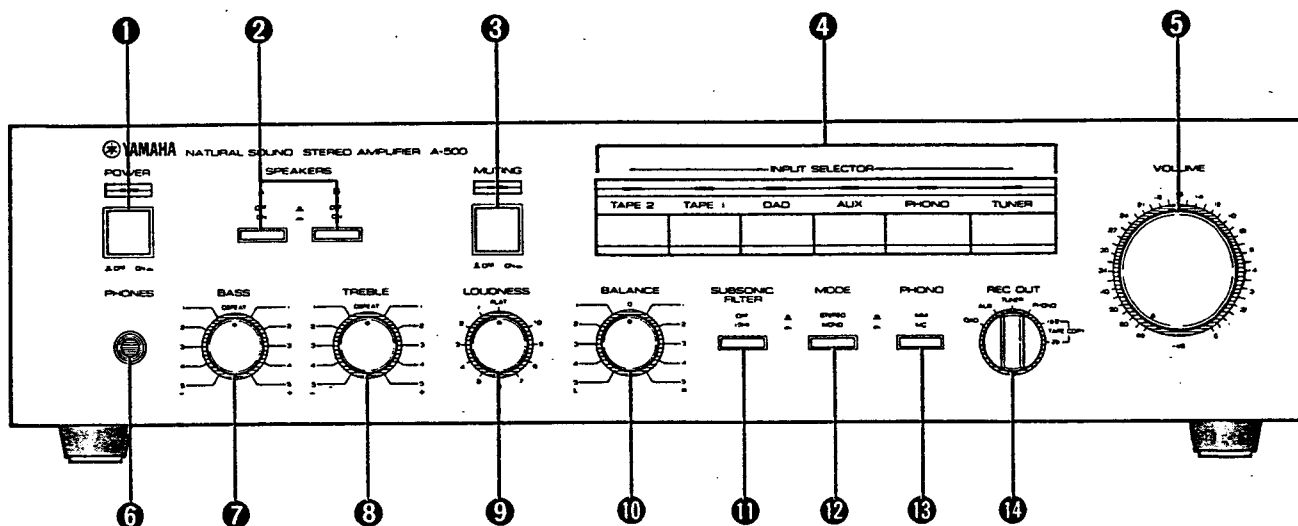


# STEREO INTEGRATED AMPLIFIER

# A-500

# SERVICE MANUAL

## FRONT PANEL



- ① POWER SWITCH
- ② SPEAKER SELECT SWITCHES
- ③ AUDIO MUTING SWITCH
- ④ INPUT SELECTORS
- ⑤ VOLUME CONTROL
- ⑥ HEADPHONES JACK
- ⑦ BASS CONTROL
- ⑧ TREBLE CONTROL
- ⑨ LOUDNESS CONTROL
- ⑩ BALANCE CONTROL
- ⑪ SUBSONIC FILTER
- ⑫ MODE SWITCH
- ⑬ PHONO SELECTOR
- ⑭ REC OUT SELECTOR

## CONTENTS

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SINCE 1887



**YAMAHA**

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

11.8: 2.6k

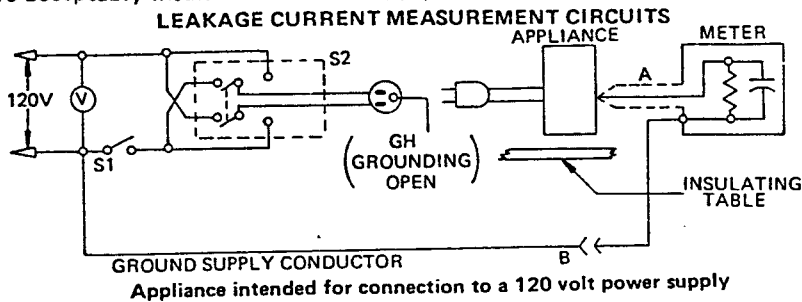
## A-500

## TO SERVICE PERSONNEL

(Prepared in accordance with UL Standard 1270)

Before service of this appliance by you, please carefully read this service manual.

Please make Leakage-current or Resistance measurements by suitable meter to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.



A PROBE WITH SHIELDED LEAD.

B SEPARATED AND USED AS CLIP WHEN MEASURING CURRENTS FROM ONE PART OF APPLIANCE TO ANOTHER.

Confirm that the leakage current is not more than 0.5mA

## SPECIFICATIONS

|  |       |                      |
|--|-------|----------------------|
| <b>Continuous Power Per Channel</b>          |       |                      |
| 20Hz ~ 20kHz                                 |       |                      |
| (0.01% THD, 8Ω)                              |       | 70W                  |
| 1kHz (0.01% THD, 8Ω)                         |       | 75W                  |
| <b>DIN Standard Output Power</b>             |       |                      |
| <b>Per Channel</b>                           |       |                      |
| 1kHz (1% THD, 8Ω)                            |       | 75W (G)(B)(A)        |
| <b>Power Bandwidth</b>                       |       |                      |
| 0.03% THD 35W (8Ω)                           |       | 10Hz ~ 50kHz         |
| <b>Damping Factor</b>                        |       |                      |
| 1kHz 8Ω                                      |       | better than 50       |
| <b>Input Sensitivity/Impedance</b>           |       |                      |
| Phono  | MC    | 160μV/100Ω           |
|  | MM    | 2.5mV/47kΩ           |
| Aux, Tape, Tuner                             |       | 150mV/47kΩ           |
| <b>Input Sensitivity (New IHF)</b>           |       |                      |
| Phono  | MC    | 19μV                 |
|  | MM    | 0.3mV                |
| Aux, Tape, Tuner                             |       | 18mV                 |
| <b>Maximum Input Signal</b>                  |       |                      |
| 0.01% THD Phono                              | MC    | 10mV                 |
|  | MM    | 150mV                |
| <b>Output Level/Impedance</b>                |       |                      |
| Rec Out                                      |       | 150mV/470Ω           |
| <b>Headphone Jack Rated Output/Impedance</b> |       |                      |
| 0.01% THD 8Ω                                 |       | 0.68V/270Ω           |
| <b>Frequency Response</b>                    |       |                      |
| Aux, Tape, Tuner                             |       | 20Hz ~ 20kHz, ±0.5dB |
| <b>RIAA Equalization Deviation</b>           |       |                      |
| Phono  | MC    | ±0.3dB               |
|  | MM    | ±0.2dB               |
| <b>Total Harmonic Distortion</b>             |       |                      |
| Phono MC to Rec Out (3V)                     |       | 0.007%               |
| MM to Rec Out (3V)                           |       | 0.003%               |
| Aux, Tape, Tuner to Sp Out (1W/8Ω)           |       | 0.005%               |
| <b>Intermodulation Distortion</b>            |       |                      |
| Aux, Tape, Tuner Rated Output/8Ω             | 1W/8Ω | 0.01%                |
|  |       | 0.005%               |
| <b>Signal-to-Noise Ratio</b>                 |       |                      |
| (IHF-A-Network)                              |       |                      |
| Phono MC (500μV Input Shorted)               |       | 76dB                 |
| MM (5mV Input Shorted)                       |       | 92dB                 |
| Aux, Tape, Tuner (5.1kΩ)                     |       | 100dB                |

|   |    |  |
|---|----|--|
| <b>Signal-to-Noise Ratio (New IHF)</b>  |    |  |
| Phono                                   | MC | 74dB                                     |
|   | MM | 78dB                                     |
| Aux, Tape, Tuner                        |    | 84dB                                     |
| <b>Residual Noise (IHF-A-Network)</b>   |    | 140μV                                    |
| <b>Channel Separation</b>               |    |  |
| Phono MM Input Shorted 1kHz             |    | 55dB                                     |
| Aux, Tape 5.1kΩ 1kHz                    |    | 60dB                                     |
| <b>Tone Control Characteristics</b>     |    |  |
| Bass boost/cut                          |    | ±10dB (at 20Hz)                          |
| Bass turnover frequency                 |    | 350Hz                                    |
| Treble boost/cut                        |    | ±10dB (at 20kHz)                         |
| Treble turnover frequency               |    | 3.5kHz                                   |
| <b>Filter Characteristics</b>           |    |  |
| Low (Subsonic)                          |    | 15Hz -12dB/oct                           |
| <b>Continuous Loudness Control</b>      |    |  |
| (Level-related equalization)            |    |  |
| Attenuation                             |    | 20dB (at 1kHz)                           |
| <b>Audio Muting</b>                     |    | -20dB                                    |
| <b>Gain Tracking Error (0 to -60dB)</b> |    | 2dB                                      |
| <b>Power Supply</b>                     |    |  |
| U.S.A. & Canadian models                |    | AC 120V, 60Hz                            |
| General model                           |    | AC 110/120/220/240V, 60/50Hz             |
| British and Australian models           |    | AC240V, 50Hz                             |
| European model                          |    | AC220V, 50Hz                             |
| <b>Power Consumption</b>                |    | 275W/380W (G)(B)(A)                      |
| <b>AC Outlet</b>                        |    |  |
| Switched x 2                            |    | 200W max.                                |
| Unswitched x 1                          |    | 200W max.                                |
| <b>Dimensions (W x H x D)</b>           |    | 435 x 112 x 327mm (17-1/8x4-2/5x12-7/8)" |
| <b>Weight</b>                           |    | 7.3kg (16.1 lbs)                         |

(A) . . . . . Australian model

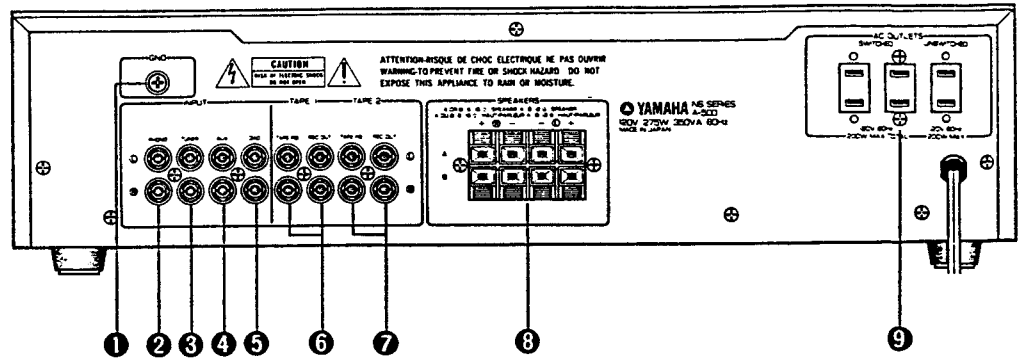
(G) . . . . . North European model only.

(B) . . . . . British model only.

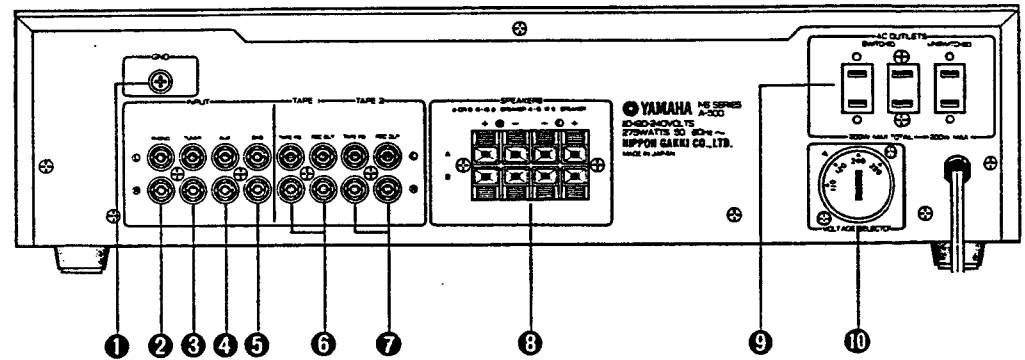
\* Specifications subject to change without notice.

## REAR PANELS

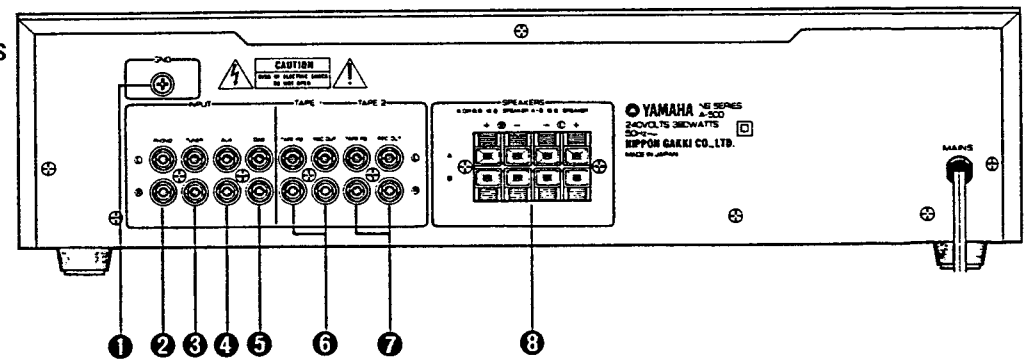
### U.S.A. & CANADIAN MODELS



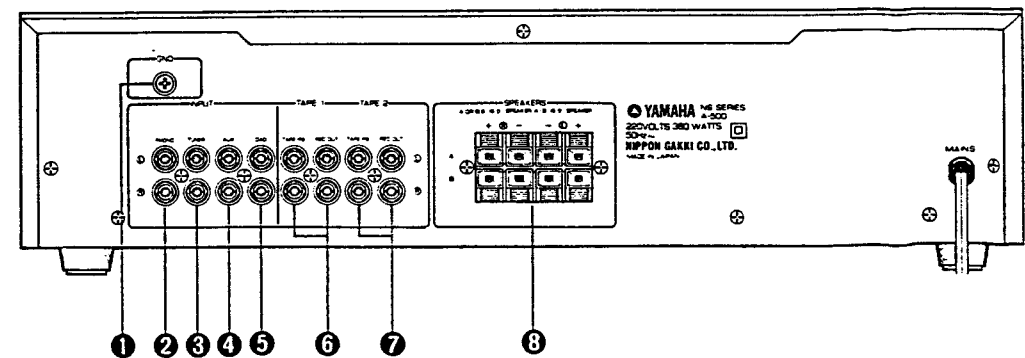
### GENERAL MODEL



### BRITISH & AUSTRALIAN MODELS



### EUROPEAN MODEL

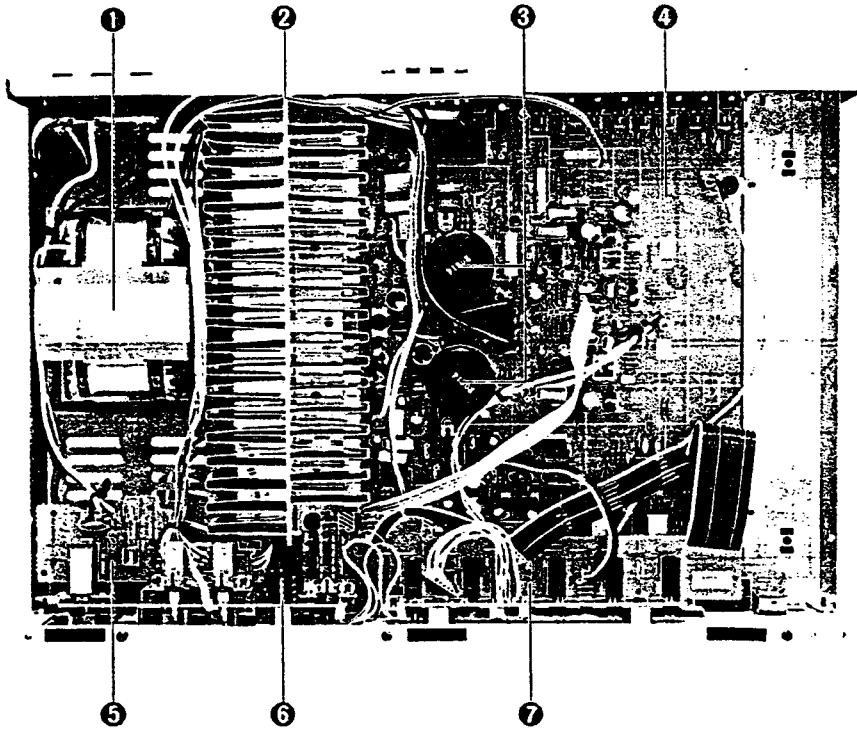


- ① GND TERMINAL
- ② PHONO INPUT JACKS
- ③ TUNER INPUT JACKS
- ④ AUX INPUT JACKS
- ⑤ DIGITAL AUDIO DISK INPUT JACKS

- ⑥ TAPE 1 PB/REC OUT JACKS
- ⑦ TAPE 2 PB/REC OUT JACKS
- ⑧ SPEAKER TERMINAL
- ⑨ AC OUTLETS
- ⑩ VOLTAGE SELECTOR

A-500

## INTERNAL VIEW



- ① POWER TRANSFORMER
  - U.S.A. model : GA66220
  - Canadian model : GA66230
  - North European model : GA66250
  - British & Australian models : GA66260
  - General model : GA66240
- ② HEAT SINK
- ③ ELECTROLYTIC CAPACITOR  
(1200 $\mu$ F, 56V: FZ00371)
- ④ MAIN CIRCUIT BOARD
- ⑤ POWER SWITCH CIRCUIT BOARD
- ⑥ TONE VR CIRCUIT BOARD
- ⑦ INPUT SELECTOR CIRCUIT BOARD

## DISASSEMBLY PROCEDURES

### 1. TOP COVER removal

Remove screws ① through ⑤ in Fig. 1 and then remove the top cover.

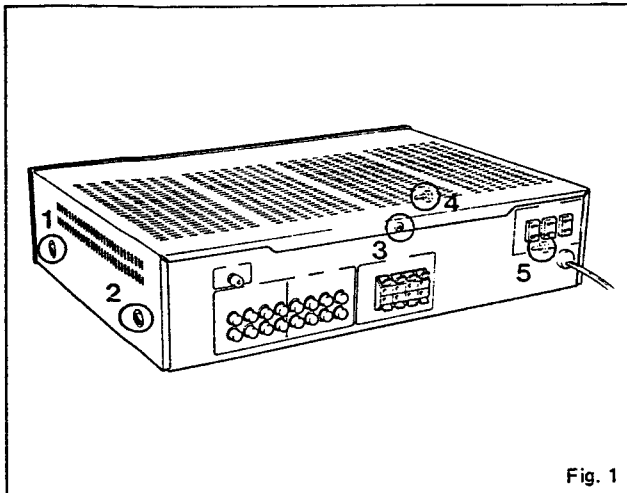


Fig. 1

### 2. BOTTOM COVER removal

Remove screws ① through ⑤ in Fig. 2 and then remove the bottom cover.

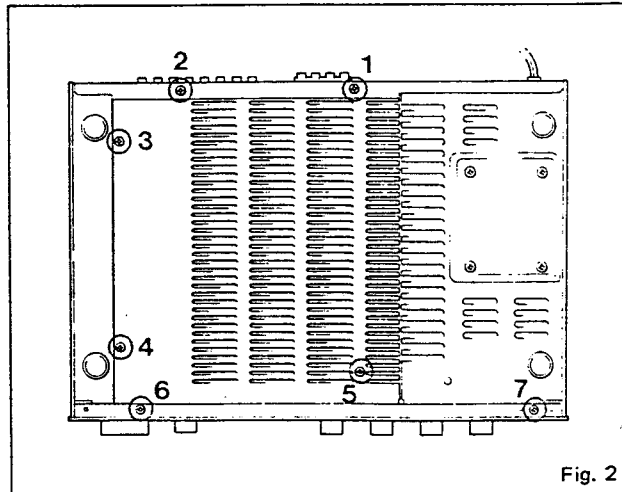


Fig. 2



**3. FRONT PANEL removal**

- a) Remove each knob by pulling forward.
- b) Remove screws ⑥ and ⑦ in Fig. 2 and screws ① through ③ in Fig. 3 and then remove the front panel.

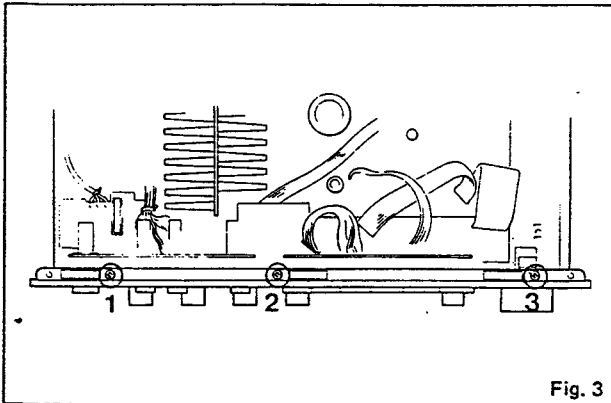


Fig. 3

**4. INPUT SELECTOR circuit board removal**

Remove screws ① through ④ in Fig. 4 and then remove the input selector circuit board.

**5. POWER SWITCH circuit board removal**

Remove screws ⑤ through ⑧ in Fig. 4 and then remove the power switch circuit board.

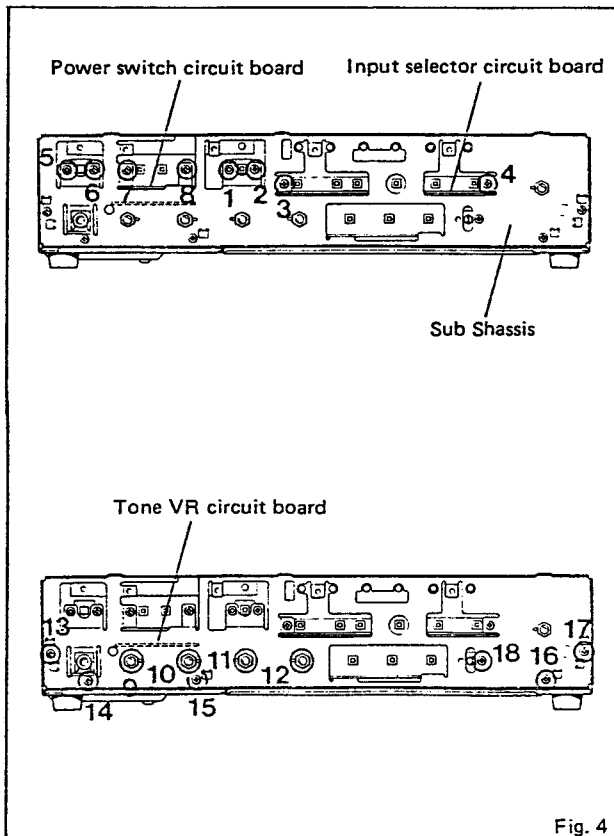


Fig. 4

**6. TONE CONTROL VR replacement**

- a) Remove the power switch circuit board.
- b) Remove hexagonal nuts ⑨ and ⑩ in Fig. 4. Remove the tone VR circuit board and then replace the VR.

**7. BALANCE, LOUDNESS VR replacement**

- a) Remove the input selector circuit board.
- b) Remove hexagonal nuts ⑪ and ⑫ in Fig. 4.
- c) Remove screws ⑬ through ⑱ in Fig. 4 and then remove the sub shassis.
- d) Detach the soldering of the VR and then replace the balance, loudness VR.

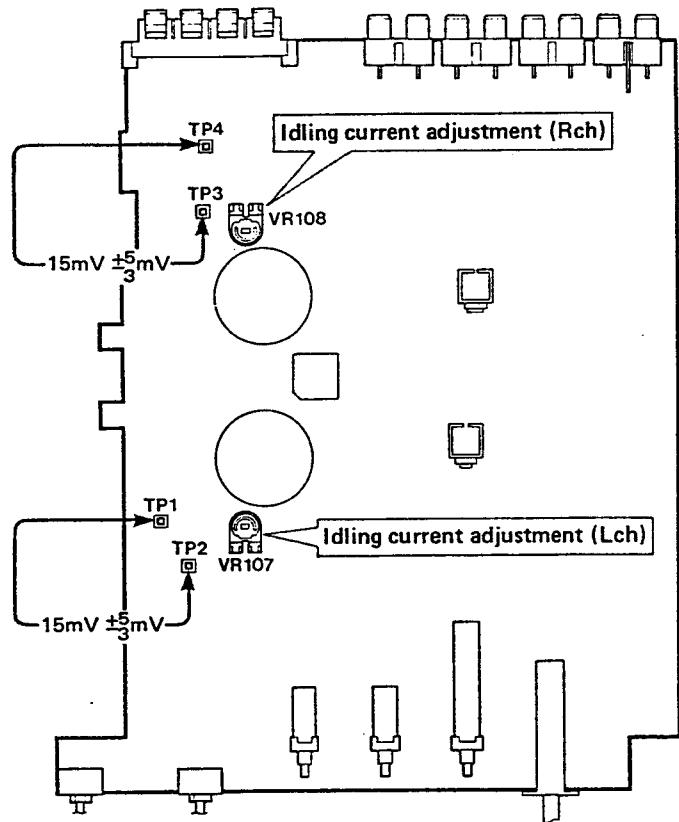
A-500

ADJUSTMENTS

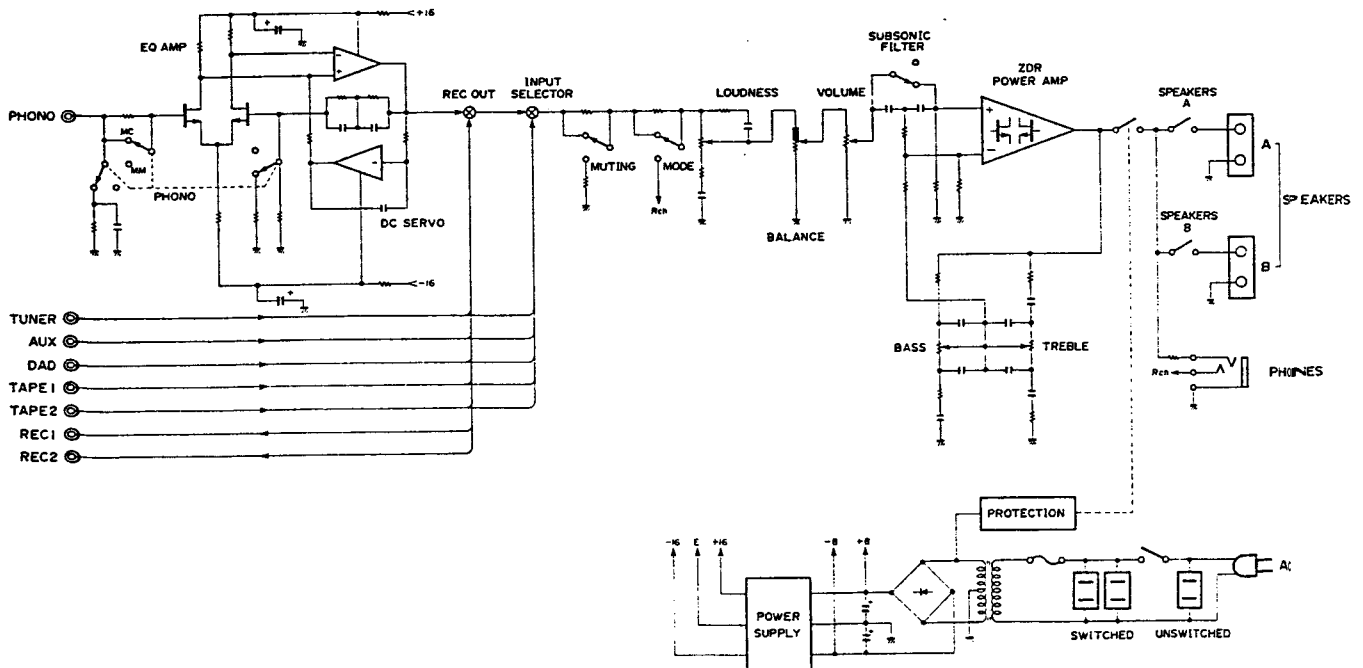
● IDLING CURRENT adjustment

After the power switch is pushed on, wait 3 ~ 4 minutes before measuring, to be sure of the most stable operation. With no signal input, rotate VR107 (Lch) and VR108 (Rch) so that the voltage between TP1 and TP2 (Lch) and between TP3 and TP4 (Rch) comes to  $15\text{mV} \pm \frac{5}{3}\text{mV}$ .

|     | Test points | Adjustment points | Rating                                 |
|-----|-------------|-------------------|--|
| Lch | TP1 ~ TP2   | VR107             | $15\text{mV} \pm \frac{5}{3}\text{mV}$ |
| Rch | TP3 ~ TP4   | VR108             | $15\text{mV} \pm \frac{5}{3}\text{mV}$ |



BLOCK DIAGRAM









# WIRING DIAGRAM (Parts Side)

|          | R         | U        | C        | A, B     | G         |
|----------|-----------|----------|----------|----------|-----------|
| R101,102 | 10        | 10       | 10       | 10       | 33        |
| R103,104 |           |          |          |          | 470       |
| R109,110 | 33        | 33       | 33       | 33       | 2.2k      |
| R279     |           |          |          |          | 4.7       |
| C101,102 |           | 3P12k    | 3P12k    |          | 150P      |
| C103,104 |           |          |          |          | 47P       |
| C105,106 | 220P      | 220P     | 220P     | 220P     | 100P      |
| C119-128 |           |          |          |          | 330P      |
| C131,134 |           |          |          |          | 0.022     |
| C201,202 |           |          |          |          | 4700P     |
| C210     | 0.01/500  | 0.01/500 | 0.01/500 | 0.01/500 |           |
| C213,214 |           |          |          |          | 100P      |
| C215     |           |          |          |          | 0.1/25    |
| C218,219 |           |          |          |          | 0.047/100 |
| C229     | 0.01      |          |          |          |           |
| L101,102 |           |          |          |          | 15μH      |
| L103,104 |           |          |          |          | 220μH     |
| SW108    | Set       |          |          |          |           |
| FI02     | T3.5A250V |          |          |          |           |
| J381     | Set       |          |          |          |           |

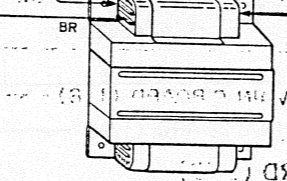
U : U.S.A. model  
 C : Canadian model  
 A : Australian model  
 B : British model  
 G : European model (GB:Black model)  
 R : General model (RB:Black model)

WIRE COLOR ABBREVIATIONS  
 BL ▶ Black VI ▶ Violet  
 BR ▶ Brown GY ▶ Gray  
 RE ▶ Red WH ▶ White  
 OR ▶ Orange GG ▶ Light Green  
 YE ▶ Yellow SB ▶ Light Blue  
 GR ▶ Green PH ▶ Pink  
 BE ▶ Blue

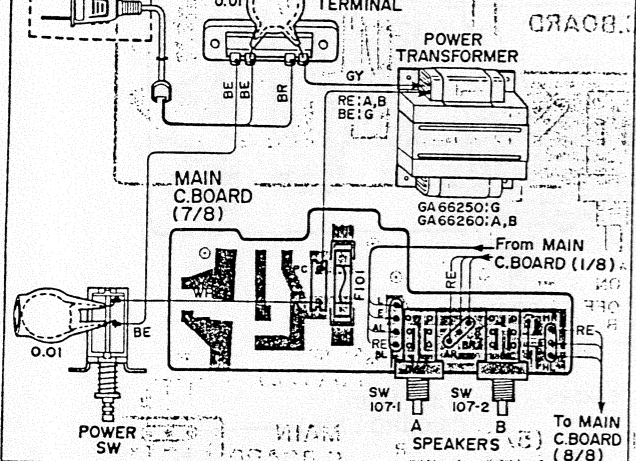
U,C MODEL  
 AC OUTLETS  
 UN SWITCHED SWITCHED



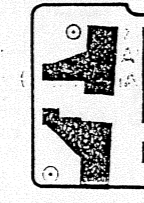
POWER TRANSFORMER  
 GA 66210



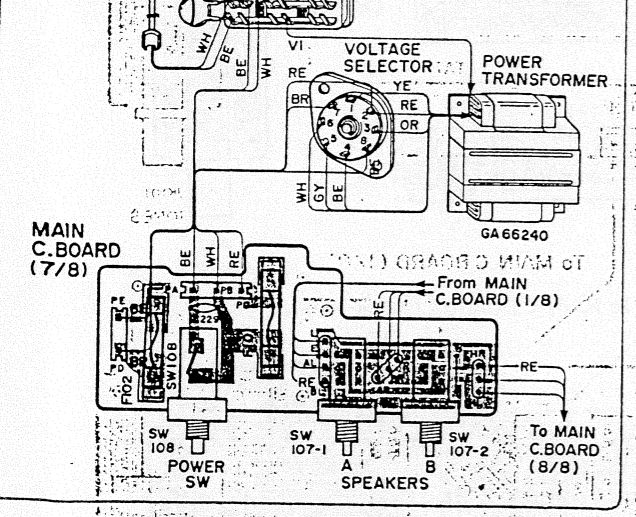
A,G models only  
 A,B,G MODELS



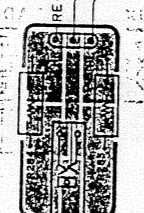
MAIN C.BOARD (7/8)



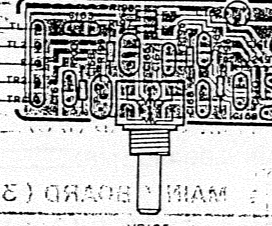
R MODEL  
 AC OUTLETS



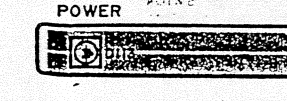
MAIN C.BOARD (8/8)



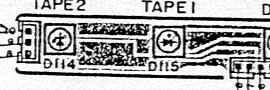
MAIN C.BOARD (2/8)



MAIN C.BOARD (5/8)



MAIN C.BOARD (4/8)

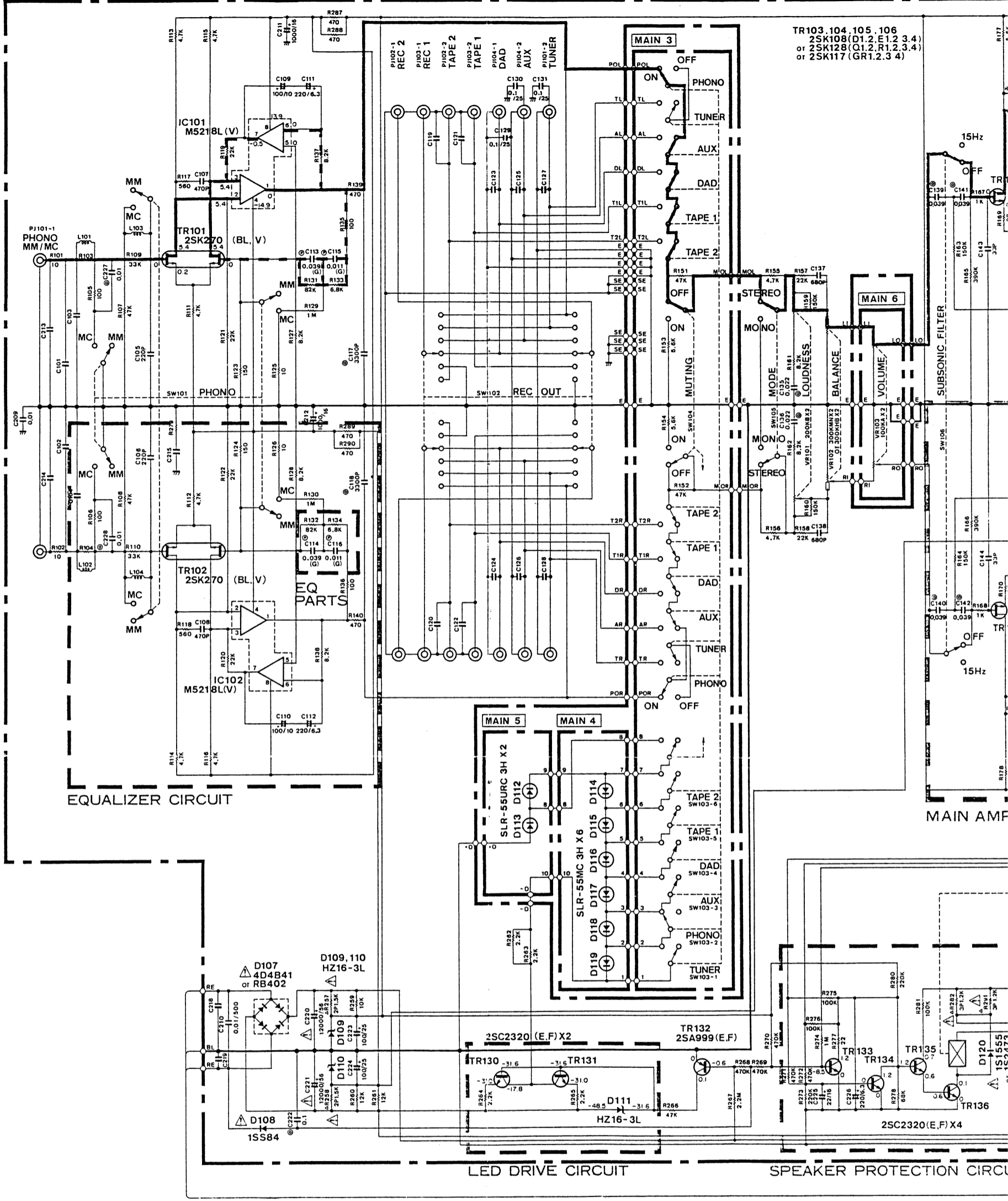


\* Wiring diagram is subject to change without notice.



# SCHEMATIC DIAGRAM

MAIN 1

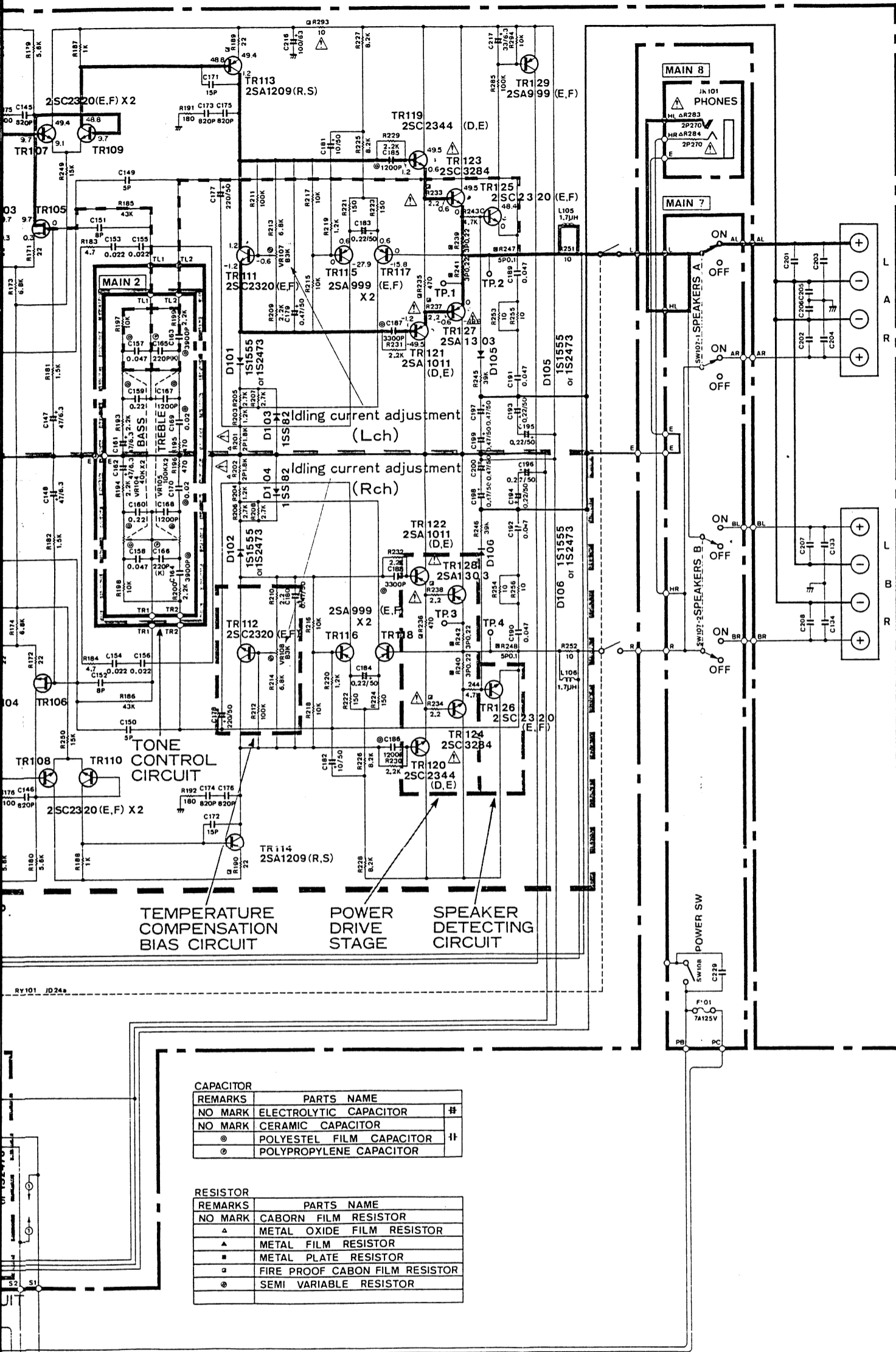


### WARNING

⚠ Marked: Critical components by UL Standard 1270. Replace only with same type parts.

\* All voltages are measured with a 10MΩ/DC electric volt meter.

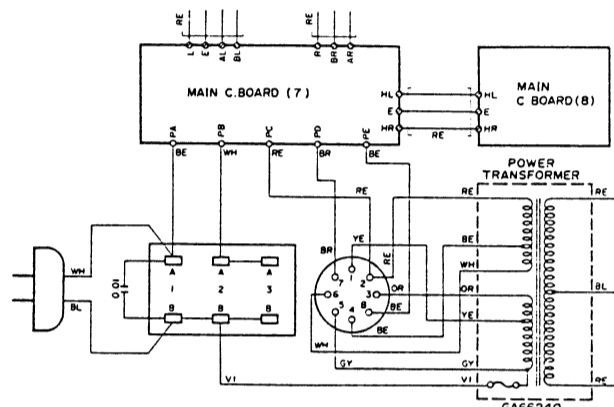
\* Schematic diagram is subject to change without notice.



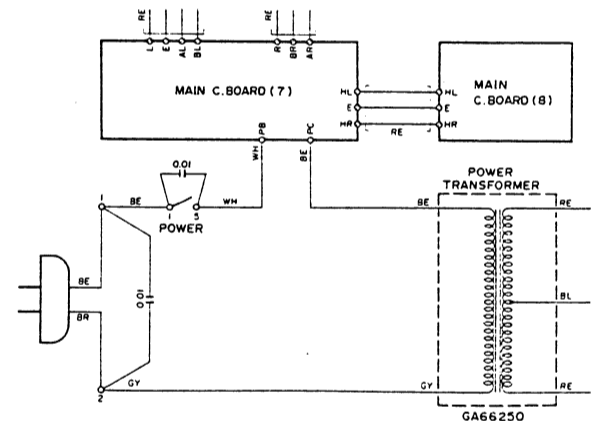
This schematic diagram is for U.S. model. The following parts and values differ from each model, so refer to the corresponding column.

|            | R          | U        | C        | A, B        | G           |
|------------|------------|----------|----------|-------------|-------------|
| C101, 102  |            |          |          |             | 150p        |
| C103, 104  |            |          |          |             | 47p         |
| C105, 106  | 220p       | 220p     | 220p     | 220p        | 100p        |
| C119 ~ 128 |            |          |          |             | 330p        |
| C133, 134  |            |          |          |             | 0.022       |
| C201, 202  |            |          |          |             | 4700p       |
| C203 ~ 206 |            |          |          |             | 0.022       |
| C207, 208  |            |          |          |             | 4700p       |
| C210       | 0.01/500   | 0.01/500 | 0.01/500 | 0.01/500    | 4700p       |
| C213, 214  |            |          |          |             | 100p        |
| C215       |            |          |          |             | 0.1/25      |
| C218, 219  |            |          |          |             | 0.047/100   |
| C229       | 0.01       |          |          |             |             |
| L101, 102  |            |          |          |             | 15μH        |
| L103, 104  |            |          |          |             | 220μH       |
| R101, 102  | 10         | 10       | 10       | 10          | 33          |
| R103, 104  | Short      | Short    | Short    | Short       | 470         |
| R109, 110  | 33         | 33       | 33       | 33          | 2.2k        |
| R141 ~ 150 | Short      | Short    | Short    | Short       | 2.2k        |
| R279       |            |          |          |             | 4.7         |
| R291       |            | 1.2k 3p  | 1.2k 3p  |             |             |
| F101       | T7.0A 250V | 7A 125V  | 7A 125V  | T3.15A 250V | T3.15A 250V |
| F102       | T3.5A 250V |          |          |             |             |
| RY101      | JD24V      | JC2a     | JC2a     | JD24V       | JD24V       |
| SW108      | Set        |          |          |             |             |
| ⊖          | Short      | Open     | Short    | Short       | Short       |

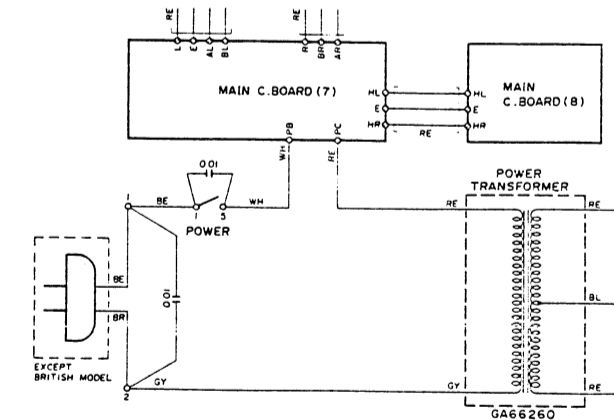
General model



European model



British & Australian models

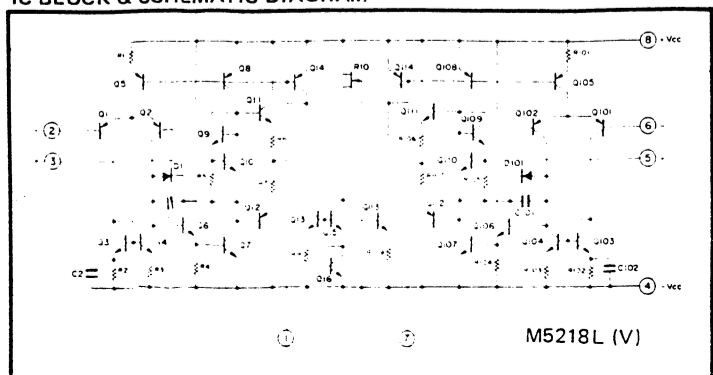


| CAPACITOR |                          |
|-----------|--------------------------|
| REMARKS   | PARTS NAME               |
| NO MARK   | ELECTROLYTIC CAPACITOR   |
| NO MARK   | CERAMIC CAPACITOR        |
| ⊙         | POLYESTEL FILM CAPACITOR |
| ⊖         | POLYPROPYLENE CAPACITOR  |

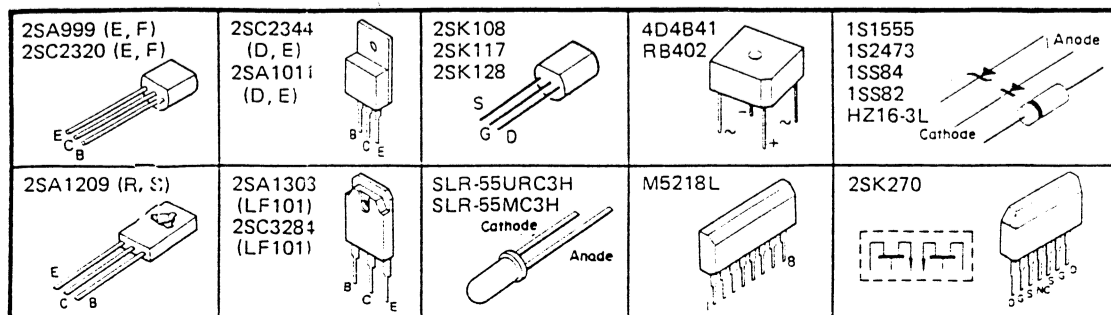
| RESISTOR |                                 |
|----------|---------------------------------|
| REMARKS  | PARTS NAME                      |
| NO MARK  | CARBON FILM RESISTOR            |
| △        | METAL OXIDE FILM RESISTOR       |
| ▲        | METAL FILM RESISTOR             |
| ■        | METAL PLATE RESISTOR            |
| □        | FIRE PROOF CARBON FILM RESISTOR |
| ⊙        | SEMI VARIABLE RESISTOR          |

\* is used only for U.S.A. model

IC BLOCK & SCHEMATIC DIAGRAM



PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICs.





# PARTS LIST

## A-500

### STEREO AMPLIFIER

| ■CONTENTS                                 | Page.            |
|---|------------------|
| MECHANISM CHASSIS UNIT .....              | 1                |
| PARTS LIST (MECHANISM CHASSIS UNIT) ..... | 2                |
| PARTS LIST (ELECTRICITY) .....            | 4                |
| ■MARKET                                   |                  |
| U .....                                   | USA MODEL        |
| C .....                                   | CANADIAN MODEL   |
| A .....                                   | AUSTRALIAN MODEL |
| G .....                                   | EUROPEAN MODEL   |
| B .....                                   | BRITISH MODEL    |
| R .....                                   | GENERAL MODEL    |

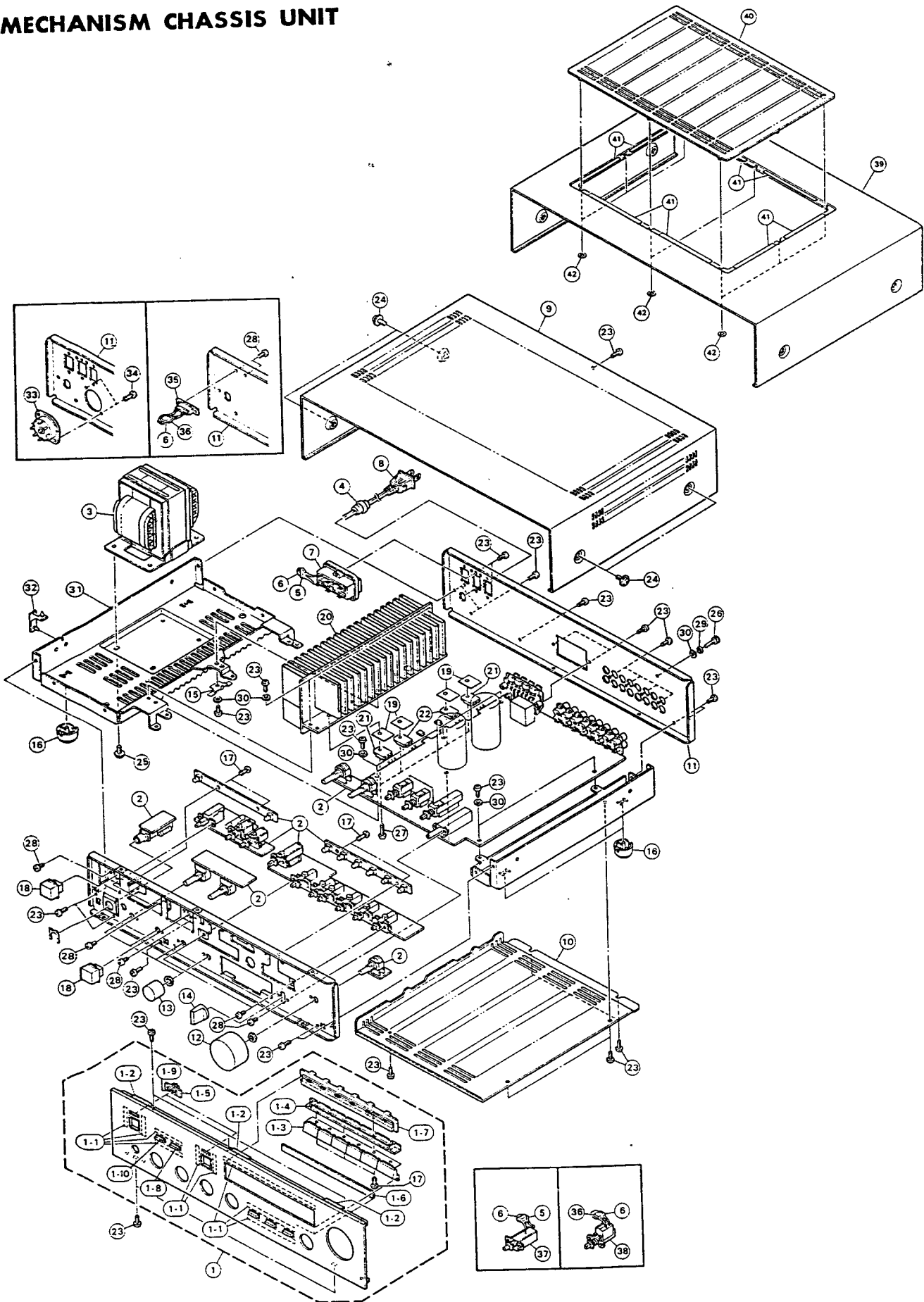
004487



'82,12 2.65K ①

.500

# MECHANISM CHASSIS UNIT



## A-500

## PARTS LIST (MECHANISM CHASSIS UNIT)

| REF. NO. | PART NO.   | DESCRIPTION           | 部 品 名                  | REMARKS | MARKET            |
|----------|------------|-----------------------|------------------------|---------|-------------------|
| ※ 1      | N B 610290 | PANEL UNIT            | パネルユニット                | SILVER  | J.R.U.W.A.E.G.C.B |
| ※ 1      | N B 610300 | PANEL UNIT            | パネルユニット                | BLACK   | RB. GB. U. B. C   |
| ※ 1-2    | C B 610350 | ANTI-VIBRATION RUBBER | 防振ゴム                   |         |                   |
| ※ 1-3    | N B 610190 | KNOB ASS'Y            | ツマミ ASS'Y              | SILVER  | J.R.U.A.G.C.B     |
| ※ 1-3    | N B 610630 | KNOB ASS'Y            | ツマミ ASS'Y              | BLACK   | RB. GB. BB. U. C  |
| ※ 1-4    | C B 616040 | HOLDER LENS           | レンズホルダー                |         | J.R.U.A.G.C.B     |
| ※ 1-5    | C B 616030 | LENS FLEME            | レンズ枠                   | SILVER  |                   |
| ※ 1-5    | C B 616680 | LENS FLAME            | レンズ枠                   | BLACK   |                   |
| ※ 1-6    | C B 618790 | SW DAMPER             | SWダンパー                 |         |                   |
| ※ 1-7    | C B 616050 | INDICATOR PANEL       | インジケーターパネル             | SILVER  | J.R.U.A.G.C.B     |
| ※ 1-7    | C B 616690 | INDICATOR PANEL       | インジケーターパネル             | BLACK   | RB. GB. U. B. C   |
| ※ 1-8    | C B 606450 | FLAME P. BUTTON       | ボタン枠(P)                | SILVER  | J.R.U.A.G.C.B     |
| ※ 1-8    | C B 610280 | FLAME P. BUTTON       | ボタン枠(P)                | BLACK   | RB. GB. BB. U. C  |
| ※ 1-9    | C B 616020 | LENS                  | レンズ                    |         |                   |
| ※ 1-10   | N B 604260 | PUSH BUTTON ASS'Y     | プッシュボタン ASS'Y          | SILVER  | J.R.U.A.G.C.B     |
| ※ 1-10   | N B 610650 | PUSH BUTTON ASS'Y     | プッシュボタン ASS'Y          | BLACK   | R. G. B. U. C     |
| ※ 2      | N A 081110 | MAIN CIRCUIT BOARD    | メインシート                 |         | U                 |
| ※ 2      | N A 081120 | MAIN CIRCUIT BOARD    | メインシート                 |         | R                 |
| ※ 2      | N A 081130 | MAIN CIRCUIT BOARD    | メインシート                 | BLACK   | RB                |
| ※ 2      | N A 081140 | MAIN CIRCUIT BOARD    | メインシート                 |         | G                 |
| ※ 2      | N A 081150 | MAIN CIRCUIT BOARD    | メインシート                 | BLACK   | GB                |
| ※ 2      | N A 081270 | MAIN CIRCUIT BOARD    | メインシート                 |         | A. B              |
| ※ 2      | N A 081720 | MAIN CIRCUIT BOARD    | メインシート                 |         | C                 |
| ※ 2      | N A 082160 | MAIN CIRCUIT BOARD    | メインシート                 | BLACK   | U                 |
| ※ 2      | N A 082170 | MAIN CIRCUIT BOARD    | メインシート                 | BLACK   | C                 |
| ※ 3      | G A 662200 | POWER TRANSFORMER     | 電源トランス                 |         | U                 |
| ※ 3      | G A 662300 | POWER TRANSFORMER     | 電源トランス                 |         | C                 |
| ※ 3      | G A 662500 | POWER TRANSFORMER     | 電源トランス                 |         | G.                |
| ※ 3      | G A 662600 | POWER TRANSFORMER     | 電源トランス                 |         | A. B              |
| ※ 3      | G A 662400 | POWER TRANSFORMER     | 電源トランス                 |         | R                 |
| ※ 4      | C B 072750 | CORD STOPPER          | コードストッパー               |         | J.R.U.A.G.C.B     |
| ※ 5      | C B 600810 | CONDENSER COVER       | HY-0102<br>コンデンサカバー半丸型 |         | R.U.C.R.B         |
| ※ 6      | F I 384100 | CERAMIC CAP.          | 0.01 $\mu$ F<br>セラコン   |         |                   |
| ※ 7      | L B 603920 | AC OUTLET (3 SOCKET)  | M7026-C<br>AC,アウトレット3連 |         | R. U              |
| ※ 7      | L B 604230 | AC OUTLET (3 SOCKET)  | M7026-C<br>AC,アウトレット3連 |         | C                 |
| ※ 8      | M G 000780 | AC CORD (BLACK)       | 2m 6A<br>電源コード         |         | R                 |
| ※ 8      | M G 000920 | AC CORD (GRAY)        | 2.5m 7.5A<br>電源コード     |         | A                 |
| ※ 8      | M G 000950 | AC CORD (GRAY)        | 2m 2.5A<br>電源コード       |         | G                 |
| ※ 8      | M G 001000 | AC CORD (BLACK)       | 2m 6A<br>電源コード         |         | B                 |
| ※ 8      | M G 001450 | AC CORD (BLACK)       | 1.98m 10A<br>電源コード     |         | U. C              |
| ※ 9      | A A 614600 | TOP COVER             | トップカバー                 |         | R. U. A. C. R     |
| ※ 9      | A A 615090 | TOP COVER             | トップカバー                 | BLACK   | R. U. C           |
| ※ 10     | A A 614630 | BOTTOM COVER          | ボトムカバー                 |         |                   |
| ※ 11     | A A 614670 | REAR PANEL            | リヤパネル                  |         | R                 |
| ※ 11     | A A 614680 | REAR PANEL            | リヤパネル                  |         | U. C              |
| ※ 11     | A A 614690 | REAR PANEL            | リヤパネル                  |         | G                 |
| ※ 11     | A A 614700 | REAR PANEL            | リヤパネル                  |         | B                 |
| ※ 12     | B A 084890 | KNOB, VOL             | VOLツマミ                 |         | J.R.U.A.G.C.B     |
| ※ 12     | B A 085090 | KNOB, VOL             | VOLツマミ                 | BLACK   | R. U. C. GB       |

※ : New Parts (新規部品)

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## PARTS LIST (MECHANISM CHASSIS UNIT)

| REF. NO. | PARTS NO.  | DESCRIPTION             | 部 品 名                         | REMARKS | MARKET                   |
|----------|------------|-------------------------|-------------------------------|---------|--------------------------|
| 13       | B A 084900 | KNOB, TC                | TCツマミ                         |         | J. R. U. A. G. C. B      |
| 13       | B A 085100 | KNOB, TC                | TCツマミ                         | BLACK   | RB. GB. U. C             |
| 14       | B A 084910 | KNOB, SW                | SWツマミ                         |         | J. R. U. A. G. C. B      |
| 14       | B A 085110 | KNOB, SW                | SWツマミ                         | BLACK   | RB. GB. U. C             |
| 15       | B B 070120 | TR PUSHER               | TRブッシャー                       |         |                          |
| 16       | C B 610390 | LEG                     | 脚                             |         |                          |
| 17       | C B 068880 | PLASTIC RIVET           | プラスチックリベット                    |         | J. R. U. A. G. C         |
| 18       | N B 609160 | BUTTON (P) ASS'Y        | ボタン (P) ASS'Y                 |         | J. R. U. A. G. C. B      |
| 18       | N B 609170 | BUTTON (P) ASS'Y        | ボタン (P) ASS'Y                 | BLACK   | RB. GB. BB. U. C         |
| 19       | I L 000570 | MICK BASE               | MT-100<br>マイカベース              |         |                          |
| 20       | B A 084610 | HEAT SINK               | 放熱板                           |         |                          |
| 21       | I X 600640 | TRANSISTOR              | 2SC3284<br>トランジスタ             |         |                          |
| 22       | I X 600630 | TRANSISTOR              | 2SA1303<br>トランジスタ             |         |                          |
| 23       | E I 330086 | BIND TAPPING SCREW      | 3×8 FCM3-BL<br>バインドタッピングネジ2種  | 1PACK   |                          |
| 24       | E Z 001310 | CUP-TIGHT SCREW         | 4×8 3G<br>カップタイトネジ (S)        | SILVER  |                          |
| 25       | E K 135020 | B.W HEAD TAPPING SCREW  | 4×10 φ10 BL<br>BWヘッドタッピングネジ2種 |         |                          |
| 26       | E Z 001400 | GROUND TERMINAL SCREW O | ⊕3×13.5<br>アース端子ネジ            |         |                          |
| 27       | E I 330126 | BIND TAPPING SCREW      | 3×12 BL<br>バインドタッピングネジ        |         |                          |
| 28       | E D 330066 | BIND SCREW              | 3×6 FCM3-BL<br>バインド小ネジ        | 1PACK   |                          |
| 29       | EW403650   | FLAT WASHER, SEMS TYPE  | φ3.6t 0.8<br>平座金              |         |                          |
| 30       | E V 203030 | FLAT WASHER             | φ3 BL<br>平座金                  |         |                          |
| 31       | A A 614640 | SIDE FLAME (L)          | サイドフレーム(L)                    |         |                          |
| 32       | C B 096510 | LED SATND               | LEDスタンド(L)                    |         |                          |
| 33       | L B 201480 | VOLTAGE SELECTOR        | 0211<br>電圧切換器                 |         |                          |
| 34       | C B 068880 | PLASTIC RIVET           | プラスチックリベット                    |         |                          |
| 35       | L A 002950 | TERMINAL 2P             | 2P端子板                         |         | A. G. C. GB              |
| 36       | C B 095260 | CONDENSER COVER         | コンデンサーカバー                     |         | A. G. B. GB              |
| 37       | K A 801230 | POWER SW                | SY10-1, TV-5<br>プッシュSW        |         | U. C                     |
| 38       | K A 802460 | POWER SW                | SS-13S<br>プッシュSW              |         | A. G. B. GB              |
| 39       | A A 614610 | TOP COVER               | トップカバー                        |         | G. B                     |
| 39       | A A 615040 | TOP COVER               | トップカバー                        | BLACK   | G. B                     |
| 40       | C B 616700 | HEAT GRILL              | 放熱グリル                         |         | G. B                     |
| 40       | C B 616710 | HEAT GRILL              | 放熱グリル                         | BLACK   | G. B                     |
| 41       | C B 074190 | TAPE                    | 5×45<br>セキスイダブルタックテープ         |         | G. B. GB                 |
| 42       | E V 523500 | STOP RING CS-TYPE       | CSTW5 φ5<br>CS止め輪             |         | G                        |
|          | C B 069250 | BINDING TIE             | インシュロックタイ                     |         | R. U. A. G. C. B. GB. RG |
| 24       | E Z 001320 | CUP-TIGHT SCREW         | 4×8 BL<br>カップタイトネジ            | BLACK   |                          |

: New Parts (新規部品)

## ■ PARTS LIST (ELECTRICITY)

| REF. NO. | PARTS NO. | DESCRIPTION             | 部 品 名              | REMARKS  | MARKET              |               |
|----------|-----------|-------------------------|--------------------|----------|---------------------|---------------|
|          | FG 410500 | CERAMIC CAP.            | 5pF 50V            | セラコン     | C149. 150           |               |
|          | FG 410800 | CERAMIC CAP.            | 8pF 50V            | セラコン     | C151. 152           |               |
|          | FG 411150 | CERAMIC CAP.            | 15pF 50V           | セラコン     | C171. 172           |               |
|          | FG 411330 | CERAMIC CAP.            | 33pF 50V           | セラコン     | C143. 144           |               |
|          | FG 411470 | CERAMIC CAP.            | 47pF 50V           | セラコン     | C103. 104           | G. GB         |
|          | FG 412100 | CERAMIC CAP.            | 100pF 50V          | セラコン     | C213. 214           | G. GB         |
|          | FG 412220 | CERAMIC CAP.            | 220pF 50V          | セラコン     | C105. 106           | J.R.U.A.G.C.B |
|          | FG 412100 | CERAMIC CAP.            | 100pF 50V          | セラコン     | C105. 106           | G. B          |
|          | FG 412330 | CERAMIC CAP.            | 330pF 50V          | セラコン     | C119-128            | G. B          |
|          | FG 412470 | CERAMIC CAP.            | 470pF 50V          | セラコン     | C107-108            |               |
|          | FG 412680 | CERAMIC CAP.            | 680pF 50V          | セラコン     | C137. 138           |               |
|          | FG 412150 | CERAMIC CAP.            | 150pF 50V          | セラコン     | C101. 102           | G. GB         |
|          | FG 212820 | CERAMIC CAP.            | 820pF 50V          | セラコン     | C145. 146 173-176   |               |
|          | FG 413470 | CERAMIC CAP.            | 4700pF 50V         | セラコン     | C201. 202. 207. 208 | G. GB.        |
|          | FG 444100 | CERAMIC CAP.            | 0.01 $\mu$ F 50V   | セラコン     | C209                |               |
|          | FG 444220 | CERAMIC CAP.            | 0.022 $\mu$ F 50V  | セラコン     | C153-156            |               |
|          | FG 444220 | CERAMIC CAP.            | 0.022 $\mu$ F 50V  | セラコン     | C133. 134 203-206   | G. GB         |
|          | FG 444470 | CERAMIC CAP.            | 0.047 $\mu$ F 50V  | セラコン     | C189-192            |               |
|          | FI 414100 | CERAMIC CAP.            | 0.01 $\mu$ F       | セラコン     | C229                | R. RB         |
|          | FH 234100 | CERAMIC CAP.            | 0.01 $\mu$ F       | セラコン     | C210                | J.R.U.A.G.C.B |
|          | FT 512220 | POLYPROPYLENE CAPACITOR | 220pF 50V          | ポリプロコン   | C165. 166           |               |
| *        | UT 464110 | POLYPROPYLENE CAPACITOR | 0.011 $\mu$ F      | ポリプロコン   | C115. 116           |               |
| *        | UT 464390 | POLYPROPYLENE CAPACITOR | 0.039 $\mu$ F      | ポリプロコン   | C113. 114           |               |
| *        | FZ 003710 | ELECTROLYTIC CAP.       | 12000 $\mu$ F      | ブロックケミコン | C220. 221           |               |
| *        | FZ 003790 | CERAMIC CAP.            | 0.1 $\mu$ F 25V    | セラコン     | C129-131            |               |
|          | FZ 003790 | CERAMIC CAP.            | 0.1 $\mu$ F        | セラコン     | C215                | G. GB         |
|          | FA 453120 | MYLAR CAP.              | 1200pF             | マイラーコン   | C167. 168. 185. 186 |               |
|          | UA 253330 | MYLAR CAP.              | 0.0033 $\mu$ F 50V | マイラーコン   | C117. 118. 187. 188 |               |
|          | UA 253390 | MYLAR CAP.              | 0.0039 $\mu$ F 50V | マイラーコン   | C163. 164           |               |
|          | UA 254100 | MYLAR CAP.              | 0.01 $\mu$ F 50V   | マイラーコン   | C227. 228           |               |
|          | UA 254200 | MYLAR CAP.              | 0.02 $\mu$ F 50V   | マイラーコン   | C169. 170           |               |
|          | UA 254220 | MYLAR CAP.              | 0.022 $\mu$ F 50V  | マイラーコン   | C135. 136           |               |
|          | UA 254390 | MYLAR CAP.              | 0.039 $\mu$ F 50V  | マイラーコン   | C139-142            |               |
|          | UA 254470 | MYLAR CAP.              | 0.047 $\mu$ F 50V  | マイラーコン   | C157. 158           |               |
|          | UA 255100 | MYLAR CAP.              | 0.1 $\mu$ F 50V    | マイラーコン   | C222                |               |
|          | UA 255220 | MYLAR CAP.              | 0.22 $\mu$ F 50V   | マイラーコン   | C159. 160           |               |
|          | UW 817330 | ELECTROLYTIC CAP.       | 33 $\mu$ F 6.3V    | ケミコン     | C217                |               |
|          | UW 817470 | ELECTROLYTIC CAP.       | 47 $\mu$ F 6.3V    | ケミコン     | C147. 148. 161. 162 |               |
|          | UW 818220 | ELECTROLYTIC CAP.       | 220 $\mu$ F 6.3V   | ケミコン     | C111. 112           |               |
|          | UW 828100 | ELECTROLYTIC CAP.       | 100 $\mu$ F 10V    | ケミコン     | C109. 110           |               |
|          | UW 937220 | ELECTROLYTIC CAP.       | 22 $\mu$ F 16V     | ケミコン     | C225                |               |
|          | UW 839100 | ELECTROLYTIC CAP.       | 1000 $\mu$ F 16V   | ケミコン     | C211. 212           |               |
|          | UW 948100 | ELECTROLYTIC CAP.       | 100 $\mu$ F 25V    | ケミコン     | C223. 224           |               |
|          | UW 565220 | ELECTROLYTIC CAP.       | 0.22 $\mu$ F 50V   | ケミコン     | C193-196 183. 184   |               |
|          | UW 965470 | ELECTROLYTIC CAP.       | 0.47 $\mu$ F 50V   | ケミコン     | C179. 180 197-200   |               |
|          | UW 867100 | ELECTROLYTIC CAP.       | 10 $\mu$ F 50V     | ケミコン     | C181. 182           |               |
|          | UW 868220 | ELECTROLYTIC CAP.       | 220 $\mu$ F 50V    | ケミコン     | C177. 178           |               |
|          | UW 678100 | ELECTROLYTIC CAP.       | 100 $\mu$ F 63V    | ケミコン     | C216                |               |
| *        | FZ 004420 | POLYPROPYLENE CAPACITOR | 0.047pF 100V       | ポリプロコン   | C218. 219           | G. GB         |

\* : New Parts (新規部品)



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## IPARTS LIST(ELECTRICITY)

| EF. IO. | PARTS NO. | DESCRIPTION                    | 部 品 名            | REMARKS    | MARKET   |                     |
|---------|-----------|--------------------------------|------------------|------------|--|---------------------|
|         | GD900480  | COIL                           | 1.7 $\mu$ H      | コイル        | L105.106   |                     |
|         | GE900330  | FERRITE SHEILD TYPE CHOKE COIL | 220 $\mu$ H      | チョークコイル    | L103.104   | G. GB               |
|         | GE900840  | FERRITE SHEILD TYPE CHOKE COIL | 15 $\mu$ H       | チョークコイル    | L101.102   | G. GB               |
|         | HJ353470  | CARBON RESISTOR                | 4.7 $\Omega$     | カーボン抵抗     | R279   | G. GB               |
|         | HJ353470  | CARBON RESISTOR                | 4.7 $\Omega$     | カーボン抵抗     | R183.184   |                     |
|         | HJ354100  | CARBON RESISTOR                | 10 $\Omega$      | カーボン抵抗     | R125.126 251~256                                     |                     |
|         | HJ354220  | CARBON RESISTOR                | 22 $\Omega$      | カーボン抵抗     | R169~172.277   |                     |
|         | HJ354100  | CARBON RESISTOR                | 10 $\Omega$      | カーボン抵抗     | R101.102   | J. R. U. A. G. C. B |
|         | HJ354330  | CARBON RESISTOR                | 33 $\Omega$      | カーボン抵抗     | R101.102   | G. GB               |
|         | HJ354330  | CARBON RESISTOR                | 33 $\Omega$      | カーボン抵抗     | R109.110   | U. A. A. B. R       |
|         | HJ356220  | CARBON RESISTOR                | 2.7K $\Omega$    | カーボン抵抗     | R109.110   | G. GB               |
|         | HJ355100  | CARBON RESISTOR                | 100 $\Omega$     | カーボン抵抗     | R105.106.135.136.175.176                             |                     |
|         | HJ355150  | CARBON RESISTOR                | 150 $\Omega$     | カーボン抵抗     | R123.124.221.224                                     |                     |
|         | HJ355180  | CARBON RESISTOR                | 180 $\Omega$     | カーボン抵抗     | R191.192   |                     |
|         | HJ355470  | CARBON RESISTOR                | 470 $\Omega$     | カーボン抵抗     | R139.140.195.196.187~290                             |                     |
|         | HJ355470  | CARBON RESISTOR                | 470 $\Omega$     | カーボン抵抗     | R103.104   | G. GB               |
|         | HJ355560  | CARBON RESISTOR                | 560 $\Omega$     | カーボン抵抗     | R117.118   |                     |
|         | HJ356100  | CARBON RESISTOR                | 1K $\Omega$      | カーボン抵抗     | R167.168.187.188                                     |                     |
|         | HJ356120  | CARBON RESISTOR                | 1.2K $\Omega$    | カーボン抵抗     | R219.220.203.204                                     |                     |
|         | HJ356150  | CARBON RESISTOR                | 1.5K $\Omega$    | カーボン抵抗     | R181.182   |                     |
|         | HJ356220  | CARBON RESISTOR                | 2.2K $\Omega$    | カーボン抵抗     | R262.263.229~232.193.194<br>R199.200.209.210.264.265 |                     |
|         | HJ356270  | CARBON RESISTOR                | 2.7K $\Omega$    | カーボン抵抗     | R205.~208  |                     |
|         | HV356270  | FLAME PROOF CARBON RESISTOR    | 2.7K $\Omega$    | 不燃化カーボン抵抗  | R205~208   |                     |
|         | HJ356470  | CARBON RESISTOR                | 4.7K $\Omega$    | カーボン抵抗     | R111~116.155.156.243.244                             |                     |
|         | HJ356560  | CARBON RESISTOR                | 5.6K $\Omega$    | カーボン抵抗     | R153.154.177~180                                     |                     |
|         | HJ356688  | CARBON RESISTOR                | 6.8K $\Omega$    | カーボン抵抗     | R133.134.173.174.213.214                             |                     |
|         | HJ356820  | CARBON RESISTOR                | 8.2K $\Omega$    | カーボン抵抗     | R127.128.137.138.<br>R161.162.225.228                |                     |
|         | HJ357100  | CARBON RESISTOR                | 10K $\Omega$     | カーボン抵抗     | R197.198.215.218.<br>R259.294                        |                     |
|         | HJ357120  | CARBON RESISTOR                | 12K $\Omega$     | カーボン抵抗     | R260.261   |                     |
|         | HJ357150  | CARBON RESISTOR                | 15K $\Omega$     | カーボン抵抗     | R249.250   |                     |
|         | HJ357220  | CARBON RESISTOR                | 22K $\Omega$     | カーボン抵抗     | R119~122.157.158                                     |                     |
|         | HJ357390  | CARBON RESISTOR                | 39K $\Omega$     | カーボン抵抗     | R245.246   |                     |
|         | HJ357430  | CARBON RESISTOR                | 43K $\Omega$     | カーボン抵抗     | R185.186   |                     |
|         | HJ357470  | CARBON RESISTOR                | 47K $\Omega$     | カーボン抵抗     | R107.108.151.152.266                                 |                     |
|         | HJ357680  | CARBON RESISTOR                | 68K $\Omega$     | カーボン抵抗     | R278   |                     |
|         | HJ357820  | CARBON RESISTOR                | 82K $\Omega$     | カーボン抵抗     | R131.132   |                     |
|         | HJ358100  | CARBON RESISTOR                | 100K $\Omega$    | カーボン抵抗     | R275.276.281.211<br>R212.285.286                     |                     |
|         | HJ358150  | CARBON RESISTOR                | 150K $\Omega$    | カーボン抵抗     | R159.160.163.164                                     |                     |
|         | HJ358220  | CARBON RESISTOR                | 220K $\Omega$    | カーボン抵抗     | R273.280   |                     |
|         | HJ358390  | CARBON RESISTOR                | 390K $\Omega$    | カーボン抵抗     | R165.166   |                     |
|         | HJ358470  | CARBON RESISTOR                | 470K $\Omega$    | カーボン抵抗     | R268~272.274   |                     |
|         | HJ359100  | CARBON RESISTOR                | 1M $\Omega$      | カーボン抵抗     | R129.130   |                     |
|         | HJ359220  | CARBON RESISTOR                | 2.2M $\Omega$    | カーボン抵抗     | R267   |                     |
|         | HL725270  | METAL OXIDE FILM RESISTOR      | 2P 270 $\Omega$  | 酸化抵抗       | R283.284   |                     |
|         | HL326150  | METAL OXIDE FILM RESISTOR      | 2P 1.5K $\Omega$ | 酸化抵抗       | R257.258.  |                     |
|         | HL326180  | METAL OXIDE FILM RESISTOR      | 2P 1.8K $\Omega$ | 酸化抵抗       | R201.202   |                     |
|         | HL836120  | METAL OXIDE FILM RESISTOR      | 3P 1.2K $\Omega$ | 酸化抵抗       | R282   |                     |
|         | HL836120  | METAL OXIDE FILM RESISTOR      | 3P 1.2K $\Omega$ | 酸化抵抗       | R291   | U. C                |
|         | HS311890  | VARIABLE RESISTOR              | 100KA $\times$ 2 | VR16型 1軸2連 | VR103  |                     |

: New Parts (新規部品)



## ■ PARTS LIST (ELECTRICITY)

| REF. NO. | PARTS NO. | DESCRIPTION                        | 部 品 名       | REMARKS      | MARKET        |                          |
|----------|-----------|------------------------------------|-------------|--------------|---------------|--------------------------|
| ※        | HS 311900 | VARIABLE RESISTOR                  | 300HB×2     | VR16型 1軸2連   | VR102         |                          |
| ※        | HS 311910 | VARIABLE RESISTOR                  | 200KB×2     | VR16型 1軸2連   | VR101         |                          |
| ※        | HS 311920 | VARIABLE RESISTOR                  | 400K特×2     | VR16型 1軸2連   | VR104         |                          |
| ※        | HS 311930 | VARIABLE RESISTOR                  | 100K特×2     | VR16型 1軸2連   | VR105         |                          |
|          | HT 370070 | VARIABLE RESISTOR                  | B3K         | 半固定VR V8K4-1 | V107. 108     |                          |
|          | HV353220  | FLAME PROOF RESISTOR               | 2.2Ω        | 不燃化カーボン抵抗    | R233. 234     |                          |
|          | HV354100  | FLAME PROOF RESISTOR               | 10Ω         | 不燃化カーボン抵抗    | R293          |                          |
|          | HV354220  | FLAME PROOF RESISTOR               | 22Ω         | 不燃化カーボン抵抗    | R189. 190     |                          |
|          | HV355470  | FLAME PROOF RESISTOR               | 470Ω        | 不燃化カーボン抵抗    | R235. 236     |                          |
|          | HZ 002260 | METAL PLATE RESISTOR               | 0.1Ω 5P     | 金属板抵抗        | R247. 248     |                          |
|          | HZ 002390 | METAL PLATE RESISTOR               | 0.22Ω 3P    | 金属板抵抗        | R239. 242     |                          |
|          | HZ 003050 | METAL PLATE RESISTOR               | 0.22Ω 3P    | 金属板抵抗        | R240. 241     |                          |
|          | IA 099910 | TRANSISTOR                         | 2SA999      | トランジスタ       | TR115~118     |                          |
|          | IA 101100 | TRANSISTOR                         | 2SA1011     | トランジスタ       | TR121. 122    |                          |
|          | IA 120900 | TRANSISTOR                         | 2SA1209     | トランジスタ       | TR113. 114    |                          |
|          | IC 232010 | TRANSISTOR                         | 2SC2320     | トランジスタ E.F   | TR107~112     |                          |
|          | IC 234400 | TRANSISTOR                         | 2SC2344     | トランジスタ D.E   | TR119. 120    |                          |
|          | IE 102710 | DUAL FET                           | 2SK270      | デュアルFET      | TR101. 102    |                          |
| ※        | IE 103410 | FET                                | 2SK117      | FET          | TR103~106     |                          |
|          | IF 000040 | DIODE                              | 1S1555      | ダイオード        | D101. 102     |                          |
|          | IF 000670 | DIODE                              | 1S2473      | ダイオード        | D101. 102     |                          |
|          | IF 001380 | DIODE                              | 1SS84       | ダイオード        | D108          |                          |
|          | IF 001400 | DIODE                              | 1SS82       | ダイオード        | D103. 104     |                          |
|          | IF 002080 | ZENER DIODE                        | HZ16L-3     | ツェナーダイオード    | D109~111      |                          |
| ※        | IF 004270 | LED                                |             | LED (RED)    | D112. 113     |                          |
| ※        | IF 004280 | LED                                |             | LED (GREEN)  | D114~119      |                          |
| ※        | IG 085700 | IC                                 | M5218L      | IC           | IC101. 102    |                          |
|          | IH 000870 | DIODE BRIDGE                       | 4D4B41      | ダイオードブリッジ    | D107          |                          |
|          | IH 001040 | DIODE BRIDGE                       | RB402 (LFA) | ダイオードブリッジ    | D107          |                          |
|          | IH 001170 | DIODE BRIDGE                       | D4BB20      | ダイオードブリッジ    | D107          |                          |
| ※        | KA 803520 | PUSH SWITCH                        | SDL         | プッシュSW       | SW108         | J. R. RB                 |
| ※        | KA 803570 | PUSH SWITCH                        | 2CIRCUIT2   | プッシュSW       | SW107         |                          |
| ※        | KA 802820 | PUSH SWITCH                        |             | プッシュSW       | SW105. 106    |                          |
| ※        | KA 803500 | PUSH SWITCH                        | 6CIRCUIT2   | プッシュSW       | SW101         |                          |
| ※        | KA 803510 | PUSH SWITCH                        | 4CIRCUIT2   | プッシュSW       | SW104         |                          |
| ※        | KA 803360 | PUSH SWITCH                        | 4CIRCUIT2   | プッシュSW       | SW103         |                          |
| ※        | KA 501810 | ROTARY SWITCH                      | I=20        | ロータリーSW      | SW102         |                          |
|          | KB 000370 | FUSE                               | 3.5A 250V   | タイラッシュヒューズ   | F102          | R. RB                    |
|          | KB 001300 | FUSE                               | 7.0A 250V   | タイラッシュヒューズ   | F101          | J. R. RB                 |
|          | KB 000760 | FUSE                               | 3.15A 250V  | タイムラグヒューズ    | F101          | A. G. B. GB              |
|          | KB 001520 | FUSE                               | 7A 125V     | ULタイムラグヒューズ  | F101          | U. C                     |
|          | KC 001150 | RELAY                              | DC24V       | リレー          | RY101         | U. C                     |
| ※        | KC 001460 | RELAY                              |             | リレー          | RY101         | J. R. A. G. B. RB. GB    |
| ※        | LB 301750 | PHONES JACK                        |             | ホーンジャック      | TK101         | J. R. U. A. G. C. B      |
| ※        | LB 301760 | PHONES JACK                        |             | ホーンジャック      | TK101 (BLACK) | RB. GB                   |
| ※        | LB 401030 | PIN JACK 4P                        |             | 4Pピンジャック     | PJ102~104     |                          |
| ※        | LB 401050 | PIN JACK 4P                        |             | 4Pピンジャック     | PJ101         |                          |
|          | LB 002140 | WRAPPING TERMINAL (1 TYPE) P=10 2P | P=10 2P     | I型ラッピング端子板   |               | R. U. A. G. C. B. RB. GB |
|          | LA 002150 | WRAPPING TERMINAL (1 TYPE) P=10 3P | P=10 3P     | I型ラッピング端子板   |               |                          |

※ : New Parts (新規部品)

