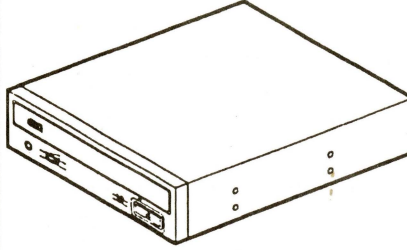


Service Manual



ORDER NO.
RRV1273

CD-ROM DRIVE UNIT

DR-UA124X-2

DR-UA124X-3

DR-UA124X-5

(IDE INTERFACE
SINGLE UNIT
DRIVERS?)

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

Type	Model			Power Requirement	Remarks
	DR-UA124X-2	DR-UA124X-3	DR-UA124X-5		
ZUC/WL	○	○	○	DC power supply	

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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)

VARO!
 AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:
 OSYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNGDÅ UDSÆTTELSE FOR STRÅLING.

VARNING!
 OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRakta EJ STRÅLEN.

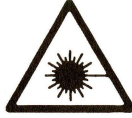


LASER
 Kuva 1
 Lasersäteilyn varoitusmerkki

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.

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


LASER DIODE CHARACTERISTICS
 MAXIMUM OUTPUT POWER: 5 mw
 WAVELENGTH: 780-785 nm



LASER
 Picture 1
 Warning sign for laser radiation

LABEL CHECK

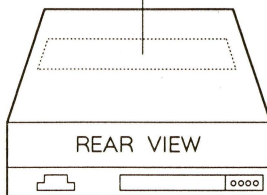
CLASS 1 LASER PRODUCT
 LASER KLASSE 1



DRW1657

ADVARSEL
 OSYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNGDÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT!
 UNSICHTBARE LASER-STRÄHLUNG TRITTAUS, WENN DECKEL (ODER KLAPPE) GEÖFFNET IST! NICHT DEM STRAHL AUSSETZEN!
VARO!
 Avattaessa ja suojalukitus ohitettaessa olet alttiina näkyttömälle lasersäteilylle. Älä katso säteeseen.
VARNING!
 Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Beträkta ej strålen.

ZUC/WL model



Additional Laser Caution

1. Laser Interlock Mechanism

The position of the switch (S902) for detecting loading completion is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch (S902) is not in CLMP terminal side (when the mechanism is not clamped and CLMP signal is high level). Thus, the interlock will no longer function if the switch (S902) is deliberately set to CLMP terminal side. (if CLMP signal is low level).

In the test mode * the interlock mechanism will not function.

Laser diode oscillation will continue, if pin 4 of TA2066F (IC204) on the MOTHER board assy are connected to GND, or pin 19 is connected to high level (ON), or else the terminals of Q206 are shorted to each other (fault condition).

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

* : Refer to page 23.

2. PACKING, EXPLODED VIEWS AND PARTS LIST

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.
- Parts list without notice are common for DR- UA124X-2, DR- UA124X-3 and DR- UA124X-5.

2.1 PACKING

(1) CONTRAST OF DR- UA124X-2, DR- UA124X-3 AND DR- UA124X-5

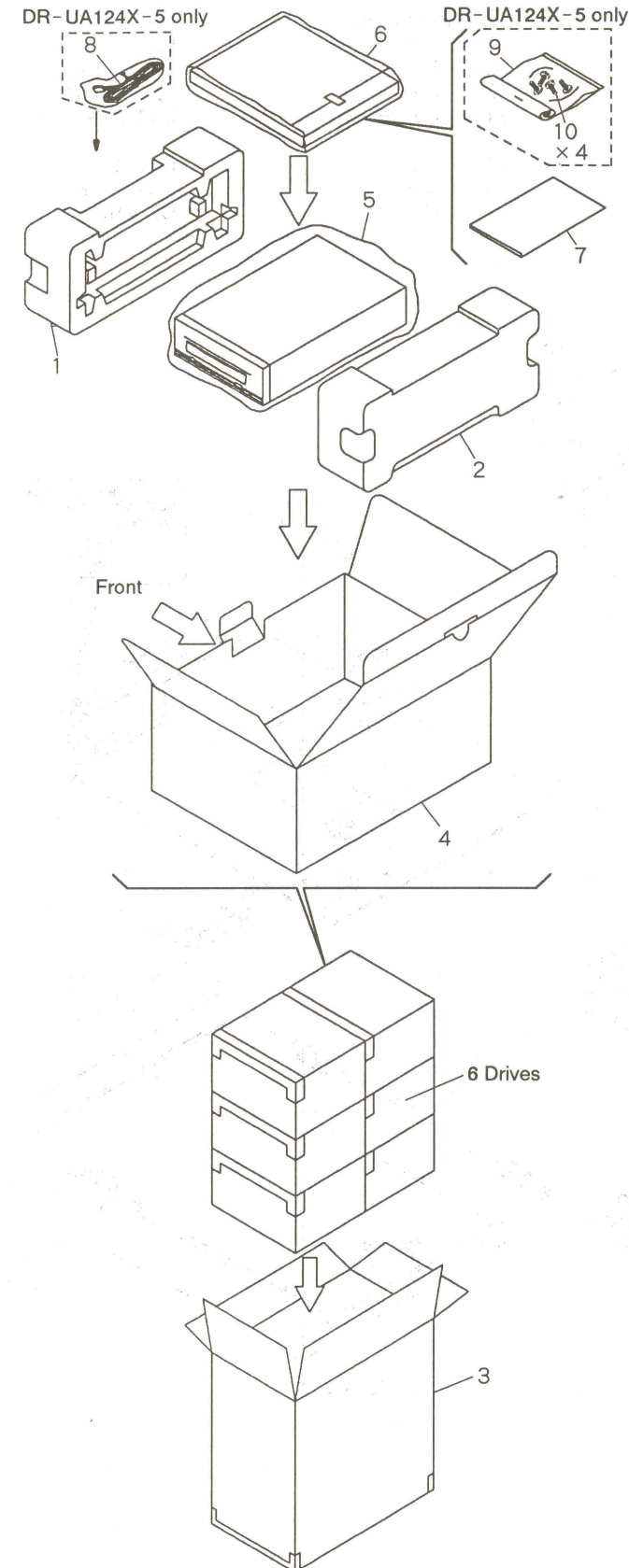
DR- UA124X-2, DR- UA124X-3 and DR- UA124X-5 have the same construction except for the following:

Mark	No.	Symbol & Description	Part No.			Remarks
			DR- UA124X-2	DR- UA124X-3	DR- UA124X-5	
NSP NSP	1	Pad L	DHA1339	Not used	DHA1339	
	1	Pad	Not used	DHA1340	Not used	
	2	Pad R	DHA1342	Not used	DHA1342	
	3	Master carton	DHG1638	Not used	DHG1651	
	4	Packing case	DHG1646	Not used	DHG1653	
	4	Packing case	Not used	DHG1647	Not used	
	6	Polyethylene bag	Z21-016	Not used	Z21-016	
	8	Audio cord	Not used	Not used	DKP3110	
	9	Polyethylene bag	Not used	Not used	DHL1089	
	10	Screw	Not used	Not used	PMA30P050FMC	
11	Plate	Not used	DHC1045	Not used		

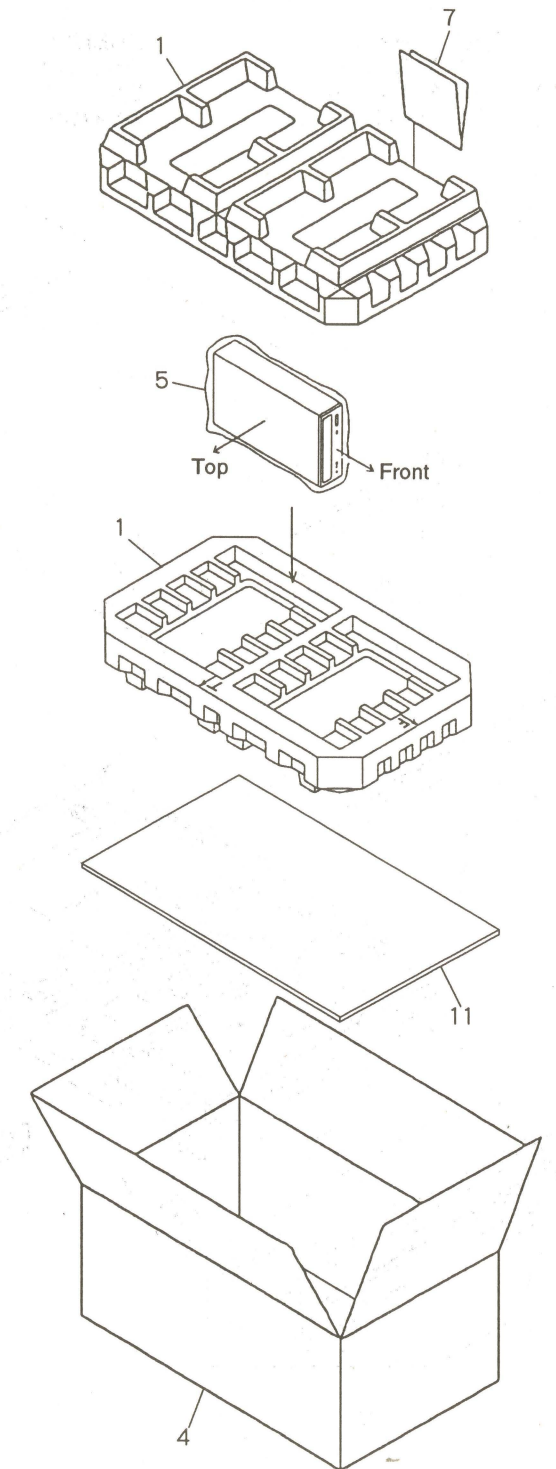
(2) PARTS LIST FOR DR- UA124X-2

Mark	No.	Description	Part No.
NSP	1	Pad L	DHA1339
	2	Pad R	DHA1342
	3	Master carton	DHG1638
NSP	4	Packing case	DHG1646
	5	Polyethylene bag	Z21-019
NSP	6	Polyethylene bag	Z21-016
	7	Operating instructions (English/French)	DRC1021

● Packing for DR- UA124X-2 and DR- UA124X-5



● Packing for DR- UA124X-3



2.2 EXTERIOR SECTION

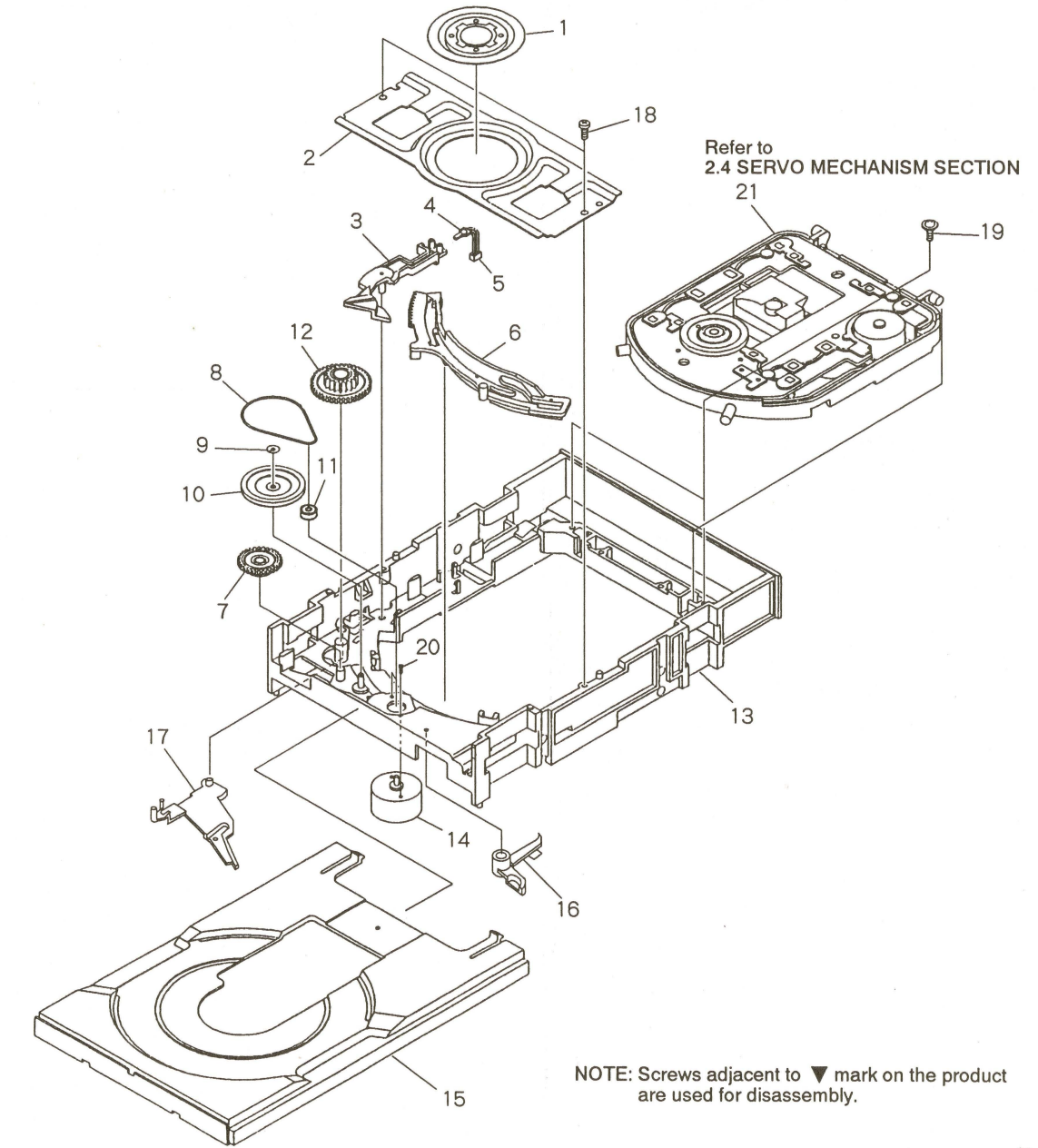
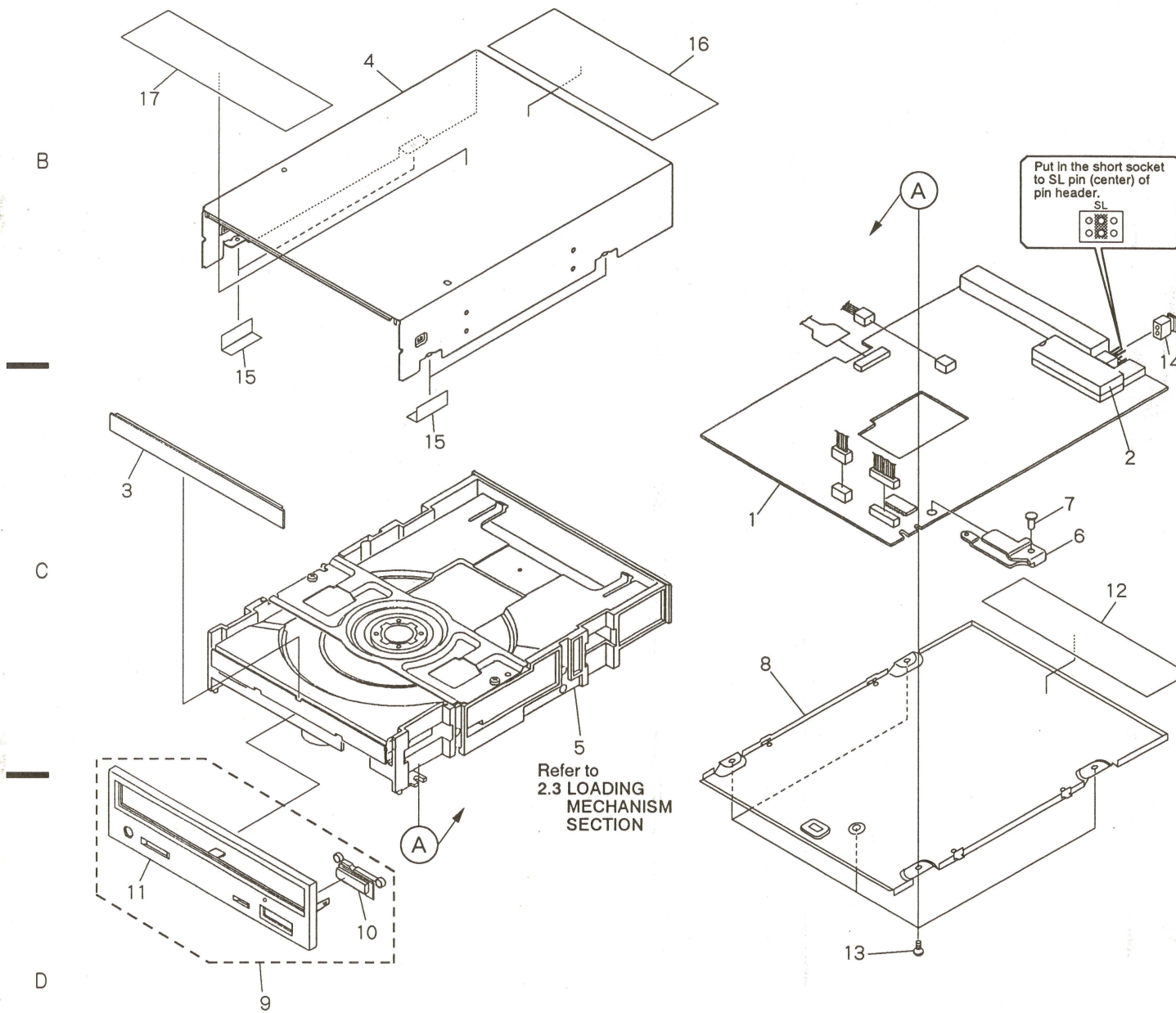
Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
A	NSP	1	MOTHER board assy	DWX1574	10	Eject knob	DAC1823
		2	EP-ROM (ATAPI) (IC702)	DYW1402	11	Front bezel	DAH1780
		3	Tray name plate A (ABS)	DAH1775	12	65 label	DRW1659
NSP	4	Top case	DNC1394	13	Screw	BBZ26P080FMC	
NSP	5	Loading mechanism A assy	DXA1741	14	Short socket	DKX1039	
	6	Heat sink	DNE1291	NSP	15	Sheet	DEC1861
	7	Nylon rivet	DEC-117	16	Label	DRW1649	
NSP	8	Bottom case	DNC1395	17	Label	DRW1657	
	9	Front bezel assy	DXA1748				

2.3 LOADING MECHANISM SECTION

Parts List

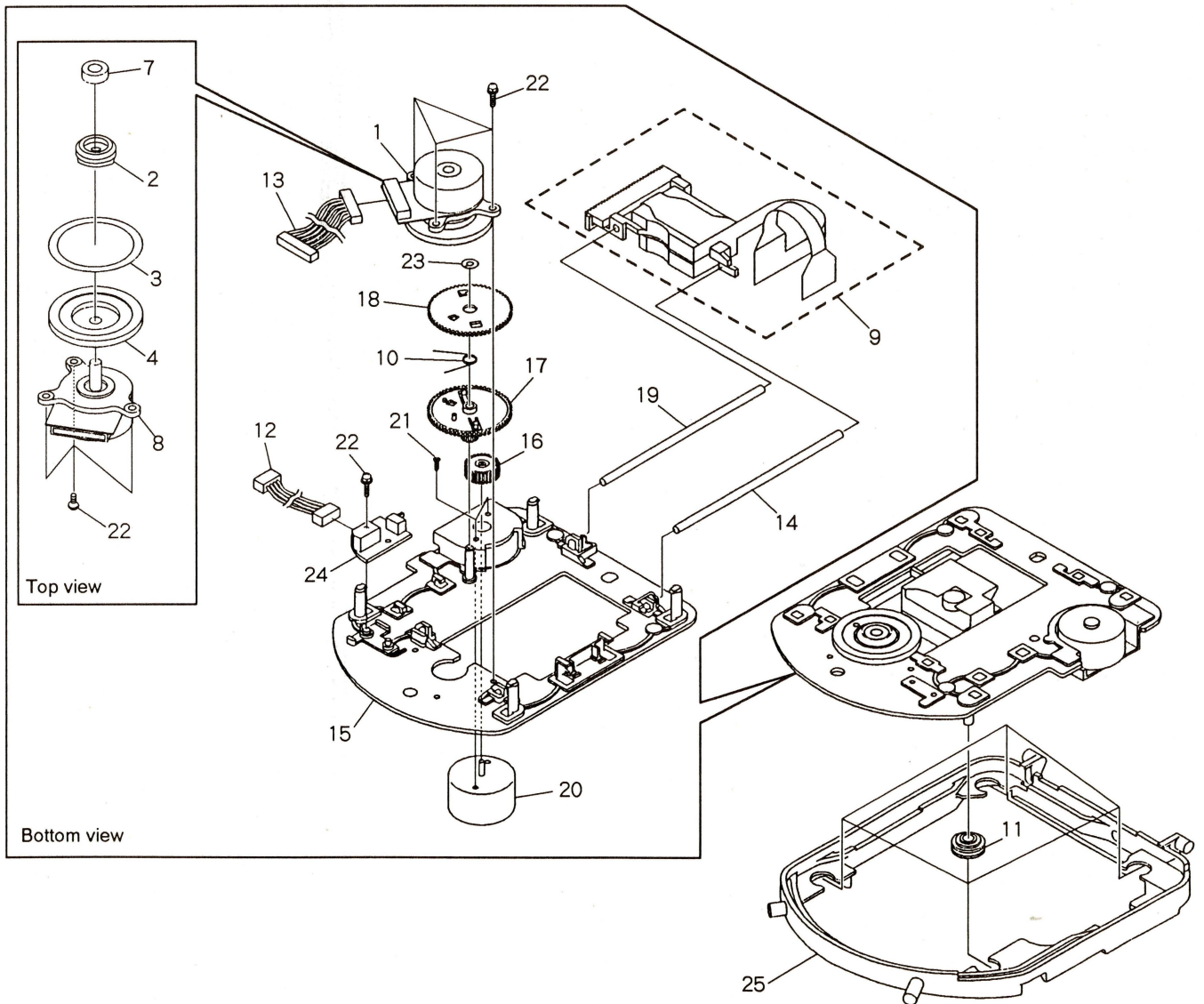
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Clamper assy	DXA1752	11	Motor pulley	PNW1634	
	2	Bridge	DNE1288	12	Drive gear	DNK3100	
	3	Switch lever	DNK3102	13	Load base	DNK3086	
	4	Lever switch (LOADING)	DSK1001	14	Motor (LOADING)	DXM1077	
	5	Connector assy 3P	DKP3103	15	Tray	DNK3087	
	6	Drive cam	DNK3097	16	Eject lever	DNK3103	
	7	Loading gear	DNK3101	17	Drive lever	DNK3098	
	8	Belt	DEB1316	18	Screw	IBZ26P060FMC	
	9	Washer	WT21D050D050	19	TS screw	DBA1006	
10	Gear pulley	DNK3099	20	Screw	JGZ17P030FMC		
			21	Servo mechanism assy	DXB1552		



2.4 SERVO MECHANISM SECTION

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Spindle motor assy - S	DXX2266		14	Sub guide bar	DLA1665
NSP	2	Centering hub	DLA1689	NSP	15	Mechanism base	DNK3088
NSP	3	Table sheet	DEC1871		16	Motor pinion	DNK3090
NSP	4	Disc table	DNH2016		17	Gear A	DNK3092
	5			18	Gear B	DNK3093
	6			19	Guide bar	PLA1094
NSP	7	Magnet	DNS1186		20	Motor (CARRIAGE)	DXM1077
NSP	8	Spindle motor	DXM1073		21	Screw	JGZ17P030FMC
	9	Pickup assy - S	DXX2267		22	Screw	PMA26P060FMC
	10	Gear spring	DBH1286		23	Washer	WT26D060D025
	11	Float rubber	DEB1315	NSP	24	INSW unit	DWS1246
	12	Connector assy 4P	DKP3104	NSP	25	Disc man	DNK3089
	13	Connector assy 11P	DKP3105				



3. SCHEMATIC AND PCB CONNECTION DIAGRAMS

NOTE FOR SCHEMATIC DIAGRAMS

(Type 4A)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".

2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.

3. RESISTORS:

Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
 Rated power: 1/4W, 1/8W, 1/10W unless otherwise noted.
 Tolerance:(F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.

4. CAPACITORS:

Unit : p:pF or μ:F unless otherwise noted.
 Ratings : capacitor (μ F) /voltage (V) unless otherwise noted.
 Rated voltage : 50V except for electrolytic capacitors.

5. COILS:

Unit : m:mH or μ:H unless otherwise noted.

6. VOLTAGE AND CURRENT:

□ or ← V :
 DC voltage (V) in PLAY mode unless otherwise noted.
 ⇄ mA or ← mA :
 DC current in PLAY mode unless otherwise noted.
 Value in () is DC current in STOP mode.

7. OTHERS:

- ⊙ or ⊗ : Adjusting point.
- ◀ : Measurement point.
- The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.

8. SCH - □ ON THE SCHEMATIC DIAGRAM:

- SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)


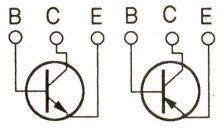

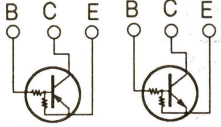

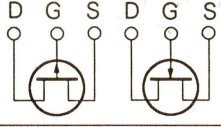

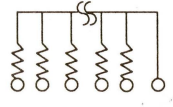

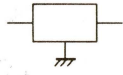
9. SWITCHES (Underline indicates switch position):

MOTHER BOARD ASSY
 S701 :EJECT SW

IN SW UNIT
 S901 :DETECT SW

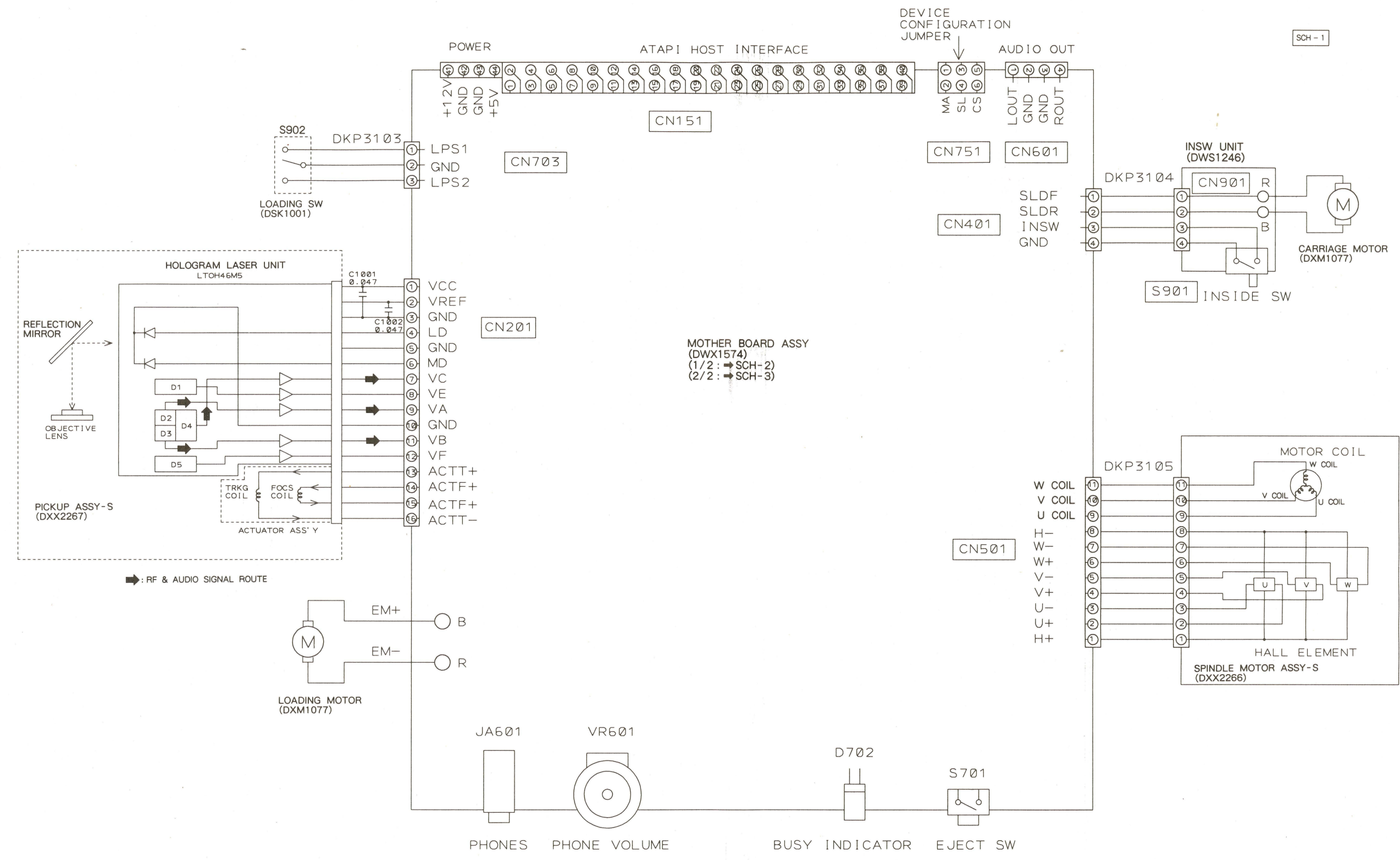
NOTE FOR PCB DIAGRAMS:

- Part numbers in PCB diagrams match those in the schematic diagrams.
- A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3.1 OVERALL WIRING DIAGRAM

A
B
C
D



SCH-1 OVERALL WIRING DIAGRAM

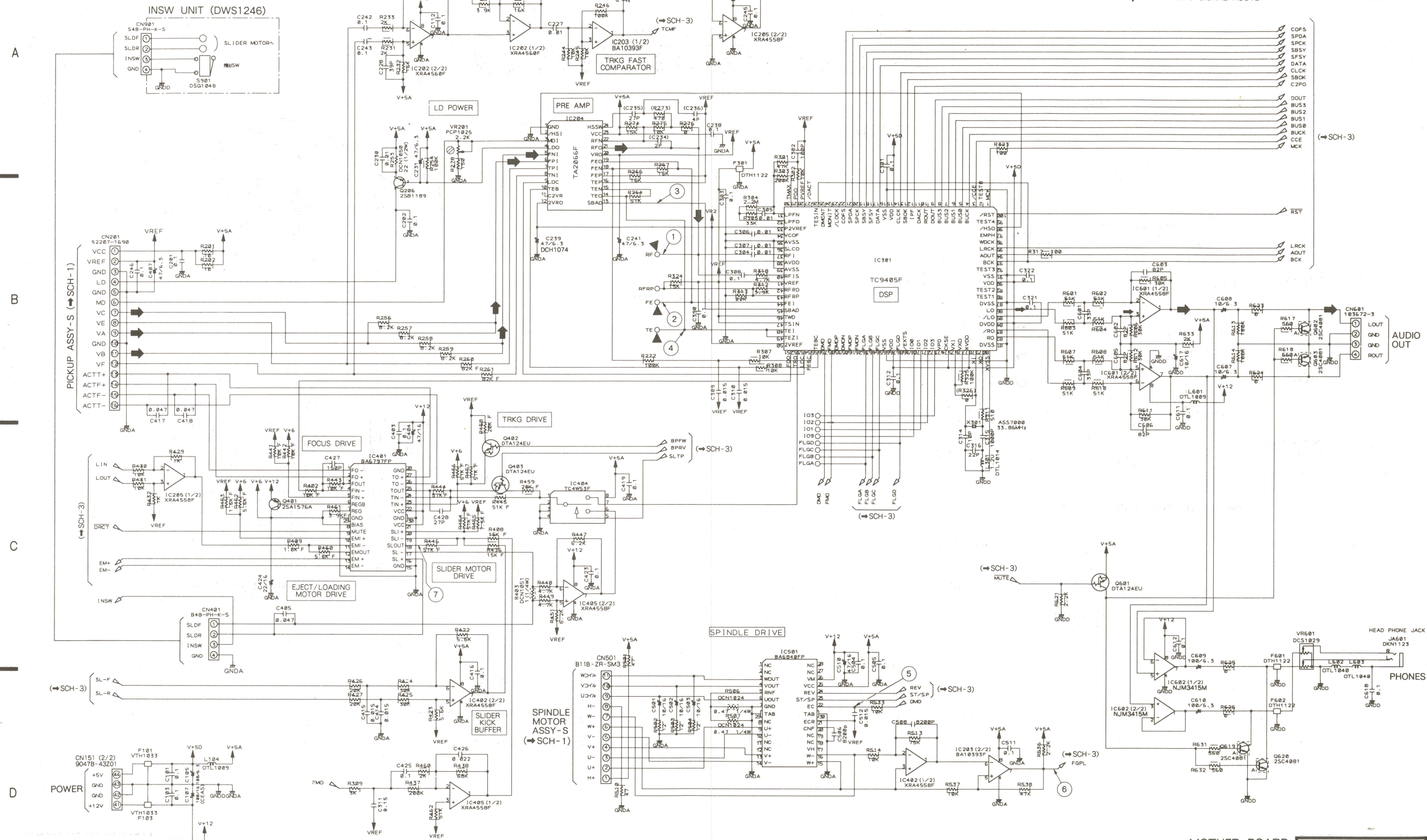
OVERALL WIRING DIAGRAM **SCH-1**

3.2 MOTHER BOARD ASSY(1/2) AND INSW UNIT

MOTHER BOARD ASSY (1/2)
(DWX1574)

SCH - 2

RF & AUDIO SIGNAL ROUTE



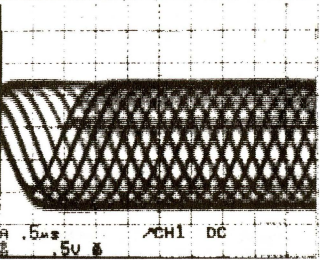
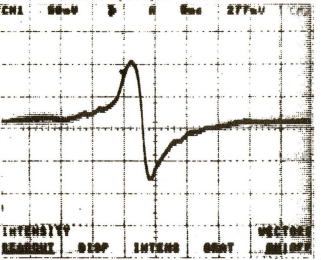
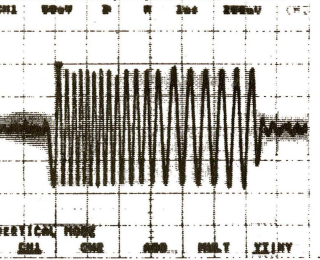
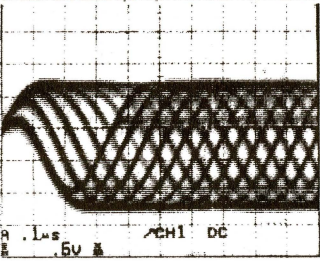
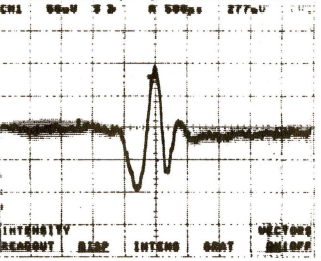
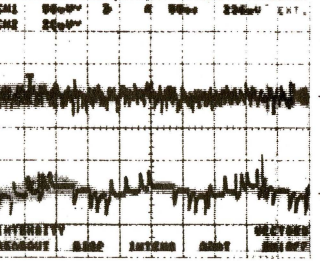
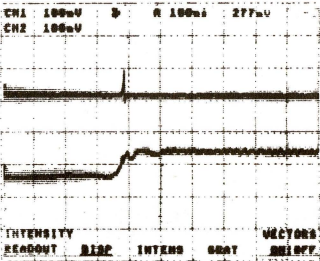
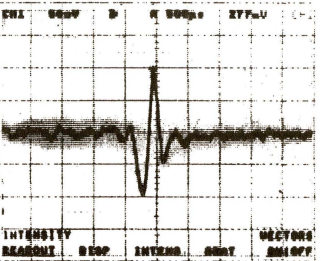
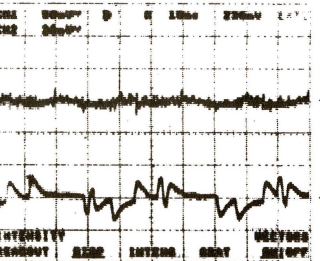
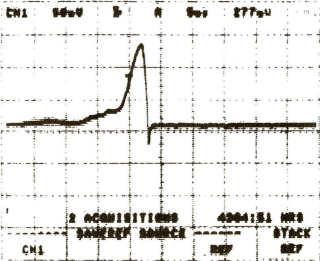
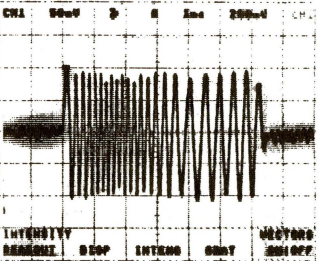
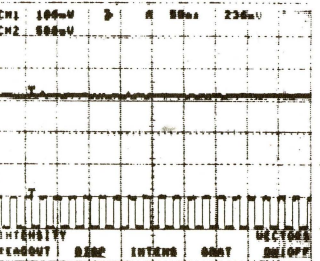
SCH-2

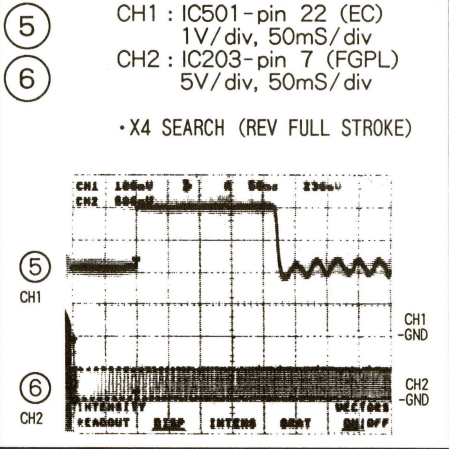
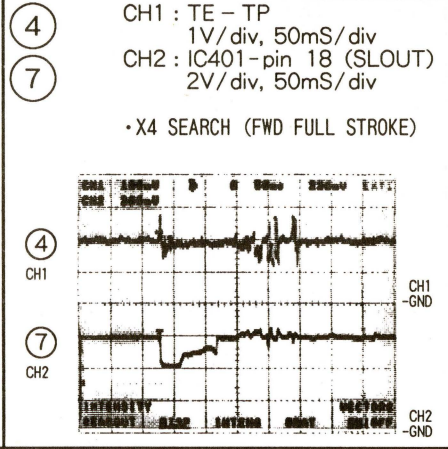
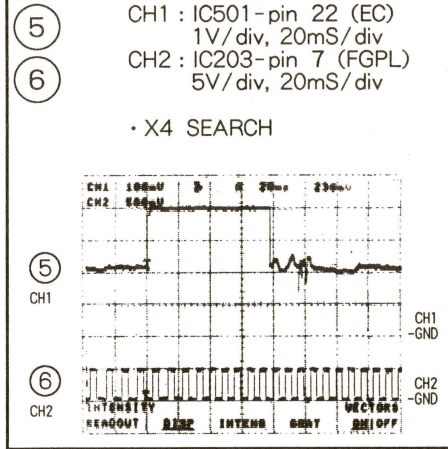
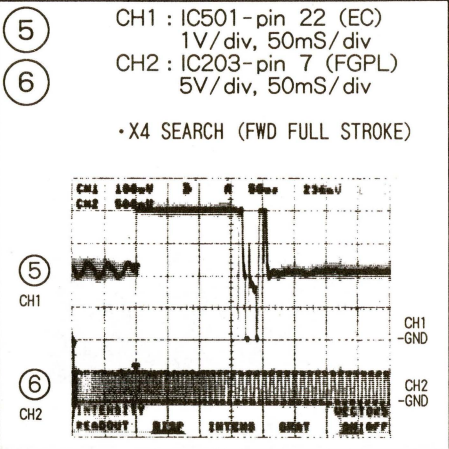
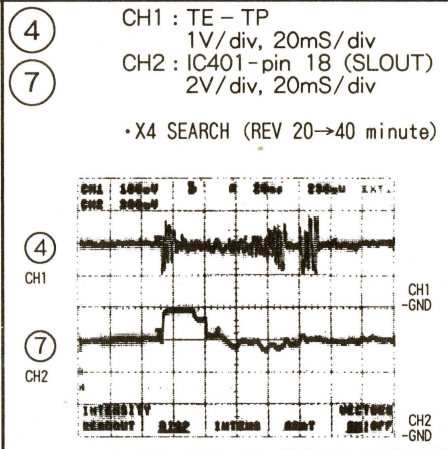
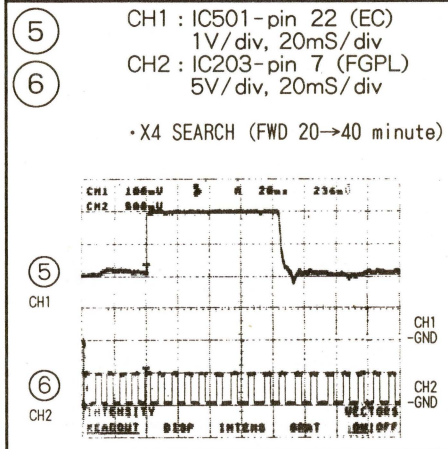
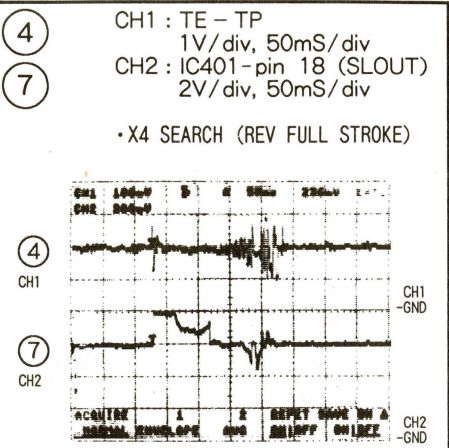
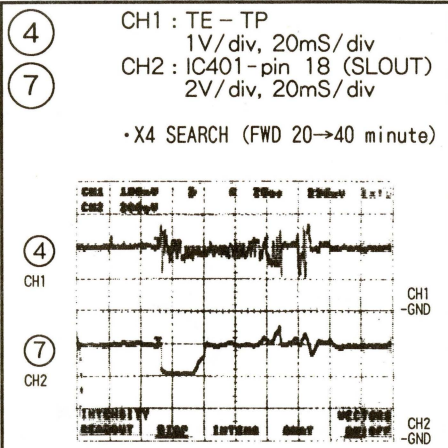
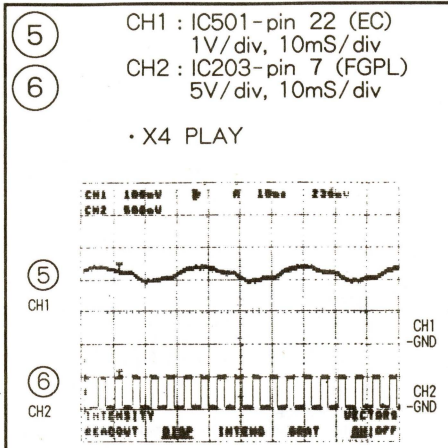
MOTHER BOARD ASSY (1/2),
INSW UNIT

MOTHER BOARD ASSY (1/2),
INSW UNIT

SCH-2

Waveforms and Voltages of Mother board assy

<p>① RF - TP 0.5V/div, 0.5 μS/div • X1 PLAY</p>  <p style="text-align: right;">-GND</p>	<p>② FE - TP 0.5V/div, 5mS/div • FOCUS UP/DOWN</p>  <p style="text-align: right;">-GND</p>	<p>④ TE - TP 0.5V/div, 1mS/div • X4 MULTI TRACK JUMP (REV)</p>  <p style="text-align: right;">-GND</p>
<p>① RF - TP 0.5V/div, 0.1 μS/div • X4 PLAY</p>  <p style="text-align: right;">-GND</p>	<p>④ TE - TP 0.5V/div, 500 μS/div • X1 STILL</p>  <p style="text-align: right;">-GND</p>	<p>④ CH1 : TE - TP 0.5V/div, 50mS/div ⑤ CH2 : IC501 - pin 22 (EC) 0.2V/div, 50mS/div • X1 PLAY</p>  <p style="text-align: right;">-GND</p>
<p>② CH1 : FE - TP 1V/div, 100mS/div ③ CH2 : IC204 - pin 13 (SBAD) 1V/div, 100mS/div • FOCUS IN</p>  <p style="text-align: right;">-GND</p>	<p>④ TE - TP 0.5V/div, 500 μS/div • X4 STILL</p>  <p style="text-align: right;">-GND</p>	<p>④ CH1 : TE - TP 0.5V/div, 10mS/div ⑤ CH2 : IC501 - pin 22 (EC) 0.2V/div, 10mS/div • X4 PLAY</p>  <p style="text-align: right;">-GND</p>
<p>② FE - TP 0.5V/div, 5mS/div • FOCUS IN</p>  <p style="text-align: right;">-GND</p>	<p>④ TE - TP 0.5V/div, 1mS/div • X4 MULTI TRACK JUMP (FWD)</p>  <p style="text-align: right;">-GND</p>	<p>⑤ CH1 : IC501 - pin 22 (EC) 1V/div, 50mS/div ⑥ CH2 : IC203 - pin 7 (FGPL) 5V/div, 50mS/div • X1 PLAY</p>  <p style="text-align: right;">-GND</p>



IC204 (TA2066F)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	13	2.5
2	0	14	2.1
3	178m	15	2.1
4	4.4	16	2.1
5	2.1	17	2.1
6	2.1	18	2.1
7	2.1	19	2.1
8	2.1	20	2.1
9	0	21	0
10	2.1	22	2.1
11	4.2	23	5
12	4.2	24	0

IC301 (TC9405F)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	1.7	16	5	31	1.6	46	2.1	61	5	76	0	91	0
2	5	17	0	32	0	47	2.1	62	0	77	5	92	5
3	5	18	-	33	4.2	48	2.1	63	0	78	2.5	93	-
4	5	19	-	34	1.4	49	2.1	64	5	79	-	94	0
5	0	20	-	35	0	50	4.2	65	0	80	0	95	-
6	0	21	-	36	1.6	51	2.1	66	-	81	0	96	-
7	0	22	-	37	2.1	52	2.1	67	5	82	-	97	5
8	0	23	5	38	5	53	0	68	5	83	-	98	5
9	0	24	5	39	0	54	2.1	69	0	84	-	99	5
10	0	25	5	40	2.1	55	2.1	70	0	85	-	100	5
11	0	26	-	41	2.1	56	2.1	71	0	86	5		
12	5	27	5	42	1.2	57	2.1	72	0	87	0		
13	0	28	2.1	43	1	58	5	73	0	88	5		
14	-	29	2.1	44	2.1	59	5	74	5	89	5		
15	-	30	0	45	2.4	60	5	75	2.5	90	5		

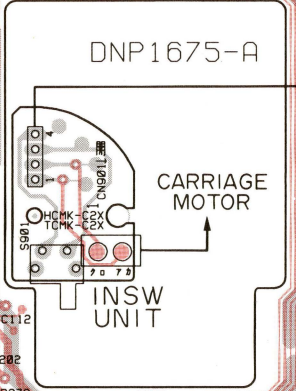
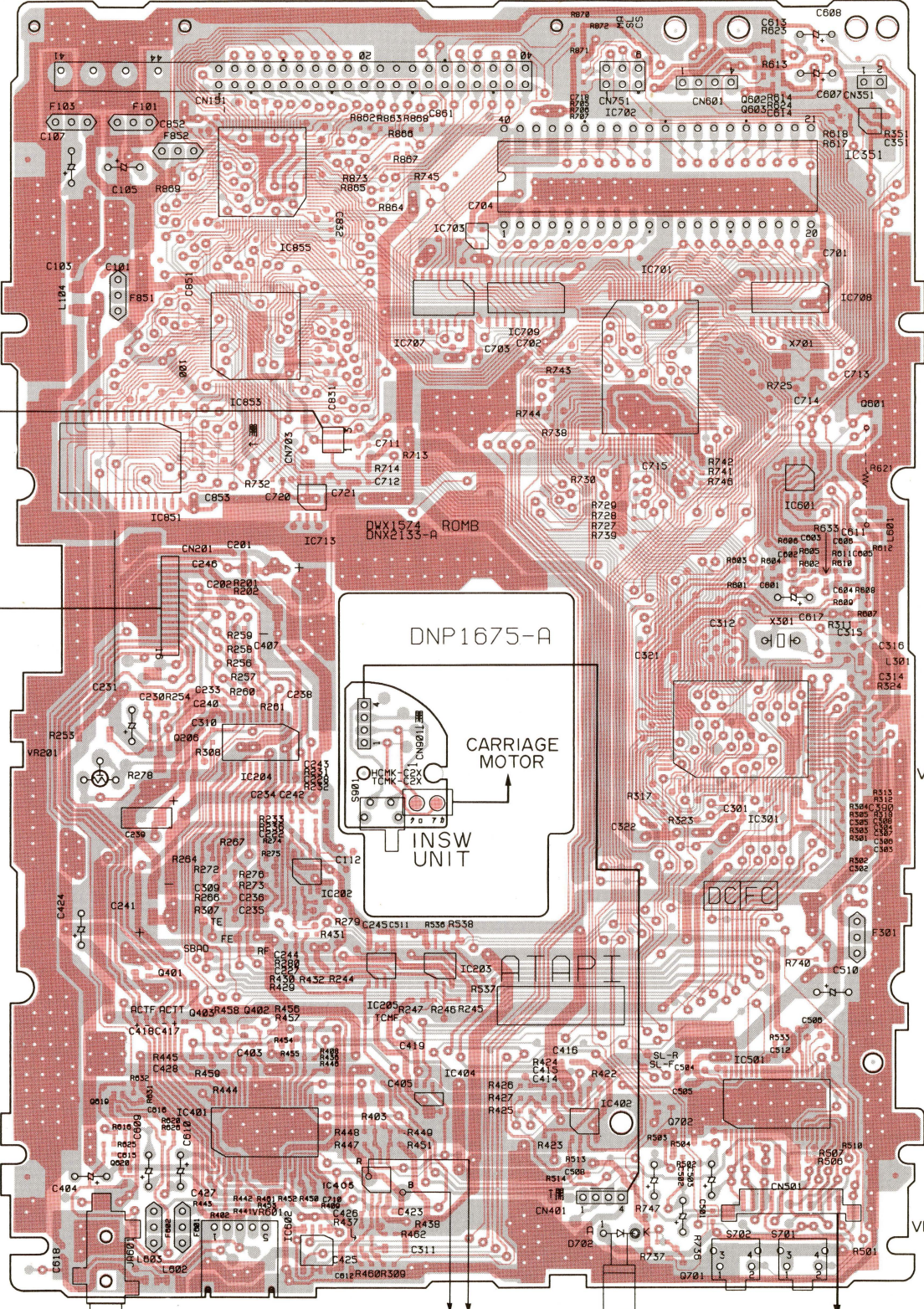
MOTHER BOARD ASSY

A
B
C
D

A
B
C
D

LOADING SW

PICKUP ASSY-S



PHONES

LOADING MOTOR

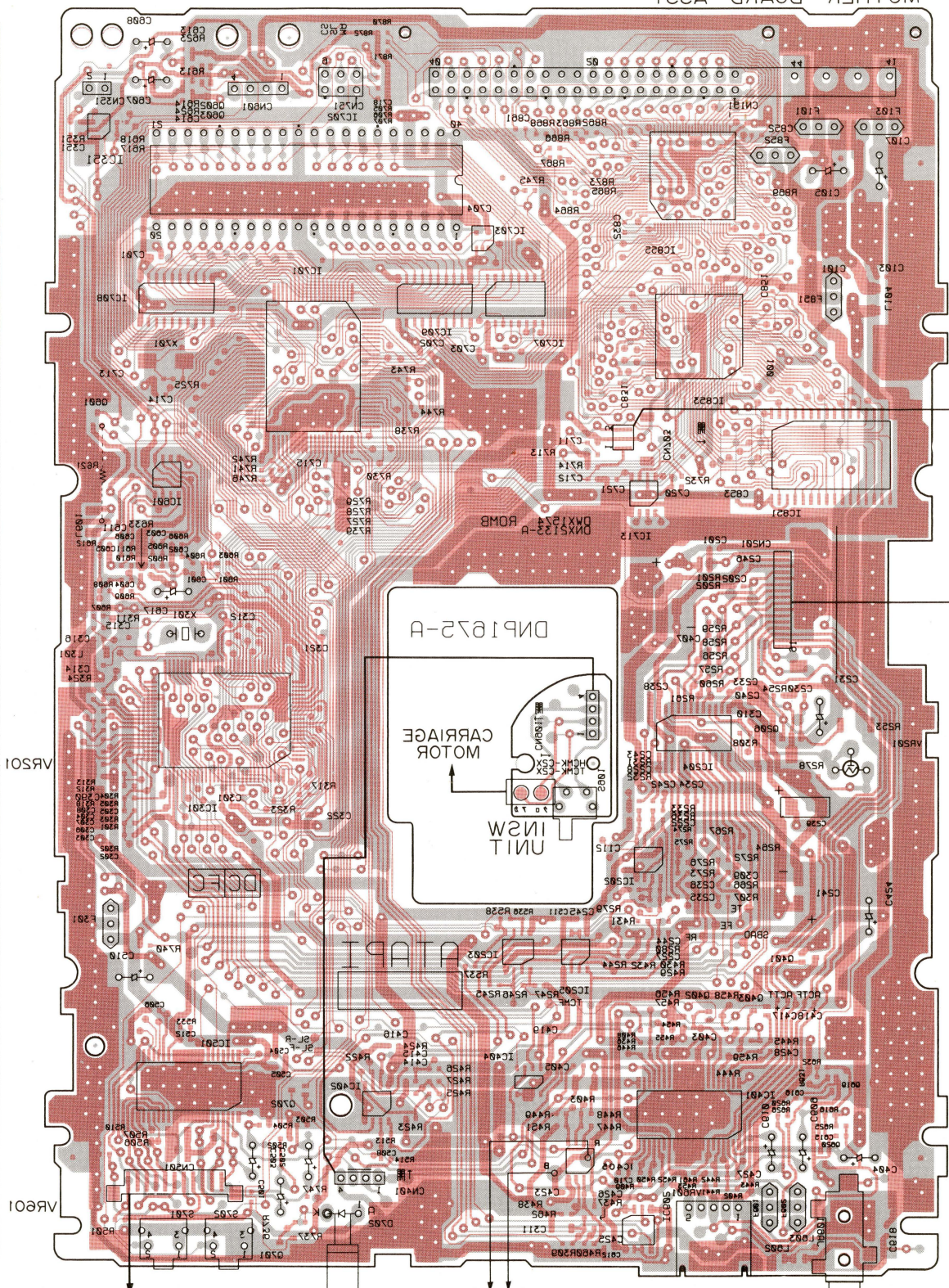
SPINDLE MOTOR ASSY-S

• This diagram is viewed from the pink colored foil side.
• This PCB is double sided.

PCB - 1

MOTHER BOARD ASSY

A
0E03
1C705
1C825
1C703
1C707
1C709
1C823
1C701
0E01
1C821
1C601
1C713
1C301
0506
1C304
1C305
1C302
1C303
0401
1C501
1C404
1C405
0E19
0705
1C401
0E50
1C402
1C605
0701
D



LOADING
SW
PICKUP
ASSY-2

SPINDLE
MOTOR ASSY-2
LOADING
MOTOR
PHONES

- This diagram is viewed from the gray colored foil side.
- This PCB is double sided.

3.3 MOTHER BOARD ASSY(2/2)

DR - UA124X - 2, DR - UA124X - 3
DR - UA124X - 5

MOTHER BOARD ASSY (2/2)
(DWX1574)

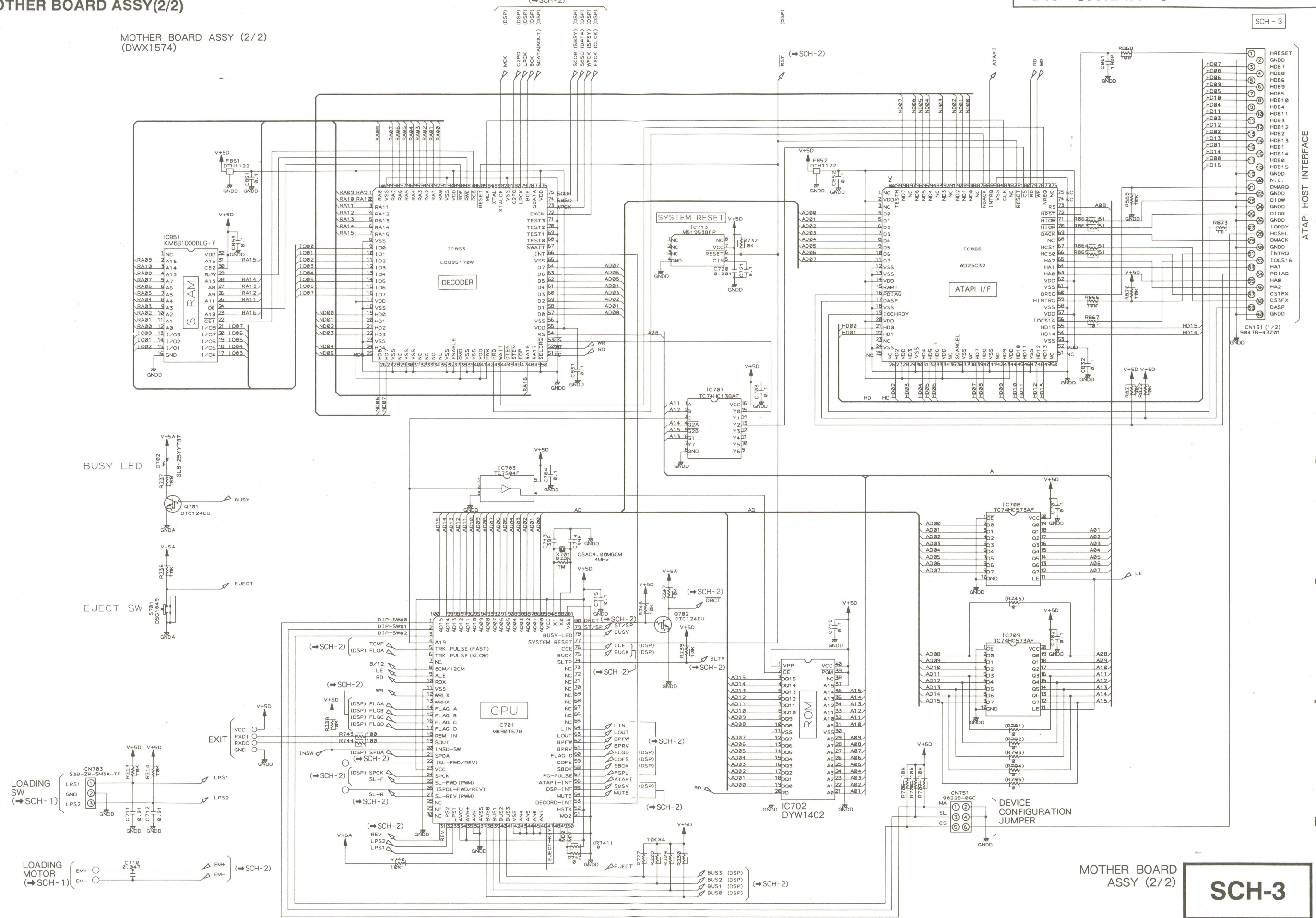
A

B

C

D

MOTHER BOARD ASSY (2/2)
SCH-3



MOTHER BOARD ASSY (2/2)

SCH-3

4. PCB PARTS LIST

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.
- 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 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
 - 560 Ω \rightarrow 56 \times 10¹ \rightarrow 561 RD1/8PM $\begin{matrix} 5 & 6 & 1 \\ \hline \end{matrix}$ J
 - 47k Ω \rightarrow 47 \times 10³ \rightarrow 473 RD1/4PS $\begin{matrix} 4 & 7 & 3 \\ \hline \end{matrix}$ J
 - 0.5 Ω \rightarrow 0R5 RN2H $\begin{matrix} 0 & R & 5 \\ \hline \end{matrix}$ K
 - 1 Ω \rightarrow 010 RS1P $\begin{matrix} 0 & 1 & 0 \\ \hline \end{matrix}$ K
 - Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
 - 5.62k Ω \rightarrow 562 \times 10¹ \rightarrow 5621 RN1/4PC $\begin{matrix} 5 & 6 & 2 & 1 \\ \hline \end{matrix}$ F

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
LIST OF ASSEMBLIES							
		MAINB ASSY	DWM1490			Q602, Q603, Q619, Q620	2SC4081
NSP		└ INSW UNIT	DWS1246			Q402, Q403, Q601	DTA124EU
NSP		└ MOTHER BOARD ASSY	DWX1574			Q701, Q702	DTC124EU
						D702	SLB-25YTB7
COILS AND FILTERS							
						F301, F601, F602, F851, F852	DTH1122
						L301	DTL1015
						L104, L601 (22 μ H)	OTL1009
						L602, L603	OTL1040
						F101, F103	VTH1033
INSW UNIT							
SWITCH							
		S901	DSG1048			S701	DSG1049
OTHERS							
		CN901 KR CONNECTOR	S4B-PH-K	CAPACITORS			
						C314	CCSRCH100D50
						C302	CCSRCH101J50
						C427	CCSRCH151J50
						C861	CCSRCH181J50
						C316	CCSRCH220J50
						C428	CCSRCH271J50
						C601, C604	CCSRCH330J50
						C222, C228, C713, C714	CCSRCH390J50
						C244	CCSRCH470J50
						C602, C603, C605, C606	CCSRCH820J50
						C501-C503, C617	CEAL100M16
						C607, C608	CEAL100M6R3
						C105, C609, C610	CEAL101M6R3
						C424	CEAL220M16
						C510	CEAL470M16
						C231	CEAL470M6R3
						C107	CEAS101M16
						C404	CEV470M16
						C241, C407	CEV470M6R3
						C315, C720	CKSRYB102K50
						C227, C230, C304-C307	CKSRYB103K50
						C711, C712	CKSRYB103K50
						C309, C310, C414, C415, C512	CKSRYB153K50
						C426	CKSRYB223K25
						C506, C508	CKSRYB822K50

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
		C101, C103, C112, C201, C202	CKSRYF104Z25			R617, R618, R631, R632	RS1/16S561J
		C238, C242, C243, C245, C246	CKSRYF104Z25			R450, R452	RS1/16S562F
		C301, C303, C308, C312	CKSRYF104Z25			R422, R423	RS1/16S562J
		C321, C322, C390, C403, C416	CKSRYF104Z25			R447, R451	RS1/16S622J
		C419, C423, C425, C504, C505	CKSRYF104Z25			R438	RS1/16S683J
		C511, C611, C612, C618	CKSRYF104Z25			R455	RS1/16S752F
		C701-C704, C715, C718, C721	CKSRYF104Z25			R513	RS1/16S753J
		C831, C832, C851-C853	CKSRYF104Z25			R256-R259	RS1/16S822J
		C405, C417, C418, C710	CKSRYF473Z25			R260, R261	RS1/16S823F
		C311	CKSYF154Z25			VR601 (47k Ω)	DCS1029
						VR201 (2.2k Ω)	PCP1025
		C239	DCH1074	OTHERS			
RESISTORS							
		R253 (22 Ω)	DCN1050			CN601 CONNECTOR	103672-3
		R403 (1.0 Ω)	DCN1051			CN201 FLEXIBLE CONNECTOR	52207-1690
		R506, R507 (0.47 Ω)	OCN1024			CN751 PIN HEADER (6P)	9022B-06C
		R276, R742	RS1/16S000J			CN151 ATAPI/CONNECTOR	9047B-43Z01
		R201, R202, R867, R873	RS1/16S100J			X301 CRYSTAL RESONATOR (33.8688MHz \pm 700PPM)	ASS7000
		R317, R323, R743, R744, R866	RS1/16S101J			CN501 CONNECTOR 11P	B11B-ZR-SM3
		R868	RS1/16S101J			CN401 KR CONNECTOR	B4B-PH-K
		R429, R432	RS1/16S102J			X701 CERAMIC OSCILLATOR (4MHz)	CSAC4.00MGCM
		R402, R441-R443	RS1/16S103F			IC SOCKET (40P)	DKH1016
		R244, R245, R275, R302	RS1/16S103J			JA601 MINI JACK	DKN1123
		R307, R308, R430, R431, R514	RS1/16S103J			CN703 CONNECTOR 3P	S3B-ZR-SM3A
		R533, R537, R705-R707	RS1/16S103J				
		R713, R714, R727-R730, R732	RS1/16S103J				
		R736, R738-R740, R746, R747	RS1/16S103J				
		R869-R872	RS1/16S103J				
		R246, R254, R272, R613, R614	RS1/16S104J				
		R725	RS1/16S105J				
		R502-R504	RS1/16S120J				
		R278	RS1/16S151J				
		R408, R436	RS1/16S153F				
		R274, R324	RS1/16S153J				
		R409, R453	RS1/16S162F				
		R232, R236, R266, R267, R280	RS1/16S163J				
		R737	RS1/16S201J				
		R231, R233, R460, R633	RS1/16S202J				
		R458, R459	RS1/16S203F				
		R426, R427	RS1/16S203J				
		R303, R437	RS1/16S204J				
		R247, R536, R621	RS1/16S222J				
		R313	RS1/16S223J				
		R304	RS1/16S225J				
		R309	RS1/16S302J				
		R424, R425, R605, R606	RS1/16S303J				
		R611, R612	RS1/16S303J				
		R305	RS1/16S333J				
		R461	RS1/16S392F				
		R279, R312	RS1/16S392J				
		R501, R510	RS1/16S470J				
		R318, R448, R449	RS1/16S472J				
		R301, R538	RS1/16S473J				
		R862-R865	RS1/16S510J				
		R311	RS1/16S511J				
		R444-R446, R454, R456, R457	RS1/16S513F				
		R264, R462, R601-R604	RS1/16S513J				
		R607-R610	RS1/16S513J				

5. DISASSEMBLY

5.1 DISASSEMBLY THE FRONT BEZEL ASSY

• Open the tray

1. Make the key by using clip etc.
(It may use to the metal stick which is extent of 1mm in diameter and 50mm long.)
2. Open the door by moving the eject lever which is inserted the key to the hole in vertically and pressing it as shown in Fig. 5-1.
3. Unhook the two hooks of the tray name plate.

• Remove the bottom case

1. Remove the five screws ① to remove the bottom case.

• Remove the top case

1. Be careful of the hooks (right and left) of the front bezel assy.

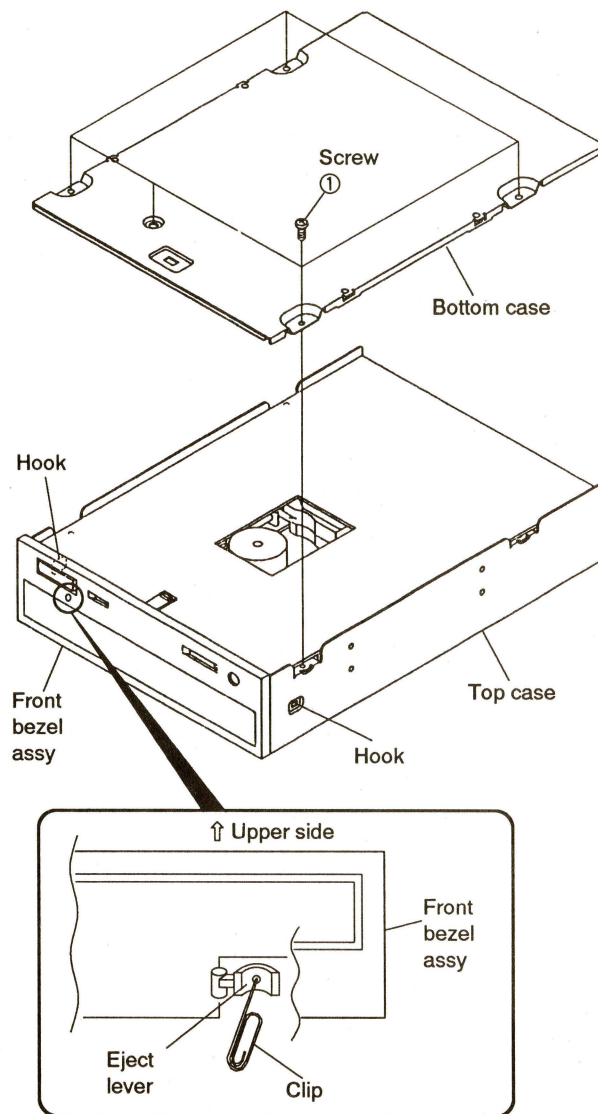


Fig.5-1 Disassembly (Bottom view)

6. ADJUSTMENTS

6.1 Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

● Adjustment Items/Verification Items and Order

If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in steps 1 - 3, the pickup block may be defective.

Step	Item	Test Point	Adjustment Location
1	Focus offset verification	FCS. ERR	None
2	Tracking error balance verification	TRK. ERR	None
3	RF level adjustment (RF level)	RF	VR201

Note: The digital servo IC (TC9405F) being used in this set has the following functions and does not provide focus offset, focus servo loop gain and tracking servo loop gain adjustments.

1. Average function

For accurate servo control, FCS. ERR and RF average measurements are performed and the measured values are compensated through a compensation circuit.

Thus, volume control for FCS. OFS adjustment is not provided.

2. Auto gain control function

The gain inside the filter is automatically adjusted to obtain a proper gain in the servo loop. This function permits the optimum gain to be obtained on each disc.

Thus, volume controls for FCS. GAIN and TRK. GAIN adjustments are not provided.

The gain adjustment is done before TOC reading.

● Abbreviation table

FCS. ERR	:Focus Error
TRK. ERR	:Tracking Error
FCS GAN	:Focus Gain
TRK GAN	:Tracking Gain
FCS. IN	:Focus In
TRK. IN	:Tracking In

● Measuring Instruments and Tools

1. Dual trace oscilloscope (10:1 probe)
2. Test disc (YEDS-7)
3. Standard tools

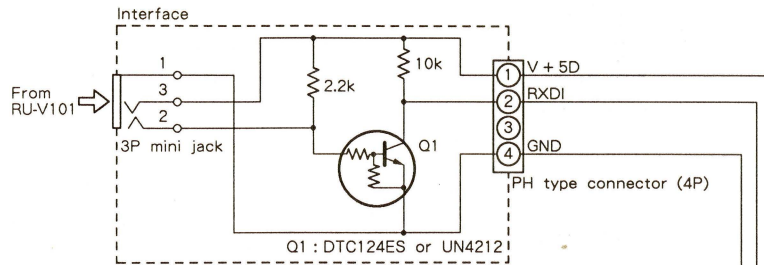
6.2 FUNCTION TABLE OF THE REMOTE CONTROLLER (RU-V101) FOR SERVICE

• Test mode

Shows the function table of the remote controller (RU-V101) for service as follows. When operating the CD-ROM directly, it is possible to operate as shown below by connecting the wired-remote control to the CD-ROM with the interface.

When the test command is used, put in the short socket to MA, SL and GND pins of pin header (CN751) on the rear panel, and turn the power on. (Refer to Fig. 2)

• Schematic Diagram of the Conversion Jig for Remote Control Operation



MOTHER BOARD ASSY

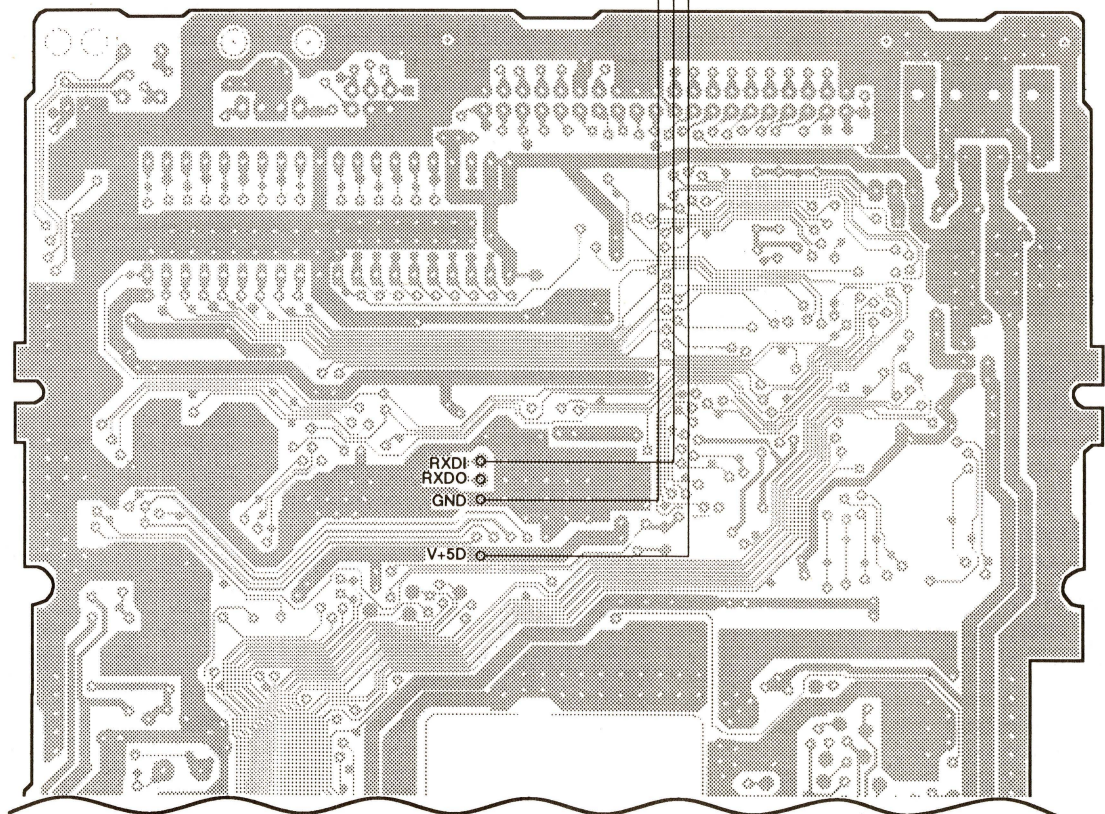
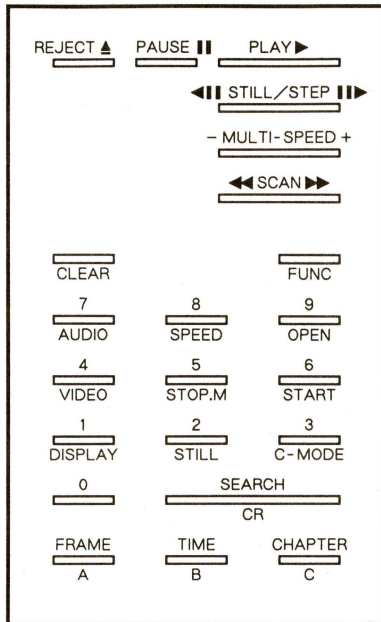


Fig. 1



RU-V101

REJECT		: Spindle stop
PAUSE		: Pause
PLAY		: Play
STILL/STEP	▶▶	:] Test command
STILL/STEP	◀◀	:] Test command
MULTI-SPEED+		:] Test command
MULTI-SPEED-		:] Test command
SCAN	▶▶▶	: Scan FWD
SCAN	◀◀◀	: Scan REV
CLEAR		: Clear
FRAME		: Frame set
TIME		: Time set
CHAPTER		: Track set
SEARCH		: Search
10key		: Numerical input
DISPLAY	(FUNC+1)	: No entry
STILL	(FUNC+2)	: No entry
C-MODE	(FUNC+3)	: No entry
VIDEO	(FUNC+4)	: No entry
STOP.M	(FUNC+5)	: Stop marker
START	(FUNC+6)	: Start
AUDIO	(FUNC+7)	: No entry
SPEED	(FUNC+8)	: No entry
OPEN	(FUNC+9)	: Door open

● Test command

Key operation	Command	Description
[0]+[TIME]	{0TM}	All servo OFF
[1]+[TIME]	{1TM}	Laser-diode (LD) ON
[2]+[TIME]	{2TM}	Focus ON
[3]+[TIME]	{3TM}	Spindle ON
[4]+[TIME]	{4TM}	Slider/Tracking ON/OFF
[5]+[TIME]	{5TM}	Not used
[6]+[TIME]	{6TM}	Lens UP/DOWN (Twice)
[7]+[TIME]	{7TM}	Spindle UP/DOWN (30 sec.)
[8]+[TIME]	{8TM}	Spindle rotation frequency : Normal speed
[9]+[TIME]	{9TM}	Spindle rotation frequency : Fourfold speed
[STILL/STEP>>]	{SF}	1 Track jump : FWD
[STILL/STEP<<]	{SR}	1 Track jump : REV
[*]+[*]+[*]+[MULTI-SPEED+]	{***MF}	*** Track jump : FWD
[*]+[*]+[*]+[MULTI-SPEED-]	{***MR}	*** Track jump : REV

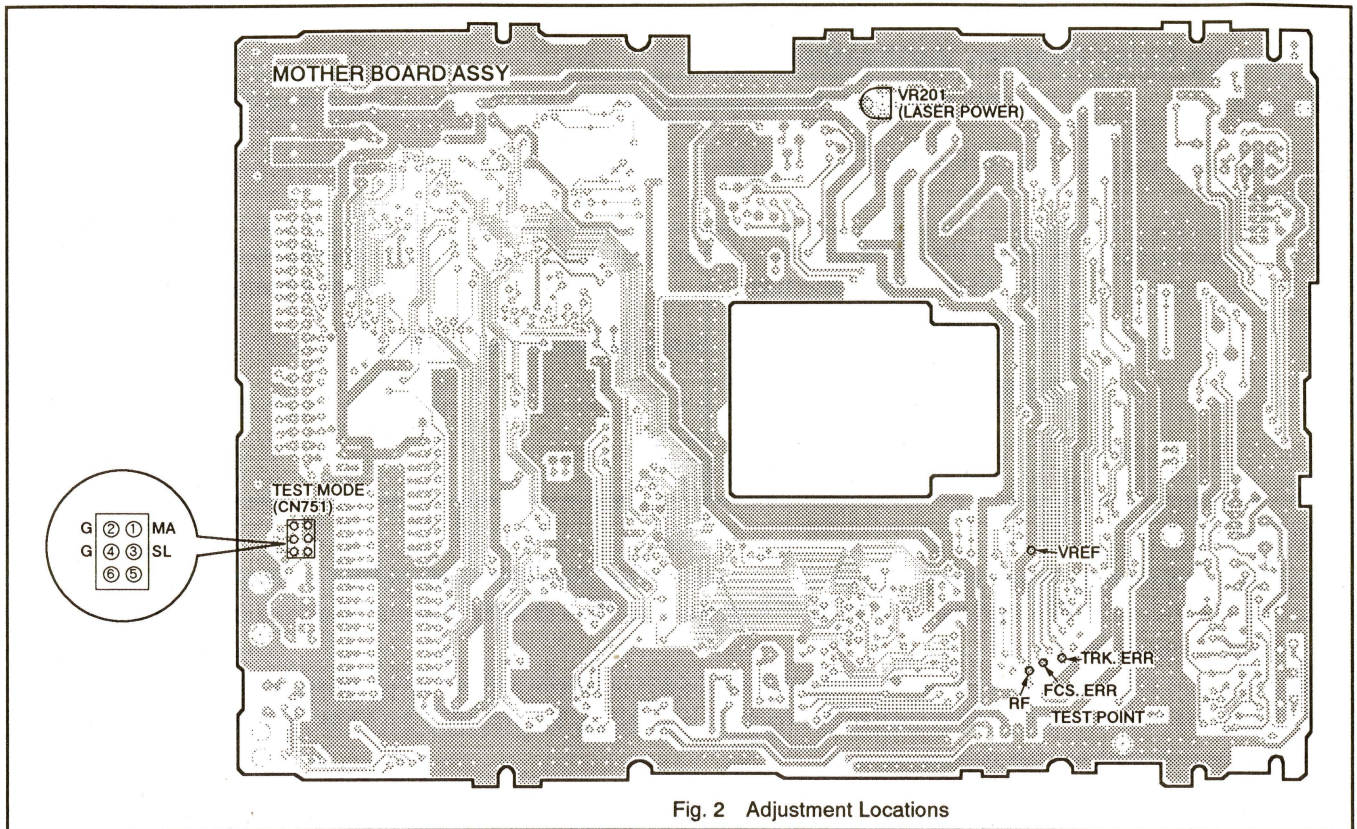


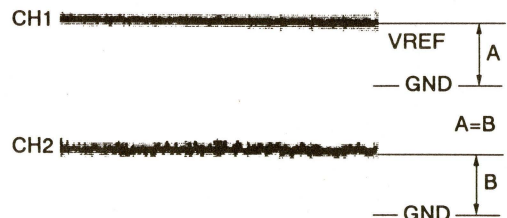
Fig. 2 Adjustment Locations

1. Focus Offset Verification

● Objective	Verify the DC offset for the focus error amp.		
● Symptom when out of adjustment	The model does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to VREF (CH1), FCS. ERR (CH2). Refer to Fig. 2.	● Player state	Focus and spindle servos closed
	[Settings] 1 V/division 10 ms/division DC mode	● Adjustment location	None
		● Disc	YEDS-7

[Procedure]

1. Perform the automatic adjustment (offset, balance and gain) at the player is playbacked by pressing the PLAY key.
2. Close the focus servo.
3. Verify the focus error voltage at closed is the same voltage (A=B) as the VREF voltage.



Note : If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in adjustment items 1 - 3, the pickup block may be defective.

2. Tracking Error Balance Verification

● Objective	To verify that there is no variation in the sensitivity of the tracking photo diode.		
● Symptom when out of adjustment	Play does not start or track search is impossible.		
● Measurement instrument connections	Connect the oscilloscope to TRK. ERR. (This connection may be via a low pass filter.) [Settings] 50 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, focus and spindle servos closed and tracking servo open None YEDS-7
<p>[Procedure]</p> <ol style="list-style-type: none"> 1. Move the pickup to midway across the disc (R=35 mm) with the SCAN FWD ▷▷ or REV ◁◁ key. 2. Press the [1] + [TIME] key, the [2] + [TIME] key, then the [3] + [TIME] key in that order to close the focus servo then the spindle servo. 3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode. 4. Supposing that the positive amplitude of the tracking error signal at TRK ERR is (A) and the negative amplitude is (B), the following expression is satisfied. <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>When $A \geq B$, $\frac{A-B}{C} \times \frac{1}{2} \leq 0.5$</p> <p>When $A < B$, $\frac{B-A}{C} \times \frac{1}{2} \leq 0.5$</p> </div> <div style="text-align: center;"> <p>When there is a DC component</p> </div> <div style="text-align: center;"> <p>When there is no DC component</p> </div> </div>			

3. RF Level Adjustment

● Objective	To optimize the playback RF signal amplitude		
● Symptom when out of adjustment	No play or no search		
● Measurement instrument connections	Connect the oscilloscope to RF. [Settings] 50 mV/division 10 ms/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play VR201 (Laser Power) YEDS-7
<p>[Procedure]</p> <ol style="list-style-type: none"> 1. Move the pickup to midway across the disc (R=35 mm) with the SCAN FWD ▷▷ or REV ◁◁ key, then press the [1] + [TIME] key, the [2] + [TIME] key, the [3] + [TIME] key, then the [4] + [TIME] key in that order to close the respective servos and put the player into play mode. 2. Adjust VR201 (Laser Power) so that the RF signal amplitude is $1.8 V_{p-p} \pm 0.1 V$. 			

6.3 FUNCTION OF PERSONAL COMPUTER FOR SERVICING

Use the floppy disc furnished with the product.

1. Program Installation and Removal

Multi-play control (MPC) has one program to make it resident in memory and another program that removes it from memory.

- (1) MPC.COM : Multi-play control program
- (2) MPCRMV.COM : Removes MPC from memory

MPC is executed as follows:

MPC [Enter]

This entry places MPC in memory. Execution of the next program removes MPC from memory.

MPCRMV [Enter]

2. Calling the MPC Window

When MPC has been placed in memory and your PC is in the key input wait state

Press the Alt key and the hyphen key on the key board at the same to make the MPC window pop up.

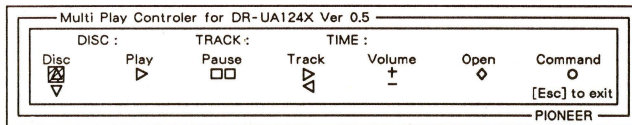


Fig. 3 MPC window

ESC key : Closes MPC window

[→][←][↑][↓]key : Select functions

Space key or enter key : Executes selected function

Direct Selection of Disc

When the cursor is at the [Disc] position

Directly input a number from 1 to 6 to select the disc.

3. Calling a Sub-Window

Execute a[Command]function to make a sub-window pop up, and then a mnemonic command can be executed. Use the ESC key to cancel a sub-window.

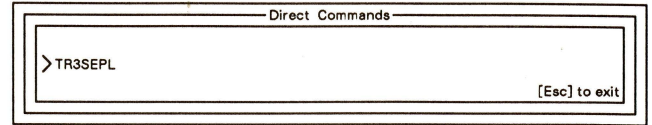


Fig. 4 Sub-window

4. Command List

Notes :

- The complete status "R" is returned when the execution of each command is completed.
- Park mode : A state in which the disc is cramped.
- Home mode : A state in which the disc is released.

• Command List

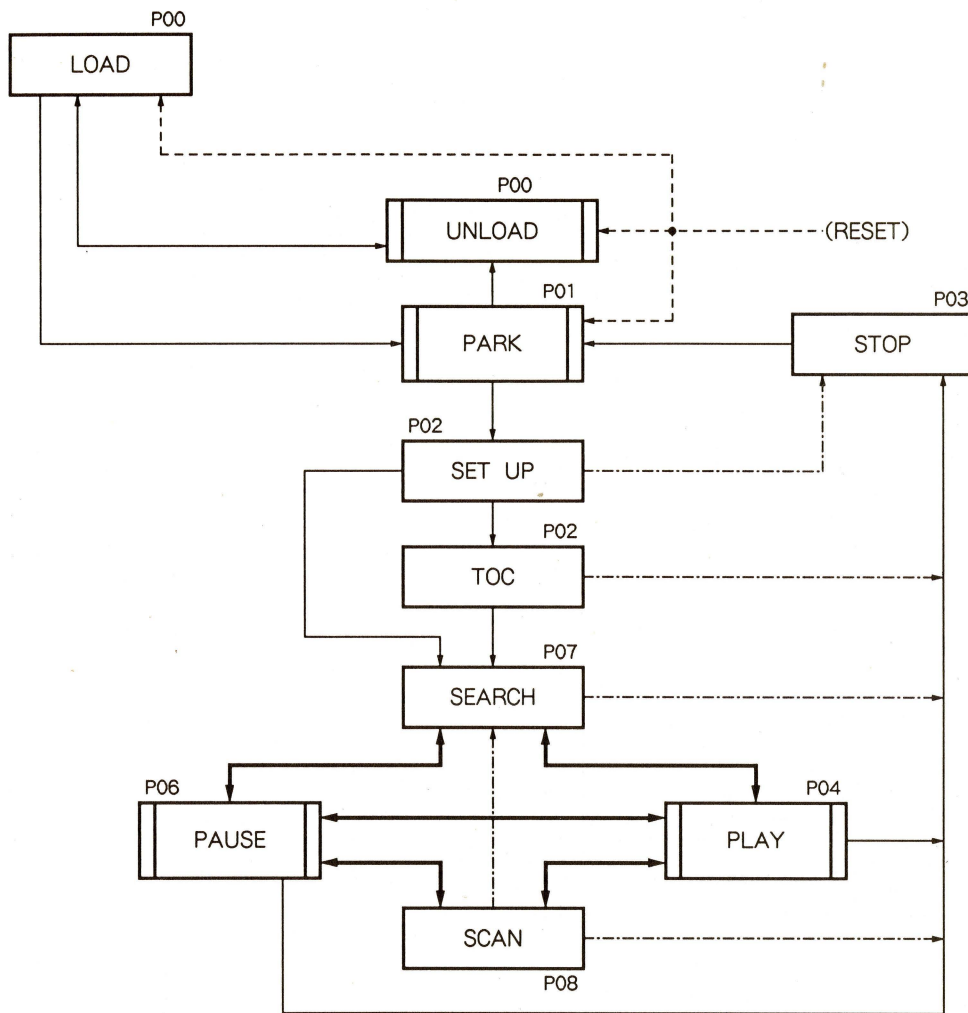
Command Mnemonic	Command	Explanation
RJ	REJECT	Stops the disc rotation and enters park mode.
SA	START	Starts the disc rotation. When the first track is an audio track, the disc will pause at the beginning of the track while it will pause at 0 minutes 2 seconds 0 frames in a data track.
OP	DOOR OPEN	In the park mode, open the door and enter the door open mode. In the other mode, open the door after stop the disc rotation. Door open mode is in the tray opened state for exchanging the disc.
CO	DOOR CLOSE	In the door open mode, close the door and enter the park mode.
PL	PLAY	Enters play mode and plays the disc. Automatically stops if the specified command address overrun during playback. Example : TM2000PL (pause at 20 min. 00sec. frame.)
PA	PAUSE	Enters pause mode, stopping at the current point.
NF	SCAN FORWARD	Rapidly forwards for about 15 seconds. The audio level is attenuated by 12dB during the fast forward operation.
NR	SCAN REVERSE	Rapidly backs for about 15 seconds. The audio level is attenuated by 12dB during the fast back operation.
SE	SEARCH	Searches for the specified address and enters pause mode after the search operation. Example: BK4500SE (to specify a block), TR5SE, 6SE (to specify a track)
SM	STOP MARKER	Sets a stop marker at the specified address. Enters pause mode when passing over the stop marker during playback, clearing the marker. The stop marker is also cleared when the CLEAR or REJECT command is supplied before the stop marker is reached. Example : BK20000SMPL (To pause at 20 minutes 0 second 0 frame after playback)
BK	BLOCK	Uses the address flag to specify blocks. Subsequently, an address entered is regarded as a block number (BK+ a 6-digit number).
TM	TIME	Uses the address flag to specify a time. Subsequently, an address entered is regarded as a time code (TM+ a 4-digit number).
TR	TRACK	Uses the address flag to specify a track. Subsequently, an address entered is regarded as a time track number (TR+a 2-digit number).
IX	INDEX	Uses the address flag to specify an index. Subsequently, an address entered is regarded as an index number.
CL	CLEAR	Clears the digit buffer (numerical input) and cancels search mode, auto play mode or the stop marker. When the buffer is cleared during a search operation, the pickup stops moving for a pause. Resumes normal operation when the buffer is cleared during an auto play or stop marker operation.
LO	LEAD OUT SYMBOL	Sets a point in the lead-out area to an address. To be used when setting the stop marker on the last track of a disc having 99 tracks. Example : TR99SELOPL
VL	VOLUME	Adjusts the audio playback level. 0 : minimum, 255 : maximum
AD	AUDIO CONTROL	Select the audio outputs. 0 : OFF, 1 : L ch, 2 : R ch, 3 : STEREO, 4 : OFF, 5 : L ch, 6 : R ch, 7 : STEREO Example : 3AD
CM	COMMUNICATION	Sets the communication mode. With the DR - UA124X, DR - U124X, DR - S124X, only mode 3 can be set. Example : 3CM
KL	KEY LOCK	Activates or deactivate the keys on the front panel. 0 : Activate 1 : Deactivate Example : 1KL
?B	BLOCK NUMBER REQUEST	Returns the block number by a 6-digit number. The current address is returned during playback and the pause target address is returned during pause. "XXXXXX" is returned in park mode and "000000" is returned in the lead-in area.
?T	TIME CODE REQUEST	Returns the time code by a 4-digit number. The current address is returned during playback and the pause target address is returned during pause. "XXXX" is returned in park mode and "0000" is returned in the lead-in area.
?R	TRACK NUMBER REQUEST	Returns the track number by a 2-digit number. The current address is returned during playback and the pause target address is returned during pause. "XX" is returned in park mode, "00" is returned in the lead-in area and "AA" is returned in the lead-out area.
?I	INDEX NUMBER REQUEST	Simultaneously returns the track number and the index number by a 4-digit number. The current address is returned during playback and the pause target address is returned during pause. "XXXX" is returned in park mode, "0000" is returned in the lead-in area and "AA01" is returned in the lead-out area.

Command Mnemonic	Command	Explanation
?A	ADDRESS REQUEST	Returns the track number, the index number and the P time by a 10-digit number. The current address is returned during playback and the pause target address is returned during pause. "XXXXXXXXXX" is returned in park mode, "000000000" is returned in the lead-in area and "AA0100000" is returned in the lead-out area.
?Q	TOC INFORMATION	Returns TOC data. When no track number is specified, the first track number, the last track number and the absolute time of the beginning of the lead-out area are returned by a 10-digit number. Example:0109665544 01 : 1st track number 09 : Last track number 665544 : The lead-out area begins at 66 minutes 55 seconds 44 blocks. When a track number is specified, the absolute time of the beginning of the track and the code to indicate whether the track is an audio track or a data track are returned by an 8-digit number. Example : 10020000 100200 : Track 5 begins at 10 minutes 02 seconds 00 blocks. 00 : Track 5 is an audio track. (04=data)
?G	CATALOG CODE REQUEST	Returns the catalog code of the disc being played by a 13-digit number. If no catalog code is found or in home mode, thirteen Xs are returned.
?O	ISRC CODE REQUEST	Return ISRC code when ISRC code is written.
?P	PLAYER ACTIVE MODE REQUEST	Returns operation mode by three characters. P00 : Door open mode P04 : Play mode P01 : Park mode P06 : Pause mode P02 : Set up mode P07 : Search mode P03 : Reject mode P08 : Scan mode
?K	DISC STATUS REQUEST	Returns the attribute of the playback disc in 8 characters (N1 - N8). N1 : Disc loading 0 : no 1 : yes N2 : Audio track 0 : none 1 : available X : unknown N3 : Data track 0 : none 1 : available X : unknown N4 : CDV 0 : no 1 : yes X : unknown N5 : CD - I 0 : no 1 : yes X : unknown N6 - N8 : (reserved) Example : 11000XXX
?X	CDP MODEL NAME REQUEST	Returns the model name of the CD player. "P153801" with DR - UA124X, and "P153901" with DR - U124X and DR - S124X
?M	COMMUNICATION MODE REQUEST	Returns communication mode "3" with the DR - UA124X, DR - U124X and DR - S124X.

5. Error messages

Command Mnemonic	Command	Explanation
E00	COMMUNICATION ERROR	Communication line error •Framing error •Buffer overflow
E04	FEATURE NOT AVAILABLE	An unusable command has been executed. •Different command mnemonics or mode
E06	MISSING ARGUMENT	Required parameter has not been specified.
E11	DISC NOT EXIST	No disc or no magazine has not been installed.
E12	ADDRESS ERROR	No search address has not been found.
E13	DEFOCUSING ERROR	De-focus has occurred.
E14	SPINDLE UNLOCK	The spindle has not been locked.
E16	INPUT OTHER DEVICE	The eject key had been depressed before the command execution was completed.
E90	MECHANICAL PANIC	An error which cannot be recovered has occurred in a mechanical operation such as loading and unloading.
E96	CAN'T SPINDLE UP	Unsuccessful start.
E99	PANIC	An error which cannot be recovered has occurred in random access mode. •The playback operation cannot be continued and stops.

6. CD-ROM Status Chart



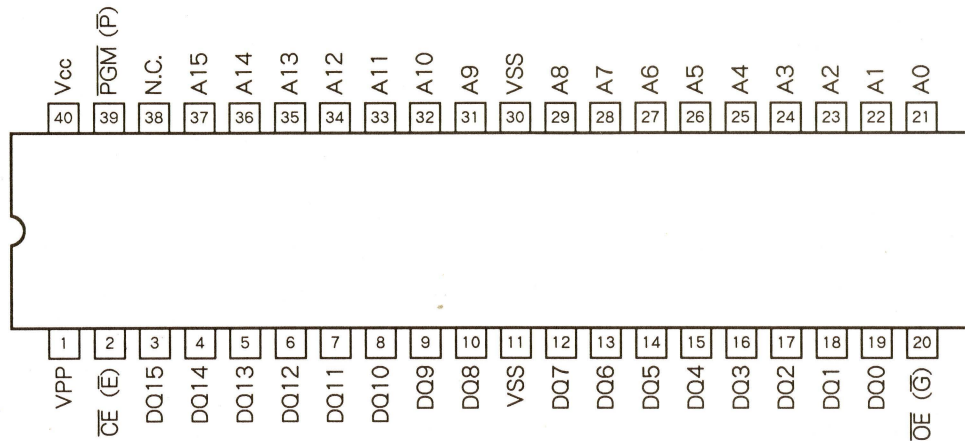
7. IC INFORMATION

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

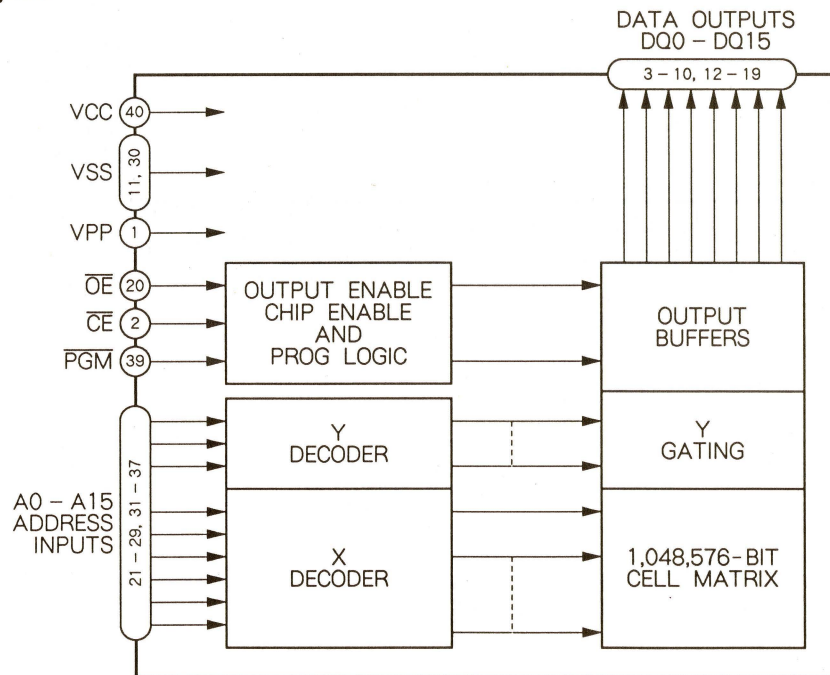
■ DYW1402(IC702 : MOTHER BOARD ASSY)

- 1M bit (65,536 × 16-bit) CMOS EPROM

• Pin Arrangement (Top view)



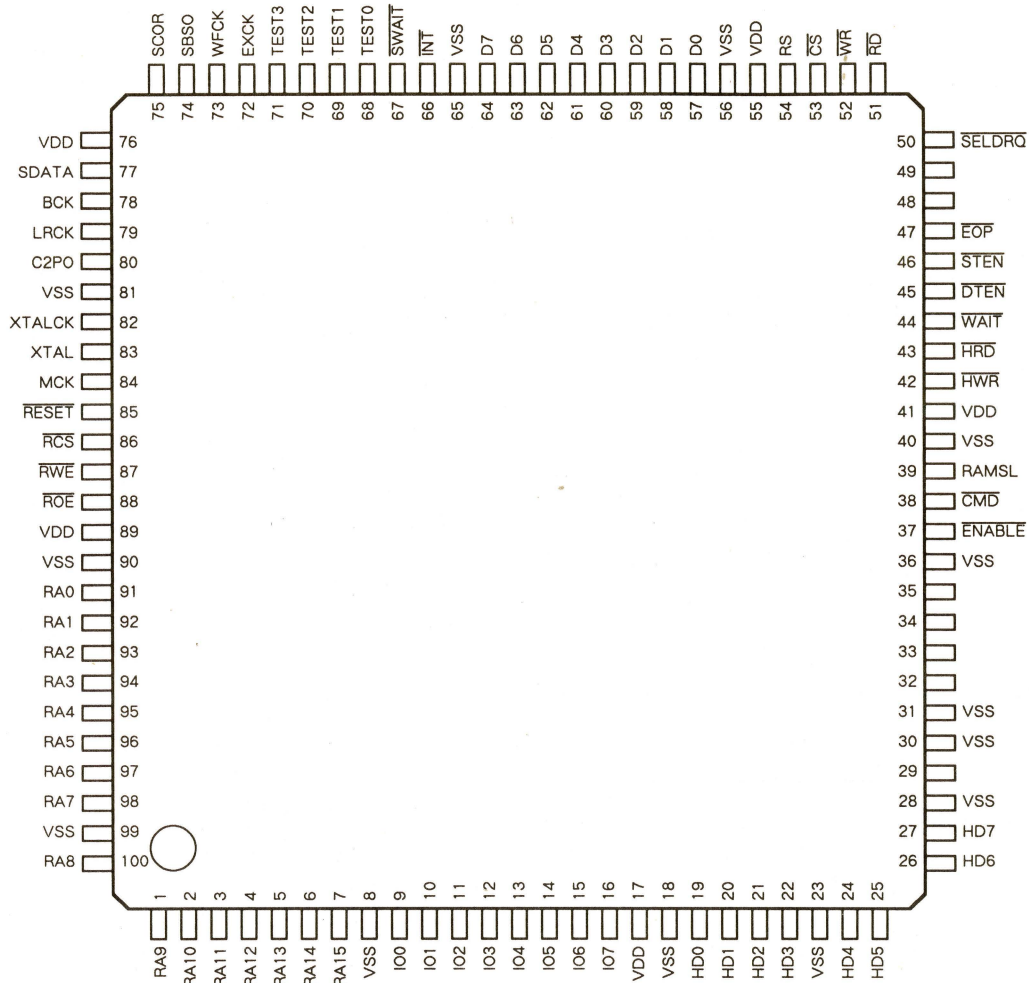
• Block diagram



■ LC895170W (IC853 : MOTHER BORD ASSY)

•LSI for CD-ROM, CD-I

• Pin Arrangement (Top view)

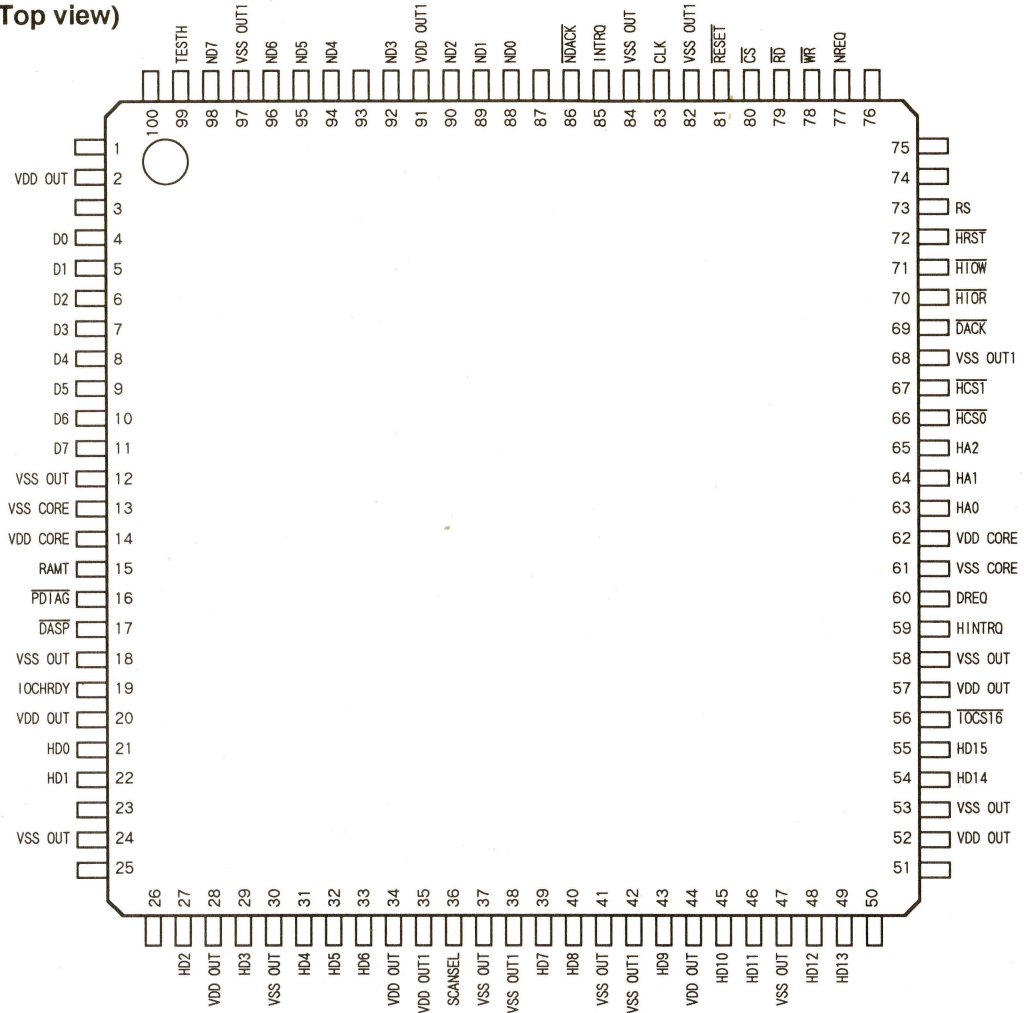


• Pin Function

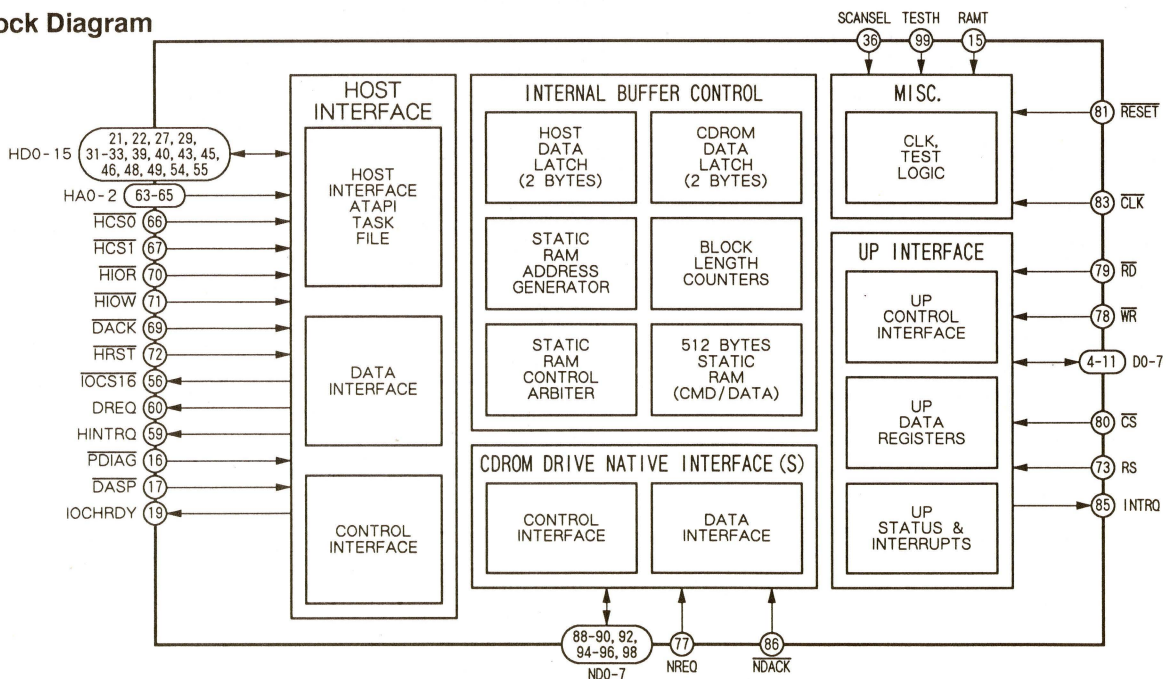
No.	Pin Name	Function	No.	Pin Name	Function
1	RA9	Address signal outputs to data buffer RAM.	50	$\overline{\text{SELD}}\text{RQ}$	Data transfer mode selection to the host.
2	RA10		51	$\overline{\text{RD}}$	Data reading signal input of the microcomputer.
3	RA11		52	$\overline{\text{WR}}$	Data writing signal input of the microcomputer.
4	RA12		53	$\overline{\text{CS}}$	Chip select signal input from the microcomputer.
5	RA13		54	RS	Register selection signal input.
6	RA14		55	VDD	Power supply voltage.
7	RA15		56	VSS	GND.
8	VSS	GND.	57	D0	Data signal pins of the microcomputer.
9	IO0	Data signals of data buffer RAM.	58	D1	
10	IO1		59	D2	
11	IO2		60	D3	
12	IO3		61	D4	
13	IO4		62	D5	
14	IO5		63	D6	
15	IO6		64	D7	
16	IO7		65	VSS	GND.
17	VDD	Power supply voltage.	66	$\overline{\text{INT}}$	Interrupt requirement signal output to the microcomputer.
18	VSS	GND.	67	$\overline{\text{SWAIT}}$	SUB - CPU wait signal.
19	HD1	Host data signals.	68	TEST0	Input pins for the test. Normally, fix to "L".
20	HD2		69	TEST1	
21	HD2		70	TEST2	
22	HD3		71	TEST3	
23	VSS	GND.	72	EXCK	SUB - CODE input/output.
24	HD4	Host data signals.	73	WFCK	
25	HD5		74	SBSO	
26	HD6		75	SCOR	
27	HD7		76	VDD	Power supply voltage.
28	VSS	GND.	77	SDATA	Serial data input.
29	N.C.	No connection.	78	BCK	Serial data input clock.
30	VSS	GND.	79	LRCK	44.1KHz strobe signal input.
31	VSS	GND.	80	C2PO	C2 pointer input.
32	N.C.	No connection.	81	VSS	GND.
33	N.C.	No connection.	82	XTALCK	Input of the X'tal oscillation circuit.
34	N.C.	No connection.	83	XTAL	Output of the X'tal oscillation circuit.
35	N.C.	No connection.	84	MCK	Divisive output of X'TALCK.
36	VSS	GND.	85	$\overline{\text{RESET}}$	Reset pin. Reset for "L" level.
37	$\overline{\text{ENABLE}}$	Chip select signal input from the host.	86	$\overline{\text{RCS}}$	Chip select to the RAM.
38	$\overline{\text{CMD}}$	Command/data selection signal input of the host.	87	$\overline{\text{RWE}}$	Data writing signal to the RAM.
39	RAMSL	Switch the DRAM and SRAM.	88	$\overline{\text{ROE}}$	Data reading signal from the RAM.
40	VSS	GND.	89	VDD	Power supply voltage.
41	VDD	Power supply voltage.	90	VSS	GND.
42	$\overline{\text{HWR}}$	Data writing signal input of the host.	91	RA0	Address signal outputs to the data buffer RAM.
43	$\overline{\text{HRD}}$	Data reading signal input of the host.	92	RA1	
44	$\overline{\text{WAIT}}$	Wait signal to the host. DRQ signal is obtained by switching.	93	RA2	
45	$\overline{\text{DTEN}}$	Data enable signal output.	94	RA3	
46	$\overline{\text{STEN}}$	Status enable signal output.	95	RA4	
47	$\overline{\text{EOP}}$	End of process signal output. Use for transferring the DMA of data.	96	RA5	
48	N.C.	No connection.	97	RA6	
49	N.C.	No connection.	98	RA7	
			99	VSS	GND.
			100	RA8	Address signal output to the data buffer RAM.

■ **WD25C32 (IC855 : MOTHER BOARD ASSY)**
 • **ATAPI HOST INTERFACE**

● **Pin Arrangement (Top view)**



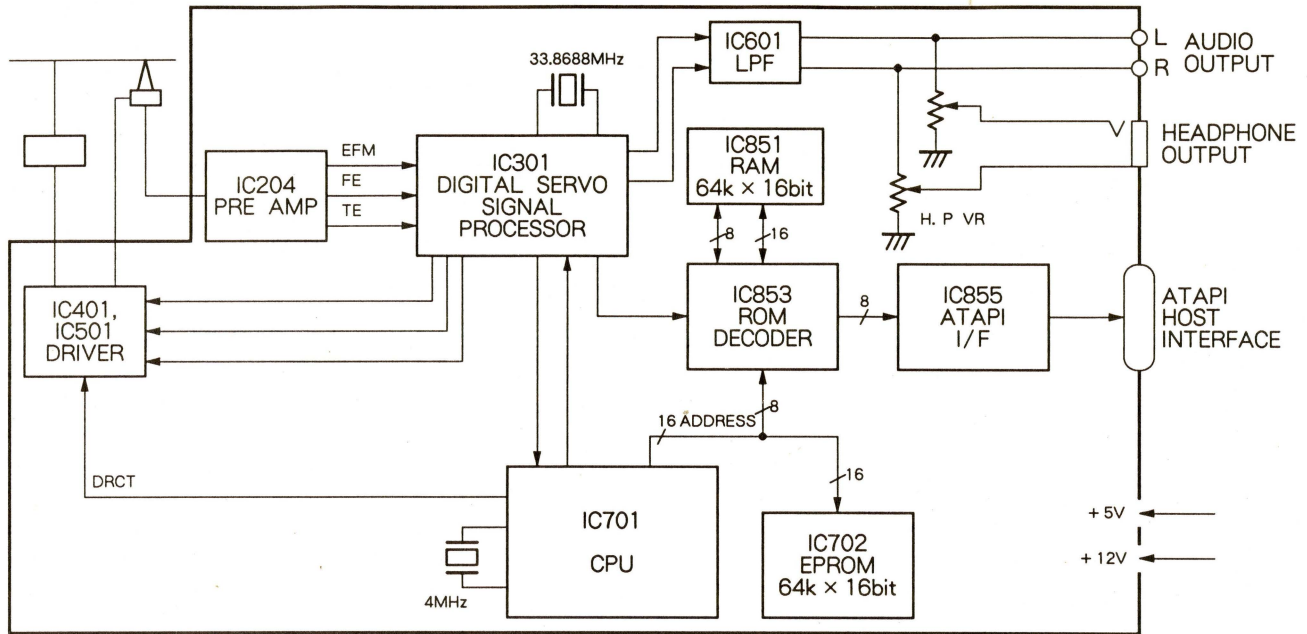
● **Block Diagram**



● Pin Function

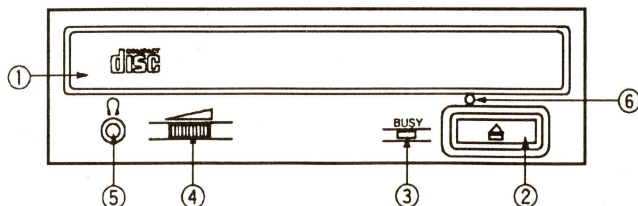
No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function		
1	N.C	-	No connection.	51	N.C.	-	No connection.		
2	VDD OUT	-	I/O power pin.	52	VDD OUT	-	I/O power pin.		
3	N.C	-	No connection.	53	VSS OUT	-	I/O ground pin.		
4	D0	I/O	Microcontroller data.	54	HD14	I/O	IDE bus data pins.		
5	D1			55	HD15				
6	D2			56	IOCS16			O	IDE bus I/O channel size of 16 bits.
7	D3			57	VDD OUT			-	I/O power pin.
8	D4			58	VSS OUT			-	I/O ground pin.
9	D5			59	HINTRQ			O	IDE bus interrupt request.
10	D6			60	DREQ			O	IDE bus data request.
11	D7	61	VSS CORE	-	Logic ground pin.				
12	VSS OUT	-	I/O ground pin.	62	VDD CORE	-	Logic power pin.		
13	VSS CORE	-	Logic ground pin.	63	HA0	I	IDE bus address.		
14	VDD CORE	-	Logic power pin.	64	HA1				
15	RAMT	-	No connection.	65	HA2				
16	PDIAG	I/O	IDE bus passed diagnostics signal.	66	HCS0	I	IDE bus chip selects.		
17	DASP	I/O	IDE bus drive active/slave present.	67	HCS1				
18	VSS OUT	-	I/O ground pin.	68	VSS OUT1	-	No connection.		
19	IOCHRDY	O	IDE bus I/O channel ready signal.	69	DACK	I	IDE bus data acknowledge.		
20	VDD OUT	-	I/O power pin.	70	HIOR	I	IDE bus read strobe.		
21	HD0	I/O	IDE bus data pins.	71	HIOW	I	IDE bus write strobe.		
22	HD1			72	HRST	I	IDE bus reset signal.		
23	N.C	-	No connection.	73	RS	I	Address register/data register select.		
24	VSS OUT	-	I/O ground pin.	74	N.C	-	No connection.		
25	N.C	-	No connection.	75	N.C	-	No connection.		
26	N.C	-	No connection.	76	N.C	-	No connection.		
27	HD2	I/O	IDE bus data pin.	77	NREQ	I	Native bus data request.		
28	VDD OUT	-	I/O power pin.	78	WR	I	Microcontroller write enable.		
29	HD3	I/O	IDE bus data pin.	79	RD	I	Microcontroller read enable.		
30	VSS OUT	-	I/O ground pin.	80	CS	I	Microcontroller chip enable.		
31	HD4	I/O	IDE bus data pins.	81	RESET	I	Hardware reset		
32	HD5			82	VSS OUT1	-	No connection.		
33	HD6			83	CLK	I	Chip main clock TTL.		
34	VDD OUT	-	I/O power pin.	84	VSS OUT	-	I/O ground pin.		
35	VDD OUT1	-	No connection.	85	INTRQ	O	Microcontroller interrupt request.		
36	SCANSEL	-	No connection.	86	NDACK	O	Native bus data acknowledge.		
37	VSS OUT	-	I/O ground pin.	87	N.C.	-	No connection.		
38	VSS OUT1	-	No connection.	88	ND0	I/O	CDROM data.		
39	HD7	I/O	IDE bus data pins.	89	ND1				
40	HD8			90	ND2				
41	VSS OUT	-	I/O ground pin.	91	VDD OUT1	-	No connection.		
42	VSS OUT1	-	No connection.	92	ND3	I/O	CDROM data.		
43	HD9	I/O	IDE bus data pin.	93	N.C.	-	No connection.		
44	VDD OUT	-	I/O power pin.	94	ND4	I/O	CDROM data.		
45	HD10	I/O	IDE bus data pins.	95	ND5				
46	HD11			96	ND6				
47	VSS OUT	-	I/O ground pin.	97	VSS OUT1	-	No connection.		
48	HD12	I/O	IDE bus data pins.	98	ND7	I/O	CDROM data.		
49	HD13			99	TESTH	-	No connection.		
50	N.C.	-	No connection.	100	N.C.	-	No connection.		

8. BLOCK DIAGRAM



9. PANEL FACILITIES

● FRONT VIEW



① Disc tray

Auto loading by means of the Eject button.
Place the CD-ROM with the label facing up onto the tray.

② Eject button (▲)

This button is used to open and close the tray.

③ BUSY indicator

Flashes during data access.

④ Volume control (headphone level)

This is used to adjust the volume for the headphone jack.

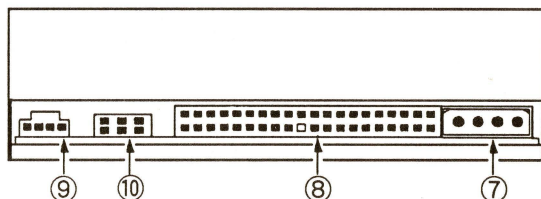
⑤ Headphone jack

This is a stereo mini jack for connection of headphones.

⑥ Forced ejection hole

When the Eject button is not functioning, the disc tray can be ejected by inserting a stiff rod into this hole and pushing. This should be done after the power supply has been switched off.

● REAR VIEW



⑦ DC Input

This is the power supply input for DC +5 V and +12 V.

⑧ Host IDE Interface

This is a 40 pin I/O connector according to the ATA specifications.
However, pin 20 is not being used.

⑨ Audio Output (AUDIO OUT)

This is a connector for output of analog audio.
As a Molex 70553 type connector is used, select a matching connection cable.

⑩ Device Configuration Jumper

This is the jumper switch for selection of the drive use mode.

The following modes can be selected with a short-circuit socket.

MA : The drive is used in master mode.

SL : The drive is used in slave mode.

CS : Mode for drive setting by CSEL of the IDE interface.

10. SPECIFICATIONS

[General functions]

Disc diameter	12 cm, 8 cm
Transfer rate	
Sustained	614 kBytes/sec. (at quadruple speed)
Burst	153 kBytes/sec. (at single speed)
Data capacity (per block)	5.6 MBytes/sec.
User data/block	2048 Bytes (Mode 1)
	2336 Bytes (Mode 2)
Access time	
Random (average)	150 ms (at quadruple speed)
Data buffer capacity	128 kBytes

[Audio output part]

Line	0.7 Vrms ± 0.2 Vrms (at 10 kΩ load)
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[Others]

Power supply	DC +12V, 1.8 A (peak), 0.4 A (normal) DC +5V, 0.6 A (peak), 0.4 A (normal)
External dimensions (except front panel)	146 (W) x 41.3 (H) x 203 (D) mm 5-3/4 (W) x 1-5/8 (H) x 8 (D) in
Weight	1.1 kg (2 lb 7 oz)
Operation temperature	+5°C to +45°C (41°F to 113°F)
Operation humidity	5% to 85% (no condensation)
Storage temperature	-40°C to +60°C (-40°F to 140°F)
Storage humidity	5% to 90% (no condensation)

NOTE:

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

● MOTHER BOARD ASSY (SCSI) (DWX1591)

DWX1591 and DWX1573 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		DWX1573	DWX1591	
	IC602	NJM3414M	Not used	
	Q619, Q620	2SC4081	Not used	
	S702	DSG1047	Not used	
	F601, F602	DTH1122	Not used	
	L602, L603	OTL1040	Not used	
	C609, C610	CEAL101M6R3	Not used	
	C612, C618	CKSRYF104Z25	Not used	
	VR601	DCS1029	Not used	
	R605, R606, R611, R612	RS1/16S303J	RS1/16S273	
	R631, R632	RS1/16S561J	Not used	
	CN601	103672-3	5046-04A	
	JA601	DKN1123	Not used	

Mark	No.	Description	Parts No.
------	-----	-------------	-----------

	C511, C611, C612, C618	CKSRYF104Z25
	C701-C704, C715, C718, C721	CKSRYF104Z25
	C801-C803, C806, C831	CKSRYF104Z25
	C405, C417, C418, C710	CKSRYF473Z25
	C311	CKSYF154Z25

	C239 (47μF/6.3V)	DCH1074
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RESISTORS

	VR601	DCS1029
	VR201 (2.2kΩ)	PCP1024
	R253 (22Ω)	DCN1050
	R403 (1.0Ω)	DCN1051
	R506, R507 (0.47Ω)	OCN1024

	R326	RS1/10S000J
	Other Resistors	RS1/16S□□□J

OTHERS

CN601	CONNECTOR	103672-3
CN201	FLEXIBLE CONNECTOR	52207-1690
CN706		9022B-14C
CN101	SCSI/POWER SUPPLY CONNECTOR	9047B-54
CN501	CONNECTOR (11P)	B11B-ZR-SM3
CN401	KR CONNECTOR	B4B-PH-K
	IC SOCKET	DKH1016
JA601	MINI JACK	DKN1123
CN703	CONNECTOR (3P)	S3B-ZR-SM3A
X701		CSAC4.00MGCM
X301 (33.8688MHz)		ASS7000
X801 (37.2557MHz)		DSS1063

■ PCB PARTS LIST

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
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MOTHER BOARD ASSY (SCSI) (DWX1573)

SEMICONDUCTORS

IC203	BA10393F
IC401	BA6797FP
IC501	BA6840FP
IC803	BH9590FP-Y
IC804	ICP-S1.0
IC802	KM681000BLG-5
IC801	LC89512W-V79
IC713	M51953BFP
IC701	MB90T678
IC602	NJM3414M
IC204	TA2066F
IC404	TC4W53F
IC707	TC74HC138AF
IC708, IC709	TC74HC573AF
IC703	TC7S04F
IC301	TC9405F
IC205, IC402, IC405, IC601	XRA4558F-P
IC202	XRA4560F
Q401	2SA1576A
Q206	2SB1189
Q602, Q603, Q619, Q620	2SC4081
Q402, Q403, Q601	DTA124EU
Q701, Q702	DTC124EU
D801	RB160L-40
D702	SLB-25YYTB7

COILS AND FILTERS

F301, F601, F602, F801	DTH1122
L301, L801 (1.2μH)	DTL1015
L104, L601 (22mH)	OTL1009
L602, L603	OTL1040
F101, F103 (10000P)	VTH1033

SWITCHES AND RELAYS

S701, S702	DSG1047
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CAPACITORS

C314, C807	CCSRCH100D50
C302	CCSRCH101J50
C427	CCSRCH151J50
C809	CCSRCH180J50
C316	CCSRCH220J50
C428	CCSRCH271J50
C601, C604	CCSRCH330J50
C222, C228, C713, C714	CCSRCH390J50
C244	CCSRCH470J50
C602, C603, C605, C606	CCSRCH820J50
C501-C503	CEAL100M16
C607, C608	CEAL100M6R3
C105, C609, C610	CEAL101M6R3
C424, C805	CEAL220M16
C510	CEAL470M16
C231, C617, C804	CEAL470M6R3
C107	CEAS101M16
C404	CEV470M16
C241, C407	CEV470M6R3
C315, C720, C808	CKSRYB102K50
C227, C230, C304-C307, C320	CKSRYB103K50
C711, C712	CKSRYB103K50
C309, C310, C414, C415, C512	CKSRYB153K50
C426	CKSRYB223K25
C506, C508	CKSRYB822K50
C101, C103, C112, C201, C202	CKSRYF104Z25
C238, C242, C243, C245, C246	CKSRYF104Z25
C301, C303, C308, C312	CKSRYF104Z25
C321, C322, C390, C403, C416	CKSRYF104Z25
C419, C423, C425, C504, C505	CKSRYF104Z25

■ PACKING

