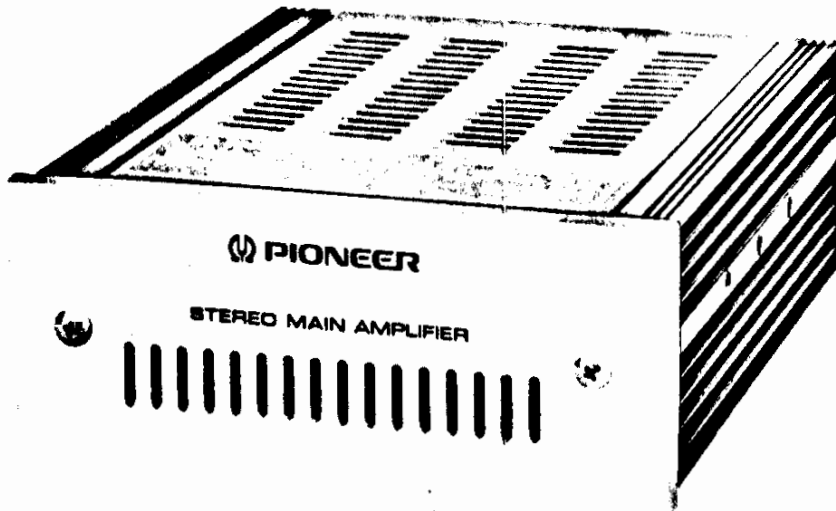


GM-40

U,C,E

CAR STEREO HIGH-POWER MAIN AMPLIFIER

SERVICE MANUAL



SPECIFICATIONS

Power source	13.8V (11 ~ 16V allowable)
Grounding system	Negative type
Dimensions (W x H x D)	122 x 50 x 150 mm (4-3/4 x 2 x 5-7/8 in.)
Weight	1 kg (2.2 lbs.)
Max. current consumption	4A
Power output (max.)	20W + 20W
(rated)	16W + 16W
Load impedance	4Ω (4 ~ 8Ω allowable)
Frequency response	15 ~ 40,000 Hz (-3 dB)
Signal-to-noise ratio	More than 80 dB
Distortion	No more than 0.06% (at 1.5W, 1 kHz)
Input level	70 mV/20 kΩ

Note:

Specifications and the design subject to possible modification without notice due to improvements.

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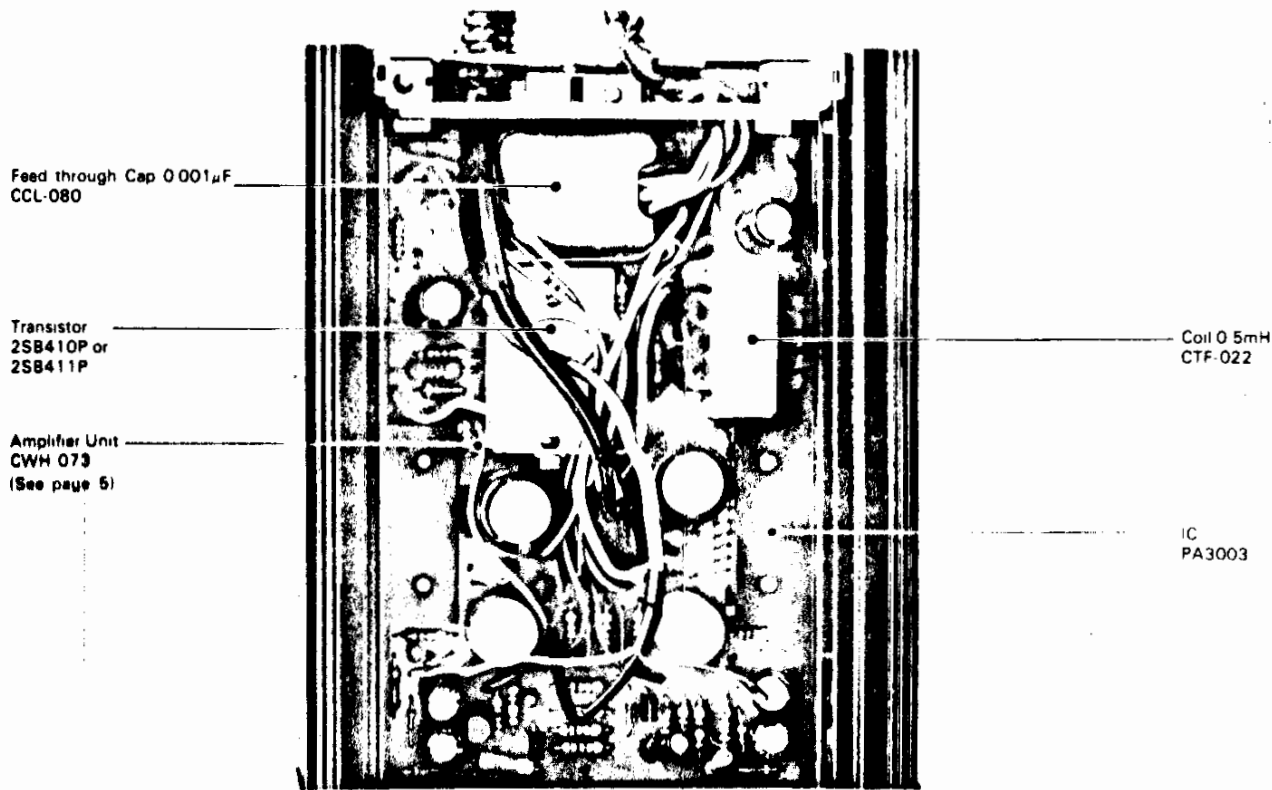
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SERIAL NO. APPLIED

GM-40/U	128301 ~
GM-40/C	10801 ~
GM-40/E	43001 ~

1. PARTS LOCATION..... GM-40



Grille
CNS 554

Fig. 1

2. CIRCUIT DESCRIPTION.....

● Protection Circuit

It is advisable not to ground each output terminal as GM-40 incorporates the use of a BPTL circuit. If grounding is done by erratic wiring, the IC (PA3003) may be shorted with load, and about 8A DC current caused to flow, thereby damaging the IC. A protection circuit is provided for protecting the IC from damage.

For example, when the ⊕ side output lead wire of the left side channel is grounded, the emitter potential of Q5 approaches 0V so that Q5 is turned on. Then, bias voltage is applied to the base of Q3 so it is turned on. At the same

time, Q2 is also turned on and about 6V is applied to the terminals 1 and 4 of the IC, to which 1.6V is normally supplied. Now, the mid-point potential of the terminal 10 is reduced to 0V by the IC to cut off the output-stage transistor within the IC, thus providing for protection of IC.

The mono-stable circuit consisting of Q3 and Q4 is repeatedly turned on and off by charge and discharge from C20. (About 0.5 sec. cycle) The circuit is designed so that automatic resetting may be made when normal connection is set up.

3. MISCELLANEOUS PARTS LIST GM-40

NOTICE: Of the descriptive symbols of the resistor and capacitor, the encircled alphabetic letter denotes the allowable error.

Example: RD1/4VS100 (J) C: $\pm 0.25\mu\text{F}$ F: $\pm 1\mu\text{F}$ J: $\pm 5\%$ M: $\pm 20\%$ Z: $\pm \frac{80}{20}\%$
 CEA100 P 25 D: $\pm 0.5\mu\text{F}$ G: $\pm 2\%$ K: $\pm 10\%$ X: $\pm \frac{40}{20}\%$ P: $\pm \frac{100}{10}\%$

Ref. Key	Parts No.	Description
C1	CCL 080	Feed through Cap 0 001 μF
FU1	E21 603	Fuse 4A
J1	CDE 466	Connector
L1	CTF 021	Coil 15 μH

● IC's and Transistors

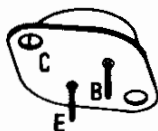
2SC458
2SA844



2SA683



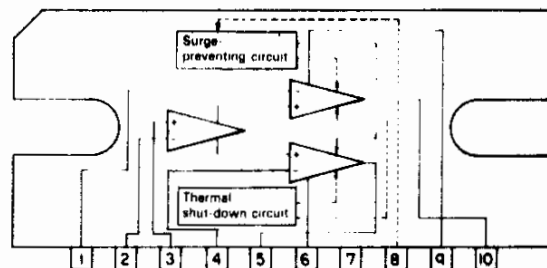
2SB410P
2SB411P



PA3003



PA3003



5. AMPLIFIER UNIT (CWH-073) GM-40

● Parts Connection

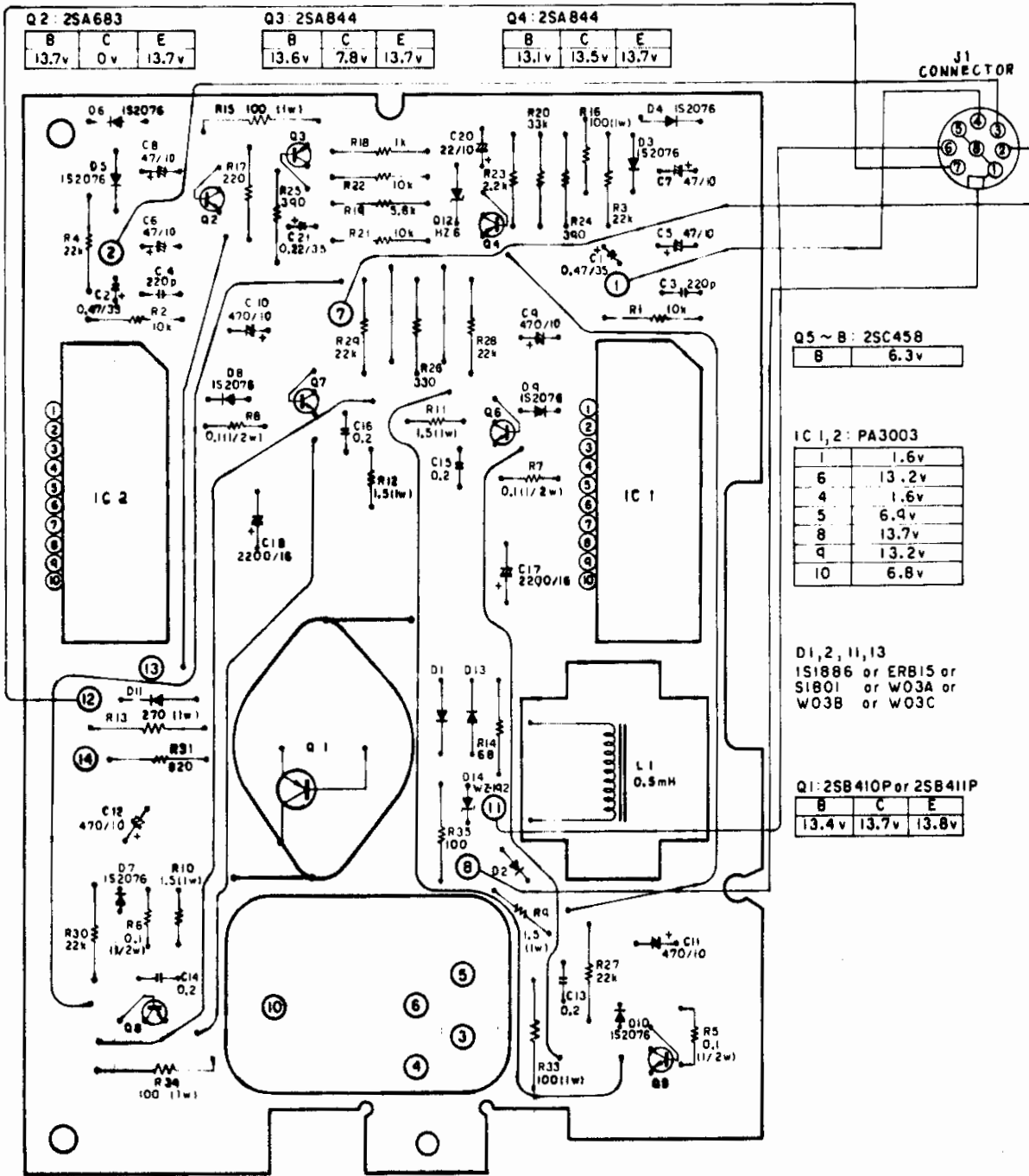


Fig. 3

● Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
IC1.2	PA3003	IC
Q1	2SB410P	Transistor
	2SB411P	Transistor
Q2	2SA683	Transistor
Q3.4	2SA844	Transistor
Q5~8	2SC458	Transistor
D1.2	ERB15-01 or	Diode
	1S1886 or	Diode
	W03A or	Diode
	W03B or	Diode
	W03C	Diode
D3~10	1S2076	Diode
D11	ERB15-01 or	Diode
	1S1886 or	Diode
	W03A or	Diode
	W03B or	Diode
	W03C	Diode
D12	HZ6-B	Diode
D13	ERB15-01 or	Diode
	1S1886 or	Diode
	W03A or	Diode
	W03B or	Diode
	W03C	Diode
D14	WZ-192	Diode
L1	CTF-022	Coil 0.5mH

RESISTORS

Ref. Key	Parts No.	Description
R1.2	RD1/4PS103J	10kΩ 1/4W
R3.4	RD1/4PS223J	22kΩ 1/4W
R5~8	CCN 030	0.1Ω 1/2W
R9~12	RN1P1R5K	1.5Ω 1W
R13	RS1P271K	270Ω 1W
R14	RD1/4PS680J	68Ω 1/4W
R15.16	CCN 046	100Ω 1W
R17	RD1/4PS221J	220Ω 1/4W
R18	RD1/4PS102J	1kΩ 1/4W
R19	RD1/4PS562J	5.6kΩ 1/4W
R20	RD1/4PS333J	33kΩ 1/4W
R21.22	RD1/4PS103J	10kΩ 1/4W
R23	RD1/4PS222J	2.2kΩ 1/4W
R24.25	RD1/4PS391J	390Ω 1/4W
R26	RD1/4PS331J	330Ω 1/4W
R27~30	RD1/4PS223J	22kΩ 1/4W
R31	RD1/4PS821J	820Ω 1/4W
R32	VACANT	
R33.34	CCN 046	100Ω 1W
R35	RD1/4PS101J	100Ω 1/4W

CAPACITORS

Ref. Key	Parts No.	Description
C1.2	CSZAR47M35	0.47μF 35V
C3.4	CKDYB221K50	220pF 50V
C5~8	CEA470P10	47μF 10V
C9~12	CEA471P10	470μF 10V
C13~16	CKDBC204M12	0.2μF 12V
C17.18	CCH 003	2200μF 16V
C19	VACANT	
C20	CEA220P10	22μF 10V
C21	CSZAR22M35	0.22μF 35V

4. SCHEMATIC CIRCUIT DIAGRAM

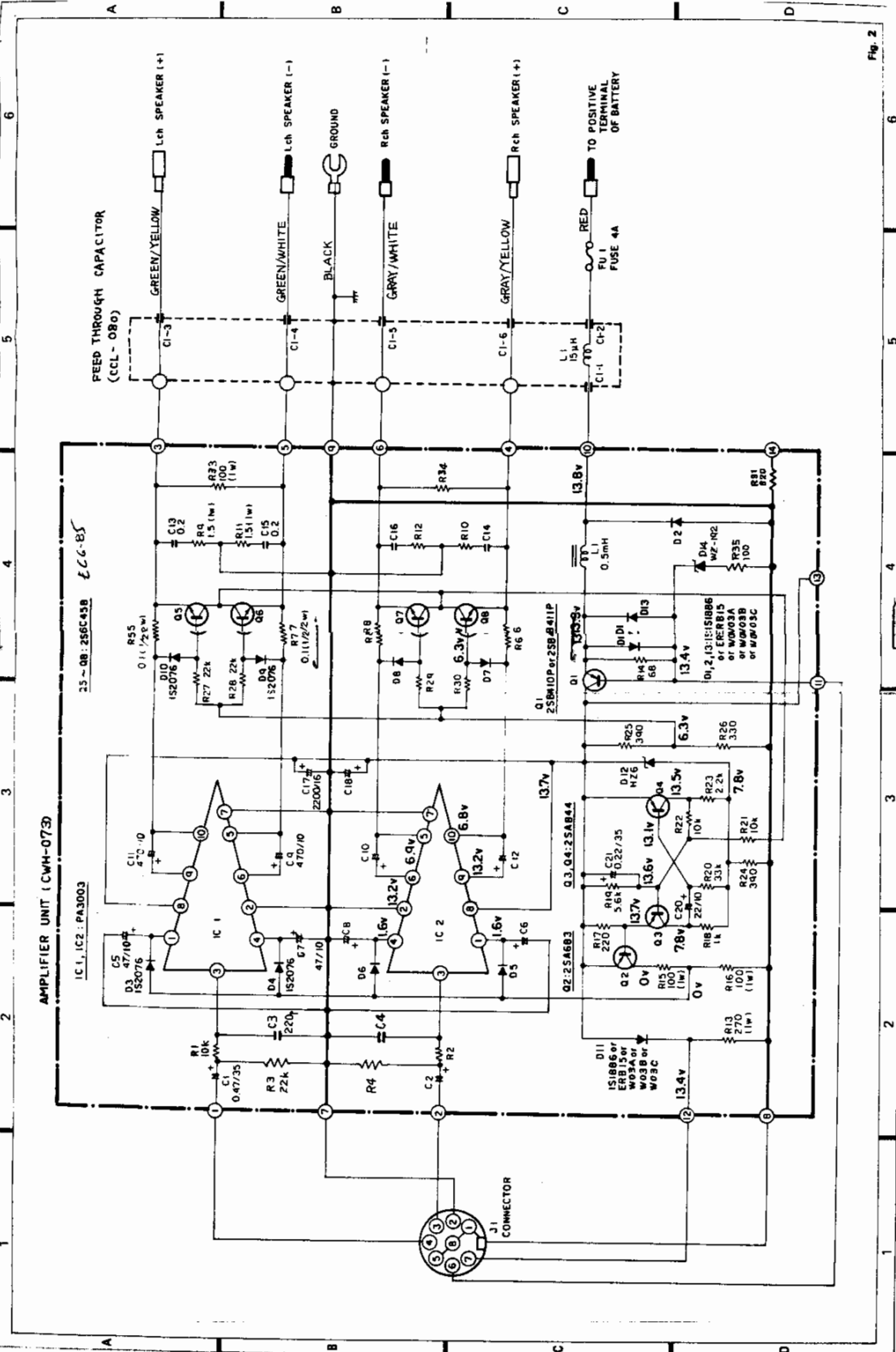


Fig. 2

COMPONENT CAR STEREO HIGH POWER MAIN AMPLIFIER

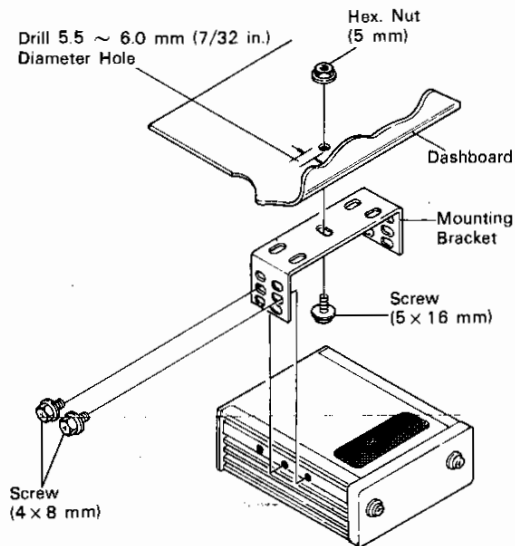
Thank you for purchasing this PIONEER product.
Before operating it, be sure to read this manual.

INSTALLATION

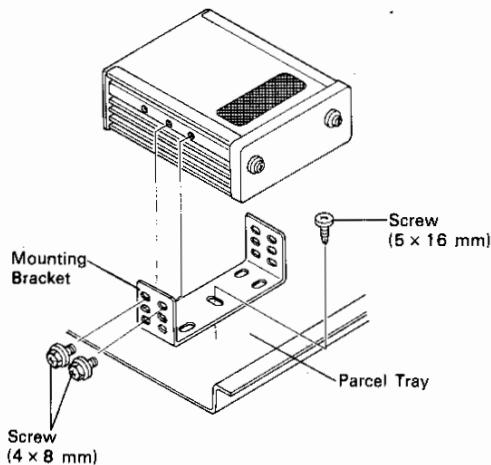
GM-40 can be installed in many ways as shown in the figures. But it should not be installed in such a place where water may splash or the unit is subject to the influence by heat (near the heater or on the chassis above the muffler) and in a sealed place (beneath the carpet or in glove box) because the amplifier is damaged by it.

In case the mounting positions of the car stereo and amplifier are apart from each other, be sure use the component car stereo extension cord CD-115 (cable length: 150 cm, 59-1/2 in.) which is available as option.

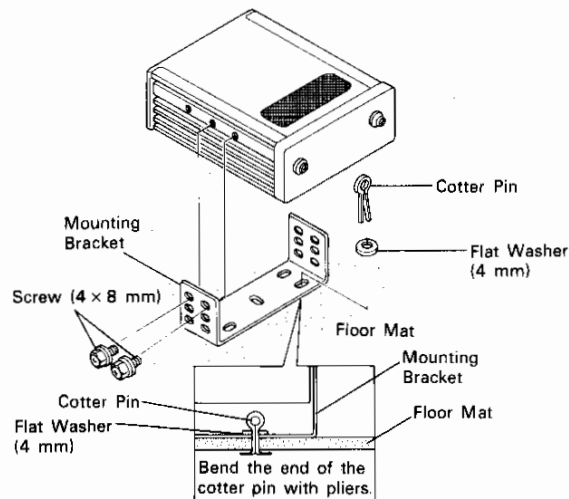
1. For Installation to the Under-Dash



2. For Installation to the Parcel Tray



3. For Installation to the Floor Mat



LIMITED WARRANTY

THIS PRODUCT IS COVERED BY PIONEER'S STANDARD WARRANTY. SEE SEPARATE ENCLOSURE FOR DETAILS.

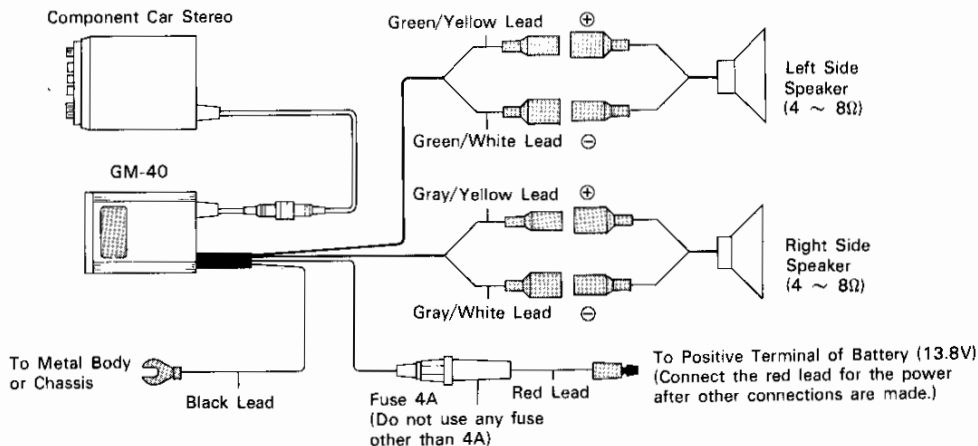
CONNECTION

Be sure to make proper speaker wirings.

- Be sure to wire the positive \oplus and negative \ominus sides of speakers independently.
- Protection circuit inside will actuate if wiring is done improperly. No sound is heard in this case.
- The red power wire should be connected the last.

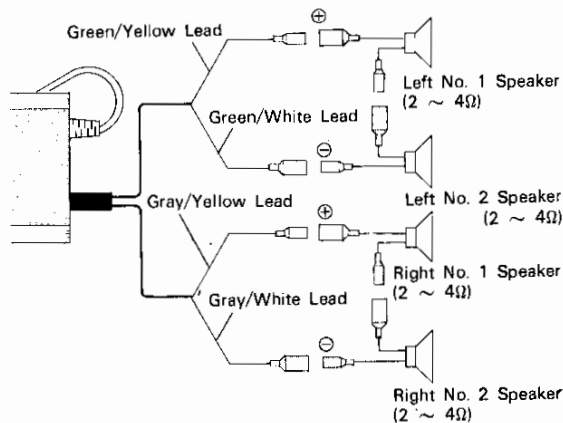
Caution:

- (1) Do not connect the negative \ominus lead wires of right and left speakers together.
- (2) Do not ground the negative \ominus lead wire directly to the body.



- When you want to use four speakers, connect them in series as shown right so that the total impedance of the speakers becomes 4 to 8 ohms.
- Use speakers each having a maximum input handling capacity of 20 watts or more for the GM-40 amp. Otherwise speakers might be damaged by overload.

Note: Be careful not to allow metals, sand pebbles into the amplifier.



SPECIFICATIONS

Power source DC 13.8V (11 ~ 16V allowable)
 Grounding system Negative type
 Dimensions (W × H × D) 122 × 50 × 150 mm
 (4-3/4 × 2 × 5-7/8 in.)
 Weight 1 kg (2.2 lbs.)
 Max. current consumption 4A
 Power output (max.) 20W + 20W
 (rated) 16W + 16W

Load impedance 4Ω (4 ~ 8Ω allowable)
 Frequency response 15 ~ 40,000 Hz (-3 dB)
 Signal-to-noise ratio More than 80 dB
 Distortion ... No more than 0.06% (at 1.5W, 1 kHz)
 Input level 70 mV/20 kHz

Note: Specifications and the design subject to possible modification without notice due to improvements.

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