

Service Manual

 **PIONEER**
The Art of Entertainment



ORDER NO.
ARP2311

LASERDISC PLAYER

LD-V4300D

- This manual is applicable to the LD-V4300D/PGZ type.

CONTENTS

1. SAFETY INFORMATION	2	7. TEST MODE	95
2. LABEL CHECK	3	8. ADJUSTMENT	102
3. P.C.BOARDS LOCATION	4	9. BLOCK DIAGRAM	123
4. EXPLODED VIEWS, PACKING AND PARTS LIST	6	10. IC INFORMATION	129
5. SCHEMATIC AND P.C.BOARDS CONNECTION DIAGRAM	23	11. PANEL FACILITIES	131
6. PCB's PARTS LIST	83	12. INTERFACE CONNECTOR TERMINALS	134
		13. SPECIFICATIONS	135

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.

PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada

PIONEER ELECTRONIC (EUROPE) N.V. Keelberglaan 1, 9120 Beveren, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 176-184 Boundary Road, Brayside, Victoria 3195, Australia TEL: (03) 580-9911

© **PIONEER ELECTRONIC CORPORATION 1991**

DP JULY 1991 Printed in Japan

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

(FOR EUROPEAN MODEL ONLY)

VAROITUS!

LAITE SISÄLTÄÄ LASERDIODIN, JOKA LAHETTAÄ NÄKYMÄTÖNTÄ, SILMILLE VAARALLISTA INFRAPUNASÄTEILYÄ. LAITTEEN SISÄLLÄ ON LASERDIODIN LAHEISYDESSÄ KUVAAN 1. MUKAINEN VAROITUSMERKKI.



LASER
Kuva 1
Lasersäteilyn
varoitusmerkki

WARNING!

DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.



LASER
Picture 1
Warning sign for
laser radiation

ADVERSEL:

USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UDGÅR UDSÆTTELSE FOR STRÅLING.

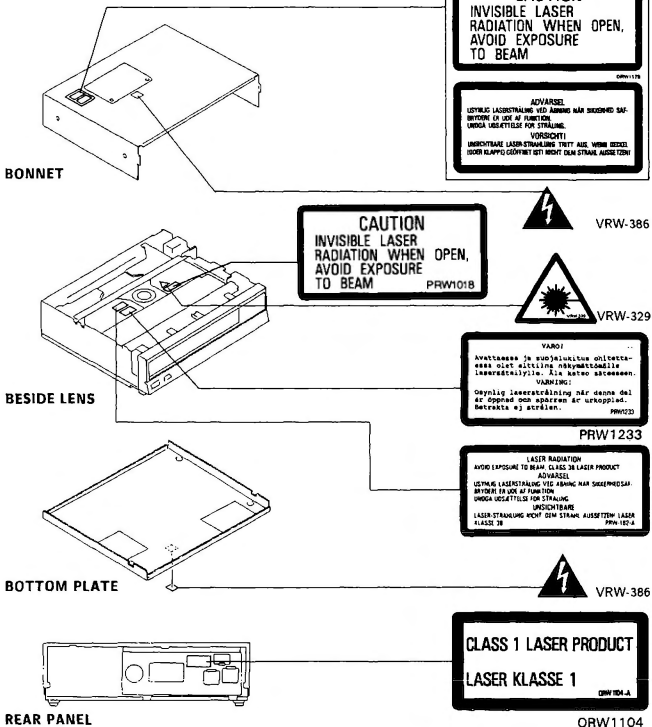
IMPORTANT

THIS PIONEER APPARATUS CONTAINS LASER OF HIGHER CLASS THAN 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

VIKTIGT

APPARATEN INNEHÅLLER LASER AV HÖGRE KLASS AN 1. INGREPP I APPARATEN BÖR GÖRAS AV SPECIELLT UTBILDAD PERSONAL.

2. LABEL CHECK



Additional Laser Caution

1. Laser Interlock Mechanism

The design prevents laser diode oscillation when Slide Switch S2, for detect of Disc Tray being put into the player, is not activated (IN SW signal : High level).

This Slide Switch S2 is activated by Rack Gear (R) (refer to page 8, No.3) when Disc Tray is put into the player (IN SW signal : Low level).

Therefore, laser diode oscillation will not continue without

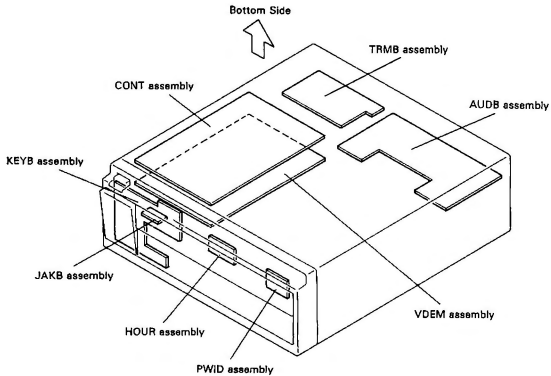
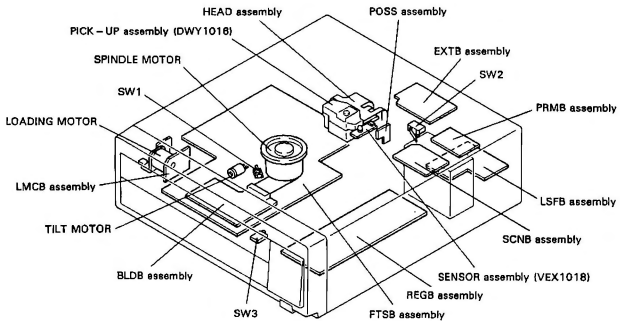
Disc Tray being placed in the player.

However, with Disc Tray out, the interlock will no longer function if Slide Switch S2 is manually activated.

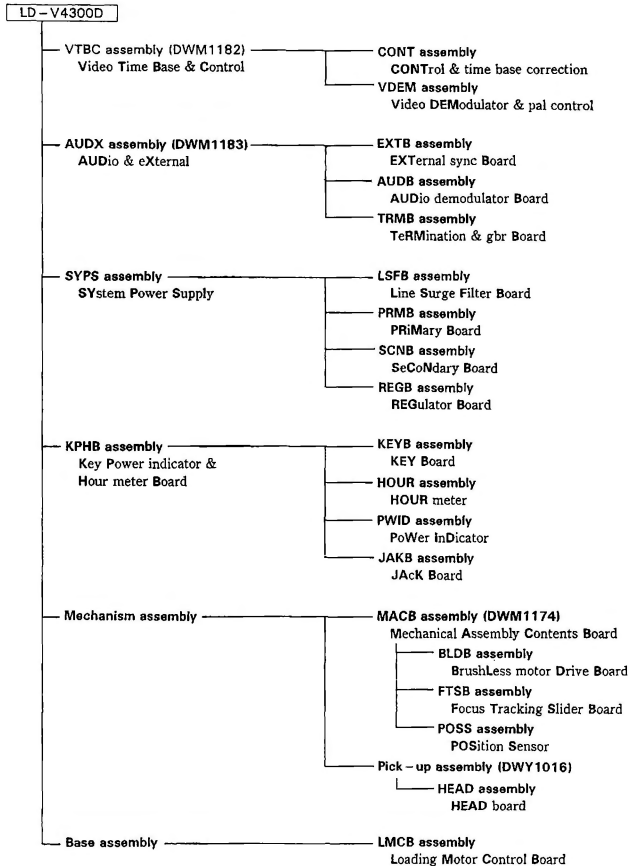
- When the cover is opened and the reinforced bridge (refer to page 11, No.101) is removed, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 or higher laser beam.

3. P.C.BOARDS LOCATION

3.1 P.C.BOARDS LOCATION



3.2 ASSEMBLIES LIST



4. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

- The parts with an encircled number are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "☼" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

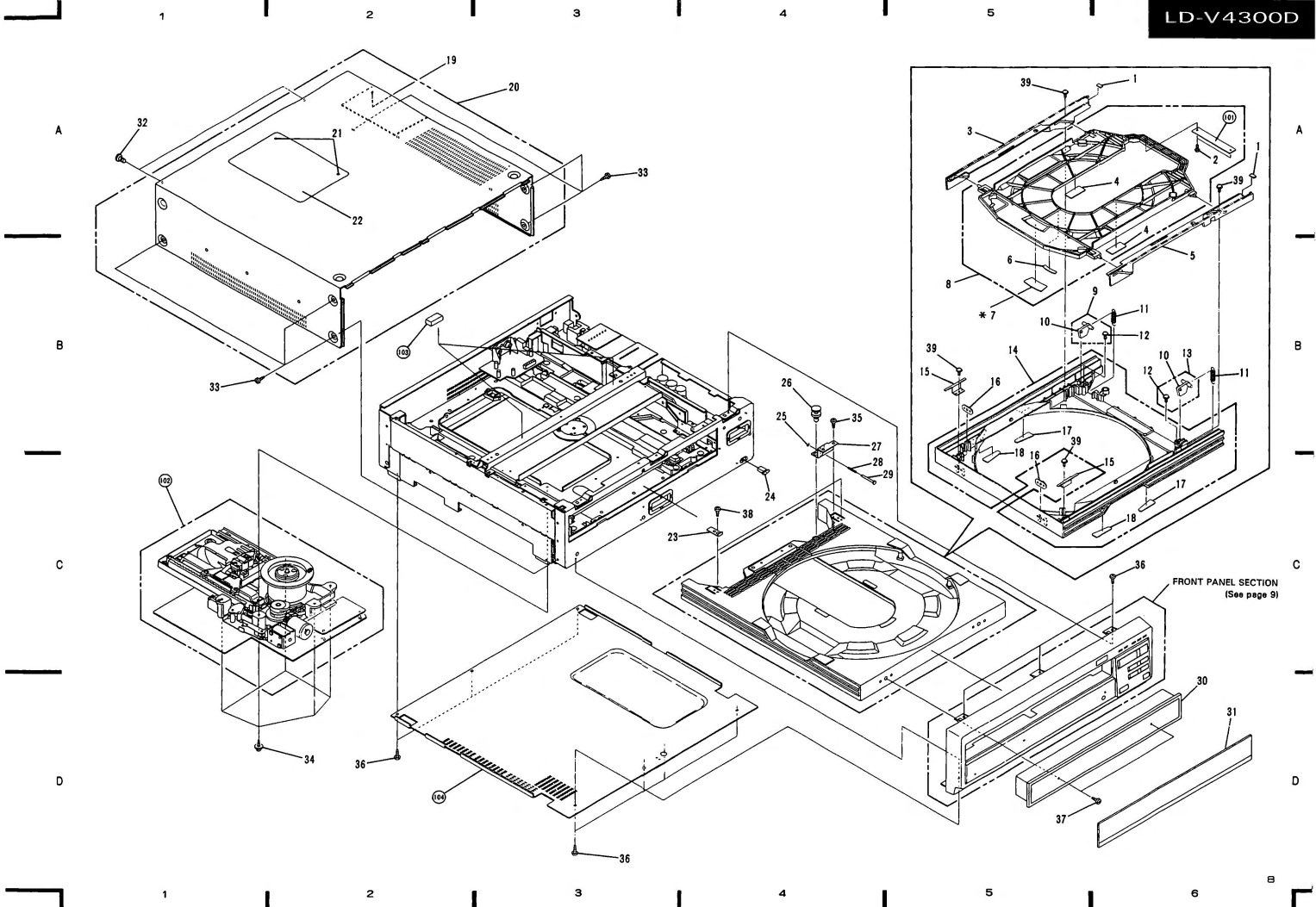
4.1 EXTERIOR

Parts list of Exterior

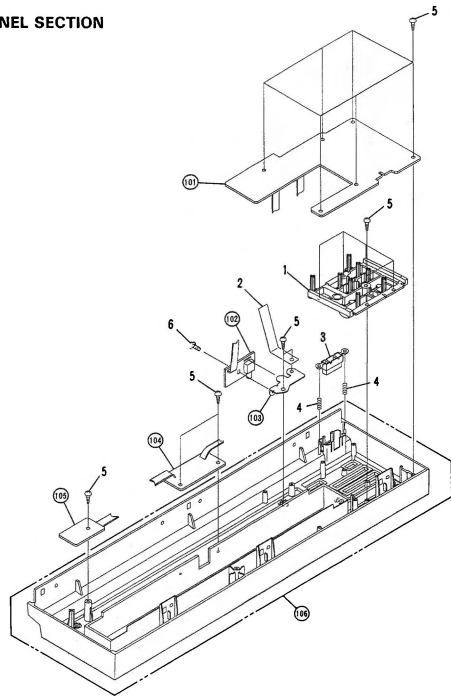
Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	RACK DUMP RUBBER	VEB1041	101	REINFORCED PLATE	DNH1160	
	2	SCREW	BFZ30P060FMC	102	MECHANISM ASSEMBLY	DWT1045	
	3	RACK GEAR (R)	VNL1061	103	DUMPER RUBBER	VEC1004	
	4	DISC PAD B	DED1031	104	BOTTOM PLATE	DNE1133	
	5	RACK GEAR (L)	VNL1060				
	6	DISC PAD A	DED1030				
*	7	DISC PAD C	DED1032				
	8	CONTAINER ASSEMBLY	DXA1118				
	9	STOPPER (R) ASSEMBLY	DXB1243				
	10	STOPPER	VNL1062				
	11	STOPPER SPRING	VBH1021				
	12	SCREW	PPZ30P060FMC				
	13	STOPPER (L) ASSEMBLY	DXB1242				
	14	CARRY ASSEMBLY	DXA1117				
	15	RACK HOLDER	VNE1074				
	16	NUT	VEN-005				
	17	DISC PAD D	DED1033				
	18	DISC PAD E	DED1034				
	19	GUARD	DEC1391				
	20	BONNET ASSEMBLY-S	DXX1641				
	21	SCREW	AMZ30P060FNI				
	22	BONNET COVER ASSEMBLY	DXA1306				
	23	STOP PLATE	DNH1162				
	24	FSW CAP	DNK1325				
	25	E RING	YE20FUC				
	26	PLASTIC RIVET	VEC1059				
	27	SW METAL ASSEMBLY	DXB1100				
	28	SPRING	DBH1039				
	29	SW SHAFT	DLA1155				
	30	LOADING PANEL	DNK2058				
	31	DECORATION PANEL	DNK2005				
	32	SCREW	BET30P080FNI				
	33	SCREW	BBT40P080FNI				
	34	SCREW	PMB30P080FMC				
	35	SCREW	BFZ30P080FMC				
	36	SCREW	BBZ30P080FMC				
	37	SCREW	PMA40P100FMC				
	38	SCREW	BFZ30P080FCU				
	39	SCREW	IPZ30P080FCU				

Note : *

There is only one DISC PAD C (No.7) in the illustration (location B-5). However, it has to put at five places of the container.



4.2 FRONT PANEL SECTION



Parts list of Front panel section

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	CONTROL BUTTON	DNK2004	101	KEYB ASSEMBLY	DWG1209	
	2	GND PLATE	DNH1588	102	JAKB ASSEMBLY	DWX1203	
	3	POWER BUTTON	DNK2059	103	MINI JACK HOLDER	VNE-576	
	4	POWER BUTTON SPRING	DBH1043	104	HOUR ASSEMBLY	DWX1201	
	5	SCREW	BPZ30P080FMC	105	PWID ASSEMBLY	DWX1202	
	6	SCREW	BBZ30P080FCU	106	FRONT PANEL ASSEMBLY	DXA1284	

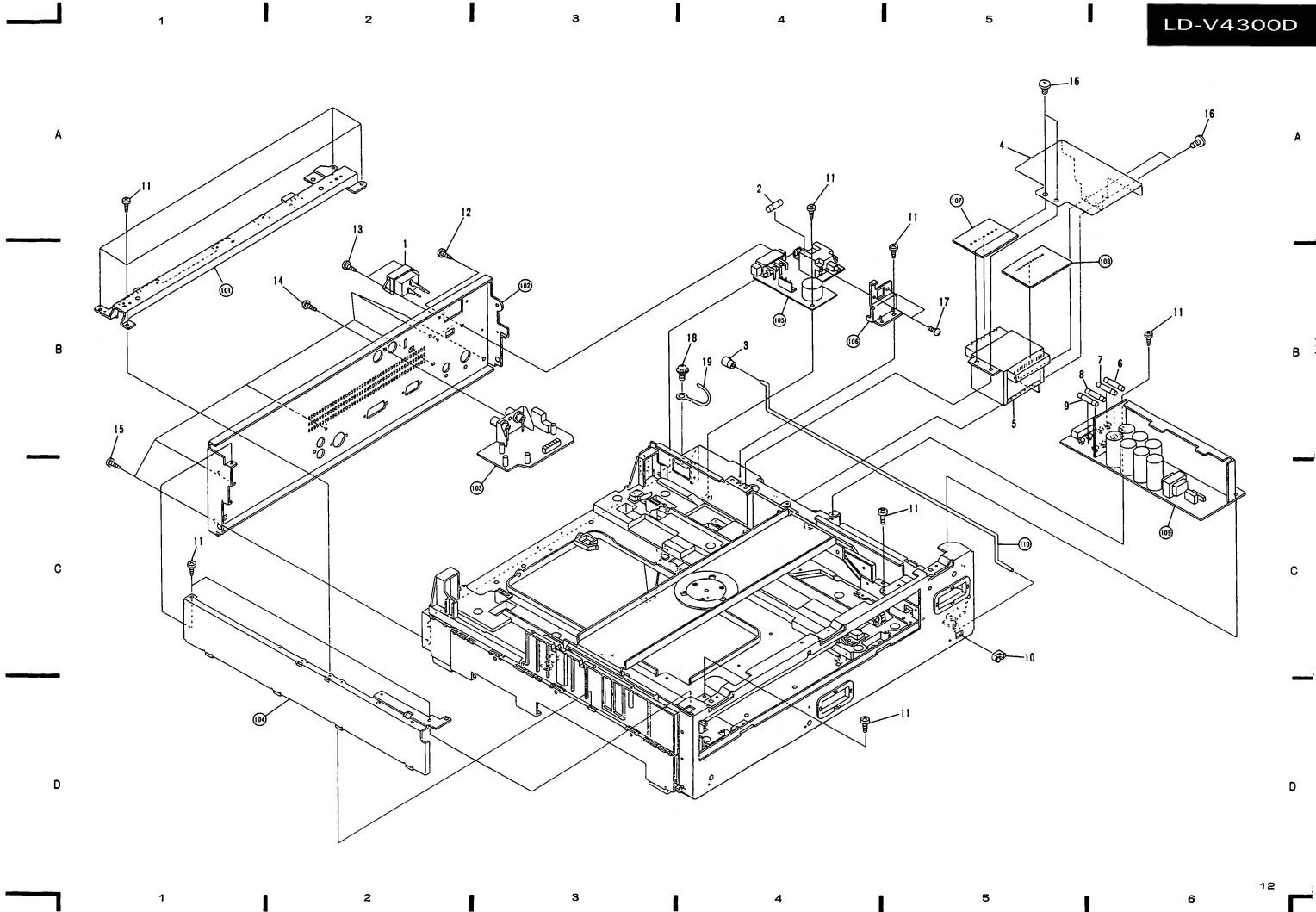
4.3 INTERIOR 1

Parts list of Interior 1

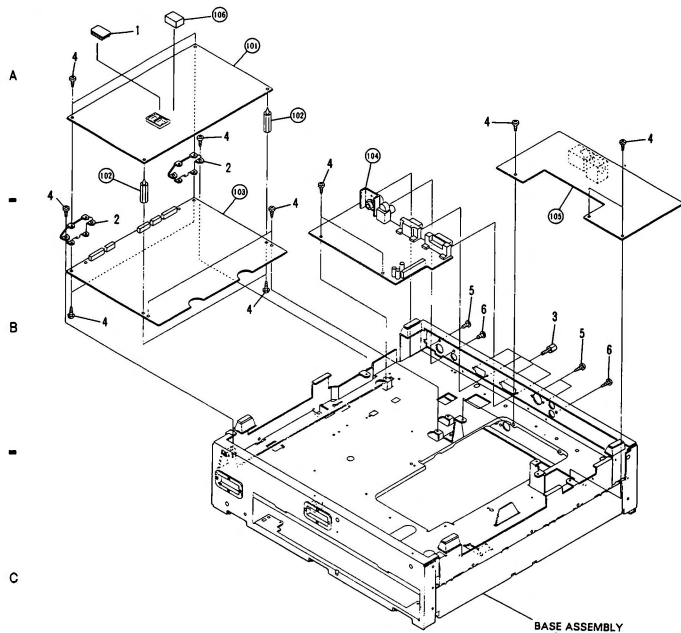
A	Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	△	1	3P INLET ASSEMBLY	DNK1040	101	REINFORCED BRIDGE	DNF1323	
	△	2	FUSE (T1.6A, FU1)	REK-102	102	REAR PANEL	DNK1182	
		3	JOINT CAP	DEB1057	103	EXTB ASSEMBLY	DWG1208	
		4	PROTECTOR	DEC1404	104	REINFORCED PLATE	DNF1134	
	△	5	POWER TRANSFORMER (T1)	DTT1055	105	LSFB ASSEMBLY	DWR1087	
	△	6	FUSE (T2A, FU2)	REK-103	106	SWITCH HOLDER	DNF1138	
	△	7	FUSE (T2A, FU3)	REK-103	107	PRMB ASSEMBLY	DWR1088	
	△	8	FUSE (T3.15A, FU4)	REK-105	108	SCNB ASSEMBLY	DWR1089	
	△	9	FUSE (T3.15A, FU5)	REK-105	109	REGB ASSEMBLY	DWR1090	
		10	PSW BUSH	DNK1326	110	PSW JOINT	DNH1527	
		11	SCREW	BBZ30P080FMC				
		12	SCREW	BPZ26P080FZK				
		13	SCREW	BBZ30P080FZK				
		14	SCREW	PMZ30P080FZK				
		15	SCREW	BBT30P080FZK				
	B							
		16	SCREW	BBT40P080FZK				
		17	SCREW	PMB30P060FMC				
		18	SCREW	PMB40P080FMC				
		19	BINDER	PEC-107				

C

D



4.4 INTERIOR 2



Parts list of Interior 2

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	PROGRAMED EPROM (IC9)	DYW1134	101	CONT ASSEMBLY	DWG1207	
	2	PCB STAY (L)	DND1092	102	PCB POST (29)	DEC1390	
	3	CONNECTING BOLT	DBA1038	103	VDEM ASSEMBLY	DWV1070	
	4	SCREW	BBZ30P080FMC	104	TRMB ASSEMBLY	DWV1072	
	5	SCREW	PMZ30P080FZK	105	AUDB ASSEMBLY	DWV1071	
	6	SCREW	BBT30P080FZK	106	CUSHION	DEC1414	

4.5 BASE ASSEMBLY

Parts list of Base assembly

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	SCREW	BPZ26P060FCU	101	CLAMPER HOLDER ASSEMBLY	DXB1184	
	2	CLAMPER HEAD	VNL1130	102	LMCB ASSEMBLY	DWG1093	
	3	SCREW	CMZ20P050FMC	103	GUARD SHEET	DEC1375	
	4	DISC CLAMPER ASSEMBLY-S	VXX1157	104	SWITCH HOLDER (A)	VNE1078	
	5	GEAR (A)	VNL1020	105	SYNCHRONIZED PLATE (R)	DNH1165	
	6	GEAR (A) SHAFT	VLL1037	106	SYNCHRONIZED PLATE (L)	DNH1164	
	7	GEAR (B)	VNL1064	107	SWITCH HOLDER (B)	VNE1079	
	8	WASHER	WT320P060D050	108	BASE DUMP RUBBER	VEB1042	
	9	GEAR (C)	VNL1010	109	PLASTIC BASE (L)	DNK1465	
	10	MOTOR BASE ASSEMBLY	VXA1088	110	PLASTIC BASE (R)	DNK1466	
	11	RUBBER BUSHING	VEB1025	111	INNER PLATE (R)	DNF1325	
	12	SCREW	PMB26P040FMC	112	INNER PLATE (F)	DNF1324	
	13	PULLY (L) ASSEMBLY	VXA-477	113	PCB SPACER (10)	DEC1388	
	14	SYNCHRONIZED BELT L	VEB-125	114	PROTECTOR	DNK1340	
	15	LOADING MOTOR ASSEMBLY-S	VXX1084	115	FRONT PLATE	DNA1088	
	16	MOTOR PULLY	VNL1051	116	WIRE CLIP D	VEC-130	
	17	PLASTIC RIVET	DEC1405	117	LEG	DNK1354	
	18	CLAMP CAM (L)	VNL1068	118	PCB SPACER (30)	DEC1389	
	19	LOCK LEVER (L)	VNL1070	119	WIRE CLIP	DEC1410	
	20	SLIDE SWITCH (TABLE/IN, S2)	VSK-010	120	LOCKING WIRE SADDLE	DEC1305	
	21	CLAMP CAM (R)	VNL1069	121	CHASSIS PLATE	DNA1089	
	22	LOCK LEVER (R)	VNL1071				
	23	SCREW	VBA1002				
	24	SYNCHRONIZED GEAR ASSEMBLY	DXB1109				
	25	SLIDE SWITCH (TABLE/OUT, S3)	VSK-012				
	26	ROLLER PLATE (L) ASSEMBLY	DXB1106				
	27	ROLLER PLATE (R) ASSEMBLY	VXA1162				
	28	ROD HOLDER	DNK1341				
	29	SCREW	BBZ30P080FMC				
	30	LEG PAD	DEB1066				
	31	SCREW	VBA1003				
	32	PCB STAY (S)	DND1093				
	33	SCREW	BPZ30P080FMC				
	34	SCREW	ABZ30P080FMC				

Service Manual

PIONEER
The Art of Entertainment

ORDER NO.
RRV1435

LASERDISC PLAYER

LD-V4300D

- Refer to the service manual ARP2311 for LD-V4300D /PGZ.

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.
	LD-V4300D		
PGZ8	○	AC120/220-240V	With the voltage selector

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊗" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

LD-V4300D/PGZ8 and LD-V4300D/PGZ have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		LD-V4300D/PGZ	LD-V4300D/PGZ8	
NSP	CE mark label	Not used	RRW1222	

Note : The Δ marks will be added in the parts list and schematic diagram for the following :

- F201 of the CONT assy
- F3 of the KEYB assy
- F601 and F602 of the VDEM assy
- F301 of the JAKB assy

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE, INC. P.O. Box 1780, Long Beach, CA 90801-1780, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087, Koetberglaan 1, 8120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 501 Orchard Road, #10-00 Lane Crawford Place, Singapore 0923
© PIONEER ELECTRONIC CORPORATION 1995

T-12M NGV, 1995 Printed in Japan

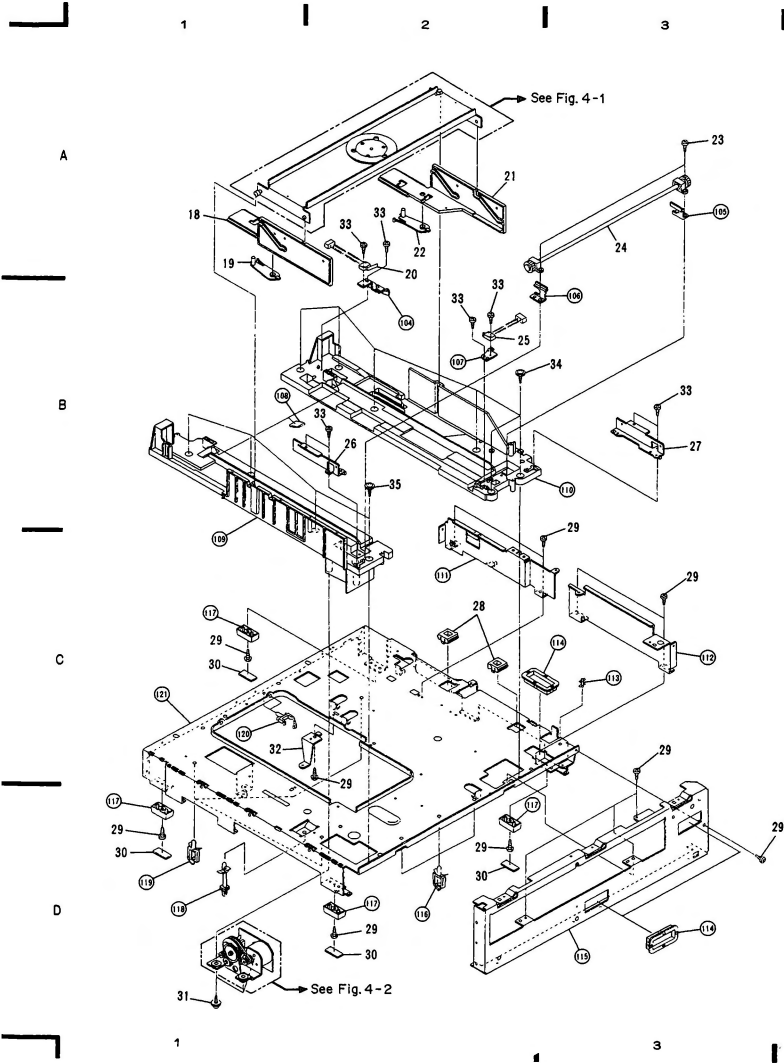


Fig. 4-1

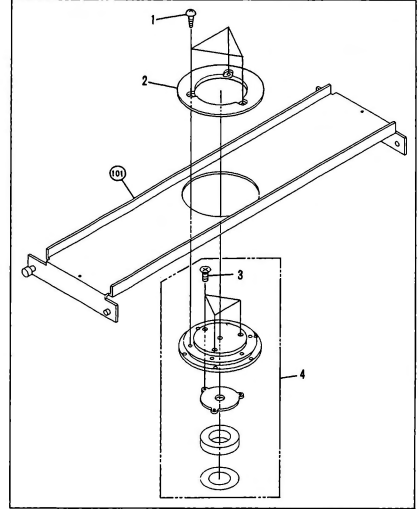
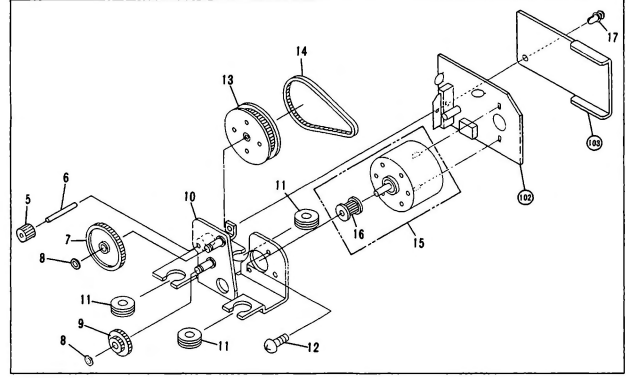
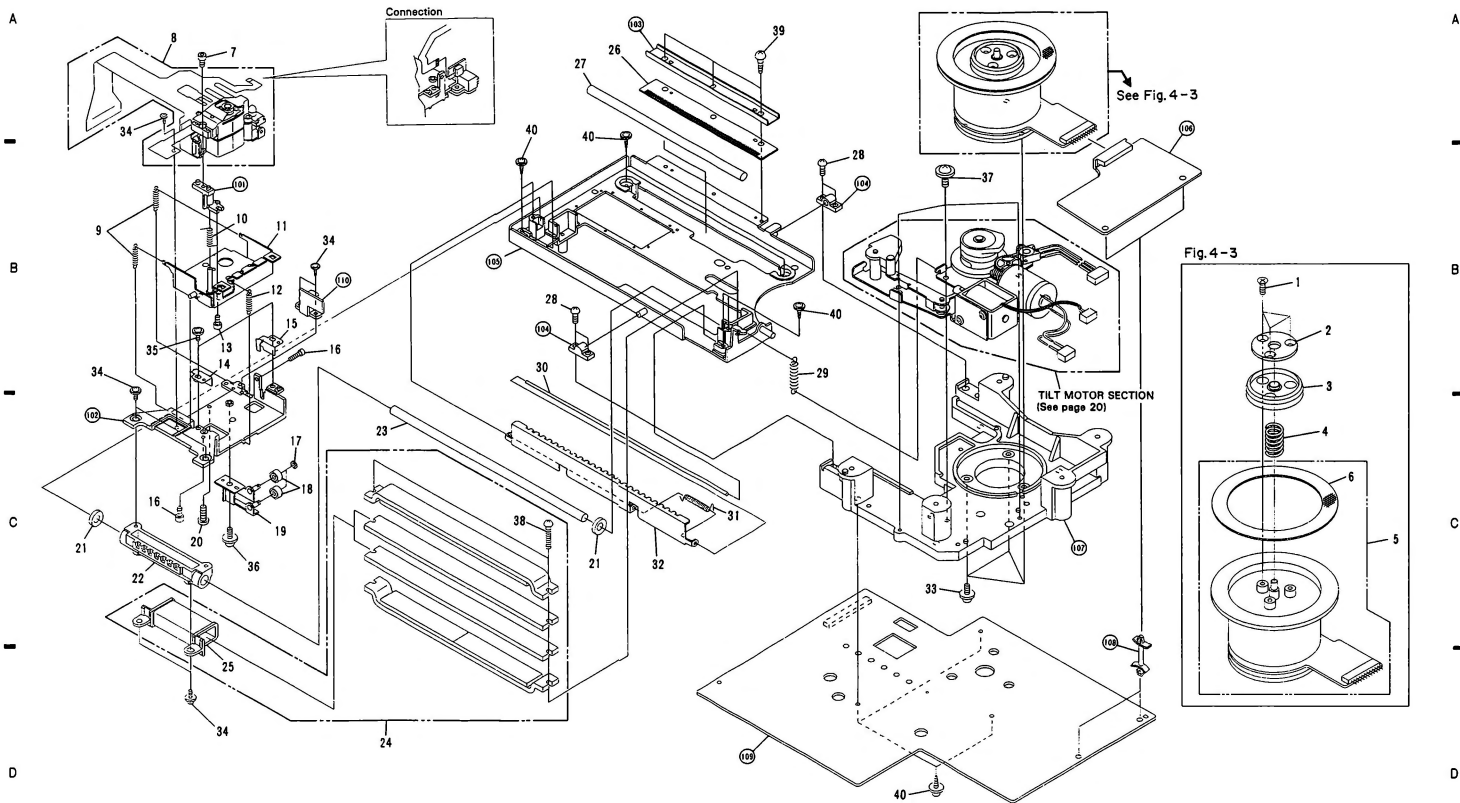


Fig. 4-2



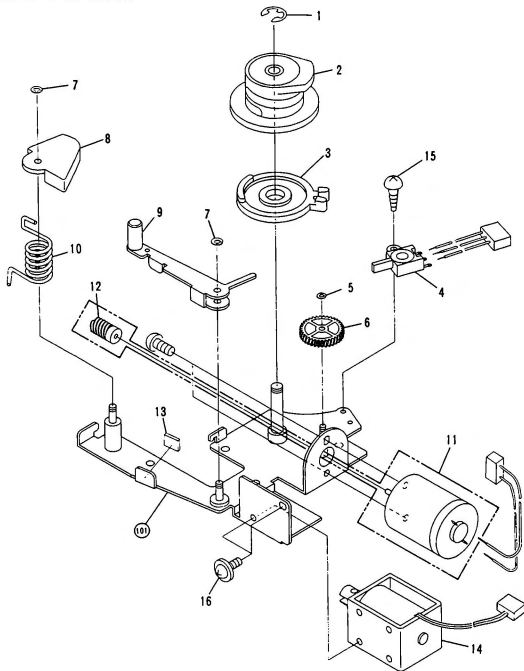
4.6 MECHANISM ASSEMBLY



Parts list of Mechanism assembly

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	SCREW	CBZ30P080FCC	101	PU HOLDER	DNS1049	
	2	PLATE	VNE1103	102	SLIDER	DNS1117	
	3	CENTERING HAB	DLA1496	103	REINFORCED PLATE	DNF1142	
	4	CENTERING SPRING	DBH1154	104	OPTICAL HOLDER	DNS1078	
	5	SPINDLE MOTOR ASSEMBLY-S	DXI1681	105	TILT BASE	DNK1984	
	6	RUBBER SPACER	DEB1052	106	BLDB ASSEMBLY	DWR1081	
	7	BOLT (M2.6×6)	VLL1107	107	MECHANISM CHASSIS	DNK1985	
	8	PICK-UP ASSEMBLY	DWY1016	108	PCB SPACER (14)	DEC1387	
	9	RETURN SPRING	DBH1182	109	FTSB ASSEMBLY	DWV1068	
	10	HT SPRING	DBH1044	110	POSS ASSEMBLY	DWV1191	
	11	ADJUSTMENT PLATE ASSEMBLY	DXB1111				
	12	FIXATION SPRING	DBH1045				
	13	SCREW	SMZ26H120FZK				
	14	G PLATE (L)	DBK1023				
	15	G PLATE (R)	DBK1024				
	16	ADJUSTMENT SCREW	DBA1034				
	17	WASHER	WT26D047D050				
	18	BEARING	DXB1121				
	19	ROLLER PLATE ASSEMBLY	DXB1112				
	20	ADJUSTMENT SCREW	DBA1013				
	21	STOPPER	DEB1164				
	22	SHAFT CATCHER	DNK1986				
	23	D SHAFT	DLA1172				
	24	DRIVE UNIT	DXI1682				
	25	D COIL	DXP1021				
	26	SLIT PLATE	DNH1166				
	27	S SHAFT	DLA1173				
	28	SCREW	PMA30P120FMC				
	29	TILT SPRING	DBH1178				
	30	LOCK SHAFT	DLA1437				
	31	LOCK SPRING	DBH1152				
	32	LOCK TEETH	DNH1512				
	33	SCREW	PMB30P080FMC				
	34	SCREW	AMZ26P040FMC				
	35	SCREW	AMZ30P030FMC				
	36	SCREW	AMZ30P060FMC				
	37	SCREW	BFZ30P080FMC				
	38	SCREW	BBZ30P200FMC				
	39	SCREW	BBZ30P060FMC				
	40	SCREW	APZ30P080FMC				

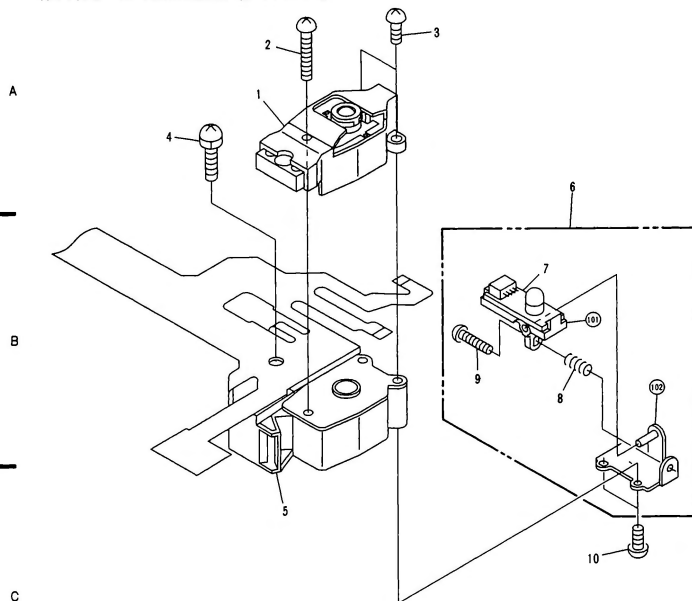
4.7 TILT MOTOR SECTION



Parts list of Tilt motor section

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	E RING	YE40FUC		11	TILT MOTOR ASSEMBLY	DXX1683
	2	TILT CAM	VNL1273		12	WORM GEAR	VNL1085
	3	SYNCHRONIZE CAM	DNK1983		13	STOPPER	DEB1053
	4	LEVER SWITCH	DSK1001		14	PLUNGER	DXP1001
	5	WASHER	WT21D050D050		15	SCREW	BMZ20P080FCU
	6	GEAR	VNL1078		16	SCREW	AMZ30P040FMC
	7	WASHER	WT26D047D050				
	8	LOCK CAM	DNK1333				
	9	LOCK ARM	DNH1596		101	LOCK BASE	DNH1514
	10	CAM SPRING	DBH1153				

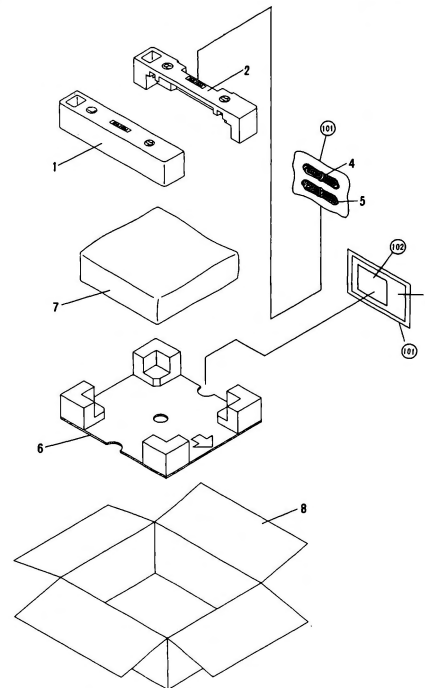
4.8 PICK-UP ASSEMBLY (DWY1016)



Parts list of Pick-up assembly

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	ACTUATOR ASSEMBLY	VXX1552		101	SPACER	DNA1129
	2	SCREW	PMA20P160FMC		102	SENSOR STAY	DNK1987
	3	SCREW	PMA20P060FMC				
	4	SCREW	PMA20P080FMC				
	5	PRE PICK-UP ASSEMBLY-S	DXX1684				
D	6	SENSOR ASSEMBLY-S	VXX1611				
	7	SENSOR ASSEMBLY	VXX1016				
	8	SENSOR SPRING	DBH1151				
	9	SCREW	PMZ20P140FMC				
	10	SCREW	PMA20P040FMC				

4.9 PACKING

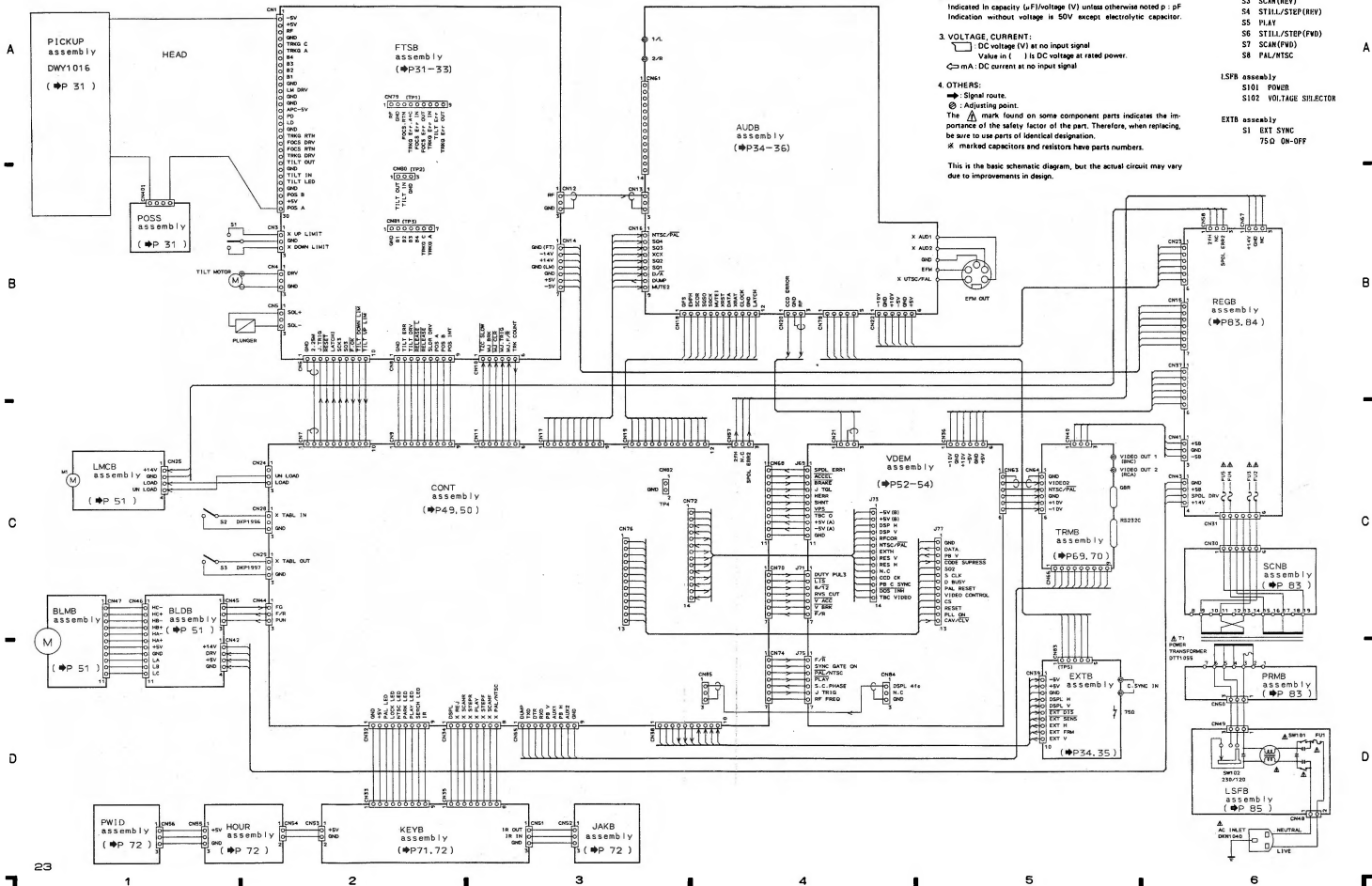


Parts list of Packing

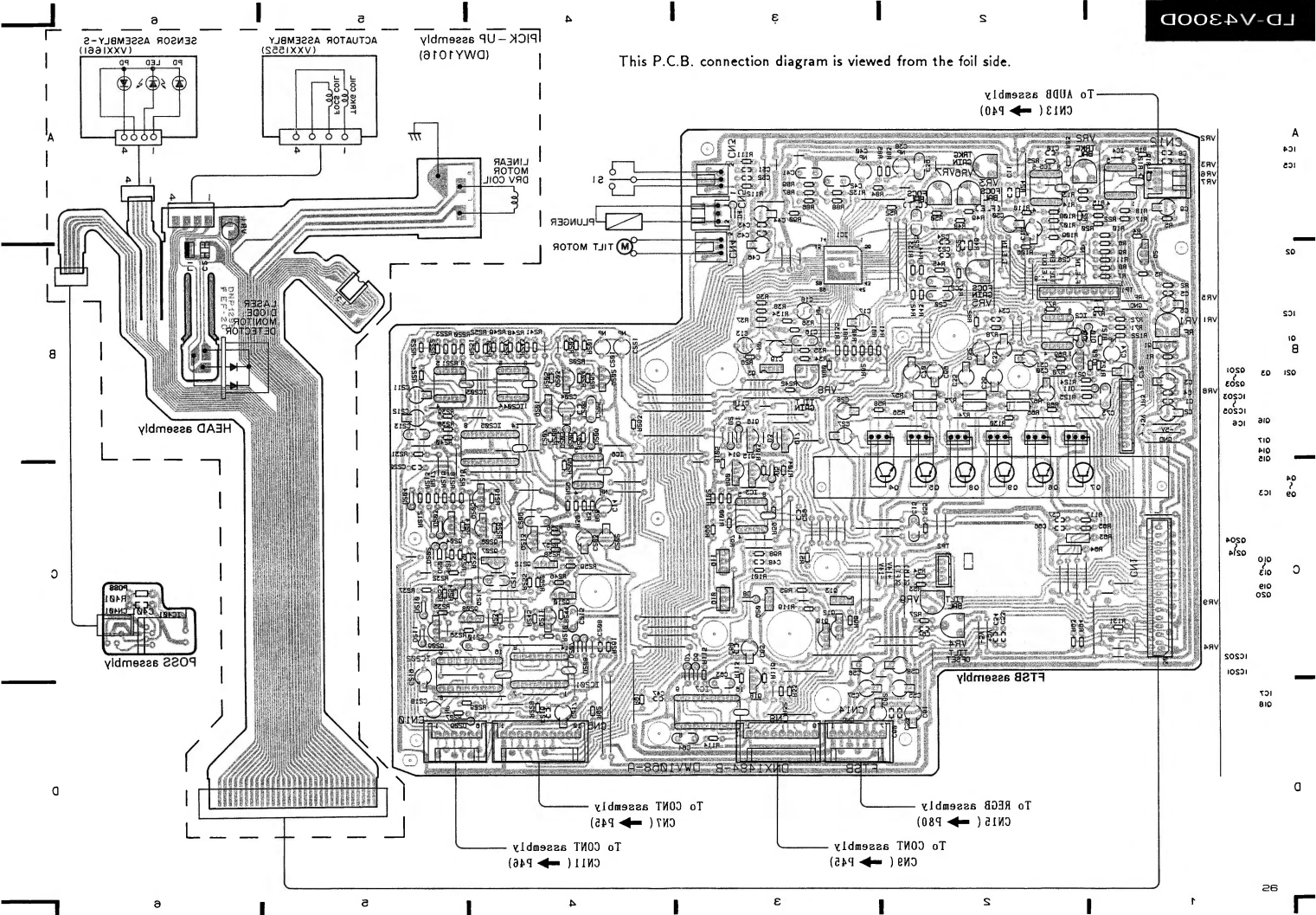
Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
	1	TOP PAD (L)	DHA1054		101	POLYETHYLENE BAG	VHL-014
	2	TOP PAD (R)	DHA1055		102	NOTES	VRM1027
	3	OPERATIONS INSTRUCTIONS	DRE1006				
	4	VIDEO CABLE	VDE-056				
	5	CONNECTION CORD	VDE-055				
	6	BOTTOM PAD	DHA1138				
	7	PACKING MAT	VHL1005				
	8	PACKING CASE	DHG1281				

5. SCHEMATIC AND P.C. BOARDS CONNECTION DIAGRAM

5.1 CONNECTION DIAGRAM

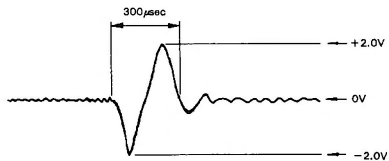


This P.C.B. connection diagram is viewed from the foil side.

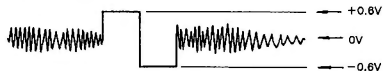


● FTSB assembly

① TRKG ERROR (STILL)

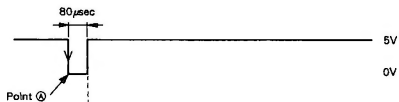


② TRKG RTN (STILL)

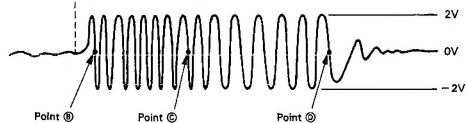


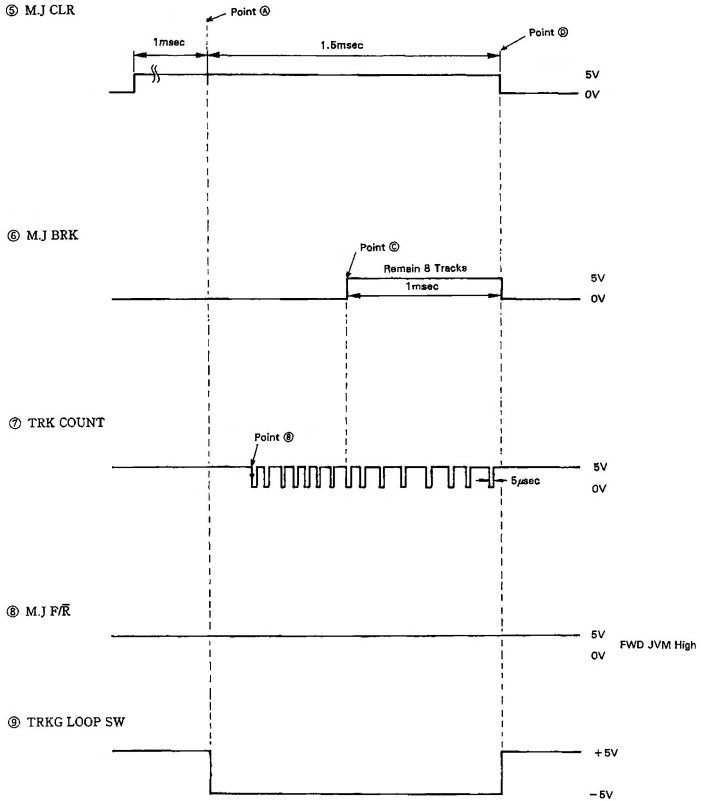
● Multi Jump (M.J) 15 Tracks Forward

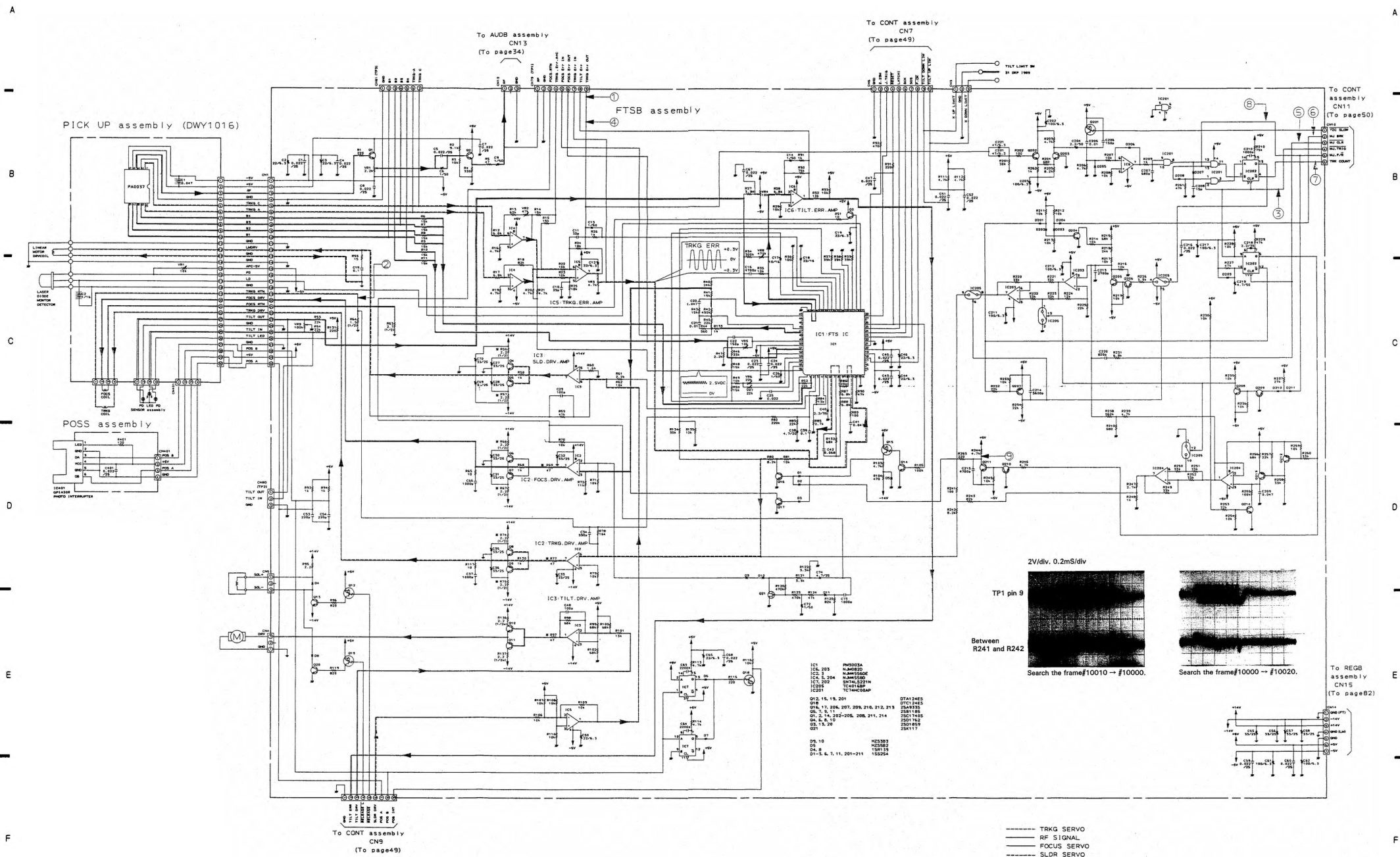
③ M.J TRIG



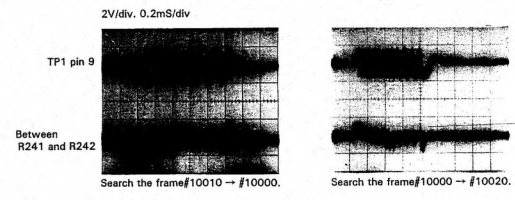
④ TRKG Err







IC1	FM3003A	DTA124ES
IC2	LM309	DTA124ES
IC3	LM309	DTA124ES
IC4	LM309	DTA124ES
IC5	LM309	DTA124ES
IC6	LM309	DTA124ES
IC7	LM309	DTA124ES
IC8	LM309	DTA124ES
IC9	LM309	DTA124ES
IC10	LM309	DTA124ES
IC11	LM309	DTA124ES
IC12	LM309	DTA124ES
IC13	LM309	DTA124ES
IC14	LM309	DTA124ES
IC15	LM309	DTA124ES
IC16	LM309	DTA124ES
IC17	LM309	DTA124ES
IC18	LM309	DTA124ES
IC19	LM309	DTA124ES
IC20	LM309	DTA124ES
IC21	LM309	DTA124ES
IC22	LM309	DTA124ES
IC23	LM309	DTA124ES
IC24	LM309	DTA124ES
IC25	LM309	DTA124ES
IC26	LM309	DTA124ES
IC27	LM309	DTA124ES
IC28	LM309	DTA124ES
IC29	LM309	DTA124ES
IC30	LM309	DTA124ES
IC31	LM309	DTA124ES
IC32	LM309	DTA124ES
IC33	LM309	DTA124ES
IC34	LM309	DTA124ES
IC35	LM309	DTA124ES
IC36	LM309	DTA124ES
IC37	LM309	DTA124ES
IC38	LM309	DTA124ES
IC39	LM309	DTA124ES
IC40	LM309	DTA124ES
IC41	LM309	DTA124ES
IC42	LM309	DTA124ES
IC43	LM309	DTA124ES
IC44	LM309	DTA124ES
IC45	LM309	DTA124ES
IC46	LM309	DTA124ES
IC47	LM309	DTA124ES
IC48	LM309	DTA124ES
IC49	LM309	DTA124ES
IC50	LM309	DTA124ES
IC51	LM309	DTA124ES
IC52	LM309	DTA124ES
IC53	LM309	DTA124ES
IC54	LM309	DTA124ES
IC55	LM309	DTA124ES
IC56	LM309	DTA124ES
IC57	LM309	DTA124ES
IC58	LM309	DTA124ES
IC59	LM309	DTA124ES
IC60	LM309	DTA124ES
IC61	LM309	DTA124ES
IC62	LM309	DTA124ES
IC63	LM309	DTA124ES
IC64	LM309	DTA124ES
IC65	LM309	DTA124ES
IC66	LM309	DTA124ES
IC67	LM309	DTA124ES
IC68	LM309	DTA124ES
IC69	LM309	DTA124ES
IC70	LM309	DTA124ES
IC71	LM309	DTA124ES
IC72	LM309	DTA124ES
IC73	LM309	DTA124ES
IC74	LM309	DTA124ES
IC75	LM309	DTA124ES
IC76	LM309	DTA124ES
IC77	LM309	DTA124ES
IC78	LM309	DTA124ES
IC79	LM309	DTA124ES
IC80	LM309	DTA124ES
IC81	LM309	DTA124ES
IC82	LM309	DTA124ES
IC83	LM309	DTA124ES
IC84	LM309	DTA124ES
IC85	LM309	DTA124ES
IC86	LM309	DTA124ES
IC87	LM309	DTA124ES
IC88	LM309	DTA124ES
IC89	LM309	DTA124ES
IC90	LM309	DTA124ES
IC91	LM309	DTA124ES
IC92	LM309	DTA124ES
IC93	LM309	DTA124ES
IC94	LM309	DTA124ES
IC95	LM309	DTA124ES
IC96	LM309	DTA124ES
IC97	LM309	DTA124ES
IC98	LM309	DTA124ES
IC99	LM309	DTA124ES
IC100	LM309	DTA124ES

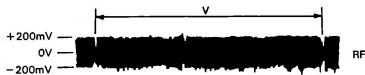


- - - - - TRKG SERVO
 - - - - - RF SIGNAL
 - - - - - FOCUS SERVO
 - - - - - SLDR SERVO
 - - - - - TILT SERVO

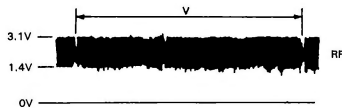
To REGB assembly CN15 (To page82)

● AUBD assembly

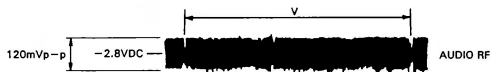
- ① NTSC Test Disc GGV1003 Frame#24,000
(COMPOSITE TEST)



- ② NTSC Test Disc GGV1003 Frame#24,000
(COMPOSITE TEST)



- ③ NTSC Test Disc GGV1003 Frame#24,000
(COMPOSITE TEST)



- ④ NTSC Test Disc GGV1003 Frame#24,000
(COMPOSITE TEST)

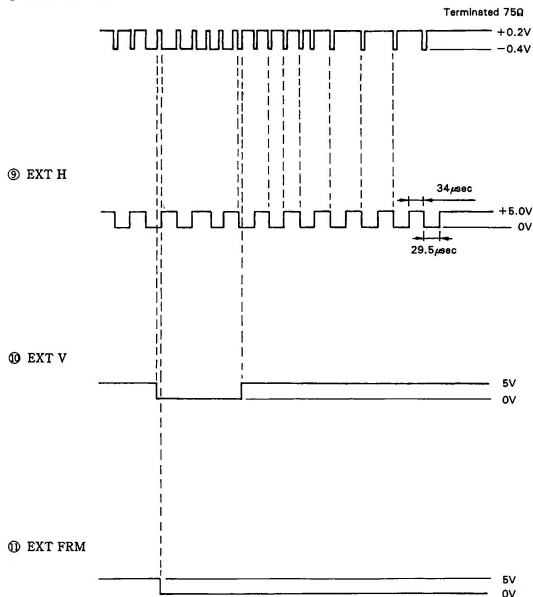


- ⑤ NTSC Test Disc GGV1003 Frame#24,000
(COMPOSITE TEST)



● EXT B assembly

③ NTSC EXT SYNC INPUT



A

B

C

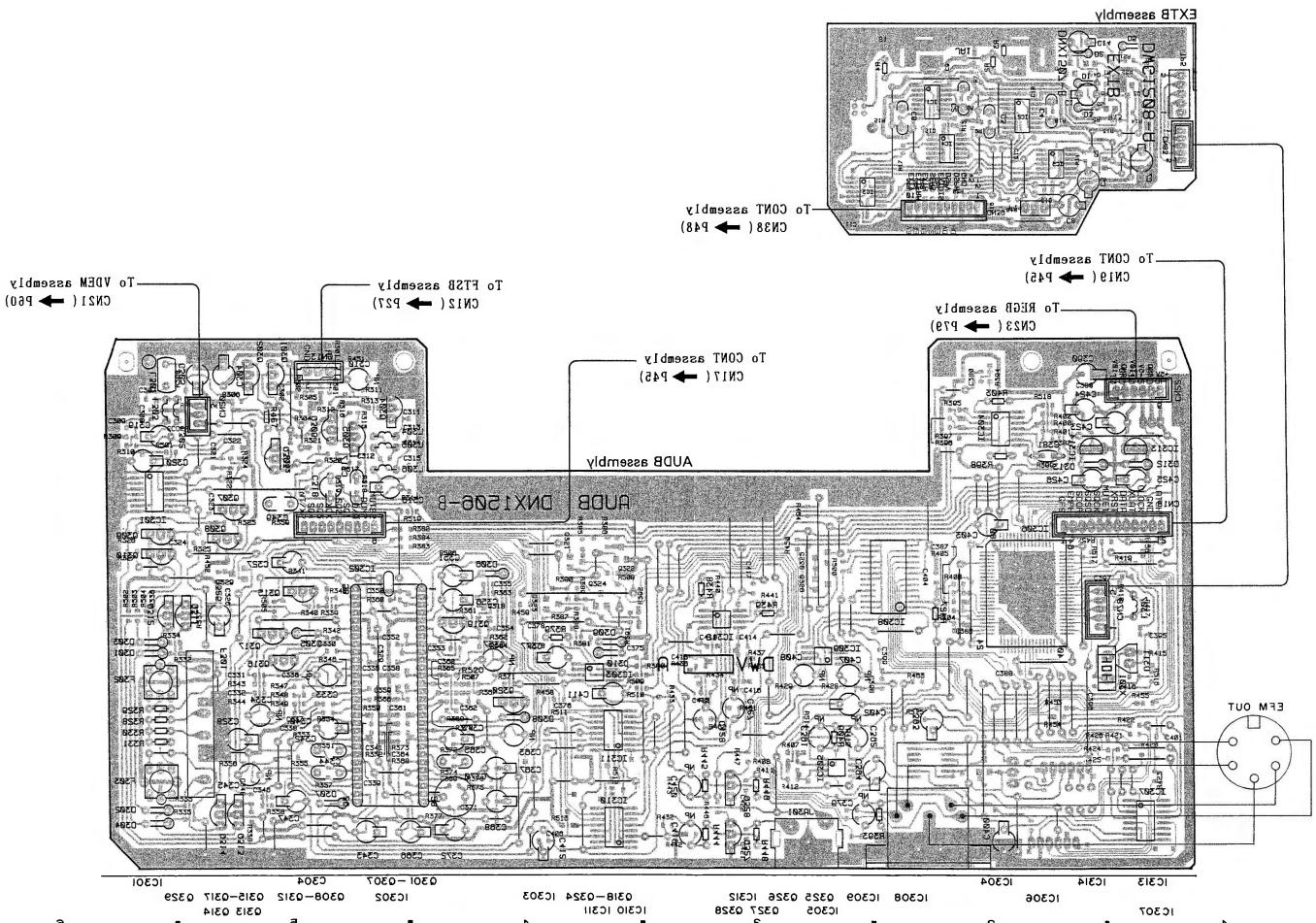
D

A

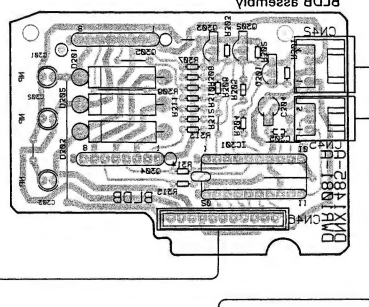
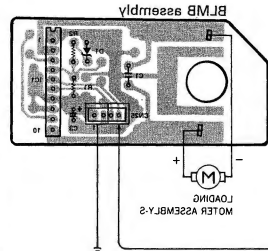
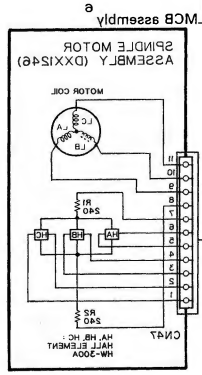
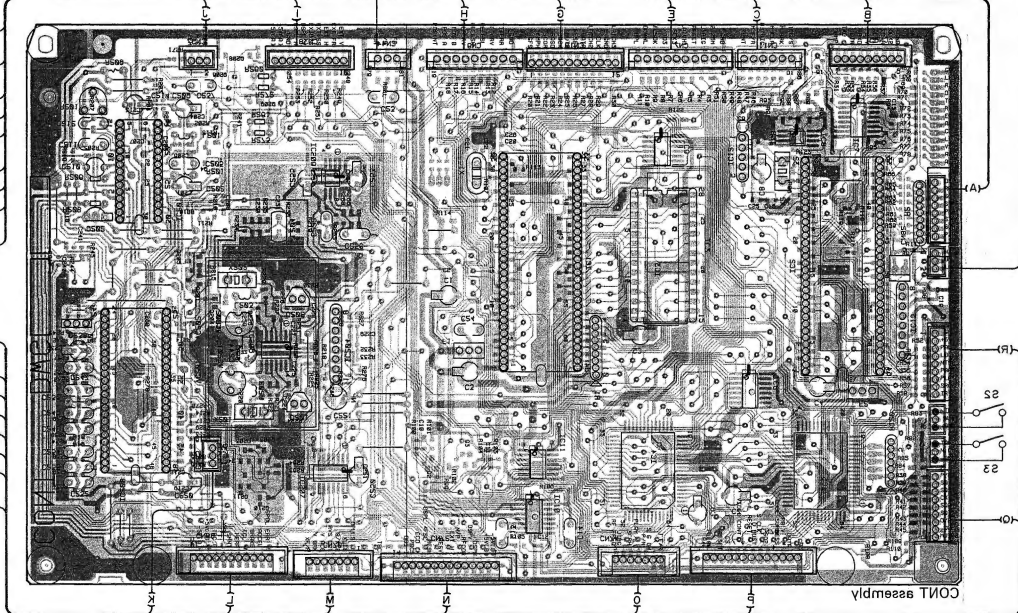
B

C

D



0510	IC501	0510	IC508
0511	IC509	0511	IC509
0512	IC510	0512	IC510
0513	IC511	0513	IC511
0514	IC512	0514	IC512
0515	IC513	0515	IC513
0516	IC514	0516	IC514
0517	IC515	0517	IC515
0518	IC516	0518	IC516
0519	IC517	0519	IC517
0520	IC518	0520	IC518
0521	IC519	0521	IC519
0522	IC520	0522	IC520
0523	IC521	0523	IC521
0524	IC522	0524	IC522
0525	IC523	0525	IC523
0526	IC524	0526	IC524
0527	IC525	0527	IC525
0528	IC526	0528	IC526
0529	IC527	0529	IC527
0530	IC528	0530	IC528
0531	IC529	0531	IC529
0532	IC530	0532	IC530
0533	IC531	0533	IC531
0534	IC532	0534	IC532
0535	IC533	0535	IC533
0536	IC534	0536	IC534
0537	IC535	0537	IC535
0538	IC536	0538	IC536
0539	IC537	0539	IC537
0540	IC538	0540	IC538
0541	IC539	0541	IC539
0542	IC540	0542	IC540
0543	IC541	0543	IC541
0544	IC542	0544	IC542
0545	IC543	0545	IC543
0546	IC544	0546	IC544
0547	IC545	0547	IC545
0548	IC546	0548	IC546
0549	IC547	0549	IC547
0550	IC548	0550	IC548
0551	IC549	0551	IC549
0552	IC550	0552	IC550
0553	IC551	0553	IC551
0554	IC552	0554	IC552
0555	IC553	0555	IC553
0556	IC554	0556	IC554
0557	IC555	0557	IC555
0558	IC556	0558	IC556
0559	IC557	0559	IC557
0560	IC558	0560	IC558
0561	IC559	0561	IC559
0562	IC560	0562	IC560
0563	IC561	0563	IC561
0564	IC562	0564	IC562
0565	IC563	0565	IC563
0566	IC564	0566	IC564
0567	IC565	0567	IC565
0568	IC566	0568	IC566
0569	IC567	0569	IC567
0570	IC568	0570	IC568
0571	IC569	0571	IC569
0572	IC570	0572	IC570
0573	IC571	0573	IC571
0574	IC572	0574	IC572
0575	IC573	0575	IC573
0576	IC574	0576	IC574
0577	IC575	0577	IC575
0578	IC576	0578	IC576
0579	IC577	0579	IC577
0580	IC578	0580	IC578
0581	IC579	0581	IC579
0582	IC580	0582	IC580
0583	IC581	0583	IC581
0584	IC582	0584	IC582
0585	IC583	0585	IC583
0586	IC584	0586	IC584
0587	IC585	0587	IC585
0588	IC586	0588	IC586
0589	IC587	0589	IC587
0590	IC588	0590	IC588
0591	IC589	0591	IC589
0592	IC590	0592	IC590
0593	IC591	0593	IC591
0594	IC592	0594	IC592
0595	IC593	0595	IC593
0596	IC594	0596	IC594
0597	IC595	0597	IC595
0598	IC596	0598	IC596
0599	IC597	0599	IC597
0600	IC598	0600	IC598
0601	IC599	0601	IC599
0602	IC600	0602	IC600
0603	IC601	0603	IC601
0604	IC602	0604	IC602
0605	IC603	0605	IC603
0606	IC604	0606	IC604
0607	IC605	0607	IC605
0608	IC606	0608	IC606
0609	IC607	0609	IC607
0610	IC608	0610	IC608
0611	IC609	0611	IC609
0612	IC610	0612	IC610
0613	IC611	0613	IC611
0614	IC612	0614	IC612
0615	IC613	0615	IC613
0616	IC614	0616	IC614
0617	IC615	0617	IC615
0618	IC616	0618	IC616
0619	IC617	0619	IC617
0620	IC618	0620	IC618
0621	IC619	0621	IC619
0622	IC620	0622	IC620
0623	IC621	0623	IC621
0624	IC622	0624	IC622
0625	IC623	0625	IC623
0626	IC624	0626	IC624
0627	IC625	0627	IC625
0628	IC626	0628	IC626
0629	IC627	0629	IC627
0630	IC628	0630	IC628
0631	IC629	0631	IC629
0632	IC630	0632	IC630
0633	IC631	0633	IC631
0634	IC632	0634	IC632
0635	IC633	0635	IC633
0636	IC634	0636	IC634
0637	IC635	0637	IC635
0638	IC636	0638	IC636
0639	IC637	0639	IC637
0640	IC638	0640	IC638
0641	IC639	0641	IC639
0642	IC640	0642	IC640
0643	IC641	0643	IC641
0644	IC642	0644	IC642
0645	IC643	0645	IC643
0646	IC644	0646	IC644
0647	IC645	0647	IC645
0648	IC646	0648	IC646
0649	IC647	0649	IC647
0650	IC648	0650	IC648
0651	IC649	0651	IC649
0652	IC650	0652	IC650
0653	IC651	0653	IC651
0654	IC652	0654	IC652
0655	IC653	0655	IC653
0656	IC654	0656	IC654
0657	IC655	0657	IC655
0658	IC656	0658	IC656
0659	IC657	0659	IC657
0660	IC658	0660	IC658
0661	IC659	0661	IC659
0662	IC660	0662	IC660
0663	IC661	0663	IC661
0664	IC662	0664	IC662
0665	IC663	0665	IC663
0666	IC664	0666	IC664
0667	IC665	0667	IC665
0668	IC666	0668	IC666
0669	IC667	0669	IC667
0670	IC668	0670	IC668
0671	IC669	0671	IC669
0672	IC670	0672	IC670
0673	IC671	0673	IC671
0674	IC672	0674	IC672
0675	IC673	0675	IC673
0676	IC674	0676	IC674
0677	IC675	0677	IC675
0678	IC676	0678	IC676
0679	IC677	0679	IC677
0680	IC678	0680	IC678
0681	IC679	0681	IC679
0682	IC680	0682	IC680
0683	IC681	0683	IC681
0684	IC682	0684	IC682
0685	IC683	0685	IC683
0686	IC684	0686	IC684
0687	IC685	0687	IC685
0688	IC686	0688	IC686
0689	IC687	0689	IC687
0690	IC688	0690	IC688
0691	IC689	0691	IC689
0692	IC690	0692	IC690
0693	IC691	0693	IC691
0694	IC692	0694	IC692
0695	IC693	0695	IC693
0696	IC694	0696	IC694
0697	IC695	0697	IC695
0698	IC696	0698	IC696
0699	IC697	0699	IC697
0700	IC698	0700	IC698



- (A) -> TO KEYS assembly
- (B) -> TO TRMB assembly
- (C) -> TO FT28 assembly
- (D) -> TO REGD assembly
- (E) -> TO REGD assembly
- (F) -> TO REGD assembly
- (G) -> TO Y08 assembly
- (H) -> TO REGD assembly
- (I) -> TO EXTD assembly
- (J) -> TO EXTD assembly
- (K) -> TO ADEN assembly

- (L) -> 183 (P28)
- (M) -> 111 (P28)
- (N) -> 113 (P28)
- (O) -> 112 (P28)
- (P) -> 111 (P28)
- (Q) -> TO V10B assembly
- (R) -> TO KEYS assembly

- (S) -> 113 (P13)

A

B

C

D

A

B

C

D

a

a

4

3

5

e

a

4

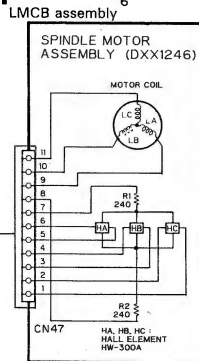
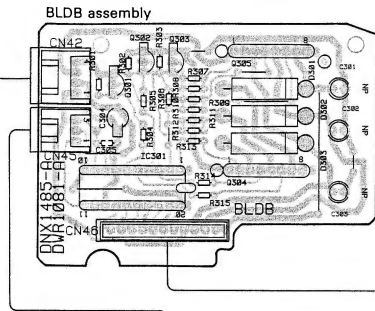
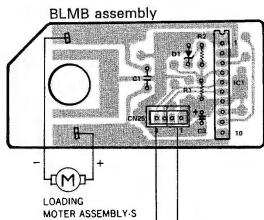
3

5

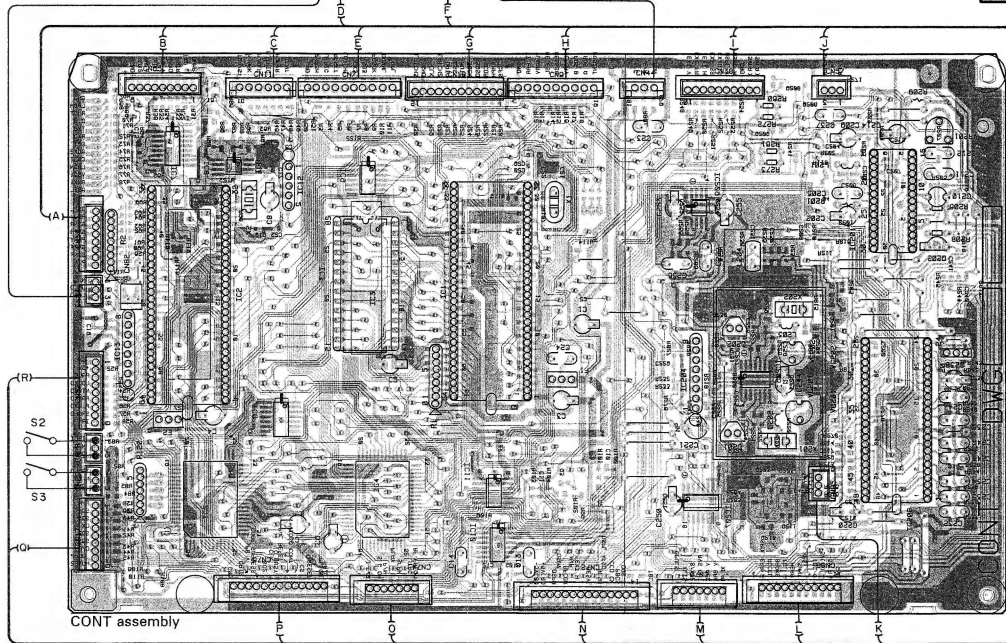
5.4 CONT, BLDB, BLMB and LMCB assembly

PCB assembly	Component pin	Part Name	PCB assembly	Component pin	Part Name
		Resistor		R1	Resistor
		Capacitor		C1	Capacitor
		Diode		D1	Diode
		IC		IC1	IC
		LED		L1	LED
		Relay		RY	Relay
		Switch		S1	Switch
		Motor		M1	Motor
		Transformer		TR	Transformer
		Other			Other

1. The PCB assembly should be checked for correct component placement.
 2. The PCB assembly should be checked for correct component value.
 3. The PCB assembly should be checked for correct component orientation.
 4. The PCB assembly should be checked for correct component type.



- A**
- B**
- C**
- D**
- Q1 Q208
 - Q206
 - Q209 VR201
 - IC7 IC209
 - IC8 04
 - IC9 IC201
 - IC12 IC205
 - IC3 Q202
 - IC2 IC1 Q205
 - Q201
 - Q204
 - IC13 IC204 IC206
 - IC6
 - IC11 Q203
 - Q3
 - Q2
 - IC5 IC207
 - IC10 IC208
 - Q211
 - Q210



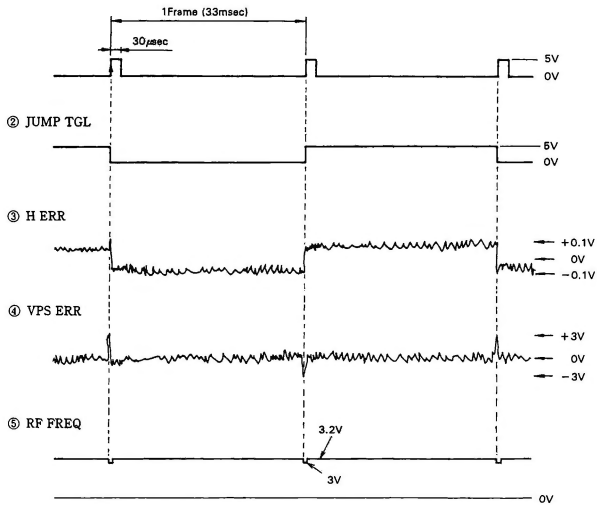
- B**
- C**
- D**
- (A) To KEYB assembly CN35 (P73)
 - (B) To TRMB assembly CN66 (P65)
 - (C) To FTSB assembly CN10 (P28)
 - (H) CN8 (P27)
 - (E) CN6 (P28)
 - (D) To REG3 assembly CN43 (P80)
 - (F) CN58 (P80)
 - (J) CN67 (P80)
 - (G) To AUDB assembly CN18 (P39)
 - (I) To EXTD assembly CN39 (P73)
 - (K) To VDEM assembly CN45 (P59)
 - (L) J69 (P59)
 - (M) J71 (P59)
 - (N) J73 (P59)
 - (O) J75 (P60)
 - (P) J77 (P60)
 - (Q) To AUDB assembly CN16 (P40)
 - (R) To KEYB assembly CN33 (P73)

- CONT assembly

- TBC Section

NTSC STILL (12inch Disc)

① JUMP TRIG



● LMCB assembly

⑥ CN25 - Pin 3, 4

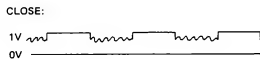
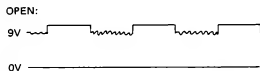
When CLOSE: Both UNLOAD and LOAD will be "high" momentarily when starting. Later, UNLOAD becomes low waveform and LOAD becomes "low", then just before close, both become "high" again.



When OPEN: While operating, LOAD becomes low waveform which is opposite the CLOSE waveform and UNLOAD becomes "low", then both of them become "high" just before close.



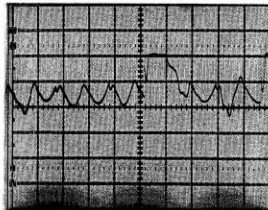
⑦ IC1 - Pin10



● BLDB assembly

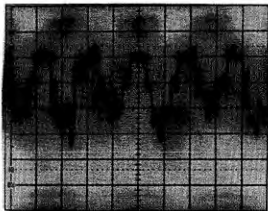
⑧ Pin 3 of CN42

STAND BY: -13V
PLAY: 5mS/div 5V/div



⑨ Pin 9 of CN46

STAND BY: 10V
PLAY: 10mS/div 5V/div



⑩ IC301 - Pin11

PLAY:



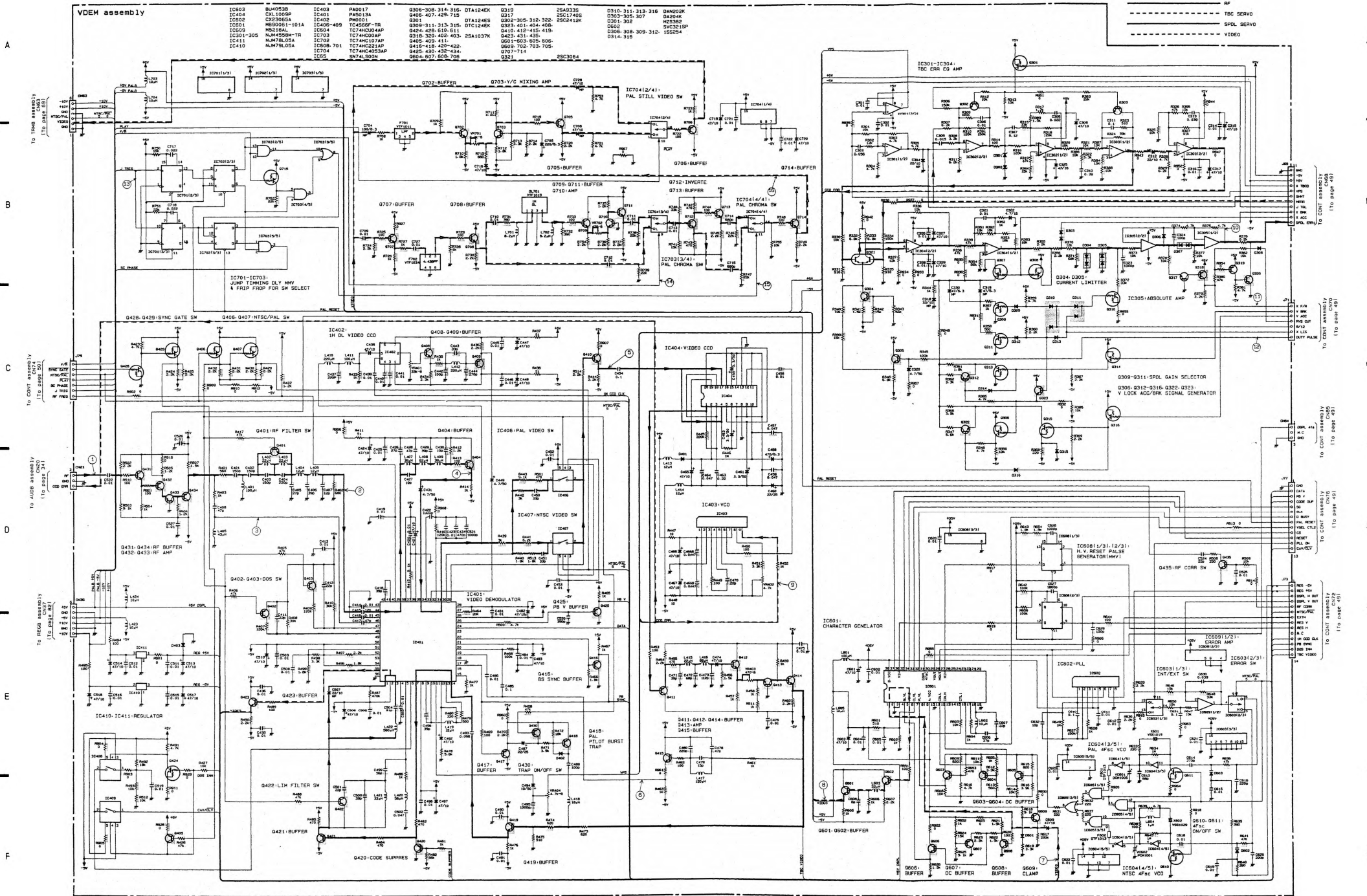
⑪ IC301 - Pin 2

⑫ IC301 - Pin 1

STAND BY: 16V

PLAY:

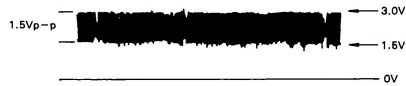




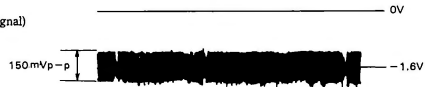
● VDEM assembly

NTSC Test Disc GGV1003 Frame#24,000

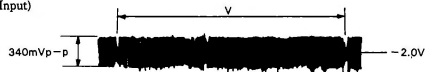
① RF Signal



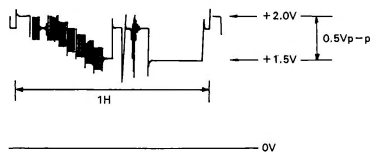
② RF (Det.Input Signal)



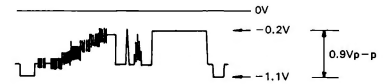
③ RF Signal (DOS Input)



④ VIDEO Det. Output Signal



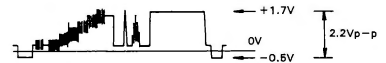
⑤ CCD Input VIDEO Signal



⑥ SYNC-SEP Input VIDEO Signal



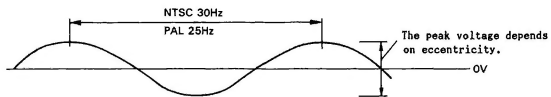
⑦ Charactor generator (IC 601)Input VIDEO Signal



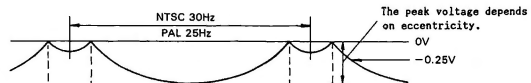
⑧ Charactor generator Output VIDEO Signal



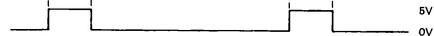
④ VCO Control Voltage



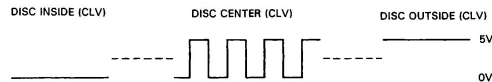
⑤ SPDL ERR



⑥ X F/R



⑦ DUTY PULSE



CAV is ALL LOW (0V)

● PAL Test Disc (Color Bar) STILL

⑧ JUMP TRIG



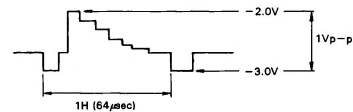
⑨ 0/90° SW



⑩ 0/180° SW

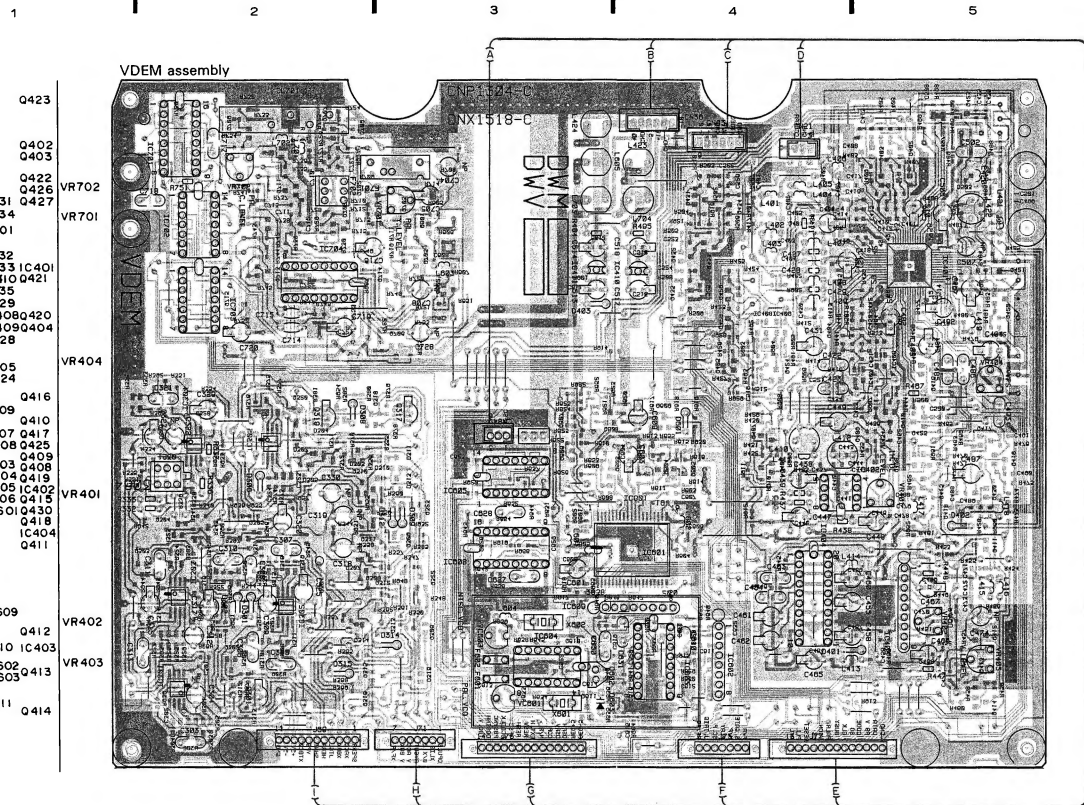


⑪ LUMINANCE



⑫ CROMA





- Q707
- Q708
- A Q710
- IC701
- Q402
- Q403
- Q422
- Q426
- VR702
- Q711
- Q703
- Q431
- Q427
- IC712
- Q601
- Q434
- IC702
- Q401
- IC704
- Q705
- IC411
- Q432
- Q433
- IC401
- Q713
- Q714
- IC410
- Q421
- Q715
- Q302
- Q435
- Q429
- IC703
- IC408
- Q420
- IC409
- Q404
- Q706
- Q428
- VR404
- Q405
- Q424
- B IC304
- Q318
- Q305
- IC404
- Q411
- Q309
- Q311
- IC608
- Q307
- Q308
- Q322
- Q312
- IC609
- IC302
- IC604
- Q315
- Q316
- Q610
- IC403
- C Q302
- Q314
- Q315
- IC602
- Q413
- IC301
- Q316
- IC603
- Q301
- Q611
- Q414

- (A) To CONT assembly
CN84 (→ P46)
- (B) To REGB assembly
CN37 (→ P79)
- (C) To TRMB assembly
CN64 (→ P65)
- (D) To AUBD assembly
CN20 (→ P40)
- (E) To CONT assembly
CN76 (→ P45)
- (F) CN74 (→ P45)
- (G) CN72 (→ P46)
- (H) CN70 (→ P46)
- (I) CN68 (→ P46)

D

P.C.B. pattern diagram	Corresponding part symbol	Part name	P.C.B. pattern diagram	Corresponding part symbol	Part name	P.C.B. pattern diagram	Corresponding part symbol	Part name	P.C.B. pattern diagram	Corresponding part symbol	Part name
		Transistor			Capacitor			Semiconductor			Resistor
		Inductor			Diode			Resistor			Transformer
		LED			Resistor			Resistor			Thermistor
		Resistor			Resistor			Resistor			Test switch

- The P.C.B. pattern diagram is derived from the parts illustrated here.
- The parts which have been mounted on the board can be replaced with those shown with the corresponding reference label in the above table.
- The capacitor part number is indicated with the capacitor tolerance.
- The resistor part number is shown with the resistor tolerance.
- The capacitor tolerance is marked with the capacitor tolerance.
- The resistor tolerance is marked with the resistor tolerance.

A

B

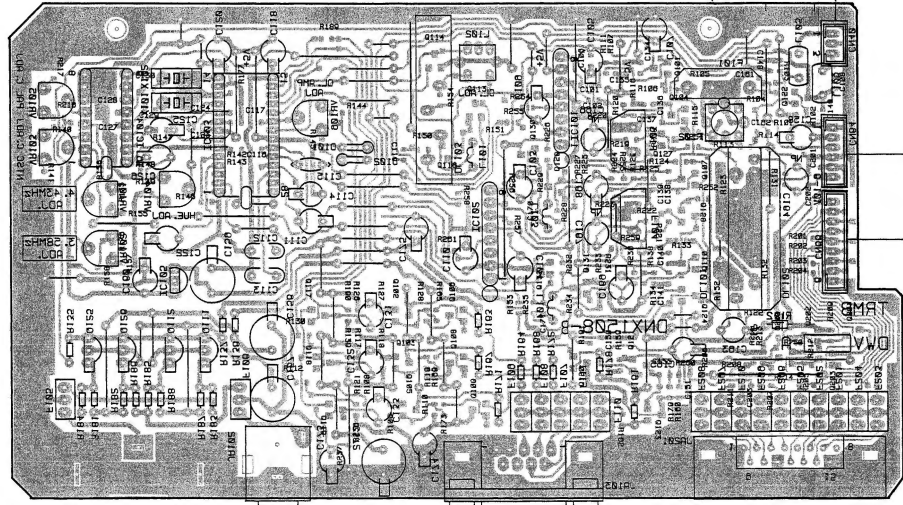
C

D

To COM1 assembly
CN#2 (P42) ←

To RGB assembly
CN#1 (P3) ←

To DEM assembly
CN#3 (P60) ←



0503 0504 0505 0506 0507 0508 0509 0510 0511 0512 0513 0514 0515 0516 0517 0518 0519 0520 0521 0522 0523 0524 0525 0526 0527 0528 0529 0530 0531 0532 0533 0534 0535 0536 0537 0538 0539 0540 0541 0542 0543 0544 0545 0546 0547 0548 0549 0550 0551 0552 0553 0554 0555 0556 0557 0558 0559 0560 0561 0562 0563 0564 0565 0566 0567 0568 0569 0570 0571 0572 0573 0574 0575 0576 0577 0578 0579 0580 0581 0582 0583 0584 0585 0586 0587 0588 0589 0590 0591 0592 0593 0594 0595 0596 0597 0598 0599 0600 0601 0602 0603 0604 0605 0606 0607 0608 0609 0610 0611 0612 0613 0614 0615 0616 0617 0618 0619 0620 0621 0622 0623 0624 0625 0626 0627 0628 0629 0630 0631 0632 0633 0634 0635 0636 0637 0638 0639 0640 0641 0642 0643 0644 0645 0646 0647 0648 0649 0650 0651 0652 0653 0654 0655 0656 0657 0658 0659 0660 0661 0662 0663 0664 0665 0666 0667 0668 0669 0670 0671 0672 0673 0674 0675 0676 0677 0678 0679 0680 0681 0682 0683 0684 0685 0686 0687 0688 0689 0690 0691 0692 0693 0694 0695 0696 0697 0698 0699 0700 0701 0702 0703 0704 0705 0706 0707 0708 0709 0710 0711 0712 0713 0714 0715 0716 0717 0718 0719 0720 0721 0722 0723 0724 0725 0726 0727 0728 0729 0730 0731 0732 0733 0734 0735 0736 0737 0738 0739 0740 0741 0742 0743 0744 0745 0746 0747 0748 0749 0750 0751 0752 0753 0754 0755 0756 0757 0758 0759 0760 0761 0762 0763 0764 0765 0766 0767 0768 0769 0770 0771 0772 0773 0774 0775 0776 0777 0778 0779 0780 0781 0782 0783 0784 0785 0786 0787 0788 0789 0790 0791 0792 0793 0794 0795 0796 0797 0798 0799 0800 0801 0802 0803 0804 0805 0806 0807 0808 0809 0810 0811 0812 0813 0814 0815 0816 0817 0818 0819 0820 0821 0822 0823 0824 0825 0826 0827 0828 0829 0830 0831 0832 0833 0834 0835 0836 0837 0838 0839 0840 0841 0842 0843 0844 0845 0846 0847 0848 0849 0850 0851 0852 0853 0854 0855 0856 0857 0858 0859 0860 0861 0862 0863 0864 0865 0866 0867 0868 0869 0870 0871 0872 0873 0874 0875 0876 0877 0878 0879 0880 0881 0882 0883 0884 0885 0886 0887 0888 0889 0890 0891 0892 0893 0894 0895 0896 0897 0898 0899 0900 0901 0902 0903 0904 0905 0906 0907 0908 0909 0910 0911 0912 0913 0914 0915 0916 0917 0918 0919 0920 0921 0922 0923 0924 0925 0926 0927 0928 0929 0930 0931 0932 0933 0934 0935 0936 0937 0938 0939 0940 0941 0942 0943 0944 0945 0946 0947 0948 0949 0950 0951 0952 0953 0954 0955 0956 0957 0958 0959 0960 0961 0962 0963 0964 0965 0966 0967 0968 0969 0970 0971 0972 0973 0974 0975 0976 0977 0978 0979 0980 0981 0982 0983 0984 0985 0986 0987 0988 0989 0990 0991 0992 0993 0994 0995 0996 0997 0998 0999 1000

AVR10-VR10E

A

B

C

D

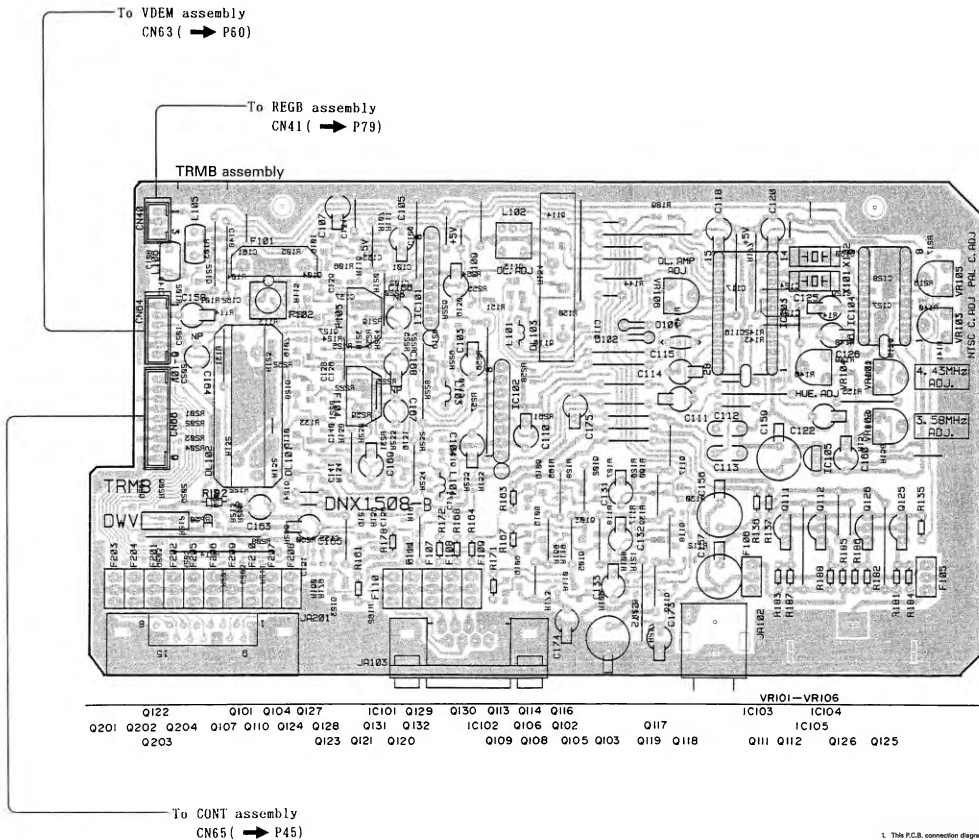
TRMB assembly

A

B

C

D



P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transformer
		FET
		Diode
		Zener diode
		LED
		Varistor
		Test switch
		Inductor
		Coil
		Transformer
		Filter
P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Ceramic capacitor
		Mylar capacitor
		Shrout capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

A

B

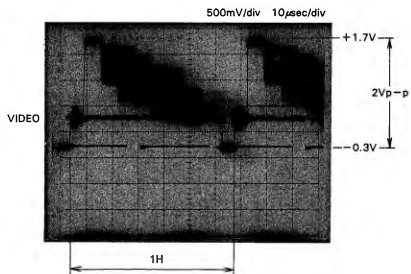
C

D

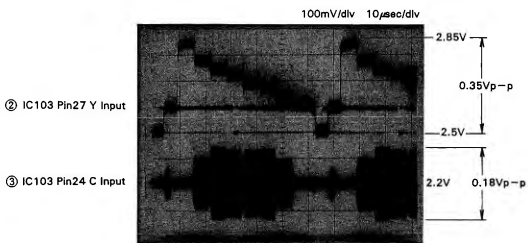
- This P.C.B. connection diagram is viewed from the parts mounted side.
- The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
- The resistor terminal marked with shows negative terminal.
- The diode marked with shows cathode side.
- The transformer terminal marked with shows center.

● TRMB assembly

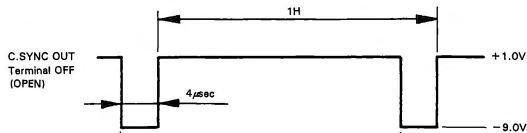
- ① NTSC Test Disc GGV1003 Frame#7,200
(COLOR BAR)



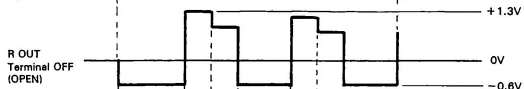
- ② ③ NTSC Test Disc GGV1003 Frame#7,200
(COLOR BAR)



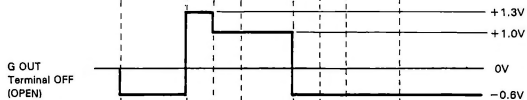
④ NTSC Test Disc GGV1003 Frame#7,200
(COLOR BAR)



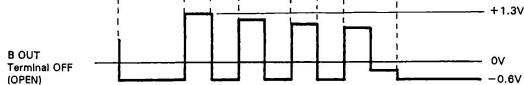
⑤ NTSC Test Disc GGV1003 Frame#7,200
(COLOR BAR)

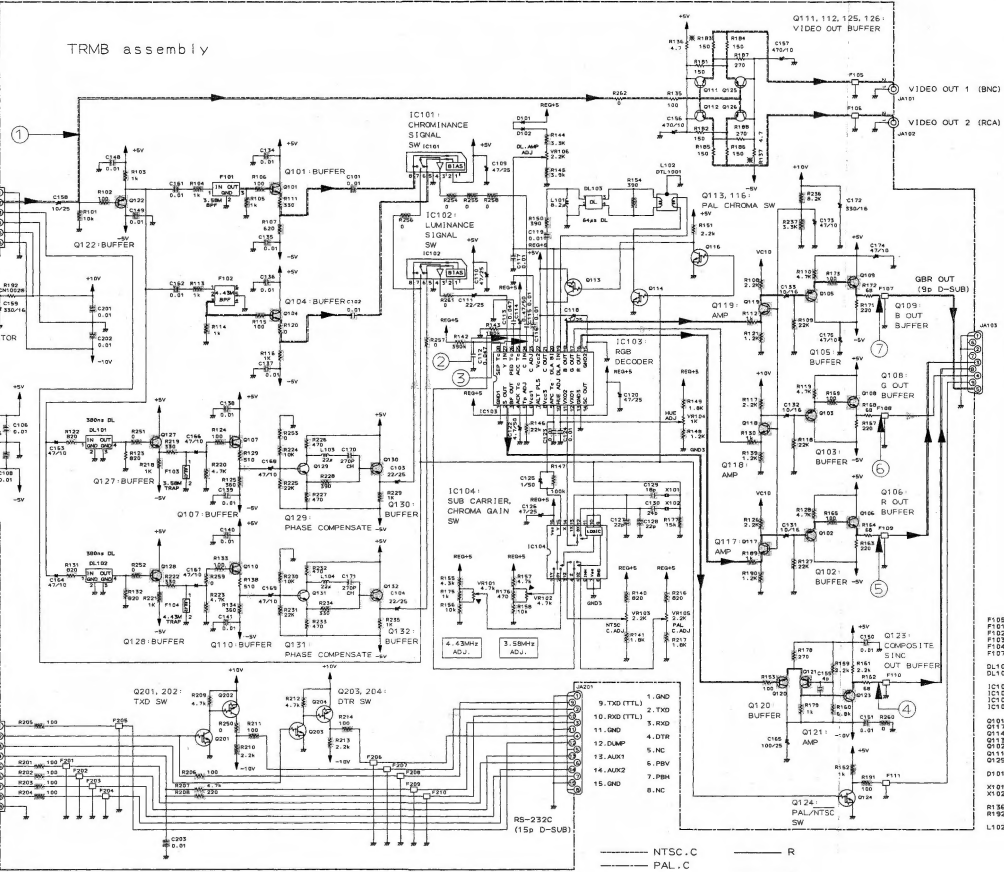


⑥ NTSC Test Disc GGV1003 Frame#7,200
(COLOR BAR)



⑦ NTSC Test Disc GGV1003 Frame#7,200
(COLOR BAR)





A

B

C

D

To REGB assembly
CN41
(To page82)

To VDEM assembly
CN5
(To page52)

To CONT assembly
CN5
(To page49)

5. N.C. 1.0Ω
7. N.C. 2.0Ω
8. C. SYNC 3.0 Ω OUT
9. PAL/NTSC 4.0 Ω OUT
5.0 Ω OUT

R105, 10Ω
R101
R102
R103
R104
R105-111, 201-210
R109, 10Ω
R110, 10Ω
R111, 10Ω
R112, 10Ω
R113, 10Ω
R114, 10Ω
R115, 10Ω
R116, 10Ω
R117, 10Ω
R118, 10Ω
R119, 10Ω
R120, 10Ω
R121, 10Ω
R122, 10Ω
R123, 10Ω
R124, 10Ω
R125, 10Ω
R126, 10Ω
R127, 10Ω
R128, 10Ω
R129, 10Ω
R130, 10Ω
R131, 10Ω
R132, 10Ω
R133, 10Ω
R134, 10Ω
R135, 10Ω
R136, 10Ω
R137, 10Ω
R138, 10Ω
R139, 10Ω
R140, 10Ω
R141, 10Ω
R142, 10Ω
R143, 10Ω
R144, 10Ω
R145, 10Ω
R146, 10Ω
R147, 10Ω
R148, 10Ω
R149, 10Ω
R150, 10Ω
R151, 10Ω
R152, 10Ω
R153, 10Ω
R154, 10Ω
R155, 10Ω
R156, 10Ω
R157, 10Ω
R158, 10Ω
R159, 10Ω
R160, 10Ω
R161, 10Ω
R162, 10Ω
R163, 10Ω
R164, 10Ω
R165, 10Ω
R166, 10Ω
R167, 10Ω
R168, 10Ω
R169, 10Ω
R170, 10Ω
R171, 10Ω
R172, 10Ω
R173, 10Ω
R174, 10Ω
R175, 10Ω
R176, 10Ω
R177, 10Ω
R178, 10Ω
R179, 10Ω
R180, 10Ω
R181, 10Ω
R182, 10Ω
R183, 10Ω
R184, 10Ω
R185, 10Ω
R186, 10Ω
R187, 10Ω
R188, 10Ω
R189, 10Ω
R190, 10Ω
R191, 10Ω
R192, 10Ω
R193, 10Ω
R194, 10Ω
R195, 10Ω
R196, 10Ω
R197, 10Ω
R198, 10Ω
R199, 10Ω
R200, 10Ω

C101, 100pF
C102, 100pF
C103, 100pF
C104, 100pF
C105, 100pF
C106, 100pF
C107, 100pF
C108, 100pF
C109, 100pF
C110, 100pF
C111, 100pF
C112, 100pF
C113, 100pF
C114, 100pF
C115, 100pF
C116, 100pF
C117, 100pF
C118, 100pF
C119, 100pF
C120, 100pF
C121, 100pF
C122, 100pF
C123, 100pF
C124, 100pF
C125, 100pF
C126, 100pF
C127, 100pF
C128, 100pF
C129, 100pF
C130, 100pF
C131, 100pF
C132, 100pF
C133, 100pF
C134, 100pF
C135, 100pF
C136, 100pF
C137, 100pF
C138, 100pF
C139, 100pF
C140, 100pF
C141, 100pF
C142, 100pF
C143, 100pF
C144, 100pF
C145, 100pF
C146, 100pF
C147, 100pF
C148, 100pF
C149, 100pF
C150, 100pF
C151, 100pF
C152, 100pF
C153, 100pF
C154, 100pF
C155, 100pF
C156, 100pF
C157, 100pF
C158, 100pF
C159, 100pF
C160, 100pF
C161, 100pF
C162, 100pF
C163, 100pF
C164, 100pF
C165, 100pF
C166, 100pF
C167, 100pF
C168, 100pF
C169, 100pF
C170, 100pF
C171, 100pF
C172, 100pF
C173, 100pF
C174, 100pF
C175, 100pF
C176, 100pF
C177, 100pF
C178, 100pF
C179, 100pF
C180, 100pF
C181, 100pF
C182, 100pF
C183, 100pF
C184, 100pF
C185, 100pF
C186, 100pF
C187, 100pF
C188, 100pF
C189, 100pF
C190, 100pF
C191, 100pF
C192, 100pF
C193, 100pF
C194, 100pF
C195, 100pF
C196, 100pF
C197, 100pF
C198, 100pF
C199, 100pF
C200, 100pF

9.7X0 (FTL) 1.0Ω
10.8X0 (FTL) 2.7X0
11.0X0 4.7R
12.0X0 4.7R
14.0X2 5.1C
15.0X0 6.1C

Q101, 100
Q102, 100
Q103, 100
Q104, 100
Q105, 100
Q106, 100
Q107, 100
Q108, 100
Q109, 100
Q110, 100
Q111, 100
Q112, 100
Q113, 100
Q114, 100
Q115, 100
Q116, 100
Q117, 100
Q118, 100
Q119, 100
Q120, 100
Q121, 100
Q122, 100
Q123, 100
Q124, 100
Q125, 100
Q126, 100

NTSC . C
PAL . C
NTSC . Y
PAL . Y
VIDEO
COMPOSITE SYNC

R

G

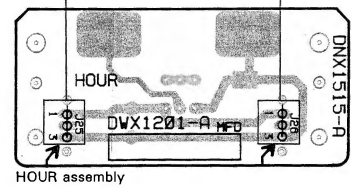
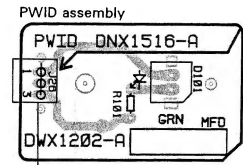
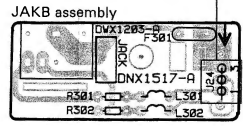
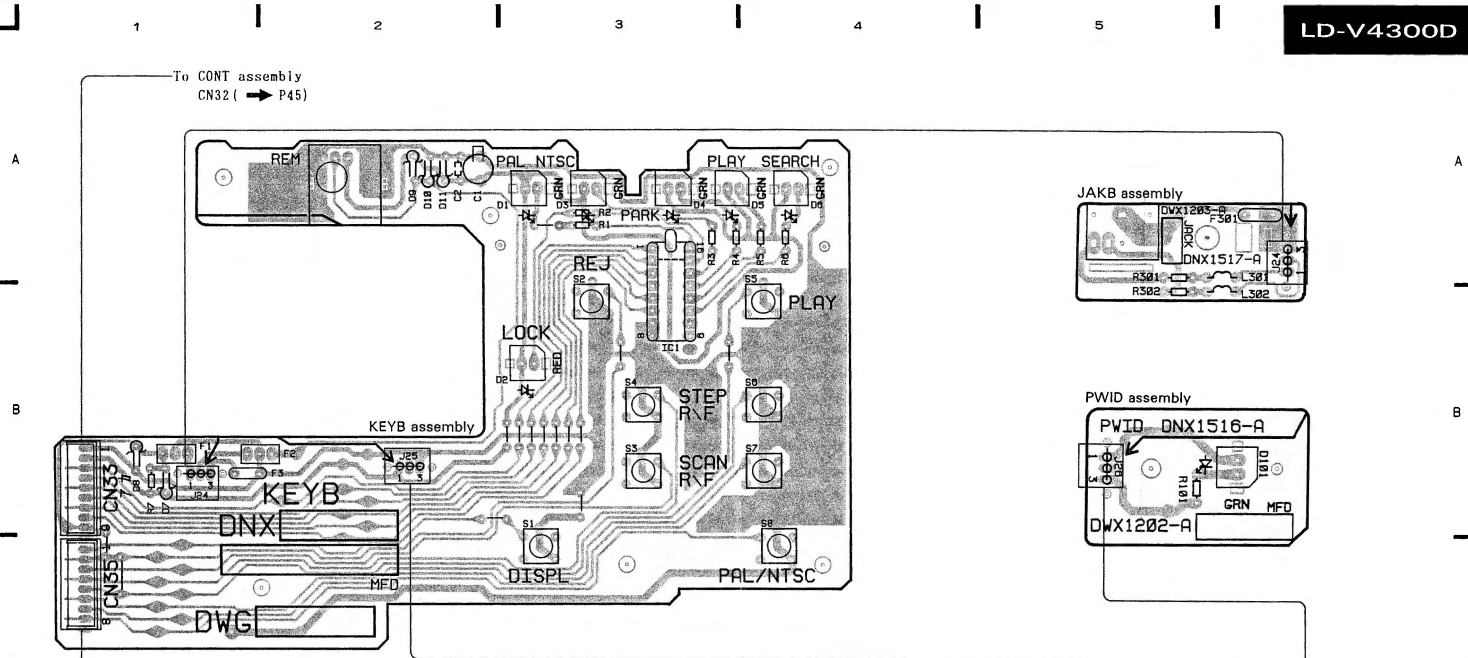
B

A

B

C

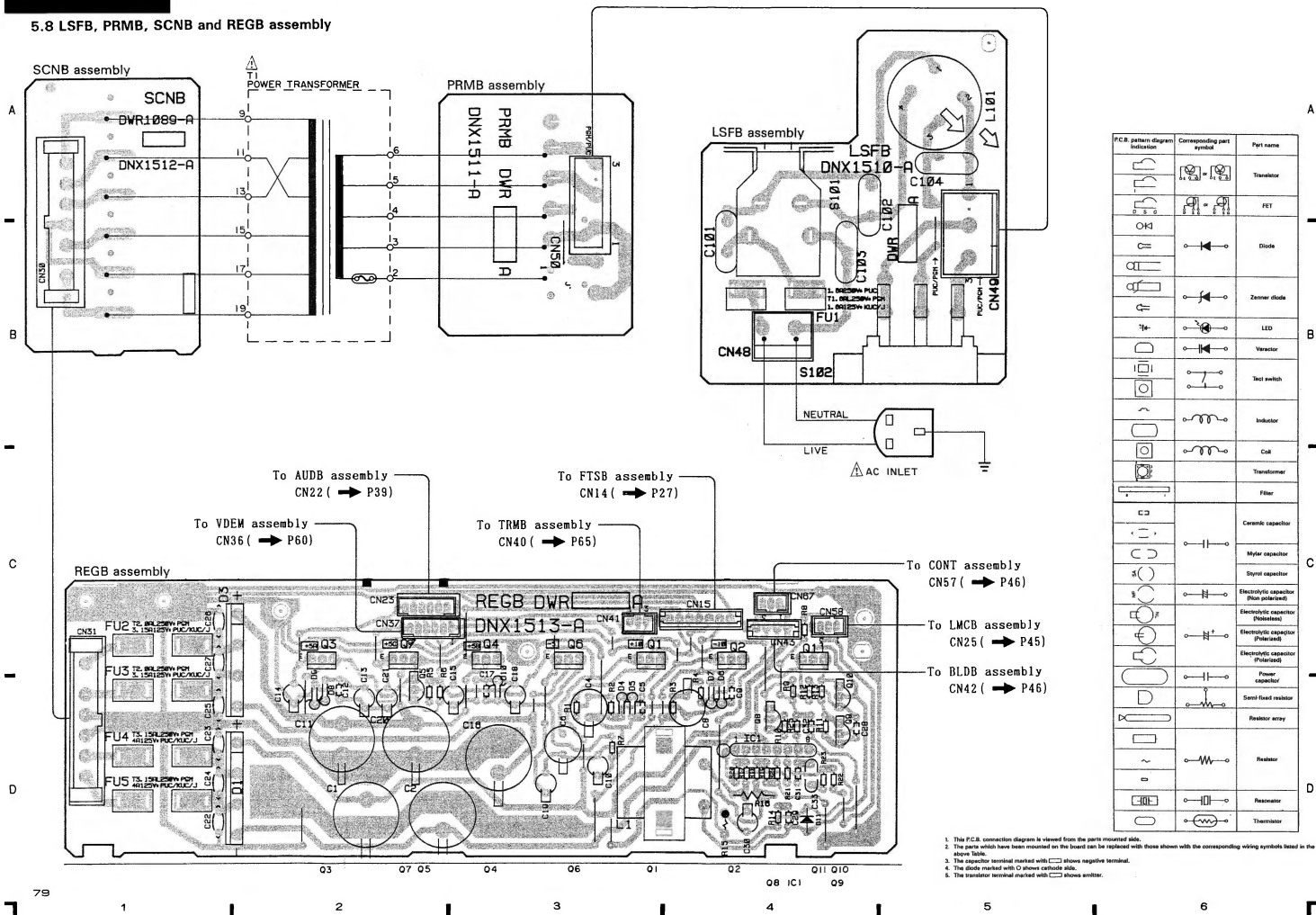
D



P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor			Semi-fixed resistor			Varactor
		FET			Mylar capacitor			Resistor array			Inductor
		Diode			Styrol capacitor			Resistor			Coil
		Zener diode			Electrolytic capacitor (Non polarized)			Resonator			Transformer
		LED			Electrolytic capacitor (Polarized)			Thermistor			Filter
					Power capacitor			Test switch			

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with shows negative terminal.
4. The diode marked with shows anode side.
5. The transistor terminal marked with shows emitter.

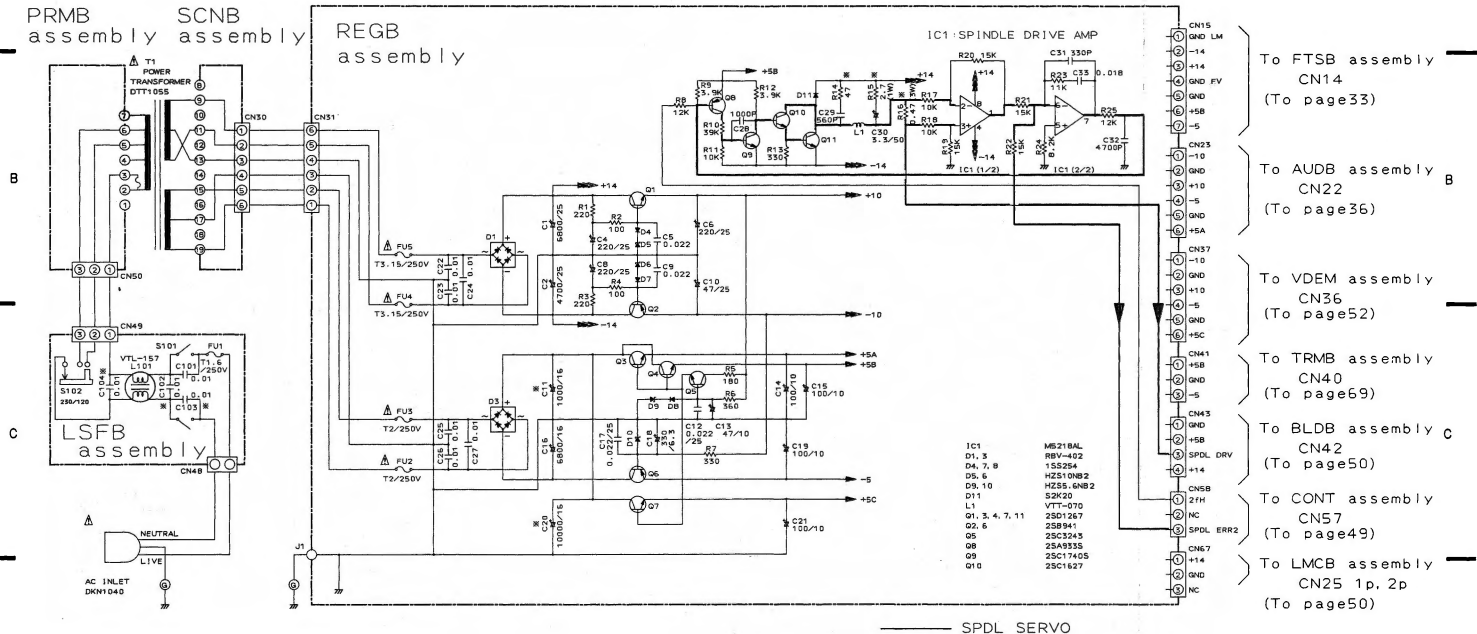
5.8 LSF, PRMB, SCNB and REGB assembly



1. This P.C.B. connection diagram is viewed from the parts mounted side.
 2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above table.
 3. The capacitor terminal marked with \ominus shows negative terminal.
 4. The diode marked with \ominus shows cathode side.
 5. The resistor terminal marked with \ominus shows anther.

A

A



D

D

6. PCB's PARTS LIST

NOTES:

- Part without part number cannot be supplied.
- Parts marked by "*" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 500 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).
 500Ω 56 × 10¹ 561.....RD18PM □ □ □ J
 47kΩ 47 × 10³ 473.....RD14PS □ □ □ J
 0.5Ω 0R5.....RN2H □ □ □ K
 1Ω 010.....RS1P □ □ □ K

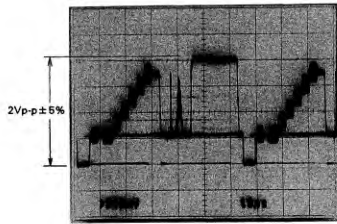
Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
 5.62kΩ 562 × 10¹ 5621.....RN14SR □ □ □ F

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
CONT ASSEMBLY					
SEMICONDUCTORS					
IC1	MECHANISM CONT, MCU	PD0081A1	CAPACITORS		
IC10	LOGIC IC	TC74HC123AF	Fl, 2	FILTER	VTH1001
IC11	QUAD 2-INPUT NAND	TC74HC00AF	VC201	VARIABLE CAPACITOR (10p)	PCM1001
IC12	SYSTEM PRESET IC	M51953BL	VC202	VARIABLE CAPACITOR (120p)	DCM1007
IC13	EEPROM	M6M80011AL			
IC2	MODE CONT, MCU	PD0110A	C1	ELECTR. CAPACITOR	CEAS101M10
IC201	IC	PA5012	C10, C11	CERAMIC CAPACITOR	CCSQSL102J50
IC204	IC	CX23065A	C12	CERAMIC CAPACITOR	CKSQYF473Z25
IC206	HEX INVERTER	TC74HC04AF	C13	MYLOR FILM CAPACITOR	QMA681J50
IC207	LOGIC IC	BU4053BF	C14	MYLOR FILM CAPACITOR	QOMA392J50
IC208	IC	PD6908B	C15	CERAMIC CAPACITOR	CKSQYF473Z25
IC209	IC	NJM4558M-TR	C16	CHIP CAPACITOR	CKSQYF103Z50
IC4, 5	IC	KXD1095Q	C17, C18	CHIP CAPACITOR	CCSQCH180J50
IC8	LOGIC IC	TC74HC139AF	C19, C20	CERAMIC CAPACITOR	CKSQYF473Z25
IC7	LOGIC IC	BU4053BF	C20	CHIP CAPACITOR	CKSQYF103Z50
IC8	COMPARATOR	BA10393F	C201, C27	CHIP CAPACITOR	CKSQYF103Z50
IC9	SCHMITT INVERTER	TC74HC14AF	C202	ELECTR. CAPACITOR	CEAS470M10
Q1	DIGITAL TRANSISTOR	DTC124EK	C203	CHIP CAPACITOR	CCSQCH680J50
Q2	CHIP TRANSISTOR	2SC2412K	C204	CERAMIC CAPACITOR	CKSQYB681K50
Q201	DIGITAL TRANSISTOR	DTC124EK	C205	MYLOR FILM CAPACITOR	QOMA102J50
Q202	TRANSISTOR	DT1C124ES			
Q203, 204	DIGITAL TRANSISTOR	DTC124EK	C206-208	CHIP CAPACITOR	CCSQCH101J50
Q205, 206	CHIP TRANSISTOR	2SA1037K	C209	ELECTR. CAPACITOR	CEAS470M10
Q208, 209	DIGITAL TRANSISTOR	DTA124EK	C210	CHIP CAPACITOR	CCSQCH330J50
Q210, 211	DIGITAL TRANSISTOR	DTC124EK	C211	PL. STYRENE CAPACITOR	QSA181J50
Q3	CHIP TRANSISTOR	2SC2412K	C212	MYLOR FILM CAPACITOR	QOMA682J50
Q4	DIGITAL TRANSISTOR	DTC124EK			
D1	CHIP DIODE ARRAY	DA204K			
D201, 202	VARI-CAP DIODE	SV3251SP			
D203	CHIP DIODE ARRAY	DAN202K			
COILS					
L201	AXIAL INDUCTOR	LAU270J			
L202	AXIAL INDUCTOR	LAU010K			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
C218	CHIP CAPACITOR	CCSQCH101J50	R2	RESISTOR ARRAY (4.7k)	RA8T472J
C219	CHIP CAPACITOR	CKSQYF103Z50	R201	RESISTOR (4.7kΩ, 1/6W)	DCN1001
C22	CHIP CAPACITOR	CKSQCH330J50	R206	CARBON FILM RESISTOR	RD1/6PM183J
C220	ELECTR. CAPACITOR	CEAS470M10			
C221	ELECTROLYTIC CAPACITOR	CEANP0R1M50	R208	CARBON FILM RESISTOR	RD1/6PM103J
C222	AUDIO FILM CAPACITOR	CPTXA104J50	R209	RESISTOR (4.7kΩ, 1/6W)	DCN1001
C223	CHIP CAPACITOR	CKSQYF103Z50	R260, 261	CARBON FILM RESISTOR	RD1/6PM122J
C224	CERAMIC CAPACITOR	CKSQYB103K50	R272, 273	CARBON FILM RESISTOR	RD1/6PM122J
C225	CHIP CAPACITOR	CKSQYF103Z50			
C226	CERAMIC CAPACITOR	CKSQYB103K50	R276	CARBON FILM RESISTOR	RD1/6PM125J
C227	CHIP CAPACITOR	CKSQYF103Z50			
C228	CHIP CAPACITOR	CKSQYF103Z50			
C229	CERAMIC CAPACITOR	CKSQYB103K50		Other resistors	RS1/10S□□□□
C23	MYLOR FILM CAPACITOR	QQMA473J50			
C230, 231	CERAMIC CAPACITOR	CCSQCH151J50	OTHERS		
C232	MYLOR FILM CAPACITOR	QOMA182J50		IC SOCKET	VKH-029
C234	MYLOR FILM CAPACITOR	QOMA272J50		IC SOCKET 28P	VKH1001
C235	MYLOR FILM CAPACITOR	QOMA472J50	X1	CERAMIC RESONATOR	VSS1040
C236	AUDIO FILM CAPACITOR	CPTXA104J50	X2	CRYSTAL RESONATOR	DSS1010
C237	MYLOR FILM CAPACITOR	QOMA122J50	X201	CRYSTAL RESONATOR	VSS1029
C238	ELECTR. CAPACITOR	CEAS470M10	X202	CRYSTAL RESONATOR (3.750MHz)	DSS1019
C239	CHIP CAPACITOR	CKSQYF103Z50			
C24	MYLOR FILM CAPACITOR	QOMA103J50			
C240, 241	CHIP CAPACITOR	CKSQYF103Z50			
C244	ELECTR. CAPACITOR	CEAS470M10			
C247	AUDIO FILM CAPACITOR	CPTXA104J50	IC1, 2	DUAL MMV	TC74HC221AF
C248, 249	MYLOR FILM CAPACITOR	QOMA102J50	IC3	IC	TC74HC74AF
C250	ELECTR. CAPACITOR	CEAS470M10	IC4, 5	QUAD 2-INPUT NAND	TC74HC00AF
C251, 252	CHIP CAPACITOR	CKSQYF103Z50	Q1	CHIP TRANSISTOR	2SA1037K
C253	ELECTR. CAPACITOR	CEAS470M10	Q2	CHIP TRANSISTOR	2SC2412K
C254, 260	CHIP CAPACITOR	CKSQYF103Z50	Q3	DIGITAL TRANSISTOR	DTA124EK
C255	ELECTR. CAPACITOR	CEAS470M10	Q4	DIGITAL TRANSISTOR	DTC124EK
C256	MYLOR FILM CAPACITOR	QOMA393J50	Q5	CHIP TRANSISTOR	2SC2412K
C259	CHIP CAPACITOR	CCSQCH101J50	D1-3	DIODE	1SS254
C26, 26	CHIP CAPACITOR	CKSQYF103Z50	D6	DIODE	1SS254
C3-7	ELECTR. CAPACITOR	CEAS470M10			
C8	ELECTR. CAPACITOR	CEASR47M50	SWITCH		
C9	CERAMIC CAPACITOR	CKSQYF473Z25	S1	SWITCH	VSK-005
RESISTORS					
VR201	VR	VRTB6VS473	COIL		
R1	RESISTOR ARRAY (4.7k)	RA8T472J	F1	FILTER	VTH1001
R120	RESISTOR ARRAY (10k)	RA6T103J			
CAPACITORS					
			C1	ELECTR. CAPACITOR	CEAS470M16
			C10-13	CERAMIC CAPACITOR	CKSQYF473Z25
			C14	ELECTROLYTIC CAPACITOR	CEASR10M50
			C15	CERAMIC CAPACITOR	CCSQSL102J50
			C2-4	MYLOR FILM CAPACITOR	QOMA102J50

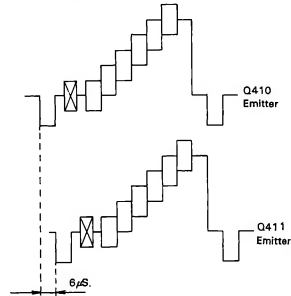
● Waveforms

● Video Level Adjustment



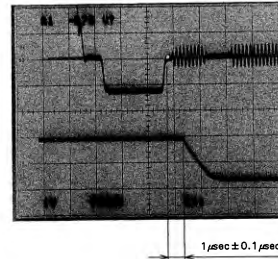
Waveform 1 (NTSC)

● VCO (CCD) Centering Frequency Adjustment



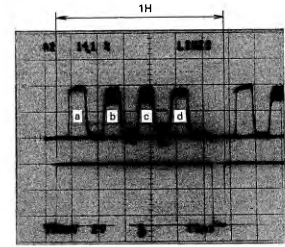
Waveform 3 (1H + 6µsec delay)

● Burst Gate Timing Adjustment

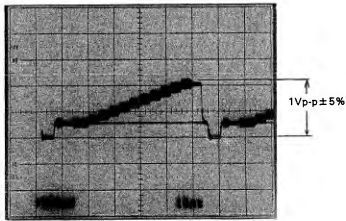


Waveform 4 (NTSC)

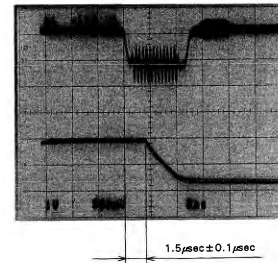
● Chroma Adjustment



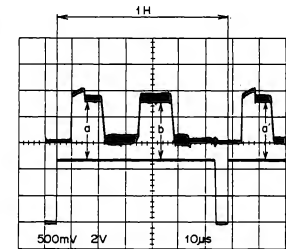
Waveform 5 (NTSC)



Waveform 2 (PAL)



Waveform 4 (PAL)

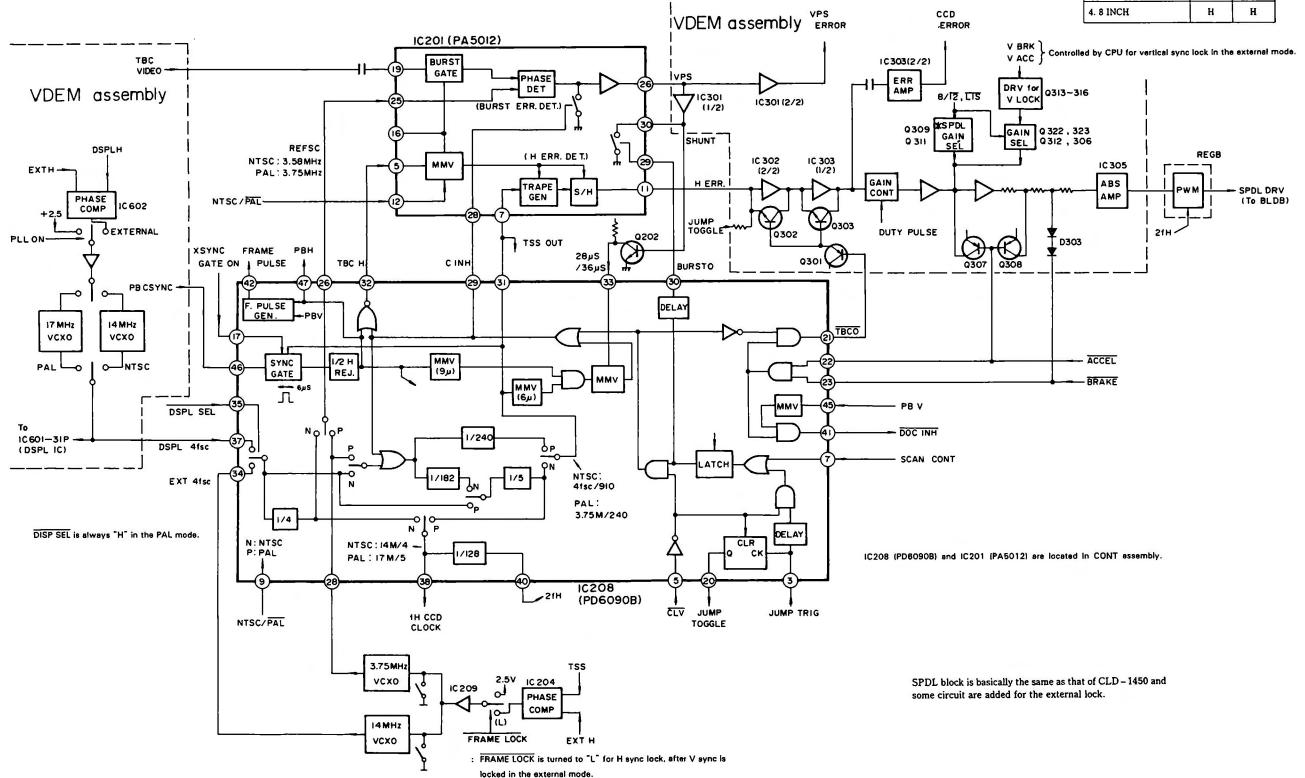


Waveform 6 (PAL)

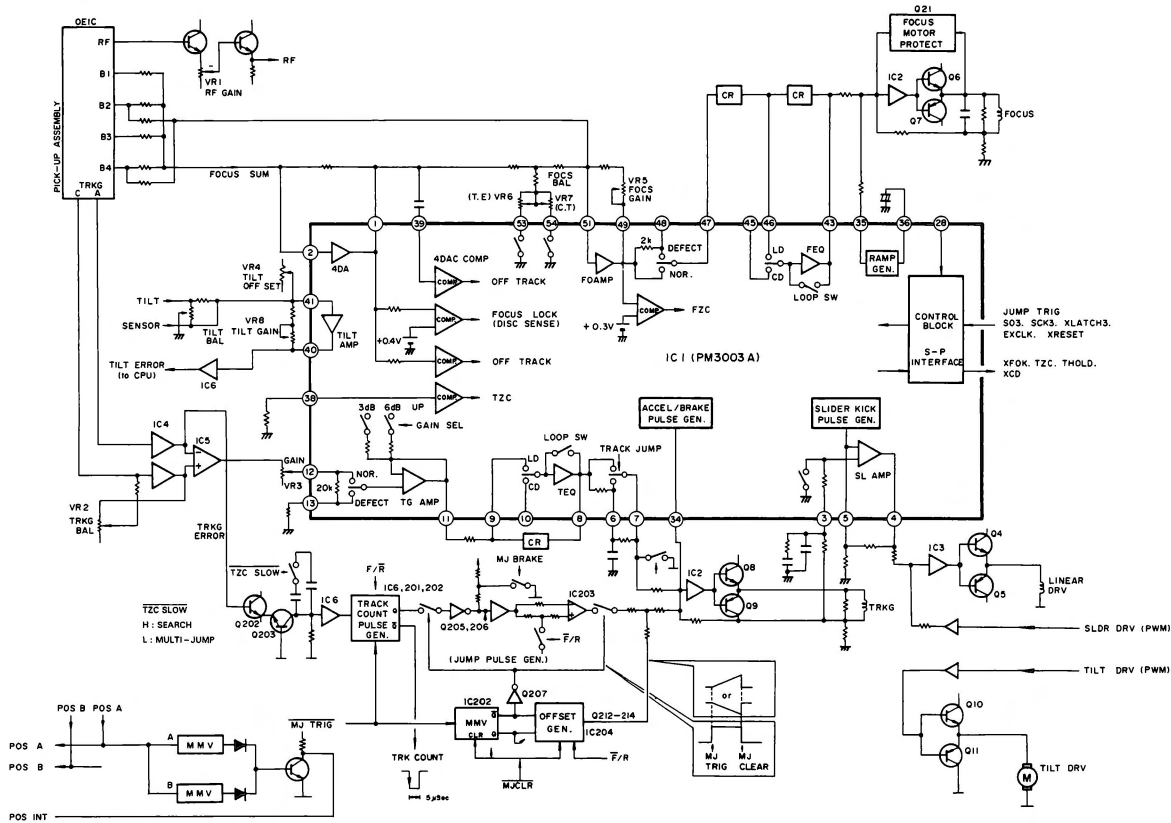
9. BLOCK DIAGRAM
9.1 SPDL BLOCK DIAGRAM

NOTE:

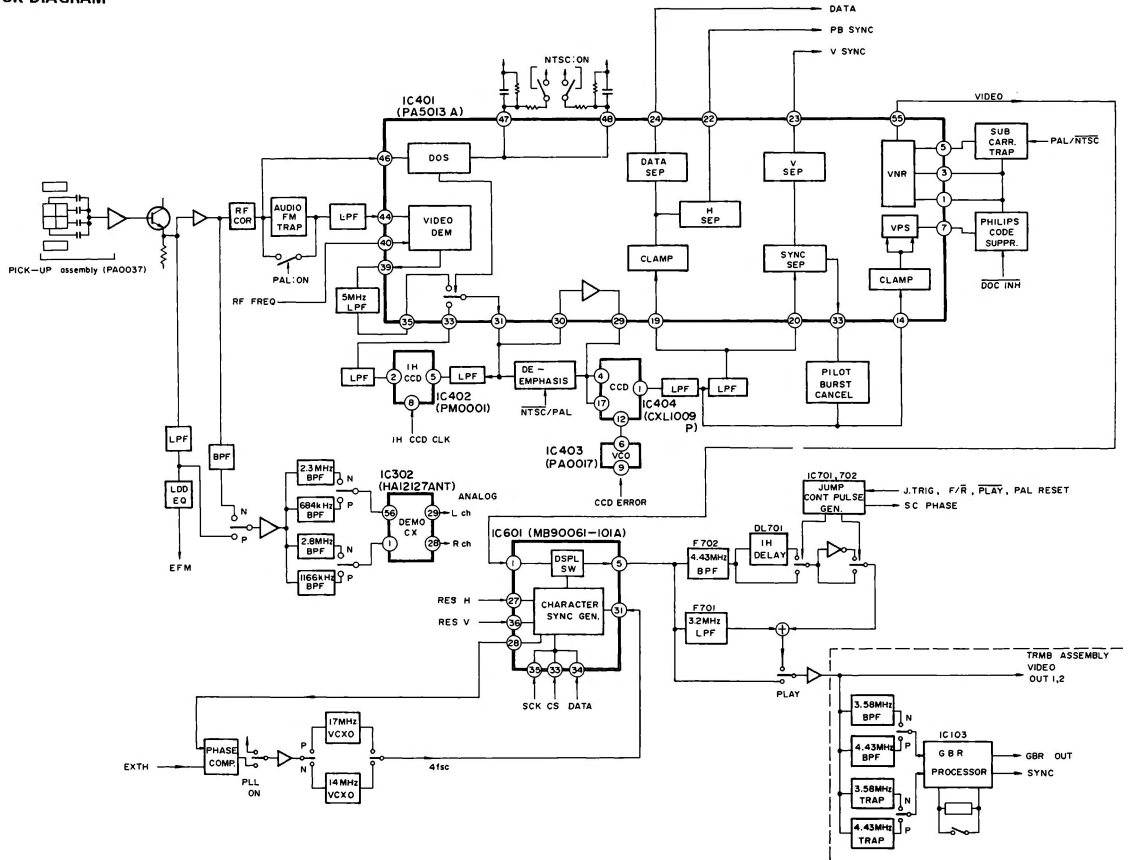
*SPDL GAIN SEL	LTS	8/12
1. ALUMINIUM	L	L
2. 12 INCH	R	L
3. 12 INCH SINGLE	L	H
4. 8 INCH	H	H



9.2 FTS BLOCK DIAGRAM



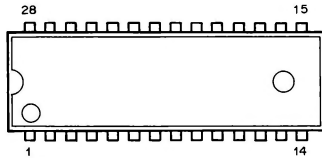
9.3 VIDEO BLOCK DIAGRAM



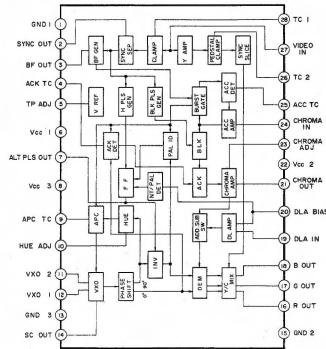
10. IC INFORMATION

■ IC103 (V7021) : NTSC/PAL DECODER

● Pin Assignment



● Block Diagram



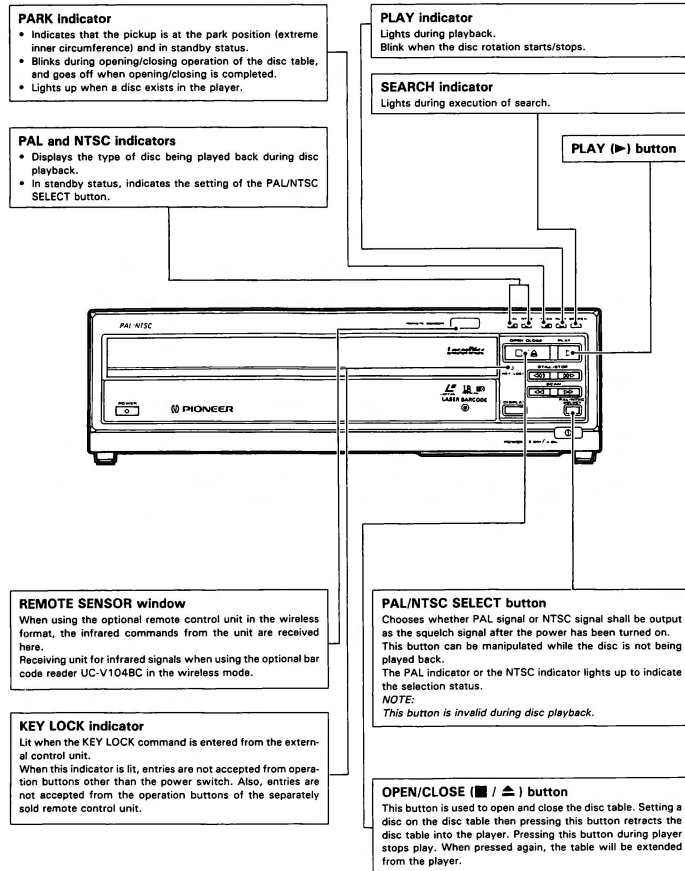
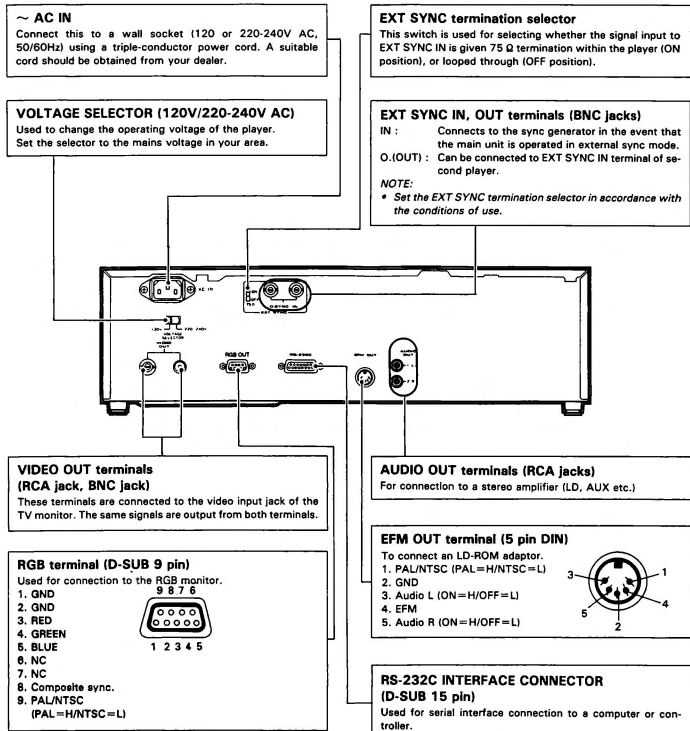
● Pin Function

No.	Symbol	Description
1	GND1	GND terminal of Y AMP and SYNC SEP.
2	SYNC OUT	Output terminal of COMPOSIT SYNC. (TTL level)
3	BF OUT	Burst flag output terminal. (TTL level)
4	ACK TC	Time constant terminal of ACK (automatic color killer).
5	TP ADJ	Burst flag position adjustment terminal. The burst flag position can be adjusted to tp (BF) = 5.6 μs by changing the current from this terminal.
6	Vcc 1	Power terminal of Y AMP and SYNC SEP.
7	ALT PLS OUT	Line alternate pulse output terminal. During NTSC mode : L During PAL mode : Alternately changes H to L and vice versa at every 1H.
8	Vcc 3	Power terminal of APC, HUE and VXO.
9	APC TC	APC (color synchronous) time constant and f0 adjustment terminal. The free-run frequency of VXO can be adjusted by changing the DC voltage on this terminal to variable.
10	HUE ADJ	HUE adjustment terminal. Hue over ±30° can be adjusted by applying a voltage of 0 to 5V to this terminal. For the PAL mode, ground this terminal using a capacitor.
11	VXO 2	Crystal oscillator terminal

● External applied voltage

No.	Symbol	Description
12	VXO 1	Crystal oscillator terminal
13	GND 3	GND terminal of APC, HUE and VXO.
14	SC OUT	Subcarrier output terminal
15	GND 2	GND terminal of the demodulator and the Y/C mixer.
16	R OUT	R output terminal
17	G OUT	G output terminal
18	B OUT	B output terminal
19	DLA IN	DL amplifier input terminal. Ground this terminal for the NTSC mode. Connect to the IHDL OUT terminal for the PAL mode.
20	DLA BIAS	NTSC/PAL mode switching and DL amplifier gain adjustment terminal. By changing the voltage on this terminal, the mode can be changed from NTSC to PAL and vice versa, and the gain of the DL amplifier in the PAL mode can be adjusted. $V_{DL} \leq 0.8V$: NTSC mode $2.0V \leq V_{DL} \leq 2.8V$: PAL mode Variable range : ±3dB or more
21	CHROMA OUT	Chroma output terminal. Connect to Vcc2 for the NTSC mode. Connect to the IHDL IN terminal for the PAL mode.
22	Vcc 2	Power terminal of demodulator and Y/C mixer.
23	CHROMA ADJ	Chroma amplifier gain adjustment terminal. The gain of the chroma amplifier can be adjusted by changing the voltage on this terminal. $V_{CA} \leq 0.8V$: Monochrome mode (free run) $2.0V \leq V_{CA} \leq 3.0V$: Color mode Variable range : -20 to 0dB or more
24	CHROMA IN	Chroma signal input terminal. The standard input level is burst amplification of 143mVp-p.
25	ACC TC	ACC (automatic color control) time constant terminal.
26	TC 2	Pedestal clamp time constant terminal
27	VIDEO IN	Video signal (luminance and synchronous signals) input terminal. The standard input level is 0.36Vp-p.
28	TC 1	Clamp time constant terminal for SYNC SEP.

11. PANEL FACILITIES



Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
C5	ELBCTR. CAPACITOR	CEAS010M50	Q5	TRANSISTOR	2SC3243
C6	MYLOR FILM CAPACITOR	CQMA102J50	Q6	TRANSISTOR	2SB941
C7, 8	ELECTR. CAPACITOR	CEAS470M16	Q7	TRANSISTOR	2SD1267
C9	CERAMIC CAPACITOR	CKSQYF473Z25	Q8	TRANSISTOR	2SA935
			Q9	TRANSISTOR	2SC1740S
RESISTORS			D1	BRIDGE STACK	RBV-402
R2	CARBON FILM RESISTOR	RD1/6PM222J	D10	ZENER DIODE	HZSS.6NB2
R3	CARBON FILM RESISTOR	RD1/6PM103J	D11	FAST RECOVERY DIODE	S2K20
R4	CARBON FILM RESISTOR	RD1/6PM750J	D3	BRIDGE STACK	RBV-402
			D4	DIODE	1SS254
	Other resistors	RS1/10S□□□□	D5, 6	ZENER DIODE	HZS10NB2
			D7, 8	DIODE	1SS254
			D9	ZENER DIODE	HZSS.6NB2
OTHERS			COILS		
JA1	BNC ASSY	DKN1038	L1	COIL	VTT-070
LSFB ASSEMBLY			CAPACITORS		
SWITCHES			C1	CAPACITOR (1000 μ /35)	DCH1041
△ S101	SWITCH	VSA-011	C10	ELECTR. CAPACITOR	CEAS470M25
△ S102	VOLTAGE SELECTOR SW	DSH1015	C11	CAPACITOR (10000 μ /16)	VCH1050
			C12	CERAMIC CAPACITOR	CKPUYF223Z25
			C13	ELECTROLYTIC CAPACITOR	CEHAQ470M10
COIL			C14, 15	ELECTROLYTIC CAPACITOR	CEHAQ101M10
△ L101	FILTER	VTL-157	C16	ELECTROLYTIC CAPACITOR	CEAS682M16
CAPACITORS			C17	CERAMIC CAPACITOR	CKPUYF223Z25
△ C101-104	CAPACITOR (CERAMIC)	VCG-048	C18	ELECTROLYTIC CAPACITOR	CEHAQ331M6R3
			C19	ELECTR. CAPACITOR	CEAS101M10
PRMB ASSEMBLY			C2	ELECTROLYTIC CAPACITOR	CEAS472M25
No parts are supplied with the PRMB assembly.			C20	CAPACITOR (10000 μ /16)	VCH1050
			C21	ELECTROLYTIC CAPACITOR	CEHAQ101M10
			C22-27	CERAMIC CAPACITOR	CKCYF103Z50
			C28	CERAMIC CAPACITOR	CKPUYB102K50
SCNB ASSEMBLY			C29	AXIAL CAPACITOR	CKPUYB561K50
No parts are supplied with the SCNB assembly.			C30	ELECTR. CAPACITOR	CEAS93R3M50
			C31	CERAMIC CAPACITOR	CKPUYB331K50
			C32	MYLOR FILM CAPACITOR	CQMA472J50
			C33	MYLOR FILM CAPACITOR	CQMA183J50
REGB ASSEMBLY			C4	ELECTROLYTIC CAPACITOR	CEHAQ221M25
SEMICONDUCTORS			C5	CERAMIC CAPACITOR	CKPUYF223Z25
IC1	OP-AMP-IC	M5218AL	C6	ELECTR. CAPACITOR	CEAS221M25
Q1	TRANSISTOR	2SD1267	C8	ELECTROLYTIC CAPACITOR	CEHAQ221M25
Q10	TRANSISTOR	2SC1627	C9	CERAMIC CAPACITOR	CKPUYF223Z25
Q11	TRANSISTOR	2SD1267			
Q2	TRANSISTOR	2SB941			
Q3, 4	TRANSISTOR	2SD1267			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
RESISTORS			Q408	CHIP TRANSISTOR	25C2412K
R14	RESISTOR (47 Ω , 1/6W)	DCN1063	Q409	CHIP TRANSISTOR	25A1037K
R15	RESISTOR (2.7 Ω , 3W)	VCN-100	Q410	CHIP TRANSISTOR	25C2412K
R16	RESISTOR (0.47 Ω , 3W)	DCN1013	Q411	CHIP TRANSISTOR	25A1037K
R17, 18	METALFILM RESISTOR	RN1/6PQ1002F	Q412-415	CHIP TRANSISTOR	25C2412K
R19	METALFILM RESISTOR	RN1/6PQ1502F	Q416-418	CHIP TRANSISTOR	25A1037K
R20	METALFILM RESISTOR	RN1/6PQ1502F	Q419	CHIP TRANSISTOR	25C2412K
	Other resistors	RD1/6PM□□□□	Q420-422	CHIP TRANSISTOR	25A1037K
VDEM ASSEMBLY			Q423	CHIP TRANSISTOR	25C2412K
SEMICONDUCTORS			Q424	DIGITAL TRANSISTOR	DTC124EK
IC301-305	IC	NJM4558M-TR	Q425	CHIP TRANSISTOR	25A1037K
IC401	VIDEO IC	PA5013A	Q428	DIGITAL TRANSISTOR	DTC124EK
IC402	CDD DELAY LINE	PM0001	Q429	DIGITAL TRANSISTOR	DTA124EK
IC403	IC	PA6017	Q430	CHIP TRANSISTOR	25A1037K
IC404	IC	CXL1009P	Q431	CHIP TRANSISTOR	25C2412K
IC406-409	LOGIC IC	TC4566F-TR	Q432-434	CHIP TRANSISTOR	25A1037K
IC410	REGULATOR IC	NJM79L05A	Q435	CHIP TRANSISTOR	25C2412K
IC411	REGULATOR IC	NJM78L05A	Q601-603	CHIP TRANSISTOR	25C2412K
IC601	DISP IC	MB90061-101A	Q604	CHIP TRANSISTOR	25A1037K
IC602	IC	CX23065A	Q805, 606	CHIP TRANSISTOR	25C2412K
IC603	LOGIC IC	BT14063B	Q807, 608	CHIP TRANSISTOR	25A1037K
IC604	LOGIC IC	TC74HC04AP	Q809	CHIP TRANSISTOR	25C2412K
IC605	LOGIC IC	SN74LS00N	Q510, 611	DIGITAL TRANSISTOR	DTC124EK
IC608	LOGIC IC	TC74HC221AP	Q702, 703	CHIP TRANSISTOR	25C2412K
IC609	OP-AMP-IC	M5218AL	Q705	CHIP TRANSISTOR	25C2412K
IC701	LOGIC IC	TC74HC221AP	Q706	CHIP TRANSISTOR	25A1037K
IC702	CMOS, IC	TC74HC107AP	Q707-714	CHIP TRANSISTOR	25C2412K
IC703	LOGIC IC	TC74HC00AP	Q715	DIGITAL TRANSISTOR	DTA124EK
IC704	ANALOG SWITCH	TC74HC4063AP	D301, 302	ZENER DIODE	HZS3B2
Q301	TRANSISTOR	DTA124ES	D303-305	CHIP DIODE ARRAY	DA204K
Q302-305	CHIP TRANSISTOR	25C2412K	D306	DIODE	1S5254
Q306-308	DIGITAL TRANSISTOR	DTA124EK	D307	CHIP DIODE ARRAY	DA204K
Q309-311	DIGITAL TRANSISTOR	DTC124EK	D308, 309	DIODE	1S5254
Q312	CHIP TRANSISTOR	25C2412K	D310, 311	CHIP DIODE ARRAY	DAN202K
Q313	DIGITAL TRANSISTOR	DTC124EK	D312	DIODE	1S5254
Q314	DIGITAL TRANSISTOR	DTA124EK	D313	CHIP DIODE ARRAY	DAN202K
Q315	DIGITAL TRANSISTOR	DTA124EK	D314, 315	DIODE	1S5254
Q316	DIGITAL TRANSISTOR	DTA124EK	D316	CHIP DIODE ARRAY	DAN202K
Q317	TRANSISTOR	25C1740S	D401-403	DIODE	1S5254
Q318	CHIP TRANSISTOR	25A1037K	D601	DIODE	1S5254
Q319	TRANSISTOR	25A933S	D602	VARI-CAP DIODE	SVC3215P
Q320	CHIP TRANSISTOR	25A1037K	D603	VARI-CAP DIODE	15V68
Q321	TRANSISTOR	25C3064	COILS		
Q322, 323	CHIP TRANSISTOR	25C2412K	L401	AXIAL INDUCTOR	LAU101J
Q401	CHIP TRANSISTOR	25C2412K	L402, 403	AXIAL INDUCTOR	LAU220J
Q402, 403	CHIP TRANSISTOR	25A1037K	L404, 405	AXIAL INDUCTOR	LAU120J
Q404	CHIP TRANSISTOR	25C2412K	L406	AXIAL INDUCTOR	LAU430J
Q405	CHIP TRANSISTOR	25A1037K	L407	AXIAL INDUCTOR	LAU390J
Q406, 407	DIGITAL TRANSISTOR	DTA124EK	L408	AXIAL INDUCTOR	LAU620J
			L409	AXIAL INDUCTOR	LAU390J
			L410	RADIAL INDUCTOR	LFA221J
			L411	AXIAL INDUCTOR	LAU101J
			L412	RADIAL INDUCTOR	LFA221J

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
L413, 414	AXIAL INDUCTOR	LAU120J	C330	ELECTR. CAPACITOR	CEAL4R7M50
L415	AXIAL INDUCTOR	LAU220J	C321	MYLOR FILM CAPACITOR	CQMA103J50
L416	AXIAL INDUCTOR	LA1680J			
L417	AXIAL INDUCTOR	LAU121J			
L418	AXIAL INDUCTOR	LAU180J	C322	ELECTR. CAPACITOR	CEANP4R7M16
L419	AXIAL INDUCTOR	LAU120J	C323	CHIP CAPACITOR	CCSQSL102J50
L420	AXIAL INDUCTOR	LAU560J	C324	CHIP CAPACITOR	CCSQCH101J50
L421	AXIAL INDUCTOR	LAU330J	C325	ELECTR. CAPACITOR	CEAL470M16
L422	RADIAL INDUCTOR	LFA561J	C326	CHIP CAPACITOR	CKSQYF103Z50
L423, 424	RADIAL INDUCTOR	LFA100J			
L601	RADIAL INDUCTOR	LFA101J	C327	ELECTR. CAPACITOR	CEAS470M10
L602	AXIAL INDUCTOR	LAU100J	C328	CHIP CAPACITOR	CKSQYF103Z50
L603	AXIAL INDUCTOR	LAU220J	C329	ELECTR. CAPACITOR	CEAS470M10
L604	AXIAL INDUCTOR	LAU010K	C330	ELECTROLYTIC CAPACITOR	CEALNP470M6R3
L605	RADIAL INDUCTOR	LFA100J	C401-403	CERAMIC CAPACITOR	CCSQCH151J50
L701, 702	AXIAL INDUCTOR	LAU8R2J	C404	CHIP CERAMIC C,	CCSQCH221J50
L703, 704	RADIAL INDUCTOR	LFA100J	C405	CERAMIC CAPACITOR	CCSQCH270J50
			C406	CERAMIC CAPACITOR	CCSQCH390J50
DL701	FILTER	VTF1019	C407	CERAMIC CAPACITOR	CCSQCH120J50
			C408	CERAMIC CAPACITOR	CCSQCH470J50
F601, 602	FERRITE CORE	DTF1013	C411, 412	CHIP CERAMIC C,	CCSQCH220J50
F701	FILTER	VTF1011	C413	CHIP CAPACITOR	CKSQYF103Z50
F702	FILTER	VTF1034	C414	CERAMIC CAPACITOR	CKSQYB103K50
			C415	CERAMIC CAPACITOR	CCSQCH120J50
			C416	CERAMIC CAPACITOR	CKSQYB103K50
CAPACITORS					
VC601	VARIABLE CAPACITOR (20p)	DCM1005	C417	CERAMIC CAPACITOR	CCSQCH470J50
VC602	VARIABLE CAPACITOR (10p)	PCM1001	C418	CERAMIC CAPACITOR	CCSQCH390J50
			C419, 420	CHIP CAPACITOR	CKSQYF103Z50
C301, 302	CHIP CAPACITOR	CKSQYF103Z50	C421	ELECTR. CAPACITOR	CEAS470M10
C303	AUDIO FILM CAPACITOR	CFTXA563J50	C422	MYLOR FILM CAPACITOR	CQMA102J50
C304	ELECTR. CAPACITOR	CEANP220M10			
C305	MYLOR FILM CAPACITOR	CQMA153J50	C423	MYLOR FILM CAPACITOR	CQMA103J50
C306	MYLOR FILM CAPACITOR	CQMA103J50	C424	ELECTR. CAPACITOR	CEAS470M10
C307	AUDIO FILM CAPACITOR	CFTXA124J50	C425	CHIP CAPACITOR	CKSQYF103Z50
C308	MYLOR FILM CAPACITOR	CQMA223J50	C426	CERAMIC CAPACITOR	CCSQCH270J50
C309	ELECTR. CAPACITOR	CEAS470M10	C427	AXIAL CERAMIC C,	CCPUCH100J50
C310	AUDIO FILM CAPACITOR	CFTXA394J50	C428	CPUSL470J50	
C311	AUDIO FILM CAPACITOR	CFTXA104J50	C429	AXIAL CERAMIC C,	CCPUSL390J50
C312	ELECTR. CAPACITOR	CEANP220M10	C430	CHIP CAPACITOR	CCSQCH100D50
C313	MYLOR FILM CAPACITOR	CQMA393J50	C431	ELECTR. CAPACITOR	CEAS4R7M50
C314	CHIP CAPACITOR	CKSQYF103Z50	C434	CHIP CAPACITOR	CCSQSL471J50
C315	ELECTR. CAPACITOR	CEAS470M10	C435, 436	CHIP CAPACITOR	CKSQYF103Z50
C316	CHIP CAPACITOR	CKSQYF103Z50	C437	CHIP CERAMIC C,	CCSQCH221J50
C317	ELECTR. CAPACITOR	CEAS470M10	C438	ELECTR. CAPACITOR	CEAS470M10
C318	ELECTROLYTIC CAPACITOR	CEALNP330M10	C439	CERAMIC CAPACITOR	CKPIUY183N16
C319	ELECTROLYTIC CAPACITOR	CEALNP470M6R3	C440, 441	CHIP CAPACITOR	CKSQYF103Z50
			C442	CHIP CAPACITOR	CCSQCH101J50
			C443	CHIP CAPACITOR	CCSQCH330J50
			C444	CHIP CERAMIC C,	CCSQCH271J50
			C445, 446	CHIP CAPACITOR	CKSQYF103Z50
			C447, 448	ELECTR. CAPACITOR	CEAS470M10
			C449	ELECTR. CAPACITOR	CEAS4R7M50
			C450, 451	CHIP CAPACITOR	CCSQCH330J50
			C452, 453	CHIP CAPACITOR	CKSQYF103Z50
			C454	AUDIO FILM CAPACITOR	CFTXA104J50

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
C455	ELECTR. CAPACITOR	CEAS3R3M50	C513, 514	ELECTR. CAPACITOR	CEAS470M10
C456	CERAMIC CAPACITOR	CKSQYF103K50	C515, 516	CHIP CAPACITOR	CKSQYF103Z50
C457	CERAMIC CAPACITOR	CKSQYF473Z25	C517, 518	ELECTR. CAPACITOR	CEAS470M10
C458	ELECTROLYTIC CAPACITOR	CEAS471M6R3	C519	CHIP CAPACITOR	CKSQYF103Z50
C459	CERAMIC CAPACITOR	CKSQYF473Z25	C520	CERAMIC CAPACITOR	CCSQSL391J50
C460	ELECTR. CAPACITOR	CEAS220M25	C521	CERAMIC CAPACITOR	CCSQSL102J50
C461, 462	ELECTR. CAPACITOR	CEAS3R3M50	C522	CERAMIC CAPACITOR	CKSQYB103K50
C463	AUDIO FILM CAPACITOR	CFTXA224J50	C524	CHIP CERAMIC C, CAPACITOR	CCSQCH220J50
C464	CERAMIC CAPACITOR	CKSQYF473Z25	C525-527	CHIP CAPACITOR	CKSQYF103Z50
C465-467	ELECTR. CAPACITOR	CEAS470M10	C601	ELECTR. CAPACITOR	CEAS470M10
C468, 469	CERAMIC CAPACITOR	CKSQYF473Z25	C602	CHIP CAPACITOR	CKSQYF103Z50
C470	CHIP CERAMIC C, CAPACITOR	CCSQCH220J50	C603	ELECTR. CAPACITOR	CEAS470M10
C471	CERAMIC CAPACITOR	CCSQCH390J50	C604 605	CHIP CAPACITOR	CKSQYF103Z50
C472	CHIP CAPACITOR	CCSQCH680J50	C606	CERAMIC CAPACITOR	CCSQCH270J50
C473	CERAMIC CAPACITOR	CCSQCH120J50	C607	CHIP CERAMIC C, CAPACITOR	CCSQCH220J50
C474	ELECTROLYTIC CAPACITOR	CEANP470M10	C608	CHIP CAPACITOR	CCSQCH680J50
C475, 476	CHIP CAPACITOR	CKSQYF103Z50	C609	ELECTR. CAPACITOR	CEAS470M10
C478	CERAMIC CAPACITOR	CCSQCH470J50	C610	MYLOR FILM CAPACITOR	QQMA104J50
C479	CHIP CERAMIC C, CAPACITOR	CCSQCH150J50	C611, 612	CHIP CAPACITOR	CKSQYF103Z50
C480	CHIP CERAMIC C, CAPACITOR	CCSQCH221J50	C613	CHIP CAPACITOR	CCSQCH680J50
C481	CHIP CAPACITOR	CKSQYF103Z50	C614	CHIP CERAMIC C, CAPACITOR	CCSQCH271J50
C482, 483	ELECTR. CAPACITOR	CEAS470M10	C615	CHIP CAPACITOR	CKSQYF103Z50
C484	CHIP CAPACITOR	CKSQYF103Z50	C616	CHIP CERAMIC C, CAPACITOR	CCSQCH221J50
C485	MYLOR FILM CAPACITOR	QQMA104J50	C618	CERAMIC CAPACITOR	CKSQYB103K50
C486	MYLOR FILM CAPACITOR	QQMA103J50	C619	CHIP CAPACITOR	CKSQYF103Z50
C487	ELECTR. CAPACITOR	CEAS220M25	C620	CHIP CERAMIC C, CAPACITOR	CCSQCH221J50
C489	CHIP CAPACITOR	CCSQCH101J50	C621-623	CHIP CAPACITOR	CKSQYF103Z50
C490, 491	CHIP CAPACITOR	CKSQYF103Z50	C626	CHIP CAPACITOR	CKSQYF103Z50
C492	ELECTR. CAPACITOR	CEAS470M10	C627	MYLOR FILM CAPACITOR	QQMA182J50
C493	AUDIO FILM CAPACITOR	CFTXA683J50	C628	MYLOR FILM CAPACITOR	QQMA102J50
C494	ELECTR. CAPACITOR	CEAS100M50	C629	CHIP CAPACITOR	CCSQCH101J50
C495	CHIP CAPACITOR	CCSQSL102J50	C630	MYLOR FILM CAPACITOR	QQMA393J50
C496	CERAMIC CAPACITOR	CCSQCH390J50	C631	MYLOR FILM CAPACITOR	QQMA104J50
C497	ELECTR. CAPACITOR	CEAS470M10	C632	CERAMIC CAPACITOR	CCCH100D50
C498	CHIP CAPACITOR	CKSQYF103Z50	C704	ELECTR. CAPACITOR	CEANP101M6R3
C499	CERAMIC CAPACITOR	CCSQCH560J50	C705	ELECTROLYTIC CAPACITOR	CEAS221M6R3
C500	CERAMIC CAPACITOR	CCSQCH390J50	C708	ELECTROLYTIC CAPACITOR	CEANP470M10
C501	CHIP CERAMIC C, CAPACITOR	CCSQCH220J50	C709-713	CERAMIC CAPACITOR	CKSQYB103K50
C502	AUDIO FILM CAPACITOR	CFTXA447J50	C714, 715	CERAMIC CAPACITOR	CKCYB681K50
C503	CHIP CAPACITOR	CKSQYF103Z50	C716	ELECTR. CAPACITOR	CEAS470M10
C504	CHIP CAPACITOR	CCSQCH910J50	C717, 718	MYLOR FILM CAPACITOR	QQMA473J50
C505	CHIP CAPACITOR	CKSQYF103Z50	C719, 720	ELECTR. CAPACITOR	CEAS470M10
C506	ELECTR. CAPACITOR	CEAS470M10	C721, 722	CHIP CAPACITOR	CKSQYF103Z50
C507	ELECTR. CAPACITOR	CEANP220M10	C727	CERAMIC CAPACITOR	CKSQYB103K50
C508, 509	CHIP CAPACITOR	CKSQYF103Z50	C728	ELECTROLYTIC CAPACITOR	CEANP470M10
C510	ELECTR. CAPACITOR	CEAS470M10			
C511, 512	CHIP CAPACITOR	CKSQYF103Z50			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
RESISTORS					
VR401	VARIABLE RESISTOR	VRTB6VS333	IC308	IC	LC7883KM
VR402	VR	VRTB6VS472	IC309	IC	NJM4558M-TR
VR404	VR	VRTB6VS472	IC310, 311	LOGIC IC	NJU4051BM
VR701	VR	VRTB6VS222	IC312	IC	NJM4558M-TR
VR702	VR	VRTB6VS471	IC313	REGULATOR IC	NJM78L08A
			IC314	REGULATOR IC	NJM79L08A
R332, 333	METALFILM RESISTOR	RN1/6PQ6801F	Q301	TRANSISTOR	2SC1674
R336, 337	METALFILM RESISTOR	RN1/6PQ1202F	Q302	TRANSISTOR	2SC1740S
R408	CHIP TYPE RESISTOR	RS1/10S303F	Q303	TRANSISTOR	2SC1674
R410	CHIP TYPE RESISTOR	RS1/10S303F	Q304, 305	TRANSISTOR	2SC1740S
R411	CARBON FILM RESISTOR	RD1/6PM510J	Q306-308	TRANSISTOR	2SA933S
R415	CHIP TYPE RESISTOR	RS1/10S512F	Q309, 310	TRANSISTOR	DTA124ES
R437, 438	CARBON FILM RESISTOR	RD1/6PM510J	Q311-314	TRANSISTOR	2SA933S
R447, 448	CARBON FILM RESISTOR	RD1/6PM100J	Q315	TRANSISTOR	DTA124ES
R464	CHIP TYPE RESISTOR	RS1/10S203F	Q316	N-FET	2SK184
R467	CARBON FILM RESISTOR	RD1/6PM102J	Q317	TRANSISTOR	DTA124ES
R494, 495	CARBON FILM RESISTOR	RD1/6PM101J	Q318	DIGITAL TRANSISTOR	DTA134EK
R514	CARBON FILM RESISTOR	RD1/6PM222J	Q319	N-FET	2SK184
R632	CARBON FILM RESISTOR	RD1/6PM221J	Q320	TRANSISTOR	DTA124ES
R637	CARBON FILM RESISTOR	RD1/6PM221J	Q321, 322	DIGITAL TRANSISTOR	DTA124EK
R751	CARBON FILM RESISTOR	RD1/6PM223J	Q323	CHIP TRANSISTOR	2SA1037K
R755	CARBON FILM RESISTOR	RD1/6PM103J	Q324	CHIP TRANSISTOR	2SC2412K
	Other resistors	RS1/10S□□□□	Q325	DIGITAL TRANSISTOR	DTA124EK
			Q326	DIGITAL TRANSISTOR	DTA124EK
			Q327, 328	TRANSISTOR	2SC1740S
			Q329	DIGITAL TRANSISTOR	DTA124EK
			D301-310	DIODE	1S5254
			D311	VARI-CAP	PCS4M
			D312, 313	DIODE	1S5254
			COILS		
			L301	RADIAL INDUCTOR	LRA101J
			L302	AXIAL INDUCTOR	LAU470J
			L303	AXIAL INDUCTOR	LAU560J
			L304	AXIAL INDUCTOR	LAU151J
			L305	AXIAL INDUCTOR	LAU181J
			L306	AXIAL INDUCTOR	LAU151J
			L307	AXIAL INDUCTOR	LAU1R8K
			F301	BPF (2.30, 2.81MHz)	RTF1084
			F302	FILTER	VTF1035
			F303	FILTER	VTF1036
			CAPACITORS		
			C301	CERAMIC CAPACITOR	CCSQYB103K50
			C302	CHIP CERAMIC C.	CCSQCH220J50
			C304, 305	ELECTR. CAPACITOR	CEAS220M25
			C307	CERAMIC CAPACITOR	CCSQCH390J50
			C308	CHIP CAPACITOR	CCSQCHI21J50
			C309	CHIP CAPACITOR	CCSQCH910J50
			C310	ELECTR. CAPACITOR	CEANP010M50
			C311	CHIP CAPACITOR	CCSQCH880J50
			C312	CERAMIC CAPACITOR	CCSQCH70J50
			C313, 314	CHIP CAPACITOR	CCSQCHI01J50
			C315	CHIP CAPACITOR	CCSQCH680J50
AUDB ASSEMBLY SEMICONDUCTORS					
IC301	LOGIC IC	BU4053BF			
IC302	BIPOLAR IC	HA12127ANT			
IC303	IC	NJM4558M-TR			
IC304	HEX INVERTER	TC74HC044AF			
IC305	IC	NJM4558M-TR			
IC306	EFM DEMODULATION IC	CXD2500Q			
IC307	LOGIC IC	BU4053BF			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
C316	ELECTR. CAPACITOR	CEAS4R7M50	C370	ELECTROLYTIC CAPACITOR	CEAS471M6R3
C317	MYLOR FILM CAPACITOR	CQMA682J50			
C318	ELECTR. CAPACITOR	CEAS4R7M50			
C319, 320	ELECTR. CAPACITOR	CEAS470M10	C371	CHIP CAPACITOR	CCSQSL102J50
C321	CERAMIC CAPACITOR	CKSQYB103K50	C372	ELECTR. CAPACITOR	CEAS220M25
C322, 323	CHIP CAPACITOR	CKSQYF103Z50	C373	ELECTR. CAPACITOR	CEAS100M50
C324	CERAMIC CAPACITOR	CKSQYB103K50	C375, 376	CHIP CAPACITOR	CKSQYF103Z50
C325	ELECTR. CAPACITOR	CEAS100M50	C377	ELECTR. CAPACITOR	CEAL100M50
C326	CERAMIC CAPACITOR	CKSQYB103K50	C378	CHIP CAPACITOR	CCSQSL102J50
C327, 328	ELECTR. CAPACITOR	CEAS470M10	C379	ELECTR. CAPACITOR	CEANP3R3M16
C329	CHIP CAPACITOR	CCSQCH180J50	C380	CERAMIC CAPACITOR	CKSQYF473Z25
C330	CHIP CAPACITOR	CCSQQB430J50	C381	CERAMIC CAPACITOR	CKCYB103K50
C331, 332	CHIP CERAMIC C.	CCSQCH221J50	C382	CERAMIC CAPACITOR	CKSQYB103K50
C333	ELECTR. CAPACITOR	CEANP220M10	C386	CERAMIC CAPACITOR	CKSQYB152K50
C334	ELECTR. CAPACITOR	CEANP100M16	C387	CERAMIC CAPACITOR	CKSQYF473Z25
C335	CHIP CAPACITOR	CCSQSL102J50	C386, 389	CHIP CAPACITOR	CKSQYF103Z50
C336	CERAMIC CAPACITOR	CKSQYB47K50	C390	ELECTR. CAPACITOR	CEAS470M10
C337	CERAMIC CAPACITOR	CKSQYB152K50	C391	ELECTR. CAPACITOR	CEANP010M50
C338	CHIP CAPACITOR	CCSQCH101J50	C392	ELECTR. CAPACITOR	CEAL100M16
C339	CHIP CERAMIC C.	CCSQCH221J50	C393, 394	ELECTR. CAPACITOR	CEAS470M10
C340	ELECTR. CAPACITOR	CEAS100M50	C395	CERAMIC CAPACITOR	CKSQYB103K50
C341	CERAMIC CAPACITOR	CKSQYB822K50	C396	CHIP CAPACITOR	CCSQSL102J50
C342	AUDIO FILM CAPACITOR	CFTXA4473J50	C397	CERAMIC CAPACITOR	CCSQCH120J50
C343	ELECTROLYTIC CAPACITOR	CEAS471M6R3	C398	CHIP CAPACITOR	CCSQCH100D50
C344	AUDIO FILM CAPACITOR	CFTXA104J50	C399	CERAMIC CAPACITOR	CKSQYB103K50
C345	ELECTR. CAPACITOR	CEANP220M10	C400	ELECTR. CAPACITOR	CEAS470M10
C346	CHIP CAPACITOR	CCSQSL102J50	C401	CHIP CAPACITOR	CKSQYF103Z50
C347	ELECTR. CAPACITOR	CEAS220M25	C402	ELECTR. CAPACITOR	CEAS221M10
C348	CERAMIC CAPACITOR	CKSQYB103K50	C403	ELECTR. CAPACITOR	CEAL470M16
C349	AUDIO FILM CAPACITOR	CFTXA103J50	C404, 406	CHIP CAPACITOR	CKSQYF103Z50
C350	CHIP CAPACITOR	CCSQSL102J50	C407, 408	ELECTROLYTIC CAPACITOR	CEANP220M16
C351	ELECTR. CAPACITOR	CEAS470M10	C411, 412	ELECTR. CAPACITOR	CEAS220M25
C352	CHIP CERAMIC C.	CCSQCH220J50	C413, 414	CHIP CAPACITOR	CCSQSL471J50
C353	CHIP CERAMIC C.	CCSQCH101J50	C415, 416	CERAMIC CAPACITOR	CKSQYB821K50
C354, 355	CHIP CERAMIC C.	CCSQCH221J50	C417, 418	CHIP CAPACITOR	CKSQYF103Z50
C356	ELECTR. CAPACITOR	CEAS470M10	C419, 420	ELECTROLYTIC CAPACITOR	CEANP220M16
C357	ELECTR. CAPACITOR	CEALNP220M16	C421, 422	CERAMIC CAPACITOR	CCSQSL331J50
C358	CHIP CAPACITOR	CCSQSL102J50	C423, 424	ELECTR. CAPACITOR	CEAL470M16
C359	CERAMIC CAPACITOR	CKSQYB472K50	C425, 426	ELECTR. CAPACITOR	CEAS470M16
C360	CHIP CAPACITOR	CCSQCH101J50	C427, 428	ELECTROLYTIC CAPACITOR	CEANP220M16
C361	CHIP CERAMIC C.	CCSQCH221J50	RESISTORS		
C362	CERAMIC CAPACITOR	CKSQYB152K50	R328 - 331	CARBON FILM RESISTOR	RD1/6PM102J
C363	ELECTR. CAPACITOR	CEANP100M16	R379	CARBON FILM RESISTOR	RD1/6PM753J
C364	CERAMIC CAPACITOR	CKSQYB822K50	R393	CARBON FILM RESISTOR	RD1/6PM103J
C365	AUDIO FILM CAPACITOR	CFTXA4473J50	R398	CARBON FILM RESISTOR	RD1/6PM473J
C366	ELECTR. CAPACITOR	CEASR47M50	R403	CARBON FILM RESISTOR	RD1/6PM223J
C367	ELECTROLYTIC CAPACITOR	CEAS471M6R3			
C368	ELECTR. CAPACITOR	CEAS4R7M50			
C369	CHIP CAPACITOR	CCSQSL102J50			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
R409	CARBON FILM RESISTOR	RD1/6PM563J	L102	1H DL ADJUST COIL	DTL1001
R427	RESISTOR (47Ω, 1/6W)	DCN1003	L103, 104	AXIAL INDUCTOR	LAU220J
R438, 439	CARBON FILM RESISTOR	RD1/6PM103J	L105, 106	RADIAL INDUCTOR	LPA101J
R444	CARBON FILM RESISTOR	RD1/6PM681J	F101	B. P. F. FILTER	VTF1038
R445	CARBON FILM RESISTOR	RD1/6PM301J	F102	FILTER	VTF1034
R448, 449	CARBON FILM RESISTOR	RD1/6PM301J	F103	FILTER	VTF-062
R467	CARBON FILM RESISTOR	RD1/6PM101J	F104	FILTER	VTF1018
	Other resistors	RS1/10S□□□	F105, 106	EMI FILTER	DTH1122
OTHERS			F107-111	EMI FILTER	VTH1009
JA301	JACK	DKB1013	F201-210	EMI FILTER	VTH1009
X301	CRYSTAL RESONATOR	VSS1022	CAPACITORS		
	DIN SOCKET 5P	DKN1033	C101, 102	CERAMIC CAPACITOR	CKSQYB103K50
			C103, 104	ELECTR. CAPACITOR	CEAS220M25
			C105	ELECTR. CAPACITOR	CEAS470M25
			C106	CHIP CAPACITOR	CKSQYF103Z50
			C107	ELECTR. CAPACITOR	CEAS470M25
			C108	CHIP CAPACITOR	CKSQYF103Z50
			C109, 110	ELECTR. CAPACITOR	CEAS470M25
			C111	ELECTR. CAPACITOR	CEAS220M25
			C112, 113	MYLAR FILM CAPACITOR	CQMA473J50
			C114	ELECTR. CAPACITOR	CEASR47M50
TRMB ASSEMBLY			C115	CERAMIC CAPACITOR	CKCYB103K50
SEMICONDUCTORS			C116, 117	CHIP CAPACITOR	CKSQYF103Z50
IC101, 102	VIDEO SW IC	NJM2233BL	C118	ELECTR. CAPACITOR	CEAS470M25
IC103	NTSC/PAL DECODER IC	V7021	C119	CERAMIC CAPACITOR	CKSQYB103K50
IC104	ANALOG SWITCH	TC74HC4053AP	C120	ELECTR. CAPACITOR	CEAS470M25
IC105	REGULATOR IC	NJM78L06A	C122	ELECTR. CAPACITOR	CEAS4R7M50
Q101	CHIP TRANSISTOR	2SC2412K	C123, 124	CHIP CAPACITOR	CKSQYF103Z50
Q102, 103	CHIP TRANSISTOR	2SA1037K	C125	ELECTR. CAPACITOR	CEAS5010M50
Q104	CHIP TRANSISTOR	2SC2412K	C126	ELECTR. CAPACITOR	CEAS470M25
Q105	CHIP TRANSISTOR	2SA1037K	C127, 128	CHIP CERAMIC C.	CCSQCH220J50
Q106-110	CHIP TRANSISTOR	2SC2412K	C129	CHIP CAPACITOR	CCSQCH180J50
Q111, 112	TRANSISTOR	2SC1740S	C130	CHIP CERAMIC C.	CCSQCH240J50
Q113	DIGITAL TRANSISTOR	DTA124EK	C131-133	ELECTROLYTIC CAPACITOR	CEAS100M16
Q114, 116	DIGITAL TRANSISTOR	DTC124EK	C134-141	CHIP CAPACITOR	CKSQYF103Z50
Q117-119	CHIP TRANSISTOR	2SC2412K	C148-151	CHIP CAPACITOR	CKSQYF103Z50
Q120-123	CHIP TRANSISTOR	2SA1037K	C155	CHIP CAPACITOR	CCSQCH040C50
Q124	DIGITAL TRANSISTOR	DTC124EK	C156, 157	ELECTR. CAPACITOR	CEAS471M10
Q125, 126	TRANSISTOR	2SA933S	C158	ELECTR. CAPACITOR	CEAS100M25
Q127-132	CHIP TRANSISTOR	2SC2412K	C159	ELECTR. CAPACITOR	CEAS331M16
Q201	DIGITAL TRANSISTOR	DTC124EK	C160	ELECTR. CAPACITOR	CEAS470M25
Q202	DIGITAL TRANSISTOR	DTA124EK	C161, 162	CERAMIC CAPACITOR	CKSQYB103K50
Q203	DIGITAL TRANSISTOR	DTC124EK	C163, 164	ELECTROLYTIC CAPACITOR	CEANP470M10
Q204	DIGITAL TRANSISTOR	DTA124EK	C165	ELECTR. CAPACITOR	CEAS101M25
D101, 102	DIODE	1SS254	C166, 167	ELECTROLYTIC CAPACITOR	CEANP470M10
COILS			C168, 169	ELECTR. CAPACITOR	CEAS470M10
DL101, 102	FILTER	VTN1001	C170, 171	CHIP CERAMIC C.	CCSQCH271J50
DL103	DELAY LINE	DTF1033	C172	ELECTR. CAPACITOR	CEAS331M16
			C173-175	ELECTR. CAPACITOR	CEAS470M10
L101	AXIAL INDUCTOR	LAU8R2J	C201-203	CHIP CAPACITOR	CKSQYF103Z50

Mark No.	Description	Parts No.
RESISTORS		
VR101, 102	VR	VRTS6VS472
VR103	VR	VRTB6VS222
VR104	VR	VRTB6VS102
VR105	VR	VRTB6VS222
VR106	VR	VRTS6VS222
R135	CARBON FILM RESISTOR	RD1/6PM101J
R136, 137	RESISTOR (4.7Ω, 1/6W)	DCN1001
R161	CARBON FILM RESISTOR	RD1/6PM222J
R163	CARBON FILM RESISTOR	RD1/6PM221J
R164	CARBON FILM RESISTOR	RD1/6PM680J
R167	CARBON FILM RESISTOR	RD1/6PM221J
R168	CARBON FILM RESISTOR	RD1/6PM680J
R171	CARBON FILM RESISTOR	RD1/6PM221J
R172	CARBON FILM RESISTOR	RD1/6PM680J
R178	CARBON FILM RESISTOR	RD1/6PM271J
R181-186	CARBON FILM RESISTOR	RD1/6PM151J
R187, 188	CARBON FILM RESISTOR	RD1/6PM271J
R192	RESISTOR (10Ω, 1/6W)	DCN1002
	Other resistors	RS1/10S□□□J

OTHERS

JA102	JACK	VKB-014
JA103	D-SUB SOCKET 9P	DKN1051
JA201	D-SUB SOCKET 15P	DKN1052
X101	CRYSTAL RESONATOR (3.58MHz)	VSS1023
X102	CRYSTAL RESONATOR (4.433MHz)	DSS1023
	BNC CONNECTOR	DKN1010

LMCB ASSEMBLY**SEMICONDUCTORS**

IC1	LINEAR IC	TA7291P
D1	ZENER DIODE	HZS9B3

CAPACITORS

C1	CERAMIC CAPACITOR	CGDYX473M25
C3	ELECTR. CAPACITOR	CEAS100M50

Mark No.	Description	Parts No.
RESISTORS		
R1	CARBON FILM RESISTOR	RD1/4VM222J
R2	CARBON FILM RESISTOR	RD1/4VM220J

KEYB ASSEMBLY**SEMICONDUCTORS**

IC1	TR-ARRAY	TD62504P
D1	LED	SLH-56MC3H-S
D10, 11	ZENER DIODE	HZS5.6NB2
D2	LED	SLH-56DC3H-S
D3-6	LED	SLH-56MC3H-S
D7-9	ZENER DIODE	HZS5.6NB2

SWITCHES

S1-8	SWITCH	VSC-012
------	--------	---------

COILS

F1, 2	EMI FILTER	DTH1122
F3	FERRITE CORE	DTF1003

CAPACITORS

C1	ELECTROLYTIC CAPACITOR	CEAS470M25
C2	CERAMIC CAPACITOR	CKPUYF223Z25

RESISTORS

	All resistors	RD1/6PM□□□J
--	---------------	-------------

OTHERS

	REMOTE SENSOR	GPIU50X
--	---------------	---------

BLDB ASSEMBLY**SEMICONDUCTORS**

IC301	MOTOR CONTROL IC	TA8413P
Q301-303	TRANSISTOR	2SA1048
Q304	TRANSISTOR ARRAY	STA302A
Q305	TRANSISTOR ARRAY	STA303A
D301-303	RECTIFIER DIODE	S2V10-4001

CAPACITORS

C301-303	ELECTR. CAPACITOR (33/50)	VCH1034
C304	ELECTR. CAPACITOR	CEAS4R7M50
C305	CERAMIC CAPACITOR	CKPUYF103Z25

RESISTORS

	All resistors	RD1/6PM□□□J
--	---------------	-------------

OTHERS

CN46	CONNECTOR 11P	F11P-SHVQ
------	---------------	-----------

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
FTSB ASSEMBLY			CAPACITORS		
SEMICONDUCTORS					
IC1	FTS IC	PM3003A	C1	CERAMIC CAPACITOR	CKPUYF223Z25
IC2	IC	NJM4556DE	C10, 11	AXIAL CERAMIC C	CCPUL330J50
IC201	LOGIC IC	TC74HC00AP	C18	CERAMIC CAPACITOR	CKPUYF223Z25
IC202	LOGIC IC	SN74LS221N	C12	ELECTROLYTIC CAPACITOR	CEAL220M6R3
IC203	IC	NJM082D	C13, 14	ELECTR. CAPACITOR	CEALNP010M50
IC204	LINEAR IC	NJM4558D	C15	FILM CAPACITOR	CFTNA104J50
IC205	IC	TC4016BP	C16	MYLOR FILM CAPACITOR	CQMA472J50
IC3	IC	NJM4556DE	C17	ELECTR. CAPACITOR	CEAL100M16
IC4, 5	LINEAR IC	NJM4558D	C18	ELECTR. CAPACITOR	CEALNP220M16
IC6	IC	NJM082D	C19, 2	ELECTROLYTIC CAPACITOR	CEAL220M6R3
IC7	LOGIC IC	SN74LS221N	C20	MYLOR FILM CAPACITOR	CQMA473J50
Q1	TRANSISTOR	2SC1740S	C201	ELECTROLYTIC CAPACITOR	CEALNP470M6R3
Q10	TRANSISTOR	2SD1762-F8	C202, 203	ELECTR. CAPACITOR	CEAL101M6R3
Q11	TRANSISTOR	2SB1185-F8	C204	ELECTR. CAPACITOR	CEAL2R2M50
Q12	TRANSISTOR	DTA124ES	C205	MYLOR FILM CAPACITOR	CQMA103J50
Q13	TRANSISTOR	2SD1859	C206	CERAMIC CAPACITOR	CKPUYB151K50
Q14	TRANSISTOR	2SC1740S	C207	AXIAL CAPACITOR	CKPUYB621K50
Q15	TRANSISTOR	DTA124ES	C208	AXIAL CERAMIC C,	CCPUGH150J50
Q16, 17	TRANSISTOR	2SA933S	C209	FILM CAPACITOR	CFTNA473J50
Q18	TRANSISTOR	DTC124ES	C21	MYLOR FILM CAPACITOR	CQMA103J50
Q19	TRANSISTOR	DTA124ES	C210	MYLOR FILM CAPACITOR	CQMA102J50
Q2	TRANSISTOR	2SC1740S	C211, 212	ELECTR. CAPACITOR	CEAL101M6R3
Q20	TRANSISTOR	2SD1859	C213	MYLOR FILM CAPACITOR	CQMA272J50
Q201	TRANSISTOR	DTA124ES	C214	MYLOR FILM CAPACITOR	CQMA562J50
Q202-205	TRANSISTOR	2SC1740S	C215	MYLOR FILM CAPACITOR	CQMA472J50
Q206, 207	TRANSISTOR	2SA933S	C216	CERAMIC CAPACITOR	CKPUYF223Z25
Q208	TRANSISTOR	2SC1740S	C217	ELECTR. CAPACITOR	CEAL101M6R3
Q209	TRANSISTOR	2SA933S	C218	ELECTR. CAPACITOR	CEALNP2R2M35
Q21	N-FET	3SK117	C219	ELECTR. CAPACITOR	CEAL4R7M50
Q210	TRANSISTOR	2SA933S	C22	CERAMIC CAPACITOR	CKPUYB151K50
Q211	TRANSISTOR	2SC1740S	C220	AXIAL CAPACITOR	CKPUYB821K50
Q212, 213	TRANSISTOR	2SA933S	C221	ELECTROLYTIC CAPACITOR	CEALNP470M6R3
Q214	TRANSISTOR	2SC1740S	C23, 24	CERAMIC CAPACITOR	CKPUYF223Z25
Q3	TRANSISTOR	2SD1859	C25	MYLOR FILM CAPACITOR	CQMA223J50
Q4	TRANSISTOR	2SD1762-F8	C26	ELECTR. CAPACITOR	CEALNP010M50
Q5	TRANSISTOR	2SB1185-F8	C27, 28	ELECTR. CAPACITOR	CEAL330M25
Q6	TRANSISTOR	2SD1762-F8	C29	AXIAL CAPACITOR	CKPUYB101K50
Q7	TRANSISTOR	2SB1185-F8	C3	ELECTROLYTIC CAPACITOR	CEAL220M6R3
Q8	TRANSISTOR	2SD1762-F8	C30-33	ELECTR. CAPACITOR	CEAL330M25
Q9	TRANSISTOR	2SB1185-F8	C34	AXIAL CAPACITOR	CKPUYB391K50
D1	DIODE	1SS254	C35, 36	ELECTR. CAPACITOR	CEAL330M25
D10	ZENER DIODE	HZS3B3	C37	CERAMIC CAPACITOR	CKPUYB102K50
D11, 2	DIODE	1SS254	C38	ELECTR. CAPACITOR	CEALNP4R7M25
D201-211	DIODE	1SS254			
D3	DIODE	1SS254			
D4	RECTIFIER DIODE	1SR139-400			
D5	ZENER DIODE	HZS5B2			
D6, 7	DIODE	1SS254			
D8	RECTIFIER DIODE	1SR139-400			
D9	ZENER DIODE	HZS3B3			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
C39	FILM CAPACITOR	CFTNA104J50	R217	METAL FILM RESISTOR	RN1/6PQ1002F
C4	CERAMIC CAPACITOR	CKPUYF223Z25	R218	METAL FILM RESISTOR	RN1/6PQ2402F
C40	ELECTR. CAPACITOR	CEALNP2R2M35	R37-39	METAL FILM RESISTOR	RN1/6PQ3902F
C41	MYLOR FILM CAPACITOR	CQMA473J50	R56, 57	RESISTOR	DCN1014
C42	MYLOR FILM CAPACITOR	CQMA683J50	R63	CARBON FILM RESISTOR	RD1/2PMF2R7J
C43	CERAMIC CAPACITOR	CKPUYF223Z25	R64	CARBON FILM RESISTOR	RD1/2PMF1R5J
C44	ELECTROLYTIC CAPACITOR	CEAL220M6R3	R66, 67	RESISTOR	DCN1014
C45	CERAMIC CAPACITOR	CKPUYF223Z25	R69	RESISTOR (47Ω, 1/6W)	DCN1003
C46	ELECTROLYTIC CAPACITOR	CEAL220M6R3	R74, 75	RESISTOR (2.2Ω, 1/4W)	DCN1014
C47	CERAMIC CAPACITOR	CKPUYF223Z25	R77	RESISTOR (47Ω, 1/6W)	DCN1003
C48	AXIAL CAPACITOR	CKPUYB101E50	R97	RESISTOR (47Ω, 1/6W)	DCN1003
C5	CERAMIC CAPACITOR	CKPUYF223Z25		Other resistors	RD1/6PM□□□□
C50	ELECTROLYTIC CAPACITOR	CEAL220M6R3			
C51, 52	CERAMIC CAPACITOR	CKPUYF223Z25	POSS ASSEMBLY		
C53, 54	AXIAL CAPACITOR	CKPUYB21K50	SEMICONDUCTOR		
C55-58	ELECTR. CAPACITOR	CEAL330M25	IC401	PHOTE INTERRUPTER	GP1A30R
C59	CERAMIC CAPACITOR	CKPUYF223Z25			
C6	ELECTR. CAPACITOR	CEAL010M50	CAPACITOR		
C60	CERAMIC CAPACITOR	CKPUYF223Z25	C401	CERAMIC CAPACITOR	CKPUYF223Z25
C61, 62	ELECTR. CAPACITOR	CEAL010M6R3	RESISTOR		
C63, 64	MYLOR FILM CAPACITOR	CQMA222J50	R401	CARBON FILM RESISTOR	RD1/6PM121J
C65	ELECTROLYTIC CAPACITOR	CEAL220M6R3			
C66	CERAMIC CAPACITOR	CKPUYB102K50	HOURL ASSEMBLY		
C67, 68	CERAMIC CAPACITOR	CKPUYF223Z25			
C69	ELECTR. CAPACITOR	CEAL330M25			
C7	CERAMIC CAPACITOR	CKPUYF223Z25			
C70	ELECTR. CAPACITOR	CEAL330M25			
C72	ELECTR. CAPACITOR	CEAL010M50			
C73	MYLOR FILM CAPACITOR	CQMA102J50			
C74	ELECTR. CAPACITOR	CEALNP4R7M25	PWID ASSEMBLY		
C8	CERAMIC CAPACITOR	CKPUYF223Z25	SEMICONDUCTOR		
C9	ELECTR. CAPACITOR	CEAL010M50	D101	LED	SLH-56MC3H-S
RESISTORS			RESISTOR		
VR1	VR	VRTB6VS222	R101	CARBON FILM RESISTOR	RD1/6PM271J
VR2	VR	VRTB6VS473			
VR3	VR	VRTB6VS472	JAKB ASSEMBLY		
VR4, 5	SEMI-FIXED RESISTOR	VRTB6VS103	COILS		
VR6, 7	VR	VRTB6VS223	L301, 302	AXIAL INDUCTOR	LAU221J
VR8	VR	VRTB6VS474	F301	FERRITE CORE	DTF1003
VR9	VR	VRTB6VS104	RESISTORS		
R136, 137	RESISTOR (2.2Ω, 1/4W)	DCN1014	R301, 302	CARBON FILM RESISTOR	RD1/6PM221J
R210	METAL FILM RESISTOR	RN1/6PQ7501F	OTHERS		
R214	METAL FILM RESISTOR	RN1/6PQ1002F	JACK		DKN1017
R215	METAL FILM RESISTOR	RN1/6PQ6802F			

7. TEST MODE

Note:

- The test mode has no backup function to stop operation in case of a malfunction and prevent the unit from being damaged. Therefore, be careful when using the test mode.
- Use either of the following remote control units for the test mode and adjustment:

Remote controller : RU-V103

LD player SR remote controller : GGF1067

The LD-V4300D has the following three test modes:

1) Service mode

Turns the tracking servo ON/OFF and controls the tilt angle. Use this mode for adjustment.

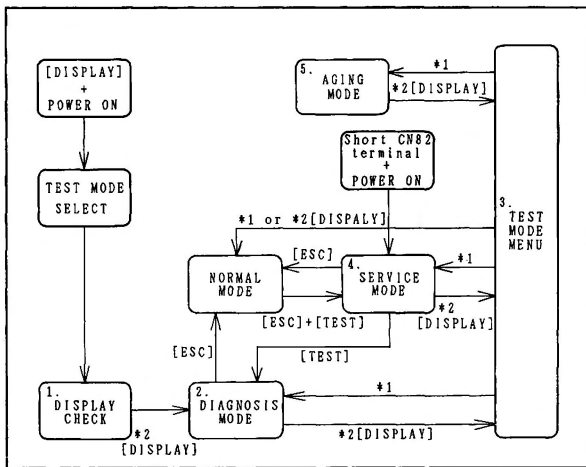
2) Diagnosis mode

Displays the operational state of the player on a monitor connected to the system. Used for determining the malfunctioning part.

3) Aging mode

To repeat operations of the player. Serves to check reliability.

Fig. 1 shows the relationship of the test modes.



NOTE)

*1: Select the mode in the Test Mode Menu.

*2: There is a [DISPLAY] key on the front panel of LD-V4300D.

Fig. 1 Test mode diagram

The functions of the keys on the remote controller and the front panel are as follows:

Front panel of LD-V4300D	Remote Controller	Function
[DISPLAY]	----	Release the test mode.
[STEP FWD]	[STEP FWD]	Advances a selection item.
[STEP REV]	[STEP REV]	Reverses a selection item.
[PLAY]	[PLAY]	Execute the selected item.
----	[0]~[6]	Execute the item corresponding to the number.

Table 1

7.4 SERVICE MODE

Select the service mode in the test menu, or press the [ESC] + [TEST] keys on the remote control unit in the normal mode. The system enters the service mode and the messages shown in Fig. 6 will be displayed.

Note that the indicators on the front panel will light in sequence until a key is pressed on the remote controller changing the system to the service mode.

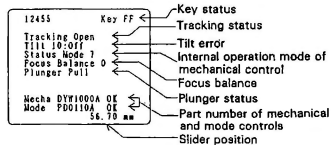


Fig. 6

① State of the keys

Displays the data of the currently pressed key on the front panel or the remote control unit. Table 2 shows the code numbers to be displayed and the functions of the pressed keys.

If no key is pressed, "FF" will be displayed.

CODE	Function	CODE	Function	CODE	Function
00	0	10	SKIP REV	20	NTSP/PL SEL
01	1	11	STEP FWD	21	OPEN/CLOSE
02	2	12	STEP REV	22	MAIN DISPLAY
03	3	13	MULTI FWD	23	(+10)
04	4	14	MULTI REV	24	(REPEAT A)
05	5	15	SEARCH	25	(TV/LDP)
06	6	16	CHAPTER/FRAME		
07	7	17	DISPALY		
08	8	18	AUDIO MONITOR		
09	9	19	REPEAT MODE		
0A	PLAY	1A	SPEED UP		
0B	REJECT	1B	SPEED DOWN		
0C	PAUSE	1C	CLEAR		
0D	SCAN FWD	1D	(CX)		
0E	*SCAN REV	1E	TEST		
0F	SKIP FWD	1F	ESC		

Table 2

② Internal operation mode of the player control IC (CONT assembly IC1)

Table 3 shows the status modes and the operating modes.

Data	Operation Mode	Data	Operation Mode
0	NO OPERATION	4	PARK
1	OPEN	5	REJECT
2	UNLOAD	6	SET UP
3	LOAD	7	PLAY

Table 3

③ Part numbers of the player control IC and the mode control IC (CONT assembly IC2)

Displays the part numbers of IC1 and IC2 being used, followed by 'OK' for correct ROM data or 'NG' for incorrect ROM data.

- Table 4 shows the functions and operations of each part in the service mode.

Function	Operation	
	LD - V4300D	Remote controller
OPEN	Press the [OPEN/CLOSE] key in the stop mode.	Press the [REPEAT MODE (REPEAT B)] key.
STOP	Press the [OPEN/CLOSE] key in the play mode.	Press the [REPEAT A] key. Press the [REJECT] key in the play mode.
PLAY Video and audio are ON. Tracking is OPEN.	Press the [PLAY] key in the stop mode.	Press the [TV/LDP] key. Press the [PLAY] key in the stop mode.
STILL	Press the [PLAY] key during TRACKING OPEN in the play mode.	Press the [CX] key in the play mode. Press the [PLAY] key during TRACKING OPEN in the play mode.
TRACKING OPEN	Press the [STEP FWD] key in the play mode. Press the [PLAY] key in the play mode.	Press the [STEP FWD] key in the play mode. Press the [PLAY] key in the play mode.
TRACKING CLOSE	Press the [STEP REV] key in the play mode. Press the [PLAY] key during TRACKING OPEN in the play mode.	Press the [STEP REV] key in the play mode. Press the [PLAY] key during TRACKING OPEN in the play mode.
SLIDER IN	Press the [SCAN REV] key.	Press the [SCAN REV] key.
SLIDER OUT	Press the [SCAN FWD] key.	Press the [SCAN FWD] key.
TILT SERVO OFF		Press the [SPEED DOWN] key.
TILT SERVO ON		Press the [SPEED UP] key.
TILT DECREASE & SERVO OFF		Press the [SKIP REV] key.
TILT INCREASE & SERVO OFF		Press the [SKIP FWD] key.

Function	Operation	
	LD - V4300D	Remote controller
DISPLAY ON		Press the [DISPLAY] key.
DISPLAY OFF		Press the [AUDIO MONITOR] key.
SEARCH ADDRESS ENTRY	Press the [+10] key in the play mode.	Press the [+10] key. The last address searched will be displayed.
SEARCH ADDRESS INPUT		Input the address using [0] through [9] keys.
SEARCH EXECUTE		Press the [CHAPTER/FRAME] key.
FOCUS BALANCE → 0		Press the [MULTI FWD] key during playback.
FOCUS BALANCE → 1		Press the [MULTI REV] key during playback.
PLUNGER PULL		Press the [PAUSE] key.
PLUNGER RELEASE		Press the [REJECT] key.
RETURN TO TEST MODE MENU	Press the [DISPLAY] key.	
GO TO DIAGNOSIS MODE		Press the [TEST] key.
CANCEL TEST MODE		Press the [ESC] key.

Table 4

7.5 AGING MODE

Selecting the aging mode in the test mode displays the aging mode edit menu (Fig. 7).

Aging can be programmed (instructions conform to serial commands) by using the keys on the remote controller. Table 5 shows the keys with special functions. Submenus (Fig. 8) allow changing of the repeat point, and execution and deletion of the programs that cannot be performed by the remote control unit.

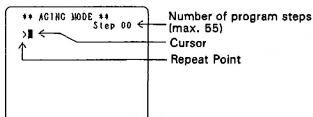


Fig. 7

Remote controller	Function
[SPEED UP]	Moves the cursor one step forward.
[SPEED DOWN]	Moves the cursor one step backward.
[CLEAR]	Deletes the program located immediately left to the cursor.
[REPEAT MODE]	Opens the submenu.
[DISPLAY] on the front panel	Returns to the test mode menu.

Table 5

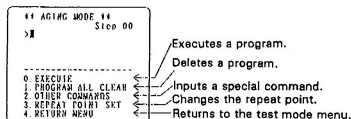


Fig. 8

① Execution of the program

When the program is executed, messages shown in Fig. 9 are displayed and the system continues aging. To interrupt aging, select "1. STOP".

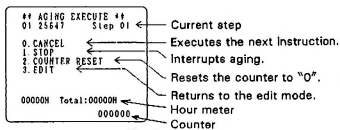


Fig. 9

② Interruption of the aging

After interrupting aging, messages shown in Fig. 10 will be displayed.

If the system stops due to an error, an error code (see Table 6) will be displayed on the position of the frame number.

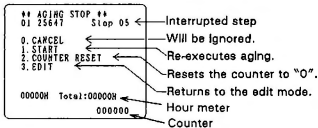


Fig. 10

- Example : Search the frame number 1000 and perform aging by repeating play back until the frame number 1200.

1) Press the [PLAY] key. (Fig. 11)



Fig. 11

- 2) Press the [CHAPTER/FRAME] key. Press [1] when the menu is displayed. (Fig. 12)

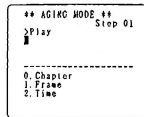


Fig. 12

ERROR CODE	MESSAGE	EXPLANATION
E00	Communication error	Communication error <ul style="list-style-type: none"> ● Framing error ● Buffer overflow
E04	Feature not available	Attempted to execute an invalid function. <ul style="list-style-type: none"> ● Incorrect command mnemonic ● Cannot be used in that mode.
E06	Missing argument	Necessary parameter is not specified.
E11	Disc not exist	A disc has not been loaded.
E12	Search error	Could not find the search address.
E13	Defocussing error	Defocussing error occurred.
E15	Picture stop	The picture is stopped. <ul style="list-style-type: none"> ● Changed to the still mode by the picture stop code during auto playback.
E16	Interrupt by other device	The execution of the command was interrupted by the command from the keys on the remote controller or the front panel.
E99	Panic	An unrecoverable error occurred. <ul style="list-style-type: none"> ● Cannot load a disc. ● The system cannot continue playback and stopped.

Table 6

- 3) Press [1] [0] [0] [0] [SEARCH] [1] [2] [0] [0] in sequence.
 (Fig. 13)

```

** AGING MODE **
                          Step 12
Play
Frame
1000 Search
200 Play
  
```

Fig. 13

- 4) Move the cursor to the beginning of "1000 Search," and press the [REPEAT MODE] key to open the submenu. Press [3] when the submenu is displayed. (Fig. 14)

```

** AGING MODE **
                          Step 12
Play
Frame
31000 Search
200 Play
  
```

Fig. 14

- 5) Move the cursor downwards and open the submenu again. Press [0]. Aging will be executed.

7.6 PRECAUTIONS FOR TERMINATING THE TEST MODE

If you have turned ON the test mode using the function switch setting mode, turn the test mode switch to OFF after all operations are finished.

The LD-V4300D will maintain the test mode status after the power is turned OFF. Therefore, normal operation cannot be performed if the system is operated without turning the test mode switch to OFF.

8. ADJUSTMENT

8.1 ADJUSTING JIG AND TOOLS REQUIRED FOR ADJUSTMENT

- Small flat-bladed \ominus screwdriver (with a shaft of about 7cm)
- Small phillips \oplus screwdriver (with a shaft of more than 15cm)
- Hexagonal wrench (Allen wrench) (2.00mm)
- Low-pass filter (100k Ω + 1 μ F)
- Dual-trace oscilloscope (with delay)
- Frequency counter
- LD test disc (GGV1003 : NTSC, J1 : PAL)
- 8-inch LDD disc (commercially available)
- Shorting clip
- Digital voltmeter

8.2 PREPARATIONS AND PRECAUTIONS FOR ADJUSTMENT

1. Perform the adjustment after removing the disc tray (Fig. 8-1) and changing to the service mode in the test mode (see "7. TEST MODE").
2. How to clamp a disc
After the disc tray is removed, insert a disc from the rear of the player. To clamp the disc, extend the lock levers located on both sides of the base toward outwards, then push them toward the rear. (Fig. 8-2)
3. How to reassemble the tray
Insert the disc tray while applying the half-tooth portion of the gear to the gear of the disc tray. (Fig. 8-3)

NOTE :

The setting values for the oscilloscope for the adjustment are those when used with the 10 : 1 probe unless otherwise specified.

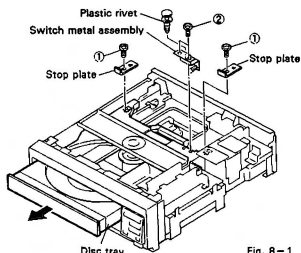


Fig. 8-1

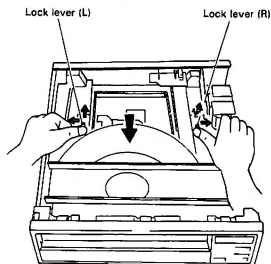


Fig. 8-2

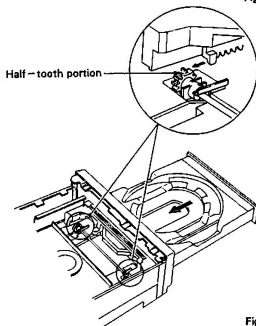
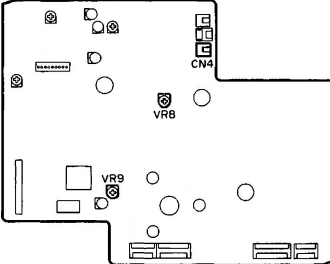
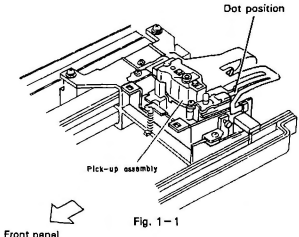


Fig. 8-3

8.3 ADJUSTMENTS

1. TILT GAIN ADJUSTMENT

- Purpose: To adjust the gain of tilt servo according to the gain rank of the tilt sensor.
- Symptoms when incorrectly adjusted: Hunting of the tilt servo and increased crosstalk due to an increased non-sensitive range of the tilt servo.

Measurement equipment & jigs	Adjusting point
<ul style="list-style-type: none"> • Screwdriver (flat bladed) 	<ul style="list-style-type: none"> • VR8 in the FTSB assembly
Adjusting procedure	
<ul style="list-style-type: none"> • Check that VR9 is set to its mechanical center position, and set "TILT SERVO OFF" by remote controller or remove the CN4 connector from the FTSB assembly (to turn off the tilt servo). <p>1. Check the color of the dot on the flexible cable located at the side of the tilt sensor. (Fig. 1-1)</p> <p>There are three dot conditions: adjust VR8 on the FTSB board according to the following code.</p> <p>Red dot: Turn VR8 fully clockwise.</p> <p>Blue dot: Turn VR8 fully counterclockwise.</p>	<p>No dot: Set VR8 to its mechanical center position.</p>
Adjustment diagram	
<p>FTSB assembly</p> 	 <p>Dot position</p> <p>Pick-up assembly</p> <p>Front panel</p> <p>Fig. 1-1</p>

2. GRATING TEMPORARY ADJUSTMENT AND TRACKING (TRKG) BALANCE ADJUSTMENT

- Purpose: Set the laser beam which is divided into three by the grating so that it is directed to the optimum position on the playback track. Set the offset voltage of the tracking servo to 0 V.
- Symptoms when incorrectly adjusted: Disc play impossible. Track jumping.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> • Screwdriver (flat bladed) • Oscilloscope • Test disc: GGV1003 	<ul style="list-style-type: none"> • Oscilloscope: In FTSB assembly • CH1: Between TRKG ERROR (TP1-9) and GND 	<ul style="list-style-type: none"> • Service mode: • Play mode • Tracking servo loop open • Tilt servo OFF 	<ul style="list-style-type: none"> • Grating adjustment screw in the pick-up assembly • VR2 and VR6 in FTSB assembly

Adjusting procedure**[Grating temporary adjustment]**

1. With the player set horizontally, play the test disc.
2. Press the DISPLAY key so that the frame number is displayed on the TV screen.
3. Open the TRKG servo loop.
4. Using the SCAN key, move the pick-up to a position around frame #20000.
5. Connect the oscilloscope to TP1-9 (TRKG error) to observe the waveforms.

6. Insert the flat bladed (⊖) screwdriver (small) into the grating adjustment hole horizontally (Fig. 2-1). When the grating adjustment screw is turned, the tracking error waveform alternates between large and small. After the waveform amplitude becomes small, find the position where the waveform shows a smooth envelope. (Photo 1) (This status is called the "on-track" position.)

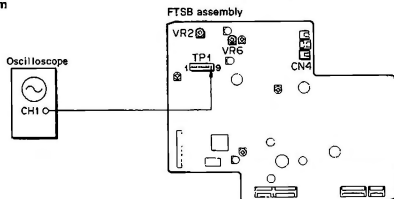
(When adjusting the grating with the small screwdriver (flat-bladed), since the pick-up assembly tends to shift toward the inside of the disc, perform adjustment while holding it with your hand. If a remote control is available, lock the pick-up by pressing the multi-

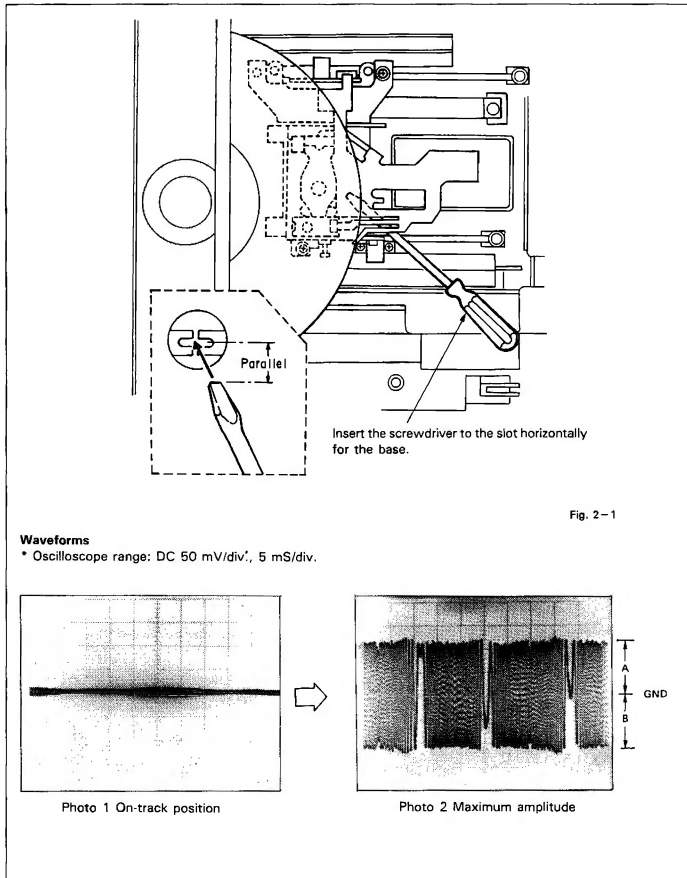
reverse key instead of holding with your hand.)

7. In this condition, when the grating adjustment screw is turned counterclockwise slowly, the amplitude of the tracking error waveform gradually becomes larger. Set to the position where the waveform amplitude becomes maximum. (Photo 2)
8. Set the tracking error to maximum by using VR6 (FOCS BAL). Note that "1" should be selected for FOCS BAL shown on the monitor. Change it to "0" (VR7) after adjustment.
9. Close the Tracking servo to make sure that a picture on the screen is normal.

[TRKG (Tracking) balance adjustment]

1. Set the player to the stop mode and raise it so it is vertical, then play the test disc in the service mode.
(Note: If the disc cannot be played in this condition, set the player horizontally and engage the service mode to start playing the disc, and then raise the left side of the player slowly, so it is vertical.)
2. Set the oscilloscope's GND point to the center of the oscilloscope screen.
3. Adjust VR2 in the FTSB assembly so that the positive amplitude (A) and the negative amplitude (B) becomes equal. (Photo 2)

Adjustment diagram



3. PICK-UP HEIGHT ADJUSTMENT AND DRIVE SHAFT LEVELNESS ADJUSTMENT

- Purpose: Adjust the inclination of the slider shaft so that the pick-up assembly moves parallel the disc.
- Symptoms when incorrectly adjusted: Lens comes contact with the disc surface, Warped discs cannot be played.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> • Oscilloscope • Hexagonal wrench (2 mm) • Low-pass filter (100kΩ/1μF) • Test disc: GGV1003 	<ul style="list-style-type: none"> • Oscilloscope: In FTSB assembly CH1: Between TP1-3 (FOCS RTN) and GND 	<ul style="list-style-type: none"> • Service mode: • Play mode • Tracking servo loop open • Tilt servo OFF 	<ul style="list-style-type: none"> • Pick-up height adjustment screw in the pick-up assembly • Pinion gear of the tilt motor in the mechanism assembly

Adjusting procedure

Note: This adjustment should be performed with the unit placed horizontally.

[Pick-up assembly height adjustment]

1. Connect the oscilloscope as shown in the figure below, and play the test disc around the frame # 10000.
2. Open the tracking servo loop.
3. Measure the voltage at TP1-3 (FOCS RTN) in the FTSB assembly with the oscilloscope.
4. Check that the focus return voltage is $0V \pm 10mV$ with respect to the GND voltage. If it is out of the standard, adjust the pick-up height adjustment screw so that

the voltage value comes within the standard value using the hexagonal wrench (2mm).

[Drive shaft levelness adjustment]

5. Perform the level adjustment by changing the screen to the service mode and confirming that the tilt function is OFF. Move the tilt motor UP/DOWN by using the [SKIP REV/FWD] key on the remote control unit so that the focus return voltage described above becomes the same value as the inside and outside of the disc. (Fig. 3-1)
 - * Frame No. 115 = V1
 - * Frame No. 10000 = V2
 - * Frame No. 22000 = V3
 - V1 - V2 ≤ 20 mV
 - V3 - V2 ≤ 20 mV

Adjustment diagram

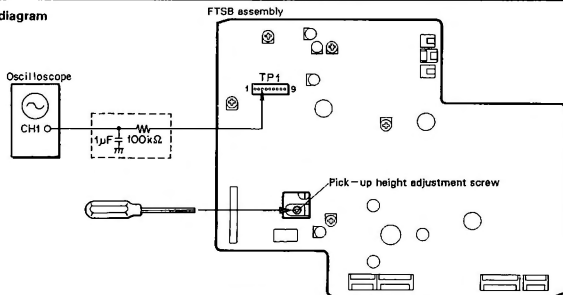


Fig. 3-1

4. PICK-UP TRACKING AND TANGENTIAL DIRECTION INCLINATION ADJUSTMENT

- Purpose: Adjust the angle of the pick-up assembly in the tracking direction so that the laser beam strikes the disc perpendicularly (at a right angle).
- Symptoms when incorrectly adjusted: Crosstalk.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> • TV monitor • Hexagonal wrench (2 mm) • Test disc: GGV1003 	<ul style="list-style-type: none"> • TV monitor Connect to the video output terminal of the player. 	<ul style="list-style-type: none"> • Normal mode: • Still mode • Tilt servo OFF (Unplug the connector of CN28) 	<ul style="list-style-type: none"> • Tracking direction angle adjustment screw, tangential direction angle adjustment screw in the pick-up assembly.

Adjusting procedure

Note: This adjustment should be performed with the unit placed horizontally.

1. Play the test disc and search for frame #115.
2. Rotate the tracking angle and tangential angle adjustment screws alternately and adjust repeatedly so that the crosstalk occurring on the right and left sides of the TV screen becomes minimum.

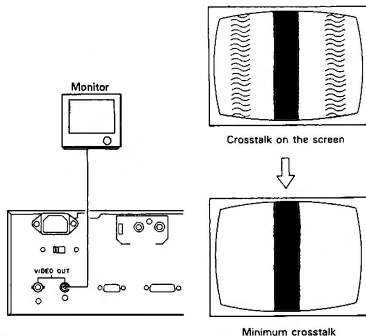
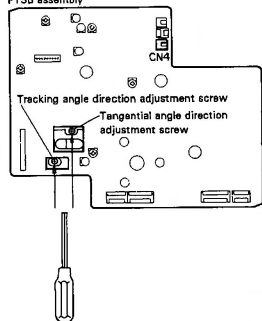
Adjustment diagram**FTSB assembly**

Fig. 4-1

5. FOCUS ERROR BALANCE ADJUSTMENT

- Purpose: To set the object lens to its optimum position so that it works optimally with the focus servo while playing a disc.
- Symptoms when incorrectly adjusted: Crosstalk.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> • TV monitor • Test disc: GGV1003 • Oscilloscope 	<ul style="list-style-type: none"> • TV monitor: Connect to the video output terminal of the player. • Oscilloscope: In the FTSB assembly CH1: Between TRKG ERROR (TP1-9) and GND 	<ul style="list-style-type: none"> • Service mode: • Play mode • Tracking servo loop open • Tilt servo OFF <ul style="list-style-type: none"> * Normal mode • Still mode • Tilt servo OFF 	<ul style="list-style-type: none"> • VR7 in the FTSB assembly

Adjusting procedure

1. Play the test disc in the service mode.
2. Around the position of frame #1,000, open the tracking servo, and write down the error level (A) at this time. (Fig. 5-1)
FOCS BAL should be set to "1".
3. Set the player to the normal mode and search for frame #115.
Select "0" for FOCS BAL. (When FOCS BAL is set to "1", the trigger error will be maximum. Use VR6 for adjustment.)
4. Observe the crosstalk appearing on both the left and right sides of the TV screen, and check that the crosstalk is minimum and symmetrical. If crosstalk seems to be in good condition, this adjustment is finished.
5. If the crosstalk observed above is not acceptable, readjust VR7 in the FTSB assembly to get minimum crosstalk. (Fig. 5-3)
6. Set the player to the service mode again, open the tracking servo around frame #1,000 and write down the error level (B) at this time. (Fig. 5-2)
7. When level difference between A and B is within 30% ($B/A \geq 0.7$), this adjustment is finished.
8. If the level difference is more than 30%, return VR7 so that it becomes within 30%.
9. Set the player to the normal mode again and search for frame #115, and check that the crosstalk is minimum and symmetrical. (Fig. 5-3)
10. If the crosstalk seems in good condition, this adjustment is finished. If it is not acceptable, perform item "4. Pick-up tracking and tangential direction inclination adjustment" again. (See page 112)

Adjustment diagram

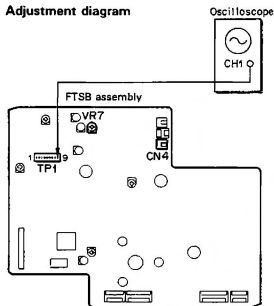


Fig. 5-4

Tracking waveform

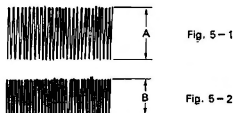


Fig. 5-1

Fig. 5-2

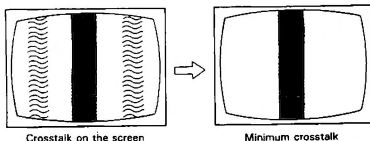


Fig. 5-3

6. PICK-UP ASSEMBLY CENTERING CHECK

- Purpose: To check that the center of the spindle motor is on the track of the laser beam.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> • Oscilloscope • Test disc: GGV1003 	<ul style="list-style-type: none"> • Oscilloscope: In FTSB assembly CH1 (X): Between TP1-9 (TRKG Error) and GND CH2 (Y): TP1-4 (TRKG A + C) 	<ul style="list-style-type: none"> • Service mode: • Play mode • Tracking servo loop open • Tilt servo OFF 	

Adjusting procedure

1. With the player set horizontally, play the test disc.
2. After moving the pick-up toward inside of the disc using the Step keys, open the tracking servo.
3. Connect the X-input (CH1) of the oscilloscope to TP1-9 (TRKG ERROR) in FTSB assembly and the Y-input (CH2) to TP1-4 (TRKG A + C).
Set the oscilloscope to the X-Y mode, and observe the Lissajous waveform of the TRKG error signal and the TRKG A + C signal.
4. Record the Y-axis amplitude of the Lissajous waveform.
5. Close the tracking servo and move the pick-up toward the outside of the disc using the SCAN FWD keys. Then, open the tracking servo again, and observe the Lissajous waveform. At this time, check that the Y-axis amplitude of the Lissajous waveform is the same as the recorded one in step 4.
If the Lissajous waveforms of the inside and outside of the disc are different in their Y-axis amplitude, perform "7. Pick-up Assembly Centering Adjustment". (See page 116)

Adjustment diagram

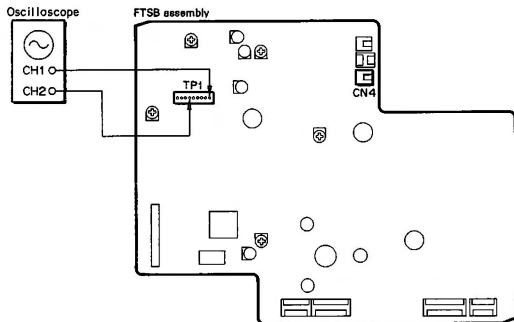


Fig. 6-1

Waveforms

- * Oscilloscope range:
- CH1(X): 0.2V/div., DC input
- CH2(Y): 0.2V/div., AC input
- X-Y mode

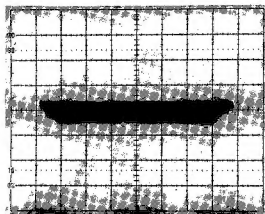


Photo 3

Lissajous waveform at the inside of the TEST disc

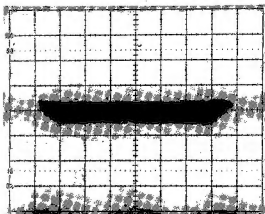
Check that $Y = Y'$.

Photo 4

Lissajous waveform at the outside of the TEST disc

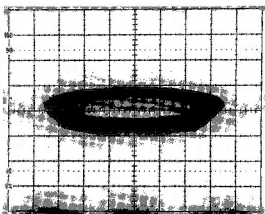


Photo 5: Waveform when insufficiently adjusted

7. PICK-UP ASSEMBLY CENTERING ADJUSTMENT

- Purpose: To adjust so center of the spindle motor comes on the track of the laser beam.
- Symptoms when incorrectly adjusted: Track jumping, longer search time.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> • Oscilloscope • Short-shaft hexagonal wrench (2 mm) or, L-shaped hexagonal wrench • Test disc: GGV1003 	<ul style="list-style-type: none"> • Oscilloscope: In FTSB assembly CH1 (X): Between TP1-9 (TRKG Error) and GND CH2 (Y): TP1-4 (TRKG A + C) 	<ul style="list-style-type: none"> • Service mode: • Play mode • Tracking servo loop open/close • Tilt servo OFF 	<ul style="list-style-type: none"> • Centering adjustment screw in the pick-up assembly

Adjusting procedure

Note: This adjustment should be performed only when the pick-up assembly is insufficiently adjusted by the "6. Pick-up assembly centering check". (See page 114)

1. Connect the X-input (CH1) of the oscilloscope to TP1-9 (TRKG ERROR) in FTSB assembly and Y-input (CH2) to TP1-4 (TRKG A + C) respectively.
2. Play the test disc and search for frame # 20,000 using the SCAN FWD key to move the pick-up towards the outside of the disc.
3. Open the tracking servo, and observe the Lissajous waveforms of the TRKG error signal and the TRKG A + C signal.
4. Fine adjust the grating so that the Y-axis amplitude of the Lissajous waveform becomes minimum. (Photo 7)
5. Close the TRKG servo and move the pick-up toward the inside of the disc by pressing the SCAN REV key.
6. Open the TRKG servo again, and observe the

7. Lissajous waveform and record its Y-axis amplitude.
 7. Move the pick-up toward outside again, and rotate the centering adjustment screw clockwise by 45° with the hexagonal wrench (Fig. 7-1)
 - Rotate the centering adjustment screw slowly so that the Y-axis amplitude of the Lissajous waveform decreases. After the Y-axis amplitude of the Lissajous waveform becomes minimum, rotate the hexagonal wrench further in the same direction until the Y-axis amplitude of the Lissajous waveform becomes the same level as the recorded one in step 6. (Photo 6 - 8)
 8. Close the TRKG servo and move the pick-up toward the outside of the disc using the SCAN FWD key.
 9. Repeat the operation in steps 3, 4 and 5.
 10. Open the TRKG servo again to observe the Lissajous waveform, and check that the Y-axis amplitude is minimum.
- If the Lissajous waveform is expanded in the Y-axis direction, repeat the operation in steps 7, 8, 9, and 10.

Adjustment diagram

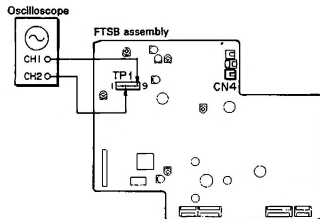
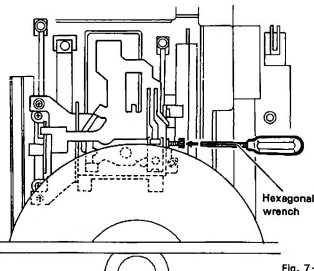


Fig. 7-1

Waveforms

* Oscilloscope range:
X: 0.2V/div., DC input
Y: 0.2V/div., AC input
X-Y mode

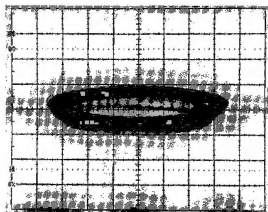


Photo 6

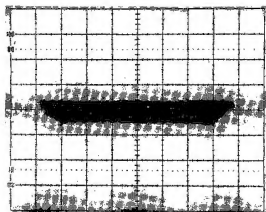


Photo 7

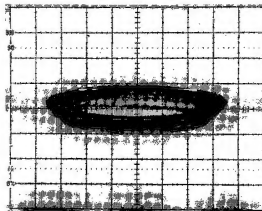


Photo 8

8. TILT SENSOR INCLINATION ADJUSTMENT

- Purpose: To set the electrical offset of the tilt servo to 0 V by adjusting the inclination of the tilt sensor.
- Symptoms when incorrectly adjusted: Crosstalk

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> ● Oscilloscope ● Test disc: GGV1003 ● Philips \oplus screwdriver ● Monitor TV 	<ul style="list-style-type: none"> ● Oscilloscope: In FTSB assembly ● CHI: Between TP1-8 (TILT ERROR) and GND 	<ul style="list-style-type: none"> # Normal mode: ● Play mode ● Tilt servo OFF 	<ul style="list-style-type: none"> ● Tilt sensor inclination adjustment screw in the pick-up assembly

Adjusting procedure

Note: This adjustment should be performed with the unit placed horizontally.

This adjustment should be performed in the range of F# (frame numbers) 2000 – 10000 so the sensor output is not influenced by the mirror surface at the inside of the disc and external light at the edges of the disc.

1. Play the test disc and search for a position around frame #5000.
2. Connect the oscilloscope to TP1-8 in the FTSB assembly, and observe the DC voltage of the tilt error signal.
3. Insert the small Philips \oplus screwdriver with a long shaft

from the rear panel of the player, and adjust the tilt sensor inclination adjustment screw so that the DC voltage of the tilt error signal becomes $0V \pm 20mV$. (Fig. 8-1)

At this time, the above adjustment will be easy to perform when the pickup is locked by pressing the Multi Reverse key on the remote control.

4. Set "TILT SERVO ON" by remote controller.
5. Search for frame #115 and check that crosstalk at the left and right sides of the TV screen is minimum and symmetrical.

NOTE :

Displaying "10" for tilt error is not a fatal error. "TILT ERROR 10" will be displayed on the monitor when TP1-8 is 0V.

Adjustment diagram

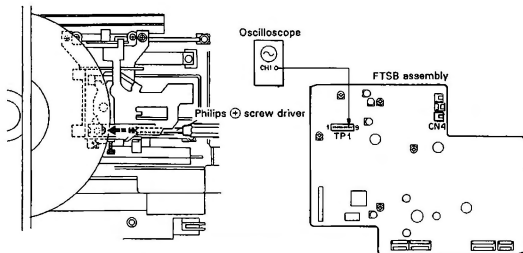


Fig. 8-1 Tilt stay inclination adjustment

9. GRATING FINE ADJUSTMENT AND TRACKING BALANCE CHECK

- Purpose: To fine adjust the grating so that the two laser beams for TRKG (tracking) servo are emitted at the optimum track positions of the disc. Set the DC off-set voltage to 0V of TRKG Servo.
- Symptoms when incorrectly adjusted: Track jumping.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> • Oscilloscope • Test disc: GGV1003 • Flat bladed \ominus screwdriver 	<ul style="list-style-type: none"> • Oscilloscope: In the FTSB assembly CH1 (X): Between TP1-9 (TRKG ERROR) and GND CH2 (Y): TP1-4 (TRKG A+C) 	<ul style="list-style-type: none"> • Service mode: • Play mode • Tracking servo loop open • Tilt servo OFF 	<ul style="list-style-type: none"> • Grating adjustment screw in the pick-up assembly

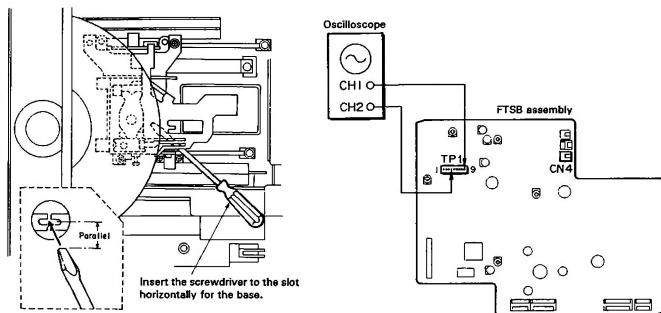
Adjusting procedure

1. Play the test disc and search for frame #16,000, then open the TRKG servo.
2. Connect the X-input (CH1) of the oscilloscope to TP1-9 (TRKG ERROR) of the FTSB assembly and Y-input (CH2) to TP1-4 (TRKG A+C) respectively. Set the oscilloscope to the X-Y mode, and observe the Lissajous waveform of the TRKG error signal and TRKG A+C signal.
3. Insert the flat-bladed small screwdriver into the grating adjustment hole, and fine adjust the grating so that the Y-axis dimension of the Lissajous waveform becomes minimum. (Fig.9-1)

At this time, if the grating is rotated excessively and the optimum point becomes unclear, perform "2. Grating Temporary Adjustment" again. (See page 109)

4. Select the X-input (CH1) of the oscilloscope, and check that the positive (A) and negative (B) amplitudes of the TRKG error signal are equal. (Photo 10)
If the sizes of the positive and negative amplitude are different, perform "4. Pick-up Tracking and Tangential Direction Inclination Adjustment" again.
5. Close the TRKG servo loop and check that the picture on the TV screen is normal.

Adjustment diagram



Waveforms

- Oscilloscope range:
 - Grating adjustment
 - CH1 (X): 0.5V/div., DC input
 - CH2 (Y): 0.5V/div., DC input
 - X-Y mode
 - TRKG balance adjustment
 - CH1: 1V/div., 5mS/div.

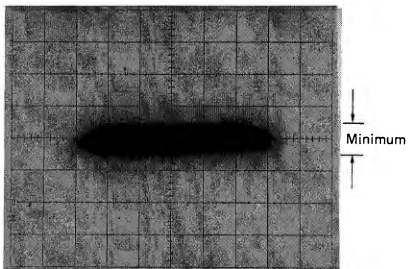
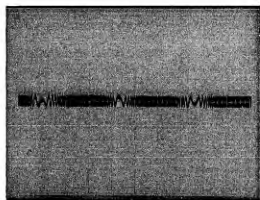
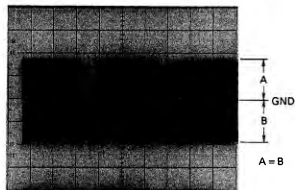


Photo 9 Grating Fine Adjustment



Null point



Maximum amplitude

Photo 10 TRKG Balance Adjustment

10. RF GAIN ADJUSTMENT

- Purpose: To set the amplitude of the RF signal to the optimum value.
- Symptoms when incorrectly adjusted: Dropout occurs frequently.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> • Oscilloscope • Test disc: GGV1003 	<ul style="list-style-type: none"> • Oscilloscope: In the FTSB assembly CH1: Between TP1-1 (RF) and GND 	<ul style="list-style-type: none"> • Normal mode: • Still mode • TILT servo OFF 	<ul style="list-style-type: none"> • VR1 in the FTSB assembly

Adjusting procedure

1. Play the test disc and search for frame # 15,000.
2. Connect the oscilloscope to TP1-1 in the FTSB assembly to observe the RF signal.
3. Adjust VR1 in the PREB assembly so that the amplitude of the RF signal becomes $300\text{ mV} \pm 20\text{ mV}$. (Photo 11)

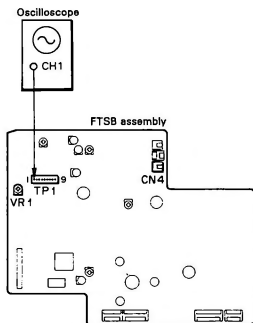
Adjustment diagram

Fig. 10-1

Waveforms

- Oscilloscope range: AC100mV/div., 2mS/div.

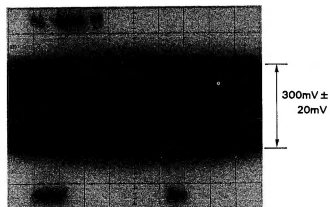


Photo 11 RF signal

11. FOCUS SERVO LOOP GAIN ADJUSTMENT

- Purpose: To set the loop gain of the FOCS (focus servo to the optimum value.
- Symptoms when incorrectly adjusted: Play ability grow worse.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> ● Oscilloscope ● Test disc: GGV1003 ● AF oscillator ● Resistance (100kΩ) 	<ul style="list-style-type: none"> ● Oscilloscope: In FTSB assembly CH1 (X): Between TP1-5 (FOCS ERR IN) with 100kΩ and GND CH2 (Y): TP1-6 (FOCS ERR OUT) 	<ul style="list-style-type: none"> ● Normal mode: ● Still mode ● TILT servo OFF 	<ul style="list-style-type: none"> ● VR5 in the FTSB assembly

Adjusting procedure

1. Play the test disc and search for frame # 15,000.
2. Connect the X and Y terminals of the oscilloscope as shown in Fig. 11-1, and observe the Lissajous's waveforms.
3. Adjust VR5 so that the Lissajous's waveform as shown in Photo 13 appears. Photo 12 shows a waveform when the adjustment is incorrect.

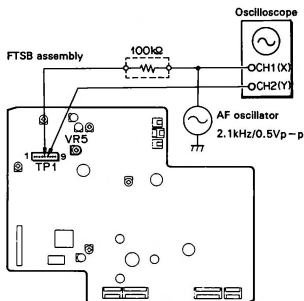
Adjustment diagram

Fig. 11-1

Waveforms

- Oscilloscope range: X-Y mode
- X: 100mV/div. DC input
- Y: 20mV/div. DC input

Waveform when insufficiently adjusted

Photo 12

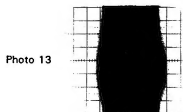


Photo 13

12. TRACKING SERVO LOOP GAIN ADJUSTMENT

- Purpose: To set the loop gain of the TRKG (tracking) servo to the optimum value.
- Symptoms when incorrectly adjusted: Play ability grow worse.

Measurement equipment & jigs	Measurement equipment connecting points	Player condition	Adjusting points
<ul style="list-style-type: none"> ● Oscilloscope ● Test disc: GGV1003 ● AF oscillator ● Resistance (100kΩ) 	<ul style="list-style-type: none"> ● Oscilloscope: In FTSB assembly CH1 (X): Between TP1-7 (TRKG ERR IN) with 100kΩ and GND CH2 (Y): TP1-9 (TRKG ERR OUT) 	<ul style="list-style-type: none"> ● Normal mode: ● Still mode ● TILT servo OFF 	<ul style="list-style-type: none"> ● VR3 in the FTSB assembly

Adjusting procedure

1. Play the test disc and search for frame # 15,000.
2. Connect the X and Y terminals of the oscilloscope as shown in Fig. 12-1, and observe the Lissajous's waveforms.
3. Adjust VR3 so that the Lissajous's waveform as shown in Photo 15 appears. Photo 14 shows a waveform when the adjustment is incorrect.

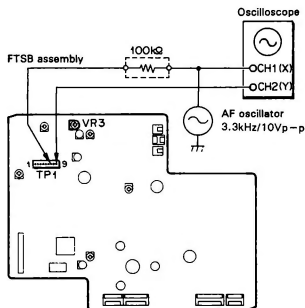
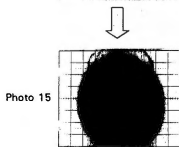
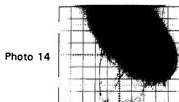
Adjustment diagram

Fig. 12-1

Waveforms

- Oscilloscope range: X-Y mode
- X: 0.2mV/div. DC input
- Y: 10mV/div. DC input

Waveform when insufficiently adjusted



13. CHECKING THE TILT OPERATION

1. Connect the TILT connector. Turn TILT OFF by using the remote control unit.
2. Move the tilt motor using the [SKIP FWD] or [SKIP RWD] key and change TILT ERR display to "0D" or "13" from "10".
3. Confirm that TILT ERR converges to "10 tolerance (OF to 11)" when TILT SERVO is turned off by the [SPEED UP] key.

14. ELECTRICAL ADJUSTMENT

No.	Adjustment Items	Adjust Assembly	Adjusting Point	Measurement Point	Player Condition (MODE)	Adjusting Specification
1	NTSC character generator frequency adjustment	VDEM	VC602	IC605 pin6	Power ON (NTSC)	Adjust clock frequency to 14.318180MHz \pm 10Hz.
2	PAL character generator frequency adjustment		VC601		Power ON (PAL)	Adjust clock frequency to 17.734476MHz \pm 10Hz.
3	NTSC TBC 4fsc adjustment	CONT	VC201	IC206 pin8	Power ON (NTSC)	Adjust clock frequency to 14.318180MHz \pm 10Hz.
4	PAL TBC 3.75MHz adjustment		VC202	IC206 pin6	Power ON (PAL)	Adjust clock frequency to 3.750000MHz \pm 10Hz.
5	Video level adjustment	VDEM	VR403	VIDEO OUT terminal on TRMB assembly	STILL (NTSC) Frame#19801	Play the test disc (GGV1003) and adjust the level to 2Vp - p \pm 3% (Open). (Refer to waveform 1)
6	VCO (CCD) centering frequency adjustment				VR402	Q410 Emitter Q414 Emitter
			STILL (NTSC) Frame#5100	Play the test disc. Compare the output of the Q414 emitter with that of the Q410 emitter, and adjust to 70 μ sec \pm 1.4 μ sec (1H+6 μ sec). (Refer to waveform 3)		
7	NTSC 1H Delay video level adjustment	VR401	IC401 pins31 and 33	STILL (NTSC) Frame#3800	Play the test disc. Adjust the video level of the 1H delay waveform of Pin33 to the same level of the main video signal of Pin31. Tolerance is within 3%.	
8	Burst gate timing adjustment	CONT (TBC) and VDEM	VR201	IC201 pin20 and Q414 Emitter	NTSC	Play the test disc. Compare the trailing edge of the output of IC201 to the leading edge of the output of Q414, and delay the timing for 1 μ sec \pm 0.1 μ sec (Refer to waveform 4)
					PAL	Play the test disc. Compare the trailing edge of the output of IC201 to the trailing edge of the output of Q414, and delay the timing for 1.5 μ sec \pm 0.1 μ sec (Refer to waveform 4)

No.	Adjustment Items	Adjust Assembly	Adjusting Point	Measurement Point	Player Condition (MODE)	Adjusting Specification
9	Hue error signal level adjustment	VDEM	VR404	TV Monitor screen	STILL (NTSC) Frame#7201	Color irregularity on the magenta screen is minimized.
10	PAL Y level adjustment		VR701	VIDEO OUT terminal on TRMB assembly	PLAY, STILL (PAL) Chapter#11	Play the test disc. Adjust the luminance level of the video output of PLAY to the same value of the video output of STILL.
11	PAL LH delay S.C. level adjustment		VR703	TV Monitor screen	STILL (PAL) Chapter#11	Adjust the flicker on the monitor display to minimum.
12	NTSC S.C. frequency adjustment	TRMB	VR102	IC103 pin14	STILL (NTSC) Color bar	Connect the IC103 Pin23 to GND. Play the test disc, and adjust the S.C. frequency to 3.579545MHz \pm 20Hz. After the adjustment, disconnect the IC103 Pin23 from GND.
13	NTSC Hue adjustment		VR104	JA103 pin5		Play the test disc, and stabilize the output level of the blue signal to a=b=c-d. (Refer to waveform 5)
14	NTSC Chroma adjustment		VR103			Play the test disc, and adjust the output level of the blue signal to 0.75V _p -p \pm 10%. (a=b=c-d=0.75V _p -p \pm 10%, Terminated 75 Ω) (Refer to waveform 5)
15	PAL S.C. frequency adjustment		VR101	IC103 pin14	PLAY (PAL) Color bar	Connect the IC103 Pin23 to GND. Play the test disc, and adjust the S.C. frequency to 4.433619MHz \pm 20Hz. After the adjustment, disconnect the IC103 Pin23 from GND.
16	PAL Delay amp adjustment		VR106 and L102	JA103 pin3		Play the test disc, and stabilize the output level of the red signal to a-a' and b-b'. (Refer to waveform 6)
17	PAL Chroma adjustment		VR105			Play the test disc, and adjust the output level of the red signal to 0.75V _p -p \pm 10%. (a-a'-b-b'=0.75V _p -p \pm 10%, Terminated 75 Ω) (Refer to waveform 6)

NOTE :

When the adjustments after step No.12 (adjustment of TRMB assembly) are completed, confirm that normal color bar signals for both NTSC and PAL are output on the monitor display.

SCAN (◀◀, ▶▶) button

This is for quickly finding a particular point in the program from which you wish to play the disc. Scanning continues for as long as you keep the SCAN button depressed.

▶▶ : Forward direction

◀◀ : Reverse direction

DISC TABLE

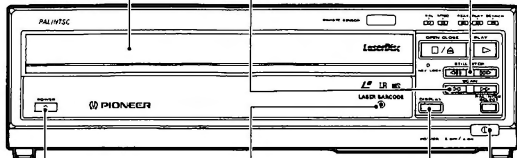
When power is switched on, and OPEN/CLOSE button is pressed, the disc table is expelled outward.

STILL/STEP (◀■, ■▶) button**Functions only during CAV disc playback.**

When either end of the button is pressed, the unit will enter frame-by-frame playback. Then, when the ■▶ end is pressed, the picture will advance forward frame-by-frame. When the ◀■ end is pressed, the picture will reverse frame-by-frame.

NOTE:

If this button is pressed during CLV disc playback, "CLV" appears on the screen to indicate that the button does not function.

**POWER indicator**

When power is turned on, the indicator lights up.

POWER switch

Press to turn the power on and off.

**LASER BARCODE terminal
(stereo miniature phone jack)**

A terminal for connecting an optional remote control unit RU-V103 in the wired mode.

To be connected when using the optional bar code reader UC-V104BC in the wired mode.

DISPLAY button

This button is used to display or erase chapter number and frame numbers on the TV screen.

When the power is turned ON with this button pressed, the function switches to setting mode.

NOTE:

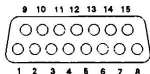
- During CLV disc playback, elapsed time numbers will be displayed in place of frame numbers.
- When only the DISPLAY button is pressed, the display appears and reappears alternately each time the button is pressed.

12. INTERFACE CONNECTOR TERMINALS

Used when external control is performed by using a controller or computer.

[Shape]

15 pin D-SUB connector

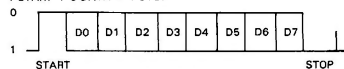


[Terminal names]

Pin No.	Terminal	I/O	Level
1	GND	-	-
2	TxD	Output	RS-232C
3	RxD	Input	RS-232C
4	DTR	Output	RS-232C
5	Not used	-	-
6	V SYNC	Output	TTL
7	H SYNC	Output	TTL
8	Not used	-	-
9	TxD	Output	TTL
10	RxD	Input	TTL
11	GND	-	-
12	DUMP	Output	-
13	AUX1	Output	TTL
14	AUX2	Output	TTL
15	GND	-	-

- Signals for both the RS-232C level (No. 2 and 3) and TTL level (No. 9 and 10) are provided. However, they cannot be used at the same time. They also cannot be connected together.
- The following is the data format:

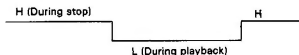
1 START + 8 DATA + 1 STOP



- By setting the FUNCTION switch, the baud rate can be set to either 9600 bits/sec, 4800 bits/sec or 1200 bits/sec.

[Function]

1. GND : Ground (TxD, RxD use)
2. TxD : Transmitted Data (RS-232C)
3. RxD : Received Data (RS-232C)
4. DTR : Data Terminal Ready (RS-232C)
6. V SYNC : Playback vertical sync output (TTL)
7. H SYNC : Playback horizontal sync output (TTL)
9. TxD : Transmitted data (TTL)
- 10: RxD : Received data (TTL)
11. GND : Ground
12. DUMP : Audio CH2 signal output
13. AUX1 : Video indicator output (TTL)
High during stop but low during screen playback.



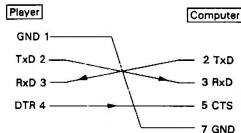
14. AUX2 : Jump TOGGLE output (TTL)
15. GND : Ground (for synchronizing signal output use.)

NOTES:

- Do not connect terminals 5 and 8 to ground; make sure it is free.
- Be sure to perform plugging and unplugging when the power is turned off.

CONNECTIONS TO COMPUTER RS-232C PORTS

Connect the player TxD, RxD and GND to the computer RxD, TxD and GND respectively. Although TxD and RxD are provided for both RS-232C and TTL levels, they cannot be used at the same time. The player DTR (Terminal 4) is connected to the computer CTS (Clear to Send), if necessary. (Use a separately sold interface cable.)



In regard to the data format, it has 1 start bit, 8 data bits, and 1 stop bit.

13. SPECIFICATIONS

1. General

System and Disc specifications ... Laser/Vision Videodisc system

Maximum playing time	
30 cm (12-inch) CAV disc	30 min/side
30 cm (12-inch) CLV disc	60 min/side
20 cm (8-inch) CAV disc	14 min/side
20 cm (8-inch) CLV disc	20 min/side

Spindle motor speed (When 30 cm disc is used.)

During PAL disc playback	
CAV disc	1500 rpm
CLV disc	1500 - 500 rpm

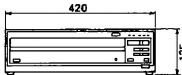
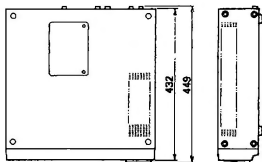
During NTSC disc playback	
CAV disc	1800 rpm
CLV disc	1800 - 800 rpm

Power requirements 120/220-240 V AC (switchable), 50/60Hz

Max. power consumption 120 V 0.8 A/220-240 V 0.4 A

Net weight (without package) 12.6kg (28 lb)

Dimensions 420(W) x 449(D) x 125(H) mm
16-9/16(W) x 16-15/16(D) x 4-15/16(H) in



Operating temperature +5°C to +35°C

(41°F to 95°F)

Operating humidity 5% to 90%
(There should be no condensation.)

2. Video characteristics

Format PAL/NTSC (automatic switchover)

Video output

Level 1 Vp-p nominal sync. negative, terminated

impedance 75 Ω unbalanced

Terminal BNC jack, RCA jack

3. Audio characteristics

Audio output ... Two-channel; stereo or two individual channels

Level 200 mV nominal

Terminal Two RCA-jacks

4. Functions

(Operations provided by player front panel function buttons)

Function	CAV disc	CLV disc
PLAY	YES	YES
REJECT	YES	YES
SCAN FWD.REV	YES	YES
STILL/STEP FWD.REV	YES	NO
DISPLAY ON/OFF	YES	YES
PAL/NTSC	Automatic switchover during playback	

(Operations by a separately sold remote control unit)

Function	CAV disc	CLV disc
PLAY	YES	YES
PAUSE	YES	YES
REJECT	YES	YES
REPEAT MODE	YES	YES
STILL/STEP FWD.REV. STILL	YES	NO
MULTI-SPEED FWD.REV	YES	NO
SCAN FWD.REV	YES	YES
AUDIO SELECT	YES	YES
VIDEO ON/OFF	YES	YES
DISPLAY ON/OFF	YES	YES
CLEAR	YES	YES
FRAME NUMBER SEARCH	YES	YES
TIME NUMBER SEARCH	NO	YES
CHAPTER NUMBER SEARCH	YES*	YES*

* Enabled when a disc with recorded chapter numbers is played back.

(Other Function)

• CX system ... Auto selection operation when a disc with recorded CX auto selection codes is played back.

5. Other Terminals

- LASER BARCODE (front panel) ... Stereo miniature phone jack
- INTERFACE CONNECTOR (rear panel) 15 pin, D-SUB connector
- EFM OUT (rear panel) 5 pin, DIN connector
- RGB OUT (rear panel) 9 pin, D-SUB connector
- EXT SYNC IN/OUT BNC jacks

6. Accessories

- Operating instructions 1
- Audio connecting card 1
- Video connecting cord 1

NOTE:

The playback time depends on the content of a disc.

Specifications and design subject to possible modifications without notice, due to improvements.



This symbol shows that the bar code can be used for the Laser Barcode system. Use a bar code marked with this symbol.

Published by Pioneer Electronic Corporation.
Copyright © 1991 Pioneer Electronic Corporation.
All rights reserved.