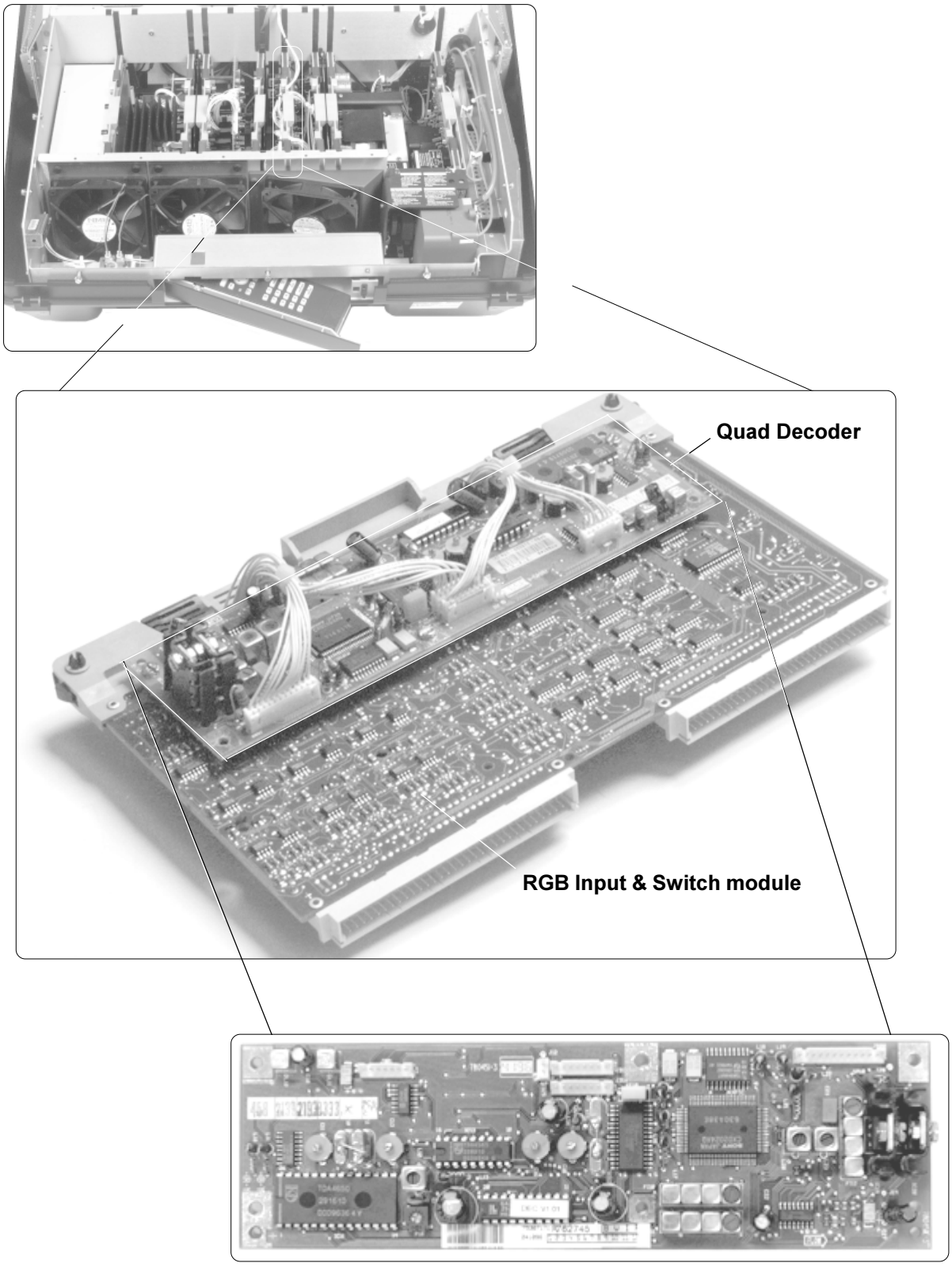
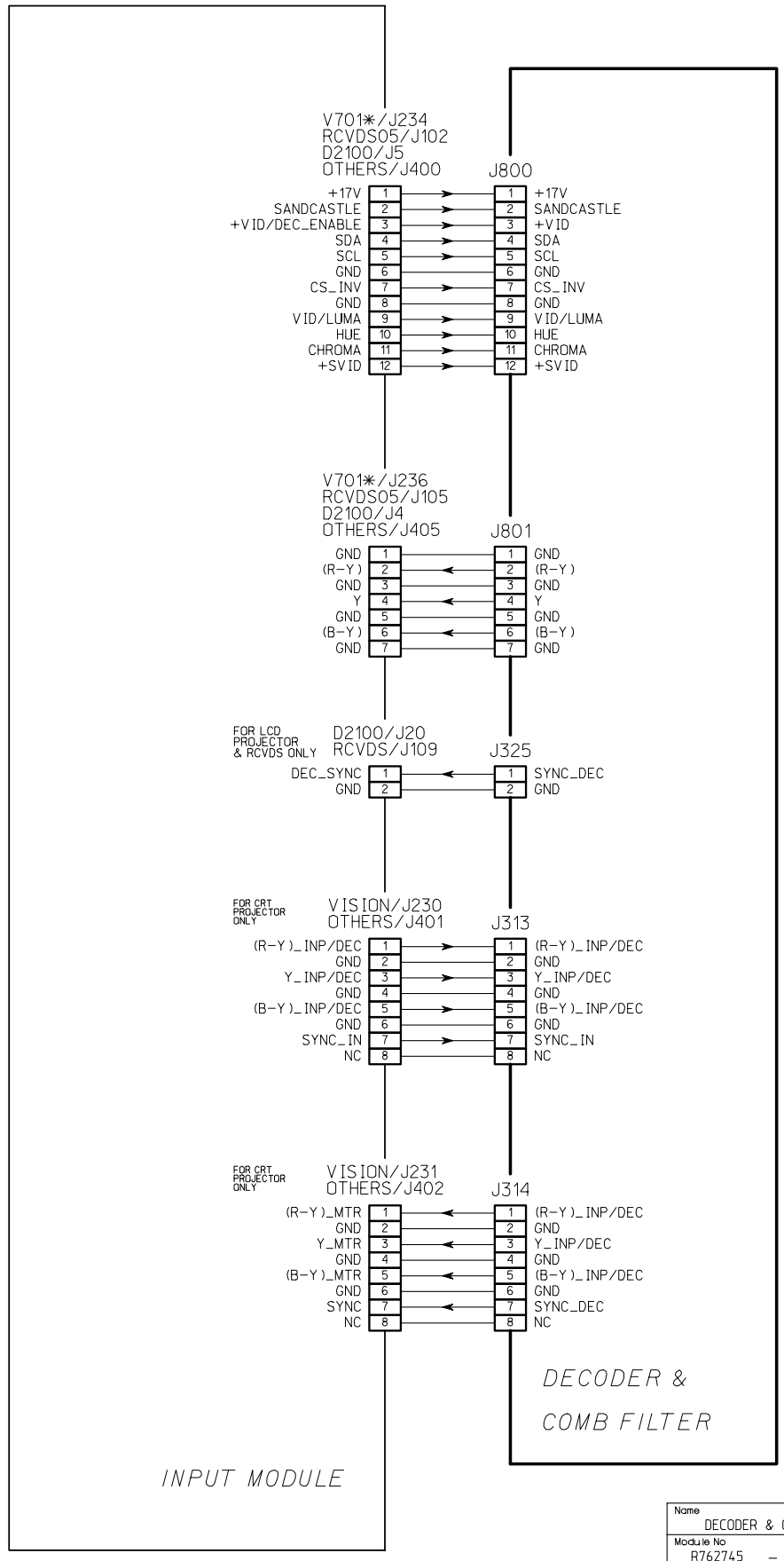
QUAD Decoder+Comb_Filter R762745

RGB Input & Switch module +Quad Decoder

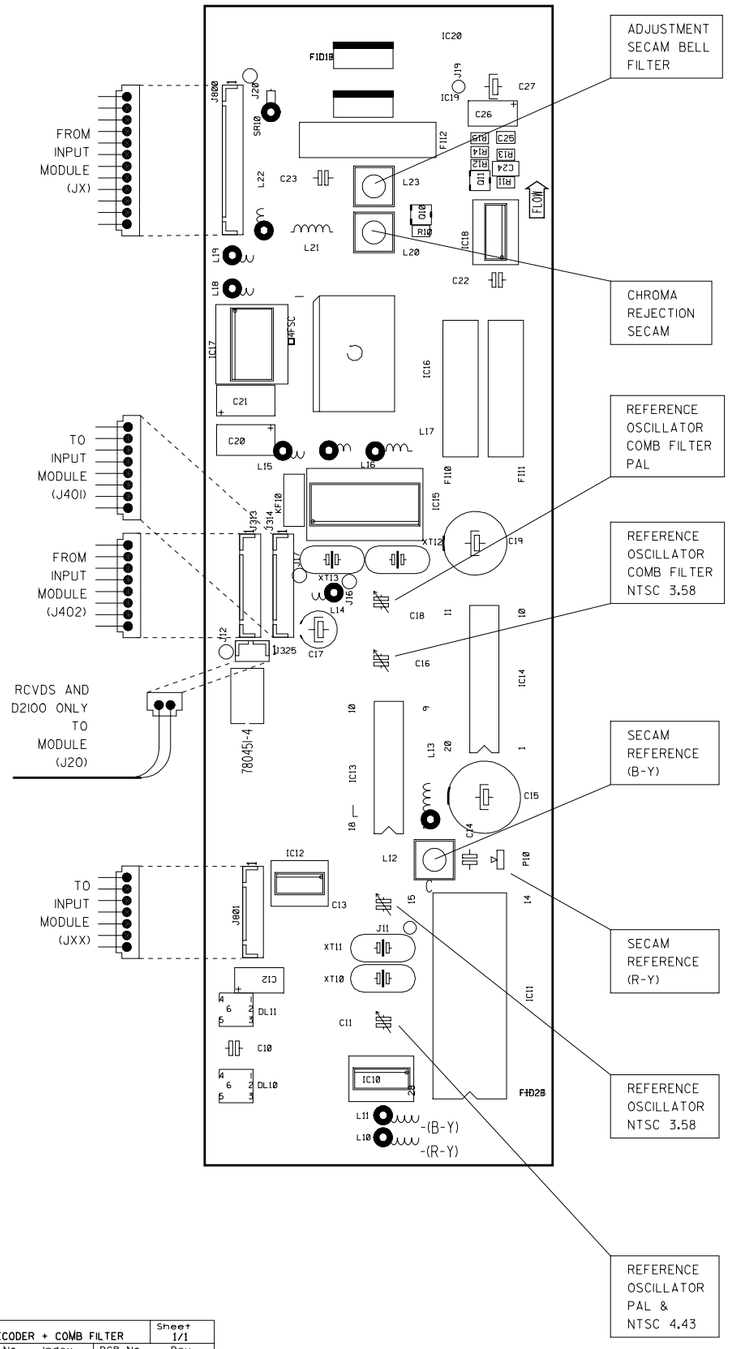




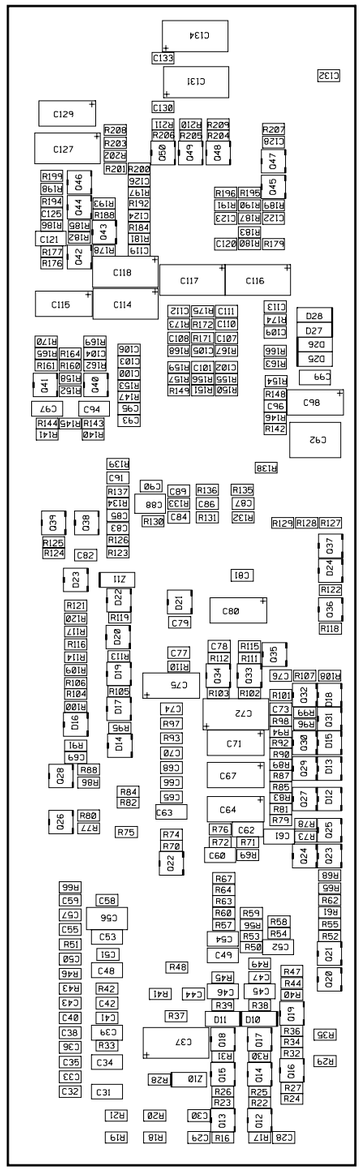
Name: DECODER & COMB FILTER			Sheet: 1/1
Module No: R762745 – 1	Index	PCB No: R780451 – 4	Rev
Date: 20-03-1997	Drawn: JV	Checked: JVST	
BARCO NV		Division: BPS	

BARCO

TOP VIEW



BOTTOM VIEW



COMP.	LOC.	COMP.	LOC.	COMP.	LOC.	COMP.	LOC.
C10	B 5	C127	E 2	D43	E 2	R118	F 3
C11	B 5	C128	F 1	D44	E 2	R119	E 3
C12	B 5	C129	E 1	D45	F 2	R120	E 3
C13	B 4	C130	E 1	D46	E 2	R121	E 3
C14	C 4	C131	E 1	D47	F 2	R122	F 3
C15	C 4	C132	F 1	D48	E 2	R123	E 3
C16	B 4	C133	E 1	D49	E 2	R124	E 3
C17	B 4	C134	E 1	D50	E 2	R125	E 3
C18	B 3					R126	E 3
C19	C 3	DI0	F 5	RI0	B 2	R127	F 3
C20	B 3	DII	E 5	RII	C 2	R128	F 3
C21	B 3	DI2	F 4	RI2	C 2	R129	F 3
C22	B 2	DI3	F 4	RI3	C 2	RI30	E 3
C23	B 2	DI4	E 4	RI4	C 2	RI31	E 3
C24	C 2	DI5	F 4	RI5	C I	RI32	F 3
C25	C I	DI6	E 4	RI6	E 5	RI33	E 3
C26	C I	DI7	E 4	RI7	F 5	RI34	E 3
C27	C I	DI8	F 4	RI8	E 5	RI35	E 3
C28	F 5	DI9	E 4	RI9	E 5	RI36	E 3
C29	E 5	D20	E 3	R20	E 5	RI37	E 3
C30	E 5	D21	E 3	R2I	E 5	RI38	F 3
C31	E 5	D22	E 3	R22	F 5	RI39	E 3
C32	E 5	D23	E 3	R23	E 5	RI40	E 3
C33	E 5	D24	F 3	R24	F 5	RI4I	E 3
C34	E 5	D25	F 2	R25	F 5	RI42	F 3
C35	E 5	D26	F 2	R26	E 5	RI43	E 3
C36	E 5	D27	F 2	R27	F 5	RI44	E 3
C37	E 5	D28	F 2	R28	E 5	RI45	E 3
C38	E 5			R29	F 5	RI46	F 3
C39	E 5	DLI0	B 5	R30	F 5	RI47	E 2
C40	E 5	DLII	B 5	R3I	E 5	RI48	F 2
C4I	E 5			R32	F 5	RI49	E 2
C42	E 5	FII0	B 3	R33	E 5	RI50	E 2
C43	E 5	FIII	C 3	R34	F 5	RI5I	E 2
C44	E 5	FII2	B 2	R35	F 5	RI52	E 2
C45	F 5			R36	F 5	RI53	E 2
C46	E 5	FIDIB	B I	R37	E 5	RI54	F 2
C47	F 5	FIDIT	B I	R38	F 5	RI55	E 2
C48	E 5	FID2B	C 5	R39	E 5	RI56	E 2
C49	E 5	FID2T	C 5	R40	F 5	RI57	E 2
C50	E 5			R4I	E 5	RI58	E 2
C5I	E 5	ICI0	B 5	R42	E 5	RI59	E 2
C52	F 5	ICII	C 5	R43	E 5	RI60	E 2
C53	E 5	ICI2	B 4	R44	F 5	RI6I	E 2
C54	E 5	ICI3	B 4	R45	E 5	RI62	E 2
C55	E 5	ICI4	C 4	R46	E 5	RI63	F 2
C56	E 5	ICI5	B 3	R47	F 5	RI64	E 2
C57	E 5	ICI6	B 2	R48	E 5	RI65	E 2
C58	E 4	ICI7	B 2	R49	F 5	RI66	F 2
C59	E 4	ICI8	C 2	R50	F 5	RI67	E 2
C60	E 4	ICI9	B I	R5I	E 5	RI68	E 2
C6I	F 4	IC20	B I	R52	F 5	RI69	E 2
C62	F 4			R53	F 5	RI70	E 2
C63	E 4	JII	B 5	R54	F 5	RI7I	E 2
C64	E 4	JI2	B 3	R55	F 5	RI72	E 2
C65	E 4	JI6	B 3	R56	F 5	RI73	E 2
C66	E 4	JI7	B 3	R57	E 5	RI74	F 2
C67	E 4	JI9	B I	R58	F 5	RI75	E 2
C68	E 4	J20	B I	R59	F 5	RI76	E 2
C69	E 4	J3I3	B 3	R60	E 5	RI77	E 2
C70	E 4	J3I4	B 3	R6I	F 4	RI78	E 2
C7I	E 4	J325	B 3	R62	F 4	RI79	F 2
C72	F 4	J800	B I	R63	E 4	RI80	F 2
C73	F 4	J80I	B 5	R64	E 4	RI8I	E 2
C74	E 4			R65	F 4	RI82	E 2
C75	E 4	KFI0	B 3	R66	E 4	RI83	F 2
C76	F 4			R67	E 4	RI84	E 2
C77	E 4	LI0	B 5	R68	F 4	RI85	E 2
C78	E 3	LII	B 5	R69	F 4	RI86	E 2
C79	E 3	LI2	B 4	R70	E 4	RI87	F 2
C80	E 3	LI3	B 4	R7I	F 4	RI88	E 2
C8I	F 3	LI4	B 3	R72	E 4	RI89	F 2
C82	E 3	LI5	B 3	R73	F 4	RI90	F 2
C83	E 3	LI6	B 3	R74	E 4	RI9I	E 2
C84	E 3	LI7	B 3	R75	E 4	RI92	E 2
C85	E 3	LI8	B 2	R76	E 4	RI93	E 2
C86	E 3	LI9	B 2	R77	E 4	RI94	E 2
C87	F 3	L20	B 2	R78	F 4	RI95	F 2
C88	E 3	L2I	B 2	R79	F 4	RI96	E 2
C89	E 3	L22	B 2	R80	E 4	RI97	E 2
C90	E 3	L23	B 2	R8I	F 4	RI98	E 2
C9I	E 3			R82	E 4	RI99	E 2
C92	F 3	PI0	C 4	R83	F 4	R200	E 2
C93	E 3			R84	E 4	R20I	E 2
C94	E 3	QI0	B 2	R85	F 4	R202	E 2
C95	E 3	QII	C 2	R86	E 4	R203	E 2
C96	F 3	QI2	F 5	R87	F 4	R204	E I
C97	E 3	QI3	E 5	R88	E 4	R205	E I
C98	F 3	QI4	F 5	R89	F 4	R206	E I
C99	F 2	QI5	E 5	R90	F 4	R207	F I
C100	E 2	QI6	F 5	R9I	E 4	R208	E I
C10I	E 2	QI7	F 5	R92	F 4	R209	E I
C102	E 2	QI8	E 5	R93	E 4	R210	E I
C103	E 2	QI9	F 5	R94	F 4	R2II	E I
C104	E 2	Q20	F 5	R95	E 4		
C105	E 2	Q2I	F 5	R96	F 4	SRI0	B I
C106	E 2	Q22	E 4	R97	E 4		
C107	E 2	Q23	F 4	R98	F 4	XTI0	B 5
C108	E 2	Q24	F 4	R99	F 4	XTII	B 5
C109	F 2	Q25	F 4	RI00	E 4	XTI2	B 3
CII0	E 2	Q26	E 4	RI0I	F 4	XTI3	B 3
CIII	E 2	Q27	F 4	RI02	F 4		
CII2	E 2	Q28	E 4	RI03	E 4	ZI0	E 5
CII3	F 2	Q29	F 4	RI04	E 4	ZII	E 3
CII4	E 2	Q30	F 4	RI05	E 4		
CII5	E 2	Q3I	F 4	RI06	E 4		
CII6	F 2	Q32	F 4	RI07	F 4		
CII7	E 2	Q33	F 4	RI08	F 4		
CII8	E 2	Q34	E 4	RI09	E 4		
CII9	E 2	Q35	F 4	RII0	E 4		
C120	E 2	Q36	F 3	RIII	F 4		
C12I	E 2	Q37	F 3	RII2	E 4		
C122	F 2	Q38	E 3	RII3	E 3		
C123	E 2	Q39	E 3	RII4	E 3		
C124	E 2	Q40	E 2	RII5	F 3		
C125	E 2	Q4I	E 2	RII6	E 3		
C126	E 2	Q42	E 2	RII7	E 3		

Name: DECODER + COMB FILTER			Sheet: 1/1
Module No: R762745 - 1	Index:	PCB No: R7804S1 - 4	Rev:
Date: 09-06-1997	Drawn: JVDY	Checked: JVST	
BARCO PROJECTION SYSTEMS			

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.

INPUT BUFFER

SECAM BELL

HIGH-PASS FILTER

CHROMA REJECTION SECAM

YUVS IN

YUVS OUT

FROM INPUT MODULE (JX)

J800
1 +17V
2 SANDCASTLE
3 +VID
4 SDA
5 SCL
6
7
8
9 VID/LUMA
10 HUE
11 CHROMA
12 +SVID

TO INPUT MODULE (JXX)

J801
1
2 (R-Y)
3
4 Y
5
6 (B-Y)
7

	JX	JXX
V701•	J234	J236
RCVDS Ø5	J102	J105
D2100	J5	J4
OTHERS	J400	J405

Modifications reserved

(COMPONENTS MARKED WITH •• ARE NOT MOUNTED)

Name	DECODER & COMB FILTER
Sheet	1/3
Module No	R762745 — 1
Index	
PCB No	R780451 — 4
Rev	
Date	20-03-1997
Drawn	JVDY
Checked	JVST

BARCO PROJECTION SYSTEMS

DECODER

BARCO

C 200mVpp

Chr_Sw >SHEET 1

IC11 TDA4650

IC10 TDA4665

IC13 TDA4560/65

IC17 TDA8444A

IC14 GAL16V8A

HUE >SHEET 1 >J800[10]

SANDCASTLE >SHEET 1 >J800[2]

Y_Sw >SHEET 1

L 1Vpp

Y >SHEET 1 >J801[4] 1.00Vpp OVER 75 OHM LOAD

(R-Y) >SHEET 1 >J801[2] 0.73Vpp OVER 75 OHM LOAD

(B-Y) >SHEET 1 >J801[6] 0.93Vpp OVER 75 OHM LOAD

>SHEET 1 >J800[3] +VID

+SVID >J800[12]

SECAM >SHEET 1

SelFSC4.43 >SHEET 1

NTSC4_5 >SHEET 1

SwBit1 >SHEET 1

CombFltrOff >SHEET 1

SwBit0 >SHEET 1

DlySw

Dly_45ns

Dly_180ns

SDA_P

SCL_P

SCL_P

SDA_P

I²C BUS

HEX ADRESS : H40

SHARPNESS

SHARPNESS

Adjust

ALL VOLTAGES ARE GIVEN FOR A STANDARD COLOR BAR INPUT SIGNAL : 100/0/75/0 AND 50 % SHARPNESS

(COMPONENTS MARKED WITH •• ARE NOT MOUNTED)

Modifications reserved

Name	DECODER & COMB FILTER
Sheet	2/3
Module No	R762745 — 1
Index	
PCB No	R780451 — 4
Rev	
Date	20-03-1997
Drawn	JVDY
Checked	JVST

BARCO PROJECTION SYSTEMS

COMP.	LOC.	SHT.
C10	G 4	2
C11	B 2	2
C12	F 6	2
C13	B 2	2
C14	C 2	2
C15	D 1	2
C16	D 4	1
C17	G 1	2
C18	D 4	1
C19	C 5	1
C20	C 4	1
C21	E 3	1
C22	F 2	1
C23	C 2	1
C24	A 2	1
C25	B 4	1
C26	A 1	1
C27	H 5	1
C28	I 4	2
C29	E 4	2
C30	E 3	2
C31	D 4	2
C32	D 1	2
C33	D 2	2
C34	D 3	2
C35	D 2	2
C36	C 2	2
C37	E 1	2
C38	C 1	2
C39	B 1	2
C40	C 1	2
C41	B 1	2
C42	C 2	2
C43	C 2	2
C44	E 1	2
C45	F 2	2
C46	F 3	2
C47	E 1	2
C48	B 2	2
C49	H 5	2
C50	C 2	2
C51	B 2	2
C52	F 6	2
C53	B 2	2
C54	G 6	2
C55	C 1	2
C56	B 1	2
C57	D 1	2
C58	A 1	2
C59	B 1	2
C60	G 6	2
C61	H 5	2
C62	G 5	2
C63	F 1	2
C64	H 2	2
C65	G 2	2
C66	G 2	2
C67	H 1	2
C68	G 2	2
C69	B 5	2
C70	G 2	2
C71	H 3	2
C72	H 4	2
C73	G 1	2
C74	G 2	2
C75	G 3	2
C76	H 4	2
C77	D 4	1
C78	H 1	2
C79	D 4	1
C80	G 1	2
C81	C 6	1
C82	E 5	1
C83	E 5	1
C84	C 5	1
C85	C 4	1
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C92	D 6	1
C93	G 6	1
C94	H 5	1
C95	G 6	1
C96	A 6	2
C97	H 4	1
C98	E 5	1
C99	B 6	2
C100	G 6	1
C101	H 3	1
C102	H 3	1
C103	G 6	1
C104	I 5	1
C105	G 3	1
C106	G 5	1
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C109	D 5	1
C110	F 3	1
C111	G 6	1
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C113	E 5	1
C114	H 3	1
C115	I 4	1
C116	H 3	1
C117	H 3	1
C118	E 1	1
C119	B 3	1
C120	C 2	1
C121	F 2	1
C122	A 2	1
C123	B 2	1
C124	C 2	1
C125	D 1	1
C126	C 1	1
C127	B 1	1
C128	B 1	1
C129	A 5	1
C130	I 6	1
C131	I 6	1
C132	I 4	2
C133	I 5	1
C134	H 6	1
C213	E 3	1
D10	E 4	2
D11	E 3	2
D12	H 2	2
D13	H 1	2
D14	A 4	2
D15	H 3	2
D16	B 4	2
D17	C 4	2
D18	H 3	2
D19	B 4	2
D20	B 4	2
D21	E 4	1
D22	B 4	2
D23	A 4	2
D24	H 2	1
D25	C 6	2

COMP.	LOC.	SHT.
D26	C 6	2
D27	C 6	2
D28	C 6	2
DI13	F 5	1
DI14	F 5	1
DL10	E 5	2
DL11	E 6	2
FI10	H 5	1
FI11	H 4	1
FI12	B 5	1
IC10	E 2	2
IC11	B 2	2
IC12	G 6	2
IC12	G 5	2
IC12	G 5	2
IC12	H 5	2
IC13	G 2	2
IC14	B 4	2
IC14	C 5	2
IC15	D 5	1
IC16	G 5	1
IC17	A 6	2
IC18	D 1	1
IC18	C 1	1
IC18	C 1	1
IC19	H 6	1
IC20	I 5	1
J11	D 2	1
J12	D 2	1
J16	D 3	1
J17	D 2	1
J19	D 2	1
J20	D 2	1
J313	G 1	1
J314	H 1	1
J325	H 2	1
J800	A 5	1
J801	B 6	1
KFI0	D 6	1
L10	E 4	2
L11	E 3	2
L12	C 2	2
L13	D 1	2
L14	G 1	2
L15	E 3	1
L16	B 4	1
L17	C 5	1
L18	H 3	1
L19	H 3	1
L20	B 3	1
L21	C 2	1
L22	H 3	1
L23	C 2	1
P10	C 3	2
Q10	C 2	1
Q11	A 1	1
Q12	E 4	2
Q13	E 3	2
Q14	E 4	2
Q15	E 3	2
Q16	E 5	2
Q17	E 1	2
Q18	E 2	2
Q19	E 6	2
Q20	F 5	2
Q21	F 5	2
Q22	G 3	2
Q23	F 6	2
Q24	F 6	2
Q25	H 6	2
Q26	C 6	2
Q27	I 2	2
Q28	C 5	2
Q29	I 1	2
Q30	I 3	2
Q31	H 3	2
Q32	H 3	2
Q33	G 4	2
Q34	G 4	2
Q35	H 1	2
Q36	H 2	1
Q37	C 4	1
Q38	C 4	1
Q39	E 4	1
Q40	I 5	1
Q41	I 4	1
Q42	G 2	1
Q43	H 1	1
Q44	E 2	1
Q45	B 2	1
Q46	E 2	1
Q47	B 1	1
Q48	B 5	1
Q49	A 4	1
Q50	A 5	1
R10	C 2	1
R11	A 1	1
R12	A 1	1
R13	A 2	1
R14	A 1	1
R15	A 4	1
R16	E 3	2
R17	E 4	2
R18	E 4	2
R19	E 4	2
R20	E 3	2
R21	E 3	2
R22	E 4	2
R23	E 3	2
R24	E 5	2
R25	E 3	2
R26	E 3	2
R27	E 5	2
R28	D 3	2
R29	E 5	2
R30	E 4	2
R31	E 3	2
R32	E 5	2
R33	A 2	2
R34	E 6	2
R35	E 5	2
R36	E 6	2
R37	D 2	2
R38	F 2	2
R39	F 3	2
R40	E 6	2
R41	D 1	2
R42	B 2	2
R43	C 2	2
R44	E 6	2
R45	E 1	2
R46	C 2	2
R47	E 6	2
R48	D 2	2

COMP.	LOC.	SHT.
R49	H 5	2
R50	G 6	2
R51	A 2	2
R52	F 5	2
R53	G 6	2
R54	G 5	2
R55	F 5	2
R56	G 6	2
R57	G 6	2
R58	G 5	2
R59	G 6	2
R60	H 5	2
R61	F 6	2
R62	F 5	2
R63	H 5	2
R64	G 5	2
R65	F 6	2
R66	C 3	2
R67	G 5	2
R68	F 6	2
R69	G 5	2
R70	F 3	2
R71	H 5	2
R72	H 5	2
R73	H 5	2
R74	G 3	2
R75	D 1	2
R76	H 6	2
R77	C 6	2
R78	H 6	2
R79	H 2	2
R80	C 6	2
R81	H 2	2
R82	C 5	2
R83	I 2	2
R84	C 5	2
R85	H 1	2
R86	C 5	2
R87	H 1	2
R88	C 5	2
R89	I 1	2
R90	H 3	2
R91	B 5	2
R92	H 3	2
R93	G 2	2
R94	I 3	2
R95	A 4	2
R96	H 1	2
R97	G 2	2
R98	H 1	2
R99	H 3	2
R100	B 4	2
R101	G 1	2
R102	G 4	2
R103	G 3	2
R104	A 4	2
R105	C 4	2
R106	A 4	2
R107	H 3	2
R108	H 3	2
R109	A 4	2
R110	H 4	2
R111	H 1	2
R112	G 4	2
R113	A 3	2
R114	A 5	2
R115	G 1	2
R116	A 5	2
R117	A 5	2
R118	H 2	1
R119	A 4	2
R120	B 5	2
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R122	G 2	1
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R125	E 5	1
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R138	C 5	1
R139	C 5	1
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R159	H 3	1
R160	H 4	1
R161	I 4	1
R162	I 5	1
R163	C 6	2
R164	I 5	1
R165	I 4	1
R166	C 6	2
R167	H 3	1
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R172	E 3	1
R173	E 3	1
R174	E 5	1
R175	E 3	1
R176	G 2	1
R177	F 2	1
R178	G 2	1
R179	A 2	1
R180	C 2	1
R181	C 3	1
R182	G 1	1
R183	B 2	1
R184	B 3	1
R185	H 1	1
R186	F 2	1
R187	B 2	1
R188	D 1	1
R189	A 2	1
R190	B 2	1
R191	B 2	1

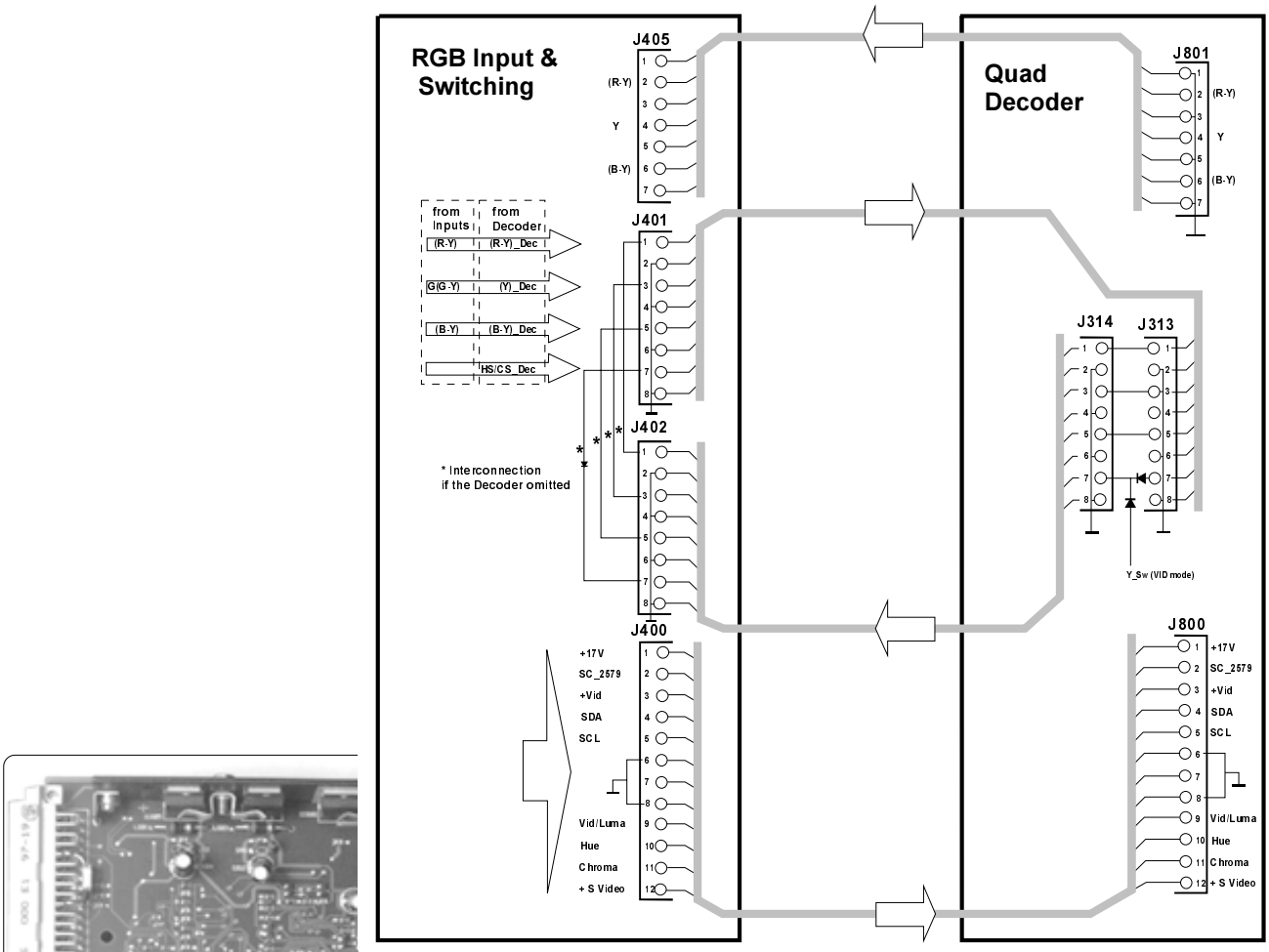
COMP.	LOC.	SHT.
R192	C 1	1
R193	A 1	1
R194	E 2	1
R195	B 2	1
R196	B 2	1
R197	C 2	1
R198	A 1	1
R199	E 2	1
R200	C 1	1
R201	C 2	1
R202	A 4	1
R203	A 5	1
R204	B 5	1
R205	A 4	1
R206	A 5	1
R207	A 1	1
R208	A 1	1
R209	B 5	1
R210	A 5	1
R211	A 5	1
SR10	H 5	1
XT10	B 2	2
XT11	B 2	2
XT12	D 4	1
XT13	D 4	1
Z10	D 3	2
Z11	A 4	2

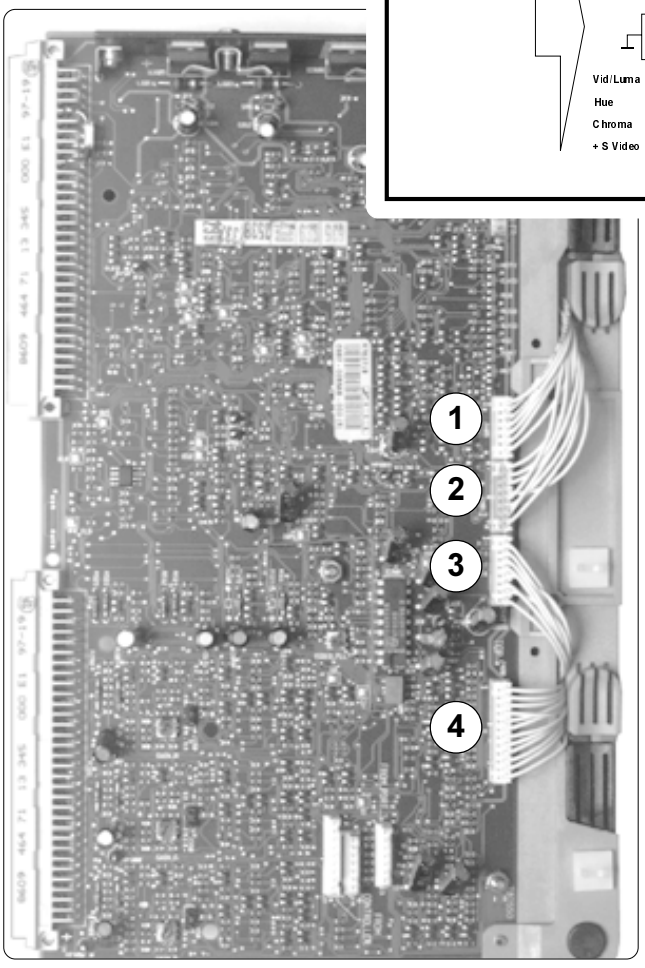
Modifications reserved

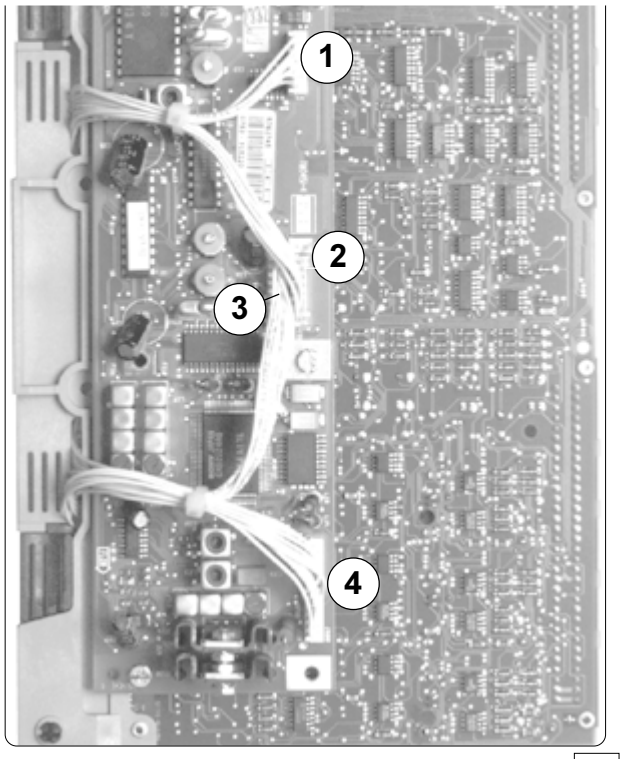
Name: DECODER & COMB FILTER	Sheet: 3/3
Module No: R762745 — 1 / Index:	PCB No: R780451 — 4 / Rev:
Date: 22-11-1996	Drawn: JVDY / Checked: JVST

BARCO PROJECTION SYSTEMS

Interconnection RGB Input & Switch and Quad Decoder







CIRCUIT DESCRIPTION " DECODER + COMB FILTER " (R762745).

General.

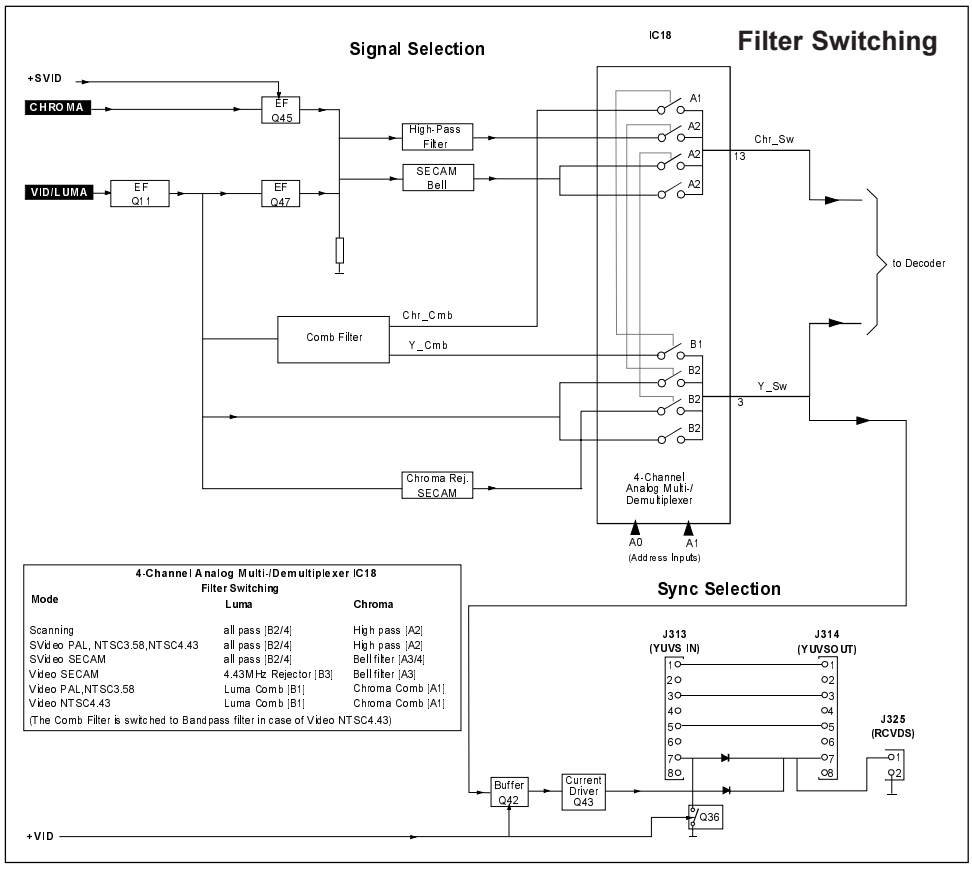
The decoder section of this board with comb filtering uses the decoder chips TDA4650 / TDA4665 / TDA 4565.

The implementation of the *adaptive digital comb filter* for PAL and NTSC 3.58 (not for SECAM and NTSC 4.43) has changed the input switching circuit and obviously two ICs for the digital comb filtering have been added. The first IC generates sync and sampling pulses. The second IC is performing the adaptive digital comb filtering.
We'll concentrate mainly on this section in the next pages.

Filter Switching

The decoder IC TDA4650 The VID/ LUM input signal is passing an emittor follower in order to supply the provided filters.
The multistandard Decoder chip IC 11 is checking sequentially the information on the backporch of the horizontal sync.
As soon the right system is identified, the appropriate output PAL/SECAM/NTSC4.43 or NTSC3.58 is put at a high level. The filters for the Luma signal are an all pass, a rejector around 4.43 MHz and a Luma Comb filter (via Q41). The filters for the Chroma signal are a high Pass 2.5MHz, a Chroma Comb filter (via Q40) and a SECAM BELL filter (via Q10).
The switching outputs of TDA4650 are supplied to a GAL (IC14), where the decoder mode will be recognized. The programmed GAL IC14 takes care, using the two outputs SwBit0 and SwBit1 as address inputs for the IC18, that the correct signal on the 4-channel Analog Multi-/Demultiplexer IC18 is switched through.

The filters are switched in the following way:



4-Channel Analog Multi-/Demultiplexer IC18
Filter Switching

Mode	Luma	Chroma
Scanning	all pass [B2/4]	High pass [A2]
SVideo PAL, NTSC3.58,NTSC4.43	all pass [B2/4]	High pass [A2]
SVideo SECAM	all pass [B2/4]	Bell filter [A3/4]
Video SECAM	4.43MHz Rejector [B3]	Bell filter [A3]
Video PAL,NTSC3.58	Luma Comb [B1]	Chroma Comb [A1]
Video NTSC4.43	Luma Comb [B1]	Chroma Comb [A1]

(The Comb Filter is switched to Bandpass filter in case of Video NTSC4.43)

The two output signals of the 4-channel Analog Multi-/Demultiplexer IC18, respectively Chr_Sw and Y_Sw, are the supply signals for the Decoder IC's.
Next, the composite video is split into luminance and chrominance. This split depends on the colour system.
For PAL and NTSC 3.58 this is done by an adaptive digital comb filter. For SECAM this is done by passive filtering (like in the former decoder). For NTSC4 digital bandpass and band reject filters are used.

The chrominance is now applied to the decoder IC in order to furnish the colour difference signals -(R-Y) and -(B-Y).
These signals are then applied to the "baseband delay line" IC to add the chroma information of two subsequent lines.
However, when it is NTSC3.58 the digital comb filter has already done a similar action, this delay line IC is bypassed for NTSC3.58.
The CTI IC is supplied in any case with the colour difference signals and the luminance. The same CTI chip is also responsible for the luminance delay in order to correct the phase difference between the two signals amongst others due to the color decoding process.
Finally, the luminance passes a "sharpness control" and the three signals leave the decoder via current sources.

Sync Processor CXA1686M. The bloc schematic shows that the sync processor has three inputs : *VID IN, C IN* and *Y IN.*

There are two PLL's in the IC. The first one generates a stable **B**urst **G**ate **P**ulse. The second one generates a sampling frequency of 4 x Fsc (4 times the colour subcarrier) required by the digital comb filter IC.

Note that the colour subcarrier is 3.58Mhz in NTSC3 and 4.43Mhz in PAL. The required frequencies are consequently :

For NTSC : 4 x 3.58Mhz = 14.318 Mhz (VCO1 in the bloc diagram)
For PAL : 4 x 4.43Mhz = 17.734 Mhz (VCO2 in the bloc diagram).

In order to generate these stable frequencies the second PLL is used. This PLL consists of an **APC** (Automatic Phase Control), a **VCO** (Voltage Controlled Oscillator) and a **divider** by 4 *(1/4).*

The *APC* receives the oscillator frequency divided by 4 , and, the burst which must be gated out of the chrominance. Therefore, very stable burst gate pulses "**BGP**" are generated by the aid of the first PLL running at approximately 32 x Fh (32 times the line frequency) or approx. 500khz.

The BGP pulses, besides internal use in the sync processor itself, are also used by the comb filter (pin 17).

The reference frequency for the first PLL is provided by the ceramic filter KF100 connected at pin 5.

The videosignal first passes a " *sync separator* " which is further used in the IC itself to lock the first PLL (500khz).

Pin 10 accepts information concerning the colour system to the sync processor. The colour decoder IC 11 delivers this information. This pin is at a high level in NTSC3.58 and low level for PAL and NTSC4.43.

This switching voltage activates either the oscillator around XT11 (4 x 3.58Mhz = 14.318 Mhz) in NTSC3.58 or the oscillator around XT10 (4 x 4.43Mhz = 17.734Mhz).

The videosignal from input 26 is amplified by 6db and via the pin 30 output capacitively coupled to the AD input pin 25 of the comb filter chip IC16.

The VID/LUMA undergoes a frequency limiting to 6Mhz with FI12 driven by Q49. This frequency limiting will avoid (sampling) alaising later in the AD and DA convertors of the Comb Filter IC16.

Comb Filter CXD2024AQ.

The above IC can be supplied either with digital or analog signals. In our application the analog inputs and outputs are used. As pin 10 INSL is here at ground level for Video PAL, N3 and N4, we use (=activate) the analog inputs and outputs. For the other modes (see table 'Filter switching') pin 10 is at high level, setting the outputs at a DC level.

Anyhow, the processing for filtering the chrominance out of the luminance happens with digital circuits.
Therefore, the analog video is first converted to digital using the sampling clock generated in the sync processor.

It is worthwhile to note that the signal passing through this IC undergoes a delay of approximately 1 and 2 lines in NTSC and in PAL. This can cause synchronization and clamping problems if not taken care of. (see later : Input switching - synchronization).

The A**Y**O (luminance) output at pin 31 passes through a low pass filter FI11 and is then buffered with Q41 to feed the 4-channel Analog Multi-/Demultiplexer IC18, pin 1 Y_Comb.
This filter prevent the clock frequencies of the DA converter to pass through.

The A**C**O (Chrominance) output undergoes also a frequency limitation with the filter FI10 for the same reason, before supplying the pin 12 Chr_Comb of the 4-channel Analog Multi-/Demultiplexer IC18.

The voltage at pin 21 determine the DC clamping level of the ADC.

The voltage at pin 41 (CVRF) is the gain of the chrominance output and pin 33 (YVRF) of the luminance output.

Pin 70 tells the IC whether the colour system is PAL or NTSC3.58; This determines amongst others the number of line delays for the adaptive digital filtering.

Synchronisation.

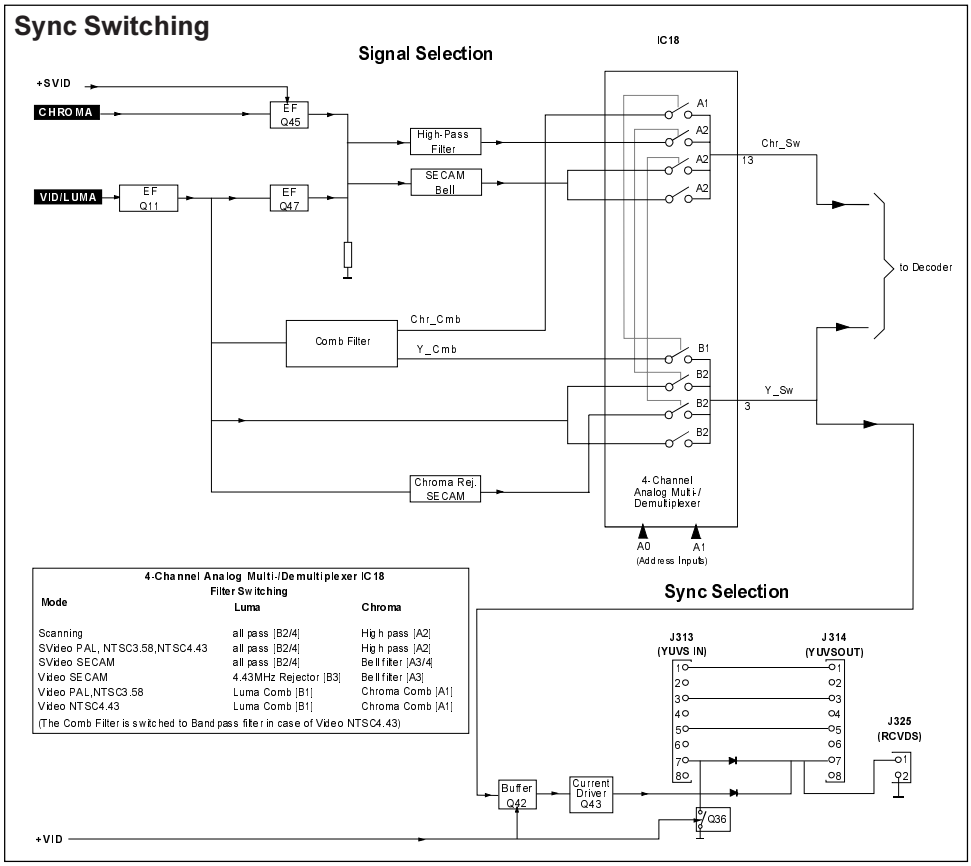
The first selection of the sync signal is done in the source input selection. The result of this selection is the SYNC-EX which is available at pin 7 of the J313 connector.

a) Video / S-Video :

When a video composite or S-Video source is selected the +VID voltage is high and the transistor Q42 gets forward biased just like Q43. Pin 7 of the connector J314 receives then the signal via these transistors. This signal has maybe undergone some delays depending on the standard.
To ensure that the SYNC-EX does not get through, Q36 is saturated to short the SYNC-EX line to ground. The collector DC voltage of Q43 is blocked with D24.

b) RGB .

The selection of an RGB source simply means that the SYNC-EX signal is passed through D24 and feeds the SYNC board.



Decoder - Sharpness.

We 'll limit the discussion to the differences with the former version.

a) Comb filtering in NTSC3.58

As for the NTSC3.58 comb filtering is done by the digital comb filter, the dual baseband CCD delay IC may be bypassed. This happens with Q13 - Q15 and Q12 - Q14 when NT3 is at a high level.

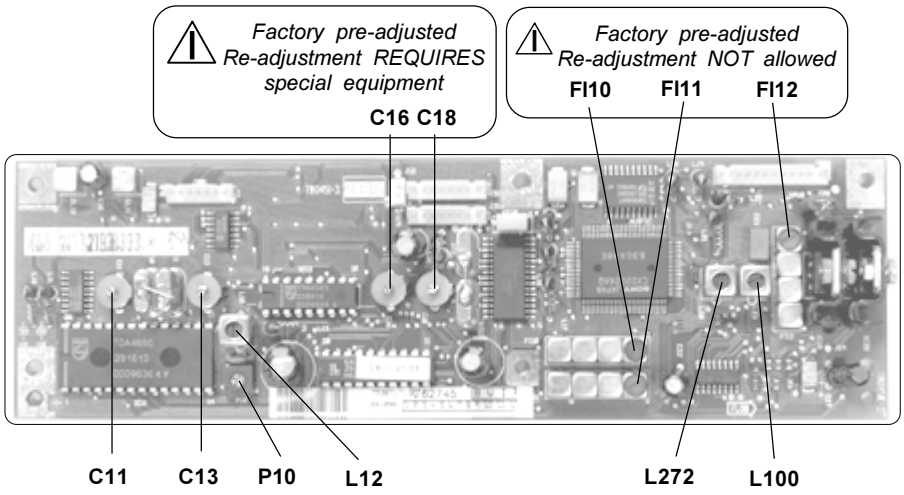
b) Sharpness control.

In this version, sharpness is done with discrete components. A DAC TDA8444 provides the ajustable voltage: *SHARPNESS*.
The sharpness control is based on the principle of combining two signals, one with a ' max negative' sharpness together with an amplitude adjusted sharpness signal.
The signal is delayed twice by means of two delay lines of 180ns. A combination of signals produce on the junction R62, R65 and R68 the max. neg. sharpness signal whereas on the junction R52, R55 and R61 the sharpness correction signal. The latter signal is amplitude adjusted in IC12 by the sharpness voltage. The two formed signals are combined on the junction R73/R78 and this signal is further used as Luma signal.

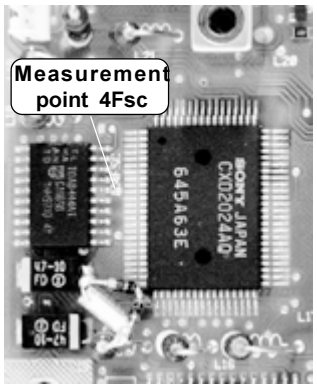
ADJUSTMENT PROCEDURE QUAD DECODER R762745

Location of controls

Measurement point 4Fsc



A. Adjustment Comb Filter



1. Quick adjustment for Color display

- Connect to the VIDEO input e.g. an electronic **PAL** color test video signal.
- Switch the projector in the VIDEO MODE. Select source 1.
- if there is no colour, adjust trimming capacitor C11 for color display.
- Connect to the VIDEO input e.g. an electronic **NTSC3.58** test video signal.
- if there is no colour, adjust trimming capacitor C13 for color display.

Final adjustment of the trimming capacitors C11 and C13 is explained in the 'adjustment of the decoder' (see further).

2. Oscillator adjustments

- No input signal connected to the VID/LUMA and CHROMA inputs.
- Connect pin 28 of IC11 to L13 (forcing decoder into PAL mode).

- Connect a Frequency meter (Range 20MHz-accuracy of 10Hz) to the 4Fsc line (pin 17 IC15).
- Adjust the trimming capacitor C18 for a frequency read out of 17.734476 MHz with an accuracy of 80Hz.

- Connect pin 26 of IC11 to L13 (forcing decoder into NTSC mode).
- Connect a Frequency meter (Range 20MHz-accuracy of 10Hz) to the 4Fsc line (pin 17 IC15).
- Adjust the trimming capacitor C16 for a frequency read out of 14.318180 MHz with an accuracy of 80Hz.

B. Adjustment Decoder

1. Reference Oscillator NTSC3.58

- Connect to the VIDEO input e.g. an electronic **NTSC3.58** test video signal.
- short circuit pin 17 of IC11 to ground.
- adjust trimming capacitor C13 for a colour zero beat.
- remove the short-circuit.

2. Reference Oscillator PAL

- Connect to the VIDEO input e.g. an electronic **PAL** test video signal.
- short circuit pin 17 of IC11 to ground.
- adjust trimming capacitor C11 for a colour zero beat.
- remove the short-circuit.

3. Chroma rejector Secam L20

- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect an oscilloscope to the capacitor C22.
- adjust the core of coil L20 for a minimum of chroma in the video signal.

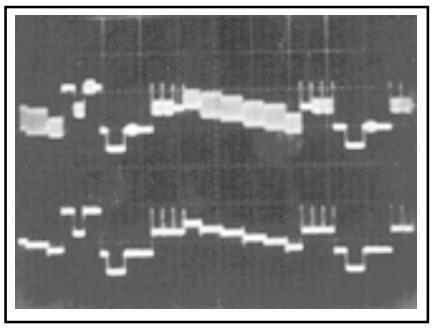
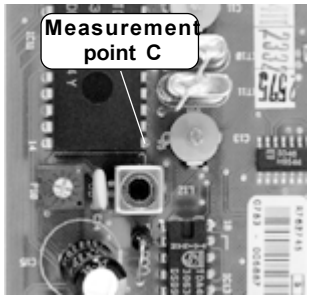


Foto 1
Alignment chroma rejector L20
Upper track: viewed video line
Lower track: Y signal

4. SECAM BELL Filter L23 *(photo 5)*

- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect an oscilloscope to the provided **Measurement point C** (Chr_Sw pin 15 IC11).
- adjust L23 for a flat amplitude of the signal during two successive lines.



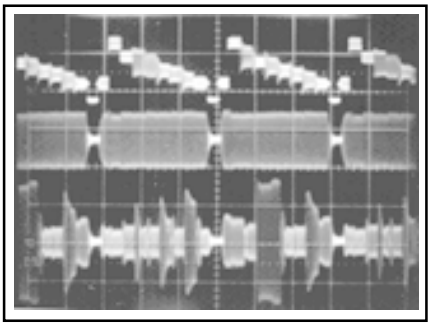


Foto 5
BELL FILTER L23
Upper track: viewed video line
Lower track:
1: correct setting
2: incorrect setting

5. Secam Reference circuit (L12 - P10) *(photo 3 & 4)*

- Connect to the VIDEO input e.g. an electronic **SECAM** test video signal.
- connect the oscilloscope to the coil L11 (B-Y).
- adjust L12 so that the level of the (B-Y) signal without colour information is the same as the level during blanking.
- connect the oscilloscope to the coil L10 (R-Y).
- adjust P10 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 L12.

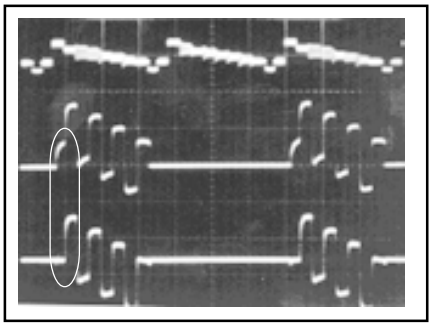


Foto 3
Alignment SECAM Ref circuit L12 (B-Y)
Upper track: viewed video line
Lower track:
1: incorrect setting
2: correct setting

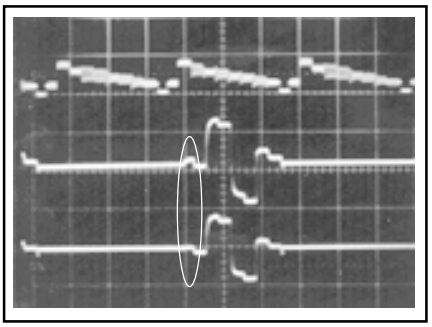


Foto 4
Alignment SECAM Ref circuit P10 (R-Y)
Upper track: viewed video line
Lower track:
1: incorrect setting
2: correct setting

Parts listing R762745

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
10	R133072	HTSN@ Q TO220 24X 7 L 20	2
20	R3631049	SCR Z933 M 3 X 6 SSWX	2
30	R3661026	NUT D934 M 3 SS	2
40	V306800	X ACC INSUL HC49	2
C 10	R111678	C EL BRA 10M M 25E2 85	1
C 11	R117001	C T 7 -35P 160	1
C 12	P212018	C# TA 10M M 16 6032	1
C 13	R117001	C T 7 -35P 160	1
C 14	R112363	C N750MI 120P G100E2	1
C 14	V1122842	C N220MI 150P G100E2	1
C 15	R111478	C EL RA 220M M 25E2 85	1
C 16	R117001	C T 7 -35P 160	1
C 17	R111477	C EL RA 100M M 25E2 85	1
C 18	R117001	C T 7 -35P 160	1
C 19	R111477	C EL RA 100M M 25E2 85	1
C 20	P212005	C# TA 47M M 10 7343	1
C 21	P212005	C# TA 47M M 10 7343	1
C 22	R111678	C EL BRA 10M M 25E2 85	1
C 23	R1159081	C PP RA 470P J100E2 85	1
C 24	P210178	C# Y5V MU 1M Z 16 1206	1
C 25	P210213	C# Y5V MU 100N Z 25 0805	1
C 26	P212018	C# TA 10M M 16 6032	1
C 27	R111548	C EL RA 2M2M 50E2 85	1
C 28	P210041	C# X7R MU 10N K 50 0805	1
C 29	P210019	C# COG MU 47P J 50 0805	1
C 30	P210019	C# COG MU 47P J 50 0805	1
C 31	P210178	C# Y5V MU 1M Z 16 1206	1
C 32	P210035	C# X7R MU 1N K 50 0805	1
C 33	P210023	C# COG MU 220P J 50 0805	1
C 34	P210178	C# Y5V MU 1M Z 16 1206	1
C 35	P210035	C# X7R MU 1N K 50 0805	1
C 36	P210023	C# COG MU 220P J 50 0805	1
C 37	P212005	C# TA 47M M 10 7343	1
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C 40	P210041	C# X7R MU 10N K 50 0805	1
C 41	P210005	C# X7R MU 39N K 50 1206	1
C 42	P210213	C# Y5V MU 100N Z 25 0805	1
C 43	P210001	C# COG MU 10P C 50 0805	1
C 44	P210213	C# Y5V MU 100N Z 25 0805	1
C 45	P210178	C# Y5V MU 1M Z 16 1206	1
C 46	P210178	C# Y5V MU 1M Z 16 1206	1
C 47	P210213	C# Y5V MU 100N Z 25 0805	1
C 48	P210136	C# Y5V MU 330N Z 50 1206	1
C 49	P210178	C# Y5V MU 1M Z 16 1206	1
C 50	P210001	C# COG MU 10P C 50 0805	1
C 51	P210111	C# X7R MU 47N K 50 0805	1
C 52	P210178	C# Y5V MU 1M Z 16 1206	1
C 53	P210178	C# Y5V MU 1M Z 16 1206	1
C 54	P210178	C# Y5V MU 1M Z 16 1206	1
C 55	P210041	C# X7R MU 10N K 50 0805	1
C 56	P210153	C# Z5U MU 1M M 63 1812	1
C 57	P210213	C# Y5V MU 100N Z 25 0805	1
C 58	P210035	C# X7R MU 1N K 50 0805	1
C 59	P210041	C# X7R MU 10N K 50 0805	1
C 60	P210178	C# Y5V MU 1M Z 16 1206	1
C 61	P210178	C# Y5V MU 1M Z 16 1206	1
C 62	P210178	C# Y5V MU 1M Z 16 1206	1
C 63	P210178	C# Y5V MU 1M Z 16 1206	1
C 64	P212018	C# TA 10M M 16 6032	1
C 65	P210021	C# COG MU 100P J 50 0805	1
C 66	P210021	C# COG MU 100P J 50 0805	1
C 67	P212018	C# TA 10M M 16 6032	1
C 68	P210024	C# COG MU 330P J 50 0805	1
C 69	P210213	C# Y5V MU 100N Z 25 0805	1
C 70	P210023	C# COG MU 220P J 50 0805	1
C 71	P212018	C# TA 10M M 16 6032	1
C 72	P212015	C# TA 33M K 16 7343	1
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C 80	P212018	C# TA 10M M 16 6032	1
C 81	P210111	C# X7R MU 47N K 50 0805	1
C 82	P210041	C# X7R MU 10N K 50 0805	1
C 83	P210041	C# X7R MU 10N K 50 0805	1
C 84	P210035	C# X7R MU 1N K 50 0805	1
C 85	P210018	C# COG MU 33P J 50 0805	1
C 86	P210039	C# X7R MU 4N7K 50 0805	1
C 87	P210213	C# Y5V MU 100N Z 25 0805	1
C 88	P210169	C# X7R MU 220N K 50 1210	1
C 89	P210213	C# Y5V MU 100N Z 25 0805	1
C 90	P210111	C# X7R MU 47N K 50 0805	1
C 91	P210001	C# COG MU 10P C 50 0805	1
C 92	P210067	C# X7R MU 1M M 50 2220	1
C 93	P210213	C# Y5V MU 100N Z 25 0805	1
C 94	P210178	C# Y5V MU 1M Z 16 1206	1
C 95	P210213	C# Y5V MU 100N Z 25 0805	1
C 96	P210213	C# Y5V MU 100N Z 25 0805	1
C 97	P210178	C# Y5V MU 1M Z 16 1206	1
C 98	P212018	C# TA 10M M 16 6032	1
C 99	P210178	C# Y5V MU 1M Z 16 1206	1
C100	P210213	C# Y5V MU 100N Z 25 0805	1
C101	P210213	C# Y5V MU 100N Z 25 0805	1
C102	P210213	C# Y5V MU 100N Z 25 0805	1
C103	P210041	C# X7R MU 10N K 50 0805	1
C104	P210041	C# X7R MU 10N K 50 0805	1
C105	P210213	C# Y5V MU 100N Z 25 0805	1
C106	P210041	C# X7R MU 10N K 50 0805	1
C107	P210213	C# Y5V MU 100N Z 25 0805	1
C108	P210213	C# Y5V MU 100N Z 25 0805	1
C109	P210035	C# X7R MU 1N K 50 0805	1
C110	P210213	C# Y5V MU 100N Z 25 0805	1
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C114	P212005	C# TA 47M M 10 7343	1
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C116	P212005	C# TA 47M M 10 7343	1
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C118	P212015	C# TA 33M K 16 7343	1
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C127	P212015	C# TA 33M K 16 7343	1
C128	P210213	C# Y5V MU 100N Z 25 0805	1
C129	P212018	C# TA 10M M 16 6032	1
C130	P210213	C# Y5V MU 100N Z 25 0805	1
C131	P212031	C# TA 22M M 16 7343	1
C132	P210041	C# X7R MU 10N K 50 0805	1
C133	P210213	C# Y5V MU 100N Z 25 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
C134	P212031	C# TA 22M M 16 7343	1
C213	R113724	C POMERA 100N K 63E2 85	1
D 10	P234099	D#4148 R DMMELF	1
D 11	P234099	D#4148 R DMMELF	1
D 12	P234029	D#BAW56 C-A SOT23	1
D 13	P234029	D#BAW56 C-A SOT23	1
D 14	P234205	D#BAT54C SCH SOT23	1
D 15	P234029	D#BAW56 C-A SOT23	1
D 16	P234205	D#BAT54C SCH SOT23	1
D 17	P234205	D#BAT54C SCH SOT23	1
D 18	P234055	D#BAT54 SCH SOT23	1
D 19	P234205	D#BAT54C SCH SOT23	1
D 20	P234205	D#BAT54C SCH SOT23	1
D 21	P234004	D#BAV70 C-C SOT23	1
D 22	P234205	D#BAT54C SCH SOT23	1
D 23	P234205	D#BAT54C SCH SOT23	1
D 24	P234205	D#BAT54C SCH SOT23	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
D113	R131621	D S 1N4148 075150 DO35	1
D114	R131621	D S 1N4148 075150 DO35	1
DL10	V306541	DL 180NS 1K	1
DL11	V306541	DL 180NS 1K	1
FI10	V3060961	FLTR 6M750000	1
FI11	V3060961	FLTR 6M750000	1
FI12	V3060961	FLTR 6M750000	1
I 10	P231329	U#4665 TDA SO16 P	1
I 11	R132828	U 4650 TDA DIP28 P	1
I 12	P231013	U#3046 CA SO14 I	1
I 13	R132773	U 4565 TDA DIP18 P	1
I 14	R32841402	U_S G 808S DEC V102	1
I 15	P231280	U#1686M CXA SOL30 P	1
I 16	P231281	U#2024AQ CXD QFP80 P	1
I 17	P230936	U#8444A TDA SOL20 P	1
I 18	P230064	U#4052 SO16 I	1
I 19	R134001	U 7805 TO220 P	1
I 20	R134002	U 7812 TO220 P	1
J 11	R348110	WU JUMP 0.6 27.5	1
J 16	R348110	WU JUMP 0.6 27.5	1
J313	R313928	J CT H MBT P 8 M2SN WH	1
J314	R313928	J CT H MBT P 8 M2SN WH	1
J325	R313922	J CT H MBT P 2 M2SN WH	1
J800	R313932	J CT H MBT P12 M2SN WH	1
J801	R313927	J CT H MBT P 7 M2SN WH	1
KF10	R307133	RSN CE 0M505	1
L 10	R3061322	CH AX NS 10 UH	1
L 11	R3061322	CH AX NS 10 UH	1
L 12	K3060242	CH RA ES 10 UH S7 T	1
L 13	R3061322	CH AX NS 10 UH	1
L 14	R3061341	CH AX NS 100 UH	1
L 15	R3061322	CH AX NS 10 UH	1
L 16	R3061322	CH AX NS 10 UH	1
L 17	R3061341	CH AX NS 100 UH	1
L 18	R3061322	CH AX NS 10 UH	1
L 19	R3061322	CH AX NS 10 UH	1
L 20	B3060172	CH RA ES 7 T 16.71 UH Q70	1
L 21	R3061322	CH AX NS 10 UH	1
L 22	R3061322	CH AX NS 10 UH	1
L 23	B3060192	CH RA ES 7 T 2.91 UH Q54	1
P 10	R107005	R TCE H500E K 0W5 S 7TS	1
PC	R780451	PCD#PJ53 G701 DEC_COMB	1
Q 10	P232004	Q#BC849C N SS SOT23	1
Q 11	P232004	Q#BC849C N SS SOT23	1
Q 12	P232004	Q#BC849C N SS SOT23	1
Q 13	P232004	Q#BC849C N SS SOT23	1
Q 14	P232101	Q#BC859C P SS SOT23	1
Q 15	P232101	Q#BC859C P SS SOT23	1
Q 16	P232101	Q#BC859C P SS SOT23	1
Q 17	P232004	Q#BC849C N SS SOT23	1
Q 18	P232004	Q#BC849C N SS SOT23	1
Q 19	P232101	Q#BC859C P SS SOT23	1
Q 20	P232004	Q#BC849C N SS SOT23	1
Q 21	P232004	Q#BC849C N SS SOT23	1
Q 22	P232004	Q#BC849C N SS SOT23	1
Q 23	P232101	Q#BC859C P SS SOT23	1
Q 24	P232101	Q#BC859C P SS SOT23	1
Q 25	P232101	Q#BC859C P SS SOT23	1
Q 26	P232004	Q#BC849C N SS SOT23	1
Q 27	P232101	Q#BC859C P SS SOT23	1
Q 28	P232004	Q#BC849C N SS SOT23	1
Q 29	P232101	Q#BC859C P SS SOT23	1
Q 30	P232101	Q#BC859C P SS SOT23	1
Q 31	P232004	Q#BC849C N SS SOT23	1
Q 32	P232004	Q#BC849C N SS SOT23	1
Q 33	P232004	Q#BC849C N SS SOT23	1
Q 34	P232004	Q#BC849C N SS SOT23	1
Q 35	P232004	Q#BC849C N SS SOT23	1
Q 36	P232004	Q#BC849C N SS SOT23	1
Q 37	P232004	Q#BC849C N SS SOT23	1
Q 38	P232101	Q#BC859C P SS SOT23	1
Q 39	P232004	Q#BC849C N SS SOT23	1
Q 40	P232004	Q#BC849C N SS SOT23	1
Q 41	P232004	Q#BC849C N SS SOT23	1
Q 42	P232004	Q#BC849C N SS SOT23	1
Q 43	P232101	Q#BC859C P SS SOT23	1
Q 44	P232004	Q#BC849C N SS SOT23	1
Q 45	P232004	Q#BC849C N SS SOT23	1
Q 46	P232004	Q#BC849C N SS SOT23	1
Q 47	P232004	Q#BC849C N SS SOT23	1
Q 48	P232004	Q#BC849C N SS SOT23	1
Q 49	P232101	Q#BC859C P SS SOT23	1
Q 50	P232004	Q#BC849C N SS SOT23	1
R 10	P201095	R# CE H 2K2 F 0W1 0805	1
R 11	P201095	R# CE H 2K2 F 0W1 0805	1
R 12	P201135	R# CE H100K F 0W1 0805	1
R 13	P201119	R# CE H 22K F 0W1 0805	1
R 14	P201125	R# CE H 39K F 0W1 0805	1
R 15	P200677	R# CE H 1E J 0W1 0805	1
R 16	P201135	R# CE H100K F 0W1 0805	1
R 17	P201135	R# CE H100K F 0W1 0805	1
R 18	P201143	R# CE H220K F 0W1 0805	1
R 19	P201095	R# CE H 2K2 F 0W1 0805	1
R 20	P201143	R# CE H220K F 0W1 0805	1
R 21	P201095	R# CE H 2K2 F 0W1 0805	1
R 22	P201095	R# CE H 2K2 F 0W1 0805	1
R 23	P201095	R# CE H 2K2 F 0W1 0805	1
R 24	P201087	R# CE H 1K F 0W1 0805	1
R 25	P201087	R# CE H 1K F 0W1 0805	1
R 26	P201087	R# CE H 1K F 0W1 0805	1
R 27	P201087	R# CE H 1K F 0W1 0805	1
R 28	P201111	R# CE H 10K F 0W1 0805	1
R 29	P201135	R# CE H100K F 0W1 0805	1
R 30	P201095	R# CE H 2K2 F 0W1 0805	1
R 31	P201095	R# CE H 2K2 F 0W1 0805	1

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R 32	P201079	R# CE H470E F 0W1 0805	1
R 33	P201063	R# CE H100E F 0W1 0805	1
R 34	P201087	R# CE H 1K F 0W1 0805	1
R 35	P201121	R# CE H 27K F 0W1 0805	1
R 36	P201087	R# CE H 1K F 0W1 0805	1
R 37	P201111	R# CE H 10K F 0W1 0805	1
R 38	P201095	R# CE H 2K2 F 0W1 0805	1
R 39	P201095	R# CE H 2K2 F 0W1 0805	1
R 40	P201079	R# CE H470E F 0W1 0805	1
R 41	P200677	R# CE H 1E J 0W1 0805	1
R 42	P201099	R# CE H 3K3 F 0W1 0805	1
R 43	P201075	R# CE H330E F 0W1 0805	1
R 44	P201135	R# CE H100K F 0W1 0805	1
R 45	P201015	R# CE H 1E F 0W1 0805	1
R 46	P201075	R# CE H330E F 0W1 0805	1
R 47	P201121	R# CE H 27K F 0W1 0805	1
R 48	P201111	R# CE H 10K F 0W1 0805	1
R 49	P200677	R# CE H 1E J 0W1 0805	1
R 50	P201115	R# CE H 15K F 0W1 0805	1
R 51	P201111	R# CE H 10K F 0W1 0805	1
R 52	P201079	R# CE H470E F 0W1 0805	1
R 53	P201119	R# CE H 22K F 0W1 0805	1
R 54	P201135	R# CE H100K F 0W1 0805	1
R 55	P201087	R# CE H 1K F 0W1 0805	1
R 56	P201075	R# CE H330E F 0W1 0805	1
R 57	P201075	R# CE H330E F 0W1 0805	1
R 58	P201119	R# CE H 22K F 0W1 0805	1
R 59	P201119	R# CE H 22K F 0W1 0805	1
R 60	P201099	R# CE H 3K3 F 0W1 0805	1
R 61	P201087	R# CE H 1K F 0W1 0805	1
R 62	P201087	R# CE H 1K F 0W1 0805	1
R 63	P201099	R# CE H 3K3 F 0W1 0805	1
R 64	P201099	R# CE H 3K3 F 0W1 0805	1
R 65	P201087	R# CE H 1K F 0W1 0805	1
R 66	P201083	R# CE H680E F 0W1 0805	1
R 67	P201099	R# CE H 3K3 F 0W1 0805	1
R 68	P201087	R# CE H 1K F 0W1 0805	1
R 69	P201087	R# CE H 1K F 0W1 0805	1
R 70	P201111	R# CE H 10K F 0W1 0805	1
R 72	P201159	R# CE H 1M F 0W1 0805	1
R 73	P201087	R# CE H 1K F 0W1 0805	1
R 74	P201089	R# CE H 1K2 F 0W1 0805	1
R 75	P200677	R# CE H 1E J 0W1 0805	1
R 76	P201125	R# CE H 39K F 0W1 0805	1
R 77	P201111	R# CE H 10K F 0W1 0805	1
R 78	P201087	R# CE H 1K F 0W1 0805	1
R 79	P201129	R# CE H 56K F 0W1 0805	1
R 80	P201127	R# CE H 47K F 0W1 0805	1
R 81	P201119	R# CE H 22K F 0W1 0805	1
R 82	P201111	R# CE H 10K F 0W1 0805	1
R 83	P201063	R# CE H100E F 0W1 0805	1
R 84	P201111	R# CE H 10K F 0W1 0805	1
R 85	P201129	R# CE H 56K F 0W1 0805	1
R 86	P201111	R# CE H 10K F 0W1 0805	1
R 87	P201119	R# CE H 22K F 0W1 0805	1
R 88	P201121	R# CE H 27K F 0W1 0805	1
R 89	P201063	R# CE H100E F 0W1 0805	1
R 90	P201129	R# CE H 56K F 0W1 0805	1
R 91	P200677	R# CE H 1E J 0W1 0805	1
R 92	P201119	R# CE H 22K F 0W1 0805	1
R 93	P201063	R# CE H100E F 0W1 0805	1
R 94	P201063	R# CE H100E F 0W1 0805	1
R 95	P201087	R# CE H 1K F 0W1 0805	1
R 96	P201111	R# CE H 10K F 0W1 0805	1
R 97	P201063	R# CE H100E F 0W1 0805	1
R 98	P201091	R# CE H 1K5 F 0W1 0805	1
R 99	P201127	R# CE H 47K F 0W1 0805	1
R100	P201115	R# CE H 15K F 0W1 0805	1
R101	P201135	R# CE H100K F 0W1 0805	1
R102	P201123	R# CE H 33K F 0W1 0805	1
R103	P201039	R# CE H 10E F 0W1 0805	1
R104	P201087	R# CE H 1K F 0W1 0805	1
R105	P201115	R# CE H 15K F 0W1 0805	1
R106	P201111	R# CE H 10K F 0W1 0805	1
R107	P201095	R# CE H 2K2 F 0W1 0805	1
R108	P201111	R# CE H 10K F 0W1 0805	1
R109	P201087	R# CE H 1K F 0W1 0805	1
R110	P200677	R# CE H 1E J 0W1 0805	1
R111	P201070	R# CE H200E F 0W1 0805	1
R112	P201095	R# CE H 2K2 F 0W1 0805	1
R113	P201087	R# CE H 1K F 0W1 0805	1
R114	P201115	R# CE H 15K F 0W1 0805	1
R115	P201115	R# CE H 15K F 0W1 0805	1
R116	P201111	R# CE H 10K F 0W1 0805	1
R117	P201127	R# CE H 47K F 0W1 0805	1
R118	P201095	R# CE H 2K2 F 0W1 0805	1
R119	P201087	R# CE H 1K F 0W1 0805	1
R120	P201111	R# CE H 10K F 0W1 0805	1
R121	P201103	R# CE H 4K7 F 0W1 0805	1
R122	P201111	R# CE H 10K F 0W1 0805	1
R123	P201085	R# CE H820E F 0W1 0805	1
R124	P201103	R# CE H 4K7 F 0W1 0805	1
R125	P201103	R# CE H 4K7 F 0W1 0805	1
R126	P201115	R# CE H 15K F 0W1 0805	1
R127	P201127	R# CE H 47K F 0W1 0805	1
R128	P201115	R# CE H 15K F 0W1 0805	1
R129	P201079	R# CE H470E F 0W1 0805	1
R130	P201109	R# CE H 8K2 F 0W1 0805	1
R131	P201087	R# CE H 1K F 0W1 0805	1
R132	P201107	R# CE H 6K8 F 0W1 0805	1
R133	P200677	R# CE H 1E J 0W1 0805	1
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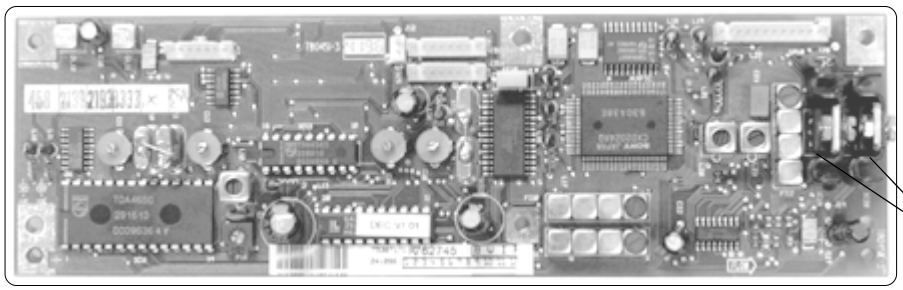
R135	P200677	R# CE H 1E J 0W1 0805	1
R136	P201087	R# CE H 1K F 0W1 0805	1
R137	P201095	R# CE H 2K2 F 0W1 0805	1
R138	P201115	R# CE H 15K F 0W1 0805	1
R139	P201115	R# CE H 15K F 0W1 0805	1
R140	P201084	R# CE H750E F 0W1 0805	1
R141	P201084	R# CE H750E F 0W1 0805	1
R142	P201111	R# CE H 10K F 0W1 0805	1
R143	P201072	R# CE H240E F 0W1 0805	1
R144	P201072	R# CE H240E F 0W1 0805	1
R145	P201091	R# CE H 1K5 F 0W1 0805	1
R146	P201119	R# CE H 22K F 0W1 0805	1
R147	P201099	R# CE H 3K3 F 0W1 0805	1
R148	P200677	R# CE H 1E J 0W1 0805	1
R149	P201093	R# CE H 1K8 F 0W1 0805	1
R150	P201119	R# CE H 22K F 0W1 0805	1
R151	P201107	R# CE H 6K8 F 0W1 0805	1
R152	P201091	R# CE H 1K5 F 0W1 0805	1
R153	P201099	R# CE H 3K3 F 0W1 0805	1
R154	P201039	R# CE H 10E F 0W1 0805	1
R155	P201109	R# CE H 8K2 F 0W1 0805	1
R156	P201103	R# CE H 4K7 F 0W1 0805	1
R157	P201109	R# CE H 8K2 F 0W1 0805	1
R158	P200677	R# CE H 1E J 0W1 0805	1
R159	P200677	R# CE H 1E J 0W1 0805	1
R160	P200677	R# CE H 1E J 0W1 0805	1
R161	P201129	R# CE H 56K F 0W1 0805	1
R162	P201130	R# CE H 62K F 0W1 0805	1
R163	P201063	R# CE H100E F 0W1 0805	1
R164	P201135	R# CE H100K F 0W1 0805	1
R165	P201135	R# CE H100K F 0W1 0805	1
R166	P201063	R# CE H100E F 0W1 0805	1

QUAD Decoder+Comb_Filter R762745

SIT.	ITEM NO.	DESCRIPTION	QUANTITY
R167	P200677	R# CE H 1E J 0W1 0805	1
R168	P200677	R# CE H 1E J 0W1 0805	1
R169	P201087	R# CE H 1K F 0W1 0805	1
R170	P201087	R# CE H 1K F 0W1 0805	1
R171	P200677	R# CE H 1E J 0W1 0805	1
R172	P200677	R# CE H 1E J 0W1 0805	1
R173	P200677	R# CE H 1E J 0W1 0805	1
R174	P201060	R# CE H 75E F 0W1 0805	1
R175	P200677	R# CE H 1E J 0W1 0805	1
R176	P201121	R# CE H 27K F 0W1 0805	1
R177	P201127	R# CE H 47K F 0W1 0805	1
R178	P201095	R# CE H 2K2 F 0W1 0805	1
R179	P201067	R# CE H150E F 0W1 0805	1
R180	P201135	R# CE H100K F 0W1 0805	1
R181	P201083	R# CE H680E F 0W1 0805	1
R182	P201095	R# CE H 2K2 F 0W1 0805	1
R183	P201085	R# CE H820E F 0W1 0805	1
R184	P201039	R# CE H 10E F 0W1 0805	1
R185	P201063	R# CE H100E F 0W1 0805	1
R186	P201127	R# CE H 47K F 0W1 0805	1
R187	P201091	R# CE H 1K5 F 0W1 0805	1
R188	P200677	R# CE H 1E J 0W1 0805	1
R189	P201119	R# CE H 22K F 0W1 0805	1
R190	P201103	R# CE H 4K7 F 0W1 0805	1
R191	P201095	R# CE H 2K2 F 0W1 0805	1
R192	P201115	R# CE H 15K F 0W1 0805	1
R193	P201055	R# CE H 47E F 0W1 0805	1
R194	P201095	R# CE H 2K2 F 0W1 0805	1
R195	P201127	R# CE H 47K F 0W1 0805	1
R196	P201135	R# CE H100K F 0W1 0805	1
R197	P201120	R# CE H 24K F 0W1 0805	1
R198	P201055	R# CE H 47E F 0W1 0805	1
R199	P201095	R# CE H 2K2 F 0W1 0805	1
R200	P200677	R# CE H 1E J 0W1 0805	1
R201	P201135	R# CE H100K F 0W1 0805	1
R202	P201135	R# CE H100K F 0W1 0805	1
R203	P201125	R# CE H 39K F 0W1 0805	1
R204	P201103	R# CE H 4K7 F 0W1 0805	1
R205	P201087	R# CE H 1K F 0W1 0805	1
R206	P201095	R# CE H 2K2 F 0W1 0805	1
R207	P200677	R# CE H 1E J 0W1 0805	1
R208	P201067	R# CE H150E F 0W1 0805	1
R209	P201083	R# CE H680E F 0W1 0805	1
R210	P201091	R# CE H 1K5 F 0W1 0805	1
R211	P201086	R# CE H910E F 0W1 0805	1
SR10	R1012009	R CFFH 1E J 0W5	1 ⚠
XT10	R306816	X 8M867238 20 HC49	1
XT11	R306849	X 7M159090 20 HC49	1
XT12	R3071231	X 17M734475 16 HC49	1
XT13	V3068581	X 14M318180 16 HC49	1
Z 10	P234018	D#ZEN 6V2 0W5 C DMMELF	1
Z 11	P234213	D#ZEN 3V3 0W5 C DMMELF	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.



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