

Service Manual

Compact Disc Player



Compact Disc Player

SL-CH7

Color

(K) Black Type



Areas

Country Code	Area	Color
(E)	Continental Europe.	(K)
(GC)	Third Region	

System: SC-CH7

NEW MECHANISM SERIES (S0DD110Z)

Because of unique interconnecting cables,
when a component requires service, send or
bring in the entire system.

SPECIFICATIONS

(DIN 45 500)

AUDIO

Frequency response 2 Hz~20 kHz
(±1 dB)

Wow and flutter Below measurable limit

PICKUP

Wavelength 780 nm

GENERAL

Power consumption 17 W

Dimensions (W×H×D) 215×55×295 mm
(8¹⁵/₃₂"×2⁵/₃₂"×11⁵/₁₆")

Weight 2.0 kg (4.4 lb.)

Notes:

1. Total harmonic distortion is measured by the digital spectrum analyzer.
2. Specifications are subject to change without notice.
3. Weight and dimensions shown are approximate.

System	Tuner	Amplifier	CD player	Cassette Deck	Speakers
SC-CH7	ST-CH7L	SU-CH7	SL-CH7	RS-CH7	SB-CH7

Technics / Panasonic
(E) (GC)

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■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 μ W/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

Wellenlänge: 780 nm
Maximale strahlungsleistung der lasereinheit: 100 μ W/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinheit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.

ADVARSEL: I dette a apparat anvendes laser.

**CLASS 1
LASER PRODUCT**

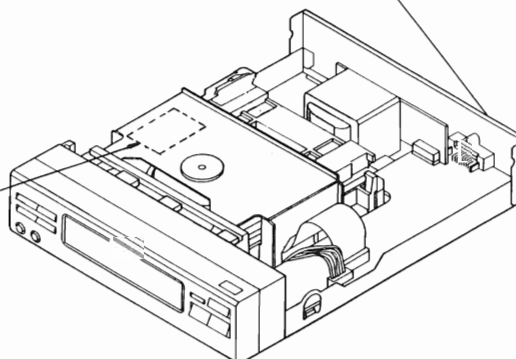
**ADVARSEL: USYNLIG LASERSTRÅLING
VED ÅBNING, NÅR SIKKERHEDSAF-
BRYDERE ER UDE AF FUNKTION.
UNDGÅ UDSÆTTELSE FOR STRÅLING.**

**VORSICHT-Usichtbare
Laserstrahlung, wenn
Abdeckung geöffnet.
Nicht dem Strahl
aussetzen.** ROL S0021

**DANGER-Invisible
laser radiation when
open.
AVOID DIRECT EX-
POSURE TO BEAM.**

**VARO! Avattaessa ja
suojalukitus
ohitettaessa olet
alttiina näkymättömälle
lasersäteilylle.
Älä katso säteeseen.**

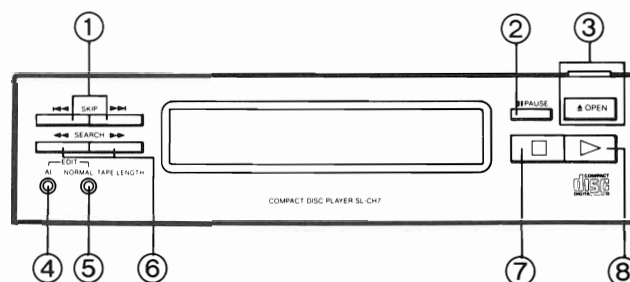
**WARNING! Osynlig
laserstrålning när
denna del är öppnad
och spårren är
urkopplad.
Betrakta ej strålen.
RQLS0051**



Note:

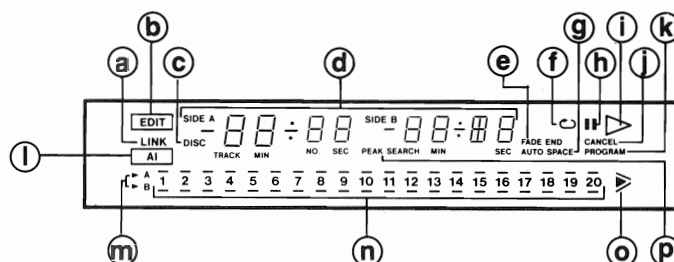
Please refer to the service manual for Model No. SU-CH7, Order No. AD9104082C8 for information on ACCESSORIES, INSTALLATION OF THE SYSTEM, CONNECTIONS and PACKAGING.

■ DISASSEMBLY INSTRUCTIONS



Compact disc player: control section

- ① **Skip buttons (◀◀ SKIP ▶▶)**
Press one of these buttons briefly to move the pickup (backward and forward) to the beginning of a specific track.
- ② **Pause button (|| PAUSE)**
- ③ **Disc tray open/close button (▲ OPEN, ▲ OPEN/CLOSE)**
Used for opening and closing the disc tray.
- ④ **AI edit-recording button (AI)**
This button is used to make an AI edit-recording.
- ⑤ **Edit mode button (NORMAL/TAPE LENGTH)**
This button can be used to choose one of the edit modes or to specify the tape length to be used.
- ⑥ **Search buttons (◀◀ SEARCH ▶▶)**
Use these buttons to move the pickup forward and backward.
- ⑦ **Stop button (□)**
- ⑧ **Play button (▶)**



Compact disc player: display section

- a **Link indicator (LINK)**
Illuminates when the unit is in a condition the disc link is possible.
- b **Edit indicator (EDIT)**
Illuminates when edit-recording a CD.
- c **Disc indicator (DISC)**
Illuminates when a disc has been loaded.
- d **Multi-display**
This display shows the track number and elapsed play time of the current track, or the remaining time of the tape while the unit is in the CD-edit mode. ("SIDE A" or "SIDE B" illuminates.)
- e **Fade end indicator (FADE END)**
Illuminates when the unit is normal edit mode, and illuminates to show fading at the end of the tape.
- f **Repeat indicator (↺)**
Illuminates when the repeat mode is activated.
- g **Auto space indicator (AUTO SPACE)**
Illuminates during edit-recording of compact discs, and shows that the auto space function is activated.
- h **Pause indicator (||)**
Illuminates when the pause mode is activated.
- i **Play indicator (▶)**
Illuminates when the play mode is activated.
- j **Program cancel indicator (CANCEL)**
Illuminates when the programmed track can be cancelled.
- k **Program play indicator (PROGRAM)**
Illuminates during program play.
- l **AI edit-recording indicator (AI)**
Illuminates when AI edit-recording mode is activated.
- m **Tape side indicator (▶ A, ▶ B)**
Shows the tape side (A or B) to be recorded on when performing the edit-recording of compact disc.
- n **Track number indicator (1-20)**
Shows the number of tracks.
- o **"Over" mark (▶▶)**
This indicator illuminates if the total number of tracks on the disc is 21 or more.
- p **Peak search indicator (PEAK SEARCH)**
Illuminates while the CD player automatically scans for the peak level on the CD.
When peak search ends, "PEAK" flashes to indicate the peak level.

HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.

So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

●Handling of traverse deck (optical pickup)

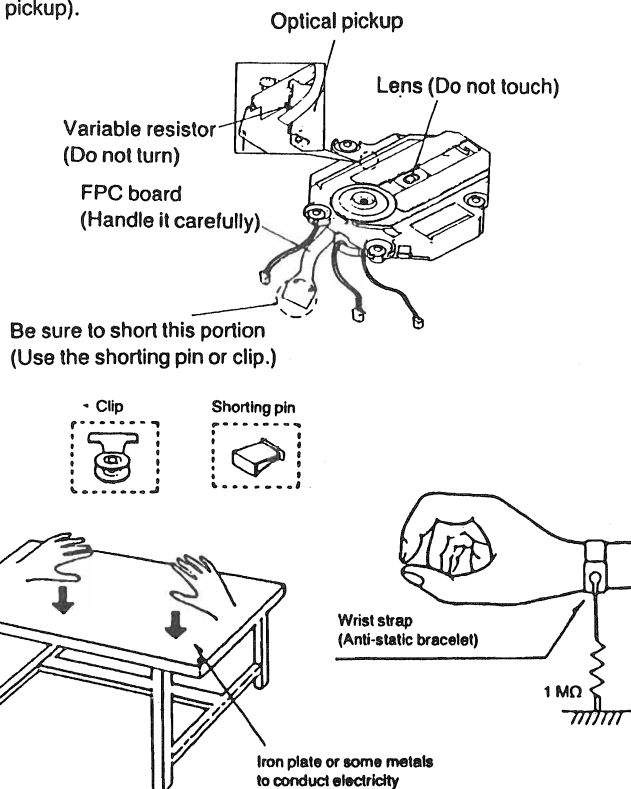
1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an anti-static shorting pin is inserted into the flexible board (FPC board). When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

●Grounding for electrostatic breakdown prevention

1. Human body grounding
Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
Put a conductive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).



LOCATION OF CONTROLS

Warning: This product uses a laser diodes. Refer to caution statements on page 2.

ACHTUNG: ●Die lasereinheit nicht zerlegen.

●Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

“ATTENTION SERVICER”

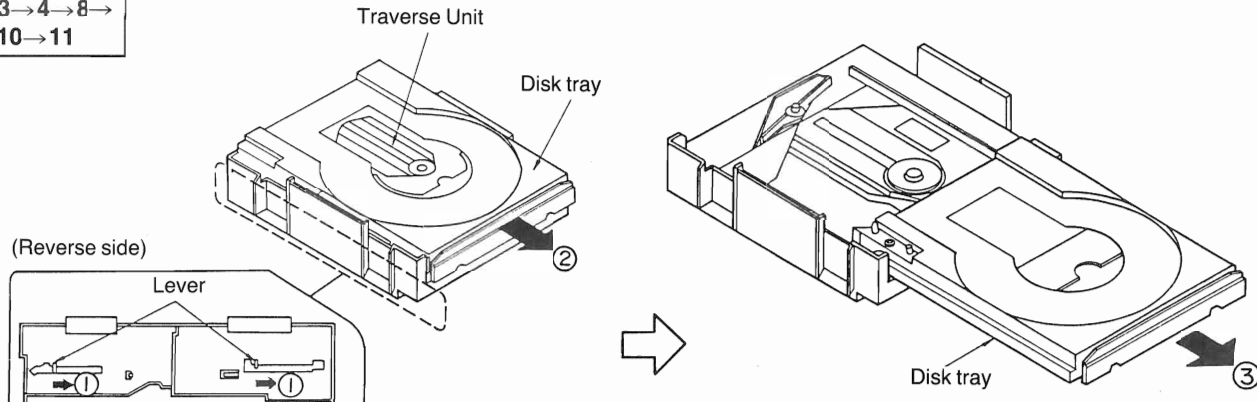
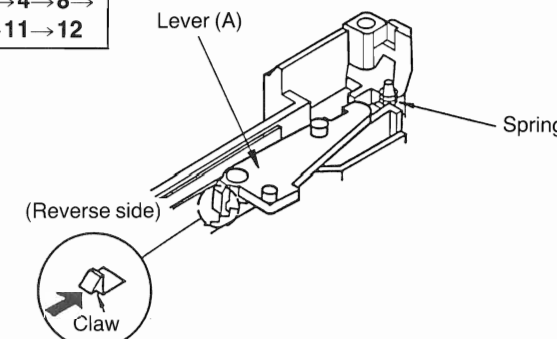
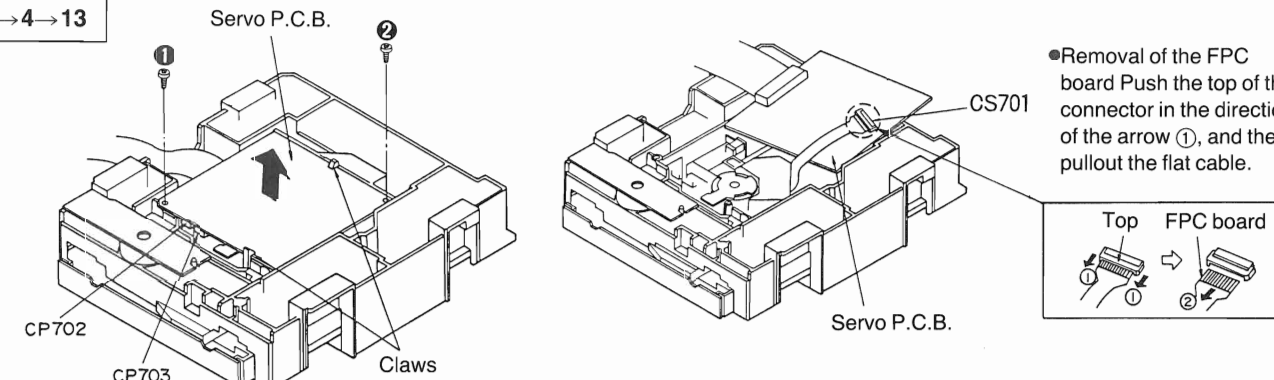
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

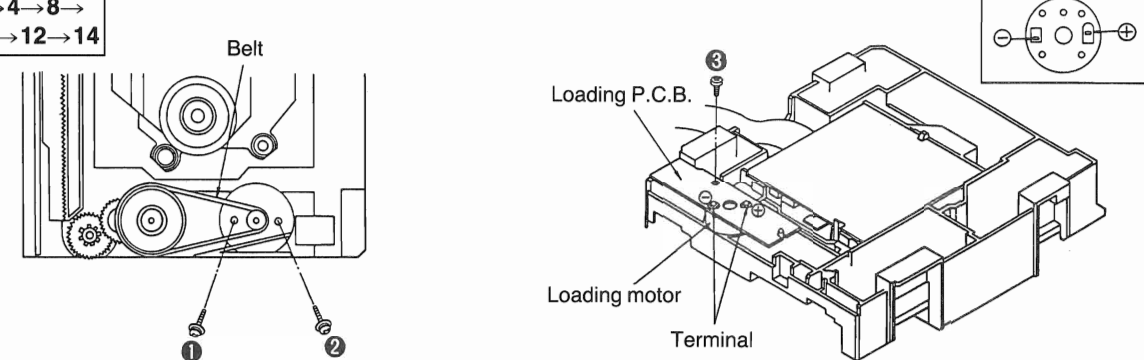
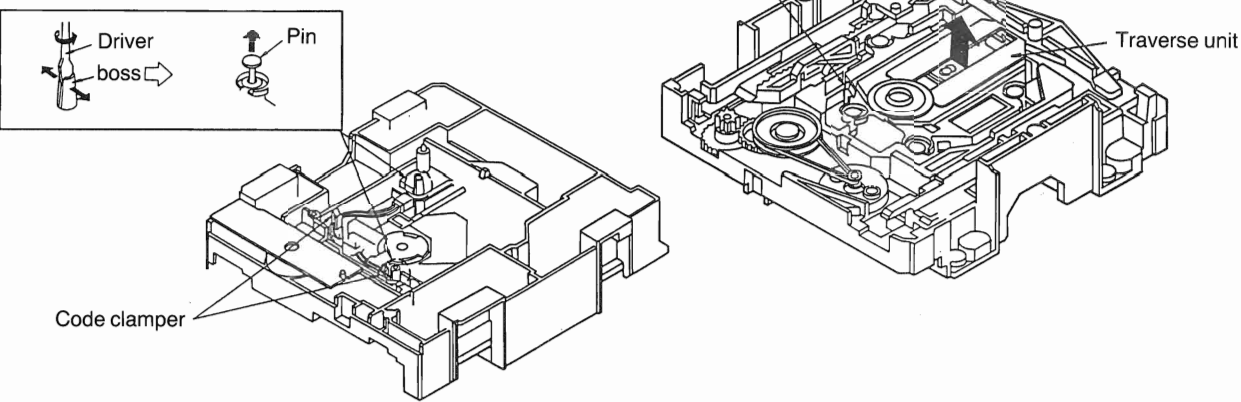
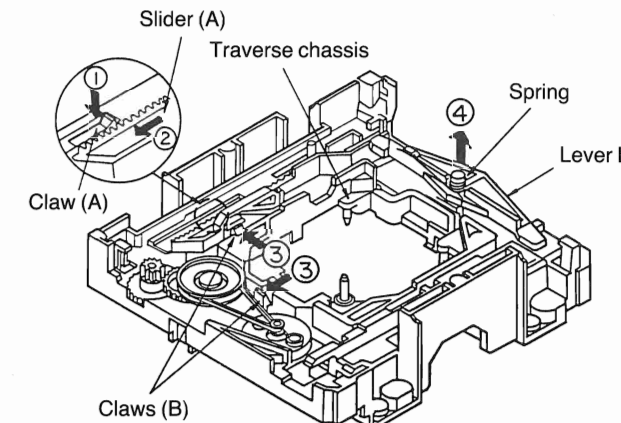
Ref. No. 1	Removal of the Cabinet	Ref. No. 2	Removal of the Power Transformer
Procedure 1	●Remove 5 screws (①~⑤).	Procedure 1→2	1. Remove 2 screws (①, ②). 2. Remove the connector (CN11) in the direction of arrow.

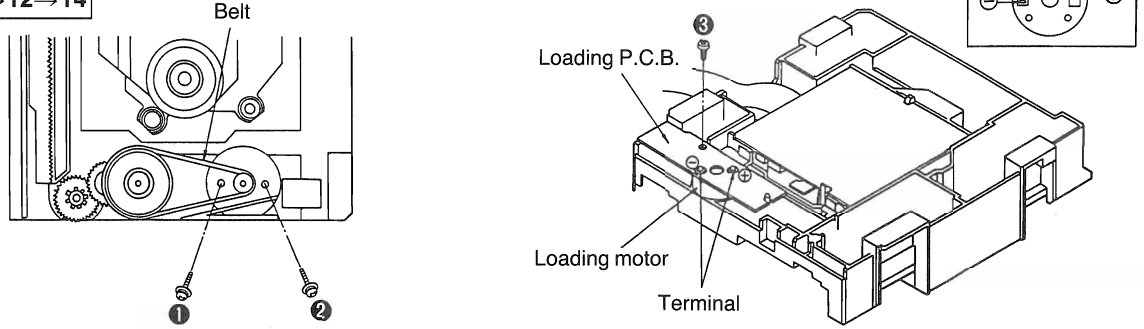
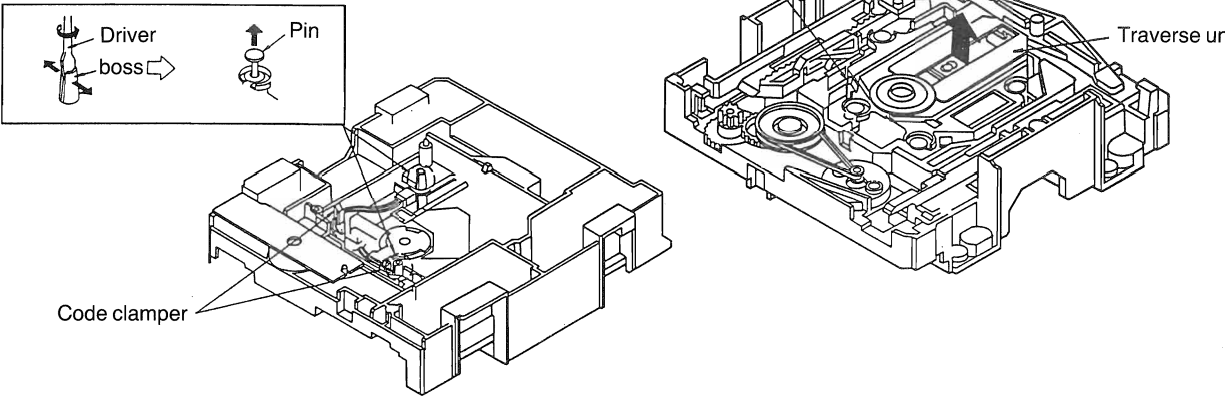
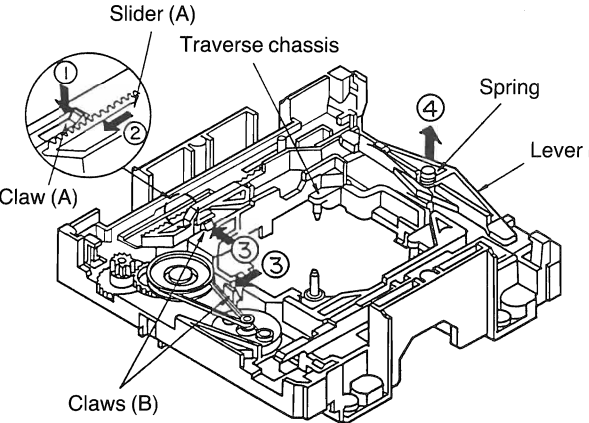
Ref. No. 3	Removal of the Front Panel Unit		
Procedure 1→3	Lever Disk tray Ornament plate Claws 1. Push the rack gear slowly in the direction of the arrow until the disc tray comes up. 2. Remove the 2 claws and then the ornament plate in the direction of arrow C.		
	Disk tray 4. Push the disc tray in the direction of the arrow D to insert it in the unit.		
	Front panel Flat cable Connector CN601 5. Remove the connector (CN601). 6. Remove the screws (1, 2). 7. Remove the front panel unit in the direction of arrow E.		

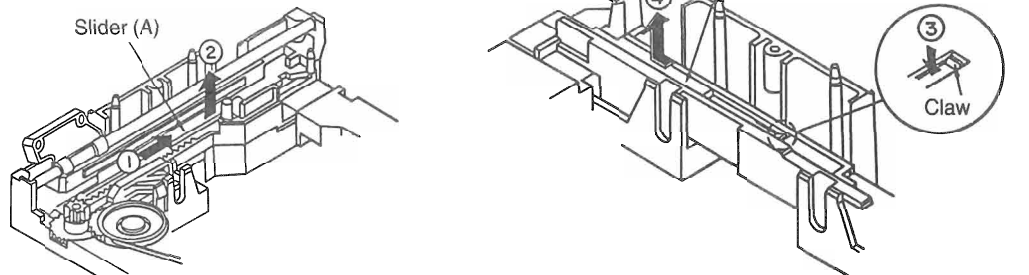
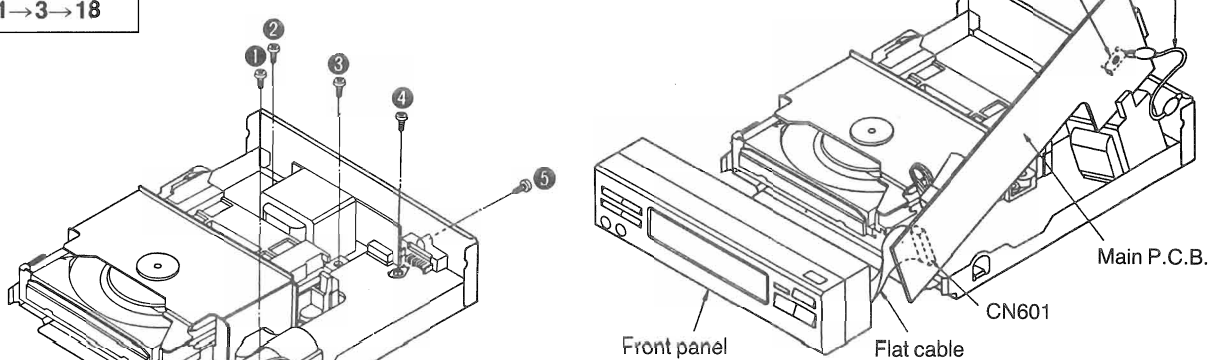
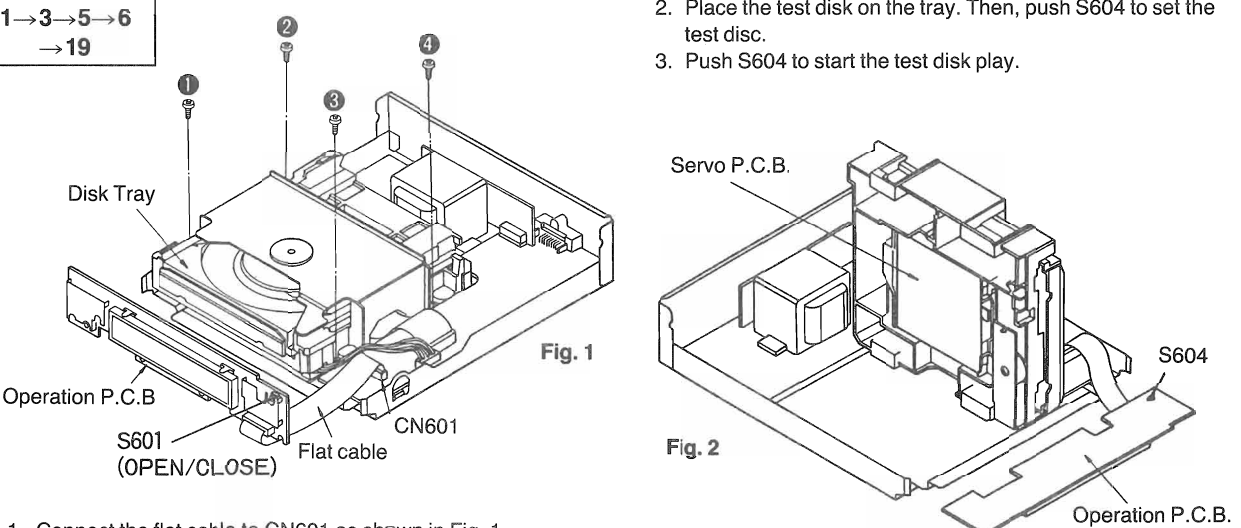
Ref. No. 4	Removal of the Loading Unit	Ref. No. 5	Removal of the Front Panel
Procedure 1→3→4	Loading unit CN301 CN302 1. Remove 2 connectors (CN301, CN302). 2. Remove 4 screws (1~4).	Procedure 1→3→5	Claw Spring Panel base Front panel 1. Remove the spring. 2. Push the claw in the direction of arrow A and then remove the front panel in the direction of arrow B.

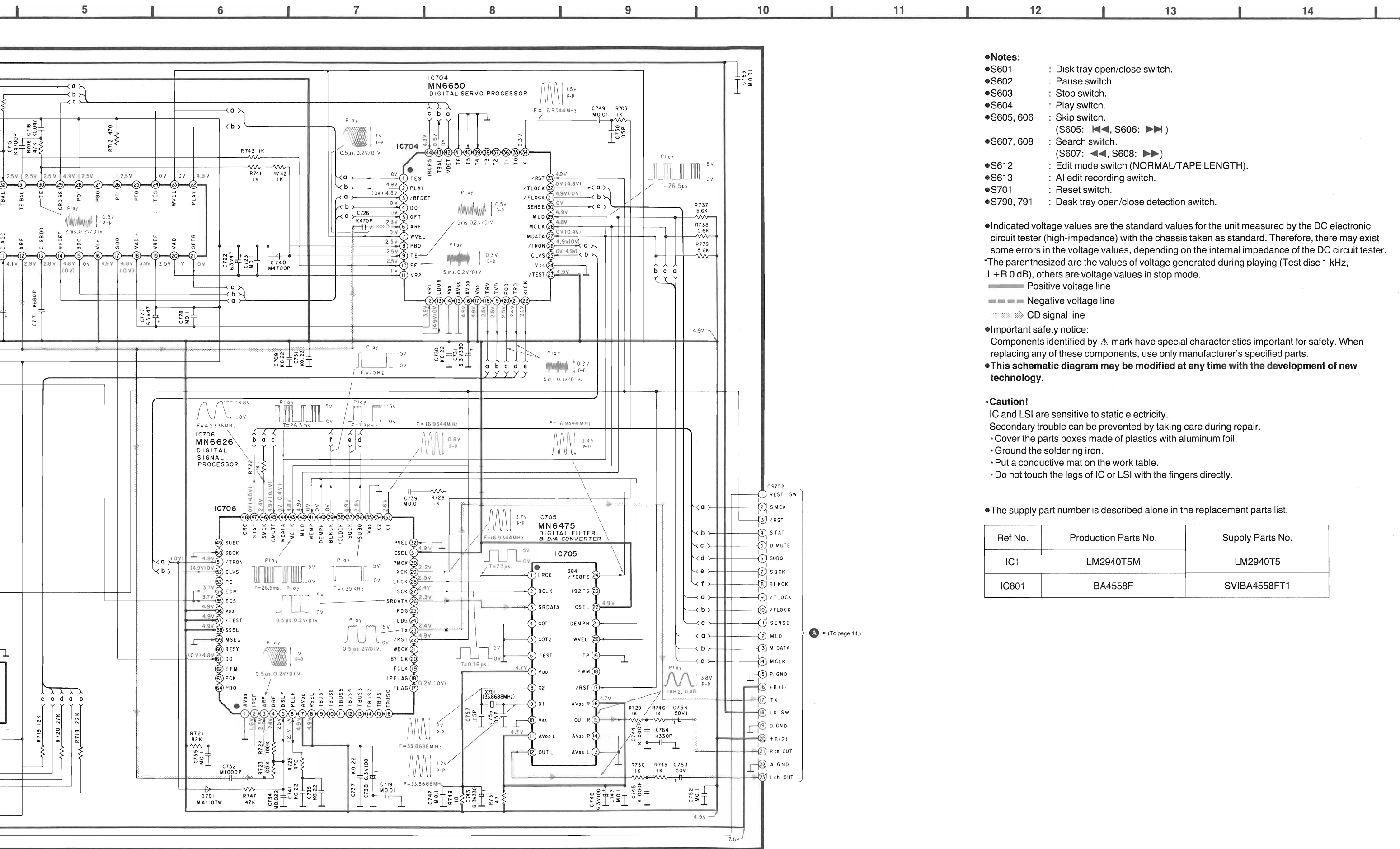
Ref. No. 6	Removal of the Operation P.C.B.	Rear panel Operation P.C.B. 1. Remove 4 screws (①~④). 2. Remove the rear panel in the direction of arrow A. 3. Remove the operation P.C.B. in the direction of arrow B.	
Ref. No. 7	Removal of the Main P.C.B.	Ref. No. 8	Removal of the Disk Clamper
Procedure 1→2→3→7	Main P.C.B. CN301 CN302 1. Remove 3 screws (①~③). 2. Remove 2 connectors (CN301, CN302).		Disk clamber ● Remove 3 screws (①~③).
Ref. No. 9	Removal of the Magnet and Holder	Ref. No. 10	Removal of the Guide Shaft and Guide Shaft Holder
Procedure 1→3→8→9	Yoke Magnet Claws Disk holder ● Remove 3 claws.		Procedure 1→3→4→8 →10 Guide shaft Guide holder 1. Remove 3 screws (①~③). 2. Remove the guide shaft and guide shaft holder in the direction of arrow.

Ref. No. 11	Removal of the Disk Tray	
Procedure 1→3→4→8→ 10→11		
 1. Move the lever in the direction of arrow ① until the traverse unit goes down and the disc tray slightly slides in the direction of arrow ②. 2. Slide the disc tray in the direction of arrow ②. 3. Remove the disc tray in the direction of arrow ③.		
Ref. No. 12	Removal of the Lever (A)	
Procedure 1→3→4→8→ 10→11→12		
 1. Remove the spring. 2. Push the claw in the direction of arrow. Fig. 1 Fig. 2 1. Slide the under tray fully in the direction of arrow ④. (Refer to Fig. 1.) 2. Slide the disc tray so that the gears bite each other as shown in Fig. 2.		
Ref. No. 13	Removal of the Servo P.C.B.	
Procedure 1→3→4→13		
 1. Remove 2 screws. (①, ②). 2. Remove 2 claws. 3. Remove the servo P.C.B. in the direction of arrow. 4. Remove 2 connectors (CP702, CP703). 5. Remove the F.P.C. board (S701). Note: Insert a short pin into the traverse deck's FPC board.		

Ref. No. 14	Removal of the Loading P.C.B. and Loading Motor.	
Procedure 1→3→4→8→ 10→11→12→14		
 1. Remove the belt. 2. Remove 2 screws (①, ②). 3. Remove the screw (③). 4. Unsolder the 2 terminal of loading motor.		
Ref. No. 15	Removal of the Traverse Unit	
Procedure 1→3→4→8→ 10→11→13→15		
 1. Release the cables from the code clampers. 2. Remove 2 pin in the direction of arrow. 3. Remove the claw and remove the traverse unit in the direction of arrow.		
Ref. No. 16	Removal of the Traverse Chassis and Lever B	
Procedure 1→3→4→8→ 10→11→12→13→ 15→16		
 ■ Remove the traverse chassis. 1. Push the claw (A) in the direction of arrow ①, and then move the slider (A) in the direction of arrow ②. 2. Push 2 claws (B) in the direction of arrow ③, and then remove the traverse chassis. ■ Remove the lever (B) 1. Push the claw (A) in the direction of arrow ①, and then move the lever (A) in the direction of arrow ②. 2. Remove the spring. 3. Remove the lever (B) in the direction of arrow ④.		

Ref. No. 14	Removal of the Loading P.C.B. and Loading Motor.
Procedure 1→3→4→8→ 10→11→12→14	 1. Remove the belt. 2. Remove 2 screws (1, 2). 3. Remove the screw (3). 4. Unsolder the 2 terminal of loading motor.
Ref. No. 15	Removal of the Traverse Unit
Procedure 1→3→4→8→ 10→11→13→15	 1. Release the cables from the code clammers. 2. Remove 2 pin in the direction of arrow. 3. Remove the claw and remove the traverse unit in the direction of arrow.
Ref. No. 16	Removal of the Traverse Chassis and Lever B
Procedure 1→3→4→8→ 10→11→12→13→ 15→16	 ■ Remove the traverse chassis. 1. Push the claw (A) in the direction of arrow ①, and then move the slider (A) in the direction of arrow ②. 2. Push 2 claws (B) in the direction of arrow ③, and then remove the traverse chassis. ■ Remove the lever (B) 1. Push the claw (A) in the direction of arrow ①, and then move the lever (A) in the direction of arrow ②. 2. Remove the spring. 3. Remove the lever (B) in the direction of arrow ④.

Ref. No. 17	Removal of the Slider (A) and Slider (B)
Procedure 1→3→4→8→ 10→11→12→ 13→15→16→17	 ■ Removal of the slider (A) ● Move the slider (A) in the direction of arrow ①, and remove the lod (A) in the direction of arrow ②. ■ Removal of the slider (B) ● Push the claw in the direction of arrow ③, and remove the slider (B) in the direction of arrow ④.
Ref. No. 18	Check of the Main P.C.B.
Procedure 1→3→18	 1. Remove 5 screws (1~5). 2. Connect the flat cable to CN601 as shown in figure. 3. Connect the G.N.D terminal to the chassis by the lead wire. 4. Check the main P.C.B. as shown in the figure.
Ref. No. 19	Check of the Operation P.C.B. and Servo P.C.B
Procedure 1→3→5→6 →19	To play disk 1. push S601 so that the disc tray comes up. 2. Place the test disk on the tray. Then, push S604 to set the test disc. 3. Push S604 to start the test disk play.  Fig. 1 Fig. 2 1. Connect the flat cable to CN601 as shown in Fig. 1. 2. Remove 2 screws (1~4). 3. Place the loading unit sideways as shown in Fig. 2. Note: Make sure not to damage the flat cable. 4. Detach the operation P.C.B. and the servo P.C.B. as shown in Figure.

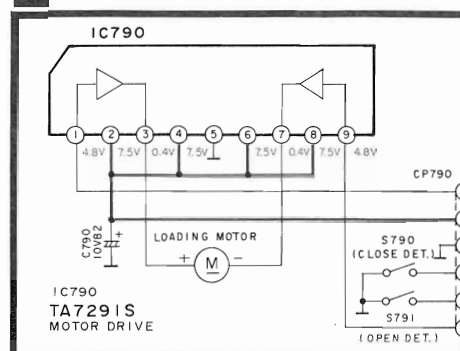


This is a detailed electronic schematic diagram for a portable cassette player, organized into six functional blocks labeled A through F. The diagram includes component values, pin connections, and timing waveforms.

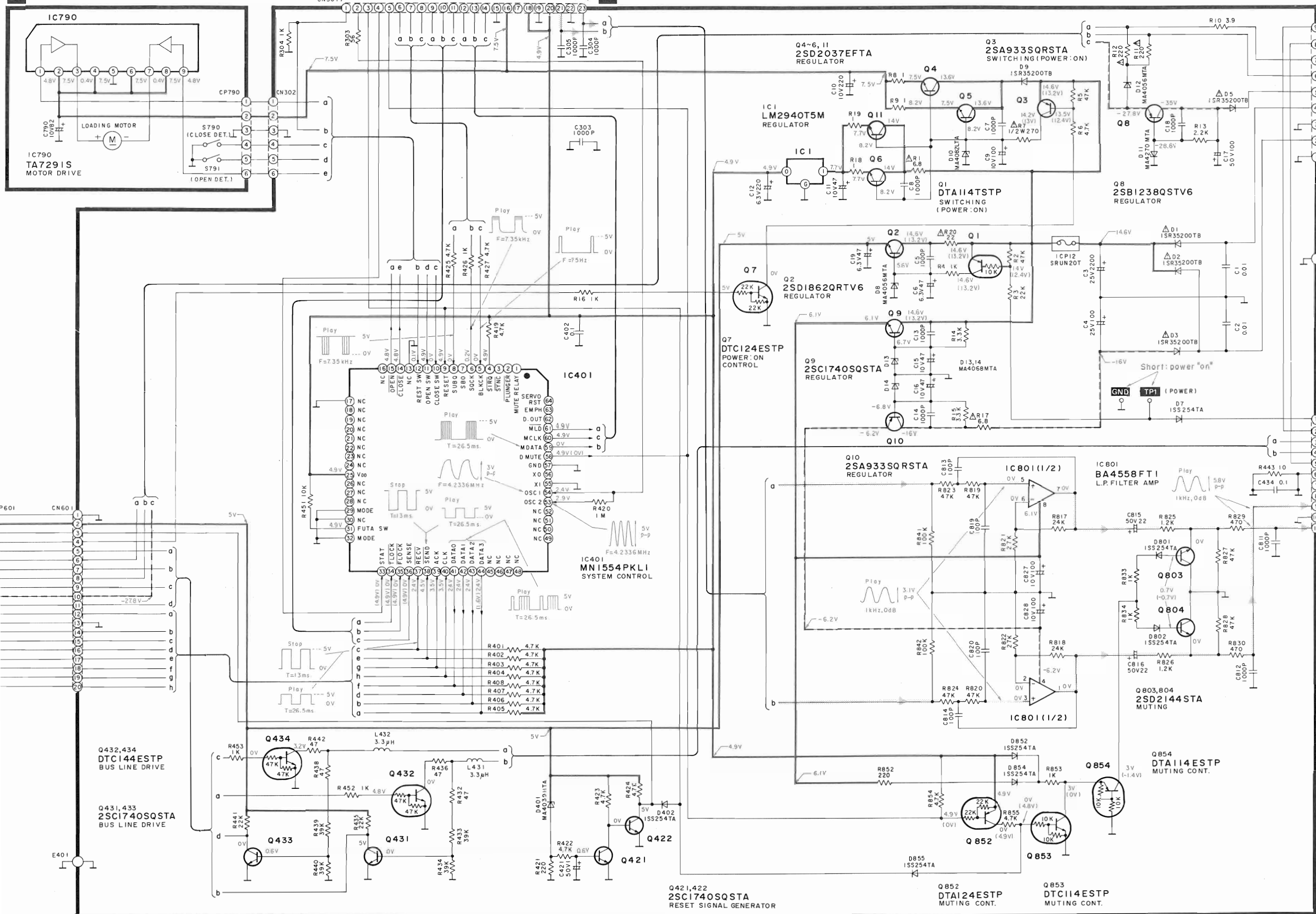
- Block A: OPERATION CIRCUIT** - Features the **IC601 MN187204PKW** SYSTEM CONTROL & FL DRIVE. It shows the interface with an **FL DISPLAY** (FL601) and various control signals like DGT1-DGT4, DGT5-DGT8, and DGT9-DGT12. Timing waveforms for DGT1-DGT4 (T=2.4ms) and DGT5-DGT8 (T=2.4ms) are shown.
- Block B: MOTOR/SWITCH CIRCUIT** - Contains the **IC790 TA7291S** MOTOR DRIVE. It shows the connection to a **LOADING MOTOR** and a **CP790** component. Timing waveforms for the motor drive are provided.
- Block C: MAIN CIRCUIT** - The central processing unit, featuring the **IC401 MN1554PKLI** SYSTEM CONTROL. It shows a complex network of control signals including PLAY, STOP, FWD, REV, and various data and clock signals. Timing waveforms for PLAY (T=26.5ms), STOP (T=13ms), and FWD (T=26.5ms) are shown.
- Block D: MOTOR/FL DRIVE** - Shows the motor drive circuit, including the **IC790 TA7291S** MOTOR DRIVE and the **IC401 MN1554PKLI** SYSTEM CONTROL. It details the connection to the **LOADING MOTOR** and the **FL DRIVE**.
- Block E: POWER SUPPLY** - Details the power supply section, including the **Q4~6, 11 2SD2037EFTA** REGULATOR, **Q3 2SA933** SWITCH, **Q1 LM2940T5M** REGULATOR, **Q2 2SD1862QRTV6** REGULATOR, **Q7 DTC124ESTP** POWER: ON CONTROL, **Q9 2SC1740SQSTA** REGULATOR, **Q10 2SA933SQSTA** REGULATOR, and **Q852 DTA124ESTP** MUTING CONT. It shows the connection to the **Q421, 422 2SC1740SQSTA** RESET SIGNAL GENERATOR.
- Block F: CONTROL CIRCUIT** - Shows the control circuit, including the **Q432, 434 DTC144ESTP** BUS LINE DRIVE, **Q431, 433 2SC1740SQSTA** BUS LINE DRIVE, and the **Q421, 422 2SC1740SQSTA** RESET SIGNAL GENERATOR. It details the connection to the **Q432, 434 DTC144ESTP** BUS LINE DRIVE and the **Q431, 433 2SC1740SQSTA** BUS LINE DRIVE.

The diagram includes numerous components such as resistors (R401-R405, R406-R409, R410-R413, R414-R417, R418-R421, R422-R425, R426-R429, R430-R433, R434-R437, R438-R441, R442-R445, R446-R449, R450-R453, R454-R457, R458-R461, R462-R465, R466-R469, R470-R473, R474-R477, R478-R481, R482-R485, R486-R489, R490-R493, R494-R497, R498-R501, R502-R505, R506-R509, R510-R513, R514-R517, R518-R521, R522-R525, R526-R529, R530-R533, R534-R537, R538-R541, R542-R545, R546-R549, R550-R553, R554-R557, R558-R561, R562-R565, R566-R569, R570-R573, R574-R577, R578-R581, R582-R585, R586-R589, R590-R593, R594-R597, R598-R601, R602-R605, R606-R609, R610-R613, R614-R617, R618-R621, R622-R625, R626-R629, R630-R633, R634-R637, R638-R641, R642-R645, R646-R649, R650-R653, R654-R657, R658-R661, R662-R665, R666-R669, R670-R673, R674-R677, R678-R681, R682-R685, R686-R689, R690-R693, R694-R697, R698-R701, R702-R705, R706-R709, R710-R713, R714-R717, R718-R721, R722-R725, R726-R729, R730-R733, R734-R737, R738-R741, R742-R745, R746-R749, R750-R753, R754-R757, R758-R761, R762-R765, R766-R769, R770-R773, R774-R777, R778-R781, R782-R785, R786-R789, R790-R793, R794-R797, R798-R801, R802-R805, R806-R809, R810-R813, R814-R817, R818-R821, R822-R825, R826-R829, R830-R833, R834-R837, R838-R841, R842-R845, R846-R849, R850-R853, R854-R857, R858-R861, R862-R865, R866-R869, R870-R873, R874-R877, R878-R881, R882-R885, R886-R889, R890-R893, R894-R897, R898-R901, R902-R905, R906-R909, R910-R913, R914-R917, R918-R921, R922-R925, R926-R929, R930-R933, R934-R937, R938-R941, R942-R945, R946-R949, R950-R953, R954-R957, R958-R961, R962-R965, R966-R969, R970-R973, R974-R977, R978-R981, R982-R985, R986-R989, R990-R993, R994-R997, R998-R1001, R1002-R1005, R1006-R1009, R1010-R1013, R1014-R1017, R1018-R1021, R1022-R1025, R1026-R1029, R1030-R1033, R1034-R1037, R1038-R1041, R1042-R1045, R1046-R1049, R1050-R1053, R1054-R1057, R1058-R1061, R1062-R1065, R1066-R1069, R1070-R1073, R1074-R1077, R1078-R1081, R1082-R1085, R1086-R1089, R1090-R1093, R1094-R1097, R1098-R1101, R1102-R1105, R1106-R1109, R1110-R1113, R1114-R1117, R1118-R1121, R1122-R1125, R1126-R1129, R1130-R1133, R1134-R1137, R1138-R1141, R1142-R1145, R1146-R1149, R1150-R1153, R1154-R1157, R1158-R1161, R1162-R1165, R1166-R1169, R1170-R1173, R1174-R1177, R1178-R1181, R1182-R1185, R1186-R1189, R1190-R1193, R1194-R1197, R1198-R1201, R1202-R1205, R1206-R1209, R1210-R1213, R1214-R1217, R1218-R1221, R1222-R1225, R1226-R1229, R1230-R1233, R1234-R1237, R1238-R1241, R1242-R1245, R1246-R1249, R1250-R1253, R1254-R1257, R1258-R1261, R1262-R1265, R1266-R1269, R1270-R1273, R1274-R1277, R1278-R1281, R1282-R1285, R1286-R1289, R1290-R1293, R1294-R1297, R1298-R1301, R1302-R1305, R1306-R1309, R1310-R1313, R1314-R1317, R1318-R1321, R1322-R1325, R1326-R1329, R1330-R1333, R1334-R1337, R1338-R1341, R1342-R1345, R1346-R1349, R1350-R1353, R1354-R1357, R1358-R1361, R1362-R1365, R1366-R1369, R1370-R1373, R1374-R1377, R1378-R1381, R1382-R1385, R1386-R1389, R1390-R1393, R1394-R1397, R1398-R1401, R1402-R1405, R1406-R1409, R1410-R1413, R1414-R1417, R1418-R1421, R1422-R1425, R1426-R1429, R1430-R1433, R1434-R1437, R1438-R1441, R1442-R1445, R1446-R1449, R1450-R1453, R1454-R1457, R1458-R1461, R1462-R1465, R1466-R1469, R1470-R1473, R1474-R1477, R1478-R1481, R1482-R1485, R1486-R1489, R1490-R1493, R1494-R1497, R1498-R1501, R1502-R1505, R1506-R1509, R1510-R1513, R1514-R1517, R1518-R1521, R1522-R1525, R1526-R1529, R1530-R1533, R1534-R1537, R1538-R1541, R1542-R1545, R1546-R1549, R1550-R1553, R1554-R1557, R1558-R1561, R1562-R1565, R1566-R1569, R1570-R1573, R1574-R1577, R1578-R1581, R1582-R1585, R1586-R1589, R1590-R1593, R1594-R1597, R1598-R1601, R1602-R1605, R1606-R1609, R1610-R1613, R1614-R1617, R1618-R1621, R1622-R1625, R1626-R1629, R1630-R1633, R1634-R1637, R1638-R1641, R1642-R1645, R1646-R1649, R1650-R1653, R1654-R1657, R1658-R1661, R1662-R1665, R1666-R1669, R1670-R1673, R1674-R1677, R1678-R1

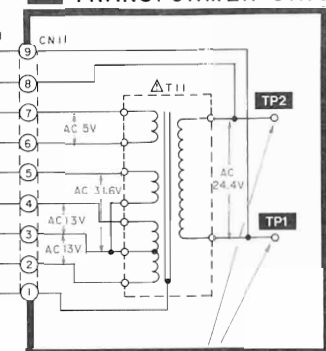
C MOTOR/SWITCH CIRCUIT



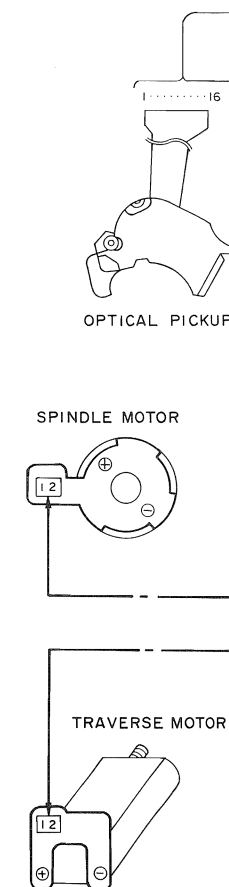
D MAIN CIRCUIT



E POWER TRANSFORMER CIRCUIT



■ WIRING C



5
6
7
8
9

A

SERVO P.C.B.

SWITCH P.C.B.

Diagram of a switch PCB with components S791, S790, CP790, and RJ80431A.

TP702

TP703

Diagram showing a search function with a skip button and a list of components: E603, S606, S605, S608, S607, S612, S613, (NORMAL/TAPE LENGTH), (AI), EDIT.

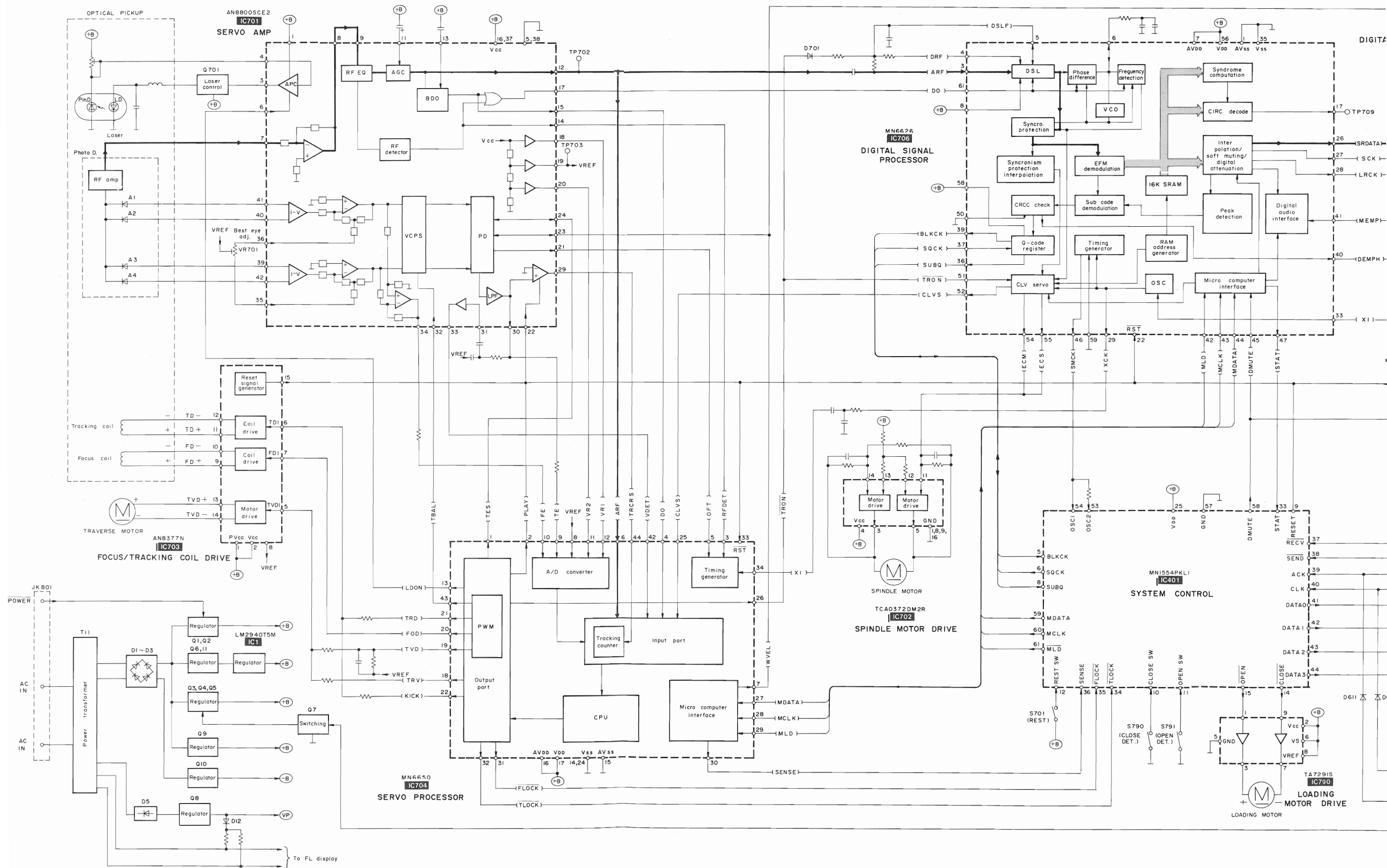
372DM2R	MN6475	AN8800SCE2	MN6626 MN1554PKL1 MN187204PKW	MN6650	AN8377N
DTA114ESTP DTC114ESTP DTA124ESTP DTC124ESTP DTC144ESTP 2SA933SQRSTA	2SC1740SQSTA 2SD2144STA	2SB1238QSTV6 2SD1862QRTV6	2SD2037EFTA	1SS254TA 1SR35200TB	MA4270MTA
				MA4039HTA MA4056MTA MA4068MTA MA4082LTA MA4043MTA	

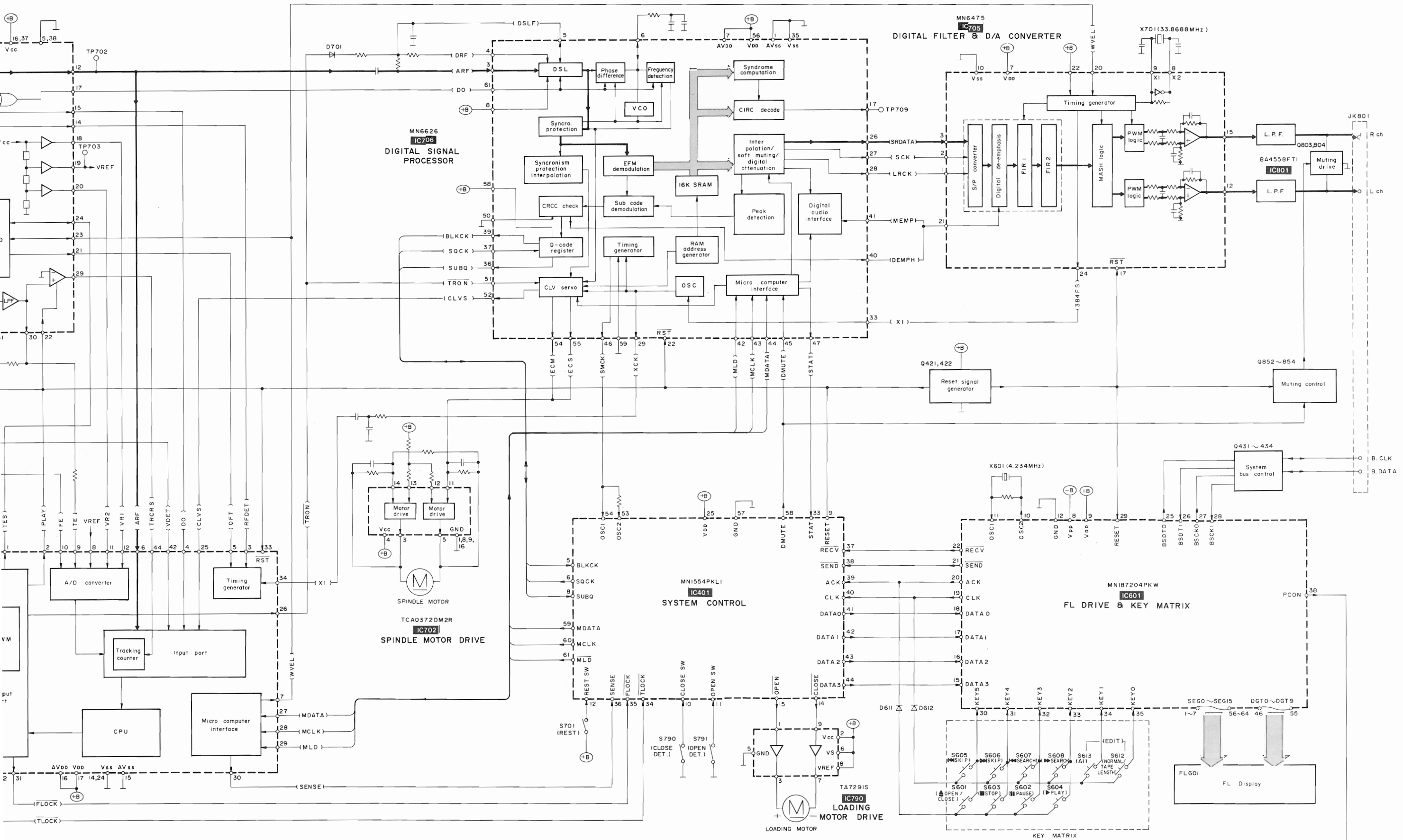
The diagram illustrates the electrical connections for the T11 (Power transformer) and its associated components. The transformer is connected to the MAIN P.C.B. (D) via a connector labeled CNII. The MAIN P.C.B. is further connected to the SERVO P.C.B. (A) and the MOTOR/SWITCH P.C.B. (C). The SERVO P.C.B. is connected to the OPTICAL PICKUP and the SPINDLE MOTOR. The MOTOR/SWITCH P.C.B. is connected to the TRAVERSE MOTOR and the REST SWITCH. The diagram also shows the connection of the T11 to the OPERATION P.C.B. (B) via a connector labeled CN601.

Components and Connections:

- T11 (Power transformer):** Connected to the MAIN P.C.B. (D) via connector CNII.
- MAIN P.C.B. (D):** Connected to the SERVO P.C.B. (A) and the MOTOR/SWITCH P.C.B. (C). It also has a connection to the OPERATION P.C.B. (B) via connector CN601.
- SERVO P.C.B. (A):** Connected to the OPTICAL PICKUP and the SPINDLE MOTOR. It has a connection to the MOTOR/SWITCH P.C.B. (C) via connector CP703.
- MOTOR/SWITCH P.C.B. (C):** Connected to the TRAVERSE MOTOR and the REST SWITCH. It has a connection to the MAIN P.C.B. (D) via connector CP702.
- OPTICAL PICKUP:** Connected to the SERVO P.C.B. (A) via connector CS701.
- SPINDLE MOTOR:** Connected to the SERVO P.C.B. (A) via connector CS702.
- TRAVERSE MOTOR:** Connected to the MOTOR/SWITCH P.C.B. (C) via connector CP790.
- REST SWITCH:** Connected to the MOTOR/SWITCH P.C.B. (C) via connector S701.
- OPERATION P.C.B. (B):** Connected to the MAIN P.C.B. (D) via connector CN601.

BLOCK DIAGRAM

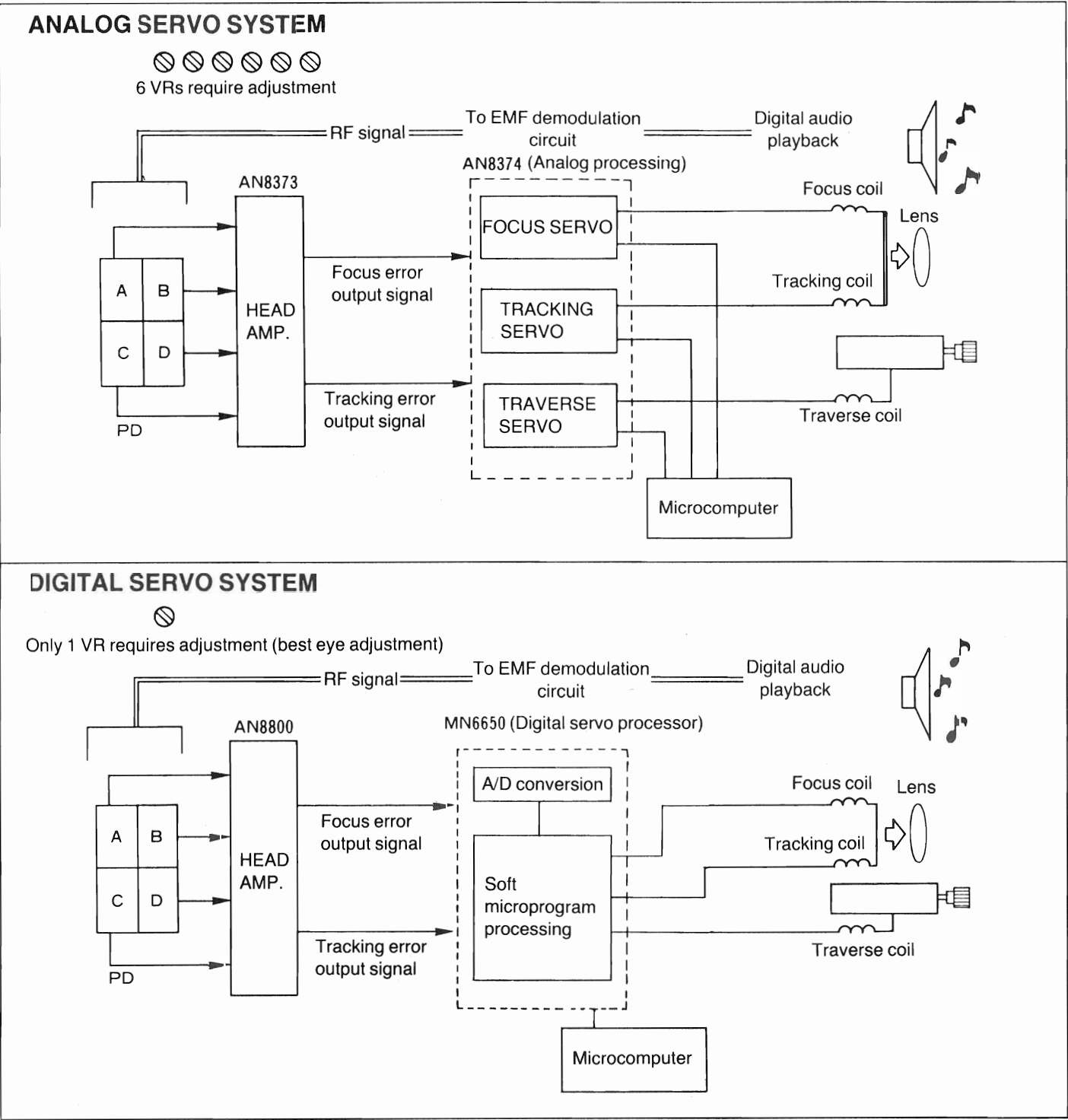




DIGITAL SERVO SYSTEM

The newly-developed digital servo system is adopted in the servo circuit of the unit's CD player instead of the ordinary analog servo system.

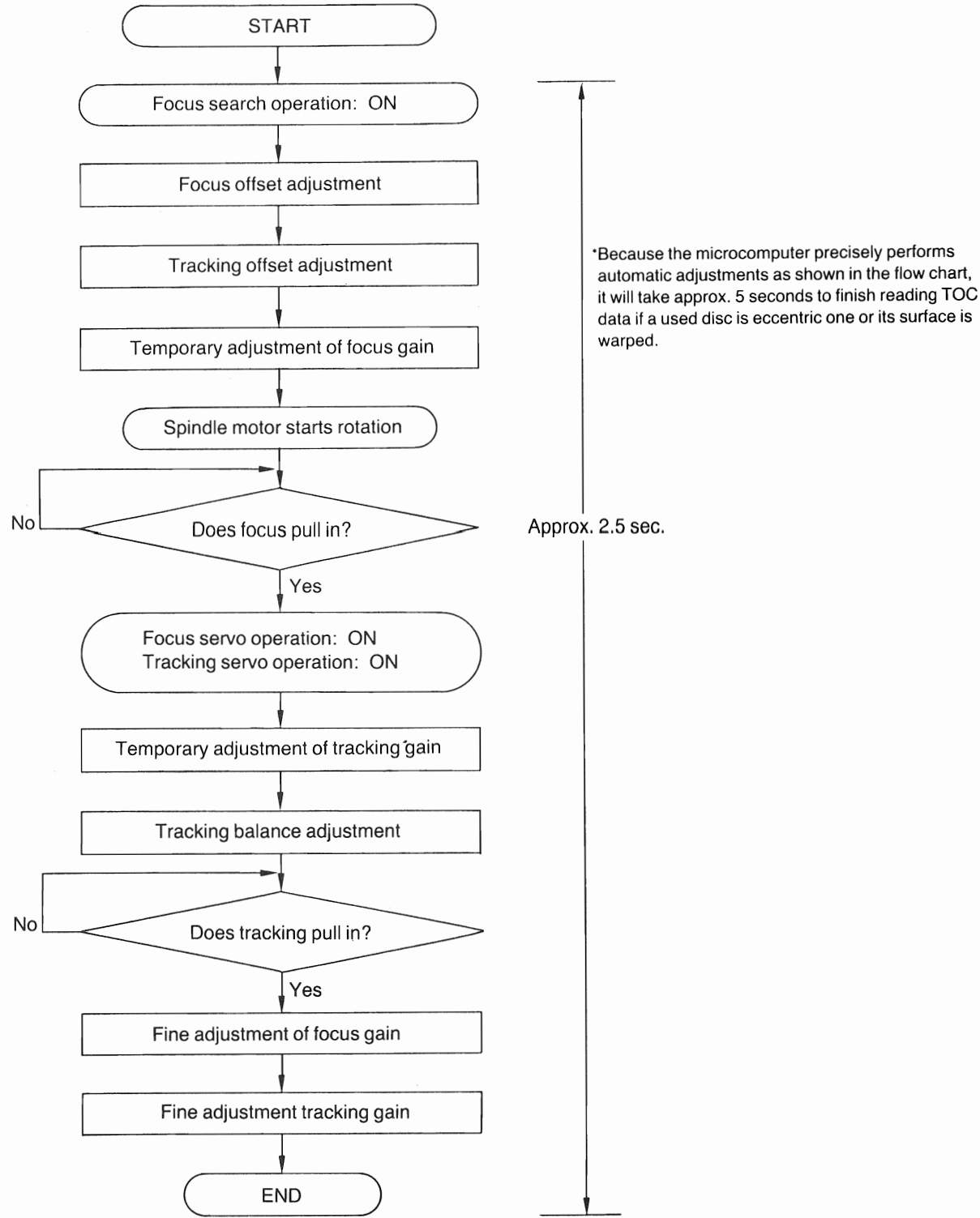
1. The diagrams shown below represent differences between the analog servo and digital servo systems. The HEAD AMP. output signals (i.e., focus error and tracking error output signals) are analog. These analog signals are converted to the 8-bit digital signals through the MN6650. The MN6650 performs the following adjustments automatically; focus offset, tracking offset, focus gain, tracking gain, and tracking balance adjustments. The outputs from the MN6650 such as the focus coil driving signal, tracking coil driving signal, and traverse motor driving signal are converted to analog signals again and sent to the coils and motor to perform proper servo control for a disc.



2. The servo processor IC MN6650 of the newly-developed digital servo circuit automatically performs the following adjustments which were originally adjusted in the conventional analog servo circuit:
(1) Focus offset, (2) Tracking offset, (3) Focus gain, (4) Tracking gain, and (5) Tracking balance. Therefore, you do not have to perform not the above-mentioned electrical adjustments manually. Only the best eye (PD balance) needs to be adjusted adjustment. You can obtain an optimum servo control for a disc to be played.
[You must perform the best eye (PD balance) adjustment manually.]

The following flow chart shows the sequence of automatic adjustments.

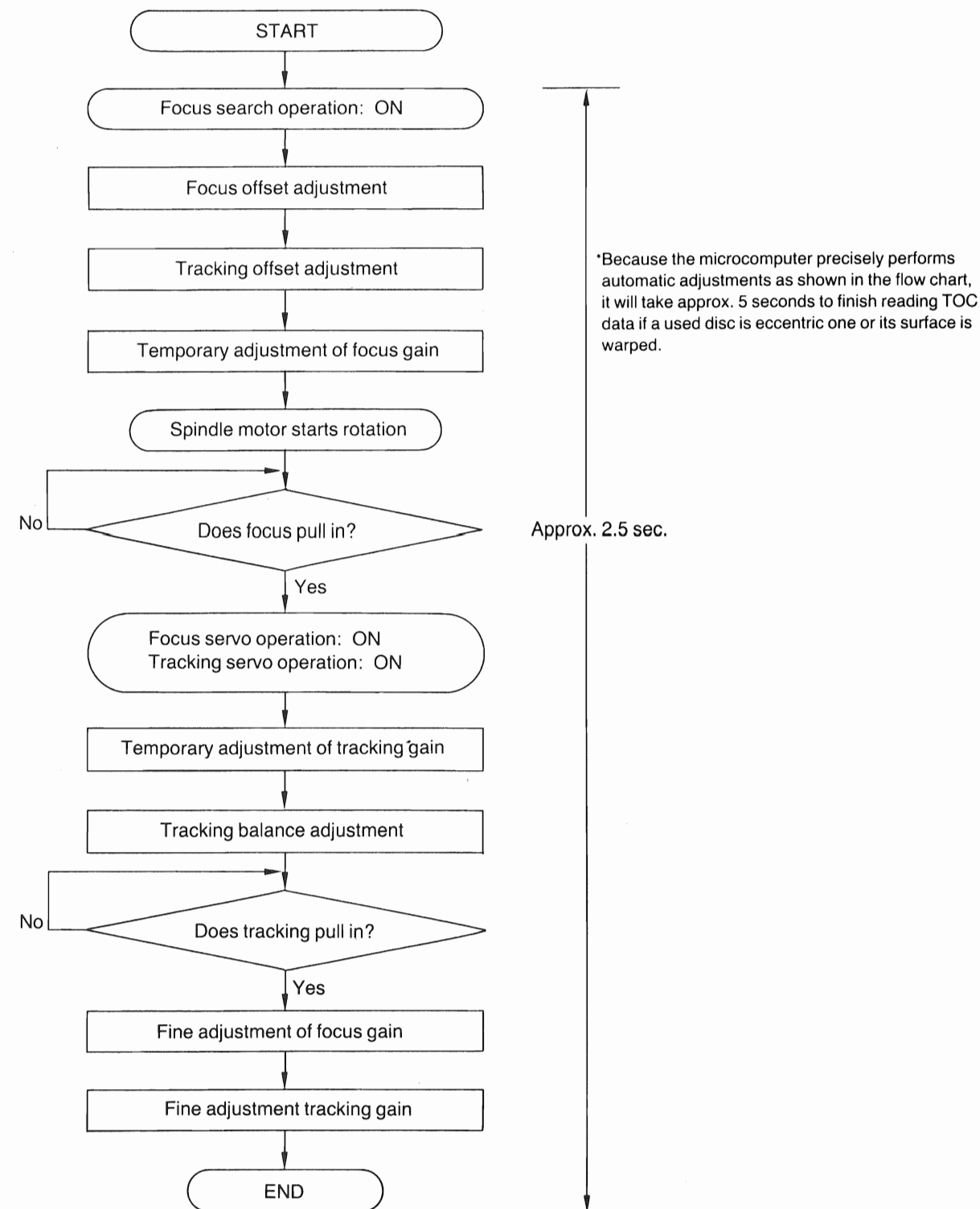
Flow chart on automatic adjustment sequence



2. The servo processor IC MN6650 of the newly-developed digital servo circuit automatically performs the following adjustments which were originally adjusted in the conventional analog servo circuit:
 (1) Focus offset, (2) Tracking offset, (3) Focus gain, (4) Tracking gain, and (5) Tracking balance. Therefore, you do not have to perform not the above-mentioned electrical adjustments manually. Only the best eye (PD balance) needs to be adjusted adjustment. You can obtain an optimum servo control for a disc to be played.
 [You must perform the best eye (PD balance) adjustment manually.]

The following flow chart shows the sequence of automatic adjustments.

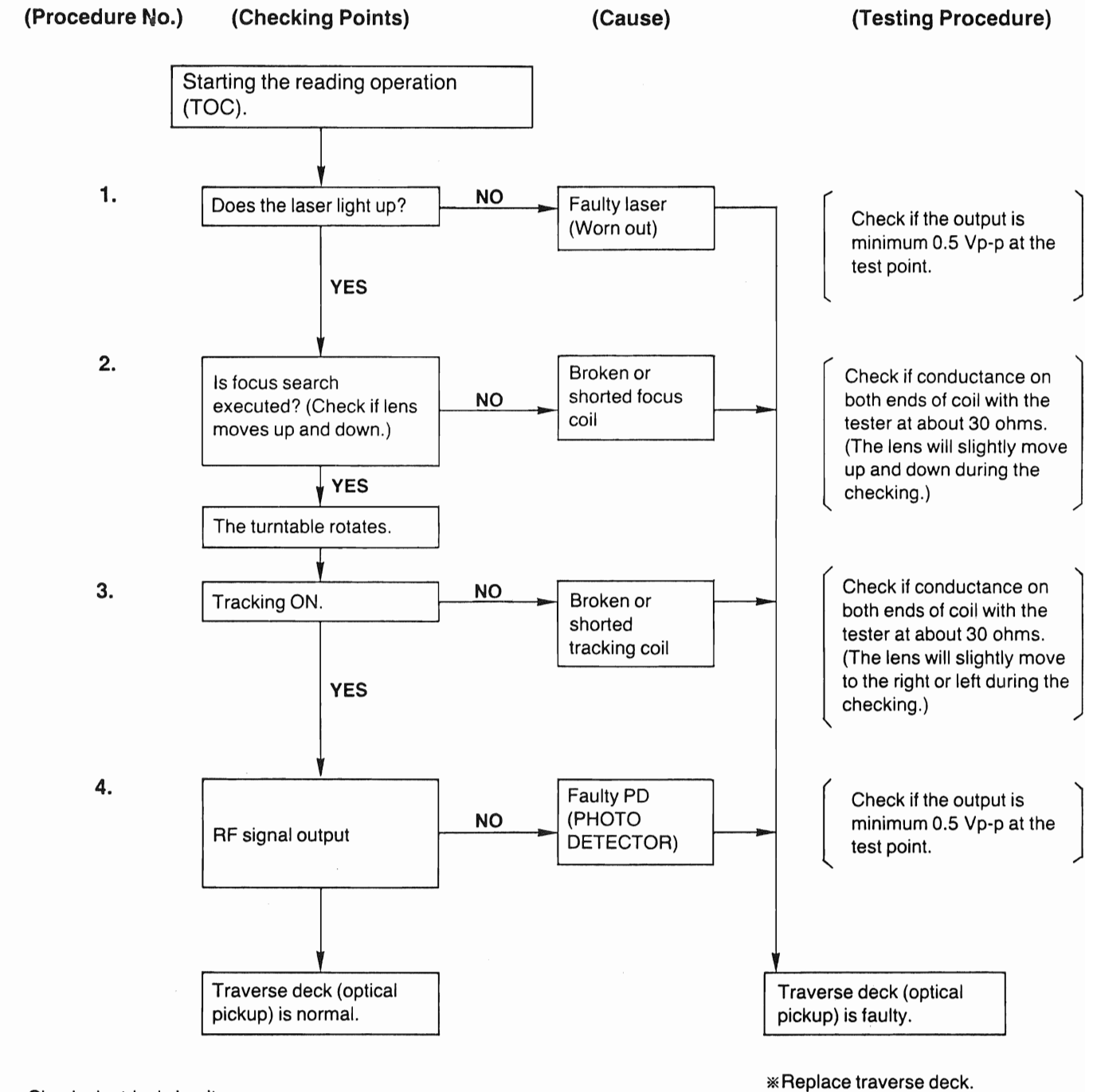
●Flow chart on automatic adjustment sequence



<CD SECTION>

■ CHECKING THE OPERATION PROBLEMS ON THE TRAVERSE DECK (OPTICAL PICKUP)

Make sure to follow the procedures below to check the operation problems of the traverse deck (optical pickup) before replacing it. Replace the traverse deck only after the problem is identified.



- Check electrical circuit.
- CD is not adjusted properly. Adjust CD again.
 - (1) Mechanical adjustment.
 - (2) Focus balance adjustment (PD balance)
 } Refer to page 26
- Check for flaws on disc or if it is warped or not centered.

※ Checking Operations of Replaced Traverse Deck (New Traverse Deck)

a) Check the operations described below on the traverse deck after replacing it.

* Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

* Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

* Checking Using Defect Disc.

1. Play the 0.7 mm black dot and the 0.7 mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

b) If the operations are normal, CD adjustment are not required when the traverse deck is replaced.

Note: CD adjustments are required in the cases below. (Mechanical adjustments are not necessary.)

(See item 1–3 on page 26.)

- If audio is not played back continuously or noises occur after step (a) is excuted.
- If the adjustment VRs (VR701) were rotated before the traverse deck was replaced.
- If the ICs in the servo circuit or adjustment VRs were replaced.

■ MEASUREMENTS AND ADJUSTMENTS

Caution:

- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens. Avoid exposure to the laser beam, especially when performing adjustments.

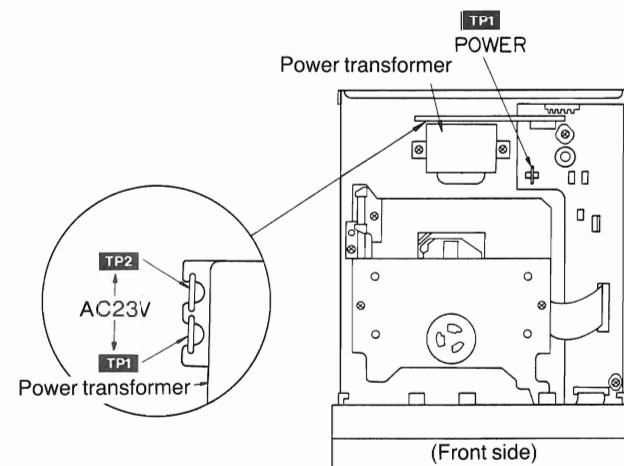
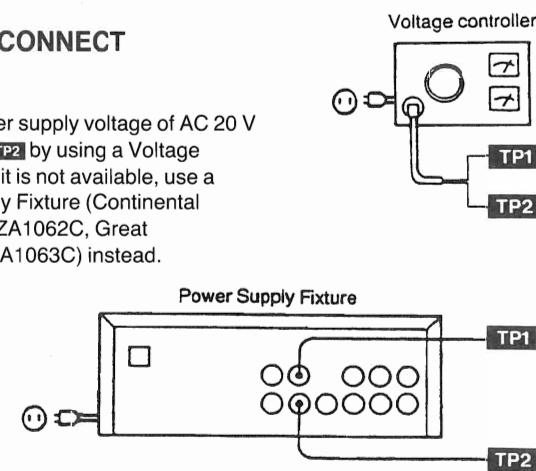
This CD player is powered by the amplifier (SU-CH7). To adjust it or check operations as a separate unit, follow the steps below.

1. Apply a power supply voltage of AC 23 V to **TP1** and **TP2**.
2. Short-circuit **TP1** and Chassis (GND). (POWER supply switch: ON.)

HOW TO CONNECT

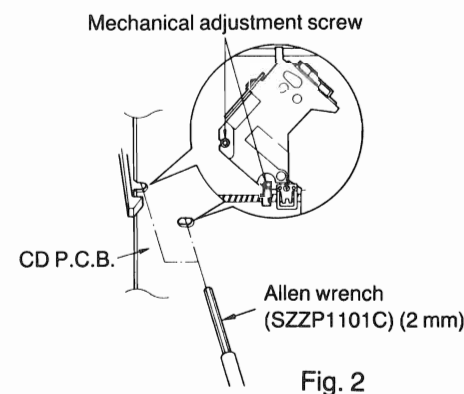
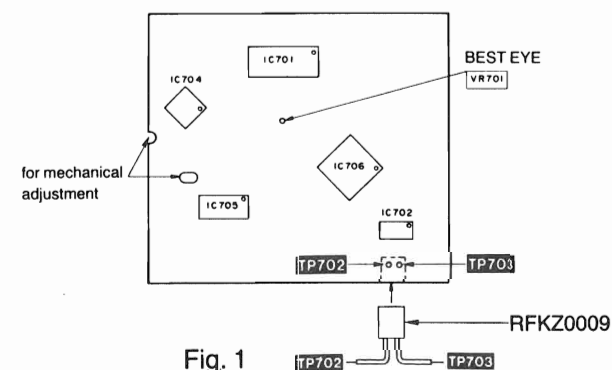
Note:

Apply a power supply voltage of AC 20 V to **TP1** and **TP2** by using a Voltage Controller. If it is not available, use a Power Supply Fixture (Continental Europe: SZZA1062C, Great Britain: SZZA1063C) instead.



ADJUSTMENT POINT

- Please refer to Circuit Board Diagram for test point location



Caution:

- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens. Avoid exposure to the laser beam, especially when performing adjustments.

Measuring Instruments and Special Tools

• Test disc

1. Playability test disc (SZZP1054C)
2. Uneven test disc (SZZP1056C)

• Allen wrench (M2.0) (SZZP1101C)

• Oscilloscope

(1) MECHANICAL ADJUSTMENT

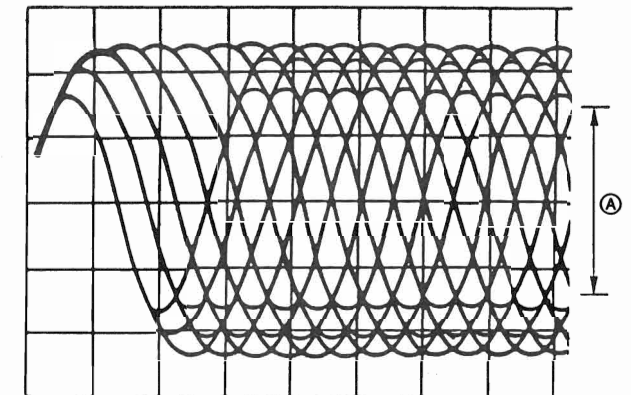
- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability when the traverse deck has not been replaced. Make the electrical adjustments first.

1. Connect the oscilloscope's CH. 1 probe across **TP702** (+) and **TP703** (V-REF) on the Servo P.C.B.

Oscilloscope setting:

VOLT 200 mV
SWEEP 0.5 μ sec
Input coupling AC

2. Switch the player power ON, and play track 19 on the test disc (SZZP1056C).
3. Leave the player in Play mode and place it as shown in the figure on the right.
4. Alternately adjust the two mechanical adjusting screws with the 2.0 mm allen wrench (SZZP1101C) until the RF signal amplitude variation on the oscilloscope is minimized. (Shown in Fig. 2)
5. After completing the adjustment, lock the mechanical adjustments with lock paint (RZZOL01).



A Minimize the variation of amplitude.

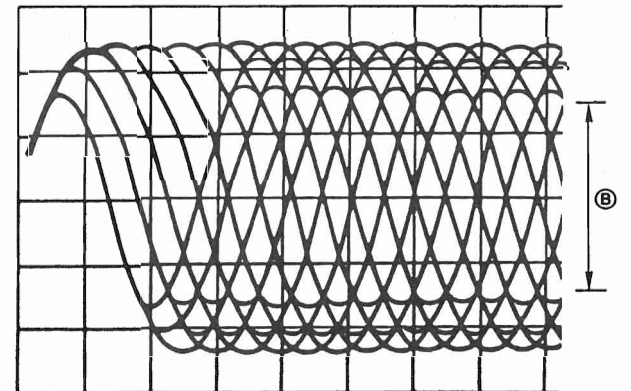
(2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TP702** (+) and **TP703** (V-REF) on the Servo P.C.B.

Oscilloscope setting:

VOLT 200 mV
SWEEP 0.5 μ sec
Input coupling AC

2. Switch the player power ON, and play the 1 kHz (track 1) on test disc (SZZP1054C).
3. Adjust VR701 until the RF signal eye pattern amplitude is maximized.



B Maximize the amplitude

(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

*Checking Skip Search

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

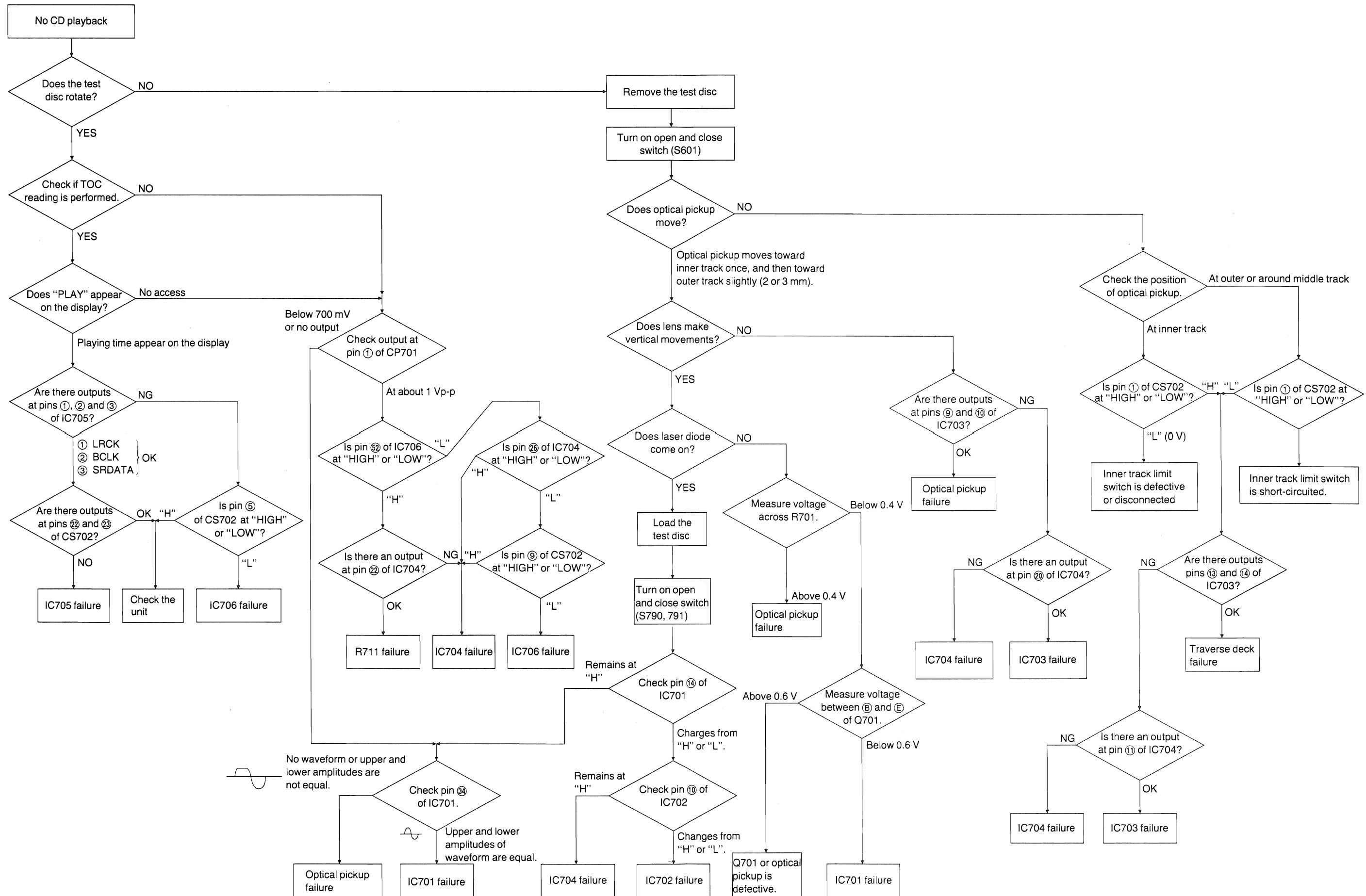
*Checking Manual Search

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

*Checking Playability

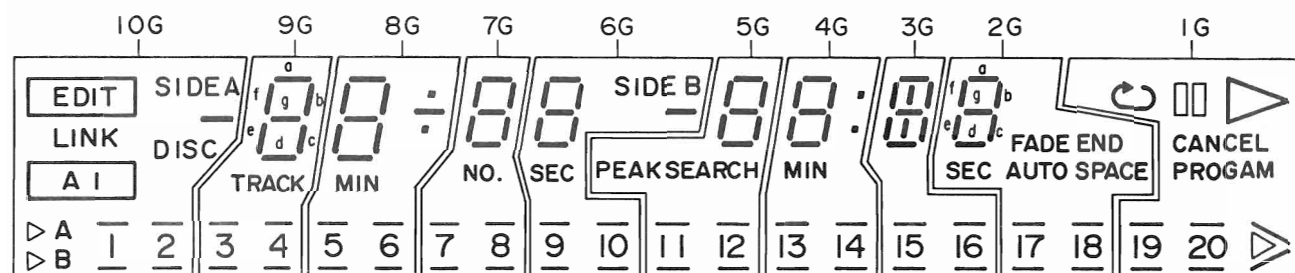
1. Play the 0.7 mm black dot and the 0.7 mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc and verify that no sound skip or noise occurs.

TROUBLESHOOTING GUIDE



DESCRIPTION OF FL PANEL

•Grid assianment



•Pin connection

Pin No.	5	5	5	5	5	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	1	1	1
Connection	F	F	N	N	N	1	2	3	4	5	6	7	8	9	1	P	P	P	P	P	P	P	P	N	N	N	N	N	N	N	N	N	N

Pin No.	1	1	1	1	1	1	1	0	9	8	7	6	5	4	3	2	1
Connection	P	P	P	P	P	P	P	N	N	N	N	N	N	N	N	F	F

•Anode connection

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	▷ (A)	a	a	a	a	a	a	a	a	▷
P2	▷ (B)	b	b	b	b	b	b	b	b	□□
P3	LINK	c	c	c	c	c	c	c	c	↻
P4	DISC	d	d	d	d	d	d	d	d	↘
P5	AI	e	e	e	e	e	e	e	e	▷
P6	EDIT	f	f	f	f	f	f	f	f	/
P7	—	g	g	g	g	g	g	g	g	CANCEL
P8	—	TRACK	MIN	NO.	SEC	SEARCH	MIN		SEC	—
P9	—	—	—	—	—	PEAK	—	—	FADE END	—
P10	SIDE A	—	:	—	SIDE B	—	:	—	AUTO SPACE	PROGRAM
P11	(1)	(3)	(5)	(7)	(9)	(11)	(13)	(15)	(17)	(19)
P12	1	3	5	7	9	11	13	15	17	19
P13	(1)	(3)	(5)	(7)	(9)	(11)	(13)	(15)	(17)	(19)
P14	(2)	(4)	(6)	(8)	(10)	(12)	(14)	(16)	(18)	(20)
P15	2	4	6	8	10	12	14	16	18	20
P16	(2)	(4)	(6)	(8)	(10)	(12)	(14)	(16)	(18)	(20)

FUNCTIONS OF IC TERMINALS

•IC401 (MN1554PKL1)

Pin No.	Mark	I/O Division	Function
1	MUTE RELAY	—	(Not used, open)
2	PLUNGER	—	(Not used, open)
3	SYNC	—	(Not used, open)
4	SIRQ	I	(Not used, connected to power supply)
5	BLKCK	I	Sub-code block clock signal (f BLKCK=75 Hz)
6	SQCK	O	External clock for sub-code Q resistor
7	SBO	—	(Not used, open)
8	SUB Q	I	Sub-code Q code input
9	RESET	I	Reset input
10	CLOSE SW	I	Disc holder "close" detection
11	OPEN SW	I	Disc holder "open" detection
12	REST SW	I	Reset switch signal input
13	NC	—	Not connected
14	CLOSE	O	Loading motor "close" command
15	OPEN	O	Loading motor "open" command
16 └ 24	NC	—	Not connected (Pin 17 is connected to GND)
25	V _{DD}	I	Power supply
26 └ 30	NC	—	Not connected (Pin 29, 30 is connected to GND)
31	FUTA SW	—	(Not used, connected to resistance)
32	MODE	—	(Not used, connected to GND)
33	STAT	I	Status signal (CRC, CVE, CLVS, TTSTOP, FCLV, SQOK)

Pin No.	Mark	I/O Division	Function
34	TLOCK	I	Tracking servo pull-in signal (L: pull-in)
35	FLOCK	I	Focas servo pull-in signal (L: pull-in)
36	SENSE	I	Sense signal
37	RECV	I	External data receipt command signal
38	SEND	I	External data transmission command signal
39	ACK	I	Data discrimination signal
40	CLK	I	Data lock signal
41 └ 44	DATA 0 └ DATA 3	O	Key scan signal
45 └ 52	NC	—	Not connected
53	OSC 2	I	Clock terminal (4.2336 MHz)
54	OSC 1		
55	X1	—	(Not used, open)
56	X0	—	(Not used, open)
57	GND	—	GND
58	DMUTE	O	Muting output (Hi mute)
59	MDATA	O	Micro computer command data output
60	MCLK	O	Micro computer command clock signal output
61	MLD	O	Micro computer command load signal output
62	D. OUT	—	(Not used, open)
63	EMPH	—	(Not used, open)
64	SERVO RST	—	Not connected

•IC601 (MN187204PKW)

Pin No.	Mark	I/O Division	Function
1 └ 7	SEG 6 └ SEG 0	O	FL segment signal output
8	VPP	I	FL motor power supply
9	VDD	I	Power supply
10	OSC 2	I	Clock terminal (4.2336 MHz)
11	OSC 1		
12	GND	—	GND
13 • 14	NC	—	Not connected
15 └ 18	DATA 3 └ DATA 0	O	Key scan data output
19	CLK	O	Data lock signal
20	ACK	O	Data discrimination signal
21	/SEND	O	External data transmission command signal
22	/RECV	O	External data receipt command signal
23 • 24	NC	—	Not connected

Pin No.	Mark	I/O Division	Function
25	BSDT O	O	System data control
26	BSDT I	I	
27	BSCK O	O	System clock control
28	BSCK I	I	
29	RESET	I	Reset input
30 └ 35	KEY 5 └ KEY 0	I	Key scan data input
36	NC	—	Not connected
37	CM	—	GND
38	PCON	O	Servo circuit power switch
39 └ 45	NC	—	Not connected
46 └ 55	DGT 0 └ DGT 9	O	FL digit signal output
56 └ 64	SEG 15 └ SEG 7	O	FL segment signal output

●IC701 (AN8800SC-E2)

Pin No.	Mark	I/O Division	Function
1	LDG	I	Loop gain switch for auto pwer control VCC: NORMAL OPEN: +20 dB This machine for “NORMAL”
2	LDP	I	Monitor PD polequality switch for auto power control OPEN: P sub PD GND: N sub PD This machine for “P sub PD”
3	LD	O	Laser diode control output
4	LPD	I	Laser diode power monitor PD signal input
5	GND	—	Analog GND
6	LDON	I	Laser diode auto power control H: ON L: OFF
7	AMPI	I	Reverse amplifier input
8	AMPO	O	Reverse amplifier input
9	RFIN	I	RF AGC input (H: light level)
10	RFEQ	—	GND
11	C.AGC	—	Condenser connection for RF AGC loop filter
12	ARF	O	RF output after AGC (H: light level)
13	C.SBDO	—	Low level detected wave condenser connection for dark level drop-out detection
14	/RFDET	O	RF detection output
15	BDO	O	Black dropout detection output
16	VCC	—	Power supply (+5 V)
17	SDO	O	System dropout dection output
18	VAD+	O	Plus power supply for A/D converter
19	VREF	O	Reference voltage of servo error signal
20	VAD—	O	Power supply for A/D converter

●IC702 (TCA0372DM2R)

Pin No.	Mark	I/O Division	Function
1	GND	—	Connected to P.GND
2	NC	—	—
3	VOUT1	O	Spindle motor drive signal output
4	VCC	I	Power supply (+7.5 V)
5	VOUT2	O	Spindle motor drive signal output
6	NC	—	Connected to P.GND
7	NC	—	Connected to P.GND
8	GND	—	Connected to P.GND

Pin No.	Mark	I/O Division	Function
21	OFTR	O	Off track detction output
22	PLAY	I	“Play” signal input (H: ON, L: OFF)
23	WVEL	I	High speed input (H: high speed L: normal)
24	TES	I	Tracking error shunt signal input (H: shunt L: output)
25	PTO	O	Traverse speed detection signal output
26	PTI	I	Traverse speed detection signal input
27	PBO	O	Potention buffer output
28	PBI	I	Potention buffer input
29	CROSS	O	Tracking error cross detection output
30	TE	O	Tracking error output
31	TEBPF	I	Tremble detection output
32	TBAL	I	Tracking balance adjustment
33	VDET	O	Vibration detection output
34	FE	O	Focus error output
35	FBL2	—	Focus balance adjustment 2
36	FBL1	—	Focus balance adjustment 1
37	VCC	—	Power supply (+5 V)
38	GND	—	GND
39	PDBD	I	Photo detector current input
40	PDA	I	Photo detector current input
41	PDAD	I	Photo detector current input
42	PDB	I	Photo detector current input

Pin No.	Mark	I/O Division	Function
9	GND	—	Connected to P.GND
10	NC	—	Connected to P.GND
11	—VIN2	I	Spindle motor drive signal input
12	+VIN2	I	Spindle motor drive signal input
13	+VIN1	I	Spindle motor drive signal input
14	—VIN1	I	Spindle motor drive signal input
15	NC	—	Connected to P.GND
16	GND	—	Connected to P.GND

●IC703 (AN8377N)

Pin No.	Mark	I/O Division	Function
1	PVCC	I	Driver power supply (+5 V)
2	VCC	I	Power supply (+5 V)
3	TB	O	External transistor base driving output
4	VMON	O	Voltage (+5 V) output
5	TVDI	I	Traverse error signal input
6	FDI	I	Focus error signal input
7	TDI	I	Tracking error signal input
8	VREF	I	Reference voltage input

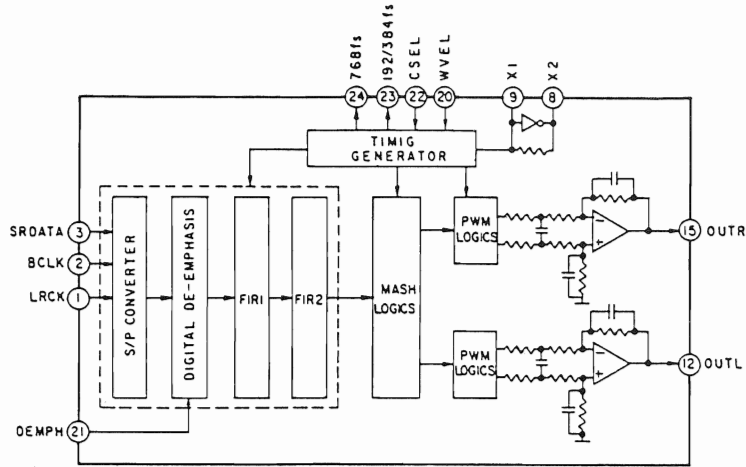
●IC704 (MN6650)

Pin No.	Mark	I/O Division	Function
1	TES	O	Tracking error shunt signal (H: Shunt)
2	PLAY	O	“Play” signal (H: play)
3	/RFDET	I	RF detection signal (L: detection)
4	DO	I	Dropout signal (H: dropout)
5	OFT	I	Off track signal (H: off track)
6	ARF	I	RF signal input
7	WVEL	O	High speed status signal (H: high speed)
8	PBO	I	Potension buffer signal input (Analog input)
9	TE	I	Tracking error signal input (Analog input)
10	FE	I	Focus error signal input (Analog input)
11	VR2	I	Reference voltage for A/D (Low reverse)
12	VR1	I	Reference voltage for A/D (High reverse)
13	LDON	O	Laser “ON” signal (H: ON)
14	VSS	I	Power supply (Digital system OV)
15	AVSS	I	Power supply (Analog system OV)
16	AVDD	I	Power supply (Analog system +5 V)
17	VDD	I	Power supply (Digital system +5 V)
18	TRV	O	Traverse force transmission output
19	TVD	O	Traverse drive output
20	FOD	O	Focus drive output
21	TRD	O	Tracking drive output
22	KICK	O	Kick pulse output

Pin No.	Mark	I/O Division	Function
9	TD—	O	Inverting output of tracking driver
10	TD+	O	Non-inverting output of tracking driver
11	FD—	O	Inverting output of focus driver
12	FD+	O	Non-inverting output of focus driver
13	TVD—	O	Inverting output of traverse driver
14	TVD+	O	Non-inverting output of traverse driver
15	RESET	O	Reset signal output
16	PC	I	PC input

Pin No.	Mark	I/O Division	Function
23	/TEST	I	Test terminal (“L”, normal)
24	VSS	I	Power supply (Digital system OV)
25	CLVS	I	Spindle servo condition signal (H: CLV L: Rough servo)
26	/TRON	O	Tracking servo “ON” signal (L: ON)
27	MDATA	I	Micro computer command data input
28	MCLK	I	Micro computer command clock signal input
29	MLD	I	Micro computer command load signal input (L: load)
30	SENSE	O	Sense signal input
31	/FLOCK	O	Focus servo pull-in signal (L: take-in condition)
32	/TLOCK	O	Tracking servo pull-in signal (L: take-in condition)
33	/RST	I	Reset input (L: reset)
34	XI	I	Clock input (fXI= 16.9344 MHz)
35	T0	O	Test terminal (“Open”, normal)
36	T1	O	Test terminal (“Open”, normal)
37	T2	O	Test terminal (“Open”, normal)
38	T3	O	Test terminal (“Open”, normal)
39	T4	I	Test terminal (“L”, normal)
40	T5	I	Test terminal (“L”, normal)
41	T6	I	Test terminal (“L”, normal)
42	VDET	I	Vibration detection signal input (H: detection)
43	TBAL	O	Tracking balance adjustment output
44	TRCRS	I	Track cross signal input

●IC705 (MN6475)



Pin No.	Mark	I/O Division	Function
1	LRCK	I	L.R detection signal
2	BCLK	I	Bit clock for SRDATA
3	SRDATA	I	Serial data input
4	COT1	—	Connected to D.GND
5	COT2	—	Connected to D.GND
6	TEST	—	Connected to D.GND
7	VDD	I	Digital system power supply (+5 V)
8	×2	—	Crystal oscillator connection
9	×1	—	Crystal oscillator connection
10	VSS	—	Connected to GND
11	AVDDL	I	Power supply (+5 V)
12	OUT.L	O	Lch output
13	AVSSL	—	Connected to A.GND
14	AVSSR	—	Connected to A.GND
15	OUT.R	O	Rch output
16	AVDDR	I	Power supply (+5 V)
17	/RST	I	Reset signal input (L: reset)
18	PWM	—	NC
19	CP	—	Connected to D.GND
20	WVEL	I	High speed status signal input (H: high speed)
21	DEMPH	I	De-emphasis ON signal (H: ON)
22	CSEL	I	Test terminal
23	192FS/384FS	—	NC
24	768FS	O	Clock output

Pin No.	Mark	I/O Division	Function
1	LRCK	I	L/R clock input
2	BCLK	I	Serial input bit clock input
3	SRDATA	I	Serial input date input
4	COT1	—	Test mode input terminal 1 (normal: L)
5	COT2	—	Test mode input terminal 2 (normal: L)
6	TEST	—	Test mode input terminal 3 (normal: L)
7	DVDD	I	Digital system power supply (+5 V)
8	×2	—	Crystal oscillator connection
9	×1	—	Crystal oscillator connection
10	DVSS	—	Digital system ground terminal
11	AVDDL	I	Analog system power supply 1 (+5 V)
12	OUTL	O	Analog output (Lch)
13	AVSSL	—	Analog system ground terminal 1
14	AVSSR	—	Analog system ground terminal 2
15	OUTR	O	Analog output (Rch)
16	AVDDR	I	Analog system power supply 2 (+5 V)
17	RSTB	I	Reset terminal (L: reset)
18	PWM	O	PWM output
19	TP	—	Test terminal (normal: L)
20	WVEL	I	Motion speed switch (H: high speed)
21	DEMPH	I	Digital de-emphasis ON/OFF terminal (H: ON)
22	CSEL	I	Output clock frequency selection terminal of CK192
23	CK192	O	Clock devided frequency output
24	CK768	O	Clock output

SL-CH7

SL-CH7

●IC706 (MN6626)

Pin No.	Mark	I/O Division	Function
1	AVSS	I	GND for DSL, PLL circuit (OV)
2	IRFF	I	Reference electric current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias
5	DSL F	O	DSL loop filter
6	PLL F	—	PLL loop filter
7	AVDD	I	Power supply for DSL, PLL
8	RSEL	I	RF signal quality decision terminal
9	TBUS7	O	Test terminal (normal: Open)
16	TBUS0	O	
17	FLAG	O	Error/frag output
18	IPFLAG	O	Interpolation flag
19	FCLK	O	Crystal frame clock
20	BTCK	O	Byte clock
21	WDCK	O	Ward clock
22	/RST	I	Reset input
23	TX	O	Digital audio interface output
24	LDG	O	Lch deglitch signal
25	RDG	O	Rch deglitch signal
26	SRDATA	O	Serial data signal
27	SCK	O	Bit clock for SRDATA
28	LRCK	O	L, R discrimination signal
29	XCK	O	Crystal oscillator clock output
30	PMCK	O	$\frac{1}{192}$ devided frequency clock signal of crystal oscillator
31	CSEL	I	Test terminal (normal: L)
32	PSEL	I	Test terminal (normal: L)
33	X1	—	Crystal oscillator circuit input
34	X2	—	Crystal oscillator circuit output
35	VSS	I	Power supply (OV)
36	SUBQ	O	Sub-code Q-code output
37	SQCK	I	External clock for sub-code Q resister
38	/CLDCK	O	Sub-code frame clock signal
39	BLKCK	O	Sub-code block clock signal
40	DEMPH	O	De-emphasis ON signal
41	MEMP	I	Emphasis signal input (For digital audio interface)
42	MLD	I	Micro computer command load signal input (L: load)

Pin No.	Mark	I/O Division	Function
43	MCLK	I	Micro computer command clock signal input
44	MDATA	I	Micro computer command data input
45	DMUTE	I	Muting input
46	SMCK	O	MSEL = $\frac{1}{2}$ devided frequency clock signal of crystal oscillator when "H" level MSEL = $\frac{1}{4}$ devided frequency clock signal of crystal oscillator when "L" level
47	STAT	O	Status signal
48	CRC	O	Sub-code CRC check result (H: OK, L: NG)
49	SUBC	O	Sub-code serial output data
50	SBCK	I	Clock input for sub-code serial output
51	/TRON	I	Tracking servo ON signal
52	CLVS	O	Spindle servo phase synchronization condition signal (H: CLV L: rough servo)
53	PC	O	Sprindle motor ON signal (L: ON)
54	ECM	O	Spindle motor drive signal (Force mode output)
55	ECS	O	Spindle motor drive signal (Servo error signal output)
56	VDD	I	Power supply (+5 V)
57	/TEST	I	Test terminal (normal: H)
58	SSEL	I	SUBQ terminal Output mode switch terminal (H: Q code buffer mode)
59	MSEL	I	SMCK terminal output frequency switch terminal
60	RESY	O	Resynchronization signal of frame synchronization (H: synchronization, L: not)
61	DO	I	Drop-out signal (H: drop-out)
62	EFM	O	EFM signal output
63	PCK	O	PLL extract clock output
64	PDO	—	Phase comparison signal of EFM signal and PCK signal

REPLACEMENT PARTS LIST

Notes : * Important safety notice:
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* Warning: This product uses a laser diode. Refer to caution statements on page 2.

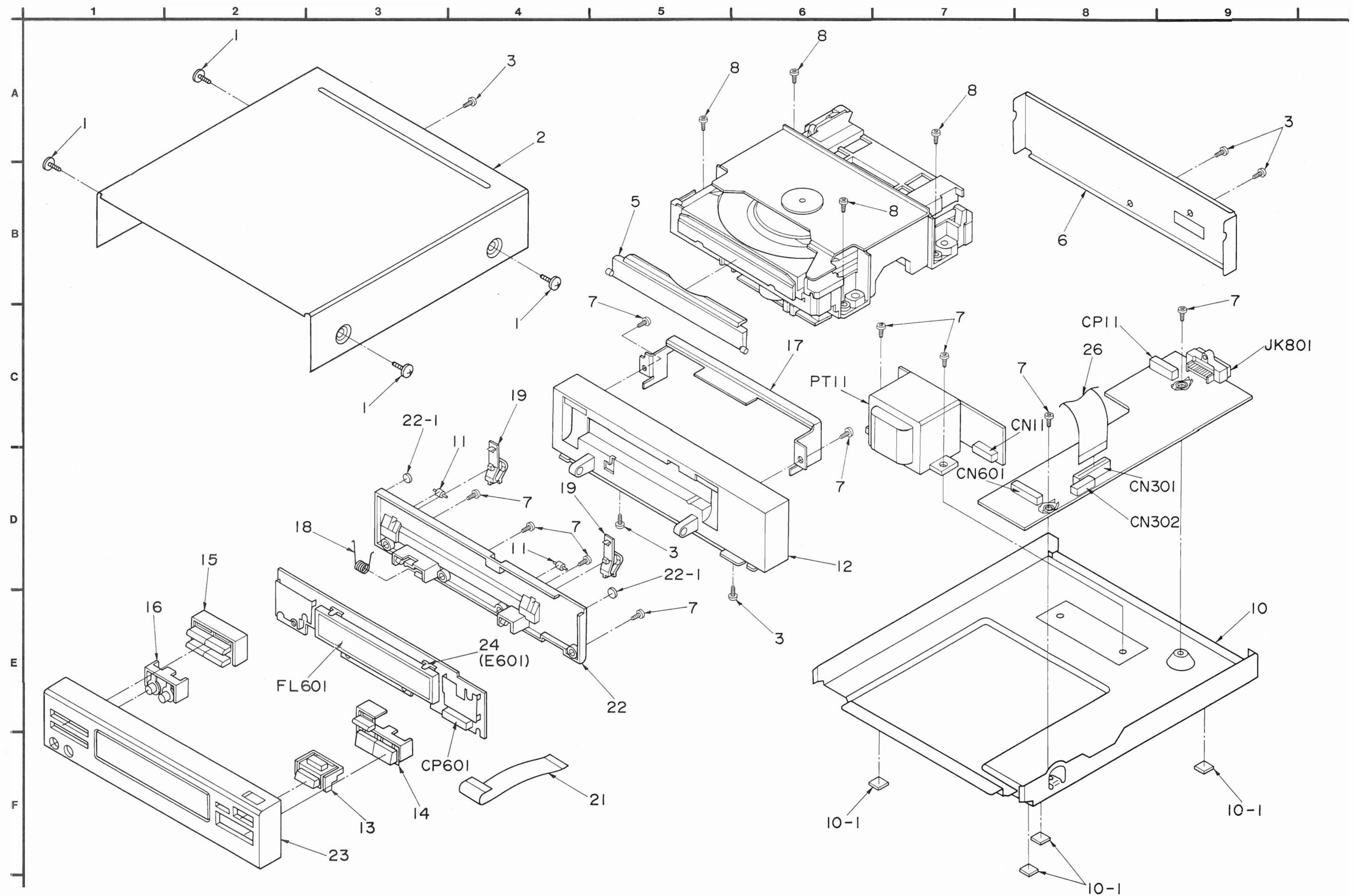
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		D9	1SR35200TB	DIODE	
IC1	LM2940T5	I. C, REGULATOR		D10	MA4082LTA	DIODE	
IC401	MN1554PKL1	I. C, SYSTEM CONTROL		D11	MA4270	DIODE	
IC601	MN187204PKW	I. C, SYSTEM CONT. &FL DRIVE		D12	MA4056MTA	DIODE	
IC701	AN8800SCE2	I. C, SERVO AMP.		D13, 14	MA4068M	DIODE	
IC702	TCA0372DM2R	I. C, SPINDLE MOTOR DRIVE		D401	MA4039HTA	DIODE	
IC703	AN8377N	I. C, TRAVERSE MOTOR DRIVE		D402	1SS254TA	DIODE	
IC704	MN6650	I. C, DIGITAL SERVO PROCESSOR		D603, 604	MA4043M	DIODE	
IC705	MN6475	I. C, DIGITAL FILTER		D611, 612	1SS254TA	DIODE	
IC706	MN6626	I. C, DIGITAL SIGNAL PRO.		D701	MA110TW	DIODE	
IC790	TA7291S	I. C, MOTOR DRIVE		D801, 802	1SS254TA	DIODE	
IC801	SVIBA4558F	I. C, L. P. FILTER AMP.		D852	1SS254TA	DIODE	
				D854, 855	1SS254TA	DIODE	
						VARIABLE RESISTOR(S)	
		IC PROTECTOR(S)					
ICP12	SRUN20T	IC PROTECTOR		VR701	EVNDXAA00B14	V. R, BEST EYE	
						COIL(S)	
		TRANSISTOR(S)					
				L431, 432	RLQZP3R3KT-Y	COIL	
Q1	DTA114ESTP	TRANSISTOR				OSCILLATOR(S)	
Q2	2SD1862QRTV6	TRANSISTOR					
Q3	2SA933SQR	TRANSISTOR		X601	EFOGC4234T4	OSCILLATOR	
Q4-6	2SD2037EFTA	TRANSISTOR		X701	RSXZ33M8M01T	OSCILLATOR	
Q7	DTC124EST	TRANSISTOR					
Q8	2SB1238QSTV6	TRANSISTOR				DISPLAY	
Q9	2SC1740SQ	TRANSISTOR					
Q10	2SA933SQR	TRANSISTOR		FL601	RSL0080-F	DISPLAY	
Q11	2SD2037EFTA	TRANSISTOR				SWITCH(ES)	
Q421, 422	2SC1740SQ	TRANSISTOR					
Q431	2SC1740SQ	TRANSISTOR		S601	EVQ21405R	SW, OPEN/CLOSE	
Q432	DTC144EKT96	TRANSISTOR		S602	EVQ21405R	SW, PAUSE	
Q433	2SC1740SQ	TRANSISTOR		S603	EVQ21405R	SW, STOP	
Q434	DTC144EKT96	TRANSISTOR		S604	EVQ21405R	SW, PLAY	
Q701	2SB709S	TRANSISTOR		S605	EVQ21405R	SW, SKIP (REV)	
Q803, 804	2SD2144S	TRANSISTOR		S606	EVQ21405R	SW, SKIP (FWD)	
Q852	DTA124ESTP	TRANSISTOR		S607	EVQ21405R	SW, SEARCH (REV)	
Q853	DTC114ESTP	TRANSISTOR		S608	EVQ21405R	SW, SEARCH (FWD)	
Q854	DTA114ESTP	TRANSISTOR		S612	EVQ21405R	SW, NORMAL/TAPE LENGTH	
		DIODE(S)		S613	EVQ21405R	SW, AI	
				S701	SSH5-E	SW, REST	
D1-3	1SR35200TB	DIODE	Δ	S790	RSH1A005	SW, LOADING CLOSE DETECT	
D5	1SR35200TB	DIODE	Δ	S791	RSH1A005	SW, LOADING OPEN DETECT	
D7	1SS254TA	DIODE					
D8	MA4056MTA	DIODE					

Ref. No.	Part No.	Part Name & Description	Remarks				
		CONNECTOR(S)					
CN11	RJU057W009	SOCKET (9P)					
CN301	RJS1A6823	SOCKET (23P)					
CN302	EMCS0660MT6	CONNECTOR (6P)					
CN601	RJS20Q11ZA	SOCKET (20P)					
CP11	RJT057W009-1	CONNECTOR (9P)					
CP601	RJS20Q11ZA	SOCKET (20P)					
CP701, 702	RJP2G17ZA	CONNECTOR (2P)					
CP703	RJP4G17ZA	CONNECTOR (4P)					
CS701	RJU035T016-1	SOCKET (16P)					
CS702	RJS1A6723-1Q	SOCKET (23P)					
CP790	RJP6G17ZA	PLUG (6P)					
JK801	RJT055K011	CONTROL TERMINAL					
		TRANSFORMER(S)					
T11	RTP1K4J021	POWER TRANSFORMER	Δ				

Notes : * Capacity value are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
			R432	ERDS2TJ470	1/4W 47	R717	ERJ6GEYJ682V	1/10W 6.8K
		RESISTORS	R433, 434	ERDS2TJ393	1/4W 39K	R718	ERJ6GEYJ223V	1/10W 22K
			R435	ERDS2TJ223	1/4W 22K	R719	ERJ6GEYJ123V	1/10W 12K
R1	ERD2FCVJ6R8T	1/4W 6.8 Δ	R436	ERDS2TJ470	1/4W 47	R720	ERJ6GEYJ273V	1/10W 27K
R2	ERDS2TJ473	1/4W 47K	R438	ERDS2TJ470	1/4W 47	R721	ERJ6GEYJ823	1/10W 82K
R3	ERDS2TJ223	1/4W 22K	R439, 440	ERDS2TJ393	1/4W 39K	R722	ERJ6GEYJ102V	1/10W 1K
R4	ERDS2TJ102	1/4W 1K	R441	ERDS2TJ223	1/4W 22K	R723, 724	ERJ6GEYJ104V	1/10W 100K
R5	ERDS2TJ473	1/4W 47K	R442	ERDS2TJ470	1/4W 47	R725	ERJ6GEYJ471V	1/10W 470
R6	ERDS2TJ472	1/4W 4.7K	R443	ERDS2TJ100	1/4W 10	R726	ERJ6GEYJ102V	1/10W 1K
R7	ERDS1FVJ271T	1/2W 270 Δ	R451	ERDS2TJ103	1/4W 10K	R729, 730	ERJ6GEYJ102V	1/10W 1K
R8, 9	ERDS2TJ1R0	1/4W 1.0	R452, 453	ERDS2TJ102	1/4W 1K	R731	ERJ8GEYJ470V	1/8W 47
R10	ERDS2TJ3R9T	1/4W 3.9	R600-605	ERDS2TJ472	1/4W 4.7K	R732	ERJ6GEYJ562V	1/10W 5.6K
R11, 12	ERD2FCVG221T	1/4W 220 Δ	R606	ERDS2TJ105T	1/4W 1M	R733	ERJ6GEYJ332V	1/10W 3.3K
R13	ERDS2TJ222	1/4W 2.2K	R607-614	ERDS2TJ221	1/4W 220	R734	ERJ6GEYJ562V	1/10W 5.6K
R14, 15	ERDS2TJ332	1/4W 3.3K	R701	ERJ6GEYJ100	1/10W 10	R735	ERJ6GEYJ222V	1/10W 2.2K
R16	ERDS2TJ102	1/4W 1K	R702	ERJ6GEYJ471V	1/10W 470	R736	ERJ6GEYJ682V	1/10W 6.8K
R17	ERD2FCVJ6R8T	1/4W 6.8	R703	ERJ6GEYJ102V	1/10W 1K	R737-739	ERJ6GEYJ562V	1/10W 5.6K
R18, 19	ERDS2TJ1R0	1/4W 1.0	R704	ERJ6GEYJ103V	1/10W 10K	R741-743	ERJ6GEYJ102V	1/10W 1K
R20	ERD2FCVG220T	1/4W 22	R706	ERJ6GEYJ473V	1/10W 47K	R744	ERJ6GEYJ393V	1/10W 39K
R303	ERDS2TJ560T	1/4W 56	R707	ERJ6GEYJ222V	1/10W 2.2K	R745, 746	ERJ6GEYJ102V	1/10W 1K
R304	ERDS2TJ102	1/4W 1K	R708	ERJ6GEYJ683V	1/10W 68K	R747	ERJ6GEYJ473V	1/10W 47K
R401-408	ERDS2TJ472	1/4W 4.7K	R709	ERJ6GEYJ122V	1/10W 1.2K	R748	ERJ8GEYJ180V	1/8W 18
R419	ERDS2TJ472	1/4W 4.7K	R710	ERJ6GEYJ182V	1/10W 1.8K	R817, 818	ERDS2TJ243T	1/4W 24K
R420	ERDS2TJ105T	1/4W 1M	R711	ERJ6GEYJ473V	1/10W 47K	R819, 820	ERDS2TJ473	1/4W 47K
R421	ERDS2TJ221	1/4W 220	R712	ERJ6GEYJ471V	1/10W 470	R821, 822	ERDS2TJ273	1/4W 27K
R422-425	ERDS2TJ472	1/4W 4.7K	R714	ERJ6GEYJ473V	1/10W 47K	R823, 824	ERDS2TJ473	1/4W 47K
R426	ERDS2TJ102	1/4W 1K	R715	ERJ6GEYJ223V	1/10W 22K	R825, 826	ERDS2TJ122	1/4W 1.2K
R427	ERDS2TJ472	1/4W 4.7K	R716	ERJ6GEYJ104V	1/10W 100K	R827, 828	ERDS2TJ473	1/4W 47K

CABINET PARTS LOCATION



Ref. No.	Part No.	Part Name & Description	Remarks
		LOADING UNIT PARTS	
301	REM0019	MOTOR ASS'Y	
302	RMK0105	CHASSIS	
303	RME0063	SPRING	
304	RMG0158	BELT	
305	RML0177	LEVER	
306	RML0178	LEVER	
307	RMM0058	SLIDE PLATE 1	
308	XTN26+6G	SCREW	
309	XYN2+F6FZ	SCREW	
310	RHD20010	SCREW	
311	RMU0046	GUIDE SHAFT	
312	RHD20009-1	SCREW	
313	RMA0328	HOLDER	
314	RMK0103	DISK TRAY	
315	XTN2+8G	SCREW	
316	XTB3+25GFZ	SCREW	
317	XTN26+6G	SCREW	
318	XTN3+8JFZ	SCREW	
319	RXQ0122	TRAY HOLDER	
319-1	RHM2452A	MAGNET	
319-2	RMRO334	HOLDER	
319-3	RXQ0123	DISK HOLDER	
320	RFKNXDT77B-H	GEAR ASS'Y	
321	RFKJXDT77-H	CHASSIS ASS'Y	
321-1	RDG0142	GEAR	
321-2	RDG0143	DRIVE GEAR 1	
321-3	RDP0041	PULLEY	
321-4	SDRD14	ROLLER B	
322	RFKNXDT77C-H	HOLDER	
322-1	RMG0159	RUBBER	
323	SODD110Z	TRAVERSE UNIT	
323-1	SHGD112	RUBBER A	
323-2	SHGD113-1	RUBBER B	
323-3	RDV0014	BELT	
324	RMS0123-1	PIN	
325	RMM0059	SLIDE PLATE 2	
326	XTV26+6G	SCREW	
327	RME0087	SPRING	

■ CABINET PARTS LOCATION (Loading unit parts)

