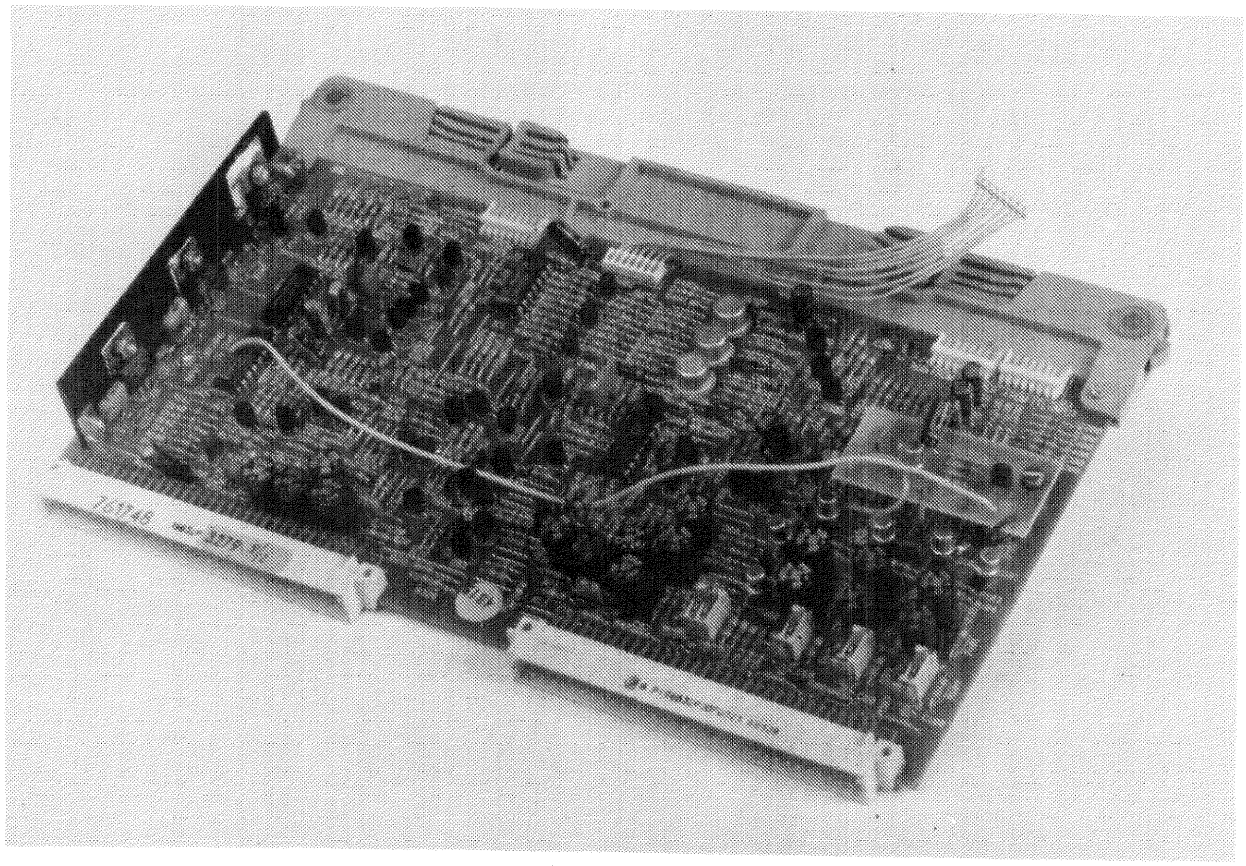
BARCO

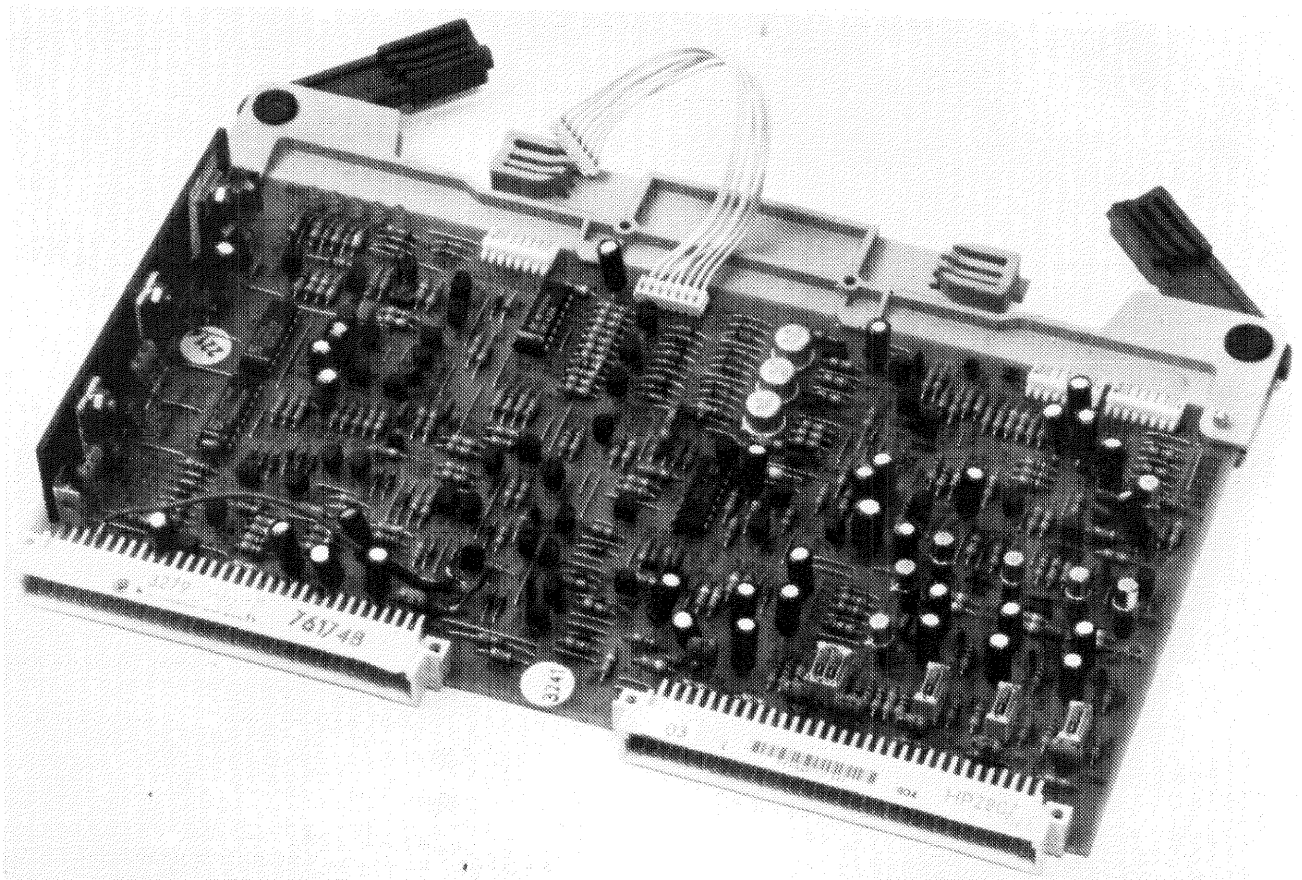
BARCO Projection Systems

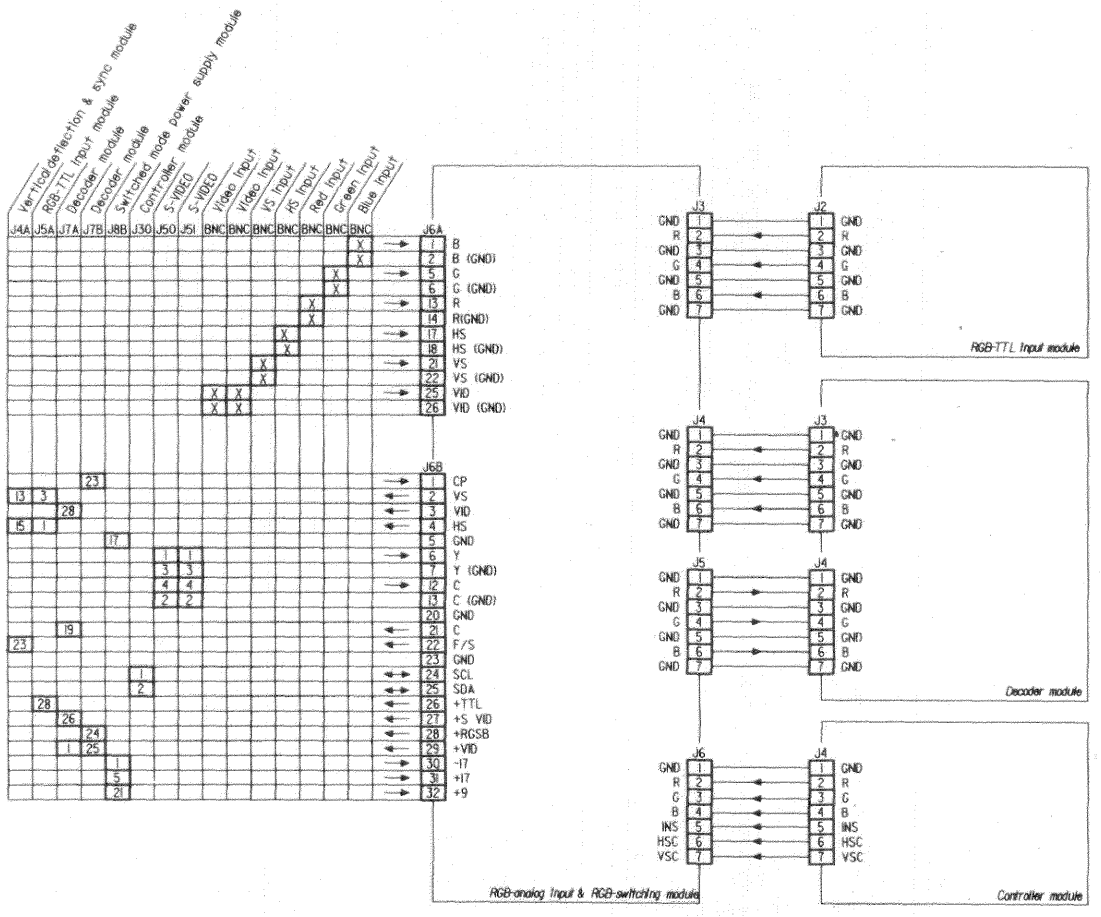
SECTION E

service sheet

RGB ANALOG INPUT & SWITCHING BOARD 76 1748

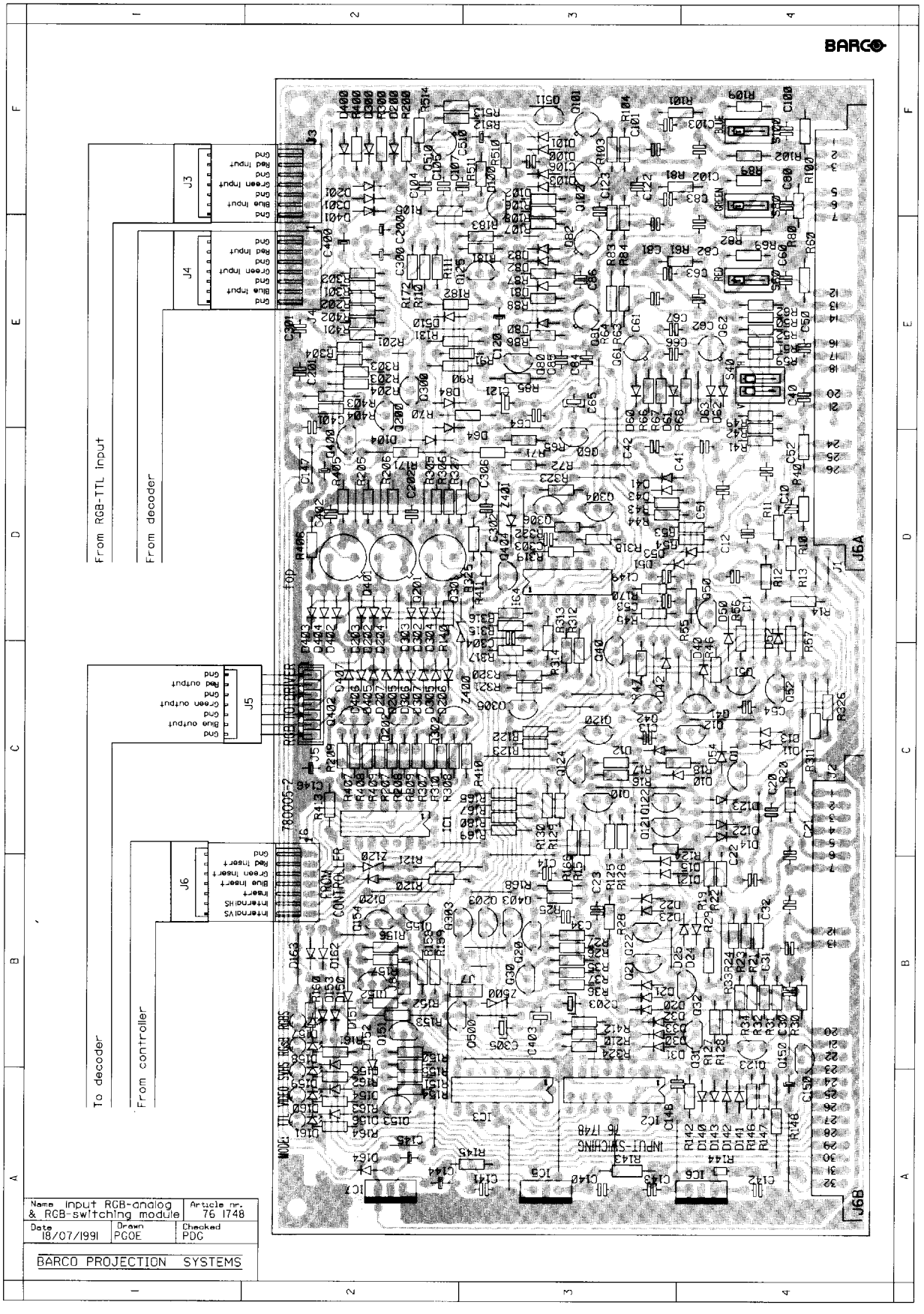






Name	Interconnection RGB-analog & RGB-switching module	Article nr. 761748
Date 15/09/1990	Drawn PG	Checked PD

BARCO PROJECTION SYSTEMS



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C11	D 4	D153	B 2	R25	B 3	R301	E 2
C12	D 4	D154	A 2	R26	B 3	R302	E 2
C13	C 3	D155	B 2	R27	B 3	R303	E 2
C14	B 3	D156	A 2	R28	B 3	R304	E 2
C20	C 4	D157	B 2	R29	B 4	R305	D 2
C21	C 4	D158	B 2	R30	B 4	R306	D 2
C22	B 4	D159	A 2	R31	B 4	R307	C 2
C23	B 3	D160	A 2	R32	B 4	R308	C 2
C30	B 4	D161	A 2	R33	B 4	R309	C 2
C31	B 4	D162	B 2	R34	B 4	R310	C 2
C32	B 4	D163	B 2	R35	B 3	R311	C 4
C34	B 3	D164	A 2	R36	B 3	R312	D 3
C40	E 4	D200	F 2	R37	B 3	R313	D 3
C41	D 4	D201	F 2	R40	D 4	R314	C 3
C42	D 3	D202	C 2	R41	D 4	R315	D 3
C50	E 4	D203	C 2	R42	D 4	R316	D 3
C51	D 4	D204	C 2	R43	D 3	R317	C 3
C52	D 4	D205	C 2	R44	D 3	R318	D 3
C53	D 3	D206	C 2	R45	D 3	R319	D 3
C54	C 4	D207	C 2	R46	C 4	R320	C 3
C60	E 4	D300	F 2	R47	C 3	R321	C 3
C61	E 3	D301	F 2	R49	E 4	R322	D 3
C62	E 4	D302	C 2	R50	E 4	R323	D 3
C63	E 4	D303	C 2	R51	E 4	R324	B 3
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C65	E 3	D305	C 2	R53	D 3	R326	C 4
C66	E 4	D306	C 2	R54	D 3	R327	D 2
C67	E 4	D307	C 2	R55	D 4	R400	F 2
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C82	E 4	D402	C 2	R59	E 4	R403	E 2
C83	F 4	D403	C 2	R60	E 4	R404	E 2
C84	E 3	D404	C 2	R61	E 4	R405	D 2
C85	E 3	D405	C 2	R62	E 4	R406	D 2
C86	E 3	D406	C 2	R63	E 3	R407	C 2
C100	F 4	D407	C 2	R64	E 3	R408	C 2
C101	F 3	D510	E 2	R65	D 3	R409	C 2
C102	F 4			R66	D 3	R410	C 3
C103	F 4	IC1	C 2	R67	D 3	R411	D 3
C104	F 2	IC2	A 3	R68	D 4	R412	B 3
C105	F 2	IC3	A 3	R69	E 4	R413	C 2
C106	F 3	IC4	D 3	R70	E 2	R510	F 3
C107	F 2	IC5	A 3	R71	D 3	R511	F 3
C120	E 3	IC6	A 4	R72	D 3	R512	F 3
C121	E 3	IC7	A 2	R80	E 4	R513	F 3
C122	F 3			R81	F 4	R514	F 2
C123	F 3	J1	D 4	R82	E 4		
C140	A 3	J2	C 4	R83	E 3	S40	E 4
C141	A 3	J3	F 2	R84	E 3	S60	F 4
C142	A 4	J4	E 2	R85	E 3	S80	F 4
C143	A 3	J5	C 2	R86	E 3	S100	F 4
C144	A 2	J6	C 2	R87	E 3		
C145	A 2	J7	B 3	R88	E 3	Z120	C 2
C146	C 2	J8	B 2	R89	F 4	Z400	C 3
C147	D 2			R90	E 3	Z401	D 3
C148	A 3	Q10	C 3	R91	E 3	Z500	B 3
C149	D 3	Q11	C 4	R100	F 4		
C150	A 4	Q12	C 4	R101	F 4		
C200	E 2	Q20	B 3	R102	F 4		
C201	E 2	Q21	B 3	R103	F 3		
C202	D 2	Q22	B 3	R104	F 3		
C203	B 3	Q30	B 3	R105	F 2		
C300	E 2	Q31	B 4	R106	F 3		
C301	E 2	Q32	B 4	R107	E 3		
C302	D 3	Q40	C 3	R108	F 3		
C303	D 3	Q41	C 4	R109	F 4		
C304	D 3	Q42	C 3	R110	E 2		
C305	B 3	Q50	D 4	R11	F 2		
C306	D 3	Q51	C 4	R120	B 2		
C400	E 2	Q52	C 4	R121	B 2		
C401	E 2	Q60	D 3	R122	C 3		
C402	D 2	Q61	E 3	R123	C 3		
C403	B 3	Q62	E 4	R124	C 4		
C510	F 3	Q80	E 3	R125	B 3		
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D84	E 2	Q511	F 3	R171	D 2		
D100	F 3			R172	E 2		
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D102	F 3	R81	D 4	R181	E 3		
D103	F 3	R82	D 4	R182	E 3		
D104	D 2	R83	D 4	R183	E 3		
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D140	A 4	R88	C 4	R204	E 2		
D141	A 4	R89	B 4	R205	D 2		
D142	A 4	R20	C 4	R206	D 2		
D143	A 4	R21	B 4	R207	C 2		
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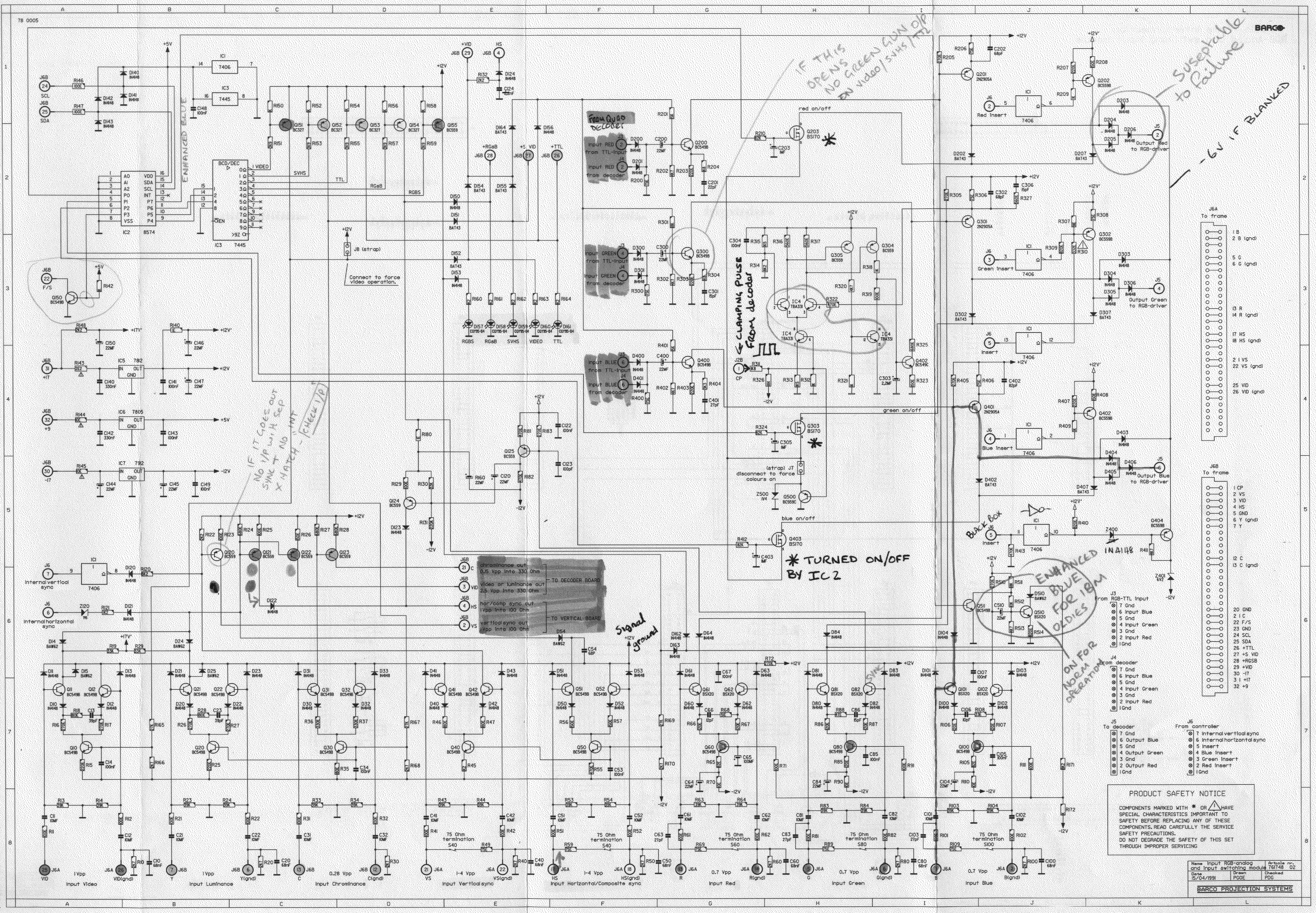
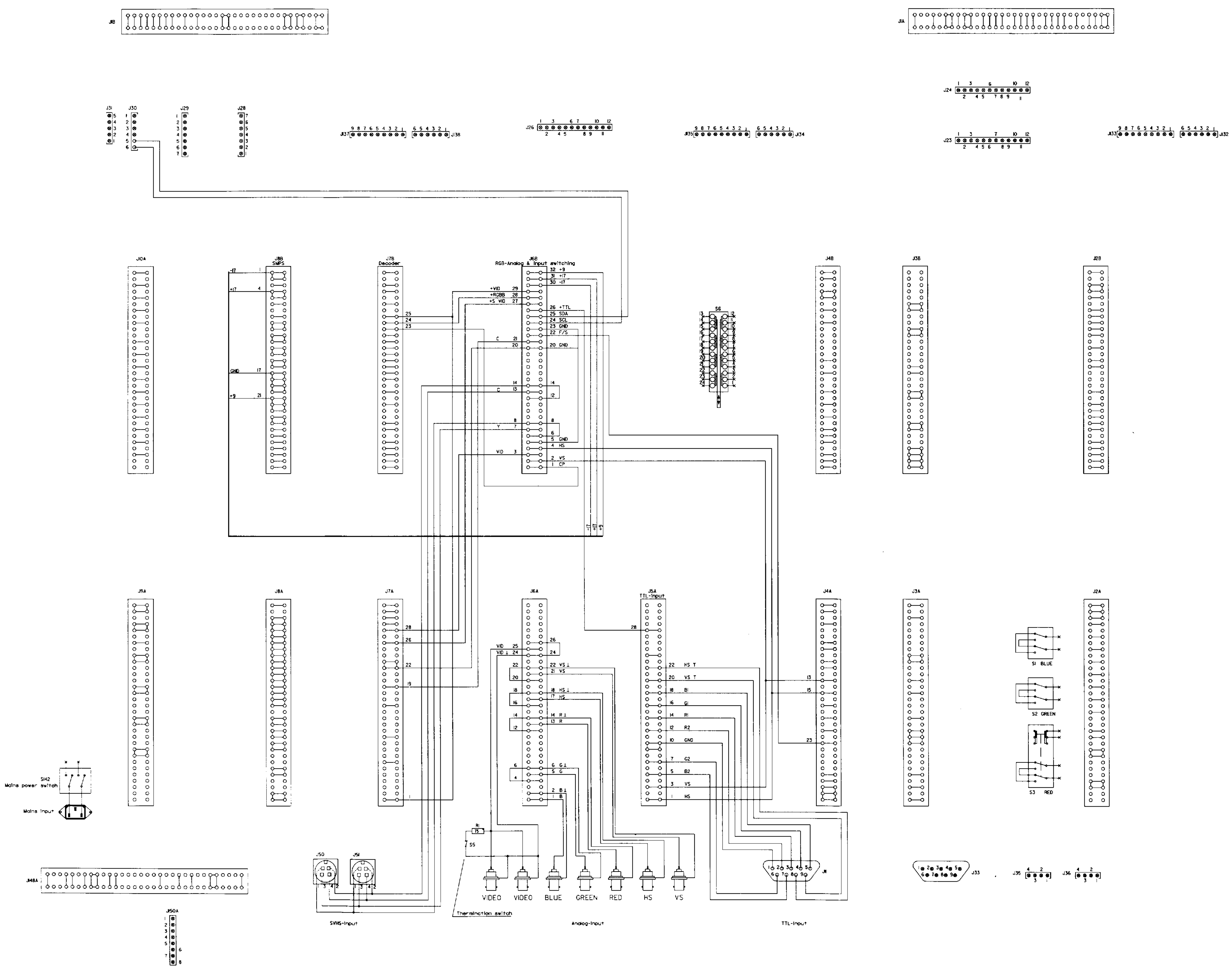
D151	B 2	R23	B 4	R209	C 2		
				R210	B 3		



78 0005
BARCO
ENHANCED BLUE
IC2 8574
IC3 7445
BCD/DEC
Connect to force video operation.
J8 (strap)
IF IT GOES OUT NO I/P with SEP SYNC + NO INT X HATCH - CHECK I/P
IF THIS OPENS NO GREEN GUN O/P ON video/SVHS/TTL
Suseptable to failure
-6V IF BLANKED
FROM QUAD DECODER
Input RED from TTL-input
Input RED from decoder
Input GREEN from TTL-input
Input GREEN from decoder
Input BLUE from TTL-input
Input BLUE from decoder
CLAMPING PULSE FROM decoder
red on/off
green on/off
blue on/off
(strap) J7 disconnect to force colours on
* TURNED ON/OFF BY IC2
Red Insert
Green Insert
Blue Insert
Insert
Output Red to RGB-driver
Output Green to RGB-driver
Output Blue to RGB-driver
BLACK BOX
IN4148
ENHANCED BLUE FOR IBM OLDIES
ON FOR NORM OPERATION
Internal vertical sync
Internal horizontal sync
chrominance out 0.5 Vpp into 330 Ohm
video or luminance out 2.5 Vpp into 330 Ohm
TO DECODER BOARD
hor/comp sync out 1 Vpp into 100 Ohm
vertical sync out 1 Vpp into 100 Ohm
TO VERTICAL BOARD
Signal ground
RGBS
RGsB
SVHS
VIDEO
TTL
1 Vpp Input Video
1 Vpp Input Luminance
0.28 Vpp Input Chrominance
1-4 Vpp Input Verticalsync
1-4 Vpp Input Horizontal/Composite sync
0.7 Vpp Input Red
0.7 Vpp Input Green
0.7 Vpp Input Blue
75 Ohm termination
J6A To frame
1 B
2 B (gnd)
5 G
6 G (gnd)
13 R
14 R (gnd)
17 HS
18 HS (gnd)
21 VS
22 VS (gnd)
25 VID
26 VID (gnd)
J6B To frame
1 CP
2 VS
3 VID
4 HS
5 GND
6 Y (gnd)
7 Y
12 C
13 C (gnd)
20 GND
21 C
22 F/S
23 GND
24 SCL
25 SDA
26 +TTL
27 +5 VID
28 +RGSB
29 +VID
30 -17
31 +17
32 +9
J3 from RGB-TTL input
7 Gnd
6 Input Blue
5 Gnd
4 Input Green
3 Gnd
2 Input Red
1 Gnd
J4 from decoder
7 Gnd
6 Input Blue
5 Gnd
4 Input Green
3 Gnd
2 Input Red
1 Gnd
J5 To decoder
7 Gnd
6 Output Blue
5 Gnd
4 Output Green
3 Gnd
2 Output Red
1 Gnd
J6 From controller
7 Internal vertical sync
6 Internal horizontal sync
5 Insert
4 Blue Insert
3 Green Insert
2 Red Insert
1 Gnd
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 Input RGB-analog and input switching module
Article nr. 761748 02
Date 15/04/1991
Drawn PGOE
Checked PDG
BARCO PROJECTION SYSTEMS

Main frame Interconnection
RGB-Analog and switching Input module

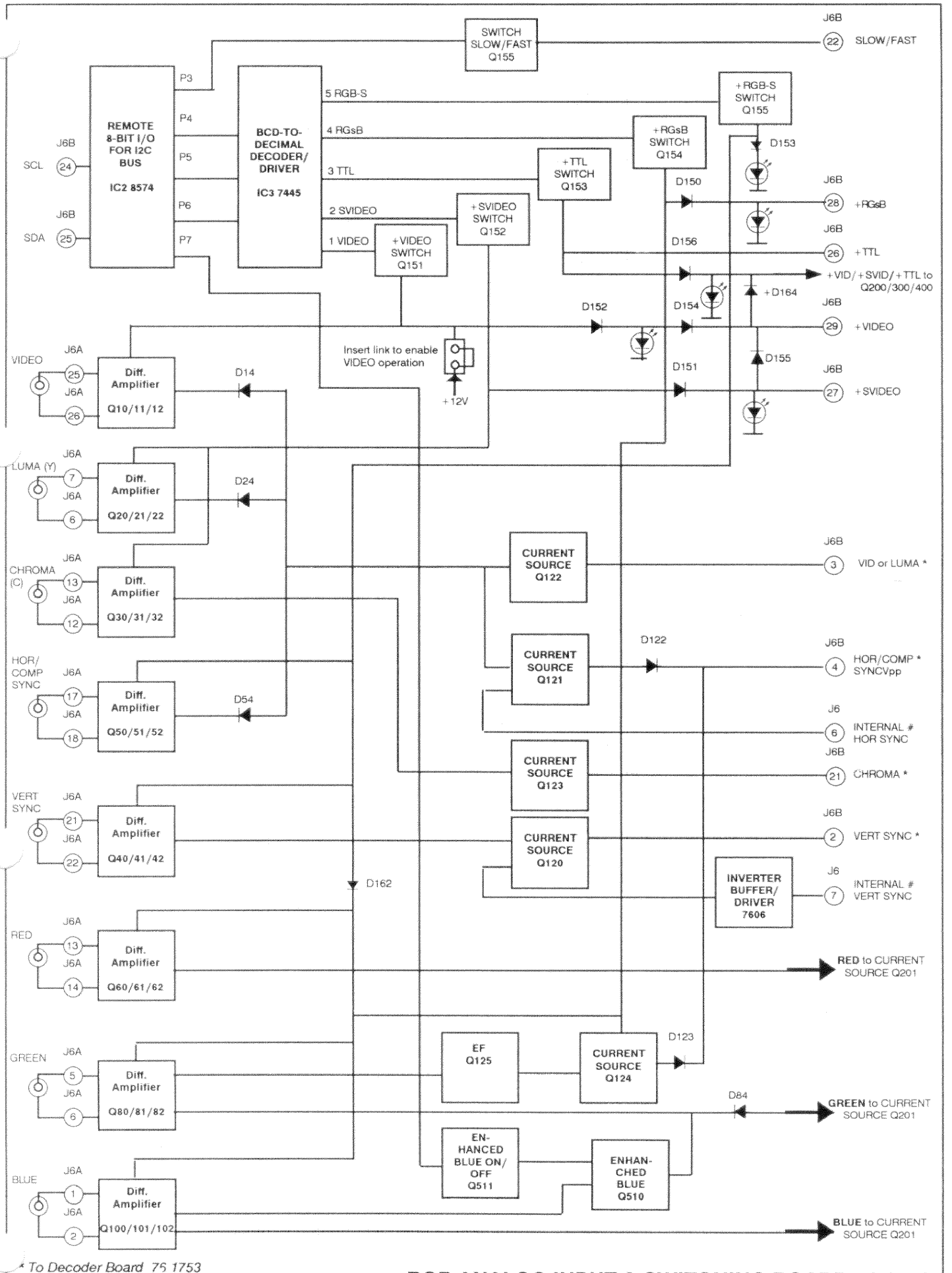


Modifications reserved

Name	Article nr.
Interconnection RGB-Ana & switching Inp.	76 1748

Date	Drawn	Checked
08/07/1991	PGOE	PDC

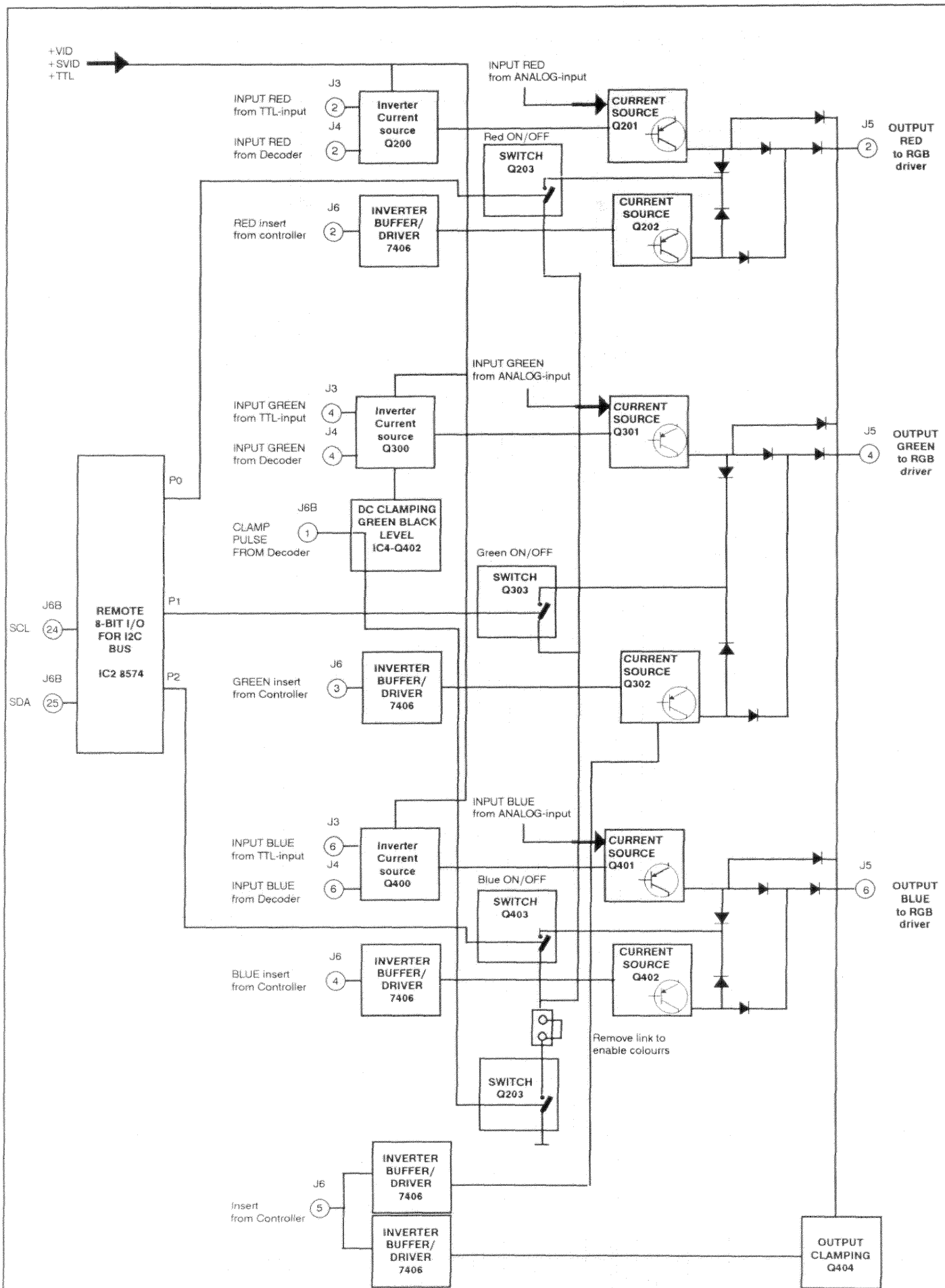
BARCO PROJECTION SYSTEMS



* To Decoder Board 76 1753

\# To SyncVert Deflection Board 76 1768

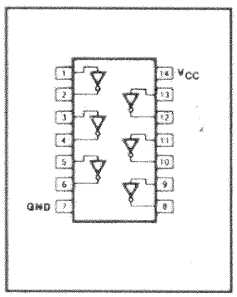
RGB ANALOG INPUT & SWITCHING BOARD 76 1748



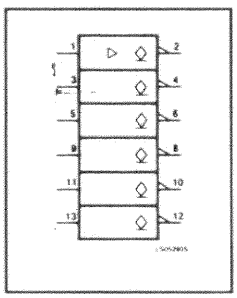
RGB ANALOG INPUT & SWITCHING BOARD 76 1748

HEX INVERTER BUFFER/DRIVER 7406

Pin configuration



Logic symbol

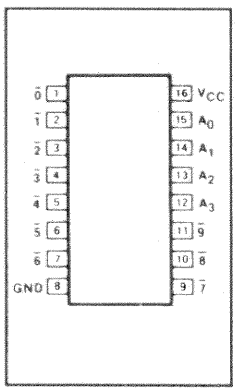


Function table

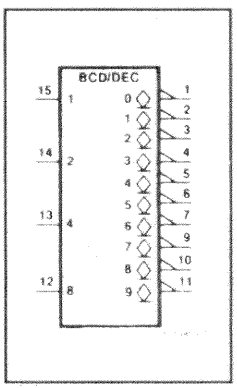
INPUT	OUTPUT
A	Y
H	L
L	H

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

Pin configuration



Logic symbol



Function table

A_3	A_2	A_1	A_0	$\bar{0}$	$\bar{1}$	$\bar{2}$	$\bar{3}$	$\bar{4}$	$\bar{5}$	$\bar{6}$	$\bar{7}$	$\bar{8}$	$\bar{9}$
L	L	L	L	L	H	H	H	H	H	H	H	H	H
L	L	L	H	H	L	H	H	H	H	H	H	H	H
L	L	H	L	H	H	L	H	H	H	H	H	H	H
L	L	H	H	H	H	H	L	H	H	H	H	H	H
L	H	L	L	H	H	H	H	L	H	H	H	H	H
L	H	L	H	H	H	H	H	H	L	H	H	H	H
L	H	H	L	H	H	H	H	H	H	L	H	H	H
L	H	H	H	H	H	H	H	H	H	H	L	H	H
H	L	L	L	H	H	H	H	H	H	H	H	L	H
H	L	L	H	H	H	H	H	H	H	H	H	H	L
H	L	H	L	H	H	H	H	H	H	H	H	H	H
H	L	H	H	H	H	H	H	H	H	H	H	H	H
H	H	L	L	H	H	H	H	H	H	H	H	H	H
H	H	L	H	H	H	H	H	H	H	H	H	H	H
H	H	H	L	H	H	H	H	H	H	H	H	H	H
H	H	H	H	H	H	H	H	H	H	H	H	H	H

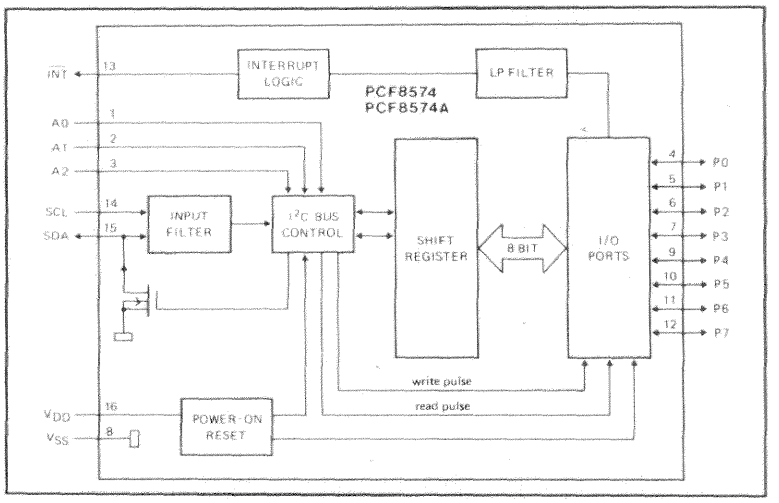
H = HIGH voltage levels
L = LOW voltage levels

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

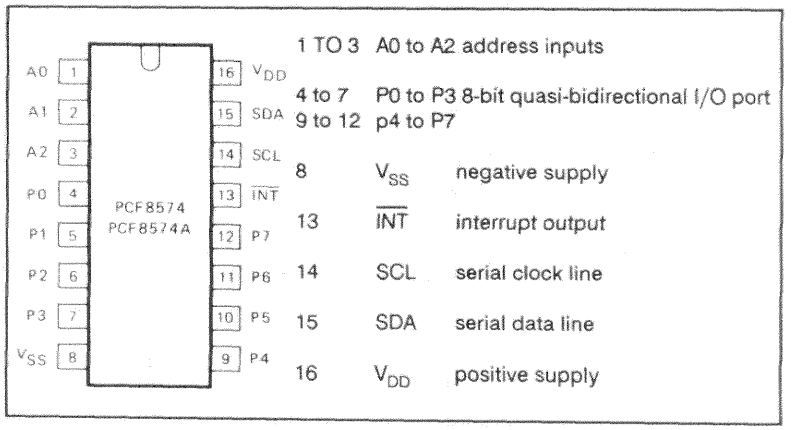
General description

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 micrcomputers without a serial interface to the I2C bus (as a slave function only). The device consists of an 8-bit quasi-bidirectional port and an I2C interface. The PCF8574 has low current consumption and includes latched outputs with high current drive capability for directly driving LEDs. 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 I2 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 9 to 12	P0 to P3 p4 to P7	8-bit quasi-bidirectional I/O port
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

AINTRODUCTION.

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

The necessary selection voltage is obtained from a BCD/decimal decoder which is on its turn supplied with a BCD coded signal delivered by an I2C interface.

The text pixels from the TXT block on the control panel are added and the video is blanked with the INS signal whenever required.

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

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

A. MODE SELECTION

The I2C bus is connected with the 8574 interface chip and the output ports P4-6 are then input 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, +SVHS, +TTL, +RGSB and +RGBS.

B. 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 and D164.

We like to mention that this switching voltage lids the red 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 indee'on' via +17V", R29, and the +12V lines.

C. 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 lit via D151.

D. TTL INPUT .

The +TTL voltage leaves this board at contact J2B(26) for the TTL input.

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

And, the TTL signals enter the board at the bases via a gating diode.

The +TTL voltage supplies D161 as for the other modes.

E. 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.

F. 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 IC54. 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 of the base of Q301.

G. 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 PO - 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 R, G and B as well as the Ro, Go and Bo pixel information.

H. INSERT

This signal, produced on the control panel (TXT block), clamps the outputs of the R, G and B drivers under black level to blank the video as to create a 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.

ITEM NO.	SIT.	DESCRIPTION
13 30291		Q MICA INSULAT TO-220
13 30292		Q BUSH INSULAT TO-220
11 3722	C.10	C POMEFF 68K K5 63
11 1678	C.11	C ELPRBI 10M M5 25
11 1678	C.12	C ELPRBI 10M M5 25
11 2237	C.13	C NPO MI 39P G5 63
11 2774	C.14	C CE MI 100K U5 63
11 3722	C.20	C POMEFF 68K K5 63
11 1678	C.21	C ELPRBI 10M M5 25
11 1678	C.22	C ELPRBI 10M M5 25
11 2237	C.23	C NPO MI 39P G5 63
11 1678	C.31	C ELPRBI 10M M5 25
11 1678	C.32	C ELPRBI 10M M5 25
11 2774	C.34	C CE MI 100K U5 63
11 3722	C.40	C POMEFF 68K K5 63
11 1678	C.41	C ELPRBI 10M M5 25
11 1678	C.42	C ELPRBI 10M M5 25
11 3722	C.50	C POMEFF 68K K5 63
11 1678	C.51	C ELPRBI 10M M5 25
11 1678	C.52	C ELPRBI 10M M5 25
11 2774	C.53	C CE MI 100K U5 63
11 2240	C.54	C NPO MI 68P J5 63
11 3722	C.60	C POMEFF 68K K5 63
11 1678	C.61	C ELPRBI 10M M5 25
11 1678	C.62	C ELPRBI 10M M5 25
11 2235	C.63	C NPO MI 27P G5 63
11 1510	C.64	C ELPRMI 22M M5 25
11 1466	C.65	C ELPR 100M Z5 16
11 2231	C.66	C NPO MI 12P G5 63
11 2774	C.67	C CE MI 100K U5 63
11 3722	C.80	C POMEFF 68K K5 63
11 1678	C.81	C ELPRBI 10M M5 25
11 1678	C.82	C ELPRBI 10M M5 25
11 2235	C.83	C NPO MI 27P G5 63
11 1510	C.84	C ELPRMI 22M M5 25
11 2774	C.85	C CE MI 100K U5 63
11 2232	C.86	C NPO MI 15P G5 63
11 3722	C100	C POMEFF 68K K5 63
11 1678	C101	C ELPRBI 10M M5 25
11 1678	C102	C ELPRBI 10M M5 25
11 2235	C103	C NPO MI 27P G5 63
11 1510	C104	C ELPRMI 22M M5 25
11 2774	C105	C CE MI 100K U5 63
11 2230	C106	C NPO MI 10P G5 63
11 2774	C107	C CE MI 100K U5 63
11 1510	C120	C ELPRMI 22M M5 25
11 1532	C121	C ELPRMI 22M M5 35
11 2774	C122	C CE MI 100K U5 63
11 2242	C123	C NPO MI 100P J5 63
11 2743	C124	C CE MI 2K2 K5 63
11 3730	C140	C POMEFF 330K K5 63
11 2774	C141	C CE MI 100K U5 63
11 3730	C142	C POMEFF 330K K5 63
11 2774	C143	C CE MI 100K U5 63
11 1510	C144	C ELPRMI 22M M5 25
11 1510	C145	C ELPRMI 22M M5 25
11 1510	C146	C ELPRMI 22M M5 25
11 1510	C147	C ELPRMI 22M M5 25
11 2774	C148	C CE MI 100K U5 63
11 2774	C149	C CE MI 100K U5 63
11 1510	C150	C ELPRMI 22M M5 25
11 1510	C200	C ELPRMI 22M M5 25
11 2227	C201	C NPO MI 5P6 C5 63
11 2240	C202	C NPO MI 68P J5 63
11 1546	C203	C ELPRMI 1M M5 50
11 1510	C300	C ELPRMI 22M M5 25
11 2232	C301	C NPO MI 15P G5 63
11 2240	C302	C NPO MI 68P J5 63
11 1548	C303	C ELPRMI 2M2 M5 50
11 4100	C304	C POMEFF 100K K 100
11 1546	C305	C ELPRMI 1M M5 50
11 2432	C306	C NPO MI 15P G2 63
11 1510	C400	C ELPRMI 22M M5 25
11 2224	C401	C NPO MI 3P3 C5 63
11 2240	C402	C NPO MI 68P J5 63
11 1546	C403	C ELPRMI 1M M5 50
11 1510	C510	C ELPRMI 22M M5 25
13 1621	D.10	D 1N4148 SWITCH
13 1621	D.11	D 1N4148 SWITCH
13 1621	D.12	D 1N4148 SWITCH
13 1621	D.13	D 1N4148 SWITCH
13 1628	D.14	D BAW62 SWITCH
13 1628	D.15	D BAW62 SWITCH
13 1621	D.20	D 1N4148 SWITCH
13 1621	D.21	D 1N4148 SWITCH
13 1621	D.22	D 1N4148 SWITCH
13 1621	D.23	D 1N4148 SWITCH
13 1628	D.24	D BAW62 SWITCH
13 1628	D.25	D BAW62 SWITCH
13 1621	D.30	D 1N4148 SWITCH
13 1621	D.31	D 1N4148 SWITCH
13 1621	D.32	D 1N4148 SWITCH
13 1621	D.33	D 1N4148 SWITCH
13 1621	D.40	D 1N4148 SWITCH
13 1621	D.41	D 1N4148 SWITCH
13 1621	D.42	D 1N4148 SWITCH
13 1621	D.43	D 1N4148 SWITCH
13 1621	D.50	D 1N4148 SWITCH
13 1621	D.51	D 1N4148 SWITCH
13 1621	D.52	D 1N4148 SWITCH
13 1621	D.53	D 1N4148 SWITCH
13 1628	D.54	D BAW62 SWITCH
13 1621	D.60	D 1N4148 SWITCH
13 1621	D.61	D 1N4148 SWITCH
13 1621	D.62	D 1N4148 SWITCH
13 1621	D.63	D 1N4148 SWITCH
13 1621	D.64	D 1N4148 SWITCH
13 1621	D.80	D 1N4148 SWITCH
13 1621	D.81	D 1N4148 SWITCH
13 1621	D.82	D 1N4148 SWITCH
13 1621	D.83	D 1N4148 SWITCH
13 1621	D.84	D 1N4148 SWITCH
13 1621	D100	D 1N4148 SWITCH
13 1621	D101	D 1N4148 SWITCH
13 1621	D102	D 1N4148 SWITCH
13 1621	D103	D 1N4148 SWITCH
13 1621	D104	D 1N4148 SWITCH
13 1621	D120	D 1N4148 SWITCH
13 1621	D121	D 1N4148 SWITCH
13 1621	D122	D 1N4148 SWITCH
13 1621	D123	D 1N4148 SWITCH
13 1621	D124	D 1N4148 SWITCH
13 1621	D140	D 1N4148 SWITCH
13 1621	D141	D 1N4148 SWITCH
13 1621	D142	D 1N4148 SWITCH
13 1621	D143	D 1N4148 SWITCH
13 1621	D150	D 1N4148 SWITCH
13 1636	D151	D BAT43,(85) SCHOTTKY
13 1636	D152	D BAT43,(85) SCHOTTKY
13 1621	D153	D 1N4148 SWITCH
13 1636	D154	D BAT43,(85) SCHOTTKY
13 1636	D155	D BAT43,(85) SCHOTTKY
13 1621	D156	D 1N4148 SWITCH
13 1667	D157	D LED D3 GRE

ITEM NO.	SIT.	DESCRIPTION
13 1667	D158	D LED D3 GRE
13 1667	D159	D LED D3 GRE
13 1667	D160	D LED D3 GRE
13 1667	D161	D LED D3 GRE
13 1621	D162	D 1N4148 SWITCH
13 1621	D163	D 1N4148 SWITCH
13 1636	D164	D BAT43,(85) SCHOTTKY
13 1621	D200	D 1N4148 SWITCH
13 1621	D201	D 1N4148 SWITCH
13 1636	D202	D BAT43,(85) SCHOTTKY
13 1621	D203	D 1N4148 SWITCH
13 1621	D204	D 1N4148 SWITCH
13 1621	D205	D 1N4148 SWITCH
13 1621	D206	D 1N4148 SWITCH
13 1636	D207	D BAT43,(85) SCHOTTKY
13 1621	D300	D 1N4148 SWITCH
13 1621	D301	D 1N4148 SWITCH
13 1636	D302	D BAT43,(85) SCHOTTKY
13 1621	D303	D 1N4148 SWITCH
13 1621	D304	D 1N4148 SWITCH
13 1621	D305	D 1N4148 SWITCH
13 1621	D306	D 1N4148 SWITCH
13 1636	D307	D BAT43,(85) SCHOTTKY
13 1621	D400	D 1N4148 SWITCH
13 1621	D401	D 1N4148 SWITCH
13 1636	D402	D BAT43,(85) SCHOTTKY
13 1621	D403	D 1N4148 SWITCH
13 1621	D404	D 1N4148 SWITCH
13 1621	D405	D 1N4148 SWITCH
13 1621	D406	D 1N4148 SWITCH
13 1636	D407	D BAT43,(85) SCHOTTKY
13 1628	D510	D BAW62 SWITCH
13 7507	I..1	U 7406 6X INV BUF/DRIV
13 2832	I..2	U 8574A PCF R 8B I/O EXPAND
13 7359	I..3	U 7445 BCDDEC DEC/DRIV
13 2134	I..4	U 331 TBA Q ARRAY
13 4002	I..5	U 7812 +12V/1A STAB
13 4001	I..6	U 7805 +05V/1A STAB
13 4016	I..7	U 7912 -12V/1A STAB
31 33921	J...	J JUMP FMT P 2 2,5
31 3525	J1..	J EURO MBS P64
31 3525	J2..	J EURO MBS P64
31 3947	J3..	J CT-MT MBS P 7 2
31 3947	J4..	J CT-MT MBS P 7 2
31 3947	J6..	J CT-MT MBS P 7 2
31 3276	J7..	J WAFER MBT P10 2,5
31 3276	J8..	J WAFER MBT P10 2,5
78 0005	PC..	PCB PJ EP INP ANA+SWITCH761748
13 14295	Q.10	Q BC549B N 30 / 0A1
13 14295	Q.11	Q BC549B N 30 / 0A1
13 14295	Q.12	Q BC549B N 30 / 0A1
13 14295	Q.20	Q BC549B N 30 / 0A1
13 14295	Q.21	Q BC549B N 30 / 0A1
13 14295	Q.22	Q BC549B N 30 / 0A1
13 14295	Q.30	Q BC549B N 30 / 0A1
13 14295	Q.31	Q BC549B N 30 / 0A1
13 14295	Q.32	Q BC549B N 30 / 0A1
13 14295	Q.40	Q BC549B N 30 / 0A1
13 14295	Q.41	Q BC549B N 30 / 0A1
13 14295	Q.42	Q BC549B N 30 / 0A1
13 14295	Q.50	Q BC549B N 30 / 0A1
13 14295	Q.51	Q BC549B N 30 / 0A1
13 14295	Q.52	Q BC549B N 30 / 0A1
13 14295	Q.60	Q BC549B N 30 / 0A1

ITEM NO.	SIT.	DESCRIPTION
13 1491	Q.61	Q BSX20,2369 N 15 / 0A2
13 1491	Q.62	Q BSX20,2369 N 15 / 0A2
13 14295	Q.80	Q BC549B N 30 / 0A1
13 1491	Q.81	Q BSX20,2369 N 15 / 0A2
13 1491	Q.82	Q BSX20,2369 N 15 / 0A2
13 14295	Q100	Q BC549B N 30 / 0A1
13 1491	Q101	Q BSX20,2369 N 15 / 0A2
13 1491	Q102	Q BSX20,2369 N 15 / 0A2
13 1418	Q120	Q BC559 P 30 / 0A1
13 1418	Q121	Q BC559 P 30 / 0A1
13 1418	Q122	Q BC559 P 30 / 0A1
13 1418	Q123	Q BC559 P 30 / 0A1
13 1418	Q124	Q BC559 P 30 / 0A1
13 1418	Q125	Q BC559 P 30 / 0A1
13 14295	Q150	Q BC549B N 30 / 0A1
13 14311	Q151	Q BC327 P 45 / 0A5
13 14311	Q152	Q BC327 P 45 / 0A5
13 14311	Q153	Q BC327 P 45 / 0A5
13 14311	Q154	Q BC327 P 45 / 0A5
13 1418	Q155	Q BC559 P 30 / 0A1
13 14295	Q200	Q BC549B N 30 / 0A1
13 2904	Q201	Q 2N2905A P 40 / 0A6
13 1418	Q202	Q BC559 P 30 / 0A1
13 2910	Q203	Q BS170 FN 60 / 0A5
13 14295	Q300	Q BC549B N 30 / 0A1
13 2904	Q301	Q 2N2905A P 40 / 0A6
13 1418	Q302	Q BC559 P 30 / 0A1
13 2910	Q303	Q BS170 FN 60 / 0A5
13 1418	Q304	Q BC559 P 30 / 0A1
13 1418	Q305	Q BC559 P 30 / 0A1
13 1411	Q306	Q BC549C N 30 / 0A1
13 14295	Q400	Q BC549B N 30 / 0A1
13 2904	Q401	Q 2N2905A P 40 / 0A6
13 1418	Q402	Q BC559 P 30 / 0A1
13 2910	Q403	Q BS170 FN 60 / 0A5
13 14181	Q404	Q BC559B P 30 / 0A1
13 14185	Q500	Q BC559C P 30 / 0A1
13 1491	Q510	Q BSX20,2369 N 15 / 0A2
13 14295	Q511	Q BC549B N 30 / 0A1
10 1141	R.10	R CF H 2K7 J 0W25
10 1124	R.11	R CF H100E J 0W25
10 1124	R.12	R CF H100E J 0W25
10 1155	R.13	R CF H 39K J 0W25
10 1155	R.14	R CF H 39K J 0W25
10 1128	R.15	R CF H220E J 0W25
10 1129	R.16	R CF H270E J 0W25
10 1129	R.17	R CF H270E J 0W25
10 1127	R.18	R CF H180E J 0W25
10 1154	R.19	R CF H 33K J 0W25
10 1141	R.20	R CF H 2K7 J 0W25
10 1124	R.21	R CF H100E J 0W25
10 1124	R.22	R CF H100E J 0W25
10 1155	R.23	R CF H 39K J 0W25
10 1155	R.24	R CF H 39K J 0W25
10 1128	R.25	R CF H220E J 0W25
10 1129	R.26	R CF H270E J 0W25
10 1129	R.27	R CF H270E J 0W25
10 1127	R.28	R CF H180E J 0W25
10 1154	R.29	R CF H 33K J 0W25
10 1141	R.30	R CF H 2K7 J 0W25
10 1124	R.31	R CF H100E J 0W25
10 1124	R.32	R CF H100E J 0W25
10 1155	R.33	R CF H 39K J 0W25
10 1155	R.34	R CF H 39K J 0W25
10 1127	R.35	R CF H180E J 0W25
10 1130	R.36	R CF H330E J 0W25
10 1130	R.37	R CF H330E J 0W25

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ITEM NO.	SIT.	DESCRIPTION
10 1141	R.40	R CF H 2K7 J 0W25
10 1124	R.41	R CF H100E J 0W25
10 1124	R.42	R CF H100E J 0W25
10 1155	R.43	R CF H 39K J 0W25
10 1155	R.44	R CF H 39K J 0W25
10 1137	R.45	R CF H 1K2 J 0W25
10 1127	R.46	R CF H180E J 0W25
10 1127	R.47	R CF H180E J 0W25
10 11231	R.49	R CF H 75E J 0W25
10 1141	R.50	R CF H 2K7 J 0W25
10 1124	R.51	R CF H100E J 0W25
10 1124	R.52	R CF H100E J 0W25
10 1155	R.53	R CF H 39K J 0W25
10 1155	R.54	R CF H 39K J 0W25
10 1132	R.55	R CF H470E J 0W25
10 1126	R.56	R CF H150E J 0W25
10 1126	R.57	R CF H150E J 0W25
10 11231	R.59	R CF H 75E J 0W25
10 1141	R.60	R CF H 2K7 J 0W25
10 1124	R.61	R CF H100E J 0W25
10 1124	R.62	R CF H100E J 0W25
10 1155	R.63	R CF H 39K J 0W25
10 1155	R.64	R CF H 39K J 0W25
10 1123	R.65	R CF H 82E J 0W25
10 1125	R.66	R CF H120E J 0W25
10 1125	R.67	R CF H120E J 0W25
10 11575	R.68	R MF H 51E F 0W25
10 11231	R.69	R CF H 75E J 0W25
10 1112	R.70	R CF H 10E J 0W25
10 1124	R.71	R CF H100E J 0W25
10 1129	R.72	R CF H270E J 0W25
10 1141	R.80	R CF H 2K7 J 0W25
10 1124	R.81	R CF H100E J 0W25
10 1124	R.82	R CF H100E J 0W25
10 1155	R.83	R CF H 39K J 0W25
10 1155	R.84	R CF H 39K J 0W25
10 1125	R.85	R CF H120E J 0W25
10 1125	R.86	R CF H120E J 0W25
10 1125	R.87	R CF H120E J 0W25
10 1120	R.88	R CF H 47E J 0W25
10 11231	R.89	R CF H 75E J 0W25
10 1112	R.90	R CF H 10E J 0W25
10 1124	R.91	R CF H100E J 0W25
10 1141	R100	R CF H 2K7 J 0W25
10 1124	R101	R CF H100E J 0W25
10 1124	R102	R CF H100E J 0W25
10 1155	R103	R CF H 39K J 0W25
10 1155	R104	R CF H 39K J 0W25
10 1123	R105	R CF H 82E J 0W25
10 1125	R106	R CF H120E J 0W25
10 1125	R107	R CF H120E J 0W25
10 1118	R108	R CF H 33E J 0W25
10 11231	R109	R CF H 75E J 0W25
10 1112	R110	R CF H 10E J 0W25
10 1124	R111	R CF H100E J 0W25
10 1147	R120	R CF H 8K2 J 0W25
10 1137	R121	R CF H 1K2 J 0W25
10 1140	R122	R CF H 2K2 J 0W25
10 1124	R123	R CF H100E J 0W25
10 1134	R124	R CF H680E J 0W25
10 1124	R125	R CF H100E J 0W25
10 1126	R126	R CF H150E J 0W25
10 1134	R127	R CF H680E J 0W25
10 1134	R128	R CF H680E J 0W25
10 1124	R129	R CF H100E J 0W25
10 1154	R130	R CF H 33K J 0W25
10 1164	R131	R CF H220K J 0W25
10 1132	R132	R CF H470E J 0W25

ITEM NO.	SIT.	DESCRIPTION	
10 1100	R140	R CF H 1E J 0W25	211
10 1136	R142	R CF H 1K J 0W25	
10 11049	R143	R CFFH 2E2 J 0W25	SKS2
10 01129	R144	R CFFV 10E J 0W25 E2	
10 11129	R145	R CFFH 10E J 0W25	
10 1124	R146	R CF H100E J 0W25	
10 1124	R147	R CF H100E J 0W25	
10 1140	R148	R CF H 2K2 J 0W25	
10 1136	R150	R CF H 1K J 0W25	
10 1143	R151	R CF H 3K9 J 0W25	
10 1136	R152	R CF H 1K J 0W25	
10 1143	R153	R CF H 3K9 J 0W25	
10 1136	R154	R CF H 1K J 0W25	
10 1143	R155	R CF H 3K9 J 0W25	
10 1136	R156	R CF H 1K J 0W25	
10 1143	R157	R CF H 3K9 J 0W25	
10 1136	R158	R CF H 1K J 0W25	
10 1143	R159	R CF H 3K9 J 0W25	
10 1137	R160	R CF H 1K2 J 0W25	
10 1137	R161	R CF H 1K2 J 0W25	
10 1137	R162	R CF H 1K2 J 0W25	
10 1137	R163	R CF H 1K2 J 0W25	
10 1137	R164	R CF H 1K2 J 0W25	
10 1153	R165	R CF H 27K J 0W25	
10 1141	R166	R CF H 2K7 J 0W25	
10 1153	R167	R CF H 27K J 0W25	
10 1141	R168	R CF H 2K7 J 0W25	
10 1153	R169	R CF H 27K J 0W25	
10 1141	R170	R CF H 2K7 J 0W25	
10 1147	R171	R CF H 8K2 J 0W25	
10 1136	R172	R CF H 1K J 0W25	
10 1100	R180	R CF H 1E J 0W25	211
10 1132	R181	R CF H470E J 0W25	
10 1132	R182	R CF H470E J 0W25	
10 1129	R183	R CF H270E J 0W25	
10 11231	R200	R CF H 75E J 0W25	
10 1150	R201	R CF H 15K J 0W25	
10 1144	R202	R CF H 4K7 J 0W25	
10 1128	R203	R CF H220E J 0W25	
10 1121	R204	R CF H 56E J 0W25	
10 1129	R205	R CF H270E J 0W25	
10 11231	R206	R CF H 75E J 0W25	
10 1128	R207	R CF H220E J 0W25	
10 1126	R208	R CF H150E J 0W25	
10 1136	R209	R CF H 1K J 0W25	
10 1159	R210	R CF H 82K J 0W25	
10 11231	R300	R CF H 75E J 0W25	
10 1151	R301	R CF H 18K J 0W25	
10 1144	R302	R CF H 4K7 J 0W25	
10 1128	R303	R CF H220E J 0W25	
10 1128	R304	R CF H220E J 0W25	
10 1129	R305	R CF H270E J 0W25	
10 11231	R306	R CF H 75E J 0W25	
10 28241	R307	R MF H 91E G 0W6	
10 11231	R308	R CF H 75E J 0W25	
10 1135	R309	R CF H820E J 0W25	
10 26505	R310	R MF H332E F 0W4	
10 1139	R311	R CF H 1K8 J 0W25	
10 1136	R312	R CF H 1K J 0W25	
10 1138	R313	R CF H 1K5 J 0W25	
10 1147	R314	R CF H 8K2 J 0W25	
10 1138	R315	R CF H 1K5 J 0W25	
10 1133	R316	R CF H560E J 0W25	
10 1133	R317	R CF H560E J 0W25	
10 1136	R318	R CF H 1K J 0W25	
10 1124	R319	R CF H100E J 0W25	
10 1144	R320	R CF H 4K7 J 0W25	
10 1136	R321	R CF H 1K J 0W25	

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ITEM NO.	SIT.	DESCRIPTION
10 1132	R322	R CF H470E J 0W25
10 1126	R323	R CF H150E J 0W25
10 1159	R324	R CF H 82K J 0W25
10 1134	R325	R CF H680E J 0W25
10 1151	R326	R CF H 18K J 0W25
10 1133	R327	R CF H560E J 0W25
10 11231	R400	R CF H 75E J 0W25
10 1150	R401	R CF H 15K J 0W25
10 1144	R402	R CF H 4K7 J 0W25
10 1128	R403	R CF H220E J 0W25
10 1128	R404	R CF H220E J 0W25
10 1129	R405	R CF H270E J 0W25
10 11231	R406	R CF H 75E J 0W25
10 1128	R407	R CF H220E J 0W25
10 1126	R408	R CF H150E J 0W25
10 1136	R409	R CF H 1K J 0W25
10 1135	R410	R CF H820E J 0W25
10 1144	R411	R CF H 4K7 J 0W25

ITEM NO.	SIT.	DESCRIPTION
10 1159	R412	R CF H 82K J 0W25
10 1132	R413	R CF H470E J 0W25
10 1129	R510	R CF H270E J 0W25
10 1151	R511	R CF H 18K J 0W25
10 1148	R512	R CF H 10K J 0W25
10 1144	R513	R CF H 4K7 J 0W25
10 1135	R514	R CF H820E J 0W25
32 4190	S.40	SWITCH DIL 1A 2P T
32 4182	S.60	SWITCH DIL 1A 1P
32 4182	S.80	SWITCH DIL 1A 1P
32 4182	S100	SWITCH DIL 1A 1P
13 1756	Z120	D ZENER 7V5 0W5 C
13 1704	Z400	D ZENER 2V8 0W25 C
13 1701	Z401	D ZENER 6V2 2W5 C
13 1714	Z500	D ZENER 1V4 0W5 C

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ART NO.	DESCRIPTION	QUANTITY
10 01129	R CFFV 10E J 0W25 E2	1
10 11049	R CFFH 2E2 J 0W25 SKS2	1
10 11129	R CFFH 10E J 0W25	1
13 1411	Q BC549C N 30 / 0A1	1
13 1418	Q BC559 P 30 / 0A1	12
13 14181	Q BC559B P 30 / 0A1	1
13 14185	Q BC559C P 30 / 0A1	1
13 14295	Q BC549B N 30 / 0A1	23
13 14311	Q BC327 P 45 / 0A5	4
13 1491	Q BSX20,2369 N 15 / 0A2	7
13 1621	D 1N4148 SWITCH	67
13 1628	D BAW62 SWITCH	6
13 1636	D BAT43,(85) SCHOTTKY	11
13 1667	D LED D3 GRE	5
13 1701	D ZENER 6V2 2W5 C	1
13 1704	D ZENER 2V8 0W25 C	1
13 1714	D ZENER 1V4 0W5 C	1
13 1756	D ZENER 7V5 0W5 C	1
13 2134	U 331 TBA Q ARRA	1
13 2832	U 8574A PCF R 8B I/O EXPAN	1
13 2904	Q 2N2905A P 40 / 0A6	3
13 2910	Q BS170 FN 60 / 0A5	3
13 3029	Q SET INSULAT TO-220	*1
13 30291	Q MICA INSULAT TO-220	1
13 30292	Q BUSH INSULAT TO-220	1
13 4001	U 7805 +05V/1A STA	1
13 4002	U 7812 +12V/1A STA	1

ART NO.	DESCRIPTION	QUANTITY
13 4016	U 7912 -12V/1A STA	1
13 7359	U 7445 BCDDEC DEC/DRI	1
13 7507	U 7406 6X INV BUF/DRI	1
30 2108	CORE TUBE 1,3/ 3,5 X 3	*12
31 3276	J WAFER MBT P10 2,5	2
31 33921	J JUMP FMT P 2 2,5	1
31 3525	J EURO MBS P64	*2
31 3947	J CT-MT MBS P 7 2	*3
32 4182	SWITCH DIL 1A 1P	*3
32 4190	SWITCH DIL 1A 2P T	*1
36 20226	SCREW DIN84 M 3 X 8 MP-	3
36 61026	NUT DIN934 M 3 HEXAGO	3
36 7435	RIVET P AL AL AD34ABS D2,	2
36 7454	RIVET P AL FE TAP/D/BS44 D3,	*2
36 7502	WASHER DIN6798 A 3,2	3
36 7699	RIVET CHOBERT D2,38 L6,35	*1
72 2276	LOCK PJ 49 PCB CPL	*1
76 1748A	UN INP PJ 49 GR800 RGB+SWITCH	1
76 1748D	UN INP PJ 49 GR800 RGB+SW/+DE	1
80 2629	HEATSINK PJ 49 RGB PRE AMP	*1
80 2692	HEATSINK PJ 49 FIX HEATSINK	*2

*** NUMBERS REFERRING TO PICTURE**