

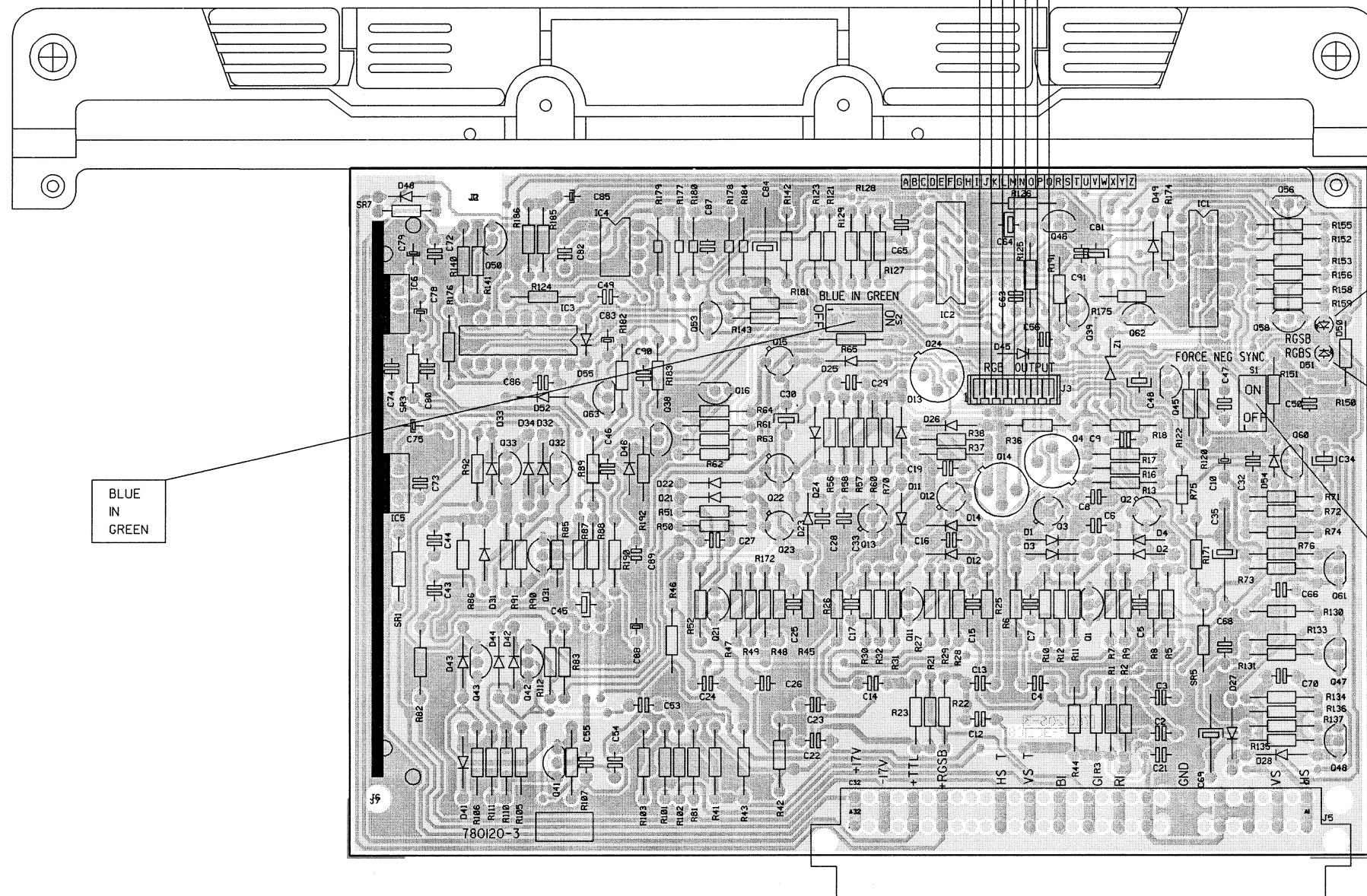
RGB
ANALOG
INPUT
AND
INPUT
SWITCHING
MODULE

SECOND RGB

Name	Interconnection	Article nr.
SECOND RGB INPUT		76 21055-1
Date	Drawn	Checked
30-11-1993	JVDY	SSG
BARCO PROJECTION SYSTEMS		

Modifications reserved

To RGB INPUT & SWITCHING (J3)

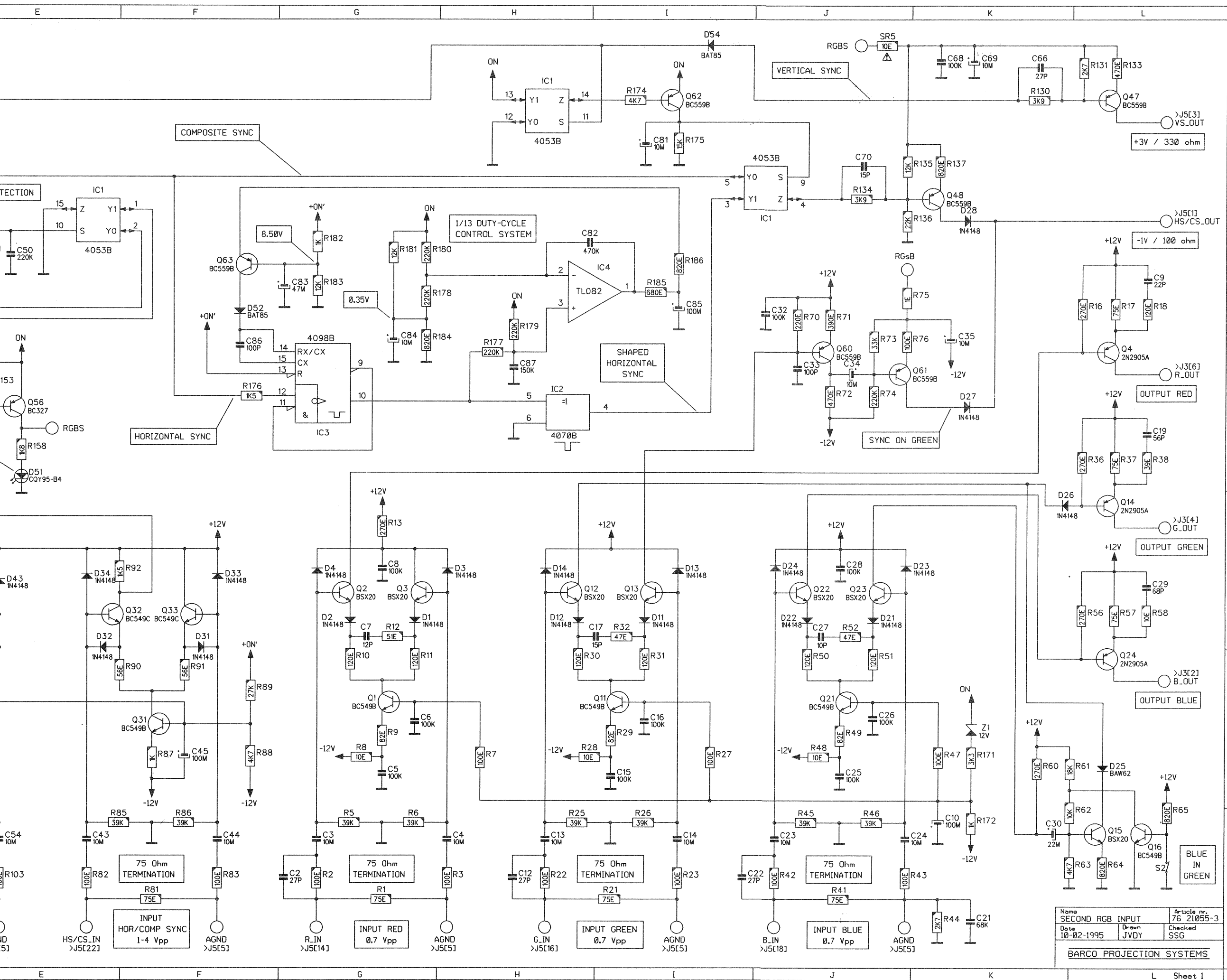


Name	SECOND RGB INPUT	Article nr.	76 21055-3
Date	23-02-1995	Drawn	JVDY
		Checked	SSG

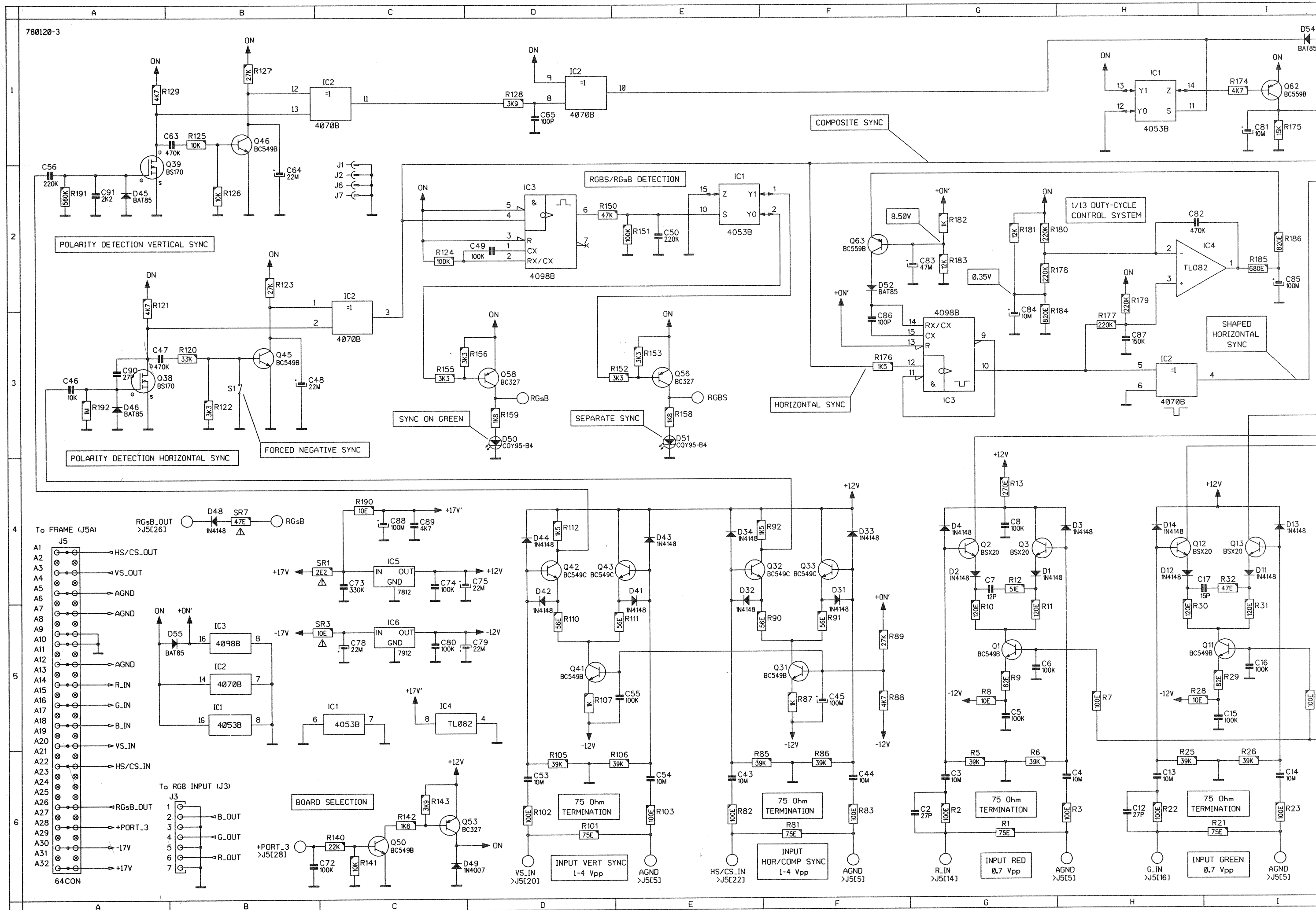
BARCO PROJECTION SYSTEMS

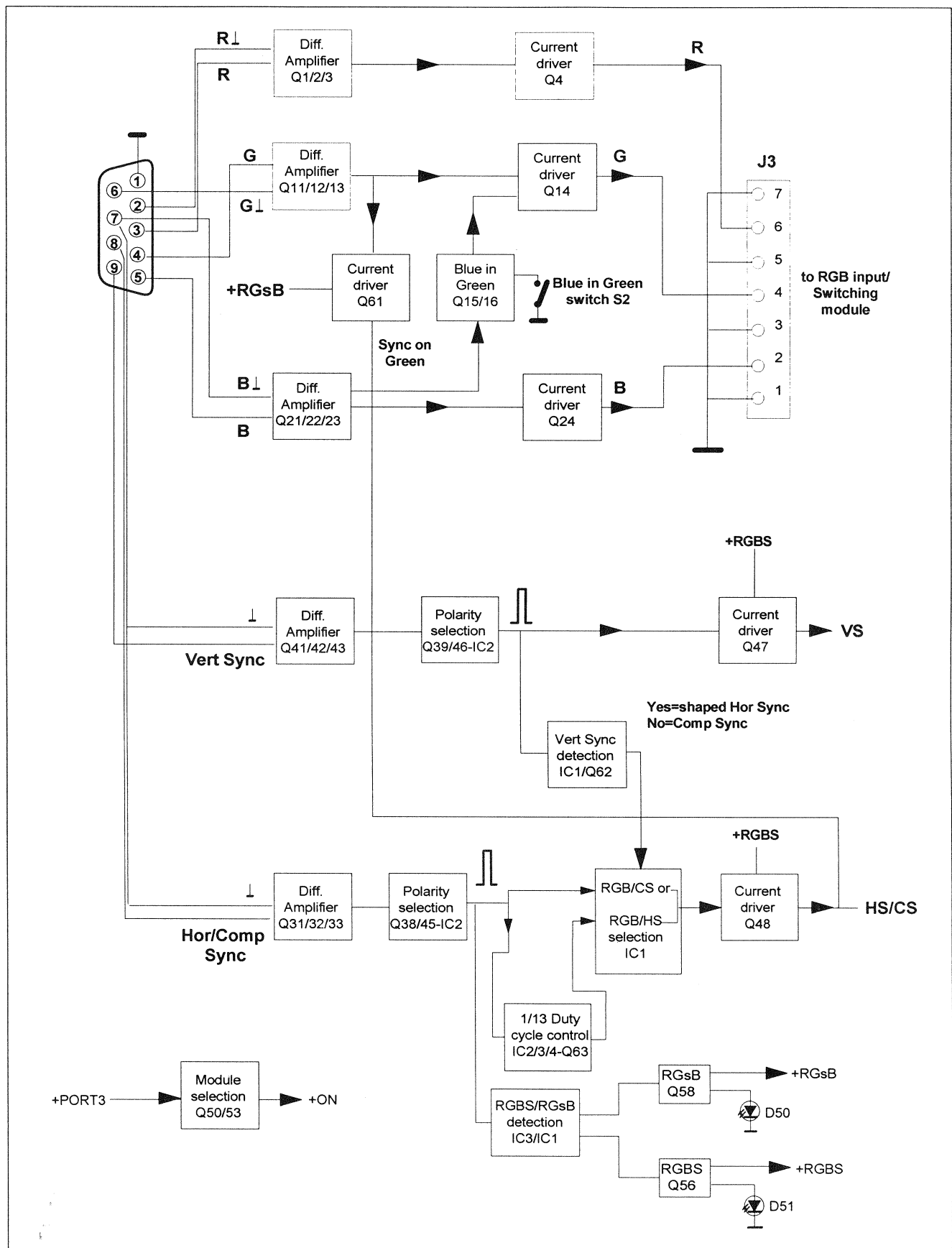
Modifications reserved

COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C2	F 5	Q38	D 3	R191	E 3
C3	F 4	Q39	F 3	R192	D 3
C4	F 4	Q41	D 5	R193	D 3
C5	F 4	Q42	D 4	R194	D 2
C6	F 4	Q43	C 4	R195	D 3
C7	F 4	Q45	F 3	R196	D 3
C8	F 4	Q46	F 3	R199	D 4
C9	F 3	Q47	G 4	R191	F 3
C10	F 4	Q48	G 5	R192	D 4
C12	E 5	Q50	C 3		
C13	E 4	Q53	D 3	S1	F 3
C14	E 4	Q56	F 2	S2	E 3
C15	E 4	Q58	F 3		
C16	E 4	Q60	G 3	SRI	C 4
C17	E 4	Q61	G 4	SR3	C 3
C19	E 4	Q62	F 3	SR5	F 4
C21	F 5	Q63	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		



	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
1	C2	F 6	IC2	H 3	R86	F 6
	C3	G 6	IC3	B 5	R87	F 5
	C4	H 6	IC3	B 5	R88	F 5
	C5	G 5	IC3	D 2	R89	F 5
	C6	G 4	IC3	G 3	R90	F 5
	C7	G 4	IC4	C 5	R91	F 5
	C8	G 2	IC4	C 5	R92	E 4
	C9	L 2	IC4	I 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	C 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	A 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	E 6	Q23	J 4	R135	K 1	
C44	F 6	Q24	L 5	R136	K 2	
C45	F 5	Q31	F 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	C 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	E 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	H 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	G 4	R25	H 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	E 4	R47	K 5			
D42	D 4	R48	J 5			
D43	E 4	R49	J 5			
D44	D 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	D 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			
		R65	L 5			
IC1	B 5	R70	J 2			
IC1	C 5	R71	J 2			
IC1	B 5	R72	J 3			
IC1	E 2	R73	J 2			
IC1	J 2	R74	J 3			
IC1	H 1	R75	K 2			
IC2	B 5	R76	K 2			
IC2	B 5	R81	F 6			
IC2	D 1	R82	F 6			
IC2	B 1	R83	F 6			
IC2	C 2	R85	F 6			
2						
	3					
4						
	5					
6						





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

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13 29105	Q.38	Q BS170	FN SS TO92 060A5	10 1128	R.70	R CF H220E J 0W25	
13 2910	Q.39	Q BS170	FN SS TO92 060A5	10 1131	R.71	R CF H390E J 0W25	
13 14295	Q.41	Q BC549B	N SS TO92 030A1	10 1132	R.72	R CF H470E J 0W25	
13 1411	Q.42	Q BC549C	N SS TO92 030A1	10 1154	R.73	R CF H 33K J 0W25	
13 1411	Q.43	Q BC549C	N SS TO92 030A1	10 1164	R.74	R CF H220K J 0W25	
13 14295	Q.45	Q BC549B	N SS TO92 030A1	10 11008	R.75	R CFFH 1E J 0W25	0207
13 14295	Q.46	Q BC549B	N SS TO92 030A1	10 1124	R.76	R CF H100E J 0W25	
13 14181	Q.47	Q BC559B	P SS TO92 030A1	10 11231	R.81	R CF H 75E J 0W25	
13 14181	Q.48	Q BC559B	P SS TO92 030A1	10 1124	R.82	R CF H100E J 0W25	
13 14295	Q.50	Q BC549B	N SS TO92 030A1	10 1124	R.83	R CF H100E J 0W25	
13 14311	Q.53	Q BC327	P SS TO92 045A5	10 1155	R.85	R CF H 39K J 0W25	
13 14311	Q.56	Q BC327	P SS TO92 045A5	10 1155	R.86	R CF H 39K J 0W25	
13 14311	Q.58	Q BC327	P SS TO92 045A5	10 1136	R.87	R CF H 1K J 0W25	
13 14181	Q.60	Q BC559B	P SS TO92 030A1	10 1144	R.88	R CF H 4K7 J 0W25	
13 14181	Q.61	Q BC559B	P SS TO92 030A1	10 1153	R.89	R CF H 27K J 0W25	
13 14181	Q.62	Q BC559B	P SS TO92 030A1	10 1121	R.90	R CF H 56E J 0W25	
13 14181	Q.63	Q BC559B	P SS TO92 030A1	10 1121	R.91	R CF H 56E J 0W25	
10 11231	R..1	R CF H 75E J 0W25		10 1138	R.92	R CF H 1K5 J 0W25	
10 1124	R..2	R CF H100E J 0W25		10 11231	R101	R CF H 75E J 0W25	
10 1124	R..3	R CF H100E J 0W25		10 1124	R102	R CF H100E J 0W25	
10 1155	R..5	R CF H 39K J 0W25		10 1124	R103	R CF H100E J 0W25	
10 1155	R..6	R CF H 39K J 0W25		10 1155	R105	R CF H 39K J 0W25	
10 1124	R..7	R CF H100E J 0W25		10 1155	R106	R CF H 39K J 0W25	
10 1112	R..8	R CF H 10E J 0W25		10 1136	R107	R CF H 1K J 0W25	
10 1123	R..9	R CF H 82E J 0W25		10 1121	R110	R CF H 56E J 0W25	
10 1125	R.10	R CF H120E J 0W25		10 1121	R111	R CF H 56E J 0W25	
10 1125	R.11	R CF H120E J 0W25		10 1138	R112	R CF H 1K5 J 0W25	
10 11575	R.12	R MF H 51E F 0W25		10 1154	R120	R CF H 33K J 0W25	
10 1129	R.13	R CF H270E J 0W25		10 1144	R121	R CF H 4K7 J 0W25	
10 1129	R.16	R CF H270E J 0W25		10 1142	R122	R CF H 3K3 J 0W25	
10 11231	R.17	R CF H 75E J 0W25		10 1153	R123	R CF H 27K J 0W25	
10 1125	R.18	R CF H120E J 0W25		10 1160	R124	R CF H100K J 0W25	
10 11231	R.21	R CF H 75E J 0W25		10 1148	R125	R CF H 10K J 0W25	
10 1124	R.22	R CF H100E J 0W25		10 1148	R126	R CF H 10K J 0W25	
10 1124	R.23	R CF H100E J 0W25		10 1153	R127	R CF H 27K J 0W25	
10 1155	R.25	R CF H 39K J 0W25		10 1143	R128	R CF H 3K9 J 0W25	
10 1155	R.26	R CF H 39K J 0W25		10 1144	R129	R CF H 4K7 J 0W25	
10 1124	R.27	R CF H100E J 0W25		10 1143	R130	R CF H 3K9 J 0W25	
10 1112	R.28	R CF H 10E J 0W25		10 1141	R131	R CF H 2K7 J 0W25	
10 1123	R.29	R CF H 82E J 0W25		10 1132	R133	R CF H470E J 0W25	
10 1125	R.30	R CF H120E J 0W25		10 1143	R134	R CF H 3K9 J 0W25	
10 1125	R.31	R CF H120E J 0W25		10 1149	R135	R CF H 12K J 0W25	
10 1120	R.32	R CF H 47E J 0W25		10 1152	R136	R CF H 22K J 0W25	
10 1129	R.36	R CF H270E J 0W25		10 1135	R137	R CF H820E J 0W25	
10 11231	R.37	R CF H 75E J 0W25		10 1152	R140	R CF H 22K J 0W25	
10 1119	R.38	R CF H 39E J 0W25		10 1148	R141	R CF H 10K J 0W25	
10 11231	R.41	R CF H 75E J 0W25		10 1139	R142	R CF H 1K8 J 0W25	
10 1124	R.42	R CF H100E J 0W25		10 1143	R143	R CF H 3K9 J 0W25	
10 1124	R.43	R CF H100E J 0W25		10 1156	R150	R CF H 47K J 0W25	
10 1141	R.44	R CF H 2K7 J 0W25		10 1160	R151	R CF H100K J 0W25	
10 1155	R.45	R CF H 39K J 0W25		10 1142	R152	R CF H 3K3 J 0W25	
10 1155	R.46	R CF H 39K J 0W25		10 1142	R153	R CF H 3K3 J 0W25	
10 1124	R.47	R CF H100E J 0W25		10 1142	R155	R CF H 3K3 J 0W25	
10 1112	R.48	R CF H 10E J 0W25		10 1142	R156	R CF H 3K3 J 0W25	
10 1123	R.49	R CF H 82E J 0W25		10 1139	R158	R CF H 1K8 J 0W25	
10 1125	R.50	R CF H120E J 0W25		10 1139	R159	R CF H 1K8 J 0W25	
10 1125	R.51	R CF H120E J 0W25		10 1142	R171	R CF H 3K3 J 0W25	
10 1120	R.52	R CF H 47E J 0W25		10 1136	R172	R CF H 1K J 0W25	
10 1129	R.56	R CF H270E J 0W25		10 1144	R174	R CF H 4K7 J 0W25	
10 11231	R.57	R CF H 75E J 0W25		10 1150	R175	R CF H 15K J 0W25	
10 1112	R.58	R CF H 10E J 0W25		10 1138	R176	R CF H 1K5 J 0W25	
10 1129	R.60	R CF H270E J 0W25		10 1564	R177	R MF H220K F 0W4 E2	
10 1151	R.61	R CF H 18K J 0W25		10 1564	R178	R MF H220K F 0W4 E2	
10 1148	R.62	R CF H 10K J 0W25		10 1564	R179	R MF H220K F 0W4 E2	
10 1144	R.63	R CF H 4K7 J 0W25		10 1564	R180	R MF H220K F 0W4 E2	
10 1135	R.64	R CF H820E J 0W25		10 11494	R181	R MF H 12K F 0W25	
10 1135	R.65	R CF H820E J 0W25		10 1136	R182	R CF H 1K J 0W25	
				10 1149	R183	R CF H 12K J 0W25	

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

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

