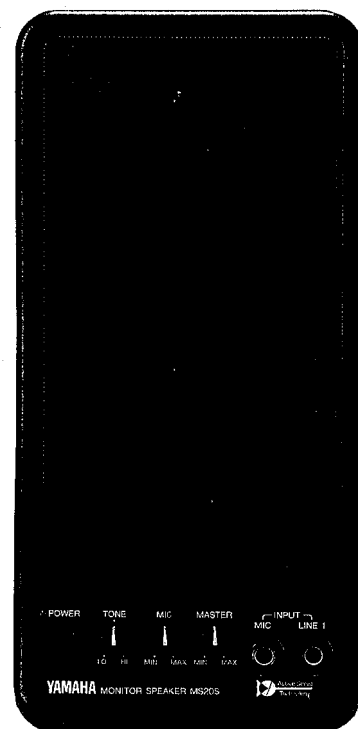


# MONITOR SPEAKER MS20S

## SERVICE MANUAL



### ■ CONTENTS (目次)

SPECIFICATIONS (総合仕様).....	2
PANEL LAYOUT (パネルレイアウト).....	3
CIRCUIT BOARD LAYOUT (ユニットレイアウト).....	4
IC BLOCK DIAGRAM (ICブロック図).....	4
BLOCK DIAGRAM (ブロックダイアグラム).....	5
DIMENSIONS (寸法図).....	5
DISASSEMBLY PROCEDURE (分解手順).....	6
CIRCUIT BOARDS (シート基板図).....	10
OVERALL CIRCUIT DIAGRAM (総回路図).....	12
PARTS LIST	

## IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principal-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit/s indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

## SPECIFICATIONS

<b>SPEAKER SECTION</b>	
Components	LF: 12cm cone-type × 1 HF: 3cm cone-type × 1
Sensitivity	88dB SPL (1W, 1m, on axis)
Enclosure	Bass reflex type, magnetic shielding construction
<b>AMP SECTION</b>	
Output Power	20W
Input Sensitivity & Impedance	MIC INPUT - 50dB/10kΩ INPUT 1 - 10dB/10kΩ INPUT 2 - 10dB/10kΩ
Hum & Noise	≤ -68dB (Master Volume at Minimum)
Controls	MIC VOLUME CONTROL MASTER VOLUME CONTROL TONE CONTROL ..... LOW-Max +4dB at 100Hz HIGH-Max +7dB at 10kHz
Power Requirement	POWER "ON/OFF" SW US & CANADIAN MODELS 120V 60Hz GENERAL MODEL 220/240V 50/60Hz
Power Consumption	US & CANADIAN MODELS 35W GENERAL MODEL 35W
<b>OVERALL FREQUENCY RESPONSE</b>	70Hz ~ 15kHz
<b>DIMENSIONS (W × H × D)</b>	140 × 290 × 196mm (5-1/2" × 11-3/8" × 7-3/4")
<b>WEIGHT</b>	4kg

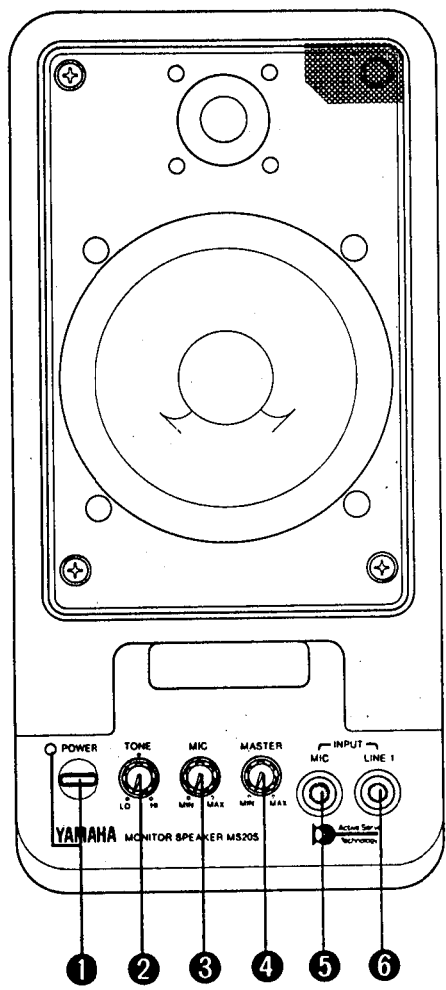
NOTE: 0dB = 0.775V r.m.s.

## 総合仕様

ユニット構成	LF: 12cmコーンタイプ×1 HF: 3cmコーンタイプ×1
エンクロージャー	バスレフ型、簡易防磁タイプ
出力	20W
再生周波数帯域	70Hz~15kHz
入力感度/入力インピーダンス	MIC -50dB/10kΩ LINE1,2 -10dB/10kΩ
ハム&ノイズ	-68dB(マスターボリューム最小時)
コントロールツマミ	マスターボリュームツマミ マイクボリュームツマミ トーンコントロールツマミ 低音域時+4dB at 100Hz 高音域時+7dB at 10kHz 電源スイッチ"ON/OFF"スイッチ
電源	AC100V 50/60Hz
消費電力	22W
外形寸法	W140mm×H290mm×D196mm
重量	4.0kg 0dB=0.775Vr.m.s

# ■ PANEL LAYOUT (パネルレイアウト)

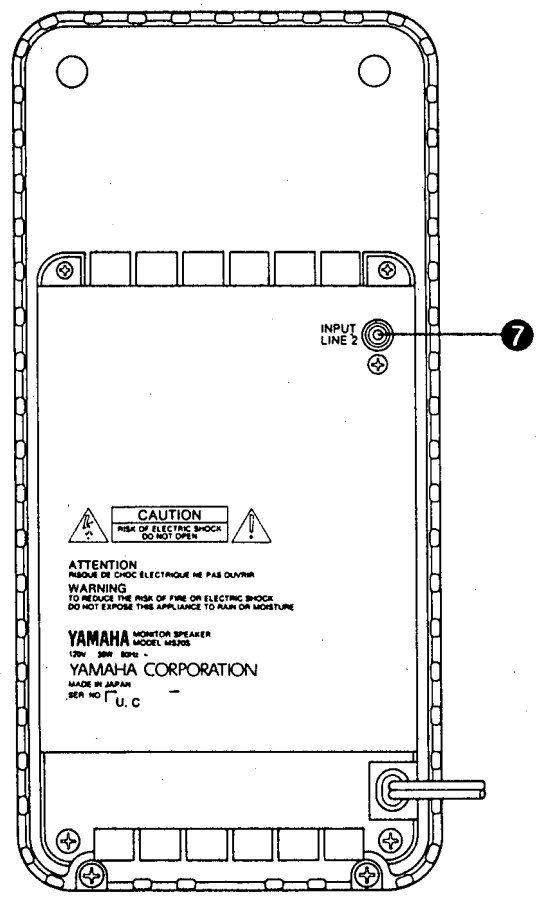
## ● Front Panel (フロントパネル)



- 〈Front Panel〉
- ① POWER SW & INIDICATOR
  - ② TONE CONTROL
  - ③ MIC(volume)
  - ④ MASTER LEVEL CONTROL
  - ⑤ MIC INPUT
  - ⑥ LINE 1 INPUT

- 〈Rear Panel〉
- ⑦ LINE 2 INPUT

## ● Rear Panel (リアパネル)



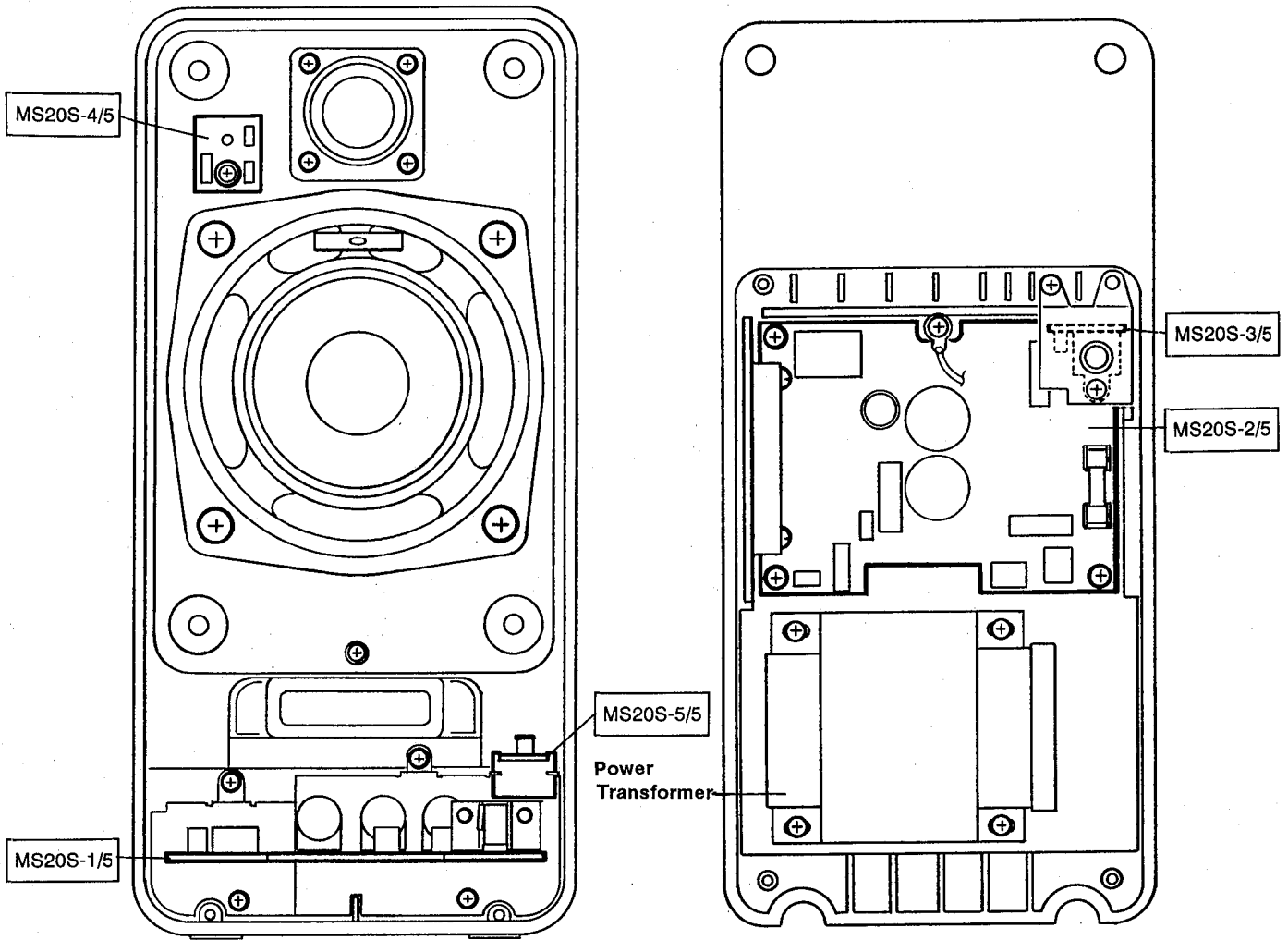
- 〈フロントパネル〉
- ① POWER スイッチ&インジケーター
  - ② TONE コントロール
  - ③ MIC (ボリューム)
  - ④ MASTER (ボリューム)
  - ⑤ MIC INPUT
  - ⑥ LINE 1 INPUT

- 〈リアパネル〉
- ⑦ LINE 2 INPUT

■ **CIRCUIT BOARD LAYOUT (ユニットレイアウト)**

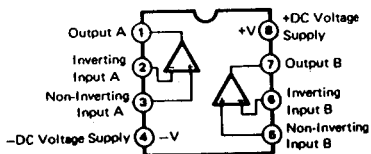
● **Front Side**

● **Rear Side**

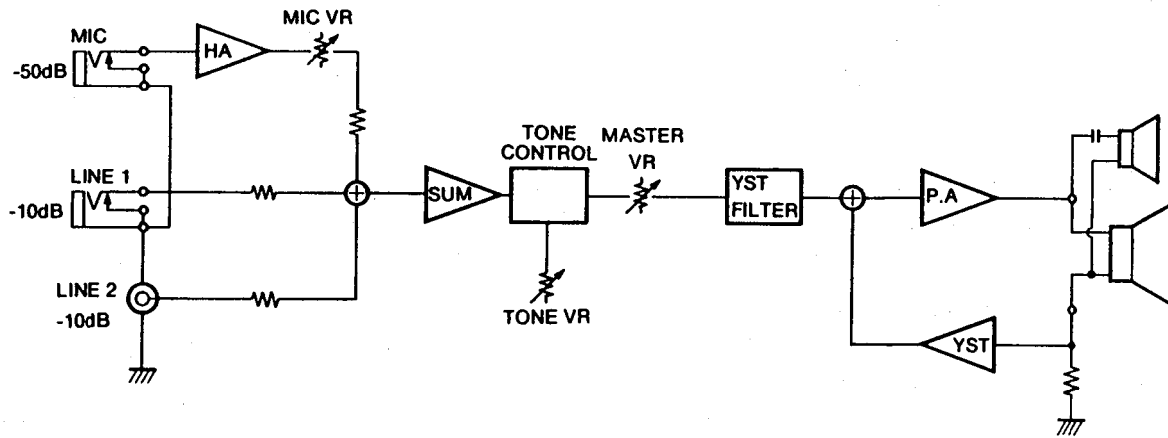


■ **IC BLOCK DIAGRAM (ICブロック図)**

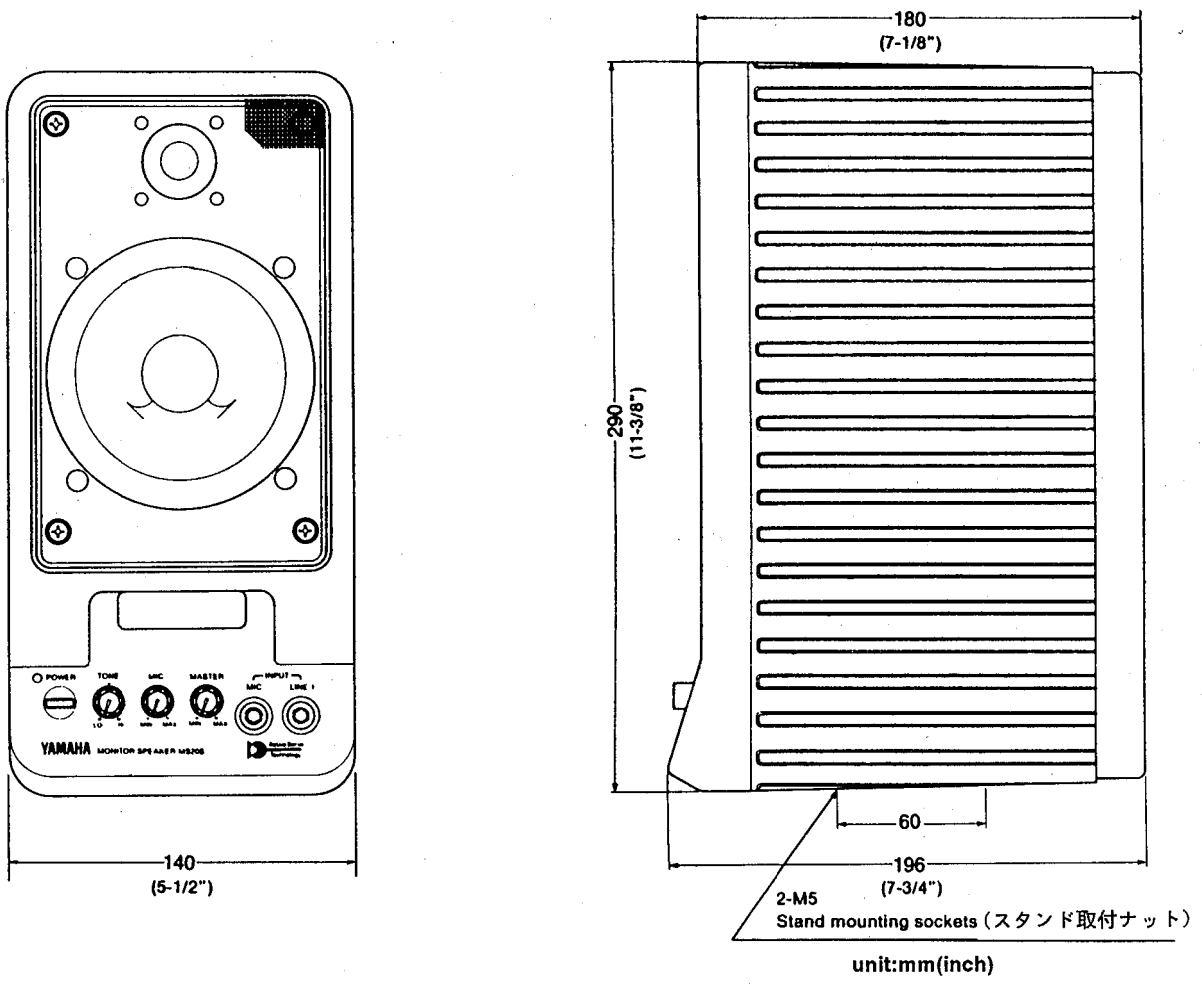
- NJM2041DD(IG069200)
  - NJM4558DV(IG001391)
- Dual Operational Amplifier



**■ BLOCK DIAGRAM (ブロックダイアグラム)**



**■ DIMENSIONS (寸法図)**



## DISASSEMBLY PROCEDURE (分解手順)

### 1 Speaker Panel Removal

- 1-1 Pry the Net out of the Speaker panel using something like an awl. (Fig. 1)
- 1-2 Remove the four (4) screws marked in the figure as ① (4.0 x 20 pan head tapping screw). (Fig. 2)
- 1-3 After the two (2) screws marked ② (4.0 x 20 pan head tapping screw) have been removed, the Speaker panel can be removed. (Fig. 3)

### 1 スピーカーパネルの外し方

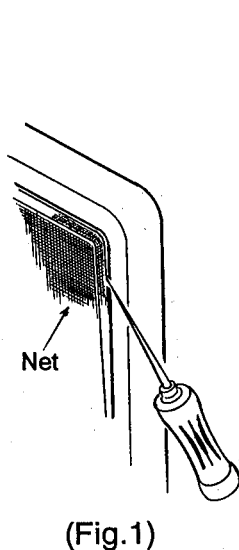
- 1-1 錐のように先の尖った物を使用して、ネットをスピーカーパネルから外します。(図1 参照)
- 1-2 ネジ ① 4本 (4.0X20 ナベタッピングネジ) を外します。(図2 参照)
- 1-3 ネジ ② 2本 (4.0X20 ナベタッピングネジ) を外し、スピーカーパネルを外します。(図3 参照)

### 2 Rear Panel Removal

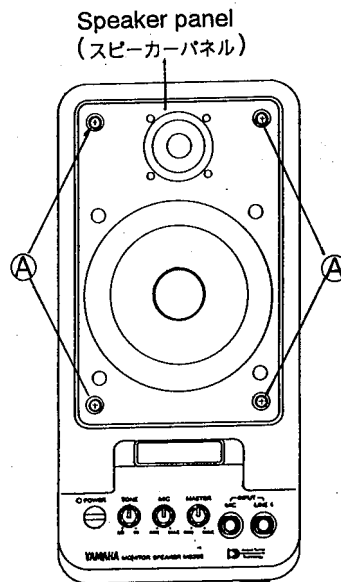
- 2-1 The Rear panel can be removed by removing the four (4) screws marked ③ (3.0 x 10 head tapping screw). (Fig. 3)

### 2 リアパネルの外し方

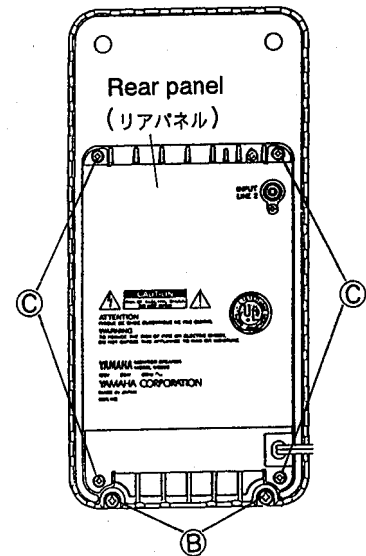
- 2-1 ネジ ③ 4本 (3.0X10 バインドタッピングネジ) を外し、リアパネルを外します。(図3 参照)



(Fig.1)



(Fig.2)



(Fig.3)

### 3 MS20S-1/5 and MS20S-5/5 Circuit Boards Removal

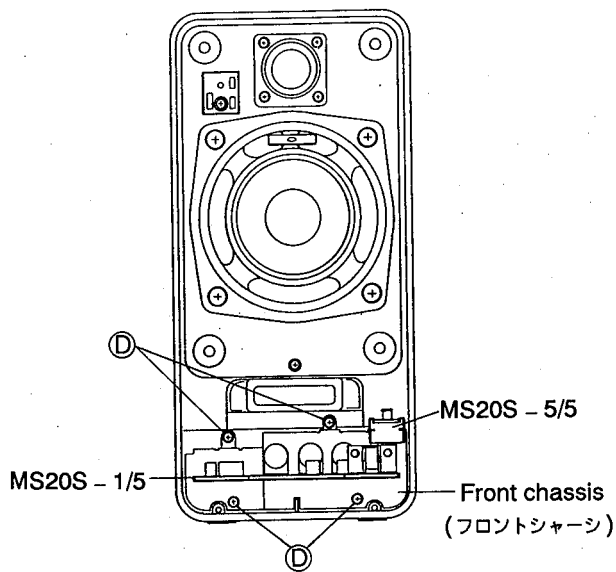
- 3-1 Remove the Speaker panel. (see procedure 1 - Speaker Panel Removal)
- 3-2 Remove the four (4) screws marked ④ (3.0x8 bind head tapping screw). (Fig. 4)
- 3-3 After the wire harnesses have been disconnected, the MS20S-1/5 and MS20S-5/5 circuit boards can be removed with the front chassis.
- 3-4 MS20S-5/5 circuit board removal
  - 3-4-1 The MS20S-5/5 circuit board can be removed by removing the nylon rivet marked ⑤. (Fig. 5)

### 3 MS20S-1/5シートとMS20S-5/5 シートの外し方

- 3-1 スピーカーパネルを外します。(1 項参照)
- 3-2 ネジ ④ 4本 (3.0X8 バインドタッピングネジ) を外します。(図4 参照)
- 3-3 コネクターを外すと、MS20S-1/5 シートとMS20S-5/5 シートはフロントシャーシと共に外れます。
- 3-4 MS20S-5/5シートの外し方
  - 3-4-1 ナイロンリベット ⑤ を外し、MS20S-5/5 シートを外します。(図5 参照)

### 3-5 MS20S-1/5 circuit board removal

- 3-5-1 Pull out the three (3) knobs marked ⑥.  
(Fig. 6)
- 3-5-2 Remove the three (3) hexagonal nuts marked ⑦.  
(Fig. 6)
- 3-5-3 Remove the two (2) hexagonal nuts marked ⑧, the MS20S-1/5 circuit board can be completely removed.  
(Fig. 6)



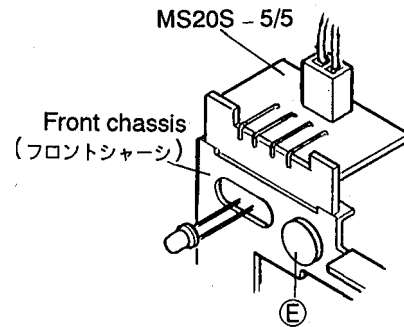
(Fig.4)

### 4 MS20S-3/5 Circuit Board Removal

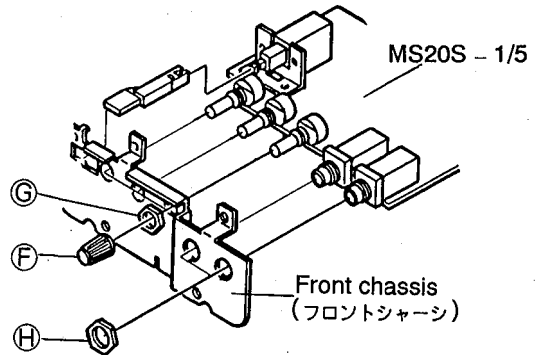
- 4-1 Remove the Rear panel. (see procedure 2 - Rear Panel Removal)
- 4-2 Remove the pin jack holder by removing the screw marked ① (3.0x10 bind head tapping screw).  
(Fig. 7)
- 4-3 After the screw marked ① (3.0x10 bind head tapping screw) has been removed, the MS20S-3/5 circuit board can be removed.  
(Fig. 7)

### 3-5 MS20S-1/5シートの外し方

- 3-5-1 ツマミ ⑥ 3ヶを外します。(図6 参照)
- 3-5-2 ボリュームを固定している六角ナット ⑦ 3ヶを外します。(図6 参照)
- 3-5-3 ホーンジャックを固定している六角ナット ⑧ 2ヶを外し、MS20S-1/5 シートを外します。(図6 参照)



(Fig.5)



(Fig.6)

### 4 MS20S-3/5 シート外し方

- 4-1 リアパネルを外します。(2 項参照)
- 4-2 ネジ ① 1本 (3.0X10 バインドタッピングネジ) を外し、ピンジャックホルダーを外します。  
(図7 参照)
- 4-3 ネジ ① 1本 (3.0X10 バインドタッピングネジ) を外し、MS20S-3/5 シートを外します。(図7 参照)

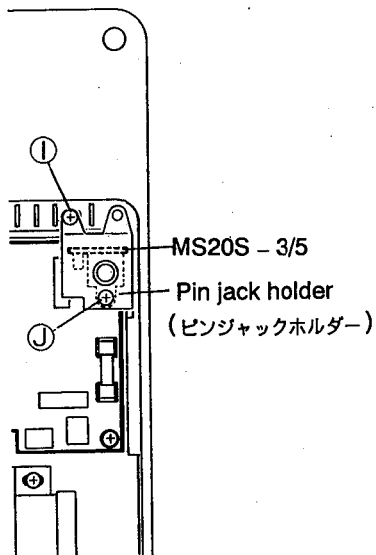


## 5 MS20S-2/5 Circuit Board Removal

- 5-1 Remove the Rear panel. (see procedure 2)  
 5-2 Remove the pin jack holder. (see procedure 4-2)  
 5-3 Remove the two (2) screws marked ㊶ (3.0 x14 bind head tapping screw). (Fig. 8)  
 5-4 Remove the five (5) screws ㊷ (3.0x12 bind head tapping screw). (Fig. 8)  
 5-5 After the wire harnesses have been disconnected, the MS20S-2/5 circuit board can be taken out of the unit.

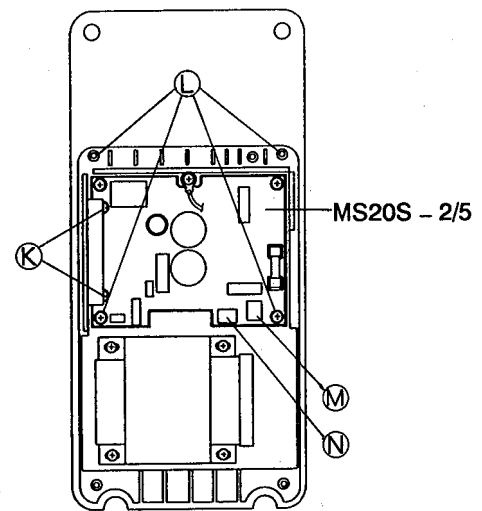
## 5 MS20S-2/5 シート外し方

- 5-1 リアパネルを外します。(2項参照)  
 5-2 ピンジャックホルダーを外します。(4-2項参照)  
 5-3 ネジ ㊶ 2本 (3.0X14 バインドタッピングネジ) を外します。(図8参照)  
 5-4 ネジ ㊷ 5本 (3.0X12 バインドタッピングネジ) を外します。  
 5-5 コネクターを外すと、MS20S-2/5 シートを外すことができます。



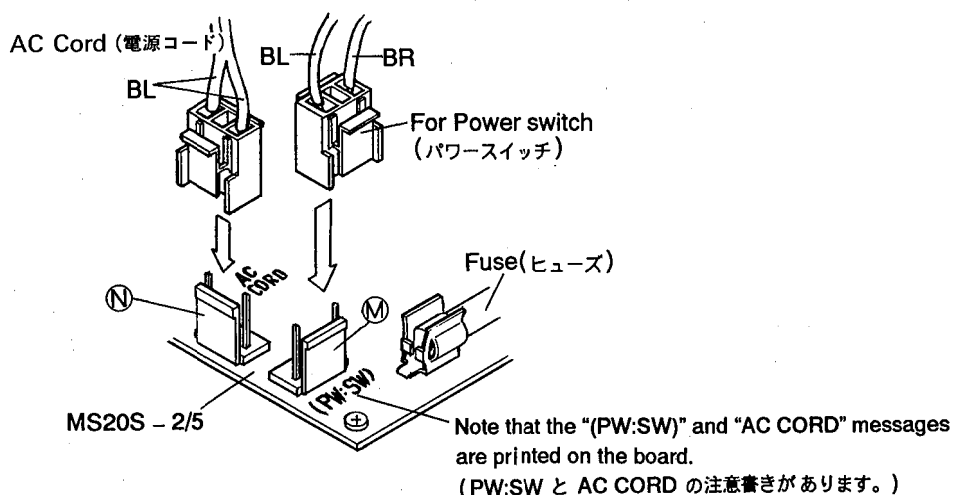
(Fig.7)

\* When re-connecting wire harnesses marked ㊸ and ㊹, make sure that they are connected to the position shown in the Fig. 8 and Fig. 9.



(Fig.8)

\*コネクター ㊸ と ㊹ を接続する時、差し間違えないように注意してください。(図9参照)



(Fig.9)

## 6 MS20S-4/5 Circuit Board Removal

6-1 Remove the Speaker panel. (see procedure 1)

6-2 The MS20S-4/5 circuit board can be removed by removing the screw marked ① (3.0x8 bind head tapping screw). (Fig.10)

## 7 Speakers Removal

7-1 Remove the Speaker panel. (see procedure 1)

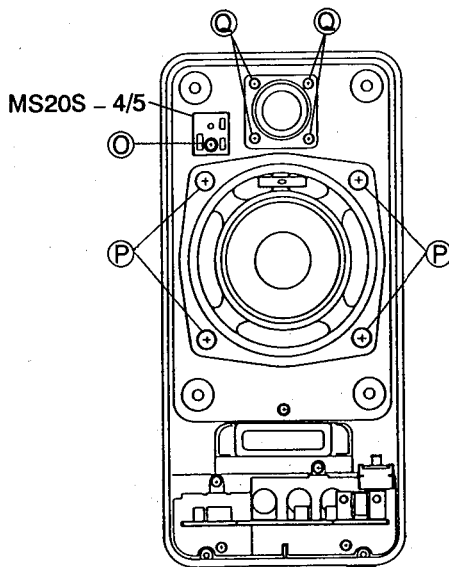
7-2 The woofer can be removed by removing the four (4) screws marked ② (5.0x10 bind head tapping screw). (Fig. 10)

7-3 To remove the tweeter, remove the four (4) screws marked ③ (2.6x8 bind head tapping screw). (Fig. 10)

## 8 Power Transformer Removal

8-1 Remove the Rear panel. (see procedure 2)

8-2 After the four (4) screws marked ④ (3.0x12 bind head tapping screw) have been removed, the Power transformer can be removed. (Fig. 11)



(Fig.10)

## 6 MS20S-4/5 シート外し方

6-1 スピーカーパネルを外します。(1項参照)

6-2 ネジ ① 1本 (3.0X8 バインドタッピングネジ) を外し、MS20S-4/5 シートを外します。(図10 参照)

## 7 スピーカーの外し方

7-1 スピーカーパネルを外します。(1項参照)

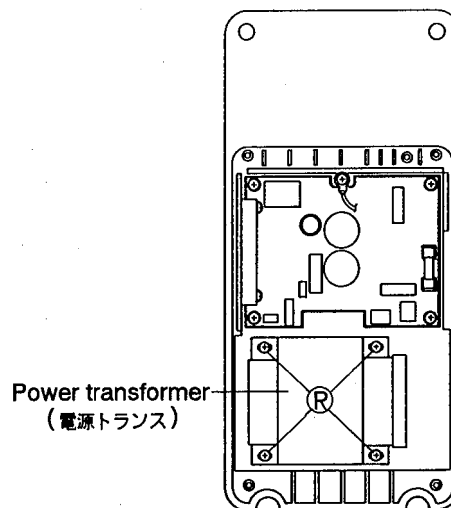
7-2 ネジ ② 4本 (5.0X10 バインドタッピングネジ) を外し、ウーハーを外します。(図10 参照)

7-3 ネジ ③ 4本 (2.6X8 バインドタッピングネジ) を外し、ツイーターを外します。(図10 参照)

## 8 電源トランスの外し方

8-1 リアパネルを外します。(2項参照)

8-2 ネジ ④ 4本 (3.0X12 バインドタッピングネジ) を外し、電源トランスを外します。(図11 参照)



(Fig.11)