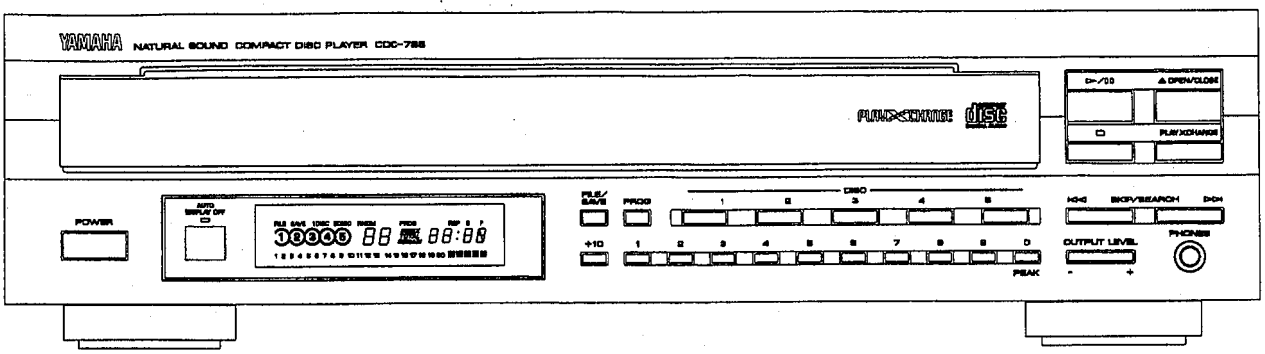
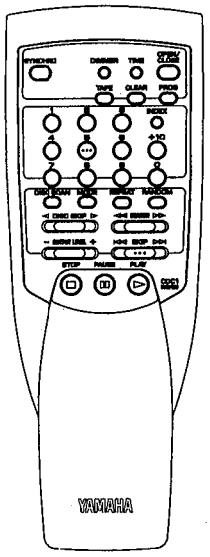
COMPACT DISC PLAYER

CDC-765

SERVICE MANUAL





IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel.
It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

■ CONTENTS

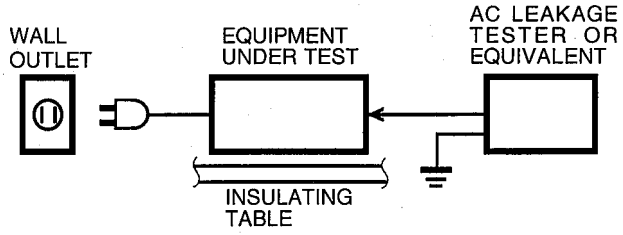
100575

YAMAHA
YAMAHA CORPORATION
P.O.Box1,Hamamatsu,Japan
1.9K-414 Printed in Japan '97.2

■ TO SERVICE PERSONNEL

1. Critical Components Information.
   Components having special characteristics are marked and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Models Only).
   When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15μF.
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



CAUTION: USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to carefully follow the instructions below when servicing .

1. Laser Diode Properties
   - Material : GaAlAs
   - Wavelength : 780 nm
   - Emission Duration : Continuous
   - Laser Output : max. 44.6 μW*

   * This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

2. When checking the laser diode emission, keep your eyes more than 30 cm away from the objective lens.

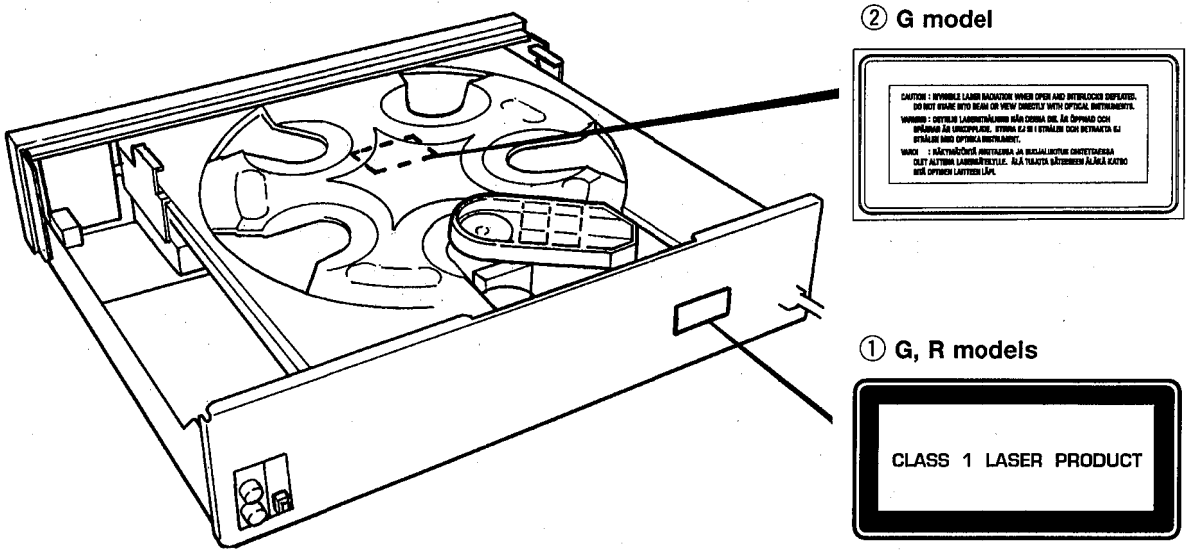
WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.



English

① THIS PRINTING (SEE POSITION SHOWN IN THE ILLUSTRATION) INFORMS THE USER THAT THE APPARATUS CONTAINS A LASER COMPONENT.

② THIS LABEL (SEE POSITION SHOWN IN THE ILLUSTRATION) WARNS THAT ANY FURTHER PROCEDURE WILL BRING THE USER INTO EXPOSURE WITH THE LASER BEAM.

CAUTION : USE OF CONTROLS, ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN, MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

Swedish

① DENNA MÄRKNING (SE FIGUR) UPPLYSER OM ATT DET I APPARATEN INGÅR EN LASERKOMPONENT AV TYP KLASS 1.

② VARNINGSMÄRKNING (SE FIGUR) FÖR STRÅLNING. INGREPP I APPARATEN BÖR ENDAST FÖRETAGAS AV FACKMAN MED KÅNNEDOM OM LASER. APPARATEN INNEHÅLLER EN LASERKOMPONENT SOM AVGER STRÅLNING ÖVERSTIGANDE GRÄNSEN FÖR LASERKLASS 1.

VARNING : OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD : BETRAKTA EJ STRÅLEN.

Danish

① DETTE MÆRKAT ER ANBRAGT SOM VIST I ILLUSTRATIONEN FOR AT ADVARE BRUGEREN OM AT APPARATET INDEHOLDER EN LASERKOMPONENT.

② DETTE MÆRKAT OM LASEREN ER ANBRAGT PÅ APPARATET SOM EN OPLYSNING OM AT APPARATET INDEHOLDER ET LASERKOMPONENT.

ADVARSEL : INDGREB BOR KUN FORETAGES AF EN FAGMAND DA DER ER RISIKO FOR RADIOAKTIV STRÅLING.

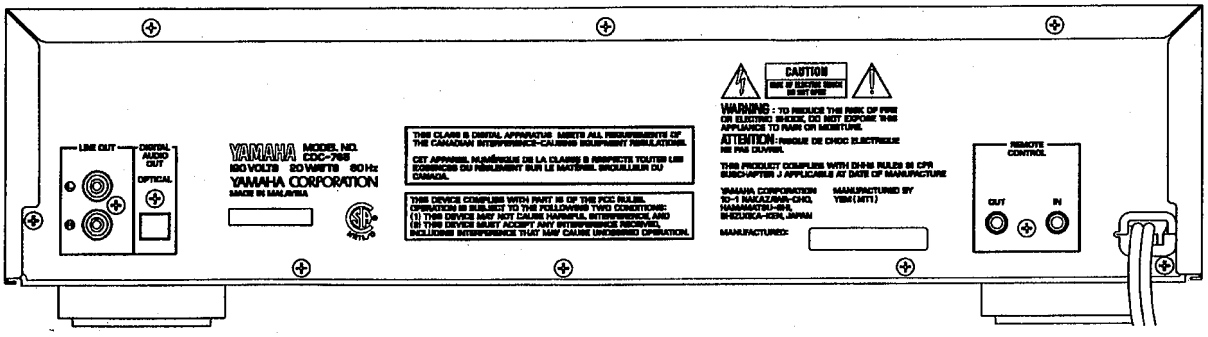
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING.
UNDGÅ UDSAETTELSE FOR STRÅLING.

Finnish

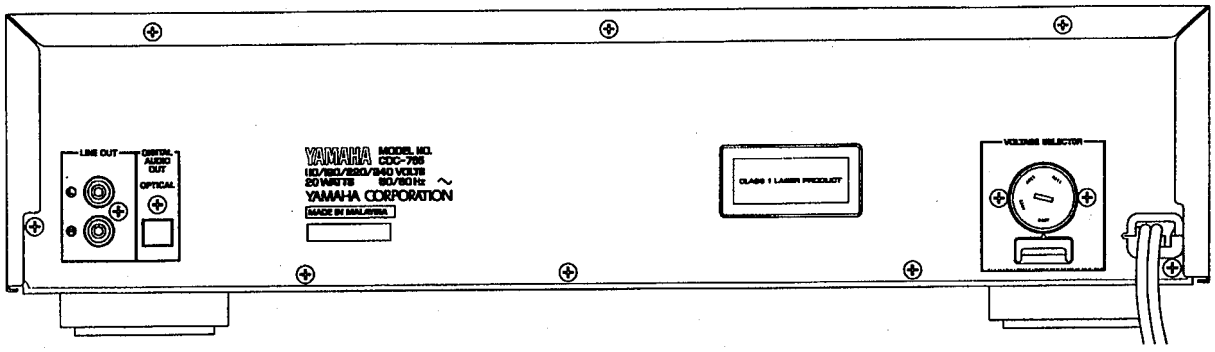
VARO! :
AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

■ REAR PANELS

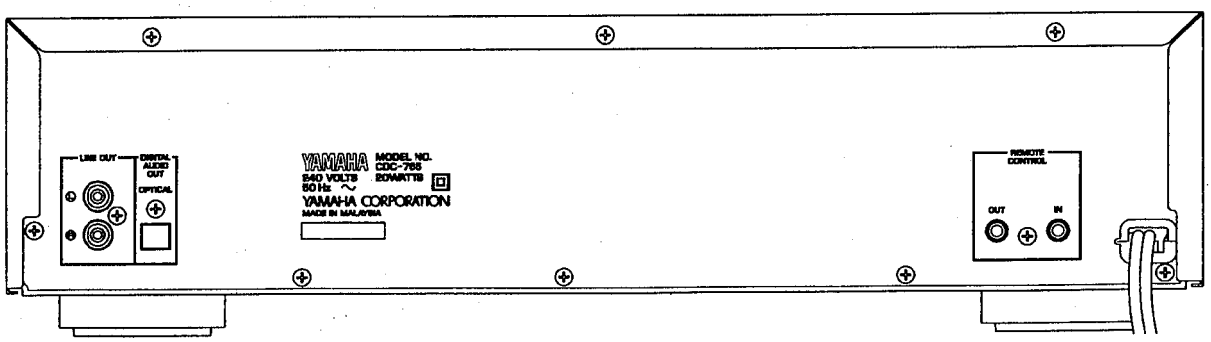
▼ U, C models



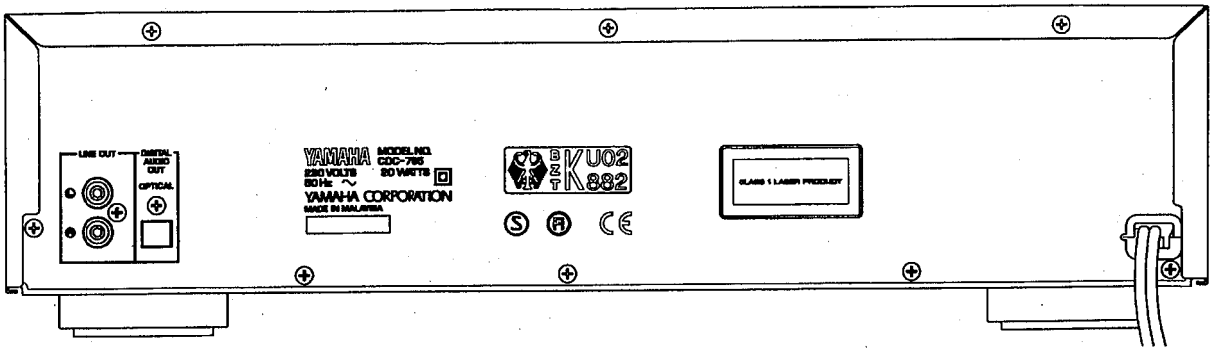
▼ R model



▼ A model



▼ G model



■ SPECIFICATIONS

■ AUDIO SECTION

Output Voltage	2.0±0.5V
S/N Ratio	115dB
Dynamic Range	100dB
Harmonic Distortion+Noise (1kHz)	0.0025%
Frequency Response (2Hz~20kHz)	±0.5dB
Headphone Output	
150Ω, 1kHz, –20dB Input	200±40mV

■ GENERAL

Power Requirements	
U, C models	120V AC 60Hz
G model	230V AC 50Hz
A model	240V AC 50Hz
R model	110/120/220/240V AC 50/60Hz
Power Consumption	20W
Dimensions (W x H x D)	435 x 116 x 388 mm
	(17-1/8" x 4-9/16" x 15-1/4")
Weight	5.8kg (12 lbs 12 oz)
Accessories	Pin plug cord
	Remote control transmitter
	Dry-cell: x2 (Size "AA", R06)

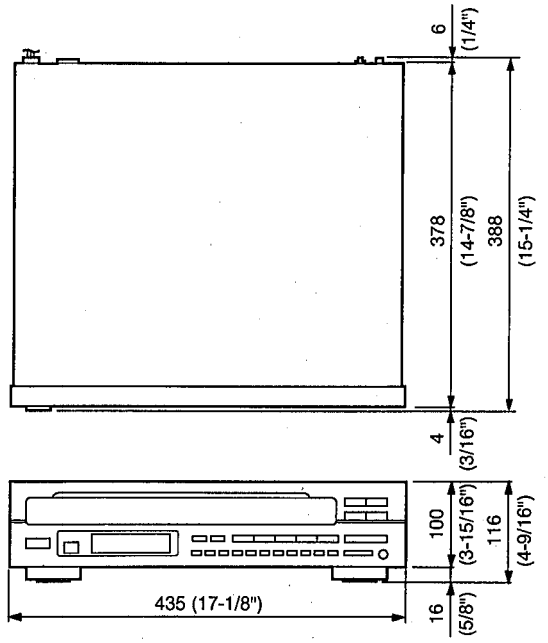
** Specifications subject to change without notice.*

U ..... USA model ***B ..... British model***

C ..... Canadian model ***G ..... European model***

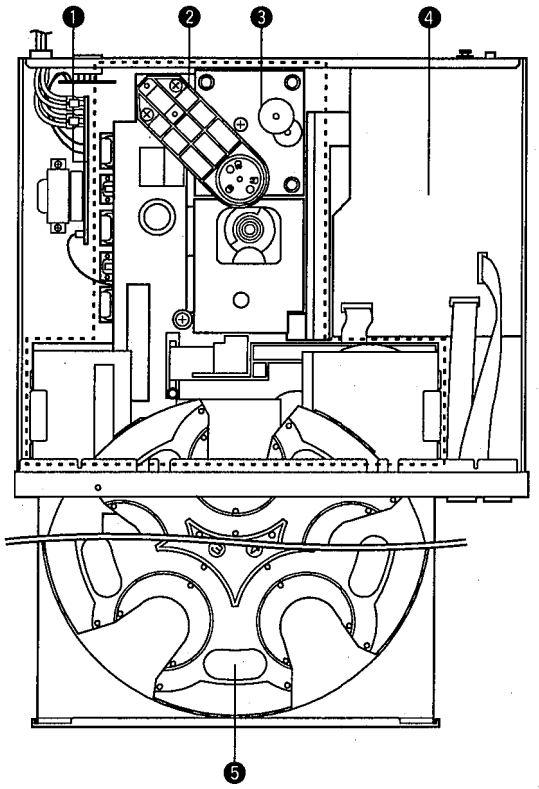
A ..... Australian model ***R ..... General model***

● DIMENSIONS



Unit : mm (inch)

■ INTERNAL VIEW



❶ P.C.B. MAIN (2)
❷ CLAMP ASS'Y
❸ CM-110 UNIT
❹ P.C.B. MAIN (1)
❺ TRAY ASS'Y

CAUTION FOR TRANSPORTING THIS UNIT

When transporting this unit, first remove all discs from the disc tray and close the tray by pressing the **OPEN/CLOSE** button, and then switch off the power after you confirm that the display has turned as follows.

2 3 4 5

Never switch off the power if the display does not turn as above, otherwise the unit will get out of order during transport because the internal mechanism is not locked.

■ DISASSEMBLY PROCEDURES (Remove parts in the order as numbered.)

1. Removal of Top Cover

a. Remove 4 screws (①) and also 3 screws (②) as shown in Fig. 1.

2. Removal of Clamp Ass'y

a. Remove 2 screws (③) as shown in Fig. 1.

3. Removal of Tray Ass'y

a. Remove 1 screw (④) as shown in Fig. 1.
b. Turn Gear/L02 as shown in Fig. 2 counter clockwise gradually till immediately before the tray starts to move and stop it there.

CAUTION : Gear/L02, if turned counter clockwise continuously, will mesh with the gear of the tray and the tray will come out. When removing the tray, use care so that Gear/L02 will not mesh with the gear of the tray.

c. Pull out the Tray Ass'y.

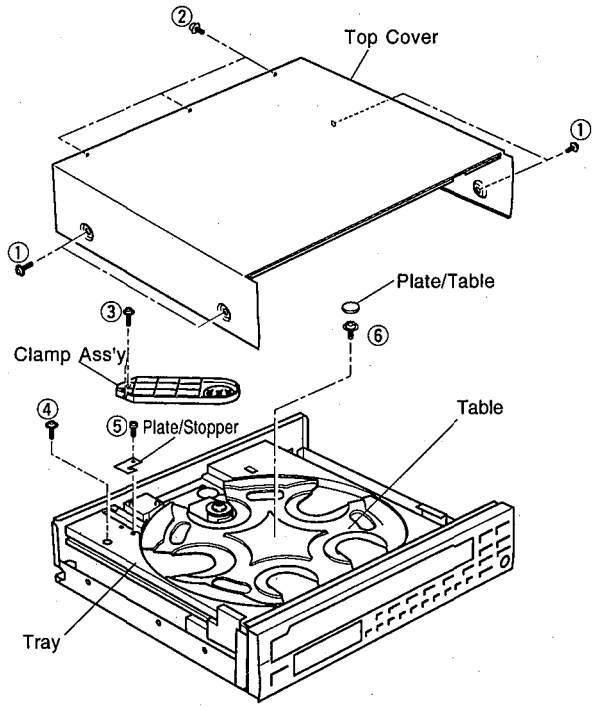


Fig. 1

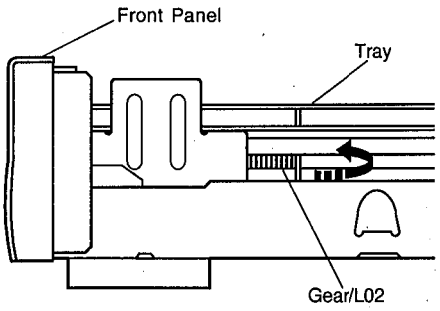


Fig. 2

4. Removal of Table

a. Remove 1 screw (⑤) and then remove the Plate/Stopper as shown in Fig. 1.
b. Remove the Plate/Table as shown in Fig. 1.
c. Remove 1 screw (⑥) and then take off the Table as shown in Fig. 1.

● Precaution for installation of the Tray Ass'y.

On Tray Ass'y setting.
Check the Direction of marking "▲" on gear according to this drawing.

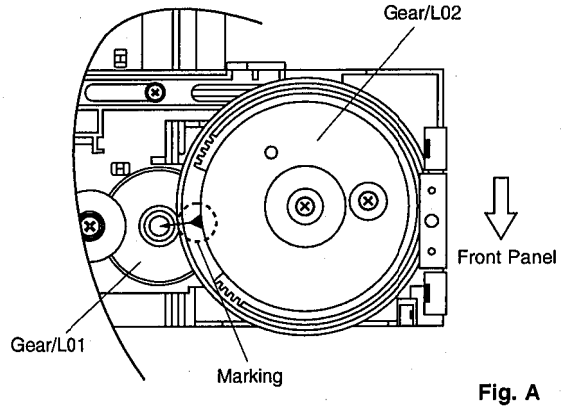


Fig. A

IMPORTANT : Installation of Table.

Install the table according to the following procedure.

1) Slide the Lever/RT so that the Gear/RT1 becomes free. (Fig.B-1)
2) With the "▲" mark on the Gear/RT1 aligned with the same mark on the Tray, lock it with the Lever/RT. (Fig.B-1)
3) Install the Table by aligning it to the thick line on " / " mark. (Fig.B-2)

*Check that the Table is locked after installation.

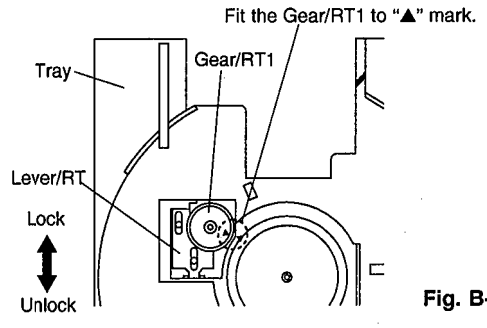


Fig. B-1

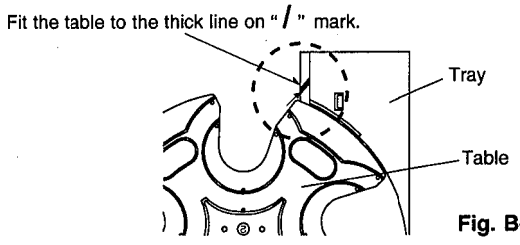


Fig. B-2

5. Removal of CM-110 Unit

a. Remove 5 screws (⑦) as shown in Fig. 3.
b. Remove connectors (CB1 to 3, CB201, 202 and 301) from the P.C.B. Main.
c. Take the CM-110 Unit out slowly as shown in Fig. 3.

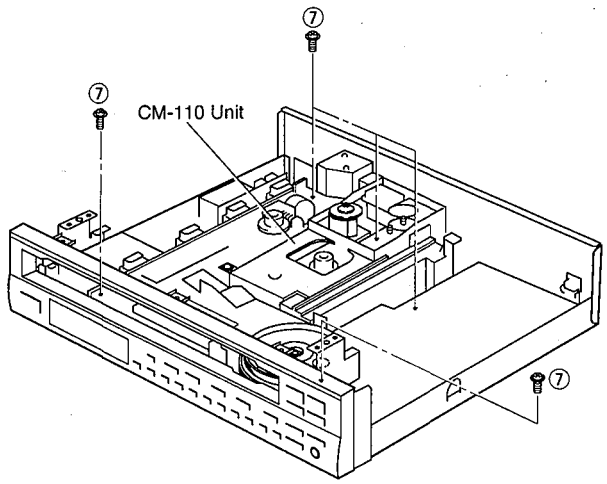


Fig. 3

6. Removal of Pick-up Head

a. Remove 1 screw (⑧) and then remove the PU Unit Ass'y as shown Fig. 4.

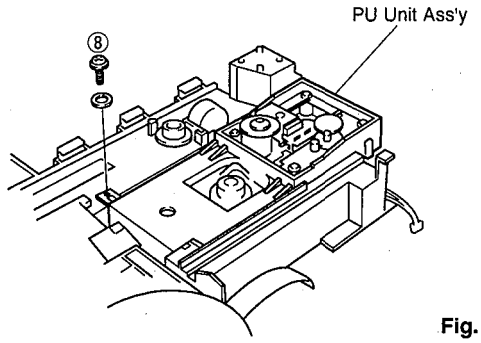


Fig. 4

b. Pull out 4 Pins (⑨) and then remove the PU Mechanism Unit as shown in Fig. 5.
* The Pick-up Head can be replaced without removing the PU Mechanism Unit.

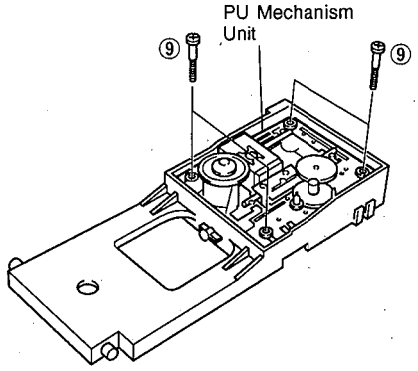


Fig. 5

● Operation Check Procedure

① Disassembly
1) Remove the top cover.
2) Remove the Clamp Ass'y.
3) Remove the stabilizer from the clamper.
Turn the Plate clockwise by 30° while holding the Stabilizer, and the Plate will come off. Remove the Stabilizer from the Clamper.

② Clamp the disc by using the stabilizer.
③ Set to the TEST mode and check for any faulty conditions.

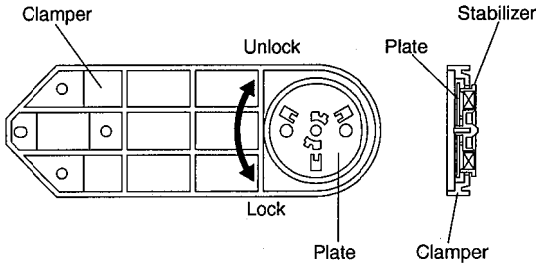


Fig. C

c. Pull out the Gear/Power as shown in Fig. 6.
d. Remove 4 screws (⑩) and then remove the Pick-up Head as shown in Fig. 6.

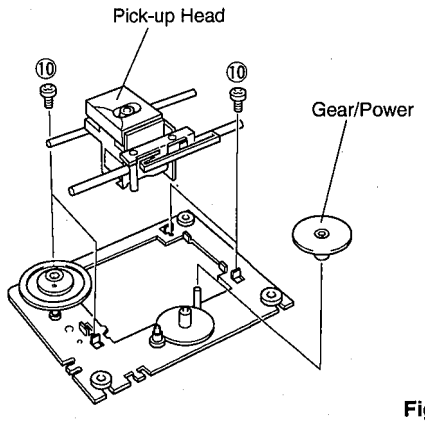


Fig. 6

● Check that the disc table height is as specified below.

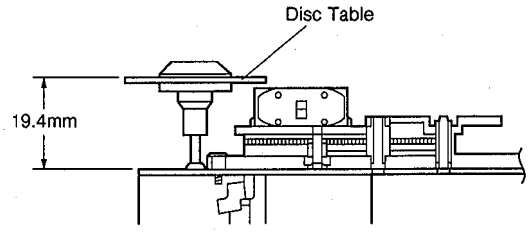


Fig. D

■ STANDARD OPERATION CHART

Press OPEN/CLOSE key.	"OPEN" appears in the TIME indicator.
Forced feed return operation.	"TRV" signal is output until detection of LIMIT switch.
Clamp down operation.	Proceeds to next step after detection of CLAMP switch. (SW501)
Disc table reset. Tray open.	Stop after detection of LOADING switch. (SW502)
Tracking Offset auto ADJ.	
Focus Offset auto ADJ.	
Load a disc in "DISC 1".	
Press PLAY key or push the tray.	"DISC" ◯ flash.
Tray closed. Table rotate.	Proceeds to next step after detection of LOADING switch. (SW502) DISC "1" is turned to DM clamp position.
Disc research.	"DISC" ◯ from flashing to lighting.
Disc mechanism unit clamped up. Feed inward switch research.	Proceeds to next step after detection of CLAMP switch (SW501) if FLSW = L (IC311, 31 pin) Proceed to next step.
Laser ON.	LSON = "H" (IC1, 3 pin)
Disc scan.	
FOCUS Gain rough ADJ.	
FOCUS Search operation.	
FOCUS LOCK servo ON.	$\overline{\text{FLOCK}}$ = "H" → "L" (IC311, 21 pin)
Spindle motor accelerated.	
TRACKING servo ON.	$\overline{\text{TLOCK}}$ = "H" → "L" (IC311, 22 pin)
Disc servo ON	
VCO lock.	CRC = "H" (IC3, 67 pin)
Tracking Gain rough ADJ.	
Tracking Balance ADJ. (only Tray OPEN/CLOSE)	
FOCUS BALANCE ADJ.	

FOCUS GAIN ADJ.

TRACKING GAIN ADJ.

*TOC READ * ~ **Data fetch cycle** ~

TRACK No. "1" is searched.

After searching the beginning, MUTE is cancelled. : MUTE OFF = "L" → "H", "0:00" appears in the time indicator. (IC311, 25 pin)

~ PLAY ~

Set to SEARCH by means of ▶▶I, I◀◀ key.

MUTE ON. : MUTE OFF = "H"→ "L"

TRACK search.

After searching the beginning, MUTE is cancelled. : MUTE OFF = "L" → "H", "0:00" appears in the time indicator.

~ PLAY ~

Press the STOP key.

MUTE ON.

Spindle motor stop.

Laser OFF. : LSON = "H" → "L" (IC1, 3 pin)

Forced feed return. : $\overline{\text{FLSW}}$ = "L" (IC311, 31 pin)

~ STOP ~

● Tray Operation

Press DISC SKIP key.

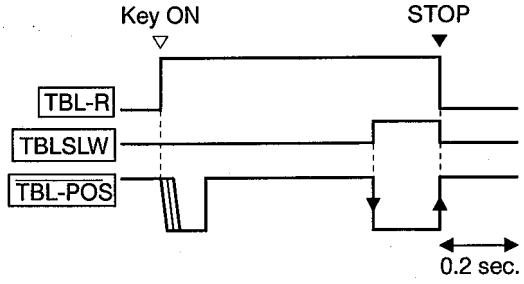
Control signal output. : TBL-R = "L" → "H" (IC311, 38 pin)

$\overline{\text{TBL-POS}}$ "H"→"L" detected. : $\overline{\text{TBL-POS}}$ = "H" → "L" (IC311, 26 pin)

Revolution speed of the table is reduced. : TBLSLW = "L" → "H" (IC311, 37 pin)

$\overline{\text{TBL-POS}}$ "L"→"H" detected. : $\overline{\text{TBL-POS}}$ = "L" → "H", Control signal off (IC311, 26 pin)

~ STOP ~



■ TEST MODE

● Starting TEST mode

Test mode is brought about when the power is turned on while the "PLAY/PAUSE" and "STOP" keys on the panel are simultaneously pressed and held.
When the test mode is brought about, all the displays light up for about 1 second.
And stopped in product mode, press the FILE key of the remote control transmitter while pressing and holding the STOP key on the panel. The operation mode turns from the product mode to the test mode.

● Function List of Panel keys

Note) "traverse servo" means the same as "feed servo"

PANEL KEY	FUNCTION
OPEN/CLOSE	Tray open/close.
PLAYXCHANGE	Rotating the mode of coefficients. (Coefficient mode→Coefficient setting→Product mode) Pressing twice will set to the product mode.
PLAY/PAUSE	Plays if focus servo is effective. TRON, MUTE OFF.
STOP	All stop. (Focus, spindle, feed, laser, tray, etc.) Initializes FL display.
⏮SKIP	Backward traverse move. (If inner SW turns on, traverse is stopped.) (Coefficient set up mode : upper digit down.)
⏭SKIP	Forward traverse move. (Coefficient set up mode : upper digit up.)
DISC 1	Returns to product mode. (Tray and table inoperative.)
DISC 2	Adjustment mode 1 (TR-offset, FO-offset, FO-rough gain adjustment)
DISC 3	Adjustment mode 2 (TR-balance, TR-rough gain adjustment)
DISC 4	Adjustment mode 3 (FO-fine gain, TR-fine gain, FO-balance adjustment)
DISC 5	Measurement the rotating time of the turn table. (Slow speed)
PROG	Decelerates or stops spindle.
OUTPUT LEVEL –	Output level down. (Coefficient set up mode : address down.)
OUTPUT LEVEL +	Output level up. (Coefficient set up mode : address up.)
+10	—
1	Returns to product mode. (tray and table inoperative.)
2	Adjustment mode 1 (TR-offset, FO-offset, FO-rough gain adjustment)
3	Adjustment mode 2 (TR-balance, TR-rough gain adjustment)
4	Adjustment mode 3 (FO-fine gain, TR-fine gain, FO-balance adjustment)
5	Turn table turns counterclockwise. (Slow speed)
6	Turn table turns clockwise. (Slow speed)
7	Turn table turns counterclockwise. (Fast speed)
8	Turn table turns clockwise. (Fast speed)
9	Backward 10 TRACK KICK-continuously
0	Forward 10 TRACK KICK-continuously
FILE/SAVE	Checks external RAM (TEST OK → MUTE ON, TEST NG → MUTE OFF)

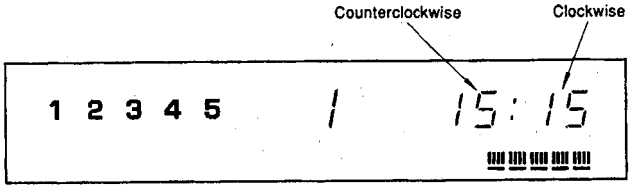
Note : If 5 to 8 key are pressed, before entering the product mode, press DISC SKIP key of the remote control transmitter.

● Function List of Remote Control Transmitter

CUSTOM CODE = (79)x

CODE	KEY	FUNCTION
00	MODE	Traverse stop
01	OPEN/CLOSE	Tray open/close
02	PLAY	PLAY (FOON, TRON, TVON (FEON), SPON)
04	⏮SKIP	Backward traverse move. (If inner SW turns on, traverse is stopped.) (Coefficient set up mode : upper digit down)
05	◀◀SEARCH	Clamp down. (Coefficient set up mode : lower digit down)
06	▶▶SEARCH	Clamp up. (Coefficient set up mode : lower digit up)
07	⏭SKIP	Forward traverse move. (Coefficient set up mode : upper digit up)
08	REPEAT	FOON, TROF (Enter focus search if focus servo is off.)
0A	TIME	Checks FL display. (888888→All lamps→goes out.)
0B	INDEX	FOON, TROF, TVOF (FEOF) (Enter focus search if focus servo is off.)
0C	PROG	Rotates or accelerates spindle.
0D	CLEAR	Rotate the spindle motor. (Reverse revolution)
10	0	Backward 150 TRACK KICK continuously
11	1	Returns to product mode. (Tray and Table inoperative.)
12	2	Adjustment mode 1 (TR-offset, FO-off set, FO-rough gain adjustment)
13	3	Adjustment mode 2 (TR-balance, TR-rough gain adjustment)
14	4	Adjustment mode 3 (FO-fine gain, TR-fine gain, FO-balance adjustment)
15	5	Forward 1 TRACK KICK continuously
16	6	Backward 1 TRACK KICK continuously
17	7	Forward 30 TRACK KICK continuously
18	8	Backward 30 TRACK KICK continuously
19	9	Forward 150 TRACK KICK continuously
1A	+10	Enter coefficient set up mode.
1B	RANDOM	SPON (Spindle servo on.)
1C	OUTPUT LEVEL –	Output level down. (Coefficient set up mode : address down)
1D	OUTPUT LEVEL +	Output level up. (Coefficient set up mode : address up)
1E	DIMMER	Checks FL display. (888888→All lamps→goes out.)
4F	DISC SKIP▷	DISC SKIP + (Clockwise)
50	DISC SKIP◁	DISC SKIP – (Counterclockwise)
53	DISC SCAN	—
55	PAUSE	FOON, TROF, TVOF (FEOF) (Enter focus search if focus servo is off.)
56	STOP	All stop. (Focus, spindle, traverse, laser, tray, etc.)
57	TAPE	Spindle free (off)
58	SYNCHRO	Backward traverse move

Note : Display at time measurement.



The time display shows the time for 1 rotation of the turn table.
The unit of time is 0.1 second (rotate fast) or 1 second (rotate slow).

■ ERROR MESSAGE

When stopped by any cause, press "STOP" of the remote control while pressing and holding the "STOP" on the panel key. The operation mode turns to the mode allowing the display of messages.
(The error messages are cleared with the power off.)

● Error Messages List

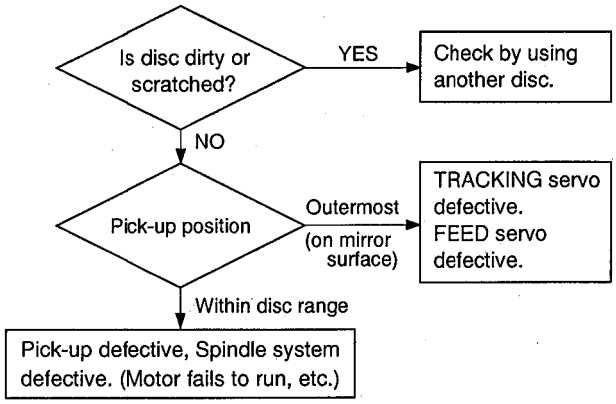
ERROR MESSAGE	DESCRIPTION
E — X 0	Data cannot be read after finishing search.
E — X 1	Data cannot be read during PLAY (x = 0), PAUSE (x = 4) or SCAN (x = 3).
E — 7 1	At the start, tracking servo is not effective.
E — 7 2	At the start, spindle servo PLL is not effective.
E — 7 3	At the start, data can never read.
E — X 4	Close switch does not work with tray closed.
E — X 5	Open switch does not work with tray open.
E — X 6	Table does not turn.
E — X 7	Traverse (Feed) inner circumference switch does not work.
E — X 8	Recovery action fails after focus drop.
E — X 9	Clamp down switch does not work with clamp down.
E — X A	Clamp up switch does not work with clamp up.
E r r	MN662720 does not give response of SENSE, with resetting by the unit's microcomputer.

*** Meaning of each state ("X") :**

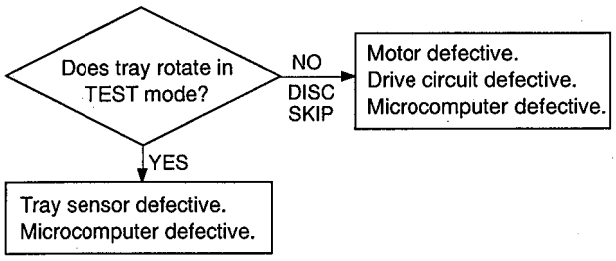
(X = 0) ..... PLAY
(X = 2) ..... SCAN
(X = 3) ..... PAUSE
(X = 4) ..... PEAK SEARCH
(X = 5) ..... SEARCH
(X = 6) ..... DISC SCAN
(X = 7) ..... START
(X = 8) ..... STOP
(X = 9) ..... DISC SEARCH
(X = –) ..... EJECT
(X = C) ..... NO DISC

1) Error Code Troubleshooting

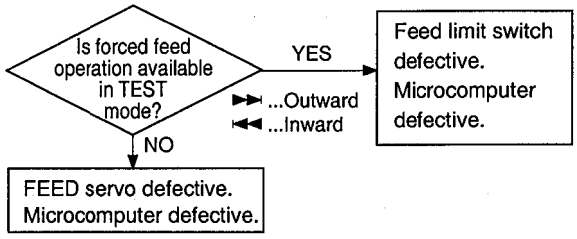
Error codes [X0], [X1], [73] ..... Data cannot be read.



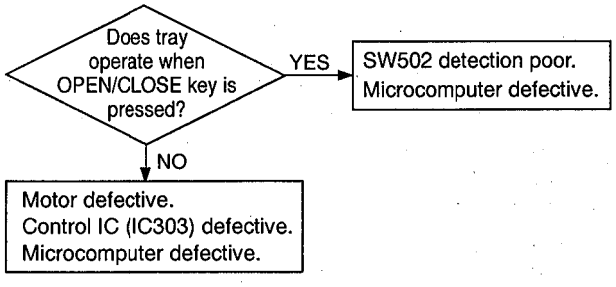
Error code [X6] ..... Poor table rotation.



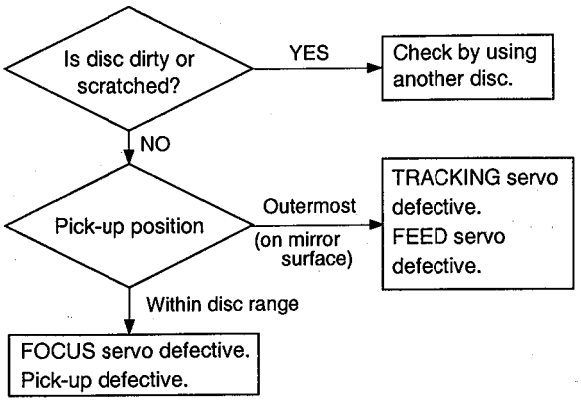
Error code [X7] ..... FEED operation defective. (Limit switch fails)



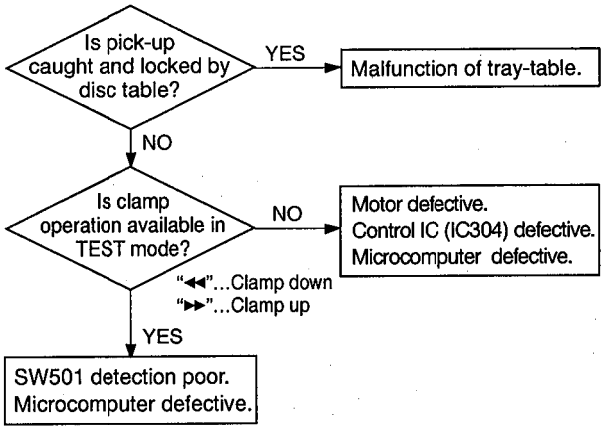
Error codes [X4], [X5] ..... Poor tray loading operation.



Error code **X8** ..... Focus drops.

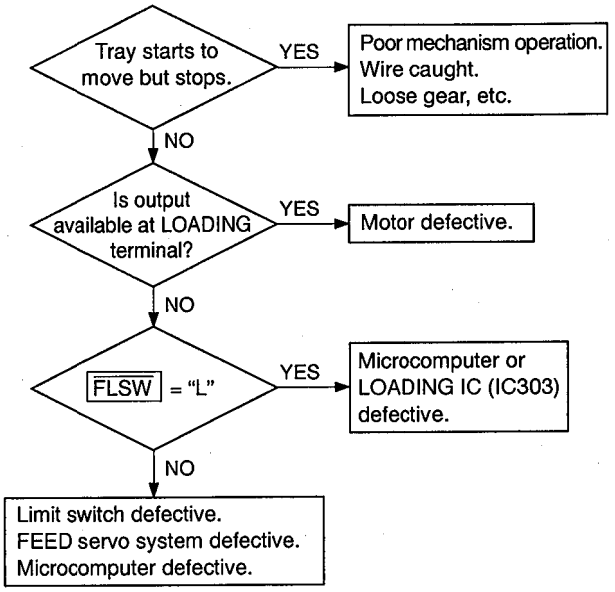


Error code **X9**, **XA** ..... Poor clamp operation.

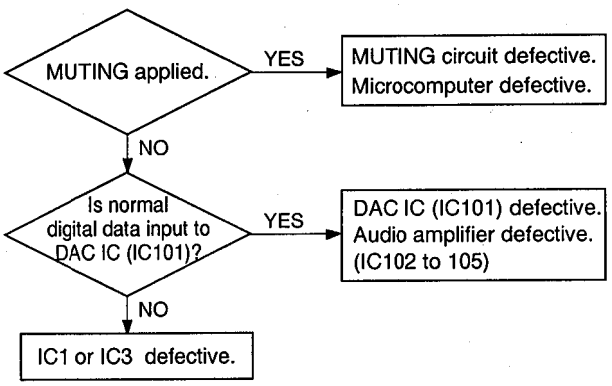


2) Troubleshooting from System Malfunctions.

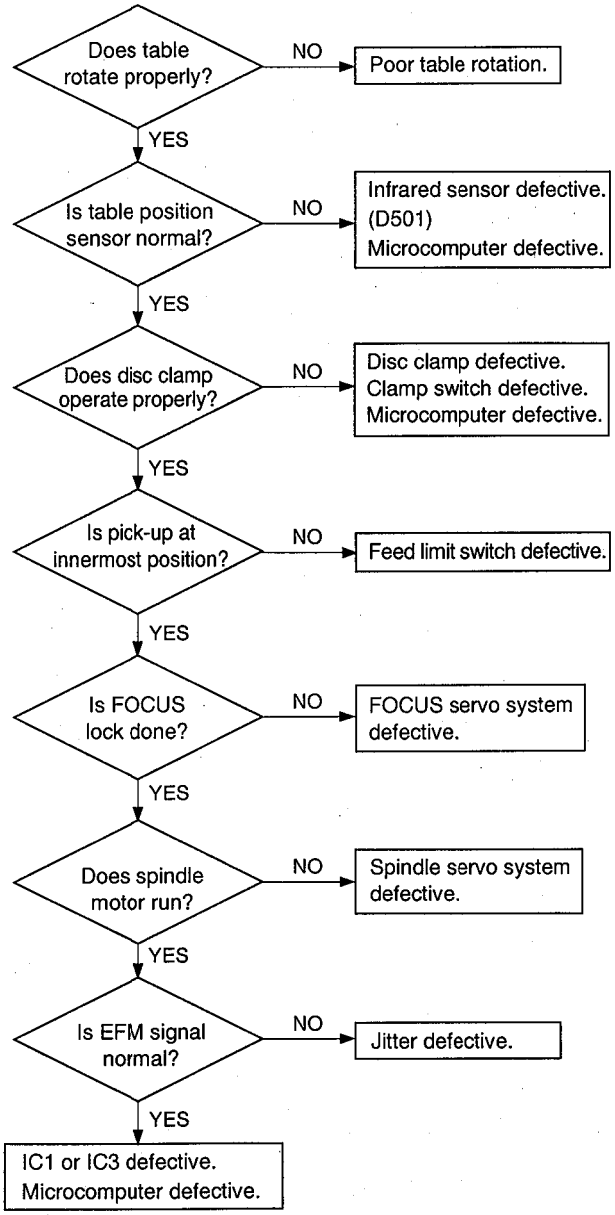
a) Tray fails to come out/go in.



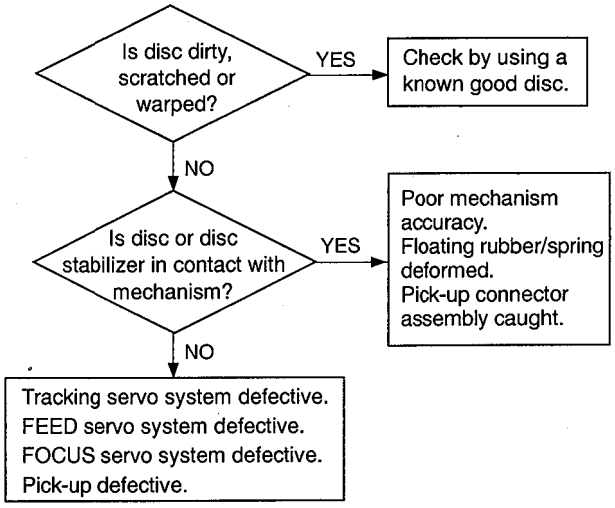
b) No sound generated, Sound cut during play. (but time display advanced properly)



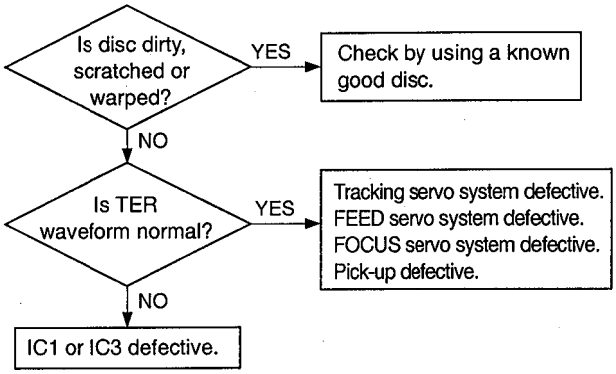
c) Operates as if no disc loaded. (although loaded)



d) Sound skips. (Time display fails to advance properly)

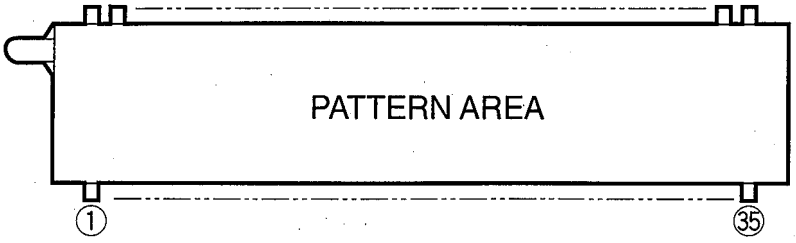


e) No search provided. (Sound skipped after search)



■ DISPLAY DATA (VS415000)

● V401 : 9-ST-14GK



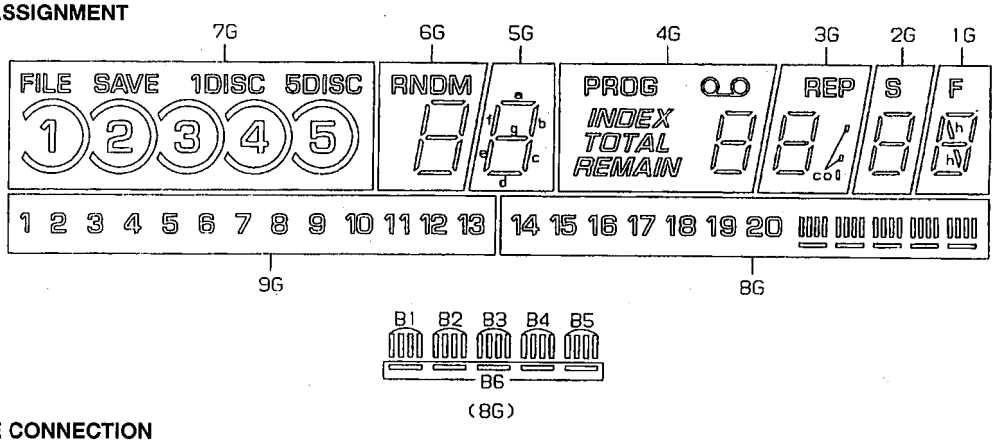
• PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CONNECTION	F1	F1	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	NX

PIN NO.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
CONNECTION	NX	NX	NX	NX	NX	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	F2	F2

NOTE 1) F1, F2 ..... Filament
2) NP..... No pin
3) NX..... No extend pin
4) P1~P14... Datum Line
5) 1G~9G.... Grid

• GRID ASSIGNMENT

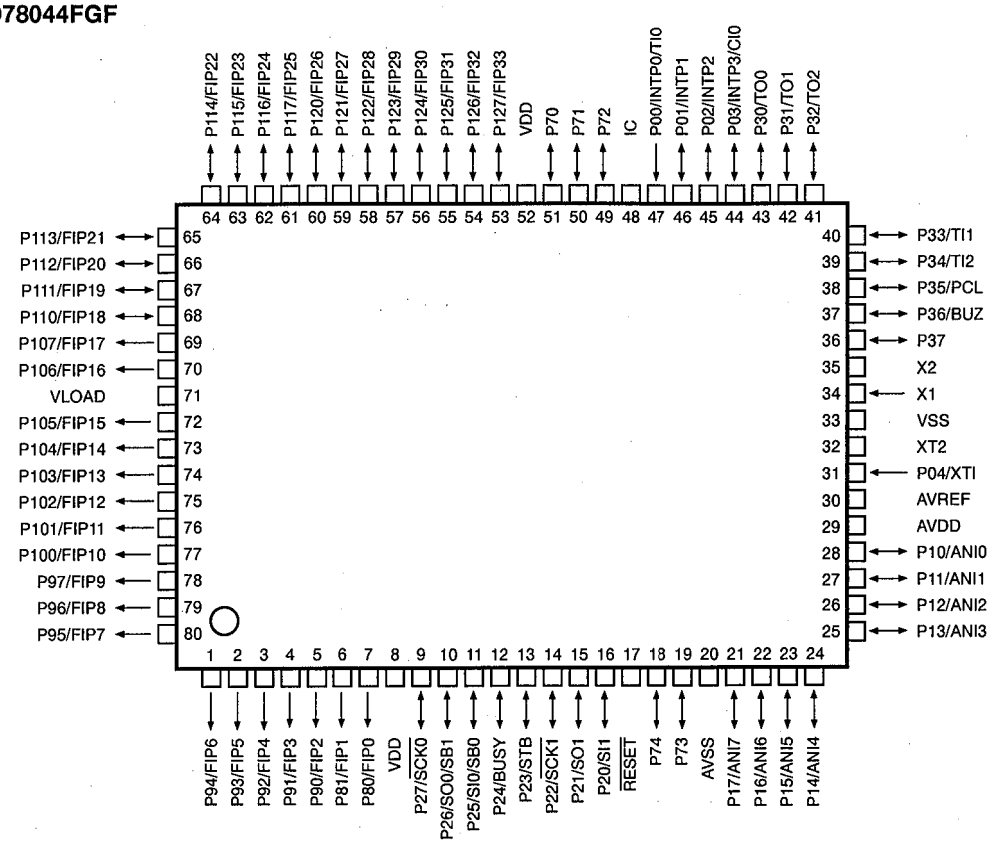


• ANODE CONNECTION

	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	1	14	⑤	d	d	d	d	d	d
P2	2	15	5	e	e	e	e	e	e
P3	3	16	④	c	c	c	c	c	c
P4	4	17	4	g	g	g	g	g	g
P5	5	18	③	f	f	f	f	f	f
P6	6	19	3	b	b	b	b	b	b
P7	7	20	②	a	a	a	a	a	a
P8	8	B6	2	—	—	—	col	—	h
P9	9	B1	①	RNDM	—	○○	REP	S	F
P10	10	B2	1	—	—	REMAIN	—	—	—
P11	11	B3	5DISC	—	—	TOTAL	—	—	—
P12	12	B4	1DISC	—	—	INDEX	—	—	—
P13	13	B5	SAVE	—	—	PROG	—	—	—
P14	—	—	FILE	—	—	—	—	—	—

■ IC DATA

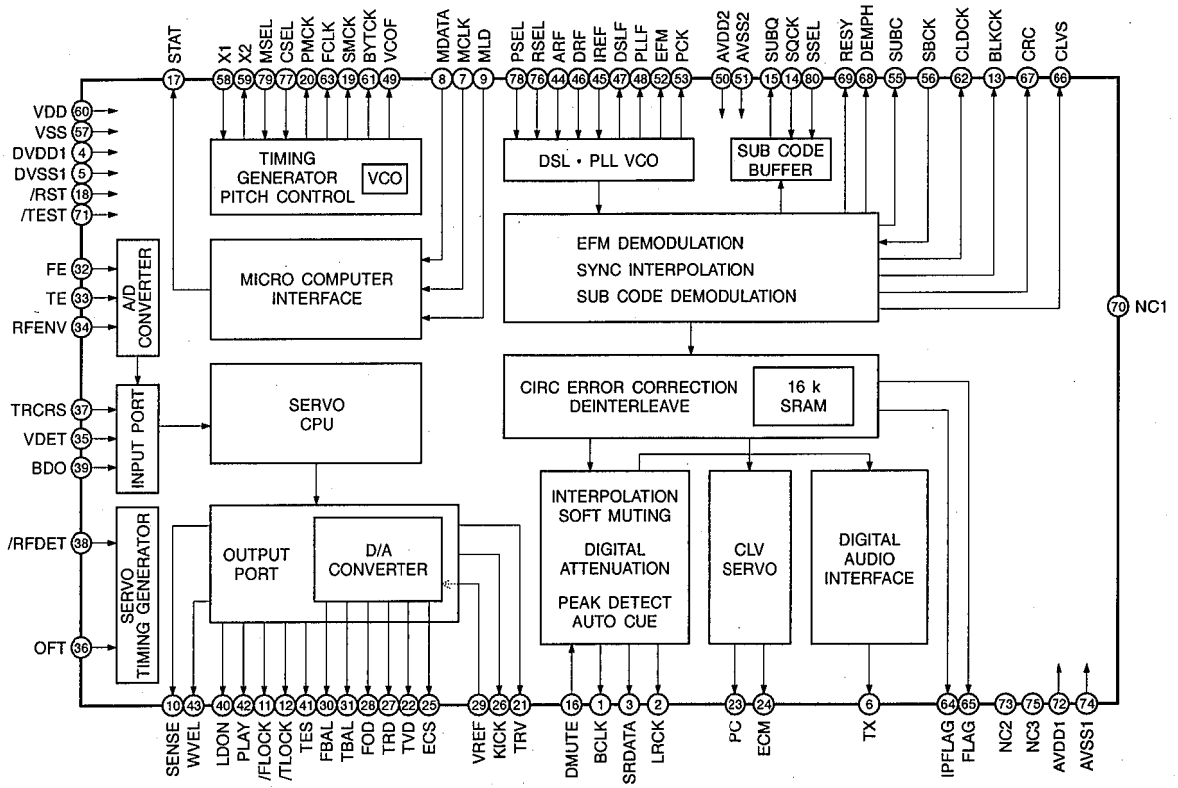
IC311 : μPD78044FGF
8bit μ-COM



No.	Port	Name	I/O	Function
1	P94/FIP6	7G	O	Fluorescent character display tube grid drive signal
2	P93/FIP5	6G	O	
3	P92/FIP4	5G	O	
4	P91/FIP3	4G	O	
5	P90/FIP2	3G	O	
6	P81/FIP1	2G	O	
7	P80/FIP0	1G	O	
8	VDD	+5		+5V
9	P27/SCK0	SCK0	O	Serial clock output 0. Used for serial communication (1 μsec square wave when in usual condition and at "H" otherwise)
10	P26/SO0/SB1	DSO	O	Serial output 0. Used for serial communication (When not in usual condition, the level is unstable at "H" or "L")
11	P25/SI0/SB0	DSI	I	Serial input 0. Used for serial communication (When not in usual condition, the level is unstable at "H" or "L")
12	P24/BUSY	STAT	I	STAT signal input from MN662720
13	P23/STB	MLD	O	Read signal output for transmitting command from MN66271(After command transmission, L pulse at Load Timing)
14	P22/SCK1	SCK1	O	Serial clock output 1. Used for serial communication (1 μsec square wave when in usual condition and at "H" otherwise)
15	P21/SO1	SO	O	Serial output 1. Used for serial communication (When not in usual condition, the level is unstable at "H" or "L")
16	P20/SI1	SI	I	Serial input 1. Used for serial communication (When not in usual condition, the level is unstable at "H" or "L")
17	RESET	/RES	I	Reset input
18	P74	COMMAND	O	Serial I/F switching signal output to MN662720 (switching at 74HC125) Q-code received at HI
19	P73	QCODE	O	Serial I/F switching signal output to MN662720 (switching at 74HC125) CMD transmit/receive selection at HI
20	AVSS	GND		GND
21	P17/ANI7	FLOCK	I	FOCUS lock signal input from MN662720 (LOCK at L)
22	P16/ANI6	TLOCK	I	Tracking lock signal input from MN662720 (LOCK at H)
23	P15/ANI5	DMUTE	O	Digital mute signal output (H at MUTE)
24	P14/ANI4	MNRST	O	Reset signal output (L at RESET)
25	P13/ANI3	MUTE	O	Analog mute signal output (L at MUTE)
26	P12/ANI2	TBLPOS	I	Sensor to detect table position
27	P11/ANI1	CLSW	I	Closed state of tray sensing switch input (Closed state at L)

No.	Port	Name	I/O	Function
28	P10/ANI0	OPSW	I	Open state of tray sensing switch input (Open state at L)
29	AVDD	+5V		+5V
30	AVREF	GND		GND
31	P04/XT1	FLSW	I	Feed origin switch input (Feed origin at L)
32	XT2	—		N.C.
33	VSS	GND		GND
34	X1	X1	I	Crystal oscillator oscillation terminal (4.19MHz)
35	X2	X2		
36	P37	EFBAL	O	Feed servo control
37	P36/BUZ	TBLSLOW	O	Table rotate slow
38	P35/PCL	TBL-R	O	Table rotate R (clockwise)
39	P34/TI2	TBL-L	O	Table rotate L (couterclockwise)
40	P33/TI1	CLUP	O	Clamp up signal
41	P32/TO2	CLDOWN	O	Clamp down signal
42	P31/TO1	OPEN	O	Tray open signal
43	P30/TO0	CLOSE	O	Tray close signal
44	PO3/INTP3/CI0	UPSW	I	PU unit up limit switch, ON at L
45	P02/INTP2	DOWNSW	I	PU unit down limit switch, ON at L
46	P01/INTP1	BLKCK	I	Synchronous clock input for Q-code RCV from MN662720 (Fine pulse at RCV, normally L)
47	P00/INTP0TI0	REM	I	Input from remote control beam receiving unit
48	IC	GND		GND
49	P72	EEPROM	O	EEPROM(X258420) Chip select. "H" in usual condition (when not selected) and "L" when selected
50	P71		O	LED ON/OFF signal (AUTO DISPLAY OFF) ("H" at OFF, "L" at ON)
51	P70	FCSGAIN	O	Focus control
52	VDD	+5V		+5V
53	PI27/FIP33	—		Not used
54	PI26/FIP32		I	Model selection (CDC-765 at H, CDC-565/665 at L)
55	PI25/FIP31	MONITOR	O	Monitor port (to know the progrees state when starting the disc)
56	PI24/FIP30	K4	I	Key matrix input
57	PI23/FIP29	K3	I	
58	PI22/FIP28	K2	I	
59	PI21/FIP27	K1	I	
60	PI20/FIP26	K0	I	
61	PI17/FIP25	—		N.C.
62	PI16/FIP24	—		N.C.
63	PI15/FIP23	P14	O	Fluorescent character display tube anode drive signal
64	PI14/FIP22	P13	O	Fluorescent character display tube anode drive signal & key scan digit
65	PI13/FIP21	P12	O	
66	PI12/FIP20	P11	O	
67	PI11/FIP19	P10	O	
68	PI10/FIP18	P9	O	
69	PI07/FIP17	P8	O	Fluorescent character display tube anode drive signal
70	PI06/FIP16	P7	O	
71	VLOAD	–20V		–20V
72	PI05/FIP15	P6	O	Fluorescent character display tube anode drive signal
73	PI04/FIP14	P5	O	
74	PI03/FIP13	P4	O	
75	PI02/FIP12	P3	O	
76	PI01/FIP11	P2	O	
77	PI00/FIP10	P1	O	
78	P97/FIP9	–		N.C.
79	P96/FIP8	9G	O	Fluorescent character display tube grid drive signal
80	P95/FIP7	8G	O	

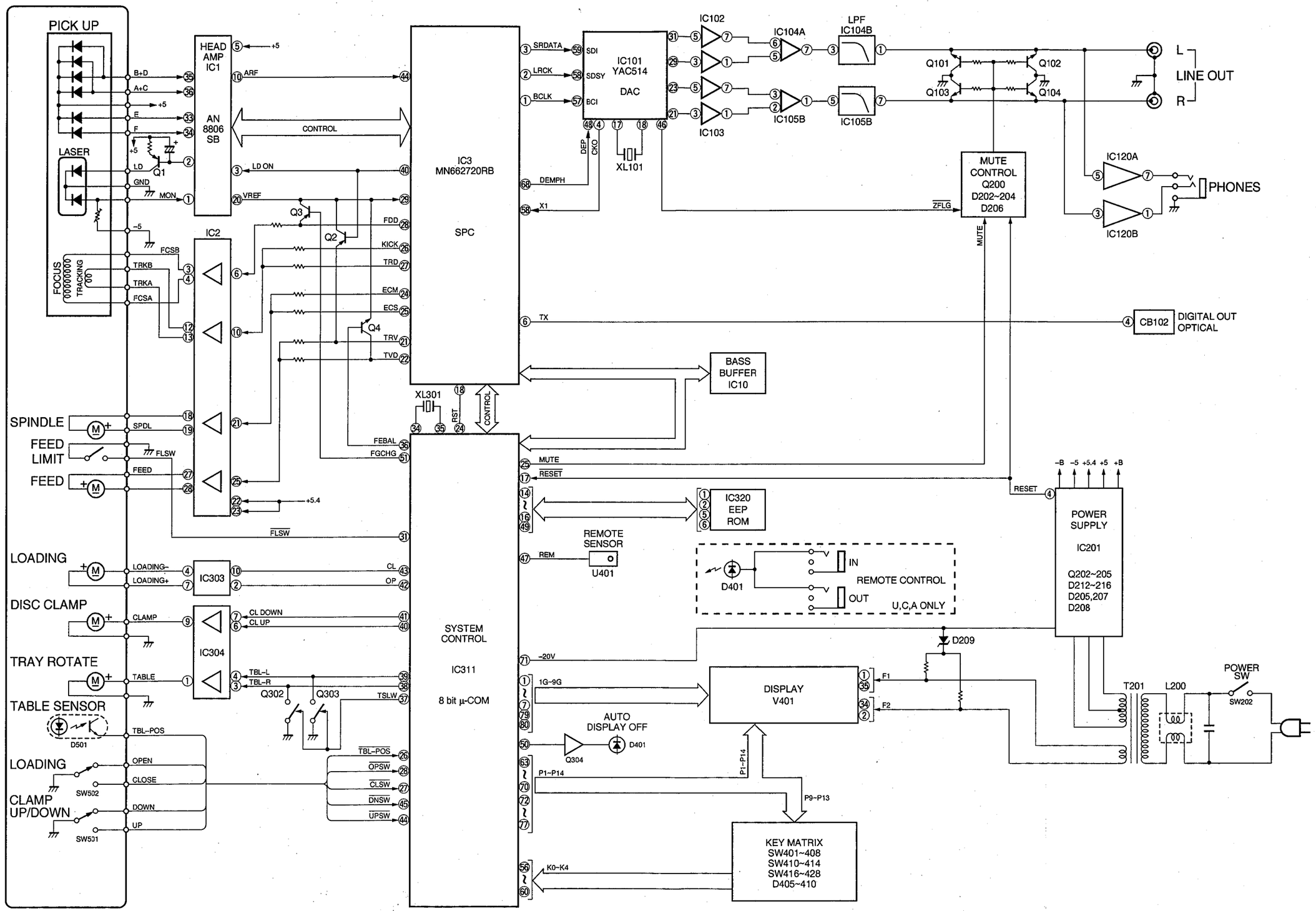
IC3 : MN662720RB
Signal Processor & Controller



Pin No.	Pin Name	I/O	FUNCTION
1	BCLK	O	Bit clock output for SR DATA
2	LRCK	O	L/R identification signal output
3	SRDATA	O	Serial data output
4	DVDD1	I	Power supply for digital circuit
5	DVSS1	I	GND for digital circuit
6	TX	O	Digital, audio, interface output signal
7	MCLK	I	Microprocessor command clock signal input (data latched at leading edge)
8	MDATA	I	Microprocessor command data input
9	MLD	I	Microprocessor command load signal input L : LOAD
10	SENSE	O	Sense signal output
11	$\overline{\text{FLOCK}}$	O	Focus servo drawing signal (L : when drawn)
12	$\overline{\text{TLOCK}}$	O	Tracking servo drawing signal (L : when drawn)
13	BLKCK	O	Sub code block clock signal
14	SQCK	I	Clock input for sub-code Q register
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input H : MUTE
17	$\overline{\text{STAT}}$	O	Status signal
18	RST	I	Reset input L : RESET
19	SMCK	O	8.4672MHz clock signal output when MSEL = H 4.2336MHz clock signal output when MSEL = L
20	PMCK	O	88.2KHz clock signal output
21	TRV	O	Traverse (Feed) forced feed output
22	TVD	O	Traverse (Feed) drive output
23	PC	O	Spindle motor ON signal L : ON
24	ECM	O	Spindle motor drive signal (forced mode output) 3-State
25	ECS	O	Spindle motor drive signal (servo error signal output)

Pin No.	Pin Name	I/O	FUNCTION
26	KICK	O	Kick pulse output
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	Reference voltage for DA output block
30	FBAL	O	Focus balance adjustment output
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input (analog input)
35	VDET	I	Oscillation detect signal input (H : DETECT)
36	OFT	I	Off track signal input (H : OFF TRACK)
37	TRCRS	I	Track cross signal input
38	$\overline{\text{RFDET}}$	I	RF detect signal input (L : DETECT)
39	BDO	I	Drop out signal input (H : DROP OUT)
40	LDON	O	Laser ON signal output (H : ON)
41	TES	O	Tracking error shunt signal output (H : SHUNT)
42	PLAY	O	Play signal output (H : PLAY)
43	WVEL	O	Double speed status signal output
44	ARF	I	RF signal input
45	IREF	I	Reference current input terminal
46	DRF	I	Bias terminal for DSL
47	DSLF	I/O	Loop filter terminal for DSL
48	PLLF	I/O	Loop filter terminal for PLL
49	VCOF	I/O	Loop filter terminal for VCO
50	AVDD2	I	Power supply for analog circuit (for DSL, PLL, OA output blocks)
51	AVSS2	I	GND for analog circuit (for DSL, PLL, DA output blocks)
52	EFM	O	EFM signal output
53	PCK	O	PLL extract clock output (f PCK = 4.321MHz)
54	PDO	O	EFM signal to PCK signal phase comparison signal output
55	SUBC	O	Sub-code serial output data output
56	SBCK	I	Clock input for sub-code serial output
57	VSS	I	GND for oscillation circuit
58	X1	I	Crystal oscillation circuit input terminal (f = 16.9344MHz)
59	X2	O	Crystal oscillation circuit output terminal (f = 16.9344MHz)
60	VDD	I	Power supply for oscillation circuit
61	BYTCK	O	Byte clock output
62	$\overline{\text{CLDCK}}$	O	Sub-code frame clock signal output (f CLDCK = 7.35kHz)
63	FCLK	O	Crystal frame clock output (f FCLK = 7.35kHz)
64	IPFLAG	O	Interpolation flag output H : INTERPOLATION
65	FLAG	O	Flag output
66	CLVS	O	Spindle servo phase synchronous status signal outut H : CLV L : ROUGH SERVO
67	CRC	O	Sub-code CRC check result output H : OK , L : NG
68	DEMPH	O	Deemphasis detect signal output H : ON
69	RESY	O	Re-synchronous signal output of frame synchronization H : SYNCHRONOUS L : ASYNCHRONOUS
70	NC1	–	N. C.
71	TEST	I	Test terminal (Normal : H)
72	AVDD1	I	Power supply for digital circuit
73	NC2	–	N. C.
74	AVSS1	I	GND for digital circuit
75	NC3	–	N. C.
76	RSEL	I	RF signal polarity specifying terminal RSEL = H when Bright level is at "H" RSEL = L when Bright level is at "L"
77	CSEL	I	Crystal oscillation frequency specifying terminal (Normal : L)
78	PSEL	I	Test terminal (Normal : L)
79	MSEL	I	SMCK terminal Output frequency switch terminal H : SMCK = 8.4672MHz , L : SMCK = 4.2336MHz
80	SSEL	I	SUBQ terminal Output mode switch terminal H : Q code buffer use mode

■ BLOCK DIAGRAM



PARTS LIST

■ ELECTRICAL PARTS

■ **WARNING**

Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.

- Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the parts No. of the carbon resistors, refer to last page.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS :

C.A.EL.CHP	: CHIP ALUMI. ELECTROLYTIC CAP
C.CE	: CERAMIC CAP
C.CE.ARRAY	: CERAMIC CAP ARRAY
C.CE.CHP	: CHIP CERAMIC CAP
C.CE.ML	: MULTILAYER CERAMIC CAP
C.CE.M.CHP	: CHIP MULTILAYER CERAMIC CAP
C.CE.SAFTY	: RECOGNIZED CERAMIC CAP
C.CE.TUBLR	: CERAMIC TUBULAR CAP
C.CE.SMI	: SEMI CONDUCTIVE CERAMIC CAP
C.EL	: ELECTROLYTIC CAP
C.MICA	: MICA CAP
C.ML.FLM	: MULTILAYER FILM CAP
C.MP	: METALLIZED PAPER CAP
C.MYLAR	: MYLAR FILM CAP
C.MYLAR.ML	: MULTILAYER MYLAR FILM CAP
C.PAPER	: PAPER CAPACITOR
C.PLS	: POLYSTYRENE FILM CAP
C.POL	: POLYESTER FILM CAP
C.POLY	: POLYETHYLENE FILM CAP
C.PP	: POLYPROPYLENE FILM CAP
C.TNTL	: TANTALUM CAP
C.TNTL.CHP	: CHIP TANTALUM CAP
C.TRIM	: TRIMMER CAP
CN	: CONNECTOR
CN.BS.PIN	: CONNECTOR, BASE PIN
CN.CANNON	: CONNECTOR, CANNON
CN.DIN	: CONNECTOR, DIN
CN.FLAT	: CONNECTOR, FLAT CABLE
CN.POST	: CONNECTOR, BASE POST
COIL.MX.AM	: COIL, AM MIX
COIL.AT.FM	: COIL, FM ANTENNA
COIL.DT.FM	: COIL, FM DETECT
COIL.MX.FM	: COIL, FM MIX
COIL.OUTPT	: OUTPUT COIL
DIOD.ARRAY	: DIODE ARRAY
DIODE.BRG	: DIODE BRIDGE
DIODE.CHP	: CHIP DIODE
DIODE.VAR	: VARACTOR DIODE
DIOD.Z.CHP	: CHIP ZENER DIODE
DIODE.ZENR	: ZENER DIODE
DSCR.CE	: CERAMIC DISCRIMINATOR
FER.BEAD	: FERRITE BEADS
FER.CORE	: FERRITE CORE
FET.CHP	: CHIP FET
FL.DSPLY	: FLUORESCENT DISPLAY
FLTR.CE	: CERAMIC FILTER
FLTR.COMB	: COMB FILTER MODULE
FLTR.LC.RF	: LC FILTER ,EMI
GND.MTL	: GROUND PLATE
GND.TERM	: GROUND TERMINAL
HOLDER.FUS	: FUSE HOLDER
IC.PRTCT	: IC PROTECTOR
JUMPER.CN	: JUMPER CONNECTOR
JUMPER.TST	: JUMPER, TEST POINT
L.DTCT	: LIGHT DETECTING MODULE
L.EMIT	: LIGHT EMITTING MODULE
LED.DSPLY	: LED DISPLAY
LED.INFRD	: LED, INFRARED
MODUL.RF	: MODULATOR, RF
PHOT.CPL	: PHOTO COUPLER
PHOT.INTR	: PHOTO INTERRUPTER
PHOT.RFLCT	: PHOTO REFLECTOR
PIN.TEST	: PIN, TEST POINT
PLST.RIVET	: PLASTIC RIVET
R.ARRAY	: RESISTOR ARRAY
R.CAR	: CARBON RESISTOR
R.CAR.CHP	: CHIP RESISTOR
R.CAR.FP	: FLAME PROOF CARBON RESISTOR
R.FUS	: FUSABLE RESISTOR
R.MTL.CHP	: CHIP METAL FILM RESISTOR
R.MTL.FLM	: METAL FILM RESISTOR
R.MTL.OXD	: METAL OXIDE FILM RESISTOR
R.MTL.PLAT	: METAL PLATE RESISTOR
RSNR.CE	: CERAMIC RESONATOR
RSNR.CRYS	: CRYSTAL RESONATOR
R.TW.CEM	: TWIN CEMENT FIXED RESISTOR
R.WW	: WIRE WOUND RESISTOR
SCR.BND.HD	: BIND HEAD B-TITE SCREW
SCR.BW.HD	: BW HEAD TAPPING SCREW
SCR.CUP	: CUP TITE SCREW
SCR.TERM	: SCREW TERMINAL
SCR.TR	: SCREW, TRANSISTOR
SUPRT.PCB	: SUPPORT, P.C.B.
SURG.PRTCT	: SURGE PROTECTOR
SW.TACT	: TACT SWITCH
SW.LEAF	: LEAF SWITCH
SW.LEVER	: LEVER SWITCH
SW.MICRO	: MICRO SWITCH
SW.PUSH	: PUSH SWITCH
SW.RT.ENC	: ROTARY ENCODER
SW.RT.MTR	: ROTARY SWITCH WITH MOTOR
SW.RT	: ROTARY SWITCH
SW.SLIDE	: SLIDE SWITCH
TERM.SP	: SPEAKER TERMINAL
TERM.WRAP	: WRAPPING TERMINAL
THRMST.CHP	: CHIP THERMISTOR
TR.CHP	: CHIP TRANSISTOR
TR.DGT	: DIGITAL TRANSISTOR
TR.DGT.CHP	: CHIP DIGITAL TRANSISTOR
TRANS	: TRANSFORMER
TRANS.PULS	: PULSE TRANSFORMER
TRANS.PWR	: POWER TRANSFORMER ASS'y
TUNER.AM	: TUNER PACK, AM
TUNER.FM	: TUNER PACK, FM
TUNER.PK	: FRONT-END TUNER PACK
VR	: ROTARY POTENTIOMETER
VR.MTR	: POTENTIOMETER WITH MOTOR
VR.SW	: POTENTIOMETER WITH ROTARY SW
VR.SLIDE	: SLIDE POTENTIOMETER
VR.TRIM	: TRIMMER POTENTIOMETER

Note) Those parts marked with "#" are not included in the P.C.B. ass'y.

	Schm-Ref.	PART NO.	Description		
*		VV634400	P.C.B.	MAIN(UC)	
*		VV634500	P.C.B.	MAIN(R)	
*		VV634600	P.C.B.	MAIN(A)	
*		VV634700	P.C.B.	MAIN(G)	
	CB1	VD004800	CN.BS.PIN	5P	
	CB2	VD005100	CN.BS.PIN	8P	
	CB3	VD004900	CN.BS.PIN	6P	
	CB101	VD004600	CN.BS.PIN	3P	
	CB102	VG067200	L.EMIT	TOTX174	
	CB103	VD004500	CN.BS.PIN	2P(UCR)	
	CB201	VD004900	CN.BS.PIN	6P	
	CB202	VD004900	CN.BS.PIN	6P	
	CB203	VD004500	CN.BS.PIN	2P(UCR)	
	CB205	VD004500	CN.BS.PIN	2P(UCR)	
⚠	CB206	VG879900	CN.BS.PIN	2P	
⚠	CB213	VG879900	CN.BS.PIN	2P	
	CB301	VU271500	CN.BS.PIN	15P	
	CB303	VK025500	CN.BS.PIN	11P	
	CB304	VU272900	CN	29P	
	CB305	Vi878900	CN.BS.PIN	11P	
	CB401	VU282900	CN	29P	
	C1	VF760000	C.EL	100uF	10V
	C7	UB045100	C.CE.M.CHP	0.1uF	50V
	C8	VJ837200	C.EL	47uF	16V
	C11	UB013560	C.CE.M.CHP	5600P	50V
	C12	UB045100	C.CE.M.CHP	0.1uF	50V
	C13	UB045100	C.CE.M.CHP	0.1uF	50V
	C14	UA654470	C.MYLAR	0.047uF	50V
	C15	UA653470	C.MYLAR	4700pF	50V
	C16	UA652100	C.MYLAR	100pF	50V
	C17	UA653220	C.MYLAR	2200pF	50V
	C18	UA653220	C.MYLAR	2200pF	50V
	C19	UB045100	C.CE.M.CHP	0.1uF	50V
	C20	VJ839100	C.EL	1uF	50V
	C21	UA655100	C.MYLAR	0.1uF	50V
	C22	UB045100	C.CE.M.CHP	0.1uF	50V
	C23	UB012560	C.CE.M.CHP	560pF	50V
	C24	VR498100	C.EL	6.8uF	6.3V
	C26	UA653180	C.MYLAR	1800pF	50V
	C27	UA653330	C.MYLAR	3300pF	50V
	C28	UA655100	C.MYLAR	0.1uF	50V
	C29	UB045100	C.CE.M.CHP	0.1uF	50V
	C30	VF760000	C.EL	100uF	10V
	C31	UB045100	C.CE.M.CHP	0.1uF	50V
	C32	UA654240	C.MYLAR	0.024uF	50V
	C33	UB045100	C.CE.M.CHP	0.1uF	50V
	C34	UK665470	C.EL	0.47uF	50V
	C35	UB045100	C.CE.M.CHP	0.1uF	50V
	C36	UB045100	C.CE.M.CHP	0.1uF	50V
	C39	UB045100	C.CE.M.CHP	0.1uF	50V
	C40	VF760000	C.EL	100uF	10V
	C42	VF760000	C.EL	100uF	10V
	C43	UK665470	C.EL	0.47uF	50V

*New Parts

	Schm Ref.	PART NO.	Description		
	C101	UB045100	C.CE.M.CHP	0.1uF	50V
	C102	VE016800	C.EL	470uF	6.3V
	C103	UB045100	C.CE.M.CHP	0.1uF	50V
	C104	VE016800	C.EL	470uF	6.3V
	C105	UB045100	C.CE.M.CHP	0.1uF	50V
	C106	UB045100	C.CE.M.CHP	0.1uF	50V
	C107	UB045100	C.CE.M.CHP	0.1uF	50V
	C108	UB045100	C.CE.M.CHP	0.1uF	50V
	C109	UB051100	C.CE.M.CHP	10pF	50V
	C110	UB045100	C.CE.M.CHP	0.1uF	50V
	C111	VH619300	C.EL	470uF	6.3V
	C112	UB051100	C.CE.M.CHP	10pF	50V
	C113	UB051100	C.CE.M.CHP	10pF	50V
	C114	UB045100	C.CE.M.CHP	0.1uF	50V
	C115	VH619300	C.EL	470uF	6.3V
	C116	UB051100	C.CE.M.CHP	10pF	50V
	C117	UB045100	C.CE.M.CHP	0.1uF	50V
	C118	VA761400	C.CE	47pF	50V
	C119	VA761400	C.CE	47pF	50V
	C120	UB045100	C.CE.M.CHP	0.1uF	50V
	C121	VG287100	C.EL	470uF	10V
	C122	UA654100	C.MYLAR	0.01uF	50V
	C123	VU347900	C.MYLAR	2200pF	50V
	C124	UA654100	C.MYLAR	0.01uF	50V
*	C125	VQ569000	C.EL	220uF	6.3V
	C126	UA654100	C.MYLAR	0.01uF	50V
	C127	VU347900	C.MYLAR	2200pF	50V
	C128	UA654100	C.MYLAR	0.01uF	50V
*	C129	VQ569000	C.EL	220uF	6.3V
	C130	Vi716400	C.MYLAR	5600pF	50V
	C131	Vi715900	C.MYLAR	2200pF	50V
	C132	Vi715900	C.MYLAR	2200pF	50V
	C133	Vi716400	C.MYLAR	5600pF	50V
	C134	VJ836900	C.EL	10uF	16V
	C135	VJ836900	C.EL	10uF	16V
	C136	UM417100	C.EL	10uF	50V
	C137	VY760700	C.PP	2200pF	100V
	C138	VY760700	C.PP	2200pF	100V
	C139	UM417100	C.EL	10uF	50V
	C140	UB045100	C.CE.M.CHP	0.1uF	50V
	C141	UJ638330	C.EL	330uF	16V
	C142	UB044470	C.CE.M.CHP	0.047uF	50V
	C143	UB051680	C.CE.M.CHP	68pF	50V
	C144	UB051680	C.CE.M.CHP	68pF	50V
	C145	UB044470	C.CE.M.CHP	0.047uF	50V
	C146	UJ638330	C.EL	330uF	16V
	C147	UB045100	C.CE.M.CHP	0.1uF	50V
	C148	UB045100	C.CE.M.CHP	0.1uF	50V
	C200	UM397330	C.EL	33uF	16V
	C201	UJ865680	C.EL	0.68uF	50V
	C202	VG288000	C.EL	1000uF	16V
	C203	UB045100	C.CE.M.CHP	0.1uF	50V
	C204	VF760000	C.EL	100uF	10V

*New Parts

	Schm Ref.	PART NO.	Description		
	C205	VG287800	C.EL	330uF	16V
	C206	VF760000	C.EL	100uF	10V
	C208	Vi578400	C.EL	6800uF	16V
	C209	UJ865680	C.EL	0.68uF	50V
	C210	VF760000	C.EL	100uF	10V
	C211	UM416470	C.EL	4.7uF	50V
	C212	UM416470	C.EL	4.7uF	50V
	C213	UM416470	C.EL	4.7uF	50V
	C214	FG214100	C.CE	0.01uF	50V
	C215	UM416470	C.EL	4.7uF	50V
	C216	UJ668100	C.EL	100uF	50V
⚠	C218	VY760800	C.PP	0.01uF	100V
⚠	C219	VY760600	C.PP	0.01uF	100V
	C220	VS741700	C.CE.SAFTY	0.01uF	275V
	C221	UJ667470	C.EL	47uF	50V
⚠	C228	VS741700	C.CE.SAFTY	0.01uF	275V
⚠	C229	VS741700	C.CE.SAFTY	0.01uF	275V
	C302	UB013100	C.CE.M.CHP	1000pF	50V
	C303	UB045100	C.CE.M.CHP	0.1uF	50V
	C304	UB013100	C.CE.M.CHP	1000pF	50V
	C305	UB045100	C.CE.M.CHP	0.1uF	50V
	C306	UB045100	C.CE.M.CHP	0.1uF	50V
	C309	VF760000	C.EL	100uF	10V
	C310	VF760000	C.EL	100uF	10V
	C320	UB045100	C.CE.M.CHP	0.1uF	50V
	C321	UB012390	C.CE.M.CHP	390pF	50V
	C322	UB012390	C.CE.M.CHP	390pF	50V
	C323	UB012390	C.CE.M.CHP	390pF	50V
	C324	UB012390	C.CE.M.CHP	390pF	50V
	C325	UB012390	C.CE.M.CHP	390pF	50V
	C401	VF760000	C.EL	100uF	10V
	D101	VT332900	DIODE	1SS355	
	D102	VT332900	DIODE	1SS355	
	D202	VU992500	DIODE.ZENR	MA8051-L	5.0V
	D203	VT332900	DIODE	1SS355	
	D204	VT332900	DIODE	1SS355	
	D205	VU993400	DIODE.ZENR	MA8062-M	6.2V
	D206	VT332900	DIODE	1SS355	
	D207	VV663200	DIODE.ZENR	RLZ24B	24V
*	D208	VV307700	DIODE	1N4002S	
	D209	VU993000	DIODE.ZENR	MA8056-M	5.6V
⚠*	D212	VV307700	DIODE	1N4002S	
⚠*	D213	VV307700	DIODE	1N4002S	
⚠*	D214	VV307700	DIODE	1N4002S	
⚠*	D215	VV307700	DIODE	1N4002S	
*	D216	VV307700	DIODE	1N4002S	
	D301	VU994200	DIODE.ZENR	MA8075-M	7.5V
	D401	VS132300	LED(re)	SLR-325VCT31	
	D402	VV625100	LED(re)	SIM-22ST(UCR)	
	D405	VT332900	DIODE	1SS355	
	D406	VT332900	DIODE	1SS355	
	D407	VT332900	DIODE	1SS355	
	D408	VT332900	DIODE	1SS355	

*New Parts

	Schm Ref.	PART NO.	Description		
	D409	VT332900	DIODE	1SS355	
	D410	VT332900	DIODE	1SS355	
	IC1	XS741A00	IC	AN8806SB	
	IC2	XT029A00	IC	LA6536	
	IC3	XN481A00	IC	MN66270RB	
	IC10	iR012510	IC	HD74HC125P	
	IC101	XM911A00	IC	YAC514-F	
	IC102	XA987001	IC	NJM2068D	
	IC103	XA987001	IC	NJM2068D	
	IC104	iG142800	IC	NJM5532D	
	IC105	iG142800	IC	NJM5532D	
	IC120	Xi249A00	IC	BA15218	
	IC201	XD201A00	IC	M5290P	
	IC303	XQ135A00	IC	BA6286	
	IC304	XF947A00	IC	LA6510	
	IC311	XS353A00	IC	uPD78044FGF-XXX CP	
*	IC320	XS178A00	IC	X25642D EEPROM	
	JK101	VS899700	JACK.PHONE	JY-6317-02-030	
	JK102	VJ726800	JACK.MNI	(UCR)	
	JK103	VJ726800	JACK.MNI	(UCR)	
	L100	Vi491100	FER.CORE	BP53RB19012080M	
	L101	VB056900	COIL	220uH	
	L102	VB056900	COIL	220uH	
	L103	VB056900	COIL	220uH	
	L104	VP133800	FER.BEAD	BL02RN1-R62T4	
	L105	VB056900	COIL	220uH	
	L106	VB056900	COIL	220uH	
	L107	VB056900	COIL	220uH	
	L108	VB056900	COIL	220uH	
	L113	VP133800	FER.BEAD	BL02RN1-R62T4	
⚠	L200	VV900900	FLTR	3071-012-0	
	PJ101	VV411100	JACK.PIN	2P	
	Q1	iA093410	TR	2SA934 P,Q,R	
	Q2	iA093320	TR	2SA933S Q,R	
	Q3	iA093320	TR	2SA933S Q,R	
	Q4	iC287820	TR	2SC2878 A,B	
	Q101	iC287820	TR	2SC2878 A,B	
	Q102	iC287820	TR	2SC2878 A,B	
	Q103	iC287820	TR	2SC2878 A,B	
	Q104	iC287820	TR	2SC2878 A,B	
	Q201	iA093320	TR	2SA933S Q,R	
	Q202	iD040040	TR	2SD400	
	Q204	VS883400	TR	2SD2394 E,F	
	Q206	iA093320	TR	2SA933S Q,R	
	Q209	VS883300	TR	2SB1565 E,F	
	Q301	iC174020	TR	2SC1740S R,S	
	Q302	iC174020	TR	2SC1740S R,S	
	Q303	iC174020	TR	2SC1740S R,S	
	Q304	iA093320	TR	2SA933S Q,R	
	R1	RD256100	R.CAR.CHP	1KΩ	1/10W
	R6	RD257100	R.CAR.CHP	10KΩ	1/10W
	R7	RD254100	R.CAR.CHP	10Ω	1/10W
	R10	RD257100	R.CAR.CHP	10KΩ	1/10W

*New Parts

Schm Ref.	PART NO.	Description		
R11	RD257470	R. CAR. CHP	47KΩ	1/10W
R12	RD257470	R. CAR. CHP	47KΩ	1/10W
R13	RD257470	R. CAR. CHP	47KΩ	1/10W
R14	RD257470	R. CAR. CHP	47KΩ	1/10W
R15	RD257470	R. CAR. CHP	47KΩ	1/10W
R17	RD258220	R. CAR. CHP	220KΩ	1/10W
R18	RD258220	R. CAR. CHP	220KΩ	1/10W
R19	RD256100	R. CAR. CHP	1KΩ	1/10W
R20	RD256100	R. CAR. CHP	1KΩ	1/10W
R21	RD258180	R. CAR. CHP	180KΩ	1/10W
R22	RD257200	R. CAR. CHP	20KΩ	1/10W
R23	RD257390	R. CAR. CHP	39KΩ	1/10W
R31	RD259100	R. CAR. CHP	1MΩ	1/10W
R32	RD257100	R. CAR. CHP	10KΩ	1/10W
R33	RD257100	R. CAR. CHP	10KΩ	1/10W
R34	RD257100	R. CAR. CHP	10KΩ	1/10W
R36	RD257330	R. CAR. CHP	33KΩ	1/10W
R37	RD256180	R. CAR. CHP	1.8KΩ	1/10W
R39	RD257270	R. CAR. CHP	27KΩ	1/10W
R40	RD256200	R. CAR. CHP	2KΩ	1/10W
R41	RD256220	R. CAR. CHP	2.2KΩ	1/10W
R42	RD258100	R. CAR. CHP	100KΩ	1/10W
R43	RD257200	R. CAR. CHP	20KΩ	1/10W
R44	RD256180	R. CAR. CHP	1.8KΩ	1/10W
R51	RD256330	R. CAR. CHP	3.3KΩ	1/10W
R52	RD258150	R. CAR. CHP	150KΩ	1/10W
R53	RD257680	R. CAR. CHP	68KΩ	1/10W
R54	RD259100	R. CAR. CHP	1MΩ	1/10W
R55	RD255470	R. CAR. CHP	470Ω	1/10W
R61	RD257330	R. CAR. CHP	33KΩ	1/10W
R62	RD257330	R. CAR. CHP	33KΩ	1/10W
R63	RD257330	R. CAR. CHP	33KΩ	1/10W
R64	RD257330	R. CAR. CHP	33KΩ	1/10W
R66	RD258100	R. CAR. CHP	100KΩ	1/10W
R67	RD256470	R. CAR. CHP	4.7KΩ	1/10W
R68	RD256680	R. CAR. CHP	6.8KΩ	1/10W
R69	RD258100	R. CAR. CHP	100KΩ	1/10W
R70	RD258100	R. CAR. CHP	100KΩ	1/10W
R71	RD256180	R. CAR. CHP	1.8KΩ	1/10W
R72	RD256680	R. CAR. CHP	6.8KΩ	1/10W
R101	RD256100	R. CAR. CHP	1KΩ	1/10W
R102	RD255330	R. CAR. CHP	330Ω	1/10W
R103	RD256100	R. CAR. CHP	1KΩ	1/10W
R104	RD256100	R. CAR. CHP	1KΩ	1/10W
R105	RD256100	R. CAR. CHP	1KΩ	1/10W
R106	RD256100	R. CAR. CHP	1KΩ	1/10W
R107	RD255220	R. CAR. CHP	220Ω	1/10W
R108	RD255220	R. CAR. CHP	220Ω	1/10W
R109	RD259100	R. CAR. CHP	1MΩ	1/10W
R111	RD255390	R. CAR. CHP	390Ω	1/10W
R116	RD255330	R. CAR. CHP	330Ω	1/10W
R117	RD256130	R. CAR. CHP	1.3KΩ	1/10W
R118	RD255390	R. CAR. CHP	390Ω	1/10W

*New Parts

Schm Ref.	PART NO.	Description		
R119	RD255330	R. CAR. CHP	330Ω	1/10W
R121	RD256130	R. CAR. CHP	1.3KΩ	1/10W
R122	RD256130	R. CAR. CHP	1.3KΩ	1/10W
R124	RD255390	R. CAR. CHP	390Ω	1/10W
R147	RD255330	R. CAR. CHP	330Ω	1/10W
R149	RD255390	R. CAR. CHP	390Ω	1/10W
R150	RD255330	R. CAR. CHP	330Ω	1/10W
R151	RD256130	R. CAR. CHP	1.3KΩ	1/10W
R155	RD256120	R. CAR. CHP	1.2KΩ	1/10W
R156	RD256120	R. CAR. CHP	1.2KΩ	1/10W
R157	RD256120	R. CAR. CHP	1.2KΩ	1/10W
R158	RD256120	R. CAR. CHP	1.2KΩ	1/10W
R159	HV455100	R. CAR. FP	100Ω	1/4W
R160	RD256220	R. CAR. CHP	2.2KΩ	1/10W
R161	RD257470	R. CAR. CHP	47KΩ	1/10W
R162	RD256470	R. CAR. CHP	4.7KΩ	1/10W
R163	RD256470	R. CAR. CHP	4.7KΩ	1/10W
R164	RD257470	R. CAR. CHP	47KΩ	1/10W
R165	RD256220	R. CAR. CHP	2.2KΩ	1/10W
R166	HV455100	R. CAR. FP	100Ω	1/4W
* R167	RD255360	R. CAR. CHP	360Ω	1/10W
R168	RD255270	R. CAR. CHP	270Ω	1/10W
R169	RD255100	R. CAR. CHP	100Ω	1/10W
R170	RD258100	R. CAR. CHP	100KΩ	1/10W
R171	RD257220	R. CAR. CHP	22KΩ	1/10W
R172	RD257220	R. CAR. CHP	22KΩ	1/10W
R173	RD258100	R. CAR. CHP	100KΩ	1/10W
R174	RD257220	R. CAR. CHP	22KΩ	1/10W
R175	RD257220	R. CAR. CHP	22KΩ	1/10W
* R176	RD255360	R. CAR. CHP	360Ω	1/10W
R177	RD255100	R. CAR. CHP	100Ω	1/10W
R178	RD255270	R. CAR. CHP	270Ω	1/10W
R179	RD256820	R. CAR. CHP	8.2KΩ	1/10W
R180	RD255120	R. CAR. CHP	120Ω	1/10W
R181	RD256390	R. CAR. CHP	3.9KΩ	1/10W
R182	RD256390	R. CAR. CHP	3.9KΩ	1/10W
R183	RD255120	R. CAR. CHP	120Ω	1/10W
R200	RD256100	R. CAR. CHP	1KΩ	1/10W
R201	RD255470	R. CAR. CHP	470Ω	1/10W
R202	RD257470	R. CAR. CHP	47KΩ	1/10W
R203	RD256100	R. CAR. CHP	1KΩ	1/10W
R204	RD258100	R. CAR. CHP	100KΩ	1/10W
R205	RD256100	R. CAR. CHP	1KΩ	1/10W
R206	RD256470	R. CAR. CHP	4.7KΩ	1/10W
R207	RD257100	R. CAR. CHP	10KΩ	1/10W
R208	RD256470	R. CAR. CHP	4.7KΩ	1/10W
R209	Vi868300	R. FUS	0.68Ω	1/6W
R210	RD255750	R. CAR. CHP	750Ω	1/10W
R211	RD256100	R. CAR. CHP	1KΩ	1/10W
R213	RD256160	R. CAR. CHP	1.6KΩ	1/10W
R214	HV455100	R. CAR. FP	100Ω	1/4W
R215	HV455100	R. CAR. FP	100Ω	1/4W
R300	RD257100	R. CAR. CHP	10KΩ	1/10W

*New Parts

Schm Ref.	PART NO.	Description		
R301	RD257100	R.CAR.CHP	10KΩ	1/10W
R302	RD257100	R.CAR.CHP	10KΩ	1/10W
R303	RD257100	R.CAR.CHP	10KΩ	1/10W
R304	RD257100	R.CAR.CHP	10KΩ	1/10W
R305	RD257330	R.CAR.CHP	33KΩ	1/10W
R306	RD256680	R.CAR.CHP	6.8KΩ	1/10W
R307	RD258120	R.CAR.CHP	120KΩ	1/10W
R308	HV453220	R.CAR.FP	2.2Ω	1/4W
R309	RD258100	R.CAR.CHP	100KΩ	1/10W
R310	RD258100	R.CAR.CHP	100KΩ	1/10W
R311	RD254100	R.CAR.CHP	10Ω	1/10W
R312	RD258120	R.CAR.CHP	120KΩ	1/10W
R313	RD257220	R.CAR.CHP	22KΩ	1/10W
R314	RD257220	R.CAR.CHP	22KΩ	1/10W
R315	RD255240	R.CAR.CHP	240Ω	1/10W
R316	RD255330	R.CAR.CHP	330Ω	1/10W
R317	RD254100	R.CAR.CHP	10Ω	1/10W
R318	RD257100	R.CAR.CHP	10KΩ	1/10W
R319	RD257100	R.CAR.CHP	10KΩ	1/10W
R320	RD258100	R.CAR.CHP	100KΩ	1/10W
R321	RD256680	R.CAR.CHP	6.8KΩ	1/10W
R322	RD258100	R.CAR.CHP	100KΩ	1/10W
R323	RD258100	R.CAR.CHP	100KΩ	1/10W
R324	RD257750	R.CAR.CHP	75KΩ	1/10W
R325	RD258180	R.CAR.CHP	180KΩ	1/10W
R326	RD258150	R.CAR.CHP	150KΩ	1/10W
R327	HV453220	R.CAR.FP	2.2Ω	1/4W
R328	RD258100	R.CAR.CHP	100KΩ	1/10W
R329	RD257100	R.CAR.CHP	10KΩ	1/10W
R330	RD257100	R.CAR.CHP	10KΩ	1/10W
R331	RD257470	R.CAR.CHP	47KΩ	1/10W
R332	RD256100	R.CAR.CHP	1KΩ	1/10W
R335	RD257100	R.CAR.CHP	10KΩ	1/10W
R336	RD257100	R.CAR.CHP	10KΩ	1/10W
R337	RD257100	R.CAR.CHP	10KΩ	1/10W
R338	RD257100	R.CAR.CHP	10KΩ	1/10W
R339	RD257100	R.CAR.CHP	10KΩ	1/10W
R340	RD257100	R.CAR.CHP	10KΩ	1/10W
R341	RD257100	R.CAR.CHP	10KΩ	1/10W
R345	RD257100	R.CAR.CHP	10KΩ	1/10W
R346	RD258100	R.CAR.CHP	100KΩ	1/10W
R347	RD258100	R.CAR.CHP	100KΩ	1/10W
R348	RD258100	R.CAR.CHP	100KΩ	1/10W
R349	RD258100	R.CAR.CHP	100KΩ	1/10W
R350	RD258100	R.CAR.CHP	100KΩ	1/10W
R351	RD258100	R.CAR.CHP	100KΩ	1/10W
R352	RD258100	R.CAR.CHP	100KΩ	1/10W
R353	RD258100	R.CAR.CHP	100KΩ	1/10W
R354	RD258100	R.CAR.CHP	100KΩ	1/10W
R355	RD258100	R.CAR.CHP	100KΩ	1/10W
R356	RD258100	R.CAR.CHP	100KΩ	1/10W
R357	RD258100	R.CAR.CHP	100KΩ	1/10W
R358	RD258100	R.CAR.CHP	100KΩ	1/10W

*New Parts

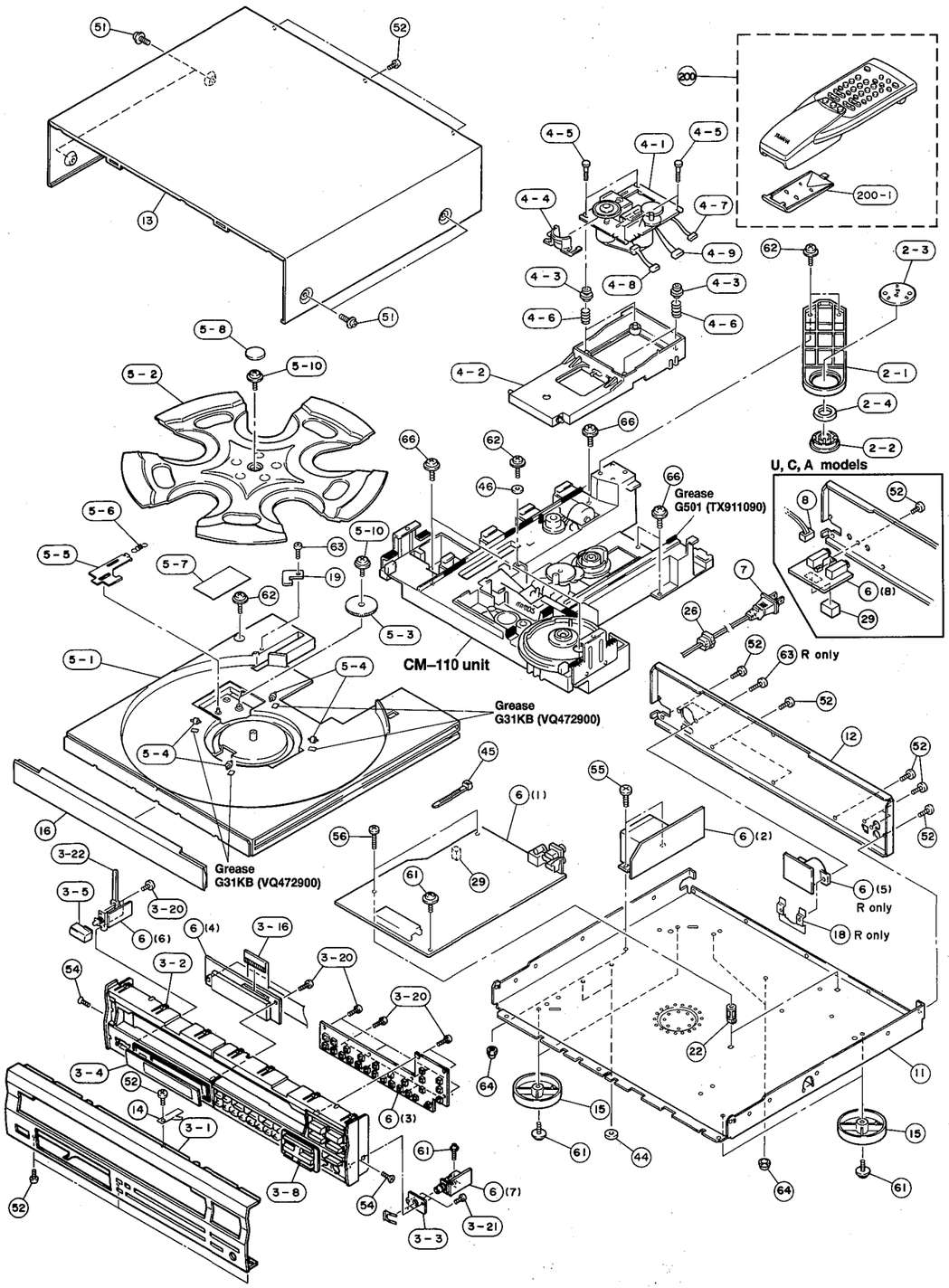
Schm Ref.	PART NO.	Description		
R359	RD258100	R.CAR.CHP	100KΩ	1/10W
R360	RD258100	R.CAR.CHP	100KΩ	1/10W
R361	RD258100	R.CAR.CHP	100KΩ	1/10W
R362	RD258100	R.CAR.CHP	100KΩ	1/10W
R363	RD258100	R.CAR.CHP	100KΩ	1/10W
R364	RD258100	R.CAR.CHP	100KΩ	1/10W
R365	RD258100	R.CAR.CHP	100KΩ	1/10W
R366	RD258100	R.CAR.CHP	100KΩ	1/10W
R367	RD258100	R.CAR.CHP	100KΩ	1/10W
R368	RD258100	R.CAR.CHP	100KΩ	1/10W
R369	RD258100	R.CAR.CHP	100KΩ	1/10W
R401	RD255330	R.CAR.CHP	330Ω	1/10W
R402	RD258100	R.CAR.CHP	100KΩ	1/10W
R403	RD257100	R.CAR.CHP	10KΩ	1/10W(UCR)
⚠ SW201	VL908000	VOLT.SELCT	ESE-370(R)	
⚠ SW202	VV057600	SW.PUSH	PS-2B04T6	
SW401	VG392900	SW.TACT	SKHVAA	
SW402	VG392900	SW.TACT	SKHVAA	
SW403	VG392900	SW.TACT	SKHVAA	
SW404	VG392900	SW.TACT	SKHVAA	
SW405	VG392900	SW.TACT	SKHVAA	
SW406	VG392900	SW.TACT	SKHVAA	
SW407	VG392900	SW.TACT	SKHVAA	
SW408	VG392900	SW.TACT	SKHVAA	
SW410	VG392900	SW.TACT	SKHVAA	
SW411	VG392900	SW.TACT	SKHVAA	
SW412	VG392900	SW.TACT	SKHVAA	
SW413	VG392900	SW.TACT	SKHVAA	
SW414	VG392900	SW.TACT	SKHVAA	
SW416	VG392900	SW.TACT	SKHVAA	
SW417	VG392900	SW.TACT	SKHVAA	
SW418	VG392900	SW.TACT	SKHVAA	
SW419	VG392900	SW.TACT	SKHVAA	
SW420	VG392900	SW.TACT	SKHVAA	
SW421	VG392900	SW.TACT	SKHVAA	
SW422	VG392900	SW.TACT	SKHVAA	
SW423	VG392900	SW.TACT	SKHVAA	
SW424	VG392900	SW.TACT	SKHVAA	
SW425	VG392900	SW.TACT	SKHVAA	
SW426	VG392900	SW.TACT	SKHVAA	
SW427	VG392900	SW.TACT	SKHVAA	
SW428	VG392900	SW.TACT	SKHVAA	
⚠ T201	XL831A00	TRANS.PWR	(UC)	
⚠ T201	XL832A00	TRANS.PWR	(R)	
⚠ T201	XL833A00	TRANS.PWR	(A)	
⚠ T201	XL837A00	TRANS.PWR	(G)	
U401	VU591000	L.DTCT	GP1U271X	
V401	VS415000	FL.DSPLY	9-ST-14GK	
XL101	VJ719800	RSNR.CRYS	16.9344MHz	
XL301	VJ677200	RSNR.CE	4.19MHz	
	VB966900	CN	IMSA-6024	
	VR506800	HEAT.SINK	PUH16-25	
	VQ713000	SUPRT	FL	

*New Parts

Schm Ref.	PART NO.	Description	
	VQ948800	SHEET	FL
	VS257700	PLATE	
	BB071360	SCR.TERM	8.3x13(UCR)
	ED330066	SCR.BND.HD	3x6 FCRM3-BL
	VY760000	SPACER	(UCR)
	VS778600	P.C.B.	CM
CB501	VB858200	CN.BS.PIN	3P
CB502	VM689400	CN	15P
CB503	VB858200	CN.BS.PIN	3P
CB504	VB858200	CN.BS.PIN	3P
CB505	VB858200	CN.BS.PIN	3P
CB506	VB858200	CN.BS.PIN	3P
CB507	VB858100	CN.BS.PIN	2P
CB508	VB858100	CN.BS.PIN	2P
CB509	VB858100	CN.BS.PIN	2P
D501	VT599500	PHOT.INTR	GP1S58V
SW501	Vi294000	SW.LEVER	SSCF21
SW502	Vi294000	SW.LEVER	SSCF21
W501	VS841400	CN.ASSY	3P 250mm
W502	VT033200	CN.FLAT	15P 120mm

*New Parts

■ EXPLODED VIEW



■ MECHANICAL PARTS

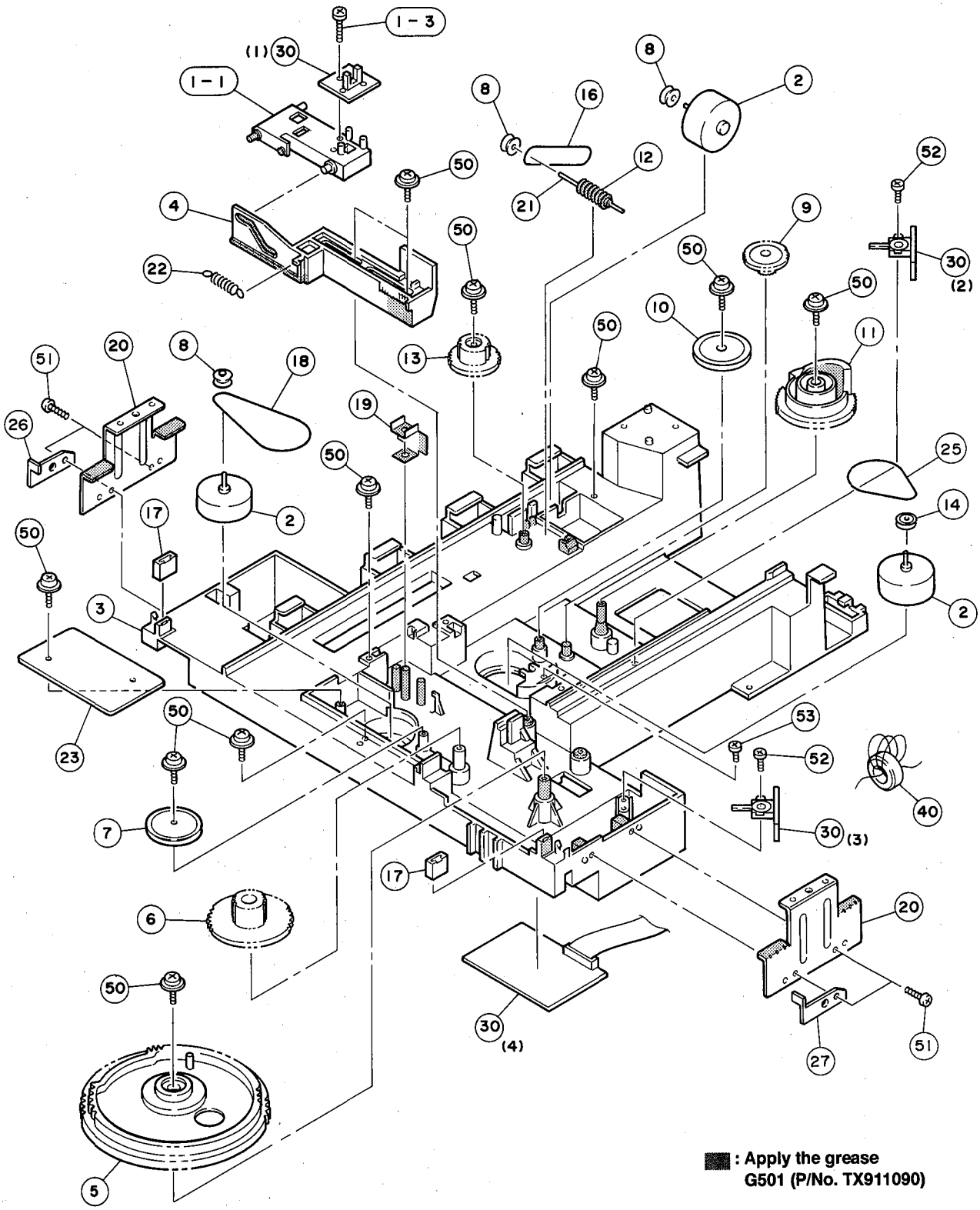
	Ref. No.	PART NO.	Description	Remarks	Markets
	2- 1	VS037800	CLAMPER		
	2- 2	VL782500	STABILIZER		
	2- 3	VS500400	PLATE STABILIZER		
	2- 4	VQ930900	MAGNET DH29.6x18x3.6FMS		
*	3- 1	VU876000	FRONT PANEL		
*	3- 2	VU875500	SUB PANEL		
*	3- 3	VU876800	SUPPORT, HP		
	3- 4	VU875700	WINDOW PANEL, LID		
*	3- 5	VV501000	BUTTON 9.5x22V		
*	3- 8	VU875300	ESCUTCHEON		
	3-16	MF129500	FLEXIBLE FLAT CABLE 29P 500mm		
	3-20	EP630220	BIND HEAD P-TITE SCREW 3x8 ZMC2-BL		
	3-21	EP600290	BIND HEAD P-TITE SCREW 3x6 ZMC2-Y		
	3-22	VC380200	BINDING TIE S-15		(UCA)
	4- 1	VM444300	PU MECHA. UNIT CD90V1YA		
	4- 2	VS037600	HOLDER		
	4- 3	VQ775600	DAMPER, BUSH		
	4- 4	VP660500	BARRIER PU		
	4- 5	VS037700	SCREW, 2		
	4- 6	VQ386500	SPRING		
	4- 7	VS841500	CONNECTOR ASS'Y 5P 170mm		
	4- 8	VS841600	CONNECTOR ASS'Y 6P 180mm		
	4- 9	VT033500	CONNECTOR ASS'Y 8P 200mm		
	5- 1	VS034000	TRAY B		
	5- 2	VS034400	TABLE B		
*	5- 3	VV014500	GEAR PO		
	5- 4	VS037300	ROLLER		
*	5- 5	VV014400	LEVER PO		
	5- 6	VS036900	SPRING, RT		
	5- 7	VS037900	SHEET, TRAY B		
	5- 8	VS051900	PLATE, TABLE B		
	5-10	VA775100	PW HEAD P-TITE SCREW 3x8-10 FCRM3-BL		
*	6	VV634400	P.C.B. ASS'Y MAIN		(UC)
*	6	VV634500	P.C.B. ASS'Y MAIN		(R)
*	6	VV634600	P.C.B. ASS'Y MAIN		(A)
*	6	VV634700	P.C.B. ASS'Y MAIN		(G)
⚠	7	VL238100	POWER CORD ASS'Y		(R)
⚠	7	VN363700	POWER CORD ASS'Y		(G)
⚠	7	VQ508600	POWER CORD ASS'Y		(A)
⚠	7	VV437200	POWER CORD ASS'Y		(UC)
	8	VY735200	CONNECTOR ASS'Y 2P 400mm		(UCA)
	11	VS254200	CHASSIS, MAIN		
*	12	VU876900	REAR PANEL		(UC)
*	12	VU877000	REAR PANEL		(R)
*	12	VU877100	REAR PANEL		(A)
*	12	VV223000	REAR PANEL		(G)
*	13	VU876500	TOP COVER		
	14	VQ775900	GROUND PLATE		
	15	VQ780300	LEG D60xH16		
*	16	VU874500	LID		
	18	VS257300	PLATE, R		(R)
*	19	VV433300	PLATE, STOPPER		
	22	VU981200	SUPPORT, P.C.B. No.3596		

*New Parts

	Ref. No.	PART NO.	Description		Remarks	Markets
	26	VN158600	CORD STOPPER	No.2104		
	29	VQ366100	DAMPER, PCB			
	44	VU984400	RING	D14		
	45	VU590000	BINDING TIE	CBTD001B		
*	46	VV637600	WASHER	3.2x14x1		
	51	EK365090	PW HEAD S-TITE SCREW	4x8-10 FCRM3-BL		
	52	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2-BL		
	54	EO030066	FLAT HEAD SCREW	3x6 ZMC2-Y		
	55	EK396010	BIND HEAD S-TITE SCREW	4x8 FCRM3-BL		
	56	EP630640	BIND HEAD P-TITE SCREW	3x20 FCRM3-BL		
	61	EK930010	PW HEAD B-TITE SCREW	3x8-8 FCRM3-BL		
	62	EX602620	PW HEAD P-TITE SCREW	3x12-10 ZMC2-Y		
	63	EP600140	BIND HEAD B-TITE SCREW	3x10 MFZN2-BL		
	64	VK002600	HEXAGONAL CAP NUT	4mm		
	66	EX602630	BW HEAD S-TITE SCREW	4x10 FCRM3-BL		
			ACCESSORIES			
*	200	VV275100	REMOTE CONTROL TRANSMITTER	SBGH20013A		
	200-1	CX679050	LID			
		VS381600	PIN PLUG CORD	1.0m		
			BATTERY, MANGANESE	SUM-3, AA, R06		

* New Parts

■ EXPLODED VIEW (CM-110 Unit)



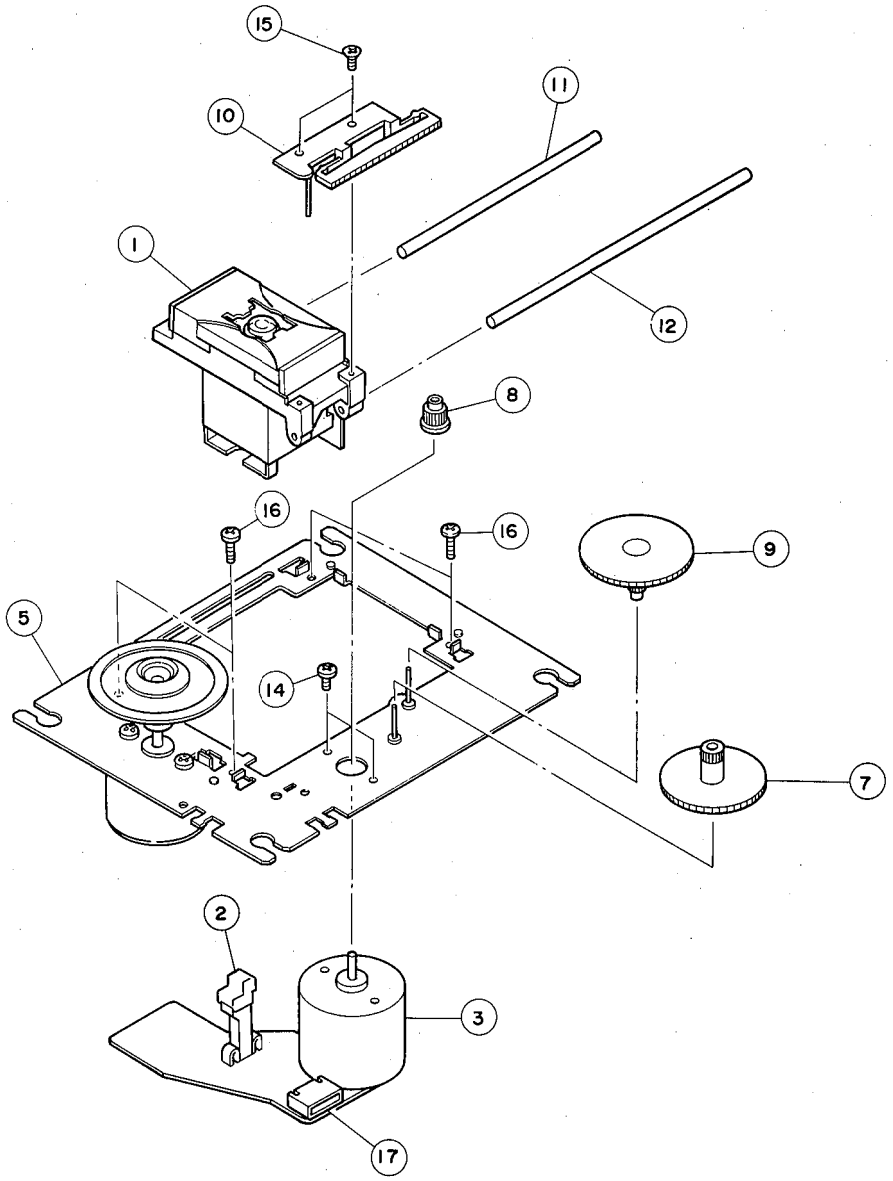
■ : Apply the grease
G501 (P/No. TX911090)

■ MECHANICAL PARTS (CM-110 Unit)

	Ref. No.	PART NO.	Description		Remarks	Markets
	1-1	VS036700	HOLDER, SENSOR			
	1-3	EX601360	BIND HEAD P-TITE SCREW	3x10 FCRM3-BL		
⚠	2	VM444200	MOTOR	RF-500TB-14415		
	3	VS033900	CHASSIS			
	4	VS036400	SLIDE CAM			
	5	VS035000	GEAR, LO2			
	6	VS035300	GEAR, LO1			
	7	VS036100	GEAR PULLEY			
	8	VS036200	PULLEY			
	9	VS035400	GEAR, CL2			
*	10	VV014300	PULLY GEAR	CL		
	11	VS036300	CAM, CL			
	12	VS035700	GEAR			
	13	VS035800	GEAR, WW			
*	14	VV016700	PULLY, CL			
	16	VS036500	BELT, RT			
	17	VQ775500	DAMPER, TRAY			
	18	VQ776900	BELT	V		
	19	VS037100	LEVER			
	20	VS037400	SUPPORT, TRAY			
	21	VS036600	SHAFT, 2			
	22	VS036800	SPRING, CAM			
	23	VT435400	SHEET	B		
*	25	VV014200	BELT	CL		
*	26	VV014600	SLIDER, TRAY	L		
*	27	VV014700	SLIDER, TRAY	R		
	30	VS778600	P.C.B. ASS'Y	CM		
	40	VP128600	FERRITE CORE	FSOB160PB		
	50	VA775100	PW HEAD P-TITE SCREW	3x8-10 FCRM3-BL		
	51	EX601360	BIND HEAD P-TITE SCREW	3x10 FCRM3-BL		
	52	VF617600	PAN HEAD P-TITE SCREW	2.6x8 FCRM3-BL		
	53	ED326056	BIND HEAD SCREW	2.6x5 ZMC2-BL		

*New Parts

■ EXPLODED VIEW (PU Mecha. Unit)

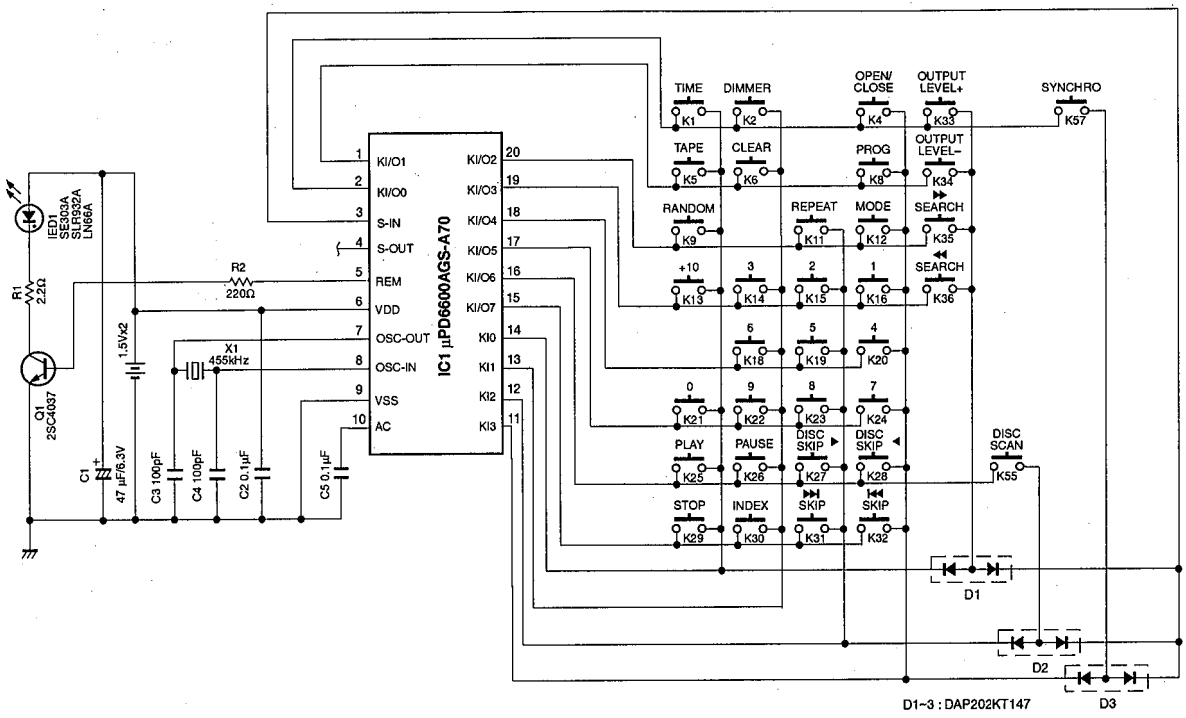


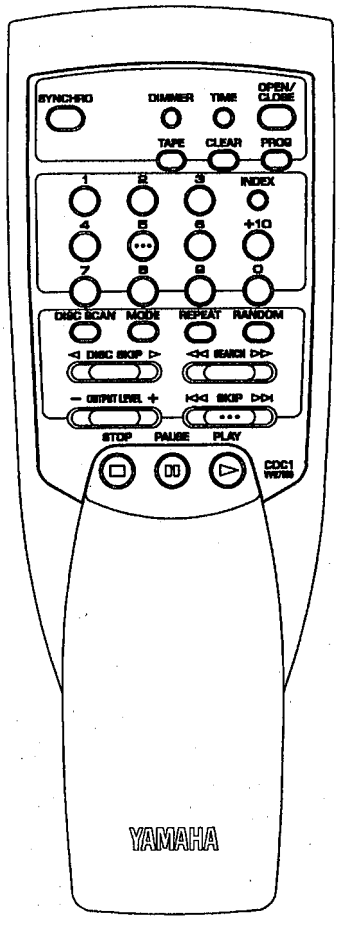
Ref. No.	PART NO.	Description		Remarks	Markets
	VM444300	PU MECHA. UNIT	CD90V1YA		
1	PX601521	PICK UP ASS'Y	SF-91P	1EA0A41A03100	
2	KX603540	LIMIT SWITCH		1EA4S13A00800	
3	JX601050	MOTOR		1EA4M10A02100	
⚠ 5	NX611201	CHASSIS ASS'Y		1EA0311A02900	
7	CX618680	GEAR	MIDDLE	1EA2511A06300	
8	CX618690	GEAR	MOTOR	1EA2511A06400	
9	CX618700	GEAR	POWER	1EA2511A06500	
10	AX615020	PLATE	RACK	1EA2731A01400	
11	AX615030	GUIDE BAR		1EA2362A00400	
12	AX615040	GUIDE BAR		1EA2362A00500	
14	EX602300	PAN HEAD SCREW	1.7x2.5 ZMC2-Y	SE3PN172R5SE	
15	EB020056	FLAT HEAD SCREW	2x5 ZMC2-Y	SE1FN205R0SE	
16	EX602310	SPECIAL SCREW		SFXEA01800	
17	LX606800	CONNECTOR	6P	42369750000	

*New Parts

REMOTE CONTROL TRANSMITTER

■ SCHEMATIC DIAGRAM

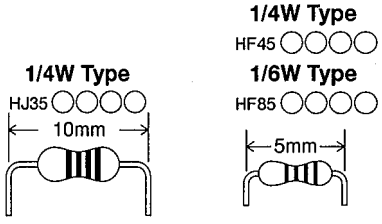




KEY No.	FUNCTION	CUSTOM CODE (HEX)	REVERSE CUSTOM CODE (HEX)	DATA CODE (HEX)
K1	TIME	79	86	0A
K2	DIMMER	79	86	1E
K4	OPEN/CLOSE	79	86	01
K5	TAPE	79	86	57
K6	CLEAR	79	86	0D
K8	PROG	79	86	0C
K9	RANDOM	79	86	1B
K11	REPEAT	79	86	08
K12	MODE	79	86	00
K13	+10	79	86	1A
K14	3	79	86	13
K15	2	79	86	12
K16	1	79	86	11
K18	6	79	86	16
K19	5	79	86	15
K20	4	79	86	14
K21	0	79	86	10
K22	9	79	86	19
K23	8	79	86	18
K24	7	79	86	17
K25	PLAY	79	86	02
K26	PAUSE	79	86	55
K27	DISC SKIP ▶	79	86	4F
K28	◀ DISC SKIP	79	86	50
K29	STOP	79	86	56
K30	INDEX	79	86	0B
K31	SKIP ▶▶|	79	86	07
K32	|◀◀ SKIP	79	86	04
K33	OUTPUT LEVEL+	79	86	1D
K34	OUTPUT LEVEL–	79	86	1C
K35	SEARCH ▶▶	79	86	06
K36	◀◀ SEARCH	79	86	05
K55	DISC SCAN	79	86	53
K57	SYNCHRO	79	86	58

Parts List for Carbon Resistors

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	※	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	※	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	※
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	※
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



1992

■ PRINTED CIRCUIT BOARD (Foil side)

P.C.B. CM (1)

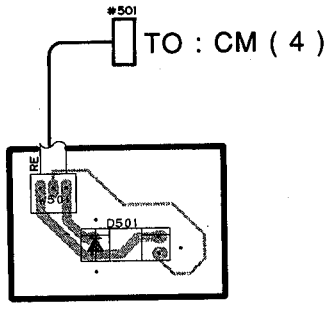
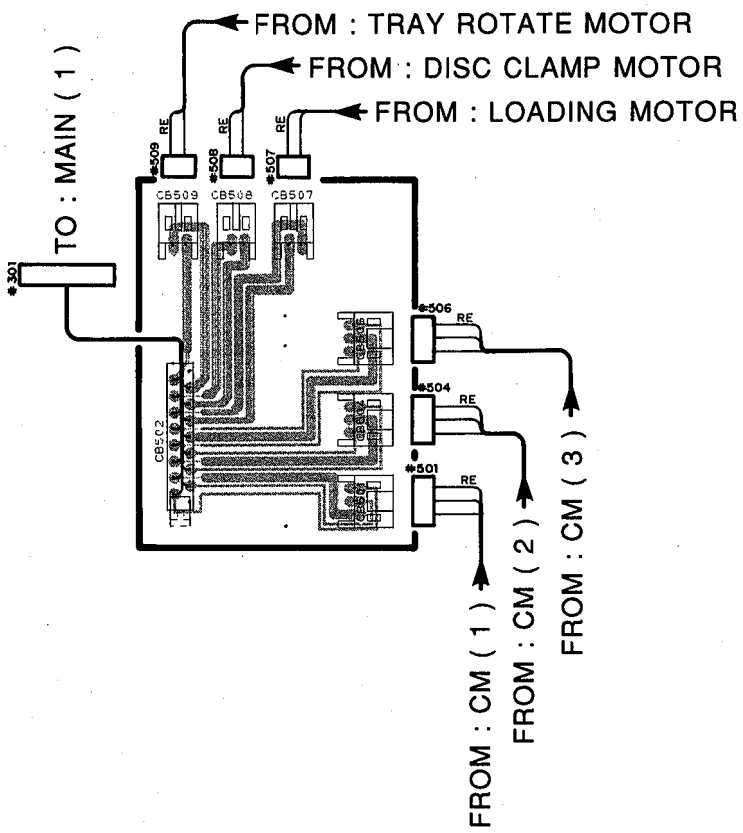


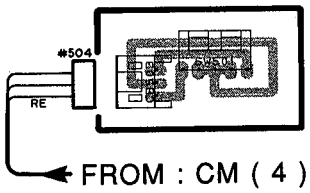
TABLE
SENSOR

P.C.B. CM (4)



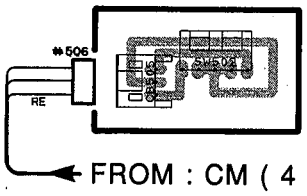
P.C.B. CM (2)

CLAMP
UP/DOWN SW



P.C.B. CM (3)

LOADING
SW

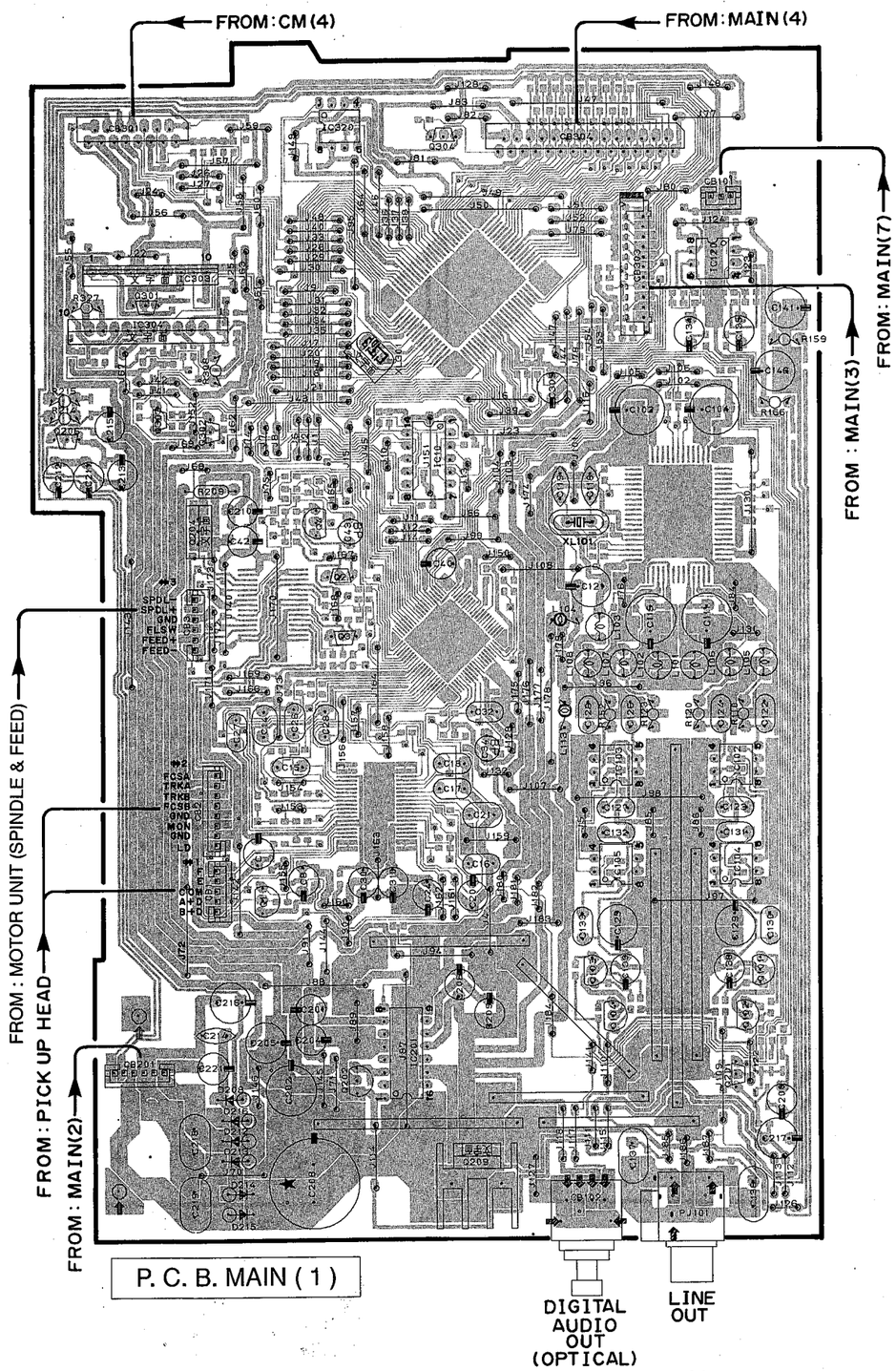


■ PRINTED CIRCUIT BOARD (Foil side)

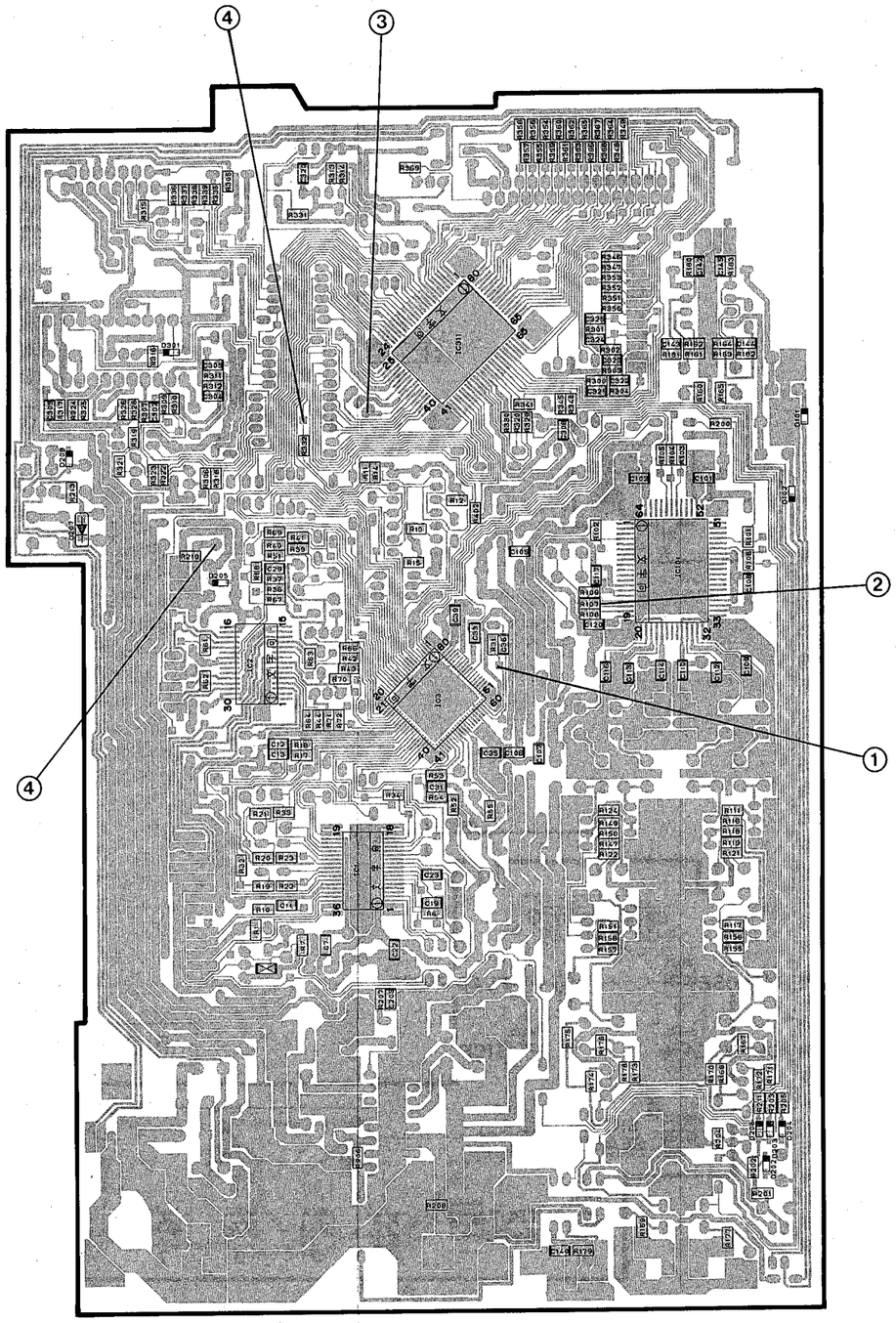
● Semiconductor Location

Ref No.	Location
IC1	F4
IC2	F3
IC3	G3
IC10	C3
IC101	G3
IC102	D4
IC103	D4
IC104	D4
IC105	D4
IC120	D2
IC201	C5
IC303	B2
IC304	B2
IC311	G2
IC320	C2

Ref No.	Location
Q1	C4
Q2	C3
Q3	C3
Q4	C3
Q101	D4
Q102	D5
Q103	D4
Q104	D5
Q201	D5
Q202	C5
Q204	B2
Q206	B3
Q209	C5
Q301	B2
Q302	B3
Q303	B3
Q304	C2

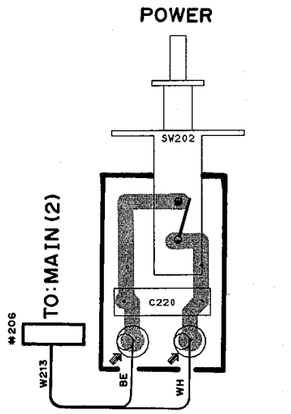


① to ④ : TEST POINT WAVEFORMS (See page 28)

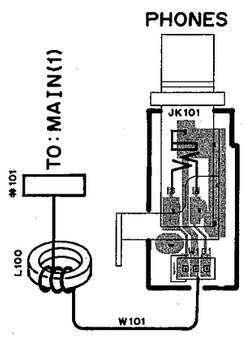


■ PRINTED CIRCUIT BOARD (Foil side)

P. C. B. MAIN (6)

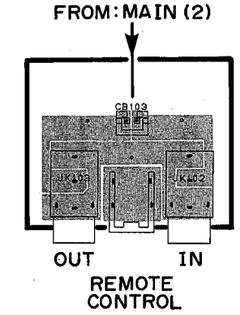


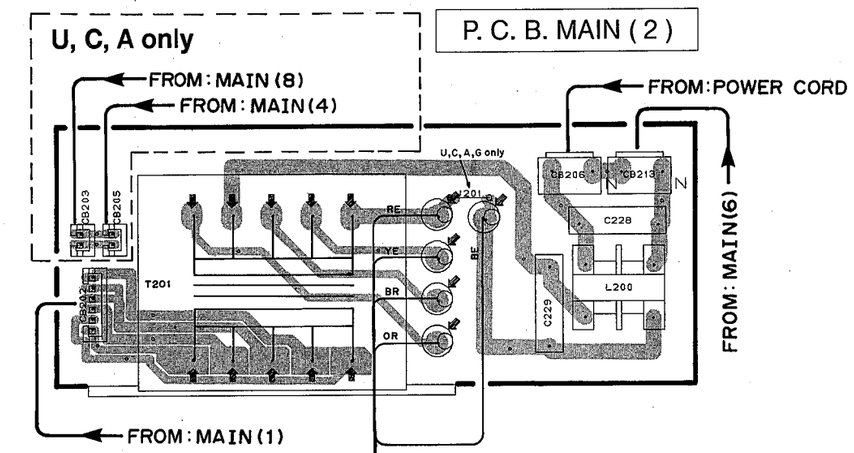
P. C. B. MAIN (7)

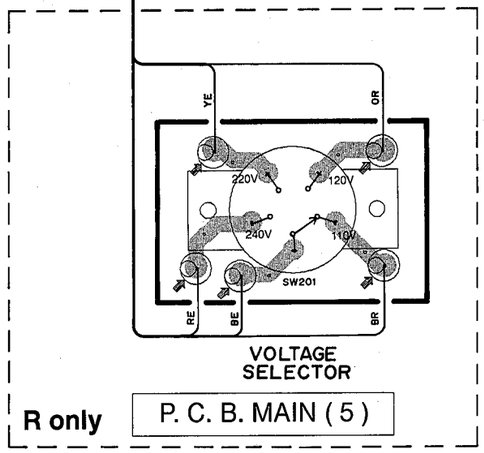


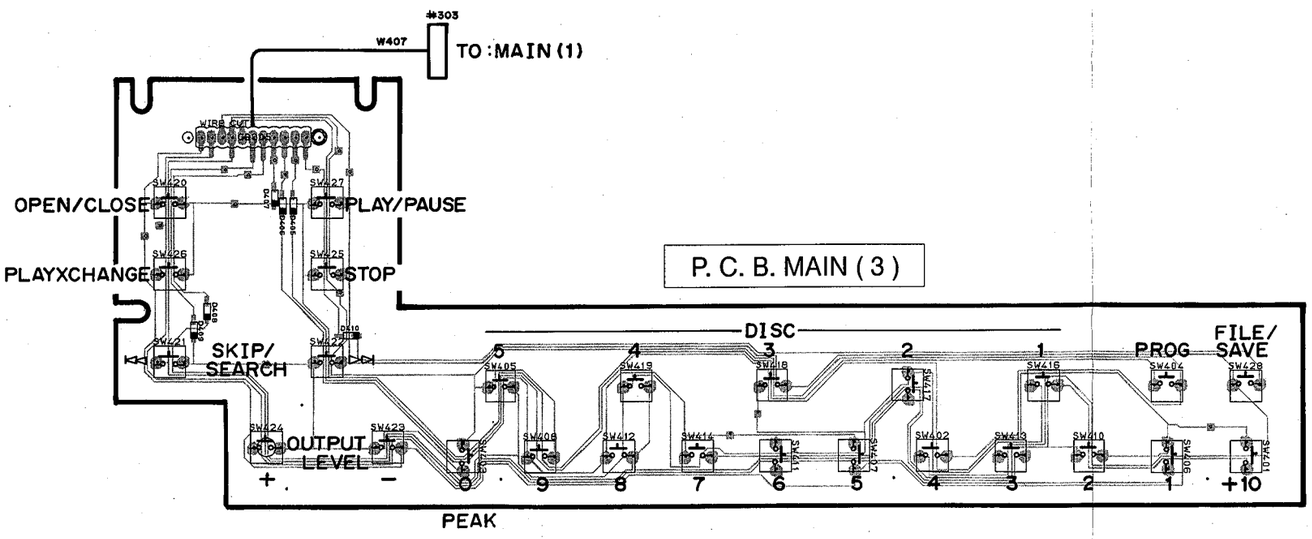
U, C, A only

P. C. B. MAIN (8)

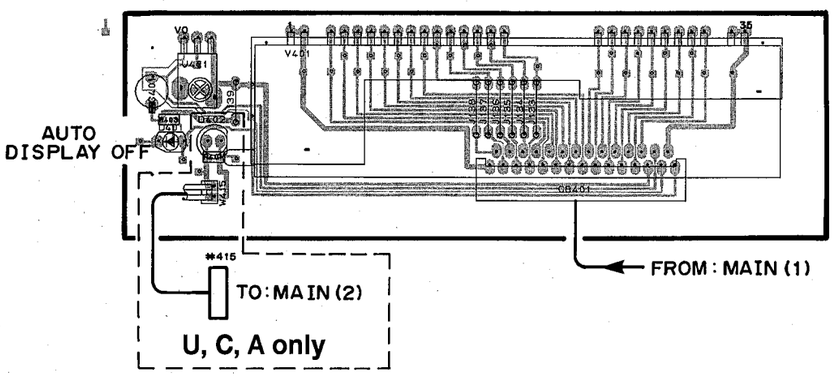






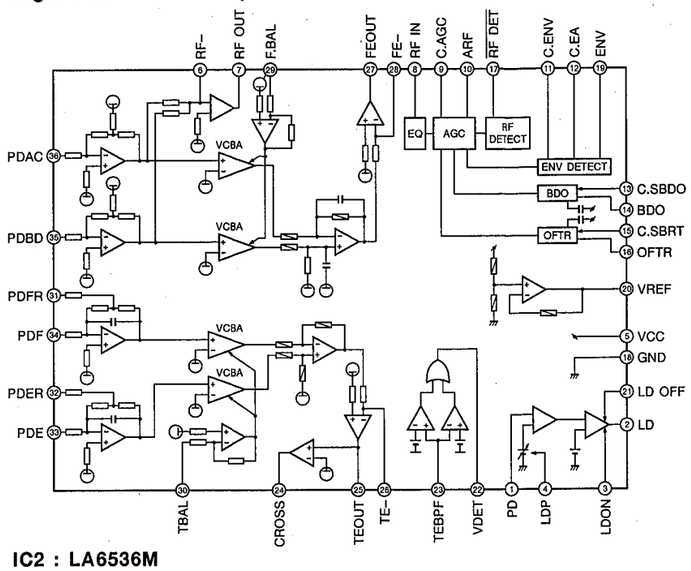


P. C. B. MAIN (4)

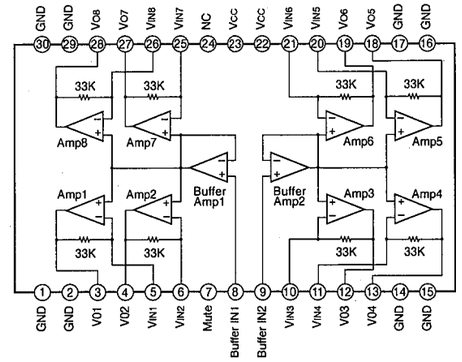


■ IC BLOCKS

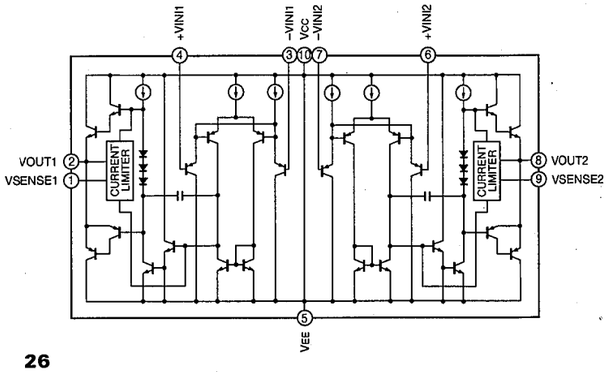
IC1 : AN8806SB
Digital Servo Head Amp



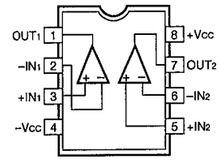
IC2 : LA6536M
4-Channel BTL Driver



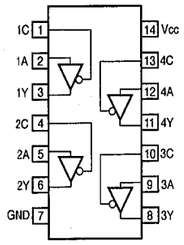
IC304 : LA6510
Dual Power Operational Amp



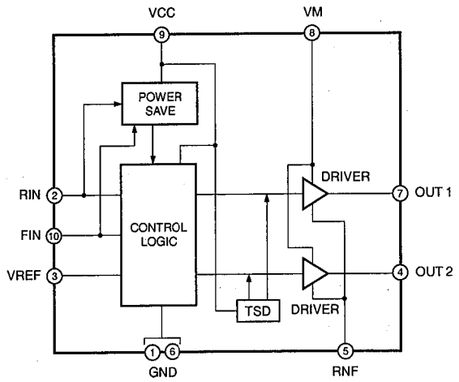
IC104, 105 : NJM5532D
IC102, 103 : NJM2068D-D
IC120 : BA15218
Dual Op-Amp



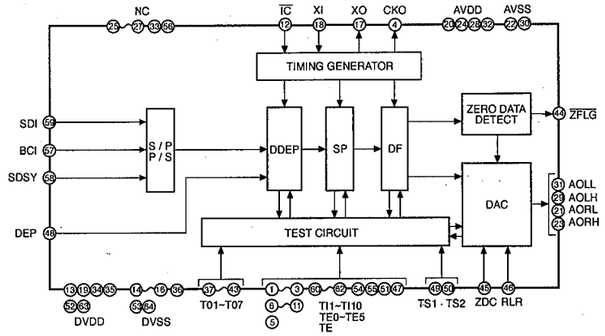
IC10 : HD74HC125P
Quad 3 State Bus Buffers



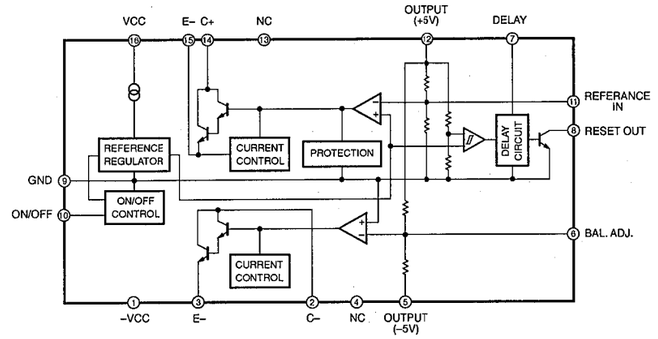
IC303 : BA6286
Motor Driver



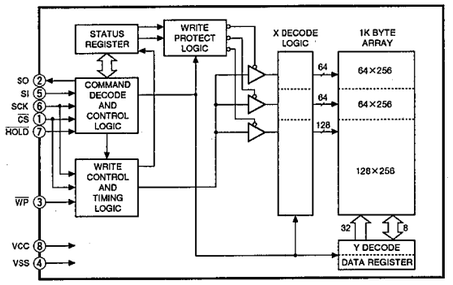
IC101 : YAC514
D/A Converter



IC201 : M5290P
Constant-Voltage Tracking Supply with Reset



IC320 : X25642D
Electrically Erasable PROM



Other ICs

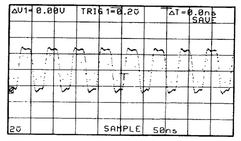
- **IC311 : µPD78044FGF** → See page 15
- **IC3 : MN662720RB** → See page 17

■ PIN CONNECTION DIAGRAM

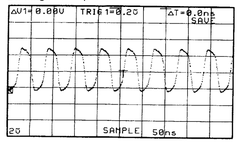
1SS355 1N4002S MA8051-L MA8056-M MA8062-M MA8075-M RLZ24B Anode / Cathode	2SA933S (Q,R) 2SC1740S (R,S) B C E	2SA934 (P,Q,R) 2SC2878 (A, B) 2SD400 E C B	22SB1565 (E, F) 2SD2394 (E, F) B C E	LA6510 10 1	BA6286 10 1
NJM2068D-D NJM5532B 8 1 4	BA15218 X25642D 8 1 4	HD74HC125P 14 1 7	M5290P 16 1 8	LA6536M 16 30 1 15	
AN8806SB 19 36 1 18	YAC514 51 33 52 32 64 1 19 20	MN662720RB 60 41 61 40 80 1 20 21	µPD78044FGF 64 41 65 40 80 1 24 25		

■ SCHEMATIC DIAGRAM

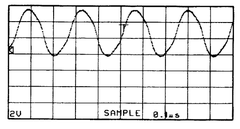
Point ① (Pin 59 of IC3)
V : 2V/div H : 50nsec/div
DC range 1 : 1 probe



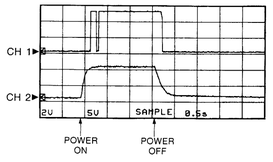
Point ② (Pin 17 of IC101)
V : 2V/div H : 50nsec/div
DC range 1 : 1 probe



Point ③ (Pin 34 of IC311)
V : 2V/div H : 0.1μsec/div
DC range 1 : 1 probe



Point ④
CH 1 : Pin 24 of IC311
CH 2 : Collector of Q204
V : 2V/div (CH 1)
V : 5V/div (CH 2)
H : 0.5sec/div
DC range 1 : 1 probe



S		U.C	R	A	G
1	T201	XL831	XL832	XL833	XL837
2	SW201	X	VL90800	X	X
3	JK102-JK103	VJ72680	X	VJ72680	X
4	D402	VV86160	X	VV86160	X
5	R403	10K	X	10K	X
6	W415	VY73080	X	VY73080	X

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k1	GO-3-201-206-304	2SA933S(Q/R) 2SA1115(E/F) 2SA1309A(Q/R/S)
k2	QI	2SA934(R/S) 2SB544(E/F)
k3	Q301-302-303	2SC1740S(R/S) 2SC2631(E/F) 2SC3311A(Q/R/S)
k4	CB102	TOTX174 TOTX176
k5	IC1	AN8806SB AN8809SB

* *All voltage are measured with a 10MΩ/V DC electric volt meter.*
* *Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.*
* *Schematic diagram is subject to change without notice.*

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊘	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
○	MICA CAPACITOR
◎	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☑	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
◎	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
◫	CEMENT MOLDED RESISTOR
◇	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR