

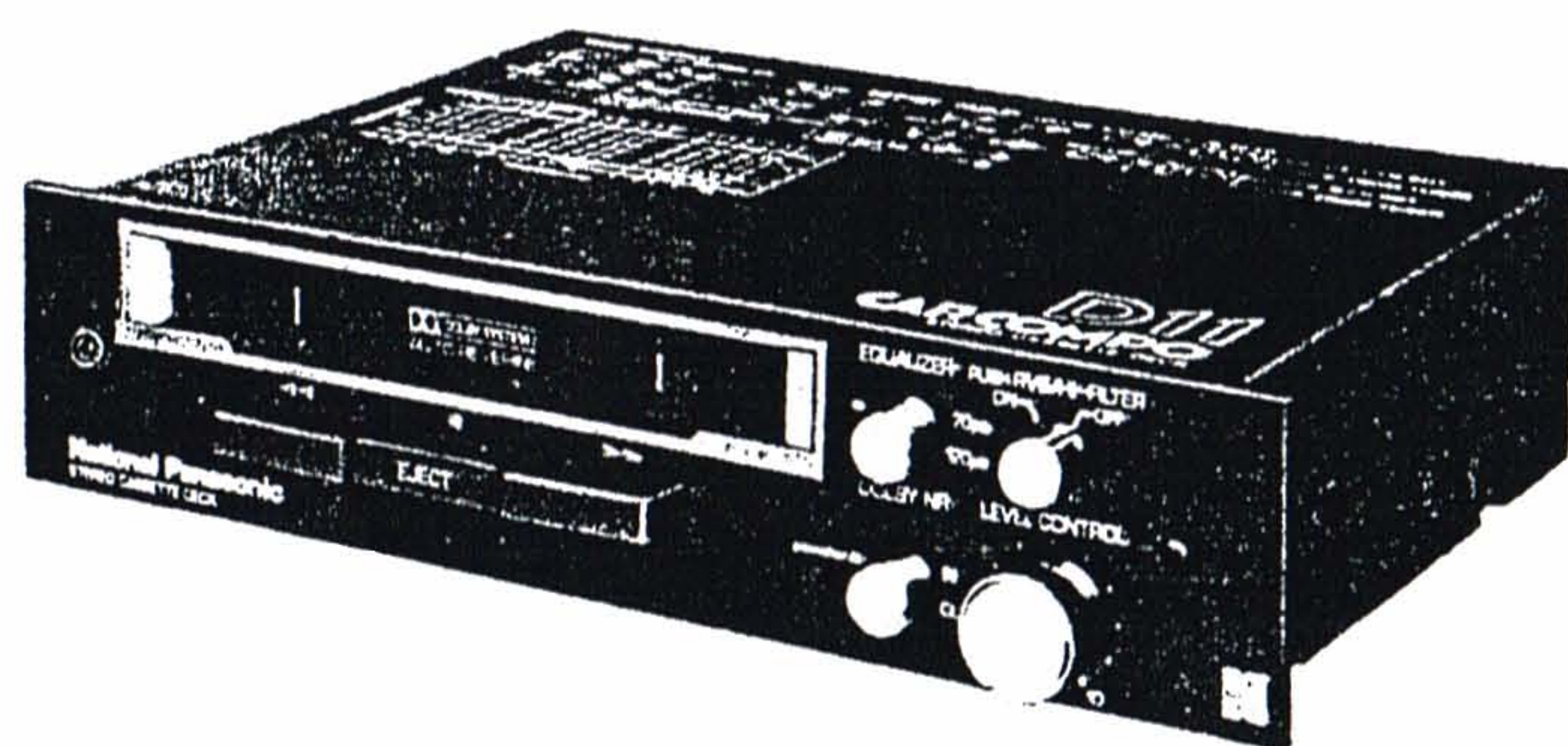
2/4

ORDER NO. APD-7810-51690

Service Manual

CAR STEREO CX-D11EN

**AUTOMATIC REVERSING CASSETTE CAR STEREO TAPE PLAYER
with DOLBY NOISE REDUCTION SYSTEM**



SPECIFICATIONS*

Type:	4-track, 2-program stereo system
Tape Speed:	4.76 cps
Frequency Reponse:	31.5 ~ 14,000 Hz
Output Level:	0.7 V (at 5 k Ω load)
Output Impedance:	5 k Ω
Power Supply Voltage:	DC 12 V (11 ~ 16 V), Negative ground
Wow & Flutter:	0.18% (WRMS)
Crosstalk:	50 dB
Signal to Noise Ratio:	50 dB
	58 dB (Dolby NR at IN position)
Stereo Separation:	40 dB
IC:	3
Transistors:	6
Diodes:	9
Dimensions**:	Width: 198 mm Height: 44 mm Depth: 140 mm
Weight**:	1.5 kg

FEATURES

- 4-track, 2-program automatic reversing cassette car stereo tape player with Dolby Noise Reduction circuit.
 - DC 12 V, Negative ground.
 - Fast/Forward, locked type.
 - Automatic reversing at tape end.
 - Muting switch and muting circuit.
 - Hi-filter ON/OFF switch.
 - Dolby Noise Reduction IN/OUT switch.
 - Equalizer selector switch, available to use chromium-dioxide tape.
 - Built-in DIN connector.
 - Component system with a tuner, a pre-amplifier and a main amplifier.
- CX-T1EN: FM tuner
 CX-P1EN: Stereo pre-amplifier
 CX-M1EN: Stereo main amplifier

* Specifications subject to change without notice.
 ** Weight and Dimensions shown are approximate.
 *** C-120 tape is not recommended to use in this player.

12090143 91000241 43
 SM-CXD11EN 1 ST
 SERVICE MANUAL



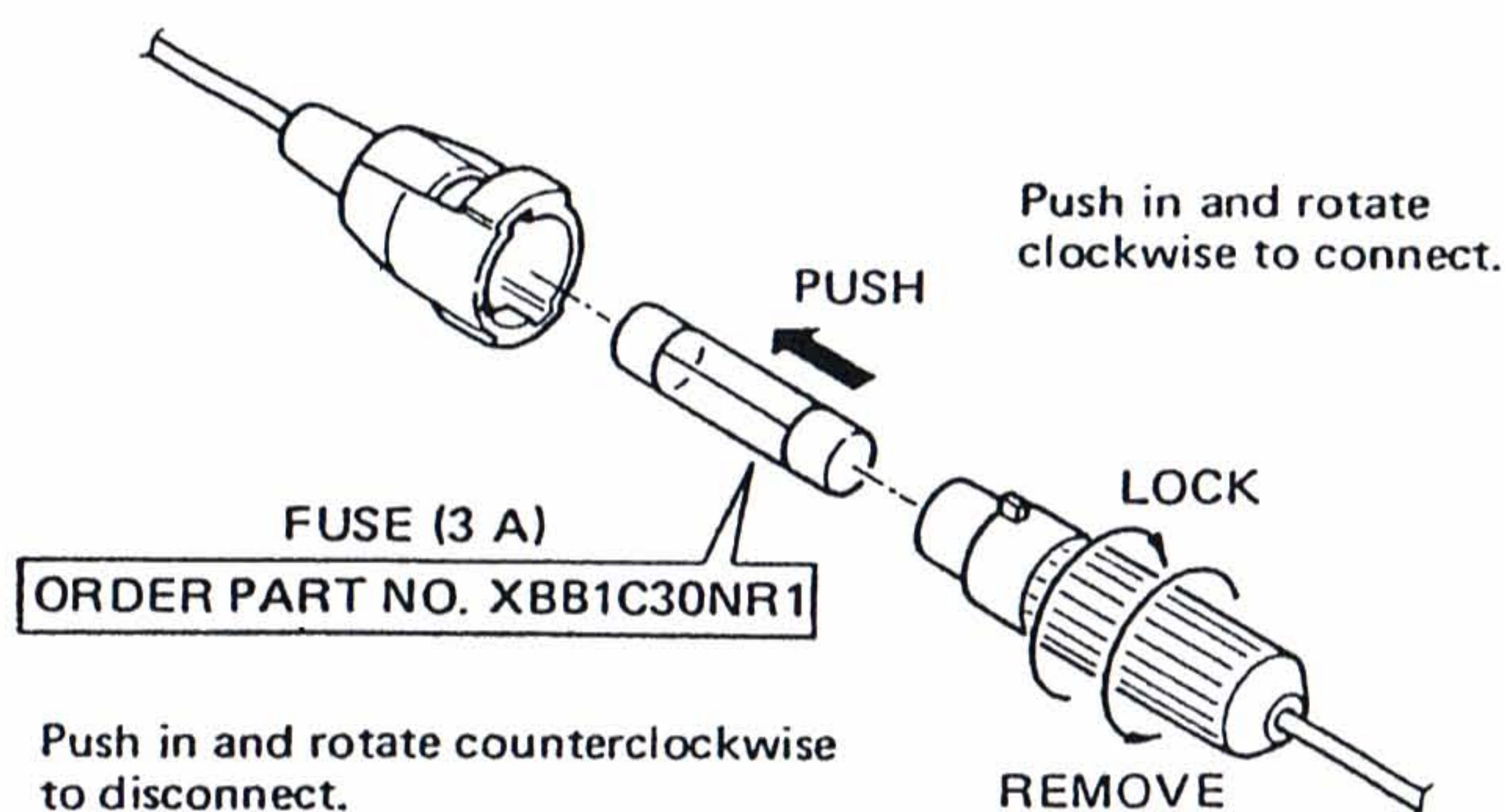
Matsushita Electric Trading Co., Ltd.
 P.O. Box 288, Central Osaka Japan

CONTENTS

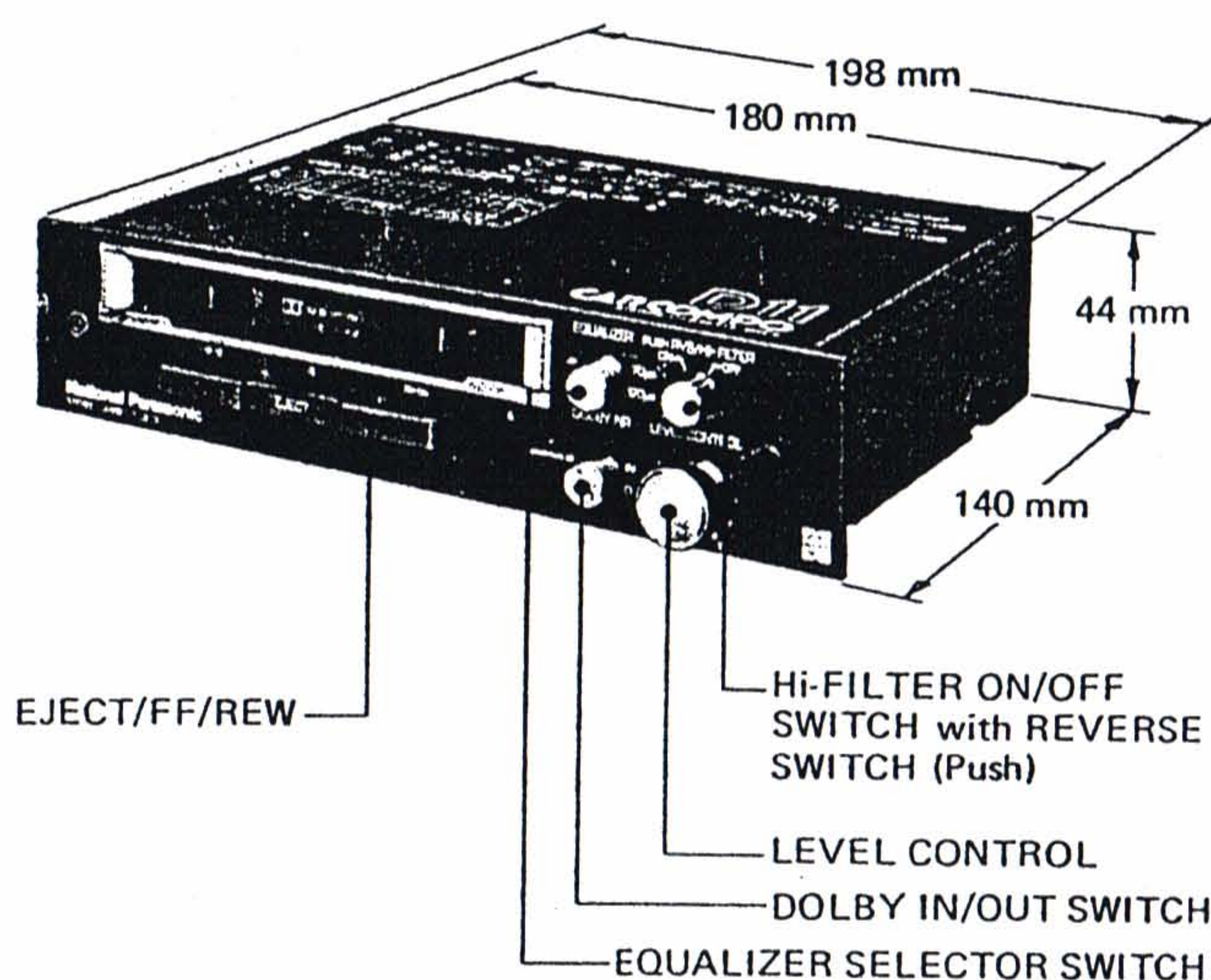
	Page
DIMENSIONS AND LOCATION OF CONTROLS	1
FUSE REPLACEMENT	1
CAR COMPO COMBINATIONS	1
CONNECTING DIAGRAM	2
PARTS LOCATION	3
SCHEMATIC DIAGRAM	4
WIRING DIAGRAM	5
ADJUSTMENT INSTRUCTIONS	6
EQUALIZER SELECTOR SYSTEM	6
DOLBY NOISE REDUCTION SYSTEM	7, 8
REPLACEMENT PARTS LIST	9, 12 ~ 16
EXPLODED VIEW (UNIT)	10
EXPLODED VIEW (TAPE DECK)	11
NORMAL CARE AND MAINTENANCE	17
TAKE-UP TORQUE ADJUSTMENT	17

FUSE REPLACEMENT

Be sure to use a 3 A fuse for replacement. Use of a larger fuse may not protect the unit excessive current drain.



DIMENSIONS AND LOCATION OF CONTROLS

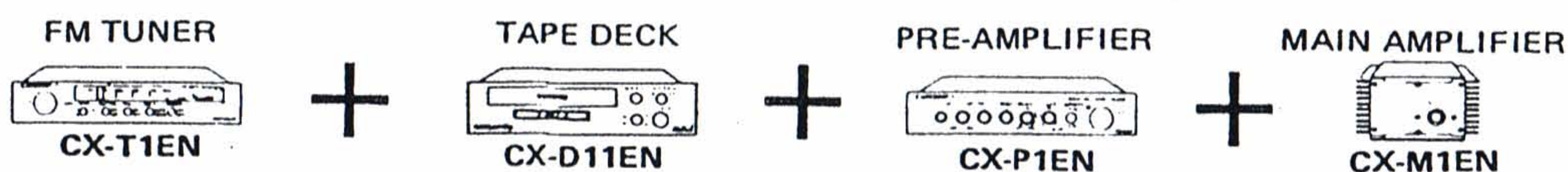


CAUTION

Noise reduction circuit made under license from Dolby Laboratories Inc.
The word 'DOLBY' and the Double-D symbol are trademarks of Dolby Laboratories Inc.

CAR COMPO COMBINATIONS

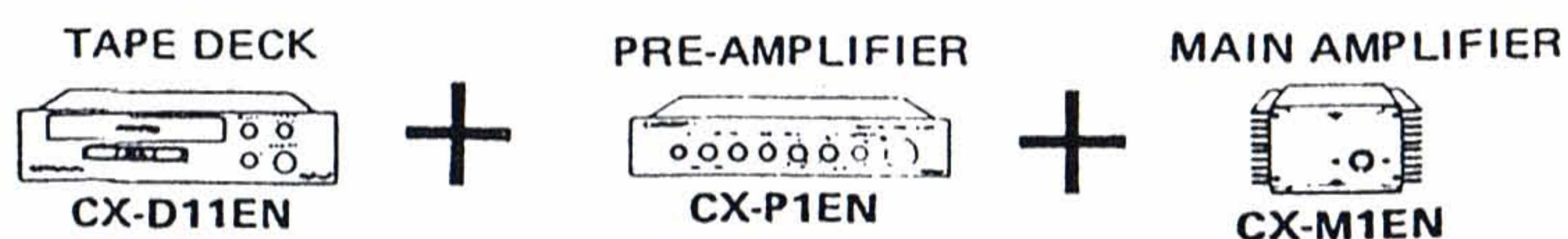
Example-1 Car Radio & Car Stereo



Example-2 Car Radio

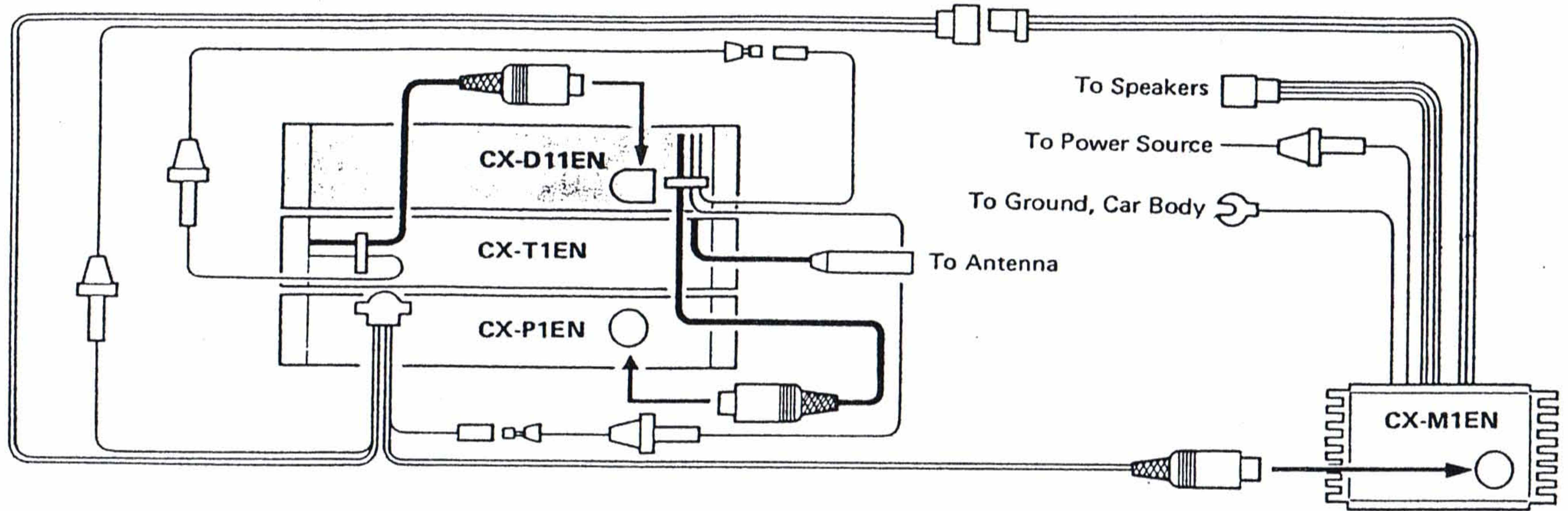


Example-3 Car Stereo

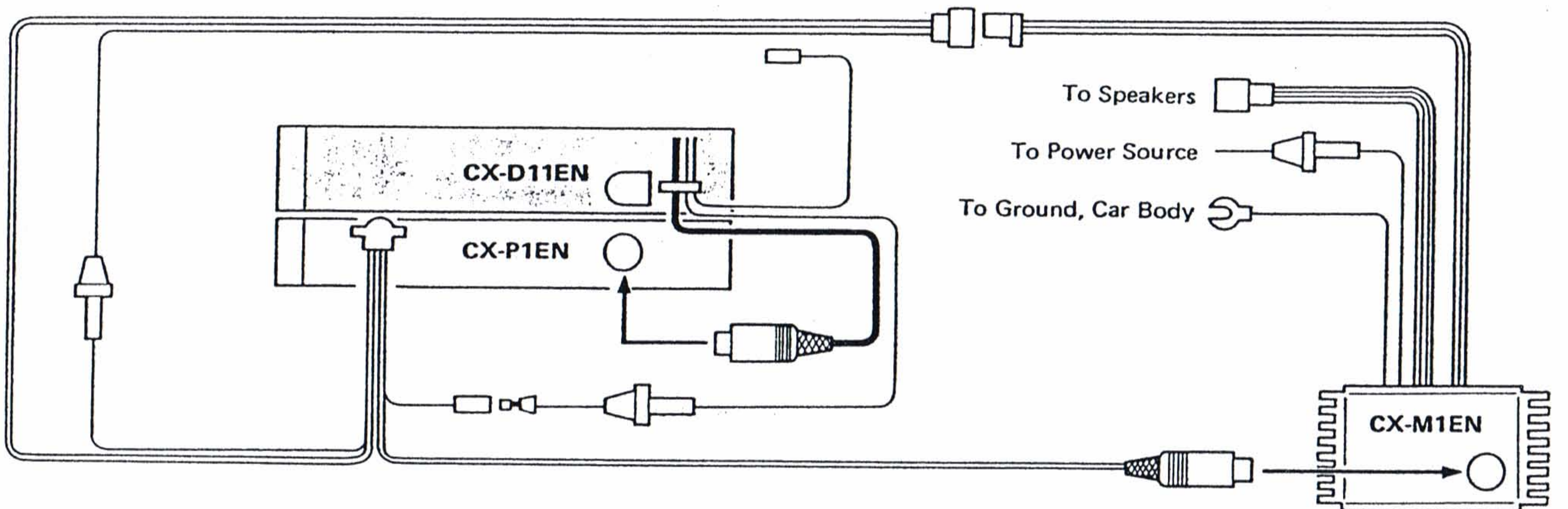


CONNECTING DIAGRAM

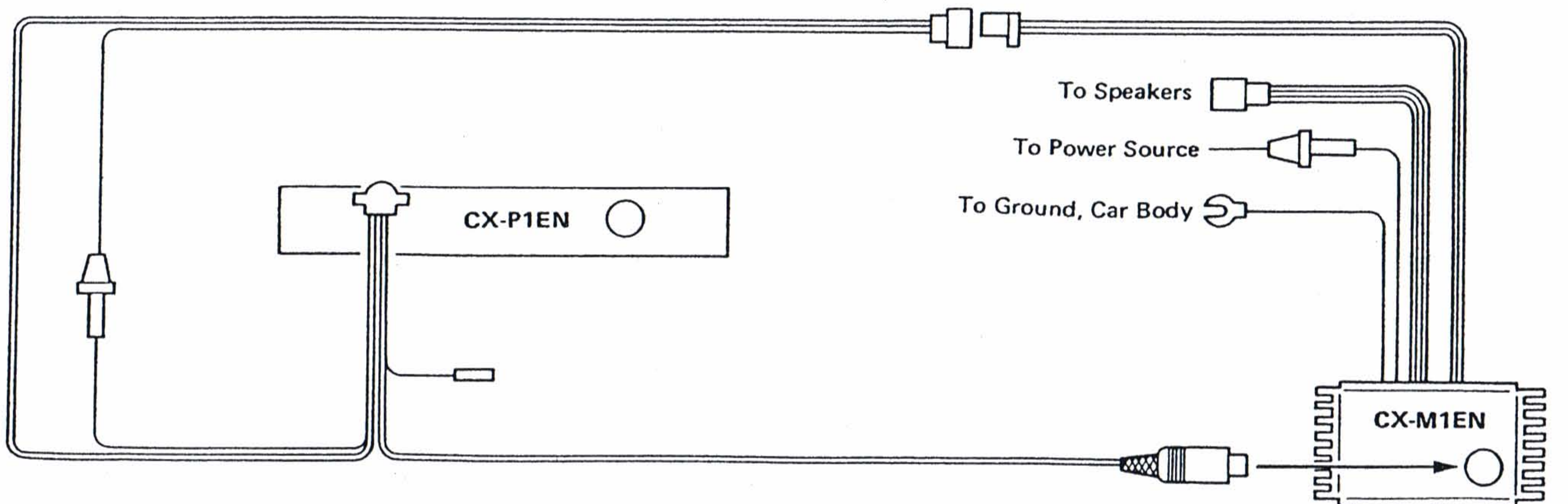
TUNER + TAPE DECK + PRE-AMPLIFIER + MAIN AMPLIFIER



TUNER/TAPE DECK + PRE-AMPLIFIER + MAIN AMPLIFIER



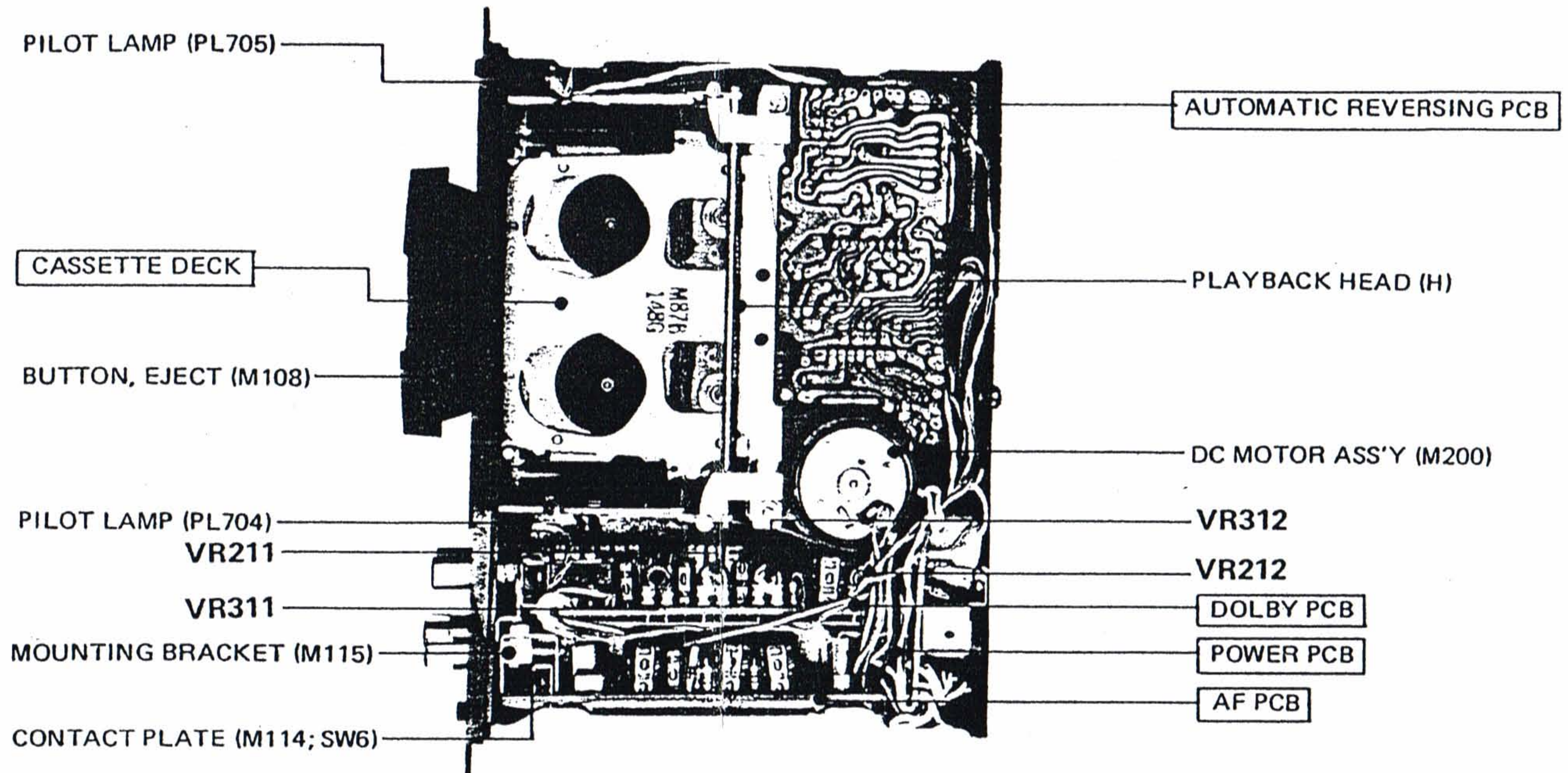
PRE-AMPLIFIER + MAIN AMPLIFIER



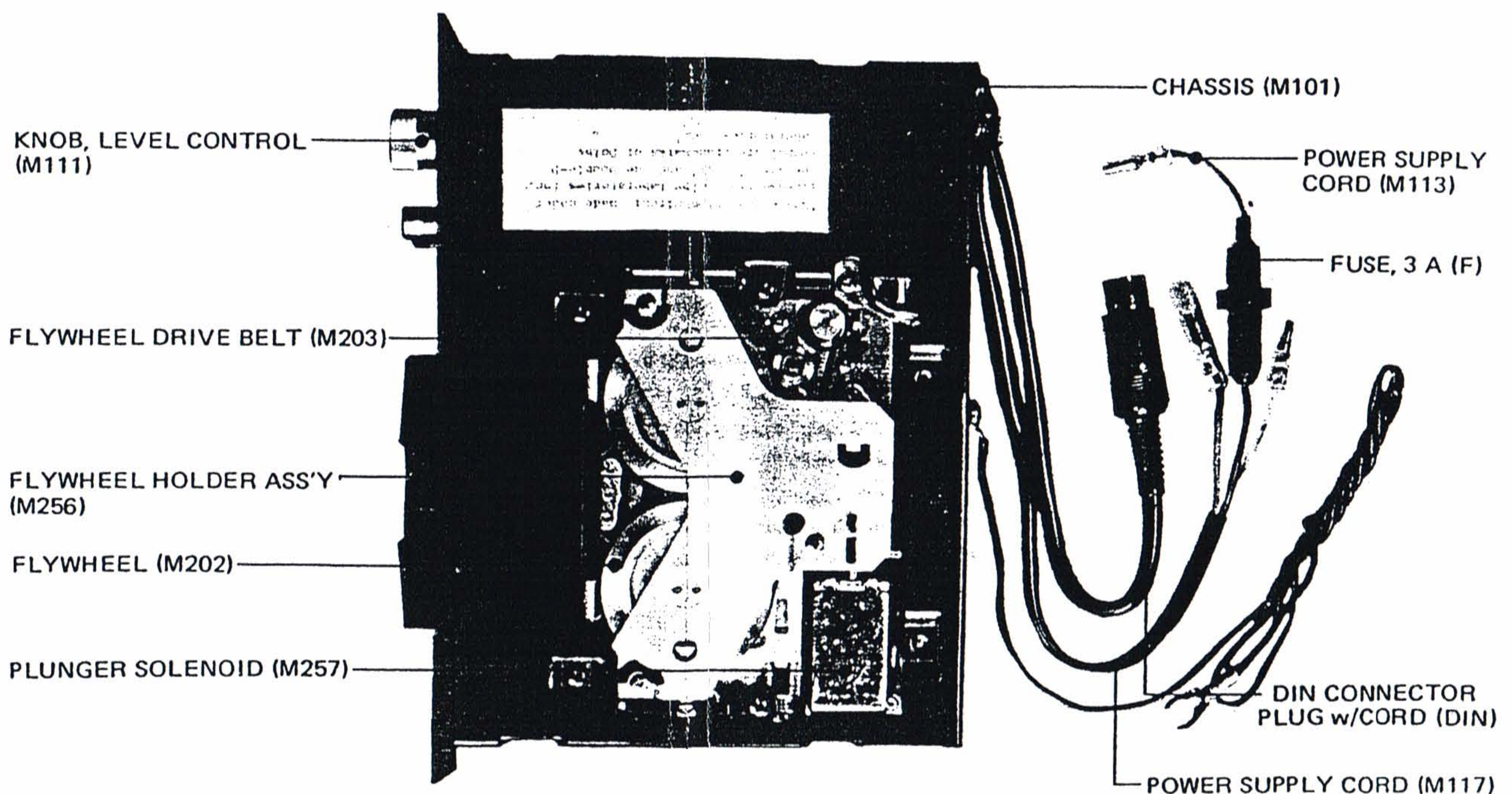
PARTS LOCATION

- Reference numbers, in () are listed in the Replacement Parts List, starting on page 9.
- For other parts location, see the EXPLODED VIEWS, pages 10 & 11.

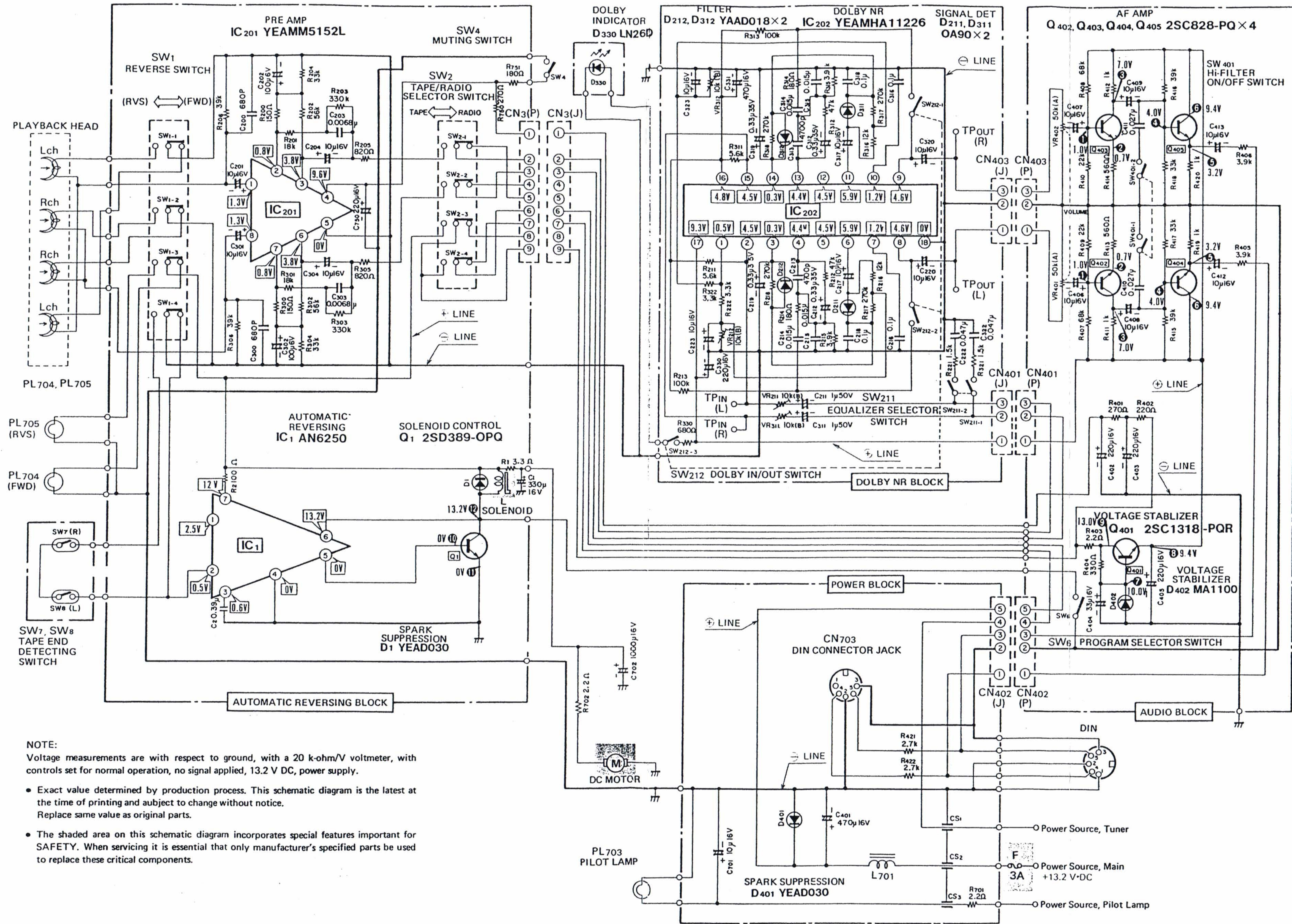
TOP VIEW, WITH COVER REMOVED



BOTTOM VIEW, WITH COVER REMOVED

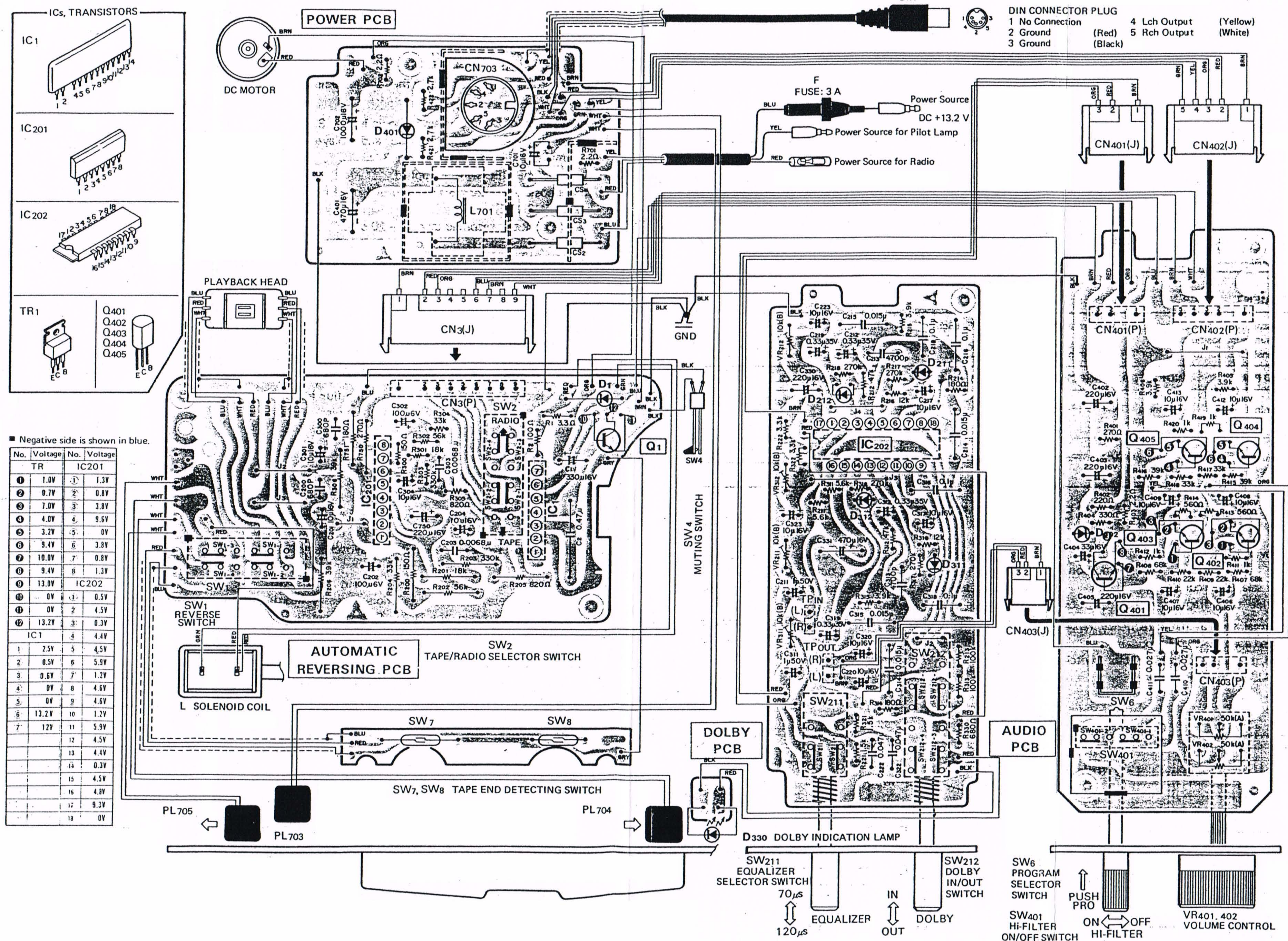


SCHEMATIC DIAGRAM MODEL CX-D11EN



-CASSETTE CAR STEREO-

WIRING DIAGRAM MODEL CX-D11EN



■ Negative side is shown in blue.

No.	Voltage	No.	Voltage
1	1.0V	1	1.3V
2	0.7V	2	0.8V
3	7.0V	3	3.8V
4	4.0V	4	9.6V
5	3.2V	5	0V
6	9.4V	6	3.8V
7	10.0V	7	0.8V
8	9.4V	8	1.3V
9	13.0V	9	0.5V
10	0V	10	4.5V
11	0V	11	0.3V
12	13.2V	12	4.4V
13	0V	13	4.5V
14	0V	14	5.9V
15	0V	15	1.2V
16	13.2V	16	4.6V
17	0V	17	4.6V
18	0V	18	9.3V
19	0V	19	0V

ADJUSTMENT INSTRUCTIONS

■ EQUIPMENT REQUIRED

- Signal Generator: Audio signal generator with attenuator
- Indicator: DC voltmeter (or VTVM)
- Tools: Test Tape
Screwdriver, minus head
- Power Source: DC 13.2 V (standard voltage for measurement)

DOLBY ADJUSTMENT

- Connect the load resistor; 10k-ohm between ground and terminal No. 4 (Lch) & 5 (Rch) of DIN connector.
- Set Level Control at minimum position.

STEP	SIGNAL FEED POINT	INDICATOR CONNECTION	DOLBY SW	ADJUST	REMARKS
①	Insert test tape and play 400 Hz SRL signal.	Connect VTVM to TPout-R terminal.	OUT	VR311	Adjust VR311 to 775 mV.
②	Input test tape and play 400 Hz SRL signal.	Connect VTVM to TPout-L terminal.	OUT	VR211	Adjust VR211 to 775 mV.

REDUCTION ADJUSTMENT

- Connect the load resistor; 10k-ohm between ground and terminal No. 4 (Lch) & 5 (Rch) of DIN connector.
- Set Level Control at minimum position.
- Connect the audio signal generator to TPin-R or TPin-L terminal through the attenuator.

STEP	SIGNAL FEED POINT	INDICATOR CONNECTION	DOLBY SW	ADJUST	REMARKS
③	TPin-R terminal [5 kHz]	Connect VTVM to TPout-L terminal.	OUT	—	Adjust attenuator for 81 mV.
④			IN	VR312	Adjust VR312 for 42 mV.
⑤	TPin-L terminal [5 kHz]	Connect VTVM to TPout-R terminal.	OUT	—	Adjust attenuator for 81 mV.
⑥			IN	VR212	Adjust VR212 for 42 mV.

EQUALIZER SELECTOR SYSTEM

This tape player is provided to use normal tape (120 μ s) and chromium-dioxide tape (70 μ s) in best condition, equipped with equalizer selector circuit.

In the chromium-dioxide tape, frequency characteristics is better than the normal tape at high frequency range and S/N ratio is improved approx. 4.5 dB too.

For best reproduction, set the equalizer selector switch to "CrO2" or "NORMAL" position as desired.

When the equalizer selector switch is set to "CrO2" the signal lines of both input and output sides of DOLBY NR integrated circuit, IC202, are connected to the ground through the resistor and capacitor.

Therefore, high frequency part of input signal is bypassed through the capacitors and the frequency characteristics of chromium-dioxide tape is equalized to the normal tape by decreasing high frequency gain.

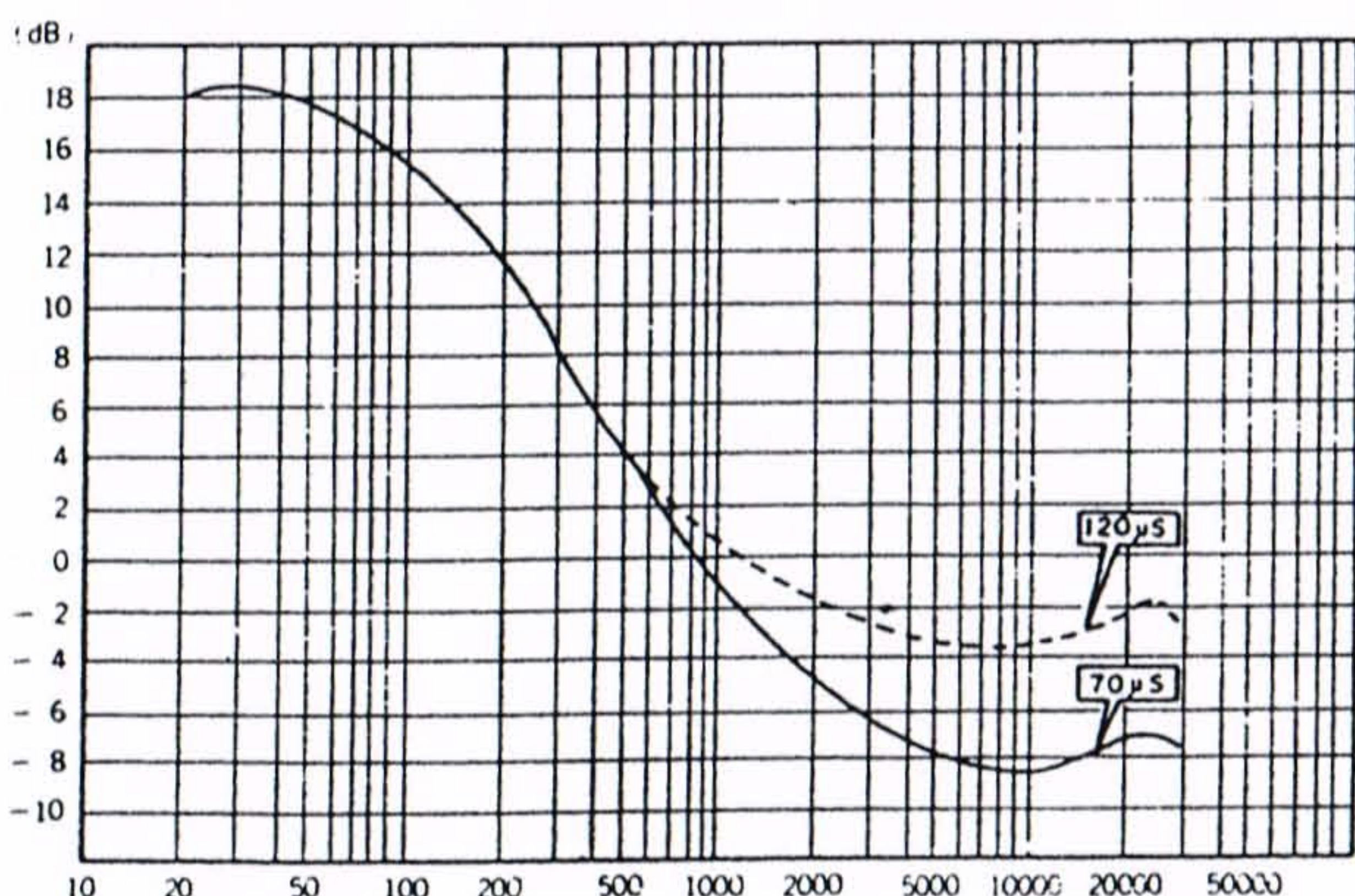


Fig. 1

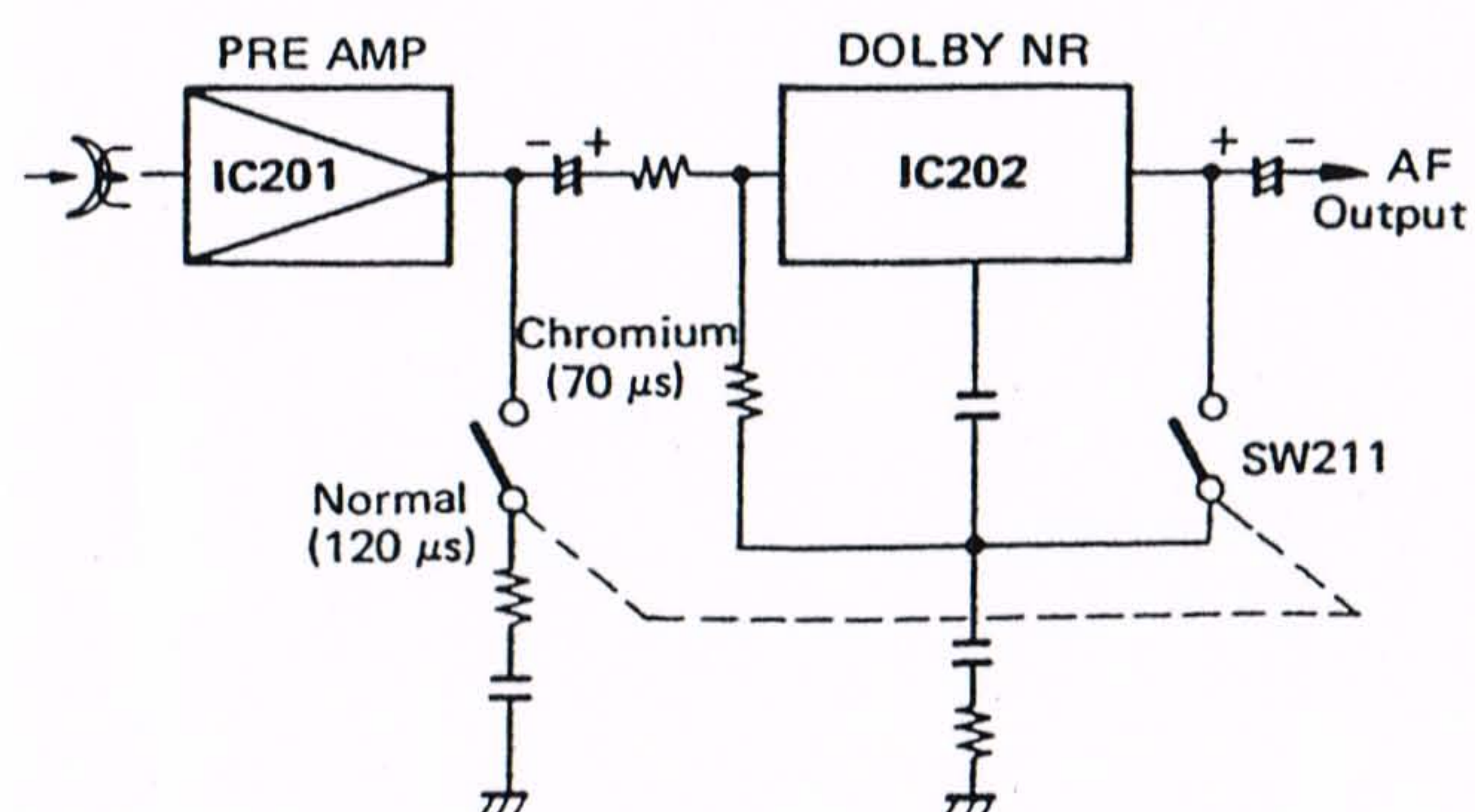


Fig. 2

DOLBY NOISE REDUCTION SYSTEM

GENERAL

The Dolby Noise Reduction System is used in this player, which reduces the level of hiss noise introduced during recording without changing the tone of audio signal.

METHOD OF DOLBY SYSTEM

Signal deviation of Dolby System is shown in Fig. 3

Low level signal is recorded by boosting and is played back. For example, following a level in Fig. 3.

- 1) When -30 dB REC signal is applied.
- 2) It is boosted to -20 dB and recorded on a magnetic head. [ENCODE]
- 3) Playing back this recorded tape (at -20 dB).
- 4) The output signal is boosted by Dolby System and reproduced at -30 dB, the same level as recorded. [RECODE]

Fig. 4 shows the boosting frequency characteristics.

Generally, the signal deviation increases in proportion to the frequency.

At playback, the characteristics are curved symmetrically against the recording curve and the overall REC and PLAY curve flattens as shown in Fig. 5.

This 0 dB is called Dolby Level, which is the flux level of the cassette tape and standardized at the point of 200 pwb/mm.

Much of audible noise of a tape player is a hiss noise of high and medium frequency created when recording on a magnetic tape while some of it is playback amplifier noise.

A high input signal level suppresses noise but a low input signal level decreases S/N ratio and noise is easily heard. For solving this problem, the Dolby System operates by boosting a low-level, high and medium frequency approx. 10 dB when recording, and attenuating the same signal in a complementary manner during playback.

During this process, the hiss noise of high and medium frequency and the amplifier noise are suppressed approx. 10 dB.

Fig. 6 shows noise reduction in Dolby Noise Reduction IN/OUT.

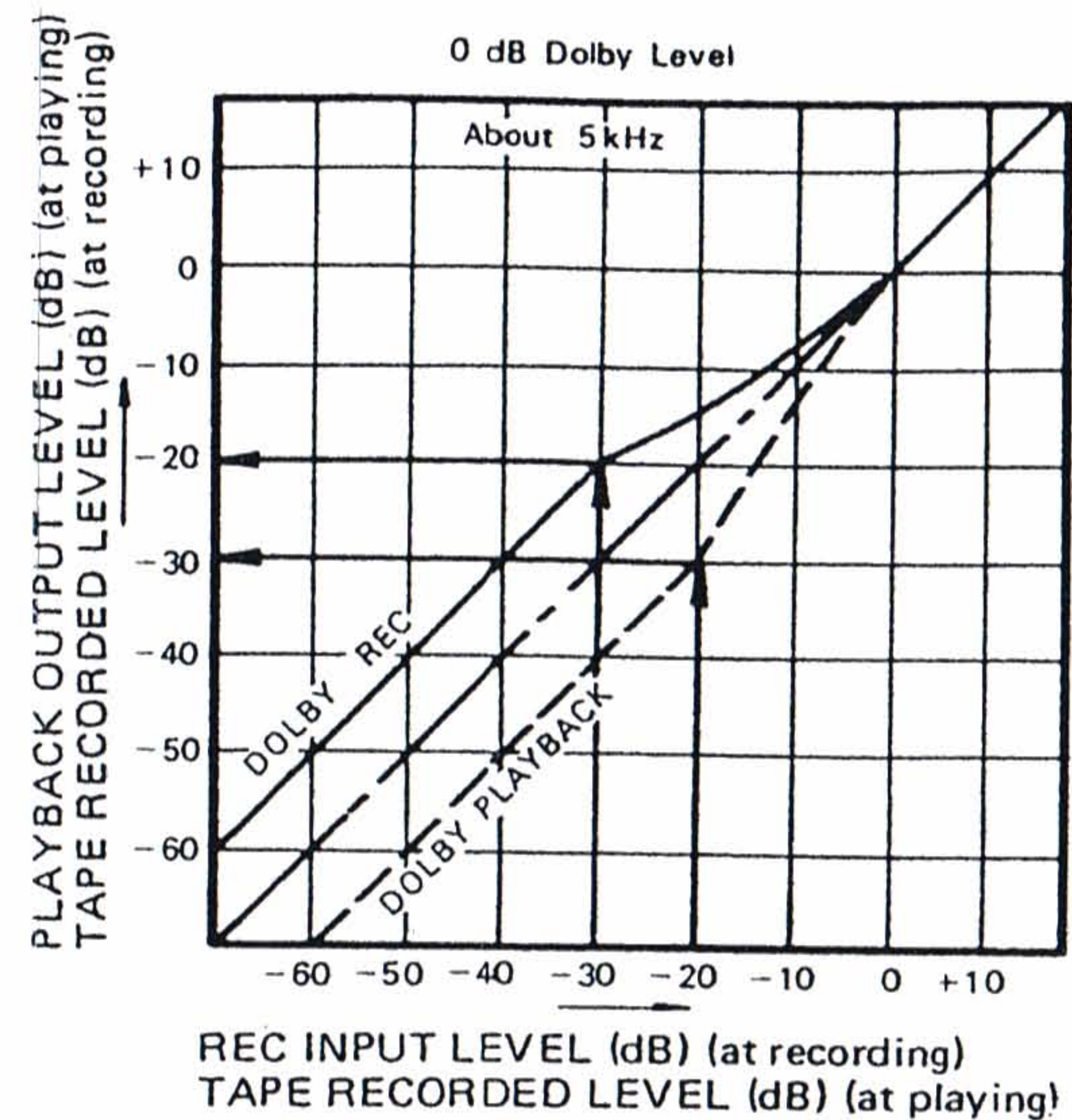


Fig. 3

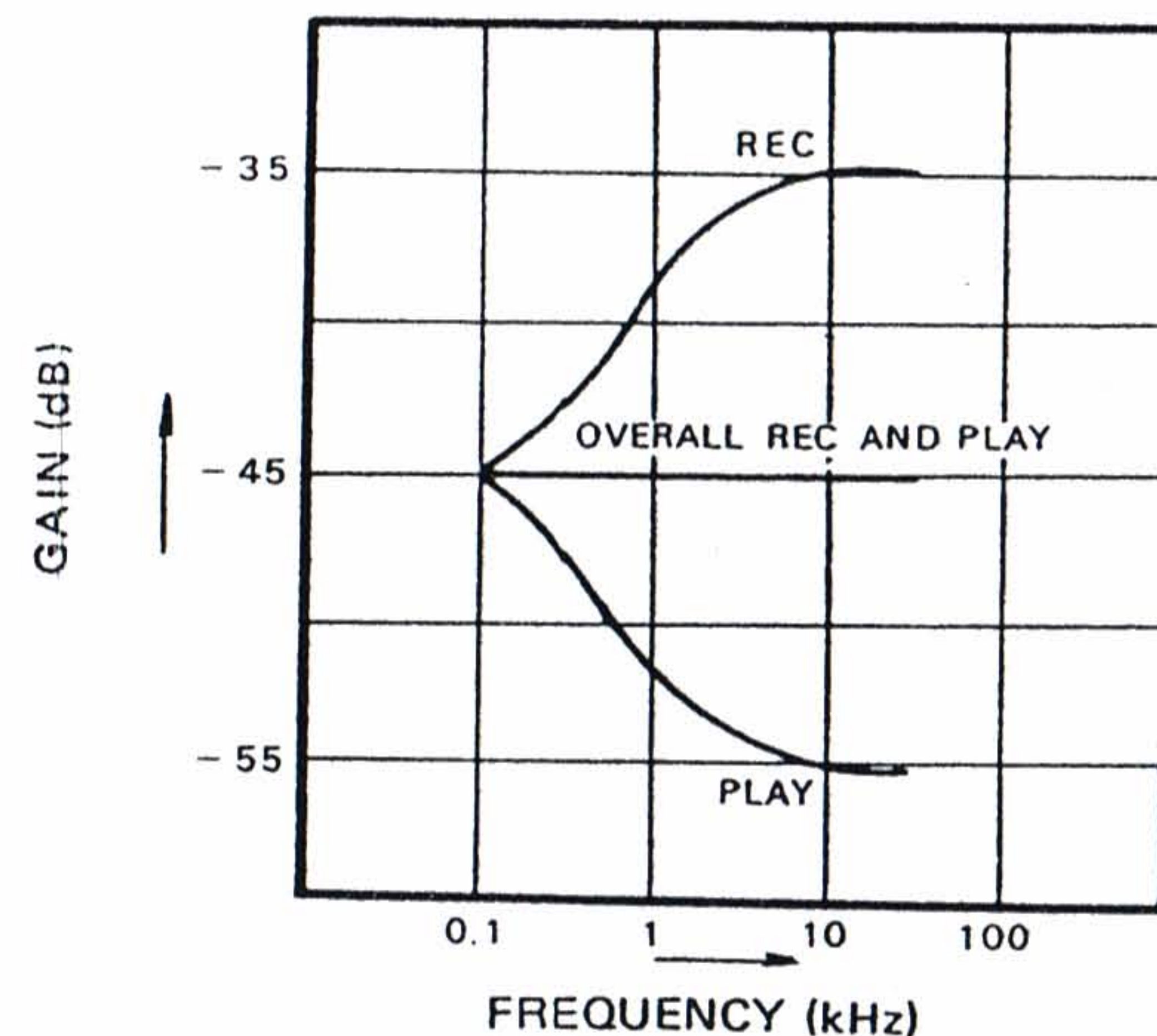


Fig. 4

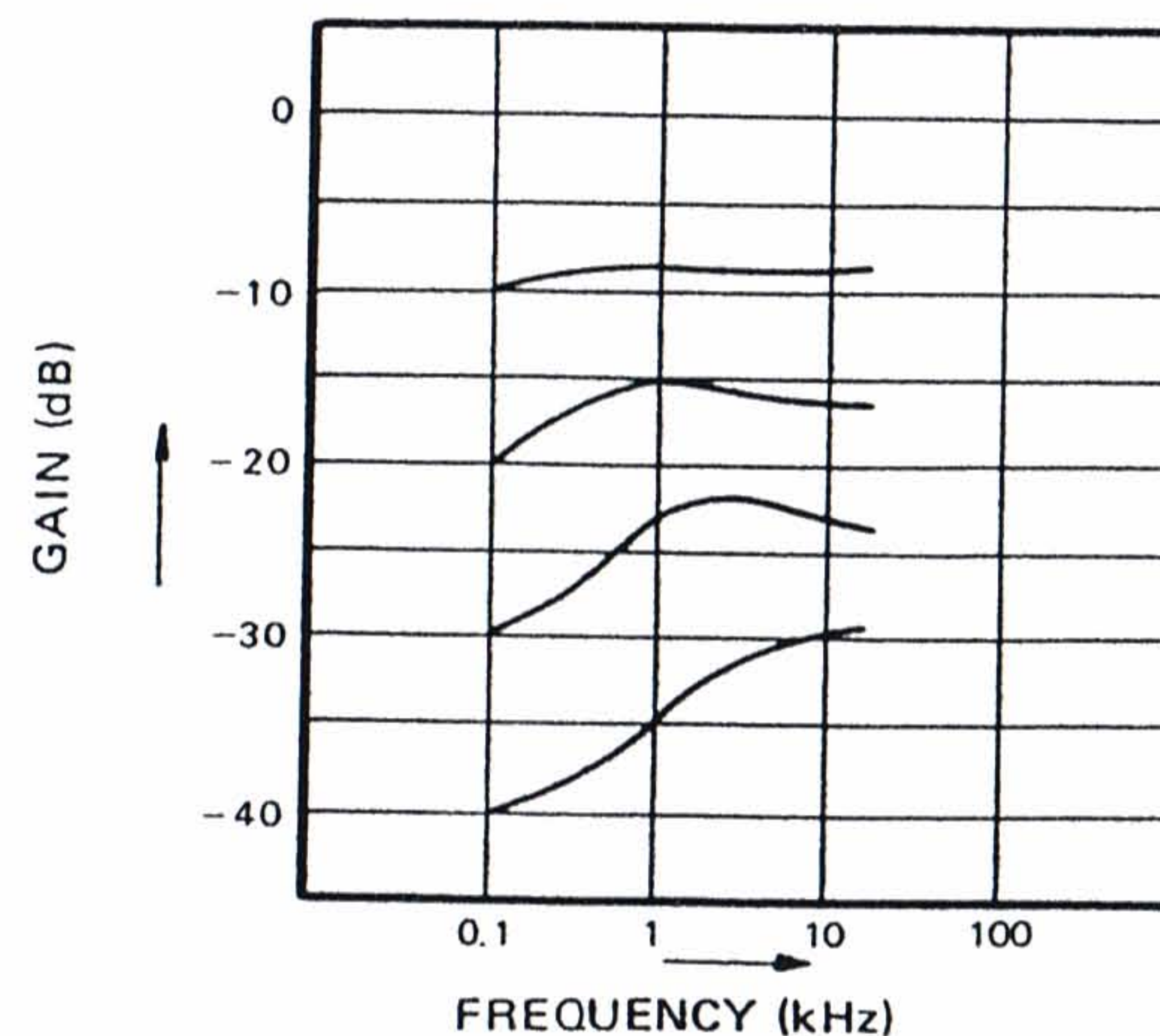


Fig. 5

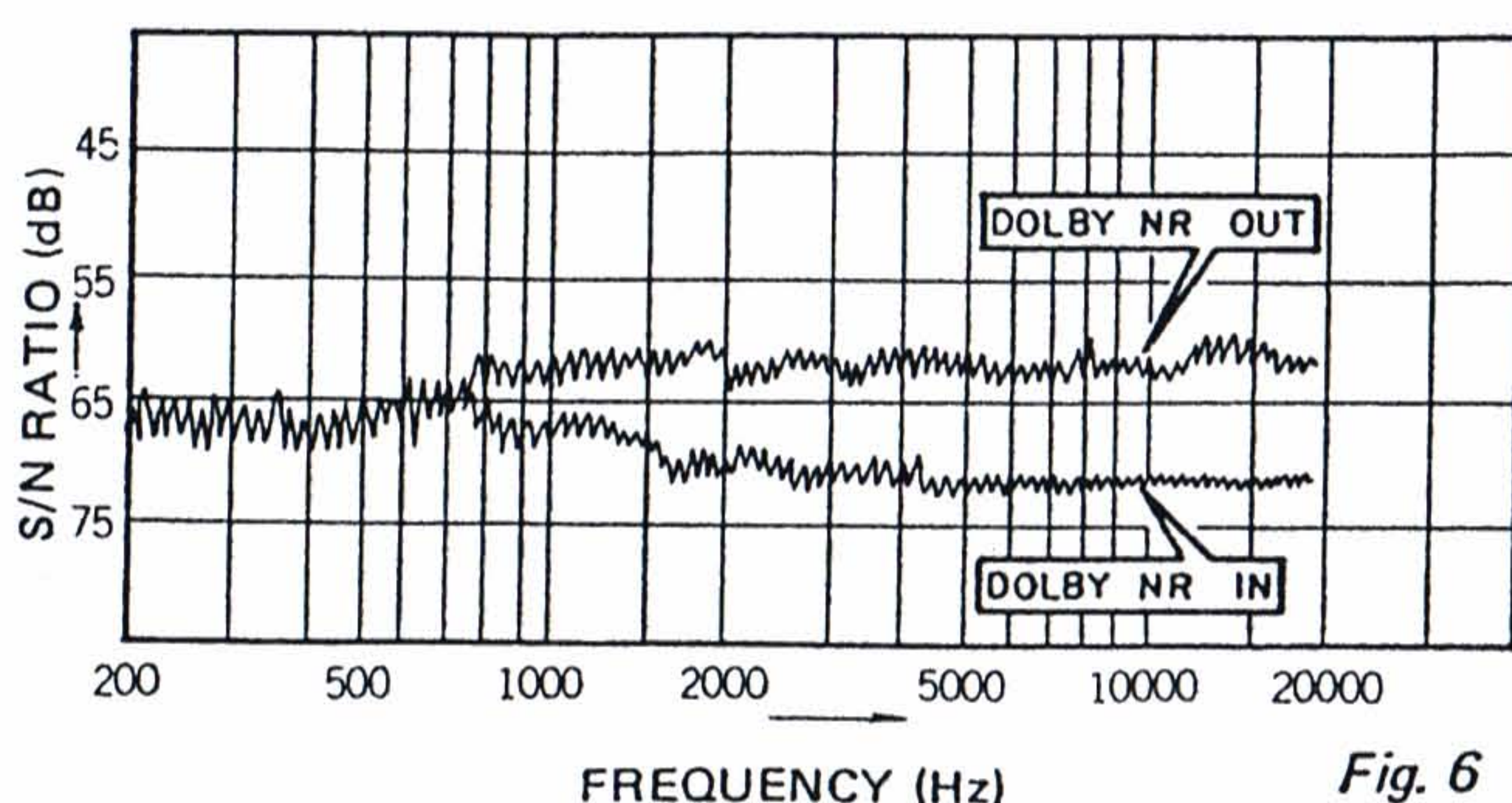


Fig. 6

DOLBY NOISE REDUCTION DECODER CIRCUIT

When the Dolby IN/OUT switch is set in "IN" position, the playback signal is applied to pin Nos. 2 & 15 for both right and left channel, and it is divided into two paths; one is directly supplied to pin No. 8 for an output signal, while the other controls the noise reduction signal.

The control signal, passing through the high-pass-filter, enters the pin No. 8 and decreases the direct signal, as shown in Fig. 7.

In this time, the control signal is amplified separately and it is sent to the rectifiers, D211 and D212.

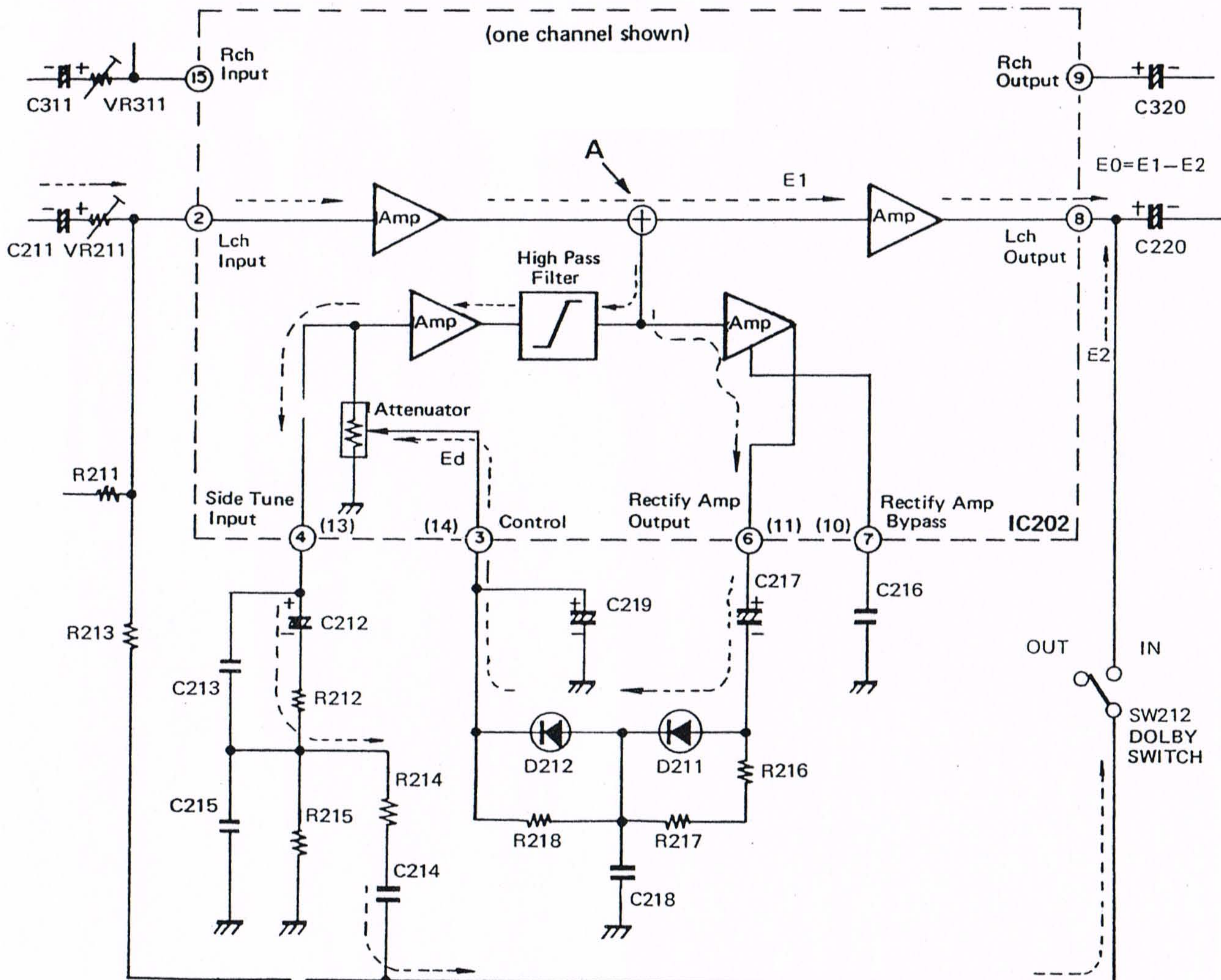
The rectified signal is filtered as a DC voltage (E_d) and

it is applied to the attenuator through pin No. 3.

The attenuator is provided to change the level and cut-off-frequency of the high-pass-filter.

The control signal (E_2), passing through the high-pass-filter, adds to the direct signal (E_1) and it is sent to the audio power amplifier as the output signal ($E_0 = E_1 - E_2$), when the Dolby IN/OUT switch is set to "IN" only.

Therefore, the control signal (E_2) can be equalized the Dolbyized signal (E_1) by deciding the level and cut-off frequency to suitable value, with the high-pass-filter and attenuator.



NOTE: Numbers in () are indicated pin No. of Rch.

Fig. 7

Replacement Parts List
Model NO. CX-D11EN

NOTES:

1. Be sure to make your orders of replacement parts according to this list.
2. Components identified by shaded area have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Next to the Ref. No. in the parts list is a location key, to show the general location of the parts shown in the exploded drawing, as in a road map.

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
MISCELLANEOUS				
F (3-A)	XBB1C30NR1	Fuse, 3 A	1	
PL703 (1-A)	YEAL24017L	Pilot Lamp	1	
PL704 (1-B)	YEAL24016L	Pilot Lamp	1	
PL705 (1-A)	YEAL24006L	Pilot Lamp	1	
CN401(P)(2-C)	EMCS0301	3P Plug	1	
CN401(J)(2-C)	EMCB0316A01	3P Jack	1	
CN402(P)(2-C)	EMCS0501	5P Plug	1	
CN402(J)(2-C)	EMCB0510A01	5P Jack	1	
CN403(P)(2-C)	EMCS0301	3P Plug	1	
CN403(J)(2-B)	EMCB0310A01	3P Jack	1	
DIN (3-A)	YEA01109	DIN Connector Plug w/Cord	1	
CN703 (2-C)	YEA01053	DIN Connector Jack	1	
CN3(J) (2-B)	EMCB0920A02	9P Jack	1	
TP (2-B)	YEA01083	PC Jointer, 2 P	2	
M101 (2-B)	YEFA01271	Chassis	1	
M102 (3-C)	YEFA03331	Upper Cover	1	
M103 (1-C)	YEFA05153	Bottom Cover	1	
M104 (1-A)	YEFK06037	Holder	1	
M105 (1-A)	YEFK04194	Pilot Lamp Holder	1	
M106 (1-A)	YEFK04195	Pilot Lamp Holder	2	
M107 (1-B)	YEFK04263	Front Plate Ass'y	1	
M108 (1-A)	YEFE13066	Button, Eject	1	
M109 (1-A)	YEFE17092	Knob, Hi-Filter	1	
M110 (1-A)	YEFE10231	Button, Dolby and Equalizer	2	
M111 (1-A)	YEFE04026	Knob, Level Control	1	

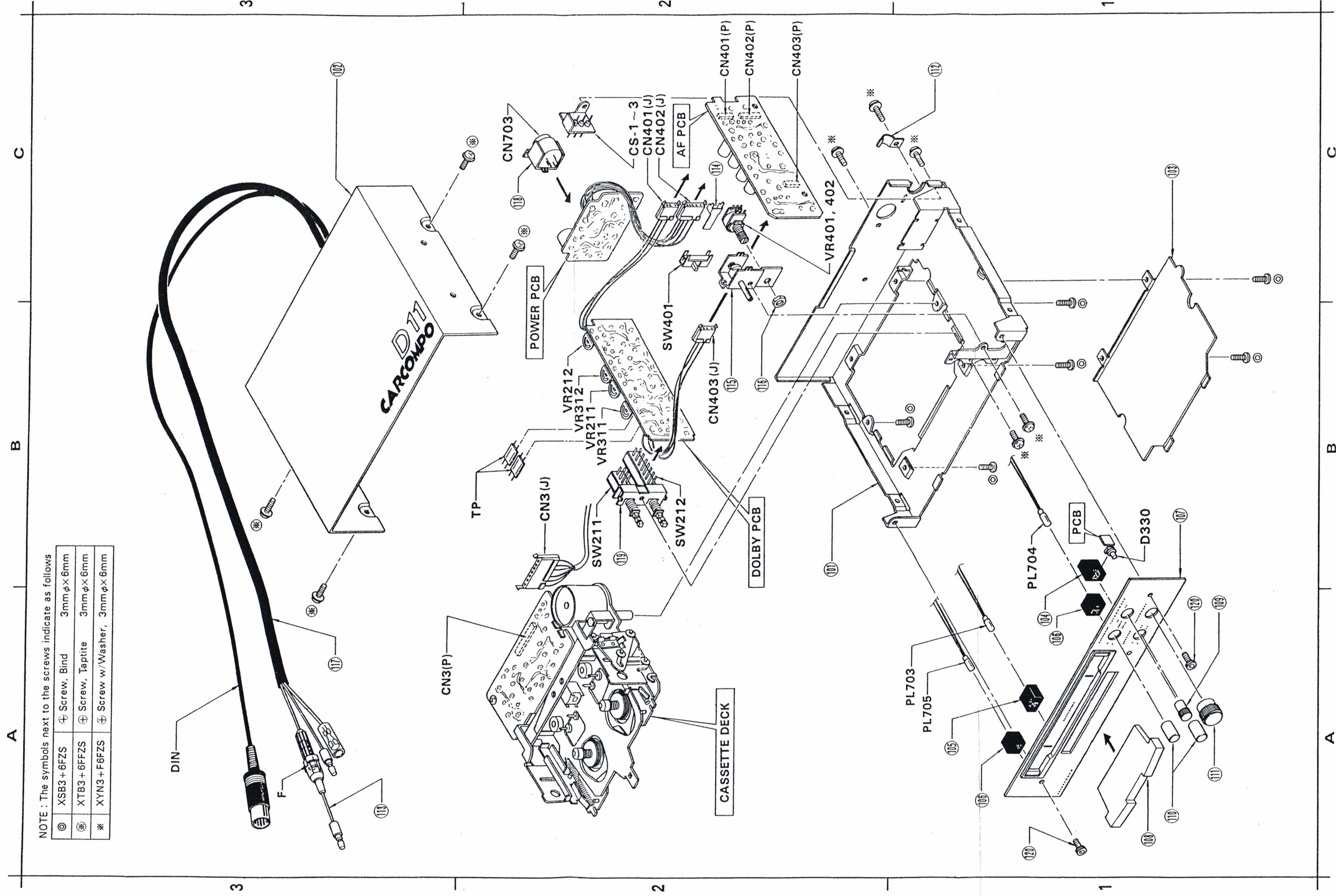
- 9 -

MODEL CX-D11EN

[illegible]

EXPLODED VIEW (UNIT)

- Numbers in ○ are indicated REF. NO. in the REPLACEMENT PARTS LIST.

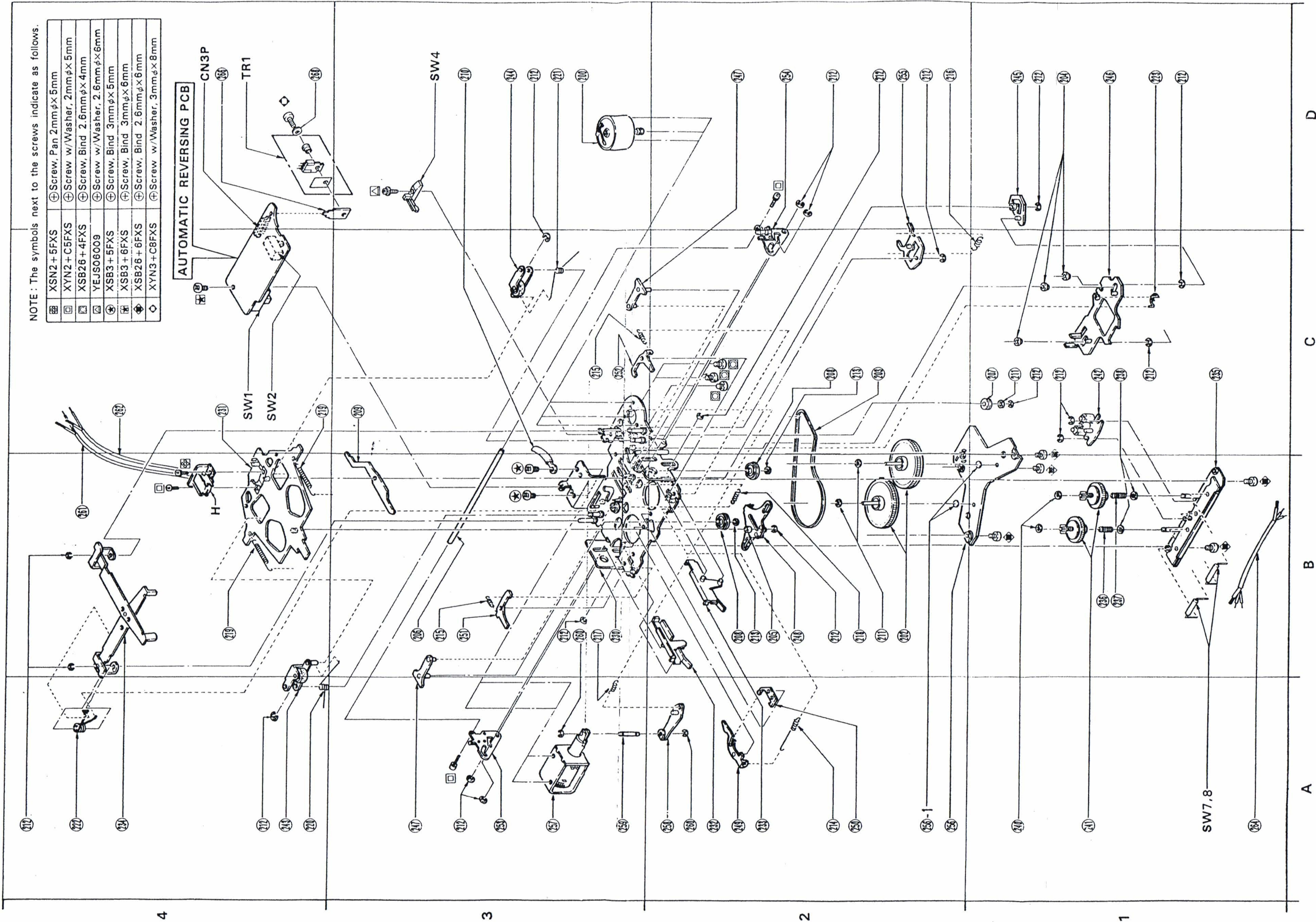


NOTE : The symbols next to the screws indicate as follows

⊕	XSB3+6FZS	⊕	Screw, Bind	3mm φ × 6mm
⊕	XTB3+6FFZS	⊕	Screw, Tapite	3mm φ × 6mm
*	XYN3+F6FZS	⊕	Screw w/Washer, 3mm φ × 6mm	

EXPLODED VIEW(TAPE DECK)

Numbers in  are indicated REF. NO. in the REPLACEMENT PARTS LIST.



Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
TAPE DECK PARTS				
HEAD				
H	WY478CN	Playback Head	1	
MECHANICAL PARTS				
CN3 (P)	EMCS0901	9P Plug	1	
M200	YASA01034	Motor Ass'y (w/Pulley)	1	
M202	YEFX213120	Flywheel	2	
M203	YEFR03023	Flywheel Drive Belt	1	
M204	YEFX218126	Selector Plate Shaft Roller	3	
M205	YEFX218131	Head Chassis Guide Shaft Roller	1	
M206	YEFW06237	Cassette Link Bar	1	
M207	YEFX026044	Idler Pulley	1	
M208	YEFX046180	Idler	2	
M209	YEFX046141	FR Release Lever	1	
M210	YAFX033035	Clamper	2	
M211	YEW05013	Polyslider 2.5mmφ	3	
M212	YEJE01004	E-Ring	18	
M213	YEFX014008	Stop Ring	2	
M214	YEFX005251	FR Lock Spring	1	
M215	YEFX005252	FR Stop Spring	2	
M216	YEFX005255A	Idler Spring	1	
M217	YEFX005256A	Solenoid Spring	1	
M218	YEFX005254	Pressure Spring	1	
M219	YEFX005253A	Head Chassis Spring	1	
M220	YEFX005248	Pinch Roller Return Spring (L)	1	
M221	YEFX005249	Pinch Roller Return Spring (R)	1	
M222	YEFX005247	Retaining Spring	1	
M223	YEFX005245A	Retaining Spring 2mmφ x 5mm	1	
M224	XSN2 + 5FXS	⊕Screw, Pan 2mmφ x 5mm	1	
M225	XYN2 + C5FXS	⊕Screw,w/Washer, 2mmφ x 5mm	3	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
M226	XSB28 + 4FXS	⊕Screw, Bind 2.6mmφ x 4mm	3	
M228	YEJS06009	⊕Screw w/Washer, 2.6mmφ x 6mm	2	
M229	XSB3 + 5FXS	⊕Screw, Bind 3mmφ x 5mm	2	
M230	YEFA01257	Chassis Ass'y	1	
M231	YEFA01204	Head Chassis Ass'y	1	
M232	YEFX239138	Cassette Guide Ass'y (L)	1	
M233	YEFX239139	Cassette Guide Ass'y (R)	1	
M234	YEFX046150A	Eject Lever Ass'y	1	
M235	YEFX021515A	Reel Holder Ass'y	1	
M236	YEFX005317	Back Tension Spring (L)	1	
M237	YEFX005318	Back Tension Spring (R)	1	
M238	YAJW05010	Polyslider 2mmφ	2	
M240	YEFX014007	Stop Ring	2	
M241	YEFX209114B	Reel Base Ass'y	2	
M242	YEFX218132	FR Roller Ass'y	1	
M243	YEFX218133	Pinch Roller Ass'y (L)	1	
M244	YEFX218134	Pinch Roller Ass'y (R)	1	
M245	YEFX234105	Selector Cam Ass'y	1	
M246	YEFX046178	Selector Plate Ass'y	1	
M247	YEFX046154	Idler Plate Ass'y	2	
M248	YEFX021444	FF Plate Ass'y	1	
M249	YEFX046156	FR Lock Plate Ass'y (L)	1	
M250	YEFX046157	FR Lock Plate Ass'y (R)	1	
M251	YEFX030015	FR Stop Plate Ass'y (L)	1	
M252	YEFX030016	FR Stop Plate Ass'y (R)	1	
M253	YEFX046158A	Cassette Guide Link Ass'y (L)	1	
M254	YEFX046159A	Cassette Guide Link Ass'y (R)	1	
M255	YEFX046155	Idler Release Plate Ass'y	1	
M256	YEFX021641A	Flywheel Holder Ass'y	1	
M256-1	YAFX019007A	Thrust Sheet	2	
M257	YEAX01013A	Plunger Solenoid	1	
M258	YEFX046160	Solenoid Lever Ass'y	1	
M259	YEFW06227	Solenoid Lever Shaft	1	
M260	XUC15FX	E-ring 1.5mmφ	2	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
M261	YEAJ18112	Head Shield Wire (Red)	1	
M262	YEAJ18113	Head Shield Wire (Black)	1	
M264	YEAJ18098	Lead Switch Shield Wire	1	
M266	YEFF01140	Heat Sink	1	
M267	YEAT03159	Terminal	1	
M268	YEJS06017	⊕Screw	1	
M270	XS826 + 6FXS	⊕Screw, Bind 2.6mm ϕ x 6mm	5	
SWITCHES				
SW1	YEAS07040A	Reverse Switch	1	
SW2	YEAS07041	Tape/Radio Selector Switch	1	
SW4	YEAS23112	Muting Switch	1	
SW7, 8	YEAS07039	Tape End Detecting Switch	2	
ICs AND TRANSISTOR				
IC201	YEAMM5152L	Pre AMP	1	
IC1	AN6250	Automatic Reversing	1	
Q1	2SD389	Solenoid Control	1	
DIODE				
D1	YEAD030	Spark Suppression	1	
CAPACITORS				
C1	ECEA16V330L	330 MFD 16WV Electrolytic	1	
C2	ECQE1394KS	0.39 MFD 125WV $\pm$ 10% Polystyrene	1	
C200	YECQN1H681K	680 PF 50WV $\pm$ 10% Polyester	1	
C201	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C202	ECEA6V100L	100 MFD 6WV Electrolytic	1	
C203	YECQN1H682M	0.0068 MFD 50WV $\pm$ 20% Polyester	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
C204	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C300	YECQN1H681K	680 PF 50WV $\pm$ 10% Polyester	1	
C301	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C302	ECEA6V100L	100 MFD 6WV Electrolytic	1	
C303	YECQN1H682M	0.0068 MFD 50WV $\pm$ 20% Polyester	1	
C304	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C750	ECEA16V220L	220 MFD 16WV Electrolytic	1	
RESISTORS				
R1	ERD14FJ3R3	3.3 OHM 1/4W $\pm$ 5% Carbon	1	
R2	ERD14FJ101	100 OHM 1/4W $\pm$ 5% Carbon	1	
R200	ERD18TJ151	150 OHM 1/8W $\pm$ 5% Carbon	1	
R201	ERD18TJ183	18k OHM 1/8W $\pm$ 5% Carbon	1	
R202	ERD18TJ563	56k OHM 1/8W $\pm$ 5% Carbon	1	
R203	ERD18TJ334	330k OHM 1/8W $\pm$ 5% Carbon	1	
R204	ERD18TJ333	33k OHM 1/8W $\pm$ 5% Carbon	1	
R205	ERD18TJ821	820 OHM 1/8W $\pm$ 5% Carbon	1	
R206	ERD18TJ393	39k OHM 1/8W $\pm$ 5% Carbon	1	
R300	ERD18VJ151	150 OHM 1/8W $\pm$ 5% Carbon	1	
R301	ERD18VJ183	18k OHM 1/8W $\pm$ 5% Carbon	1	
R302	ERD18VJ563	56k OHM 1/8W $\pm$ 5% Carbon	1	
R303	ERD18VJ334	330k OHM 1/8W $\pm$ 5% Carbon	1	
R304	ERD18VJ333	33k OHM 1/8W $\pm$ 5% Carbon	1	
R305	ERD18VJ821	820 OHM 1/8W $\pm$ 5% Carbon	1	
R306	ERD18TJ393	39k OHM 1/8W $\pm$ 5% Carbon	1	
R750	ERD18TJ271	270 OHM 1/8W $\pm$ 5% Carbon	1	
R751	ERD18TJ181	180 OHM 1/8W $\pm$ 5% Carbon	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
IC AND TRANSISTORS				
[DOLBY N.R. BLOCK]				
IC202	YEAMHA11226	Dolby Noise Reduction System	1	
[AUDIO BLOCK]				
Q401	25C1318	Voltage Stabilizer	1	
Q402, 403 404, 405	25C828	AF AMP	4	
DIODES				
[DOLBY N.R. BLOCK]				
D212, 312	YAAD018	Signal Filter	2	
D211, 311	OA90	Signal Det	2	
D330	LN26D	Indicator, Dolby	1	
[AUDIO BLOCK]				
D402	MA1100	Voltage Stabilizer	1	
[POWER BLOCK]				
D401	YEAD030	Spark Suppression	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
CAPACITORS				
[DOLBY N.R. BLOCK]				
C211	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C212	ECSZ35EFR33Q	0.33 MFD 35WV Tantalum	1	
C213	ECQP1472FZ	4700 PF 125WV $\pm 1\%$ Polystyrene	1	
C214	ECQP1153FZ	0.015 MFD 125WV $\pm 1\%$ Polystyrene	1	
C215	ECQP1153FZ	0.015 MFD 125WV $\pm 1\%$ Polystyrene	1	
C216	ECQM1H104JZ	0.1 MFD 50WV $\pm 5\%$ Polyester	1	
C217	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C218	YECQN1H104M	0.1 MFD 50WV $\pm 20\%$ Polyester	1	
C219	ECSZ35EFR33Q	0.33 MFD 35WV Tantalum	1	
C220	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C222	YECQN1H473M	0.047 MFD 50WV $\pm 20\%$ Polyester	1	
C223	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C311	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C312	ECSZ35EFR33Q	0.33 MFD 35WV Tantalum	1	
C313	ECQP1472FZ	4700 PF 125WV $\pm 1\%$ Polystyrene	1	
C314	ECQP1153FZ	0.015 MFD 125WV $\pm 1\%$ Polystyrene	1	
C315	ECQP1153FZ	0.015 MFD 125WV $\pm 1\%$ Polystyrene	1	
C316	ECQM1H104JZ	0.1 MFD 50WV $\pm 5\%$ Polyester	1	
C317	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C318	YECQN1H104M	0.1 MFD 50WV $\pm 20\%$ Polyester	1	
C319	ECSZ35EFR33Q	0.33 MFD 35WV Tantalum	1	
C320	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C322	YECQN1H473M	0.047 MFD 50WV $\pm 20\%$ Polyester	1	
C323	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C330	ECEA16V220L	220 MFD 16WV Electrolytic	1	
C331	ECEA16V470W	470 MFD 16WV Electrolytic	1	

[illegible]

Ref. No.	Part No.	Part Name & Description			Pcs Set	Remarks
R406	ERD18VJ392	3.9k OHM	1/8W	±5%	Carbon	1
R407	ERD18VJ683	68k OHM	1/8W	±5%	Carbon	1
R408	ERD18VJ683	68k OHM	1/8W	±5%	Carbon	1
R409	ERD18VJ223	22k OHM	1/8W	±5%	Carbon	1
R410	ERD18VJ223	22k OHM	1/8W	±5%	Carbon	1
R411	ERD18VJ102	1k OHM	1/8W	±5%	Carbon	1
R412	ERD18VJ102	1k OHM	1/8W	±5%	Carbon	1
R413	ERD18VJ561	560 OHM	1/8W	±5%	Carbon	1
R414	ERD18VJ561	560 OHM	1/8W	±5%	Carbon	1
R415	ERD18VJ393	39k OHM	1/8W	±5%	Carbon	1
R416	ERD18VJ393	39k OHM	1/8W	±5%	Carbon	1
R417	ERD18VJ333	33k OHM	1/8W	±5%	Carbon	1
R418	ERD18VJ333	33k OHM	1/8W	±5%	Carbon	1
R419	ERD18VJ102	1k OHM	1/8W	±5%	Carbon	1
R420	ERD18VJ102	1k OHM	1/8W	±5%	Carbon	1
POWER BLOCK						
R421	ERD18VJ272	2.7k OHM	1/8W	±5%	Carbon	1
R422	ERD18VJ272	2.7k OHM	1/8W	±5%	Carbon	1
R701	ERD18FJ2R2	2.2 OHM	1/8W	±5%	Carbon	1
R702	ERD18FJ2R2	2.2 OHM	1/8W	±5%	Carbon	1
VARIABLE RESISTORS						
VR401, 402	EVJR1AK15A54	50k OHM (A) x 2	Volume Control		1	
VR211, 212 311, 312	EVNJOAA00814	10k OHM (B)	Semi-fixed		4	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
COIL				
L701	YETQ020F031	Choke Coil	1	
SWITCHES				
SW401	YEAS07047	Hi-Filter ON/OFF Switch	1	
SW211	YEAS09078	Equalizer Selector Switch	1	
SW212	YEAS09079	Dolby IN/OUT Selector Switch	1	
ACCESSORIES				
A101	YEAJ07233A	Extension Cord	1	
A102	YEAJ07269	Extension Cord	1	
A103	YBAJ07127	Extension Cord	1	
A104	YEAJ09036	Wire, Bonding	1	
A105	XSN5 + 8FXS	⊕Screw, Pan 5mmϕ x 8mm	1	
A106	XWG5FX	Washer, Flat 5mmϕ	1	
A107	XWA58FX	Washer, Spring 5mmϕ	1	
PRINTING				
A108	YEFM06750	Instruction Book	1	

NORMAL CARE AND MAINTENANCE

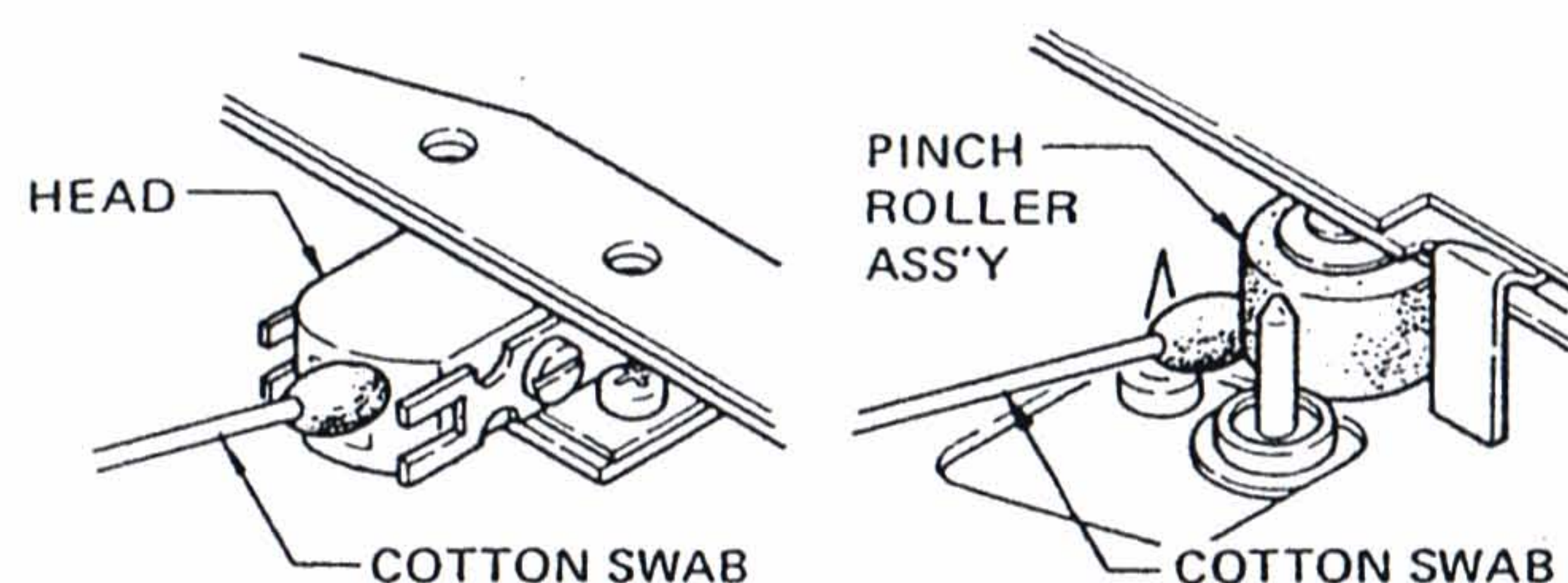
Tape Player Maintenance

After many hours of operation, it is advisable to clean the oxide residue from the tape head and pinch roller assembly to obtain superior performance from the player. Oxide accumulated on the tape head and pinch roller assembly may cause tape hiss and malfunction.

The more often the player is operated, the more often it should be cleaned.

Cleaning

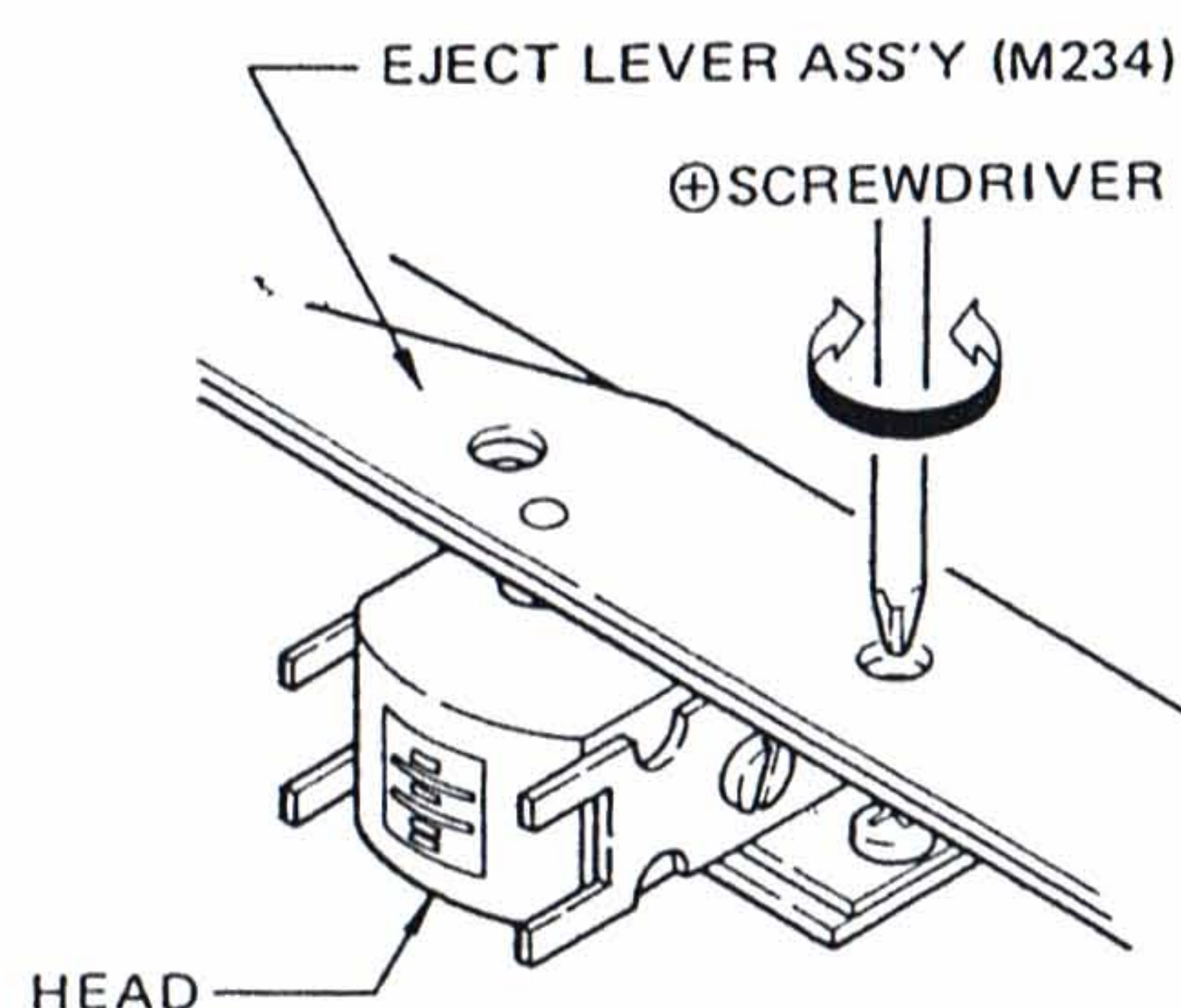
To clean the tape head and pinch roller, remove the upper cover and clean the residue, with a cotton swab dampened with isopropyl (rubbing) alcohol.



Head Azimuth Adjustment

Head azimuth adjustment can be made by removing the upper cover.

Playback a standard test tape or recorded music tape and turn the head adjustment screw in either direction for maximum loudness.



TAKE-UP TORQUE ADJUSTMENT

This automatic reversing tape deck can be adjusted take-up torque as follows.

PROCEDURE:

- 1) Take off reel holder ass'y from chassis ass'y by removing two screws.
- 2) Remove stop ring and lift up reel base ass'y.
- 3) Turn plate spring position to desired torque by tweezers.
- 4) To reassemble, reverse above procedure.

