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SERVICE MANUAL

DVD-P250K/P250KI/P65000K



DVD PLAYER

Chassis : Spino

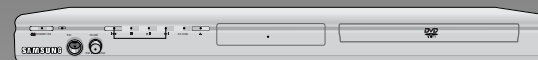
DVD-P250K/XSS, CHN, XTC, XSV, XSH,
XSA, RAD, XFA, XAZ, XAX,
XAP, XAO, UMG, TAW, SMR,
SAM, XST, XSG, XSE, AFR,
FES, STR, RCL, GEN, XTL,
CDM

DVD-P250KI/XSE

DVD-P65000K

SERVICE Manual

DVD PLAYER



Merit & Character regarding Product

- 🍏 Karaoke DVD, CD Player
- 🍏 37mm Ultra Slim & Stylish Design
- 🍏 DVD/CD/VCD/SVCD Playback
- 🍏 Digital Audio (MP3, WMA) and
Digital Picture (JPEG) Playback
- 🍏 Compatible with DVD-RW/DVD-R
DVD+RW/DVD+R/CD-R/CD-RW
- 🍏 NTSC/PAL Multi Progressive Scan
Video Output
- 🍏 Various Convenient Functions
(EZ View/Instant Replay/Instant Skip)

7. Electrical Parts List

Loc.No	Part No	Description ; Specification	Remark	Loc.No	Part No	Description ; Specification	Remark
P001	-	ASSY PCB-MAIN		AR73	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
AC100	2203-000426	C-CER,CHIP;0.018nF,5%,50V,COG,TP,1608		AR74	2007-000124	R-CHIP;2.2Kohm,5%,1/10W,TP,1608	
AC19	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608		DCN1	3708-000491	CONNECTOR-FPC/FFC/PIC;23P;1mm,STRAIGHT,S	
AC20	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608		DCN2	3708-001266	CONNECTOR-FPC/FFC/PIC;11P;1MM,STRAIGHT,S	
AC200	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608		DOC4	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AC21	2203-000315	C-CER,CHIP;0.12nF,5%,50V,COG,TP,1608		DOE1	2401-000598	C-AL;1uF,20%,50V,GP,TP,4x7,5	
AC22	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608		DOIC2	3707-001065	CONNECTOR-OPTICAL-PLUG,GP1FA550T,2,6dB,2.	
AC23	2203-000125	C-CER,CHIP;1.2nF,10%,50V,X7R,TP,1608,-		DOL2	3301-001419	BEAD-SMD;-220,-500,TP,-0.3	
AC25	2203-000315	C-CER,CHIP;0.12nF,5%,50V,COG,TP,1608		DOR3	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	
AC28	2203-001607	C-CER,CHIP;0.22nF,5%,50V,NP0,-1608		DOSL1	2901-001273	FILTER-EMI SMD 50V,2A,-220pF,3.2x1.6x0.	
AC29	2203-000125	C-CER,CHIP;1.2nF,10%,50V,X7R,TP,1608,-		DR13	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	
AD1	0407-000114	DIODE-ARRAY;DAN202K,80V,100mA,CA2-3,SOT-		DR15	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	
AD2	0407-000114	DIODE-ARRAY;DAN202K,80V,100mA,CA2-3,SOT-		FC10	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AD3	0407-000114	DIODE-ARRAY;DAN202K,80V,100mA,CA2-3,SOT-		FC12	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AD4	0401-000008	DIODE-SWITCHING;DAN217,80V,100mA,SOT-23,		FC13	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AD5	0407-000114	DIODE-ARRAY;DAN202K,80V,100mA,CA2-3,SOT-		FC5	2203-000140	C-CER,CHIP;1.5nF,10%,50V,X7R,TP,1608,-	
ADR1	2007-000080	R-CHIP;2Kohm,5%,1/10W,TP,1608		FC8	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AE10	2401-002165	C-AL;100uF,20%,16V,GP,TP,6.3x7,5		FE1	2401-002144	C-AL;47uF,20%,16V,GP,TP,5x11,5	
AE11	2401-000913	C-AL;22uF,20%,16V,GP,TP,5x11,5		FE2	2401-002144	C-AL;47uF,20%,16V,GP,TP,5x11,5	
AE13	2401-000913	C-AL;22uF,20%,16V,GP,TP,5x11,5		FE3	2401-002144	C-AL;47uF,20%,16V,GP,TP,5x11,5	
AE15	2401-000438	C-AL;10uF,20%,25V,GP,-5X11,5		FIC1	1003-001735	IC-MOTOR DRIVER;FAN8026G3,SSOP,28P,18.4	
AE16	2401-000302	C-AL;100uF,20%,25V,GP,TP,6.3x11,5		FR1	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
AE17	2401-000598	C-AL;1uF,20%,50V,GP,TP,4x7,5		FR10	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608	
AE3	2401-000913	C-AL;22uF,20%,16V,GP,TP,5x11,5		FR11	2007-000129	R-CHIP;27Kohm,5%,1/10W,TP,1608	
AE5	2401-000913	C-AL;22uF,20%,16V,GP,TP,5x11,5		FR13	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
AE9	2401-002594	C-AL;220uF,20%,16V,GP,TP,8x11,5,5		FR15	2007-000129	R-CHIP;27Kohm,5%,1/10W,TP,1608	
AIC2	1002-001395	IC-D/A CONVERTER;PCM1753,24Bit,SSOP;16P,		FR16	2007-007277	R-CHIP;392ohm,1%,1/10W,TP,1608	
AIC4	1201-000163	IC-OP AMP;4560,SOP,8P,173MIL,DUAL,100V/m		FR26	2007-000134	R-CHIP;33Kohm,5%,1/10W,TP,1608	
AL2	3301-001419	BEAD-SMD;-220,-500,TP,-0.3		FR28	2007-007277	R-CHIP;392ohm,1%,1/10W,TP,1608	
AQ10	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-		FR3	2007-000093	R-CHIP;20Kohm,5%,1/10W,TP,1608	
AQ11	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-		FR31	2007-000134	R-CHIP;33Kohm,5%,1/10W,TP,1608	
AQ3	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-		FR33	2007-000091	R-CHIP;12Kohm,5%,1/10W,TP,1608	
AQ6	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-		FR34	2007-000134	R-CHIP;33Kohm,5%,1/10W,TP,1608	
AQ7	0504-000128	TR-DIGITAL;-NPN,200mW,22K/22K,SOT-23,TP		FR36	2007-000091	R-CHIP;12Kohm,5%,1/10W,TP,1608	
AQ8	0504-000156	TR-DIGITAL;KSR2103,PNP,200mW,22K/22K,SOT		FR37	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
AQ9	0501-000002	TR-SMALL SIGNAL;KSA812,PNP,150mW,SOT-23,		FR39	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
AR100	2007-000113	R-CHIP;33ohm,5%,1/10W,TP,1608		FR4	2007-000129	R-CHIP;27Kohm,5%,1/10W,TP,1608	
AR14	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608		FR41	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
AR16	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608		FR42	2007-000491	R-CHIP;2.2KOHM,1%,1/10W,DA,TP,1608	
AR17	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608		FR43	2007-000491	R-CHIP;2.2KOHM,1%,1/10W,DA,TP,1608	
AR28	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608		FR44	2007-000091	R-CHIP;12Kohm,5%,1/10W,TP,1608	
AR30	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608		FR45	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
AR31	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608		JACK2	3722-002297	JACK-PIN;7P+1P(VHS),SN,BA-RD-BU-GR/RD-W	
AR41	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608		KAC1	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,TP,1608	
AR42	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608		KAC10	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AR43	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608		KAC11	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,TP,1608	
AR46	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608		KAC12	2203-000888	C-CER,CHIP;4.7nF,10%,50V,X7R,TP,1608	
AR47	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608		KAC13	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,TP,1608	
AR48	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608		KAC14	2203-000715	C-CER,CHIP;3.3nF,10%,50V,X7R,TP,1608,-	
AR52	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608		KAC15	2203-001640	C-CER,CHIP;0.39nF,10%,50V,X7R,TP,1608	
AR54	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608		KAC16	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,TP,1608	
AR55	2007-000077	R-CHIP;470ohm,5%,1/10W,TP,1608		KAC17	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AR58	2007-000491	R-CHIP;2.2KOHM,1%,1/10W,DA,TP,1608		KAC18	2203-000888	C-CER,CHIP;4.7nF,10%,50V,X7R,TP,1608	
AR59	2007-000079	R-CHIP;1.8Kohm,5%,1/10W,TP,1608		KAC19	2203-000888	C-CER,CHIP;4.7nF,10%,50V,X7R,TP,1608	
AR60	2007-000708	R-CHIP;3.9Kohm,1%,1/10W,TP,1608		KAC20	2203-000626	C-CER,CHIP;0.022nF,5%,50V,COG,TP,1608	
AR61	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608		KAC21	2203-000236	C-CER,CHIP;0.1nF,5%,50V,COG,TP,1608	
AR62	2007-001134	R-CHIP;68ohm,5%,1/10W,TP,1608		KAC22	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AR63	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608		KAC23	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AR64	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608		KAC3	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AR71	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608		KAC4	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
AR72	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608		KAC41	2203-001686	C-CER,CHIP;0.075nF,5%,50V,NP0,TP,1608	

Electrical Parts List

Loc.No	Part No	Description ; Specification	Remark
KAC42	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
KAC43	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
KAC44	2203-001686	C-CER,CHIP;0.075nF,5%,50V,NP0,TP,1608	
KAC5	2203-001697	C-CER,CHIP;0.082nF,5%,50V,NP0,TP,1608	
KAC9	2203-000626	C-CER,CHIP;0.022nF,5%,50V,COG,TP,1608	
KAD1	0401-000101	DIODE-SWITCHING;1N4148,75V,150MA,D0-35,T	
KAE1	2401-000598	C-AL;1uF,20%,50V,GP,TP,4x7,5	
KAE3	2401-000598	C-AL;1uF,20%,50V,GP,TP,4x7,5	
KAE4	2401-000598	C-AL;1uF,20%,50V,GP,TP,4x7,5	
KAE5	2401-000665	C-AL;2.2uF,20%,50V,GP,TP,3.5x5,5	
KAE6	2401-000922	C-AL;22uF,20%,16V,GP,TP,5x5,5	
KAE7	2401-001250	C-AL;4.7uF,20%,35V,GP,TP,4x5,5	
KAE8	2401-000414	C-AL;10uF,20%,16V,GP,TP,4x7,5	
KAE9	2401-002144	C-AL;47uF,20%,16V,GP,TP,5x11,5	
KAI1	1204-001730	IC-ECHO;M65855P,DIP,16P,300MIL,PLASTIC	
KAQ1	0504-000156	TR-DIGITAL;KSR2103,PNP,200MW,22K/22K,SOT	
KAQ2	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KAQ3	0504-000128	TR-DIGITAL;-NPN,200MW,22K/22K,SOT-23,TP	
KAR1	2007-000077	R-CHIP;470ohm,5%,1/10W,TP,1608	
KAR100	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	
KAR11	2007-000127	R-CHIP;9.1Kohm,5%,1/10W,TP,1608	
KAR12	2007-000098	R-CHIP;56Kohm,5%,1/10W,TP,1608	
KAR13	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
KAR14	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
KAR15	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
KAR16	2007-001179	R-CHIP;8.2Kohm,5%,1/10W,TP,1608	
KAR17	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
KAR18	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
KAR19	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608	
KAR20	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	
KAR21	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
KAR22	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
KAR23	2007-000097	R-CHIP;47Kohm,5%,1/10W,TP,1608	
KAR24	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	
KAR25	2007-000103	R-CHIP;120Kohm,5%,1/10W,TP,1608	
KAR26	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
KAR28	2007-000637	R-CHIP;270Kohm,5%,1/10W,TP,1608	
KAR29	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	
KAR3	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
KAR30	2007-001134	R-CHIP;68ohm,5%,1/10W,TP,1608	
KAR31	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KAR33	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
KAR35	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	
KAR36	2007-000965	R-CHIP;5.1Kohm,5%,1/10W,TP,1608	
KAR41	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
KAR42	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
KAR43	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	
KAR44	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
KAR45	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
KAR46	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
KAR47	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	
KAR48	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	
KAR5	2007-000098	R-CHIP;56Kohm,5%,1/10W,TP,1608	
KAR6	2007-000127	R-CHIP;9.1Kohm,5%,1/10W,TP,1608	
KAR9	2007-000124	R-CHIP;2.2Kohm,5%,1/10W,TP,1608	
KC1	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
KC2	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,-1608	
KC3	2203-000140	C-CER,CHIP;1.5nF,10%,50V,X7R,TP,1608,-	
KC4	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,TP,1608,-	
KE1	2401-002144	C-AL;47uF,20%,16V,GP,TP,5x11,5	
KE2	2401-000414	C-AL;10uF,20%,16V,GP,TP,4x7,5	
KE3	2401-003480	C-AL;1000uF,20%,10V,LZ,TP,10X16MM,5	
KIC1	0903-001399	IC-MICROCONTROLLER;eFHP5842,8Bit,SOP,24P	
KIC2	1203-003526	IC-VOL. DETECTOR;KA75290,TO-92,3P,4.58x4	
KIR1	0609-001188	MODULE REMOCON;VERTICAL,9.6MM,TR	
KML1	AK07-00030A	LED DISPLAY;BCD-9030A,DVD-P250K,-,7,7,27	

Loc.No	Part No	Description ; Specification	Remark
KOP1	1201-000163	IC-OP AMP;4560,SOP,8P,173MIL,DUAL,100V/m	
KOP2	1201-000163	IC-OP AMP;4560,SOP,8P,173MIL,DUAL,100V/m	
KOP3	1201-000163	IC-OP AMP;4560,SOP,8P,173MIL,DUAL,100V/m	
KQ1	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KQ10	0501-000279	TR-SMALL SIGNAL;KSA1182-Y,PNP,150mW,SOT-	
KQ11	0501-000279	TR-SMALL SIGNAL;KSA1182-Y,PNP,150mW,SOT-	
KQ12	0501-000279	TR-SMALL SIGNAL;KSA1182-Y,PNP,150mW,SOT-	
KQ13	0501-000279	TR-SMALL SIGNAL;KSA1182-Y,PNP,150mW,SOT-	
KQ14	0501-000279	TR-SMALL SIGNAL;KSA1182-Y,PNP,150mW,SOT-	
KQ15	0501-000279	TR-SMALL SIGNAL;KSA1182-Y,PNP,150mW,SOT-	
KQ16	0501-000279	TR-SMALL SIGNAL;KSA1182-Y,PNP,150mW,SOT-	
KQ17	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KQ2	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KQ3	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KQ4	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KQ5	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KQ6	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KQ7	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KQ8	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KQ9	0501-000341	TR-SMALL SIGNAL;KSC1623-L,NPN,200mW,SOT-	
KR1	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	
KR10	2007-000072	R-CHIP;47ohm,5%,1/10W,TP,1608	
KR11	2007-000124	R-CHIP;2.2Kohm,5%,1/10W,TP,1608	
KR12	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR13	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR14	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR15	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR16	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR17	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR18	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR19	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR2	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
KR20	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR21	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR22	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR23	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR24	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR25	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR26	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
KR27	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	
KR28	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	
KR29	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	
KR3	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	
KR30	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	
KR31	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	
KR32	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	
KR33	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	
KR34	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
KR35	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
KR36	2007-000124	R-CHIP;2.2Kohm,5%,1/10W,TP,1608	
KR37	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	
KR4	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
KR5	2007-000083	R-CHIP;3Kohm,5%,1/10W,TP,1608	
KR6	2007-000123	R-CHIP;1.5Kohm,5%,1/10W,TP,1608	
KR7	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
KR8	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
KR9	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	
KSW1	3404-001182	SWITCH-TACT;DC12V,50MA,100GF,6.0X6.0X5.0	
KSW2	3404-001182	SWITCH-TACT;DC12V,50MA,100GF,6.0X6.0X5.0	
KSW3	3404-001182	SWITCH-TACT;DC12V,50MA,100GF,6.0X6.0X5.0	
KSW4	3404-001182	SWITCH-TACT;DC12V,50MA,100GF,6.0X6.0X5.0	
KSW5	3404-001182	SWITCH-TACT;DC12V,50MA,100GF,6.0X6.0X5.0	
KSW6	3404-001182	SWITCH-TACT;DC12V,50MA,100GF,6.0X6.0X5.0	
KSW7	3404-001182	SWITCH-TACT;DC12V,50MA,100GF,6.0X6.0X5.0	
KVR1	2101-001126	VR-ROTARY;20Kohm,20%,1/20W,SIDE	
LED1	0601-001587	LED;ROUND,RED,3.1mm,635nm,3.8x5.2mm	

Loc.No	Part No	Description ; Specification	Remark
MIC1	3722-000441	JACK-PHONE;9P,6.43PI,SN,BLK,-	
PBR11	3301-000297	BEAD-AXIAL;25ohm,3.6x1.2x5.7mm,,TP,,	
PBS01	AC27-92001M	COIL-INDUCTOR;RH3.5X6.5RS,BEAD(RADIAL),-	
PC4	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
PC5	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
PC6	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
PC8	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
PCD01	2201-000963	C-CERAMIC,DISC;1NF,20%,400V,Y5U,TP,9.5X6	
PCD02	2201-000963	C-CERAMIC,DISC;1NF,20%,400V,Y5U,TP,9.5X6	
PCD11	2305-001029	C-FILM,LEAD-PEF;10nF,10%,630V,TP,12x9x12	
PCD12	2201-000129	C-CERAMIC,DISC;0.1NF,10%,1KV,Y5P,TP,7X4M	
PCF01	2301-001719	C-FILM,LEAD;100nF,10%,275V,TP,17.5*6*12m	
PCF02	2301-001719	C-FILM,LEAD;100nF,10%,275V,TP,17.5*6*12m	
PCF11	2401-002608	C-AL;33uF,20%,35V,GP,TP,5x11.5	
PCF20	2201-000379	C-CERAMIC,DISC;22NF,+80-20%,50V,Y5V,TP,9	
PCNS2	3711-003380	CONNECTOR-HEADER;1WALL,2P,1R,7.92MM,ANGL	
PCS32	2301-000129	C-FILM,LEAD-PEF;10nF,5%,50V,TP,10X9X4.3	
PDF13	0402-001195	DIODE-RECTIFIER;F1T4,400V,1A,DO-204AC,TP	
PDS01	0402-001196	DIODE-RECTIFIER;1T5,600V,1A,TS-1,TP	
PDS02	0402-001196	DIODE-RECTIFIER;1T5,600V,1A,TS-1,TP	
PDS03	0402-001196	DIODE-RECTIFIER;1T5,600V,1A,TS-1,TP	
PDS04	0402-001196	DIODE-RECTIFIER;1T5,600V,1A,TS-1,TP	
PDS11	0402-000012	DIODE-RECTIFIER;UF4007,1KV,1A,DO-41,TP	
PDS31	0402-001195	DIODE-RECTIFIER;F1T4,400V,1A,DO-204AC,TP	
PDS33	0402-001194	DIODE-RECTIFIER;SHG2D,200V,2A,-,TP	
PDS34	0402-001439	DIODE-RECTIFIER;-;100V,3A,SHK75-11,BK	
PDS35	0402-001195	DIODE-RECTIFIER;F1T4,400V,1A,DO-204AC,TP	
PDS51	0401-000101	DIODE-SWITCHING;1N4148,75V,150MA,DO-35,T	
PDS59	0401-000101	DIODE-SWITCHING;1N4148,75V,150MA,DO-35,T	
PE3	2401-002165	C-AL;100uF,20%,16V,GP,TP,6.3x7.5	
PE4	2401-002165	C-AL;100uF,20%,16V,GP,TP,6.3x7.5	
PE6	2401-002165	C-AL;100uF,20%,16V,GP,TP,6.3x7.5	
PEF12	2401-000598	C-AL;1uF,20%,50V,GP,TP,4x7.5	
PEF14	2401-002608	C-AL;33uF,20%,35V,GP,TP,5x11.5	
PER10	2401-004086	C-AL;68uF,*æ20%,450V,GPBK,25.4x20mm,10	India Only
	2401-004087	C-AL;68uF,*æ20%,400V,GPBULK,22x20m	Other Only
PES31	2401-000302	C-AL;100uF,20%,25V,GP,TP,6.3x11.5	
PES33	2401-003059	C-AL;1000UF,20%,16V,WT,TP,10X16.5	
PES34	2401-003480	C-AL;1000UF,20%,10V,LZ,TP,10X16MM,5	
PES35	2401-000302	C-AL;100uF,20%,25V,GP,TP,6.3x11.5	
PES38	2401-001358	C-AL;470uF,20%,10V,WT,TP,8x11.5mm,5	
PES52	2401-000598	C-AL;1uF,20%,50V,GP,TP,4x7.5	
PES54	2401-002144	C-AL;47uF,20%,16V,GP,TP,5x11.5	
PES55	2401-001479	C-AL;470uF,20%,10V,GP,TP,6.3*11mm,5	
PES57	2401-002144	C-AL;47uF,20%,16V,GP,TP,5x11.5	
PES58	2401-002144	C-AL;47uF,20%,16V,GP,TP,5x11.5	
PES59	2401-002144	C-AL;47uF,20%,16V,GP,TP,5x11.5	
PES62	2401-001370	C-AL;470uF,20%,16V,GP,TP,8x11.5,5	
PES63	2401-001507	C-AL;47uF,20%,16V,GP,TP,6.3x5,5	
PF1S	3602-000103	FUSE-CLIP;-,-,10mohm	
PF2S	3602-000103	FUSE-CLIP;-,-,10mohm	
PFD01	3601-001123	FUSE-CARTRIDGE;250V,1.6A,TIME-LAG,CERAMI	
PIC1	1203-002730	IC-PWM CONTROLLER;ICE2B0565,PDIP,8P,9.52	
PIC11	1203-002779	IC-POS.FIXED REG.;G952T63U,SOT-223,3P,6	
PICS1	0604-001028	PHOTO-COUPLER;TR,50-600%,250mW,DIP-4,ST	
PICS2	AC14-12006D	IC;KA431Z,TO-92,TAPING	
PICS3	1203-000122	IC-NEGA.FIXED REG.;7908,TO-220,3P,-,PLAS	
PICS4	1203-000293	IC-POS.FIXED REG.;7908,TO-220,3P,-,PLAS	
PICS5	1203-002185	IC-POS.FIXED REG.;3RD13,TO-220,4P,402MI	
PLS01	AC29-00003A	FILTER LINE NOISE;-;20mH MIN,-,-,-	
PLS31	AC27-12001N	COIL CHOKE;10UH-15%,RA,K-30,Q80,150KHZ,-	
PPS12	2003-000994	R-METAL OXIDE(S);33Kohm,5%,2W,AF,TP,3.9x	
PQS58	0501-000362	TR-SMALL SIGNAL;KSC2328A-Y,NPN,1000MW,TO	
PQS59	0501-000362	TR-SMALL SIGNAL;KSC2328A-Y,NPN,1000MW,TO	
PQS63	0501-000362	TR-SMALL SIGNAL;KSC2328A-Y,NPN,1000MW,TO	
PQS64	0504-000156	TR-DIGITAL;KSR2103,PNP,200MW,22K/22K,SOT	

Loc.No	Part No	Description ; Specification	Remark
PQS65	0504-000128	TR-DIGITAL;-;NPN,200MW,22K/22K,SOT-23,TP	
PQS66	0501-000303	TR-SMALL SIGNAL;KSA733,PNP,250mW,TO-92,T	
PR1	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	
PR2	2001-000546	R-CARBON;270KOHM,5%,1/4W,AA,TP,2.4X6.4M	
PR3	2001-000546	R-CARBON;270KOHM,5%,1/4W,AA,TP,2.4X6.4M	
PR4	2001-000546	R-CARBON;270KOHM,5%,1/4W,AA,TP,2.4X6.4M	
PRD31	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
PRD32	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	
PRF01	2002-000121	R-COMPOSITION;1Mohm,10%,1/2W,AA,TP,3.5x9	
PRF10	2006-000262	R-CEMENT;2.7ohm,10%,2W,CB,TP,7.5x11x20.	
PRF11	2001-000527	R-CARBON;220HM,5%,1/8W,AA,TP,1.8X3.2MM	
PRF17	2001-000527	R-CARBON;220HM,5%,1/8W,AA,TP,1.8X3.2MM	
PRF20	2003-000119	R-METAL OXIDE;0.68ohm,5%,2W,AE,TP,6x16mm	
PRF21	2001-000290	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
PRS13	2003-000994	R-METAL OXIDE(S);33Kohm,5%,2W,AF,TP,3.9x	
PRS32	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	
PRS33	2007-000043	R-CHIP;1Kohm,1%,1/10W,TP,1608	
PRS34	2007-000256	R-CHIP;1.6Kohm,1%,1/10W,TP,1608	
PRS52	0402-000127	DIODE-RECTIFIER;1N4002,100V,1A,DO-41,TP	
PRS55	2001-000062	R-CARBON;470OHM,5%,1/4W,AA,TP,2.4X6.4MM	
PRS56	2001-000449	R-CARBON;2.2KOHM,5%,1/8W,AA,TP,1.8X3.2M	
PRS57	2007-000491	R-CHIP;2.2KOHM,1%,1/10W,DA,TP,1608	
PRS58	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	
PRS59	2007-000491	R-CHIP;2.2KOHM,1%,1/10W,DA,TP,1608	
PRS60	2001-000290	R-CARBON;10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
PRS61	2001-000449	R-CARBON;2.2KOHM,5%,1/8W,AA,TP,1.8X3.2M	
PTD1	AK26-000188	TRANS SWITCHING;EER2828,DVD-P243K,-,FREE	
PZD11	0403-001318	DIODE-ZENER;MTZJ4.3B,4.17-4.43V,500MW,DO	
PZD21	0403-000752	DIODE-ZENER;MTZJ22C,21.08-22.17V,500MW,DO	
PZS51	0403-000717	DIODE-ZENER;MTZJ5.1B,4.94-5.2V,500MW,DO-	
RC2	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
RC4	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
RC5	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
RC6	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
RC7	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
RC8	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
RC9	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
RD1	0407-000116	DIODE-ARRAY;DAP202K,80V,100mA,CK2-3,SOT-	
RE1	2401-002165	C-AL;100uF,20%,16V,GP,TP,6.3x7.5	
RE2	2401-002165	C-AL;100uF,20%,16V,GP,TP,6.3x7.5	
RE3	2401-002144	C-AL;47uF,20%,16V,GP,TP,5x11.5	
RE4	2401-002165	C-AL;100uF,20%,16V,GP,TP,6.3x7.5	
RQ1	0501-000279	TR-SMALL SIGNAL;KSA1182-Y,PNP,150mW,SOT-	
RQ2	0501-000279	TR-SMALL SIGNAL;KSA1182-Y,PNP,150mW,SOT-	
RR1	2007-001146	R-CHIP;7.5ohm,5%,1/8W,TP,2012	
RR2	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	
RR3	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	
RR4	2007-001146	R-CHIP;7.5ohm,5%,1/8W,TP,2012	
RR7	2007-000113	R-CHIP;33ohm,5%,1/10W,TP,1608	
RR8	2007-000134	R-CHIP;33Kohm,5%,1/10W,TP,1608	
RR9	2007-001010	R-CHIP;51Kohm,5%,1/10W,TP,1608	
VC10	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
VC11	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
VC14	2203-000783	C-CER,CHIP;0.33NF,5%,50V,COG,TP,1608	
VC17	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
VC50	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
VC6	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
VC7	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
VC8	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
VC9	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
VE1	2401-002165	C-AL;100uF,20%,16V,GP,TP,6.3x7.5	
VE2	2401-000913	C-AL;22uF,20%,16V,GP,TP,5x11.5	
VE4	2401-001479	C-AL;470uF,20%,10V,GP,TP,6.3*11mm,5	
VE5	2401-001479	C-AL;470uF,20%,10V,GP,TP,6.3*11mm,5	
VE6	2401-002165	C-AL;100uF,20%,16V,GP,TP,6.3x7.5	
VE7	2401-002165	C-AL;100uF,20%,16V,GP,TP,6.3x7.5	

Electrical Parts List

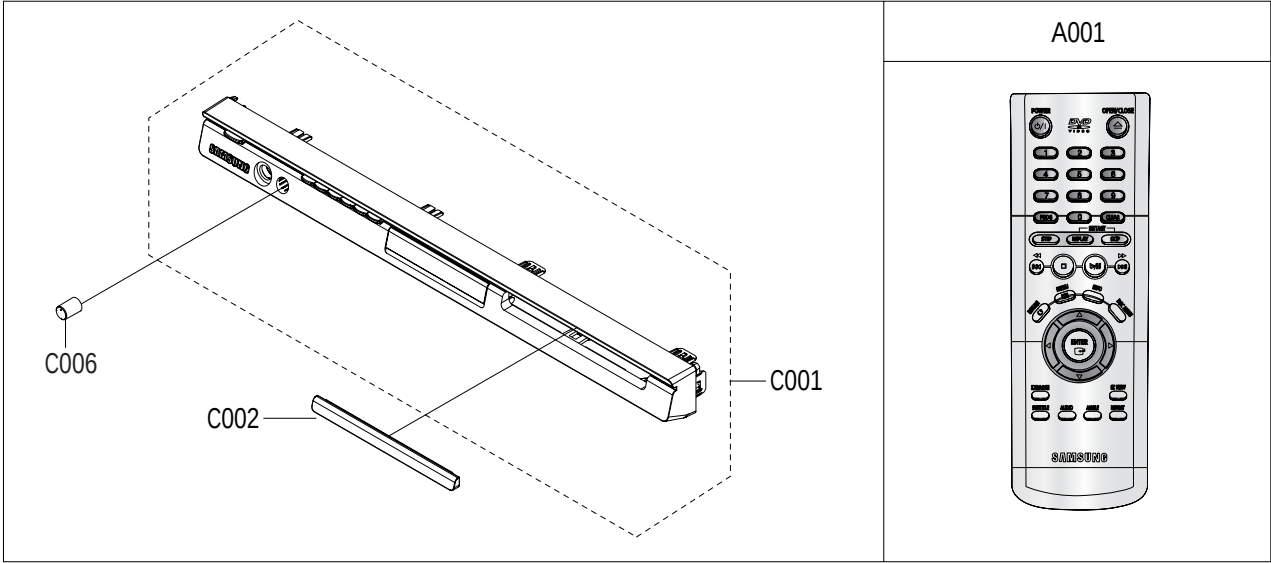
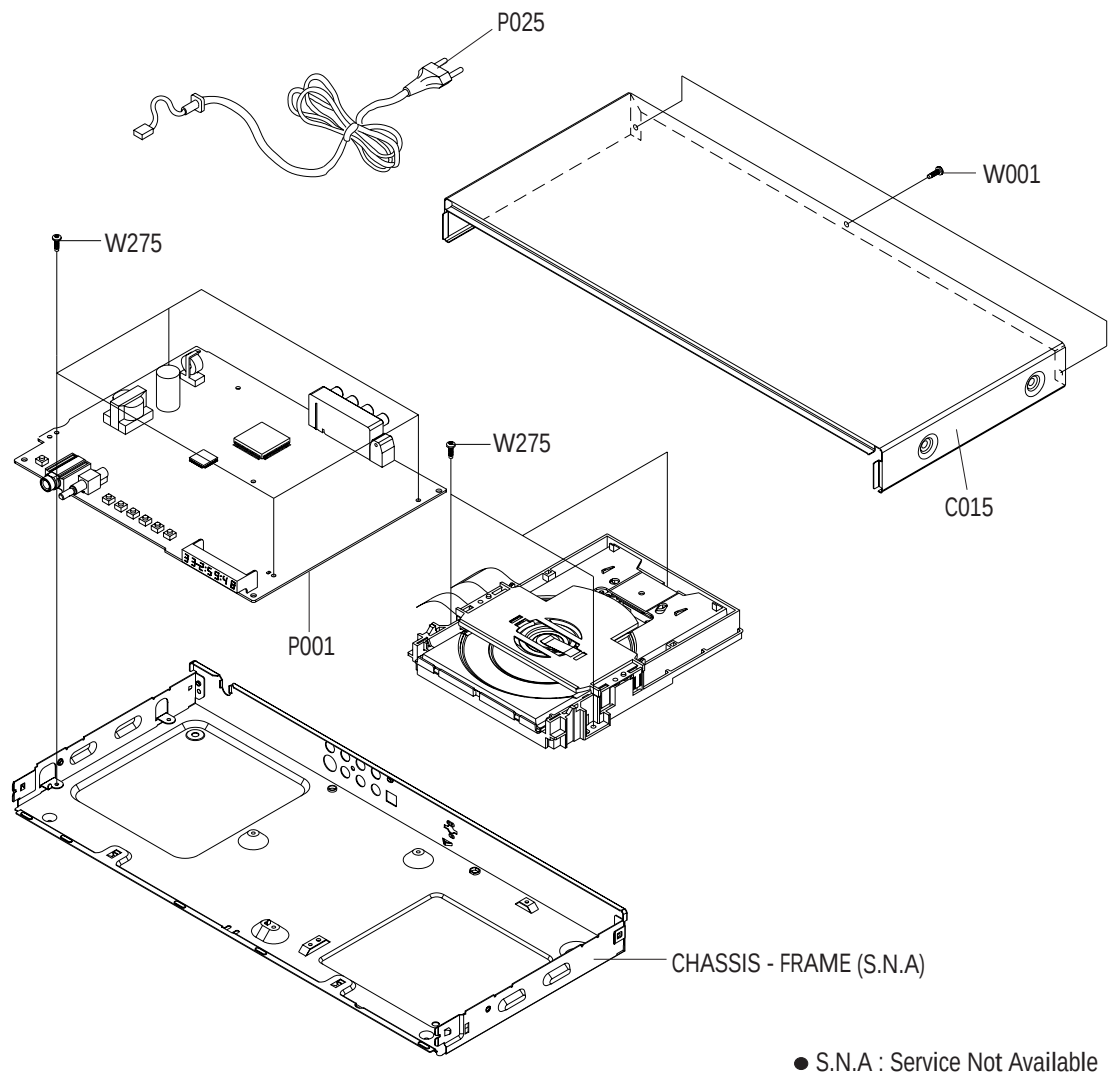
Loc.No	Part No	Description ; Specification	Remark
VE8	2401-001479	C-AL;470uF,20%,10V,GP,TP;6.3*11mm,5	
VIC1	1204-001978	IC-VIDEO PROCESS;LA73054,-,36P,-,SSOP,7V	
VJ5	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	
VJ7	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	
VR29	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
VR30	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	
VR31	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	
VR32	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	
VR33	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	
VR34	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	
VR35	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	
ZC1	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC10	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC11	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC12	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC13	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	
ZC14	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC15	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC16	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC17	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC2	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC22	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC23	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC24	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,TP,1608,-	
ZC25	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,TP,1608,-	
ZC26	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC27	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC28	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC29	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC3	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC30	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC31	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC32	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC33	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC34	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC35	2203-000552	C-CER,CHIP;0.02nF,5%,50V,COG,TP,1608	
ZC37	2203-000552	C-CER,CHIP;0.02nF,5%,50V,COG,TP,1608	
ZC39	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC4	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC40	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC41	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC42	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC43	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC44	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC45	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC46	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC47	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC48	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC49	2203-000384	C-CER,CHIP;0.015nF,5%,50V,COG,TP,1608	
ZC5	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC50	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,TP,1608,-	
ZC51	2203-000669	C-CER,CHIP;27nF,10%,25V,X7R,TP,1608,-	
ZC52	2203-000669	C-CER,CHIP;27nF,10%,25V,X7R,TP,1608,-	
ZC53	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,TP,1608,-	
ZC54	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC55	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC6	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC7	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC8	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZC9	2203-005148	C-CER,CHIP;100nF,10%,16V,X7R,TP,1608	
ZE2	2401-002165	C-AL;100uF,20%,16V,GP,TP;6.3x7,5	
ZE3	2401-002165	C-AL;100uF,20%,16V,GP,TP;6.3x7,5	
ZE4	2401-002165	C-AL;100uF,20%,16V,GP,TP;6.3x7,5	
ZE5	2401-001479	C-AL;470uF,20%,10V,GP,TP;6.3*11mm,5	
ZE6	2401-001479	C-AL;470uF,20%,10V,GP,TP;6.3*11mm,5	
ZE7	2401-002165	C-AL;100uF,20%,16V,GP,TP;6.3x7,5	

Loc.No	Part No	Description ; Specification	Remark
ZIC1	1204-002351	IC-DECODER;ZR36862,PQFP,208P,28x28mm,PLA	
ZIC2	1105-001305	IC-DRAM;4S641632,1MX16x48BIT,TSOP,54P,4	
ZIC3	1107-001502	IC-FLASH MEMORY;29LV160M,2Mx8Bit,TSOP,48	
ZIC5	1103-001204	IC-EEPROM;24C021,256x8,SOP,8P,5.13x3.95mm	
ZKR1	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
ZL1	3301-001419	BEAD-SMD;-220,-500,TP,-,0.3	
ZL10	3301-000353	BEAD-SMD;120ohm,2x1.25x0.9mm,200mA,TP,,	
ZL2	3301-001419	BEAD-SMD;-220,-500,TP,-,0.3	
ZL3	3301-001419	BEAD-SMD;-220,-500,TP,-,0.3	
ZL4	3301-001419	BEAD-SMD;-220,-500,TP,-,0.3	
ZL5	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,	
ZR10	2007-001677	R-CHIP;91ohm,1%,1/8W,TP,2012	
ZR11	2007-001677	R-CHIP;91ohm,1%,1/8W,TP,2012	
ZR12	2007-001677	R-CHIP;91ohm,1%,1/8W,TP,2012	
ZR13	2007-001677	R-CHIP;91ohm,1%,1/8W,TP,2012	
ZR14	2007-001677	R-CHIP;91ohm,1%,1/8W,TP,2012	
ZR15	2007-001677	R-CHIP;91ohm,1%,1/8W,TP,2012	
ZR16	2007-001677	R-CHIP;91ohm,1%,1/8W,TP,2012	
ZR2	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	
ZR22	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	
ZR23	2011-000816	R-NET;100OHM,5%,1/16W,L,CHIP,8P,TP	
ZR24	2007-000109	R-CHIP;1Mohm,5%,1/10W,TP,1608	
ZR26	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	
ZR27	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
ZR31	2007-000080	R-CHIP;2Kohm,5%,1/10W,TP,1608	
ZR32	2007-000080	R-CHIP;2Kohm,5%,1/10W,TP,1608	
ZR34	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	
ZR37	2007-008567	R-CHIP;15.4KOHM,1%,1/10W,TP,1608	
ZR39	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	
ZR40	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	
ZR41	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
ZR42	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
ZR43	2007-000086	R-CHIP;5.6Kohm,5%,1/10W,TP,1608	
ZR44	2007-000329	R-CHIP;11Kohm,5%,1/10W,TP,1608	
ZR45	2007-000329	R-CHIP;11Kohm,5%,1/10W,TP,1608	
ZR46	2007-000086	R-CHIP;5.6Kohm,5%,1/10W,TP,1608	
ZR47	2007-007277	R-CHIP;392ohm,1%,1/10W,TP,1608	
ZR48	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	
ZR5	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
ZR52	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
ZR56	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	
ZR57	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	
ZR6	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	
ZR60	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	
ZR7	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	
ZR8	3301-001309	BEAD-SMD;47ohm,1.6x0.8x0.8mm,500mA,TP,-	
ZR9	2007-001677	R-CHIP;91ohm,1%,1/8W,TP,2012	
ZY1	2801-003554	CRYSTAL-UNIT;27MHz,10ppm,28-AAM,12pF,40o	

6. Exploded View and Parts List

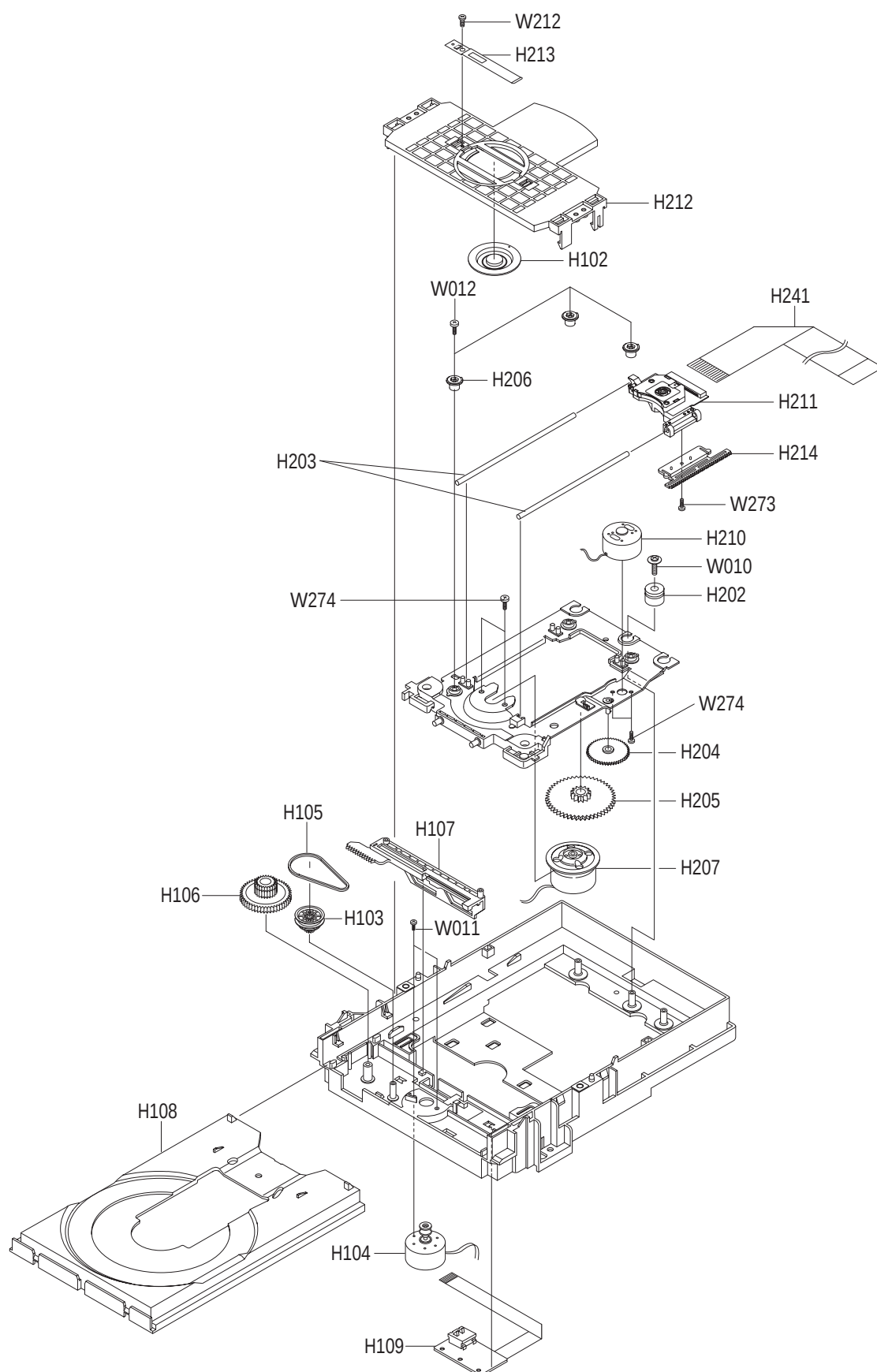
	Page
6-1 Cabinet Assembly - - - - -	6-2
6-2 Deck Assembly - - - - -	6-4

6-1 Cabinet Assembly



Loc. No	Parts No.	Description ; Specification	Remark
A001	AK59-00011H	REMOCON-ASSY;DVD-P438K/CHN,-,-,-,-,-,-	China Only
	AK59-00011E	REMOCON-ASSY;DVD-E338K/ASIA,-,-,-,-,-,-	Other Only
C001	AK97-01100A	ASSY CABINET-FRONT;HIPS 94 HB,DVD-P250K/	DVD-P250K Only
	AK97-01100C	ASSY CABINET-FRONT;HIPS 94 HB,DVD-P250KI	DVD-P250KI Only
	AK97-01100D	ASSY CABINET-FRONT;HIPS 94 HB,DVD-P65000	Iran Only
C002	AK64-00961A	DOOR-TRAY;DVD-P251/XAA,ABS 94 HB,T2.0,-,	DVD-P250K Only
	AK64-00961B	DOOR-TRAY;DVD-P250KI/XSE,ABS 94 HB,T2.0,	DVD-P250KI Only
C006	AK64-01012A	KNOB-VOLUME;DVD-P250K/XST,ABS,T2,W9.6,L8	DVD-P250K Only
	AK64-01012B	KNOB-VOLUME;DVD-P250KI/XSE,ABS,T2,W9.6,L	DVD-P250KI Only
C015	AK97-01103A	ASSY CABINET-TOP;PCM T0.55,DVD-P250/XAA,	DVD-P250K Only
	AK97-01103C	ASSY CABINET-TOP;PCM T0.55,DVD-P250KI/XS	DVD-P250KI Only
P001	AK92-00558A	ASSY PCB-MAIN;DVD-P250/XAA,MAIN PCB ASS	Other Only
	AK92-00558V	ASSY PCB-MAIN;DVD-P250/XSE,MAIN PCB ASS	Indonesia Only
	AK92-00558D	ASSY PCB-MAIN;DVD-P250/XAX,MAIN PCB ASS	Latin America Only
	AK92-00558B	ASSY PCB-MAIN;DVD-P250K/CHN,MAIN PCB ASS	China Only
	AK92-00558C	ASSY PCB-MAIN;DVD-P250K/SAM,MAIN PCB	Turkey/ISRAEL/S_Africa/Lebanon Only
	AK92-00558F	ASSY PCB-MAIN;DVD-P250K/XSA,MAIN PCB ASS	AUSTRALIA/New Zealand Only
	AK92-00558G	ASSY PCB-MAIN;DVD-P250K/TAW,MAIN PCB ASS	U.A.E/LEBANON/S_ARABIA Only
	AK92-00558Y	ASSY PCB-MAIN;DVD-P250K/XAZ,MAIN PCB ASS	BRAZIL Only
	AK92-00558E	ASSY PCB-MAIN;DVD-P250K/TWN,MAIN PCB ASS	HongKong Only
	AK92-00558S	ASSY PCB-MAIN;DVD-P250K/XTC,MAIN PCB ASS	Philippines Only
	AK92-00558H	ASSY PCB-MAIN;DVD-P65000K,MAIN PCB ASSY	Iran Only
	AK92-00558J	ASSY PCB-MAIN;DVD-P250K/XTL,MAIN PCB ASSY	India Only
P025	AC39-10019A	CBF-POWER CORD;KKP-419C,H03VVH2-F,VDE/KE	Other Only
	3903-000103	CBF-POWER CORD;AT,CN,EP2,HOUSING(2P),250	China Only
	AC39-10200N	CBF-POWER CORD;AT,US,EP2/Y,HOUSING(2P),1	Panama/Colombia/Philippines Only
	AC39-10200A	CBF-POWER CORD;AT,,EP2/N,HOUSING(2P),250V	Mexico Only
	AC39-10015A	CBF-POWER CORD;AT,US,AP2,HOUSING(2P),250V	AUSTRALIA/New Zealand Only
	AC39-12022K	CBF-POWER CORD;AT,,GP2,HOUSING(2P),250V,3	S_ARABIA/HongKong Only
W001	6003-000275	SCREW-TAPTITE;BH,+,B,M3,L10,BLK ,SWCH101	
W275	6003-001561	SCREW-TAPTITE;BH,+,WT,B,M3,L6,ZPC(YEL),S	

6-2 Deck Assembly



Loc. No	Parts No.	Description ; Specification	Remark
H102	AK61-00360A	BODY CLAMPER-DISC;DP-16,POM,T0.7,-,-,-,W	
H103	AK66-00042A	GEAR-PULLEY;DP-15,POM,-,-,-,WHT,-,-,-	
H104	AK31-00020A	MOTOR DC-LOAD ASSY;RF300EA-1D390,DP-17,-	
H105	6602-001076	BELT-RECTANGULAR;CR,T1.2,4.3%,1.2X25.1,B	
H106	AK66-00041A	GEAR-TRAY;DP-15,POM,-,-,-,WHT,-,-,-	
H107	AK66-00056A	SLIDER-HOUSING;DP-17,POM,-,-,-,WHT,-	
H108	AK63-00164A	TRAY-DISC;DP-17,ABS,-,W120,L186.3,-,BLK,	
H109	AK97-01004A	ASSY-PCB DECK;®-17,-,-	
H202	AK73-00005B	RUBBER-INSULATOR;DP-15,BUTYL,•'12,HS30,H	
H203	AH61-50327A	SHAFT-P/U;DP-3,SUS,L84.7,OD3,-,-,-	
H204	AK66-00043A	GEAR-FEED A;DP-15,POM,-,-,-,-,-,-	
H205	AK66-00044A	GEAR-FEED B;DP-15,POM,-,-,-,-,-,-	
H206	AK61-00032A	HOLDER-CAM SKEW;DP-9,POM,-,-,-,BLACK,-	
H207	AK31-00017A	MOTOR DC-SPINDLE;RF300FA-12350,DP-17,-,-	
H210	AK31-00005A	MOTOR-FEED ASSY;-DP-9,-,-,-,-,-,-,-	
H211	AK97-01009B	ASSY-PICK UP;-DP-16,MITSUMI VE	
H212	AK61-00359A	HOLDER-CHUCK;DP-16,POM,T3,W140,L96,BLK,-	
H213	AK61-00357A	SPRING ETC-CLAMPER;-SUS304CSP,-,-,-,-	
H214	AK66-00057A	GEAR-BACKLASH;DP-16,POM,0.5,-,-,WHT,-,RA	
H241	AK41-00250A	FFC-PU;DP-17,-,-,23P,-,1mm	
W010	6003-001157	SCREW-TAPTITE;PWH,+,B,M2,L6,ZPC(YEL),SWR	
W011	6001-001370	SCREW-MACHINE;CH,+,M1.7,L3.0,ZPC(YEL),SW	
W012	6002-001086	SCREW-TAPPING;PH,+,B,M1.7,L5.0,ZPC(YEL),	
W212	6003-001251	SCREW-TAPTITE;CH,+,B,M1.7,L3,ZPC(YEL),SW	
W273	6003-000233	SCREW-TAPTITE;PH,+,B,M2,L6,ZPC(BLK),SWRC	
W274	6001-001730	SCREW-MACHINE;BH,+,M1.7,L2.5,ZPC(YEL)	

4. Disassembly and Reassembly

4-1 Cabinet and PCB

Note : Reassembly in reverse order.

4-1-1 Top Cabinet Removal

- 1) Remove 3 Screws ❶ on the back Top Cabinet.
- 2) Lift up the Top Cabinet in direction of arrow.

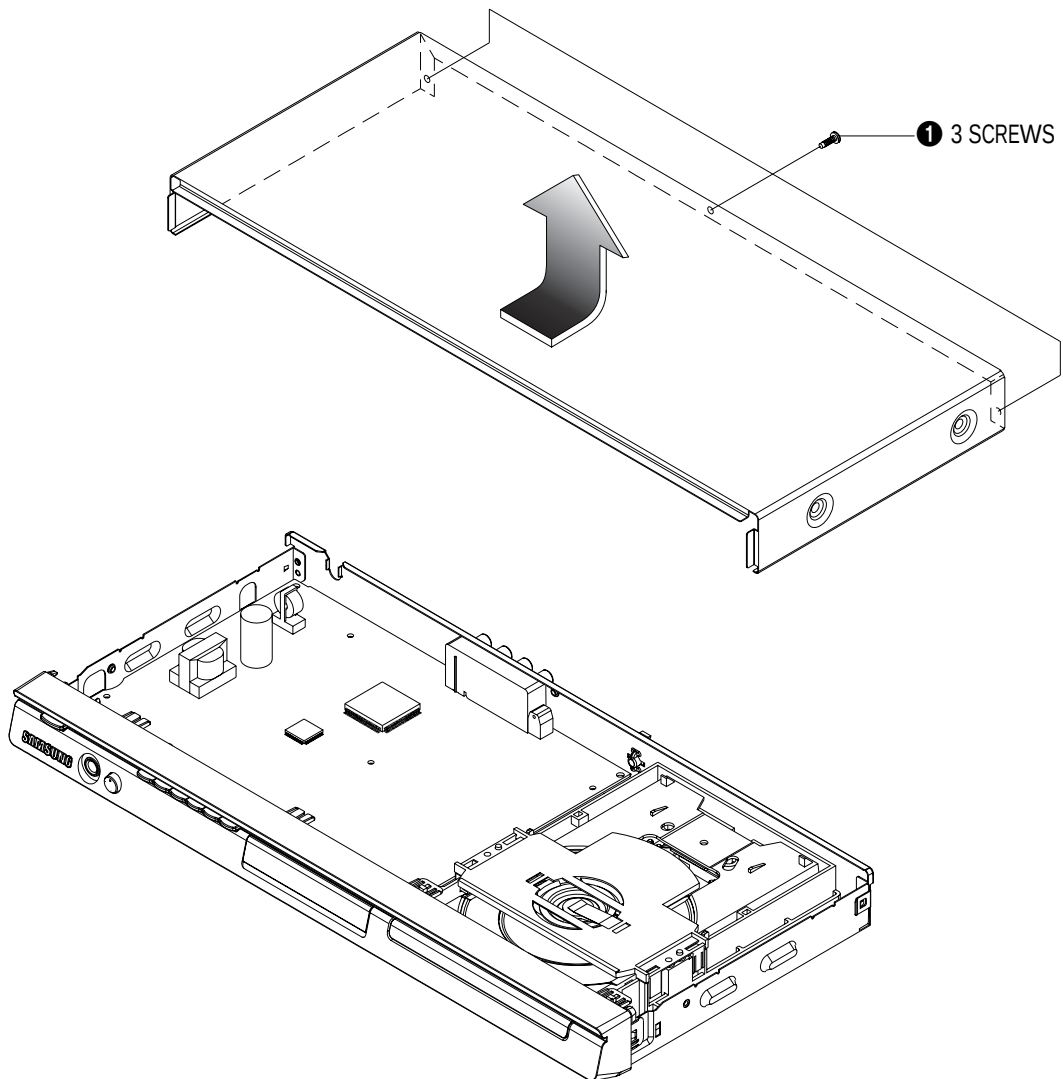


Fig. 4-1 Top Cabinet Removal

4-1-2 Door-Tray Removal

- 1) Supply power and open Tray ❶.
- 2) Disassemble the Door-Tray ❷ in direction of arrow "A".
- 3) Close Tray ❶ and power off.

Note : If Tray ❶ doesn't open, insert a Screw driver ❹ into the Emergency hole ❸ (as shown in detailed drawing) and then push it in the direction of arrow "B". Open Tray manually.

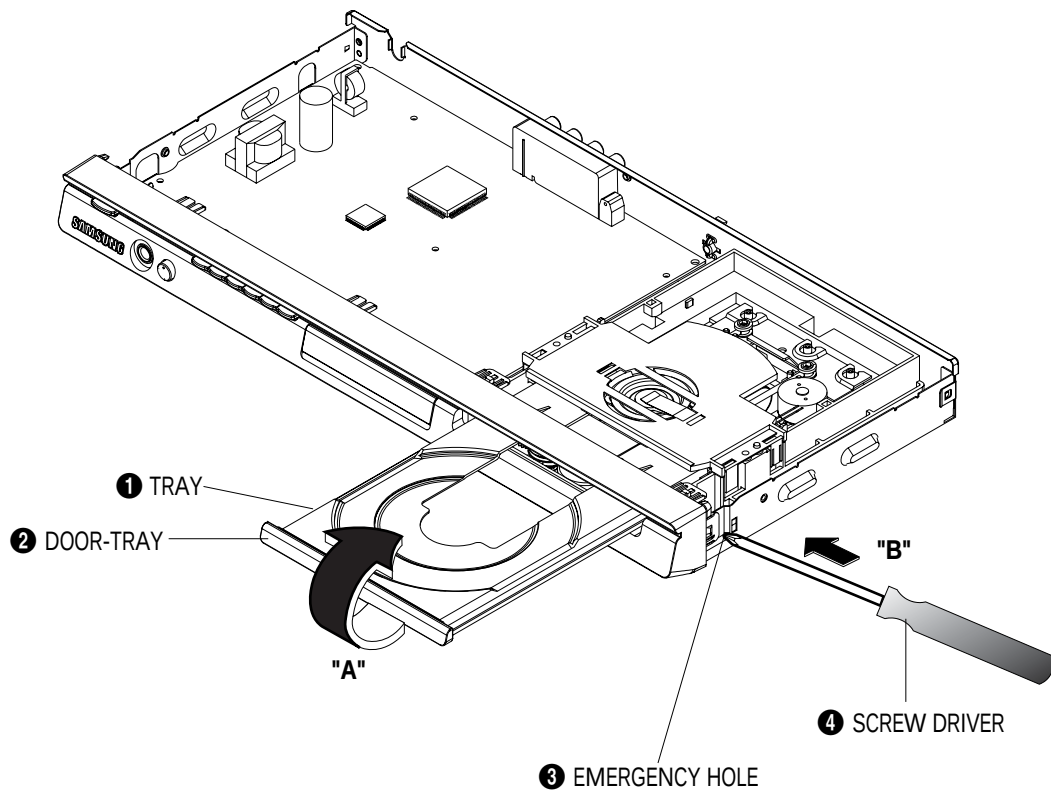


Fig. 4-2 Door-Tray Removal

4-1-3 Ass'y Front-Cabinet Removal

1) Release 6 Hooks ❶, ❷, ❸, ❹ and Ass'y Front-Cabinet ❺.

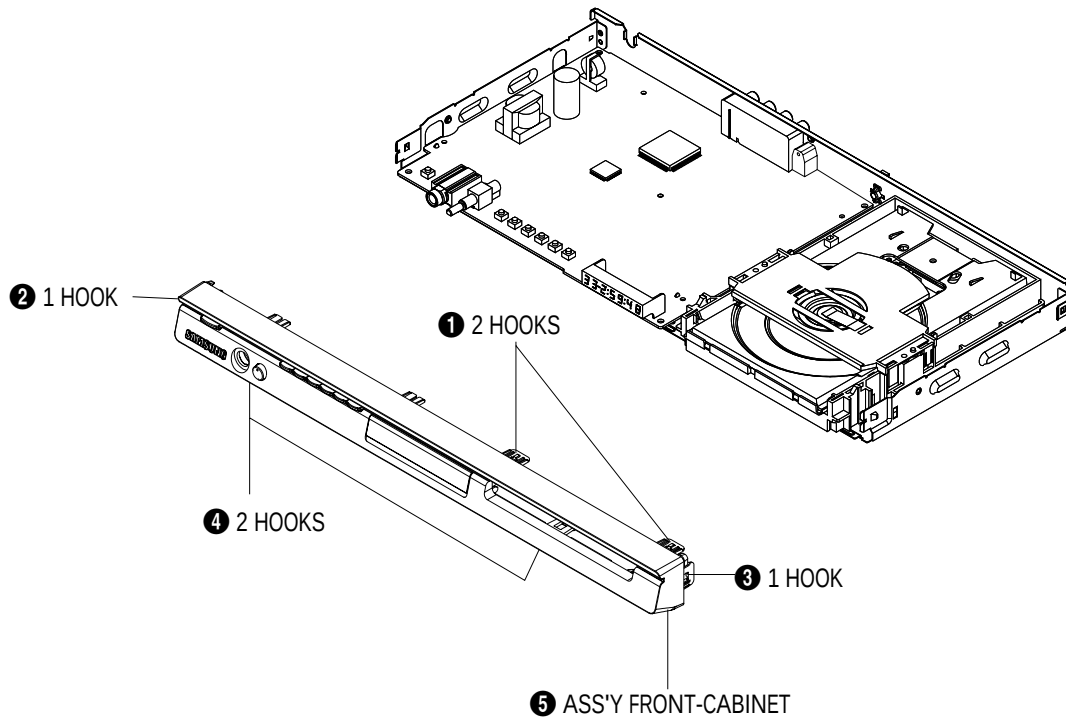


Fig. 4-3 Ass'y Front-Cabinet Removal

4-1-4 Ass'y Deck Removal

- 1) Disconnect Flat-Cable from DCN1, DCN2 on Main PCB.
- 2) Remove 3 Screws ❶ from the Ass'y Deck and lift it up.

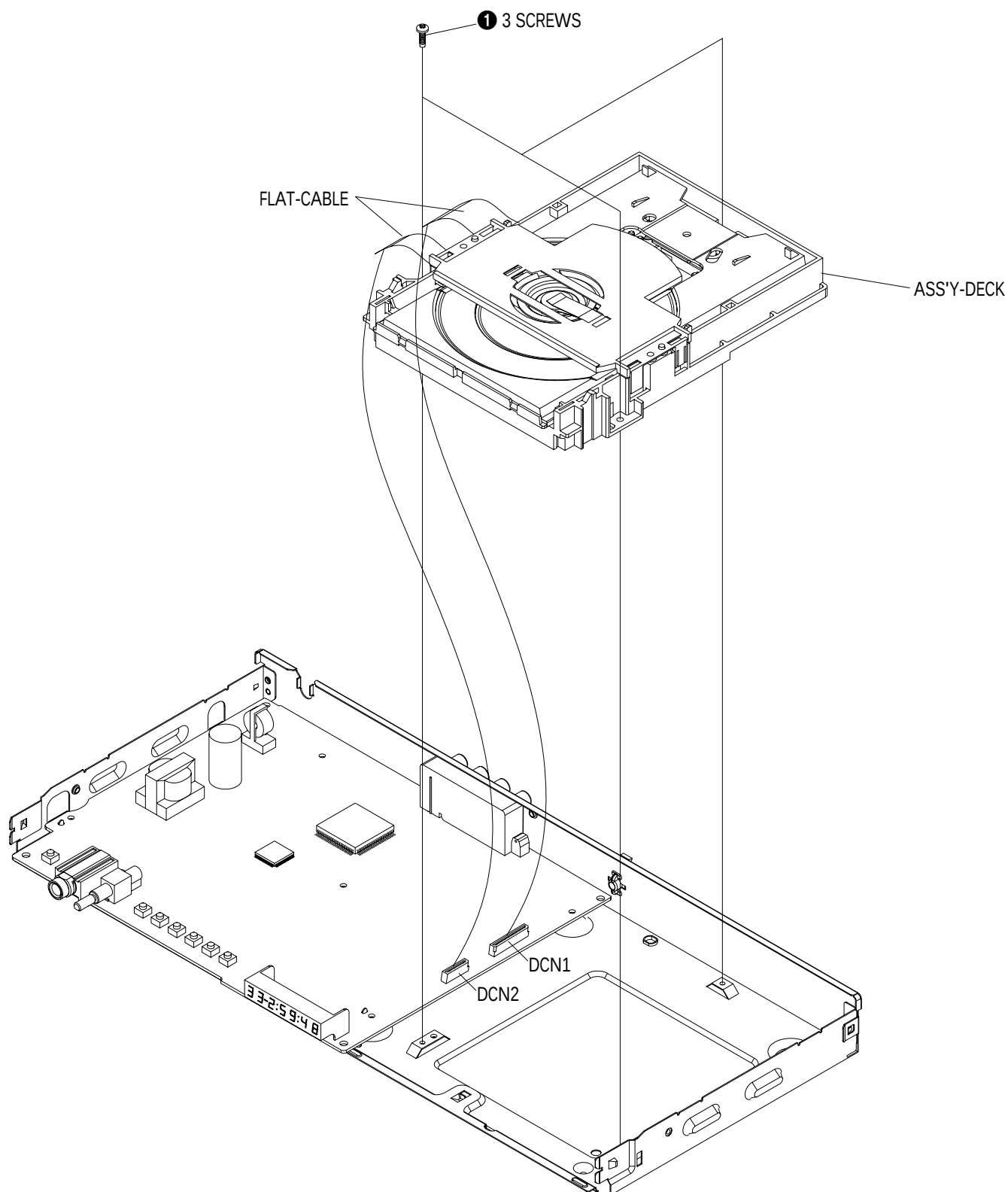


Fig. 4-4 Ass'y Deck Removal

4-1-5 Main PCB Removal

- 1) Remove 4 Screws **①**.
- 2) Lift up the Main PCB **②**.

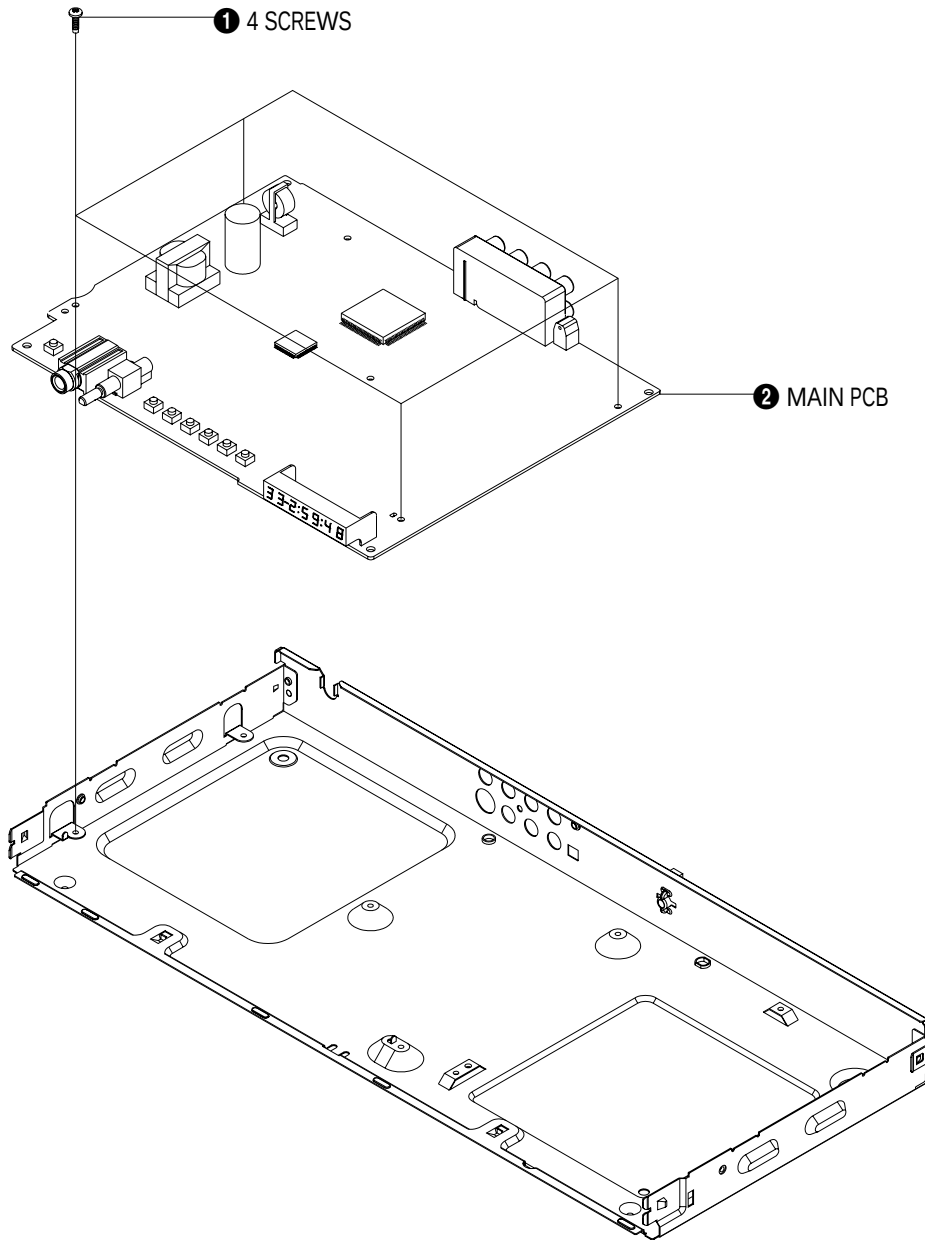


Fig. 4-5 Main PCB Removal

4-2 Deck

4-2-1 Holder Chuck Removal

1) Push 4 Hooks ❶ in the direction of arrow "A" and lift up the Holder Chuck ❷.

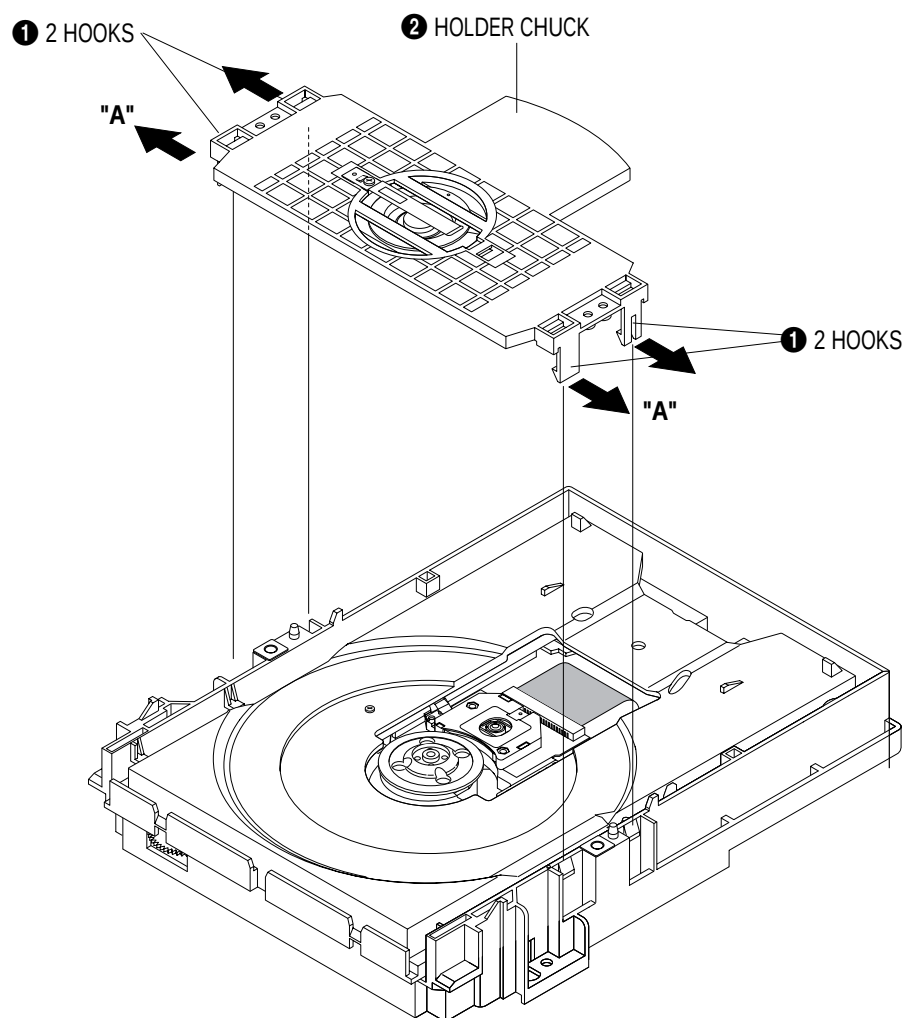


Fig. 4-6 Holder Chuck Removal

4-2-2 Tray Disc Removal

- 1) Insert a Screw Driver **①** into Emergency Hole **②** and push the Slider Housing **③** in the direction arrow "A".
- 2) When the Tray Disc **④** comes out a little, pull it in the direction arrow "B" by hand.

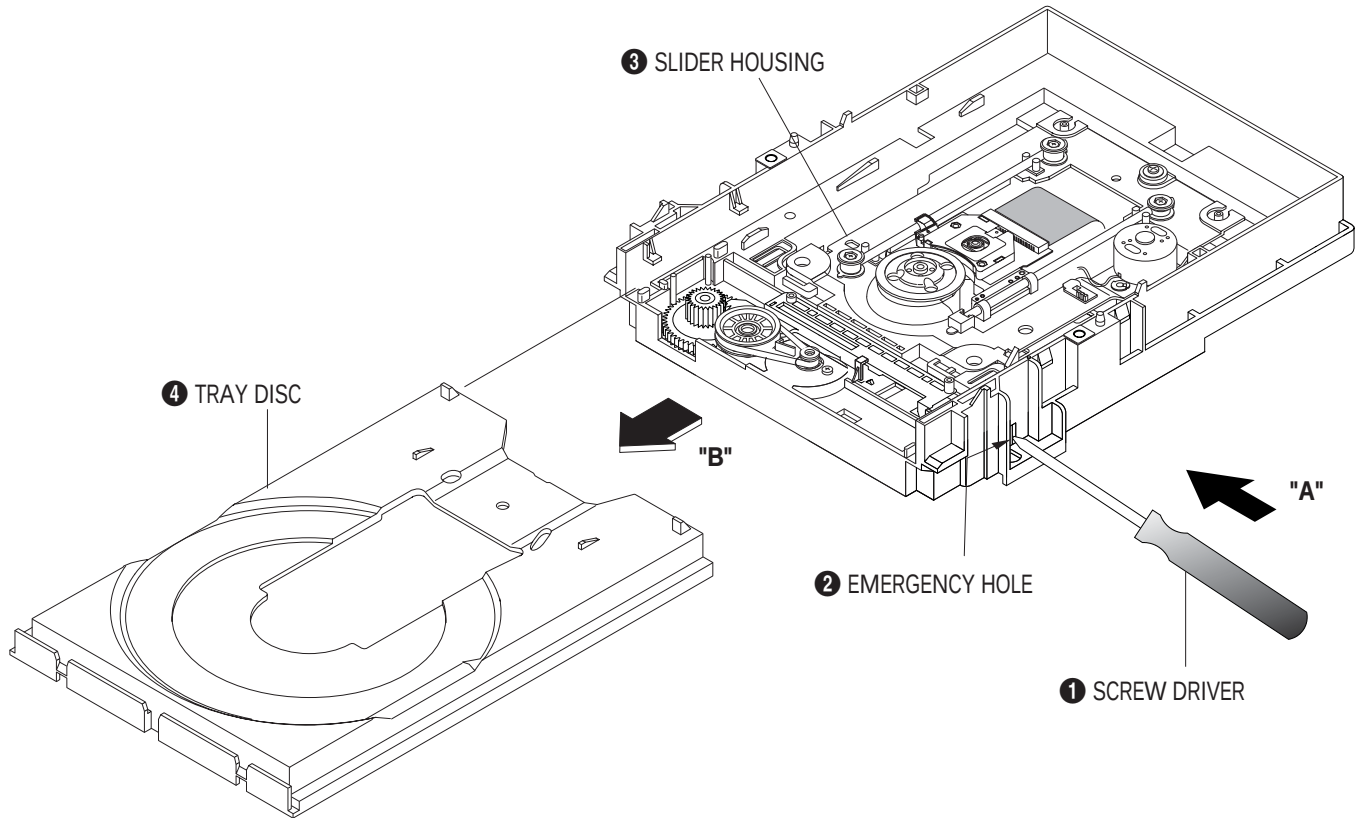


Fig. 4-7 Tray Disc Removal

4-2-3 Assy P/U Deck Removal

- 1) Remove the 4 Soldering ❶ (SL+, SL-, SP+, SP-).
- 2) Remove the 1 Screw ❷ and lift up the Ass'y P/U Deck ❸

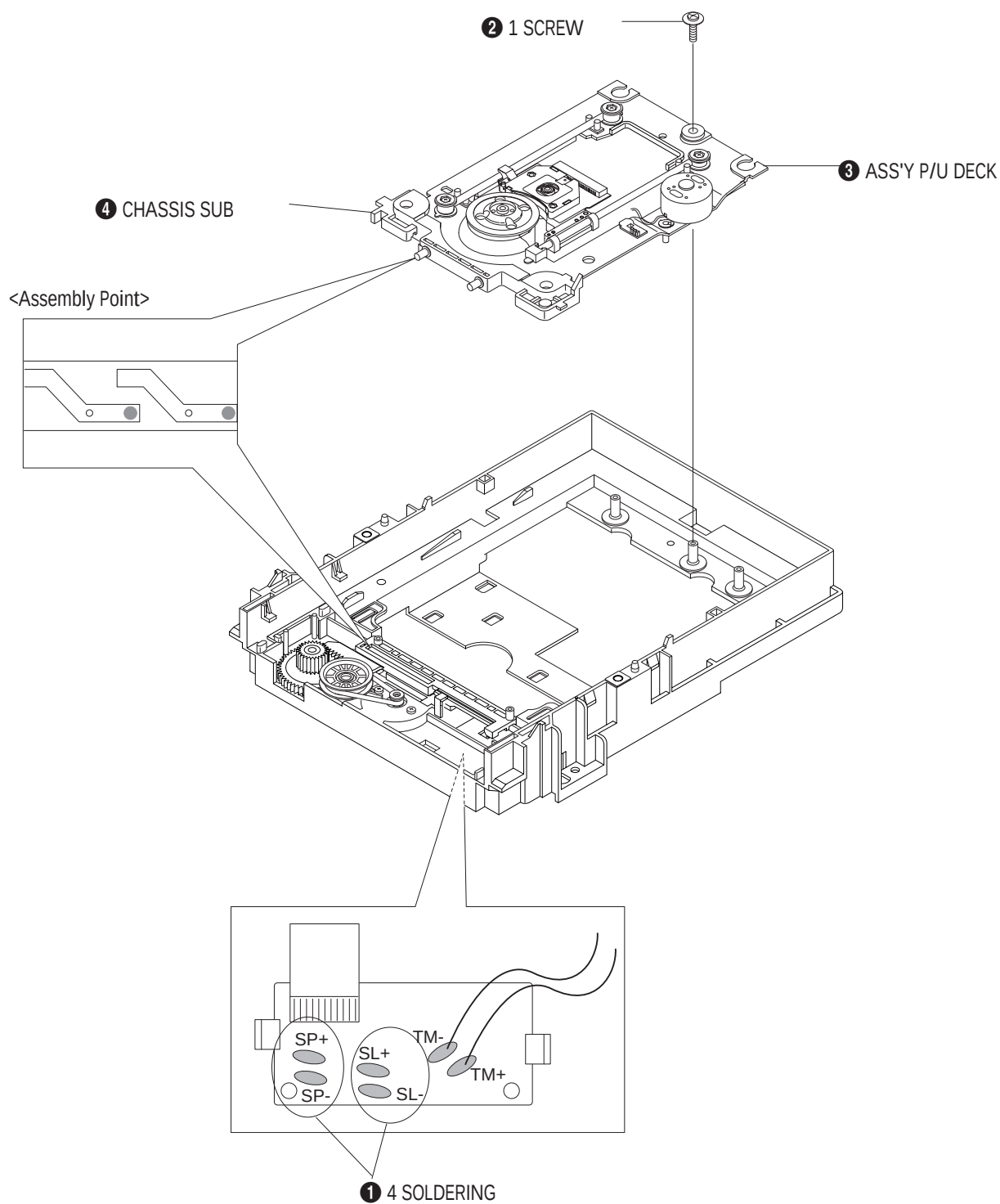


Fig. 4-8 Assy P/U Deck Removal

4-2-4 Ass'y Housing Removal

- 1) Remove the 2 Soldering ❶. (TM+, TM-)
- 2) Push the 2 Hooks ❷ in the direction of arrow "A" and remove Ass'y PCB Deck ❸.
- 3) Push the Slider Housing ❹ in the direction arrow "B".
- 4) Push the 1 Hook ❺ in the direction of arrow "C" and lift up the Slider Housing ❹.
- 5) Remove the Belt Pulley ❻ and 2 Screws ❼, Ass'y Motor Load ❽.
- 6) Push the 1 Hook ❾ in the direction of arrow "D" and lift up the Gear Pulley ❿, Gear Tray ⓫.

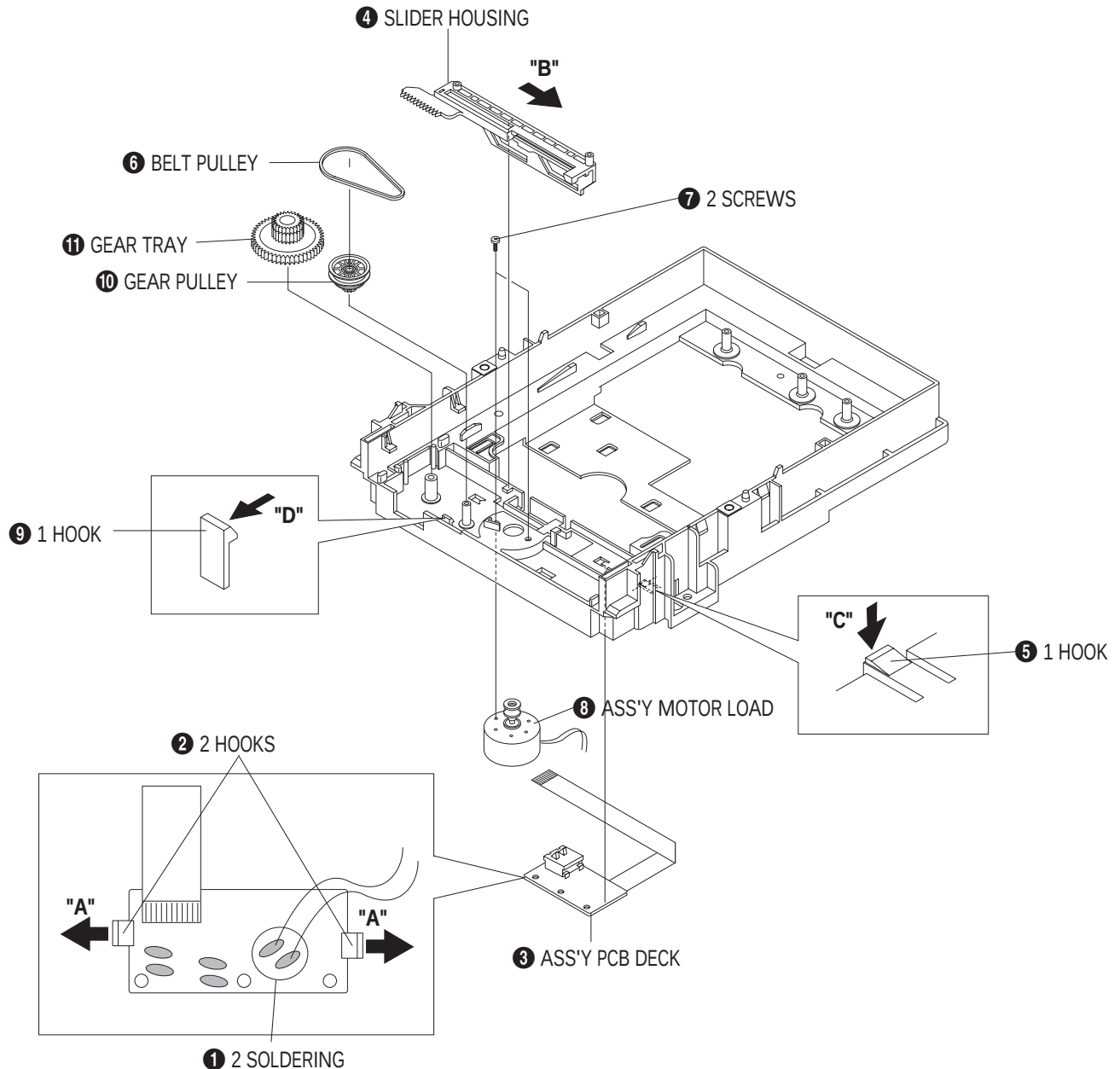


Fig. 4-9 Ass'y Housing Removal

4-2-5 Ass'y Bracket Deck Removal

- 1) Push the Hook ❶ in the direction of arrow "A" and lift up the Gear Feed B ❷.
- 2) Push the Hook ❸ in the direction of arrow "B" and lift up the Gear Feed A ❹.
- 3) Remove the 2 Screws ❺ and lift up Motor Feed Ass'y ❻.
- 4) Remove the 2 Screws ❼ and lift down Motor Spindl Ass'y ❸.
- 5) Remove the 3 Screws ❾ and remove 3 Holder Cam Skew ❿, Shaft Pick Up ⓫, Ass'y Pick Up ⓬.
- 6) Remove the 1 Screws ⓭ and remove Gear Back Lash ⓮.

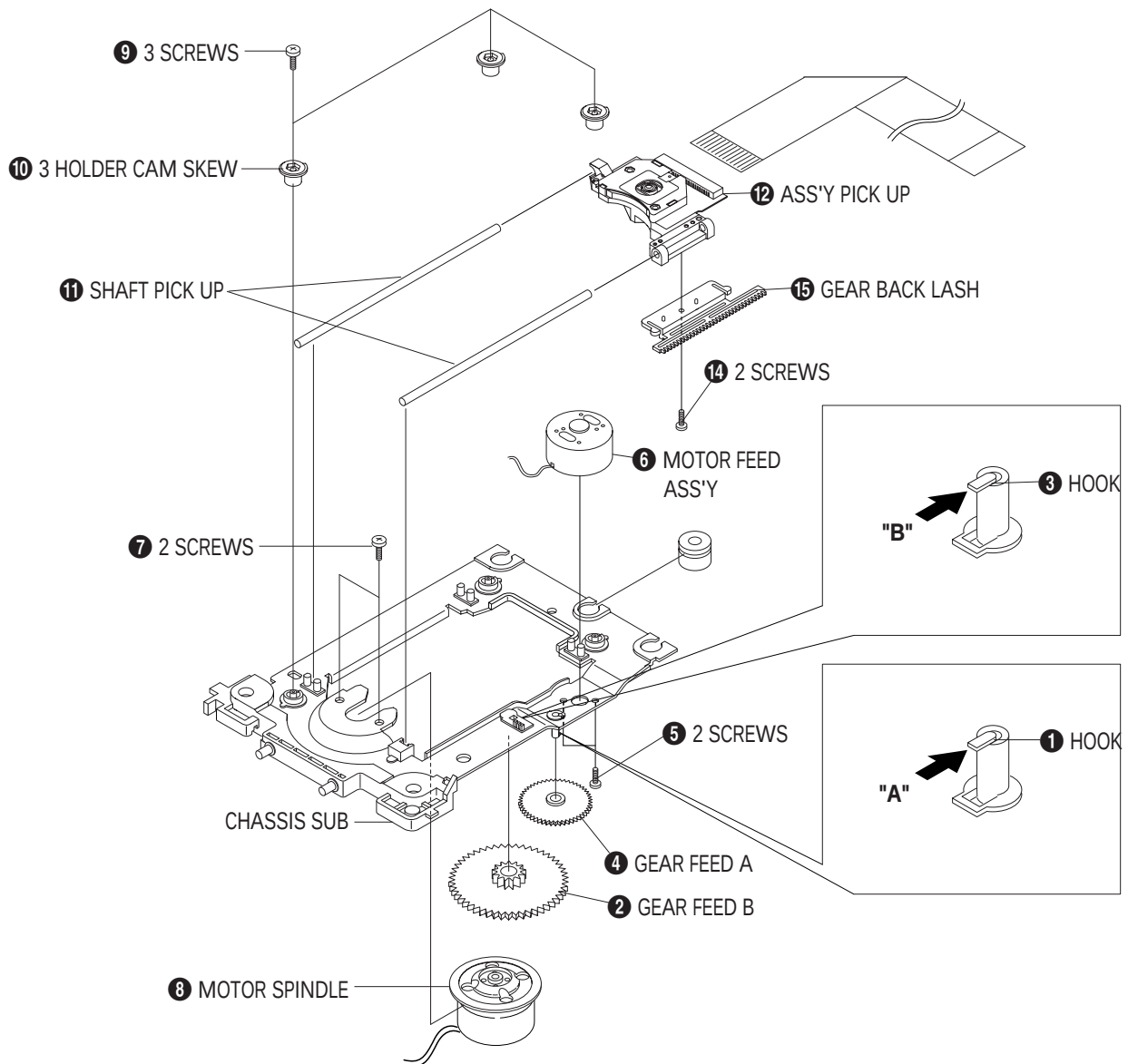


Fig. 4-10 Ass'y Bracket Deck Removal

2. Product Specification

General	Power Requirements	AC110-240V, 50/60Hz
	Power Consumption	10W
	Weight	1.7Kg
	Dimensions	430mm (W) X 207mm (D) X 42mm
	Operating Temperature Range	+5°C to +35°C
	Operating Humidity Range	10% to 75%
Disc	DVD (Digital Versatile Disc)	Reading Speed : 3.49~4.06m/sec. Approx. Play Time (Single Sided, Single Layer Disc) : 135min.
	CD : 12Cm (Compact Disc)	Reading Speed : 4.8~5.6m/sec. Maximum Play Time : 74min.
	CD : 8Cm (Compact Disc)	Reading Speed : 4.8~5.6m/sec. Maximum Play Time : 20min.
	VCD : 12Cm	Reading Speed : 4.8~5.6m/sec Maximum Play Time : 74min. (Video+Audio)
Video Output	Composite Video	1 channel ; 1.0Vp-p (75ohm load)
	Component Video	Y : 1.0Vp-p (75ohm load) Pr : 0.70Vp-p (75ohm load) Pb : 0.70Vp-p (75ohm load)
Audio Output	S-Video	Luminance Signal : 1.0Vp-p (75ohm load) Chrominance Signal : 0.3Vp-p (75ohm load)
	2 Channel	L(1/L), R(2/R)
	*Frequency Response	48KHz Sampling : 4Hz to 22KHz 96KHz Sampling : 4Hz to 44KHz
	*S/N Ratio	110dB
	*Dynamic Range	100dB
	*Total Harmonic Distortion	0.004%

* : Nominal specification

14. Reference Information

14-1 Introduction to DVD

14-1-1 The Definition of DVD

DVD is the next generation medium and is the acronym of the Digital Versatile Disc or the Digital Video Disc, which maximizes the saving density of the disk surface using the MPEG-2 compression technology to enable the storage of 17G bytes of data on the same size CD.

1) 7 times the storage capacity of the conventional CD

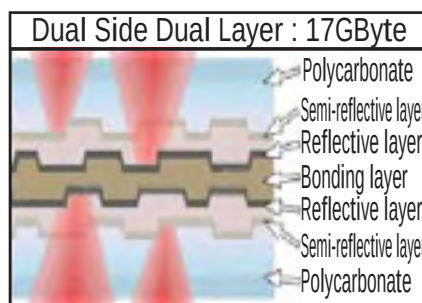
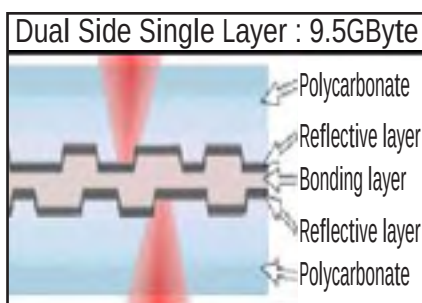
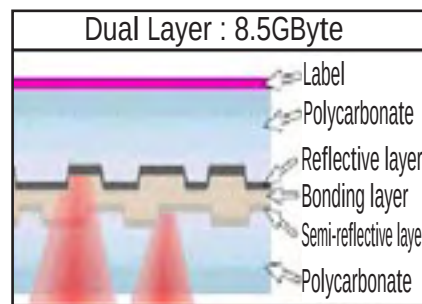
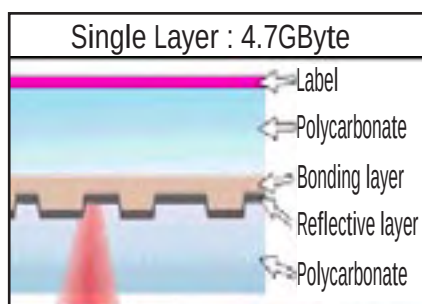
- ◆ Minimized the track pitch and pit size to 1/2 of conventional CD.
- ◆ Uses red laser with short-wavelength of 650nm (635nm).

⌘ DVD Vs. CD-ROM

	DVD		CD-ROM
	Single-Layer	Dual-Layer	
Laser Wavelength	650nm (635nm)		780nm
Track Pitch	0.75um		1.6um
Disc Diameter	120mm		
Disc Thickness	1.2 (0.6 x 2) mm		1.2mm
Linear Velocity	3.49m/s	3.84m/s	1.2 ~ 1.4m/s

2) Disc Formats

DVD consists of two 0.6mm discs attached together, enabling access to the upper and lower side of the disk, and 4 sides could be used at maximum.



14-1-2 DVD Types

FORMAT	TYPE	APPLICATIONS
DVD-Video	Playback Only	High quality image and sound for movies and other video media.
DVD-ROM	Read Only	Multi-functional, multi-midia software that requires large storage capacity.
DVD-Audio	Playback Only	High quality sound that exceeds the CD, multi-channel Audio.
DVD-R	1 Time Recording	Storage media for the computer.
DVD-RAM	Rewritable	Data access/storage media for the computer.

14-2 DVD-Video Fromat

14-2-1 Main Features

- 1) Able to store up to 160 minutes of Movie by utilizing the MPEG-2 compression technology. (Aver. 133min.)
- 2) Enables more than 500 lines of horizontal resolution. (Class corresponding to the Master Tapes used in broadcasting stations)
- 3) Provides Dolby Digital 5.1ch Surround 3D sound, which enables theater quality sound (NTSC area).
 - ◆ For PAL areas, 1 of either MPEG-2 Audio or Dolby Digital must be selected.
- 4) Multi-Language
 - ◆ Able to store up to 8 languages of dubbing.
 - ◆ Able to store up to 32 subtitle languages.
- 5) Multi-Aspect Ratio

3TV Mode alternatives ; 16:9 Wide Screen (DVD Basic)/ 4:3 Pan & Scan / Letter Box.
- 6) Multi-Story

Possible to implement Interactive Viewing which enables the user to select the scenario.
- 7) Multi-Angle

Able to view the camera angle you selected among the scenes recorded with multiple camera angles.

Note ; The above media features must have the DVD Title that contains the appropriate contents to function properly.

14-2-2 Audio & Video Specifications

Classification		DVD-Video		Video-CD	LD
VIDEO	Compression	MPEG-2		MPEG-1	Analog
	Pixel	720 x 480		352 x 240	
	Horizontal resolution	Max. 500 Lines		Max. 250 Lines	Max.420 Lines
	Compression rate	1/40		1/140	Analog
	Transmission speed	Max. 9.8Mbps (variable)		1.15Mbps (fixed)	
	TV aspect	16:9 / 4:3		4:3	4:3
AUDIO	Audio	Max. 8 streams		2CH stereo	2 Analog CH. 2 Digital CH. (16Bit/44.1KHz)
	Recording type	Dolby Digital	Linear PCM	MPEG-1 Layer 2	
	Transmission rate	448Kbps/stream	6.144Mbps/stream	224Kbps	or 1 Analog CH. 1 Stream of Dolby Digital 2 Digital CH. (16Bit/44.1KHz)
	Channel	5.1CH/stream	8CH/stream	2CH	
	Sampling frequency	48KHz	16, 20, 24Bit/48, 96KHz	16Bit/44.1KHz	

14-2-3 Detailed Feature

DVD-Video Feature 1

When Developing the DVD Software, various addition and modification is possible.

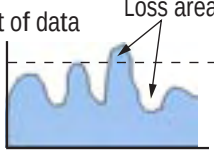
As the storage capacity increases, the DVD-Video separates the main data and the additional data such as the Multi-Function into different data areas, enabling the control of time-data ratio to provide the format that enables the flexible Software development

- ◆ 1 Movie (3.5Mbps)
 - + Subtitle (1 Language)
 - + Surround Audio (1 Language)
 - = 160min storage (4.673Gbytes)
- ◆ 1 Movie (3.5Mbps)
 - + Subtitle (4 Language)
 - + Surround Audio (4 Language)
 - = 160min storage (4.680Gbytes)
- ◆ 1 Music Video (4Mbps)
 - + 2ch High quality Audio (96kHz/24bit)
 - = 72min storage (4.648Gbytes)

DVD-Video Feature 2

Application of the MPEG-2 compression technology.

DVD-Video uses the variable compression technology, the MPEG-2 to compress the moving image optimally, minimizing the Data loss to Provide a clear, natural screen while increasing the storage time.

DVD-Video	◆ MPEG-2 (Variable compression : Max. 1 / 40) ✓ Field unit compression. ✓ Compression rate change according to the amount of Data. ✓ Differentiates the still image anf the moving image compression rete, reducing Data loss and enables efficient compression.	Amount of data  Time
Video-CD	◆ MPEG-1 (Fixed compression : Max. 1 / 140) ✓ Frame unit compression. ✓ Compresses all data using the same ratio. - Fast movements are jagged, and unnatural	Amount of data  Time

DVD-Video Feature 3**High quality surround audio.**

DVD-Video can store the audio using the 5.1ch Dolby Digital compression or the advanced Linear PCM method, providing the better-than-CD quality and theater like audio quality.

- ◆ Dolby Digital (AC-3)
 - ✓ Unlike the traditional Dolby pro-Logic method, the Dolby Digital method separates all 5 main channels (Front L/R, Center, Surround (Rear) L/R) and the Sub woofer to provide live surround audio.
 - ✓ Using the Down Mix method, the conventional Dolby Pro-Logic and Stereo are all compatible.
 - ✓ Each separated channels are played back at CD quality sound. (Frequency band: 20Hz ~ 20KHz)
- ◆ Linear PCM (Pulse Code Modulation)
 - ✓ Provides the high quality Digital sound without the audio data compression.
 - ✓ Various Digital Recordings are possible as shown in the table to the right.

Sampling Frequency	Bit Rate
48KHz	16bit
	20bit
	24bit
96KHz	16bit
	20bit
	24bit

- ◆ Dolby Digital compatible Audio Mode

Audio Coding Mode	Channel Format					Remark
	Front			Surround (Rear)		
	L	C	R	L	R	
1/0		0				Mono
2/0	0		0			Stereo
3/0	0	0	0			Surround
2/1	0		0	Mono		
3/1	0	0	0	Mono		
2/2	0		0	0	0	
3/2	0	0	0	0	0	

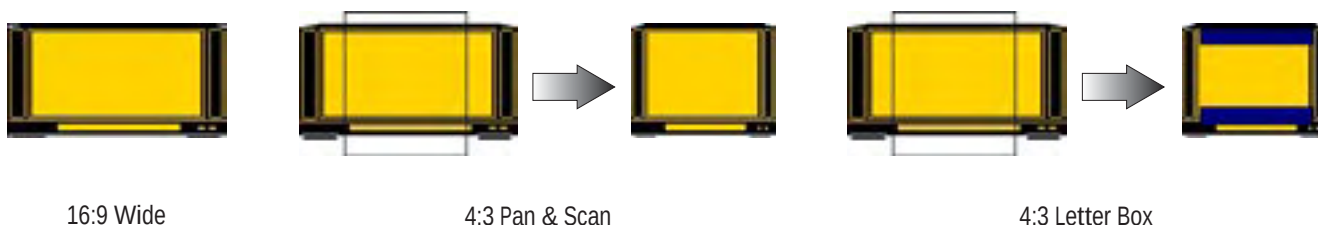
DVD-Video Feature 4**Multi-Language**

- ◆ Audio Dubbing - Max. 8 Languages
- ◆ Subtitle - Max. 32 Languages. Capable of storing, and selectiong.
- ◆ Linear PCM (Pulse Code Modulation)

DVD-Video Feature 5**Multi-Aspect**

- ◆ Unlike the conventional VCD or LD, DVD-Video has the default of 16:9 Wide, and can be viewed using the conventional 4:3 TV, enabling the expansion of viewer selection capabilities.

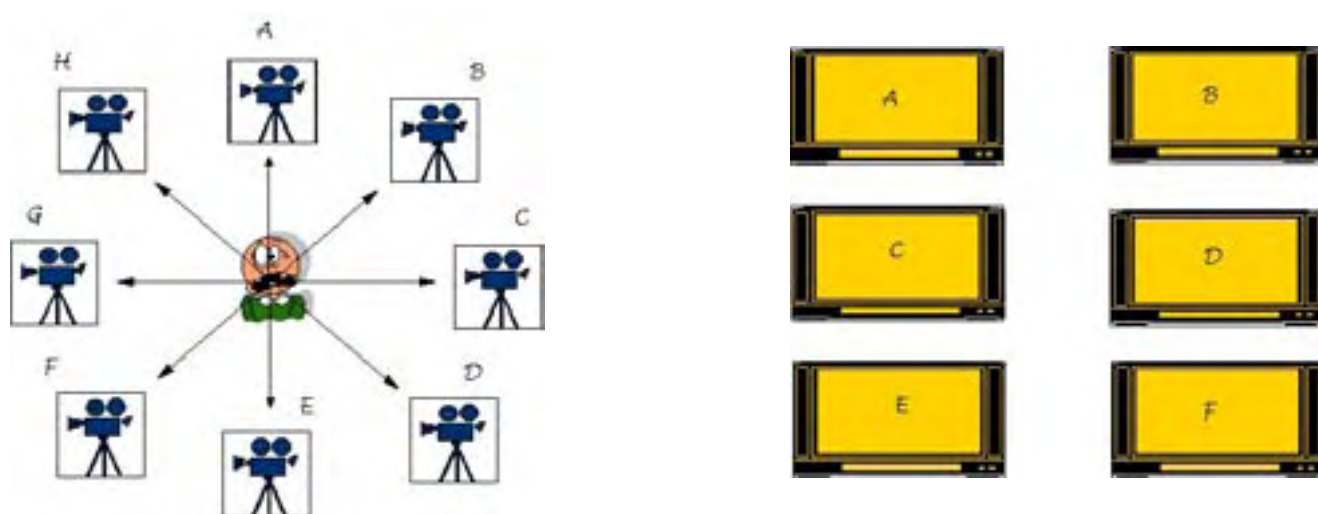
- ✓ 16 : 9 TV : Wide Mode (16:9 Wide Full Screen)
- ✓ 4 : 3 TV : Letter Box Mode, Pan & Scan Mode



Note ; Only enable to be worked correctly by an appropriate data supported this function in Disc.

DVD-Video Feature 6**Multi-Angle**

- ◆ Up to 9 angles of view may be stored, enabling the viewer to select a specific viewpoint at a given time.
--> Especially, for the Music Video and Sports Title, this provides a more lively image of the scene.



Note ; Only enable to be worked correctly by an appropriate data supported this function in Disc.

DVD-Video Feature 7**Multi-Story**

- ◆ DVD-Video provides the environment suitable for the bi-directional Software development, providing multiple scenarios. This feature enables the Multi-Story function.

OPTION**Parental Lock**

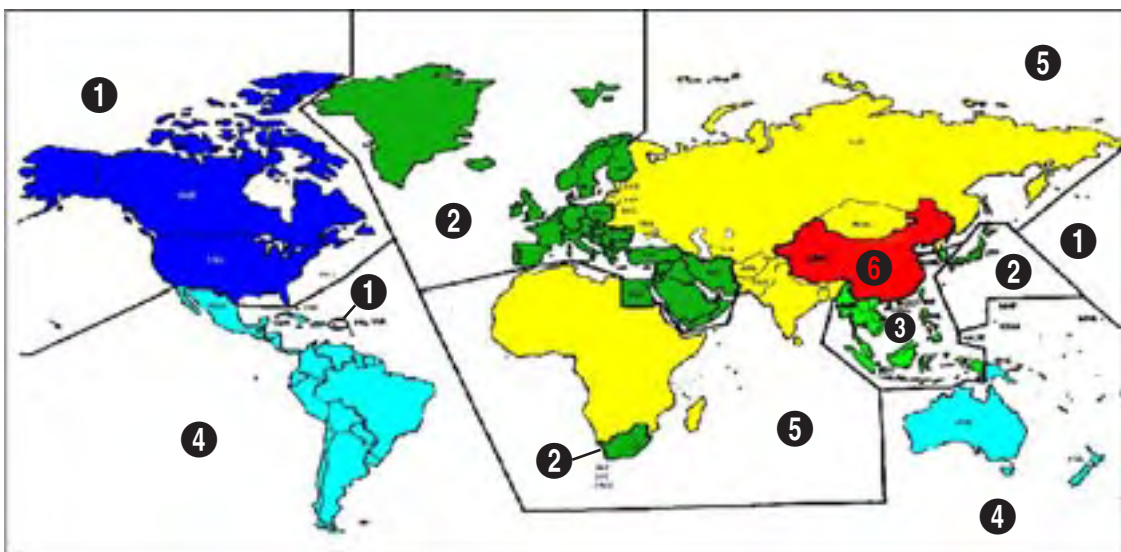
- ◆ For the titles that are not suitable for children viewing, Parental Locks are set, requesting user defined passwords for viewing
- ◆ Parental Locks may be set on specific frames of the Title, enabling the player to skip those frames during playback.

COPYRIGHT**Regional Code & Macrovision**

- ◆ Classify the world into 6 regions, and if the DVD Title and the Player's "Regional Code" do not agree, playback is prohibited.

⌘ **Regionnal Coding is optional for the Soft developers (Region 0 All Code), but the Hardware developers must adopt the appropriate regional code for sale.**

- ✓ Region 1 : The United States and its territories, Canada.
- ✓ Region 2 : Europe, Japan, Greenland, Egypt, South Africa, the Middle East.
- ✓ Region 3 : Taiwan, Hongkong, Korea, South East Asia.
- ✓ Region 4 : Mexico, South America, Australia, New Zealand.
- ✓ Region 5 : Russia, Eastern Europe, India, Africa.
- ✓ Region 6 : China.
- ✓ Region 0 : Worldwide (All Code)

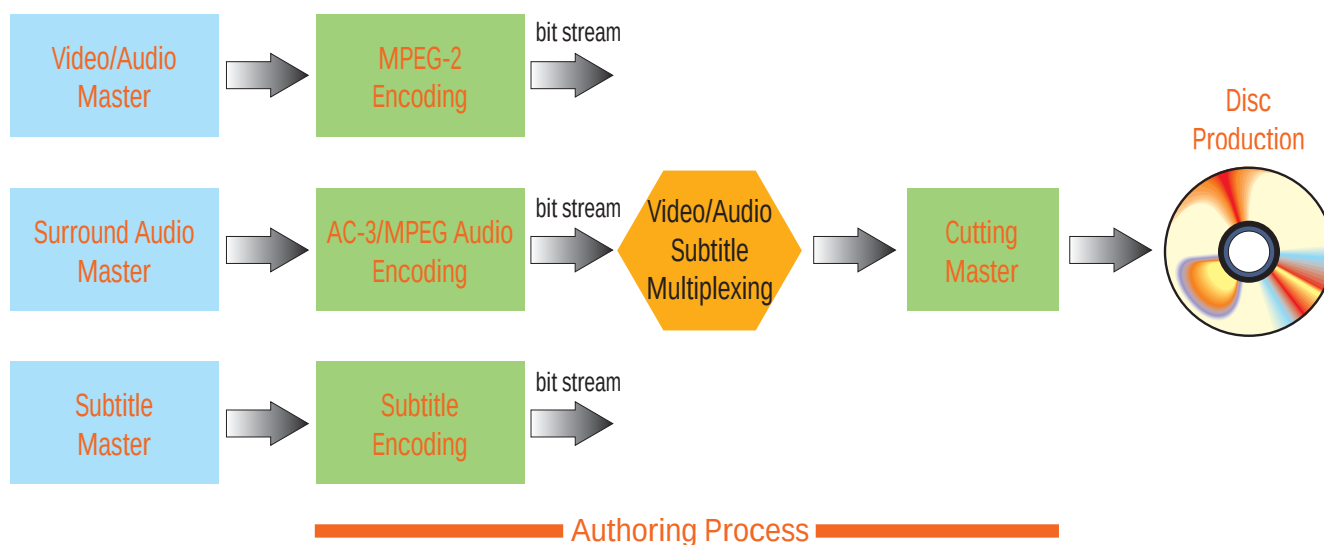


- ◆ Adoption of the Macrovision System disables the copying on to other media.

Remark

DVD-Video Authoring Process

- ◆ The image quality of the DVD-Video may vary according to the quality of the Master and the Authoring Process
 - ✓ The image quality of the DVD-Video varies according to the Digital Mastering Source such as the conventional LD, VCD, or Original Film.
 - ✓ Different Authoring Process are used according to the Software developers, and this may affect the DVD image quality.
- ⌘ **Authoring Process**



3-2 Skew Adjustment

3-2-1 Adjustment Spec. and Test Point

<Table 3-1>

Test Disc	Adjustment Spec.	Test Point	Adjustment Location
TDV-525 Chapter 12	Clear Waveform	“RF” (Main PCB - Component Side) (See Fig. 3-1)	Screw A / B Ass’y Deck - Top Side (See Fig. 3-2)

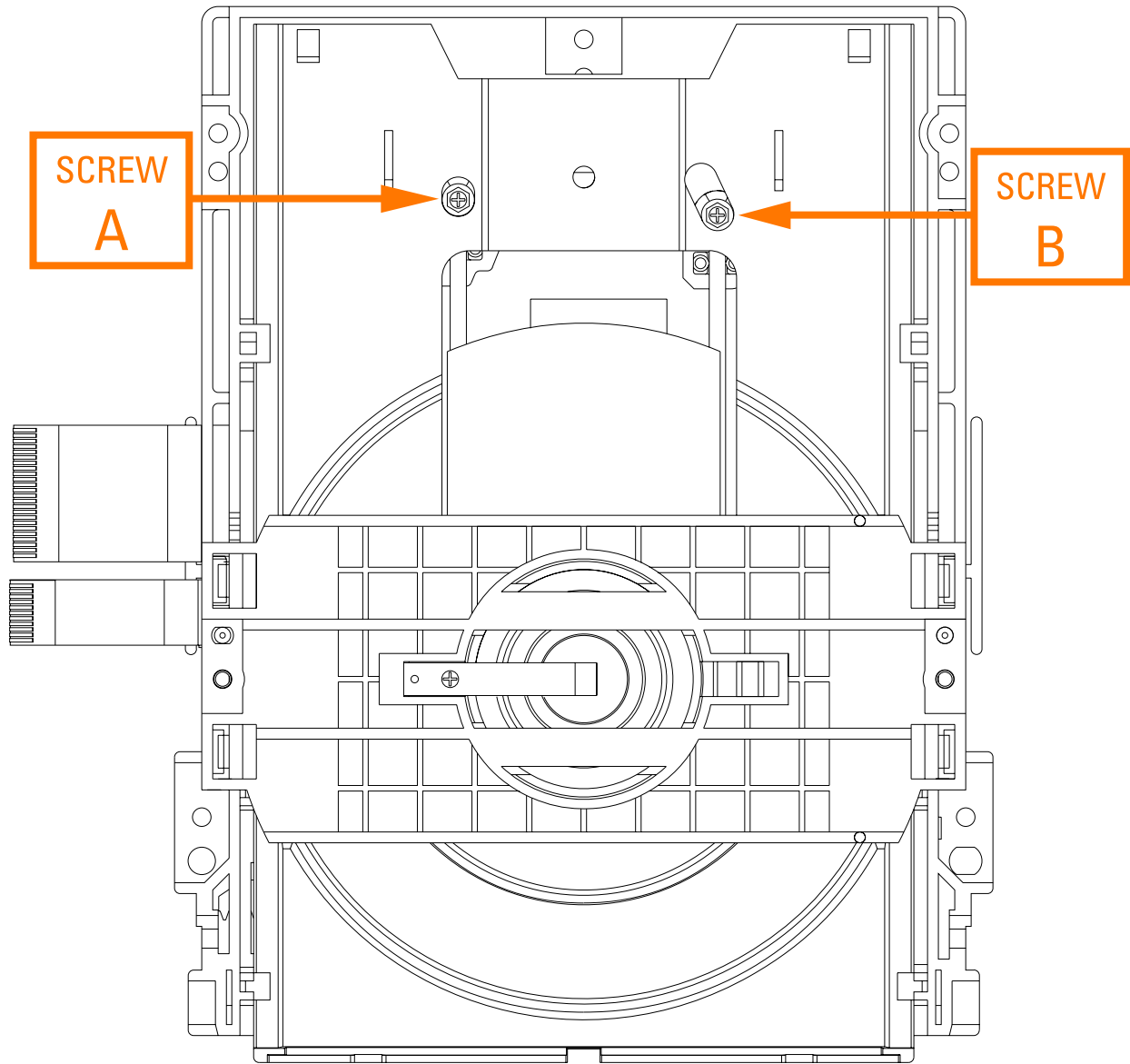


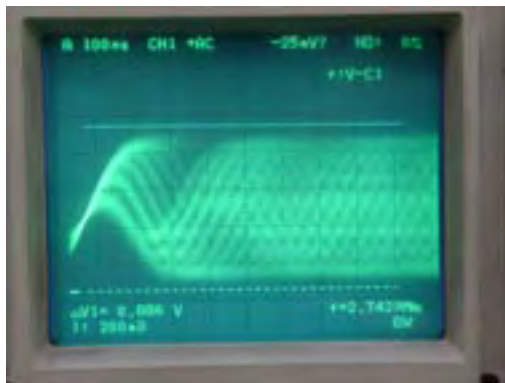
Fig. 3-2 Ass'y Deck (Top Side)

3-2-2 SKEW Adjustment Method

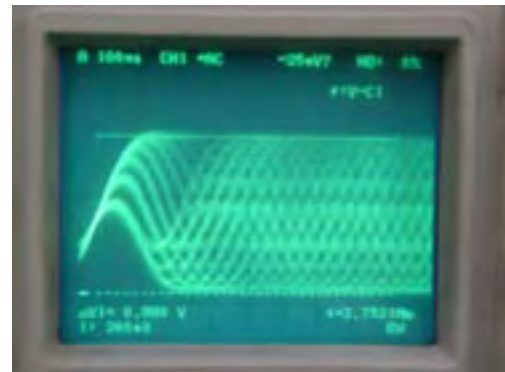
Needed to minimize RFSUM Jitter.

- 1) Connect an Oscilloscope to the “RF” Test Point (See Fig. 3-1).
- 2) Connect an Jitter meter to the “RF” Test Point, if possible
- 3) Set the initial position of Skew A and Skew B to the center of the full range of each.
- 4) Connect Power, Open the Tray and Play the TDV-525 Disc, Chapter 12.
 - ◆ Set the Oscilloscope Range as follows :
(Voltage ; 200mV/Div., Frequency ; 100m Sec.)
- 5) First, Adjust Skew A using a Hex screwdriver until you obtain the Clearest Waveform and best Jitter.
(if a Jitter meter is possible)
Then, Adjust Skew B with the same method.

Note : The Deck must be in a horizontal position. Use both “A” and “B” screws to adjust.



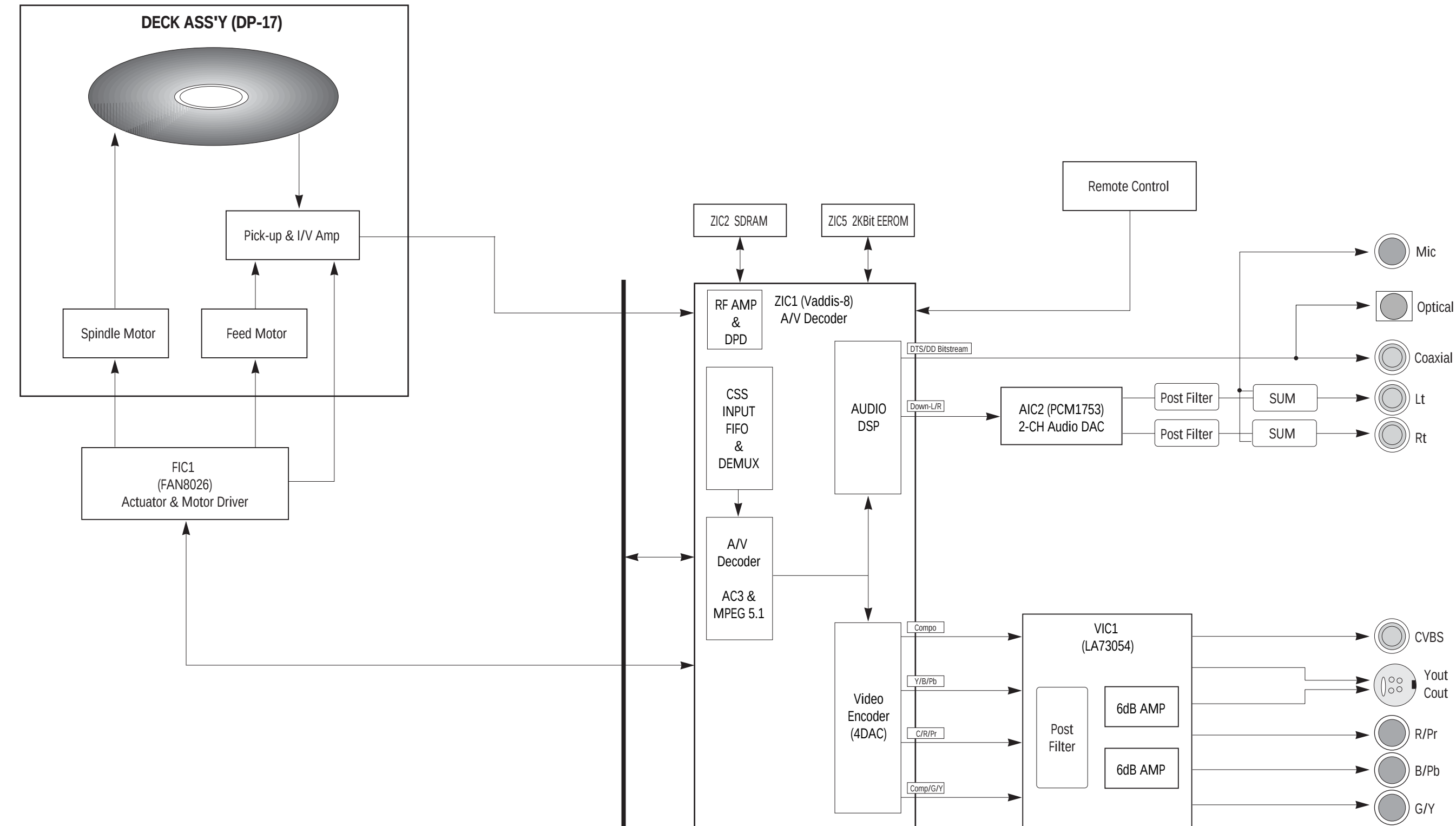
Typical Waveform before Adjustment



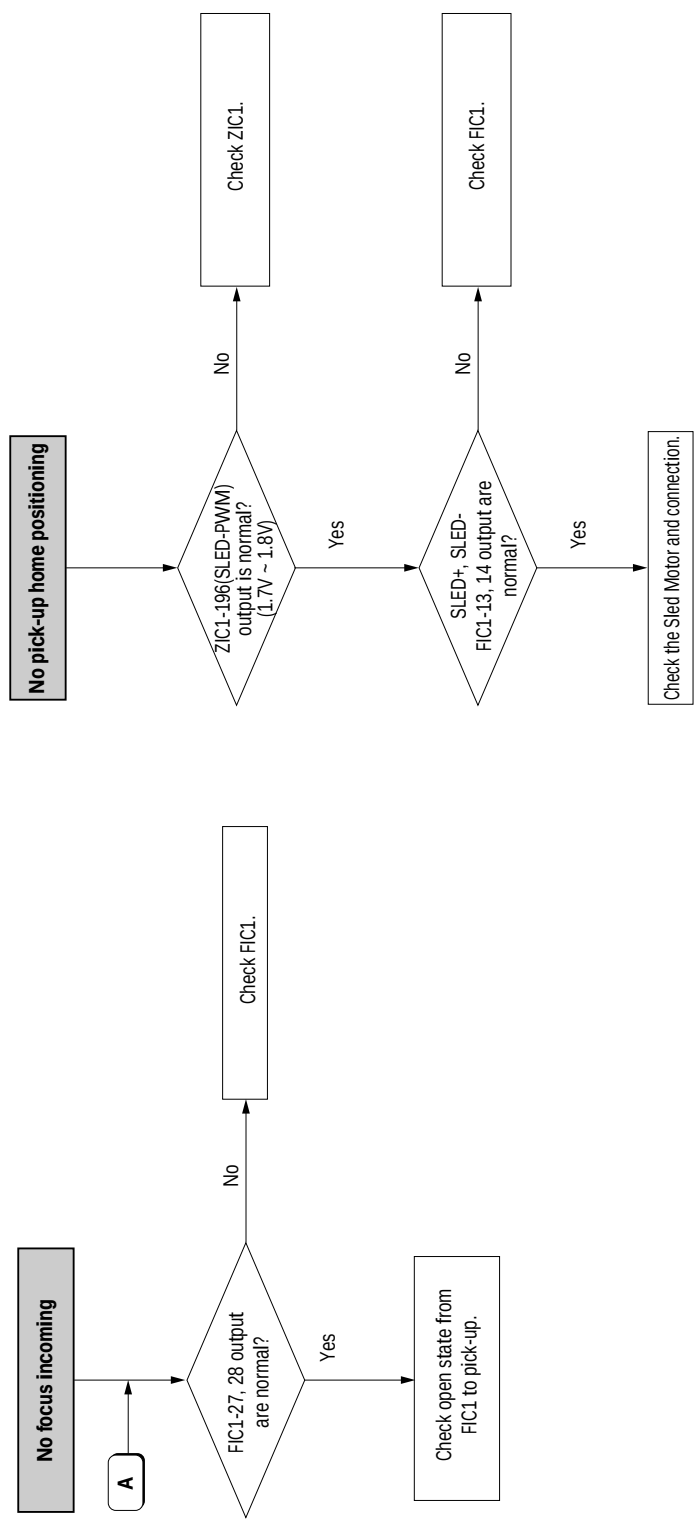
Waveform after Correct Adjustment

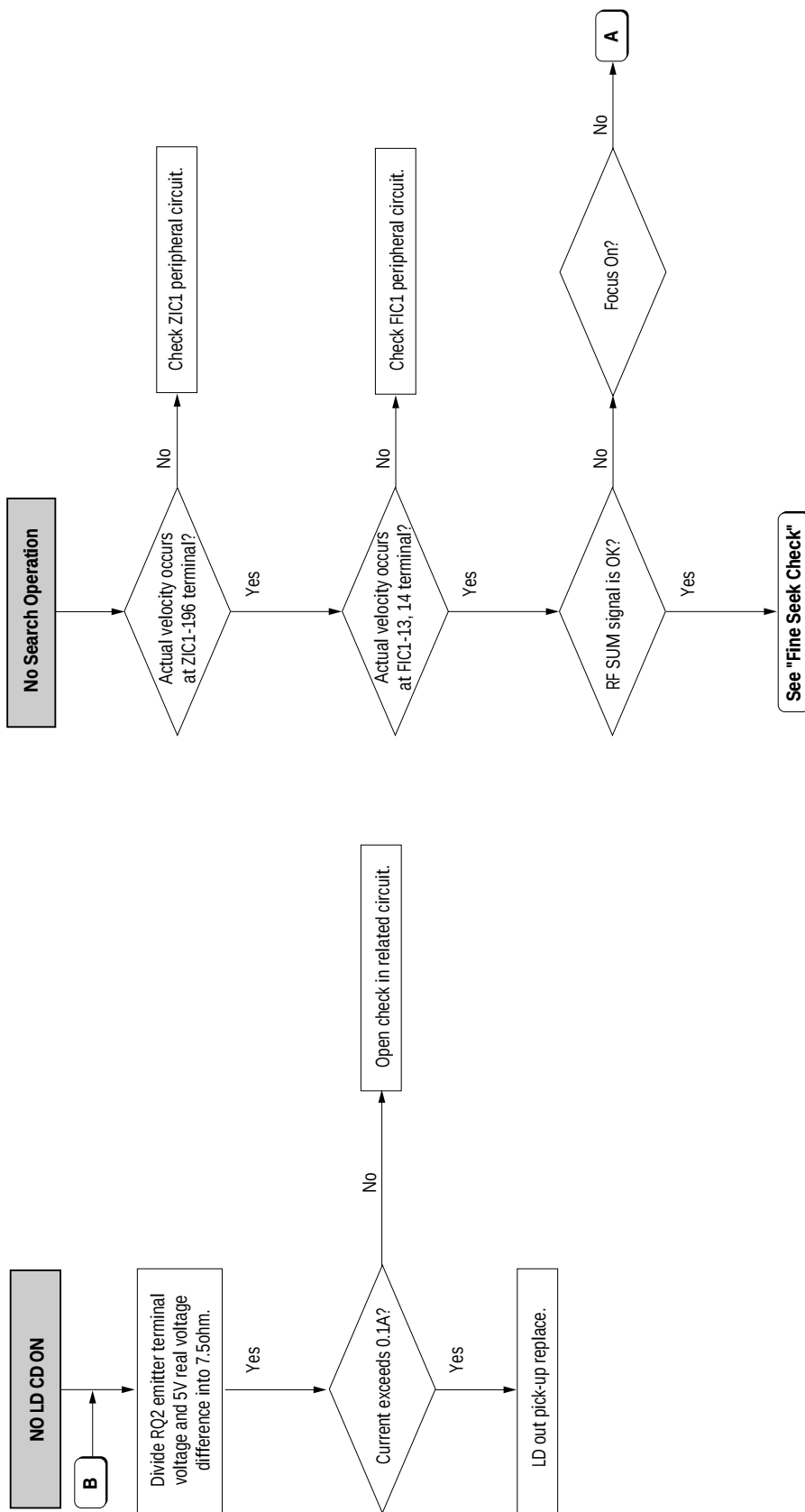
Fig. 3-3 Envelope Waveform

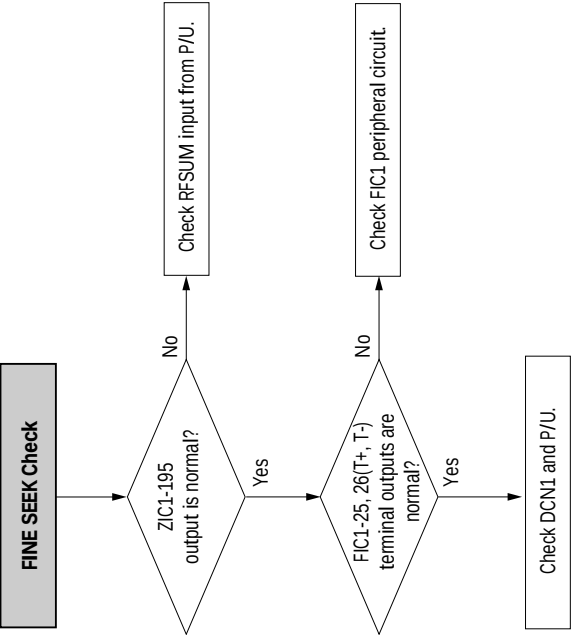
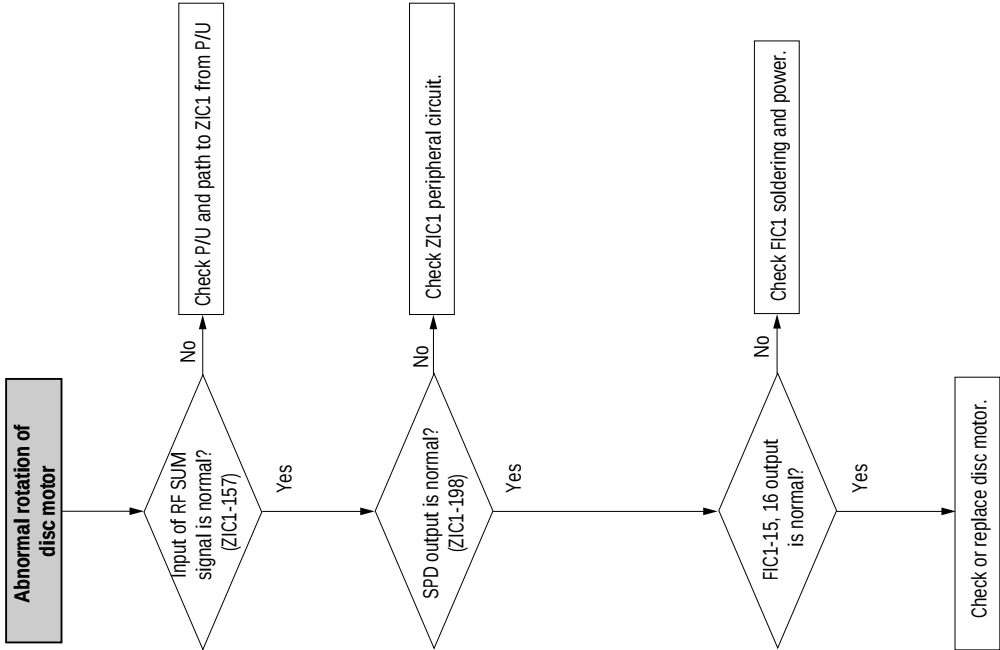
8. Block Diagram

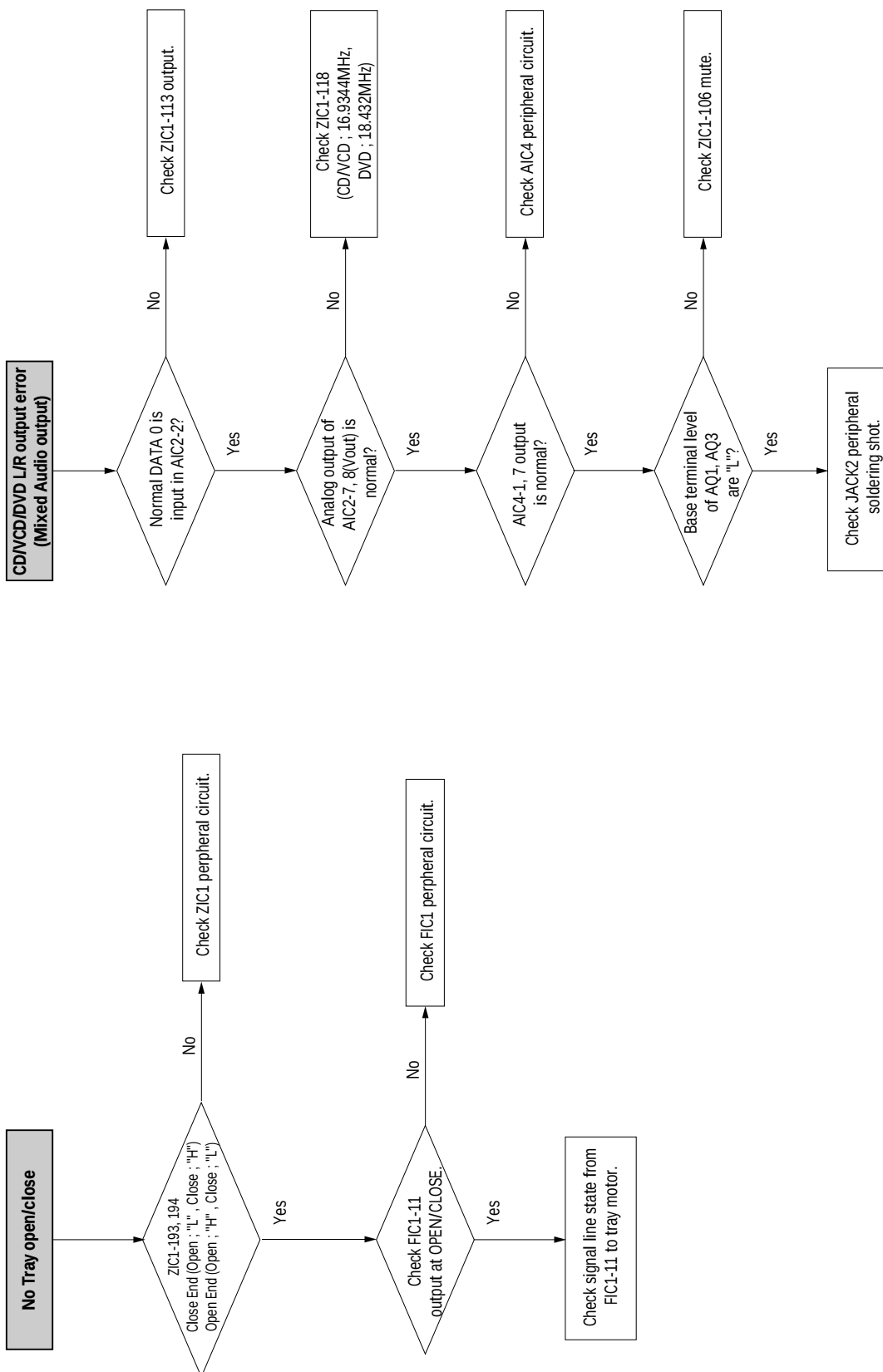


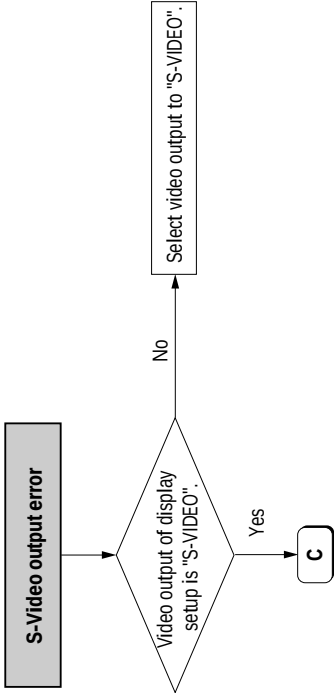
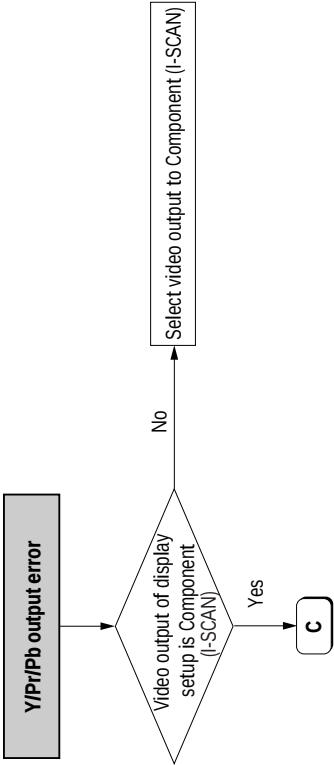
5. Troubleshooting

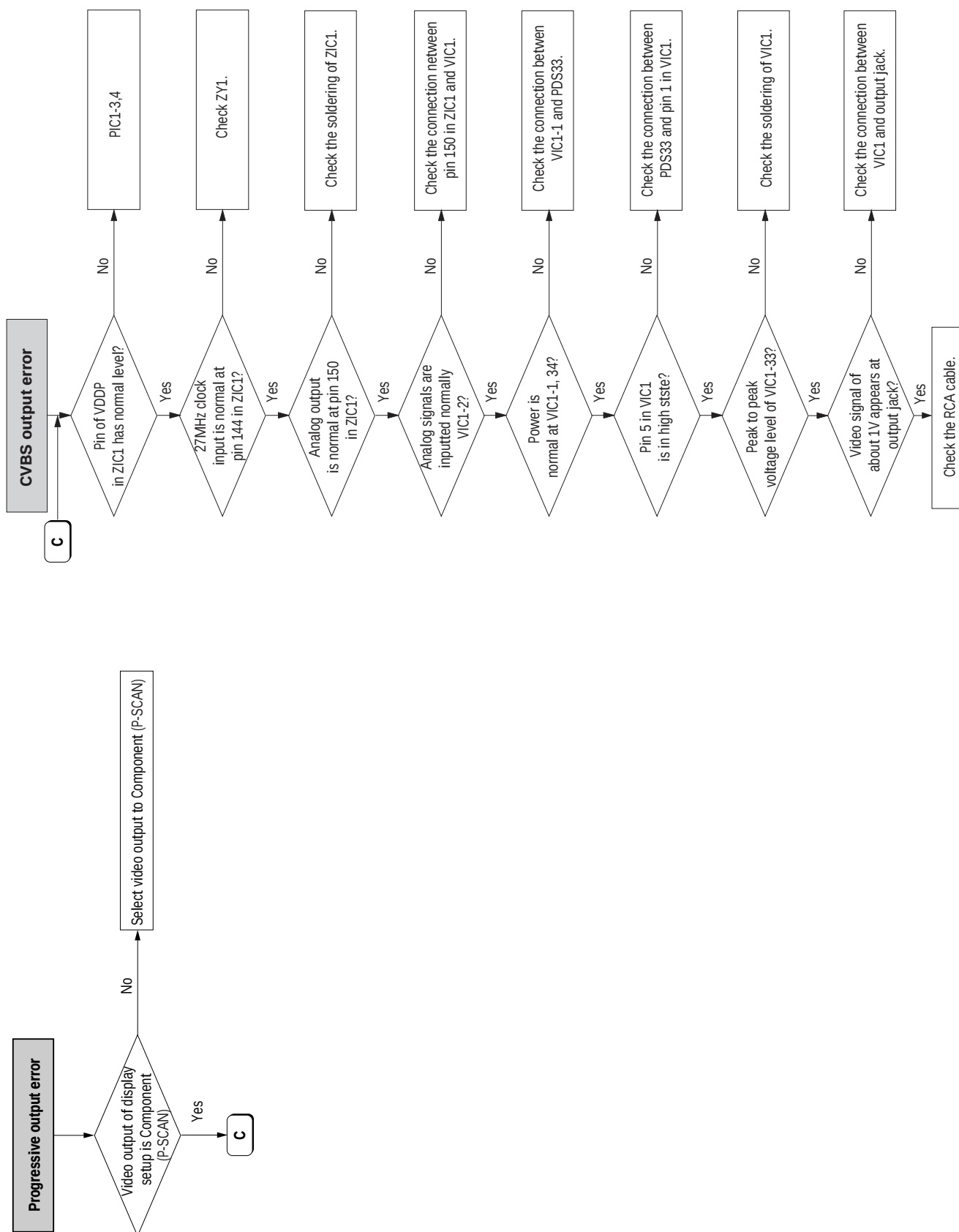


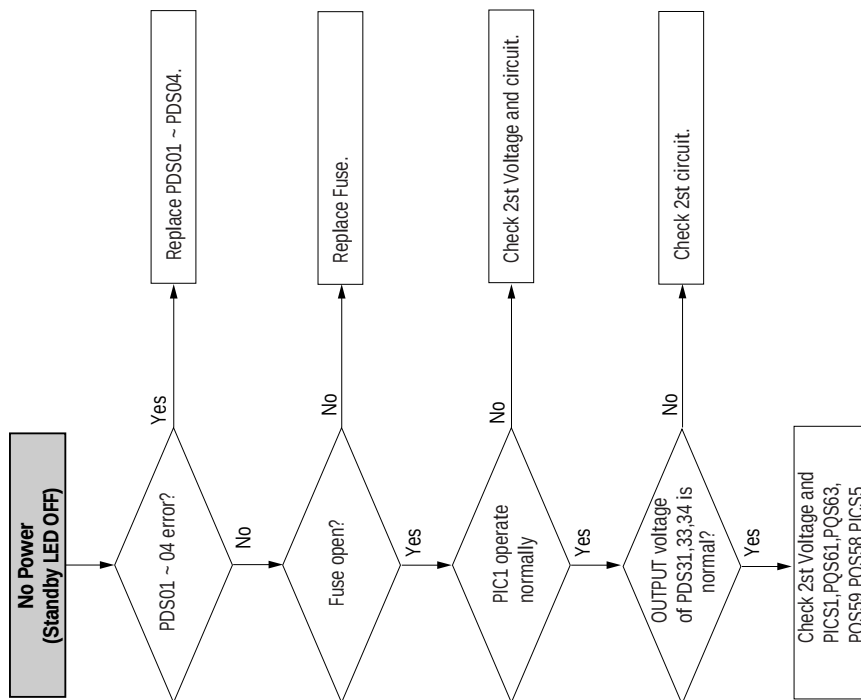




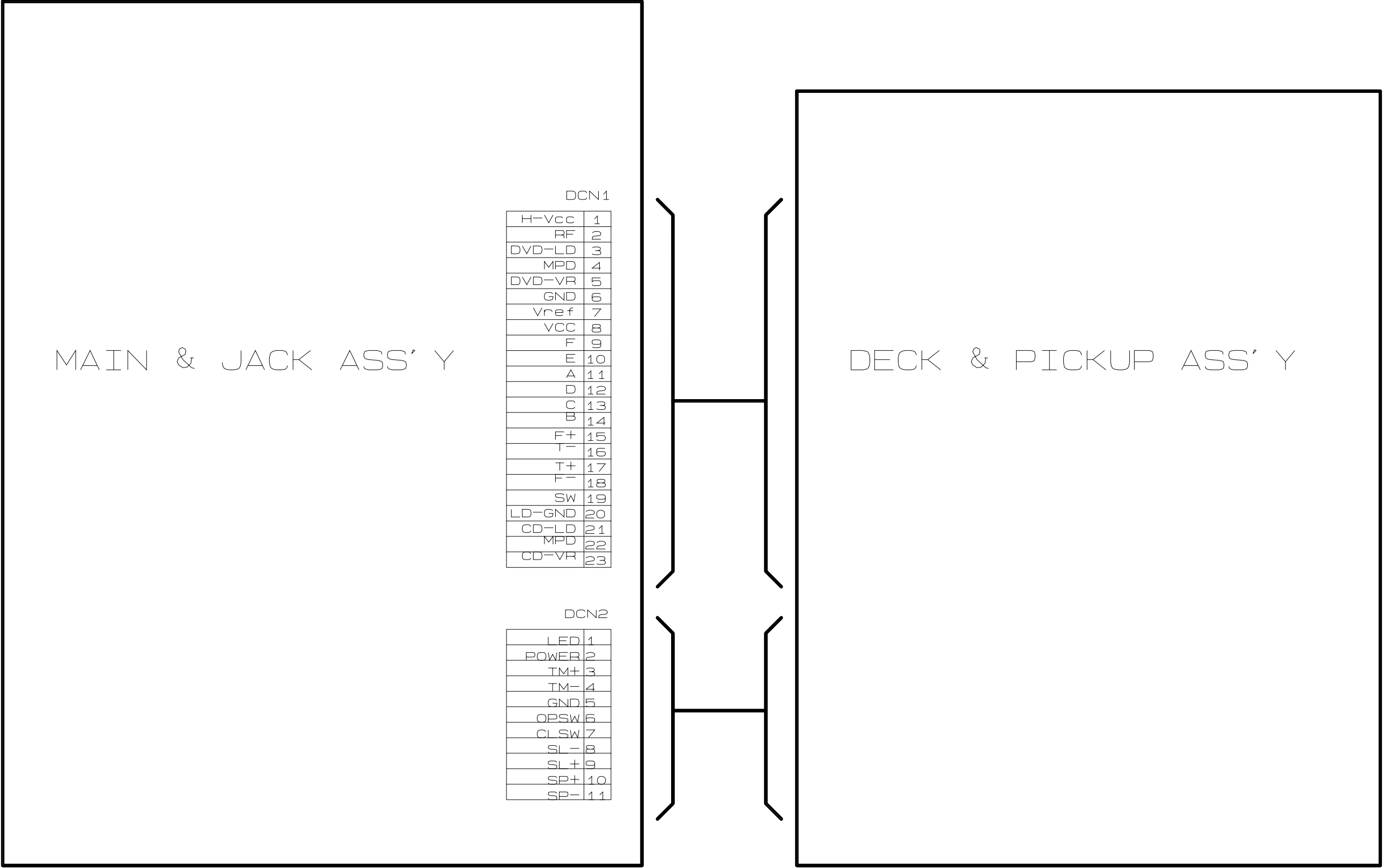








9. Wiring Diagram



13. Circuit Operating Descriptions

13-1 Power

13-1-1 Comparison between Linear Power Supply and S.M.P.S.

13-1-1 (a) Linear

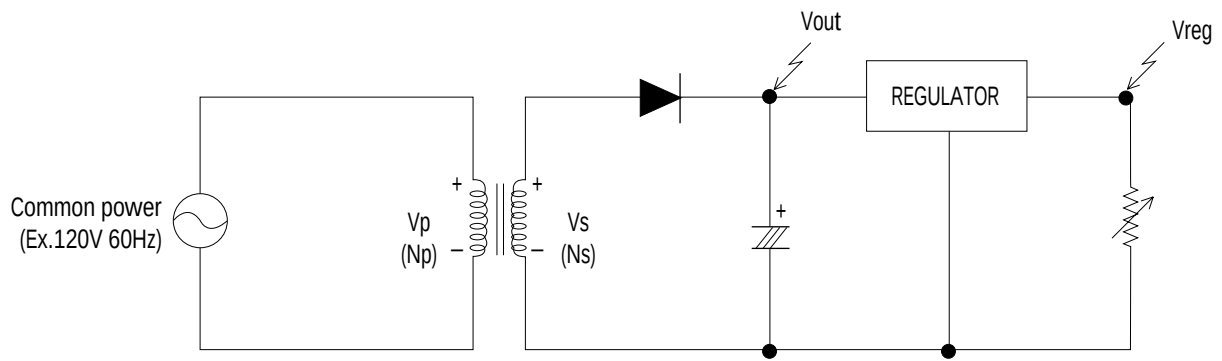


Fig. 13-1 Linear Power Supply

◆ Waveform/Description

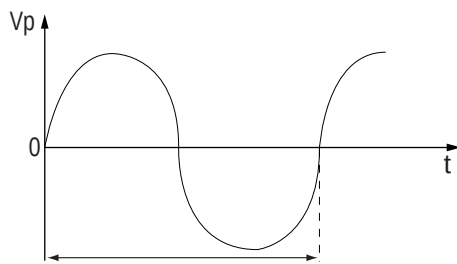


Fig. 13-2

Input : Common power to transformer (V_p).

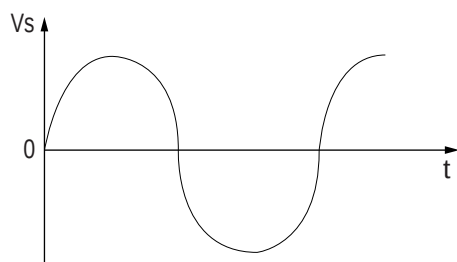


Fig. 13-3

The output V_s of transformer is determined by the ratio of 1st N_p and 2nd N_s .
 $V_s = (N_s / N_p) \times V_p$

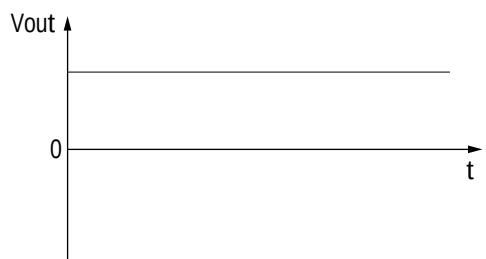


Fig. 13-4

V_{out} is output (DC) by diode and condensor.

◆ Advantages and disadvantages of linear power supply

1) Advantages : Little noise because the output waveform of transformer is sine wave.

2) Disadvantages :

- ❶ Additional margin is required because V_s is changed (depending on power source). (The regulator loss is caused by margin design).
- ❷ Greater core size and condensor capacity are needed, because the transformer works on a single power frequency.

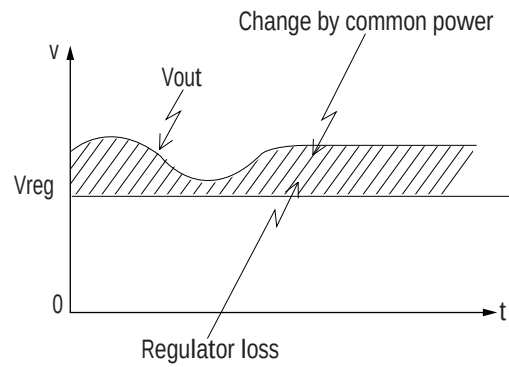


Fig. 13-5

13-1-1 (b) S.M.P.S. (Ringing Choke Converter method)

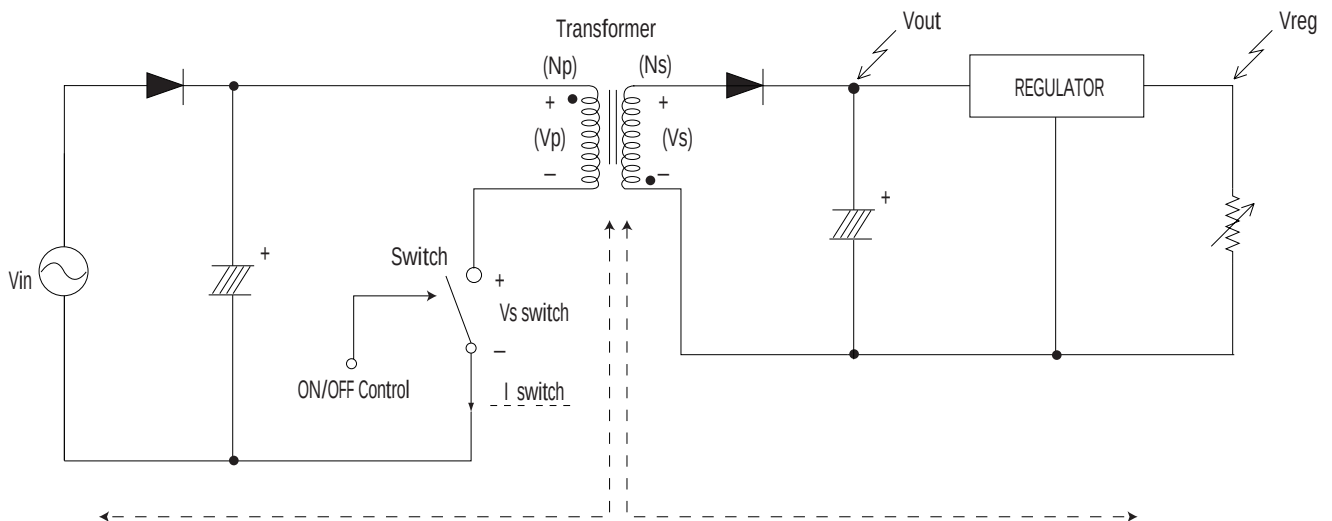


Fig. 13-6

◆ Terms

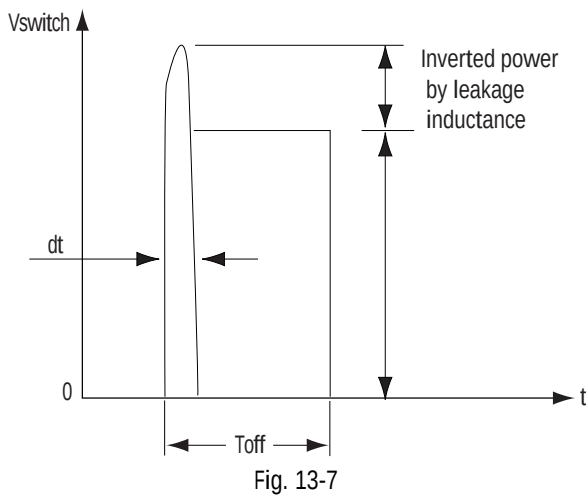
- 1) 1st : Common power input to 1st winding.
- 2) 2nd : Circuit followings output winding of transformer.
- 3) f (Frequency) : Switching frequency (T : Switching cycle)
- 4) Duty : $(T_{on} / T) \times 100$

13-1-2 Circuit description [FLY-Back RCC(Ringing Choke Converter)] Control

13-1-2 (a) AC Power Rectification/Smoothing Terminal

- 1) PDS01, PDS02, PDS03, PDS04 : Convert AC power to DC(Full wave rectification).
- 2) PEF10 : Smooth the voltage converted to DC.
- 3) PLS01, PBS01 : Noise removal at power input/output.
- 4) PVA1 : SMPS protection at power surge input.

13-1-2 (b) SNUBBER Circuit : PDS11, PCD12, PER13, PRS13



- 1) Prevent residual high voltage at the terminals of switch during switch off/Suppress noise.
High inverted power occurs at switch (PQR11) off, because of the 1st winding of transformer :
($V = -L_1 \times di/dt$, L_1 : Leakage Induction)
A very high residual voltage exist on both terminals of PQR11 because dt is a very short.
- 2) SNUBBER circuit protects PQR11 from damage through leakage voltage suppression by RC,
(Charges the leakage voltage to PDS11, PER13, PCD12 and discharges to PRS13).

13-1-2 (c) Driving circuit

When V_{in} supplied, driving current I_g occurs through the PRR11. By this $I_C (=H_{fe} \times I_g)$ occurs through the PQR11 and the V_b is inducted to base winding coil NB of PQR11. By inducted V_b , I_b start flow and the PQR11 is saturated (S/W ON). I_b is constant and I_c increases in Proportion to time. After constant time passed I_b become to short-age and PQR11 is cut OFF (S/W OFF).

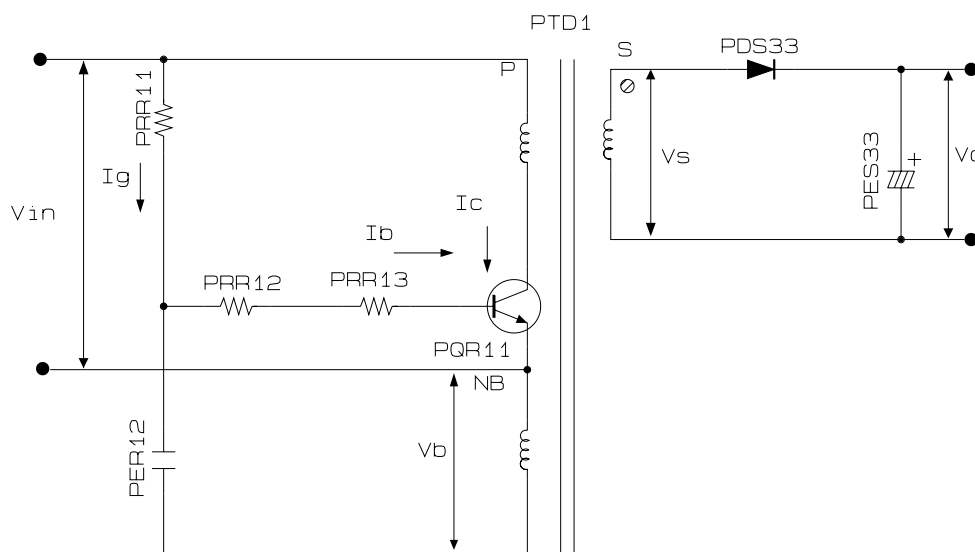


Fig. 13-8 Driving Circuit

13-1-2 (d) Feedback Control Circuit

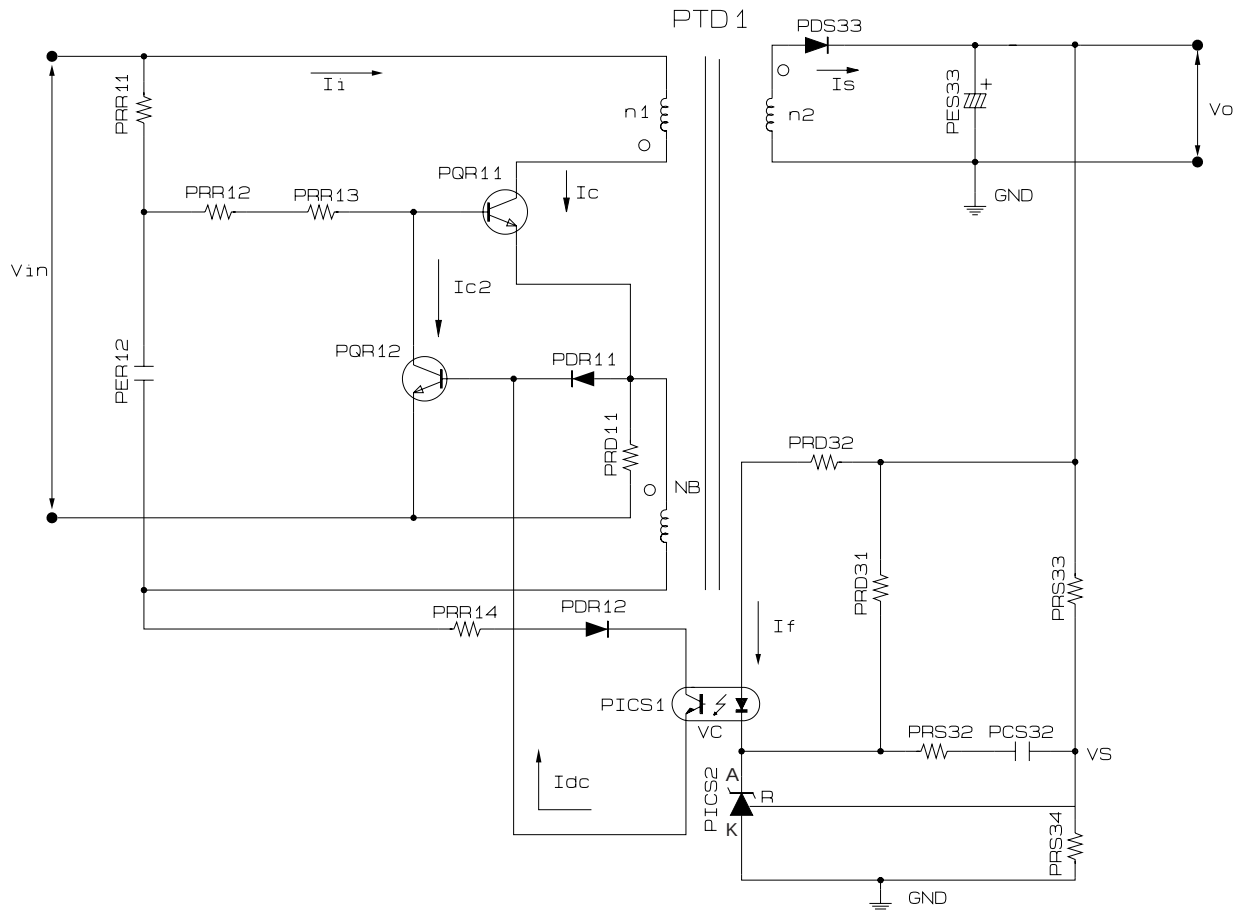


Fig. 13-9

◆ Operation descriptions

- 1) Internal OP-Amp '+' base potential of PICS2 is 2.5V and external '-' input potential is connected with PRS33 and PRS34 to maintain Vout of 5.8V.
- 2) If load of 5.8V terminal increase (or AC input voltage decrease) and Vout decrease over 5.8V,
Then : PICS2 "R" potential decrease over 2.5V --> PICS2 A-K BASE Current decrease --> PICS2 A-K Current decrease --> PICS1 DIODE Current decrease --> PICS1 C-E Current decrease --> PICS1 C-E Voltage increase --> PICS1 F-B Voltage increase --> OUT DUTY increase TRANS Primary Current Increase --> TRANS Primary Power increase --> Vout increase --> Vout maintain 5.8V

- PRD31, PRD32 : Reduce 5.8V overshoot.
- PRS32, PCS32 : Prevent PICS2 oscillation (for phase correction).

13-1-3 Internal Block Diagram

◆ Internal Block Diagram

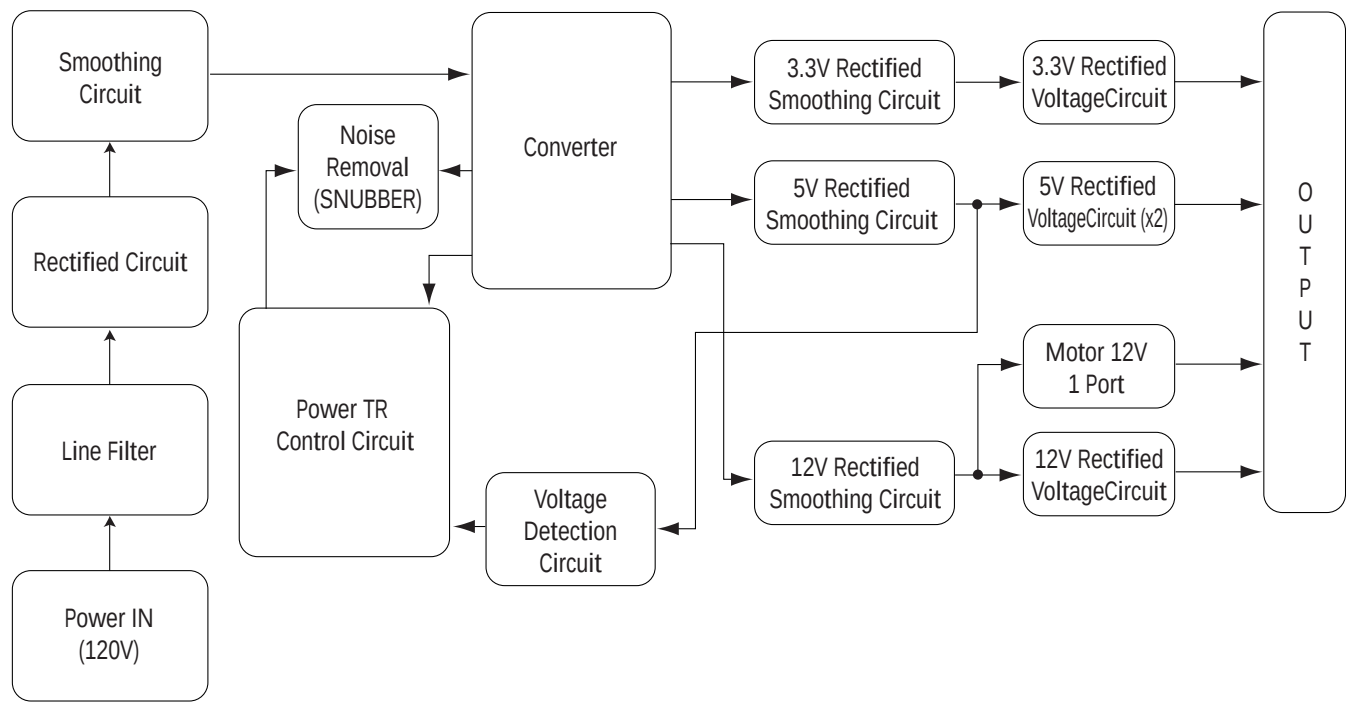


Fig. 13-10

13-2 RF

13-2-1 RF Signal

RF block is integrated in the Vaddis 8.

Fig. 13-11 shows the flow of signal generated by the pick-up.

RF signal detected from pick-up is converted in to RF signal via RF block in Vaddis 8.

A, B, C, D signals detected from pick-up are converted in to FE, TE, PI, CE, DEFECT signals internally.

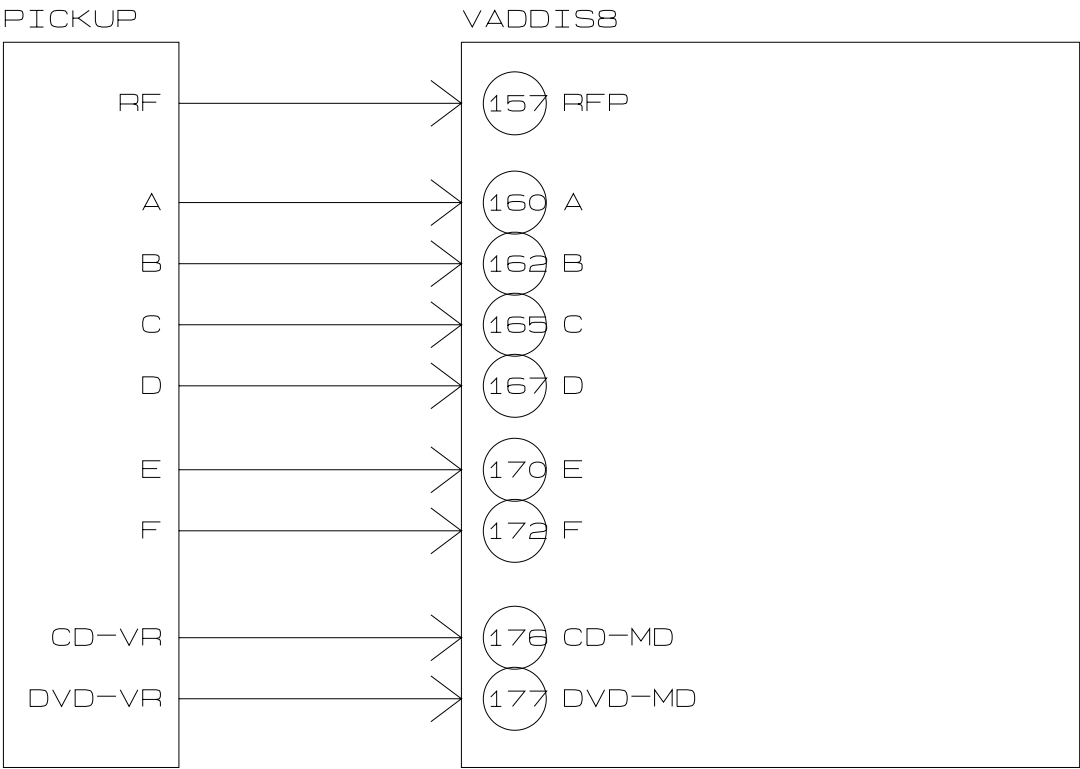


Fig.13-11

13-3 System Control

13-3-1 Outline

The main micom peripheral circuit is composed of 8M Flash Memory (ZIC3) for Microcode and data save, 2Kbit EEPROM (ZIC5) for permanent storage of data needed at power off, 64Mbit SDRAM (ZIC2) for temporary data read and write.

The Micom (ZIC1 ; Vaddis 8) mounted in main board analyzes the key commands of front panel or instructions of remote control and controls the devices on board to execute the corresponding commands after initializing the devices connected with micom on board at power on.

13-3-2 Block Diagram

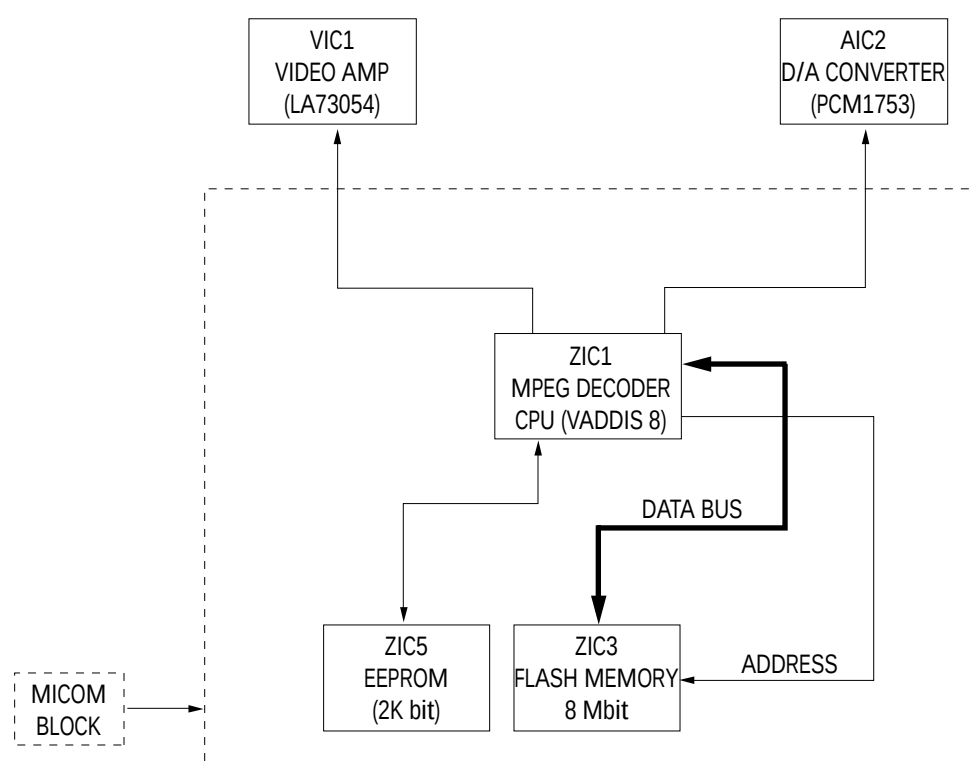


Fig. 13-12

13-4 Servo

13-4-1 Outline

SERVO system of DVD is Composed of Focusing SERVO, Tracking SERVO, SLED Linked SERVO and CLV SERVO (DISC Motor Control SERVO).

- 1) Focusing SERVO : Focuses the optical spot output from object lens onto the disc surface. Maintains a uniform distance between object lens of Pick-up and disc (for surface vibration of disc).
- 2) Tracking SERVO : Make the object lens follow the disc track in use of tracking error signal (created from Pick-up).
- 3) SLED Linked SERVO : When the tracking actuator inclines outwardly as the object lens follows the track during play, the SLED motor moves slightly (and counteracts the incline).
- 4) CLV SERVO (DISC Motor Control SERVO) : Controls the disc motor to maintain a constant linear velocity (necessary for RF signal).

13-4-2 Block Diagram

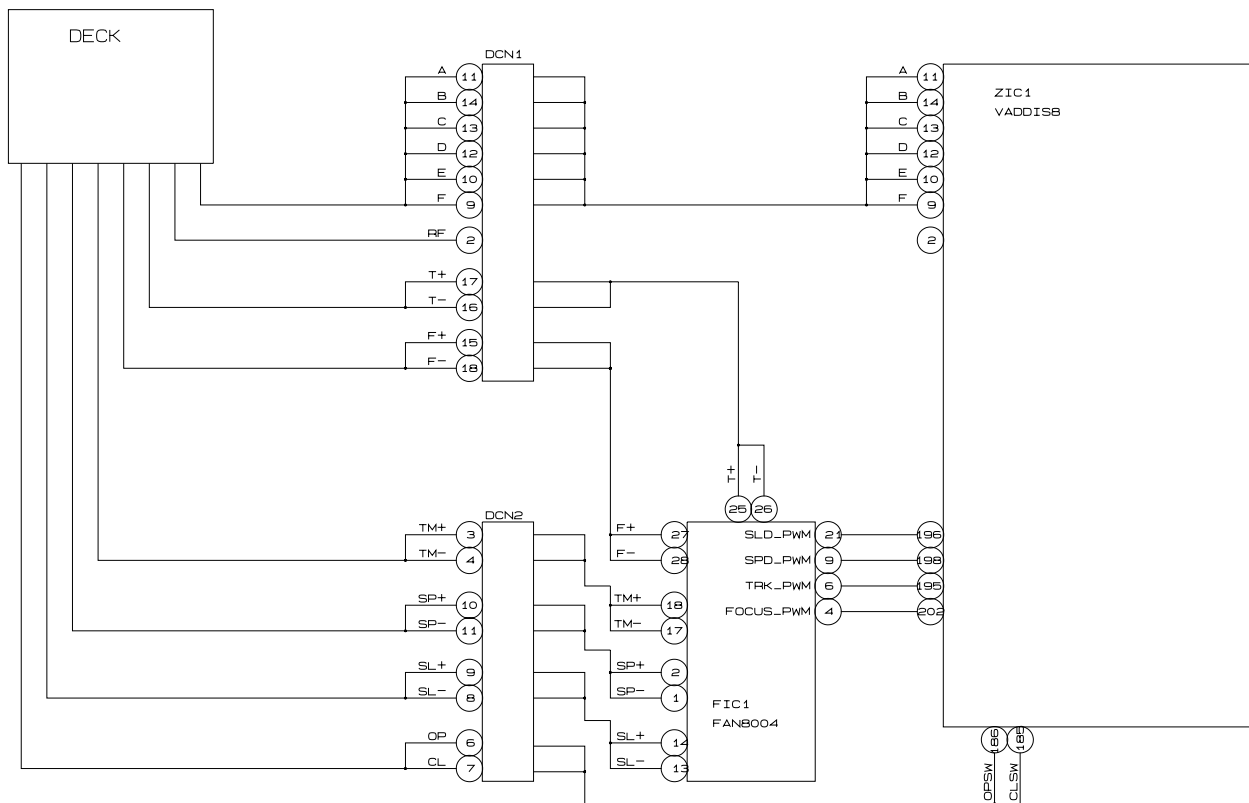


Fig. 13-13

13-4-3 Operation

1) FOCUSING SERVO

(1) FOCUS INPUT

The focus loop is changed from open loop to closed loop, and the triangular waveform moves the object lens up and down (at pin 202 of ZIC1 during Focus SERVO ON.) At that time, S curve is generated in ZIC1.

Summing signal of PD A, B, C, D, is generated, and zero cross(1.65V) point occurs when S curve is focused and ABCD signal exceeds a preset, constant value. The focus loop is changed to closed loop, and the object lens follows the disc movement, maintaining a constant distance from the disc. (these operations are same in CD and DVD).

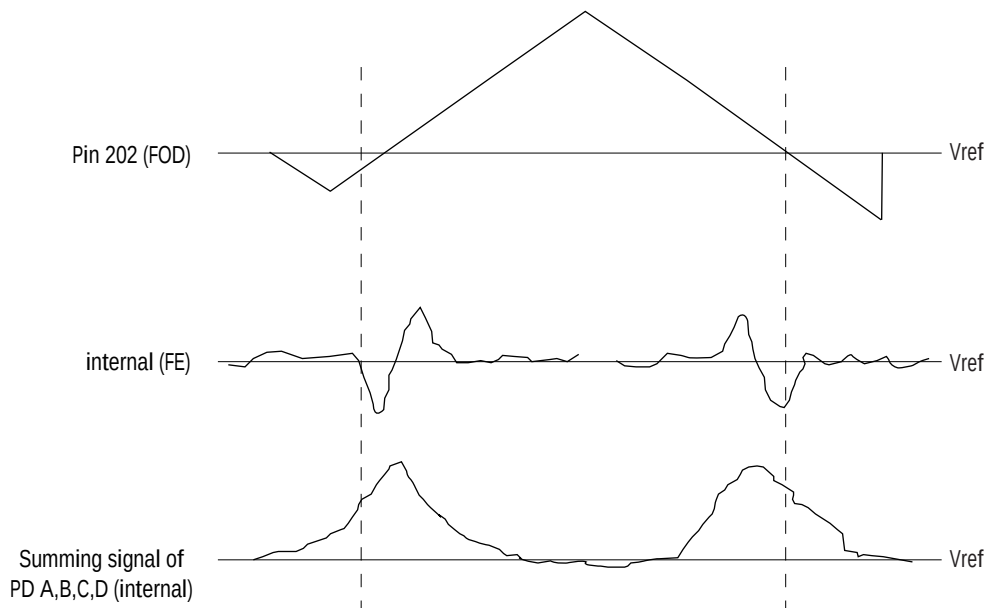


Fig. 13-14

(2) PLAY

When focus loop closes the loop during focus servo on, both pin 27 and pin 28 of FIC1 are controlled by ZIC1.

2) TRACKING SERVO

(1) NORMAL PLAY MODE

❶ For DVD

Composite : The signal output from PD A, B, C, D of Pick-up, the tracking error signal is generated in RF block of ZIC1 by using the phase difference of A+C and B+D. Then, applied to the tracking actuator through FIC1.

Meanwhile, DVD repeats the track jump from 1 to 4 in inner direction at normal play (because data- read speed from disc is faster than data output speed on screen).

❷ For CD, VCD

Receive the signal output through E, F of Pick-up. The tracking error signal is similar to DVD.

(2) SEARCH Mode :

Search mode : Fine seek, (Moving the tracking actuator slightly little below 255 track) and coarse search, moving much in use of sled motor. The coarse search will be described in sled linked servo and now, the fine seek is explained shortly.

If the object lens is located near target, cut off the tracking loop and give the control signal as many as desired count to move the tracking actuator via ZIC1 pin 195 terminal (TRACK_PWM).

3) SLED LINKED SERVO

- Normal play mode

Move SLED motor slightly by means of PWM signal in ZIC1 pin 196, as the tracking actuator moves along with track during play. Control to move the entire Pick-up as the tracking actuator moves.

- Coarse search mode

In case of long-distance search (such as chapter search), ZIC1 uses open-loop jump method.

Then, read ID and compute the existing track count after input of next track.

If the existing track count is within fine seek range, tracking begins using fine seek.

4) CLV SERVO (DISC MOTOR CONTROL SERVO)

Detect SYNC signal from P/U in ZIC1, and output PWM signal to ZIC1 pin 198 for constant linear velocity.

13-5 DVD Data Processor

13-5-1 Outline

The Vaddis 8 (highly-integrated device) includes the full front-end disc controller, back-end decoder functions as well as the host control CPU.

The principal off-chip components include the disc drive with its optical pickup, tray, sled and spindle drivers and motors, 16Mbits of flash EPROM, 64Mbits of SDRAM, and the audio Digital-to-Analog converters some applications.

In case of general disc refresh, the memory is almost filled up periodically. It is because Write rate to memory after disc playback and signal process is faster than Read of A/V decoder. When the memory is filled, this status is reported by interrupt to main micom, which controls the servo to kick back the pick-up to the previous track after memorizing the last data read from disc until now. It takes some times to jump to the previous track and return to the original(jump location) again. The memory will have an empty space because A/V decoder reads out data of memory.

When the memory has an empty space, where data can be processed and written and the pick-up correctly gets to the original location(before kick back location) again, it reads data again avoids the interrupt of data read previously. The basic operation repeats to perform as described above.

13-5-2 Block Diagram

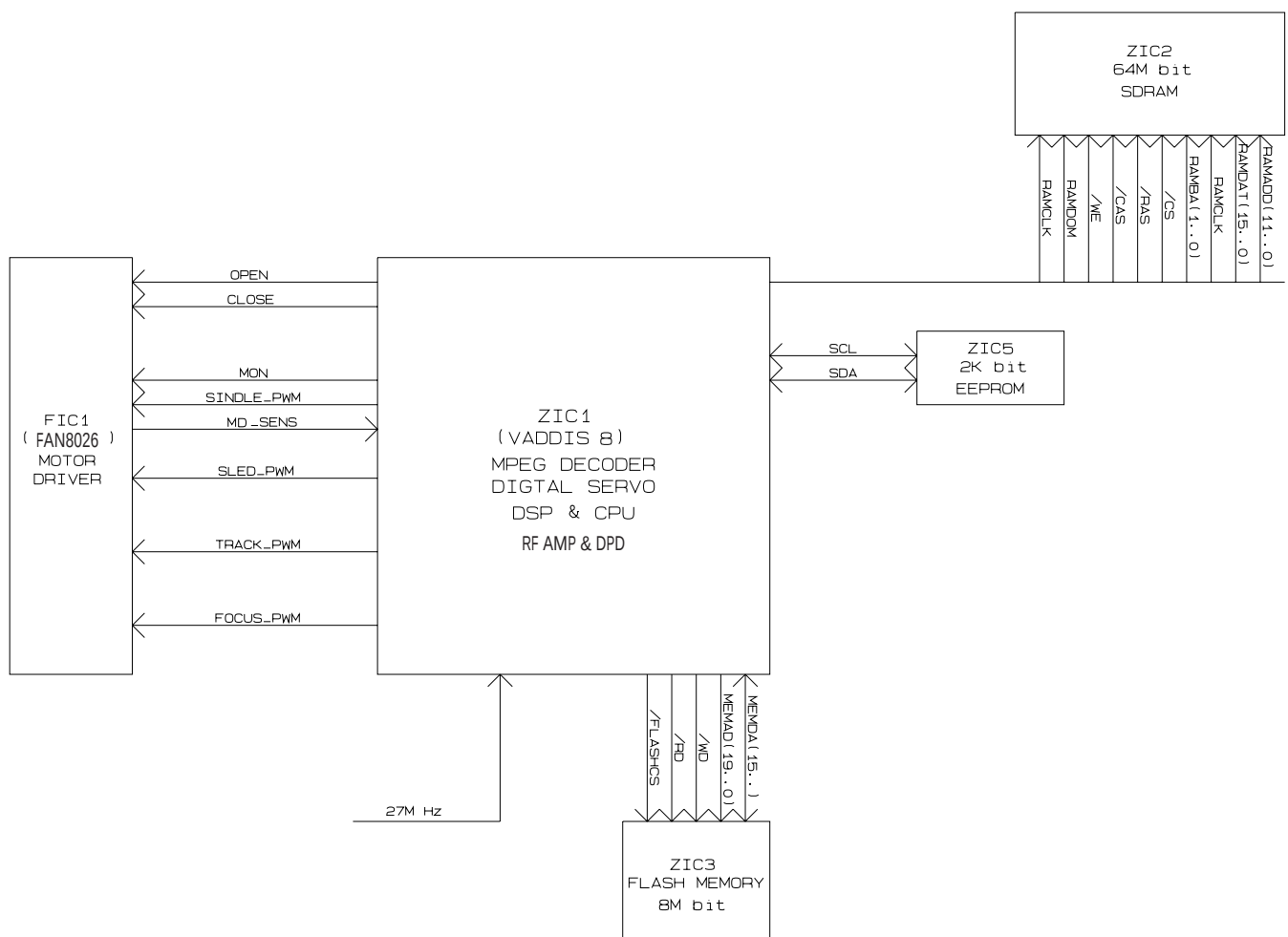


Fig. 13-15

13-6 Video

13-6-1 Outline

ZIC1(A/V decoder with video encoder) diverges from the 27MHz crystal, then generates VSYNC and HSYNC. ZIC1(A/V decoder with video encoder) does RGB encoding, copy guard processing and D/A conversion of 8bit video data internally inputted from video decoder block by ZIC1.

Video signal converted into analog signal is outputted via amplifier of analog part.

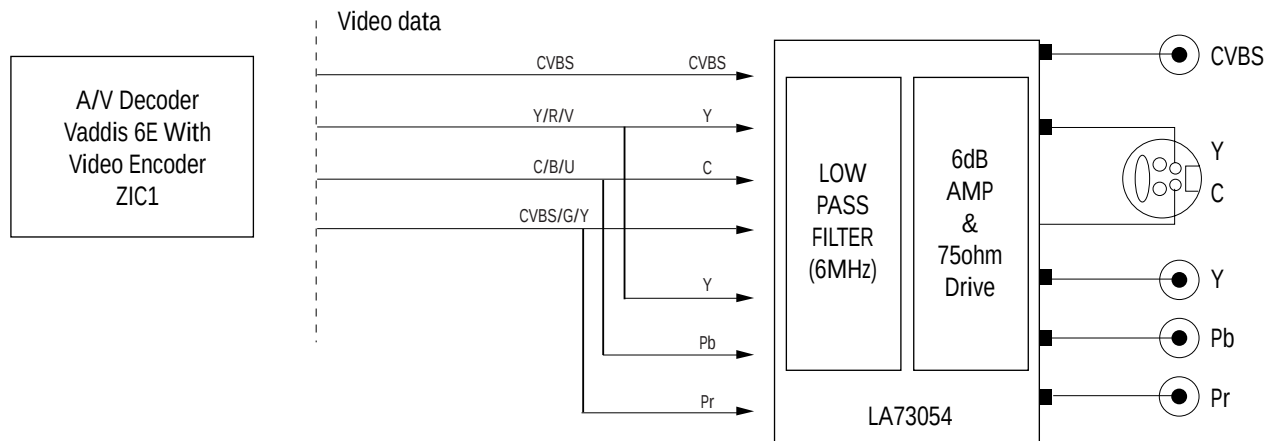


Fig. 13-16 Video Output Block Diagram

13-6-2 NTSC/PAL Digital Encoder (VADDIS 8 ; Built in video encode)

ZIC1 inputted from pin 161 with 27MHz generates HSYNC and VSYNC which are based on video signal. ZIC1 is synchronous signals with decoded video signal and control the output timing of 8bit video signal of ITU-R601 format.

The separate signal is encoded to NTSC/PAL by control of ZIC1.

The above signals, which are CVBS (Composite Video Burst Synchronized)/G (GREEN)/Y [PIN148], Y (S_VIDEO)/R (RED)/Pr [PIN151] and C (S_VIDEO)/B (BLUE)/Pb [PIN153], are selectively outputted CVBS +S_VIDEO, RGB/Component by software. In Course of encoding, 8bit data can extend to 10bit or more. To convert the extended data to quantization noise as possible, ZIC1 adopts 10bit D/A converter.

ZIC1 perform video en-coding as well as copy protection.

13-6-3 Amplifier (VIC1: LA73054)

VIC1 is 6dB amplifier.

Based on CVBS signal, the final output level must be 2Vpp without 75ohm terminal resistance.

Because the level of video encoder output is only 1.1Vpp, the level is adjusted with the special amplifier.

When mute of pin 5 is high active, if the pin is floating and connect to power, the output signal is never outputted.

CVBS, Y, C, R, Pb(B), Pr(R) outputted from video encoder are inputted to VIC1 (Pin 2, 8, 6, 16, 14).

The signal to which gain is adjusted by amplifier is outputted from jack via 75ohm Resistance (VR30~VR35).

13-7 Audio

13-7-1 Outline

A/V decoder (ZIC1 ; Vaddis 8) is supply to DATA 0 for 2-channel mixed audio output.

The audio data transmitted from A/V decoder (ZIC1 ; Vaddis 8) are converted into analog signal via audio D/A converter and outputted via post filter and amplifier.

CD and VCD are outputted with only 2 channels audio data and transmit them to Data 0.

If DVD of multichannel Source disc, if is downmixed and transmit them to Data0.

If you want to listen to the multichannel output, you have to connect digital output with AC-3 amp or MPEG/DTS amp.

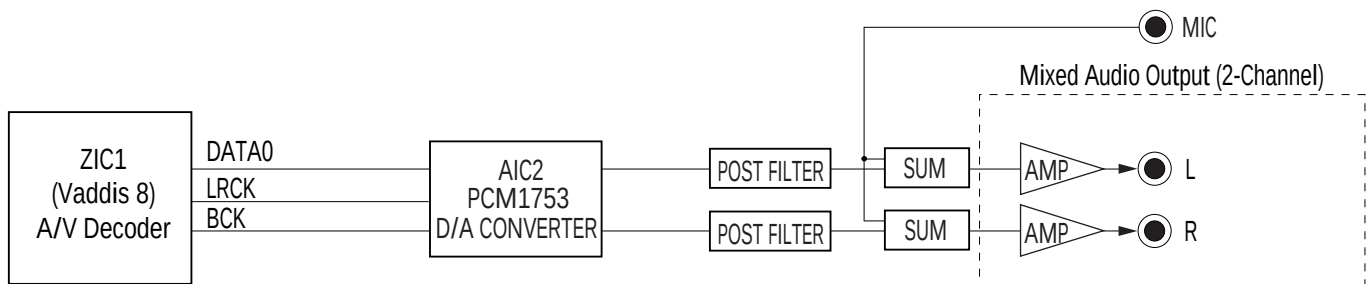


Fig. 13-17 Audio Output Block Diagram

13-7-2 DVD Audio Output

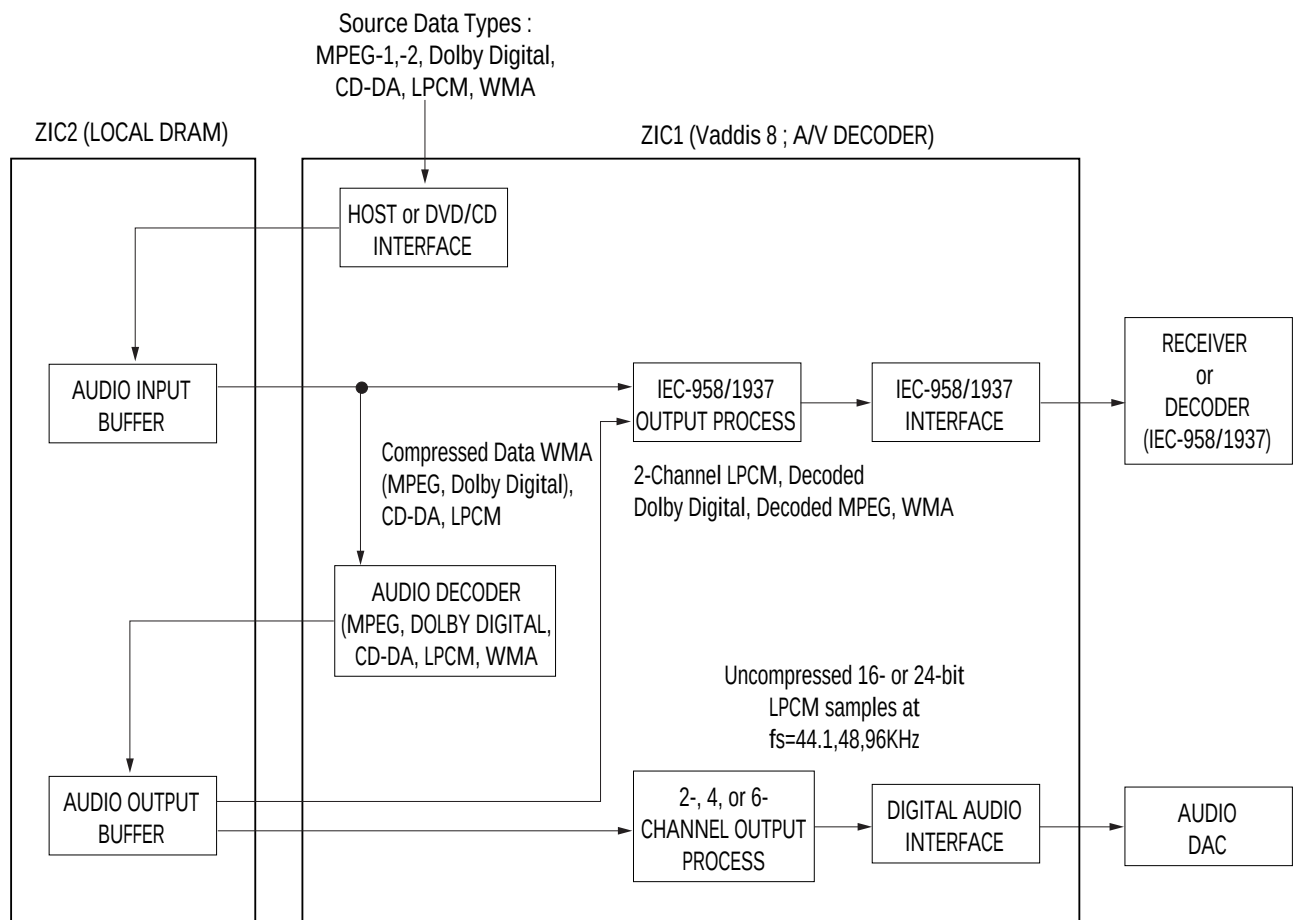


Fig. 13-18 Audio Decoder and Output Interface Datapath

1) Compressed Data

The audio data inputted to ZIC1 (Vaddis 8) A/V decoder is divided into compressed data and uncompressed data.

It is compressed data that is compressed with multi-channel audio data such as Dolby digital, MPEG, DTS, WMA, etc. The compressed data inputted to ZIC1 (Vaddis 8) is converted into the uncompressed data of 2, 4, and 6 channels through ZIC1 built-in audio decoder and is outputted to Data 0 through digital audio interface. The compressed data is transmitted to external AC-3 amplifier or MPEG/DTS amplifier as IEC-958/1937 transmission data format compressed by ZIC1 built-in IEC-958 output process.

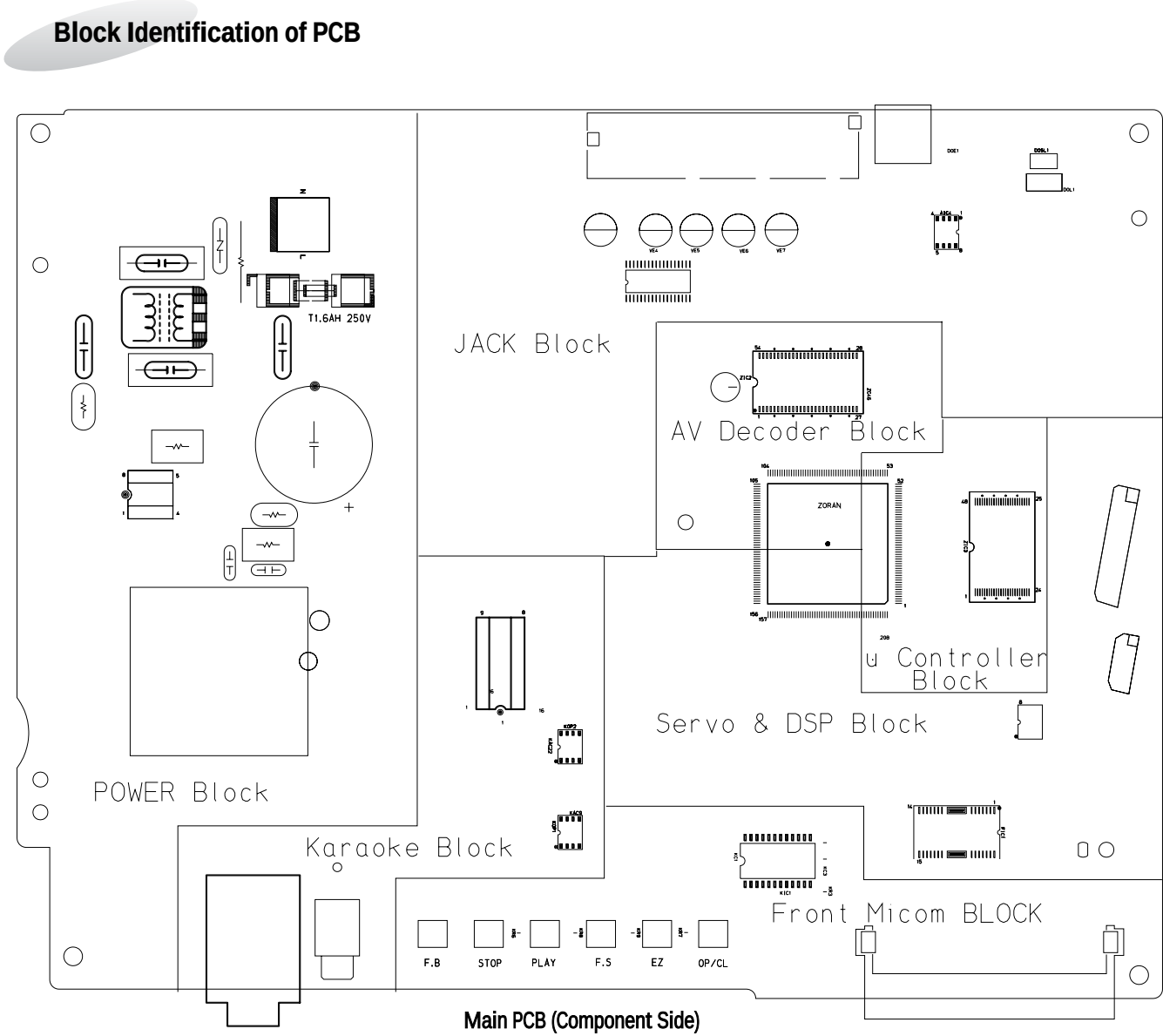
2) Uncompressed Data

The uncompressed data is that data isn't compressed, so it is called CD-DA, LPCM data.

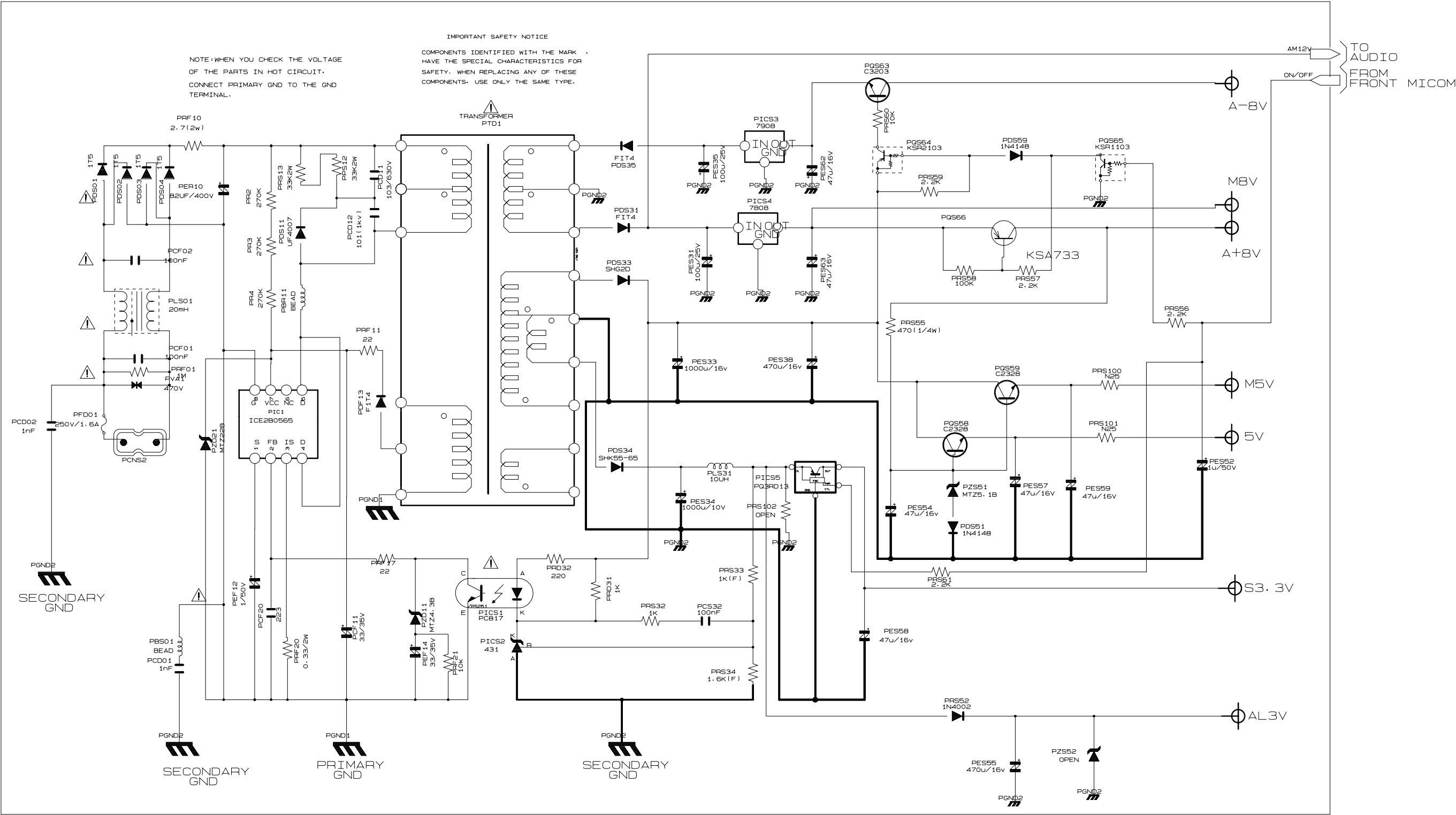
The 2 channels data is converted through audio decoder 2-channel data and Data 0 and are outputted in digital audio interface. Via IEC-958 output process, they are transmitted to digital amplifier or AC-3/MPEG/DTS amplifier built in the external digital input source with IEC-958/1937 transmission format.

11. Schematic Diagrams

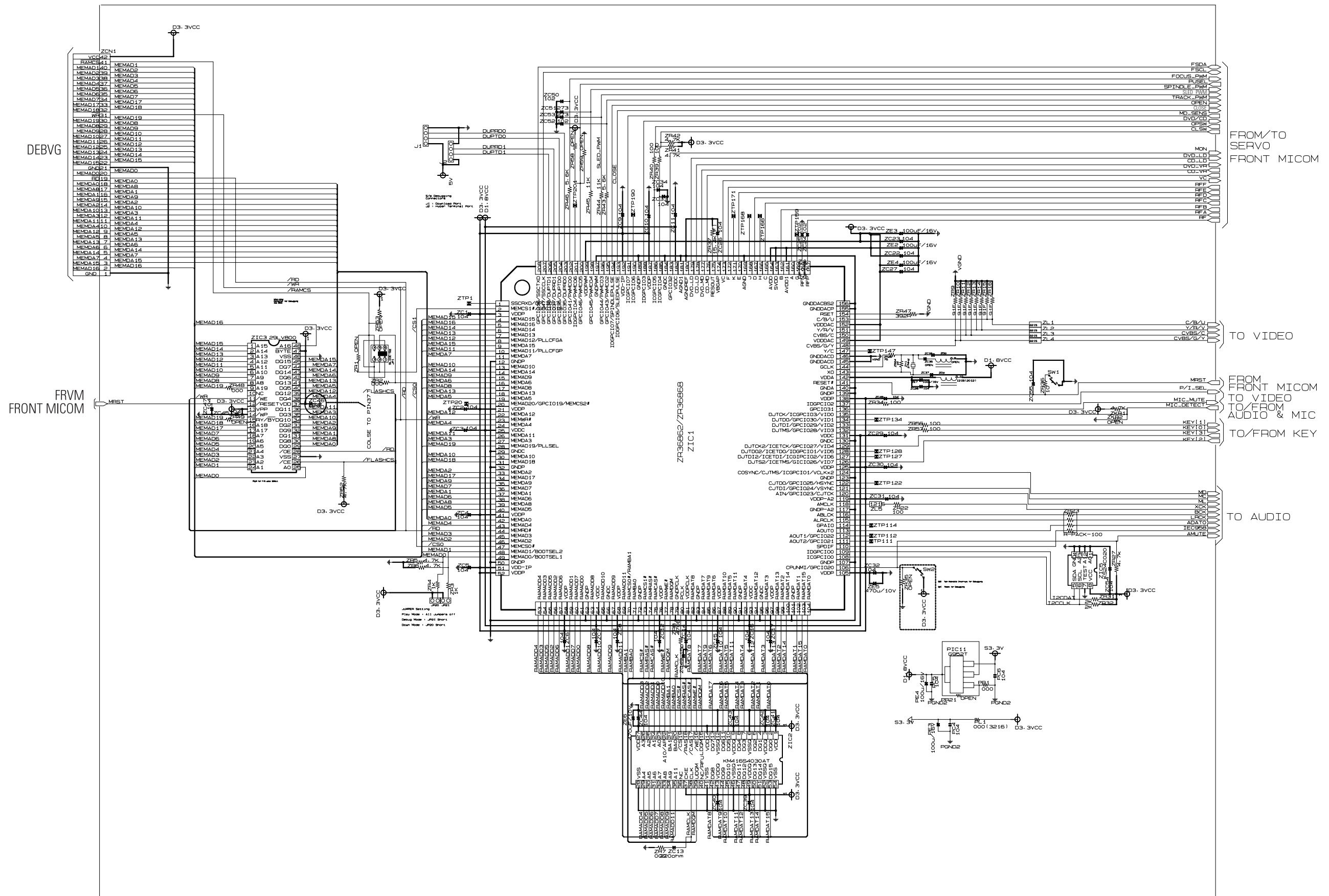
11-1 Power	11-2
11-2 AV-Decoder	11-3
11-3 Servo	11-4
11-4 Mic	11-5
11-5 Video	11-6
11-6 Audio	11-7
11-7 Front-Micom	11-8



11-1 Power

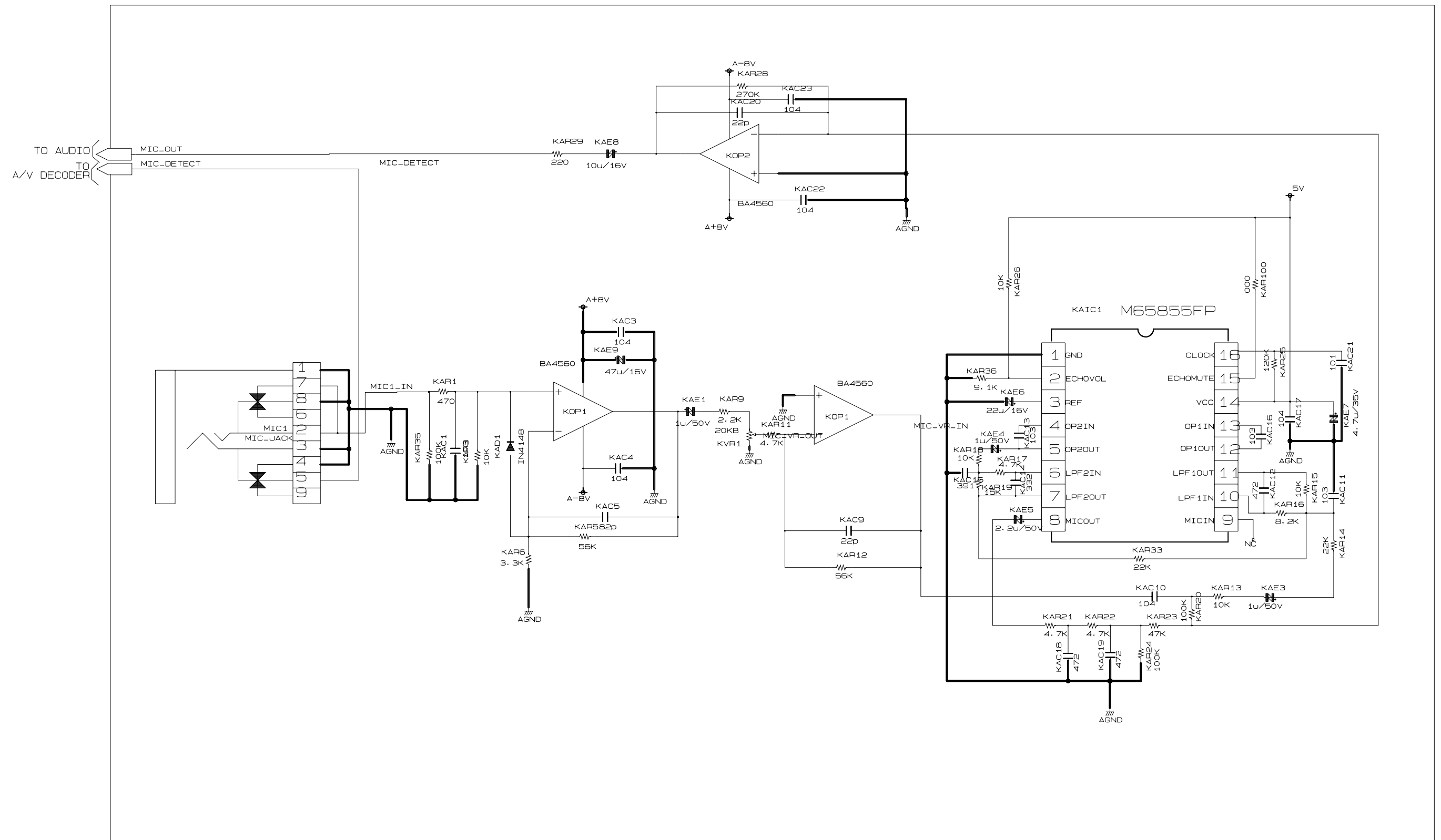


11-2 AV-Decoder

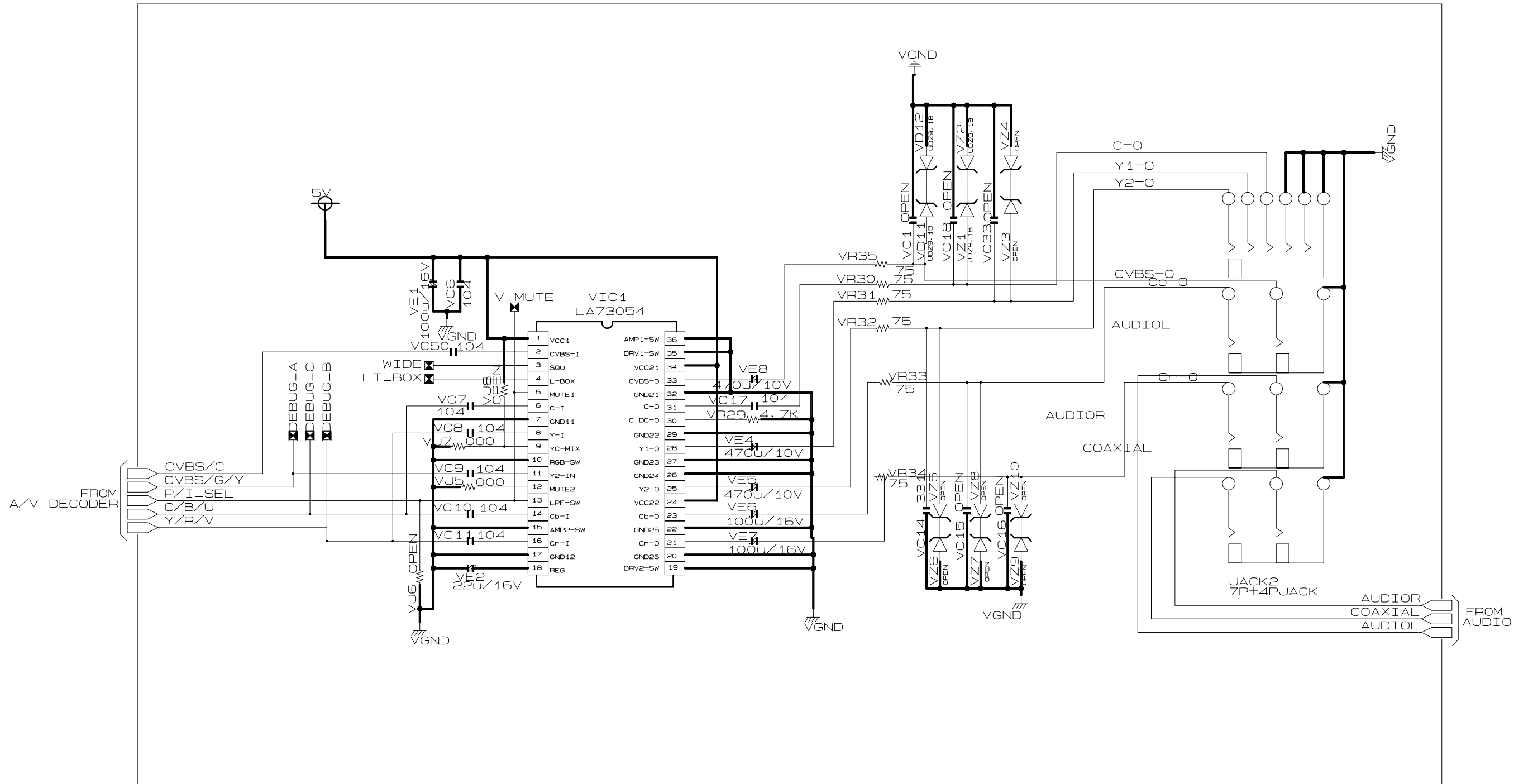




11-4 Mic



11-5 Video



11-6 Audio

