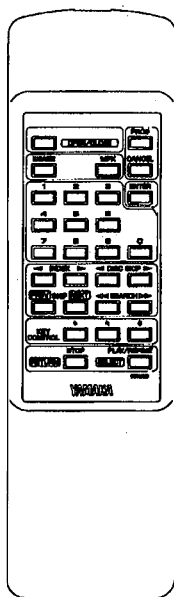
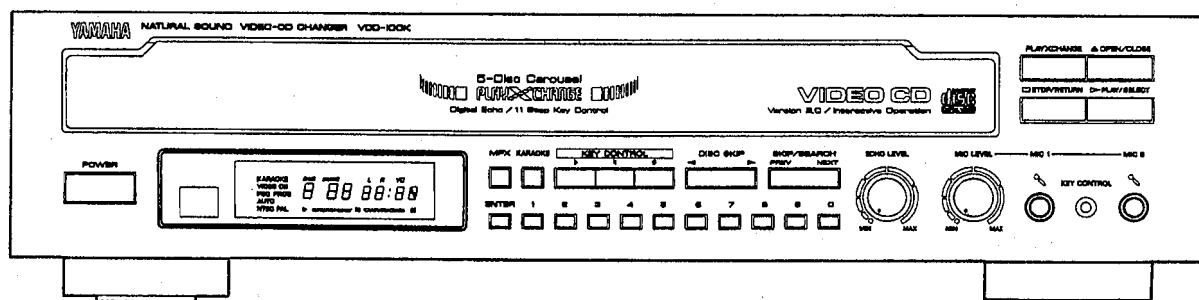


VIDEO-CD CHANGER

VCD-100K

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).

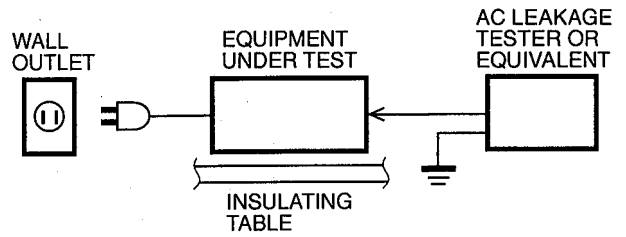
IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

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■ TO SERVICE PERSONNEL

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



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

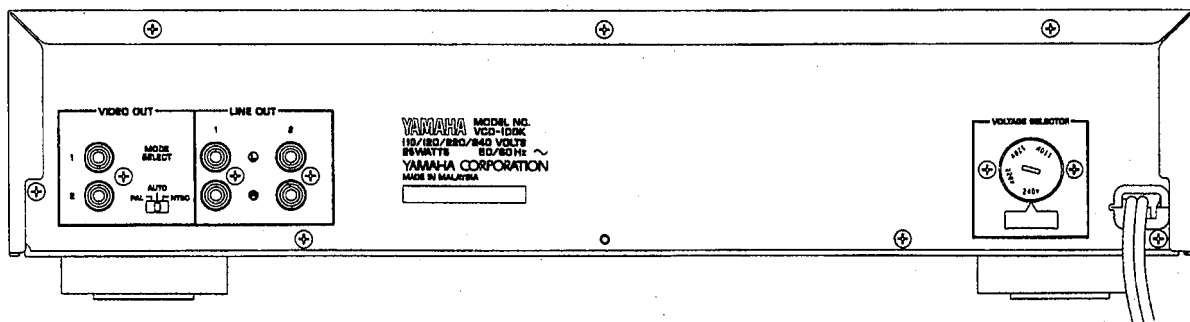
- Material : GaAlAs
- Wavelength : 780 nm
- Emission Duration : Continuous
- Laser Output : max. 44.6 μ W*

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

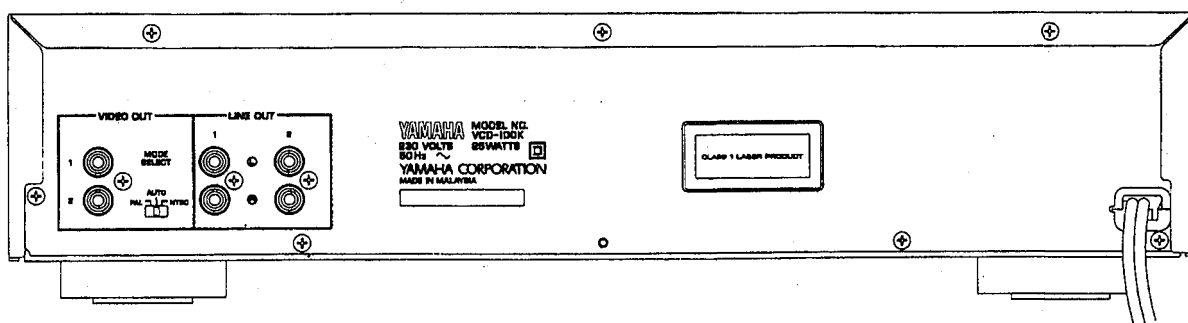
2. When checking the laser diode emission, keep your eyes more than 30 cm away from the objective lens.

■ REAR PANELS

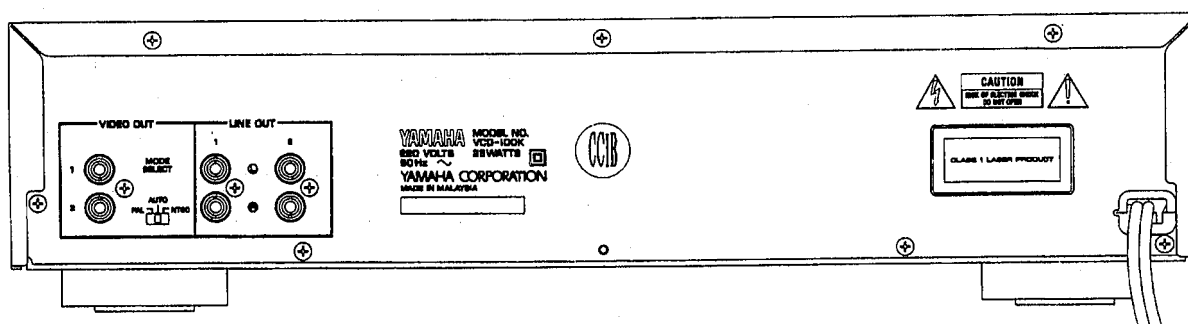
▼ R model



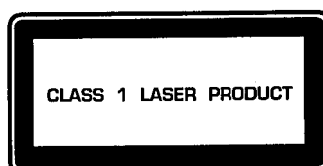
▼ L model



▼ T model



① L, T models

**English**

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

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 KLAS 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.

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.

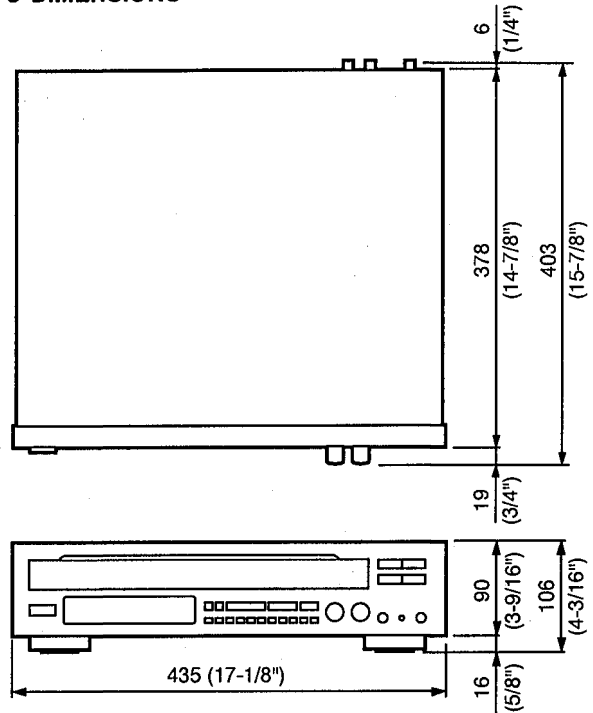
■ SPECIFICATIONS

Analog Output Level (1kHz, 0dB)	2.0V±0.5V
S/N Ratio	60dB
Dynamic Range	60dB
Harmonic Distortion+Noise	1%
Mic Input (1kHz, 436mVrms, VOL MAX, ECHO OFF)	2.0V±0.5V
Vocal Cancel (1kHz, 0dB)	200mV
Key Control (1kHz, 0dB)	# Max... 1.3kHz b Max.... 760Hz
Video Output Level	1Vp-p/75Ω
Power Requirements	
T model	220V AC 50Hz
L model	230V AC 50Hz
R model	110/120/220/240V AC 50/60Hz
Power Consumption	25W
Dimensions (W x H x D)	435 x 106 x 403 mm (17-1/8" x 4-3/16" x 15-7/8")
Weight	6.5kg (14 lbs 5 oz)
Accessories	Pin plug cord Remote control transmitter Dry-cell: x2 (Size "AA", R06)

* Specifications subject to change without notice.

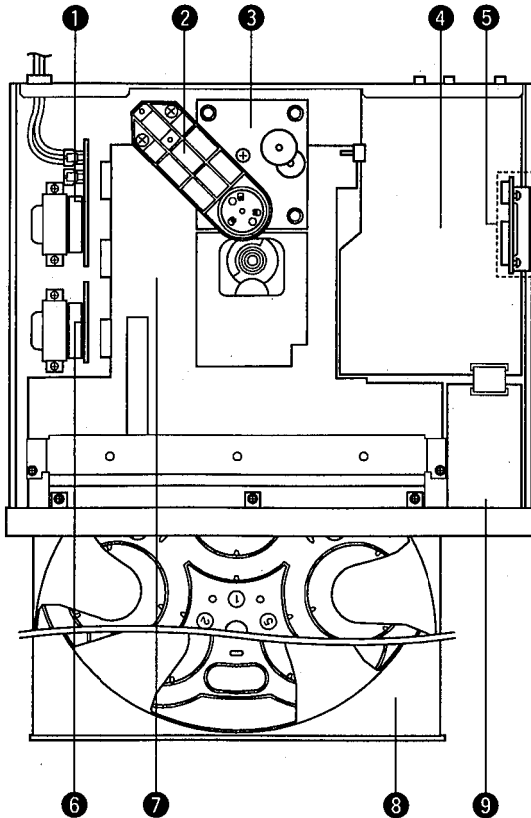
- R..... General model
- T..... China model
- L..... Singapore model

● DIMENSIONS



Unit : mm (inch)

■ INTERNAL VIEW



- ① P. C. B. POWER (1)
- ② CLAMP ASS'Y
- ③ PU UNIT ASS'Y
- ④ P. C. B. MAIN (1)
- ⑤ P. C. B. DECODER
- ⑥ P. C. B. POWER (2)
- ⑦ CM-100K UNIT
- ⑧ TRAY ASS'Y
- ⑨ P. C. B. MAIN (5)

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.

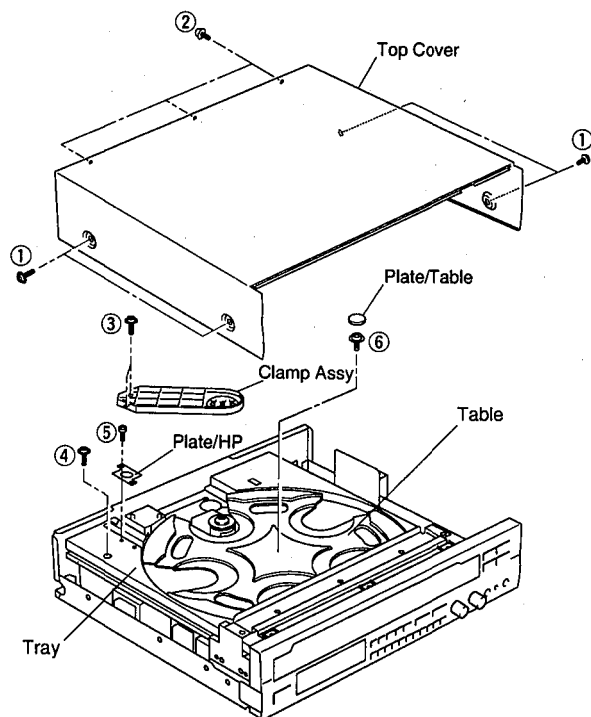


Fig. 1

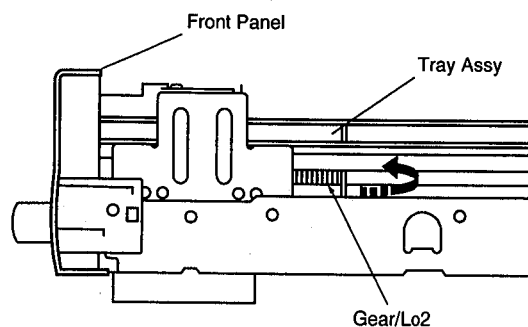


Fig. 2

4. Removal of Table

- a. Remove 1 screw (⑤) and then remove the Plate/HP 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.

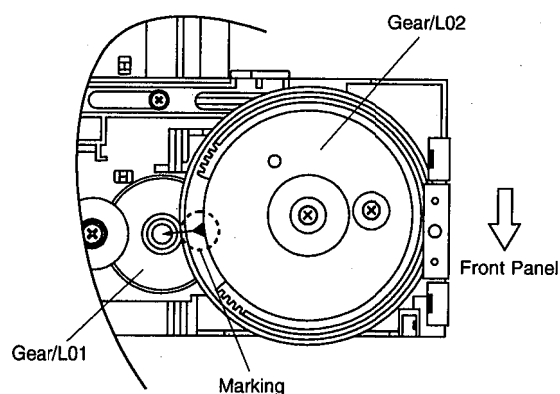


Fig. A

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.

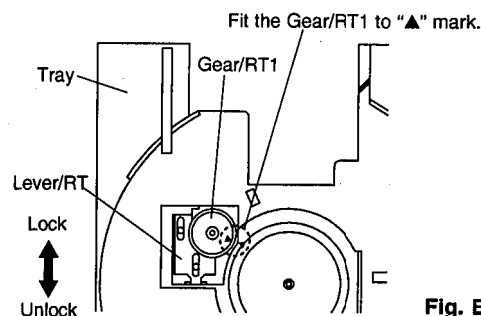


Fig. B-1

Fit the table to the thick line on "/" mark.

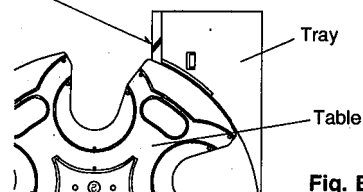


Fig. B-2

5. Removal of CM-100K Unit

- a. Remove 5 screw (⑦) and then remove the Support/Top as shown in Fig. 3.
- b. Remove 5 screws (⑧) as shown in Fig. 3.
- c. Remove connectors (CB1 to 4, CB14 and15) from the P. C. B. Main.
- d. Take the CM-100K Unit out slowly as shown in Fig. 3.

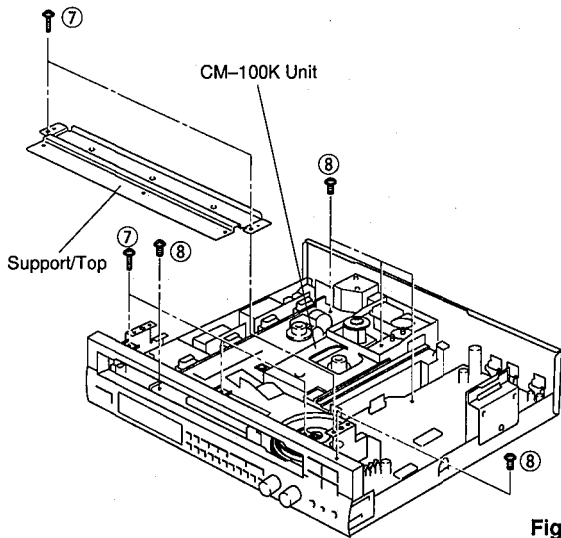


Fig. 3

6. Removal of Pick-up Head

- a. Remove 1 screw (⑨) and then remove the PU Unit Ass'y as shown Fig. 4.

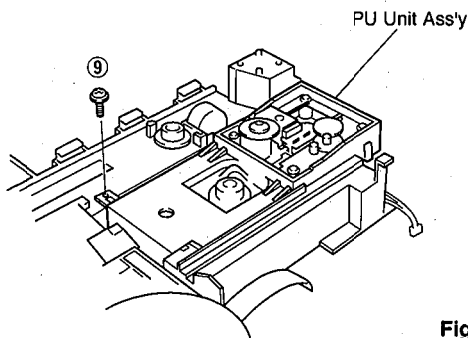


Fig. 4

- b. Pull out 4 Pins (⑩) 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.

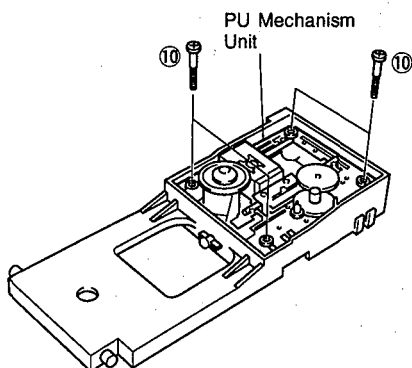


Fig. 5

● Operation Check Procedure

① Disassembly

- 1) Remove the top cover.
- 2) Remove the Clamp Ass'y.
- 3) Remove the stabilizer from the clamber.

Turn the Plate clockwise by 30° while holding the Stabilizer, and the Plate will come off. Remove the Stabilizer from the Clamber.

② Clamp the disc by using the stabilizer.

③ Set to the TEST mode and check for any faulty conditions.

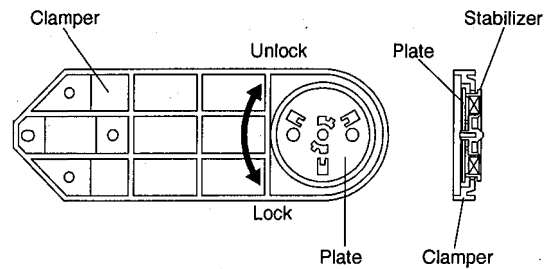


Fig. C

- c. Pull out the Gear/Power as shown in Fig. 6.

- d. Remove 4 screws (⑪) and then remove the Pick-up Head as shown in Fig. 6.

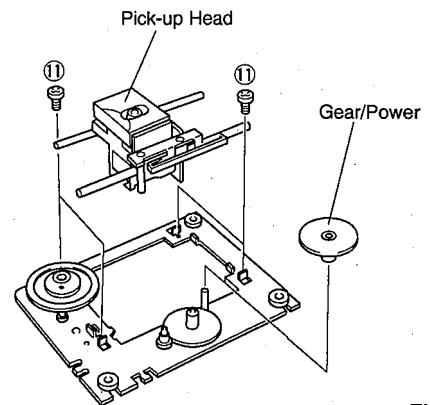


Fig. 6

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

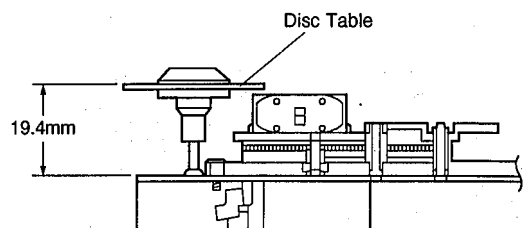
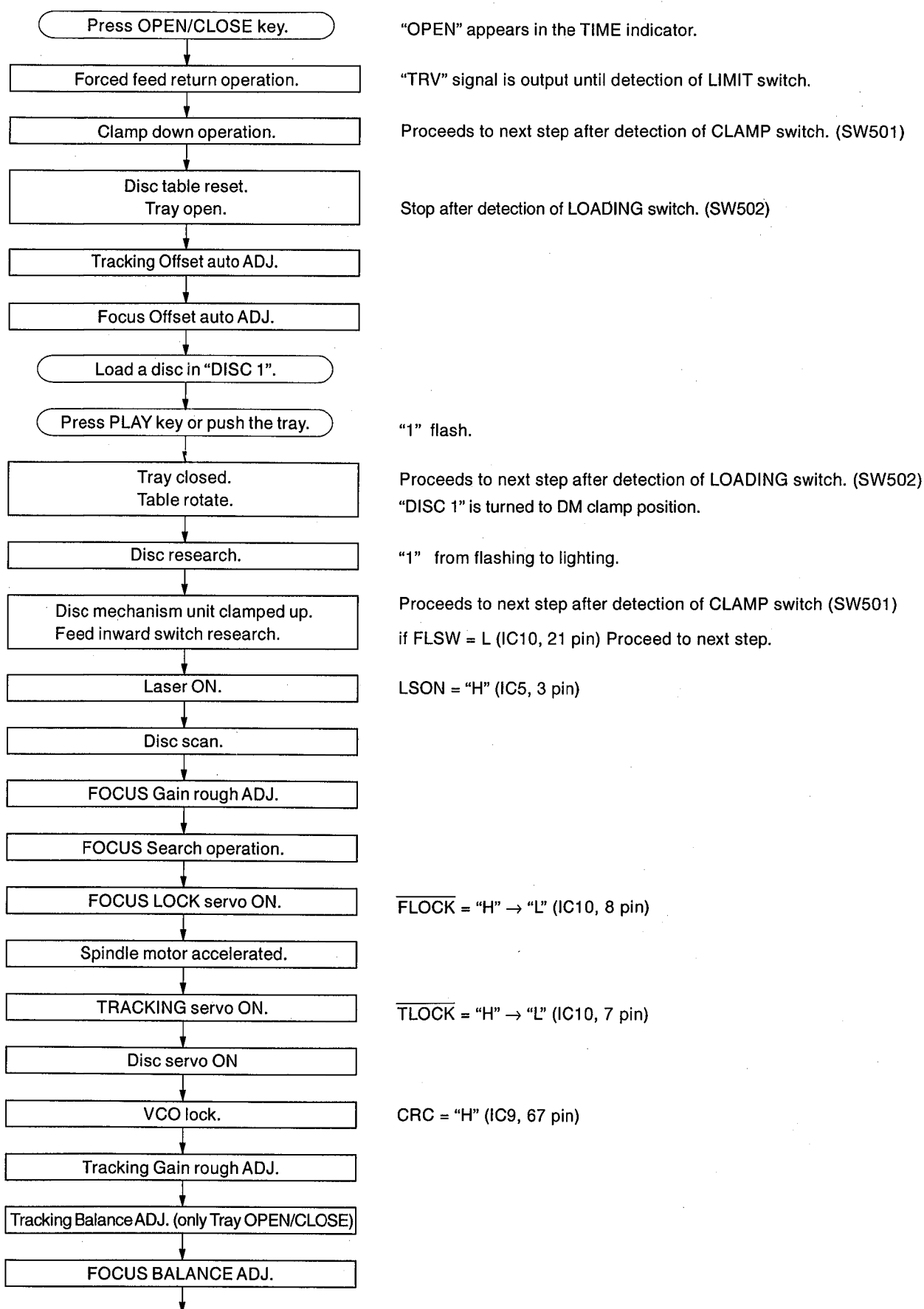
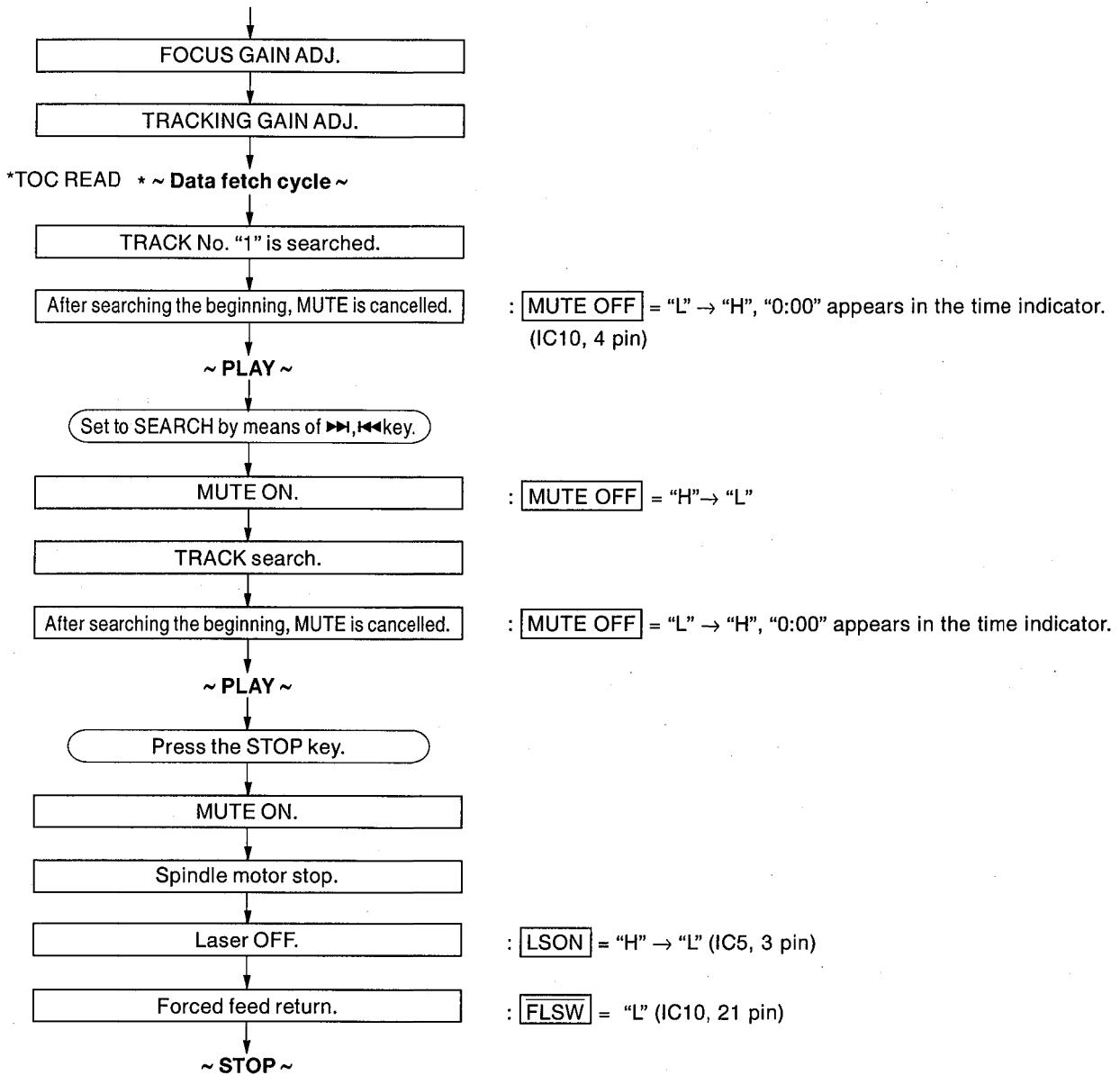


Fig. D

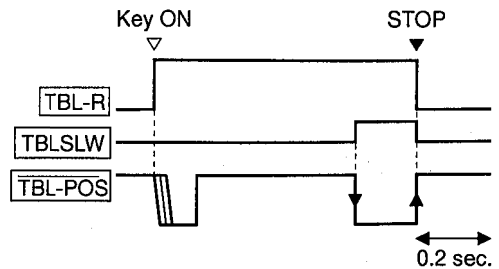
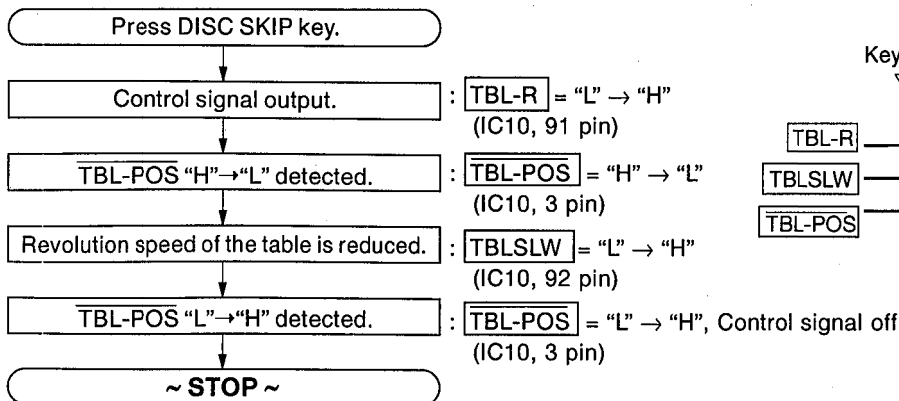
■ STANDARD OPERATION CHART



VCD-100K



● Tray Operation



■ TEST MODE

● Starting TEST mode

Test mode is brought about when the power is turned on while the "PLAY/SELECT" and "STOP/RETURN" 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.

● 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/SELECT	Plays if focus servo is effective. TRON, MUTE OFF.
STOP/RETURN	All stop. (Focus, spindle, feed, laser, tray, etc.) Initializes FL display.
SKIP/SEARCH PREV	Backward traverse move. (If inner SW turns on, traverse is stopped.) (Coefficient set up mode : upper digit down.)
SKIP/SEARCH NEXT	Forward traverse move. (Coefficient set up mode : upper digit up.)
DISC SKIP ▷	-
DISC SKIP ◁	-
ENTER	-
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 30 TRACK KICK-continuously
0	Forward 30 TRACK KICK-continuously
KEY CONTROL ♭	KEY CONTROL ♭ sharp MAX LEVEL
KEY CONTROL †	KEY CONTROL † natural LEVEL
KEY CONTROL #	KEY CONTROL # flat MAX LEVEL
KARAOKE	-
MPX	AUDIO modes change. (Lch, Rch, Vocal Cancel and Stereo mode)

● Function List of Remote Control Transmitter

CUSTOM CODE = (79)x

CODE	KEY	FUNCTION
01	OPEN/CLOSE	Tray open/close
02	PLAY/REPEAT	PLAY (FOON, TRON, TVON (FEON), SPON)
04	SKIP PREV	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 NEXT	Forward traverse move. (Coefficient set up mode : upper digit up)
0C	PROG	Rotates or accelerates spindle.
10	0	Forward 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	Backward 1 TRACK KICK continuously
16	6	Forward 1 TRACK KICK continuously
17	7	Backward 30 TRACK KICK continuously
18	8	Forward 30 TRACK KICK continuously
19	9	Backward 150 TRACK KICK continuously
35	KEY CONTROL ↓	KEY CONTROL ↓ flat MAX LEVEL
36	KEY CONTROL ↵	KEY CONTROL ↵
37	KEY CONTROL #	KEY CONTROL # sharp MAX LEVEL
38	KARAOKE	-
39	INDEX ▷	-
3A	INDEX ◁	-
3E	MPX	AUDIO modes change. (Lch, Rch, Vocal Cancel and Stereo mode)
3F	ENTER	-
4F	DISC SKIP▷	DISC SKIP + (Clockwise)
50	DISC SKIP◁	DISC SKIP - (Counterclockwise)
56	STOP/RETURN	All stop. (Focus, spindle, traverse, laser, tray, etc.)

■ ERROR MESSAGE

When stopped by any cause, press "STOP/RETURN" of the remote control while pressing and holding the "STOP/RETURN" 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

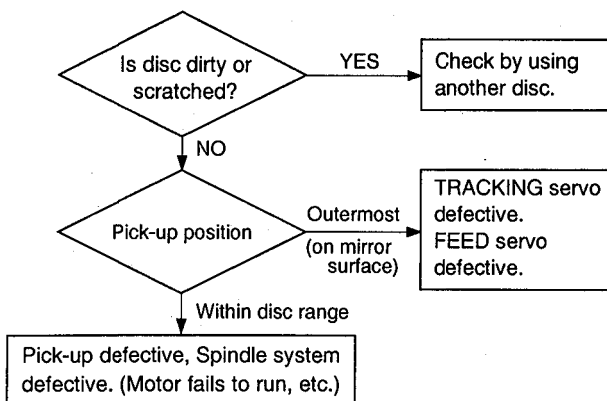
ERROR MESSAGE	DESCRIPTION
E - X 0	Data cannot be read after finishing search.
E - X 1	Data cannot be read during PLAY (x = 0), PAUSE (x = 4) or SCAN (x = 3).
E - 7 1	At the start, tracking servo is not effective.
E - 7 2	At the start, spindle servo PLL is not effective.
E - 7 3	At the start, data can 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") :

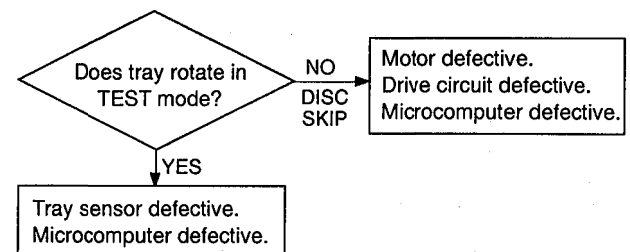
- (X = 0) PLAY
- (X = 2) SCAN
- (X = 3) PAUSE
- (X = 4) PEAK SEARCH
- (X = 5) SEARCH
- (X = 6) DISC SCAN
- (X = 7) START
- (X = 8) STOP
- (X = 9) DISC SEARCH
- (X = -) EJECT
- (X = C) NO DISC

1) Error Code Troubleshooting

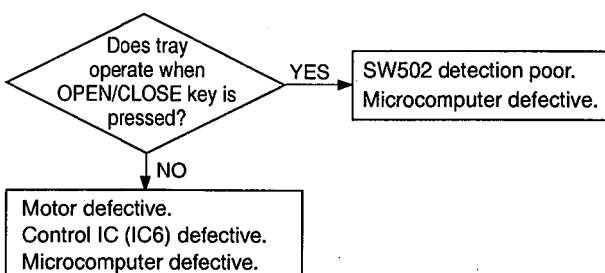
Error codes **X0**, **X1**, **73** Data cannot be read.



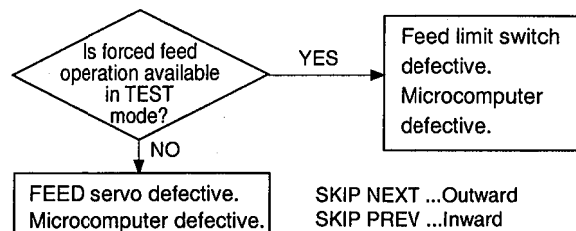
Error code **X6** Poor table rotation.



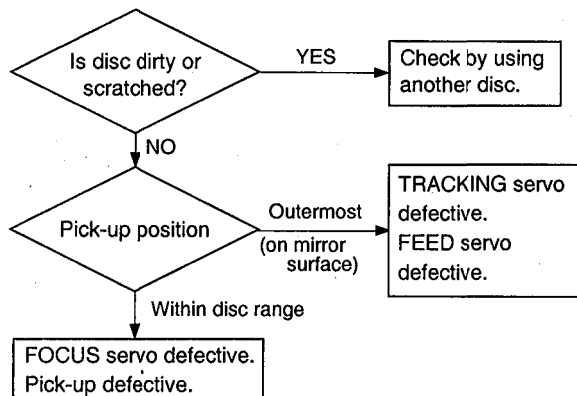
Error codes **X4**, **X5** Poor tray loading operation.



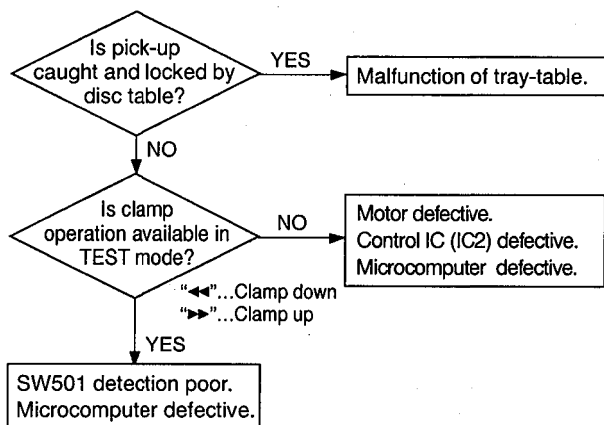
Error code **X7** FEED operation defective. (Limit switch fails)



Error code **X8** Focus drops.

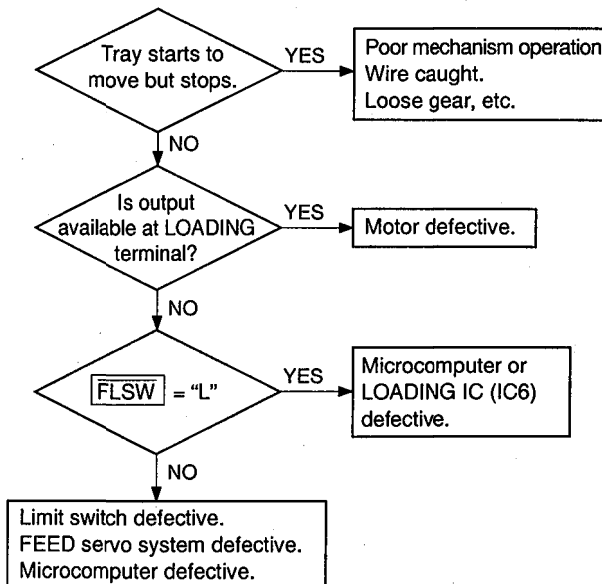


Error code **X9**, **XA** Poor clamp operation.

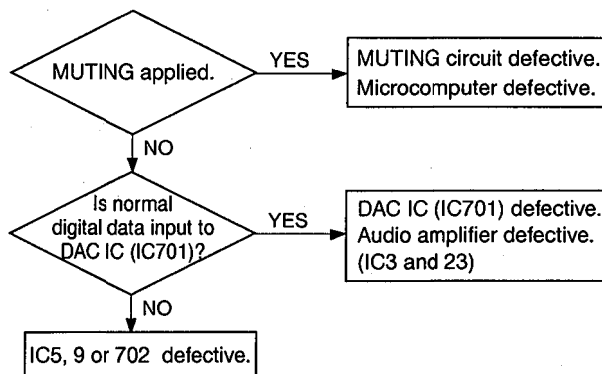


2) Troubleshooting from System Malfunctions.

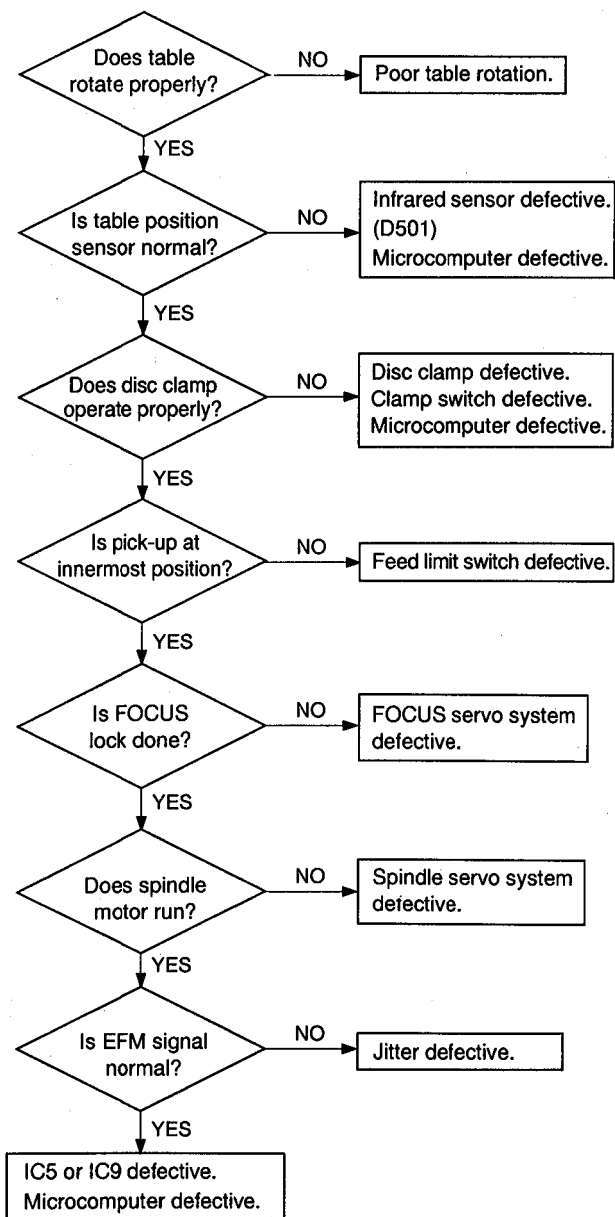
a) Tray fails to come out/go in.



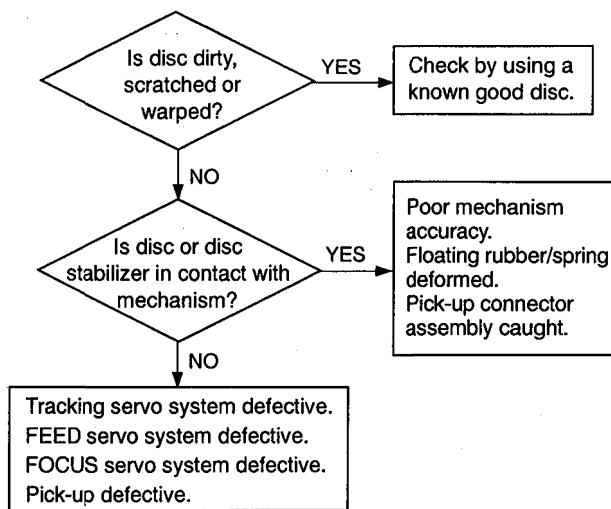
b) No sound generated, Sound cut during play. (but time display advanced properly)



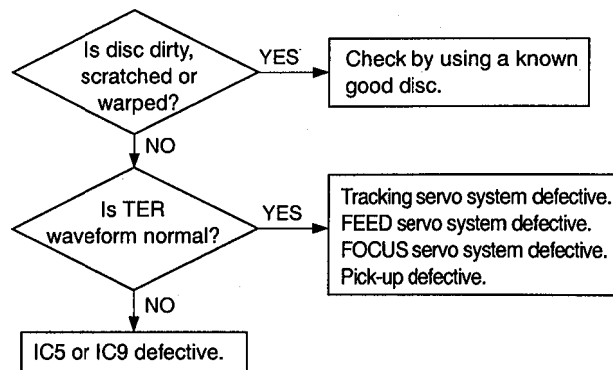
**c) Operates as if no disc loaded.
(although loaded)**



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



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



■ ADJUSTMENTS (Decoder)

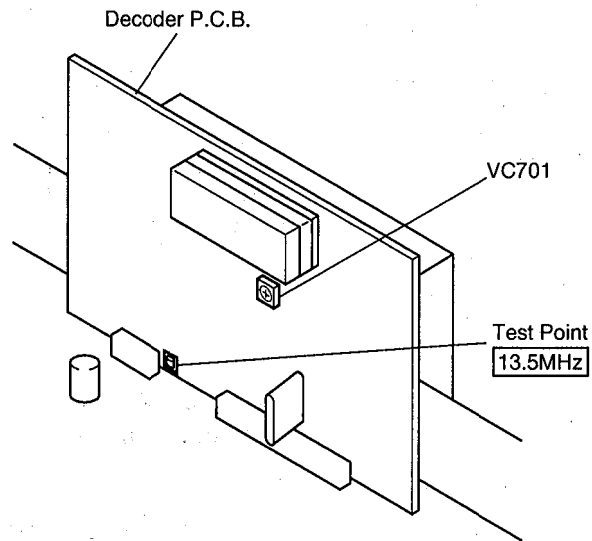
● Clock Adjustment

- 1) Connect a frequency counter to the test point **13.5MHz**.
- 2) Adjust the VC701 so that the following rating will be satisfied.

$$\text{FREQ} = 13.5 \text{ MHz} \pm 200\text{Hz}$$

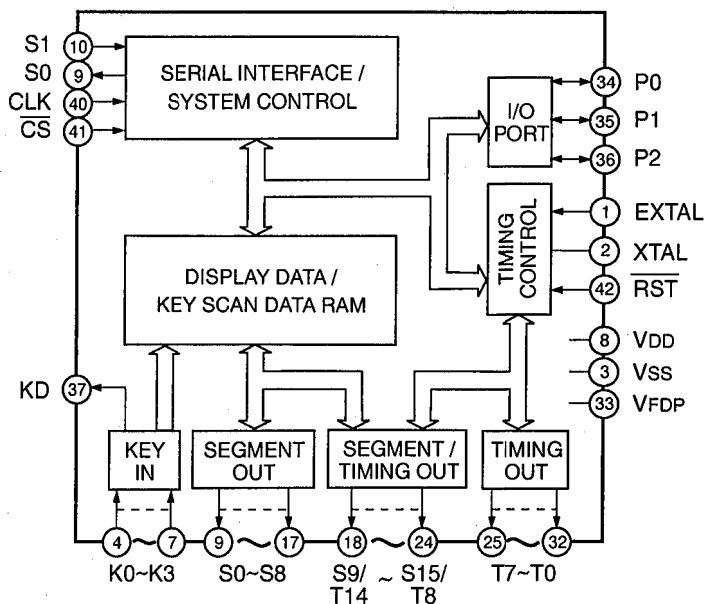
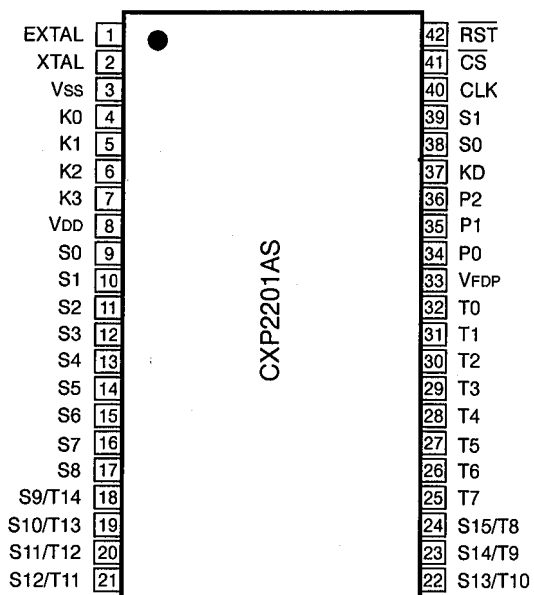
Note)

After replacing the Decoder P.C.B. with a service part, adjustment is NOT necessary.



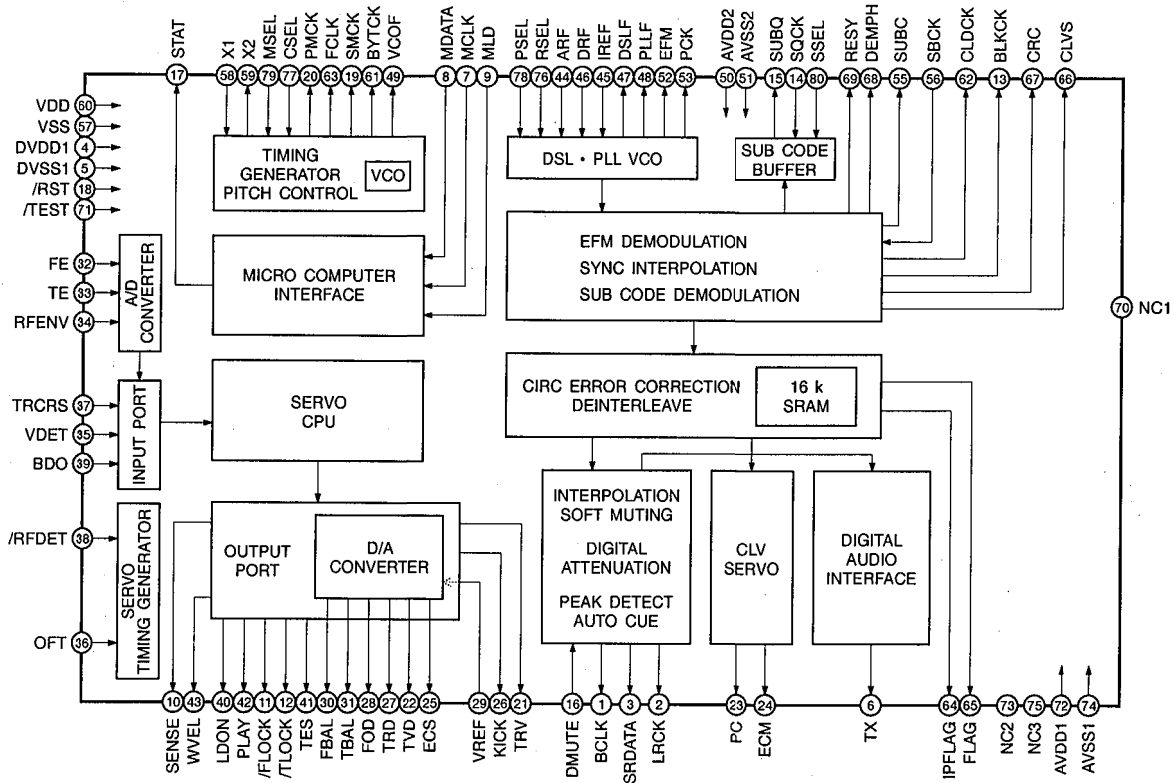
■ IC DATA

IC4 : CXP2201AS
Display Drive & Controller



Pin No.	Pin Name	I/O	Function
1	EXT	I	Ceramic connecting terminal for system clock oscillation.
2	XT	O	When using an external clock, data is input to EXT and XT is left open.
3	VSS	—	Connect to VSS.
4~7	K0~K3	I	Key input terminal (with built-in pull-down resistor)
8	VDD	—	Connect to VDD.
9~17	S0~S8	O	Output terminal exclusively for segment (with built-in pull-down resistor)
18~24	S9/T14~S15/T8	O	Output terminal for both segment/timing (with built-in pull-down resistor)
25~32	T7~T0	O	Output terminal exclusively for timing (with built-in pull-down resistor)
33	VFDP		Load power supply terminal for FDP
	NC	—	OPEN
34~36	P0~P2	I/O	Port input/output terminal (large current output)
37	KD	O	Key input detect terminal
38	S0	O	Serial data output terminal
39	S1	I	Serial data input terminal
40	CLK	I	Shift clock input terminal
41	CS	I	Chip select input terminal
42	RST	I/O	Reset terminal (with built-in pull-up resistor and power on reset circuit)

IC9 : MN662720RB
Signal Processor & Controller



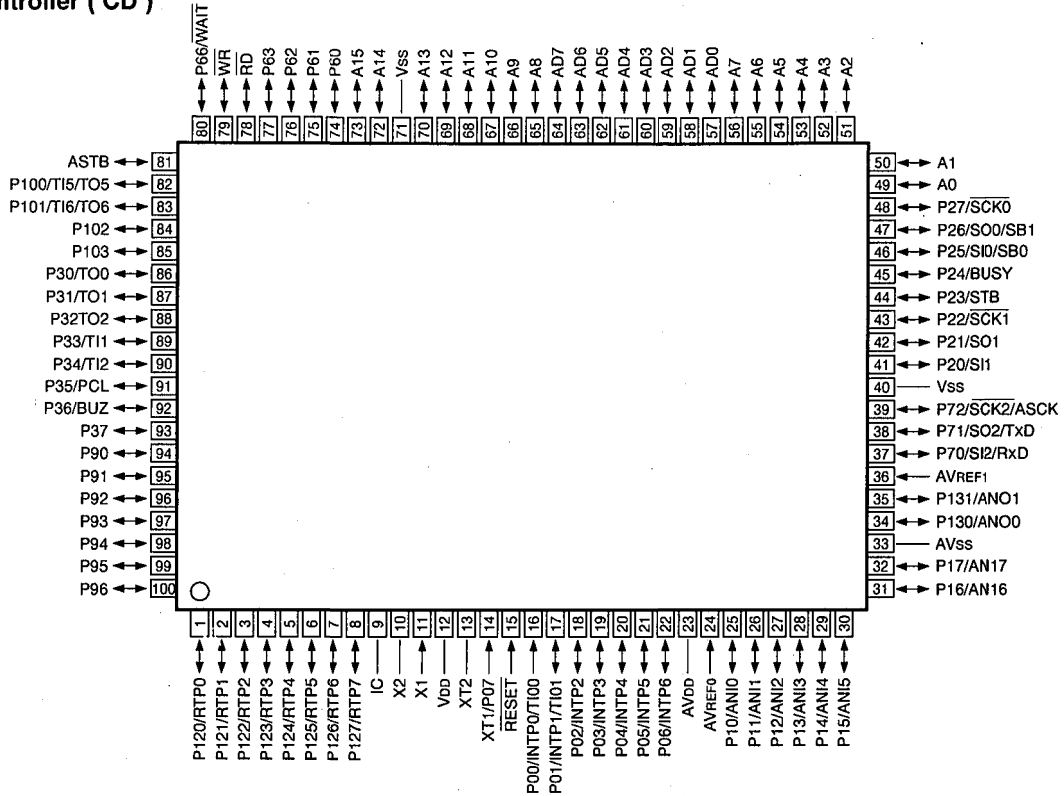
Pin No.	Pin Name	I/O	FUNCTION
1	BCLK	O	Bit clock output for SR DATA
2	LRCK	O	L/R identification signal output
3	SRDATA	O	Serial data output
4	DVDD1	I	Power supply for digital circuit
5	DVSS1	I	GND for digital circuit
6	TX	O	Digital, audio, interface output signal
7	MCLK	I	Microprocessor command clock 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	FLOCK	O	Focus servo drawing signal (L : when drawn)
12	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	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)

IC9 : MN662720RB

Signal Processor & Controller

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	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	DSLIF	I/O	Loop filter terminal for DSL
48	PLLIF	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	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

IC10 : μ PD78070AGF-3BA
System controller (CD)



No.	Port	Name	I/O	Function
1	P120/RTP0	OPSW	I	Open state of tray sensing switch input. Open state at "L".
2	P121/RTP1	CLSW	I	Closed state of tray sensing switch input. Closed state at "L".
3	P122/RTP2	TBLPOS	I	Table position detect signal input.
4	P123/RTP3	MUTEOFF	O	Sound output at "H" and sound output muted at "L".
5	P124/RTP4	DSPRES	O	Hardware reset output of MN662720. Reset at "L".
6	P125/RTP5	DMUTE	O	Mute output to MN662720. Muted at "H".
7	P126/RTP6	TLOCK	I	Tracking servo drawing signal input from MN662720. Drawn at "L".
8	P127/RTP7	FLOCK	I	Focus servo drawing signal input from MN662720. Drawn at "L".
9	IC	IC		GND
10	X2	X2] Ceramic oscillator. (5MHz)
11	X1	X1		
12	VDD	VDD		+5V
13	XT2	XT2		N.C.
14	XT1/P07	XT1		GND
15	RESET	RESET	I	Reset input.
16	P00/INTP0/T100	REM	I	Input from remote control receiving unit.
17	P01/INTP1/T101	BLKCK	I	Sub code, block clock input from MN662720.
18	P02/INTP2	ICS	I	Data request from microprocessor of DECODE circuit.
19	P03/INTP3	DOWNSW	I	PU unit down limit switch input. DOWN at "L".
20	P04/INTP4	UPSW	I	PU unit up limit switch input. UP at "L".
21	P05/INTP5	FLSW	I	Feed origin switch input. Feed origin at "L".
22	P06/INTP6	MICIN	I	MIC input detect input. MIC input detected at "H".
23	AVDD	AVDD		+5V
24	AVREF0	AVREF0		+5V
25	P10/ANI0	KEY0	I	KEY input from MIC with key control.
26	P11/ANI1	-] N.C.
27	P12/ANI2	-		

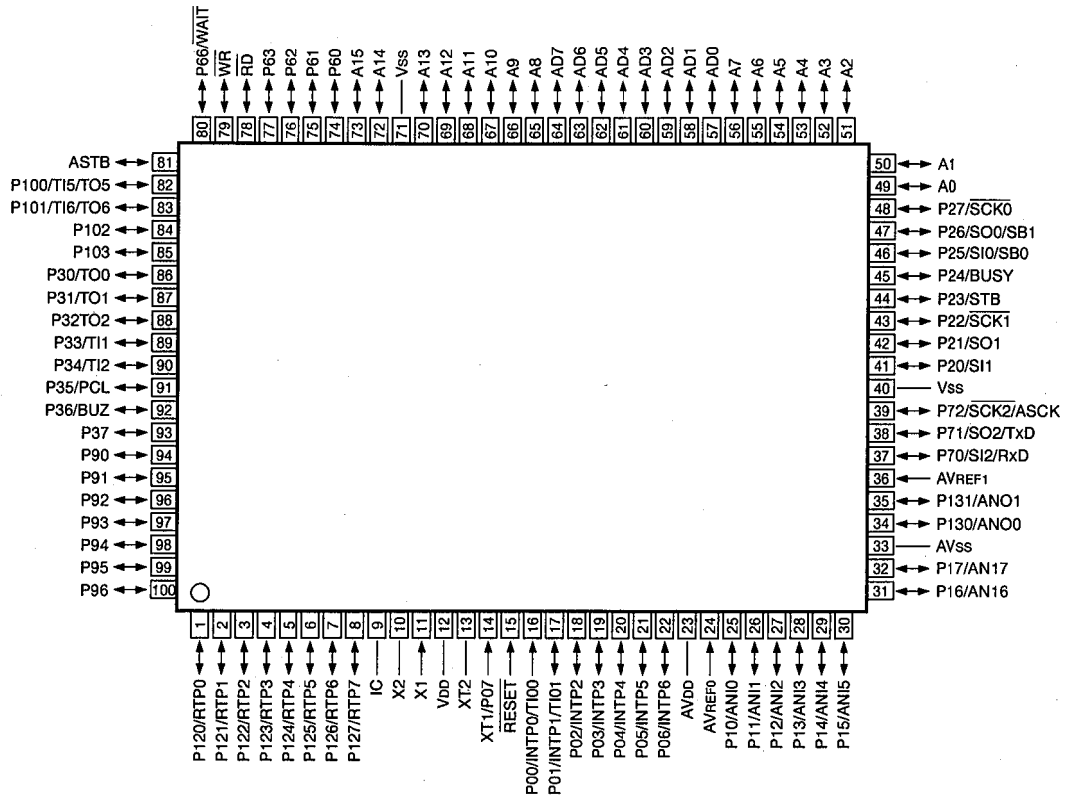
IC10 : μ PD78070AGF-3BA
System controller (CD)

No.	Port	Name	I/O	Function
28	P13/ANI3	PA/AUTO/NT	I	Display mode setting switch input. PAL at "H", auto-select at "+2.5V", NTSC at "L".
29	P14/ANI4	SWC	O	Switching of internal SW of M62453SP.
30	P15/ANI5	SWB	O	
31	P16/ANI6	SWA	O	
32	P17/ANI7	-		N.C.
33	AVSS	AVSS		GND
34	P130/ANO0	-		N.C.
35	P131/ANO1	BUSY	I	Data transfer instruction from mechanical control side.
36	AVREF1	AVREF1		+5V
37	P70/S12/RXD	SUBQ	I	Sub-code Q code input from MN662720.
38	P71/SO2/TXD	STAT	I	Status signal input from MN662720.
39	P72/SCK2/ASCK	SQCK	O	External clock output for sub-code Q register to MN662720.
40	VSS	VSS		GND
41	P20/SI1	SI	I	Serial communication serial data input from microprocessor of DECODE circuit.
42	P21/SO1	SO	O	Serial communication serial data output to microprocessor of DECODE circuit.
43	P22/SCK1	SCK	O	Serial communication serial clock output with microprocessor of DECODE circuit.
44	P23/STB	MLD	O	Command load signal output to MN662720.
45	P24/BUSY	SENSE	I	Sense signal input from MN662720.
46	P25/SI0/SB0	SI1	I	Serial data input from CXP2201AS.
47	P26/SO0/SB1	MDATA (SO1)	O	Command data output to MN662720 and serial data output to CXP2201AS.
48	P27/SCK0	MCLK (SCK1)	O	Command clock output to MN662720 and serial clock output to CXP2201AS.
49	A0	A0	I/O	Address bus.
50	A1	A1	I/O	
51	A2	A2	I/O	
52	A3	A3	I/O	
53	A4	A4	I/O	
54	A5	A5	I/O	
55	A6	A6	I/O	
56	A7	A7	I/O	
57	AD0	AD0	O	Data bus.
58	AD1	AD1	O	
59	AD2	AD2	O	
60	AD3	AD3	O	
61	AD4	AD4	O	
62	AD5	AD5	O	
63	AD6	AD6	O	
64	AD7	AD7	O	
65	A8	A8	I/O	Address bus.
66	A9	A9	I/O	
67	A10	A10	I/O	
68	A11	A11	I/O	
69	A12	A12	I/O	
70	A13	A13	I/O	
71	VSS	VSS		GND
72	A14	A14	I/O	Address bus.
73	A15	-		N.C.
74	P60			+5V
75	P61			+5V
76	P62			+5V
77	P63			+5V
78	RD	RD	O	Output enable output of external memory.
79	WR	WR		N.C.
80	P66/WAIT	FGH	O	Focus gain switching signal output. Gain H at "H".

IC10 : μ PD78070AGF-3BA
System controller (CD)

No.	Port	Name	I/O	Function
81	ASTB	-] N.C.
82	P100/TI5/TO5	-		
83	P101/TI6/TO6	FLCS	O	Chip select output of CXP2201.
84	P102	-] N.C.
85	P103	-		
86	P30/TO0	CLOSE	O	Tray close signal output.
87	P31/TO1	OPEN	O	Tray open signal output.
88	P32/TO2	CL DOWN	O	Clamp down signal output.
89	P33/TI1	CL UP	O	Clamp up signal output.
90	P34/TI2	TBL-L	O	Table counterclockwise rotate signal output.
91	P35/PCL	TBL-R	O	Table clockwise rotate signal output.
92	P36/BUZ	TBL SLOW	O	Table rotate control signal output. Slow table rotation at "H" and normal rotation at "L".
93	P37	FEED OFF	O	Feed servo off signal output.
94	P90	-		+5V
95	P91	MIC ON/OFF	O	MIC OFF signal output.
96	P92	SCI	O	Serial communication clock output to M65848SP.
97	P93	SDA	O	Serial communication data output to M65848SP.
98	P94	-] N.C.
99	P95	-		
100	P96	-		

IC704 : μ PD78070AGF-3BA
System controller (Decoder)



No.	Port	Name	I/O	Function
1	P120/RTP0	D0	I/O	Data bus.
2	P121/RTP1	D1	I/O	
3	P122/RTP2	D2	I/O	
4	P123/RTP3	D3	I/O	
5	P124/RTP4	D4	I/O	
6	P125/RTP5	D5	I/O	
7	P126/RTP6	D6	I/O	
8	P127/RTP7	D7	I/O	
9	IC	IC		GND
10	X2	X2		Ceramic oscillator. (5MHz)
11	X1	X1		
12	VDD	VDD		+5V
13	XT2	XT2		N.C.
14	XT1/P07	XT1		GND
15	RESET	RESET	I	Reset input. Reset at "L".
16	P00/INTP0/T100	INT CL480	I	Interrupt request from CL480.
17	P01/INTP1/T101	BLKCK		N.C.
18	P02/INTP2	-		
19	P03/INTP3	-		
20	P04/INTP4	-		
21	P05/INTP5	-		
22	P06/INTP6	-		
23	AVDD	AVDD		+5V
24	AVREF0	AVREF0		+5V
25	P10/ANI0	TEST0	O	Self-diagnosis result output. "Valid when Pin No. 46 (P26) is LOW"
26	P11/ANI1	TEST1	O	
27	P12/ANI2	TEST2	O	

VCD-100K

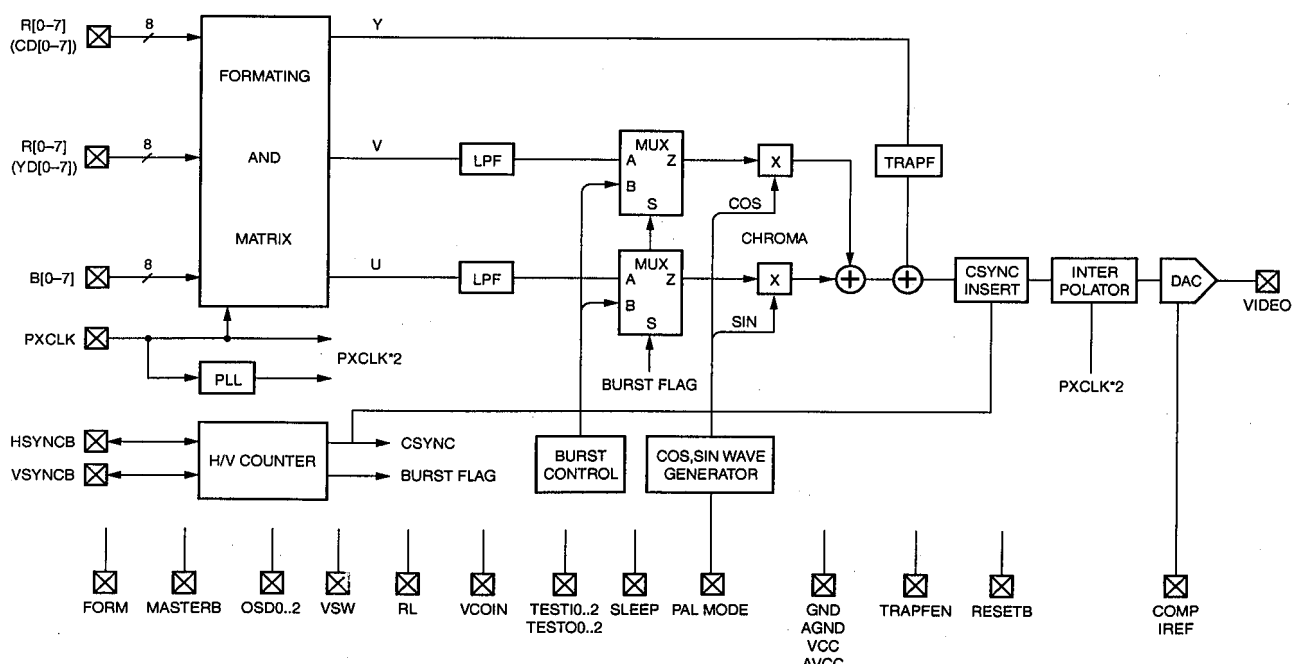
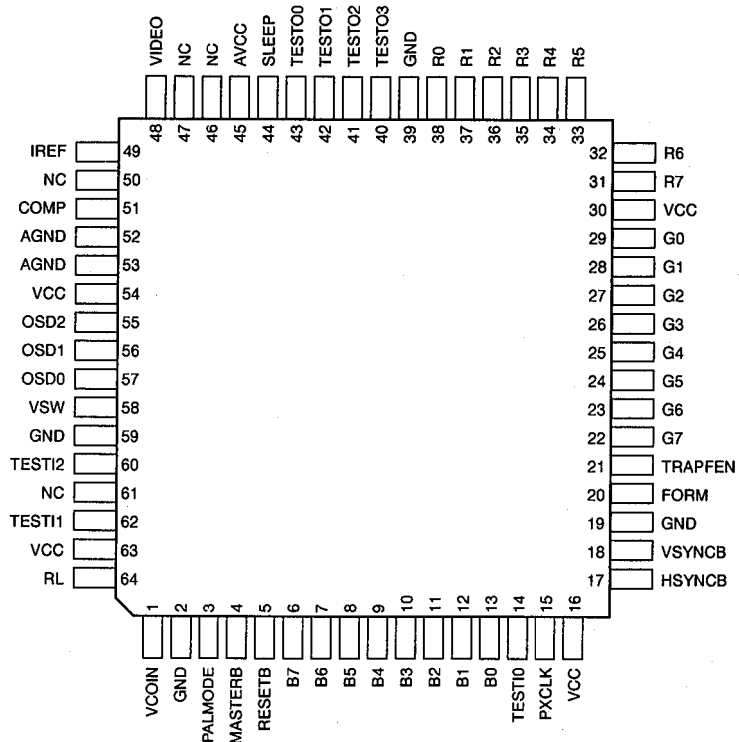
**C704 : μ PD78070AGF-3BA
System controller (Decoder)**

No.	Port	Name	I/O	Function
28	P13/ANI3	TEST3	O	Self-diagnosis result output. "Valid when Pin No. 46 (P26) is LOW"
29	P14/ANI4	VSW	O	Control of RL5C292 OSD/video switching control terminal. "H = OSD, L = RGB"
30	P15/ANI5	OSD0	O	OSD color specification output terminal.
31	P16/ANI6	OSD1	O	
32	P17/ANI7	OSD2	O	
33	AVSS	AVSS		GND
34	P130/ANO0	RXD		N.C.
35	P131/ANO1	TXD		N.C.
36	AVREF1	AVREF1		+5V
37	P70/S12/RXD	RXD		N.C.
38	P71/SO2/TXD	TXD		
39	P72/SCK2/ASCK	-		
40	VSS	VSS		GND
41	P20/SI1	SI	I	Serial communication serial data input from microprocessor on MAIN circuit.
42	P21/SO1	SO	O	Serial communication serial data output to microprocessor on MAIN circuit.
43	P22/SCK1	SCK	O	Serial communication serial clock output with microprocessor on MAIN circuit.
44	P23/STB	-		N.C.
45	P24/BUSY	-		N.C.
46	P25/SI0/SB0	TESTMODE	I	Setting terminal for self-diagnosis mode.
47	P26/SO0/SB1	INTB	O	INT output terminal to LC78835. Initial clear at "L"
48	P27/SCK0	MUTE	O	MUTE output terminal to LC78835. Muted at "H"
49	A0	A0	I/O	Address bus.
50	A1	A1	I/O	
51	A2	A2	I/O	
52	A3	A3	I/O	
53	A4	A4	I/O	
54	A5	A5	I/O	
55	A6	A6	I/O	
56	A7	A7	I/O	
57	AD0	AD0	O	Data bus.
58	AD1	AD1	O	
59	AD2	AD2	O	
60	AD3	AD3	O	
61	AD4	AD4	O	
62	AD5	AD5	O	
63	AD6	AD6	O	
64	AD7	AD7	O	
65	A8	A8	I/O	Address bus.
66	A9	A9	I/O	
67	A10	A10	I/O	
68	A11	A11	I/O	
69	A12	A12	I/O	
70	A13	A13	I/O	
71	VSS	VSS		GND
72	A14	A14	I/O	Address bus.
73	A15	A15	I/O	Address bus.
74	P60	VOE	O	Video output enable output terminal.
75	P61			+5V
76	P62			+5V
77	P63			+5V
78	\overline{RD}	\overline{RD}	O	Output enable output for external memory.
79	\overline{WR}	\overline{WR}	O	Input enable output for external memory.
80	P66/ \overline{WAIT}	CDDA VCD	O	Disc judgment input terminal for CDDA and VCD. CDDA at "H".

IC704 : μ PD78070AGF-3BA
System controller (Decoder)

No.	Port	Name	I/O	Function
81	ASTB	ASTB		N.C.
82	P100/TI5/TO5	DACK	O	Access permit with host of CL480.
83	P101/TI6/TO6	CFLEVEL	O	CFIFO memory state indication.
84	P102	CL480R/W	O	Output and input enable output for CL480.
85	P103	PAL/NTSC	O	PAL/NTSC switching output terminal. PAL at "H"
86	P30/TO0	MPEG RST	O	Reste signal output terminal for CL480. Reset at "L"
87	P31/TO1	PCM DAC		N.C.
88	P32/TO2	BUSY	O	Instruction for data output from microprocessor on MAIN circuit.
89	P33/TI1	DRIVE	O	Request for data output from microprocessor on DECODE circuit.
90	P34/TI2	CS	O	Chip select of CL480.
91	P35/PCL	HSEL2	I/O] Address bus
92	P36/BUZ	HSEL1	I/O	
93	P37	HSEL0	I/O	
94	P90			+5V
95	P91			+5V
96	P92			+5V
97	P93			+5V
98	P94	TL1] N.C.
99	P95	TL2		
100	P96	TL3		

IC707 : RL5C292
Digital Video Encoder



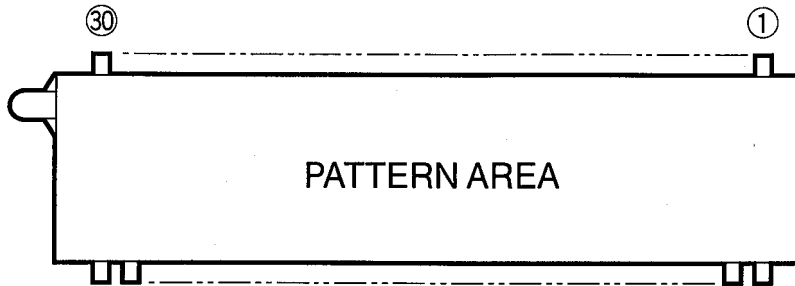
IC707 : RL5C292
Digital Video Encoder

 PU : Pull-Up
 PD : Pull-Down built in

Pin No.	Pin Name	I/O	Function
15	PXCLK	I	13.5MHz pixel clock input terminal (LVTTTL level). Accuracy of the sub-carrier frequency of the video signal depends on accuracy of this clock frequency.
20	FORM	IPU	Input format select terminal (LVTTTL level). CCIR-601 YCbCr(4:2:2) input when FORM=0 and RGB input when FORM=1 (with Pull-up).
38~31	R0~7	I	R data or CbCr data input terminal (LVTTTL level). The data input range is 16 to 235 for R data and 16 to 240 for CbCr data.
29~22	G0~7	I	G data or Y data input terminal (LVTTTL level). The data input range is 16 to 235 for both G data and Y data.
13~6	B0~7	I	B data input terminal (LVTTTL level). The data input range is 16 to 235. Connect to GND when FORM=0.
4	MASTERB	IPU	Synchronous mode switching control terminal (LVTTTL level). internal synchronous mode when MASTERB=0 and external synchronous mode when MASTERB=1. (with Pull-up)
17	HSYNCB	I/O	Horizontal synchronous signal input/output terminal (LVTTTL level). When in the external synchronous mode, signals are input, sampled at falling of PXCLK and only falling edge is detected. The standard HSYNCB cycle are 858 clock (NTSC) and 864 clock (PAL).
18	VSYNCB	I/O	Vertical synchronous signal input/output terminal (LVTTTL level). When in the external synchronous mode, signals are input, sampled at falling of PXCLK and only falling edge is detected. When falling edges of HSYNCB and VSYNCB agree, it is considered as beginning of the ODD field and when they don't, as beginning of the EVEN field.
3	PALMODE	I	Video mode switching control terminal (LVTTTL level). PAL mode when PALMODE=1 and NTSC mode when PALMODE=0.
5	RESETB	I	Reset input terminal (LVTTTL level). LOW active.
21	TRAPPEN	IPU	Built-in trap filter enable control terminal (LVTTTL level). Trap filter enable when TRAPPEN=1 and trap filter disable when TRAPPEN=0. (with Pull-up)
44	SLEEP	I	Sleep mode control terminal (LVTTTL level). Sleep mode when SLEEP=1 and normal operation mode when SLEEP=0.
58	VSW	I	OSD/video switching control terminal (LVTTTL level). Signals are sampled at falling of PXCLK and the data from OSD0-2 input terminal is displayed when VSW=1 and the data from RGB input terminal when VSW=0.
57~55	OSD0~2	I	OSD color designation input terminal (LVTTTL level). Signals are sampled at falling of PXCLK and encoded in place of the data from RGB input terminal when VSW=1.
48	VIDEO	O	VIDEO analog output terminal (37.5 Ω drive)
51	COMP	-	Decoupling capacitor connection terminal for phase compensation
49	IREF	-	Resistor terminal for setting full-scale output current value
1	VCOIN	I/O	Charge pump output/VCO input terminal (Connect a capacitor for loop filter.)
64	RL	-	VCO bias terminal. Connect to standard analog GND.
16, 30, 54, 63	VCC	-	Power supply for digital section (+3.3V or +5V)
2, 19, 39, 59	GND	-	Digital GND
45	AVCC	-	Power supply for analog section (+5V)
52, 53	AGND	-	Analog GND
14, 62, 60	TESTI0~2	IPD	Test input terminal. Set to open.
43~40	TESTO0~3	O	Test output terminal. Set to open.
61	NC	-	Reserved. Be sure to set to open.
46, 47, 50	NC	-	Be sure to set to open.

■ DISPLAY DATA (VU691500)

● V1 : 9-ST-17GK



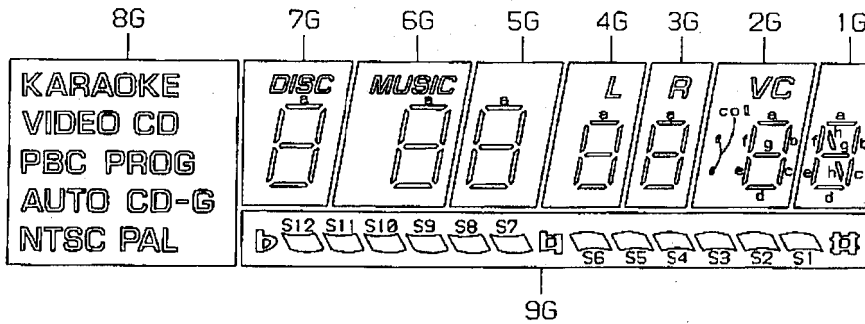
• PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CONNECTION	F1	F1	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	P15	P14	P13	P12	P11	P10

PIN NO.	19	20	21	22	23	24	25	26	27	28	29	30
CONNECTION	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	F2	F2

NOTE 1) F1, F2 Filament
 2) NP No pin
 3) P1~P15... Datum Line
 4) 1G~9G Grid

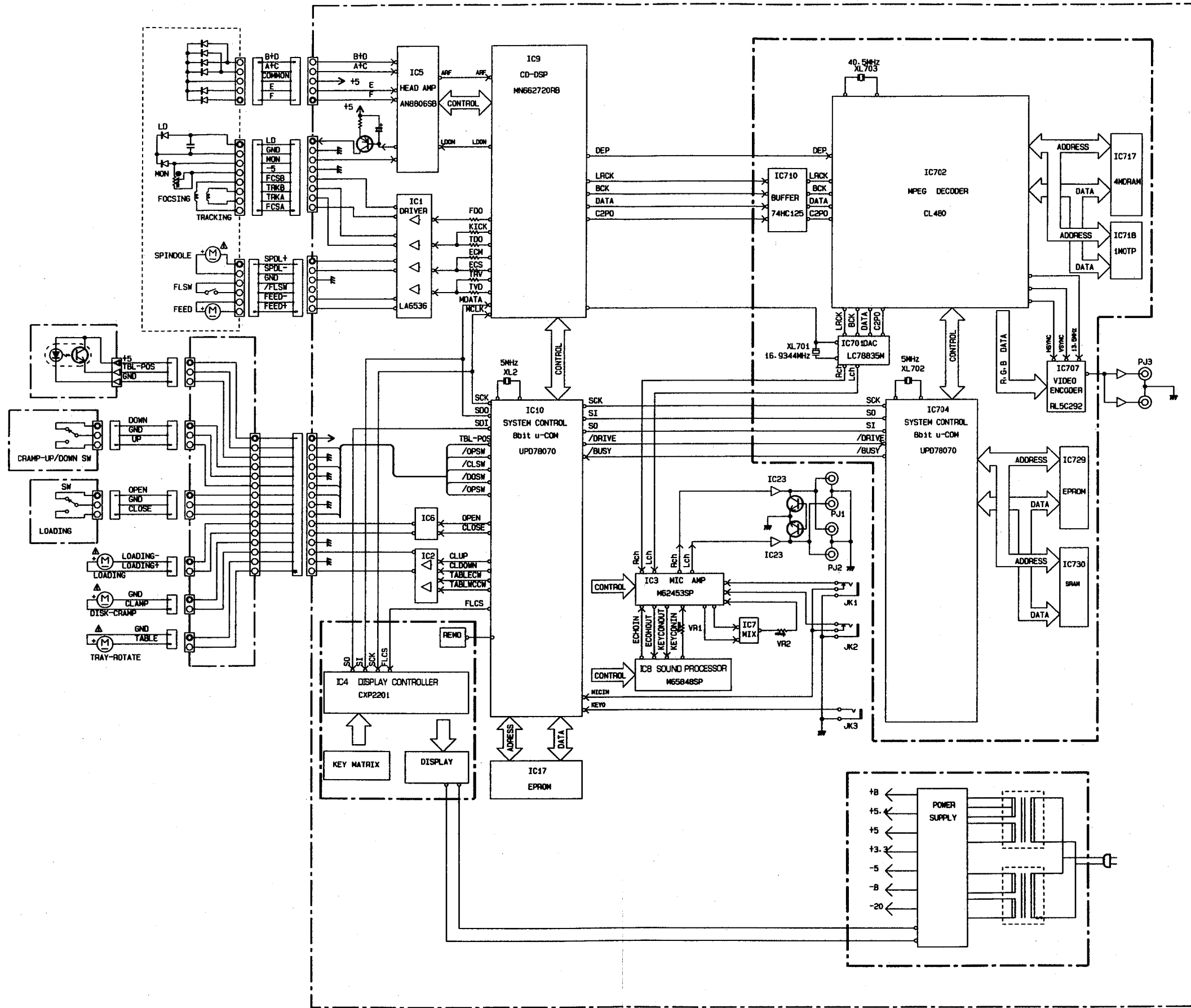
• GRID ASSIGNMENT



• ANODE CONNECTION

	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	⊕	KARAOKE	d	d	d	d	d	d	d
P2	S1	VIDEO CD	e	e	e	e	e	e	e
P3	S2	PBC	c	c	c	c	c	c	c
P4	S3	PROG	g	g	g	g	g	g	g
P5	S4	AUTO	f	f	f	f	f	f	f
P6	S5	NTSC	b	b	b	b	b	b	b
P7	S6	PAL	a	a	a	a	a	a	a
P8	⊕	CD-G	—	—	—	—	—	col	h
P9	S7	—	DISC	MUSIC	—	L	R	VC	—
P10	S8	—	—	—	—	—	—	—	—
P11	S9	—	—	—	—	—	—	—	—
P12	S10	—	—	—	—	—	—	—	—
P13	S11	—	—	—	—	—	—	—	—
P14	S12	—	—	—	—	—	—	—	—
P15	⊕	—	—	—	—	—	—	—	—

■ BLOCK DIAGRAM



1

2

3

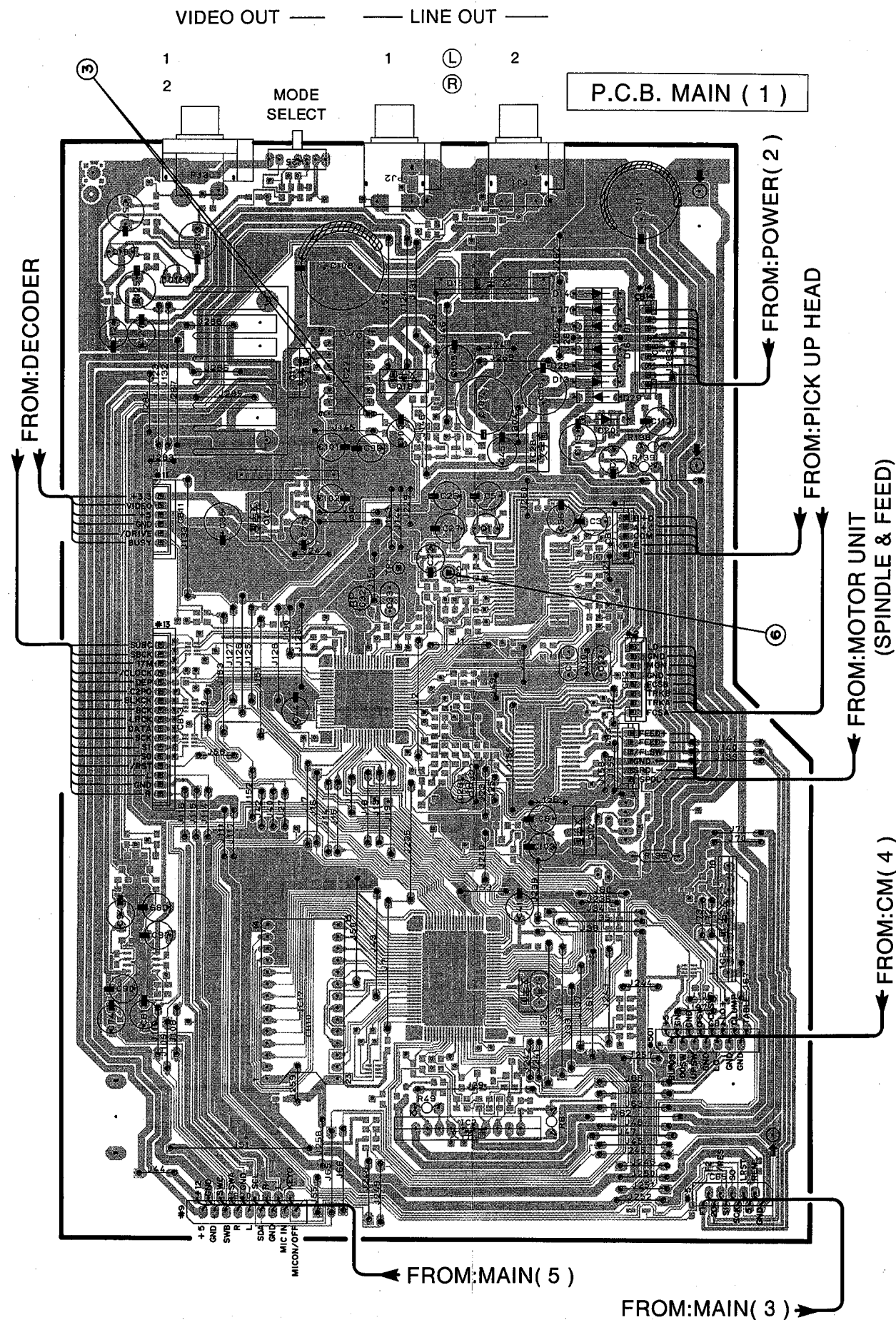
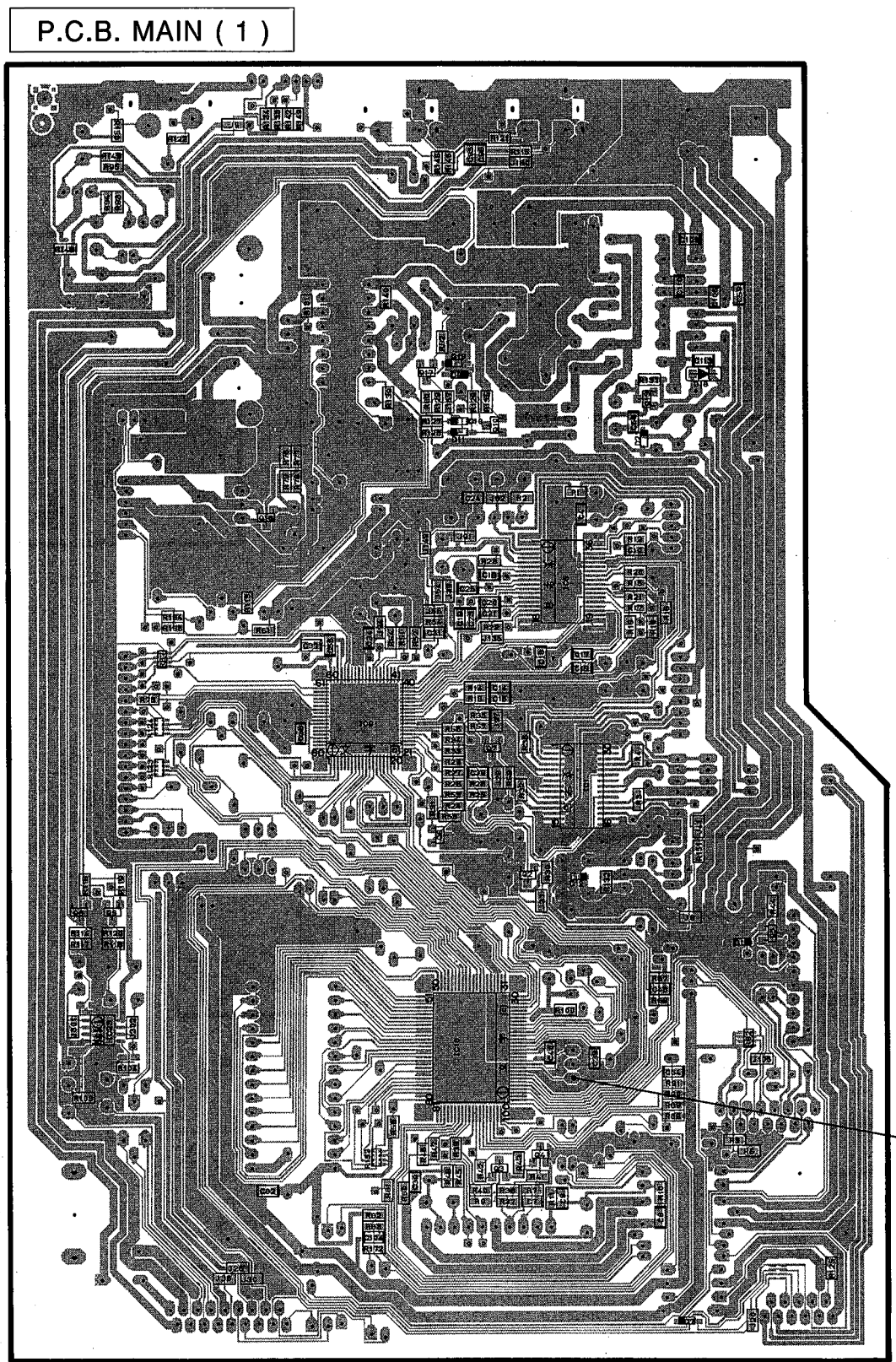
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5

6

■ PRINTED CIRCUIT BOARD (Foil side)

②, ③ and ⑥ : TEST POINT WAVEFORMS (See page 38)



1

2

3

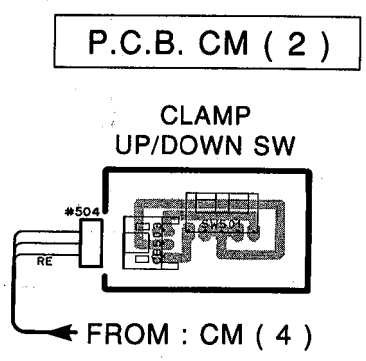
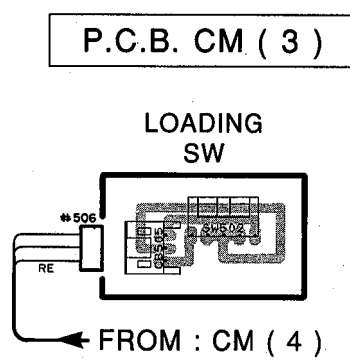
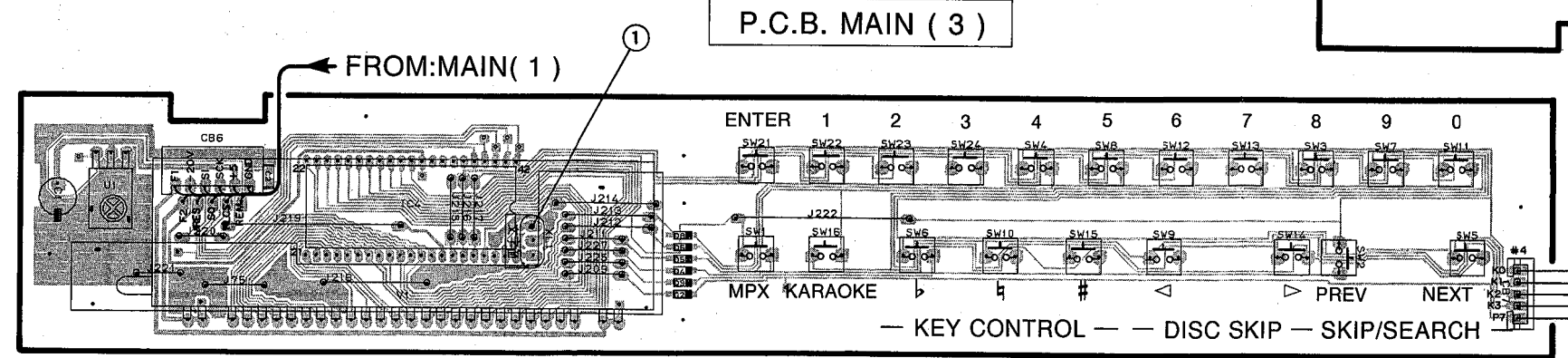
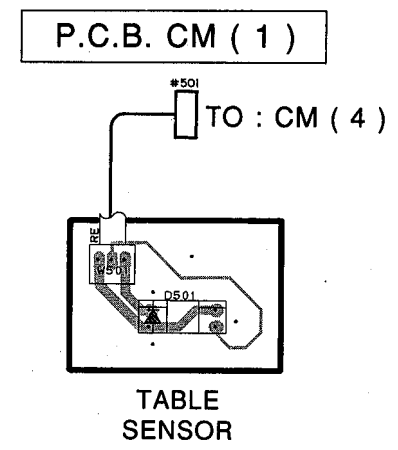
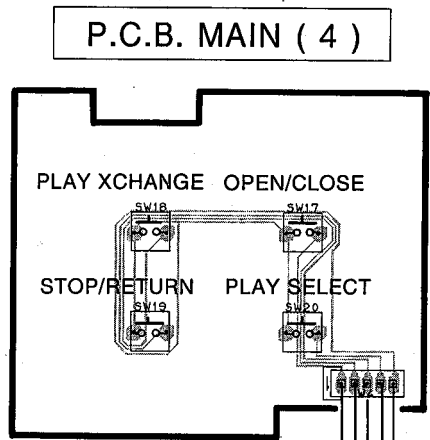
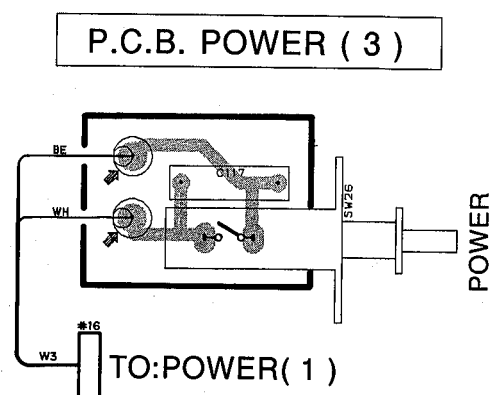
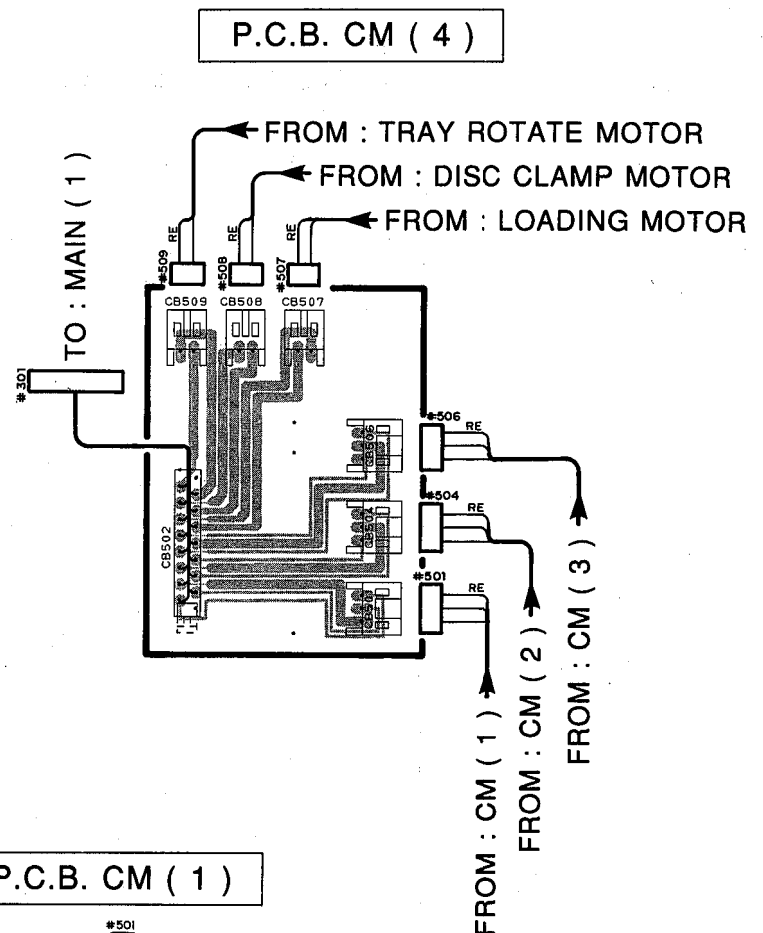
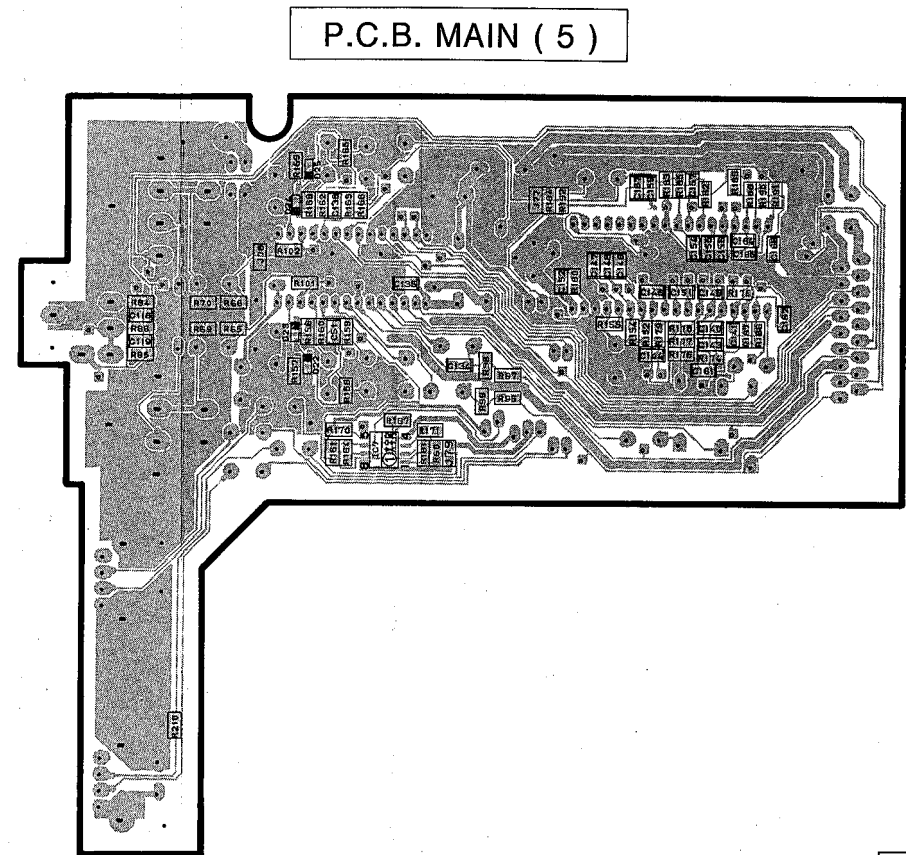
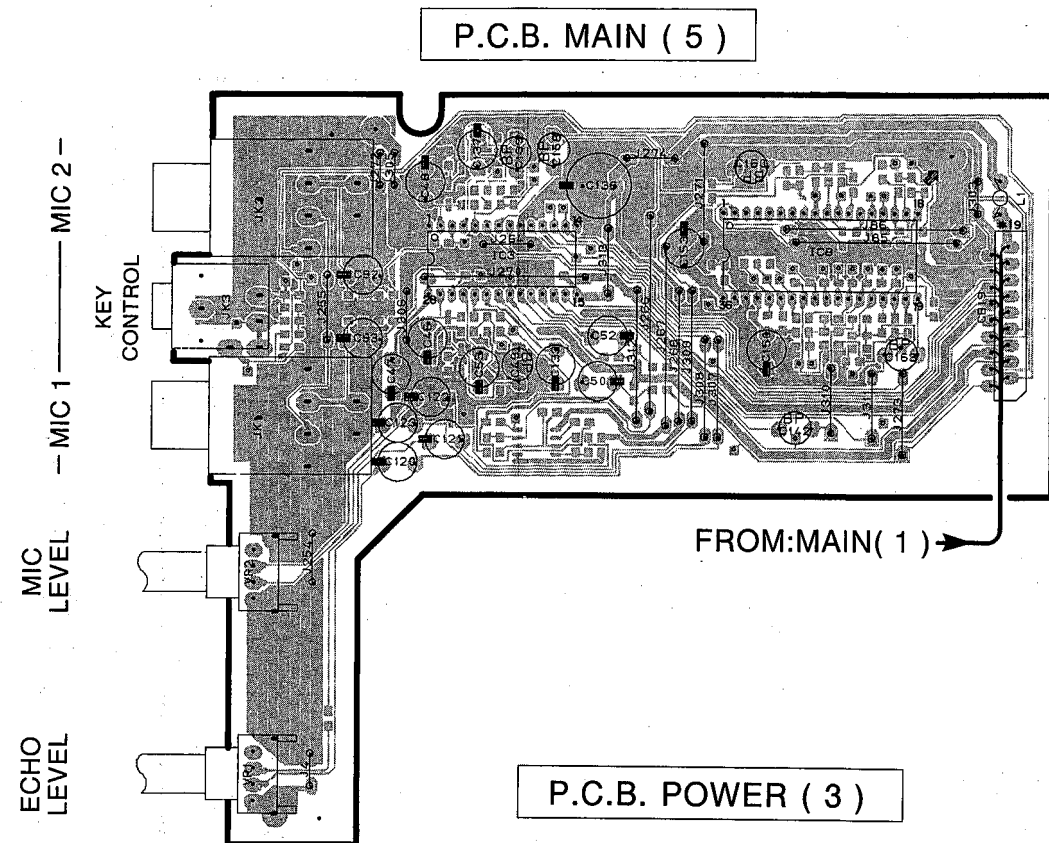
4

5

6

PRINTED CIRCUIT BOARD (Foil side)

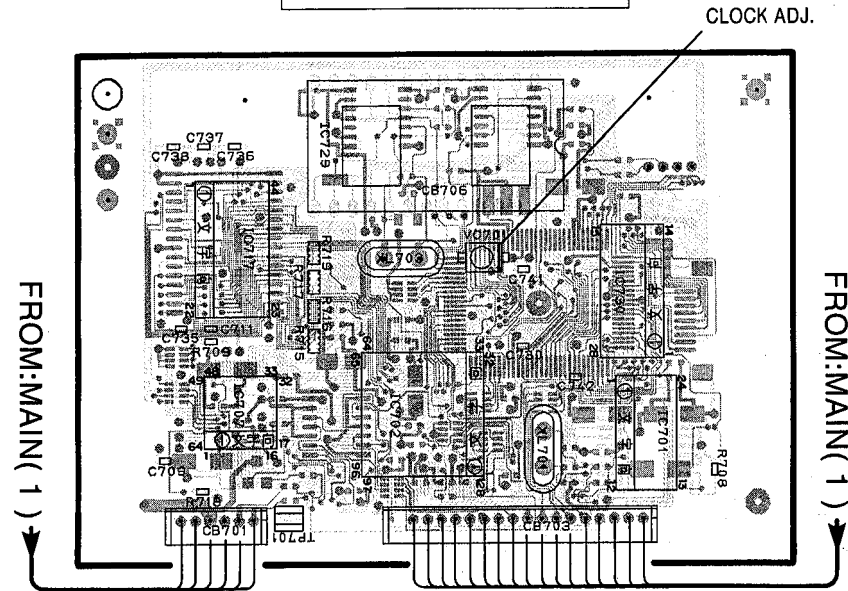
① : TEST POINT WAVEFORMS (See page 38)



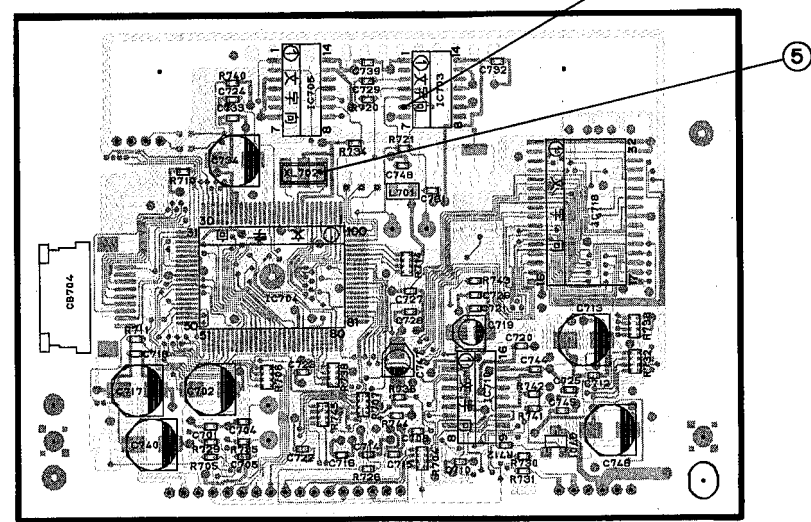
PRINTED CIRCUIT BOARD (Foil side)

④ and ⑤ : TEST POINT WAVEFORMS (See page 38)

P.C.B. DECODER

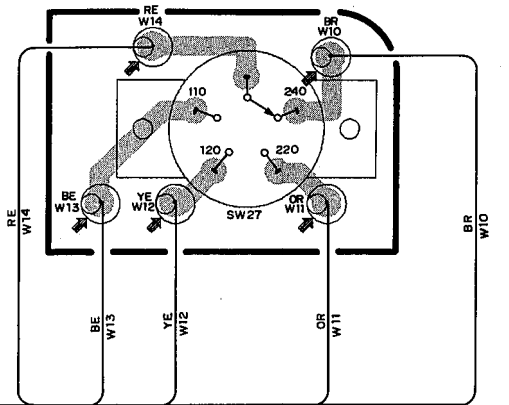


P.C.B. DECODER



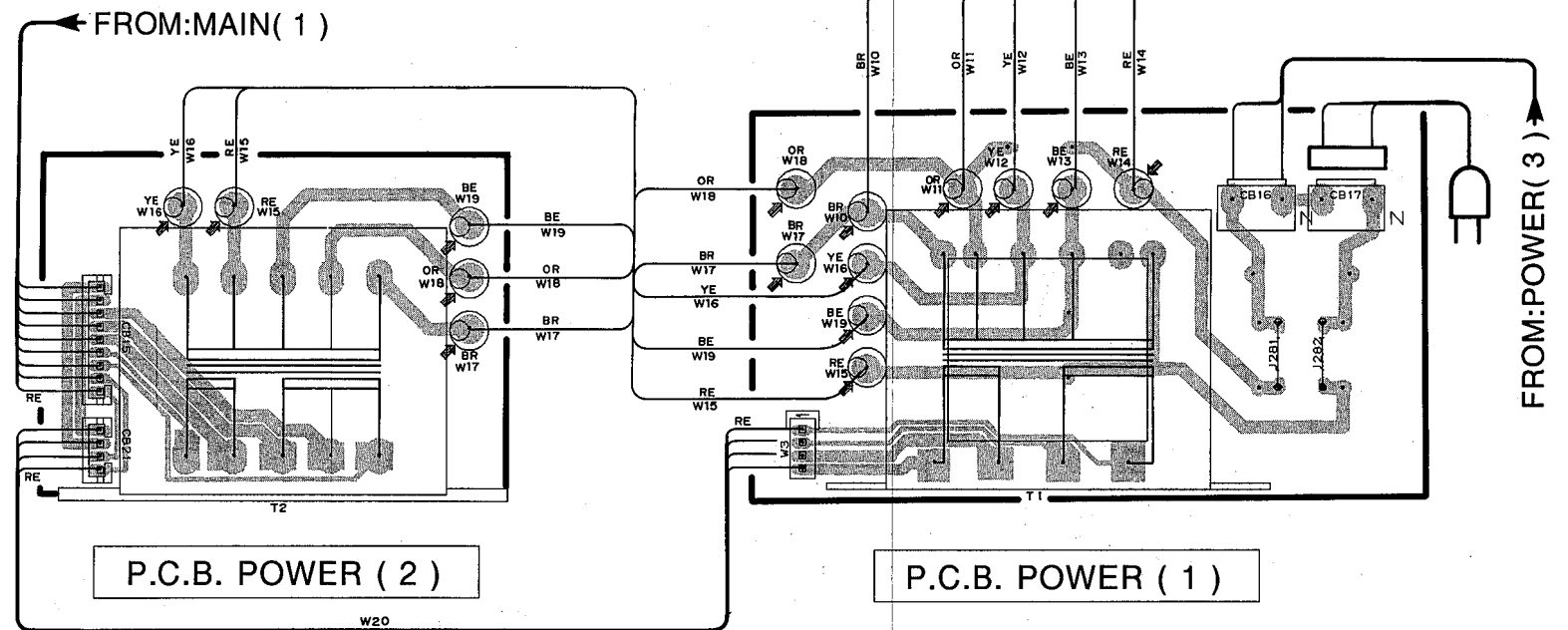
VCD-100K

VOLTAGE SELECTOR

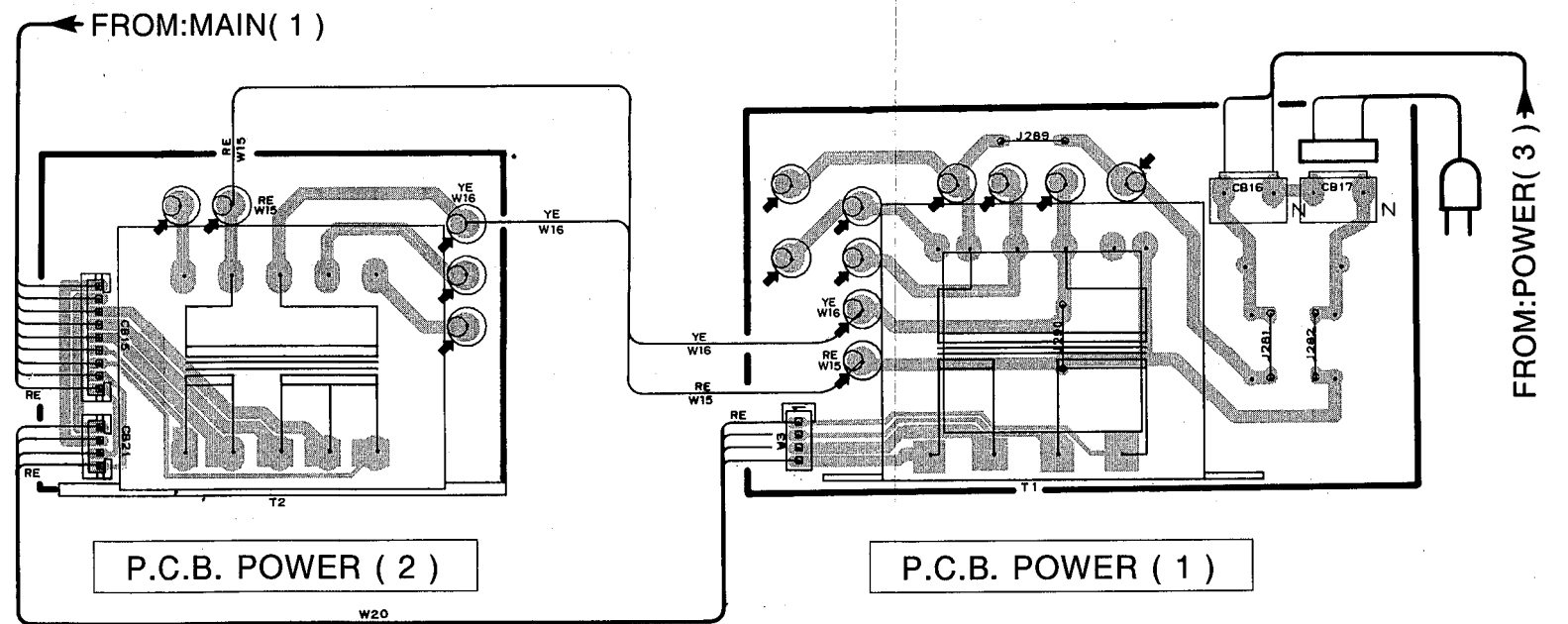


P.C.B. POWER (4)

● R models

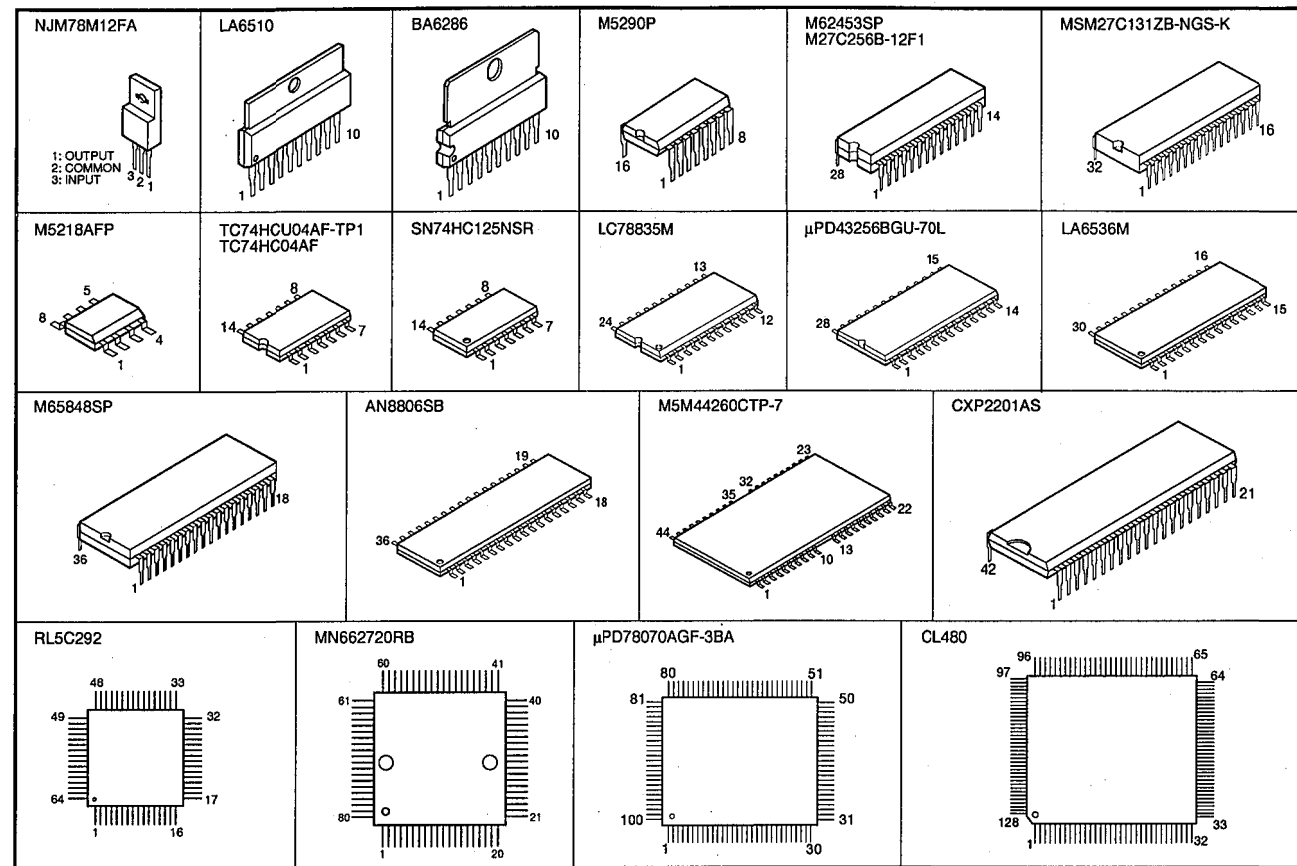


● T,L models

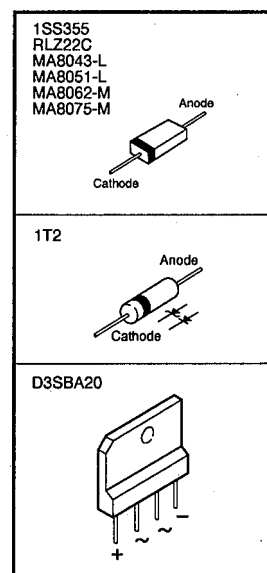


PIN CONNECTION DIAGRAM

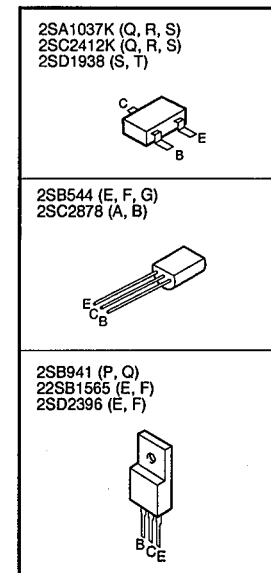
● ICs



● Diodes



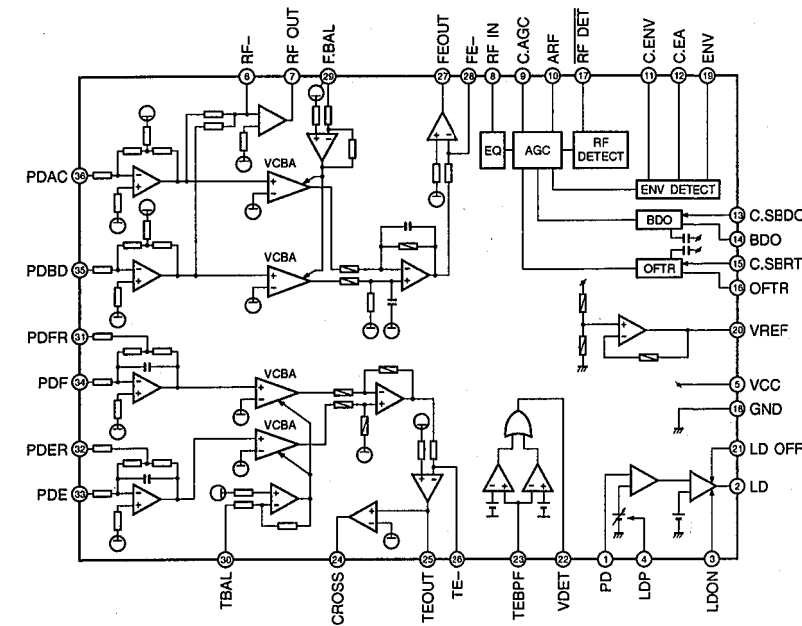
● Transistors



IC BLOCKS

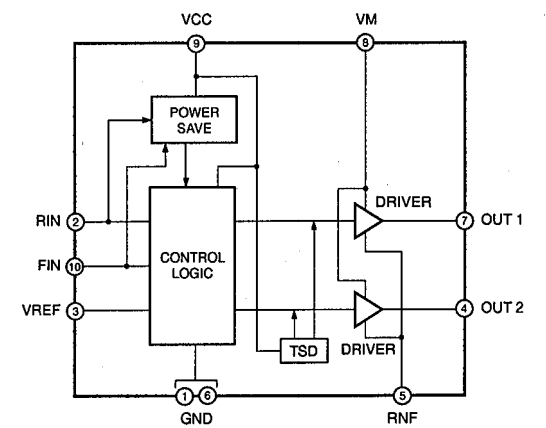
IC5 : AN8803SB

Digital Servo Head Amp



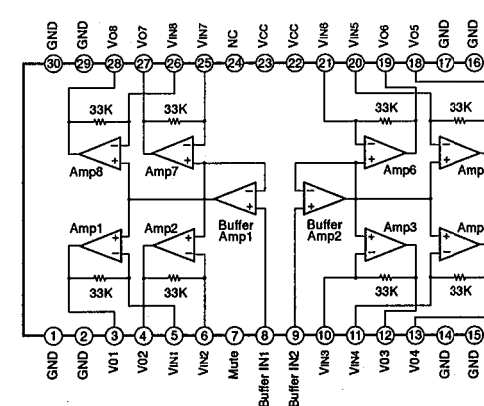
IC6 : BA6286

Motor Driver



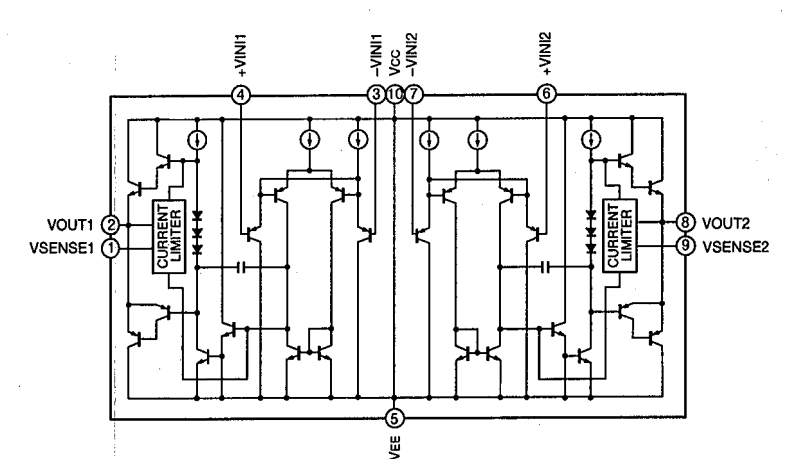
IC1 : LA6536M

4-Channel BTL Driver



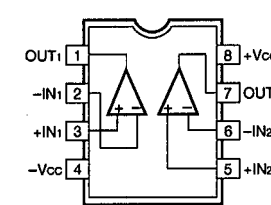
IC2 : LA6510

Dual Power Operational Amp



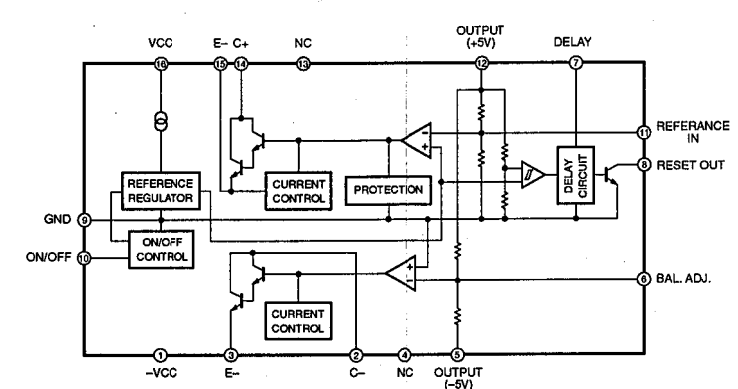
IC7, 23 : M5218AFP

Dual Op-Amp

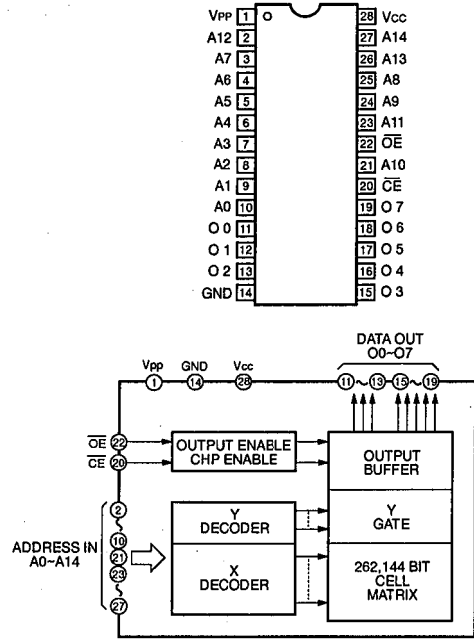


IC27 : M5290P

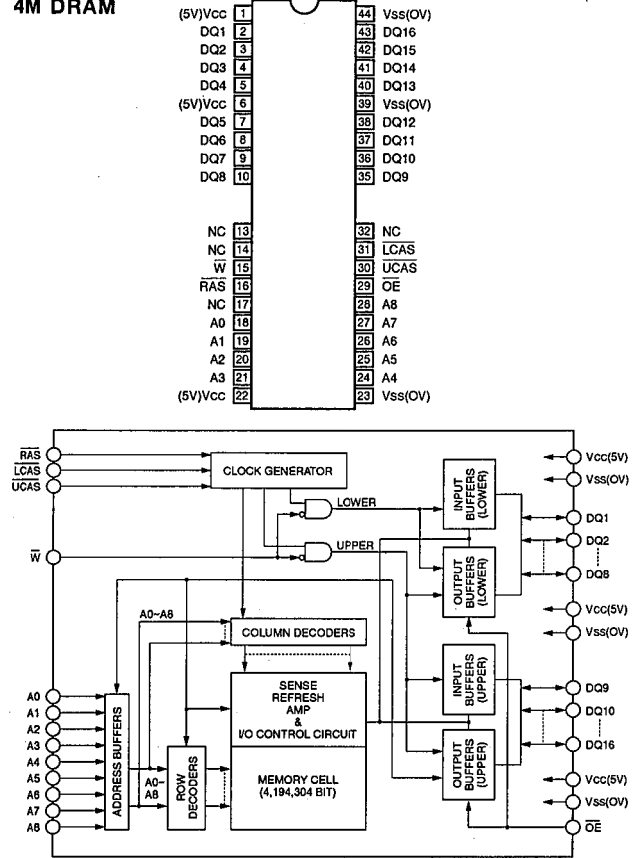
Constant-Voltage Tracking Supply with Reset



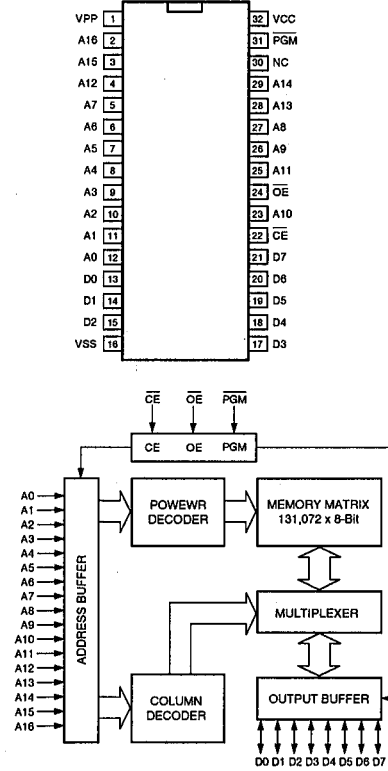
IC17 : M27C256B-12F1
256k (32k x 8) EPROM



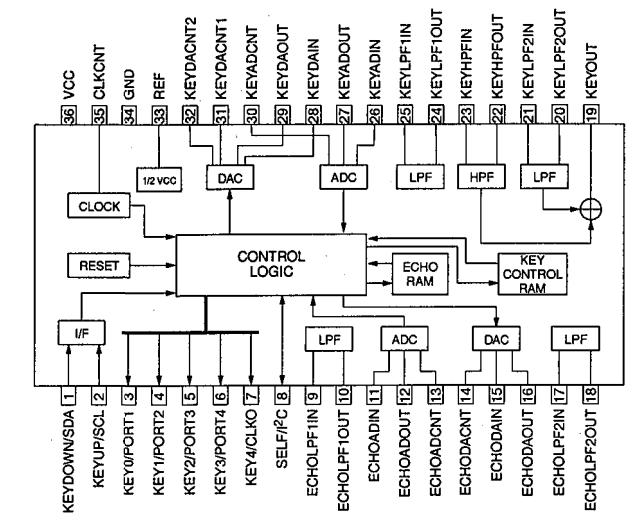
IC717 : M5M44260CTP-7
4M DRAM



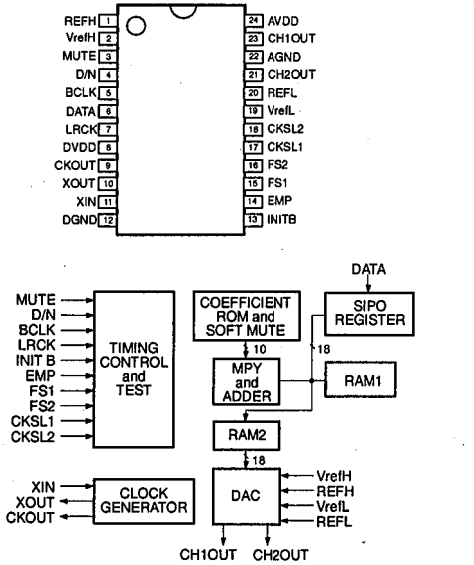
IC718 : MSM27C131ZB
131,072-Word X 8-bit One Time PROM



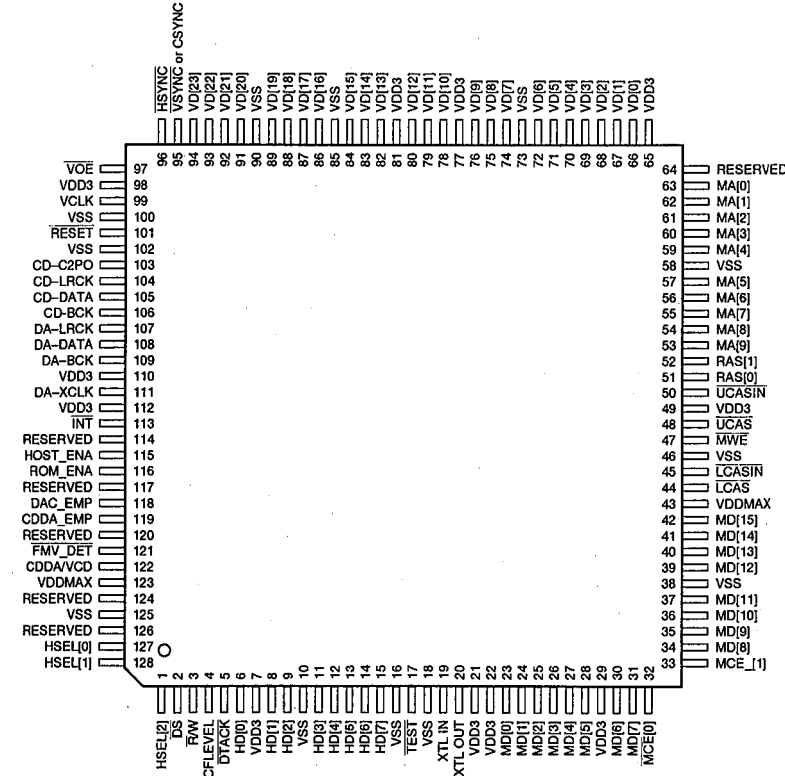
IC8 : M65848SP
Karaoke Processor



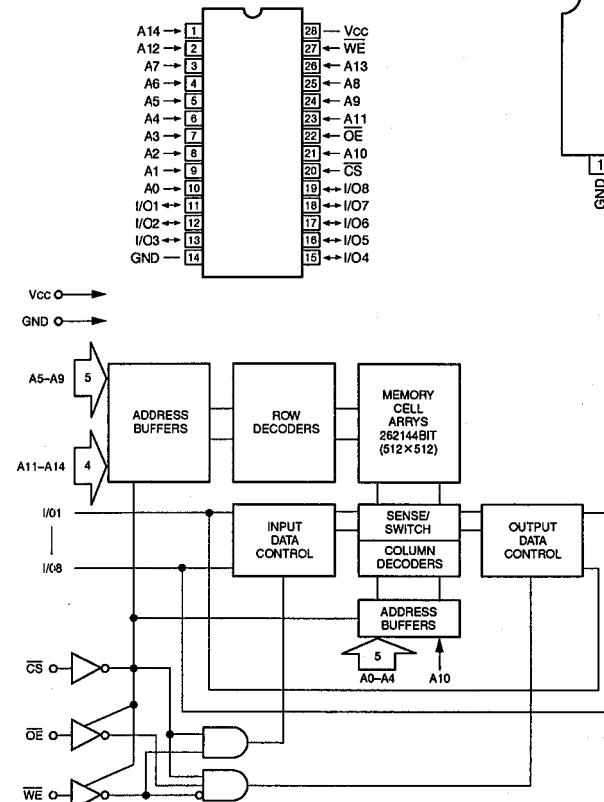
IC701 : LC78835M
D/A Converter with Digital Filter



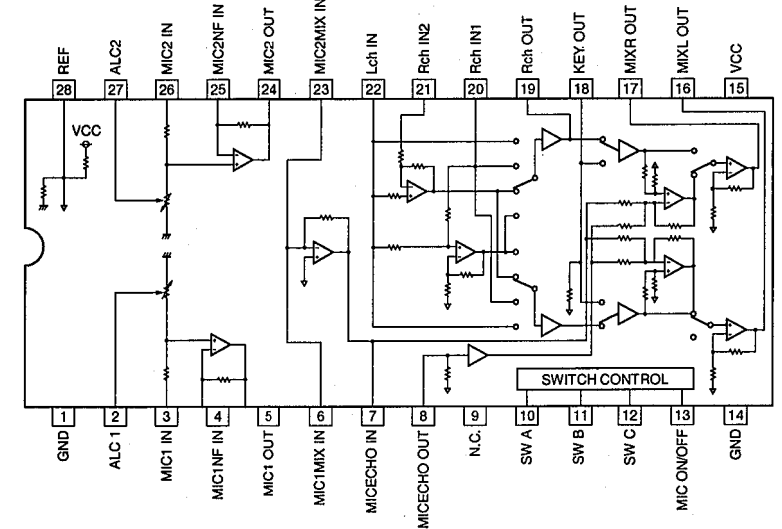
IC702 : CL480
MPEG1 Video/Audio Decoder



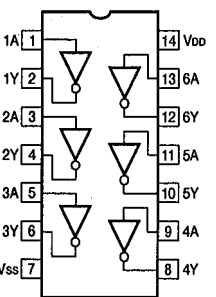
IC730 : μPD43256BGU-70L
SRAM



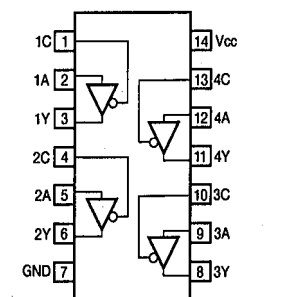
IC3 : M62453SP
Mic Amp



IC703 : TC74HC04AF
Hex Inverter



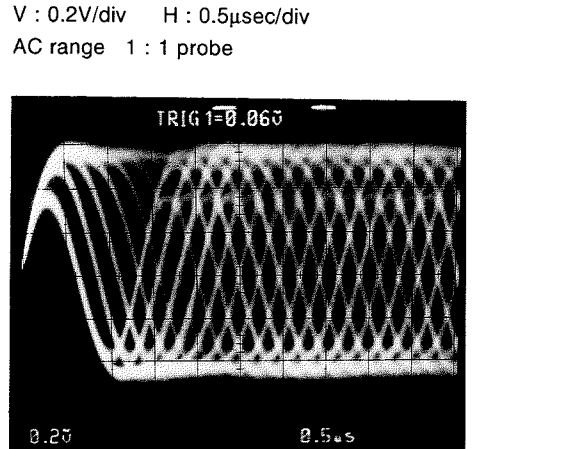
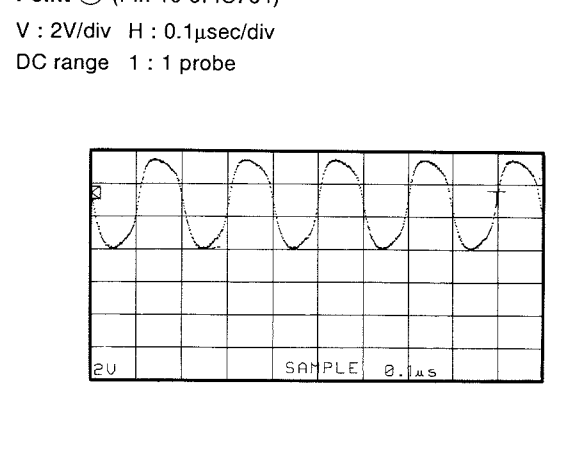
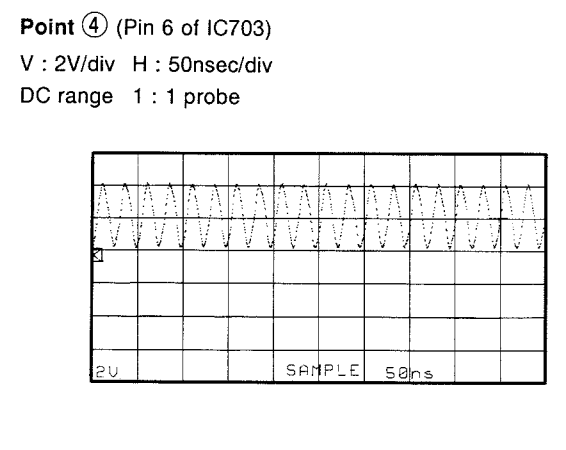
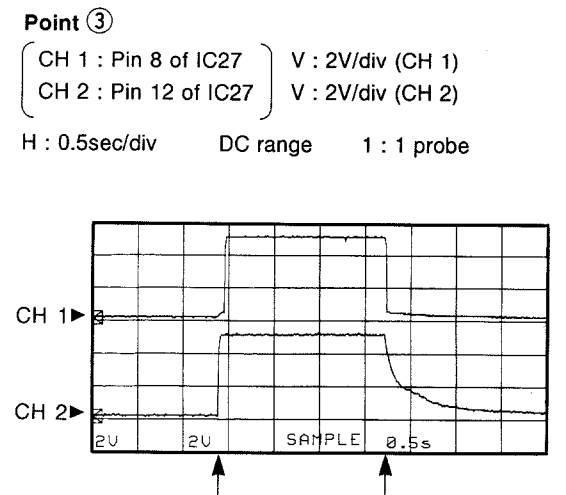
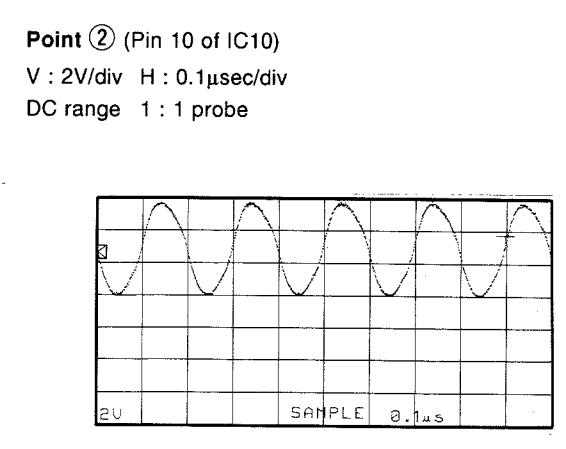
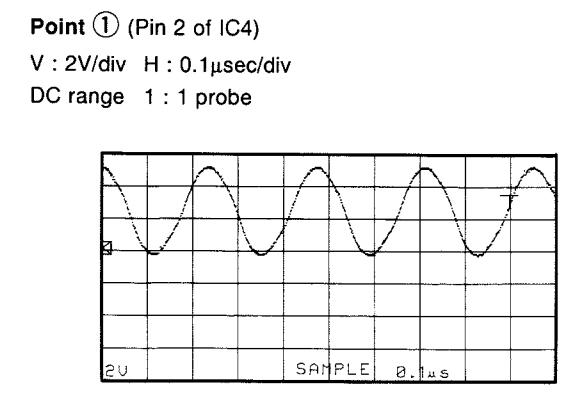
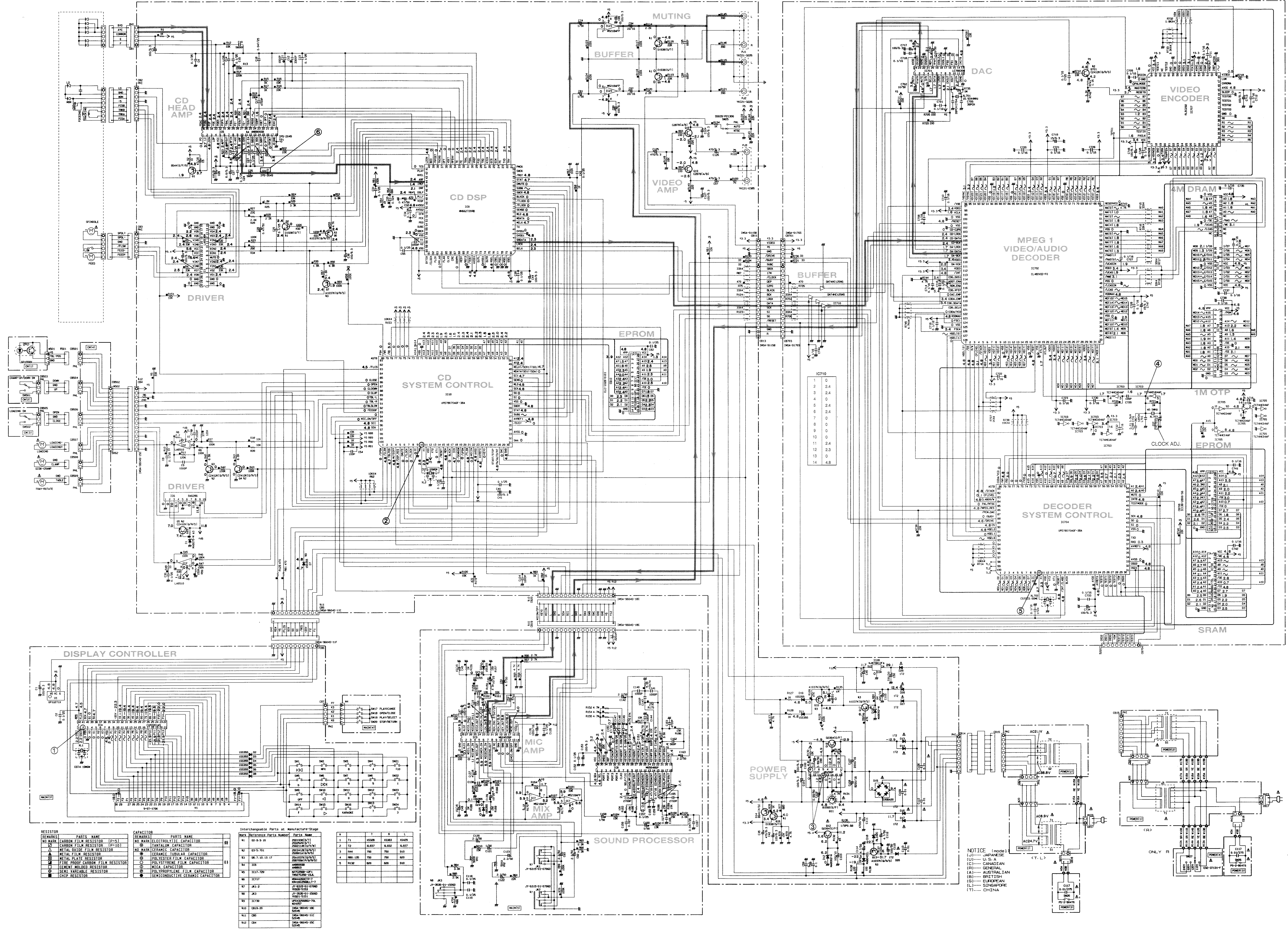
IC710 : SN74HC125NSR
Quad 3 State Bus Buffers



Other ICs

- IC4 : CXP2201AS → See page 14
- IC9 : MN662720RB → See page 15
- IC10 : μPD78070AGF-3BA → See page 17
- IC704 : μPD78070AGF-3BA → See page 20
- IC707 : RL5C292 → See page 23

SCHEMATIC DIAGRAM



NOTICE (mode)
 (J) JAPANESE
 (U) U.S.A.
 (C) CANADIAN
 (A) AUSTRALIAN
 (G) BRITISH
 (E) EUROPEAN
 (S) SINGAPORE
 (T) CHINA

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

PARTS LIST

■ ELECTRICAL PARTS

■ WARNING

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

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

P.C.B. MAIN

Schm Ref.	PART NO.	Description		
*	VV007700	P. C. B.	MAIN(R)	
*	VV007800	P. C. B.	MAIN(T)	
*	VV196400	P. C. B.	MAIN(L)	
	CB1	VD004800	CN. BS. PIN	5P
	CB2	VD005100	CN. BS. PIN	8P
	CB3	VD004900	CN. BS. PIN	6P
*	CB4	VU271500	CN. BS. PIN	15P
*	CB5	VU271100	CN. BS. PIN	11P
	CB6	VU281100	CN. BS. PIN	11P
	CB7	VD004800	CN. BS. PIN	5P
	CB10	VB825000	SOCKET. IC	CLC1028
*	CB11	VV072400	CN. BS. PIN	6P
*	CB13	VV073500	CN. BS. PIN	17P
	CB14	VB390500	CN. BS. PIN	9P
	CB19	VU271800	CN. BS. PIN	18P
	CB20	VU271800	CN. BS. PIN	18P
	C1	VF760000	C. EL	100uF 10V
	C2	UB245100	C. CE. M. CHP	0. 1uF 25V
	C3	VF760000	C. EL	100uF 10V
	C4	UB245100	C. CE. M. CHP	0. 1uF 25V
	C5	VJ837200	C. EL	47uF 16V
	C6	VF760000	C. EL	100uF 10V
	C7	UB053100	C. CE. M. CHP	1000pF 50V
	C8	UB245100	C. CE. M. CHP	0. 1uF 25V
	C9	UB053100	C. CE. M. CHP	1000pF 50V
	C10	UB013560	C. CE. M. CHP	5600P 50V
	C11	UA653180	C. MYLAR	1800pF 50V
	C12	UA653330	C. MYLAR	3300pF 50V
	C13	UB215100	C. CE. M. CHP	0. 1uF 25V
	C14	UB215100	C. CE. M. CHP	0. 1uF 25V
	C15	UB215100	C. CE. M. CHP	0. 1uF 25V
	C16	UB214470	C. CE. M. CHP	0. 047uF 25V
	C17	UB013470	C. CE. M. CHP	4700pF 50V
	C18	UB215100	C. CE. M. CHP	0. 1uF 25V
	C19	UB052100	C. CE. M. CHP	100pF 50V
	C20	UB053220	C. CE. M. CHP	2200pF 50V
	C21	UB053220	C. CE. M. CHP	2200pF 50V
	C22	VJ839100	C. EL	1uF 50V
	C23	UB215100	C. CE. M. CHP	0. 1uF 25V
	C24	UB245100	C. CE. M. CHP	0. 1uF 25V
	C25	UB052560	C. CE. M. CHP	560pF 50V
	C26	VF760000	C. EL	100uF 10V
	C27	VR498100	C. EL	6. 8uF 6. 3V
	C28	UK665470	C. EL	0. 47uF 50V
	C29	UB215100	C. CE. M. CHP	0. 1uF 25V
	C30	UB245100	C. CE. M. CHP	0. 1uF 25V
	C31	UB215100	C. CE. M. CHP	0. 1uF 25V
	C32	UK665470	C. EL	0. 47uF 50V
	C33	UA654240	C. MYLAR	0. 024uF 50V
	C34	UB245100	C. CE. M. CHP	0. 1uF 25V
	C35	UJ628470	C. EL	470uF 10V
	C36	VF760000	C. EL	100uF 10V
	C37	UB053100	C. CE. M. CHP	1000pF 50V

* New Parts

Schm Ref.	PART NO.	Description		
	C38	UB245100	C. CE. M. CHP	0. 1uF 25V
	C39	UB215100	C. CE. M. CHP	0. 1uF 25V
	C40	UB245100	C. CE. M. CHP	0. 1uF 25V
	C41	VF760000	C. EL	100uF 10V
	C42	VF760000	C. EL	100uF 10V
	C43	UB215100	C. CE. M. CHP	0. 1uF 25V
	C44	VF760000	C. EL	100uF 10V
	C45	VF964800	C. EL	100uF 16V
	C46	VJ836900	C. EL	10uF 16V
	C47	VF760000	C. EL	100uF 10V
	C48	VJ836900	C. EL	10uF 16V
	C49	UN847100	C. EL	10uF 25V
	C50	UM416470	C. EL	4. 7uF 50V
	C51	UB052220	C. CE. M. CHP	220pF 50V
	C52	UM416470	C. EL	4. 7uF 50V
	C53	VJ837200	C. EL	47uF 16V
	C54	UB052100	C. CE. M. CHP	100pF 50V
	C55	UB245100	C. CE. M. CHP	0. 1uF 25V
	C56	UJ468330	C. EL	330uF 50V
	C57	UJ628470	C. EL	470uF 10V
	C58	UB045100	C. CE. M. CHP	0. 1uF 50V
	C59	UB045100	C. CE. M. CHP	0. 1uF 50V
	C74	VJ839100	C. EL	1uF 50V
	C81	VJ839100	C. EL	1uF 50V
	C82	UB245100	C. CE. M. CHP	0. 1uF 25V
	C89	VF760000	C. EL	100uF 10V
	C90	VF760000	C. EL	100uF 10V
	C92	VJ839200	C. EL	2. 2uF 50V
	C93	VJ839200	C. EL	2. 2uF 50V
	C94	UM407220	C. EL	22uF 16V
	C95	UB052680	C. CE. M. CHP	680pF 50V
	C96	UB052680	C. CE. M. CHP	680pF 50V
	C97	UM407220	C. EL	22uF 16V
	C99	UJ865680	C. EL	0. 68uF 50V
	C100	VF760000	C. EL	100uF 10V
	C101	VF760000	C. EL	100uF 10V
	C102	UJ865680	C. EL	0. 68uF 50V
	C103	VF760000	C. EL	100uF 10V
	C104	UB053100	C. CE. M. CHP	1000pF 50V
	C105	UJ648220	C. EL	220uF 25V
	C106	UB014100	C. CE. M. CHP	0. 01uF 50V
	C107	VF904800	C. EL	2200uF 16V
	C108	UJ739820	C. EL	8200uF 16V
	C109	UB014100	C. CE. M. CHP	0. 01uF 50V
	C110	UB014100	C. CE. M. CHP	0. 01uF 50V
	C111	VH520900	C. EL	4700uF 16V
	C112	UM416470	C. EL	4. 7uF 50V
	C113	UB014100	C. CE. M. CHP	0. 01uF 50V
	C114	UM416470	C. EL	4. 7uF 50V
	C115	UJ668100	C. EL	100uF 50V
	C118	UB245100	C. CE. M. CHP	0. 1uF 25V
	C119	UB245100	C. CE. M. CHP	0. 1uF 25V
	C120	VJ839200	C. EL	2. 2uF 50V

* New Parts

P.C.B. MAIN

Schm Ref.	PART NO.	Description		
C121	VJ839100	C. EL	1uF	50V
C122	VJ839200	C. EL	2. 2uF	50V
C123	VJ839200	C. EL	2. 2uF	50V
C124	VF760000	C. EL	100uF	10V
C125	UJ628470	C. EL	470uF	10V
C126	UJ628470	C. EL	470uF	10V
C127	VF760000	C. EL	100uF	10V
C133	VJ839200	C. EL	2. 2uF	50V
C134	UB214470	C. CE. M. CHP	0. 047uF	25V
C135	UB245100	C. CE. M. CHP	0. 1uF	25V
C136	VJ651100	C. EL	1000uF	16V
C137	VJ837200	C. EL	47uF	16V
C138	UB052220	C. CE. M. CHP	220pF	50V
C139	UN847100	C. EL	10uF	25V
C140	UB053100	C. CE. M. CHP	1000pF	50V
C141	UB053100	C. CE. M. CHP	1000pF	50V
C142	VD916400	C. EL	2. 2uF	50V
C143	UB053100	C. CE. M. CHP	1000pF	50V
C144	UB013330	C. CE. M. CHP	3300pF	50V
C145	UB052820	C. CE. M. CHP	820pF	50V
C146	UB215100	C. CE. M. CHP	0. 1uF	25V
C147	UB214680	C. CE. M. CHP	0. 068uF	25V
C148	UB214680	C. CE. M. CHP	0. 068uF	25V
C149	UB214680	C. CE. M. CHP	0. 068uF	25V
C150	VJ837200	C. EL	47uF	16V
C151	UB215100	C. CE. M. CHP	0. 1uF	25V
C152	UB245100	C. CE. M. CHP	0. 1uF	25V
C153	VF760000	C. EL	100uF	10V
C154	UB013270	C. CE. M. CHP	2700pF	50V
C155	UB445470	C. CE. M. CHP	0. 47uF	16V
C156	UB445470	C. CE. M. CHP	0. 47uF	16V
C157	UB215100	C. CE. M. CHP	0. 1uF	25V
C158	VG722100	C. EL	1uF	50V
C159	UB014270	C. CE. M. CHP	0. 027uF	50V
C160	VG722100	C. EL	1uF	50V
C161	UB013470	C. CE. M. CHP	4700pF	50V
C162	UB052560	C. CE. M. CHP	560pF	50V
C163	VD916400	C. EL	2. 2uF	50V
C164	UB215100	C. CE. M. CHP	0. 1uF	25V
C165	UB013270	C. CE. M. CHP	2700pF	50V
C166	UB014270	C. CE. M. CHP	0. 027uF	50V
C167	UB214470	C. CE. M. CHP	0. 047uF	25V
* D1	VU994200	DIODE. ZENR	MA8075-M	7. 5V
D2	VT332900	DIODE	1SS355	
D3	VT332900	DIODE	1SS355	
D4	VT332900	DIODE	1SS355	
D5	VT332900	DIODE	1SS355	
D6	VT332900	DIODE	1SS355	
D7	VT332900	DIODE	1SS355	
D8	VT332900	DIODE	1SS355	
* D9	VU992500	DIODE. ZENR	MA8051-L	5. 0V
D10	VT332900	DIODE	1SS355	
D11	VT332900	DIODE	1SS355	

* New Parts

Schm Ref.	PART NO.	Description		
* D12	VU993400	DIODE. ZENR	MA8062-M	6. 2V
Δ D13	VS997800	DIODE	1T2	
Δ D14	VS997800	DIODE	1T2	
Δ D15	VT359600	DIODE. BRG	D3SBA20	4A 200V
Δ D16	VS997800	DIODE	1T2	
Δ D17	VS997800	DIODE	1T2	
D18	VB523200	DIODE. ZENR	RLZ22D	22V
* D19	VU993400	DIODE. ZENR	MA8062-M	6. 2V
Δ D20	VS997800	DIODE	1T2	
* D21	VU991700	DIODE. ZENR	MA8043-L	4. 1V
D22	VT332900	DIODE	1SS355	
D23	VT332900	DIODE	1SS355	
D24	VT332900	DIODE	1SS355	
D25	VT332900	DIODE	1SS355	
Δ D27	VS997800	DIODE	1T2	
Δ D28	VS997800	DIODE	1T2	
Δ D29	VS997800	DIODE	1T2	
IC1	XT029A00	IC	LA6536	BTL DRIVER
IC2	XF947A00	IC	LA6510	
* IC3	XS056A00	IC	M62453SP	
IC4	XM832A00	IC	CXP2201AS	
IC5	XS741A00	IC	AN8806SB	
IC6	XQ135A00	IC	BA6286	
IC7	XP251A00	IC	M5218AFP	
* IC8	XS058A00	IC	M65848SP	
IC9	XN481A00	IC	MN66270RB	
* IC10	XS176A00	IC	uPD78070YGF-3BA	
* IC17	XS380A00	IC	EPROM-M	VCD-100K
IC23	XP251A00	IC	M5218AFP	
IC27	XD201A00	IC	M5290P	
IC28	XJ602A00	IC	NJM78M12FA	
J5	RD250000	R. CAR. CHP	0.Ω	1/10W
J8	RD250000	R. CAR. CHP	0.Ω	1/10W
J20	RD250000	R. CAR. CHP	0.Ω	1/10W
J26	RD250000	R. CAR. CHP	0.Ω	1/10W
J28	RD250000	R. CAR. CHP	0.Ω	1/10W
J30	RD250000	R. CAR. CHP	0.Ω	1/10W
J36	RD250000	R. CAR. CHP	0.Ω	1/10W
J37	RD250000	R. CAR. CHP	0.Ω	1/10W
J39	RD250000	R. CAR. CHP	0.Ω	1/10W
J41	RD250000	R. CAR. CHP	0.Ω	1/10W
J54	RD250000	R. CAR. CHP	0.Ω	1/10W
J56	RD250000	R. CAR. CHP	0.Ω	1/10W
J77	RD250000	R. CAR. CHP	0.Ω	1/10W
J78	RD250000	R. CAR. CHP	0.Ω	1/10W
J79	RD250000	R. CAR. CHP	0.Ω	1/10W
J91	RD250000	R. CAR. CHP	0.Ω	1/10W
J92	RD250000	R. CAR. CHP	0.Ω	1/10W
J94	RD250000	R. CAR. CHP	0.Ω	1/10W
J97	RD250000	R. CAR. CHP	0.Ω	1/10W
J105	RD250000	R. CAR. CHP	0.Ω	1/10W
J135	RD250000	R. CAR. CHP	0.Ω	1/10W
J149	RD250000	R. CAR. CHP	0.Ω	1/10W

* New Parts

P.C.B. MAIN

Schm Ref.	PART NO.	Description		
J157	RD250000	R. CAR. CHP	0Ω	1/10W
J160	RD250000	R. CAR. CHP	0Ω	1/10W
* JK1	VU976400	JACK. MIC	YKB26-5153	
* JK2	VU976400	JACK. MIC	YKB26-5153	
JK3	VP609800	JACK. MNI	1P	
PJ1	VV411100	JACK. PIN	2P	
PJ2	VV411100	JACK. PIN	2P	
PJ3	VP907500	JACK. PIN	2P	
Q1	iB054430	TR	2SB544 D, E, F, G	
Q2	VC658100	TR. CHP	2SD1938 S, T	
Q3	iC241200	TR. CHP	2SC2412K Q, R, S	
Q4	iC241200	TR. CHP	2SC2412K Q, R, S	
Q5	iC241200	TR. CHP	2SC2412K Q, R, S	
Q6	iA103700	TR. CHP	2SA1037 Q, R, S	
Q7	iA103700	TR. CHP	2SA1037 Q, R, S	
Q8	VC658100	TR. CHP	2SD1938 S, T	
Q9	VC658100	TR. CHP	2SD1938 S, T	
Q10	iA103700	TR. CHP	2SA1037 Q, R, S	
△ Q11	VS883300	TR	2SB1565 E, F	
△ Q12	VS883400	TR	2SD2394 E, F	
Q13	iA103700	TR. CHP	2SA1037 Q, R, S	
△ Q14	VC141900	TR	2SB941 P, Q	
Q15	iC287820	TR	2SC2878 A, B	
Q16	VC658100	TR. CHP	2SD1938 S, T	
Q17	iA103700	TR. CHP	2SA1037 Q, R, S	
Q18	VS883400	TR	2SD2394 E, F	
Q19	iC287820	TR	2SC2878 A, B	
R1	RD256100	R. CAR. CHP	1KΩ	1/10W
R2	RD254100	R. CAR. CHP	10Ω	1/10W
R3	RD257330	R. CAR. CHP	33KΩ	1/10W
R4	RD257330	R. CAR. CHP	33KΩ	1/10W
R5	RD257330	R. CAR. CHP	33KΩ	1/10W
R6	RD255240	R. CAR. CHP	240Ω	1/10W
R7	RD258120	R. CAR. CHP	120KΩ	1/10W
R8	HV453220	R. CAR. FP	2.2Ω	1/4W
R9	RD258100	R. CAR. CHP	100KΩ	1/10W
R10	RD254100	R. CAR. CHP	10Ω	1/10W
R11	RD258120	R. CAR. CHP	120KΩ	1/10W
R12	RD257100	R. CAR. CHP	10KΩ	1/10W
R13	RD258220	R. CAR. CHP	220KΩ	1/10W
R14	RD258220	R. CAR. CHP	220KΩ	1/10W
R15	RD256100	R. CAR. CHP	1KΩ	1/10W
R16	RD257100	R. CAR. CHP	10KΩ	1/10W
R17	RD256100	R. CAR. CHP	1KΩ	1/10W
R18	RD257100	R. CAR. CHP	10KΩ	1/10W
R19	RD258180	R. CAR. CHP	180KΩ	1/10W
R20	RD257200	R. CAR. CHP	20KΩ	1/10W
R21	RD257390	R. CAR. CHP	39KΩ	1/10W
R22	RD257100	R. CAR. CHP	10KΩ	1/10W
R23	RD257100	R. CAR. CHP	10KΩ	1/10W
R24	RD257330	R. CAR. CHP	33KΩ	1/10W
R25	RD256180	R. CAR. CHP	1.8KΩ	1/10W
R26	RD256330	R. CAR. CHP	3.3KΩ	1/10W

* New Parts

Schm Ref.	PART NO.	Description		
R27	RD257270	R. CAR. CHP	27KΩ	1/10W
R28	RD256200	R. CAR. CHP	2KΩ	1/10W
R29	RD256220	R. CAR. CHP	2.2KΩ	1/10W
R30	RD258100	R. CAR. CHP	100KΩ	1/10W
R31	RD258100	R. CAR. CHP	100KΩ	1/10W
R32	RD257330	R. CAR. CHP	33KΩ	1/10W
R33	RD258100	R. CAR. CHP	100KΩ	1/10W
R34	RD257200	R. CAR. CHP	20KΩ	1/10W
R35	RD256180	R. CAR. CHP	1.8KΩ	1/10W
R36	RD257330	R. CAR. CHP	33KΩ	1/10W
R37	RD258100	R. CAR. CHP	100KΩ	1/10W
R38	RD257100	R. CAR. CHP	10KΩ	1/10W
R39	RD257100	R. CAR. CHP	10KΩ	1/10W
R40	RD256680	R. CAR. CHP	6.8KΩ	1/10W
R41	RD256680	R. CAR. CHP	6.8KΩ	1/10W
R42	RD258100	R. CAR. CHP	100KΩ	1/10W
R43	RD258100	R. CAR. CHP	100KΩ	1/10W
R44	RD255750	R. CAR. CHP	750Ω	1/10W(RT)
R44	RD255910	R. CAR. CHP	910Ω	1/10W(L)
R45	RD258100	R. CAR. CHP	100KΩ	1/10W
R46	RD258180	R. CAR. CHP	180KΩ	1/10W
R47	RD258150	R. CAR. CHP	150KΩ	1/10W
R48	RD254100	R. CAR. CHP	10Ω	1/10W
R49	HV453220	R. CAR. FP	2.2Ω	1/4W
R50	RD258150	R. CAR. CHP	150KΩ	1/10W
R51	RD258150	R. CAR. CHP	150KΩ	1/10W
R52	RD257680	R. CAR. CHP	68KΩ	1/10W
R53	RD256680	R. CAR. CHP	6.8KΩ	1/10W
R54	RD259100	R. CAR. CHP	1MΩ	1/10W
R55	RD256470	R. CAR. CHP	4.7KΩ	1/10W
R56	RD256680	R. CAR. CHP	6.8KΩ	1/10W
R57	RD256180	R. CAR. CHP	1.8KΩ	1/10W
R58	RD258100	R. CAR. CHP	100KΩ	1/10W
R59	RD258100	R. CAR. CHP	100KΩ	1/10W
R60	RD257390	R. CAR. CHP	39KΩ	1/10W
R61	RD257100	R. CAR. CHP	10KΩ	1/10W
R62	RE047100	R. ARRAY	10KΩx4	
R64	RD255470	R. CAR. CHP	470Ω	1/10W
R65	RD256220	R. CAR. CHP	2.2KΩ	1/10W
R66	RD256220	R. CAR. CHP	2.2KΩ	1/10W
R67	RD258100	R. CAR. CHP	100KΩ	1/10W
R68	RD256100	R. CAR. CHP	1KΩ	1/10W
R69	RD258100	R. CAR. CHP	100KΩ	1/10W
R70	RD258100	R. CAR. CHP	100KΩ	1/10W
R71	RD256100	R. CAR. CHP	1KΩ	1/10W
R72	RD256100	R. CAR. CHP	1KΩ	1/10W
R73	RD256100	R. CAR. CHP	1KΩ	1/10W
R74	RD256100	R. CAR. CHP	1KΩ	1/10W
R75	RD255470	R. CAR. CHP	470Ω	1/10W
R76	RD256100	R. CAR. CHP	1KΩ	1/10W
R77	RD255680	R. CAR. CHP	680Ω	1/10W
R78	RD257100	R. CAR. CHP	10KΩ	1/10W
R79	RD256470	R. CAR. CHP	4.7KΩ	1/10W

* New Parts

P.C.B. MAIN

Schm Ref.	PART NO.	Description
R80	RD255750	R. CAR. CHP 750Ω 1/10W(RT)
R80	RD255820	R. CAR. CHP 820Ω 1/10W(L)
R81	RD255470	R. CAR. CHP 470Ω 1/10W
R82	RD256100	R. CAR. CHP 1KΩ 1/10W
R83	RD256100	R. CAR. CHP 1KΩ 1/10W
R84	RD256300	R. CAR. CHP 3KΩ 1/10W
R85	RD256200	R. CAR. CHP 2KΩ 1/10W
R86	RD258470	R. CAR. CHP 470KΩ 1/10W
* R87	RE044330	R. ARRAY 33Ω x4
R88	RD257100	R. CAR. CHP 10KΩ 1/10W
R89	RD257100	R. CAR. CHP 10KΩ 1/10W
R90	RD256100	R. CAR. CHP 1KΩ 1/10W
R91	RD256100	R. CAR. CHP 1KΩ 1/10W
R92	RD257470	R. CAR. CHP 47KΩ 1/10W
R93	RD255100	R. CAR. CHP 100Ω 1/10W
R94	RD255100	R. CAR. CHP 100Ω 1/10W
R95	RD255220	R. CAR. CHP 220Ω 1/10W
R96	RD256510	R. CAR. CHP 5.1KΩ 1/10W
R97	RD256510	R. CAR. CHP 5.1KΩ 1/10W
R98	RD256240	R. CAR. CHP 2.4KΩ 1/10W
R99	RD256240	R. CAR. CHP 2.4KΩ 1/10W
R100	RD257100	R. CAR. CHP 10KΩ 1/10W
R101	RD255100	R. CAR. CHP 100Ω 1/10W
R102	RD255100	R. CAR. CHP 100Ω 1/10W
R103	RD258100	R. CAR. CHP 100KΩ 1/10W
R104	RD258100	R. CAR. CHP 100KΩ 1/10W
R113	RD256470	R. CAR. CHP 4.7KΩ 1/10W
R114	RD256220	R. CAR. CHP 2.2KΩ 1/10W
R115	RD255390	R. CAR. CHP 390Ω 1/10W
R116	RD257220	R. CAR. CHP 22KΩ 1/10W
R117	RD258100	R. CAR. CHP 100KΩ 1/10W
R118	RD258100	R. CAR. CHP 100KΩ 1/10W
R119	RD257220	R. CAR. CHP 22KΩ 1/10W
R120	RD256220	R. CAR. CHP 2.2KΩ 1/10W
R121	RD255390	R. CAR. CHP 390Ω 1/10W
R122	RD254750	R. CAR. CHP 75Ω 1/10W
* R123	RE044330	R. ARRAY 33Ω x4
* R124	RE044330	R. ARRAY 33Ω x4
R125	RD255470	R. CAR. CHP 470Ω 1/10W
R126	RD257470	R. CAR. CHP 47KΩ 1/10W
R127	RD256100	R. CAR. CHP 1KΩ 1/10W
R128	RD256100	R. CAR. CHP 1KΩ 1/10W
R129	RD258100	R. CAR. CHP 100KΩ 1/10W
R130	RD257100	R. CAR. CHP 10KΩ 1/10W
R131	RD256470	R. CAR. CHP 4.7KΩ 1/10W
R132	RD255820	R. CAR. CHP 820Ω 1/10W(RT)
R132	RD255910	R. CAR. CHP 910Ω 1/10W(L)
R133	RD257100	R. CAR. CHP 10KΩ 1/10W
R134	RD256100	R. CAR. CHP 1KΩ 1/10W
R135	RD255750	R. CAR. CHP 750Ω 1/10W(RT)
R135	RD255820	R. CAR. CHP 820Ω 1/10W(L)
R136	Vi868300	R. FUS 0.68Ω 1/6W
R137	RD256200	R. CAR. CHP 2KΩ 1/10W

* New Parts

Schm Ref.	PART NO.	Description
R138	HV455100	R. CAR. FP 100Ω 1/4W
R139	HV455100	R. CAR. FP 100Ω 1/4W
R140	RD256470	R. CAR. CHP 4.7KΩ 1/10W
R142	RD257220	R. CAR. CHP 22KΩ 1/10W
R143	RD257220	R. CAR. CHP 22KΩ 1/10W
R145	RD255390	R. CAR. CHP 390Ω 1/10W
R146	RD255390	R. CAR. CHP 390Ω 1/10W
R148	RD257180	R. CAR. CHP 18KΩ 1/10W
R149	RD255220	R. CAR. CHP 220Ω 1/10W
R150	RD254750	R. CAR. CHP 75Ω 1/10W
R151	RD257100	R. CAR. CHP 10KΩ 1/10W
R152	RD259470	R. CAR. CHP 4.7MΩ 1/10W
R153	RE047100	R. ARRAY 10KΩ x4
R154	RD259470	R. CAR. CHP 4.7MΩ 1/10W
R155	RD259470	R. CAR. CHP 4.7MΩ 1/10W
R156	RD259100	R. CAR. CHP 1MΩ 1/10W
R157	RD257150	R. CAR. CHP 15KΩ 1/10W
R158	RD255510	R. CAR. CHP 510Ω 1/10W
R159	RD256430	R. CAR. CHP 4.3KΩ 1/10W
R160	RD257100	R. CAR. CHP 10KΩ 1/10W
R161	RD257100	R. CAR. CHP 10KΩ 1/10W
R162	RD257100	R. CAR. CHP 10KΩ 1/10W
R163	RD257100	R. CAR. CHP 10KΩ 1/10W
R164	RD257100	R. CAR. CHP 10KΩ 1/10W
R165	RD255510	R. CAR. CHP 510Ω 1/10W
R166	RD256430	R. CAR. CHP 4.3KΩ 1/10W
R167	RD257100	R. CAR. CHP 10KΩ 1/10W
R168	RD259100	R. CAR. CHP 1MΩ 1/10W
R169	RD257150	R. CAR. CHP 15KΩ 1/10W
R170	RD256510	R. CAR. CHP 5.1KΩ 1/10W
R171	RD256510	R. CAR. CHP 5.1KΩ 1/10W
R172	RD255470	R. CAR. CHP 470Ω 1/10W
R174	RD256560	R. CAR. CHP 5.6KΩ 1/10W
R175	RD257270	R. CAR. CHP 27KΩ 1/10W
R176	RD257270	R. CAR. CHP 27KΩ 1/10W
R177	RD257100	R. CAR. CHP 10KΩ 1/10W
R178	RD256470	R. CAR. CHP 4.7KΩ 1/10W
R179	RD257100	R. CAR. CHP 10KΩ 1/10W
R180	RD257200	R. CAR. CHP 20KΩ 1/10W
R181	RD257100	R. CAR. CHP 10KΩ 1/10W
R182	RD254330	R. CAR. CHP 33Ω 1/10W
R183	RD257100	R. CAR. CHP 10KΩ 1/10W
R184	RD256820	R. CAR. CHP 8.2KΩ 1/10W
R185	RD257150	R. CAR. CHP 15KΩ 1/10W
R186	RD257150	R. CAR. CHP 15KΩ 1/10W
R187	RD256390	R. CAR. CHP 3.9KΩ 1/10W
R188	RD257150	R. CAR. CHP 15KΩ 1/10W
R189	RD257100	R. CAR. CHP 10KΩ 1/10W
R190	RD257150	R. CAR. CHP 15KΩ 1/10W
R191	RD256300	R. CAR. CHP 3KΩ 1/10W
R192	RD257220	R. CAR. CHP 22KΩ 1/10W
R193	RD254330	R. CAR. CHP 33Ω 1/10W
R194	RD254330	R. CAR. CHP 33Ω 1/10W

* New Parts

P.C.B. MAIN & DECODER

Schm Ref.	PART NO.	Description		
R210	RD257470	R. CAR. CHP	47KΩ	1/10W
R220	HV454330	R. CAR. FP	33Ω	1/4W
SW1	VG392900	SW. TACT	SKHVAA	
SW2	VG392900	SW. TACT	SKHVAA	
SW3	VG392900	SW. TACT	SKHVAA	
SW4	VG392900	SW. TACT	SKHVAA	
SW5	VG392900	SW. TACT	SKHVAA	
SW6	VG392900	SW. TACT	SKHVAA	
SW7	VG392900	SW. TACT	SKHVAA	
SW8	VG392900	SW. TACT	SKHVAA	
SW9	VG392900	SW. TACT	SKHVAA	
SW10	VG392900	SW. TACT	SKHVAA	
SW11	VG392900	SW. TACT	SKHVAA	
SW12	VG392900	SW. TACT	SKHVAA	
SW13	VG392900	SW. TACT	SKHVAA	
SW14	VG392900	SW. TACT	SKHVAA	
SW15	VG392900	SW. TACT	SKHVAA	
SW16	VG392900	SW. TACT	SKHVAA	
SW17	VG392900	SW. TACT	SKHVAA	
SW18	VG392900	SW. TACT	SKHVAA	
SW19	VG392900	SW. TACT	SKHVAA	
SW20	VG392900	SW. TACT	SKHVAA	
SW21	VG392900	SW. TACT	SKHVAA	
SW22	VG392900	SW. TACT	SKHVAA	
SW23	VG392900	SW. TACT	SKHVAA	
SW24	VG392900	SW. TACT	SKHVAA	
* SW25	VU755800	SW. SLIDE	SS029-P2130GB-PC4	
TP1	VT969000	PIN. TEST	IRS-2049	
TP2	VT969000	PIN. TEST	IRS-2049	
U1	VU591000	L. DTCT	GP1U271X	
* V1	VU691500	FL. DSPLY	9-ST-17GK	
* VR1	VU918900	VR	B50KΩ	
* VR2	VU918600	VR	A50KΩ	
* XL1	VJ677200	RSNR. CE	4. 19MHz	
* XL2	VU763600	RSNR. CE	5MHz	
	VV328600	HEAT. SINK	PUG36-30	
	VQ713000	SUPRT	FL	
	VU988700	SHEET	FL 25x86	
	Vi835500	HEAT. SINK	PH-0124S-B	
	VB966900	CN	IMSA-6024	
	ED330066	SCR. BND. HD	3x6 FCRM3-BL	

* New Parts

Schm Ref.	PART NO.	Description		
	VV007900	P. C. B.	DECODER	
* CB701	VV074200	SOCKET	6P	
* CB703	VV075300	SOCKET	17P	
* CB704	VV224300	CN. BS. PIN	9P	
* CB706	VV119600	SOCKET. IC	IC136-2806-S6	28P
C701	US135100	C. CE. CHP	0. 1uF	16V
C702	UF067100	C. EL. CHP	10uF	50V
C704	US061390	C. CE. M. CHP	39pF	50V
C705	US061390	C. CE. M. CHP	39pF	50V
C708	US135100	C. CE. CHP	0. 1uF	16V
C709	US135100	C. CE. CHP	0. 1uF	16V
C710	US135100	C. CE. CHP	0. 1uF	16V
C711	US135100	C. CE. CHP	0. 1uF	16V
C712	US135100	C. CE. CHP	0. 1uF	16V
C713	UF018100	C. EL. CHP	100uF	6. 3V
C714	US135100	C. CE. CHP	0. 1uF	16V
C715	US135100	C. CE. CHP	0. 1uF	16V
C716	US135100	C. CE. CHP	0. 1uF	16V
C717	UF018100	C. EL. CHP	100uF	6. 3V
C718	US135100	C. CE. CHP	0. 1uF	16V
* C719	VV119700	C. EL. CHP	15uF	6. 3V
C720	US135100	C. CE. CHP	0. 1uF	16V
C721	US135100	C. CE. CHP	0. 1uF	16V
C722	US135100	C. CE. CHP	0. 1uF	16V
C723	US135100	C. CE. CHP	0. 1uF	16V
C724	US035100	C. CE. M. CHP	0. 1uF	16V
C725	US135100	C. CE. CHP	0. 1uF	16V
C726	US135100	C. CE. CHP	0. 1uF	16V
C727	US135100	C. CE. CHP	0. 1uF	16V
C728	US135100	C. CE. CHP	0. 1uF	16V
C729	US062100	C. CE. M. CHP	100pF	50V
C730	US135100	C. CE. CHP	0. 1uF	16V
C731	US061120	C. CE. CHP	12pF	50V
C732	US135100	C. CE. CHP	0. 1uF	16V
C733	US135100	C. CE. CHP	0. 1uF	16V
C734	UF018100	C. EL. CHP	100uF	6. 3V
C735	US135100	C. CE. CHP	0. 1uF	16V
C736	US135100	C. CE. CHP	0. 1uF	16V
C737	US135100	C. CE. CHP	0. 1uF	16V
C738	US135100	C. CE. CHP	0. 1uF	16V
C739	US135100	C. CE. CHP	0. 1uF	16V
C740	UF067100	C. EL. CHP	10uF	50V
C741	US135100	C. CE. CHP	0. 1uF	16V
C742	US135100	C. CE. CHP	0. 1uF	16V
C744	US135100	C. CE. CHP	0. 1uF	16V
C745	US135100	C. CE. CHP	0. 1uF	16V
C746	UF018100	C. EL. CHP	100uF	6. 3V
* C747	VV119700	C. EL. CHP	15uF	6. 3V
C748	US064100	C. CE. M. CHP	0. 01uF	50V
IC701	XP108A00	IC	LC78835M	
IC702	XS514A00	IC	CL480 VCD-F0	
IC703	XD660A00	IC	TC74HCU04AF-TP1	
* IC704	XS176A00	IC	uPD78070YGF-3BA	

* New Parts

P.C.B. DECODER POWER & CM

Schm Ref.	PART NO.	Description	
	IC705	XS993A00 IC	TC74HC04AF INV
*	IC707	XR980A00 IC	RL5C292
	IC710	XH218A00 IC	SN74HC125NSR
	IC717	XS444A00 IC	M5M44260CTP-7 DRAM
	IC718	XS777B00 IC	MSM27C131ZB-NGS-K
	IC729	XS381B00 IC	EPROM-D
	IC730	XR115A00 IC	uPD43256BGU-70L SR
*	L701	VV071100 COIL. CHP	1.5uF LEM25201R5J
	Q701	iC241200 TR. CHP	2SC2412K Q, R, S
*	R704	RE044330 R. ARRAY	33Ω x4
	R705	RD255100 R. CAR. CHP	100Ω 1/10W
*	R706	RE044330 R. ARRAY	33Ω x4
	R707	RE046100 R. ARRAY	1KΩ x4
	R708	RD257100 R. CAR. CHP	10KΩ 1/10W
*	R709	RD255300 R. CAR. CHP	300Ω 1/10W
	R710	RD257100 R. CAR. CHP	10KΩ 1/10W
	R711	RD257100 R. CAR. CHP	10KΩ 1/10W
	R712	RD257100 R. CAR. CHP	10KΩ 1/10W
	R714	RE047100 R. ARRAY	10KΩ x4
*	R715	RE044330 R. ARRAY	33Ω x4
*	R716	RE044330 R. ARRAY	33Ω x4
*	R717	RE044330 R. ARRAY	33Ω x4
	R718	RD254750 R. CAR. CHP	75Ω 1/10W
*	R719	RE044330 R. ARRAY	33Ω x4
	R720	RD259100 R. CAR. CHP	1MΩ 1/10W
	R721	RD259100 R. CAR. CHP	1MΩ 1/10W
	R726	RD255470 R. CAR. CHP	470Ω 1/10W
	R729	RD255100 R. CAR. CHP	100Ω 1/10W
	R730	RD254330 R. CAR. CHP	33Ω 1/10W
	R731	RD254330 R. CAR. CHP	33Ω 1/10W
*	R732	RE046180 R. ARRAY	1.8KΩ x4
*	R733	RE046330 R. ARRAY	3.3KΩ x4
	R734	RD257100 R. CAR. CHP	10KΩ 1/10W
	R735	RD259100 R. CAR. CHP	1MΩ 1/10W
	R736	RD257100 R. CAR. CHP	10KΩ 1/10W
	R738	RE047100 R. ARRAY	10KΩ x4
	R740	RD257100 R. CAR. CHP	10KΩ 1/10W
	R741	RD356110 R. CAR. CHP	1.1KΩ 1/10W
	R742	RD256330 R. CAR. CHP	3.3KΩ 1/10W
	R743	RD256470 R. CAR. CHP	4.7KΩ 1/10W
	R744	RD256470 R. CAR. CHP	4.7KΩ 1/10W
	R745	RE046470 R. ARRAY	4.7KΩ x4
	TP701	VV393500 PIN. TEST	HK-5-S
*	VC701	VV119500 C. VAR	ECR-JA020E11 20P
	XL701	VJ719800 RSNR. CRYST	16.9344MHz
	XL702	VV328700 RSNR. CE	5MHz
*	XL703	VV072000 RSNR. CRYST	40.5MHz

* New Parts

Schm Ref.	PART NO.	Description	
*	VV392700	P. C. B.	POWER (R)
*	VV392800	P. C. B.	POWER (T)
*	VV392900	P. C. B.	POWER (L)
	CB15	VB390500 CN. BS. PIN	9P
	CB16	VG879900 CN. BS. PIN	2P
	CB17	VG879900 CN. BS. PIN	2P
	CB21	VD004700 CN. BS. PIN	4P
Δ	C117	VS741700 C. CE. SAFTY	0.01uF 275V
Δ*	SW26	VV057600 SW. PUSH	PS-2B04T6
Δ	SW27	VL908000 VOLT. SELCT	ESE-370 (R)
Δ	T1	XS328A00 TRANS. PWR	(T)
Δ	T1	XS383A00 TRANS. PWR	(R)
Δ	T1	XS429A00 TRANS. PWR	(L)
Δ	T2	XL832A00 TRANS. PWR	(R)
Δ	T2	XL837A00 TRANS. PWR	(TL)
*	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	VS743900 PHOT. INTR	GP1S53V
	SW501	Vi294000 SW. LEVER	SSCF21
	SW502	Vi294000 SW. LEVER	SSCF21
*	W502	VT033200 CN. FLAT	15P 120mm

* New Parts

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B

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D

E

VCD-100K

1 ■ EXPLODED VIEW

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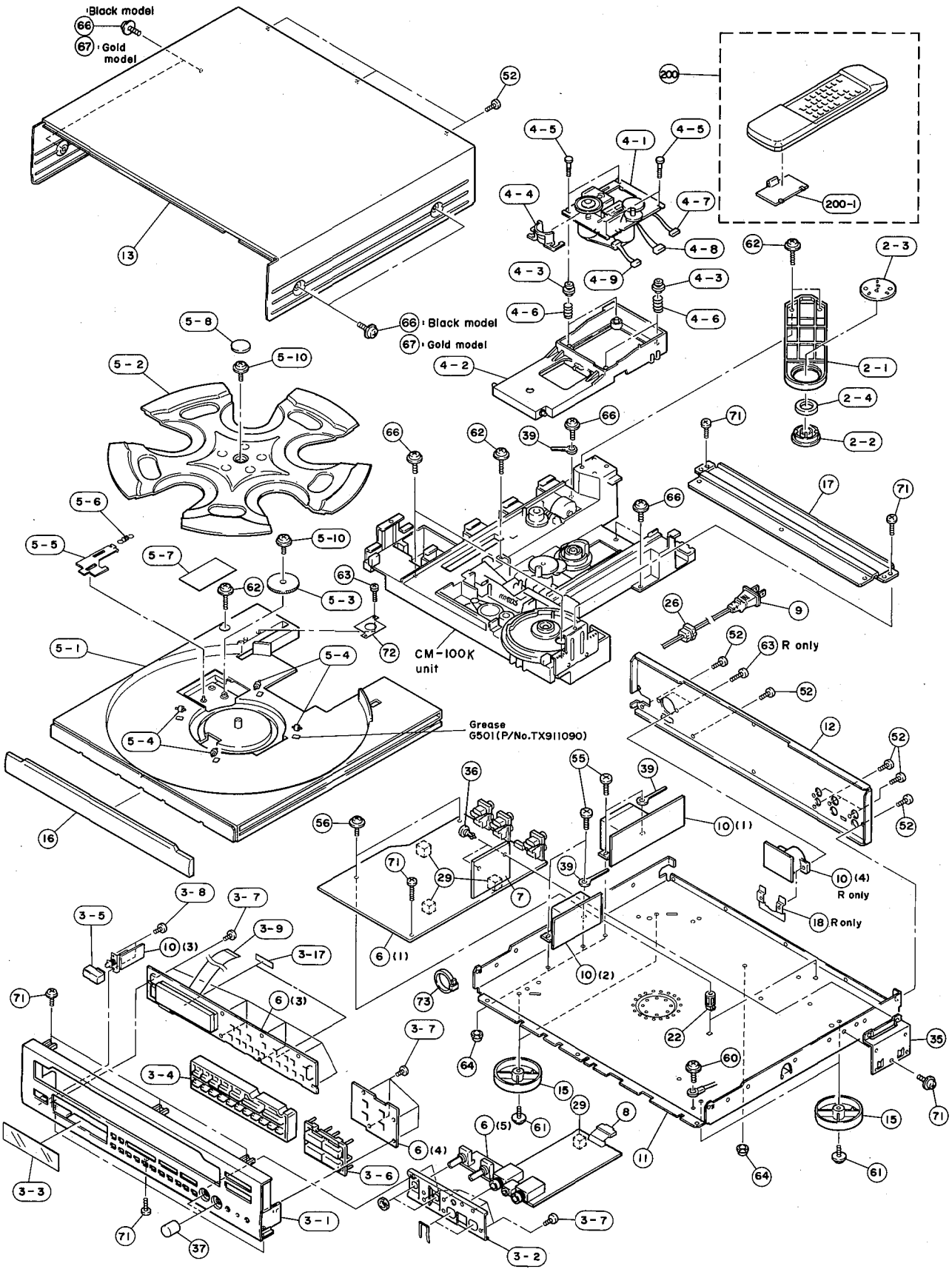
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MECHANICAL PARTS

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	VU627200	FRONT PANEL		BL
3- 1	VV442900	FRONT PANEL		GL
* 3- 2	VU627900	SUPPORT	VR	
* 3- 3	VU627500	WINDOW PANEL	LID	
* 3- 4	VU627400	BUTTON	18KEY	BL
3- 4	VV443000	BUTTON	18KEY	GL
3- 5	VQ780000	BUTTON	10x25	BL
3- 5	VV443100	BUTTON	10x25	GL
3- 6	VS258400	BUTTON	PLAY	BL
3- 6	VV443200	BUTTON	PLAY	GL
3- 7	EP630290	BIND HEAD P-TITE SCREW	3x6 FCRM3-BL	
3- 8	EX601360	BIND HEAD P-TITE SCREW	3x10 FCRM3-BL	
3- 9	MF111450	FLEXIBLE FLAT CABLE C&C	11P 450mm	
3-17	VV259300	SPACER	FFC	
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	VV135700	CONNECTOR ASS'Y	5P 190mm	
* 4- 8	VV135900	CONNECTOR ASS'Y	8P 220mm	
* 4- 9	VV135800	CONNECTOR ASS'Y	6P 200mm	
5- 1	VS034000	TRAY	B	
5- 2	VS034400	TABLE	B	
5- 3	VS036000	GEAR, RT1		
5- 4	VS037300	ROLLER		
5- 5	VS037200	LEVER, RT		
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	VV007700	P. C. B. ASS'Y	MAIN	(R)
* 6	VV007800	P. C. B. ASS'Y	MAIN	(T)
* 6	VV196400	P. C. B. ASS'Y	MAIN	(L)
* 7	VV007900	P. C. B. ASS'Y	DECODER	
8	MF118070	FLEXIBLE FLAT CABLE	18P 70mm	
△ 9	VQ508500	POWER CORD ASS'Y		(RT)
△ 9	VS168400	POWER CORD ASS'Y		(L)
10	VV392700	P. C. B. ASS'Y	POWER	(R)
10	VV392800	P. C. B. ASS'Y	POWER	(T)
10	VV392900	P. C. B. ASS'Y	POWER	(L)
11	VS254200	CHASSIS, MAIN		
* 12	VU627600	REAR PANEL		(T)
* 12	VU681500	REAR PANEL		(R)
* 12	VV207400	REAR PANEL		(L)
13	VS254400	TOP COVER		
13	VV442600	TOP COVER		BL
* 15	VU840100	LEG	D60xH16	GL

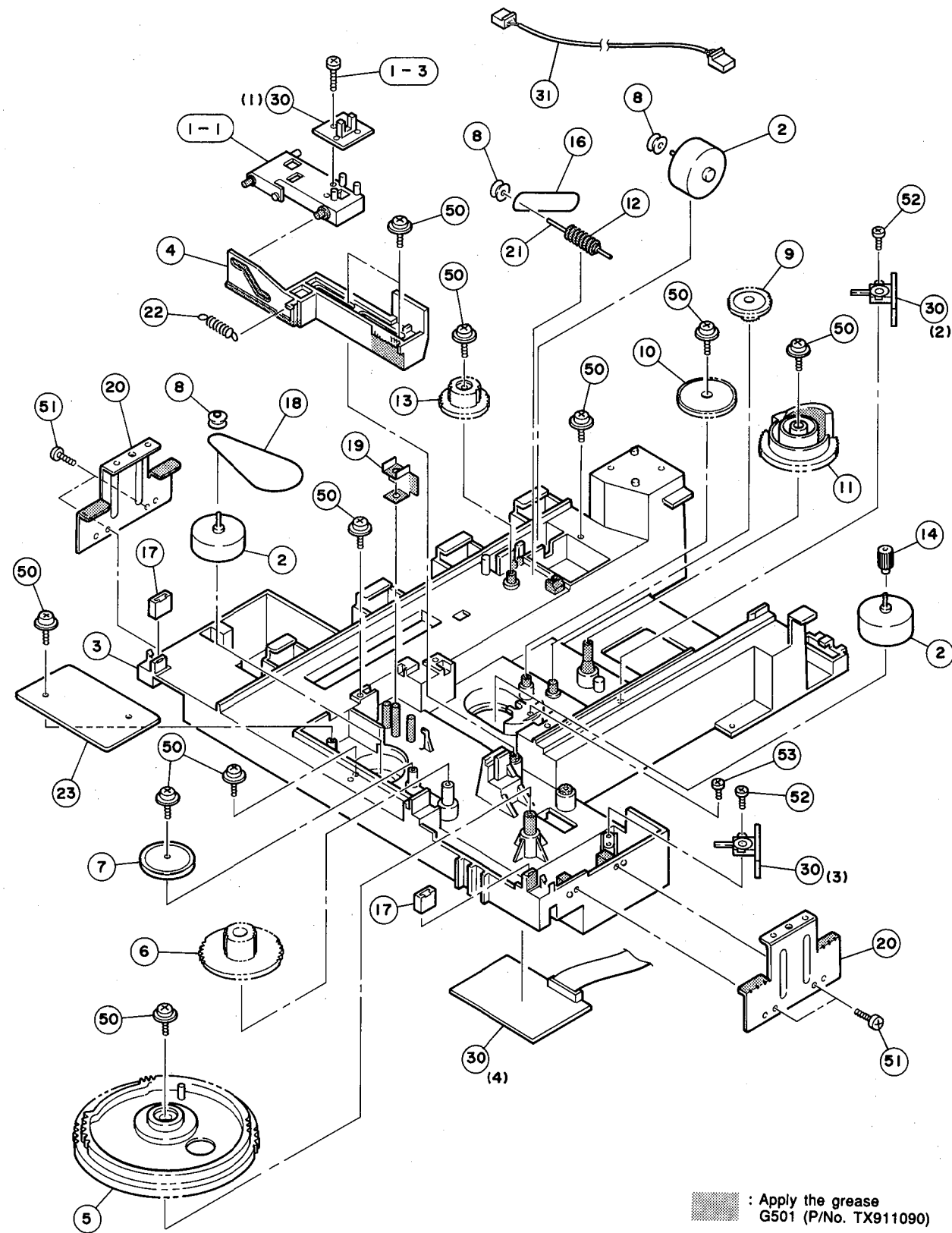
* New Parts

Ref. No.	PART NO.	Description	Remarks	Markets
* 16	VU628100	LID	VCD	BL
16	VV442700	LID	VCD	GL
* 17	VU627700	SUPPORT	TOP	
18	VS257300	PLATE, R		(R)
* 22	VU981200	SUPPORT, P.C.B.	No. 3596	
26	VN158600	CORD STOPPER	No. 2104	
29	VQ366100	DAMPER, PCB		
* 35	VU627800	SUPPORT	DECODER	
36	VQ368500	PUSH RIVET	P3545-B	
37	VQ779200	KNOB	D16	BL
37	VV442800	KNOB	D16	GL
39	CB040540	BINDING TIE	S-72B	
52	EN340020	BIND HEAD BONDING TAP. SCREW	3x8 FCRM3-BL	
55	EK396010	BIND HEAD S-TITE SCREW	4x8 FCRM3-BL	
56	EP630640	BIND HEAD P-TITE SCREW	3x20 FCRM3-BL	
60	VT669300	PW HEAD B-TITE SCREW	3x8-8 MFC2	
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	
67	EX601150	BW HEAD S-TITE SCREW	4x8-10 FNM3-BL	
71	EX602760	PW HEAD S-TITE SCREW	3x6-8 FCRM3-BL	
72	VS257400	PLATE, HP		
73	VU590000	BINDING TIE	CBTD001B	
		ACCESSORIES		
* 200	VU608200	REMOTE CONTROL TRANSMITTER		
200-1	CX675150	LID	54x32.9BLALPS	
	VS381600	PIN PLUG CORD	1.0m	
*	VV209200	PIN PLUG CORD	1P 1.0m	
		BATTERY, MANGANESE	SUM-3, AA, R06	

* New Parts

VCD-100K

1 ■ EXPLODED VIEW (CM-100K Unit)



■ MECHANICAL PARTS (CM-100K 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	VS035500	GEAR, CL1		
11	VS036300	CAM, CL		
12	VS035700	GEAR		
13	VS035800	GEAR, WW		
14	VP627900	GEAR, 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	
30	VS778600	P. C. B. ASS'Y	CM	
* 31	MF709600	CABLE ASS'Y	9P 600mm	
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 MFZN2-BL	

* New Parts

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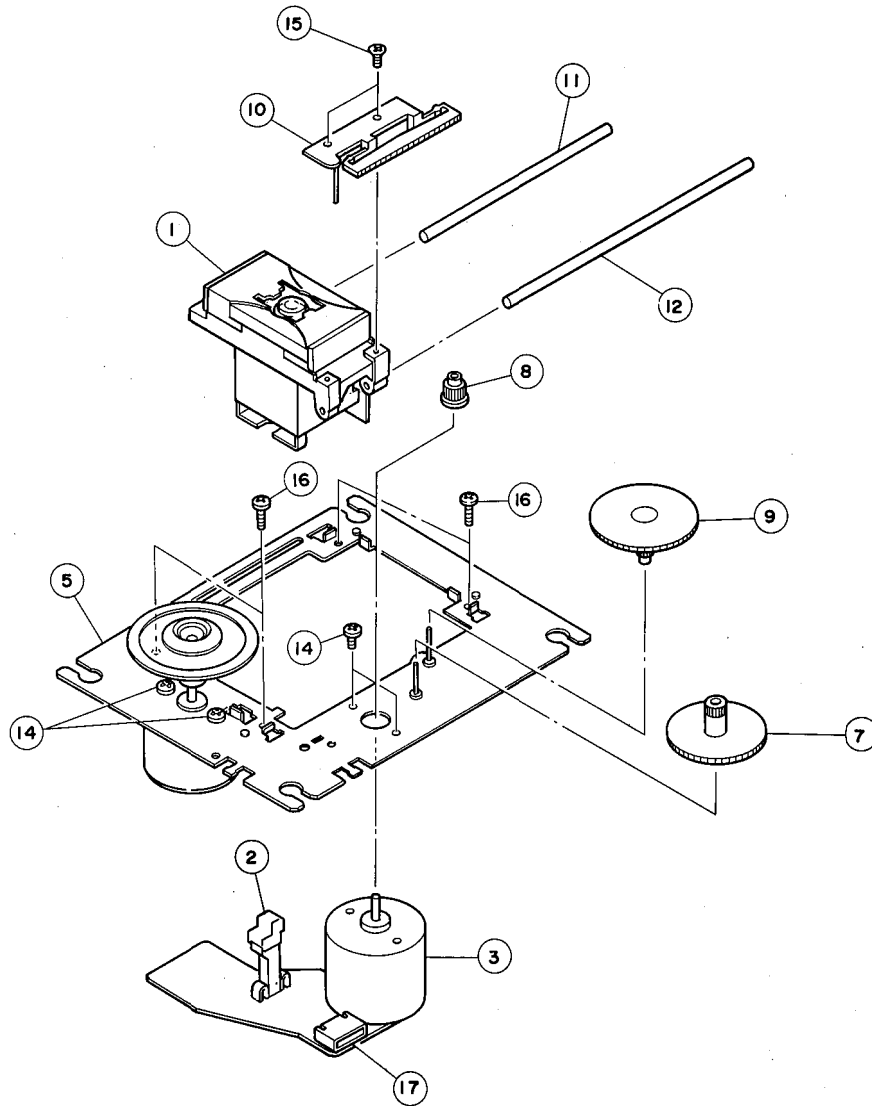
EXPLODED VIEW (PU Mecha. Unit)

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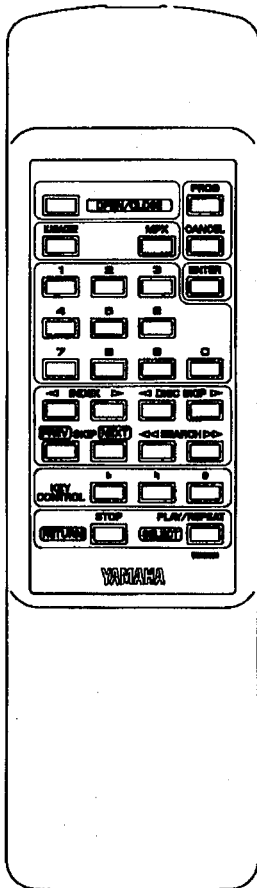
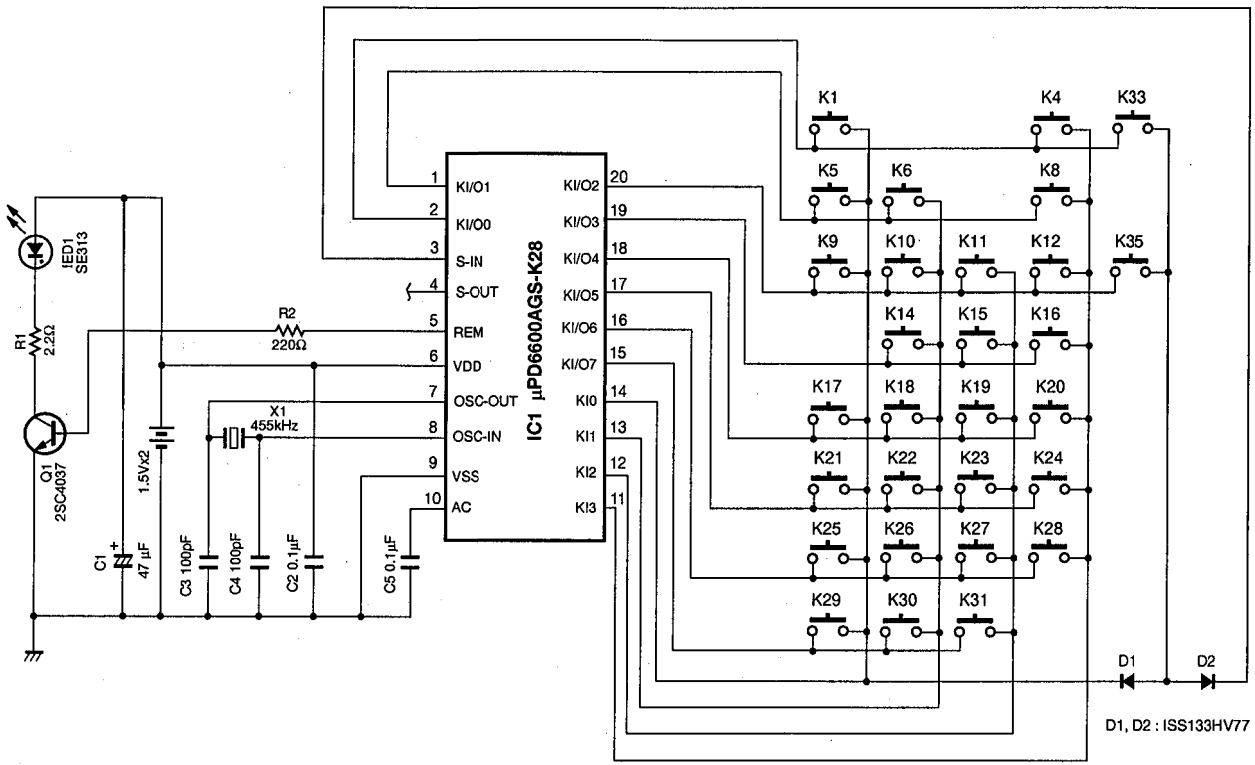
Ref. No.	PART NO.	Description	Remarks	Markets
	VM44300	PU MECHA. UNIT	CD90VIYA	
1	PX601520	PICK UP ASS'y	SF-91P	1EA0A41A03100
2	KX603540	LIMIT SWITCH		1EA4S13A00800
3	JX601050	MOTOR		1EA4M10A02100
△ 5	NX611200	CHASSIS ASS'y		1EA0311A02900
7	CX618680	GEAR	MIDDLE	1EA2511A06300
8	CX618690	GEAR	MOTOR	1EA2511A06400
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	SE1FN205ROSE
16	EX602310	SPECIAL SCREW		SFXEA01800
17	LX606800	CONNECTOR	6P	42369750000

* New Parts

VCD-100K

REMOTE CONTROL TRANSMITTER

■ SCHEMATIC DIAGRAM



KEY No.	FUNCTION	CUSTOM CODE (HEX)	DATA CODE (HEX)
K1	PROG	79	0C
K4	OPEN/CLOSE	79	01
K5	CANCEL	79	0D
K6	MPX	79	3E
K8	KARAOKE	79	38
K9	ENTER	79	3F
K10	3	79	13
K11	2	79	12
K12	1	79	11
K14	6	79	16
K15	5	79	15
K16	4	79	14
K17	0	79	10
K18	9	79	19
K19	8	79	18
K20	7	79	17
K21	DISC SKIP ►	79	4F
K22	◄ DISC SKIP	79	50
K23	INDEX ►	79	39
K24	◄ INDEX	79	3A
K25	SEARCH ►►	79	06
K26	◄◄ SEARCH	79	05
K27	SKIP NEXT	79	07
K28	SKIP PREV	79	04
K29	KEY CONTROL #	79	37
K30	KEY CONTROL 4	79	36
K31	KEY CONTROL 6	79	35
K33	PLAY/REPEAT	79	02
K35	STOP	79	56

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			

1/4W Type

1/6W Type

VCD-100K

YAMAHA
