	C 5	Q151	C 4	R152	C 4		
D22	C 5	Q152	C 3	R153	C 4		
D23	C 5	Q153	C 4	R154	C 4		
D24	D 5	Q154	C 3	R155	C 4		
D25	D 5	Q155	D 4	R156	C 3		
D30	C 5	Q200	F 4	R157	C 4		
D31	C 5	Q201	E 4	R158	C 4		
D32	C 5	Q202	D 3	R159	C 4		
D33	C 5	Q203	D 4	R160	C 3		
D40	E 5	Q300	F 4	R161	C 3		
D41	E 5	Q301	E 4	R162	C 3		
D42	E 5	Q302	D 4	R163	C 3		
D43	E 5	Q303	C 4	R164	C 3		
D50	E 5	Q304	E 4	R165	D 4		
D51	E 5	Q305	D 4	R166	C 4		
D52	E 5	Q306	E 4	R167	D 4		
D53	E 5	Q307	C 4	R168	D 4		
D54	D 5	Q400	F 3	R169	D 4		
D60	F 5	Q401	E 3	R170	E 5		
D61	F 5	Q402	D 3	R171	E 4		
D62	F 5	Q403	D 4	R172	F 4		
D63	F 5	Q404	E 4	R180	D 4		
D64	F 4	Q500	G 4	R181	F 4		
D80	F 4	Q501	G 4	R182	F 4		
D81	F 4			R183	F 4		
D82	F 4	R10	E 5	R200	G 4		
D83	F 4	R11	E 5	R201	F 4		
D84	F 4	R12	E 5	R202	F 3		
D100	G 4	R13	E 5	R203	F 4		
D101	G 4	R14	E 5	R204	F 4		
D102	G 4	R15	D 4	R205	E 3		
D103	G 4	R16	D 5	R206	E 3		
D104	F 4	R17	D 5	R207	D 3		
D120	D 3	R18	D 5	R208	D 4		
D121	D 5	R19	C 5	R209	D 3		
D122	D 5	R20	D 5	R210	C 5		
D123	D 5	R21	D 5	R230	C 4		
D124	D 5	R22	D 5	R231	C 3		
D140	B 5	R23	D 5	R300	G 3		
D141	B 5	R24	D 5	R301	F 3		
D142	B 5	R25	D 4	R302	F 3		
D143	B 5	R26	C 5	R303	F 4		
D150	C 3	R27	C 4	R304	F 3		
D151	C 3	R28	C 5	R305	E 4		
D152	C 3	R29	C 5	R306	E 4		
D153	C 3	R30	C 5	R307	D 4		



COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C10	B 8	IC5	A 4	R160	E 3
C11	A 8	IC6	A 4	R161	E 3
C12	B 8	IC7	A 5	R162	E 3
C13	A 7			R163	E 3
C14	A 7	J3	K 6	R164	F 3
C20	C 8	J4	K 7	R165	B 7
C21	B 8	J5	K 8	R166	B 7
C22	C 8	J6	L 8	R167	D 7
C23	B 7	J6B	L 5	R168	D 7
C31	C 8	J6A	L 5	R169	G 7
C32	D 8	J7	H 5	R170	G 7
C34	D 7	J8	D 3	R171	J 7
C40	E 8			R172	J 8
C41	D 8	Q10	A 7	R180	D 4
C42	E 8	Q11	A 7	R181	E 4
C50	G 8	Q12	A 7	R182	E 5
C51	F 8	Q20	B 7	R183	F 4
C52	F 8	Q21	B 7	R200	F 2
C53	F 7	Q22	B 7	R201	G 1
C54	F 6	Q30	C 7	R202	G 2
C60	H 8	Q31	C 7	R203	G 2
C61	G 8	Q32	D 7	R204	G 2
C62	G 8	Q40	E 7	R205	I 1
C63	F 5	Q41	E 7	R206	I 1
C64	G 7	Q42	E 7	R207	J 1
C65	G 7	Q50	F 7	R208	K 1
C66	G 7	Q51	F 7	R209	J 1
C67	G 6	Q52	F 7	R230	G 2
C68	H 8	Q60	G 7	R231	J 1
C80	I 8	Q61	G 7	R300	F 3
C81	H 8	Q62	G 7	R301	G 2
C82	I 8	Q80	H 7	R302	G 3
C83	H 8	Q81	H 7	R303	G 3
C84	H 7	Q82	H 7	R304	G 3
C85	H 7	Q100	I 7	R305	I 2
C86	H 7	Q101	I 7	R306	I 2
C88	I 8	Q102	I 7	R307	J 2
C100	J 8	Q120	B 5	R308	K 2
C101	I 8	Q121	C 5	R309	J 3
C102	J 8	Q122	C 5	R310	J 3
C104	I 7	Q123	D 5	R311	G 4
C105	J 7	Q124	D 5	R312	H 4
C106	I 7	Q125	E 4	R313	H 4
C107	I 6	Q150	A 3	R314	H 3
C120	E 5	Q151	C 1	R315	H 3
C121	F 5	Q152	D 1	R316	H 3
C122	F 4	Q153	D 1	R317	H 3
C123	F 5	Q154	D 1	R318	I 3
C124	E 1	Q155	E 1	R319	I 3
C140	A 4	Q200	G 2	R320	H 3
C141	B 4	Q201	J 1	R321	H 4
C142	A 4	Q202	K 1	R322	H 3
C143	B 4	Q203	H 2	R323	I 4
C145	A 5	Q300	G 3	R324	G 4
C146	B 5	Q301	K 2	R325	I 3
C147	B 4	Q302	K 3	R326	G 4
C148	B 1	Q303	H 4	R327	J 2
C149	B 5	Q304	I 3	R330	H 1
C150	A 3	Q305	H 3	R400	F 4
C200	G 2	Q306	I 4	R401	G 3
C201	G 2	Q307	J 3	R402	G 4
C202	J 1	Q400	G 4	R403	G 4
C203	H 2	Q401	J 4	R404	G 4
C300	G 3	Q402	K 4	R405	I 4
C301	G 3	Q403	H 5	R406	J 4
C302	J 2	Q404	K 5	R407	J 4
C303	I 4	Q510	J 6	R408	K 4
C304	G 3	Q511	I 6	R409	J 4
C305	H 4	R10	B 8	R410	J 5
C306	J 2	R11	A 8	R411	K 5
C400	G 4	R12	B 8	R412	H 5
C401	G 4	R13	A 8	R413	J 5
C402	J 4	R14	A 8	R430	I 5
C403	H 6	R15	A 7	R431	J 4
C404	K 5	R16	A 7	R500	J 6
C510	J 6	R17	A 7	R511	J 6
C511	L 4	R18	A 7	R512	J 6
		R19	A 6	R513	J 6
D10	A 7	R20	B 8	R514	J 6
D11	A 6	R21	C 8		
D12	A 6	R22	C 8	Z120	A 6
D13	B 6	R23	C 8	Z400	K 5
D14	A 6	R24	B 8	Z401	K 6
D15	A 6	R25	B 8		
D20	B 7	R26	B 7		
D21	C 7	R27	C 7		
D22	C 7	R28	B 7		
D23	C 6	R29	B 6		
D24	B 6	R30	D 8		
D25	B 6	R31	C 8		
D30	C 7	R32	D 8		
D31	C 6	R33	D 8		
D32	D 7	R34	D 8		
D33	D 6	R35	C 7		
D40	D 7	R36	C 7		
D41	E 7	R37	D 7		
D42	E 7	R40	E 8		
D43	E 6	R41	D 8		
D50	F 7	R42	E 8		
D51	F 7	R43	D 8		
D52	F 6	R44	E 8		
D53	F 6	R45	E 8		
D54	F 6	R46	D 7		
D60	G 6	R47	E 7		
D61	G 6	R48	F 8		
D62	G 6	R49	F 8		
D63	G 6	R50	F 8		
D64	G 6	R52	F 8		
D80	H 7	R53	F 8		
D81	H 6	R54	F 8		
D82	H 7	R55	F 7		
D83	I 6	R56	F 7		
D84	H 6	R57	F 7		
D100	I 7	R59	F 8		
D101	I 6	R60	H 8		
D102	J 7	R61	G 8		
D103	J 6	R62	G 8		
D104	I 6	R63	G 8		
D120	B 5	R64	G 8		
D121	B 6	R65	G 7		
D122	C 6	R66	G 7		
D123	D 5	R67	G 7		
D124	E 1	R68	G 7		
D140	B 1	R69	G 8		
D141	B 2	R70	G 7		
D142	A 1	R71	H 7		
D143	A 1	R72	H 6		
D150	E 2	R80	I 8		
D151	E 2	R81	H 8		
D152	E 3	R82	I 8		
D153	E 3	R83	H 8		
D154	E 3	R84	H 8		
D155	E 2	R85	H 7		
D156	E 2	R86	H 7		
D157	E 3	R87	H 7		
D158	E 3	R88	H 7		
D159	E 3	R89	H 8		
D160	E 3	R90	H 7		
D161	F 3	R91	I 7		
D162	G 6	R100	J 8		
D163	G 6	R101	I 8		
D164	E 2	R102	J 8		
D200	F 2	R103	I 8		
D201	F 2	R104	J 8		
D202	I 2	R105	I 7		
D203	K 1	R106	I 7		
D204	K 1	R107	J 7		
D205	K 2	R108	I 7		
D206	K 2	R109	I 8		
D207	J 2	R110	I 7		
D300	F 3	R111	J 7		
D301	F 3	R120	B 8		
D302	I 3	R121	A 6		
D303	K 3	R122	B 5		
D304	K 3	R123	B 5		
D305	K 3	R124	C 5		
D306	K 3	R125	C 5		
D400	F 4	R126	C 5		
D401	F 4	R127	D 5		
D402	J 5	R128	D 5		
D403	K 4	R129	D 5		
D404	K 4	R130	D 5		
D405	K 5	R131	D 5		
D406	K 5	R132	E 1		
D407	J 5	R140	B 3		
D510	J 6	R142	A 3		
		R143	A 4		
IC1	J 5	R144	A 4		
IC1	B 1	R145	A 5		
IC1	G 1	R146	A 1		
IC1	H 1	R147	A 1		
IC1	J 3	R148	A 3		
IC1	J 3	R150	C 1		
IC1	J 1	R151	C 2		
IC2	A 2	R152	C 2		
IC2	B 2	R153	C 2		
IC3	B 2	R154	D 2		
IC3	B 3	R155	D 2		
IC3	H 3	R158	D 2		
IC4	H 3	R159	D 2		

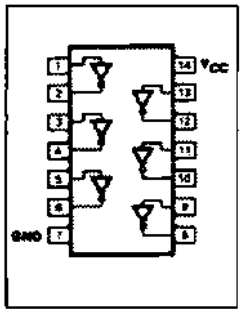
Name	RGB INPUT & SWITCHING
Article no.	76 17481-5
Date	03-02-1995
Drawn	PGOE
Checked	PDG
Sheet	1


Colour On/Off Switches
to Switch Q203
to Switch Q303
to Switch Q403
Switch Slow/Fast Q150
J6B 22 Sync Slow/Fast
P0 P1 P2 P3 P4 P5 P6 P7
BCD-TO-DECIMAL Decoder/ Driver IC3 7445
Remote 8-Bit I/O for I2C Bus IC2 8574
J6A 24 SCL
J6A 25 SDA
RGB-S Switch Q155
RGsB Switch Q154
RGB-HV Switch Q153
S-Video Switch Q152
Video Switch Q151
Insert link to force Video operation
+12V
D157
D158
D161
D160
D159
J6B 28 +RGsB
J6B 26 +PORT_3
+VID
+S-VID
+RGB-HV
J6B 29 +VID
J6B 27 +S-VID
Video
Luma (Y)
Chroma (C)
Hor/Comp Sync
Vert Sync
Red
Green
Blue
J6A 25
J6A 26
J6A 7
J6A 8
J6A 13
J6A 12
J6A 17
J6A 18
J6A 21
J6A 22
J6A 13
J6A 14
J6A 5
J6A 6
J6A 1
J6A 1
Diff. Amplifier Q10/11/12
Diff. Amplifier Q20/21/22
Diff. Amplifier Q30/31/32
Diff. Amplifier Q50/51/52
Diff. Amplifier Q40/41/42
Diff. Amplifier Q60/61/62
Diff. Amplifier Q80/81/82
Diff. Amplifier Q100/101/102
Current Source Q122
Current Source Q121
Current Source Q123
Current Source Q120
Inverter Buffer/Driver IC1
Sync Shaper Q125
Current Source Q124
Enhanced Blue On/Off Q511
Enhanced Blue Q510
J6B 3 Vid or Luma
J6B 4 HS Hor/Comp Sync
J6 6 Internal Hor Sync
J6B 21 Chroma
J6B 2 Vert Sync
J6 7 Internal Vert Sync
To Decoder module
To Sync+Vert Deflection module
RED to current Source Q201
Green to current Source Q301
BLUE to current Source Q401

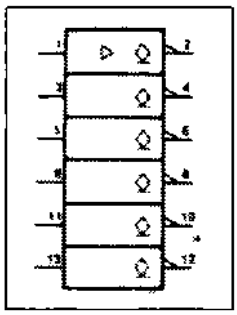

Colour On/Off Switches
to Switch Q203
to Switch Q303
to Switch Q403
Current Source Q201
J5
2
R
RED Insert from Controller
J6
2
Inverter/Buffer Driver IC1
Current Source Q202
+VID
+S-VID
+RGB-HV
Red On/Off Switch Q203
R_(2RGB)
J3
2
R_(DEC)
J4
2
Inverter Current Source Q200
CP
J2B
1
DC Clamping C4/Q304/Q304/ Q305C303
Current Source Q301
J5
4
G
G_(2RGB)
J3
4
G_(DEC)
J4
4
Inverter Current Source Q300
GREEN Insert from Controller
J6
3
Inverter/Buffer Driver IC1
Current Source Q302
B_(2RGB)
J3
6
B_(DEC)
J4
6
Inverter Current Source Q400
Inverter/Buffer Driver IC1
Insert from Controller
J6
5
Inverter/Buffer Driver IC1
Q307
Green On/Off Switch Q203
Current Source Q401
J5
6
B
RED to current Source Q201
BLUE Insert from Controller
J6
4
Inverter/Buffer Driver IC1
Current Source Q402
Green to current Source Q301
Blue On/Off Switch Q203
BLUE to current Source Q401
Output Clamping Q404
Remove strap to force Colour ON
J7

HEX INVERTER BUFFER/DRIVER 7406

Pin configuration



Logic symbol

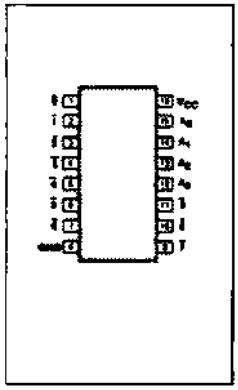


Function table

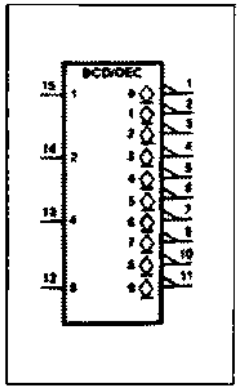
Input	Output
A	Y
H L	L H

BCD-TO-DECIMAL DECODER/DRIVER 7445 (open collector)

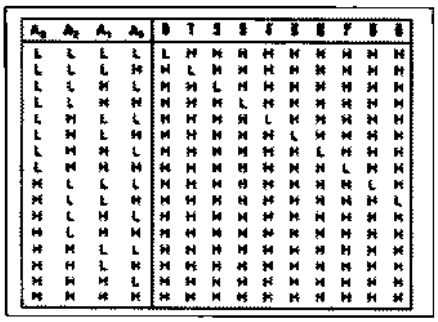
Pin configuration



Logic symbol



Function table



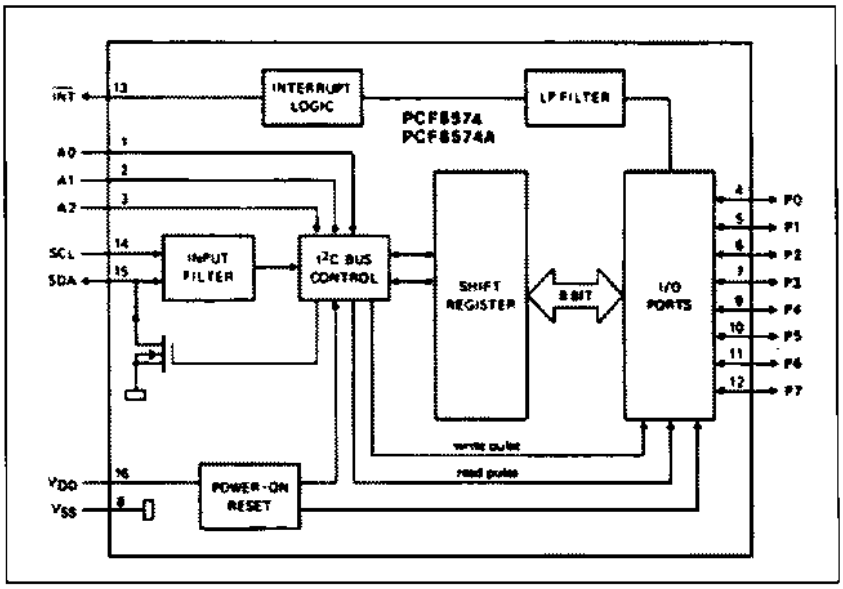
H= HIGH voltage levels
L= LOW voltage levels

REMOTE 8-BIT I/O EXPANDER FOR I²C BUS 8574A

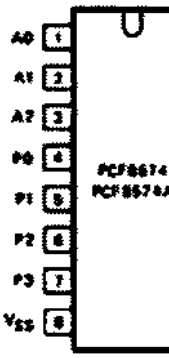
General description

The PCF8574 is a single-chip silicon gate CMOS circuit. It provides remote I/O expansion for the MAB8400 and PCF84XX microcontroller families via the two-line serial bidirectional bus (I2C). It can also interface microcomputers without a serial interface to the I2C bus (as a slave function only). The device consists of an 8-bit quasibidirectional port and an I2C interface. The PCF8574 has low current consumption and includes latched outputs with high current drive capability for directly driving LED's. It also possesses an interrupt line (INT) which is connected to the interrupt logic of the microcomputer on the I2C bus. By sending an interrupt signal on this line, the remote I/O can inform the microcomputer if there is incoming data on its ports without having to communicate via the I2C bus. This means that the PCF8574 can remain a simple slave device.

Block diagram



Pin configuration



1 to 3	A0 to A2	address inputs
4 to 7	P0 to P3	8-bit quasi-bidirectional I/O port
9 to 12	P4 to P7	
8	V_{SS}	negative supply
13	$\overline{INT}$	interrupt output
14	SCL	serial clock line
15	SDA	serial data line
16	V_{DD}	positive supply

TECHNICAL DESCRIPTION "INPUT RGB ANALOG AND RGB SWITCHING" 76 17481.

Introduction.

As the projector can operate in 5 different modes, the corresponding signal is here selected, together with its sync signal. The selection happens by activating the current generator of a differential amplifier.

The required "selection voltage" is obtained from a BCD/DECimal decoder which is supplied with a BCD coded signal delivered by an I2C interface.

The text pixels from the microprocessor control module are inserted and the video is blanked by means of the "INS" signal whenever required.

In order to maintain the insert level of the green text, the G-signal undergoes a black level clamping before inserting the green text.

Furthermore, in the adjust mode, at some moments one or more colours must be switched off and this happens here on this board as well.

Mode Selection

The I2C bus is connected with the 8574 interface chip (IC2) and the output ports P4-6 are then applied to the BCD/DECimal decoder IC3.

The outputs of the latter drive the switching transistors Q151-155. At the collector of these transistors we get the respective switching voltages :

+video, +SVID, +PORT 3, +RGSB and +RGBS.

A. Video composite input

The **+video** voltage activates the current generator Q10 of the differential input stage Q11-Q12. The video is now applied to Q121 and Q122 via D14.

Q122 's output is feeding the decoder and Q121 feeds the sync separator on the UN SYNC+VERT DEFL board.

The decoded video into RGB is now returned to the bases of Q200-Q300 and Q400. These bases are indeed supplied from the +video voltage via D152, D154, D156 and D164.

We like to mention that this switching voltage turns on the LED D160, as to display the choice to the service engineer.

Any influence from the collector of Q21 (Y-input) is avoided by clamping this collector to ground through D25. This diode is indeed "on' via +17V", R29,and the +12V lines.

B. S-VHS input

The Y (or luminance) and Chrominance inputs are now active with the *+SVHS* voltage. The Y-signal proceeds to the decoder and to the sync separator, whereas the chrominance is sent to the decoder only.

Here again, the diode D15 clamps the collector of the video input to ground level.

The decoded S-VHS comes equally back to this board at the bases of Q200, Q300 and Q400.
D159 is turned on via D151.

C. Second Analog RGB input

The **+Port 3** voltage leaves this board at contact J2B(26) to be supplied to the second RGB input. This board is automatic for the sync. The "sync on green" or "separate sync" is automatically selected. We refer to the description of this board for further details.

The same "+ PORT 3" voltage supplies the bases of the emitterfollowers Q200,Q300 and Q400 now via D156.

The RGB signals enter the board at the bases via a gating diode.

D. R,G,B analog inputs

Depending on the selection RGBS or RGSB four or three inputs are activated and the right sync is guided to the sync separator.

The Q201, Q301 and Q401 current sources with open collector (the collector resistors of 75 ohm are on the decoder) are supplied directly with these signals.

E. DC clamping of the green black level

The green signal at the collector of Q301 is applied to the base of a differential amplifier in IC4. The other base is fixed at a voltage set by R315/R314.

Now, this differential pair only is active when a clamp pulse CP is applied on the base of the transistor whose collector is connected to the common emitters.

The difference voltage, either polarity charges or discharges now the capacitor C303 and thus determines the dc voltage, or, the average DC level of the green video, at the base of Q301.

F. Cut-off of one or more guns

When the strap J7 is in place, and Q500 is switched on (during the scan only), the output of the current generators Q201, Q301 and Q401 are clamped at ground via a diode when one of the fets Q203; Q303 or Q403 is fully saturated.

These fets are driven by the outputs P0 - P2 of the I2C interface IC2.

When one of these fets is 'on', the diodes D202 / D207; D302 / D307 and D402 / D407 'pull' down the collectors of the transistors carrying the R, G and B signals and the Ro, Go and Bo pixel informations.

H. Insert

This signal, produced on the control panel (ASIC), clamps the outputs of the R, G and B output drivers under black level to blank the video to create a black window in which the text appears.

I. Fast / Slow

The output P3 of IC2 drives the transistor Q50 whose collector is connected with pin 13 of the TDA2595 on the UN SYNC+VERT DEFL board.

Parts listing RGB Analog input & Switching module

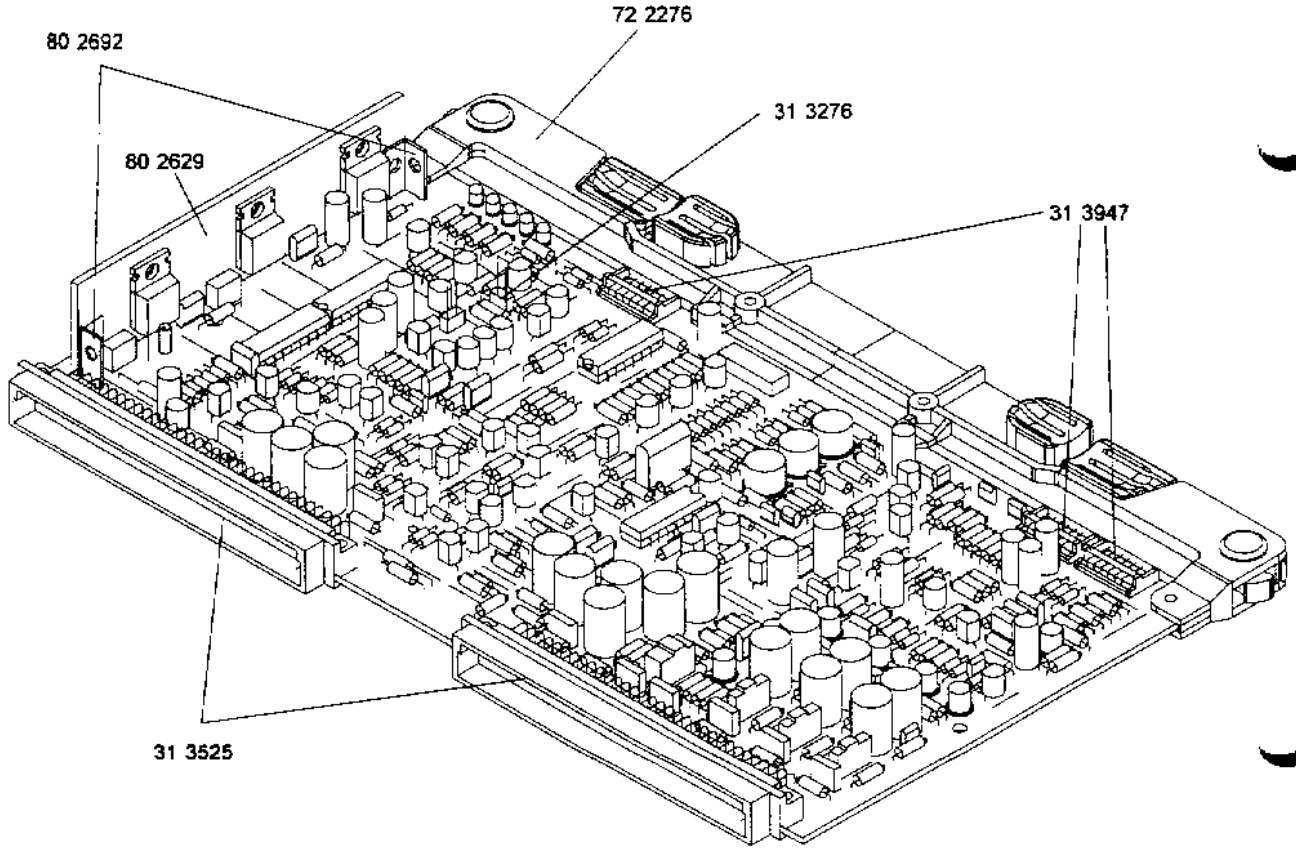
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
123	R133029	Q ACC ISO SET TO220	1
30	R133076	Q ACC ISO WSHR TO39	3
10	R302108	CORE TUBE 3.5 /1.3 X 3	12
120	R3620226	SCR D84 M 3 X 8 SI	3
121	R3661026	NUT D934 M 3 I	3
1010	R367435	RVT POP D2.4 L 9.3 P AA	2
111	R3674391	RVT POP D3.2 L 7.4 P ASW	2
122	R367502	WSHR D6798 A 3.2 S Z	3
10	R367699	RVT CHB D2.38L6.35 P A	4
1000	R722276	LOCK PJ49 PCB UN CPL	1
100	R802629	HTSNK PJ49 RGB PR_AMP	1
110	R802692	HTSNK PJ49 FIX HTSNK	2
C A	R112741	C CE MI 1N5K100E2	1
C 10	R113722	C POMERA 68N K 63E2 85	1
C 11	R111678	C EL BRA 10M M 25E2 85	
C 12	R111678	C EL BRA 10M M 25E2 85	
C 13	R112237	C NP0 MI 39P G100E2	
C 14	R112774	C CE MI 100N S 63E2 85	
C 20	R113722	C POMERA 68N K 63E2 85	1
C 21	R111678	C EL BRA 10M M 25E2 85	
C 22	R111678	C EL BRA 10M M 25E2 85	
C 23	R112237	C NP0 MI 39P G100E2	
C 31	R111678	C EL BRA 10M M 25E2 85	
C 32	R111678	C EL BRA 10M M 25E2 85	
C 34	R112774	C CE MI 100N S 63E2 85	
C 40	R113722	C POMERA 68N K 63E2 85	
C 41	R111678	C EL BRA 10M M 25E2 85	
C 42	R111678	C EL BRA 10M M 25E2 85	
C 50	R113722	C POMERA 68N K 63E2 85	
C 51	R111678	C EL BRA 10M M 25E2 85	
C 52	R111678	C EL BRA 10M M 25E2 85	
C 53	R112774	C CE MI 100N S 63E2 85	1
C 54	R112240	C NP0 MI 68P G100E2	
C 60	R113722	C POMERA 68N K 63E2 85	
C 61	R111678	C EL BRA 10M M 25E2 85	
C 62	R111678	C EL BRA 10M M 25E2 85	
C 63	R112235	C NP0 MI 27P G100E2	1
C 64	R111510	C EL RA 22M M 25E2 85	1
C 65	R111466	C EL RA 100M Z 16E2 85	
C 66	R112229	C NP0 MI 8P2C100E2	1
C 67	R112774	C CE MI 100N S 63E2 85	
C 68	R112741	C CE MI 1N5K100E2	1
C 80	R113722	C POMERA 68N K 63E2 85	1
C 81	R111678	C EL BRA 10M M 25E2 85	
C 82	R111678	C EL BRA 10M M 25E2 85	
C 83	R112235	C NP0 MI 27P G100E2	1
C 84	R111510	C EL RA 22M M 25E2 85	
C 85	R112774	C CE MI 100N S 63E2 85	
C 86	R112230	C NP0 MI 10P G100E2	1
C 88	R112741	C CE MI 1N5K100E2	1
C100	R113722	C POMERA 68N K 63E2 85	
C101	R111678	C EL BRA 10M M 25E2 85	
C102	R111678	C EL BRA 10M M 25E2 85	
C104	R111510	C EL RA 22M M 25E2 85	1
C105	R112774	C CE MI 100N S 63E2 85	
C106	R112231	C NP0 MI 12P G100E2	1
C107	R112774	C CE MI 100N S 63E2 85	
C120	R111510	C EL RA 22M M 25E2 85	
C121	R111532	C EL RA 22M M 35E2 85	
C122	R112774	C CE MI 100N S 63E2 85	
C123	R112230	C NP0 MI 10P G100E2	1
C124	R112743	C CE MI 2N2K100E2	1
C140	R113730	C POMERA 330N K 63E2 85	
C141	R112774	C CE MI 100N S 63E2 85	
C142	R113730	C POMERA 330N K 63E2 85	
C143	R112774	C CE MI 100N S 63E2 85	
C144	R111510	C EL RA 22M M 25E2 85	
C145	R111510	C EL RA 22M M 25E2 85	
C146	R111510	C EL RA 22M M 25E2 85	
C147	R111510	C EL RA 22M M 25E2 85	
C148	R112774	C CE MI 100N S 63E2 85	1
C149	R112774	C CE MI 100N S 63E2 85	1
C150	R111510	C EL RA 22M M 25E2 85	1
C200	R111510	C EL RA 22M M 25E2 85	
C201	R112227	C NP0 MI 5P6C100E2	1
C202	R112240	C NP0 MI 68P G100E2	1
C203	R111546	C EL RA 1M M 50E2 85	
C300	R111510	C EL RA 22M M 25E2 85	
C301	R112232	C NP0 MI 15P G100E2	
C302	R112240	C NP0 MI 68P G100E2	
C303	R111548	C EL RA 2M2M 50E2 85	1
C304	R114100	C POMERA 100N K100E4 85	1
C305	R111546	C EL RA 1M M 50E2 85	
C306	R112432	C NP0 MI 15P G100E1	1
C400	R111510	C EL RA 22M M 25E2 85	
C401	R112224	C NP0 MI 3P3C100E2	
C402	R112240	C NP0 MI 68P G100E2	1
C403	R111546	C EL RA 1M M 50E2 85	
C510	R111510	C EL RA 22M M 25E2 85	1
D 10	R131621	D S 1N4148 075150 DO35	
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	R131628	D S BAW62 075200 DO35	
D 15	R131628	D S BAW62 075200 DO35	
D 20	R131621	D S 1N4148 075150 DO35	
D 21	R131621	D S 1N4148 075150 DO35	
D 22	R131621	D S 1N4148 075150 DO35	
D 23	R131621	D S 1N4148 075150 DO35	
D 24	R131628	D S BAW62 075200 DO35	
D 25	R131628	D S BAW62 075200 DO35	
D 30	R131621	D S 1N4148 075150 DO35	
D 31	R131621	D S 1N4148 075150 DO35	
D 32	R131621	D S 1N4148 075150 DO35	
D 33	R131621	D S 1N4148 075150 DO35	
D 40	R131621	D S 1N4148 075150 DO35	
D 41	R131621	D S 1N4148 075150 DO35	
D 42	R131621	D S 1N4148 075150 DO35	
D 43	R131621	D S 1N4148 075150 DO35	
D 50	R131621	D S 1N4148 075150 DO35	1
D 51	R131621	D S 1N4148 075150 DO35	
D 52	R131621	D S 1N4148 075150 DO35	
D 53	R131621	D S 1N4148 075150 DO35	
D 54	R131628	D S BAW62 075200 DO35	
D 60	R131621	D S 1N4148 075150 DO35	
D 61	R131621	D S 1N4148 075150 DO35	
D 62	R131621	D S 1N4148 075150 DO35	
D 63	R131621	D S 1N4148 075150 DO35	
D 64	R131621	D S 1N4148 075150 DO35	
D 80	R131621	D S 1N4148 075150 DO35	
D 81	R131621	D S 1N4148 075150 DO35	
D 82	R131621	D S 1N4148 075150 DO35	
D 83	R131621	D S 1N4148 075150 DO35	
D 84	R131621	D S 1N4148 075150 DO35	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
D100	R131621	D S IN4148 075150 DO35	
D101	R131621	D S IN4148 075150 DO35	
D102	R131621	D S IN4148 075150 DO35	
D103	R131621	D S IN4148 075150 DO35	
D104	R131621	D S IN4148 075150 DO35	
D120	R131621	D S IN4148 075150 DO35	
D121	R131621	D S IN4148 075150 DO35	
D122	R131621	D S IN4148 075150 DO35	
D123	R131621	D S IN4148 075150 DO35	
D124	R131621	D S IN4148 075150 DO35	
D140	R131621	D S IN4148 075150 DO35	
D141	R131621	D S IN4148 075150 DO35	
D142	R131621	D S IN4148 075150 DO35	
D143	R131621	D S IN4148 075150 DO35	
D150	R131621	D S IN4148 075150 DO35	
D151	R1316361	D Y BAT85 030200 DO35	
D152	R1316361	D Y BAT85 030200 DO35	1
D153	R131621	D S IN4148 075150 DO35	
D154	R1316361	D Y BAT85 030200 DO35	
D155	R1316361	D Y BAT85 030200 DO35	
D156	R131621	D S IN4148 075150 DO35	
D157	R131667	D LED D3 T GN	1
D158	R131667	D LED D3 T GN	1
D159	R131667	D LED D3 T GN	1
D160	R131667	D LED D3 T GN	1
D161	R131667	D LED D3 T GN	1
D162	R131621	D S IN4148 075150 DO35	
D163	R131621	D S IN4148 075150 DO35	
D164	R1316361	D Y BAT85 030200 DO35	
D200	R131621	D S IN4148 075150 DO35	
D201	R131621	D S IN4148 075150 DO35	
D202	R1316361	D Y BAT85 030200 DO35	
D203	R131621	D S IN4148 075150 DO35	
D204	R131621	D S IN4148 075150 DO35	
D205	R131621	D S IN4148 075150 DO35	
D206	R131621	D S IN4148 075150 DO35	
D207	R1316361	D Y BAT85 030200 DO35	
D300	R131621	D S IN4148 075150 DO35	
D301	R131621	D S IN4148 075150 DO35	
D302	R1316361	D Y BAT85 030200 DO35	
D303	R131621	D S IN4148 075150 DO35	
D304	R131621	D S IN4148 075150 DO35	
D305	R131621	D S IN4148 075150 DO35	
D306	R131621	D S IN4148 075150 DO35	
D400	R131621	D S IN4148 075150 DO35	
D401	R131621	D S IN4148 075150 DO35	
D402	R1316361	D Y BAT85 030200 DO35	
D403	R131621	D S IN4148 075150 DO35	
D404	R131621	D S IN4148 075150 DO35	
D405	R131621	D S IN4148 075150 DO35	
D406	R131621	D S IN4148 075150 DO35	
D407	R1316361	D Y BAT85 030200 DO35	
D510	R131628	D S BAW62 075200 DO35	
I 1	R137507	U 7406 DIP14 P	1
I 2	R132832	U 8574A PCF DIP16 P	1
I 3	R137359	U 7445 DIP16 P	1
I 4	R132134	U 331 TBA DIP14 P	1
I 5	R134002	U 7812 TO220 P	1
I 6	R134001	U 7805 TO220 P	1
I 7	R134016	U 7912 TO220 P	1
J	R3133921	J MD JMP P 1 E1SN	1
J1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J2	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J3	R313947	J CT H MBS P 7 M2SN	1
J4	R313947	J CT H MBS P 7 M2SN	1
J6	R313947	J CT H MBS P 7 M2SN	1
J7	R3132862	J MD1 MBT P 2 E1SN	1
J8	R3132862	J MD1 MBT P 2 E1SN	1
PC	R780005	PCS EP INP ANA+SW	1
Q 10	R1314295	Q BC549B N SS TO92	
Q 11	R1314295	Q BC549B N SS TO92	
Q 12	R1314295	Q BC549B N SS TO92	
Q 20	R1314295	Q BC549B N SS TO92	
Q 21	R1314295	Q BC549B N SS TO92	
Q 22	R1314295	Q BC549B N SS TO92	
Q 30	R1314295	Q BC549B N SS TO92	
Q 31	R1314295	Q BC549B N SS TO92	
Q 32	R1314295	Q BC549B N SS TO92	
Q 40	R1314295	Q BC549B N SS TO92	
Q 41	R1314295	Q BC549B N SS TO92	
Q 42	R1314295	Q BC549B N SS TO92	
Q 50	R1314295	Q BC549B N SS TO92	
Q 51	R1314295	Q BC549B N SS TO92	
Q 52	R1314295	Q BC549B N SS TO92	
Q 60	R1314295	Q BC549B N SS TO92	
Q 61	R131491	Q BSX20 N SS TO18	1
Q 62	R131491	Q BSX20 N SS TO18	1
Q 80	R1314295	Q BC549B N SS TO92	1
Q 81	R131491	Q BSX20 N SS TO18	1
Q 82	R131491	Q BSX20 N SS TO18	1
Q100	R1314295	Q BC549B N SS TO92	
Q101	R131491	Q BSX20 N SS TO18	1
Q102	R131491	Q BSX20 N SS TO18	1
Q120	R131418	Q BC559 P SS TO92	
Q121	R131418	Q BC559 P SS TO92	
Q122	R131418	Q BC559 P SS TO92	
Q123	R131418	Q BC559 P SS TO92	
Q124	R131418	Q BC559 P SS TO92	1
Q125	R131418	Q BC559 P SS TO92	
Q150	R1314295	Q BC549B N SS TO92	
Q151	R1314311	Q BC327 P SS TO92	1
Q152	R1314311	Q BC327 P SS TO92	
Q153	R1314311	Q BC327 P SS TO92	
Q154	R1314311	Q BC327 P SS TO92	
Q155	R131418	Q BC559 P SS TO92	
Q200	R1314295	Q BC549B N SS TO92	
Q201	R132904	Q 2N2905A P SS TO39	1
Q202	R131418	Q BC559 P SS TO92	
Q203	R132910	Q BS170 FN SS TO92	
Q300	R1314295	Q BC549B N SS TO92	
Q301	R132904	Q 2N2905A P SS TO39	1
Q302	R131418	Q BC559 P SS TO92	
Q303	R132910	Q BS170 FN SS TO92	
Q304	R131418	Q BC559 P SS TO92	
Q305	R131418	Q BC559 P SS TO92	
Q306	R131411	Q BC549C N SS TO92	1
Q307	R132910	Q BS170 FN SS TO92	1
Q400	R1314295	Q BC549B N SS TO92	
Q401	R132904	Q 2N2905A P SS TO39	1
Q402	R131418	Q BC559 P SS TO92	
Q403	R132910	Q BS170 FN SS TO92	
Q404	R1314181	Q BC559B P SS TO92	
Q510	R131491	Q BSX20 N SS TO18	1
Q511	R1314295	Q BC549B N SS TO92	1
R 10	R101141	R CF H 2K7 J 0W25	
R 11	R101124	R CF H100E J 0W25	1
R 12	R101124	R CF H100E J 0W25	
R 13	R101155	R CF H 39K J 0W25	
R 14	R101155	R CF H 39K J 0W25	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 15	R101128	R CF H220E F 0W25	
R 16	R101129	R CF H270E J 0W25	
R 17	R101129	R CF H270E J 0W25	
R 18	R101127	R CF H180E J 0W25	
R 19	R101154	R CF H 33K J 0W25	1
R 20	R101141	R CF H 2K7 J 0W25	
R 21	R101124	R CF H100E J 0W25	
R 22	R101124	R CF H100E J 0W25	
R 23	R101155	R CF H 39K J 0W25	
R 24	R101155	R CF H 39K J 0W25	
R 25	R101128	R CF H220E F 0W25	
R 26	R101129	R CF H270E J 0W25	
R 27	R101129	R CF H270E J 0W25	
R 28	R101127	R CF H180E J 0W25	1
R 29	R101154	R CF H 33K J 0W25	
R 30	R101141	R CF H 2K7 J 0W25	
R 31	R101124	R CF H100E J 0W25	
R 32	R101124	R CF H100E J 0W25	
R 33	R101155	R CF H 39K J 0W25	
R 34	R101155	R CF H 39K J 0W25	
R 35	R101127	R CF H180E J 0W25	
R 36	R101130	R CF H330E J 0W25	
R 37	R101130	R CF H330E J 0W25	
R 40	R101141	R CF H 2K7 J 0W25	
R 41	R101124	R CF H100E J 0W25	
R 42	R101124	R CF H100E J 0W25	
R 43	R101155	R CF H 39K J 0W25	
R 44	R101155	R CF H 39K J 0W25	
R 45	R101137	R CF H 1K2 J 0W25	
R 46	R101127	R CF H180E J 0W25	
R 47	R101127	R CF H180E J 0W25	
R 49	R1011231	R CF H 75E J 0W25	
R 50	R101141	R CF H 2K7 J 0W25	
R 51	R101124	R CF H100E J 0W25	
R 52	R101124	R CF H100E J 0W25	
R 53	R101155	R CF H 39K J 0W25	1
R 54	R101155	R CF H 39K J 0W25	
R 55	R101129	R CF H270E J 0W25	1
R 56	R101129	R CF H270E J 0W25	
R 57	R101129	R CF H270E J 0W25	
R 59	R1011231	R CF H 75E J 0W25	
R 60	R101141	R CF H 2K7 J 0W25	
R 61	R101124	R CF H100E J 0W25	
R 62	R101124	R CF H100E J 0W25	
R 63	R101155	R CF H 39K J 0W25	
R 64	R101155	R CF H 39K J 0W25	
R 65	R101123	R CF H 82E J 0W25	
R 66	R101125	R CF H120E J 0W25	
R 67	R101125	R CF H120E J 0W25	
R 68	R101112	R CF H 10E J 0W25	1
R 68	R1011575	R MF H 51E1 F 0W6 E4	1
R 69	R1011231	R CF H 75E J 0W25	
R 70	R101112	R CF H 10E J 0W25	
R 71	R101124	R CF H100E J 0W25	1
R 72	R101129	R CF H270E J 0W25	
R 80	R101141	R CF H 2K7 J 0W25	
R 81	R101124	R CF H100E J 0W25	
R 82	R101124	R CF H100E J 0W25	
R 83	R101155	R CF H 39K J 0W25	
R 84	R101155	R CF H 39K J 0W25	
R 85	R101125	R CF H120E J 0W25	
R 86	R101125	R CF H120E J 0W25	
R 87	R101125	R CF H120E J 0W25	
R 88	R101115	R CF H 18E J 0W25	1
R 88	R101120	R CF H 47E J 0W25	
R 89	R1011231	R CF H 75E J 0W25	
R 90	R101112	R CF H 10E J 0W25	
R 91	R101124	R CF H100E J 0W25	
R100	R101141	R CF H 2K7 J 0W25	
R101	R101124	R CF H100E J 0W25	
R102	R101124	R CF H100E J 0W25	
R103	R101155	R CF H 39K J 0W25	
R104	R101155	R CF H 39K J 0W25	
R105	R101123	R CF H 82E J 0W25	
R106	R101125	R CF H120E J 0W25	
R107	R101125	R CF H120E J 0W25	
R108	R101118	R CF H 33E J 0W25	1
R108	R101112	R CF H 10E J 0W25	
R109	R1011231	R CF H 75E J 0W25	
R110	R101112	R CF H 10E J 0W25	
R111	R101124	R CF H100E J 0W25	
R120	R101147	R CF H 8K2 J 0W25	
R121	R101137	R CF H 1K2 J 0W25	
R122	R101140	R CF H 2K2 J 0W25	
R123	R101124	R CF H100E J 0W25	
R124	R101134	R CF H680E J 0W25	
R125	R101124	R CF H100E J 0W25	
R126	R101126	R CF H150E F 0W25	
R127	R101134	R CF H680E J 0W25	
R128	R101134	R CF H680E J 0W25	1
R129	R101124	R CF H100E J 0W25	1
R130	R101154	R CF H 33K J 0W25	1
R131	R101164	R CF H220K J 0W25	
R132	R101132	R CF H470E J 0W25	
R140	R101100	R CF H 1E J 0W25	
R142	R101136	R CF H 1K J 0W25	
R143	R1011049	R CFFH 2E2 J 0W25	1
R144	R1001129	R CFFV 10E J 0W25 E2	
R145	R1011129	R CFFH 10E J 0W25	1
R146	R101124	R CF H100E J 0W25	
R147	R101124	R CF H100E J 0W25	
R148	R101140	R CF H 2K2 J 0W25	
R150	R101136	R CF H 1K J 0W25	
R151	R101143	R CF H 3K9 J 0W25	
R152	R101136	R CF H 1K J 0W25	
R153	R101143	R CF H 3K9 J 0W25	
R154	R101136	R CF H 1K J 0W25	
R155	R101143	R CF H 3K9 J 0W25	
R156	R101136	R CF H 1K J 0W25	
R157	R101143	R CF H 3K9 J 0W25	
R158	R101136	R CF H 1K J 0W25	
R159	R101143	R CF H 3K9 J 0W25	
R160	R101137	R CF H 1K2 J 0W25	
R161	R101137	R CF H 1K2 J 0W25	
R162	R101137	R CF H 1K2 J 0W25	
R163	R101137	R CF H 1K2 J 0W25	
R164	R101137	R CF H 1K2 J 0W25	
R165	R101153	R CF H 27K J 0W25	
R166	R101141	R CF H 2K7 J 0W25	
R167	R101153	R CF H 27K J 0W25	
R168	R101141	R CF H 2K7 J 0W25	
R169	R101153	R CF H 27K J 0W25	
R170	R101141	R CF H 2K7 J 0W25	
R171	R101147	R CF H 8K2 J 0W25	
R172	R101136	R CF H 1K J 0W25	
R180	R101100	R CF H 1E J 0W25	
R181	R101132	R CF H470E J 0W25	
R182	R101132	R CF H470E J 0W25	
R183	R101129	R CF H270E J 0W25	
R200	R1011231	R CF H 75E J 0W25	
R201	R101150	R CF H 15K J 0W25	
R202	R101144	R CF H 4K7 J 0W25	
R203	R101128	R CF H220E F 0W25	
R204	R101121	R CF H 56E J 0W25	

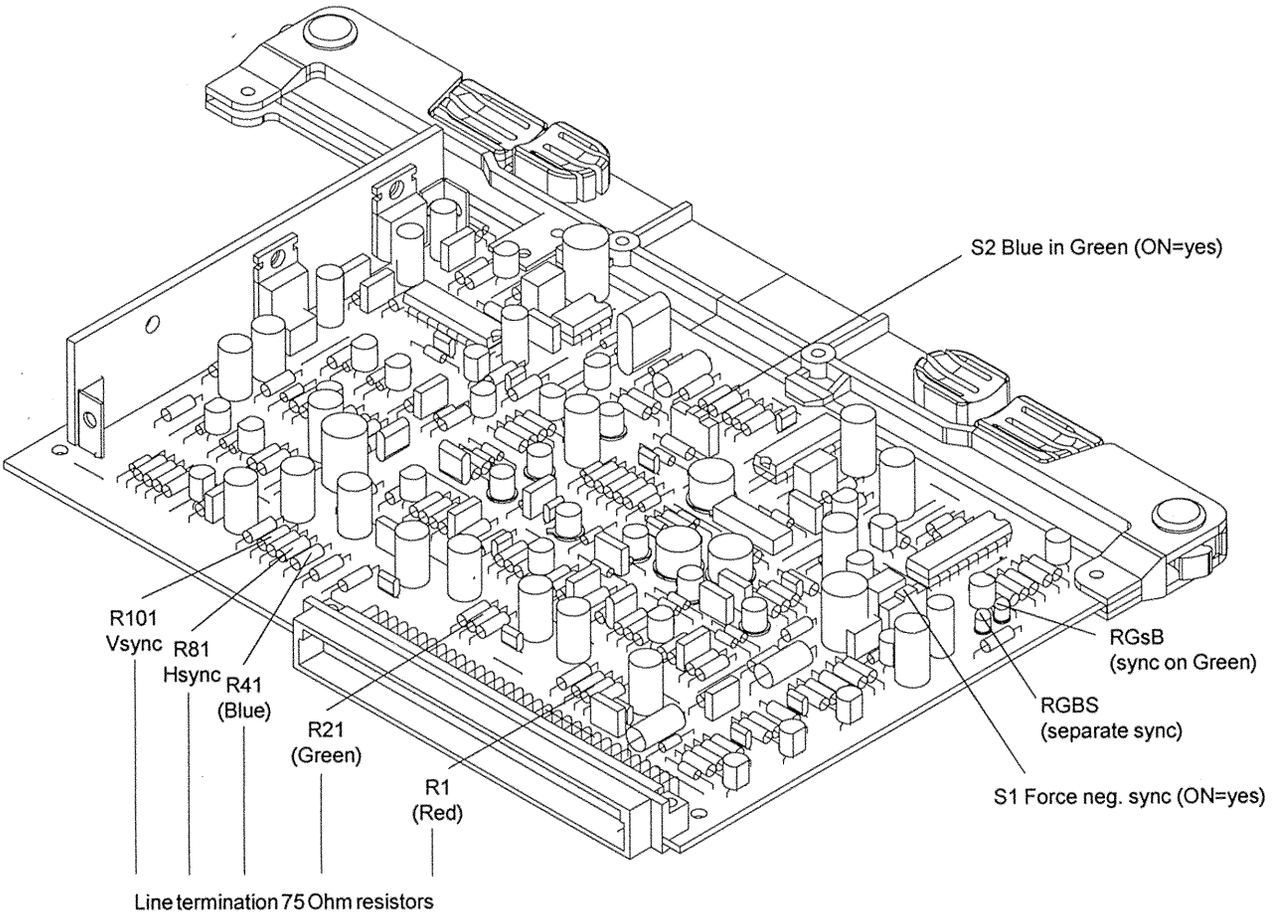
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R205	R101129	R CF H270E J 0W25	
R206	R1011231	R CF H 75E J 0W25	
R207	R101128	R CF H220E F 0W25	
R208	R101126	R CF H150E F 0W25	
R209	R101137	R CF H 1K2 J 0W25	
R210	R101159	R CF H 82K J 0W25	
R230	R101548	R MF H 10K F 0W4 E3	
R231	R101535	R MF H820E F 0W4 E3	1
R300	R1011231	R CF H 75E J 0W25	
R301	R101151	R CF H 18K J 0W25	
R302	R101144	R CF H 4K7 J 0W25	
R303	R101128	R CF H220E F 0W25	
R304	R101128	R CF H220E F 0W25	
R305	R101129	R CF H270E J 0W25	
R306	R1011231	R CF H 75E J 0W25	
R307	R1028241	R MF H 90E9 F 0W6 E4	1
R308	R1011231	R CF H 75E J 0W25	
R309	R101136	R CF H 1K J 0W25	
R310	R1026505	R MF H332E F 0W6 E4	
R311	R101139	R CF H 1K8 J 0W25	
R312	R101136	R CF H 1K J 0W25	
R313	R101138	R CF H 1K5 J 0W25	
R314	R101147	R CF H 8K2 J 0W25	1
R315	R101138	R CF H 1K5 J 0W25	
R316	R101133	R CF H560E J 0W25	
R317	R101133	R CF H560E J 0W25	
R318	R101136	R CF H 1K J 0W25	1
R319	R101124	R CF H100E J 0W25	
R320	R101144	R CF H 4K7 J 0W25	
R321	R101136	R CF H 1K J 0W25	
R322	R101132	R CF H470E J 0W25	
R323	R101126	R CF H150E F 0W25	
R324	R101159	R CF H 82K J 0W25	
R325	R101134	R CF H680E J 0W25	1
R326	R101151	R CF H 18K J 0W25	
R327	R101133	R CF H560E J 0W25	
R330	R101548	R MF H 10K F 0W4 E3	
R400	R1011231	R CF H 75E J 0W25	
R401	R101150	R CF H 15K J 0W25	
R402	R101144	R CF H 4K7 J 0W25	1
R403	R101128	R CF H220E F 0W25	
R404	R101128	R CF H220E F 0W25	
R405	R101129	R CF H270E J 0W25	
R406	R1011231	R CF H 75E J 0W25	
R407	R101128	R CF H220E F 0W25	
R408	R101126	R CF H150E F 0W25	
R409	R101137	R CF H 1K2 J 0W25	
R410	R101135	R CF H820E J 0W25	
R411	R101144	R CF H 4K7 J 0W25	
R412	R101159	R CF H 82K J 0W25	
R413	R101132	R CF H470E J 0W25	
R430	R101548	R MF H 10K F 0W4 E3	
R431	R101535	R MF H820E F 0W4 E3	1
R510	R101129	R CF H270E J 0W25	1
R511	R101151	R CF H 18K J 0W25	
R512	R101148	R CF H 10K J 0W25	
R513	R101144	R CF H 4K7 J 0W25	
R514	R101135	R CF H820E J 0W25	1
Z120	R131756	D ZEN 7V5 0W5 C DO35	
Z400	R131704	D STB 2V6 0W33 DO35	1
Z401	R131701	D ZEN 6V2 2W5 C DO35	1

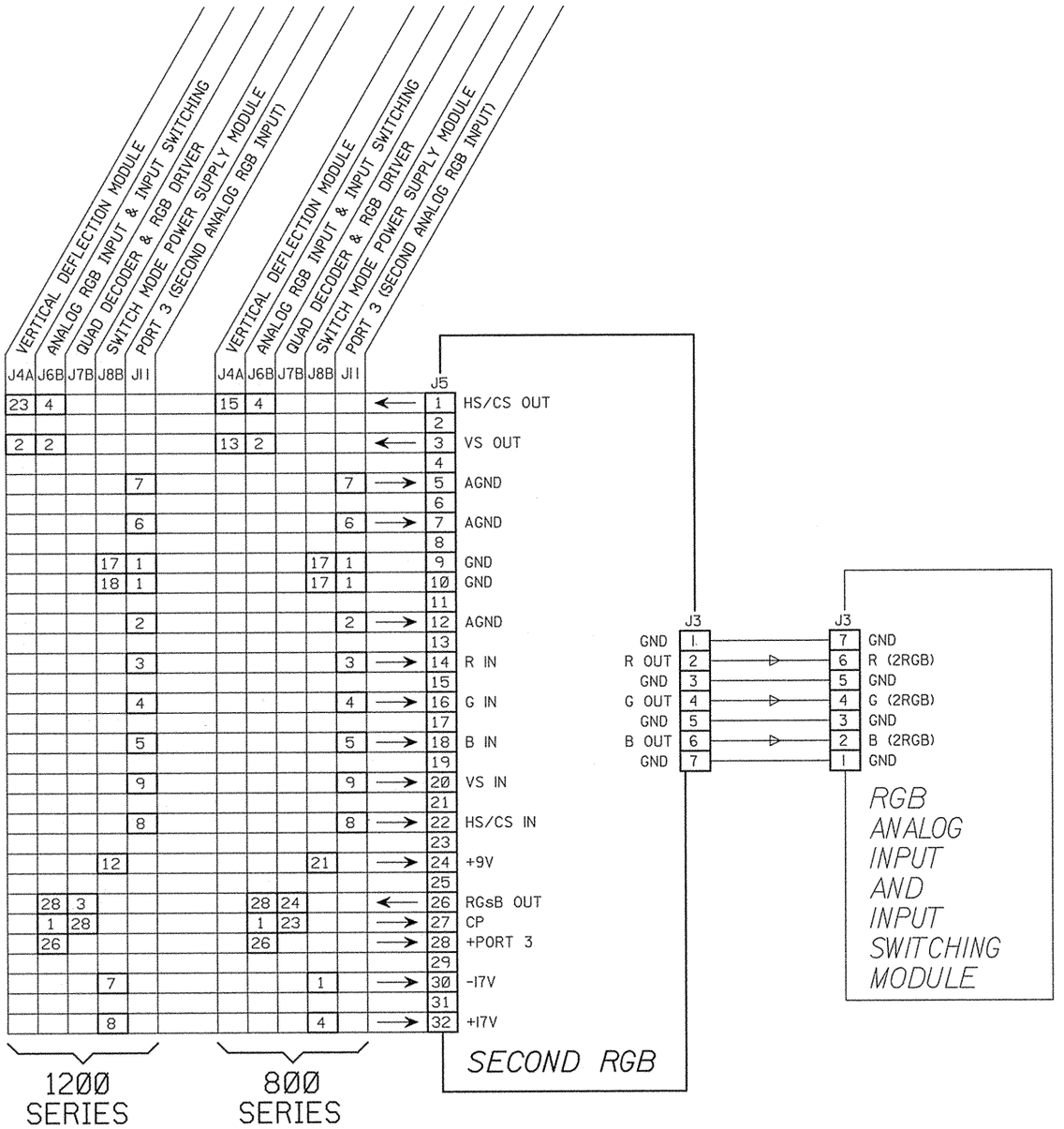
RGB Analog Input & Switching module R7617481



RGB Input Aut Sync Track

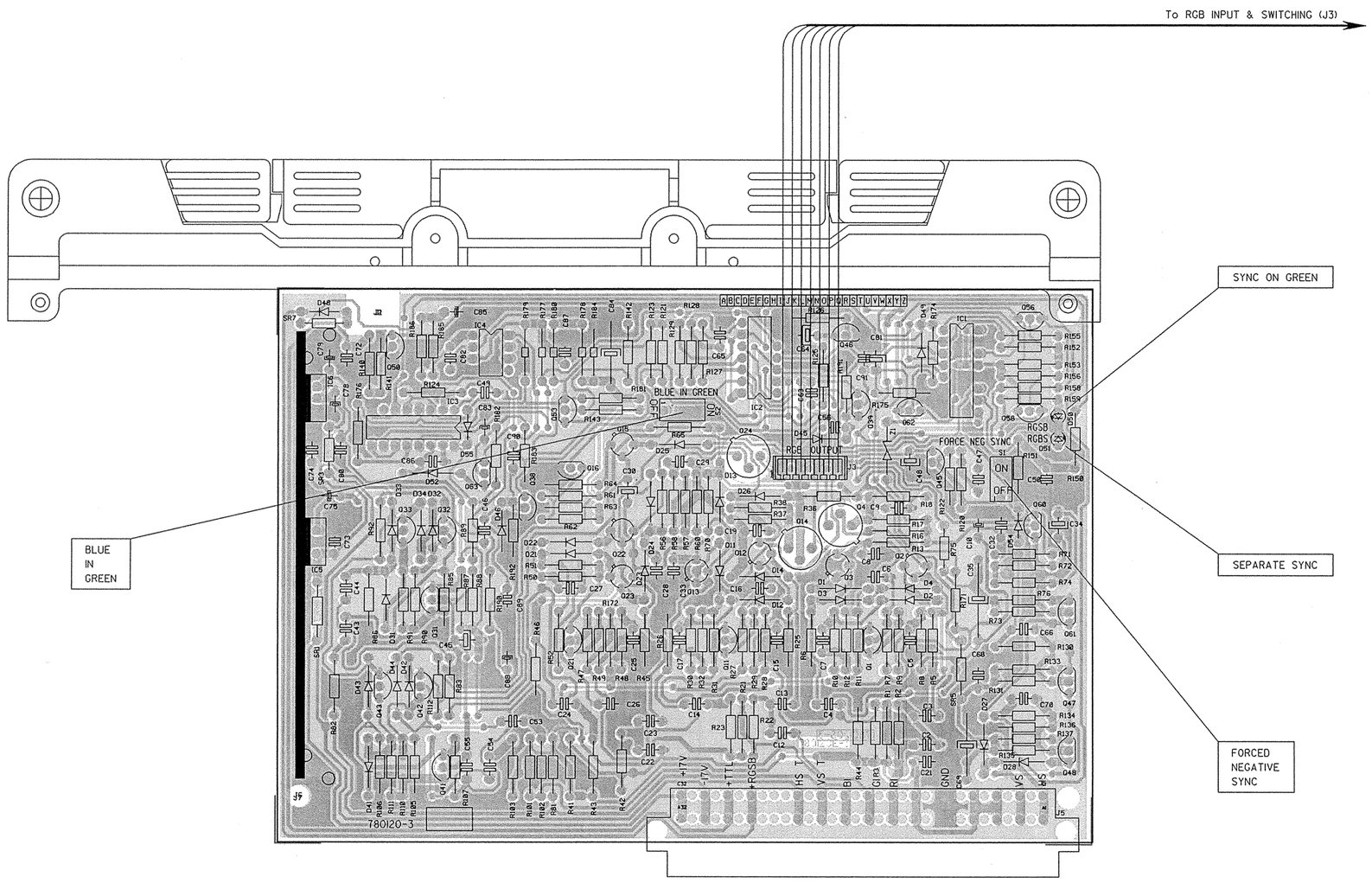
76 21055





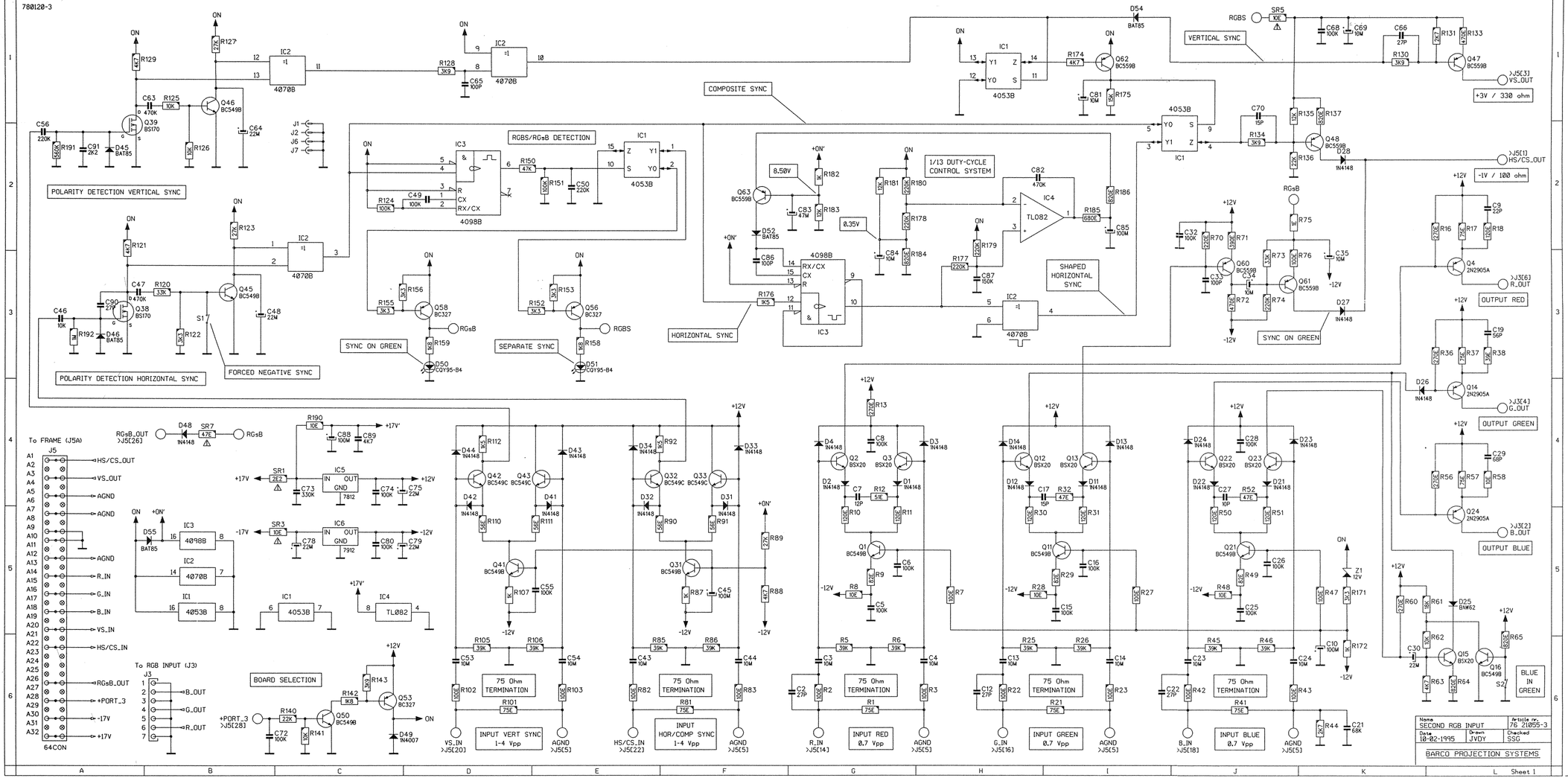
Name	Interconnection	Article nr.
SECOND RGB INPUT		76 21055-..
Date	Drawn	Checked
30-11-1993	JVDY	SSG

BARCO PROJECTION SYSTEMS



COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C2	F 5	D38	D 3	R181	E 3
C3	F 4	D39	F 3	R182	D 3
C4	F 4	D41	D 5	R183	D 3
C5	F 4	D42	D 4	R184	D 2
C6	F 4	D43	C 4	R185	D 3
C7	F 4	D45	F 3	R186	D 3
C8	F 4	D46	F 3	R190	D 4
C9	F 3	D47	G 4	R191	F 3
C10	F 4	D48	G 5	R192	D 4
C12	E 5	D50	C 3		
C13	E 4	D53	D 3	S1	F 3
C14	E 4	D56	F 2	S2	E 3
C15	E 4	D58	F 3		
C16	E 4	D60	G 3	SR1	C 4
C17	E 4	D61	G 4	SR3	C 3
C19	E 4	D62	F 3	SR5	F 4
C21	F 5	D63	D 3	SR7	C 3
C22	E 5				
C23	E 5	R1	F 4	Z1	F 3
C24	D 4	R2	F 4		
C25	E 4	R3	F 5		
C26	E 4	R5	F 4		
C27	D 4	R6	E 4		
C28	E 4	R7	F 4		
C29	E 3	R8	F 4		
C30	E 3	R9	F 4		
C32	F 4	R10	F 4		
C33	E 4	R11	F 4		
C34	G 4	R12	F 4		
C35	F 4	R13	F 4		
C43	C 4	R16	F 4		
C44	C 4	R17	F 4		
C45	D 4	R18	F 3		
C46	D 3	R21	E 4		
C47	F 3	R22	E 4		
C48	F 3	R23	E 4		
C49	D 3	R25	E 4		
C50	F 3	R26	E 4		
C53	D 4	R27	E 4		
C54	D 5	R28	E 4		
C55	D 5	R29	E 4		
C56	E 3	R30	E 4		
C63	E 3	R31	E 4		
C64	E 3	R32	E 4		
C65	E 3	R36	E 3		
C66	G 4	R37	E 3		
C68	F 4	R38	E 3		
C69	F 5	R41	D 5		
C70	G 4	R42	E 5		
C72	C 3	R43	D 5		
C73	C 4	R44	F 5		
C74	C 3	R45	E 4		
C75	C 3	R46	D 4		
C78	C 3	R47	D 4		
C79	C 3	R48	E 4		
C80	C 3	R49	D 4		
C81	F 3	R50	D 4		
C82	D 3	R51	D 4		
C83	D 3	R52	D 4		
C84	E 2	R56	E 4		
C85	D 2	R57	E 4		
C86	D 3	R58	E 4		
C87	D 3	R60	E 4		
C88	D 4	R61	D 3		
C89	D 4	R62	D 4		
C90	D 3	R63	D 3		
C91	F 3	R64	D 3		
		R65	E 3		
D1	E 4	R70	E 4		
D2	F 4	R71	G 4		
D3	E 4	R72	G 4		
D4	F 4	R73	F 4		
D11	E 4	R74	G 4		
D12	E 4	R75	F 4		
D13	E 3	R76	G 4		
D14	E 4	R81	D 5		
D21	D 4	R82	C 5		
D22	D 4	R83	D 4		
D23	E 4	R85	D 4		
D24	E 4	R86	C 4		
D25	E 3	R87	D 4		
D26	E 3	R88	D 4		
D27	F 4	R89	D 4		
D28	F 5	R90	D 4		
D31	D 4	R91	D 4		
D32	D 3	R92	C 4		
D33	D 3	R101	D 5		
D34	D 3	R102	D 5		
D41	C 5	R103	D 5		
D42	D 4	R105	D 5		
D43	C 4	R106	C 5		
D44	D 4	R107	D 5		
D45	E 3	R110	D 5		
D46	D 3	R111	D 5		
D48	C 2	R112	D 4		
D49	F 2	R120	F 4		
D50	G 3	R121	E 2		
D51	G 3	R122	F 3		
D52	D 3	R123	E 2		
D54	F 4	R124	D 3		
D55	D 3	R125	E 3		
		R126	E 2		
IC1	F 3	R127	E 3		
IC2	E 3	R128	E 2		
IC3	D 3	R129	E 3		
IC4	D 3	R130	G 4		
IC5	C 4	R131	F 4		
IC6	C 3	R133	G 4		
		R134	G 4		
J1	C 2	R135	F 5		
J2	C 2	R136	G 4		
J3	F 3	R137	G 5		
J5	G 5	R140	C 3		
J6	C 5	R141	C 3		
J7	C 5	R142	E 2		
		R143	D 3		
Q1	F 4	R150	G 3		
Q2	F 4	R151	F 3		
Q3	F 4	R152	G 3		
Q4	F 3	R153	G 3		
Q11	E 4	R155	G 3		
Q12	E 4	R156	G 3		
Q13	E 4	R158	G 3		
Q14	E 3	R159	G 3		
Q15	E 3	R171	F 4		
Q16	D 3	R172	D 4		
Q21	D 4	R174	F 2		
Q22	E 4	R175	F 3		
Q23	E 4	R176	C 3		
Q24	E 3	R177	D 2		
Q31	D 4	R178	D 2		
Q32	D 3	R179	D 2		
Q33	D 3	R180	D 2		

Name: SECOND RGB INPUT		Article nr.: T6 21055-3
Date: 23-02-1995	Drawn: JVDY	Checked: SSG
BARCO PROJECTION SYSTEMS		



COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C2	F 6	IC2	H 3	R86	F 6
C3	G 6	IC3	B 5	R87	F 5
C4	H 6	IC3	D 5	R88	F 5
C5	G 5	IC3	D 2	R89	F 5
C6	G 5	IC3	G 3	R90	E 5
C7	G 4	IC4	C 5	R91	E 5
C8	G 4	IC4	C 5	R92	E 4
C9	L 2	IC5	C 2	R101	D 6
C10	K 6	IC5	C 4	R102	D 6
C12	H 6	IC6	C 5	R103	E 6
C13	H 6			R105	D 6
C14	I 6	J1	C 2	R106	D 6
C15	I 5	J2	G 2	R107	D 5
C16	I 5	J3	B 6	R110	D 5
C17	H 4	J5	A 4	R111	E 5
C19	L 3	J6	C 2	R112	D 4
C21	K 6	J7	C 2	R120	B 3
C22	I 6			R121	A 2
C23	J 6	Q1	G 5	R122	B 3
C24	K 6	Q2	G 4	R123	B 2
C25	J 5	Q3	G 4	R124	C 2
C26	J 5	Q4	L 3	R125	B 1
C27	J 4	Q11	H 5	R126	B 2
C28	J 4	Q12	H 4	R127	B 1
C29	L 4	Q13	I 4	R128	D 1
C30	K 6	Q14	L 4	R129	A 1
C32	J 2	Q15	L 6	R130	K 1
C33	J 3	Q16	L 6	R131	K 1
C34	J 3	Q21	J 5	R133	L 1
C35	K 2	Q22	J 4	R134	J 1
C43	K 6	Q23	J 4	R135	K 1
C44	F 6	Q24	L 5	R136	K 2
C45	L 5	Q31	H 5	R137	K 1
C46	A 3	Q32	F 4	R140	C 6
C47	A 3	Q33	F 4	R141	C 6
C48	B 3	Q38	A 3	R142	C 6
C49	D 2	Q39	A 1	R143	C 6
C50	E 2	Q41	D 5	R150	D 2
C53	D 6	Q42	D 4	R151	E 2
C54	E 6	Q43	D 4	R152	D 3
C55	E 5	Q45	B 3	R153	E 3
C56	A 1	Q46	B 1	R155	D 3
C63	A 1	Q47	L 1	R156	D 3
C64	B 1	Q48	K 1	R158	E 3
C65	D 1	Q50	C 6	R159	D 3
C66	K 1	Q53	C 6	R171	K 5
C68	K 1	Q56	K 3	R172	K 6
C69	K 1	Q58	D 3	R174	I 1
C70	J 1	Q60	J 2	R175	I 1
C72	B 6	Q61	K 3	R176	F 3
C73	C 4	Q62	I 1	R177	H 3
C74	C 4	Q63	F 2	R178	G 2
C75	D 4			R179	G 2
C78	C 5	R1	G 6	R180	G 2
C79	D 5	R2	G 6	R181	G 2
C80	C 5	R3	H 6	R182	G 2
C81	I 1	R5	G 6	R183	G 2
C82	H 2	R6	G 6	R184	G 3
C83	F 2	R7	H 5	R185	I 2
C84	G 2	R8	G 5	R186	I 2
C85	I 2	R9	G 5	R190	C 4
C86	F 3	R10	G 5	R191	A 2
C87	H 3	R11	G 5	R192	A 3
C88	C 4	R12	G 4		
C89	C 4	R13	G 4	S1	B 3
C90	A 3	R16	L 2	S2	L 6
C91	A 2	R17	L 2		
		R18	L 2	SR1	B 4
D1	G 4	R21	I 6	SR3	B 5
D2	G 4	R22	H 6	SR5	J 1
D3	H 4	R23	I 6	SR7	B 4
D4	H 4	R25	I 6		
D11	I 4	R26	I 6	Z1	K 5
D12	H 4	R27	I 5		
D13	I 4	R28	H 5		
D14	H 4	R29	I 5		
D21	J 4	R30	H 5		
D22	J 4	R31	I 5		
D23	K 4	R32	I 4		
D24	I 4	R36	L 3		
D25	L 5	R37	L 3		
D26	K 3	R38	L 3		
D27	K 3	R41	J 6		
D28	K 2	R42	J 6		
D31	F 4	R43	K 6		
D32	F 4	R44	K 6		
D33	F 4	R45	J 6		
D34	E 4	R46	J 6		
D41	D 4	R47	K 5		
D42	D 4	R48	J 5		
D43	E 4	R49	J 5		
D44	E 4	R50	J 5		
D45	A 2	R51	J 5		
D46	A 3	R52	J 4		
D48	B 4	R56	L 4		
D49	D 6	R57	L 4		
D50	B 3	R58	L 4		
D51	E 3	R60	K 5		
D52	F 2	R61	L 5		
D54	I 1	R62	L 5		
D55	B 5	R63	L 6		
		R64	L 6		
IC1	B 5	R65	L 5		
IC1	C 5	R70	J 2		
IC1	B 5	R71	J 2		
IC1	B 5	R72	J 3		
IC1	E 2	R73	J 2		
IC1	I 5	R74	J 3		
IC1	H 1	R75	K 2		
IC2	B 5	R76	K 2		
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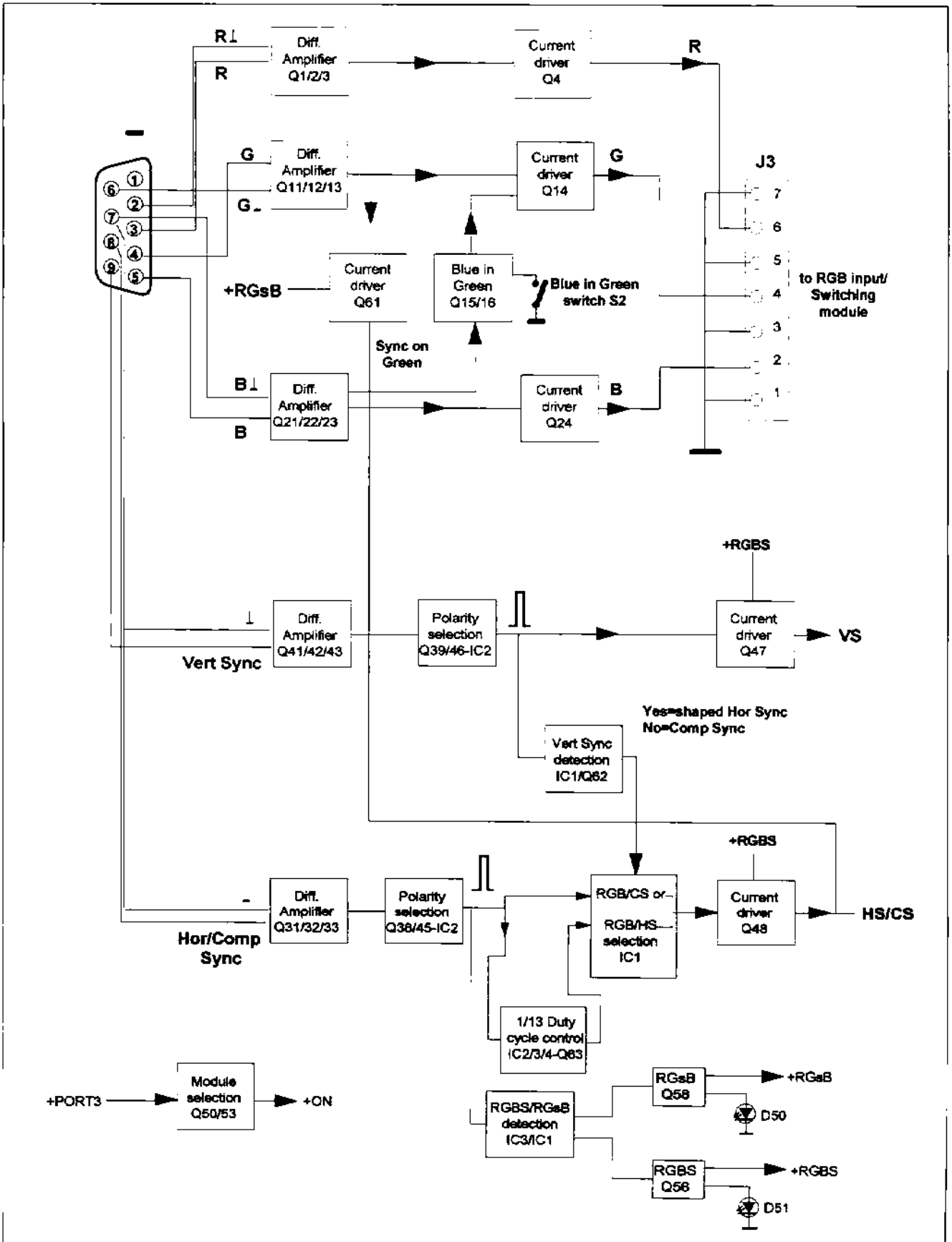
IC2	B 1	R83	F 6		
IC2	C 2	R85	E 6		


R⊥
R
Diff. Amplifier Q1/2/3
Current driver Q4
R
G
Diff. Amplifier Q11/12/13
G⊥
Current driver Q14
G
J3
7
6
5
4
3
2
1
to RGB input/ Switching module
+RGsB
Current driver Q61
Blue in Green Q15/16
Blue in Green switch S2
Sync on Green
B⊥
B
Diff. Amplifier Q21/22/23
Current driver Q24
B
+RGBS
⊥
Vert Sync
Diff. Amplifier Q41/42/43
Polarity selection Q39/46-IC2
Current driver Q47
VS
Yes=shaped Hor Sync
No=Comp Sync
Vert Sync detection IC1/Q62
+RGBS
-
Hor/Comp Sync
Diff. Amplifier Q31/32/33
Polarity selection Q38/45-IC2
RGB/CS or RGB/HS selection IC1
Current driver Q48
HS/CS
1/13 Duty cycle control IC2/3/4-Q63
+PORT3
Module selection Q50/53
+ON
RGsB Q58
+RGsB
D50
RGBS/RGsB detection IC3/IC1
RGBS Q56
+RGBS
D51

TECHNICAL DESCRIPTION SECOND RGB INPUT 76 21055

Introduction.

With this board a second RGB analog input can be selected through the D9 (former TTL input) connector next to the first input. Since this board occupies the former TTL connector, the sync polarity must be corrected automatically and the board must also select automatically between "Sync on Green" and "Separate Sync".
In case of a separate sync input HS the sync width pulse is also set to 1/13th of the line period.
The R, G and B output signals are sent to the "RGB INPUT + SW" module. The sync outputs VS OUT (if any) and / or the HS / Comp Sync are sent to the VERT DEFL board for further processing.

Red, Green and Blue Inputs.

Three identical differential amplifiers are switched to "active" with the ON voltage. This ON voltage is obtained from the +PORT 3 voltage arriving at contact 28 (=former +TTL voltage) and the transistors Q50 and Q53. Note that the 75 Ohm termination is not switchable.

The **Red** signal is taken from the collector of Q2 and fed to the current driver Q4. The collector resistor of the latter is on the RGB SW + Input board. G OUT and B OUT are got in a similar way.
The green signal is also sent to Q60 and used for synchronisation if "Sync on Green" has been detected (see further).
The blue output at Q23 is also supplying Q15. When the Blue in Green switch S2 is in a closed position, Q16 is blocked and Q15 adds some amount of blue into the green channel via D25 . If however S2 is open Q16 is saturated and Q15 does not get enough base voltage and is consequently blocked.

Note : The "Blue in Green" of the first analog input is switchable via the remote control, thus via software control. Here, the blue in green is switched with S2 and is not affected by the software.

Vertical Sync Input - Automatic Polarity.

If separate vertical sync pulses are available and applied to the Q41 / Q43 input they arrive on the Q39 amplifier / inverter. The inverted pulses are now inverted or not inverted depending on the voltage level of pin 12.
Assume the pulses at the drain are positive. Then Q46 is regularly switched on by these pulses and the average voltage at the collector or at pin 12 is low. In such case the output pin 11 follows the input pin 13 , which means that the pulses are positive at pin 11.

If the pulses are of a negative polarity at the drain, Q39 never gets in conduction and the level at pin 12 is "high" through R127. The input pulses are inverted by the exclusive OR gate.
The polarity of the pulses at pin 11 is thus always positive irrelevant of the input polarity.
These pulses are proceeding to the base of Q47 via D54 and to the multiplexer / demultiplexer 4053B, pin 11. The +RGBS voltage provides the necessary biasing for Q47.
The 4053B is triple two-channel multiplexer, having three separate digital control inputs. One of these control inputs is pin 11.
If VS pulses are applied to the input, then the HS/CS output must be the HS input. The selection between HS or CS happens in the second multiplexer. On other words, as soon VS pulses are applied, the HS pulses must also be selected.

The presence of the VS pulses determine the correct voltage at pin 9 in order to select the pin 3 input (Shaped Horizontal Sync).

Horizontal Sync / Composite Sync.

The HS / CS signal, taken from the collector of Q32 , is passing a similar automatic polarity circuit as the VS pulses.
When no pulses at all are applied to this circuit, the monoflop IC3 is never re-triggered and the output remains all the time "low". This output is filtered and is the control voltage of the multiplexer.
The "0" output is then connected to pin 15 which is at ground level. This all means that Q58 is saturated and the **+RGsB** voltage becomes available for further switching. The LED D50 comes on to indicate the RGsB mode.
When the monoflop is constantly triggered with pulses the output is switched "high" and then the "1" output of the multiplexer is connected to the grounded input (pin 15). This now provides the +RGBS voltage instead.

When no VS pulses are available, the "0" input pin 5 of the multiplexer is chosen. The "1/13 DUTY-CYCLE Control System " circuit cannot be used in this case due to the presence of the VS pulses in the composite sync.

1/13 Duty-Cycle Control System.

When separate HS pulses are used for synchronisation, the width of the pulses is all the time adjusted to 1/13th of the line period.
Positive horizontal pulses are applied to the leading edge input pin 12.
The output pulses are integrated by R177/C87 and applied to the non-inverting input pin 3 of the (Miller-integrating) OPAMP IC4. The other input is installed at a voltage set by R180/R178 (6 volts).

This integrated voltage is proportional with the width of the pulses and inversely proportional with the line period. The output of the Miller-integrator (=OPAMP) determines the current flowing in Q63.
This all means that the width of the sync pulse depends on the line period and the feedback systems provides a setting to 1/13th of the line period.

These SHAPED HORIZONTAL SYNC pulses proceed now to the multiplexer and if VS is available, these pulses are selected and Q48 brings them to the output.

Parts listing 76 21055

ITEM NO.	SIT.	DESCRIPTION
11 2235	C..2	C NPO MI 27P G 63E2
11 1678	C..3	C EL BRA 10M M 25E2 85
11 1678	C..4	C EL BRA 10M M 25E2 85
11 3724	C..5	C POMERA 100N K 63E2
11 3724	C..6	C POMERA 100N K 63E2
11 2231	C..7	C NPO MI 12P G 63E2
11 3724	C..8	C POMERA 100N K 63E2
11 2234	C..9	C NPO MI 22P G 63E2
11 1477	C.10	C EL RA 100M Z 25E2 85
11 2235	C.12	C NPO MI 27P G 63E2
11 1678	C.13	C EL BRA 10M M 25E2 85
11 1678	C.14	C EL BRA 10M M 25E2 85
11 3724	C.15	C POMERA 100N K 63E2
11 3724	C.16	C POMERA 100N K 63E2
11 2232	C.17	C NPO MI 15P G 63E2
11 22395	C.19	C NPO MI 56P G 63E2
11 3722	C.21	C POMERA 68N K 63E2
11 2235	C.22	C NPO MI 27P G 63E2
11 1678	C.23	C EL BRA 10M M 25E2 85
11 1678	C.24	C EL BRA 10M M 25E2 85
11 3724	C.25	C POMERA 100N K 63E2
11 3724	C.26	C POMERA 100N K 63E2
11 2230	C.27	C NPO MI 10P G 63E2
11 3724	C.28	C POMERA 100N K 63E2
11 2240	C.29	C NPO MI 68P J 63E2
11 1532	C.30	C EL RA 22M M 35E2 85
11 3724	C.32	C POMERA 100N K 63E2
11 2242	C.33	C NPO MI 100P J 63E2
11 1531	C.34	C EL RA 10M M 35E2 85
11 11565	C.35	C EL AX 10M Z 25E7 85
11 1678	C.43	C EL BRA 10M M 25E2 85
11 1678	C.44	C EL BRA 10M M 25E2 85
11 1466	C.45	C EL RA 100M Z 16E2 85
11 37121	C.46	C POMERA 10N K100E2 365
11 3732	C.47	C POMERA 470N K 63E2
11 1532	C.48	C EL RA 22M M 35E2 85
11 3724	C.49	C POMERA 100N K 63E2
11 1511	C.50	C EL RA 33M M 16E2 85
11 1678	C.53	C EL BRA 10M M 25E2 85
11 1678	C.54	C EL BRA 10M M 25E2 85
11 3724	C.55	C POMERA 100N K 63E2
11 3720	C.56	C POMERA 47N K 63E2
11 3732	C.63	C POMERA 470N K 63E2
11 1532	C.64	C EL RA 22M M 35E2 85
11 2242	C.65	C NPO MI 100P J 63E2
11 2235	C.66	C NPO MI 27P G 63E2
11 3724	C.68	C POMERA 100N K 63E2
11 11565	C.69	C EL AX 10M Z 25E7 85
11 2232	C.70	C NPO MI 15P G 63E2
11 3724	C.72	C POMERA 100N K 63E2
11 3730	C.73	C POMERA 330N K 63E2
11 3724	C.74	C POMERA 100N K 63E2
11 1510	C.75	C EL RA 22M M 25E2 85
11 1510	C.78	C EL RA 22M M 25E2 85
11 1510	C.79	C EL RA 22M M 25E2 85
11 3724	C.80	C POMERA 100N K 63E2
11 1531	C.81	C EL RA 10M M 35E2 85
11 3732	C.82	C POMERA 470N K 63E2
11 1476	C.83	C EL RA 47M M 25E2 85
11 11565	C.84	C EL AX 10M Z 25E7 85
11 1477	C.85	C EL RA 100M Z 25E2 85
11 2242	C.86	C NPO MI 100P J 63E2
11 3726	C.87	C POMERA 150N K 63E2
11 1477	C.88	C EL RA 100M Z 25E2 85
11 2747	C.89	C CE MI 4N7K 63E2
11 2235	C.90	C NPO MI 27P G 63E2
11 2743	C.91	C CE MI 2N2K 63E2
13 1621	D..1	D S 1N4148 075150 DO35
13 1621	D..2	D S 1N4148 075150 DO35
13 1621	D..3	D S 1N4148 075150 DO35
13 1621	D..4	D S 1N4148 075150 DO35
13 1621	D.11	D S 1N4148 075150 DO35
13 1621	D.12	D S 1N4148 075150 DO35
13 1621	D.13	D S 1N4148 075150 DO35
13 1621	D.14	D S 1N4148 075150 DO35
13 1621	D.21	D S 1N4148 075150 DO35
13 1621	D.22	D S 1N4148 075150 DO35
13 1621	D.23	D S 1N4148 075150 DO35
13 1621	D.24	D S 1N4148 075150 DO35
13 1628	D.25	D S BAW62 075200 DO35
13 1621	D.26	D S 1N4148 075150 DO35
13 1621	D.27	D S 1N4148 075150 DO35
13 1621	D.28	D S 1N4148 075150 DO35
13 1621	D.31	D S 1N4148 075150 DO35
13 1621	D.32	D S 1N4148 075150 DO35
13 1621	D.33	D S 1N4148 075150 DO35
13 1621	D.34	D S 1N4148 075150 DO35
13 1621	D.41	D S 1N4148 075150 DO35
13 1621	D.42	D S 1N4148 075150 DO35
13 1621	D.43	D S 1N4148 075150 DO35
13 1621	D.44	D S 1N4148 075150 DO35
13 16361	D.45	D Y BAT85 030200 DO35
13 16361	D.46	D Y BAT85 030200 DO35
13 1621	D.48	D S 1N4148 075150 DO35
13 1646	D.49	D R 1N4007 10201A DO41
13 1667	D.50	D LED D3 T GRN
13 1667	D.51	D LED D3 T GRN
13 16361	D.52	D Y BAT85 030200 DO35
13 16361	D.54	D Y BAT85 030200 DO35
13 16361	D.55	D Y BAT85 030200 DO35
13 7391	I..1	U 4053B DIP16 PM/DEM
13 7392	I..2	U 4070B DIP14 PCOM_G
13 73325	I..3	U 4098B DIP16 PMULTI
13 4124	I..4	U 082 TL DIP8 POPAMP
13 4002	I..5	U 7812 TO220 PSTAB
13 4016	I..6	U 7912 TO220 PSTAB
31 3531	J..5	J EUR2C MBS P64 E1C2SP1.6
78 0120	PC..	PCS PJ51 G1200 INP RGBPS2
13 14295	Q..1	Q BC549B N SS TO92 030A1
13 1491	Q..2	Q BSX20 .2369 N SS TO18 015A2
13 1491	Q..3	Q BSX20 .2369 N SS TO18 015A2
13 2904	Q..4	Q 2N2905A P SS TO39 040A6
13 14295	Q.11	Q BC549B N SS TO92 030A1
13 1491	Q.12	Q BSX20 .2369 N SS TO18 015A2
13 1491	Q.13	Q BSX20 .2369 N SS TO18 015A2
13 2904	Q.14	Q 2N2905A P SS TO39 040A6
13 1491	Q.15	Q BSX20 .2369 N SS TO18 015A2
13 14295	Q.16	Q BC549B N SS TO92 030A1
13 14295	Q.21	Q BC549B N SS TO92 030A1
13 1491	Q.22	Q BSX20 .2369 N SS TO18 015A2
13 1491	Q.23	Q BSX20 .2369 N SS TO18 015A2
13 2904	Q.24	Q 2N2905A P SS TO39 040A6
13 14295	Q.31	Q BC549B N SS TO92 030A1
13 1411	Q.32	Q BC549C N SS TO92 030A1
13 1411	Q.33	Q BC549C N SS TO92 030A1

13 29105	Q.38	Q BS170	FN SS TO92 060A5
13 2910	Q.39	Q BS170	FN SS TO92 060A5
13 14295	Q.41	Q BC549B	N SS TO92 030A1
13 1411	Q.42	Q BC549C	N SS TO92 030A1
13 1411	Q.43	Q BC549C	N SS TO92 030A1
13 14295	Q.45	Q BC549B	N SS TO92 030A1
13 14295	Q.46	Q BC549B	N SS TO92 030A1
13 14181	Q.47	Q BC559B	P SS TO92 030A1
13 14181	Q.48	Q BC559B	P SS TO92 030A1
13 14295	Q.50	Q BC549B	N SS TO92 030A1
13 14311	Q.53	Q BC327	P SS TO92 045A5
13 14311	Q.56	Q BC327	P SS TO92 045A5
13 14311	Q.58	Q BC327	P SS TO92 045A5
13 14181	Q.60	Q BC559B	P SS TO92 030A1
13 14181	Q.61	Q BC559B	P SS TO92 030A1
13 14181	Q.62	Q BC559B	P SS TO92 030A1
13 14181	Q.63	Q BC559B	P SS TO92 030A1

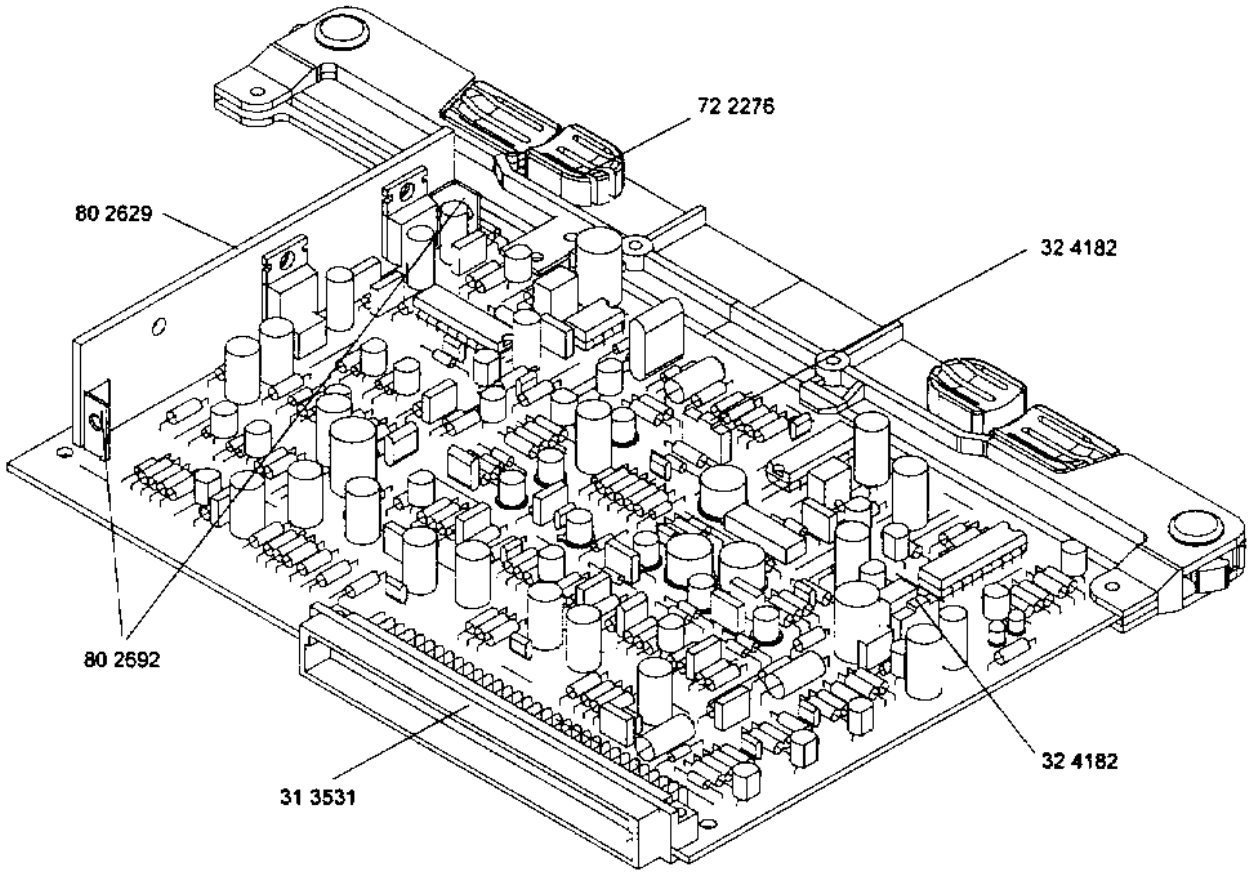
10 11231	R..1	R CF H 75E	J 0W25
10 1124	R..2	R CF H100E	J 0W25
10 1124	R..3	R CF H100E	J 0W25
10 1155	R..5	R CF H 39K	J 0W25
10 1155	R..6	R CF H 39K	J 0W25
10 1124	R..7	R CF H100E	J 0W25
10 1112	R..8	R CF H 10E	J 0W25
10 1123	R..9	R CF H 82E	J 0W25
10 1125	R.10	R CF H120E	J 0W25
10 1125	R.11	R CF H120E	J 0W25
10 11575	R.12	R MF H 51E	F 0W25
10 1129	R.13	R CF H270E	J 0W25
10 1129	R.16	R CF H270E	J 0W25
10 11231	R.17	R CF H 75E	J 0W25
10 1125	R.18	R CF H120E	J 0W25
10 11231	R.21	R CF H 75E	J 0W25
10 1124	R.22	R CF H100E	J 0W25
10 1124	R.23	R CF H100E	J 0W25
10 1155	R.25	R CF H 39K	J 0W25
10 1155	R.26	R CF H 39K	J 0W25
10 1124	R.27	R CF H100E	J 0W25
10 1112	R.28	R CF H 10E	J 0W25
10 1123	R.29	R CF H 82E	J 0W25
10 1125	R.30	R CF H120E	J 0W25
10 1125	R.31	R CF H120E	J 0W25
10 1120	R.32	R CF H 47E	J 0W25
10 1129	R.36	R CF H270E	J 0W25
10 11231	R.37	R CF H 75E	J 0W25
10 1119	R.38	R CF H 39E	J 0W25
10 11231	R.41	R CF H 75E	J 0W25
10 1124	R.42	R CF H100E	J 0W25
10 1124	R.43	R CF H100E	J 0W25
10 1141	R.44	R CF H 2K7	J 0W25
10 1155	R.45	R CF H 39K	J 0W25
10 1155	R.46	R CF H 39K	J 0W25
10 1124	R.47	R CF H100E	J 0W25
10 1112	R.48	R CF H 10E	J 0W25
10 1123	R.49	R CF H 82E	J 0W25
10 1125	R.50	R CF H120E	J 0W25
10 1125	R.51	R CF H120E	J 0W25
10 1120	R.52	R CF H 47E	J 0W25
10 1129	R.56	R CF H270E	J 0W25
10 11231	R.57	R CF H 75E	J 0W25
10 1112	R.58	R CF H 10E	J 0W25
10 1129	R.60	R CF H270E	J 0W25
10 1151	R.61	R CF H 18K	J 0W25
10 1148	R.62	R CF H 10K	J 0W25
10 1144	R.63	R CF H 4K7	J 0W25
10 1135	R.64	R CF H820E	J 0W25
10 1135	R.65	R CF H820E	J 0W25
10 1128	R.70	R CF H220E	J 0W25	
10 1131	R.71	R CF H390E	J 0W25	
10 1132	R.72	R CF H470E	J 0W25	
10 1154	R.73	R CF H 33K	J 0W25	
10 1164	R.74	R CF H220K	J 0W25	
10 11008	R.75	R CFFH 1E	J 0W25	0207
10 1124	R.76	R CF H100E	J 0W25	
10 11231	R.81	R CF H 75E	J 0W25	
10 1124	R.82	R CF H100E	J 0W25	
10 1124	R.83	R CF H100E	J 0W25	
10 1155	R.85	R CF H 39K	J 0W25	
10 1155	R.86	R CF H 39K	J 0W25	
10 1136	R.87	R CF H 1K	J 0W25	
10 1144	R.88	R CF H 4K7	J 0W25	
10 1153	R.89	R CF H 27K	J 0W25	
10 1121	R.90	R CF H 56E	J 0W25	
10 1121	R.91	R CF H 56E	J 0W25	
10 1138	R.92	R CF H 1K5	J 0W25	
10 11231	R101	R CF H 75E	J 0W25	
10 1124	R102	R CF H100E	J 0W25	
10 1124	R103	R CF H100E	J 0W25	
10 1155	R105	R CF H 39K	J 0W25	
10 1155	R106	R CF H 39K	J 0W25	
10 1136	R107	R CF H 1K	J 0W25	
10 1121	R110	R CF H 56E	J 0W25	
10 1121	R111	R CF H 56E	J 0W25	
10 1138	R112	R CF H 1K5	J 0W25	
10 1154	R120	R CF H 33K	J 0W25	
10 1144	R121	R CF H 4K7	J 0W25	
10 1142	R122	R CF H 3K3	J 0W25	
10 1153	R123	R CF H 27K	J 0W25	
10 1160	R124	R CF H100K	J 0W25	
10 1148	R125	R CF H 10K	J 0W25	
10 1148	R126	R CF H 10K	J 0W25	
10 1153	R127	R CF H 27K	J 0W25	
10 1143	R128	R CF H 3K9	J 0W25	
10 1144	R129	R CF H 4K7	J 0W25	
10 1143	R130	R CF H 3K9	J 0W25	
10 1141	R131	R CF H 2K7	J 0W25	
10 1132	R133	R CF H470E	J 0W25	
10 1143	R134	R CF H 3K9	J 0W25	
10 1149	R135	R CF H 12K	J 0W25	
10 1152	R136	R CF H 22K	J 0W25	
10 1135	R137	R CF H820E	J 0W25	
10 1152	R140	R CF H 22K	J 0W25	
10 1148	R141	R CF H 10K	J 0W25	
10 1139	R142	R CF H 1K8	J 0W25	
10 1143	R143	R CF H 3K9	J 0W25	
10 1156	R150	R CF H 47K	J 0W25	
10 1160	R151	R CF H100K	J 0W25	
10 1142	R152	R CF H 3K3	J 0W25	
10 1142	R153	R CF H 3K3	J 0W25	
10 1142	R155	R CF H 3K3	J 0W25	
10 1142	R156	R CF H 3K3	J 0W25	
10 1139	R158	R CF H 1K8	J 0W25	
10 1139	R159	R CF H 1K8	J 0W25	
10 1142	R171	R CF H 3K3	J 0W25	
10 1136	R172	R CF H 1K	J 0W25	
10 1144	R174	R CF H 4K7	J 0W25	
10 1150	R175	R CF H 15K	J 0W25	
10 1138	R176	R CF H 1K5	J 0W25	
10 1564	R177	R MF H220K	F 0W4	E2
10 1564	R178	R MF H220K	F 0W4	E2
10 1564	R179	R MF H220K	F 0W4	E2
10 1564	R180	R MF H220K	F 0W4	E2
10 11494	R181	R MF H 12K	F 0W25	
10 1136	R182	R CF H 1K	J 0W25	
10 1149	R183	R CF H 12K	J 0W25	

10 1535	R184	R MF H820E F 0W4 E2
10 1134	R185	R CF H680E J 0W25
10 1135	R186	R CF H820E J 0W25
10 1112	R190	R CF H 10E J 0W25
10 1169	R191	R CF H560K J 0W25
10 1172	R192	R CF H 1M J 0W25
32 4182	S..1	SW DIP 1M P 1 BT SN
32 4182	S..2	SW DIP 1M P 1 BT SN
10 11046	SR.1	R CFFH 2E2 J 0W25 SKS3
10 11129	SR.3	R CFFH 10E J 0W25
10 11129	SR.5	R CFFH 10E J 0W25
10 11209	SR.7	R CFFH 47E J 0W25
13 1740	Z..1	D ZEN 12V 0W5 C DO34

Spare parts 76 21055

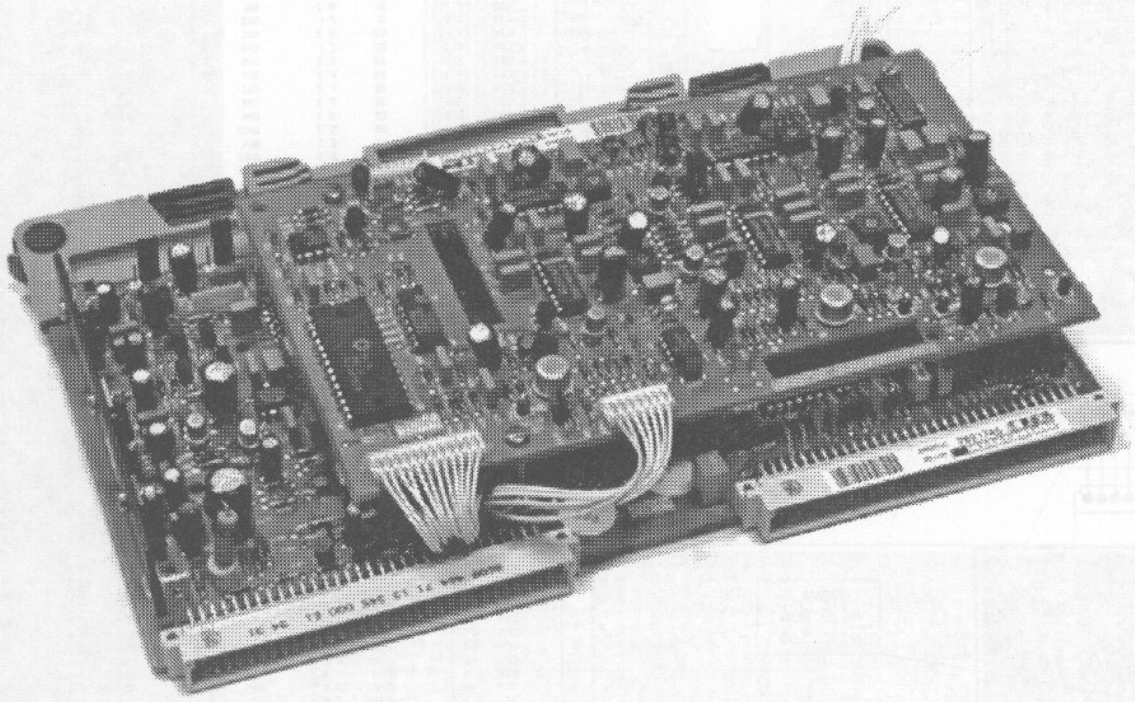
ART NO.	DESCRIPTION	QUANTITY
10 11008	R CFFH 1E J 0W25 0207	1
10 11046	R CFFH 2E2 J 0W25 SKS3	1
10 11129	R CFFH 10E J 0W25	2
10 11209	R CFFH 47E J 0W25	1
13 1411	Q BC549C N SS TO92 030A1	4
13 14181	Q BC559B P SS TO92 030A1	6
13 14295	Q BC549B N SS TO92 030A1	9
13 14311	Q BC327 P SS TO92 045A5	3
13 1491	Q BSX20 .2369 N SS TO18 015A2	7
13 1621	D S 1N4148 075150 DO35	24
13 1628	D S BAW62 075200 DO35	1
13 16361	D Y BAT85 030200 DO35	5
13 1646	D R 1N4007 10201A DO41	1
13 1667	D LED D3 T GRN	2
13 1740	D ZEN 12V 0W5 C DO34	1
13 2904	Q 2N2905A P SS TO39 040A6	3
13 2910	Q BS170 FN SS TO92 060A5	1
13 29105	Q BS170 FN SS TO92 060A5	1
13 30291	Q ACC ISO MICA TO220	1
13 30292	Q ACC ISO BSHG TO220	1
13 4002	U 7812 TO220 PSTAB	1
13 4016	U 7912 TO220 PSTAB	1
13 4124	U 082 TL DIP8 POPAMP	1
13 73325	U 4098B DIP16 PMULTI	1
13 7391	U 4053B DIP16 PM/DEM	1
13 7392	U 4070B DIP14 PCOM_G	1
30 2108	CORE TUBE 3.5 /1.3 X 3	7
31 3531	J EUR2C MBS P64 E1C2SP1.6	1
32 4182	SW DIP 1M P 1 BT SN	2
36 20226	SCR D84 M 3 X 8 SI	2
36 61026	NUT D934 M 3 I	4
36 7502	WSHR D6798 A 3.2 S Z	2
36 7699	RVT CHB D2.38L6.35 P A	2
72 2276	LOCK PJ49 PCB UN CPL 01	1
80 2629	HTSNK PJ49 RGB PR_AMP 03	1
80 2692	HTSNK PJ49 FIX HTSNK	2
80 3238	LOCK PJ51 PCB RGB_A AUT	1

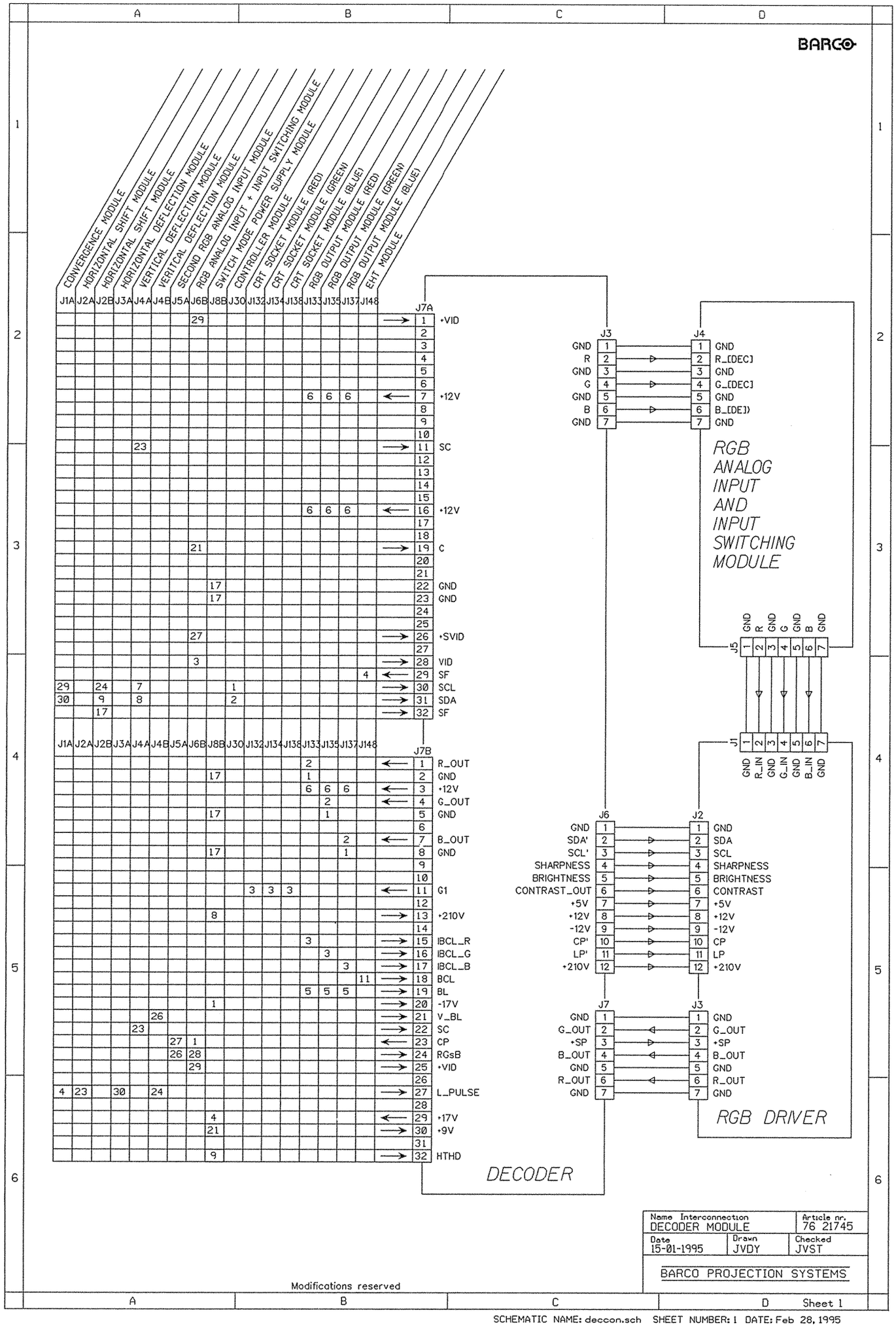
RGB Input Aut Sync Track 76 21055



QUAD Decoder+RGB Drive

76 21745




BARCO
CONVERGENCE MODULE
HORIZONTAL SHIFT MODULE
HORIZONTAL SHIFT MODULE
HORIZONTAL DEFLECTION MODULE
VERTICAL DEFLECTION MODULE
VERTICAL DEFLECTION MODULE
SECOND RGB ANALOG INPUT MODULE
RGB ANALOG INPUT + INPUT SWITCHING MODULE
SWITCH MODE POWER SUPPLY MODULE
CONTROLLER MODULE
CRT SOCKET MODULE (RED)
CRT SOCKET MODULE (GREEN)
CRT SOCKET MODULE (BLUE)
RGB OUTPUT MODULE (RED)
RGB OUTPUT MODULE (GREEN)
RGB OUTPUT MODULE (BLUE)
EHT MODULE
J1A J2A J2B J3A J4A J4B J5A J6B J8B J30 J132 J134 J138 J133 J135 J137 J148
J7A
J7B
J3
J4
J5
J1
J6
J2
J7
J3
RGB ANALOG INPUT AND INPUT SWITCHING MODULE
RGB DRIVER
DECODER
Name Interconnection
DECODER MODULE
Article nr.
76 21745
Date
15-01-1995
Drawn
JVDY
Checked
JVST
BARCO PROJECTION SYSTEMS
Modifications reserved
Sheet 1
SCHEMATIC NAME: deccon.sch SHEET NUMBER: 1 DATE: Feb 28, 1995

To PORT 3 (via FRAME)

From RGB INPUT & SWITCHING (J5)

BARCO

LINKED BCL

BOTTOM VIEW

TOP VIEW

RGB DRIVER

GAIN PREAMPLIFIER BLUE

GAIN PREAMPLIFIER GREEN

GAIN PREAMPLIFIER RED

GAIN OUTPUT AMPLIFIER BLUE

GAIN OUTPUT AMPLIFIER RED

DECODER

REFERENCE OSCILLATOR PAL

REFERENCE OSCILLATOR NTSC 3.58

To RGB INPUT & SWITCHING (J4)

CHROMA REJECTION NTSC 3.58

SECAM REFERENCE (R-Y)

SECAM REFERENCE (B-Y)

CHROMA REJECTION PAL/SECAM NTSC 4.43

PAL/NTSC 4.43 BANDPASS

SECAM BANDPASS

Name		Article nr.
DECODER + RGB DRIVER		76 21745-7
Date	Drawn	Checked
20-02-1995	JVDY	JVST

BARCO PROJECTION SYSTEMS

Modifications reserved

COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C1	B 2	C168	F 4	MP103	E 5	R63	G 3	R196	E 6		
C1	E 2	C169	F 6	MP104	F 6	R64	F 2	R197	E 5		
C2	A 2	C170	F 4	MP105	F 5	R65	G 2	R198	E 4		
C2	E 2	C171	F 6	MP106	F 6	R67	G 3	R199	E 4		
C3	B 2	C172	F 5	MP107	F 4	R68	G 3	R200	E 4		
C3	E 2	C173	F 5	MP108	F 5	R69	G 3	R201	F 4		
C4	B 2	C174	F 4	MP109	F 4	R70	F 3	R202	E 4		
C4	E 2	C175	F 5			R71	G 2	R203	F 4		
C5	A 2	C176	F 5	P1	F 2	R72	G 2	R204	F 5		
C5	E 2	C177	F 4	P2	F 2	R73	G 2	R205	F 6		
C6	A 2	C178	F 5	P3	F 2	R74	G 2	R206	F 6		
C6	E 2	C179	F 5	P4	G 2	R75	E 3	R207	F 5		
C7	A 2	C180	F 6	P5	G 2	R76	E 2	R208	F 4		
C7	F 2	C181	F 5	P100	F 5	R77	F 2	R209	F 5		
C8	E 2	C182	F 5			R78	E 2	R20	F 5		
C9	B 2	C183	F 5	Q1	F 2	R79	E 2	R21	F 5		
C9	E 2	C184	F 4	Q2	G 1	R80	E 2	R212	F 5		
C10	E 1	C185	F 4	Q3	F 2	R81	E 3	R213	F 4		
C11	E 1	C186	G 4	Q4	G 2	R83	E 3	R214	F 5		
C12	E 1	C187	F 5	Q5	F 2	R84	D 2	R215	F 5		
C13	E 1	C188	G 6	Q6	F 3	R85	D 3	R216	F 5		
C14	E 2	C189	G 6	Q7	G 3	R86	D 3	R217	F 6		
C15	F 2	C190	G 4	Q8	G 3	R87	D 3	R218	F 6		
C16	F 2	C191	G 6	Q9	E 2	R88	D 2	R219	F 5		
C17	F 1	C192	G 4	Q10	E 3	R89	D 2	R220	F 5		
C18	F 1	C193	G 5	Q12	F 2	R90	D 2	R221	F 5		
C19	F 1	C194	G 4	Q13	G 2	R91	E 2	R222	F 4		
C20	F 1	C195	G 5	Q14	E 2	R92	F 2	R223	F 5		
C21	G 2	C196	G 5	Q100	C 5	R93	G 2	R224	F 5		
C22	F 2	C197	G 4	Q101	C 5	R95	F 3	R225	F 6		
C23	E 1	C198	G 5	Q102	D 4	R96	F 3	R226	G 5		
C24	E 2	C199	G 4	Q103	C 4	R97	F 3	R227	G 5		
C25	F 1	C280	D 5	Q104	D 5	R98	D 3	R228	G 5		
C26	E 1	C281	D 5	Q105	D 4	R100	C 6	R229	G 5		
C27	E 2	C283	D 5	Q106	D 5	R101	E 3	R230	G 5		
C28	E 3	C459	F 3	Q107	D 6	R102	C 4	R231	G 5		
C29	D 2	C460	F 3	Q108	D 6	R102	G 6	R232	G 5		
C30	D 2	C470	G 3	Q109	D 5	R103	E 2	R233	G 5		
C31	F 2			Q110	D 4	R103	G 6	R234	G 5		
C32	F 2	D1	B 2	Q111	D 5	R104	G 2	R235	G 5		
C33	F 2	D1	F 1	Q112	E 5	R104	C 4	R236	G 5		
C34	F 1	D2	B 2	Q113	E 5	R105	F 2	R237	G 5		
C36	G 2	D2	E 1	Q114	E 5	R105	C 5	R238	G 5		
C37	F 2	D3	E 2	Q115	E 5	R106	F 2	R239	G 6		
C38	F 2	D4	F 3	Q116	E 5	R106	C 5	R240	G 5		
C39	F 2	D5	F 3	Q117	E 5	R107	C 5	R241	G 4		
C40	F 2	D6	F 3	Q118	E 5	R107	C 5	R242	G 4		
C41	E 3	D7	G 3	Q119	E 5	R108	F 2	R243	G 6		
C42	F 2	D8	G 3	Q120	E 5	R108	C 4	R244	G 5		
C43	F 2	D9	G 3	Q121	E 5	R109	C 4	R245	G 5		
C44	F 2	D10	E 3	Q122	E 4	R110	G 2	R246	G 4		
C45	F 3	D11	F 1	Q123	E 4	R110	C 5	R247	G 5		
C46	F 3	D12	D 1	Q124	E 5	R111	E 3	R248	G 4		
C47	G 2	D13	D 1	Q125	E 5	R111	C 5	R249	G 4		
C48	G 2	D14	E 3	Q126	F 4	R112	E 2	R250	G 4		
C49	G 2	D20	F 2	Q127	F 5	R112	C 5	R251	G 6		
C50	G 2	D21	F 2	Q128	F 5	R113	F 2	R252	G 6		
C51	G 2	D100	C 5	Q129	F 5	R113	C 4	R253	G 6		
C52	G 2	D101	C 5	Q130	F 4	R114	G 1	R254	G 4		
C53	G 2	D102	C 5	Q131	G 4	R114	D 5	R255	G 5		
C54	G 2	D103	C 4	Q132	G 4	R115	F 2	R256	G 4		
C55	G 2	D104	C 6	Q133	G 4	R115	D 4	R257	G 5		
C56	G 2	D105	C 6	Q134	G 5	R116	G 1	R258	G 5		
C57	G 2	D106	D 4	Q135	G 5	R116	D 4	R259	G 5		
C58	G 2	D107	D 4	Q136	G 4	R117	F 2	R260	G 5		
C59	E 3	D108	D 6	Q137	G 4	R117	D 4	R261	G 4		
C60	E 3	D109	D 5	Q138	G 4	R118	F 2	R262	G 4		
C61	E 3	D110	D 5	Q139	G 4	R118	D 6	R263	G 6		
C63	G 1	D111	D 4	Q140	G 6	R119	D 5	R264	G 5		
C66	G 2	D112	D 4	Q461	E 3	R120	F 2	R265	G 5		
C67	E 2	D113	D 6	Q465	E 3	R120	D 6	R266	G 4		
C68	F 2	D114	D 5	Q470	G 3	R121	G 2	R267	G 6		
C69	F 2	D115	D 4			R121	D 5	R268	G 5		
C70	F 2	D116	D 4	R1	A 2	R122	D 4	R269	G 4		
C71	G 2	D117	D 5	R1	E 2	R123	D 2	R270	G 6		
C74	G 1	D118	E 5	R2	A 2	R123	D 4	R280	D 4		
C75	E 2	D119	E 5	R2	F 2	R124	D 4	R281	D 6		
C76	F 2	D120	E 5	R3	A 2	R125	D 4	R282	D 6		
C77	G 2	D121	E 6	R3	F 2	R126	D 4	R463	F 2		
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C106	C 5	D129	G 6	R7	F 2	R134	D 4	SI00	C 4		
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C159	F 5	LI03	E 4	R54	F 3	R187	E 6				
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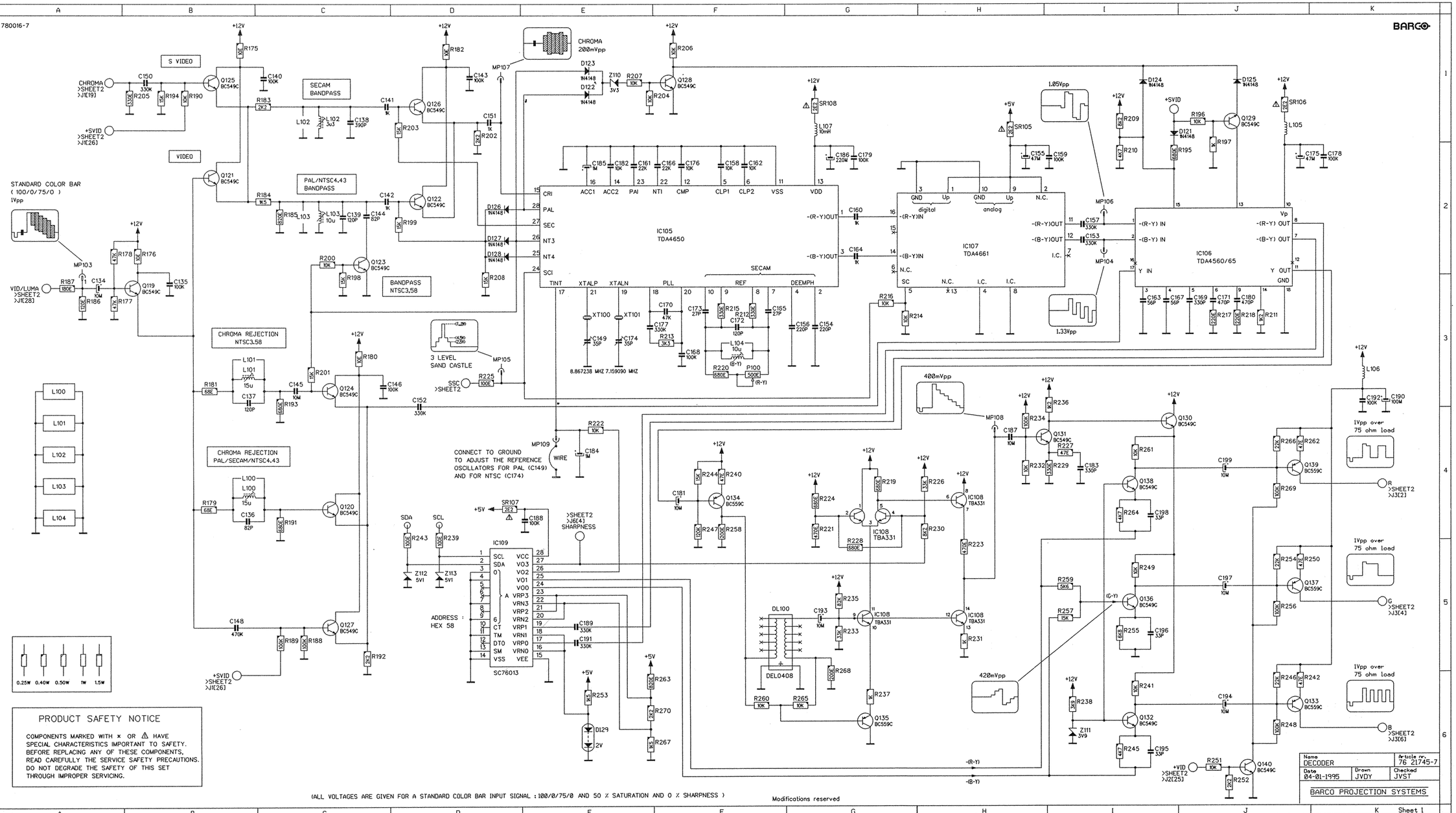
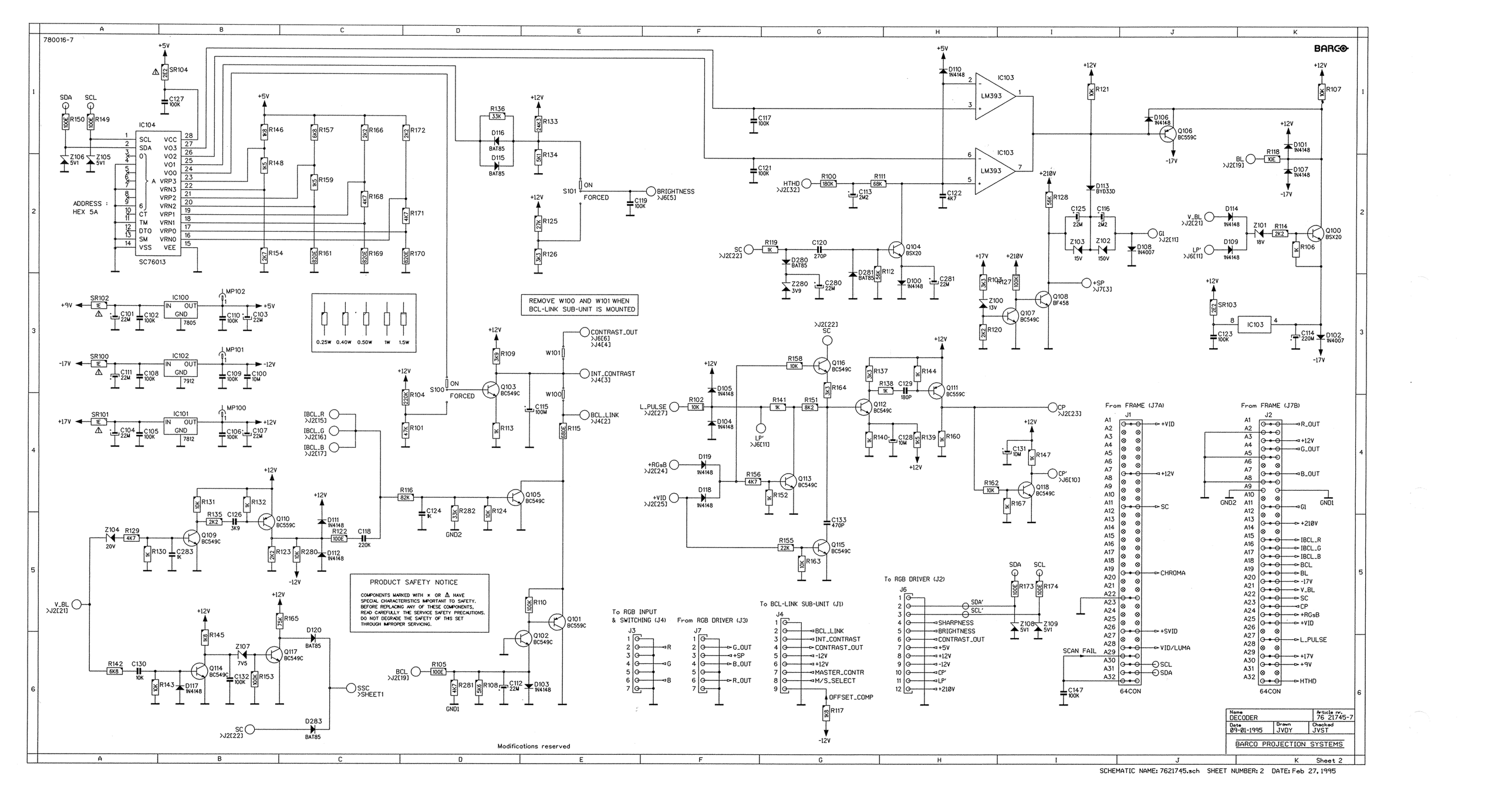

780016-7
BARCO
S VIDEO
VIDEO
SECAM BANDPASS
PAL/NTSC4,43 BANDPASS
BANDPASS NTSC3,58
CHROMA REJECTION NTSC3.58
CHROMA REJECTION PAL/SECAM/NTSC4,43
STANDARD COLOR BAR (100/0/75/0) 1Vpp
CHROMA >SHEET2 >J1(19)
+SVID >SHEET2 >J1(26)
VID/LUMA >SHEET2 >J1(28)
CHROMA 200mVpp
3 LEVEL SAND CASTLE
SSC >SHEET2
CONNECT TO GROUND TO ADJUST THE REFERENCE OSCILLATORS FOR PAL (C149) AND FOR NTSC (C174)
WIRE
>SHEET2 >J6(4) SHARPNESS
ADDRESS : HEX 58
SDA
SCL
IC105 TDA4650
IC107 TDA4661
IC106 TDA4560/65
IC109 SC76013
IC108 TBA331
DL100 DEL0408
8.867238 MHZ 7.159090 MHZ
1.85Vpp
1.33Vpp
400mVpp
420mVpp
1Vpp over 75 ohm load
L100
L101
L102
L103
L104
0.25W 0.40W 0.50W 1W 1.5W
PRODUCT SAFETY NOTICE
COMPONENTS MARKED WITH x 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.
(ALL VOLTAGES ARE GIVEN FOR A STANDARD COLOR BAR INPUT SIGNAL : 100/0/75/0 AND 50 % SATURATION AND 0 % SHARPNESS)
Modifications reserved
Name DECODER
Article nr. 76 21745-7
Date 04-01-1995
Drawn JVDY
Checked JVST
BARCO PROJECTION SYSTEMS
Sheet 1
SCHEMATIC NAME: 7621745.sch SHEET NUMBER: 1 DATE: Feb 27, 1995

780016-7



Name	DECODER
Article nr.	76 21745-7
Date	09-01-1995
Drawn	JVDY
Checked	JVST

BARCO PROJECTION SYSTEMS

Sheet 2

SCHEMATIC NAME: 7621745.sch SHEET NUMBER: 2 DATE: Feb 27, 1995

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C113	G 2	sheet 2
C114	K 3	sheet 2
C115	E 4	sheet 2
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C118	C 5	sheet 2
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C139	C 2	sheet 1
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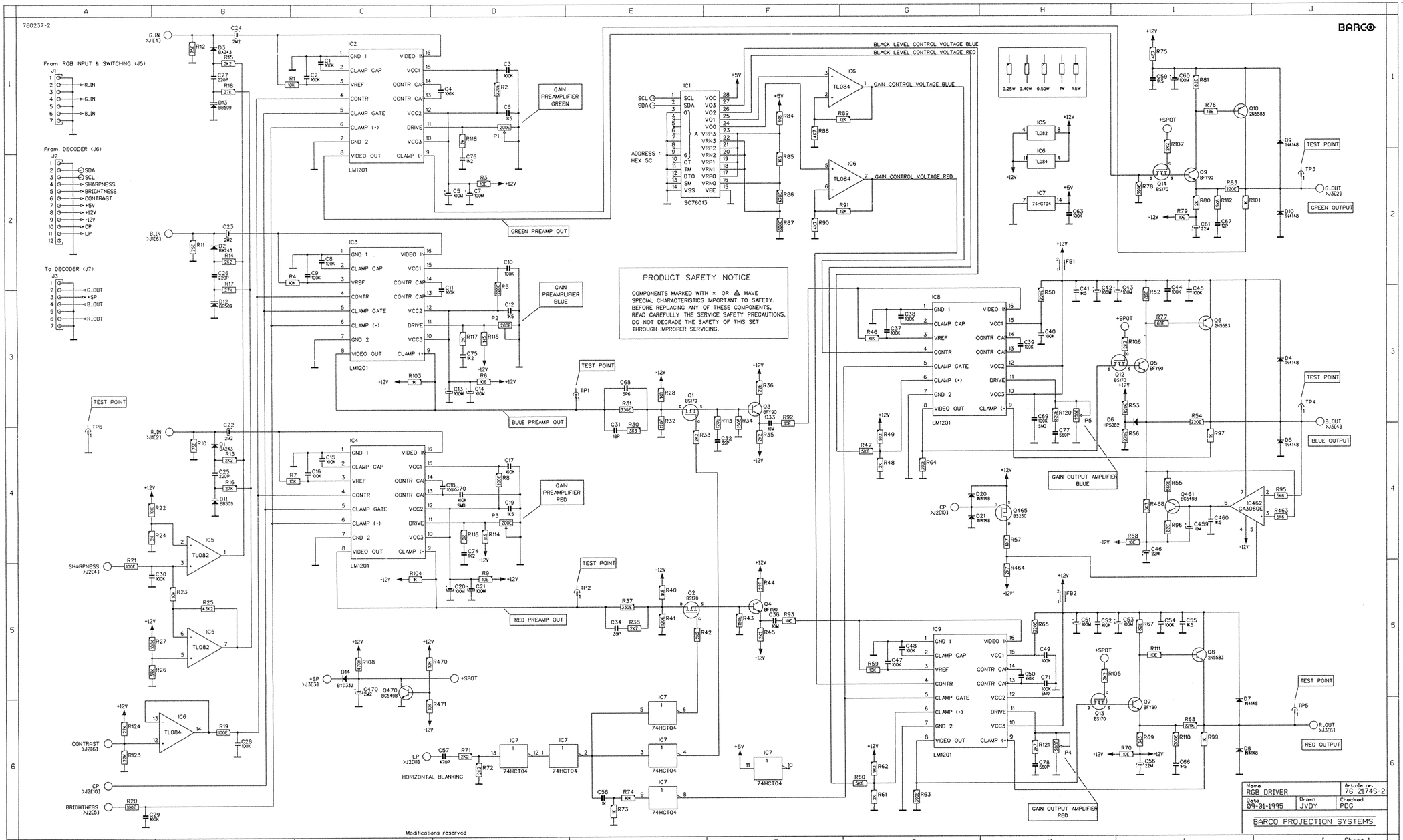
BARCO

Name	Artwork nr.
COMPONENT LOCATION	76 21745-7
Date: 09-01-1995 / Drawn: JVDY / Checked: JVST	

BARCO PROJECTION SYSTEMS

Sheet 3

SCHEMATIC NAME: 7621745.sch SHEET NUMBER: 3 DATE: Feb 27, 1995



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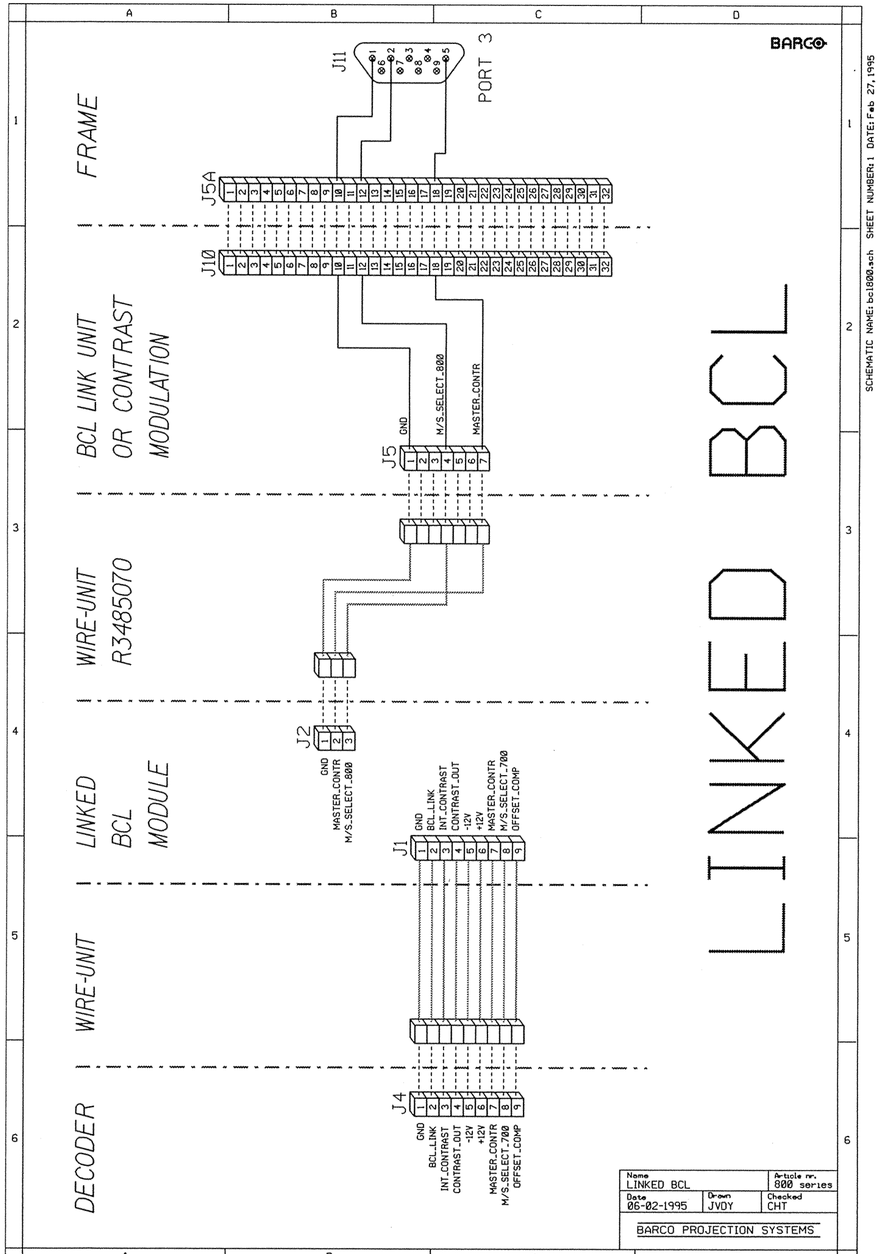
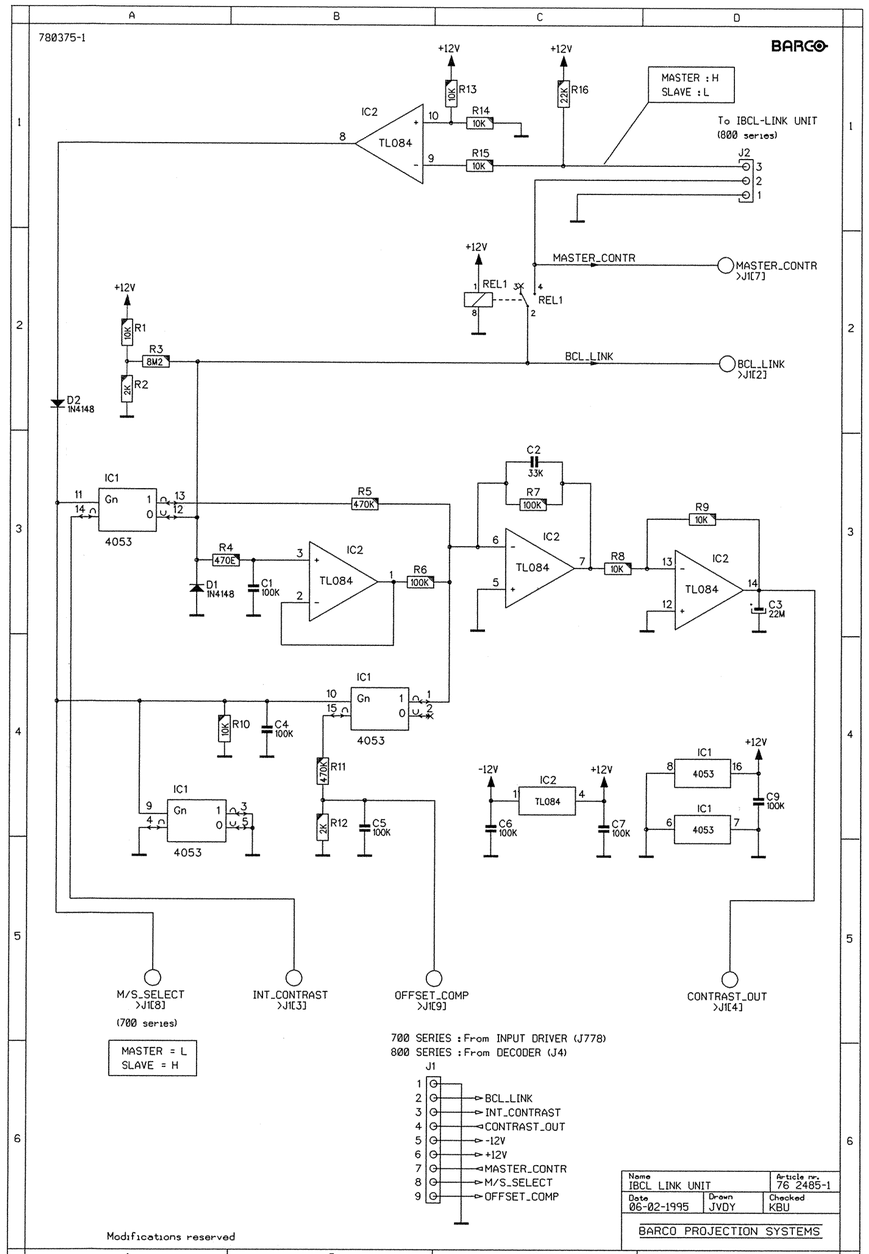
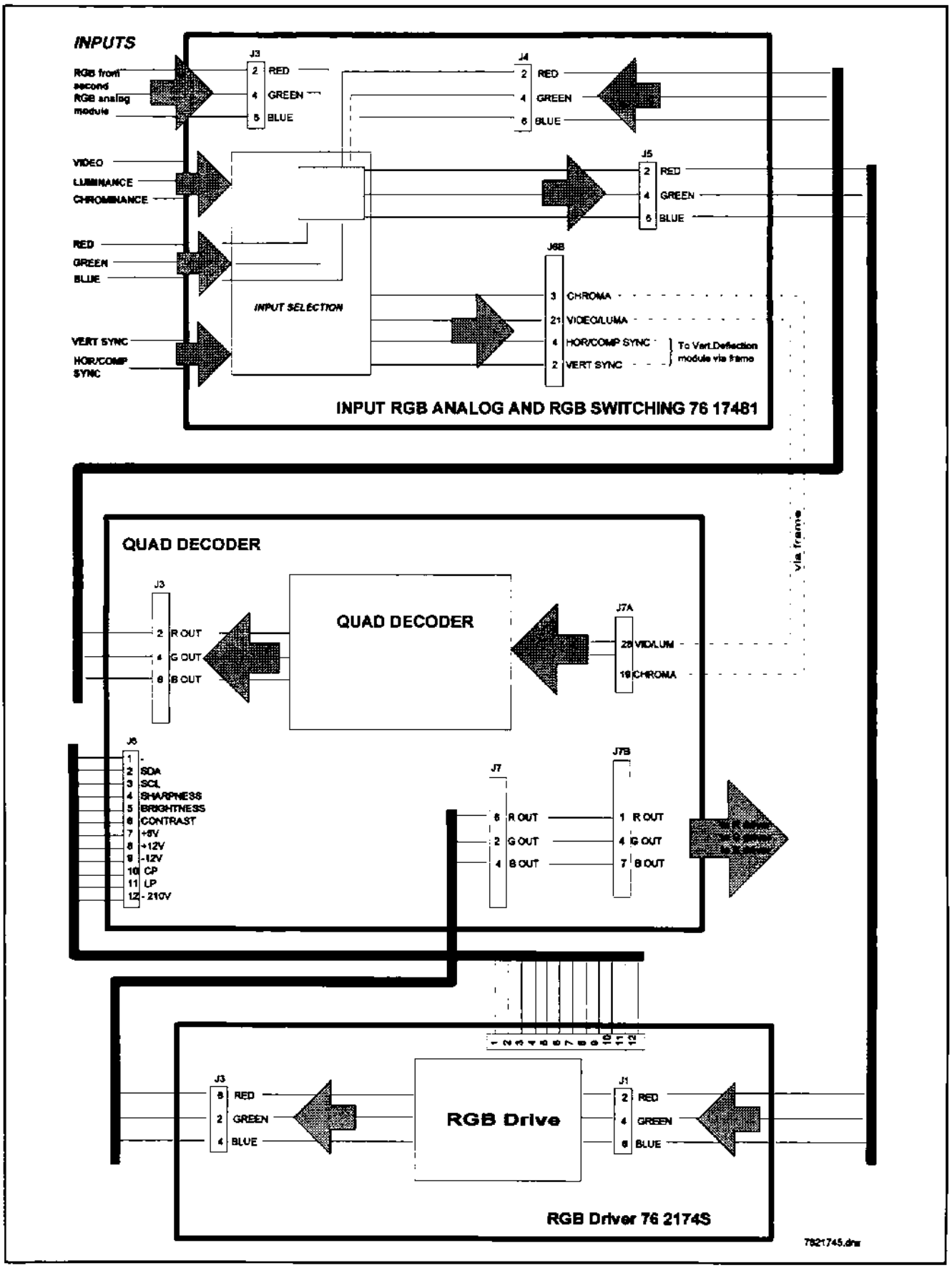
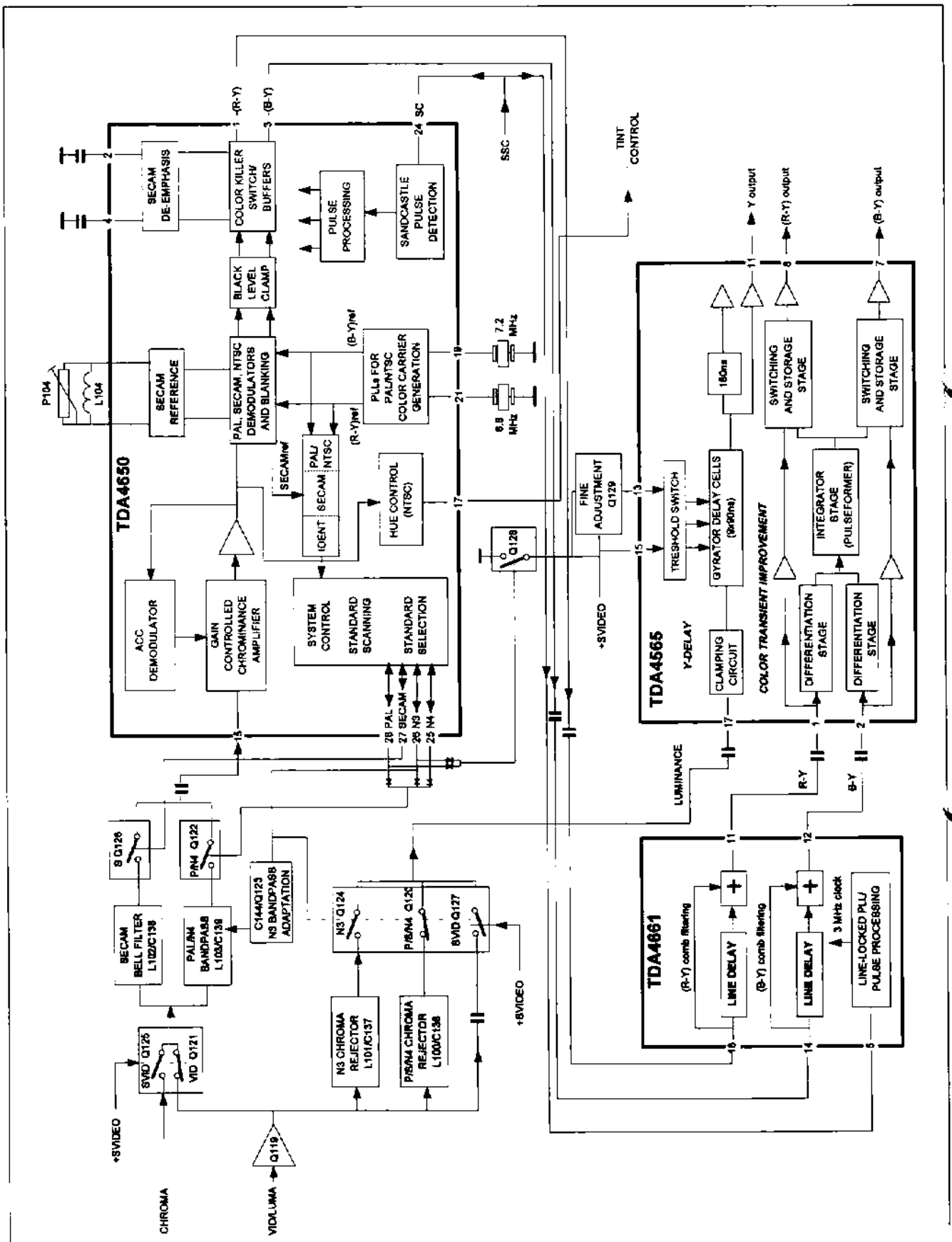
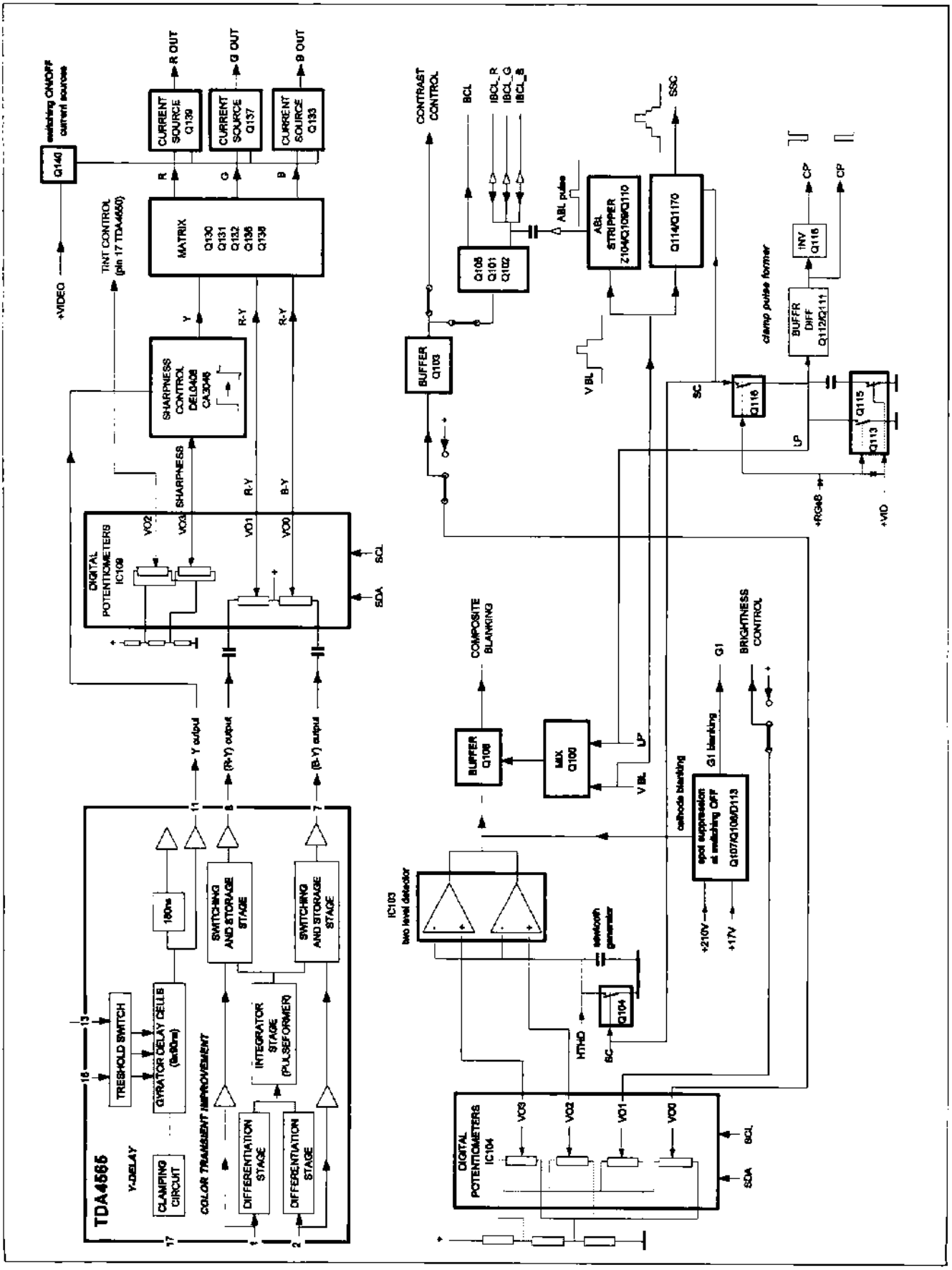
C43	I 2	R55	I 4
C44	I 2	R56	I 4
C45	I 2	R57	H 4
C46	I 4	R58	I 4
C47	G 5	R59	G 5
C48	G 5	R60	G 6
C49	H 5	R61	G 6
C50	H 5	R62	G 6
C51	H 5	R63	G 6
C52	H 5	R64	G 4
C53	I 5	R65	H 5
C54	I 5	R67	I 5
C55	I 5	R68	I 6
C56	I 6	R69	I 6
C57	D 6	R70	I 6
C58	E 6	R71	D 6
C59	I 1	R72	D 6
C60	I 1	R73	E 6
C61	I 2	R74	E 6
C63	H 2	R75	I 1
C66	I 6	R76	I 1
C67	I 2	R77	I 3
C68	E 3	R78	I 2
C69	H 3	R79	I 2
C70	D 4	R80	I 2
C71	H 5	R81	I 1
C74	D 4	R83	I 2
C75	D 3	R84	F 1
C76	D 2	R85	F 2
C77	H 4	R86	F 2
C78	H 6	R87	F 2
C459	I 4	R88	F 1
C460	I 4	R89	F 1
C470	C 5	R90	F 2
		R91	G 2
D1	B 4	R92	F 3
D2	B 2	R93	F 5
D3	B 1	R95	J 4
D4	J 1	R96	I 4
D5	J 4	R97	I 4
D6	H 3	R99	I 6
D7	I 5	R101	I 2
D8	I 6	R103	C 3
D9	J 1	R104	C 5
D10	J 2	R105	H 5
D11	B 4	R106	I 3
D12	B 2	R107	I 1
D13	B 1	R108	C 5
D14	C 5	R110	I 6
D20	G 4	R111	I 5
D21	G 4	R112	I 2
		R113	F 3
FB1	H 2	R114	D 4
FB2	H 5	R115	D 3
		R116	D 4
IC1	E 1	R117	D 3
IC2	C 1	R118	D 1
IC3	C 2	R120	H 3
IC4	C 4	R121	H 6
IC5	B 4	R123	A 6
IC5	B 5	R124	A 6
IC5	H 1	R463	J 4
IC6	G 1	R464	H 5
IC6	G 2	R468	I 4
IC6	B 6	R470	D 5
IC6	H 1	R471	D 6
IC7	F 6		
IC7	E 6	TP1	E 3
IC7	D 6	TP2	E 5
IC7	E 5	TP3	J 2
IC7	E 5	TP4	J 3
IC7	D 6	TP5	J 6
IC7	E 6	TP6	A 3
IC8	C 3		
IC9	G 5		
IC462	I 4		
J1	A 1		
J2	A 1		
J3	A 2		
P1	D 1		
P2	D 3		
P3	D 4		
P4	H 6		
P5	H 3		
Q1	E 3		
Q2	E 5		
Q3	F 3		
Q4	F 5		
Q5	I 3		
Q6	I 3		
Q7	I 6		
Q8	I 5		
Q9	I 2		
Q10	I 1		
Q12	I 3		
Q13	H 6		
Q14	I 2		
Q461	I 4		
Q465	H 4		
Q470	C 5		

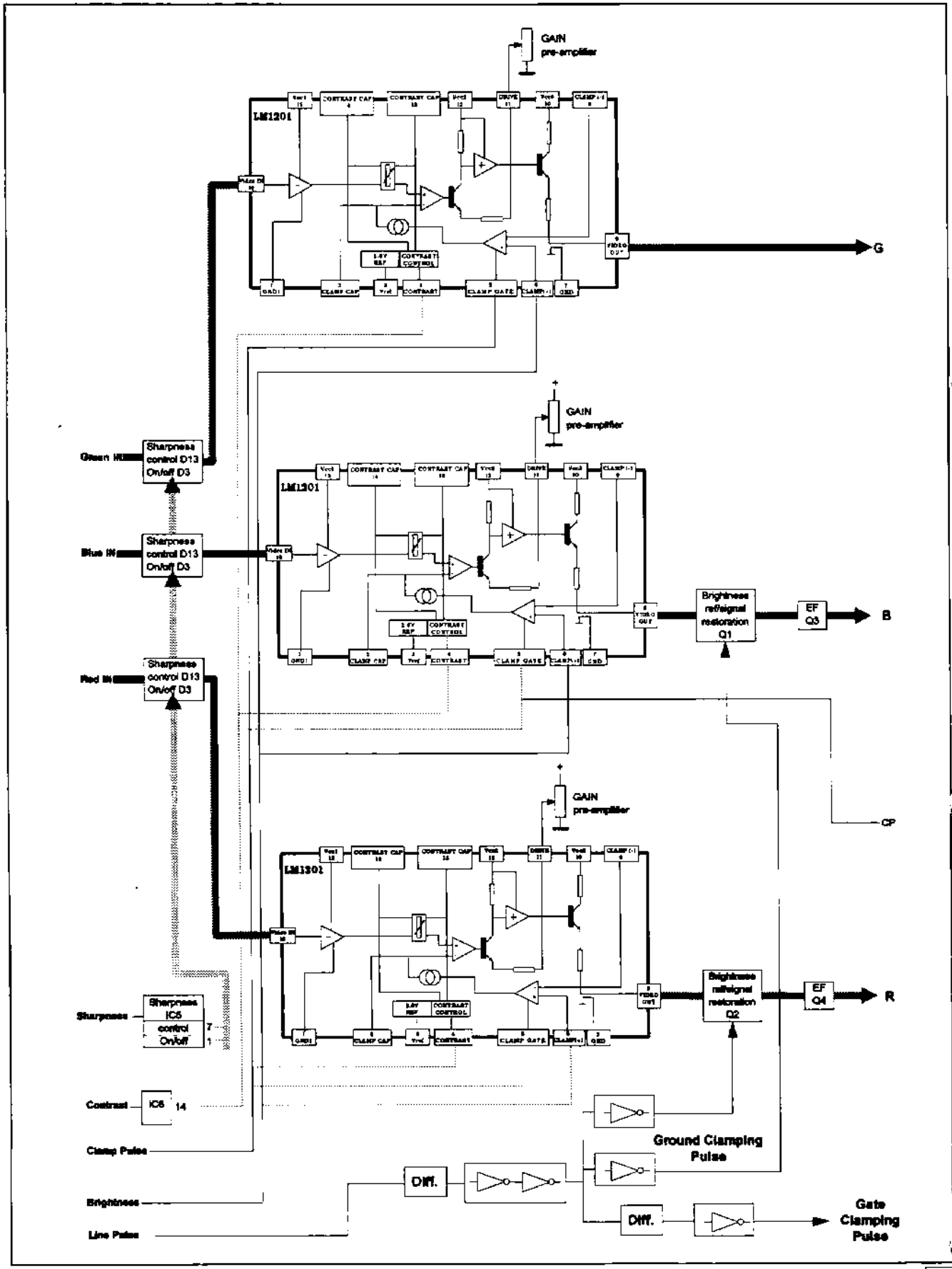

LINKED BCL
FRAME
BCL LINK UNIT OR CONTRAST MODULATION
WIRE-UNIT R3485070
LINKED BCL MODULE
WIRE-UNIT
DECODER
J11
PORT 3
J5A
J10
J5
GND
M/S.SELECT.800
MASTER_CONTR
J2
GND
MASTER_CONTR
M/S.SELECT.800
J1
GND
BCL_LINK
INT_CONTRAST
CONTRAST_OUT
-12V
+12V
MASTER_CONTR
M/S.SELECT.700
OFFSET_COMP
J4
GND
BCL_LINK
INT_CONTRAST
CONTRAST_OUT
-12V
+12V
MASTER_CONTR
M/S.SELECT.700
OFFSET_COMP
BARCO
Name LINKED BCL
Article nr. 800 series
Date 06-02-1995
Drawn JVDY
Checked CHT
BARCO PROJECTION SYSTEMS
D Sheet 1
SCHEMATIC NAME: bcl800.sch SHEET NUMBER: 1 DATE: Feb 27, 1995

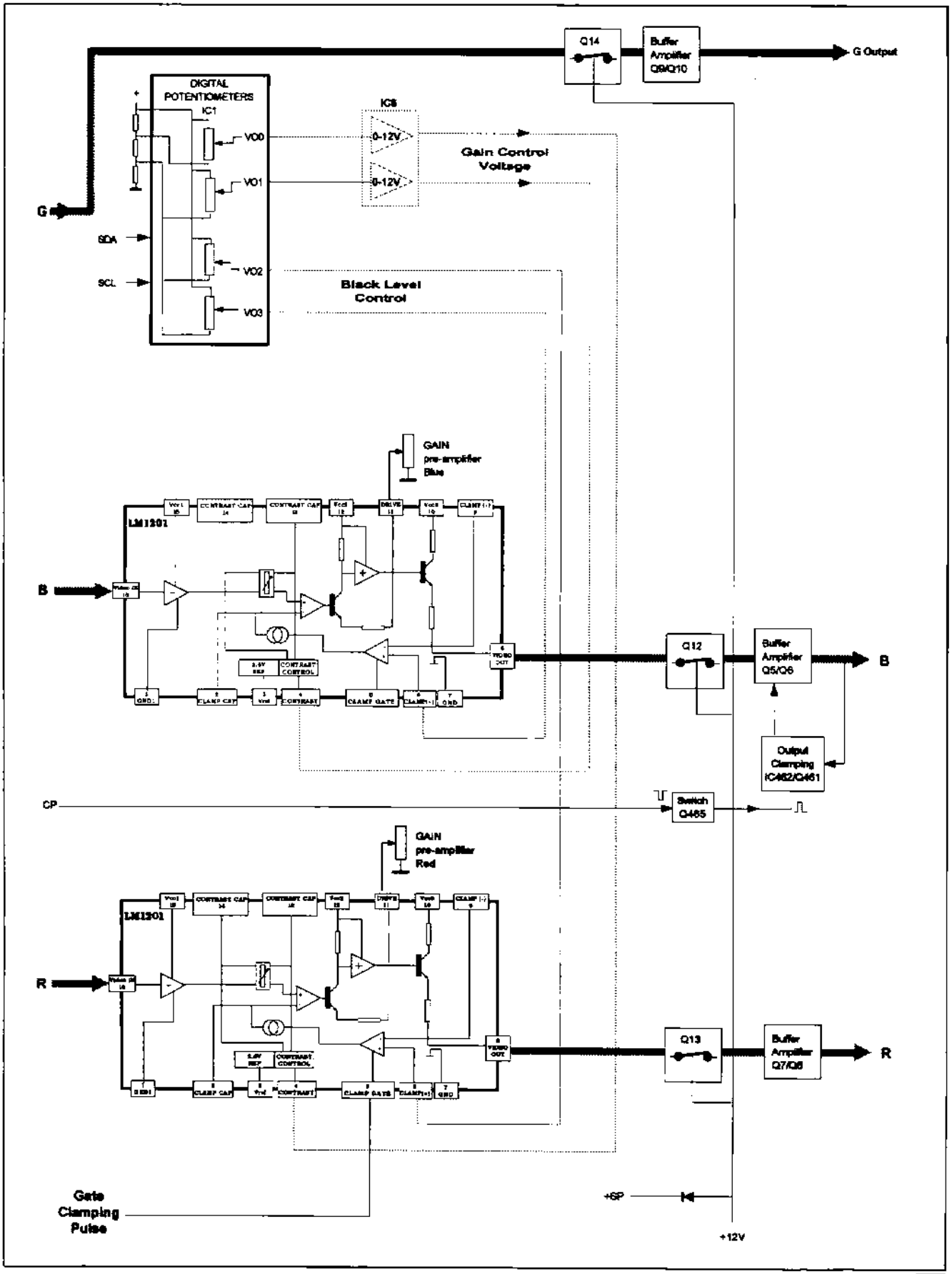

780375-1
BARCO
+12V
R13 10K
R14 10K
R15 10K
R16 22K
IC2 TL084
MASTER : H
SLAVE : L
To IBCL-LINK UNIT (800 series)
J2
MASTER_CONTR
MASTER_CONTR >J1[7]
REL1
BCL_LINK
BCL_LINK >J1[2]
R1 8K
R3 8M2
R2 2K
D2 IN4148
IC1 4053
R5 470K
C2 33K
R7 100K
R9 10K
R4 470E
D1 IN4148
C1 100K
R6 100K
R8 10K
C3 22M
R10 10K
C4 100K
R11 470K
R12 2K
C5 100K
C6 100K
C7 100K
C9 100K
-12V
M/S.SELECT >J1[8]
(700 series)
INT_CONTRAST >J1[3]
OFFSET_COMP >J1[9]
CONTRAST_OUT >J1[4]
MASTER = L
SLAVE = H
700 SERIES : From INPUT DRIVER (J778)
800 SERIES : From DECODER (J4)
J1
BCL_LINK
INT_CONTRAST
CONTRAST_OUT
-12V
+12V
MASTER_CONTR
M/S_SELECT
OFFSET_COMP
Modifications reserved
Name IBCL LINK UNIT
Article nr. 76 2485-1
Date 06-02-1995
Drawn JVDY
Checked KBU
BARCO PROJECTION SYSTEMS
D Sheet 1
SCHEMATIC NAME: 762485.sch SHEET NUMBER: 1 DATE: Feb 27, 1995


INPUTS
RGB from second RGB analog module
J3
2 RED
4 GREEN
6 BLUE
J4
2 RED
4 GREEN
6 BLUE
VIDEO
LUMINANCE
CHROMINANCE
RED
GREEN
BLUE
VERT SYNC
HOR/COMP SYNC
INPUT SELECTION
J5
2 RED
4 GREEN
6 BLUE
J6B
3 CHROMA
21 VIDEO/LUMA
4 HOR/COMP SYNC
2 VERT SYNC
To Vert.Deflection module via frame
INPUT RGB ANALOG AND RGB SWITCHING 76 17481
via frame
QUAD DECODER
QUAD DECODER
J3
2 R OUT
4 G OUT
6 B OUT
J7A
20 VID/LUM
19 CHROMA
J6
1 -
2 SDA
3 SCL
4 SHARPNESS
5 BRIGHTNESS
6 CONTRAST
7 +8V
8 +12V
9 -12V
10 CP
11 LP
12 - 210V
J7
6 R OUT
2 G OUT
4 B OUT
J7B
1 R OUT
4 G OUT
7 B OUT
1 2 3 4 5 6 7 8 9 10 11 12
J3
5 RED
2 GREEN
4 BLUE
RGB Drive
J1
2 RED
4 GREEN
6 BLUE
RGB Driver 76 2174S
7621745.drw

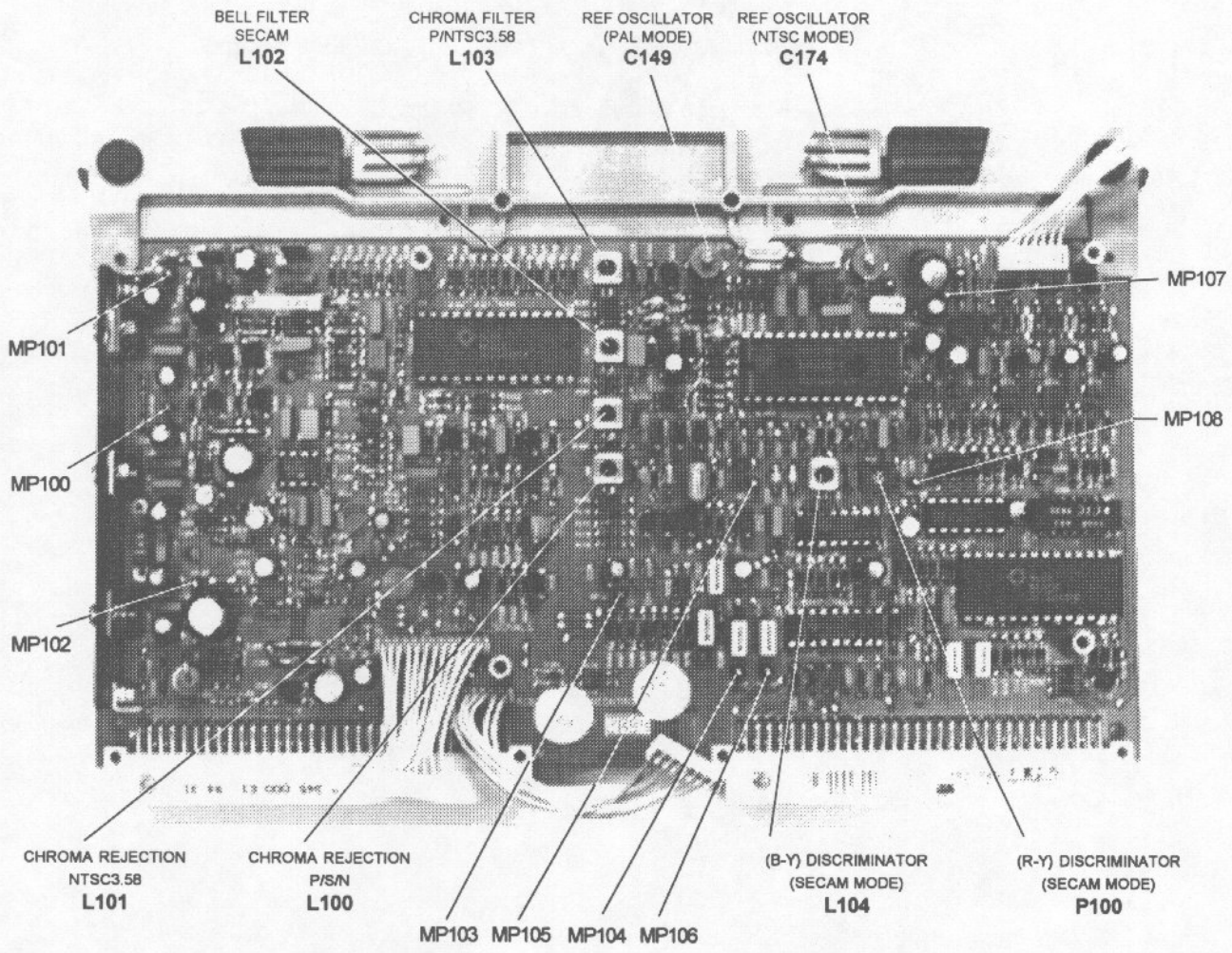

TDA4650
TDA4565
TDA4661
SECAM DE-EMPHASIS
COLOR KILLER SWITCH/ BUFFERS
BLACK LEVEL CLAMP
PULSE PROCESSING
SANDCASTLE PULSE DETECTION
SECAM REFERENCE
PAL SECAM NTSC DEMODULATORS AND BLANKING
PLLs FOR PAL/NTSC COLOR CARRIER GENERATION
HUE CONTROL (NTSC)
ACC DEMODULATOR
GAIN CONTROLLED CHROMINANCE AMPLIFIER
SYSTEM CONTROL
STANDARD SCANNING
STANDARD SELECTION
FINE ADJUSTMENT Q129
TRESHOLD SWITCH
GYRATOR DELAY CELLS (9x90ns)
CLAMPING CIRCUIT
Y-DELAY
COLOR TRANSIENT IMPROVEMENT
180ns
SWITCHING AND STORAGE STAGE
INTEGRATOR STAGE (PULSEFORMER)
DIFFERENTIATION STAGE
TINT CONTROL
SSC
Y output
(R-Y) output
(B-Y) output
+SVIDEO
LUMINANCE
R-Y
B-Y
7.2 MHz
6.9 MHz
BELL FILTER L102/C136
PAL/N BANDPASS L103/C139
C144/Q123 N3 BANDPASS ADAPTATION
N3 CHROMA REJECTOR L101/C137
P/B/N4 CHROMA REJECTOR L100/C138
SVID Q126
VID Q121
B Q126
P/N4 Q122
N3 Q124
P/B/N4 Q125
SVID Q127
Q119
CHROMA
VIDLUMA
(R-Y) comb filtering
(B-Y) comb filtering
LINE DELAY
3 MHz clock
LINE-LOCKED PLL/ PULSE PROCESSING


TDA4565
Y-DELAY
CLAMPING CIRCUIT
COLOR TRANSIENT IMPROVEMENT
TRESHOLD SWITCH
GYRATOR DELAY CELLS (tx180ns)
180ns
DIFFERENTIATION STAGE
DIFFERENTIATION STAGE
INTEGRATOR STAGE (PULSEFORMER)
SWITCHING AND STORAGE STAGE
SWITCHING AND STORAGE STAGE
Y output
(R-Y) output
(B-Y) output
DIGITAL POTENTIOMETERS IC109
VO2
VO3
VO1
VO0
SCL
SDA
SHARPNESS
SHARPNESS CONTROL DEL0408 CA3045
MATRIX
Q130
Q131
Q132
Q135
Q136
Q139
TINT CONTROL (pin 17 TDA4650)
+VIDEO
switching ON/OFF current source
Q140
CURRENT SOURCE Q139
CURRENT SOURCE Q137
CURRENT SOURCE Q133
R OUT
G OUT
B OUT
R
G
B
Y
R-Y
B-Y
CONTRAST CONTROL
BCL
IBCL_R
IBCL_G
IBCL_B
Q108
Q101
Q102
ABL pulse
ABL STRIPPER Z104/Q109/Q110
Q114/Q1170
SSC
BUFFER Q103
VBL
SC
Q116
clamp pulse former
BUFFER DIFF Q112/Q111
INV Q118
CP
CP
UP
Q115
Q113
+RGB
+VD
COMPOSITE BLANKING
BUFFER Q106
MIX Q100
UP
VBL
G1
BRIGHTNESS CONTROL
G1 blanking
cathode blanking
spot suppression at switching OFF Q107/Q1108/D113
+210V
+17V
IC103 two level detector
sawtooth generator
Q104
HTHD
SC
DIGITAL POTENTIOMETERS IC104
VO3
VO2
VO1
VO0
SCL
SDA


GAIN
pre-amplifier
LM1201
G
Green IN
Sharpness control D13 On/off D3
Blue IN
Red IN
LM1301
Brightness ref/signal restoration Q1
EF Q3
B
CP
Brightness ref/signal restoration Q2
EF Q4
R
Sharpness
Contrast
Clamp Pulse
Brightness
Line Pulse
Ground Clamping Pulse
Diff.
Gate Clamping Pulse


Q14
Buffer Amplifier Q9/Q10
G Output
DIGITAL POTENTIOMETERS
IC1
VO0
VO1
VO2
VO3
IC6
0-12V
0-12V
Gain Control Voltage
G
SDA
SCL
Black Level Control
GAIN pre-amplifier Blue
LM1201
B
Q12
Buffer Amplifier Q5/Q6
B
Output Clamping IC462/Q461
CP
Switch Q465
GAIN pre-amplifier Red
LM1201
R
Q13
Buffer Amplifier Q7/Q8
R
Gate Clamping Pulse
+SP
+12V

Location of controls



A. VIDEO INPUT SIGNAL :
PAL COLOUR TEST IMAGE

1. REFERENCE OSCILLATOR (C149)

- if there is no colour, adjust trimming capacitor C149 until colour is being received.
- short-circuit MP109 (pin 17 of IC105) to grouind.
- adjust the trimming capacitor C149 for colour zero beat.
- remove the short-circuit.

2. CHROMA REJECTOR (L100) (photo 1)

- connect an oscilloscope to MP108 (Y signal).
- adjust the core of coil L100 for a minimum of chroma in the video signal.

3. CHROMA FILTER (L103) (photo 2)

- connect the oscilloscope to MP107 (pin15 IC105).
- adjust the core of coil L103 for maximum chromasignal.

ADJUSTMENT PROCEDURE "QUAD DECODER "

The alignment of the "QUAD Decoder+RGB GAIN Control " is restricted to the adjustment of :

- alignment of the QUAD decoder (main board)
- alignment of the GAIN CONTROL board (sub board)

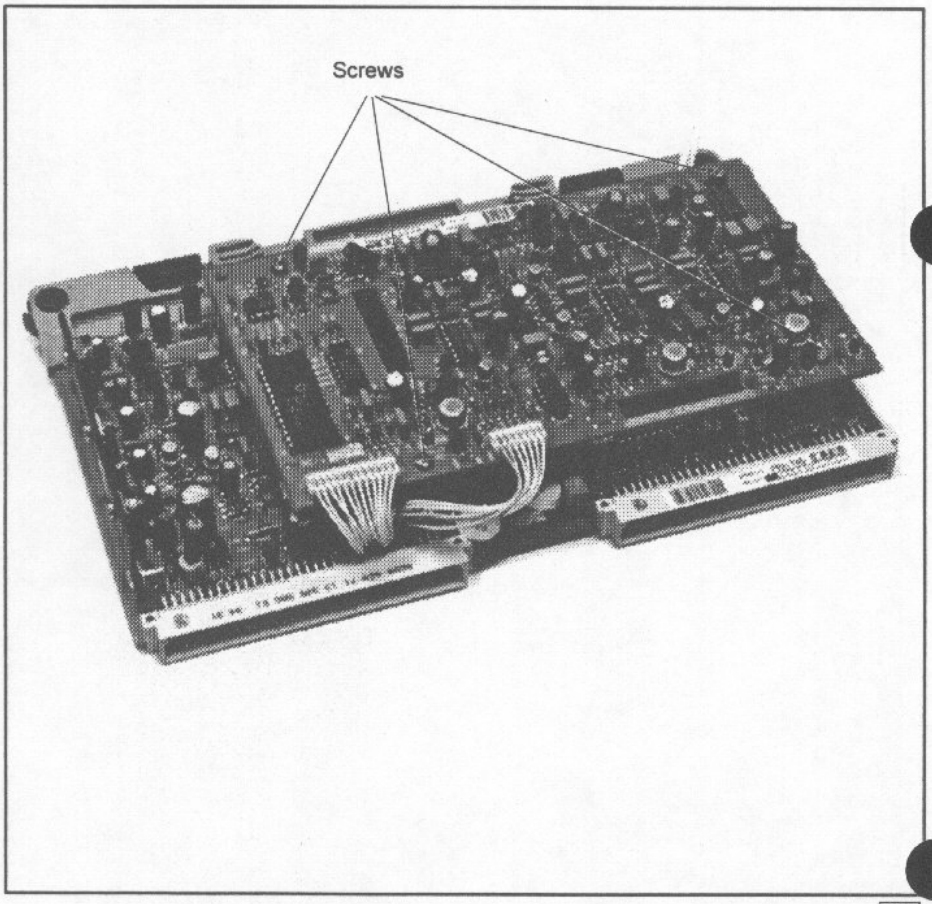
Alignment of the QUAD decoder (main board)

Preparation

- Turn the projector Off or switch the projector to the stand-by mode.
- Disconnect the module from the RGB-Switch module and put the module in the main frame by means of two extension boards. Reinstall the electrical connections with the RGB-switch module by means of two extension wire cables.
- Connect to the VIDEO input e.g. an electronic colour test video signal (see photo)
- Turn the projector On and switch the projector in the VIDEO MODE. Select source 1.

Access to controls

Remove the four screws holding the RGB driver module to the Decoder module. Separate the two modules in order to have access to the adjustment controls on the decoder module.



B. VIDEO INPUT SIGNAL:
SECAM COLOUR TEST IMAGE

4. BELL FILTER (L102) (photo 3)

- connect an oscilloscope to MP107 (pin15 IC105).
- adjust L102 for a flat amplitude of the signal during two successive lines.

5. SECAM REFERENCE CIRCUIT (L104-P100) (photo 4)

- connect oscilloscope to MP104 (pin 2 of IC100).
- adjust L104 so that the level of the (B-Y) signal without colour information is the same as the level during blanking.
- connect oscilloscope to MP106 (pin 1 of IC100).
- adjust P100 so that the level of the (R-Y) signal without colour information is the same as the level during blanking.
- If necessary the level in (B-Y) channel has to readjust to zero with the coil.

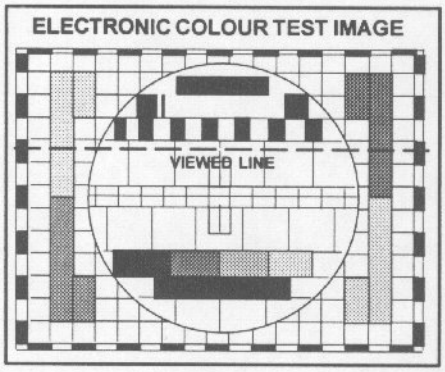
C. VIDEO INPUT SIGNAL :
NTSC 3.58 TEST IMAGE

6. REFERENCE OSCILLATOR (C174)

- If there is no colour, adjust trimming capacitor C174 until colour is being received.
- short-circuit MP109 (pin 17 of IC105) to grouind.
- adjust trimming capacitor C174 for a colour zero beat.
- remove the short-circuit.

10. CHROMA REJECTION (L101)

- connect an oscilloscope to MP108 (Y signal).
- adjust the core of coil L101 for a minimum of chroma in the video signal.



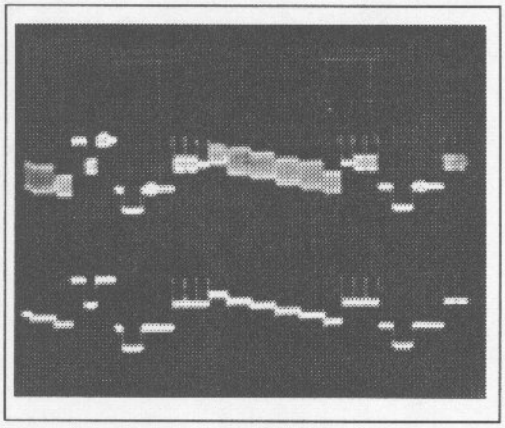


Foto 1
Alignment chroma rejector L100
Upper track: viewed video line
Lower track: Y signal MP108

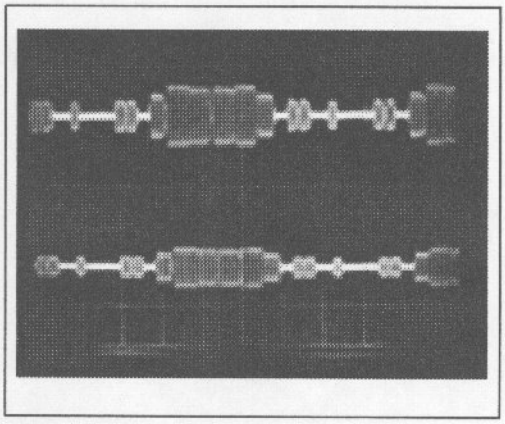


Foto 2
Alignment maximum Chroma L103
Upper track: viewed video line
Lower track:Chroma on MP107

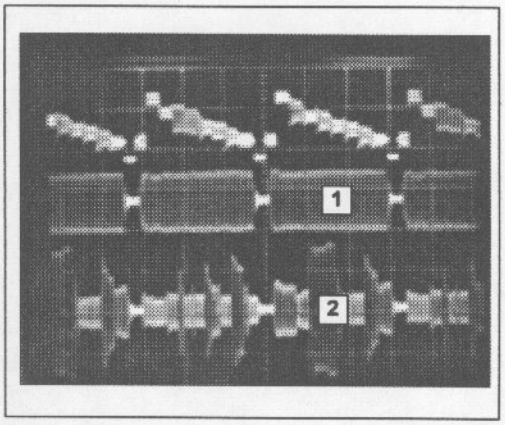


Foto 5
BELL FILTER
Upper track: viewed video line
Lower track:
1. correct setting
2. incorrect setting

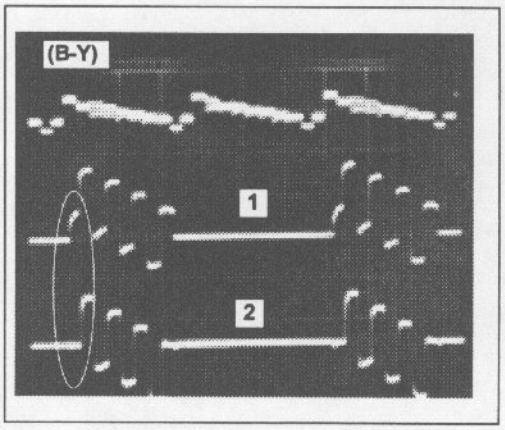
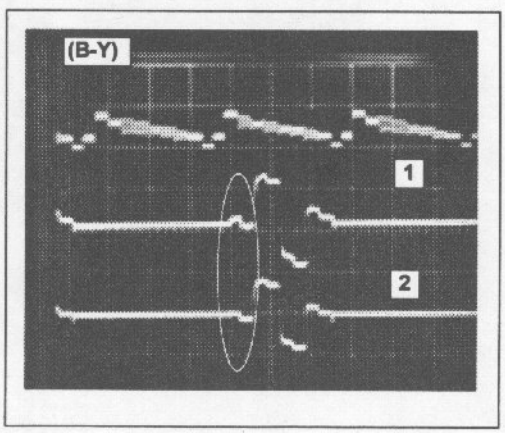


Foto 4
SECAM Ref circuit L104 (B-Y)
Upper track: viewed video line
Lower track:
1: incorrect setting
2: correct setting

Foto 4
SECAM Ref circuit P100 (R-Y)
Upper track: viewed video line
Lower track:
1: incorrect setting
2: correct setting



Alignment of the "RGB Gain control 76 2174S"

Preparation

- Access to the module, refer to chapter 'preparation' decoder module, page 9.

- Connect a voltmeter to pin 6 "CONTRAST" of connector J2 .
  Adjust the Contrast on the remote control for max. DC level (10.4V).

- Connect a voltmeter to pin 5 "BRIGHTNESS" of connector J2 .
  Adjust the Brightness on the remote control for a DC level of 2.0V.

- Connect a voltmeter to pin 4 "SHARPNESS" of connector J2 .
  Adjust the Sharpness on the remote control for min. DC level (1.8V).

Pre-adjustment of the White and Black balance (refer to the Owner's manual)

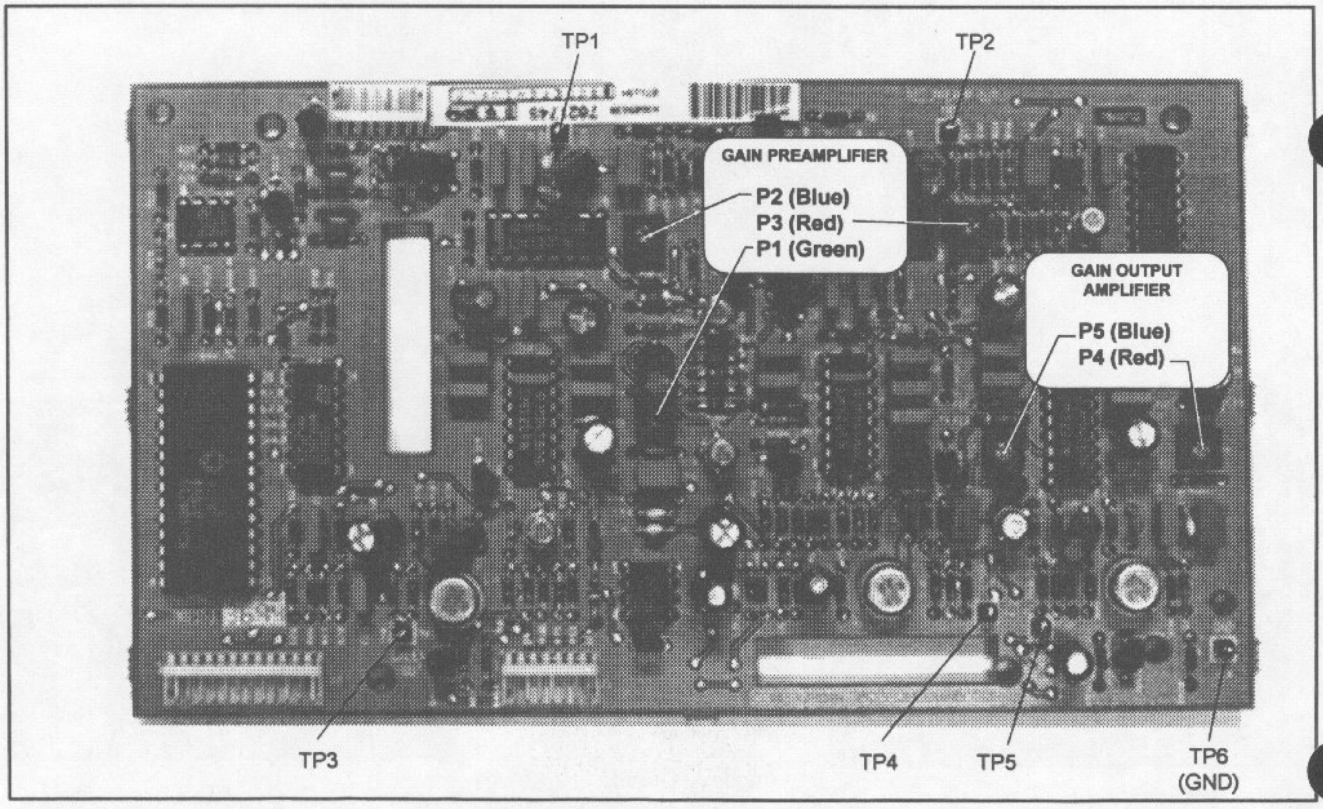
- adjust the white balance as follows: Red gain=34
  Blue gain=34
- adjust the black balance as follows: Red cut off=50 (50%)
  Blue cut off=50 (50%)

Termination of the outputs

Terminate the outputs, pin 2-4 and 6 of connector J3, with a resistor of 75 Ohm (the termination link must be as short as possible)

- Input signals R, G and B on connector J1 of 0.7Vpp.

Location of controls



Alignment

Gain adjustment of the Pre-Amplifiers

Alignment of P1,P2 and P3

- Connect the oscilloscope successively to the output of Red (TP2), Green (TP3) and Blue (TP1).

- Adjust the potentiometers P1 (G), P2 (B) and P3 (R) "gain pre-amplifier" for an amplitude of the corresponding output signal of 4.0V.

Gain adjustment of the Output-Amplifiers

Alignment of P5 and P4

- Connect the oscilloscope to the **BLUE signal** output (TP4), pin 4 connector J3.

  Adjust potentiometer P5 for an amplitude of the Blue signal of 3.3Vpp.

- Connect the oscilloscope to the **RED signal** output (TP5), pin 6 connector J3.

  Adjust potentiometer P4 for an amplitude of the Red signal of 2.65Vpp.

Operational verification

Operation control of the spot suppression

Connect pin 3 of the connector J3 to ground. The output voltages on pin 2,4 and 6 of connector J3 have to drop to 0... -0.2Volts DC.

Default settings

Color Temperature 3200°K

White balance (bar scale)	Output voltage
Blue: 10	G (pin 2 J3): 4.0Vpp
Red: 50	B (pin 4 J3): 2.6Vpp
	R (pin 6 J3): 3.8Vpp

Color Temperature 6500°K

White balance (bar scale)	Output voltage
Blue: 36	G (pin 2 J3): 4.0Vpp
Red: 34	B (pin 4 J3): 3.4Vpp
	R (pin 6 J3): 3.6Vpp

Color Temperature 9300°K

White balance (bar scale)	Output voltage
Blue: 45	G (pin 2 J3): 4.0Vpp
Red: 32	B (pin 4 J3): 3.8Vpp
	R (pin 6 J3): 3.6Vpp

(refer to the Owner's manual for the default setting procedure)

Parts listing 76 21745 (main board)

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
1041	R1330291	Q ACC ISO MICA TO220	1
1040	R1330292	Q ACC ISO BSHG TO220	1
1063	R133036	SPR L 6 D 6 D 2.4 C	1
1062	R133039	SPR L 8 D 4 D 1.2 C	2
50	R133076	Q ACC ISO WSHR TO39	2
	R3484071	CD CT FTMS P 7 110	1
	R3484121	CD CT FTMT P12 50	1
1032	R3620226	SCR D84 M 3 X 8 SI	3
1030	R3661026	NUT D934 M 3 I	3
1020	R3674391	RVT POP D3.2 L 7.4 P ASW	2
1031	R367502	WSHR D6798 A 3.2 S Z	3
10	R367699	RVT CHB D2.38L6.35 P A	4
1061	R367699	RVT CHB D2.38L6.35 P A	2
1060	R722276	LOCK PJ49 PCB UN CPL	1
	R762174S	**UN RGB PJ49 G801 DVR+GAIN**	1
1000	R802629	HTSNK PJ49 RGB PR_AMP	1
1010	R802692	HTSNK PJ49 FIX HTSNK	2
1050	R803145	SPR RVT L18 D 5 M3 A	4
	Z3486071	CD CT FTMT P 7 70	1
C100	R111678	C EL BRA 10M M 25E2 85	1
C101	R111532	C EL RA 22M M 35E2 85	
C102	R113724	C POMERA 100N K 63E2	
C103	R111532	C EL RA 22M M 35E2 85	
C104	R111532	C EL RA 22M M 35E2 85	
C105	R113724	C POMERA 100N K 63E2	
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C107	R111532	C EL RA 22M M 35E2 85	
C108	R113724	C POMERA 100N K 63E2	
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C111	R111532	C EL RA 22M M 35E2 85	
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C115	R111477	C EL RA 100M Z 25E2 85	
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C118	R113728	C POMERA 220N K 63E2	
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C121	R113724	C POMERA 100N K 63E2	
C122	R115932	C PP RA 4N7J 63E2 85	
C123	R113724	C POMERA 100N K 63E2	
C124	R112739	C CE MI 1N K100E2	
C125	R111532	C EL RA 22M M 35E2 85	
C126	R115930	C PP RA 3N9J 63E2 85	1
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C128	R111531	C EL RA 10M M 35E2 85	
C129	R1159562	C PP RA180P H630E2 85	1
C130	R1137121	C POMERA 10N K250E2 85	
C131	R111531	C EL RA 10M M 35E2 85	
C132	R113724	C POMERA 100N K 63E2	
C133	R112387	C N152MI 470P G100E2	
C134	R111531	C EL RA 10M M 35E2 85	
C135	R112774	C CE MI 100N S 63E2	
C136	R1122415	C NP0 MI 82P G100E2	
C137	R112243	C NP0 MI 120P G100E2	
C138	R1159061	C PP RA 390P J100E2 85	
C139	R112243	C NP0 MI 120P G100E2	
C140	R112774	C CE MI 100N S 63E2	
C141	R112739	C CE MI 1N K100E2	
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C143	R112774	C CE MI 100N S 63E2	1
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C146	R112774	C CE MI 100N S 63E2	
C147	R1140426	C POMERA 100N K250E2 85	1
C148	R113732	C POMERA 470N K 63E2	
C149	R117001	C T 7 -35P 160	1
C150	R113730	C POMERA 330N K 63E2	
C151	R112739	C CE MI 1N K100E2	
C152	R113730	C POMERA 330N K 63E2	
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C154	R112366	C N750MI 220P G100E2	
C155	R111476	C EL RA 47M M 25E2 85	
C156	R112366	C N750MI 220P G100E2	
C157	R113730	C POMERA 330N K 63E2	
C158	R112763	C CE MI 10N U 63E2	
C159	R113724	C POMERA 100N K 63E2	
C160	R112739	C CE MI 1N K100E2	
C161	R1137161	C POMERA 22N K100E2	
C162	R112763	C CE MI 10N U 63E2	
C163	R1122395	C NP0 MI 56P G100E2	
C164	R112739	C CE MI 1N K100E2	
C165	R112235	C NP0 MI 27P G100E2	
C166	R1137161	C POMERA 22N K100E2	
C167	R1122395	C NP0 MI 56P G100E2	
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C170	R113720	C POMERA 47N K 63E2	
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C283	R1159161	C PP RA 1N J100E2 85	

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D103	R131621	D S 1N4148 075150 DO35	
D104	R131621	D S 1N4148 075150 DO35	
D105	R131621	D S 1N4148 075150 DO35	
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I101	R134002	U 7812 TO220 P	1
I102	R134016	U 7912 TO220 P	1
I103	R134114	U 393 LM DIP8 P	1
I104	R132833	U 76013 SC DIP28 P	1
I105	R132828	U 4650 TDA DIP28 P	1
I106	R132773	U 4560/65 TDA DIP18 P	1
I107	R1328291	U 4661 TDA DIP16 P	1
I108	R132134	U 331 TBA DIP14 P	1
I109	R132833	U 76013 SC DIP28 P	1
J 1	R313531	J EUR2C$MBS P64 E1C3S 1,6	1
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J 4	R313929	J CT H MBT P 9 M2SN	1
L100	R3060281	CH RA ES 15 UH S7 T	1
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L102	R3060121	CH RA ES 3.3 UH S7 T	1
L103	R3060241	CH RA ES 10 UH S7 T	1
L104	R3060241	CH RA ES 10 UH S7 T	1
L105	R3061322	CH AX NS 10 UH	1
L106	R306052	CH RA NS 150 UH	1
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MP10	R313729	J PIN TESTEYE	1
MP11	R313729	J PIN TESTEYE	1
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PC	R780016	PCS PJ49 800 DEC 7	1
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R102	R103248	R MO H 10K J 1W5	1
R103	R101542	R MF H 3K3 F 0W4 E3	
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SR11	R1012009	R CFFH 1E J 0W5	1
SR12	R1011009	R CFFH 1E J 0W25	1
SR13	R1011049	R CFFH 2E2 J 0W25	1
SR14	R1011049	R CFFH 2E2 J 0W25	1
SR15	R1011049	R CFFH 2E2 J 0W25	1
SR16	R1011049	R CFFH 2E2 J 0W25	1
SR17	R1011049	R CFFH 2E2 J 0W25	1
SR18	R1011049	R CFFH 2E2 J 0W25	1
W100	R348102	WU JUMP 0,6 7,5	1
W101	R348102	WU JUMP 0,6 7,5	1
XT10	R306816	X 8.867238 MHZ HC49 S20	1
XT11	R306849	X 7.159090 MHZ HC49 S20	1
Z100	R131721	D ZEN 13V 0W5 C DO35	
Z101	R131749	D ZEN 18V 0W5 C DO35	
Z102	R131771	D ZEN 150V 3W25 C SOD57	1
Z103	R131788	D ZEN 15V 0W5 C DO35	
Z104	R131730	D ZEN 20V 0W5 C DO35	
Z105	R131716	D ZEN 5V1 0W5 C DO35	
Z106	R131716	D ZEN 5V1 0W5 C DO35	
Z107	R131756	D ZEN 7V5 0W5 C DO35	
Z108	R131716	D ZEN 5V1 0W5 C DO35	
Z109	R131716	D ZEN 5V1 0W5 C DO35	
Z110	R131754	D ZEN 3V3 0W5 C DO35	
Z111	R131757	D ZEN 3V9 0W5 C DO35	
Z112	R131716	D ZEN 5V1 0W5 C DO35	
Z113	R131716	D ZEN 5V1 0W5 C DO35	
Z280	R131757	D ZEN 3V9 0W5 C DO35	

Parts listing 76 2174S (sub board)

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
20	R803145	SPR RVT L18 D 5 M3 A	4
30	R133076	Q ACC ISO WSHR TO39	3
C 1	R113724	C POMERA 100N K 63E2	
C 2	R113724	C POMERA 100N K 63E2	
C 3	R113724	C POMERA 100N K 63E2	
C 4	R113724	C POMERA 100N K 63E2	
C 5	R111466	C EL RA 100M Z 16E2 85	
C 6	R112741	C CE MI 1N5K100E2	
C 7	R111466	C EL RA 100M Z 16E2 85	
C 8	R113724	C POMERA 100N K 63E2	
C 9	R113724	C POMERA 100N K 63E2	
C 10	R113724	C POMERA 100N K 63E2	
C 11	R113724	C POMERA 100N K 63E2	
C 12	R112741	C CE MI 1N5K100E2	
C 13	R111466	C EL RA 100M Z 16E2 85	
C 14	R111466	C EL RA 100M Z 16E2 85	
C 15	R113724	C POMERA 100N K 63E2	
C 16	R113724	C POMERA 100N K 63E2	
C 17	R113724	C POMERA 100N K 63E2	
C 18	R113724	C POMERA 100N K 63E2	
C 19	R112741	C CE MI 1N5K100E2	
C 20	R111466	C EL RA 100M Z 16E2 85	
C 21	R111466	C EL RA 100M Z 16E2 85	
C 22	R111548	C EL RA 2M2M 50E2 85	
C 23	R111548	C EL RA 2M2M 50E2 85	1
C 24	R111548	C EL RA 2M2M 50E2 85	
C 25	R112366	C N750MI 220P G100E2	1
C 26	R112366	C N750MI 220P G100E2	
C 27	R112366	C N750MI 220P G100E2	
C 28	R113724	C POMERA 100N K 63E2	
C 29	R113724	C POMERA 100N K 63E2	
C 30	R113724	C POMERA 100N K 63E2	
C 31	R112233	C NP0 MI 18P G100E2	
C 32	R112237	C NP0 MI 39P G100E2	1
C 33	R111678	C EL BRA 10M M 25E2 85	1
C 34	R112237	C NP0 MI 39P G100E2	
C 36	R111678	C EL BRA 10M M 25E2 85	1
C 37	R113724	C POMERA 100N K 63E2	
C 38	R113724	C POMERA 100N K 63E2	
C 39	R113724	C POMERA 100N K 63E2	
C 40	R113724	C POMERA 100N K 63E2	
C 41	R112741	C CE MI 1N5K100E2	
C 42	R111466	C EL RA 100M Z 16E2 85	
C 43	R111466	C EL RA 100M Z 16E2 85	
C 44	R113724	C POMERA 100N K 63E2	
C 45	R112774	C CE MI 100N S 63E2	1
C 46	R111510	C EL RA 22M M 25E2 85	
C 47	R113724	C POMERA 100N K 63E2	
C 48	R113724	C POMERA 100N K 63E2	
C 49	R113724	C POMERA 100N K 63E2	
C 50	R113724	C POMERA 100N K 63E2	
C 51	R111477	C EL RA 100M Z 25E2 85	
C 52	R113724	C POMERA 100N K 63E2	
C 53	R111466	C EL RA 100M Z 16E2 85	1
C 54	R113724	C POMERA 100N K 63E2	
C 55	R112741	C CE MI 1N5K100E2	
C 56	R111510	C EL RA 22M M 25E2 85	
C 57	R1159081	C PP RA 470P J100E2 85	
C 58	R1159161	C PP RA 1N J100E2 85	
C 59	R112741	C CE MI 1N5K100E2	1
C 60	R111466	C EL RA 100M Z 16E2 85	
C 61	R111510	C EL RA 22M M 25E2 85	
C 63	R113724	C POMERA 100N K 63E2	
C 66	R112205	C P100MI 1P5C100E2	1
C 67	R112231	C NP0 MI 12P G100E2	1
C 68	R112227	C NP0 MI 5P6C100E2	1
C 69	P210122	C# X7R MU 100N K 50 1206	1
C 70	P210122	C# X7R MU 100N K 50 1206	1
C 71	P210122	C# X7R MU 100N K 50 1206	1
C 74	R1159181	C PP RA 1N2J100E2 85	
C 75	R1159181	C PP RA 1N2J100E2 85	
C 76	R1159181	C PP RA 1N2J100E2 85	
C 77	R1159101	C PP RA 560P J100E2 85	1
C 78	R1159101	C PP RA 560P J100E2 85	1
C459	R111531	C EL RA 10M M 35E2 85	
C460	R112741	C CE MI 1N5K100E2	1
C470	R111548	C EL RA 2M2M 50E2 85	1
D 1	R131623	D S BA244 020100 DO35	
D 2	R131623	D S BA244 020100 DO35	
D 3	R131623	D S BA244 020100 DO35	
D 4	R131621	D S 1N4148 075150 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131635	D Y 5082-2800	
D 7	R131621	D S 1N4148 075150 DO35	
D 8	R131621	D S 1N4148 075150 DO35	
D 9	R131621	D S 1N4148 075150 DO35	
D 10	R131621	D S 1N4148 075150 DO35	
D 11	R131826	D V BB112 008 SOD69	1
D 12	R131826	D V BB112 008 SOD69	1
D 13	R131826	D V BB112 008 SOD69	1
D 14	R1319481	D R BYD33J 6001A3 SOD81	1
D 20	R131621	D S 1N4148 075150 DO35	
D 21	R131621	D S 1N4148 075150 DO35	
FB 1	R302108	CORE TUBE 3.5 /1.3 X 3	1
FB 2	R302108	CORE TUBE 3.5 /1.3 X 3	1
I 1	R132833	U 76013 SC DIP28 P	1
I 2	R132851	U 1201 LM DIP16 P	1
I 3	R132851	U 1201 LM DIP16 P	1
I 4	R132851	U 1201 LM DIP16 P	1
I 5	R134124	U 082 TL DIP8 P	1
I 6	R134113	U 084 TL DIP14 P	1
I 7	R137536	U 74HCT04 DIP14 P	1
I 8	R132851	U 1201 LM DIP16 P	1
I 9	R132851	U 1201 LM DIP16 P	1
I462	R134145	U 3080 CA DIP8 P	1
J 1	R313947	J CT H MBS P 7 M2SN	1
J 2	R313952	J CT H MBS P12 M2SN	1
J 3	R313947	J CT H MBS P 7 M2SN	1
P 1	R107004	R TCE H200E M 0W5 S7 TS	1
P 2	R107004	R TCE H200E M 0W5 S7 TS	1
P 3	R107004	R TCE H200E M 0W5 S7 TS	1
P 4	R107004	R TCE H200E M 0W5 S7 TS	1
P 5	R107004	R TCE H200E M 0W5 S7 TS	1
PC	R780237	PCD PJ49 G801 RGB DVR	1
Q 1	R132910	Q BS170 FN SS TO92	1
Q 2	R132910	Q BS170 FN SS TO92	1
Q 3	R132954	Q BFY90 N SS TO72	1
Q 4	R132954	Q BFY90 N SS TO72	1
Q 5	R132954	Q BFY90 N SS TO72	1
Q 6	R132911	Q 2N5583 P SS TO39	1
Q 7	R132954	Q BFY90 N SS TO72	1

Q 8	R132911	Q 2N5583 P SS TO39	1
Q 9	R132954	Q BFY90 N SS TO72	1
Q 10	R132911	Q 2N5583 P SS TO39	1
Q 12	R132910	Q BS170 FN SS TO92	1
Q 13	R132910	Q BS170 FN SS TO92	1
Q 14	R132910	Q BS170 FN SS TO92	1
Q461	R1314295	Q BC549B N SS TO92	
Q465	R132916	Q BS250 FN SS TO92	1
Q470	R1314295	Q BC549B N SS TO92	1
R 1	R101548	R MF H 10K F 0W4 E3	
R 2	R101528	R MF H220E F 0W4 E3	
R 3	R101512	R MF H 10E F 0W4 E3	
R 4	R101548	R MF H 10K F 0W4 E3	
R 5	R101528	R MF H220E F 0W4 E3	
R 6	R101512	R MF H 10E F 0W4 E3	
R 7	R101548	R MF H 10K F 0W4 E3	
R 8	R101528	R MF H220E F 0W4 E3	
R 9	R101512	R MF H 10E F 0W4 E3	
R 10	R1015231	R MF H 75E F 0W4 E3	
R 11	R1015231	R MF H 75E F 0W4 E3	
R 12	R1015231	R MF H 75E F 0W4 E3	
R 13	R101540	R MF H 2K2 F 0W4 E3	
R 14	R101540	R MF H 2K2 F 0W4 E3	
R 15	R101540	R MF H 2K2 F 0W4 E3	
R 16	R101553	R MF H 27K F 0W4 E3	
R 17	R101553	R MF H 27K F 0W4 E3	
R 18	R101553	R MF H 27K F 0W4 E3	
R 19	R101524	R MF H100E F 0W4 E3	1
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R 22	R101548	R MF H 10K F 0W4 E3	
R 23	R101548	R MF H 10K F 0W4 E3	
R 24	R1015401	R MF H 2K F 0W4 E3	
R 25	R101573	R MF H 43K2 F 0W4 E3	1
R 26	R101555	R MF H 39K F 0W4 E3	
R 27	R101560	R MF H100K F 0W4 E3	
R 28	R101539	R MF H 1K8 F 0W4 E3	
R 30	R101542	R MF H 3K3 F 0W4 E3	
R 31	R101530	R MF H330E F 0W4 E3	
R 32	R101525	R MF H120E F 0W4 E3	
R 33	R101540	R MF H 2K2 F 0W4 E3	
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R 35	R101540	R MF H 2K2 F 0W4 E3	
R 36	R101516	R MF H 22E F 0W4 E3	
R 37	R101530	R MF H330E F 0W4 E3	1
R 38	R101541	R MF H 2K7 F 0W4 E3	
R 40	R101539	R MF H 1K8 F 0W4 E3	
R 41	R101525	R MF H120E F 0W4 E3	
R 42	R101540	R MF H 2K2 F 0W4 E3	
R 43	R101526	R MF H150E F 0W4 E3	
R 44	R101516	R MF H 22E F 0W4 E3	
R 45	R101540	R MF H 2K2 F 0W4 E3	
R 46	R101548	R MF H 10K F 0W4 E3	
R 47	R101545	R MF H 5K6 F 0W4 E3	
R 48	R1015401	R MF H 2K F 0W4 E3	
R 49	R1011473	R MF H 9K1 G 0W25	1
R 50	R101528	R MF H220E F 0W4 E3	
R 52	R101523	R MF H 82E F 0W4 E3	
R 53	R101535	R MF H820E F 0W4 E3	
R 54	R101528	R MF H220E F 0W4 E3	
R 55	R101533	R MF H560E F 0W4 E3	
R 56	R101529	R MF H270E F 0W4 E3	
R 57	R101544	R MF H 4K7 F 0W4 E3	1
R 58	R101512	R MF H 10E F 0W4 E3	
R 59	R101548	R MF H 10K F 0W4 E3	
R 60	R101545	R MF H 5K6 F 0W4 E3	
R 61	R1015401	R MF H 2K F 0W4 E3	
R 62	R1011473	R MF H 9K1 G 0W25	1
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R 64	R101531	R MF H390E F 0W4 E3	
R 65	R101528	R MF H220E F 0W4 E3	
R 67	R101523	R MF H 82E F 0W4 E3	
R 68	R101528	R MF H220E F 0W4 E3	
R 69	R101542	R MF H 3K3 F 0W4 E3	
R 70	R101512	R MF H 10E F 0W4 E3	
R 71	R101540	R MF H 2K2 F 0W4 E3	
R 72	R101540	R MF H 2K2 F 0W4 E3	
R 73	R101536	R MF H 1K F 0W4 E3	
R 74	R101548	R MF H 10K F 0W4 E3	
R 75	R101508	R MF H 4E7 F 0W4 E3	
R 76	R101515	R MF H 18E F 0W4 E3	
R 77	R101522	R MF H 68E F 0W4 E3	
R 78	R101531	R MF H390E F 0W4 E3	
R 79	R101512	R MF H 10E F 0W4 E3	
R 80	R1015401	R MF H 2K F 0W4 E3	
R 81	R101523	R MF H 82E F 0W4 E3	
R 83	R101528	R MF H220E F 0W4 E3	
R 84	R101539	R MF H 1K8 F 0W4 E3	
R 85	R101538	R MF H 1K5 F 0W4 E3	
R 86	R101532	R MF H470E F 0W4 E3	
R 87	R101535	R MF H820E F 0W4 E3	
R 88	R101544	R MF H 4K7 F 0W4 E3	
R 89	R101549	R MF H 12K F 0W4 E3	
R 90	R101544	R MF H 4K7 F 0W4 E3	
R 91	R101549	R MF H 12K F 0W4 E3	
R 92	R101512	R MF H 10E F 0W4 E3	
R 93	R101512	R MF H 10E F 0W4 E3	
R 95	R101545	R MF H 5K6 F 0W4 E3	
R 96	R101523	R MF H 82E F 0W4 E3	
R 97	R101536	R MF H 1K F 0W4 E3	
R 99	R101536	R MF H 1K F 0W4 E3	
R101	R101536	R MF H 1K F 0W4 E3	
R103	R101536	R MF H 1K F 0W4 E3	
R104	R101536	R MF H 1K F 0W4 E3	
R105	R101540	R MF H 2K2 F 0W4 E3	
R106	R101540	R MF H 2K2 F 0W4 E3	
R107	R101540	R MF H 2K2 F 0W4 E3	
R108	R101568	R MF H470K F 0W4 E3	
R110	R1015281	R MF H200E F 0W4 E3	
R111	R101512	R MF H 10E F 0W4 E3	
R112	R101545	R MF H 5K6 F 0W4 E3	
R113	R101525	R MF H120E F 0W4 E3	
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R116	R1015401	R MF H 2K F 0W4 E3	
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R121	R101541	R MF H 2K7 F 0W4 E3	
R123	R101552	R MF H 22K F 0W4 E3	
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R464	R101541	R MF H 2K7 F 0W4 E3	1
R468	R101542	R MF H 3K3 F 0W4 E3	
R470	R101548	R MF H 10K F 0W4 E3	1
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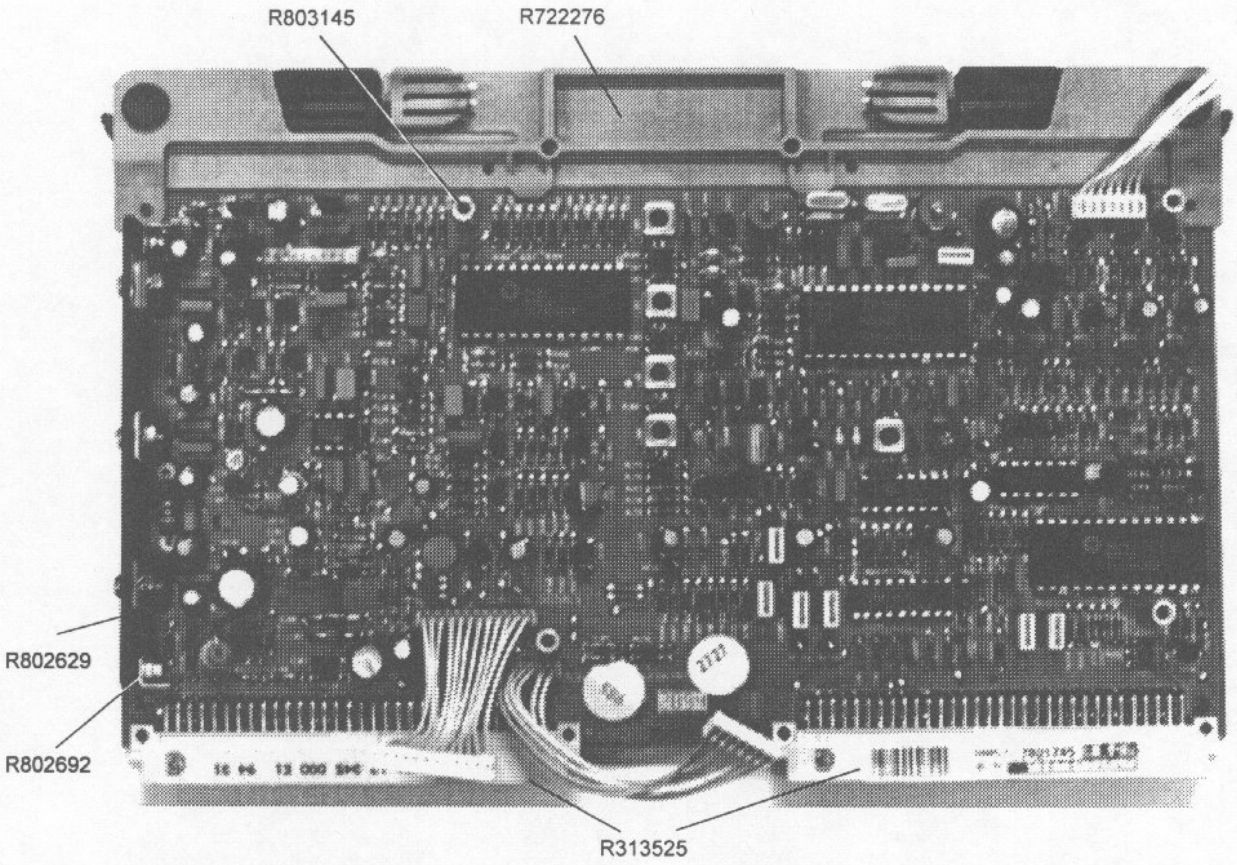
TP 2	R313729	J PIN TESTEYE	1
TP 3	R313729	J PIN TESTEYE	1
TP 4	R313729	J PIN TESTEYE	1
TP 5	R313729	J PIN TESTEYE	1
TP 6	R313729	J PIN TESTEYE	1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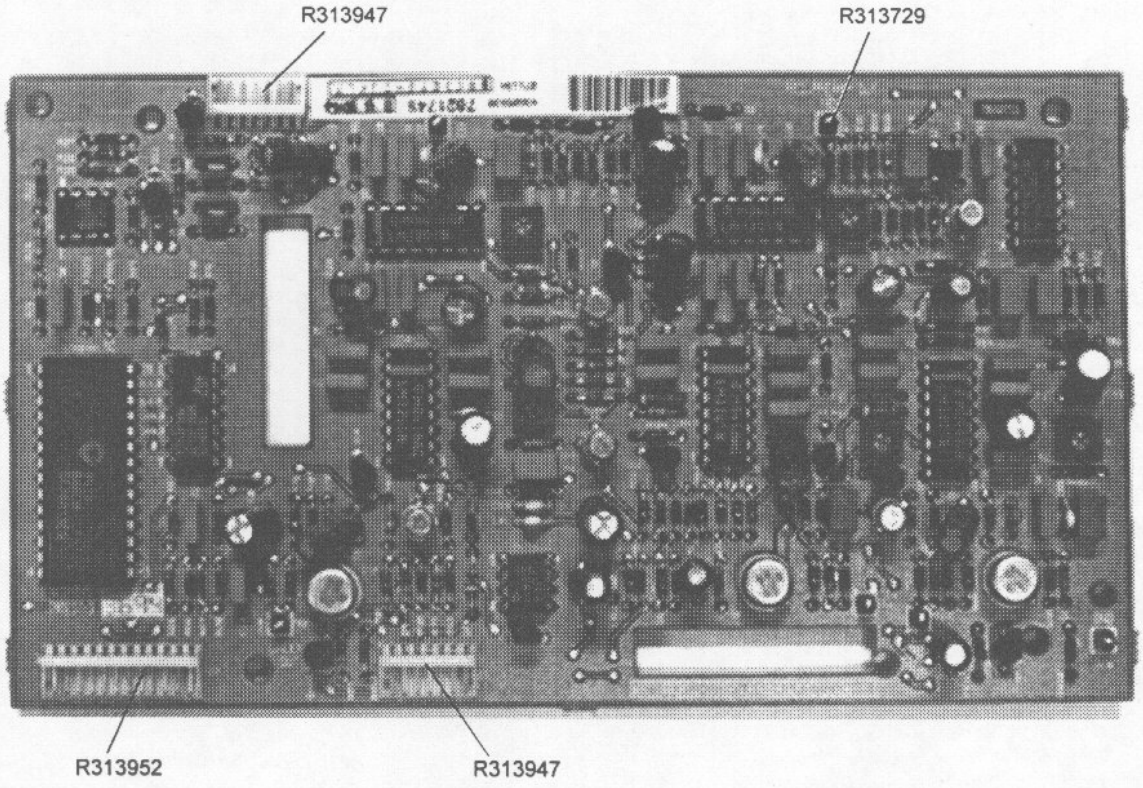
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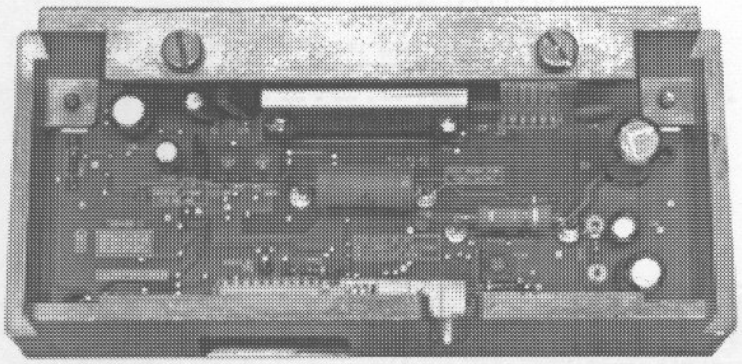
R313947

RGB Output+ABL

76 21735



BARCO

DECODER + RGB DRIVER MODULE
DECODER + RGB DRIVER MODULE
SWITCH MODE POWER SUPPLY MODULE
CRT SOCKET MODULE (RED)
CRT SOCKET MODULE (GREEN)
CRT SOCKET MODULE (BLUE)
RGB OUTPUT MODULE (RED)
RGB OUTPUT MODULE (GREEN)
RGB OUTPUT MODULE (BLUE)

J7A J7B J8B J10A J132 J134 J136 J133 J135 J137

23	8	17	9	6	6	6	1	1	1		1	GND
	1						2			→	2	VIDEO_IN
	15						3			←	3	IBCL
							4				4	
	19						5	5	5	→	5	BL
7	3						6	6	6	→	6	+12V
		24					7	7	7	→	7	-9V
							8				8	
		8					9	9	9	→	9	+210V

J1 — J2 — J3 *808-J2

J2		J3 *808-J2
GND	1	GND
	2	
VIDEO_OUT	3	VIDEO_IN
	4	
GND	5	GND

RED OUTPUT

J2 *808-J3

23	8	17	9	6	6	6	1	1	1		1	GND
		27		5	5	5				→	2	-FIL
		26		4	4	4				→	3	+FIL
	11			3	3	3				→	4	G1
				2							5	
			3	1						→	6	G2

RED CRT SOCKET

J7A J7B J8B J10A J132 J134 J136 J133 J135 J137

23	8	17	9	6	6	6	1	1	1		1	GND
	4						2			→	2	VIDEO_IN
	16						3			←	3	IBCL
							4				4	
	19						5	5	5	→	5	BL
7	3						6	6	6	→	6	+12V
		24					7	7	7	→	7	-9V
							8				8	
		8					9	9	9	→	9	+210V

J1 — J2 — J3 *808-J2

J2		J3 *808-J2
GND	1	GND
	2	
VIDEO_OUT	3	VIDEO_IN
	4	
GND	5	GND

GREEN OUTPUT

J2 *808-J3

23	8	17	9	6	6	6	1	1	1		1	GND
		27		5	5	5				→	2	-FIL
		26		4	4	4				→	3	+FIL
	11			3	3	3				→	4	G1
				2							5	
			5	1						→	6	G2

GREEN CRT SOCKET

J7A J7B J8B J10A J132 J134 J136 J133 J135 J137

23	8	17	9	6	6	6	1	1	1		1	GND
	7						2			→	2	VIDEO_IN
	17						3			←	3	IBCL
							4				4	
	19						5	5	5	→	5	BL
7	3						6	6	6	→	6	+12V
		24					7	7	7	→	7	-9V
							8				8	
		8					9	9	9	→	9	+210V

J1 — J2 — J3 *808-J2

J2		J3 *808-J2
GND	1	GND
	2	
VIDEO_OUT	3	VIDEO_IN
	4	
GND	5	GND

BLUE OUTPUT

J2 *808-J3

23	8	17	9	6	6	6	1	1	1		1	GND
		27		5	5	5				→	2	-FIL
		26		4	4	4				→	3	+FIL
	11			3	3	3				→	4	G1
						2					5	
			7			1				→	6	G2

BLUE CRT SOCKET

Name	OUTPUT & CRT SOCKET		Article nr. 76 21735
Date	19-06-1995	Drawn JVDY	Checked PDG

BARCO PROJECTION SYSTEMS

Modifications reserved

SCHEMATIC NAME: outcon.sch SHEET NUMBER: 1 DATE: Jul 3, 1995

Sheet 1

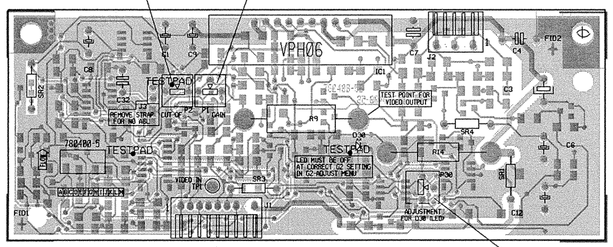
BARCO

CUT OFF ADJUSTMENT

GAIN ADJUSTMENT

To CRT SOCKET (J3)

TOP VIEW

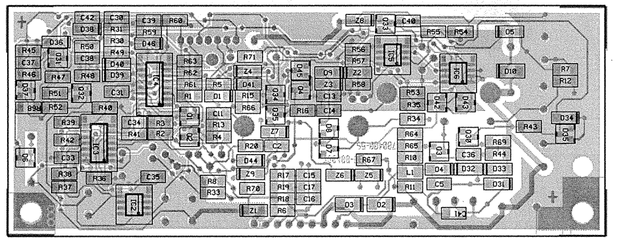


From FRAME

(J135 : GREEN)
(J137 : BLUE)
(J133 : RED)

ABL-LED ADJUSTMENT

BOTTOM VIEW



COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C1	B 2	D3	C 5	IC4	B 4	RT	D 4	R47	A 4	Z1	B 5
C2	B 4	D4	C 5	IC5	C 4	R8	B 5	R48	A 4	Z2	C 4
C3	D 2	D5	D 4	IC6	C 4	R9	C 2	R49	B 4	Z3	C 4
C4	D 2	D6	A 4			R10	C 4	R50	A 4	Z4	B 4
C5	C 5	D7	C 4	J1	B 2	R11	C 5	R51	A 4	Z5	C 5
C6	D 2	D8	C 4	J2	C 2	R12	D 4	R52	A 4	Z6	C 5
C7	C 2	D9	C 4	J3	B 2	R13	B 4	R53	C 4	Z7	B 4
C8	A 2	D10	D 4			R14	C 2	R54	C 4	Z8	C 4
C9	B 2	D30	C 2	L1	C 5	R15	B 4	R55	C 4	Z9	B 5
C10	B 4	D31	D 5			R16	C 4	R56	C 4		
C11	D 2	D32	C 5	P1	B 2	R17	B 5	R57	C 4		
C12	C 4	D33	D 5	P2	B 2	R18	B 5	R58	C 4		
C14	C 4	D34	D 4	P30	C 2	R19	B 5	R59	B 4		
C15	C 5	D35	D 4			R20	B 4	R60	B 4		
C16	C 5	D36	A 4	Q1	B 4	R30	B 4	R61	B 4		
C17	C 5	D37	A 4	Q2	B 4	R31	B 4	R62	B 4		
C30	B 4	D38	A 4	Q3	C 4			R63	B 4		
C31	B 4	D39	B 4	Q4	C 4	R33	B 5	R64	C 4		
C32	B 2	D40	B 4	Q30	C 4	R34	C 4	R65	C 4		
C33	A 4	D41	B 4	Q31	A 4	R35	C 4	R66	B 4		
C34	B 4	D42	C 4	Q32	A 4	R36	A 5	R67	C 4		
C35	B 5	D43	C 4	Q33	C 4	R37	A 5	R68	A 4		
C36	C 4	D44	B 4	Q34	B 4	R38	A 5	R69	D 4		
C37	A 4	D45	C 4	Q35	B 4	R39	A 4	R70	B 5		
C38	A 4	D46	B 4			R40	B 4	RT1	B 4		
C39	B 4	FID1	A 2	R1	B 4	R41	B 4				
C40	C 4	FID2	D 2	R2	B 4	R42	A 4	SR1	D 2		
C41	C 5			R3	B 4	R43	D 4	SR2	A 2		
C42	C 4	IC1	C 2	R4	B 4	R44	D 4	SR3	B 2		
D1	B 4	IC2	B 5	R5	B 4	R45	A 4	SR4	C 2		
D2	C 5	IC3	A 4	R6	B 5	R46	A 4				

Name	RGB OUTPUT		Article nr. 76 21735-5
Date	27-02-1995	Drawn JVDY	Checked PDG

BARCO PROJECTION SYSTEMS

Modifications reserved

780400-5

BARCO

PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH x 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.

VIDEO INPUT SIGNAL

VIDEO OUTPUT SIGNAL

0.25W 0.40W 0.50W 1W 1.5W

GAIN ADJUSTMENT

BLANKING

CUT-OFF ADJUSTMENT

REMOVE STRAP FOR NO ABL

ABL-LED ADJUSTMENT

LED MUST BE OFF AT CORRECT G2 SETTING IN G2 ADJUST MENU

ABL TIMING SIGNALS

From FRAME (J133 : RED) (J135 : GREEN) (J137 : BLUE)

To CRT SOCKET (J3)

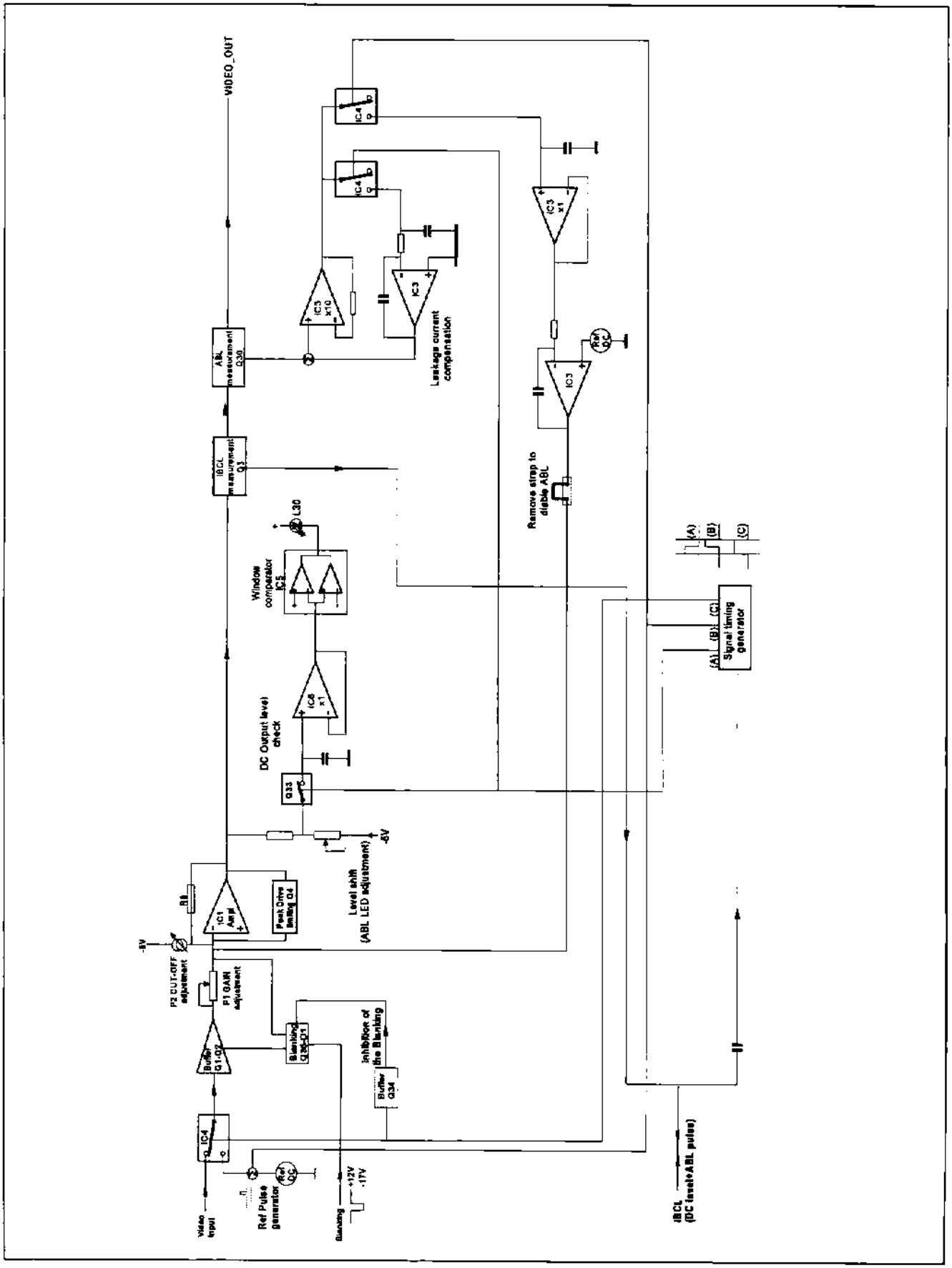
Modifications reserved

Name	RGB OUTPUT
Article nr.	76 21735-5
Date	16-01-1995
Drawn	JVDY
Checked	PDG

BARCO PROJECTION SYSTEMS

COMP.	LOC.	COMP.	LOC.
C1	D 5	R15	E 4
C2	E 1	R16	E 4
C3	F 1	R17	E 2
C4	F 1	R18	E 2
C5	G 1	R19	F 2
C6	H 3	R20	E 1
C7	C 6	R30	B 3
C8	C 5	R31	B 3
C9	C 6	R33	E 3
C11	D 2	R34	F 5
C12	G 3	R35	F 5
C13	E 4	R36	H 4
C14	E 4	R37	H 4
C15	E 2	R38	H 4
C16	E 2	R39	J 3
C17	F 2	R40	K 3
C30	B 3	R41	J 4
C31	B 2	R42	K 3
C32	G 3	R43	K 2
C33	I 4	R44	K 2
C34	J 4	R45	L 3
C35	K 4	R46	L 6
C36	K 2	R47	K 6
C37	L 3	R48	K 6
C38	K 5	R49	J 6
C39	D 6	R50	K 5
C40	G 6	R51	J 5
C41	K 1	R52	J 6
C42	J 6	R53	F 6
		R54	H 6
D1	E 3	R55	H 6
D2	F 2	R56	H 5
D3	F 2	R57	H 5
D4	G 2	R58	I 5
D5	G 2	R59	D 6
D6	C 5	R60	D 6
D7	F 4	R61	A 2
D8	F 4	R62	B 2
D9	F 4	R63	B 2
D10	C 5	R64	G 2
D30	I 5	R65	G 2
D31	K 1	R66	C 4
D32	K 1	R67	E 1
D33	K 1	R68	L 6
D34	K 3	R69	K 2
D35	K 3	R70	D 2
D36	L 5	R71	C 2
D37	L 6		
D38	K 5	SR1	C 5
D39	K 6	SR2	C 5
D40	J 6	SR3	C 6
D41	D 4	SR4	G 2
D42	G 6		
D43	G 6	TP1	A 2
D44	C 2		
D45	C 3	Z1	E 1
D46	A 3	Z3	F 4
		Z4	E 4
IC1	B 5	Z4	C 4
IC1	B 6	Z5	E 1
IC1	E 2	Z6	E 1
IC2	D 5	Z7	E 1
IC3	F 5	Z8	G 5
IC3	H 4	Z9	D 2
IC3	G 4		
IC3	J 3		
IC3	K 4		
IC4	E 6		
IC4	F 5		
IC4	J 4		
IC4	I 4		
IC4	B 2		
IC5	I 6		
IC5	F 5		
IC5	I 5		
IC6	F 6		
IC6	H 5		
IC6	A 6		
J1	A 3		
J2	A 4		
J3	F 3		
L1	G 2		
P1	D 2		
P2	E 3		
P30	F 6		
Q1	C 2		
Q2	D 1		
Q3	D 2		
Q4	E 4		
Q30	K 2		
Q31	K 6		
Q32	J 5		
Q33	G 5		
Q34	C 4		
Q35	D 2		
R1	A 2		
R2	C 1		
R3	C 2		
R4	D 2		
R5	D 3		
R6	E 2		
R7	G 2		
R8	E 3		
R9	E 3		
R10	G 2		
R11	G 1		
R12	G 3		
R13	D 2		
R14	F 4		

SCHEMATIC NAME: 780400.sch SHEET NUMBER: 1 DATE: Feb 2, 1995

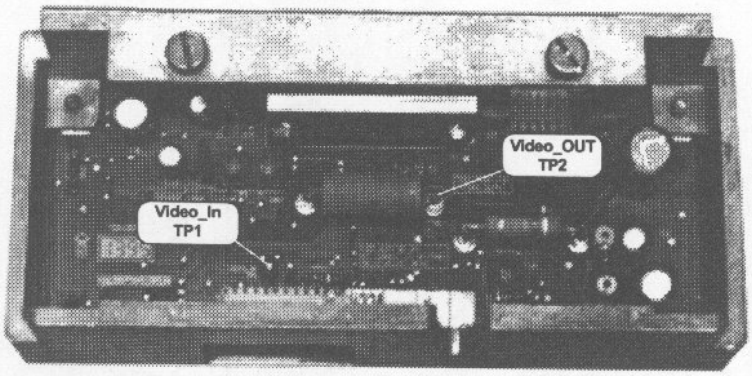

VIDEO_OUT
IC4
IC3 x1
IC5 x10
IC3
Leakage current compensation
Ref Q2
IC3
ABL measurement Q30
IBCL measurement Q3
Remove strap to disble ABL
L30
Window comparator IC5
IC6 x1
DC Output level check
Q33
-5V
Level shift (ABL LED adjustement)
(A) (B) (C)
Signal timing generator
R8
IC1 Ampli
Peak Drive limiting Q4
-5V
P2 CUT-OFF adjustement
P1 GAIN adjustement
Buffer Q1-Q2
Blanking Q35-Q31
Inhibition of the Blanking
Buffer Q34
IC4
Ref Q5
Video input
Ref Pulse generator
Blanking
+12V
-17V
IBCL (DC level+ABL pulse)

Preparation

Supply an external signal to the projector (e.g. a color bar signal)

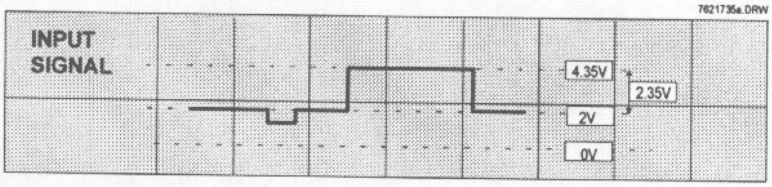
Connect the first measuring probe to the video input signal, testpoint TP1 'VIDEO_IN'.

Connect the second measuring probe to the cathode output (use node R11/C5) or testpoint TP2.

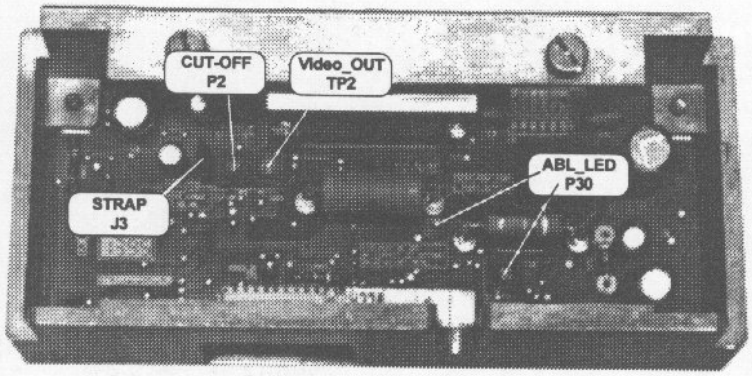


Adjust the projector brightness control until the DC blacklevel of the video input reaches 2V.

Adjust the contrast control until the video input information reaches an amplitude of 2.35V.



Location of controls

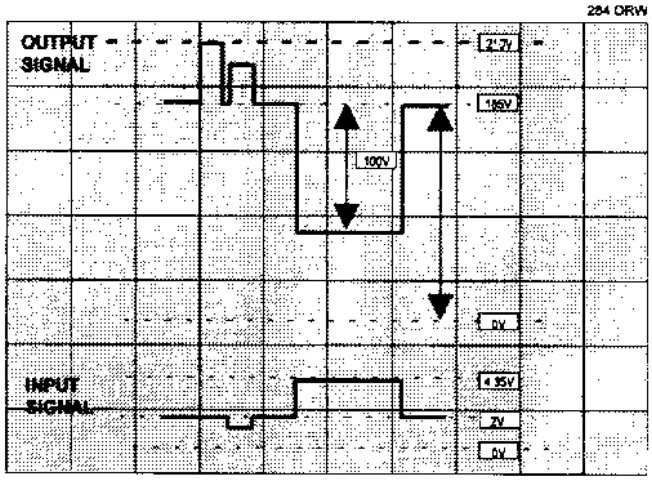


Adjustment

Remove the strap J3 for the adjustment of P1 (gain), P2 (cut-off) and P30

Adjust **P2 (blacklevel adjustment)** and simultaneously **P1 (gain control)** for an output blacklevel of 185V and a video output amplitude of 100Vpp (neglecting the blanking pulse).

Important: both adjustments affect each other.



UPPER TRACK:
e.g. Green output signal
LOWER TRACK:
e.g. Green input signal

Adjustment of the ABL_LED

IMPORTANT: Remove the testprobe on resistor R9 'VIDEO_OUTPUT'.

Adjust the potentiometer P30 until the LED D30 'ABL_LED' just stops lighting up.

Reinstall the strap J3 to allow proper ABL operation

Operational verification

Preventing CRT damage

After a technical intervention on the R, G or B output module, proceed to the following operating tests in order to prevent CRT damage

Control of the presence of the blanking pulses

Connect an oscilloscope to testpoint TP2 and verify the presence of the blanking pulses. (These pulses are situated between the black level on 185V and the power supply voltage on 210V. Absence of the blanking pulses can lead to CRT burning in.

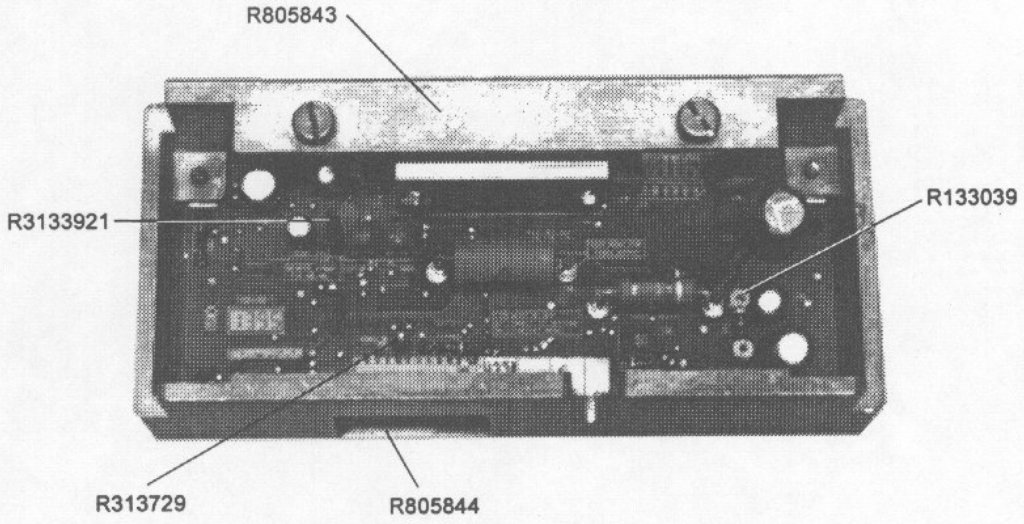
Control of the operation of the IBCL circuit

Connect a resistor of 15 kOhm between testpoint TP2 and the +210V power supply. The measured voltage on the output, pin 3 of connector J1, must be around the +6V DC.
Bad working of the IBCL circuit (Individual Current Beam Limiter) can lead to CRT damage.

Parts listing RGB Out 76 21735

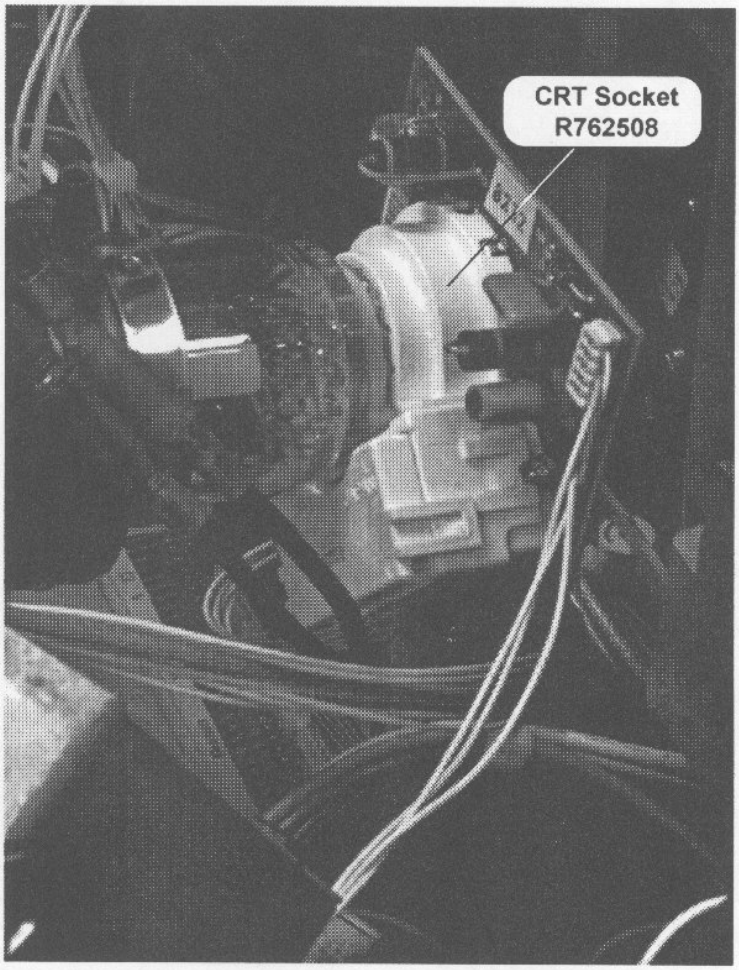
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
1060	R133039	SPR L 6 D 4 D 1.2 C	2
1070	R3133921	J MD JMP P 1 E1SN	1
1050	R315315	J RVT MBT D 2 L14	4
1012	R3626685	SCR D921 M 3 X 6 SI	1
1022	R3626696	SCR D921 M 3 X 8 SI	2
1014	R3631059	SCR D933 M 3 X 8 XIC	2
1013	R3631089	SCR D933 M 3 X 16 XIC	2
1000	R805843	FRM PJ56 G808 RGBOUT HTSN	1
1010	R805844	FRM PJ56 G808 RGB SCRN	1
C 1	R111510	C EL RA 22M M 25E2 85	1
C 2	P210013	C# COG MU 1N J 50 1206	1
C 3	R111569	C EL RA 10M M250E2 85	1
C 4	R112830	C CE DI 2N7S400E3	1
C 5	P210092	C# X7R MU 10N K 50 1206	1
C 6	R111477	C EL RA 100M Z 25E2 85	1
C 7	R1140426	C POMERA 100N K250E2 85	1
C 8	R111467	C EL RA 220M Z 16E2 85	1
C 9	R111510	C EL RA 22M M 25E2 85	1
C 11	P210165	C# COG MU 39P J 50 1206	1
C 12	R111467	C EL RA 220M Z 16E2 85	1
C 13	P210158	C# COG MU 150P J 50 1206	1
C 14	P210122	C# X7R MU 100N K 50 1206	1
C 15	P210073	C# COG MU 82P J 50 1206	1
C 16	P210076	C# COG MU 220P J 50 1206	1
C 17	P210102	C# COG MU 470P J 50 1206	1
C 30	P210013	C# COG MU 1N J 50 1206	1
C 31	P210010	C# COG MU 68P J 50 1206	1
C 32	R111678	C EL BRA 10M M 25E2 85	1
C 33	P210013	C# COG MU 1N J 50 1206	1
C 34	P210122	C# X7R MU 100N K 50 1206	1
C 35	P210148	C# Y5V MU 470N Z 50 1206	1
C 36	P210121	C# COG MU 330P J 50 1206	1
C 37	P210045	C# X7R MU 47N K 50 1206	1
C 38	P210026	C# COG MU 680P J 50 1206	1
C 39	P210122	C# X7R MU 100N K 50 1206	1
C 40	P210068	C# X7R MU 22N K 50 1206	1
C 41	P210102	C# COG MU 470P J 50 1206	1
C 42	P210029	C# COG MU 2N2J 50 1206	1
C 42	P210029	C# COG MU 2N2J 50 1206	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234196	D#BYD37J AVA SOD87	1
D 3	P234196	D#BYD37J AVA SOD87	1
D 4	P234099	D#4148 R DMMELF	1
D 5	P234099	D#4148 R DMMELF	1
D 6	P234055	D#BAT54 SCH SOT23	1
D 7	P234195	D#BAS21 SW SOT23	1
D 8	P234195	D#BAS21 SW SOT23	1
D 9	P234099	D#4148 R DMMELF	1
D 10	P234196	D#BYD37J AVA SOD87	1
D 30	R131667	D LED D3 T GN	1
D 31	P234099	D#4148 R DMMELF	1
D 32	P234099	D#4148 R DMMELF	1
D 33	P234099	D#4148 R DMMELF	1
D 34	P234099	D#4148 R DMMELF	1
D 35	P234055	D#BAT54 SCH SOT23	1
D 36	P234099	D#4148 R DMMELF	1
D 37	P234055	D#BAT54 SCH SOT23	1
D 38	P234099	D#4148 R DMMELF	1
D 39	P234099	D#4148 R DMMELF	1
D 40	P234099	D#4148 R DMMELF	1
D 41	P234099	D#4148 R DMMELF	1
D 42	P234055	D#BAT54 SCH SOT23	1
D 43	P234055	D#BAT54 SCH SOT23	1
D 44	P234099	D#4148 R DMMELF	1
D 45	P234055	D#BAT54 SCH SOT23	1
D 46	P234099	D#4148 R DMMELF	1
I 1	R134301	U 06 VPH	1
I 2	P230273	U#79L05A LM SO8 P	1
I 3	P230203	U#084 TL SO14 P	1
I 4	P230030	U#4053 SO16 I	1
I 5	P230028	U#393 LM SO8 P	1
I 6	P230293	U#082 TL SO8 P	1
J 1	R313949	J CT H MBS P 9 M2SN	1
J 2	R313945	J CT H MBS P 5 M2SN	1
J 3	R3132862	J MD1 MBT P 2 E1SN	1
L 1	P250005	L(S)FFECH 0,47M M160	1
P 1	R107004	R TCE H200E K 0W5 S 7TS	1
P 2	R107004	R TCE H200E K 0W5 S 7TS	1
P 30	R107006	R TCE H 1K K 0W5 S 7TS	1
PC	R780400	PCD#PJ56 G808 RGB OUT	1
Q 1	P232044	Q#BC859B P SS SOT23	1
Q 2	P232043	Q#BC849B N SS SOT23	1
Q 3	P232149	Q#BF821 P SS SOT23	1
Q 4	P232044	Q#BC859B P SS SOT23	1
Q 30	P232149	Q#BF821 P SS SOT23	1
Q 31	P232043	Q#BC849B N SS SOT23	1
Q 32	P232044	Q#BC859B P SS SOT23	1
Q 33	P232046	Q#BSS123 F SS SOT23	1
Q 34	P232043	Q#BC849B N SS SOT23	1
Q 35	P232101	Q#BC859C P SS SOT23	1
R 1	P200398	R# CE H300E F 0W12 1206	1
R 2	P200071	R# CE H820E J 0W12 1206	1
R 3	P200073	R# CE H 1K J 0W12 1206	1
R 4	P200045	R# CE H 68E J 0W12 1206	1
R 5	P200065	R# CE H470E J 0W12 1206	1
R 6	P200029	R# CE H 15E J 0W12 1206	1
R 7	P200059	R# CE H270E J 0W12 1206	1
R 8	P200055	R# CE H180E J 0W12 1206	1
R 9	R1033521	R MO H 22K J 4W	1
R 10	P200071	R# CE H820E J 0W12 1206	1
R 11	P200143	R# CE H820K J 0W12 1206	1
R 12	P200091	R# CE H 5K6 J 0W12 1206	1
R 13	P200009	R# CE H 2E2 J 0W12 1206	1
R 14	R103256	R MO H 47K J 2W	1
R 15	P200069	R# CE H680E J 0W12 1206	1
R 16	P200081	R# CE H 2K2 J 0W12 1206	1
R 17	P200013	R# CE H 3E3 J 0W12 1206	1
R 18	P200039	R# CE H 39E J 0W12 1206	1
R 19	P200057	R# CE H220E J 0W12 1206	1
R 20	P200432	R# CE H 7K5 F 0W12 1206	1
R 30	P200436	R# CE H 11K F 0W12 1206	1
R 31	P200421	R# CE H 2K7 F 0W12 1206	1
R 33	P200081	R# CE H 2K2 J 0W12 1206	1
R 34	P200463	R# CE H150K F 0W12 1206	1
R 35	P200463	R# CE H150K F 0W12 1206	1
R 36	P200113	R# CE H 47K J 0W12 1206	1
R 37	P200101	R# CE H 15K J 0W12 1206	1
R 38	P200085	R# CE H 3K3 J 0W12 1206	1
R 39	P200119	R# CE H 82K J 0W12 1206	1

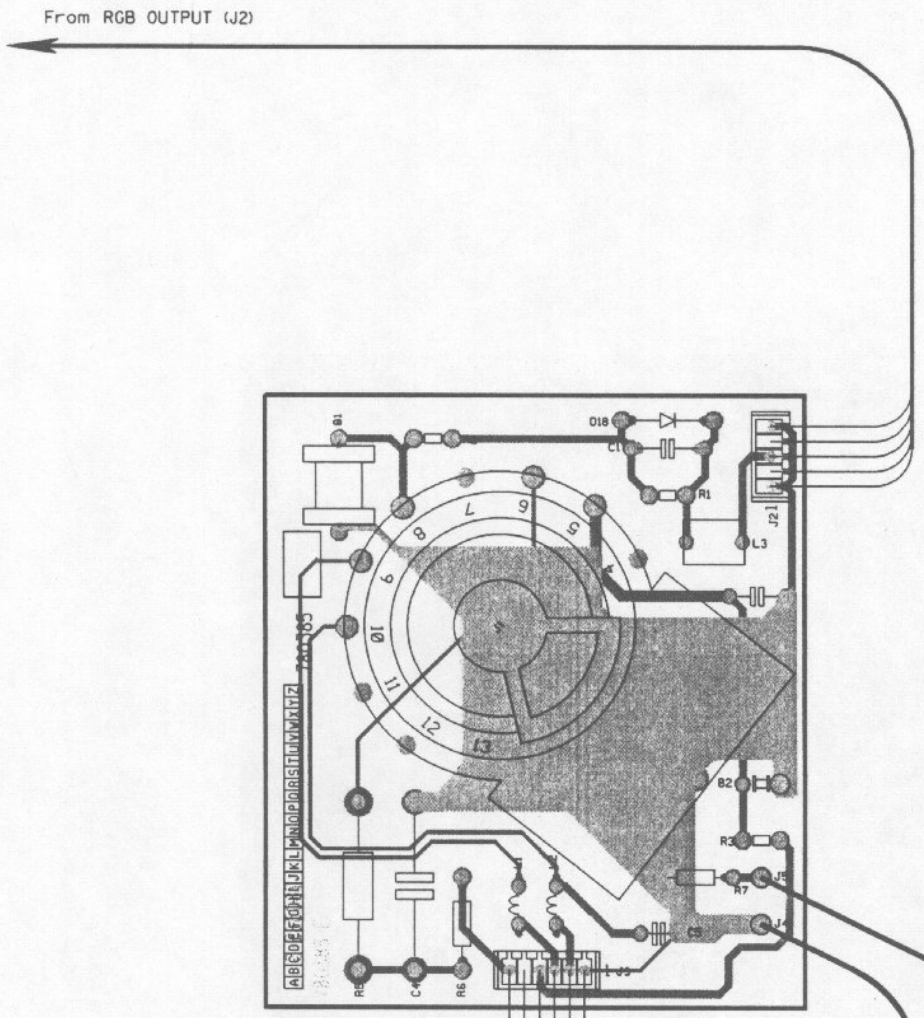
R 40	P200095	R# CE H 8K2 J 0W12 1206	1
R 41	P200143	R# CE H820K J 0W12 1206	1
R 42	P200097	R# CE H 10K J 0W12 1206	1
R 43	P200145	R# CE H 1M J 0W12 1206	1
R 44	P200049	R# CE H100E J 0W12 1206	1
R 45	P200049	R# CE H100E J 0W12 1206	1
R 46	P200129	R# CE H220K J 0W12 1206	1
R 47	P200081	R# CE H 2K2 J 0W12 1206	1
R 48	P200049	R# CE H100E J 0W12 1206	1
R 49	P200097	R# CE H 10K J 0W12 1206	1
R 50	P200101	R# CE H 15K J 0W12 1206	1
R 51	P200089	R# CE H 4K7 J 0W12 1206	1
R 52	P200432	R# CE H 7K5 F 0W12 1206	1
R 53	P200432	R# CE H 7K5 F 0W12 1206	1
R 54	P200047	R# CE H 82E J 0W12 1206	1
R 55	P200435	R# CE H 10K F 0W12 1206	1
R 56	P200047	R# CE H 82E J 0W12 1206	1
R 57	P200443	R# CE H 22K F 0W12 1206	1
R 58	P200085	R# CE H 3K3 J 0W12 1206	1
R 59	P200121	R# CE H100K J 0W12 1206	1
R 60	P200121	R# CE H100K J 0W12 1206	1
R 61	P200398	R# CE H300E F 0W12 1206	1
R 62	P200398	R# CE H300E F 0W12 1206	1
R 63	P200398	R# CE H300E F 0W12 1206	1
R 64	P200071	R# CE H820E J 0W12 1206	1
R 65	P200071	R# CE H820E J 0W12 1206	1
R 66	P200097	R# CE H 10K J 0W12 1206	1
R 67	P200049	R# CE H100E J 0W12 1206	1
R 68	P200109	R# CE H 33K J 0W12 1206	1
R 69	P200073	R# CE H 1K J 0W12 1206	1
R 70	P200097	R# CE H 10K J 0W12 1206	1
R 71	P200089	R# CE H 4K7 J 0W12 1206	1
SR 1	⚠R1011009	R CFFH 1E J 0W25	1
SR 2	⚠R1011129	R CFFH 10E J 0W25	1
SR 3	⚠R1011009	R CFFH 1E J 0W25	1
SR 4	⚠R1011369	R CFFH 1K J 0W25	1
TP 1	R313729	J PIN TESTEYE	1
Z 1	P234268	D#BZV55C6V8 DMMELF	1
Z 2	P234268	D#BZV55C6V8 DMMELF	1
Z 3	P234021	D#ZEN 18V 0W5 C DMMELF	1
Z 4	P234268	D#BZV55C6V8 DMMELF	1
Z 5	P234102	D#ZEN 75V 0W5 B DMMELF	1
Z 6	P234102	D#ZEN 75V 0W5 B DMMELF	1
Z 7	P234101	D#ZEN 36V 0W5 B DMMELF	1
Z 8	P234021	D#ZEN 18V 0W5 C DMMELF	1
Z 9	P234178	D#ZEN 9V1 0W5 C DMMELF	1



CRT Socket/Assembly R762508

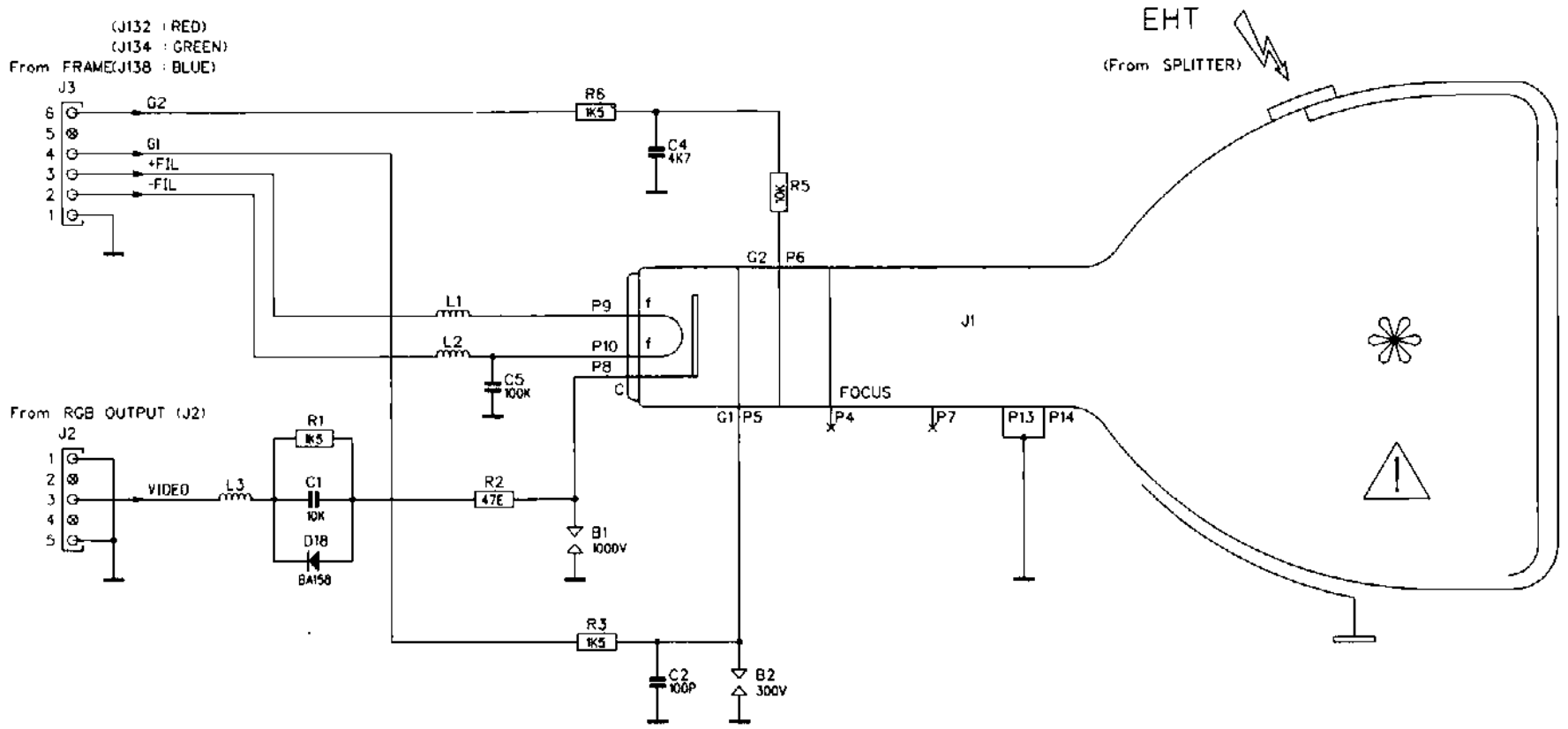
CRT Socket R762508





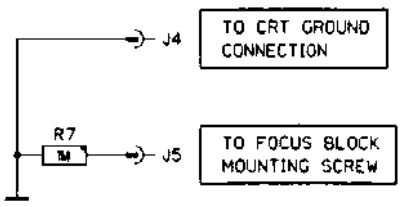
Name	CRT SOCKET	Article nr.	76 2508
Date	29-05-1995	Drawn	JVDY
		Checked	PDG

BARCO PROJECTION SYSTEMS



PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH x 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.



BARCO PROJECTION SYSTEMS

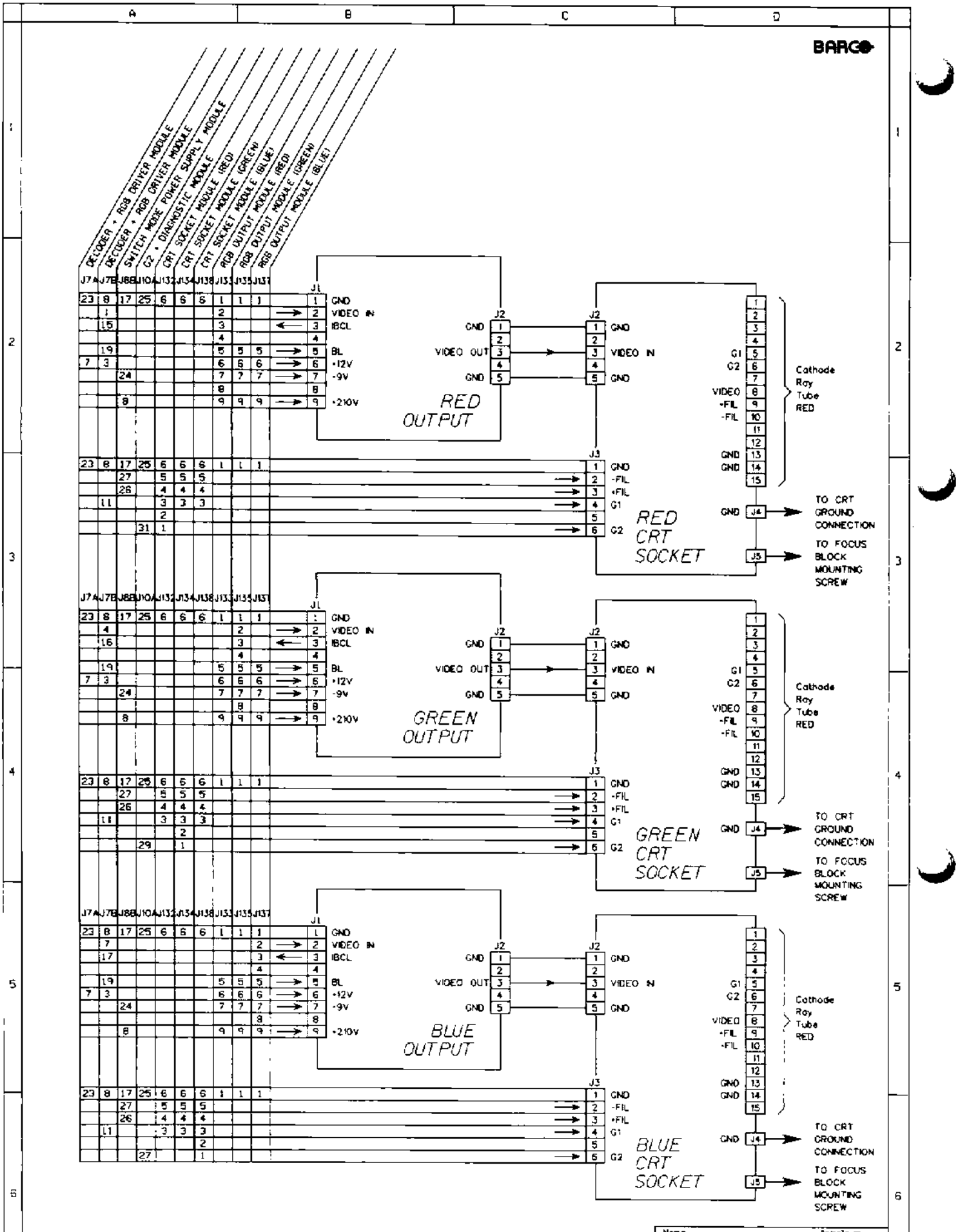
Name	Article nr.
CRT SOCKET	76 2508
Date: 17-05-1995	Drawn: JVDY
	Checked: PDC

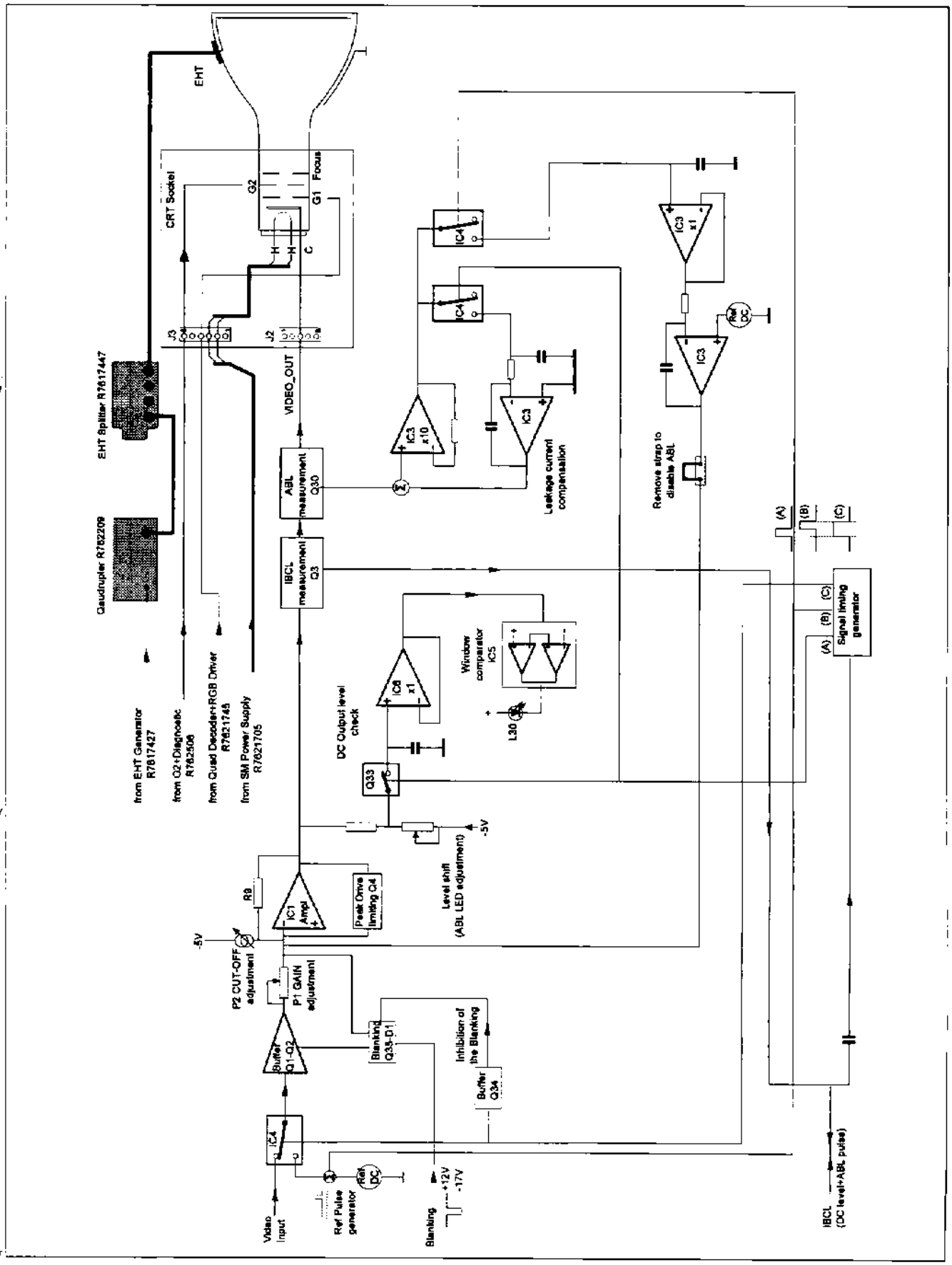
Sheet 1

Modifications reserved

BARCO

7803B5


BARCO
DECODER + RGB DRIVER MODULE
DECODER + RGB DRIVER MODULE
SWITCH MODE POWER SUPPLY MODULE
G2 + DIAGNOSTIC MODULE
CRT SOCKET MODULE (RED)
CRT SOCKET MODULE (GREEN)
CRT SOCKET MODULE (BLUE)
RGB OUTPUT MODULE (RED)
RGB OUTPUT MODULE (GREEN)
RGB OUTPUT MODULE (BLUE)
J7 J7 J8 J8 J10 J132 J134 J138 J133 J135 J137
GND
VIDEO IN
IBCL
BL
+12V
-9V
+210V
RED OUTPUT
GREEN OUTPUT
BLUE OUTPUT
VIDEO OUT
VIDEO IN
G1
G2
VIDEO
+FIL
-FIL
Cathode Ray Tube RED
RED CRT SOCKET
GREEN CRT SOCKET
BLUE CRT SOCKET
TO CRT GROUND CONNECTION
TO FOCUS BLOCK MOUNTING SCREW
Name
OUTPUT & CRT SOCKET
Article nr.
76 2508
Date
19-05-1995
Drawn
JVDY
Checked
PDG
BARCO PROJECTION SYSTEMS
Modifications reserved
Sheet 1


EHT
CRT Socket
G2
G1 Focus
H
H
C
J3
J2
EHT Splitter R7617447
Quadrupler R762209
VIDEO_OUT
ABL measurement Q30
IBCL measurement Q3
IC4
IC3 x1
IC3 x10
IC3
Leakage current compensation
Remove strap to disable ABL
(A)
(B)
(C)
Signal timing generator
Window comparator IC5
IC6 x1
L30
DC Output level check
Q33
-5V
Level shift (ABL LED adjustment)
R9
IC1 Ampl
Peak Drive limiting Q4
P2 CUT-OFF adjustment
P1 GAIN adjustment
Buffer Q1-Q2
Blanking Q33-D1
Inhibition of the Blanking
Buffer Q34
Ref DC
Ref Pulse generator
Blanking
+12V
-17V
Video Input
IBCL (DC level+ABL pulse)
from EHT Generator R7617427
from Q2+Diagnostic R762508
from Quad Decoder+RGB Driver R7621748
from SM Power Supply R7621705

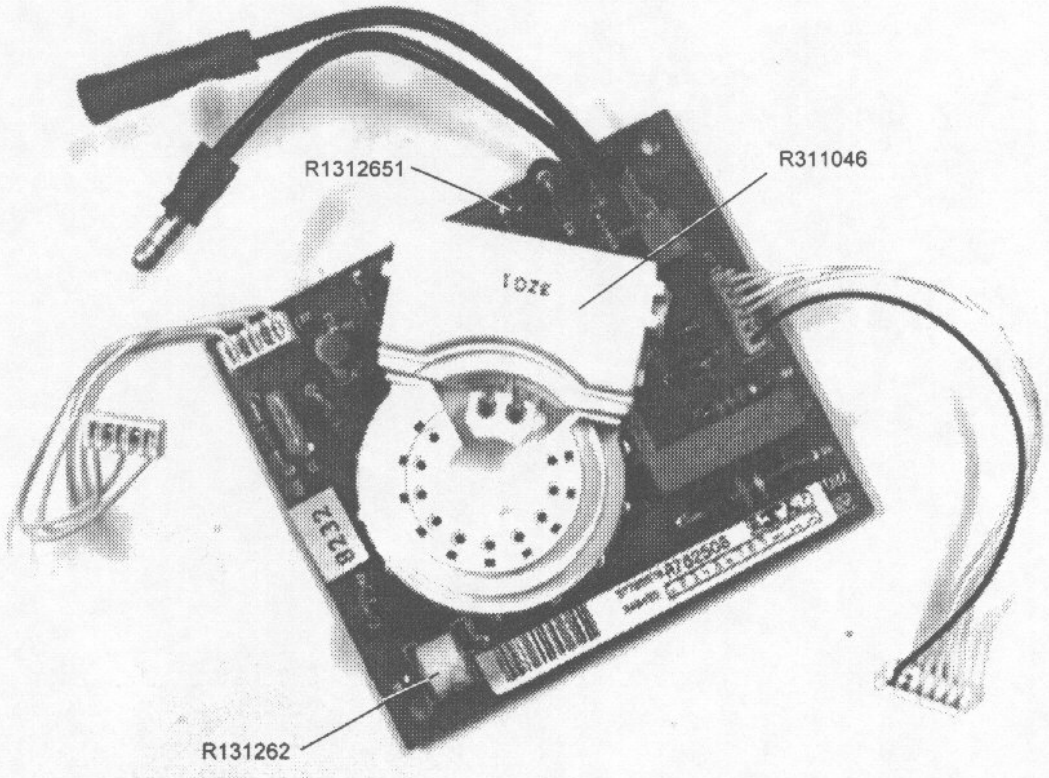
Parts listing CRT Socket R762508

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R3421902	CD SO 1015AWG18BK 90	1
	R3421903	CD PIN 1015AWG18BK 90	1
	R3484054	CD CT $FTMS P 5 100	1
	R3484069	CD CT $FTMT P 6 110	1
B 1	R131262	TUBE SURGE PROT 1000V AX	1
B 2	R1312651	TUBE SURGE PROT 300V RA	1
C 1	R114120	C POMERA 10N K250E4 85	1
C 2	R1120902	C CE DI 100P K202E3 HV	1
C 4	R111773	C PPMERA 4N7J162E9 HV	1
C 5	R1140426	C POMERA 100N K250E2 85	1
D 18	R131637	D R BA158 600400 DO7	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
J 1	R311046	J CRT FBT T180 SKT	1
L 1	R3061322	CH AX NS 10 UH	1
L 2	R3061322	CH AX NS 10 UH	1
L 3	B3061122	CH AX NS 0,22UH 0,99A	1
PC	R780385	PCD PJ56 G808 CRT SKT	1
R 1	R102138	R CC H 1K5 K 1W	1
R 2	R102120	R CC H 47E K 1W	1
R 3	R102138	R CC H 1K5 K 1W	1
R 5	R102148	R CC H 10K K 1W	1
R 6	R102038	R CC H 1K5 K 0W5	1
R 7	R101172	R CF H 1M J 0W25	1

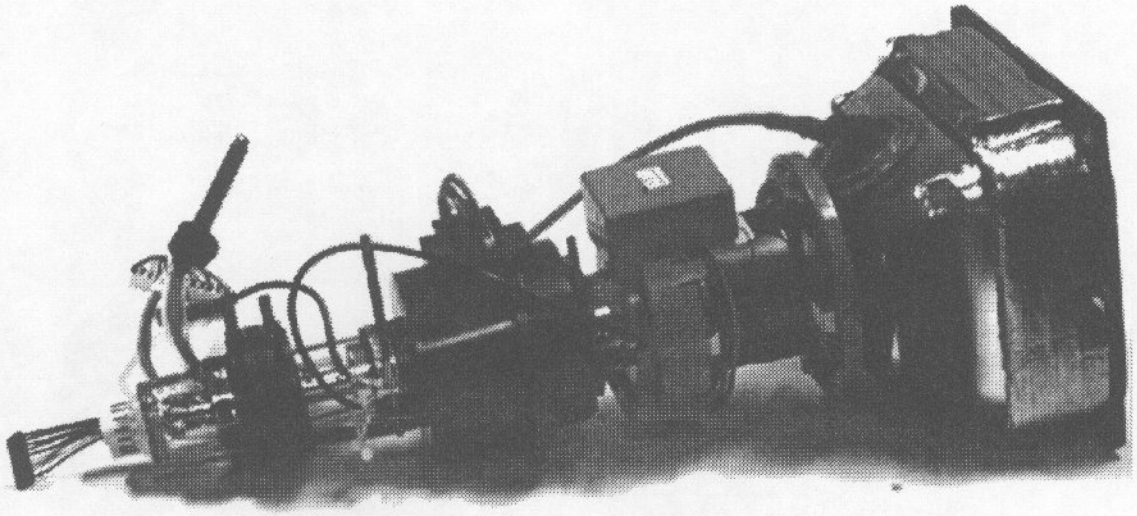
PRODUCT SAFETY NOTICE

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



CRT Unit

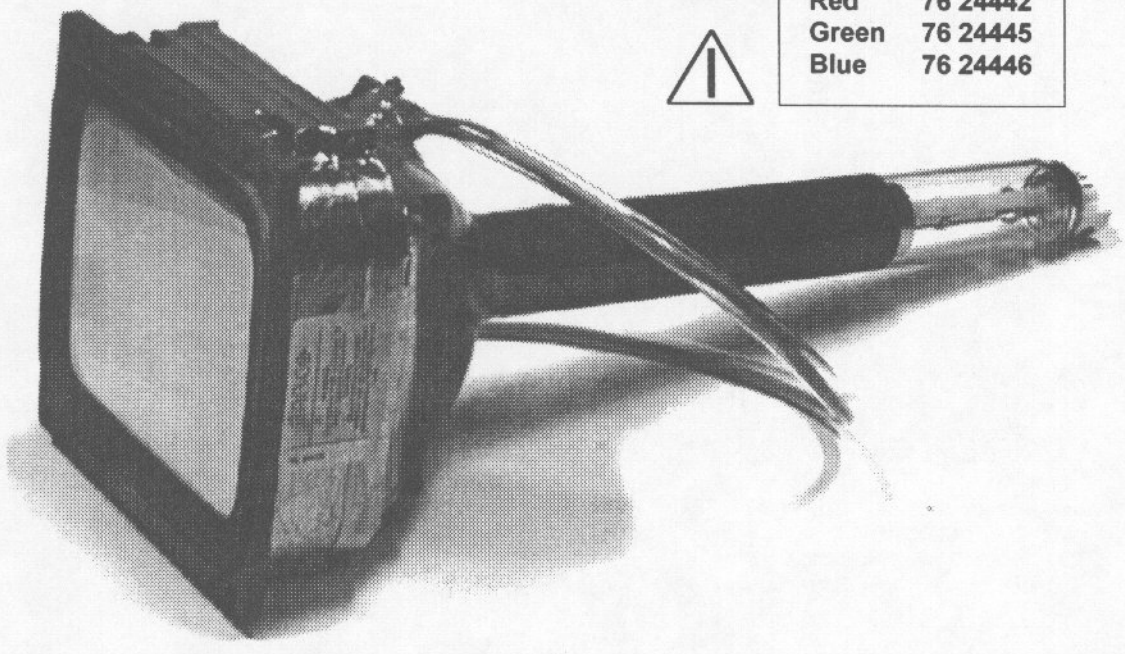
CRT Unit Blue CRT Unit Green CRT Unit Red

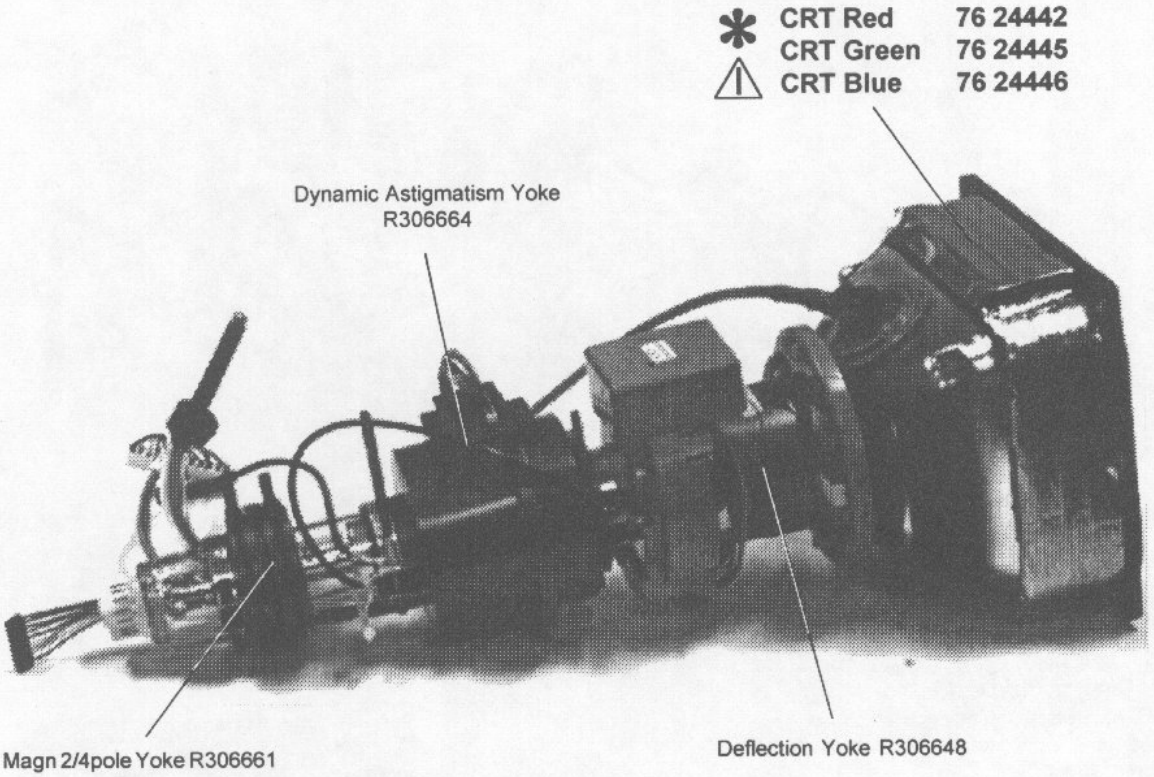


PRODUCT SAFETY NOTICE

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

Order N° CRT	
Red	76 24442
Green	76 24445
Blue	76 24446



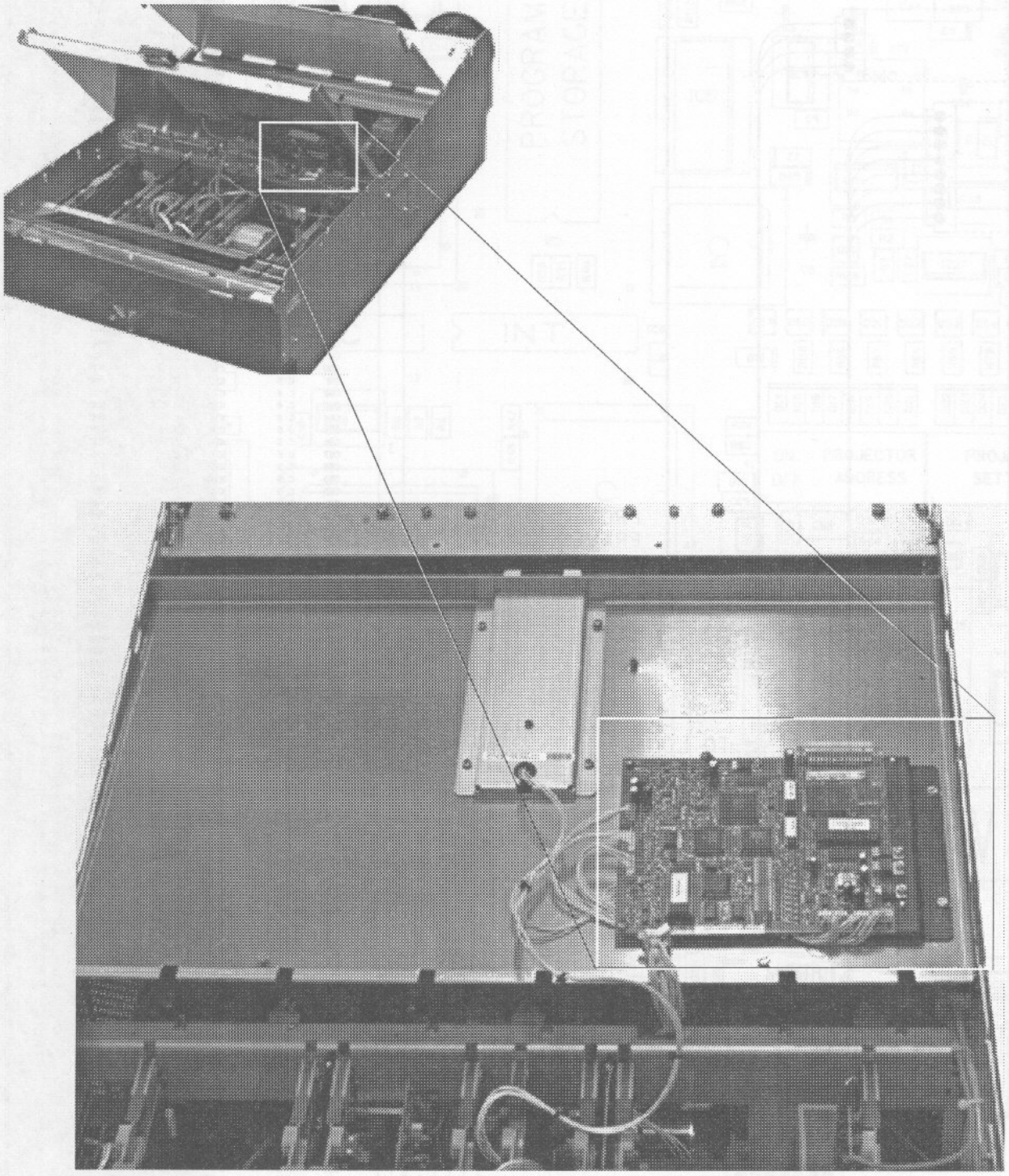


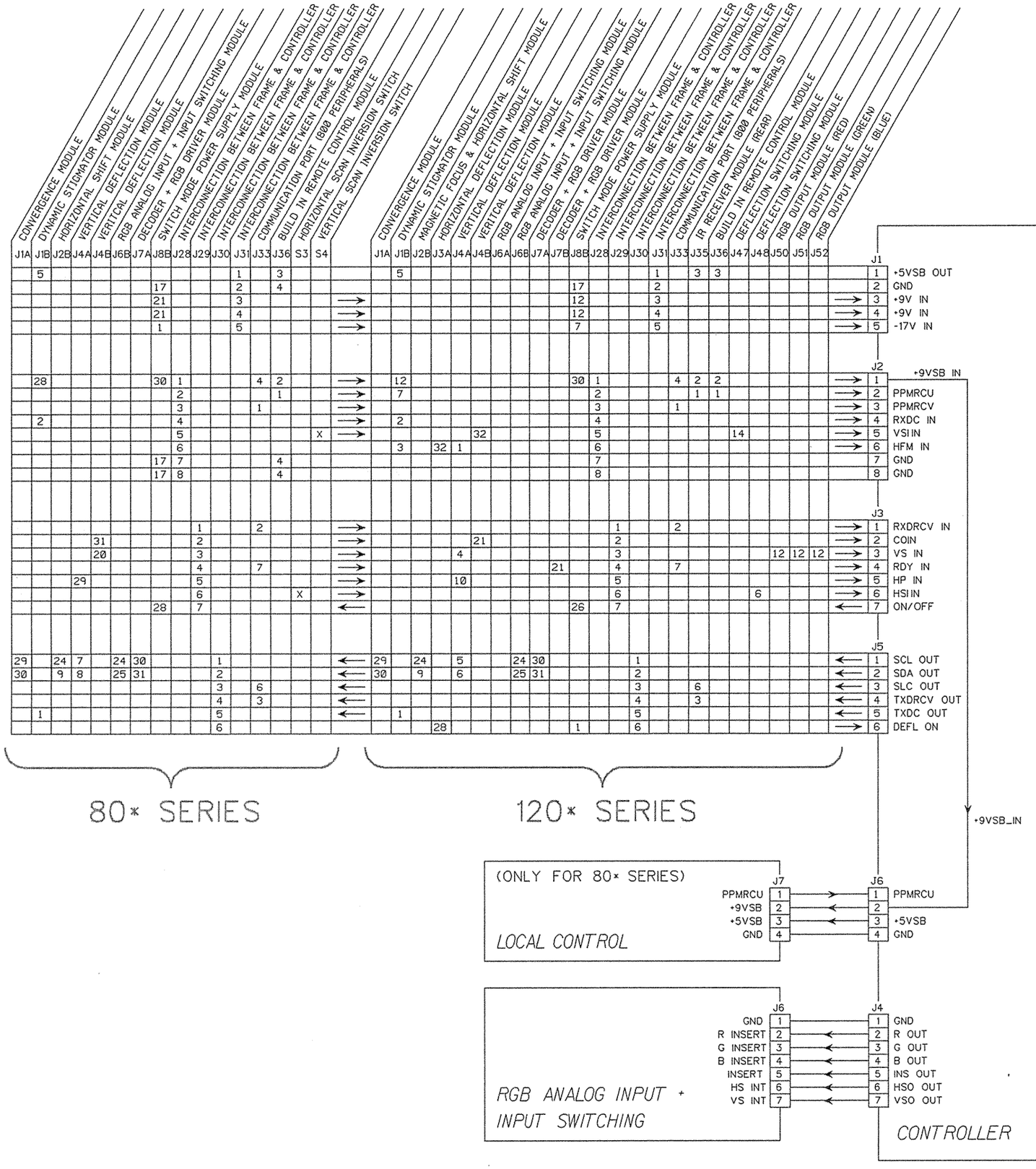
PRODUCT SAFETY NOTICE

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

Controller module

R7625115





Name		Article nr.
CONTROLLER		76 25115
Date	Drawn	Checked
16-06-1995	JVDY	GT

BARCO PROJECTION SYSTEMS

Modifications reserved

Sheet 1

SCHEMATIC NAME: ctrlcon.sch SHEET NUMBER: 1 DATE: Jun 28, 1995

780382-2

ASIC & PLL

BARCO

SHEET		
SHEET 1	MICRO-PROCESSOR	>uP
SHEET 2	ASIC & PLL	>ASIC
SHEET 3	REAL WORLD INTERFACE	>RWI
SHEET 4	INPUT/OUTPUT & SUPPLY	>I/O

(COMPONENTS MARKED WITH •• ARE NOT MOUNTED)

Modifications reserved

Name: ASIC & PLL		Article nr.: 76 25115-2
Date: 12-06-1995	Drawn: JVDY	Checked: GT
BARCO PROJECTION SYSTEMS		

SCHEMATIC NAME: ctrl.sch SHEET NUMBER: 2 DATE: Jun 28, 1995

780382-2

BARCO

MICRO-PROCESSOR

POWER UP RESET

CLOCK GENERATOR

DATA STORAGE

INTERRUPT HANDLER & RD/WR SEPARATOR

ADDRESS DECODER & CHIP SELECTION

CONNECTOR IRIS

ADDRESS BUFFER IRIS

DATA BUFFER IRIS

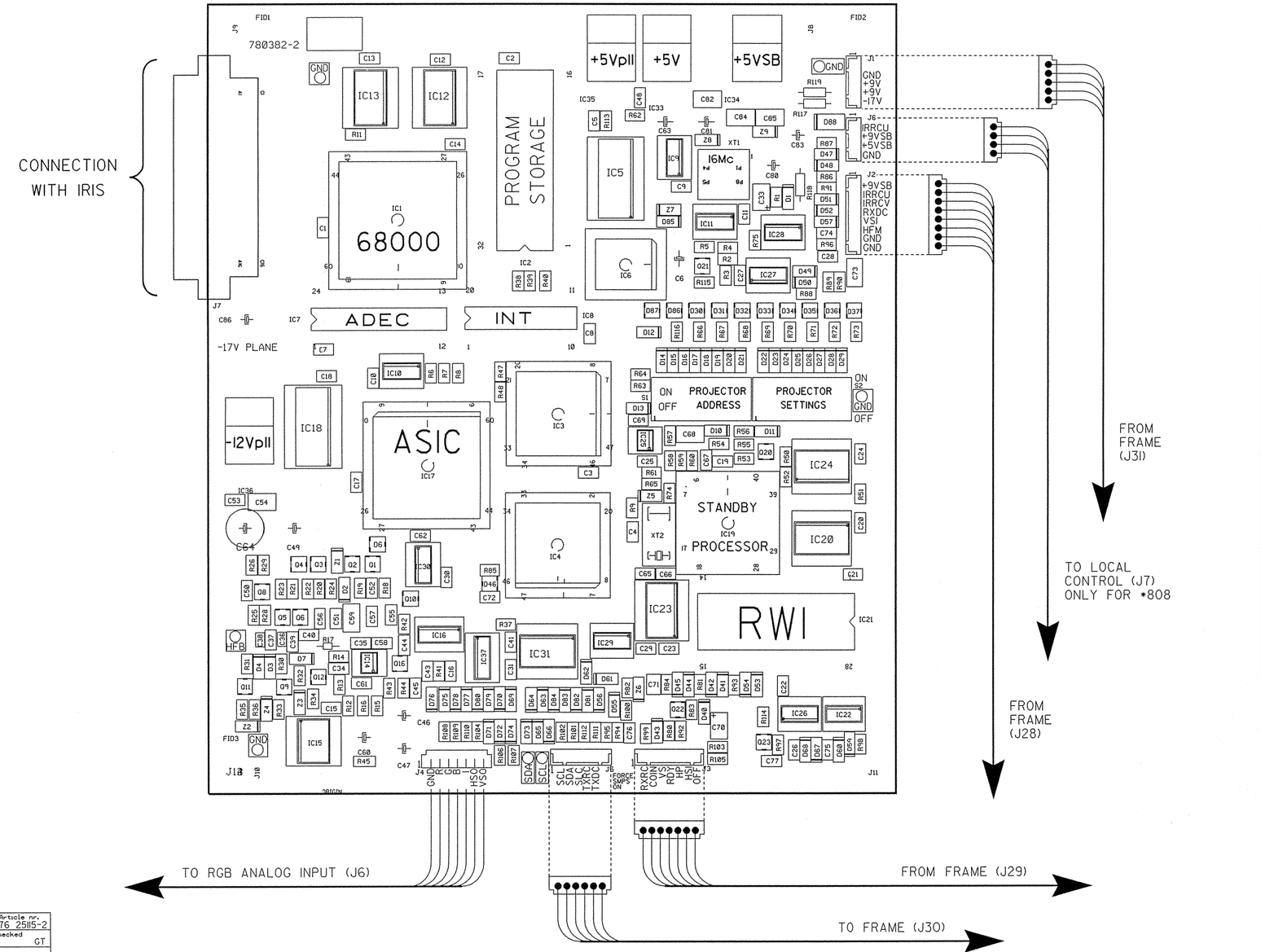
PROGRAM STORAGE

SHEET 1	MICRO-PROCESSOR	>uP
SHEET 2	ASIC & PLL	>ASIC
SHEET 3	REAL WORLD INTERFACE	>RWI
SHEET 4	INPUT/OUTPUT & SUPPLY	>I/O

Modifications reserved

Name: MICRO-PROCESSOR		Article nr.: 76 25115-2
Date: 08-06-1995	Drawn: JVDY	Checked: GT
BARCO PROJECTION SYSTEMS		

SCHEMATIC NAME: ctrl.sch SHEET NUMBER: 1 DATE: Jun 28, 1995



Name	Article nr.
CONTROLLER	76 25115-2
Date: 15-06-1995 / Drawn: JVDY / Checked: GT	

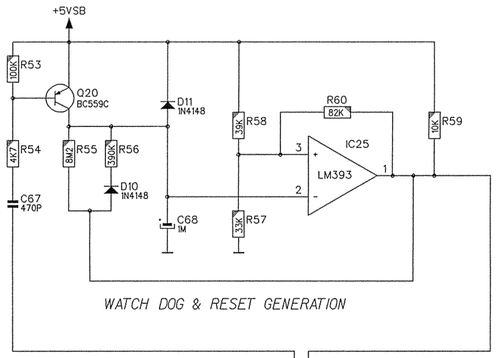
BARCO PROJECTION SYSTEMS

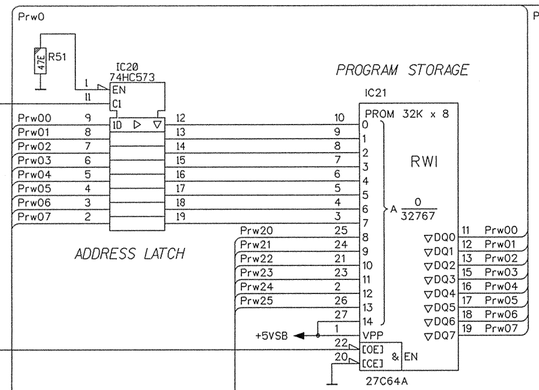
Modifications reserved

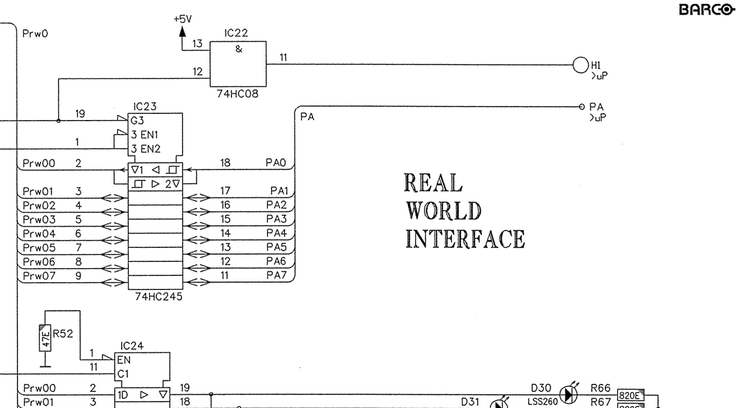
COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C1	C 3	D56	D 5	R30	C 5
C2	D 2	D57	E 3	R31	C 5
C3	D 4	D59	F 5	R32	C 5
C4	E 4	D60	F 5	R33	C 5
C5	D 2	D61	D 5	R34	C 5
C6	E 3	D62	D 5	R35	C 5
C7	C 3	D63	D 5	R36	C 5
C8	D 3	D64	D 5	R37	D 5
C9	E 2	D65	D 5	R38	D 3
C10	C 3	D66	D 5	R39	D 3
C11	E 3	D67	E 5	R40	D 3
C12	D 2	D68	E 5	R41	D 5
C13	C 2	D69	D 5	R42	C 5
C14	D 2	D70	D 5	R43	C 5
C15	C 5	D71	D 5	R44	C 5
C16	D 5	D72	D 5	R45	C 5
C17	C 4	D73	D 5	R47	D 3
C18	C 3	D74	D 5	R48	D 3
C19	E 4	D75	D 5	R50	E 4
C20	F 4	D76	D 5	R51	F 4
C21	E 4	D77	D 5	R52	E 4
C22	E 5	D78	D 5	R53	E 4
C23	E 5	D79	D 5	R54	E 4
C24	F 4	D80	D 5	R55	E 4
C25	E 4	D81	D 5	R56	E 4
C26	E 5	D82	D 5	R57	E 4
C27	E 3	D83	D 5	R58	E 4
C28	E 3	D84	D 5	R59	E 4
C29	E 3	D85	E 3	R60	E 4
C30	D 4	D86	E 3	R61	E 4
C31	D 5	D87	E 3	R62	E 2
C33	E 2	D88	E 2	R63	E 3
C34	C 5			R64	E 3
C35	C 5	FID1	C 2	R65	E 4
C36	C 5	FID2	F 2	R66	E 3
C37	C 5	FID3	C 5	R67	E 3
C38	C 5			R68	E 3
C39	C 5	IC1	C 2	R69	E 3
C40	C 5	IC2	D 3	R70	E 3
C41	D 5	IC3	D 4	R71	E 3
C43	D 5	IC4	D 4	R72	E 3
C44	C 5	IC5	D 2	R73	F 3
C45	D 5	IC6	D 3	R74	E 4
C46	D 5	IC7	D 3	R75	E 3
C47	C 5	IC8	D 3	R80	E 5
C48	E 2	IC9	E 2	R81	E 5
C49	C 4	IC10	C 3	R82	E 5
C50	C 4	IC11	E 3	R83	E 5
C51	C 5	IC12	D 2	R84	E 5
C52	C 4	IC13	C 2	R85	D 4
C53	C 4	IC14	C 5	R86	E 2
C54	C 4	IC15	C 5	R87	E 2
C55	C 5	IC16	C 5	R88	E 3
C56	C 5	IC17	D 4	R89	F 3
C57	C 5	IC18	C 4	R90	F 3
C58	C 5	IC19	E 4	R91	E 2
C59	C 5	IC20	E 4	R92	E 5
C60	C 5	IC21	F 5	R93	E 5
C61	C 5	IC22	F 5	R94	D 5
C62	C 4	IC23	E 5	R95	D 5
C63	E 2	IC24	E 4	R96	E 3
C64	E 4	IC25	E 4	R97	E 5
C65	E 4	IC26	E 5	R98	F 5
C66	E 4	IC27	E 3	R99	E 5
C67	E 4	IC28	E 3	R100	E 5
C68	E 4	IC29	D 5	R101	D 5
C69	E 4	IC30	C 4	R102	D 5
C70	E 5	IC31	D 5	R103	E 5
C71	E 5	IC33	E 2	R104	D 5
C72	D 4	IC34	E 2	R105	E 5
C73	F 3	IC35	D 2	R106	D 5
C74	E 3	IC36	C 4	R107	D 5
C75	F 5	IC37	D 5	R108	D 5
C76	E 5			R109	D 5
C77	E 5	J1	F 2	R110	D 5
C80	E 2	J2	F 2	R111	D 5
C81	E 2	J3	E 5	R112	D 5
C82	E 2	J4	C 5	R113	D 2
C83	E 2	J5	D 5	R114	E 5
C84	E 2	J6	F 2	R115	E 3
C85	E 2	J7	C 3	R116	E 3
C86	C 3	J8	E 2	R117	E 2
		J9	C 2	R118	E 2
D1	E 2	J10	C 5	R119	E 2
D2	C 4	J11	F 5		
D3	C 5	J12	C 5	S1	E 3
D4	C 5	J13	C 5	S2	F 3
D6	C 4	J14	C 5		
D7	C 5			XT1	E 2
D10	E 4	Q1	C 4	XT2	E 4
D11	E 4	Q2	C 4		
D12	E 3	Q3	C 4	Z1	C 4
D13	E 3	Q4	C 4	Z2	C 5
D14	E 3	Q5	C 5	Z3	C 5
D15	E 3	Q6	C 5	Z4	C 5
D16	E 3	Q8	C 4	Z5	E 4
D17	E 3	Q9	C 5	Z6	C 5
D18	E 3	Q10	C 4	Z7	E 2
D19	E 3	Q11	C 5	Z8	E 2
D20	E 3	Q12	C 5	Z9	E 2
D21	E 3	Q16	C 5		
D22	E 3	Q20	E 4		
D23	E 3	Q21	E 3		
D24	E 3	Q22	E 5		
D25	E 3	Q23	E 5		
D26	E 3				
D27	E 3	R1	E 2		
D28	F 3	R2	E 3		
D29	F 3	R3	E 3		
D30	E 3	R4	E 3		
D31	E 3	R5	E 3		
D32	E 3	R6	D 3		
D33	E 3	R7	D 3		
D34	E 3	R8	D 3		
D35	E 3	R9	E 4		
D36	E 3	R11	C 2		
D37	F 3	R12	C 5		
D40	E 5	R13	C 5		
D41	E 5	R14	C 5		
D42	E 5	R15	C 5		
D43	E 5	R16	C 5		
D44	E 5	R17	C 5		
D45	E 5	R18	C 4		
D46	D 4	R19	C 4		
D47	E 2	R20	C 4		
D48	E 2	R21	C 4		
D49	E 3	R22	C 4		
D50	E 3	R23	C 4		
D51	E 2	R24	C 4		
D52	E 2	R25	C 5		
D53	E 5	R26	C 4		
D54	E 5	R28	C 5		
D55	D 5	R29	C 4		

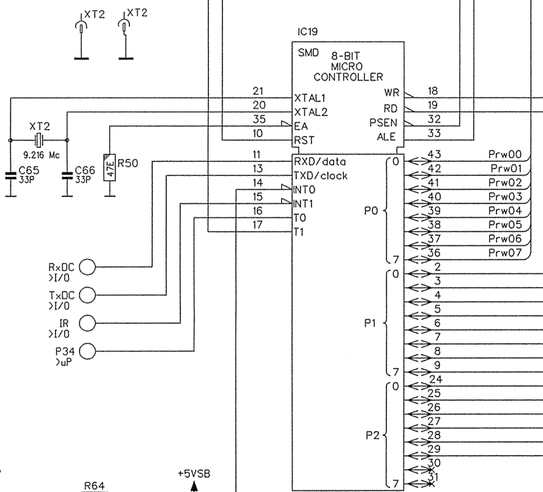
780382-2

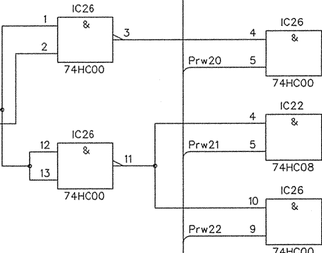
BARCO

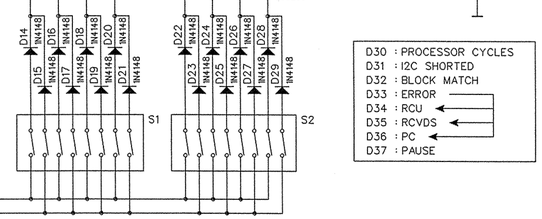






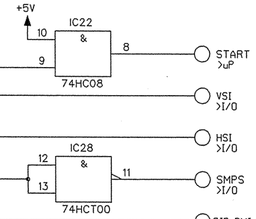


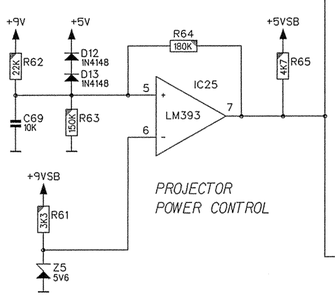




D30 : PROCESSOR CYCLES
D31 : I2C SHORTED
D32 : BLOCK MATCH
D33 : ERROR
D34 : RCU
D35 : RCVDS
D36 : PC
D37 : PAUSE

S1 : 1....8 PROJECTOR ADDRESS
S2 : 1,2,3 RESERVED
S2 : 4 POWER UP MODE
S2 : 5 PASSWORD MODE
S2 : 6,7,8 BAUD RATE CODE





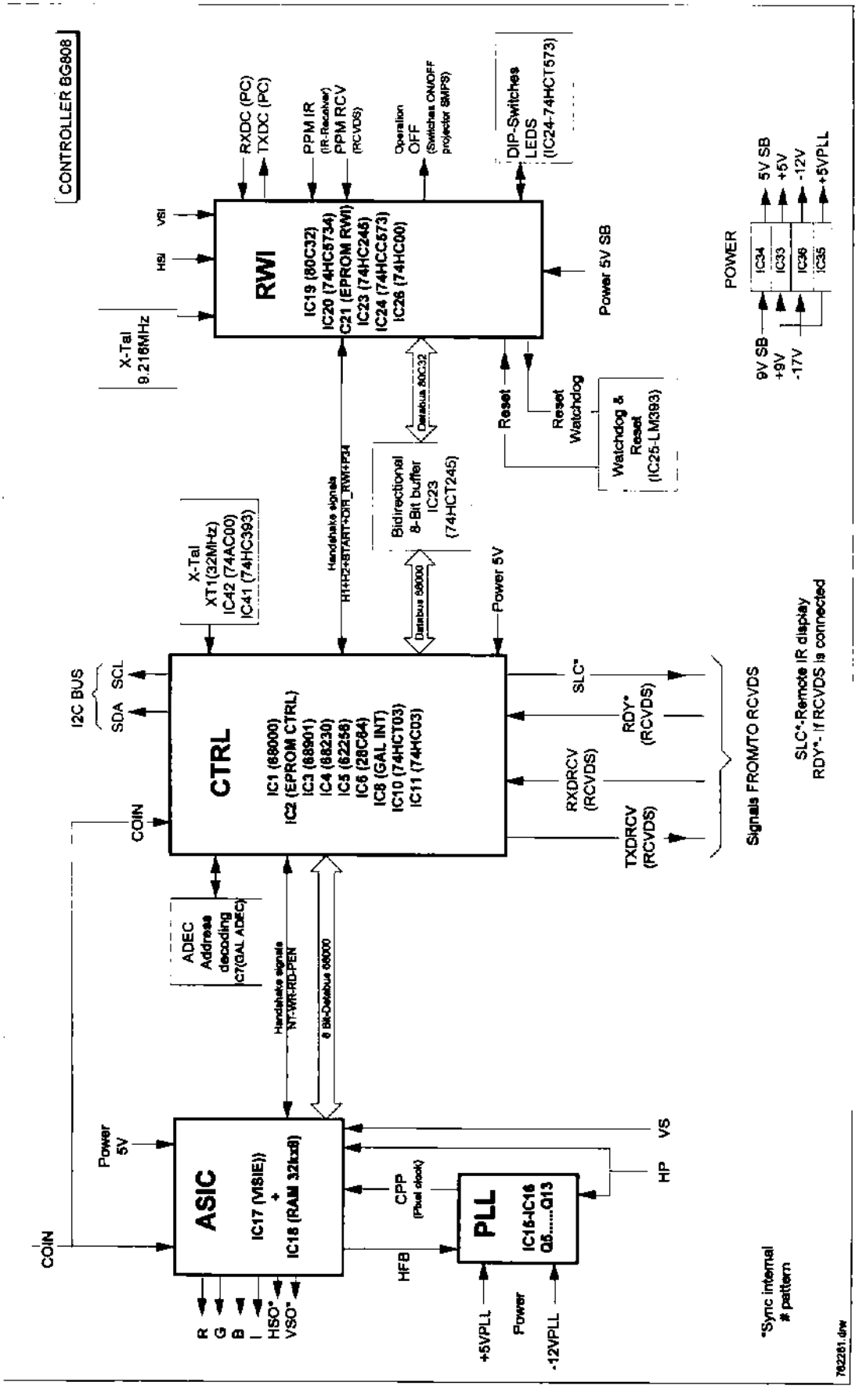
SHEET 1	MICRO-PROCESSOR	>uP
SHEET 2	ASIC & PLL	>ASIC
SHEET 3	REAL WORLD INTERFACE	>RWI
SHEET 4	INPUT/OUTPUT & SUPPLY	>I/O

Modifications reserved

Name REAL WORLD INTERFACE		Article nr. 76 25115-2
Date 13-06-1995	Drawn JVDY	Checked GT
BARCO PROJECTION SYSTEMS		

J Sheet 3

SCHEMATIC NAME: ctrl.sch SHEET NUMBER: 3 DATE: Jun 28, 1995


CONTROLLER BG808
RWI
IC19 (80C32)
IC20 (74HC5734)
C21 (EPROM RWI)
IC23 (74HC245)
IC24 (74HCC573)
IC26 (74HC00)
X-Tal
9.216MHz
VSI
HSI
RXDC (PC)
TXDC (PC)
PPM IR
(IR-Receiver)
PPM RCV
(RCVDS)
Operation
OFF
(Switches ON/OFF
projector SMPS)
DIP-Switches
LEDS
(IC24-74HCT573)
Power 5V SB
Databus 80C32
Reset
Reset
Watchdog
Watchdog &
Reset
(IC25-LM393)
Bidirectional
8-Bit buffer
IC23
(74HCT245)
Handshake signals
H1=H2=START=DIR_RWI=P34
POWER
IC34
IC33
IC36
IC35
5V SB
+5V
-12V
+5VPLL
9V SB
+9V
-17V
CTRL
IC1 (68000)
IC2 (EPROM CTRL)
IC3 (68901)
IC4 (68230)
IC5 (62256)
IC6 (28C64)
IC8 (GAL INT)
IC10 (74HCT03)
IC11 (74HCD3)
X-Tal
XT1(32MHz)
IC42 (74AC00)
IC41 (74HC393)
Databus 68000
Power 5V
I2C BUS
SDA
SCL
COIN
SLC*
RDY*
(RCVDS)
RXDRCV
(RCVDS)
TXDRCV
(RCVDS)
Signals FROM/TO RCVDS
SLC*-Remote IR display
RDY*- If RCVDS is connected
ADEC
Address
decoding
IC7(GAL ADEC)
Handshake signals
R1-WR-RD-PEN
8 Bit-Databus 68000
ASIC
IC17 (MSIE)
+
IC18 (RAM 32kx8)
Power
5V
COIN
CPP
(Pixel clock)
HFB
PLL
IC15-IC16
Q5.....Q13
VS
HP
R
G
B
I
HSO*
VSO*
+5VPLL
Power
-12VPLL
*Sync internal
pattern
7622261.drw

TECHNICAL DESCRIPTION " CONTROLLER "

Introduction.

The controller module can be divided into four blocks : the RWI (Real World Interface), CTRL (Controller), ASIC and PLL.

Each block has a typical function, but, needs information from the other blocks. These connections are realised by the address / data bus or by "handshake" signals. Address and data are split by a GAL - ADEC (**A**ddress DE**C**oder).
The schematic diagram consists of 4 sheets : Sheet 1=Controller , Sheet 2=ASIC+PLL, Sheet 3=RWI and Sheet 4=I/O + Power Supplies.

Real World Interface

The RWI is responsible for the communication with the peripheral circuitry of the projector, more in particular the PPM (Pulse Position Modulated) commands. These commands can come in via the IR receiver, coming straight from the attached keypad, via the PC communication (RS232) port or the RCVDS port.
This electronic part must be supplied from the +9V**SB** supply line, as it must be ready in stand-by to respond to an ON command. The state of the switching transistor Q23 (on the I/O) is determined by the *"SMPS"* line. This is the output pin 11 of IC28, which is supplied from the micro-controller IC19. Whether this line is high or low at the moment the mains is supplied, depends on the DIP switch position "Power ON/OFF" (S2, switch 4).
The data bus of the RWI micro-controller IC19 is connected with the main controller IC2 via a bi-directional buffer IC23.
The multiplexed address/data bus P0 of the microcontroller drives the LEDs D30 - D37 and the DIP switches via the buffer IC24 (74HCT573).

Watchdog - 9 Volt Watch

The watchdog is built around IC25 pins 1 - 2 - 3 and Q20 transistor. At switching on the projector, the +5VSB is supplied to this circuit. As C68 is not charged at switching on, the output pin 1 is high for a moment in order to reset the microcontroller at pin 10 of IC19 (RST). Pin 3 of IC25 is set at half the supply voltage. The microcontroller triggers the watchdog via C67 in order to keep charged the capacitor C68 by conduction of Q20.
If the processor gets blocked for any reason, the level detector output pin 1 comes high and resets the controller as described before. The watchdog has as task to restart the controller when it gets blocked for some reason.
When, during an arcing in a CRT the +5V supply is temporarily shorted, the microprocessor can get in trouble. For that reason, the other level detector in IC25 monitors the 9V (9VWATCH). The output of this detector is connected to the **INT0** of the processor.

Controller (CTRL)

The Controller is built aroound the chipset 68000=microprocessor, 68230 and 68901. The chip 68230 and 68901 provide the in-/output bit (e.g. PLL-drive, I²C coincidence...), the bus connection with the RWI, the serial communication with the RCVDS and the interrupt-inputs.
The Gal IC7 is the address decoder; all I/O are memory mapped. At the same time IC7 provides the DTACK (data acknowledge) of the other components to the 68000.
The Gal IC8 provides for the interrupt management and separates RD and WR from RD/WR.
The information adjusted by the user regarding the settings of the different blocks (memory blocks) are stocked in the E²PROM IC6.

The clockgenerator is built around IC1/XT1. The buffered TXDRCV and RXDRCV are the communication lines with the switcher / selector RCVDS800 or RCVDS05. The RDY line (Ready line) informs the microprocessor on the status of the switcher (powered up or powered down).

ASIC

The ASIC IC17 integrates different functions and is custom made for this application. This chip is amongst others responsible for the generation and synchronisation of the text that must be projected on request. The text or pixel information is loaded by the controller into the RAM IC18. Eight bytes are loaded into the RAM via the ASIC during the HFB time. (For that reason, the controller cannot start up when there are no HFB pulses available from the ASIC).

When an external source is selected, the ASIC measures 'frequently' the line and vertical frequencies and informs the main processor if there are changes (change of resolution mode or change of source....).
The pixelclock, generated by the VCO of the PLL, is sent to the ASIC where it is divided down to *HFB* and returned to the phase comparator of the PLL.

When an internal pattern is selected, required by the user or automatically at starting up, the ASIC generates sync signals HSO and VSO.
The R, G and B together with the INSERT are buffered with IC31 and further proceed to the RGB INPUT + SW module.

PLL

The PLL consists of the digitally edge controlled phase comparator IC15, the low pass filter around IC14, the VCO (Q1 - Q12) and the internal divider in the ASIC. The VCO is a sawtooth generator. C36 is charged up via Q5, driven in the base with the low pass filter output. Note that 0 volts on the base means the maximum frequency. The VCO_0/1/2 lines can turn on transistors and then additional current is available for the generator.
Via the emitterfollower Q1 and the buffer in IC39, the pixelclock is applied to the CPP input of the ASIC. The PLL phase comparator has a double task. Tune the frequency of the VCO to a multiple of the line frequency and lock the position of the text to the deflection.
The active line period is divided into 256 pixels to position 32 characters on a line in the low frequency range and into 512 pixels (64 characters) in the high freq. range (see Hor defl module) .
The *HFM* line informs the processor and thus the PLL on the flyback time, this information is needed to determine the pixel frequency of the PLL.

Coincidence .

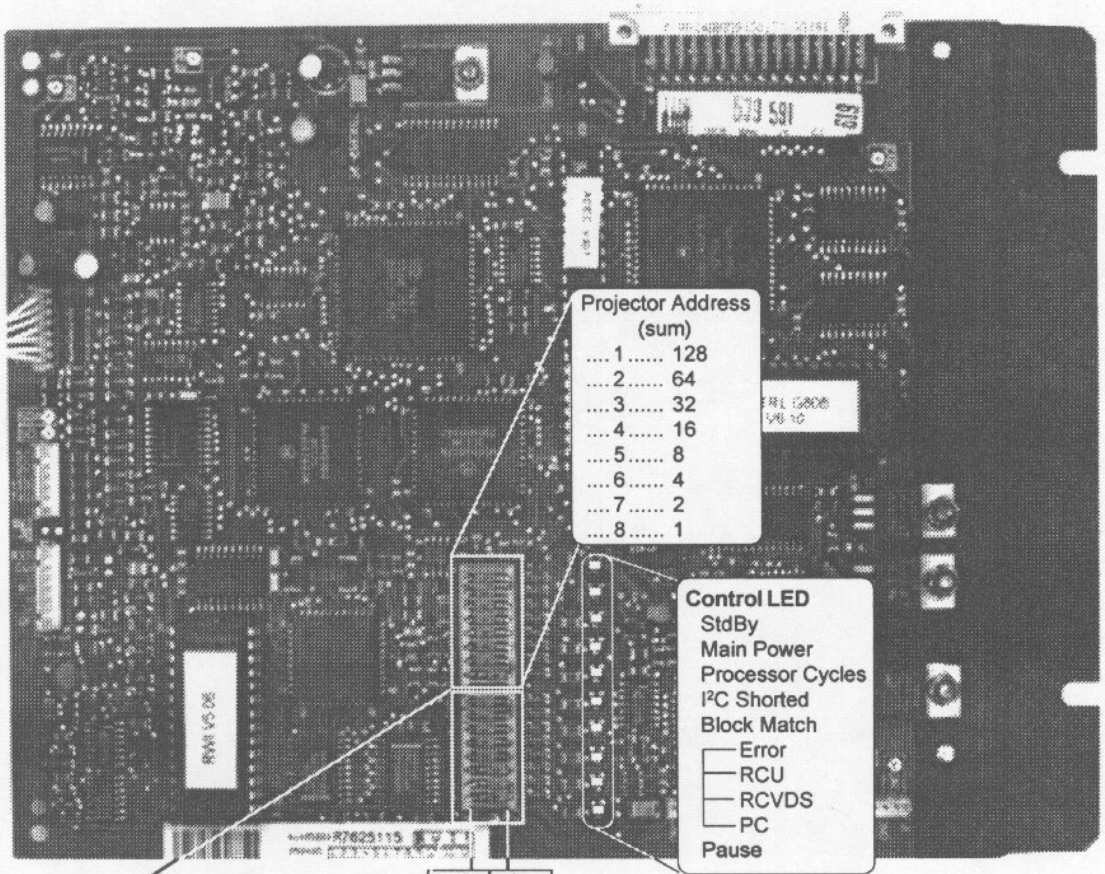
The coincidence of the line oscillator is an important information for the controller. At starting up, the controller always generates first internal sync, which must lead to a coincidence situation.
If an external source is selected then, the controller waits for coincidence and the timings of the selected source. These timings are needed to choose the memory block corresponding with the source. If the coincidence is not active, the projector remains blanked (black screen).

Spare parts Controller module

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
70	R3132539	J U0.6 FBT P28 E1AU TLP	1
60	R313487	J U0.6 FBT P32 E1AU TLP	1
30	R3620226	SCR D84 M 3 X 8 SI	1
70	R3620226	SCR D84 M 3 X 8 SI	1
31	R3631069	SCR D933 M 3 X 10 XIC	3
40	R3661026	NUT D934 M 3 I	4
50	R3674391	RVT POP D3.2 L 7.4 P ASW	2
20	R367502	WSHR D6798 A 3.2 S Z	4
10	R805856	FRM PJ56 G808 CTRL HTSNK	1
C 1	P210122	C# X7R MU 100N K 50 1206	1
C 2	P210122	C# X7R MU 100N K 50 1206	1
C 3	P210122	C# X7R MU 100N K 50 1206	1
C 4	P210122	C# X7R MU 100N K 50 1206	1
C 5	P210122	C# X7R MU 100N K 50 1206	1
C 6	R111476	C EL RA 47M M 25E2 85	1
C 7	P210122	C# X7R MU 100N K 50 1206	1
C 8	P210122	C# X7R MU 100N K 50 1206	1
C 9	P210122	C# X7R MU 100N K 50 1206	1
C 10	P210122	C# X7R MU 100N K 50 1206	1
C 11	P210122	C# X7R MU 100N K 50 1206	1
C 12	P210122	C# X7R MU 100N K 50 1206	1
C 13	P210122	C# X7R MU 100N K 50 1206	1
C 14	P210122	C# X7R MU 100N K 50 1206	1
C 15	P210122	C# X7R MU 100N K 50 1206	1
C 16	P210122	C# X7R MU 100N K 50 1206	1
C 17	P210122	C# X7R MU 100N K 50 1206	1
C 18	P210122	C# X7R MU 100N K 50 1206	1
C 19	P210122	C# X7R MU 100N K 50 1206	1
C 20	P210122	C# X7R MU 100N K 50 1206	1
C 21	P210122	C# X7R MU 100N K 50 1206	1
C 22	P210122	C# X7R MU 100N K 50 1206	1
C 23	P210122	C# X7R MU 100N K 50 1206	1
C 24	P210122	C# X7R MU 100N K 50 1206	1
C 25	P210122	C# X7R MU 100N K 50 1206	1
C 26	P210122	C# X7R MU 100N K 50 1206	1
C 27	P210122	C# X7R MU 100N K 50 1206	1
C 28	P210122	C# X7R MU 100N K 50 1206	1
C 29	P210122	C# X7R MU 100N K 50 1206	1
C 30	P210122	C# X7R MU 100N K 50 1206	1
C 31	P210122	C# X7R MU 100N K 50 1206	1
C 33	P212006	C# TA 4M7M 16 3528	1
C 34	P210148	C# Y5V MU 470N Z 50 1206	1
C 35	P210122	C# X7R MU 100N K 50 1206	1
C 36	P210115	C# COG MU 6P8D 50 0805	1
C 37	P210141	C# COG MU 27P J 50 1206	1
C 38	P210019	C# COG MU 47P J 50 0805	1
C 41	P210139	C# COG MU 33P J 50 1206	1
C 43	P210185	C# COG MU 390P J 50 1206	1
C 44	P210122	C# X7R MU 100N K 50 1206	1
C 45	P210121	C# COG MU 330P J 50 1206	1
C 46	R111477	C EL RA 100M Z 25E2 85	1
C 47	R111477	C EL RA 100M Z 25E2 85	1
C 48	P210122	C# X7R MU 100N K 50 1206	1
C 49	R111477	C EL RA 100M Z 25E2 85	1
C 50	P210122	C# X7R MU 100N K 50 1206	1
C 51	P210122	C# X7R MU 100N K 50 1206	1
C 52	P210122	C# X7R MU 100N K 50 1206	1
C 53	P210122	C# X7R MU 100N K 50 1206	1
C 54	P210095	C# X7R MU 330N M 50 1812	1
C 55	P210122	C# X7R MU 100N K 50 1206	1
C 56	P210122	C# X7R MU 100N K 50 1206	1
C 57	P210122	C# X7R MU 100N K 50 1206	1
C 58	P210122	C# X7R MU 100N K 50 1206	1
C 59	P210095	C# X7R MU 330N M 50 1812	1
C 60	R111477	C EL RA 100M Z 25E2 85	1
C 61	P210122	C# X7R MU 100N K 50 1206	1
C 62	P210148	C# Y5V MU 470N Z 50 1206	1
C 63	R111476	C EL RA 47M M 25E2 85	1
C 64	R111477	C EL RA 100M Z 25E2 85	1
C 65	P210139	C# COG MU 33P J 50 1206	1
C 66	P210139	C# COG MU 33P J 50 1206	1
C 67	P210102	C# COG MU 470P J 50 1206	1
C 68	P210153	C# Z5U MU 1M M 63 1812	1
C 69	P210092	C# X7R MU 10N K 50 1206	1
C 70	P212006	C# TA 4M7M 16 3528	1
C 71	P210167	C# X7R MU 150N K 50 1210	1
C 72	P210010	C# COG MU 68P J 50 1206	1
C 73	P210095	C# X7R MU 330N M 50 1812	1
C 74	P210122	C# X7R MU 100N K 50 1206	1
C 75	P210122	C# X7R MU 100N K 50 1206	1
C 76	P210122	C# X7R MU 100N K 50 1206	1
C 77	P210122	C# X7R MU 100N K 50 1206	1
C 80	R111477	C EL RA 100M Z 25E2 85	1
C 81	R111476	C EL RA 47M M 25E2 85	1
C 82	P210095	C# X7R MU 330N M 50 1812	1
C 83	R111477	C EL RA 100M Z 25E2 85	1
C 84	P210095	C# X7R MU 330N M 50 1812	1
C 85	P210095	C# X7R MU 330N M 50 1812	1
C 86	R111477	C EL RA 100M Z 25E2 85	1
C 94	R112364	C N750MI 150P G100E2	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234099	D#4148 R DMMELF	1
D 3	P234259	D#BA682 S035A1 DMMELF	1
D 4	P234259	D#BA682 S035A1 DMMELF	1
D 6	P234055	D#BAT54 SCH SOT23	1
D 7	P234099	D#4148 R DMMELF	1
D 10	P234099	D#4148 R DMMELF	1
D 11	P234099	D#4148 R DMMELF	1
D 12	P234099	D#4148 R DMMELF	1
D 13	P234099	D#4148 R DMMELF	1
D 14	P234099	D#4148 R DMMELF	1
D 15	P234099	D#4148 R DMMELF	1
D 16	P234099	D#4148 R DMMELF	1
D 17	P234099	D#4148 R DMMELF	1
D 18	P234099	D#4148 R DMMELF	1
D 19	P234099	D#4148 R DMMELF	1
D 20	P234099	D#4148 R DMMELF	1
D 21	P234099	D#4148 R DMMELF	1
D 22	P234099	D#4148 R DMMELF	1
D 23	P234099	D#4148 R DMMELF	1
D 24	P234099	D#4148 R DMMELF	1
D 25	P234099	D#4148 R DMMELF	1
D 26	P234099	D#4148 R DMMELF	1
D 27	P234099	D#4148 R DMMELF	1
D 28	P234099	D#4148 R DMMELF	1
D 29	P234099	D#4148 R DMMELF	1
D 30	P234040	D#LED LSS260 RED SOT23	1
D 31	P234040	D#LED LSS260 RED SOT23	1
D 32	P234040	D#LED LSS260 RED SOT23	1
D 33	P234040	D#LED LSS260 RED SOT23	1
D 34	P234040	D#LED LSS260 RED SOT23	1
D 35	P234040	D#LED LSS260 RED SOT23	1
D 36	P234040	D#LED LSS260 RED SOT23	1
D 37	P234040	D#LED LSS260 RED SOT23	1
D 40	P234099	D#4148 R DMMELF	1
D 41	P234099	D#4148 R DMMELF	1

D 42	P234099	D#4148	R DMMELF	1
D 43	P234099	D#4148	R DMMELF	1
D 44	P234099	D#4148	R DMMELF	1
D 45	P234099	D#4148	R DMMELF	1
D 46	P234055	D#BAT54	SCH SOT23	1
D 47	P234099	D#4148	R DMMELF	1
D 48	P234099	D#4148	R DMMELF	1
D 49	P234099	D#4148	R DMMELF	1
D 50	P234099	D#4148	R DMMELF	1
D 51	P234099	D#4148	R DMMELF	1
D 52	P234099	D#4148	R DMMELF	1
D 53	P234099	D#4148	R DMMELF	1
D 54	P234099	D#4148	R DMMELF	1
D 55	P234099	D#4148	R DMMELF	1
D 56	P234099	D#4148	R DMMELF	1
D 57	P234099	D#4148	R DMMELF	1
D 59	P234099	D#4148	R DMMELF	1
D 60	P234099	D#4148	R DMMELF	1
D 61	P234099	D#4148	R DMMELF	1
D 62	P234099	D#4148	R DMMELF	1
D 63	P234099	D#4148	R DMMELF	1
D 64	P234099	D#4148	R DMMELF	1
D 65	P234099	D#4148	R DMMELF	1
D 66	P234099	D#4148	R DMMELF	1
D 67	P234099	D#4148	R DMMELF	1
D 68	P234099	D#4148	R DMMELF	1
D 69	P234099	D#4148	R DMMELF	1
D 70	P234099	D#4148	R DMMELF	1
D 71	P234099	D#4148	R DMMELF	1
D 72	P234099	D#4148	R DMMELF	1
D 73	P234099	D#4148	R DMMELF	1
D 74	P234099	D#4148	R DMMELF	1
D 75	P234099	D#4148	R DMMELF	1
D 76	P234099	D#4148	R DMMELF	1
D 77	P234099	D#4148	R DMMELF	1
D 78	P234099	D#4148	R DMMELF	1
D 79	P234099	D#4148	R DMMELF	1
D 80	P234099	D#4148	R DMMELF	1
D 81	P234099	D#4148	R DMMELF	1
D 82	P234099	D#4148	R DMMELF	1
D 83	P234099	D#4148	R DMMELF	1
D 84	P234099	D#4148	R DMMELF	1
D 85	P234099	D#4148	R DMMELF	1
D 86	P234040	D#LED LSS260	RED SOT23	1
D 87	P234040	D#LED LSS260	RED SOT23	1
D 88	P234056	D#4002	R DMELF	1
I 1	P2309910	U#68EC000-16 MC	PLCC68 P	1
I 3	P230506	U#68901 MC	PLCC52 P	1
I 4	P230625	U#68230-8 TS	PLCC52 P	1
I 5	P230756	U#SRAM 32KX8 70FP28	P	1
I 6	P231055	U#28C64B-150	PLCC32 P	1
I 7	R32833001	U_S G 808	ADEC V301 GB	1
I 8	R328331	U_S G 808	INT V100	1
I 9	P230052	U#74HC74	SO14 I	1
I 10	P230498	U#74HCT03	SO14 I	1
I 11	P230222	U#74HC03	SO14 I	1
I 12	P230318	U#74HC245	SOL20 I	1
I 13	P230318	U#74HC245	SOL20 I	1
I 14	P230266	U#353 LF	SO8 P	1
I 15	P2300090	U#14046B MC	SOL16 I	1
I 16	P230025	U#74HC123	SO16 I	1
I 17	R132882	U#1 TG	PLCC68 P	1
I 18	P230756	U#SRAM 32KX8 70FP28	P	1
I 19	P230372	U#80C32	PLCC44 P	1
I 20	P230164	U#74HC573	SOL20 I	1
I 21	R32831306	U_S G1208	RWI V506	1
I 22	P230231	U#74HC08	SO14 I	1
I 23	P230318	U#74HC245	SOL20 I	1
I 24	P230164	U#74HC573	SOL20 I	1
I 25	P230028	U#393 LM	SO8 P	1
I 26	P230072	U#74HC00	SO14 I	1
I 27	P230021	U#74HC04	SO14 I	1
I 28	P230102	U#74HCT00	SO14 I	1
I 29	P230499	U#74HCT14	SO14 I	1
I 30	P230526	U#74AC32	SO14 I	1
I 31	P230754	U#74AC541	SOL20 I	1
I 33	R134030	U 2940-5 LM	TO220 P	1
I 34	R134001	U 7805	TO220 P	1
I 35	R134030	U 2940-5 LM	TO220 P	1
I 36	R134016	U 7912	TO220 P	1
I 37	P230025	U#74HC123	SO16 I	1
J 1	R313925	J CT H MBT P 5 M2SN		1
J 2	R313928	J CT H MBT P 8 M2SN		1
J 3	R313927	J CT H MBT P 7 M2SN		1
J 5	R313926	J CT H MBT P 6 M2SN		1
J 6	R313924	J CT H MBT P 4 M2SN		1
J 7	V3135931	J EUR2R2FBS P32 E1C2S 1,6		1
J 8	R315302	J PIN PR D1.3L 5.5+3		1
J 9	R315302	J PIN PR D1.3L 5.5+3		1
J 10	R315302	J PIN PR D1.3L 5.5+3		1
J 11	R315302	J PIN PR D1.3L 5.5+3		1
J 12	R315302	J PIN PR D1.3L 5.5+3		1
J 13	R315302	J PIN PR D1.3L 5.5+3		1
J 14	R315302	J PIN PR D1.3L 5.5+3		1
PC	R7B0382	PCD#PJ49 ****	CTRL 68000	1
Q 1	P232076	Q#BFS17	N SS SOT23	1
Q 2	P232076	Q#BFS17	N SS SOT23	1
Q 3	P232076	Q#BFS17	N SS SOT23	1
Q 4	P232076	Q#BFS17	N SS SOT23	1
Q 5	P232158	Q#BF824	P SS SOT23	1
Q 6	P232158	Q#BF824	P SS SOT23	1
Q 8	P232050	Q#BC857B	P SS SOT23	1
Q 9	P232051	Q#BC847B	N SS SOT23	1
Q 10	P232051	Q#BC847B	N SS SOT23	1
Q 11	P232051	Q#BC847B	N SS SOT23	1
Q 12	P232051	Q#BC847B	N SS SOT23	1
Q 16	P232101	Q#BC859C	P SS SOT23	1
Q 20	P232101	Q#BC859C	P SS SOT23	1
Q 21	P232051	Q#BC847B	N SS SOT23	1
Q 22	P232051	Q#BC847B	N SS SOT23	1
Q 23	P232004	Q#BC849C	N SS SOT23	1
R 1	P200073	R# CE H 1K J 0W12 1206		1
R 2	P200077	R# CE H 1K5 J 0W12 1206		1
R 3	P200077	R# CE H 1K5 J 0W12 1206		1
R 4	P200077	R# CE H 1K5 J 0W12 1206		1
R 5	P200105	R# CE H 22K J 0W12 1206		1
R 6	P200073	R# CE H 1K J 0W12 1206		1
R 7	P200077	R# CE H 1K5 J 0W12 1206		1
R 8	P200077	R# CE H 1K5 J 0W12 1206		1
R 9	P200073	R# CE H 1K J 0W12 1206		1
R 11	P200041	R# CE H 47E J 0W12 1206		1
R 12	P200137	R# CE H470K J 0W12 1206		1
R 13	P200065	R# CE H470E J 0W12 1206		1
R 14	P200065	R# CE H470E J 0W12 1206		1
R 15	P200097	R# CE H 10K J 0W12 1206		1
R 16	P200097	R# CE H 10K J 0W12 1206		1
R 17	R101528	R MF H220E F 0W4 E3		1
R 18	P200077	R# CE H 1K5 J 0W12 1206		1
R 19	P200069	R# CE H680E J 0W12 1206		1
R 20	P200065	R# CE H470E J 0W12 1206		1
R 21	P200063	R# CE H390E J 0W12 1206		1

R 22	P200063	R# CE H390E J 0W12 1206	1
R 23	P200043	R# CE H 56E J 0W12 1206	1
R 24	P200047	R# CE H 82E J 0W12 1206	1
R 25	P200065	R# CE H470E J 0W12 1206	1
R 26	P200085	R# CE H 3K3 J 0W12 1206	1
R 28	P200063	R# CE H390E J 0W12 1206	1
R 29	P200097	R# CE H 10K J 0W12 1206	1
R 30	P200077	R# CE H 1K5 J 0W12 1206	1
R 31	P200077	R# CE H 1K5 J 0W12 1206	1
R 32	P200089	R# CE H 4K7 J 0W12 1206	1
R 33	P200089	R# CE H 4K7 J 0W12 1206	1
R 34	P200089	R# CE H 4K7 J 0W12 1206	1
R 35	P200089	R# CE H 4K7 J 0W12 1206	1
R 36	P200089	R# CE H 4K7 J 0W12 1206	1
R 37	P200081	R# CE H 2K2 J 0W12 1206	1
R 38	P200085	R# CE H 3K3 J 0W12 1206	1
R 39	P200085	R# CE H 3K3 J 0W12 1206	1
R 40	P200085	R# CE H 3K3 J 0W12 1206	1
R 41	P200101	R# CE H 15K J 0W12 1206	1
R 42	P200101	R# CE H 15K J 0W12 1206	1
R 43	P200049	R# CE H100E J 0W12 1206	1
R 44	P200065	R# CE H470E J 0W12 1206	1
R 45	P202228	R# MF H100E F 0W25 MMELF	1
R 47	P200073	R# CE H 1K J 0W12 1206	1
R 48	P200073	R# CE H 1K J 0W12 1206	1
R 50	P200041	R# CE H 47E J 0W12 1206	1
R 51	P200041	R# CE H 47E J 0W12 1206	1
R 52	P200041	R# CE H 47E J 0W12 1206	1
R 53	P200121	R# CE H100K J 0W12 1206	1
R 54	P200089	R# CE H 4K7 J 0W12 1206	1
R 55	P200674	R# CE H 8M2 K 0W12 1206	1
R 56	P200135	R# CE H390K J 0W12 1206	1
R 57	P200109	R# CE H 33K J 0W12 1206	1
R 58	P200111	R# CE H 39K J 0W12 1206	1
R 59	P200097	R# CE H 10K J 0W12 1206	1
R 60	P200119	R# CE H 82K J 0W12 1206	1
R 61	P200085	R# CE H 3K3 J 0W12 1206	1
R 62	P200105	R# CE H 22K J 0W12 1206	1
R 63	P200125	R# CE H150K J 0W12 1206	1
R 64	P200127	R# CE H180K J 0W12 1206	1
R 65	P200089	R# CE H 4K7 J 0W12 1206	1
R 66	P200071	R# CE H820E J 0W12 1206	1
R 67	P200071	R# CE H820E J 0W12 1206	1
R 68	P200071	R# CE H820E J 0W12 1206	1
R 69	P200071	R# CE H820E J 0W12 1206	1
R 70	P200071	R# CE H820E J 0W12 1206	1
R 71	P200071	R# CE H820E J 0W12 1206	1
R 72	P200071	R# CE H820E J 0W12 1206	1
R 73	P200071	R# CE H820E J 0W12 1206	1
R 74	P200089	R# CE H 4K7 J 0W12 1206	1
R 75	P200089	R# CE H 4K7 J 0W12 1206	1
R 80	P200049	R# CE H100E J 0W12 1206	1
R 81	P200073	R# CE H 1K J 0W12 1206	1
R 82	P200071	R# CE H820E J 0W12 1206	1
R 83	P200097	R# CE H 10K J 0W12 1206	1
R 84	P200069	R# CE H680E J 0W12 1206	1
R 85	P200079	R# CE H 1K8 J 0W12 1206	1
R 86	P200049	R# CE H100E J 0W12 1206	1
R 87	P200073	R# CE H 1K J 0W12 1206	1
R 88	P200049	R# CE H100E J 0W12 1206	1
R 89	P200101	R# CE H 15K J 0W12 1206	1
R 90	P200109	R# CE H 33K J 0W12 1206	1
R 91	P200049	R# CE H100E J 0W12 1206	1
R 92	P200073	R# CE H 1K J 0W12 1206	1
R 93	P200065	R# CE H470E J 0W12 1206	1
R 94	P200049	R# CE H100E J 0W12 1206	1
R 95	P200089	R# CE H 4K7 J 0W12 1206	1
R 96	P200089	R# CE H 4K7 J 0W12 1206	1
R 97	P200049	R# CE H100E J 0W12 1206	1
R 98	P200089	R# CE H 4K7 J 0W12 1206	1
R 99	P200049	R# CE H100E J 0W12 1206	1
R100	P200097	R# CE H 10K J 0W12 1206	1
R101	P200049	R# CE H100E J 0W12 1206	1
R102	P200049	R# CE H100E J 0W12 1206	1
R103	P200049	R# CE H100E J 0W12 1206	1
R104	P200049	R# CE H100E J 0W12 1206	1
R105	P200057	R# CE H220E J 0W12 1206	1
R106	P200049	R# CE H100E J 0W12 1206	1
R107	P200049	R# CE H100E J 0W12 1206	1
R108	P200049	R# CE H100E J 0W12 1206	1
R109	P200049	R# CE H100E J 0W12 1206	1
R110	P200049	R# CE H100E J 0W12 1206	1
R111	P200049	R# CE H100E J 0W12 1206	1
R112	P200049	R# CE H100E J 0W12 1206	1
R113	P200051	R# CE H120E J 0W12 1206	1
R114	P200111	R# CE H 39K J 0W12 1206	1
R115	P200073	R# CE H 1K J 0W12 1206	1
R116	P200073	R# CE H 1K J 0W12 1206	1
R117	R1011907	R CFFH E1 J 0W4	1
R118	R1011008	R CFFH 1E J 0W25	1
R119	R1011907	R CFFH E1 J 0W4	1
S 1	R324184	SW DIP 1M P 8 BT SN	1
S 2	R324184	SW DIP 1M P 8 BT SN	1
XT 1	A573058	O 16M T N -10DIP 8M	1
XT 2	P252512	X# 9.216MHZ MG3A	1
Z 1	P234057	D#ZEN 8V2 0W5 C DMMELF	1
Z 2	P234268	D#BZV55C6V8 DMMELF	1
Z 3	P234268	D#BZV55C6V8 DMMELF	1
Z 4	P234213	D#ZEN 3V3 0W5 C DMMELF	1
Z 5	P234164	D#ZEN 5V6 0W5 C DMMELF	1
Z 6	P234179	D#ZEN 20V 0W5 C DMMELF	1
Z 7	P234164	D#ZEN 5V6 0W5 C DMMELF	1
Z 8	P234164	D#ZEN 5V6 0W5 C DMMELF	1
Z 9	P234164	D#ZEN 5V6 0W5 C DMMELF	1

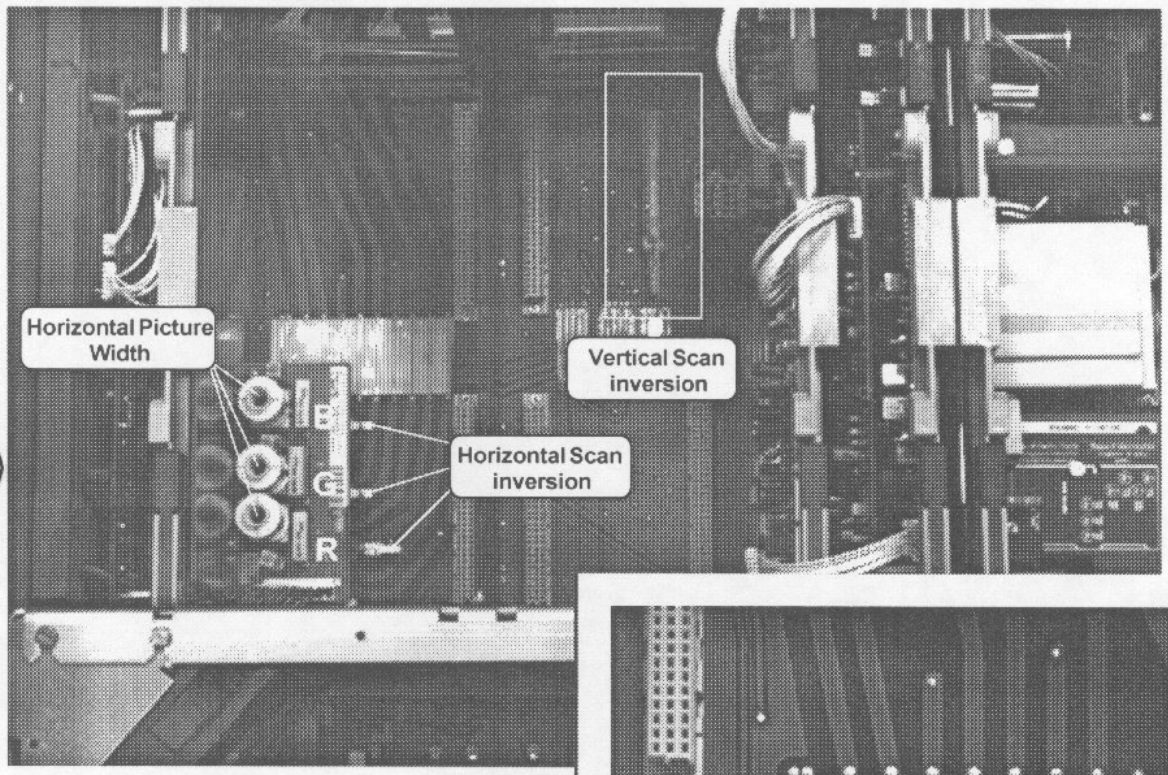


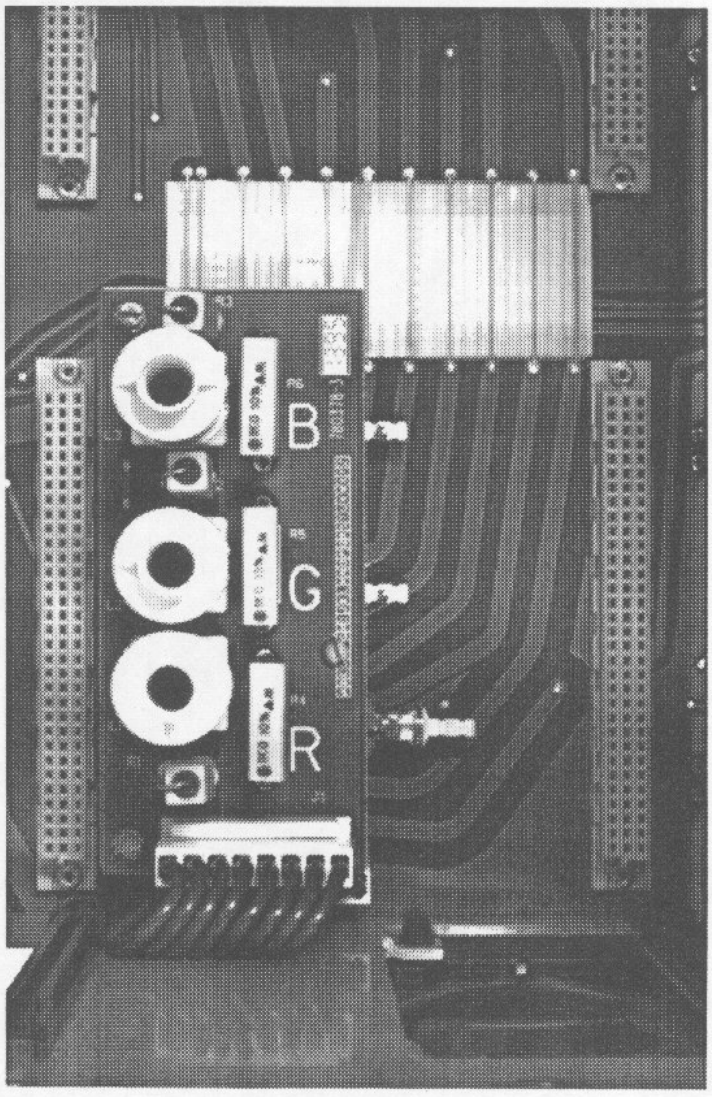
Password Mode On/Off
Password required for adjustment ON=YES / OFF=NO

Power Up Mode On/Off
Operation mode when Power is switched On ON=PLAYING / OFF=STDBY

Deflection Switching/Hor. Amplitude module R762509

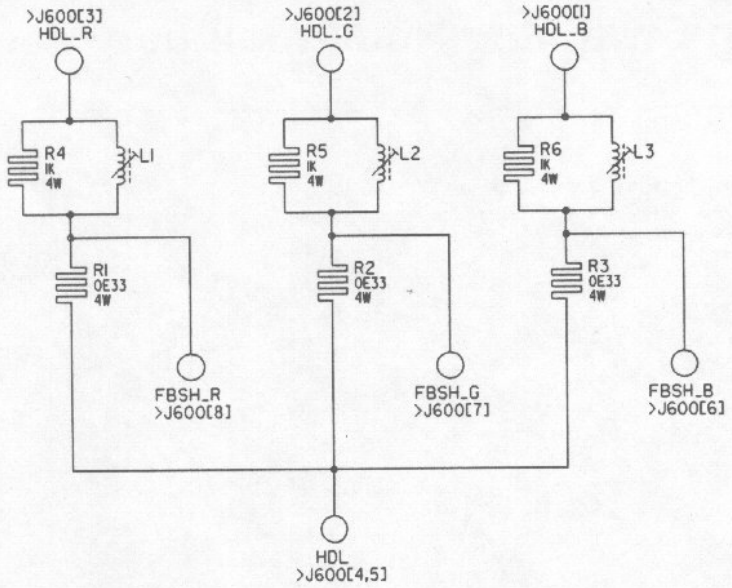
Horizontal and Vertical deflection module removed





780378-3

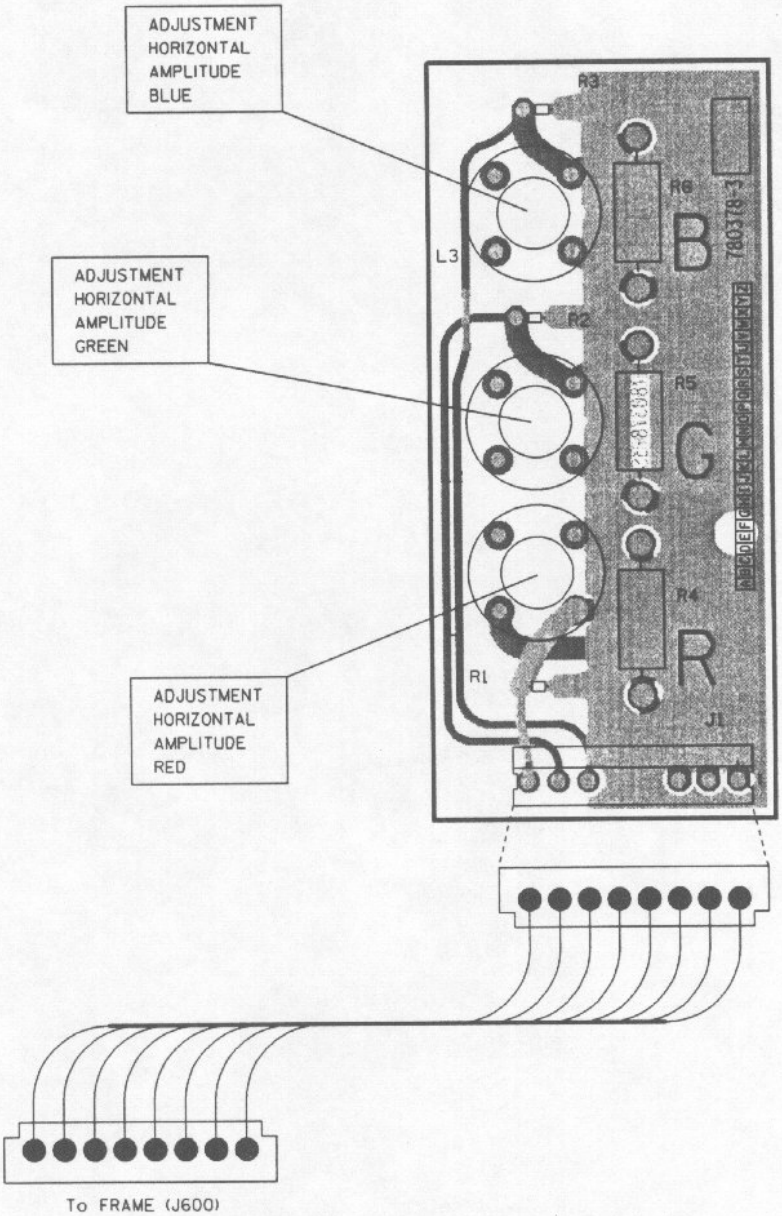
BARCO



From FRAME (J600)

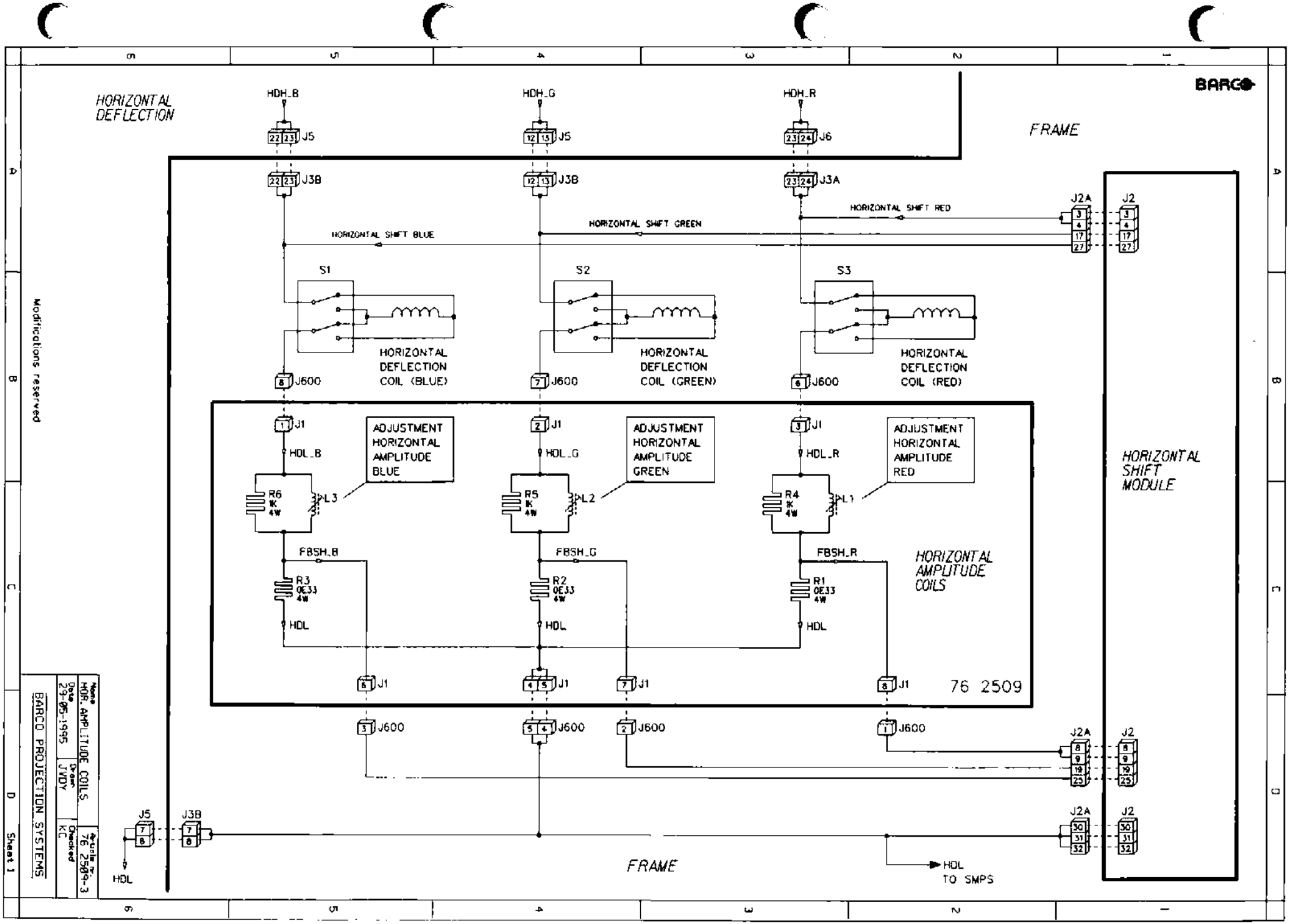
J1

1	HDL_B
2	HDL_G
3	HDL_R
4	HDL
5	HDL
6	FBSH_B
7	FBSH_G
8	FBSH_R

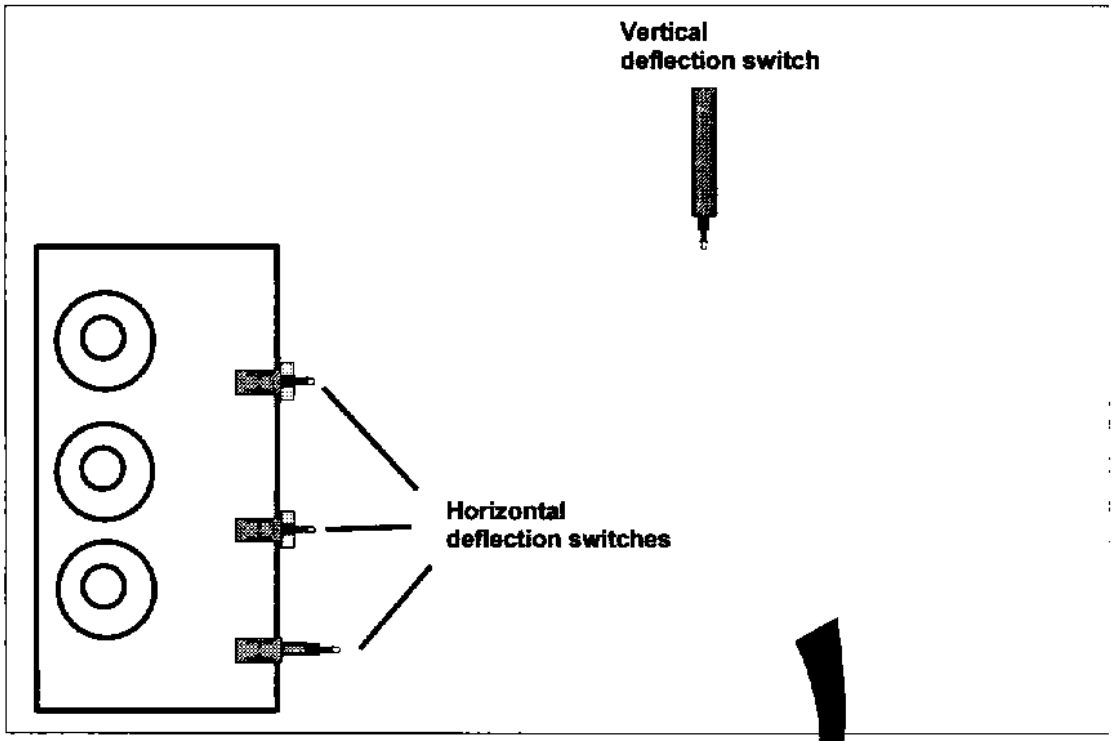


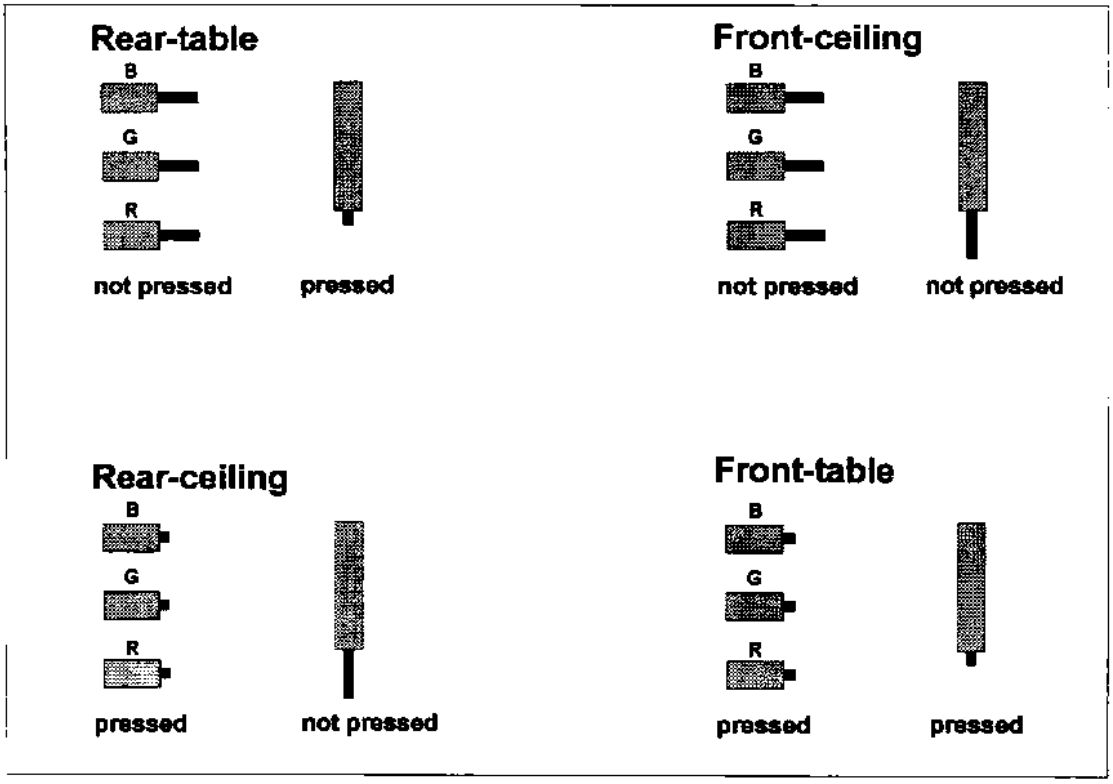
Name: HOR. AMPLITUDE COILS		Article nr.: 76 2509-3
Date: 29-05-1995	Drawn: JVDY	Checked: KC

BARCO PROJECTION SYSTEMS

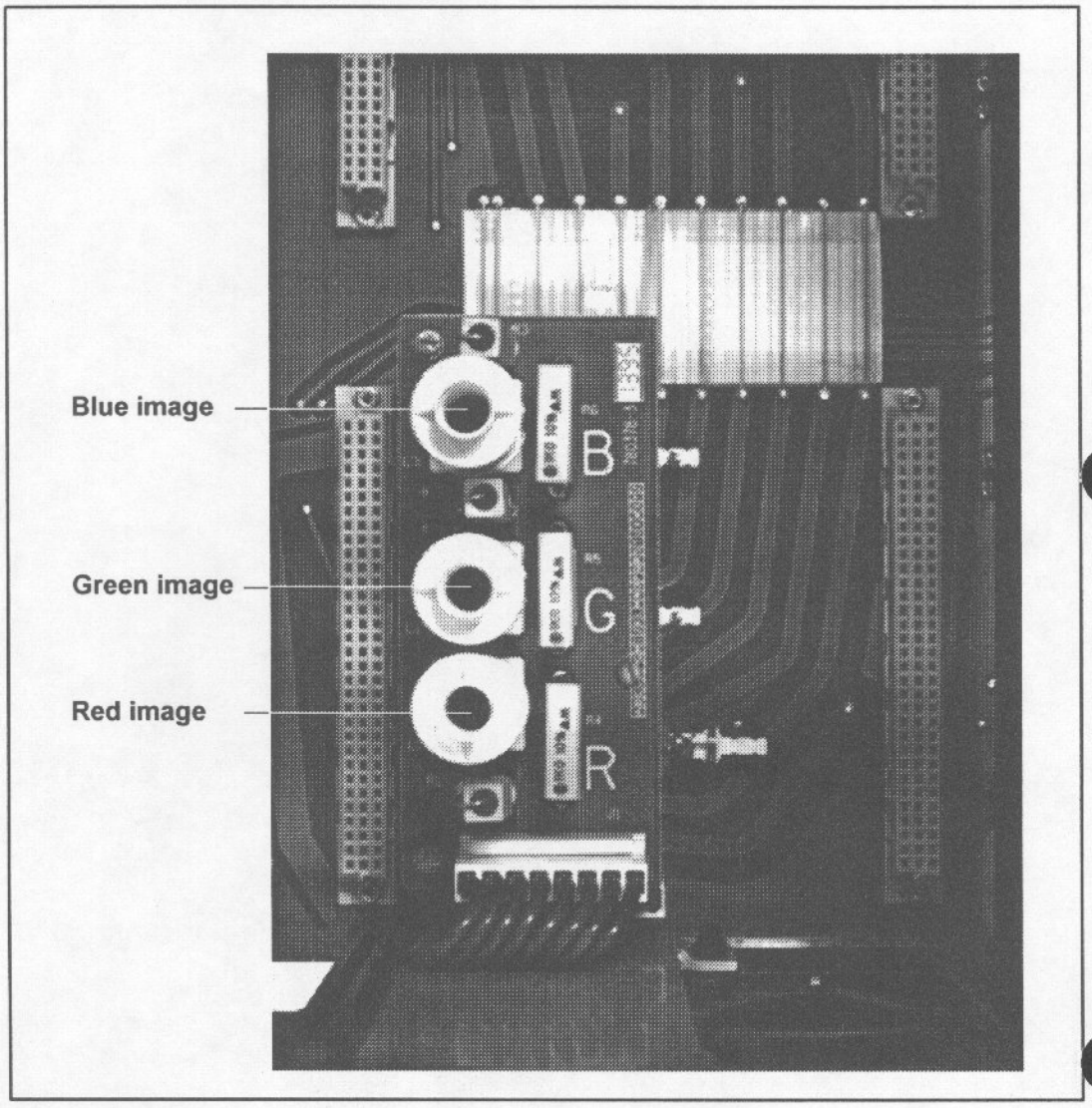

HORIZONTAL DEFLECTION
FRAME
BARCO
HDH_B
HDH_G
HDH_R
J5
J6
J3B
J3A
J2A
J2
HORIZONTAL SHIFT RED
HORIZONTAL SHIFT GREEN
HORIZONTAL SHIFT BLUE
S1
S2
S3
HORIZONTAL DEFLECTION COIL (BLUE)
HORIZONTAL DEFLECTION COIL (GREEN)
HORIZONTAL DEFLECTION COIL (RED)
J600
J1
HDL_B
HDL_G
HDL_R
ADJUSTMENT HORIZONTAL AMPLITUDE BLUE
ADJUSTMENT HORIZONTAL AMPLITUDE GREEN
ADJUSTMENT HORIZONTAL AMPLITUDE RED
R6 1K 4W
R5 1K 4W
R4 1K 4W
L3
L2
L1
FBSH_B
FBSH_G
FBSH_R
R3 0E33 4W
R2 0E33 4W
R1 0E33 4W
HDL
HORIZONTAL AMPLITUDE COILS
76 2509
HORIZONTAL SHIFT MODULE
HDL TO SMPS
Modifications reserved
BARCO PROJECTION SYSTEMS
Name HOR. AMPLITUDE COILS
Date 29-05-1995
Drawn JVDY
Checked KC
Article nr 76 2504-3
Sheet 1

Projector configuration: deflection switches set up





Adjustment procedure for the image width coils



Adjustment procedure

- Decrease the contrast and increase the brightness to reveal the (background) raster.

- Provide either an internally or externally generated source with the highest line and frame frequency to the projector.

- Disable the convergence by entering the Geometry mode and select the Raster Shift adjustment (refer to owner's manual).

- Gently turn the cores of **L1 (R)**, **L2 (G)** and **L3 (B)** in a clockwise direction until there is no more adjustment, i.e. core is fully turned into PCB.

- Identify which raster (R,G or B) has the smallest raster width and adjust the remaining raster via **L1**, **L2** or **L3** in a counter clockwise manner to match the raster with the smallest width. In order to facilitate these adjustments, you may wish to use the horizontal shift control for the raster (R,G or B) that you are adjusting. Disregard any horizontal static convergence errors at this time, they will be corrected later.

Scan inversion

S1, S2 and S3 allow the horizontal scan to be inverted to adapt the projector for a front or rear projection.

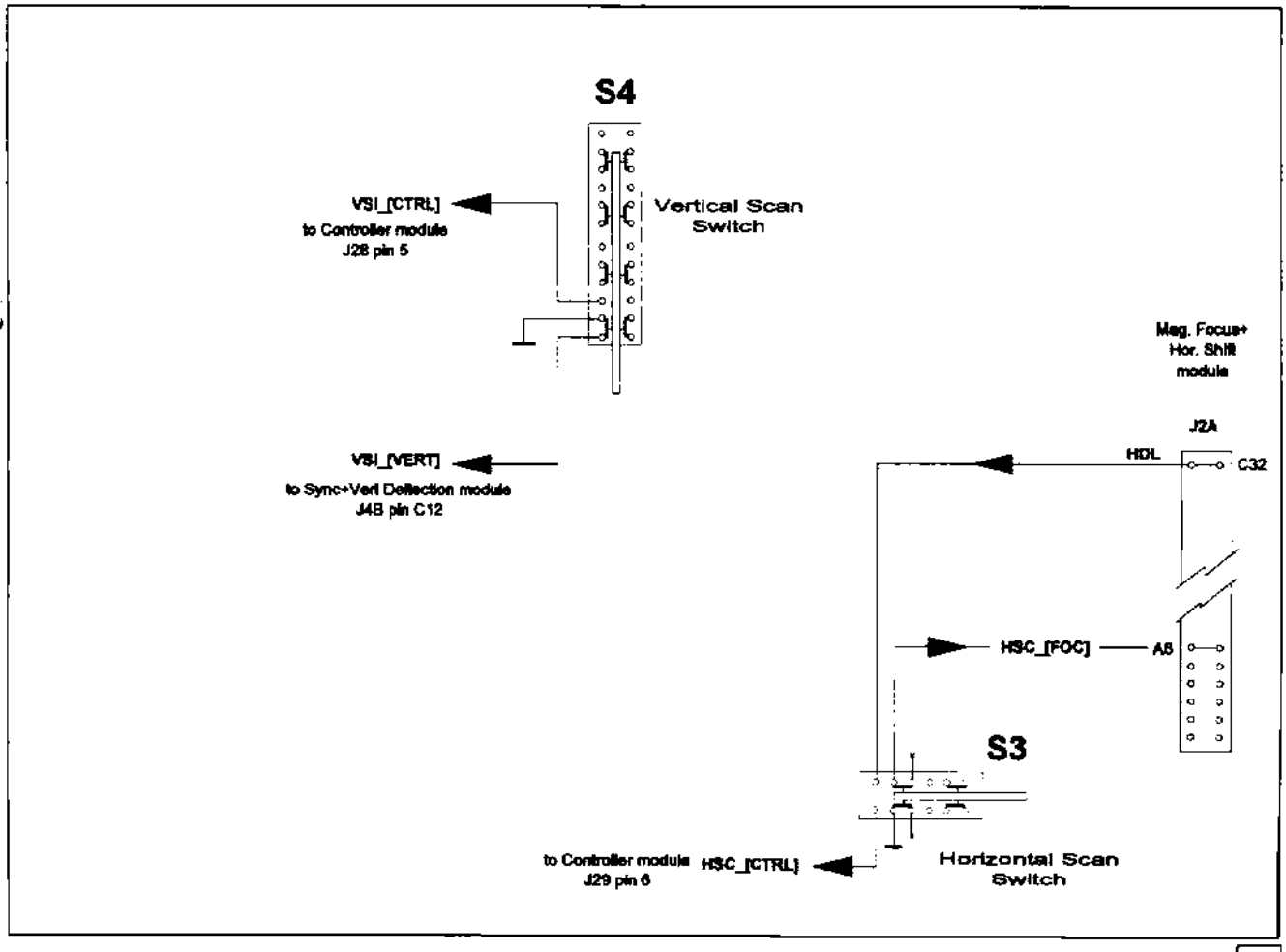
S3 is also used to provide the HSI_[CTRL] information to the controller board , so that the controller board will know the configuration of the horizontal scan switches.

S3 is also used to provide the HSI_[FOC] information to the "HOR SHIFT" module and is used by Q1 and Q2 to invert the shift voltages on P1 and P2 (horizontal shift Red and Blue).

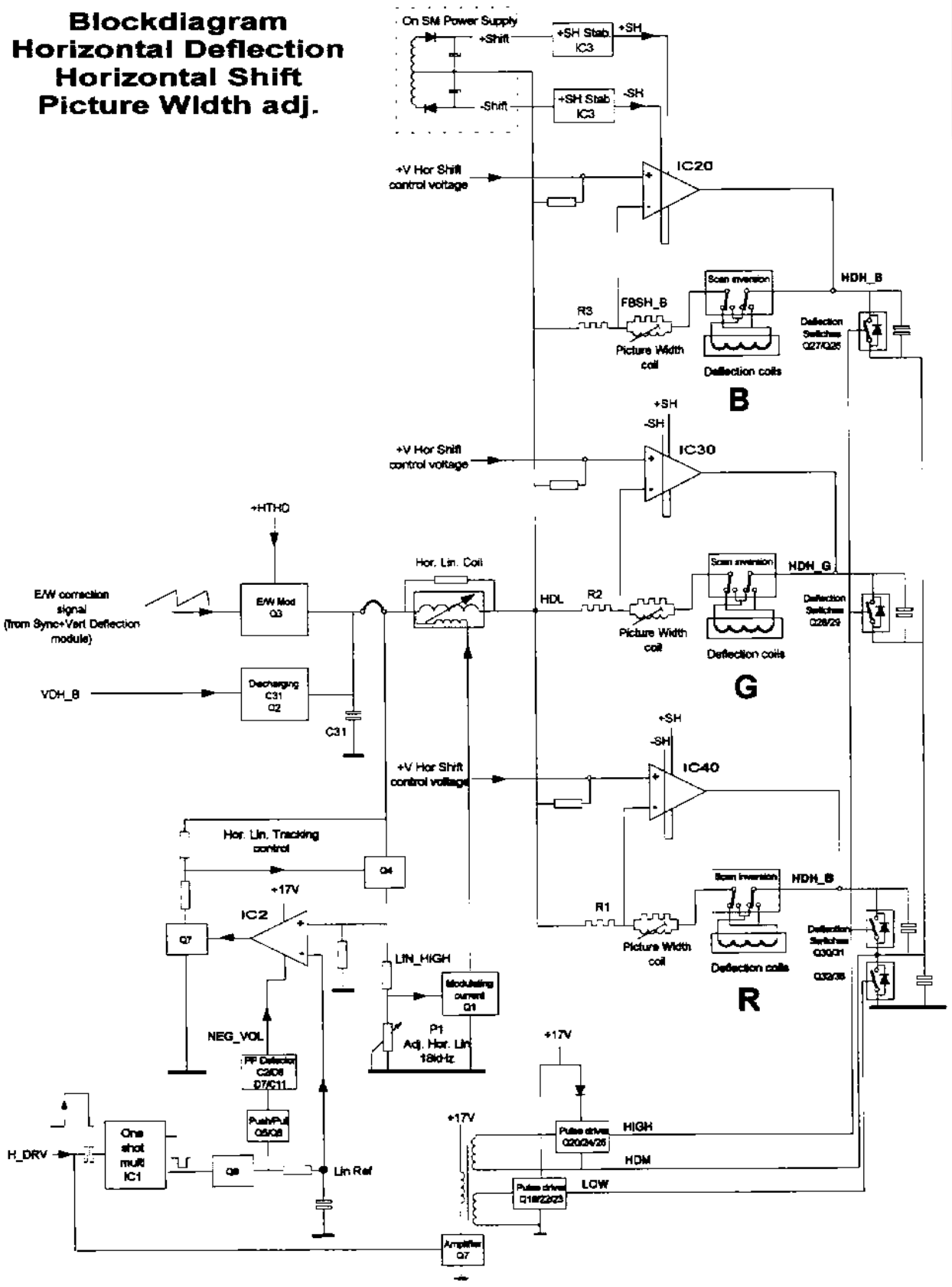
Note that main board also contains the switch for the inversion of the vertical scan. The VSI [CTRL] info is used for the controller and the VSI [VERT] info for the Vert Defl board (similar to Hor Defl).

The Scan Fail loop (SF2-SF3-SF4-SF5) passes through two contacts of the deflection connectors. In the event that one of these yoke connectors is disconnected, the projector will go into scan fail, terminating the EHT.

Note: HDM is the mid-point of the two series connected deflection MOSFETS. HDL is the common connection to the three horizontal yoke windings, that supplies the yokes with the +HTHD voltage, after passing through Q3 and the linearity coil.



Blockdiagram Horizontal Deflection Horizontal Shift Picture Width adj.



Deflection Switching/Hor. Amplitude module R762509

Parts listing

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
20	R133036	SPR L 6 D 6 D 2.4 C	3
10	R315315	J RVT MBT D 2 L14	6
J 1	R3136078	J SL FL MBT P 8 M3,96 RP	1
L 1	R774151	COIL AMP PJ45 HOR DATA	1
L 2	R774151	COIL AMP PJ45 HOR DATA	1
L 3	R774151	COIL AMP PJ45 HOR DATA	1

ITEM NO.	SIT.	DESCRIPTION	
PC	R780378	PCD EP49 G808 H_AMPLITUDE	1
R 1	R103606	R WW H E33K 4W	1
R 2	R103606	R WW H E33K 4W	1
R 3	R103606	R WW H E33K 4W	1
R 4	R103660	R WW H 1K K 3W5	1
R 5	R103660	R WW H 1K K 3W5	1
R 6	R103660	R WW H 1K K 3W5	1

780317-2

BARCO

HS/CS >J3(4)
STRIPPED

3-LEVEL SYNC
STRIPPED

IC301 4069UB
IC302 4098B
IC303 4098B
IC304 LM393
IC305 4013B
IC307 4093B
IC308 4053B
IC309 4098B

Q304 BS250
Q302 BSX20
Q303 BC549C
Q301 BS170

D301 BAT85
D302 IN4148
D303 BAT85
D304 IN4148
D305 IN4148

Z301 5V6

PCF8574A
Adress : 72H

32 kHz : 0V
64 kHz : 12V

REMARK ABOUT J5
B*800-SERIES : SHORT CIRCUIT PIN 2 WITH 3
B*1200-SERIES : SHORT CIRCUIT PIN 2 WITH 1

B*1200-SERIES :
B*800-SERIES :

LOW : HDTV
HIGH : NO HDTV

Japanese HDTV standard V sync.
Eureka HDTV standard V sync.

From SUB VERT. DEFL. (J5)
(1200 SERIES : J401)
(800 SERIES : J5)

To ORBITING MODULE (J1)
J1: +12V, -12V, SCL, SDA, PH ORB, V SHIFT G
J2: +12V, SCL, SDA

To VERT. DEFL. UNIT
(1200 SERIES : J5)
(800 SERIES : J7)
J3: HS/CS'', HS/CS', VS', HS/CS, VS

To VERT. DEFL. UNIT
(1200 SERIES : J6)
(800 SERIES : J6)
J4: SC/HS/CS/CP, SC/HS/CS
800 SERIES — 1200 SERIES

HS/CS'' >J3(1)
HS/CS' >J3(2)
SC/HS/CS >J4(2)
SC/HS/CS/CP >J4(1)
VS >J3(5)
VS' >J3(3)

COMP. LOC.

C301	B	6
C302	B	6
C303	B	6
C304	A	6
C305	A	6
C306	G	5
C308	B	1
C309	B	3
C310	C	3
C311	E	2
C312	B	3
C314	F	1
C315	F	2
C316	A	6
C317	A	6
C318	D	5
C319	B	4
C320	G	4
C321	C	4
C322	D	4
C323	H	6
C324	F	3
C325	F	4
C399	H	1
D301	A	5
D302	C	3
D303	D	4
D304	H	2
D305	H	2
IC301	D	4
IC301	C	2
IC301	B	1
IC301	A	1
IC301	A	2
IC302	D	5
IC302	D	1
IC302	A	2
IC303	F	1
IC303	A	3
IC303	F	2
IC304	A	5
IC304	D	3
IC304	A	3
IC305	B	5
IC305	A	3
IC306	G	5
IC307	E	4
IC307	E	4
IC307	F	4
IC307	E	4
IC307	A	4
IC308	G	4
IC308	A	4
IC308	A	4
IC308	G	1
IC308	G	2
IC309	F	3
IC309	A	4
IC309	F	2
J1	C	6
J2	D	6
J3	E	6
J4	F	6
J5	G	2
Q301	G	5
Q302	C	3
Q303	C	4
Q304	D	2
R300	A	6
R301	G	4
R303	G	5
R304	B	3
R305	C	3
R306	C	2
R307	D	1
R308	D	2
R309	D	3
R310	D	2
R312	E	1
R313	E	2
R314	H	1
R315	H	2
R316	A	5
R317	A	5
R318	A	5
R319	A	6
R320	B	5
R321	C	5
R322	B	4
R323	B	4
R324	C	4
R325	C	4
R326	C	4
R327	D	4
R328	H	4
R329	D	2
R330	D	3
R331	E	3
R332	E	4
Z301	G	5

Name	Article nr.
HDTV INTERFACE	76 2268T-2
Date: 21-11-1994	Drawn: JVDY
	Checked: CHT

BARCO PROJECTION SYSTEMS

Modifications reserved

Sheet 1

SCHEMATIC NAME: 762268t.sch SHEET NUMBER: 1 DATE: Feb 2, 1995

BARCO

ORBITING LINK

FRAME
IBCL-LINK UNIT OR CONTRAST MODULATION
WIRE-UNIT
ORBITING MODULE
WIRE-UNIT
SUB-UNIT VERT. DEFL.

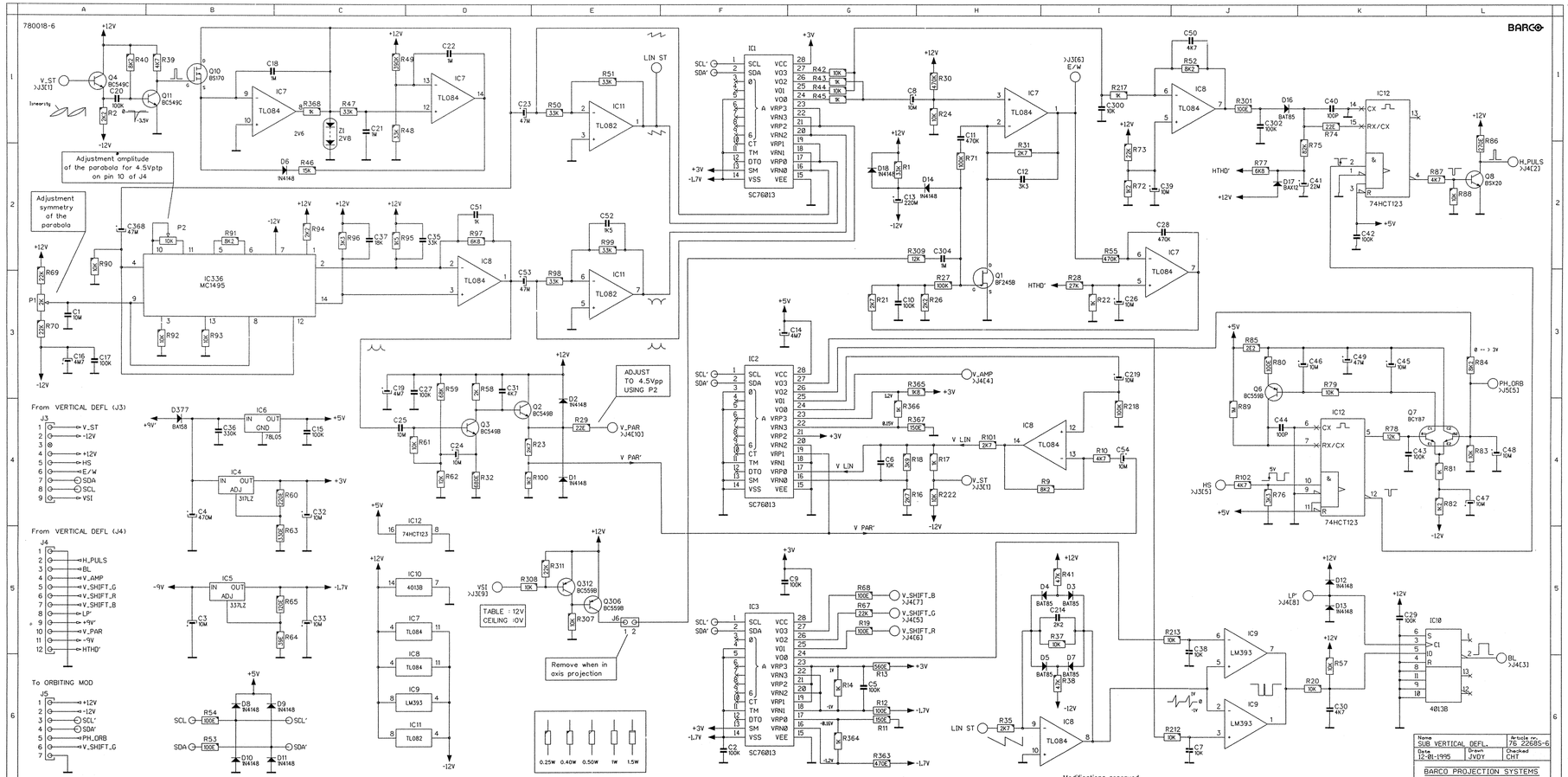
J11 PORT 3
J5A
J10
J13
J2: MASTER-PHASE, MASTER-SHIFT, GND
J1: -12V, +12V, SCL, SDA, PH ORB, V SHIFT G, GND
J5: +12V, -12V, SCL, SDA, PH ORB, V SHIFT G, GND

Name	Article nr.
ORBITING LINK	800 series
Date: 13-01-1995	Drawn: JVDY
	Checked: CHT

BARCO PROJECTION SYSTEMS

Sheet 1

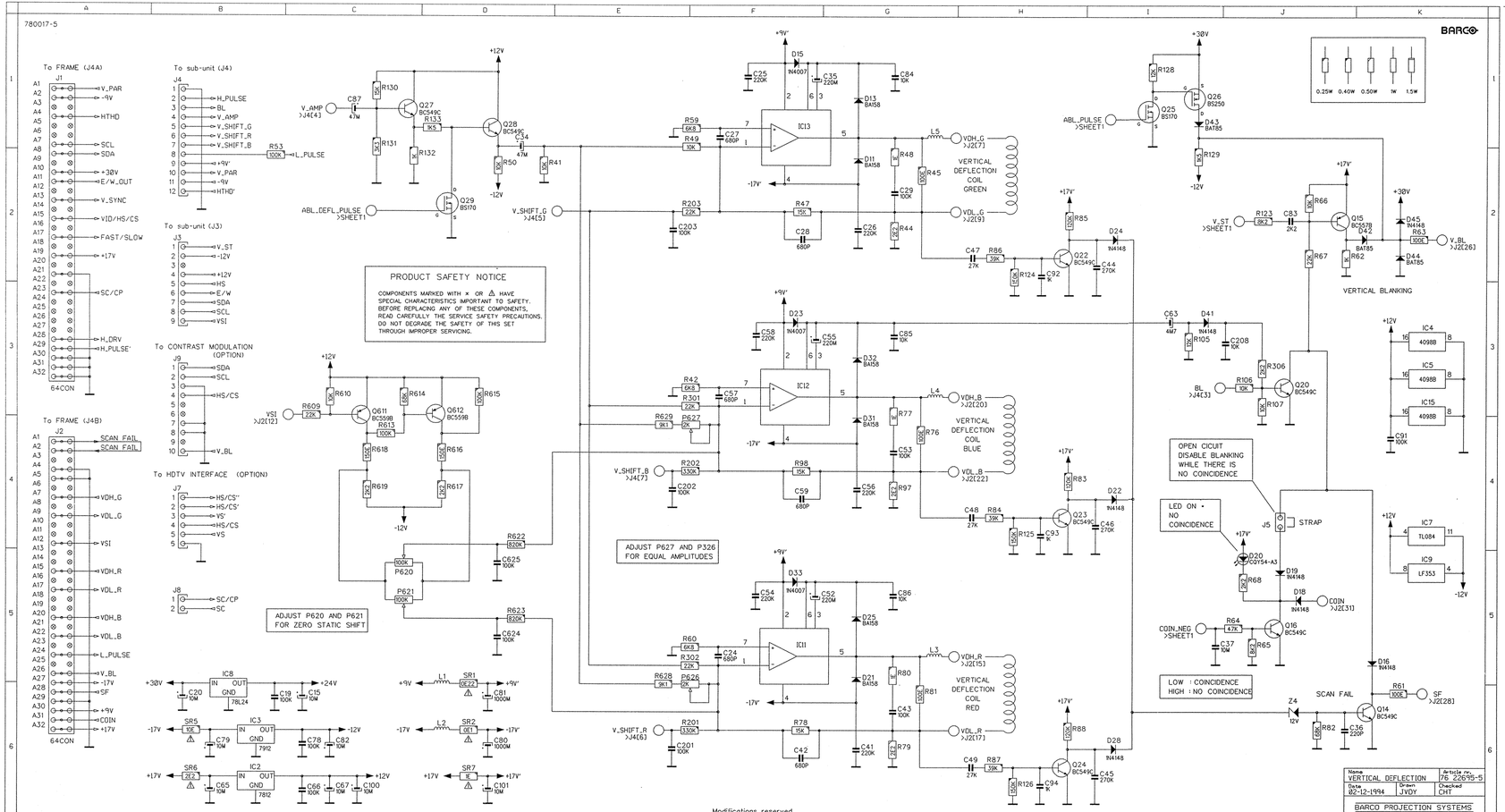
SCHEMATIC NAME: 680orbit.sch SHEET NUMBER: 1 DATE: Feb 2, 1995



COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C1	A 3	J3	A 4	R301	J 1
C2	F 6	J4	A 5	R307	E 5
C3	B 5	J5	A 6	R308	D 5
C4	B 4	J6	E 5	R309	G 2
C5	G 6			R311	E 5
C6	G 4	P1	A 3	R363	G 6
C7	J 6	P2	B 2	R364	G 6
C8	G 1			R365	G 3
C9	G 5	Q1	H 3	R366	G 4
C10	G 3	Q2	E 4	R367	G 4
C11	H 1	Q3	D 4	R368	C 1
C12	H 2	Q4	A 1		
C13	H 3	Q6	J 3	Z1	C 1
C14	G 3	Q7	L 4		
C15	4	Q8	L 2		
C16	A 3	Q10	B 1		
C17	A 3	Q11	B 1		
C18	B 1	Q306	E 5		
C19	C 3	Q312	E 5		
C20	A 1				
C21	C 1	R1	G 2		
C22	D 1	R2	A 1		
C23	D 1	R9	H 3		
C24	D 4	R10	J 4		
C25	C 4	R11	G 6		
C26	I 3	R12	G 6		
C27	D 3	R13	G 6		
C28	I 2	R14	G 6		
C29	K 5	R16	G 4		
C30	K 6	R17	H 4		
C31	D 3	R18	G 4		
C32	C 5	R19	G 5		
C33	C 5	R20	A 6		
C34	D 2	R21	G 3		
C35	B 2	R22	I 3		
C36	B 4	R23	E 4		
C37	C 2	R24	H 1		
C38	J 5	R26	H 3		
C39	I 2	R27	H 3		
C40	K 1	R28	I 3		
C41	J 2	R29	E 4		
C42	K 2	R30	H 1		
C43	K 4	R31	H 1		
C44	J 4	R32	D 4		
C45	K 3	R35	H 6		
C46	K 3	R37	I 5		
C47	L 4	R38	I 6		
C48	L 4	R39	B 1		
C49	K 3	R40	A 1		
C50	J 1	R41	I 5		
C51	D 2	R42	G 1		
C52	E 2	R43	G 1		
C53	D 2	R44	G 1		
C54	I 4	R45	G 1		
C214	I 5	R46	C 2		
C219	I 4	R47	C 1		
C300	I 1	R48	C 1		
C302	J 1	R49	C 1		
C304	H 2	R50	I 1		
C368	A 2	R51	E 1		
		R52	J 1		
D1	E 4	R53	B 6		
D2	E 3	R54	B 6		
D3	I 5	R55	I 2		
D4	H 5	R57	K 6		
D5	H 6	R58	D 3		
D6	C 2	R59	D 3		
D7	I 6	R60	D 4		
D8	B 6	R61	D 4		
D9	G 6	R62	D 4		
D10	B 6	R63	C 5		
D11	C 6	R64	C 5		
D12	K 5	R65	C 5		
D13	K 5	R67	G 5		
D14	H 2	R68	G 5		
D16	J 1	R69	A 3		
D17	J 2	R70	A 3		
D18	G 2	R71	H 2		
D377	B 4	R72	I 2		
		R73	I 2		
IC1	F 1	R74	K 1		
IC2	F 3	R75	K 1		
IC3	F 5	R76	J 4		
IC4	B 4	R77	J 2		
IC5	B 5	R78	K 4		
IC6	D 4	R79	K 3		
IC7	C 5	R80	J 3		
IC7	D 5	R81	L 4		
IC7	C 1	R82	L 4		
IC7	D 1	R83	L 4		
IC7	J 3	R84	L 3		
IC7	H 1	R85	C 5		
IC8	B 5	R86	L 1		
IC8	D 5	R87	L 2		
IC8	D 2	R88	L 2		
IC8	J 1	R89	J 4		
IC8	I 6	R90	A 2		
IC8	H 4	R91	B 2		
IC9	D 6	R93	B 3		
IC9	J 5	R94	C 2		
IC9	J 6	R95	C 2		
IC9	C 6	R96	C 2		
IC10	L 5	R97	D 2		
IC10	C 5	R98	E 3		
IC10	D 5	R99	E 2		
IC11	D 6	R100	E 4		
IC11	E 5	R101	H 4		
IC11	E 3	R102	J 4		
IC11	C 6	R212	I 6		
IC12	C 4	R213	I 5		
IC12	D 4	R217	I 1		
IC12	K 4	R218	I 4		
IC336	B 3	R222	H 4		

SCHEMATIC NAME: 762268s.sch SHEET NUMBER: 1 DATE: Feb 2, 1995

780017-5



Name	Article No.
VERTICAL DEFLECTION	76 226195-5
Date 02-12-1994	Drawn JVDY
	Checked CHT

BARCO PROJECTION SYSTEMS

K Sheet 2

COMP.	LOC.	SHEET
C1	J 5	sheet 1
C2	L 6	sheet 1
C3	J 5	sheet 1
C4	J 4	sheet 1
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C8	G 1	sheet 1
C9	H 4	sheet 1
C10	C 4	sheet 1
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C13	K 1	sheet 1
C14	K 2	sheet 1
C15	C 6	sheet 2
C16		
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C86	G 3	sheet 2
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SR5	B 6	sheet 2
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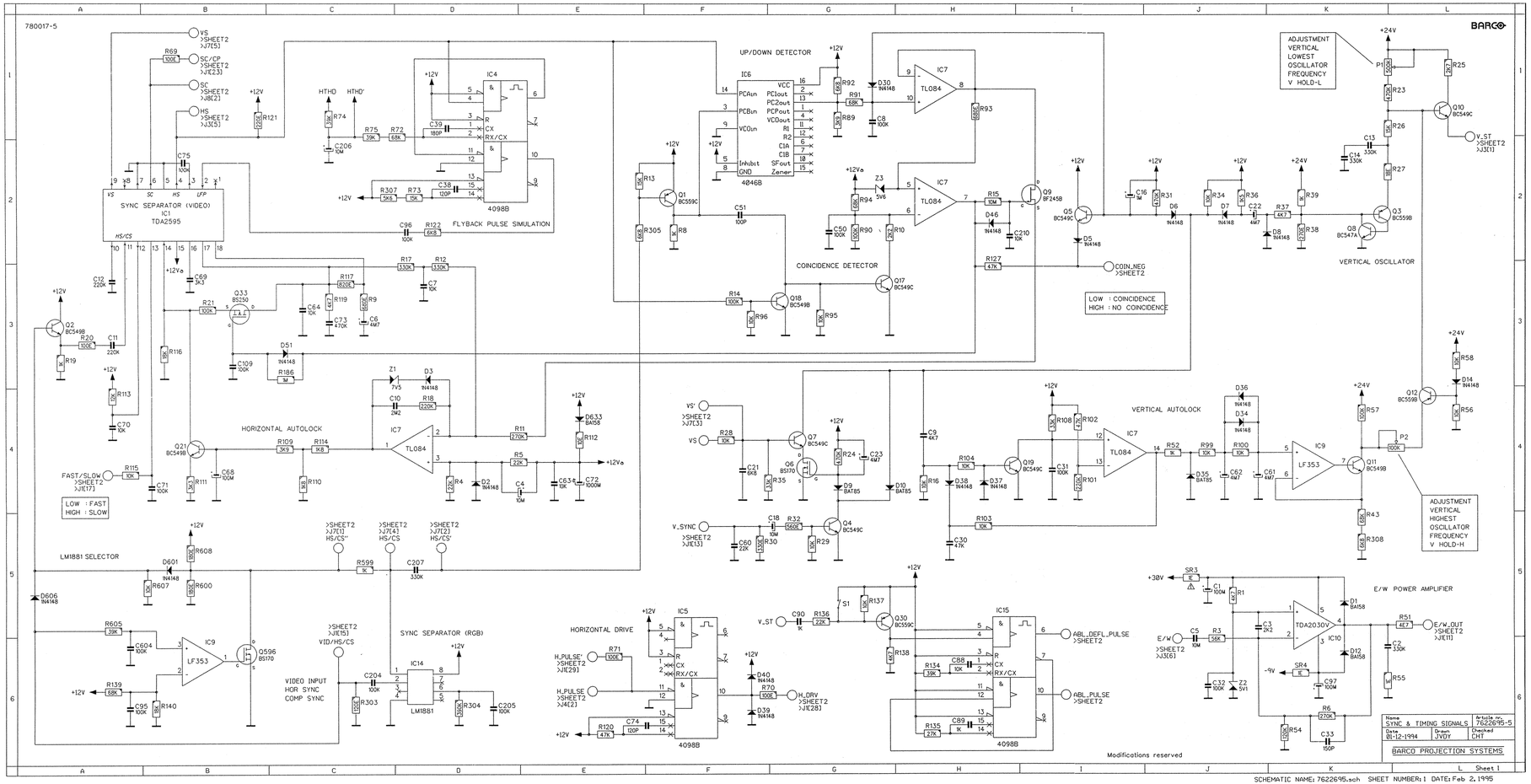
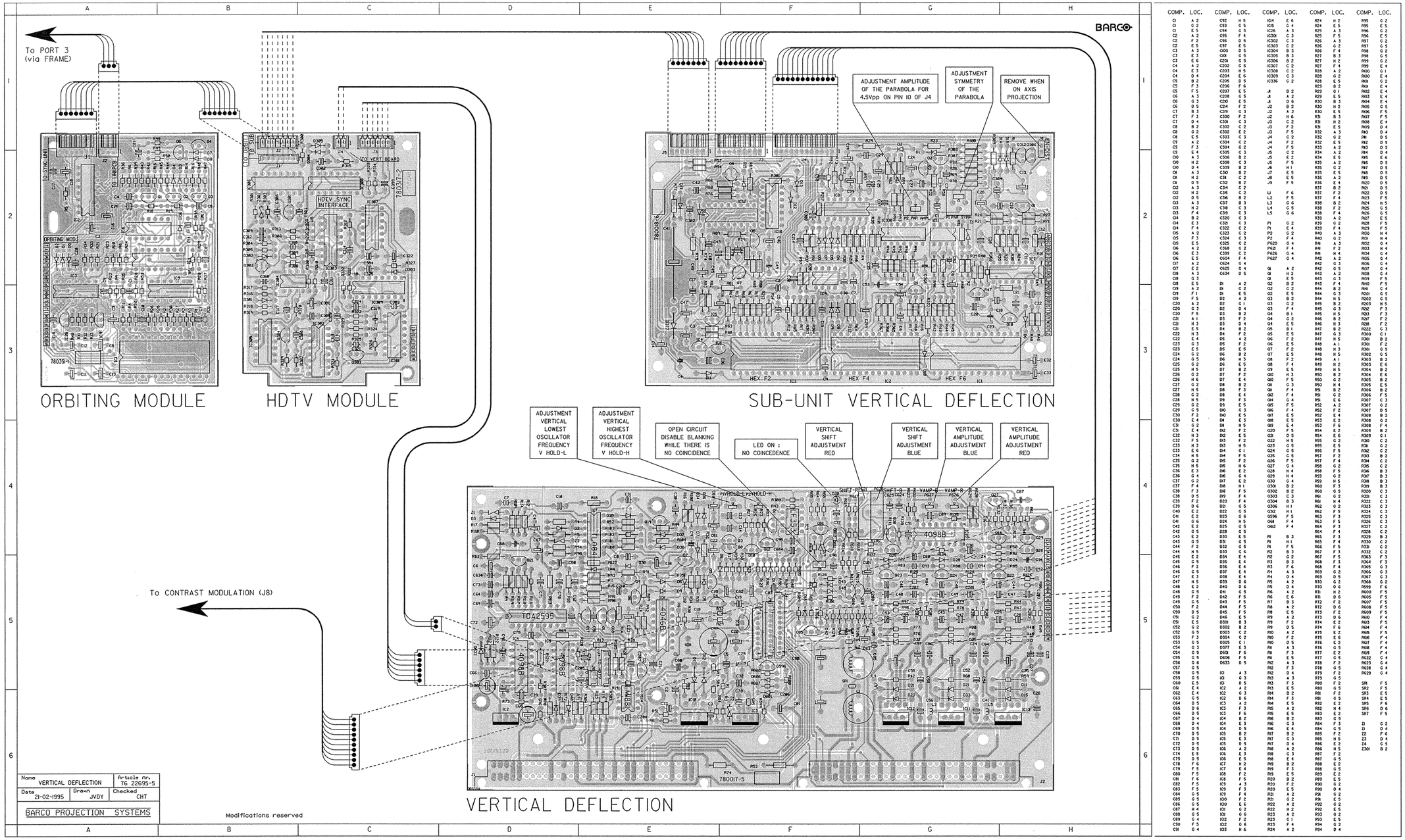
SCHEMATIC NAME: 7622695.sch SHEET NUMBER: 2 DATE: Feb 2, 1995


780017-5
BARCO
SYNC SEPARATOR (VIDEO)
IC1
TDA2595
4098B
4046B
UP/DOWN DETECTOR
FLYBACK PULSE SIMULATION
COINCIDENCE DETECTOR
HORIZONTAL AUTOLOCK
VERTICAL AUTOLOCK
VERTICAL OSCILLATOR
LM1881 SELECTOR
HORIZONTAL DRIVE
SYNC SEPARATOR (RGB)
VIDEO INPUT
HOR SYNC
COMP SYNC
E/W POWER AMPLIFIER
TDA2030V
ADJUSTMENT VERTICAL LOWEST OSCILLATOR FREQUENCY V HOLD-L
ADJUSTMENT VERTICAL HIGHEST OSCILLATOR FREQUENCY V HOLD-H
LOW : COINCIDENCE
HIGH : NO COINCIDENCE
LOW : FAST
HIGH : SLOW
Modifications reserved
Name: SYNC & TIMING SIGNALS
Article no: 7622695-5
Date: 01-12-1994
Drawn: JVDY
Checked: CHT
BARCO PROJECTION SYSTEMS
SCHEMATIC NAME: 7622695.sch SHEET NUMBER: 1 DATE: Feb 2, 1995



Name	Article nr.
VERTICAL DEFLECTION	76 22695-5
Date: 21-02-1995 / Drawn: JVDY / Checked: CHT	
BARCO PROJECTION SYSTEMS	

Modifications reserved

COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C1	A2	C92	H5	IC41	E6	R24	H2	R95	C2
C2	A2	C93	G5	IC45	C4	R24	E5	R95	E5
C3	E5	C94	G5	IC46	A3	R25	A3	R96	G2
C4	A3	C95	F4	IC504	C3	R25	F5	R96	E5
C5	F2	C96	D5	IC502	C3	R26	A3	R97	D2
C6	E5	C97	E5	IC503	C3	R26	G2	R97	G5
C7	A3	C98	D5	IC504	B3	R26	F4	R98	G2
C8	E3	C99	G5	IC505	B3	R27	B3	R98	G5
C9	E6	C99	G5	IC506	B2	R27	H2	R99	C2
C10	A2	C202	G5	IC507	C2	R27	F4	R99	E4
C11	C3	C203	H5	IC508	C2	R28	A2	R100	C1
C12	D4	C204	E6	IC509	C3	R28	G2	R100	E4
C13	B2	C205	D5	IC536	G2	R28	E5	R101	C2
C14	C3	C206	F6			R29	B2	R101	E4
C15	F5	C207	E5	J4	B2	R29	G1	R102	E4
C16	F3	C208	G5	J4	A2	R29	E5	R103	E4
C17	G3	C210	E5	J4	D6	R30	B3	R104	E4
C18	D5	C211	G2	J5	B2	R30	H2	R105	G5
C19	B3	C219	G3	J5	A2	R30	E5	R106	F5
C20	F2	C300	F2	J5	H6	R31	B3	R107	F5
C21	D4	C301	C3	J5	C2	R31	H2	R108	E4
C22	B2	C302	C2	J5	F2	R31	E5	R109	E4
C23	B2	C302	E2	J5	F5	R32	A3	R110	D4
C24	A3	C302	E5	J6	C2	R32	G2	R111	D5
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C26	A2	C304	C2	J6	F5	R33	A2	R113	D5
C27	A3	C304	G2	J6	F5	R33	E5	R114	D5
C28	E5	C305	C3	J6	G6	R34	E5	R115	D5
C29	F3	C306	B2	J6	H6	R35	G2	R116	D5
C30	A3	C307	C3	J6	E5	R35	E5	R117	D5
C31	A2	C308	C3	J6	E5	R36	A2	R118	D5
C32	A2	C309	B2	J6	H5	R36	E5	R119	D5
C33	A3	C310	B2	J7	E5	R37	B2	R120	D5
C34	A3	C311	C2	J8	E5	R37	F2	R121	D5
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C36	A3	C313	C2	J9	F5	R38	A2	R123	D5
C37	A2	C314	C2			R38	B2	R124	H5
C38	A2	C317	B3	L1	F6	R38	E5	R125	G5
C39	C3	C318	C3	L2	F6	R38	F4	R126	G5
C40	C3	C320	C3	L3	F5	R39	A2	R127	E5
C41	E3	C321	C2	L4	G6	R39	G2	R128	F5
C42	F4	C322	C2	L5	G6	R39	E5	R129	E5
C43	A2	C323	C2			R40	A3	R130	H4
C44	F3	C324	C2	P3	G2	R40	G2	R131	H4
C45	E5	C325	C2	P20	F4	R41	A3	R132	H4
C46	A2	C368	G2	P21	F4	R41	F2	R133	H4
C47	E5	C369	G2	P22	F4	R41	H4	R134	H4
C48	E5	C604	F4	P27	G4	R42	A2	R135	G4
C49	A2	C624	G4			R42	G2	R136	G4
C50	E2	C625	G4	Q	A2	R42	G5	R137	G4
C51	A3	C634	D5	Q	H2	R43	A2	R138	G4
C52	G3			Q	E5	R43	G3	R139	F5
C53	E5			Q	F4	R44	A2	R140	G5
C54	A2	D1	A2	Q2	B2	R44	B2	R141	G4
C55	F2	D2	E5	Q2	G2	R44	G2	R142	G4
C56	E5	D2	A2	Q3	E5	R44	G3	R201	G5
C57	A2	D2	G1	Q3	G2	R44	H5	R202	G5
C58	A2	D2	D4	Q3	F4	R45	B2	R203	H5
C59	F5	D3	B2	Q4	B1	R45	G3	R204	F3
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C63	H3	D4	F2	Q5	E5	R47	B2	R222	G3
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C65	G3	D5	F2	Q6	E5	R48	A1	R301	B2
C66	E5	D5	E5	Q7	F2	R48	H5	R301	G5
C67	E5	D6	B2	Q7	E5	R49	A1	R302	G5
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C69	E5	D6	E5	Q8	F4	R49	H2	R303	E6
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C71	G2	D7	F2	Q9	H5	R50	B2	R304	E6
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C73	G2	D8	B2	Q9	G5	R50	H4	R305	E5
C74	H5	D8	F3	Q9	F4	R51	B2	R306	B2
C75	G2	D8	E4	Q9	F4	R51	G2	R306	F5
C76	H5	D9	B2	Q10	F4	R51	G2	R307	G3
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C79	F2	D9	E5	Q11	E5	R52	E4	R308	G2
C80	E4	D10	E5	Q11	F5	R53	F6	R308	E4
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C82	H3	D10	E5	Q12	F2	R54	E2	R309	G1
C83	H3	D11	H5	Q12	D5	R54	E6	R310	G2
C84	H3	D11	F2	Q13	H5	R55	E5	R311	G2
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C107	D5	D22	E5	R3	B2	R68	F3	R364	F3
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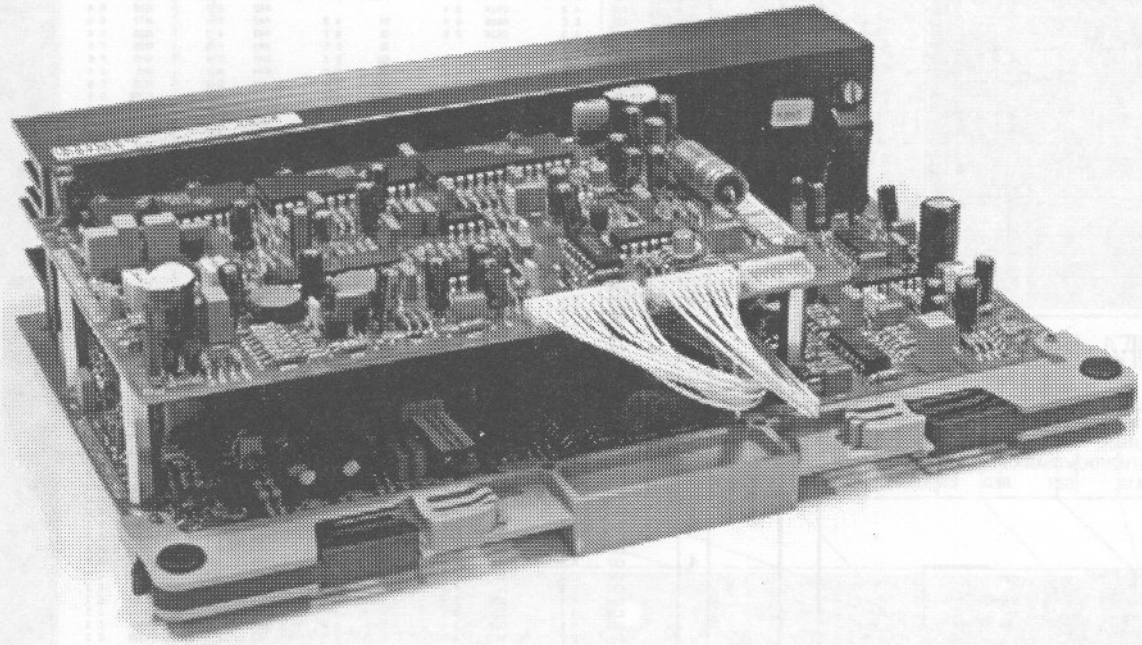
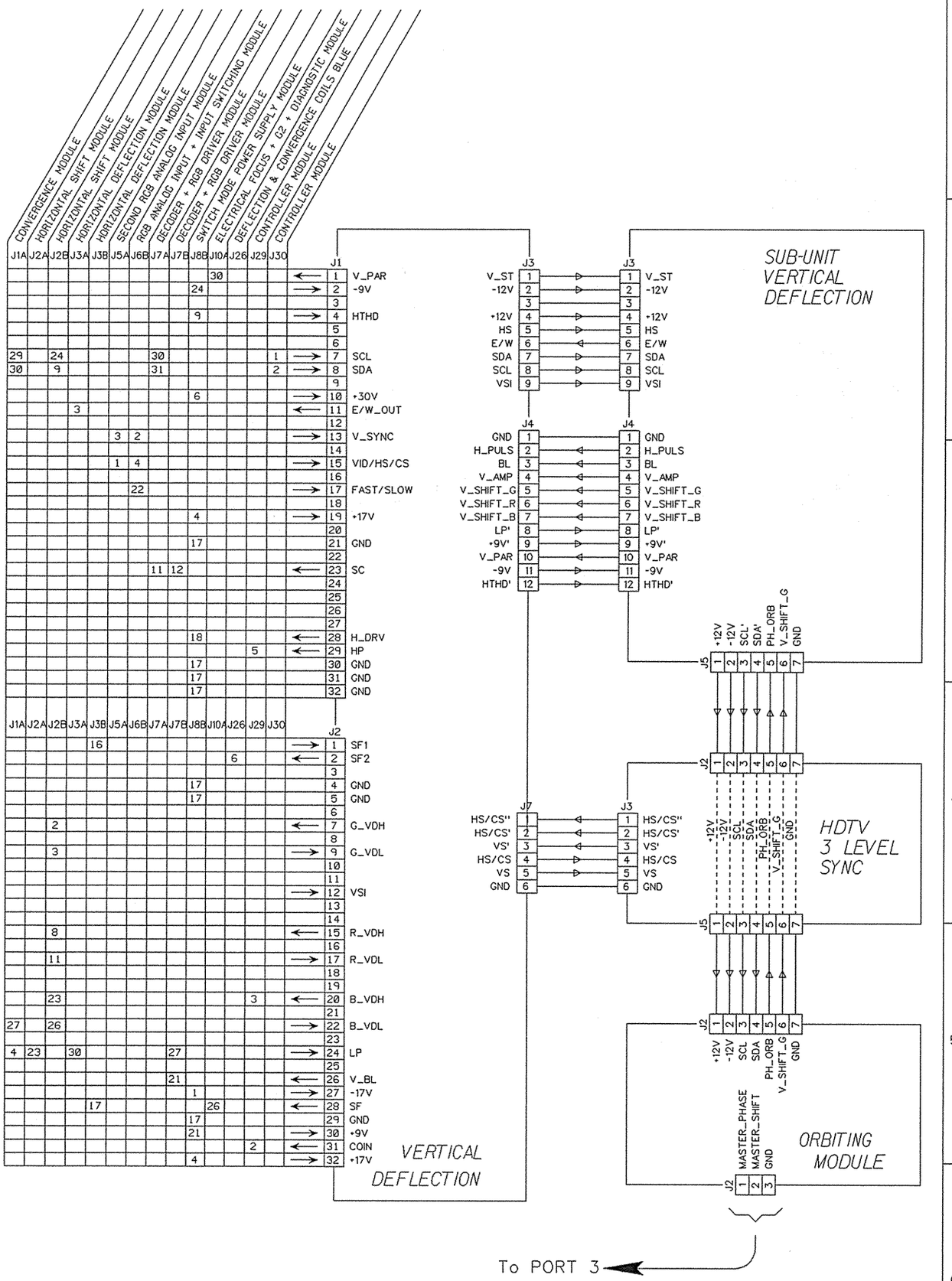
C110	E3	D24	H5	R4	D4	R69	D5	R367	G3
C111	H5	D24	E5	R5	A2	R70	G2	R368	G2
C112	D5	D25	G5	R5	D4	R70	E5	R369	G4
C113	G5	D25	E5	R6	A2	R71	H2	R600	F5
C114	E5	D26	G5	R6	E4	R71	D6	R605	F5
C115	G5	D26	E5	R7	B3	R72	F2	R607	F5
C116	F2	D27	F5	R8	A2	R72	D6	R608	F5
C117	G2	D27	E5	R8	E5	R73	F2	R609	F5
C118	G2	D28	E5	R9	A2	R73	D6	R610	F4
C119	E5	D28	B3	R9	F3	R74	F6	R611	F5
C120	G2	D300	B2	R9	D5	R74	F6	R614	F4
C121	G3	D303	C2	R10	A2	R75	E6	R615	F4
C122	F3	D304	C2	R10	F2	R75	E6	R616	F4
C123	G5	D305	C2	R10	D5	R76	E6	R617	F4
C124	G3	D306	C1	R11	A3	R76	G5	R618	F4
C125	E3	D377	E3	R11	F3	R77	E6	R619	F4
C126	G5	D600	F5	R11	E5	R77	G5	R622	G4
C127	G5	D606	F5	R12	A3	R78	F2	R623	G4
C128	G6	D633	D5	R12	F3	R78	G5	R628	G4
C129	G5			R12	D4	R79	F2	R629	G4
C130	G5	IC1	A3	R13	A3	R79	G5		
C131	G5	IC1	D5	R13	F3	R80	F2	SR	F5
C132	E5	IC1	E5	R13	D4	R80	G5	SR2	F5
C133	E4	IC2	A2	R14	B2	R81	F2	SR3	E5
C134	G5	IC2	G3	R14	B2	R81	G5	SR4	H5
C135	E3	IC2	E5	R14	E5	R82	E3	SR5	F6
C136	G5	IC3	F3	R15	A2	R82	H4	SR6	D6
C137	G5	IC4	B2	R15	E5	R83	C2	SR7	F5
C138	G5	IC4	E3	R16	B2	R83	G5		
C139	G5	IC4	E5	R16	E4	R84	G5	Z1	G2
C140	G5	IC5	B2	R17	B2	R84	F2	Z1	D4
C141	G5	IC5	E3	R17	G3	R85	H5	Z2	F6
C142	G5	IC5	D5	R18	A2	R86	H5	Z3	D4
C143	D5	IC5	A2	R18	E5	R87	F2	Z4	G5
C144	E5	IC6	E3	R19	B2	R88	E2	Z301	B2
C145	G5	IC7	H2	R19	F3	R88	G5		
C146	F5	IC8	F2	R19	E5	R89	E2		
C147	G5	IC8	F5	R20	B2	R89	G2		
C148	F5	IC8	A3	R20	F2	R90	G2		
C149	F5	IC9	F3	R20	E5	R90	D4		
C150	G5	IC9	F4	R21	A2	R91	G2		
C151	G5	IC9	F2	R21	F2	R91	E5		
C152	G5	IC10	E6	R22	A2	R92	G2		
C153	G5	IC11	G6	R22	H2	R92	E5		
C154	G5	IC12	F2	R23	A2	R93	G2		
C155	G5	IC12	G6	R23	G1	R93	E5		
C156	G5	IC13	H6	R24	A2	R94	G2		
C157	G5			R24	D4	R94	D4		

Sync+Vertical Deflection module R7622695



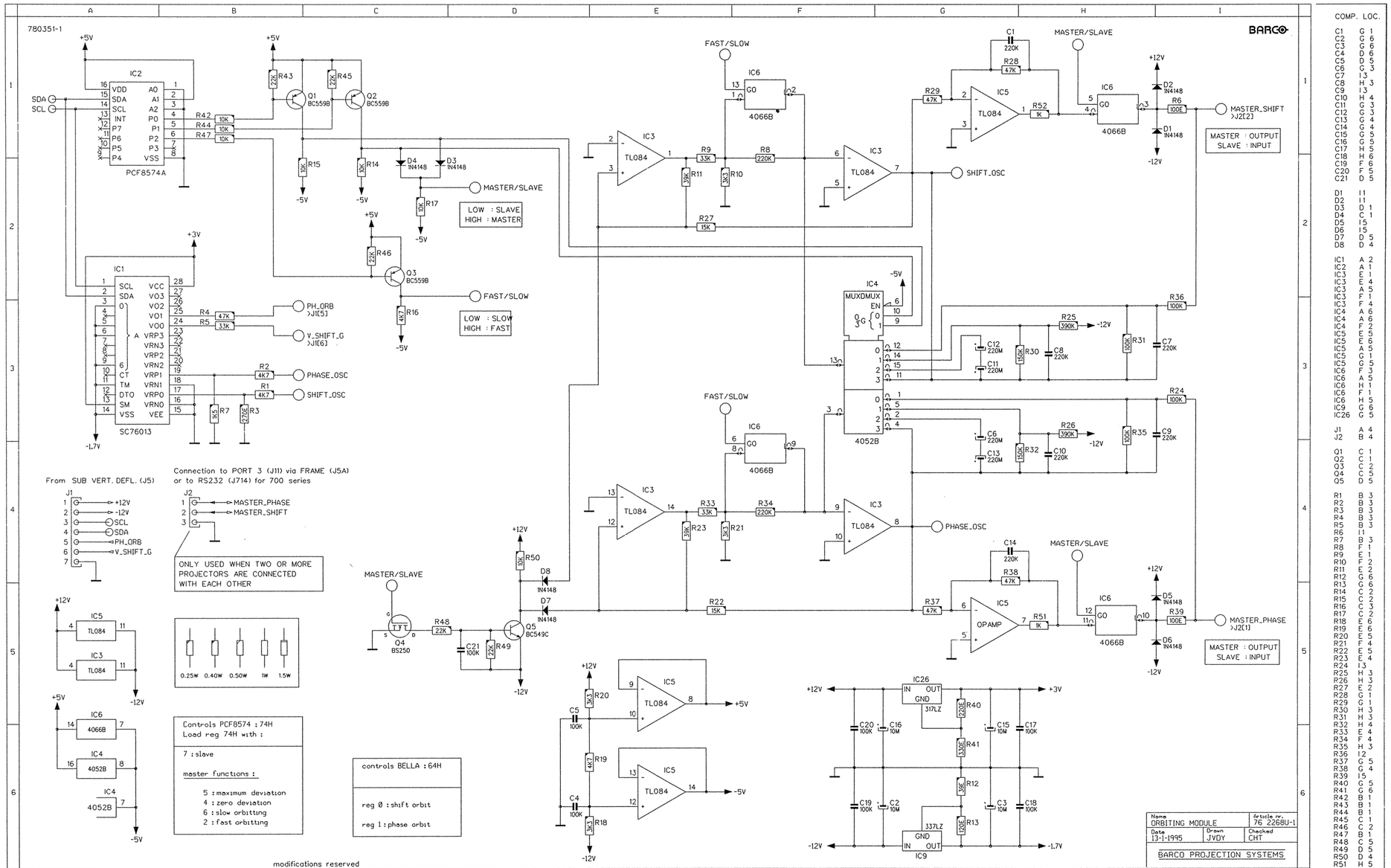


Name	Interconnection	Article nr.
VERTICAL DEFLECTION		76 22695
Date 12-01-1995	Drawn JVDY	Checked CHT

BARCO PROJECTION SYSTEMS

Sheet 1

SCHEMATIC NAME: vertcon.sch SHEET NUMBER: 2 DATE: Mar 1, 1995



COMP. LOC.

C1	G 1
C2	G 6
C3	G 6
C4	D 6
C5	D 5
C6	G 3
C7	I 3
C8	H 3
C9	I 3
C10	H 4
C11	G 3
C12	G 3
C13	G 4
C14	G 4
C15	G 5
C16	G 5
C17	H 5
C18	H 6
C19	F 6
C20	F 5
C21	D 5
D1	I 1
D2	I 1
D3	D 1
D4	C 1
D5	I 5
D6	I 5
D7	D 5
D8	D 4
IC1	A 2
IC2	A 1
IC3	E 1
IC3	E 4
IC3	A 5
IC3	F 1
IC3	F 4
IC4	A 6
IC4	A 6
IC4	F 2
IC5	E 5
IC5	E 6
IC5	A 5
IC5	G 1
IC5	G 5
IC6	F 3
IC6	A 5
IC6	H 1
IC6	F 1
IC6	H 5
IC9	G 6
IC26	G 5
J1	A 4
J2	B 4
Q1	C 1
Q2	C 1
Q3	C 2
Q4	C 5
Q5	D 5
R1	B 3
R2	B 3
R3	B 3
R4	B 3
R5	B 3
R6	I 1
R7	B 3
R8	F 1
R9	E 1
R10	F 2
R11	E 2
R12	G 6
R13	G 6
R14	C 2
R15	C 2
R16	C 3
R17	C 2
R18	E 6
R19	E 6
R20	E 5
R21	F 4
R22	E 5
R23	E 4
R24	I 3
R25	H 3
R26	H 3
R27	E 2
R28	G 1
R29	G 1
R30	H 3
R31	H 3
R32	H 4
R33	E 4
R34	F 4
R35	H 3
R36	I 2
R37	G 5
R38	G 4
R39	I 5
R40	G 5
R41	G 6
R42	B 1
R43	B 1
R44	B 1
R45	C 1
R46	C 2
R47	B 1
R48	C 5
R49	D 5
R50	D 4
R51	H 5
R52	H 1

Adjustment procedure 'VERTICAL DEFLECTION+SYNC MODULE'

Introduction

The following adjustments are provided on the **main module**:

a. Vertical HOLD L P1 and Vertical HOLD H P2

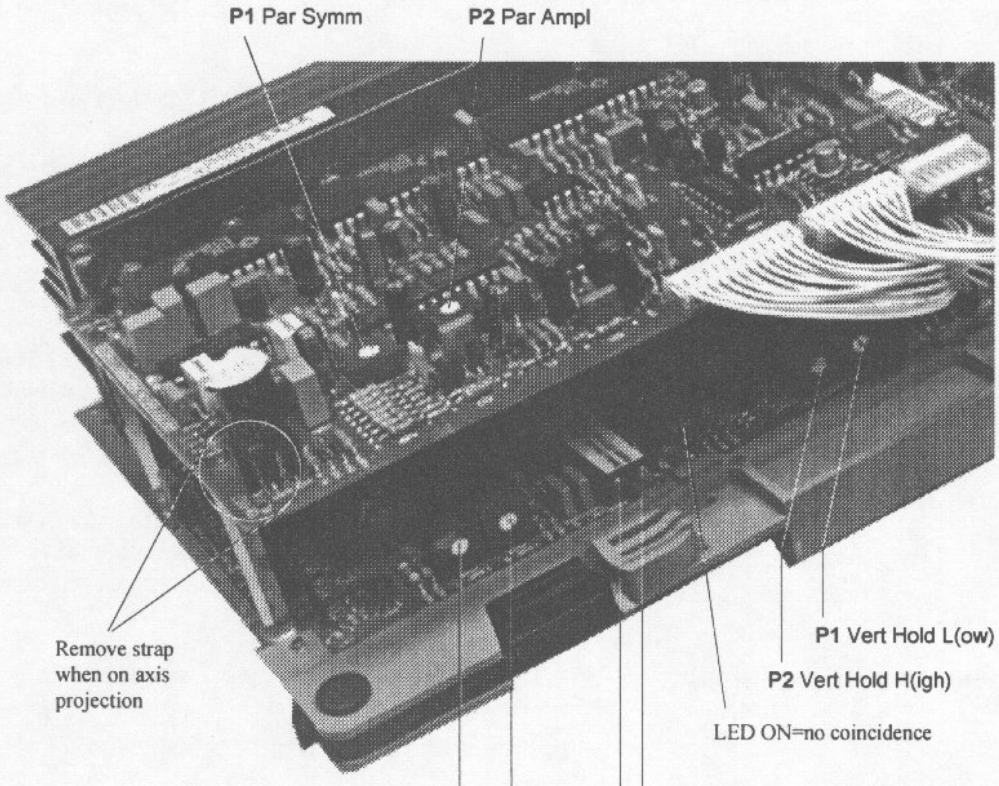
b. Vertical SHIFT adjustment for RED - P621 and BLUE - P620 image

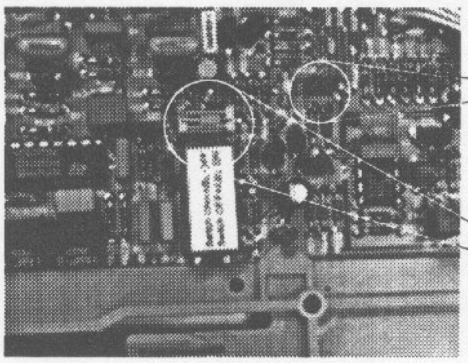
C. Vertical amplitude correction for RED - P626 and BLUE - P627 image

The following adjustments are provided on the **sub module**:

a. Vertical parabola symmetry P1

b. Vertical parabola amplitude P2





Adjustments on the main module

a. Main Vertical SHIFT adjustment for RED and BLUE image

Note: These are factory set coarse alignments of vertical shift, to compensate for the shift caused by the stigmators on the CRT necks. These potentiometers also are used to minimize the range of the BELLA potentiometers for the vertical shift, allowing for a more accurate center convergence.

Preparation

Adjust the vertical raster centering controls for Red and Blue in their mid position. The numeric indicator under the respective bar scale indicates 50.
(Refer to the Owner's manual of the projector - Guided or Random adjustment mode).

Alignment

Use the vertical shift controls P621 for RED and P620 for BLUE to shift vertically the Red and Blue image until the horizontal center line coincides with this of the Green image.

b. Vertical amplitude correction for RED and BLUE image

Adjust potentiometer P626 for the Red image and P627 for the Blue image to obtain the same vertical amplitude as the Green image.

c. Vertical Hold I P1 - Hold II P2

Adjustment on the **lowest Vert. Frequency 37 Hz - P1**
- Projector has to operate on a signal with 37 Hz frame frequency
- Turn the potentiometer P2 in its mid-position
- Adjust P1 for synchronisation of the picture

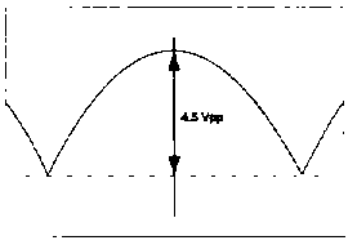
Adjustment on the **highest Vert. Frequency 120 Hz - P402**
- Projector has to operate on a signal with 120 Hz frame frequency
- Adjust P2 for synchronisation of the picture

Adjustments on the sub module

Vertical parabola symmetry P1 and amplitude P2

Adjustment **Symmetry** of the vertical parabola **P1**

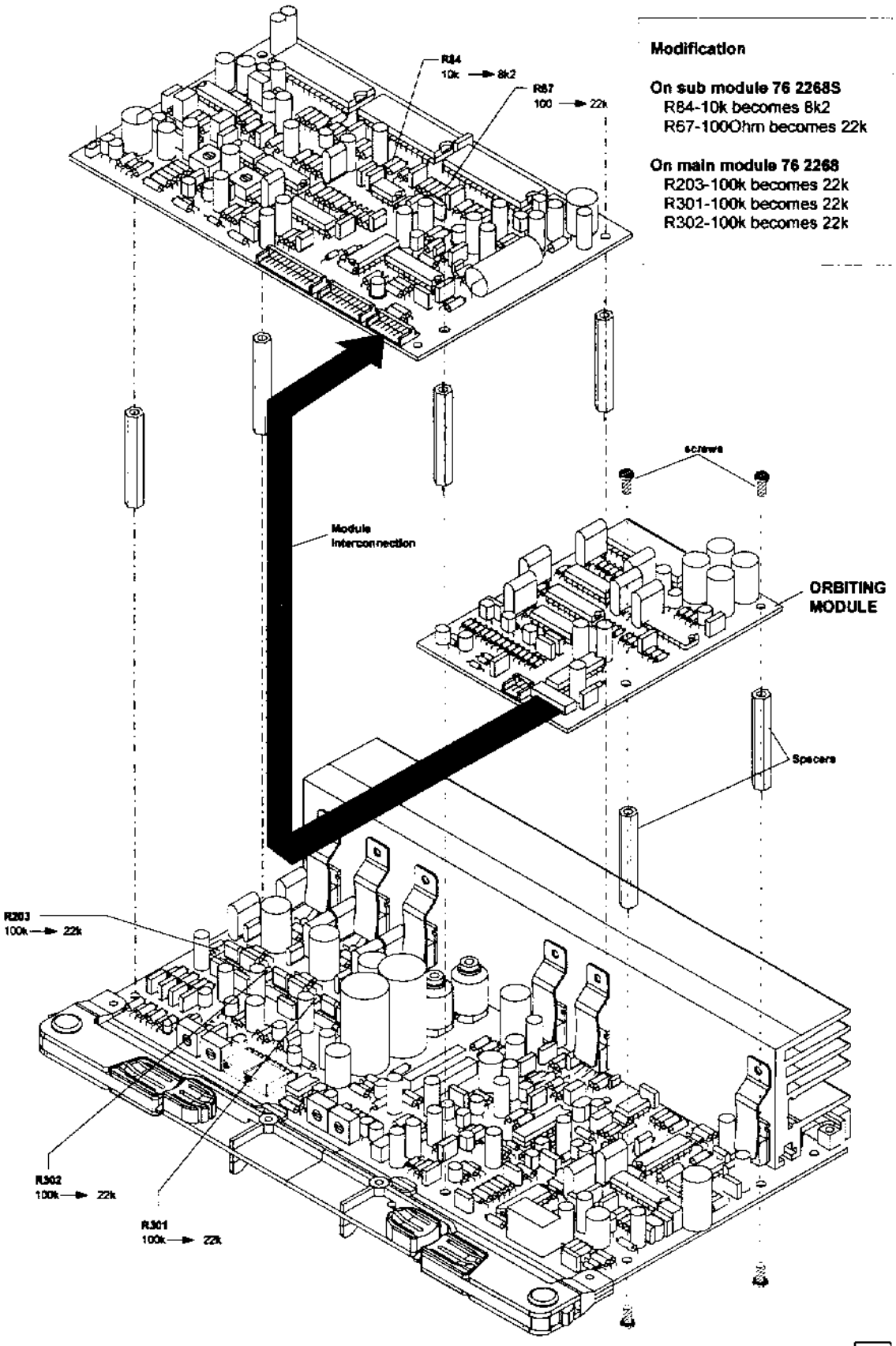
- Projector has to operate on a signal with standard frequency.
- Connect the oscilloscope to the resistor R29.
- Adjust P1 for a symmetrical curve of the parabola signal.



Adjustment **Amplitude** of the vertical parabola **P2**

- Projector has to operate on a signal with standard frequency.
- Connect the oscilloscope to the resistor R29.
- Adjust P2 for an amplitude of the parabola signal of 4.5 Vpp

Mounting the ORBITING module 76 2268u



TECHNICAL DESCRIPTION "UN SYNC + VERT DEFL" 7622685.

Introduction.

On this board and its subunit we find :

- the sync separators
- the autolock circuits for driving the line and vertical oscillators
- the vertical power output stages
- the top / bottom blanking
- the preparation of the waveforms for the east-west correction.
- preparation of the horizontal drive pulses, including the phase and skew / bow.
- generation of the pulses for the ABL (Automatic Black Level).

A (Barco) customer-made IC, comprising four (4) digital potentiometers, and driven by an I²C bus is used to adjust waveforms and DC voltages.

I. The vertical Oscillator.

a) Sawtooth oscillator (free running) :

The vertical sawtooth relaxation oscillator is built up around Q3 and Q8.

The +30 volts from the Switched Mode Power Supply board is stabilized at 24 volts by IC8 and charges up the capacitors C13 and C14 through P1 (Vert Hold for the lowest frequency) through R23 and R26.
As soon the emitter of Q3 reaches the voltage set by R38 / R39 the transistor Q3 starts conducting. As its collector current flows into the base of Q8 , the latter saturates very qu

1) By means of the composite sync :

The composite video **(VID)** , composite sync **(CS)** or Hor Sync **(HS)** is, at any time, applied to pin 2 of IC14, a typical sync separator. The output pin 1 serves the digital PLL IC6 for all modes.

If D606 is in conduction (depends on the DC level of the input signal) the video composite also passes on to Q2, for serving the TDA2595. In this case D601 is blocked and the output pin 1 of the LM1881 is not used.

The TDA2595 is used as sync separator for video composite since its input is noise - integrating. In that case the transistor Q596 is saturated and D601 is blocked.

If the sync input is HS or CS, then , the LM1881 is used as sync separator since it has no integrator at the input.
The composite sync output HS / CS, pin 1, is proceeding to IC1 via a buffer Q2 (Q596 is not saturated then).

The output pin 9 of IC1 is providing vertical pulses which are now sent to the base of Q7. If we assume that the switcher Q6 is conducting (see later), the negative pulses on the collector of Q7 can trigger the vertical oscillator.

The oscillator can also be triggered by means of the vertical pulses **V Sync,** which come straight from an BNC input (via the differential input, at the base of Q4.

Note that an optional HDTV interface with tri-level sync may be connected to the J7 connector.

2) By means of the vertical pulses VSync, if applied separately.

These vertical pulses enter the board at contact 13 of the J4A connector and are capacitively coupled to the base of Q4.

The amplified negative pulses on the collector trigger the oscillator now via D10 / D7.

To prevent triggering via Q7, the fet Q6 is now blocked as follows:

Each time a VS pulse arrives on the base of Q4, capacitor C23 is charged via D9 / Q4. Consequently, the gate of Q6 is low and Q6 is blocked, to disconnect the emitter of Q7.

c) Barco made IC : 4 x digital controlled potentiometer.

The voltage or waveform, applied between **VRPx** and **VRNx,** the two extremities of a potentiometer, is adjustable in 128 steps through the remote control (I2C bus). The output, or, the 'slider' voltage is available at **VOx**. The corresponding pins are eg. VRP**1**, VRN**1** and VO**1.**

We find **4** of such potentiometers **in one chip,** and there are three of these chips on the subunit: IC1, IC2 and IC3 , which we will meet in the explanations hereafter.

The output waveform or voltage is controlled by the **SCL** (Serial Clock) and **SDA** (Serial Data) lines which are connected to the microprocessor of the controller board.

The address info, arriving via the data SDA line, is identified by a hardware connection of the address pins of the chip (the address pins are differently connected for each chip).

Obviously, as there are 4 potentiometers, the address of the chip is followed by a '*slave- address*' to drive the requested potentiometer in the chip itself.

d) Vertical Linearity control.

The V PAR (Vertical Parabola) signal at the emitter of Q2 is divided by R23 / R100 and applied to the potentiometer "1" of IC2 (pin 19). The adjusted parabola at output VO1 , pin 25, is now sent to the non-inverting input of IC8 whereas the full amplitude of the parabola is applied to the inverting input of the OPAMP (voltage difference amplifier). The output is then added to the V ST (Vertical Sawtooth) at pin 17 of the same IC2.

e) The vertical autolock circuit - Generation of ABL pulses.

This circuit is built up around Q19 / OP AMP in TL084 (IC7) / 353 (IC9), Q11 and Q12.

The vertical sync pulses are taken at the collector of Q7 and differentiated by C9 / R16.

This differentiation produces a negative, followed by a positive pulse and it is this positive pulse that triggers the transistor Q19.

The output of the OP AMP, behaving as a voltage comparator, is fed back to the base of the transistor in order to prevent it from retriggering as long this output is low .

However, the negative transition of this output voltage is slightly delayed by C30 not to disturb the trigger pulse.

The non-inverting input is pulled up to the +12 Volts line by R108 and a capacitor C31 is connected to ground.

When no trigger pulses are applied to the base of Q19, pin 12 is at +12 volts and obviously the output is equally at 12 volts.

Whenever a trigger pulse (vertical pulse) is applied on the base, the capacitor C31 is discharged via Q19, and the output pin 14 switches to the -12 volts.

As pin 12 is pulled up to the +12 volts, the capacitor C31 charges up again to the +12 volts and from the moment the voltage equals the voltage of the inverting input, the output switches high again.

D38 gets blocked and the base of Q19 is free for a next trigger pulse.

When the next trigger occurs (next vertical pulse), the cycle starts all over again.

The time between two consecutive pulses, being the vertical period, determines the time the output is high as the time the output is low is invariable and determined by the time constant C31/R108 and the voltage set at pin 13.

The duty cycle of this squared waveform is thus proportional with the vertical period.

This squared waveform is now clamped at ground by D35 as only to allow the positive part to charge the capacitors C62/ C61(= integration).

D34 and D36 provide a rapid change in ' both directions' of the voltage across these capacitors.

The resulting voltage at the input of the buffer IC9 (353) is proportional with the vertical period, and consequently a measure of the vertical frequency (= frequency to voltage conversion).

When the vertical frequency increases, the voltage on C61 decreases, which results in a less conducting Q11 and obviously a decrease of the **charging current** of Q12 (voltage to current conversion).

The **Vert HOLD- H** (P2) allows an adjustment of the gain and thus of the highest frequency that can be locked by this system .

Generation of ABL pulses :

Two pulses are generated with the two monoflops in IC15. The first monoflop is triggered with V_ST and the second one with the inverted output pulse of the first one.

*ABL DEFL PULSE : this pulse causes an overshoot in the vertical deflection at the end of the vertical retrace time in order to make invisible the spot, as, during this time the blanking is disabled.

*ABL PULSE : this pulse determines the exact time of implementation of the black current and the measurement of this implemented current.

f) Vertical output stages - Vertical shift - Vertical amplitude.

Vertical amplitude - ABL Deflection Overshoot:

The vertical sawtooth at the emitter of Q10 is leaving the main board and reaches the subunit to be applied to IC2 (VRN0 and VRP0). The output is VO0 (pin 24) and is coming back to the board at J4 (4) of the edge connector.
It is now buffered twice with Q27 and Q28.
The switcher Q29 at the base of Q28 is driven with the ABL DEFL PULSE in order to cause an overshoot in the vertical deflection during the time the ABL circuit is active.

It is now capacitively coupled to the inverting inputs of the power amplifiers IC11 / IC12 / IC13 together with a DC-voltage (Vertical Shift voltage).

The amplitudes for the red and blue can be adjusted by P3 and P4 to allow a matching with the green and to minimize the convergence corrections.

Vertical shifts :

These DC voltages are adjusted in IC3 of the subunit (outputs 25, 26, 27).

The big tolerances on the deflection units and the stigmators require a coarse alignment of the shift for red and blue in order to improve the resolution of the digital potentiometers.

This pre-alignment or coarse alignment is done by the multiturn potentiometers P620 and P621. The voltages applied to the extremities of these potentiometers are inversed when moving the vertical scan inversion switch (switching from ceiling to table or vice versa).

An " **VS I** " info is therefore sent to the switching transistors Q611 / Q612.

This "VS I " is at ground level or not at ground (= 'open'). It is a info coming from the contact of the vertical scan inversion switch on the frame.
One of the two transistors is in conduction, depending on the voltage at Q611's base.

When the green raster is moving on the screen, the red and blue rasters move also allowing a quick adjustment of the three colours.

Vertical output stages :

The amplified sawtooth output currents flow in the respective scan coils and find their way back to ground through the feedback resistors R44 / R97 / R79.

The amplitude of the waveforms across these resistors is proportional with the vertical amplitude and can obviously be utilized as feedback to stabilize the vertical amplitude.

The TDA8172 has an internal boost up circuit which allows a short vertical retrace time by boosting the supply voltage during the retrace time.

At the end of the scan time, the voltage across the capacitors C35, C55 and C52 is switched in series with the supply voltage of +8 volts by means of a transistor in the chip .

As a result, the voltage during flyback is approximately
8 + (8+17) = **33 volts.**

This boosting up means a possible **rapid change** of the current in the coils in order to realize a short flyback time.

g) Vertical scan fail detection.

The sawtooth waveforms across the feedback resistors of 2E2 are capacitively coupled to the base of a transistor. The conduction time of these transistors is proportional with the amplitude of the sawtooth. In normal scanning conditions, the average DC voltages on the three collectors is too low to forward bias Q14.
As soon one amplitude is too low or absent, Q14 is saturated and the SF line is dropped to ground level.

On the other hand, the diode D16 and the saturated Q14 **cause a permanent conduction of the Q15** transistor (via D16).

The **V BL** (Vertical Blanking) output is obviously permanently high and this means also a total blanking or **cut-off of the three crt's.**

h) Vertical blanking during retrace :

Vertical blanking pulses are picked up at pin 6 of the blue output stage and are applied through C63, D41 and R306 at the base of Q20. D41 prevents the BL pulses to penetrate into the vertical output stages.

On the same base arrive the pulses **BL** for the top and bottom blanking. These pulses are adjusted on the subunit (see further top / bottom blanking).

Tr Q20 drives Q15 and the **V BL** pulses leave at A,C(26) of the J4B edge connector to the decoder, where they are mixed up with the horizontal blanking pulses.

A differentiated vertical sawtooth is added to the base of Q15 in order to blank from the start of the flyback. Indeed, the flyback pulse from the output stage is slightly delayed.

II. EAST - WEST Correction a) Generation of a frequency independent vertical sawtooth :

This generator is built up around Q4 / Q11 / Q10 / IC7. The vertical sawtooth **"V ST"** is buffered and then differentiated to get pulses driving on and off the switching Fet Q10.

When this Fet is on, the output is shorted to the input. This input is approximately ground level since the other input of the OPAMP, pin 10, is connected to ground. The time that Q10 is not in conduction, C18 is charged up from the output voltage at pin 8 via D6 / R46 towards the negative voltage at pin 14 of IC7.
The charging current depends obviously upon this negative voltage and the latter is the averaged sawtooth obtained by integration.

By doing this, a constant sawtooth amplitude of 1.9Vpp is got at pin 8. The sawtooth starts from 0 volts due to the clamping transistor Q10.

b) Trapezoidal distortion correction (on the subunit) **:**

The sawtoothed waveform at pin 8 of IC7, is applied to the inverting pin 2 of IC7 in order to obtain two opposite phase sawtoothed waveforms.

These two signals are now entered into a digital potentiometer in IC1 (pins 16 / 17 or VRN**0** and VRP**0**). The corresponding output is VO**0** and via R45 the adjusted sawtooth (in amplitude and phase) reaches the adder- amplifier TL084, pin 5.

c) Parabolic or pincushion distortion correction :

To generate the parabolic waveform, a multiplier is used.

The MC1495 is a wideband monolithic four-quadrant multiplier. The output is a linear product of the two input voltages.
In this case the two input signals are the same (a sawtooth voltage).
One of the sawtooths is applied between pins 4 and 8 , whereas the second (and same sawtooth) one is applied between pins 9 and 12.
But, since the pins 4 - 12 and 9 - 8 are connected together, the output is a nice parabolic shaped waveform (= product of two linear ramps).
The open collector outputs are pulled up to the + supply line and sent to an OPAMP in IC8

The parabolic signal is then capacitively coupled to an inverter - OPAMP . The two opposite phased signals are then sent to a digital potentiometer in IC1 for the pincushion correction.

The output VO2 is now mixed up with the previously discussed sawtooth output and passing the line frequency depending amplifier described hereafter.
The parabolic waveform is also amplified by Q3 and led out by the buffer Q2 to the focus board.

c) Frequency depending correction :

The gain of the OP AMP in IC7 is variable and depends on the divider R31 / Q1. The Fet Q1 is biased by the output of another OP AMP (integrator-comparator) in IC7 (pin 1).

The DC level of the non-inverting input, pin 3, is set by R30 / R24. This DC voltage now is amplified by a factor determined by the ratio R31 / Q1. The east - west waveform obviously 'undergoes' the same gain.

The output now (sum of DC and east-west waveforms) is sent to a 'comparator' in IC7. But the east - west waveform is filtered out by the R55 / C28 network. This resulting amplified dc voltage is compared to a portion (R28 / R22) of the HTHD' voltage which is applied to the non-inverting input. The output of the comparator is sent now to the gate of Q1 via a filter network.

This filter network also depends on the state of Q306. The VSI line can switch on and off Q306 in order to add or disconnect R309 / C304. There is thus a correction depending upon the ceiling table position.

NOTE : The J6 contacts must be shorted for an off-axis projection.
For IN - AXIS projection it is recommended to remove the strap to guarantee an optimum geometry.

This gate voltage changes or adapts the gain of the named amplifier as long as the voltages at the comparator inputs are not the same.
An increase of the line frequency means also an increase of the +HTHD' voltage, thus an increase of pin 5 voltage, so, a change of the Q1 / R31 ratio or of the gain.

By this looped circuit we obtain an automatic tracking of the east-west correction with the line frequency without any alignment.

d) Power amplifier :

The sum of the corrections is now sent back to the motherboard to be amplified by IC10 (TDA2030) before reaching the 'hor. defl.' board to modulate the scan voltage HTHD for the horizontal deflection circuits.

III. Phase control - Skew and Bow

Introduction

The midline bow and skew dynamic corrections are added to the DC phase control of the picture. These corrections change in a dynamic manner the horizontal phase of the picture during the vertical scan.
The position of the HS pulse at pin 4 of the TDA2595 is determined by the position of the pulse sent to pin 2 (Flyback Pulse Simulation). The second PLL of the TDA2595 adjusts then the Hor drive output pin 4 " back in the time" in accordance with the position of the simulated pulse.
The original pulse may now be delayed in the time to determine the start of the scanning with respect to the reference video (= phase control).
This delay happens in two steps by means of two monoflops. The first one realizes the phase control itself. The second one the skew and bow corrections. The width of the final pulse **"H PULS"** is significant for the total delay and the falling edge of this pulse triggers a third monoflop IC5 on the main board which also sets the width of the real horizontal drive pulse.

The same pulse H PULS' is also sent to the microprocessor board to lock the text and generate the pixelclock.,

a) Phase control (IC12)

The HS pulse at pin 4 triggers the monoflop IC12 on the positive going edge. The absolute value of the phase control may be lower for the high scanning line frequencies than for the low scanning frequencies. This is automatically realized by a loop system :
The pulse train at pin 5 's output is integrated with R78 / C43. The obtained DC voltage across C43 is proportional with the width of the pulses (= adjusted phase) and the line frequency. The required phase shift is applied to the base of Q7 via R84 coming from IC2.
The voltage difference between the two collectors of Q7 is now the base-emitter voltage of Q6.
This transistor is the current source for pin 7 (Rx / Cx) and automatically adapts the length of the output pulse to the line frequency.

The width of the output pulse is regulated by the current generator as long as the voltages at the bases of Q7 are not the same (balanced).

b) Skew and Bow Corrections

The adjusted sawtooth (skew) and parabolic (bow) waveforms are added with R44 and R42, and sent to an inverting OP AMP in IC8.

The monoflop in IC12 is triggered on the positive going edge of the pulse of pin 12. The width of the output pulse is modulated by the waveform applied via D16. Here again, the range is tracked with the line frequency by applying the HTHD' voltage through R77 / R75.

The output pulse of pin 4 is now inverted with Q8 and the **"H PULS"** is sent to the last monoflop (IC5) in the row located on the main board.

V. Horizontal oscillator - Horizontal autolock.

a) Horizontal autolock :

The sync separator IC14 serves Q1 with composite sync.

The amplified sync is then split to the PLL (IC6) and transistor Q17 of the coincidence detector.

The line oscillator in the TDA2595 is locked to its exact frequency by a PLL in the chip. Unfortunately, the latter has a very limited lock range of approx. 1.2 khz only and cannot lock the range from 15 to 92 khz.

An extra PLL is utilized, the **4046** (IC6), for the **coarse alignment**. The fine tuning is performed by the PLL in the TDA2595 itself.

This PLL - IC consists of two phase comparators, and a VCO.

For this application the second phase comparator only is used, the VCO is not used either.

The **'signal input'** (pin 14) is the line oscillator of the TDA2595 (squared hor. drive output of the TDA2595) and the **'comparator input'** (pin 3) is the composite sync having been inverted by Q1.

The corresponding output is pin 13, a three-state output, and, initially biased at 6 volts with R89 / R92.

If the output is 'high impedant or open' (in the locked state) the voltage is **set at 6 volts** with R92/89.

This voltage is buffered by a voltage follower in IC7 and then reaching pin 5 of another OPAMP, acting as a voltage comparator, in IC7.

The other input, pin 6 of IC7 is set at approximately 7.7 volts with R94 / R90.

Consequently, the **COIN NEG (pin 7) is low in the locked position.**

b) Line oscillator lower than the horizontal sync :

If we assume that the local oscillator frequency is lower than the hor. sync pulses, then , the voltage on C8 decreases (pull down state). This voltage is now buffered and sent to pin 5 of IC7. But, because of the zener Z3, this voltage cannot decrease and stays at approximately 6 volts.

The other pin 6 is initially at 7.7 volts (divider R90/R94). This voltage now decreases because the transistor Q17 discharges the capacitor C97 as follows:

The squared hor. drive of pin 4 switches on and off Q18.

When the frequency of the local line oscillator is different from the hor sync (as we assumed), some pulses arrive on the base of Q17 at the moment Q18 is not saturated.

These hor sync pulses turn on Q17 and C97 is discharged. The voltage at pin 6 drops and becomes lower than the other input ,pin 5.

The output **COIN NEG (pin 7) switches 'high' in the unlocked state.**

The gate of the mosfet Q9 is now positive and Q9 conducts to connect the output pin 8 of the PLL (IC7) to the inverting input pin 2 of the next 'proportional - integrating' OP AMP.

The decreasing voltage output of the PLL is inverted by IC7 and transistor Q21 draws more current out of pin 14 of the TDA2595 in order to increase the frequency of the line oscillator.

As the line oscillator frequency is increasing, the PLL output increases also.

This continues up to the moment there is coincidence between the hor. drive and the hor. sync at the base of Q17.

Once coincidence is reached, the voltage at pin 6 is again 7.7 volts and the state of the Mosfet Q9 changes again to a stable and blocked position.

All this means, we have reached now the capture range of the PLL in the TDA2595. From now onwards the PLL in the TDA2595 takes over as follows :

As long there is no coincidence, Q33 is blocked and the PLL output pin 17 is disconnected from the VCO input pin 14. Q33 is closed the moment there is coincidence.

The line frequency is fine tuned by the PLL output pin 17 of the TDA2595 , as long this PLL output has not reached the 6 volts installed at pin 3 of IC7.

Therefore, the pin 17 output is sent to the same pin 2 of the integrating OP AMP.

In the locked state of the PLL of the TDA2595 this output is indeed 6 volts.

Any change in frequency is now compensated or corrected by the PLL of the TDA2595, and the 4046 is switched off.

Above circuit does not require any alignment as it is completely self-aligning, and guarantees a correct locking to the center of the lock range of the PLL system in the TDA2595.

c) Line oscillator higher than the hor sync :

A similar explanation is valuable here, although, in this case the PLL's output is increasing now. The zener diode Z3 does not limit the voltage because the voltage across it is not 6 volts. Pin 5 'follows' the PLL output.

As there is no coincidence as well, the other input of the comparator goes down resulting in a 'high' output for pin 7.

Q9 is turned on and the PLL output can correct the line oscillator frequency.

VI. Adjustable TOP/BOTTOM BLANKING.

On the subunit, blanking pulses are generated for an adjustable blanking of the top and the bottom of the picture by the user.

To achieve a high accuracy, the sawtooth is passed into a so-called **'dead band response amplifier'** built up around an OP AMP in IC8.

The sawtooth is entered at pin 9 of IC8. The output is inverted and the ramp is steepened at the start and the end.

Two clipping levels are installed by clamping circuits in order to obtain a complete feedback between these levels (= center of the screen).

As soon the first clipping level is reached, the output is invariable. and obviously no change any more in the output is noticed.

The transformed waveform is now sent to two level detectors in IC9.

The voltage clipping levels of the other inputs of the comparators are regulated by the potentiometers in IC2 and IC3.

VII. Simulation of the Fly-back pulse for the PLL of the TDA2595.

By means of the monoflops in IC4 a 'simulated' line (flyback) pulse is generated. The first monoflop introduces a small delay for the pulse and the second one determines the width.

The introduced delay is used to 'mislead' the PLL and consequently to allow a 'negative' phase alignment. Indeed, this phase comparator (PLL) determines the phase of the squared output at pin 4.
It normally has to compensate for the delays in the power switching of the deflection circuits. If we can mislead this PLL by giving a 'wrong' info, the hor. output at pin 4 is anticipating the reference (video).
This allows now a range for the phase going from a 'negative' phase shift to a positive one.

VIII. BLANKING - COINCIDENCE.

In the event of a non - coincidence, the transistor Q16 gets in complete saturation since the **COIN NEG** signal is at a high level.

This results in :

- Led D20 comes on to show the non - coincidence situation.

- if the strap J5 is in position, the transistor Q15 is also in saturation and causes a total blanking of the three crt's.

Parts listing Sync+Vertical Deflection module R7622695

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
110	R133039	SPR L 8 D 4 D 1.2 C	5
90	R133074	Q ACC ISO SIL600 W 30	0,15
80	R3133921	J MD JMP P 1 E1SN	1
	R34217004	WU UL1007 AWG24 ST BK 40	1
	R34217005	WU UL1007 AWG24 ST BK 50	1
	R3484096	CD CT FTMT P 9 140	1
	R3484124	CD CT FTMT P12 140	1
50	R3631049	SCR D933 M 3 X 6 XIC	14
40	R3631059	SCR D933 M 3 X 8 XIC	3
150	R367699	RVT CHB D2.38L6.35 P A	6
100	R722276	LOCK PJ49 PCB UN CPL	1
	R762268S	**UN VER+S PJ49 G801 V_HOLD**	1
70	R802628	Q ACC SPG 1X 3.1	6
10	R802644	HTSNK PJ49 VER	1
20	R802645	HTSNK PJ49 VER FIX LATH	1
30	R805147	FRM PJ49 VER SCRN FIX	1
60	Z3676041	SPR L37 H 5,5 M3 BIN	4
C 1	R111487	C EL RA 100M Z 40E2 85	1
C 2	R113730	C POMERA 330N K 63E2	
C 3	R112743	C CE MI 2N2K100E2	
C 4	R111531	C EL RA 10M M 35E2 85	
C 5	R111678	C EL BRA 10M M 25E2 85	
C 6	R111550	C EL RA 4M7M 50E2 85	
C 7	R112763	C CE MI 10N U 63E2	1
C 8	R113724	C POMERA 100N K 63E2	
C 9	R112762	C CE MI 4N7U100E2	
C 10	V114098	C POMERA 2M2M 50E2 100	1
C 11	R113728	C POMERA 220N K 63E2	
C 12	R113728	C POMERA 220N K 63E2	
C 13	R114085	C POMERA 330N K 63E2	1
C 14	R114085	C POMERA 330N K 63E2	1
C 15	R111531	C EL RA 10M M 35E2 85	
C 16	R111546	C EL RA 1M M 50E2 85	
C 18	R111531	C EL RA 10M M 35E2 85	
C 19	R113724	C POMERA 100N K 63E2	
C 20	R111531	C EL RA 10M M 35E2 85	
C 21	R115936	C PP RA 6N8J 63E2 85	1
C 22	R111550	C EL RA 4M7M 50E2 85	
C 23	R111550	C EL RA 4M7M 50E2 85	
C 24	R112737	C CE MI 680P K100E2	1
C 25	R113728	C POMERA 220N K 63E2	
C 26	R113728	C POMERA 220N K 63E2	
C 27	R112737	C CE MI 680P K100E2	1
C 28	R112737	C CE MI 680P K100E2	1
C 29	R113724	C POMERA 100N K 63E2	
C 30	R113720	C POMERA 47N K 63E2	
C 31	R114079	C POMERA 100N M 63E2	
C 32	R113724	C POMERA 100N K 63E2	
C 33	R112364	C N750MI 150P G100E2	
C 34	R111476	C EL RA 47M M 25E2 85	1
C 35	R111488	C EL RA 220M Z 40E2 85	1
C 36	R112366	C N750MI 220P G100E2	1
C 37	R111678	C EL BRA 10M M 25E2 85	1
C 38	R112363	C N750MI 120P G100E2	1
C 39	R112365	C N750MI 180P G100E2	1
C 41	R113728	C POMERA 220N K 63E2	
C 42	R112737	C CE MI 680P K100E2	1
C 43	R113724	C POMERA 100N K 63E2	
C 44	R113729	C POMERA 270N K 63E2	
C 45	R113729	C POMERA 270N K 63E2	
C 46	R113729	C POMERA 270N K 63E2	
C 47	R1137171	C POMERA 27N K100E2	
C 48	R1137171	C POMERA 27N K100E2	
C 49	R1137171	C POMERA 27N K100E2	
C 50	R113724	C POMERA 100N K 63E2	
C 51	R112362	C N750MI 100P G100E2	1
C 52	R111488	C EL RA 220M Z 40E2 85	1
C 53	R113724	C POMERA 100N K 63E2	
C 54	R113728	C POMERA 220N K 63E2	
C 55	R111488	C EL RA 220M Z 40E2 85	1
C 56	R113728	C POMERA 220N K 63E2	
C 57	R112737	C CE MI 680P K100E2	1
C 58	R113728	C POMERA 220N K 63E2	
C 59	R112737	C CE MI 680P K100E2	1
C 60	R1137161	C POMERA 22N K100E2	
C 61	R111550	C EL RA 4M7M 50E2 85	
C 62	R111550	C EL RA 4M7M 50E2 85	
C 63	R111550	C EL RA 4M7M 50E2 85	
C 64	R114068	C POMERA 10N M 63E2	1
C 65	R111531	C EL RA 10M M 35E2 85	1
C 66	R113724	C POMERA 100N K 63E2	
C 67	R111531	C EL RA 10M M 35E2 85	
C 68	R111477	C EL RA 100M Z 25E2 85	
C 69	R115928	C PP RA 3N3J 63E2 85	1
C 70	R114068	C POMERA 10N M 63E2	1
C 71	R113724	C POMERA 100N K 63E2	
C 72	R111469	C EL RA1000M M 16E2 85	1
C 73	R114087	C POMERA 470N M 63E2	
C 74	R112363	C N750MI 120P G100E2	1
C 75	R113724	C POMERA 100N K 63E2	
C 76	R113724	C POMERA 100N K 63E2	
C 79	R111531	C EL RA 10M M 35E2 85	
C 80	R1114909	C EL RA1000M M 50E3 105	1
C 81	R1114909	C EL RA1000M M 50E3 105	1
C 82	R111531	C EL RA 10M M 35E2 85	
C 83	R112743	C CE MI 2N2K100E2	
C 84	R112763	C CE MI 10N U 63E2	
C 85	R112763	C CE MI 10N U 63E2	
C 86	R112763	C CE MI 10N U 63E2	
C 87	R111476	C EL RA 47M M 25E2 85	1
C 88	R115940	C PP RA 10N J 63E2	1
C 89	R1159161	C PP RA 1N J100E2 85	
C 90	R112739	C CE MI 1N K100E2	1
C 91	R113724	C POMERA 100N K 63E2	
C 92	R112739	C CE MI 1N K100E2	
C 93	R112739	C CE MI 1N K100E2	
C 94	R112739	C CE MI 1N K100E2	
C 95	R113724	C POMERA 100N K 63E2	1
C 96	R113724	C POMERA 100N K 63E2	
C 97	R111466	C EL RA 100M Z 16E2 85	1
C100	R111531	C EL RA 10M M 35E2 85	1
C101	R111531	C EL RA 10M M 35E2 85	
C109	R113724	C POMERA 100N K 63E2	1
C201	R113724	C POMERA 100N K 63E2	
C202	R113724	C POMERA 100N K 63E2	
C203	R113724	C POMERA 100N K 63E2	
C204	R113724	C POMERA 100N K 63E2	
C205	R113724	C POMERA 100N K 63E2	
C206	R1115695	C EL RA 10M M250E2 85	1
C207	R113730	C POMERA 330N K 63E2	
C208	R114068	C POMERA 10N M 63E2	1
C210	R114068	C POMERA 10N M 63E2	1

C604	R113724	C POMERA 100N K 63E2	1
C624	R113724	C POMERA 100N K 63E2	
C625	R113724	C POMERA 100N K 63E2	
C634	R112763	C CE MI 10N U 63E2	
D 1	R131637	D R BA158 600400 DO7	
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R131621	D S 1N4148 075150 DO35	
D 8	R131621	D S 1N4148 075150 DO35	
D 9	R1316361	D Y BAT85 030200 DO34	
D 10	R1316361	D Y BAT85 030200 DO34	
D 11	R131637	D R BA158 600400 DO7	
D 12	R131637	D R BA158 600400 DO7	
D 13	R131637	D R BA158 600400 DO7	
D 14	R131621	D S 1N4148 075150 DO35	
D 15	R131646	D R 1N4007 10201A DO41	
D 16	R131621	D S 1N4148 075150 DO35	
D 18	R131621	D S 1N4148 075150 DO35	
D 19	R131621	D S 1N4148 075150 DO35	
D 20	R131662	D LED D3 T RD	1
D 21	R131637	D R BA158 600400 DO7	
D 22	R131621	D S 1N4148 075150 DO35	
D 23	R131646	D R 1N4007 10201A DO41	
D 24	R131621	D S 1N4148 075150 DO35	
D 25	R131637	D R BA158 600400 DO7	
D 28	R131621	D S 1N4148 075150 DO35	
D 30	R131621	D S 1N4148 075150 DO35	
D 31	R131637	D R BA158 600400 DO7	
D 32	R131637	D R BA158 600400 DO7	
D 33	R131646	D R 1N4007 10201A DO41	
D 34	R131621	D S 1N4148 075150 DO35	
D 35	R1316361	D Y BAT85 030200 DO34	
D 36	R131621	D S 1N4148 075150 DO35	
D 37	R131621	D S 1N4148 075150 DO35	
D 38	R131621	D S 1N4148 075150 DO35	
D 39	R131621	D S 1N4148 075150 DO35	
D 40	R131621	D S 1N4148 075150 DO35	
D 41	R131621	D S 1N4148 075150 DO35	
D 42	R1316361	D Y BAT85 030200 DO34	
D 43	R1316361	D Y BAT85 030200 DO34	
D 44	R1316361	D Y BAT85 030200 DO34	
D 45	R131621	D S 1N4148 075150 DO35	
D 46	R131621	D S 1N4148 075150 DO35	
D 51	R131621	D S 1N4148 075150 DO35	1
D601	R131621	D S 1N4148 075150 DO35	
D606	R131621	D S 1N4148 075150 DO35	
D633	R131637	D R BA158 600400 DO7	1
I 1	R132762	U 2595 TDA DIP18 P	1
I 2	R134002	U 7812 TO220 P	1
I 3	R134016	U 7912 TO220 P	1
I 4	R1373325	U 4098B DIP16 P	1
I 5	R1373325	U 4098B DIP16 P	1
I 6	R137602	U 4046B DIP16 P	1
I 7	R134113	U 084 TL DIP14 P	1
I 8	R134025	U 78L24 TO92 P	1
I 9	R134116	U 353 LF DIP8 P	1
I 10	R132751	U 2030V TDA TO220T P	1
I 11	R132827	U 8172 TDA H_W P	1
I 12	R132827	U 8172 TDA H_W P	1
I 13	R132827	U 8172 TDA H_W P	1
I 14	R132817	U 1881 LM DIP8 P	1
I 15	R1373325	U 4098B DIP16 P	1
J 1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 2	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 5	R3132862	J MD1 MBT P 2 E1SN	1
J 7	R313926	J CT H MBT P 6 M2SN	1
J 8	R313922	J CT H MBT P 2 M2SN	1
J 9	R313930	J CT H MBT P10 M2SN	1
J100	R3132845	J CIS MBS P 5 R1SN LONG	1
J102	R3132845	J CIS MBS P 5 R1SN LONG	1
L 1	R305913	CH MNS AX 12 UH 3A	1
L 2	R305913	CH MNS AX 12 UH 3A	1
L 3	R3061222	CH AX NS 1.5 UH	1
L 4	R3061222	CH AX NS 1.5 UH	1
L 5	R3061222	CH AX NS 1.5 UH	1
P 1	R106836	R TCE V500K K 0W5 S10SS	1
P 2	R106833	R TCE V100K K 0W5 S10SS	1
P620	R107534	R MCE H100K K 0W75 M20SS	1
P621	R107534	R MCE H100K K 0W75 M20SS	1
P626	R106827	R TCE V 2K K 0W5 S10SS	1
P627	R106827	R TCE V 2K K 0W5 S10SS	1
PC	R780443	PCS PJ53 V700 SYN PHDETSW	1
PC	R780017	PCD PJ49 801 VER	1
Q 1	R1314182	Q BC559C P SS TO92	
Q 2	R1314295	Q BC549B N SS TO92	
Q 3	R1314181	Q BC559B P SS TO92	1
Q 4	R131411	Q BC549C N SS TO92	
Q 5	R131411	Q BC549C N SS TO92	1
Q 6	R132910	Q BS170 FN SS TO92	1
Q 7	R131411	Q BC549C N SS TO92	
Q 8	R1314072	Q BC547A N SS TO92	1
Q 9	R1314651	Q BF245B FN SS TO92	1
Q 10	R131411	Q BC549C N SS TO92	
Q 11	R1314295	Q BC549B N SS TO92	
Q 12	R1314181	Q BC559B P SS TO92	1
Q 14	R131411	Q BC549C N SS TO92	
Q 15	R1314131	Q BC557B P SS TO92	
Q 16	R131411	Q BC549C N SS TO92	
Q 17	R131411	Q BC549C N SS TO92	
Q 18	R1314295	Q BC549B N SS TO92	1
Q 19	R131411	Q BC549C N SS TO92	
Q 20	R131411	Q BC549C N SS TO92	
Q 21	R1314295	Q BC549B N SS TO92	
Q 22	R131411	Q BC549C N SS TO92	
Q 23	R131411	Q BC549C N SS TO92	
Q 24	R131411	Q BC549C N SS TO92	
Q 25	R132910	Q BS170 FN SS TO92	1
Q 26	R132916	Q BS250 FN SS TO92	1
Q 27	R131411	Q BC549C N SS TO92	
Q 28	R131411	Q BC549C N SS TO92	
Q 29	R132910	Q BS170 FN SS TO92	1
Q 30	R1314182	Q BC559C P SS TO92	1
Q 33	R132916	Q BS250 FN SS TO92	1
Q596	R132910	Q BS170 FN SS TO92	1
Q611	R1314181	Q BC559B P SS TO92	1
Q612	R1314181	Q BC559B P SS TO92	
R 1	R101544	R MF H 4K7 F 0W4 E3	
R 3	R101557	R MF H 56K F 0W4 E3	
R 4	R101152	R MF H 22K1 F 0W6 E4	
R 5	R101152	R MF H 22K1 F 0W6 E4	
R 6	R101565	R MF H270K F 0W4 E3	
R 8	R101536	R MF H 1K F 0W4 E3	
R 9	R101134	R CF H680E J 0W25	
R 10	R101140	R MF H 2K21F 0W6 E4	
R 11	R101165	R CF H270K J 0W25	
R 12	R101166	R CF H330K J 0W25	

R 13	R101150	R MF H 15K F 0W6 E4	
R 14	R101555	R MF H 39K F 0W4 E3	
R 15	R101284	R MF H 10M F 0W6 E4	
R 16	R101148	R CF H 10K J 0W25	
R 17	R101166	R CF H330K J 0W25	
R 18	R101164	R CF H220K J 0W25	
R 19	R101536	R MF H 1K F 0W4 E3	1
R 20	R101124	R CF H100E J 0W25	1
R 21	R101560	R MF H100K F 0W4 E3	1
R 23	R101568	R MF H470K F 0W4 E3	
R 24	R101168	R CF H470K J 0W25	
R 25	R101541	R MF H 2K7 F 0W4 E3	
R 26	R101550	R MF H 15K F 0W4 E3	
R 27	R101515	R MF H 1BE F 0W4 E3	
R 28	R101148	R CF H 10K J 0W25	
R 29	R101548	R MF H 10K F 0W4 E3	
R 30	R101530	R MF H330E F 0W4 E3	
R 31	R101168	R CF H470K J 0W25	
R 32	R101533	R MF H560E F 0W4 E3	
R 34	R101148	R CF H 10K J 0W25	
R 35	R101154	R CF H 33K J 0W25	
R 36	R101138	R CF H 1K5 J 0W25	
R 37	R101544	R MF H 4K7 F 0W4 E3	
R 38	R101529	R MF H270E F 0W4 E3	
R 39	R101536	R MF H 1K F 0W4 E3	
R 41	R101548	R MF H 10K F 0W4 E3	
R 42	R101546	R MF H 6K8 F 0W4 E3	
R 43	R101558	R MF H 68K F 0W4 E3	
R 44	R102604	R MF H 2E2 F 0W4	1
R 45	R101524	R MF H100E F 0W4 E3	
R 47	R101550	R MF H 15K F 0W4 E3	
R 48	R101500	R MF H 1E F 0W4 E3	
R 49	R101548	R MF H 10K F 0W4 E3	
R 50	R101548	R MF H 10K F 0W4 E3	
R 51	R101508	R MF H 4E7 F 0W4 E3	
R 52	R101136	R CF H 1K J 0W25	
R 53	R101160	R CF H100K J 0W25	
R 54	R101561	R MF H120K F 0W4 E3	
R 55	R101500	R MF H 1E F 0W4 E3	
R 56	R101548	R MF H 10K F 0W4 E3	
R 57	R101560	R MF H100K F 0W4 E3	
R 58	R101548	R MF H 10K F 0W4 E3	
R 59	R101546	R MF H 6K8 F 0W4 E3	
R 60	R101546	R MF H 6K8 F 0W4 E3	
R 61	R101524	R MF H100E F 0W4 E3	1
R 62	R101536	R MF H 1K F 0W4 E3	
R 63	R101524	R MF H100E F 0W4 E3	1
R 64	R101556	R MF H 47K F 0W4 E3	
R 65	R101547	R MF H 6K2 F 0W4 E3	
R 66	R101548	R MF H 10K F 0W4 E3	
R 67	R101552	R MF H 22K F 0W4 E3	
R 68	R101540	R MF H 2K2 F 0W4 E3	
R 69	R101124	R CF H100E J 0W25	
R 70	R101124	R CF H100E J 0W25	
R 71	R101124	R CF H100E J 0W25	
R 72	R101158	R CF H 68K J 0W25	
R 73	R101550	R MF H 15K F 0W4 E3	
R 74	R101155	R MF H 39K2 F 0W6 E4	
R 75	R101155	R MF H 39K2 F 0W6 E4	
R 76	R101524	R MF H100E F 0W4 E3	
R 77	R101500	R MF H 1E F 0W4 E3	
R 78	R101550	R MF H 15K F 0W4 E3	
R 79	R102604	R MF H 2E2 F 0W4	1
R 80	R101500	R MF H 1E F 0W4 E3	
R 81	R101524	R MF H100E F 0W4 E3	
R 82	R101558	R MF H 68K F 0W4 E3	
R 83	R101561	R MF H120K F 0W4 E3	
R 84	R101555	R MF H 39K F 0W4 E3	
R 85	R101561	R MF H120K F 0W4 E3	
R 86	R101555	R MF H 39K F 0W4 E3	
R 87	R101555	R MF H 39K F 0W4 E3	
R 88	R101561	R MF H120K F 0W4 E3	
R 89	R101143	R CF H 3K9 J 0W25	
R 90	R101160	R CF H100K J 0W25	
R 91	R101158	R CF H 68K J 0W25	
R 92	R101146	R MF H 6K81F 0W6 E4	
R 93	R101134	R CF H680E J 0W25	
R 94	R101158	R CF H 68K J 0W25	
R 95	R101148	R CF H 10K J 0W25	
R 96	R101148	R CF H 10K J 0W25	
R 97	R102604	R MF H 2E2 F 0W4	1
R 98	R101550	R MF H 15K F 0W4 E3	
R 99	R101148	R CF H 10K J 0W25	
R100	R101148	R CF H 10K J 0W25	
R101	R1011644	R MF H220K J 0W25	1
R102	R101556	R MF H 47K F 0W4 E3	
R103	R101148	R CF H 10K J 0W25	
R104	R101148	R CF H 10K J 0W25	
R105	R101549	R MF H 12K F 0W4 E3	
R106	R101548	R MF H 10K F 0W4 E3	
R107	R101548	R MF H 10K F 0W4 E3	
R108	R1011544	R MF H 33K J 0W25	1
R109	R101143	R CF H 3K9 J 0W25	
R110	R101139	R CF H 1K8 J 0W25	
R111	R101142	R MF H 3K32F 0W6 E4	1
R112	R101112	R MF H 10E F 0W6 E4	
R113	R101149	R MF H 12K1 F 0W6 E4	
R114	R101139	R CF H 1K8 J 0W25	1
R115	R101148	R CF H 10K J 0W25	
R116	R101551	R MF H 18K F 0W4 E3	1
R117	R101135	R CF H820E J 0W25	
R119	R101144	R CF H 4K7 J 0W25	
R120	R101556	R MF H 47K F 0W4 E3	1
R121	R101228	R CF H220E J 0W5	
R122	R101146	R MF H 6K81F 0W6 E4	
R123	R101547	R MF H 8K2 F 0W4 E3	
R124	R101562	R MF H150K F 0W4 E3	
R125	R101562	R MF H150K F 0W4 E3	
R126	R101562	R MF H150K F 0W4 E3	
R127	R101156	R MF H 47K5 F 0W6 E4	
R128	R101549	R MF H 12K F 0W4 E3	
R129	R101538	R MF H 1K5 F 0W4 E3	
R130	R101550	R MF H 15K F 0W4 E3	
R131	R101542	R MF H 3K3 F 0W4 E3	
R132	R101536	R MF H 1K F 0W4 E3	
R133	R101538	R MF H 1K5 F 0W4 E3	
R134	R101555	R MF H 39K F 0W4 E3	
R135	R101553	R MF H 27K F 0W4 E3	
R136	R101552	R MF H 22K F 0W4 E3	
R137	R101548	R MF H 10K F 0W4 E3	1
R138	R101544	R MF H 4K7 F 0W4 E3	
R139	R101558	R MF H 68K F 0W4 E3	
R140	R101551	R MF H 18K F 0W4 E3	
R186	R101572	R MF H 1M F 0W4 E3	1
R201	R101566	R MF H330K F 0W4 E3	
R202	R101566	R MF H330K F 0W4 E3	
R203	R101552	R MF H 22K F 0W4 E3	
R301	R101552	R MF H 22K F 0W4 E3	
R302	R101552	R MF H 22K F 0W4 E3	
R303	R101125	R CF H120E J 0W25	
R304	R101167	R CF H390K J 0W25	
R305	R101146	R MF H 6K81F 0W6 E4	
R306	R101540	R MF H 2K2 F 0W4 E3	
R307	R101545	R MF H 5K6 F 0W4 E3	
R308	R101546	R MF H 6K8 F 0W4 E3	
R599	R101536	R MF H 1K F 0W4 E3	

R600	R101527	R MF H180E F 0W4 E3	
R605	R101555	R MF H 39K F 0W4 E3	
R607	R101548	R MF H 10K F 0W4 E3	
R608	R101527	R MF H180E F 0W4 E3	
R609	R101552	R MF H 22K F 0W4 E3	
R610	R101548	R MF H 10K F 0W4 E3	
R613	R101560	R MF H100K F 0W4 E3	
R614	R101558	R MF H 68K F 0W4 E3	
R615	R101560	R MF H100K F 0W4 E3	
R616	R101526	R MF H150E F 0W4 E3	
R617	R101540	R MF H 2K2 F 0W4 E3	
R618	R101526	R MF H150E F 0W4 E3	
R619	R101540	R MF H 2K2 F 0W4 E3	
R622	R101571	R MF H820K F 0W4 E3	
R623	R101571	R MF H820K F 0W4 E3	
R628	R1011481	R CF H 9K1 J 0W25	1
R629	R1011481	R CF H 9K1 J 0W25	1

S 1	R324182	SW DIP 1M P 1 BT SN	1
SR 1	R1011917	R CFFH E22K 0W4	1
SR 2	R1001909	R CFFV E1 K 0W4 E2	1
SR 3	R1003009	R CFFV 1E J 0W25 E1	1
SR 4	R1003009	R CFFV 1E J 0W25 E1	1
SR 5	R1001129	R CFFV 10E J 0W25 E2	1
SR 6	R1011046	R CFFH 2E2 J 0W25	1
SR 7	R1003009	R CFFV 1E J 0W25 E1	1
Z 1	R131768	D ZEN 7V5 0W5 B DO35	1
Z 2	R131716	D ZEN 5V1 0W5 C DO35	1
Z 3	R131734	D ZEN 5V6 0W5 B DO35	1
Z 4	R131740	D ZEN 12V 0W5 C DO34	

Parts listing Sub module R762268S

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R3133921	J MD JMP P 1 E1SN	1
	R34225405	WU UL1061 AWG26 ST YE 50	2
	R34225407	WU UL1061 AWG26 ST YE 70	1
	R34809002	SLVU SHR D2.4/2 020 BLK	1
C 1	R111678	C EL BRA 10M M 25E2 85	
C 2	R113724	C POMERA 100N K 63E2	
C 3	R111531	C EL RA 10M M 35E2 85	
C 4	R111468	C EL RA 470M Z 16E2 85	1
C 5	R113724	C POMERA 100N K 63E2	
C 6	R1137121	C POMERA 10N K250E2 85	
C 7	R1137121	C POMERA 10N K250E2 85	
C 8	R111531	C EL RA 10M M 35E2 85	
C 9	R113724	C POMERA 100N K 63E2	1
C 10	R113724	C POMERA 100N K 63E2	
C 11	R113732	C POMERA 470N K 63E2 85	
C 12	R113819	C POMERA 3N3J250E2	1
C 13	R1114885	C EL RA 220M Z 40E2 85	1
C 14	R111550	C EL RA 4M7M 50E2 85	
C 15	R113724	C POMERA 100N K 63E2	
C 16	R111550	C EL RA 4M7M 50E2 85	1
C 17	R113724	C POMERA 100N K 63E2	
C 18	R114090	C POMERA 1M M 63E2	1
C 19	R111550	C EL RA 4M7M 50E2 85	
C 20	R113724	C POMERA 100N K 63E2	
C 21	R114090	C POMERA 1M M 63E2	1
C 22	R114090	C POMERA 1M M 63E2	1
C 23	R111500	C EL RA 47M M 10E2 85	
C 24	R111531	C EL RA 10M M 35E2 85	
C 25	R111461	C EL RA 10M Z 16E2 85	
C 26	R111531	C EL RA 10M M 35E2 85	
C 27	R113724	C POMERA 100N K 63E2	
C 28	R113732	C POMERA 470N K 63E2 85	
C 29	R113724	C POMERA 100N K 63E2	
C 30	R1127475	C CE MI 4N7K100E2	1
C 31	R1127475	C CE MI 4N7K100E2	1
C 32	R111531	C EL RA 10M M 35E2 85	
C 33	R111531	C EL RA 10M M 35E2 85	
C 35	R1137181	C POMERA 33N K100E2	1
C 36	R113730	C POMERA 330N K 63E2	
C 37	R1137151	C POMERA 18N K100E2	
C 38	R1137121	C POMERA 10N K250E2 85	

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 39	R111531	C EL RA 10M M 35E2 85	
C 40	R112242	C NP0 MI 100P G100E2	
C 41	R111230	C EL AX 22M T160E12 85	1
C 42	R113724	C POMERA 100N K 63E2	
C 43	R113724	C POMERA 100N K 63E2	1
C 44	R112242	C NP0 MI 100P G100E2	
C 45	R111531	C EL RA 10M M 35E2 85	
C 46	R111531	C EL RA 10M M 35E2 85	
C 47	R111531	C EL RA 10M M 35E2 85	1
C 48	R111531	C EL RA 10M M 35E2 85	
C 49	R111500	C EL RA 47M M 10E2 85	
C 50	R1127475	C CE MI 4N7K100E2	1
C 51	R112739	C CE MI 1N K100E2	
C 52	R112741	C CE MI 1N5K100E2	
C 53	R111500	C EL RA 47M M 10E2 85	
C 54	R1115935	C EL5 RA 10M M 35E2 85	1
C214	R112743	C CE MI 2N2K100E2	1
C219	R111461	C EL RA 10M Z 16E2 85	
C300	R1137121	C POMERA 10N K250E2 85	1
C302	R113724	C POMERA 100N K 63E2	
C304	R114090	C POMERA 1M M 63E2	1
C368	R111500	C EL RA 47M M 10E2 85	
D 1	R131621	D S 1N4148 075150 DO35	
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R1316361	D Y BAT85 030200 DO34	
D 4	R1316361	D Y BAT85 030200 DO34	
D 5	R1316361	D Y BAT85 030200 DO34	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R1316361	D Y BAT85 030200 DO34	
D 8	R131621	D S 1N4148 075150 DO35	
D 9	R131621	D S 1N4148 075150 DO35	
D 10	R131621	D S 1N4148 075150 DO35	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 16	R1316361	D Y BAT85 030200 DO34	
D 17	R131639	D S BAX12 090400 DO35	1
D 18	R131621	D S 1N4148 075150 DO35	
D377	R131637	D R BA158 600400 DO7	
I 1	R132833	U 76013 SC DIP28 P	1

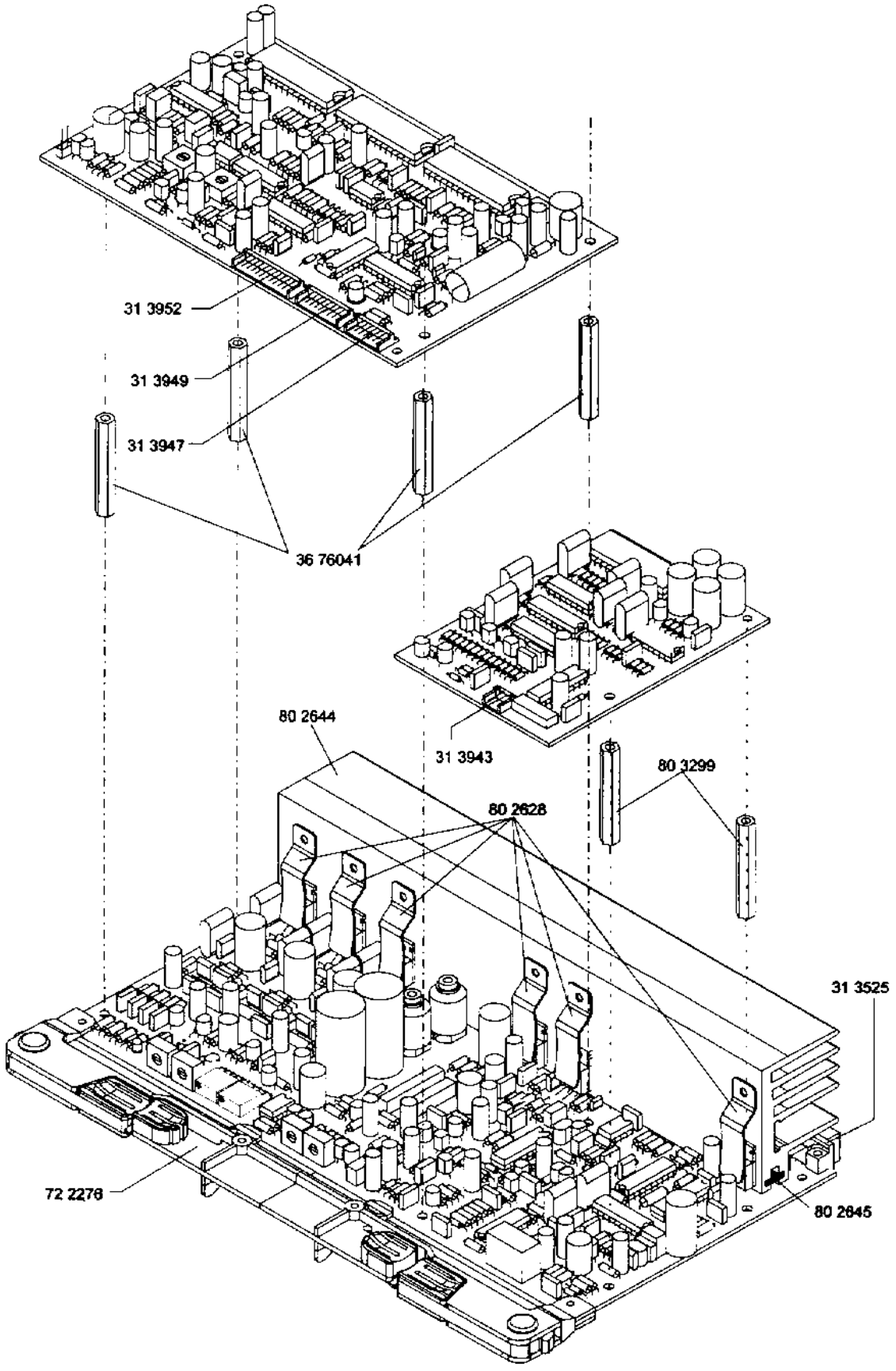
I 2	R132833	U 76013 SC DIP28 P	1
I 3	R132833	U 76013 SC DIP28 P	1
I 4	R134028	U 317LZ LM TO92 P	1
I 5	R134029	U 337LZ TO92 P	1
I 6	R134032	U 78L05 TO92 P	1
I 7	R134113	U 084 TL DIP14 P	1
I 8	R134113	U 084 TL DIP14 P	1
I 9	R134114	U 393 LM DIP8 P	1
I 10	R137397	U 4013B DIP14 P	1
I 11	R134124	U 082 TL DIP8 P	1
I 12	R137552	U 74HCT123 DIP16 P	1
I336	R134222	U 1595 MC DIP14 P	1
J 3	R313949	J CT H MBS P 9 M2SN	1
J 4	R313952	J CT H MBS P12 M2SN	1
J 5	R313947	J CT H MBS P 7 M2SN	1
J 6	R3132862	J MD1 MBT P 2 E1SN	1
P 1	R106727	R TCE H 2K K 0W5 S10TS	1
P 2	R106729	R TCE H 10K K 0W5 S10TS	1
PC	R780018	PCD PJ49 800 VER SUB 76	1
Q 1	R1314651	Q BF245B FN SS TO92	1
Q 2	R1314295	Q BC549B N SS TO92	1
Q 3	R1314295	Q BC549B N SS TO92	
Q 4	R131411	Q BC549C N SS TO92	
Q 6	R1314181	Q BC559B P SS TO92	
Q 7	R132944	Q BCY87 2N SS TO71	1
Q 8	R131491	Q BSX20 .2369 N SS TO18	1
Q 10	R1329105	Q BS170 FN SS TO92	1
Q 11	R131411	Q BC549C N SS TO92	
Q306	R1314181	Q BC559B P SS TO92	
Q312	R1314181	Q BC559B P SS TO92	1
R 1	R101154	R CF H 33K J 0W25	
R 2	R101140	R MF H 2K21F 0W6 E4	
R 9	R101147	R MF H 8K25F 0W6 E4	
R 10	R101144	R CF H 4K7 J 0W25	
R 11	R101126	R MF H150E F 0W6 E4	
R 12	R101524	R MF H100E F 0W4 E3	
R 13	R101533	R MF H560E F 0W4 E3	
R 14	R101136	R CF H 1K J 0W25	
R 16	R101141	R CF H 2K7 J 0W25	
R 17	R101136	R CF H 1K J 0W25	
R 18	R101143	R CF H 3K9 J 0W25	
R 19	R101124	R CF H100E J 0W25	
R 20	R101148	R CF H 10K J 0W25	
R 21	R101141	R CF H 2K7 J 0W25	
R 22	R101136	R CF H 1K J 0W25	
R 23	R101141	R CF H 2K7 J 0W25	1
R 24	R101148	R CF H 10K J 0W25	
R 26	R101140	R MF H 2K21F 0W6 E4	
R 27	R101160	R CF H100K J 0W25	
R 28	R101153	R MF H 27K4 F 0W6 E4	
R 29	R101116	R MF H 22E1 F 0W6 E4	
R 30	R101168	R CF H470K J 0W25	
R 31	R101141	R CF H 2K7 J 0W25	
R 32	R101134	R CF H680E J 0W25	
R 35	R101141	R CF H 2K7 J 0W25	
R 37	R101148	R CF H 10K J 0W25	
R 38	R101156	R MF H 47K5 F 0W6 E4	
R 39	R101144	R CF H 4K7 J 0W25	
R 40	R101147	R MF H 8K25F 0W6 E4	
R 41	R101156	R MF H 47K5 F 0W6 E4	
R 42	R101148	R CF H 10K J 0W25	
R 43	R101136	R CF H 1K J 0W25	
R 44	R101148	R CF H 10K J 0W25	
R 45	R101136	R CF H 1K J 0W25	
R 46	R101150	R MF H 15K F 0W6 E4	
R 47	R101154	R CF H 33K J 0W25	
R 48	R101154	R CF H 33K J 0W25	
R 49	R101167	R CF H390K J 0W25	
R 50	R101154	R CF H 33K J 0W25	
R 51	R101154	R CF H 33K J 0W25	
R 52	R101547	R MF H 8K2 F 0W4 E3	
R 53	R101124	R CF H100E J 0W25	
R 54	R101124	R CF H100E J 0W25	
R 55	R101168	R CF H470K J 0W25	
R 57	R101148	R CF H 10K J 0W25	
R 58	R1015401	R MF H 2K F 0W4 E3	
R 59	R101158	R CF H 68K J 0W25	
R 60	R101128	R MF H221E F 0W6 E4	
R 61	R101148	R CF H 10K J 0W25	
R 62	R101149	R MF H 12K1 F 0W6 E4	
R 63	R101130	R CF H330E J 0W25	
R 64	R101119	R MF H 39E2 F 0W6 E4	
R 65	R101125	R CF H120E J 0W25	
R 67	R101152	R MF H 22K1 F 0W6 E4	
R 68	R101124	R CF H100E J 0W25	
R 69	R101152	R MF H 22K1 F 0W6 E4	
R 70	R101152	R MF H 22K1 F 0W6 E4	
R 71	R101160	R CF H100K J 0W25	
R 72	R101537	R MF H 1K2 F 0W4 E3	
R 73	R101152	R MF H 22K1 F 0W6 E4	
R 74	R101116	R MF H 22E1 F 0W6 E4	
R 75	R101159	R MF H 82K5 F 0W6 E4	
R 76	R101142	R MF H 3K32F 0W6 E4	
R 77	R101146	R MF H 6K81F 0W6 E4	
R 78	R101149	R MF H 12K1 F 0W6 E4	
R 79	R101148	R CF H 10K J 0W25	1
R 80	R101124	R CF H100E J 0W25	
R 81	R101136	R CF H 1K J 0W25	
R 82	R101137	R MF H 1K21F 0W6 E4	
R 83	R101148	R CF H 10K J 0W25	
R 84	R101147	R MF H 8K25F 0W6 E4	
R 85	R101104	R CF H 2E2 J 0W50	
R 86	R101229	R MF H274E F 0W6 E4	
R 87	R101144	R CF H 4K7 J 0W25	
R 88	R101148	R CF H 10K J 0W25	
R 89	R101172	R CF H 1M J 0W25	
R 90	R101148	R CF H 10K J 0W25	
R 91	R101147	R MF H 8K25F 0W6 E4	
R 92	R101148	R CF H 10K J 0W25	
R 93	R101148	R CF H 10K J 0W25	
R 94	R101140	R MF H 2K21F 0W6 E4	
R 95	R101138	R CF H 1K5 J 0W25	
R 96	R101142	R MF H 3K32F 0W6 E4	
R 97	R101146	R MF H 6K81F 0W6 E4	
R 98	R101154	R CF H 33K J 0W25	
R 99	R101154	R CF H 33K J 0W25	
R100	R101137	R MF H 1K21F 0W6 E4	1
R101	R101541	R MF H 2K7 F 0W4 E3	1
R102	R101144	R CF H 4K7 J 0W25	
R212	R101148	R CF H 10K J 0W25	
R213	R101148	R CF H 10K J 0W25	
R217	R101136	R CF H 1K J 0W25	
R218	R101160	R CF H100K J 0W25	
R222	R101148	R CF H 10K J 0W25	1
R301	R101124	R CF H100E J 0W25	
R307	R101148	R CF H 10K J 0W25	
R308	R101148	R CF H 10K J 0W25	
R309	R101149	R MF H 12K1 F 0W6 E4	
R311	R101152	R MF H 22K1 F 0W6 E4	
R363	R101132	R CF H470E J 0W25	
R364	R101136	R CF H 1K J 0W25	
R365	R101139	R CF H 1K8 J 0W25	

R366	R101136	R CF H 1K J 0W25		R368	R101536	R MF H 1K F 0W4 E3	1
R367	R101126	R MF H150E F 0W6 E4		Z 1	R131704	D STB 2V6 0W33 DO35	1

Parts listing Orbiting module 76 2268U (Option)

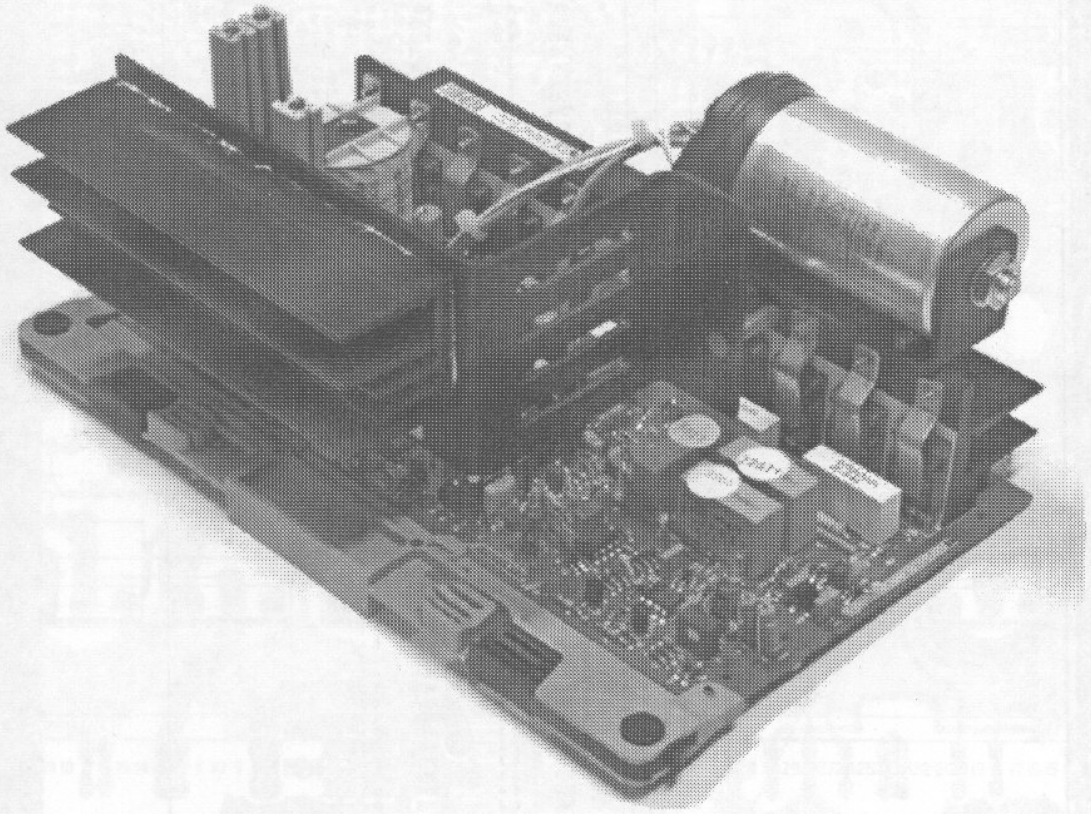
ITEM NO.	SIT.	DESCRIPTION
34 84071		CD CT FWT MBS P 7 L 110
11 3728	C..1	C POMERA 220N K 63E2
11 1531	C..2	C EL RA 10M M 35E2 85
11 1531	C..3	C EL RA 10M M 35E2 85
11 3724	C..4	C POMERA 100N K 63E2
11 3724	C..5	C POMERA 100N K 63E2
11 1478	C..6	C EL RA 220M Z 25E2 85
11 3728	C..7	C POMERA 220N K 63E2
11 3728	C..8	C POMERA 220N K 63E2
11 3728	C..9	C POMERA 220N K 63E2
11 3728	C.10	C POMERA 220N K 63E2
11 1478	C.11	C EL RA 220M Z 25E2 85
11 1478	C.12	C EL RA 220M Z 25E2 85
11 1478	C.13	C EL RA 220M Z 25E2 85
11 3728	C.14	C POMERA 220N K 63E2
11 1531	C.15	C EL RA 10M M 35E2 85
11 1531	C.16	C EL RA 10M M 35E2 85
11 3724	C.17	C POMERA 100N K 63E2
11 3724	C.18	C POMERA 100N K 63E2
11 3724	C.19	C POMERA 100N K 63E2
11 3724	C.20	C POMERA 100N K 63E2
11 3724	C.21	C POMERA 100N K 63E2
13 1621	D..1	D S 1N4148 075150 DO35
13 1621	D..2	D S 1N4148 075150 DO35
13 1621	D..3	D S 1N4148 075150 DO35
13 1621	D..4	D S 1N4148 075150 DO35
13 1621	D..5	D S 1N4148 075150 DO35
13 1621	D..6	D S 1N4148 075150 DO35
13 1621	D..7	D S 1N4148 075150 DO35
13 1621	D..8	D S 1N4148 075150 DO35
13 2833	I..1	U 76013 SC DIP28 PD_POT
13 2832	I..2	U 8574A PCF DIP16 PEXP
13 4113	I..3	U 084 TL DIP14 POPAMP
13 7600	I..4	U 4052B DIP16 PM/DEM
13 4113	I..5	U 084 TL DIP14 POPAMP
13 7303	I..6	U 4066B DIP14 PSWTCH
13 4029	I..9	U 337LZ TO92 PSTAB
13 4028	I.26	U 317LZ TO92 PSTAB
31 3943	J..2	J CT MBS P 3 M2SN
78 0224	PC..	PCD PJ49 800 ORBIT 2
13 14181	Q..1	Q BC559B P SS TO92 030A1
13 14181	Q..2	Q BC559B P SS TO92 030A1
13 14181	Q..3	Q BC559B P SS TO92 030A1
13 2916	Q..4	Q BS250 FN SS TO92 045A2
13 1411	Q..5	Q BC549C N SS TO92 030A1
10 1544	R..1	R MF H 4K7 F 0W4 E2
10 1544	R..2	R MF H 4K7 F 0W4 E2
10 1529	R..3	R MF H270E F 0W4 E2
10 1548	R..4	R MF H 10K F 0W4 E2
10 1554	R..5	R MF H 33K F 0W4 E2
10 1524	R..6	R MF H100E F 0W4 E2
10 1529	R..7	R MF H270E F 0W4 E2
10 1564	R..8	R MF H220K F 0W4 E2

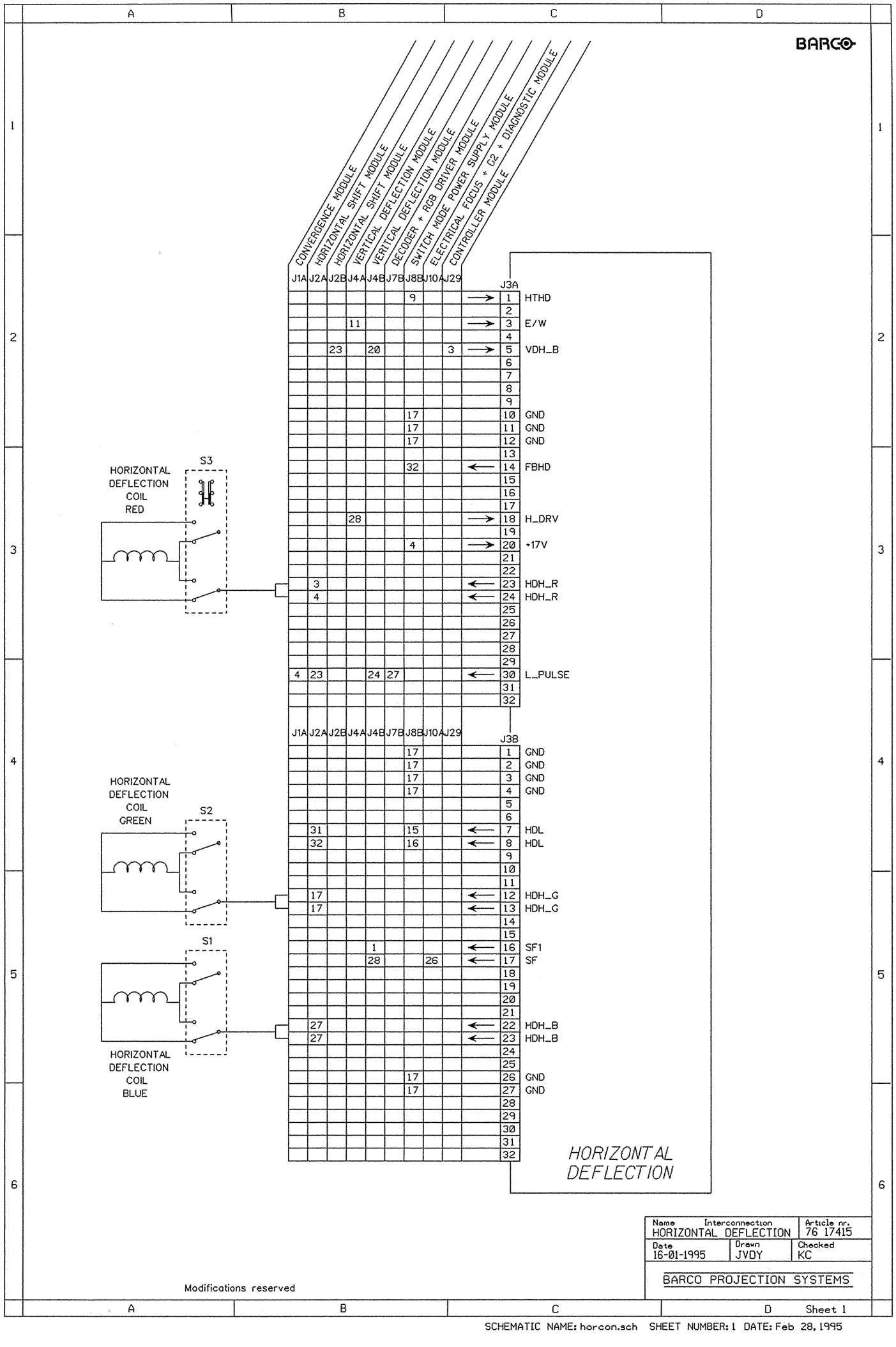
Sync+Vertical Deflection module R7622695

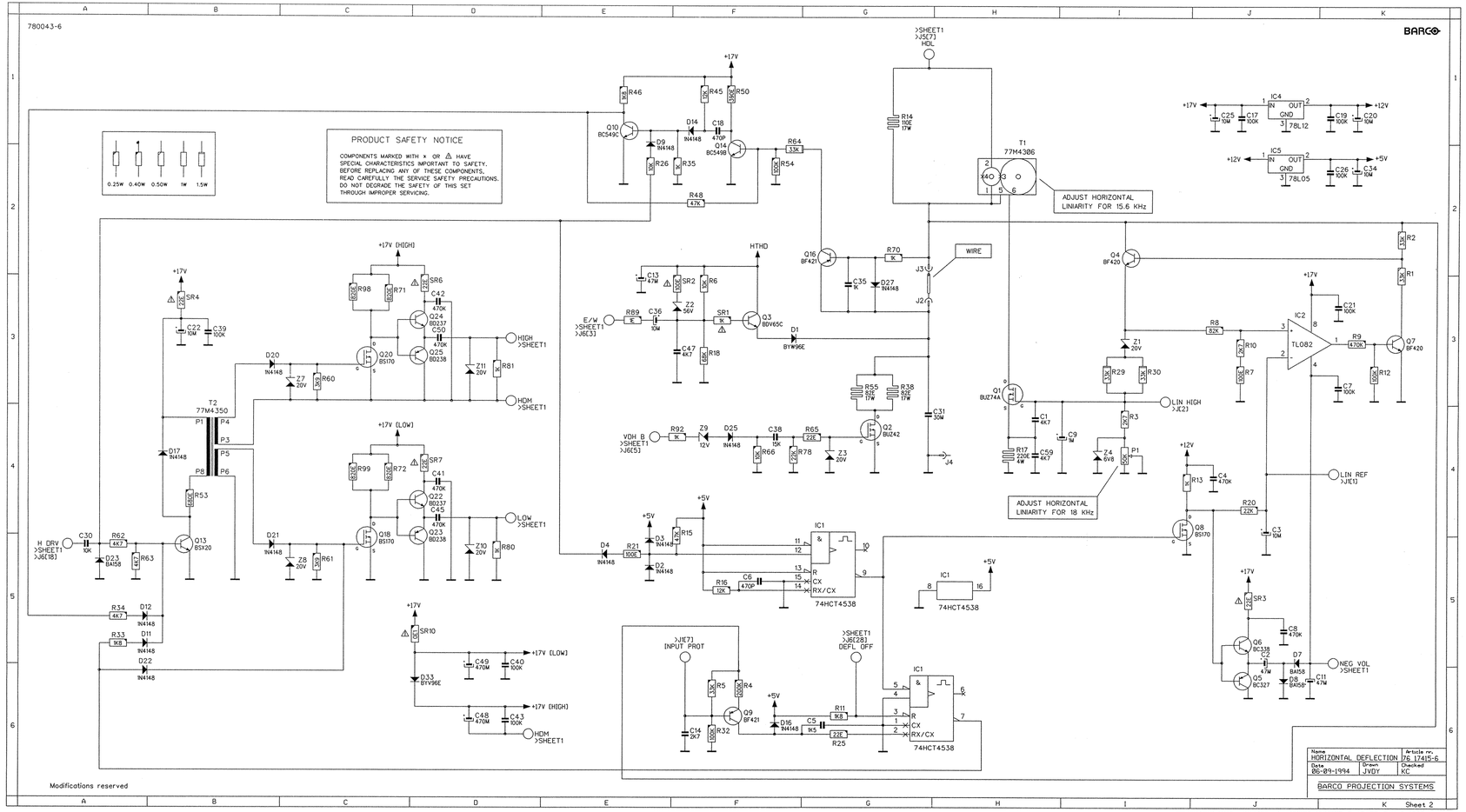


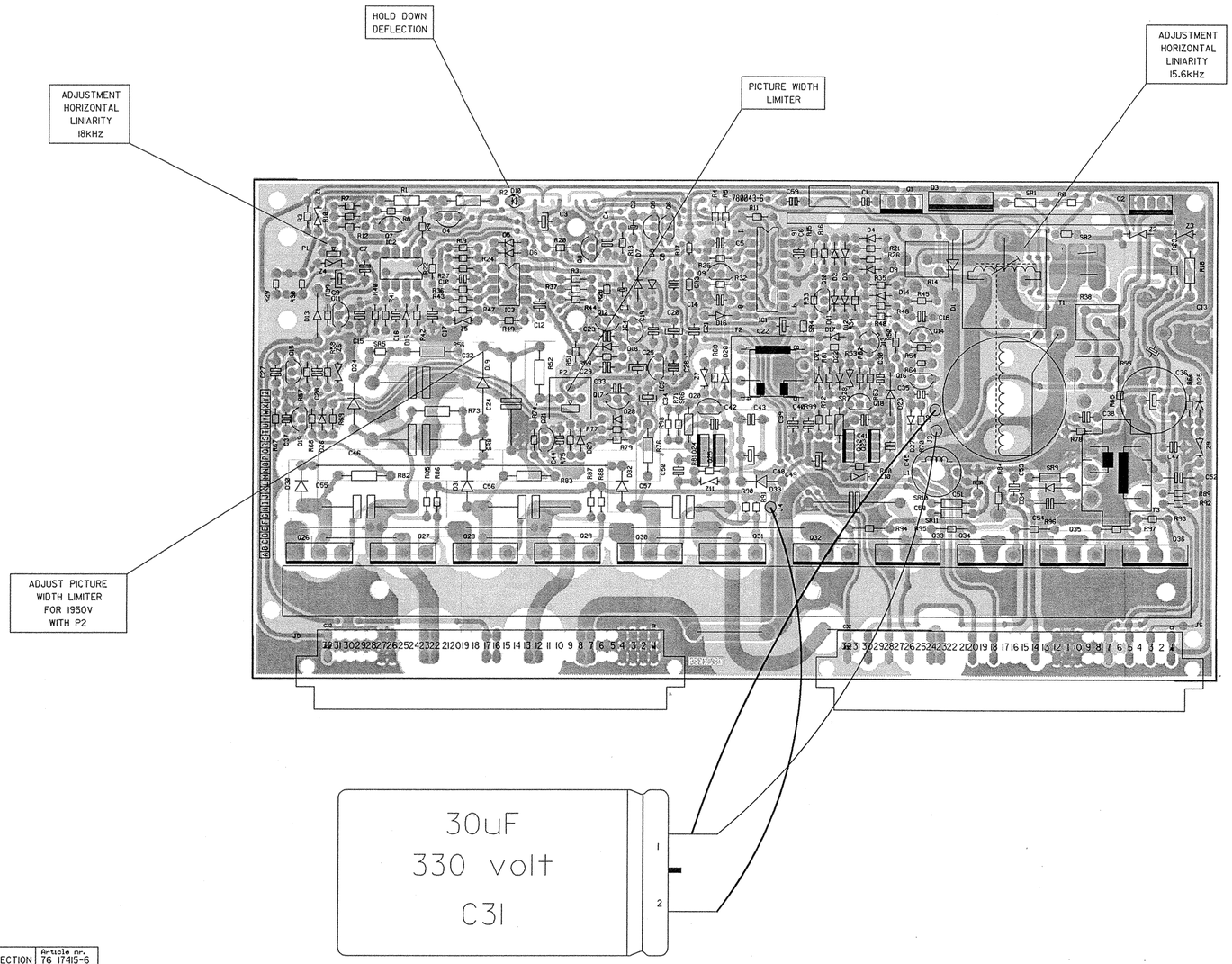
Horizontal deflection

R7617415




CONVERGENCE MODULE
HORIZONTAL SHIFT MODULE
HORIZONTAL SHIFT MODULE
VERTICAL DEFLECTION MODULE
VERTICAL DEFLECTION MODULE
DECODER + RGB DRIVER MODULE
SWITCH MODE POWER SUPPLY MODULE
ELECTRICAL FOCUS + G2 + DIAGNOSTIC MODULE
CONTROLLER MODULE
J1A J2A J2B J4A J4B J7B J8B J10A J29
J3A
1 HTHD
3 E/W
5 VDH_B
10 GND
11 GND
12 GND
14 FBHD
18 H_DRV
20 +17V
23 HDH_R
24 HDH_R
30 L_PULSE
J3B
1 GND
2 GND
3 GND
4 GND
7 HDL
8 HDL
12 HDH_G
13 HDH_G
16 SF1
17 SF
22 HDH_B
23 HDH_B
26 GND
27 GND
HORIZONTAL DEFLECTION COIL RED
S3
HORIZONTAL DEFLECTION COIL GREEN
S2
S1
HORIZONTAL DEFLECTION COIL BLUE
HORIZONTAL DEFLECTION
BARCO
Name Interconnection
HORIZONTAL DEFLECTION
Article nr.
76 17415
Date
16-01-1995
Drawn
JVDY
Checked
KC
BARCO PROJECTION SYSTEMS
Modifications reserved
A B C D Sheet 1
SCHEMATIC NAME: horcon.sch SHEET NUMBER: 1 DATE: Feb 28, 1995


780043-6
BARCO
PRODUCT SAFETY NOTICE
COMPONENTS MARKED WITH x 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.
0.25W 0.40W 0.50W 1W 1.5W
ADJUST HORIZONTAL LINEARITY FOR 15.6 KHz
ADJUST HORIZONTAL LINEARITY FOR 18 KHz
WIRE
T1 77M4306
T2 77M4350
IC1 74HCT4538
IC2 TL082
IC4 78L12
IC5 78L05
Q1 BUZ74A
Q2 BU242
Q3 BDV65C
Q4 BF420
Q5 BC327
Q6 BC338
Q7 BF420
Q8 BS170
Q9 BF421
Q10 BC549C
Q13 BS320
Q14 BC549B
Q16 BF421
Q18 BS170
Q20 BS170
Q21 BD237
Q22 BD237
Q23 BD238
Q24 BD237
Q25 BD238
+17V (HIGH)
+17V (LOW)
HTHD
HDL
VDH B
E/W
H DRV
LIN HIGH
LIN REF
NEG VOL
HIGH
LOW
HDM
INPUT PROT
DEFL OFF
Modifications reserved
Name: HORIZONTAL DEFLECTION
Article nr.: 76 17415-6
Date: 06-09-1994
Drawn: JVDY
Checked: KC
BARCO PROJECTION SYSTEMS
Sheet 2
SCHEMATIC NAME: 7617415.sch SHEET NUMBER: 2 DATE: Feb 2, 1995



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C4	D 2	Q26	C 4	Z6	C 3
C5	E 2	Q27	C 4	Z7	E 3
C6	E 2	Q28	C 4	Z8	E 3
C7	C 2	Q29	D 4	Z9	G 3
C8	D 2	Q30	D 4	Z10	F 4
C9	C 3	Q31	E 4	Z11	E 4
C10	C 3	Q32	E 4		
C11	D 3	Q33	F 4		
C12	D 3	Q34	F 4		
C13	G 3	Q35	G 4		
C14	E 3	Q36	G 4		
C15	C 3				
C16	C 3	R1	C 2		
C17	C 3	R2	D 2		
C18	F 3	R3	C 2		
C19	D 3	R4	E 2		
C20	D 3	R5	E 2		
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Q13	F 3	SR9	F 4		
Q14	F 3	SR10	F 4		
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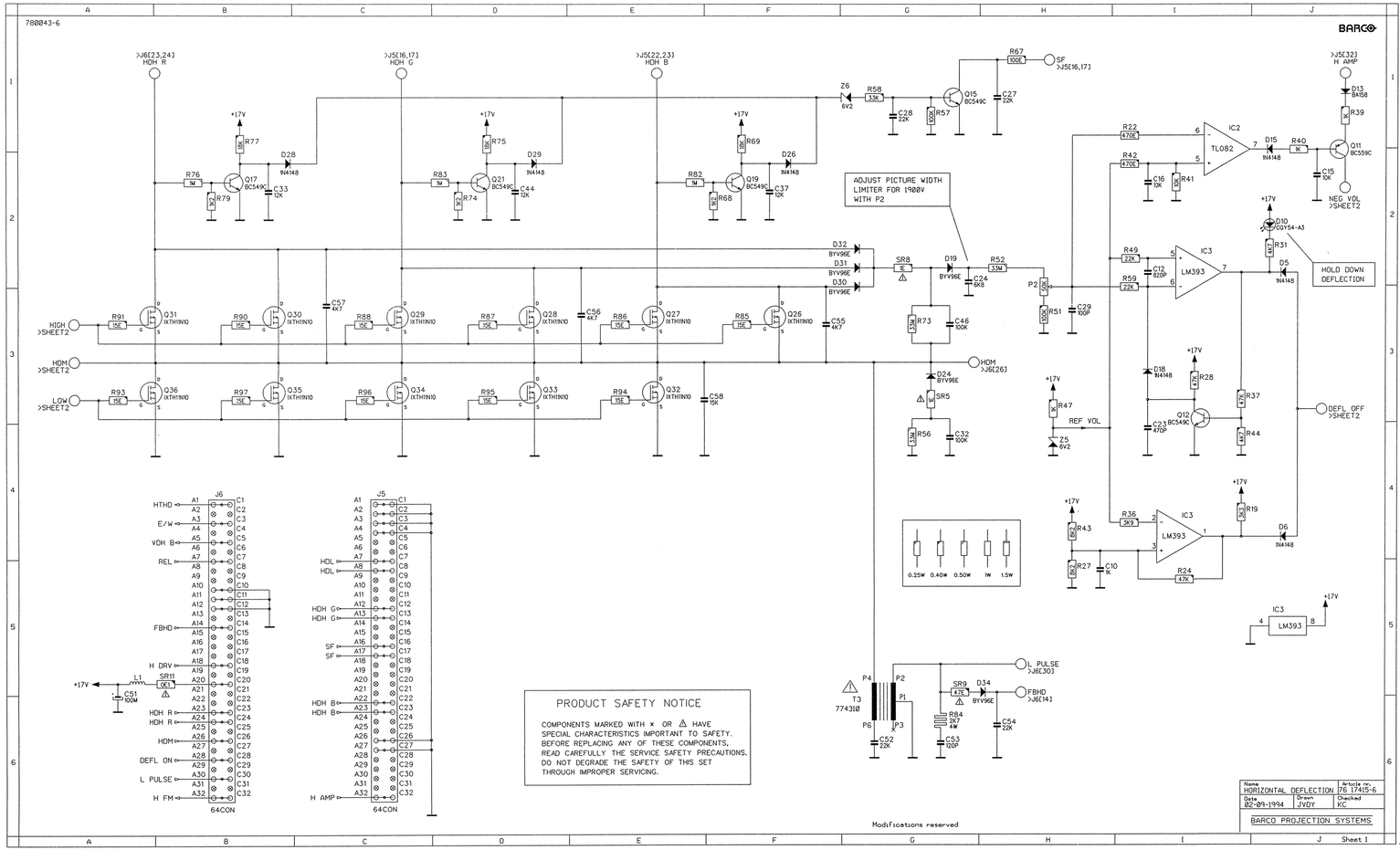
Q22	E 3	Z2	G 2		

Name	Article nr.
HORIZONTAL DEFLECTION	76 17415-6
Date: 22-02-1995	Drawn: JVDY
	Checked: KC

BARCO PROJECTION SYSTEMS



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C16	I 2	sheet 1
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C18	F 1	sheet 2
C19	K 1	sheet 2
C20	J 1	sheet 2
C21	K 3	sheet 2
C22	B 3	sheet 2
C23	I 3	sheet 1
C24	G 2	sheet 1
C25	J 1	sheet 2
C26	K 2	sheet 2
C27	H 1	sheet 1
C28	G 1	sheet 1
C29	H 3	sheet 1
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C35	G 3	sheet 2
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SR8	G 2	sheet 1
SR9	G 5	sheet 1
SR10	D 5	sheet 2
SR11	B 5	sheet 1
T1	H 1	sheet 2
T2	B 3	sheet 2
T3	G 6	sheet 1
Z1	I 3	sheet 2
Z2	F 3	sheet 2
Z3	G 4	sheet 2
Z4	I 4	sheet 2
Z5	H 4	sheet 1
Z6	G 1	sheet 1
Z7	C 3	sheet 2
Z8	C 5	sheet 2
Z9	F 4	sheet 2
Z10	D 5	sheet 2
Z11	D 3	sheet 2

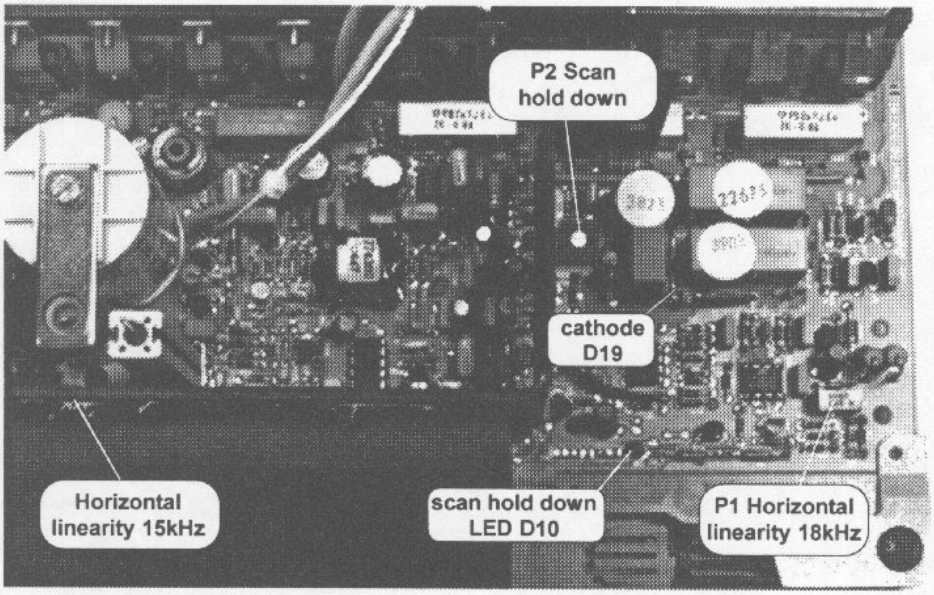
SCHEMATIC NAME: 7617415.sch SHEET NUMBER: 1 DATE: Feb 2, 1995

Introduction

The following adjustments are provided on the module:

a: Overvoltage protection (=scan hold down) P2

b: Horizontal linearity adj. **at 15 kHz (linearity coil) and at 18 kHz (P1)**



Overvoltage protection

Preparation

Switch **OFF** the projector
Adjust P2 to its physical minimum (turning counter-clockwise)
Adjust P2 "MAX HOR. AMPL." **on the SM Power Supply** to its physical minimum (turning counter-clockwise).

Adjustment

Switch **ON** the projector.
With respect to chassis ground, measure the dc voltage at the cathode of D19.
Adjust P2 **on the SM Power Supply** for 1950Vdc.
Adjust P2 (turning clockwise) until the scan hold down LED D10 lights up. (Projector in hold down)
Reduce the HOR. AMPL. P2 setting (turning counter-clockwise)

Restart the projector (power switching Off/On)

Adjust P2 as explained in the adjustment procedure of the SM Power Supply (refer to corresponding service scheet)

Horizontal linearity

1. Adjust the core of the linearity coil using a 15 kHz input source.
2. Adjust P2 using a 18 kHz input source.

Note: If a 18 kHz input source is not available, then any source close to 18 kHz may be used.

HORIZONTAL DEFLECTION 76 22675

Introduction.

On this board we find the MOSFET switching transistors, acting as switches to start and stop the currents through the deflection coils. As we need a very short retrace time, the amplitude of the flyback pulse is bigger than the maximum of one Mosfet. Therefore, two Mosfet switches are used in series.

Furthermore, on this board, we find the required protection circuits such as *"scan hold down"* and *"scan failure"*.

Preparation of the drive pulses.

The horizontal deflection circuit uses two MOSFETS in series in order to be capable of handling more than 1000 volt pulses. Therefore, two drive pulses on different ground reference levels are required.
The "bottom" MOSFETS are driven by a pulse train referenced to ground or chassis ground, the "top" MOSFETS by drive pulses referenced to the mid-point of the two series connected MOSFETs, the **HDM** point.
The power supply for generating the "top drive pulses" is taken from the +17 volt via diode D33 to block the pulses, as HDM, the reference ground for the top drive pulses, carries line pulses.
The hor. drive pulses, prepared on the *"UN SYNC+VERT DEFL"* board, are sent to the amplifier Q13. By using a transformer T2, a "floating" drive pulse referred to HDM for the top Mosfets can easily be obtained.
When the flyback pulse is present during retrace, D33 becomes reversed biased and act like an open circuit to the 17VDC line. At that time, the drive circuit receives its voltage supply from the charge stored in C48.
The "high" drive pulses reach the gate-source of the top Mosfets, and the "low" drive pulses drive the bottom Mosfet switches.

Modulation of the scan voltage East-West correction

The +HTHD voltage from the SMPS board is modulated in Q3 by the East-West correction signal prepared on the "Sync + Vert Defl" board. Z2 protects the transistor and SR2 limits the charging current of this coupling capacitor through the zener. Transistor Q2 is used to discharge the boosting capacitor C31 at the start of a vertical scan. A vertical flyback pulse, derived from VDH B (Vertical Deflection High Blue) is sent to the gate. This minimizes keystone problems at the top due to a remaining charge on C31 after the vertical retrace. It causes the charge on C31 to always start from the same amplitude after each vertical retrace, regardless of the voltage that was built up at the end of the vertical scan.

Horizontal linearity tracking control.

The problem we meet with such a big frequency range, is the frequency dependent characteristic of the linearity coil. At a higher scanning frequency, the impedance of the linearity coil would increase.
To overcome this, a second coil T1 is magnetically coupled to the standard linearity coil. This current in this modulating coil is delivered by a Mosfet Q1.

The needed current for tracking is got via the biasing circuit of the gate of Q1 (LIN HIGH) as follows.
The drive pulses trigger a one-shot in IC1 at the positive going transient input. The output pulses are then applied to the gate of a Mosfet Q8 and at the drain split to two circuits :

- the simple integrator R20 / C3, the obtained voltage across the capacitor is consequently a voltage proportional with the line frequency labelled *"LIN REF"*.
- the push-pull Q5 / Q6 and the top/top detector just to obtain a negative voltage to supply amongst others the OPAMP IC2.

The DC level of this LIN REF voltage is not correct to drive the Mosfet Q1 and a level shift is realised with the OPAMP 1-2-3 of IC2.
This OPAMP receives at the inverting input a voltage that is proportional with the line frequency, the amplitude adjustment does not affect this LIN REF voltage.
The other non-inverting input receives a voltage that is proportional with the scan voltage. This voltage is proportional with the line frequency and with the amplitude adjustment. The influence of the amplitude adjustment must be minimized and this done as follows.
For one typical frequency, we obtain one typical LIN REF voltage. The HTHD voltage however depends also on the horizontal amplitude. Any change in the emitter voltage of Q4 is compensated via the feedback Q7 - base Q4.

Protection circuits.

a) Overcurrent protection.

If the sum of the currents of the three scan coils exceeds a pre-determined level, the drive is inhibited as follows :
The wire J2-J3 in series with the three scan coils , acts as a low value resistor and is connected across the base-emitter of Q16. When a 0.6 volt or greater voltage is dropped across the wire, Q16 starts to conduct and triggers the monoflop Q10/Q14.As long Q10 is blocked, the drive transistor Q13 remains "on", inhibiting the drive. BY re-applying the drive pulse to the base of Q10 via D9 (a kind of feedback), a faster reaction on the overcurrent can be obtained.

b) Overvoltage protection.

The sum of flyback pulses on each of the series connected Mosfets are checked by a rectifier network consisting of diodes D30, D31 and D32 and common decoupling capacitors. The pulses at the node of the two Mosfets (HDM) are rectified with D24 . This voltage must be half of the total flyback voltage in order to protect the mosfets against overvoltage. This is realised with the circuit R73/ C46/ D24/SR5/ R56/C32.
The rectified voltage is dropped with R52 / P2 / R51 and sent to two level detectors. The threshold level is set by a zener at 6.2 volt with Z5. At the moment pin 6 of IC2 exceeds the threshold, the horizontal amplitude is reduced with Q11. This will avoid the action of the "Hold Down Deflection" protection circuit.
If for any reason, the 1950V level is reached the HOLD DOWN DEFLECTION circuit is activated.

1) The drive is inhibited through the DEFL OFF.
2) The input pin 6 remains "high" as transistor Q12 is blocked and D18 conducts via R28 to keep pin 6 of IC1 high. This requires that the set be powered off to reset this circuit.
3) The red LED D10 (HOLD DOWN DEFLECTION) is illuminated in order to show that "scan hold down" has occurred.
4) As the deflection is stopped, there is also a horizontal scan failure and the associated circuit will drop the EHT voltage and blank the three CRT's to prevent damage to the CRT phosphorus.

c) Too low drive protection (+17V monitoring).

It is imperative that the Mosfets are fully switched on, so that the internal resistance will be as low as possible. Due to the large deflection current, even a small amount of excess resistance, will cause the Mosfets to generate too much heat.

This Mosfet drive pulse amplitude depends in part on the **+17 volt** supply and the voltage supplied from the +17VDC line. The drive signals are developed from the 17VDC and to prevent damage, due to insufficient drive, if this voltage becomes too low, IC1 pin 3 gets low and inhibits the drive signal via the 'DEFL OFF'.
The DEFL OFF is connected with the R(eset) of the monoflop in IC1. The function of the latter will be explained hereafter.

d) Input protection :

The H DR from the UN SYNC + VERT DEFL has as task to start and stop the conduction of the Mosfets. If however the Mosfets are in conduction and there is a "stop" that does not arrive, there is a risk of damaging the power switchers. In such case, a stop pulse will be automatically generated by the monoflop in IC1, output 7. This output remains low as low the input is retriggered at pin 5. When such a trigger pulse is absent, the output switches high after a time determined by the time constant R25 / C5 + current delivered by Q9. This current is tracked with the line frequency by using the scan voltage as emitter supply.

e) Horizontal scan failure.

Horizontal pulses are fed into the transistors Q17, Q21 and Q19. As long as there are horizontal pulses on the base of these transistors, they are conducting for each horizontal period, and the collectors are held "low" by C33, C44 and C37. These smoothened collector voltages keep the gating diodes D28, D29 and D26 blocked.
If either one of the pulses or all pulses are missing, Q15 transistor gets in conduction and turns its collector at low level. The SF line will be pulled low and the scan fail condition will be met.

Feedback to the SMPS (to stabilise the horizontal width).

The scan voltage +HTHD has to track the line frequency in order to regulate the horizontal width of the picture. The amplitude of the flyback pulses at the connection of the top and bottom Mosfets (=HDM) is a direct result of the horizontal width and can be taken as a reference. These pulses are coupled and isolated by transformer T3, rectified by D34 and the **FBHD** voltage is sent to the SMPS, to regulate the HTHD.
This voltage is proportional to the width of the raster on the CRT faceplate.

Parts listing R7617415

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
110	R133036	SPR L 6 D 6 D 2.4 C	1
350	R133074	Q ACC ISO SIL600 W 30	0,23
460	R133074	Q ACC ISO SIL600 W 30	0,035
470	R133074	Q ACC ISO SIL600 W 30	0,015
100	R313220	R ACC HLDR H10 WW V	3
	R34214425	WU UL1007 AWG24 SO YE 250	1
	R342199110	WU UL1015 AWG18 ST GY 100	1
	R342199112	WU UL1015 AWG18 ST GY 120	1
	R3481107	WU JUMP 0,51 27,5 ISO RD	1
	R3481122	WU JUMP 0,51 32,5 ISO	1
	R3481135	WU JUMP 0,51 35 ISO	1
240	R362020	SCR D84 M 3 X 4 SS Z	2
230	R3631059	SCR D933 M 3 X 8 XIC	1
340	R3631059	SCR D933 M 3 X 8 XIC	3
420	R3631059	SCR D933 M 3 X 8 XIC	2
450	R3631059	SCR D933 M 3 X 8 XIC	3
510	R3631059	SCR D933 M 3 X 8 XIC	2
330	R3631069	SCR D933 M 3 X 10 XIC	11
430	R3631069	SCR D933 M 3 X 10 XIC	1
241	R367502	WSHR D6798 A 3.2 S Z	2
411	R367608	SPR L70 H 7 M 4 BNN	1
610	R367699	RVT CHB D2.38L6.35 P A	6
600	R722276	LOCK PJ49 PCB UN CPL	1
210	R802665	FRM PJ49 HOR CORE LIN FIX	1
300	R802691	HTSNK PJ49 HOR A GRAPHICS	1
500	R802741	HTSNK PJ49 HOR FIX CAP	1
220	R802751	COIL LIN PJ49 POSITION	1
200	R802827	CORE LIN 802739+802626	1
440	R804525	Q ACC SPG 1X 3.1 SHORT	3
320	R804674	Q ACC SPG 1XM3 SHORT	11
221	R805060	WSHR D 6 X10 T1 P	1
410	R805848	HTSNK PJ49 HOR BG	1
C 1	R112747	C CE MI 4N7K100E2	
C 2	R111476	C EL RA 47M M 25E2 85	
C 3	R111531	C EL RA 10M M 35E2 85	
C 4	R113732	C POMERA 470N K 63E2 85	
C 5	R1159201	C PP RA 1N5J100E2 85	
C 6	R1159081	C PP RA 470P J100E2 85	
C 7	R113724	C POMERA 100N K 63E2	
C 8	R113732	C POMERA 470N K 63E2 85	
C 9	R111546	C EL RA 1M M 50E2 85	
C 10	R112739	C CE MI 1N K100E2	1
C 11	R111476	C EL RA 47M M 25E2 85	
C 12	R1159141	C PP RA 820P J100E2 85	1
C 13	R111649	C EL RA 47M T350SKT 85	1
C 14	R112797	C CE MI 2N7K500E2	1
C 15	R1137121	C POMERA 10N K250E2 85	
C 16	R112763	C CE MI 10N U 63E2	1
C 17	R113724	C POMERA 100N K 63E2	
C 18	R1159081	C PP RA 470P J100E2 85	
C 19	R113724	C POMERA 100N K 63E2	
C 20	R111531	C EL RA 10M M 35E2 85	
C 21	R113724	C POMERA 100N K 63E2	
C 22	R111531	C EL RA 10M M 35E2 85	
C 23	R112735	C CE MI 470P K100E2	1
C 24	R1117201	C PPMERA 6N8J202E9 HV	1
C 25	R111531	C EL RA 10M M 35E2 85	
C 26	R113724	C POMERA 100N K 63E2	
C 27	R1137161	C POMERA 22N K100E2	

ITEM NO.	SIT.	DESCRIPTION	
C 28	R1137161	C POMERA 22N K100E2	1
C 29	R112242	C NP0 MI 100P G100E2	1
C 30	R112763	C CE MI 10N U 63E2	1
C 31	R114799	C PAMERA 30M K330TAP	1
C 32	R114603	C POMERA 100N M102E9 HV	1
C 33	R1137131	C POMERA 12N K100E2	1
C 34	R111531	C EL RA 10M M 35E2 85	
C 35	R112739	C CE MI 1N K100E2	
C 36	R1114169	C EL RA 10M M350E2 105	1
C 37	R1137131	C POMERA 12N K100E2	1
C 38	R1137141	C POMERA 15N K100E2	1
C 39	R113724	C POMERA 100N K 63E2	
C 40	R113724	C POMERA 100N K 63E2	
C 41	R113732	C POMERA 470N K 63E2 85	
C 42	R113732	C POMERA 470N K 63E2 85	
C 43	R113724	C POMERA 100N K 63E2	
C 44	R1137131	C POMERA 12N K100E2	1
C 45	R113732	C POMERA 470N K 63E2 85	
C 46	R114603	C POMERA 100N M102E9 HV	1
C 47	R112833	C CE DI 4N7S400E3	1
C 48	R111479	C EL RA 470M Z 25E2 85	1
C 49	R111479	C EL RA 470M Z 25E2 85	1
C 50	R113732	C POMERA 470N K 63E2 85	
C 51	R111477	C EL RA 100M Z 25E2 85	
C 52	R114154	C POMERA 22N K400E2	1
C 53	R112692	C N750MI 120P G500E2	1
C 54	R114154	C POMERA 22N K400E2	1
C 55	R111773	C PPMERA 4N7J162E9 HV	1
C 56	R111773	C PPMERA 4N7J162E9 HV	1
C 57	R111773	C PPMERA 4N7J162E9 HV	1
C 58	R1150654	C PPMERA 15N J162E9 HV	1
C 59	R112747	C CE MI 4N7K100E2	1
D 1	R131952	D R BYW96E 10203A SOD64	1
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 4	R131621	D S 1N4148 075150 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R131637	D R BA158 600400 DO7	1
D 8	R131637	D R BA158 600400 DO7	1
D 9	R131621	D S 1N4148 075150 DO35	
D 10	R131662	D LED D3 T RD	1
D 11	R131621	D S 1N4148 075150 DO35	
D 12	R131621	D S 1N4148 075150 DO35	
D 13	R131637	D R BA158 600400 DO7	
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	R131621	D S 1N4148 075150 DO35	
D 18	R131621	D S 1N4148 075150 DO35	
D 19	R131906	D R BYV96E 1021A5 SOD57	1
D 20	R131621	D S 1N4148 075150 DO35	
D 21	R131621	D S 1N4148 075150 DO35	
D 22	R131621	D S 1N4148 075150 DO35	
D 23	R131637	D R BA158 600400 DO7	
D 24	R131906	D R BYV96E 1021A5 SOD57	1
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D 27	R131621	D S 1N4148 075150 DO35	
D 28	R131621	D S 1N4148 075150 DO35	
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D 30	R131906	D R BYV96E 1021A5 SOD57	1
D 31	R131906	D R BYV96E 1021A5 SOD57	1
D 32	R131906	D R BYV96E 1021A5 SOD57	1

D 33	R131906	D R BYV96E 1021A5 SOD57	1
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I 1	R137098	U 74HCT4538 DIP16 P	1
I 2	R134124	U 082 TL DIP8 P	1
I 3	R134114	U 393 LM DIP8 P	1
I 4	R134033	U 78L12 TO92 P	1
I 5	R134032	U 78L05 TO92 P	1
J 5	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 6	R313525	J EUR2C MBS P64 E1C2S 1,6	1
L 1	R773215	CH SMP PJ49	1
P 1	R106832	R TCE V 50K K 0W5 S10SS	1
P 2	R106732	R TCE H 50K K 0W5 S10TS	1
PC	R780043	PCS PJ49 800 HOR 7	
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Q 2	R132591	Q BUZ42 FN P TO220	1
Q 3	R132945	Q BDV65C DN P SOT93	1
Q 4	R132973	Q BF420 N SS TO92	1
Q 5	R1314311	Q BC327 P SS TO92	1
Q 6	R131424	Q BC338 N SS TO92	
Q 7	R132973	Q BF420 N SS TO92	1
Q 8	R132910	Q BS170 FN SS TO92	1
Q 9	R132972	Q BF421 P SS TO92	1
Q 10	R131411	Q BC549C N SS TO92	1
Q 11	R1314182	Q BC559C P SS TO92	1
Q 12	R131411	Q BC549C N SS TO92	
Q 13	R131491	Q BSX20 .2369 N SS TO18	1
Q 14	R1314295	Q BC549B N SS TO92	1
Q 15	R131411	Q BC549C N SS TO92	
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Q 21	R131411	Q BC549C N SS TO92	1
Q 22	R1314446	Q BD237 N P TO126	1
Q 23	R1314451	Q BD238 P P TO126	1
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Q 25	R1314451	Q BD238 P P TO126	1
Q 26	R132951	Q IXTH11N100 FN P TO247	1
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Q 34	R132951	Q IXTH11N100 FN P TO247	1
Q 35	R132951	Q IXTH11N100 FN P TO247	1
Q 36	R132951	Q IXTH11N100 FN P TO247	1
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R 2	R101254	R MF H 33K2 F 0W6 E4	
R 3	R101541	R MF H 2K7 F 0W4 E3	1
R 4	R1015641	R MF H200K F 0W4 E3	1
R 5	R101554	R MF H 33K F 0W4 E3	
R 6	R101548	R MF H 10K F 0W4 E3	
R 7	R101524	R MF H100E F 0W4 E3	
R 8	R101559	R MF H 82K F 0W4 E3	
R 9	R101568	R MF H470K F 0W4 E3	
R 10	R101541	R MF H 2K7 F 0W4 E3	
R 11	R101539	R MF H 1K8 F 0W4 E3	
R 12	R101560	R MF H100K F 0W4 E3	
R 13	R101536	R MF H 1K F 0W4 E3	
R 14	R1045261	R WW V110E K17W	1
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R 16	R101549	R MF H 12K F 0W4 E3	
R 17	R103640	R WW H220E K 4W	1
R 18	R103158	R MO H 68K J 0W7	1
R 19	R101542	R MF H 3K3 F 0W4 E3	
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R 61	R101543	R MF H 3K9 F 0W4 E3	
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R 67	R101524	R MF H100E F 0W4 E3	
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R 69	R101551	R MF H 18K F 0W4 E3	
R 70	R101536	R MF H 1K F 0W4 E3	
R 71	R101535	R MF H820E F 0W4 E3	
R 72	R101535	R MF H820E F 0W4 E3	
R 73	R104690	R HV H 33M J 0W5 3500	1
R 74	R101537	R MF H 1K2 F 0W4 E3	1
R 75	R101551	R MF H 18K F 0W4 E3	
R 76	R104654	R HV H 1M J 0W5 3500	1
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R 81	R101536	R MF H 1K F 0W4 E3	
R 82	R104654	R HV H 1M J 0W5 3500	1
R 83	R104654	R HV H 1M J 0W5 3500	1
R 84	R103341	R MO H 2K7 J 4W	1
R 85	R101514	R MF H 15E F 0W4 E3	
R 86	R101514	R MF H 15E F 0W4 E3	
R 87	R101514	R MF H 15E F 0W4 E3	
R 88	R101514	R MF H 15E F 0W4 E3	
R 89	R101500	R MF H 1E F 0W4 E3	
R 90	R101514	R MF H 15E F 0W4 E3	1
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R 93	R101514	R MF H 15E F 0W4 E3	
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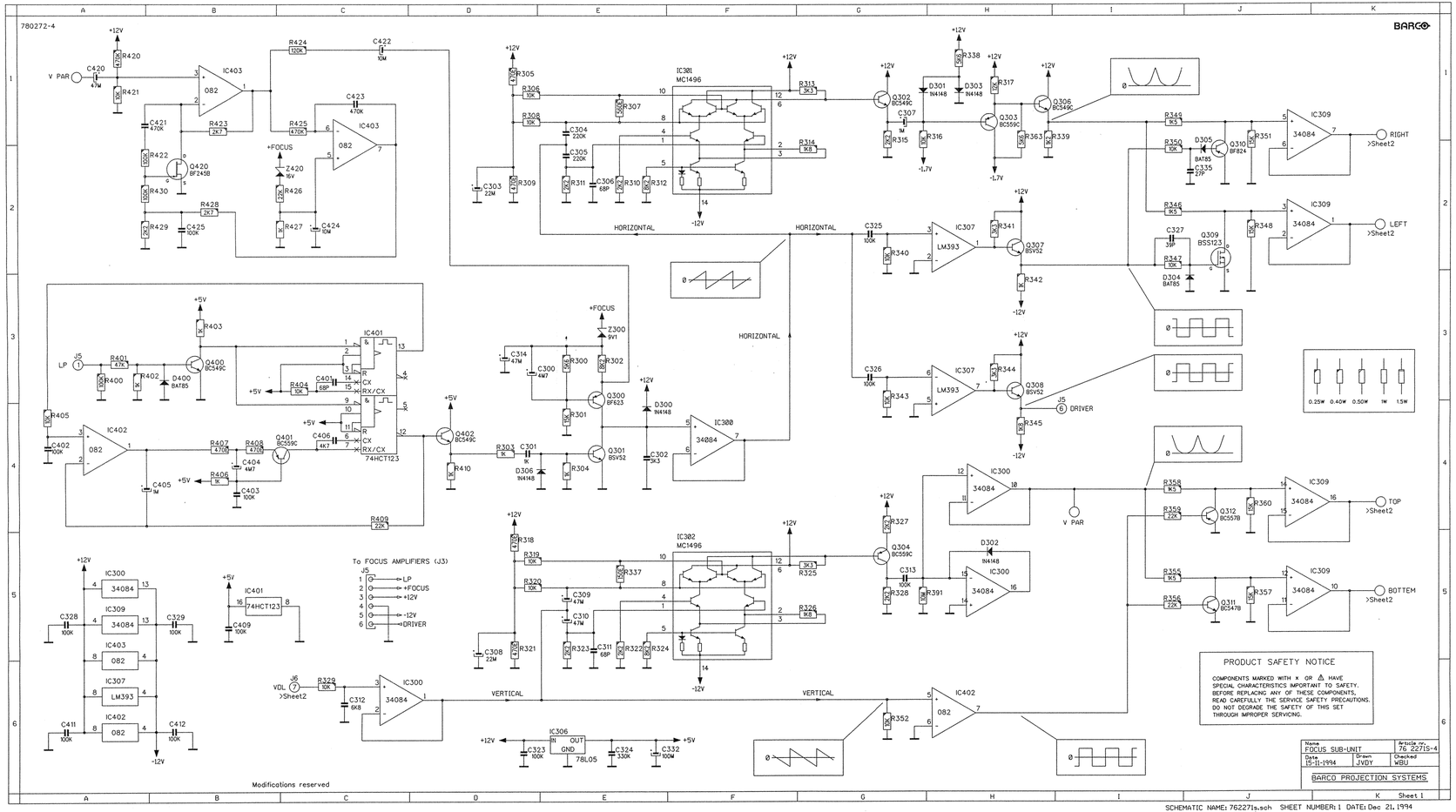
R 98	R101535	R MF H820E F 0W4 E3	1
R 99	R101535	R MF H820E F 0W4 E3	1
SR 1	R1011369	R CFFH 1K J 0W25	
SR 2	R1011249	R CFFH100E J 0W3	1
SR 3	R1011169	R CFFH 22E J 0W25	1
SR 4	R1003169	R CFFV 22E J 0W25 E1	1
SR 5	R1003009	R CFFV 1E J 0W25 E1	1
SR 6	R1011169	R CFFH 22E J 0W25	1
SR 7	R1011169	R CFFH 22E J 0W25	1
SR 8	R1003009	R CFFV 1E J 0W25 E1	1
SR 9	R1011209	R CFFH 47E J 0W25	1
SR10	R1011907	R CFFH E1 J 0W4	
SR11	R1011907	R CFFH E1 J 0W4	

T 1	R774306	T PJ49 LIN CTRL	1
T 2	R774350	T PJ49 G 801 HOR DVR	1
T 3	R774310	T PJ49 HOR DEF	1
T 2E	R774153	COIL LIN PJ45 HOR DHR	1
Z 1	R131730	D ZEN 20V 0W5 C DO35	
Z 2	R131707	D ZEN 47V 1W3 C DO41	1
Z 3	R131730	D ZEN 20V 0W5 C DO35	
Z 4	R131767	D ZEN 6V8 0W5 B DO35	1
Z 5	R131720	D ZEN 6V2 0W5 C DO35	
Z 6	R131720	D ZEN 6V2 0W5 C DO35	
Z 7	R131730	D ZEN 20V 0W5 C DO35	
Z 8	R131730	D ZEN 20V 0W5 C DO35	
Z 9	R131740	D ZEN 12V 0W5 C DO34	
Z 10	R131730	D ZEN 20V 0W5 C DO35	
Z 11	R131730	D ZEN 20V 0W5 C DO35	


780272-4
BARCO
V PAR
LP
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+FOCUS
DRIVER
RIGHT
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LEFT
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TOP
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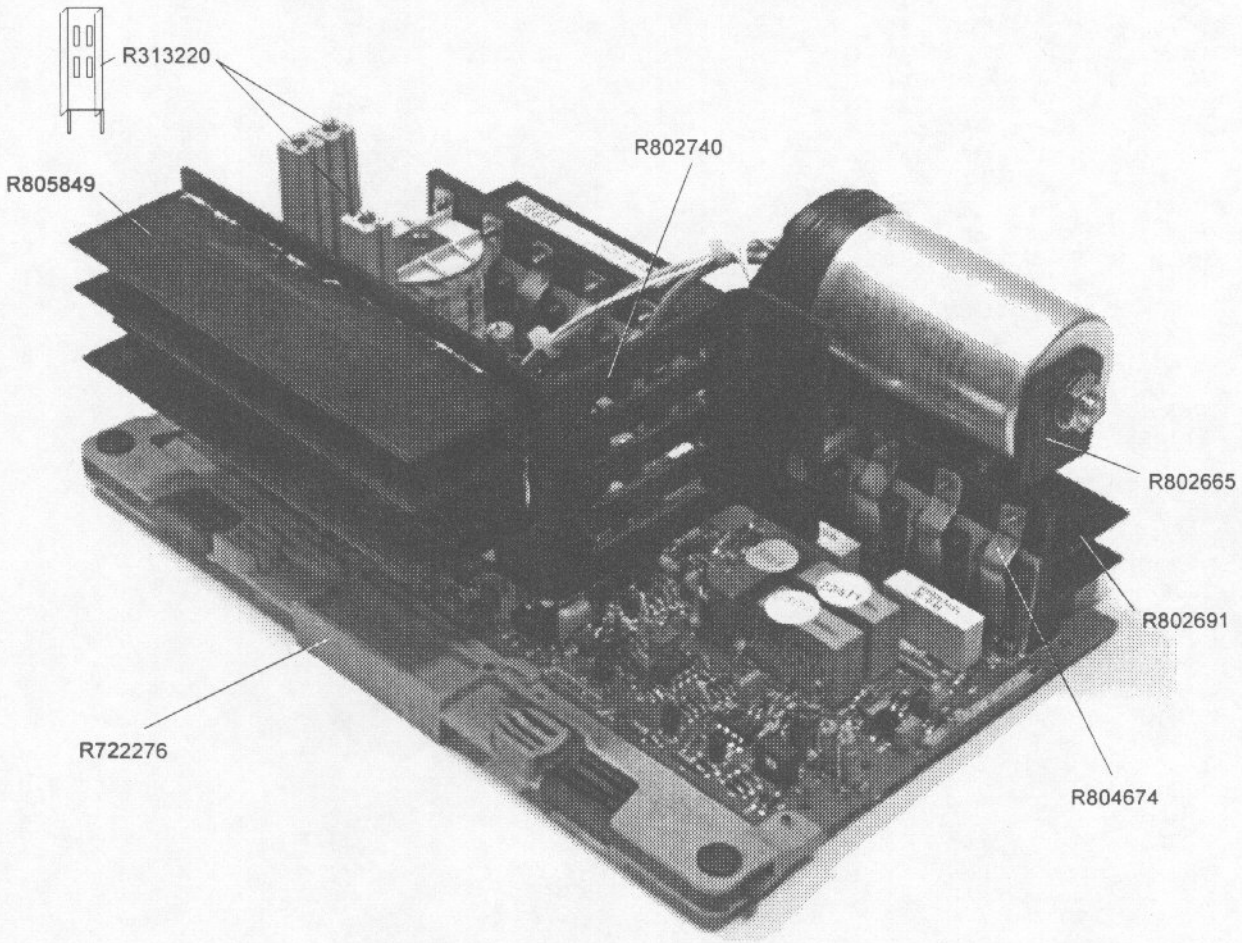
BOTTEM
>Sheet2
VDL
>Sheet2
To FOCUS AMPLIFIERS (J3)
J5
1 LP
2 +FOCUS
3 +12V
4
5 -12V
6 DRIVER
0.25W 0.40W 0.50W 1W 1.5W
PRODUCT SAFETY NOTICE
COMPONENTS MARKED WITH x OR ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE SERVICE SAFETY PRECAUTIONS. DO NOT DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING.
Name FOCUS SUB-UNIT
Article nr. 76 2271S-4
Date 15-11-1994
Drawn JVDY
Checked WBU
BARCO PROJECTION SYSTEMS
Sheet 1
Modifications reserved
SCHEMATIC NAME: 762271s.sch SHEET NUMBER: 1 DATE: Dec 21, 1994


R313220
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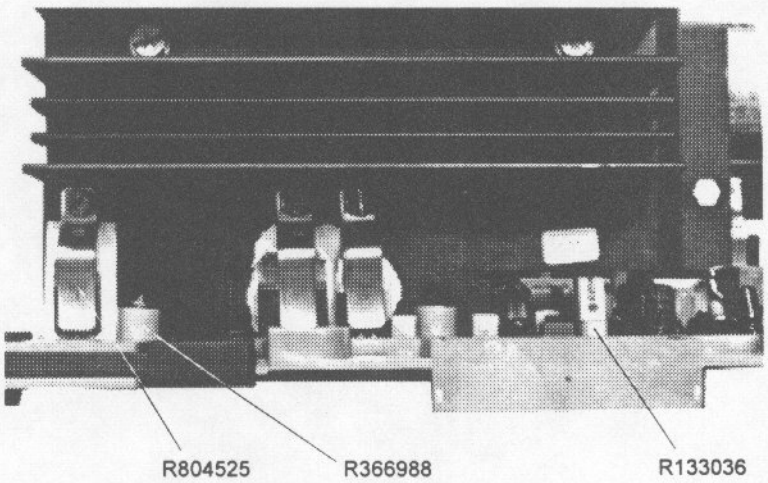
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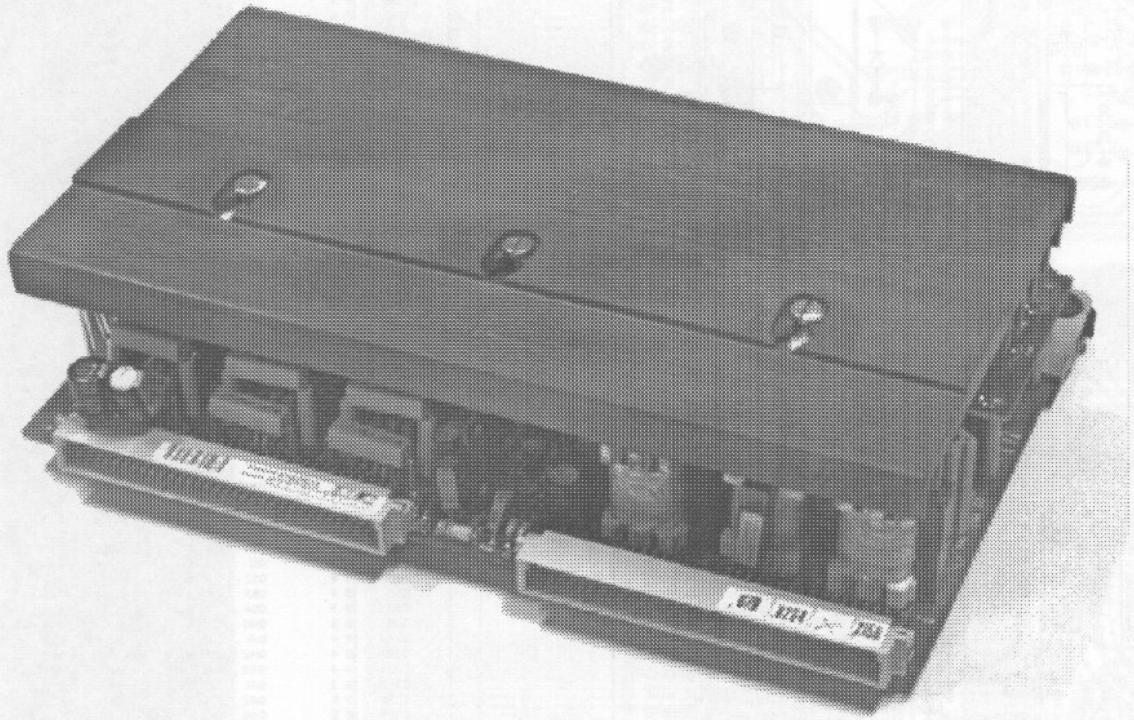
Electromagnetic Focus+Hor Shift
Sub module

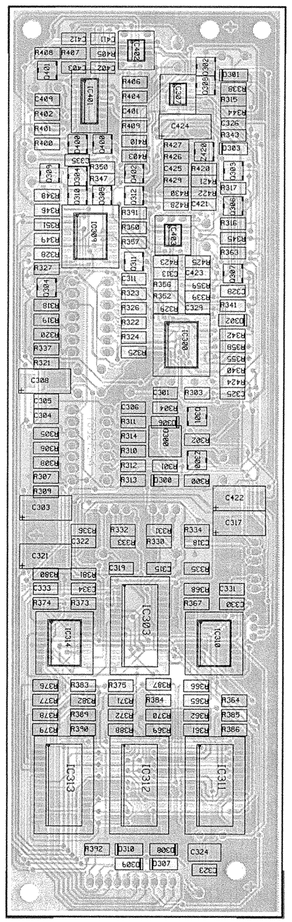
R762503
R762271S



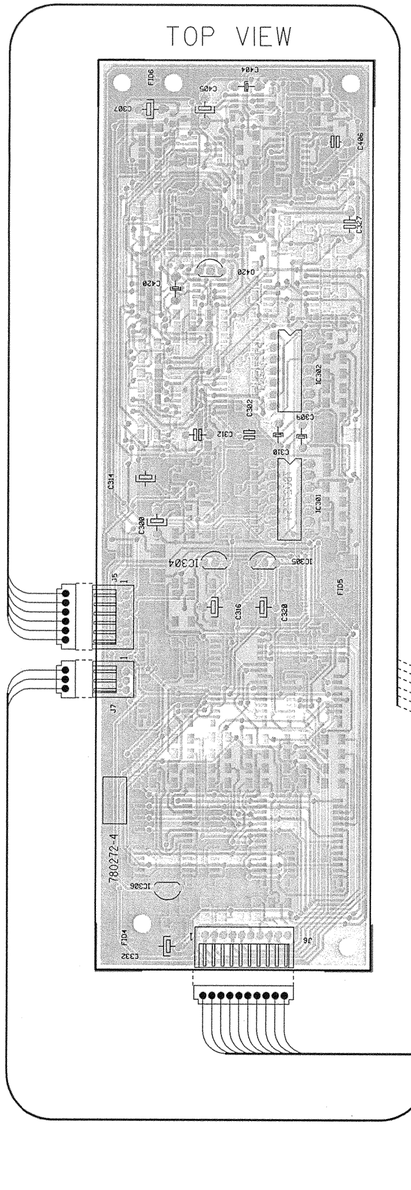
SERVICE SHEET Date : 15/05/95 R762503

BARCO

BOTTOM VIEW

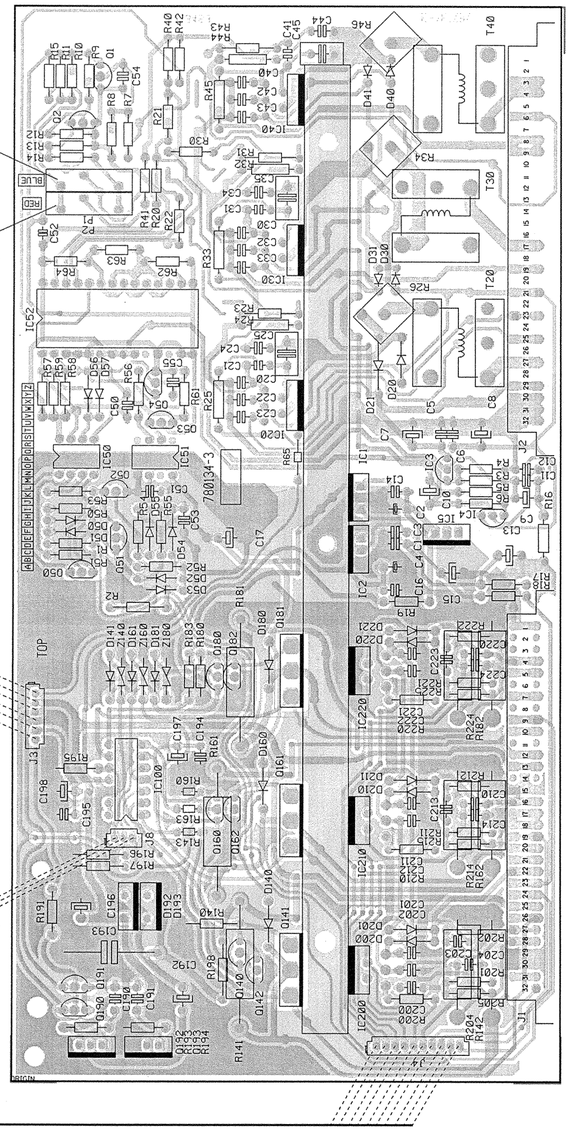


TOP VIEW



ADJUSTMENT HORIZONTAL SHIFT BLUE

ADJUSTMENT HORIZONTAL SHIFT RED



Name	Artcle nr.
MAG. FOC. + HOR. SHIFT	76 2503-3
Date: 16-05-1995	Drawn: JVDY
Checked: WBU	

BARCO PROJECTION SYSTEMS

Modifications reserved

COMP.	LOC.
C1	G 4
C2	G 3
C3	G 3
C4	G 4
C5	H 3
C6	H 3
C7	G 3
C8	H 3
C9	H 3
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C330	B 4
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C421	B 2
C422	B 3
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C424	B 1
C425	B 2
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D21	G 3
D30	G 2
D31	G 2
D40	G 1
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D50	F 3
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D52	F 4
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IC310	B 4
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IC314	A 4
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IC402	B 1
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J4	G 6
J5	C 3
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J7	C 4
J8	F 5
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Q308	B 1
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R3	H 3
R4	H 3
R5	H 3
R6	H 3
R7	F 1
R8	F 1
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R427	B 2
R428	B 2
R429	B 2
R430	B 2
T20	H 2
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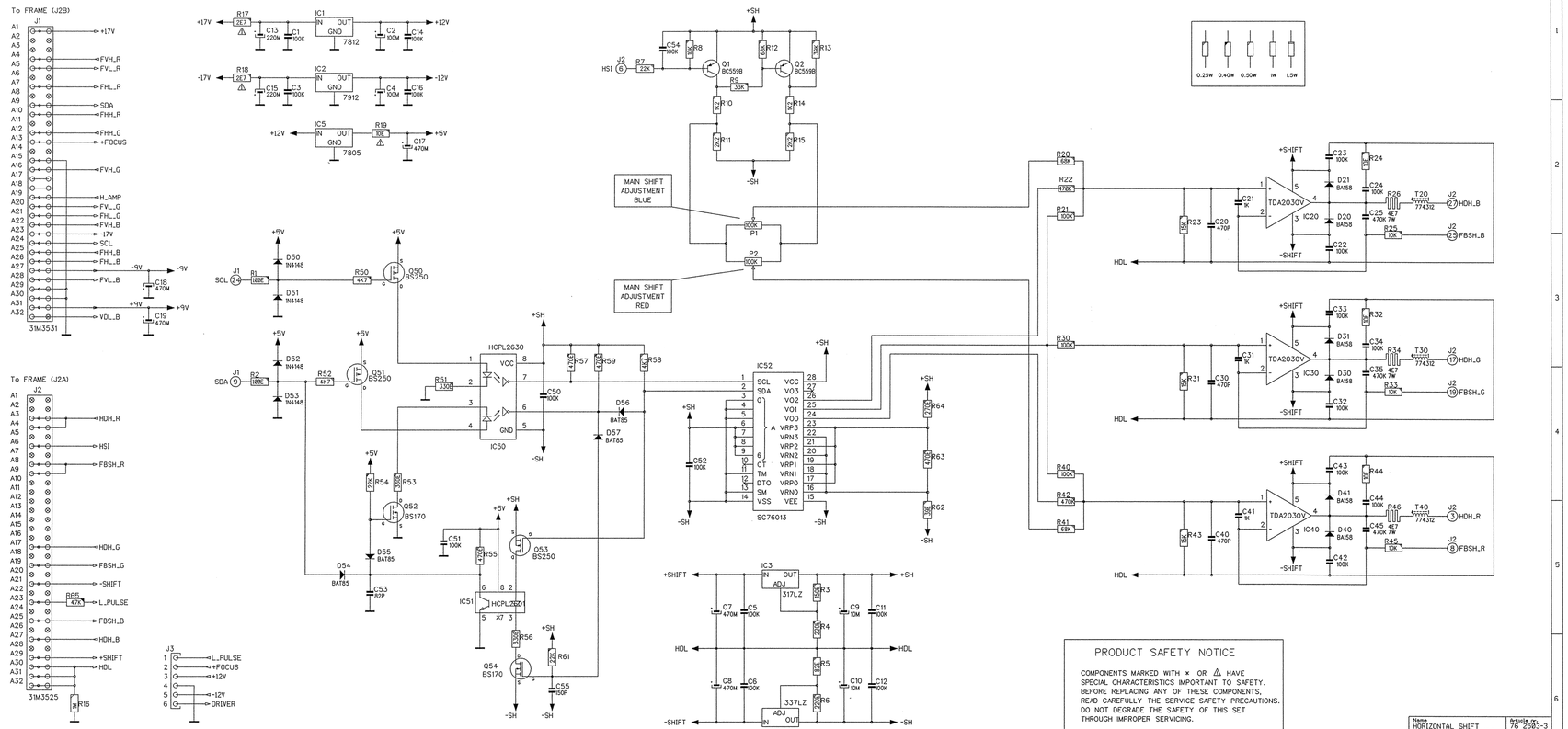
Z300	B 3
Z420	B 2

780134-3

BARCO



PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH × 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.

Name: HORIZONTAL SHIFT		Article nr.: 76 2503-3	
Date: 18-05-1995	Drawn: JVDY	Checked: WBU	

BARCO PROJECTION SYSTEMS

SCHEMATIC NAME: 762503.sch SHEET NUMBER: 2 DATE: Jun 28, 1995

7780134-3

BARCO

HORIZONTAL FOCUS AMPLIFIER

VERTICAL FOCUS AMPLIFIER

+FOCUS

DRIVER J3 >Sheet2

R191 4K7

Q190 BC549C

Q191 BC559C

C190 330K

C191 330K

R193 5K

R194 5K

Q192 IRF-9630

Q193 IRF-632

R192 5K 4W

C192 47M

D192 BYW29-200

D193 BYW29-200

R198 0.22Ω

C193 1M

C196 47M

+V(DYN)

+V(DYN) → FHH R, FHH G, FHH B

0.25W 0.40W 0.50W 1W 1.5W

IC100 34084

C197 10M

C194 100K

C195 100K

C198 10M

From SUB-UNIT (J7)

J8: 3 B_HOR, 2 G_HOR, 1 R_HOR

R195 50Ω, R196 50Ω, R197 50Ω

From SUB-UNIT (J6)

J4: 1 R_STATIC, 2 G_STATIC, 3 R_VERT, 4 G_VERT, 5 B_VERT, 6 B_STATIC, 7 VDL_B, 8 SCL, 9 SDA, 10 H_AMP

PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH x 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.

HORIZONTAL MAGNETIC FOCUS COIL BLUE

IC100 34084, R143 100K, Q140 BC549C, Q142 BC559C, D140 BAI58, D141 IN4148, Q141 BUZ310, R140 1K, R141 1K5 5W, R142 4E7 4W

FHH_B → J1 25 FHH_B >Sheet2, J1 26 FHL_B >Sheet2

HORIZONTAL MAGNETIC FOCUS COIL GREEN

IC100 34084, R163 100K, Q160 BC549C, Q162 BC559C, D160 BAI58, D161 IN4148, Q161 BUZ310, R160 1K, R161 1K5 5W, R162 4E7 4W

FHH_G → J1 10 FHH_G >Sheet2, J1 9 FHL_G >Sheet2

HORIZONTAL MAGNETIC FOCUS COIL RED

IC100 34084, R183 100K, Q180 BC549C, Q182 BC559C, D180 BAI58, D181 IN4148, Q181 BUZ310, R180 1K, R181 1K5 5W, R182 4E7 4W

FHH_R → J1 10 FHH_R >Sheet2, J1 7 FHL_R >Sheet2

VERTICAL MAGNETIC FOCUS COIL BLUE

IC200 TDA2030V, R200 2K7, R201 5K6, R205 10K, R202 5K, R204 4E7 4W, C200 2K2, C201 100K, C202 100K, C203 100K, C204 2K2, D200 BAI58, D201 BAI58

FVH_B → J1 22 FVH_B >Sheet2; FVL_B → J1 23 FVL_B >Sheet2

VERTICAL MAGNETIC FOCUS COIL GREEN

IC210 TDA2030V, R210 2K7, R211 5K6, R215 10K, R212 5K, R214 4E7 4W, C210 2K2, C211 100K, C212 100K, C213 100K, C214 2K2, D210 BAI58, D211 BAI58

FVH_G → J1 16 FVH_G >Sheet2; FVL_G → J1 20 FVL_G >Sheet2

VERTICAL MAGNETIC FOCUS COIL RED

IC220 TDA2030V, R220 2K7, R221 5K6, R225 10K, R222 5K, R224 4E7 4W, C220 2K2, C221 100K, C222 100K, C223 100K, C224 2K2, D220 BAI58, D221 BAI58

FVH_R → J1 4 FVH_R >Sheet2; FVL_R → J1 5 FVL_R >Sheet2

Modifications reserved

Name: FOCUS AMPLIFIERS		Article nr.: 76 2503-3	
Date: 16-05-1995	Drawn: JVDY	Checked: WBU	
BARCO PROJECTION SYSTEMS			

Sheet 1

COMP.	LOC.	SHEET
C1	C 1	sheet 2
C2	D 1	sheet 2
C3	C 2	sheet 2
C4	D 2	sheet 2
C5	F 6	sheet 2
C6	F 6	sheet 2
C7	F 6	sheet 2
C8	F 6	sheet 2
C9	G 5	sheet 2
C10	G 6	sheet 2
C11	G 5	sheet 2
C12	G 6	sheet 2
C13	C 1	sheet 2
C14	C 1	sheet 2
C15	C 2	sheet 2
C16	D 2	sheet 2
C17	D 2	sheet 2
C18	B 3	sheet 2
C19	B 3	sheet 2
C20	J 2	sheet 2
C21	J 2	sheet 2
C22	K 3	sheet 2
C23	K 2	sheet 2
C24	K 2	sheet 2
C25	K 2	sheet 2
C30	J 4	sheet 2
C31	J 3	sheet 2
C32	K 4	sheet 2
C33	K 3	sheet 2
C34	K 3	sheet 2
C35	K 4	sheet 2
C40	J 5	sheet 2
C41	J 5	sheet 2
C42	K 5	sheet 2
C43	K 4	sheet 2
C44	K 5	sheet 2
C45	K 5	sheet 2
C50	E 4	sheet 2
C51	D 5	sheet 2
C52	F 4	sheet 2
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IC210	H 3	sheet 1
IC220	H 5	sheet 1
J1	A 1	sheet 2
J2	A 4	sheet 2
J3	B 6	sheet 2
J4	A 5	sheet 1
J8	A 4	sheet 1
P1	F 3	sheet 2
P2	F 3	sheet 2
Q1	F 1	sheet 2
Q2	G 1	sheet 2
Q50	D 3	sheet 2
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Q140	E 1	sheet 1
Q141	F 1	sheet 1
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Q180	F 5	sheet 1
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R225	H 5	sheet 1
T20	K 2	sheet 2
T30	K 3	sheet 2
T40	K 5	sheet 2
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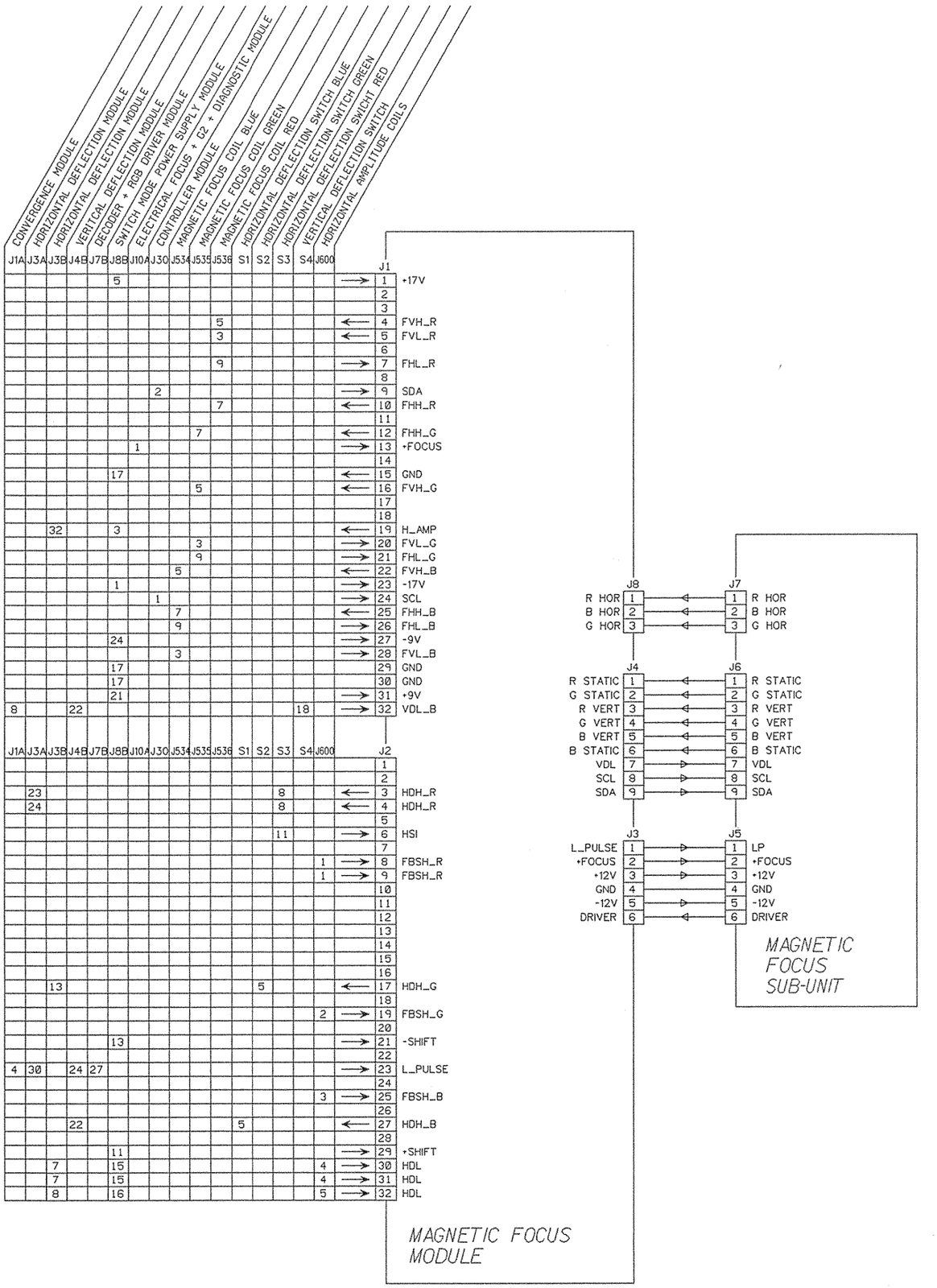
Z180	E 5	sheet 1

SCHEMATIC NAME: 762503.sch SHEET NUMBER: 1 DATE: Jun 28,1995



BARCO

Name Interconnection		Article nr.
MAGNETIC FOCUS MODULE		76 2503
Date 16-05-1995	Drawn JVDY	Checked WBU
BARCO PROJECTION SYSTEMS		

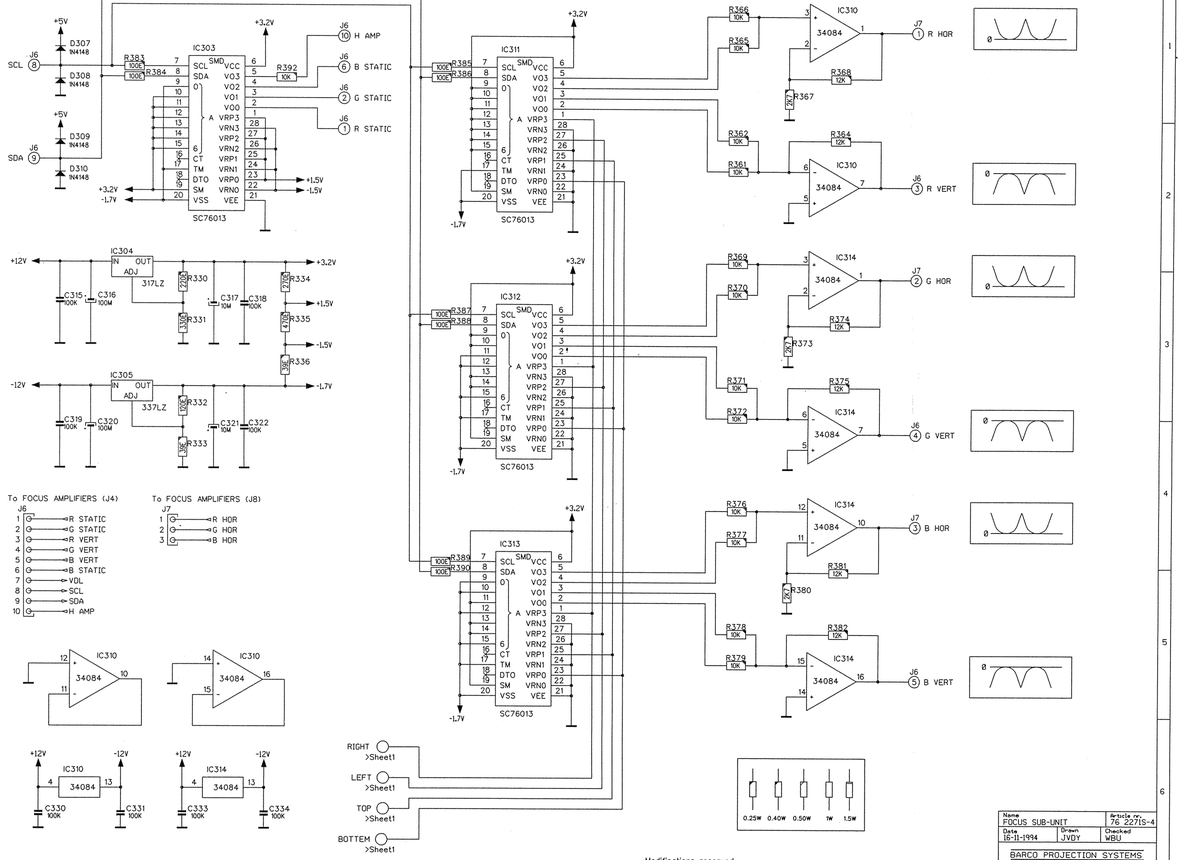
Modifications reserved

Sheet 1

SCHEMATIC NAME: focblk.sch SHEET NUMBER: 1 DATE: Jun 28, 1995

780272-4

BARCO



Name	Article nr.
FOCUS SUB-UNIT	76 227IS-4
Date: 16-11-1994	Drawn: JVDY
	Checked: WBU
BARCO PROJECTION SYSTEMS	

H Sheet 2

COMP.	LOC.	SHEET
C300	E 3	sheet 1
C301	D 4	sheet 1
C302	E 4	sheet 1
C303	D 2	sheet 1
C304	E 1	sheet 1
C305	E 2	sheet 1
C306	E 2	sheet 1
C307	G 1	sheet 1
C308	E 5	sheet 1
C309	E 5	sheet 1
C310	E 5	sheet 1
C311	E 5	sheet 1
C312	C 6	sheet 1
C313	G 5	sheet 1
C314	A 3	sheet 1
C315	A 3	sheet 2
C316	A 3	sheet 2
C317	B 3	sheet 2
C318	B 3	sheet 2
C319	A 3	sheet 2
C320	A 3	sheet 2
C321	A 4	sheet 2
C322	B 4	sheet 2
C323	D 6	sheet 1
C324	E 6	sheet 1
C325	G 2	sheet 1
C326	G 3	sheet 1
C327	I 2	sheet 1
C328	A 5	sheet 1
C329	B 5	sheet 1
C330	A 6	sheet 2
C331	B 6	sheet 2
C332	E 6	sheet 1
C333	B 6	sheet 2
C334	C 6	sheet 2
C335	J 2	sheet 1
C401	C 3	sheet 1
C402	A 4	sheet 1
C403	B 4	sheet 1
C404	B 4	sheet 1
C405	B 4	sheet 1
C406	C 4	sheet 1
C409	B 5	sheet 1
C411	A 6	sheet 1
C412	B 6	sheet 1
C420	A 1	sheet 1
C421	B 1	sheet 1
C422	C 1	sheet 1
C423	C 1	sheet 1
C424	G 2	sheet 1
C425	B 2	sheet 1
D300	E 3	sheet 1
D301	H 1	sheet 1
D302	H 5	sheet 1
D303	H 1	sheet 1
D304	I 3	sheet 1
D305	J 1	sheet 1
D306	D 4	sheet 1
D307	A 1	sheet 2
D308	A 1	sheet 2
D309	A 2	sheet 2
D310	A 2	sheet 2
D400	B 3	sheet 1
IC300	C 6	sheet 1
IC300	A 5	sheet 1
IC300	A 5	sheet 1
IC300	F 4	sheet 1
IC300	H 5	sheet 1
IC300	H 4	sheet 1
IC301	F 1	sheet 1
IC302	F 5	sheet 1
IC303	B 1	sheet 2
IC304	A 2	sheet 2
IC305	A 3	sheet 2
IC306	E 6	sheet 1
IC307	A 6	sheet 1
IC307	A 6	sheet 1
IC307	H 2	sheet 1
IC307	H 3	sheet 1
IC309	A 5	sheet 1
IC309	A 5	sheet 1
IC309	K 2	sheet 1
IC309	K 1	sheet 1
IC309	K 5	sheet 1
IC309	K 4	sheet 1
IC310	B 5	sheet 2
IC310	A 6	sheet 2
IC310	A 5	sheet 2
IC310	F 2	sheet 2
IC310	F 1	sheet 2
IC311	D 1	sheet 2
IC312	D 3	sheet 2
IC313	D 4	sheet 2
IC314	B 6	sheet 2
IC314	B 6	sheet 2
IC314	F 5	sheet 2
IC314	F 3	sheet 2
IC314	F 2	sheet 2
IC314	F 4	sheet 2
IC401	C 3	sheet 1
IC401	B 5	sheet 1
IC401	B 5	sheet 1
IC402	A 6	sheet 1
IC402	A 6	sheet 1
IC402	H 6	sheet 1
IC402	A 4	sheet 1
IC403	C 1	sheet 1
IC403	B 1	sheet 1
IC403	A 5	sheet 1
IC403	A 5	sheet 1
J5	C 5	sheet 1
J6	A 4	sheet 2
J7	B 4	sheet 2
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Q301	E 4	sheet 1
Q302	G 1	sheet 1
Q303	H 1	sheet 1
Q304	G 5	sheet 1
Q306	H 1	sheet 1
Q307	H 2	sheet 1
Q308	H 3	sheet 1
Q309	J 2	sheet 1
Q310	J 1	sheet 1
Q311	J 5	sheet 1
Q312	J 4	sheet 1
Q400	B 3	sheet 1
Q401	B 4	sheet 1
Q402	D 4	sheet 1
Q420	B 2	sheet 1
R300	E 3	sheet 1
R301	E 4	sheet 1
R302	E 3	sheet 1
R303	D 4	sheet 1
R304	E 4	sheet 1
R305	D 1	sheet 1
R306	D 1	sheet 1
R307	E 1	sheet 1
R308	D 1	sheet 1
R309	D 2	sheet 1
R310	E 2	sheet 1
R311	E 2	sheet 1
R312	E 2	sheet 1
R313	G 1	sheet 1
R314	G 1	sheet 1
R315	G 1	sheet 1
R316	H 1	sheet 1
R317	H 1	sheet 1
R318	D 5	sheet 1
R319	D 5	sheet 1
R320	D 5	sheet 1
R321	D 5	sheet 1
R322	E 5	sheet 1
R323	E 5	sheet 1
R324	E 5	sheet 1
R325	G 5	sheet 1
R326	G 5	sheet 1
R327	G 4	sheet 1
R328	G 5	sheet 1
R329	G 6	sheet 1
R330	B 3	sheet 2
R331	B 3	sheet 2
R332	B 3	sheet 2
R333	B 4	sheet 2
R334	C 3	sheet 2
R335	C 3	sheet 2
R336	C 3	sheet 2
R337	E 5	sheet 1
R338	H 1	sheet 1
R339	H 1	sheet 1
R340	G 2	sheet 1
R341	H 2	sheet 1
R342	H 3	sheet 1
R343	G 3	sheet 1
R344	H 3	sheet 1
R345	H 4	sheet 1
R346	I 2	sheet 1
R347	I 2	sheet 1
R348	J 2	sheet 1
R349	I 1	sheet 1
R350	I 1	sheet 1
R351	J 1	sheet 1
R352	G 6	sheet 1
R355	I 5	sheet 1
R356	I 5	sheet 1
R357	J 5	sheet 1
R358	I 4	sheet 1
R359	I 4	sheet 1
R360	J 4	sheet 1
R361	F 2	sheet 2
R362	F 2	sheet 2
R363	H 1	sheet 1
R364	F 2	sheet 2
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R366	F 1	sheet 2
R367	F 1	sheet 2
R368	F 1	sheet 2
R369	F 2	sheet 2
R370	F 3	sheet 2
R371	F 3	sheet 2
R372	F 3	sheet 2
R373	F 3	sheet 2
R374	F 3	sheet 2
R375	F 3	sheet 2
R376	F 4	sheet 2
R377	F 4	sheet 2
R378	F 5	sheet 2
R379	F 5	sheet 2
R380	F 5	sheet 2
R381	F 4	sheet 2
R382	F 5	sheet 2
R383	B 1	sheet 2
R384	B 1	sheet 2
R385	D 1	sheet 2
R386	D 1	sheet 2
R387	D 3	sheet 2
R388	D 3	sheet 2
R389	D 4	sheet 2
R390	D 4	sheet 2
R391	H 5	sheet 1
R392	C 1	sheet 2
R400	A 3	sheet 1
R401	A 3	sheet 1
R402	A 3	sheet 1
R403	B 3	sheet 1
R404	C 3	sheet 1
R405	A 4	sheet 1
R406	B 4	sheet 1
R407	B 4	sheet 1
R408	B 4	sheet 1
R409	C 4	sheet 1
R410	D 4	sheet 1
R420	A 1	sheet 1
R421	A 1	sheet 1
R422	B 2	sheet 1
R423	B 1	sheet 1
R424	C 1	sheet 1
R425	C 1	sheet 1
R426	C 2	sheet 1
R427	C 2	sheet 1
R428	B 2	sheet 1
R429	B 2	sheet 1
R430	B 2	sheet 1
Z300	E 3	sheet 1
Z420	C 2	sheet 1

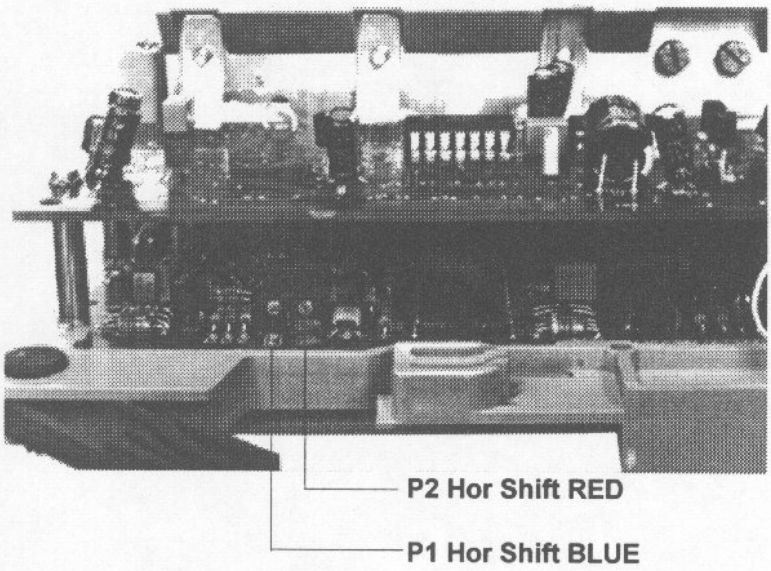
SCHEMATIC NAME: 76227ls.sch SHEET NUMBER: 2 DATE: Dec 21, 1994

Adjustment procedure

Introduction

The following adjustments are provided on the **main module**:

Horizontal SHIFT adjustment for RED - P2 and BLUE - P1 image



Adjustments

Horizontal SHIFT adjustment for RED and BLUE image

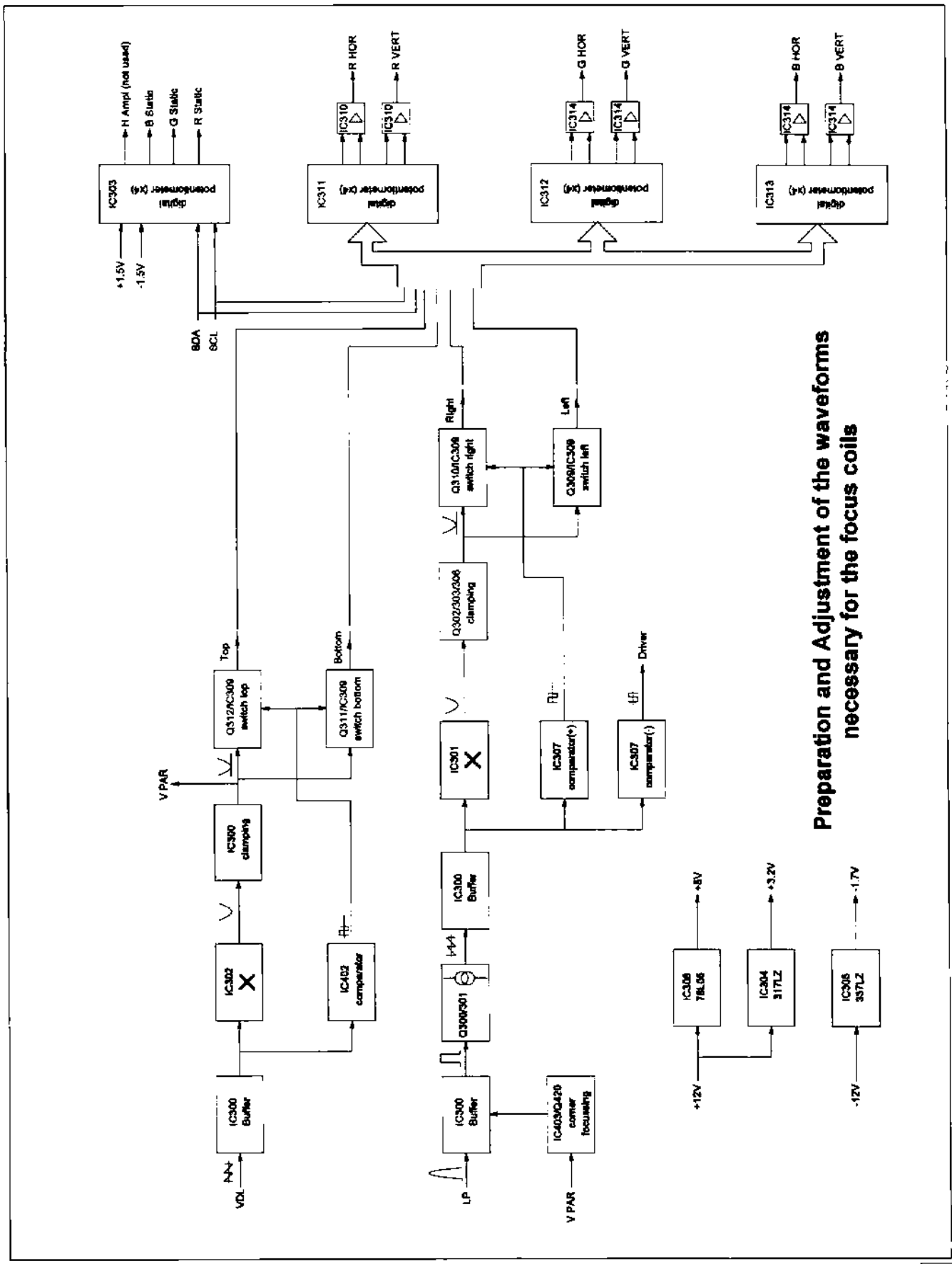
Note: the mentioned adjustments are Horizontal shift 'course' adjustments for the Red and Blue picture tube.

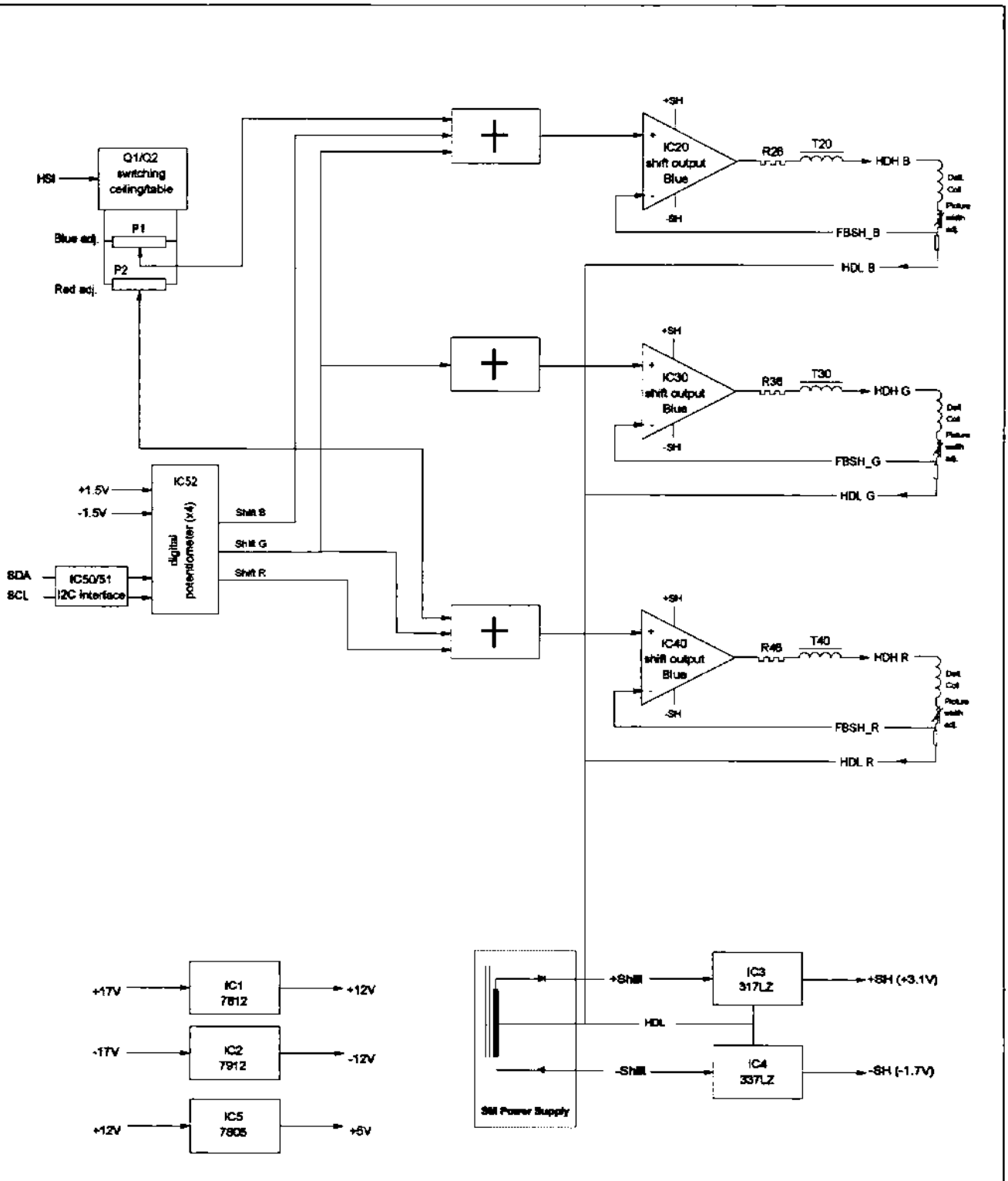
Preparation

Adjust the Horizontal raster centering controls for Red and Blue in their mid position by means of the Remote Control Unit. The numeric indicator under the respective bar scale indicates 50.
(Refer to the Owner's manual of the projector - Guided or Random adjustment mode).

Alignment

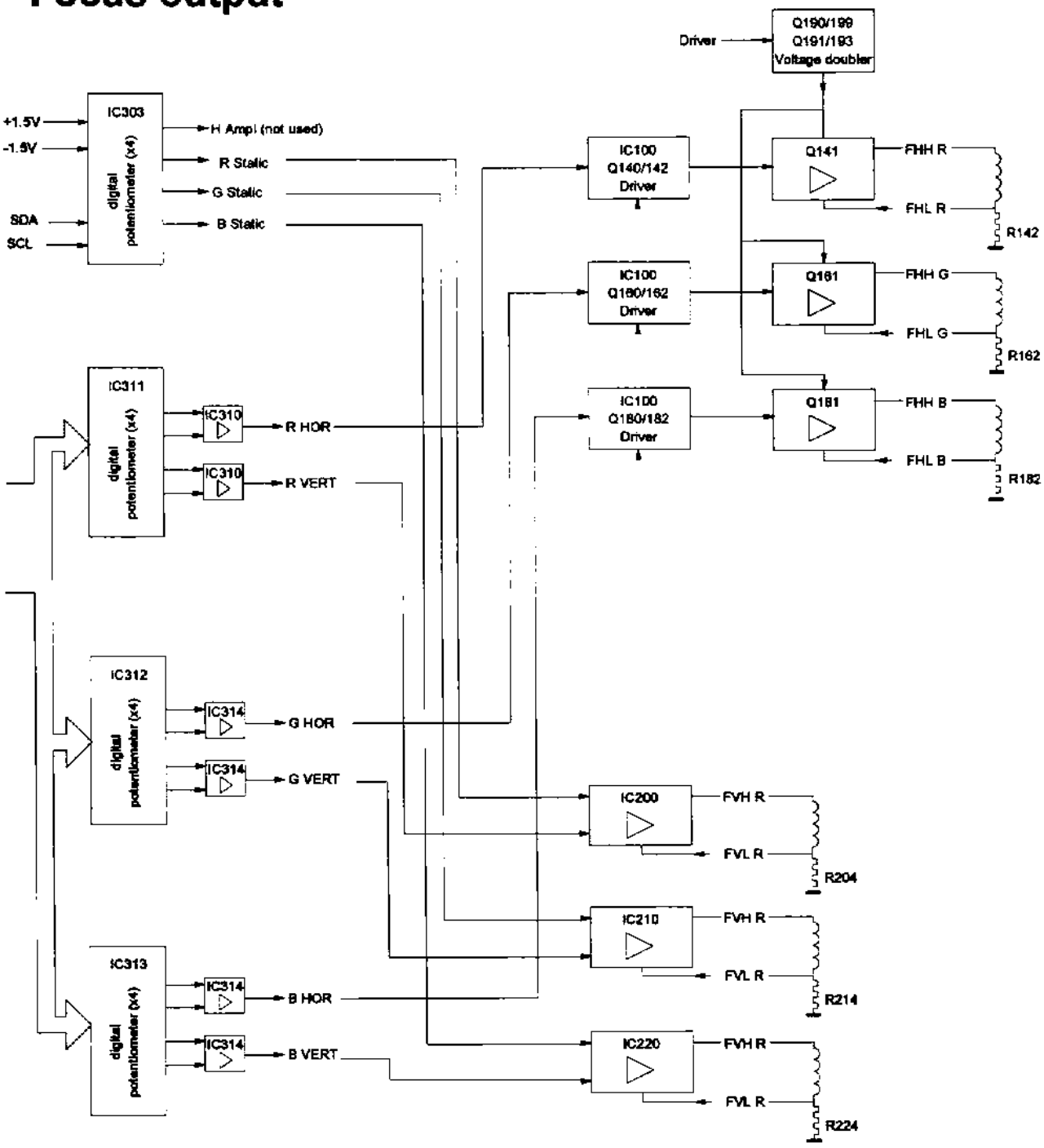
Use the Horizontal shift controls P2 for RED and P1 for BLUE to shift horizontally the Red and Blue image until the center coincides with the center of the Green image.


H Ampl (not used)
B Static
G Static
R Static
IC303
digital potentiometer (x4)
+1.5V
-1.5V
R HOR
R VERT
IC310
IC311
digital potentiometer (x2)
G HOR
G VERT
IC312
B HOR
B VERT
IC313
IC314
SDA
SCL
Right
Left
Q310/IC309 switch right
Q309/IC309 switch left
Q302/303/306 clamping
Top
Bottom
Q312/IC309 switch top
Q311/IC309 switch bottom
V PAR
IC300 clamping
IC302
IC402 comparator
IC301
IC307 comparator(+)
IC307 comparator(-)
Driver
IC300 Buffer
Q300/301
IC403/IC429 corner focussing
VDL
LP
V PAR
+8V
+3.2V
-1.7V
IC308 78L05
IC304 317LZ
IC305 337LZ
+12V
-12V
Preparation and Adjustment of the waveforms necessary for the focus coils



Horizontal Shift

Focus output



TECHNICAL DESCRIPTION "FOCUS - SHIFT"

Introduction.

Two completely independent functions are performed on this board and its subunit, the electromagnetic focus and the horizontal shift.
On the main board we find the Horizontal shift circuits and the power stages to drive the focus coils.
The preparation and adjustment of the waveforms necessary for the focus coils are accomplished on the sub-unit.

To obtain an independent left/right and top/bottom adjustment of the electromagnetic focus, the waveforms are clamped during one half of a scan period.

A. Electromagnetic Focus principle.

In this form of focusing, a strong magnetic field produced by an electromagnet or a permanent magnet mounted behind the yoke on the neck of the CRT forces divergent electrons to take a helical (coil-like) path to reach the CRT faceplate. The helical path is usually only one turn long. With the proper magnetic field strength oppositely divergent electrons will move forward along coil-like paths that rotate in opposite directions and meet at the phosphor screen, thereby bringing the electrons together again to form a small spot.

a) At line frequency :

A sawtooth generator is built around Q300 / 301. C302 charges up via the variable (line tracked) current generator Q300, and discharges via Q301 when a horizontal pulse is sent to its base. This pulse starts slightly before the end of the horizontal scan in order to obtain sufficient energy at the start of the horizontal scanning. The trigger pulse is generated in two steps by the two monoflops of IC401. By an integration (= averaging) of the pulse train at the output pin 13, an automatic tracking of the trigger moment with the line frequency is got.
C302 then charges, and its rate of charge is determined by the condition of the current generator Q300. Q300 is supplied with the **+ FOC**us voltage from the SMPS, which is in some way proportional to the line frequency. A vertical parabola is added to this charging current via C422.
Because of this, a tracking of the amplitude sawtooth signal with the line and vertical frequencies is developed.

The sawtooth signal is now applied to :

- a multiplier IC301 in order to generate a symmetrical parabolic waveform, regardless of the line frequency.

- a level detector in IC307 pins 3, 2 and 1 to produce a left-right squarewave which is buffered by Q307 and feeds the switchers-clampers Q309 and Q310 with a correct DC level (note that Q307 is supplied with + / - 12 volts).

- the inverting input of another level detector of IC307, pin 6, to produce a left-right squarewave (DRIVER) opposite in phase to the one on pin 1 of IC307. This squarewave is used on the main board to boost up the supply voltage of the line power amplifiers during the second half of the horizontal scan (see further).

The parabolic signal from the multiplier, IC301 is buffered with Q302, clamped and buffered. The signal then goes to the non-inverting inputs of two voltage-followers in IC309 (MC34084).

Obviously, the clamper Q310 shorts to ground the parabolic waveform, during the first half of the horizontal scan. and Q309 shorts the signal during the second half of scan.

The buffered signals are now adjusted in amplitude with IC311, IC312 and IC313 for the three colours. The outputs are summed and sent to the power amplifiers on a suitable level.

b) At vertical frequency :

The vertical sawtooth **"VDL"** is DC coupled to a buffer IC308 pin 3 and then applied to :

- the multiplier IC302 to generate a vertical parabola.
  The parabola is inverted with Q304, clamped, buffered, and feeds two buffers in IC309.

- a level detector IC308 input, pin 5, to produce a top-bottom squarewave. The output is buffered and feeds the clampers Q311 / Q312 with a correct DC level for grounding the input at either the top or bottom half of the raster.

The two remaining potentiometers of IC311, IC312, IC313 are used to adjust the top / bottom waveforms which are again summed and leave the subunit to be amplified by the power amplifiers on the main board.

c) Static or average focus (centre focus).

Three voltages **R STATIC , G STATIC and B STATIC**, adjustable between + / - 1.5 volts with potentiometers in IC303 are added to the feedback of the vertical focus power amplifiers.

d) Power amplifiers :

1. CORNER - H .

The left / right adjusted waveforms, summed on the subunit IC309 output, are now amplified to generate the required magnetic field for focusing of the beam during the horizontal scan. Because of the high scanning range, a good slew rate of these amplifiers is necessary. This is especially critical during the second part of the horizontal scan. This can be realised by boosting up the supply voltage during this time.
This boosting up of the +FOC voltage is got with the circuit around Q190 - 193. The squarewave drives the push-pull stage Q190 / Q191, which on its turn drives the MOSFETs Q192 - Q193 . The +FOC voltage is boosted up during the second part of the horizontal scan and is now referred to as **+V[DYN].**

Three identical amplifier stages with feedback to the inverting input of the OPAMPs in IC100, deliver the required current to the horizontal focus coils.

2. CORNER - V / STATIC.

Since the vertical scanning frequencies are much lower than the horizontal frequencies, a TDA2030 may be used. For stability reasons, a similar feedback voltage is applied on the inverting input, together with a DC-voltage (=static, for the centre).

B. Horizontal SHIFT

The + / - SHIFT voltages are not returned to chassis ground, but to the **HDL** (Horizontal Deflection Low, which is basically HTHD). Therefore, the adjusted shift voltages may not be referenced to chassis ground, but to the same HDL.
The digital potentiometer IC (IC52) has to be supplied with the + / - SHIFT voltages from the SMPS.
The I2C-bus lines **SDA** and **SCL** must drive the above-mentioned chip via an isolation circuit, using an opto-coupler.
The opto-coupler IC50 is used to isolate the SDA and SCL lines, referenced to a cold (chassis) ground, from the shift circuits in IC52.
The SCL pulses are sent to pin 1 of IC52 via an opto-coupler in IC50, whereas the SDA data line is connected with pin 2 through the other opto-coupler in IC50.
At the moment an "Acknowledgment" bit is returned to the Controller, another opto-coupler IC51 takes over. To avoid a return to IC52 via the first opto-coupler, MOSFETs are automatically switched on and off.

The **HSI** (Horizontal Scan Identification) information from one of the horizontal scan switches on the "Scan Switching" module, allows an inversion of the supply voltages for the multiturn potentiometers P1 and P2. These potentiometers are the factory set *coarse alignments* of the shift, to be adjusted prior to the digital control.
The SHIFT voltages control an average DC current through the horizontal yoke windings in order to horizontally shift the rasters.

Parts listing 76 2503 CPL

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
130	R133039	SPR L 8 D 4 D 1.2 C	28
10	R133063	Q ACC ISO MICA SOT93	14
310	R3153151	J RVT MBT D 2.3L13	
	R348320	CD SLL VTBS 0,44 BK 40	1
3010	R34840313	CD CT FTMT P 3 90	1
3000	R34840612	CD CT FTMT P 6 80	1
	R3484100	CD CT FTMT P10 110	1
60	R3620127	SCR D84 M 2.5X 6 SI	6
70	R362670	SCR D921 M 3 X 10 SI	3
50	R3631049	SCR D933 M 3 X 6 XIC	1
80	R3631059	SCR D933 M 3 X 8 XIC	4
40	R3631089	SCR D933 M 3 X 16 XIC	7
45	R3631099	SCR D933 M 3 X 20 XIC	3
160	R366988	NUT I SOUTH M 3 X0.5	1
100	R367528	WSHR D6798 A 2.7 S Z	6
120	R367615	SPR L22 D 5 M 2.5 BIN	3
350	R367699	RVT CHB D2.38L6.35 P A	6
210	R721620	SPR L 5 D 8 D 3 P	2
140	R722276	LOCK PJ49 PCB UN CPL	1
	R762271S	**UN M_F+SH PJ51 G1200 VH/P**	**1**
300	R780298	PCD PJ51 G1200 M_FOC PROT	1
35	R804674	Q ACC SPG 1XM3 SHORT	2
30	R804831	Q ACC SPG 1X 3.1 LONG	3
20	R804832	Q ACC SPG 1XM3 LONG	8
1000	R805835	FRM PJ56 G808 FOC HTSNK 1	1
1100	R805836	FRM PJ56 G808 FOC HTSNK 2	1
1200	R805839	FRM PJ56 G808 E FOC BRKT	1
C 1	R112774	C CE MI 100N S 63E2 85	
C 2	R111477	C EL RA 100M Z 25E2 85	
C 3	R112774	C CE MI 100N S 63E2 85	
C 4	R111477	C EL RA 100M Z 25E2 85	
C 5	R112774	C CE MI 100N S 63E2 85	
C 6	R112774	C CE MI 100N S 63E2 85	
C 7	R111479	C EL RA 470M Z 25E2 85	1
C 8	R111479	C EL RA 470M Z 25E2 85	1
C 9	R111531	C EL RA 10M M 35E2 85	
C 10	R111531	C EL RA 10M M 35E2 85	
C 11	R112774	C CE MI 100N S 63E2 85	
C 12	R112774	C CE MI 100N S 63E2 85	
C 13	R111478	C EL RA 220M M 25E2 85	1
C 14	R112774	C CE MI 100N S 63E2 85	
C 15	R111478	C EL RA 220M M 25E2 85	1
C 16	R112774	C CE MI 100N S 63E2 85	
C 17	R111458	C EL RA 470M Z 10E2 85	1
C 18	R111468	C EL RA 470M Z 16E2 85	1
C 19	R111468	C EL RA 470M Z 16E2 85	1
C 20	R112735	C CE MI 470P K100E2	
C 21	R112739	C CE MI 1N K100E2	
C 22	R113724	C POMERA 100N K 63E2 85	
C 23	R113724	C POMERA 100N K 63E2 85	
C 24	R113724	C POMERA 100N K 63E2 85	
C 25	R113732	C POMERA 470N K 63E2 85	
C 30	R112735	C CE MI 470P K100E2	
C 31	R112739	C CE MI 1N K100E2	
C 32	R113724	C POMERA 100N K 63E2 85	
C 33	R113724	C POMERA 100N K 63E2 85	
C 34	R113724	C POMERA 100N K 63E2 85	
C 35	R113732	C POMERA 470N K 63E2 85	
C 40	R112735	C CE MI 470P K100E2	
C 41	R112739	C CE MI 1N K100E2	
C 42	R113724	C POMERA 100N K 63E2 85	
C 43	R113724	C POMERA 100N K 63E2 85	
C 44	R113724	C POMERA 100N K 63E2 85	
C 45	R113732	C POMERA 470N K 63E2 85	
C 50	R113724	C POMERA 100N K 63E2 85	
C 51	R113724	C POMERA 100N K 63E2 85	
C 52	R112774	C CE MI 100N S 63E2 85	
C 53	R1122415	C NP0 MI 82P G100E2	
C 54	R113724	C POMERA 100N K 63E2 85	
C 55	R112364	C N750MI 150P G100E2	
C190	R114085	C POMERA 330N K 63E2 85	
C191	R114085	C POMERA 330N K 63E2 85	
C192	R1113889	C EL RA 47M M100E2 85	1
C193	R114144	C POMERA 1M K250E9 85	1
C194	R112774	C CE MI 100N S 63E2 85	
C195	R113724	C POMERA 100N K 63E2 85	
C196	R1113889	C EL RA 47M M100E2 85	1
C197	R111531	C EL RA 10M M 35E2 85	
C198	R111531	C EL RA 10M M 35E2 85	
C200	R112743	C CE MI 2N2K100E2	
C201	R113724	C POMERA 100N K 63E2 85	
C202	R113724	C POMERA 100N K 63E2 85	
C203	R113724	C POMERA 100N K 63E2 85	
C204	R112743	C CE MI 2N2K100E2	
C210	R112743	C CE MI 2N2K100E2	
C211	R113724	C POMERA 100N K 63E2 85	
C212	R113724	C POMERA 100N K 63E2 85	
C213	R113724	C POMERA 100N K 63E2 85	
C214	R112743	C CE MI 2N2K100E2	
C220	R112743	C CE MI 2N2K100E2	
C221	R113724	C POMERA 100N K 63E2 85	
C222	R113724	C POMERA 100N K 63E2 85	
C223	R113724	C POMERA 100N K 63E2 85	
C224	R112743	C CE MI 2N2K100E2	
D 20	R131637	D R BA158 600400 DO7	1
D 21	R131637	D R BA158 600400 DO7	
D 30	R131637	D R BA158 600400 DO7	1
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D 40	R131637	D R BA158 600400 DO7	1
D 41	R131637	D R BA158 600400 DO7	1
D 50	R131621	D S 1N4148 075150 DO35	
D 51	R131621	D S 1N4148 075150 DO35	
D 52	R131621	D S 1N4148 075150 DO35	
D 53	R131621	D S 1N4148 075150 DO35	
D 54	R1316361	D Y BAT85 030200 DO35	1
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D 56	R1316361	D Y BAT85 030200 DO35	1
D 57	R1316361	D Y BAT85 030200 DO35	1
D140	R131637	D R BA158 600400 DO7	1
D141	R131621	D S 1N4148 075150 DO35	
D160	R131637	D R BA158 600400 DO7	1
D161	R131621	D S 1N4148 075150 DO35	
D180	R131637	D R BA158 600400 DO7	1
D181	R131621	D S 1N4148 075150 DO35	
D192	R131954	D R BYW29 20008A TO220	1
D193	R131954	D R BYW29 20008A TO220	1
D200	R131637	D R BA158 600400 DO7	1
D201	R131637	D R BA158 600400 DO7	1
D210	R131637	D R BA158 600400 DO7	1
D211	R131637	D R BA158 600400 DO7	1
D220	R131637	D R BA158 600400 DO7	1

D221	R131637	D R BA158 600400 DO7	1
I 1	R134002	U 7812 TO220 P	1
I 2	R134016	U 7912 TO220 P	1
I 3	R134028	U 317LZ LM TO92 P	1
I 4	R134029	U 337LZ TO92 P	1
I 5	R134001	U 7805 TO220 P	1
I 20	R132751	U 2030V TDA TO220T P	1
I 30	R132751	U 2030V TDA TO220T P	1
I 40	R132751	U 2030V TDA TO220T P	1
I 50	R131684	U 2630 HCPL DIP8 P	1
I 51	R131683	U 2601 HCPL DIP8 P	1
I 52	R132833	U 76013 SC DIP28 P	1
I100	R134125	U 34084 DIP14 P	1
I200	R132751	U 2030V TDA TO220T P	1
I210	R132751	U 2030V TDA TO220T P	1
I220	R132751	U 2030V TDA TO220T P	1
J 1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 2	R313525	J EUR2C MBS P64 E1C2S 1,6	1
P 1	R107534	R MCE H100K K 0W75 M20SS	1
P 2	R107534	R MCE H100K K 0W75 M20SS	1
PC	R760134	PCD PJ51 G1200 M_FOC+SHF	1
Q 1	R1314181	Q BC559B P SS TO92	
Q 2	R1314181	Q BC559B P SS TO92	
Q 50	R132916	Q BS250 FN SS TO92	1
Q 51	R132916	Q BS250 FN SS TO92	1
Q 52	R1329105	Q BS170 FN SS TO92	1
Q 53	R132916	Q BS250 FN SS TO92	1
Q 54	R1329105	Q BS170 FN SS TO92	1
Q140	R131411	Q BC549C N SS TO92	
Q141	R132900	Q BUZ310 FN P TO218	1
Q142	R1314182	Q BC559C P SS TO92	
Q160	R131411	Q BC549C N SS TO92	
Q161	R132900	Q BUZ310 FN P TO218	1
Q162	R1314182	Q BC559C P SS TO92	
Q180	R131411	Q BC549C N SS TO92	
Q181	R132900	Q BUZ310 FN P TO218	1
Q182	R1314182	Q BC559C P SS TO92	
Q190	R131411	Q BC549C N SS TO92	1
Q191	R1314182	Q BC559C P SS TO92	
Q192	R132942	Q IRF9630 FP P TO220	1
Q193	R132941	Q IRF632 FN P TO220	1
R 1	R101124	R CF H100E J 0W25	
R 2	R101124	R CF H100E J 0W25	
R 3	R101126	R CF H150E F 0W25	
R 4	R101128	R CF H220E F 0W25	
R 5	R101123	R CF H 82E J 0W25	
R 6	R101128	R CF H220E F 0W25	
R 7	R101152	R CF H 22K J 0W25	
R 8	R101148	R CF H 10K J 0W25	
R 9	R101154	R CF H 33K J 0W25	
R 10	R101137	R CF H 1K2 J 0W25	
R 11	R101140	R CF H 2K2 J 0W25	1
R 12	R101158	R CF H 68K J 0W25	
R 13	R101155	R CF H 39K J 0W25	
R 14	R101137	R CF H 1K2 J 0W25	
R 15	R101140	R CF H 2K2 J 0W25	1
R 16	R104654	R HV H 1M J 0W5 3500	1
R 17	R1011059	R CFFH 2E7 J 0W25	1
R 18	R1011059	R CFFH 2E7 J 0W25	1
R 19	R1011129	R CFFH 10E J 0W25	
R 20	R101158	R CF H 68K J 0W25	
R 21	R101160	R CF H100K J 0W25	
R 22	R101158	R CF H470K J 0W25	
R 23	R101150	R CF H 15K J 0W25	
R 24	R101112	R CF H 10E J 0W25	
R 25	R101148	R CF H 10K J 0W25	
R 26	R104212	R WW V 4E7 K 7W	1
R 30	R101160	R CF H100K J 0W25	
R 31	R101150	R CF H 15K J 0W25	
R 32	R101112	R CF H 10E J 0W25	
R 33	R101148	R CF H 10K J 0W25	
R 34	R104212	R WW V 4E7 K 7W	1
R 40	R101160	R CF H100K J 0W25	
R 41	R101158	R CF H 68K J 0W25	
R 42	R101168	R CF H470K J 0W25	
R 43	R101150	R CF H 15K J 0W25	
R 44	R101112	R CF H 10E J 0W25	
R 45	R101148	R CF H 10K J 0W25	
R 46	R104212	R WW V 4E7 K 7W	1
R 50	R101144	R CF H 4K7 J 0W25	
R 51	R101130	R CF H330E J 0W25	
R 52	R101144	R CF H 4K7 J 0W25	
R 53	R101130	R CF H330E J 0W25	
R 54	R101152	R CF H 22K J 0W25	
R 55	R101132	R CF H470E J 0W25	
R 56	R101130	R CF H330E J 0W25	
R 57	R101132	R CF H470E J 0W25	
R 58	R101144	R CF H 4K7 J 0W25	
R 59	R101132	R CF H470E J 0W25	
R 61	R101152	R CF H 22K J 0W25	
R 62	R101119	R CF H 39E J 0W25	
R 63	R101132	R CF H470E J 0W25	
R 64	R101129	R CF H270E J 0W25	
R 65	R101556	R MF H 47K F 0W4 E3	1
R 65	R101556	R MF H 47K F 0W4 E3	
R140	R101136	R CF H 1K J 0W25	
R141	R103742	R WW H 1K5 K 5W	1
R142	R103620	R WW H 4E7 K 4W	1
R143	R100124	R CF V100E J 0W25 E2	
R160	R100136	R CF V 1K J 0W25 E2	
R161	R103742	R WW H 1K5 K 5W	1
R162	R103620	R WW H 4E7 K 4W	1
R163	R100124	R CF V100E J 0W25 E2	
R180	R101136	R CF H 1K J 0W25	
R181	R103742	R WW H 1K5 K 5W	1
R182	R103620	R WW H 4E7 K 4W	1
R183	R101124	R CF H100E J 0W25	
R191	R101144	R CF H 4K7 J 0W25	
R192	R103612	R WW H 1E K 4W	1
R193	R101144	R CF H 4K7 J 0W25	1
R194	R101144	R CF H 4K7 J 0W25	
R195	R101148	R CF H 10K J 0W25	
R196	R101148	R CF H 10K J 0W25	
R197	R101148	R CF H 10K J 0W25	
R198	R1011917	R CFFH E22K 0W4	1
R200	R101141	R CF H 2K7 J 0W25	
R201	R101145	R CF H 5K6 J 0W25	
R202	R101112	R CF H 10E J 0W25	
R204	R103620	R WW H 4E7 K 4W	1
R205	R101148	R CF H 10K J 0W25	
R210	R101141	R CF H 2K7 J 0W25	
R211	R101145	R CF H 5K6 J 0W25	
R212	R101112	R CF H 10E J 0W25	
R214	R103620	R WW H 4E7 K 4W	1
R215	R101148	R CF H 10K J 0W25	
R220	R101141	R CF H 2K7 J 0W25	
R221	R101145	R CF H 5K6 J 0W25	
R222	R101112	R CF H 10E J 0W25	
R224	R103620	R WW H 4E7 K 4W	1
R225	R101148	R CF H 10K J 0W25	

T 20	R774312	COIL SHF PJ49 G800	1
T 30	R774312	COIL SHF PJ49 G800	1
T 40	R774312	COIL SHF PJ49 G800	1

Parts listing 76 2271S

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C300	R111550	C EL RA 4M7M 50E2 85	1
C301	P210013	C# COG MU 1N J 50 1206	1
C302	R115928	C PP RA 3N3J 63E2 85	1
C303	P212031	C# TA 22M M 16 7343	1
C304	P210169	C# X7R MU 220N K 50 1210	1
C305	P210169	C# X7R MU 220N K 50 1210	1
C306	P210010	C# COG MU 68P J 50 1206	1
C307	R111546	C EL RA 1M M 50E2 85	1
C308	P212031	C# TA 22M M 16 7343	1
C309	R111476	C EL RA 47M M 25E2 85	1
C310	R111476	C EL RA 47M M 25E2 85	1
C311	P210010	C# COG MU 68P J 50 1206	1
C312	R114685	C PO RA 6N8K100E2 KT	1
C313	P210122	C# X7R MU 100N K 50 1206	1
C314	R1113889	C EL RA 47M M100E2 85	1
C315	P210122	C# X7R MU 100N K 50 1206	1
C316	R111466	C EL RA 100M Z 16E2 85	1
C317	P212024	C# TA 10M M 35 7343	1
C318	P210122	C# X7R MU 100N K 50 1206	1
C319	P210122	C# X7R MU 100N K 50 1206	1
C320	R111466	C EL RA 100M Z 16E2 85	1
C321	P212024	C# TA 10M M 35 7343	1
C322	P210122	C# X7R MU 100N K 50 1206	1
C323	P210122	C# X7R MU 100N K 50 1206	1
C324	P210095	C# X7R MU 330N M 50 1812	1
C325	P210122	C# X7R MU 100N K 50 1206	1
C326	P210122	C# X7R MU 100N K 50 1206	1
C327	R112237	C NP0 MI 39P G100E2	1
C328	P210122	C# X7R MU 100N K 50 1206	1
C329	P210122	C# X7R MU 100N K 50 1206	1
C330	P210122	C# X7R MU 100N K 50 1206	1
C331	P210122	C# X7R MU 100N K 50 1206	1
C332	R111466	C EL RA 100M Z 16E2 85	1
C333	P210122	C# X7R MU 100N K 50 1206	1
C334	P210122	C# X7R MU 100N K 50 1206	1
C335	P210141	C# COG MU 27P J 50 1206	1
C401	P210010	C# COG MU 68P J 50 1206	1
C402	P210122	C# X7R MU 100N K 50 1206	1
C403	P210122	C# X7R MU 100N K 50 1206	1
C404	R1115915	C EL5 RA 4M7M 35E2 85	1
C405	R111546	C EL RA 1M M 50E2 85	1
C406	R115932	C PP RA 4N7J 63E2 85	1
C409	P210122	C# X7R MU 100N K 50 1206	1
C411	P210122	C# X7R MU 100N K 50 1206	1
C412	P210122	C# X7R MU 100N K 50 1206	1
C420	R111476	C EL RA 47M M 25E2 85	1
C421	P210148	C# Y5V MU 470N Z 50 1206	1
C422	P212024	C# TA 10M M 35 7343	1
C423	P210148	C# Y5V MU 470N Z 50 1206	1
C424	P212024	C# TA 10M M 35 7343	1
C425	P210122	C# X7R MU 100N K 50 1206	1
D300	P234099	D#4148 R DMMELF	1
D301	P234099	D#4148 R DMMELF	1
D302	P234099	D#4148 R DMMELF	1
D303	P234099	D#4148 R DMMELF	1
D304	P234055	D#BAT54 SCH SOT23	1
D305	P234055	D#BAT54 SCH SOT23	1
D306	P234099	D#4148 R DMMELF	1
D307	P234099	D#4148 R DMMELF	1
D308	P234099	D#4148 R DMMELF	1
D309	P234099	D#4148 R DMMELF	1
D310	P234099	D#4148 R DMMELF	1
D400	P234055	D#BAT54 SCH SOT23	1
I300	P230705	U#34084 MC SOL16 P	1
I301	R1327655	U 1496 MC DIP14 P	1
I302	R1327655	U 1496 MC DIP14 P	1
I303	P230653	U#76013 SC SOL28 P	1
I304	R134028	U 317LZ LM TO92 P	1
I305	R134029	U 337LZ TO92 P	1
I306	R134032	U 78L05 TO92 P	1
I307	P230028	U#393 LM SO8 P	1
I309	P230705	U#34084 MC SOL16 P	1
I310	P230705	U#34084 MC SOL16 P	1
I311	P230653	U#76013 SC SOL28 P	1
I312	P230653	U#76013 SC SOL28 P	1
I313	P230653	U#76013 SC SOL28 P	1
I314	P230705	U#34084 MC SOL16 P	1
I401	P230073	U#74HCT123 SO16 I	1
I402	P230293	U#082 TL SO8 P	1
I403	P230293	U#082 TL SO8 P	1
J 5	R313946	J CT H MBS P 6 M2SN	1
J 6	R313950	J CT H MBS P10 M2SN	1
J 7	R313943	J CT H MBS P 3 M2SN	1
PC	R760272	PCD#PJ51 G1200 M_FOC+SHF	1
Q300	P232092	Q#BF623 P SS SOT89	1
Q301	P232033	Q#BSV52 N SS SOT23	1
Q302	P232004	Q#BC849C N SS SOT23	1
Q303	P232101	Q#BC859C P SS SOT23	1
Q304	P232101	Q#BC859C P SS SOT23	1
Q306	P232004	Q#BC849C N SS SOT23	1
Q307	P232033	Q#BSV52 N SS SOT23	1
Q308	P232033	Q#BSV52 N SS SOT23	1
Q309	P232046	Q#BSS123 F SS SOT23	1
Q310	P232158	Q#BF824 P SS SOT23	1
Q311	P232051	Q#BC847B N SS SOT23	1
Q312	P232050	Q#BC857B P SS SOT23	1
Q400	P232004	Q#BC849C N SS SOT23	1
Q401	P232101	Q#BC859C P SS SOT23	1
Q402	P232004	Q#BC849C N SS SOT23	1
Q420	R1314651	Q BF245B FN SS TO92	1
R300	P200091	R# CE H 5K6 J 0W12 1206	1
R301	P200101	R# CE H 15K J 0W12 1206	1
R302	P200095	R# CE H 8K2 J 0W12 1206	1
R303	P200073	R# CE H 1K J 0W12 1206	1
R304	P200073	R# CE H 1K J 0W12 1206	1

R305	P200065	R# CE H470E J 0W12 1206	1
R306	P200097	R# CE H 10K J 0W12 1206	1
R307	P200067	R# CE H560E J 0W12 1206	1
R308	P200097	R# CE H 10K J 0W12 1206	1
R309	P200065	R# CE H470E J 0W12 1206	1
R310	P200081	R# CE H 2K2 J 0W12 1206	1
R311	P200081	R# CE H 2K2 J 0W12 1206	1
R312	P200095	R# CE H 8K2 J 0W12 1206	1
R313	P200085	R# CE H 3K3 J 0W12 1206	1
R314	P200079	R# CE H 1K8 J 0W12 1206	1
R315	P200081	R# CE H 2K2 J 0W12 1206	1
R316	P200097	R# CE H 10K J 0W12 1206	1
R317	P200099	R# CE H 12K J 0W12 1206	1
R318	P200065	R# CE H470E J 0W12 1206	1
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R321	P200065	R# CE H470E J 0W12 1206	1
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R325	P200085	R# CE H 3K3 J 0W12 1206	1
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R330	P200057	R# CE H220E J 0W12 1206	1
R331	P200061	R# CE H330E J 0W12 1206	1
R332	P200051	R# CE H120E J 0W12 1206	1
R333	P200039	R# CE H 39E J 0W12 1206	1
R334	P200059	R# CE H270E J 0W12 1206	1
R335	P200065	R# CE H470E J 0W12 1206	1
R336	P200039	R# CE H 39E J 0W12 1206	1
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R338	P200091	R# CE H 5K6 J 0W12 1206	1
R339	P200075	R# CE H 1K2 J 0W12 1206	1
R340	P200097	R# CE H 10K J 0W12 1206	1
R341	P200085	R# CE H 3K3 J 0W12 1206	1
R342	P200073	R# CE H 1K J 0W12 1206	1
R343	P200097	R# CE H 10K J 0W12 1206	1
R344	P200085	R# CE H 3K3 J 0W12 1206	1
R345	P200079	R# CE H 1K8 J 0W12 1206	1
R346	P200077	R# CE H 1K5 J 0W12 1206	1
R347	P200097	R# CE H 10K J 0W12 1206	1
R348	P200101	R# CE H 15K J 0W12 1206	1
R349	P200077	R# CE H 1K5 J 0W12 1206	1
R350	P200097	R# CE H 10K J 0W12 1206	1
R351	P200101	R# CE H 15K J 0W12 1206	1
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R356	P200105	R# CE H 22K J 0W12 1206	1
R357	P200101	R# CE H 15K J 0W12 1206	1
R358	P200077	R# CE H 1K5 J 0W12 1206	1
R359	P200105	R# CE H 22K J 0W12 1206	1
R360	P200101	R# CE H 15K J 0W12 1206	1
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R363	P200095	R# CE H 8K2 J 0W12 1206	1
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R365	P200097	R# CE H 10K J 0W12 1206	1
R366	P200097	R# CE H 10K J 0W12 1206	1
R367	P200083	R# CE H 2K7 J 0W12 1206	1
R368	P200099	R# CE H 12K J 0W12 1206	1
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R370	P200097	R# CE H 10K J 0W12 1206	1
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R379	P200097	R# CE H 10K J 0W12 1206	1
R380	P200083	R# CE H 2K7 J 0W12 1206	1
R381	P200099	R# CE H 12K J 0W12 1206	1
R382	P200099	R# CE H 12K J 0W12 1206	1
R383	P200049	R# CE H100E J 0W12 1206	1
R384	P200049	R# CE H100E J 0W12 1206	1
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R387	P200049	R# CE H100E J 0W12 1206	1
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R390	P200049	R# CE H100E J 0W12 1206	1
R391	P200169	R# CE H 10M J 0W12 1206	1
R392	P200097	R# CE H 10K J 0W12 1206	1
R400	P200121	R# CE H100K J 0W12 1206	1
R401	P200113	R# CE H 47K J 0W12 1206	1
R402	P200073	R# CE H 1K J 0W12 1206	1
R403	P200073	R# CE H 1K J 0W12 1206	1
R404	P200097	R# CE H 10K J 0W12 1206	1
R405	P200097	R# CE H 10K J 0W12 1206	1
R406	P200073	R# CE H 1K J 0W12 1206	1
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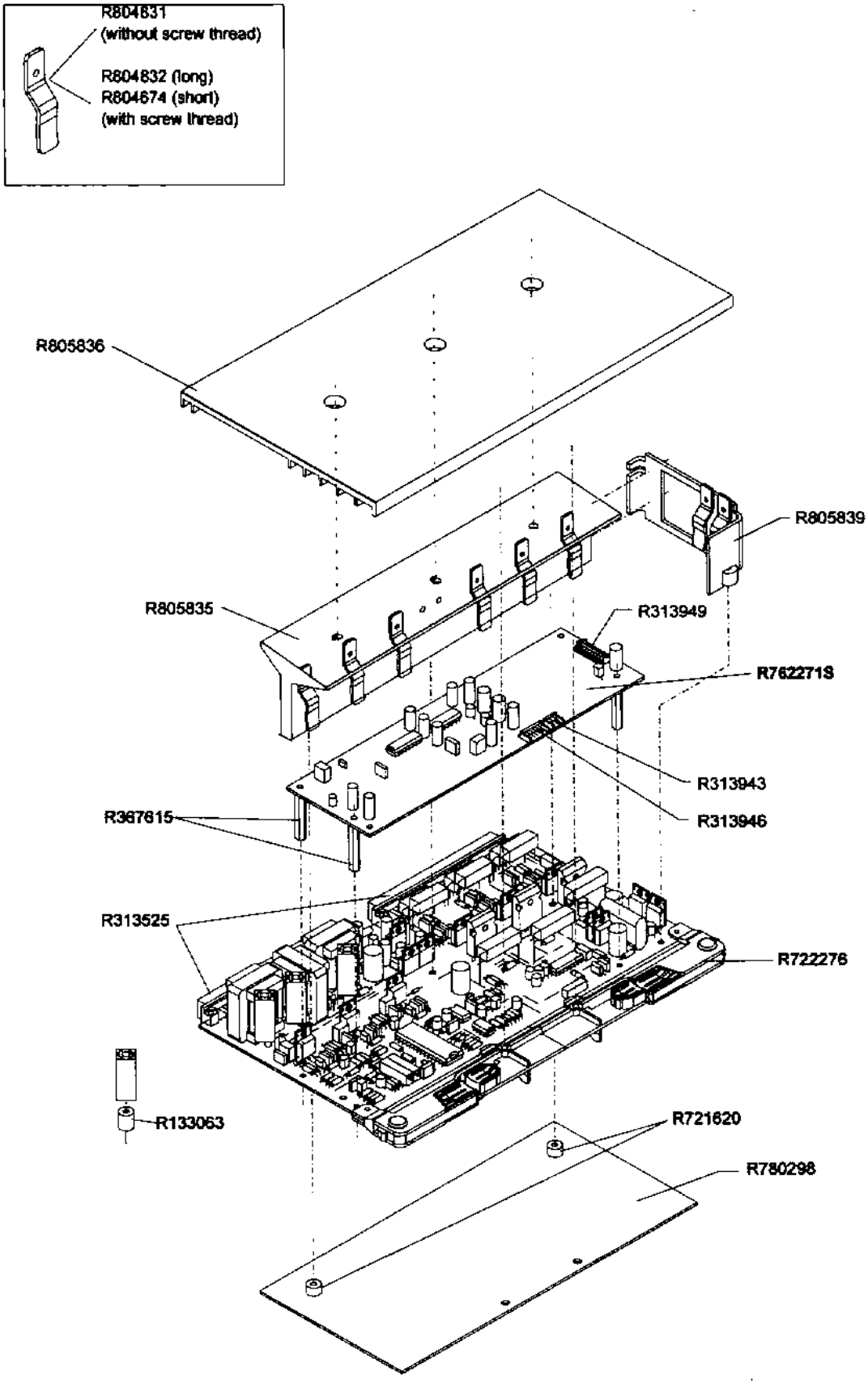
R408	P200065	R# CE H470E J 0W12 1206	1
R409	P200105	R# CE H 22K J 0W12 1206	1
R410	P200073	R# CE H 1K J 0W12 1206	1
R411	R101273	R CF H 1M2 J 0W5	1
R420	P200137	R# CE H470K J 0W12 1206	1
R421	P200097	R# CE H 10K J 0W12 1206	1
R422	P200121	R# CE H100K J 0W12 1206	1
R423	P200083	R# CE H 2K7 J 0W12 1206	1
R424	P200123	R# CE H120K J 0W12 1206	1
R425	P200137	R# CE H470K J 0W12 1206	1
R426	P200105	R# CE H 22K J 0W12 1206	1
R427	P200073	R# CE H 1K J 0W12 1206	1
R428	P200083	R# CE H 2K7 J 0W12 1206	1
R429	P200081	R# CE H 2K2 J 0W12 1206	1
R430	P200121	R# CE H100K J 0W12 1206	1
Z300	P234145	D#ZEN 9V1 0W3 C SOT23	1
Z420	P234124	D#ZEN 16V 0W3 C SOT23	1

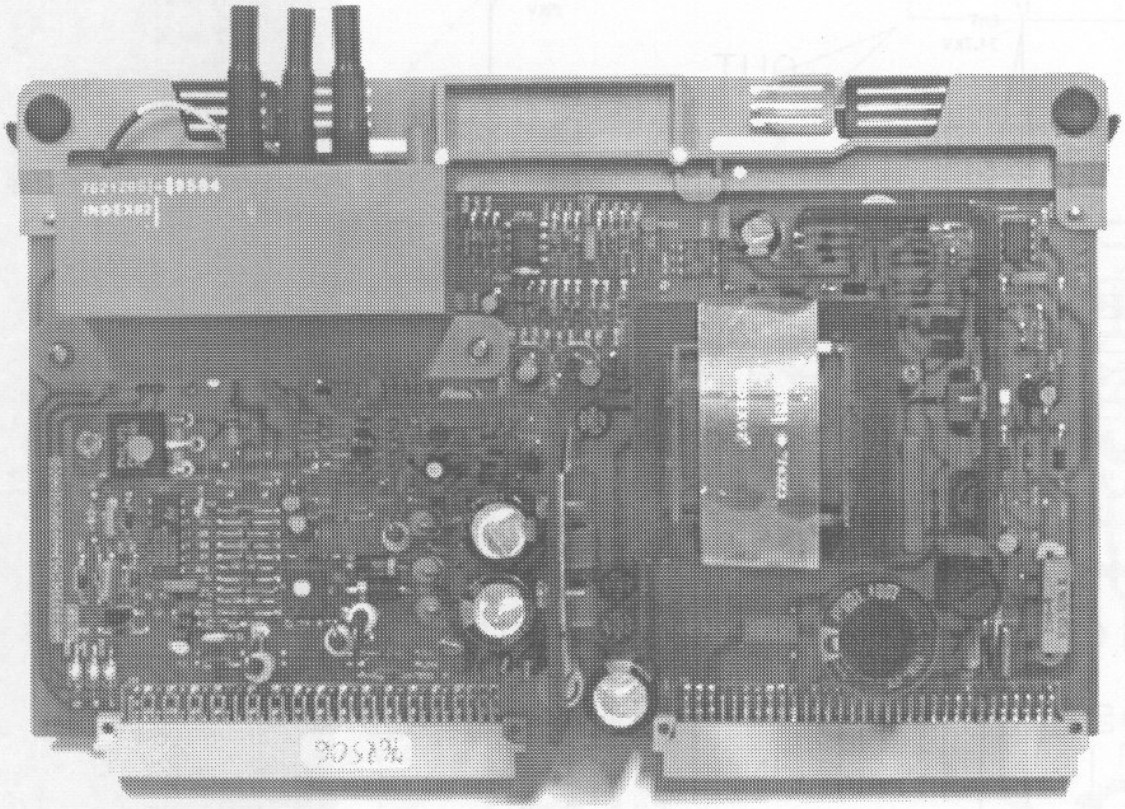
Electromagnetic Focus+Hor Shift
Sub module

R762503
R762271S



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.



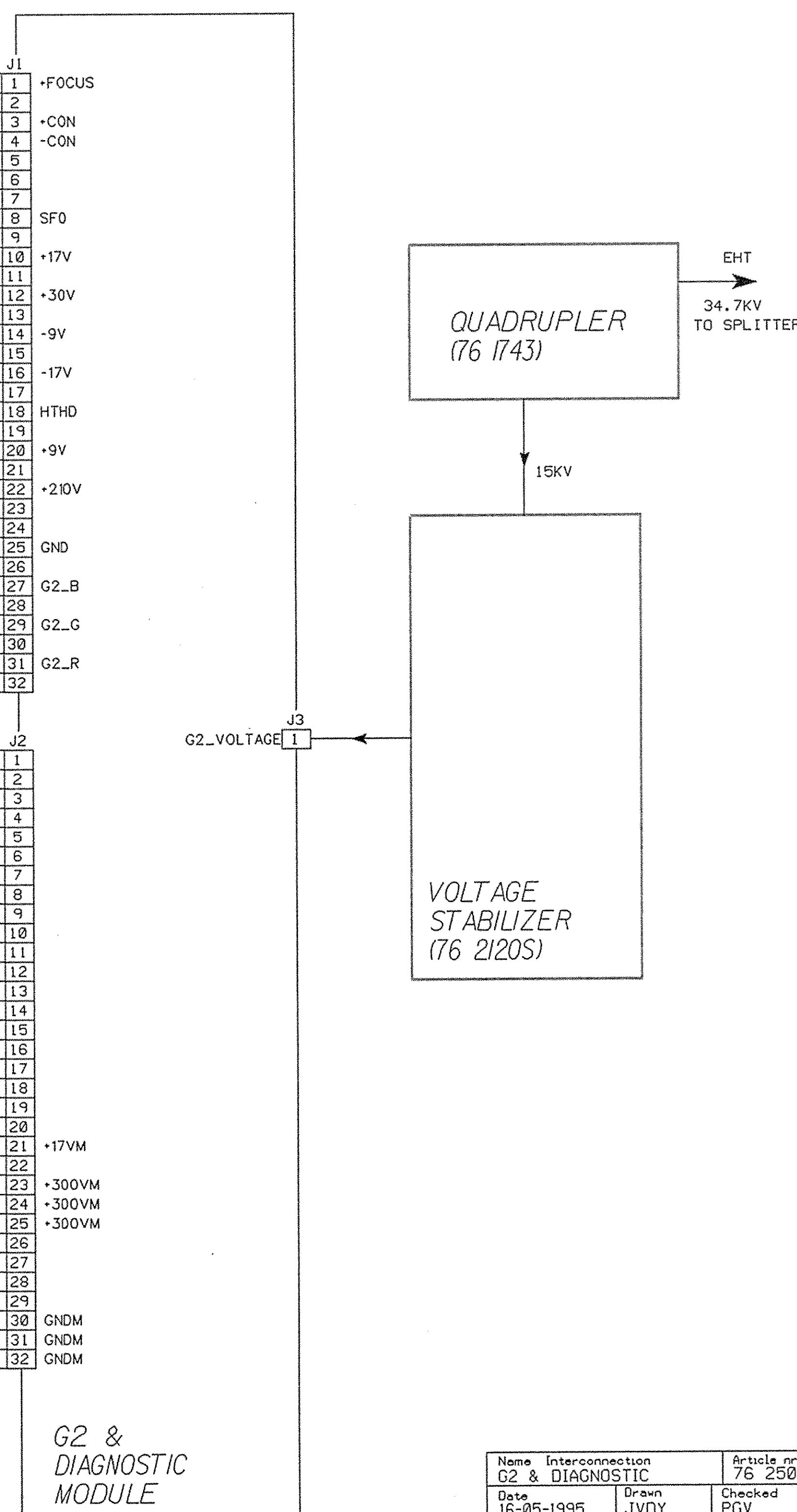
A | B | C | D

BARCO

Modules: J1A = CONVERGENCE MODULE; J2B = MAGNETIC FOCUS & HORIZONTAL SHIFT MODULE; J3B = HORIZONTAL DEFLECTION MODULE; J4B = SYNCHRONISATION & VERITCAL DEFLECTION; J8A = SWITCH MODE POWER SUPPLY MODULE; J8B = SWITCH MODE POWER SUPPLY MODULE; J9A = MAINS INPUT MODULE; J132 = CRT SOCKET MODULE (RED); J134 = CRT SOCKET MODULE (GREEN); J138 = CRT SOCKET MODULE (BLUE); J148 = EHT MODULE; J776 = FUTURE EXPANSION

J1A	J2B	J3B	J4B	J8A	J8B	J9A	J132	J134	J138	J148	J776		J1	
	13											←	1	+FOCUS
													2	
9												←	3	+CON
6												←	4	-CON
													5	
													6	
													7	
		17	28									←	8	SF0
													9	
					5							→	10	+17V
													11	
					6							→	12	+30V
													13	
					24							→	14	-9V
													15	
					1							→	16	-17V
													17	
					9							→	18	HTHD
													19	
					21							→	20	+9V
													21	
					8							→	22	+210V
													23	
													24	
32	30	1	4		17	1	6	6	6	8			25	GND
													26	
							1					←	27	G2_B
													28	
								1				←	29	G2_G
													30	
									1			←	31	G2_R
													32	

J1A	J2B	J3B	J4B	J8A	J8B	J9A	J132	J134	J138	J148	J776		J2	
													1	
													2	
													3	
													4	
													5	
													6	
													7	
													8	
													9	
													10	
													11	
													12	
													13	
													14	
													15	
													16	
													17	
													18	
													19	
													20	
				1						19	3	→	21	+17VM
													22	
				31		24				22	1	→	23	+300VM
				31		25				22	1	→	24	+300VM
				32		26				22	1	→	25	+300VM
													26	
													27	
													28	
													29	
				3		28				16	2		30	GNDM
				4		29				24	2		31	GNDM
				5		30				24	2		32	GNDM



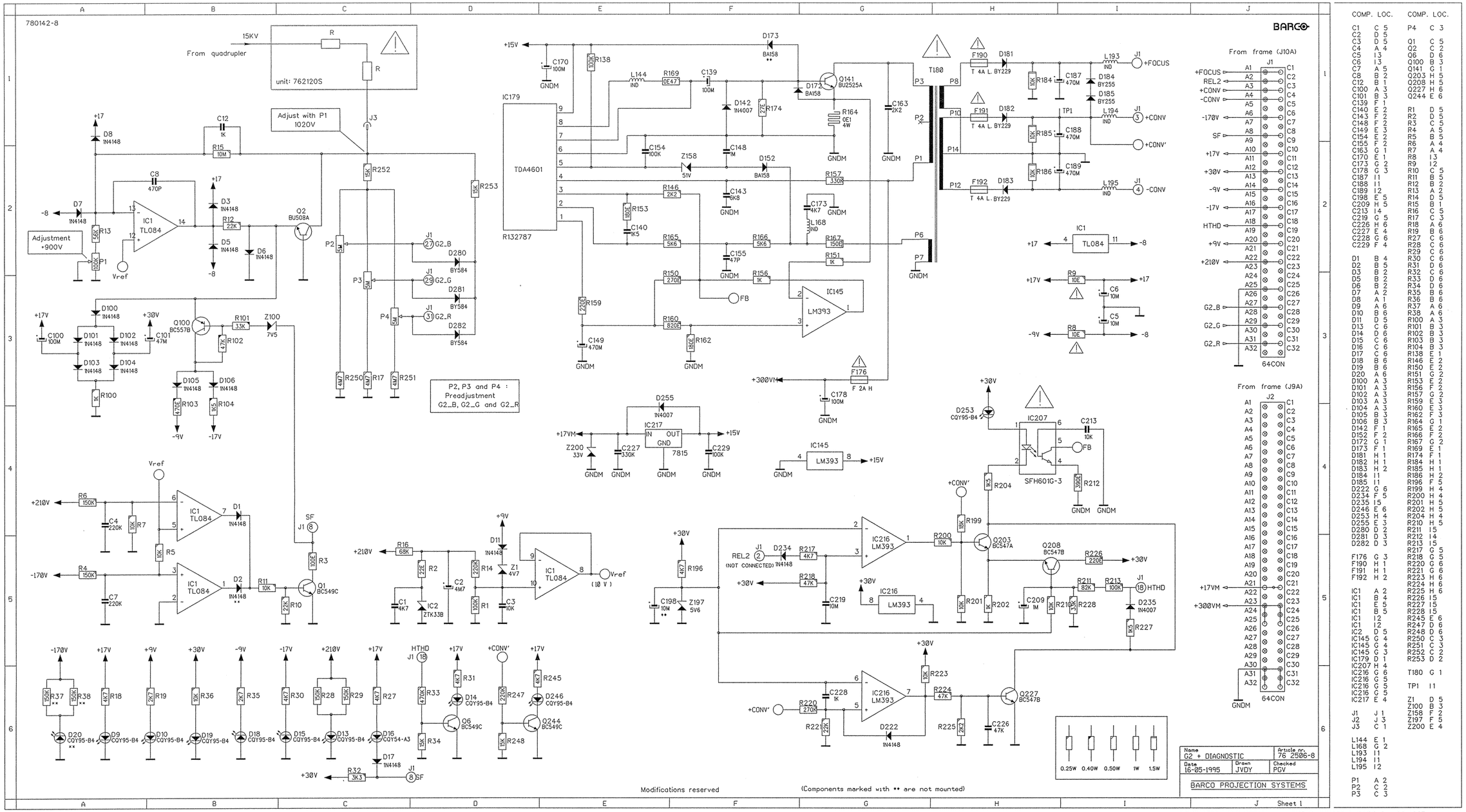
Name Interconnection G2 & DIAGNOSTIC		Article nr. 76 2506
Date 16-05-1995	Drawn JVDY	Checked PGV

BARCO PROJECTION SYSTEMS

Modifications reserved

A | B | C | D | Sheet 1

SCHEMATIC NAME: q2diagcon.sch SHEET NUMBER: 1 DATE: Jun 28, 1995



COMP.	LOC.	COMP.	LOC.
C1	C 5	P4	C 3
C2	D 5		
C3	D 5	Q1	C 5
C4	A 4	Q2	C 2
C5	I 3	Q6	D 6
C6	I 3	Q100	B 3
C7	A 5	Q141	G 1
C8	B 2	Q203	H 5
C12	B 1	Q208	H 5
C100	A 3	Q227	H 6
C101	B 3	Q244	E 6
C139	F 1		
C140	F 2	R1	D 5
C143	F 2	R2	D 5
C148	F 2	R3	C 5
C149	E 3	R4	A 5
C154	E 2	R5	B 5
C155	F 2	R6	A 4
C163	G 1	R7	A 4
C170	E 1	R8	I 3
C173	G 2	R9	I 2
C178	G 3	R10	C 5
C187	I 1	R11	B 5
C188	I 2	R12	B 2
C189	I 2	R13	A 2
C198	E 5	R14	D 5
C209	H 5	R15	B 1
C213	I 4	R16	C 5
C219	G 5	R17	C 3
C226	H 6	R18	A 6
C227	E 4	R19	B 6
C228	G 6	R27	C 6
C229	F 4	R28	C 6
		R29	C 6
D1	B 4	R30	C 6
D2	B 5	R31	D 6
D3	B 2	R32	C 6
D5	B 2	R33	D 6
D6	B 2	R34	D 6
D7	A 2	R35	B 6
D8	A 1	R36	B 6
D9	A 6	R37	A 6
D10	B 6	R38	A 6
D11	D 5	R100	A 3
D13	D 6	R101	B 3
D14	D 6	R102	B 3
D15	C 6	R103	B 3
D16	C 6	R104	B 3
D17	B 6	R138	E 1
D18	B 6	R146	E 2
D19	B 6	R150	E 2
D20	A 6	R151	G 2
D100	A 3	R153	G 2
D101	A 3	R156	F 2
D102	A 3	R157	G 2
D103	A 3	R159	E 3
D104	A 3	R160	E 3
D105	B 3	R162	F 3
D106	B 3	R164	G 1
D142	F 1	R165	E 2
D152	F 2	R166	F 2
D172	G 1	R167	G 2
D173	F 1	R169	E 1
D181	H 1	R174	F 1
D182	H 1	R184	H 1
D183	H 2	R185	H 1
D184	I 1	R186	H 2
D185	I 1	R196	F 5
D222	G 6	R199	H 4
D234	F 5	R200	H 4
D235	I 5	R201	H 5
D246	E 6	R202	H 5
D253	H 4	R204	H 4
D255	E 3	R210	H 5
D280	D 2	R211	I 5
D281	D 3	R212	I 4
D282	D 3	R213	I 5
		R217	G 5
F176	G 3	R218	G 5
F190	H 1	R220	G 6
F191	H 1	R221	G 6
F192	H 2	R223	H 6
		R224	H 6
IC1	A 2	R225	H 6
IC1	B 2	R226	I 5
IC1	E 5	R227	I 5
IC1	B 5	R228	I 5
IC1	I 2	R245	E 6
IC1	I 2	R247	D 6
IC2	D 5	R248	D 6
IC145	G 4	R250	C 3
IC145	G 4	R251	C 3
IC145	G 3	R252	C 2
IC179	D 1	R253	D 2
IC207	H 4		
IC216	G 6	T180	G 1
IC216	G 5		
IC216	G 5	TP1	I 1
IC216	G 5		
IC217	E 4	Z1	D 5
		Z100	D 3
J1	J 1	Z158	F 2
J2	J 3	Z197	F 5
J3	C 1	Z200	E 4
L144	E 1		
L168	G 2		
L193	I 1		
L194	I 1		
L195	I 2		
P1	A 2		
P2	C 2		
P3	C 3		

BARCO

+CONV (D246)	SUPPLY STATUS (D253)	DIAGNOSTIC
OFF	OFF	FAILURE OR PROJECTOR OFF
OFF	GREEN	STARTING UP OR NO "+CONV"
OFF	BRIGHT GREEN	OVERVOLTAGE
GREEN	GREEN	OPERATING

R R

unit: 76 2120S

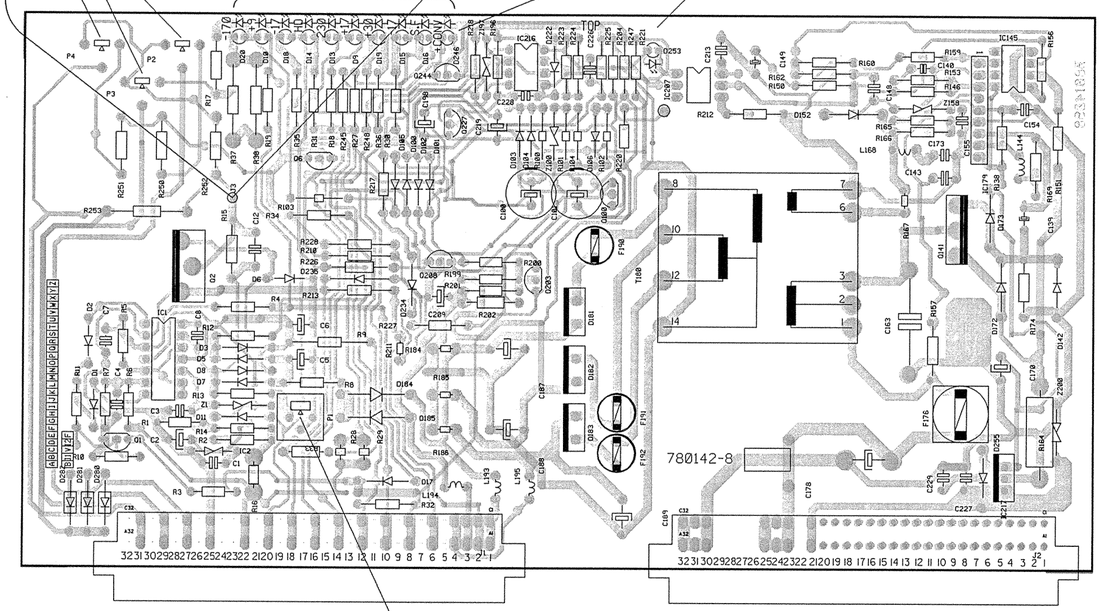
ADJUST FOR +1020V WITH P1

PREADJUSTMENT G2 R

PREADJUSTMENT G2 G

PREADJUSTMENT G2 B

DIAGNOSTIC



To splitter (76 1744?)

EHT 34.7KV

15KV

OUT

QUADRUPLER

unit: 76 1743

IN

GND HVL +300HV D HV

J149A

From frame J150 (76 2101)

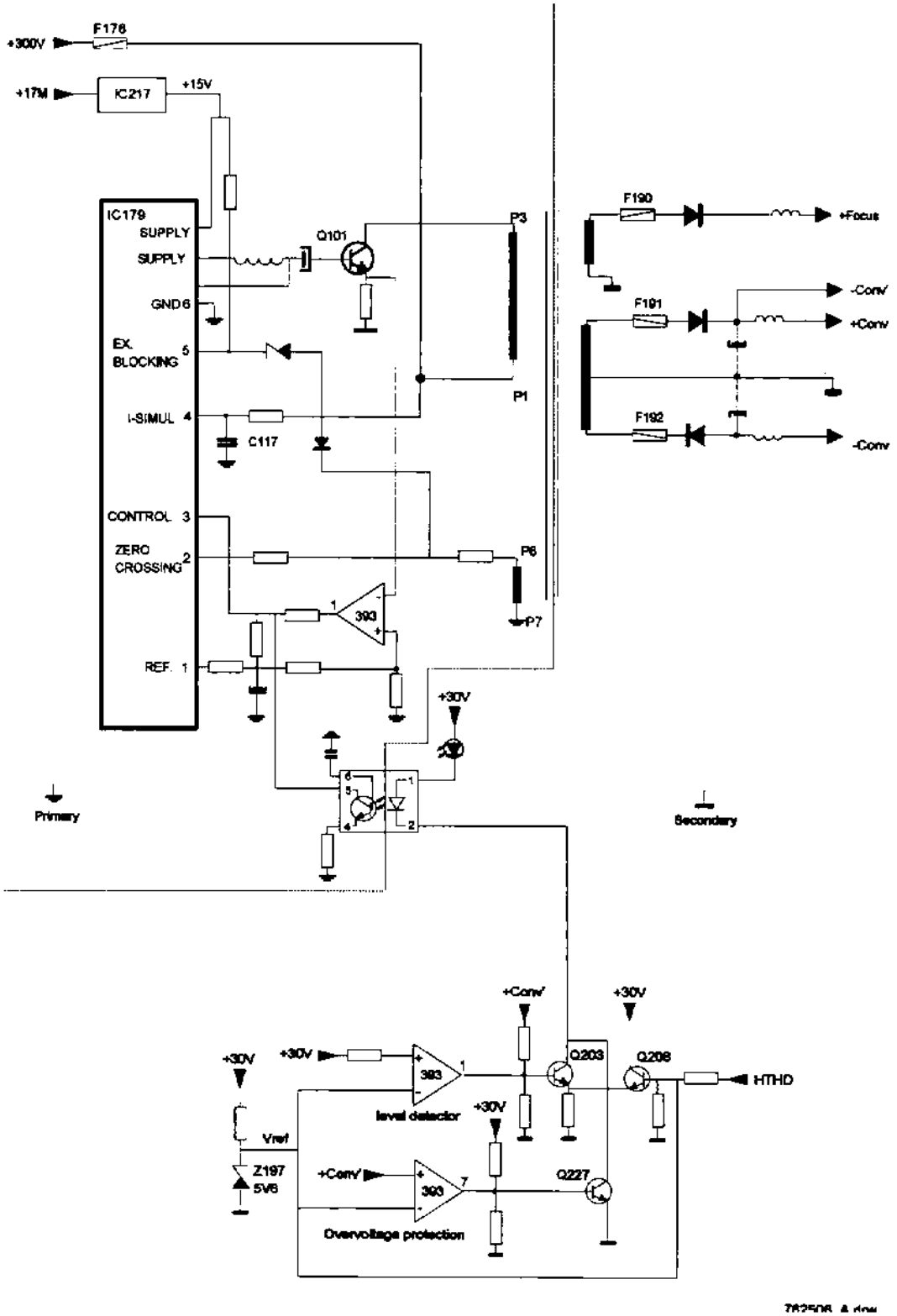
ADJUSTMENT 1020V

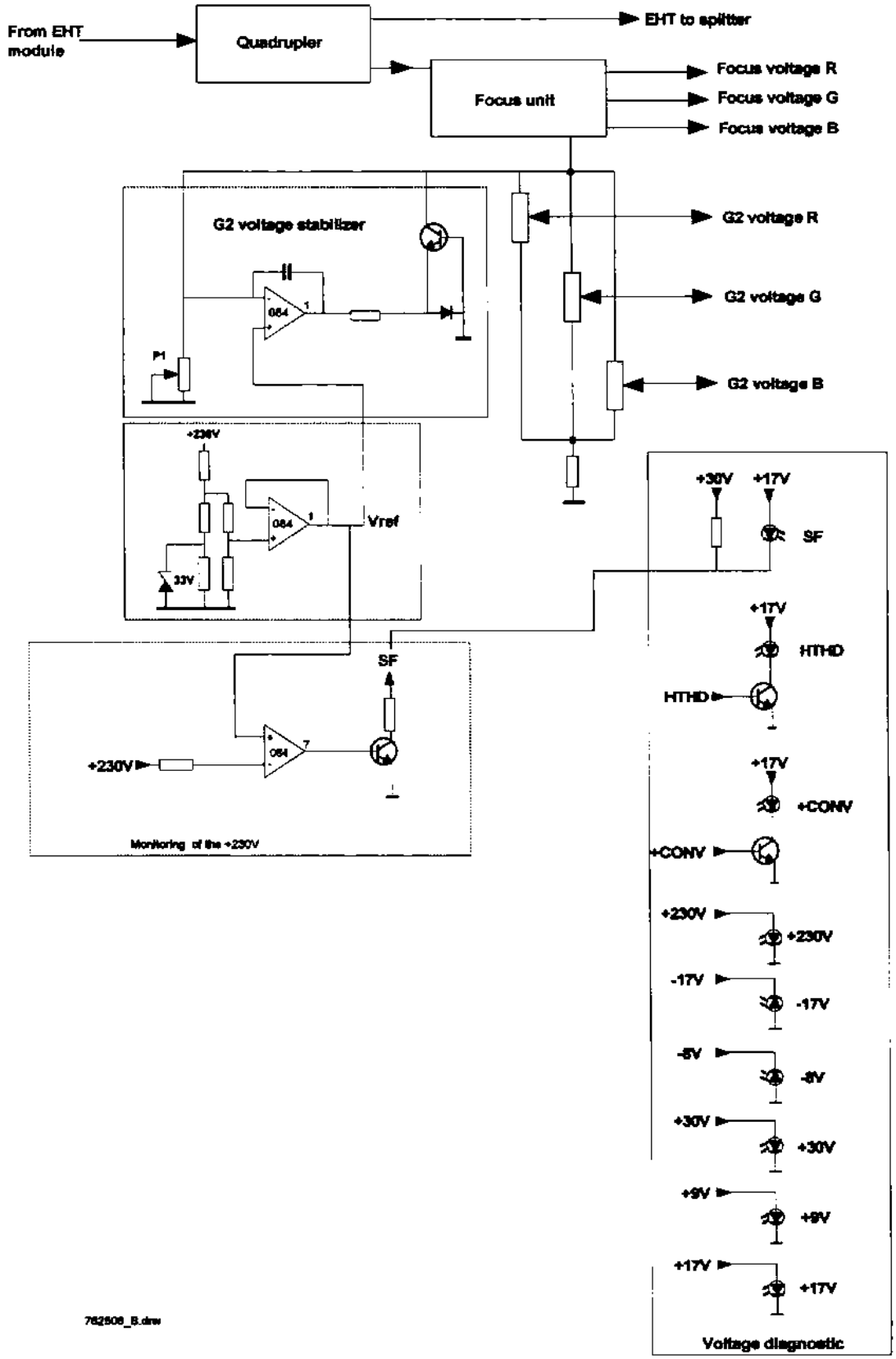
Name	Article nr.
G2 & DIAGNOSTIC	76 2506-8
Date 16-05-1995	Drawn JVDY
	Checked PGV

BARCO PROJECTION SYSTEMS

Modifications reserved

COMP.	LOC.	COMP.	LOC.
C1	B 5	R8	B 4
C2	A 5	R9	B 4
C3	A 5	R27	B 4
C4	A 5	R28	B 5
C5	B 5	R29	B 5
C6	B 5	R30	B 4
C7	A 5	R31	B 4
C8	B 5	R32	C 6
C12	B 4	R33	B 5
C100	C 4	R34	B 4
C101	C 4	R35	B 4
C139	F 4	R36	B 4
C140	E 3	R37	B 4
C143	E 4	R38	B 4
C148	E 4	R100	C 4
C149	D 3	R101	C 4
C154	E 4	R102	D 4
C155	E 4	R103	B 4
C163	E 5	R104	C 4
C170	F 5	R138	E 4
C173	E 4	R145	E 4
C178	D 6	R150	D 4
C187	C 5	R151	F 4
C188	C 5	R153	E 3
C189	D 6	R156	F 3
C198	C 4	R157	E 5
C209	C 5	R159	E 3
C213	D 3	R160	E 3
C219	C 4	R162	D 4
C226	C 3	R164	F 5
C227	E 6	R165	E 4
C228	C 4	R166	E 4
C229	E 6	R167	E 4
		R169	F 4
D1	A 5	R174	F 5
D2	A 5	R184	C 5
D3	B 5	R185	C 5
D5	B 5	R186	C 5
D6	B 5	R196	C 3
D7	B 5	R199	C 4
D8	B 5	R200	C 4
D9	B 3	R201	C 5
D10	B 3	R202	C 5
D11	B 5	R204	D 3
D13	B 3	R210	B 4
D14	B 3	R211	C 5
D15	C 3	R212	D 4
D16	C 3	R213	B 5
D17	C 5	R217	B 4
D18	B 3	R218	C 3
D19	B 3	R220	D 4
D20	B 3	R221	D 3
D100	C 4	R223	C 3
D101	C 4	R224	C 3
D102	C 4	R225	D 3
D103	C 4	R226	B 4
D104	C 4	R227	B 5
D105	C 4	R228	B 4
D106	C 4	R245	B 4
D142	F 5	R247	D 3
D152	D 4	R248	B 4
D172	E 5	R250	A 4
D173	E 4	R251	A 4
D181	C 5	R252	B 4
D182	C 5	R253	A 4
D183	C 5		
D184	C 5	T180	D 5
D185	C 5		
D222	C 3	ZI	B 5
D234	C 5	Z100	C 4
D235	B 4	Z158	E 4
D246	C 3	Z197	C 3
D253	D 3	Z200	F 5
D255	E 5		
D280	A 5		
D281	A 5		
D282	A 5		
F176	E 5		
F190	D 4		
F191	D 5		
F192	D 5		
IC1	A 5		
IC2	B 5		
IC145	E 3		
IC179	E 4		
IC207	D 4		
IC216	C 3		
IC217	E 6		
J1	C 6		
J2	F 6		
J3	B 4		
L144	E 4		
L168	E 4		
L193	C 5		
L194	C 6		
L195	C 5		
P1	B 5		
P2	A 3		
P3	A 4		
P4	A 3		
Q1	A 5		
Q2	B 5		
Q5	B 4		
Q100	D 4		
Q141	E 4		
Q203	C 5		
Q208	C 4		
Q227	C 4		
Q244	C 4		
R1	A 5		
R2	B 5		
R3	B 6		
R4	B 5		
R5	A 5		
R6	A 5		
R7	A 5		
R8	B 5		
R9	B 5		
R10	A 5		
R11	A 5		
R12	B 5		
R13	B 5		
R14	B 5		
R15	B 4		
R16	B 6		
R17	B 4		


+300V
F176
+17M
IC217
+15V
IC179
SUPPLY
SUPPLY
GND 6
EX. BLOCKING 5
I-SIMUL 4
CONTROL 3
ZERO CROSSING 2
REF. 1
Q101
C117
P3
P1
P6
P7
393
+30V
Primary
Secondary
F190
F191
F192
+Focus
-Conv
+Conv
-Conv
+Conv'
+30V
Q203
Q206
HTHD
level detector
Vref
Z197
5V6
Q227
Overvoltage protection


From EHT module
Quadrupler
EHT to splitter
Focus unit
Focus voltage R
Focus voltage G
Focus voltage B
G2 voltage stabilizer
P1
G2 voltage R
G2 voltage G
G2 voltage B
+230V
Vref
33V
SF
+230V
Monitoring of the +230V
+30V
+17V
SF
+17V
HTHD
HTHD
+17V
+CONV
+CONV
+230V
+230V
-17V
-17V
-8V
-8V
+30V
+30V
+9V
+9V
+17V
+17V
Voltage diagnostic
762506_B.drw

Technical description "G2 + DIAGNOSTIC" (76 2506).

Introduction

This board comprises:

- the SMPS for the convergence end stages and the Focus power stages
- the stabilization and alignment of the G2 voltages.
- monitoring circuit of the +230V to cause scan fail if absent.
- the LED's for diagnosis of the supply voltages and scan fail.

A. SMPS for +/- CONV and +FOC voltages.

This power supply uses the same TDA4601 as the main SMPS. We refer to the description of this module for more details. We just limit here to the differences and the control loop to generate the correct amplitudes of these voltages.

Because of the high scanning range of the projector, from 15khz to 105khz, the needed amplitude for the convergence corrections is much higher for the frequencies (let's say around 100khz) than for the standard frequency.

By supplying permanently a high power supply to the power end stages in the convergence, the dissipation in heat for the lower frequencies is quite high. A better solution is to 'track' the power supply with the line frequency. This means the power supply for the power convergence stages increases with the line frequency.

The available information on the line frequency is the +HTHD voltage. This voltage increases in a linear way and is used for tracking.

The TDA4601 (IC179) totally relies on the +17 MAINS delivered by the first or main SMPS and the +300V. If for some reason the + 17 MAINS is not available , the SMPS cannot start up.
The +17 MAINS is stabilised to +15 volts with IC217 and supplies the pins 9 and 5. The transformer and rectifier circuit provide the +FOCUS, +/- CONV and the +CONV' for the feedback control loop discussed hereafter.

B. Control loop / Feedback / Adaptation.

The supply voltage of the convergence and focus power stages has to change when the horizontal frequency of the projector changes. A portion of the +HTHD voltage is applied to the base of Q208 to change the emitter voltage of Q203.

The +CONV' voltage is biasing the base of the Q203 amplifier. The amplitude of the feedback is depending on the status of the output of the level detector LM393, pin 1.

Pin 2 of the LM393 is set at 5.6 volt with Z197.
Via an insulating opto-coupler, the collector current of Q203 is transferred to pin 3 of the regulating TDA4601.

The +CONV' voltage is also applied to another detector in IC216, pin 5. The same reference voltage of 5.6 volts is found at pin 6. When an overvoltage situation occurs, Q227 is saturating and shortens the collector of Q203 at ground level. The SMPS switches into a safe loop, whereas the output voltage is dramatically dropped.

C. Monitoring the +230V

A very stable Vref voltage is formed with IC2 / Z1 and buffered with an OPAMP. IC2 provides a 33 volts which is then divided with R14/R1 to exactly 10 volt and buffered to provide sufficient current.

If the +230V were absent, the Vref would disappear and the monitoring circuit cannot work. The +9V takes over in such case and installs a reference voltage via Z1. This Vref of 10 volt is used for the level detectors monitoring the supply voltages of the video power stages : the +230V.

The absence of one or both of these voltages can damage the picture tubes. Scan Fail is becoming active with Q1 as soon one of the voltages drops below some level.

D. G2 voltages.

The G2 voltages must be very stable to avoid thermal drift, and, they must be adjustable between 400V and 1020 volt.
The voltage coming from the unit 76 2120S is already very stable since it is coming from a stabilised source, the EHT.

The series output resistor in the unit forms together with P2, P3, P4 and R17 a divider. If we stabilize the voltage at the node mentioned "Adjust for 1020V with P1" we have also a stable G2 voltage on the sliders.

That 1020 volt point is sensed with the divider R15 / R13/ P1. Since the Vref is 10 volt, the output of the OPAMP will change until pin 13 is at the same voltage level of 10 volt.

Any voltage difference due to a change of the 1020 volt is adjusted by Q2 which will feed a current from the node to the (negative) output of the OPAMP.
The Q2 is needed because the 1020 volt is a too high voltage for the OPAMP. A high voltage transistor such like the BU508A is therefore required.

E. LED's for diagnosis

The presence of the various voltages are all displayed with green LED's. The variable voltages like the +HTHD and +CONV' drive a LED through a transistor to obtain a constant light output of the LED.
The scan fail diode D16 is red and shows a problem in the horizontal or vertical deflection.

ADJUSTMENT PROCEDURE 'G2 CONTROL+DIAGNOSTIC MODULE'

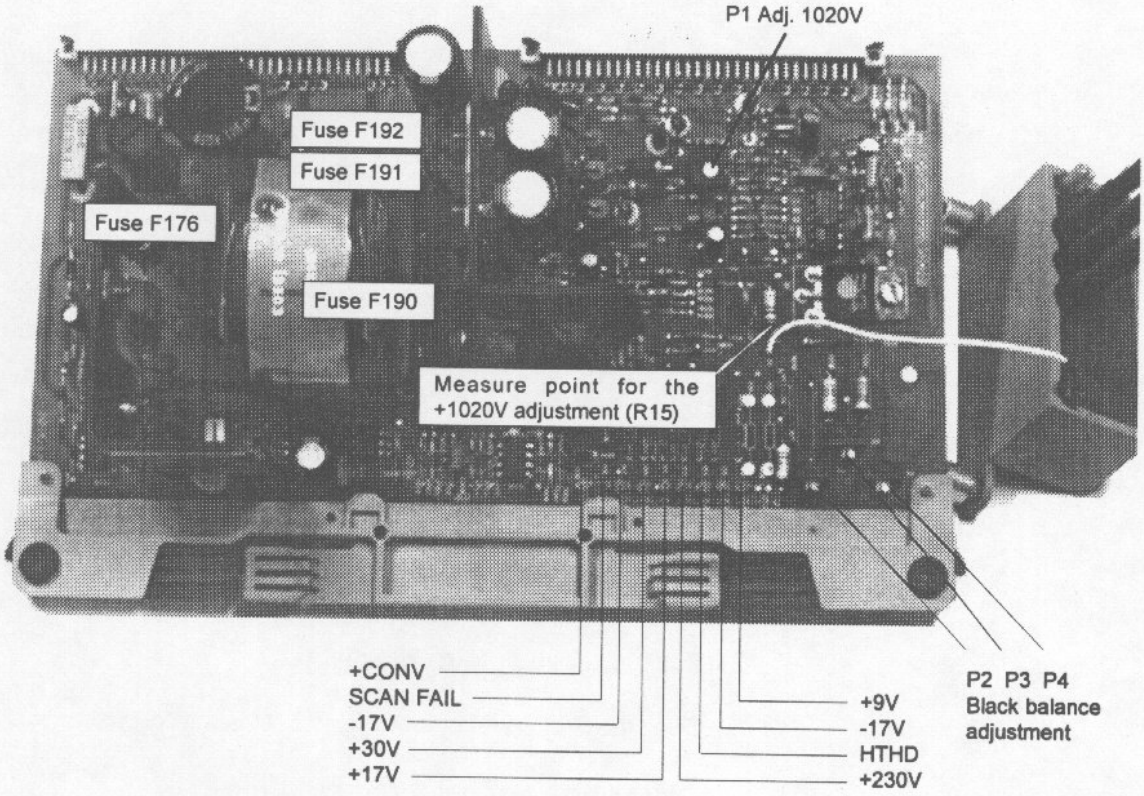
The alignment is restricted to the adjustment of :

- alignment of the +1020V
- pre-alignment of the BLACK BALANCE

HIGH VOLTAGE 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.

Alignment



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 module on the extension boards.
- Connect to the VIDEO input e.g. an electronic colour test video signal.
- Switch the projector in the VIDEO MODE. Select source 1.

Alignment +900V

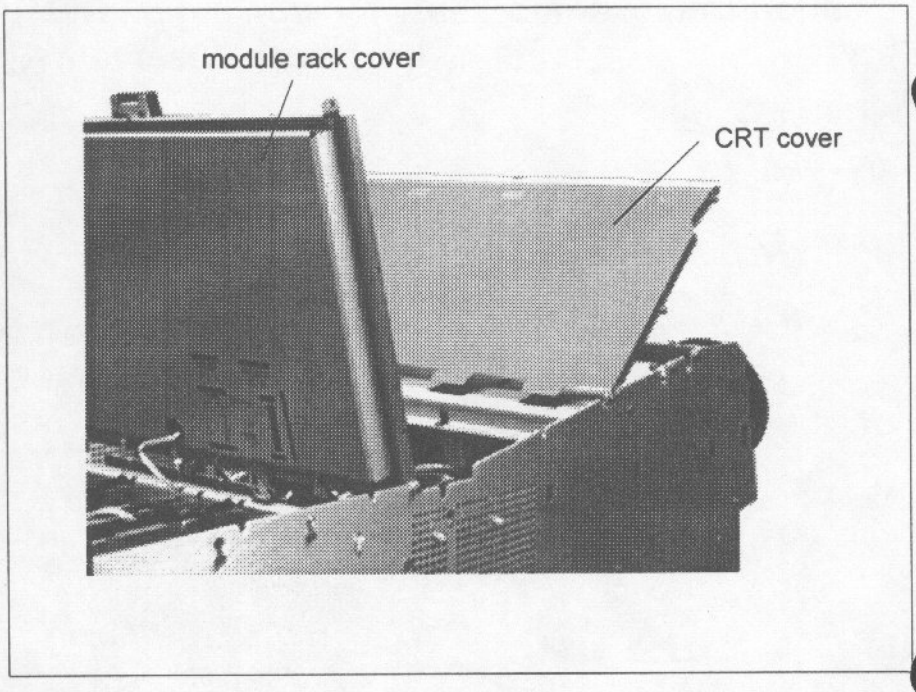
- Connect to the resistor R15 (side wire soldering J3) a precision **focus** probe.

CAUTION: read carefully all safety instructions, mentioned in the user's manual of the precision focus probe.

- Switch on the projector.
- Adjust the potentiometer P1 for +1020V read out.

G2 Adjustment

Access to the G2 adjustment controls and the respective control LED's on the output amplifiers



Access to the output amplifiers:

Open the CRT cover by loosing the 3 retaining screws on both sides of the cover.

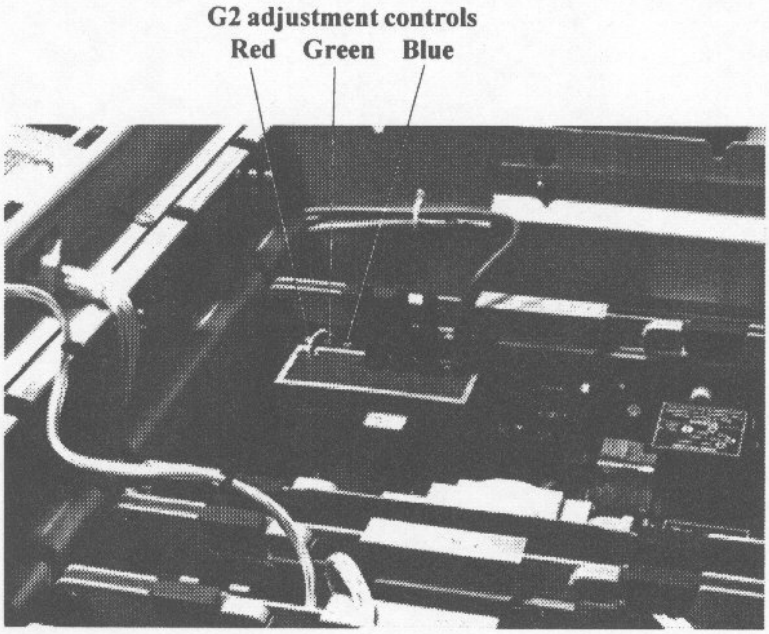
Access to the G2 adjustment controls:

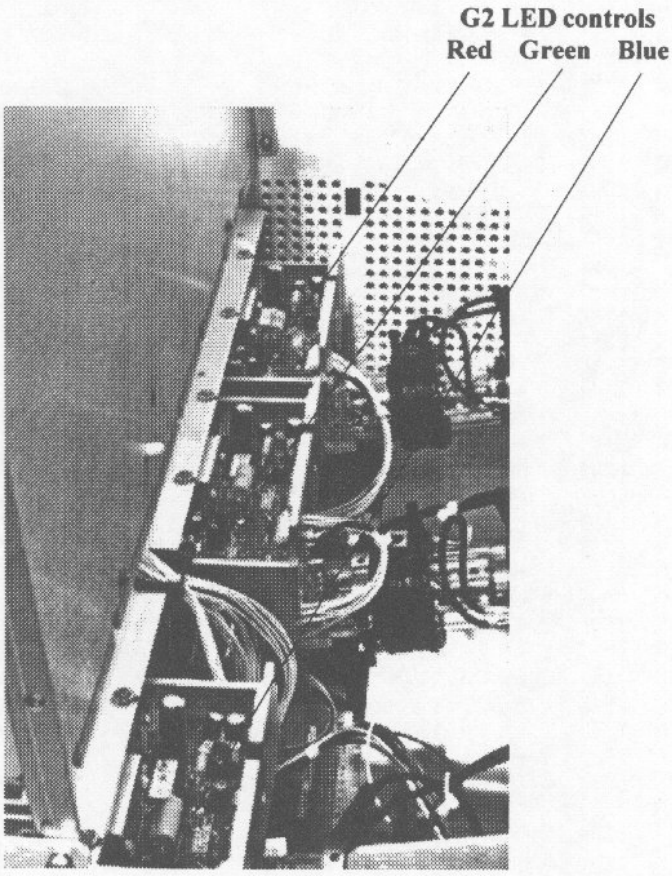
Open the module rack cover by loosing the 3 retaining screws on both sides of the cover. Hold the cover by hand in the vertical position while adjusting the G2 controls in order to control the LED illumination on the corresponding output amplifier.

Adjustment

Proceed to **Service mode** and highlights **G2 Adjustment.** Press **ENTER** to display the G2 ADJUSTMENT menu (refer to Installation manual of the projector).

Adjust successively the three potentiometers P2 (for Blue), P3 (for Green) and P4 (for Red) on the 'G2 + Diagnostic' module until the LED on the corresponding Video output amplifier, starting from illumination, just stops illuminating.





PARTS LISTING R762506

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
11	R133036	SPR L 6 D 6 D 2.4 C	5
20	R133036	SPR L 6 D 6 D 2.4 C	5
120	R133063	Q ACC ISO MICA SOT93	1
220	R133074	Q ACC ISO SIL600 W 30	0,04
50	R313070	J HV F ACC SLV	3
400	R3631049	SCR D933 M 3 X 6 XIC	1
31	R3631059	SCR D933 M 3 X 8 XIC	1
130	R3631059	SCR D933 M 3 X 8 XIC	3
230	R3631059	SCR D933 M 3 X 8 XIC	4
500	R3631239	SCR D933 M 4 X 10 XIC	2
1030	R3631259	SCR D933 M 4 X 16 XIC	2
40	R3661026	NUT D934 M 3 I	1
140	R366988	NUT I SOUTH M 3 X0.5	2
240	R366988	NUT I SOUTH M 3 X0.5	2
402	R367502	WSHR D6798 A 3.2 S Z	1
10	R367699	RVT CHB D2.38L6.35 P A	4
1010	R367699	RVT CHB D2.38L6.35 P A	2
1000	R722276	LOCK PJ49 PCB UN CPL	1
	R762120S	CDS G2+CHK PJ51G1200 SUB	1
1020	R802858	SPR L 8.25D10 D 5.25A	2
100	R803607	HTSNK PJ51 SMP	1
200	R804614	HTSNK PJ51 SMP+G2	1
110	R804632	Q ACC SPG 1XM3 LONG	1
210	R804634	Q ACC SPG 2XM3 LONG	1
C 1	R1127475	C CE MI 4N7K100E2	1
C 2	R111550	C EL RA 4M7M 50E2 85	
C 3	R1137121	C POMERA 10N K250E2 85	
C 4	R113728	C POMERA 220N K 63E2	1
C 5	R111531	C EL RA 10M M 35E2 85	
C 6	R111531	C EL RA 10M M 35E2 85	
C 7	R113728	C POMERA 220N K 63E2	
C 8	R112735	C CE MI 470P K100E2	
C 12	R111718	C CE DI 1N 202E3 HV	1
C100	R111477	C EL RA 100M Z 25E2 85	1
C101	R111486	C EL RA 47M M 40E2 85	1
C115	R112238	C NP0 MI 47P G100E2	1
C139	R111477	C EL RA 100M Z 25E2 85	
C140	R112741	C CE MI 1N5K100E2	1
C143	R115936	C PP RA 6N8J 63E2 85	1
C148	R114090	C POMERA 1M M 63E2	1
C149	R111468	C EL RA 470M Z 16E2 85	1
C154	R113724	C POMERA 100N K 63E2	1
C155	R112238	C NP0 MI 47P G100E2	
C163	R1150051	C PPMERA 2N2J162E9 HV	1
C170	R111477	C EL RA 100M Z 25E2 85	1
C173	R115932	C PP RA 4N7J 63E2 85	
C178	R111578	C EL RA 100M M400E4 85	1
C187	R111556	C EL RA 470M M100E3 85	1
C188	R111556	C EL RA 470M M100E3 85	1
C189	R111556	C EL RA 470M M100E3 85	1
C209	R111546	C EL RA 1M M 50E2 85	
C213	R1137121	C POMERA 10N K250E2 85	
C219	R111531	C EL RA 10M M 35E2 85	
C226	R113720	C POMERA 47N K 63E2	1
C227	R113730	C POMERA 330N K 63E2	
C228	R112739	C CE MI 1N K100E2	
C229	R113724	C POMERA 100N K 63E2	1
D 1	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R131621	D S 1N4148 075150 DO35	
D 8	R131621	D S 1N4148 075150 DO35	
D 9	R131667	D LED D3 T GN	1
D 10	R131667	D LED D3 T GN	1
D 11	R131621	D S 1N4148 075150 DO35	
D 13	R131667	D LED D3 T GN	1
D 14	R131667	D LED D3 T GN	1
D 15	R131667	D LED D3 T GN	1
D 16	R131662	D LED D3 T RD	1
D 17	R131621	D S 1N4148 075150 DO35	
D 18	R131667	D LED D3 T GN	1
D 19	R131667	D LED D3 T GN	1
D100	R131621	D S 1N4148 075150 DO35	
D101	R131621	D S 1N4148 075150 DO35	
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D103	R131621	D S 1N4148 075150 DO35	
D104	R131621	D S 1N4148 075150 DO35	
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D106	R131621	D S 1N4148 075150 DO35	
D142	R131646	D R 1N4007 10201A DO41	
D152	R131637	D R BA158 600400 DO7	
D172	R131637	D R BA158 600400 DO7	
D181	R131927	D R BY229 60007A TO220C	1
D182	R131927	D R BY229 60007A TO220C	1
D183	R131927	D R BY229 60007A TO220C	1
D184	R1319025	D R BYM56E 13203A SOD18	1
D185	R1319025	D R BYM56E 13203A SOD18	1
D222	R131621	D S 1N4148 075150 DO35	
D234	R131621	D S 1N4148 075150 DO35	
D235	R131646	D R 1N4007 10201A DO41	
D246	R131667	D LED D3 T GN	1
D253	R131667	D LED D3 T GN	1
D255	R131646	D R 1N4007 10201A DO41	
D280	R131907	D R BY584 182085 SOD61A	1
D281	R131907	D R BY584 182085 SOD61A	1
D282	R131907	D R BY584 182085 SOD61A	1
F176	R314143	F 5X20 F 2A H RU/VDE	1
F176	R314516	F ACC HLDR 6A 5X20 PC/HSG	1
F190	R314188	F TR5 T 4A L RU/VDE	1
F191	R314188	F TR5 T 4A L RU/VDE	1
F192	R314188	F TR5 T 4A L RU/VDE	1
I 1	R134113	U 084 TL DIP14 P	1
I 2	R132102	U 33B ZTK DO35	1
I145	R134114	U 393 LM DIP8 P	1
I179	R132787	U 4601 TDA SIP9 P	1
I207	R131691	U 601G-3 SFH DIP6 P	1
I216	R134114	U 393 LM DIP8 P	1
I217	R134010	U 7815 TO220 P	1
J 1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 2	R313525	J EUR2C MBS P64 E1C2S 1,6	1
L144	R302108	CORE TUBE 3.5 /1.3 X 3	1
L168	R3061322	CH AX NS 10 UH	1
L193	R305913	CH MNS AX 12 UH 3A	1
L194	R305913	CH MNS AX 12 UH 3A	1
L195	R305913	CH MNS AX 12 UH 3A	1
P 1	R106733	R TCE H100K K 0W5 S10TS	1
P 2	R1076136	R THV V 5M 0W5 1000	1

P 3	R1076136	R THV V 5M 0W5 1000	1
P 4	R1076136	R THV V 5M 0W5 1000	1
PC	R760142	PCD PJ51 G1200 G2+DIAGN	1
Q 1	R131411	Q BC549C N SS TO92	
Q 2	R1325094	Q BU508A 4X N P SOT93	0,25
Q 6	R131411	Q BC549C N SS TO92	
Q100	R1314131	Q BC557B P SS TO92	1
Q141	V132599	Q BU2525A N P SOT93	1
Q203	R1314072	Q BC547A N SS TO92	1
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Q227	R1314071	Q BC547B N SS TO92	
Q244	R131411	Q BC549C N SS TO92	
R 1	R101260	R MF H100K F 0W6 E4	1
R 2	R101116	R MF H 22E1 F 0W6 E4	
R 3	R101124	R CF H100E J 0W25	
R 4	R101162	R CF H150K J 0W25	
R 5	R101148	R CF H 10K J 0W25	
R 6	R101162	R CF H150K J 0W25	
R 7	R101148	R CF H 10K J 0W25	
R 8	R1011129	R CFFH 10E J 0W25	
R 9	R1011129	R CFFH 10E J 0W25	
R 10	R101152	R MF H 22K1 F 0W6 E4	
R 11	R101148	R CF H 10K J 0W25	
R 12	R101152	R MF H 22K1 F 0W6 E4	
R 13	R101257	R MF H 56K J 0W5	1
R 14	R1011644	R MF H220K J 0W25	
R 15	R104678	R HV H 10M J 0W5 3500	1
R 16	R101358	R CF H 68K J 1W	1
R 17	R104670	R HV H 4M7 J 0W5 3500	1
R 18	R101144	R CF H 4K7 J 0W25	
R 19	R101141	R CF H 2K7 J 0W25	
R 27	R101144	R CF H 4K7 J 0W25	
R 28	R101462	R MF H150K J 2W E7	1
R 29	R101462	R MF H150K J 2W E7	1
R 30	R101144	R CF H 4K7 J 0W25	
R 31	R101144	R CF H 4K7 J 0W25	
R 32	R101142	R MF H 3K32F 0W6 E4	
R 33	R101268	R MF H475K F 0W6 E4	
R 34	R101150	R MF H 15K F 0W6 E4	
R 35	R101141	R CF H 2K7 J 0W25	
R 36	R101148	R CF H 10K J 0W25	
R100	R101236	R MF H 1K F 0W6 E4	
R101	R101254	R MF H 33K2 F 0W6 E4	
R102	R101156	R MF H 47K5 F 0W6 E4	
R103	R101232	R MF H475E F 0W6 E4	1
R104	R101238	R MF H 1K5 F 0W6 E4	
R138	R101160	R CF H100K J 0W25	
R146	R101140	R MF H 2K21F 0W6 E4	
R150	R101129	R CF H270E J 0W25	
R151	R101236	R MF H 1K F 0W6 E4	1
R153	R101127	R MF H182E F 0W6 E4	
R156	R101136	R CF H 1K J 0W25	1
R157	R101266	R MF H332K F 0W6 E4	
R159	R101128	R MF H221E F 0W6 E4	
R160	R101135	R CF H820E J 0W25	
R162	R101127	R MF H182E F 0W6 E4	
R164	R103600	R WW H E1 K 4W	1
R165	R101145	R CF H 5K6 J 0W25	
R166	R101145	R CF H 5K6 J 0W25	
R167	R103226	R MO H150E J 1W5	1
R169	R102498	R MF H E47J 0W6	1
R174	R101217	R MF H 27E4 F 0W6 E4	1
R184	R103248	R MO H 10K J 1W5	1
R185	R103248	R MO H 10K J 1W5	1
R186	R103248	R MO H 10K J 1W5	1
R196	R101144	R CF H 4K7 J 0W25	
R199	R101551	R MF H 18K F 0W4 E3	
R200	R101548	R MF H 10K F 0W4 E3	
R201	R101148	R CF H 10K J 0W25	
R202	R101236	R MF H 1K F 0W6 E4	
R204	R101138	R CF H 1K5 J 0W25	
R210	R101148	R CF H 10K J 0W25	
R211	R101359	R CF H 82K J 1W	1
R212	R101131	R CF H390E J 0W25	
R213	R101260	R MF H100K F 0W6 E4	
R217	R101144	R CF H 4K7 J 0W25	
R218	R101156	R MF H 47K5 F 0W6 E4	
R220	R101165	R CF H270K J 0W25	
R221	R101152	R MF H 22K1 F 0W6 E4	
R223	R101148	R CF H 10K J 0W25	
R224	R101156	R MF H 47K5 F 0W6 E4	
R225	R101140	R MF H 2K21F 0W6 E4	
R226	R101228	R CF H220E J 0W5	
R227	R101138	R CF H 1K5 J 0W25	
R228	R101554	R MF H 33K F 0W4 E3	
R245	R101144	R CF H 4K7 J 0W25	
R247	R101164	R CF H220K J 0W25	
R248	R101150	R MF H 15K F 0W6 E4	
R250	R104670	R HV H 4M7 J 0W5 3500	1
R251	R104670	R HV H 4M7 J 0W5 3500	1
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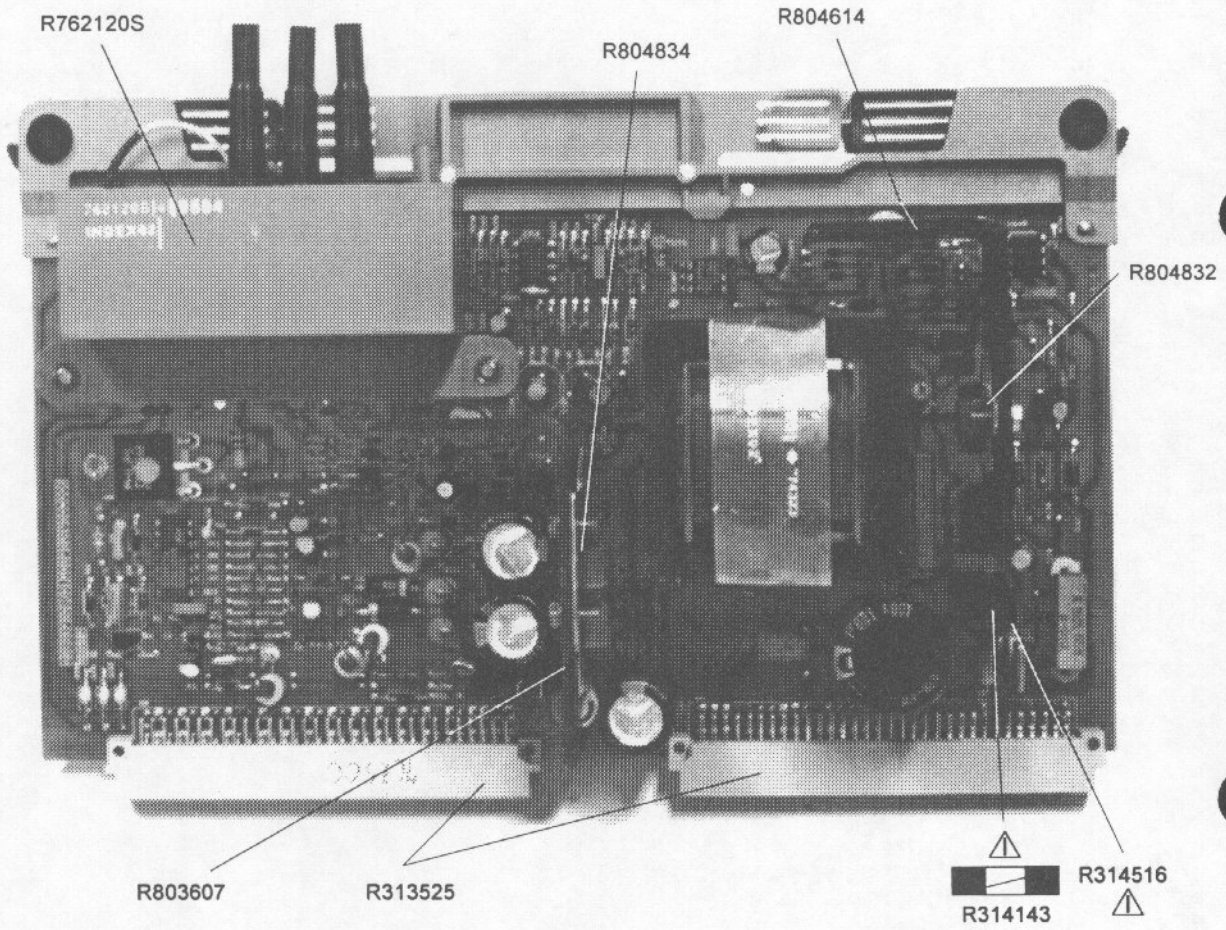
R253	R101250	R CF H 15K J 0W5	
T180	R774323	T PJ49 SMP G1200 VAR	1
Z 1	R131729	D ZEN 4V7 0W5 C DO35	
Z100	R131756	D ZEN 7V5 0W5 C DO35	
Z158	R131787	D ZEN 51V 0W5 C DO35	
Z197	R131734	D ZEN 5V6 0W5 B DO35	
Z200	A509022	D TVS 33V 1500WU CB429	1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COMP.	LOC.	SHEET
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C2	G 5	sheet 4
C3	G 5	sheet 4
C4	G 6	sheet 1
C5	J 2	sheet 4
C6	J 6	sheet 4
C7	C 1	sheet 1
C8	G 5	sheet 4
C9	I 3	sheet 3
C10	I 5	sheet 3
C11	G 5	sheet 4
C12	B 4	sheet 6
C13	E 1	sheet 6
C14	F 1	sheet 6
C15	F 2	sheet 3
C16	D 1	sheet 1
C17	I 5	sheet 3
C18	I 3	sheet 3
C19	G 5	sheet 3
C20	B 2	sheet 6
C21	B 3	sheet 6
C22	F 5	sheet 3
C23	G 2	sheet 3
C24	I 2	sheet 3
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C63	G 3	sheet 2
C64	C 4	sheet 2
C65	J 6	sheet 2
C66	J 6	sheet 1
C67	F 3	sheet 2
C68	J 5	sheet 1
C69	J 3	sheet 1
C70	K 5	sheet 6
C71	C 1	sheet 2
C72	D 3	sheet 1
C73	I 5	sheet 6
C74	B 6	sheet 5
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C99	E 6	sheet 5
C100	E 2	sheet 5
C101	J 5	sheet 5
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C109	A 3	sheet 4
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C111	A 1	sheet 5
C112	A 1	sheet 5
C113	L 4	sheet 1
C114	L 4	sheet 1
C115	L 4	sheet 1
C116	L 5	sheet 1
C117	A 4	sheet 1
C118	A 6	sheet 1

COMP.	LOC.	SHEET
C119	A 2	sheet 3
C120	F 4	sheet 3
C121	A 3	sheet 3
C122	E 1	sheet 3
C123	A 2	sheet 2
C124	B 4	sheet 3
C125	E 4	sheet 1
C601	D 5	sheet 1
C602	B 2	sheet 1
C603	C 5	sheet 6
C604	G 1	sheet 1
C605	B 1	sheet 1
C606	I 5	sheet 6
C607	G 2	sheet 1
C608	J 2	sheet 5
C609	J 3	sheet 5
C611	K 5	sheet 6
C612	E 5	sheet 4
C613	E 2	sheet 4
C614	B 6	sheet 6
C615	A 6	sheet 6
C616	C 2	sheet 1
C617	A 2	sheet 1
C618	E 2	sheet 1
C619	G 4	sheet 1
C620	C 2	sheet 6
C621	B 4	sheet 6
C622	B 5	sheet 6
C623	B 5	sheet 6
C624	B 5	sheet 6
C625	A 5	sheet 6
C626	H 4	sheet 6
C629	B 6	sheet 6
C630	D 1	sheet 1
C631	C 3	sheet 1
C632	D 6	sheet 4
C633	E 5	sheet 5
C634	B 5	sheet 6
C636	C 4	sheet 6
C637	C 4	sheet 6
C638	K 3	sheet 6
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C674	J 3	sheet 4
C675	E 3	sheet 4
C677	E 2	sheet 2
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C679	B 2	sheet 2
C680	E 2	sheet 5
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C714	G 3	sheet 3
C715	G 5	sheet 3
C752	A 6	sheet 3
C753	B 6	sheet 3
D1	B 2	sheet 1
D2	H 5	sheet 1
D3	H 5	sheet 2
D4	G 6	sheet 3
D5	G 4	sheet 3
D6	H 4	sheet 1
D7	G 2	sheet 3
D8	C 2	sheet 5

COMP.	LOC.	SHEET
D9	E 2	sheet 6
D11	G 3	sheet 3
D20	G 1	sheet 3
D25	G 2	sheet 5
D26	G 5	sheet 5
D27	B 4	sheet 5
D28	C 5	sheet 5
D29	B 3	sheet 5
D30	B 6	sheet 2
D31	B 5	sheet 2
D32	C 1	sheet 5
D33	B 3	sheet 2
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D43	C 6	sheet 6
D601	G 6	sheet 1
D602	G 1	sheet 1
D603	G 3	sheet 1
D604	B 1	sheet 6
IC1	J 1	sheet 1
IC2	J 4	sheet 1
IC3	C 2	sheet 1
IC3	C 2	sheet 1
IC3	D 6	sheet 1
IC3	C 1	sheet 1
IC3	D 2	sheet 1
IC3	C 2	sheet 1
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IC23	A 5	sheet 4
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IC23	C 5	sheet 4
IC23	C 6	sheet 4
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IC24	A 3	sheet 4
IC25	K 3	sheet 6
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IC30	F 4	sheet 3
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IC32	A 1	sheet 5
IC32	A 1	sheet 5
IC33	H 2	sheet 6
IC35	J 1	sheet 5
IC36	J 2	sheet 5

COMP.	LOC.	SHEET
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IC37	H 6	sheet 5
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IC37	I 5	sheet 5
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IC45	G 4	sheet 2
IC45	G 4	sheet 2
IC46	G 2	sheet 2
IC46	G 2	sheet 2
IC46	G 1	sheet 2
IC601	J 2	sheet 1
IC602	J 5	sheet 1
IC603	H 5	sheet 1
IC603	G 6	sheet 1
IC603	G 6	sheet 1
IC603	H 5	sheet 1
IC603	H 6	sheet 1
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J1	E 6	sheet 6
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J602	G 6	sheet 4
J603	E 5	sheet 6
J604	J 5	sheet 6
J605	D 5	sheet 6
J606	D 4	sheet 6
J607	F 6	sheet 6
J608	D 5	sheet 6
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J610	L 5	sheet 6
J611	A 6	sheet 5
J612	G 6	sheet 5
J613	G 6	sheet 2
J614	E 4	sheet 6
J615	E 4	sheet 6
J616	E 4	sheet 6
J617	F 4	sheet 6

COMP.	LOC.	SHEET
J618	F 4	sheet 6
J619	D 4	sheet 6
J620	F 6	sheet 3
J621	G 6	sheet 3
J622	A 3	sheet 6
L601	A 4	sheet 6
L602	A 4	sheet 6
P1	A 2	sheet 6
P2	A 3	sheet 6
P3	A 6	sheet 2
P4	E 4	sheet 3
P5	C 6	sheet 1
P6	C 5	sheet 2
Q1	B 2	sheet 1
Q2	B 2	sheet 1
Q3	G 5	sheet 1
Q4	G 3	sheet 1
Q5	C 3	sheet 6
Q6	E 4	sheet 1
Q7	E 4	sheet 1
Q8	G 3	sheet 3
Q9	D 2	sheet 6
Q10	C 3	sheet 3
Q11	C 1	sheet 3
Q12	G 1	sheet 3
Q13	B 3	sheet 5
Q14	G 5	sheet 5
Q15	B 6	sheet 5
Q16	G 2	sheet 5
Q17	B 4	sheet 5
Q18	B 1	sheet 5
Q19	B 2	sheet 2
Q20	C 3	sheet 2
Q21	B 2	sheet 2
Q22	B 3	sheet 1
Q23	C 6	sheet 6
Q24	G 5	sheet 3
Q25	G 4	sheet 3
Q26	C 4	sheet 1
Q27	B 5	sheet 1
Q601	G 1	sheet 1
Q602	G 4	sheet 1
Q603	B 1	sheet 6
Q604	F 3	sheet 6
R1	A 1	sheet 1
R2	C 1	sheet 1
R3	G 5	sheet 1
R4	G 3	sheet 1
R5	A 2	sheet 1
R6	B 1	sheet 1
R7	H 5	sheet 1
R8	G 1	sheet 1
R9	G 1	sheet 1
R10	H 1	sheet 1
R11	G 2	sheet 1
R12	H 2	sheet 1
R14	H 3	sheet 1
R15	K 1	sheet 1
R16	H 6	sheet 1
R17	L 4	sheet 1
R18	L 4	sheet 1
R19	H 5	sheet 6
R20	C 4	sheet 1
R21	C 5	sheet 1
R22	C 5	sheet 1
R23	C 1	sheet 1
R24	B 5	sheet 1
R25	H 1	sheet 1
R26	H 4	sheet 1
R27	K 1	sheet 1
R28	L 5	sheet 1
R29	L 4	sheet 1
R30	H 5	sheet 6
R31	H 5	sheet 6
R32	H 5	sheet 6
R33	D 1	sheet 1
R34	C 2	sheet 6
R35	E 2	sheet 1
R36	H 4	sheet 1
R37	C 2	sheet 6
R38	G 4	sheet 1
R39	G 4	sheet 1
R40	G 4	sheet 1
R41	B 5	sheet 1
R42	H 4	sheet 6
R43	B 5	sheet 1
R44	H 4	sheet 4
R45	H 1	sheet 4
R46	K 4	sheet 4
R47	H 4	sheet 4
R48	H 1	sheet 4
R49	K 3	sheet 4
R50	K 2	sheet 4
R51	D 2	sheet 1
R52	J 5	sheet 6
R54	B 5	sheet 6
R55	B 6	sheet 6
R58	A 3	sheet 6
R59	E 4	sheet 1
R60	H 3	sheet 4
R61	H 6	sheet 4
R62	K 4	sheet 4
R63	K 3	sheet 4
R64	K 3	sheet 4
R65	H 2	sheet 4
R66	H 5	sheet 4
R67	J 5	sheet 6
R68	J 5	sheet 6
R69	J 5	sheet 6
R70	C 2	sheet 3

COMP.	LOC.	SHEET
R71	C 3	sheet 3
R72	G 3	sheet 3
R73	G 2	sheet 3
R74	F 5	sheet 3
R75	K 4	sheet 6
R76	F 4	sheet 3
R77	G 1	sheet 3
R78	G 1	sheet 3
R79	C 1	sheet 3
R80	D 5	sheet 6
R81	C 1	sheet 3
R82	D 2	sheet 6
R83	K 1	sheet 3
R84	K 2	sheet 3
R85	K 2	sheet 3
R86	K 3	sheet 3
R87	K 3	sheet 3
R88	K 3	sheet 3
R89	C 6	sheet 3
R90	B 1	sheet 6
R91	C 5	sheet 3
R92	G 6	sheet 3
R93	G 5	sheet 3
R94	K 1	sheet 3
R95	K 1	sheet 3
R96	K 1	sheet 3
R97	K 3	sheet 3
R98	K 3	sheet 3
R99	K 3	sheet 3
R100	H 4	sheet 6
R102	E 5	sheet 6
R103	F 4	sheet 3
R104	F 5	sheet 3
R105	D 6	sheet 1
R106	E 5	sheet 6
R107	D 5	sheet 6
R108	C 4	sheet 3
R109	C 4	sheet 3
R110	G 4	sheet 3
R111	H 3	sheet 6
R112	H 3	sheet 6
R113	H 3	sheet 6
R114	G 4	sheet 3
R115	A 5	sheet 1
R116	H 3	sheet 6
R118	B 4	sheet 4
R119	B 1	sheet 4
R120	C 1	sheet 4
R121	C 4	sheet 4
R122	E 4	sheet 4
R123	E 4	sheet 4
R124	E 1	sheet 4
R125	E 1	sheet 4
R126	C 3	sheet 6
R127	B 6	sheet 1
R128	B 6	sheet 1
R129	D 2	sheet 6
R130	D 2	sheet 6
R131	C 6	sheet 4
R132	E 4	sheet 4
R133	E 4	sheet 4
R134	E 1	sheet 4
R135	E 1	sheet 4
R136	C 3	sheet 4
R137	B 5	sheet 4
R138	B 2	sheet 4
R139	J 4	sheet 6
R140	A 2	sheet 3
R141	A 2	sheet 3
R143	A 1	sheet 6
R144	B 1	sheet 6
R145	F 3	sheet 6
R146	B 1	sheet 6
R147	B 3	sheet 3
R148	C 3	sheet 3
R149	B 1	sheet 3
R150	C 2	sheet 3
R151	F 3	sheet 3
R152	J 3	sheet 6
R153	J 3	sheet 6
R154	J 3	sheet 6
R155	C 1	sheet 3
R156	G 2	sheet 3
R157	E 5	sheet 3
R158	B 4	sheet 3
R159	C 1	sheet 3
R160	E 2	sheet 3
R161	C 2	sheet 5
R162	C 5	sheet 5
R163	C 6	sheet 5
R164	C 3	sheet 5
R165	F 1	sheet 5
R166	F 1	sheet 5
R167	F 4	sheet 5
R168	F 4	sheet 5
R170	K 3	sheet 6
R172	G 1	sheet 3
R173	C 1	sheet 5
R174	F 1	sheet 5
R175	F 1	sheet 5
R176	F 4	sheet 5
R177	F 4	sheet 5
R178	C 4	sheet 5
R179	C 1	sheet 5
R180	C 4	sheet 5
R181	H 2	sheet 6
R182	E 4	sheet 3
R183	F 4	sheet 3
R184	E 4	sheet 3
R185	G 2	sheet 5
R186	G 5	sheet 5
R187	F 1	sheet 3
R188	A 3	sheet 3
R189	G 5	sheet 5

COMP.	LOC.	SHEET
R190	B 1	sheet 5
R191	B 2	sheet 5
R192	B 4	sheet 5
R193	B 5	sheet 5
R194	B 3	sheet 5
R195	H 2	sheet 6
R196	H 2	sheet 6
R197	H 2	sheet 6
R198	D 4	sheet 2
R199	B 4	sheet 5
R200	D 4	sheet 2
R201	G 2	sheet 5
R202	H 4	sheet 5
R203	H 5	sheet 5
R204	H 6	sheet 5
R205	H 4	sheet 5
R206	K 1	sheet 5
R207	K 1	sheet 5
R208	K 3	sheet 5
R209	K 2	sheet 5
R210	A 2	sheet 2
R211	H 1	sheet 6
R213	B 5	sheet 5
R214	B 1	sheet 5
R215	H 1	sheet 5
R216	K 1	sheet 5
R217	K 1	sheet 5
R218	K 3	sheet 5
R219	K 3	sheet 5
R220	B 5	sheet 2
R221	B 3	sheet 2
R222	H 3	sheet 5
R223	H 1	sheet 5
R224	H 2	sheet 5
R225	B 3	sheet 2
R226	B 6	sheet 5
R227	B 1	sheet 5
R228	J 2	sheet 6
R229	A 3	sheet 3
R230	A 3	sheet 3
R231	B 5	sheet 2
R232	A 2	sheet 2
R233	B 6	sheet 2
R234	D 6	sheet 2
R235	D 1	sheet 2
R236	D 1	sheet 2
R237	B 5	sheet 2
R238	I 5	sheet 3
R239	I 6	sheet 3
R240	I 6	sheet 3
R241	K 5	sheet 3
R242	K 6	sheet 3
R243	K 6	sheet 3
R244	H 1	sheet 2
R245	H 4	sheet 2
R246	H 1	sheet 2
R247	H 4	sheet 2
R248	J 2	sheet 6
R249	J 2	sheet 6
R250	J 2	sheet 6
R251	D 6	sheet 2
R252	D 6	sheet 2
R253	K 2	sheet 2
R254	K 2	sheet 2
R255	K 5	sheet 2
R256	K 5	sheet 2
R257	D 1	sheet 2
R258	B 2	sheet 2
R261	E 2	sheet 2
R262	F 5	sheet 2
R264	K 1	sheet 6
R266	K 5	sheet 3
R267	K 4	sheet 3
R268	K 4	sheet 3
R269	K 4	sheet 3
R270	K 4	sheet 3
R271	K 4	sheet 3
R272	K 3	sheet 3
R273	K 4	sheet 3
R274	K 3	sheet 2
R275	K 3	sheet 2
R276	K 6	sheet 2
R277	K 5	sheet 2
R278	D 1	sheet 2
R279	B 1	sheet 2
R280	H 5	sheet 2
R281	H 2	sheet 2
R282	B 1	sheet 2
R283	F 2	sheet 2
R284	H 3	sheet 2
R285	H 6	sheet 2
R286	F 6	sheet 2
R287	D 2	sheet 2
R288	D 2	sheet 2
R289	B 1	sheet 2
R290	F 2	sheet 2
R291	F 6	sheet 2
R292	F 5	sheet 2
R293	E 1	sheet 3
R294	E 1	sheet 3
R295	E 2	sheet 3
R297	D 4	sheet 2
R298	D 6	sheet 1
R299	D 4	sheet 1
R300	A 1	sheet 6
R301	C 4	sheet 1
R302	D 5	sheet 1
R303	B 3	sheet 1
R304	A 3	sheet 1
R305	B 3	sheet 1
R306	B 3	sheet 1
R307	D 6	sheet 1
R308	E 6	sheet 1
R309	J 5	sheet 2

COMP.	LOC.	SHEET
R310	J 5	sheet 2
R311	J 4	sheet 2
R312	J 4	sheet 2
R313	J 2	sheet 2
R314	J 2	sheet 2
R315	J 1	sheet 2
R316	J 1	sheet 2
R317	E 2	sheet 2
R318	D 5	sheet 2
R319	E 4	sheet 2
R320	A 6	sheet 2
R321	A 6	sheet 2
R322	A 6	sheet 2
R325	B 4	sheet 3
R326	B 4	sheet 3
R327	B 4	sheet 3
R328	B 4	sheet 3
R329	A 4	sheet 3
R330	A 4	sheet 3
R331	A 4	sheet 3
R332	A 4	sheet 3
R333	A 2	sheet 3
R334	I 4	sheet 3
R335	I 4	sheet 3
R336	I 2	sheet 3
R337	I 2	sheet 3
R338	I 1	sheet 3
R339	I 1	sheet 3
R340	J 4	sheet 4
R341	J 4	sheet 4
R342	J 2	sheet 4
R343	J 2	sheet 4
R344	J 1	sheet 4
R345	J 1	sheet 4
R346	J 5	sheet 4
R347	J 5	sheet 4
R348	D 4	sheet 4
R349	D 4	sheet 4
R350	D 1	sheet 4
R351	D 1	sheet 4
R352	D 5	sheet 4
R353	D 5	sheet 4
R354	D 2	sheet 4
R355	D 2	sheet 4
R356	H 5	sheet 4
R357	H 4	sheet 4
R358	H 2	sheet 4
R359	H 1	sheet 4
R360	E 4	sheet 5
R361	E 4	sheet 5
R362	E 5	sheet 5
R363	E 5	sheet 5
R364	E 1	sheet 5
R365	E 1	sheet 5
R366	E 2	sheet 5
R367	E 2	sheet 5
R368	J 1	sheet 5
R369	J 1	sheet 5
R370	J 4	sheet 5
R371	J 4	sheet 5
R372	J 2	sheet 5
R373	J 2	sheet 5
R374	J 5	sheet 5
R375	J 5	sheet 5
R378	C 6	sheet 6
R379	J 1	sheet 1
R380	J 1	sheet 1
R381	J 4	sheet 1
R382	J 4	sheet 1
R383	G 2	sheet 4
R384	G 2	sheet 4
R385	G 2	sheet 4
R386	A 2	sheet 4
R387	A 2	sheet 4
R388	A 2	sheet 4
R601	A 2	sheet 1
R602	C 1	sheet 1
R603	G 5	sheet 1
R604	H 5	sheet 1
R605	H 1	sheet 1
R606	H 2	sheet 1
R607	B 2	sheet 1
R608	B 1	sheet 1
R609	H 6	sheet 1
R610	H 3	sheet 1
R611	K 1	sheet 1
R612	H 4	sheet 1
R613	H 1	sheet 1
R614	K 1	sheet 1
R615	E 2	sheet 1
R616	K 3	sheet 1
R617	K 3	sheet 1
R618	K 2	sheet 1
R619	K 2	sheet 1
R620	K 6	sheet 1
R621	K 5	sheet 1
R622	K 5	sheet 1
R623	K 5	sheet 1
R624	H 4	sheet 1
R625	I 4	sheet 4
R626	I 1	sheet 4
R627	H 4	sheet 4
R628	H 1	sheet 4
R629	K 4	sheet 4
R630	D 2	sheet 1
R631	A 2	sheet 6
R632	B 5	sheet 6
R633	B 6	sheet 6
R634	C 3	sheet 6
R635	H 2	sheet 4
R636	H 5	sheet 4
R637	I 3	sheet 4
R638	I 6	sheet 4
R639	K 4	sheet 4

COMP.	LOC.	SHEET
R640	K 6	sheet 4
R641	K 5	sheet 4
R642	K 5	sheet 4
R643	K 5	sheet 4
R644	K 1	sheet 4
R645	K 1	sheet 4
R646	K 1	sheet 4
R647	K 1	sheet 4
R648	D 3	sheet 3
R649	H 3	sheet 3
R650	G 2	sheet 3
R651	C 2	sheet 3
R652	H 1	sheet 3
R653	G 1	sheet 3
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R662	C 5	sheet 3
R663	H 6	sheet 3
R664	G 5	sheet 3
R665	D 6	sheet 1
R666	D 6	sheet 3
R667	K 1	sheet 3
R668	K 1	sheet 3
R669	K 1	sheet 3
R670	K 2	sheet 3
R671	K 2	sheet 3
R672	K 2	sheet 3
R673	C 4	sheet 3
R674	D 4	sheet 3
R675	H 4	sheet 3
R676	G 4	sheet 3
R677	D 3	sheet 6
R678	C 1	sheet 4
R679	C 4	sheet 4
R680	C 4	sheet 4
R681	C 1	sheet 4
R682	C 3	sheet 4
R683	C 5	sheet 4
R684	C 2	sheet 4
R685	C 6	sheet 4
R686	E 6	sheet 4
R687	E 5	sheet 4
R688	E 5	sheet 4
R689	E 5	sheet 4
R690	E 3	sheet 4
R691	E 3	sheet 4
R692	E 3	sheet 4
R693	E 2	sheet 4
R694	C 6	sheet 5
R695	C 3	sheet 5
R696	C 2	sheet 5
R697	C 5	sheet 5
R698	C 4	sheet 5
R699	C 1	sheet 5
R700	C 4	sheet 5
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R702	F 3	sheet 5
R703	F 3	sheet 5
R704	F 3	sheet 5
R705	F 2	sheet 5
R706	F 6	sheet 5
R707	F 6	sheet 5
R708	F 5	sheet 5
R709	F 5	sheet 5
R710	G 4	sheet 5
R711	I 6	sheet 5
R712	I 4	sheet 5
R713	H 4	sheet 5
R714	H 5	sheet 5
R716	I 3	sheet 5
R717	H 1	sheet 5
R718	H 2	sheet 5
R719	B 3	sheet 2
R720	I 1	sheet 5
R721	K 4	sheet 5
R722	K 4	sheet 5
R723	K 4	sheet 5
R724	K 4	sheet 5
R725	K 6	sheet 5
R726	K 6	sheet 5
R727	K 5	sheet 5
R728	K 5	sheet 5
R729	J 5	sheet 3
R730	J 6	sheet 3
R731	J 6	sheet 3
R732	K 5	sheet 3
R733	K 6	sheet 3
R734	K 6	sheet 3
R735	H 1	sheet 2
R736	H 4	sheet 2
R737	H 1	sheet 2
R738	H 4	sheet 2
R739	K 4	sheet 3
R740	K 4	sheet 3
R741	K 4	sheet 3
R742	K 4	sheet 3
R743	H 3	sheet 2
R744	H 6	sheet 2
R745	H 5	sheet 2
R746	H 2	sheet 2
R747	K 1	sheet 2
R748	K 1	sheet 2
R749	K 1	sheet 2
R750	K 1	sheet 2
R751	K 4	sheet 2
R752	K 4	sheet 2
R753	K 4	sheet 2
R754	K 4	sheet 2

COMP.	LOC.	SHEET
R755	H 2	sheet 6
R756	K 2	sheet 6
R757	H 4	sheet 6
R758	K 4	sheet 6
R759	H 5	sheet 6
R760	K 5	sheet 6
R800	J 2	sheet 1
R801	J 2	sheet 1
R802	J 5	sheet 1
R803	J 5	sheet 1
R900	E 6	sheet 3
R901	E 6	sheet 3
R902	E 6	sheet 3
R903	F 6	sheet 3
R904	F 6	sheet 3
R905	F 6	sheet 3
SR1	A 4	sheet 6
SR2	A 4	sheet 6
SR3	A 5	sheet 6
SR4	A 6	sheet 6
Z1	E 5	sheet 6
Z2	E 5	sheet 6
Z3	C 4	sheet 1
Z4	C 4	sheet 1

BARCO

Name		Article nr.
COMP. LOC. CONV.		76 2518-3
Date: 11-07-1994	Drawn: JVDY	Checked: GM

BARCO PROJECTION SYSTEMS

Sheet 7

SCHEMATIC NAME: 762518.sch SHEET NUMBER: 7 DATE: Dec 21, 1994

7803149-3

BARCO

CONVERGENCE SUMMING AMPLIFIERS

SIMULATORS
GEOMETRY
CORNERS
AXIS
>SHEET3
>SHEET4,5
>SHEET1,2

Horizontal line pulses
HOR_CONV
>J608[4]

PHASE ADVANCE
ADJUSTMENT PULSE DURATION OF THE PULSE 1 ON R145

WIDTH DYNAMIC SUPPLY VOLTAGE
ADJUSTMENT PULSE DURATION OF THE PULSE 2 ON J606 PIN 1

74HCT123 · 74HCT123 · HCF4098 · HCF4098 · TL082 · TL082

PULSE 1 >SHEET1,2
PULSE 2 >J606[1]

To FOCUS: J619 HP_FOCUS, VP_FOCUS

To CONV. OUTPUT (J6): J606 PULSE 2, ILIM

FUTURE EXPANSION
J614 HS_SIM, HP_SIM
J615 VS_SIM, VP_SIM
J616 +12V, -12V
J617 BH_SIM, GH_SIM, RH_SIM
J618 BV_SIM, GV_SIM, RV_SIM
SIMULATORS

From CONV. OUTPUT (J5): J608 SDA, SCL, HDR_CONV, VFB
To DYN. ASTIGM. (J9): J603 SDA', SCL', +3,2V, -1,8V
To GREEN CONV. (J8[9]): J1 SDA', SCL', +3,2V, -1,8V
>SHEET1...5

From CONV. OUTPUT (J4): J605 +17V, +17V, +9V, -9V

From GREEN CONV. (J8[10]): J607 GH1, GV1
CORNERS AXIS GH GV

RH RH1 RH2 RH_SIM · GH GH1 GH2 GH_SIM · BH BH1 BH2 BH_SIM
RV RV1 RV2 RV_SIM · GV GV1 GV2 GV_SIM · BV BV1 BV2 BV_SIM

RH_OUT GH_OUT BH_OUT
To CONV. OUTPUT (J8): J604

RV_OUT GV_OUT BV_OUT
To CONV. OUTPUT (J9): J610

PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH ✕ 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.

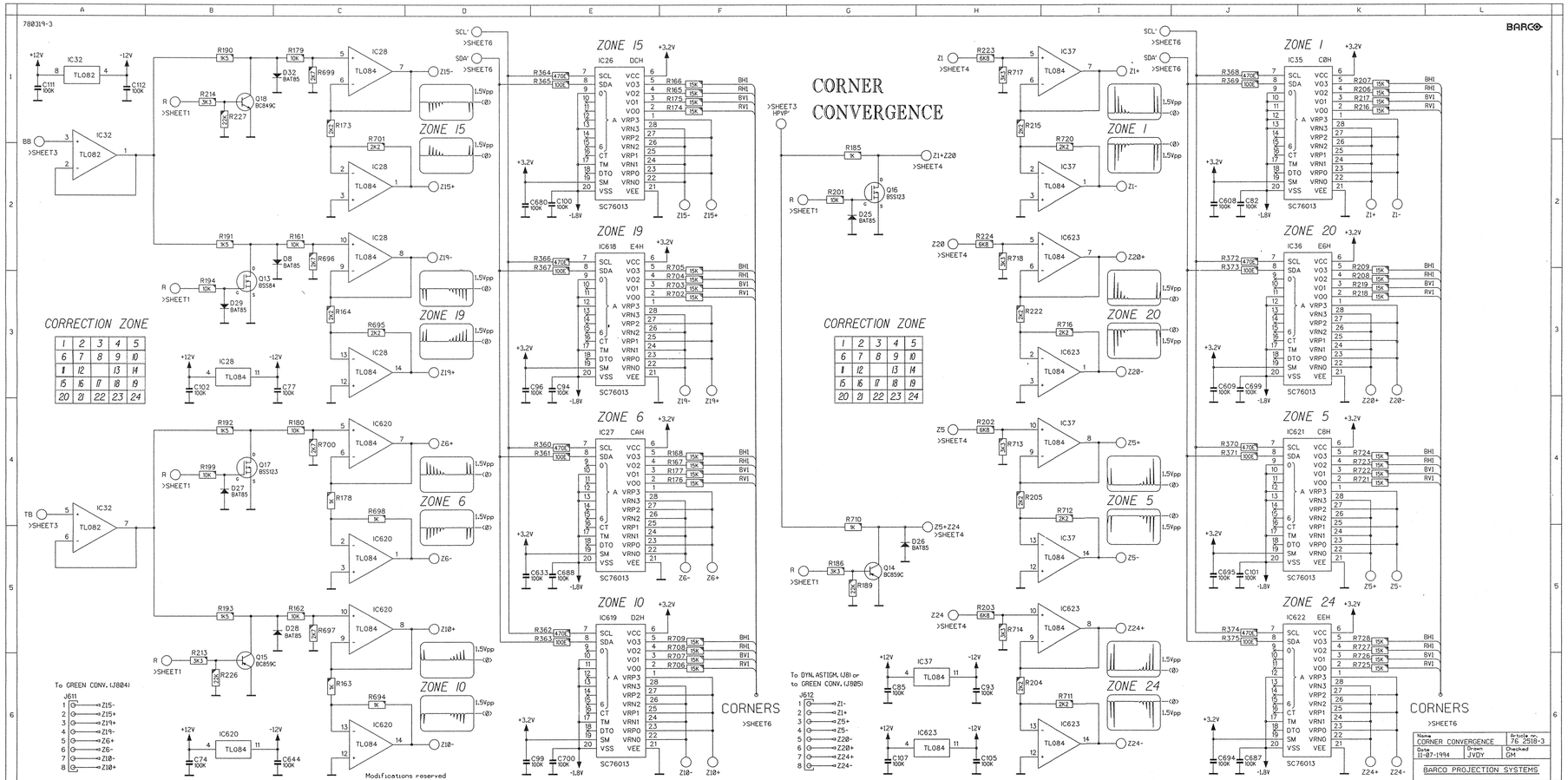
0.25W 0.40W 0.50W 1W 1.5W

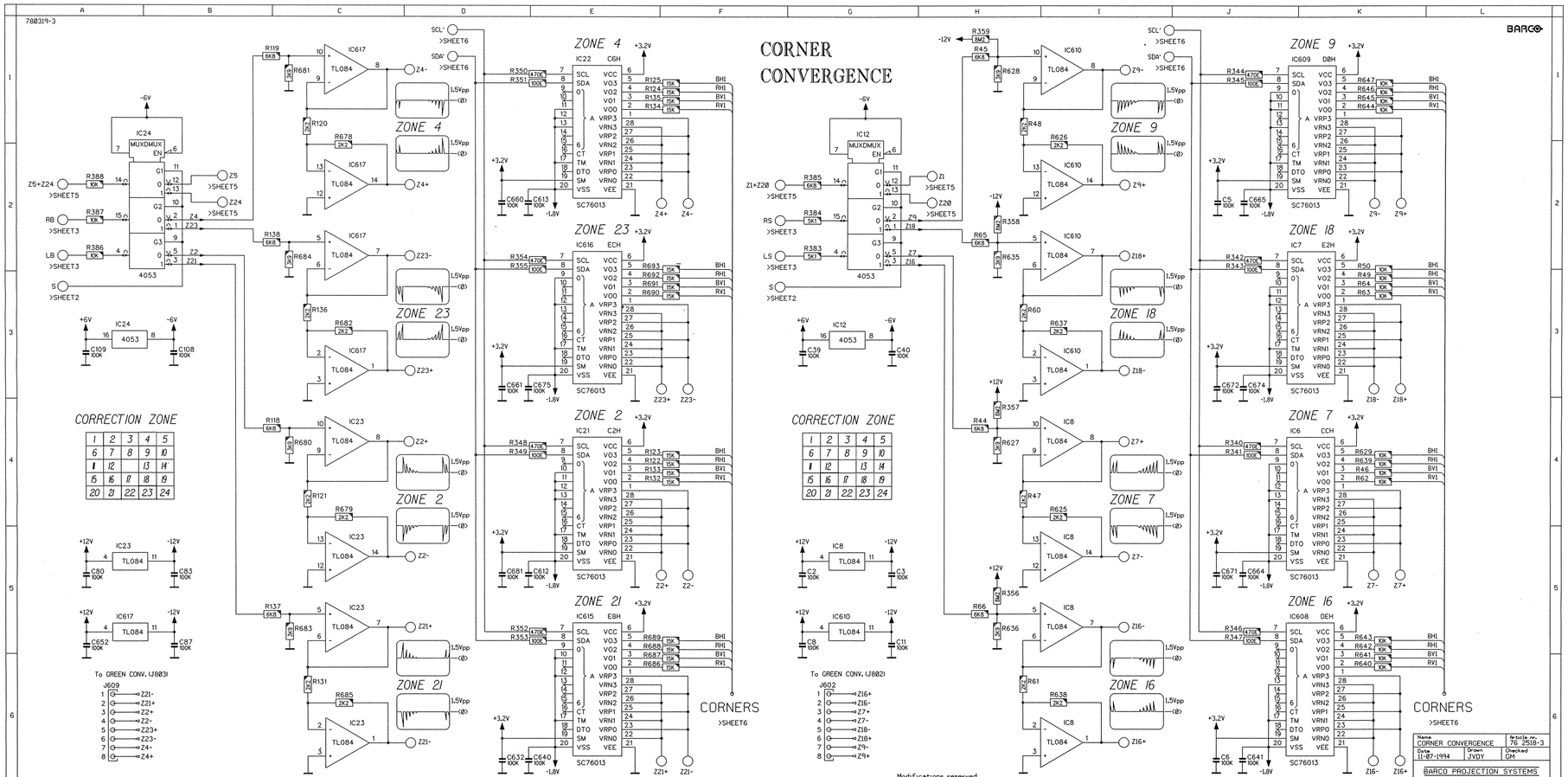
Name: SUMMING AMPLIFIERS	Article nr: 76 2518-3
Date: 11-07-1994	Drawn: JVDY
Checked: GM	

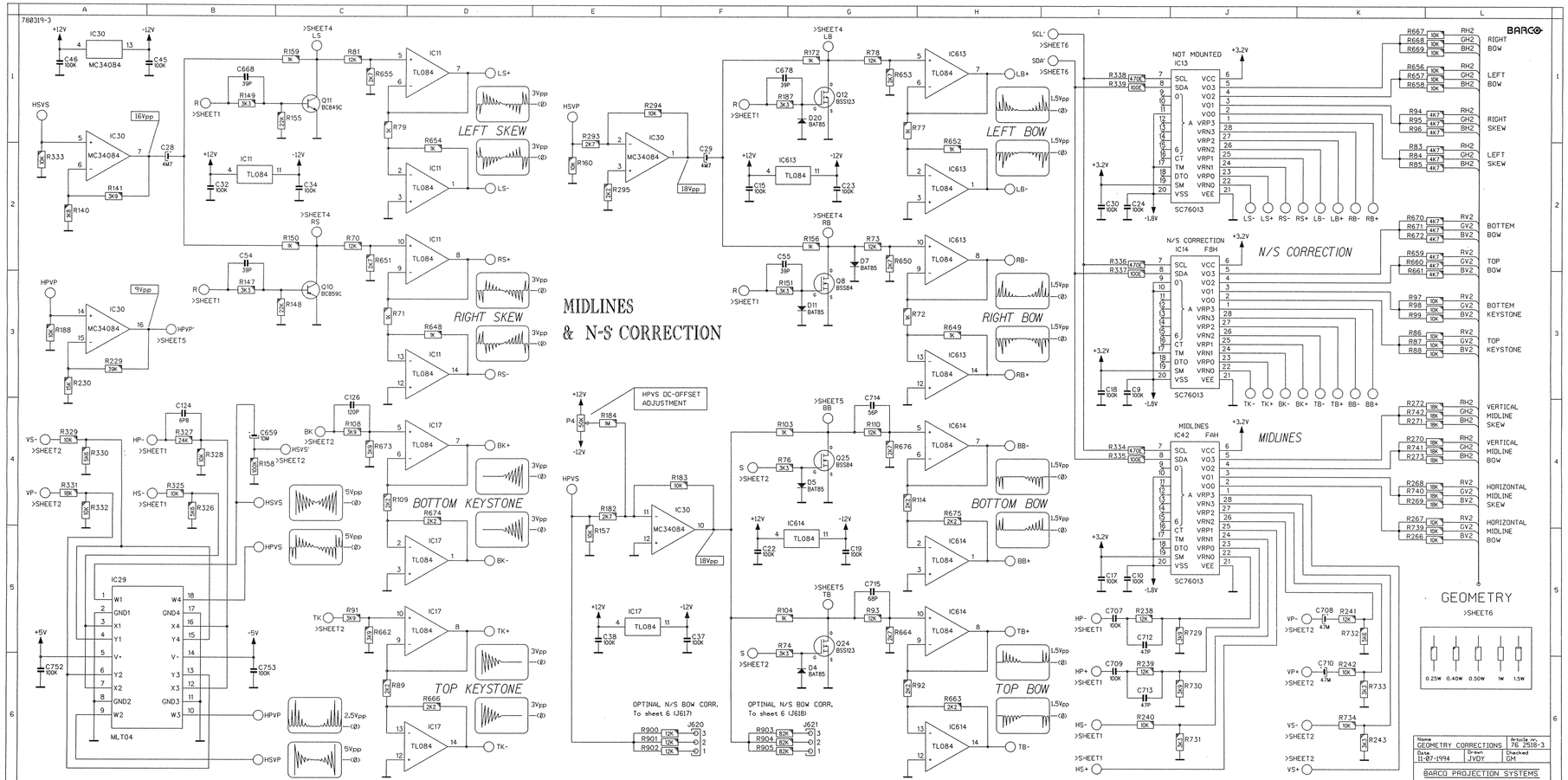
BARCO PROJECTION SYSTEMS

Modifications reserved

SCHEMATIC NAME: 762518.sch SHEET NUMBER: 6 DATE: Dec 21, 1994


780319-3
BARCO
CORNER CONVERGENCE
CORRECTION ZONE
ZONE 15
ZONE 19
ZONE 6
ZONE 10
ZONE 1
ZONE 20
ZONE 5
ZONE 24
CORNERS
>SHEET6
To GREEN CONV. (J804)
J611
Z15-
Z15+
Z19+
Z19-
Z6+
Z6-
Z10-
Z10+
To DYN. ASTIGM. (J81) or to GREEN CONV. (J805)
J612
Z1-
Z1+
Z5+
Z5-
Z20-
Z20+
Z24+
Z24-
Modifications reserved
Name: CORNER CONVERGENCE
Article nr.: 76 2518-3
Date: 11-07-1994
Drawn: JVDY
Checked: GM
BARCO PROJECTION SYSTEMS
Sheet 5
SCHEMATIC NAME: 762518.sch SHEET NUMBER: 5 DATE: Dec 21, 1994


780319-3
CORNER CONVERGENCE
ZONE 4
ZONE 23
ZONE 2
ZONE 21
ZONE 9
ZONE 18
ZONE 7
ZONE 16
CORRECTION ZONE
CORRECTION ZONE
CORNERS
>SHEET6
CORNERS
>SHEET6
To GREEN CONV. (J803)
J609
Z21-
Z21+
Z2+
Z2-
Z23+
Z23-
Z4-
Z4+
To GREEN CONV. (J802)
J602
Z16+
Z16-
Z7+
Z7-
Z18-
Z18+
Z9-
Z9+
Modifications reserved
BARCO
Name
CORNER CONVERGENCE
Article no.
76 2518-3
Date
11-07-1994
Drawn
JVDY
Checked
GM
BARCO PROJECTION SYSTEMS
Sheet 4
SCHEMATIC NAME: 762518.sch SHEET NUMBER: 4 DATE: Dec 21, 1994


760319-3
MIDLINES
& N-S CORRECTION
LEFT SKEW
RIGHT SKEW
BOTTOM KEYSTONE
TOP KEYSTONE
LEFT BOW
RIGHT BOW
BOTTOM BOW
TOP BOW
N/S CORRECTION
MIDLINES
GEOMETRY
HPVS DC-OFFSET ADJUSTMENT
OPTINAL N/S BOW CORR.
To sheet 6 (J617)
OPTINAL N/S BOW CORR.
To sheet 6 (J618)
NOT MOUNTED
IC13
IC14 F8H
IC42 F4H
SC76013
MLT04
BARCO
RIGHT BOW
LEFT BOW
RIGHT SKEW
LEFT SKEW
BOTTEM BOW
TOP BOW
BOTTEM KEYSTONE
TOP KEYSTONE
VERTICAL MIDLINE SKEW
VERTICAL MIDLINE BOW
HORIZONTAL MIDLINE SKEW
HORIZONTAL MIDLINE BOW
0.25W 0.40W 0.50W 1W 1.5W
Name GEOMETRY CORRECTIONS
Article nr. 76 2518-3
Date 11-07-1994
Drawn JVDY
Checked GM
BARCO PROJECTION SYSTEMS
Sheet 3
SCHEMATIC NAME: 762518.sch SHEET NUMBER: 3 DATE: Dec 21, 1994

780319-3

VERTICAL AXIS CONVERGENCE

BARCO

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

0.25W 0.40W 0.50W 1W 1.5W

ZONE 3

IC624 C4H

ZONE 22

IC43 EAH

ZONE 8

IC625 CEH

ZONE 17

IC44 E0H

SC76013

AXIS >SHEET6

DC OFFSET SWITCHING LEVEL ADJUSTMENT

ADJUSTMENT CLAMPING LEVEL VERTICAL PARABOLA

VERTICAL SAWTOOTH

VERTICAL PARABOLA

VERTICAL SWITCH PULSE

To DYN. ASTIGM. (J61) or to GREEN CONVERGENCE (J881)

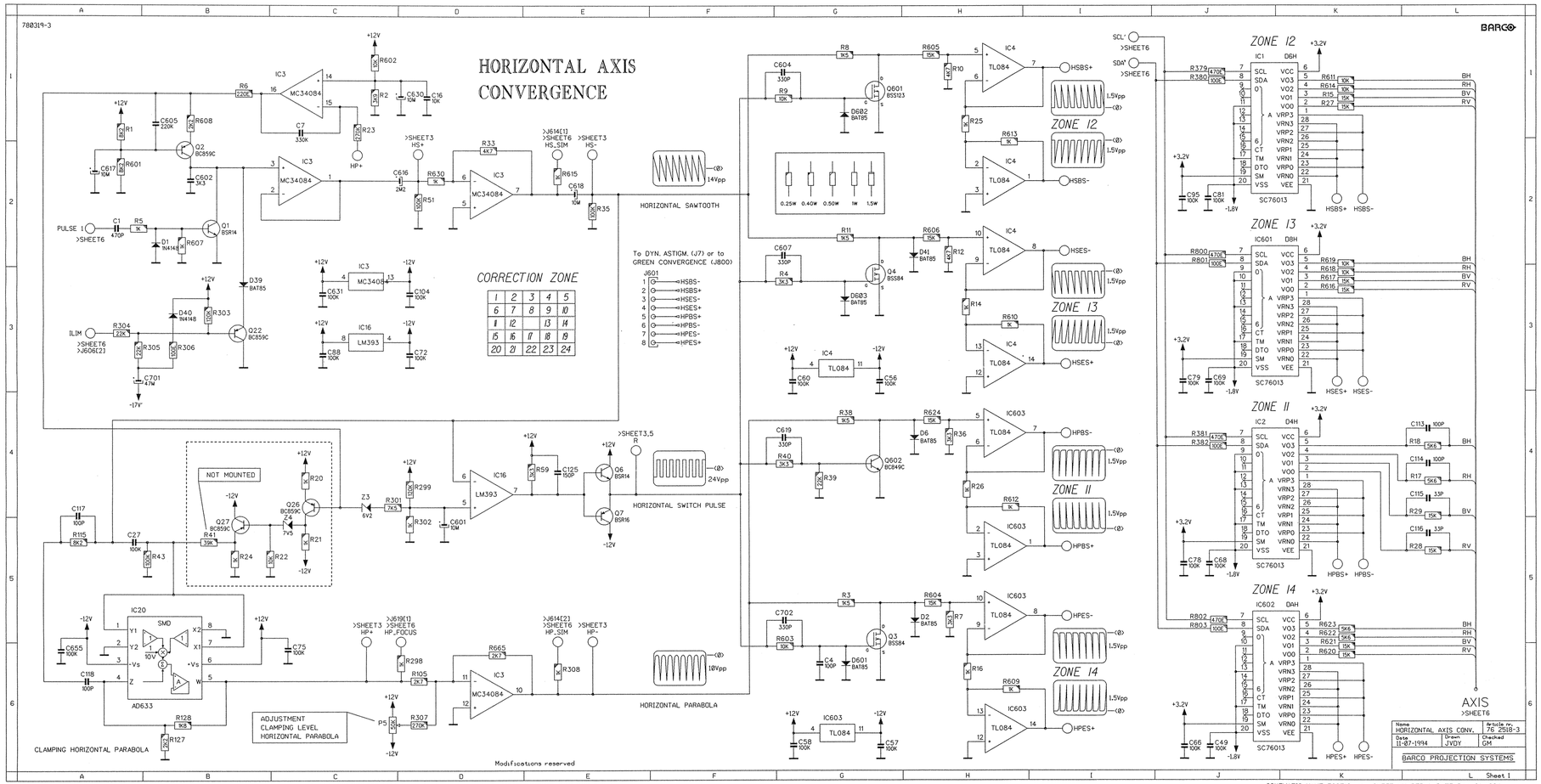
J613
1 VSES+
2 VSES-
3 VSBS+
4 VSBS-
5 VPES+
6 VPES-
7 VPBS-
8 VPBS+

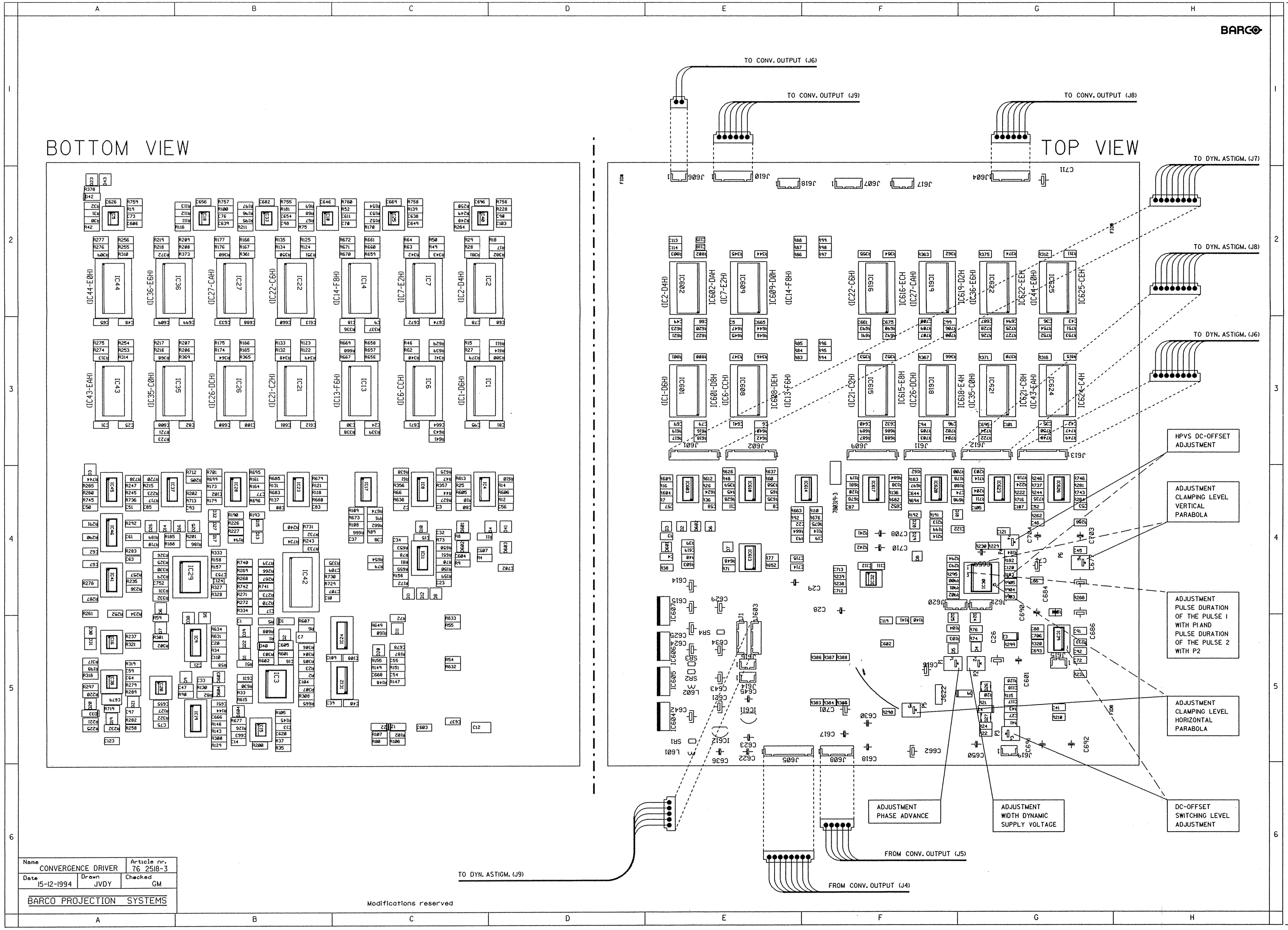
Modifications reserved

Name: VERTICAL AXIS CONV.	Article nr.: 762518-3
Date: 11-07-1994	Drawn: JVDV
	Checked: GM
BARCO PROJECTION SYSTEMS	

Sheet 2

SCHEMATIC NAME: 762518.sch SHEET NUMBER: 2 DATE: Dec 21, 1994


780319-3
HORIZONTAL AXIS CONVERGENCE
CORRECTION ZONE
HORIZONTAL SAWTOOTH
HORIZONTAL SWITCH PULSE
HORIZONTAL PARABOLA
CLAMPING HORIZONTAL PARABOLA
ADJUSTMENT CLAMPING LEVEL HORIZONTAL PARABOLA
NOT MOUNTED
To DYN. ASTIGM. (J7) or to GREEN CONVERGENCE (J800)
ZONE 12
ZONE 13
ZONE 11
ZONE 14
AXIS
Modifications reserved



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C3	C 4	C650	G 5	IC624	G 3	R96	F 3	R267	B 4	R645	E 3
C4	E 4	C651	B 5	IC625	G 2	R97	F 2	R268	B 4	R646	E 3
C5	E 3	C652	F 4	IC626	G 4	R98	F 2	R269	B 4	R647	E 3
C6	E 3	C654	B 2			R99	F 2	R270	B 4	R648	E 4
C7	B 5	C655	A 5	J1	E 5	R100	B 2	R271	B 4	R649	C 5
C8	E 4	C656	B 2	J601	E 3	R102	C 5	R272	B 4	R650	C 4
C9	C 3	C659	G 4	J602	E 3	R103	F 5	R273	B 4	R651	C 4
C10	B 4	C660	B 3	J603	E 5	R104	F 5	R274	A 3	R652	E 4
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C14	B 5	C664	C 3	J607	F 2	R108	C 4	R278	A 4	R656	C 3
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C16	B 5	C666	B 5	J609	F 3	R110	F 4	R280	A 4	R658	C 3
C17	B 4	C668	C 5	J610	E 2	R111	B 2	R281	G 4	R659	C 2
C18	C 3	C669	C 2	J611	F 3	R112	B 2	R282	A 5	R660	C 2
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C21	B 5	C674	C 3	J614	E 5	R115	G 5	R285	A 4	R663	E 4
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C23	C 4	C677	G 4	J616	E 5	R118	B 4	R287	A 4	R665	B 5
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C25	A 3	C679	A 5	J618	F 2	R120	F 4	R289	A 5	R667	C 3
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C46	G 4	C704	G 4	Q5	B 4	R140	F 5	R310	A 2	R687	F 3
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C68	D 3	D9	G 5	Q27	G 5	R163	F 4	R334	B 4	R709	F 3
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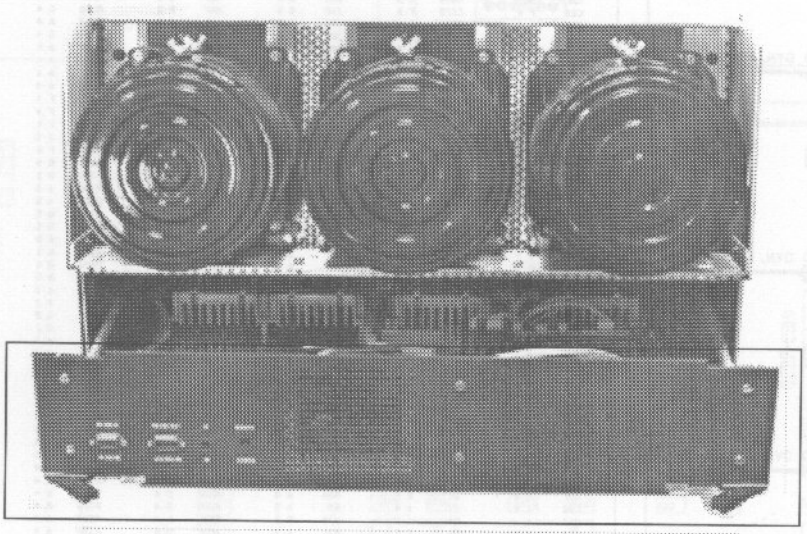
Convergence module (DRIVER)

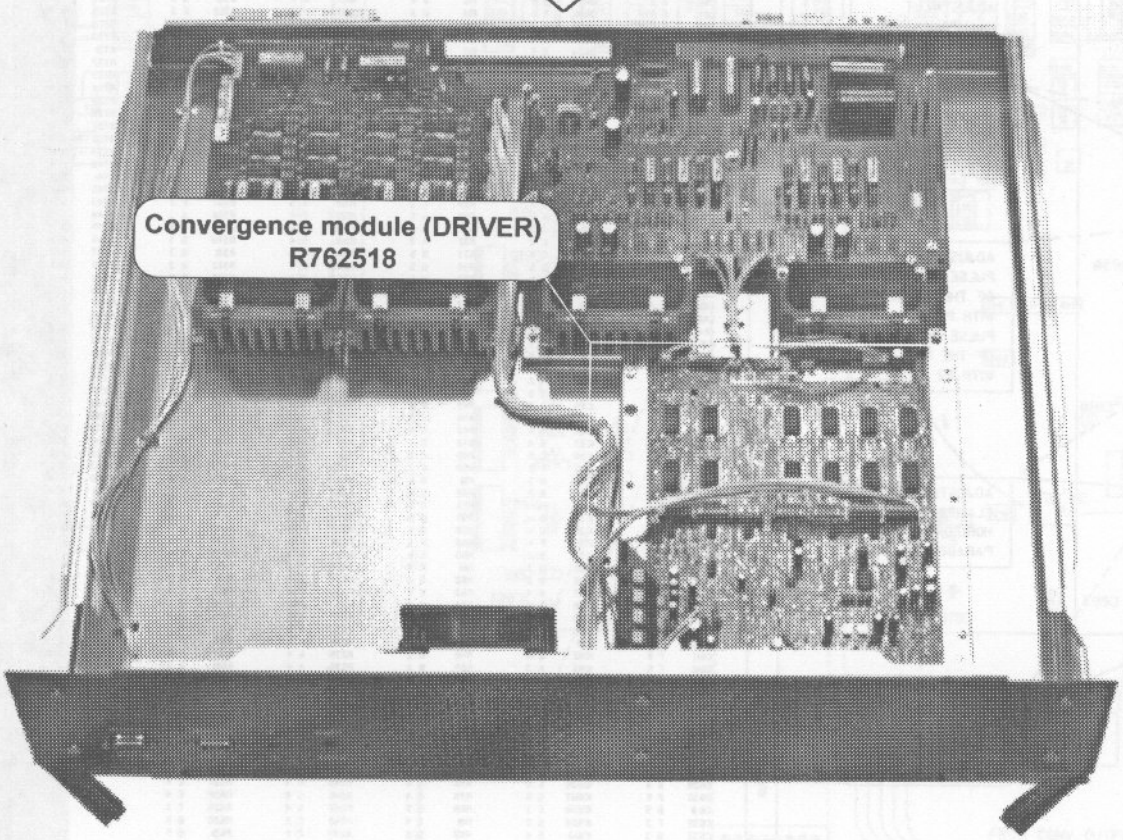
GREEN Convergence module

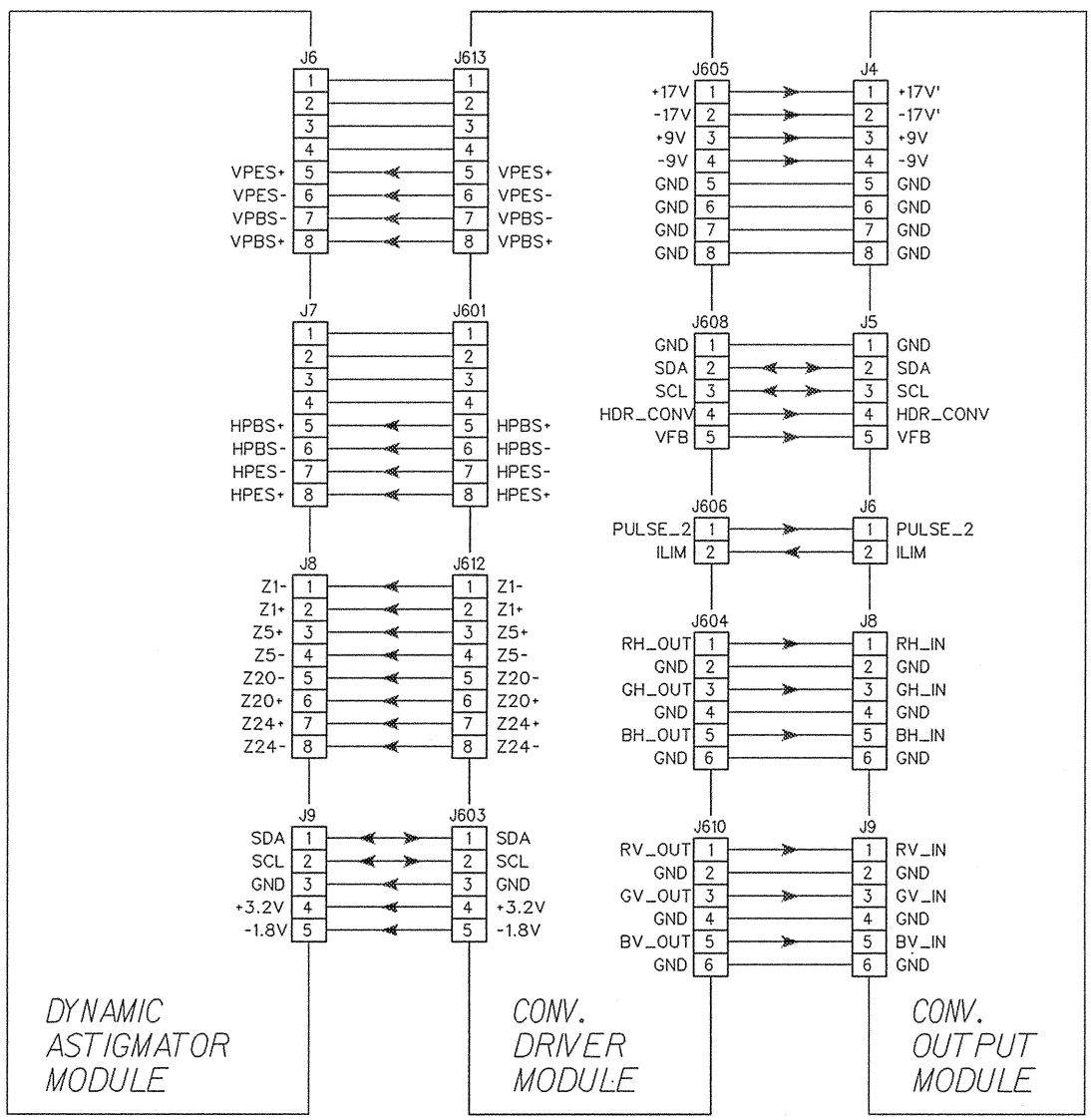
R762518

R7625128



BG808





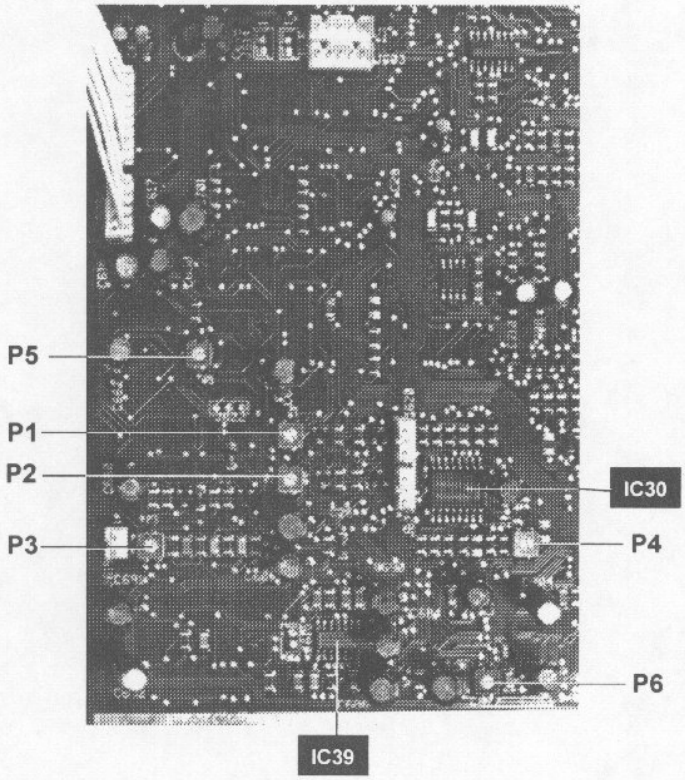
Name Interconnection		Article nr.
CONVERGENCE DRIVER		76 2518
Date	Drawn	Checked
20-12-1994	JVDY	GM
BARCO PROJECTION SYSTEMS		

SCHEMATIC NAME: cnvdrv.sch SHEET NUMBER: 1 DATE: Dec 21, 1994

Adjustment procedure

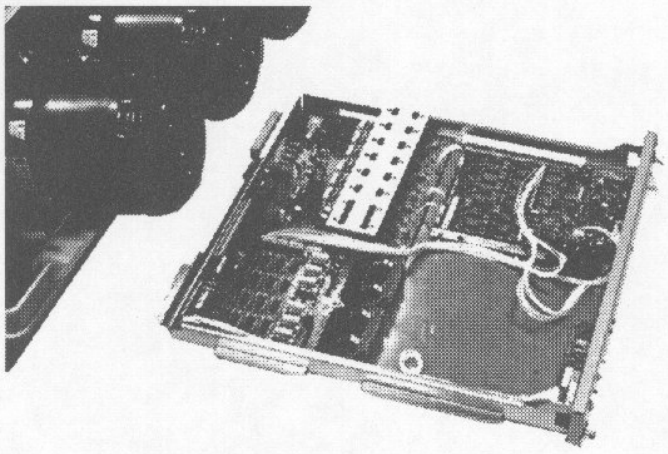
Adjustments

Location of adjustment controls



Preparation

- Remove the unit from the projector housing. Insert the extension board and plug the unit on it. (refer to the sheet 'Service Kit' for installation of it)



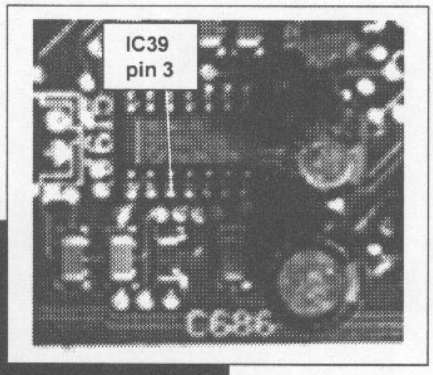
IMPORTANT

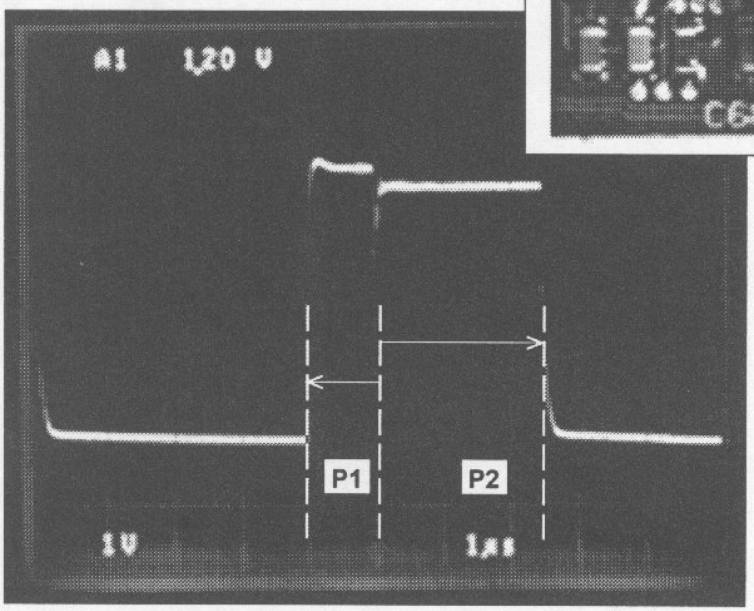
- For all the adjustments on the module, the projector has to operate on a signal with the highest **used** line frequency.

Adjustment

Adjustment of the pulse width PULSE 1 and PULSE 2

- Connect an oscilloscope to the pin 3 of the IC39.
- Adjust the potentiometer P1 for a pulse 1 duration of 1.0us.
- Adjust the potentiometer P2 for a pulse 2 duration of 2.5us.

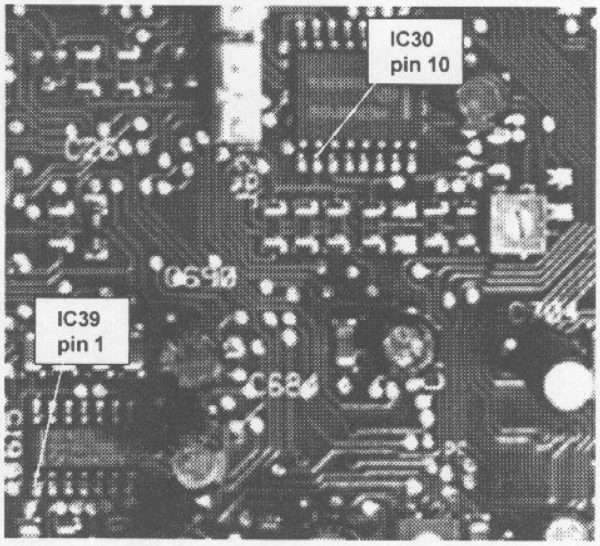




Adjustment of the potentiometers

P3: DC Offset switching level
P4: Hor-Par/Vert-Sawt DC Offset
P5: Clamping level Hor Parabola

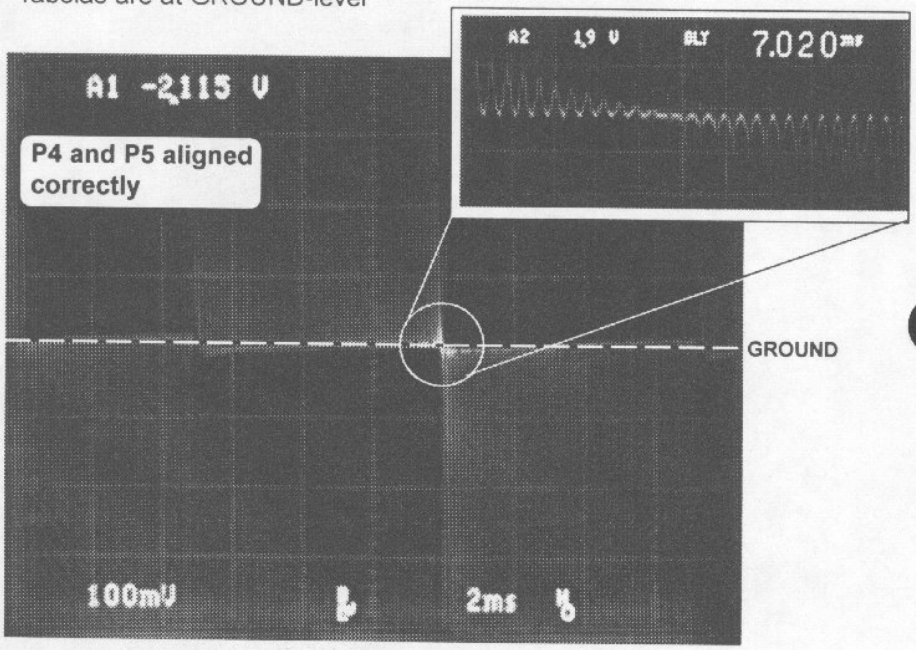
measurement points for the adjustments

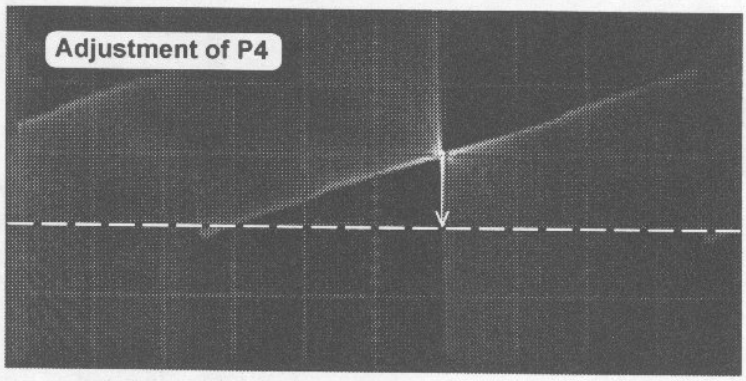


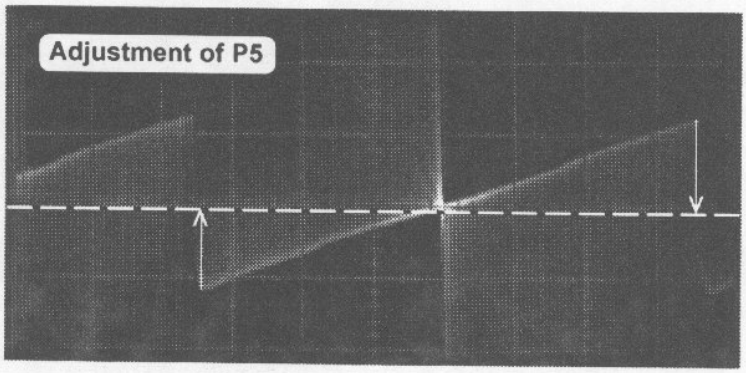
Adjustment of the potentiometer

P4: Hor-Par/Vert-Sawt DC Offset
P5: Clamping level Hor Parabola

- Connect an oscilloscope to the pin 10 of the IC30.
- 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



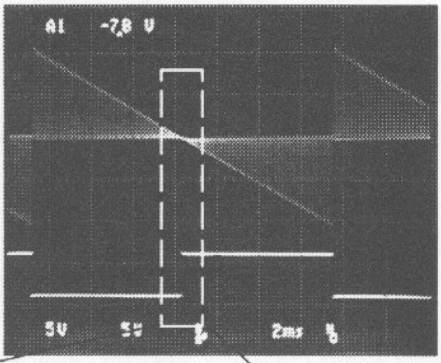


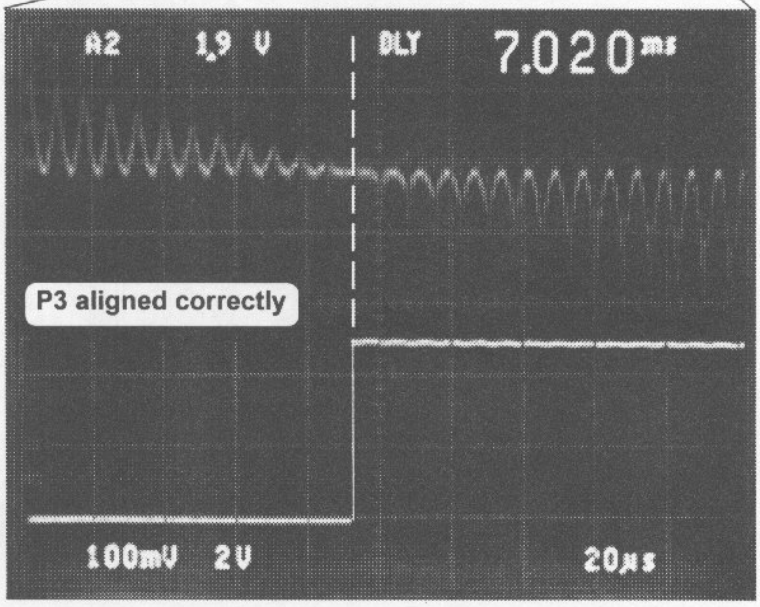


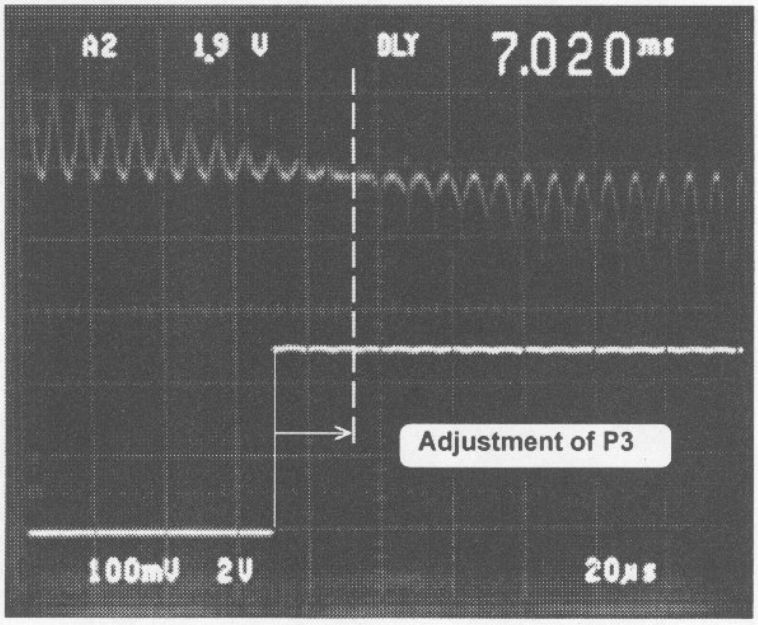
Adjustment of the potentiometers P3: DC Offset switching level

Attention: be sure that the input signal for adjustment operates on the highest <u>used</u> line frequency.

- Connect the second probe of the oscilloscope to the pin 1 of the IC39.
- Adjust the potentiometer P3 until the switching transient matches horizontal parabola inversion point.

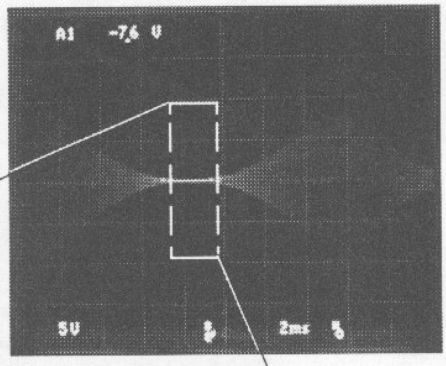


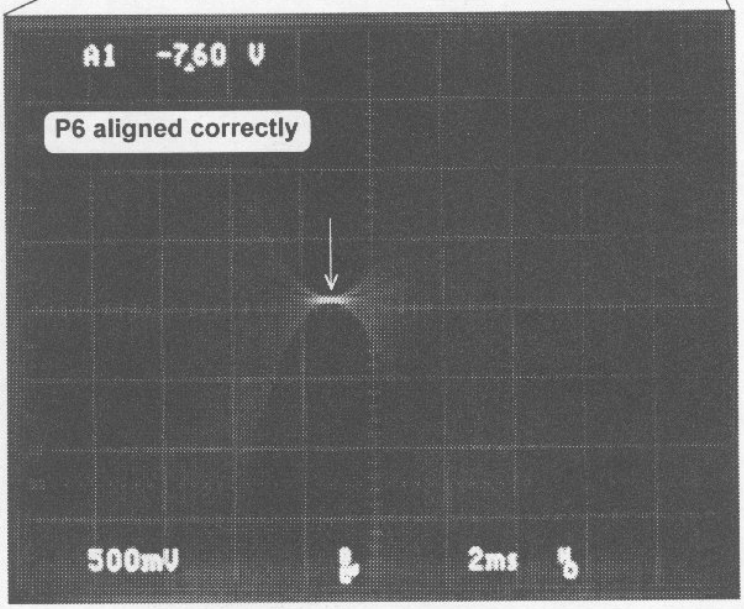


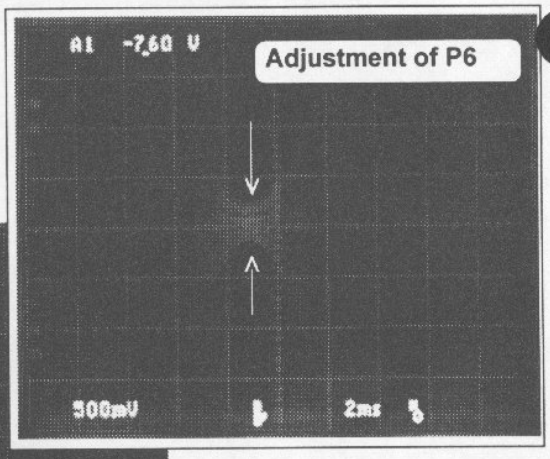


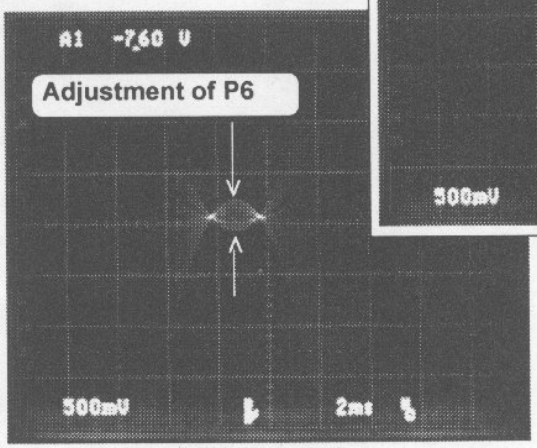
Adjustment of the potentiometer P6: Clamping level Vert Parabola

- Connect the probe of the oscilloscope to the pin 1 of the IC30.
- Adjust the potentiometer P6 for a correct clamping level of the Vertical parabola (see fig below).









Technical description 'CONVERGENCE DRIVER' module R762518

Introduction.

The Surface Mounted Devices (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.

Two trigger pulses are generated to trigger the sawtooth generator and the dynamic boosting up of the power supply of the end stages. The sawtooth waveforms are clamped to ground level during one part of the scanning (left/right or top/bottom) and adjusted in amplitude for a linear correction on the scan for red and blue colour (except when the "convergence on green " option is mounted).

Multipliers produce parabolic waveforms which undergo the same kind of flow for the non linear corrections. A combination of the clamped signals, and a modulation on either a sawtooth or parabola is needed for the corner convergence. All the waveforms for one colour are summed with an OPAMP and amplified by a DC amplifier in the OUTPUT module.

Trigger Pulse generation Pulse 1 and 2

The HDR_CONV is speeded up and inverted with Q603. The negative pulse at the collector triggers at its negative going transient the monoflops IC9 and IC19.

Pulse 1 : (trigger of the sawtooth generator).

The width of the positive output pulse at pin 13 of IC9 is adjusted with P1. The pulse train at the output pin 13 is integrated with R34/C620 and applied to one input (+) of the OPAMP IC15. It is obvious that the voltage across C620 is proportional with the width of the pulse and the line frequency. The output of this OPAMP determines the current of the current source Q9. This current adjusts the width of the pulse at the output pin 7 of IC19. The time constant of this one shot is designed to be a little less than the time period. That time constant needs to be tracked with the line frequency and this is realized as follows. The opposite polarity output pin 7 is integrated by R677 / C663 and applied to the inverting input of the same OPAMP. The pulse at pin 7 *(Pulse 1)* starts consequently just before the end of the scanning and is used to trigger the horizontal sawtooth generator.

Pulse 2 : (dynamic boosting up power supply).

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 2 is also added via D38 to pulse 1.

Horizontal axis convergence :

Horizontal sawtooth generator. (Sheet 1)

C602 is charged up by the current source Q2. In order to stabilize the amplitude, irrelevant the line frequency, the charging current is tracked with the line frequency as follows. The sawtooth is buffered and an average value of the amplitude is obtained by integration with IC3 / C7 . The resulting output voltage adjusts the charging current of the current source Q2. The amplitude is set by the voltage at the other input of the OPAMP, thus by R2 / R602.
The sawtooth is inhibited by the clamper Q22 when the current consumption of the power end amplifiers is too big (see Power Output stages).
OPAMP IC3 (5-6-7) amplifies the sawtooth in order to supply IC4, IC16 and the multiplier IC20.

Preparation of the waveforms .

The voltage comparator IC16 (5-6-7) transforms the sawtooth into a squared Horizontal 'Switch Pulse' of 24 V_{pp} (+ / - 12V). This switch signal is used to clamp either the sawtooth or the parabola during the first or second half of the horizontal scanning. Note that the clipping level is variable with the voltage that drives the current source of the sawtooth generator. The multiplier IC20 (AD633) generates a horizontal parabola **HP+** .
The next OPAMP shifts the DC level by clamping the middle of the parabola to a voltage adjusted by P5 (approx. 0 volts) in order to compensate the tolerances of the multiplier.
The convergence at horizontal frequency with the ramp and parabola waveforms in the zones 11 - 14 are adjusted in IC1-IC2-IC601-IC602.
The waveforms are each time clamped with a clamping transistor served by the horizontal switch pulse. Two opposite phased waveform are each time applied to the potentiometers in the Bella's (digital potentiometer or D/A convertors).

Vertical axis convergence

The vertical sawtooth generator is generated in a similar way as the horizontal sawtooth generator, discussed above. The much lower frequencies here allow the use of the MUXDMUX IC46 (4053) in stead of the clampers.
The "Vertical Switch Pulse" is passed through the RS flip-flop IC39 which is clocked with the pulse 1 in order to make the transition coincide with the trigger or the start of the horizontal sawtooth. This avoids a jitter for interlaced signals.

North-South / East-West and Midline corrections.

For these corrections we need horizontal waveforms with an amplitude depending on the vertical position or vertical scanning. The horizontal waveforms must be modulated on a vertical sawtooth or parabola. This modulation is performed by IC29 (MLT04). The four different waveforms are all applied to the "X" and "Y" inputs and the modulated waveforms are the "W1 - W4" pins.
The corrections , called *GEOMETRY* corrections, are added to the *CORNER* and *AXIS* corrections in the "*Summing Amplifiers*".

East - West corrections :

Two kind of corrections (referred to as "skew" and "bow") are required to correct the projection angle and aberrations of the optical system.

The HSVS (**H**orizontal **S**awtooth modulated on a **V**ertical **S**awtooth) and HSVP are used for this purpose.

The HSVS is first amplified with an OPAMP in IC30 and then clamped with Q11 and Q10 which are 'served' with the "R" and "S" switching signals. The *LS+* and *LS-* (Left Skew) and *RS+ / RS-* (Right Skew) are fed to two digital potentiometers in IC13 and the adjusted outputs are sent simultaneously to the three convergence coils.

HSVP is first inverted and amplified and then clamped during the first or second half of the scan. The RB+/- and LB+/- are applied to the digital potentiometers in the same IC13 and the outputs also feed the three convergence coils.

North - South Corrections .

Two type of waveforms are modulated on a vertical sawtooth VS, Horizontal Sawtooth (HS) and Horizontal Parabola (HP).The HSVS from IC29 (sheet 3) is capacitively coupled to the MUX DMUX IC46 (sheet 2) and in stead of clamping, the

signal it is switched with the " vertical switch pulse " for a split of top and bottom. The TK (**T**op **K**eystone) and BK (**B**ottom **K**eystone) signals are adjusted in IC14. Since there is a correction per colour the different outputs of the digital potentiometers are gathered per colour and will be added to the other corrections in the "summing amplifiers".

Midline Corrections.

For the vertical and horizontal midline skew and bow corrections, the non-modulated waveforms HP- / + , HS+ / - are adjusted in amplitude with IC42 and simultaneously applied to the vertical and horizontal convergence coils of the three crt's.

Corner convergence.

The four corners are further divided (split) into 4 zones. The generation of the convergence signals for the corners is similar for these four corners. The only difference is the clamping or switching period. A split top / bottom is realised with a MUXDMUX switcher and a left / right split with fast switching clamping transistors. We limit the explanation to one corner and one zone **(Zone 1)** .
Zone 1 is the cross section of the extreme left vertical axis and the extreme top horizontal axis. We need to start with a Horizontal Parabola (=extreme left vertical axis) modulated on Vertical Parabola (= extreme top horizontal axis). This signal is called *HPVP'* in sheet 5. The clamping transistor Q16 clamps this signal during the second half of the horizontal scan and then the signal is called *Z1+Z20*. This signal is now split into top / bottom (Z1 and Z20) by the MUXDMUX IC12 (see sheet 4). Z1 and Z20 are now prepared for the digital potentiometer IC35 by the buffer - OPAMP IC37 to get *Z1+* and *Z1-* (same signal with opposite polarity). These signals are then adjusted in IC35 and used for red and blue. The outputs are added in the summing amplifier to the rest of the corrections. (*Geometry* and *Axis*).

Summing amplifiers.

All the corrections for the horizontal convergence coils are added per colour and amplified with an MC34081. These OPAMP's are supplied with + / - 12V and since the non-inverting input is at ground level, the average output of these OPAMPs is around zero volts. This is required by the output power amplifiers for a balanced load of the (complementary) output stage.

Parts listing Convergence module (Driver) 76 2518

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
100	R133074	Q ACC ISO SIL600 W 30	0.06
	R3481082	WU JUMP 0.51 22.5 ISO	1
110	R3631059	SCR D933 M 3 X 8 XIC	3
150	R3631059	SCR D933 M 3 X 8 XIC	2
130	R802686	Q ACC SPG 1XM3	1
120	R802687	Q ACC SPG 3XM3	1
140	R805954	FRM PJ56 G802 HTSNK	1
C 1	P210102	C# COG MU 470P J 50 1206	1
C 2	P210122	C# X7R MU 100N K 50 1206	1
C 3	P210122	C# X7R MU 100N K 50 1206	1
C 4	P210137	C# COG MU 100P J 50 1206	1
C 5	P210122	C# X7R MU 100N K 50 1206	1
C 6	P210122	C# X7R MU 100N K 50 1206	1
C 7	P210095	C# X7R MU 330N M 50 1812	1
C 8	P210122	C# X7R MU 100N K 50 1206	1
C 9	P210122	C# X7R MU 100N K 50 1206	1
C 10	P210122	C# X7R MU 100N K 50 1206	1
C 11	P210122	C# X7R MU 100N K 50 1206	1
C 12	P210095	C# X7R MU 330N M 50 1812	1
C 13	P210122	C# X7R MU 100N K 50 1206	1
C 14	P210122	C# X7R MU 100N K 50 1206	1
C 15	P210122	C# X7R MU 100N K 50 1206	1
C 16	P210092	C# X7R MU 10N K 50 1206	1
C 17	P210122	C# X7R MU 100N K 50 1206	1
C 18	P210122	C# X7R MU 100N K 50 1206	1
C 19	P210122	C# X7R MU 100N K 50 1206	1
C 20	P210010	C# COG MU 68P J 50 1206	1
C 21	P210081	C# COG MU 180P K 50 0805	1
C 22	P210122	C# X7R MU 100N K 50 1206	1
C 23	P210122	C# X7R MU 100N K 50 1206	1
C 24	P210122	C# X7R MU 100N K 50 1206	1
C 25	P210122	C# X7R MU 100N K 50 1206	1
C 26	R111466	C EL RA 100M Z 16E2 85	1
C 27	P210122	C# X7R MU 100N K 50 1206	1
C 28	R1115915	C EL5 RA 4M7M 35E2 85	1
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C 38	P210122	C# X7R MU 100N K 50 1206	1
C 39	P210122	C# X7R MU 100N K 50 1206	1
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C 41	P210097	C# X7R MU 33N K 50 1206	1
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C 46	P210122	C# X7R MU 100N K 50 1206	1
C 47	P210140	C# X7R MU 4N7K 50 1206	1
C 48	P210122	C# X7R MU 100N K 50 1206	1
C 49	P210122	C# X7R MU 100N K 50 1206	1
C 50	P210122	C# X7R MU 100N K 50 1206	1
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C 52	P210122	C# X7R MU 100N K 50 1206	1
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C 54	P210165	C# COG MU 39P J 50 1206	1
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C 70	P210122	C# X7R MU 100N K 50 1206	1
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C115	P210018	C# COG MU 33P J 50 0805	1
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C117	P210137	C# COG MU 100P J 50 1206	1
C118	P210137	C# COG MU 100P J 50 1206	1
C123	P210122	C# X7R MU 100N K 50 1206	1
C124	P210115	C# COG MU 6P8D 50 0805	1
C125	P210158	C# COG MU 150P J 50 1206	1
C126	P210161	C# COG MU 120P J 50 1206	1
C127	P210026	C# COG MU 680P J 50 1206	1

Convergence module (DRIVER)

GREEN Convergence module

R762518

R7625128

C128	P210026	C# COG MU 680P J 50 1206	1	C688	P210122	C# X7R MU 100N K 50 1206	1
C601	R111531	C EL RA 10M M 35E2 85	1	C690	R111531	C EL RA 10M M 35E2 85	1
C602	P210150	C# X7R MU 3N3K 50 1206	1	C691	R111531	C EL RA 10M M 35E2 85	1
C603	P210122	C# X7R MU 100N K 50 1206	1	C692	R111531	C EL RA 10M M 35E2 85	1
C604	P210121	C# COG MU 330P J 50 1206	1	C693	P210122	C# X7R MU 100N K 50 1206	1
C605	P210169	C# X7R MU 220N K 50 1210	1	C694	P210122	C# X7R MU 100N K 50 1206	1
C606	P210122	C# X7R MU 100N K 50 1206	1	C695	P210122	C# X7R MU 100N K 50 1206	1
C607	P210121	C# COG MU 330P J 50 1206	1	C699	P210122	C# X7R MU 100N K 50 1206	1
C608	P210122	C# X7R MU 100N K 50 1206	1	C700	P210122	C# X7R MU 100N K 50 1206	1
C609	P210122	C# X7R MU 100N K 50 1206	1	C701	R111466	C EL RA 100M Z 16E2 85	1
C611	P210122	C# X7R MU 100N K 50 1206	1	C702	P210121	C# COG MU 330P J 50 1206	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	R111500	C EL RA 47M M 10E2 85	1
C617	R111531	C EL RA 10M M 35E2 85	1	C709	P210122	C# X7R MU 100N K 50 1206	1
C618	R111531	C EL RA 10M M 35E2 85	1	C710	R111500	C EL RA 47M M 10E2 85	1
C619	P210121	C# COG MU 330P J 50 1206	1	C711	R111466	C EL RA 100M Z 16E2 85	1
C620	P210122	C# X7R MU 100N K 50 1206	1	C712	P210100	C# COG MU 47P J 50 1206	1
C621	R111546	C EL RA 1M M 50E2 85	1	C713	P210100	C# COG MU 47P J 50 1206	1
C622	R1115915	C EL5 RA 4M7M 35E2 85	1	C714	P210170	C# COG MU 56P J 50 1206	1
C623	R1115915	C EL5 RA 4M7M 35E2 85	1	C715	P210010	C# COG MU 68P J 50 1206	1
C624	R111546	C EL RA 1M M 50E2 85	1	C752	P210122	C# X7R MU 100N K 50 1206	1
C625	R111546	C EL RA 1M M 50E2 85	1	C753	P210122	C# X7R MU 100N K 50 1206	1
C629	R111546	C EL RA 1M M 50E2 85	1				
C630	R111531	C EL RA 10M M 35E2 85	1	D 1	P234099	D#4148 R DMMELF	1
C631	P210122	C# X7R MU 100N K 50 1206	1	D 2	P234055	D#BAT54 SCH SOT23	1
C632	P210122	C# X7R MU 100N K 50 1206	1	D 3	P234055	D#BAT54 SCH SOT23	1
C633	P210122	C# X7R MU 100N K 50 1206	1	D 4	P234055	D#BAT54 SCH SOT23	1
C634	R111546	C EL RA 1M M 50E2 85	1	D 5	P234055	D#BAT54 SCH SOT23	1
C636	R111531	C EL RA 10M M 35E2 85	1	D 6	P234055	D#BAT54 SCH SOT23	1
C637	P210122	C# X7R MU 100N K 50 1206	1	D 7	P234055	D#BAT54 SCH SOT23	1
C638	P210122	C# X7R MU 100N K 50 1206	1	D 8	P234055	D#BAT54 SCH SOT23	1
C639	P210122	C# X7R MU 100N K 50 1206	1	D 9	P234099	D#4148 R DMMELF	1
C640	P210122	C# X7R MU 100N K 50 1206	1	D 11	P234055	D#BAT54 SCH SOT23	1
C641	P210122	C# X7R MU 100N K 50 1206	1	D 20	P234055	D#BAT54 SCH SOT23	1
C642	R111479	C EL RA 470M Z 25E2 85	1	D 25	P234055	D#BAT54 SCH SOT23	1
C643	R111479	C EL RA 470M Z 25E2 85	1	D 26	P234055	D#BAT54 SCH SOT23	1
C644	P210122	C# X7R MU 100N K 50 1206	1	D 27	P234055	D#BAT54 SCH SOT23	1
C645	R111531	C EL RA 10M M 35E2 85	1	D 28	P234055	D#BAT54 SCH SOT23	1
C649	P210122	C# X7R MU 100N K 50 1206	1	D 29	P234055	D#BAT54 SCH SOT23	1
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C655	P210122	C# X7R MU 100N K 50 1206	1	D 38	P234055	D#BAT54 SCH SOT23	1
C659	R111531	C EL RA 10M M 35E2 85	1	D 39	P234055	D#BAT54 SCH SOT23	1
C660	P210122	C# X7R MU 100N K 50 1206	1	D 40	P234099	D#4148 R DMMELF	1
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C662	R111546	C EL RA 1M M 50E2 85	1	D 42	P234099	D#4148 R DMMELF	1
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C668	P210165	C# COG MU 39P J 50 1206	1	D604	P234055	D#BAT54 SCH SOT23	1
C671	P210122	C# X7R MU 100N K 50 1206	1				
C672	P210122	C# X7R MU 100N K 50 1206	1	I 1	P230653	U#76013 SC SOL28 P	1
C674	P210122	C# X7R MU 100N K 50 1206	1	I 2	P230653	U#76013 SC SOL28 P	1
C675	P210122	C# X7R MU 100N K 50 1206	1	I 3	P230705	U#34084 MC SOL16 P	1
C677	R111466	C EL RA 100M Z 16E2 85	1	I 4	P230203	U#084 TL SO14 P	1
C678	P210165	C# COG MU 39P J 50 1206	1	I 5	P230453	U#34081 MC SO8 P	1
C679	P210153	C# Z5U MU 1M M 63 1812	1	I 6	P230653	U#76013 SC SOL28 P	1
C680	P210122	C# X7R MU 100N K 50 1206	1	I 7	P230653	U#76013 SC SOL28 P	1
C681	P210122	C# X7R MU 100N K 50 1206	1	I 8	P230203	U#084 TL SO14 P	1
C684	R111531	C EL RA 10M M 35E2 85	1	I 9	P230073	U#74HCT123 SO16 I	1
C686	R111466	C EL RA 100M Z 16E2 85	1	I 10	P230453	U#34081 MC SO8 P	1
C687	P210122	C# X7R MU 100N K 50 1206	1	I 11	P230203	U#084 TL SO14 P	1

Convergence module (DRIVER)

GREEN Convergence module

R762518

R7625128

I 12	P230030	U#4053 SO16 I	1
I 14	P230653	U#76013 SC SOL28 P	1
I 15	P230293	U#082 TL SO8 P	1
I 16	P230028	U#393 LM SO8 P	1
I 17	P230203	U#084 TL SO14 P	1
I 18	P230453	U#34081 MC SO8 P	1
I 19	P230451	U#4098 HCF SO16 I	1
I 20	P230776	U#633 AD SO8 P	1
I 21	P230653	U#76013 SC SOL28 P	1
I 22	P230653	U#76013 SC SOL28 P	1
I 23	P230203	U#084 TL SO14 P	1
I 24	P230030	U#4053 SO16 I	1
I 25	P230453	U#34081 MC SO8 P	1
I 26	P230653	U#76013 SC SOL28 P	1
I 27	P230653	U#76013 SC SOL28 P	1
I 28	P230203	U#084 TL SO14 P	1
I 29	P230912	U#04 MLT SOL18 I	1
I 30	P230705	U#34084 MC SOL16 P	1
I 32	P230293	U#082 TL SO8 P	1
I 33	P230453	U#34081 MC SO8 P	1
I 35	P230653	U#76013 SC SOL28 P	1
I 36	P230653	U#76013 SC SOL28 P	1
I 37	P230203	U#084 TL SO14 P	1
I 38	P230776	U#633 AD SO8 P	1
I 39	P230034	U#4013 SO14 I	1
I 40	P230453	U#34081 MC SO8 P	1
I 41	P230203	U#084 TL SO14 P	1
I 42	P230653	U#76013 SC SOL28 P	1
I 43	P230653	U#76013 SC SOL28 P	1
I 44	P230653	U#76013 SC SOL28 P	1
I 45	P230203	U#084 TL SO14 P	1
I 46	P230030	U#4053 SO16 I	1
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I602	P230653	U#76013 SC SOL28 P	1
I603	P230203	U#084 TL SO14 P	1
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I605	R134016	U 7912 TO220 P	1
I606	R134026	U 317T TO220 P	1
I607	R134027	U 337T TO220 P	1
I608	P230653	U#76013 SC SOL28 P	1
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I610	P230203	U#084 TL SO14 P	1
I611	R134035	U 79L05 TO92 P	1
I612	R134032	U 78L05 TO92 P	1
I613	P230203	U#084 TL SO14 P	1
I614	P230203	U#084 TL SO14 P	1
I615	P230653	U#76013 SC SOL28 P	1
I616	P230653	U#76013 SC SOL28 P	1
I617	P230203	U#084 TL SO14 P	1
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I619	P230653	U#76013 SC SOL28 P	1
I620	P230203	U#084 TL SO14 P	1
I621	P230653	U#76013 SC SOL28 P	1
I622	P230653	U#76013 SC SOL28 P	1
I623	P230203	U#084 TL SO14 P	1
I624	P230653	U#76013 SC SOL28 P	1
I625	P230653	U#76013 SC SOL28 P	1
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J620	R313923	J CT H MBT P 3 M2SN	1
J621	R313923	J CT H MBT P 3 M2SN	1
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L602	R774154	CH HOR PJ45 DHR	1
P 1	P201393	R#TCE H 50K M 0W25 S4 TS	1
P 2	P201393	R#TCE H 50K M 0W25 S4 TS	1
P 3	P201393	R#TCE H 50K M 0W25 S4 TS	1
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P 6	P201393	R#TCE H 50K M 0W25 S4 TS	1
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Q 2	P232101	Q#BC859C P SS SOT23	1
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Q 6	P232066	Q#BSR14 N SS SOT23	1
Q 7	P232017	Q#BSR16 P SS SOT23	1
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Q 9	P232101	Q#BC859C P SS SOT23	1
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Q 11	P232004	Q#BC849C N SS SOT23	1
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Q 13	P232079	Q#BSS84 F SS SOT23	1
Q 14	P232101	Q#BC859C P SS SOT23	1
Q 15	P232101	Q#BC859C P SS SOT23	1
Q 16	P232046	Q#BSS123 F SS SOT23	1
Q 17	P232046	Q#BSS123 F SS SOT23	1
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Q 25	P232079	Q#BSS84 F SS SOT23	1
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R 7	P200085	R# CE H 3K3 J 0W12 1206	1
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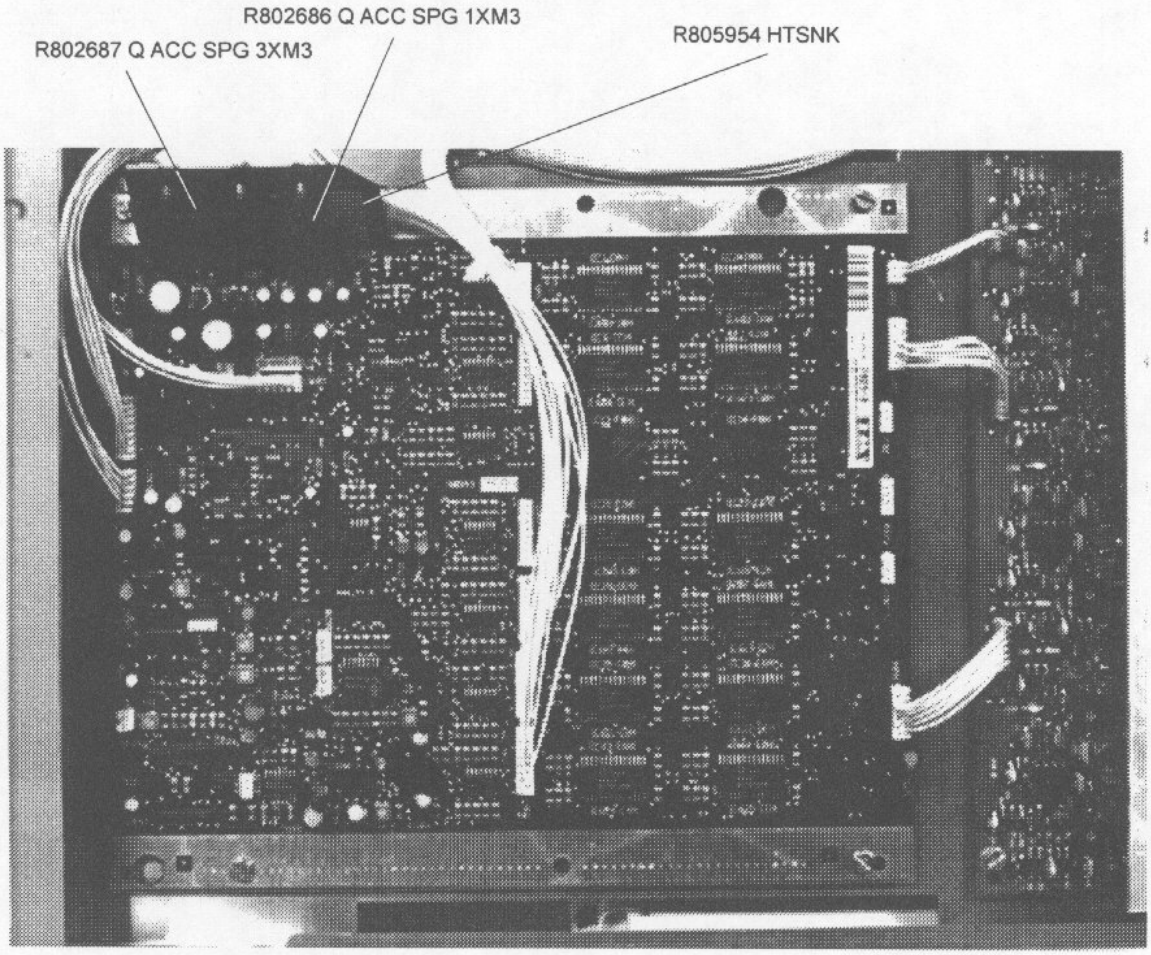
SR 3	R1001909	R CFFV E1 K 0W4 E2	1
SR 4	R1001909	R CFFV E1 K 0W4 E2	1
Z 1	P234127	D#ZEN 5V1 0W5 C DMMELF	1
Z 2	P234127	D#ZEN 5V1 0W5 C DMMELF	1
Z 3	P234018	D#ZEN 6V2 0W5 C DMMELF	1
Z 4	P234184	D#ZEN 7V5 0W5 C DMMELF	1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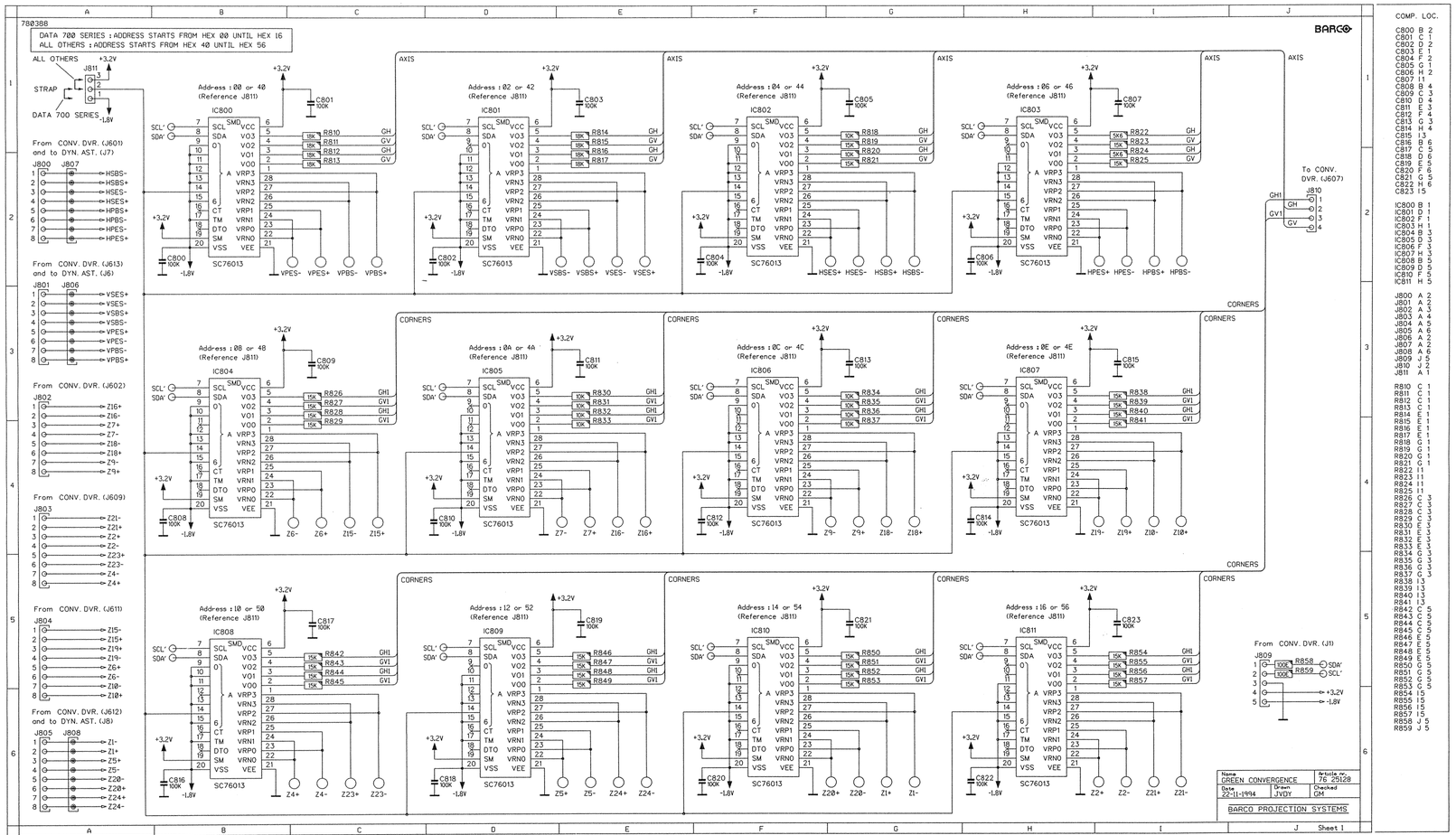

COMP. LOC.

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C802 D 2
C803 E 1
C804 F 2
C805 G 1
C806 H 2
C807 I 1
C808 B 4
C809 C 3
C810 D 4
C811 E 3
C812 F 4
C813 G 3
C814 H 4
C815 I 3
C816 B 6
C817 C 5
C818 D 6
C819 E 5
C820 F 6
C821 G 5
C822 H 6
C823 I 5

IC800 B 1
IC801 D 1
IC802 F 1
IC803 H 1
IC804 B 3
IC805 D 3
IC806 F 3
IC807 H 3
IC808 B 5
IC809 D 5
IC810 F 5
IC811 H 5

J800 A 2
J801 A 2
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J803 A 4
J804 A 5
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J806 A 2
J807 A 2
J808 A 6
J809 J 5
J810 J 2
J811 A 1

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R816 E 1
R817 E 1
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R820 G 1
R821 G 1
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R828 C 3
R829 C 3
R830 E 3
R831 E 3
R832 E 3
R833 E 3
R834 G 3
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R848 E 5
R849 E 5
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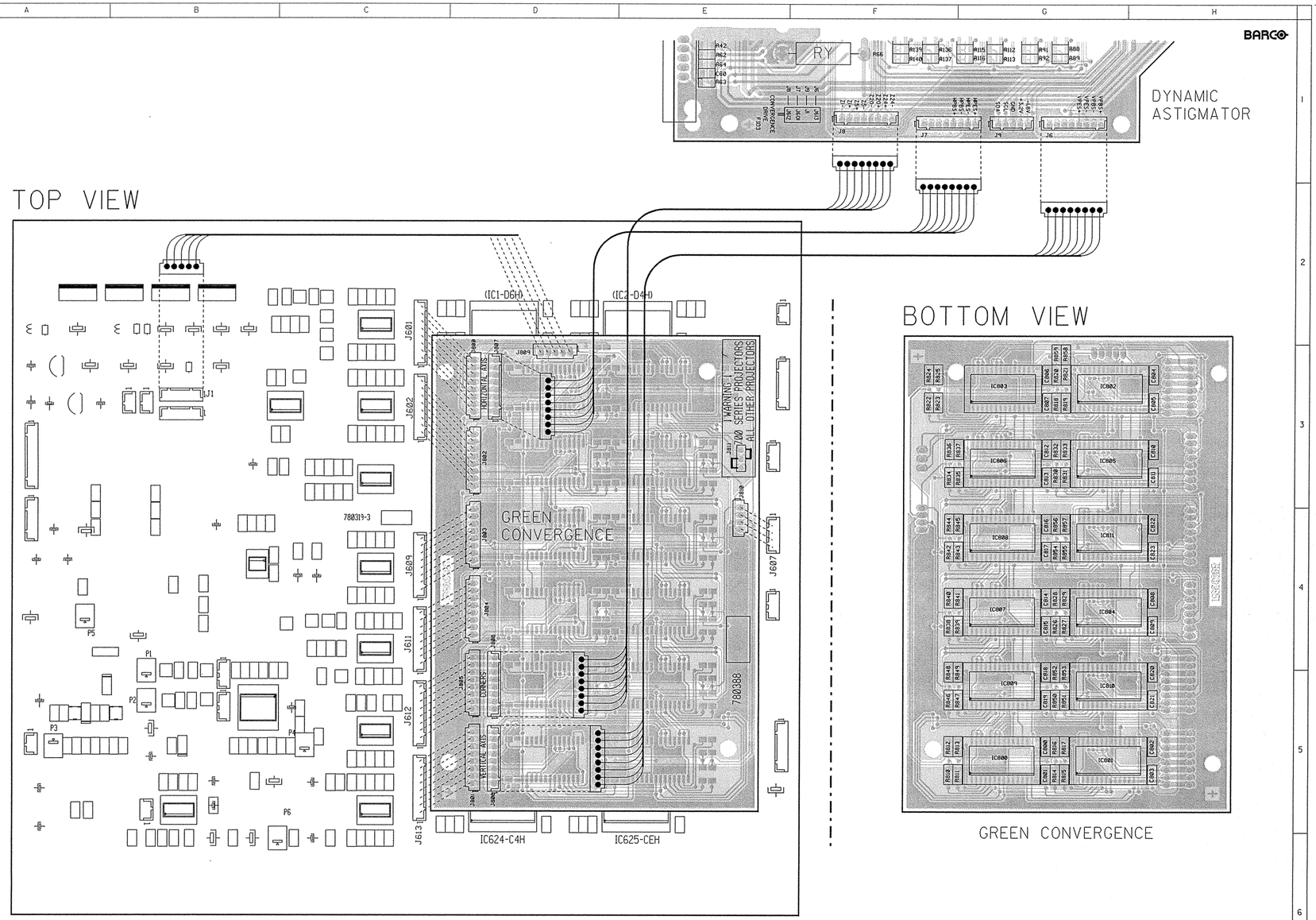
R859 J 5



Name	Article nr.
GREEN CONVERGENCE	76 25128-1
Date: 16-12-1994 / Drawn: JVDY / Checked: GM	
BARCO PROJECTION SYSTEMS	

Modifications reserved

COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C4	C 2	IC605	B 2	R246	C 5
C8	C 3	IC606	B 2	R251	B 5
C11	C 3	IC607	B 2	R262	C 5
C19	C 3	IC610	C 3	R281	C 5
C22	C 3	IC611	A 3	R284	C 5
C26	B 5	IC612	A 3	R286	C 6
C27	A 5	IC613	C 3	R288	B 5
C28	B 3	IC614	C 3	R293	B 5
C29	B 3	IC617	C 4	R294	C 5
C41	A 5	IC620	C 4	R295	B 4
C42	D 5	IC623	C 5	R298	A 4
C43	D 5	IC626	C 5	R299	B 5
C45	C 5	IC800	G 5	R31	E 5
C46	C 5	IC801	G 5	R315	D 5
C49	D 2	IC802	G 3	R320	B 5
C52	C 5	IC803	G 3	R358	C 3
C53	C 6	IC804	G 4	R359	C 3
C57	C 2	IC805	G 3	R383	A 3
C58	C 3	IC806	G 3	R384	A 3
C69	D 2	IC807	G 4	R385	A 4
C71	C 5	IC808	G 4	R386	B 3
C72	B 5	IC809	G 5	R387	B 3
C74	C 5	IC810	G 5	R388	B 4
C86	B 5	IC811	G 4	R603	B 2
C87	C 4			R604	C 2
C88	B 5	J603	B 3	R609	C 2
C91	B 5	J604	E 5	R612	C 2
C92	B 5	J605	A 3	R617	C 2
C105	C 5	J606	E 3	R619	D 2
C107	C 5	J608	A 4	R621	D 2
C111	B 4	J610	E 3	R623	C 2
C112	B 4	J614	B 3	R624	C 3
C113	E 2	J615	B 5	R626	C 3
C114	E 2	J616	B 3	R628	C 3
C117	A 5	J617	E 4	R635	C 3
C118	B 5	J618	E 3	R637	C 3
C119	B 4	J619	A 5	R648	C 3
C120	B 5	J620	B 4	R652	B 3
C121	C 5	J621	B 5	R663	C 3
C122	C 5	J622	A 4	R664	C 3
C601	B 5	J800	D 3	R675	C 3
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C615	B 2	J803	D 4	R681	C 4
C616	B 4	J804	D 4	R682	C 4
C617	A 4	J805	D 5	R684	C 4
C618	A 4	J806	D 5	R694	C 4
C619	C 2	J807	D 3	R697	C 4
C621	A 3	J808	D 4	R698	C 5
C622	A 3	J809	D 3	R700	C 5
C623	A 3	J810	E 3	R711	C 5
C624	B 2	J811	C 3	R714	C 5
C625	B 2			R716	C 5
C629	B 3	L601	A 2	R718	C 5
C630	A 4	L602	B 2	R735	C 5
C634	B 3			R737	C 5
C636	A 3	P1	B 4	R743	C 5
C642	A 2	P2	B 5	R746	C 5
C643	B 3	P3	A 5	R747	D 5
C644	C 4	P4	C 5	R749	C 5
C645	B 3	P5	A 4	R751	C 5
C650	A 5	P6	C 6	R753	D 5
C652	C 4			R801	D 2
C659	C 5	Q3	C 2	R803	E 2
C662	A 4	Q18	C 5	R810	F 5
C677	B 6	Q24	B 5	R811	G 5
C684	B 5	Q25	B 4	R812	F 5
C686	B 6	Q26	B 5	R813	G 5
C690	B 5	Q27	A 5	R814	G 5
C691	A 5	Q602	C 2	R815	G 5
C692	A 6			R816	G 5
C693	B 5	R3	C 2	R817	G 5
CT01	A 4	R7	C 2	R818	G 3
CT03	C 6	R16	C 2	R819	G 3
CT04	C 5	R20	A 5	R820	G 3
CT06	B 5	R21	A 5	R821	G 3
CT08	C 4	R22	A 5	R822	F 3
CT10	C 4	R24	A 5	R823	F 3
CT11	F 5	R26	C 2	R824	F 3
CT12	B 4	R36	C 2	R825	F 3
CT13	B 4	R38	B 2	R826	G 4
CT14	B 3	R39	C 2	R827	G 4
CT15	C 3	R40	C 2	R828	G 4
C800	G 5	R41	A 5	R829	G 4
C801	G 5	R43	A 5	R830	G 3
C802	H 5	R45	C 3	R831	G 3
C803	H 5	R48	C 3	R832	G 3
C804	H 3	R60	C 3	R833	G 3
C805	H 3	R65	C 3	R834	F 3
C806	G 3	R71	B 3	R835	G 3
C807	G 3	R74	B 5	R836	F 3
C808	H 4	R76	B 5	R837	G 3
C809	H 4	R77	C 3	R838	G 4
C810	H 3	R92	C 3	R839	G 4
C811	H 3	R93	C 3	R840	F 4
C812	G 3	R103	B 5	R841	G 4
C813	G 3	R104	B 5	R842	F 4
C814	G 4	R110	C 3	R843	G 4
C815	G 4	R114	C 3	R844	F 4
C816	G 4	R115	A 5	R845	G 4
C817	G 4	R119	C 4	R846	F 5
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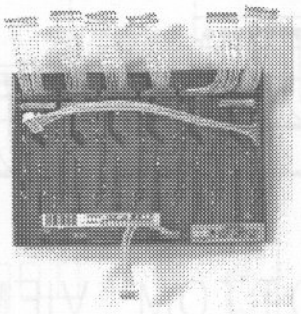
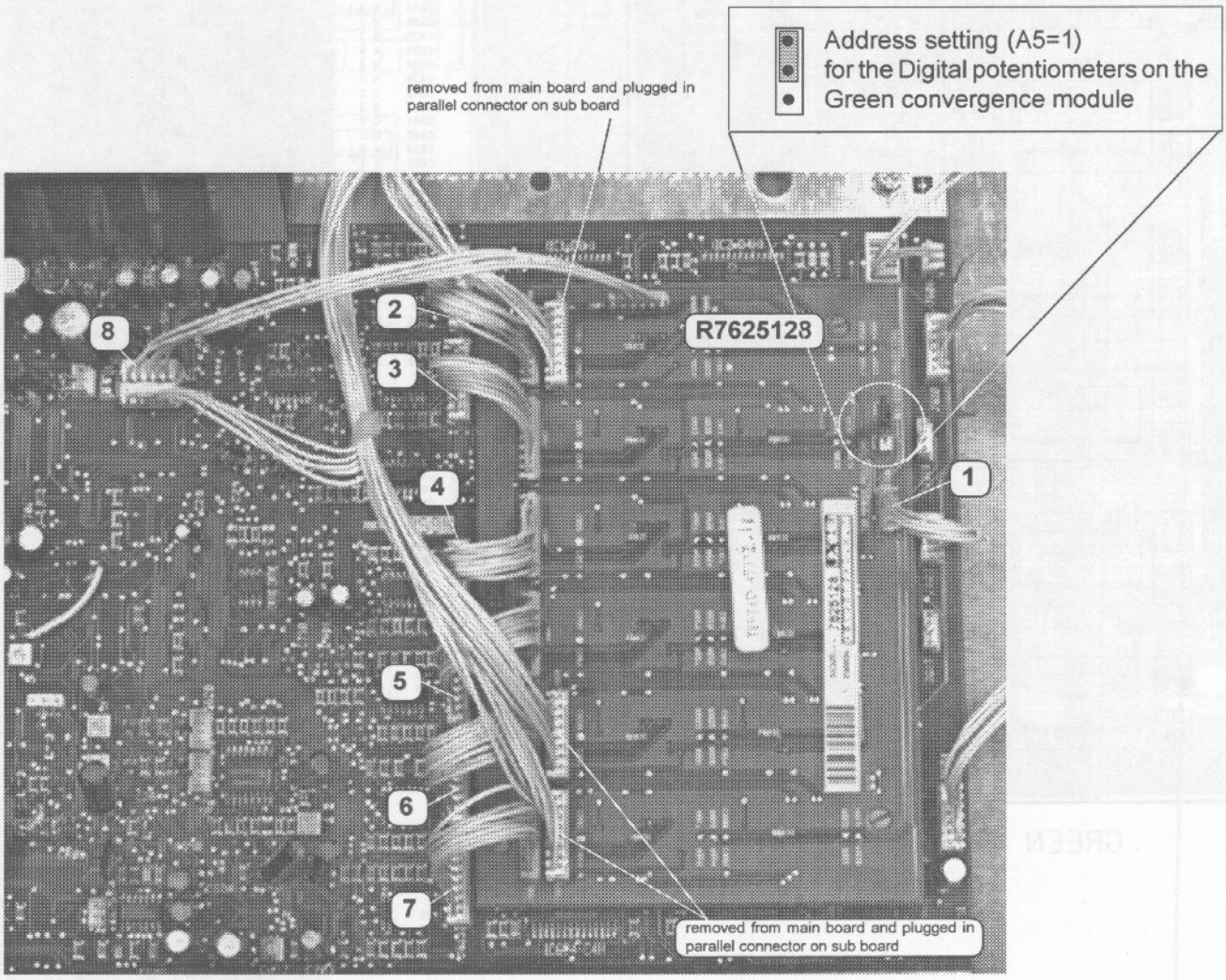
C819	G 5	R128	B 5	R848	F 5
C820	H 5	R136	C 4	R849	G 5
C821	H 5	R138	C 4	R850	G 5
C822	H 4	R140	B 4	R851	G 5
C823	H 4	R141	B 4	R852	G 5
		R162	C 4	R853	G 5
D2	C 2	R163	C 4	R854	G 4
D4	B 5	R178	C 5	R855	G 4
D5	B 5	R180	C 5	R856	G 4
D6	C 3	R182	C 5	R857	G 4
D7	C 3	R183	B 5	R858	G 3
D8	C 4	R184	C 5	R859	G 3
D9	B 5	R191	C 4	R900	B 5
D28	C 4	R192	C 4	R901	B 5
D29	C 4	R199	C 4	R902	B 5
D601	C 2	R203	C 5	R903	B 5
		R204	C 5	R904	B 5
FID1	E 2	R210	A 5	R905	B 5
FID2	E 6	R213	C 4		
FID3	A 6	R214	C 4	SR1	A 2
FID4	E 2	R222	C 5	SR2	B 2
FID5	E 6	R224	C 5	SR3	B 2
FID6	A 6	R229	C 5	SR4	B 3
		R230	C 5		
IC30	B 5	R231	B 5	Z3	B 5
IC32	B 4	R233	B 6	Z4	A 5
IC39	B 5	R238	B 4		
IC601	D 2	R239	B 4		
IC602	E 2	R241	C 4		
IC603	C 2	R242	C 4		
IC604	A 2	R244	C 5		

Mounting guidelines for the GREEN convergence module R7625128

Green convergence module R7625128



Interconnection Green convergence module



Parts listing Green Convergence module R7625128

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1010	R312868	SPR PCB L 6.35 DLCBS	4
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C801	P210122	C# X7R MU 100N K 50 1206	1
C802	P210122	C# X7R MU 100N K 50 1206	1
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C807	P210122	C# X7R MU 100N K 50 1206	1
C808	P210122	C# X7R MU 100N K 50 1206	1
C809	P210122	C# X7R MU 100N K 50 1206	1
C810	P210122	C# X7R MU 100N K 50 1206	1
C811	P210122	C# X7R MU 100N K 50 1206	1
C812	P210122	C# X7R MU 100N K 50 1206	1
C813	P210122	C# X7R MU 100N K 50 1206	1
C814	P210122	C# X7R MU 100N K 50 1206	1
C815	P210122	C# X7R MU 100N K 50 1206	1
C816	P210122	C# X7R MU 100N K 50 1206	1
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C820	P210122	C# X7R MU 100N K 50 1206	1
C821	P210122	C# X7R MU 100N K 50 1206	1
C822	P210122	C# X7R MU 100N K 50 1206	1
C823	P210122	C# X7R MU 100N K 50 1206	1
I800	P230653	U#76013 SC SOL28 P	1
I801	P230653	U#76013 SC SOL28 P	1
I802	P230653	U#76013 SC SOL28 P	1
I803	P230653	U#76013 SC SOL28 P	1
I804	P230653	U#76013 SC SOL28 P	1
I805	P230653	U#76013 SC SOL28 P	1
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I807	P230653	U#76013 SC SOL28 P	1
I808	P230653	U#76013 SC SOL28 P	1
I809	P230653	U#76013 SC SOL28 P	1
I810	P230653	U#76013 SC SOL28 P	1
I811	P230653	U#76013 SC SOL28 P	1
J800	R348408	CD CT FTMT P 8 60	1
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J803	R348408	CD CT FTMT P 8 60	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	1
J807	R313928	J CT H MBT P 8 M2SN	1
J808	R313928	J CT H MBT P 8 M2SN	1
J809	R3485057	CD CT FTMT P 5 130	1
J810	R3484048	CD CT FTMT P 4 60	1
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PC	R780388	PCD#PJ56 G808 CNV GRE	1
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R820	P200097	R# CE H 10K J 0W12 1206	1
R821	P200101	R# CE H 15K J 0W12 1206	1
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R823	P200101	R# CE H 15K J 0W12 1206	1
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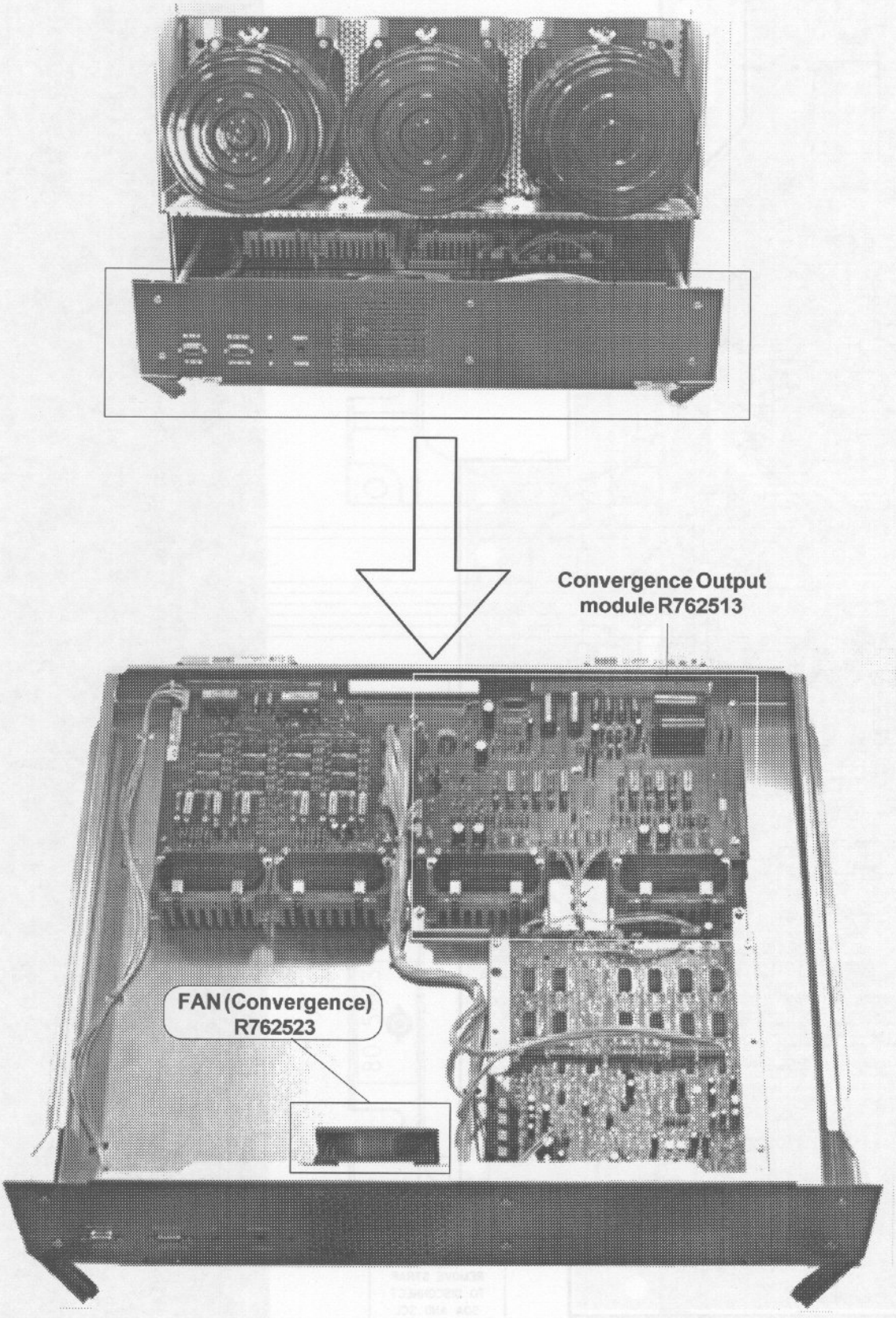
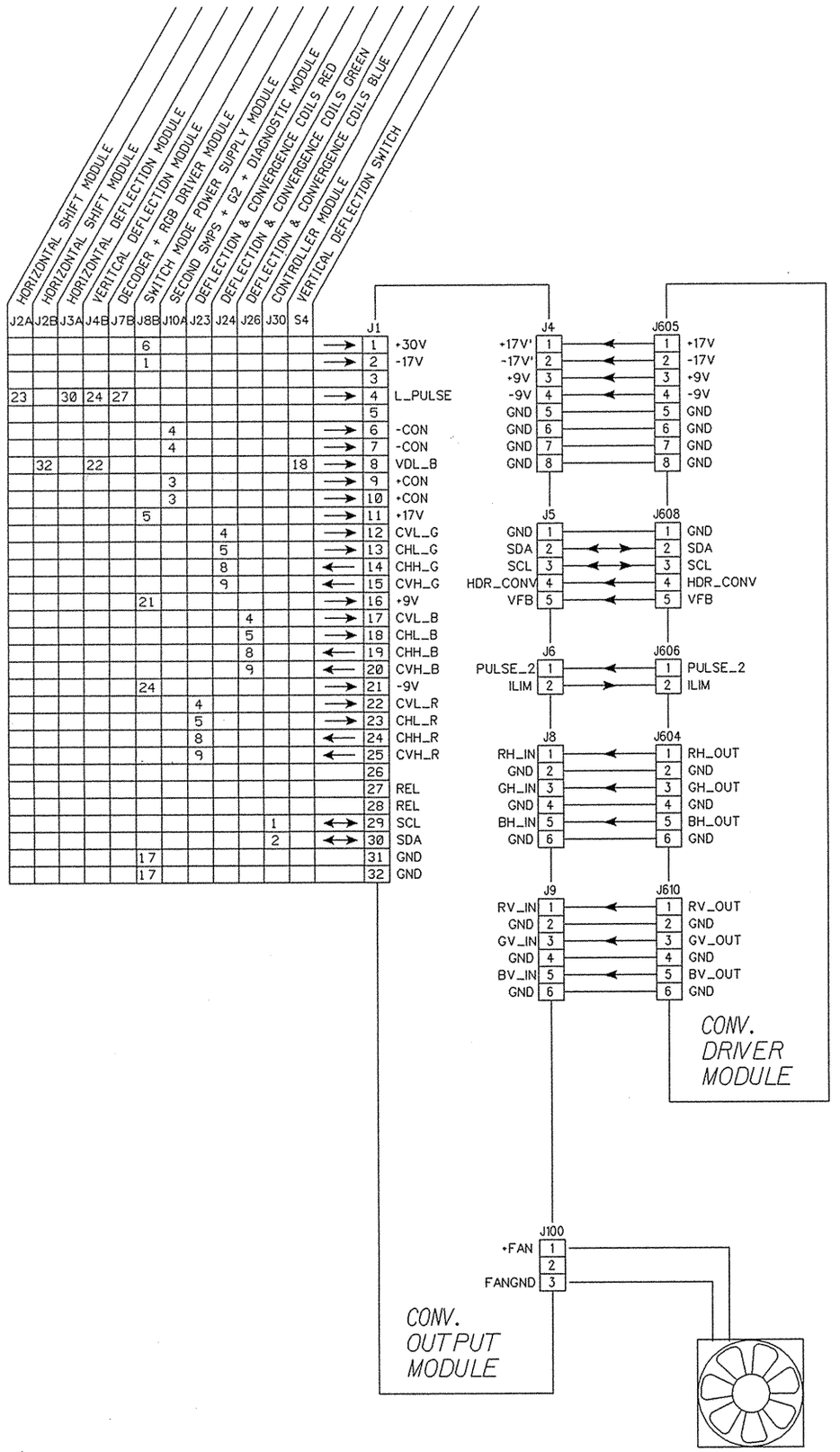
Convergence module (OUTPUT) R762513

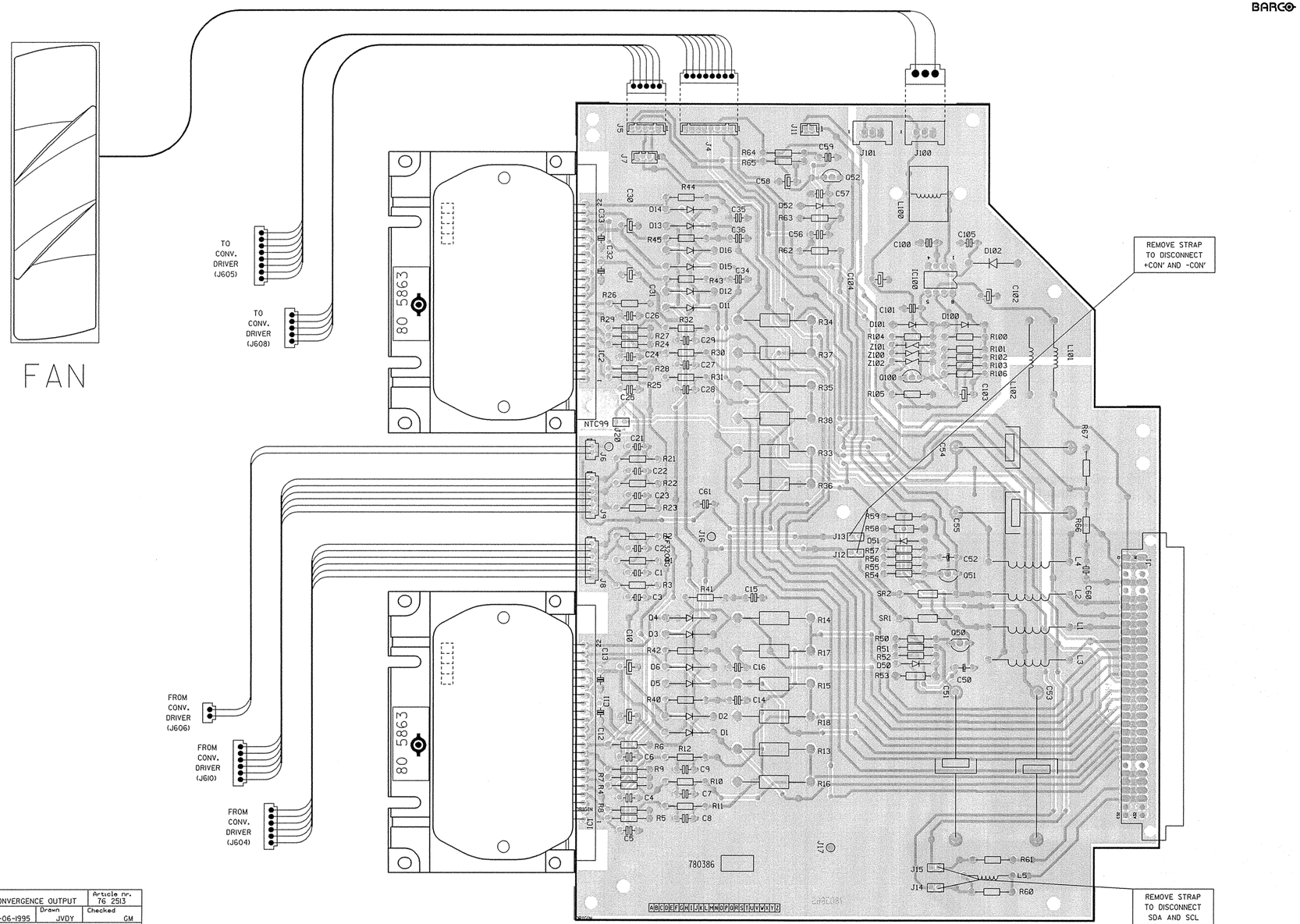




Name Interconnections		Article nr.
CONVERGENCE OUTPUT		76 2513
Date 01-06-1995	Drawn JVDY	Checked GM

BARCO PROJECTION SYSTEMS

SCHEMATIC NAME: convcon.sch SHEET NUMBER: 1 DATE: Jun 28, 1995



Name	Article nr.
CONVERGENCE OUTPUT	76 2513
Date: 01-06-1995 / Drawn: JVDY / Checked: GM	

BARCO PROJECTION SYSTEMS

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C4	E 6	R45	E 2
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C7	E 6	R52	F 5
C8	E 6	R53	F 5
C9	E 5	R54	F 4
C10	D 4	R55	F 4
C11	D 5	R56	F 4
C12	D 5	R57	F 4
C13	D 5	R58	F 4
C14	E 5	R59	F 4
C15	E 4	R60	G 6
C20	E 5	R61	E 2
C21	D 3	R62	E 2
C22	E 4	R63	E 2
C23	E 4	R64	E 2
C24	E 3	R65	E 2
C25	D 3	R66	G 4
C26	E 3	R67	G 3
C27	E 3	R100	G 3
C28	E 3	R101	G 3
C29	E 3	R102	G 3
C30	D 2	R103	G 3
C31	E 2	R104	F 3
C32	D 2	R105	F 3
C33	D 2	R106	G 3
C34	E 2		
C35	E 2	SR1	F 4
C36	E 2	SR2	F 4
C50	F 5		
C51	F 5	Z100	F 3
C52	F 4	Z101	F 3
C53	G 5	Z102	F 3
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C57	F 2		
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D51	F 4		
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J17	F 6		
J20	D 3		
J100	F 2		
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J11	G 4		
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L102	G 3		
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R29	D 3		
R30	E 3		
R31	E 3		
R32	E 3		
R33	F 3		
R34	F 3		
R35	F 3		
R36	F 4		
R37	F 3		
R38	F 3		
R40	E 5		
R41	E 4		

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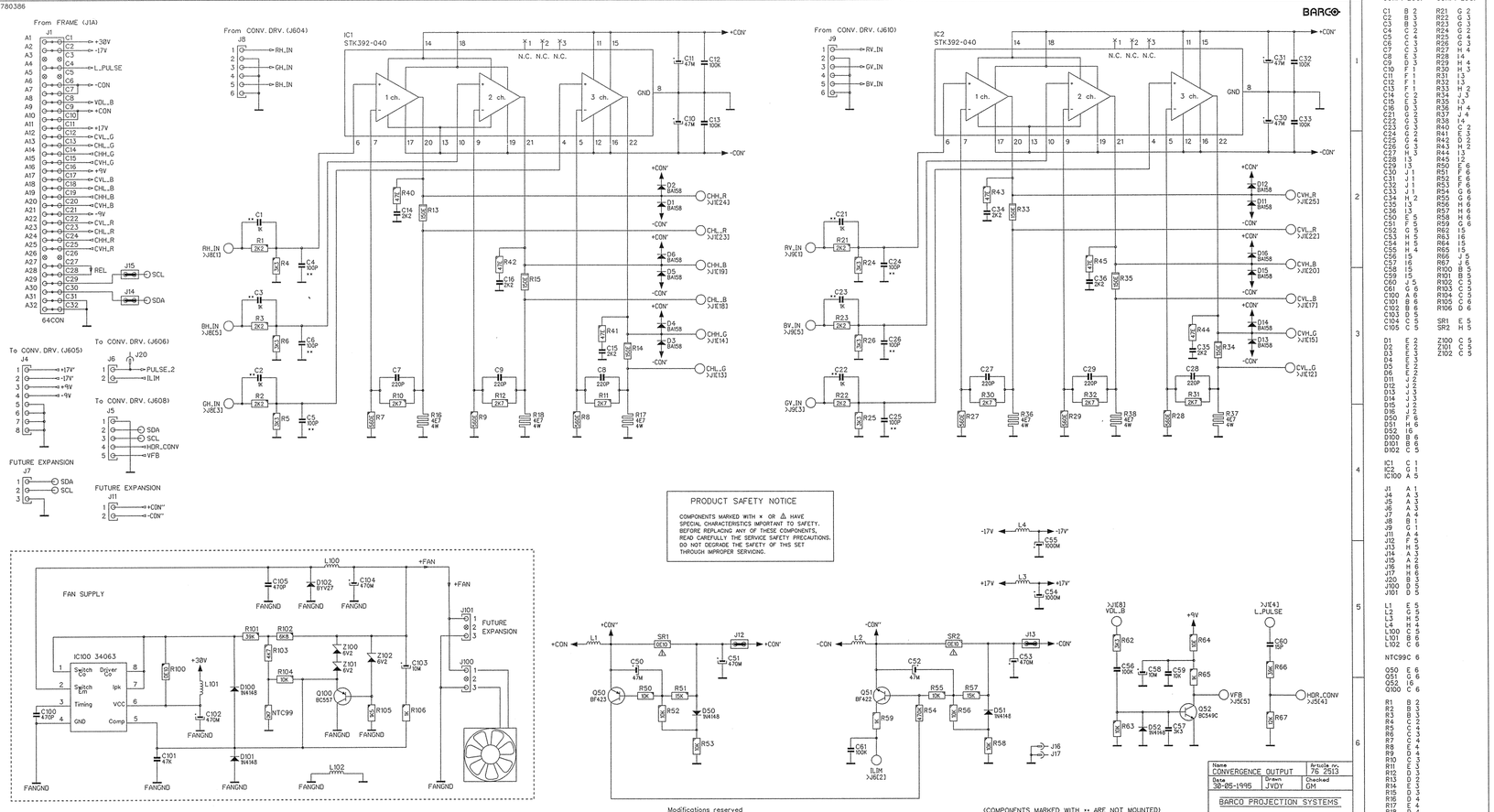

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C5	C 2	R25	G 3
C6	C 1	R26	G 2
C7	C 1	R27	H 4
C8	D 3	R28	H 4
C9	D 3	R29	H 4
C10	F 1	R30	H 3
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C14	C 2	R34	J 3
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C16	D 3	R36	H 4
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C22	G 3	R38	H 4
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C24	G 2	R41	E 2
C25	G 3	R42	D 2
C26	G 2	R43	H 2
C27	G 3	R44	I 3
C28	I 3	R45	I 2
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C30	J 1	R51	F 6
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C34	H 2	R55	G 6
C35	I 3	R56	H 6
C36	I 3	R57	H 6
C50	F 5	R58	H 6
C51	F 5	R59	G 6
C52	G 5	R62	I 5
C53	H 5	R63	I 6
C54	H 5	R64	I 5
C55	H 4	R65	I 5
C56	I 5	R66	J 5
C57	I 6	R67	J 6
C58	I 5	R100	B 5
C59	I 5	R101	B 5
C60	J 5	R102	C 5
C61	G 6	R103	C 5
C100	A 6	R104	C 5
C101	B 6	R105	C 6
C102	B 6	R106	D 6
C103	C 5		
C104	C 5	SR1	E 5
C105	C 5	SR2	H 5
D1	E 2	Z100	C 5
D2	E 2	Z101	C 5
D3	E 3	Z102	C 5
D4	E 3		
D5	E 2		
D6	E 2		
D11	J 2		
D12	J 2		
D13	J 3		
D14	J 3		
D15	J 2		
D16	J 2		
D50	F 6		
D51	H 6		
D52	I 6		
D100	B 6		
D101	B 6		
D102	C 5		
IC1	C 1		
IC2	G 1		
IC100	A 5		
J1	A 1		
J4	A 3		
J5	A 3		
J6	A 3		
J7	A 4		
J8	B 1		
J9	G 1		
J11	A 4		
J12	F 5		
J13	H 5		
J14	A 3		
J15	A 2		
J16	H 6		
J17	H 6		
J20	B 3		
J100	D 5		
J101	D 5		
L1	E 5		
L2	G 5		
L3	H 5		
L4	H 4		
L100	C 5		
L101	B 6		
L102	C 6		
NTC99	C 6		
Q50	E 6		
Q51	G 6		
Q52	I 6		
Q100	C 6		
R1	B 2		
R2	B 3		
R3	B 3		
R4	C 2		
R5	C 2		
R6	C 3		
R7	C 4		
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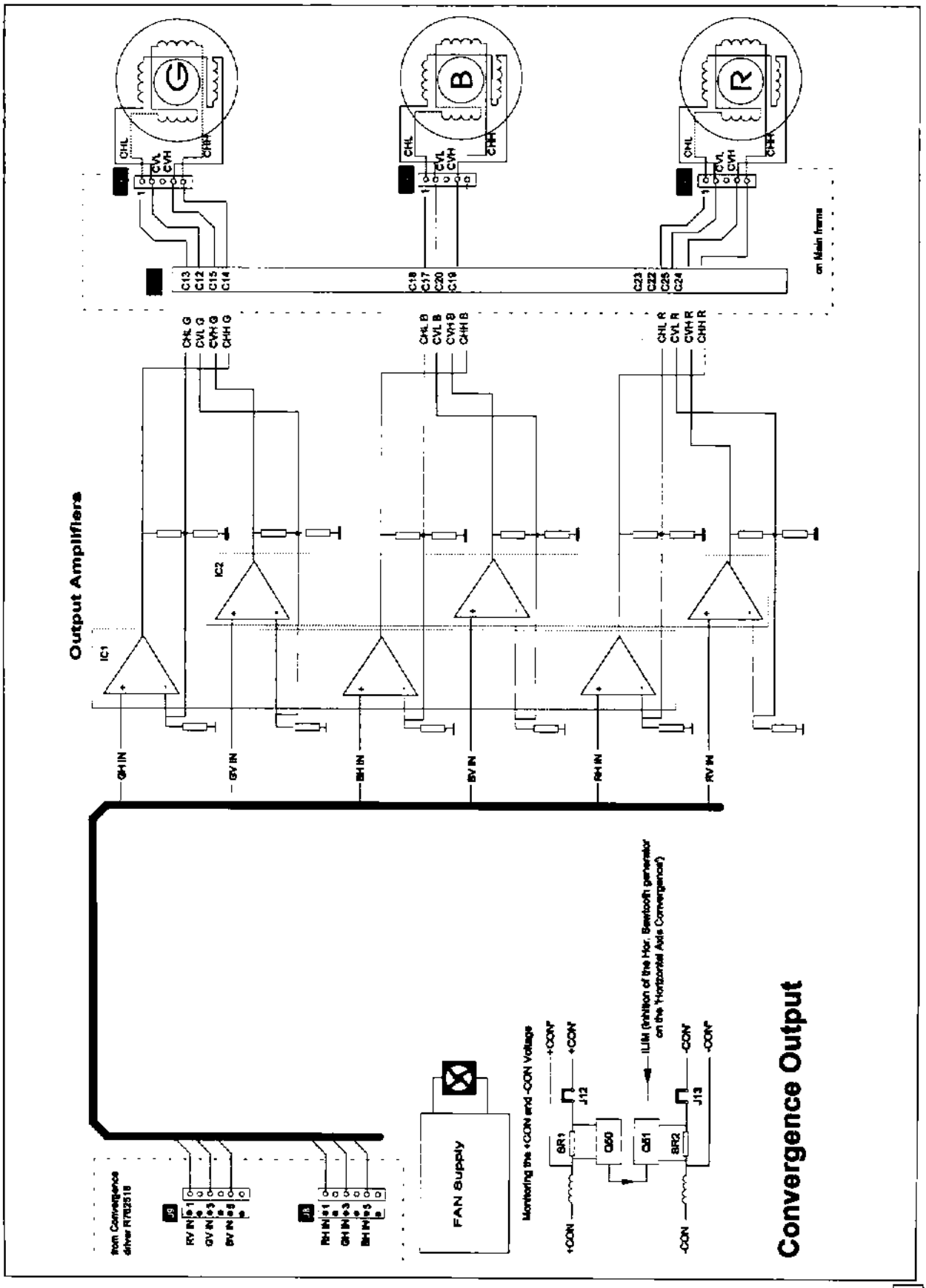
R9	D 4		
R10	C 3		
R11	E 3		
R12	D 3		
R13	D 2		
R14	E 3		
R15	D 3		
R16	D 4		
R17	E 4		
R18	D 4		

SCHEMATIC NAME: 762513.sch SHEET NUMBER: 1 DATE: Jun 28, 1995

Blockdiagram Power output stage convergences



Technical description " CONVERGENCE OUT" 76 2513

The purpose of the power amplifiers is to bring the adjusted signals to a sufficient high level that the convergence coils can be fully driven. Important hereby is that the drift must be kept as low as possible and that the signals must be carried to the coils without using coupling capacitors.
It is obvious that the coils react differently on signals at a high (line) frequency than on low frequency signals. Much more power is required for the high scanning than for the low scanning range. The power supply + / - CONV for these power amplifiers is a variable line frequency tracked voltage delivered by the "G2 + Diagnostic" board.

Six identical amplifiers feed the six convergence coils, two for each picture tube. We 'll discuss only the amplifier served with *"RHin" (Red Horizontal).*

Note that "Horizontal " here relates to the moving direction (of lines of a crosshatch pattern) and not to the "horizontal" frequency. The " RHin " signal contains waveforms at line and vertical frequency.
That' s also the reason why the amplifier stages are identical.

The signal RH IN is passed onto the power amplifier IC1, pin 6. These power amplifiers are fully integrated hybrid amplifiers supplied with +CON' and -CON'.

Each time the output current flows in 150 Ohm damping resistor across the convergence coils and a series feedback resistor of 4.7 Ohm. The voltage developed across this resistor is sent back to the inverting input of the amplifier for stability reasons.

Note that the jumpers J12 and J13 can be removed in order to isolate the power stages of the convergence and thus to investigate whether an excess of load on the supply voltages of the whole convergence board is caused by one of these amplifiers (or caused by another power amplifier of this convergence module).

The current of the +CON' and -CON' is permanently monitored with Q50 and Q51. The current taken from the + CON' develops a voltage across SR1 that is applied to the base of Q50. The current taken from the - CON' does the same for Q51. As soon Q51 is switched on , the *Ilim* turns on Q22 (See sheet 1 of Horizontal Axis CONV) and the sawtooth generator is inhibited.

Parts listing Convergence module (Output) R762513

ITEM NO.	SIT.	DESCRIPTION	
1050	R133039	SPR L 8 D 4 D 1.2 C	28
1030	R3133921	J MD JMP P 1 E1SN	4
1060	R348019	CBLA TIE B L100 W2,5	1
1001	R3631049	SCR D933 M 3 X 6 XIC	4
1011	R3631069	SCR D933 M 3 X 10 XIC	4
1012	R3661026	NUT D934 M 3 I	4
1010	R804525	Q ACC SPG 1X 3.1 SHORT	4
1000	R805863	FRM PJ56 G808 CNV HTSNK 2	2
C 7	R112365	C N750MI 180P G100E2	
C 8	R112365	C N750MI 180P G100E2	
C 9	R112365	C N750MI 180P G100E2	
C 10	R1113889	C EL RA 47M M100E2 85	1
C 11	R1113889	C EL RA 47M M100E2 85	1
C 12	R1127741	C Z5U MU 100N Z 50E2 85	
C 13	R1127741	C Z5U MU 100N Z 50E2 85	
C 14	R112743	C CE MI 2N2K100E2	
C 15	R112743	C CE MI 2N2K100E2	
C 16	R112743	C CE MI 2N2K100E2	
C 27	R112367	C N750MI 270P G100E2	
C 28	R112367	C N750MI 270P G100E2	
C 29	R112367	C N750MI 270P G100E2	
C 30	R1113889	C EL RA 47M M100E2 85	1
C 31	R1113889	C EL RA 47M M100E2 85	1
C 32	R1127741	C Z5U MU 100N Z 50E2 85	
C 33	R1127741	C Z5U MU 100N Z 50E2 85	
C 34	R112743	C CE MI 2N2K100E2	
C 35	R112743	C CE MI 2N2K100E2	
C 36	R112743	C CE MI 2N2K100E2	
C 50	R111500	C EL RA 47M M 10E2 85	
C 51	R111223	C EL AX 470M T100E10 85	1
C 52	R111500	C EL RA 47M M 10E2 85	
C 53	R111223	C EL AX 470M T100E10 85	1
C 54	R111164	C EL AX1000M T 25E14 85	1
C 55	R111164	C EL AX1000M T 25E14 85	1
C 56	R113724	C POMERA 100N K 63E2 85	
C 57	R112760	C CE MI 3N3K100E2	
C 58	R111531	C EL RA 10M M 35E2 85	
C 59	R1137121	C POMERA 10N K250E2 85	
C 60	R112681	C N750MI 15P G500E2	
C 61	R113724	C POMERA 100N K 63E2 85	
C100	R1159081	C PP RA 470P J100E2 85	
C101	R113720	C POMERA 47N K 63E2 85	
C102	R111489	C EL RA 470M T 35E2 85	1
C103	R111531	C EL RA 10M M 35E2 85	
C104	R111479	C EL RA 470M Z 25E2 85	1
C105	R112735	C CE MI 470P K100E2	
D 1	R131637	D R BA158 600400 DO7	
D 2	R131637	D R BA158 600400 DO7	
D 3	R131637	D R BA158 600400 DO7	
D 4	R131637	D R BA158 600400 DO7	
D 5	R131637	D R BA158 600400 DO7	
D 6	R131637	D R BA158 600400 DO7	
D 11	R131637	D R BA158 600400 DO7	
D 12	R131637	D R BA158 600400 DO7	
D 13	R131637	D R BA158 600400 DO7	
D 14	R131637	D R BA158 600400 DO7	
D 15	R131637	D R BA158 600400 DO7	
D 16	R131637	D R BA158 600400 DO7	
D 50	R131621	D S 1N4148 075150 DO35	
D 51	R131621	D S 1N4148 075150 DO35	
D 52	R131621	D S 1N4148 075150 DO35	
D100	R131621	D S 1N4148 075150 DO35	
D101	R131621	D S 1N4148 075150 DO35	
D102	R131950	D R BYV27 15002A SOD57	1
I 1	R134303	U 392-040 STK PACK	1
I 2	R134303	U 392-040 STK PACK	1
I100	R137625	U 34063 DIP8 P	1
J 1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 2	R313286	J MO1 C MBT P 3 R1SN 7,5	1
J 3	R3133921	J MD JMP P 1 E1SN	1
J 4	R313928	J CT H MBT P 8 M2SN	1
J 5	R313925	J CT H MBT P 5 M2SN	1
J 6	R313922	J CT H MBT P 2 M2SN	1
J 7	R313923	J CT H MBT P 3 M2SN	1
J 8	R313926	J CT H MBT P 6 M2SN	1
J 9	R313926	J CT H MBT P 6 M2SN	1
J 11	R313922	J CT H MBT P 2 M2SN	1
J 12	R3132862	J MD1 MBT P 2 E1SN	1
J 13	R3132862	J MD1 MBT P 2 E1SN	1
J 14	R3132862	J MD1 MBT P 2 E1SN	1
J 15	R3132862	J MD1 MBT P 2 E1SN	1
J 16	R315302	J PIN PR D1.3L 5.5+3	1
J100	R3135722	J MT MBT P 3 R1 FL RD	1
L 1	R775164	COIL CH HOR DEF	1
L 2	R775164	COIL CH HOR DEF	1
L 3	R775164	COIL CH HOR DEF	1
L 4	R775164	COIL CH HOR DEF	1
L100	R306222	CH TOR V 80 UH 2A	1
L101	R774154	CH HOR PJ45 DHR	1
L102	R348108	WU JUMP 0,6 22,5	1
NTC9	R105016	R NTC 2K7 0W25	1
PC	R780386	PCD PJ56 G808 CNV OUT	1
Q 50	R132552	Q BF423 P SS TO92	
Q 51	R132516	Q BF422 N SS TO92	
Q 52	R131411	Q BC549C N SS TO92	1
Q100	R131413	Q BC557 P SS TO92	
R 1	R101140	R CF H 2K2 J 0W25	
R 2	R101140	R CF H 2K2 J 0W25	
R 3	R101140	R CF H 2K2 J 0W25	
R 4	R101142	R CF H 3K3 J 0W25	
R 5	R101142	R CF H 3K3 J 0W25	
R 6	R101142	R CF H 3K3 J 0W25	
R 7	R101133	R CF H560E J 0W25	
R 8	R101133	R CF H560E J 0W25	
R 9	R101133	R CF H560E J 0W25	
R 10	R101141	R CF H 2K7 J 0W25	
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R 12	R101141	R CF H 2K7 J 0W25	
R 13	R103226	R MO H150E J 2W	1
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R 15	R103226	R MO H150E J 2W	1
R 16	R103620	R WW H 4E7 K 4W	1
R 17	R103620	R WW H 4E7 K 4W	1
R 18	R103620	R WW H 4E7 K 4W	1
R 21	R101140	R CF H 2K2 J 0W25	
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R 24	R101142	R CF H 3K3 J 0W25	
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R 26	R101142	R CF H 3K3 J 0W25	
R 27	R101133	R CF H560E J 0W25	
R 28	R101133	R CF H560E J 0W25	
R 29	R101133	R CF H560E J 0W25	
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R 31	R101141	R CF H 2K7 J 0W25	
R 32	R101141	R CF H 2K7 J 0W25	
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R 35	R103226	R MO H150E J 2W	1
R 36	R103620	R WW H 4E7 K 4W	1
R 37	R103620	R WW H 4E7 K 4W	1
R 38	R103620	R WW H 4E7 K 4W	1
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R 41	R101120	R CF H 47E J 0W25	
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R 43	R101120	R CF H 47E J 0W25	
R 44	R101120	R CF H 47E J 0W25	
R 45	R101120	R CF H 47E J 0W25	
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R 52	R101148	R CF H 10K J 0W25	
R 53	R101248	R CF H 10K J 0W5	
R 54	R101168	R CF H470K J 0W25	
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R 59	R101136	R CF H 1K J 0W25	
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R 65	R101136	R CF H 1K J 0W25	
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R 83	R101545	R MF H 5K6 F 0W4 E3	
R 84	R101545	R MF H 5K6 F 0W4 E3	
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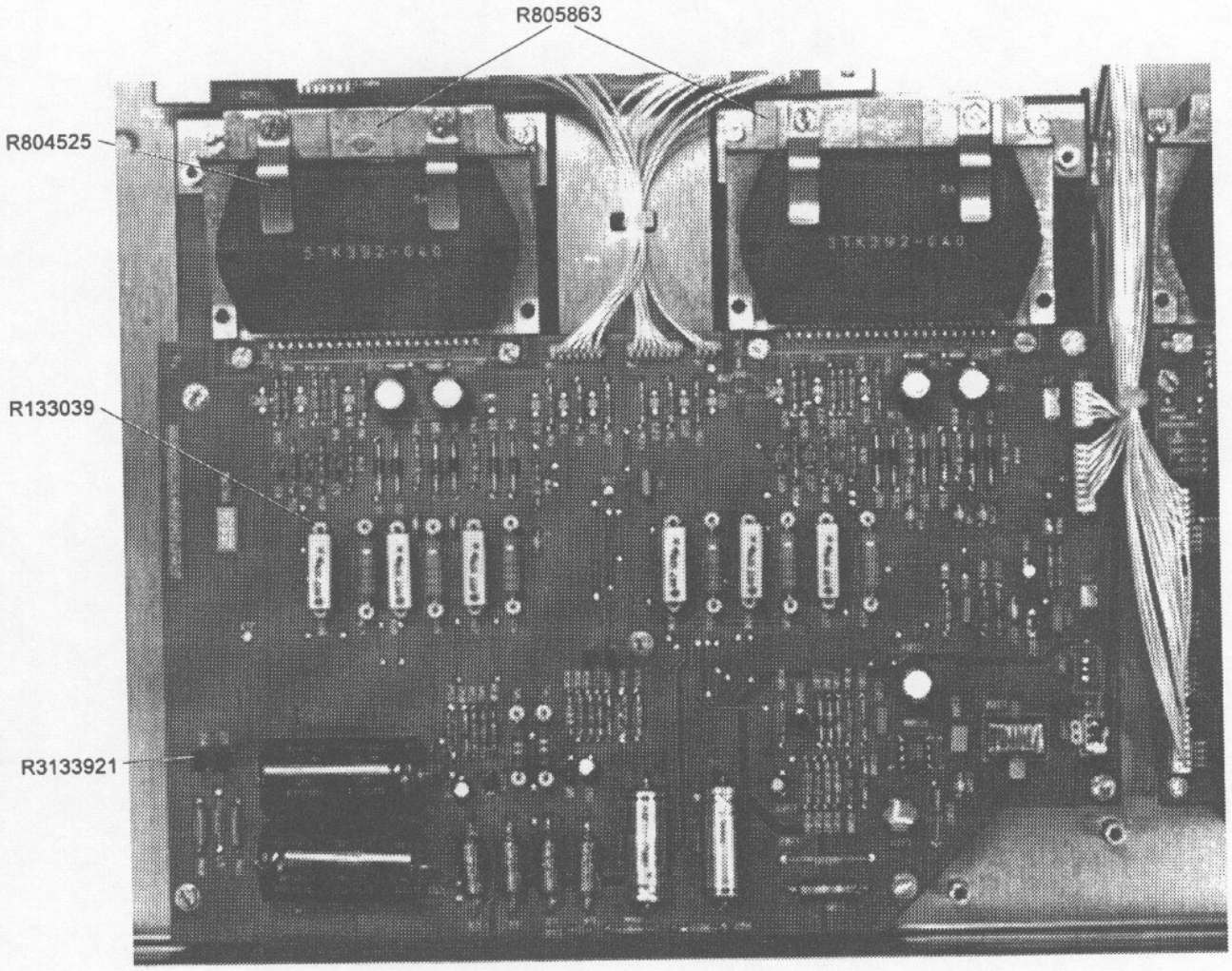
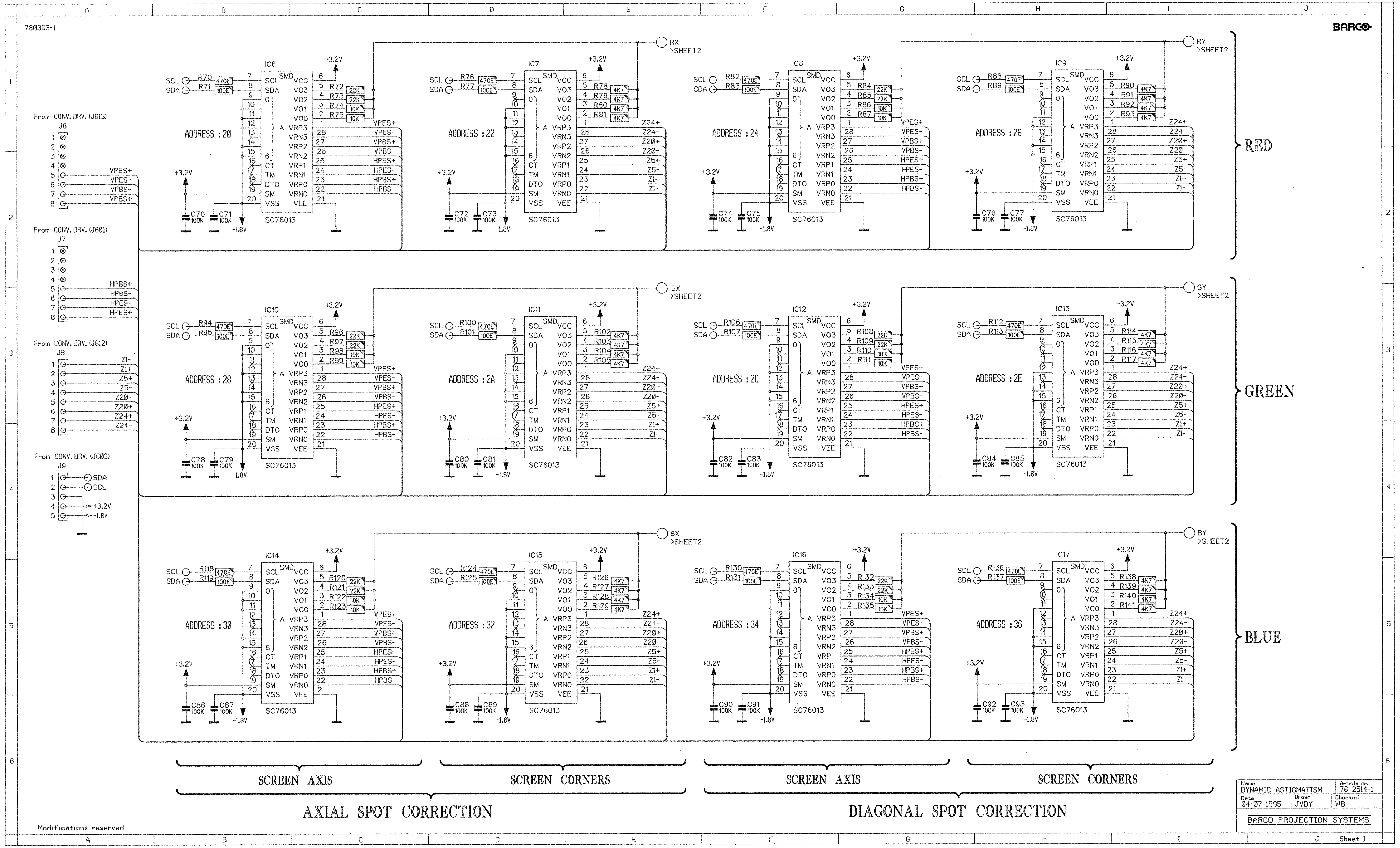
R 86	R101545	R MF H 5K6 F 0W4 E3	
R100	R1011907	R CFFH E1 J 0W4	1
R101	R101155	R CF H 39K J 0W25	
R102	R101146	R CF H 6K8 J 0W25	
R103	R101144	R CF H 4K7 J 0W25	
R104	R101148	R CF H 10K J 0W25	
R105	R101138	R CF H 1K5 J 0W25	
R106	R101136	R CF H 1K J 0W25	
SR 1 ⚠	R1012997	R CFFH E1 K 0W7	1
SR 2 ⚠	R1012997	R CFFH E1 K 0W7	1
Z100	R131720	D ZEN 6V2 0W5 C DO35	
Z101	R131720	D ZEN 6V2 0W5 C DO35	
Z102	R131720	D ZEN 6V2 0W5 C DO35	

Convergence module (OUTPUT) R762513

PRODUCT SAFETY NOTICE

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





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DIAGONAL SPOT CORRECTION
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Date 04-07-1995
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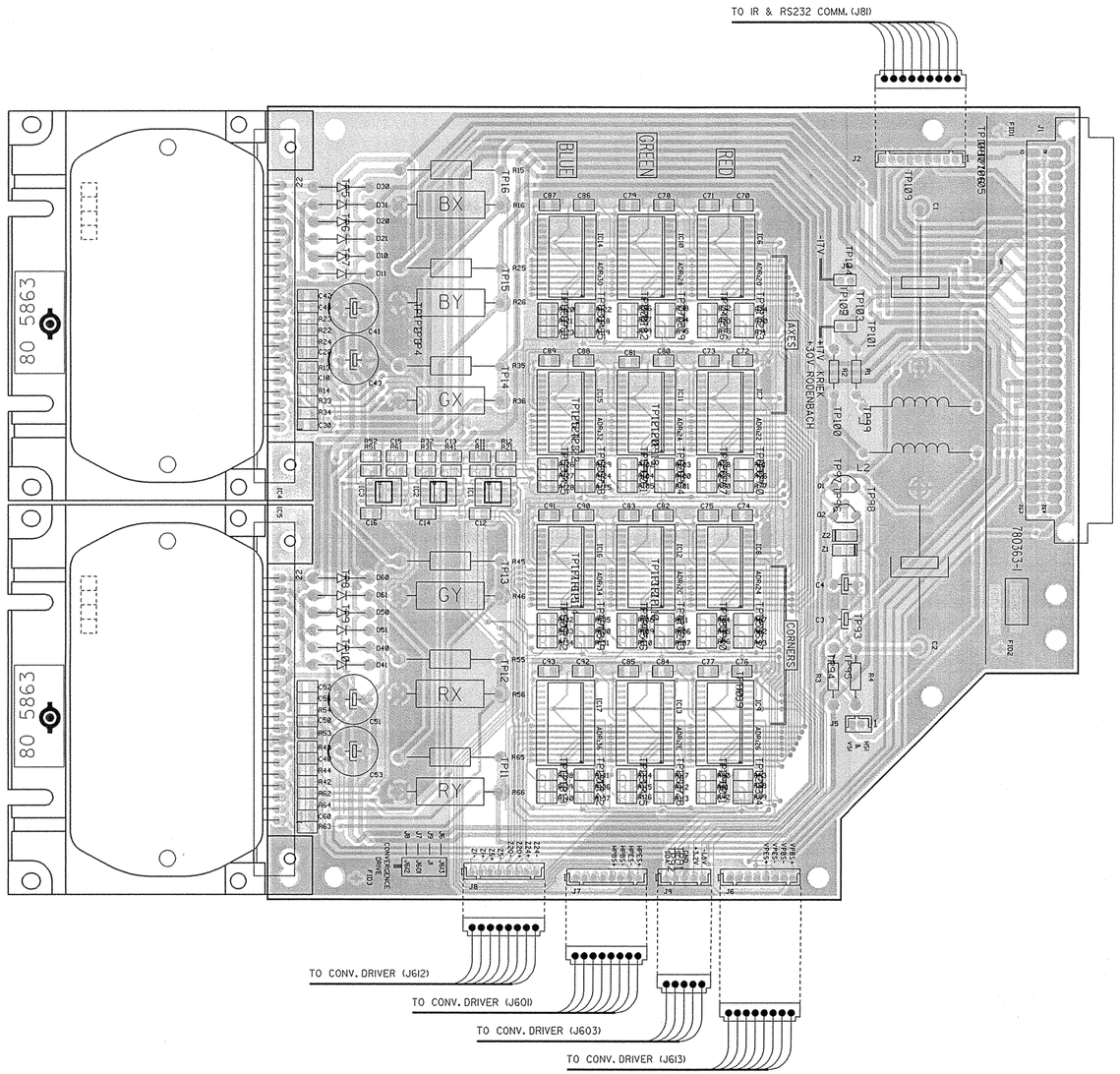
BARCO PROJECTION SYSTEMS
Sheet 1



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C12	D 3	R70	F 2
C13	D 3	R71	F 3
C14	D 3	R72	F 2
C15	D 3	R73	F 2
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C30	D 3	R76	F 3
C40	D 5	R77	F 3
C41	D 3	R78	F 3
C42	D 2	R79	F 3
C43	D 3	R80	F 3
C44	D 2	R81	F 3
C50	D 4	R82	F 4
C51	D 4	R83	F 4
C52	D 4	R84	F 4
C53	D 5	R85	F 4
C54	D 4	R86	F 4
C60	D 5	R87	F 4
C70	F 2	R88	F 5
C71	F 2	R89	F 5
C72	F 3	R90	F 5
C73	F 3	R91	F 5
C74	F 3	R92	F 5
C75	F 3	R93	F 5
C76	F 4	R94	E 2
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D51	D 4	R122	E 2
D60	D 4	R123	E 3
D61	D 4	R124	E 3
		R125	E 3
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FID2	G 4	R127	E 3
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IC9	F 4	R138	E 5
IC10	E 2	R139	E 5
IC11	E 3	R140	E 5
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IC13	E 4		
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IC16	E 4		
IC17	E 4		
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Name	Article nr.
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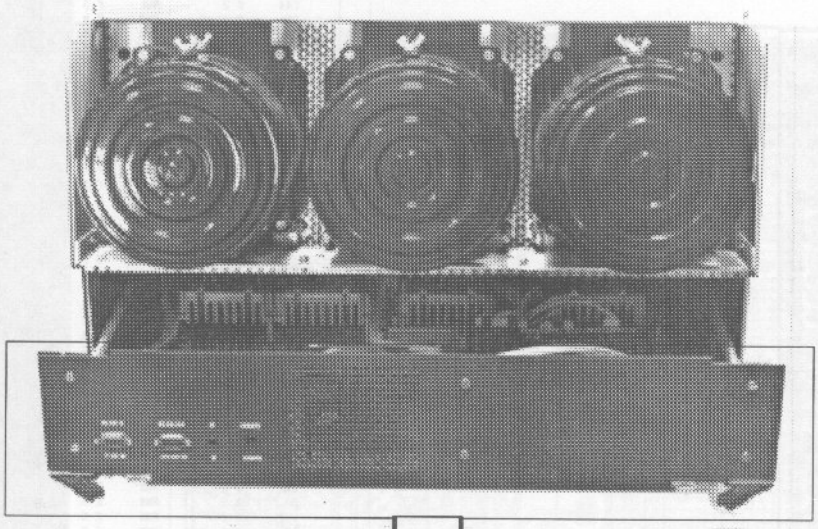
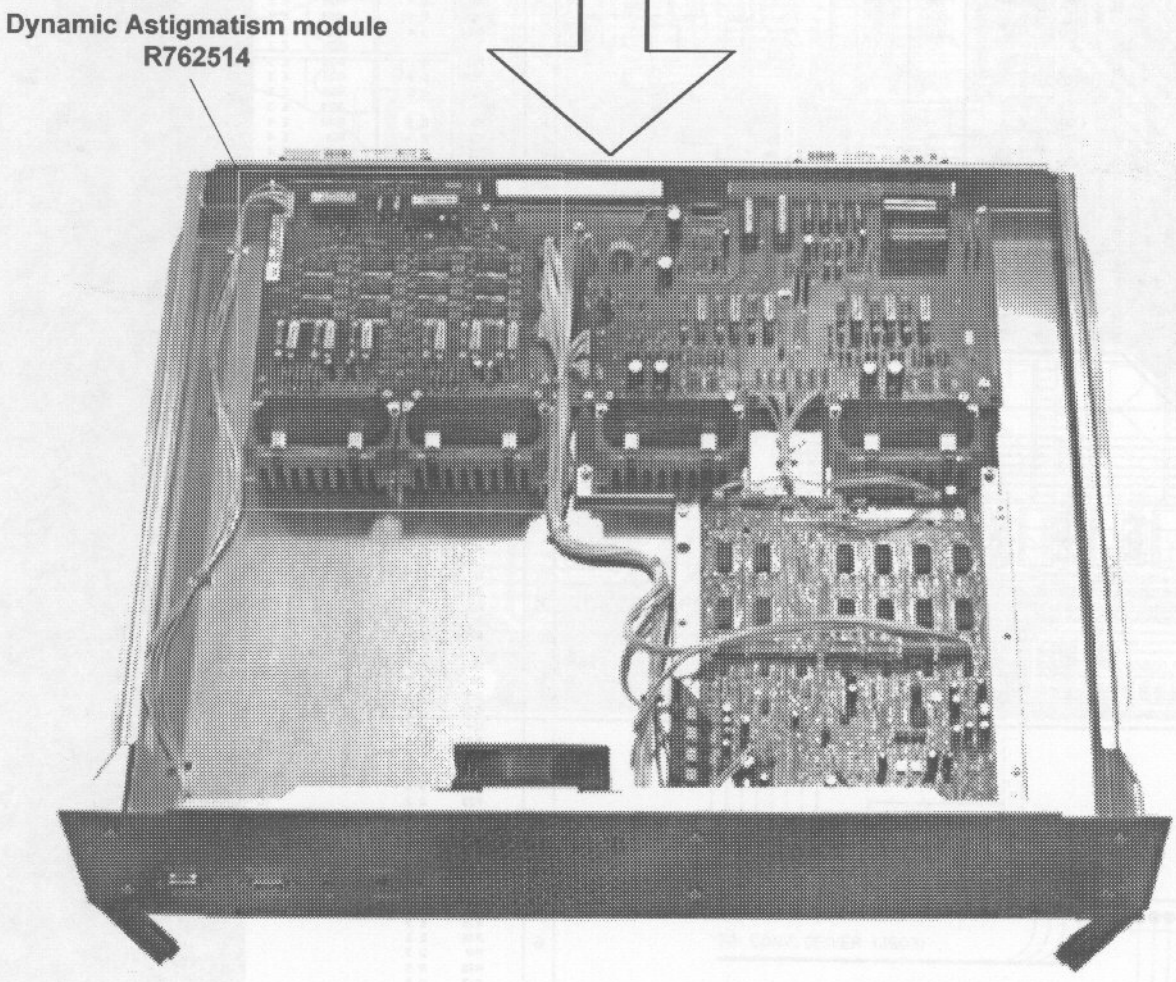
Date: 16-12-1994	Drawn: JVDY
	Checked: WB

BARCO PROJECTION SYSTEMS

Dynamic Astigmatism module R762514



BG808



BARCO

J8B	J28	J30	J31	J36	J534	J535	J536	J8B	J28	J30	J31	J35	J36	J43	J44	J45	J1		
		5								5							→	1	TXDC
	4								4								←	2	RXDC
																		3	
																		4	
			1	3							1	3	3				←	5	+5VSB_REC
17				4				17										6	GND
	2			1					2			1	1				←	7	PPMRCU
17				4				17										8	GND
1								7									→	9	-17V
29								25									→	10	-9VSB
5								9									→	11	+17V/+30V
30				2				24									→	12	+9VSB
					2									2			→	13	DSYL_B
					4									4			←	14	DSYH_B
					6									6			→	15	DSXL_B
					8									8			←	16	DSXH_B
						2									2		→	17	DSYL_G
						4									4		←	18	DSYH_G
						6									6		→	19	DSXL_G
						8									8		←	20	DSXH_G
							2									2	→	21	DSYL_R
							4									4	←	22	DSYH_R
							6									6	→	23	DSXL_R
							8									8	←	24	DSXH_R
																	←	25	HSI
17								17										26	GND
17								17										27	GND
21								12									→	28	+9V
21								12									→	29	+9V
																	←	30	VSI
24								10									→	31	-9V
24								10									→	32	-9V

SWITCH MODE POWER SUPPLY MODULE
CONTROLLER MODULE
CONTROLLER MODULE
CONTROLLER MODULE
IR RECEIVER MODULE
TO MAGNETIC COIL MODULE (REAR)
TO MAGNETIC COIL (BLUE)
TO MAGNETIC COIL (GREEN)
TO MAGNETIC COIL (RED)
SWITCH MODE POWER SUPPLY MODULE
CONTROLLER MODULE
CONTROLLER MODULE
CONTROLLER MODULE
BUILD IN REMOTE CONTROL MODULE
IR RECEIVER MODULE
TO MAGNETIC COIL MODULE (REAR)
TO MAGNETIC COIL (BLUE)
TO MAGNETIC COIL (GREEN)
TO MAGNETIC COIL (RED)

*808 SERIES

1200 SERIES

J6 — J613

	1	1	
	2	2	
	3	3	
	4	4	
VPES+	5	5	VPES+
VPES-	6	6	VPES-
VPBS-	7	7	VPBS-
VPBS+	8	8	VPBS+

J7 — J601

	1	1	
	2	2	
	3	3	
	4	4	
HPBS+	5	5	HPBS+
HPBS-	6	6	HPBS-
HPES-	7	7	HPES-
HPES+	8	8	HPES+

J8 — J612

Z1-	1	1	Z1-
Z1+	2	2	Z1+
Z5+	3	3	Z5+
Z5-	4	4	Z5-
Z20-	5	5	Z20-
Z20+	6	6	Z20+
Z24+	7	7	Z24+
Z24-	8	8	Z24-

J9 — J603

SDA	1	1	SDA
SCL	2	2	SCL
GND	3	3	GND
+3.2V	4	4	+3.2V
-1.8V	5	5	-1.8V

CONVERGENCE DRIVER MODULE

J81 — J2

TXDC	1	1	TXDC
RXDC	2	2	RXDC
+5VSB_REC	3	3	+5VSB_REC
GND	4	4	GND
PPMRCU	5	5	PPMRCU
GND	6	6	GND
-9VSB	7	7	-9VSB
	8	8	
+9VSB	9	9	+9VSB

IR & RS 232 MODULE

DYNAMIC ASTIGMATOR MODULE

Name: DYNAMIC ASTIGMATOR		Article nr.: 76 2514
Date: 16-06-1995	Drawn: JVDY	Checked: WB
BARCO PROJECTION SYSTEMS		

Sheet 1

SCHEMATIC NAME: astcon.sch SHEET NUMBER: 1 DATE: Jul 3, 1995

780363-1

BARCO

To FRAME (J18)

J1
A1 C1 → TXDC
A2 C2 → RXDC
A3 C3
A4 C4
A5 C5 → +5VSB_REC
A6 C6
A7 C7 → PPMRCU
A8 C8
A9 C9
A10 C10 → -17V
A11 C11 → -9VSB
A12 C12 → +17V/+30V
A13 C13 → +9VSB
A14 C14 → DSYL B
A15 C15 → DSYH B
A16 C16 → DSXL B
A17 C17 → DSXH B
A18 C18 → DSYL G
A19 C19 → DSYH G
A20 C20 → DSXL G
A21 C21 → DSXH G
A22 C22 → DSYL R
A23 C23 → DSYH R
A24 C24 → DSXL R
A25 C25 → DSXH R
A26 C26 → HSI
A27 C27
A28 C28
A29 C29 → +9V
A30 C30 → +9V
A31 C31 → VSI
A32 C32 → -9V → -9V
64CON

+30V ---> 1200 SERIES
+17V ---> 800 SERIES

To IR & RS232 COMM. (J81)
J2
1 → TXDC
2 → RXDC
3 → +5VSB_REC
4
5 → PPMRCU
6
7 → -9VSB
8
9 → +9VSB

(FUTURE EXPANSION)
J5
1 → HSI
2 → VSI

0.25W 0.40W 0.50W 1W 1.5W

PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH × 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.

+17V/+30V → J3 → R1 0Ω1 ⚠ → L1 → +DYN
C1 1000M
Q1 BC635
+12V
R3 1K5
Z1 12V
C3 10M

-17V → J4 → R2 0Ω1 ⚠ → L2 → -DYN
C2 1000M
Q2 BC640
-12V
R4 1K5
Z2 12V
C4 10M

IC1 TL082: +12V, -12V, C11 100K, C12 100K
IC2 TL082: +12V, -12V, C13 100K, C14 100K
IC3 TL082: +12V, -12V, C15 100K, C16 100K

IC4 STK392-040
N.C. N.C. N.C.
1 ch. 2 ch. 3 ch. GND
C41 47M, C42 100K, C43 47M, C44 100K
+DYN / -DYN

IC5 STK392-040
N.C. N.C. N.C.
1 ch. 2 ch. 3 ch. GND
C51 47M, C52 100K, C53 47M, C54 100K
+DYN / -DYN

BX >SHEET1 → IC1 TL082: R11 3K9, R12 3K3
BY >SHEET1 → IC1 TL082: R21 3K9, R22 3K3
GX >SHEET1 → IC2 TL082: R31 3K9, R32 3K3
GY >SHEET1 → IC2 TL082: R41 3K9, R42 3K3
RX >SHEET1 → IC3 TL082: R51 3K9, R52 3K3
RY >SHEET1 → IC3 TL082: R61 3K9, R62 3K3

+DYN
D10 BA158 / D11 BA158 → -DYN → DSXH B >JIC16
-DYN → DSXL B >JIC15
D20 BA158 / D21 BA158 → -DYN → DSYH B >JIC14
-DYN → DSYL B >JIC13
D30 BA158 / D31 BA158 → -DYN → DSXH G >JIC20
-DYN → DSXL G >JIC19

D40 BA158 / D41 BA158 → -DYN → DSYH G >JIC18
-DYN → DSYL G >JIC17
D50 BA158 / D51 BA158 → -DYN → DSXH R >JIC24
-DYN → DSXL R >JIC23
D60 BA158 / D61 BA158 → -DYN → DSYH R >JIC22
-DYN → DSYL R >JIC21

R15 150E 1W5, R25 150E 1W5, R35 150E 1W5
R45 150E 1W5, R55 150E 1W5, R65 150E 1W5

C10 22P, R13 3K3, R14 3K3, R16 4E7 4W
C20 22P, R23 3K3, R24 6K8, R26 4E7 4W
C30 22P, R33 3K3, R34 3K3, R36 4E7 4W
C40 22P, R43 3K3, R44 6K8, R46 4E7 4W
C50 22P, R53 3K3, R54 3K3, R56 4E7 4W
C60 22P, R63 3K3, R64 6K8, R66 4E7 4W

Modifications reserved

Name	Article nr.
DYNNAMIC ASTIGMATISM	76 2514-1
Date: 16-06-1995	Drawn: JVDY
	Checked: WB

BARCO PROJECTION SYSTEMS

J Sheet 2

COMP.	LOC.	SHEET
C1	G 1	sheet 2
C2	G 2	sheet 2
C3	H 2	sheet 2
C4	H 3	sheet 2
C10	B 6	sheet 2
C11	I 2	sheet 2
C12	J 2	sheet 2
C13	I 2	sheet 2
C14	J 2	sheet 2
C16	I 3	sheet 2
C16	J 3	sheet 2
C20	C 6	sheet 2
C30	D 6	sheet 2
C40	G 6	sheet 2
C41	E 3	sheet 2
C42	E 3	sheet 2
C43	E 4	sheet 2
C44	E 4	sheet 2
C50	H 6	sheet 2
C51	J 3	sheet 2
C52	J 3	sheet 2
C53	J 4	sheet 2
C54	J 4	sheet 2
C60	I 6	sheet 2
C70	B 2	sheet 1
C71	B 2	sheet 1
C72	D 2	sheet 1
C73	D 3	sheet 1
C74	F 2	sheet 1
C75	F 2	sheet 1
C76	H 2	sheet 1
C77	H 2	sheet 1
C78	B 4	sheet 1
C79	B 4	sheet 1
C80	D 4	sheet 1
C81	D 4	sheet 1
C82	F 4	sheet 1
C83	F 4	sheet 1
C84	H 4	sheet 1
C85	H 4	sheet 1
C86	B 6	sheet 1
C87	B 6	sheet 1
C88	D 6	sheet 1
C89	D 6	sheet 1
C90	F 6	sheet 1
C91	F 6	sheet 1
C92	H 6	sheet 1
C93	H 6	sheet 1
D10	E 4	sheet 2
D11	E 4	sheet 2
D20	E 5	sheet 2
D21	E 5	sheet 2
D30	E 5	sheet 2
D31	E 6	sheet 2
D40	J 4	sheet 2
D41	J 4	sheet 2
D50	J 5	sheet 2
D51	J 5	sheet 2
D60	J 5	sheet 2
D61	J 6	sheet 2
IC1	A 5	sheet 2
IC1	A 4	sheet 2
IC1	I 1	sheet 2
IC1	J 1	sheet 2
IC2	I 2	sheet 2
IC2	J 2	sheet 2
IC2	F 4	sheet 2
IC2	A 6	sheet 2
IC3	J 2	sheet 2
IC3	I 2	sheet 2
IC3	F 6	sheet 2
IC3	F 5	sheet 2
IC4	B 3	sheet 2
IC5	G 3	sheet 2
IC6	B 1	sheet 1
IC7	D 1	sheet 1
IC8	F 1	sheet 1
IC9	H 1	sheet 1
IC10	B 3	sheet 1
IC11	D 3	sheet 1
IC12	F 3	sheet 1
IC13	H 3	sheet 1
IC14	B 4	sheet 1
IC15	D 4	sheet 1
IC16	F 4	sheet 1
IC17	H 4	sheet 1
J1	A 1	sheet 2
J2	C 1	sheet 2
J3	G 1	sheet 2
J4	G 2	sheet 2
J5	E 1	sheet 2
J6	A 1	sheet 1
J7	A 2	sheet 1
J8	A 3	sheet 1
J9	A 4	sheet 1
L1	G 1	sheet 2
L2	G 2	sheet 2
Q1	H 1	sheet 2
Q2	H 2	sheet 2
R1	G 1	sheet 2
R2	G 2	sheet 2
R3	H 2	sheet 2
R4	H 2	sheet 2
R11	A 4	sheet 2
R12	A 5	sheet 2
R13	B 6	sheet 2
R14	B 6	sheet 2
R15	C 5	sheet 2
R16	C 6	sheet 2
R21	A 5	sheet 2
R22	B 5	sheet 2
R23	C 6	sheet 2
R24	C 6	sheet 2
R25	C 5	sheet 2
R26	C 6	sheet 2
R31	A 6	sheet 2
R32	A 6	sheet 2
R33	D 6	sheet 2
R34	D 6	sheet 2
R35	D 6	sheet 2
R36	D 6	sheet 2
R41	F 4	sheet 2
R42	G 5	sheet 2
R43	G 6	sheet 2
R44	G 6	sheet 2
R45	H 5	sheet 2
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R51	F 5	sheet 2
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R80	E 1	sheet 1
R81	E 1	sheet 1
R82	F 1	sheet 1
R83	F 1	sheet 1
R84	G 1	sheet 1
R85	G 1	sheet 1
R86	G 1	sheet 1
R87	G 1	sheet 1
R88	H 1	sheet 1
R89	H 1	sheet 1
R90	I 1	sheet 1
R91	I 1	sheet 1
R92	I 1	sheet 1
R93	I 1	sheet 1
R94	B 3	sheet 1
R95	B 3	sheet 1
R96	C 3	sheet 1
R97	C 3	sheet 1
R98	C 3	sheet 1
R99	C 3	sheet 1
R100	D 3	sheet 1
R101	D 3	sheet 1
R102	E 3	sheet 1
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R115	I 3	sheet 1
R116	I 3	sheet 1
R117	I 3	sheet 1
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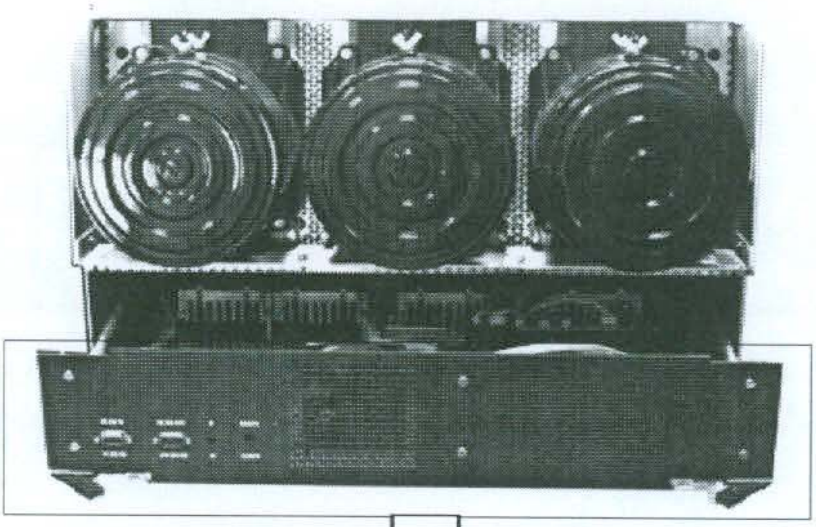
R128	E 5	sheet 1
R129	E 5	sheet 1
R130	F 5	sheet 1
R131	F 5	sheet 1
R132	G 5	sheet 1
R133	G 5	sheet 1
R134	G 5	sheet 1
R135	G 5	sheet 1
R136	H 5	sheet 1
R137	H 5	sheet 1
R138	I 5	sheet 1
R139	I 5	sheet 1
R140	I 5	sheet 1
R141	I 5	sheet 1
Z1	H 2	sheet 2
Z2	H 3	sheet 2

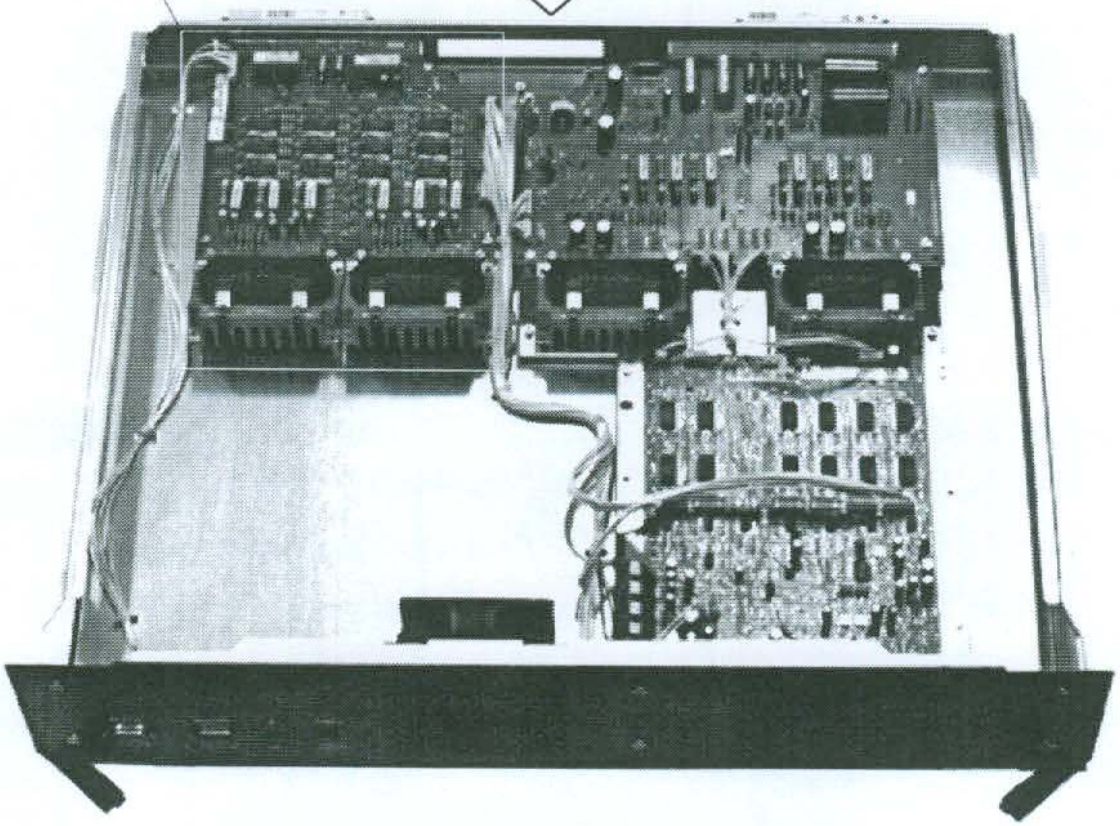
SCHEMATIC NAME: 762514.sch SHEET NUMBER: 2 DATE: Jul 3, 1995

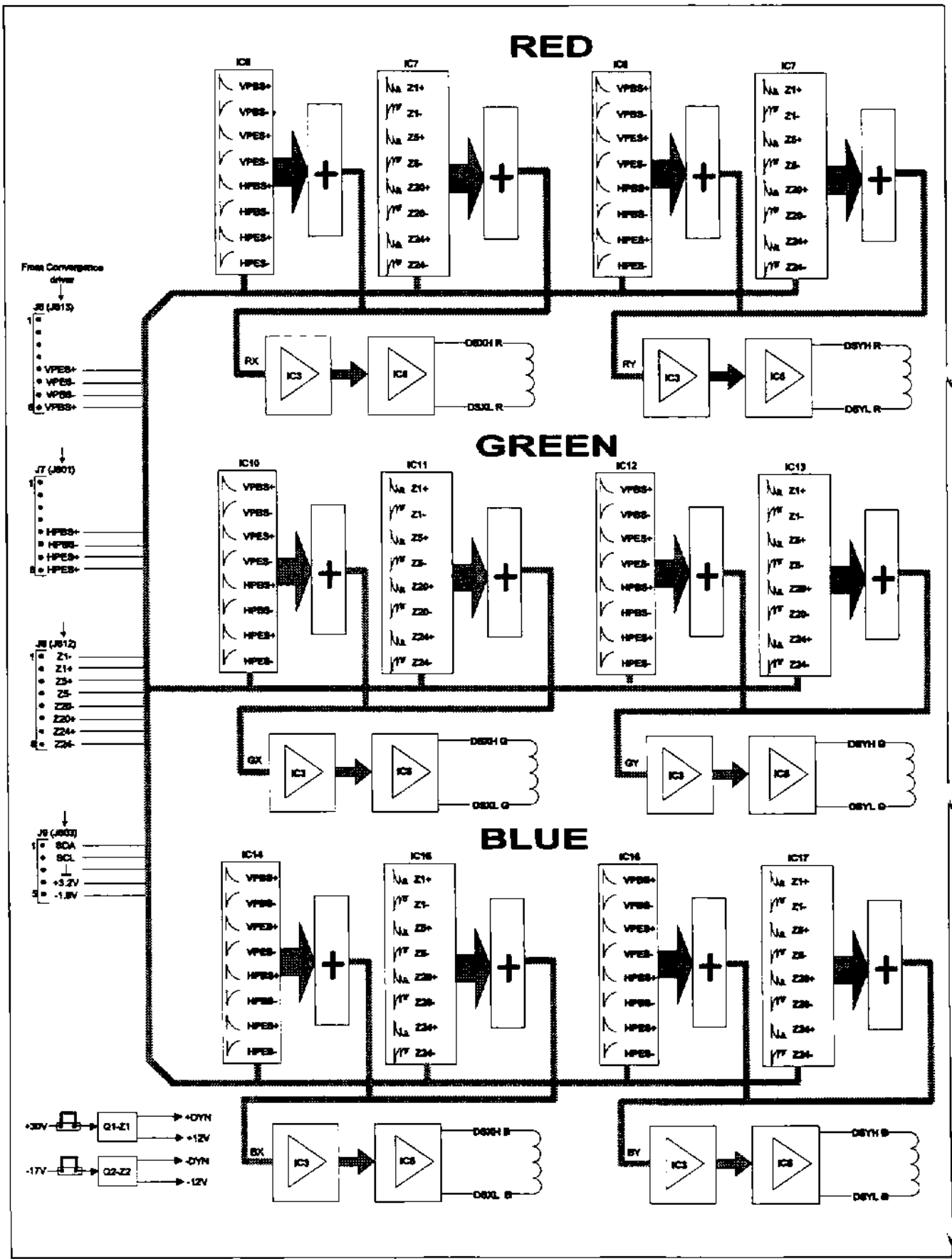
Dynamic Astigmatism module R762514



BG808

Dynamic Astigmatism module
R762514




RED
GREEN
BLUE
From Convergence driver
J8 (J813)
J7 (J801)
J8 (J812)
J9 (J803)
VPES+
VPES-
VPES-
VPES+
HPES+
HPES-
HPES-
HPES+
Z1-
Z1+
Z5+
Z5-
Z20+
Z24+
Z24-
SDA
SCL
+3.2V
-1.8V
IC8
IC7
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
RX
RY
GX
GY
BX
BY
IC3
IC4
IC5
DSXH R
DSXL R
DSYH R
DSYL R
DSXH G
DSXL G
DSYH G
DSYL G
DSXH B
DSXL B
DSYH B
DSYL B
+30V
-17V
Q1-Z1
Q2-Z2
+DYN
+12V
-DYN
-12V

Axial and Diagonal Corrections on screen per IC

VO0 IC7 +	VO2 IC6 +	VO1 IC7 +
VO0 IC9 x	VO2 IC8 x	VO1 IC9 x
VO0 IC6 +	**RED**	VO1 IC6 +
VO0 IC8 x		VO1 IC8 x
VO2 IC7 +	VO3 IC6 +	VO3 IC7 +
VO2 IC9 x	VO3 IC8 x	VO3 IC9 x

VO0 IC11 +	VO2 IC10 +	VO1 IC11 +
VO0 IC13 x	VO2 IC12 x	VO1 IC13 x
VO0 IC10 +	**GREEN**	VO1 IC10 +
VO0 IC12 x		VO1 IC12 x
VO2 IC11 +	VO3 IC10 +	VO3 IC11 +
VO2 IC13 x	VO3 IC12 x	VO3 IC13 x

VO0 IC15 +	VO2 IC14 +	VO1 IC15 +
VO0 IC17 x	VO2 IC16 x	VO1 IC17 x
VO0 IC14 +	**BLUE**	VO1 IC14 +
VO0 IC16 x		VO1 IC16 x
VO2 IC15 +	VO3 IC14 +	VO3 IC15 +
VO2 IC17 x	VO3 IC16 x	VO3 IC17 x

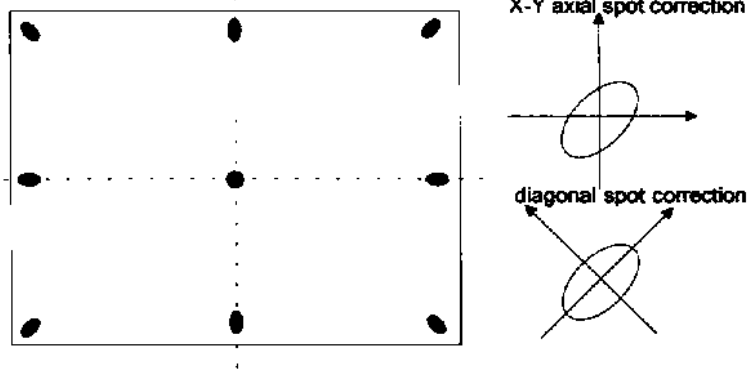
'+' :axial correction
'x' :diagonal correction

TECHNICAL DESCRIPTION
" DYNAMIC ASTIGMATISM " 76 2514

The waveforms for the dynamic astigmatism are parbolic and resemble the waveforms for the convergence corrections. It is then logic that the adjusted waveforms in the Bella's are delivered by, and coming from, the convergence driver board.

These waveforms are carried to the module via the connectors J6 / J7 / J8. These connectors carry the split (clamped) parabolic waveforms at horizontal and vertical frequency and opposite polarity.

Each correction consists of an orthogonal spot correction *(*X)* and a diagonal spot correction *(*Y)*. To facilitate the correction a separate centre or 'screen axis' and corner 'screen corners' is provided.



In sheet 1 of the schematics you find the 12 Bella's for these corrections. As the waveforms have opposite polarity, the supply voltages for these Bella's is +3.2V and -1.8V taken from the convergence board.

The " corner" and "axis" corrections are added per colour and then passed onto the power amplifiers. These power amplifiers are fully integrated hybrid amplifiers supplied with + / - DYN.
The supply voltage for these amplifiers is **+30V** (+ DYN) and **- 17V** (- DYN) .
Each time the output current flows in 150 Ohm damping resistor across the stigmator coils and a series feedback resistor of 4.7 Ohm. The voltage developed across this resistor is sent back to the inverting input of the amplifier for stability reasons.

Note that the jumpers J3 and J4 can be removed in order to isolate the power stages of the astigmatism and thus to investigate whether an excess of load on the supply voltages of the whole convergence board is caused by one of these amplifiers (or caused by another power amplifier of this convergence module).

Spare parts Controller module R762514

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
60	R133039	SPR L 8 D 4 D 1.2 C	12
80	R133039	SPR L 8 D 4 D 1.2 C	12
50	R3133921	J MD JMP P 1 E1SN	2
20	R3631049	SCR D933 M 3 X 6 XIC	4
10	R3631069	SCR D933 M 3 X 10 XIC	4
30	R3661026	NUT D934 M 3 I	4
40	R804831	Q ACC SPG 1X 3.1 LONG	4
70	R805863	FRM PJ56 G802 CNV HTSNK 2	2
C 1	R111193	C EL AX1000M T 40E18 85	1
C 2	R111193	C EL AX1000M T 40E18 85	1
C 3	R111531	C EL RA 10M M 35E2 85	1
C 4	R111531	C EL RA 10M M 35E2 85	1
C 10	P210064	C# COG MU 22P J 50 1206	1
C 11	P210122	C# X7R MU 100N K 50 1206	1
C 12	P210122	C# X7R MU 100N K 50 1206	1
C 13	P210122	C# X7R MU 100N K 50 1206	1
C 14	P210122	C# X7R MU 100N K 50 1206	1
C 15	P210122	C# X7R MU 100N K 50 1206	1
C 16	P210122	C# X7R MU 100N K 50 1206	1
C 20	P210064	C# COG MU 22P J 50 1206	1
C 30	P210064	C# COG MU 22P J 50 1206	1
C 40	P210064	C# COG MU 22P J 50 1206	1
C 41	R111486	C EL RA 47M M 40E2 85	1
C 42	P210122	C# X7R MU 100N K 50 1206	1
C 43	R111486	C EL RA 47M M 40E2 85	1
C 44	P210122	C# X7R MU 100N K 50 1206	1
C 50	P210064	C# COG MU 22P J 50 1206	1
C 51	R111486	C EL RA 47M M 40E2 85	1
C 52	P210122	C# X7R MU 100N K 50 1206	1
C 53	R111486	C EL RA 47M M 40E2 85	1
C 54	P210122	C# X7R MU 100N K 50 1206	1
C 60	P210064	C# COG MU 22P J 50 1206	1
C 70	P210122	C# X7R MU 100N K 50 1206	1
C 71	P210122	C# X7R MU 100N K 50 1206	1
C 72	P210122	C# X7R MU 100N K 50 1206	1
C 73	P210122	C# X7R MU 100N K 50 1206	1
C 74	P210122	C# X7R MU 100N K 50 1206	1
C 75	P210122	C# X7R MU 100N K 50 1206	1
C 76	P210122	C# X7R MU 100N K 50 1206	1
C 77	P210122	C# X7R MU 100N K 50 1206	1
C 78	P210122	C# X7R MU 100N K 50 1206	1
C 79	P210122	C# X7R MU 100N K 50 1206	1
C 80	P210122	C# X7R MU 100N K 50 1206	1
C 81	P210122	C# X7R MU 100N K 50 1206	1
C 82	P210122	C# X7R MU 100N K 50 1206	1
C 83	P210122	C# X7R MU 100N K 50 1206	1
C 84	P210122	C# X7R MU 100N K 50 1206	1
C 85	P210122	C# X7R MU 100N K 50 1206	1
C 86	P210122	C# X7R MU 100N K 50 1206	1
C 87	P210122	C# X7R MU 100N K 50 1206	1
C 88	P210122	C# X7R MU 100N K 50 1206	1
C 89	P210122	C# X7R MU 100N K 50 1206	1
C 90	P210122	C# X7R MU 100N K 50 1206	1
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C 92	P210122	C# X7R MU 100N K 50 1206	1
C 93	P210122	C# X7R MU 100N K 50 1206	1
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D 11	R131637	D R BA158 600400 DO7	1
D 20	R131637	D R BA158 600400 DO7	1
D 21	R131637	D R BA158 600400 DO7	1
D 30	R131637	D R BA158 600400 DO7	1
D 31	R131637	D R BA158 600400 DO7	1
D 40	R131637	D R BA158 600400 DO7	1
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D 50	R131637	D R BA158 600400 DO7	1
D 51	R131637	D R BA158 600400 DO7	1
D 60	R131637	D R BA158 600400 DO7	1
D 61	R131637	D R BA158 600400 DO7	1
I 1	P230293	U#082 TL SO8 P	1
I 2	P230293	U#082 TL SO8 P	1
I 3	P230293	U#082 TL SO8 P	1
I 4	R134303	U 392-040 STK PACK	1
I 5	R134303	U 392-040 STK PACK	1
I 6	P230653	U#76013 SC SOL28 P	1
I 7	P230653	U#76013 SC SOL28 P	1
I 8	P230653	U#76013 SC SOL28 P	1
I 9	P230653	U#76013 SC SOL28 P	1
I 10	P230653	U#76013 SC SOL28 P	1
I 11	P230653	U#76013 SC SOL28 P	1
I 12	P230653	U#76013 SC SOL28 P	1
I 13	P230653	U#76013 SC SOL28 P	1
I 14	P230653	U#76013 SC SOL28 P	1
I 15	P230653	U#76013 SC SOL28 P	1
I 16	P230653	U#76013 SC SOL28 P	1
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J 1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J 2	R313929	J CT H MBT P 9 M2SN	1
J 3	R3132862	J MD1 MBT P 2 E1SN	1
J 4	R3132862	J MD1 MBT P 2 E1SN	1
J 5	R313922	J CT H MBT P 2 M2SN	1
J 6	R313928	J CT H MBT P 8 M2SN	1
J 7	R313928	J CT H MBT P 8 M2SN	1
J 8	R313928	J CT H MBT P 8 M2SN	1
J 9	R313925	J CT H MBT P 5 M2SN	1
L 1	R775164	COIL CH HOR DEF	1
L 2	R775164	COIL CH HOR DEF	1
PC	R780363	PCD#PJ53 D700 ASTIGMATISM	1
Q 1	R132557	Q BC635 N SS TO92	1
Q 2	R132968	Q BC640 P SS TO92	1
R 1	R1011907	R CFFH E1 J 0W4	1
R 2	R1011907	R CFFH E1 J 0W4	1
R 3	R101238	R MF H 1K5 F 0W6 E4	1
R 4	R101238	R MF H 1K5 F 0W6 E4	1
R 11	P200087	R# CE H 3K9 J 0W12 1206	1
R 12	P200085	R# CE H 3K3 J 0W12 1206	1
R 13	P200085	R# CE H 3K3 J 0W12 1206	1
R 14	P200085	R# CE H 3K3 J 0W12 1206	1
R 15	R103226	R MO H150E J 1W5	1
R 16	R103620	R WW H 4E7 K 4W	1
R 21	P200087	R# CE H 3K9 J 0W12 1206	1
R 22	P200085	R# CE H 3K3 J 0W12 1206	1
R 23	P200085	R# CE H 3K3 J 0W12 1206	1
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R 26	R103620	R WW H 4E7 K 4W	1
R 31	P200087	R# CE H 3K9 J 0W12 1206	1
R 32	P200085	R# CE H 3K3 J 0W12 1206	1
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R 46	R103620	R WW H 4E7 K 4W	1
R 51	P200087	R# CE H 3K9 J 0W12 1206	1
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R 53	P200085	R# CE H 3K3 J 0W12 1206	1
R 54	P200085	R# CE H 3K3 J 0W12 1206	1
R 55	R103226	R MO H150E J 1W5	1
R 56	R103620	R WW H 4E7 K 4W	1
R 61	P200087	R# CE H 3K9 J 0W12 1206	1
R 62	P200085	R# CE H 3K3 J 0W12 1206	1
R 63	P200085	R# CE H 3K3 J 0W12 1206	1
R 64	P200093	R# CE H 6K8 J 0W12 1206	1
R 65	R103226	R MO H150E J 1W5	1
R 66	R103620	R WW H 4E7 K 4W	1
R 70	P200065	R# CE H470E J 0W12 1206	1
R 71	P200049	R# CE H100E J 0W12 1206	1
R 72	P200105	R# CE H 22K J 0W12 1206	1
R 73	P200105	R# CE H 22K J 0W12 1206	1
R 74	P200097	R# CE H 10K J 0W12 1206	1
R 75	P200097	R# CE H 10K J 0W12 1206	1
R 76	P200065	R# CE H470E J 0W12 1206	1
R 77	P200049	R# CE H100E J 0W12 1206	1
R 78	P200089	R# CE H 4K7 J 0W12 1206	1
R 79	P200089	R# CE H 4K7 J 0W12 1206	1
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R125	P200049	R# CE H100E J 0W12 1206	1
R126	P200089	R# CE H 4K7 J 0W12 1206	1
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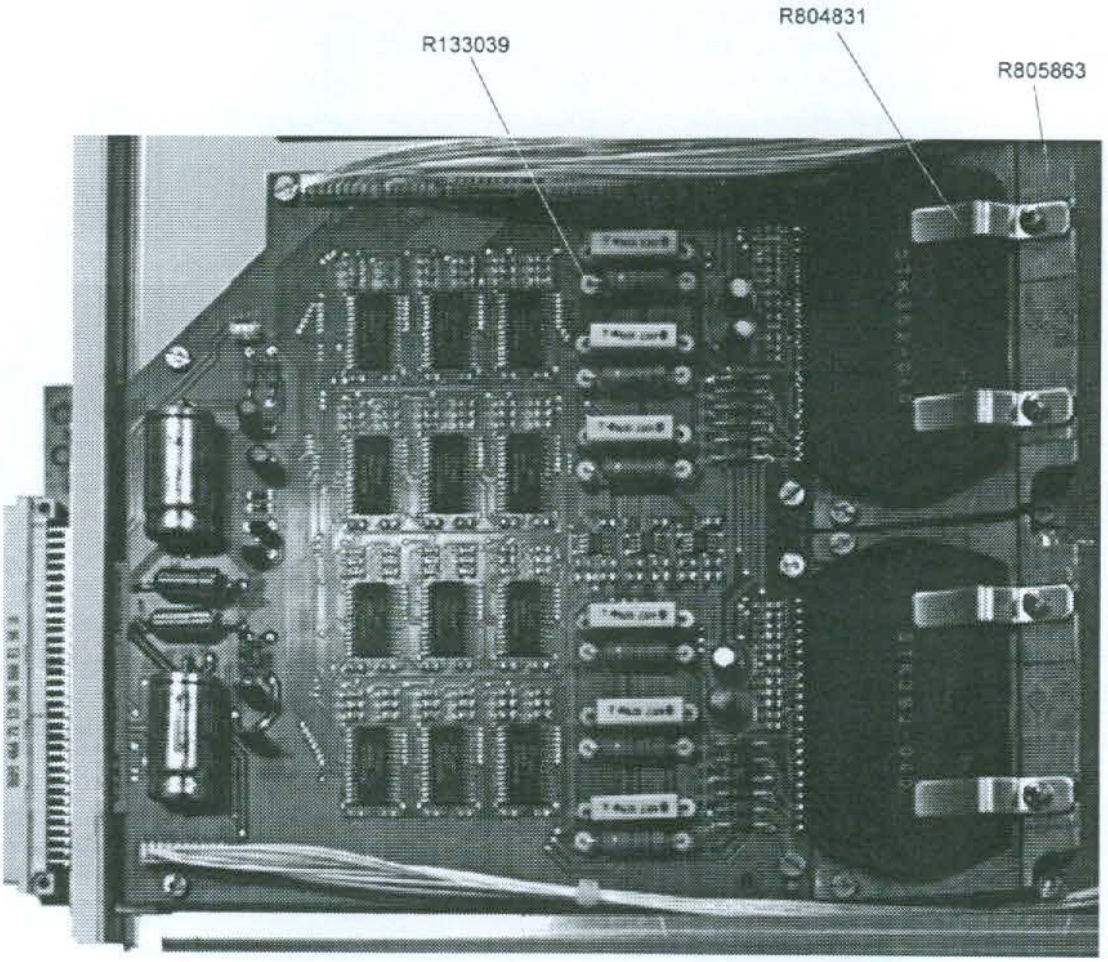
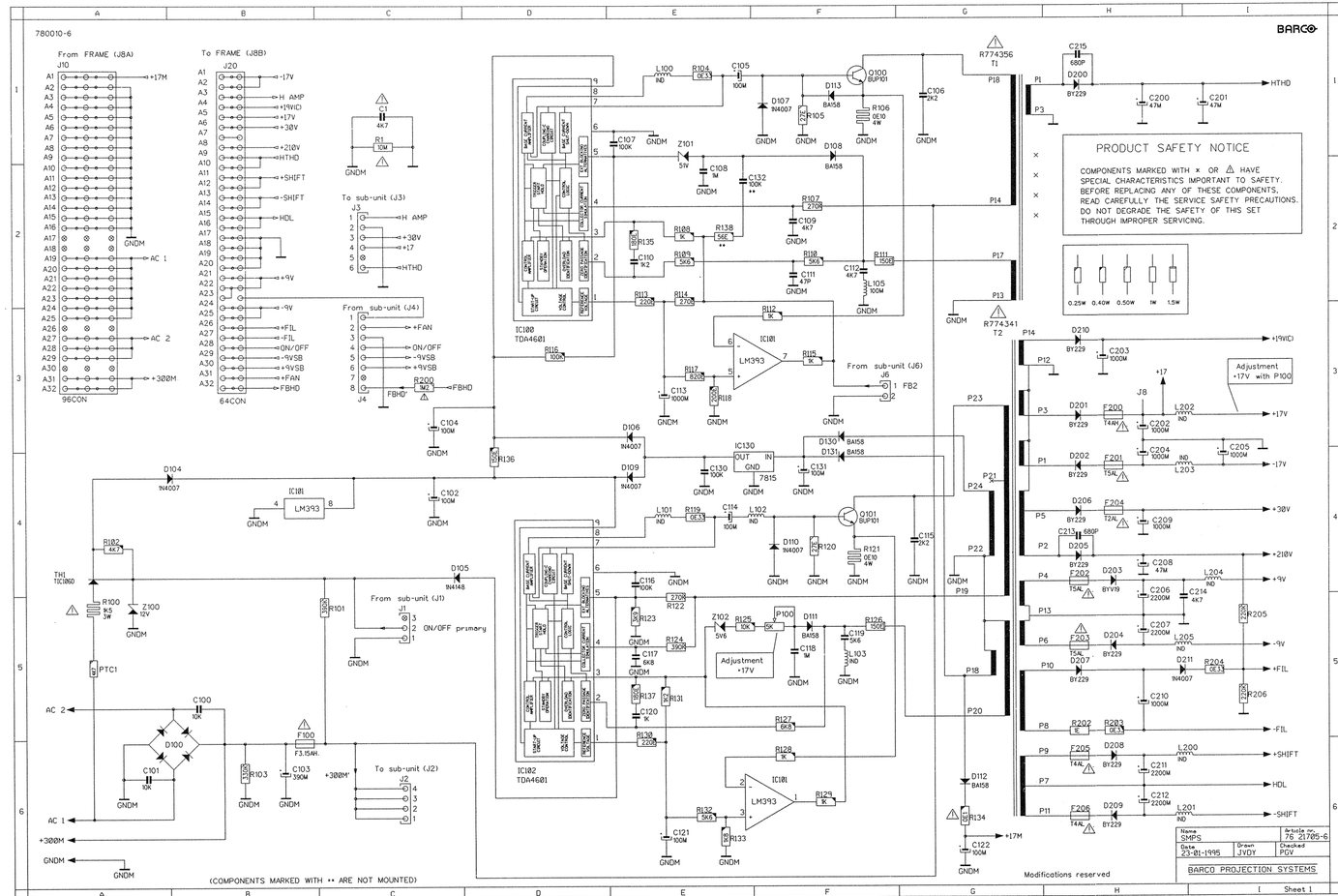
Dynamic Astigmatism module R762514





COMP.	LOC.	COMP.	LOC.
C1	C 1	R1	C 1
C100	B 5	R100	A 5
C101	A 6	R101	C 5
C102	C 4	R102	A 4
C103	B 6	R103	B 6
C104	C 3	R104	E 1
C105	E 1	R105	F 1
C106	G 1	R106	F 1
C107	E 1	R107	F 2
C108	E 2	R108	E 2
C109	F 2	R109	E 2
C110	E 2	R110	F 2
C111	F 2	R111	F 2
C112	F 2	R112	F 2
C113	E 1	R113	E 2
C114	E 1	R114	E 2
C115	G 4	R115	F 3
C116	E 4	R116	D 3
C117	E 5	R117	E 3
C118	F 5	R118	E 3
C119	F 5	R119	E 4
C120	E 5	R120	F 4
C121	E 6	R121	F 4
C122	G 6	R122	E 5
C130	F 4	R123	E 5
C131	F 4	R124	E 5
C132	E 2	R125	F 5
C200	H 1	R126	F 5
C201	I 1	R127	F 5
C202	H 3	R128	F 6
C203	H 3	R129	F 6
C204	H 3	R130	E 5
C205	I 3	R131	E 5
C206	H 4	R132	E 6
C207	H 5	R133	E 6
C208	H 4	R134	G 6
C209	H 4	R135	E 2
C210	H 5	R136	D 4
C211	H 6	R137	E 5
C212	H 6	R138	E 2
C213	H 4	R200	O 3
C214	I 4	R203	H 5
C215	H 1	R203	H 5
		R204	I 5
D100	A 5	R205	I 5
D104	A 4	R206	I 5
D105	C 4		
D106	E 3	T1	G 1
D107	F 1	T2	G 3
D108	F 1		
D109	E 4	TH1	A 4
D110	F 4		
D111	F 5	Z100	A 5
D112	G 6	Z101	E 1
D113	F 1	Z102	E 5
D130	F 3		
D131	F 3		
D200	H 1		
D201	H 3		
D202	H 4		
D203	H 4		
D204	H 5		
D205	H 4		
D206	H 4		
D207	H 5		
D208	H 6		
D209	H 6		
D210	H 3		
D211	H 5		
F100	B 5		
F200	H 3		
F201	H 4		
F202	H 4		
F203	H 5		
F204	H 4		
F205	H 6		
F206	H 6		
IC100	D 3		
IC101	F 6		
IC101	B 4		
IC101	C 4		
IC101	F 3		
IC102	D 5		
IC130	E 3		
J1	C 5		
J2	C 6		
J3	C 3		
J4	C 3		
J6	F 3		
J8	H 3		
J10	A 1		
J20	B 1		
L100	E 1		
L101	E 4		
L102	E 4		
L103	F 5		
L105	F 2		
L200	H 6		
L201	H 6		
L202	H 3		
L203	H 4		
L204	I 4		
L205	H 5		
P100	F 5		
PTC1	A 5		
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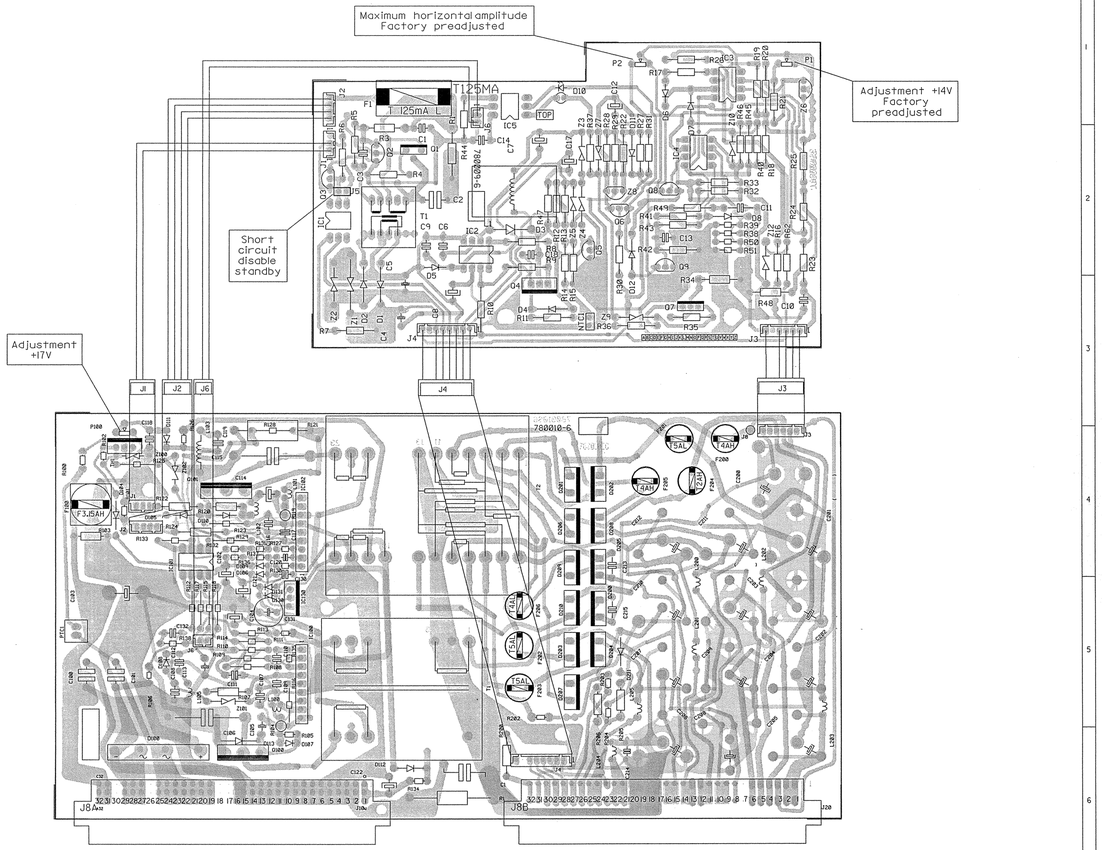
Q101	F 4		

SCHEMATIC NAME: 7621705.sch SHEET NUMBER: 1 DATE: Feb 2, 1995



COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
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C1	E 6	L102	C 4	Z2	D 3
C2	D 2	L103	C 4	Z3	E 2
C3	D 2	L105	C 5	Z4	E 2
C4	D 3	L200	F 4	Z5	E 2
C5	D 2	L201	F 5	Z6	E 1
C6	D 2	L202	F 4	Z7	E 2
C7	E 2	L203	G 6	Z8	F 2
C8	D 3	L204	E 6	Z9	E 3
C9	D 2	L205	F 5	Z0	F 2
C10	D 3			ZZ	G 2
C11	F 2	NTC	E 3	Z00	C 4
C12	F 1			Z01	C 5
C13	F 2	P1	G 1	Z02	C 4
C14	E 2	P2	E 1		
C15	E 2	P100	B 4		
C16	D 3				
C100	B 5	PTC	B 5		
C101	B 5				
C102	D 4	Q1	D 2		
C103	B 5	Q2	D 2		
C104	C 5	Q3	D 2		
C105	C 6	Q4	E 3		
C106	C 6	Q5	E 2		
C107	C 5	Q6	F 2		
C108	C 5	Q7	F 3		
C109	C 5	Q8	F 2		
C110	C 5	Q9	F 2		
C111	C 5	Q100	C 6		
C112	C 5	Q101	C 4		
C113	C 5				
C114	C 4	R1	D 1		
C115	C 4	R1	E 6		
C116	C 4	R3	D 2		
C117	C 4	R4	D 2		
C118	B 3	R5	D 1		
C119	C 4	R6	D 2		
C120	C 4	R7	D 3		
C121	C 5	R8	E 2		
C122	D 6	R9	E 2		
C130	C 5	R10	E 3		
C131	C 5	R11	E 3		
C132	C 5	R12	E 2		
C200	F 4	R13	E 2		
C201	F 4	R14	E 3		
C202	F 5	R15	E 3		
C203	F 5	R16	F 2		
C204	F 5	R17	F 2		
C205	F 5	R18	G 2		
C206	F 5	R19	F 1		
C207	F 5	R20	F 1		
C208	F 5	R21	G 1		
C209	F 5	R22	F 2		
C210	F 5	R23	G 2		
C211	F 4	R24	G 2		
C212	F 4	R25	G 2		
C213	F 4	R26	F 1		
C214	F 6	R27	F 2		
C215	F 5	R28	E 2		
		R29	F 2		
D1	D 3	R30	F 3		
D2	D 3	R31	F 2		
D3	E 2	R32	F 2		
D4	E 3	R33	F 2		
D5	D 3	R34	F 3		
D6	F 1	R35	F 3		
D7	F 2	R36	E 3		
D8	F 2	R37	E 2		
D9	E 1	R38	F 2		
D10	F 2	R39	F 2		
D11	F 3	R40	F 2		
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D110	C 4	R51	F 2		
D111	C 6	R52	G 2		
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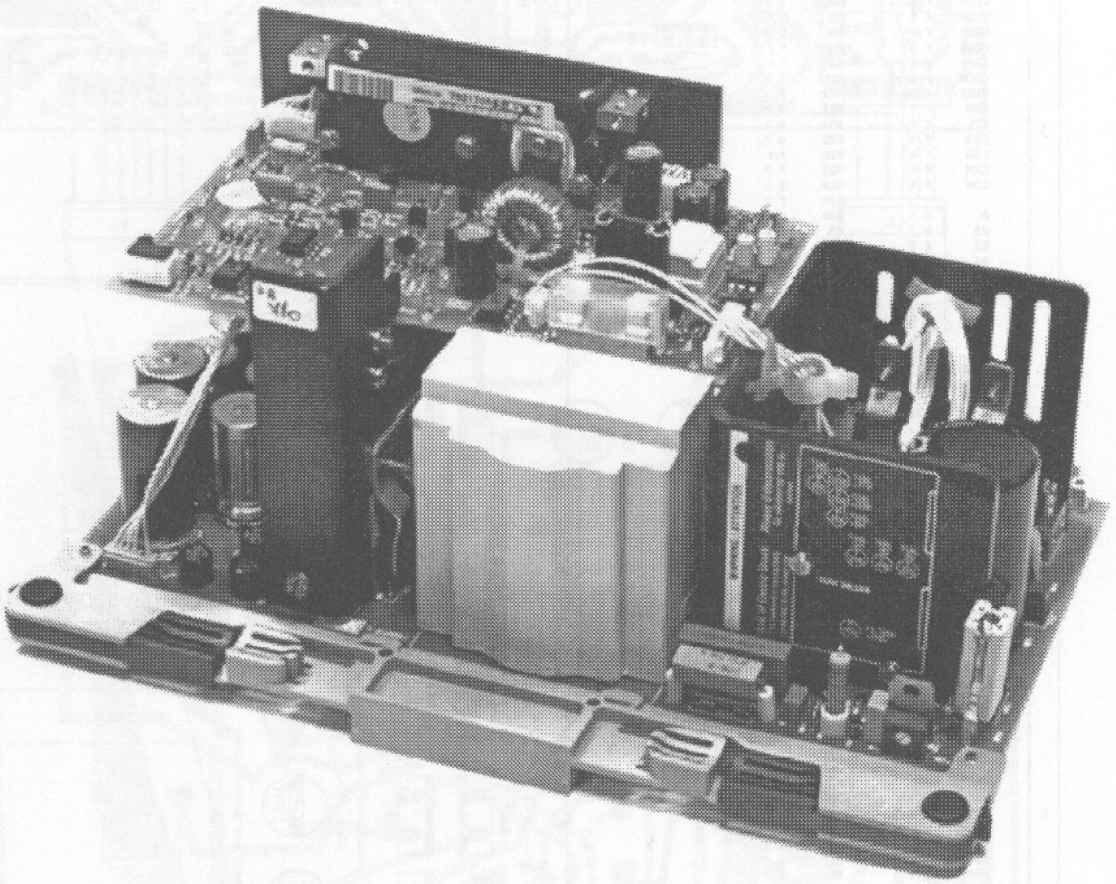
D208	E 4	R109	C 5		
D209	E 5	R110	C 5		
D210	E 5	R111	C 5		
D211	F 5	R112	C 5		
		R113	C 5		
F1	D 1	R114	C 5		
F100	B 4	R115	C 5		
F200	F 4	R116	C 5		
F201	F 4	R117	C 5		
F202	E 5	R118	C 5		
F203	E 5	R119	C 4		
F204	F 4	R120	C 4		
F205	F 4	R121	C 4		
F206	E 5	R122	C 4		
		R123	C 4		
IC1	D 2	R124	C 4		
IC2	E 2	R125	C 4		
IC3	F 1	R126	C 4		
IC4	F 2	R127	C 4		
IC5	E 2	R128	C 4		
IC100	D 5	R129	C 4		
IC101	C 4	R130	C 4		
IC102	D 4	R131	C 4		
IC130	D 5	R132	C 4		
		R133	B 4		
J1	D 2	R134	D 6		
J2	B 4	R135	C 5		
J2	D 1	R136	C 4		
J2	B 4	R137	C 4		
J3	F 3	R138	C 5		
J3	D 4	R200	E 6		
J4	D 3	R202	E 5		
J4	E 6	R203	E 5		
J5	D 2	R204	E 6		
J6	E 2	R205	F 6		
J8	C 5	R206	E 6		
J8	F 4				
J20	D 6	T1	D 2		
J20	D 6	T1	E 5		
		T2	E 4		
L1	E 2				
L100	C 5	TH	B 4		

Name	Article nr.
SM POWER SUPPLY	76 21705-6
Date: 15-02-1995 / Drawn: JVDY / Checked: PGV	
BARCO PROJECTION SYSTEMS	

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



BARCO

J1A	J1B	J2A	J2B	J3A	J3B	J9A	J10A	J10B	J600	J601	J776	J1A	J1B	J2A	J2B	J3A	J3B	J9A	J10A	J35	J4A	J4B	J5A	J6A	J6B	J7A	J7B	J8A	J8B	J11	J28	J29	J30	J31	J33	J36	J37	J38	J132	J134	J138	J133	J135	J137	J148	J150	J8A	
CONVERGENCE MODULE												CONVERGENCE MODULE									VERTICAL DEFLECTION + SYNC MODULE																													
DYNAMIC STIGMATOR MODULE												CONVERGENCE MODULE									VERTICAL DEFLECTION + SYNC MODULE																													
HORIZONTAL SHIFT + MAGNETIC FOCUS												HORIZONTAL SHIFT MODULE									SECOND RGB ANALOG INPUT MODULE																													
HORIZONTAL SHIFT + MAGNETIC FOCUS												HORIZONTAL SHIFT MODULE									RGB ANALOG INPUT + INPUT SWITCHING MODULE																													
HORIZONTAL DEFLECTION MODULE												HORIZONTAL DEFLECTION MODULE									RGB ANALOG INPUT + INPUT SWITCHING MODULE																													
HORIZONTAL DEFLECTION MODULE												HORIZONTAL DEFLECTION MODULE									DECODER + RGB DRIVER MODULE																													
POWER MAINS INPUT MODULE												MAINS INPUT MODULE									SWITCH MODE POWER SUPPLY MODULE																													
SECOND SMPS + G2 + DIAGNOSTIC MODULE												ELECTRICAL FOCUS + G2 + DIAGNOSTIC MODULE									SWITCH MODE POWER SUPPLY MODULE																													
SECOND SMPS + G2 + DIAGNOSTIC MODULE												BUILD IN REMOTE CONTROL MODULE									PORT 3 (SECOND RGB ANALOG INPUT)																													
HORIZONTAL AMPLITUDE COILS																					CONTROLLER MODULE																													
FANS																					CONTROLLER MODULE																													
FUTURE EXPANSION																					CONTROLLER MODULE																													
																					CONTROLLER MODULE																													
																					COMMUNICATION PORT (800 PERIPHERALS)																													
																					IR RECEIVER MODULE (REAR)																													
																					FANS																													
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																					CRT SOCKET MODULE (GREEN)																													
																					CRT SOCKET MODULE (BLUE)																													
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																					RGB OUTPUT MODULE (GREEN)																													
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																												1																		19	←	1	+17VM
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						30				3								26										3																	16		3	GNDM
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						30				3								26										5																	16		5	GNDM
						30				3								26										6																	16		6	GNDM
						30				3								26										7																	16		7	GNDM
						30				3								26										8																	16		8	GNDM
						30				3								26										9																	16		9	GNDM
						29				3								26										10																	24		10	GNDM
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						28				3								26										17																	24		17	GNDM
																												18																				18	
						16												31										19																			→	19	AC_1
						17												32										20																			→	20	AC_1
						18												31										21																			→	21	AC_1
						19												32										22																			→	22	AC_1
						20												31										23																			→	23	AC_1
						20												32										24																			→	24	AC_1
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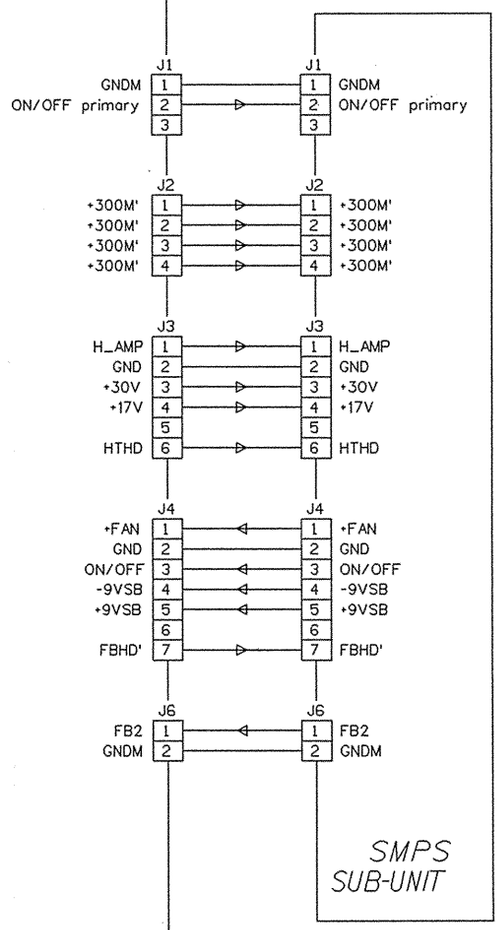
						8												28										27																			→	27	AC_2
						12												29										28																			→	28	AC_2
																												29																				29	
																												30																				30	
						24												23										31																			→	31	+300VM
						26												24										32																			→	32	+300VM
J1A	J1B	J2A	J2B	J3A	J3B	J9A	J10A	J10B	J600	J601	J776	J1A	J1B	J2A	J2B	J3A	J3B	J9A	J10A	J35	J4A	J4B	J5A	J6A	J6B	J7A	J7B	J8A	J8B	J11	J28	J29	J30	J31	J33	J36	J37	J38	J132	J134	J138	J133	J135	J137	J148	J150	J8B	
2	9		23				16					6			28				18			27	30		30		20		1					5													←	1	-17V
2	9		23				16					6			28				18			27	30		30		20		2					5													←	2	-17V
			19		32									15															3																	→	3	H_AMP
	11											9																	4																	←	4	+19V
11			1	20			10									20	20		24		19	32	32		31		29		5														5			←	5	+17V
1							12												22		10								6						8											←	6	+30V
																													7																		7	
							22												12								13		8													9	9	9	1		←	8	+210V
				1			18					1			13	1			16		4						32		9																	←	9	HTHD
				1			18					1			13	1			16		4						32		10																	←	10	HTHD
		29												29															11																	←	11	+SHIFT
		29												29															12																	←	12	+SHIFT
		21												21															13																	←	13	-SHIFT
		21												21															14																	←	14	-SHIFT
		30			7									30			7												15																	→	15	HDL
		30			7									30			7												16																	→	16	HDL
32	26		30	11	27	1	25			3		32	26	11	30	11	27	19	9	4	32	5	10		23	22	2		17	9	8		2	1	4	3	3	6	6	6	1	1	1	9	8		17	GND
32	25		30	11	26	2	25			3		32	25	11	30	11	26	19	9	4	11	5	10		20	22	5		18	9	8		2	1	4	3	3	6	6	6	1	1	1	9	8		18	GND
31	8		29	11	2	3	25			3		31	8	11	29	11	2	18	9	4	30	4	9		5	23	8		19	5	7		2	1	4	3	3	6	6	6	1	1	1	8	8		19	GND
31	6		29	11	1	4	25			3		31	6	11	29	11	1	18	9	4	21	4	9		5	23	9		20	5	7		2	1	4	3	3	6	6	6	1	1	1	8	8		20	GND
16	28		31				20						28						14			30	24		32		30		21					3													←	21	+9V
16	28		31				20						28						14			30	24		32		30		22					3													←	22	+9V
16	28		31				20						28						14			30	24		32		30		23					3													←	23	+9V
21	32		27				14						32						20		2								24													7	7	7			←	24	-9V
21	32		27				14						32						20		2								25													7	7	7			←	25	-9V
																													26											4	4	4						←	26	+FIL
																													27											5	5	5						←	27	-FIL
																													28			7															←	28	ON/OFF
	10												10																29																		←	29	-9VSB
	12												12							2									30	4	1					2											←	30	+9VSB
																													31								1	1									←	31	+FAN
				14													14												32																		→	32	FBHD

808 SERIES

801 SERIES

801 & 808 SERIES

SWITCH MODE POWER SUPPLY



Modifications reserved

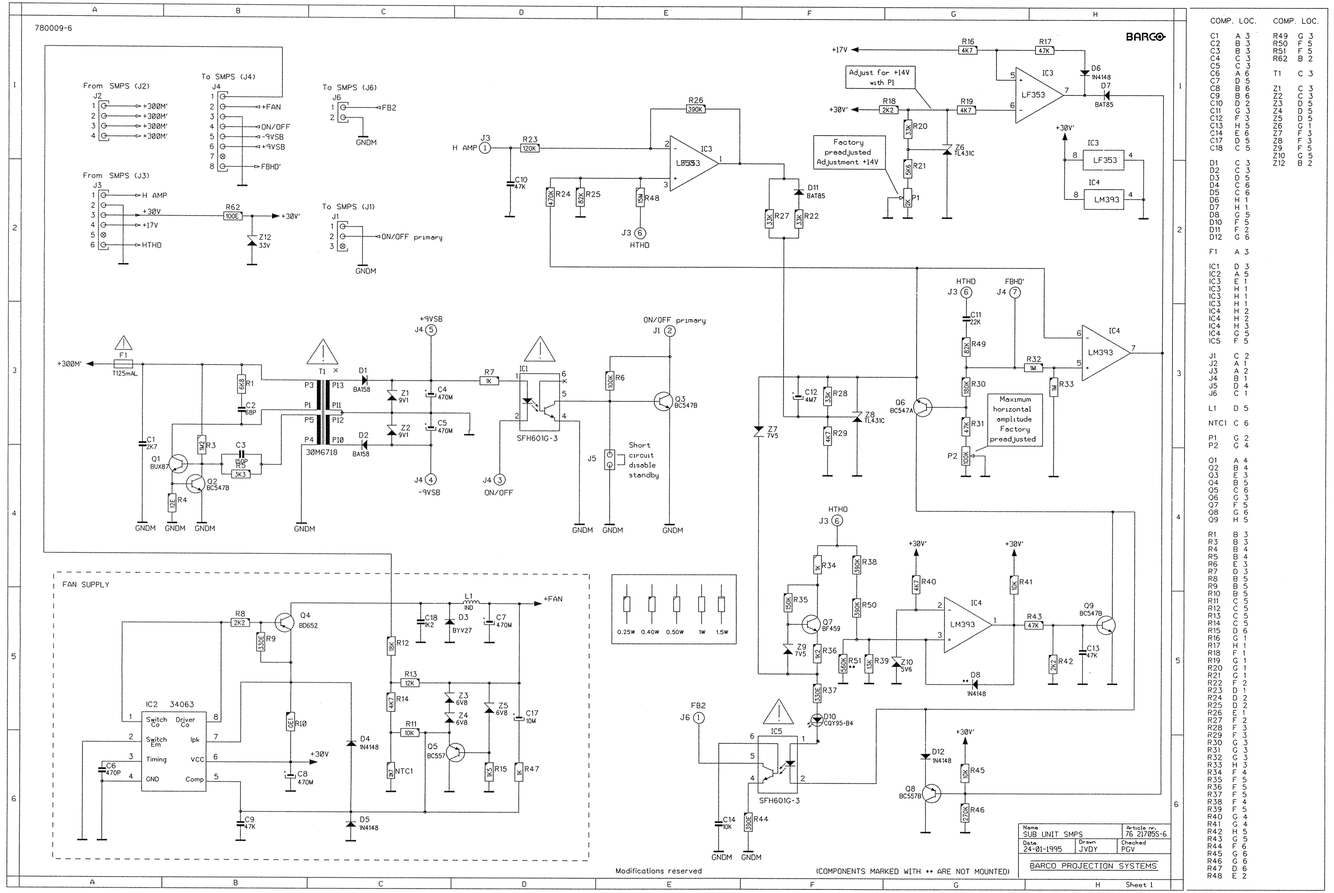
Name Interconnections SM POWER SUPPLY		Article nr. 76 21705
Date 28-06-1995	Drawn JVDY	Checked PGV

BARCO PROJECTION SYSTEMS

Sheet 1

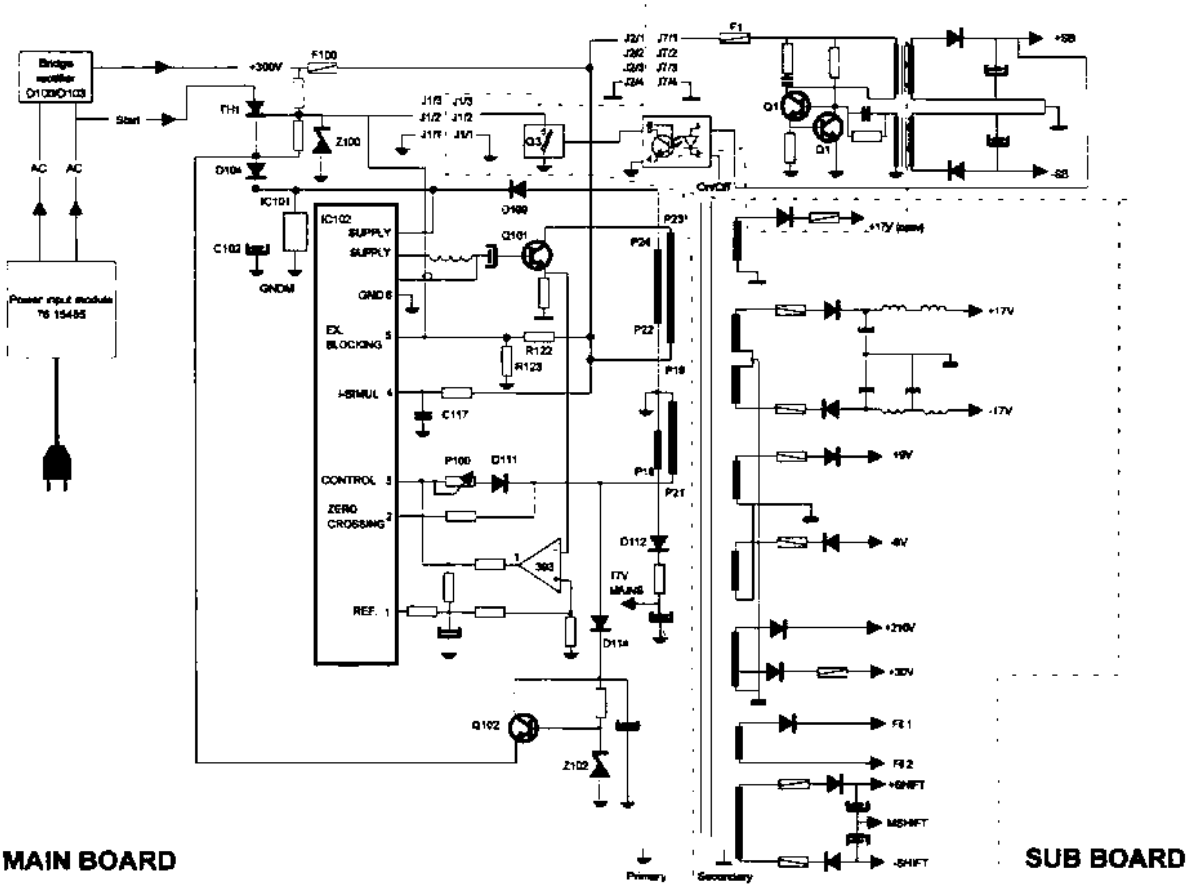
SCHEMATIC NAME: con2.sch SHEET NUMBER: 1 DATE: Jul 3, 1995

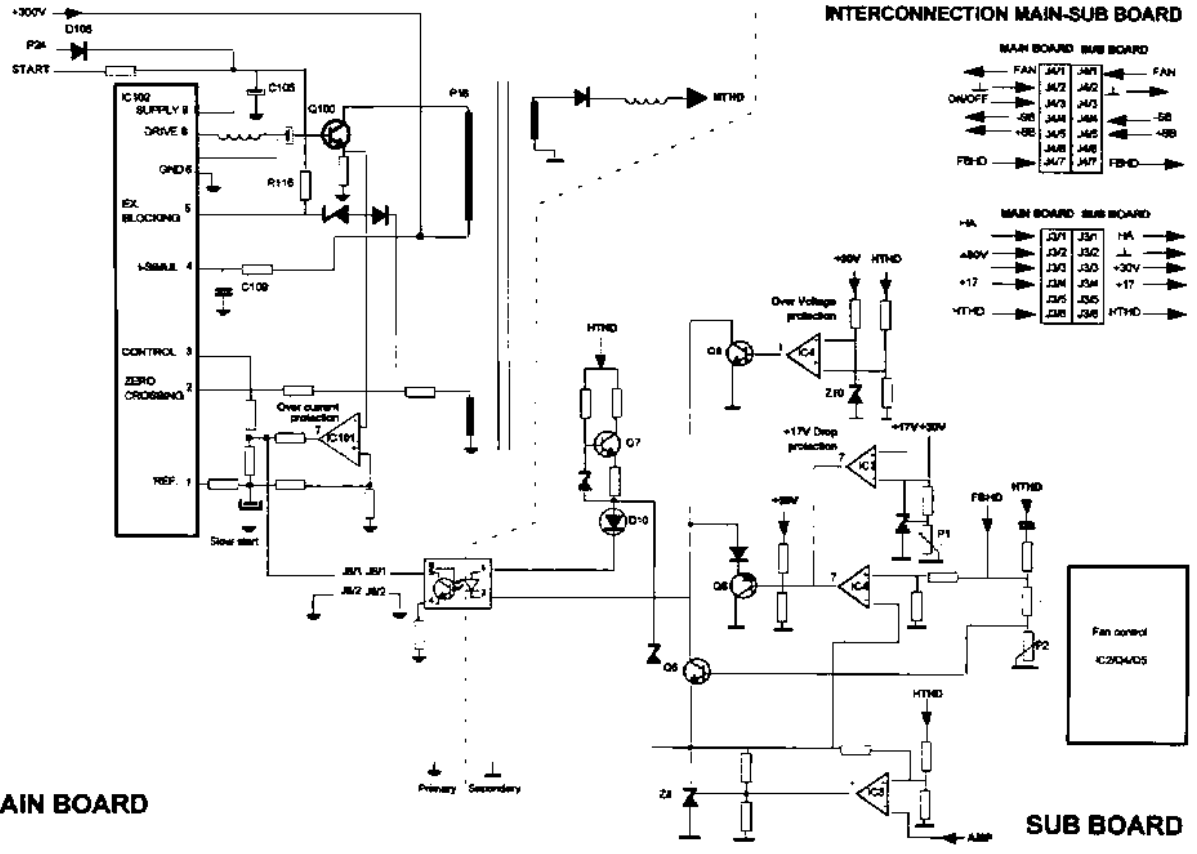
780009-6



COMP.	LOC.	COMP.	LOC.
C1	A 3	R49	G 3
C2	B 3	R50	F 5
C3	B 3	R51	F 5
C4	C 3	R62	B 2
C5	C 3		
C6	A 6	T1	C 3
C7	D 5		
C8	B 6	Z1	C 3
C9	B 6	Z2	C 3
C10	D 2	Z3	D 5
C11	G 3	Z4	D 5
C12	F 3	Z5	D 5
C13	H 5	Z6	G 1
C14	E 6	Z7	F 3
C17	D 5	Z8	F 3
C18	C 5	Z9	F 5
		Z10	G 5
D1	C 3	Z12	B 2
D2	C 3		
D3	D 5		
D4	C 6		
D5	C 6		
D6	H 1		
D7	H 1		
D8	G 5		
D10	F 5		
D11	F 2		
D12	G 6		
F1	A 3		
IC1	D 1		
IC2	A 5		
IC3	E 1		
IC3	H 1		
IC3	H 1		
IC3	H 1		
IC4	H 2		
IC4	H 2		
IC4	G 3		
IC4	G 5		
IC5	F 5		
J1	C 2		
J2	A 1		
J3	A 2		
J4	B 1		
J5	D 4		
J6	C 1		
L1	D 5		
NTC1	C 6		
P1	C 2		
P2	G 4		
Q1	A 4		
Q2	B 4		
Q3	E 3		
Q4	B 5		
Q5	C 5		
Q6	G 3		
Q7	F 5		
Q8	G 6		
Q9	H 5		
R1	B 3		
R3	B 3		
R4	B 4		
R5	B 4		
R6	E 1		
R7	D 3		
R8	B 5		
R9	B 5		
R10	E 5		
R11	C 5		
R12	C 5		
R13	C 5		
R14	C 5		
R15	D 6		
R16	G 1		
R17	H 1		
R18	F 1		
R19	G 1		
R20	G 1		
R21	G 1		
R22	F 2		
R23	D 1		
R24	D 2		
R25	D 2		
R26	E 1		
R27	F 2		
R28	F 3		
R29	F 3		
R30	G 3		
R31	G 3		
R32	G 3		
R33	H 3		
R34	F 4		
R35	F 5		
R36	F 5		
R37	F 5		
R38	F 4		
R39	F 5		
R40	G 4		
R41	G 4		
R42	H 5		
R43	G 5		
R44	F 6		
R45	G 6		
R46	G 6		
R47	D 6		
R48	E 2		

SCHEMATIC NAME: 7621705s.sch SHEET NUMBER: 1 DATE: Feb 2, 1995


MAIN BOARD
SUB BOARD


INTERCONNECTION MAIN-SUB BOARD
MAIN BOARD
SUB BOARD

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.

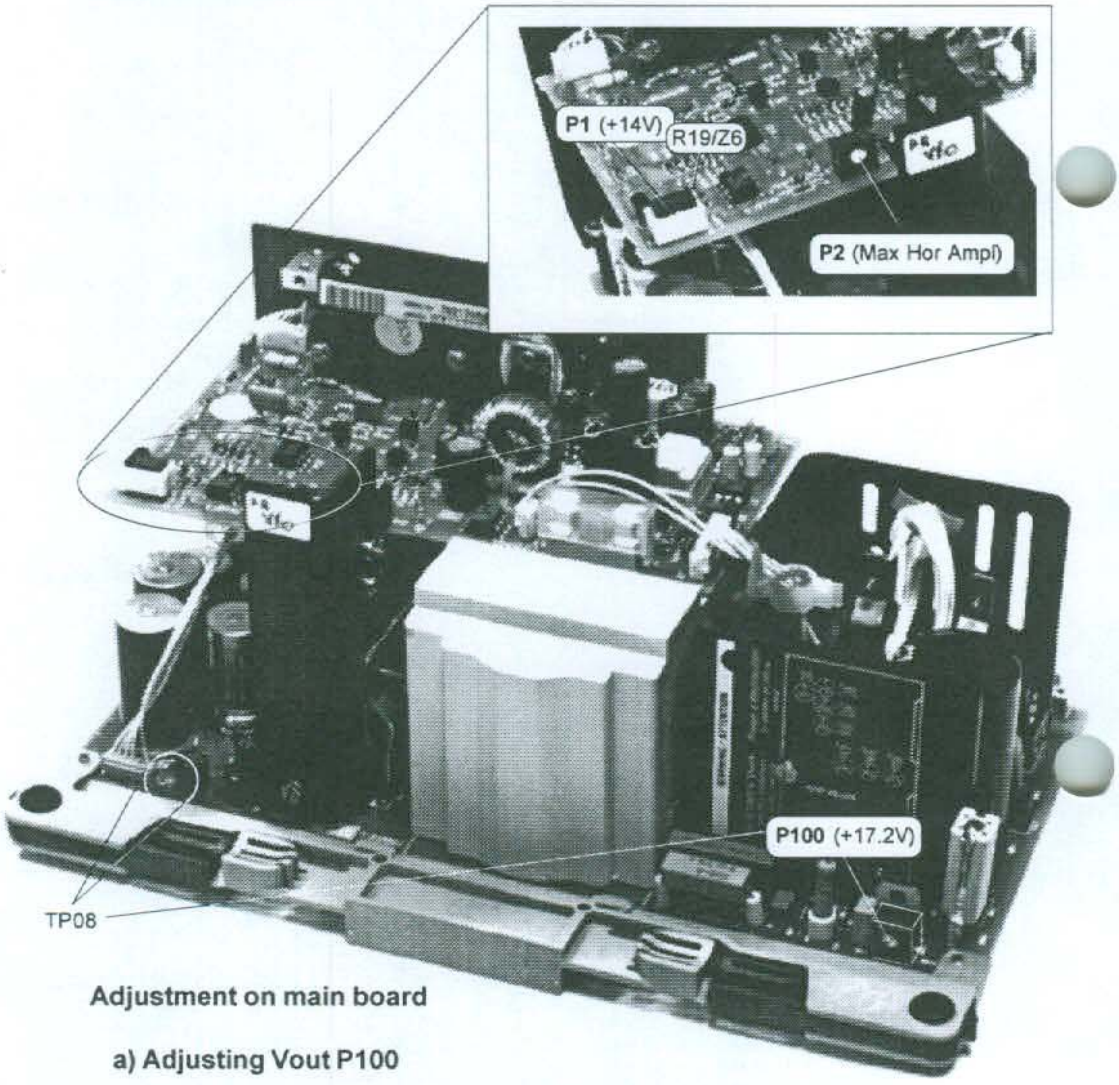
PREPARATION

Select the internal generated test pattern or an input source at standard frequency (refer to owner's and installation manual).

Put the BRIGHTNESS and CONTRAST level in mid-position (refer to owner's manual).

ADJUSTMENTS

Location of controls



Adjustment on main board

a) Adjusting Vout P100

Connect a voltmeter to the provided test point 'J8' (+17.2V).
Adjust potentiometer P100 for +17.2V on testpoint.

Adjustments on sub-board

b) Adjusting +14V P1

Important: P1 is factory pre-adjusted. A readjustment is only necessary after a replacement of a defective component in the +17V drop circuit.

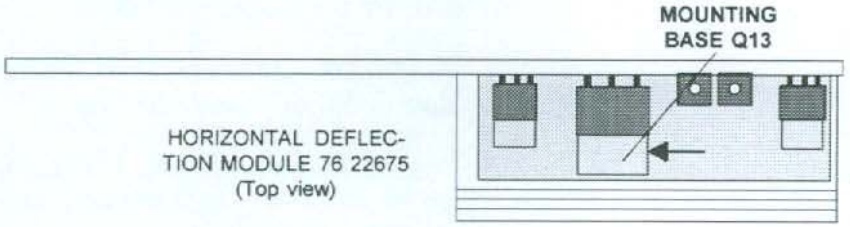
Adjustment procedure: Connect a voltmeter to the node R19/Z6.
Adjust potentiometer P1 for +14V on that node.

c) Adjusting MAX HOR AMPL P2 (at standard frequency)

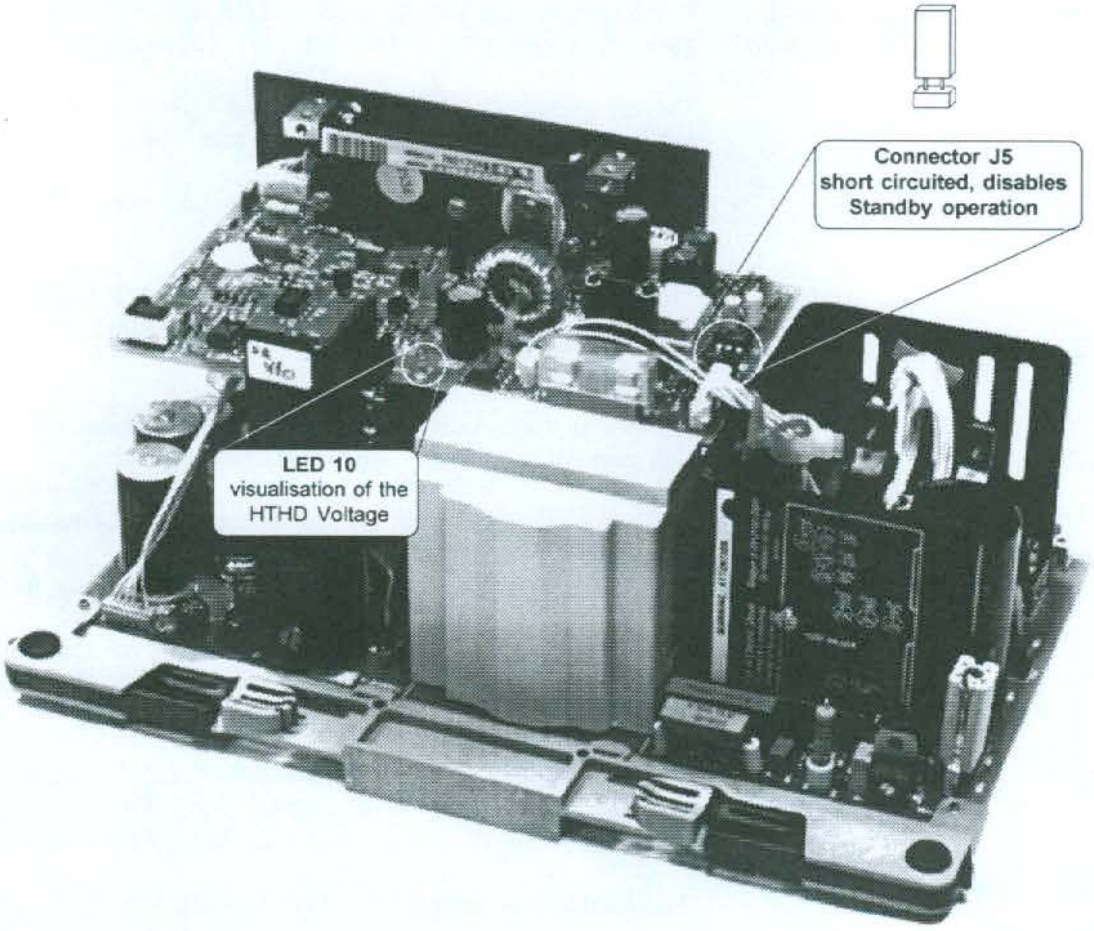
Adjust the Horizontal Amplitude of the displayed picture by means of the RCU800 on its maximum (bar scale on screen indicates 99). (Refer to the owner's manual to select the corresponding menu).

Connect a voltmeter to the collector (Collector connected to mounting base) of transistor Q13 (BDV65C) on the Hor. Defl. board.

Adjust potentiometer P2 for +48V on collector.



Service points provided on the module



TECHNICAL DESCRIPTION SWITCHED MODE POWER SUPPLY (76 21705)

introduction.

On the main board of this module we find the generation of all stable voltages, we mean voltages independent on the line frequency, and the variable +HTHD voltage (referred to as the second SMPS).

This second SMPS is linked via the subunit with the horizontal deflection board as the +HTHD voltage (horizontal scan voltage) is linearly proportional with the line frequency.

Because the 'second' SMPS utilizes the rectified voltage from the winding P22-P24, this SMPS totally depends on the 'first' one', or in other words, if the first SMPS is down , the second one 'follows' .

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

The subunit comprises the DC-fan control, the regulation circuit for the +HTHD, its Under- and Overvoltage protection circuits, the +17volts drop protection and the stand-by power supply.

Generation of the line frequency independent voltages.

The mains voltage is rectified by the bridge D100 and the +300 volts is now the supply voltage for the power switches Q100 and Q101 on the main board.

The connector J2 brings this voltage to the subunit where it is used for the production of the stand-by voltages (-) and (+) SB.

We assume that the thyristor TIC106D is conducting (its gate is not clamped at ground level, see later).

The positive halfwave of the mains voltage (START) charges C102 via D104 . The gate of the thyristor is set at 11 volts with the zener Z100 through R101 from the +300volts.

As soon as the capacitor voltage of C102 reaches approximately 12 volts, the IC can start up by driving the base of the power switch.

The diode D104 stops conducting as its anode is at about (11 + 0.6) volts.

The thyristor gets blocked as well, because its cathode equals the gate voltage.

In the meantime the IC102 has started up and the voltage at pin 9 receives its supply voltage now from the winding 24-22 of the T2 transformer via D109, stabilized with IC130.

The push-pull outputs, pins 7 and 8, drive the Q101 power switch and during the off time of the latter the accumulated energy in the primary winding is transferred to the secondary capacitors via the rectifying diodes (flyback principle).

The feedback winding 20-22 provides two informations for the control IC :

Firstly, 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.

Secondly, the negative amplitude is rectified by D111 and compared with the reference 4 volts that is available at pin 1.

The 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 windings P18-P22 also serves as a help at starting up. This windings provides energy the moment the P22-P24 winding does not. The rectified voltage (D131) passes to pin 9 up to the moment that pin has reached 12 volts.

The current through the power switch is at all times checked and if too high (in the event of a short on the secondary side) the comparator 393 (IC101) output drops the error voltage in order to adapt the duty cycle of the switcher.

Note that a "special" winding is provided, delivering **+17M**, or, 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 **Mains ground and <u>not</u> Chassis ground**. (see description EHT board).

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 (FBHD) is for that reason arriving on the subunit.

This feedback voltage, at contact J4(8) (FBHD') of the subunit, is sent to the base of the error amplifier Q6. The potentiometer P2 allows an adjustment of this feedback, or in other words, the horizontal width can be aligned with P2.

The emitter of Q6 is set at a reference zener voltage, adjustable with the voltage at the regulating pin of Z8. This voltage is the result of the output of the DC-amplifier-buffer 353, combined with the +HTHD voltage.

By this measure, we reduce the range of the horizontal width at high scanning frequencies. Indeed, at standard video frequency we need much more range to overscan.

The collector current of the regulating transistor Q6 flows into the opto-coupler IC5 and the phototransistor of this insulating device (pin5-FB2) is now regulating via connector J6 (pin 1) the DC voltage at pin 3 of IC100, in order to stabilize the +HTHD voltage for one typical line frequency and amplitude setting.

The transistor Q7 is a 5mA current generator and D10 a **green** LED to visualise the +HTHD voltage.

Overvoltage protection.

Pin 2 of the 393 (IC4) is set at 5.6 volts with Z10 and, the other input, pin 3 is the scan voltage divided by R38/R50/R39.

As soon this input exceeds the zener voltage, the output switches high and saturates transistor Q9. The saturated transistor Q9 pulls pin 2 of IC5 at ground level. The incorporated Led has its max emission whereas pin 5 is pulled at ground level via R44. This ground level, applied to IC100, drops the +HTHD voltage to a low level.

The original overvoltage protection is now is causing an undervoltage protection.

Undervoltage protection.

The stabilized zener voltage with Z8 is used as reference voltage for the comparator 393, pin 6. Now, the other pin 5 is the +HTHD voltage.

If the pin 5 drops below the reference voltage, the output switches low, and the transistor Q8 saturates, pulling again pin 2 of IC5 low.

Protection against too low +17 volts.

If, for some reasons, 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).

The pin 6 of IC3 is preadjusted, ex factory, at 14 volts with P1 (refer to the adjustment procedure)

This happens with the comparator in IC3 and its output pin 7 saturates again Q8.

Stand-by / ON-OFF switching.

An oscillator is built up around Q1/Q2 and the transformer T1.
Q1 gets its base current via R3. The collector current of the latter flows in the winding 1-3 and induces a voltage in the winding 5-4 ' encouraging' the base current.

As soon the emitter voltage of Q1 can drive the Q2 and saturate it, this transistor clamps the base of Q1 at ground level and cuts off Q1. 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 4 of the J4 connector ('OFF') is in this case 'high' and this means for the optocoupler IC1 that the phototransistor is not conducting.

The transistor Q3 is thus saturated as R6 can provide the required base-emitter current.

The collector 'ON/OFF primary' of Q3 is 'low'. Furthermore, via connector J1 (pin 2), the pin 5 of IC102 is below its "active level" via the diode D105, disabling the drive output.

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

b) Operational mode (ON).

The I/O block of the controller board (collector of a transistor) pulls now contact 4 of J4 at a low level 'ON' to light the LED in the opto-coupler IC1.

Now, the phototransistor of the latter is saturated and brings the base of Q3 at nearly ground level. This means now for this transistor an OFF state.

The zener Z100 on the motherboard can now install +11 volts at the gate of the thyristor allowing the charge of the capacitor C102.

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.

IC2 is an integrated circuit regulating the speed of the fans by adapting the duty cycle of the output drive for the power transistor Q4. L1 and C7 filters the output voltage.

The feedback is applied to pin 5 which is protected against arcing with D4/D5.

MC34063 is a switching regulator. An oscillator trimmed with C6 is applied together with a dc voltage to an RS-flipflop via an AND gate. That DC voltage now is the result of a comparator output receiving an internal reference voltage of 1.25 volts and the feedback voltage at pin 5 (comp). Consequently, the duty cycle depends on the DC voltage that is built up as follows :

- it is determined by the output voltage via R13 / R14 / R11 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 minimun voltage is set by Z5 at approximately 7.5 volts and the maximum speed by Z4 + Z4. at 15 volts.

The maximum current output is limited by R10, and an RC feedback straight from the output to pin 5 provides a more regular speed at any time.

Power supply for the EHT generator.

The EHT generator is supplied directly from the rectified mains voltage. The +300M volts is leaving the board at the contacts 31/32 of the J8A connector for the EHT board (see description of that board)

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.

PARTS LISTING 76 21705

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
51	R133036	SPR L 6 D 6 D 2.4 C	3
50	R133039	SPR L 8 D 4 D 1.2 C	2
121	R133063	Q ACC ISO MICA SOT93	2
222	R133074	Q ACC ISO SIL600 W 30	0,08
225	R133074	Q ACC ISO SIL600 W 30	0,07
10	R302102	CORE TUBE 4.95/1.3 X40.5	1
60	R315302	J PIN PR D1.3L 5.5+3	1
	R34217209	WU UL1007 AWG24 ST RD 90	1
	R34699302	SLVU SHR D 9,6/4,8 BK 20	1
250	R348020	CBLA TIE B L110 W	1
140	R348086	CBLA SLCSE D 8,9	2
	R3484022	CD CT FTMT P 2 240	1
	R3484036	CD CT $FTMT P 3 225	1
	R3484044	CD CT FTMT P 4 225	1
	R3484063	CD CT $FTMT P 6 175	1
	R3484082	CD CT FTMT P 8 150	1
213	R3619125	SCR D965 M 3 X 6 PS B	1
22	R3620226	SCR D84 M 3 X 8 SI	1
230	R3620226	SCR D84 M 3 X 8 SI	1
21	R3626696	SCR D921 M 3 X 8 SI	2
140	R3626696	SCR D921 M 3 X 8 SI	1
111	R3631049	SCR D933 M 3 X 6 XIC	4
211	R3631049	SCR D933 M 3 X 6 XIC	1
122	R3631059	SCR D933 M 3 X 8 XIC	7
302	R3631059	SCR D933 M 3 X 8 XIC	4
223	R3631079	SCR D933 M 3 X 12 XIC	4
110	R367600	NUT BLOC M 3	2
210	R367600	NUT BLOC M 3	2
20	R3676091	SPR L17 H 5,5 M 3 BIN	1
10	R367699	RVT CHB D2.38L6.35 P A	4
1010	R367699	RVT CHB D2.38L6.35 P A	2
1000	R722276	LOCK PJ49 PCB UN CPL	1
	R7621705S	UN SMP PJ49 G801 STAND BY	1
200	R802631	HTSNK PJ49 SMP PART 2	1
123	R804831	Q ACC SPG 1X 3.1 LONG	1
301	R804831	Q ACC SPG 1X 3.1 LONG	1
120	R804832	Q ACC SPG 1XM3 LONG	3
220	R804833	Q ACC SPG 2X 3.1 LONG	2
221	R804834	Q ACC SPG 2XM3 LONG	2
100	R805857	FRM PJ56 G808 SMP HTSNK	1
C 1	R1147009	C CE DI 4N7M400E5 Y	1
C100	R112837	C CE DI 10N S400E3	1
C101	R112837	C CE DI 10N S400E3	1
C102	R111477	C EL RA 100M Z 25E2 85	1
C103	R111576	C EL RA 390M M400E4 85	1
C104	R111477	C EL RA 100M Z 25E2 85	1
C105	R111477	C EL RA 100M Z 25E2 85	1
C106	R1150051	C PPMERA 2N2J152E9 HV	1
C107	R113724	C POMERA 100N K 63E2	1
C108	R114090	C POMERA 1M M 63E2	1
C109	R115932	C PP RA 4N7J 63E2	1
C110	R112740	C CE MI 1N2K100E2	1
C111	R112238	C NP0 MI 47P G100E2	1
C112	R115932	C PP RA 4N7J 63E2	1
C113	R111453	C EL RA1000M Z 6E2 85	1
C114	R111477	C EL RA 100M Z 25E2 85	1
C115	R1150051	C PPMERA 2N2J152E9 HV	1
C116	R113724	C POMERA 100N K 63E2	1
C117	R115936	C PP RA 6N8J 63E2	1
C118	R114090	C POMERA 1M M 63E2	1
C119	R115934	C PP RA 5N6J 63E2	1
C120	R112739	C CE MI 1N K100E2	1
C121	R111477	C EL RA 100M Z 25E2 85	1
C122	R111477	C EL RA 100M Z 25E2 85	1
C130	R113724	C POMERA 100N K 63E2	1
C131	R111477	C EL RA 100M Z 25E2 85	1
C200	R111649	C EL RA 47M T350SKT 85	1
C201	R111649	C EL RA 47M T350SKT 85	1
C202	R111626	C EL RA1000M T 40SKT 85	1
C203	R111626	C EL RA1000M T 40SKT 85	1
C204	R111626	C EL RA1000M T 40SKT 85	1
C205	R111626	C EL RA1000M T 40SKT 85	1
C206	R111616	C EL RA2200M T 16SKT 85	1
C207	R111616	C EL RA2200M T 16SKT 85	1
C208	R111649	C EL RA 47M T350SKT 85	1
C209	R111626	C EL RA1000M T 40SKT 85	1
C210	R111626	C EL RA1000M T 40SKT 85	1
C211	R111616	C EL RA2200M T 16SKT 85	1
C212	R111616	C EL RA2200M T 16SKT 85	1
C213	R111716	C CE MI 680P 102E3 HV	1
C214	R112762	C CE MI 4N7U100E2	1
C215	R111716	C CE MI 680P 102E3 HV	1
D100	R132029	D B D20B60 60020A	1
D104	R131646	D R 1N4007 10201A DO41	
D105	R131621	D S 1N4148 075150 DO35	
D106	R131646	D R 1N4007 10201A DO41	1
D107	R131646	D R 1N4007 10201A DO41	1
D108	R131637	D R BA158 600400 DO7	1
D109	R131646	D R 1N4007 10201A DO41	1
D110	R131646	D R 1N4007 10201A DO41	1
D111	R131637	D R BA158 600400 DO7	1
D112	R131637	D R BA158 600400 DO7	1
D113	R131637	D R BA158 600400 DO7	1
D130	R131637	D R BA158 600400 DO7	1
D131	R131637	D R BA158 600400 DO7	1
D200	R131913	D R BY329 10208A TO220C	1
D201	R131927	D R BY229 60007A TO220C	1
D202	R131927	D R BY229 60007A TO220C	1
D203	R131914	D Y 04510A TO220	1
D204	R131927	D R BY229 60007A TO220C	1
D205	R131913	D R BY329 10208A TO220C	1
D206	R131927	D R BY229 60007A TO220C	1
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D208	R131927	D R BY229 60007A TO220C	1
D209	R131927	D R BY229 60007A TO220C	1
D210	R131927	D R BY229 60007A TO220C	1
D211	R131646	D R 1N4007 10201A DO41	
F100	R314147	F 5X20 F 3A15 H RU/VDE	1
F200	R314188	F TR5 T 4A L RU/VDE	1
F201	R314183	F TR5 T 5A L UL/IEC	1
F202	R314183	F TR5 T 5A L UL/IEC	1
F203	R314183	F TR5 T 5A L UL/IEC	1
F204	R314186	F TR5 T 2A L RU/VDE	1
F205	R314188	F TR5 T 4A L RU/VDE	1
F206	R314188	F TR5 T 4A L RU/VDE	1
H100	R314516	F ACC HLDR 6A 5X20 PC/HSG	1
I100	R132787	U 4601 TDA SIP9 P	1
I101	R134114	U 393 LM DIP8 P	1

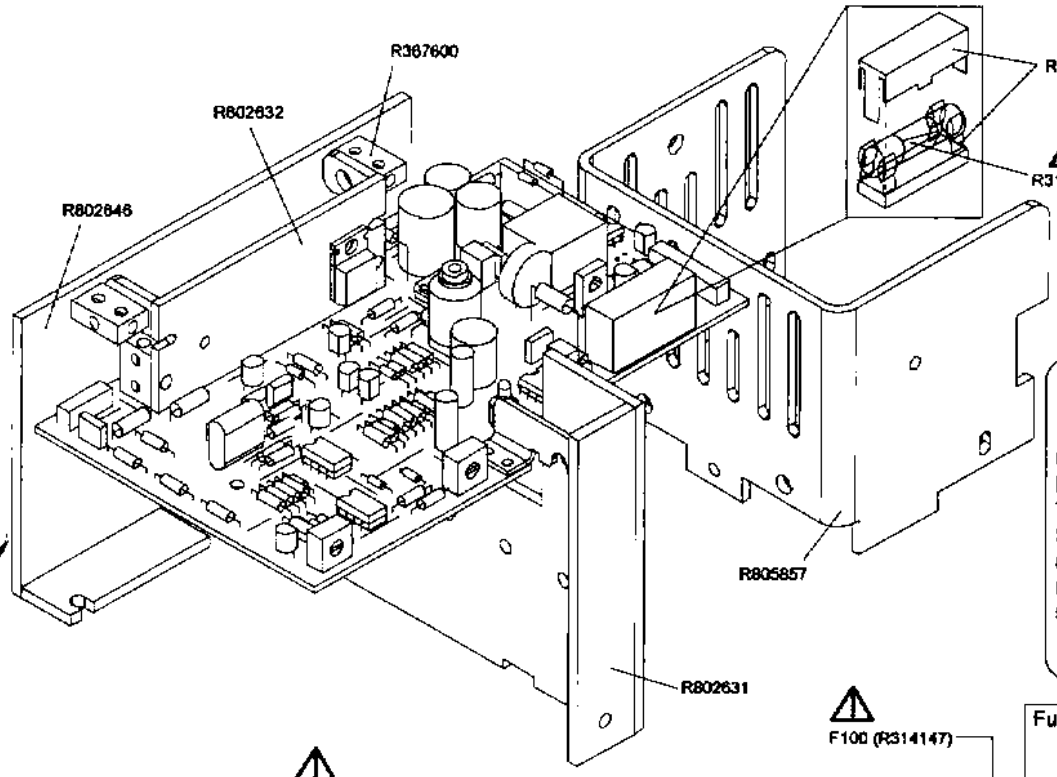
I102	R132787	U 4601 TDA SIP9 P	1
I130	R134010	U 7815 TO220 P	1
J10	R314068	J EUR3C MBS P96 E1C2S 1,6	1
J20	R313525	J EUR2C MBS P64 E1C2S 1,6	1
L100	R302108	CORE TUBE 3.5 /1.3 X 3	1
L101	R302108	CORE TUBE 3.5 /1.3 X 3	1
L102	R302102	CORE TUBE 4.95/1.3 X40.5	1
L103	R3061322	CH AX NS 10 UH	1
L105	R3061322	CH AX NS 10 UH	1
L200	R305913	CH MNS AX 12 UH 3A	1
L201	R305913	CH MNS AX 12 UH 3A	1
L202	R305913	CH MNS AX 12 UH 3A	1
L203	R305913	CH MNS AX 12 UH 3A	1
L204	R305913	CH MNS AX 12 UH 3A	1
L205	R305913	CH MNS AX 12 UH 3A	1
P100	R106828	R TCE V 5K K 0W5 S10SS	1
PC	R780010	BPS PJ49 800 SMP 7	1
PTC1	R105211	R PTC 4K7	1
Q100	R132913	Q BUP101 N P TO218	1
Q101	R132913	Q BUP101 N P TO218	1
R 1	R1046781	R HV H 10M J 1W 10000	1
R100	R1041698	R WWFV 1K5 K 3W	1
R101	R101267	R MF H392K F 0W6 E4	1
R102	R100144	R CF V 4K7 J 0W25 E2	1
R103	R101266	R MF H332K F 0W6 E4	1
R104	R102499	R MF H E33J 0W6	1
R105	R101217	R MF H 27E4 F 0W6 E4	1
R106	R103600	R WW H E1 K 4W	1
R107	R101265	R MF H274K F 0W6 E4	
R108	R101536	R MF H 1K F 0W4 E3	
R109	R101545	R MF H 5K6 F 0W4 E3	
R110	R101545	R MF H 5K6 F 0W4 E3	
R111	R103226	R MO H150E J 1W5	1
R112	R101536	R MF H 1K F 0W4 E3	
R113	R101528	R MF H220E F 0W4 E3	
R114	R101529	R MF H270E F 0W4 E3	
R115	R101536	R MF H 1K F 0W4 E3	
R116	R101560	R MF H100K F 0W4 E3	
R117	R101535	R MF H820E F 0W4 E3	
R118	R1015281	R MF H200E F 0W4 E3	1
R119	R102499	R MF H E33J 0W6	1
R120	R101217	R MF H 27E4 F 0W6 E4	1
R121	R103600	R WW H E1 K 4W	1
R122	R101265	R MF H274K F 0W6 E4	
R123	R101543	R MF H 3K9 F 0W4 E3	
R124	R101267	R MF H392K F 0W6 E4	1
R125	R101548	R MF H 10K F 0W4 E3	
R126	R103226	R MO H150E J 1W5	1
R127	R100146	R CF V 6K8 J 0W25 E2	1
R128	R101536	R MF H 1K F 0W4 E3	
R129	R101536	R MF H 1K F 0W4 E3	
R130	R100128	R CF V220E J 0W25 E2	1
R131	R100137	R CF V 1K2 J 0W25 E2	1
R132	R100145	R CF V 5K6 J 0W25 E2	1
R133	R101539	R MF H 1K8 F 0W4 E3	
R134	R1001909	R CFFV E1 K 0W4 E2	1
R135	R101527	R MF H180E F 0W4 E3	1
R136	R101226	R CF H150E J 0W5	1
R137	R101527	R MF H180E F 0W4 E3	1
R200	R104656	R HV H 1M2 J 0W5 3500	1
R202	R101300	R CF H 1E J 1W15	1
R203	R1011939	R CFFH E33J 0W4	1
R204	R102499	R MF H E33J 0W6	1
R205	R101260	R MF H100K F 0W6 E4	
R206	R101260	R MF H100K F 0W6 E4	
T 1	R774356	T PJ56 G808 SMP VAR	1
T 2	R774341	T PJ49 SMP G 801 FIX	1
TH 1	R1322101	Q TIC106D TH P TO66	1
Z100	R131740	D ZEN 12V 0W5 C DO34	
Z101	R131787	D ZEN 51V 0W5 C DO35	
Z102	R131734	D ZEN 5V6 0W5 B DO35	

PARTS LISTING 76 21705S

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
120	R1330291	Q ACC ISO MICA TO220	1
121	R1330292	Q ACC ISO BSHG TO220	1
60	R133039	SPR L 8 D 4 D 1.2 C	6
20	R133052	Q ACC HTSNK TO126	1
132	R133063	Q ACC ISO MICA SOT93	1
111	R3631059	SCR D933 M 3 X 8 XIC	4
131	R3631059	SCR D933 M 3 X 8 XIC	1
151	R3631059	SCR D933 M 3 X 8 XIC	2
122	R3631069	SCR D933 M 3 X 10 XIC	1
124	R366102	NUT D934 M 3 S Z	1
41	R367434	RVT POP D2.4 L 6 P AA	2
110	R367600	NUT BLOC M 3	4
10	R721850	R ACC CLIPS TCE V PROTECT	1
100	R802632	HTSNK PJ49 SMP SUB	1
150	R802640	HTSNK PJ49 SMP SUB WSHR	2
40	R802646	FRM PJ49 SMP SUB FIX	1
130	R804832	Q ACC SPG 1XM3 LONG	1

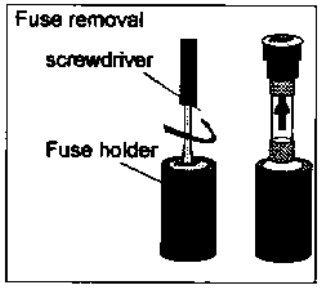
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C 1	R112830	C CE DI 2N7S400E3	1
C 2	R1128111	C CE DI 68P M102E3	1
C 3	R112815	C CE DI 150P M400E3	1
C 4	R111468	C EL RA 470M Z 16E2 85	1
C 5	R111468	C EL RA 470M Z 16E2 85	1
C 6	R1159081	C PP RA 470P J100E2	
C 7	R111479	C EL RA 470M Z 25E2 85	1
C 8	R111489	C EL RA 470M T 35E2 85	1
C 9	R113720	C POMERA 47N K 63E2	
C 10	R113720	C POMERA 47N K 63E2	
C 11	R114154	C POMERA 22N K400E2	1
C 12	R111550	C EL RA 4M7M 50E2 85	
C 13	R113720	C POMERA 47N K 63E2	
C 14	R1137121	C POMERA 10N K100E2	
C 17	R111531	C EL RA 10M M 35E2 85	
C 18	R112740	C CE MI 1N2K100E2	1
D 1	R131637	D R BA158 600400 DO7	
D 2	R131637	D R BA158 600400 DO7	
D 3	R131950	D R BYV27 15002A SOD57	

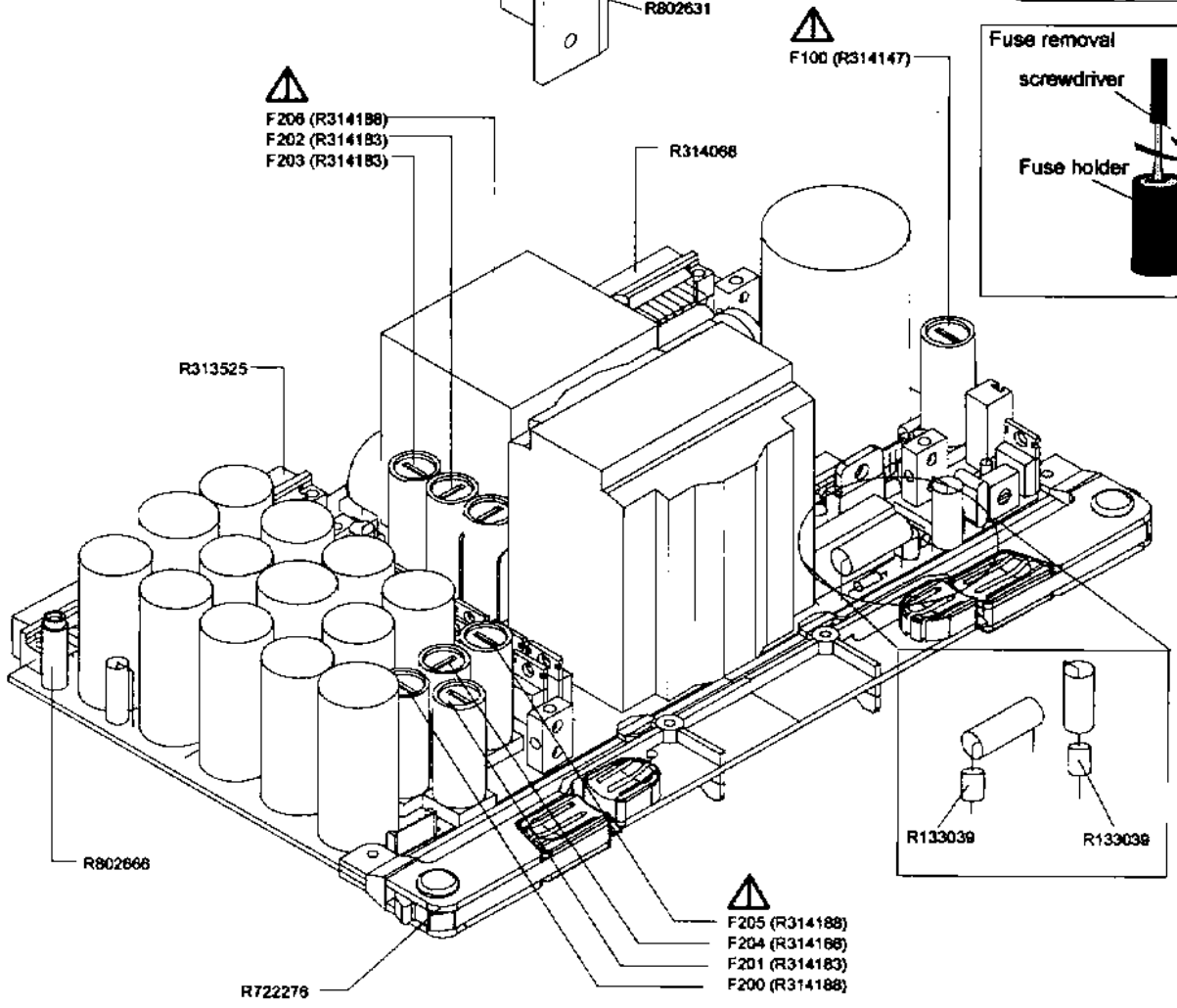
D 4	R131621	D S 1N4148 075150 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R1316361	D Y BAT85 030200 DO34	
D 10	R131667	D LED D3 T GRN	1
D 11	R1316361	D Y BAT85 030200 DO34	1
D 12	R131621	D S 1N4148 075150 DO35	
F 1	R314519	F ACC HLDR 5X20 PC/ UL	1
F1 F	R314142	F 5X20 T 0A125L RU/VDE	1
I 1	R131691	U 601G-3 SFH DIP6 P	1
I 2	R137625	U 34063 DIP8 P	1
I 3	R134116	U 353 LF DIP8 P	1
I 4	R134114	U 393 LM DIP8 P	1
I 5	R131691	U 601G-3 SFH DIP6 P	1
J 1	R313923	J CT H MBT P 3 M2SN	1
J 2	R313924	J CT H MBT P 4 M2SN	1
J3	R313926	J CT H MBT P 6 M2SN	1
J4	R313928	J CT H MBT P 8 M2SN	1
J5	R3132862	J MD1 MBT P 2 E1SN	1
J6	R313922	J CT H MBT P 2 M2SN	1
L 1	R305909	CH TOR V 1500 UH 2A	1
NTC1	R105016	R NTC 2K7 0W25	1
P 1	R106827	R TCE V 2K K 0W5 S10SS	1
P 2	R106833	R TCE V100K K 0W5 S10SS	1
PC	R780009	PCS PJ49 800 SMP SUB 7	1
Q 1	R132935	Q BUX87 N P TO126	1
Q 2	R1314071	Q BC547B N SS TO92	
Q 3	R1314071	Q BC547B N SS TO92	
Q 4	R132909	Q BD652 DP P TO220	1
Q 5	R131413	Q BC557 P SS TO92	
Q 6	R1314072	Q BC547A N SS TO92	1
Q 7	R132948	Q BF459 N P TO126	1
Q 8	R1314131	Q BC557B P SS TO92	
Q 9	R1314071	Q BC547B N SS TO92	
R 1	R101346	R CF H 6K8 J 1W	1
R 3	R104656	R HV H 1M2 J 0W5 3500	1
R 4	R1011134	R MF H 12E J 0W25	1
R 5	R101542	R MF H 3K3 F 0W4 E3	
R 6	R101560	R MF H100K F 0W4 E3	
R 7	R101536	R MF H 1K F 0W4 E3	
R 8	R101540	R MF H 2K2 F 0W4 E3	
R 9	R101530	R MF H330E F 0W4 E3	
R 10	R1011907	R CFFH E1 J 0W4	1
R 11	R101548	R MF H 10K F 0W4 E3	
R 12	R101551	R MF H 18K F 0W4 E3	
R 13	R101549	R MF H 12K F 0W4 E3	
R 14	R101544	R MF H 4K7 F 0W4 E3	
R 15	R101538	R MF H 1K5 F 0W4 E3	
R 16	R101544	R MF H 4K7 F 0W4 E3	
R 17	R101556	R MF H 47K F 0W4 E3	
R 18	R101540	R MF H 2K2 F 0W4 E3	
R 19	R101544	R MF H 4K7 F 0W4 E3	1
R 20	R101554	R MF H 33K F 0W4 E3	1
R 21	R101545	R MF H 5K6 F 0W4 E3	
R 22	R101554	R MF H 33K F 0W4 E3	
R 23	R101561	R MF H120K F 0W4 E3	
R 24	R101568	R MF H470K F 0W4 E3	
R 25	R101559	R MF H 82K F 0W4 E3	
R 26	R101567	R MF H390K F 0W4 E3	
R 27	R101554	R MF H 33K F 0W4 E3	
R 28	R101554	R MF H 33K F 0W4 E3	
R 29	R101544	R MF H 4K7 F 0W4 E3	
R 30	R101563	R MF H180K F 0W4 E3	
R 31	R101556	R MF H 47K F 0W4 E3	1
R 32	R101572	R MF H 1M F 0W4 E3	
R 33	R101572	R MF H 1M F 0W4 E3	
R 34	R101236	R MF H 1K F 0W6 E4	
R 35	R101562	R MF H150K F 0W4 E3	
R 36	R101537	R MF H 1K2 F 0W4 E3	
R 37	R101530	R MF H330E F 0W4 E3	
R 38	R101567	R MF H390K F 0W4 E3	
R 39	R1015501	R MF H 13K F 0W4 E3	
R 40	R101544	R MF H 4K7 F 0W4 E3	
R 41	R101548	R MF H 10K F 0W4 E3	
R 42	R101540	R MF H 2K2 F 0W4 E3	
R 43	R101556	R MF H 47K F 0W4 E3	
R 44	R101531	R MF H390E F 0W4 E3	
R 45	R101548	R MF H 10K F 0W4 E3	
R 46	R101565	R MF H270K F 0W4 E3	
R 47	R101536	R MF H 1K F 0W4 E3	
R 48	R104682	R HV H 15M J 0W5 3500	1
R 49	R101559	R MF H 82K F 0W4 E3	
R 50	R101567	R MF H390K F 0W4 E3	
R 62	R1011246	R CFFH100E J 0W35	1
T 1	R306718	T PJ49 SMP STAND-BY	1
Z 1	R131706	D ZEN 9V1 1W3 C DO41	1
Z 2	R131706	D ZEN 9V1 1W3 C DO41	1
Z 3	R131767	D ZEN 6V8 0W5 B DO35	1
Z 4	R131767	D ZEN 6V8 0W5 B DO35	1
Z 5	R131742	D ZEN 6V8 0W5 C DO35	
Z 6	R134031	U 431C TL TO92 P	1
Z 7	R131756	D ZEN 7V5 0W5 C DO35	
Z 8	R134031	U 431C TL TO92 P	1
Z 9	R131756	D ZEN 7V5 0W5 C DO35	
Z 10	V1317441	D ZEN 5V6 0W5 A DO35	
Z 12	R131790	D ZEN 33V 1W3 C DO41	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.



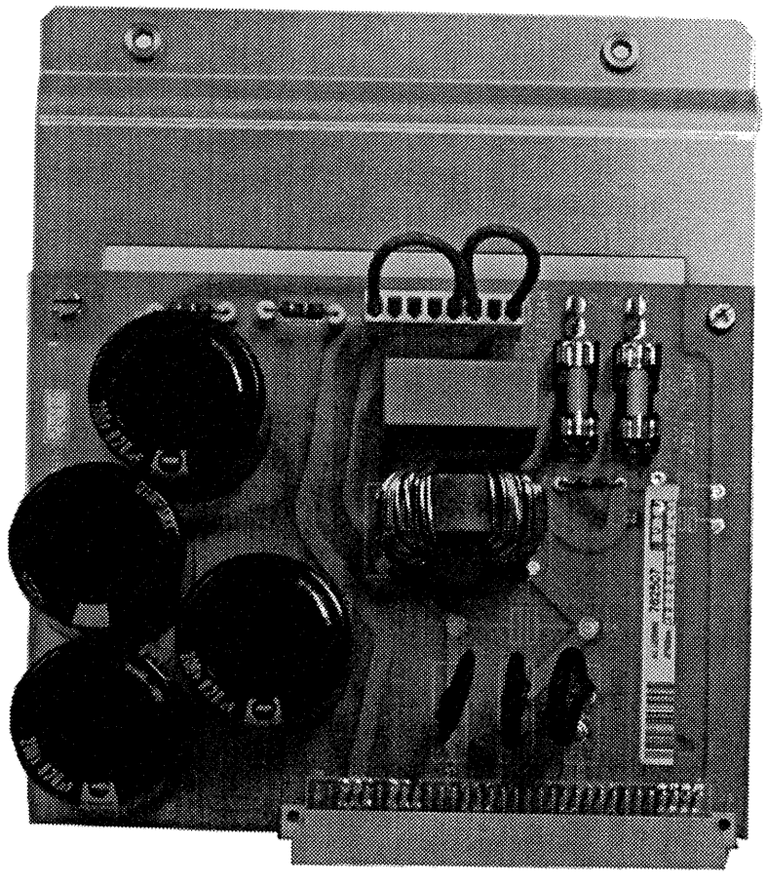


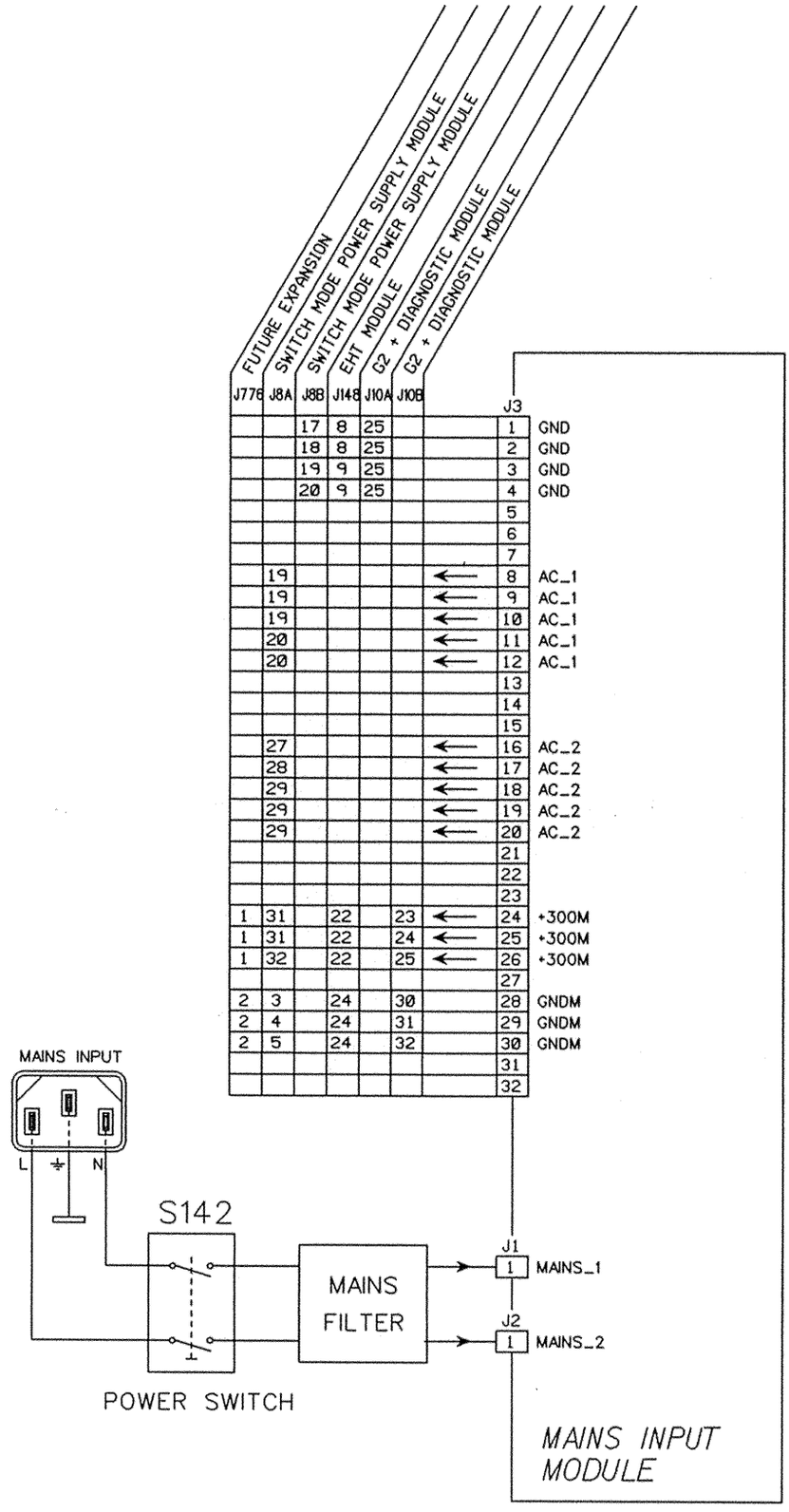
Power (mains) input MODULE

R762507

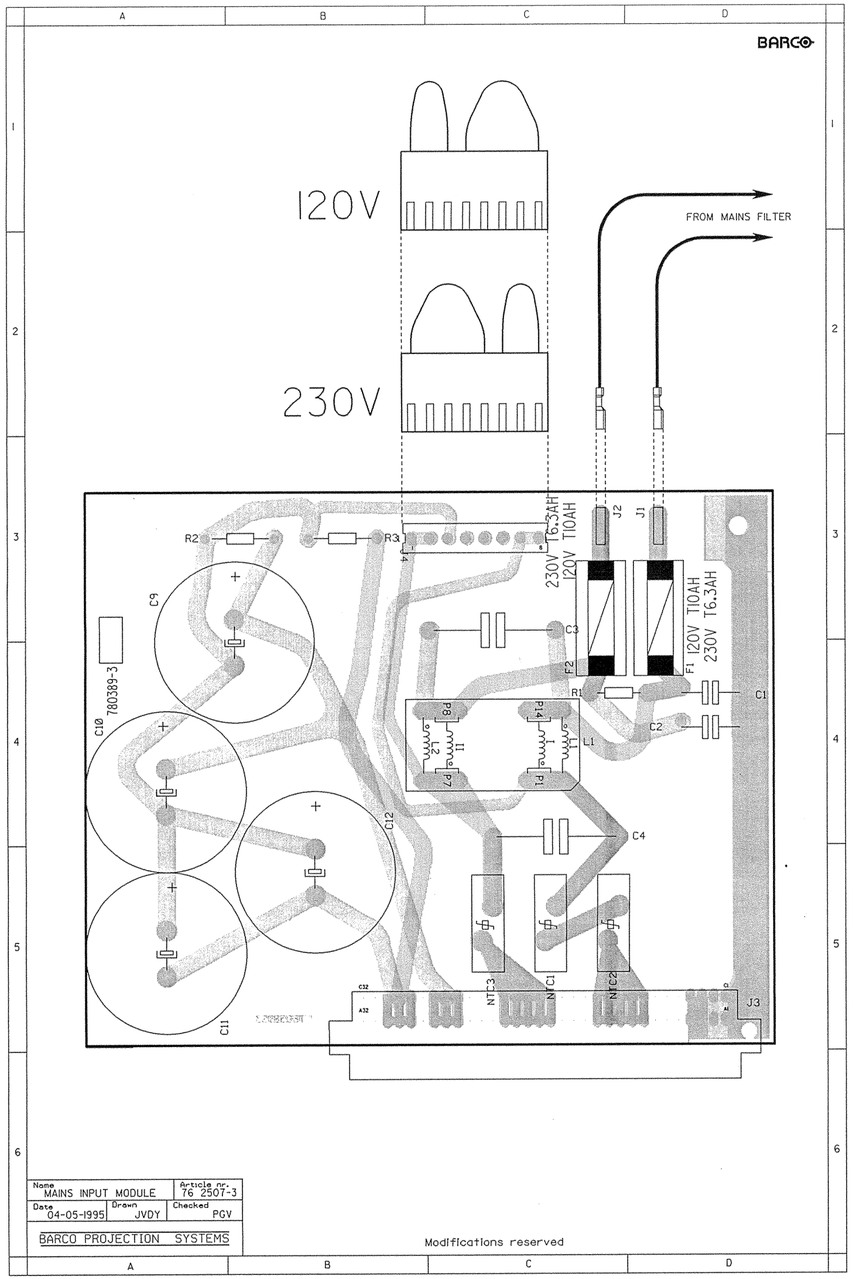
WARNING

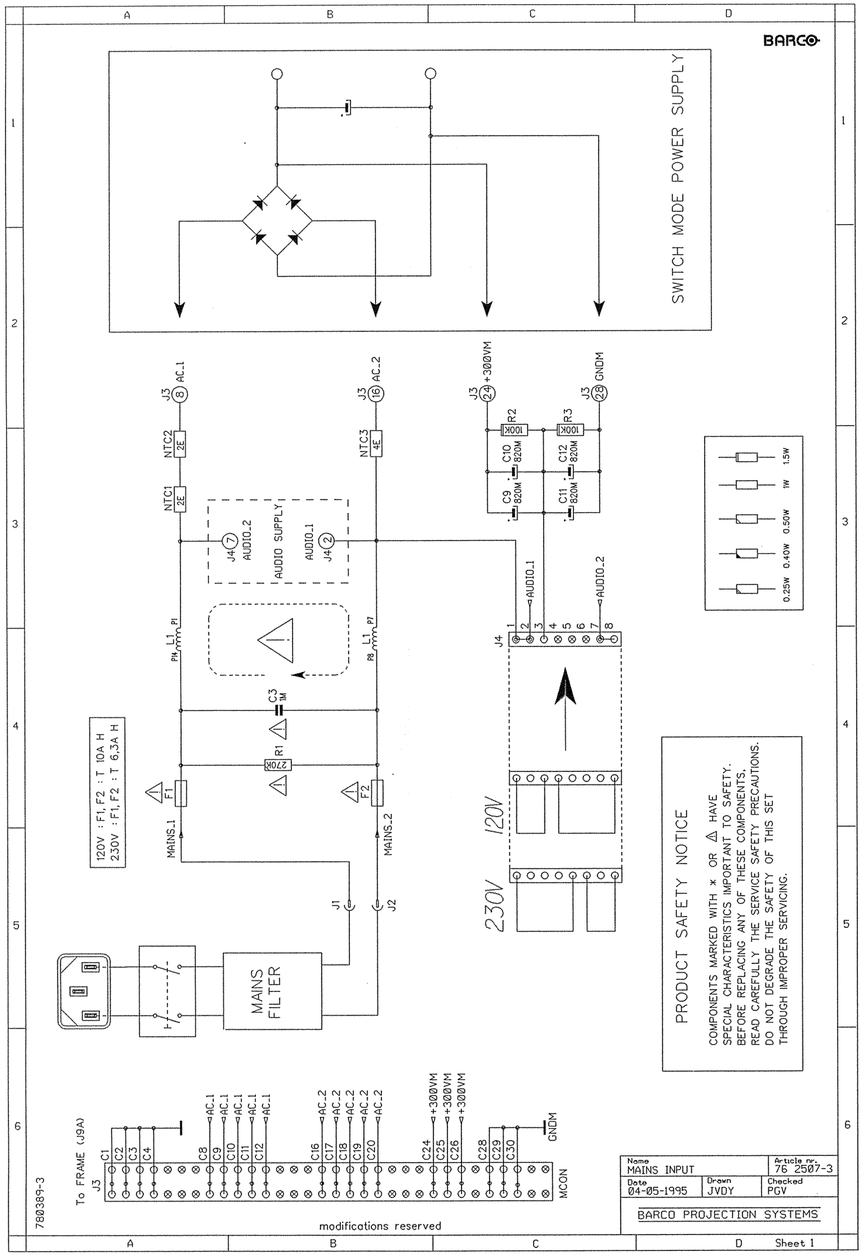
THIS CIRCUIT BOARD IS HOT TO AC. THIS POWER INPUT DOES NOT USE A LINE ISOLATION TRANSFORMER, MEANING THE CIRCUITRY IS HOT-TO-LINE AND SHOULD BE TREATED WITH CAUTION.





Name Interconnection		Article nr.
MAINS INPUT MODULE		76 2507
Date 04-05-1995	Drawn JVDY	Checked PGV
BARCO PROJECTION SYSTEMS		


BARCO
120V
230V
FROM MAINS FILTER
230V T6.3AH
120V T10AH
J2
J1
R2
R3
C9
C10
780389-3
C3
F2
F1 120V T10AH
230V T6.3AH
R1
C1
C2
L1
C12
C4
C11
NTC3
NTC1
NTC2
J3
Name MAINS INPUT MODULE
Article nr. 76 2507-3
Date 04-05-1995
Drawn JVDY
Checked PGV
BARCO PROJECTION SYSTEMS
Modifications reserved


BARCO
SWITCH MODE POWER SUPPLY
J3 AC.1
J3 AC.2
J3 -300VM
J3 GNDM
NTC2
NTC1
NTC3
R2
R3
C10 820M
C9 820M
C12 820M
C11 820M
AUDIO SUPPLY
AUDIO.1
AUDIO.2
J4
C3
R1
F1
F2
MAINS.1
MAINS.2
J1
J2
MAINS FILTER
120V
230V
120V : F1, F2 : T 10A H
230V : F1, F2 : T 6,3A H
0.25W 0.40W 0.50W 1W 1.5W
PRODUCT SAFETY NOTICE
COMPONENTS MARKED WITH x 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.
To FRAME (J9A)
MCON
780389-3
Name MAINS INPUT
Article nr. 76 2507-3
Date 04-05-1995
Drawn JVDY
Checked PGV
BARCO PROJECTION SYSTEMS
modifications reserved
Sheet 1

The Power (Mains) Input provides protection against interference when operated in a commercial environment and contains the user setting for 230Vac or 120Vac.

1. Power (Mains) filter

The power filter consists of the coil L1 with four windings, and the capacitor C3. It is a filter, blocking all high and low frequency noises towards the outlet.

NTC-resistors NTC1, NTC2 and NTC3 limit the start up current. The fuses F1 and F2 prevent damage to the power Input board and the Switched Mode Power Supply in the event of short circuit or wrong 230/120Vac setting.

2. 230 Vac operation

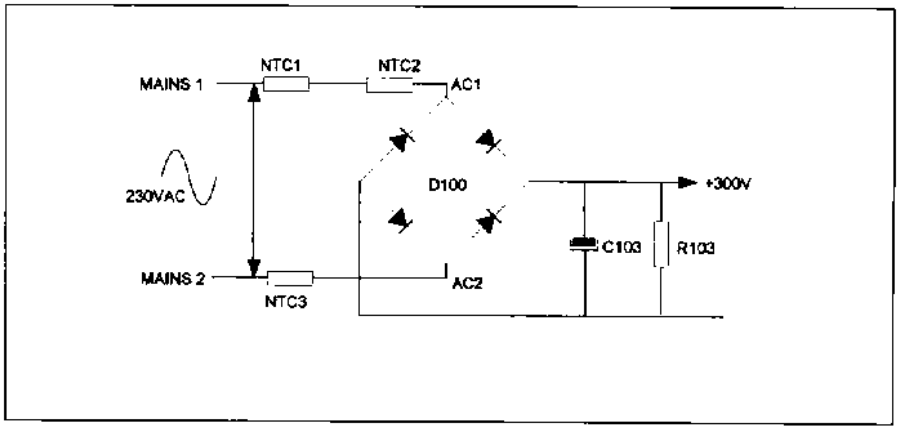


Figure 1. 230 Vac operation of the Power Input module

When we look how the diode bridge D100 of the Switch Mode Power Supply is connected to the power Input board (Figure 1), we can see how the 230Vac operation works.

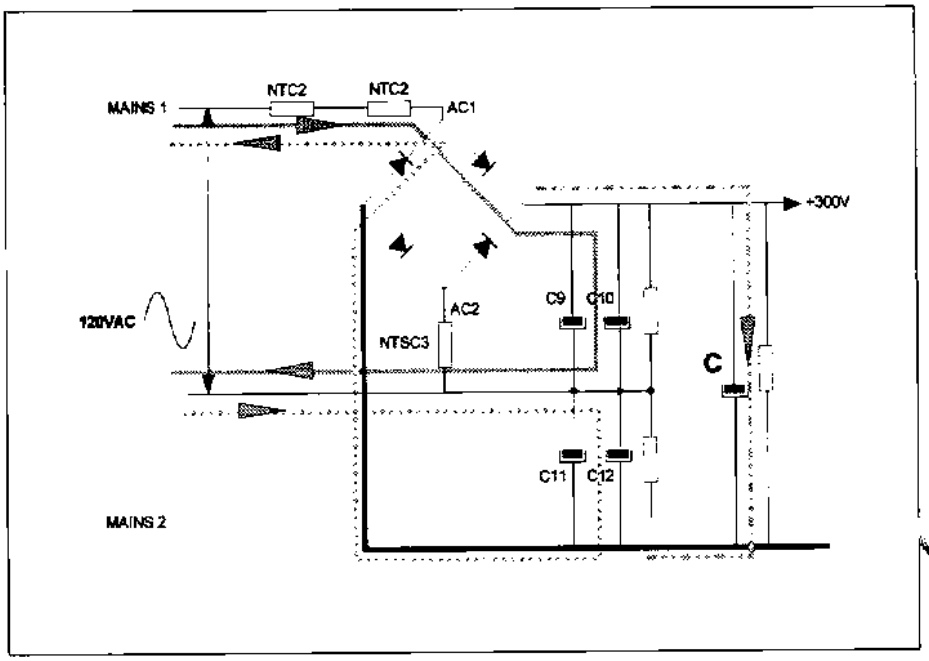
Diode bridge D100 operates as a bridge rectifier, and we get an output DC-voltage of approximately +300 Volts.

Capacitor C103 forms a capacitive load on the Switch Mode Power Supply, to flatten the AC-ripple on the +300 DC-voltage. Resistor R103 discharges this capacitor quickly when the projector is switched off.

3. 120 Vac operation

When we look again how the diode bridge of the Switch Mode Power Supply is connected to the Mains Input/Output board during 130Vac operation, we can draw the following schematic, figure 2.

To make it more comprehensive, we redraw this figure (Figure 3.), deleting NTC1, NTC2, and NTC3 that only play a roll during start up, and by deleting R3 and R4 that are only important while switching off.



120Vac operation of the Mains Input/Output board

Now we see that the diode bridge operates as a voltage multiplier. During the negative half of the power (mains) voltage, capacitors C11-C12 are charged through bridge rectifier. During the positive half of the power (mains) voltage, capacitors C9-C10 are charged, through bridge rectifier, on a voltage which is the input voltage together with the load on the capacitors C11/C12.

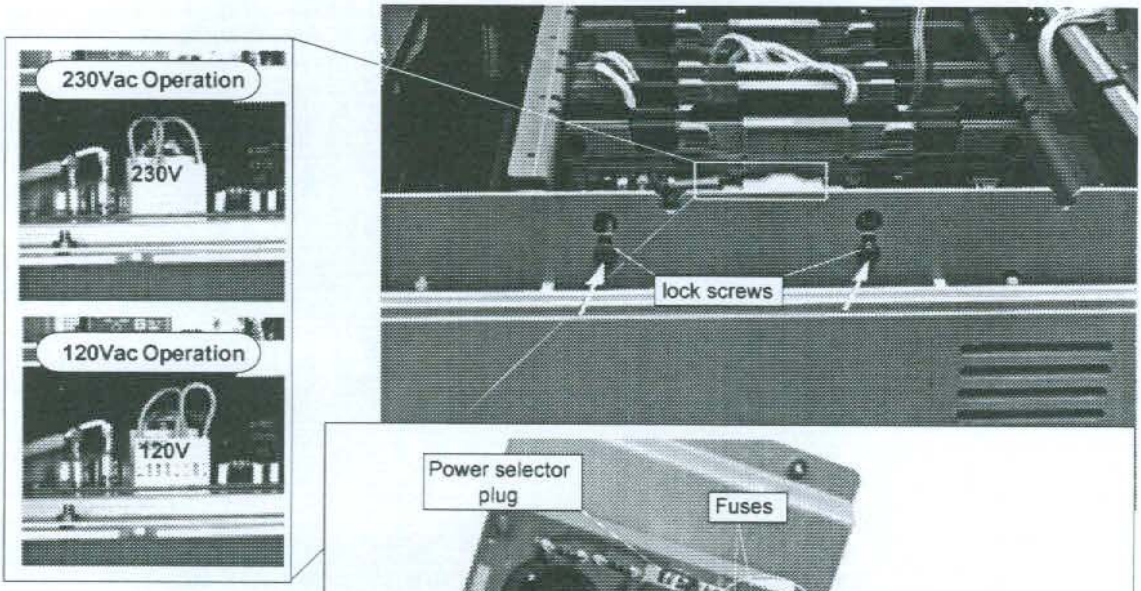
In this way an DC-voltage of again approximately +300 Volts is built across the capacitor C.

Power (mains) input MODULE R762507

MAINS (POWER) ADAPTATION

Procedure :

1. Switch off the projector and unplug the power plug from the wall outlet.
2. Open the Top and the Module rack cover (refer to § Access to chassis for servicing)
3. Loosen the lock screw of the power input module and pull out this module.
4. Pull out the "POWER SELECTOR PLUG" and re-insert it as illustrated below depending of the wall outlet in the room.
5. Replace the fuses. (see table below)
6. Re-insert the power input module and secure it with the lock screw.
7. Reconnect the power cord with the wall outlet and switch on the projector.



FUSES

WARNING

For continued protection against fire hazard:

- **Replace with the same type of fuse**
- **Refer replacement to qualified service personnel**

F1, F2	BARCO Ord. No.
For 230Vac (2x) T6.3A H 250V	31 4145
For 120Vac (2x) T10A H 250V	31 4154

Power (mains) input MODULE R762507

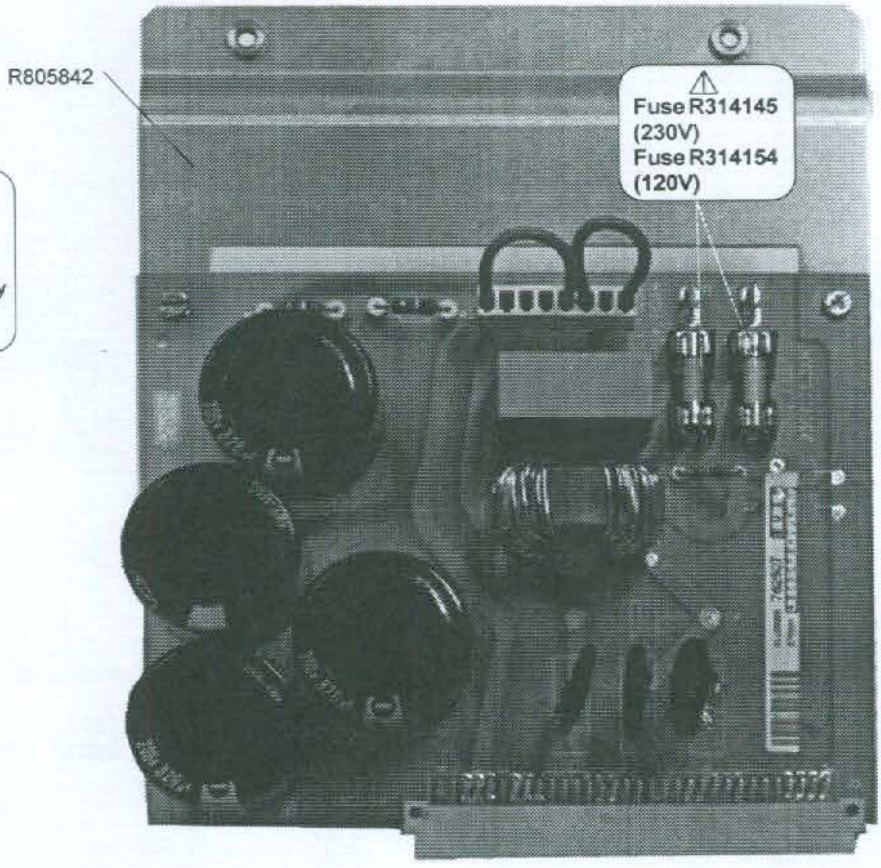
Parts listing Power input module R762463

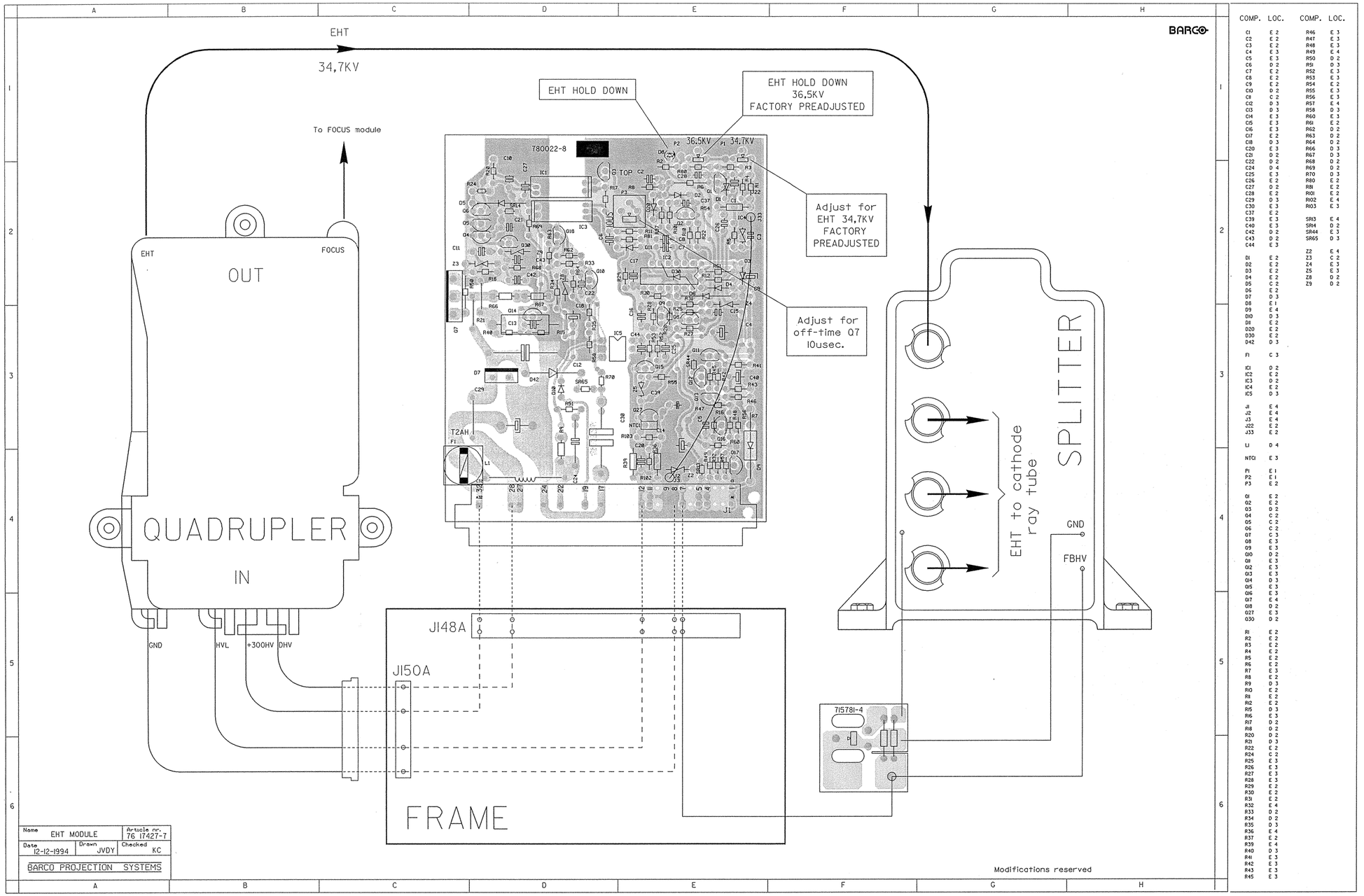
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
20	R133039	SPR L 8 D 4 D 1.2 C	4
50	R315315	J RVT MBT D 2 L14	6
10	R3615075	SCR HILO_P 3.2X 8.5HS B	1
130	R3631069	SCR D933 M 3 X 10 XIC	2
	R761548D	CDU MNS PJ45 D1000	1
120	R805842	FRM PJ56 G808 E CNN BEI	1
C 3	R114716	C PO RA 1M M250E11 X2	⚠1
C 9	R111566	C EL RA 820M M200E4 85	1
C 10	R111566	C EL RA 820M M200E4 85	1
C 11	R111566	C EL RA 820M M200E4 85	1
C 12	R111566	C EL RA 820M M200E4 85	1
F 1	R314145	F 5X20 T 6A3 H RU/S	⚠1
F 2	R314145	F 5X20 T 6A3 H RU/S	⚠1
F1AC	R314519	F ACC HLDR 5X20 PC/ UL	⚠1
F2AC	R314519	F ACC HLDR 5X20 PC/ UL	⚠1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
J 1	R312934	J TAB1 MBT H 6.3S0.8 BZ	1
J 2	R312934	J TAB1 MBT H 6.3S0.8 BZ	1
J 4	R313726	J SL FH MBT P 8 M3,96 RP	1
J3A1	R313525	J EUR2C MBS P64 E1C2S 1,6	1
J3A2	R367699	RVT CHB D2.38L6.35 P A	2
L 1	R305916	CH MNS 2X12 MH 10APMF	1
NTC1	R105021	R NTC 2E M	1
NTC2	R105021	R NTC 2E M	1
NTC3	R105020	R NTC 4E M	1
PC	R780389	PCD PJ56 G808 MNS	1
R 1	R101265	R MF H274K F 0W6 E4	1
R 2	R1014605	R CF H100K J 1W5	1
R 3	R1014605	R CF H100K J 1W5	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.





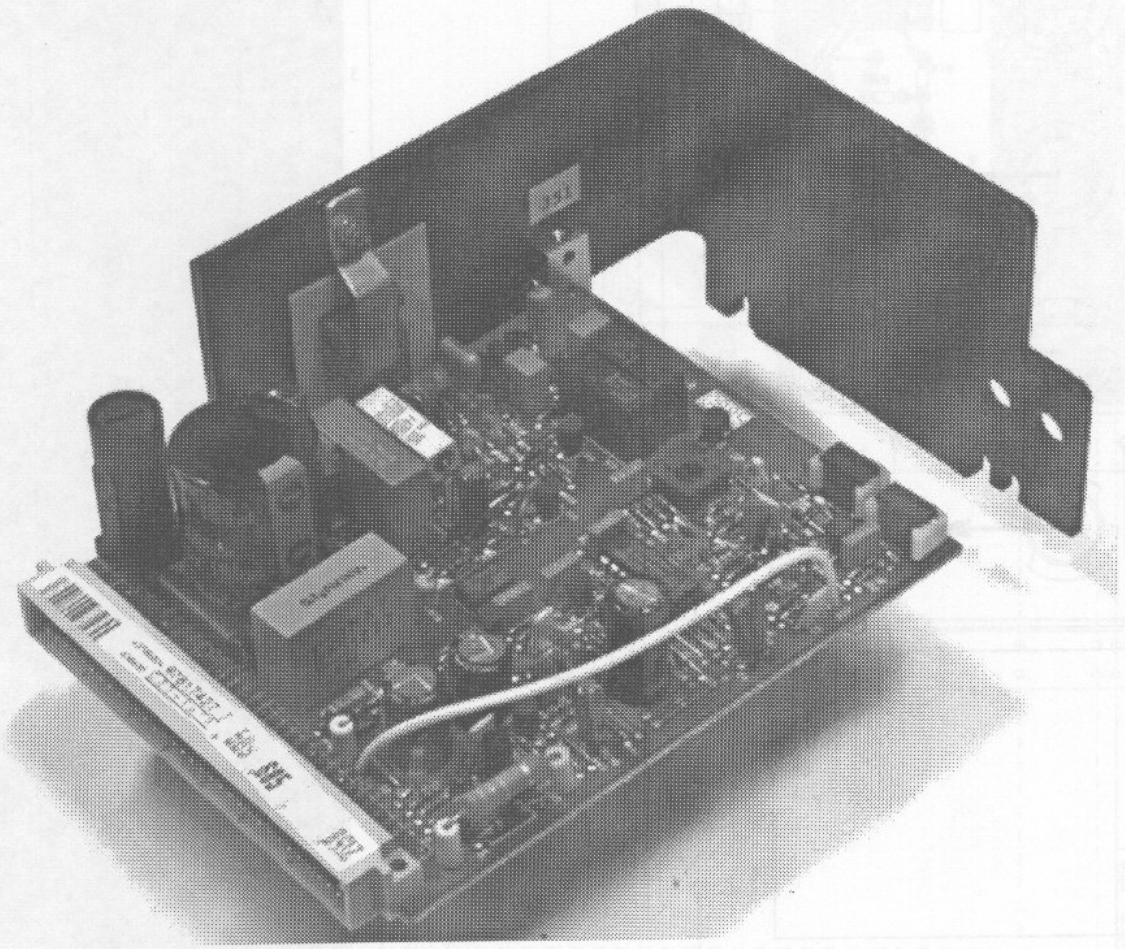
COMP.	LOC.	COMP.	LOC.
C1	E 2	R46	E 3
C2	E 2	R47	E 3
C3	E 2	R48	E 3
C4	E 3	R49	E 4
C5	E 3	R50	D 2
C6	D 2	R51	D 3
C7	E 2	R52	E 3
C8	E 2	R53	E 3
C9	E 2	R54	E 2
C10	D 2	R55	E 3
C11	C 2	R56	E 3
C12	D 3	R57	E 4
C13	D 3	R58	D 3
C14	E 3	R60	E 3
C15	E 3	R61	E 2
C16	E 3	R62	D 2
C17	E 2	R63	D 2
C18	D 3	R64	D 2
C20	E 3	R66	D 3
C21	D 2	R67	D 3
C22	D 2	R68	D 2
C24	D 4	R69	D 2
C25	E 3	R70	D 3
C26	E 2	R80	E 2
C27	D 2	R81	E 2
C28	E 2	R101	E 2
C29	D 3	R102	E 4
C30	E 3	R103	E 3
C37	E 2		
C38	E 3	SR13	E 4
C39	E 3	SR14	D 2
C40	E 3	SR44	E 3
C42	D 2	SR65	D 3
C43	D 2		
C44	E 3	Z2	E 4
		Z3	C 2
D1	E 2	Z4	E 3
D2	E 2	Z5	E 3
D3	E 2	Z8	D 2
D4	E 2	Z9	D 2
D5	C 2		
D6	E 3		
D7	D 3		
D8	E 1		
D9	E 4		
D10	D 3		
D11	E 2		
D20	E 2		
D30	E 2		
D42	D 3		
F1	C 3		
IC1	D 2		
IC2	E 2		
IC3	D 2		
IC4	E 2		
IC5	D 3		
J1	E 4		
J2	E 4		
J3	E 4		
J22	E 2		
J33	E 2		
L1	D 4		
NTC1	E 3		
P1	E 1		
P2	E 1		
P3	E 2		
Q1	E 2		
Q2	E 2		
Q3	D 2		
Q4	C 2		
Q5	C 2		
Q6	C 2		
Q7	C 3		
Q8	E 3		
Q9	E 3		
Q10	D 2		
Q11	E 3		
Q12	E 3		
Q13	E 3		
Q14	D 3		
Q15	E 3		
Q16	E 4		
Q17	D 2		
Q27	E 3		
Q30	D 2		
R1	E 2		
R2	E 2		
R3	E 2		
R4	E 2		
R5	E 2		
R6	E 2		
R7	E 3		
R8	E 2		
R9	D 3		
R10	E 2		
R11	E 2		
R12	E 2		
R15	D 3		
R16	E 3		
R17	D 2		
R18	D 2		
R20	D 2		
R21	D 3		
R22	E 2		
R24	C 2		
R25	E 3		
R26	E 3		
R27	E 3		
R28	E 3		
R29	E 2		
R30	E 2		
R31	E 2		
R32	E 4		
R33	D 2		
R34	D 2		
R35	D 3		
R36	E 4		
R37	E 2		
R39	E 4		
R40	D 3		
R41	E 3		
R42	E 3		
R43	E 3		
R45	E 3		

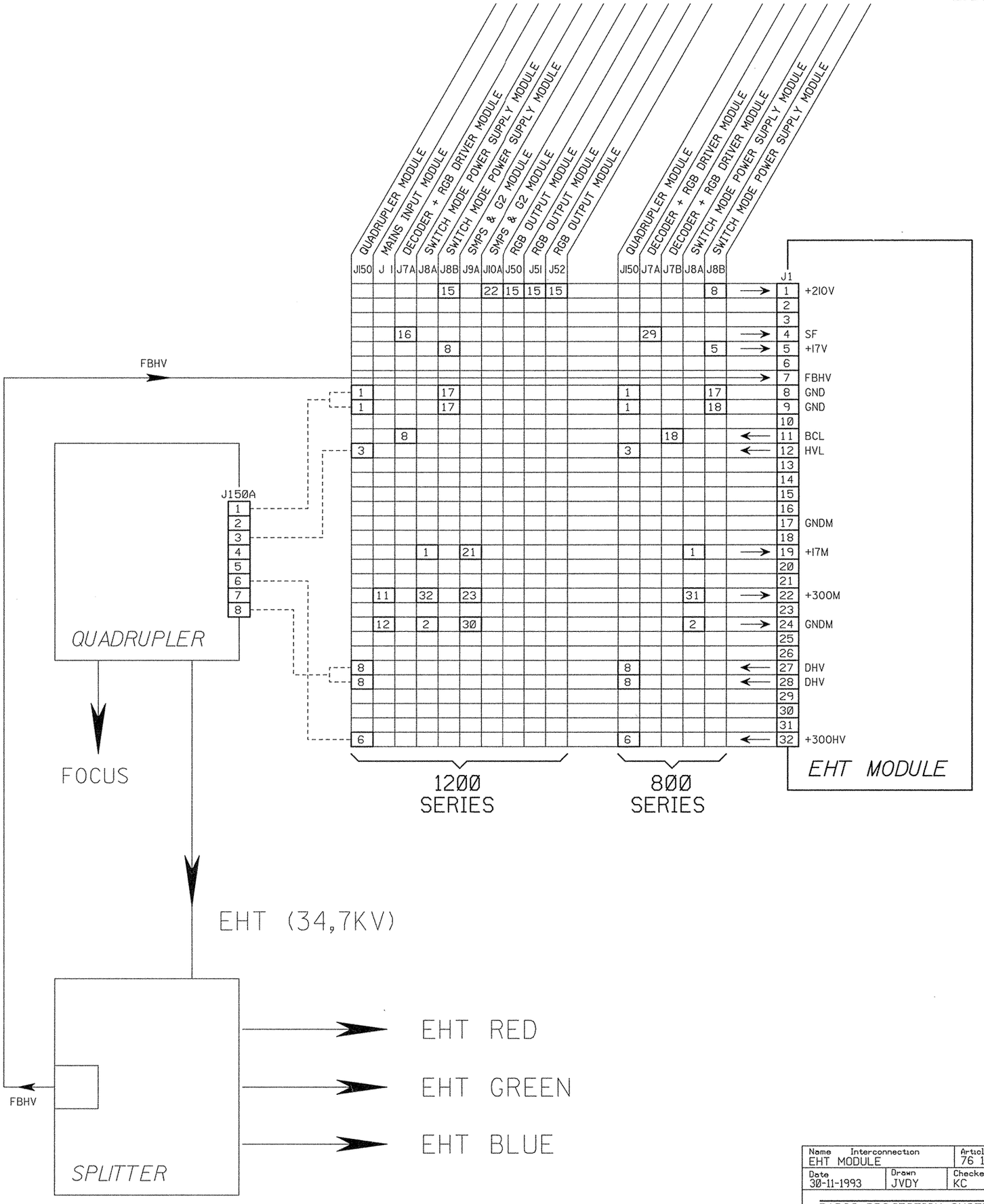
EHT Module

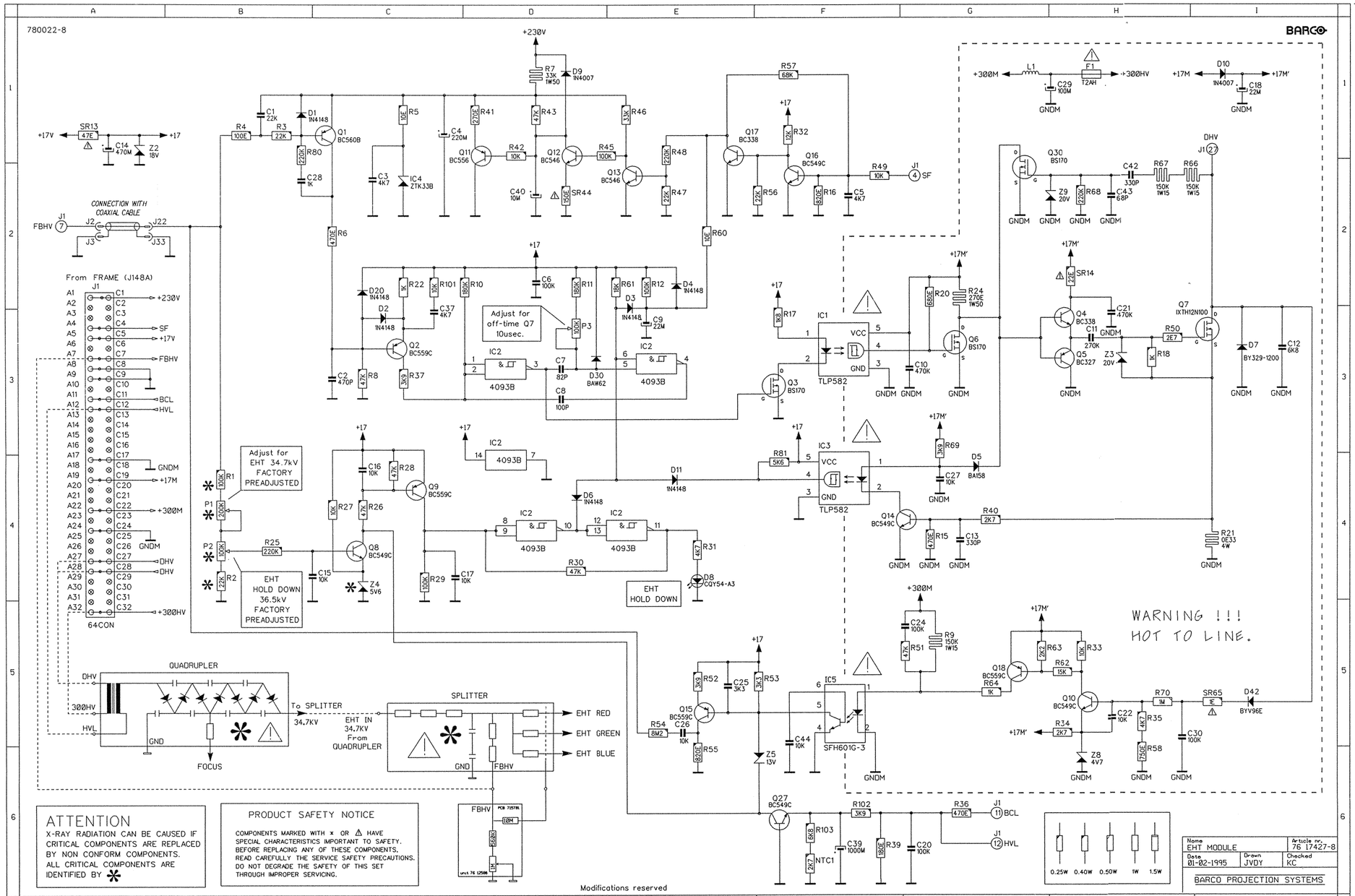
R7617427

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.




BARCO
QUADRUPLER MODULE
MAINS INPUT MODULE
DECODER + RGB DRIVER MODULE
SWITCH MODE POWER SUPPLY MODULE
SWITCH MODE POWER SUPPLY MODULE
SMPS & G2 MODULE
SMPS & G2 MODULE
RGB OUTPUT MODULE
RGB OUTPUT MODULE
RGB OUTPUT MODULE
QUADRUPLER MODULE
DECODER + RGB DRIVER MODULE
DECODER + RGB DRIVER MODULE
SWITCH MODE POWER SUPPLY MODULE
SWITCH MODE POWER SUPPLY MODULE
J150 J 1 J7A J8A J8B J9A J10A J50 J51 J52
J150 J7A J7B J8A J8B
J1
+210V
SF
+17V
FBHV
GND
GND
BCL
HVL
GNDM
+17M
+300M
GNDM
DHV
DHV
+300HV
EHT MODULE
FBHV
J150A
QUADRUPLER
FOCUS
EHT (34,7KV)
1200 SERIES
800 SERIES
EHT RED
EHT GREEN
EHT BLUE
FBHV
SPLITTER
Modifications reserved
Name Interconnection
EHT MODULE
Article nr.
76 17427
Date
30-11-1993
Drawn
JVDY
Checked
KC
BARCO PROJECTION SYSTEMS
Sheet 1



COMP.	LOC.	COMP.	LOC.
C1	B 1	R21	I 4
C2	C 3	R22	C 2
C3	C 2	R24	G 2
C4	C 1	R25	B 4
C5	F 2	R26	C 4
C6	D 2	R27	C 4
C7	D 3	R28	C 4
C8	D 3	R29	C 4
C9	E 3	R30	D 4
C10	G 3	R31	E 4
C11	H 3	R32	F 1
C12	I 3	R33	H 5
C13	G 4	R34	H 5
C14	A 1	R35	H 5
C15	C 4	R36	G 6
C16	C 4	R37	C 3
C17	C 4	R39	F 6
C18	I 1	R40	G 4
C20	G 6	R41	D 1
C21	H 2	R42	D 1
C22	H 5	R43	D 1
C24	G 5	R45	D 1
C25	E 5	R46	E 1
C26	E 5	R47	E 2
C27	G 4	R48	E 1
C28	B 2	R49	F 2
C29	G 1	R50	H 3
C30	H 5	R51	G 5
C37	C 2	R52	E 5
C39	F 6	R53	F 5
C40	D 2	R54	E 5
C42	H 2	R55	E 6
C43	H 2	R56	F 2
C44	F 5	R57	F 1
		R58	H 6
D1	B 1	R60	E 2
D2	C 2	R61	E 2
D3	E 2	R62	H 5
D4	E 2	R63	G 5
D5	G 3	R64	G 5
D6	D 4	R66	H 1
D7	I 3	R67	H 1
D8	E 4	R68	H 2
D9	D 1	R69	G 3
D10	I 1	R70	H 5
D11	E 4	R80	B 1
D20	C 2	R81	F 3
D30	D 3	R101	C 2
D42	I 5	R102	F 6
		R103	F 6
F1	H 1		
		SR13	A 1
IC1	F 3	SR14	H 2
IC2	D 3	SR44	D 2
IC2	E 3	SR65	I 5
IC2	E 4		
IC2	D 4	Z2	A 1
IC2	D 3	Z3	H 3
IC3	F 3	Z4	C 4
IC4	C 2	Z5	F 6
IC5	F 5	Z8	H 6
		Z9	H 2
J1	A 2		
J2	A 2		
J3	A 2		
J22	A 2		
J33	A 2		
L1	G 1		
NTC1	F 6		
P1	B 4		
P2	B 4		
P3	D 3		
Q1	C 1		
Q2	C 3		
Q3	F 3		
Q4	H 2		
Q5	H 3		
Q6	G 3		
Q7	I 2		
Q8	C 4		
Q9	C 4		
Q10	H 5		
Q11	D 2		
Q12	D 1		
Q13	D 2		
Q14	F 4		
Q15	E 5		
Q16	F 2		
Q17	E 1		
Q18	G 5		
Q27	F 6		
Q30	G 1		
R1	B 4		
R2	B 4		
R3	B 1		
R4	B 1		
R5	C 1		
R6	C 2		
R7	D 1		
R8	C 3		
R9	G 5		
R10	D 2		
R11	D 2		
R12	E 2		
R15	G 4		
R16	F 2		
R17	F 3		
R18	H 3		
R20	G 2		

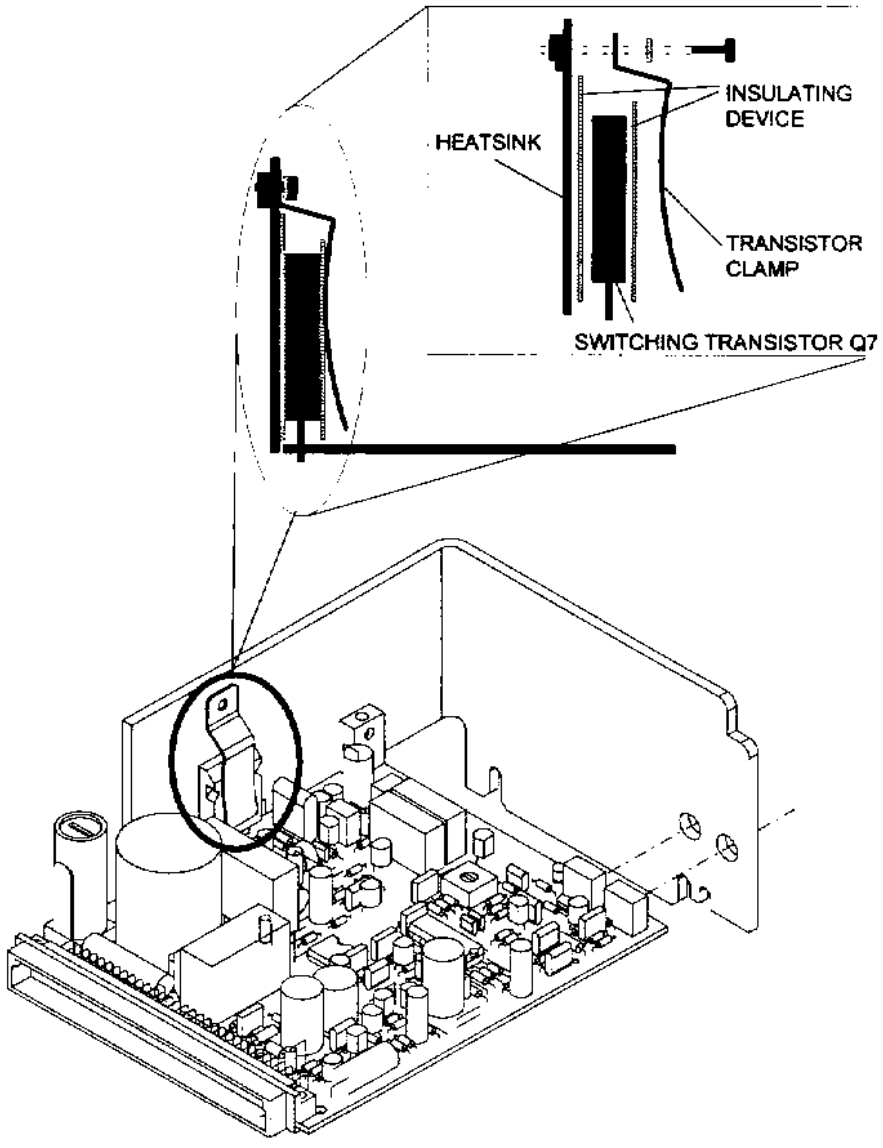
SCHEMATIC NAME: 7617427.sch SHEET NUMBER: 1 DATE: Feb 2, 1995

SAFETY PRECAUTION

SWITCHING TRANSISTOR Q7 REMOVAL/REPLACEMENT

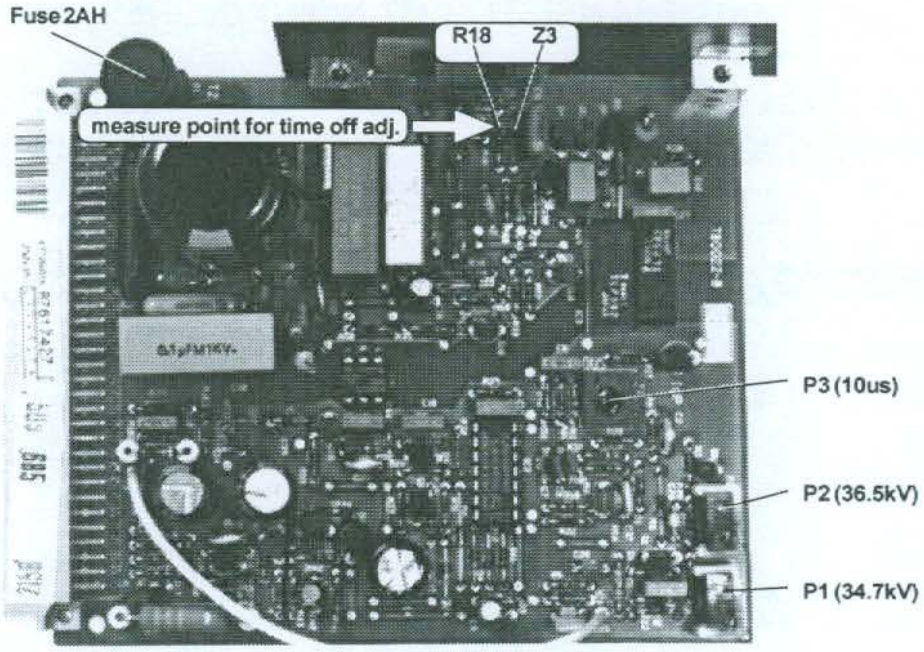
RE-INSTALL ALWAYS THE INSULATING DEVICE BETWEEN THE SWITCHING TRANSISTOR Q7 AND THE HEATSINK AND THE TRANSISTOR CLAMP.

PROCEED TO A LEAKAGE CURRENT HOT CHECK AS DESCRIBED IN THE SAFETY NOTICES



HIGH VOLTAGE 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 devices, do not arc pix tube anode lead to chassis or earth ground.



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.

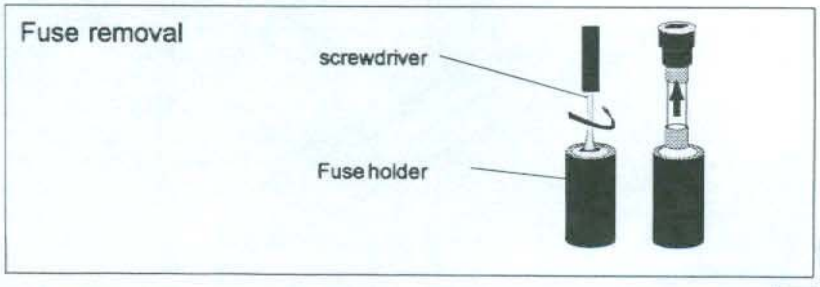
- Turn the projector off.
- Put the potentiometers P1 and P2 in their minimum position (turning clockwise!!) .
- Pull out one CRT-EHT cable of the EHT splitter.
- Insert in the free EHT connector the **precision** EHTprobe (ratio 1000/1).

Warning: read carefully all safety instructions, mentionned in the user's manual of the precision high voltage probe

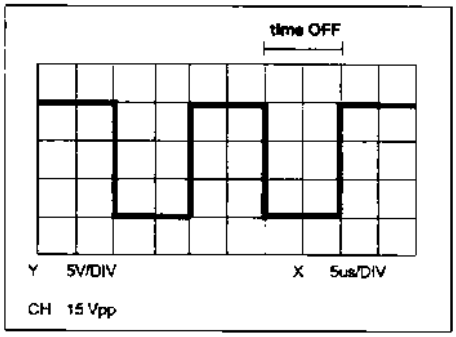
Adjustment

P3 Switching transistor time OFF

- Remove fuse "F 2A" out of fuseholder (see illustration "Fuse removal")



- Connect the oscilloscope to the resistor R18 (=gate switching transistor Q7)
- Switch on the projector.
- Adjust potentiometer P3 for a drive pulse 'time OFF' width of 10 us.



P1 High Voltage Adj. - Switch off the projector

P2 Hold Down - Put the fuse 2A on its place.

- Switch on the projector

- Adjust potentiometer P1 "High Voltage Adj." until the EHT voltage reaches 36.5kV.

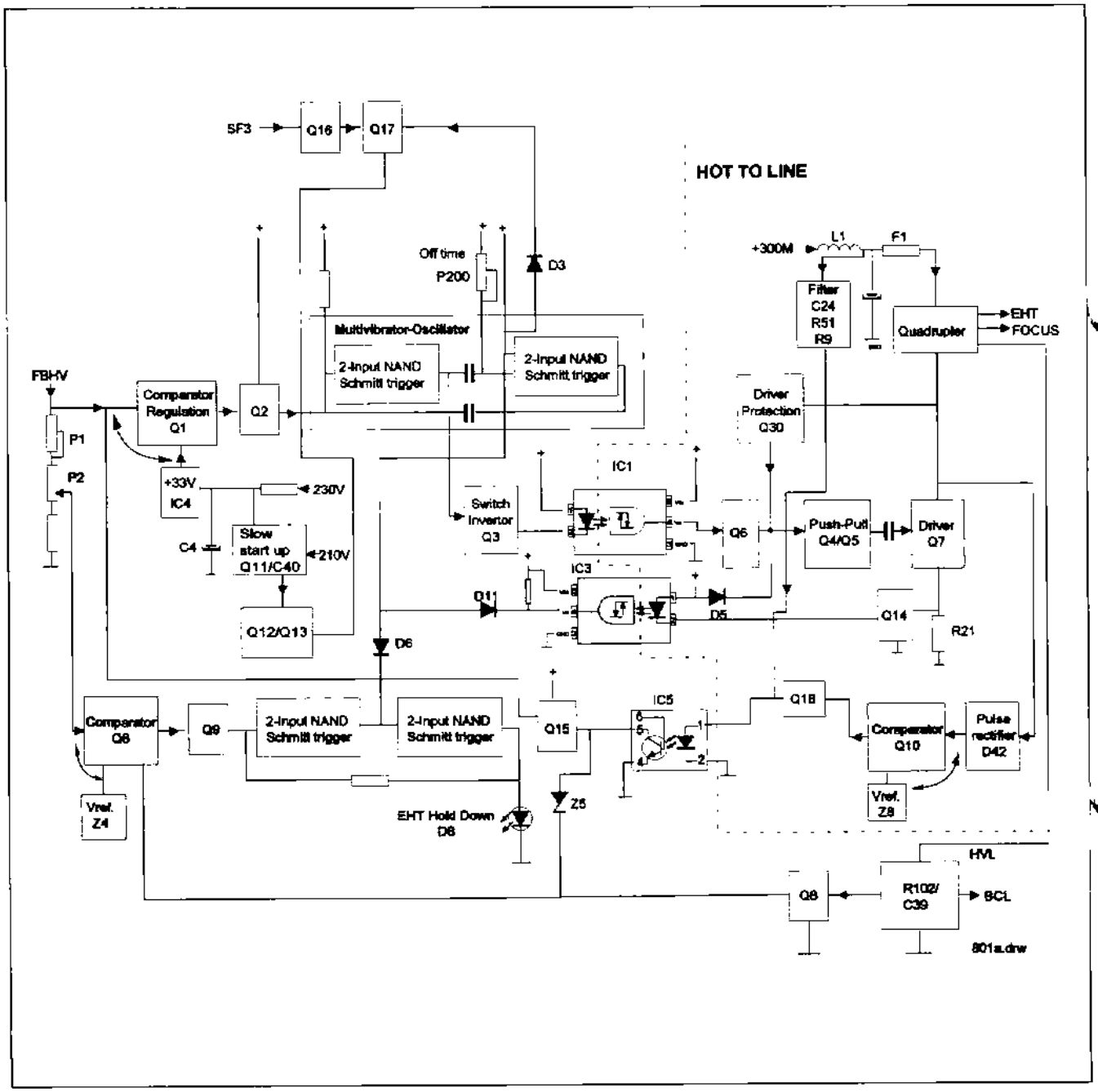
- Turn potentiometer P2 "Hold Down" until the Hold Down LED lights up. The projector switches at that moment into the Hold Down mode, picture disapears.

- Put the potentiometer P1again in its minimum position (turning clockwise!!).

- Turn the power switch in its OFF position (not-pressed) and switch on the projector again (press the power switch).

- Adjust the potentiometer P1 for an EHT voltage of 34.7kV.

Important: The EHTsplitter, on which a potentiometer is mounted , leaves the factory as a factory pre-adjusted unit. A readjustment of the mentionned potentiometer is in no case allowed.


SF3
Q16
Q17
HOT TO LINE
Off time
P200
D3
+300M
L1
F1
Filter
C24
R51
R9
Quadrupler
EHT
FOCUS
Multivibrator-Oscillator
2-Input NAND
Schmitt trigger
2-Input NAND
Schmitt trigger
FBHV
Comparator
Regulation
Q1
Q2
Driver
Protection
Q30
P1
P2
+33V
IC4
230V
IC1
Switch
Inverter
Q3
Q6
Push-Pull
Q4/Q5
Driver
Q7
C4
Slow
start up
Q11/C40
210V
IC3
Q11
D5
Q14
R21
Q12/Q13
D6
Comparator
Q8
Q9
2-Input NAND
Schmitt trigger
2-Input NAND
Schmitt trigger
Q15
IC5
Q18
Comparator
Q10
Pulse
rectifier
D42
Vref.
Z4
EHT Hold Down
D8
Z5
Vref.
Z8
HVL
Q8
R102/
C39
BCL
801a.drw

Introduction.

On this board, 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 built around two Schmitt Trigger NAND gates in IC2. Two time constants are involved in this circuit : C7 / P3 / R11 and in the feedback loop C8 / R10 + transistor Q2.

The first time constant is fixed and determines the OFF time of the power switch Q7 and is tuned with P3 to 10 µS. The second time constant is variable and depends on the current flow through Q2. By varying the bias on transistor Q2, the time constant can be varied. Q2 is driven by the comparator Q1. This Q1 receives its base bias voltage from FBHV(feedback high voltage from the divider by 1000 circuit on the splitter. The emitter of Q1 is set at +33 volts by zener IC4. The duty cycle or the on/off time of the power switcher Q7 is regulated by the voltage difference detected by Q1, between the fixed emitter and the BFHV from the splitter.
The frequency of this oscillator is typically 80 kHz.

The squared waveform at pin 3 of the NAND gate is, via a fast switching and inverting FET Q3, sent to the opto-coupler IC1. 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 board 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.**

As this board is supplied with the +300M as soon the Mains switch is pushed, it is not recommended to remove this board even when the projector is in a standby position. This action will damage the contacts of the board.

The output drives a FET Q6 which on its turn drives the push-pull stage Q4/ Q5. The pulses are capacitively coupled with C11 to the gate of Q7. The 20 volts zener Z3 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 Q7.

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 L1/C19/C29 and a fuse 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 P2 ("hold down adjust" potentiometer) is sent to the base of Q8 and Q8's emitter is set to a threshold of 5.6 volt by Z4. As soon as the EHT rises beyond 36.5kV, transistor Q8 starts conducting, turning on Q9. The Schmitt-trigger pins 8 and 9 of IC2 go high and its output pin 6 goes low. D6 pulls pin 6 of IC2 low in order to stop the EHT multivibrator, halting the EHT.

The output of IC2 , pin 11 goes high at the same time (inverting) to forward biases LED D8 to indicate the EHT HOLD DOWN condition. The feedback resistor R30 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 Q7.

These pulses are rectified by D42 and the resulting pulsating DC is filtered by C30 / C12 divided down with R70/R35+R58 and sent to the base of Q10. A threshold level of 4.7 volt is set at the emitter with Z8. From 5.6 volt base voltage onwards Q10 starts conducting, turning fully on Q18. The base voltage of Q15 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 IC5.

Via Z5 (13 volt) the collector of Q8 is dropped to approx. 13 volts, sufficient to introduce the conduction of Q9. The further actions are now similar to what is explained above.

Note that the same optocoupler and transistor Q15 are used for mains hum suppression. The +300M is via a filter C24/R51/R9 sent to pin 1 of IC5. The isolated feedback voltage is taken from the collector of Q15 and capacitively coupled to the FBHV input of the board.

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

Finally, in the vent of an excessive amount of CRT beam current, with a long duration, the duration is determined by the time constant R102/C39, the collector of Q8 is pulled low via Q27 , resulting in EHT Hold Down.

The base of Q27 is connected to ground, and HVL is in the ground return of the Quadrupler, so as the emitter of Q27 goes more negative as the total beam current increases, Q27 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, Q27 turns on causing HV holddown.
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 Q10/Q18 and the opto-coupler IC5.
- 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 Q16 is blocked turning on Q17. D3 becomes forward biased and pulls pin 6 of the multivibrator at ground level, stopping the EHT.

c) Overcurrent protection of the Q7 switcher.

The drain-source current of Q7 is measured by the resistor R21 in series with the source. This voltage is applied to the base of Q14 via a divider R40/ R15.

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

The pin 4 output of the opto-coupler IC3 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 Q4/5 are coupled with D5 to pin 1 of the opto-coupler. When the drain of Q6 is at low level, D5 is forward biased and inhibits the supply voltage +17M' 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.

When the projector is switched on, a slow start up of the EHT voltage is provided. This is accomplished by the circuit around Q11. The voltage for the reference zener IC4 is taken from the +230V line via R7.
When the unit is switched on, until C40 fully charges, Q11 will be forward biased and inhibits C4 from charging. This gives a slow rise to the voltage for IC4, 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, C40 is quickly discharged via D9, because the 230VDC line drops quickly, taking the EHT reference voltage on IC4 quickly down, and therefore the EHT itself goes down.

C40 discharging turns on Q11 because its base is pulled in a negative direction. If a scan fail condition is met, Q13 sees a low at its base and turns off. The base of Q12 then goes "high" and C40 is discharged, pulling down the reference voltage.

Delay of the power switch drive .

Fet Q30 is used to keep a drive pulse from driving Q7, until the EHT pulse on the Drain of Q7 has not fully dropped to its minimum. The EHT pulse is coupled to the gate of Q30 and the on state inhibits the push-pull stage Q4/ Q5 from being driven. When the EHT pulse has dropped, turning off Q30, then the next drive pulse can pass. The gate-source of Q30 is limited by the zener D9 to 20V DC.

Parts listing EHT Module R7617427

ITEM	NO.	SIT.	DESCRIPTION	
40	R133039		SPR L 8 D 4 D 1.2 C	4
130	R133063		Q ACC ISO MICA SOT93	1
123	R133074		Q ACC ISO SIL600 W 30	0,033
124	R133074		Q ACC ISO SIL600 W 30	0,033
125	R133074		Q ACC ISO SIL600 W 30	0,033
	R34303616		CBLU COA RG178 BU50E 160	1
121	R3631049		SCR D933 M 3 X 6 XIC	1
111	R3631059		SCR D933 M 3 X 8 XIC	4
110	R367600		NUT BLOC M 3	2
10	R367699		RVT CHB D2.38L6.35 P A	2
10	R721850		R ACC CLIPS TCE V PROTECT	2
100	R802634		HTSNK PJ49 EHT	1
120	R804831		Q ACC SPG 1X 3.1 LONG	1
C 1	R1137161		C POMERA 22N K100E2 85	
C 2	R112735		C CE MI 470P K100E2	1
C 3	R112747		C CE MI 4N7K100E2	1
C 4	R111488		C EL RA 220M Z 40E2 85	1
C 5	R112747		C CE MI 4N7K100E2	1
C 6	R113724		C POMERA 100N K 63E2 85	
C 7	R1122415		C NP0 MI 82P G100E2	
C 8	R112242		C NP0 MI 100P G100E2	
C 9	R111532		C EL RA 22M M 35E2 85	
C 10	R113732		C POMERA 470N K 63E2 85	
C 11	R113729		C POMERA 270N K 63E2 85	
C 12	R111720		C PPMERA 6N8J162E9 HV	1
C 13	R112733		C CE MI 330P K100E2	1
C 14	R111479		C EL RA 470M Z 25E2 85	1
C 15	R112763		C CE MI 10N U 63E2	
C 16	R1137121		C POMERA 10N K250E2 85	
C 17	R1137121		C POMERA 10N K250E2 85	1
C 18	R111532		C EL RA 22M M 35E2 85	
C 20	R113724		C POMERA 100N K 63E2 85	
C 21	R113732		C POMERA 470N K 63E2 85	
C 22	R112763		C CE MI 10N U 63E2	1
C 24	R114162		C POMERA 100N K400E6 85	1
C 25	R112760		C CE MI 3N3K100E2	1
C 26	R112763		C CE MI 10N U 63E2	
C 27	R1137121		C POMERA 10N K250E2 85	
C 28	R112739		C CE MI 1N K100E2	1
C 29	R111578		C EL RA 100M M400E4 85	1
C 30	R114603		C POMERA 100N M102E9 HV	1
C 37	R112747		C CE MI 4N7K100E2	1
C 39	R111453		C EL RA1000M Z 6E2 85	1
C 40	R111531		C EL RA 10M M 35E2 85	
C 42	R112819		C CE DI 330P M400E3	1
C 43	R112240		C NP0 MI 68P G100E2	1
C 44	R1137121		C POMERA 10N K250E2 85	1
D 1	R131621		D S 1N4148 075150 DO35	
D 2	R131621		D S 1N4148 075150 DO35	
D 3	R131621		D S 1N4148 075150 DO35	
D 4	R131621		D S 1N4148 075150 DO35	
D 5	R131637		D R BA158 600400 DO7	
D 6	R131621		D S 1N4148 075150 DO35	
D 7	R131958		D R BY329 12208A TO220C	1
D 8	R131662		D LED D3 T RD	1
D 9	R131646		D R 1N4007 10201A DO41	
D 10	R131646		D R 1N4007 10201A DO41	1
D 11	R131621		D S 1N4148 075150 DO35	
D 20	R131621		D S 1N4148 075150 DO35	
D 30	R131628		D S BAW62 075200 DO35	1
D 42	R131906		D R BYV96E 1021A5 SOD57	1
F 1	R314116		F 5X20 T 2A H RU/VDE	1
H 1	R314516		F ACC HLDR 6A 5X20 PC/HSG	1
I 1	R134224		U 582 TLP 1119A1 P	1
I 2	R1373945		U 4093B DIP14 P	1
I 3	R134224		U 582 TLP 1119A1 P	1
I 4	R132102		U 33B ZTK DO35	1
I 5	R131691		U 601G-3 SFH DIP6 P	1
J 1	R313525		J EUR2C MBS P64 E1C2S 1,6	1
L 1	R305913		CH MNS AX 12 UH 3A	1
NTC1	R105016		R NTC 2K7 0W25	1
P 1	R106834		R TCE V200K K 0W5 S10SS	1
P 2	R106833		R TCE V100K K 0W5 S10SS	1
P 3	R106733		R TCE H100K K 0W5 S10TS	1
PC	R780022		PCS PJ49 800 EHT	1
Q 1	R132590		Q BC560B P SS TO92	1
Q 2	R1314182		Q BC559C P SS TO92	
Q 3	R132910		Q BS170 FN SS TO92	1
Q 4	R131424		Q BC338 N SS TO92	
Q 5	R1314311		Q BC327 P SS TO92	
Q 6	R132910		Q BS170 FN SS TO92	1
Q 7	R132918		Q IXTH12N100 FN P TO247	1
Q 8	R131411		Q BC549C N SS TO92	1
Q 9	R1314182		Q BC559C P SS TO92	1
Q 10	R131411		Q BC549C N SS TO92	
Q 11	R132923		Q BC556 P SS TO92	1
Q 12	R132924		Q BC546 N SS TO92	1
Q 13	R132924		Q BC546 N SS TO92	1
Q 14	R131411		Q BC549C N SS TO92	
Q 15	R1314182		Q BC559C P SS TO92	
Q 16	R131411		Q BC549C N SS TO92	1
Q 17	R131424		Q BC338 N SS TO92	1
Q 18	R1314182		Q BC559C P SS TO92	
Q 27	R131411		Q BC549C N SS TO92	
Q 30	R1329105		Q BS170 FN SS TO92	1
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R 3	R101552		R MF H 22K F 0W4 E3	
R 4	R101524		R MF H100E F 0W4 E3	
R 5	R101512		R MF H 10E F 0W4 E3	
R 6	R101532		R MF H470E F 0W4 E3	
R 7	R103254		R MO H 33K J 2W	1
R 8	R101556		R MF H 47K F 0W4 E3	
R 9	R101462		R MF H150K J 2W E7	1
R 10	R101563		R MF H180K F 0W4 E3	
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R 12	R101560		R MF H100K F 0W4 E3	
R 15	R101532		R MF H470E F 0W4 E3	
R 16	R101535		R MF H820E F 0W4 E3	
R 17	R101539		R MF H 1K8 F 0W4 E3	
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R 20	R101534		R MF H680E F 0W4 E3	

ITEM	NO.	SIT.	DESCRIPTION	
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R 24	R103229		R MO H270E J 2W	1
R 25	R101564		R MF H220K F 0W4 E3	
R 26	R101556		R MF H 47K F 0W4 E3	
R 27	R101548		R MF H 10K F 0W4 E3	
R 28	R101556		R MF H 47K F 0W4 E3	
R 29	R101560		R MF H100K F 0W4 E3	
R 30	R101556		R MF H 47K F 0W4 E3	
R 31	R101544		R MF H 4K7 F 0W4 E3	
R 32	R101549		R MF H 12K F 0W4 E3	
R 33	R101548		R MF H 10K F 0W4 E3	
R 34	R101541		R MF H 2K7 F 0W4 E3	
R 35	R101544		R MF H 4K7 F 0W4 E3	
R 36	R1011324		R MF H475E F 0W6 E4	1
R 37	R101543		R MF H 3K9 F 0W4 E3	
R 39	R1011274		R MF H182E F 0W6 E4	1
R 40	R101541		R MF H 2K7 F 0W4 E3	
R 41	R101529		R MF H270E F 0W4 E3	
R 42	R101548		R MF H 10K F 0W4 E3	
R 43	R101556		R MF H 47K F 0W4 E3	
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R 46	R101554		R MF H 33K F 0W4 E3	
R 47	R101552		R MF H 22K F 0W4 E3	
R 48	R101564		R MF H220K F 0W4 E3	
R 49	R101548		R MF H 10K F 0W4 E3	
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R 52	R101543		R MF H 3K9 F 0W4 E3	
R 53	R101542		R MF H 3K3 F 0W4 E3	
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R 64	R101536		R MF H 1K F 0W4 E3	
R 66	R101462		R MF H150K J 2W E7	1
R 67	R101462		R MF H150K J 2W E7	1
R 68	R101564		R MF H220K F 0W4 E3	
R 69	R101543		R MF H 3K9 F 0W4 E3	
R 70	R104654		R HV H 1M J 0W5 3500	1
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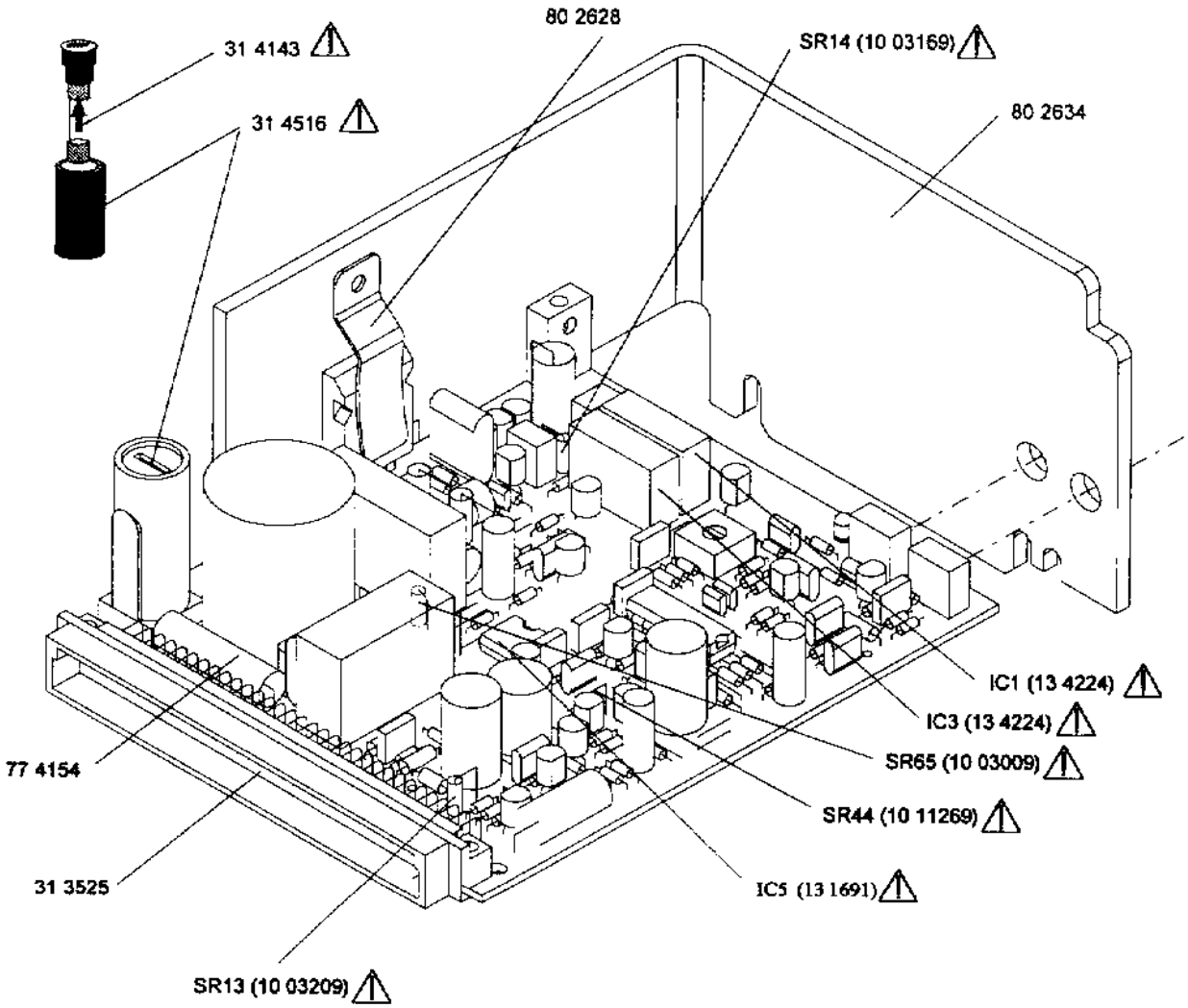
R 81	R101545		R MF H 5K6 F 0W4 E3	
R101	R101548		R MF H 10K F 0W4 E3	
R102	R101543		R MF H 3K9 F 0W4 E3	
R103	R101546		R MF H 6K8 F 0W4 E3	
SR13	R1003209		R CFFV 47E J 0W25 E1	1
SR14	R1003169		R CFFV 22E J 0W25 E1	1
SR44	R1011269		R CFFH150E J 0W25	1
SR65	R1003009		R CFFV 1E J 0W25 E1	1
Z 2	R131745		D ZEN 18V 1W3 C DO41	1
Z 3	R131730		D ZEN 20V 0W5 C DO35	
Z 4	R131734		D ZEN 5V6 0W5 B DO35	
Z 5	R131721		D ZEN 13V 0W5 C DO35	
Z 8	R131729		D ZEN 4V7 0W5 C DO35	
Z 9	R131730		D ZEN 20V 0W5 C DO35	

PRODUCT SAFETY NOTICE

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



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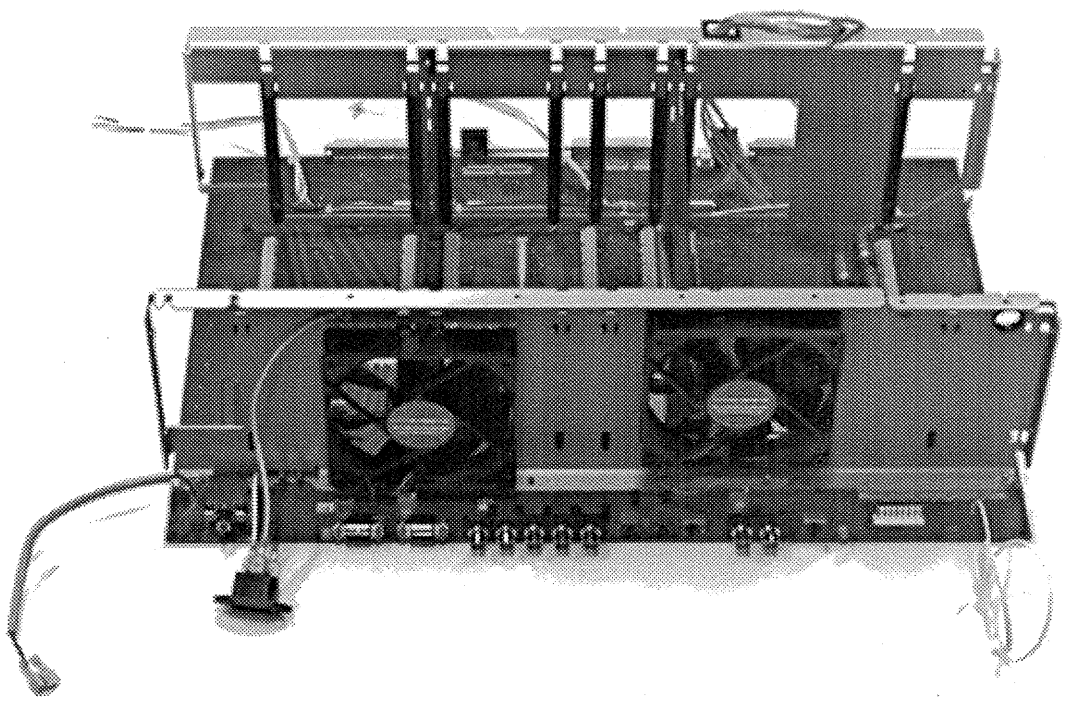
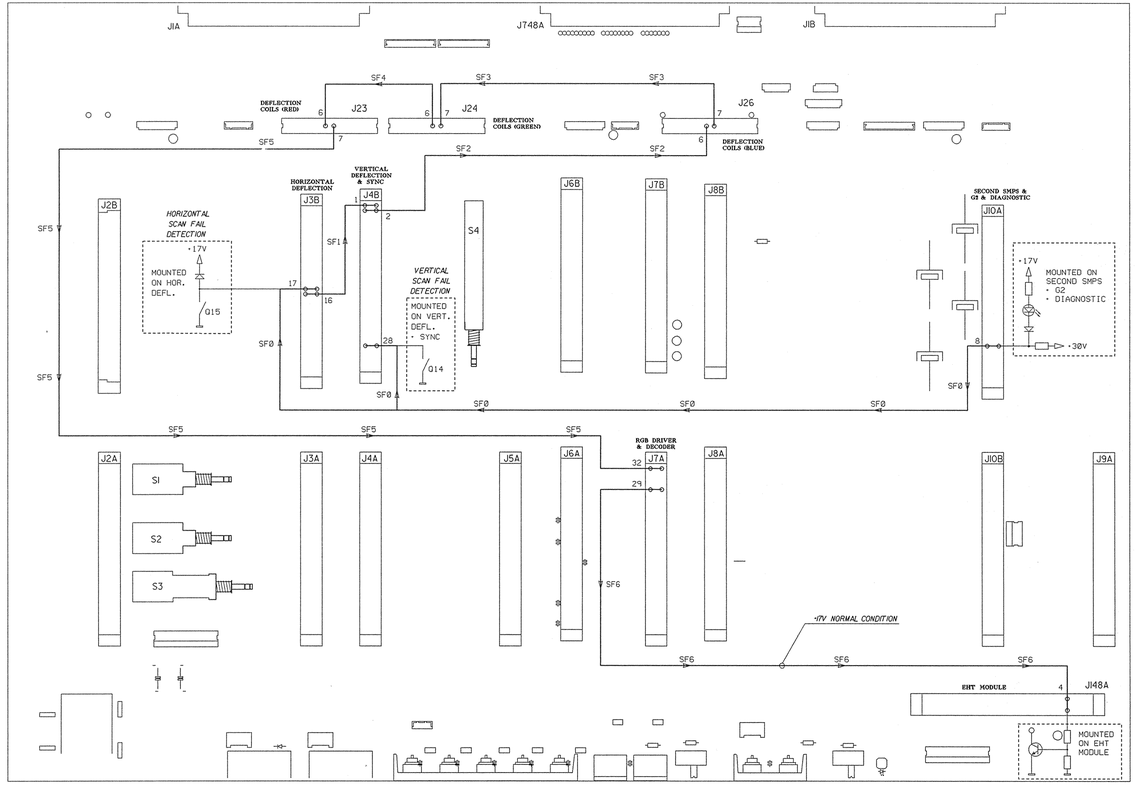


Scan fail diagram



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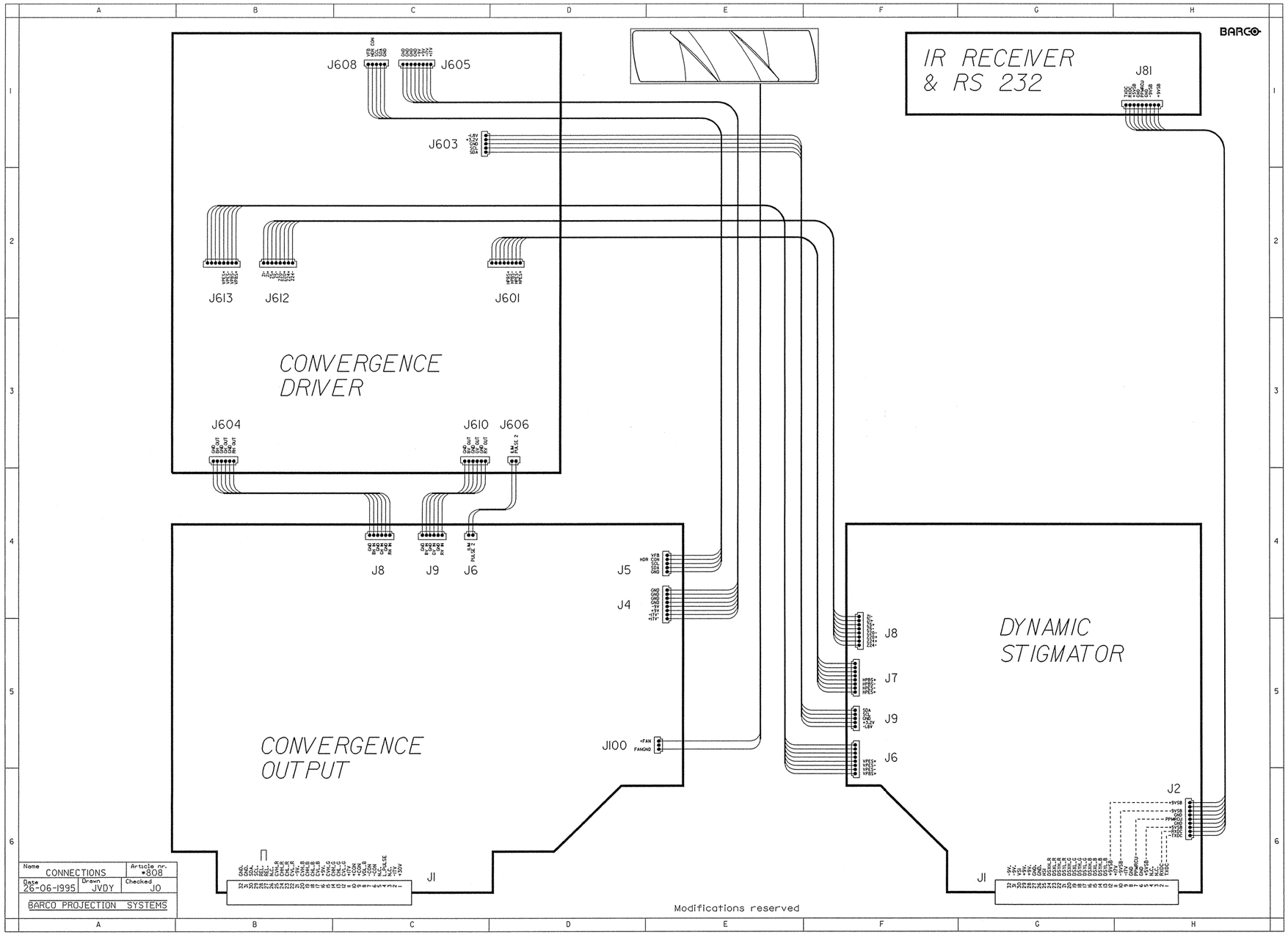
BARCO PROJECTION SYSTEMS			

Modifications reserved

SCAN FAIL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IR RECEIVER
& RS 232
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DRIVER
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J8
J9
J6
J5
J4
J100
CONVERGENCE
OUTPUT
DYNAMIC
STIGMATOR
J8
J7
J9
J6
J2
J1
J1
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CONNECTIONS
Article nr.
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Date
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Drawn
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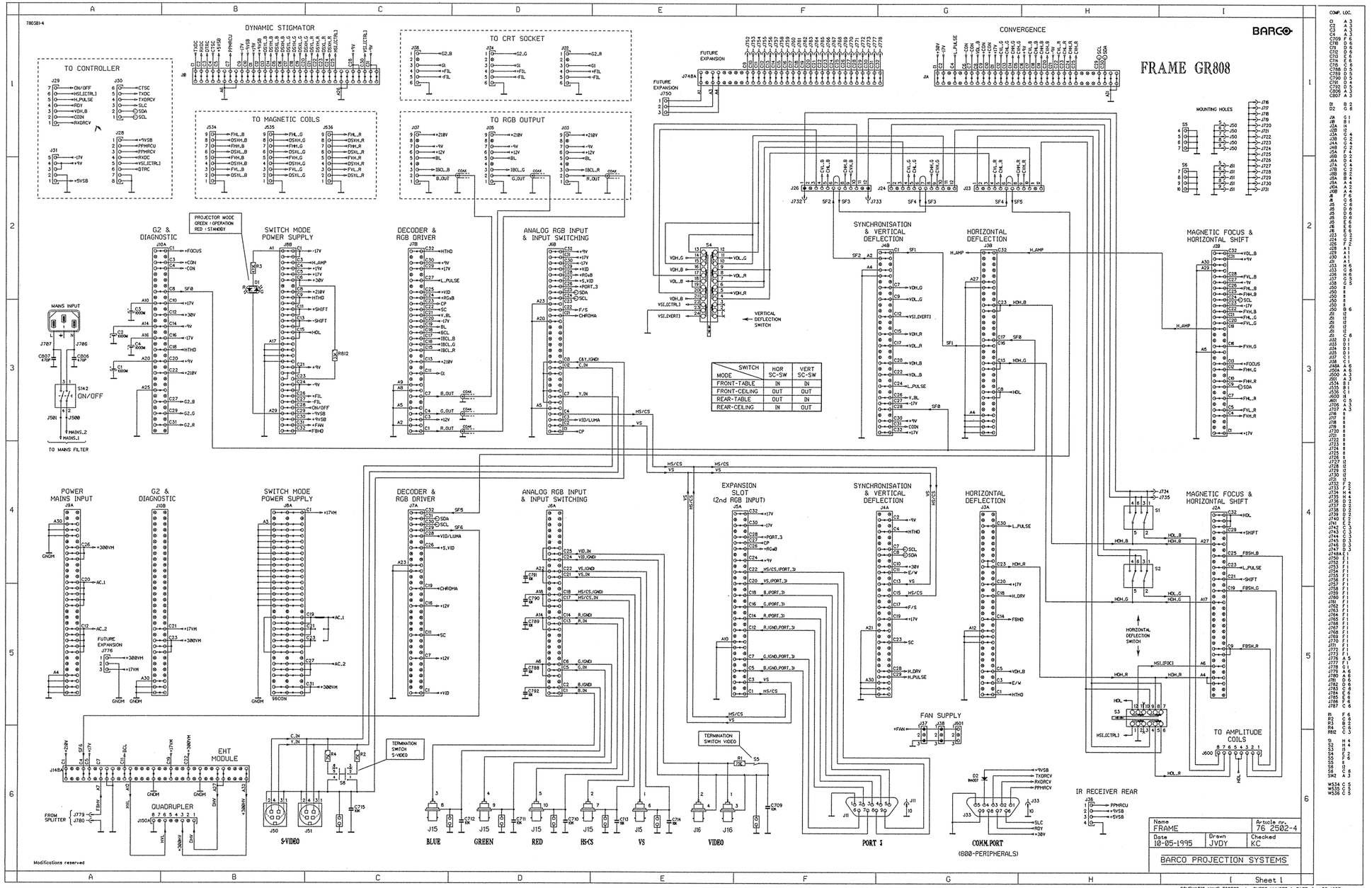
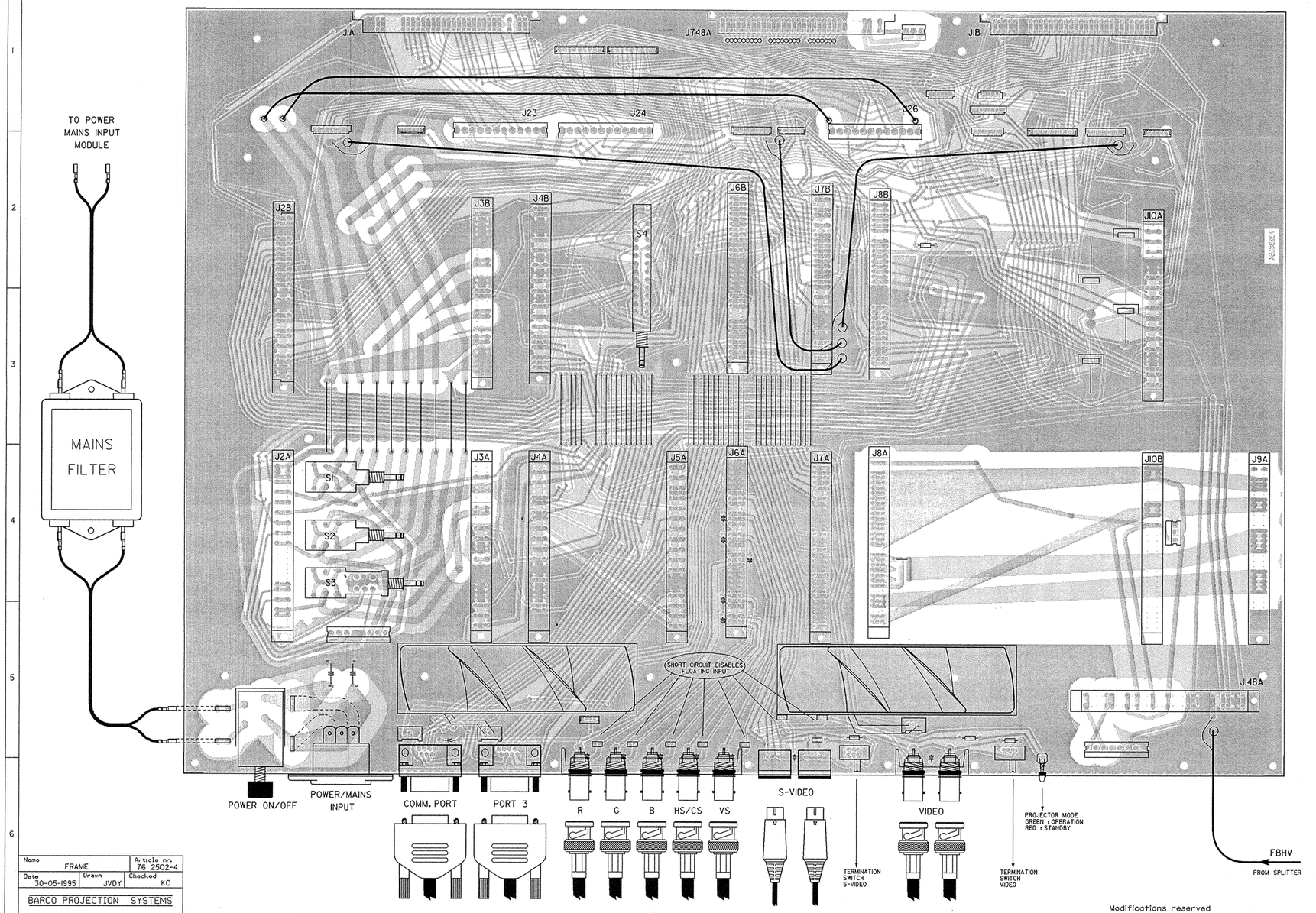
BARCO PROJECTION SYSTEMS
Modifications reserved


FRAME GR808
BARCO
780381-4
DYNAMIC STIGMATOR
TO CONTROLLER
TO CRT SOCKET
TO MAGNETIC COILS
TO RGB OUTPUT
CONVERGENCE
FUTURE EXPANSION
MOUNTING HOLES
G2 & DIAGNOSTIC
PROJECTOR MODE
GREEN = OPERATION
RED = STANDBY
SWITCH MODE POWER SUPPLY
DECODER & RGB DRIVER
ANALOG RGB INPUT & INPUT SWITCHING
SYNCHRONISATION & VERTICAL DEFLECTION
HORIZONTAL DEFLECTION
MAGNETIC FOCUS & HORIZONTAL SHIFT
VERTICAL DEFLECTION SWITCH
MAINS INPUT
ON/OFF
TO MAINS FILTER
POWER MAINS INPUT
EXPANSION SLOT (2nd RGB INPUT)
FAN SUPPLY
HORIZONTAL DEFLECTION SWITCH
TO AMPLITUDE COILS
IR RECEIVER REAR
EHT MODULE
QUADRUPLER
FROM SPLITTER
TERMINATION SWITCH S-VIDEO
TERMINATION SWITCH VIDEO
S-VIDEO
BLUE
GREEN
RED
HS-CS
VS
VIDEO
PORT 1
COMM.PORT
(800-PERIPHERALS)
SWITCH MODE | HOR SC-SW | VERT SC-SW
FRONT-TABLE | IN | IN
FRONT-CEILING | OUT | OUT
REAR-TABLE | OUT | IN
REAR-CEILING | IN | OUT
Name FRAME
Article nr. 76 2502-4
Date 10-05-1995
Drawn JVDY
Checked KC
BARCO PROJECTION SYSTEMS
Modifications reserved
Sheet 1
SCHEMATIC NAME: 762502.sch SHEET NUMBER: 1 DATE: Jun 28, 1995



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Date: 30-05-1995 / Drawn: JVDY / Checked: KC	

BARCO PROJECTION SYSTEMS

Modifications reserved

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C2	G 2
C3	G 3
C4	G 3
C709	F 5
C710	D 5
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C712	D 5
C713	E 5
C714	E 5
C715	E 5
C788	E 5
C789	E 4
C790	E 4
C791	E 4
C792	E 5
C806	C 5
C807	B 5
D1	G 5
D2	C 6
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J1B	B 3
J2A	B 5
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J2B	C 3
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J5A	E 5
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R2	F 5
R3	F 5
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S3	B 4
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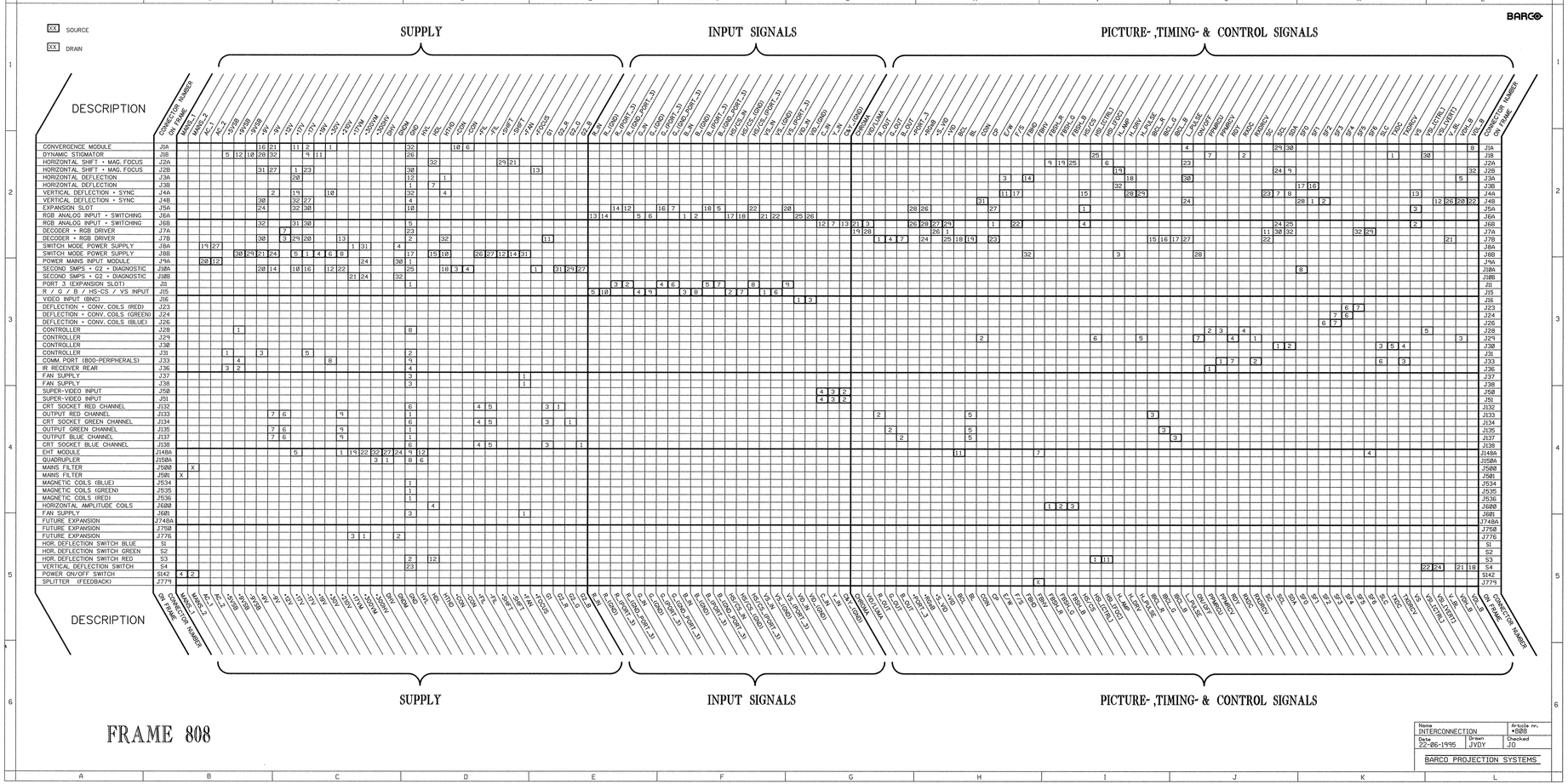
SW2	B 5


XX SOURCE
XX DRAIN
SUPPLY
INPUT SIGNALS
PICTURE-,TIMING- & CONTROL SIGNALS
DESCRIPTION
CONNECTOR NUMBER ON FRAME
CONVERGENCE MODULE J1A
DYNAMIC STIGMATOR J1B
HORIZONTAL SHIFT + MAG. FOCUS J2A
HORIZONTAL SHIFT + MAG. FOCUS J2B
HORIZONTAL DEFLECTION J3A
HORIZONTAL DEFLECTION J3B
VERTICAL DEFLECTION + SYNC J4A
VERTICAL DEFLECTION + SYNC J4B
EXPANSION SLOT J5A
RGB ANALOG INPUT + SWITCHING J6A
RGB ANALOG INPUT + SWITCHING J6B
DECODER + RGB DRIVER J7A
DECODER + RGB DRIVER J7B
SWITCH MODE POWER SUPPLY J8A
SWITCH MODE POWER SUPPLY J8B
POWER MAINS INPUT MODULE J9A
SECOND SMPS + G2 + DIAGNOSTIC J10A
SECOND SMPS + G2 + DIAGNOSTIC J10B
PORT J (EXPANSION SLOT) J11
R / G / B / HS-CS / VS INPUT J15
VIDEO INPUT (BNC) J16
DEFLECTION + CONV. COILS (RED) J23
DEFLECTION + CONV. COILS (GREEN) J24
DEFLECTION + CONV. COILS (BLUE) J26
CONTROLLER J28
CONTROLLER J29
CONTROLLER J30
CONTROLLER J31
COMM. PORT (800-PERIPHERALS) J33
IR RECEIVER REAR J36
FAN SUPPLY J37
FAN SUPPLY J38
SUPER-VIDEO INPUT J50
SUPER-VIDEO INPUT J51
CRT SOCKET RED CHANNEL J132
OUTPUT RED CHANNEL J133
CRT SOCKET GREEN CHANNEL J134
OUTPUT GREEN CHANNEL J135
OUTPUT BLUE CHANNEL J137
CRT SOCKET BLUE CHANNEL J138
EHT MODULE J148A
QUADRUPLER J150A
MAINS FILTER J500
MAINS FILTER J501
MAGNETIC COILS (BLUE) J534
MAGNETIC COILS (GREEN) J535
MAGNETIC COILS (RED) J536
HORIZONTAL AMPLITUDE COILS J600
FAN SUPPLY J601
FUTURE EXPANSION J748A
FUTURE EXPANSION J750
FUTURE EXPANSION J776
HOR. DEFLECTION SWITCH BLUE S1
HOR. DEFLECTION SWITCH GREEN S2
HOR. DEFLECTION SWITCH RED S3
VERTICAL DEFLECTION SWITCH S4
POWER ON/OFF SWITCH S142
SPLITTER (FEEDBACK) J775
FRAME 808
BARCO
Name INTERCONNECTION
Article nr. *988
Date 22-06-1995
Drawn JVDY
Checked JO
BARCO PROJECTION SYSTEMS

Frame cpl R762501

Spare parts R9002030

ITEM NO.	DESCRIPTION	QUANTITY
R326103	CD (0.75) 3 IEC_2X	1
R3270005	BAT 9V 6F22 ALK 0A525	1
R32835020	U_S D 808 CTRL V620	1
R348085	FSTN LATCH TOUCH 4.6-6.5	1
R3613135	SCR CHIP_S 3 X 16 STZB	6
R3619265	SCR D965 M 4 X 16 STZB	8
R3674411	RVT BLND_R3.2C 6.4WSTAL	1
R590234	LBL PJ CEBEC 724 BK	1
R590269	LBL PJ NO BATT INSTALLED	1
R590298	LBL PJ P/S-NR	1
R593001	BAG PE 200X250X0.06 WL	1
R593430	P SH PEF 1MM W600 ROL	0.005
R593600	P BUCKLE 16MM	2
R593601	CORDSTRAP W16 PE CC50/2	0.008
R5975184	LBL PJ S- PFLG/LENS	1
R5975416	MAN INS PJ56 D808	1
R5975426	MAN OWN PJ56 D808	1
R5975426F	MAN OWN PJ56 D808 F	1
R5975426S	MAN OWN PJ56 D808 SPAANS	1
R7123058	SPRCL 0.2 D 5.5D14.2 ALZB	12
R7123059	SPRCL 0.5 D 5.5D14.2 AL	10
R722595	HSG PJ56 G808 HSG UP BEI1	1
R722596	HSG PJ56 G808 HSG S BEI	1
R722609	NPL PJ56 D 808 BR	1
R762618	**UN FRM PJ56CPL D 808 M180**	**1**
R802349	SPG PJ45 MNS CD 326103	1
R803830	LBL PJ BOX B-GRAPHICS	2
R804792	LBL PJ BOX SPANSYSTEEM	1
R805818	FRM PJ56 G808 BASE FR BEI	1
R805840	FRM PJ56 G808 E HNG LOCK	1
R805890	BOXKIT G808 9RBR	1
R805897	BOXKIT G808	1

Spare parts R9002039

ITEM NO.	DESCRIPTION	QUANTITY
R314154	F 5X20 T 10A H UL/CSA	2
R326111	CD (AWG18) 3 UL/IEC 2M5	1
R3270005	BAT 9V 6F22 ALK 0A525	1
R32835020	U_S D 808 CTRL V620	1
R348085	FSTN LATCH TOUCH 4.6-6.5	1
R3613135	SCR CHIP_S 3 X 16 STZB	6
R3619265	SCR D965 M 4 X 16 STZB	8
R3674411	RVT BLND_R3.2C 6.4WSTAL	1
R590234	LBL PJ CEBEC 724 BK	1
R590269	LBL PJ NO BATT INSTALLED	1
R590298	LBL PJ P/S-NR	1
R593001	BAG PE 200X250X0.06 WL	1
R593430	P SH PEF 1MM W600 ROL	0.005
R593600	P BUCKLE 16MM	2
R593601	CORDSTRAP W16 PE CC50/2	0.008
R5975184	LBL PJ S- PFLG/LENS	1
R5975416	MAN INS PJ56 D808	1
R5975426	MAN OWN PJ56 D808	1
R5975426F	MAN OWN PJ56 D808 F	1
R5975426S	MAN OWN PJ56 D808 SPAANS	1
R7123058	SPRCL 0.2 D 5.5D14.2 ALZB	12
R7123059	SPRCL 0.5 D 5.5D14.2 AL	10
R722595	HSG PJ56 G808 HSG UP BEI1	1
R722596	HSG PJ56 G808 HSG S BEI	1
R722609	NPL PJ56 D 808 BR	1
R762618	**UN FRM PJ56CPL D 808 M180**	**1**
R802349	SPG PJ45 MNS CD 326103	1
R803830	LBL PJ BOX B-GRAPHICS	2
R804792	LBL PJ BOX SPANSYSTEEM	1
R805818	FRM PJ56 G808 BASE FR BEI	1
R805840	FRM PJ56 G808 E HNG LOCK	1
R805890	BOXKIT G808 9RBR	1
R805897	BOXKIT G808	1

Spare parts Frame CPL R762618

ITEM NO.	DESCRIPTION	QUANTITY
R130938	LENS HD8	3
R131649	D ACC HLDR D5	1
R305915	CH MNS 2X 1.8 MH 10APMF	1
R306648	YOKE DEF DAV7645 CD1	3
R306661	YOKE ACC MAGN 2/4P SHSP	3
R306664	YOKE FOC KF3203	2
R3066641	YOKE FOC KF3203G GN	1
R312011	SPG FINGER6.6W27.L500CUSN	0.2
R313326	BSHG SNAP D19 /16 BLK	1
R3133382	SPR PCB L22.1D3.8D3.9DUAL	1
R347965	FSTN FINGERGUARD L37 PLBK	4
R347968	CBLA SADDLE LWS 3.2	8
R348005	CBLA TIE C D 3.5/ 6	6
R348019	CBLA TIE B L100 W2.5	15
R348024	CBLA SADDLE LWS 1.6	4
R3485056	CD CT FTFT P 5 520	2
R3485083	CD CT FTFT P 8 360	1
R3485086	CD CT FTFT P 8 520	1
R3485087	CD CT FTFT P 8 600	1
R3485094	CD CT FTFT P 9 480	1
R3489533	CD MNS 2AWG18 4REC 630	1
R3489534	CD MNS 2AWG18 4REC 230	1
R3495085	CD CT FTFT P 8 450	1

R3499099	CD SLSL 8AWG20 P 8WH 70	1
R3580621	HNG DUAL_LA180H50XW40STNI	2
R3615125	SCR HILO_R 4.2X 16 STCR	2
R3615125	SCR HILO_R 4.2X 16 STCR	2
R3619145	SCR D965 M 3 X 10 STBK	2
R3619145	SCR D965 M 3 X 10 STBK	6
R3620127	SCR D84 M 2.5X 6 SS	4
R3621219	SCR Z7985 M 3 X 6 SS	8
R3626696	SCR D921 M 3 X 8 SS	16
R3631069	SCR Z933 M 3 X 10 SSWX	29
R3631239	SCR Z933 M 4 X 10 SSWX	51
R3631469	SCR Z933 M 5 X 16 SSWX	9
R3631479	SCR Z933 M 5 X 20 SSWX	12
R3661036	NUT D934 M 4 SS	2
R3661575	NUT TRAD_LM 5 STZB	12
R366242	NUT D985 M 4 STZN	2
R367093	FSTN 1/4D9 RCPT PLT RVT	1
R367503	SPR D6798AD 4.3D 8 STZN	2
R367528	SPR D6798AD 2.7D 5.5 STZN	4
R367615	SPR L22 M 2.5H 5 IBRNI	2
R367618	SPR L 4.8 D 4.3D 6.4 PLWH	2
R367618	SPR L 4.8 D 4.3D 6.4 PLWH	2
R395196	GLUE LOCT 270	0.002
R395326	TAPE GLUE TSFR W 25.4	0.0006
R395390	TAPE GLUE 926 W 12 .13	0.01
R7123058	SPRCL 0.2 D 5.5D14.2 ALZB	4
R7123059	SPRCL 0.5 D 5.5D14.2 AL	12
R721850	R ACC CLIPS TCE V PROTECT	1
R722603	HSG PJ56 G808 CNV FIX R	1
R722604	HSG PJ56 G808 CNV FIX L	1
R7617415	**UN HOR PJ49 D801 MK2**	**1**
R7617427	**UN EHT PJ49 G800 MK2**	**1**
R7617447	**UN EHT PJ49 G800 SPL**	**1**
R7617481	**UN RGB PJ51 G1200 SW +TLL**	**1**
R761781	**UN RX PJ49 G800 IR RR**	**1**
R7621042D	**CDS CRT G1200 09MX**	**3**
R7621055	**UN INP PJ51 RGB A_S_TRACK**	**1**
R7621705	**UN SMP1 PJ56 G808**	**1**
R7621735	**UN RGB PJ49 G801 OUT ABL**	**3**
R7621745	**UN RGB PJ49 G801 DVR+QMK2**	**1**
R7622091	**UN EHT PJ53 V700 QDR SD**	**1**
R7622695	**UN VER+S PJ49 D801 ABL**	**1**
R762501	**UN FRM PJ56-UN G 802 M180**	**1**
R762503	**UN FOC+S PJ56 G808**	**1**
R762506	**UN SMP2+G2 PJ56 G808**	**1**
R762507	**UN MNS PJ56 G808**	**1**
R762508	**UN CRT SKT PJ56 G808**	**3**
R762509	**UN DEF PJ56 G808 SWITCH**	**1**
R762510	**UN RS232 PJ56 G808**	**1**
R7625115	**UN CTRL PJ56 G808 68000**	**1**
R762513	**UN CNV PJ56 G808 OUT**	**1**
R762514	**UN AST PJ56 G808 DYN**	**1**
R762518	**UN CNV PJ51 G1200 DVR**	**1**
R7625202	**UN CRT G 808 M180 R**	**1**
R7625205	**UN CRT G 808 M180 G**	**1**
R7625206	**UN CRT G 808 M180 B**	**1**
R762523	**UN FAN PJ56 G808**	**1**
R791664	**UN RCU PJ49 700 IR+LGHT**	**1**
R791672	**UN RCU PJ** **** TX WIRE**	**1**
R800996	FRM PJ43 CRT AKWADAG SONY	3
R802682	SCR CUST_RM 5 X 18 SS	4
R802817	FRM EP49 RCVDS800 EARTH	1
R803085	BTN PUSH PJ49R *800 MNS	1
R805622	FRM PJ51 G1208 CRT SPG	6
R805798	FRM PJ56 D808 CRT BLOC	3
R805799	FRM PJ56 D808 DUST RING	3
R805800	FRM PJ56C G808 MECH CRT+E	1
R805813	FRM PJ56 G808 FRM CRT CVR	1
R805821	FRM PJ56 G808 CRT UP	1
R805823	FRM PJ56 G808 CRT L	3
R805824	FRM PJ56 G808 CRT FR	2
R805825	SPRCL 5.2 D 5.2D14 PL	2
R805826	FRM PJ56 G808 CRT CVR	1
R805827	FRM PJ56 G808 CRT FR SIDE	2
R805833	FRM PJ56 G808 E CNN PLT	1
R805834	FRM PJ56 G808 E FRM SCRN1	1
R805850	FRM PJ56 G808 CTRL CVR	1
R805854	FRM PJ56 G808 CTRL SCRN	1
R805860	FRM PJ56 G808 CNV FR	1
R805861	FRM PJ56 G808 CNV SLIDE	1
Z348502	CD CT FTFT P 2 110	1
Z3485067	CD CT FTFT P 6 100	1
Z3495065	CD CT FTFT P 6 180	1

Spare parts Frame R762501

ITEM NO.	DESCRIPTION	QUANTITY
R3131302	J MNS MCT A 6 TAB6.3	1
R313326	BSHG SNAP D19 /16 BLK	1
R3420006	CD RECRNG 1015AWG18YG 180	1
R34546006	CD RECREC 1672AWG22BK 80	1
R34546908	CD RECREC 1672AWG22WH 80	1
R347965	FSTNR FAN	8
R347965	FSTNR FAN	4
R347972	CBLA EDGE EH18U	1
R3626696	SCR D921 M 3 X 8 SI	2
R3631069	SCR D933 M 3 X 10 XIC	1
R3661036	NUT D934 M 4 I	2
R366988	NUT I SOUTH M 3 X0.5	1
R3674411	RVT POP D3.2 L 9.8 P ASW	7
R3674411	RVT POP D3.2 L 9.8 P ASW	2
R3674411	RVT POP D3.2 L 9.8 P ASW	2
R3674411	RVT POP D3.2 L 9.8 P ASW	2
R367503	WSHR D6798 A 4.3 S Z	3
R395390	TAPE GLUE 926 W 12 .13	0.01
R722325	G PCB PJ49	4
R722605	G PCB PJ56 L130	8
R722605	G PCB PJ56 L130	8
R761740	CDU FAN PJ49 G800 L100	2
R761740	CDU FAN PJ49 G800 L100	1
R762502	UN FRM PJ56CNN G 802 M180	1
R805831	FRM PJ56 G808 E FR	1
R805832	FRM PJ56 G808 E RR	1
R805834	FRM PJ56 G808 E SCRN 1	1
R805841	FRM PJ56 G808 FIX FAN	1
R806512	FRM PJ51 G808 EL FRM MDL2	1
R806512	FRM PJ51 G808 EL FRM MDL2	1

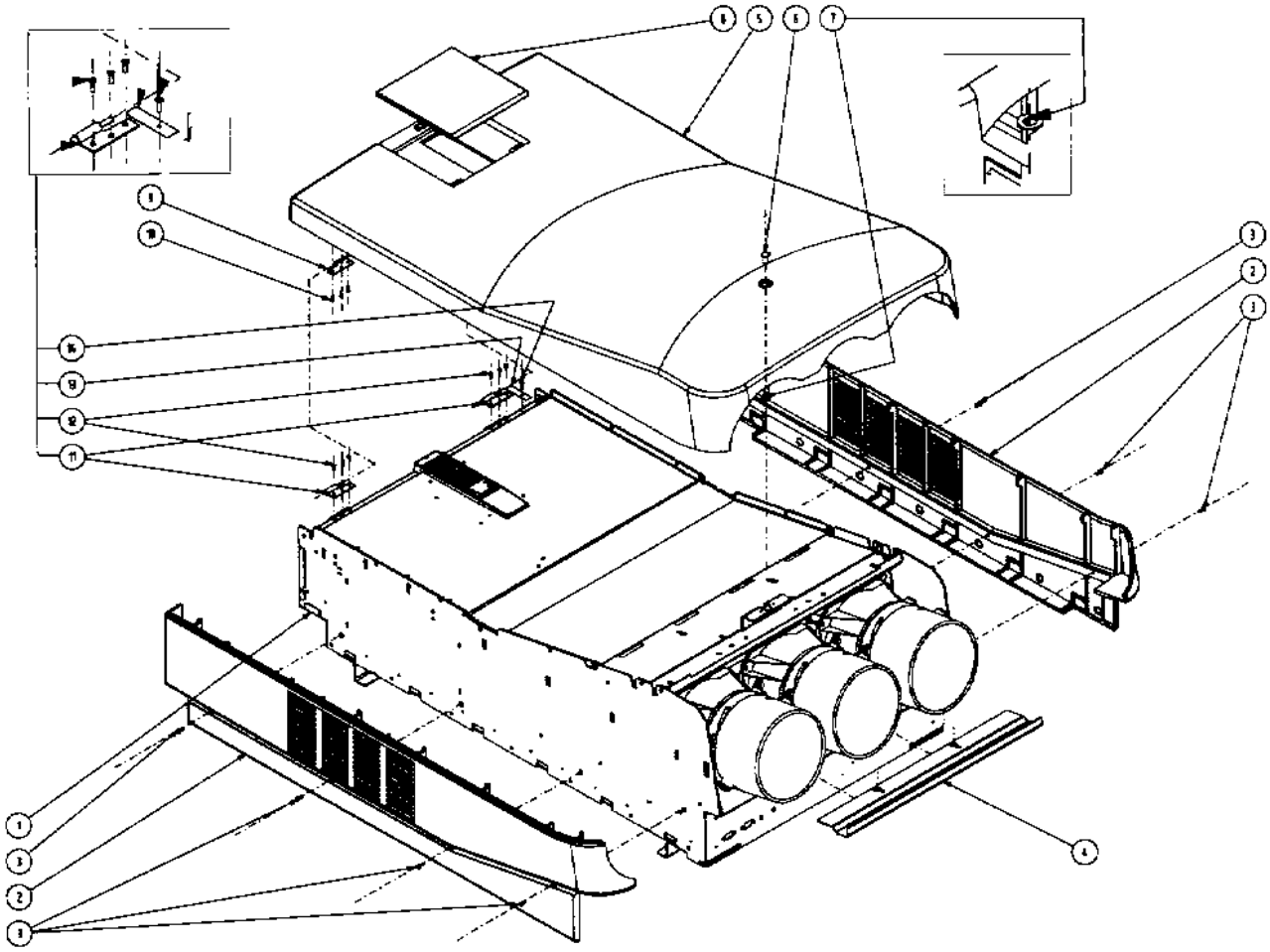
Spare parts Frame R762502

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R342007	CBL F 12P (....) SOL 40	6
2030	R34227230	WU UL1015 AWG20 ST RD 300	1
3010	R34302418	CBLU COA RG179 BU 75E 180	1
3020	R34302427	CBLU COA RG179 BU 75E 270	1
3000	R34302439	CBLU COA RG179 BU 75E 390	1
2020	R34303680	CBLU COAX RG178BU50 800	1
2041	R348019	CBLA TIE B L100 W2,5	3
20	R367435	RVT POP D2.4 L 9.3 P AA	6
10	R367462	RVT POP D2.4 L 7 P AS	34
2040	Z34227635	WU UL1015 AWG20 ST BL 350	1
C 1	R111164	C EL AX1000M T 25E14 85	1
C 2	R111164	C EL AX1000M T 25E14 85	1
C 3	R111164	C EL AX1000M T 25E14 85	1
C 4	R111164	C EL AX1000M T 25E14 85	1
C709	R112763	C CE MI 10N U 63E2	1
C710	R112763	C CE MI 10N U 63E2	1
C711	R112763	C CE MI 10N U 63E2	1
C712	R112763	C CE MI 10N U 63E2	1
C713	R112763	C CE MI 10N U 63E2	1
C714	R112763	C CE MI 10N U 63E2	1
C715	R1137121	C POMERA 10N K250E2 85	1
C788	R1137121	C POMERA 10N K250E2 85	1
C789	R1137121	C POMERA 10N K250E2 85	1
C790	R1137121	C POMERA 10N K250E2 85	1
C791	R1137121	C POMERA 10N K250E2 85	1
C792	R1137121	C POMERA 10N K250E2 85	1
C806	R112098	C CE DI 470P M400E5 Y	1
C807	R112098	C CE DI 470P M400E5 Y	1
D 1	R131674	D LED D5 T RD/GN	1
D 2	R131646	D R 1N4007 10201A DO41	1
J	R3133921	J MD JMP P 1 E1SN	7
J 11	R3135015	J DE P8 FBS P 9 FUMBLPGDB	1
J 15	R313896	J BNC FBS P 5 50E SIP	1
J 16	R313896	J BNC FBS P 5 50E SIP	0,5
J 1A	R313530	J EUR2R FBS P64 E1C2S 1,6	1
J 1B	R313530	J EUR2R FBS P64 E1C2S 1,6	1
J 23	R3134685	J SL FL MBT P12 M3,96 RP	1
J 24	R3134685	J SL FL MBT P12 M3,96 RP	1
J 26	R3134685	J SL FL MBT P12 M3,96 RP	1
J 28	R348508	CD CT FTMT P 8 410	1
J 29	R3485079	CD CT FTMT P 7 380	1
J 2A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 2B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 30	R3485063	CD CT FTMT P 6 420	1
J 31	R3485054	CD CT FTMT P 5 520	1
J 33	R3135005	J DE P8 MBS P 9 FUMBLPGDB	1
J 36	R313924	J CT H MBT P 4 M2SN	1
J 37	R3135722	J MT MBT P 3 R1 FL RD	1
J 38	R3135722	J MT MBT P 3 R1 FL RD	1
J 3A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 3B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 4A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 4B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 50	R313851	J CIRC FBS P 4 M	1
J 51	R313851	J CIRC FBS P 4 M	1
J 5A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 6A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 6B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 7A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 7B	R313526	J EUR2C FBT P64 E1C2S 1,6	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
J 8A	R314069	J EUR3C FBT P96 E1C2S 2,5	1
J 8B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 9A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J 9B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J10A	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J10B	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J132	R313926	J CT H MBT P 6 M2SN	1
J133	R34840931	CD CT $FTMT P 9 240	1
J134	R313926	J CT H MBT P 6 M2SN	1
J135	R34840931	CD CT $FTMT P 9 240	1
J137	R34840931	CD CT $FTMT P 9 240	1
J138	R313926	J CT H MBT P 6 M2SN	1
J148	R313526	J EUR2C FBT P64 E1C2S 1,6	1
J150	R3136078	J SL FL MBT P 8 M3,96 RP	1
J500	R312934	J TAB1 MBT H 6.3S0.8 BZ	1
J501	R312934	J TAB1 MBT H 6.3S0.8 BZ	1
J534	R314079	J SP MBT P 9 R1	1
J535	R314079	J SP MBT P 9 R1	1
J536	R314079	J SP MBT P 9 R1	1
J600	R3136078	J SL FL MBT P 8 M3,96 RP	1
J601	R3135722	J MT MBT P 3 R1 FL RD	1
J706	R312934	J TAB1 MBT H 6.3S0.8 BZ	1
J707	R312934	J TAB1 MBT H 6.3S0.8 BZ	1
J748	R313530	J EUR2R FBS P64 E1C2S 1,6	1
J750	R313607	J SL FL MBT P 3 M3,96 RP	1
J776	R313607	J SL FL MBT P 3 M3,96 RP	1
J781	R3132862	J MD1 MBT P 2 E1SN	1
J782	R3132862	J MD1 MBT P 2 E1SN	1
J783	R3132862	J MD1 MBT P 2 E1SN	1
J784	R3132862	J MD1 MBT P 2 E1SN	1
J785	R3132862	J MD1 MBT P 2 E1SN	1
J786	R3132862	J MD1 MBT P 2 E1SN	1
J787	R3132862	J MD1 MBT P 2 E1SN	1
J900	R313927	J CT H MBT P 7 M2SN	1
J901	R313928	J CT H MBT P 8 M2SN	1
J902	R313929	J CT H MBT P 9 M2SN	1
PC	R780381	PCD PJ49 G808 FRM	1
R 1	R1012231	R MF H 75E J 0W6 E4	1
R 2	R1012231	R MF H 75E J 0W6 E4	1
R 3	R101232	R CF H470E J 0W5	1
R 4	R1012231	R MF H 75E J 0W6 E4	1
R812	R101254	R CF H 33K J 0W5	1
S 1	R3247155	SW MNS NE18 2C	1
S 2	R3247155	SW MNS NE18 2C	1
S 3	R324793	SW MNS NE18 2C+F2C	1
S 4	R324791	SW F 8C	1
S 5	R324251	SW SLD JSA 1C BS H 5.5	1
S 6	R324252	SW SLD JSA 2C BS H 5.5	1
S142	R324792	SW MNS JPZ 2M TV5 BS	1
W536	R348102	WU JUMP 0,6 7,5	1

Frame cpl

R762501

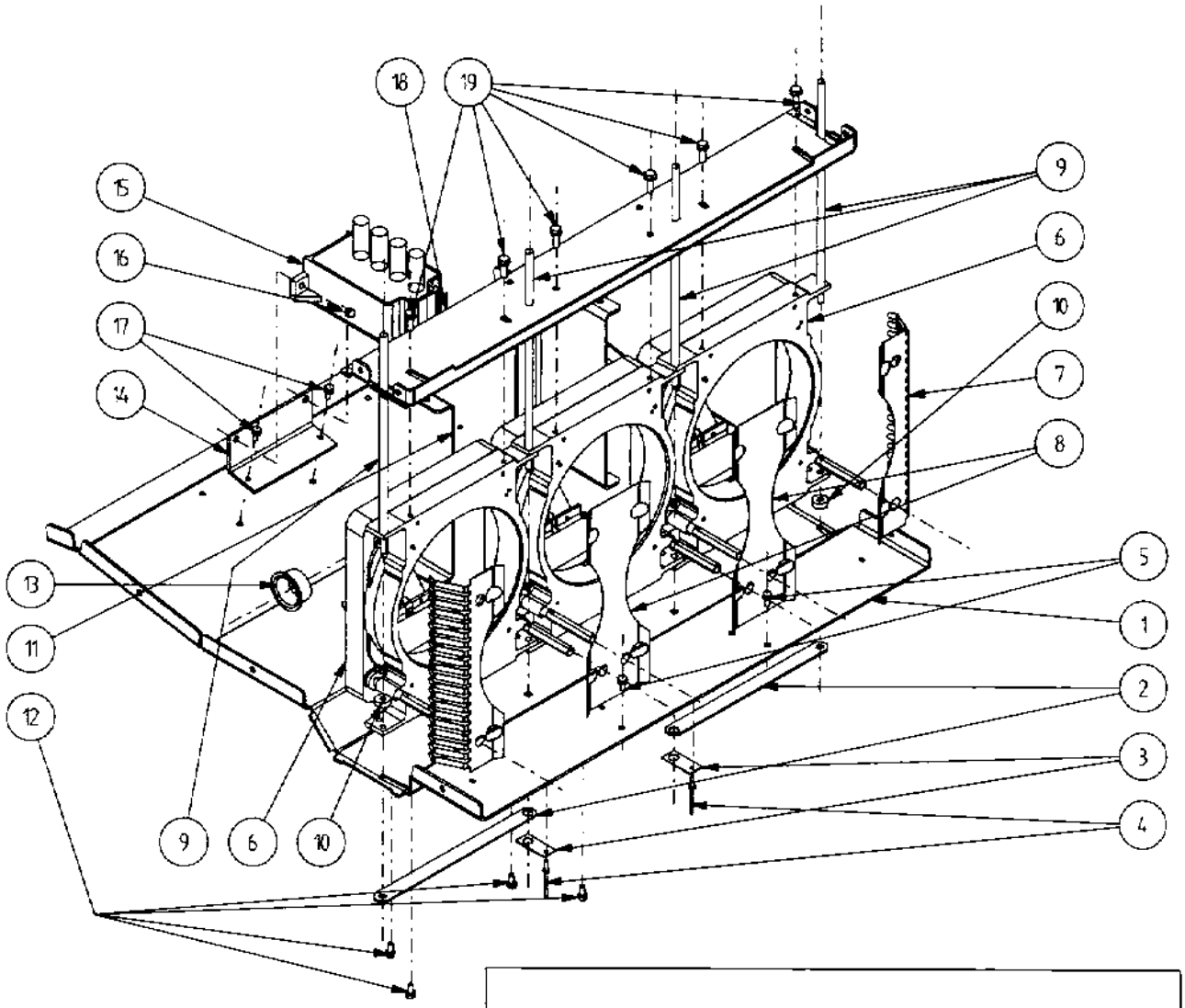


1 Frame projector (refer to exploded view R805808)

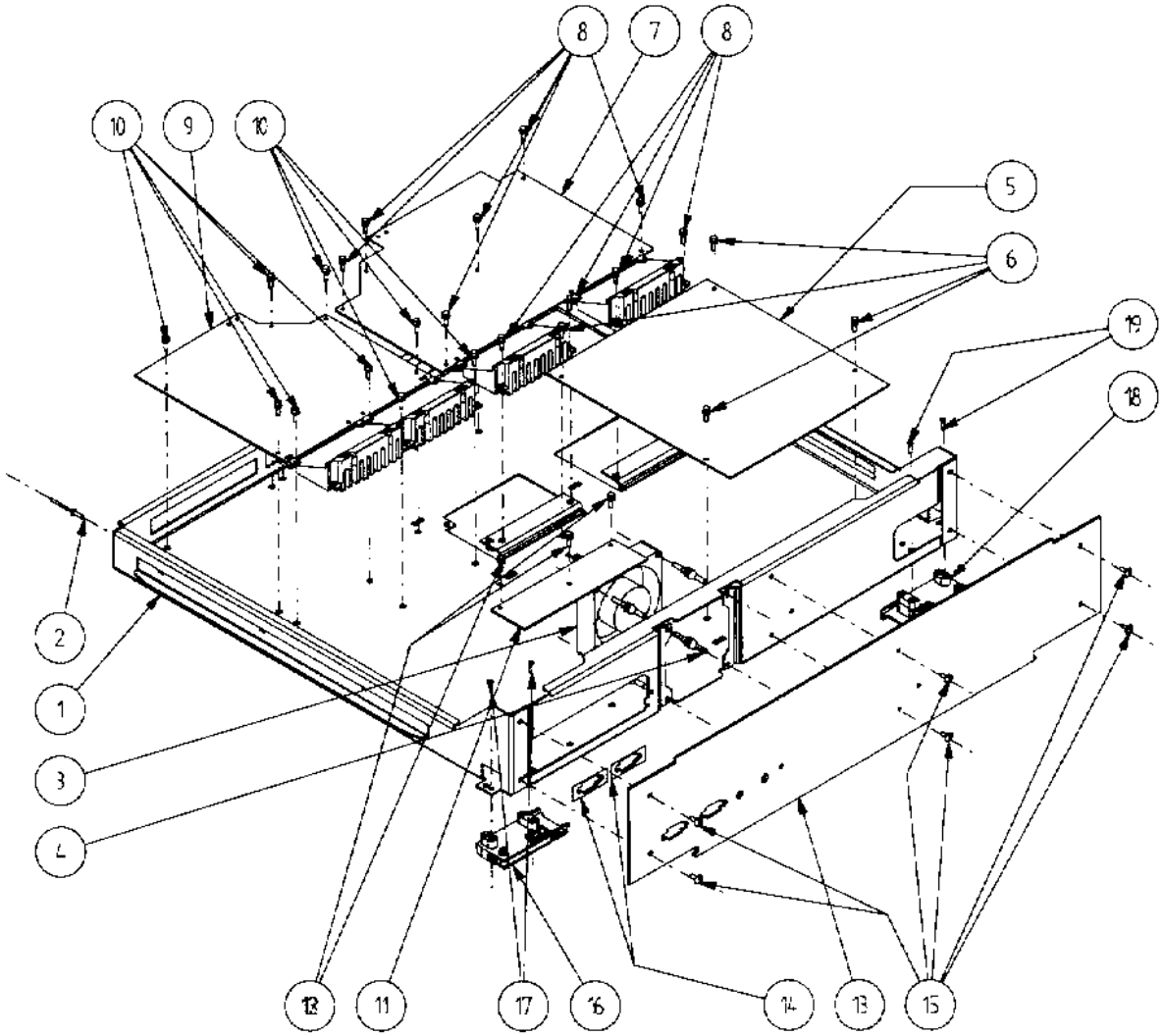
Ref. NO	Description	Item NO	Quantity
2	side parts (Beige)	R722596	2
3	DIN 965 M4X10	R3619245	8
4	front part (Beige)	R805818	1
5	Upper housing (Beige)	R722595	1
6	fast lock screw	R367094	1
7	fast lock retainer	R367092	1
8	name plate	R722600	1
9	hinge (upper part)	R358062	2
10	winglin 3X15	R3613135	6
11	hinge (lower part)	R358062	2
12	DIN 965 M3X10	R3619145	6
13	hinge lock	R805840	1
14	blind-rivet	R3674411	1

Frame cpl

R762501

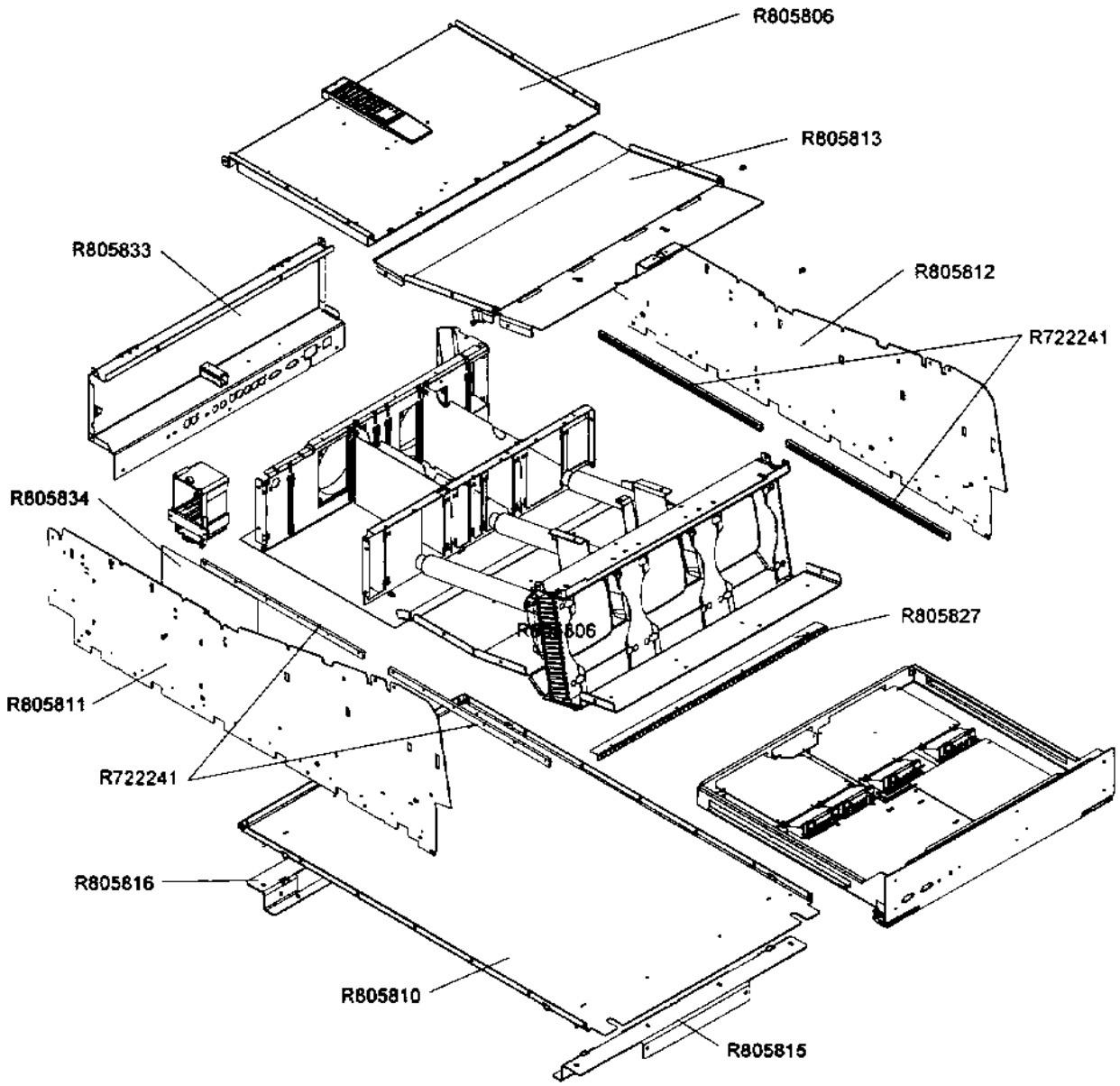


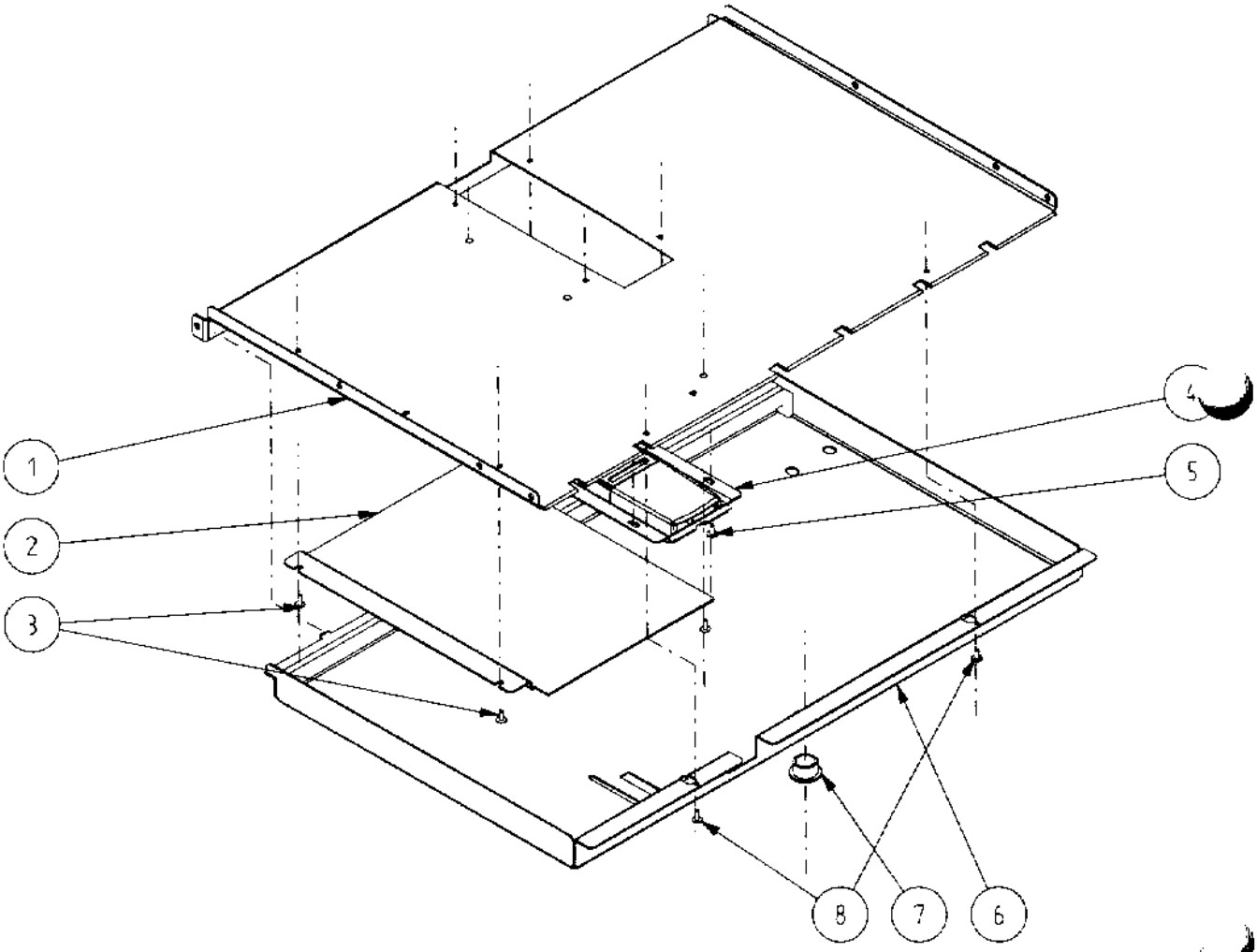
Ref. NO	Description	Item NO	Quantity
1	ground plate CRT block	R805820	1
2	floating nut plate	R805829	2
3	spring floating nut plate	R805830	2
4	blind-rivet	R3674411	2
5	DIN 933 M4X10	R3631239	2
6	CRT block R G B	R805801	1
7	pressure spring (side)	R805827	2
8	pressure spring (middle)	R805824	2
9	distance screw CRT block	R802682	4
10	spacer	R805825	2
11	partition frame CRT block	R805822	1
12	DIN 933 M4X10	R3631239	4
13	grommet	R312329	2
14	fixation Splitter	R802745	1
15	Splitter	R7617447	1
16	DIN 933 M4X10	R3631239	2
17	DIN 933 M4X10	R3631239	2
18	upper plate CRT block	R805821	1
19	DIN 933 M5X16	R3631469	6



Ref. NO	Description	Item NO	Quantity
1	convergence drawer	R805861	1
2	blind-rivet	R3674411	2
3	Fan	R762523	1
4	fixation foam Fan	R347965	4
5	convergence (driver)	R762518	1
6	DIN 933 M3X10	R3631069	4
7	convergence (output)	R762513	1
8	DIN 933 M3X10	R3631069	10
9	dynamic stygmator	R762514	1
10	DIN 933 M3X10	R3631069	9
11	RS232	R762510	1
12	DIN 933 M3X10	R3631069	3
13	front plate	R805860	1
14	pressure spring connectors	R805092	2
15	DIN 933 M3X8	R3626696	6
16	convergence lock (right)	R722603	1
17	DIN 7981 4.2X16	R3615125	1
18	convergence lock (left)	R722604	1
19	DIN 7981 4.2X16	R3615125	1

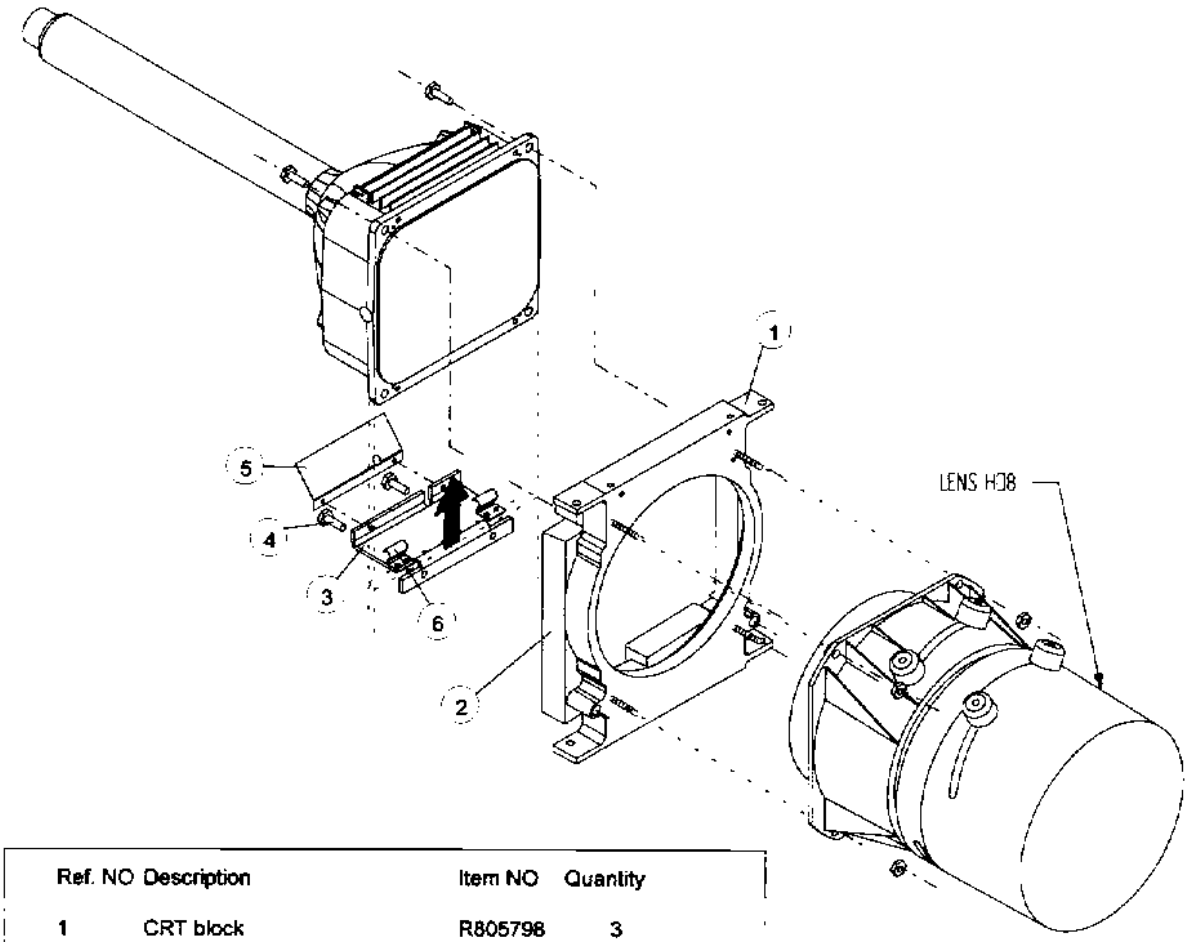
Frame cpl R762501





Ref. NO	Description	Item NO	Quantity
1	module cover	R805850	1
2	controller module	R762511	1
3	DIN 921 M3X8	R3626696	4
4	internal control unit	R791672	1
5	DIN 921 M3X8	R3626696	5
6	screening controller	R805854	1
7	grommet	R313326	1
8	DIN 921 M3X8	R3626696	2

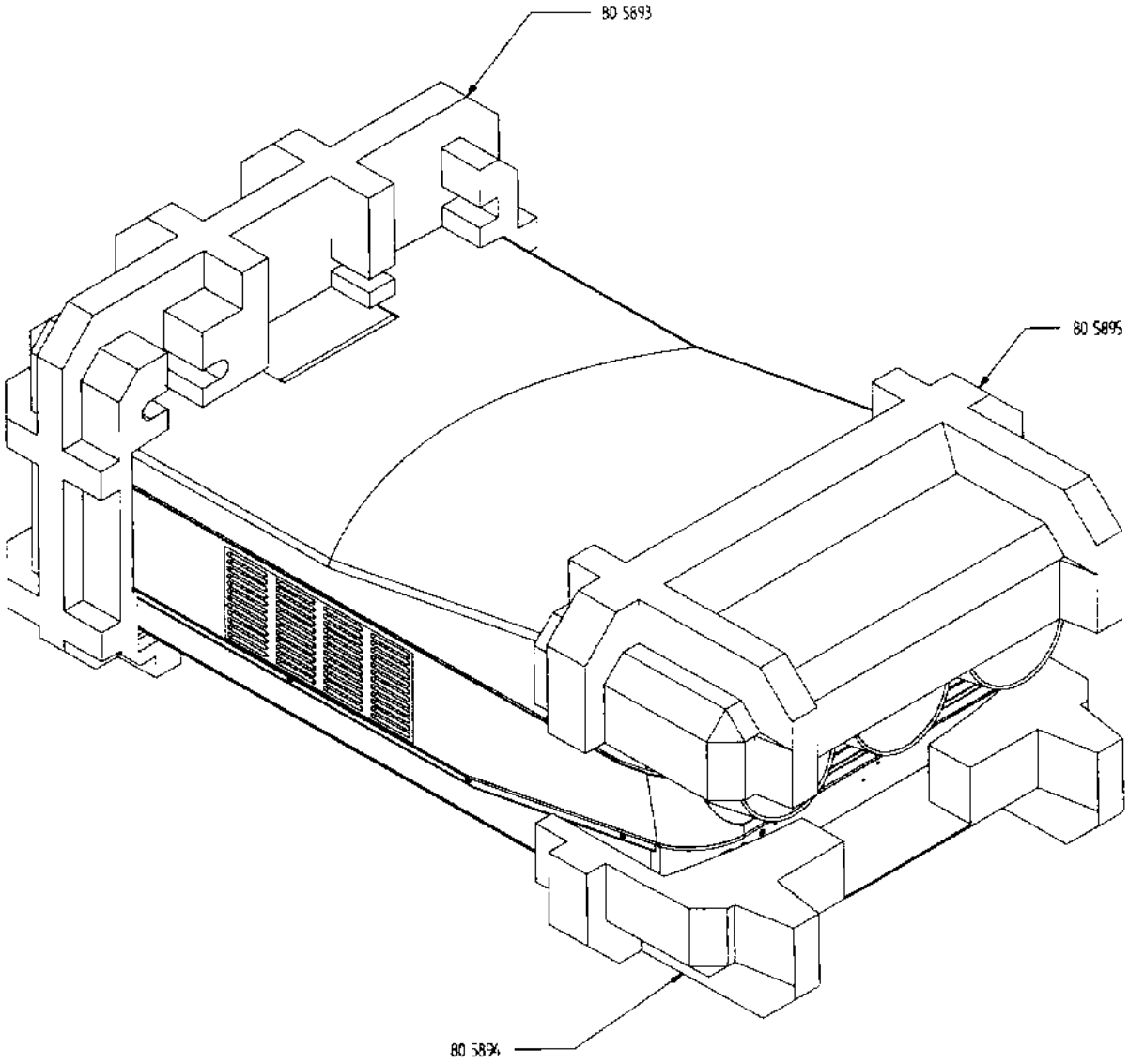
BD808



Ref. NO	Description	Item NO	Quantity
1	CRT block	R805798	3
2	Dust ring	R805799	3
3	fixation CRT bottom	R805823	1
4	DIN 933 M5X16	R3631469	2
5	Aquadag	R800996	1
6	spring CRT	R805622	2

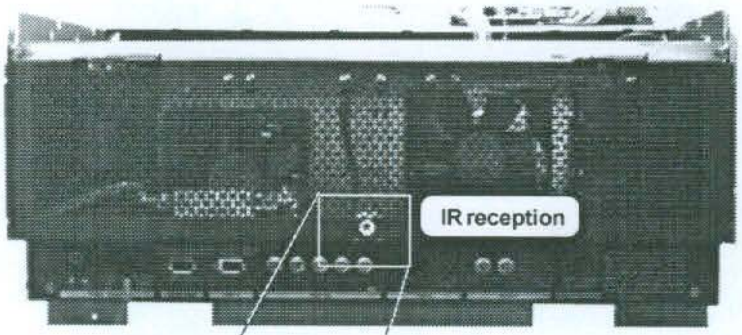
Frame cpl

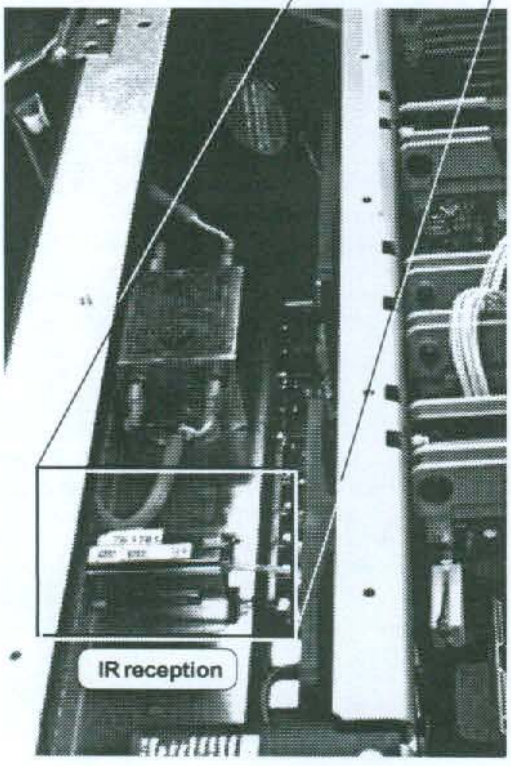
R762501

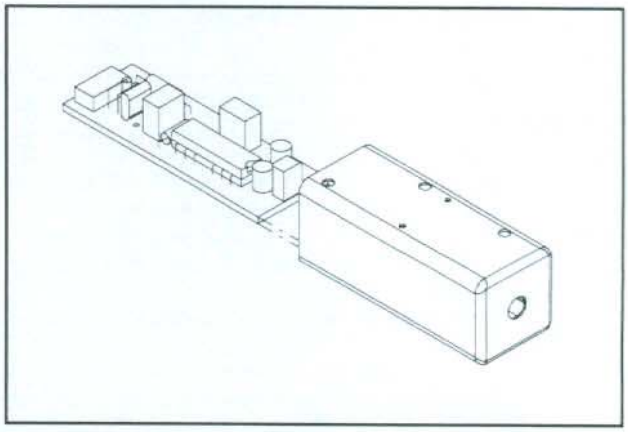


IR Receiver module

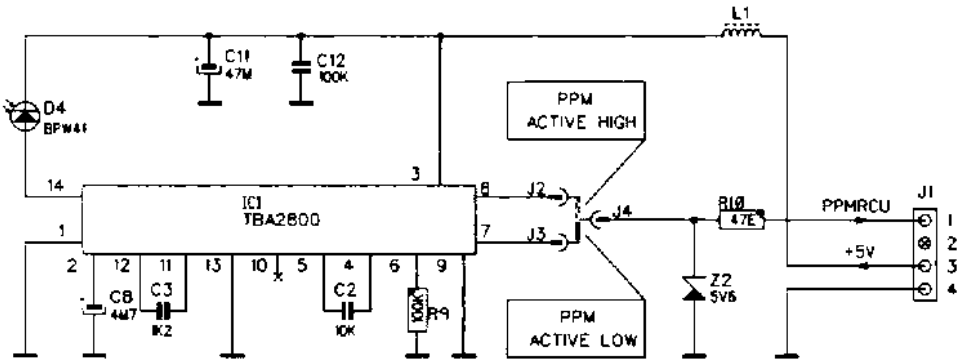
76 1781

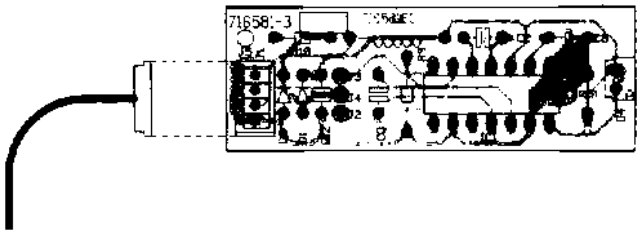






BARCO





Name: INFRA RED RECEIVER	Article nr.: 76 178:-3
Date: 02-03-1995 / Drawn: JVDY	Checked: SCC
BARCO PROJECTION SYSTEMS	

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

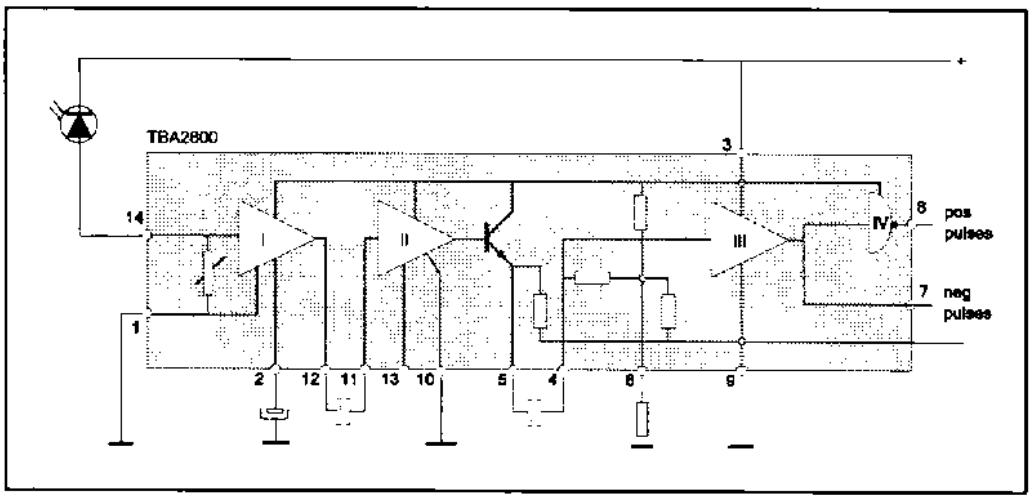
Amplifier I has a wide dynamic range and thus ensures interference-free operation, even at bright ambient light or at intensive infrared light as it comes from infrared sound transmissions or at bright 50 Hz modulated lights as it originates from fluorescent lamps.

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

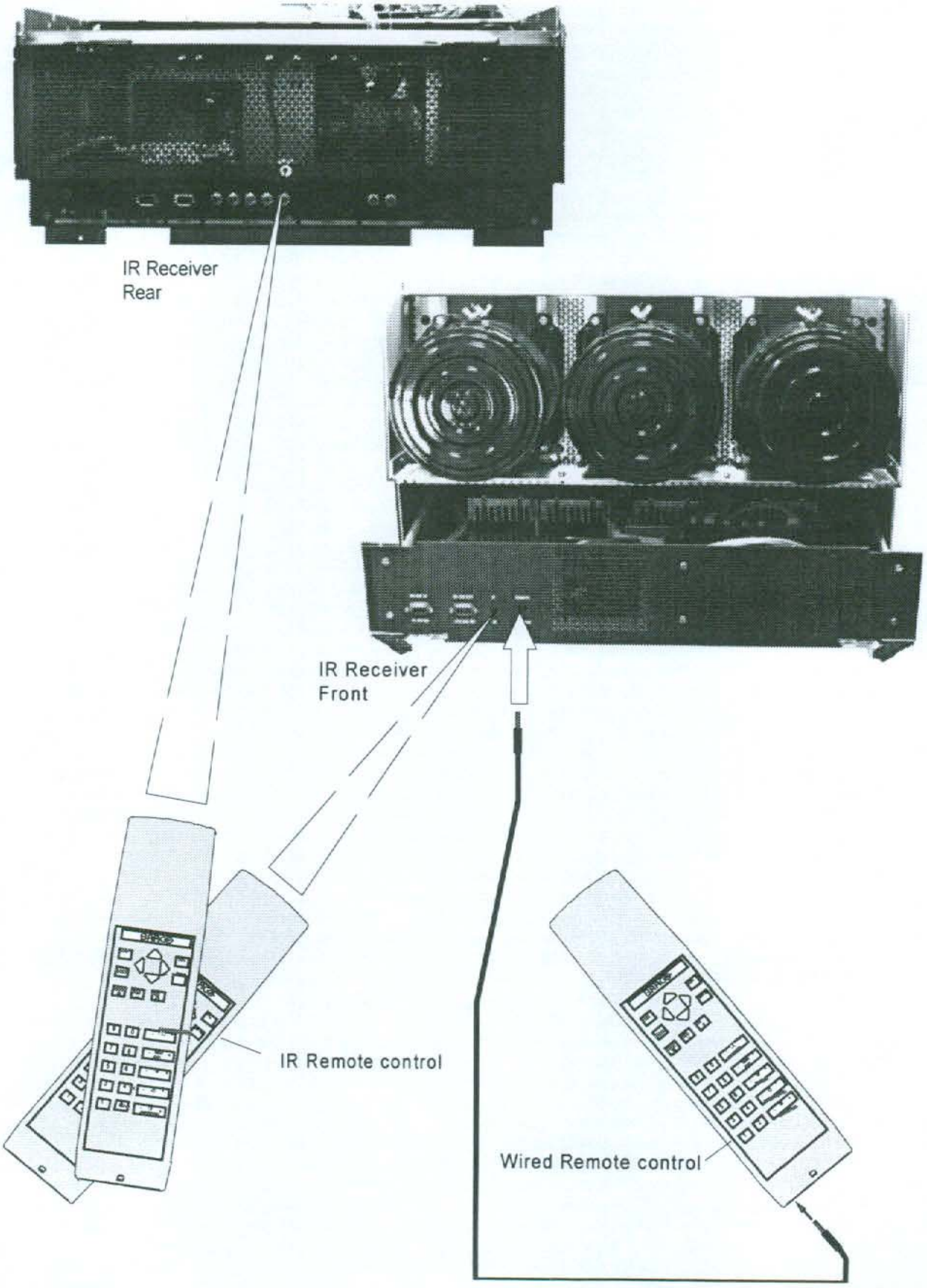
ITEM NO.	SIT.	DESCRIPTION
11 5940	C..2	C PP RA 10N J 63E2
11 59181	C..3	C PP RA 1N2J100E2
11 15915	C..8	C EL RA 4M7M 35E2
11 15935	C.11	C EL RA 10M M 35E2
13 1681	D..4	D BPW41 PHO
13 2824	I..1	U 2800 TBA DIP14 PIRREC
30 61582	L..1	CH AX NS 1,5 MH
71 6581	PC..	PCB EP RCVDS800 RX IR
10 1160	R..9	R CF H100K J 0W25

SPARE PARTS

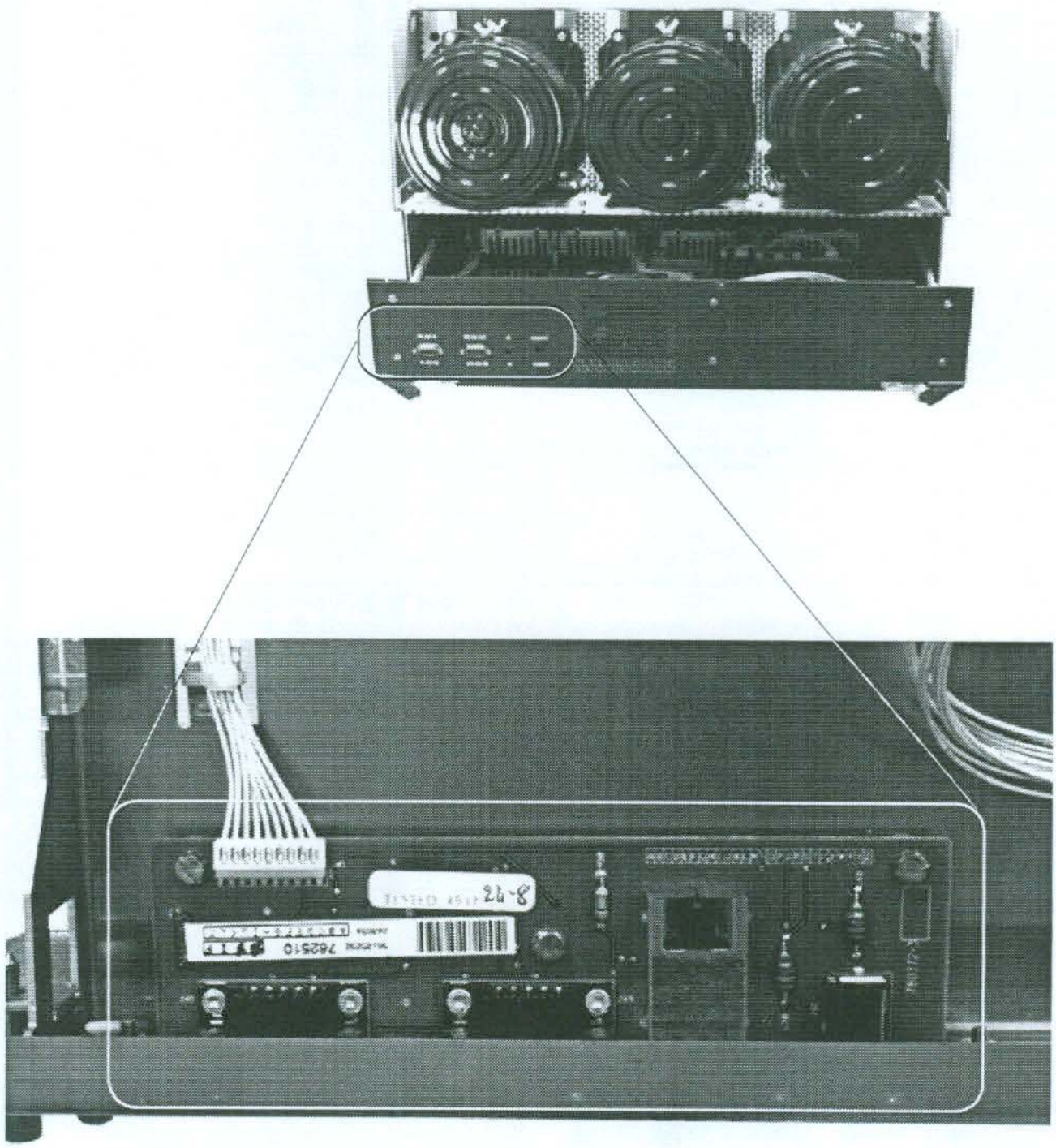
ART NO.	DESCRIPTION	QUANTITY
13 1681	D BPW41 PHO	1
13 2824	U 2800 TBA DIP14 PIRREC	1
30 61582	CH AX NS 1,5 MH	1
31 5331	SLDRLUG SCR 1TAG D3.2 L12	1
36 2121	SCR DIN7985 M 3 X 6	1
36 6102	NUT DIN934 M 3	1
36 7502	WSHR DIN6798 A 3,2 F Z	2
80 2880	SCRN PJ49 G800 REC IR	1

IR Receiver module

76 1781

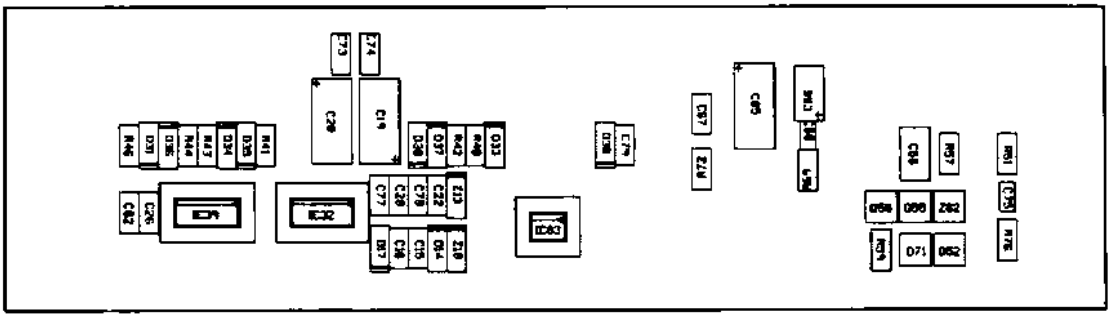


IR+RS 232 Communication module R762510



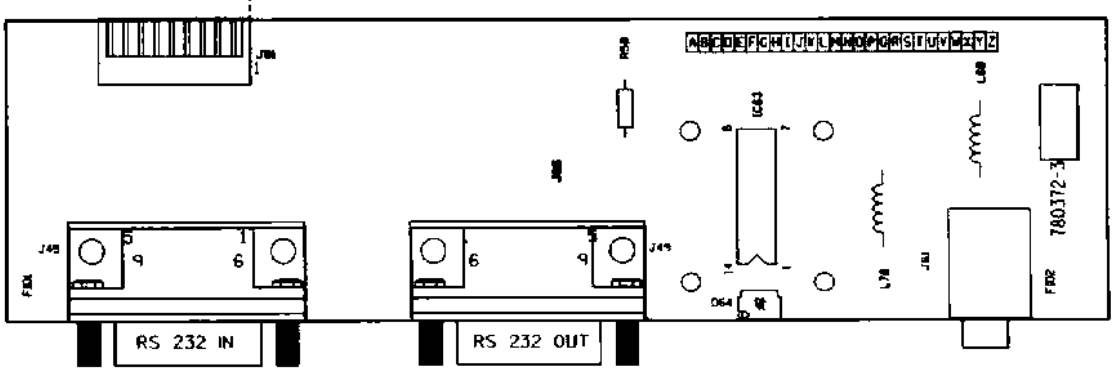
BARCO

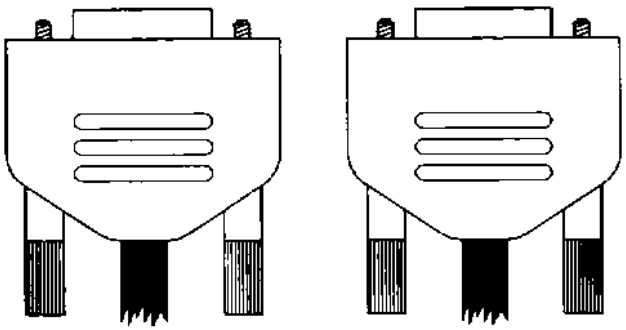
BOTTOM VIEW



G801S : CONV. OUTPUT (J3)
G1208 G1209 G808 : TO DYN. AST. (J2)

TOP VIEW

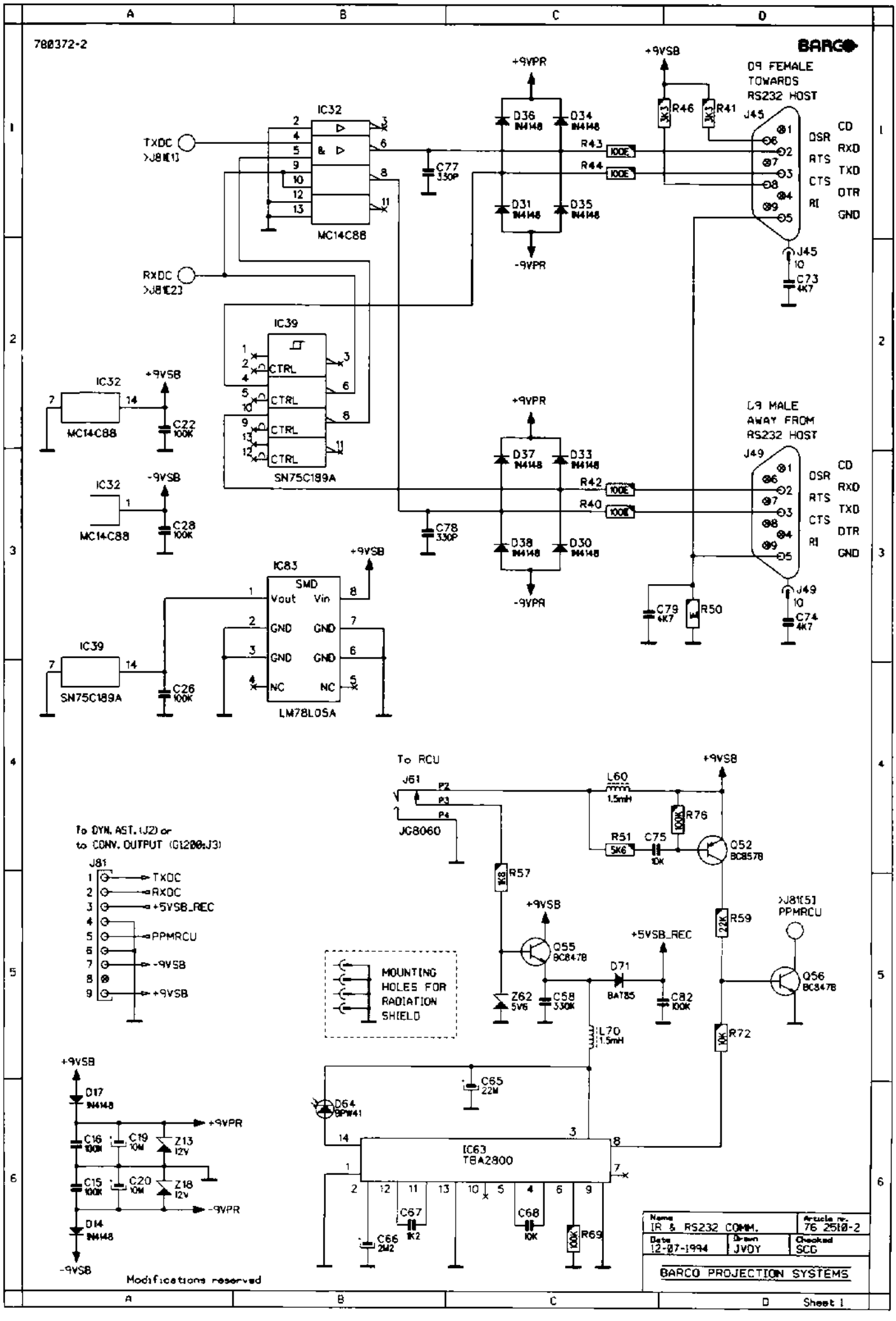


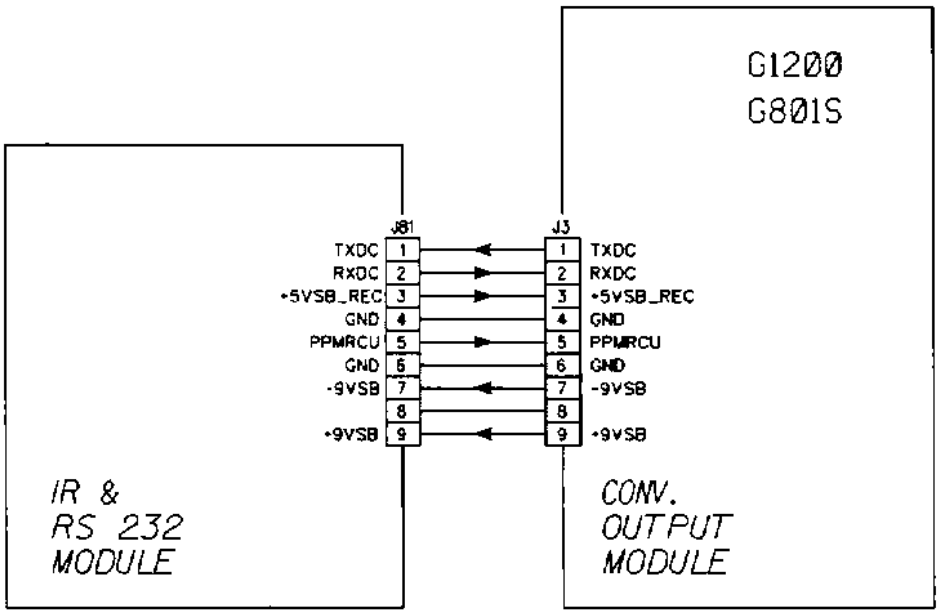


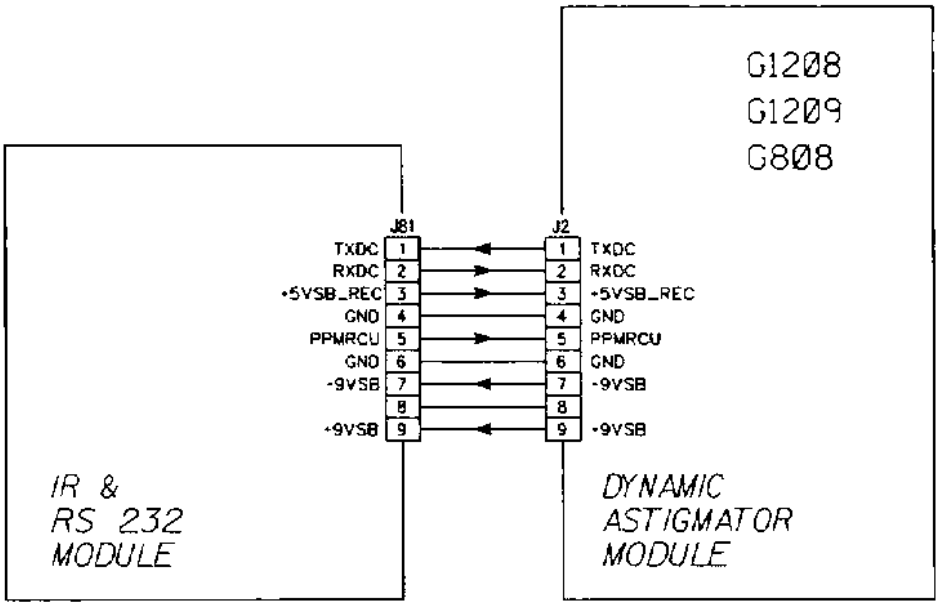
To remote input

Name: IR & RS232 COMM.		Article nr.: T6 2510-3
Date: 19-12-1994	Drawn: JVDY	Checked: SCG

BARCO PROJECTION SYSTEMS

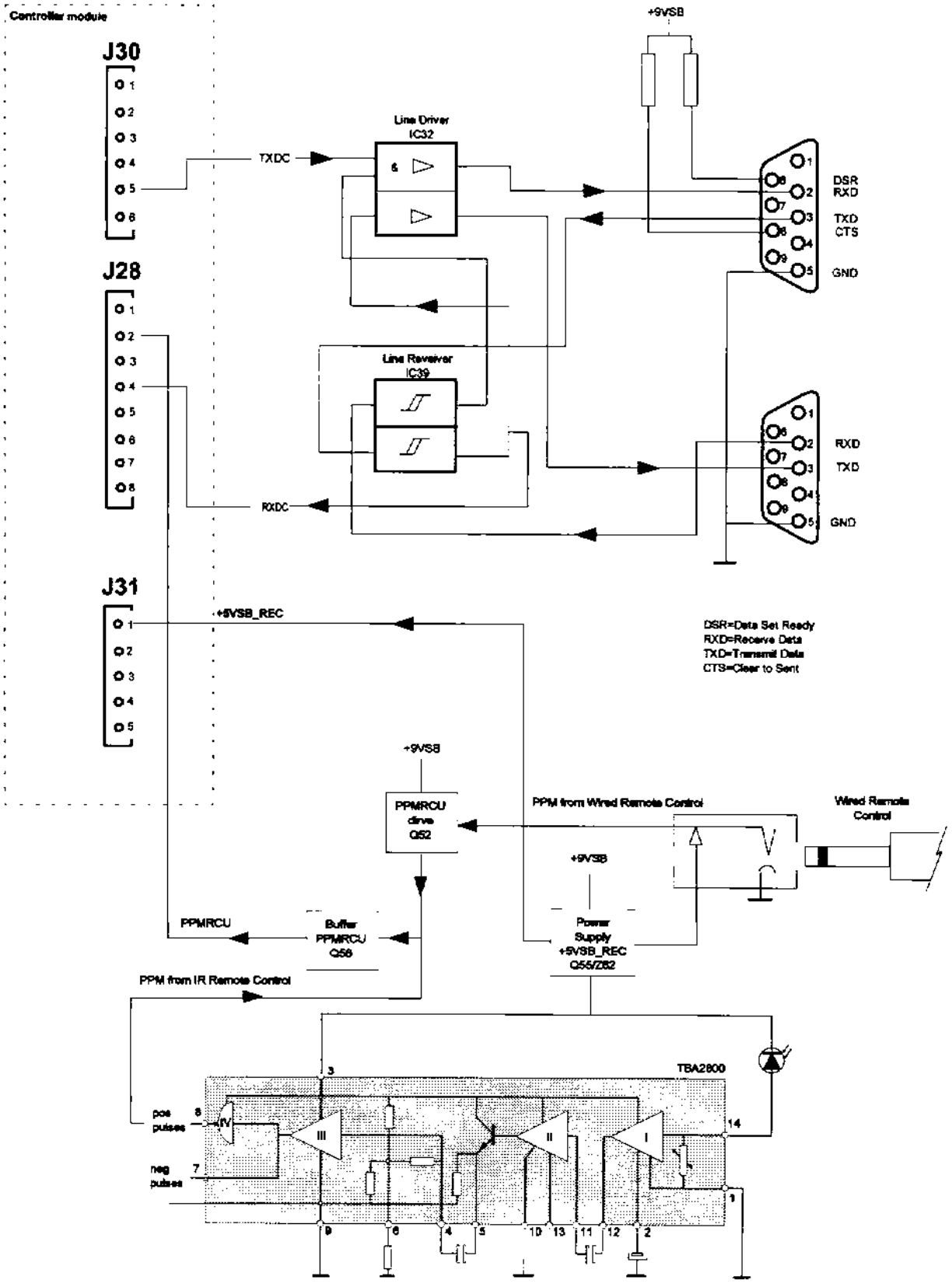

780372-2
BARCO
IC32
MC14C88
TXDC
>J81[1]
RXDC
>J81[23]
C77 330P
+9VPR
-9VPR
D36 IN4148
D34 IN4148
D31 IN4148
D35 IN4148
R43 100E
R44 100E
+9VSB
R46 3K3
R41 3K3
D9 FEMALE
TOWARDS
RS232 HOST
J45
CD
DSR
RXD
RTS
TXD
CTS
DTR
RI
GND
J45 10
C73 4K7
IC39
SN75C189A
CTRL
C22 100K
C28 100K
C78 330P
D37 IN4148
D33 IN4148
D38 IN4148
D30 IN4148
R42 100E
R40 100E
D9 MALE
AWAY FROM
RS232 HOST
J49
J49 10
C74 4K7
C79 4K7
R50 1K
C26 100K
IC83
SMD
LM78L05A
Vout
Vin
GND
NC
To RCU
J61
P2
P3
P4
JG8060
L60 1.5mH
R76 100K
R51 5K6
C75 10K
Q52 BC857B
R57 1K8
Q55 BC847B
Z62 5V6
C58 330K
D71 BAT85
C82 100K
R59 22K
Q56 BC847B
L70 1.5mH
R72 10K
>J81[5]
PPMRCU
+5VSB_REC
To DYN. AST. (J2) or
to CONV. OUTPUT (G1200:J3)
J81
TXDC
RXDC
+5VSB_REC
PPMRCU
-9VSB
+9VSB
MOUNTING
HOLES FOR
RADIATION
SHIELD
D17 IN4148
D14 IN4148
C16 100N
C19 10M
Z13 12V
C15 100N
C20 10M
Z18 12V
D64 BPW41
C65 22M
IC63
TBA2800
C66 2M2
C67 1K2
C68 10K
R69 100K
Modifications reserved
Name
IR & RS232 COMM.
Article nr.
76 2510-2
Date
12-07-1994
Drawn
JVDY
Checked
SCG
BARCO PROJECTION SYSTEMS
Sheet 1





Name	Article nr.
IR & RS232 COMM.	76 2510-2
Date: 28-12-1994 / Drawn: JVDY / Checked: SCG	

BARCO PROJECTION SYSTEMS


Controller module
J30
J28
J31
+9VSB
Line Driver
IC32
TXDC
Line Receiver
IC39
RXDC
DSR
RXD
TXD
CTS
GND
RXD
TXD
GND
+9VSB_REC
DSR=Data Set Ready
RXD=Receive Data
TXD=Transmit Data
CTS=Clear to Sent
+9VSB
PPMRCU
drive
Q52
PPM from Wired Remote Control
Wired Remote
Control
+9VSB
PPMRCU
Buffer
PPMRCU
Q56
Power
Supply
+9VSB_REC
Q55/Z62
PPM from IR Remote Control
TBA2800
pos
pulses
neg
pulses

Partslisting IR+RS 232 communication module

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R805674	FRM PJ53 RX SCRN	1
C 15	P210122	C# X7R MU 100N K 50 1206	1
C 16	P210122	C# X7R MU 100N K 50 1206	1
C 19	P212024	C# TA 10M M 35 7343	1
C 20	P212024	C# TA 10M M 35 7343	1
C 22	P210122	C# X7R MU 100N K 50 1206	1
C 26	P210122	C# X7R MU 100N K 50 1206	1
C 28	P210122	C# X7R MU 100N K 50 1206	1
C 58	P210095	C# X7R MU 330N M 50 1812	1
C 65	P212031	C# TA 22M M 16 7343	1
C 66	P212001	C# TA 2M2M 20 3528	1
C 67	P210112	C# COG MU 1N2J 50 1206	1
C 68	P210041	C# X7R MU 10N K 50 0805	1
C 73	P210140	C# X7R MU 4N7K 50 1206	1
C 74	P210140	C# X7R MU 4N7K 50 1206	1
C 75	P210041	C# X7R MU 10N K 50 0805	1
C 77	P210121	C# COG MU 330P J 50 1206	1
C 78	P210121	C# COG MU 330P J 50 1206	1
C 79	P210140	C# X7R MU 4N7K 50 1206	1
C 82	P210122	C# X7R MU 100N K 50 1206	1
D 14	P234099	D#4148 R DMMELF	1
D 17	P234099	D#4148 R DMMELF	1
D 30	P234099	D#4148 R DMMELF	1
D 31	P234099	D#4148 R DMMELF	1
D 33	P234099	D#4148 R DMMELF	1
D 34	P234099	D#4148 R DMMELF	1
D 35	P234099	D#4148 R DMMELF	1
D 36	P234099	D#4148 R DMMELF	1
D 37	P234099	D#4148 R DMMELF	1
D 38	P234099	D#4148 R DMMELF	1
D 64	R131681	D O BPW41 032	1
D 71	P234055	D#BAT54 SCH SOT23	1
I 32	P230561	U#14C88 MC SO14 P	1
I 39	P230652	U#75C189A SN SO14 P	1
I 63	R132824	U 2800 TBA DIP14 P	1
I 63	P230062	U#78L05A LM SO8 P	1
J 45	R3135015	J DE P8 FBS P 9 FUMBLPGDB	1
J 49	R3135005	J DE P8 MBS P 9 FUMBLPGDB	1
J 61	B338800	J PHN FBS D 3.5MON P	1
J 61	R313949	J CT H MBS P 9 M2SN	1
L 60	R3061582	CH AX NS 1.5 MH	1
L 70	R3061582	CH AX NS 1.5 MH	1
PC	R780372	PCD#PJ49 *800 RS232+RX	1
Q 52	P232050	Q#BC857B P SS SOT23	1
Q 55	P232051	Q#BC847B N SS SOT23	1
Q 56	P232051	Q#BC847B N SS SOT23	1
R 40	P200049	R# CE H100E J 0W12 1206	1
R 41	P200085	R# CE H 3K3 J 0W12 1206	1
R 42	P200049	R# CE H100E J 0W12 1206	1
R 43	P200049	R# CE H100E J 0W12 1206	1
R 44	P200049	R# CE H100E J 0W12 1206	1
R 46	P200085	R# CE H 3K3 J 0W12 1206	1
R 50	R1011008	R CFFH 1E J 0W25	1
R 51	P200091	R# CE H 5K6 J 0W12 1206	1
R 57	P200079	R# CE H 1K8 J 0W12 1206	1
R 59	P200105	R# CE H 22K J 0W12 1206	1
R 69	P200121	R# CE H100K J 0W12 1206	1
R 72	P200097	R# CE H 10K J 0W12 1206	1
R 76	P200121	R# CE H100K J 0W12 1206	1
Z 13	P234046	D#ZEN 12V 0W5 C DMMELF	1
Z 18	P234046	D#ZEN 12V 0W5 C DMMELF	1
Z 62	P234014	D#ZEN 5V6 0W3 C SOT23	1

SERVICE KIT

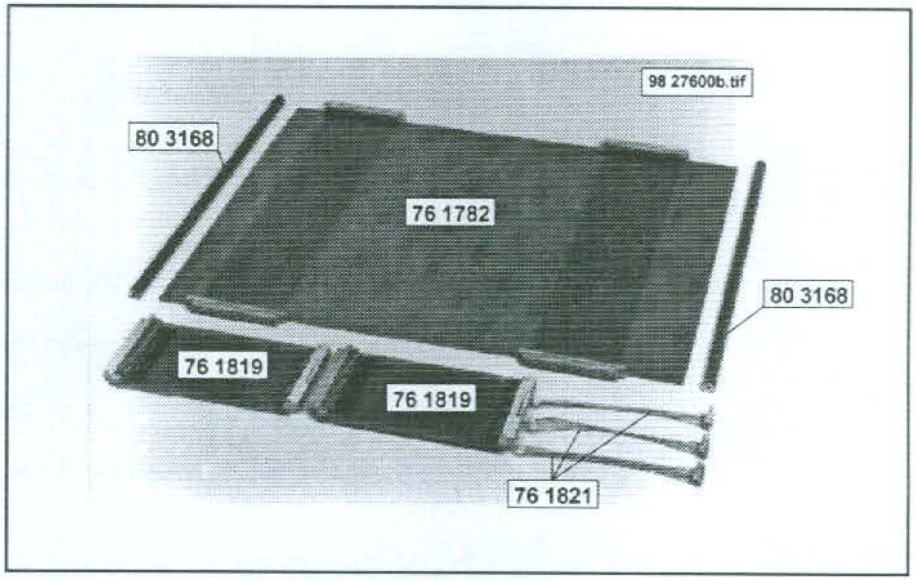
98 27600

Introduction

Repairing the Barco 800 series projectors on component level is made posible by using the extension boards and the extensions cable units, delivered as **service kit**.

Contents of the kit:. **Order No. kit: 98 27600**

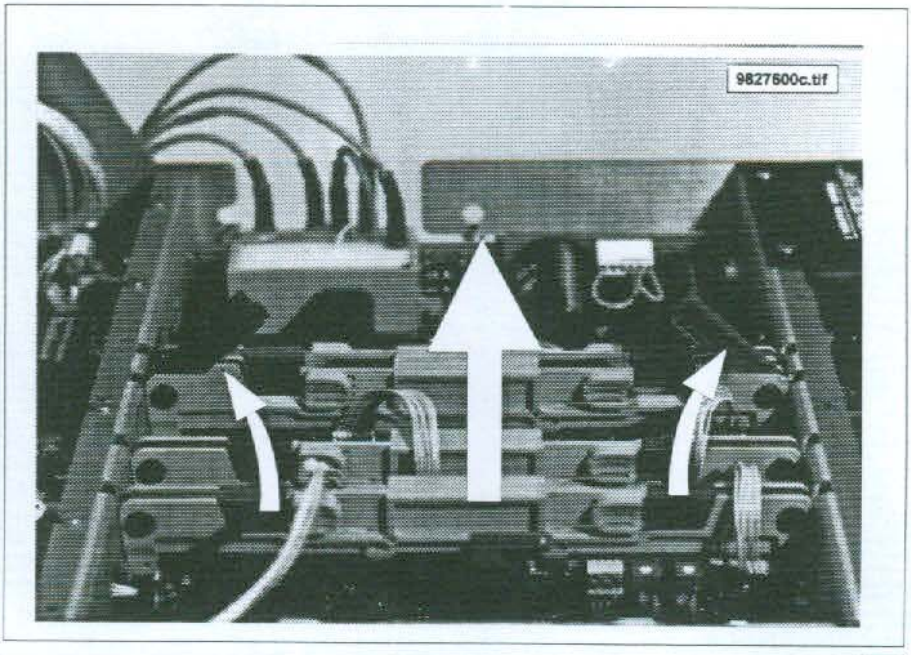
2 Extension boards for Euro cards:	Art. No. 76 1819
1 Extension board for Convergence module:	Art. No. 76 1782
2 Extensions metallic supports	Art. No. 80 3168
3 Extension cable units:	Art. No. 76 1821



Using the extension boards for Euro cards

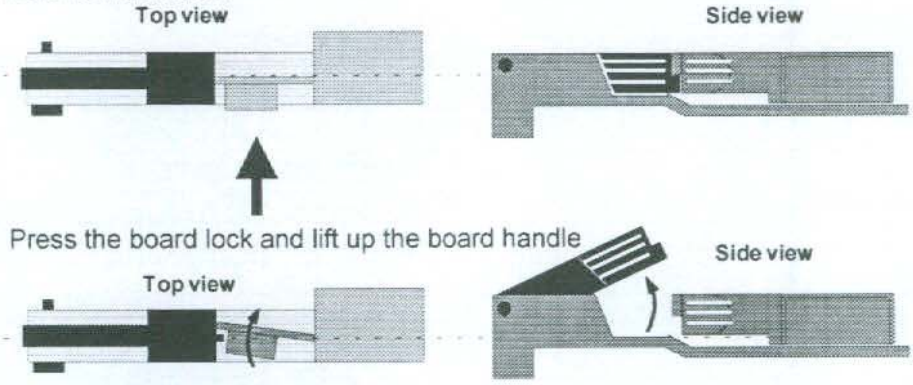
How to extract a module

Each board is locked in the main chassis on both sides.



To unlock the board, proceed as follows:

Refer to illustration:

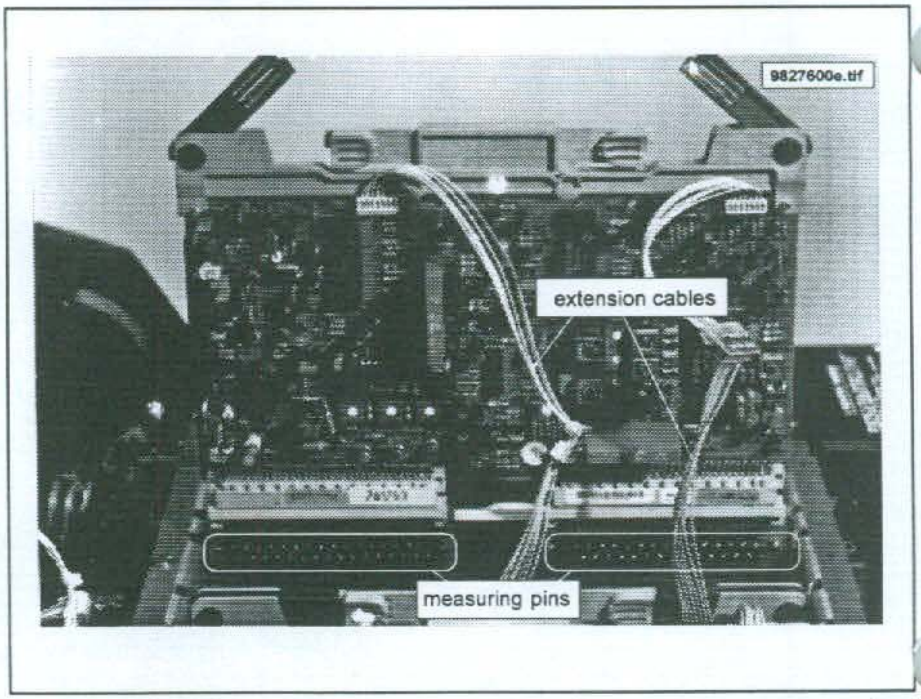


Repeat this action on both sides of the module and extract the module out of the main frame.

Example: repairing the decoder module

- Unplug the two connection cables to and from the Decoder module.
- Remove the Decoder module out of the main frame as already described.
- Plug the extension boards on the two decoder board connectors on the main frame.
- Put the Decoder module on the extensions boards.
- Re-install the cable connection by inserting the extension cables.

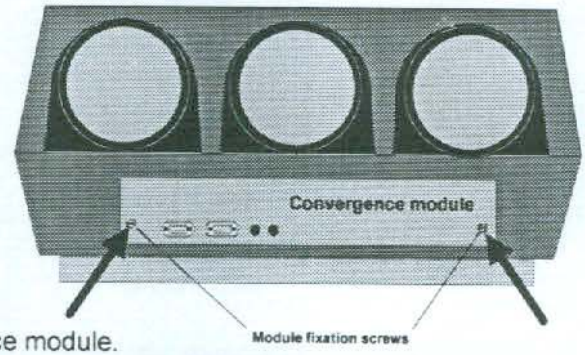
Important: the extension board for Eurocard is provided on each printed circuit foil with measuring pins.



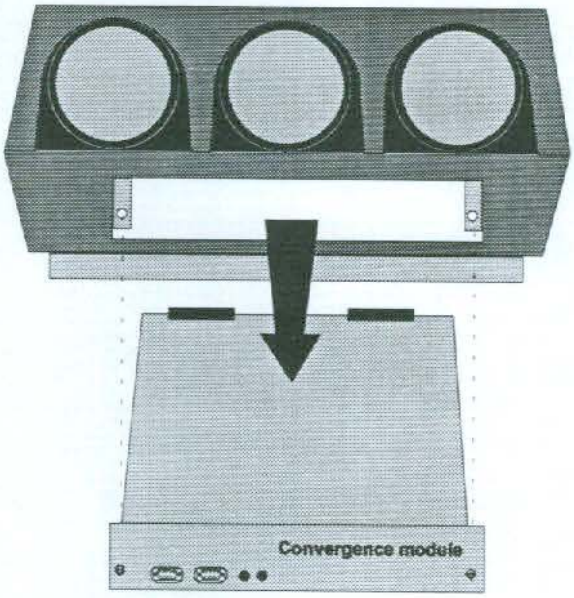
Using the extension board for the Convergence module

Removing the convergence module:

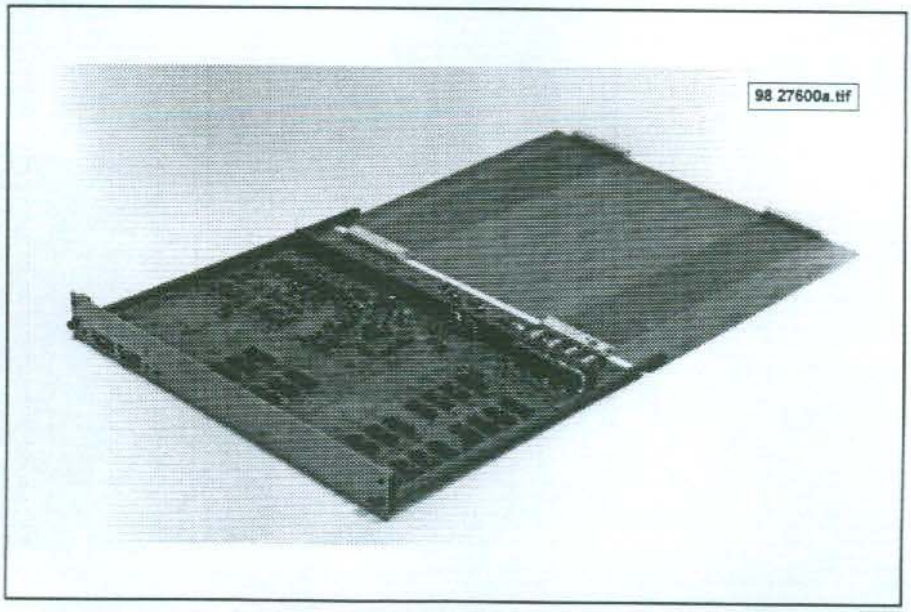
- Loosen the board fixation screws on both sides of the Convergence module.



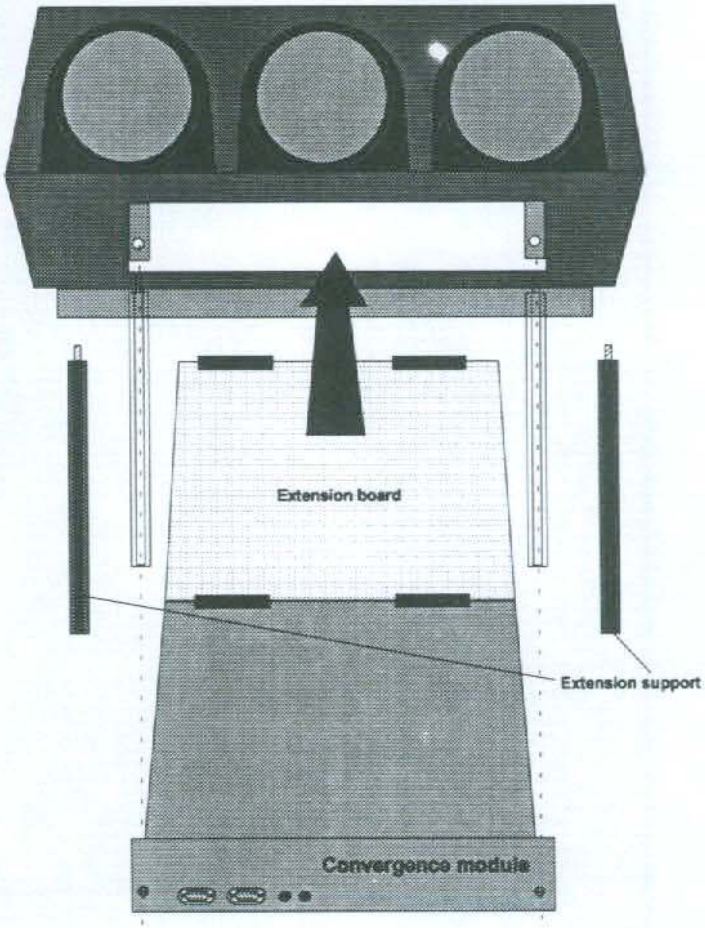
- Pull out the Convergence module.

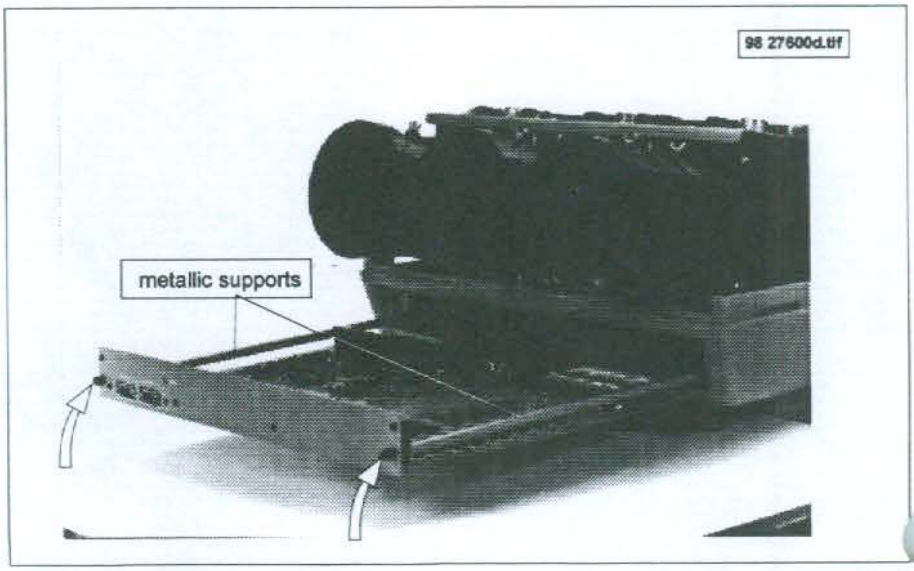


- Put the Convergence module onto the convergence extension board.



- Screw in on both side on the main frame the metallic extension supports.
- Slide the extension board with the plugged in Convergence module into the projector.
- Secure the Convergence module onto the supports by screwing in the two remaining board screws.





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.

I. Removing and disassembling the defective picture tube.

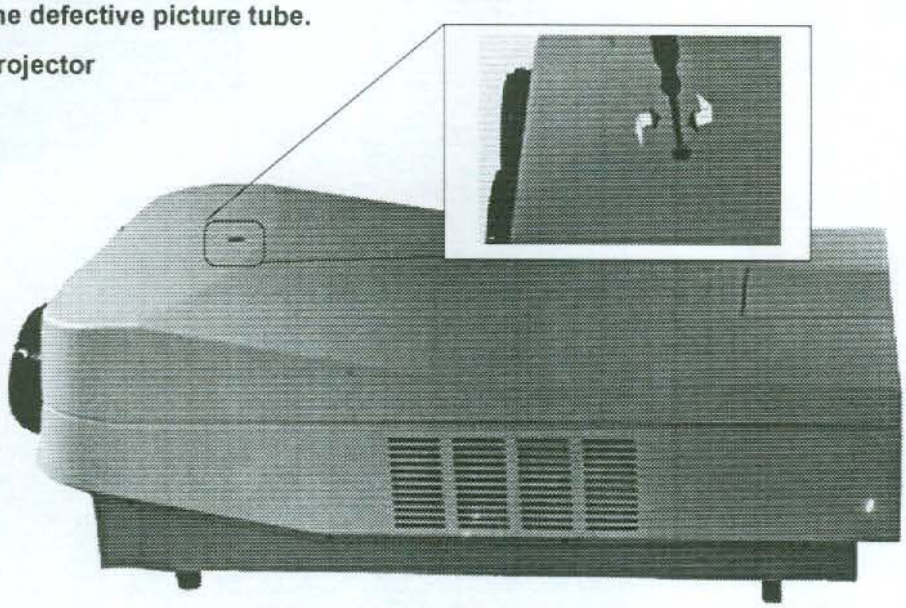
1. Removing top cover of the projector

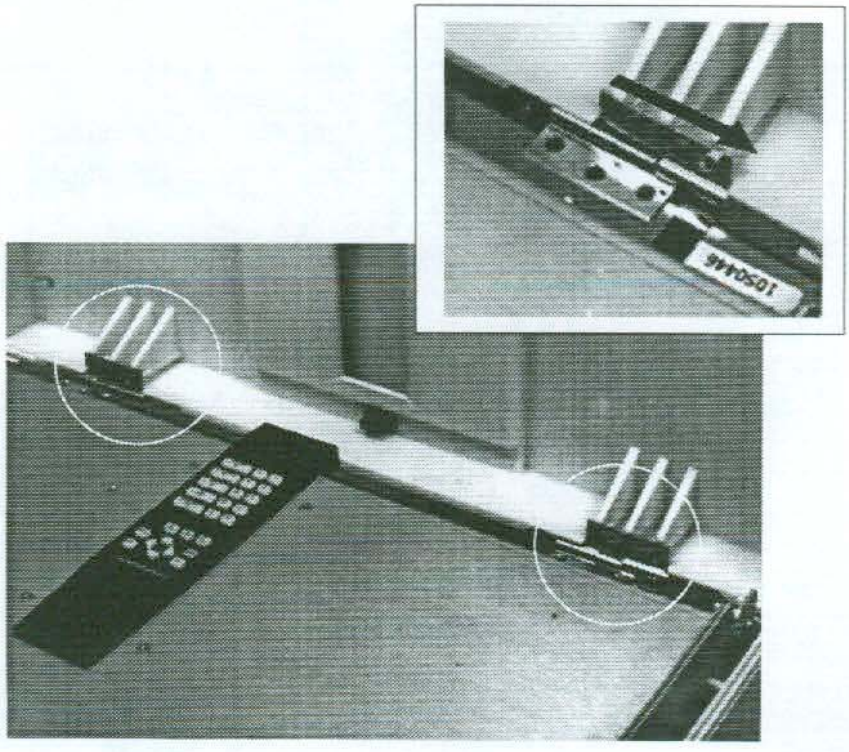
- Turn the lock screw with a screwdriver or a coin a half turn counter clockwise.

- Lift up the top cover and carefully pivot it vertically (attention: no cover support provided).

- Carefully push the top cover downwards (to eliminate lock spring) and to the left (when standing behind the projector) to pull out the hinge-knuckle of both lift-off hinges.

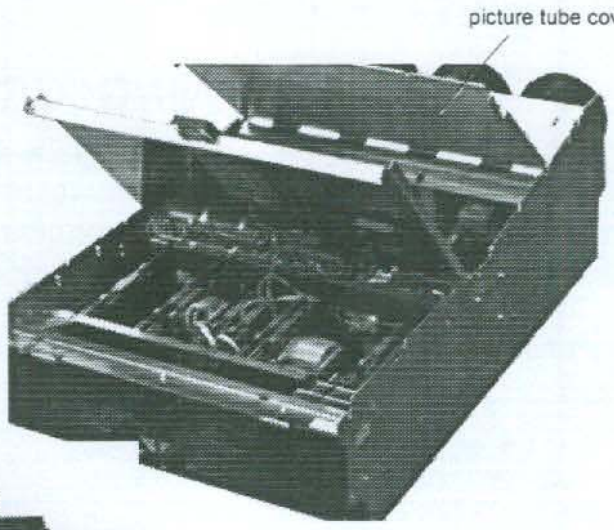
- remove the top cover.

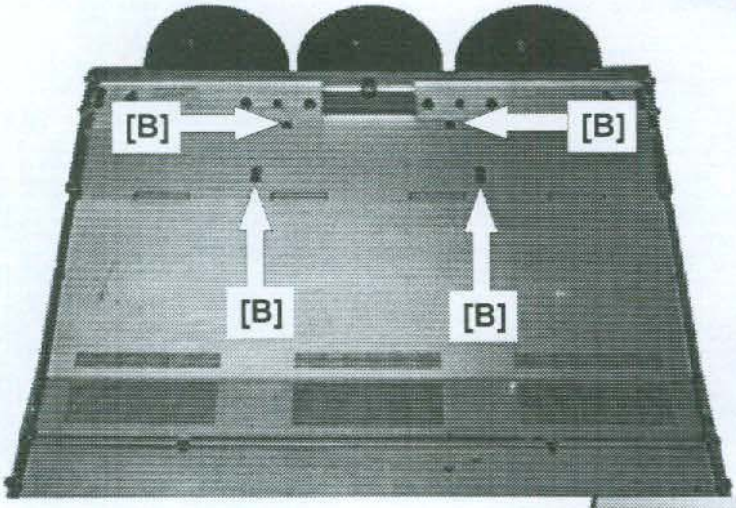


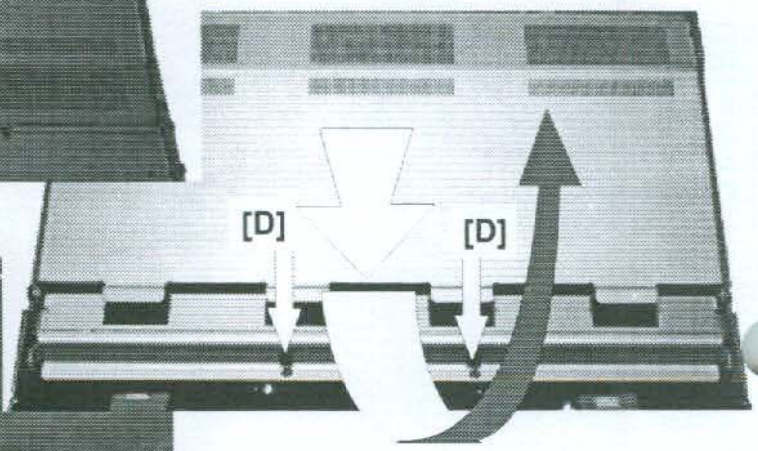


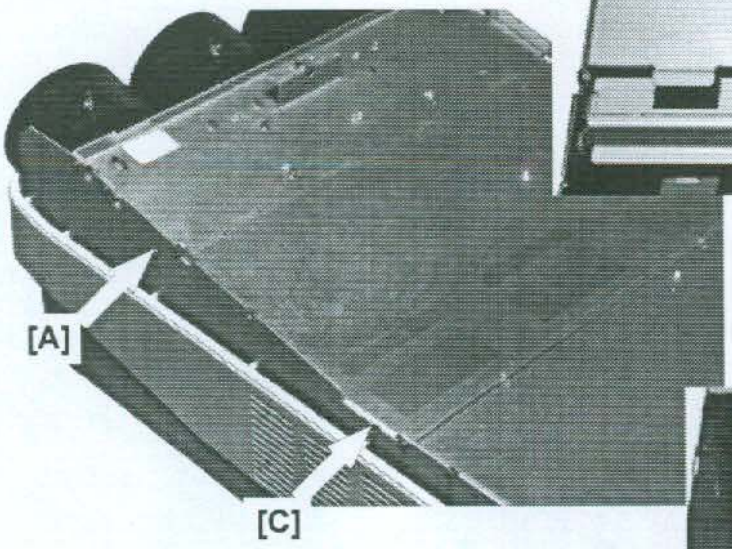
2. Removing the picture tube cover

- Remove the 2 retaining screws [A] on both sides of the projector holding picture tube cover on main frame.
- Loosen the 4 retaining screws [B] holding picture tube cover on main frame.
- Loosen the 2 lock screws [C] locking the picture tube cover on main frame.
- Rotate the picture tube cover towards the front of the projector and loosen the 2 retaining screws [D].

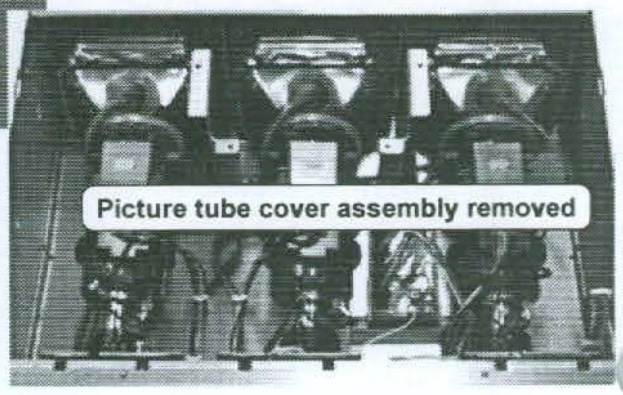








- Slide the picture tube cover assembly backwards until the head of the retaining screws [B] and [D] match the free gap.
- Pull the assembly out of the main frame.

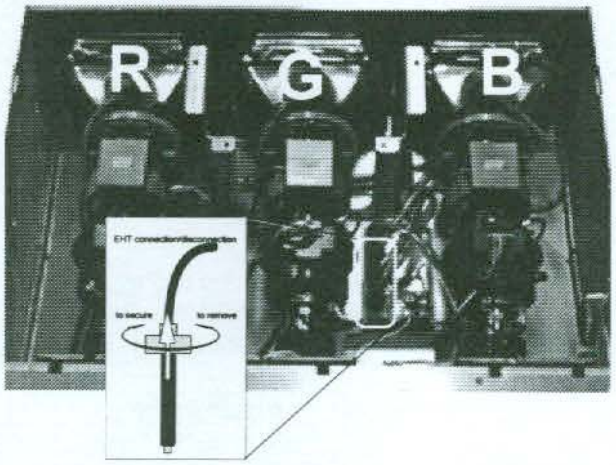


3. Picture tube removal (example GREEN picture tube)

A. Electrical disconnection of the defective picture tube

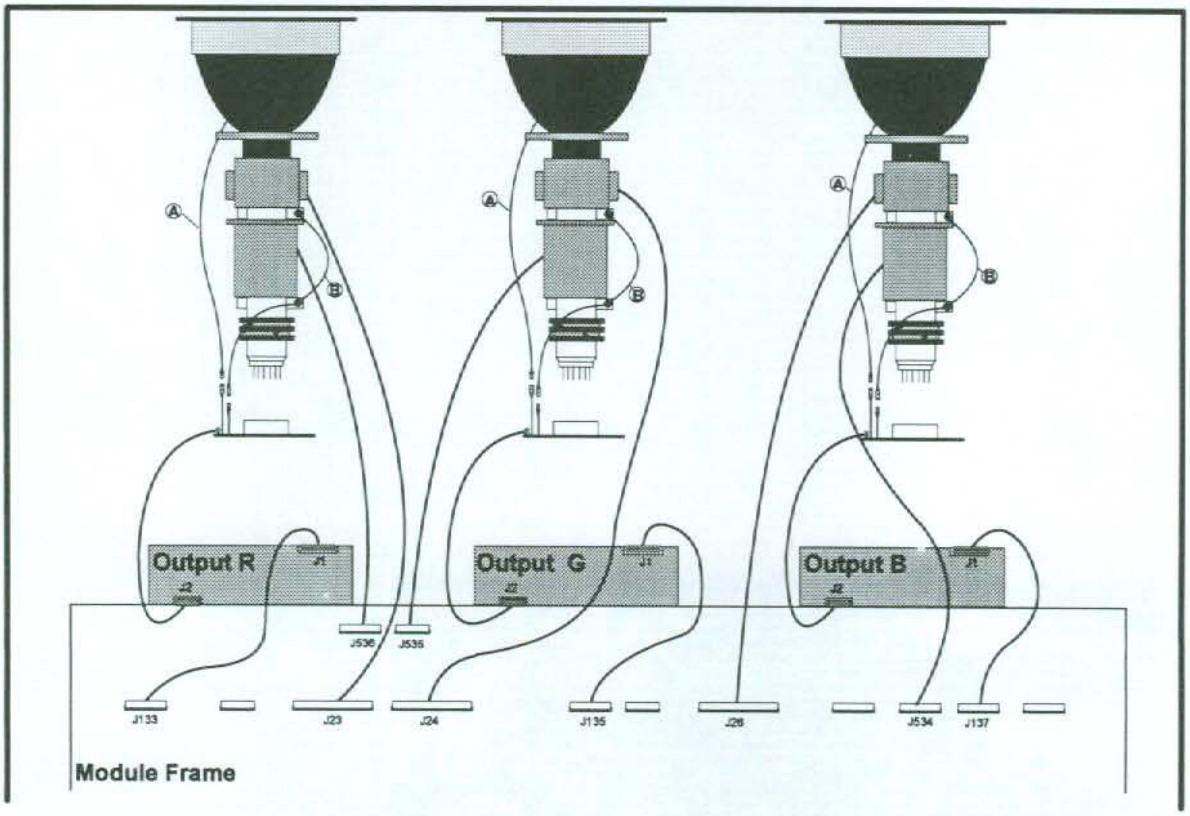
EHT lead disconnection

Pull out the EHT lead of the defective picture tube from the EHT splitter.



Deflection and Magnetic coils disconnection

Pull out the deflection connector **J24** and Magnetic coils connector **J535** of the G defective picture tube from main frame.



CRT ground (A) and Unit ground (B) lead disconnection

Disconnect the plug connection in both ground wires.

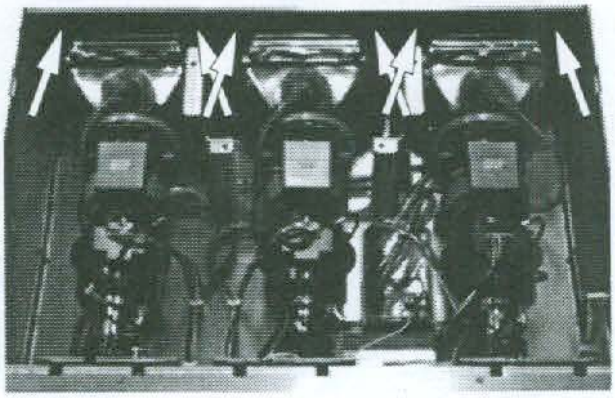
CRT module removal

Disconnect the socket of the defective picture tube by pulling back the CRT socket off of the end of the CRT.

B. Mechanical disconnection of the defective picture tube

Disconnection of the CRT from its support

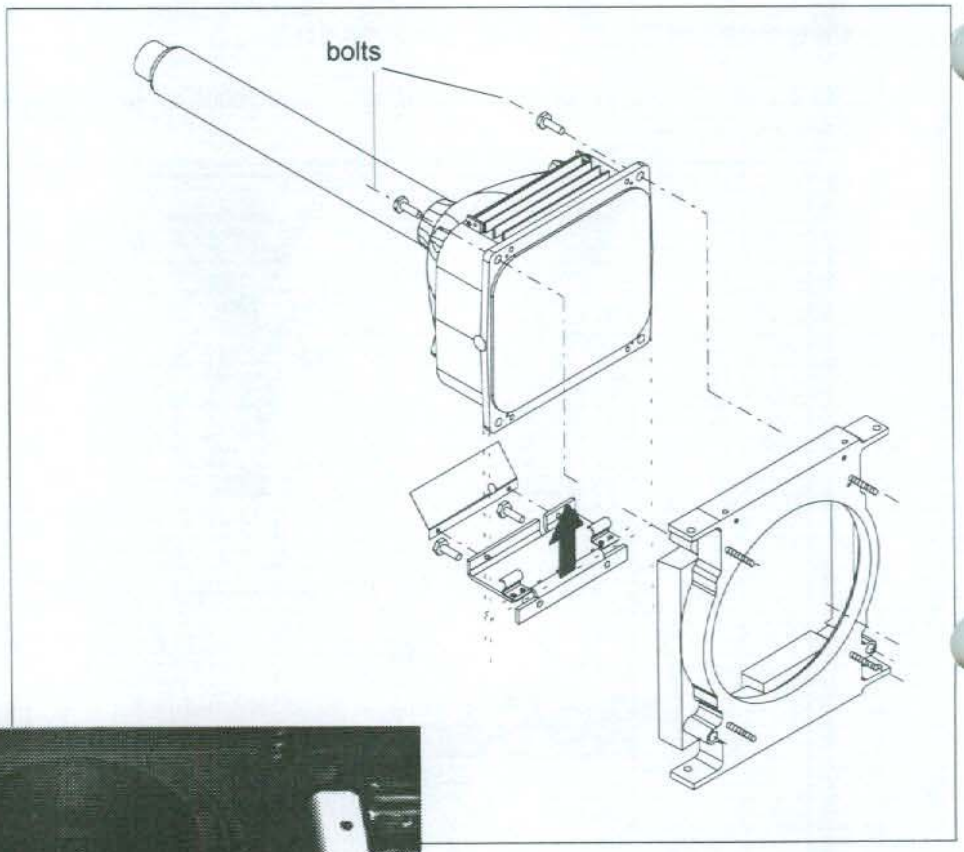
Remove the 2 bolts, holding the top side of the picture tube to the support.

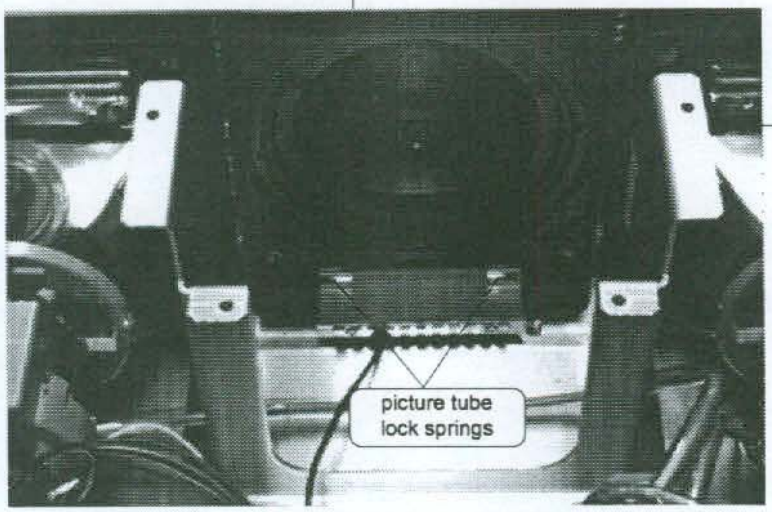


Removing the picture Tube

Move the end of the picture tube a little downwards and clips the front of the picture tube out of the picture tube lock springs.

Take out picture tube from main frame.

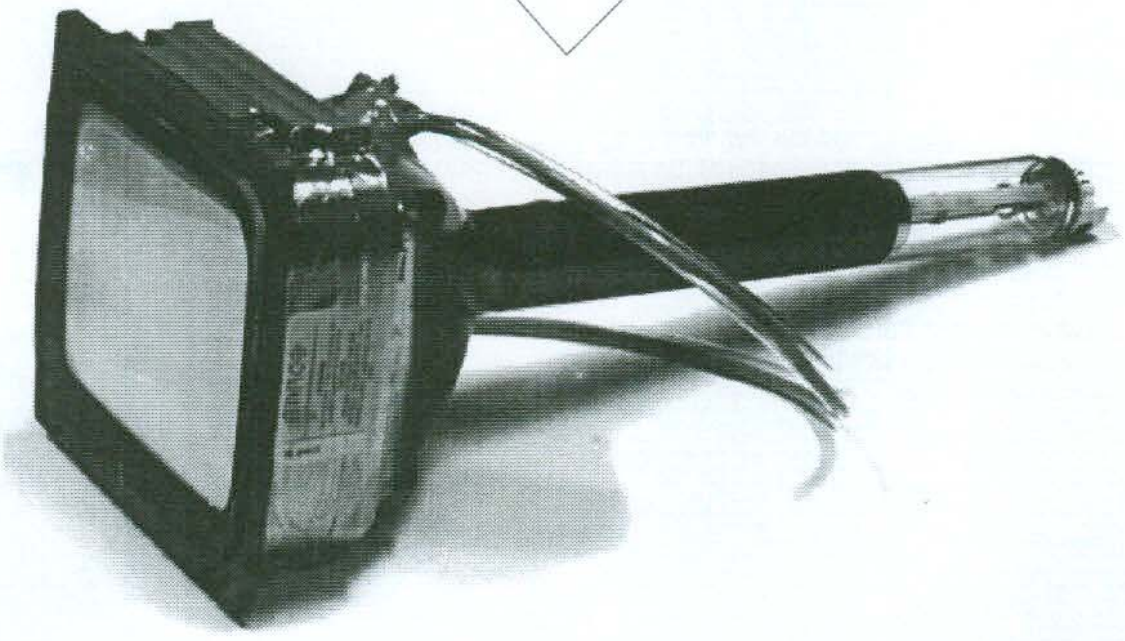




Disassembling the CRT unit

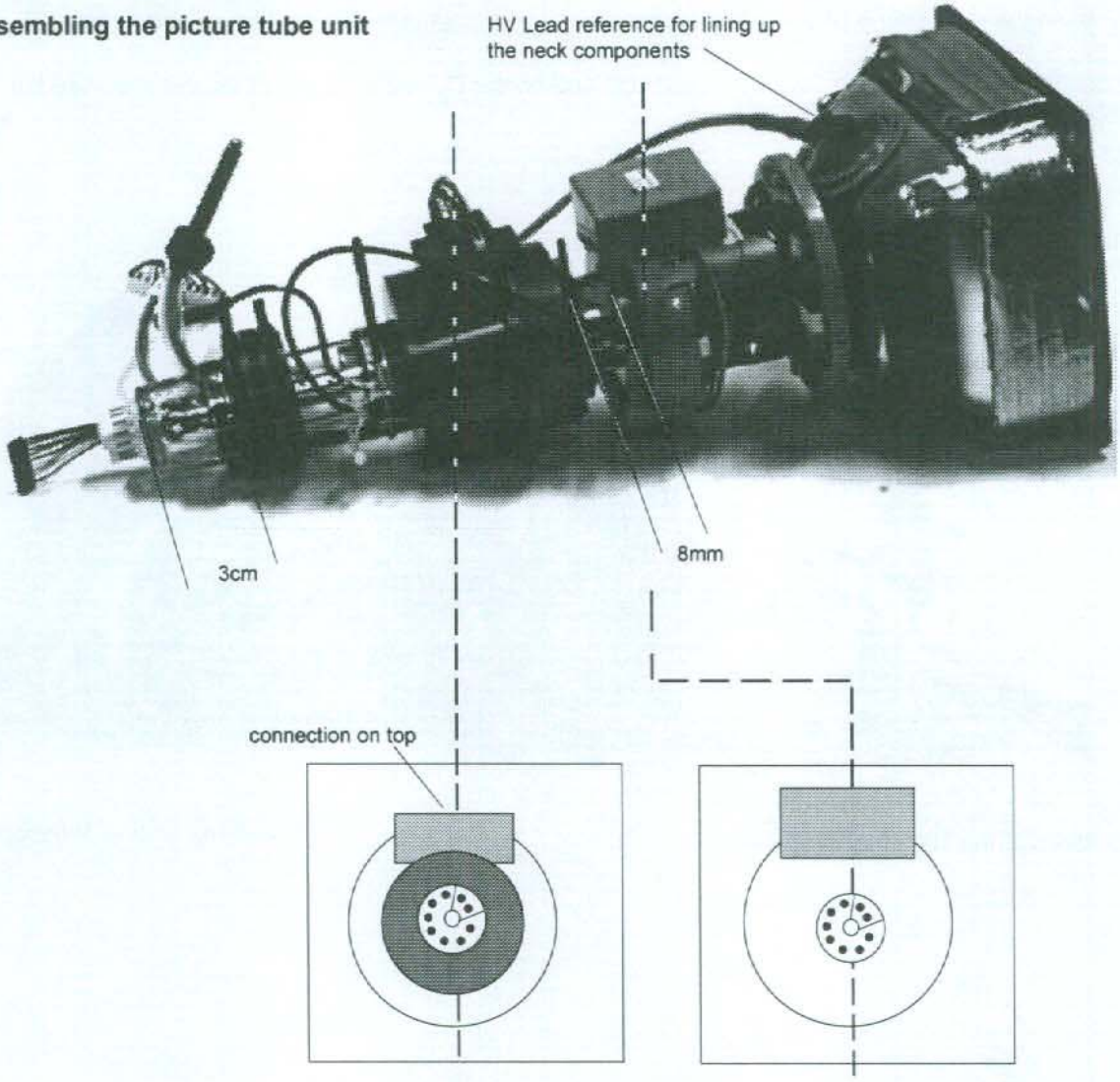
- Loosen the gear clamp of the stigmator magnets unit and slide the unit off of the end of the CRT.

- Loosen the gear clamp on the Deflection unit and on the Dynamic Astigmatism unit and slide both units together off of the end of the CRT.



II. Placement of the new picture tube

1. Assembling the picture tube unit



Assembling

- Slide the Deflection and the Dynamic Astigmatism unit together over the neck of the picture tube, Deflection unit fully to the end and the Dyn. Astigmatism unit approx. 8mm from the Deflection block.

- Tighten slightly the gear clamp of both units (rotation must be possible for correct adjustment of the units)

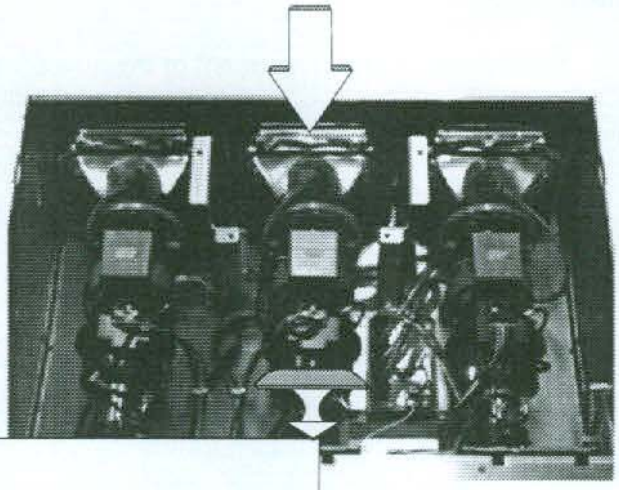
- Slide the stigmator magnets unit over the neck of the picture tube for about 3cm. Tighten the gear clamp.

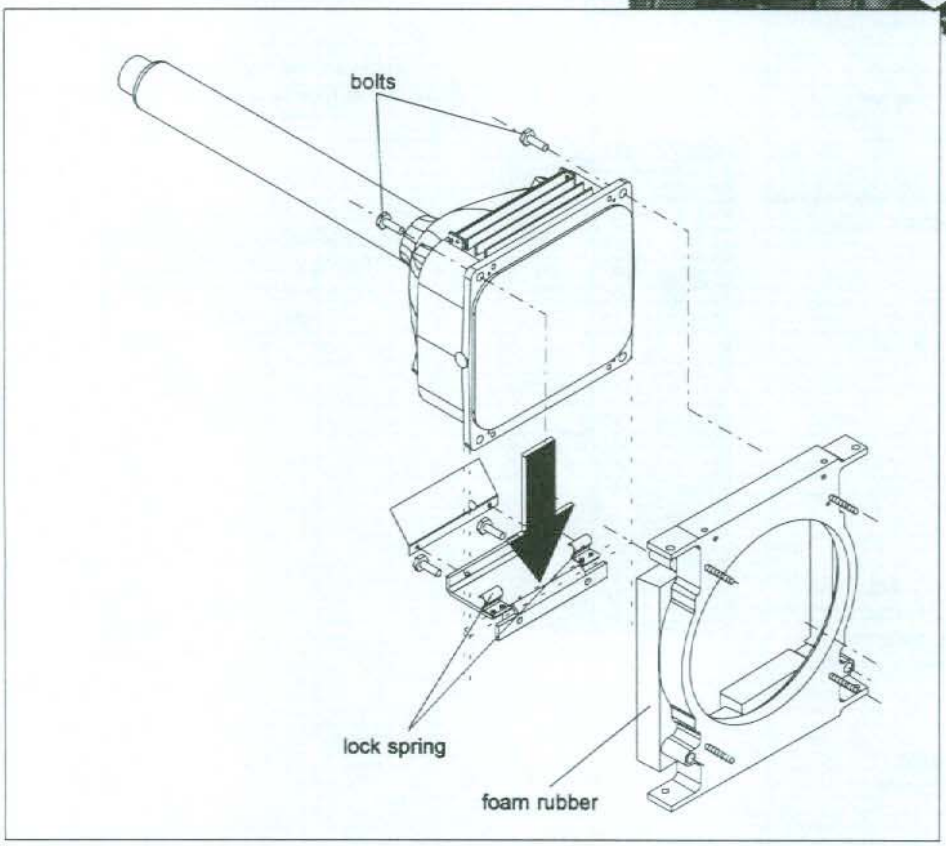
2. Mounting the picture tube unit in the main frame

Move the socket side of the picture tube below its output amplifier and place the front of the tube on the lock springs, lining up the two clearance holes in the metallic tube support with the threaded holes in the tube frame.

Push on the top of the tube to lock the tube between the springs.

Using the two removed bolts, securely tighten the picture tube into place..





Proceed now to the electrical connections and the cover placements (see pages 1 to 3)

III. Picture tube alignment

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.

Picture tube alignment

all picture tubes replaced

apply an external crosshatch pattern at 15 kHz or use the internal crosshatch

proceed to a quick optical and electrical focus

rotate the deflection yoke until the Horizontal mid-line is levelled - tighten the gear clamp

centre the picture on the CRT faceplate (refer to installation manual)

note: alignment of the stigmators will change again its position, if so, realign raster centring

proceed to the following adjustments for each picture tube separately

1 or 2 picture tubes replaced

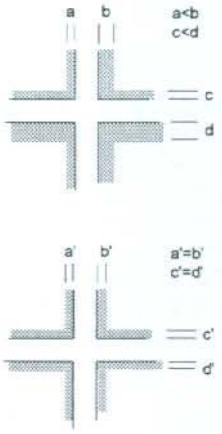
projected picture of the non-defective tube can be used as reference

apply an external crosshatch pattern at 15 kHz or use the internal crosshatch

rotate the deflection yoke until the Horizontal mid-line is levelled - tighten the gear clamp

Set the midpoint focusing on 57 (see owner's manual) and the Contrast on 80

move the focus unit slowly for- or backwards for max focusing in the middle of the screen - tighten the gear clamp and the centring clamp



lower the Brightness and put the Contrast on its max with the RCU
Set the midpoint focusing on 0

adjust the 2-pole magnets rings by rotating one or both up to a point where 'shading' of both sides of the vertical and horizontal lines is equal.

realign the electrical and optical focus

select a source that generate a field of small dots and crosshairs

Set the midpoint focusing on 100

adjust the 4-pole rings until the defocued dots are circular.

realign the electrical and optical focus

re-position the raster as described earlier

due tu mutual influence between the stigmators, focus and centring, it is advised to repeat above a couple of times

decrease the Contrast and Increae the Brightness to reveal the background raster

scan width adjustment

see service sheet 'Deflection switching/Hor Amplitude' in this manual for the alignment of the image width coils

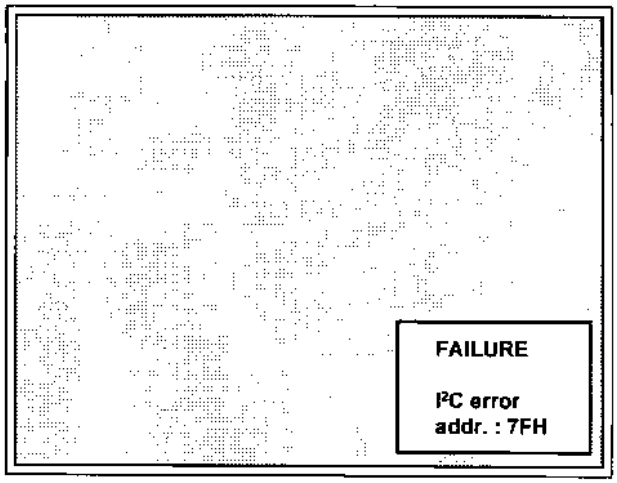
Note: when only one tube has been replaced, the image width of one of the other tubes as a reference, and obviously limit the adjustment to the core of the corresponding replaced tube

Failure (BD808)

I²C error

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.



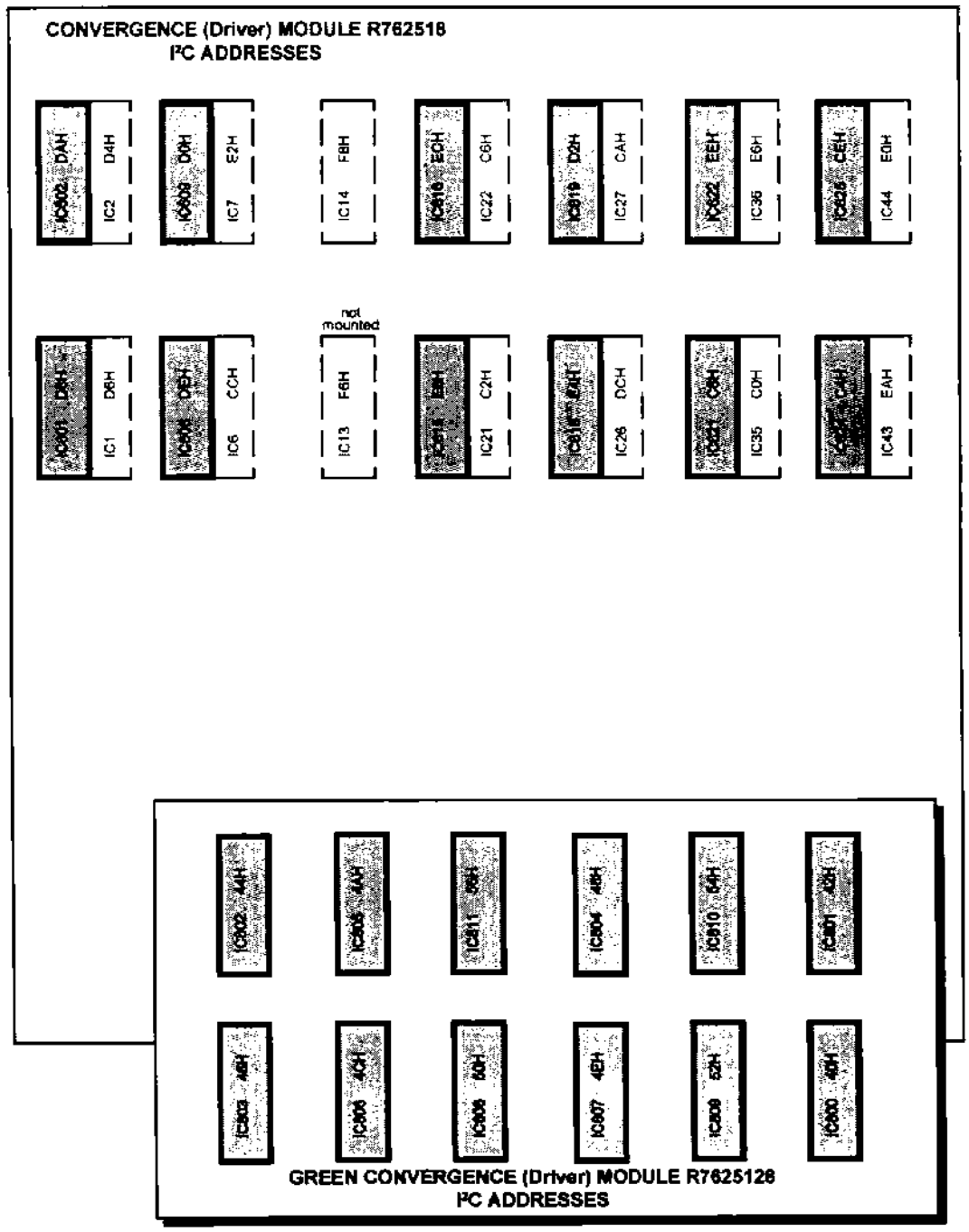
Convergence module (Driver) R762518 - Green convergence sub module R7625128

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

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
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 Green vert./hor.	ZONE
40H	IC800		22
42H	IC801		3 8 17
44H	IC802		13
46H	IC803		12 14
48H	IC804		11 6
4AH	IC805		15 7
4CH	IC806		16 9
4EH	IC807		18 19
50H	IC808		10 4
52H	IC809		23 5
54H	IC810		24 20
56H	IC811		1 2 21



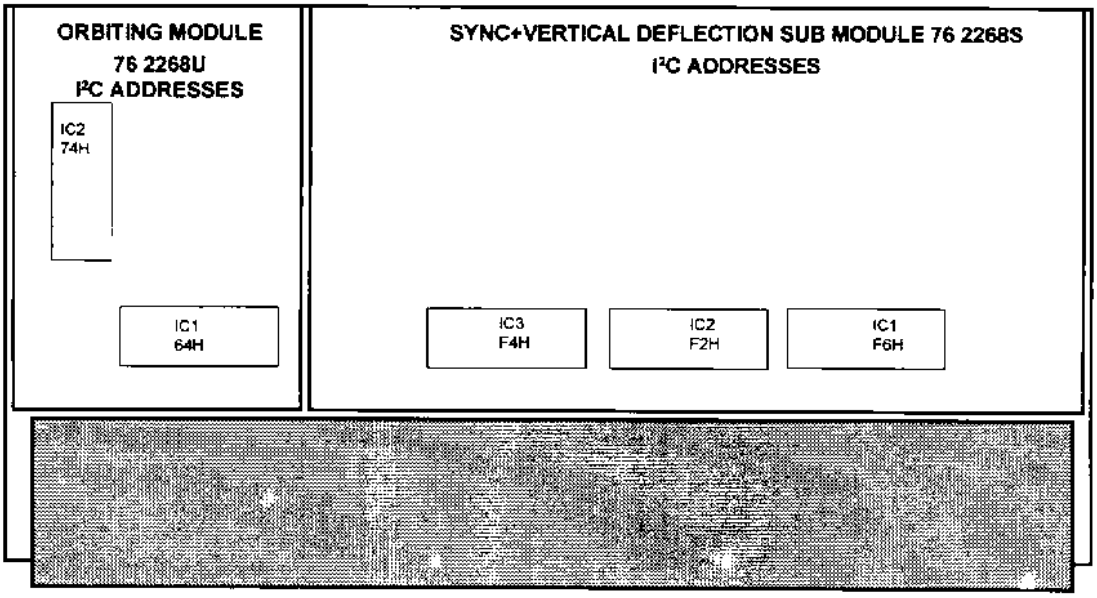
HEX address	IC	CORRECTION N/S Correction	ZONE
F8H	IC14	top keystone bottom keystone top bow bottom bow	

HEX address	IC	CORRECTION N/S Correction	ZONE
FAH	IC42	horizontal midline bow horizontal midline skew vertical midline bow vertical midline skew	

SYNC+VERTICAL DEFLECTION MODULE R7622695

HEX address	IC	CORRECTION
F2H	IC3	bottom blanking vertical shift red vertical shift green vertical shift blue
F4H	IC2	vertical amplitude vertical linearity horizontal phase top blanking

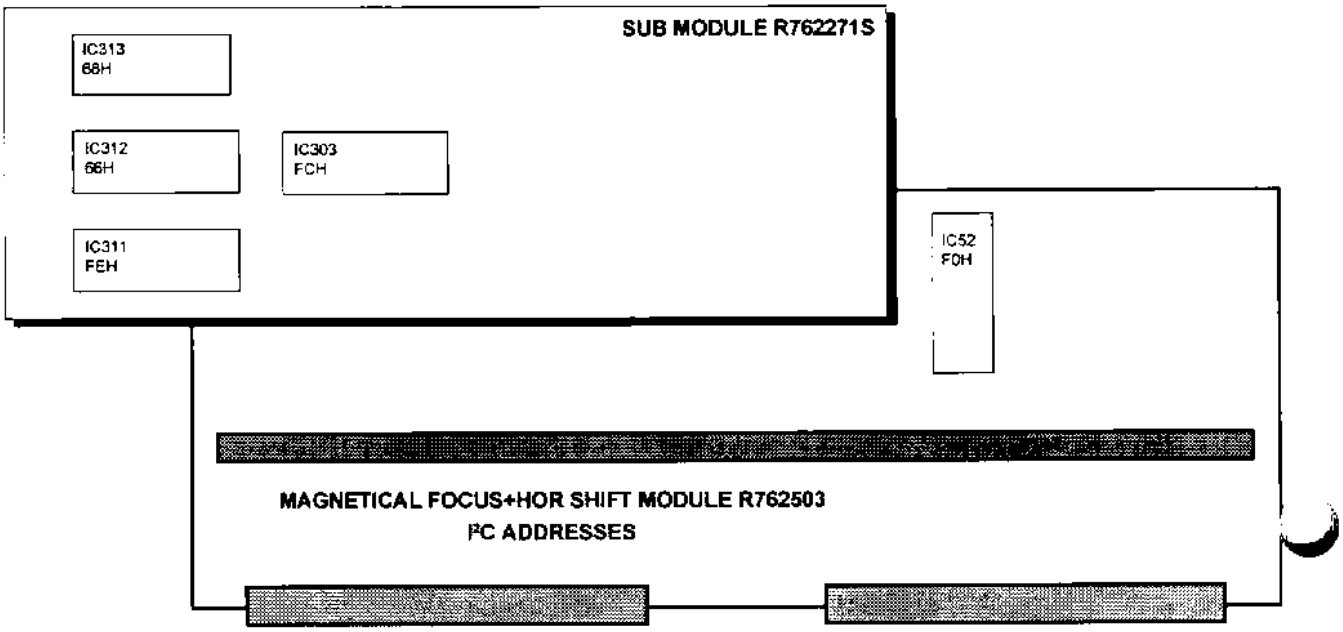
HEX address	IC	CORRECTION
F6H	IC1	side keystone side bow left blanking right blanking
ORBITING		
74H	IC2	max deviation zero deviation slow orbiting fast orbiting
64H	IC1	shift orbit phase orbit



MAGNETICAL FOCUS+HOR SHIFT R762503

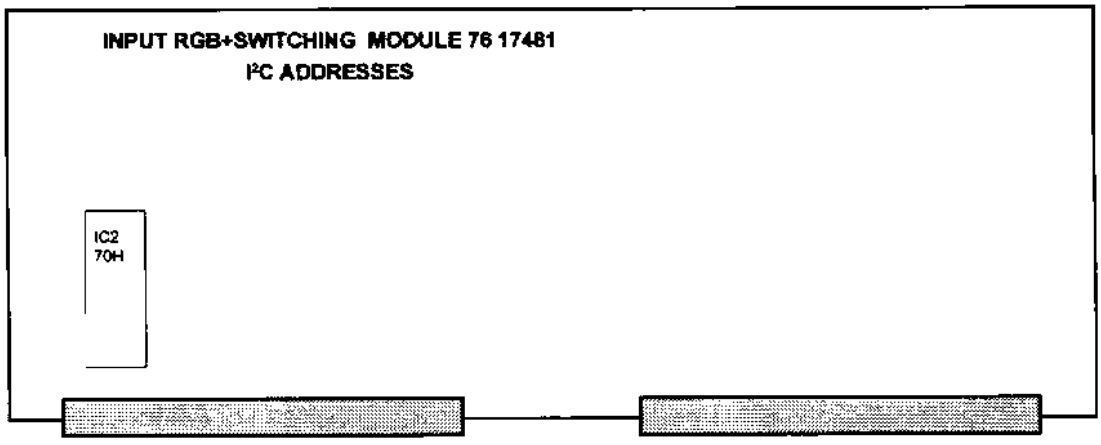
HEX address	IC	CORRECTION
F0H	IC52	horizontall shift red horizontal shift green horizontal shift blue switching Idefl*
FCH	IC303	focus Red center focus Green center focus Blue center H Amp (not used)

HEX address	IC	CORRECTION
FEH	IC311	focus bottom R focus top R focus left R focus right R
66H	IC312	focus bottom G focus top G focus left G focus right G
68H	IC313	focus bottom B focus top B focus left B focus right B



INPUT RGB+SWITCHING 76 17481

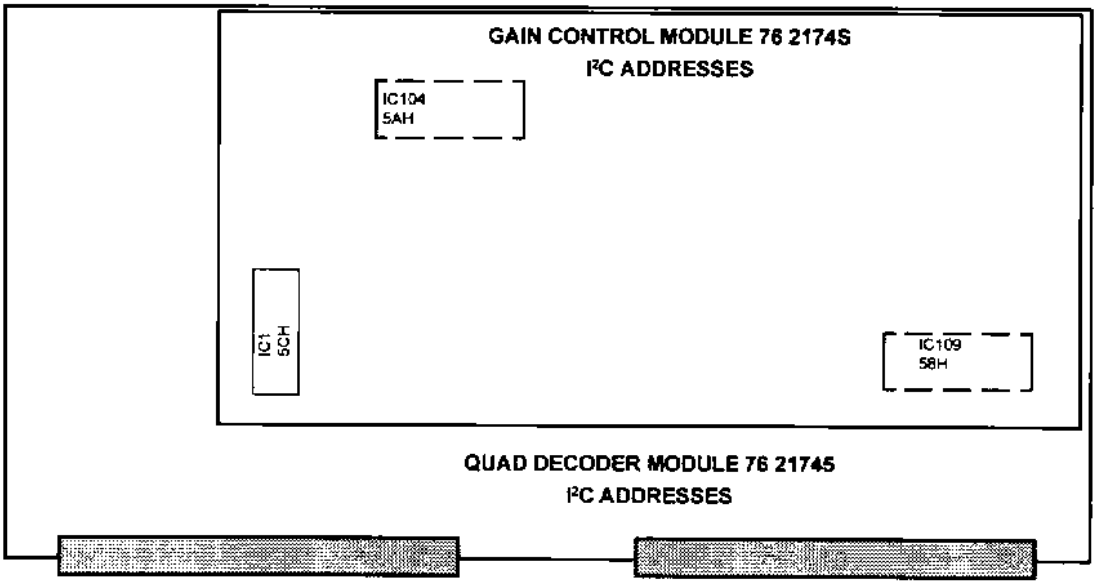
HEX address	IC	CORRECTION
70H	IC2	red on/off green on/off blue on/off sync fast/slow input video input S-video input RGB TTL input RGsB analog input RGBS analog internal pattern enhanced blue on/off



QUAD DECODER+GAIN CONTROL 76 21745

HEX address	IC	CORRECTION
58H	IC109	saturation R-Y saturation B-Y tint sharpness
5AH	IC104	contrast brightness blanking left blanking right

HEX address	IC	CORRECTION
Gain control		
5CH	IC1	red gain blue gain red cut off blue cut off



I²C error messages in ascending order of address number

HEXaddress	IC	MODULE	HEXaddress	IC	MODULE
440H	IC800	Convergence G 76 25128	CAH	IC27	Convergence 76 2518
42H	IC801	Convergence G 76 25128	CCH	IC6	Convergence 76 2518
44H	IC802	Convergence G 76 25128	CEH	IC625	Convergence 76 2518
46H	IC803	Convergence G 76 25128	D0H	IC609	Convergence 76 2518
48H	IC804	Convergence G 76 25128	D2H	IC619	Convergence 76 2518
4AH	IC805	Convergence G 76 25128	D4H	IC2	Convergence 76 2518
4CH	IC806	Convergence G 76 25128	D6H	IC1	Convergence 76 2518
4EH	IC807	Convergence G 76 25128	D8H	IC601	Convergence 76 2518
			DAH	IC602	Convergence 76 2518
50H	IC808	Convergence G 76 25128	DCH	IC26	Convergence 76 2518
52H	IC809	Convergence G 76 25128	DEH	IC608	Convergence 76 2518
54H	IC810	Convergence G 76 25128			
56H	IC811	Convergence G 76 25128	E0H	IC44	Convergence 76 2518
			E2H	IC7	Convergence 76 2518
58H	IC109	Q Decoder+Gain R7621745	E4H	IC618	Convergence 76 2518
5AH	IC104	Q Decoder+Gain R7621745	E6H	IC36	Convergence 76 2518
5CH	IC1	Q Decoder+Gain R762174S	E8H	IC615	Convergence 76 2518
			EAH	IC43	Convergence 76 2518
66H	IC312	Mag. Foc+Hor Shift R762271S	ECH	IC616	Convergence 76 2518
68H	IC313	Mag. Foc+Hor Shift R762271S	EEH	IC622	Convergence 76 2518
88H	IC408	Q Decoder+Gain 76 21175S	F0H	IC52	Mag. Foc+Hor Shift 76 2503
70H	IC2	In RGB+Switching 76 17481	F2H	IC3	Sync+Vert defl 76 2268S
			F4H	IC2	Sync+Vert defl 76 2268S
74H	IC2	Orbiting 76 2268U	F6H	IC1	Sync+Vert defl 76 2268S
C0H	IC35	Convergence 76 2518	F8H	IC14	N-S corrections 76 2518
C2H	IC21	Convergence 76 2518	FAH	IC42	N-S corrections 76 2518
C4H	IC624	Convergence 76 2518			
C6H	C22	Convergence 76 2518	FCH	IC303	Mag. Foc+Hor Shift 76 2271S
C8H	IC621	Convergence 76 2518	FEH	IC311	Mag. Foc+Hor Shift 76 2271S

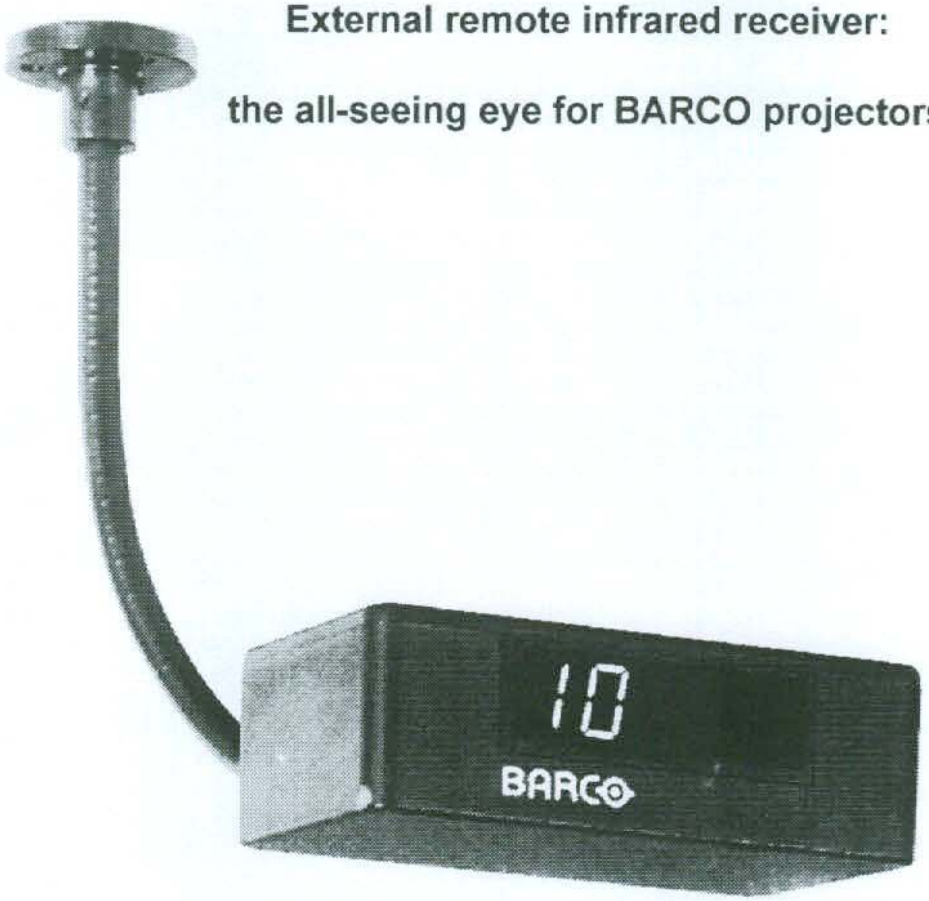
Refer to preceding pages for IC location on module and fault identification.

IR Remote Receiver 800

98 27515

External remote infrared receiver:

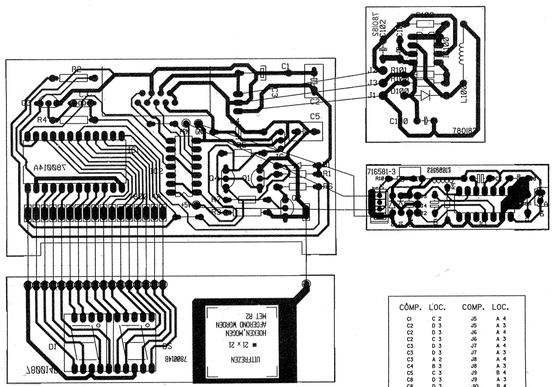
the all-seeing eye for BARCO projectors



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.

BARCO

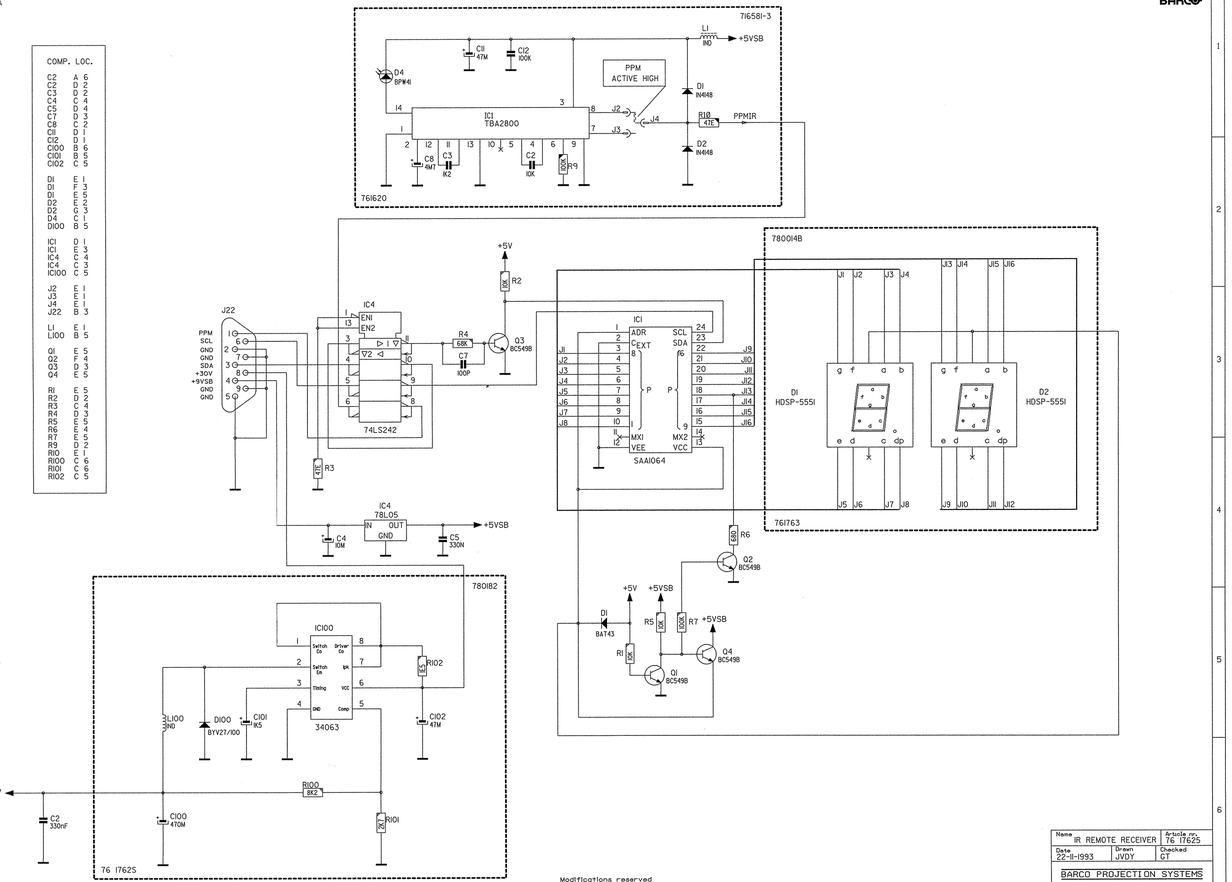


COMP.	LOC.	COMP.	LOC.
C	C 2	J5	A 4
C1	D 3	J6	A 3
C2	D 3	J6	A 4
C3	D 3	J6	A 3
C3	D 3	J7	A 4
C3	D 3	J7	A 3
C3	A 2	J8	A 4
C4	B 3	J8	A 3
C5	C 3	J8	B 4
C6	D 3	J9	B 4
C7	D 3	J9	B 3
C8	D 3	J10	B 4
C9	D 3	J10	B 3
C1	D 3	J11	B 4
C2	D 3	J11	B 3
C100	C 3	J12	A 4
C101	C 2	J12	B 3
C102	C 2	J13	A 4
		J13	B 3
D1	C 3	J14	A 4
D	A 4	J14	B 3
D1	C 3	J15	B 4
D1	C 3	J15	B 3
D2	B 4	J16	B 4
D4	D 3	J16	B 3
D4	D 3	J17	A 4
D100	C 2	J17	A 3
		J18	C 4
I01	D 3	J18	C 3
I01	D 3	J19	B 3
I02	B 3	J20	B 3
IC2	B 3	J21	B 3
IC3	C 2	J22	B 3
IC4	C 3		
IC100	D 2	L1	C 3
		L100	D 3
J	C 3	Q	B 5
J	C 2	Q1	C 3
J	D 3	Q2	A 3
J	A 3	Q3	B 3
J	A 3	Q4	B 3
J	D 3		
J2	C 2	R	C 3
J2	D 3	R2	A 2
J2	A 4	R3	B 3
J3	A 3	R4	A 3
J3	D 3	R5	B 3
J3	C 2	R6	C 3
J3	D 3	R7	B 3
J3	A 4	R9	D 3
J3	A 3	R9	D 3
J4	D 3	R00	C 3
J4	D 3	R000	C 2
J4	A 4	R01	C 2
J4	A 3	R02	D 2

Name	Article nr.
IR REMOTE RECEIVER	76 17625
Date: 22-12-1993	Drawn: JVDY
	Checked: GT

BARCO PROJECTION SYSTEMS

780014A

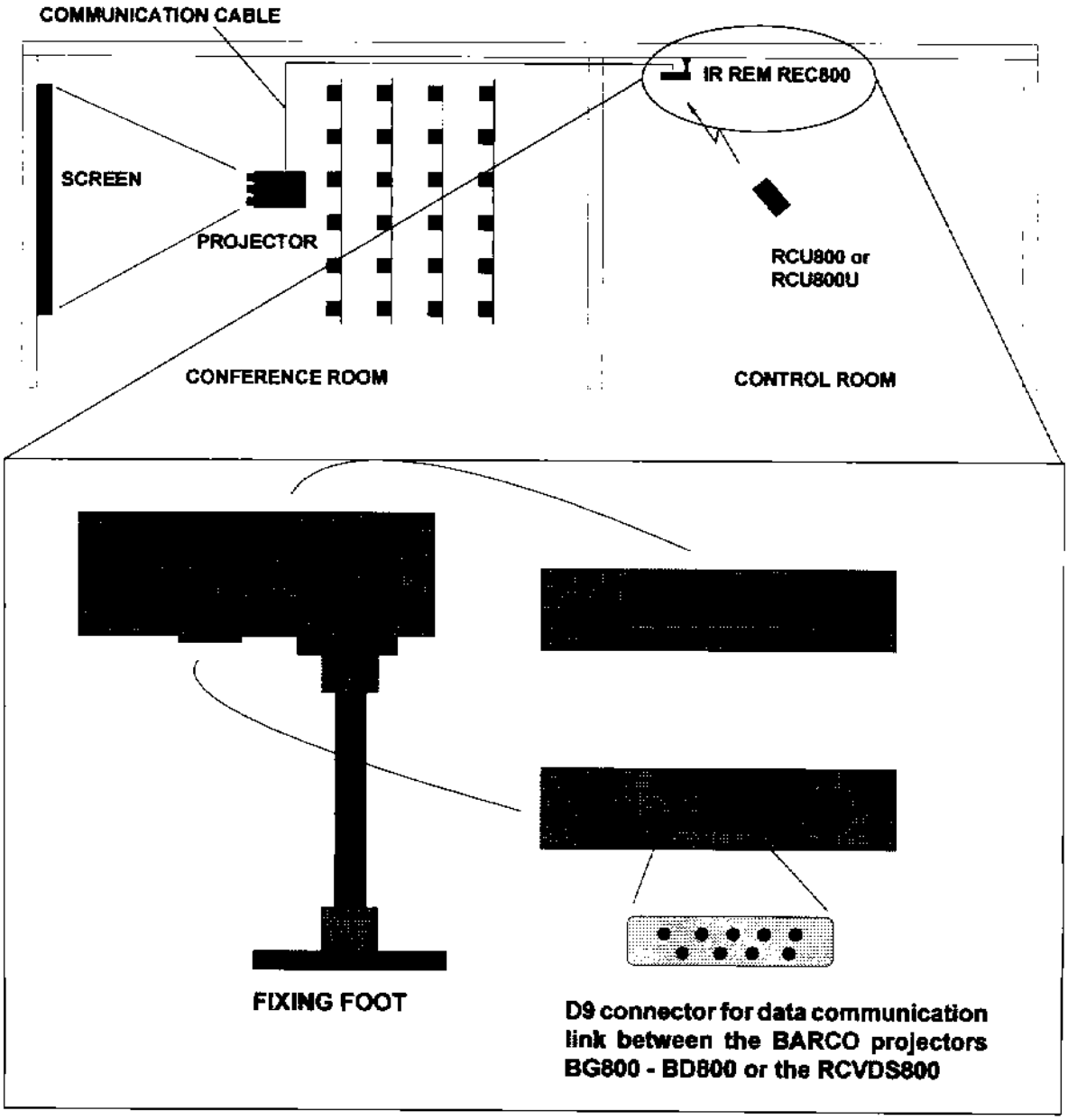


Name	Article nr.
IR REMOTE RECEIVER	76 17625
Date: 22-11-1993	Drawn: JVDY
	Checked: GT

BARCO PROJECTION SYSTEMS

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.

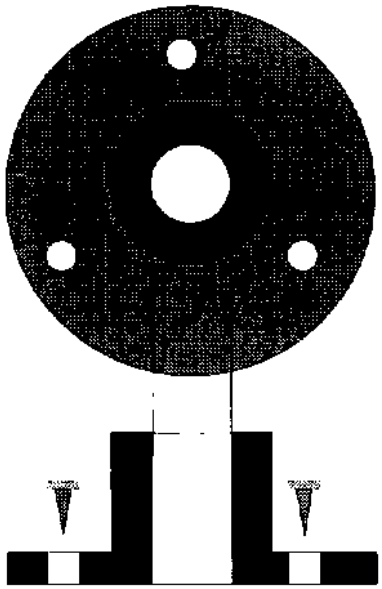


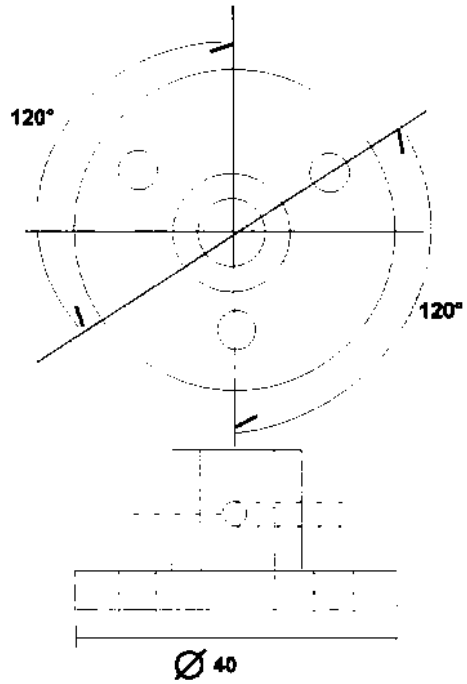
OPERATION

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 98 27515

ITEM NO.	SIT.	DESCRIPTION
59 3082		P BOX 201 245X130X130 COSOC
59 3229		LS FOAM 700X140X15
59 75174		MAN INS PJ49 IR RX
76 17625		UN DSPL PJ49 G800 IR UNV

Parts listing 76 17625

ITEM NO.	SIT.	DESCRIPTION
76 1763		UN DSPL PJ49 G800 IR SUB
76 1762S		UN DSPL PJ49 G800 IR SMP
11 11565	C..1	C EL AX 10M Z 25E7 85
11 3730	C..2	C POMERA 330N K 63E2
11 2362	C..3	C N750MI 100P J 63E2
11 11565	C..4	C EL AX 10M Z 25E7 85
11 3730	C..5	C POMERA 330N K 63E2
13 16361	D..1	D Y BAT85 030200 DO35
13 2825	I..1	U 1064 SAA DIP24 PLED_D
13 7516	I..2	U 74LS242 DIP14 PTRANC
13 4032	I..4	U 78L05 TO92 PSTAB
31 3284	J..1	J CIS MBS P 1 R1 L6.2RL
31 3284	J..2	J CIS MBS P 1 R1 L6.2RL
31 3284	J..3	J CIS MBS P 1 R1 L6.2RL
31 3284	J..4	J CIS MBS P 1 R1 L6.2RL
31 3284	J..5	J CIS MBS P 1 R1 L6.2RL
31 3284	J..6	J CIS MBS P 1 R1 L6.2RL
31 3284	J..7	J CIS MBS P 1 R1 L6.2RL
31 3284	J..8	J CIS MBS P 1 R1 L6.2RL
31 3284	J..9	J CIS MBS P 1 R1 L6.2RL
31 3284	J.10	J CIS MBS P 1 R1 L6.2RL
31 3284	J.11	J CIS MBS P 1 R1 L6.2RL
31 3284	J.12	J CIS MBS P 1 R1 L6.2RL
31 3284	J.13	J CIS MBS P 1 R1 L6.2RL
31 3284	J.14	J CIS MBS P 1 R1 L6.2RL
31 3284	J.15	J CIS MBS P 1 R1 L6.2RL
31 3284	J.16	J CIS MBS P 1 R1 L6.2RL
31 3284	J.17	J CIS MBS P 1 R1 L6.2RL
31 3284	J.18	J CIS MBS P 1 R1 L6.2RL
31 35011	J22.	J DE S8 FBS P 9 FT MFT D
78 0014	PC..	PCB PJ49 800 DSPL IR1
13 14071	Q..1	Q BC547B N SS TO92 045A1
13 14071	Q..2	Q BC547B N SS TO92 045A1
13 14295	Q..3	Q BC549B N SS TO92 030A1
13 1411	Q..4	Q BC549C N SS TO92 030A1
10 1148	R..1	R CF H 10K J 0W25
10 1148	R..2	R CF H 10K J 0W25
10 1120	R..3	R CF H 47E J 0W25
10 1158	R..4	R CF H 68K J 0W25
10 1148	R..5	R CF H 10K J 0W25
10 1134	R..6	R CF H680E J 0W25
10 1160	R..7	R CF H100K J 0W25

Parts listing 76 1763

ITEM NO.	SIT.	DESCRIPTION
76 1620		UN RX EP49 RCVDS800 IR
13 1685	D..1	LED 1DIG CA RED HDSP5551
13 1685	D..2	LED 1DIG CA RED HDSP5551

Parts listing 76 1620

ITEM NO.	SIT.	DESCRIPTION
11 5940	C..2	C PP RA 10N J 63E2
11 59181	C..3	C PP RA 1N2J100E2
11 15915	C..8	C EL5 RA 4M7M 35E2 85
11 1476	C.11	C EL RA 47M M 25E2 85
13 1681	D..4	D O BPW41 032
13 2824	I..1	U 2800 TBA DIP14 PIRREC
30 61582	L..1	CH AX NS 1.5 MH

Parts listing 76 1762S

ITEM NO.	SIT.	DESCRIPTION
11 1468	C100	C EL RA 470M Z 16E2 85
11 2741	C101	C CE MI 1N5K 63E2
11 1486	C102	C EL RA 47M M 40E2 85
13 1950	D100	D R BYV27 15002A SOD57
13 7625	I100	U 34063 DIP8 PSMP
30 61341	L100	CH RA NS 100 UH
78 0182	PC..	PCS PJ49 800 DSPL IR SMP
10 11474	R100	R MF H 8K2 F 0W25
10 11414	R101	R MF H 2K7 J 0W25
10 1102	R102	R CF H 1E5 J 0W25 181

Spare parts 98 27515

ART NO.	DESCRIPTION	QUANTITY
59 3082	P BOX 201 245X130X130 COSOC	1
59 3229	LS FOAM 700X140X15	1
59 75174	MAN INS PJ49 IR RX	1
76 17625	UN DSPL PJ49 G800 IR UNV	1

Spare parts 76 17625

ART NO.	DESCRIPTION	QUANTITY
13 14071	Q BC547B N SS TO92 045A1	2
13 1411	Q BC549C N SS TO92 030A1	1
13 14295	Q BC549B N SS TO92 030A1	1
13 16361	D Y BAT85 030200 DO35	1
13 2825	U 1064 SAA DIP24 PLED_D	1
13 4032	U 78L05 TO92 PSTAB	1
13 7516	U 74LS242 DIP14 PTRANC	1
31 3284	J CIS MBS P 1 R1 L6.2RL	18
31 35011	J DE S8 FBS P 9 FT MFT D	1
36 21195	SCR D7985 M 2.5X 10 PS B	3
36 2188	SCR D916 M 3 X 4 HS B	6
36 6110	NUT D934 M 2.5 S Z	3
36 7435	RVT POP D2.4 L 9.3 P AA	2
36 7502	WSHR D6798 A 3.2 S Z	2
59 3526	P BAG PE 160X 220	1
72 1600	WDW EP IR REC+DIS RCVDS	1
76 1762S	UN DSPL PJ49 G800 IR SMP	1
76 1763	UN DSPL PJ49 G800 IR SUB	1
80 0738	HSG EP RCVDS3 IR RX FIX	1
80 0739	HSG EP RCVDS3 IR RX FIX	1
80 0740	HSG EP RCVDS3 IR RX FLX	1
80 1908	J D ACC SCR_L U/M L 8	2
80 2926	HSG PJ49 DSPL HSG CPL	1

Spare parts 76 1763

ART NO.	DESCRIPTION	QUANTITY
13 1685	LED 1DIG CA RED HDSP5551	2
76 1620	UN RX EP49 RCVDS800 IR	1

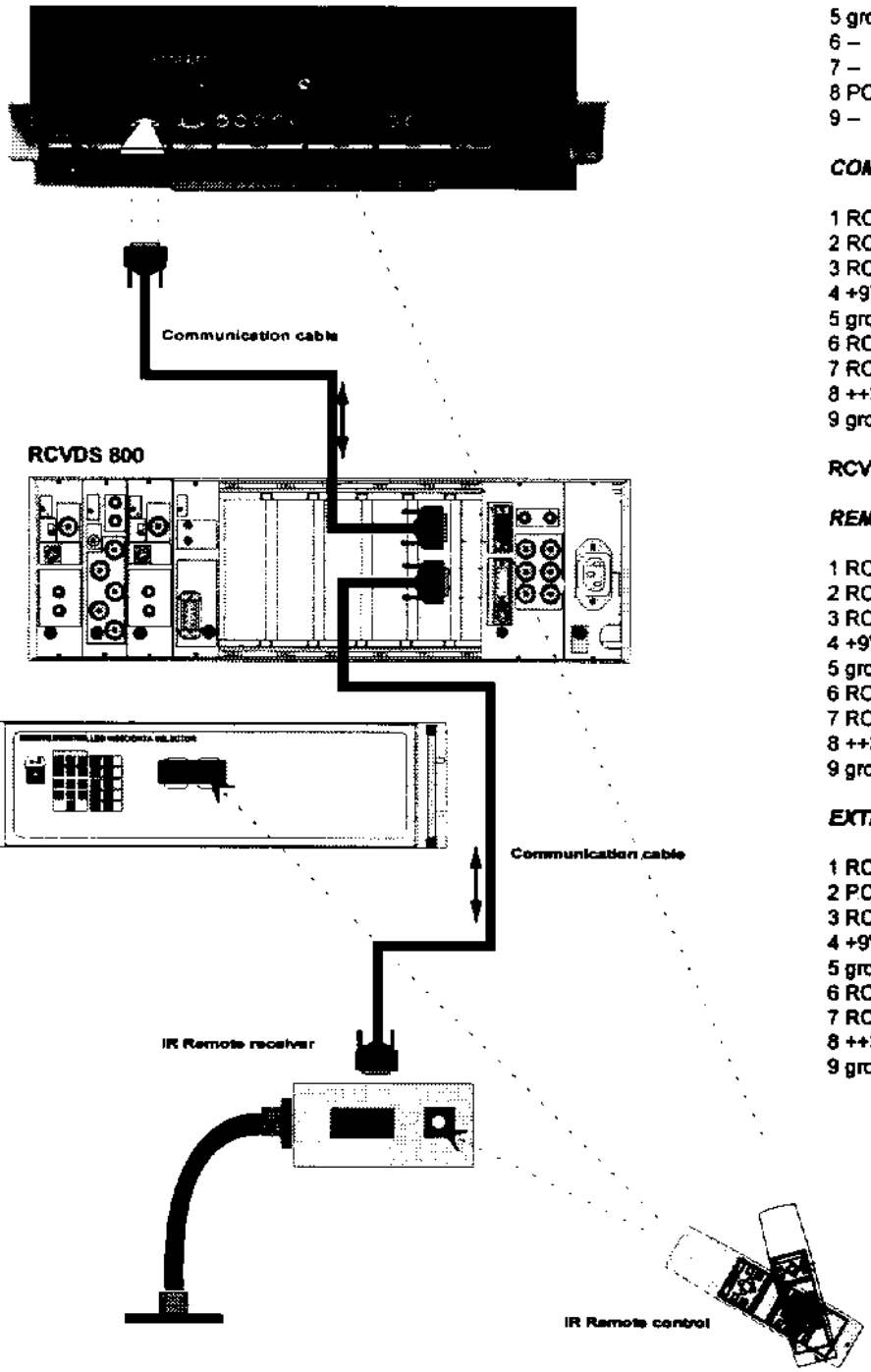
Spare parts 76 1620

ART NO.	DESCRIPTION	QUANTITY
13 1681	D O BPW41 032	1
13 2824	U 2800 TBA DIP14 PIRREC	1
30 61582	CH AX NS 1.5 MH	1
80 3723	FRM PJ53 RX IR SCRN 01	1

Spare parts 76 1762S

ART NO.	DESCRIPTION	QUANTITY
13 1950	D R BYV27 15002A SOD57	1
13 7625	U 34063 DIP8 PSMP	1
30 61341	CH RA NS 100 UH	1
80 2347	SPR RVT L13 D 5 M3 B	2

Interconnection diagram



BD8100 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

RCVDS800

REMOTE PROJECTOR

1 RCVDS_PPM OUT (Pulse Position Mod.)
2 RCVDS_TxD (Transmit DATA)
3 RCVDS_RxD (Receive DATA)
4 +9V.I
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 PCVDS_RxD (Receive DATA)
3 RCVDS_TxD (Transmit DATA)
4 +9V.I
5 ground
6 RCVDS_SCL OUT (Serial Clock line)
7 RCVDS_RDY IN (Ready)
8 ++30V
9 ground

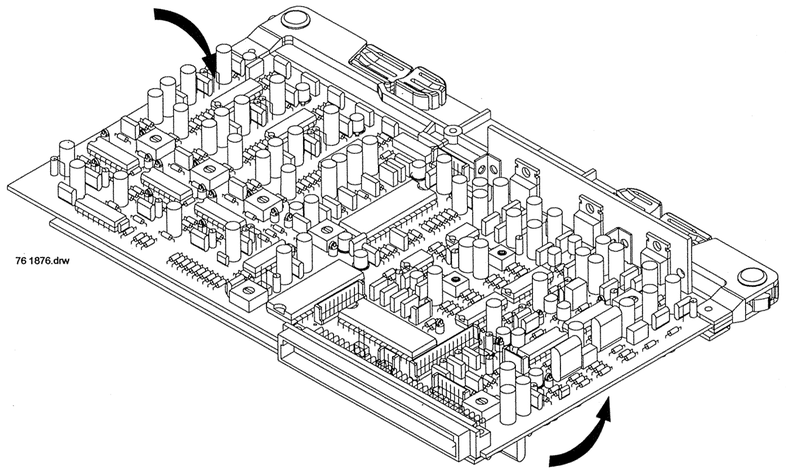
IR REMOTE RECEIVER

1 RCVDS_PPM (Pulse Position Mod.)
2 ground
3 SDA (Serial DATA line)
4 +9V.I
5 ground
6 RCVDS_SCL (Serial Clock line)
7 ground
8 ++30V
9 ground

Contrast modulation module

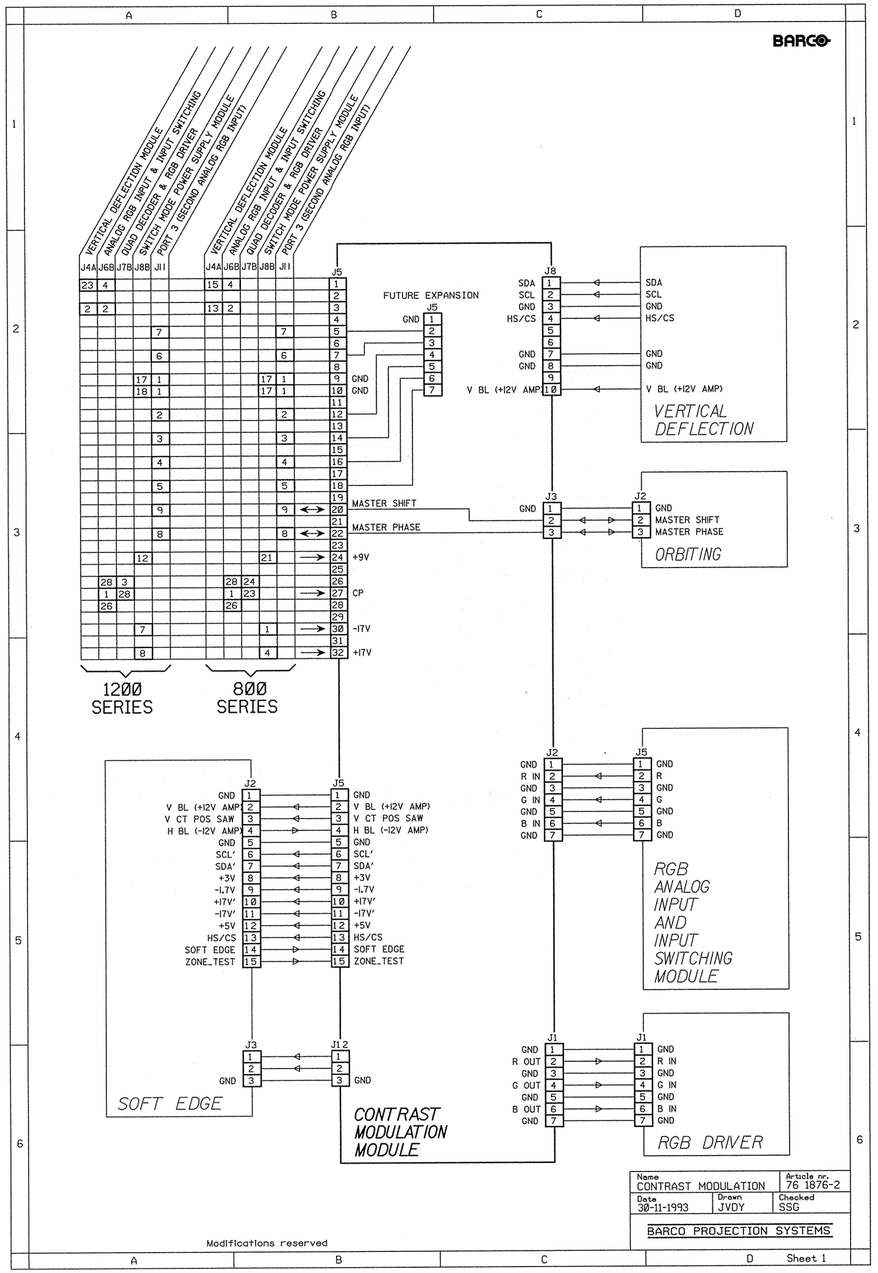
76 1876

Contrast modulation module



76 1876.drw

Softedge module



780226-2

BARCO

PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH ✱ 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.

0.25W 0.40W 0.50W 1W 1.5W

HORIZONTAL SAWTOOTH GENERATOR

VERTICAL SAWTOOTH GENERATOR

AMPLITUDE ADJUSTMENT

BALANCE PARABOLIC SYMMETRY

MEASURE POINT

Horizontal contrast modulation Address : $60

Vertical contrast modulation Address : $62

SC76013

H SAW COR R
H SAW COR G
H SAW COR B
H PAR COR
H CT POS SAW
H CT NEG SAW
H CT PAR
V SAW COR
V PAR COR
V CT POS SAW
V CT NEG SAW
V CT PAR

To SOFT EDGE unit (J3)

Start/Stop SOFT EDGE

(Not used)

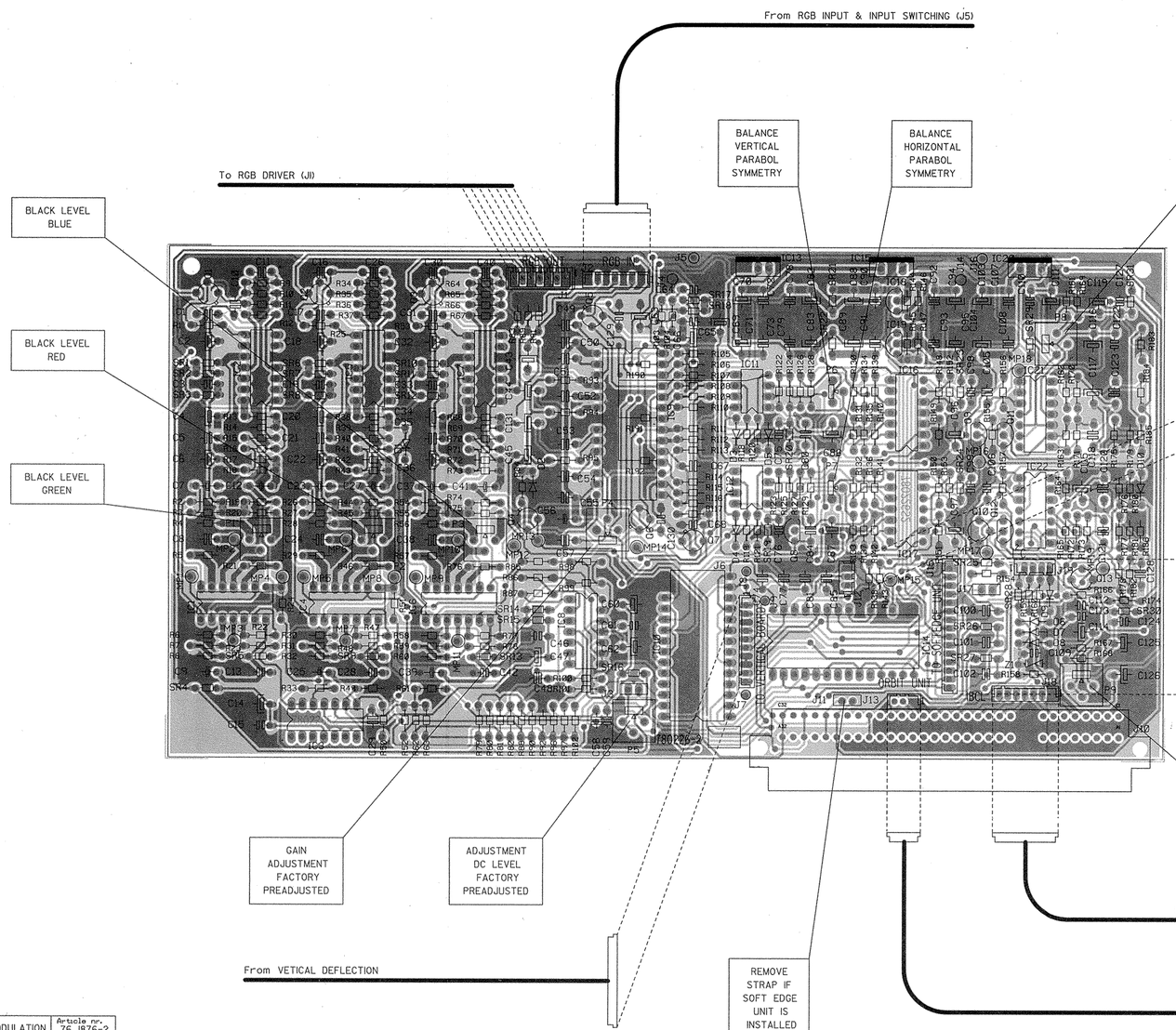
Fix Heatsink

Modifications reserved

Name: CONTRAST MODULATION	Article nr: 76 1876-2
Date: 18-08-1993	Drawn: JVDY / Checked: SSG

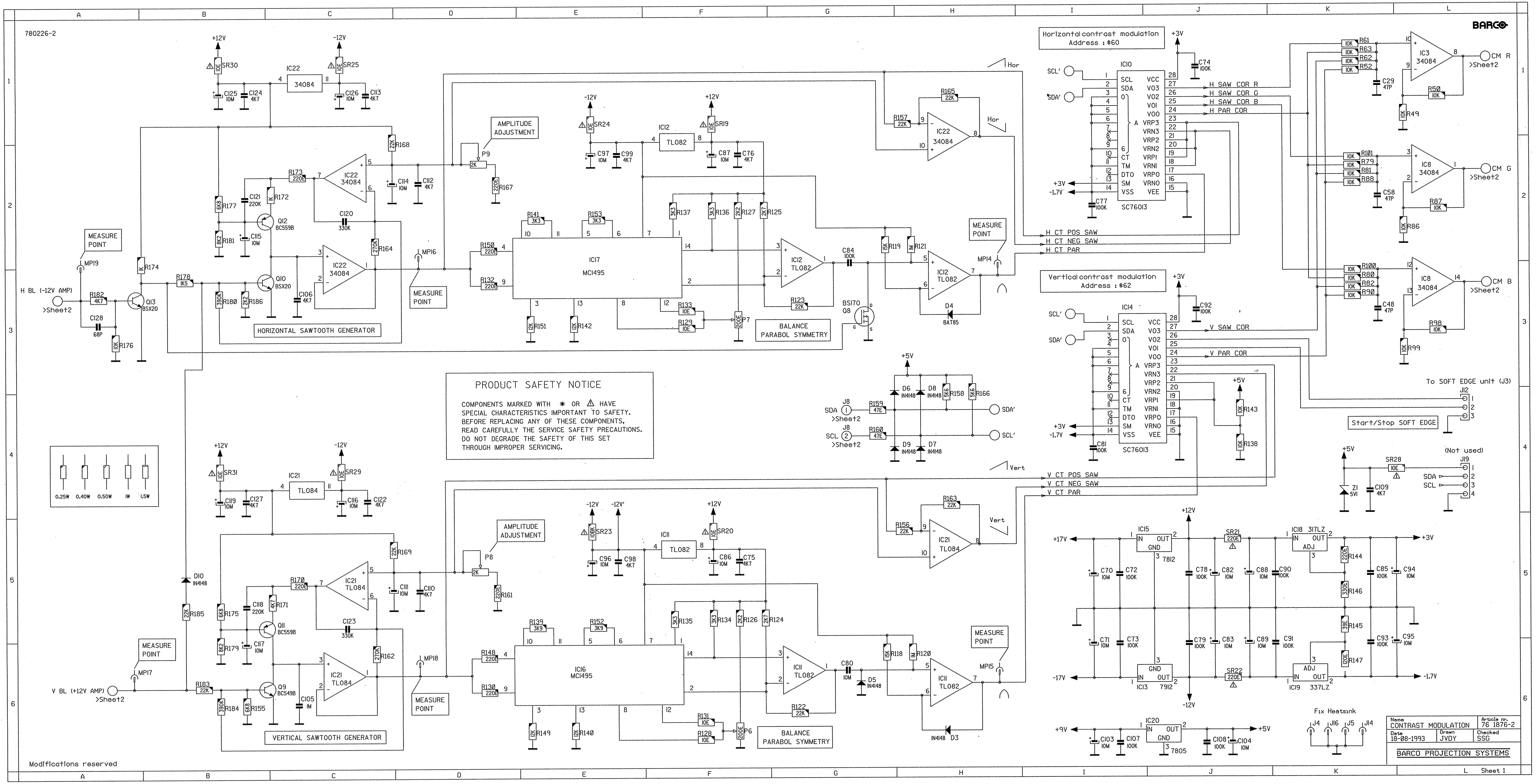
BARCO PROJECTION SYSTEMS

Sheet 1



COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C1	B 2	D1	C 3	R34	C 2	R165	F 4
C2	B 3	D2	D 3	R35	C 2	R166	F 4
C3	B 3	D3	E 3	R36	C 2	R167	F 4
C4	B 3	D4	E 4	R37	C 2	R168	F 4
C5	B 3	D5	E 3	R38	C 3	R169	F 2
C6	B 3	D6	F 4	R39	C 3	R170	F 3
C7	B 3	D7	F 4	R40	C 3	R171	F 3
C8	B 4	D8	F 4	R41	C 3	R172	F 4
C9	B 4	D9	F 4	R42	C 3	R173	F 4
C10	B 2	D10	G 3	R43	C 3	R174	G 4
C11	B 2			R44	C 3	R175	G 3
C12	B 3	IC1	B 4	R45	C 3	R176	G 3
C13	B 4	IC2	B 3	R46	C 4	R177	G 4
C14	B 4	IC3	B 5	R47	C 4	R178	G 4
C15	B 5	IC4	B 4	R48	C 4	R179	G 3
C16	B 2	IC5	C 3	R49	C 4	R180	G 3
C17	B 2	IC6	C 4	R50	C 5	R181	G 4
C18	B 3	IC7	C 3	R51	C 4	R182	G 4
C19	B 3	IC8	D 4	R52	C 5	R183	G 3
C20	B 3	IC9	D 3	R53	C 3	R184	G 3
C21	B 3	IC10	D 4	R54	C 3	R185	G 3
C22	B 3	IC11	E 3	R55	C 3	R186	G 4
C23	B 3	IC12	E 3	R56	C 4	R190	D 3
C24	B 4	IC13	E 2	R57	C 4	R191	D 3
C25	B 4	IC14	F 4	R58	C 4	R192	D 3
C26	C 2	IC15	E 2	R59	C 4		
C27	C 3	IC16	E 3	R60	C 4	SR1	B 3
C28	C 4	IC17	E 4	R61	C 4	SR2	B 3
C29	C 5	IC18	E 2	R62	C 5	SR3	B 3
C30	C 2	IC19	E 2	R63	C 5	SR4	B 4
C31	C 2	IC20	F 2	R64	C 2	SR5	B 4
C32	C 3	IC21	F 3	R65	C 2	SR6	B 3
C33	C 3	IC22	F 3	R66	C 2	SR7	B 3
C34	C 3			R67	C 2	SR8	B 3
C35	C 3	J1	D 2	R68	C 3	SR9	C 4
C36	C 3	J2	D 2	R69	C 3	SR10	C 3
C37	C 3	J3	D 4	R70	C 3	SR11	C 3
C38	C 4	J4	D 2	R71	C 3	SR12	C 3
C39	C 4	J5	D 2	R72	C 3	SR13	C 4
C40	C 2	J6	E 4	R73	C 3	SR14	C 4
C41	C 3	J7	E 4	R74	C 3	SR15	C 4
C42	C 4	J8	E 4	R75	C 3	SR16	D 4
C43	C 3	J9	E 4	R76	C 4	SR17	D 2
C44	C 3	J10	G 5	R77	C 4	SR18	D 2
C45	C 3	J11	E 4	R78	C 4	SR19	E 4
C46	D 4	J12	E 4	R79	C 5	SR20	E 3
C47	D 4	J13	E 4	R80	C 5	SR21	E 2
C48	D 4	J14	F 2	R81	C 5	SR22	E 3
C49	D 2	J15	F 4	R82	C 3	SR23	F 3
C50	D 3	J16	F 2	R83	D 3	SR24	F 3
C51	D 3	J17	F 4	R84	D 3	SR25	F 4
C52	D 3	J18	F 4	R85	C 4	SR26	F 4
C53	D 3	J19	F 4	R86	C 4	SR27	F 4
C54	D 3			R87	C 4	SR28	F 4
C55	D 3	MP1	B 4	R88	D 5	SR29	F 3
C56	D 3	MP2	B 4	R89	D 3	SR30	G 4
C57	D 4	MP3	B 4	R90	D 5	SR31	G 2
C58	D 5	MP4	B 4	R91	D 3		
C59	D 5	MP5	B 4	R92	D 5	ZI	F 4
C60	D 4	MP6	C 4	R93	D 3		
C61	D 4	MP7	C 4	R94	D 3		
C62	D 4	MP8	C 4	R95	D 3		
C63	D 2	MP9	C 4	R96	D 5		
C64	D 2	MP10	C 4	R97	D 5		
C65	D 3	MP11	C 4	R98	D 4		
C66	D 3	MP12	C 4	R99	D 4		
C67	E 3	MP13	D 4	R100	D 4		
C68	D 4	MP14	D 4	R101	D 4		
C69	E 3	MP15	E 4	R102	D 5		
C70	E 2	MP16	F 3	R103	D 3		
C71	E 3	MP17	F 4	R104	D 3		
C72	E 2	MP18	F 3	R105	D 3		
C73	E 3	MP19	F 4	R106	E 3		
C74	E 4			R107	E 3		
C75	E 3	P1	B 4	R108	E 3		
C76	E 4	P2	C 4	R109	E 3		
C77	E 4	P3	C 4	R110	E 3		
C78	E 2	P4	D 3	R111	E 3		
C79	E 3	P5	D 5	R112	E 3		
C80	E 3	P6	E 3	R113	E 3		
C81	E 4	P7	E 3	R114	D 3		
C82	E 2	P8	F 2	R115	D 3		
C83	E 3	P9	F 4	R116	D 3		
C84	E 4			R117	D 3		
C85	E 4	Q1	B 2	R118	E 3		
C86	E 3	Q2	B 2	R119	E 4		
C87	E 4	Q3	C 2	R120	E 3		
C88	E 2	Q4	D 4	R121	E 4		
C89	E 3	Q5	D 2	R122	E 3		
C90	E 2	Q6	D 4	R123	E 3		
C91	E 3	Q7	D 4	R124	E 3		
C92	F 2	Q8	E 4	R125	E 3		
C93	F 3	Q9	F 3	R126	E 3		
C94	F 2	Q10	F 3	R127	E 3		
C95	F 3	Q11	F 3	R128	E 3		
C96	F 3	Q12	F 3	R129	E 3		
C97	F 3	Q13	F 4	R130	E 3		
C98	F 3			R131	E 3		
C99	F 3	R1	B 3	R132	E 3		
C100	F 4	R2	B 3	R133	E 4		
C101	F 4	R3	B 3	R134	E 3		
C102	F 4	R4	B 4	R135	E 3		
C103	F 2	R5	B 4	R136	E 3		
C104	F 3	R6	B 4	R137	E 4		
C105	F 3	R7	B 4	R138	E 4		
C106	F 3	R8	B 4	R139	E 3		
C107	F 2	R9	B 2	R140	E 3		
C108	F 3	R10	B 2	R141	E 3		
C109	F 4	R11	B 2	R142	E 4		
C110	F 2	R12	B 2	R143	F 2		
C111	F 2	R13	B 3	R144	F 2		
C112	F 4	R14	B 3	R145	F 3		
C113	F 4	R15	B 3	R146	F 2		
C114	F 4	R16	B 3	R147	F 3		
C115	F 3	R17	B 3	R148	F 3		
C116	F 2	R18	B 3	R149	F 3		
C117	F 3	R19	B 3	R150	F 3		
C118	F 3	R20	B 3	R151	F 4		
C119	F 2	R21	B 4	R152	F 3		
C120	F 3	R22	B 4	R153	F 3		
C121	F 4	R23	B 4	R154	F 4		
C122	G 2	R24	B 4	R155	F 3		
C123	G 3	R25	C 3	R156	F 3		
C124	G 4	R26	B 3	R157	F 3		
C125	G 4	R27	B 3	R158	F 4		
C126	G 4	R28	B 4	R159	F 4		
C127	G 2	R29	B 4	R160	F 4		
C128	G 4	R30	B 4	R161	F 2		
C129	D 3	R31	B 4	R162	F 3		
C130	D 4	R32	B 4	R163	F 3		
C131	C 3	R33	B 4	R164	F 3		

Name	Article nr.
CONTRAST MODULATION	76 1876-2
Date: 14-09-1993 / Drawn: JVDY / Checked: SSG	
BARCO PROJECTION SYSTEMS	

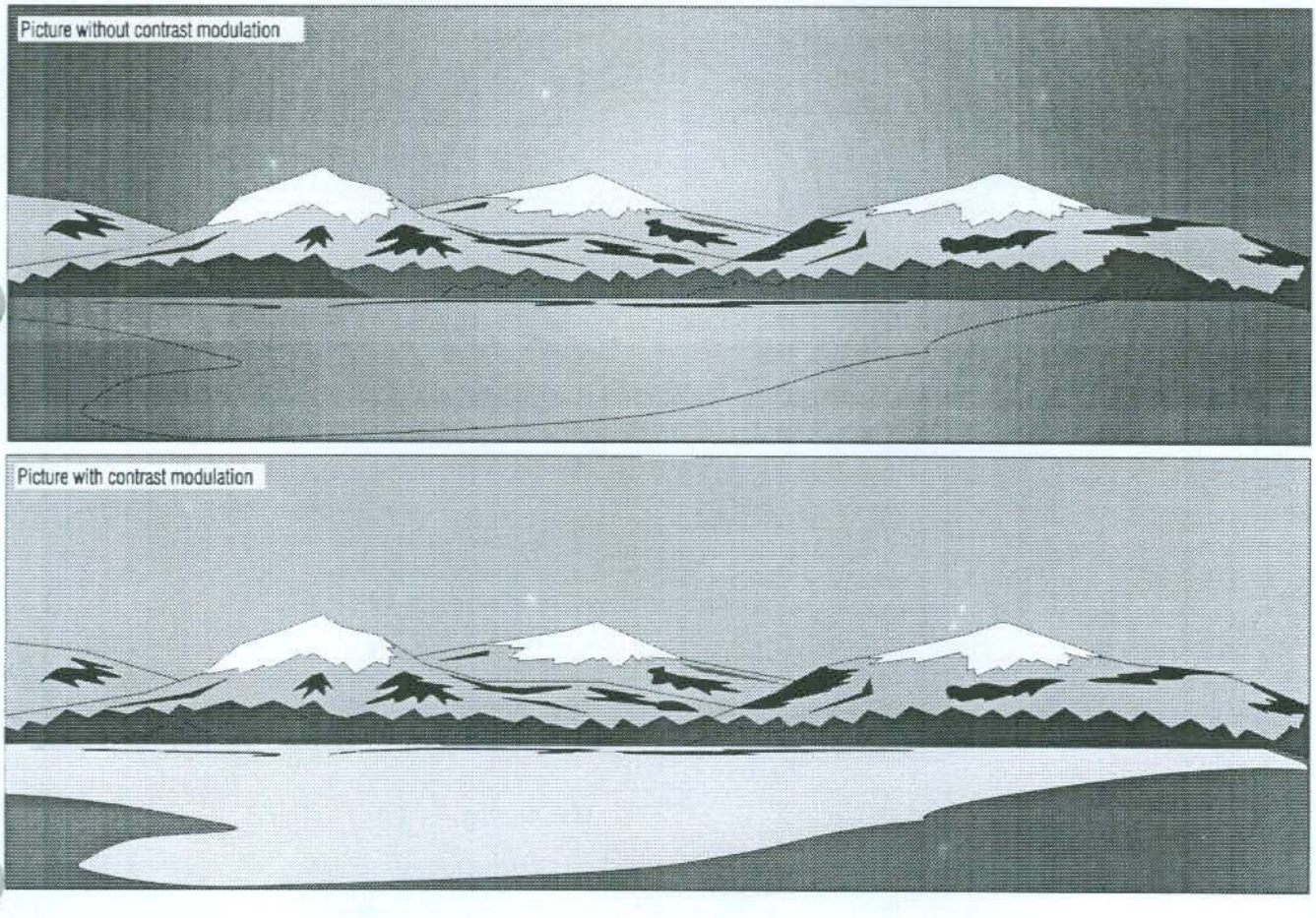


780226-2
BARCO
Horizontal contrast modulation
Address : $60
Vertical contrast modulation
Address : $62
SC76013
HORIZONTAL SAWTOOTH GENERATOR
VERTICAL SAWTOOTH GENERATOR
AMPLITUDE ADJUSTMENT
BALANCE PARABOL SYMMETRY
MEASURE POINT
H BL (-12V AMP) >Sheet2
V BL (+12V AMP) >Sheet2
H SAW COR R
H SAW COR G
H SAW COR B
H PAR COR
H CT POS SAW
H CT NEG SAW
H CT PAR
V SAW COR
V PAR COR
V CT POS SAW
V CT NEG SAW
V CT PAR
CM R >Sheet2
CM G >Sheet2
CM B >Sheet2
To SOFT EDGE unit (J3)
Start/Stop SOFT EDGE
(Not used)
PRODUCT SAFETY NOTICE
COMPONENTS MARKED WITH ✱ 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.
0.25W 0.40W 0.50W 1W 1.5W
Fix Heatsink
Modifications reserved
Name CONTRAST MODULATION
Article nr. 76 1876-2
Date 18-08-1993
Drawn JVDY
Checked SSG
BARCO PROJECTION SYSTEMS
Sheet 1

Contrast modulation module

R761876
Kit No: R9827800

BARCO's Contrast Modulation Kit for Large Screen CRT Projectors



Barco's new contrast modulation circuitry is designed to improve overall light output uniformity and to overcome the inherent color shift errors normally associated with CRT projection. The laws of physics applied to projection optics dictate that the centre of the projected image will be brighter than the corners, a phenomenon normally referred to as 'corner fall off'. 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 image is redish and the other blueish. By modulating the amplitude of the videosignal with appropriate waveforms it is possible to overcome both problems.

Contrast modulation module

R761876
Kit No: R9827800

Technical Specifications

Introduction

- Can be implemented in all BARCO CRT projectors.
- Improves overall light output uniformity.
- Modulates red and blue videosignals to overcome color shift errors.
- The option occupies the space of the input module on port 3. Source 3 (second RGB analog input) is no longer available for the B*800 and B1200 series.

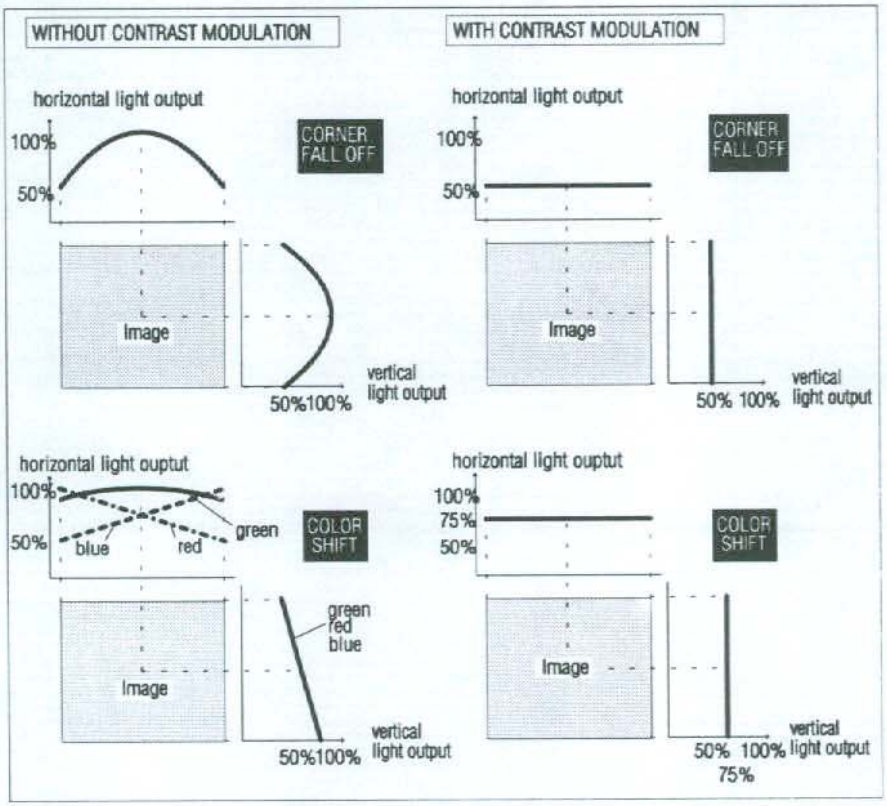
Compatibility

BV701 and BD701 series
BD801s, BG801s, R*801s and OEM801s series
BG808, BD808, BD1101, BV1200, BV1600, BG1208, BG1200 and BG1209

Order information:

Factory fitted Add-In Board	CM
Retro fitted Add-In Board	R9827800
Retro fitted Add-In Board 701 series	R9828140

BASIC CONCEPT



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

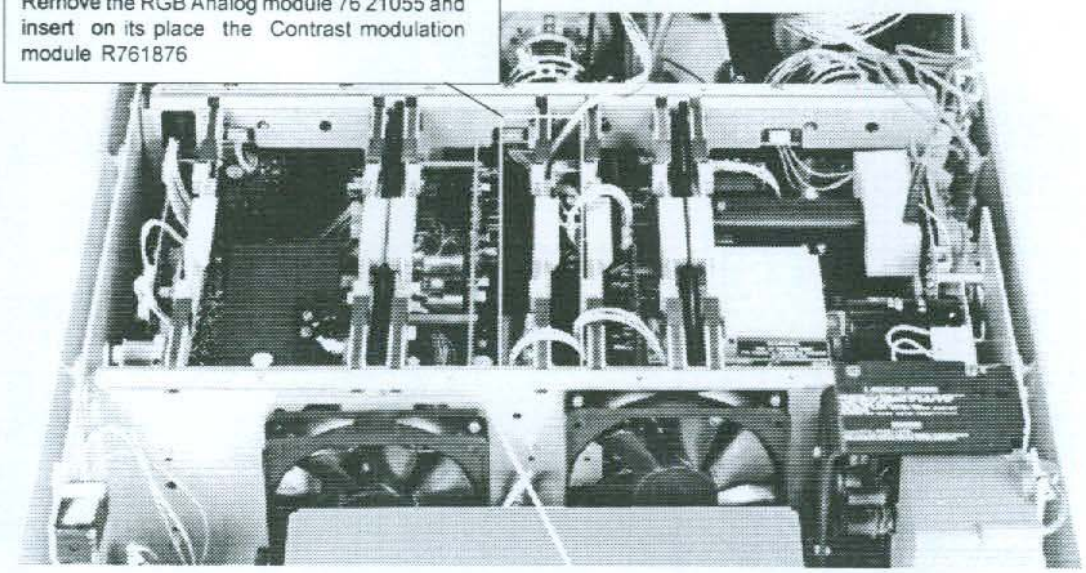
Contrast modulation module

R761876
Kit No: R9827800

Mechanical mounting

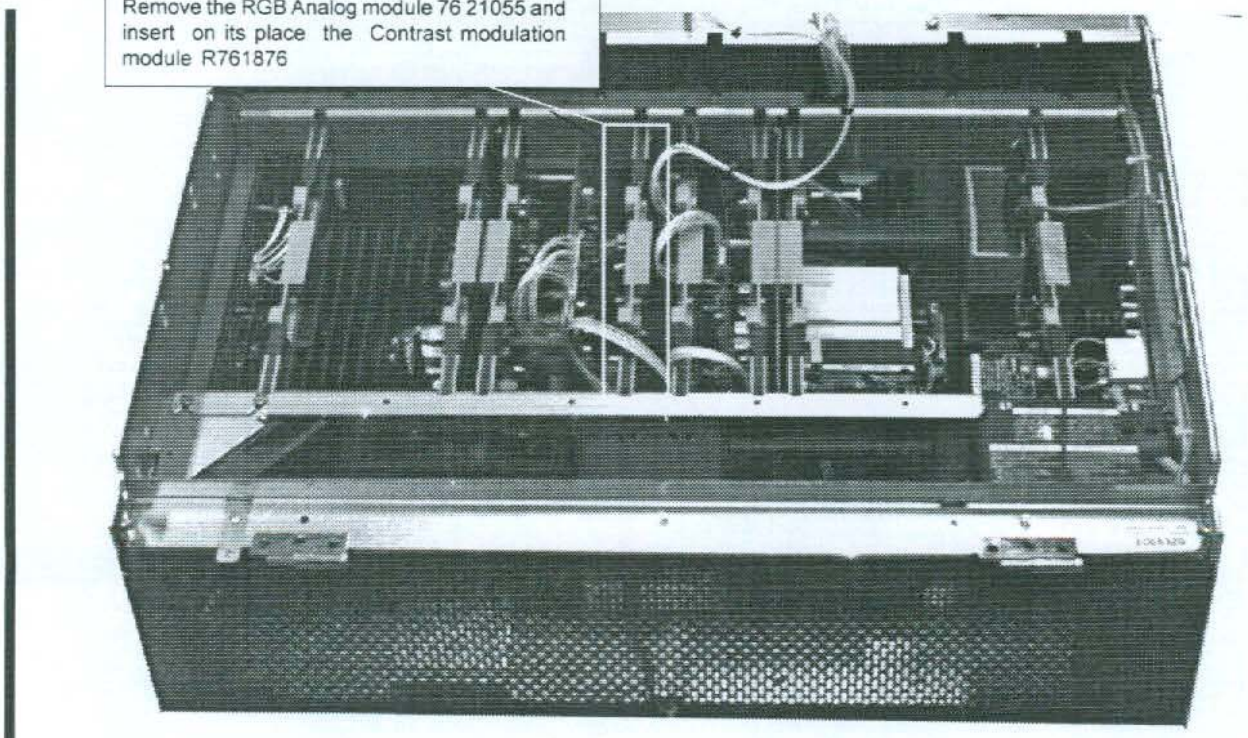
chassis configuration *800/*1200 series

Remove the RGB Analog module 76 21055 and insert on its place the Contrast modulation module R761876

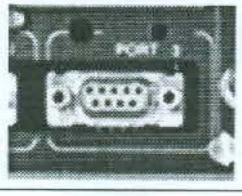


chassis configuration *808 series

Remove the RGB Analog module 76 21055 and insert on its place the Contrast modulation module R761876



Port 3



1 GND
4 Slave/Master
6 Option
8 Phase
9 Shift
7 Contrast

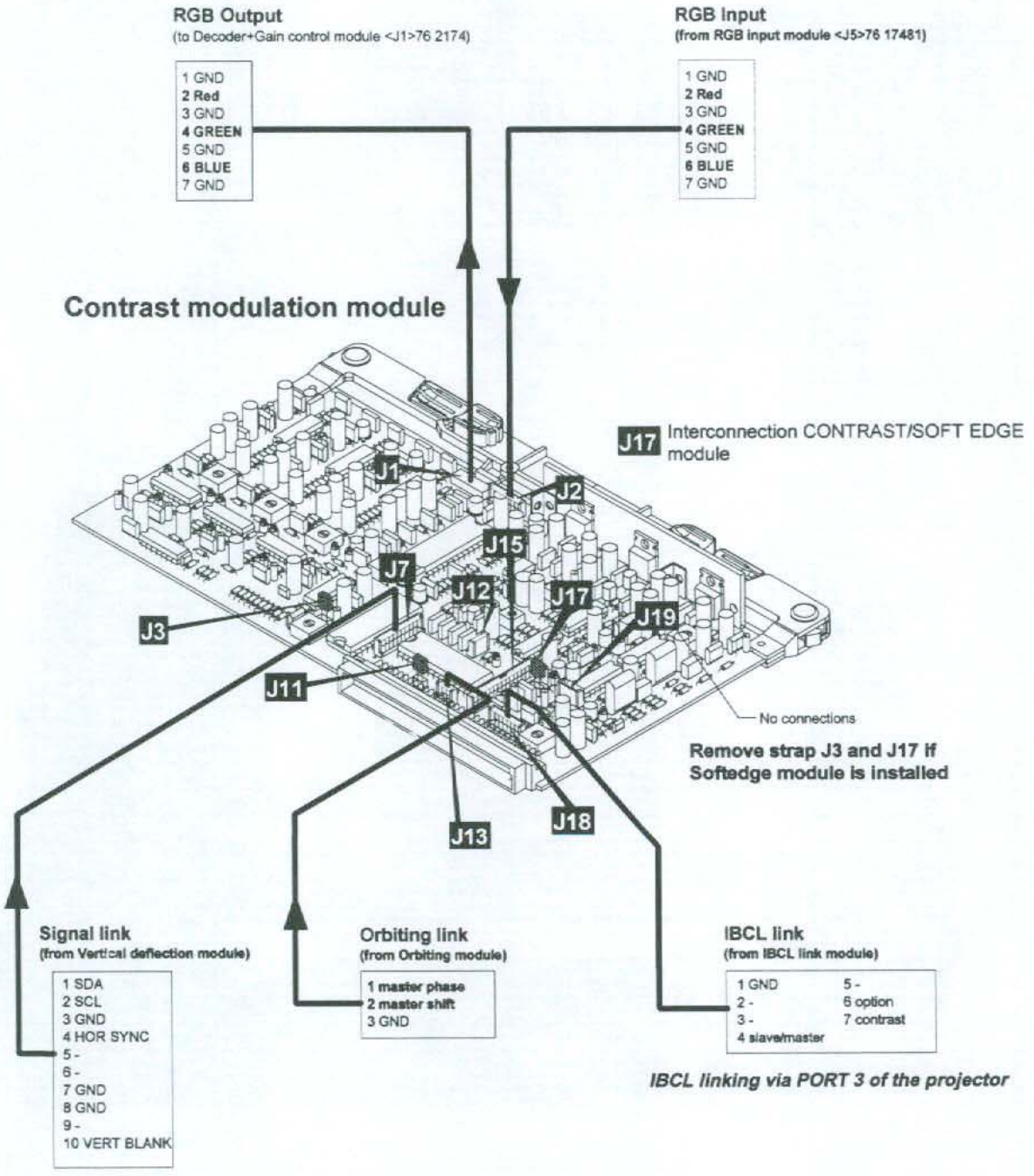
Orbiting

IBCL Linking

Contrast modulation module

R761876
Kit No: R9827800

Interconnection diagram

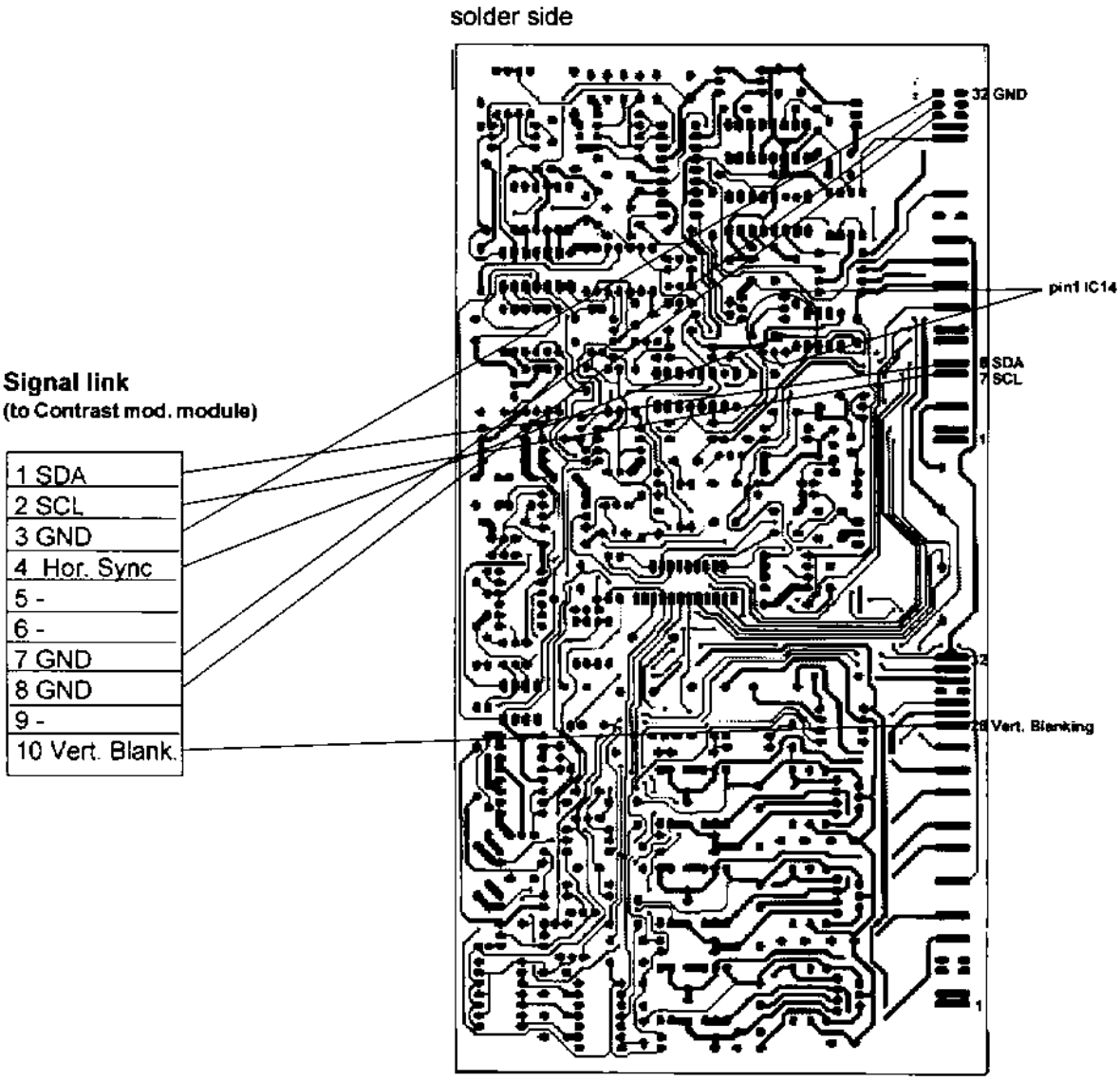


Important
to install the interconnection with an old Vertical Deflection module, a connector has to be added to the module via wire soldering (see illustrations on next two pages).

Contrast modulation module

R761876
Kit No: R9827800

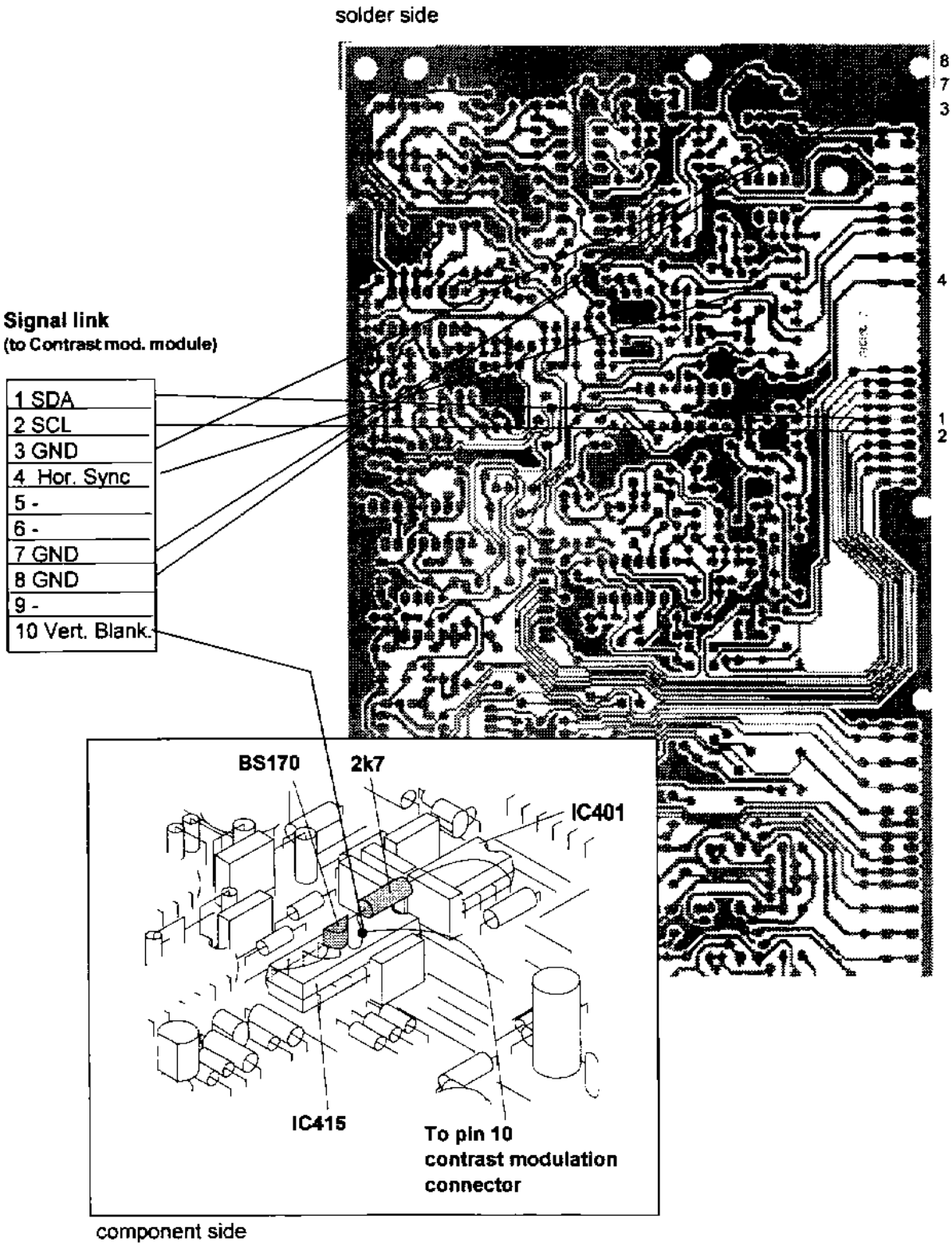
Interconnection Vert. Deflection module for 801 series projectors/Contrast modulation module



Contrast modulation module

R761876
Kit No: R9827800

Interconnection Vert. Deflection module for 1200 series projectors/Contrast modulation module

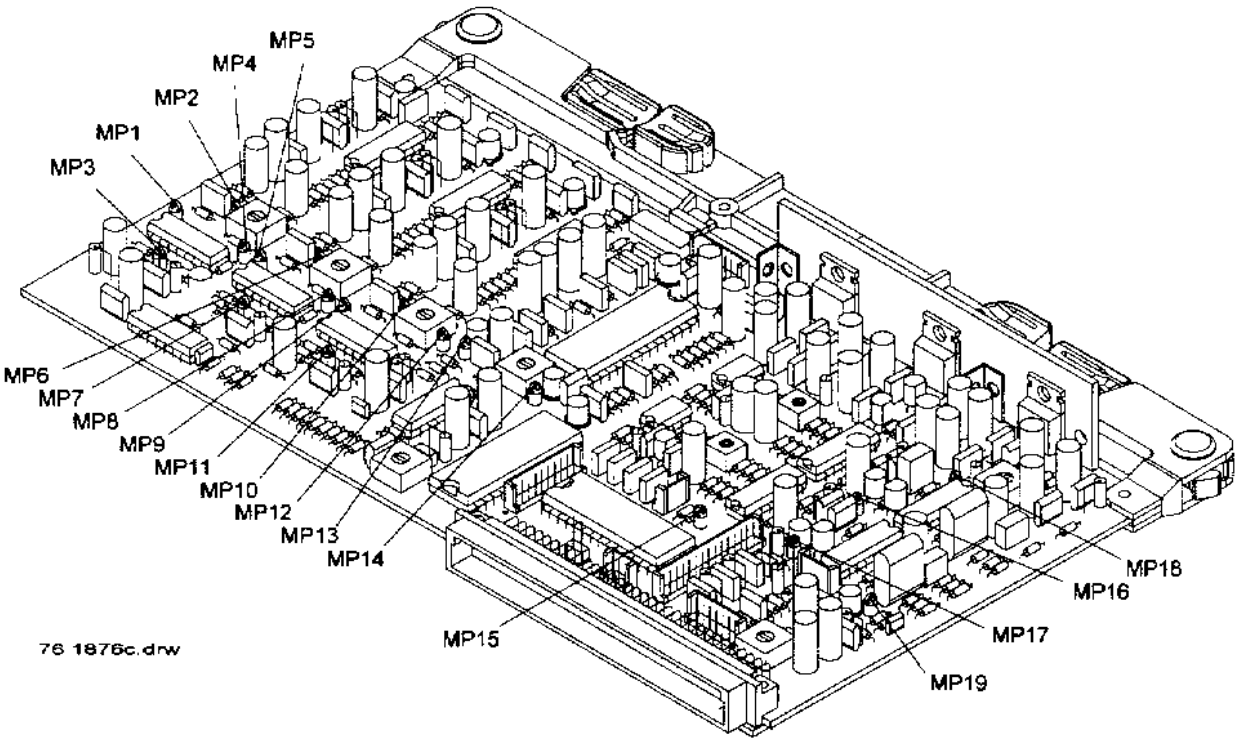


Contrast modulation module

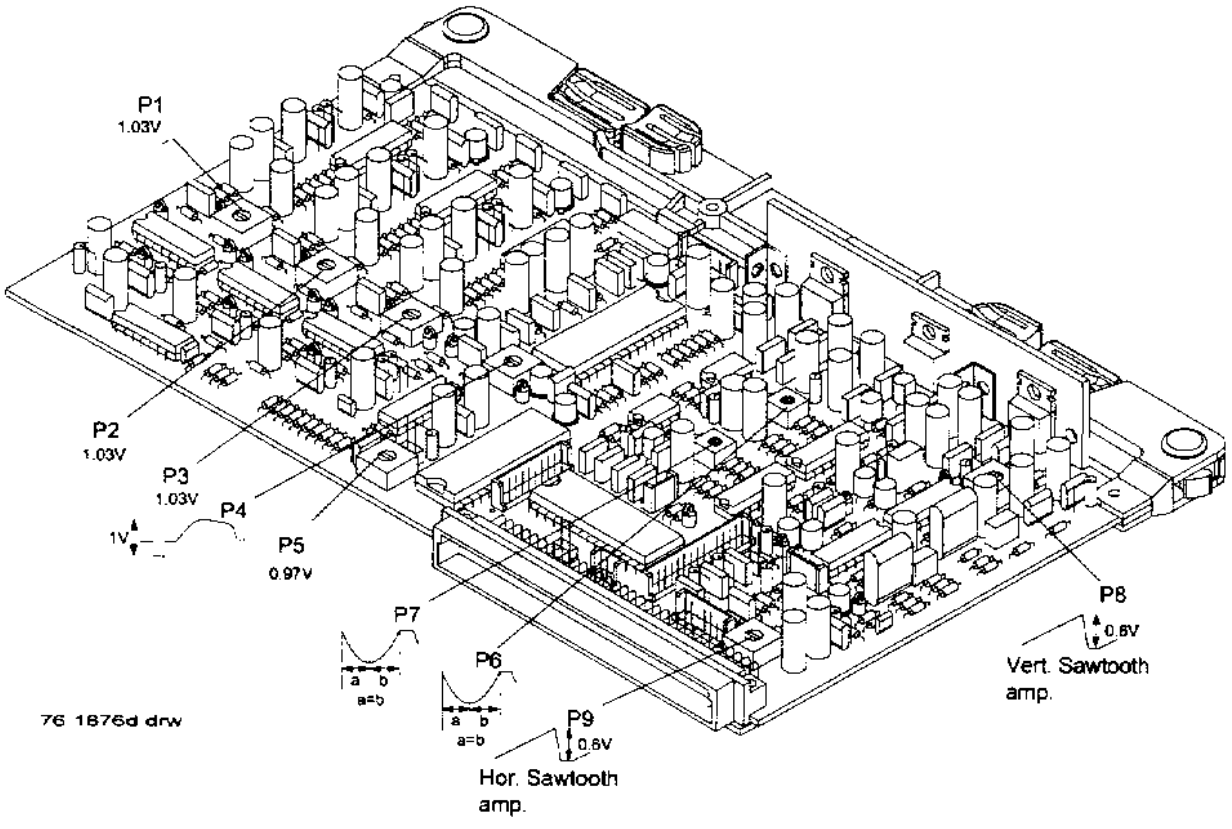
R761876
Kit No: R9827800

Adjustment procedure

Location of measure points (MP)



Location of adjustment points (P)



Recommended input signal of the projector: a complete white image with a horizontal frequence of 64 KHz.

Adjustment of the Horizontal sawtooth amplitude P9

Connect the oscilloscope to the measurepoint MP16.
Adjust the amplitude of the sawtooth signal with the potentiometer P9 for 0.6Vpp.

Symmetry adjustment of the Horizontal parabola P7

Connect the oscilloscope to the measurepoint MP14.
Adjust the potentiometer P7 for a symmetrical parabola signal.

Adjustment of the Vertical sawtooth amplitude P8

Connect the oscilloscope to the measurepoint MP18.
Adjust the amplitude of the sawtooth signal with the potentiometer P8 for 0.6Vpp.

Symmetry adjustment of the Vertical parabola P6

Connect the oscilloscope to the measurepoint MP15.
Adjust the potentiometer P6 for a symmetrical parabola signal.

Video amplitude adjustment P4

Connect the oscilloscope to the measurepoint MP5.
Adjust the amplitude of the video signal with the potentiometer P4 for 1.0 Vpp.

Bias adjustment P5 (if Softedge module is **NOT** installed)

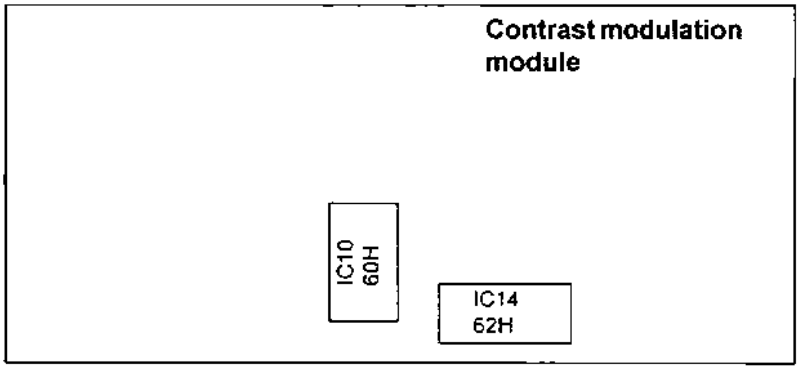
Connect a voltmeter to measurepoint MP11.
Adjust the potentiometer P5 for 0.97V DC on MP11

Black level adjustment P1(Red) P2(Green) P3(Blue)

for Red: Connect a voltmeter to measurepoint MP2.
Adjust the potentiometer P1 for 1.03V on measure point MP2.
for Green: Connect a voltmeter to measurepoint MP6.
Adjust the potentiometer P2 for 1 03V on measure point MP6.
for Blue: Connect a voltmeter to measurepoint MP10.
Adjust the potentiometer P3 for 1.03V on measure point MP10.

Contrast modulation module

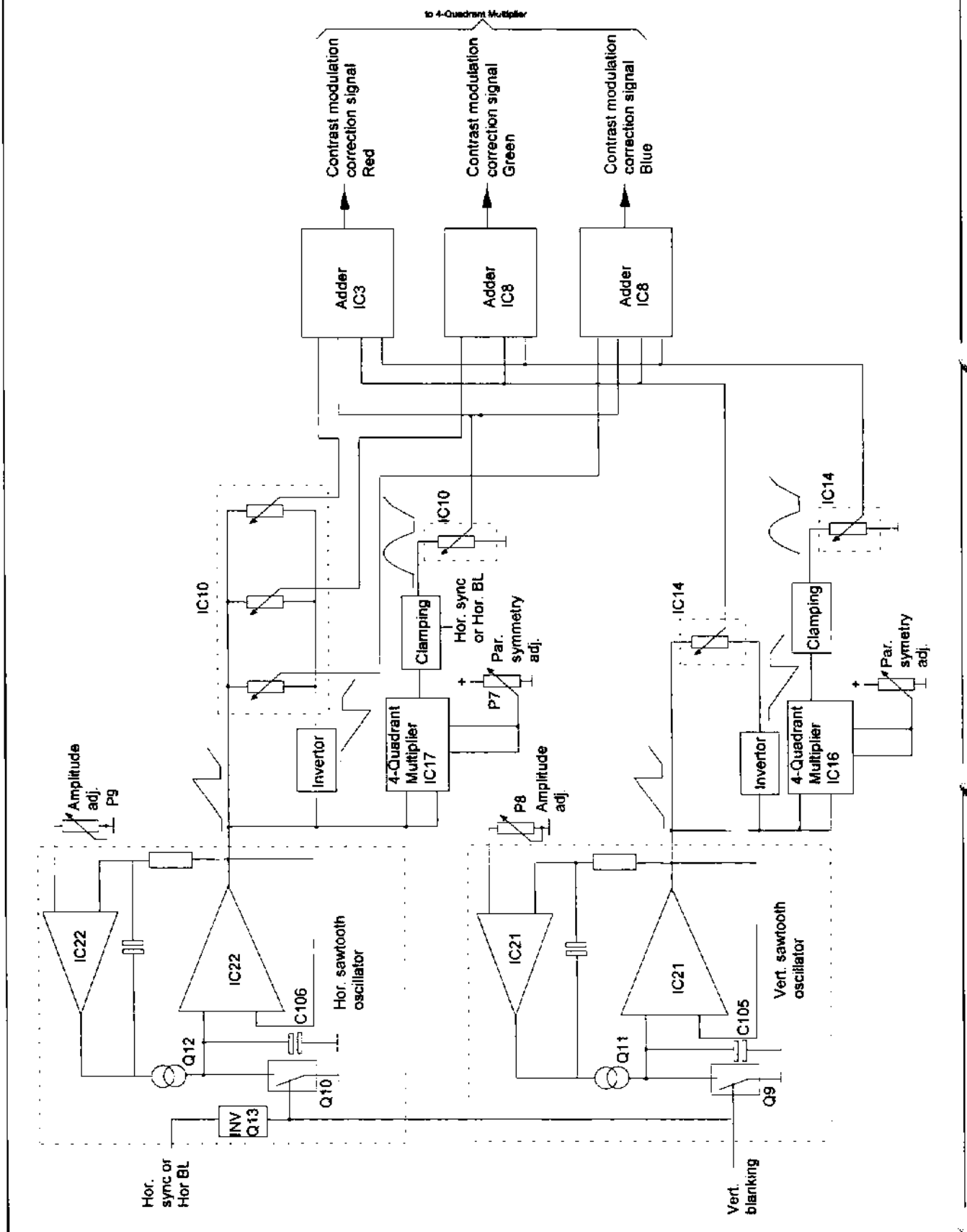
Extra I2C error codes:



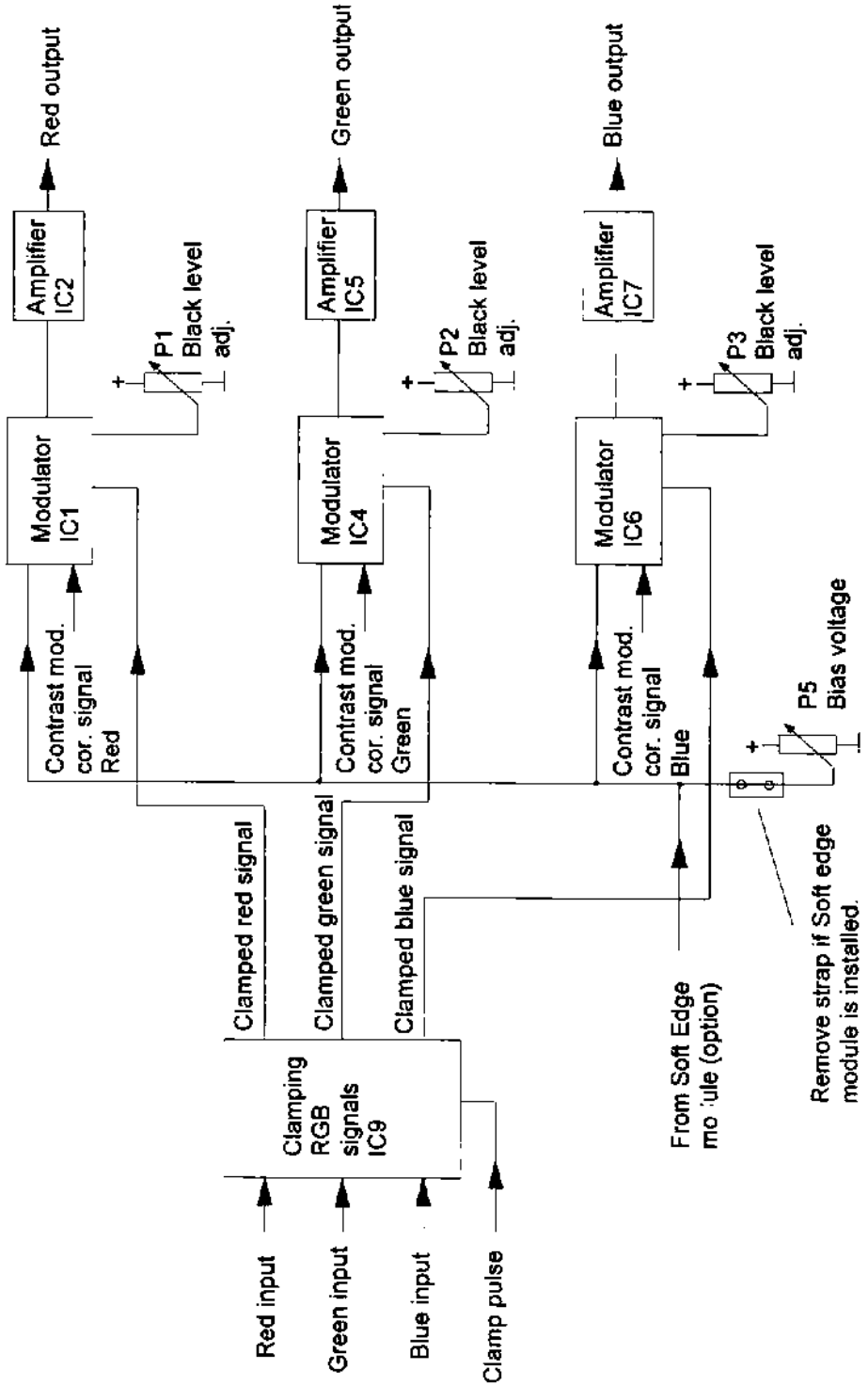
Softedge module			Contrast modulation module		
Hex	**Ic number**	**adjustments**	**Hex**	**Ic number**	**adjustments**
5EH	IC12	Bottom soft edge	60H	IC10	Left-Right
		Top			R Horizontal
		Right			G Horizontal
		Left			B Horizontal
			62H	IC14	Top-Bottom
					Vertical
					Stop soft edge
					Start

Contrast modulation module

R761876
Kit No: R9827800



Contrast modulation module



Contrast modulation module

R761876
Kit No: R9827800

Parts listing R9827800

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
Q A	R1329105	Q BS170 FN SS TO92	1
3000	R3420091	CBLA TIE FIX 5 TM2	1
4000	R348019	CBLA TIE B L100 W2.5	1
2010	R3484105	CD CT SFT P10 365	1
9000	R5930361	BOX404AST 325X180X80 2N	1
9010	R593545	BAG ASTSH 203X300	1
8000	R5975235	INST MAN KIT 9827700	1
2000	**R761876**	**UN CTRS_MOD PJ49**	**1**
9100	R806106	BOXF BAR 265X165X25 PEF	1
R A	V1026426	R MF H 2K74F 0W6 E4	1

Parts listing R761876

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
150	R133014	HTSNK ACC TO18 MNTNG PAD	1
124	R1330291	HTSNK ACC TO220 INSULATOR	1
125	R1330292	HTSNK ACC TO220 BUSH	1
151	R133076	HTSNK ACC TO5 MNTNG PAD	2
160	R3133921	J MD JMP P 1 E1SN	3
	R3484079	CD CT FTMS P 7 120	1
	R3495101	CD CT FTFT P10 300	1
140	R3620167	SCR D84 M 2.5X 16 SS	2
120	R3620216	SCR D84 M 3 X 6 SS	2
121	R3620226	SCR D84 M 3 X 8 SS	1
122	R3661026	NUT D934 M 3 SS	3
142	R3661106	NUT D934 M 2.5 SS	2
170	R3674391	RVT BLND_R3.2C 3.2WSTAL	2
123	R367502	SPR D6798AD 3.2D 6 STZN	3
141	R367528	SPR D6798AD 2.7D 5.5 STZN	2
10	R367699	RVT AVTRON2.5L 8.1 AL	2
1000	R722276	LOCK PJ49 PCB UN CPL	1
100	R802629	HTSNK CST PJ49 RGB PR-AMP	1
110	R802692	HTSNK CST PJ49 FIX HTSNK	2
C 2	R111531	C EL RA 10M M 35E2 85	
C 3	R112747	C CE MI 4N7K100E2	
C 4	R111531	C EL RA 10M M 35E2 85	
C 5	R113724	C POMERA 100N K 63E2 85	
C 6	R111531	C EL RA 10M M 35E2 85	
C 7	R111510	C EL RA 22M M 25E2 85	
C 8	R113724	C POMERA 100N K 63E2 85	
C 9	R111510	C EL RA 22M M 25E2 85	
C 10	R113724	C POMERA 100N K 63E2 85	1
C 12	R111510	C EL RA 22M M 25E2 85	
C 13	R112747	C CE MI 4N7K100E2	
C 14	R111531	C EL RA 10M M 35E2 85	
C 15	R112747	C CE MI 4N7K100E2	
C 16	R113724	C POMERA 100N K 63E2 85	
C 18	R111531	C EL RA 10M M 35E2 85	
C 19	R112747	C CE MI 4N7K100E2	
C 20	R111531	C EL RA 10M M 35E2 85	
C 21	R113724	C POMERA 100N K 63E2 85	
C 22	R111531	C EL RA 10M M 35E2 85	
C 23	R111510	C EL RA 22M M 25E2 85	
C 24	R113724	C POMERA 100N K 63E2 85	
C 25	R111510	C EL RA 22M M 25E2 85	
C 27	R111510	C EL RA 22M M 25E2 85	
C 28	R112747	C CE MI 4N7K100E2	
C 29	R112238	C NP0 MI 47P G100E2	1
C 30	R113724	C POMERA 100N K 63E2 85	
C 32	R111531	C EL RA 10M M 35E2 85	
C 33	R112747	C CE MI 4N7K100E2	
C 34	R111531	C EL RA 10M M 35E2 85	
C 35	R113724	C POMERA 100N K 63E2 85	
C 36	R111531	C EL RA 10M M 35E2 85	
C 37	R111510	C EL RA 22M M 25E2 85	
C 38	R113724	C POMERA 100N K 63E2 85	
C 39	R111510	C EL RA 22M M 25E2 85	
C 41	R111510	C EL RA 22M M 25E2 85	
C 42	R112747	C CE MI 4N7K100E2	
C 43	R111531	C EL RA 10M M 35E2 85	
C 44	R111531	C EL RA 10M M 35E2 85	
C 45	R111531	C EL RA 10M M 35E2 85	
C 46	R112747	C CE MI 4N7K100E2	
C 47	R111531	C EL RA 10M M 35E2 85	
C 48	R112238	C NP0 MI 47P G100E2	
C 49	R113724	C POMERA 100N K 63E2 85	
C 50	R113724	C POMERA 100N K 63E2 85	
C 51	R113724	C POMERA 100N K 63E2 85	
C 52	R113724	C POMERA 100N K 63E2 85	
C 53	R113724	C POMERA 100N K 63E2 85	
C 54	R113724	C POMERA 100N K 63E2 85	
C 55	R113724	C POMERA 100N K 63E2 85	
C 56	R111476	C EL RA 47M M 25E2 85	
C 57	R113724	C POMERA 100N K 63E2 85	
C 58	R112238	C NP0 MI 47P G100E2	
C 59	R112747	C CE MI 4N7K100E2	
C 60	R111531	C EL RA 10M M 35E2 85	
C 61	R112747	C CE MI 4N7K100E2	
C 62	R111531	C EL RA 10M M 35E2 85	
C 63	R111531	C EL RA 10M M 35E2 85	
C 64	R112747	C CE MI 4N7K100E2	1
C 65	R112747	C CE MI 4N7K100E2	
C 66	R111531	C EL RA 10M M 35E2 85	1
C 67	R113724	C POMERA 100N K 63E2 85	1
C 68	R112747	C CE MI 4N7K100E2	1
C 69	R111531	C EL RA 10M M 35E2 85	1
C 70	R111531	C EL RA 10M M 35E2 85	
C 71	R111531	C EL RA 10M M 35E2 85	
C 72	R113724	C POMERA 100N K 63E2 85	
C 73	R113724	C POMERA 100N K 63E2 85	
C 74	R113724	C POMERA 100N K 63E2 85	
C 75	R112747	C CE MI 4N7K100E2	1
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C 77	R113724	C POMERA 100N K 63E2 85	
C 78	R113724	C POMERA 100N K 63E2 85	
C 79	R113724	C POMERA 100N K 63E2 85	
C 80	R111678	C EL BRA 10M M 25E2 85	1
C 81	R113724	C POMERA 100N K 63E2 85	
C 82	R111531	C EL RA 10M M 35E2 85	
C 83	R111531	C EL RA 10M M 35E2 85	
C 84	R113724	C POMERA 100N K 63E2 85	
C 85	R113724	C POMERA 100N K 63E2 85	

C 86	R111531	C EL RA 10M M 35E2 85	
C 87	R111531	C EL RA 10M M 35E2 85	
C 88	R111531	C EL RA 10M M 35E2 85	1
C 89	R111531	C EL RA 10M M 35E2 85	
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C 91	R113724	C POMERA 100N K 63E2 85	
C 92	R113724	C POMERA 100N K 63E2 85	
C 93	R113724	C POMERA 100N K 63E2 85	
C 94	R111531	C EL RA 10M M 35E2 85	
C 95	R111531	C EL RA 10M M 35E2 85	
C 96	R111531	C EL RA 10M M 35E2 85	
C 97	R111531	C EL RA 10M M 35E2 85	
C 98	R112747	C CE MI 4N7K100E2	
C 99	R112747	C CE MI 4N7K100E2	
C100	R113724	C POMERA 100N K 63E2 85	
C101	R113724	C POMERA 100N K 63E2 85	
C102	R113724	C POMERA 100N K 63E2 85	
C103	R111531	C EL RA 10M M 35E2 85	
C104	R111531	C EL RA 10M M 35E2 85	
C105	R114090	C POMERA 1M M 63E2 85	1
C106	R112747	C CE MI 4N7K100E2	
C107	R113724	C POMERA 100N K 63E2 85	
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C110	R112747	C CE MI 4N7K100E2	
C111	R111531	C EL RA 10M M 35E2 85	
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C113	R112747	C CE MI 4N7K100E2	
C114	R111531	C EL RA 10M M 35E2 85	1
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C116	R111531	C EL RA 10M M 35E2 85	
C117	R111531	C EL RA 10M M 35E2 85	
C118	R113728	C POMERA 220N K 63E2 85	
C119	R111531	C EL RA 10M M 35E2 85	1
C120	R113730	C POMERA 330N K 63E2 85	
C121	R113728	C POMERA 220N K 63E2 85	
C122	R112747	C CE MI 4N7K100E2	
C123	R113730	C POMERA 330N K 63E2 85	
C124	R112747	C CE MI 4N7K100E2	
C125	R111531	C EL RA 10M M 35E2 85	
C126	R111531	C EL RA 10M M 35E2 85	
C127	R112747	C CE MI 4N7K100E2	1
C128	R112240	C NP0 MI 68P G100E2	1
C129	R112763	C CE MI 10N Z 50E2	1
C130	R112236	C NP0 MI 33P G100E2	1
C130	R112763	C CE MI 10N Z 50E2	1
C131	R111531	C EL RA 10M M 35E2 85	1
D 1	R131621	D S 1N4148 075150 DO35	
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 4	R1316361	D Y BAT85 030200 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R131621	D S 1N4148 075150 DO35	
D 8	R131621	D S 1N4148 075150 DO35	
D 9	R131621	D S 1N4148 075150 DO35	
D 10	R131621	D S 1N4148 075150 DO35	
I 1	R134222	U 1495 MC DIP14 P	1
I 2	R134221	U 592 NE DIP14 P	1
I 3	R134125	U 34084 DIP14 P	1
I 4	R134222	U 1495 MC DIP14 P	1
I 5	R134221	U 592 NE DIP14 P	1
I 5	R134222	U 1495 MC DIP14 P	1
I 7	R134221	U 592 NE DIP14 P	1
I 8	R134125	U 34084 DIP14 P	1
I 9	R132826	U 1203 LM DIP28 P	1
I 10	R132833	U BELLA 3 DIP28 P	1
I 11	R134124	U 082 TL DIP8 P	1
I 12	R134124	U 082 TL DIP8 P	1
I 13	R134016	U 7912 TO220 P	1
I 14	R132833	U BELLA 3 DIP28 P	1
I 15	R134002	U 7812 TO220 P	1
I 16	R134222	U 1495 MC DIP14 P	1
I 17	R134222	U 1495 MC DIP14 P	1
I 18	R134028	U 317LZ LM TO92 P	1
I 19	R134029	U 337LZ TO92 P	1
I 20	R134001	U 7805 TO220 P	1
I 21	R134113	U 084 TL DIP14 P	1
I 22	R134125	U 34084 DIP14 P	1
J 2	R313927	J CT H MBT P 7 M2SN	1
J 3	R313276	J MO1 C MBT P10 R1SN 7.5	1
J 8	R313930	J CT H MBT P10 M2SN	1
J 10	R313531	J EUR2C$MBS P64 E1C3S 1.6	1
J 11	R313276	J MO1 C MBT P10 R1SN 7.5	1
J 12	R313923	J CT H MBT P 3 M2SN	1
J 13	R313923	J CT H MBT P 3 M2SN	1
J 15	R313935	J CT H MBT P15 M2SN	1
J 17	R313276	J MO1 C MBT P10 R1SN 7.5	1
J 18	R313927	J CT H MBT P 7 M2SN	1
J 19	R313924	J CT H MBT P 4 M2SN	1
MP 1	R313729	J PIN TESTEYE	19
P 1	R106725	R TCE H500E K 0W5 S10TS	1
P 2	R106725	R TCE H500E K 0W5 S10TS	1
P 3	R106725	R TCE H500E K 0W5 S10TS	1
P 4	R106729	R TCE H 10K K 0W5 S10TS	1
P 5	R106730	R TCE H 20K K 0W5 S10TS	1
P 6	R107004	R TCE H200E K 0W5 S 7TS	1
P 7	R107004	R TCE H200E K 0W5 S 7TS	1
P 8	R106727	R TCE H 2K K 0W5 S10TS	1
P 9	R106727	R TCE H 2K K 0W5 S10TS	1
PC	R780226	PCD PJ49 CTRS_MOD	1
Q 1	R132911	Q 2N5583 P SS TO39	1
Q 2	R132911	Q 2N5583 P SS TO39	1
Q 3	R132911	Q 2N5583 P SS TO39	1
Q 4	R131491	Q BSX20 N SS TO18	1
Q 5	R131491	Q BSX20 N SS TO18	1
Q 6	R131491	Q BSX20 N SS TO18	1
Q 7	R131491	Q BSX20 N SS TO18	1
Q 8	R1329105	Q BS170 FN SS TO92	1
Q 9	R1314295	Q BC549B N SS TO92	
Q 10	R131491	Q BSX20 N SS TO18	1
Q 11	R1314181	Q BC559B P SS TO92	
Q 12	R1314181	Q BC559B P SS TO92	
Q 13	R131491	Q BSX20 N SS TO18	1
R 1	R101508	R MF H 4E7 F 0W4 E3	1
R 2	R101541	R MF H 2K7 F 0W4 E3	
R 3	R101534	R MF H680E F 0W4 E3	
R 4	R101532	R MF H470E F 0W4 E3	
R 5	R101539	R MF H 1K8 F 0W4 E3	
R 6	R101548	R MF H 10K F 0W4 E3	
R 7	R101512	R MF H 10E F 0W4 E3	
R 8	R101534	R MF H680E F 0W4 E3	
R 10	R101523	R MF H 82E F 0W4 E3	
R 11	R101536	R MF H 1K F 0W4 E3	
R 12	R101544	R MF H 4K7 F 0W4 E3	
R 13	R101512	R MF H 10E F 0W4 E3	
R 14	R101549	R MF H 12K F 0W4 E3	
R 15	R101512	R MF H 10E F 0W4 E3	

Contrast modulation module

R 16	R101550	R MF H 15K F 0W4 E3
R 17	R101548	R MF H 10K F 0W4 E3
R 18	R101550	R MF H 15K F 0W4 E3
R 19	R101534	R MF H680E F 0W4 E3
R 20	R101546	R MF H 6K8 F 0W4 E3
R 21	R101532	R MF H470E F 0W4 E3
R 22	R101540	R MF H 2K2 F 0W4 E3
R 23	R101529	R MF H270E F 0W4 E3
R 24	R101512	R MF H 10E F 0W4 E3
R 25	R101508	R MF H 4E7 F 0W4 E3
R 26	R101541	R MF H 2K7 F 0W4 E3
R 27	R101534	R MF H680E F 0W4 E3
R 28	R101532	R MF H470E F 0W4 E3
R 29	R101539	R MF H 1K8 F 0W4 E3
R 30	R101548	R MF H 10K F 0W4 E3
R 31	R101512	R MF H 10E F 0W4 E3
R 32	R101534	R MF H680E F 0W4 E3
R 33	R101512	R MF H 10E F 0W4 E3
R 35	R101523	R MF H 82E F 0W4 E3
R 36	R101536	R MF H 1K F 0W4 E3
R 37	R101544	R MF H 4K7 F 0W4 E3
R 38	R101512	R MF H 10E F 0W4 E3
R 39	R101549	R MF H 12K F 0W4 E3
R 40	R101512	R MF H 10E F 0W4 E3
R 41	R101550	R MF H 15K F 0W4 E3
R 42	R101548	R MF H 10K F 0W4 E3
R 43	R101550	R MF H 15K F 0W4 E3
R 44	R101534	R MF H680E F 0W4 E3
R 45	R101546	R MF H 6K8 F 0W4 E3
R 46	R101532	R MF H470E F 0W4 E3
R 47	R101540	R MF H 2K2 F 0W4 E3
R 48	R101529	R MF H270E F 0W4 E3
R 49	R101548	R MF H 10K F 0W4 E3
R 50	R101548	R MF H 10K F 0W4 E3
R 51	R101512	R MF H 10E F 0W4 E3
R 52	R101548	R MF H 10K F 0W4 E3
R 53	R101508	R MF H 4E7 F 0W4 E3
R 54	R101541	R MF H 2K7 F 0W4 E3
R 55	R101534	R MF H680E F 0W4 E3
R 56	R101532	R MF H470E F 0W4 E3
R 57	R101539	R MF H 1K8 F 0W4 E3
R 58	R101548	R MF H 10K F 0W4 E3
R 59	R101512	R MF H 10E F 0W4 E3
R 60	R101534	R MF H680E F 0W4 E3
R 61	R101548	R MF H 10K F 0W4 E3
R 62	R101548	R MF H 10K F 0W4 E3
R 63	R101548	R MF H 10K F 0W4 E3
R 65	R101523	R MF H 82E F 0W4 E3
R 66	R101536	R MF H 1K F 0W4 E3
R 67	R101544	R MF H 4K7 F 0W4 E3
R 68	R101512	R MF H 10E F 0W4 E3
R 69	R101549	R MF H 12K F 0W4 E3
R 70	R101512	R MF H 10E F 0W4 E3
R 71	R101550	R MF H 15K F 0W4 E3
R 72	R101548	R MF H 10K F 0W4 E3
R 73	R101550	R MF H 15K F 0W4 E3
R 74	R101534	R MF H680E F 0W4 E3
R 75	R101546	R MF H 6K8 F 0W4 E3
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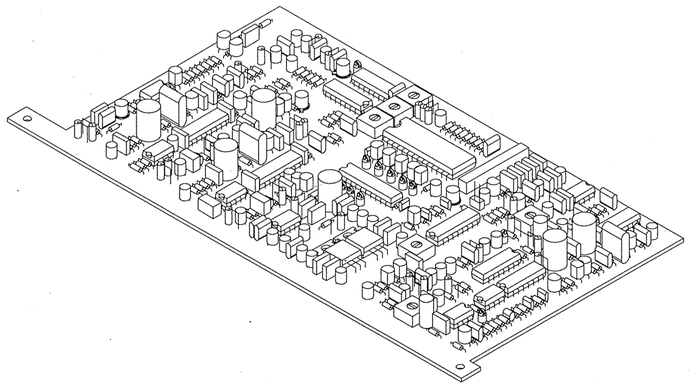
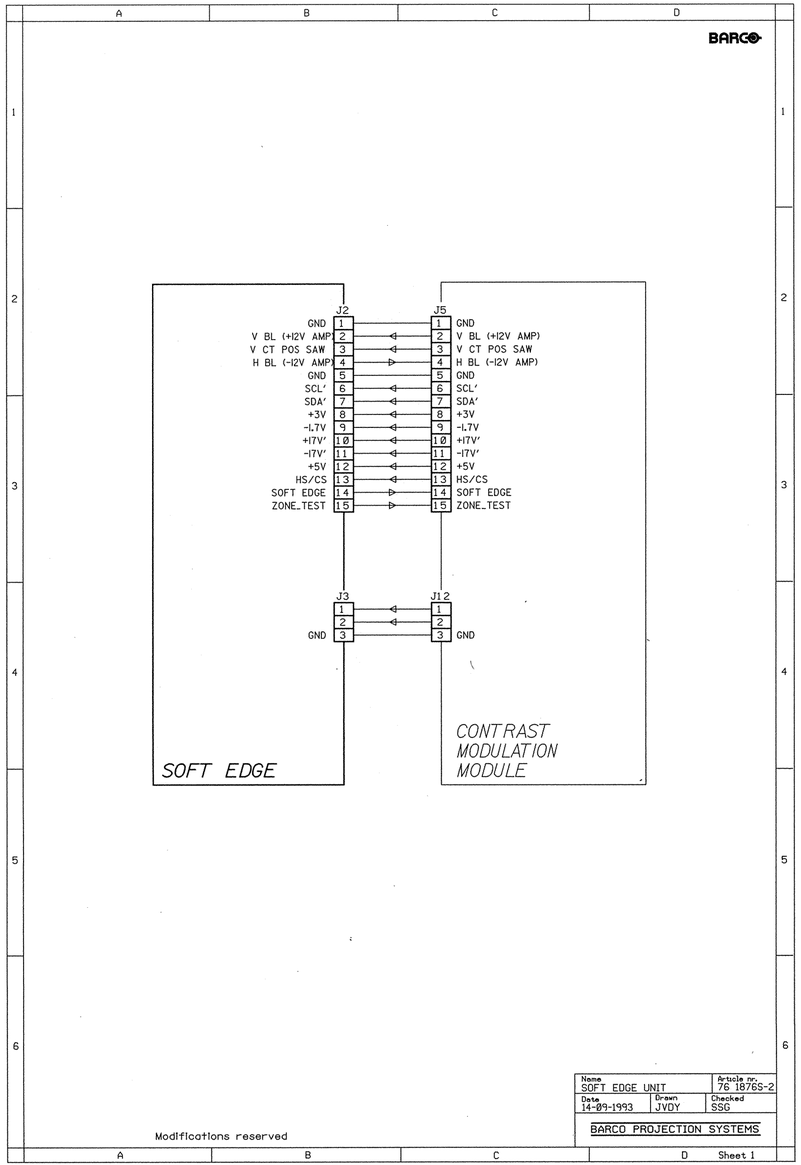
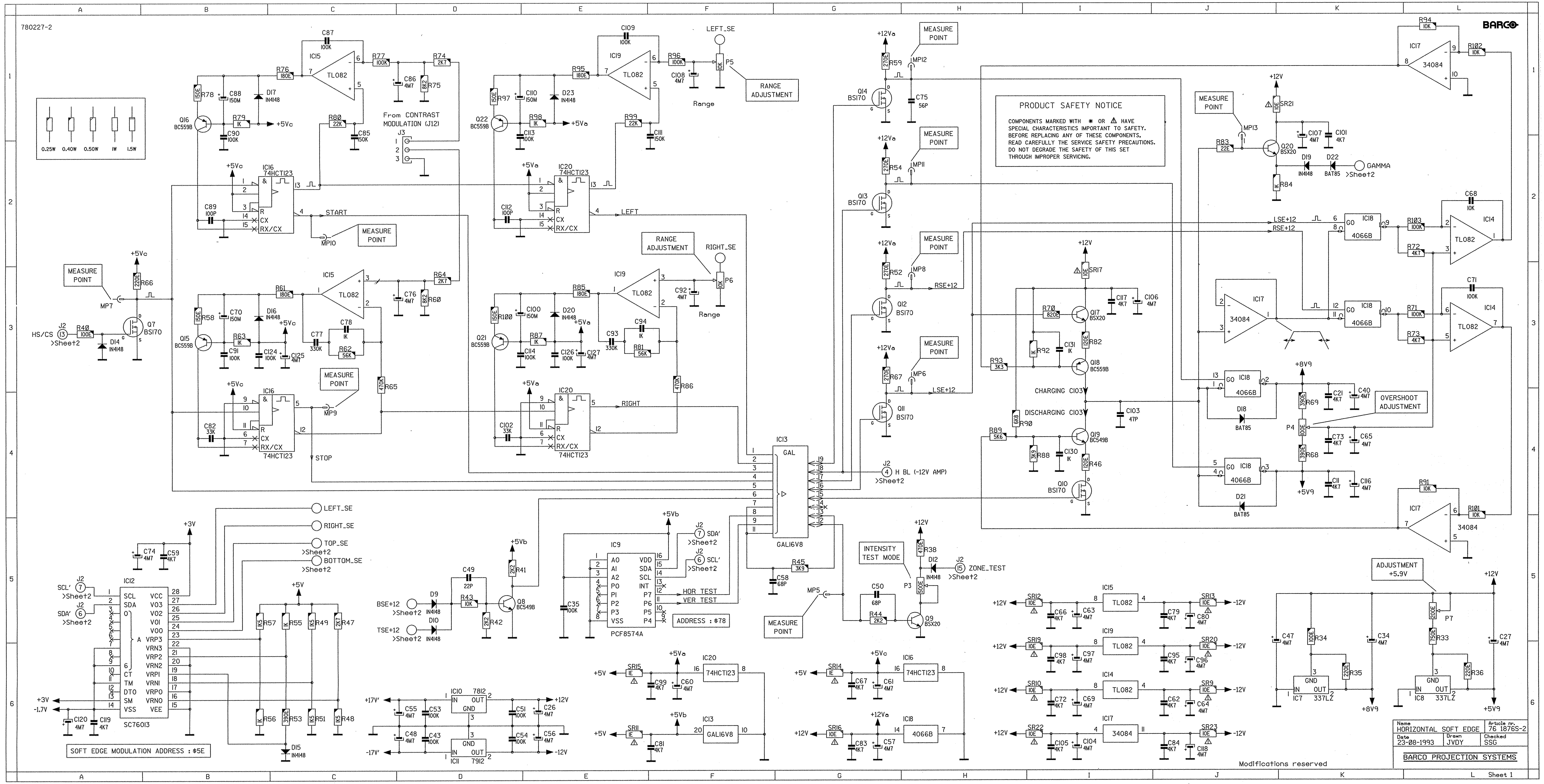
Softedge module

76 1876S







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C9	C 4	sheet 2
C10	I 5	sheet 2
C11	K 4	sheet 1
C12	I 5	sheet 2
C13	H 4	sheet 2
C14	C 4	sheet 2
C15	D 2	sheet 2
C16	D 2	sheet 2
C17	I 5	sheet 2
C18	I 5	sheet 2
C19	A 2	sheet 2
C20	A 2	sheet 2
C21	K 4	sheet 1
C22	C 2	sheet 2
C23	C 2	sheet 2
C24	A 2	sheet 2
C25	A 2	sheet 2
C26	E 6	sheet 1
C27	L 5	sheet 1
C28	A 1	sheet 2
C29	A 1	sheet 2
C30	B 1	sheet 2
C31	A 1	sheet 2
C32	A 1	sheet 2
C33	J 4	sheet 2
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C38	B 1	sheet 2
C39	J 3	sheet 2
C40	K 3	sheet 1
C41	I 3	sheet 2
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C43	D 6	sheet 1
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C45	B 6	sheet 2
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C47	K 5	sheet 1
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C50	G 5	sheet 1
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C111	F 1	sheet 1
C112	D 2	sheet 1
C113	E 1	sheet 1
C114	E 3	sheet 1

COMP.	LOC.	SHEET
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C119	A 6	sheet 1
C120	A 6	sheet 1
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C122	F 1	sheet 2
C123	F 1	sheet 2
C124	B 3	sheet 1
C125	C 3	sheet 1
C126	E 3	sheet 1
C127	E 3	sheet 1
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D2	C 3	sheet 2
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D4	C 3	sheet 2
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D6	F 6	sheet 2
D7	H 6	sheet 2
D8	H 5	sheet 2
D9	D 5	sheet 1
D10	D 5	sheet 1
D11	I 3	sheet 2
D12	H 5	sheet 1
D13	I 3	sheet 2
D14	A 3	sheet 1
D15	C 6	sheet 1
D16	B 3	sheet 1
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MP3	E 6	sheet 2
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COMP.	LOC.	SHEET
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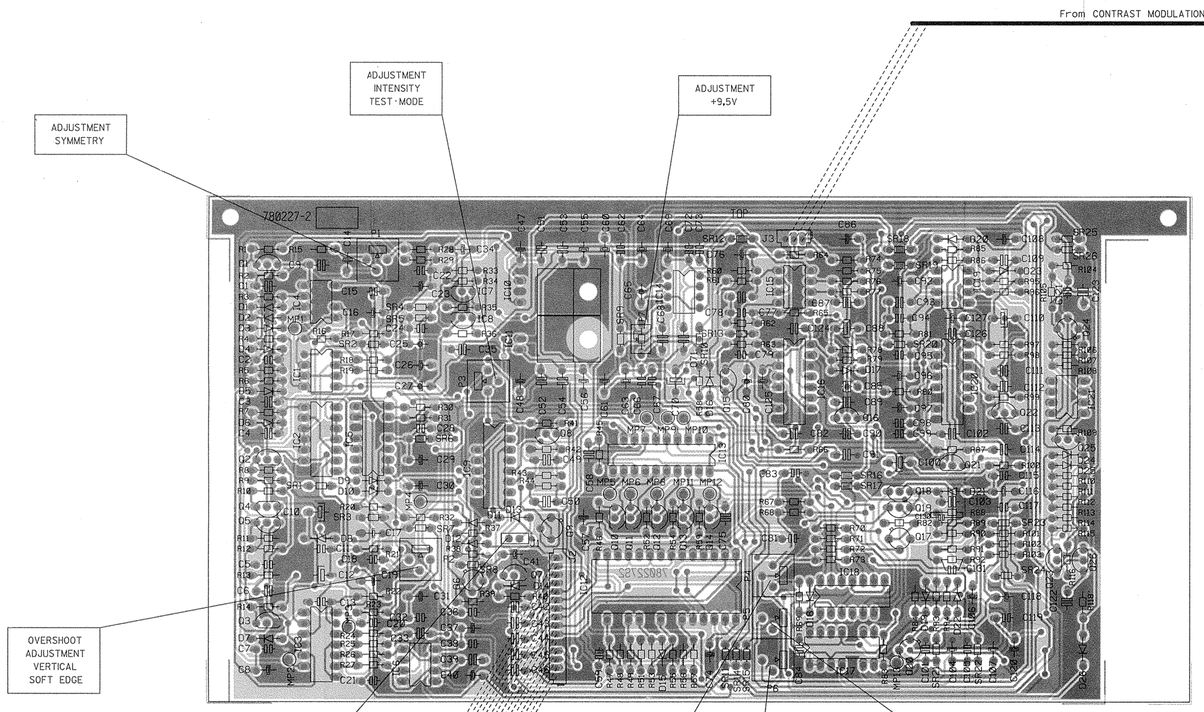

Name		Article nr.
SOFT EDGE		76 18765-2
Date	Drawn	Checked
14-09-1993	JVDY	SSG

BARCO PROJECTION SYSTEMS

Modifications reserved

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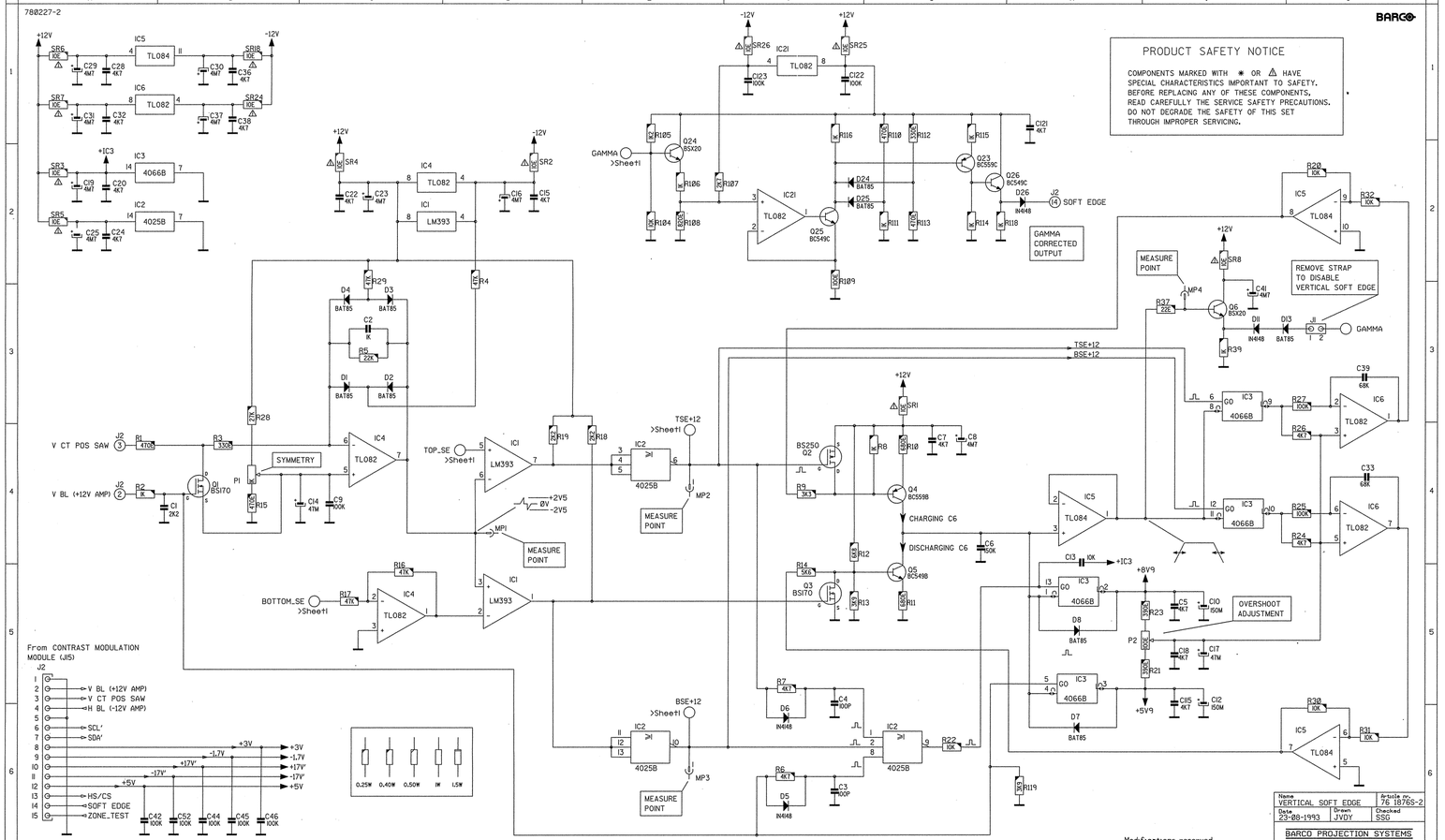
C5	B 4	D8	C 4	R39	D 4
C6	B 4	D9	C 3	R40	D 4
C7	B 4	D10	C 3	R41	D 3
C8	B 4	D11	D 4	R42	D 3
C9	C 2	D12	D 4	R43	D 3
C10	C 4	D13	D 4	R44	D 3
C11	C 4	D14	D 4	R45	D 3
C12	C 4	D15	E 5	R46	D 4
C13	C 4	D16	E 3	R47	D 5
C14	C 2	D17	F 3	R48	D 5
C15	C 2	D18	E 4	R49	D 5
C16	C 3	D19	F 4	R51	E 5
C17	C 4	D20	F 2	R52	E 4
C18	C 4	D21	F 3	R53	E 5
C19	C 4	D22	F 4	R54	E 4
C20	C 4	D23	F 2	R55	E 5
C21	C 4	D24	G 3	R56	E 5
C22	C 2	D25	G 3	R57	E 5
C23	C 2	D26	G 5	R58	E 3
C24	C 3			R59	E 4
C25	C 3	IC1	C 3	R60	E 2
C26	C 3	IC2	C 3	R61	E 2
C27	C 3	IC3	C 4	R62	E 3
C28	C 3	IC4	C 3	R63	E 3
C29	C 3	IC5	C 3	R64	E 2
C30	C 3	IC6	C 4	R65	E 3
C31	C 4	IC7	D 2	R66	E 3
C32	C 4	IC8	D 3	R67	E 4
C33	C 4	IC9	D 3	R68	E 4
C34	D 2	IC10	D 2	R69	E 4
C35	D 3	IC11	D 3	R70	F 4
C36	D 4	IC12	D 4	R71	F 4
C37	D 4	IC13	E 3	R72	F 4
C38	D 4	IC14	E 2	R73	F 4
C39	D 4	IC15	E 2	R74	F 2
C40	D 4	IC16	E 3	R75	F 2
C41	D 4	IC17	F 4	R76	F 2
C42	D 4	IC18	F 4	R77	F 2
C43	D 4	IC19	F 2	R78	F 3
C44	D 4	IC20	F 3	R79	F 3
C45	D 4	IC21	G 3	R80	F 3
C46	D 4			R81	F 3
C47	D 2	J1	D 4	R82	F 4
C48	D 3	J2	D 4	R83	F 4
C49	D 3	J3	E 2	R84	F 4
C50	D 4			R85	F 2
C51	D 2	MP1	C 3	R86	F 2
C52	D 3	MP2	C 5	R87	F 3
C53	D 2	MP3	C 4	R88	F 4
C54	D 3	MP4	C 4	R89	F 4
C55	D 2	MP5	D 3	R90	F 4
C56	D 3	MP6	D 3	R91	F 4
C57	D 4	MP7	D 3	R92	F 4
C58	D 3	MP8	E 3	R93	F 4
C59	D 5	MP9	E 3	R94	F 4
C60	D 2	MP10	E 3	R95	F 2
C61	D 3	MP11	E 3	R96	F 2
C62	D 2	MP12	E 3	R97	F 3
C63	D 3	MP13	F 5	R98	F 3
C64	E 2			R99	F 3
C65	D 2	P1	C 2	R100	F 3
C66	E 3	P2	D 4	R101	F 4
C67	E 3	P3	D 3	R102	F 4
C68	E 2	P4	E 4	R103	F 4
C69	E 2	P5	E 4	R104	F 2
C70	E 3	P6	E 5	R105	G 2
C71	E 3	P7	E 3	R106	G 3
C72	E 2			R107	G 3
C73	E 2	Q1	B 2	R108	G 3
C74	E 5	Q2	B 3	R109	G 3
C75	E 4	Q3	B 4	R110	G 3
C76	E 2	Q4	B 4	R111	G 3
C77	E 3	Q5	B 4	R112	G 4
C78	E 3	Q6	D 4	R113	G 4
C79	E 3	Q7	F 4	R114	G 4
C80	E 3	Q8	D 3	R115	G 4
C81	E 4	Q9	D 4	R116	G 4
C82	E 3	Q10	D 4	R118	G 4
C83	E 3	Q11	D 4		
C84	E 4	Q12	E 4	SR1	C 3
C85	F 3	Q13	E 4	SR2	C 3
C86	F 3	Q14	E 4	SR3	C 4
C87	E 2	Q15	E 3	SR4	C 3
C88	F 3	Q16	F 3	SR5	C 3
C89	F 3	Q17	F 4	SR6	C 3
C90	F 3	Q18	F 3	SR7	C 4
C91	F 3	Q19	F 4	SR8	D 4
C92	F 2	Q20	F 4	SR9	D 3
C93	F 2	Q21	F 3	SR10	E 3
C94	F 3	Q22	F 3	SR11	F 5
C95	F 3	Q23	G 4	SR12	E 2
C96	F 3	Q24	G 3	SR13	E 3
C97	F 3	Q25	G 3	SR14	E 5
C98	F 3	Q26	G 4	SR15	E 5
C99	F 3			SR16	F 3
C100	F 3	R1	B 2	SR17	F 3
C101	F 4	R2	B 2	SR18	F 2
C102	F 3	R3	B 2	SR19	F 2
C103	F 4	R4	B 3	SR20	F 3
C104	F 4	R5	B 3	SR21	F 5
C105	F 4	R6	B 3	SR22	F 4
C106	F 4	R7	B 3	SR23	F 4
C107	F 4	R8	B 3	SR24	F 4
C108	F 2	R9	B 3	SR25	G 2
C109	F 2	R10	B 3	SR26	G 2
C110	F 3	R11	B 4		
C111	G 3	R12	B 4		
C112	F 3	R13	B 4		
C113	F 3	R14	B 4		
C114	F 3	R15	C 2		
C115	F 3	R16	C 3		
C116	F 3	R17	C 3		
C117	F 4	R18	C 3		
C118	F 4	R19	C 3		
C119	F 4	R20	C 4		
C120	F 4	R21	C 4		
C121	G 2	R22	C 4		
C122	G 4	R23	C 4		
C123	G 2	R24	C 4		
C124	E 3	R25	C 4		
C125	E 3	R26	C 4		
C126	F 3	R27	C 4		
C127	F 3	R28	D 2		
C130	F 4	R29	D 2		
C131	F 4	R30	D 3		
		R31	D 3		
D1	B 3	R32	D 4		
D2	B 3	R33	D 2		
D3	B 3	R34	D 2		

780227-2

BARCO

PRODUCT SAFETY NOTICE

COMPONENTS MARKED WITH ✱ 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.



Modifications reserved

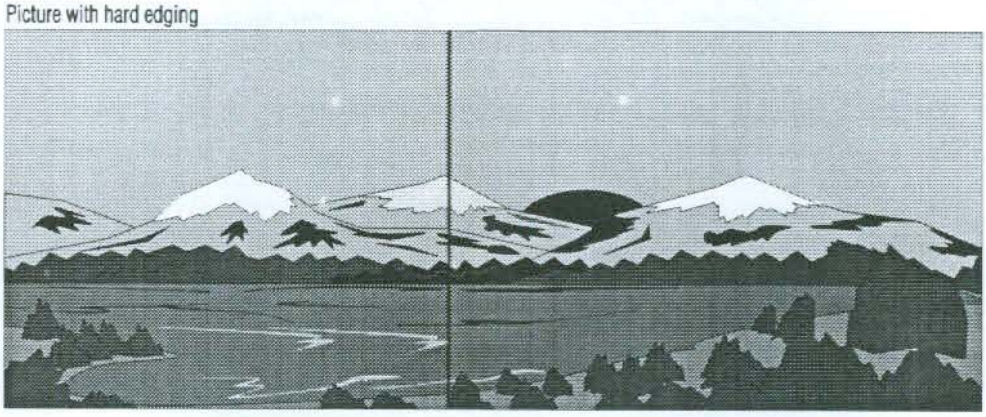
Name: VERTICAL SOFT EDGE		Article no.: 76 1876S-2
Date: 23-08-1993	Drawn: JVDY	Checked: SSG

BARCO PROJECTION SYSTEMS

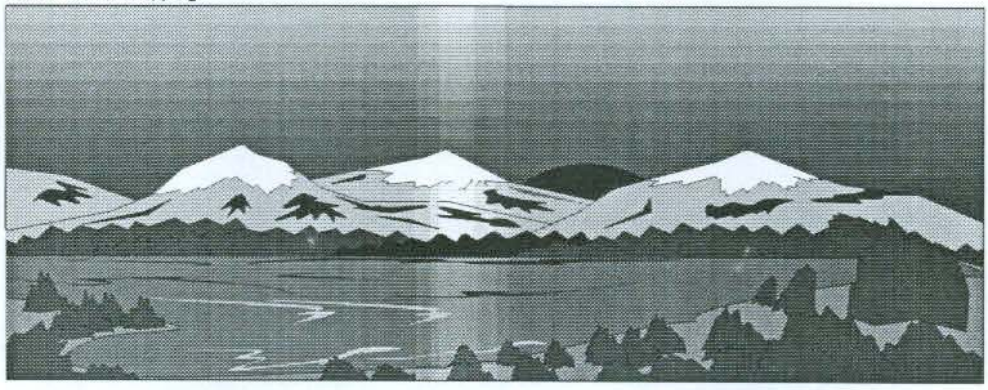
Sheet 2

BARCO's Soft Edge Matching and Contrast Modulation for CRT Projectors

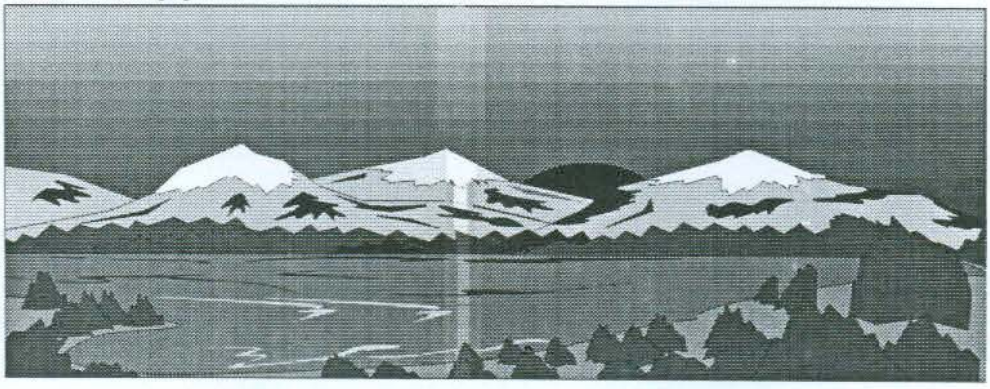
Picture with hard edging



Picture with overlapping



Picture with soft edging



Today multi-screen installations are popular for many applications e.g. in the simulation industry. In these installations, the goal is to obtain a contiguous matched image, forming one homogenous view.

The soft edge matching feature provides a solution to the annoying side effects when adjusting two or more projected images next to each other.

Even when the projectors are perfectly installed and adjusted, the edge between two successive images can be noticed (hard edge). To improve this junction, both images must be overlapping within a certain percentage (e.g. 5 %) of the total screen width . During the overlapping period, both videosignals are modulated by appropriate waveforms so that the resulting light output equals the rest of the image.

Softedge module

R761876S
Kit No: R9827810

Features

- Can be implemented on all BARCO CRT projectors, except the Barco Retro Series and Barcovision 701 series.
- The option occupies the place of the input module on port 3. Source 3 (Second RGB analog input) is no longer available.
- Improves the overall light output uniformity.
- Modulates red and blue video signals to overcome color shift errors.
- Improves top/bottom and left/right edge matching.
- The overlapping width can be modified (0-15% of the screen width).
- Gamma correction on modulation signals.
- Adjustments are frequency tracked (vertical and horizontal).
  Frequency range:15 ... 135 kHz
  Bandwidth: 60 MHz

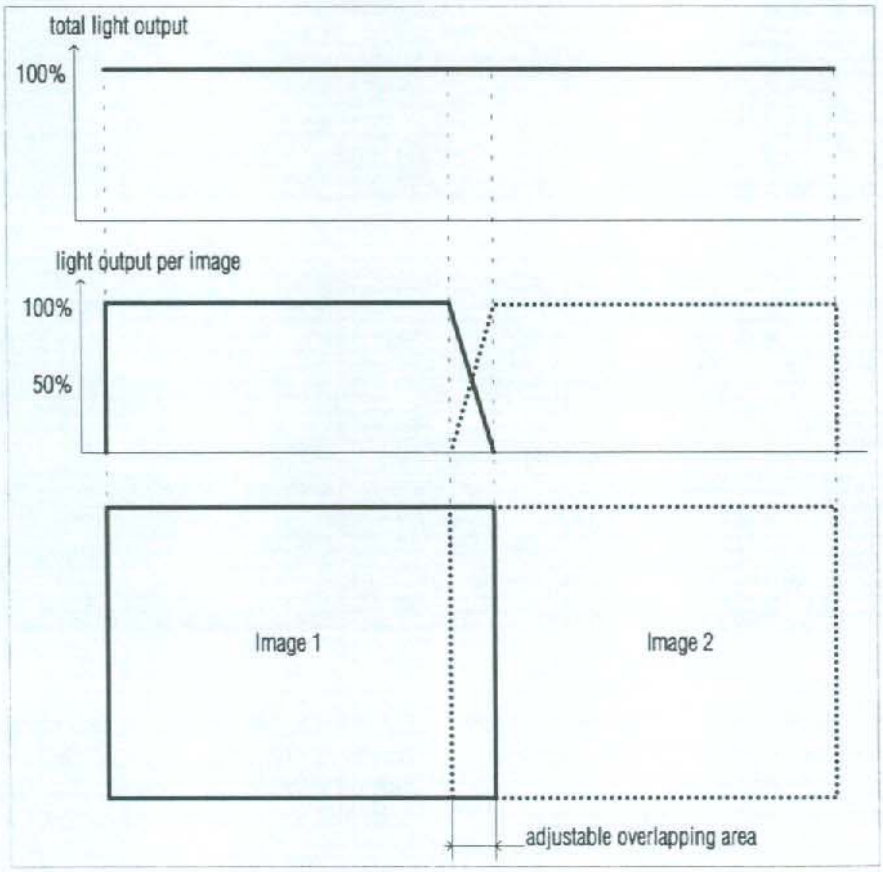
COMPATIBILITY

BD701
BD801s and BG801s series
BG808, BD808, BD1101, BV1209HD, BV1600 series, BG1208 and BG1209

ORDER INFORMATION:

Factory fitted Add-In Board	CM/SE
Retro fitted Add-in Board	R9827810

BASIC CONCEPT



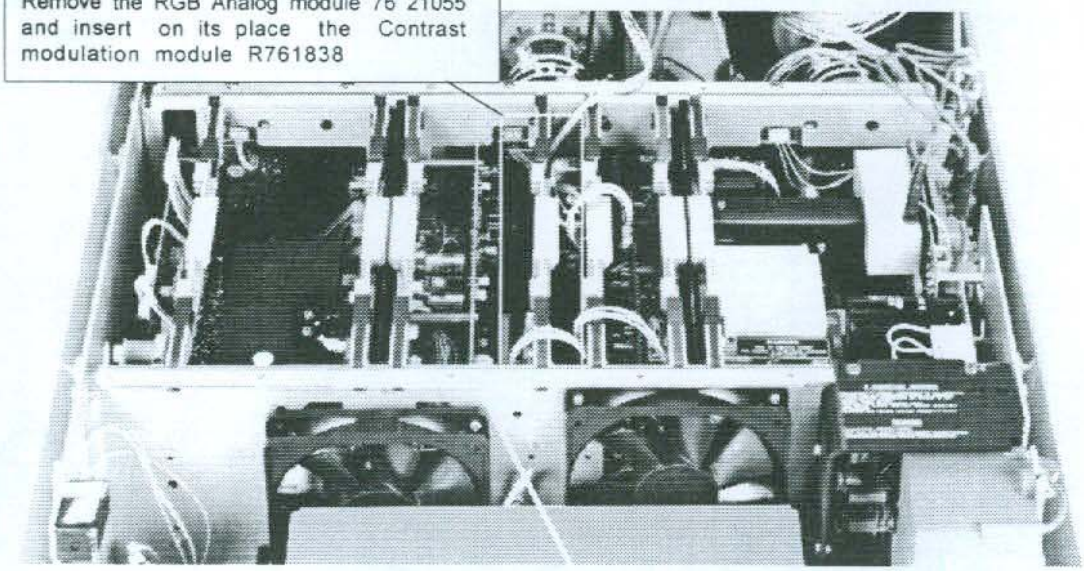
Softedge module

R761876S
Kit No: R9827810

Mechanical mounting

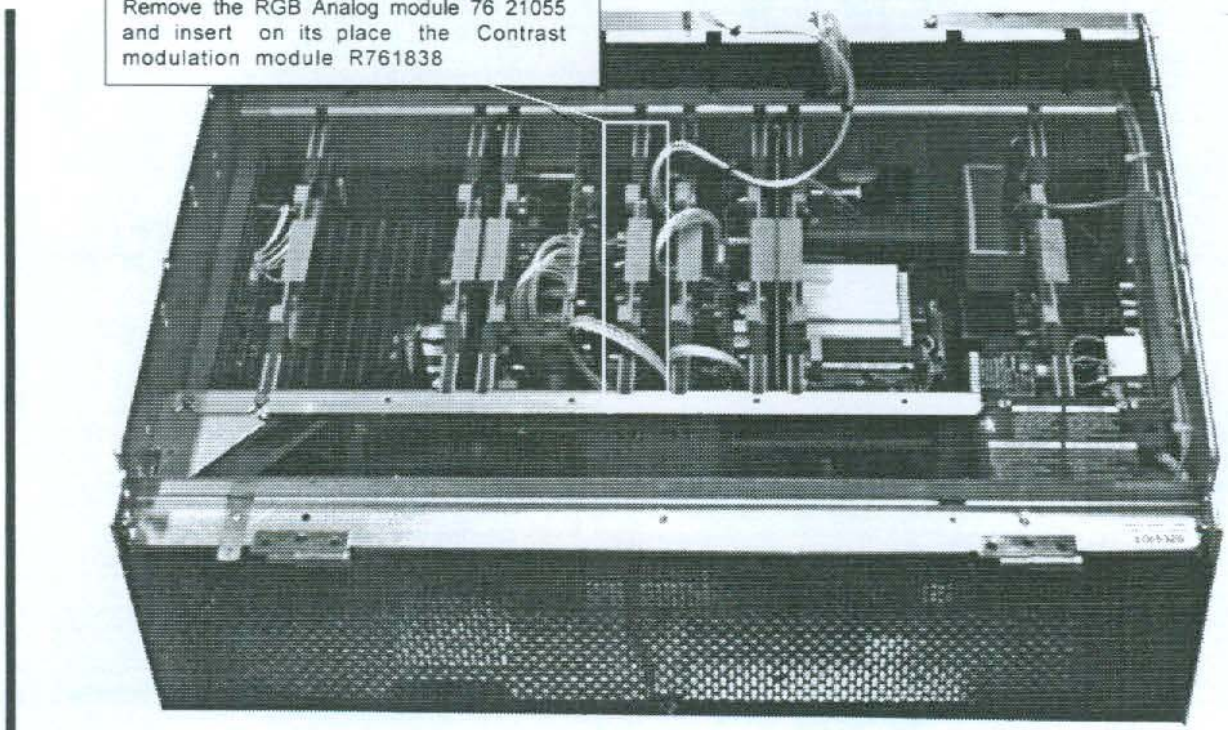
chassis configuration *800/*1200 series

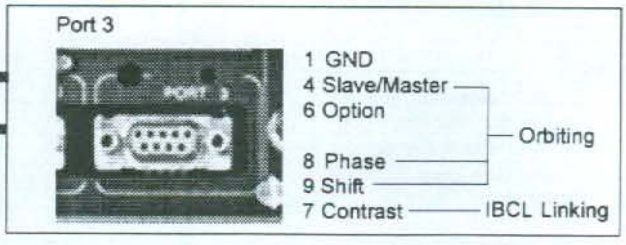
Remove the RGB Analog module 76 21055 and insert on its place the Contrast modulation module R761838



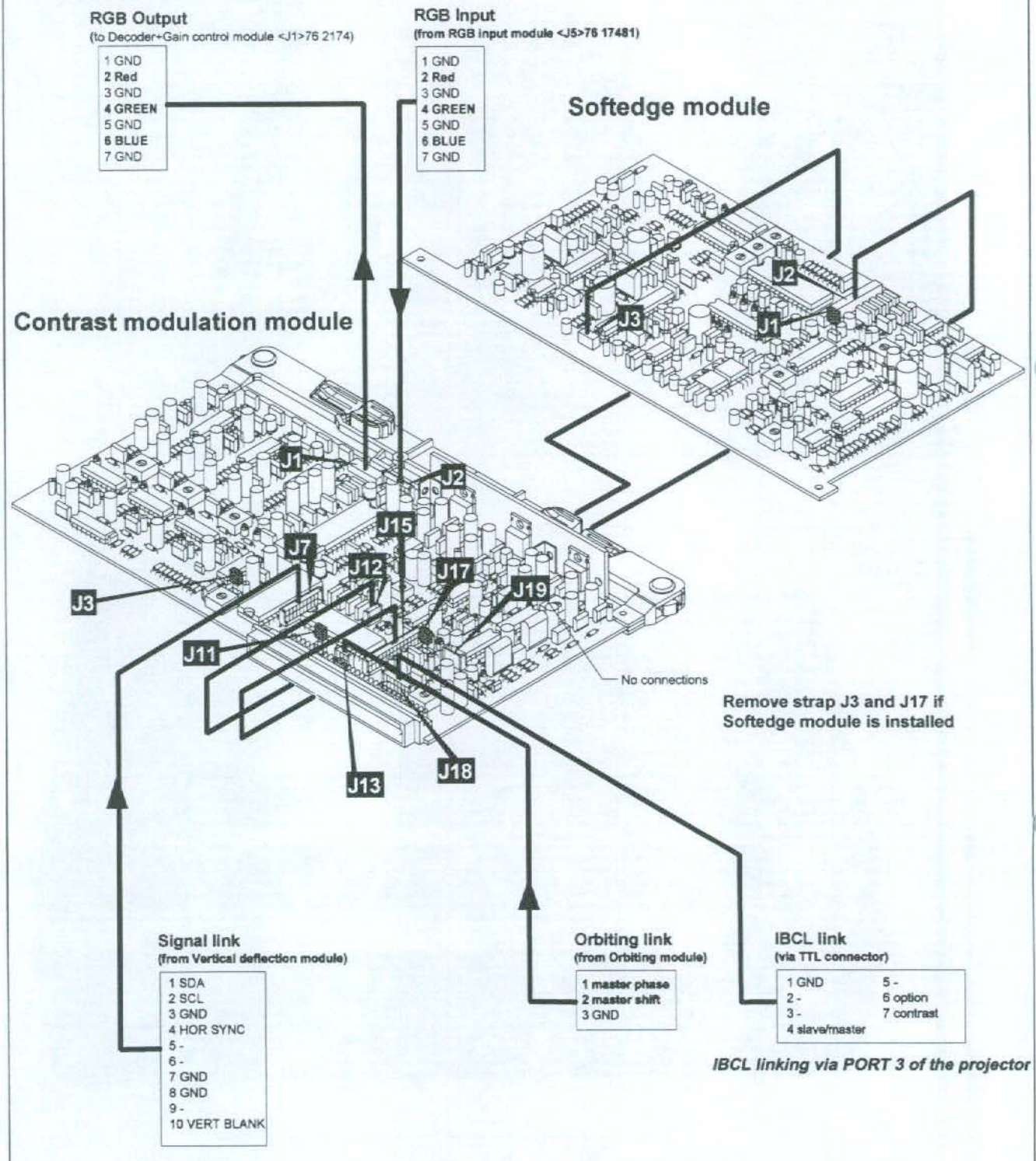
chassis configuration *808 series

Remove the RGB Analog module 76 21055 and insert on its place the Contrast modulation module R761838





Interconnection diagram

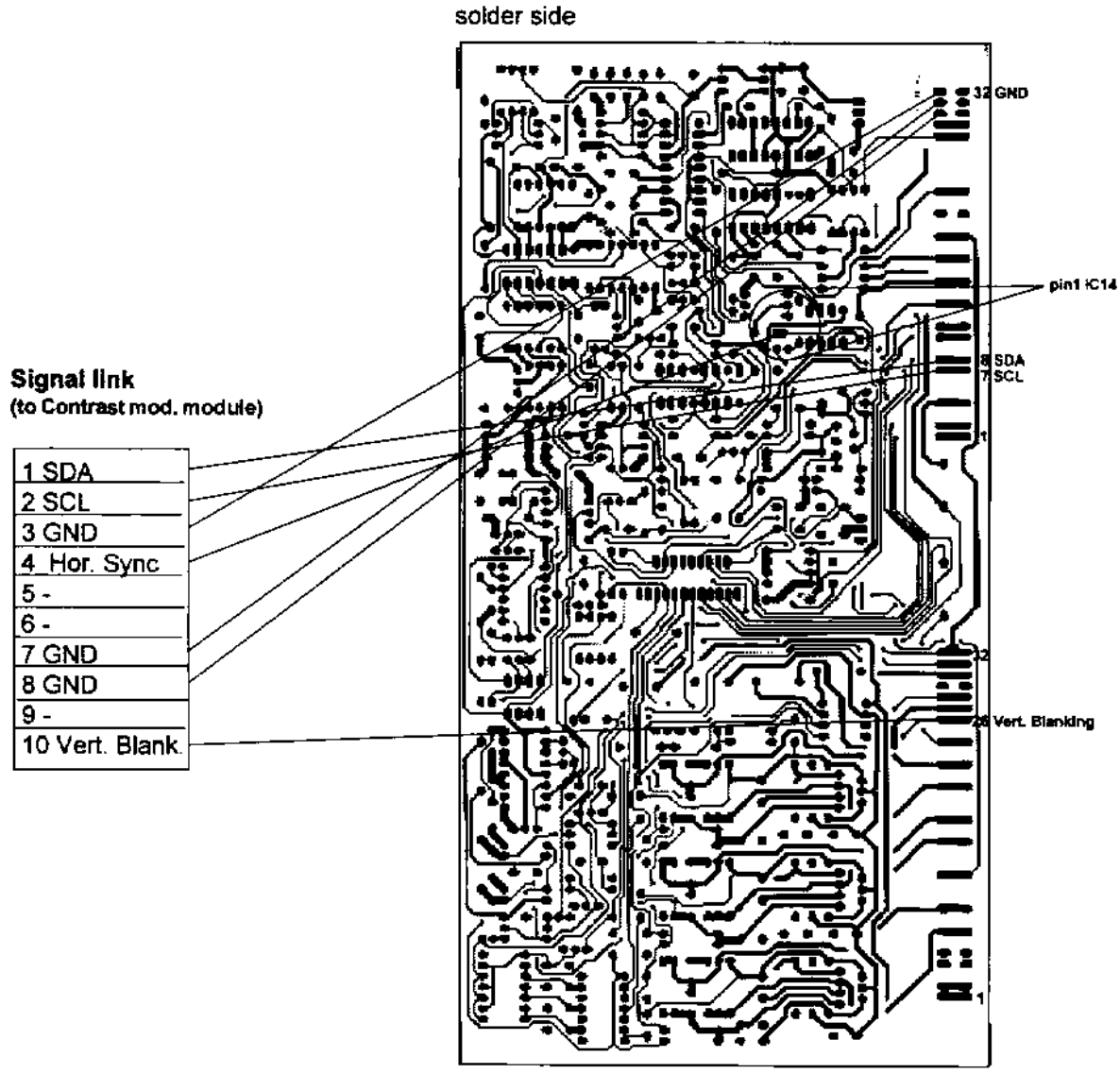


Important
to install the interconnection with an old Vertical Deflection module, a connector has to be added to the module via wire soldering (see illustrations on next two pages).

Softedge module

R761876S
Kit No: R9827810

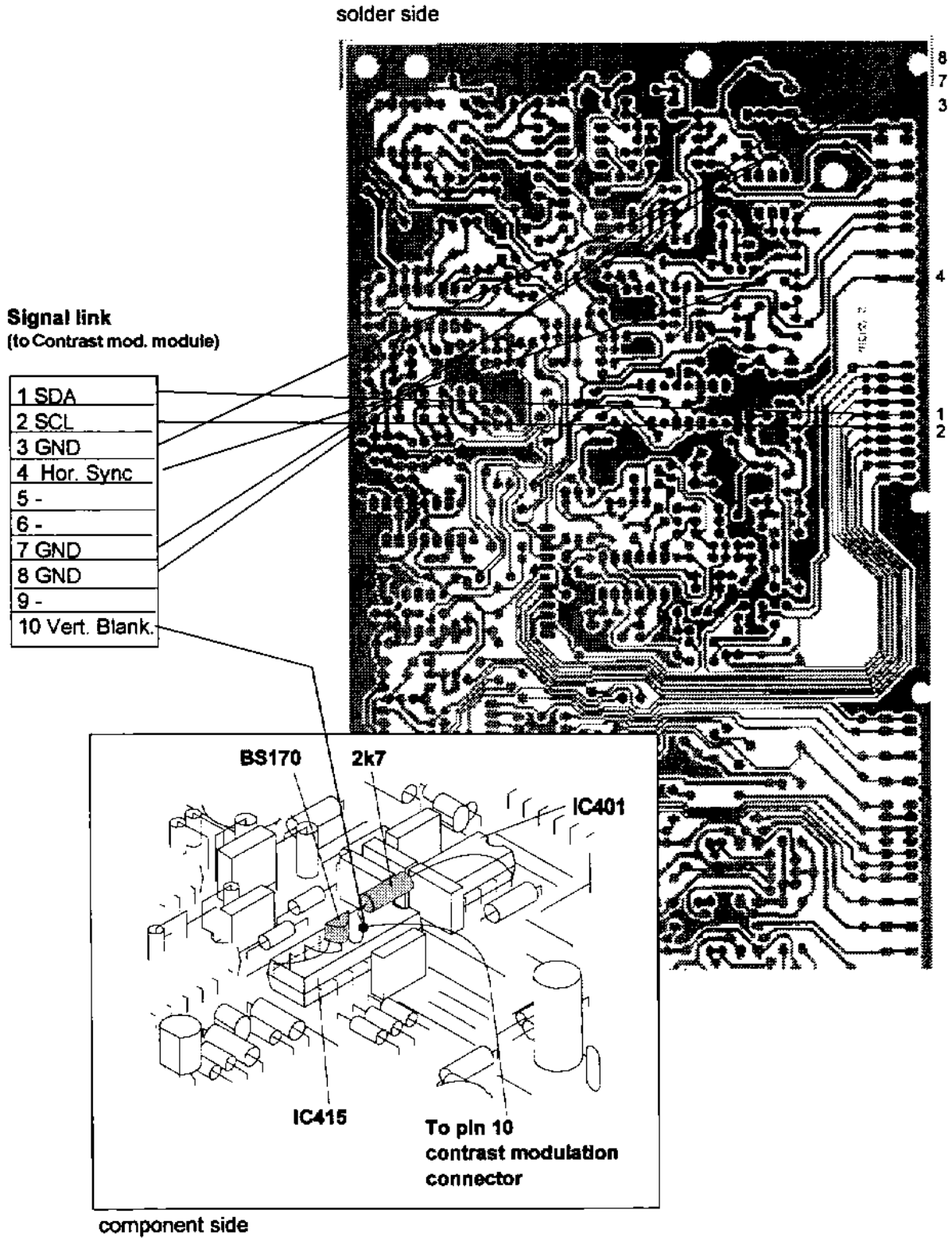
Interconnection Vert. Deflection module for 801 series projectors/Contrast modulation module



Softedge module

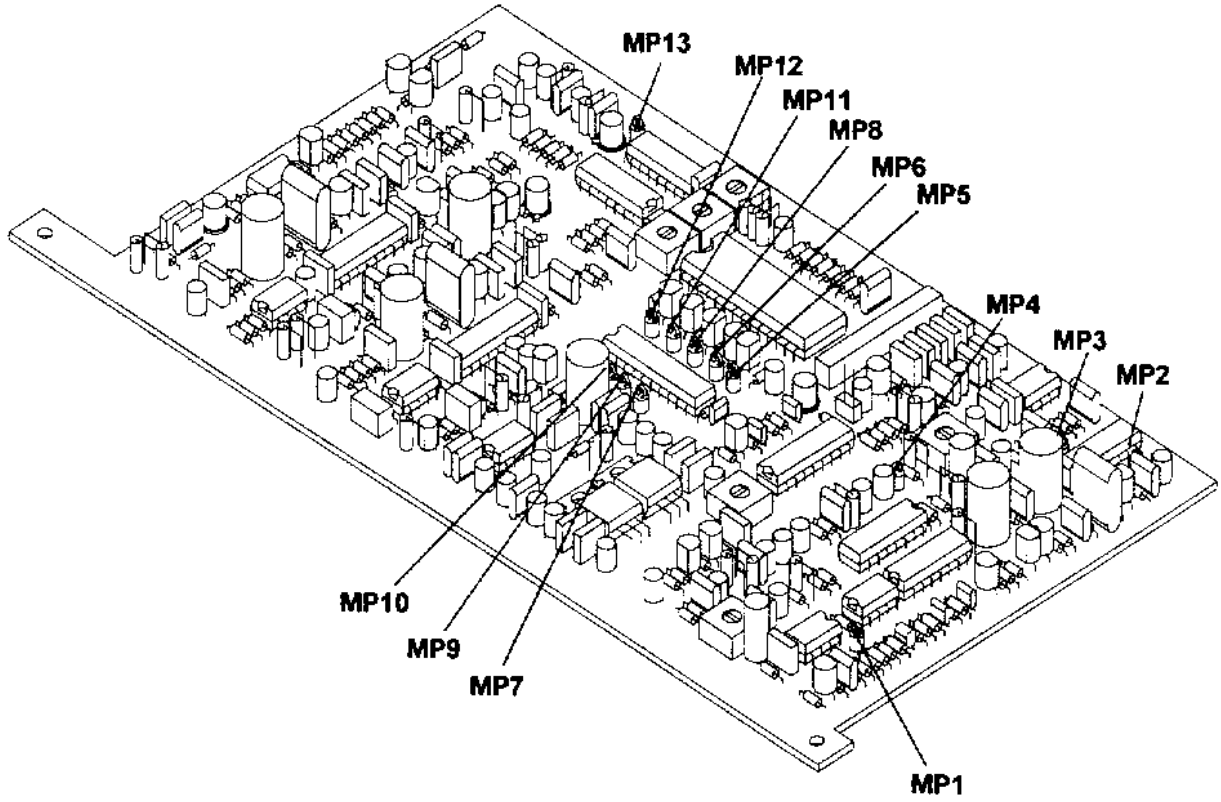
R761876S
Kit No: R9827810

Interconnection Vert. Deflection module for 1200 series projectors/Contrast modulation module

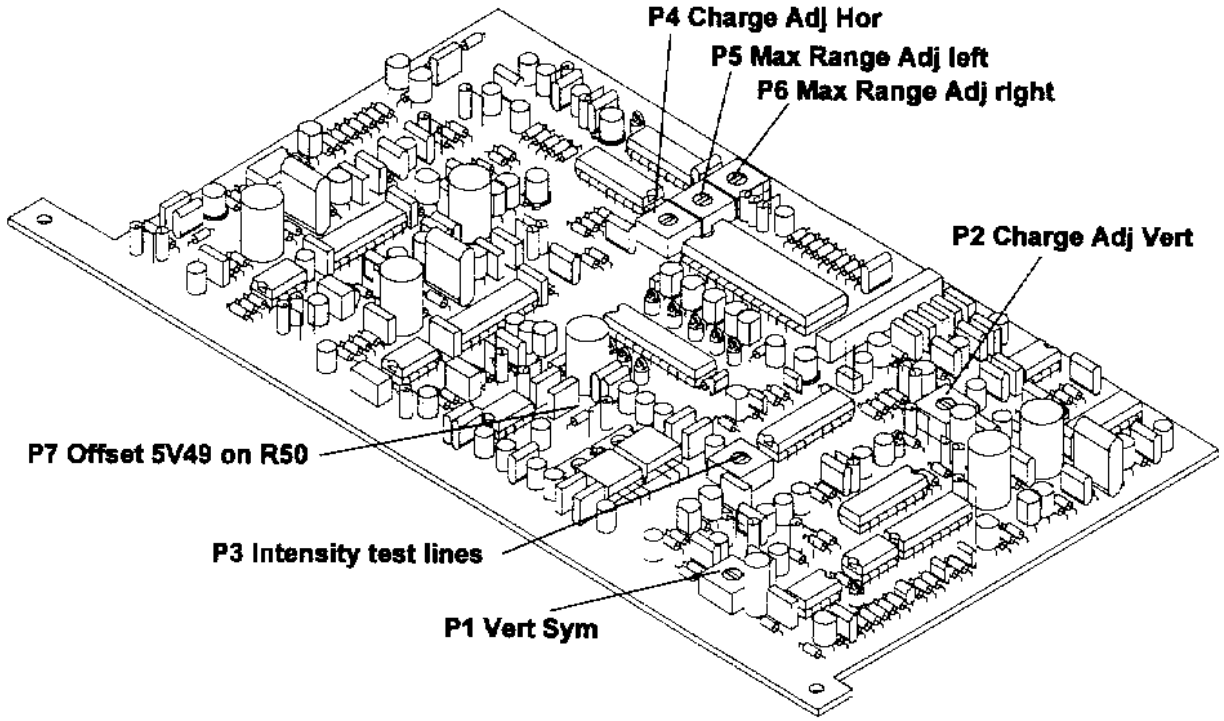


Adjustment procedure

Location of measure points (MP)



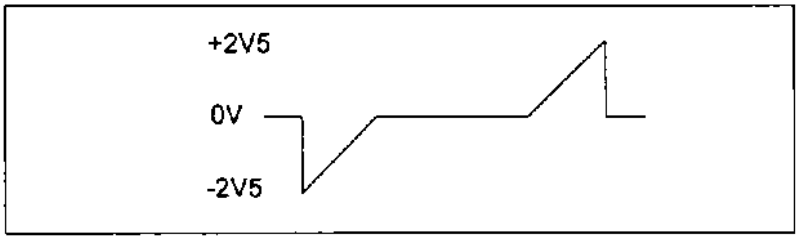
Location of adjustment points (P)



Recommended input signal of the projector : a complete white image with a horizontal frequence of 64 KHz.

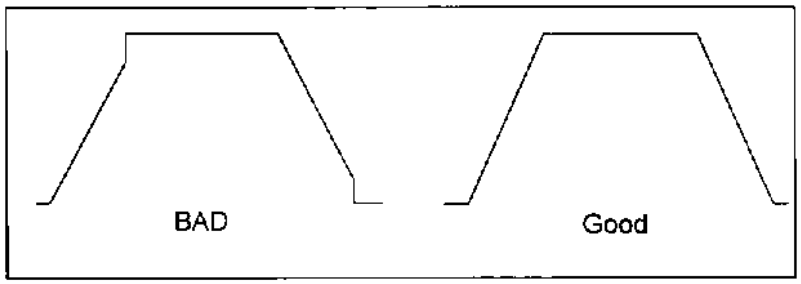
Symmetry adjustment of the vertical soft edge P1

Connect your oscilloscope to measurepoint 1.
Adjust P1 until a symmetrical output signal of +/- 2.5V is achieved.



Adjusting P2 (Charge/ discharge of C6)

Connect the oscilloscope to MP4 (trigger base on vertical line rate)
Adjust the TOP and BOTTOM softedge to 95% of barscale.
Adjust P2 until a continuous ramp becomes visible.



Adjustment of test line intensity P3

Rotate P3 until the small arrow marks '8'

Remark: The intensity can be checked by putting all softedge adjustments on 50% barscale and selecting Hor/Vert testmode on.

Horizontal charge/discharge adjustment on P4

This adjustment is identical to P2 but for horizontal line rates.

Maximum left softedge range (P5)

Connect your oscilloscope to measure point MP6 and adjust P5 for a pulse of 1 usec.

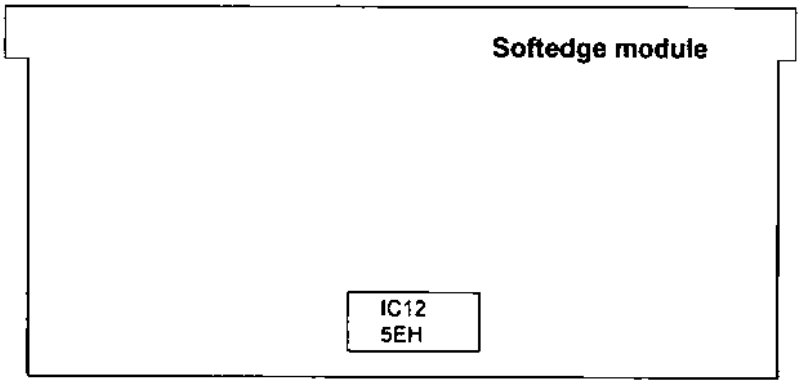
Maximum right softedge range (P6)

Connect your oscilloscope to measure point MP8 and adjust P6 for a pulse of 1 usec.

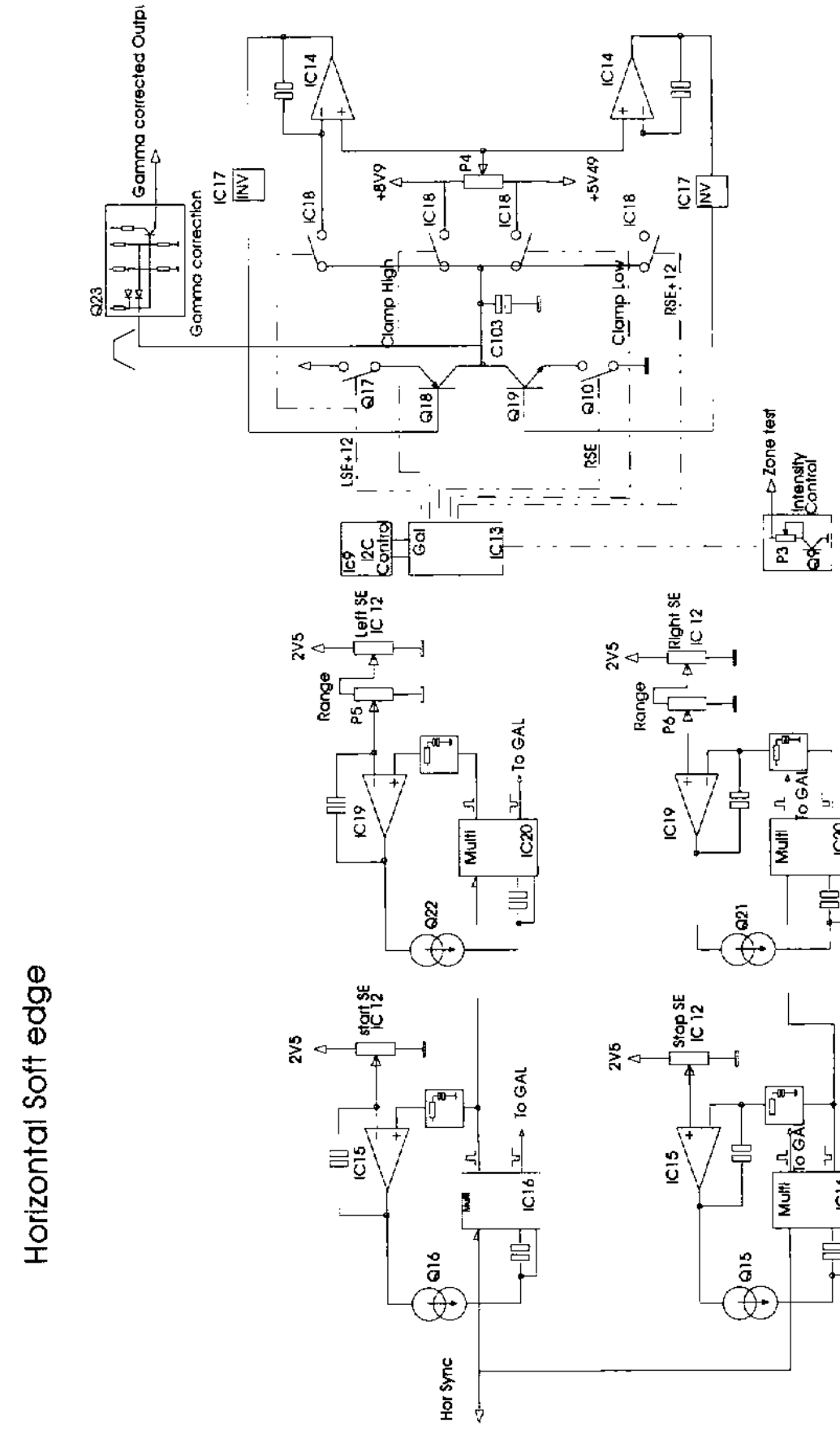
Offset adjustment by P7

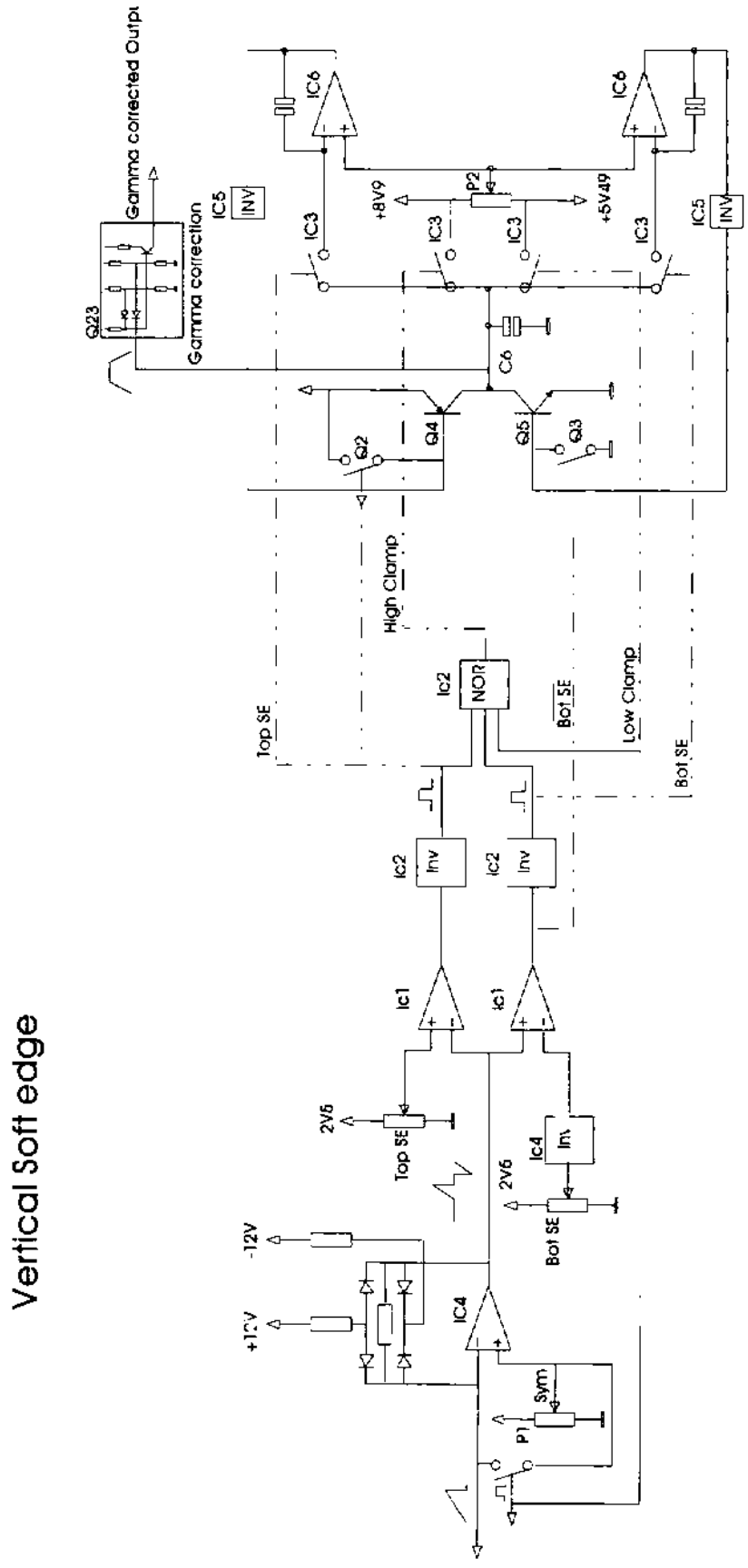
Connect a Voltmeter to junction pin2 (Ic3) and R36.
Adjust P7 until 5V49 is reached.

Extra I2C error codes:



Softedge module			Contrast modulation module		
Hex	**Ic number**	**adjustments**	**Hex**	**Ic number**	**adjustments**
5EH	IC12	Bottom soft edge Top Right Left	60H	IC10	Left-Right R Horizontal G Horizontal B Horizontal
			62H	IC14	Top-Bottom Vertical Stop soft edge Start


Horizontal Soft edge
Gamma corrected Outpt
Gamma correction
Q23
IC17
INV
IC14
IC18
+8V9
P4
+5V49
Clamp High
C103
Clamp Low
RSE+12
Q17
Q18
Q19
Q10
LSE+12
RSE
IC9
I2C Contro
Gal
IC13
Zone test
Intensity Control
P3
2V5
Left SE IC 12
Range
P5
IC19
Multi
IC20
To GAL
Q22
Right SE IC 12
P6
Q21
start SE IC 12
IC15
IC16
Q16
Stop SE IC 12
Q15
Hor Sync


Vertical Soft edge
Gamma corrected Outpt
Gamma correction
Q23
IC5
INV
IC6
IC3
+8V9
P2
+5V49
C6
Q2
Q4
Q5
Q3
High Clamp
Low Clamp
Top SE
Bot SE
Ic2
NOR
Inv
Ic1
2V6
Top SE
Bot SE
IC4
-12V
+12V
Sym
P1

Softedge module

R761876S
Kit No: R9827810

Parts listing R9827810

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R101541	R MF H 2K7 F 0W4 E3	1
	R1329105	Q BS170 FN SS TO92	1
	R3420091	CBLA TIE FIX 5 TM2	1
	R348019	CBLA TIE B L100 W2.5	1
	R3484105	CD CT $FT P10 365	1
	R5930361	BOX404AST 325X180X80 2N	1
	R593545	BAG ASTSH 203X300	1
	R5975545	MAN INS PJ49 C_M & S_E	1
	R762426	**UN CTRS_MOD+SFT_EDGE PJ49**	1
	R806106	BOXF BAR 265X165X25 PEF	1

Parts listing R762426

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
	R804702	FRM PJ49 SFT_EDGE SCRN SE	1
	R367528	SPR D6798AD 2.7D 5.5 STZN	2
	R3661106	NUT D934 M 2.5 SS	2
	R761876	**UN CTRS_MOD PJ49**	1
	R761876S	**UN SFT_EDGE PJ49**	1

Parts listing R761876

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
150	R133014	HTSNK ACC TO18 MNTNG PAD	1
124	R1330291	HTSNK ACC TO220 INSULATOR	1
125	R1330292	HTSNK ACC TO220 BUSH	1
151	R133076	HTSNK ACC TO5 MNTNG PAD	2
160	R3133921	J MD JMP P 1 E1SN	3
	R3484079	CD CT FTMS P 7 120	1
	R3495101	CD CT FTFT P10 300	1
140	R3620167	SCR D84 M 2.5X 16 SS	2
120	R3620216	SCR D84 M 3 X 6 SS	2
121	R3620226	SCR D84 M 3 X 8 SS	1
122	R3661026	NUT D934 M 3 SS	3
142	R3661106	NUT D934 M 2.5 SS	2
170	R3674391	RVT BLND_R3.2C 3.2WSTAL	2
123	R367502	SPR D6798AD 3.2D 6 STZN	3
141	R367528	SPR D6798AD 2.7D 5.5 STZN	2
10	R367699	RVT AVTRON2.5L 8.1 AL	2
1000	R722276	LOCK PJ49 PCB UN CPL	1
100	R802629	HTSNK CST PJ49 RGB PR-AMP	1
110	R802692	HTSNK CST PJ49 FIX HTSNK	2
C 2	R111531	C EL RA 10M M 35E2 85	
C 3	R112747	C CE MI 4N7K100E2	
C 4	R111531	C EL RA 10M M 35E2 85	
C 5	R113724	C POMERA 100N K 63E2 85	
C 6	R111531	C EL RA 10M M 35E2 85	
C 7	R111510	C EL RA 22M M 25E2 85	
C 8	R113724	C POMERA 100N K 63E2 85	
C 9	R111510	C EL RA 22M M 25E2 85	
C 10	R113724	C POMERA 100N K 63E2 85	1
C 12	R111510	C EL RA 22M M 25E2 85	
C 13	R112747	C CE MI 4N7K100E2	
C 14	R111531	C EL RA 10M M 35E2 85	
C 15	R112747	C CE MI 4N7K100E2	
C 16	R113724	C POMERA 100N K 63E2 85	
C 18	R111531	C EL RA 10M M 35E2 85	
C 19	R112747	C CE MI 4N7K100E2	
C 20	R111531	C EL RA 10M M 35E2 85	
C 21	R113724	C POMERA 100N K 63E2 85	
C 22	R111531	C EL RA 10M M 35E2 85	
C 23	R111510	C EL RA 22M M 25E2 85	
C 24	R113724	C POMERA 100N K 63E2 85	
C 25	R111510	C EL RA 22M M 25E2 85	
C 27	R111510	C EL RA 22M M 25E2 85	
C 28	R112747	C CE MI 4N7K100E2	
C 29	R112238	C NP0 MI 47P G100E2	1
C 30	R113724	C POMERA 100N K 63E2 85	
C 32	R111531	C EL RA 10M M 35E2 85	
C 33	R112747	C CE MI 4N7K100E2	
C 34	R111531	C EL RA 10M M 35E2 85	
C 35	R113724	C POMERA 100N K 63E2 85	
C 36	R111531	C EL RA 10M M 35E2 85	
C 37	R111510	C EL RA 22M M 25E2 85	
C 38	R113724	C POMERA 100N K 63E2 85	
C 39	R111510	C EL RA 22M M 25E2 85	
C 41	R111510	C EL RA 22M M 25E2 85	
C 42	R112747	C CE MI 4N7K100E2	
C 43	R111531	C EL RA 10M M 35E2 85	
C 44	R111531	C EL RA 10M M 35E2 85	
C 45	R111531	C EL RA 10M M 35E2 85	
C 46	R112747	C CE MI 4N7K100E2	
C 47	R111531	C EL RA 10M M 35E2 85	
C 48	R112238	C NP0 MI 47P G100E2	
C 49	R113724	C POMERA 100N K 63E2 85	
C 50	R113724	C POMERA 100N K 63E2 85	
C 51	R113724	C POMERA 100N K 63E2 85	
C 52	R113724	C POMERA 100N K 63E2 85	
C 53	R113724	C POMERA 100N K 63E2 85	
C 54	R113724	C POMERA 100N K 63E2 85	
C 55	R113724	C POMERA 100N K 63E2 85	
C 56	R111476	C EL RA 47M M 25E2 85	
C 57	R113724	C POMERA 100N K 63E2 85	
C 58	R112238	C NP0 MI 47P G100E2	
C 59	R112747	C CE MI 4N7K100E2	
C 60	R111531	C EL RA 10M M 35E2 85	
C 61	R112747	C CE MI 4N7K100E2	
C 62	R111531	C EL RA 10M M 35E2 85	
C 63	R111531	C EL RA 10M M 35E2 85	
C 64	R112747	C CE MI 4N7K100E2	1
C 65	R112747	C CE MI 4N7K100E2	
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C 67	R113724	C POMERA 100N K 63E2 85	1
C 68	R112747	C CE MI 4N7K100E2	1
C 69	R111531	C EL RA 10M M 35E2 85	1

C 70	R111531	C EL RA 10M M 35E2 85	
C 71	R111531	C EL RA 10M M 35E2 85	
C 72	R113724	C POMERA 100N K 63E2 85	
C 73	R113724	C POMERA 100N K 63E2 85	
C 74	R113724	C POMERA 100N K 63E2 85	
C 75	R112747	C CE MI 4N7K100E2	1
C 76	R112747	C CE MI 4N7K100E2	
C 77	R113724	C POMERA 100N K 63E2 85	
C 78	R113724	C POMERA 100N K 63E2 85	
C 79	R113724	C POMERA 100N K 63E2 85	
C 80	R111678	C EL BRA 10M M 25E2 85	1
C 81	R113724	C POMERA 100N K 63E2 85	
C 82	R111531	C EL RA 10M M 35E2 85	
C 83	R111531	C EL RA 10M M 35E2 85	
C 84	R113724	C POMERA 100N K 63E2 85	
C 85	R113724	C POMERA 100N K 63E2 85	
C 86	R111531	C EL RA 10M M 35E2 85	
C 87	R111531	C EL RA 10M M 35E2 85	
C 88	R111531	C EL RA 10M M 35E2 85	1
C 89	R111531	C EL RA 10M M 35E2 85	
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C 94	R111531	C EL RA 10M M 35E2 85	
C 95	R111531	C EL RA 10M M 35E2 85	
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C 98	R112747	C CE MI 4N7K100E2	
C 99	R112747	C CE MI 4N7K100E2	
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C106	R112747	C CE MI 4N7K100E2	
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C116	R111531	C EL RA 10M M 35E2 85	
C117	R111531	C EL RA 10M M 35E2 85	
C118	R113728	C POMERA 220N K 63E2 85	
C119	R111531	C EL RA 10M M 35E2 85	1
C120	R113730	C POMERA 330N K 63E2 85	
C121	R113728	C POMERA 220N K 63E2 85	
C122	R112747	C CE MI 4N7K100E2	
C123	R113730	C POMERA 330N K 63E2 85	
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C128	R112240	C NP0 MI 68P G100E2	1
C129	R112763	C CE MI 10N Z 50E2	1
C130	R112236	C NP0 MI 33P G100E2	1
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C131	R111531	C EL RA 10M M 35E2 85	1
D 1	R131621	D S 1N4148 075150 DO35	
D 2	R131621	D S 1N4148 075150 DO35	
D 3	R131621	D S 1N4148 075150 DO35	
D 4	R1316361	D Y BAT85 030200 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R131621	D S 1N4148 075150 DO35	
D 8	R131621	D S 1N4148 075150 DO35	
D 9	R131621	D S 1N4148 075150 DO35	
D 10	R131621	D S 1N4148 075150 DO35	
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I 2	R134221	U 592 NE DIP14 P	1
I 3	R134125	U 34084 DIP14 P	1
I 4	R134222	U 1495 MC DIP14 P	1
I 5	R134221	U 592 NE DIP14 P	1
I 5	R134222	U 1495 MC DIP14 P	1
I 7	R134221	U 592 NE DIP14 P	1
I 8	R134125	U 34084 DIP14 P	1
I 9	R132826	U 1203 LM DIP28 P	1
I 10	R132833	U BELLA 3 DIP28 P	1
I 11	R134124	U 082 TL DIP8 P	1
I 12	R134124	U 082 TL DIP8 P	1
I 13	R134016	U 7912 TO220 P	1
I 14	R132833	U BELLA 3 DIP28 P	1
I 15	R134002	U 7812 TO220 P	1
I 16	R134222	U 1495 MC DIP14 P	1
I 17	R134222	U 1495 MC DIP14 P	1
I 18	R134028	U 317LZ LM TO92 P	1
I 19	R134029	U 337LZ TO92 P	1
I 20	R134001	U 7805 TO220 P	1
I 21	R134113	U 084 TL DIP14 P	1
I 22	R134125	U 34084 DIP14 P	1
J 2	R313927	J CT H MBT P 7 M2SN	1
J 3	R313276	J MO1 C MBT P10 R1SN 7.5	1
J 8	R313930	J CT H MBT P10 M2SN	1
J 10	R313531	J EUR2C$MBS P64 E1C3S 1.6	1
J 11	R313276	J MO1 C MBT P10 R1SN 7.5	1
J 12	R313923	J CT H MBT P 3 M2SN	1
J 13	R313923	J CT H MBT P 3 M2SN	1
J 15	R313935	J CT H MBT P15 M2SN	1
J 17	R313276	J MO1 C MBT P10 R1SN 7.5	1
J 18	R313927	J CT H MBT P 7 M2SN	1
J 19	R313924	J CT H MBT P 4 M2SN	1
MP	R313729	J PIN TESTEYE	19
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P 2	R106725	R TCE H500E K 0W5 S10TS	1
P 3	R106725	R TCE H500E K 0W5 S10TS	1
P 4	R106729	R TCE H 10K K 0W5 S10TS	1
P 5	R106730	R TCE H 20K K 0W5 S10TS	1
P 6	R107004	R TCE H200E K 0W5 S 7TS	1
P 7	R107004	R TCE H200E K 0W5 S 7TS	1
P 8	R106727	R TCE H 2K K 0W5 S10TS	1
P 9	R106727	R TCE H 2K K 0W5 S10TS	1
PC	R780226	PCD PJ49 CTRS_MOD	1
Q 1	R132911	Q 2N5583 P SS TO39	1
Q 2	R132911	Q 2N5583 P SS TO39	1
Q 3	R132911	Q 2N5583 P SS TO39	1
Q 4	R131491	Q BSX20 N SS TO18	1
Q 5	R131491	Q BSX20 N SS TO18	1
Q 6	R131491	Q BSX20 N SS TO18	1
Q 7	R131491	Q BSX20 N SS TO18	1
Q 8	R1329105	Q BS170 FN SS TO92	1
Q 9	R1314295	Q BC549B N SS TO92	
Q 10	R131491	Q BSX20 N SS TO18	1
Q 11	R1314181	Q BC559B P SS TO92	
Q 12	R1314181	Q BC559B P SS TO92	

Softedge module

R761876S
Kit No: R9827810

Q 13	R131491	Q BSX20 N SS TO18	1
R 1	R101508	R MF H 4E7 F 0W4 E3	1
R 2	R101541	R MF H 2K7 F 0W4 E3	
R 3	R101534	R MF H680E F 0W4 E3	
R 4	R101532	R MF H470E F 0W4 E3	
R 5	R101539	R MF H 1K8 F 0W4 E3	
R 6	R101548	R MF H 10K F 0W4 E3	
R 7	R101512	R MF H 10E F 0W4 E3	
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SR31	R1001129	R CFFV 10E J 0W25 E2	1
Z 1	R131716	D ZEN 5V1 0W5 C DO35	1

Parts listing R761876S

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
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114	R348019	CBLA TIE B L100 W2.5	1
	R3484035	CD CT FTMT P 3 220	1
	R34841541	CD CT FTMT P15 150	1
110	R3620216	SCR D84 M 3 X 6 SS	2
111	R3661026	NUT D934 M 3 SS	2
101	R3661106	NUT D934 M 2.5 SS	2
102	R367502	SPR D6798AD 3.2D 6 STZN	2
112	R367502	SPR D6798AD 3.2D 6 STZN	2
130	R801602	X ACC INSUL HC49	1
C 1	R112743	C CE MI 2N2K100E2	1
C 2	R112739	C CE MI 1N K100E2	1
C 3	R112242	C NP0 MI 100P G100E2	1
C 4	R112242	C NP0 MI 100P G100E2	1
C 5	R112747	C CE MI 4N7K100E2	
C 6	R113726	C POMERA 150N K 63E2 85	1
C 7	R112747	C CE MI 4N7K100E2	1
C 8	R1115915	C EL5 RA 4M7M 35E2 85	
C 9	R113724	C POMERA 100N K 63E2 85	
C 10	R111515	C EL RA 150M M 16E2 105	1
C 11	R112747	C CE MI 4N7K100E2	1
C 12	R111515	C EL RA 150M M 16E2 105	1
C 13	R112763	C CE MI 10N Z 50E2	
C 14	R111500	C EL RA 47M M 10E2 85	1
C 15	R112747	C CE MI 4N7K100E2	
C 16	R1115915	C EL5 RA 4M7M 35E2 85	
C 17	R111476	C EL RA 47M M 25E2 85	1
C 18	R112747	C CE MI 4N7K100E2	1
C 19	R1115915	C EL5 RA 4M7M 35E2 85	1
C 20	R112747	C CE MI 4N7K100E2	1
C 21	R112747	C CE MI 4N7K100E2	
C 22	R112747	C CE MI 4N7K100E2	
C 23	R1115915	C EL5 RA 4M7M 35E2 85	1
C 24	R112747	C CE MI 4N7K100E2	
C 25	R1115915	C EL5 RA 4M7M 35E2 85	
C 26	R1115915	C EL5 RA 4M7M 35E2 85	1
C 27	R1115915	C EL5 RA 4M7M 35E2 85	
C 28	R112747	C CE MI 4N7K100E2	1
C 29	R1115915	C EL5 RA 4M7M 35E2 85	
C 30	R1115915	C EL5 RA 4M7M 35E2 85	1
C 31	R1115915	C EL5 RA 4M7M 35E2 85	
C 32	R112747	C CE MI 4N7K100E2	
C 33	R113722	C POMERA 68N K 63E2 85	
C 34	R1115915	C EL5 RA 4M7M 35E2 85	
C 35	R113724	C POMERA 100N K 63E2 85	
C 36	R112747	C CE MI 4N7K100E2	1
C 37	R1115915	C EL5 RA 4M7M 35E2 85	1
C 38	R112747	C CE MI 4N7K100E2	
C 39	R113722	C POMERA 68N K 63E2 85	
C 40	R1115915	C EL5 RA 4M7M 35E2 85	1
C 41	R1115915	C EL5 RA 4M7M 35E2 85	
C 42	R113724	C POMERA 100N K 63E2 85	1
C 43	R113724	C POMERA 100N K 63E2 85	
C 44	R113724	C POMERA 100N K 63E2 85	
C 45	R113724	C POMERA 100N K 63E2 85	
C 46	R113724	C POMERA 100N K 63E2 85	
C 47	R1115915	C EL5 RA 4M7M 35E2 85	
C 48	R1115915	C EL5 RA 4M7M 35E2 85	
C 49	R112234	C NP0 MI 22P G100E2	1
C 50	R112240	C NP0 MI 68P G100E2	
C 51	R113724	C POMERA 100N K 63E2 85	
C 52	R113724	C POMERA 100N K 63E2 85	
C 53	R113724	C POMERA 100N K 63E2 85	
C 54	R113724	C POMERA 100N K 63E2 85	
C 55	R1115915	C EL5 RA 4M7M 35E2 85	
C 56	R1115915	C EL5 RA 4M7M 35E2 85	
C 57	R1115915	C EL5 RA 4M7M 35E2 85	
C 58	R112235	C NP0 MI 27P G100E2	1
C 59	R112747	C CE MI 4N7K100E2	1
C 60	R1115915	C EL5 RA 4M7M 35E2 85	1
C 61	R1115915	C EL5 RA 4M7M 35E2 85	
C 62	R112747	C CE MI 4N7K100E2	
C 63	R1115915	C EL5 RA 4M7M 35E2 85	1
C 64	R1115915	C EL5 RA 4M7M 35E2 85	
C 65	R1115915	C EL5 RA 4M7M 35E2 85	
C 66	R112747	C CE MI 4N7K100E2	
C 67	R112747	C CE MI 4N7K100E2	
C 68	R1137121	C POMERA 10N K250E2 85	
C 69	R1115915	C EL5 RA 4M7M 35E2 85	
C 70	R111515	C EL RA 150M M 16E2 105	1
C 71	R113724	C POMERA 100N K 63E2 85	
C 72	R112747	C CE MI 4N7K100E2	
C 73	R112747	C CE MI 4N7K100E2	
C 74	R1115915	C EL5 RA 4M7M 35E2 85	
C 75	R112239	C NP0 MI 56P G100E2	
C 76	R1115915	C EL5 RA 4M7M 35E2 85	1
C 77	R113730	C POMERA 330N K 63E2 85	
C 78	R112739	C CE MI 1N K100E2	
C 79	R112747	C CE MI 4N7K100E2	1
C 80	R1115915	C EL5 RA 4M7M 35E2 85	
C 81	R112747	C CE MI 4N7K100E2	
C 82	R1137181	C POMERA 33N K100E2 85	
C 83	R112747	C CE MI 4N7K100E2	
C 84	R112747	C CE MI 4N7K100E2	
C 85	R113726	C POMERA 150N K 63E2 85	1
C 86	R1115915	C EL5 RA 4M7M 35E2 85	1
C 87	R113724	C POMERA 100N K 63E2 85	1
C 88	R111515	C EL RA 150M M 16E2 105	1
C 89	R112242	C NP0 MI 100P G100E2	1
C 90	R113724	C POMERA 100N K 63E2 85	
C 91	R113724	C POMERA 100N K 63E2 85	
C 92	R1115915	C EL5 RA 4M7M 35E2 85	1
C 93	R113730	C POMERA 330N K 63E2 85	1
C 94	R112739	C CE MI 1N K100E2	
C 95	R112747	C CE MI 4N7K100E2	
C 96	R1115915	C EL5 RA 4M7M 35E2 85	
C 97	R1115915	C EL5 RA 4M7M 35E2 85	1
C 98	R112747	C CE MI 4N7K100E2	
C 99	R112747	C CE MI 4N7K100E2	
C100	R111515	C EL RA 150M M 16E2 105	1
C101	R112747	C CE MI 4N7K100E2	
C102	R1137181	C POMERA 33N K100E2 85	
C103	R112238	C NP0 MI 47P G100E2	1
C104	R1115915	C EL5 RA 4M7M 35E2 85	
C105	R112747	C CE MI 4N7K100E2	
C106	R1115915	C EL5 RA 4M7M 35E2 85	
C107	R1115915	C EL5 RA 4M7M 35E2 85	
C108	R1115915	C EL5 RA 4M7M 35E2 85	1
C109	R113724	C POMERA 100N K 63E2 85	1
C110	R111515	C EL RA 150M M 16E2 105	1
C111	R113726	C POMERA 150N K 63E2 85	1
C112	R112242	C NP0 MI 100P G100E2	1
C113	R113724	C POMERA 100N K 63E2 85	
C114	R113724	C POMERA 100N K 63E2 85	
C115	R112747	C CE MI 4N7K100E2	1
C116	R1115915	C EL5 RA 4M7M 35E2 85	

C117	R112747	C CE MI 4N7K100E2	
C118	R1115915	C EL5 RA 4M7M 35E2 85	1
C119	R112747	C CE MI 4N7K100E2	
C120	R1115915	C EL5 RA 4M7M 35E2 85	
C121	R112747	C CE MI 4N7K100E2	
C122	R113724	C POMERA 100N K 63E2 85	
C123	R113724	C POMERA 100N K 63E2 85	
C124	R113724	C POMERA 100N K 63E2 85	1
C125	R1115915	C EL5 RA 4M7M 35E2 85	1
C126	R113724	C POMERA 100N K 63E2 85	1
C127	R1115915	C EL5 RA 4M7M 35E2 85	1
C130	R112234	C NP0 MI 22P G100E2	1
C130	R112739	C CE MI 1N K100E2	1
C131	R112739	C CE MI 1N K100E2	1
D 1	R1316361	D Y BAT85 030200 DO35	
D 2	R1316361	D Y BAT85 030200 DO35	
D 3	R1316361	D Y BAT85 030200 DO35	
D 4	R1316361	D Y BAT85 030200 DO35	
D 5	R131621	D S 1N4148 075150 DO35	
D 6	R131621	D S 1N4148 075150 DO35	
D 7	R1316361	D Y BAT85 030200 DO35	
D 8	R1316361	D Y BAT85 030200 DO35	
D 9	R131621	D S 1N4148 075150 DO35	
D 10	R131621	D S 1N4148 075150 DO35	
D 11	R131621	D S 1N4148 075150 DO35	
D 12	R131621	D S 1N4148 075150 DO35	
D 13	R1316361	D Y BAT85 030200 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	R131621	D S 1N4148 075150 DO35	
D 18	R1316361	D Y BAT85 030200 DO35	
D 19	R131621	D S 1N4148 075150 DO35	
D 20	R131621	D S 1N4148 075150 DO35	
D 21	R1316361	D Y BAT85 030200 DO35	
D 22	R1316361	D Y BAT85 030200 DO35	
D 23	R131621	D S 1N4148 075150 DO35	
D 24	R1316361	D Y BAT85 030200 DO35	
D 25	R1316361	D Y BAT85 030200 DO35	
D 26	R131621	D S 1N4148 075150 DO35	
I 1	R134114	U 393 LM DIP8 P	1
I 2	R137611	U 4025B DIL14 P	1
I 3	R137303	U 4066B DIP14 P	1
I 4	R134124	U 082 TL DIP8 P	1
I 5	R134113	U 084 TL DIP14 P	1
I 6	R134124	U 082 TL DIP8 P	1
I 7	R134029	U 337LZ TO92 P	1
I 8	R134029	U 337LZ TO92 P	1
I 9	R132832	U 8574A PCF DIP16 P	1
I 10	R134002	U 7812 TO220 P	1
I 11	R134016	U 7912 TO220 P	1
I 12	R132833	U BELLA 3 DIP28 P	1
I 13	R3281854	U_S 800 S-EDGE V240	1
I 14	R134124	U 082 TL DIP8 P	1
I 15	R134124	U 082 TL DIP8 P	1
I 16	R137552	U 74HCT123 DIP16 P	1
I 17	R134125	U 34084 DIP14 P	1
I 18	R137303	U 4066B DIP14 P	1
I 19	R134124	U 082 TL DIP8 P	1
I 20	R137552	U 74HCT123 DIP16 P	1
I 21	R134124	U 082 TL DIP8 P	1
J 1	R313276	J MO1 C MBT P10 R1SN 7.5	1
MP	R313729	J PIN TESTEYE	13

P 1	R106726	R TCE H 1K K 0W5 S10TS	1
P 2	R106723	R TCE H100E K 0W5 S10TS	1
P 3	R106725	R TCE H500E K 0W5 S10TS	1
P 4	R106723	R TCE H100E K 0W5 S10TS	1
P 5	R106729	R TCE H 10K K 0W5 S10TS	1
P 6	R106729	R TCE H 10K K 0W5 S10TS	1
PC	R780227	PCD PJ49 SOFT EDGE	1
Q 1	R132910	Q BS170 FN SS TO92	1
Q 2	R132916	Q BS250 FN SS TO92	1
Q 3	R132910	Q BS170 FN SS TO92	1
Q 4	R1314181	Q BC559B P SS TO92	
Q 5	R1314295	Q BC549B N SS TO92	1
Q 6	R131491	Q BSX20 N SS TO18	1
Q 7	R1329105	Q BS170 FN SS TO92	1
Q 8	R1314295	Q BC549B N SS TO92	1
Q 9	R131491	Q BSX20 N SS TO18	1
Q 10	R1329105	Q BS170 FN SS TO92	1
Q 11	R1329105	Q BS170 FN SS TO92	1
Q 12	R1329105	Q BS170 FN SS TO92	1
Q 13	R1329105	Q BS170 FN SS TO92	1
Q 14	R1329105	Q BS170 FN SS TO92	1
Q 15	R1314181	Q BC559B P SS TO92	
Q 16	R1314181	Q BC559B P SS TO92	1
Q 17	R131491	Q BSX20 N SS TO18	1
Q 18	R1314181	Q BC559B P SS TO92	
Q 19	R1314295	Q BC549B N SS TO92	1
Q 20	R131491	Q BSX20 N SS TO18	1
Q 21	R1314181	Q BC559B P SS TO92	1
Q 22	R1314181	Q BC559B P SS TO92	1
Q 23	R1314182	Q BC559C P SS TO92	
Q 24	R131491	Q BSX20 N SS TO18	1
Q 25	R131411	Q BC549C N SS TO92	1
Q 26	R131411	Q BC549C N SS TO92	
R 1	R101532	R MF H470E F 0W4 E3	1
R 2	R101536	R MF H 1K F 0W4 E3	
R 3	R101530	R MF H330E F 0W4 E3	
R 4	R101556	R MF H 47K F 0W4 E3	
R 5	R101552	R MF H 22K F 0W4 E3	
R 6	R101544	R MF H 4K7 F 0W4 E3	
R 7	R101544	R MF H 4K7 F 0W4 E3	
R 8	R101536	R MF H 1K F 0W4 E3	
R 9	R101542	R MF H 3K3 F 0W4 E3	
R 10	R101534	R MF H680E F 0W4 E3	
R 11	R101534	R MF H680E F 0W4 E3	
R 12	R101546	R MF H 6K8 F 0W4 E3	
R 13	R101543	R MF H 3K9 F 0W4 E3	1
R 14	R101545	R MF H 5K6 F 0W4 E3	
R 15	R101532	R MF H470E F 0W4 E3	
R 16	R101556	R MF H 47K F 0W4 E3	
R 17	R101556	R MF H 47K F 0W4 E3	
R 18	R101540	R MF H 2K2 F 0W4 E3	
R 19	R101540	R MF H 2K2 F 0W4 E3	
R 20	R101548	R MF H 10K F 0W4 E3	
R 21	R101531	R MF H390E F 0W4 E3	
R 22	R101548	R MF H 10K F 0W4 E3	
R 23	R101531	R MF H390E F 0W4 E3	
R 24	R101544	R MF H 4K7 F 0W4 E3	1
R 25	R101560	R MF H100K F 0W4 E3	
R 26	R101544	R MF H 4K7 F 0W4 E3	
R 27	R101560	R MF H100K F 0W4 E3	
R 28	R101553	R MF H 27K F 0W4 E3	
R 29	R101556	R MF H 47K F 0W4 E3	1
R 30	R101548	R MF H 10K F 0W4 E3	
R 31	R101548	R MF H 10K F 0W4 E3	
R 32	R101548	R MF H 10K F 0W4 E3	

Softedge module

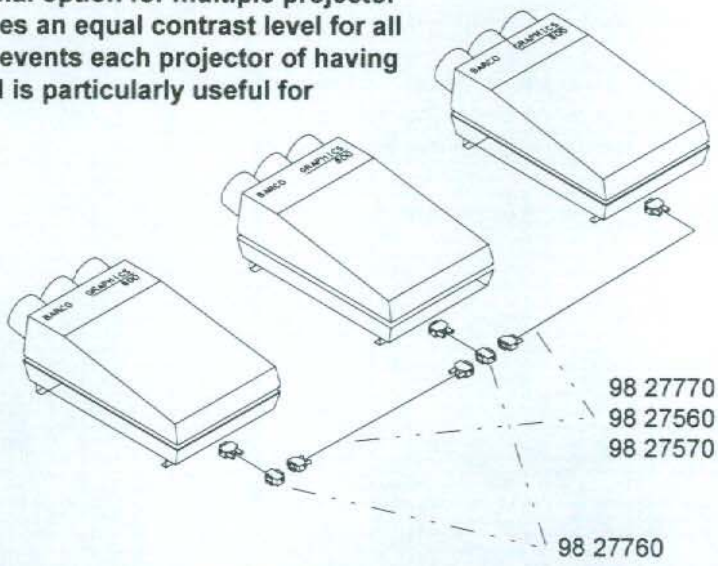
R761876S
Kit No: R9827810

R 33	R1015351	R MF H750E F 0W4 E3	
R 34	R101524	R MF H100E F 0W4 E3	
R 35	R101528	R MF H220E F 0W4 E3	
R 36	R101528	R MF H220E F 0W4 E3	
R 37	R101516	R MF H 22E F 0W4 E3	
R 38	R101532	R MF H470E F 0W4 E3	
R 39	R101536	R MF H 1K F 0W4 E3	
R 40	R101524	R MF H100E F 0W4 E3	
R 41	R101540	R MF H 2K2 F 0W4 E3	
R 42	R101540	R MF H 2K2 F 0W4 E3	
R 43	R101548	R MF H 10K F 0W4 E3	
R 44	R101540	R MF H 2K2 F 0W4 E3	
R 45	R101543	R MF H 3K9 F 0W4 E3	
R 46	R101525	R MF H120E F 0W4 E3	
R 47	R101541	R MF H 2K7 F 0W4 E3	
R 48	R101538	R MF H 1K5 F 0W4 E3	
R 49	R101538	R MF H 1K5 F 0W4 E3	
R 50	R106825	R TCE V500E K 0W5 S10SS	1
R 51	R101538	R MF H 1K5 F 0W4 E3	
R 52	R101529	R MF H270E F 0W4 E3	
R 53	R101531	R MF H390E F 0W4 E3	
R 54	R101529	R MF H270E F 0W4 E3	
R 55	R101536	R MF H 1K F 0W4 E3	
R 56	R101536	R MF H 1K F 0W4 E3	
R 57	R101538	R MF H 1K5 F 0W4 E3	
R 58	R101526	R MF H150E F 0W4 E3	
R 59	R101529	R MF H270E F 0W4 E3	
R 60	R101547	R MF H 8K2 F 0W4 E3	
R 61	R101527	R MF H180E F 0W4 E3	
R 62	R101557	R MF H 56K F 0W4 E3	1
R 63	R101536	R MF H 1K F 0W4 E3	
R 64	R101541	R MF H 2K7 F 0W4 E3	
R 65	R101568	R MF H470K F 0W4 E3	
R 66	R101528	R MF H220E F 0W4 E3	
R 67	R101529	R MF H270E F 0W4 E3	
R 68	R101531	R MF H390E F 0W4 E3	
R 69	R101531	R MF H390E F 0W4 E3	
R 70	R101535	R MF H820E F 0W4 E3	
R 71	R101560	R MF H100K F 0W4 E3	
R 72	R101544	R MF H 4K7 F 0W4 E3	
R 73	R101544	R MF H 4K7 F 0W4 E3	
R 74	R101541	R MF H 2K7 F 0W4 E3	
R 75	R101547	R MF H 8K2 F 0W4 E3	
R 76	R101527	R MF H180E F 0W4 E3	
R 77	R101560	R MF H100K F 0W4 E3	
R 78	R101526	R MF H150E F 0W4 E3	
R 79	R101536	R MF H 1K F 0W4 E3	
R 80	R101552	R MF H 22K F 0W4 E3	
R 81	R101557	R MF H 56K F 0W4 E3	
R 82	R101525	R MF H120E F 0W4 E3	
R 83	R101536	R MF H 1K F 0W4 E3	
R 84	R101536	R MF H 1K F 0W4 E3	
R 85	R101527	R MF H180E F 0W4 E3	
R 86	R101568	R MF H470K F 0W4 E3	
R 87	R101536	R MF H 1K F 0W4 E3	
R 88	R101543	R MF H 3K9 F 0W4 E3	
R 89	R101545	R MF H 5K6 F 0W4 E3	
R 90	R101546	R MF H 6K8 F 0W4 E3	
R 91	R101548	R MF H 10K F 0W4 E3	
R 92	R101536	R MF H 1K F 0W4 E3	
R 93	R101542	R MF H 3K3 F 0W4 E3	
R 94	R101548	R MF H 10K F 0W4 E3	
R 95	R101527	R MF H180E F 0W4 E3	
R 96	R101560	R MF H100K F 0W4 E3	
R 97	R101526	R MF H150E F 0W4 E3	
R 98	R101536	R MF H 1K F 0W4 E3	
R 99	R101552	R MF H 22K F 0W4 E3	
R100	R101526	R MF H150E F 0W4 E3	
R101	R101548	R MF H 10K F 0W4 E3	
R102	R101548	R MF H 10K F 0W4 E3	
R103	R101560	R MF H100K F 0W4 E3	
R104	R101548	R MF H 10K F 0W4 E3	
R105	R101537	R MF H 1K2 F 0W4 E3	
R106	R101536	R MF H 1K F 0W4 E3	
R107	R101541	R MF H 2K7 F 0W4 E3	
R108	R101535	R MF H820E F 0W4 E3	
R109	R101524	R MF H100E F 0W4 E3	
R110	R101532	R MF H470E F 0W4 E3	
R111	R101536	R MF H 1K F 0W4 E3	
R112	R101530	R MF H330E F 0W4 E3	
R113	R101532	R MF H470E F 0W4 E3	
R114	R101536	R MF H 1K F 0W4 E3	
R115	R101536	R MF H 1K F 0W4 E3	
R116	R101536	R MF H 1K F 0W4 E3	
R118	R101536	R MF H 1K F 0W4 E3	
R119	R101543	R MF H 3K9 F 0W4 E3	1
R120	R101565	R MF H270K F 0W4 E3	1
SR 1	R1001129	R CFFV 10E J 0W25 E2	1
SR 2	R1001129	R CFFV 10E J 0W25 E2	1
SR 3	R1001129	R CFFV 10E J 0W25 E2	1
SR 4	R1001129	R CFFV 10E J 0W25 E2	1
SR 5	R1001129	R CFFV 10E J 0W25 E2	1
SR 6	R1001129	R CFFV 10E J 0W25 E2	1
SR 7	R1001129	R CFFV 10E J 0W25 E2	1
SR 8	R1001129	R CFFV 10E J 0W25 E2	1
SR 9	R1001129	R CFFV 10E J 0W25 E2	1
SR10	R1001129	R CFFV 10E J 0W25 E2	1
SR11	R1003009	R CFFV 1E J 0W25 E1	1
SR12	R1001129	R CFFV 10E J 0W25 E2	1
SR13	R1001129	R CFFV 10E J 0W25 E2	1
SR14	R1003009	R CFFV 1E J 0W25 E1	1
SR15	R1003009	R CFFV 1E J 0W25 E1	1
SR16	R1001129	R CFFV 10E J 0W25 E2	1
SR17	R1001129	R CFFV 10E J 0W25 E2	1
SR18	R1001129	R CFFV 10E J 0W25 E2	1
SR19	R1001129	R CFFV 10E J 0W25 E2	1
SR20	R1001129	R CFFV 10E J 0W25 E2	1
SR21	R1001129	R CFFV 10E J 0W25 E2	1
SR22	R1001129	R CFFV 10E J 0W25 E2	1
SR23	R1001129	R CFFV 10E J 0W25 E2	1
SR24	R1001129	R CFFV 10E J 0W25 E2	1
SR25	R1001129	R CFFV 10E J 0W25 E2	1
SR26	R1001129	R CFFV 10E J 0W25 E2	1

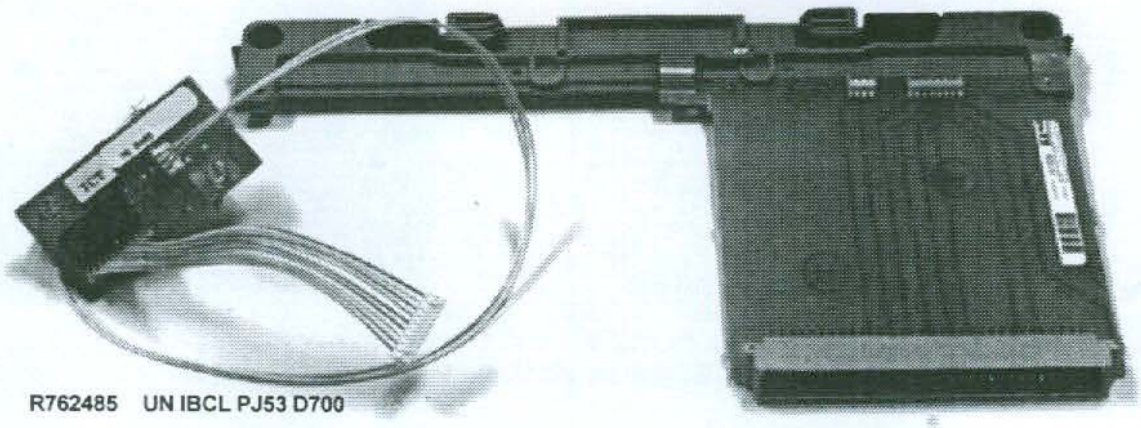
Kit BCL link *801S/*808/*701 R9827861

How to use in the *801S/*808.

Barco's BCL link is a special option for multiple projector installations which provides an equal contrast level for all the projectors. The link prevents each projector of having its own contrast level, and is particularly useful for simulation installations.



R761838 Signal Transfer module



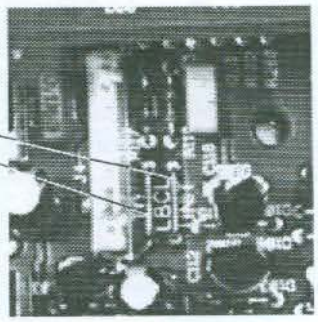
R762485 UN IBCL PJ53 D700

Contents of the kit :

R5930361	BOX404 325X180X 80	1
R593545	BAG AST 203X305MM	1
R761838	**UN BCL PJ49 IBCL LINK**	**1**
R762485	**UN IBCL PJ53 D700**	**1**
R806106	BOXF BAR 265X165X25 PEF	1

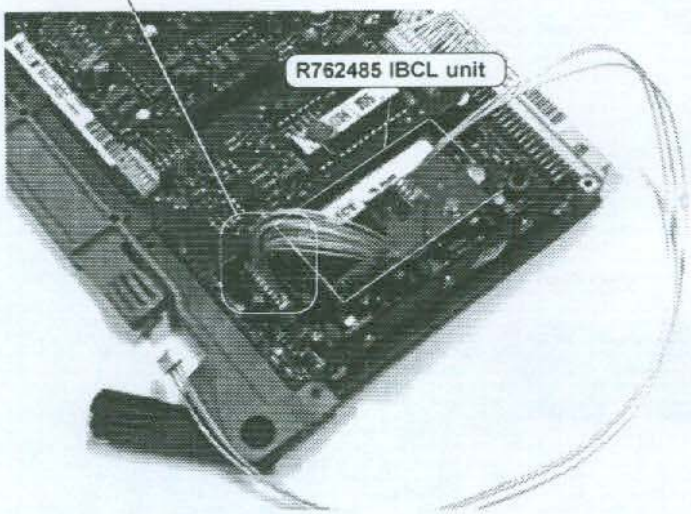
Mounting of the IBCL unit R762485 on the QUAD Decoder+RGB Drive module

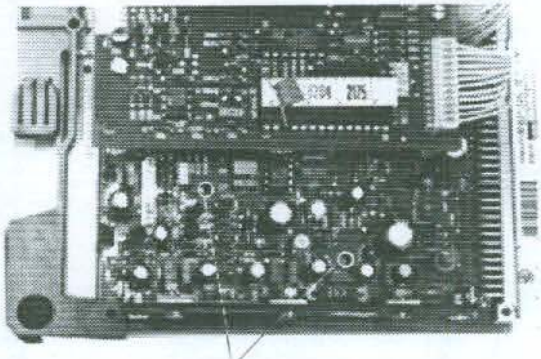
ATTENTION: remove before mounting the unit the two jumpers nearest the IBCL connector on the module.



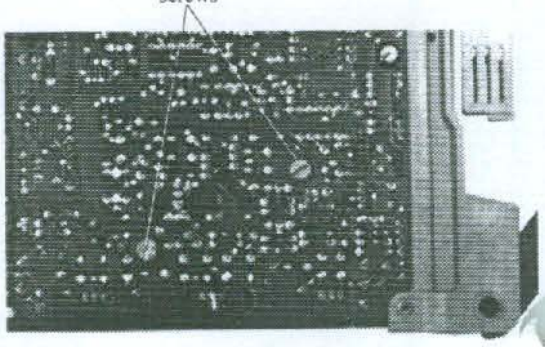
Place the IBCL unit on the module lining up the threaded holes in the two spacers with the two holes in the module.
Using the two screws provided, tighten the unit into place.

Insert the plug of the IBCL unit cable into the IBCL connector on the module.



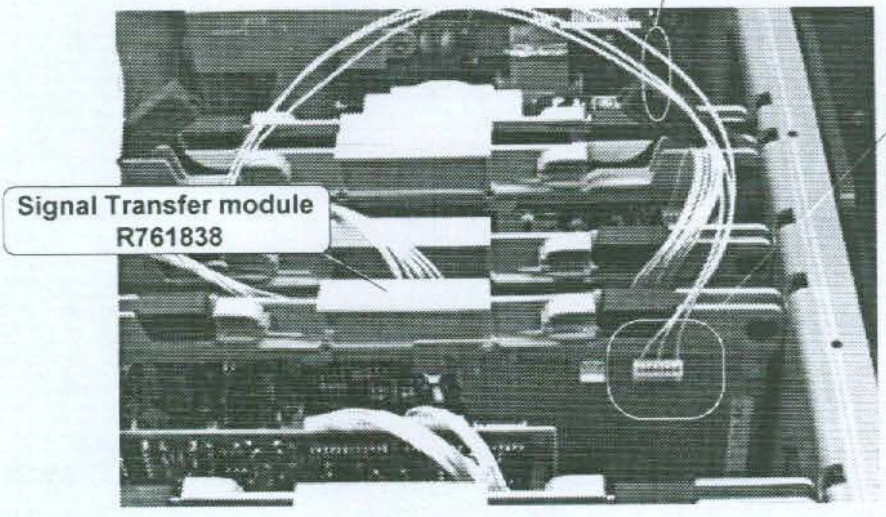


provided holes
screws



Mounting the Signal Transfer module R761838

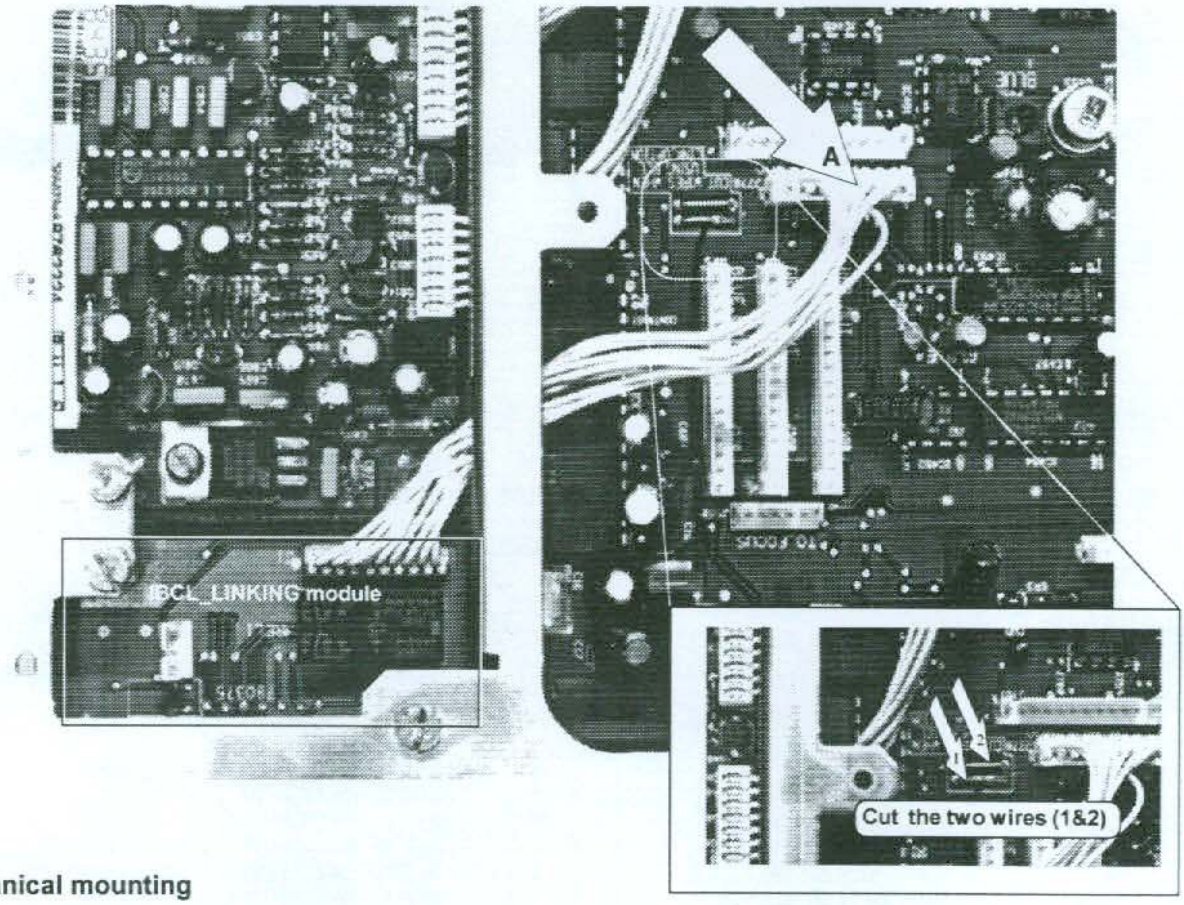
- Remove the RGB Analog Auto Sync Input module and insert the Signal transfer module R761838
- Install the connection with the IBCL unit by plugging in the plug of the three wired cable into the provided connector on the Signal Tranfert module.



How to use in the *701

Electrical connection

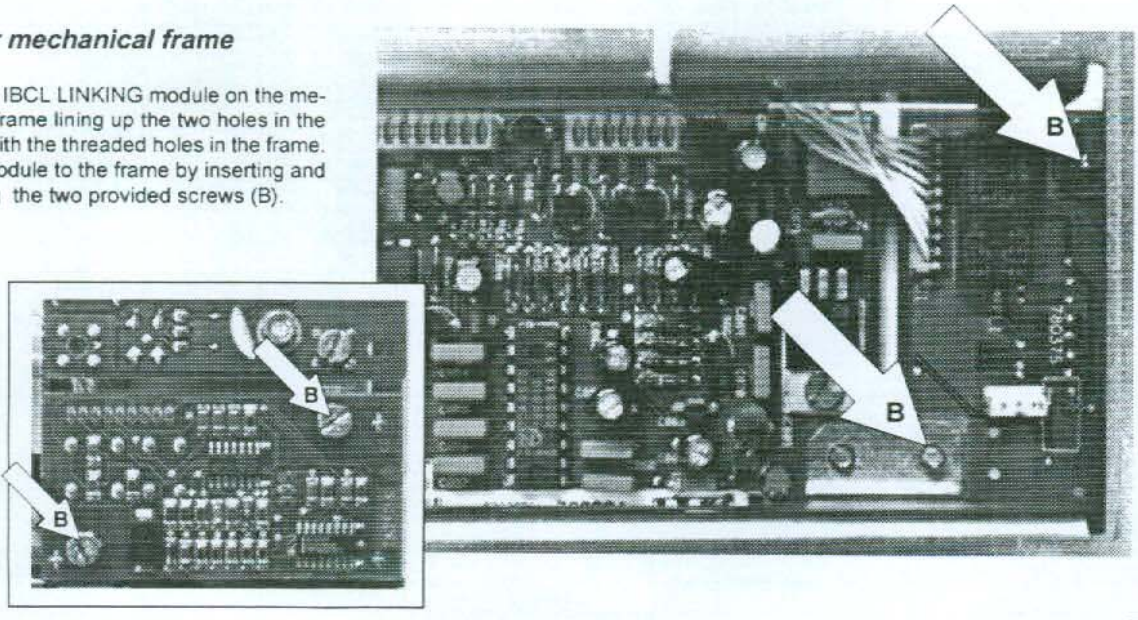
- Connect the IBCL_LINKING module to the RGB Input+Driver module by plugging in the BCL_LINK_INT plug (A) into the BCL_LINK_INT connector (J778) on the input module
- !! Cut the two wires (1&2) on the input module to allow BCL Linking operation (see illustration below)



Mechanical mounting

Former mechanical frame

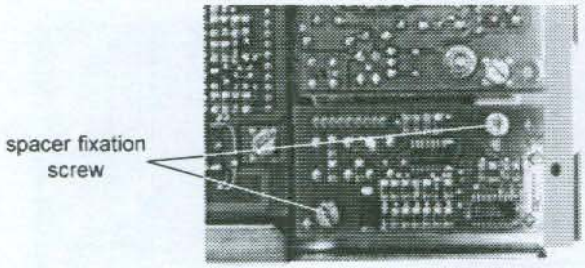
Place the IBCL LINKING module on the mechanical frame lining up the two holes in the module with the threaded holes in the frame. Fix the module to the frame by inserting and tightening the two provided screws (B).

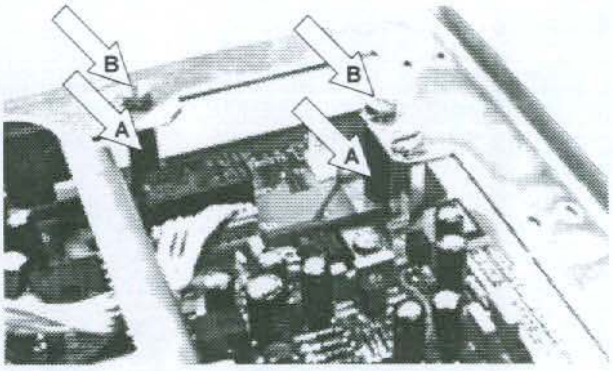


Present mechanical frame

Mount two spacers (A) on the IBCL LINKING module.

Place the assembly on the mechanical frame lining up the two holes in the spacers with the threaded holes in the frame. Fix the module to the frame by inserting and tightening the two provided screws (B).





Parts listing R9827861

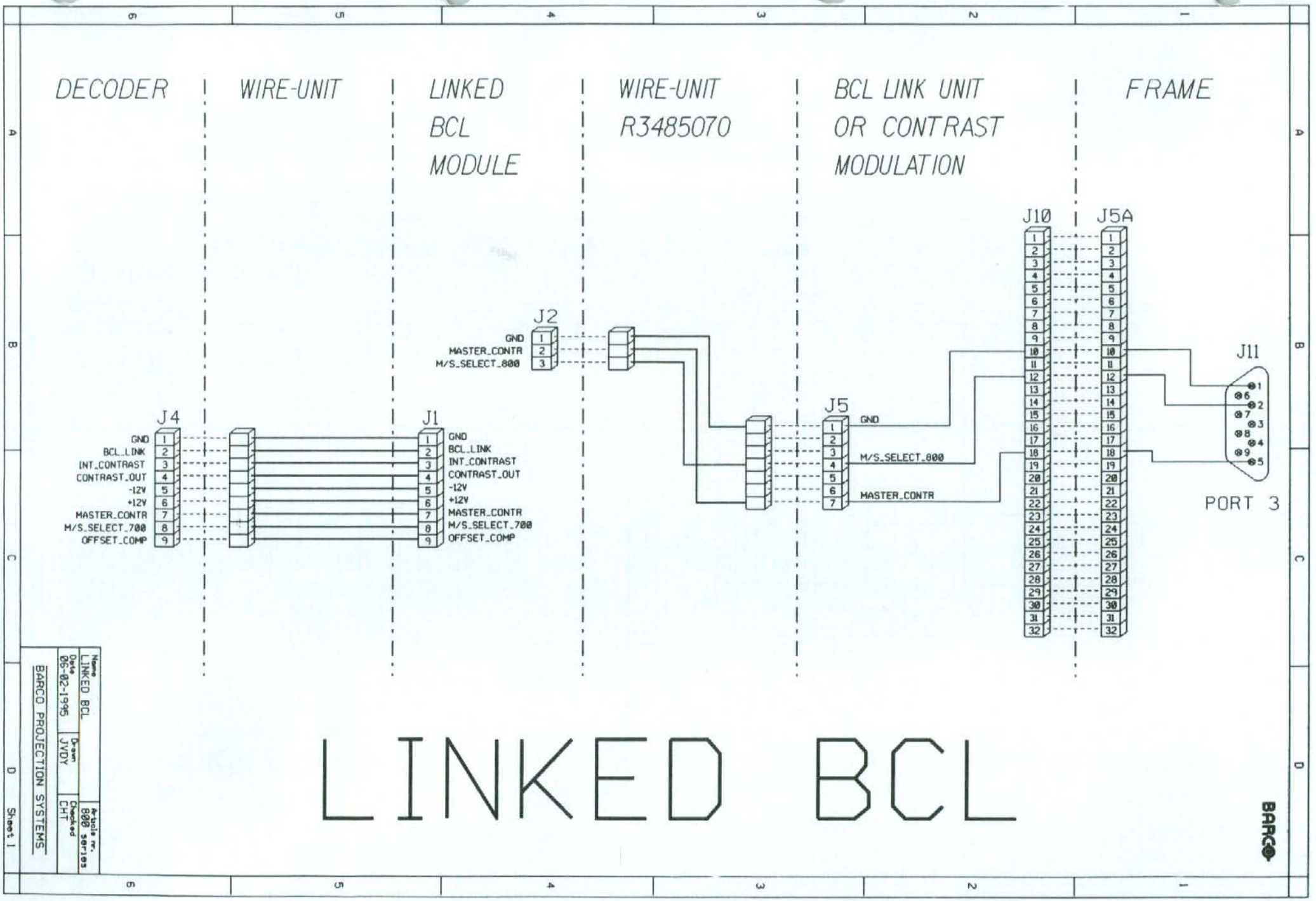
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
9000	R5930361	BOX404 325X180X 80	1
9010	R593545	BAG AST 203X305MM	1
2100	R761838	UN BCL PJ49 IBCL LINK	1
2000	R762485	UN IBCL PJ53 D700	1
9100	R806106	BOXF BAR 265X165X25 PEF	1

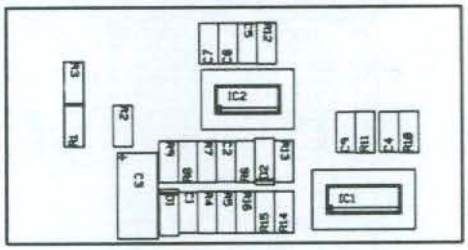
Parts listing R762485

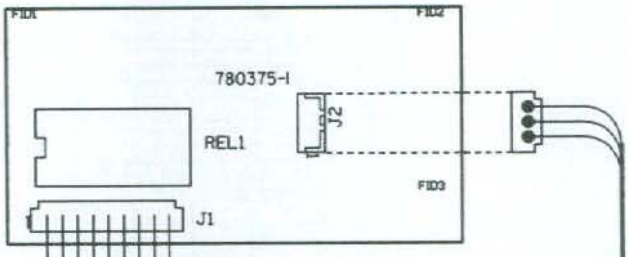
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
3000	R3484092	CD CT FTMT P 9 100	1
3100	R3485070	CD CT $FTFT P7/3 400	1
110	R3631059	SCR D933 M 3 X 8 XIC	4
100	R802666	SPR L17 D 6 M 3 B	2
C 1	P210122	C# X7R MU 100N K 50 1206	1
C 2	P210097	C# X7R MU 33N K 50 1206	1
C 3	P212031	C# TA 22M M 16 7343	1
C 4	P210122	C# X7R MU 100N K 50 1206	1
C 5	P210122	C# X7R MU 100N K 50 1206	1
C 6	P210122	C# X7R MU 100N K 50 1206	1
C 7	P210122	C# X7R MU 100N K 50 1206	1
C 9	P210122	C# X7R MU 100N K 50 1206	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234099	D#4148 R DMMELF	1
I 1	P230030	U#4053 SO16 I	1
I 2	P230203	U#084 TL SO14 P	1
J 1	R313923	J CT H MBT P 3 M2SN	1
PC	R780375	PCD#PJ53 D700 IBCL	1
R 1	P200097	R# CE H 10K J 0W12 1206	1
R 2	P200080	R# CE H 2K J 0W12 1206	1
R 3	P200674	R# CE H 8M2 K 0W12 1206	1
R 4	P200065	R# CE H470E J 0W12 1206	1
R 5	P200137	R# CE H470K J 0W12 1206	1
R 6	P200121	R# CE H100K J 0W12 1206	1
R 7	P200121	R# CE H100K J 0W12 1206	1
R 8	P200097	R# CE H 10K J 0W12 1206	1
R 9	P200097	R# CE H 10K J 0W12 1206	1
R 10	P200097	R# CE H 10K J 0W12 1206	1
R 11	P200137	R# CE H470K J 0W12 1206	1
R 12	P200080	R# CE H 2K J 0W12 1206	1
R 13	P200097	R# CE H 10K J 0W12 1206	1
R 14	P200097	R# CE H 10K J 0W12 1206	1
R 15	P200097	R# CE H 10K J 0W12 1206	1
R 16	P200105	R# CE H 22K J 0W12 1206	1
REL1	R324350	RLY 12V 2C BH DIP M	1

Parts listing R761838

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
100	R722276	LOCK PJ49 PCB UN CPL	1
200	R802877	LOCK PJ49 PCB TTL	1
J1	R313525	J EUR2C MBS P64 E1C2S 1,6	2
J2	R313943	J CT H MBS P 3 M2SN	1
J3	R313947	J CT H MBS P 7 M2SN	1
PC	R780154	PCS PJ49 800 IBCL LINK	1


DECODER
WIRE-UNIT
LINKED BCL MODULE
WIRE-UNIT R3485070
BCL LINK UNIT OR CONTRAST MODULATION
FRAME
J4
GND
BCL_LINK
INT_CONTRAST
CONTRAST_OUT
-12V
+12V
MASTER_CONTR
M/S_SELECT_700
OFFSET_COMP
J1
J2
GND
MASTER_CONTR
M/S_SELECT_800
J5
M/S_SELECT_800
MASTER_CONTR
J10
J5A
J11
PORT 3
LINKED BCL
BARCO PROJECTION SYSTEMS
Name LINKED BCL
Date 06-02-1995
Drawn JVDY
Checked CHT
Article nr. 800 series
Sheet 1
BARCO





ONLY FOR 800 SERIES
TO IBCL-LINK UNIT

700 SERIES : FROM INPUT DRIVER (J778)
800 SERIES : FROM DECODER (J4)

COMP.	LOC.	COMP.	LOC.
C1	B 2	J1	C 3
C2	C 2	J2	C 3
C3	B 2		
C4	C 2	R1	B 2
C5	C 1	R2	B 2
C6	C 2	R3	B 2
C7	C 2	R4	C 2
C9	C 2	R5	C 2
		R6	C 2
D1	B 2	R7	C 2
D2	C 2	R8	C 2
		R9	B 2
FID1	B 3	R10	C 2
FID2	C 3	R11	C 2
FID3	C 3	R12	C 1
		R13	C 2
IC1	C 2	R14	C 2
IC2	C 2	R15	C 2
		R16	C 2
		RELI	C 3

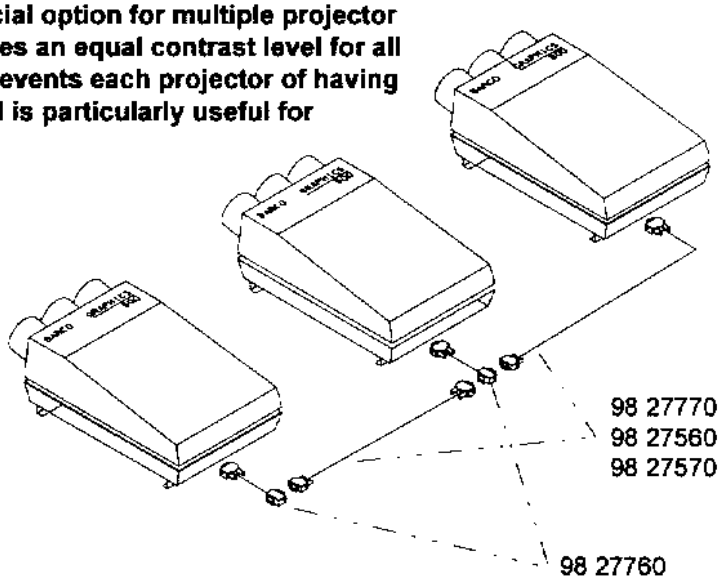
Name	Article nr.
LINKED BCL UNIT	76 2485-1
Date: 26-04-1995 / Drawn: JVDY / Checked: KBU	

BARCO PROJECTION SYSTEMS

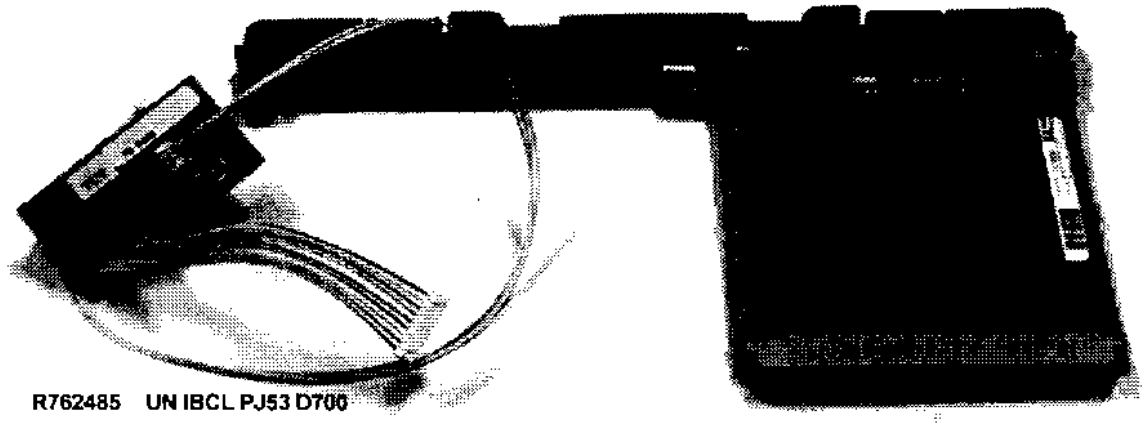
Kit BCL link *801S/*808/*701 R9827861

How to use in the *801S/*808.

Barco's BCL link is a special option for multiple projector installations which provides an equal contrast level for all the projectors. The link prevents each projector of having its own contrast level, and is particularly useful for simulation installations.



R761838 Signal Transfer module



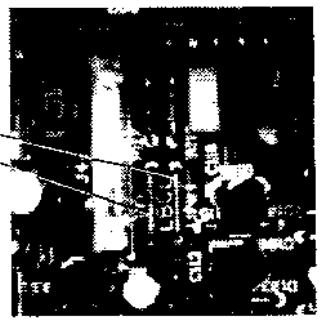
R762485 UN IBCL PJ53 D700

Contents of the kit :

R5930361	BOX404 325X180X 80	1
R593545	BAG AST 203X305MM	1
R761838	**UN BCL PJ49 IBCL LINK**	**1**
R762485	**UN IBCL PJ53 D700**	**1**
R806106	BOXF BAR 265X165X25 PEF	1

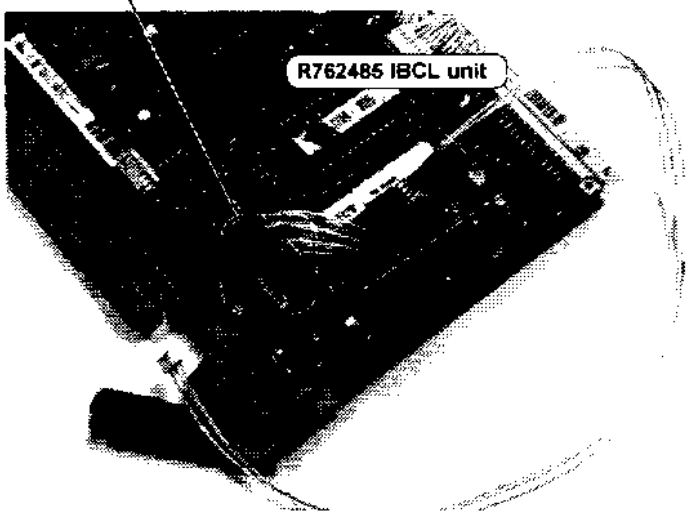
Mounting of the IBCL unit R762485 on the QUAD Decoder+RGB Drive module

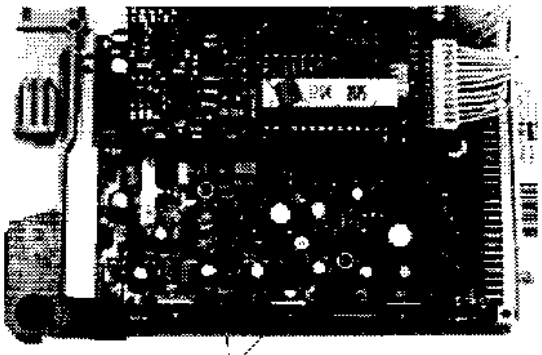
ATTENTION: remove before mounting the unit the two jumpers nearest the IBCL connector on the module.



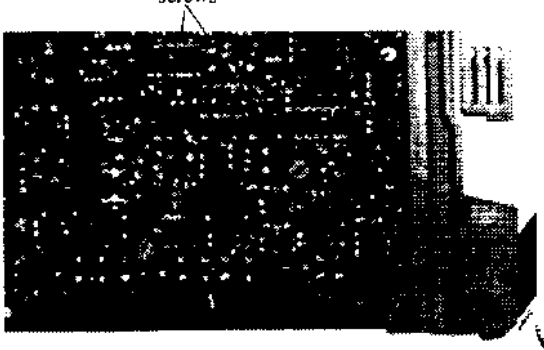
Place the IBCL unit on the module lining up the threaded holes in the two spacers with the two holes in the module.
Using the two screws provided, tighten the unit into place.

Insert the plug of the IBCL unit cable into the IBCL connector on the module.



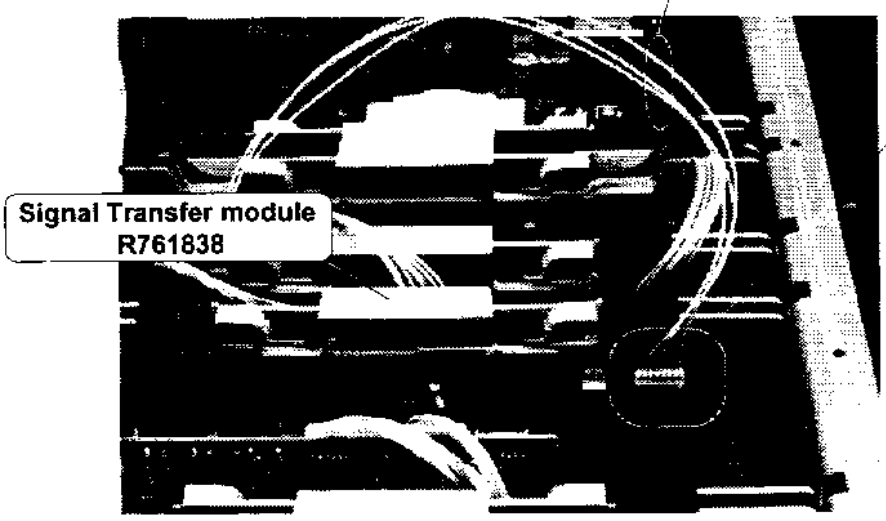


provided holes
screws



Mounting the Signal Transfer module R761838

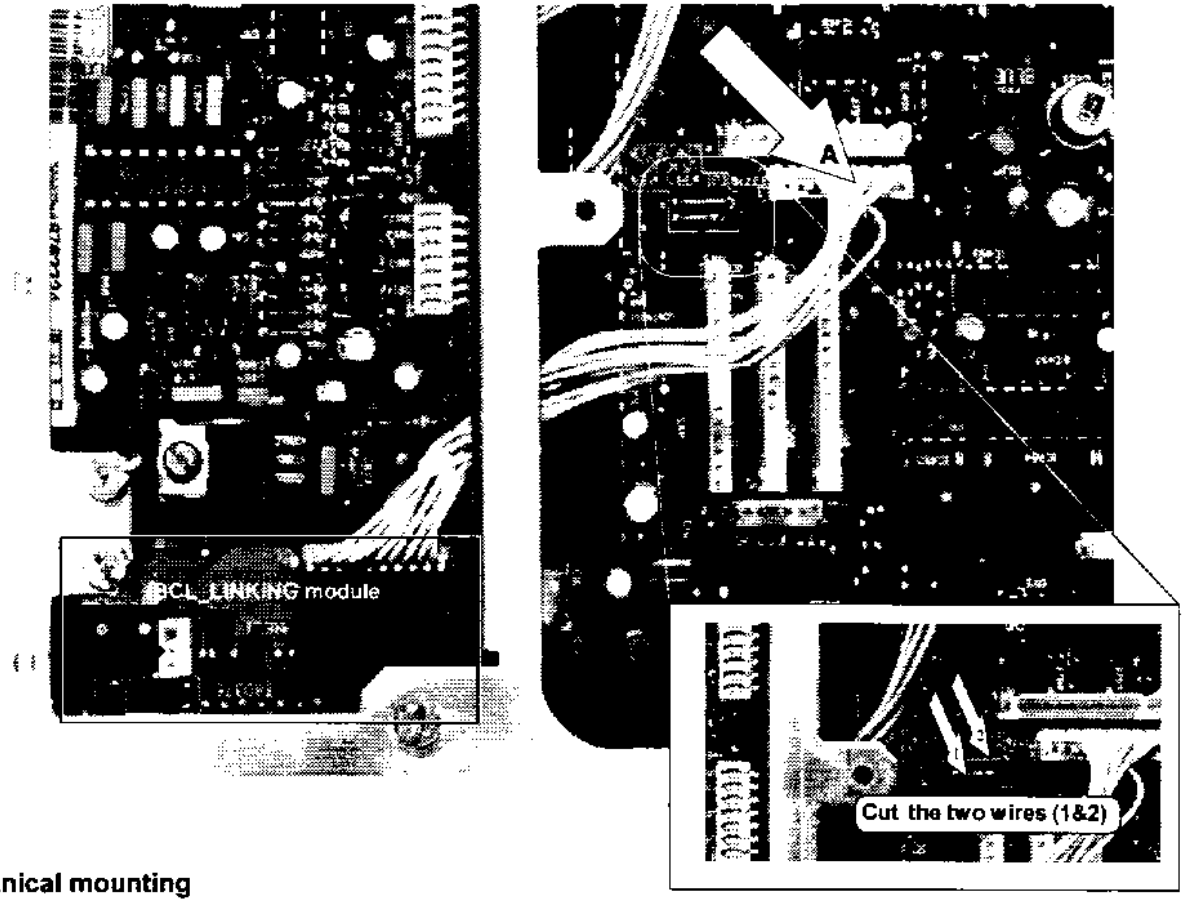
- Remove the RGB Analog Auto Sync Input module and insert the Signal transfer module R761838
- Install the connection with the IBCL unit by plugging in the plug of the three wired cable into the provided connector on the Signal Tranfert module.



How to use in the *701

Electrical connection

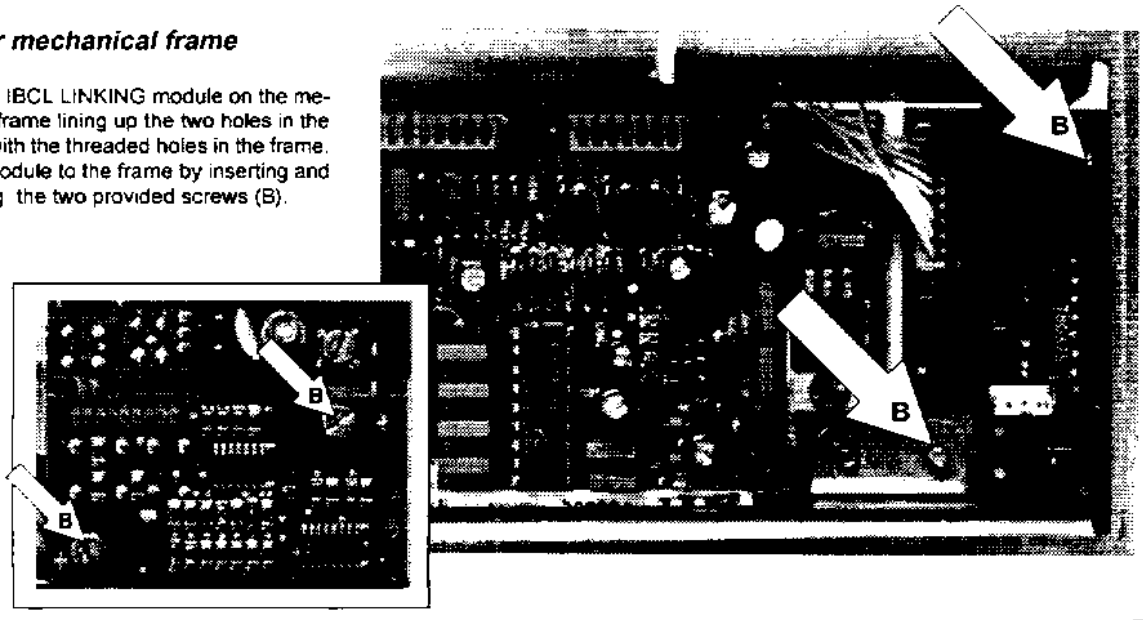
- Connect the IBCL_LINKING module to the RGB Input+Driver module by plugging in the BCL_LINK_INT plug (A) into the BCL_LINK_INT connector (J778) on the input module
- !! Cut the two wires (1&2) on the input module to allow BCL Linking operation (see illustration below)



Mechanical mounting

Former mechanical frame

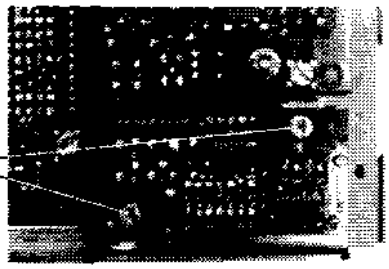
Place the IBCL LINKING module on the mechanical frame lining up the two holes in the module with the threaded holes in the frame. Fix the module to the frame by inserting and tightening the two provided screws (B).

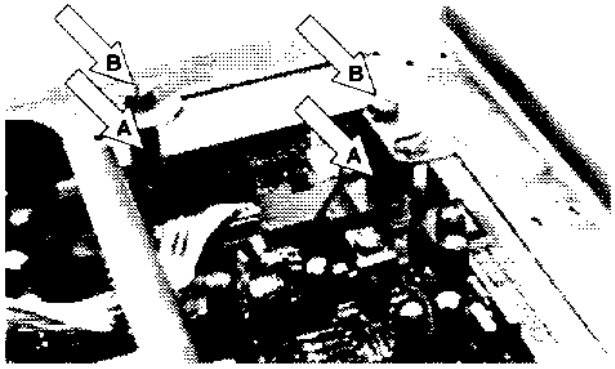


Present mechanical frame

Mount two spacers (A) on the IBCL LINKING module.

Place the assembly on the mechanical frame lining up the two holes in the spacers with the threaded holes in the frame. Fix the module to the frame by inserting and tightening the two provided screws (B).





Parts listing R9827861

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
9000	R5930361	BOX404 325X180X 80	1
9010	R593545	BAG AST 203X305MM	1
2100	R761838	UN BCL PJ49 IBCL LINK	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
2000	R762485	UN IBCL PJ53 D700	1
9100	R806106	BOXF BAR 265X165X25 PEF	1

Parts listing R762485

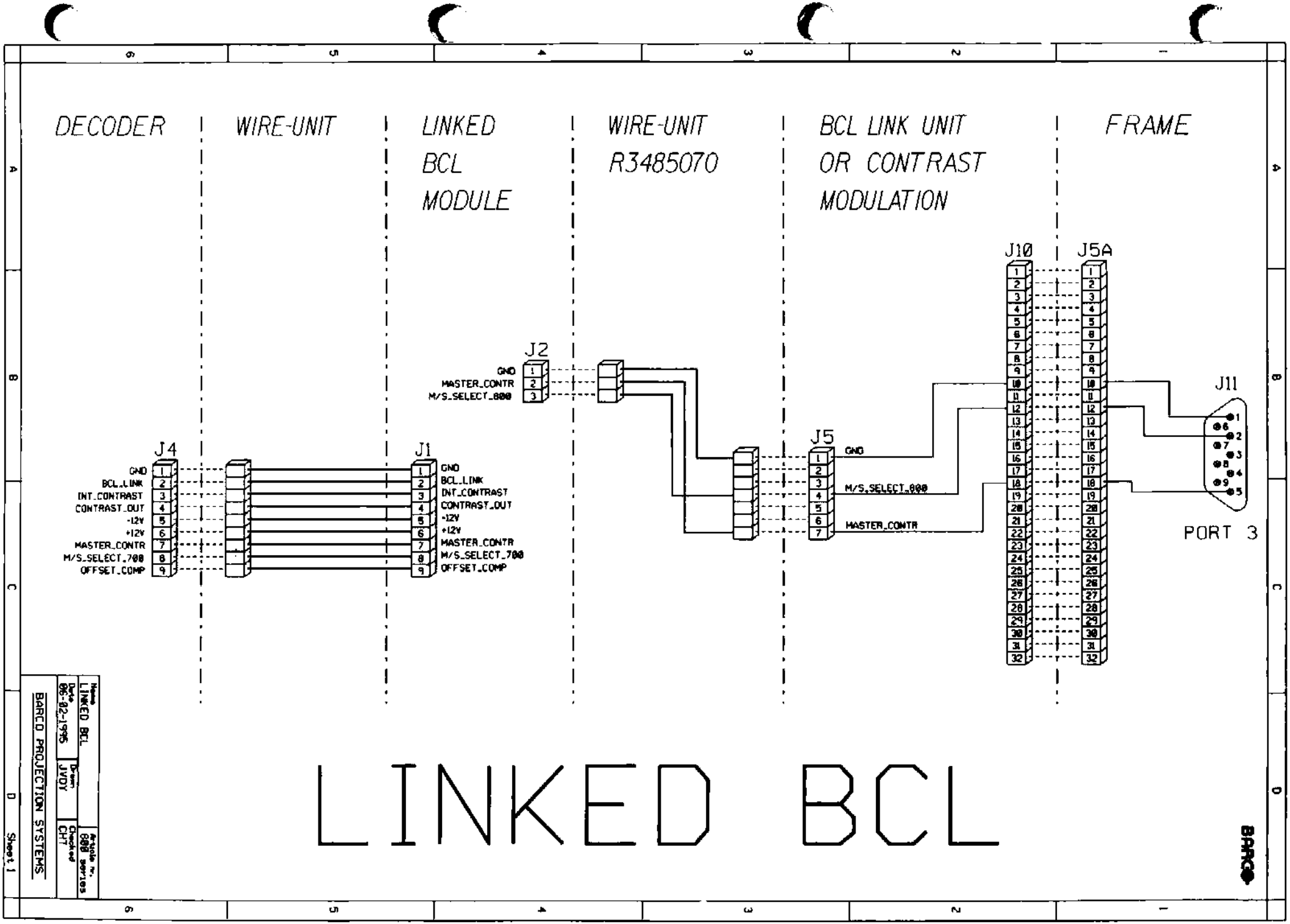
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
3000	R3484092	CD CT FTMT P 9 100	1
3100	R3485070	CD CT $FTFT P7/3 400	1
110	R3631059	SCR D933 M 3 X 8 XIC	4
100	R802666	SPR L17 D 6 M 3 B	2
C 1	P210122	C# X7R MU 100N K 50 1206	1
C 2	P210097	C# X7R MU 33N K 50 1206	1
C 3	P212031	C# TA 22M M 16 7343	1
C 4	P210122	C# X7R MU 100N K 50 1206	1
C 5	P210122	C# X7R MU 100N K 50 1206	1
C 6	P210122	C# X7R MU 100N K 50 1206	1
C 7	P210122	C# X7R MU 100N K 50 1206	1
C 9	P210122	C# X7R MU 100N K 50 1206	1
D 1	P234099	D#4148 R DMMELF	1
D 2	P234099	D#4148 R DMMELF	1
I 1	P230030	U#4053 SO16 I	1
I 2	P230203	U#084 TL SO14 P	1
J 1	R313923	J CT H MBT P 3 M2SN	1

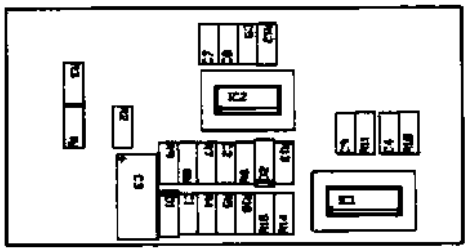
SIT.	ITEM NO.	DESCRIPTION	QUANTITY
PC	R780375	PCD#PJ53 D700 IBCL	1
R 1	P200097	R# CE H 10K J 0W12 1206	1
R 2	P200080	R# CE H 2K J 0W12 1206	1
R 3	P200674	R# CE H 8M2 K 0W12 1206	1
R 4	P200065	R# CE H470E J 0W12 1206	1
R 5	P200137	R# CE H470K J 0W12 1206	1
R 6	P200121	R# CE H100K J 0W12 1206	1
R 7	P200121	R# CE H100K J 0W12 1206	1
R 8	P200097	R# CE H 10K J 0W12 1206	1
R 9	P200097	R# CE H 10K J 0W12 1206	1
R 10	P200097	R# CE H 10K J 0W12 1206	1
R 11	P200137	R# CE H470K J 0W12 1206	1
R 12	P200080	R# CE H 2K J 0W12 1206	1
R 13	P200097	R# CE H 10K J 0W12 1206	1
R 14	P200097	R# CE H 10K J 0W12 1206	1
R 15	P200097	R# CE H 10K J 0W12 1206	1
R 16	P200105	R# CE H 22K J 0W12 1206	1
REL1	R324350	RLY 12V 2C BH DIP M	1

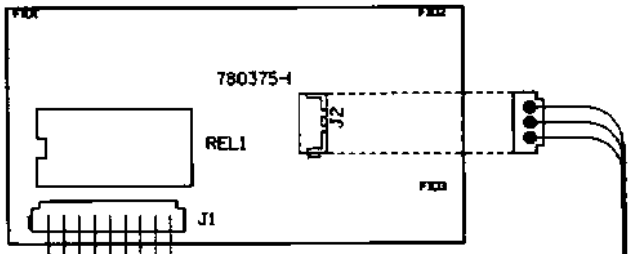
Parts listing R761838

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
100	R722276	LOCK PJ49 PCB UN CPL	1
200	R802877	LOCK PJ49 PCB TTL	1
J1	R313525	J EUR2C MBS P64 E1C2S 1.6	2

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
J2	R313943	J CT H MBS P 3 M2SN	1
J3	R313947	J CT H MBS P 7 M2SN	1
PC	R780154	PCS PJ49 800 IBCL LINK	1


DECODER
WIRE-UNIT
LINKED BCL MODULE
WIRE-UNIT R3485070
BCL LINK UNIT OR CONTRAST MODULATION
FRAME
J4
GND
BCL_LINK
INT_CONTRAST
CONTRAST_OUT
-12V
+12V
MASTER_CONTR
M/S_SELECT_700
OFFSET_COMP
J1
J2
M/S_SELECT_800
J5
J10
J5A
J11
PORT 3
LINKED BCL
BARCO PROJECTION SYSTEMS
Name LINKED BCL
Date 06-02-1995
Drawn JVDY
Checked CHT
Article nr. 800 series
Sheet 1





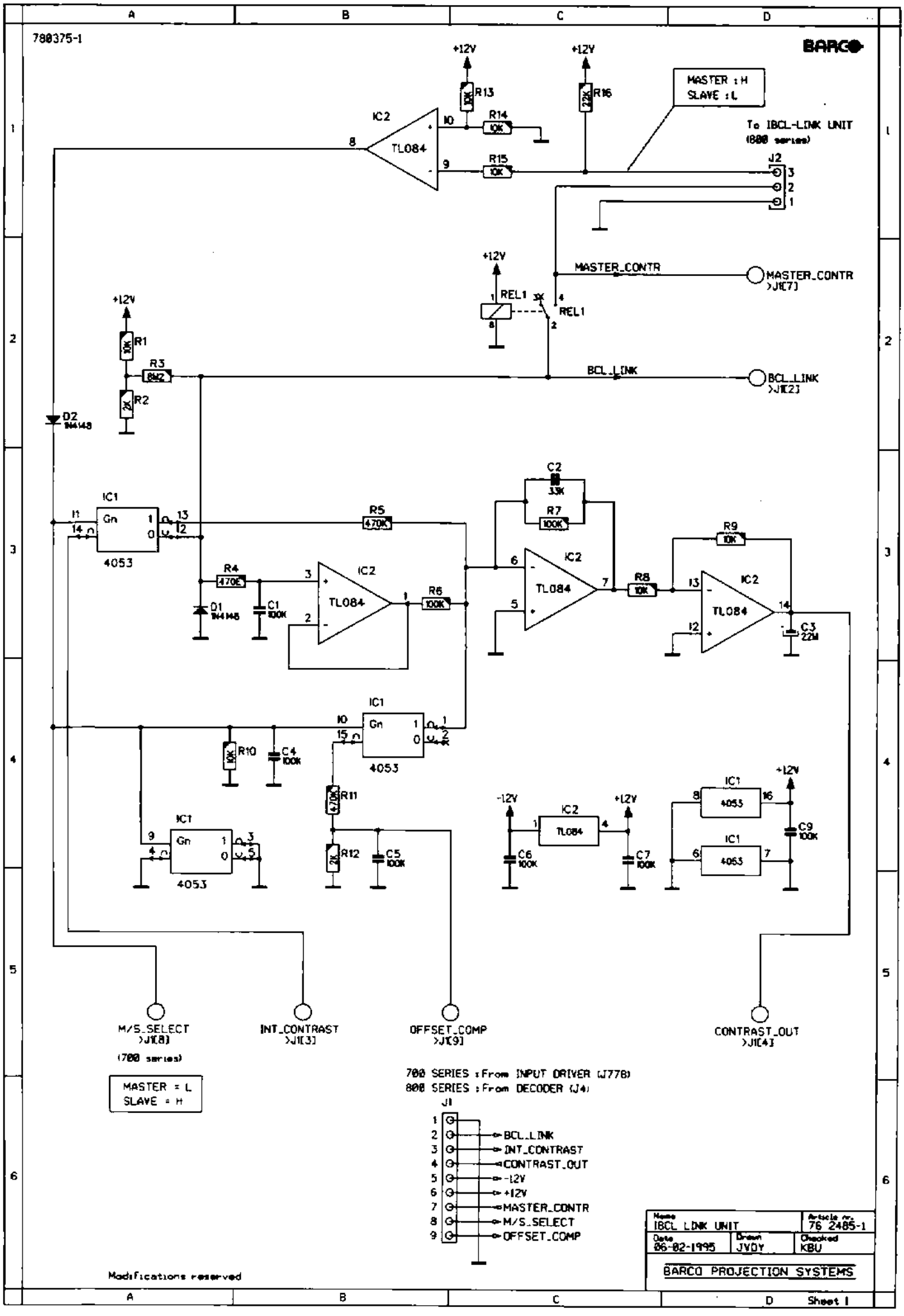
ONLY FOR 800 SERIES
TO IBCL-LINK UNIT

700 SERIES : FROM INPUT DRIVER (J778)
800 SERIES : FROM DECODER (J4)

COMP.	LOC.	COMP.	LOC.
C1	B 2	L1	C 3
C2	C 2	L2	C 3
C3	B 2		
C4	C 2	R1	B 2
C5	C 1	R2	B 2
C6	C 2	R3	B 2
C7	C 2	R4	C 2
C8	C 2	R5	C 2
		R6	C 2
D1	B 2	R7	C 2
D2	C 2	R8	C 2
		R9	B 2
FD1	B 5	R10	C 2
FD2	C 5	R11	C 2
FD3	C 5	R12	C 1
		R13	C 2
IC1	C 2	R14	C 2
IC2	C 2	R15	C 2
		R16	C 2
		REL1	C 3

Name	Article nr.
LINKED BCL UNIT	76 2485-1
Date: 26-04-1995 / Drawn: JVDY / Checked: KBU	

BARCO PROJECTION SYSTEMS


780375-1
BARCO
+12V
R13
R14
R16
IC2
TL084
MASTER : H
SLAVE : L
To IBCL-LINK UNIT
(800 series)
J2
R15
MASTER_CONTR
MASTER_CONTR >J1[7]
REL1
BCL_LINK
BCL_LINK >J1[2]
R1
R2
R3
D2
IC1
4053
R5
C2
R7
R9
R4
D1
C1
R6
R8
C3
R10
C4
R11
R12
C5
C6
C7
C9
-12V
M/S_SELECT >J1[8]
(700 series)
MASTER = L
SLAVE = H
INT_CONTRAST >J1[3]
OFFSET_COMP >J1[9]
CONTRAST_OUT >J1[4]
700 SERIES : From INPUT DRIVER (J778)
800 SERIES : From DECODER (J4)
J1
BCL_LINK
INT_CONTRAST
CONTRAST_OUT
-12V
+12V
MASTER_CONTR
M/S_SELECT
OFFSET_COMP
Modifications reserved
IBCL LINK UNIT
76 2485-1
06-02-1995
JVDY
KBU
BARCO PROJECTION SYSTEMS
Sheet 1