

Service Manual

AUTO PRODUCTS CX-P1EN

STEREO PRE AMPLIFIER



SPECIFICATIONS*

Frequency Response:	20 ~ 25,000 Hz (6 dB point)
Input Level:	MIC -60 dBV TAPE 0.2 V
Input Impedance:	MIC 30 k Ω , Unbalanced TAPE 10 k Ω
Output Level:	0.4 V (at 0.2 V input)
Output Impedance:	3 k Ω
Power Supply Voltage:	DC 12 V (11 ~ 16 V), Negative ground
Power Consumption:	Approx. 1.3 W (0.1 A at DC 13.2 V)
Signal to Noise Ratio:	60 dB
Bass Control Effect:	± 10 dB (at 100 Hz)
Treble Control Effect:	± 10 dB (at 10 kHz)
IC's:	5
Transistors:	6
Diodes:	3
Dimensions**:	Width: 198 mm Height: 35 mm Depth: 101 mm
Weight**:	0.7 k

FEATURES

- 2-channel, stereo pre-amplifier.
- DC 12 V, Negative ground.
- Photo-coupler noise limiter.
- Loudness ON/OFF switch.
- Bass control.
- Treble control.
- N. F. B. (Negative Feed Back)
- Fader control.
- Mic mixing circuit.
- Component system with a tuner, a car stereo and main amplifier.
CX-T1EN; FM Tuner
CX-D1EN; Automatic reversing cassette car stereo
CX-M1EN; Stereo main amplifier

* Specifications subject to change without notice.

** Weight and Dimensions shown are approximate.

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SM-CXP1EN
SERVICE MANUAL

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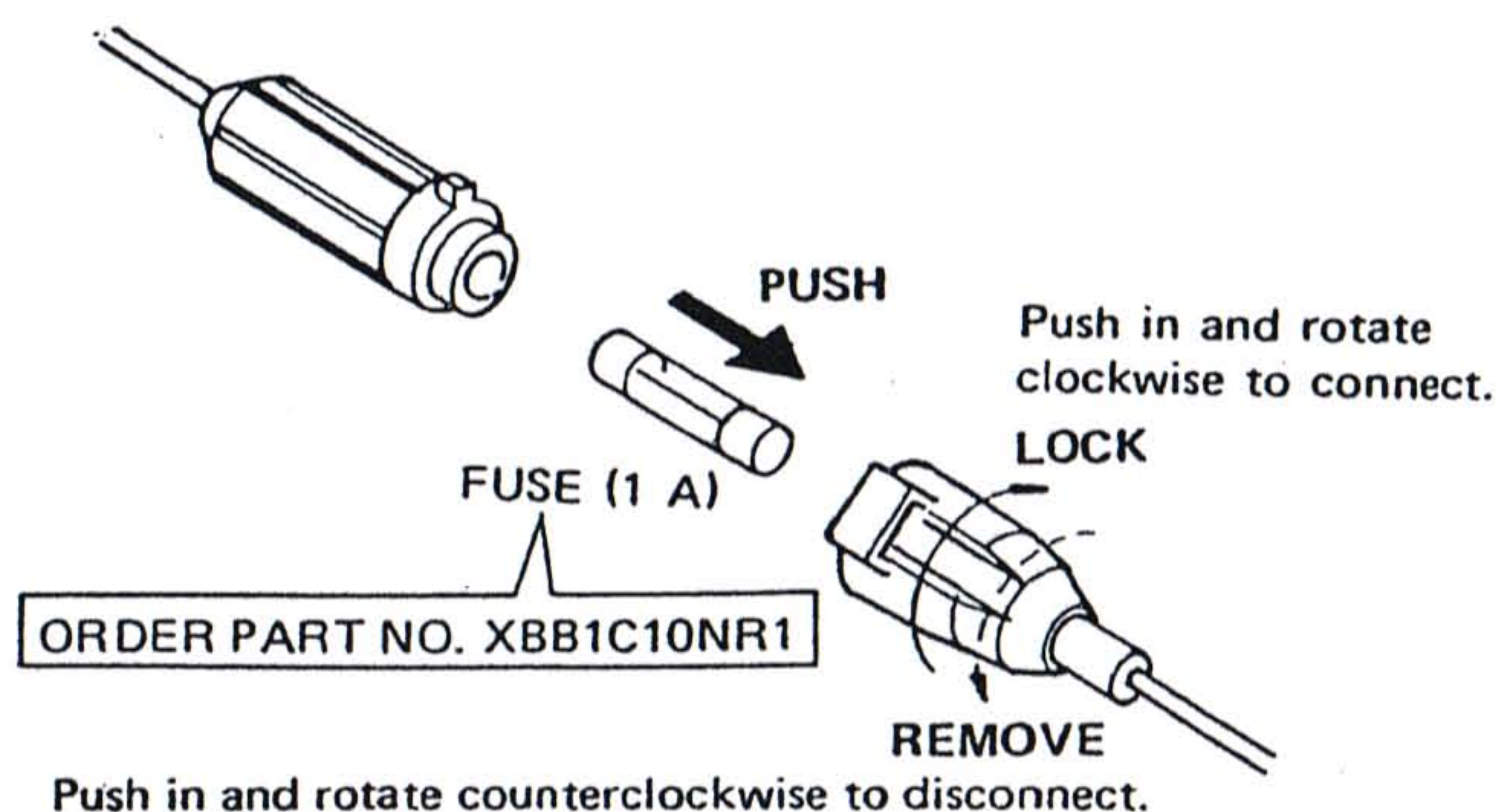
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CONTENTS

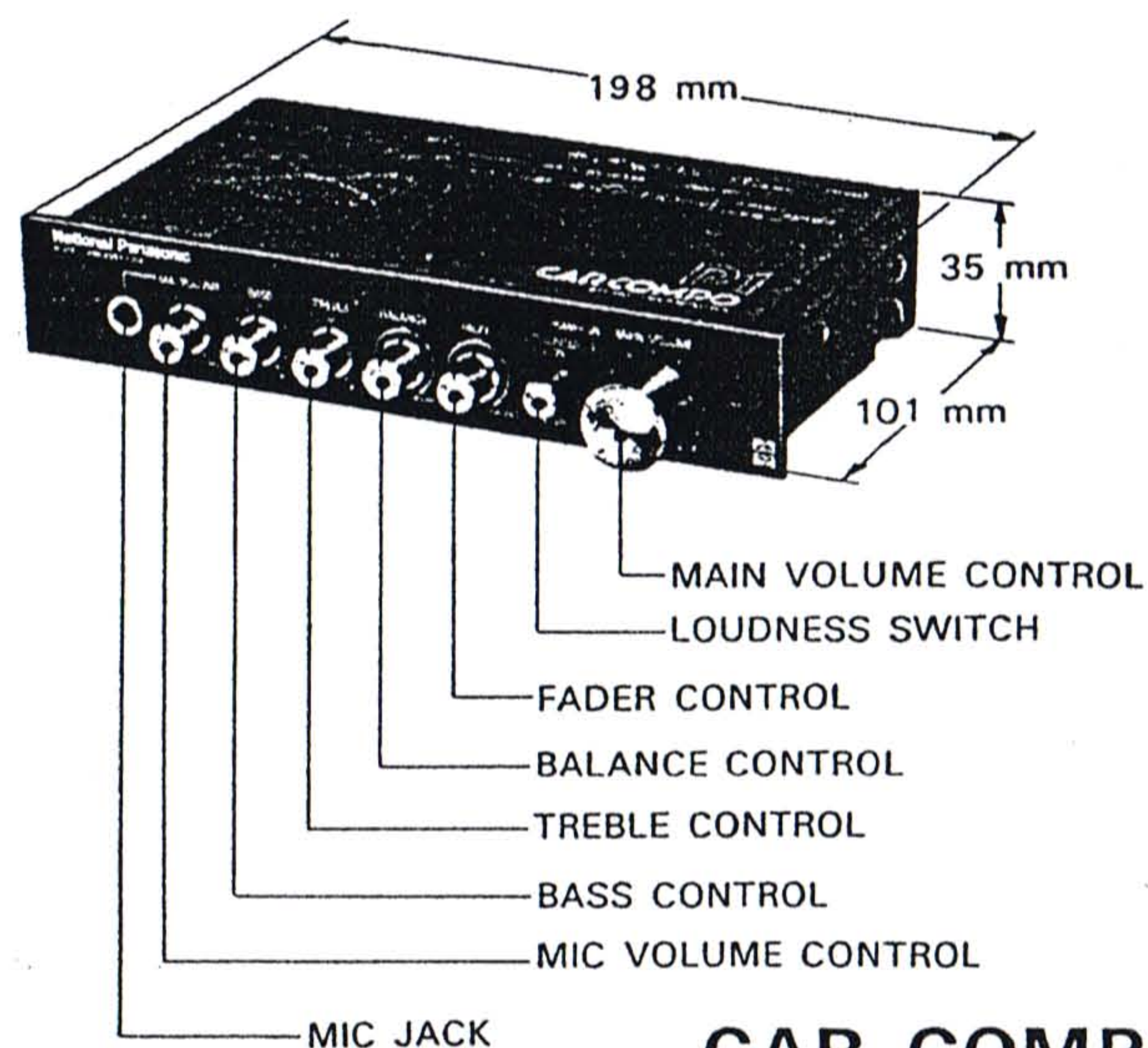
	Page
DIMENSIONS AND LOCATION OF CONTROLS	1
FUSE REPLACEMENT	1
IC EQUIVALENT CIRCUIT	1
CAR COMPO COMBINATIONS	1
PARTS LOCATION	2
ADJUSTMENT	2
INSTALLATION INSTRUCTIONS	3
SCHEMATIC DIAGRAM	4
WIRING DIAGRAM	5
EXPLODED VIEW	6
REPLACEMENT PARTS LIST	7~10

FUSE REPLACEMENT

Be sure to use a 1 A fuse for replacement. Use of a larger fuse may not protect the unit from excessive current drain.

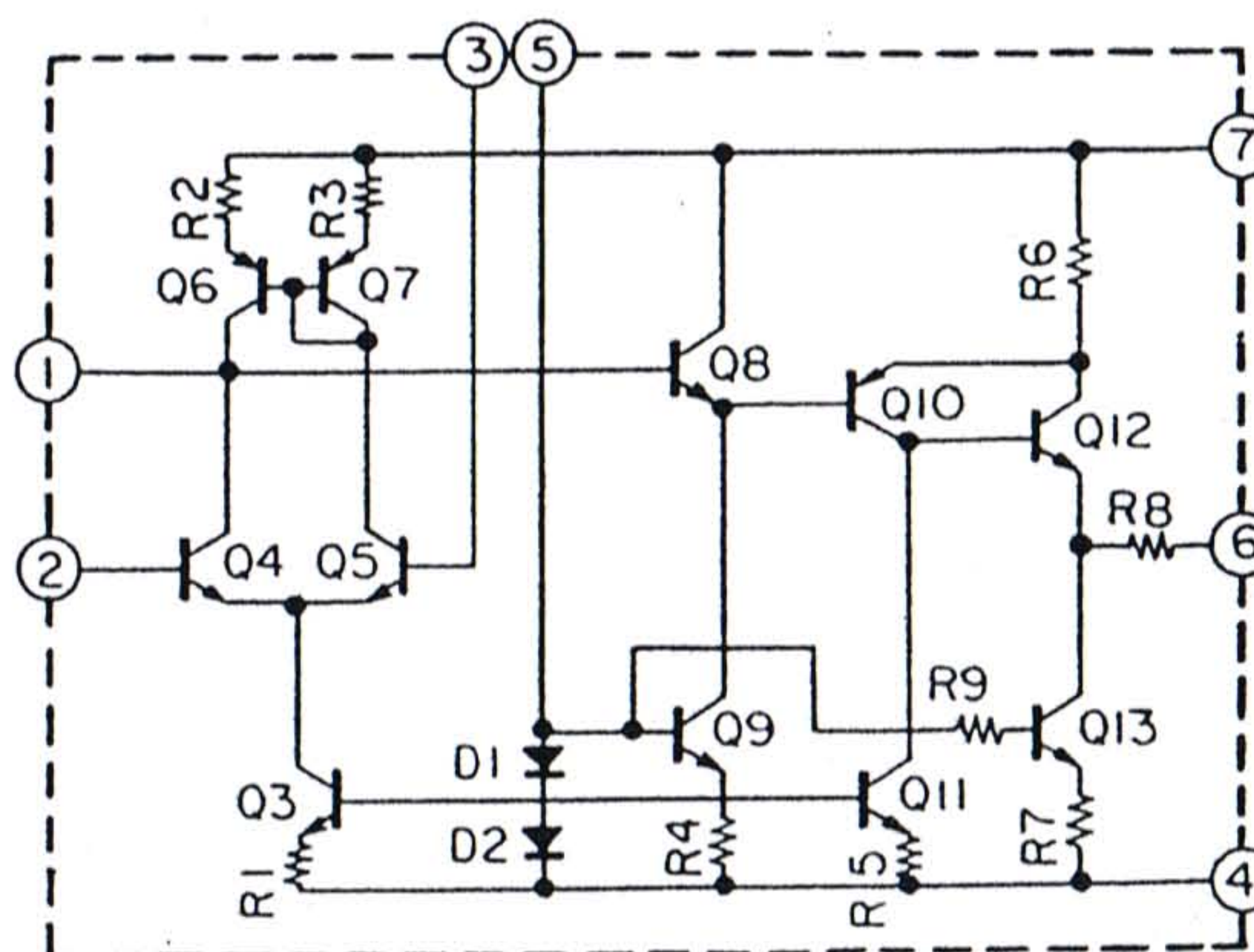


DIMENSIONS AND LOCATION OF CONTROLS



IC EQUIVALENT CIRCUIT

- YBAMTA7136P (IC1, 101, 201)
- PRE AMP



CAR COMPO COMBINATIONS

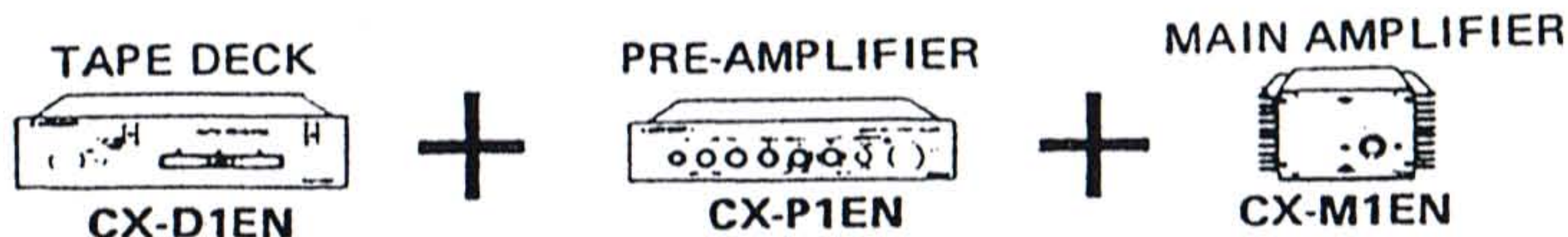
Example-1
Car Radio & Car Stereo



Example-2
Car Radio

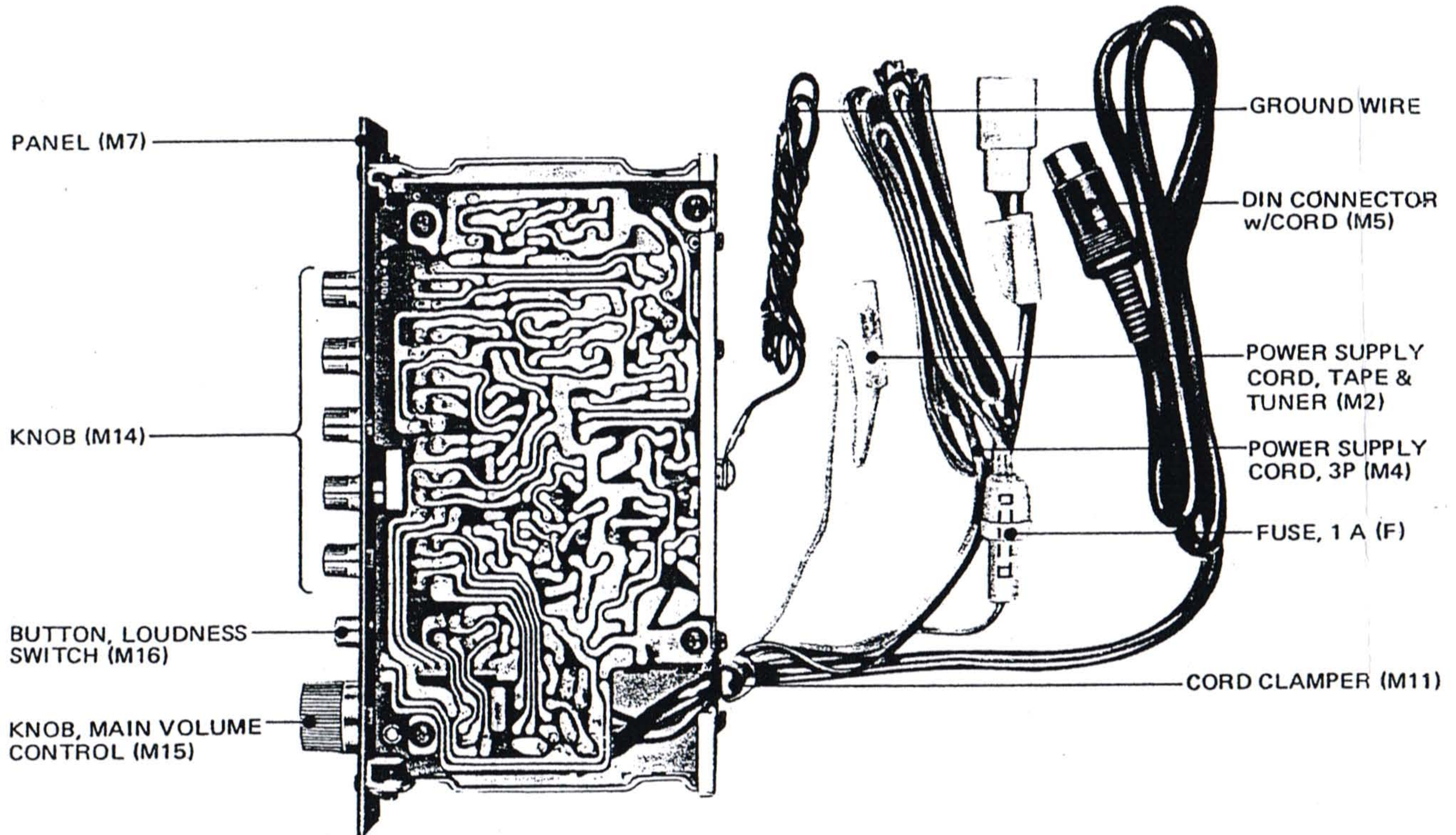


Example-3
Car Stereo



PARTS LOCATION

- Reference numbers, in () are listed in the Replacement Parts List, starting on page 7.
- For other parts location, see the EXPLODED VIEW, page 6.



ADJUSTMENT

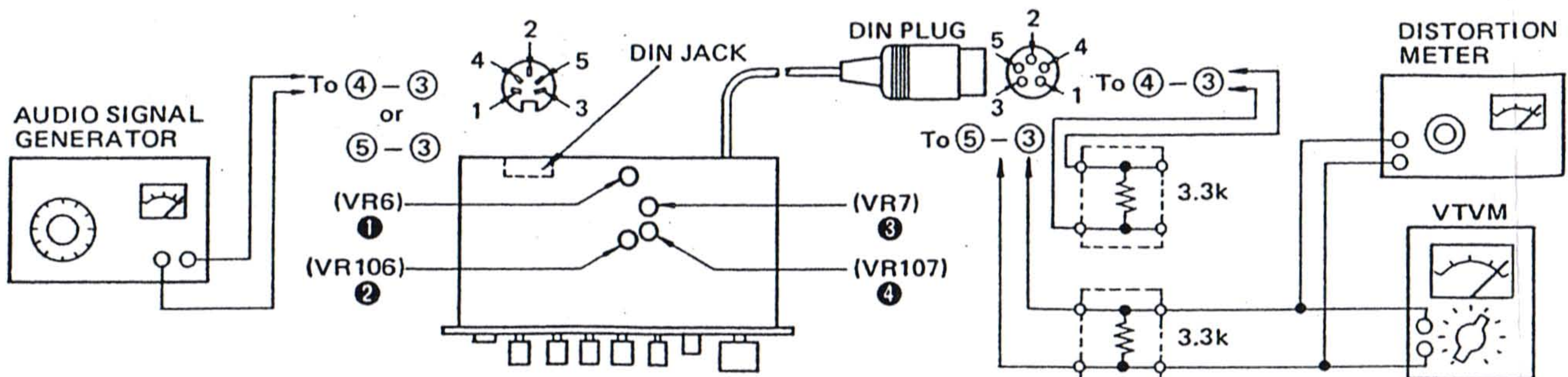
■ EQUIPMENT REQUIRED

- Dummy Load: 3.3 k OHM x 2
- Indicator: AC Voltmeter (VTVM)
Distortion Meter
- Tool: Minus- screwdriver
- Signal Generator: Audio Signal Generator
- Power Source Voltage: DC 13.2 V (standard voltage for measurement)

- Set Volume Controls at maximum, and Tone Controls in the treble position.
- Connect the audio signal generator to the terminals ④ – ③ or ⑤ – ③ of DIN connector jack.
- Connect the dummy loads to the terminals ④ – ③ & ⑤ – ③ of DIN connector plug.

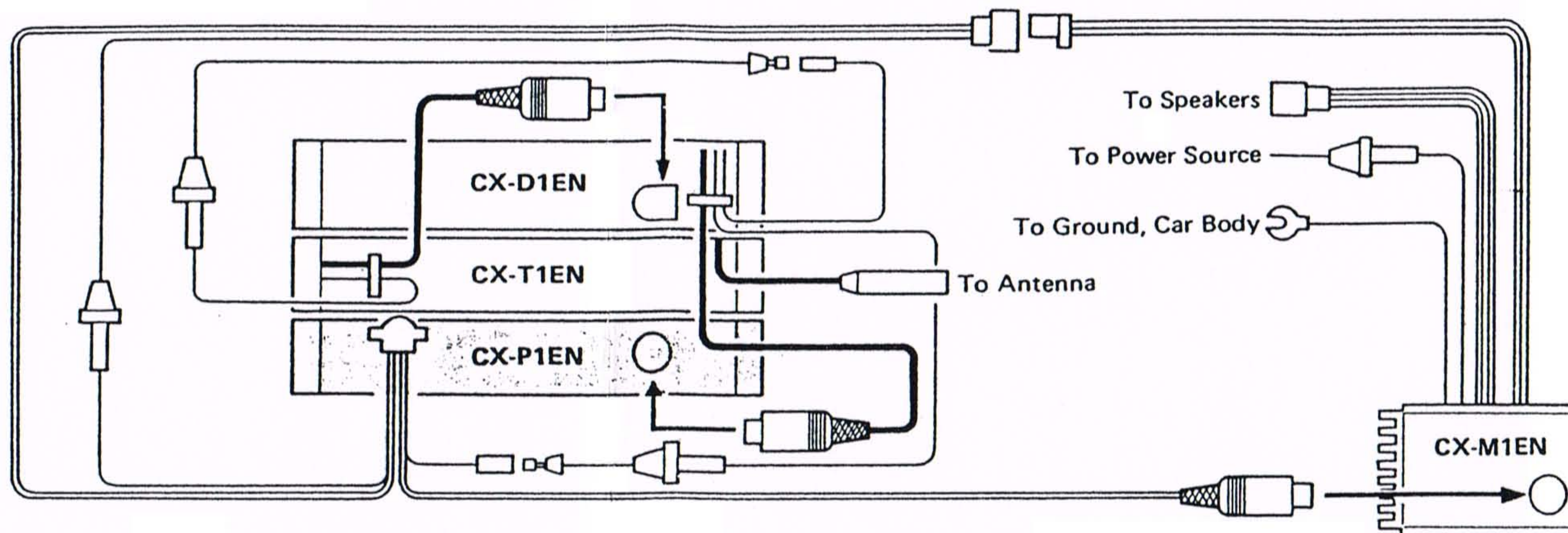
STEP	ADJUST	SIGNAL GENERATOR	INDICATOR CONNECTION	REMARKS
①, ②	VR6 VR106	1000 Hz, 200 mV	VTVM across dummy load.	Adjust to 400 mW output.
③, ④	VR7 VR107	"	Distortion meter across dummy load.	Adjust for minimum distortion.

● Repeat steps two or three times.

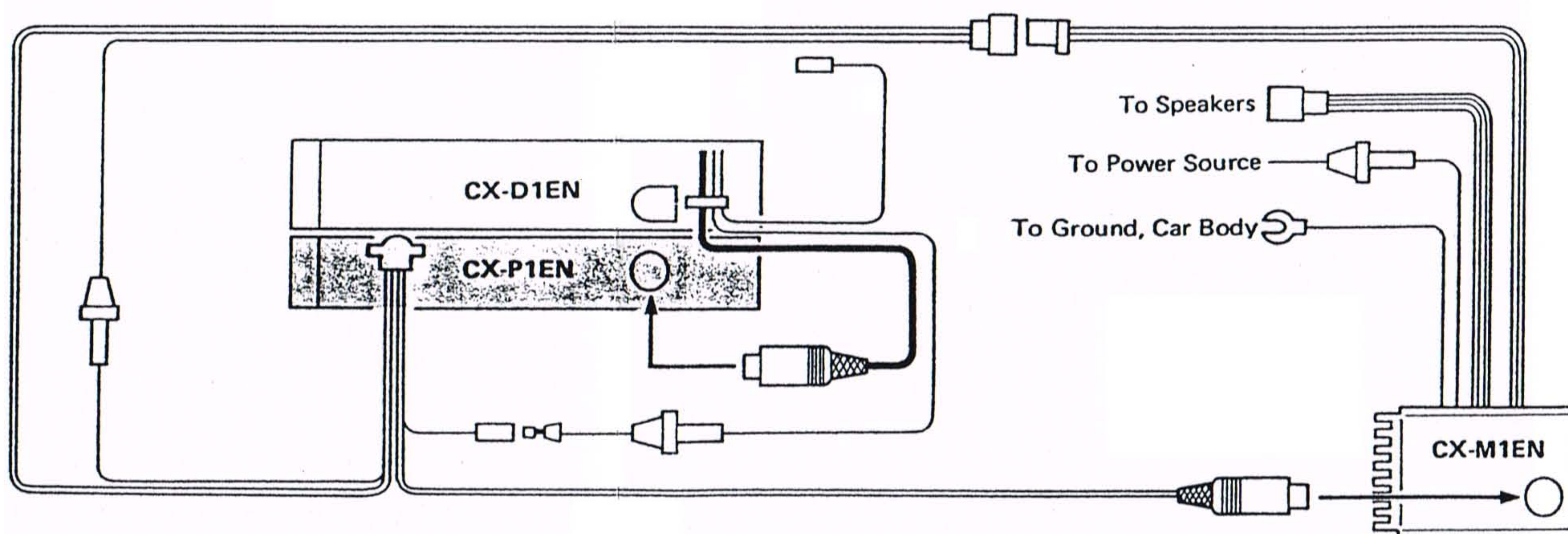


INSTALLATION INSTRUCTIONS

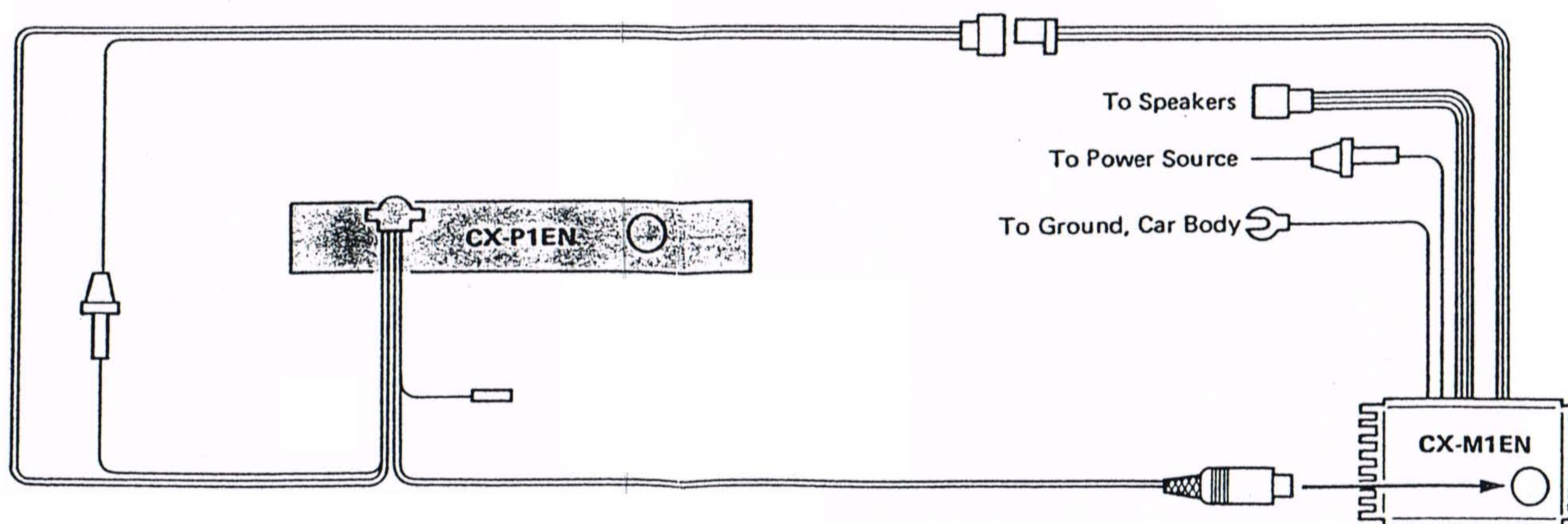
TUNER + TAPE DECK + PRE-AMPLIFIER + MAIN AMPLIFIER



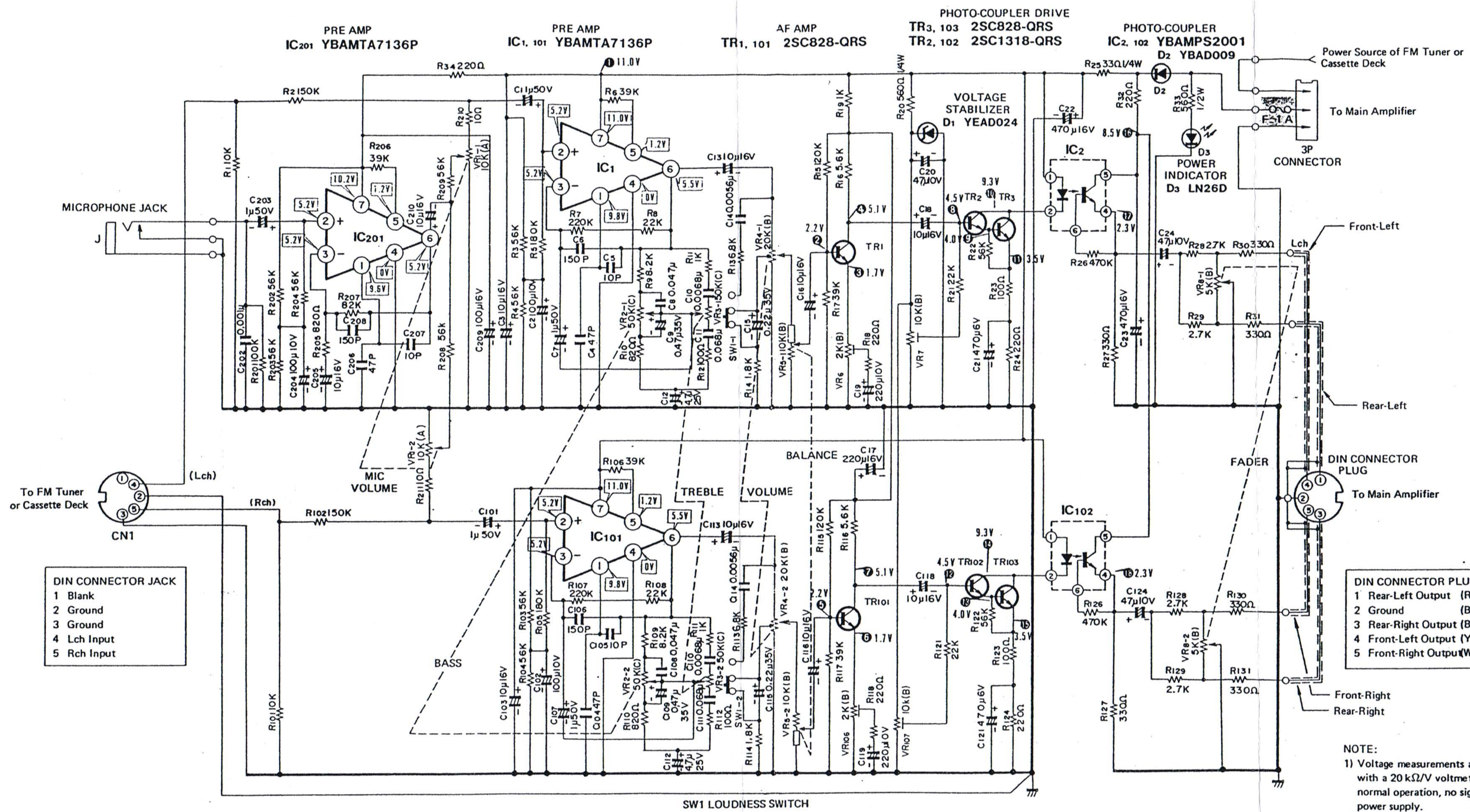
TUNER/TAPE DECK + PRE-AMPLIFIER + MAIN AMPLIFIER



PRE-AMPLIFIER + MAIN AMPLIFIER



-SCHEMATIC DIAGRAM MODEL CX-P1EN



NOTE:

- 1) Voltage measurements are in respect to ground, with a 20 k Ω /V voltmeter, with controls set for normal operation, no signal applied, 13.2 V DC, power supply.
- Exact value determined by production process. This schematic diagram is the latest at the time of printing and subject to change without notice. Replace same value as original parts.
- The shaded area on this schematic diagram incorporates special features important for SAFETY. When servicing it is essential that only manufacturer's specified parts be used to replace these critical components.

R	1	201	202	2	205	207	206	209			34	210	3	4	5	7	6			10	9	8	11	13		14	15			19	18	20	21			22	23	24	25			27	32	33			28	30
	203		204				208									108											16						123			26						128			29	31		
	101		102				211						103			105	107	106			110	109	111	112	113	114	115			117	116	118	121			122	124	126			127	129			130			131
C	202	203	204	205	208	206	207	210	209	3	1	2	7	6	4	5	8			12	10	13	15	16			19			20			21						23			24						
													106			9			110	11	14							17			18																	
										101			103	102	107	104			105	108	109	112	111	113	114	115	116			119			118			121			124									

WIRING DIAGRAM MODEL CX-P1EN

IC's AND TRANSISTORS

• IC1, 101, 201

• IC2, 102

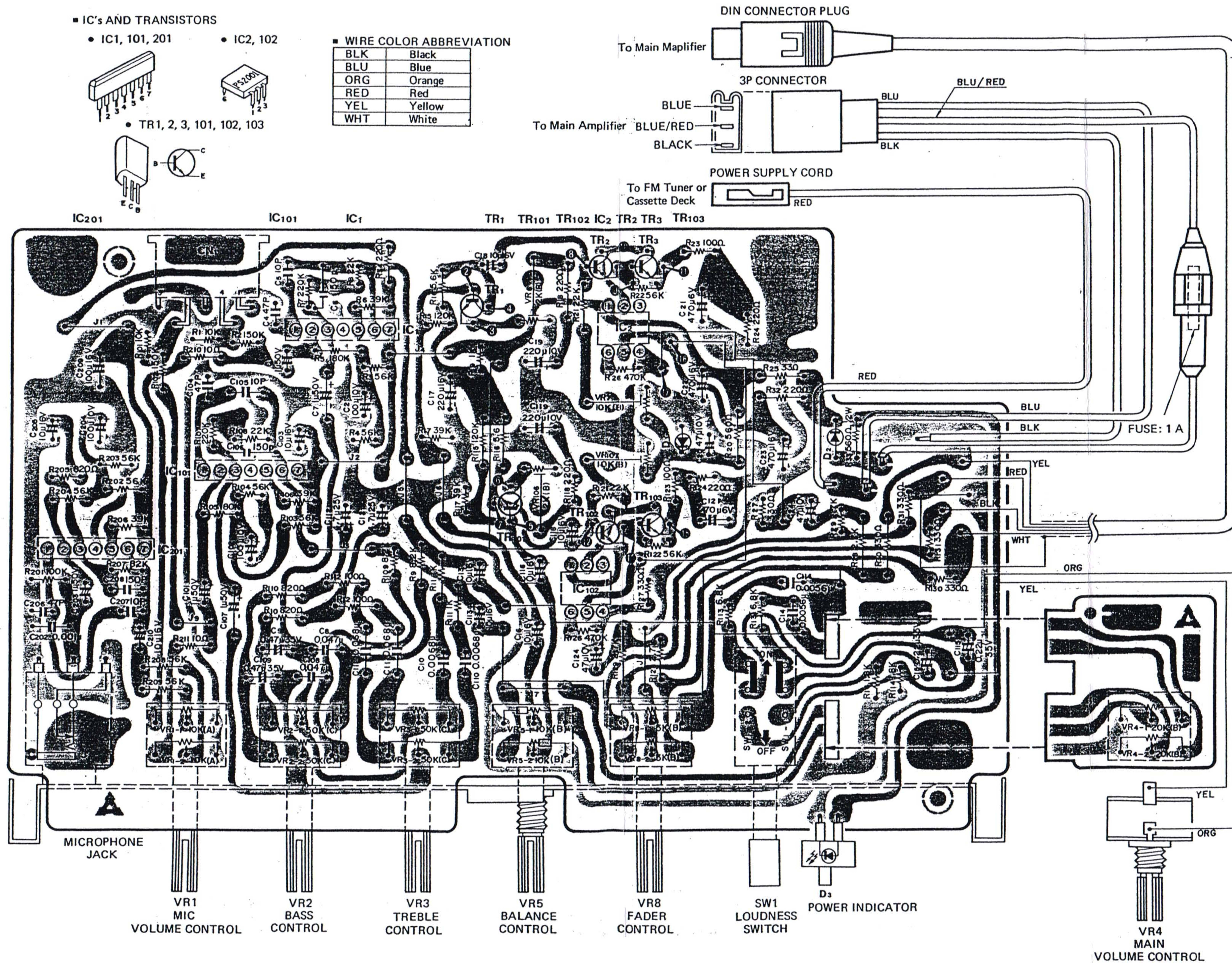
WIRE COLOR ABBREVIATION

BLK	Black
BLU	Blue
ORG	Orange
RED	Red
YEL	Yellow
WHT	White

• TR1, 2, 3, 101, 102, 103

■ Negative side is shown in blue.

PIN NO.	VOLTAGE
IC1, 101	
①	9.8V
②	5.2V
③	5.2V
④	0V
⑤	1.2V
⑥	5.5V
⑦	11.0V
IC201	
①	9.6V
②	5.2V
③	5.2V
④	0V
⑤	1.2V
⑥	5.2V
⑦	10.2V
NO.	VOLTAGE
①	11.0V
②	2.2V
③	1.7V
④	5.1V
⑤	2.2V
⑥	1.7V
⑦	5.1V
⑧	4.5V
⑨	4.0V
⑩	9.3V
⑪	3.5V
⑫	4.5V
⑬	4.0V
⑭	9.3V
⑮	3.5V
⑯	8.5V
⑰	2.3V
⑱	2.3V

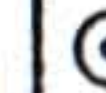
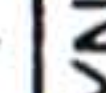
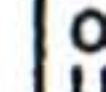
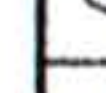


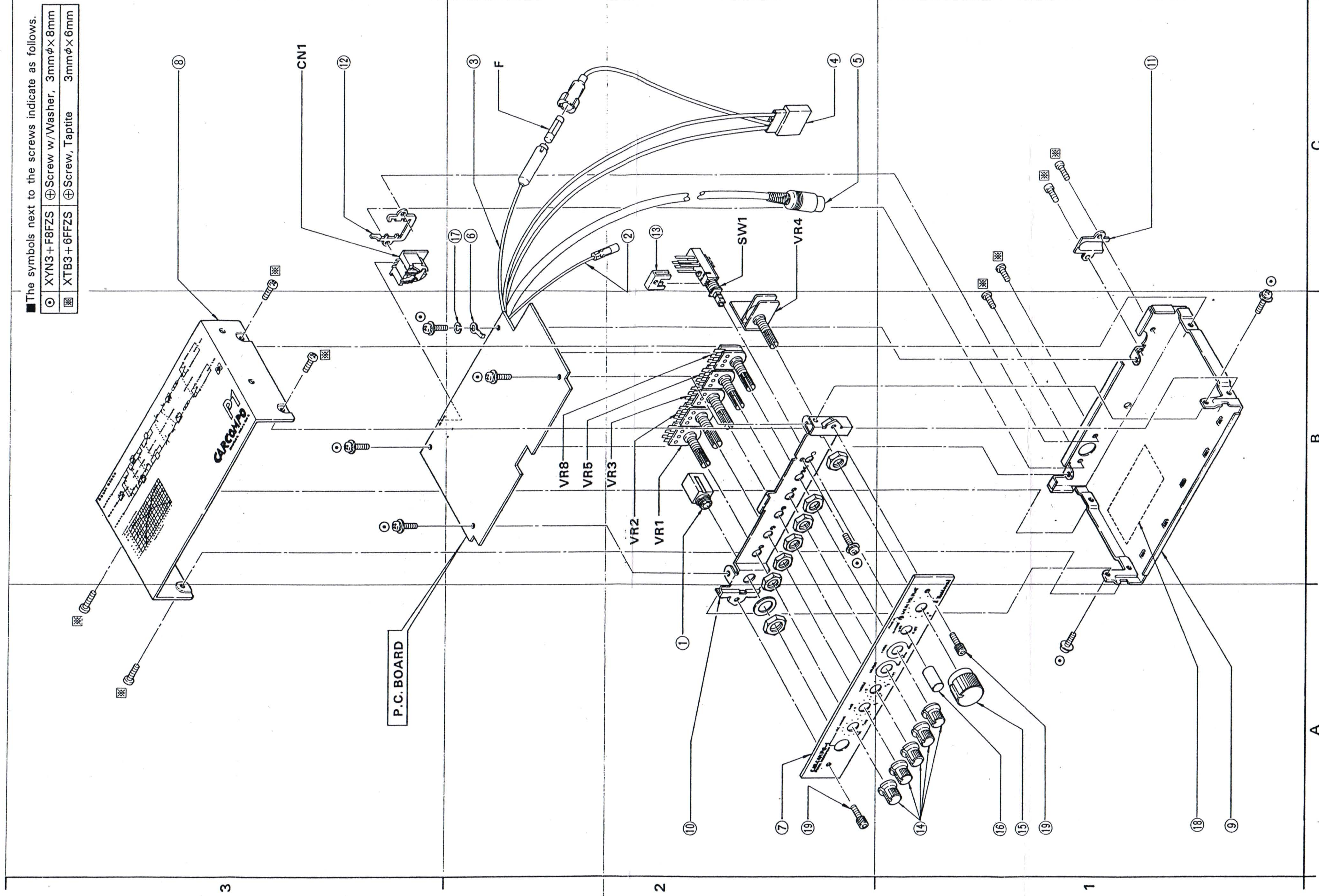
PRE AMPLIFIER

EXPLODED VIEW

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

The symbols next to the screws indicate as follows.

	XYN3+F8FZS		Screw w/Washer, 3mmφ×8mm
	XTB3+6FFZS		Screw, Tapite 3mmφ×6mm



Replacement Parts List Model NO.CX-P1EN

NOTES:

- Be sure to make your orders of replacement parts according to this list.
- Components identified by shaded area have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- The column of Ref. No. indicates the located position of the parts on the EXPLODED VIEW, and see the cross section of the horizontal column (1 ~ up) and the vertical column (A ~ up).

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
MISCELLANEOUS				
F (2-C)	XBB1C10NR1	Fuse, A	1	
CN1 (3-C)	YEAE01082	DIN Connector	1	
M1 (2-A)	YBAE02014	Jack, Microphone	1	
M2 (2-C)	YBAJ01046	Power Supply Cord, Tape & Tuner	1	
M3 (2-C)	YBAJ01047	Power Supply Cord, Blue	1	
M4 (3-C)	YBAJ01048	Power Supply Cord, 3P	1	
M5 (3-C)	YBAJ01049	DIN Connector w/Cord	1	
M6 (3-C)	YAAT03003	Terminal	1	
M7 (2-A)	YEFC04236	Panel	1	
M8 (3-C)	YEFA03310	Upper Cover	1	
M9 (1-A)	YBFA01044	Chassis	1	
M10 (2-A)	YBFA07003	Front Plate	1	
M11 (1-C)	YBFX014164	Cord Clamper	1	
M12 (3-C)	YBFX014165	Mounting Bracket, DIN Connector	1	
M13 (2-C)	YBFX014166	Mounting Bracket, Switch	1	
M14 (1-A)	YBFE02003	Knob, Volume, Bass, Treble, Fader	5	
M15 (1-A)	YEFE04021	Knob, Main Volume Control	1	
M16 (1-A)	YEFE14009	Button, Loudness Switch	1	
M17 (2-C)	XWA3BFX	Washer, Spring	1	
M18 (1-A)	YEFM01335	Main Seal	1	
M19 (1-A) (2-A)	YEJS06010	⊕ Screw, Hexagon	2	
M20	XYN3+F8FZS	⊕ Screw w/Washer, 3mmφ x 8mm	7	
M21	XTB3+6FFZS	⊕ Screw, Tapite 3mmφ x 6mm	8	

MODEL CX-P1EN

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
ICs				
IC1, 101, 201	YBAMTA7136P	Pre Amp	3	
IC2, 102	YBAMPS2001	Photo-Coupler	2	
TRANSISTORS				
TR1, 3, 101, 103	2SC828	Photo-Coupler Drive, AF Amp	4	
TR2, 102	2SC1318	Photo-Coupler	2	
DIODES				
D1	YEAD024	Voltage Stabilizer	1	
D2	YBAD009	Spark Suppression	1	
D3	LN26D	Indicator, Power	1	
CAPACITORS				
C1	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C2	ECEA10V100L	100 MFD 10WV Electrolytic	1	
C3	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C4	YECCD1H470KM	47 PF 50WV ±10% Ceramic	1	
C5	YECCD1H100FM	10 PF 50WV ±1PF Ceramic	1	
C6	YECCD1H151KM	150 PF 50WV ±10% Ceramic	1	
C7	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C8	YECQN1H473M	0.047 MFD 50WV ±20% Polyester	1	
C9	ECSZ35EFR47Q	0.47 MFD 35WV Tantalum	1	
C10	YECQN1H682M	0.0068 MFD 50WV ±20% Polyester	1	
C11	YECQN1H683M	0.068 MFD 50WV ±20% Polyester	1	
C12	ECEA25V4R7L	4.7 MFD 25WV Electrolytic	1	

Ref. No.	Part No.	Part Name & Description		Pcs Set	Remarks
C13	ECEA16V10L	10 MFD	16WV	1	Electrolytic
C14	YECQN1H562K	0.0056 MFD	50WV ±10%	1	Polyester
C15	ECSZ35EFR22Q	0.22 MFD	35WV	1	Tantalum
C16	ECEA16V10L	10 MFD	16WV	1	Electrolytic
C17	ECEA16V220L	220 MFD	16WV	1	Electrolytic
C18	ECEA16V10L	10 MFD	16WV	1	Electrolytic
C19	ECEA10V220L	220 MFD	10WV	1	Electrolytic
C20	ECEA10V47L	47 MFD	10WV	1	Electrolytic
C21	ECEA6V470L	470 MFD	6WV	1	Electrolytic
C22	ECEA16V470Z	470 MFD	16WV	1	Electrolytic
C23	ECEA16V470Z	470 MFD	16WV	1	Electrolytic
C24	ECEA10V47L	47 MFD	10WV	1	Electrolytic
C101	ECEA50V1L	1 MFD	50WV	1	Electrolytic
C102	ECEA10V100L	100 MFD	10WV	1	Electrolytic
C103	ECEA16V10L	10 MFD	16WV	1	Electrolytic
C104	YECDD1H470KM	47 PF	50WV ±10%	1	Ceramic
C105	YECDD1H100FM	10 PF	50WV ±1PF	1	Ceramic
C106	YECDD1H151KM	150 PF	50WV ±10%	1	Ceramic
C107	ECEA50V1L	1 MFD	50WV	1	Electrolytic
C108	YECQN1H473M	0.047 MFD	50WV ±20%	1	Polyester
C109	ECSZ35EFR47Q	0.47 MFD	35WV	1	Tantalum
C110	YECQN1H682M	0.0068 MFD	50WV ±20%	1	Polyester
C111	YECQN1H683M	0.068 MFD	50WV ±20%	1	Polyester
C112	ECEA25V4R7L	4.7 MFD	25WV	1	Electrolytic
C113	ECEA16V10L	10 MFD	16WV	1	Electrolytic
C114	YECQN1H562K	0.0056 MFD	50WV ±10%	1	Polyester
C115	ECSZ35EFR22Q	0.22 MFD	35WV	1	Tantalum
C116	ECEA16V10L	10 MFD	16WV	1	Electrolytic
C118	ECEA16V10L	10 MFD	16WV	1	Electrolytic
C119	ECEA10V220L	220 MFD	10WV	1	Electrolytic
C121	ECEA6V470L	470 MFD	6WV	1	Electrolytic
C124	ECEA10V47L	47 MFD	10WV	1	Electrolytic
C202	YECQN1H102K	0.001 MFD	50WV ±10%	1	Polyester
C203	ECEA50V1L	1 MFD	50WV	1	Electrolytic

RESISTORS

Ref. No.	Part No.	Part Name & Description		Pcs Set	Remarks
R1	ERD18VJ103	10k OHM	1/8W ±5%	1	Carbon
R2	ERD18VJ154	150k OHM	1/8W ±5%	1	Carbon
R3	ERD18VJ563	56k OHM	1/8W ±5%	1	Carbon
R4	ERD18VJ563	56k OHM	1/8W ±5%	1	Carbon
R5	ERD18VJ184	180k OHM	1/8W ±5%	1	Carbon
R6	ERD18VJ393	39k OHM	1/8W ±5%	1	Carbon
R7	ERD18VJ224	220k OHM	1/8W ±5%	1	Carbon
R8	ERD18VJ223	22k OHM	1/8W ±5%	1	Carbon
R9	ERD18VJ822	8.2k OHM	1/8W ±5%	1	Carbon
R10	ERD18VJ821	820 OHM	1/8W ±5%	1	Carbon
R11	ERD18VJ102	1k OHM	1/8W ±5%	1	Carbon
R12	ERD18VJ101	100 OHM	1/8W ±5%	1	Carbon
R13	ERD18VJ682	6.8k OHM	1/8W ±5%	1	Carbon
R14	ERD18VJ182	1.8k OHM	1/8W ±5%	1	Carbon
R15	ERD18VJ124	120k OHM	1/8W ±5%	1	Carbon
R16	ERD18VJ562	5.6k OHM	1/8W ±5%	1	Carbon

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
VARIABLE RESISTORS				
VR1	EWKKVAK20A14	10k OHM (A) MIC Volume Control	1	
VR2, 3	EWKKWAK20C54	50k OHM (C) Bass & Treble Control	2	
VR4	EWKCBKAK20B24	20k OHM (B) Volume Control	1	
VR5	EWKKWAK20703	10k OHM (B) Balance Control	1	
VR6, 106	EVNK4AA00B23	2k OHM (B) Semi-fixed	2	
VR7, 107	EVNK4AA00B14	10k OHM (B) Semi-fixed	2	
VR8	EWKKWAK20B53	5k OHM (B) Fader Control	1	
SWITCH				
SW1	YBAS09012	Loudness Switch	1	
PRINTING				
A1	YEFM06666	Instruction Book	1	