COMPACT DISC PLAYER
CDX-493/593
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 inherant 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 all 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 parts replacement. Recheck all work before you apply power to the unit.

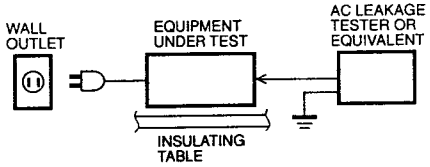
■ CONTENTS

100603

YAMAHA
YAMAHA CORPORATION
P.O.Box1,Hamamatsu,Japan
1.54K-815 Printed in Japan '97.12

■ 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

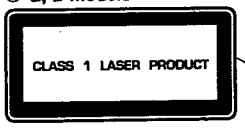
This set employs a laser. Therefore, be sure to carefully follow the instructions below when servicing .

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

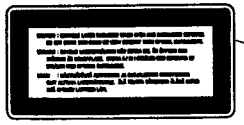
   * This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

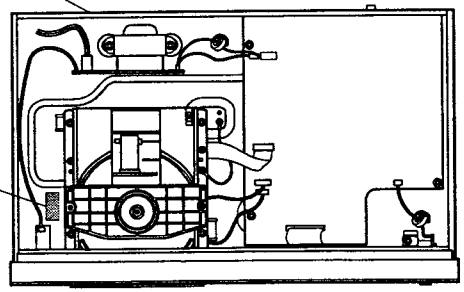
2. When checking the laser diode emission, keep your eyes more than 30 cm away from the objective lens.

① G, B models



② G model





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 KÄNNEDOM 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

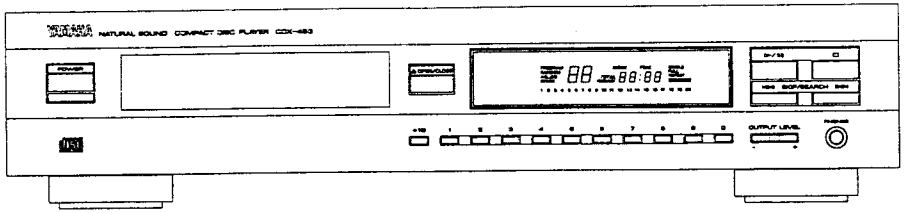
VARO! :
AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

CDX-493/593

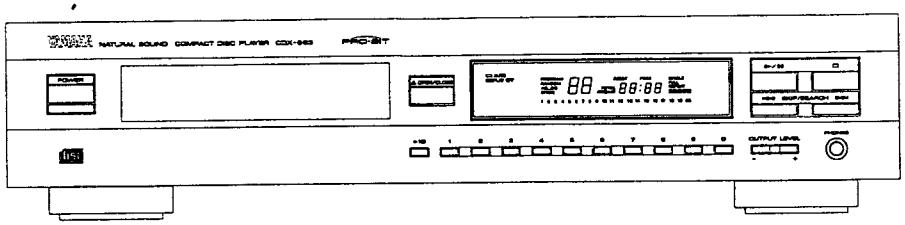
CDX-493/593

■ FRONT PANELS

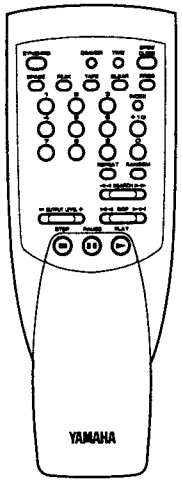
● CDX-493



● CDX-593

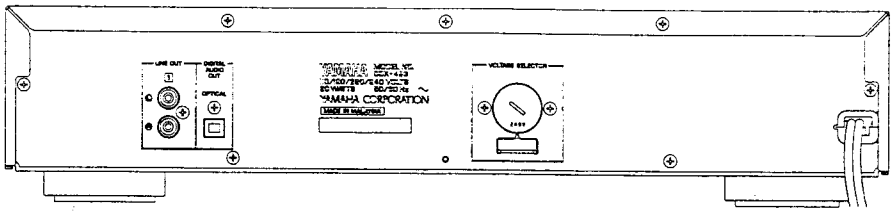


● CDX-493/593

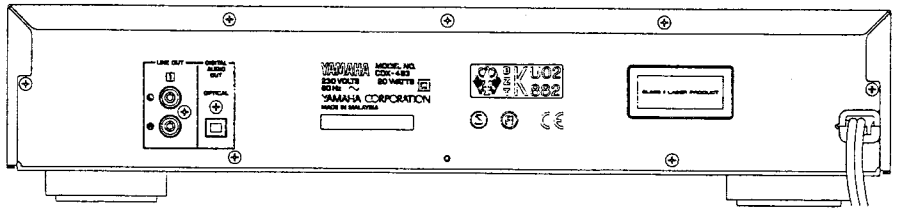


■ REAR PANELS

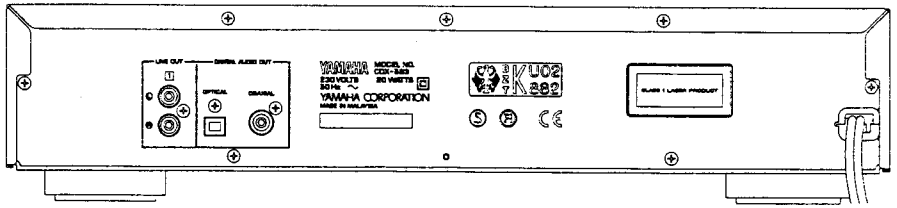
▼ CDX-493 R model



▼ CDX-493 G, B models



▼ CDX-593 G, B models



■ CDX-493 SPECIFICATIONS

Output Level 1kHz, 0dB	2.0±/0.5Vrms
Signal to Nosie Ratio (EIAJ)	105dB
Dynamic Range	95dB
Harmonic Distortion+Noise (1kHz)	0.003%
Frequency Response 2Hz — 20kHz	±0.5dB
Headphone Output 150Ω, 1kHz, –20dB Input	200mV±40mV
Power Requirements	
B, G models	230V AC 50Hz
R model	110/120/220/240V AC 50/60Hz
Power Consumption	20W
Dimensions (W x H x D)	435 x 96 x 272mm (17-1/8" x 3-3/4" x 10-11/16")
Weight	3.6kg (7 lbs 15 oz)
Accessories	Pin plug code Remote control transmitter (Dry-cell : x 2: Size "AA", R06)

**Specifications are subject to change without notice.*

B ..... British model
G ..... European model
R ..... General model

■ CDX-593 SPECIFICATIONS

Output Level 1kHz, 0dB	2.0±/0.5Vrms
Signal to Nosie Ratio (EIAJ)	115dB
Dynamic Range	98dB
Harmonic Distortion+Noise (1kHz)	0.0025%
Frequency Response 2Hz — 20kHz	±0.5dB
Headphone Output 150Ω, 1kHz, –20dB Input	200mV±40mV
Power Requirements	
B, G models	230V AC 50Hz
Power Consumption	20W
Dimensions (W x H x D)	435 x 96 x 272mm (17-1/8" x 3-3/4" x 10-11/16")
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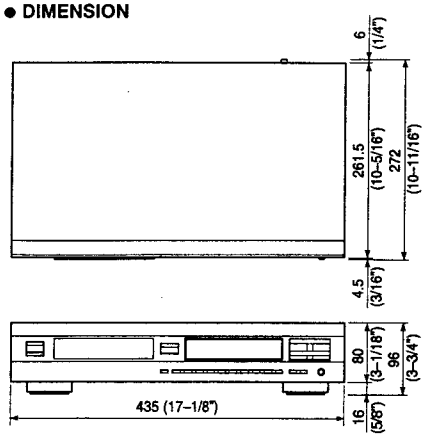
**Specifications are subject to change without notice.*

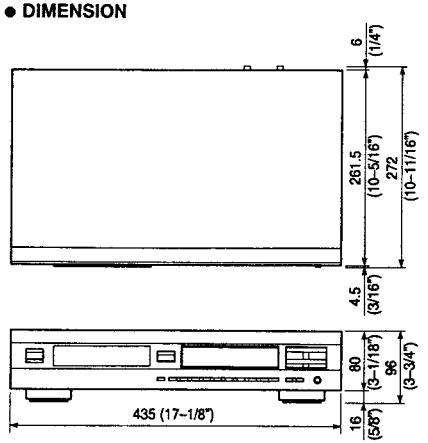
B ..... British model
G ..... European model

● **DIMENSION**



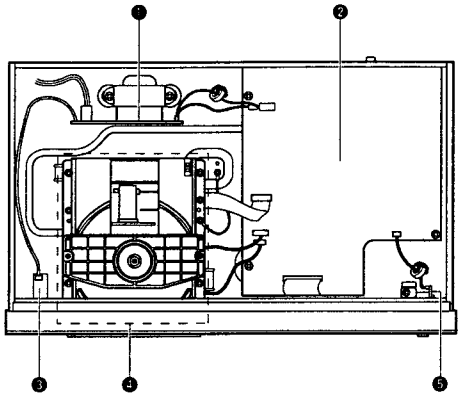
Unit : mm (inch)

● **DIMENSION**



Unit : mm (inch)

■ INTERNAL VIEW



❶ P.C.B. MAIN (4)
❷ P.C.B. MAIN (1)
❸ P.C.B. MAIN (5)
❹ CD MECHANISM UNIT
❺ P.C.B. MAIN (6)

■ DISASSEMBLY PROCEDURES

(Remove parts in disassembly order as numbered.)

1. Removal of Top Cover

a. Remove 4 screws (①) and 3 screws (②) in Fig. 1.
b. Lift the Top Cover at the rear and move it rearward slantingly.

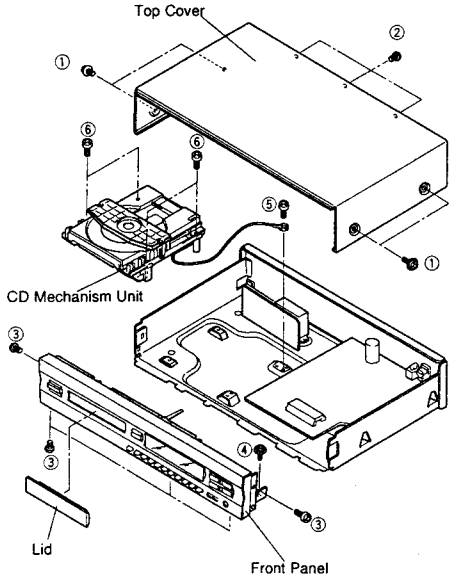


Fig. 1

2. Removal of Front Panel

a. Press the OPEN/CLOSE key and open the tray. Then remove the Lid attached to the front edge of the tray in Fig. 2.
Press the OPEN/CLOSE key and close the tray, then unplug the power cord.
b. Remove 3 connectors (CB6, CB11, CB413) in Fig. 2.
c. Remove 5 screws (③) and 1 screw (④) in Fig. 1.
d. Remove 2 hooks and then pull the Front Panel forward.

3. Removal of CD Mechanism Unit

a. Remove 3 connectors (CB2, CB4, CB5) in Fig. 2.
b. Remove 1 screw (⑤) in Fig. 1. (CDX-593 only)
c. Remove 4 screws (⑥) in Fig. 1.

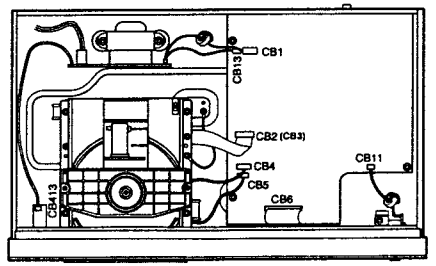


Fig. 2

4. Removal of Tray Unit

a. Remove 2 screws (⑦) and then remove the Chucking Unit in Fig. 3.
b. Remove 1 hook and then remove the Stopper Pin in Fig. 3.
c. Rotate the Drive Gear and then open the Tray Unit in Fig. 3.
d. Detach the Stoppers on both sides and then pull out the Tray in Fig. 3.

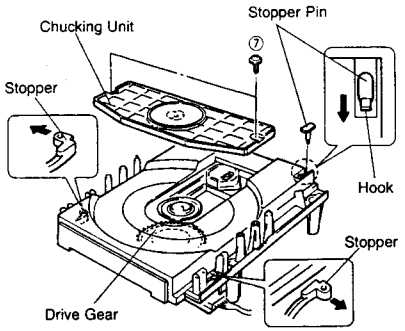


Fig. 3

5. Removal of Pick-up Head

a. Remove 2 screws (⑧) in Fig. 4.
b. Remove 4 screws (⑨) and then remove the Drive Unit in Fig. 4.
c. Remove the gear A in Fig. 5.
d. Pull out the Sled Shaft in Fig. 5.
e. Remove the Pick-up Head.

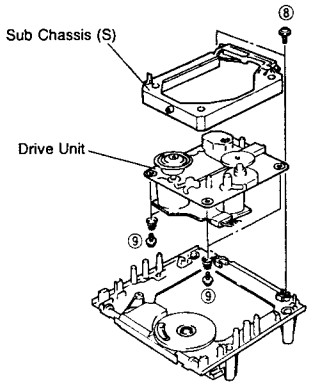
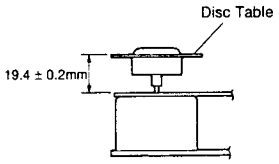


Fig. 4

Check that the disc table height is as specified below.



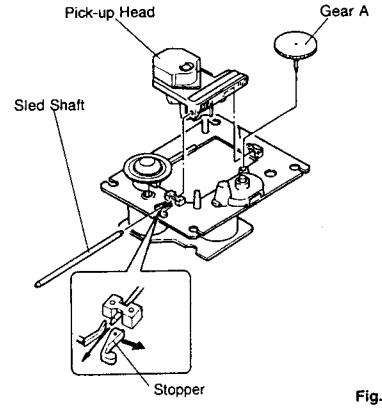
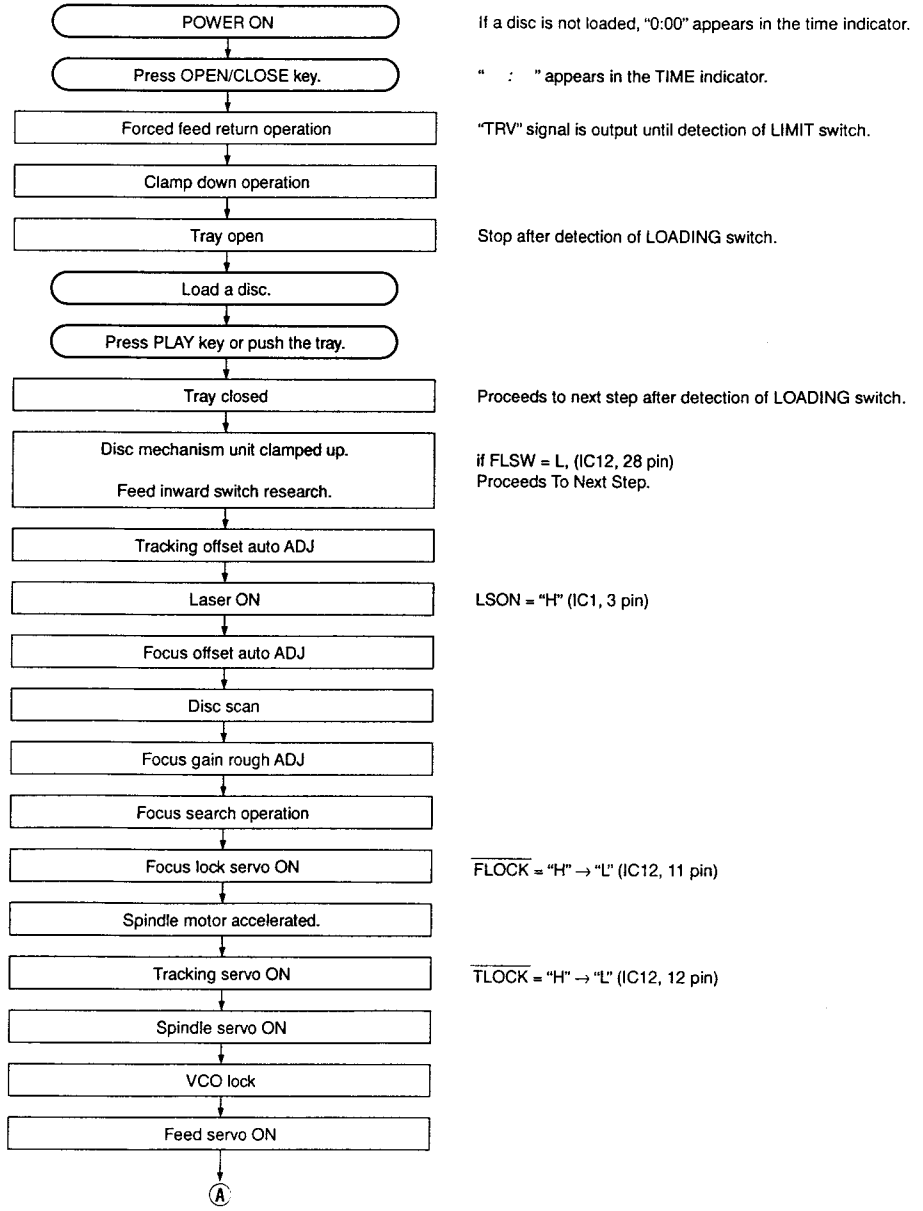
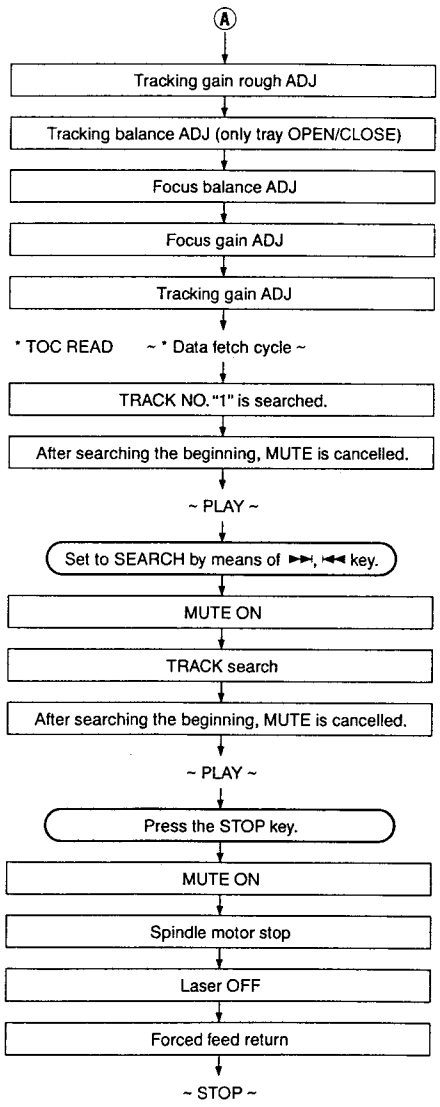


Fig. 5

■ STANDARD OPERATION CHART





: MUTE OFF = "H" → "L" (Q7 Collector)
"0:00" appears in the time indicator.

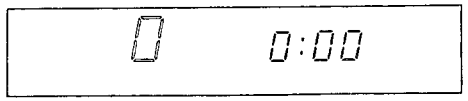
: MUTE OFF = "L" → "H"

: MUTE OFF = "H" → "L"
"0:00" appears in the time indicator.

: LSON = "H" → "L" (IC1, 3 pin)

■ TEST MODE

(1) Turning ON the POWER while pressing the keys "4" and "7" will set to the TEST mode. (When the TEST mode is set, all indicators light for 1 second.)



(2) Shown below are the panel keys and remote control transmitter in 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.
PLAY/PAUSE	FOON, TRON, SPON, TVON(FEON).
STOP	All stop. (Focus, spindle, feed, laser, tray, etc.) Initializes FL display
⏮ (SKIP/SEARCH)	Inner circumference traverse servo.
⏭ (SKIP/SEARCH)	Outer circumference traverse servo.
OUTPUT LEVEL –	Move output level down.
OUTPUT LEVEL +	Move output level up.
+10	Rotating the mode of coefficients. (Coefficient mode → Coefficient setting → product mode) Pressing twice will set to the product mode.
1	Returns to product mode.
2	Auto adjustment mode 1 (TR-off set, FO-off set, FO-rough gain adjustment)
3	Auto adjustment mode 2 (TR-balance, TR-rough gain adjustment)
4	Auto adjustment mode 3 (FO-fine gain, TR-fine gain, FO-balance adjustment)
5	1 TRACK KICK – continuously (Coefficient set up mode : address down)
6	1 TRACK KICK + continuously (Coefficient set up mode : address up)
7	30 TRACK KICK – continuously (Coefficient set up mode : upper digit down)
8	30 TRACK KICK + continuously (Coefficient set up mode : upper digit up)
9	150 TRACK KICK – continuously (Coefficient set up mode : lower digit down)
0	150 TRACK KICK + continuously (Coefficient set up mode : lower digit up)

● **Function List of Remote Control Transmitter**

CUSTOM CODE = (79)x

CODE	KEY	FUNCTION
01	OPEN/CLOSE	Tray open/close.
02	PLAY	PLAY (FOON, TRON, TVON(FEON), SPON)
04	⏮ SKIP	Inner circumference traverse servo.
05	◀◀ SEARCH	Inner 10 tracks kick continuously.
06	▶▶ SEARCH	Outer 10 tracks kick continuously.
07	⏭ SKIP	Outer circumference traverse servo.
08	REPEAT	FOON, TROF (Enter focus search if focus servo is off.)
0A	TIME	Checks FL display. (88 8888 → goes out → All lamps.)
0B	INDEX	FOON, TROF, TVOF(FEOF) (Enter focus search if focus servo is off.)
0C	PROG	Rotates or accelerates spindle.
0D	CLEAR	Decelerates spindle. (checking EFM pattern and reflected STAT)
0F	SPACE	FOOF, TROF, TVOF(EFOF)
10	0	150 TRACK KICK + continuously (Coefficient set up mode : lower digit up)
11	1	Returns to product mode. (tray inoperative.)
12	2	Auto adjustment mode 1 (TR-off set, FO-off set, FO-rough gain adjustment)
13	3	Auto adjustment mode 2 (TR-balance, TR-rough gain adjustment)
14	4	Auto adjustment mode 3 (FO-fine gain, TR-fine gain, FO-balance adjustment)
15	5	1 TRACK KICK – continuously (Coefficient set up mode : address down)
16	6	1 TRACK KICK + continuously (Coefficient set up mode : address up)
17	7	30 TRACK KICK – continuously (Coefficient set up mode : upper digit down)
18	8	30 TRACK KICK + continuously (Coefficient set up mode : upper digit up)
19	9	150 TRACK KICK – continuously (Coefficient set up mode : lower digit down)
1A	+10	Rotating the mode of coefficients.
1B	RANDOM	SPON (Spindle servo on.)
1C	OUTPUT LEVEL–	Move output level down.
1D	OUTPUT LEVEL+	Move output level up.
1E	DIMMER	Checks FL display. (88 8888 → goes out → All lamps.)
55	PAUSE	FOON, TROF, TVOF(EFOF) (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	TV(Feed) REV
5D	PEAK	—

■ MEMORY BACKUP

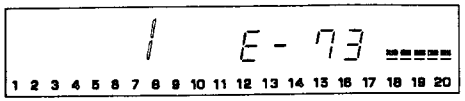
After the Power is turned OFF, some functions are kept in memory.

Functions kept in memory are :

- OUTPUT LEVEL
- DIMMER
- FULL REPEAT
- RANDOM MODE
- TIME MODE
- AUTO SPACE

■ ERROR MESSAGE

(1) When operation is terminated in an abnormal condition (stop or open), pressing STOP on the remote control while pressing STOP on the panel will set to the error message display enable mode.
(2) Shown below is an example of display. ("E-73" as an example)



(3) This function stays effective till the power is turned OFF. (It is cleared at OFF.)
(4) Listed in the table below are error messages.

● **Error Messages List**

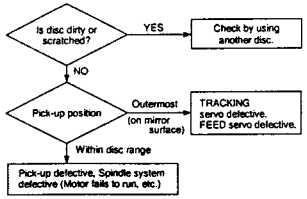
ERROR MESSAGES	DESCRIPTION
E – X 0	Data cannot be read after finishing search.
E – X 1	Data cannot be read during PLAY(X=0), PAUSE(X=3), or SCAN(X=2).
E – 7 1	At the start, tracking servo is not effective.
E – 7 2	At the start, spindle servo PLL is not effective.
E – 7 3	At the start, data can not read.
E – 9 4	Close switch does not work with tray closed.
E – – 5	Open switch does not work with tray open.
E – X 7	Traverse(Feed) inner switch does not work.
E – X 8	Recovery action fails after focus drop.
E r r	MN66271/MN662720 does not give response of SENSE, with resetting by the unit's microcomputer.

***No. for each state (meaning of "X")**

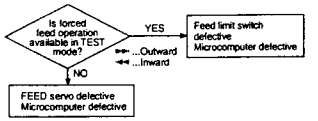
PLAY	X="0"
SCAN	X="2"
PAUSE	X="3"
PEAK SEARCH	X="4"
SEARCH	X="5"
START	X="7"
STOP	X="8"
LOADING	X="9"
OPEN	X="–"
NO DISC	X="C"

1) Error Code Troubleshooting

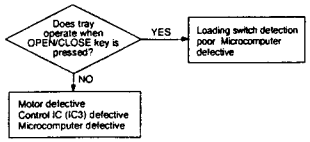
Error code [X0], [X1], [73] ..... Data cannot be read.



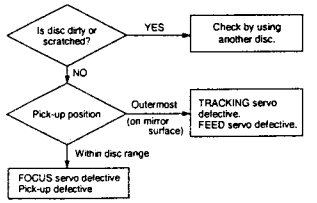
Error code [X7] ..... FEED operation defective. (Limit switch fails)



Error codes [94], [–5] ..... Poor tray loading operation.

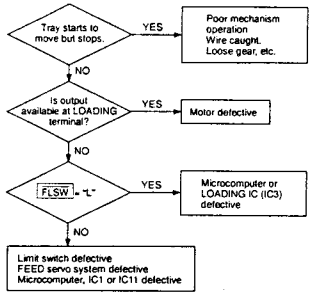


Error code [X8] ..... Focus drops.



2) Troubleshooting from System Malfunctions

a) Tray fails to come out/go in.

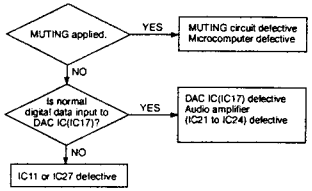


When tray fails to close completely (when it stops midway)

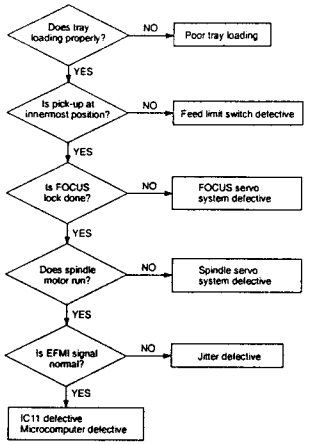
[Corrective measure]

1) Turn ON the power and open the tray.
   * If it failed to open (head and tray contacting each other), open it after removing the chucking unit.
2) Turn OFF the power and force the tray to go in fully and close.
3) With the power turned ON, open and close the tray to check if the tray close completely.

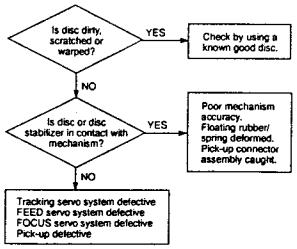
b) No sound generated, Sound cut during play. (but time display advances properly)



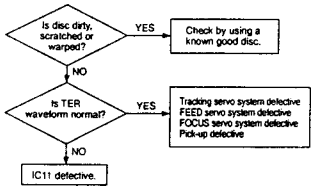
c) Operates as if no disc loaded. (although loaded)



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

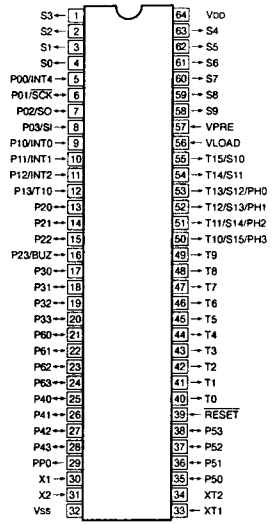


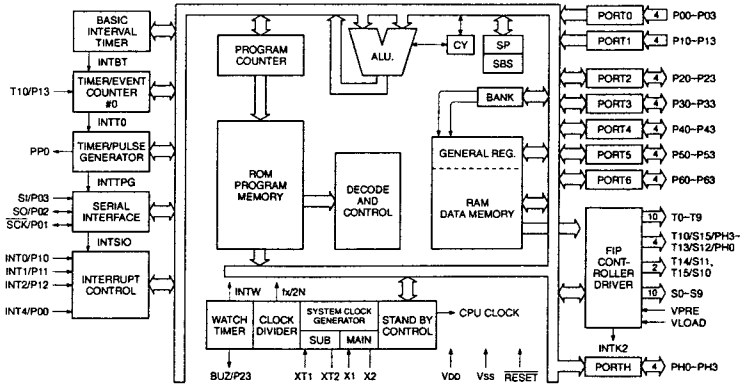
e) No search provided. (Sound skipped after search)



■ IC DATA

IC12 : μPD75217CW
System Controller (4bit μ-COM)



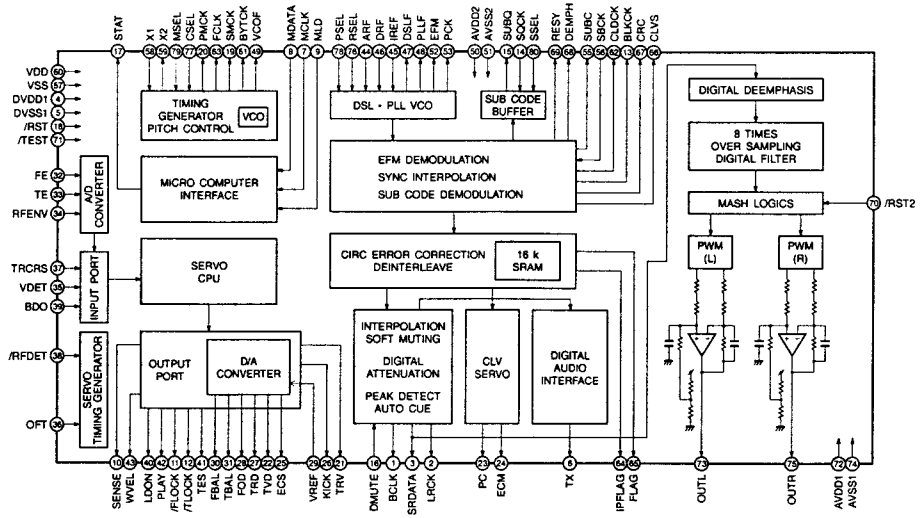


Pin No.	Pin Name	Description	Function
1	S3	S3	Fluorescent character display tube anode drive signal
2	S2	S2	
3	S1	S1	
4	S0	S0	
5	PO0	D/A	N.C
6	PO1	$\overline{SCK}$	Serial clock output to MN66271/MN662720
7	PO2	SO	Serial data output to MN66271/MN662720
8	PO3	SI	Serial data input from MN66271/MN662720
9	P10	REM	Input from remote control beam receiving unit
10	P11	BLKICK	Synchronous clock input for Q-code RCV from MN66271/MN662720 (Fine pulse at RCV, normally LO)
11	P12	$\overline{FLOCK}$	FOCUS lock signal input from MN66271/MN662720 (LO at LOCK)

IC12 : μPD75217CW
System Controller (4bit μ-COM)

Pin No.	Pin Name	Description	Function
12	P13	$\overline{\text{TLOCK}}$	Tracking lock signal input from MN66271/MN662720 (HI at LOCK)
13	P20	$\overline{\text{MLD}}$	Read signal output for transmitting command from MN66271/MN662720 (After command transmission, LO pulse at LOAD TIMING)
14	P21	COMMAND	Serial I/F switching signal output (switching at 74HC125) Q CODE received at HI
15	P22	QCODE	Serial I/F switching signal output (switching at 74HC125) CMD transmit/receive selection
16	P23	DMUTE	Digital mute signal output (HI at MUTE)
17	P30	STAT	STAT signal input
18	P31	$\overline{\text{MNRESET}}$	RESET signal output (LO at RESET)
19	P32	SCL	Serial clock signal with X24C00
20	P33	SDA	Serial data signal with X24C00
21	P60	$\overline{\text{MUTE}}$	Analog mute signal output (LO at MUTE)
22	P61	EF BAL	Feed servo off signal outout
23	P62	—	Open
24	P63		MODEL selection CDX-493/593 = "L" , CDX-993 = "H"
25	P40		MODEL selection CDX-593 = "L" , CDX-493/993 = "H"
26	P41	OPSW	Open state of tray sensing switch input Open state at "L"
27	P42	CLSW	Closed state of tray sensing switch input Closed state at "L"
28	P43	FELTSW	Feed origin switch input Feed origin at "L"
29	PP0	LED	LED ON/OFF signal (AUTO DISPLAY OFF)
30	X1	X1	Crystal oscillator Oscillation terminal (4.19MHz)
31	X2	X0	
32	VSS	VSS	GND
33	XT1	—	Open
34	XT2	—	Open
35	P50	K3	Key matrix input
36	P51	K2	
37	P52	K1	
38	P53	K0	
39	$\overline{\text{RESET}}$	$\overline{\text{RESET}}$	Reset input
40	T0	T0/9G	Fluorescent character display tube grid drive signal
41	T1	T1/8G	
42	T2	T2/7G	
43	T3	T3/6G	
44	T4	T4/5G	
45	T5	T5/4G	
46	T6	T6/3G	
47	T7	T7/2G	
48	T8	T8/1G	
49	T9	—	Open
50	T10	OPEN	Opening of tray at OP "H" and CL "L"
51	T11	CLOSE	Closing of tray at CL "H" and OP "L"
52	T12	VLUP	Volume motor drive signal (UP) (Not used)
53	T13	VLDN	Volume motor drive signal (DOWN) (Not uesd)
54	T14	S11	Fluorescent character display tube anode drive signal
55	T15	S10	
56	V LOAD	-VP	-20V
57	V PRE	GND	GND
58	S9	S9	Fluorescent character display tube anode drive signal
59	S8	S8	
60	S7	S7	
61	S6	S6	
62	S5	S5	
63	S4	S4	
64	VDD	+5	+5V

IC11 : MN66271RA
Signal Processor & Controller (SPC)



Pin No.	Name	I/O	Function
1	BCLK	O	Bit clock output for SR DATA (NC)
2	LRCK	O	L/R identification signal output (NC)
3	SRDATA	O	Serial data output (NC)
4	DVDD1	I	Power supply for digital circuit (+5)
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 (NC)
20	PMCK	O	88.2KHz clock signal output (NC)
21	TRV	O	Traverse (Feed) forced feed output
22	TVD	O	Traverse (Feed) drive output
23	PC	O	Spindle motor ON signal L : ON (NC)
24	ECM	O	Spindle motor drive signal (forced mode output) 3-State
25	ECS	O	Spindle motor drive signal (servo error signal output)

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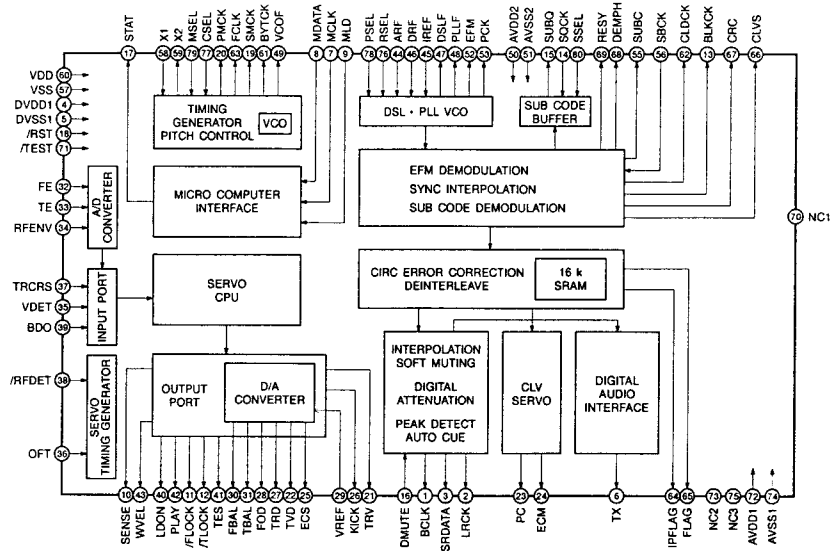
IC11 : MN66271RA
Signal Processor & Controller (SPC)

Pin No.	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) (NC)
43	WVEL	O	Double speed status signal output (NC)
44	ARF	I	RF signal input
45	IREF	I	Reference current input terminal
46	DRF	I	Bias terminal for DSL (NC)
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 (NC)
50	AVDD2	I	Power supply for analog circuit (for DSL, PLL, OA output blocks) (+5)
51	AVSS2	I	GND for analog circuit (for DSL, PLL, DA output blocks) (GND)
52	EFM	O	EFM signal output (NC)
53	PCK	O	PLL extract clock output (f PCK = 4.321MHz) (NC)
54	PDO	O	EFM signal to PCK signal phase comparison signal output (NC)
55	SUBC	O	Sub-code serial output data output (NC)
56	SBCK	I	Clock input for sub-code serial output (GND)
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 (+5)
61	BYTCK	O	Byte clock output (NC)
62	$\overline{\text{CLDCK}}$	O	Sub-code frame clock signal output (f CLDCK = 7.35kHz) (NC)
63	FCLK	O	Crystal frame clock output (f FCLK = 7.35kHz) (NC)
64	IPFLAG	O	Interpolation flag output H : INTERPOLATION (NC)
65	FLAG	O	Flag output (NC)
66	CLVS	O	Spindle servo phase synchronous status signal outut H : CLV L : ROUGH SERVO (NC)
67	CRC	O	Sub-code CRC check result output H : OK , L : NG (NC)
68	DEMPH	O	Deemphasis detect signal output H : ON (NC)
69	RESY	O	Re-synchronous signal output of frame synchronization H : SYNCHRONOUS L : ASYNCHRONOUS (NC)
70	$\overline{\text{RST2}}$	I	Reset terminal for stop after MASH circuit (L : RESET) (+5)
71	$\overline{\text{TEST}}$	I	Test terminal (Normal : H) (+5)
72	AVDD1	I	Power supply for analog circuit (for audio output section (used for both L and R channels))
73	OUTL	O	L channel output
74	AVSS1	I	GND for analog circuit (for audio output section (used for both L and R channels))
75	OUTR	O	R channel output
76	RSEL	I	RF signal polarity specifying terminal RSEL = H when Bright level is at "H" RSEL = L when Bright level is at "L" (+5)
77	CSEL	I	Crystal oscillation frequency specifying terminal (Normal : L) (GND)
78	PSEL	I	Test terminal (Normal : L) (GND)
79	MSEL	I	SMCK terminal Output frequency switch terminal H : SMCK = 8.4672MHz , L : SMCK = 4.2336MHz (GND)
80	SSEL	I	SUBQ terminal Output mode switch terminal H : Q code buffer use mode (+5)

CDX-593

IC11 : MN662720RB
Signal Processor & Controller (SPC)



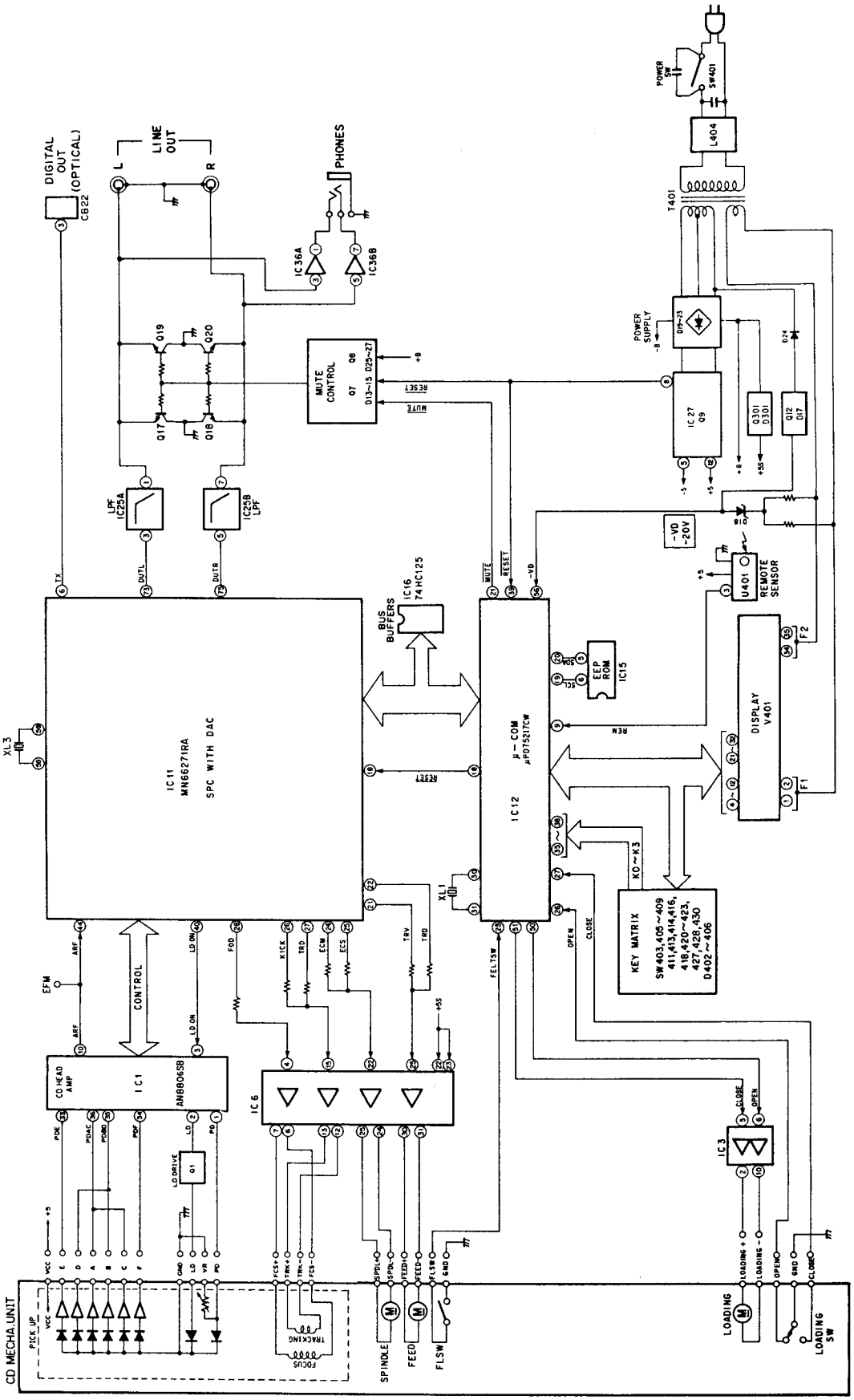
Pin No.	Pin Name	I/O	FUNCTION
1	BCLK	O	Bit clock output for SR DATA
2	LRCK	O	L/R identification signal output
3	SRDATA	O	Serial data output
4	DVDD1	I	Power supply for digital circuit
5	DVSS1	I	GND for digital circuit
6	TX	O	Digital, audio, interface output signal
7	MCLK	I	Microprocessor command clock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

IC11 : MN662720RB
Signal Processor & Controller (SPC)

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	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	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

CDX-493

■ CDX-493 BLOCK DIAGRAM



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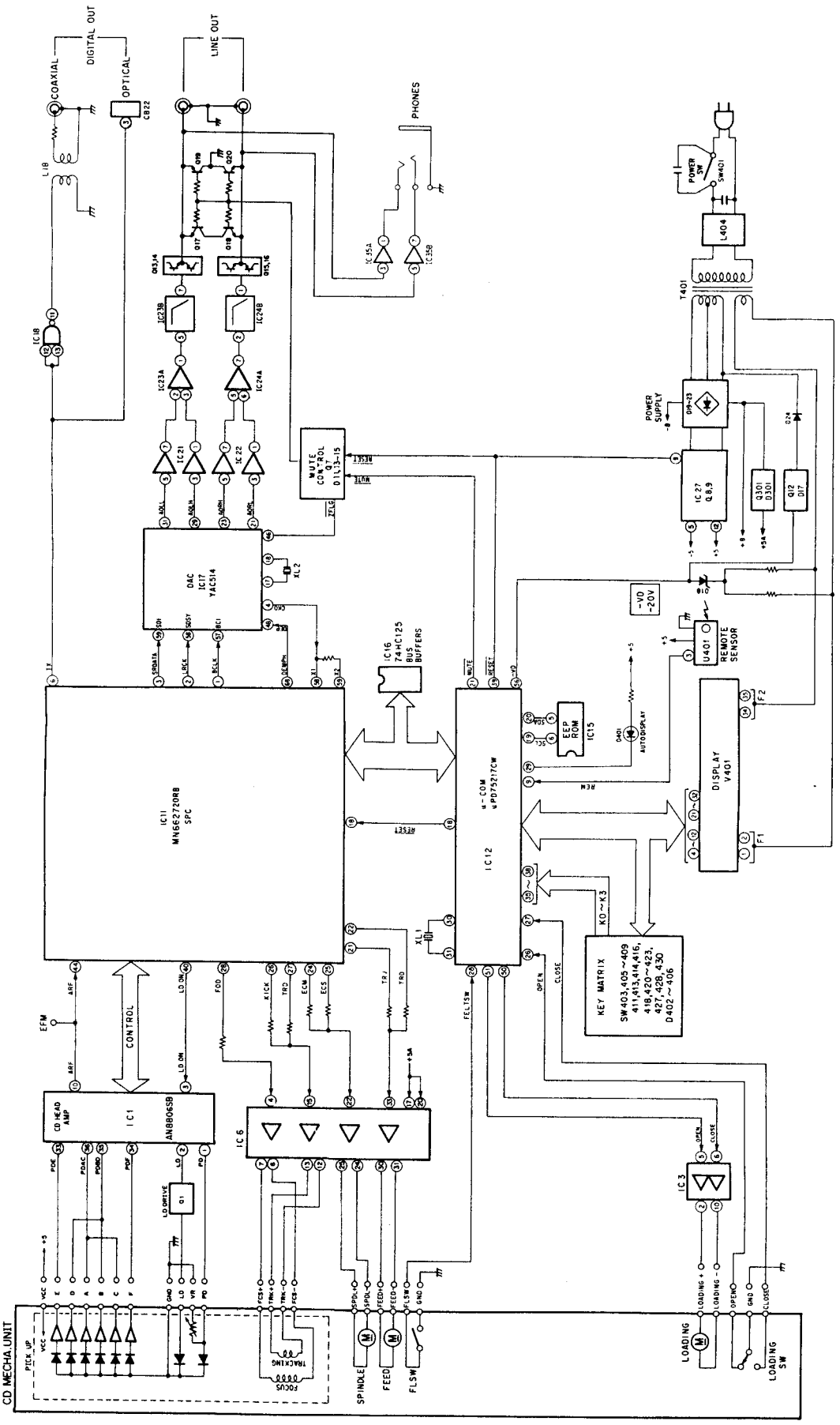
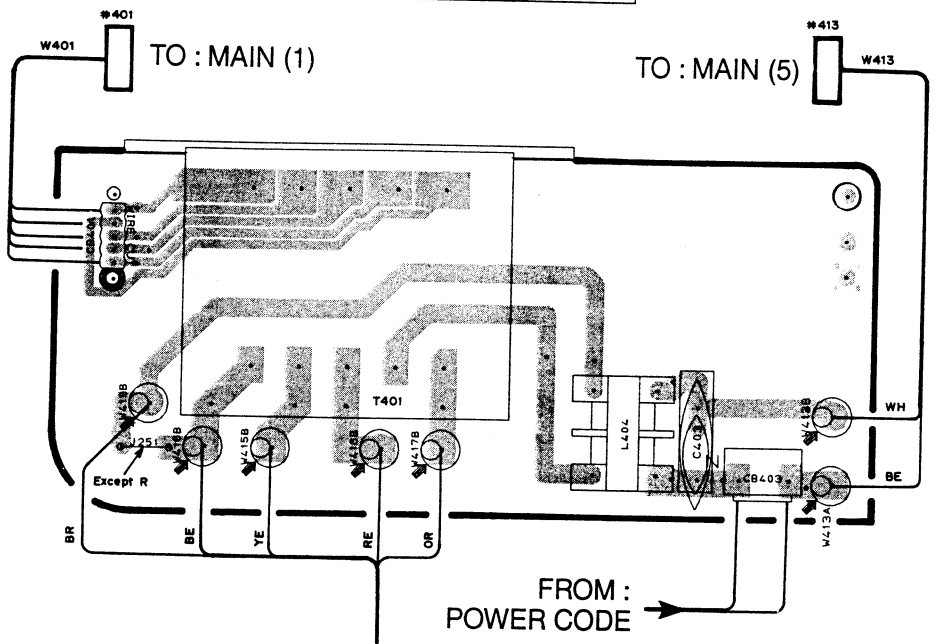
■ CDX-593 BLOCK DIAGRAM



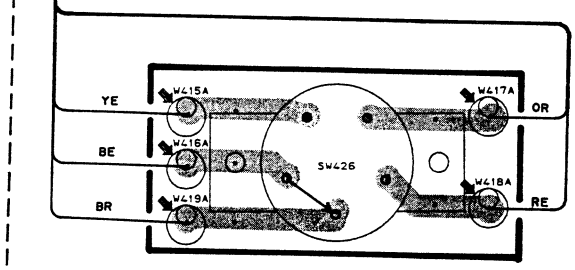
■ CDX-493 PRINTED CIRCUIT BOARD (Foil side)／シート図 (パターン側)

P. C. B. MAIN (4)



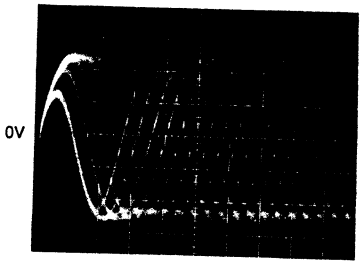
R only

P. C. B. MAIN (3)

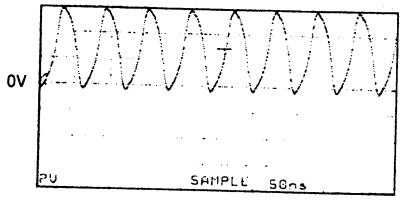


VOLTAGE
SELECTOR

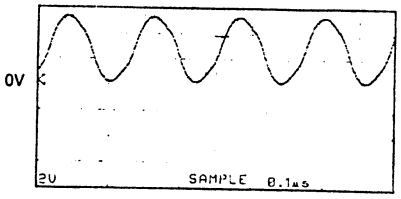
Point ① (EFM : Pin10 of IC1)
V : 0.2V/div H : 0.5 µsec/div
AC range 1 : 1 probe



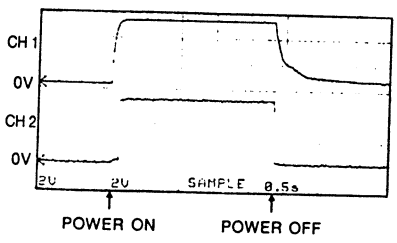
Point ② (Pin59 of IC11)
V : 2V/div H : 50 nsec/div
DC range 1 : 1 probe



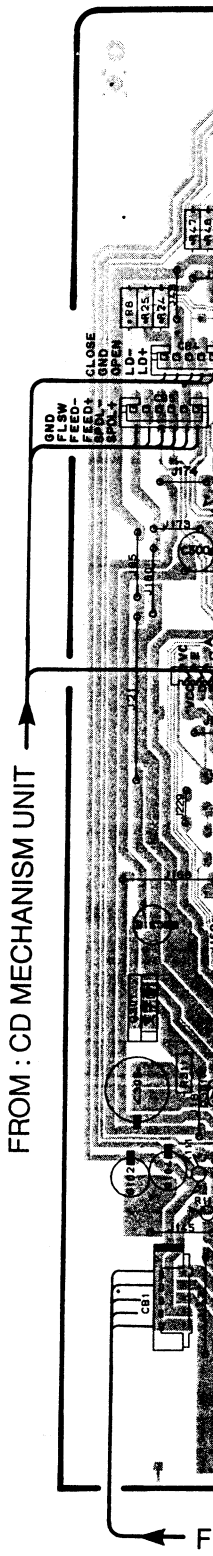
Point ③ (Pin31 of IC12)
V : 2V/div H : 0.1 µsec/div
DC range 1 : 1 probe



Point ④ (CH1 : Collector of Q9, CH2 : Pin8 of IC27)
V : 2V/div (CH1)
V : 2V/div (CH2)
H : 0.5 sec/div DC range 1 : 1 probe



P. C.



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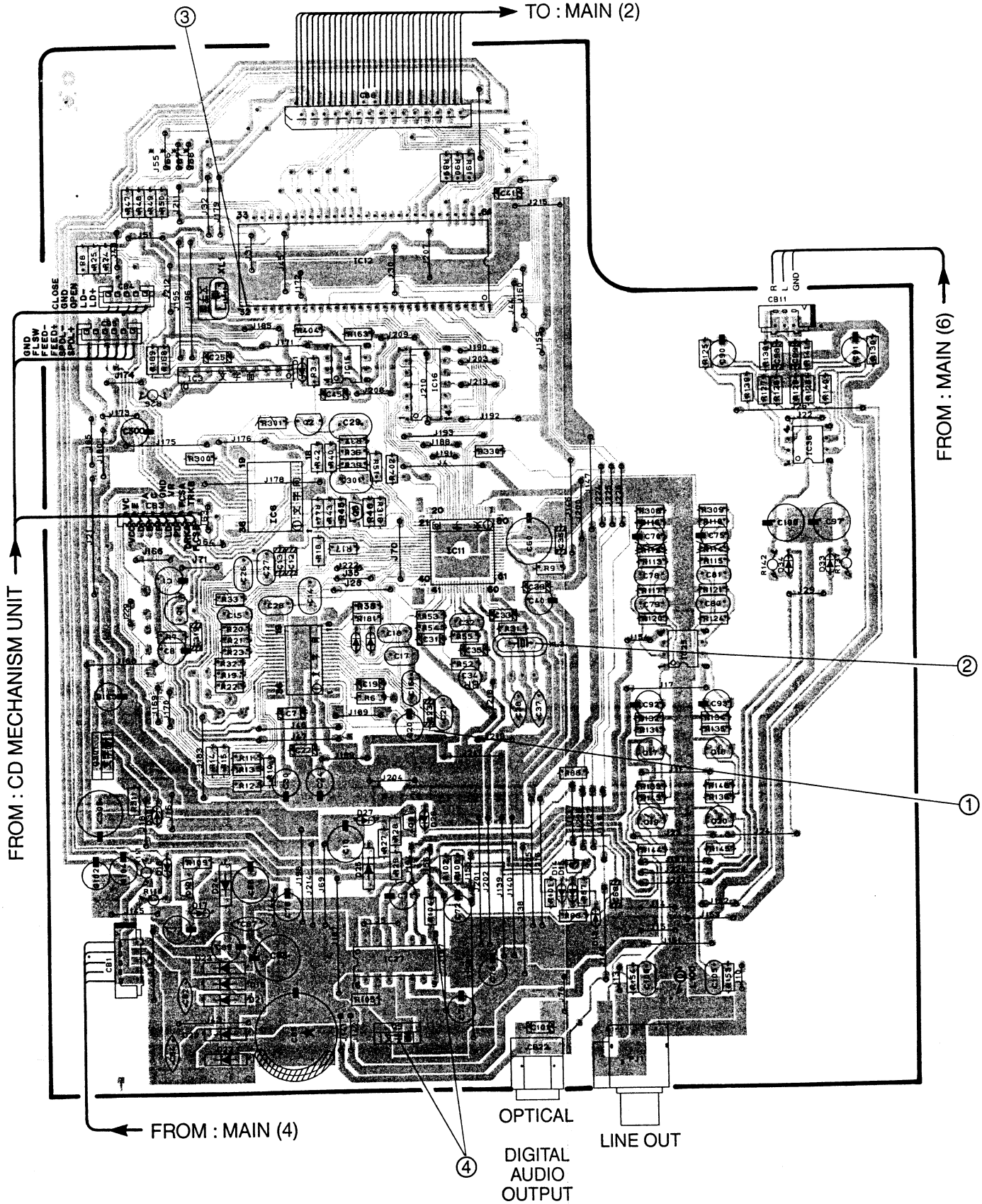
D E F G

(パターン側)

P. C. B. MAIN (1)



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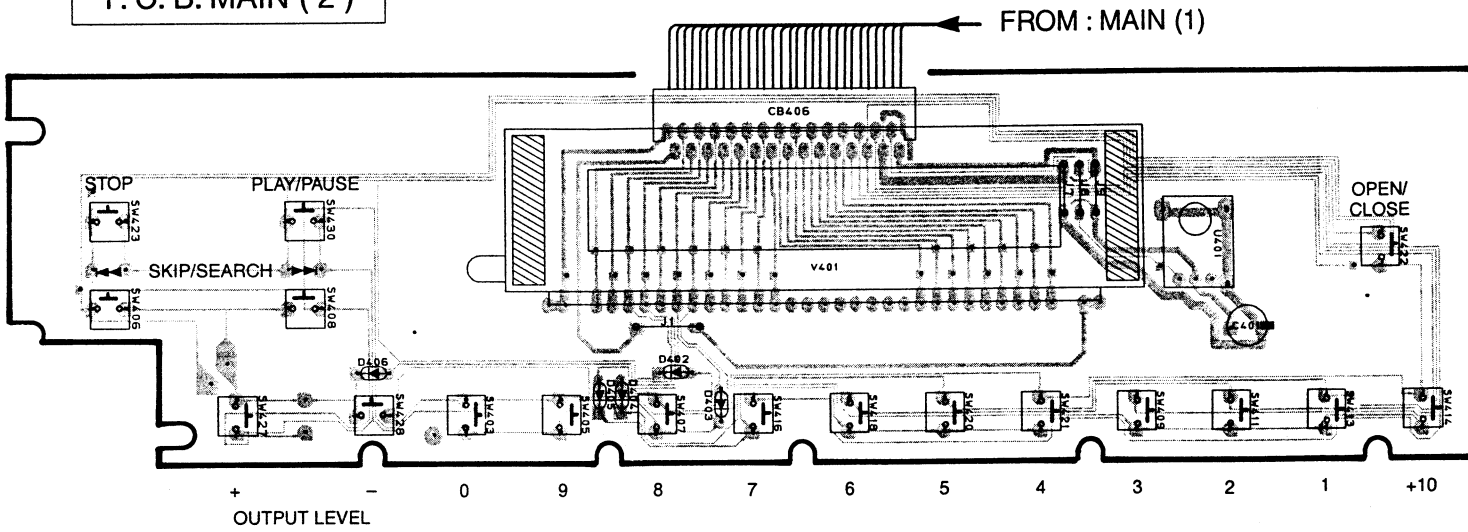
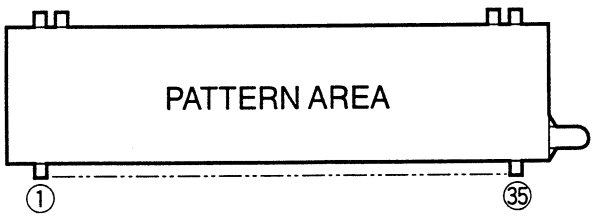
CDX-493

■ CDX-493 PRINTED CIRCUIT BOARD (Foil side)／シート図（パターン側）

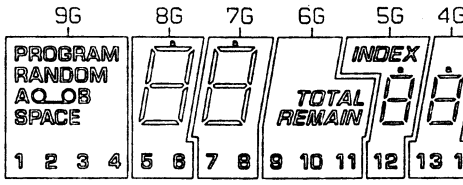
P. C. B. MAIN (2)



V401 : 9-MT-133GK



GRID ASSIGNMENT



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	9G	8G	7G	6G	5G	4G	3G	2G	1G	NC	NC	NC	NC	NC	NC

PIN NO.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
CONNECTION	NC	NC	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	F2	F2

NOTE 1) F1, F2 ..... Filament
2) NP ..... No pin
3) NC ..... No connection
4) P1~P10 ... Datum Line
5) 1G~9G .... Grid

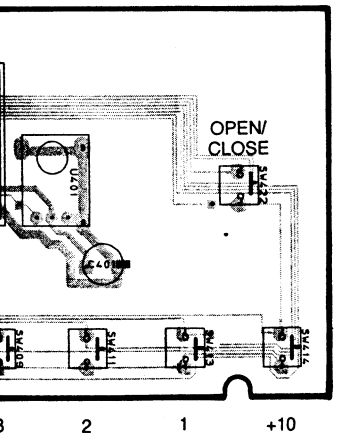
ANODE CONNECTION

	9G	7G	7G	6G
P1	PROGRAM	a	a	TOTA
P2	RANDOM	b	b	REMA
P3	A	c	c	—
P4	○○	d	d	—
P5	B	e	e	—
P6	SPACE	f	f	—
P7	—	g	g	—
P8	—	—	—	—
P9	1	5	7	9
P10	2	6	8	10
P11	3	—	—	11
P12	4	—	—	—

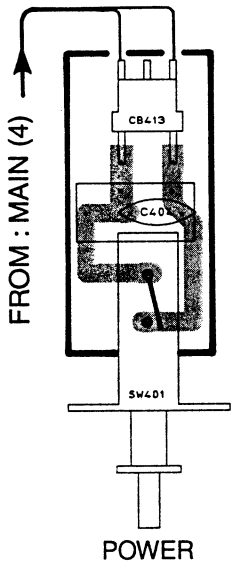
D | E | F | G | H

ーン側)

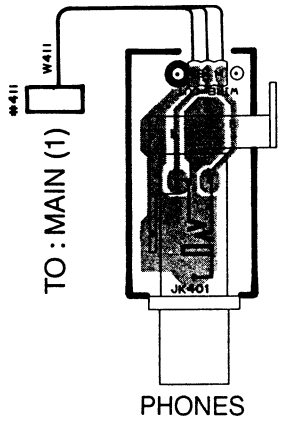
IN (1)



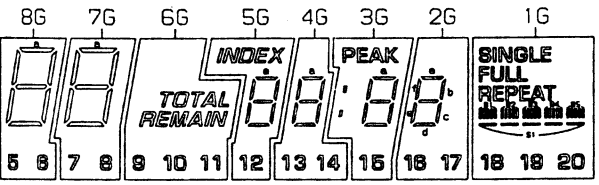
P. C. B. MAIN (5)



P. C. B. MAIN (6)



NMENT

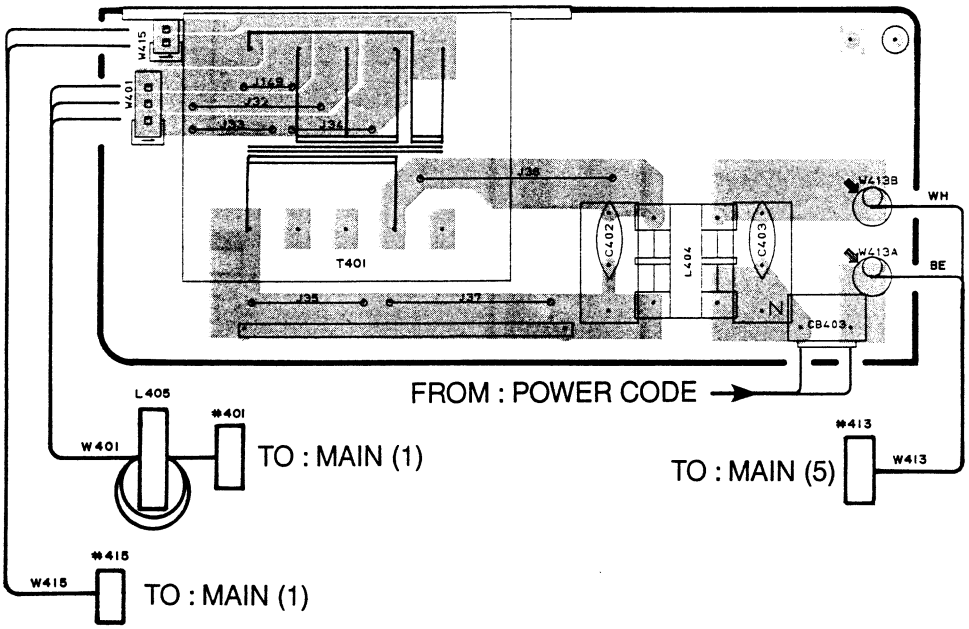


NECTION

G	7G	7G	6G	5G	4G	3G	2G	1G
RAM	a	a	*TOTAL*	a	a	a	a	SINGLE
OOM	b	b	*REMAIN*	b	b	b	b	FULL
	c	c	—	c	c	c	c	REPEAT
O	d	d	—	d	d	d	d	B1
	e	e	—	e	e	e	e	B2
CE	f	f	—	f	f	f	f	B3
	g	g	—	g	g	g	g	B4
	—	—	—	—	—	:	—	B5
	5	7	9	*12*	13	15	16	S1
	6	8	10	*INDEX*	14	PEAK	17	18
	—	—	11	—	—	—	—	19
	—	—	—	—	—	—	—	20

■ CDX-593 PRINTED CIRCUIT BOARD (Foil side)／シート図 (パターン側)

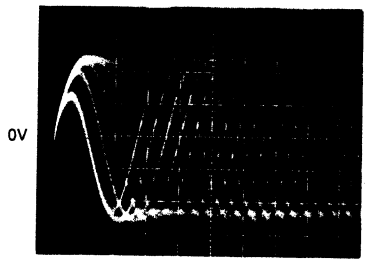
P. C. B. MAIN (4)



Point ① (EFM : Pin10 of IC1)

V : 0.2V/div H : 0.5 µsec/div

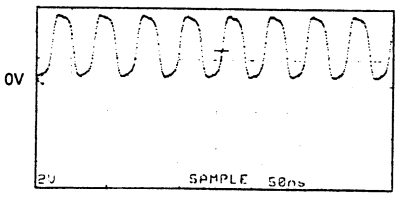
AC range 1 : 1 probe



Point ② (Pin17 of IC17)

V : 2V/div H : 50 nsec/div

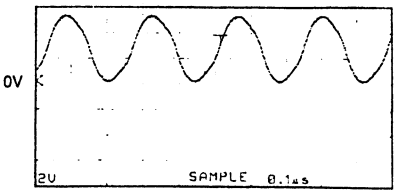
DC range 1 : 1 probe



Point ③ (Pin31 of IC12)

V : 2V/div H : 0.1 µsec/div

DC range 1 : 1 probe

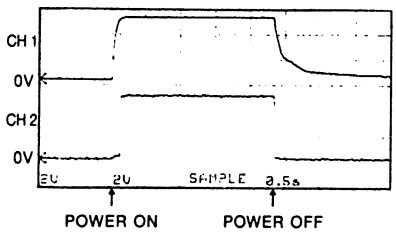


Point ④ (CH1 : Collector of Q9, CH2 : Pin8 of IC27)

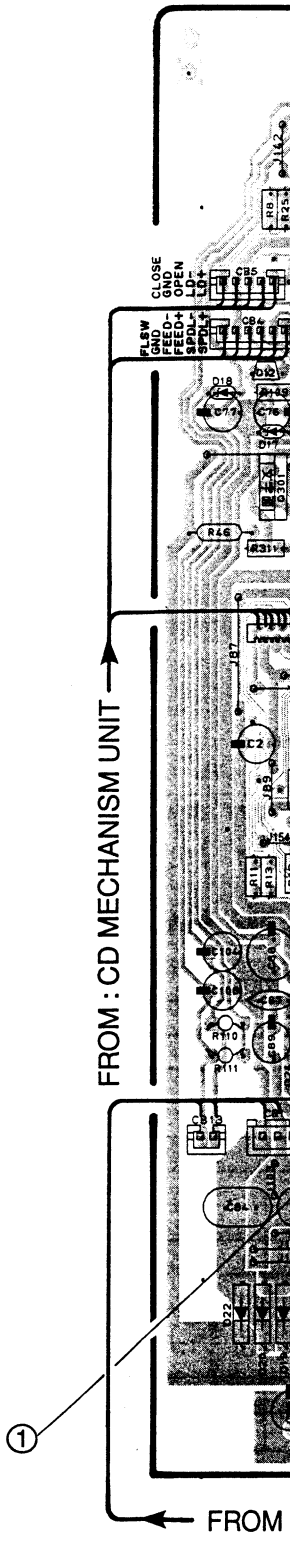
V : 2V/div (CH1)

V : 2V/div (CH2)

H : 0.5 sec/div DC range 1 : 1 probe

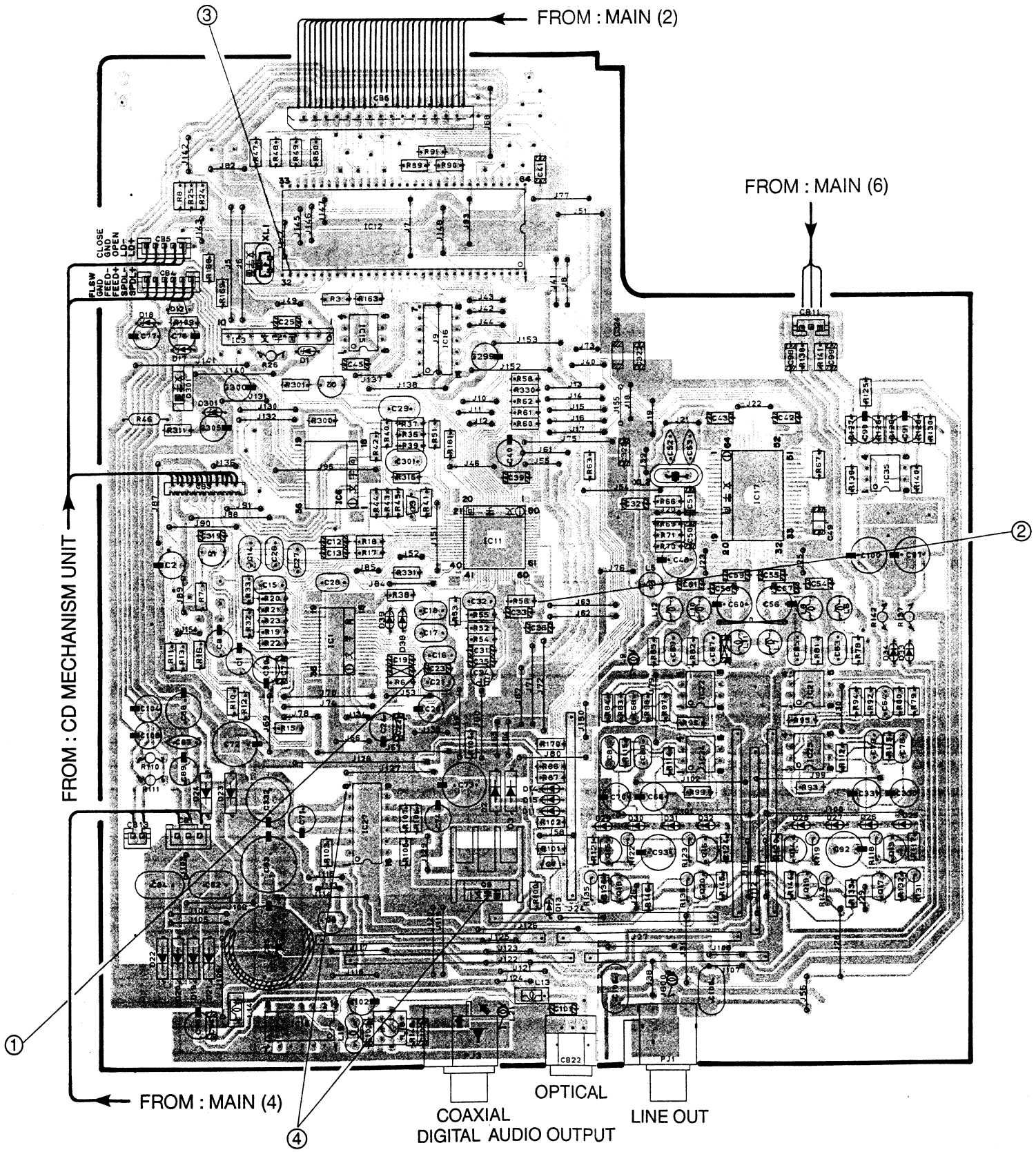


P. C. B



ターン側)

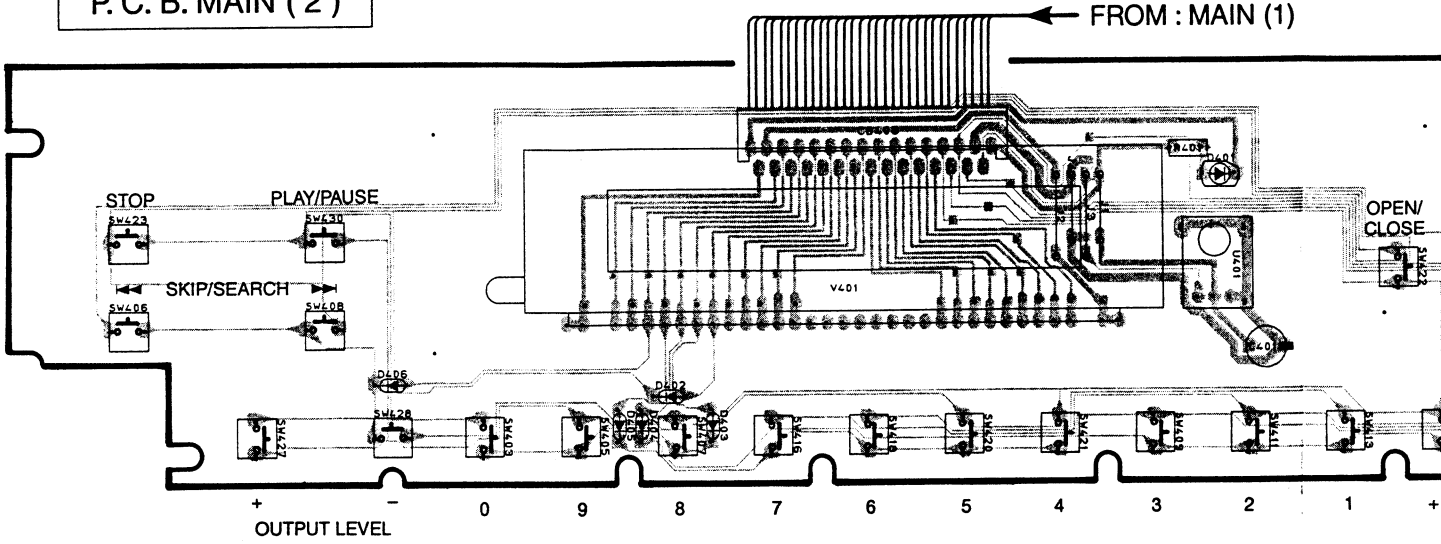
P. C. B. MAIN (1)



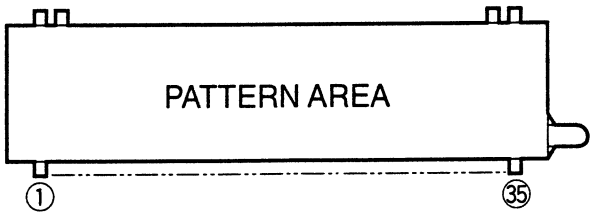
CDX-593

■ CDX-593 PRINTED CIRCUIT BOARD (Foil side)／シート図 (パターン側)

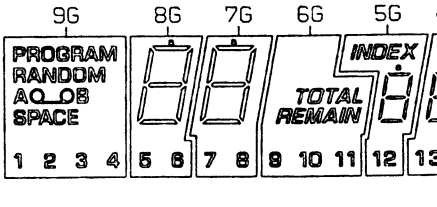
P. C. B. MAIN (2)



V401 : 9-MT-133GK



GRID ASSIGNMENT



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	9G	8G	7G	6G	5G	4G	3G	2G	1G	NC	NC	NC	NC	NC	NC

PIN NO.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
CONNECTION	NC	NC	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	F2	F2

NOTE 1) F1, F2 ..... Filament
2) NP ..... No pin
3) NC ..... No connection
4) P1~P10 ... Datum Line
5) 1G~9G .... Grid

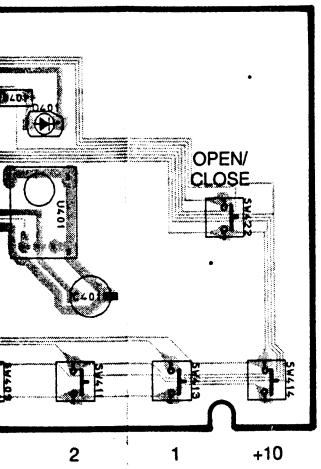
ANODE CONNECTION

	9G	7G	7G	
P1	PROGRAM	a	a	TC
P2	RANDOM	b	b	RE
P3	A	c	c	
P4	○○	d	d	
P5	B	e	e	
P6	SPACE	f	f	
P7	—	g	g	
P8	—	—	—	
P9	1	5	7	
P10	2	6	8	
P11	3	—	—	
P12	4	—	—	

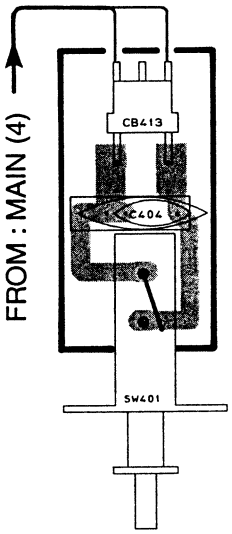
E F G H

側)

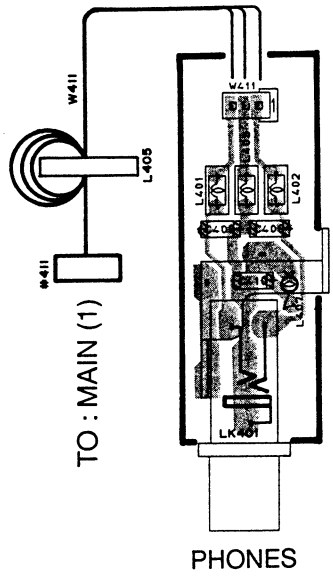
: MAIN (1)



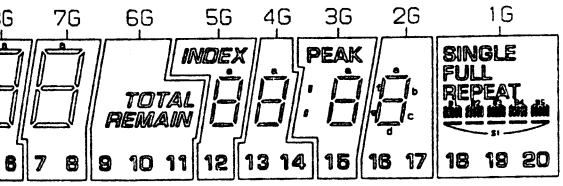
P. C. B. MAIN (5)



P. C. B. MAIN (6)



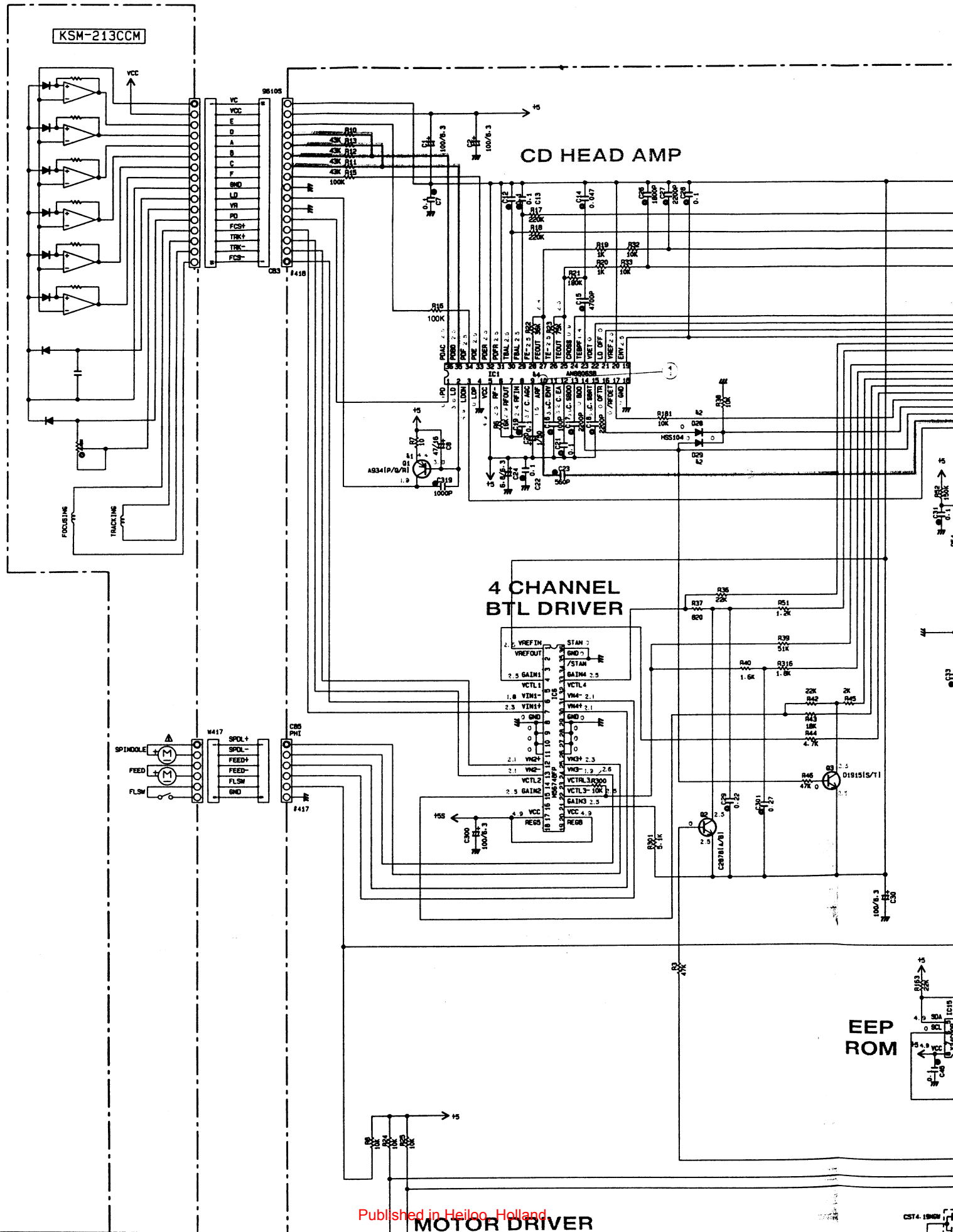
NT



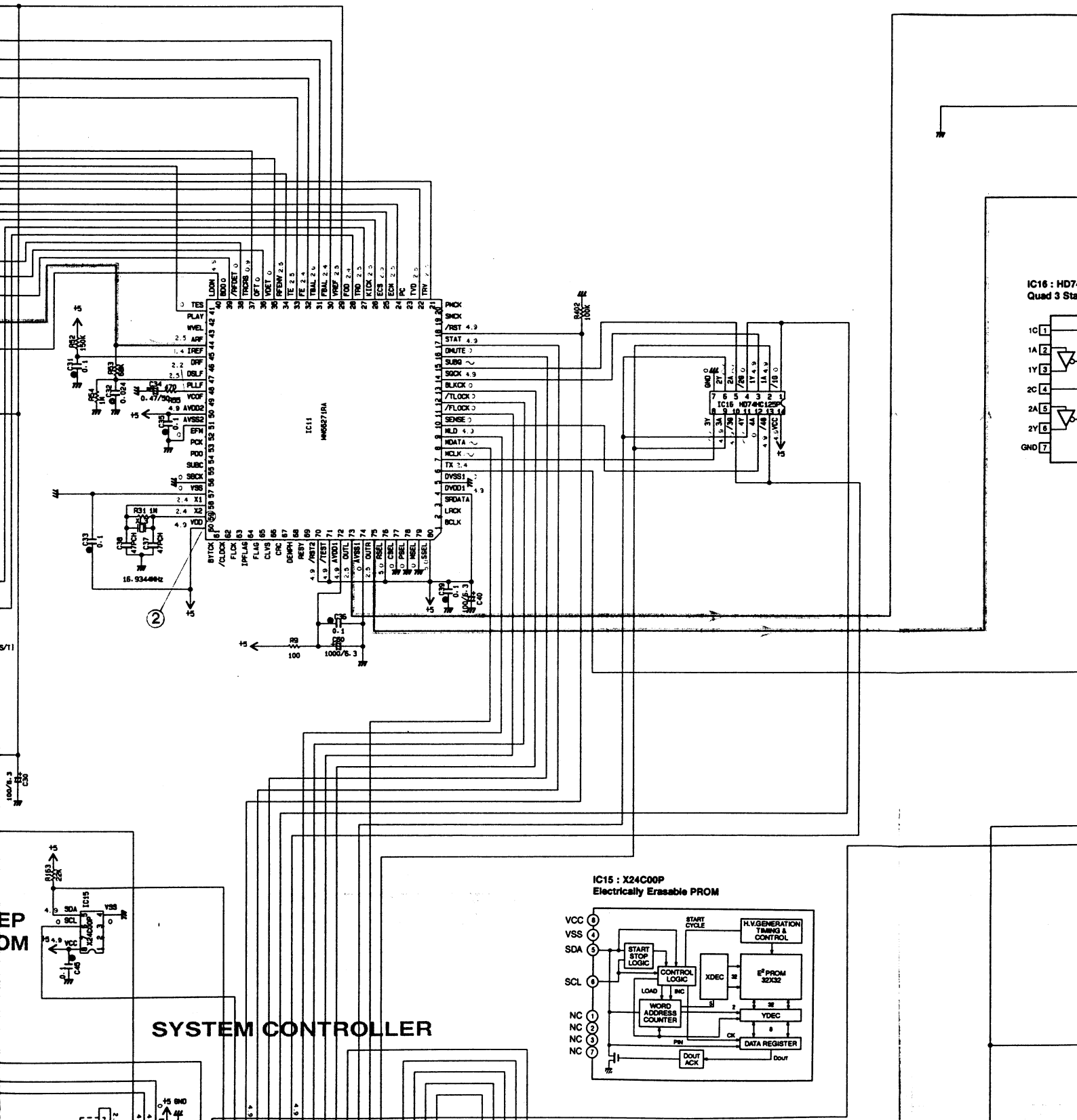
CTION

	7G	7G	6G	5G	4G	3G	2G	1G
M	a	a	*TOTAL*	a	a	a	a	SINGLE
	b	b	*REMAIN*	b	b	b	b	FULL
	c	c	—	c	c	c	c	REPEAT
	d	d	—	d	d	d	d	B1
	e	e	—	e	e	e	e	B2
	f	f	—	f	f	f	f	B3
	g	g	—	g	g	g	g	B4
	—	—	—	—	—	:	—	B5
	5	7	9	*12*	13	15	16	S1
	6	8	10	*INDEX*	14	PEAK	17	18
	—	—	11	—	—	—	—	19
	—	—	—	—	—	—	—	20

■ CDX-493 SCHEMATIC DIAGRAM／総回路図



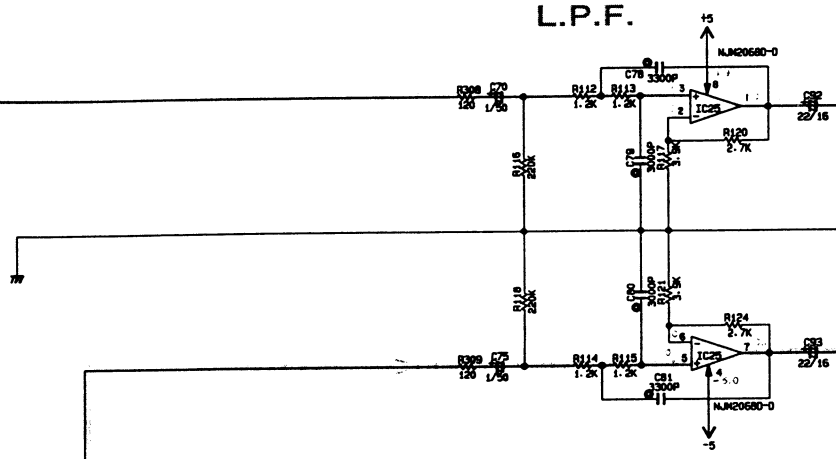
SIGNAL PROCESSOR & CONTROLLER



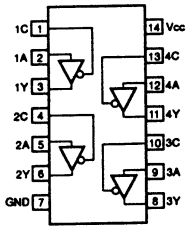
SYSTEM CONTROLLER

Published in Heiloo, Holland.

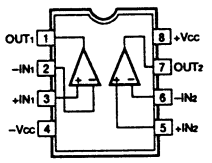
L.P.F.



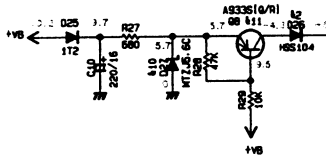
IC16 : HD74HC125P
Quad 3 State Bus Buffers

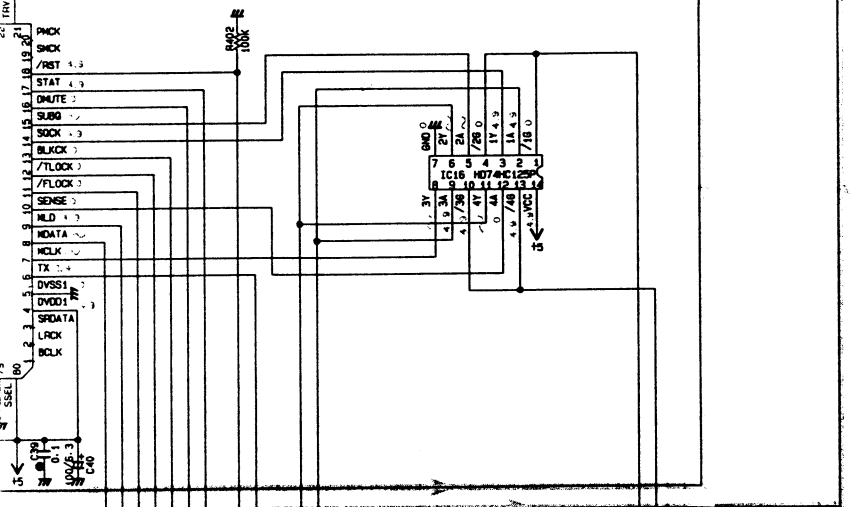


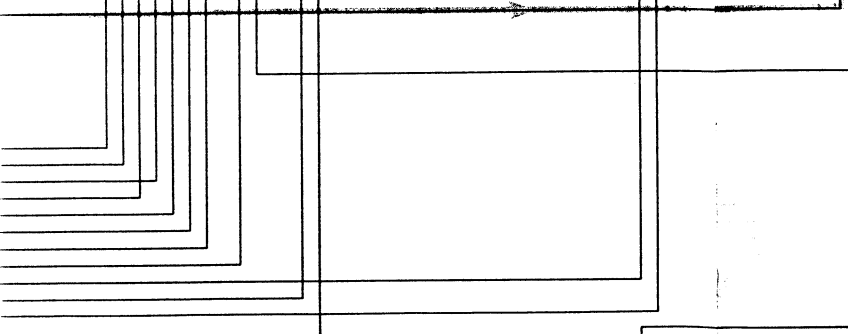
IC25 : NJM2068D-D
IC36 : BA15218
Dual OP-Amp

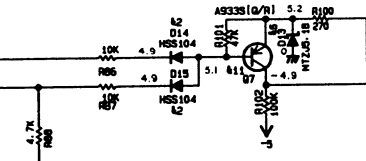


MUTE CONTR

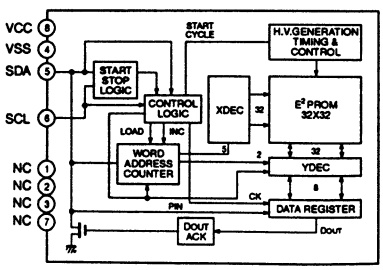




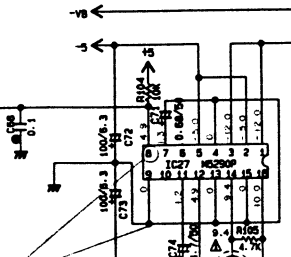




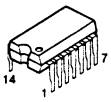
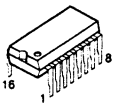
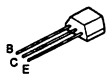
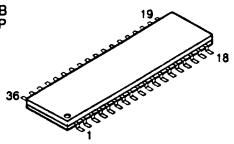
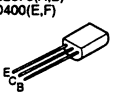
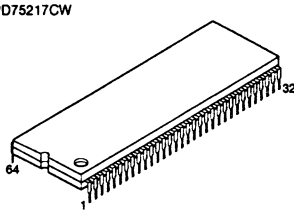
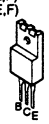
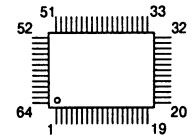
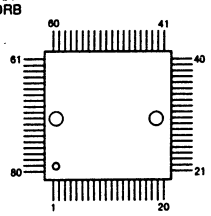
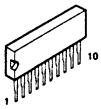
IC15 : X24C00P
Electrically Erasable PROM



POWER



J	K	L	M	N

1SS133 MTZJ5.6C 1T2 MTZJ22.0A MTZJ4.7C MTZJ5.1B MTZJ5.6B 	HD74HC125P TC74HC00AP 	M5290P 
2SA933S(Q,R) 2SD1915F(S,T) 	AN8806SB M56748FP 	
2SA934(P,Q,R) 2SB544(E,F,G) 2SC2878(A,B) 2SD400(E,F) 	µPD75217CW 	
2SB1565(E,F) 2SD2394(E,F) 	YAC514 	
BA15218 NJM2068D NJM5532D X24C00P 	MN66271RA MN662720RB 	
LB1641 		

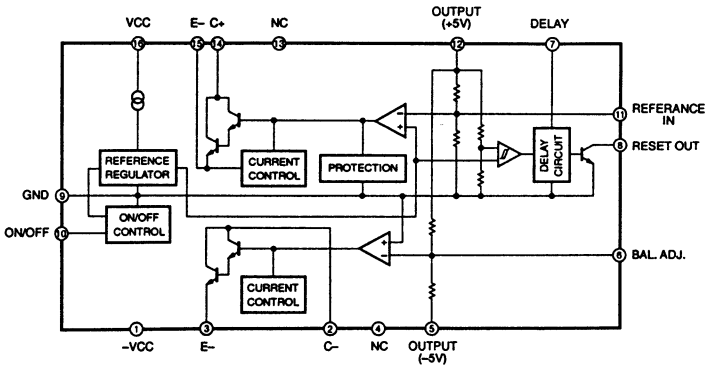
MUTING

PHONES AMP

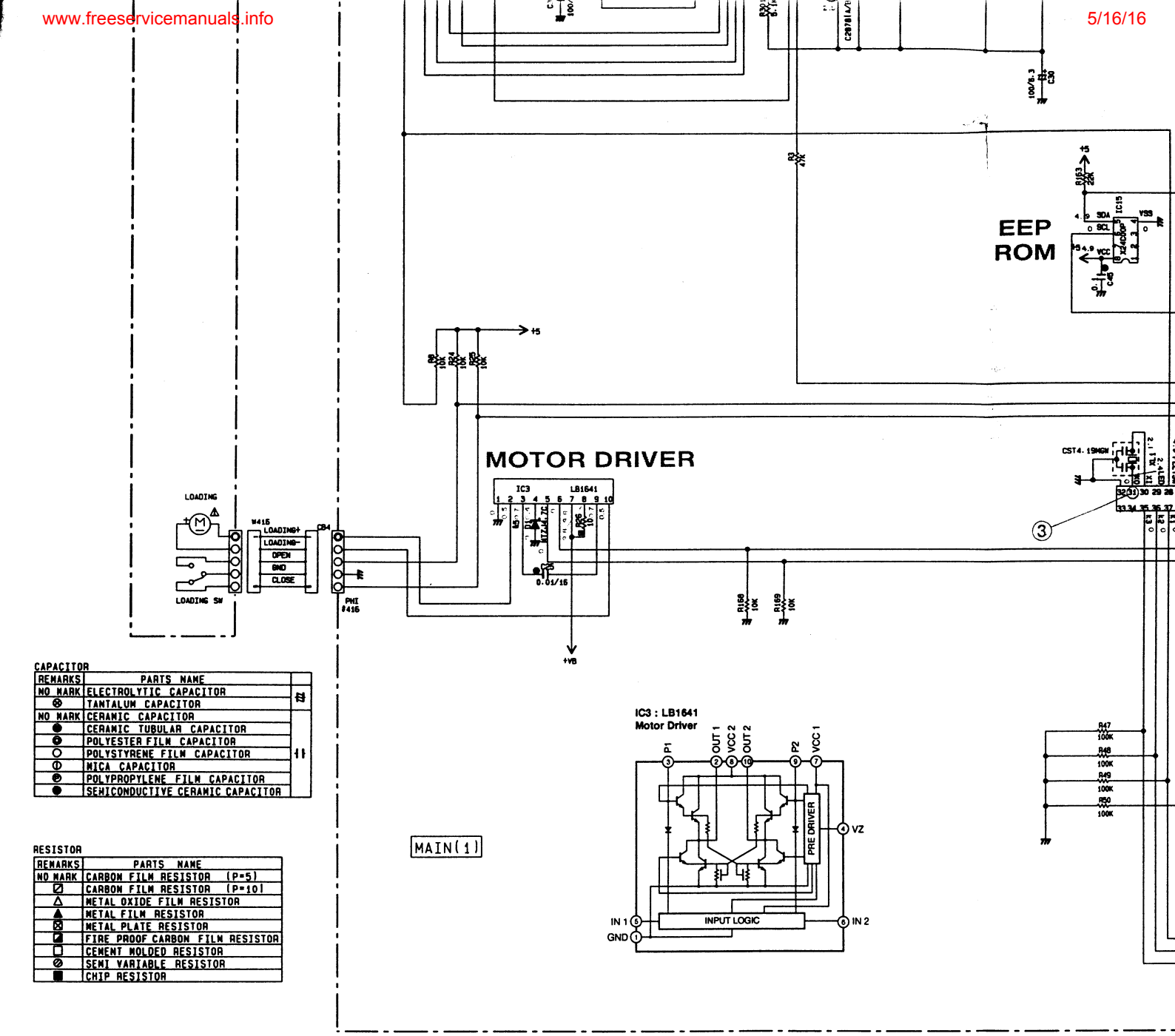
TE CONTROL

POWER SUPPLY

IC27 : M5290P
Constant-Voltage Tracking Supply with Reset



Point ① (EFM : Pin10 of IC1)



CAPACITOR

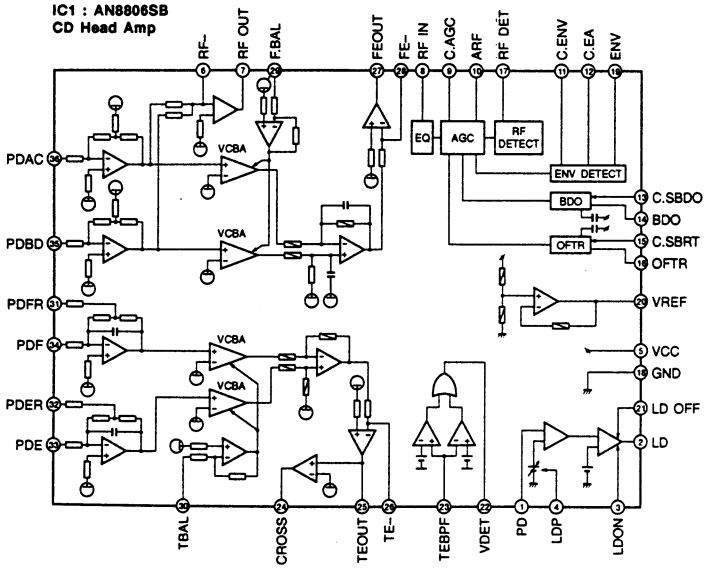
REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	‡‡
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	‡
●	CERAMIC TUBULAR CAPACITOR	
◉	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
◑	MICA CAPACITOR	
◕	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTIVE CERAMIC CAPACITOR	

RESISTOR

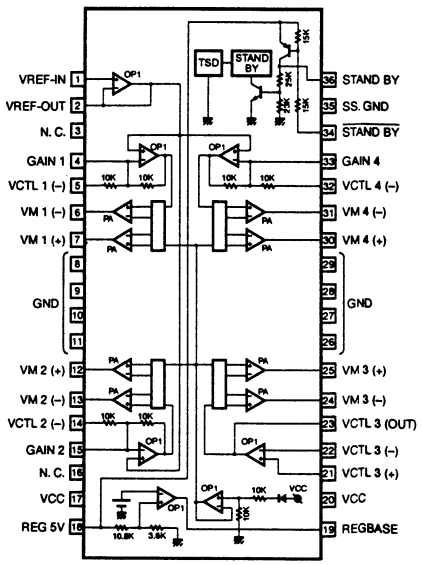
REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
◪	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

IC3 : LB1641
Motor Driver

IC1 : AN8806SB
CD Head Amp

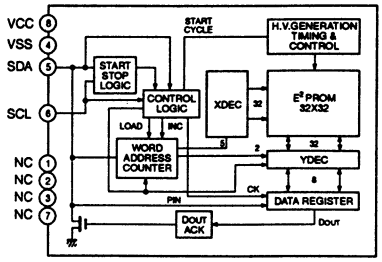


IC6 : M56748FP
4-Channel BTL Driver



SYSTEM CONTROLLER

IC15 : X24C00P
Electrically Erasable PROM



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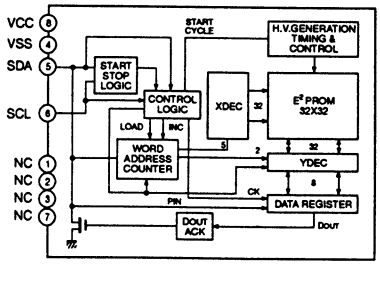
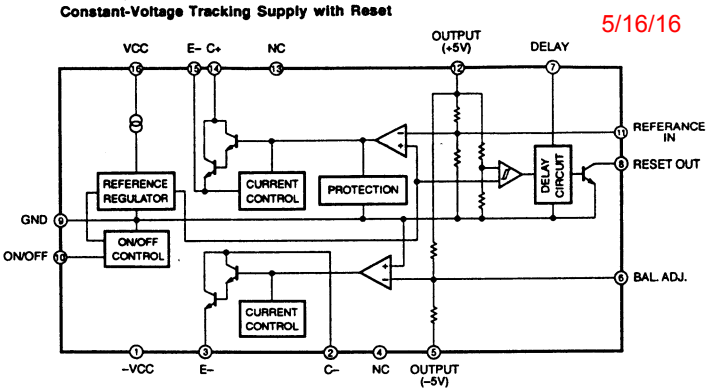
IC15 : X24C00P
Electrically Erasable PROM

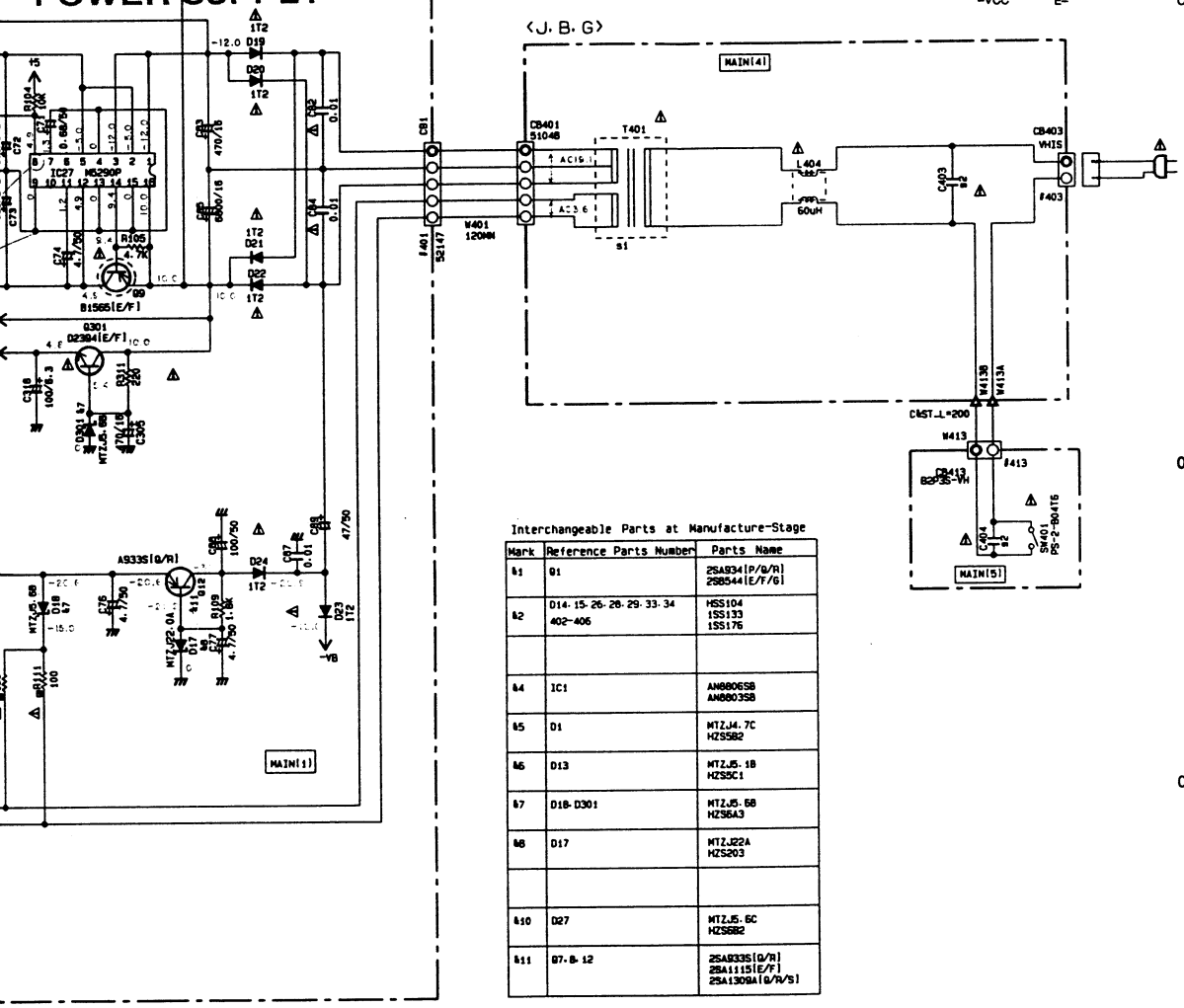


POWER SU

Constant-Voltage Tracking Supply with Reset



POWER SUPPLY



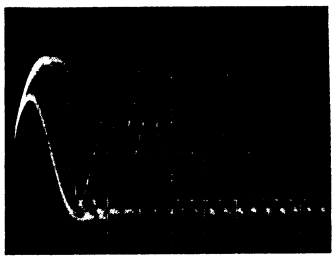
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1	Q1	2SA934(P/Q/R) 2SB544(E/F/G)
&2	D14-15-26-28-29-33-34 402-406	HSS104 1SS133 1SS176
&4	IC1	AN8806SB AN8803SB
&5	D1	MTZJ4.7C HZS5B2
&6	D13	MTZJ5.1B HZS5C1
&7	D18-D301	MTZJ5.6B HZS6A3
&8	D17	MTZJ22A HZS203
&10	D27	MTZJ5.6C HZS5B2
&11	Q7-8-12	2SA933S(Q/R) 2SA1115(E/F) 2SA1309A(Q/R/S)

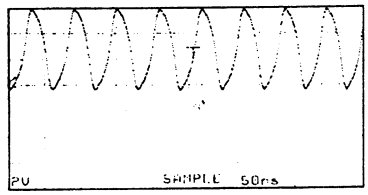
s		J	R	B-G		
1	T401	XS069	XN394	XN393		
2	C403-C404	F132410	VS74170	VS74170		
3	SW426	X	VL90800	X		
4						

NOTICE (model)
(J)····· JAPANESE
(U)····· U.S.A
(C)····· CANADIAN
(R)····· GENERAL
(A)····· AUSTRALIAN
(B)····· BRITISH
(G)····· EUROPEAN
(T)····· CHINA
(L)····· SINGAPORE

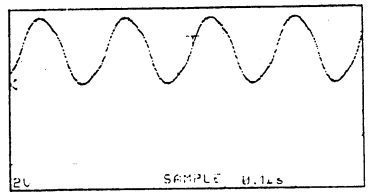
Point ① (EFM : Pin10 of IC1)
V : 0.2V/div H : 0.5 µsec/div
AC range 1 : 1 probe



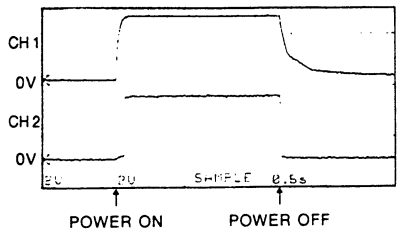
Point ② (Pin59 of IC11)
V : 2V/div H : 50 nsec/div
DC range 1 : 1 probe



Point ③ (Pin31 of IC12)
V : 2V/div H : 0.1 µsec/div
DC range 1 : 1 probe



Point ④ (CH1 : Collector of Q9, CH2 : Pin8 of I
V : 2V/div (CH1)
V : 2V/div (CH2)
H : 0.5 sec/div DC range 1 : 1 probe



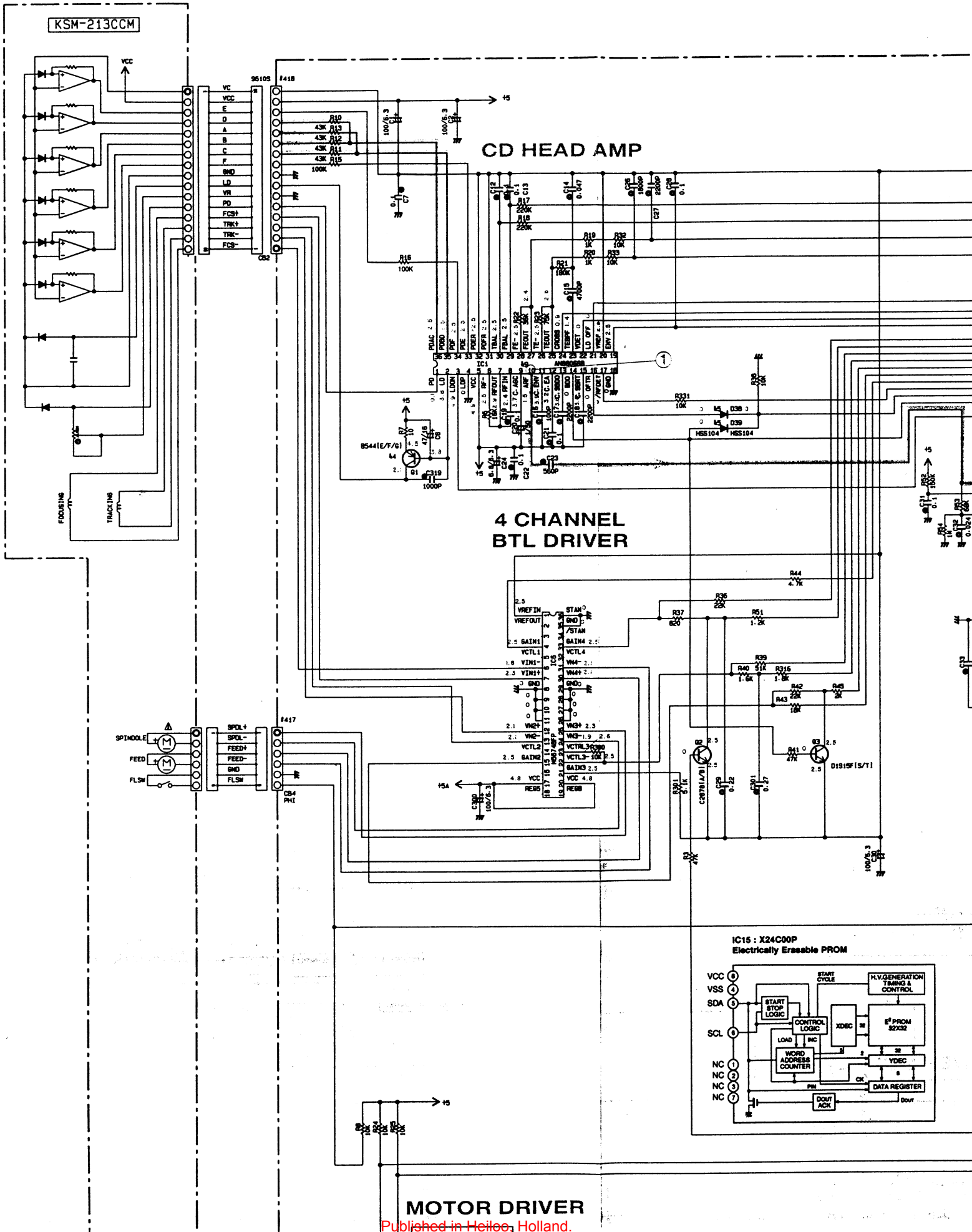
** All voltages are measured with a 10MΩ/DC electric volt meter.*
** Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.*
** Schematic diagram is subject to change without notice.*

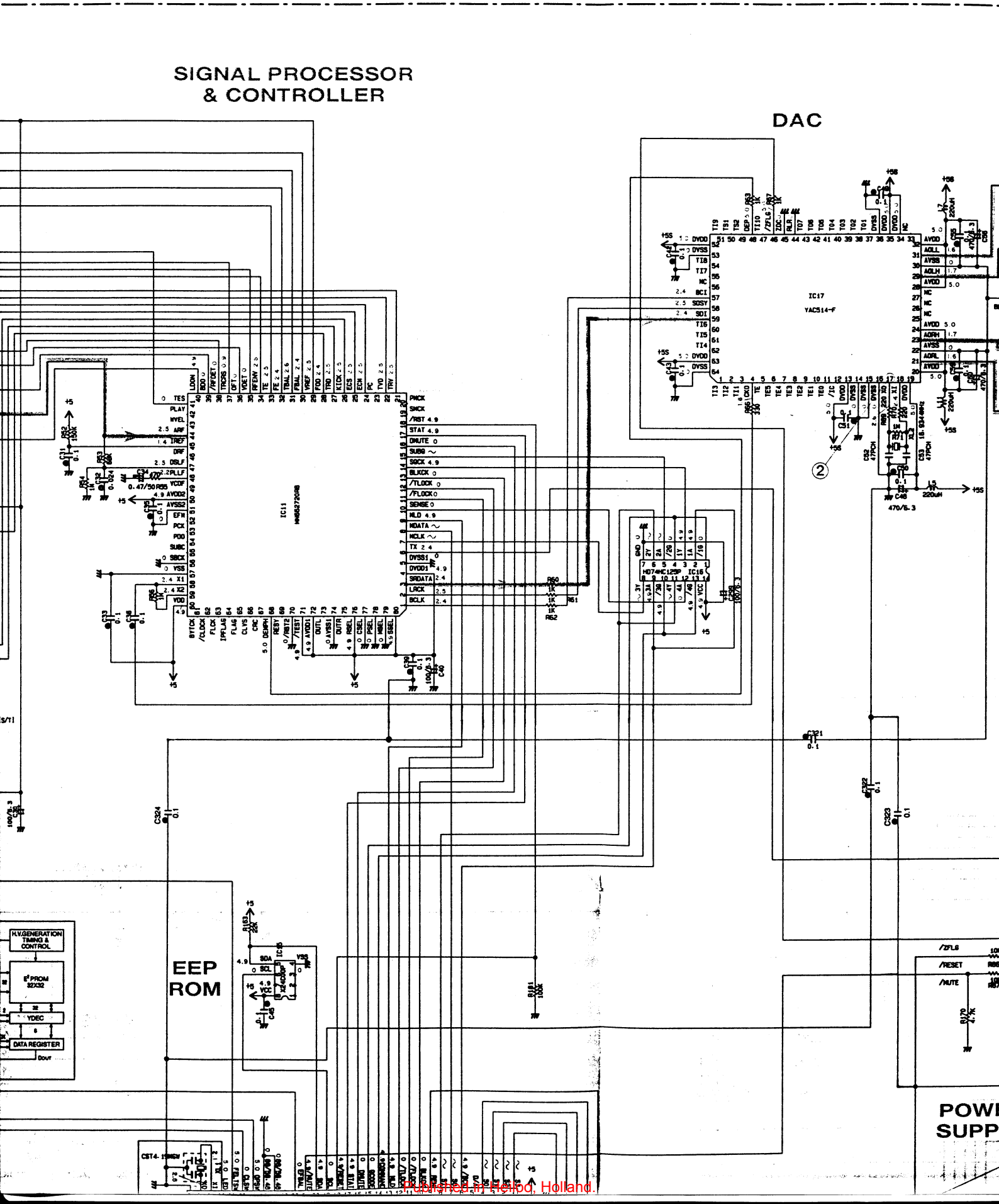
● 電圧は、内部抵抗10MΩの電圧計で測定したものです。
● ⚠印のある部品は、安全性確保部品を示しています。部品の交換が必要な場合、 パーツリストに記載されている部品を使用してください。
● 本回路図は、標準回路図です。改良のため予告なく変更することがございます。

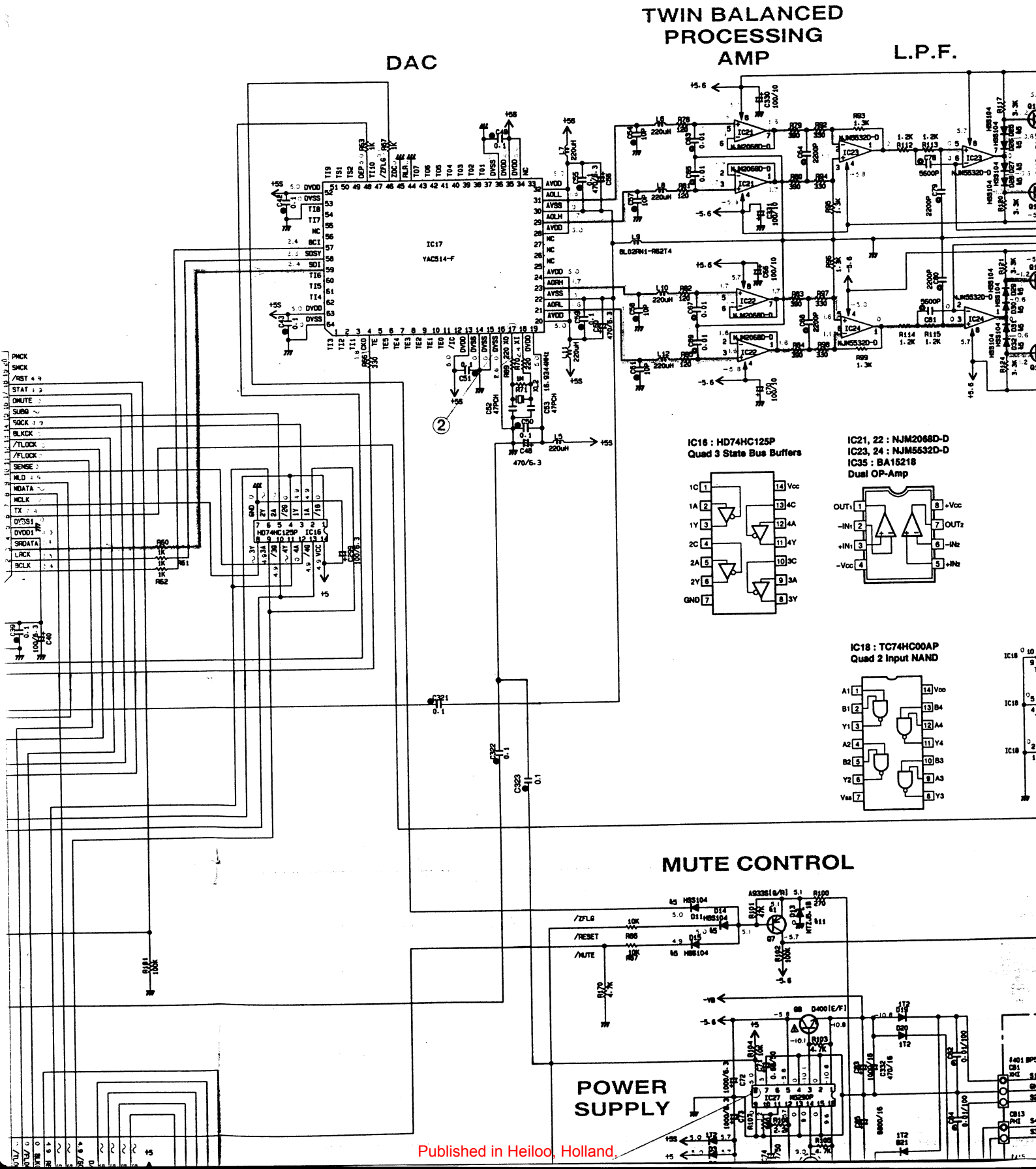
CDX-49

CDX-493/593

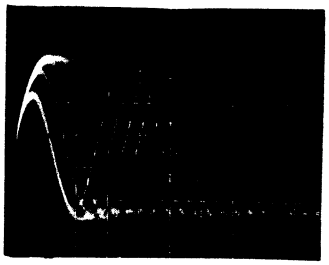
■ CDX-593 SCHEMATIC DIAGRAM／総回路図



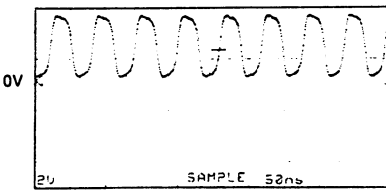




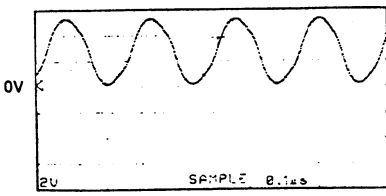
Point ① (EFM : Pin10 of IC1)
V : 0.2V/div H : 0.5 µsec/div
AC range 1 : 1 probe



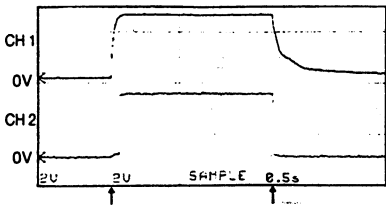
Point ② (Pin17 of IC17)
V : 2V/div H : 50 nsec/div
DC range 1 : 1 probe



Point ③ (Pin31 of IC12)
V : 2V/div H : 0.1 µsec/div
DC range 1 : 1 probe



Point ④ (CH1 : Collector of Q9, CH2 : Pin8 of
V : 2V/div (CH1)
V : 2V/div (CH2)
H : 0.5 sec/div DC range 1 : 1 probe



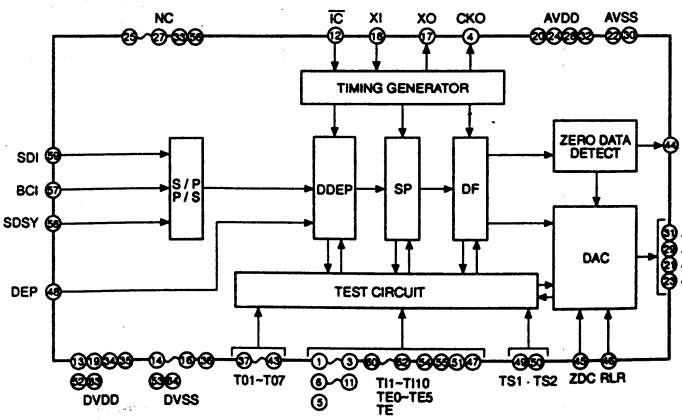
F.

MUTING

PHONES AMP

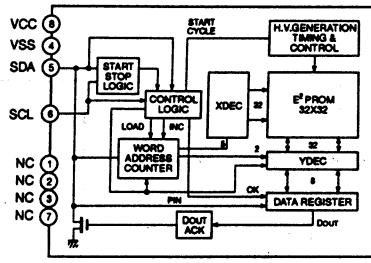
MAIN[6]

IC17 : YAC514
D/A Converter

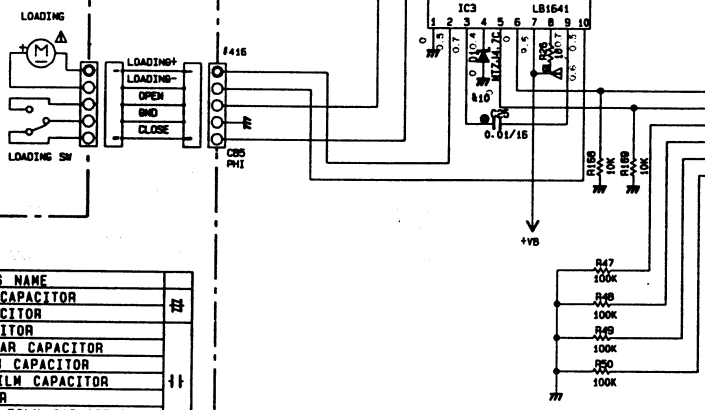


Published in Heiloo, Holland.

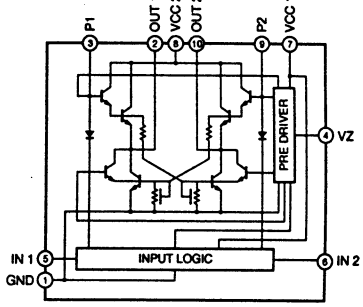
IC15 : X24C00P
Electrically Erasable PROM



MOTOR DRIVER



IC3 : LB1641
Motor Driver



CAPACITOR

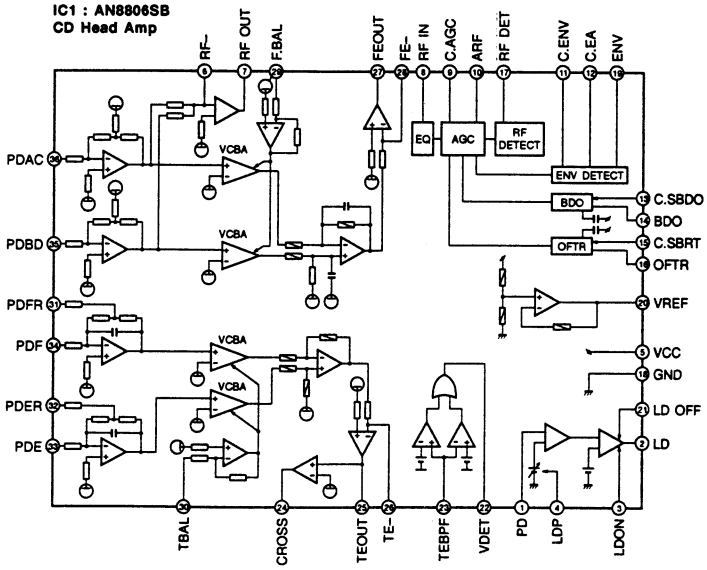
REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	#
⊗	TANTALUM CAPACITOR	#
NO MARK	CERAMIC CAPACITOR	##
●	CERAMIC TUBULAR CAPACITOR	##
◎	POLYESTER FILM CAPACITOR	##
○	POLYSTYRENE FILM CAPACITOR	##
Ⓘ	MICA CAPACITOR	##
◉	POLYPROPYLENE FILM CAPACITOR	##
●	SEMICONDUCTIVE CERAMIC CAPACITOR	##

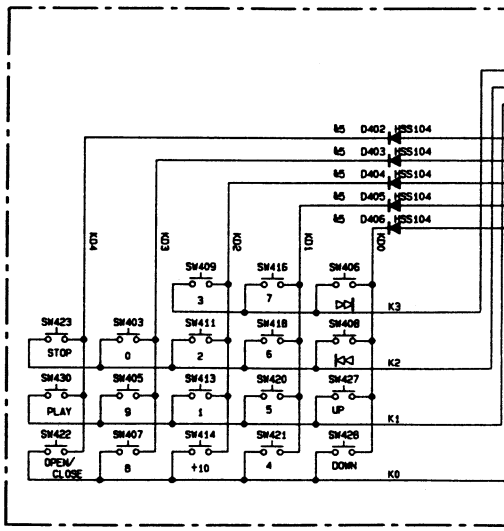
RESISTOR

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

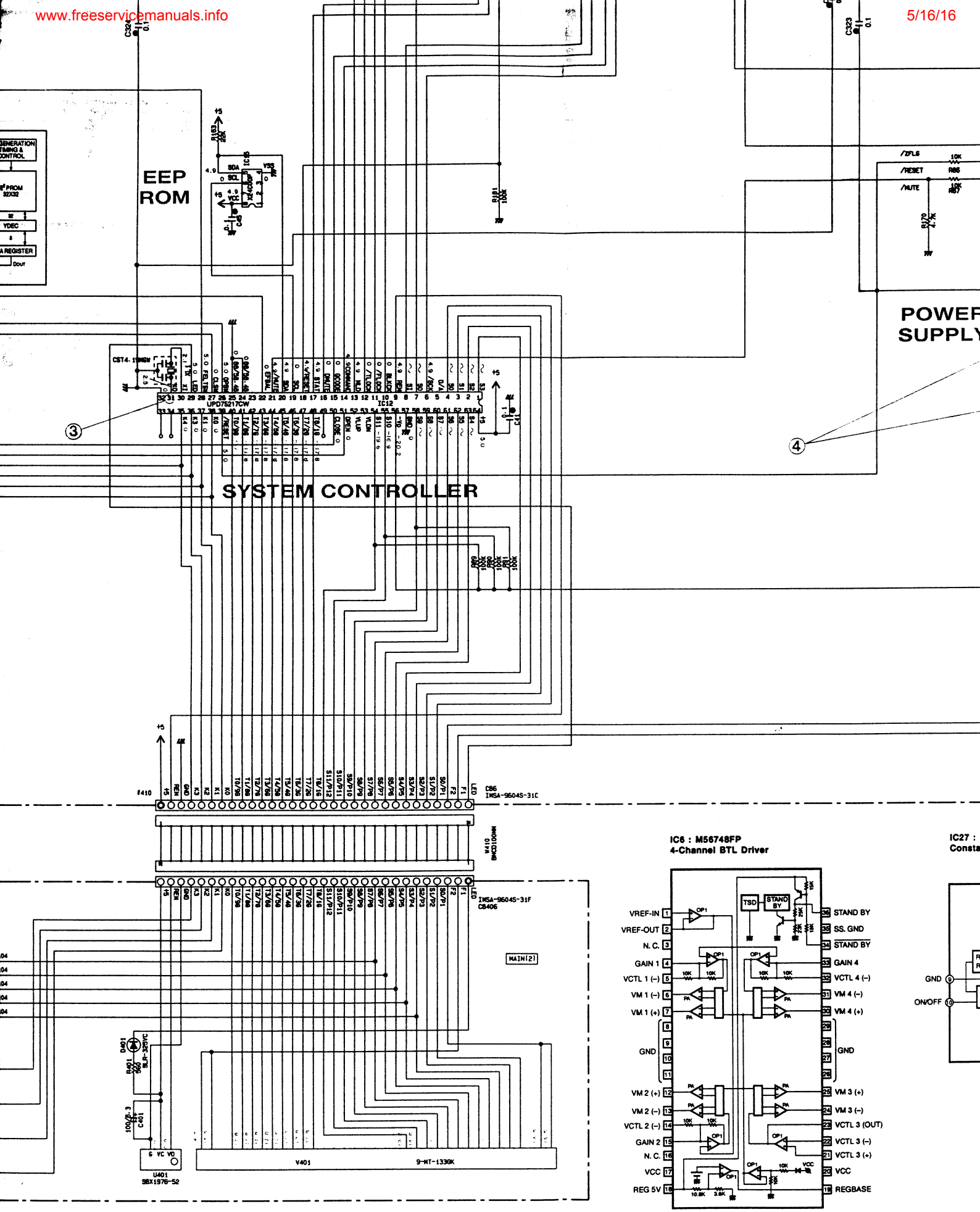
MAIN(1)

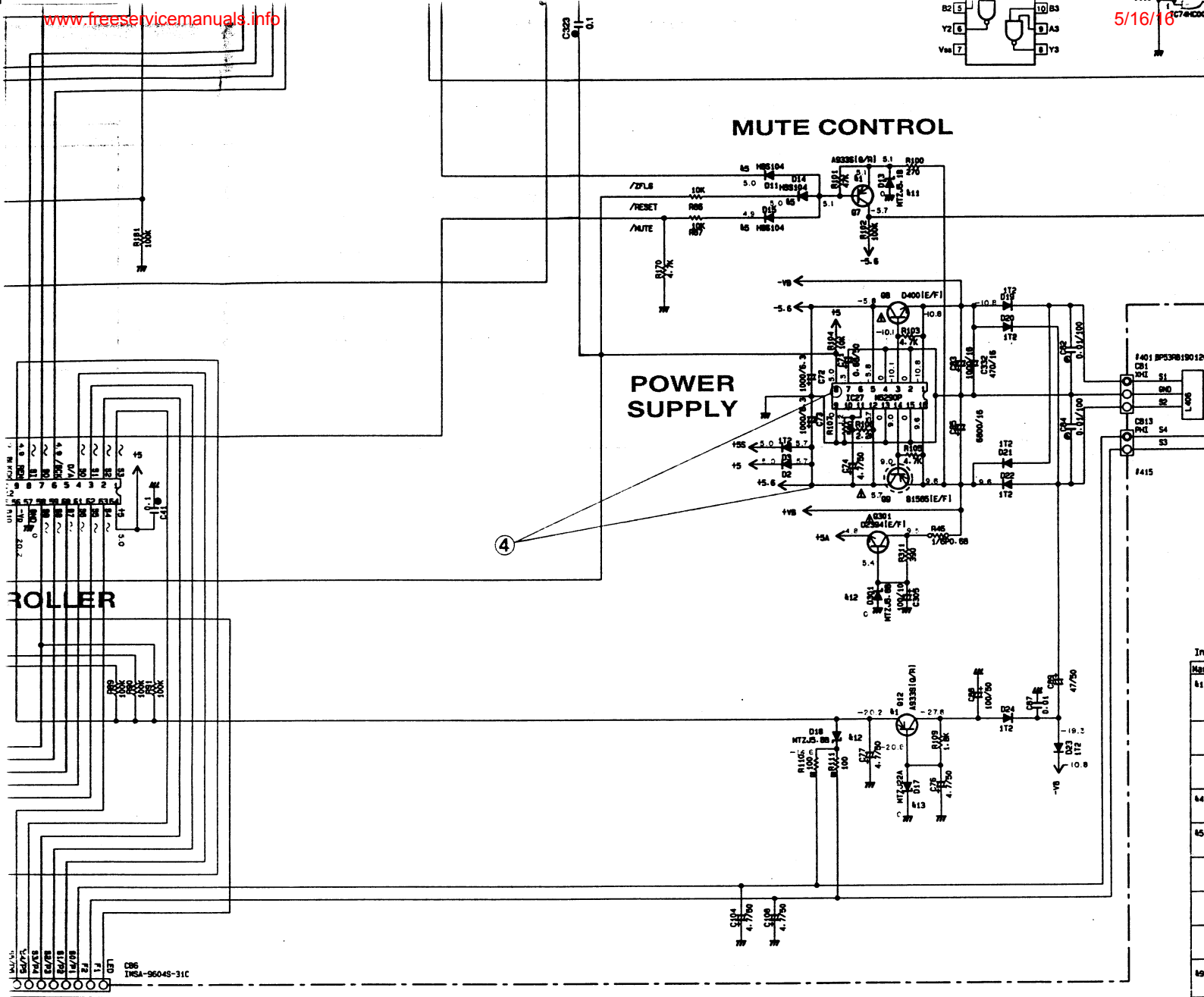
IC1 : AN8806SB
CD Head Amp



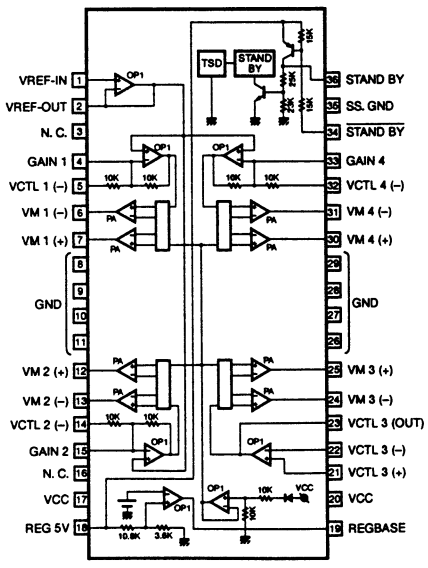


CDX-593

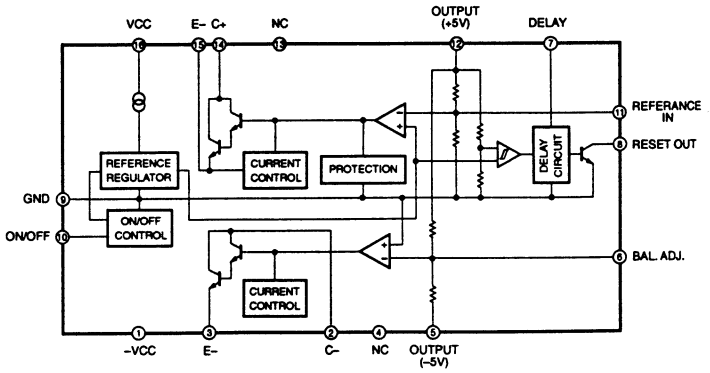


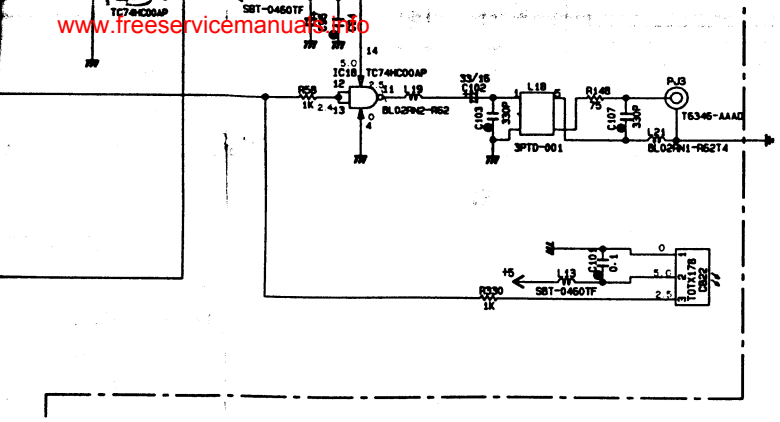


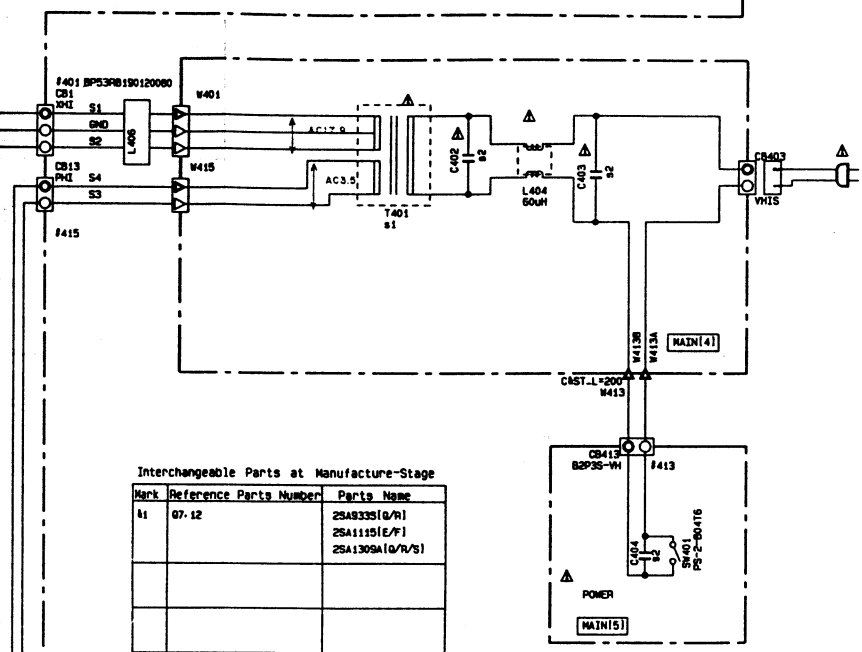
IC6 : M56748FP
4-Channel BTL Driver



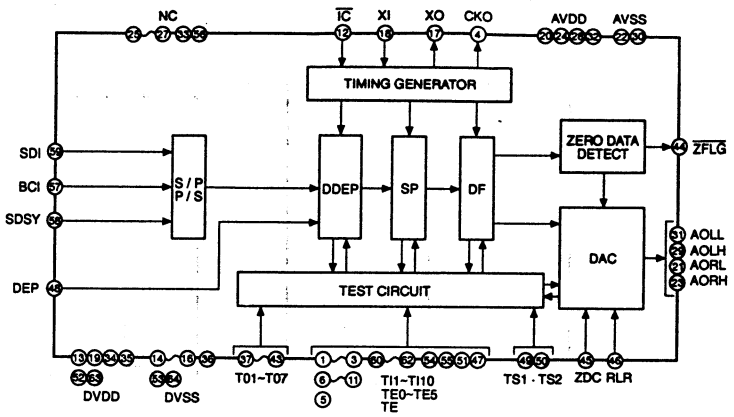
IC27 : M5290P
Constant-Voltage Tracking Supply with Reset







IC17 : YAC514
D/A Converter

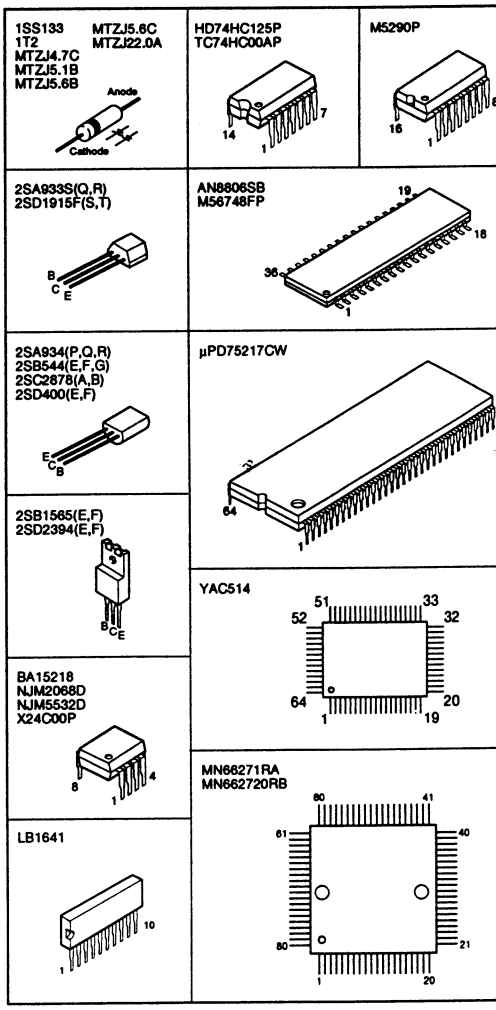


Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1	Q7, 12	2SA933S(Q/R) 2SA1115(E/F) 2SA1309A(Q/R/S)
&4	Q1	2SB544(E/F/G) 2SA934(P/Q/R)
&5	D11, 14, 15, 25-34, 36, 39 402-406	HSS104 1SS133 1SS176
&9	IC1	AN8806SB AN8803SB
&10	D1	MTZJ4.7C HZS5&2
&11	D13	MTZJ5.1B HZS5C1
&12	D18 D301	MTZJ5.6B HZS6A3
&13	D17	MTZJ22A HZS203

NOTICE (model)
(J)····· JAPANESE
(U)····· U.S.A
(C)····· CANADIAN
(A)····· GENERAL
(A)····· AUSTRALIAN
(B)····· BRITISH
(G)····· EUROPEAN
(T)····· CHINA
(L)····· SINGAPORE

B		J	B-G
1	T401	XS068	XR300
2	C402-404	FI32410	VS74170
3			
4			



REFERANCE IN
RESET OUT
BAL. ADJ.

** All voltages are measured with a 10MΩ/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.*

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Published in Heiloo, Holland.

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 part Nos. of the carbon resistors, refer to the 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.

CDX-493 P.C.B. MAIN

	Schm Ref.	PART NO.	Description		
*		VZ576000	P.C.B.	MAIN(R)	
*		VZ576100	P.C.B.	MAIN(BG)	
	CB1	VK024900	CN. BS. PIN	5P	
	CB3	VU160200	CN. BS. PIN	16P	
	CB4	VD004800	CN. BS. PIN	5P	
	CB5	VD004900	CN. BS. PIN	6P	
	CB6	VU273000	CN. BS. PIN	30P	
	CB11	VK024700	CN. BS. PIN	3P	
	CB22	VT707200	L. EMIT	TOTX178	
	CB401	Vi878300	CN. BS. PIN	5P	
	CB403	VG879900	CN. BS. PIN	2P	
	CB406	VU283000	CN. BS. PIN	30P	
	CB411	Vi878100	CN. BS. PIN	3P	
	CB413	VP245600	CN	2P	
	C1	VK679700	C. EL	100uF	6.3V
	C2	VK679700	C. EL	100uF	6.3V
	C7	VH053100	C. CE. TUBLR	0. 1uF	50V
	C8	VJ837200	C. EL	47uF	16V
	C10	VH620400	C. EL	220uF	16V
	C12	VH053100	C. CE. TUBLR	0. 1uF	50V
	C13	VH053100	C. CE. TUBLR	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	VH053100	C. CE. TUBLR	0. 1uF	50V
	C20	VJ839100	C. EL	1uF	50V
	C21	UA655100	C. MYLAR	0. 1uF	50V
	C22	VH053100	C. CE. TUBLR	0. 1uF	50V
	C23	VG278800	C. CE. TUBLR	560pF	50V
	C24	VR498100	C. EL	6. 8uF	6. 3V
	C25	VF467300	C. CE. TUBLR	0. 01uF	16V
	C26	UA653180	C. MYLAR	1800pF	50V
	C27	UA653220	C. MYLAR	2200pF	50V
	C28	UA655100	C. MYLAR	0. 1uF	50V
	C29	UA655220	C. MYLAR	0. 22uF	50V
⚠	C30	VK679700	C. EL	100uF	6. 3V
	C31	VH053100	C. CE. TUBLR	0. 1uF	50V
	C32	UA654240	C. MYLAR	0. 024uF	50V
	C33	VH053100	C. CE. TUBLR	0. 1uF	50V
	C34	UK665470	C. EL	0. 47uF	50V
	C35	VH053100	C. CE. TUBLR	0. 1uF	50V
	C36	VH053100	C. CE. TUBLR	0. 1uF	50V
	C37	VA761400	C. CE	47pF	50V
	C38	VA761400	C. CE	47pF	50V
	C39	VH053100	C. CE. TUBLR	0. 1uF	50V
	C40	VK679700	C. EL	100uF	6. 3V
	C41	VH053100	C. CE. TUBLR	0. 1uF	50V
	C45	VH053100	C. CE. TUBLR	0. 1uF	50V
	C60	UJ619100	C. EL	1000uF	6. 3V
	C68	VH053100	C. CE. TUBLR	0. 1uF	50V
	C70	VJ839100	C. EL	1uF	50V

* New Parts

	Schm Ref.	PART NO.	Description		
	C71	UJ865680	C. EL	0. 68uF	50V
	C72	VK679700	C. EL	100uF	6. 3V
	C73	VK679700	C. EL	100uF	6. 3V
	C74	UM416470	C. EL	4. 7uF	50V
	C75	VJ839100	C. EL	1uF	50V
	C76	UM416470	C. EL	4. 7uF	50V
	C77	UM416470	C. EL	4. 7uF	50V
	C78	UA653330	C. MYLAR	3300pF	50V
	C79	UA653300	C. MYLAR	3000pF	50V
	C80	UA653300	C. MYLAR	3000pF	50V
	C81	UA653330	C. MYLAR	3300pF	50V
⚠	C82	FG214100	C. CE	0. 01uF	50V
	C83	VG287900	C. EL	470uF	16V
⚠	C84	FG214100	C. CE	0. 01uF	50V
	C85	Vi578400	C. EL	6800uF	16V
	C87	FG214100	C. CE	0. 01uF	50V
	C88	UJ668100	C. EL	100uF	50V
	C89	UJ667470	C. EL	47uF	50V
	C90	VJ836900	C. EL	10uF	16V
	C91	VJ836900	C. EL	10uF	16V
	C92	VG291000	C. EL	22uF	50V
	C93	VG291000	C. EL	22uF	50V
	C97	UJ638330	C. EL	330uF	16V
	C98	VJ599000	C. CE. TUBLR	0. 047uF	16V
	C99	VJ599000	C. CE. TUBLR	0. 047uF	16V
	C100	UJ638330	C. EL	330uF	16V
	C101	VH053100	C. CE. TUBLR	0. 1uF	50V
	C102	UM416470	C. EL	4. 7uF	50V
	C104	UM416470	C. EL	4. 7uF	50V
	C105	UA653330	C. MYLAR	3300pF	50V
	C106	UA653330	C. MYLAR	3300pF	50V
	C300	VK679700	C. EL	100uF	6. 3V
	C301	UA655270	C. MYLAR	0. 27uF	50V
	C305	UJ638470	C. EL	470uF	16V
	C318	VK679700	C. EL	100uF	6. 3V
	C319	VF467000	C. CE. TUBLR	1000pF	50V
	C401	VF760000	C. EL	100uF	10V
⚠	C403	VS741700	C. CE. SAFTY	0. 01uF	275V(RBG
⚠	C404	VS741700	C. CE. SAFTY	0. 01uF	275V(RBG
	D1	VG437200	DIODE. ZENR	MTZJ4. 7C	4. 7V
	D13	VG437400	DIODE. ZENR	MTZJ5. 1B	5. 1V
	D14	VD631600	DIODE	1SS133, 176, HSS104	
	D15	VD631600	DIODE	1SS133, 176, HSS104	
	D17	VG442000	DIODE. ZENR	MTZJ22A	22V
	D18	VG437700	DIODE. ZENR	MTZJ5. 6B	5. 6V
⚠	D19	VS997800	DIODE	1T2	
⚠	D20	VS997800	DIODE	1T2	
⚠	D21	VS997800	DIODE	1T2	
⚠	D22	VS997800	DIODE	1T2	
⚠	D23	VS997800	DIODE	1T2	
⚠	D24	VS997800	DIODE	1T2	
	D25	VS997800	DIODE	1T2	
	D26	VD631600	DIODE	1SS133, 176, HSS104	

* New Parts

CDX-493 P.C.B. MAIN

	Schm Ref.	PART NO.	Description		
	D27	VG437800	DIODE. ZENR	MTZJ5. 6C	5. 6V
	D28	VD631600	DIODE	1SS133, 176, HSS104	
	D29	VD631600	DIODE	1SS133, 176, HSS104	
	D33	VD631600	DIODE	1SS133, 176, HSS104	
	D34	VD631600	DIODE	1SS133, 176, HSS104	
	D301	VG437700	DIODE. ZENR	MTZJ5. 6B	5. 6V
	D402	VD631600	DIODE	1SS133, 176, HSS104	
	D403	VD631600	DIODE	1SS133, 176, HSS104	
	D404	VD631600	DIODE	1SS133, 176, HSS104	
	D405	VD631600	DIODE	1SS133, 176, HSS104	
	D406	VD631600	DIODE	1SS133, 176, HSS104	
	IC1	XQ315A00	IC	AN8806SB	
	IC3	XF494A00	IC	LB1641	
*	IC6	XU103A00	IC	M56748FP CD-DRIVER	
	IC11	XM572A00	IC	MN66271	
*	IC12	XU102A00	IC	uPD75217CW-XXX CPU	
	IC15	XM683A00	IC	X24C00P	
	IC16	iR012510	IC	HD74HC125P	
	IC25	XA987001	IC	NJM2068D	
	IC27	XD201A00	IC	M5290P	
	IC36	Xi249A00	IC	BA15218	
	JK401	VS899700	JACK. PHONE	JY-6317-02-030	
	L100	VP133800	FER. BEAD	BL02RN1-R62T4	
⚠	L404	VU984000	FLTR	IE-UU10. 5-009	
	PJ1	VV411100	JACK. PIN	2P	
	Q1	iB054430	TR	2SB544 D, E, F, G	
	Q2	iC287820	TR	2SC2878 A, B	
	Q3	VK432900	TR	2SD1915F S, T	
	Q7	iA093320	TR	2SA933S Q, R	
	Q8	iA093320	TR	2SA933S Q, R	
⚠	Q9	VS883300	TR	2SB1565 E, F	
	Q12	iA093320	TR	2SA933S Q, R	
	Q17	iC287820	TR	2SC2878 A, B	
	Q18	iC287820	TR	2SC2878 A, B	
	Q19	iC287820	TR	2SC2878 A, B	
	Q20	iC287820	TR	2SC2878 A, B	
⚠	Q301	VS883400	TR	2SD2394 E, F	
	R26	HV454100	R. CAR. FP	10Ω	1/4W
⚠	R110	HV455100	R. CAR. FP	100Ω	1/4W
⚠	R111	HV455100	R. CAR. FP	100Ω	1/4W
	R137	HV455100	R. CAR. FP	100Ω	1/4W
	R142	HV455100	R. CAR. FP	100Ω	1/4W
⚠	SW401	VV057600	SW. PUSH	PS-2B04T6	
	SW403	VG392900	SW. TACT	SKHVAA	
	SW405	VG392900	SW. TACT	SKHVAA	
	SW406	VG392900	SW. TACT	SKHVAA	
	SW407	VG392900	SW. TACT	SKHVAA	
	SW408	VG392900	SW. TACT	SKHVAA	
	SW409	VG392900	SW. TACT	SKHVAA	
	SW411	VG392900	SW. TACT	SKHVAA	
	SW413	VG392900	SW. TACT	SKHVAA	
	SW414	VG392900	SW. TACT	SKHVAA	
	SW416	VG392900	SW. TACT	SKHVAA	

* New Parts

	Schm Ref.	PART NO.	Description	
	SW418	VG392900	SW. TACT	SKHVAA
	SW420	VG392900	SW. TACT	SKHVAA
	SW421	VG392900	SW. TACT	SKHVAA
	SW422	VG392900	SW. TACT	SKHVAA
	SW423	VG392900	SW. TACT	SKHVAA
	SW426	VL908000	VOLT. SELCT	ESE-370(R)
	SW427	VG392900	SW. TACT	SKHVAA
	SW428	VG392900	SW. TACT	SKHVAA
	SW430	VG392900	SW. TACT	SKHVAA
⚠	T401	XN393A00	TRANS. PWR	(BG)
⚠	T401	XN394A00	TRANS. PWR	(R)
	U401	VY848700	L. DTCT	SBX1976-52
	V401	VR061600	FL. DSPLY	9-MT-133GK
	XL1	VJ677200	RSNR. CE	4. 19MHz
	XL3	VJ719800	RSNR. CRYS	16. 9344MHz
		VS257700	PLATE	
		VQ948800	SHEET	FL
		Vi835500	HEAT. SINK	PH-0124S-B
		VA119100	HEAT. SINK	
		VZ156000	SPACER/FL	t4x5x23

* New Parts

CDX-593 P.C.B. MAIN

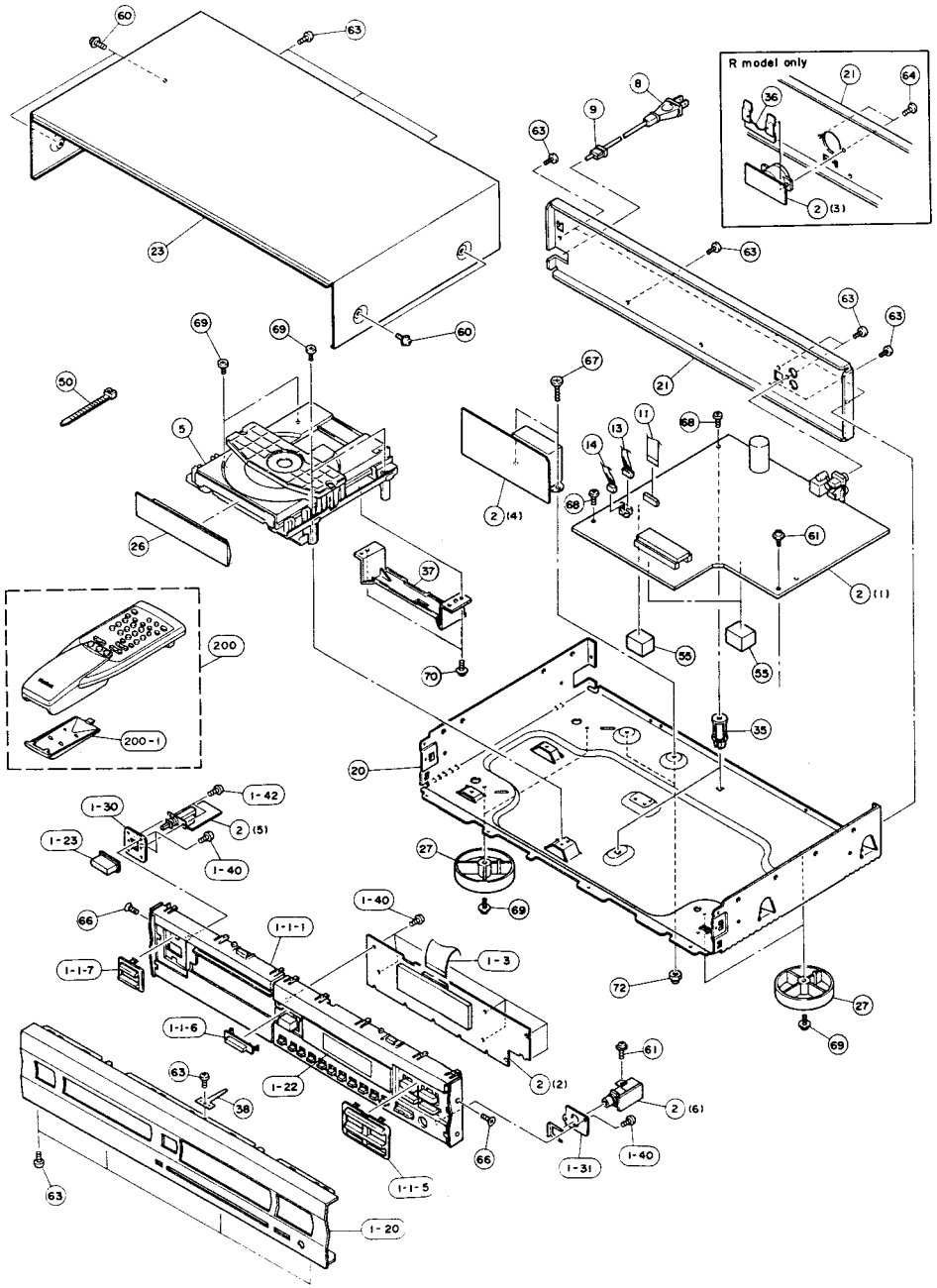
Schm Ref.	PART NO.	Description		
*	VZ578900	P.C.B.	MAIN	
CB1	VL844700	CN.BS.PIN	3P	
CB2	VU160200	CN.BS.PIN	16P	
CB4	VD004900	CN.BS.PIN	6P	
CB5	VD004800	CN.BS.PIN	5P	
CB6	VU273100	CN	31P	
CB11	VD004600	CN.BS.PIN	3P	
CB13	VD004500	CN.BS.PIN	2P	
CB22	VT707200	L.EMIT	TOTX178	
CB403	VG879900	CN.BS.PIN	2P	
CB406	VU283100	CN	31P	
CB413	VP245600	CN	2P	
C1	VK679700	C.EL	100uF	6.3V
C2	VK679700	C.EL	100uF	6.3V
C7	VH053100	C.CE.TUBLR	0.1uF	50V
C8	VJ837200	C.EL	47uF	16V
C12	VH053100	C.CE.TUBLR	0.1uF	50V
C13	VH053100	C.CE.TUBLR	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	VH053100	C.CE.TUBLR	0.1uF	50V
C20	VJ839100	C.EL	1uF	50V
C21	UA655100	C.MYLAR	0.1uF	50V
C22	VH053100	C.CE.TUBLR	0.1uF	50V
C23	VG278800	C.CE.TUBLR	560pF	50V
C24	VR498100	C.EL	6.8uF	6.3V
C25	VF467300	C.CE.TUBLR	0.01uF	16V
C26	UA653180	C.MYLAR	1800pF	50V
C27	UA653220	C.MYLAR	2200pF	50V
C28	UA655100	C.MYLAR	0.1uF	50V
C29	UA655220	C.MYLAR	0.22uF	50V
C30	VK679700	C.EL	100uF	6.3V
C31	VH053100	C.CE.TUBLR	0.1uF	50V
C32	UA654240	C.MYLAR	0.024uF	50V
C33	VH053100	C.CE.TUBLR	0.1uF	50V
C34	UK665470	C.EL	0.47uF	50V
C35	VH053100	C.CE.TUBLR	0.1uF	50V
C36	VH053100	C.CE.TUBLR	0.1uF	50V
C39	VH053100	C.CE.TUBLR	0.1uF	50V
C40	VK679700	C.EL	100uF	6.3V
C41	VH053100	C.CE.TUBLR	0.1uF	50V
C42	VH053100	C.CE.TUBLR	0.1uF	50V
C43	VH053100	C.CE.TUBLR	0.1uF	50V
C45	VH053100	C.CE.TUBLR	0.1uF	50V
C48	VG287100	C.EL	470uF	10V
C49	VH053100	C.CE.TUBLR	0.1uF	50V
C50	VH053100	C.CE.TUBLR	0.1uF	50V
C51	VH053100	C.CE.TUBLR	0.1uF	50V
C52	VA761400	C.CE	47pF	50V
C53	VA761400	C.CE	47pF	50V

* New Parts

Schm Ref.	PART NO.	Description		
C54	VF466600	C.CE.TUBLR	10pF	50V
C55	VH053100	C.CE.TUBLR	0.1uF	50V
C56	VG287100	C.EL	470uF	10V
C57	VF466600	C.CE.TUBLR	10pF	50V
C58	VF466600	C.CE.TUBLR	10pF	50V
C59	VH053100	C.CE.TUBLR	0.1uF	50V
C60	VG287100	C.EL	470uF	10V
C61	VF466600	C.CE.TUBLR	10pF	50V
C63	UA654100	C.MYLAR	0.01uF	50V
C64	VU347900	C.MYLAR	2200pF	50V
C65	UA654100	C.MYLAR	0.01uF	50V
C66	VP809500	C.EL	100uF	10V
C67	UA654100	C.MYLAR	0.01uF	50V
C68	VU347900	C.MYLAR	2200pF	50V
C69	UA654100	C.MYLAR	0.01uF	50V
C70	VP809500	C.EL	100uF	10V
C71	UJ865680	C.EL	0.68uF	50V
C72	VG286600	C.EL	1000uF	6.3V
C73	VG286600	C.EL	1000uF	6.3V
C74	UM416470	C.EL	4.7uF	50V
C76	UM416470	C.EL	4.7uF	50V
C77	UM416470	C.EL	4.7uF	50V
C78	Vi716400	C.MYLAR	5600pF	50V
C79	Vi715900	C.MYLAR	2200pF	50V
C80	Vi715900	C.MYLAR	2200pF	50V
C81	Vi716400	C.MYLAR	5600pF	50V
C82	VK534100	C.PP	0.01uF	100V
C83	VN137400	C.EL	1000uF	16V
C84	UT454100	C.PP	0.01uF	100V
C85	VR420400	C.EL	6800uF	16V
C87	FG214100	C.CE	0.01uF	50V
C88	UJ668100	C.EL	100uF	50V
C89	UJ667470	C.EL	47uF	50V
C90	VJ836900	C.EL	10uF	16V
C91	VJ836900	C.EL	10uF	16V
C92	VQ569900	C.EL	100uF	25V
C93	VQ569900	C.EL	100uF	25V
C94	VF467300	C.CE.TUBLR	0.01uF	16V
C95	VK679700	C.EL	100uF	6.3V
C97	UJ638330	C.EL	330uF	16V
C98	VJ599000	C.CE.TUBLR	0.047uF	16V
C99	VJ599000	C.CE.TUBLR	0.047uF	16V
C100	UJ638330	C.EL	330uF	16V
C101	VH053100	C.CE.TUBLR	0.1uF	50V
C102	UM397330	C.EL	33uF	16V
C103	VG278600	C.CE.TUBLR	330pF	50V
C104	UM416470	C.EL	4.7uF	50V
C105	VL883800	C.PP	2200pF	100V
C106	VL883800	C.PP	2200pF	100V
C107	VG278600	C.CE.TUBLR	330pF	50V
C108	UM416470	C.EL	4.7uF	50V
C299	VK679700	C.EL	100uF	6.3V
C300	VK679700	C.EL	100uF	6.3V

* New Parts

■ CDX-493 EXPLODED VIEW



■ MECHANICAL PARTS

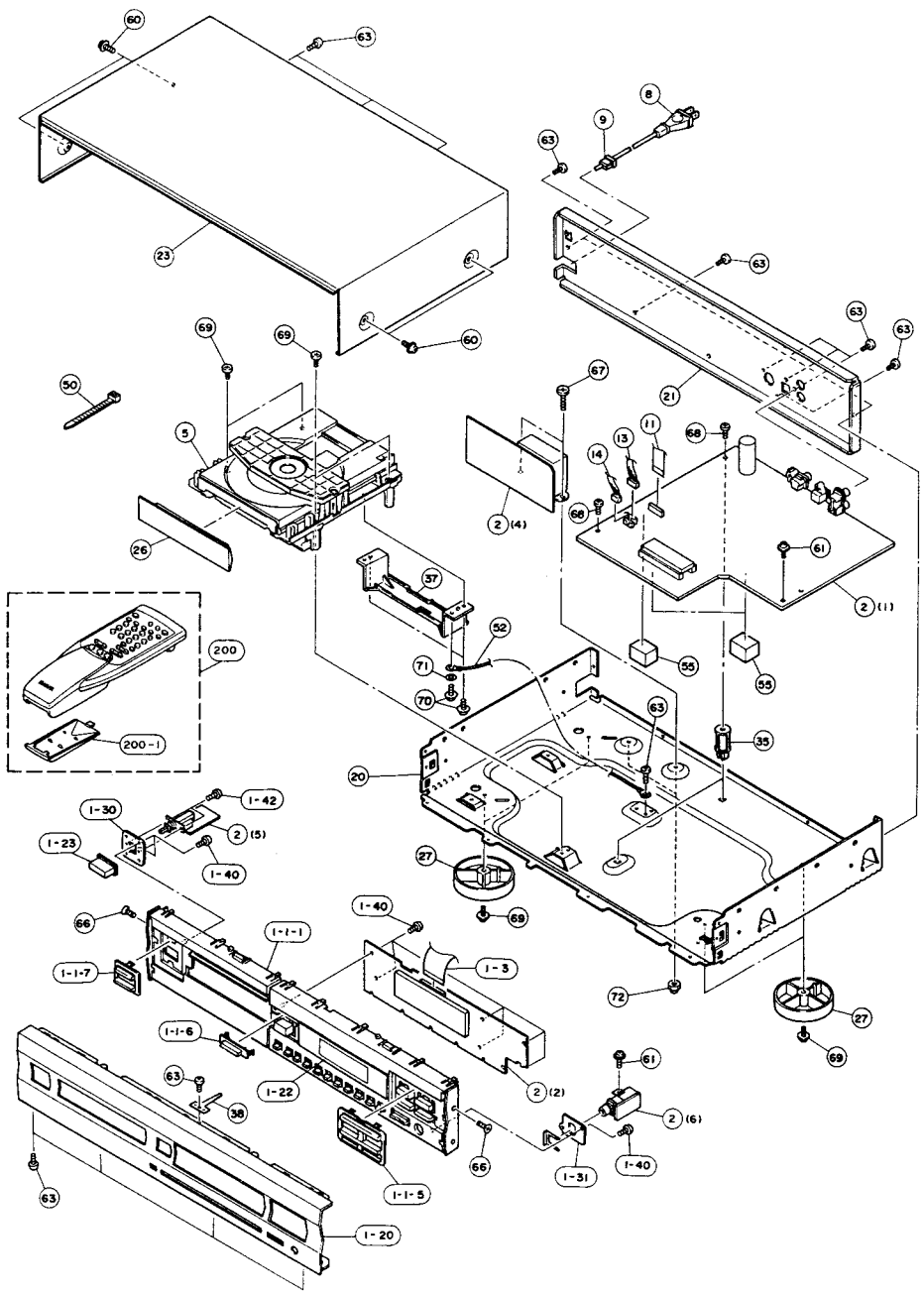
	Ref. No.	PART NO.	Description		Remarks	Markets
*	1-1-1	VZ154100	SUB PANEL		BL	
*	1-1-1	VZ154200	SUB PANEL		TI	
*	1-1-5	VZ154500	ESCUTCHEON, PLAY		BL	
*	1-1-5	VZ154600	ESCUTCHEON, PLAY		TI	
*	1-1-6	VZ154700	ESCUTCHEON, OP		BL	
*	1-1-6	VZ154800	ESCUTCHEON, OP		TI	
*	1-1-7	VZ154900	ESCUTCHEON, PW		BL	
*	1-1-7	VZ155000	ESCUTCHEON, PW		TI	
	1- 3	MF130100	FLEXIBLE FLAT CABLE	30P 100mm		
*	1-20	VZ152100	FRONT PANEL		BL	
*	1-20	VZ152200	FRONT PANEL		TI	
*	1-22	VZ155700	WINDOW PANEL, LID			
	1-23	VU875100	BUTTON	9.5x22	BL	
	1-23	VU875200	BUTTON	9.5x22	TI	
*	1-30	VZ152500	SUPPORT, SWITCH			
	1-31	VU876800	SUPPORT, HP			
	1-40	EP630220	BIND HEAD P-TITE SCREW	3x8 ZMC2-BL		
	1-42	Ei330066	BIND HEAD B-TITE SCREW	3x6 FCRM3-BL		
*	2	VZ576000	P.C.B. ASS'Y	MAIN		(R)
*	2	VZ576100	P.C.B. ASS'Y	MAIN		(BG)
*	5	VZ573200	CD MECHANISM UNIT	KSL-2130CCM		
⚠	8	VL238100	POWER CORD ASS'Y			(R)
⚠	8	VN363700	POWER CORD ASS'Y			(G)
⚠	8	VV437300	POWER CORD ASS'Y			(B)
	9	VN158600	CORD STOPPER	No. 2104		
	11	V2017700	CONNECTOR, FLAT CABLE	16P 280mm		
	13	MF706100	CONNECTOR ASS'Y	6P 100mm		
	14	MF705100	CONNECTOR ASS'Y	5P 100mm		
*	20	VZ151800	CHASSIS, MAIN	ALL		
*	21	VZ153300	REAR PANEL			(R)
*	21	VZ153500	REAR PANEL			(BG)
*	23	VZ151900	TOP COVER		BL	
*	23	VZ152000	TOP COVER		TI	
*	26	VZ154300	LID		BL	
*	26	VZ154400	LID		TI	
	27	VQ780300	LEG	D60xH16		
	35	VU981200	SUPPORT, P.C.B.	No. 3596		
	36	VS257300	PLATE, R			(R)
*	37	VZ262200	SUPPORT	PU		
	38	VQ775900	GROUND PLATE			
	50	VU590000	BINDING TIE	CBTD001B		
	55	V2113100	SPACER			
	60	EK365090	PW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	BL	
	60	EX601150	BW HEAD S-TITE SCREW	4x8-10 FNM3-BL	TI	
	61	EK930010	PW HEAD B-TITE SCREW	3x8-8 FCRM3-BL		
	63	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2-BL		
	64	EP600140	BIND HEAD B-TITE SCREW	3x10 MFZN2-BL		(R)
	66	E0030066	FLAT HEAD SCREW	3x6 ZMC2-Y		
	67	EK396010	BIND HEAD S-TITE SCREW	4x8 FCRM3-BL		
	68	EP630640	BIND HEAD P-TITE SCREW	3x20 FCRM3-BL		
	69	Ei330086	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL		
	70	V2128100	PW HEAD S-TITE SCREW	3x12-8 MFZN2-Y		
	72	EX604260	HEXAGONAL CAP NUT	4.0 MFNI33		

*New Parts

Ref. No.	PART NO.	Description		Remarks	Markets
		ACCESSORIES			
200	VT989900	REMOTE CONTROL TRANSMITTER			
200-1	CX679050	LID	74x34BLALPS		
*	VY952200	PIN-PLUG CORD	2P 1.0m		
		BATTERY, MANGANESE	SUM-3, AA, R06		

* New Parts

■ CDX-593 EXPLODED VIEW



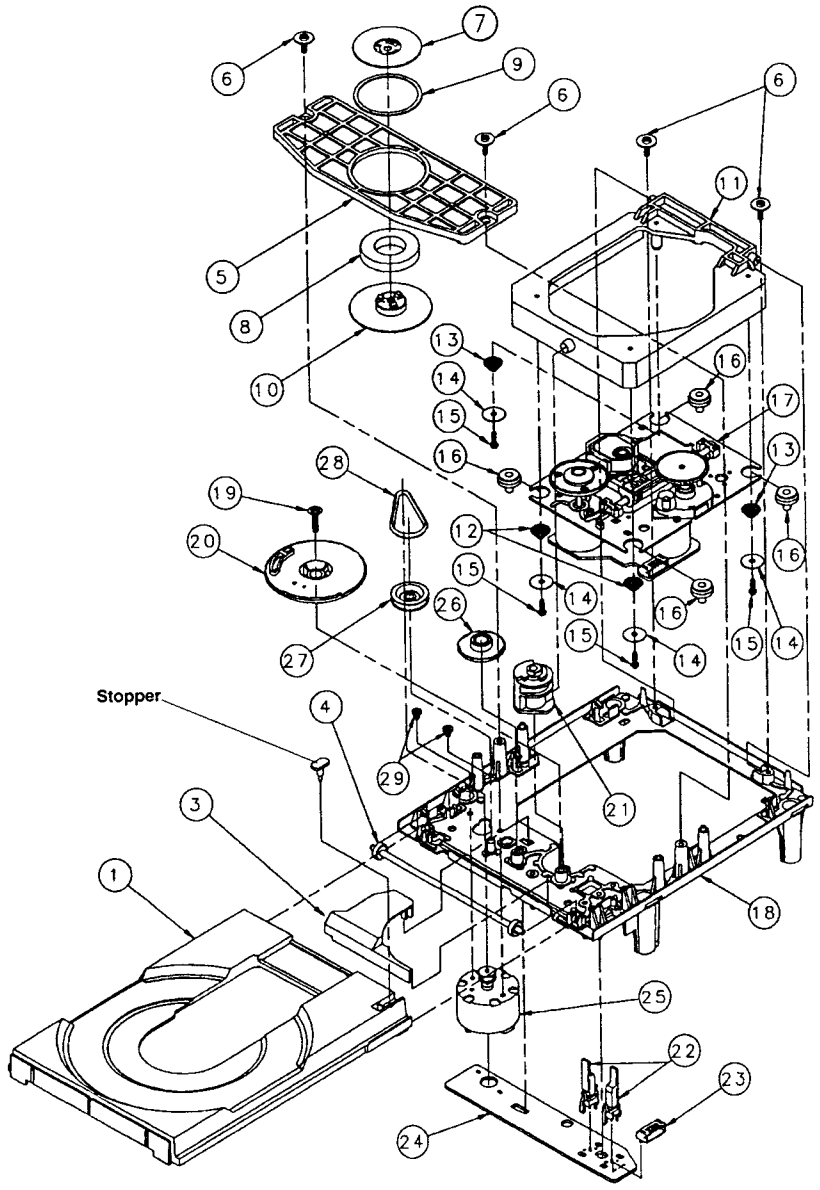
CDX-593

■ MECHANICAL PARTS

	Ref. No.	PART NO.	Description		Remarks	Markets
*	1-1-1	VZ154100	SUB PANEL		BL	
*	1-1-1	VZ154200	SUB PANEL		TI	
*	1-1-5	VZ154500	ESCUTCHEON, PLAY		BL	
*	1-1-5	VZ154600	ESCUTCHEON, PLAY		TI	
*	1-1-6	VZ154700	ESCUTCHEON, OP		BL	
*	1-1-6	VZ154800	ESCUTCHEON, OP		TI	
*	1-1-7	VZ154900	ESCUTCHEON, PW		BL	
*	1-1-7	VZ155000	ESCUTCHEON, PW		TI	
*	1-3	MF131100	FLEXIBLE FLAT CABLE	31P 100mm		
*	1-20	VZ152300	FRONT PANEL		BL	
*	1-20	VZ152400	FRONT PANEL		TI	
*	1-22	VZ155800	WINDOW PANEL, LID			
	1-23	VU875100	BUTTON	9.5x22	BL	
	1-23	VU875200	BUTTON	9.5x22	TI	
*	1-30	VZ152500	SUPPORT, SWITCH			
	1-31	VU876800	SUPPORT, HP			
	1-40	EP630220	BIND HEAD P-TITE SCREW	3x8 ZMC2-BL		
	1-42	Ei330066	BIND HEAD B-TITE SCREW	3x6 FCRM3-BL		
*	2	VZ578900	P.C.B. ASS'Y	MAIN		
*	5	VZ573200	CD MECHANISM UNIT	KSL-2130CCM		
⚠	8	VN363700	POWER CORD ASS'Y			(G)
⚠	8	VV437300	POWER CORD ASS'Y			(B)
	9	VN158600	CORD STOPPER	No.2104		
*	11	V2017700	CONNECTOR, FLAT CABLE	16P 280mm		
	13	MF706100	CONNECTOR ASS'Y	6P 100mm		
	14	MF705100	CONNECTOR ASS'Y	5P 100mm		
*	20	VZ151800	CHASSIS, MAIN	ALL		
*	21	VZ153700	REAR PANEL			
*	23	VZ151900	TOP COVER		BL	
*	23	VZ152000	TOP COVER		TI	
*	26	VZ154300	LID		BL	
*	26	VZ154400	LID		TI	
	27	VQ780300	LEG	D60xH16		
	35	VU981200	SUPPORT, P.C.B.	No.3596		
*	37	VZ262200	SUPPORT	PU		
	38	VQ775900	GROUND PLATE			
	50	VU590000	BINDING TIE	CBTD001B		
*	52	VV015400	CONNECTOR ASS'Y	1P 110mm		
*	55	V2113100	SPACER			
	60	EK365090	PW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	BL	
	60	EX601150	BW HEAD S-TITE SCREW	4x8-10 FNM3-BL	TI	
	61	EK930010	PW HEAD B-TITE SCREW	3x8-8 FCRM3-BL		
	63	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2-BL		
	66	E0030066	FLAT HEAD SCREW	3x6 ZMC2-Y		
	67	EK396010	BIND HEAD S-TITE SCREW	4x8 FCRM3-BL		
	68	EP630640	BIND HEAD P-TITE SCREW	3x20 FCRM3-BL		
	69	Ei330086	BIND HEAD B-TITE SCREW	3x8 FCRM3-BL		
*	70	V2128100	PW HEAD S-TITE SCREW	3x12-8 MFZN2-Y		
	71	EV410036	TOOTH LOCKED WASHER	3 MFZN2Y		
	72	EX604260	HEXAGONAL CAP NUT	4.0 MFNI33		
			ACCESSORIES			
	200	VT989900	REMOTE CONTROL TRANSMITTER			
	200-1	CX679050	LID			
		VY952200	PIN-PLUG CORD	2P 1.0m		
			BATTERY, MANGANESE	SUM-3, AA, R06		

* New Parts

■ EXPLODED VIEW (CD Mechanism Unit)



* The stopper is not supplied with the tray as a spare part.
When replacing the tray, keep the removed stopper and reuse it.
Should it be lost and a new one be necessary, order service part ⑱ Main Chassis (S) and remove the stopper only from it and use it as a spare part.

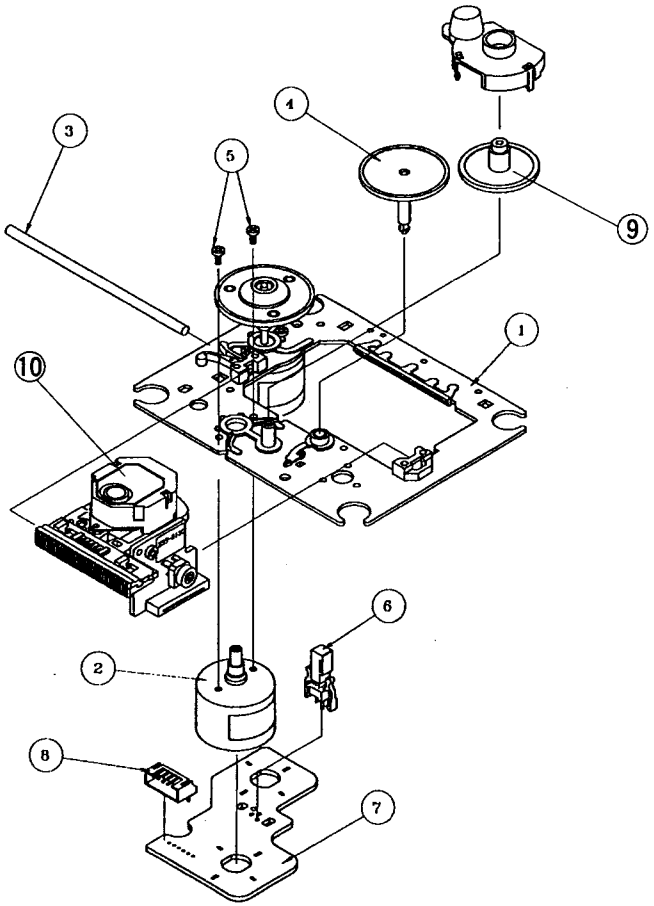
COMMON

■ MECHANICAL PARTS (CD Mechanism Unit)

	Ref. No.	PART NO.	Description	Remarks	Markets
*		VZ573200	CD MECHANISM UNIT	KSL-2130CCM	
*	1	CX680620	TRAY (C)	2130	264629001
*	3	CX675250	GEAR COVER (S)		262554401
	4	CX675210	TRAY GEAR (S)		262553501
	5	AX619150	CHUCKING PLATE (S)		262554601
	6	EX602890	BW HEAD P-TITE SCREW	2.6x7	262629401
	7	BX602660	CHUCKING YOKE (S)		262553701
	8	NX610570	MAGNET ASS'Y		145249321
	9	CX675240	DAMPER (S)		262554102
*	10	NX636010	CHUCKING PULLEY		264629101
*	11	AX624650	SUB CHASSIS ASS'Y (S)		264628801
*	12	AX624640	COIL, SPRING (F)		264723601
*	13	AX624630	COIL, SPRING (R)		262723501
*	14	AX624660	WASHER	2130	264628901
*	15	EX604270	P-TITE SCREW	2.6x10	768513511
*	16	AX624620	INSULATOR		262723401
*	18	AX619160	MAIN CHASSIS (S), OUTSERT		262555206
	19	VH554700	BW HEAD P-TITE SCREW	2.6x16	331950151
*	20	CX675270	DRIVE GEAR (S)		262554701
	21	CX675260	CONTROL CAM (S)		262554504
*	22	KX604780	LEAF SWITCH		169266711
	23	LX608390	CONNECTOR PIN	5P	156472111
*	24	NX613050	PWB, LOADIND (S)		164052311
⚠	25	JX601470	LOADING MOTOR ASS'Y		X26251171
*	26	CX675200	CENTER GEAR (S)		262527402
	27	CX675220	LOADING PULLEY (S)		262553602
*	28	CX610840	BELT, LOADING MOTOR		365338700
	29	EX602880	SCREW	2.6x2.5	262527901

*New Parts

■ EXPLODED VIEW (Drive Unit)

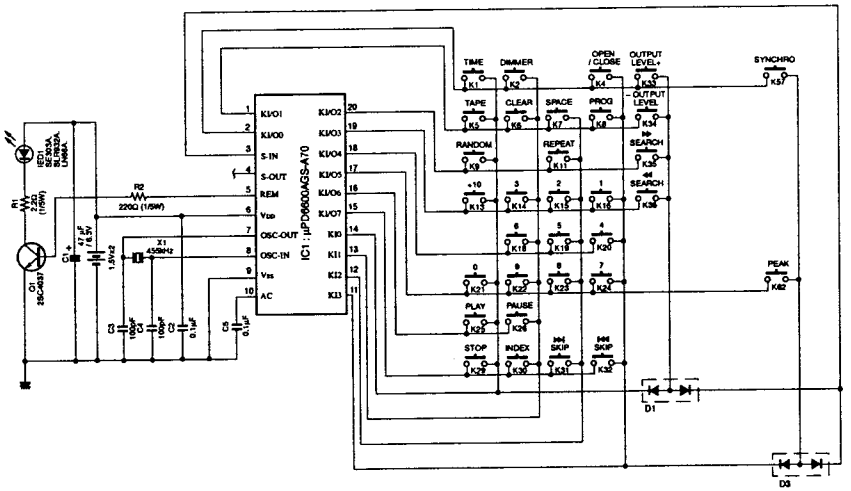


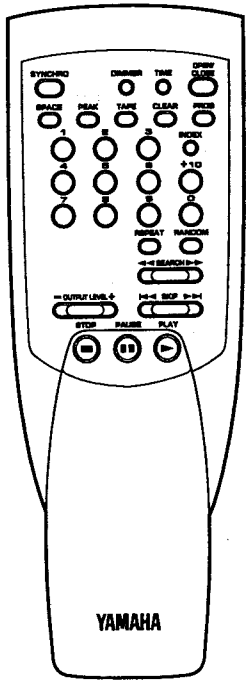
Ref. No.	PART NO.	Description		Remarks	Markets
⚠ 1	NX635420	MOTOR CHASSIS ASS'Y	(MB)	X26258771	
2	CX679710	MOTOR GEAR ASS'Y		X26257691	
3	AX623980	SLED SHAFT		262690801	
4	CX679720	GEAR, A	(S)	262690701	
5	EA020036	PAN HEAD SCREW	2x3 ZMC2-Y	762125515	
6	KX604660	LEAF SWITCH		157208511	
7	NX613040	PWB, MOTOR	MOTOR 6P	163967812	
8	LX610120	CONNECTOR PIN	6P	156472211	
9	CX680030	GEAR		262700301	
10	NX636020	OPTICAL HEAD		KSM213C	

*New Parts

REMOTE CONTROL TRANSMITTER

■ SCHEMATIC DIAGRAM

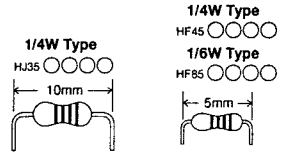




KEY No.	FUNCTION	CUSTOM CODE (HEX)	REVERSE CUSTAOM CODE (HEX)	DATA CODE (HEX)	REMARKS D0 D7
K1	TIME	79	86	0A	01010000
K2	DIMMER	79	86	1E	01111000
K4	OPEN/CLOSE	79	86	01	10000000
K5	TAPE	79	86	57	11101010
K6	CLEAR	79	86	0D	10110000
K7	SPACE	79	86	0F	11110000
K8	PROG	79	86	0C	00110000
K9	RANDOM	79	86	1B	11011000
K11	REPEAT	79	86	08	00010000
K13	+10	79	86	1A	01011000
K14	3	79	86	13	11001000
K15	2	79	86	12	01001000
K16	1	79	86	11	10001000
K18	6	79	86	16	01101000
K19	5	79	86	15	10101000
K20	4	79	86	14	00101000
K21	0	79	86	10	00001000
K22	9	79	86	19	10011000
K23	8	79	86	18	00011000
K24	7	79	86	17	11101000
K25	PLAY	79	86	02	01000000
K26	PAUSE	79	86	55	10101010
K29	STOP	79	86	56	01101010
K30	INDEX	79	86	0B	11010000
K31	SKIP ▶▶|	79	86	07	11100000
K32	|◀◀ SKIP	79	86	04	00100000
K33	OUTPUT LEVEL +	79	86	1D	10111000
K34	- OUTPUT LEVEL	79	86	1C	00111000
K35	SEARCH ▶▶	79	86	06	01100000
K36	◀◀ SEARCH	79	86	05	10100000
K57	SYNCHRO	79	86	58	00011010
K62	PEAK	79	86	5D	10111010

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			



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