

# 5. SCHEMATIC DIAGRAM

( ) --- RX212  
[ ] --- RX216

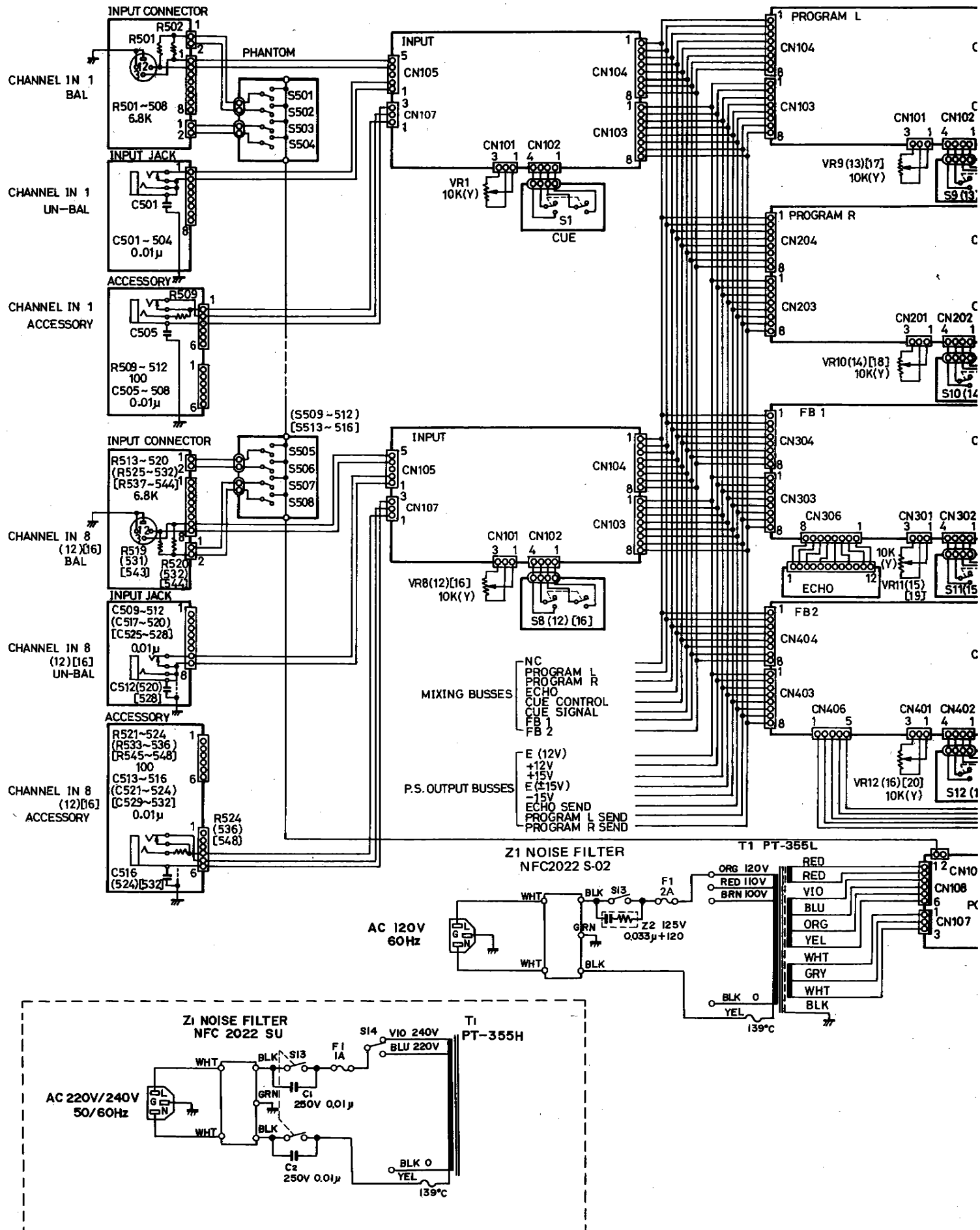
A

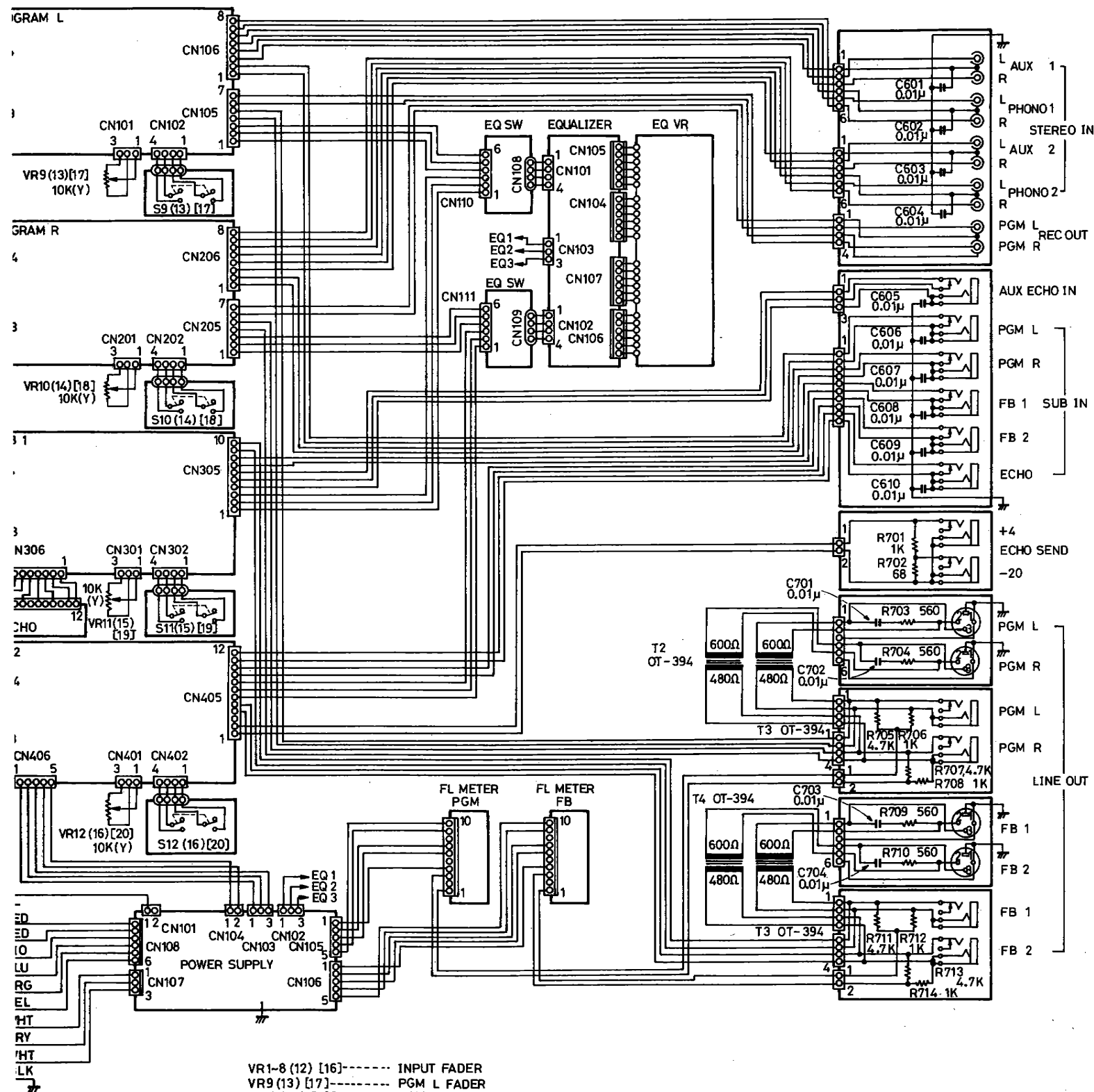
B

C

D

E





1. RESISTANCE VALUES IN OHMS.
2. ALL RESISTORS 1/4W.
3. CAPACITANCE VALUES IN FARADS UNLESS OTHERWISE DESIGNATED.
4. ALL CAPACITORS 50V UNLESS OTHERWISE DESIGNATED.

## 7. DISASSEMBLING or REMOVING CONNECTORS

### ■ Disassembling Audio Connectors

Each Audio Connector (XLR type) can be separated into two parts.

When removing the INPUT CONNECTOR PCB (Ref. No. 22 on page 46) or the LINE OUT (XLR) PCB (Ref. No. 29 on page 46) from the rear panel, refer to the following procedures.

#### 1. Opening

Insert a flat-bit screwdriver with quenched tip, which can be supplied, if required, into a given hole.

Turn the screwdriver slightly counterclockwise, and the connector can be separated. (Fig. 1)

#### 2. Closing

Fit the two parts of the connector.

Turn the screwdriver clockwise. (Fig. 2)

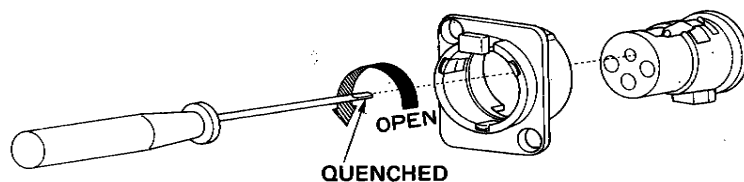


Fig. 1

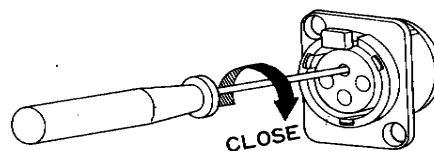


Fig. 2

### ■ Removing Bus Cables

Use pliers or the like to remove bus cable connectors as shown in Fig. 3.

Never use your finger. (Fig. 4)

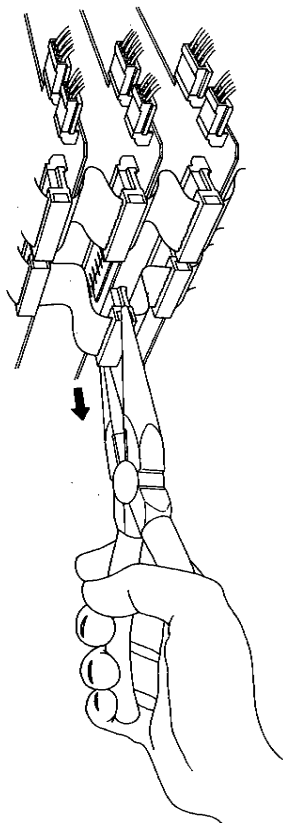


Fig. 3

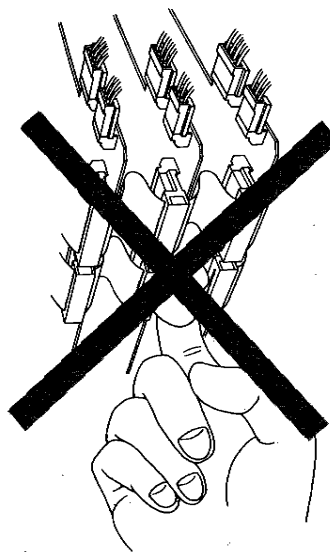
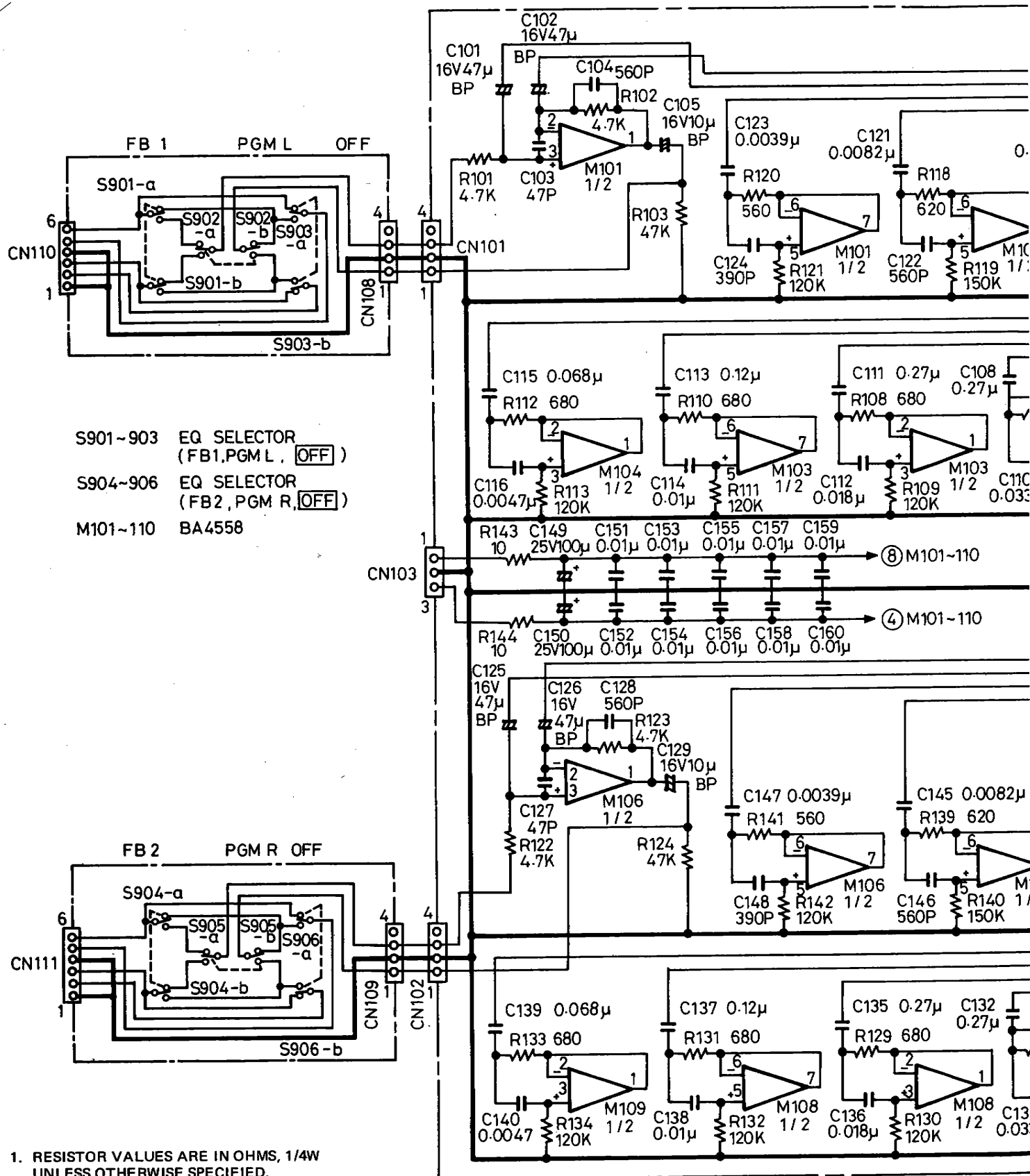
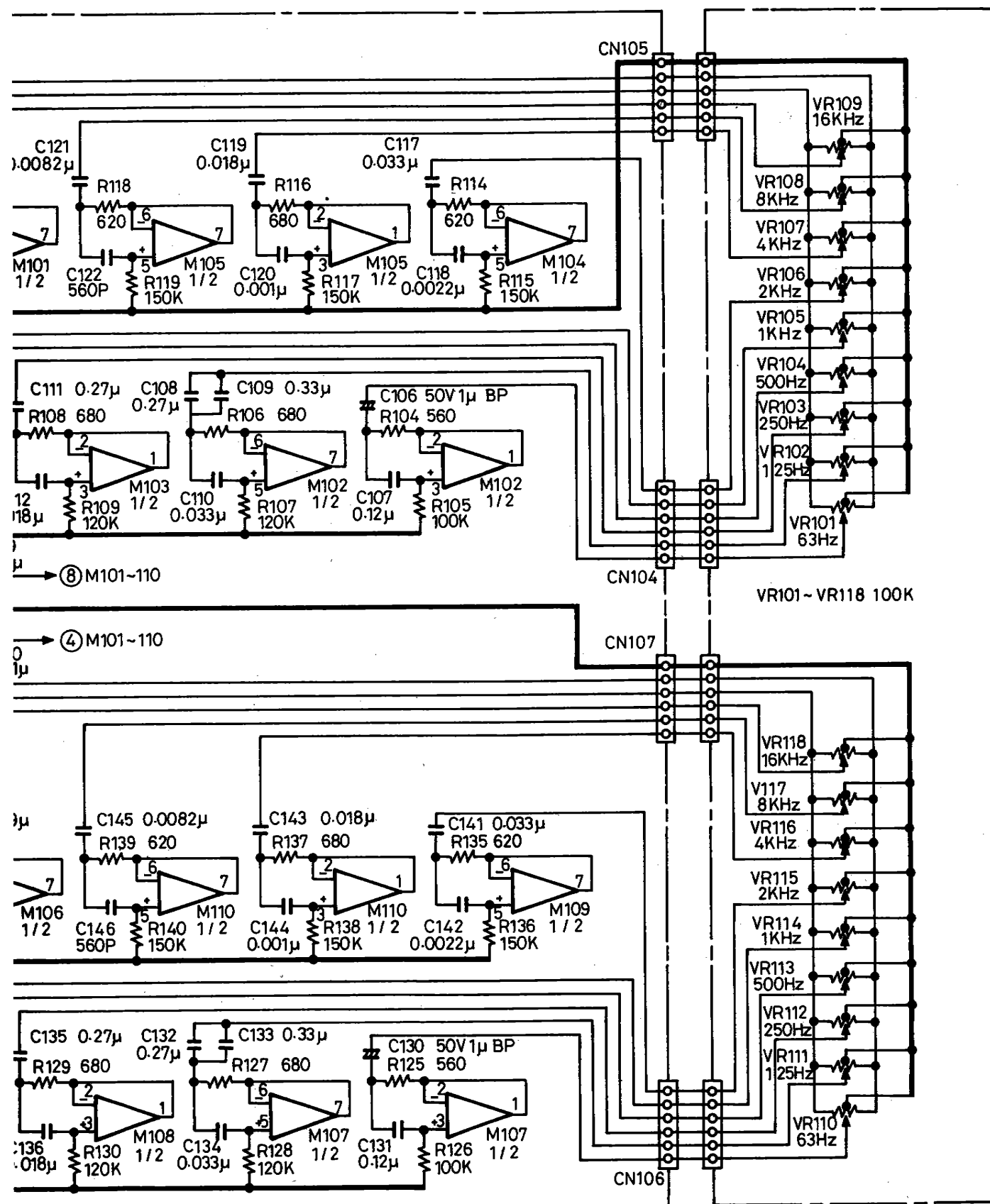


Fig. 4

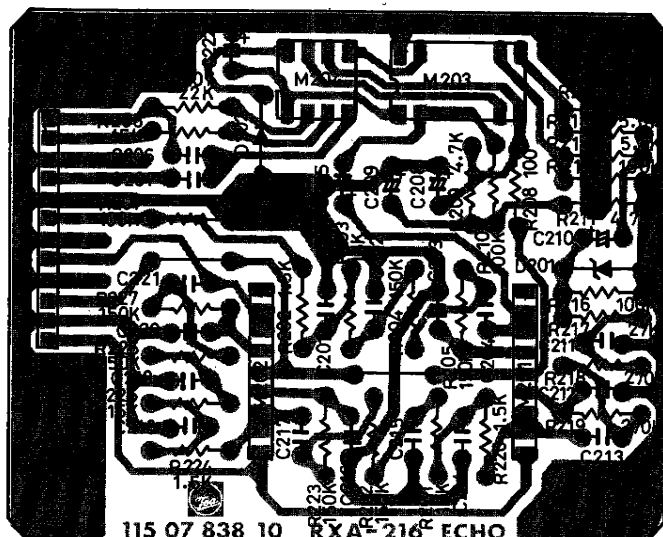
# ■ GEO Section Schematic Diagram



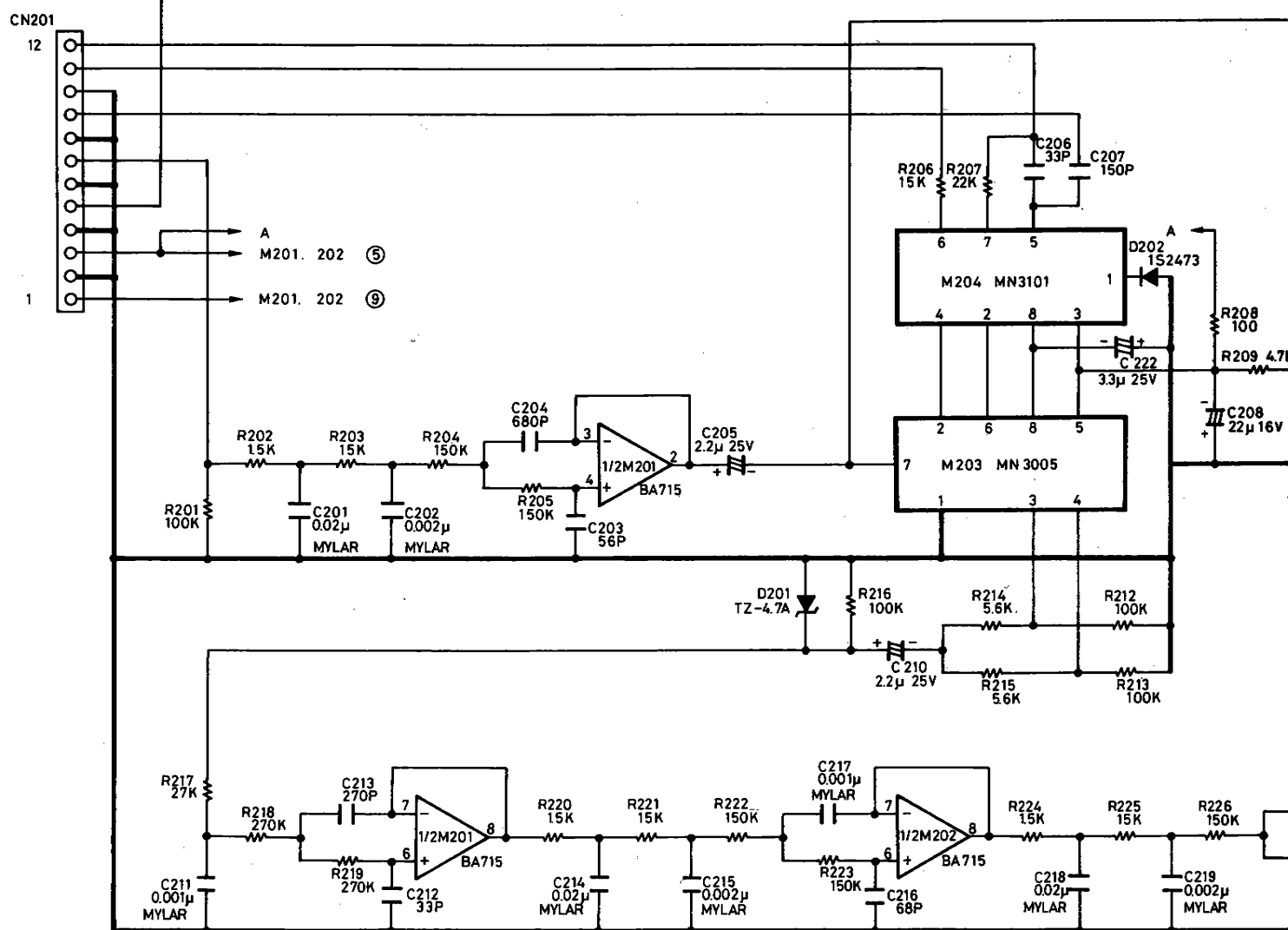
1. RESISTOR VALUES ARE IN OHMS, 1/4W UNLESS OTHERWISE SPECIFIED.
2. CAPACITOR VALUES ARE IN FARADS.



# ■ Echo PCB Assembly



## ● Schematic Diagram



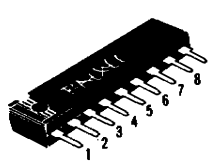
1. RESISTOR VALUES ARE IN OHMS, 1/4W,
  2. CAPACITOR VALUES ARE IN FARADS, 50V,
- UNLESS OTHERWISE SPECIFIED.

# Parts List

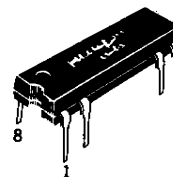
| Designator                   | Part Code     | Description               |
|------------------------------|---------------|---------------------------|
| <b>ICs</b>                   |               |                           |
| M201, 202                    | 111-06-140-80 | OP-AMP., BA-715           |
| M203                         | 111-11-031-90 | COMS, MN3005              |
| M204                         | 111-11-150-70 | COMS, MN3101              |
| <b>Diodes</b>                |               |                           |
| D201                         | 111-03-331-70 | TZ-4.7A                   |
| D202                         | 111-03-132-60 | 1S2473                    |
| <b>Capacitors</b>            |               |                           |
| C201                         | 113-06-008-30 | 0.02 $\mu$ F, 50V, mylar  |
| C202                         | 113-06-002-30 | 0.002 $\mu$ F, 50V, mylar |
| C203                         | 113-35-069-20 | 56pF, 50V, ceramic        |
| C204                         | 113-35-211-70 | 680pF, 50V, ceramic       |
| C205                         | 113-02-336-10 | 2.2 $\mu$ F, 25V, elec.   |
| C206                         | 113-35-051-90 | 33pF, 50V, ceramic        |
| C207                         | 113-35-085-80 | 150pF, 50V, ceramic       |
| C208                         | 113-02-324-40 | 22 $\mu$ F, 16V, elec.    |
| C209                         | 113-02-326-40 | 47 $\mu$ F, 16V, elec.    |
| C210                         | 113-02-336-10 | 2.2 $\mu$ F, 25V, elec.   |
| C211                         | 113-06-001-00 | 0.001 $\mu$ F, 50V, mylar |
| C212                         | 113-35-051-90 | 33pF, 50V, ceramic        |
| C213                         | 113-35-206-90 | 270pF, 50V, ceramic       |
| C214                         | 113-06-008-30 | 0.02 $\mu$ F, 50V, mylar  |
| C215                         | 113-06-002-30 | 0.002 $\mu$ F, 50V, mylar |
| C216                         | 113-35-072-00 | 68pF, 50V, ceramic        |
| C217                         | 113-06-001-00 | 0.001 $\mu$ F, 50V, mylar |
| C218                         | 113-06-008-30 | 0.02 $\mu$ F, 50V, mylar  |
| C219                         | 113-06-002-30 | 0.002 $\mu$ F, 50V, mylar |
| C220                         | 113-35-054-40 | 36pF, 50V, ceramic        |
| C221                         | 113-35-214-20 | 1200pF, 50V, ceramic      |
| C222                         | 113-02-337-40 | 3.3 $\mu$ F, 25V, elec.   |
| <b>Connector (PCB mount)</b> |               |                           |
| CN201                        | 123-06-258-10 | 12P, 1-171825-2           |
|                              | E7120         | PCB Assembly, ECHO        |

As for the part codes of the standard resistors (1/4W,  $\pm 5\%$ ), refer to the list of CARBON RESISTORS on page 37.

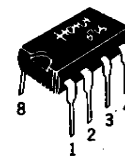
## Semiconductors



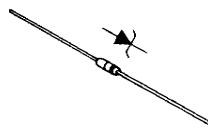
• BA-715  
(M201, 202)



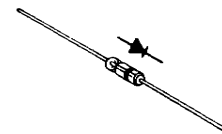
• MN-3005  
(M203)



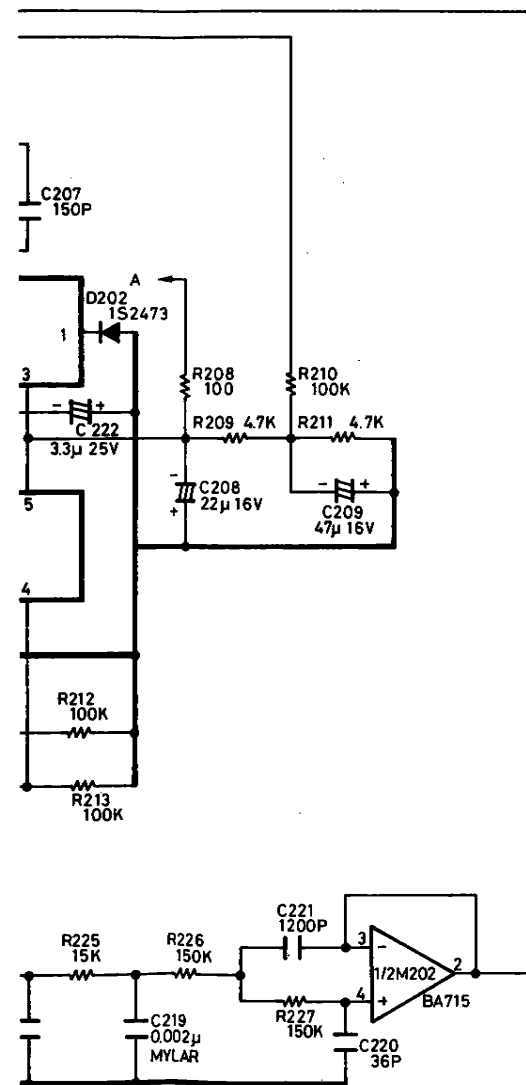
• MN-3101 (M204)



• TZ-4.7A (D201)

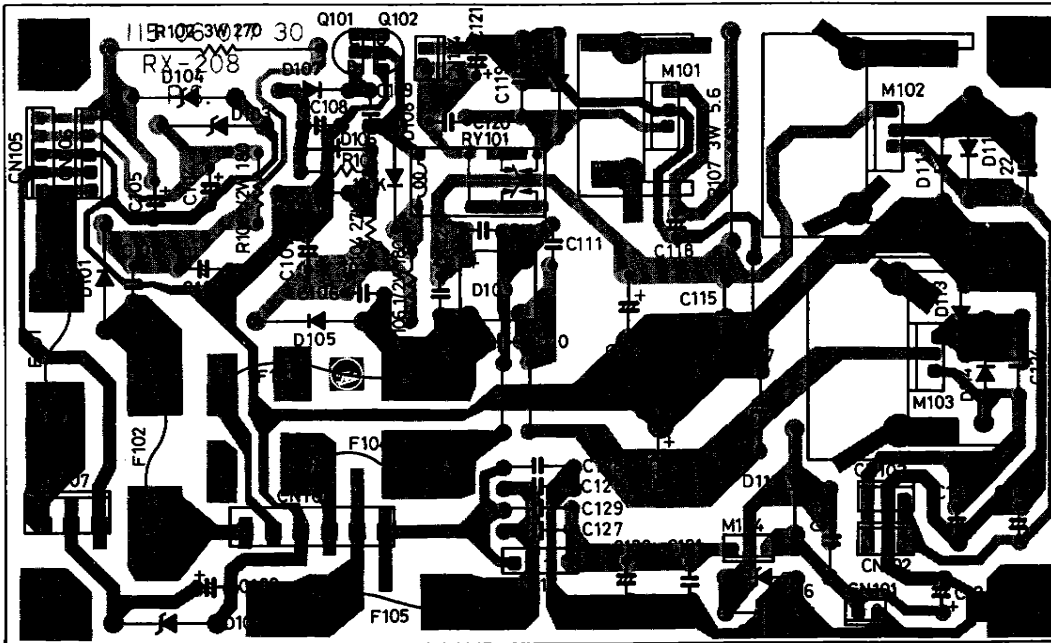


• 1S2473 (D202)



## ■ PS (Power Supply) PCB Assembly

## ● Parts



## Design:

M101  
M102  
M103  
M104

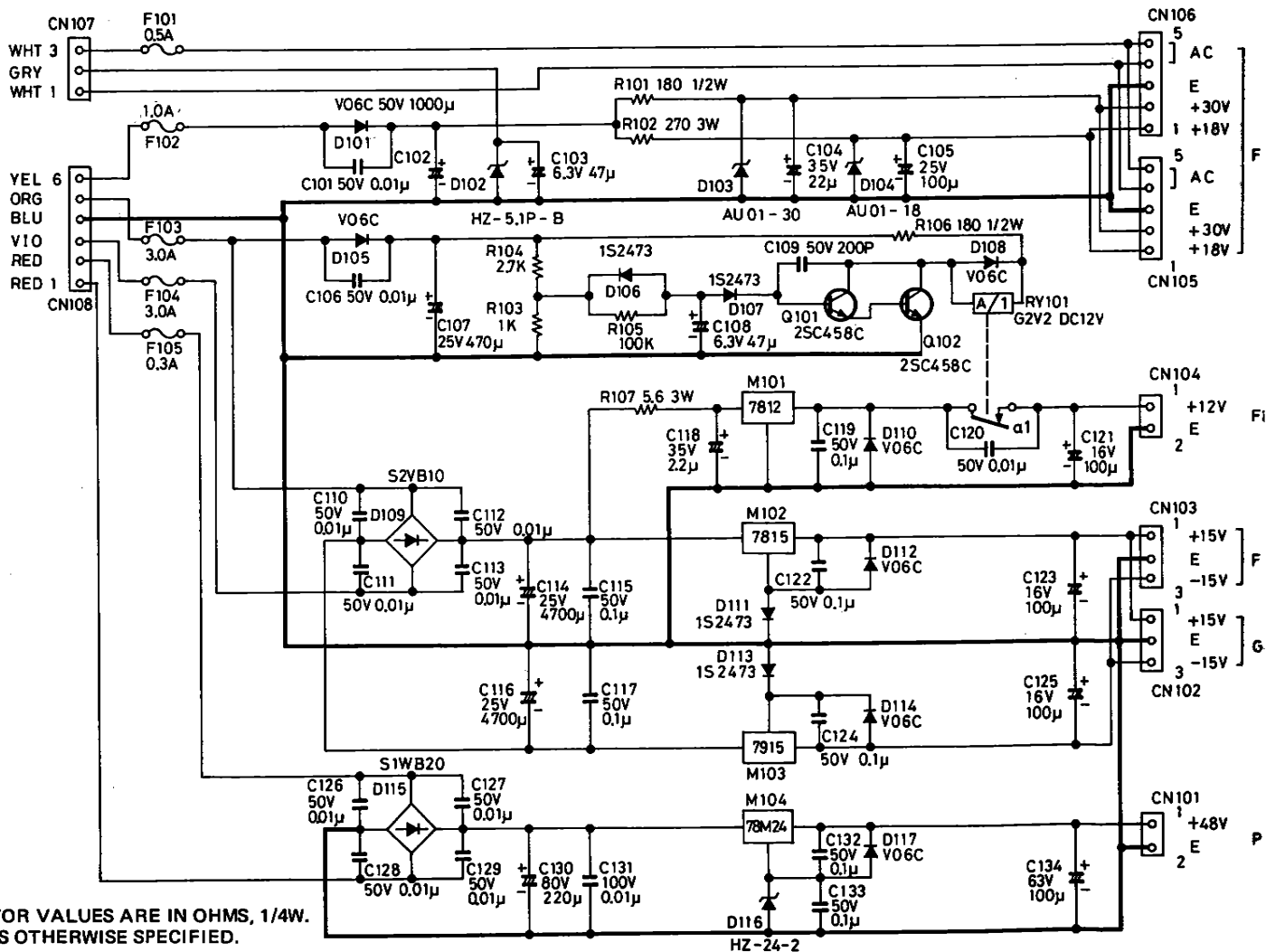
Q101, 11

D101  
D102  
D103  
D104  
D105  
D106, 11  
D108  
D109  
D110  
D111  
D112  
D113  
D114  
D115  
D116  
D117

All the st  
Resistor  
R101  
R102  
R106  
R107

C101  
C102  
C103

## ● Schematic Diagram



1. RESISTOR VALUES ARE IN OHMS, 1/4W.  
UNLESS OTHERWISE SPECIFIED.

2. CAPACITOR VALUES ARE IN FARADS.

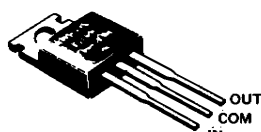
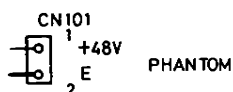
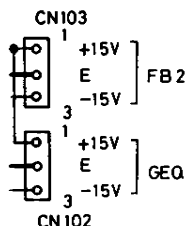
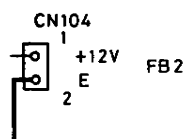
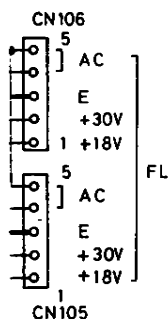


## • Parts List

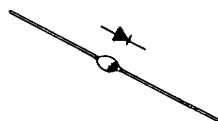
| Designator                                                                                            | Part Code     | Description                |
|-------------------------------------------------------------------------------------------------------|---------------|----------------------------|
| <b>ICs</b>                                                                                            |               |                            |
| M101                                                                                                  | 111-06-144-40 | $\mu$ A7812UC              |
| M102                                                                                                  | 111-06-235-50 | $\mu$ A7815UC              |
| M103                                                                                                  | 111-06-236-60 | $\mu$ A7915UC              |
| M104                                                                                                  | 111-06-119-80 | NJM78M24A                  |
| <b>Transistors</b>                                                                                    |               |                            |
| Q101, 102                                                                                             | 111-02-040-70 | 2SC458P (C)                |
| <b>Diodes</b>                                                                                         |               |                            |
| D101                                                                                                  | 111-03-052-70 | V06C                       |
| D102                                                                                                  | 111-03-396-60 | HZ5.1P-B                   |
| D103                                                                                                  | 111-03-567-00 | AU01-30                    |
| D104                                                                                                  | 111-03-570-60 | AU01-18                    |
| D105                                                                                                  | 111-03-052-70 | V06C                       |
| D106, 107                                                                                             | 111-03-132-60 | 1S2473                     |
| D108                                                                                                  | 111-03-052-70 | V06C                       |
| D109                                                                                                  | 111-03-288-20 | S2VB10                     |
| D110                                                                                                  | 111-03-052-70 | V06C                       |
| D111                                                                                                  | 111-03-132-60 | 1S2473                     |
| D112                                                                                                  | 111-03-052-70 | V06C                       |
| D113                                                                                                  | 111-03-132-60 | 1S2473                     |
| D114                                                                                                  | 111-03-052-70 | V06C                       |
| D115                                                                                                  | 111-03-303-00 | S1WB20                     |
| D116                                                                                                  | 111-03-495-00 | HZ-24-2                    |
| D117                                                                                                  | 111-03-052-70 | V06C                       |
| <b>Resistors</b>                                                                                      |               |                            |
| All the standard resistors are separately listed for their part codes. Resistance values are in ohms. |               |                            |
| R101                                                                                                  | 112-47-047-60 | 180, 1/2W, 5%              |
| R102                                                                                                  | 112-45-383-10 | 270, 3W, 5%                |
| R106                                                                                                  | 112-47-047-60 | 180, 1/2W, 5%              |
| R107                                                                                                  | 112-45-343-50 | 5.6, 3W, 5%                |
| <b>Capacitors</b>                                                                                     |               |                            |
| C101                                                                                                  | 113-35-223-00 | 0.01 $\mu$ F, 50V, ceramic |
| C102                                                                                                  | 113-02-374-90 | 1000 $\mu$ F, 50V, elec.   |
| C103                                                                                                  | 113-02-302-40 | 47 $\mu$ F, 6.3V, elec.    |

| Designator                    | Part Code     | Description                                       |
|-------------------------------|---------------|---------------------------------------------------|
| C104                          | 113-02-352-90 | 22 $\mu$ F, 35V, elec.                            |
| C105                          | 113-02-343-30 | 100 $\mu$ F, 25V, elec.                           |
| C106                          | 113-35-223-00 | 0.01 $\mu$ F, 50V, ceramic                        |
| C107                          | 113-02-346-00 | 470 $\mu$ F, 25V, elec.                           |
| C108                          | 113-02-302-40 | 47 $\mu$ F, 6.3V, elec.                           |
| C109                          | 113-35-088-70 | 200pF, 50V, ceramic                               |
| C110 - 113                    | 113-35-223-00 | 0.01 $\mu$ F, 50V, ceramic                        |
| C114                          | 113-02-521-10 | 4700 $\mu$ F, 25V, elec.                          |
| C115                          | 113-30-025-10 | 0.1 $\mu$ F, 50V, polyester                       |
| C116                          | 113-02-521-10 | 4700 $\mu$ F, 25V, elec.                          |
| C117                          | 113-30-025-10 | 0.1 $\mu$ F, 50V, polyester                       |
| C118                          | 113-13-263-20 | 2.2 $\mu$ F, 35V, tantalum                        |
| C119                          | 113-30-025-10 | 0.1 $\mu$ F, 50V, polyester                       |
| C120                          | 113-30-013-00 | 0.01 $\mu$ F, 50V, polyester                      |
| C121                          | 113-02-327-70 | 100 $\mu$ F, 16V, elec.                           |
| C122                          | 113-30-025-10 | 0.1 $\mu$ F, 50V, polyester                       |
| C123                          | 113-02-327-70 | 100 $\mu$ F, 16V, elec.                           |
| C124                          | 113-30-025-10 | 0.1 $\mu$ F, 50V, polyester                       |
| C125                          | 113-02-327-70 | 100 $\mu$ F, 16V, elec.                           |
| C126 - 129                    | 113-35-223-00 | 0.01 $\mu$ F, 50V, ceramic                        |
| C130                          | 113-02-397-80 | 220 $\mu$ F, 80V, elec.                           |
| C131                          | 113-30-311-50 | 0.01 $\mu$ F, 100V, polyester                     |
| C132, 133                     | 113-30-025-10 | 0.1 $\mu$ F, 50V, polyester                       |
| C134                          | 113-02-383-90 | 100 $\mu$ F, 63V, elec.                           |
| <b>Relay</b>                  |               |                                                   |
| RY101                         | 115-16-060-20 | G2V-2 DC 12V                                      |
| <b>Fuses</b>                  |               |                                                   |
| F101                          | 115-40-211-30 | 0.5A, UL (for AC 120V model)                      |
|                               | 115-40-004-50 | 0.5A (for AC 220V/240V models)                    |
| F102                          | 115-40-213-10 | 1A, UL (for AC 120V model)                        |
|                               | 115-40-001-00 | 1A (for AC 220V/240V models)                      |
| F103, 104                     | 115-40-217-10 | 3A, UL (for AC 120V model)                        |
|                               | 115-40-003-80 | 3A (for AC 220V/240V models)                      |
| F105                          | 115-40-210-20 | 0.3A, UL (for AC 120V model)                      |
|                               | 115-40-013-10 | 0.3A (for AC 220V/240V models)                    |
| <b>Connectors (PCB mount)</b> |               |                                                   |
| CN101                         | 123-06-319-90 | 2P, 171825-2                                      |
| CN102, 103                    | 123-06-300-50 | 3P, 171825-3                                      |
| CN104                         | 123-06-319-90 | 2P, 171825-2                                      |
| CN105, 106                    | 123-06-301-60 | 5P, 171825-5                                      |
| CN107                         | 123-16-088-90 | 3P, B3P-VH                                        |
| CN108                         | 123-16-089-60 | 6P, B6P-VH                                        |
|                               | 101-08-178-80 | Heat sink for M101                                |
|                               | 101-08-179-50 | Heat sink for M102/103                            |
|                               | 123-07-027-20 | Fuse holder (Two pcs. are necessary for one fuse) |
|                               | E7250         | PCB assembly, PS                                  |

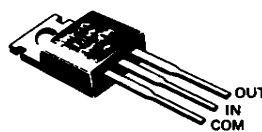
As for the part codes of the standard resistors (1/4W,  $\pm 5\%$ ), refer to the list of CARBON RESISTORS on page 37.



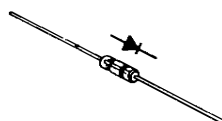
- $\mu$ A7812UC (M101)
- $\mu$ A7815UC (M102)
- NJM78M24A (M104)



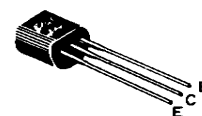
- V06C (D101, 105, 108, 110, 112, 114, 117)



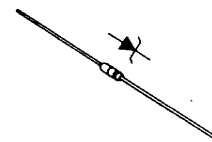
- $\mu$ A7915UC (M103)



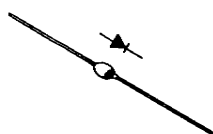
- IS2473 (D106, 107, 111, 113)



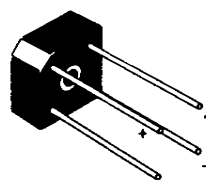
- 2SC458P (C) (Q101, 102)



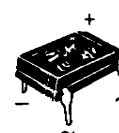
- HZ5.1P-B (D102)
- HZ-24-2 (D116)



- AU01-30 (D103)
- AU01-18 (D104)



- S2VB10 (D109)



- S1WB20 (D115)