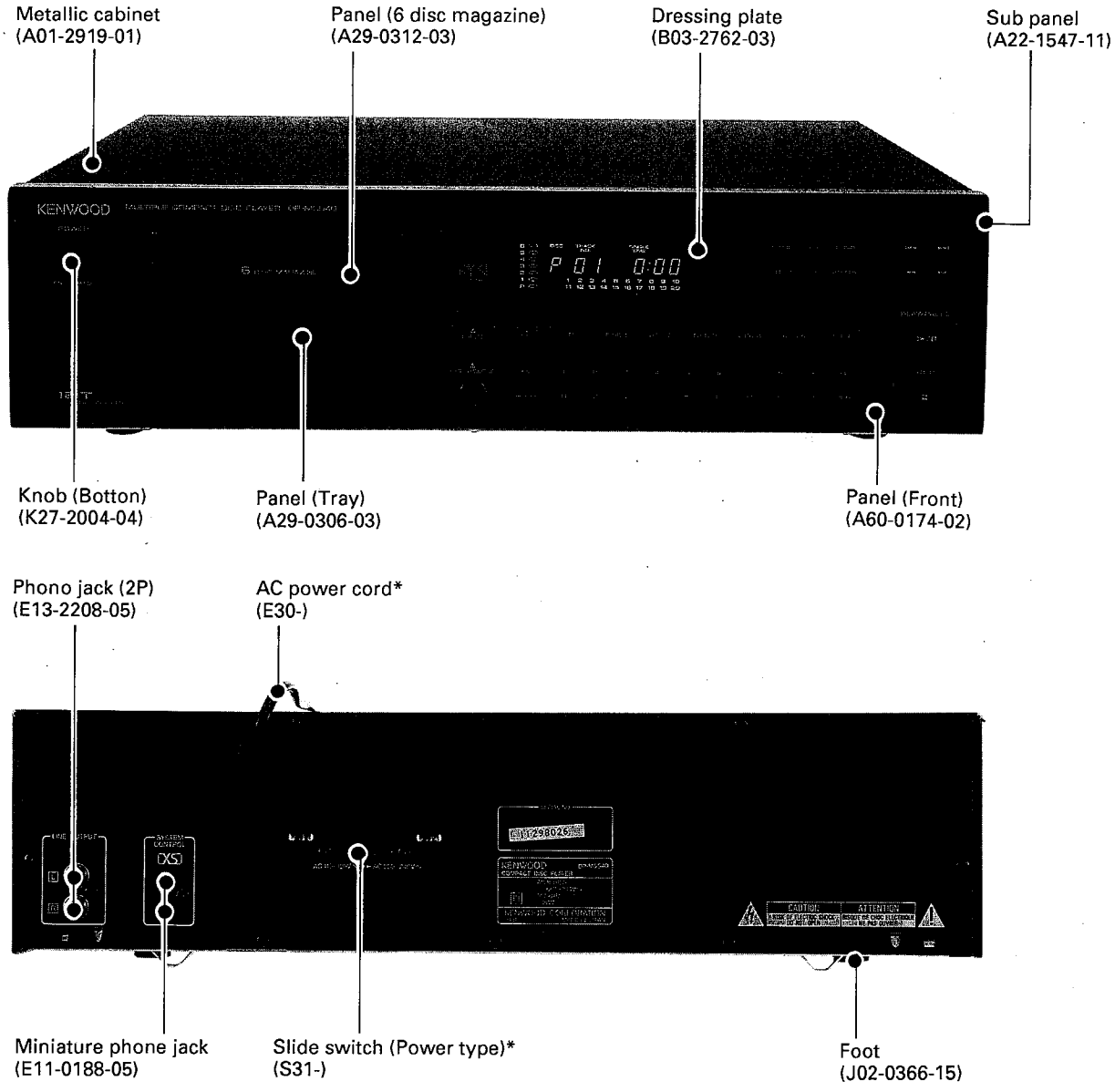
COMPACT DISC PLAYER

DP-M5540/M6640/M7740

SERVICE MANUAL

KENWOOD



In complicance with Federal Regulations, following are reproductions of labels on, or inside the product relating to laser product safety.

KENWOOD-Corp. certifies this equipment conforms to DHHS Regulations No. 21 CFR 1040. 10, Chapter 1, Subchapter J.

DANGER : Laser radiation when open and interlock defeated. AVOID DIRECT EXPOSURE TO BEAM.

Photo is DP-M5540.

*** Refer to parts list on page 45.**

DP-M5540/M6640/M7740

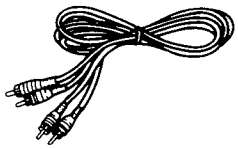
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ACCESSORIES

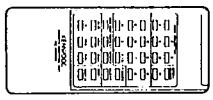
• Audio cord 1
(E30-0505-05)



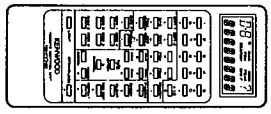
• Magazine (with 6 disc trays) 1
(J19-3394-03)



• Remote control unit (DP-M6640/M7740 only) 1

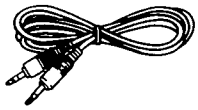


(A70-0522-05 : DP-M6640)

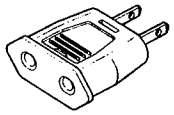


(A70-0577-05 : DP-M7740)

• System control cord 1
(E30-1392-05)

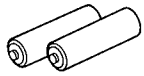


• AC plug adapter (M type only : Except for some areas) 1
(E03-0115-05)



For the unit with a European AC plug in areas other than Europe.

• Battery ("AA" or "R6" : DP-M6640/M7740 only) 2
(–)



CAUTION

• Caution of the Service Manual

This manual is available 3 models, DP-M5540, DP-M6640 and DP-M7740. Before using this manual, please check model's name. Control pcb ass'y (X32-) parts list is written the parts for all of 3 models. Also refer to comparision table in schematic diagram.

Model name	Control pcb	Mechanism
DP-M5540	X32-2190-12 (K)	X92-1560-10
	X32-2190-23 (M,Y)	X92-1560-10
	X32-2190-72 (X)	X92-1560-10
DP-M6640	X32-2190-11 (K,P)	X92-1560-10
	X32-2190-22 (M,Y)	X92-1560-10
	X32-2192-71 (X,T,E)	X92-1560-10
DP-M7740	X32-2190-10 (K)	X92-1560-10
	X32-2190-21 (M,Y)	X92-1560-10

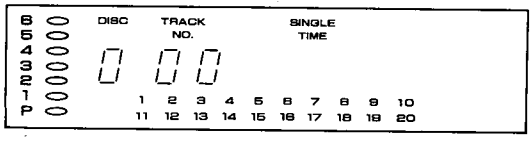
BEFORE OPERATION

- **Note related to transportation and movement**

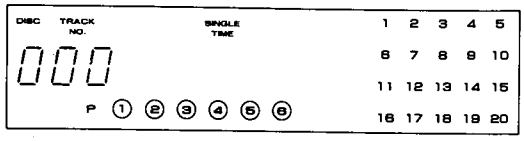
Carry out the following operations before transporting or moving this unit.

1. Remove disc and the magazine from the unit and turn the power ON.
2. Wait a few seconds to check that the display appears as shown in the illustration at the right.
3. Turn the power OFF.

DP-M5540 / M6640



DP-M7740



- **Beware of condensation**

When water vapor comes into contact with the surface of cold material, water drops are produced.
If condensation occurs, correct operation may not be possible, or the unit may not function correctly.
This is not a malfunction, however, and the unit should be dried. (To do this, turn the POWER switch ON and leave the unit as it is for several hours.)

Be especially careful in the following conditions:
- When the unit is brought from a cold place to a warm place, and there is a large temperature difference.
- When a heater starts operating.
- When the unit is brought from an air-conditioned place to a place of high temperature with high humidity.
- When there is a large difference between the internal temperature of the unit and the ambient temperature, or in conditions where condensation occurs easily.

English **Note:**
The unit's power supply is secondarily connected. Note following. The unit is not completely disconnected from the mains as long as the power cord is connected to a wall outlet.

Svenska **Observera:**
Apparatens strömförsörjning kopplas från sekundärt. V.g. ge akt på följande. Apparaten frånkopplas inte helt och hållet från strömnätet medan apparatens nätsladd är ansluten till växelströmsuttaget.

Finnish **Huom:**
Virta yksikköön on kytketty pois sekundaaripuolelta. Huomioi seuraava. Tämä yksikkö ei ole kokonaan kypketty pois pää virranjakajasta kun pää katkaisin on liitettynä virtatiiriin.

Dansk **Bemærk:**
Strømmen til apparatet afbrydes på den sekundære side. Vear opmærksom på følgende. Denne enhed er ikke fullstendig koblet fra lysnettet så lenge stikket er tilsluttet stikkontakten.

Norwegian **Anmerkning:**
Strømmen til apparatet er stått av på sekundærsiden. Vær oppmerksom på det følgende. Dette apparatet koples ikke fullstendig fra nettet så lenge støpselet står i en stikkontakt, selv om strømpryteren settes i av-stilling.

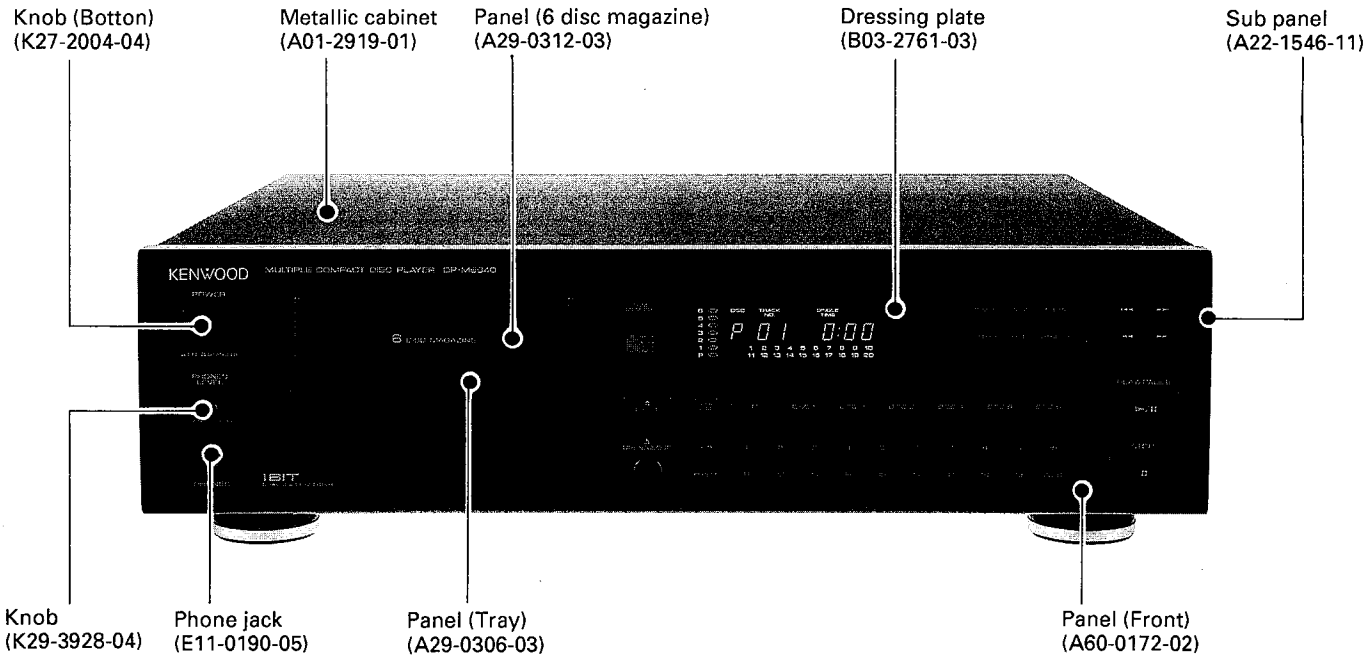
- **Warning**

For CANADA
DOC REGULATION
"This digital apparatus does not exceed the CLASS B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications."

For the U.S.A.
FCC WARNING:
This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

NOTE:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment may cause harmful interference to radio communications, if it is not installed and used in accordance with the instructions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

EXTERNAL VIEW



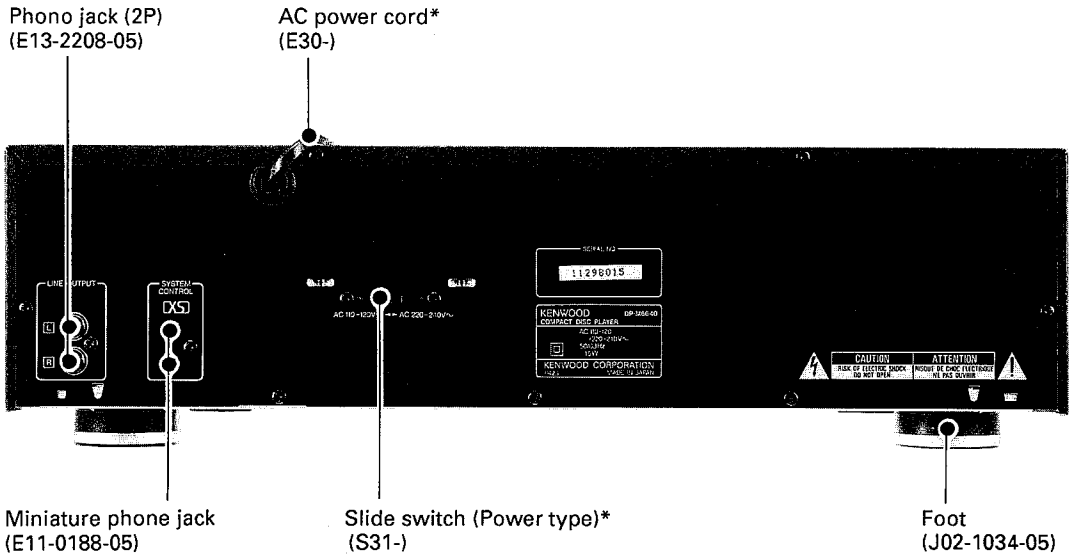
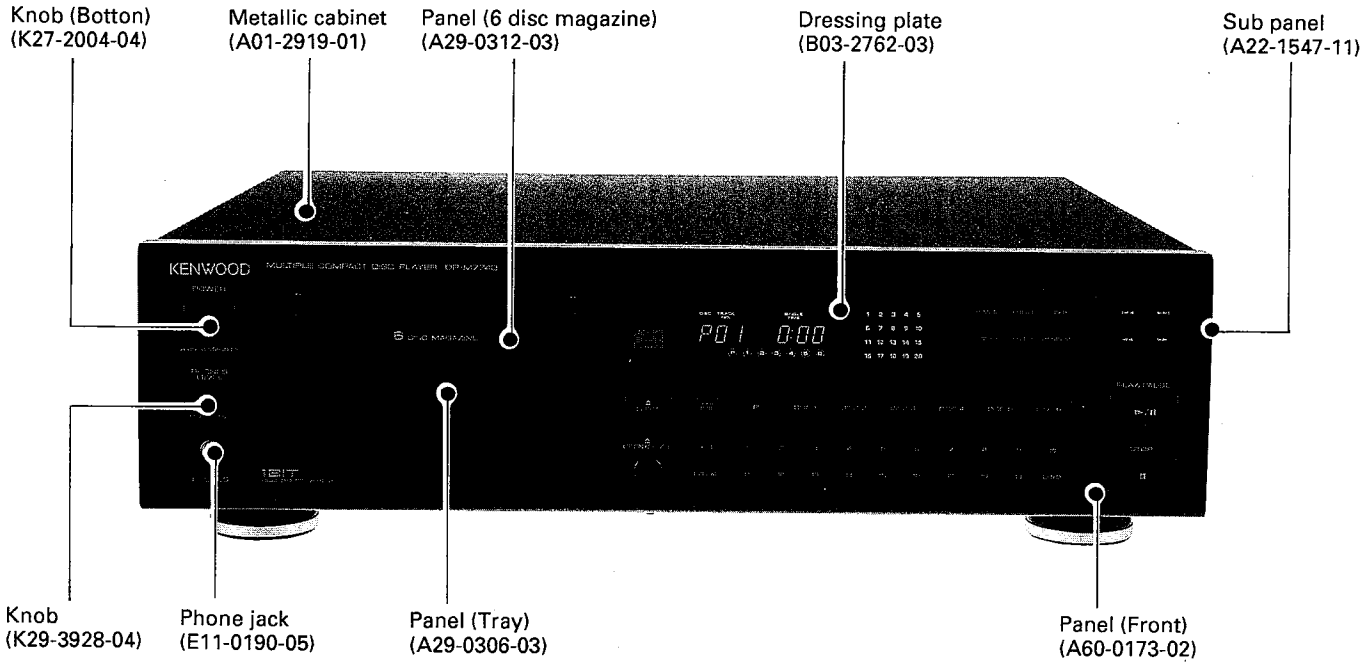


Photo is DP-M6640 (with REMOTE CONTROL).

*** Refer to parts list on page 45.**

EXTERNAL VIEW



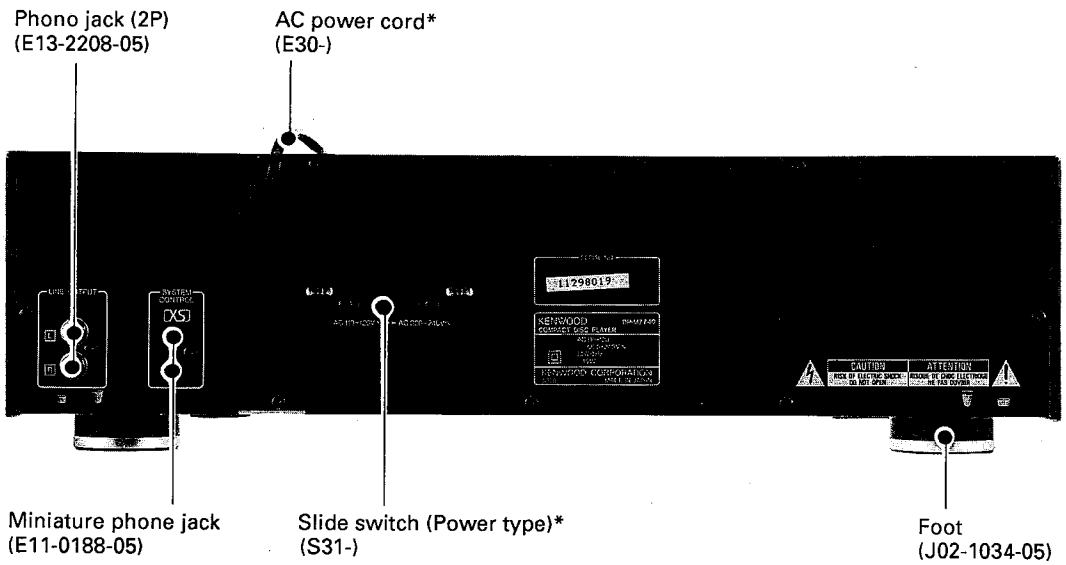
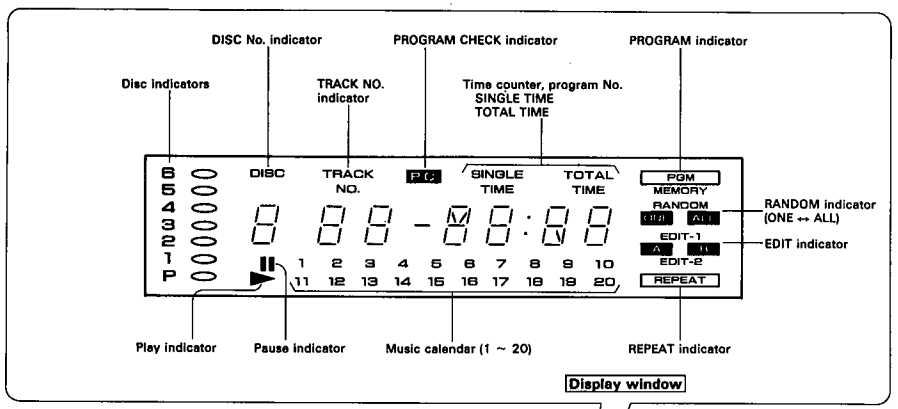
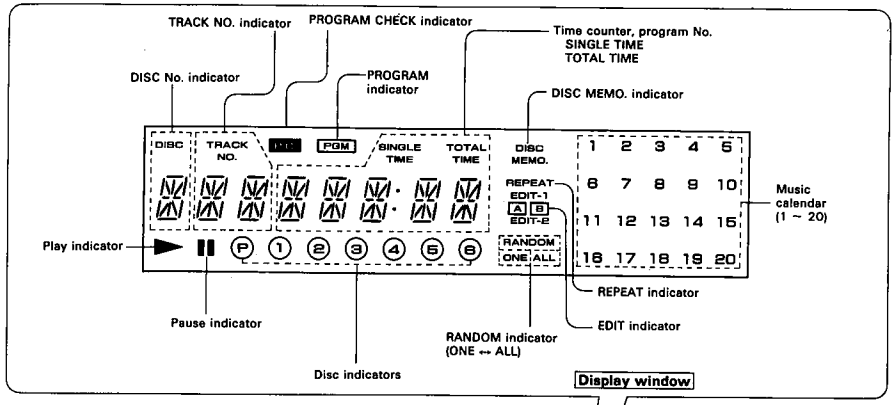
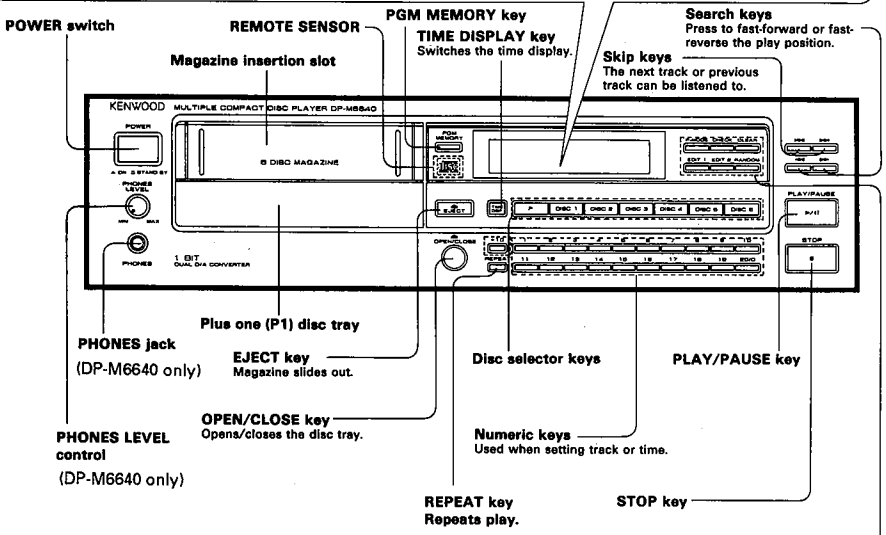


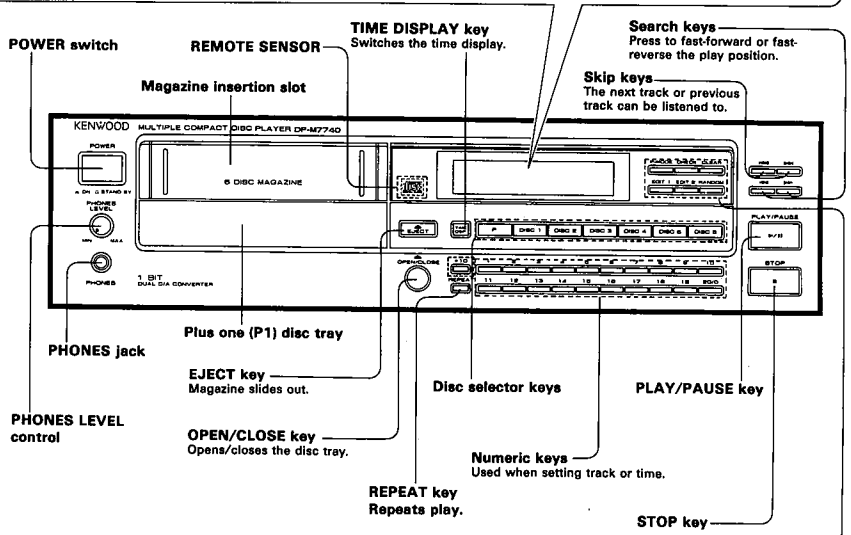
Photo is DP-M7740 (with REMOTE CONTROL).

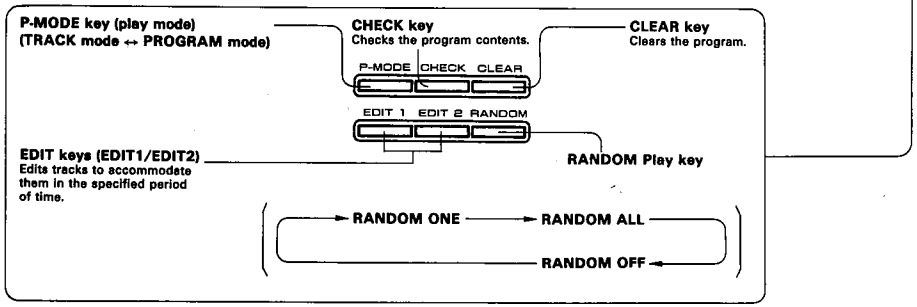
*** Refer to parts list on page 45.**

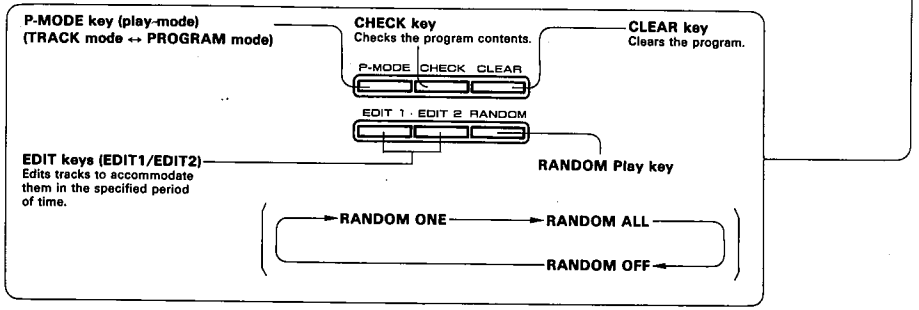










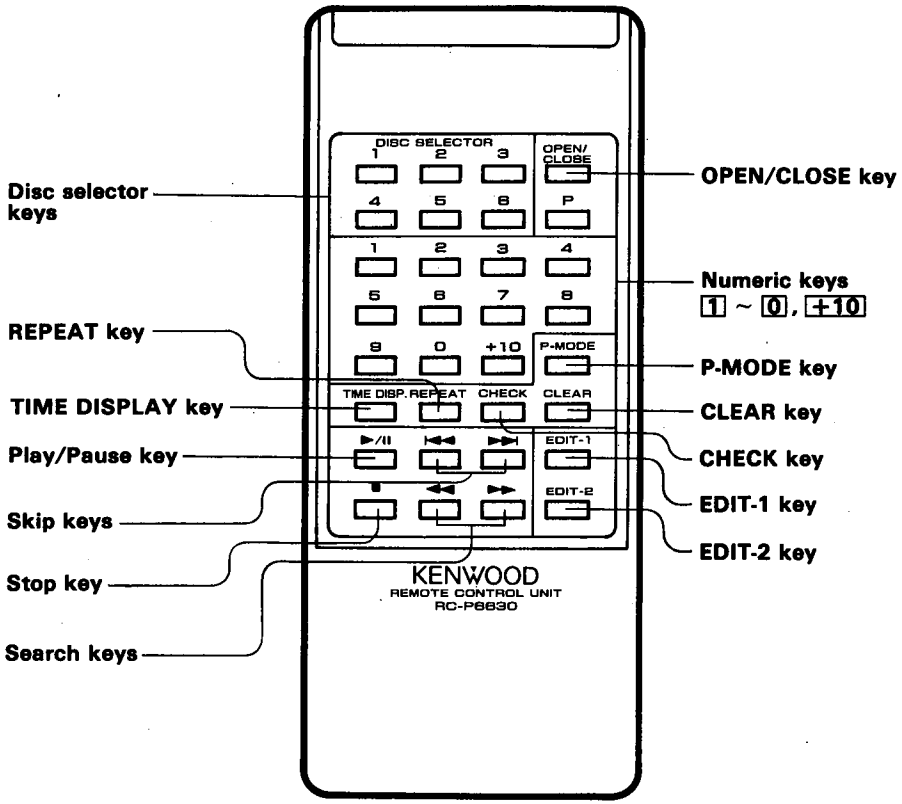


• DP-M5540/M6640

• DP-M7740

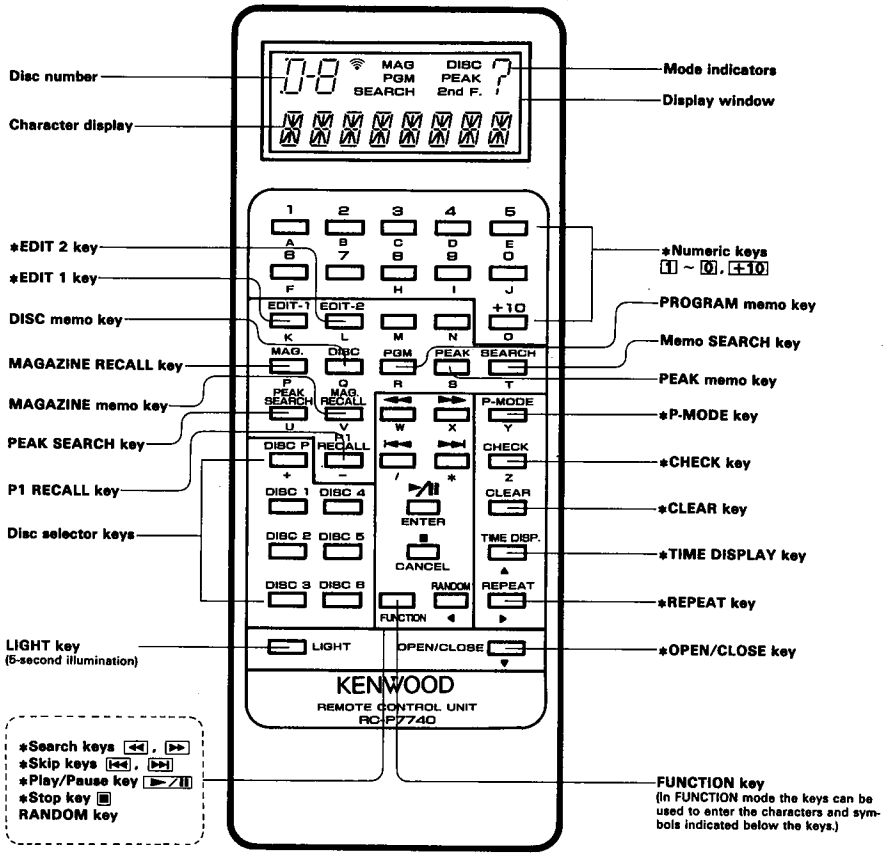
All of the functions of the CD player (except for the POWER switch) can be operated using the remote control unit.
Keys marked with an asterisk "*" can also be operated on the front panel of the CD player.

Transmitter



• DP-M6640

Transmitter



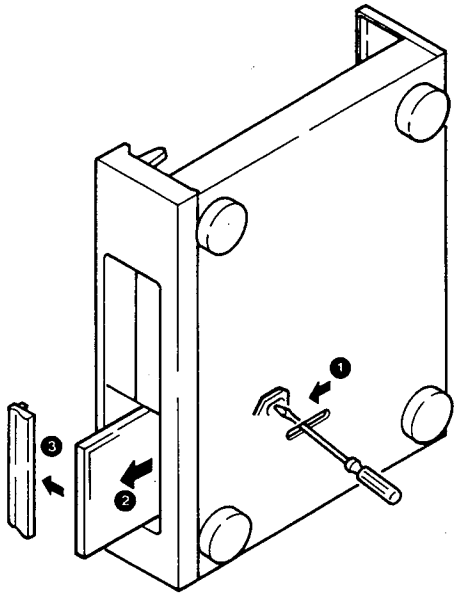
• DP-M7740

DISASSEMBLY FOR REPAIR

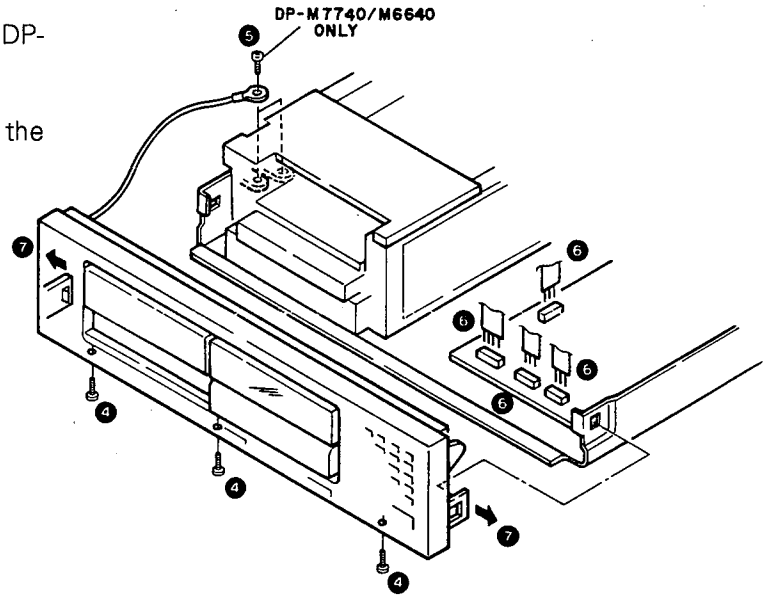
1. HOW TO DISASSEMBLE

*** When the power can not be turne ON, or when the tray can not be opened by pressing the OPEN key.**

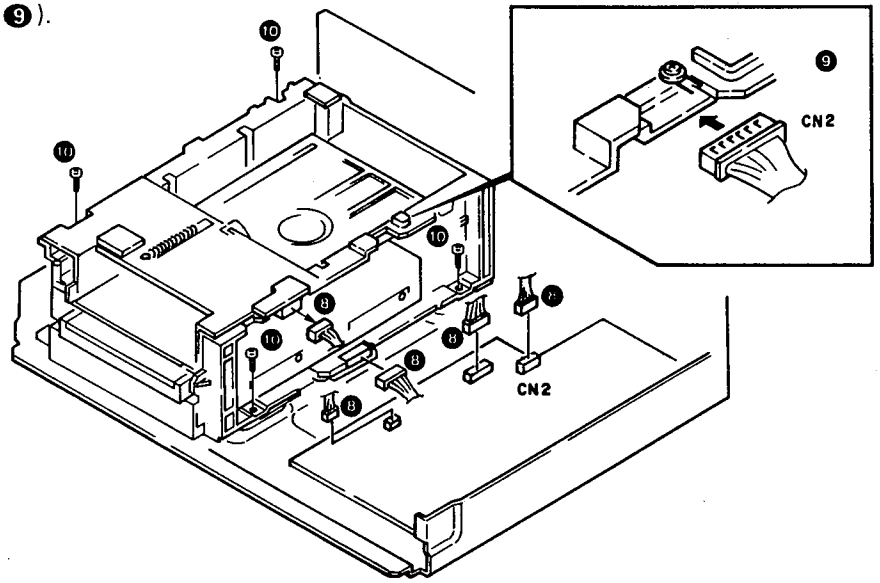
1. Insert the screw driver to the bottom hole and slide the lever frontwards with screw driver (❶).
2. Pull out the tray (❷).
3. Remove the tray's panel (❸), and push the tray backwards.



4. Remove the front panel screws (❹).
5. Remove the GND wire screw(DP-M7740 and DP-M6640 only) (❺)
6. Remove 4 connectors (❻).
7. Disengage the stoppers of the both side of the front panel (❼).



8. Remove 5 connectors (❽).
9. Set CN2 connector to LD short pin (❾).
10. Remove mechanism screws (❿).

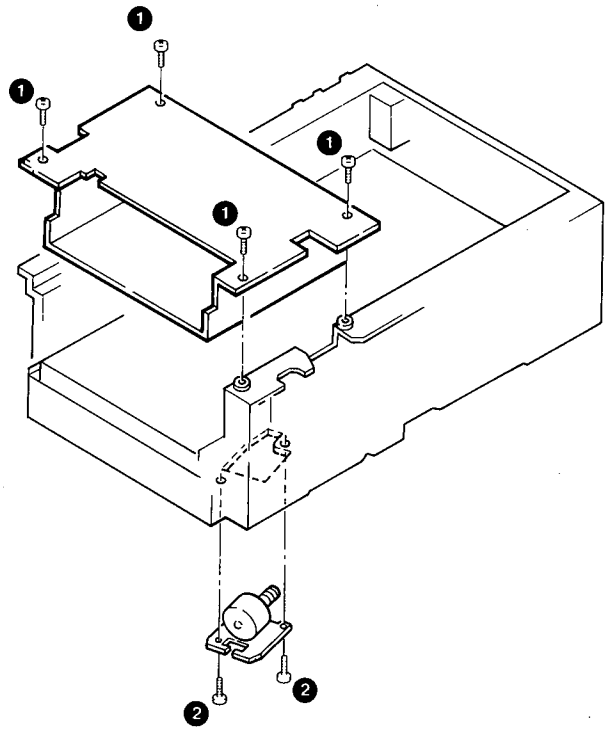


DISASSEMBLY FOR REPAIR

2. How to Replace the Pickup

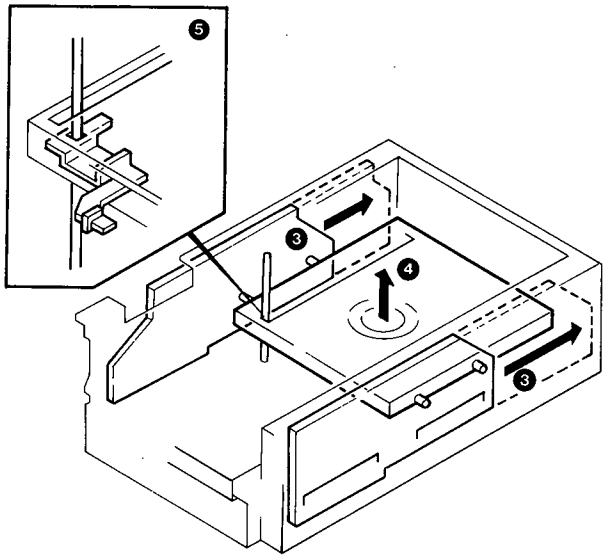
*** the following description is the unit of the mechanism only.**

1. Remove magazine plate ass'y screws (❶).
2. Remove Vertical Motor screws (❷).



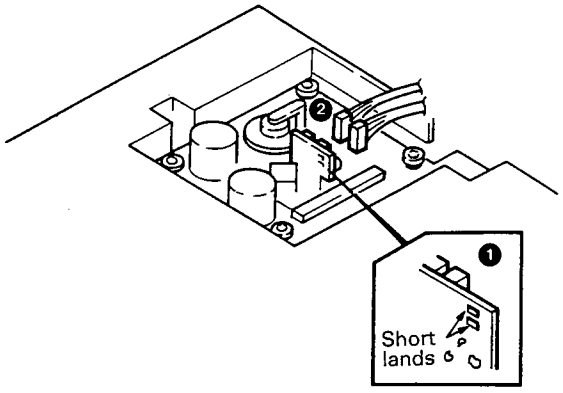
3. Slide the both of sliders backwards (❸), and remove the holder upwards (❹).

Note: If mounting the holder, set the shaft to holder as figure (❺).
If mounting the sliders, set the sliders to fully backward position(dot line in figure)

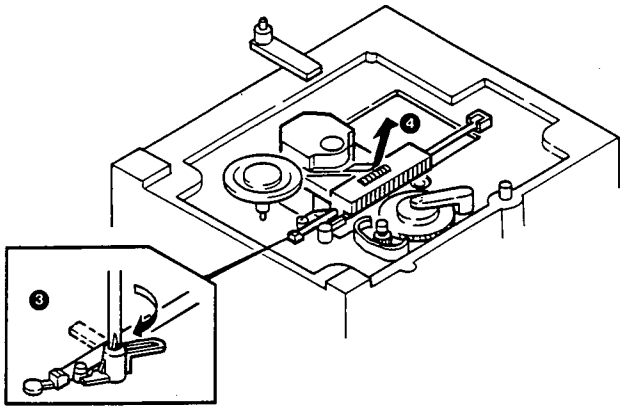


DISASSEMBLY FOR REPAIR

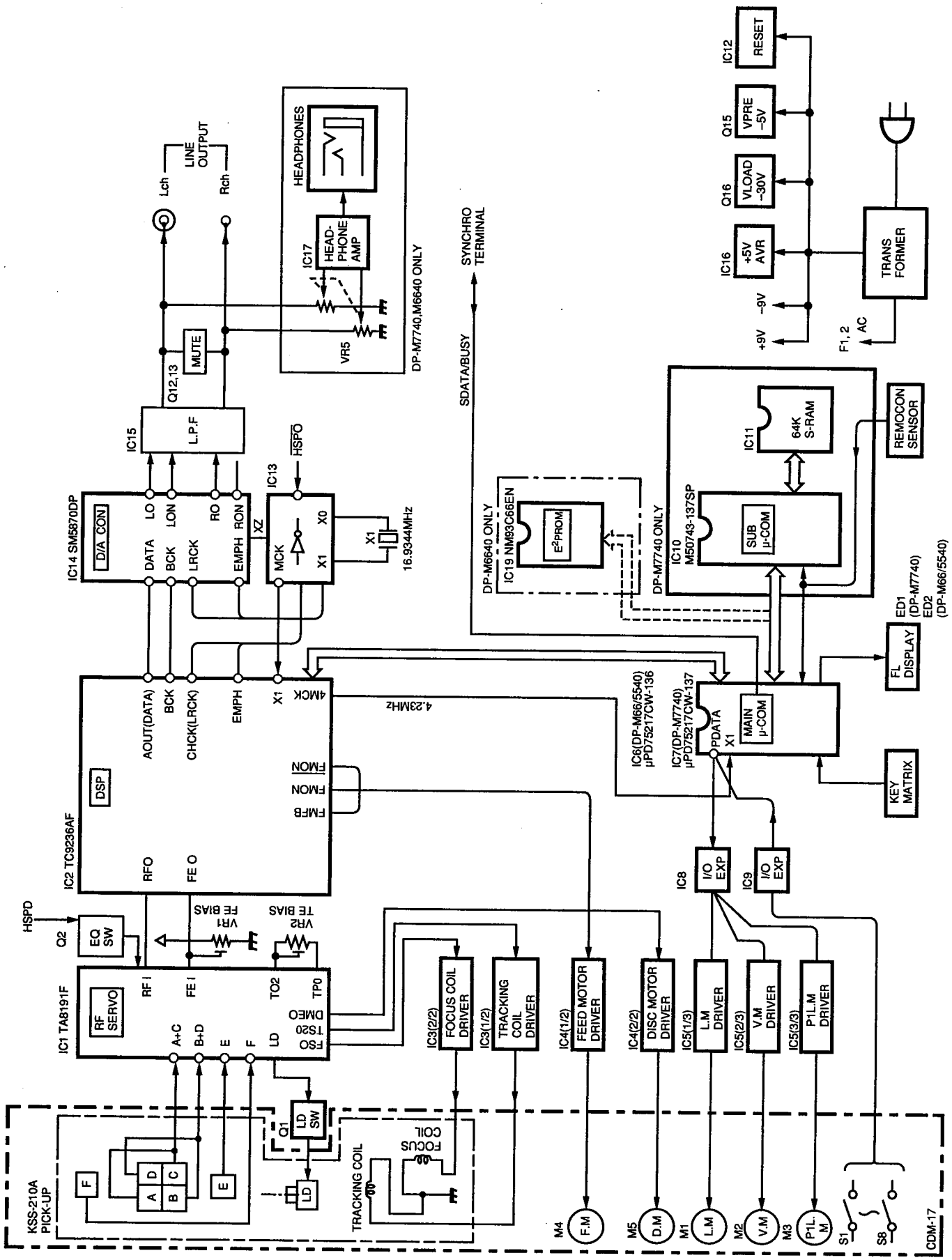
4. Turn the unit upside down, and solder the short land of the pickup (❶).
5. Remove 2 connectors (❷).



6. Turn the stopper (❸).
7. Remove the pickup upwards (❹).



BLOCK DIAGRAM

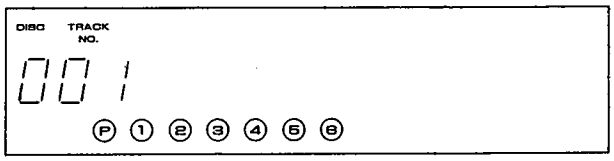
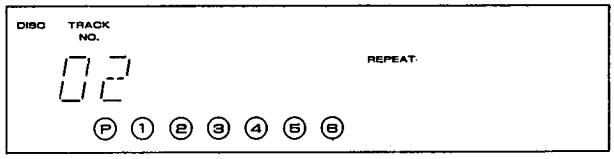
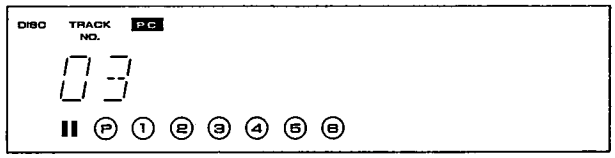
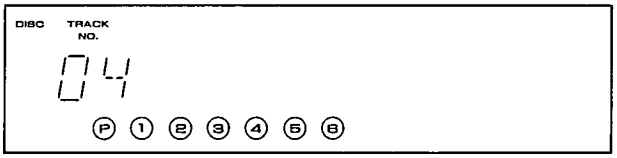
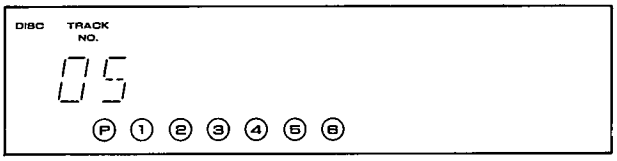
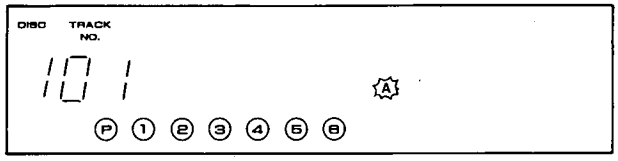


CIRCUIT DESCRIPTION

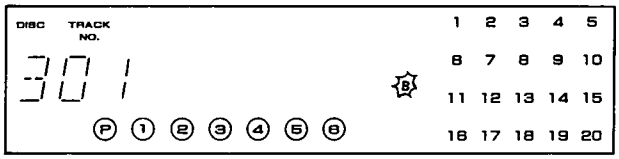
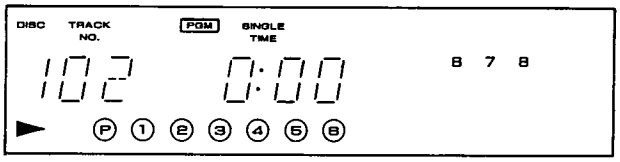
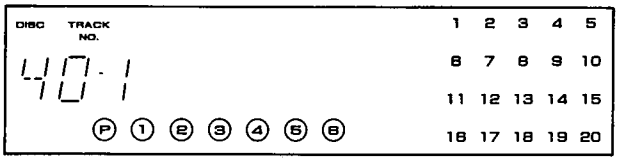
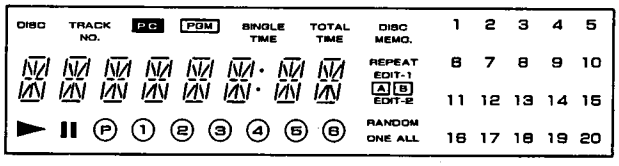
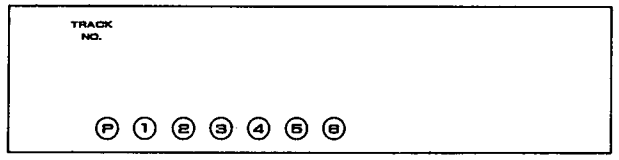
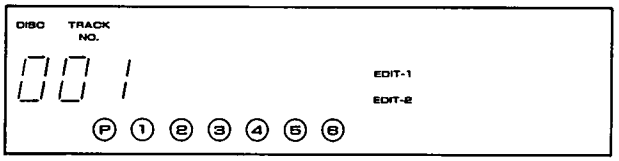
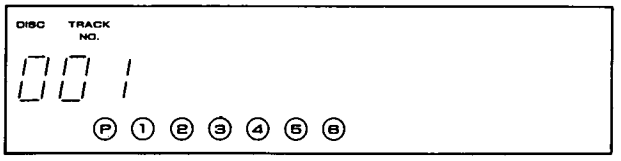
1. Test Mode

1-1. Setting the test mode

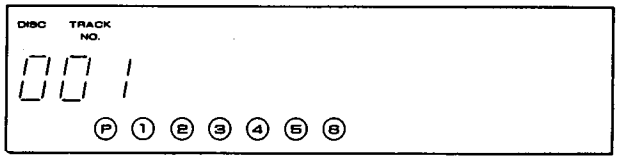
This microprocessor can be put the test mode by just short-circuiting the test pins (#2 and #3) even in the test mode (normal condition).

No.	Input key	Function	Display
1	STOP	(1) Focusing servo ..... OFF (2) Tracking servo ..... OFF (3) Feed servo ..... OFF	
2	REPEAT	(1) Laser ..... ON (in STOP mode only)	
3	CHECK	(1) Focusing servo ..... ON (2) Tracking servo ..... OFF (3) Feed servo ..... OFF	
4	CLEAR	(1) Focusing servo ..... ON (2) Tracking servo ..... ON (3) Feed servo ..... OFF	
5	PLAY	(1) Focusing servo ..... ON (2) Tracking servo ..... ON (3) Feed servo ..... ON	
6	DISC 1	Load No. 1 disc to No. 6 in order.	

CIRCUIT DESCRIPTION

No.	Input key	Function	Display
7	DISC 2 (Disc B mode)	Read the TOC (table of contents) of disc No. 3 to No. 6 in order. TEST mode is cancelled after reading the TOC of No. 6 disc, and then playback the 1st track.	
8	P. MODE	Track No. 7, 8 and 6 are programmed, and play-backed (Track No. 6 is play backed under double speed. Also, TEST mode is cancelled).	
9	DISC 3 ~ 6	Load the decided No. disc which is pressed by the disc key and set to STOP mode. ex. Disc No. 4 key is pressed (PLAY, CHECK and CLEAR keys are available to operat).	
10	UP ▶▶|	Turns all FL display lamps ON.	
11	DOWN ◀◀|	Turns all FL display lamps OFF. "DISC" and "1 ~ 6" are not off because circuit is static operation.	
12	EDIT-1	Turns "EDIT-1" letters ON.	
13	EDIT-2	Turn "EDIT-2" letters ON.	
14	FF ▶▶|	In the STOP mode, moves the pickup slightly toward the outer position of disc.	

CIRCUIT DESCRIPTION

<table>
<tr><th>No.</th><th>Input key</th><th>Function</th><th>Display</th></tr>
<tr><td>15</td><td>FB
◀◀</td><td>In the STOP mode, moves the pickup slightly toward the inner position of disc.</td><td>
</td></tr>
<tr><td>16</td><td>RANDOM*
(DP-M7730 only)</td><td>Sub-microprocessor's TEST mode. S-RAM is set display data from Disc-1 to Disc-255.</td><td>" S-RAM ALL SET „
← move</td></tr>
<tr><td>19</td><td>Numeric key
(1 ~ 10)</td><td>Jumps tracks as shown below.
<table>
<tr><td>Key</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td>Number of tracks</td><td>1</td><td>4</td><td>8</td><td>32</td><td>1000</td></tr>
<tr><td>Direction</td><td colspan="5">Outer</td></tr>
<tr><td>Key</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr>
<tr><td>Number of tracks</td><td>1</td><td>4</td><td>8</td><td>32</td><td>1000</td></tr>
<tr><td>Direction</td><td colspan="5">Inner</td></tr>
</table></td><td></td></tr>
</table>

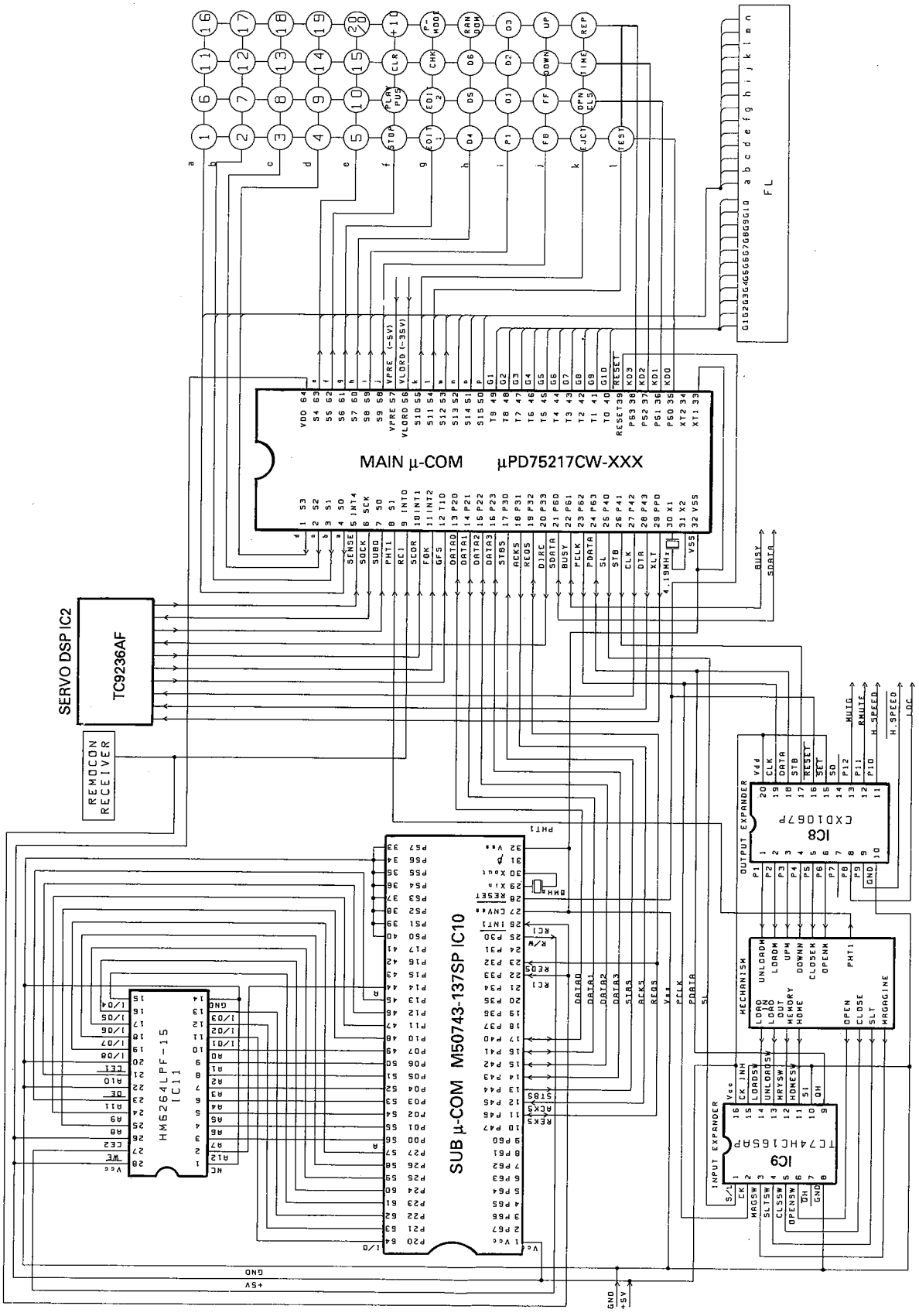
*** In the case of clearing memory in S-RAM, set "POWER ON" switch to ON with pressing CLEAR key. Display shows letters; "ALL MEMO ARE CLEARED" (DP-M7740 only).**

CIRCUIT DESCRIPTION

2. Main μ-com : μPD-75217CW-XXX

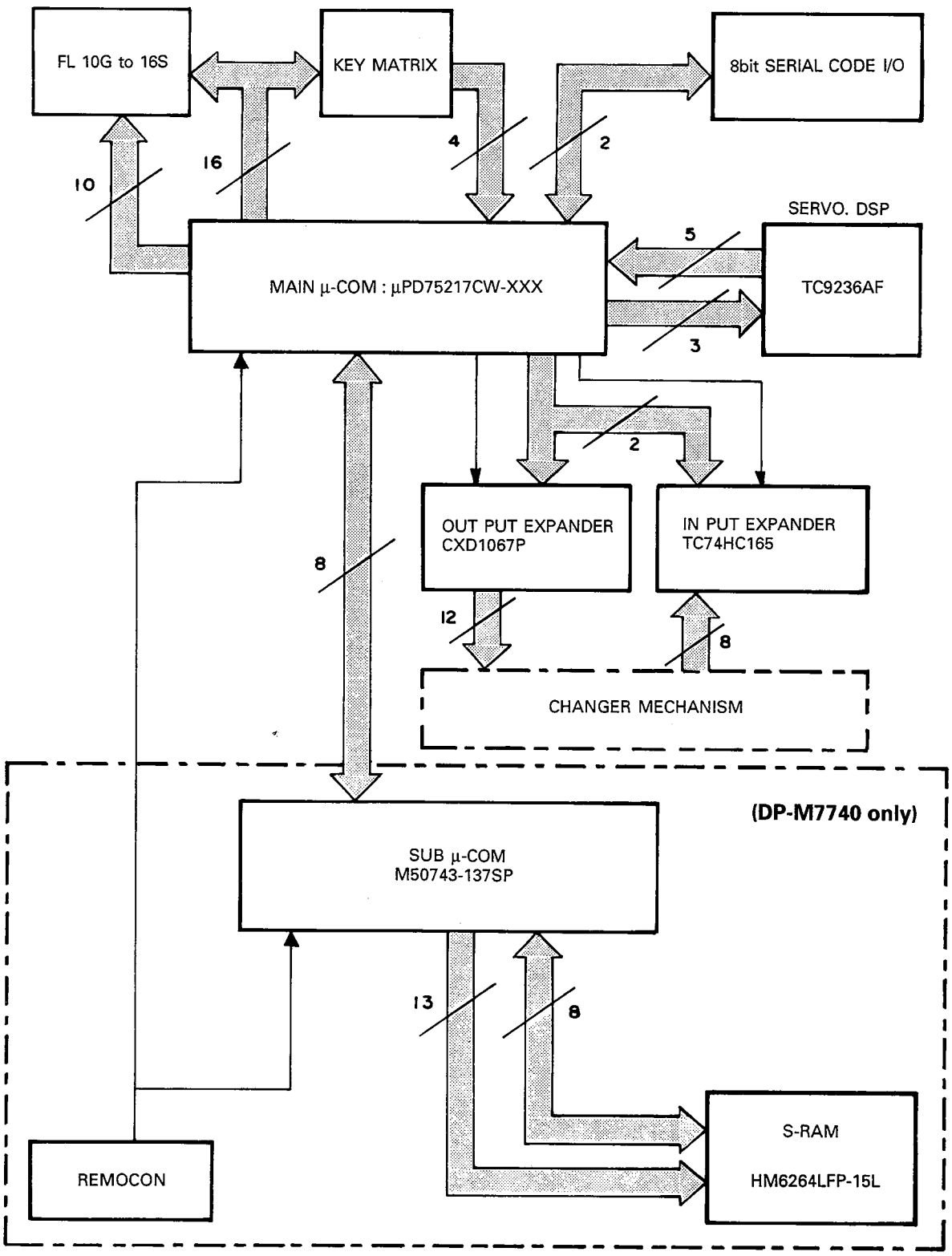
2-1. Terminal connection diagram

DP-M5540 / DP-M6640 : μPD75217CW-136 (IC6), DP-M7740 : μPD75217CW-137 (IC7)



CIRCUIT DESCRIPTION

2-2. Block diagram and Key matrix



CIRCUIT DESCRIPTION

2-3. Pin functions : μPD75217CW-137

Pin No.	Pin name	I/O	Function
1 ~ 4	d ~ a	O	Display segments (key scan control)
5	LOCK	I	LOCK signal sensor from signal processor
6	PCLK	O	Clock output port for CXD1067 and TC74HC165
7	PDATA	O	Data output port for CXD1067
8	PDATA	I	Data input port for TC74HC165
9	RCI	I	Remote control signal input port
10	PHT1	I	Photo interrupter input port for mechanism up/down
11	PEAK	I	Peak signal input port when in peak search mode
12	STBS	I	STBS input port from sub microprocessor
13 ~ 16	DATA 0 ~ 3	I/O	Data input/output from sub microprocessor
17	SL	O	Latch signal output port for CXD1067
18	ACKS	O	ACKS signal output port for sub microprocessor
19	REQS	I/O	REQS signal output port for sub microprocessor
20	STB	O	STROB signal output port for TC74HC165
21	SDATA	I/O	DATA signal input/output port for system serial communication
22	BUSY	I/O	BUSY signal input/output port for system serial communication
23	CCE	O	CCE control port for TC9236A
24	BUCK	O	BUCK control port for TC9236A
25	BUSO	I/O	BUS line control input/output port for TC9236A
28	BUS3	–	Not use
29	XLAT	O	Not use
30	X1	I	System clock input port
31	X2	–	Not use
32	Vss	–	GND
33	XT1	–	GND
34	XT2	–	Open
35 ~ 38	KD0 ~ 3	I	Return key input of key matrix
39	$\overline{\text{RESET}}$	I	RESET signal input port
40 ~ 49	G1 ~ 10	O	Display digit control port
50 ~ 55	p ~ k	O	Display segment control port (key scan)
56	VLOAD	I	Display drive negative power supply (–35V)
57	VPRE	I	Display pre-driver negative power supply (–5V)
58 ~ 63	j ~ e	O	Display segments control port (key scan)
64	VDD	–	Power supply (+5V)

2-4. Pin functions : μPD75217CW-136

Pin No.	Pin name	I/O	Function
1 ~ 4	d ~ a	O	Display segments (key scan control)
5	LOCK	I	LOCK signal sensor from signal processor
6	PCLK	O	Clock output port for CXD1067 and TC74HC165
7	PDATA	O	Data output port for CXD1067
8	PDATA	I	Data input port for TC74HC165
9	RCI	I	Remote control signal input port
10	PHT1	I	Photo interrupter input port for mechanism up/down
11	N.C	I	Not use
12	N.C	I	Not use
13	CS	O	CS signal output port for NM93C66
14	SK	O	Clock output port for NM93C66
15	DI	O	Data output port for NM93C66
16	N.C	–	Not use
17	SL	O	Latch signal output port for CXD1067
18	N.C	O	Not use
19	DO	I	Data input port from NM93C66
20	STB	O	STROB signal output port for TC74HC165
21	SDATA	I/O	DATA signal input/output port for system serial communication
22	BUSY	I/O	BUSY signal input/output port for system serial communication
23	CCE	O	CCE control port for TC9236A
24	BUCK	O	BUCK control port for TC9236A
25	BUSO	I/O	BUS line control input/output port for TC9236A
28	BUS3	–	
29	XLAT	O	Not use
30	X1	I	System clock input port
31	X2	–	Not use
32	Vss	–	GND
33	XT1	–	GND
34	XT2	–	Open
35 ~ 38	KD0 ~ 3	I	Return key input of key matrix
39	$\overline{\text{RESET}}$	I	RESET signal input port
40 ~ 49	G1 ~ 10	O	Display digit control port
50 ~ 55	p ~ k	O	Display segment control port (key scan)
56	VLOAD	I	Display drive negative power supply (–35V)
57	VPRE	I	Display pre-driver negative power supply (–5V)
58 ~ 63	j ~ e	O	Display segments control port (key scan)
64	VDD	–	Power supply (+5V)

CIRCUIT DESCRIPTION

3. Input Expander : TC74HC165AP (IC9)

Pin functions

Pin No.	Pin name	I/O	Function
1	SL	I	Shif load input
2	PCLK	I	Clock input
3	MAGSW	I	Magazine switch (S4)
4	SLTSW	I	Start limit switch (S8)
5	CLSSW	I	Tray close switch (S6)
6	OPNSW	I	Tray open switch (S7)
7	–	O	No use
8	GND	–	Ground
9	PDATA	O	Data output
10	–	I	No use
11	HOMESW	I	Home position switch (S1)
12	MRYSW	I	Memory switch (S3)
13	UNLOADSW	I	Unload switch (S2)
14	LOADSW	I	Load switch
15	–	I	No use
16	Vcc	–	Power supply (+5V)

4. Output Expander : CXD1067P (IC8)

Pin functions

Pin No.	Pin name	I/O	Function
1	UNLOADM	O	Unload signal output to Loading Motor (L.M.)
2	LOADM	O	Load signal output to L.M.
3	UPM	O	Up signal output to Vertical Motor (V.M.)
4	DOWNM	O	Down signal output to V.M
5	CLOSEM	O	Close signal output to P1 and Loading Motor (L.M.)
6	OPEM	O	Open signal output to P1 and L.M.
7	–	O	No use
8	LDC	O	Laser out signal
9	$\overline{\text{H.SPEED}}$	O	Switch of circuit under double-speed (Active:Low)
10	GND	–	Ground
11	H.SPEED	O	Switch of circuit under double-speed (Active:High)
12	RMUTE	O	Analog mute signal
13	MUTG	O	Digital mute signal
14	–	–	No use
15	$\overline{\text{SET}}$	–	No use
16	$\overline{\text{RESET}}$	I	Reset signal input
17	STBP	I	Strobe signal input
18	PDATA	I	Serial data input
19	PCLK	I	Clock signal input
20	V_{DD}	–	Power supply (+5V)

5. Sub μ-com : M50743-137SP (IC10)

Pin functions

Pin No.	Pin name	I/O	Function
1	Vcc	–	Power supply (+5V)
2 ~ 10	–	–	No connection
11	REQS	I/O	Request detection
12	ACKS	I	Acknowledge
13	STBS	O	Standby strobe
14 ~ 17	DATA3 ~ 0	I/O	4 bit data
18 ~ 21	–	–	No connection
22	REMCON	I	Remote control detection
23	REQS	I	Request interrupt
24	–	–	No connection
25	R / $\overline{\text{W}}$	O	Read and write to SRAM
26	REMOCON	I	Remote control interrupt
27	CNVSS	–	Mode select to GND
28	$\overline{\text{RESET}}$	–	–
29	Xin	I	Crystal oscillator (8MHz)
30	Xout	I	Crystal oscillator (8MHz)
31	ø	–	No connection
32	Vss	–	Ground
33 ~ 40	P57 ~ 50	–	No connection
41 ~ 56	P17 ~ 10 / P07-00	O	Address bus to SRAM
57 ~ 64	P27 ~ 20	I/O	Data bus to SRAM

CIRCUIT DESCRIPTION

6. RF Amplifier : TA8191F (IC1)

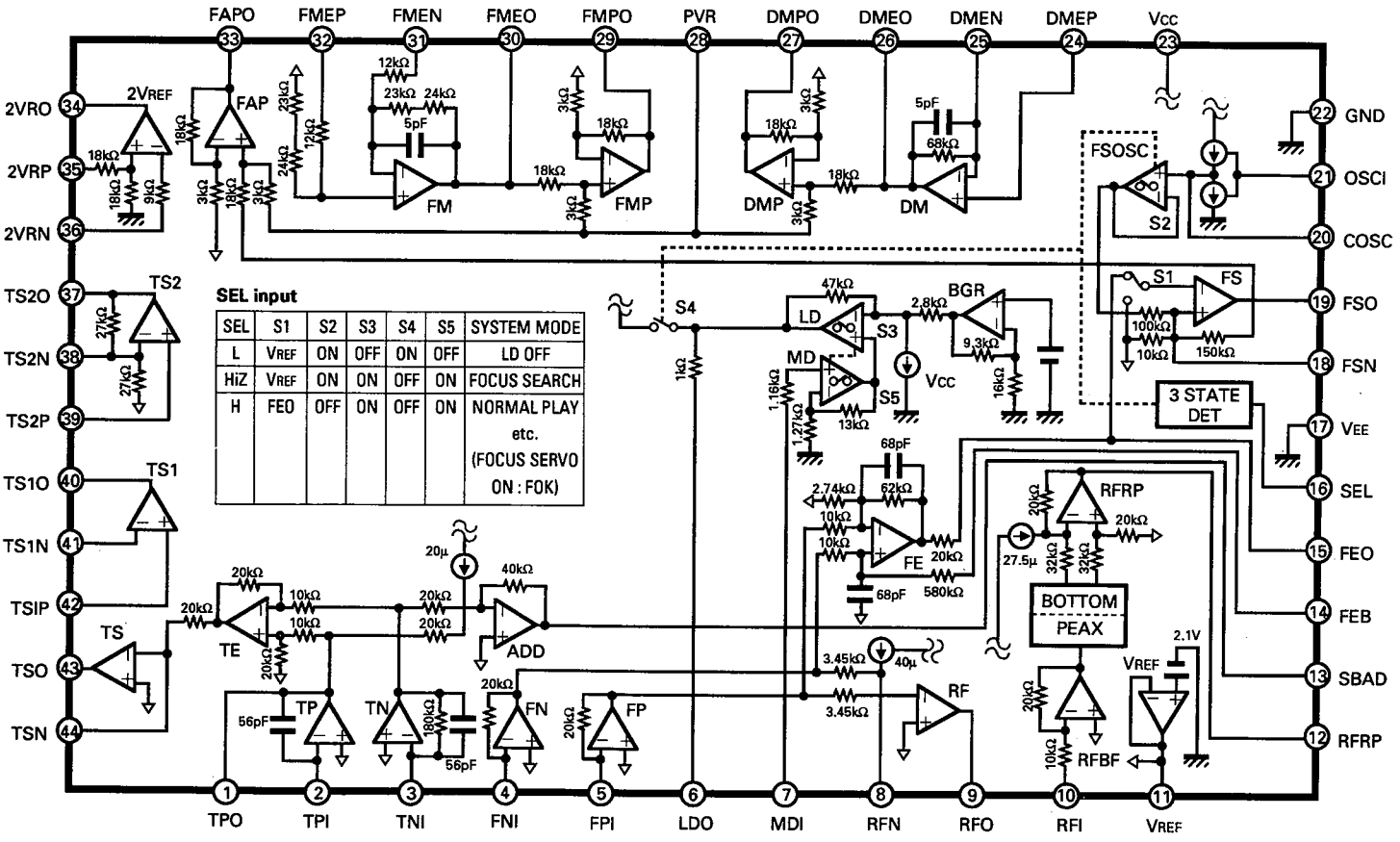
Out line

TA8191F is an LSI for focus tracking servo applicable to PUH of 3 beam type in a CD player system.

Features

- RF amplifier, focus error amplifier, and tracking error amplifier are built in.
- Focus tracking servo amplifier is built in.
- Phase compensation amplifier and LPF amplifier are built in.
- ALPC amplifier is built in.

6-1.Block diagram



SEL	S1	S2	S3	S4	S5	SYSTEM MODE
L	VREF	ON	OFF	ON	OFF	LD OFF
HiZ	VREF	ON	ON	OFF	ON	FOCUS SEARCH
H	FEO	OFF	ON	OFF	ON	NORMAL PLAY etc. (FOCUS SERVO ON : FOK)

CIRCUIT DESCRIPTION

6-2. Pin fuction

Pin No.	Pin name	I/O	Function
1	TPO	O	Sub beam I-V amplifier (TP AMP) output terminal.
2	TPI	I	Sub beam I-V amplifier (TP AMP) input terminal.
3	TNI	I	Sub beam I-V amplifier (TN AMP) input terminal.
4	FNI	I	Main beam I-V amplifier (FN AMP) input terminal.
5	FPI	I	Main beam I-V amplifier (FP AMP) input terminal.
6	LDO	O	Laser diode amplifier (LD AMP) output terminal.
7	MDI	I	Monitor photo diode amplifier (MD AMP) input terminal.
8	RFN	I	RF amplifier (RF AMP) negative phase input terminal.
9	RFO	O	RF amplifier (RF AMP) output terminal.
10	RFI	I	RF ripple signal generating circuit input terminal.
11	VREF	O	Reference voltage output terminal.
12	RERP	O	RF ripple signal output terminal.
13	SBAD	O	Flaw sensing output terminal.
14	FEB	O	Focus error balance adjustment input terminal.
15	FEO	O	Focus error amplifier (FE AMP) output terminal.
16	SEL	I	Analog switch control signal input terminal.
17	VEE	–	Power supply terminal.
18	FSN	I	Focus output amplifier (FS AMP) negative phase input terminal.
19	FSO	O	Focus output amplifier (FS AMP) output terminal.
20	COSC	O	Focus search signal generating capacitor connection terminal.
21	OSCI	I	Built in current control input terminal for focus search signal generation.
22	GND	–	Ground terminal.
23	Vcc	–	Power supply (+5V).
24	DMEF	I	Disc motor amplifier (DM AMP) positive phase input terminal.
25	DMEN	I	Disc motor amplifier (SM AMP) negative phase output terminal.
26	DMEO	O	Disc motor amplifier (SM AMP) output terminal.
27	DMPO	O	Disc motor drive amplifier (SM AMP) negative phase output terminal.
28	PVR	I	Drive amplifier reference voltage input terminal.
29	FMPO	O	Feed motor drive amplifier (FM AMP) output terminal.
30	FMEO	O	Feed motor amplifier (FM AMP) output terminal.
31	FMEN	I	Feed motor amplifier (FM AMP) negative phase input terminal.
32	FMEP	I	Feed motor amplifier (FM AMP) positive phase input terminal.
33	FAPO	O	Focus actuator drive amplifier (FAP AMP) output terminal.
34	2VRO	O	2VREF amplifier (2VREF AMP) output terminal.
35	2VRP	I	2VREF amplifier (2VREF AMP) positive phase input terminal.
36	2VRN	I	2VREF amplifier (2VREF AMP) negative phase input terminal.
37	TS2O	O	Tracking servo amplifier 2 (TSP AMP) output terminal.
38	TS2N	I	Tracking servo amplifier 2 (TSP AMP) negative phase input terminal.
39	TS2P	I	Tracking servo amplifier 2(TSP AMP) positive phase input terminal.
40	TS1O	O	Tracking servo amplifier 1(TSP AMP) output terminal.
41	TS1N	I	Tracking servo amplifier 1(TSP AMP) negative phase input terminal.
42	TS1P	I	Tracking servo amplifier 1(TSP AMP) positive phase input terminal.
43	TSO	O	Tracking output amplifier (TS AMP) output terminal.
44	TSN	I	Tracking output amplifier (TS AMP) negative phase input terminal.

CIRCUIT DESCRIPTION

7. Digital Signal Processor : TC9236AF (IC2)

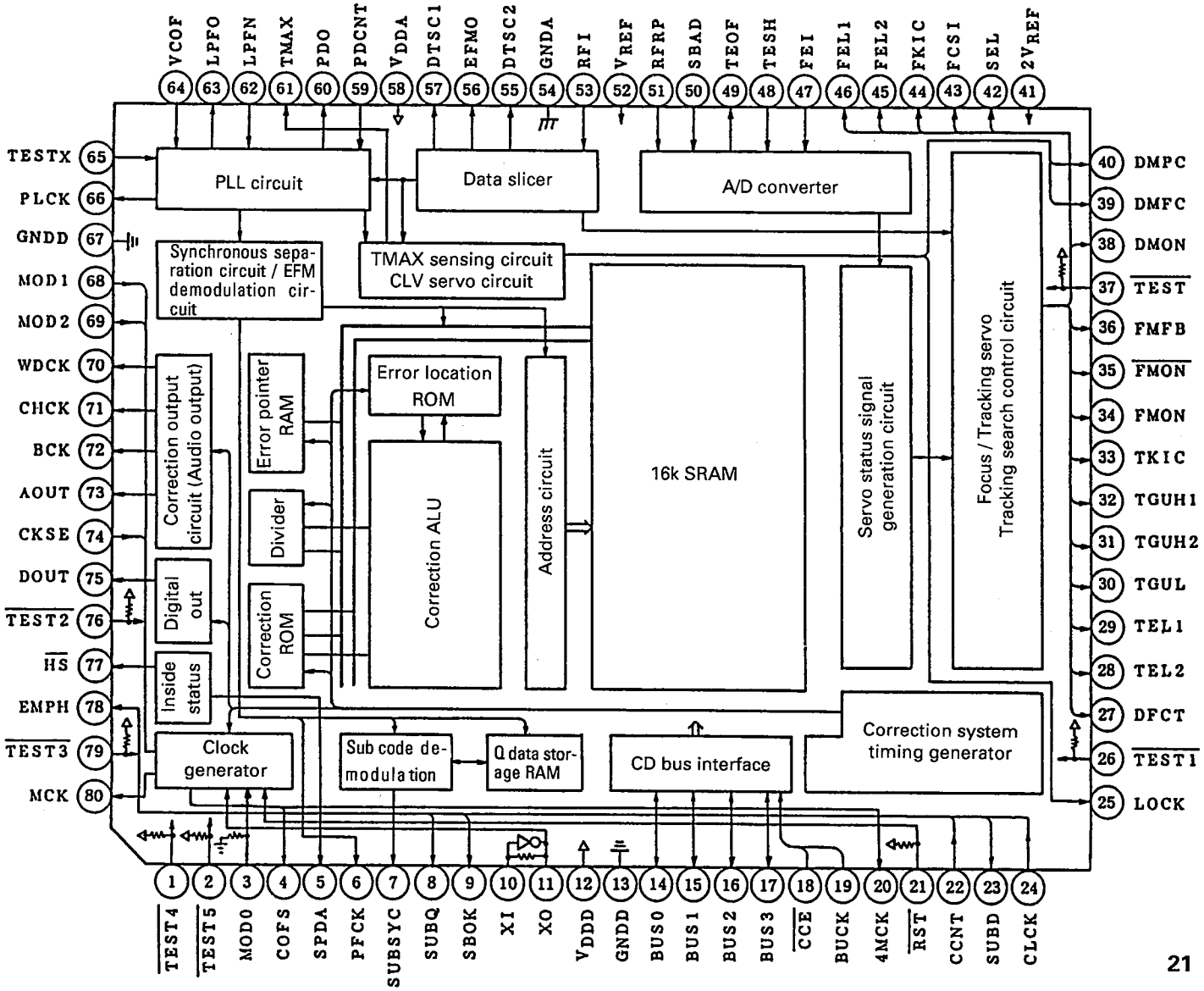
Outline

TC9236AF is a 1-chip processor for step-out protection and interpolation, EFM, error correction, microcomputer interface, CLV servo and focus tracking servo of the CD player.

Features

- CMOS silicone structure for high-speed and low power consumption.
- Flat package with 80 pins. Stable synchronous pattern sensing function, synchronous signal protection and interpolation function.
- Built-in EF demodulation and sub code demodulation circuits.
- CIRC correction theoretical formula is used for single correction by C1 correction part and double correction by C2 correction part.
- Jitter absorbing capacity of ±5 frames.
- Smooth muting by zero cross sensing is possible.
- Attenuation of 12dB is possible.
- Built-in 16k S-RAM.
- Built-in digital out circuit.
- Built-in data slicer and analog PLL (with adjustment-free VCO) circuits.
- Automatic adjustment function of focus and tracking loop again.
- Built-in AFC and APC circuits for disc motor CLV servo.
- Built-in focus and tracking servo control circuit.
- Tracking search control applicable in any mode.
- Built-in microcomputer interface circuit.
- Read timing-free sub code Q data.
- Applicable to double-speed operation.

7-1. Block diagram



CIRCUIT DESCRIPTION

7-2. Pin fuction

Pin No.	Pin name	I/O	Function
1	$\overline{\text{TEST4}}$	I	Test terminal, normally "H" or open.
2	$\overline{\text{TEST5}}$	I	Test terminal, normally "H" or open.
3	MOD0	I	Input terminal for inside operation mode setting.
4	COFS	O	Correction system frame period signal output terminal, 7.35kHz.
5	SPDA	O	Processor status signal output terminal. Correction judgement result, memory buffer capacity, etc.
6	PFCK	O	Playback system frame period signal output terminal, 7.35kHz
7	SUBSYC	O	Sub code sink signal output terminal.
8	SUBQ	O	Sub code Q data output terminal.
9	SBOK	O	Output terminal for CRC check result of sub code Q.
10, 11	XI, XO	I/O	Crystal oscillator connection terminal.
12	V_{DD}	–	Digital source voltage terminal.
13	GND_D	–	Digital ground terminal.
14 ~ 17	BUS0 ~ 3	I/O	Input /output terminal for transmission and receiving of commands and data.
18	$\overline{\text{CCE}}$	I	Input terminal of chip enable signal for transmission and receiving of commands and data. Bus line is active at "L".
19	BUCK	I	Clock input terminal for transmission and receiving of commands and data.
20	4MCK	O	4M clock output terminal, 4.236MHz.
21	$\overline{\text{RST}}$	I	Reset input terminal. Inside system is reset at "L".
22	CCNT	I	Input terminal of signal to inhibit renewal of control bit of sub code Q data. Renewal is inhibited at "H".
23	SUBD	O	Sub code P-W output terminal.
24	CLCK	I	Sub code P-W data reading clock input terminal.
25	LOCK	O	Lock status output terminal. If sink pattern in EFN signal of run-away detection information is not detected for 17ms, this terminal is set to "L".
26	$\overline{\text{TEST1}}$	I	Test terminal, normally "H" or open.
27	DFCT	O	Defect sensing signal output terminal. When defect detected, V_{REF}. Normally HiZ.
28, 29	TEL2, 1	O	Analog switch output terminal for tracking gain adjustment, V_{REF} or HiZ.
30	TGUL	O	Analog switch output terminal for changeover of low-band phase compensator of tracking servo loop. When shock detected, HiZ (gain increased), normally V_{REF}.
31 32	TGUH2 TGUH1	O	Analog switch output terminal for medium and high band tracking servo loop. When shock detected, HiZ (gain increased), normally V_{REF}. TGUH1 used for normally replay and TGUH2 used for double-speed replay.
33	TKIC	O	Tracking actuator kick signal output terminal. Kicked in outside peripheral direction at "H" and inside peripheral direction at "L".
34 35	FMON $\overline{\text{FMON}}$	O	Analog switch output terminal for ON and OFF of feed servo.

Feed servo	FMON	$\overline{\text{FMON}}$
ON	HiZ	V_{REF}
OFF	V_{REF}	HiZ

36	FMFB	O	Control signal output terminal for FWD/BWD feed motor. Fed in outside peripheral direction at "H" and inside peripheral direction at "L".
37	$\overline{\text{TEST}}$	I	Test terminal, normally "H" or open.
38	DMON	O	Analog switch output terminal for changeover of gain of disc motor drive circuit.
39	DMFC	O	AFC signal output terminal for disc motor CLV servo.

Command	DMF output	Operation
DMFK	H	Acceleration of motor
DMSV	PWM	CLV servo ON
DMBK	L	Deceleration of motor
DMOFF	V_{REF}	CLV servo OFF

40	DMPC	O	APC signal output terminal for disc motor CLV servo.
41	$2V_{REF}$	I	Double-reference voltage input terminal (V_{REF} x 2).
42	SEL	O	Servo mode indication signal output terminal.

SEL	LD ON/OFF	Focus servo	Operation mode
L	OFF	OFF	LD OFF
HiZ	ON	OFF	Focus search
H	ON	ON	Normal play etc. (Focus servo ON : FOK)

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Function			
43	FSCI	O	Focus actuator drive signal output terminal in focus search mode.	Command	FCSI output	Operation
				FORST	H	Lens moves far from disc
				FOSET	L	Lens moves near disc
				Other than above	HiZ	Other than focus search
44	FKIC	O	Focus actuator drive signal output terminal in focus gain adjustment mode.	Command	FKIC output	Operation
				FGASR	H	Lens moves far from disc
				FGASS	L	Lens moves near disc
				Other than above	HiZ	Other than focus gain adjustment
45, 46	FEL2, 1	O	Analog switch output terminal focus gain adjustment.			
47	FEI	I	Focus error signal input terminal.			
48	TESH	I	Analog switch input terminal for tracking error signal sample holding.			
49	TEOF	O	Analog switch output terminal for tracking servo operation.			
50	SBAD	I	Sub-beam addition signal input terminal.			
51	RFRP	I	RF ripple signal input terminal.			
52	V_{REF}	I	Standard voltage input terminal.			
53	RFI	I	RF signal input terminal.			
54	GNDA	–	Analog ground terminal.			
55	DTSC2	O	EFM signal reverse output terminal for data slice control.			
56	EFMO	O	EFM signal monitor output terminal.			
57	DTSC1	O	EFM signal ordinary output terminal for data slice control.			
58	V_{DDA}	–	Analog source voltage terminal.			
59	PDCNT	I	PDO output control terminal. PDO output is forcedly set to HiZ at "L".			
60	PDO	O	Phase error signal output terminal between EFM signal and PLCK.			
61	TMAX	O	TMAX signal output terminal. When system is locked, HiZ.	TMAX period		TMAX output
				Longer than specified period		L
				Shorter than specified period		H ($2V_{REF}$)
				Specified period		HiZ
62	LPFN	I	LPF amplifier inverted input terminal for PLL.			
63	LPFO	O	LPF amplifier output terminal for PLL.			
64	VCOF	I	Filter terminal for VCO.			
65	TESTX	I	Outside VCO clock input terminal.			
66	PLCK	O	Clock output terminal for reading replay data.			
67	GN_{DD}	–	Digital ground terminal.			
68, 69	MOD1, 2	I	Input terminal for inside operation mode setting.			
70	WDCK	O	Ward clock output terminal, normally set to 88.2kHz.			
71	CHCK	O	Channel clock output terminal, normally set to 44.1kHz.			
72	BCK	O	Bit clock output terminal, normally set to 1.4112MHz.			
73	AOUT	O	Audio data output terminal.			
74	CKSE	I	Inside clock selection terminal.			
75	DOUT	O	Digital out output terminal.			
76	$\overline{\text{TEST2}}$	I	Test terminal, normally "H" or open.			
77	HS	O	Output terminal for double-speed monitor. Double-speed operation at "L".			
78	EMPH	O	Emphasis ON/OFF indication signal output terminal. Emphasis is one at "H".			
79	$\overline{\text{TEST3}}$	I	Test terminal, normally "H" or open.			
80	MCK	O	Master clock output terminal.			

CIRCUIT DESCRIPTION

8. D/A Converter : SM5870DP (IC14)

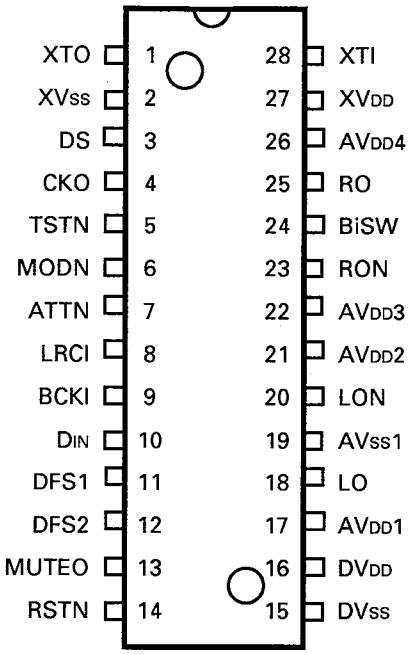
Outline

This LSI is a ΣΔ-type 2-channel D/A converter (ΣDECO) which has a built-in over-sampling digital filter and is used for playback of 16 bit digital audio signals. This LSI also has de-emphasis filters for 3-types of fs and soft mute function.
Furthermore, the CD player can be set to the normal or double-speed playback mode without changing the system clock. Since the package is a 28 pin shrink DIP, this LSI has high cost performance.

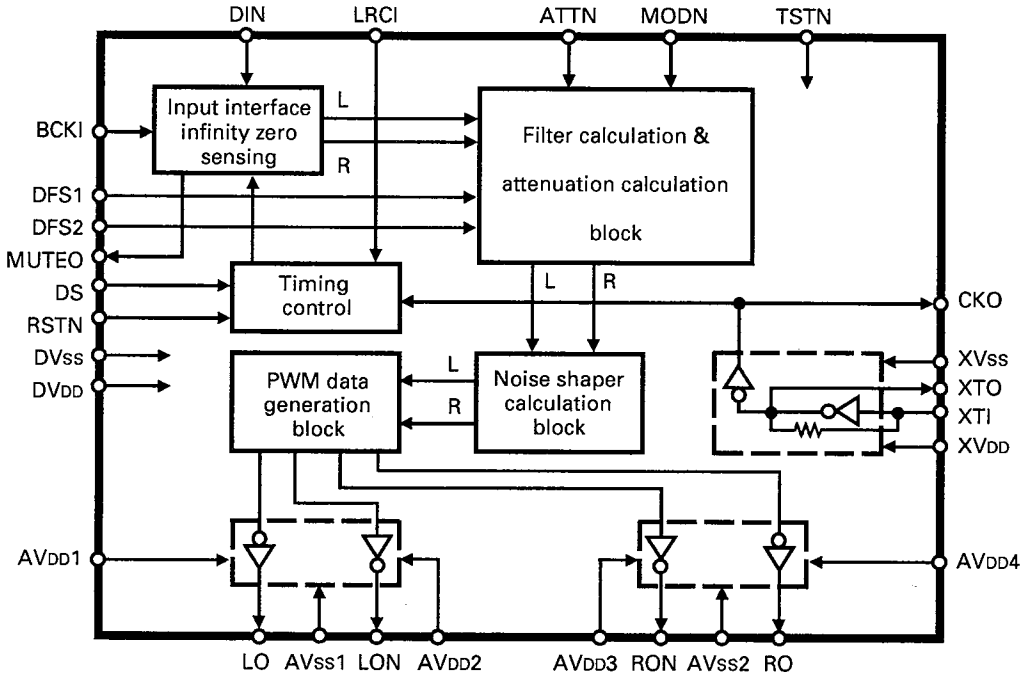
Features

- 2-channel processing
- Serial data input
  Complementary number of 2, 16bit/MSB first
- De-emphasis filter (IIS type) : Matched to 3 fs's
- Soft mute
- 32-time (32fs) over-sampling
  4fs FIR-type filter (45 degrees +9 degrees) employed
  Total characteristics after 32fs : attenuation of 40dB, ripple of band pass of 0.15dB
  At double-speed : 16-time (16fs) over-sampling
- ΣΔ-type D/A converter (ΣDECO)
  32fs over-sampling operation (At double-speed : 16fs)
  Zero-shift noise shaper of third degree (ZSNS)
  Semi-symmegrical PWM output (11 levels : differential PWM)
- Setting of CD to normal/double-speed playback mode (DS terminal)
- System clock
  (Normal mode) DS=L : 384fs- - -16.9344MHz
  @ fs=44.1kHz
  (Double-speed mode) DS=L : 192fs- - -16.9344MHz
  @fs=88.2kHz
- Built-in quartz oscillation circuit'
- 5V (standard) single power source (normal mode/ double-speed mode)
- Can operate at low voltage (3.2V) (only in normal mode)

8-1. Pin connection



8-2. Block diagram



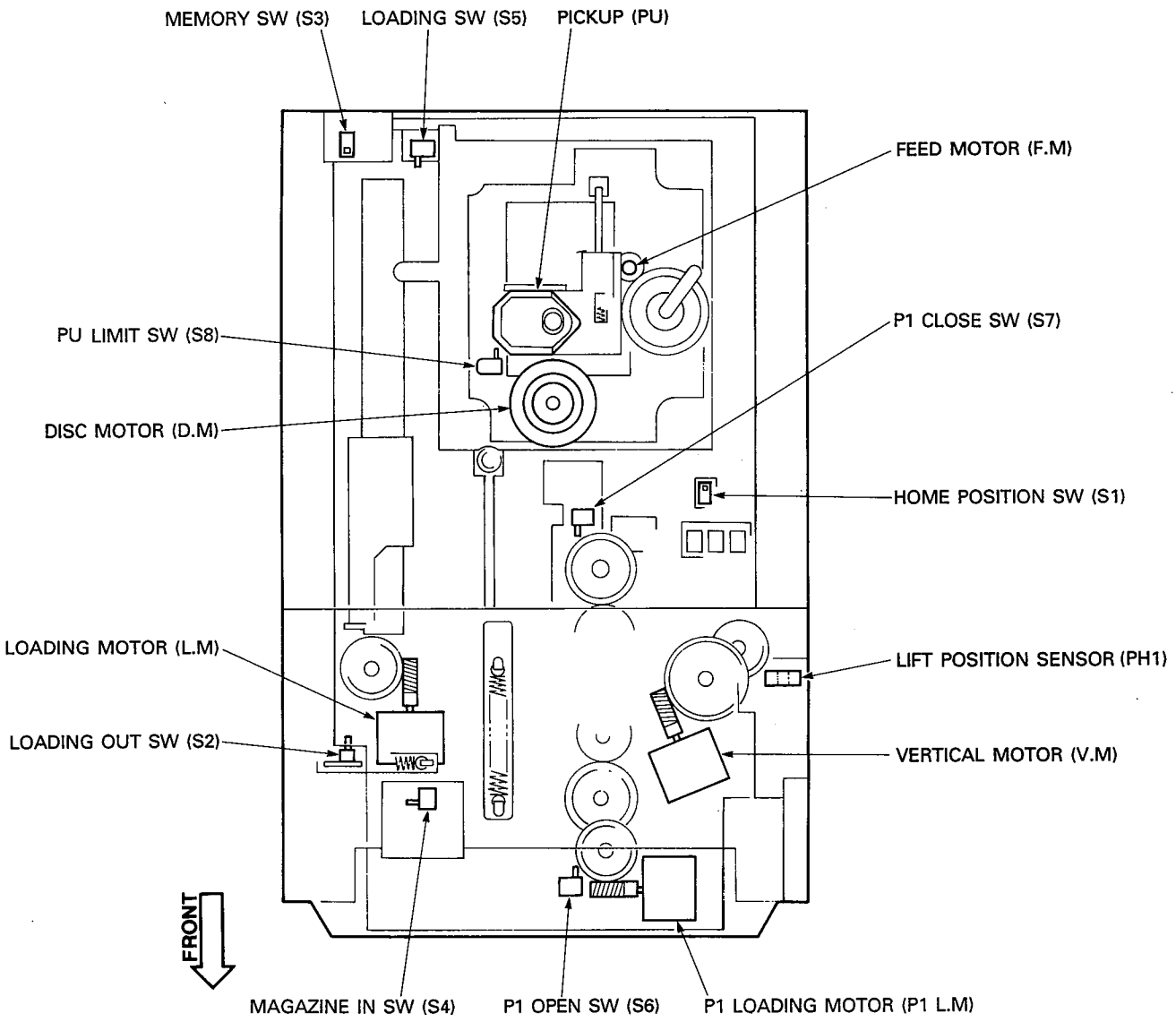
CIRCUIT DESCRIPTION

8-3. Pin function (Ip is indicated an input terminal with pull-up resistor.)

Pin No.	Pin name	I/O	Function
1	XTO	O	Output terminal of oscillation block.
2	XVss	–	X'tal system GND terminal (0V).
3	DS	Ip	Normal/double-speed playback mode selection. (DS=L : Normal playback mode, DS=B : Double-speed playback mode)
4	CKO	O	Output clock of oscillation block . (DS=L : Same 384fs as XTI input frequecncy, DS=E : Same 192fs as XTI input frequency)
5	TSTN	Ip	Test terminal : To be fixed to H level when used.
6	MODN	Ip	Mode terminal : To be fixed to H level when used.
7	ATTN	Ip	Soft mute control terminal (ATTN=H : Soft mute off, ATTN=L : Soft mute on).
8	LRCI	Ip	Sample rate (fs) clock of input data clock : H=Lch, L=Rch
9	BCKI	Ip	Bit clock of input data.
10	DIN	Ip	Input data.
11	DFS1	Ip	De-emphasis control terminal 1.
12	DFS2	Ip	De-emphasis control terminal 2.
13	MUTEO	O	Infinity zero sensing output .
14	RSTN	Ip	System reset : H=Normal operation, L=System reset.
15	DVss	–	Digital GND terminal (0V).
16	DVDD	–	Digital VDD terminal (5V).
17	AVDD1	–	Analog VDD terminal 1 (5V).
18	LO	O	Lch PWN output (+).
19	AVss1	–	Analog GND terminal 1 (0V).
20	LON	O	Lch PWN output (–).
21	AVDD2	–	Analog VDD terminal 2 (5V).
22	AVDD3	–	Analog VDD terminal 3 (5V).
23	RON	O	Rch PWN output (–).
24	AVss2	–	Analog GND terminal 2 (0V).
25	RO	O	Rch PWN output (+).
26	AVDD4	–	Analog VDD terminal 4 (5V).
27	XVDD	–	X'tal system VDD terminal (5V).
28	XTI	I	Input terminal of oscillation block (364fs : When DS=L, 192fs : When DS=H).

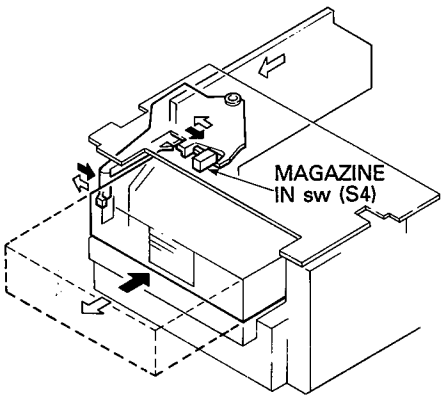
DFS2	Seclection	DFS1 L	DFS1 H
		L	H
	L	De-emphasis ON 44.1kHz	De-emphasis OFF
	H	De-emphasis ON 48.0kHz	De-emphasis ON 32.0kHz

MECHANISM OPERATION DESCRIPTION

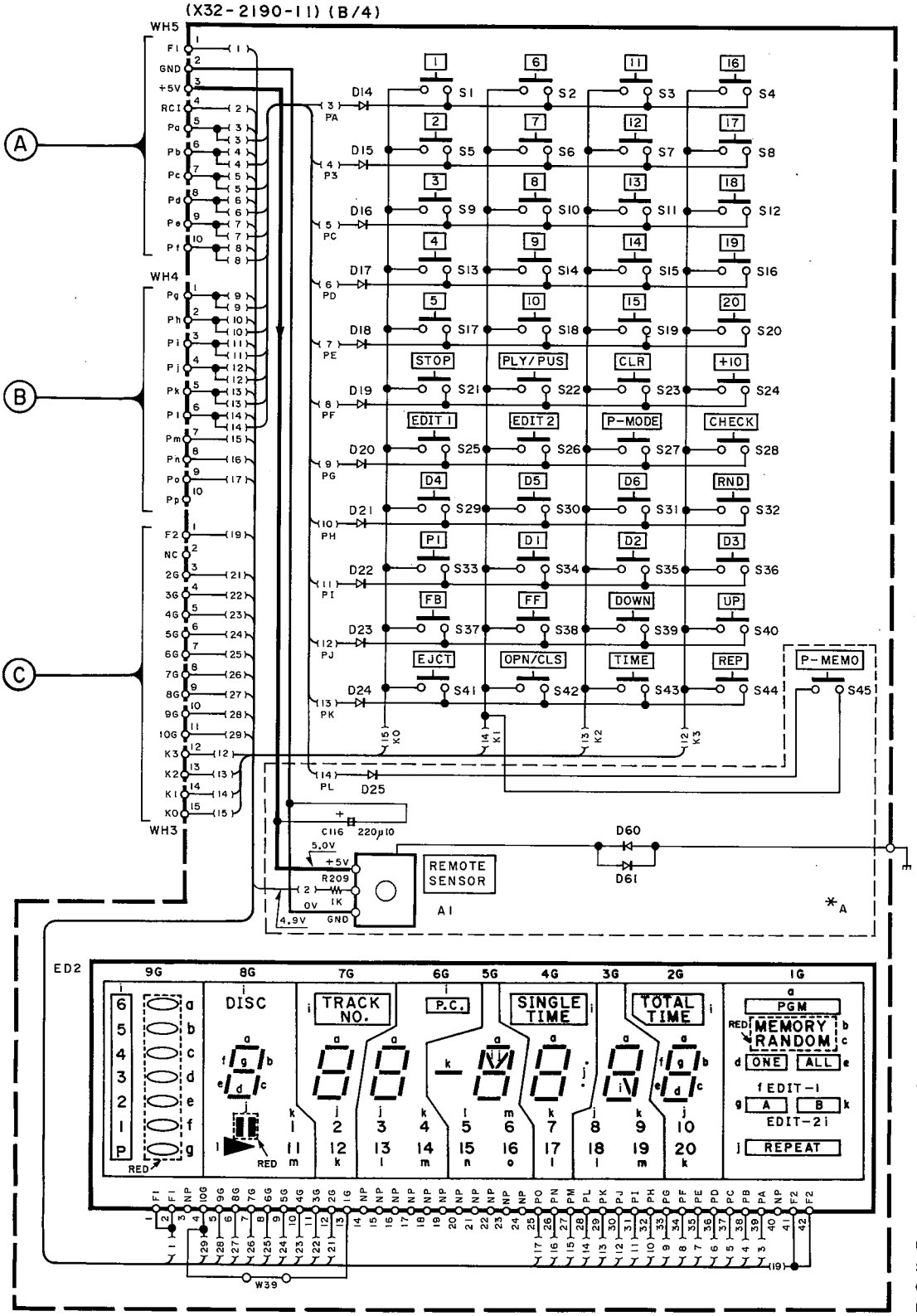


1. Magazine Setup Operation

If load the magazine to unit, fix the magazine by magazine lock lever and set the magazine in-switch (S4) to on.



OUT ⇨
IN ➡



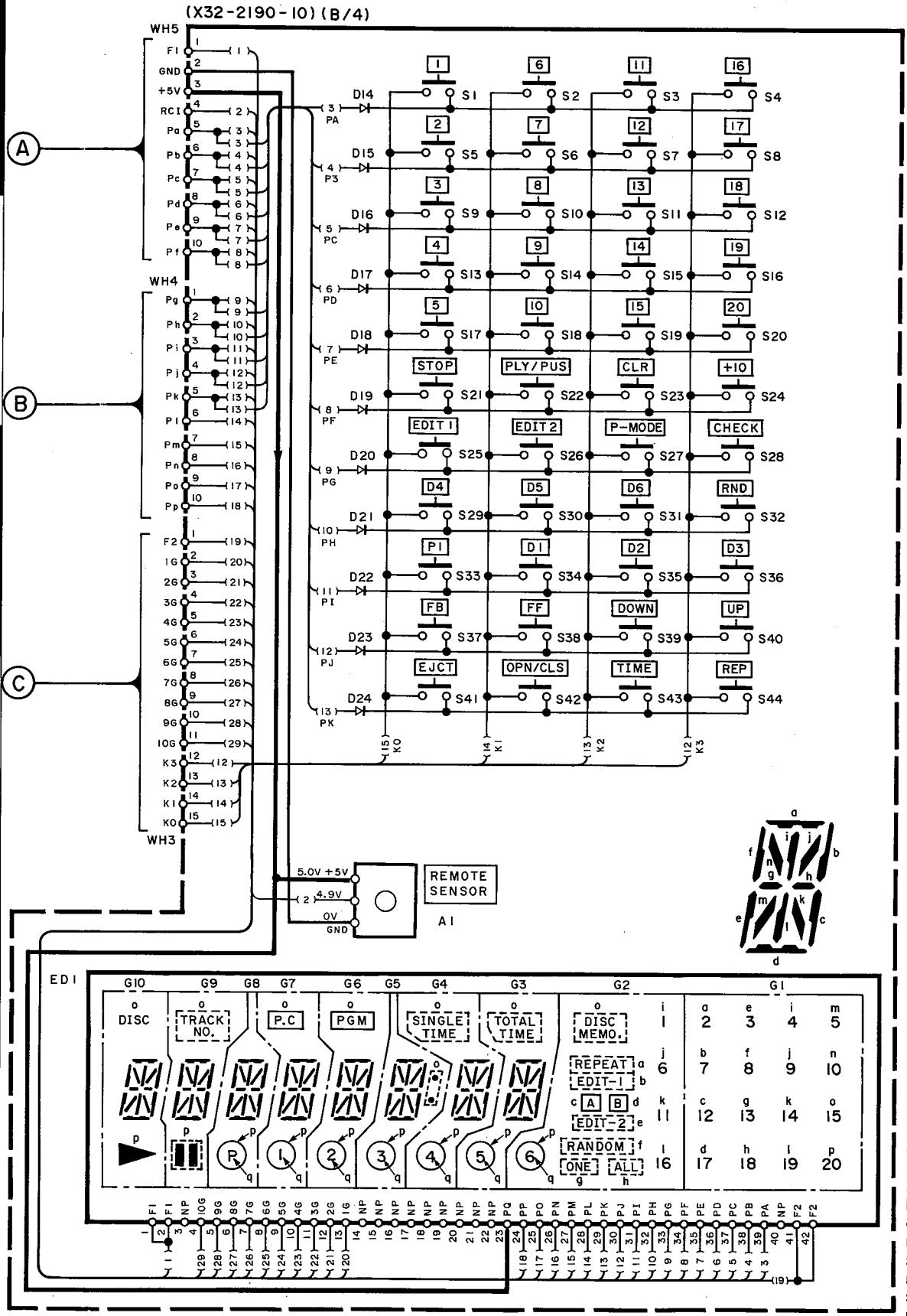
MODEL NAME	DESTINATION		UNIT NO.	A
	COUNTRY	ABB.		
DP-M6640	U.S.A CANADA	K P	X32-2190-11	YES
	GENERAL MARKET PX	M Y	X32-2190-22	
	AUSTRALIA ENGRAND EUROPE	X T E	X32-2192-71	
DP-M5540	U.S.A	K	X32-2190-12	NO
	GENERAL MARKET PX	M Y	X32-2190-23	
	AUSTRALIA	X	X32-2192-72	

D14~25,60,61 : HSS104 or 1SS133
ED2 : F1P9CXM7

GND LINE
+B LINE

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.



GND LINE

+B LINE

D14~24 : HSS104 or 1SS133

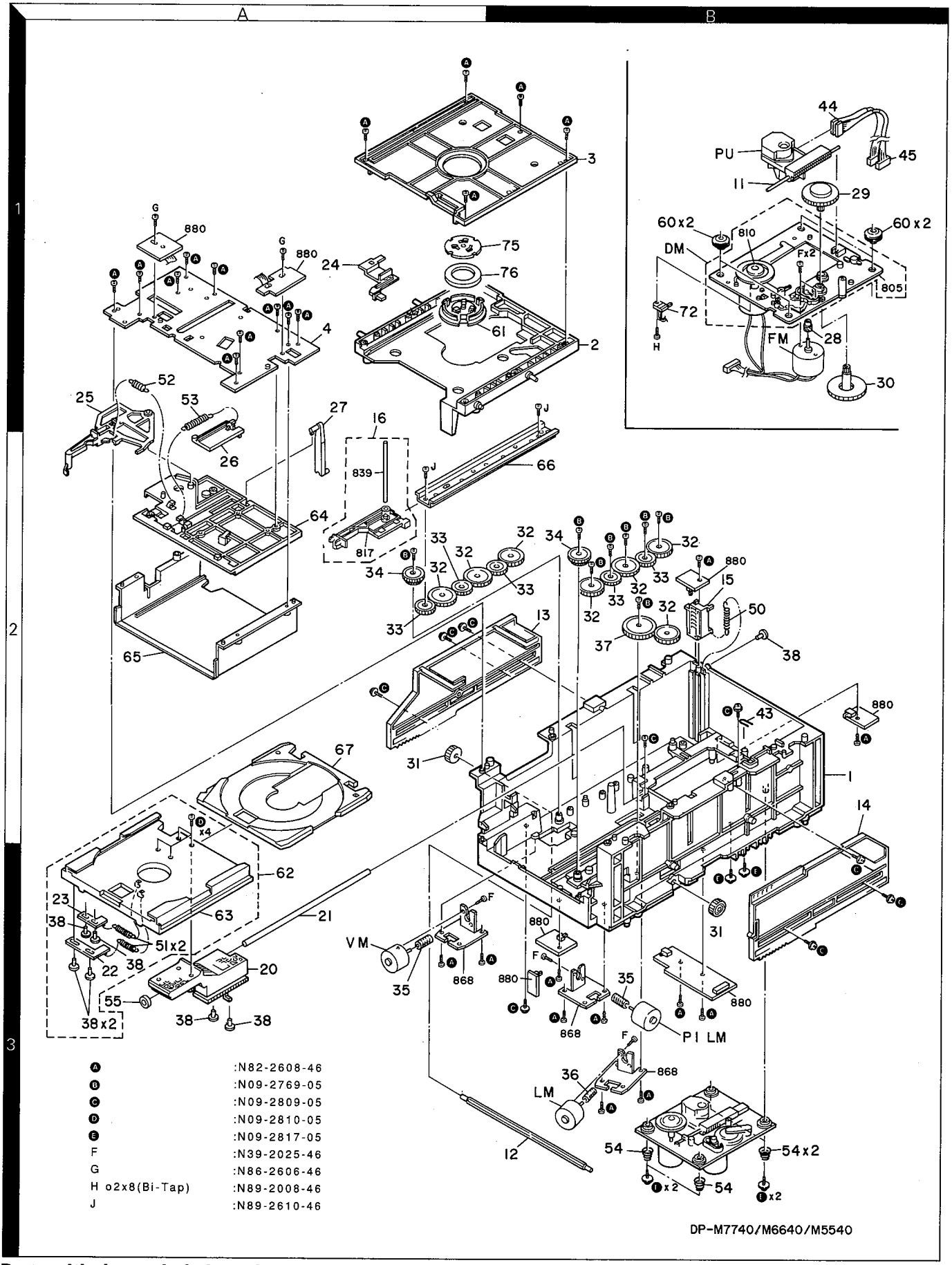
ED1 : CM1023C

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

DP-M7740 (2/2)

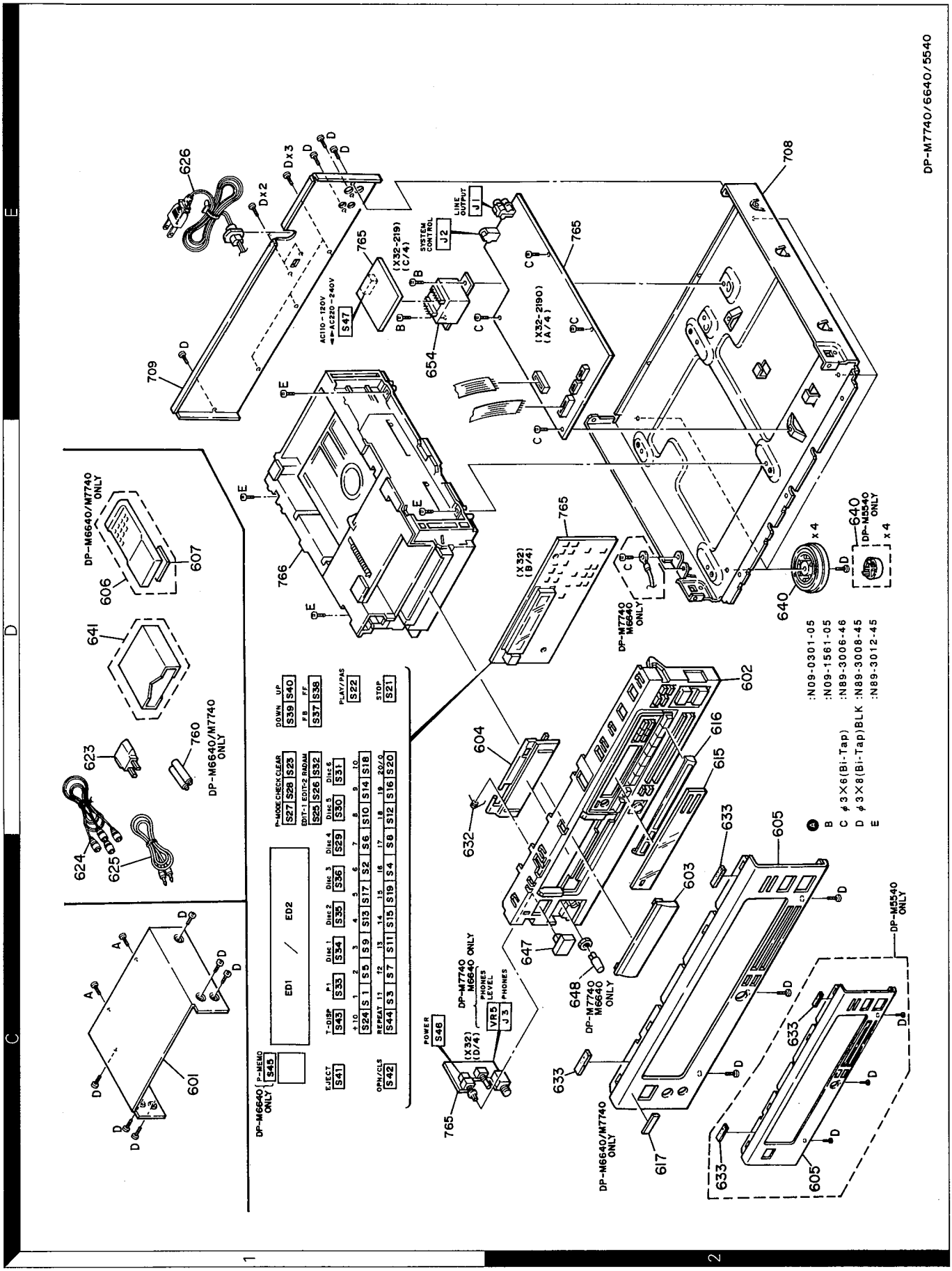
EXPLODED VIEW (MECHANISM)



A	:N82-2608-46
B	:N09-2769-05
C	:N09-2809-05
D	:N09-2810-05
E	:N09-2817-05
F	:N39-2025-46
G	:N86-2606-46
H o2x8(Bi-Tap)	:N89-2008-46
J	:N89-2610-46

Parts with the exploded numbers larger than 700 are not supplied.

EXPLODED VIEW (UNIT)



Parts with the exploded numbers larger than 700 are not supplied.

× New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

❶

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
			DP-M5540			
601	1C	*	A01-2919-01	METALLIC CABINET		
602	2D	*	A22-1547-11	SUB PANEL		
603	2C	*	A29-0306-03	PANEL (TRAY)		
604	1D	*	A29-0312-03	PANEL (6 DISC MAGAZINE)		
605	2C	*	A60-0174-02	PANEL (FRONT)		
615	2D	*	B03-2762-03	DRESSING PLATE		
616	2D	*	B07-2203-03	ESCUTCHEON		
-			B46-0092-13	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	Y	
-			B46-0095-03	WARRANTY CARD	Y	
-			B46-0096-33	WARRANTY CARD	X	
-			B46-0197-00	QUESTIONAIRE CARD	K	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y	
-		*	B60-0738-00	INSTRUCTION MANUAL (ENGLISH)		
-		*	B60-0739-00	INSTRUCTION MANUAL (SP,AR,CH)	M	
⚠ 623	1D		E03-0115-05	AC PLUG ADAPTER	M	
624	1C		E30-0505-05	AUDIO CORD		
625	1C		E30-1392-05	CORD WITH PLUG		
⚠ 626	1E		E30-2588-15	AC POWER CORD	X	
⚠ 626	1E		E30-2590-15	AC POWER CORD	M	
⚠ 626	1E		E30-2603-15	AC POWER CORD	Y	
⚠ 626	1E		E30-2689-05	AC POWER CORD	K	
632	1C	*	G09-0620-04	SPRING		
633	2C		G11-0155-14	SOFT TAPE (40X9X2)		
-			H10-5113-02	POLYSTYRENE FOAMED FIXTURE		
-			H10-5114-12	POLYSTYRENE FOAMED FIXTURE		
-			H20-0567-04	PROTECTION COVER	M	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0319-04	PROTECTION BAG	KYX	
-		*	H50-0278-04	ITEM CARTON CASE		
640	2D		J02-0366-15	FOOT		
641	1D		J19-3394-03	HOLDER ASSY		
647	2C		K27-2004-04	KNOB (BUTTON)		
⚠ 654	1E		L07-0293-05	POWER TRANSFORMER	K	
⚠ 654	1E		L07-0294-05	POWER TRANSFORMER	MY	
⚠ 654	1E		L07-0295-05	POWER TRANSFORMER	X	
			DP-M6640			
601	1C	*	A01-2919-01	METALLIC CABINET		
602	2D	*	A22-1546-11	SUB PANEL		
603	2C	*	A29-0306-03	PANEL (TRAY)		
604	1D	*	A29-0312-03	PANEL (6 DISC MAGAZINE)		
605	2D	*	A60-0172-02	PANEL (FRONT)		
606	1D		A70-0522-05	REMOTE CONTROLLER ASSY		
607	1D		A09-0114-08	BATTERY COVER		
615	2D	*	B03-2761-03	DRESSING PLATE		
616	2D	*	B07-2203-03	ESCUTCHEON		
617	2C		B43-0287-04	KENWOOD BADGE		
-			B46-0092-13	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	Y	

L:Scandinavia K:USA P:Canada
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Y:AAFES(Europe) X:Australia M:Other Areas

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❷

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
-			B46-0095-03	WARRANTY CARD	Y	
-			B46-0096-33	WARRANTY CARD	X	
-			B46-0121-13	WARRANTY CARD	P	
-			B46-0122-23	WARRANTY CARD	E	
-			B46-0143-13	WARRANTY CARD	T	
-			B46-0197-00	QUESTIONAIRE CARD	K	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y	
-		*	B60-0731-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B60-0732-00	INSTRUCTION MANUAL(FRENCH)	PE	
-		*	B60-0733-00	INSTRUCTION MANUAL(G,D,I)	E	
-		*	B60-0734-00	INSTRUCTION MANUAL(SPANISH)	ME	
-		*	B60-0735-00	INSTRUCTION MANUAL(CHINESE)	M	
⚠ 623	1D		E03-0115-05	AC PLUG ADAPTER	M	
624	1C		E30-0505-05	AUDIO CORD		
625	1C		E30-1392-05	CORD WITH PLUG		
⚠ 626	1E		E30-2588-15	AC POWER CORD	X	
⚠ 626	1E		E30-2589-15	AC POWER CORD	T	
⚠ 626	1E		E30-2590-15	AC POWER CORD	ME	
⚠ 626	1E		E30-2603-15	AC POWER CORD	Y	
⚠ 626	1E		E30-2689-05	AC POWER CORD	KP	
632	1C	*	G09-0620-04	SPRING		
633	2C,2D		G11-0155-14	SOFT TAPE (40X9X2)		
-			H10-5113-02	POLYSTYRENE FOAMED FIXTURE		
-			H10-5114-12	POLYSTYRENE FOAMED FIXTURE		
-			H20-0567-04	PROTECTION COVER	M	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)	KPMYXE	
-			H25-0319-04	PROTECTION BAG	KPYXE	
-			H25-0651-04	PROTECTION BAG (0232)	T	
-		*	H25-0657-04	PROTECTION BAG (0319)	T	
-		*	H50-0276-04	ITEM CARTON CASE		
640	2D		J02-1034-05	FOOT		
641	1D		J19-3394-03	HOLDER ASSY		
647	2C		K27-2004-04	KNOB (BUTTON)		
648	2C		K29-3928-04	KNOB		
⚠ 654	1E		L07-0293-05	POWER TRANSFORMER	KP	
⚠ 654	1E		L07-0294-05	POWER TRANSFORMER	MY	
⚠ 654	1E		L07-0295-05	POWER TRANSFORMER	XTE	
			DP-M7740			
601	1C	*	A01-2919-01	METALLIC CABINET		
602	2D	*	A22-1547-11	SUB PANEL		
603	2C	*	A29-0306-03	PANEL (TRAY)		
604	1D	*	A29-0312-03	PANEL (6 DISC MAGAZINE)		
605	2D	*	A60-0173-02	PANEL (FRONT)		
606	1D	*	A70-0577-05	REMOTE CONTROLLER ASSY		
607	1D		A09-0114-08	BATTERY COVER		
615	2D	*	B03-2762-03	DRESSING PLATE		
616	2D	*	B07-2203-03	ESCUTCHEON		
617	2C		B43-0287-04	KENWOOD BADGE		
-			B46-0092-13	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	Y	
-			B46-0095-03	WARRANTY CARD	Y	

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-			B46-0197-00	QUESTIONNAIRE CARD	K	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y	
-		*	B60-0736-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B60-0737-00	INSTRUCTION MANUAL(SPA,CHI)	M	
⚠ 623	1D		E03-0115-05	AC PLUG ADAPTER	M	
624	1C		E30-0505-05	AUDIO CORD		
625	1C		E30-1392-05	CORD WITH PLUG		
⚠ 626	1E		E30-2590-15	AC POWER CORD	M	
⚠ 626	1E		E30-2603-15	AC POWER CORD	Y	
⚠ 626	1E		E30-2689-05	AC POWER CORD	K	
632	1C	*	G09-0620-04	SPRING		
633	2C,2D		G11-0155-14	SOFT TAPE (40X9X2)		
-			H10-5113-02	POLYSTYRENE FOAMED FIXTURE		
-			H10-5114-12	POLYSTYRENE FOAMED FIXTURE		
-			H20-0567-04	PROTECTION COVER	M	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0319-04	PROTECTION BAG	KY	
-		*	H50-0277-04	ITEM CARTON CASE		
640	2D		J02-1034-05	FOOT		
641	1D		J19-3394-03	HOLDER ASSY		
647	2C		K27-2004-04	KNOB (BUTTON)		
648	2C		K29-3928-04	KNOB		
⚠ 654	1E		L07-0293-05	POWER TRANSFORMER	K	
⚠ 654	1E		L07-0294-05	POWER TRANSFORMER	MY	
MECHANISM PCB (X25-4280-10)						
S1 -3			S40-1140-05	PUSH SWITCH		
S4 -7			S40-1139-05	PUSH SWITCH		
PH1			T95-0123-05	OPTO ISOLATOR		
CONTROL (X32-2190-10)						
C1			CE04KW1A101M	ELECTRO 100UF 10WV		
C2			CC45FSL1H020C	CERAMIC 2.0PF C		
C3			CC45FSL1H270J	CERAMIC 27PF J		
C4			CC45FSL1H150J	CERAMIC 15PF J		
C5			CF92FV1H104J	MF 0.10UF J		
C6			CF92FV1H332J	MF 3300PF J		
C7			CE04KW1C330M	ELECTRO 33UF 16WV		
C9			CF92FV1H823J	MF 0.082UF J		
C10			CF92FV1H104J	MF 0.10UF J		
C11			CE04KW1C220M	ELECTRO 22UF 16WV		
C12			CK45FB1H471K	CERAMIC 470PF K		
C13			CE04KW1A470M	ELECTRO 47UF 10WV		
C14			CE04KW1A101M	ELECTRO 100UF 10WV		
C16			CF92FV1H104J	MF 0.10UF J		
C17			CC45FSL1H680J	CERAMIC 68PF J		
C18			CF92FV1H223J	MF 0.022UF J		
C19			CF92FV1H333J	MF 0.033UF J		
C20 ,21			CE04KW1V100M	ELECTRO 10UF 35WV		
C22			CE04KW1C330M	ELECTRO 33UF 16WV		
C23			CF92FV1H392J	MF 3900PF J		
C24			CK45FF1H103Z	CERAMIC 0.010UF Z		

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❹

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C26			CC45FSL1H101J	CERAMIC 100PF J		
C27 ,28			CF92FV1H332J	MF 3300PF J		
C29			CC45FSL1H101J	CERAMIC 100PF J		
C30			CF92FV1H682J	MF 6800PF J		
C31 ,32			CK45FF1H103Z	CERAMIC 0.010UF Z		
C33			CE04KW1A101M	ELECTRO 100UF 10WV		
C34 ,35			C90-3225-05	ELECTRO 10UF 16WV	6,7	
C37			CE04KW1A470M	ELECTRO 47UF 10WV	7	
C38			C90-1826-05	BACKUP 0.047F 5.5WV	7	
C39			CK45FF1H103Z	CERAMIC 0.010UF Z	7	
C40 -43			CE04HW1H010M	NP-ELEC 1.0UF 50WV		
C45			CK45FF1H103Z	CERAMIC 0.010UF Z		
C46 ,47			CC45FSL1H330J	CERAMIC 33PF J		
C48			CE04KW1E470M	ELECTRO 47UF 25WV		
C49			CK45FF1H103Z	CERAMIC 0.010UF Z	7	
C51			CE04KW1V100M	ELECTRO 10UF 35WV		
C52			CE04KW1A101M	ELECTRO 100UF 10WV		
C57 ,58			CC45FSL1H221J	CERAMIC 220PF J		
C59 ,60			CC45FSL1H101J	CERAMIC 100PF J		
C61 ,62			CE04KW1V100M	ELECTRO 10UF 35WV		
C63 ,64			CK45FB1H102K	CERAMIC 1000PF K		
C65 ,66			CC45FSL1H221J	CERAMIC 220PF J		
C67			CK45FF1H103Z	CERAMIC 0.010UF Z		
C69 ,70			CC45FSL1H101J	CERAMIC 100PF J	6,7	
C71			CK45FF1H103Z	CERAMIC 0.010UF Z	6,7	
C72 ,73			CK45FB1H102K	CERAMIC 1000PF K	6,7	
C74			C91-0769-05	CERAMIC 0.01UF K	6,7	
C75			CE04KW1C332M	ELECTRO 3300UF 16WV		
C80			CE04KW0J221M	ELECTRO 220UF 6.3WV		
C81			CE04KW1C102M	ELECTRO 1000UF 16WV		
C82			CE04KW1H470M	ELECTRO 47UF 50WV		
C83			CE04KW1H4R7M	ELECTRO 4.7UF 50WV		
C84			CE04KW1A470M	ELECTRO 47UF 10WV		
C85 ,86			CF92FV1H104J	MF 0.10UF J		
C87 ,88			CE04KW1V100M	ELECTRO 10UF 35WV		
C89			CK45FF1H103Z	CERAMIC 0.010UF Z		
⚠ C90			C91-0971-05	FILM 0.01UF 250WV		
C91			CE04KW1V100M	ELECTRO 10UF 35WV		
C92 -94			CK45FB1H102K	CERAMIC 1000PF K		
C95			CE04HW1H010M	NP-ELEC 1.0UF 50WV		
C96			CE04HW1A470M	NP-ELEC 47UF 10WV		
C97			CE04HW1H010M	NP-ELEC 1.0UF 50WV		
C98 -100			CE04KW1A101M	ELECTRO 100UF 10WV		
C101			CF92FV1H472J	MF 4700PF J	7	
C102			CE04KW1C220M	ELECTRO 22UF 16WV		
C103			CF92FV1H333J	MF 0.033UF J	7	
C104-106			CK45FF1H103Z	CERAMIC 0.010UF Z		
C107,108			CC45FSL1H101J	CERAMIC 100PF J		
C109			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C110			CE04KW1V100M	ELECTRO 10UF 35WV		
C111,112			CC45FSL1H220J	CERAMIC 22PF J		
C113			CK45FF1H103Z	CERAMIC 0.010UF Z	6,7	
C114			CE04KW1A101M	ELECTRO 100UF 10WV		
C116			CE04KW1A221M	ELECTRO 220UF 10WV	6	
C117			C90-3222-05	ELECTRO 100UF 10WV	7	

L:Scandinavia K:USA P:Canada
Y:PX(Far East, Hawaii) T:England E:Europe
Y:AAFES(Europe) X:Australia M:Other Areas

5=DP-M5540 6=DP-M6640 7=DP-M7740

⚠ indicates safety critical components.

DP-M5540/M6640/M7740

PARTS LIST

× New Parts
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❺

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C118		*	C90-3223-05	ELECTRO 220UF 10WV	6	
J1	1E		E13-2208-05	PHONO JACK (2P)		
J2	1E		E11-0188-05	MINIATURE PHONE JACK		
J3	2C		E11-0190-05	PHONE JACK	6,7	
L1			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
L4 ,5		*	L92-0017-05	FERRITE CORE		
X1			L77-1164-05	CRYSTAL RESONATOR(16.9344MHZ)		
X2			L78-0275-05	RESONATOR(8.00MHZ)	7	
VR1			R12-5651-05	TRIMMING POT.(100K)		
VR2			R12-5652-05	TRIMMING POT.(220K)		
VR5	2C		R10-4019-05	POTENTIOMETER(50KX2)	6,7	
S1 -44	1C,1D		S40-1064-05	PUSH SWITCH		
S45	1C		S40-1064-05	PUSH SWITCH	6	
S46	1C		S40-2370-05	PUSH SWITCH		
⚠ S47	1E		S31-2131-05	SLIDE SWITCH (POWER TYPE)	MY	
D1 -6			HSS104	DIODE		
D1 -6			1SS133	DIODE		
D11			HSS104	DIODE	6	
D11			1SS133	DIODE	6	
D12			HZS2.7N(B2)	ZENER DIODE	7	
D12			RD2.7ES(B2)	ZENER DIODE	7	
D13 -24			HSS104	DIODE		
D13 -24			1SS133	DIODE		
D25			HSS104	DIODE	6	
D25			1SS133	DIODE	6	
D26			HZS5.1S(B2)	ZENER DIODE		
D26			RD5.1JS(B2)	ZENER DIODE		
D27 -34			HSS104	DIODE		
D27 -34			1SS133	DIODE		
D35 -39			S5688B	DIODE		
D35 -39			1SR139-100	DIODE		
D40			HZS5.1S(B2)	ZENER DIODE		
D40			RD5.1JS(B2)	ZENER DIODE		
D41			HZS30N(B2)	ZENER DIODE		
D41			RD30ES(B2)	ZENER DIODE		
D43			HSS104	DIODE	7	
D43			1SS133	DIODE	7	
D45 ,46			HSS104	DIODE	6,7	
D45 ,46			1SS133	DIODE	6,7	
D49			HZS6.8N(B2)	ZENER DIODE		
D49			RD6.8ES(B2)	ZENER DIODE		
D50			HSS104	DIODE	7	
D50			1SS133	DIODE	7	
D51 ,52			HSS104	DIODE		
D51 ,52			1SS133	DIODE		
D54 ,55			HSS104	DIODE		
D54 ,55			1SS133	DIODE		
D56			HSS104	DIODE	7	
D56			1SS133	DIODE	7	
D57 ,58			HSS104	DIODE		
D57 ,58			1SS133	DIODE		
D59			S5688B	DIODE		
D59			1SR139-100	DIODE		

L:Scandinavia K:USA P:Canada 5=DP-M5540 6=DP-M6640 7=DP-M7740
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⚠ indicates safety critical components.

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D60 ,61			HSS104	DIODE	6	
D60 ,61			1SS133	DIODE	6	
ED1	1C		CM1023C	FLUORESCENT INDICATOR TUBE	7	
ED2	1C	*	FIP9CXM7	FLUORESCENT INDICATOR TUBE	5,6	
IC1			TA8191F	IC(CD FOUCUS,TRACKING SERVO)		
IC2			TC9236AF	IC(CD 1CHIP PROCESSOR)		
IC3 ,4			LA6510	IC(DUAL POWER OP AMP)		
IC3 ,4			TA8410AK	IC(POWER OP AMP)		
IC5		*	LA6520	IC(OP AMP X3)		
IC6		*	UPD75217CW-136	IC	5,6	
IC7		*	UPD75217CW-137	IC	7	
IC8			CXD1067P	IC(SERIAL-PARALLEL CONVERTER)		
IC9			TC74HC165AP	IC(8BIT SHIFT REGISTER)		
IC10			M50743-137SP	IC(MICROPROCESSOR)	7	
IC11			HM6264LFP-15	IC	7	
IC11		*	UM6264AM-10LL	IC(SRAM)	7	
IC12			BA10393N	IC(DUAL COMPARATOR)		
IC13			TC74HCU04AP	IC(CMOS INVERTER)		
IC14		*	SM5870DP	IC(D/A CONVERTER)		
IC15			NJM4565D	IC(OP AMP X2)		
IC15			RC4565D	IC(OP AMP X2)		
IC16			PQ05RF1	IC(VOLTAGE REGULATOR(+5V))		
IC17			NJM4565L	IC(OP AMP X2)	6,7	
IC17			RC4565L	IC(OP AMP X2)	6,7	
IC18			TC74HC00AP	IC(QUAD 2-INPUT NAND GATE)	7	
IC19		*	NM93C66EN	IC(EEPROM)	6	
Q1			2SA1534A(R,S)	TRANSISTOR		
Q2			2SC2458(Y,GR)	TRANSISTOR		
Q2			2SC3311A(Q,R)	TRANSISTOR		
Q3			DTA124ES	DIGITAL TRANSISTOR		
Q3			UN4112	TRANSISTOR		
Q4			2SC2878(B)	TRANSISTOR		
Q5			2SK246(Y,GR)	FET		
Q6			2SC2458(Y,GR)	TRANSISTOR		
Q6			2SC3311A(Q,R)	TRANSISTOR		
Q7			2SA1048(Y,GR)	TRANSISTOR		
Q7			2SA1309A(Q,R)	TRANSISTOR		
Q8			DTC124ES	DIGITAL TRANSISTOR	7	
Q8			UN4212	TRANSISTOR	7	
Q9 ,10			2SC2458(Y,GR)	TRANSISTOR	7	
Q9 ,10			2SC3311A(Q,R)	TRANSISTOR	7	
Q11			DTC124ES	DIGITAL TRANSISTOR	7	
Q11			UN4212	TRANSISTOR	7	
Q12 ,13			2SC2878(B)	TRANSISTOR		
Q14			DTC124ES	DIGITAL TRANSISTOR		
Q14			UN4212	TRANSISTOR		
Q15			2SA1534A(R,S)	TRANSISTOR		
Q16			2SA954(L,K)	TRANSISTOR		
Q18			2SK246(Y,GR)	FET		
Q19 ,20			DTC124ES	DIGITAL TRANSISTOR		
Q19 ,20			UN4212	TRANSISTOR		
Q21			2SC3940A(R,S)	TRANSISTOR		
Q22			2SA1309A(Q,R)	TRANSISTOR		
Q22		*	2SA1408(Y,GR)	TRANSISTOR		

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DP-M5540/M6640/M7740
PARTS LIST

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A1			W02-1046-05	ELECTRIC CIRCUIT MODULE	6,7	
MECHANISM (X92-1560-10)						
1	2B	*	A10-2802-11	CHASSIS		
2	1B		A11-0699-02	SUB CHASSIS		
3	1B		A11-0700-02	SUB CHASSIS		
4	1A		A11-0701-03	SUB CHASSIS		
11	1B		D10-2325-04	ROD		
12	3B		D10-2495-04	ROD		
13	2B		D10-2496-03	SLIDER		
14	2B		D10-2497-03	SLIDER		
15	2B		D10-2498-03	SLIDER		
16	1A		D10-2499-04	SLIDER ASSY		
20	3A		D10-3101-03	SLIDER ASSY		
21	3A		D10-3104-04	ROD		
22	3A		D10-3105-03	SLIDER		
23	3A		D10-3106-03	SLIDER		
24	1A		D10-3107-03	ARM		
25	1A		D10-3108-03	ARM		
26	2A		D10-3109-03	SLIDER		
27	1A		D10-3110-04	ARM		
28	1B		D13-0879-08	GEAR		
29	1B		D13-0880-18	GEAR		
30	1B		D13-0881-08	GEAR		
31	2A,3B		D13-0897-04	GEAR		
32	2A,2B	*	D13-0898-24	GEAR		
33	2A,2B		D13-0899-24	GEAR		
34	2A,2B		D13-0900-04	GEAR		
35	3A,3B		D13-0901-04	WORM		
36	3B		D13-0902-04	WORM		
37	2B		D13-0904-04	GEAR		
38	2B,3A		D21-1633-05	SHAFT		
43	2B		E23-0343-04	TERMINAL		
44	1B		E31-7884-05	WIRING HARNESS		
45	1B		E31-7885-05	WIRING HARNESS		
50	2B		G01-3332-04	EXTENSION SPRING		
51	3A		G01-3333-04	EXTENSION SPRING		
52	1A		G01-3334-04	EXTENSION SPRING		
53	1A		G01-3335-04	EXTENSION SPRING		
54	3B		G01-3336-04	COMPRESSION SPRING		
55	3A		G11-2055-04	CUSHION		
60	1B		J02-1057-15	INSULATOR		
61	1B		J11-0168-03	CLAMPER		
62	3A		J19-3344-03	HOLDER ASSY		
63	3A		J19-3345-02	HOLDER		
64	2A		J19-3347-02	HOLDER		
65	2A		J19-3348-02	HOLDER		
66	2B		J90-0666-04	GUIDE		
67	2A		J99-0094-02	TRAY		
72	1B		S33-1022-05	LEVER SWITCH		
75	1B		T50-1055-04	YOKE		
76	1B		T99-0503-15	MAGNET		
DM	1B		A11-0679-18	SUB CHASSIS ASSY		

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FM	1B		T42-0566-05	FEED MOTOR		
LM	3B		T42-0567-05	LOADING MOTOR		
P1LM	3B		T42-0567-05	P1 LOADING MOTOR		
PU	1B		T25-0011-05	OPTICAL PICKUP HEAD		
VM	3A		T42-0567-05	VERTICAL MOTOR		

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DP-M5540/M6640/M7740
PARTS LIST

DP-M5540/M6640/M7740

SPECIFICATIONS

[FORMAT]

Type ..... Compact disc digital audio system
Laser ..... Semiconductor laser
Number of channel ..... 2 channels
Playing rotaion ..... 200 ~ 500rpm (CLV)

[D/A CONVERTERS]

D/A conversion 1bit
Oversampling 4fs

[AUDIO]

Frequency response ..... 4Hz ~ 20kHz, ±1dB
Signal to noise ratio ..... More than 94dB
Dynamic range ..... More than 92dB
Total harmonic distortion ..... Less than 0.005% (at 1kHz)
Channel separation ..... More than 90dB (at 1kHz)
Wow & Flutter ..... Unmeasurable Limit
Output level / impedance
  Fixed ..... 1.2V / 3.3kΩ
Headphone output (DP-M6640 / DP-M7740) 20mW (16Ω)

[GENERAL]

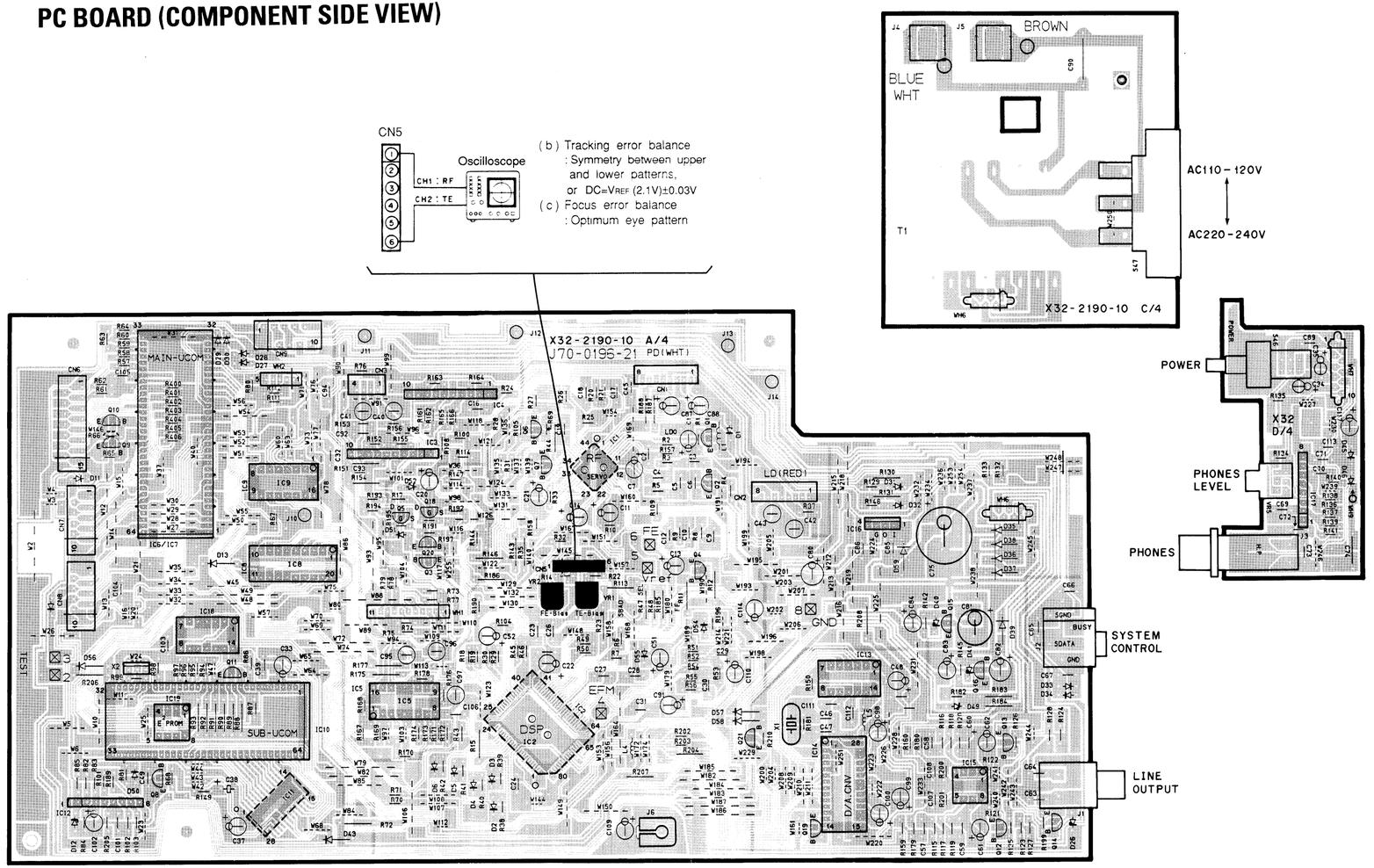
Power consumption 15W
Dimensions
  DP-M5540 ..... 440mm (W) x 120mm (H) x 362mm (D)
  DP-M6640 / DP-M7740 ..... 440mm (W) x 128mm (H) x 368mm (D)
Weight (Net)
  DP-M5540 ..... 5.1kg
  DP-M6640 / DP-M7740 ..... 5.4kg

Note:
KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Note :
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S.A. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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KENWOOD LINEAR S.p.A.
20125, MILANO-VIA ARBE, 50, ITALY
KENWOOD ELECTRONICS AUSTRALIA PTY. LTD. (A.C.N 001 499 074)
P.O. BOX 504, 8 FIGTREE DRIVE, AUSTRALIA CENTRE, HOMEBUSH, N.S.W. 2140, AUSTRALIA
KENWOOD & LEE ELECTRONICS, LTD.
Wang Kee Building, 4th Floor, 34-37, Connaught Road, Central, Hong Kong

PC BOARD (COMPONENT SIDE VIEW)



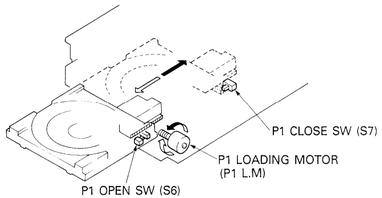
Refer to the schematic diagram for the values of resistors and capacitors.

MECHANISM OPERATION DESCRIPTION

2. Plus One (P1) Tray Open and Close Operation

P1 tray is moved by P1-loading motor (P1LM). In open mode, P1-open switch (S6) is on, in close mode, P1-close switch (S7) on.

OPEN ⇨
CLOSE ➡

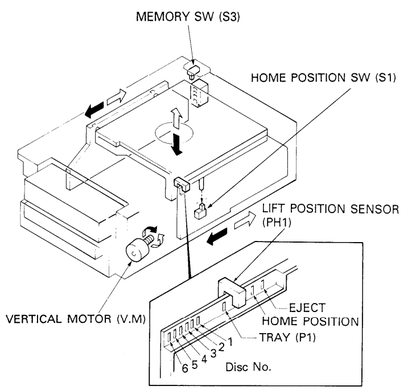


3. Magazine Lifter Operation

After loading magazine, the magazine is controlled vertically by vertical motor (V.M). The vertical position is memorized by the lift position sensor (PH1).

The home position switch (S1) is turned on when the unit is in STOP mode (Disc holder at the lowest position).

UP ⇨
DOWN ➡

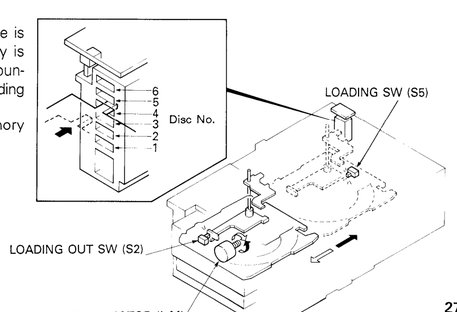


4. Tray Loading Operation (In Case of Magazine Inserted NO.3 Tray)

After loading magazine, the tray of the magazine is pulled by the loading motor (L.M). When the tray is loaded, the loading in-switch (S5) is on, on the countrary when the tray is returned to magazine, the loading out-switch (S2) on.

The tray position is memorized by the memory guide's hole and the memory switch (S3).

OUT ⇨
IN ➡



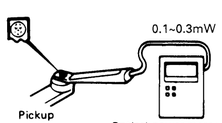
ADJUSTMENT

No.	ITEM	INPUT SETTING	OUTPUT SETTING	PLAYER SETTING	ALIGNMENT POINT	ALIGN FOR	FIG
1	LASER POWER	–	Apply the sensor section of optical power meter on the pickup lens.	Short-circuit pins Test and turn the power on to enter the test mode. Press the MANUAL S. key(⏩)to move the pickup outwards. Press the REPEAT key to check the LD emits light. Then confirm that the displayis" 02 ".	–	On the power from 0.1 to 0.3mW. When the diffraction grating is correctly aligned with the RF level of 1.0Vp-p or more and the TE (servo open) level of 1.5Vp-p or more, the pickup is acceptable.	(a)
2	TRACKING ERROR BALANCE	Test disc Type 4	Connect an oscilloscope as follows. CH1: RF (CN5-1) CH2: TE (CN5-6)	Turn power switch off and set the unit to test mode. Set the test disc to the 3rd position in the magazine pack. Press the 3rd key of the disc selector and load the test disc. Press the CHECK key Then confirm that the display is "03"	TE BALANCE VR2	.Symmetry between upper and lower patterns, or DC=Vref(2.1V)0±0.03V	(b)
3	FOCUS ERROR BALANCE	Test disc Type 4	Connect an oscilloscope as follows. CH1: RF (CN5-1) CH2: TE (CN5-2)	Press the PLAY key. Confirm that the display is " 05 "	FE BALANCE VR1	Optimum eyepattern	(c)

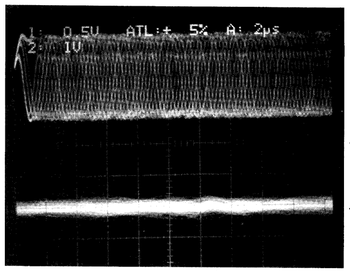
(Note) Type 4 disc: SONY YDS-18 Test Disc or equivalent.
Step 1~3 are in Test Mode.

DP-M7740/M6640/M5540

(a) Laser Power

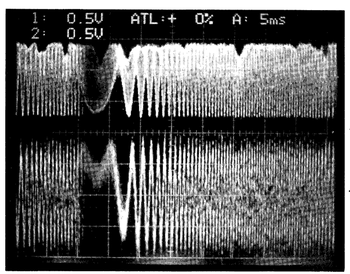


ADJUSTMENT



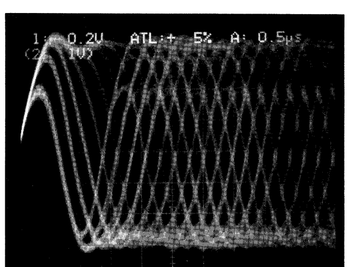
CH1
RF signal
← VREF 2.1 (V)
← VREF 2.1 (V)
CH2
TE siganl
13µs

(a) •RF signal and TE signal in test mode (PLAY).
•If the diffraction grating has been adjusted properly, the influence of triggering is observed on the TE waveform of aporox. 13µs after RF signal, in the form of a projection.



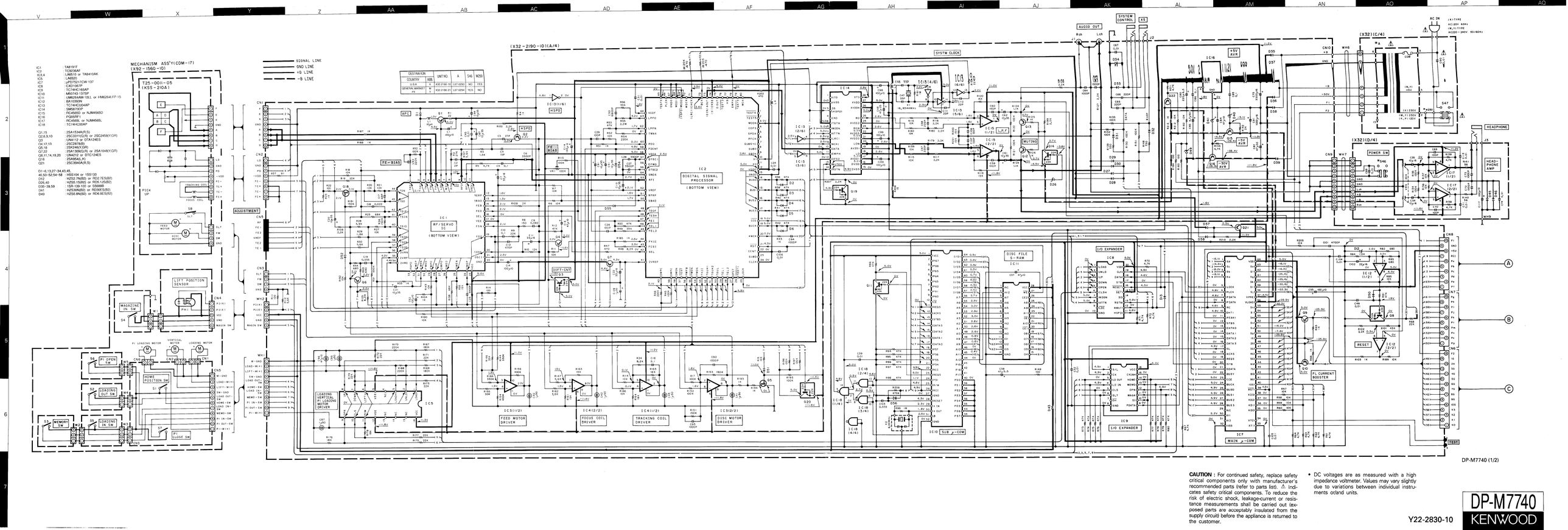
CH1
RF signal
← VREF 2.1 (V)
← VREF 2.1 (V)
CH2
TE signal

(b) •RF signal and TE signal in test mode (Focusing servo on, CHECK).
•Adjust TE signal so that the waveform is symmetical above and be low 0V. (TE BALANCE, VR2)



RF signal

(c) •RF signal in test mode (PLAY).
•Preform the focusing offset adjustments so that each of center cross points are focusing into onepoints above and below the center shall also displayed clealy. (FE BALANCE, VR1)



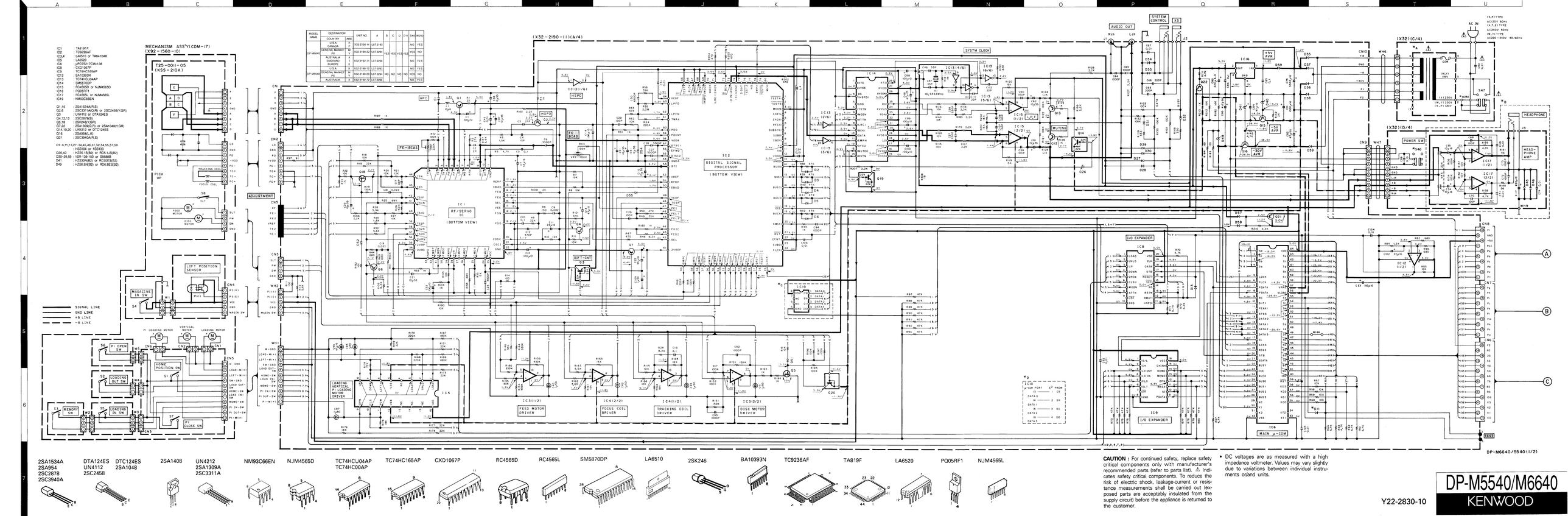
DP-M7740 (1/2)

CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments and/and units.

Y22-2830-10

DP-M7740
KENWOOD



2SA1534A
2SA954
2SC2878
2SC3940A

DTA124ES
UN4112
2SC2458

DTC124ES
2SA1048

2SA1408

UN4212
2SA1309A
2SC3311A

NM93C66EN

NJM4565D

TC74HCU04AP
TC74HC00AP

TC74HC165AP

CXD1067P

RC4565D

RC4565L

SM5870DP

LA6510

2SK246

BA10393N

TC9236AF

TA819F

LA6520

PQ05RF1

NJM4565L

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Y22-2830-10

DP-M5540/M6640
KENWOOD