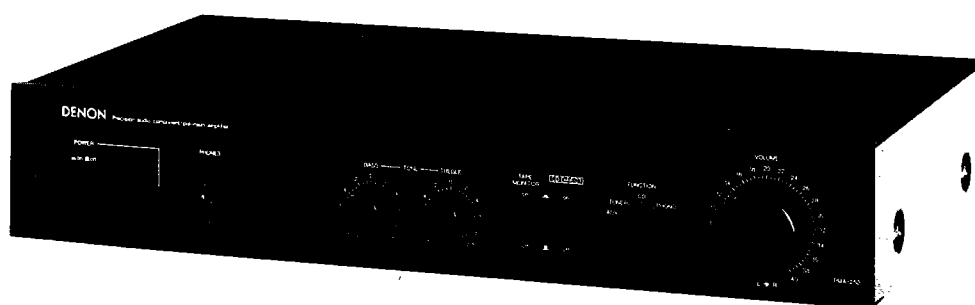


# DENON

Hi-Fi Stereo Pre-main Amplifier

## SERVICE MANUAL MODEL PMA-250

### STEREO PRE-MAIN AMPLIFIER



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## NIPPON COLUMBIA CO., LTD.

## SPECIFICATIONS

## POWER AMPLIFIER SECTION

|                                    |                                                                                                                           |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Rated Output Power:</b>         | Both channel driven<br>(TUNER → SP OUT)<br>4 ohm 1 kHz DIN T.H.D. 1%:<br>40 W + 40 W<br>8 ohm 20 Hz — 20 kHz: 25 W + 25 W |
| <b>Total Harmonic Distortion:</b>  | 0.05% (20 Hz — 20 kHz at —3 dB rated output 8 ohm Load)                                                                   |
| <b>Intermodulation Distortion:</b> | Below 7 kHz/60 Hz: 1/4 0.03%<br>(at amplitude output equivalent to rated output)                                          |
| <b>Power Band Width:</b>           | 10 Hz — 40 kHz (IHF T.H.D. 0.1%)                                                                                          |
| <b>Frequency Response:</b>         | 5 Hz — 150 kHz $\pm 0$ dB<br>(at 1 W output)                                                                              |
| <b>Output Terminals:</b>           | Speaker: Load 4 — 16 ohm (IEC)<br>EK, E2<br>Load 6 — 16 ohm<br>E1, EU, EC, EA                                             |
| <b>Headphone:</b>                  | Stereo headphone                                                                                                          |

## PRE AMPLIFIER SECTION

|                                                |                                                                            |
|------------------------------------------------|----------------------------------------------------------------------------|
| <b>Pre Amplifier Output:</b>                   | Maximum Output: 10 V<br>(at 47 k ohm Load)<br>Rated Output: 150 mV         |
| <b>Input Sensitivity/<br/>Input Impedance:</b> | PHONO MM: 2.5 mV 47 k ohm<br>CD<br>TUNER, AUX 150 mV 47 k ohm<br>CD DIRECT |

|                        |                                                   |
|------------------------|---------------------------------------------------|
| <b>RIAA Deviation:</b> | PHONO MM: within $\pm 0.5$ dB<br>(20 Hz — 20 kHz) |
|------------------------|---------------------------------------------------|

## GENERAL CHARACTERISTICS

|                                |                                                                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SN Ratio (IHFA Weight):</b> | PHONO MM: 70 dB (input terminals short-circuited for 2.5 mV input)<br>CD DIRECT, CD, TUNER, AUX: 96 dB (input terminals short-circuited) |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|

## Tone Control Adjustable

|               |                                                      |
|---------------|------------------------------------------------------|
| <b>Range:</b> | BASS 100 Hz $\pm 10$ dB<br>TREBLE 10 kHz $\pm 10$ dB |
|---------------|------------------------------------------------------|

## AC OUTLET:

(For U.S.A., Canada and Asia)  
SWITCHED x 2 [100 W (Total)]  
UNSWITCHED x 1 (250 W)

## POWER SOURCE:

Germany and France AC 220 V, 50 Hz;  
U.K. and Australia AC 240 V, 50 Hz;  
U.S.A. and Canada AC 120V, 60 Hz;  
Asia AC 110/120/220/240 V, 50/60 Hz (multiple)

## POWER CONSUMPTION: 80 W (IEC) (Multiple)

**DIMENSIONS:** 434 mm (W) x 85 mm (H) x 257 mm (D)  
(17-3/32" x 3-11/32" x 10-1/8")  
(including rubber feet, control knobs, and terminals)

**WEIGHT:** 4.9 kg (10 lbs 13 oz)

Design and specifications are subject to change without prior notice.

NOTE: The following codes correspond to the appropriate models.  
E2 for Europe, EK for U.K., E1 for Asia, EU for U.S.A.,  
EC for Canada and EA for Australia.  
This Service Manual is prepared based on E2 and black version.

## BLOCK DIAGRAM

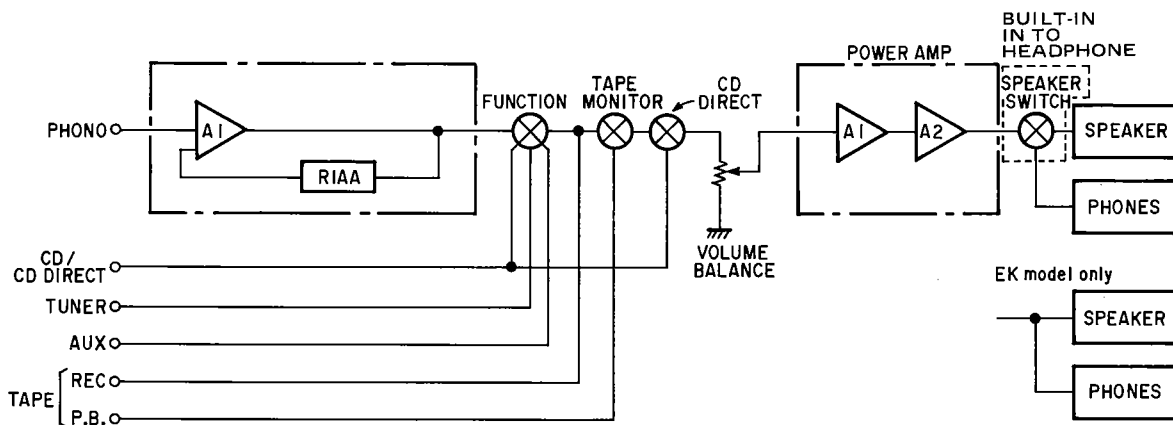


Fig. 1

## CONTROLS AND DESCRIPTIONS

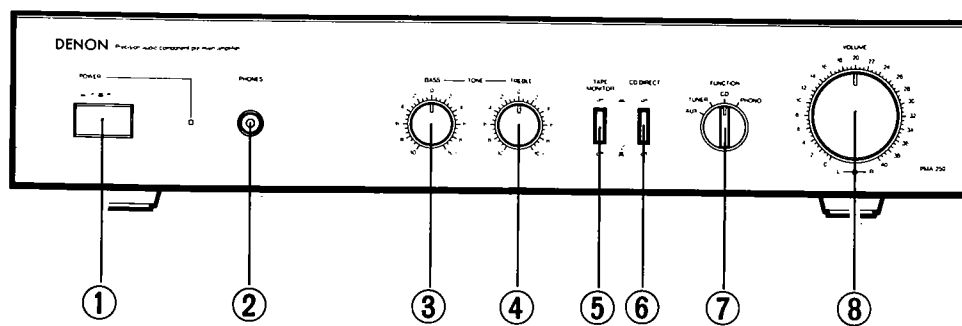
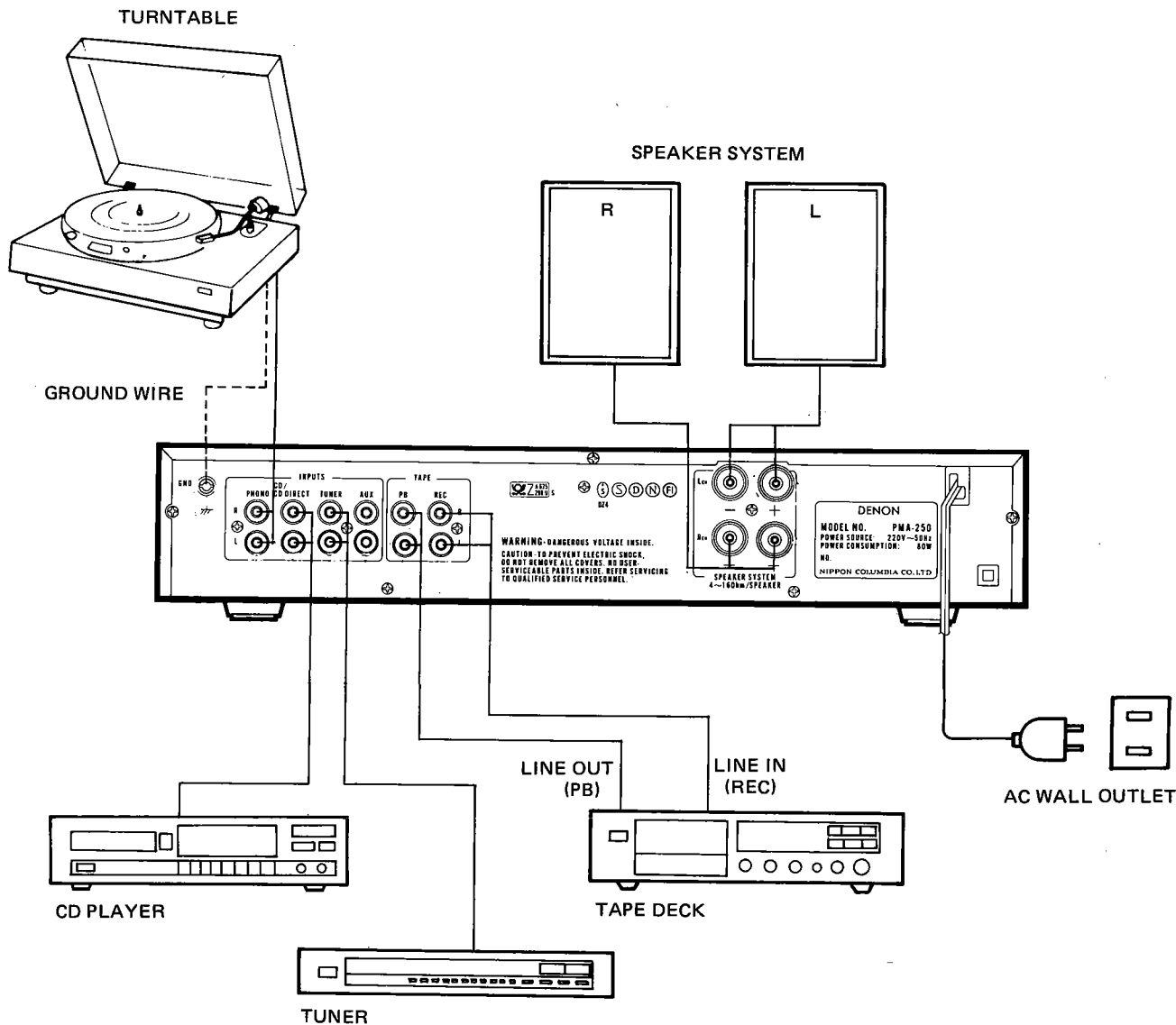


Fig. 2

- |                                      |                                    |
|--------------------------------------|------------------------------------|
| ① POWER (Power On-Off Switch)        | ⑥ CD DIRECT (CD Direct Switch)     |
| ② PHONES (Headphone Jack)            | ⑦ FUNCTION (Input Selector Switch) |
| ③ PASS (Bass Control)                | • CD, • Phono, • Tuner, • Aux      |
| ④ TREBLE (Treble Control)            | ⑧ VOLUME (Volume Control)          |
| ⑤ TAPE MONITOR (Tape Monitor Switch) |                                    |

## CONNECTIONS



## METHOD OF ADJUSTMENTS

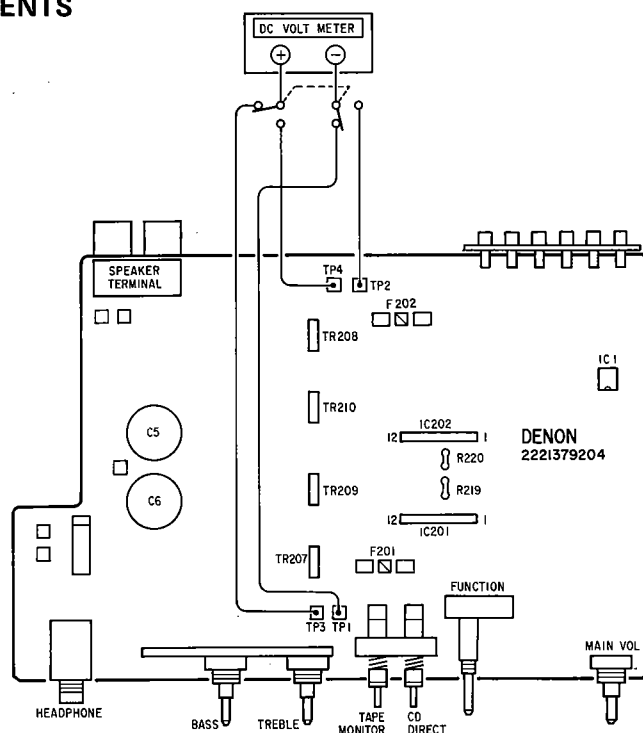


Fig. 4

**IDLE CURRENT ADJUSTMENT (Fig. 4)**

1. Keep the unit away from direct wind blown by an air-conditioner and an electric fan, and keep the unit under normal conditions. Adjust the range of ambient temperature to 15 – 30°C.
2. Set the following switches as follows:
  - POWER (power switch) to off
  - VOLUME (VOLUME CONTROL) to 0 (  $\curvearrowright$  )
  - SPEAKERS (speaker terminal) to no load (speakers disconnected)
3. Remove the top cover and connect a DC digital voltmeter to the test points of ETC0863\* (Power and Control units) (between the positive terminal TP3  $\oplus$  and the negative terminal TP1  $\ominus$ , and between the positive TP4  $\oplus$  and the negative terminal TP2  $\ominus$ ).
4. (1) Connect the power source cord to an AC outlet and turn on the power switch; read the measured value after 3 minutes or when the measured value is within a tolerance 6 mV ~ 90 mV (DC), adjust the idling current manually as follows.  
 (2) When the voltmeter reads 6 mV (DC) or less under the condition of item (1), disconnect the 47 ohm from resistors R220 and R219.

|   |         |          |         |          |
|---|---------|----------|---------|----------|
| * | Version | Unit No. | Version | Unit No. |
|   | E2      | ETC0863  | EU      | ETC0865  |
|   | EK      | ETC0859  | EC      | ETC0865  |
|   | E1      | ETC0864  | EA      | ETC0864  |

- AC OUTLETS . . . For U.S.A., Canada and Asia models.  
AC outlets are used for connecting amplifier component units, such as tuner, turntable, tape deck, etc.
- SWITCHED (Capacity: 100 W):  
This outlet is turned on/off when main power switch is turned on/off.
- UNSWITCHED (Total capacity: 250 W):  
These outlets are always ON whether power switch is on or off.
- LINE VOLTAGE (Voltage select switch) . . . For Asia model only.
  - \* The desired voltage may be set with the VOLTAGE SELECTOR KNOB on the back panel using a screw driver.
  - \* Do not twist the VOLTAGE SELECTOR KNOB with excessive force. It may be damaged.
  - \* If the voltage select switch does not turn smoothly, see a qualified serviceman.

## REMOVE OF EACH SECTION

### 1. How to remove the top cover (Fig. 5)

- 1) Remove the five screws holding the top cover in place.
- 2) Pull out the sides of the cover to free it, then lift off the cover.

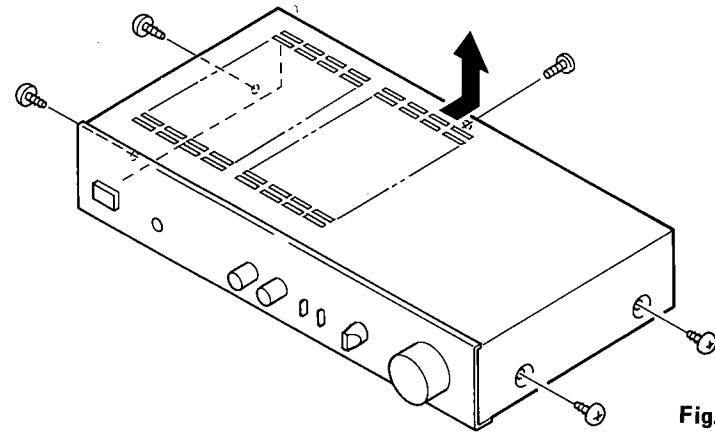


Fig. 5

### 2. How to remove the rear panel (Fig. 6)

- 1) Remove the nine screws holding the rear panel in place.
- 2) Pull the rear panel toward you and remove it.

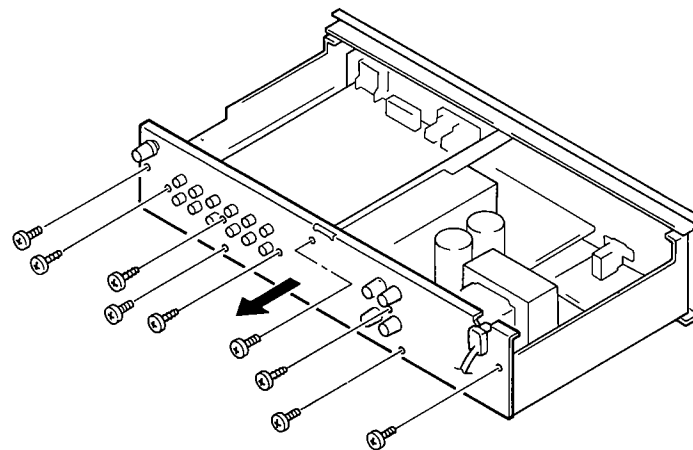


Fig. 6

### 3. How to remove the front panel (Fig. 7)

- 1) Pull off the four knobs.
- 2) Remove the nine screws holding the front panel in place.
- 3) Pull the front panel toward you and remove it.

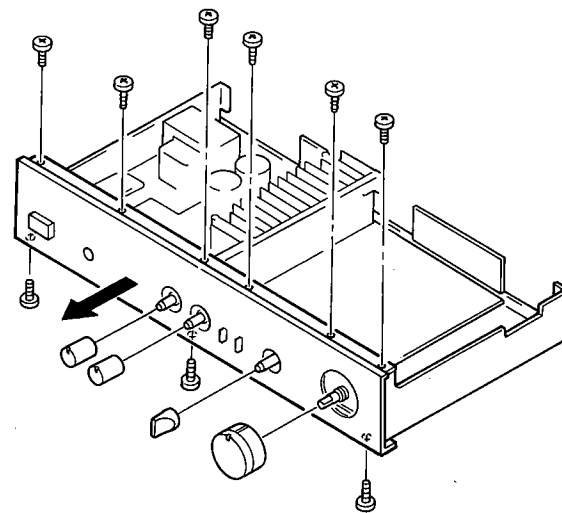


Fig. 7

### 4. How to remove the P.W.B. Unit (Fig. 8)

- 1) Remove the three screws holding the Main P.W.B. Unit in place.
- 2) Remove the two screws holding the Power SW P.W.B. in place.

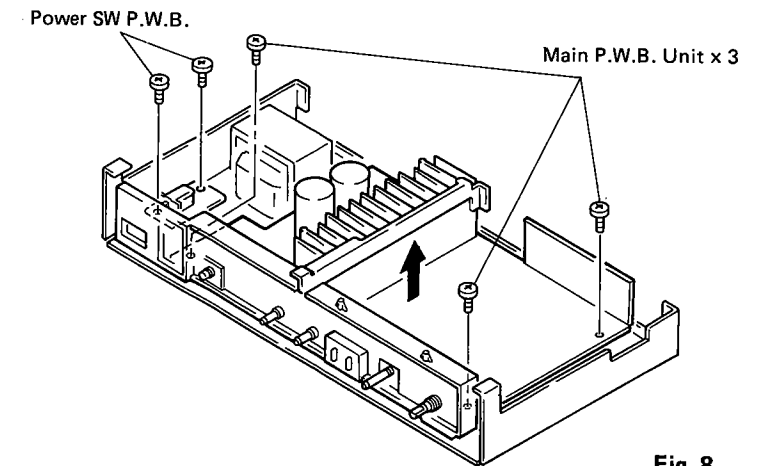


Fig. 8

### 5. How to remove the inner panel (Fig. 9)

- 1) Remove the two screws holding the inner panel in place.
- 2) Pull the inner panel toward you and remove it.

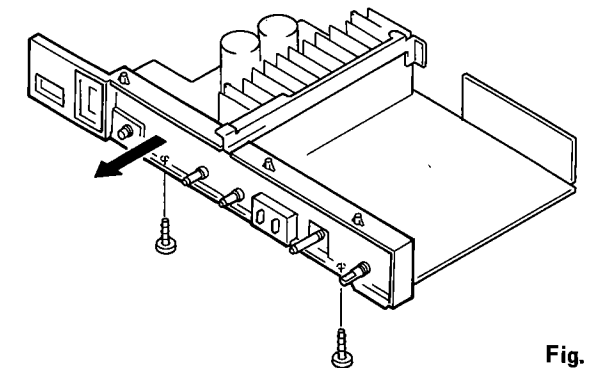
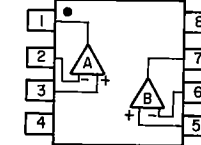
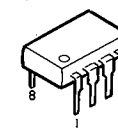


Fig. 9

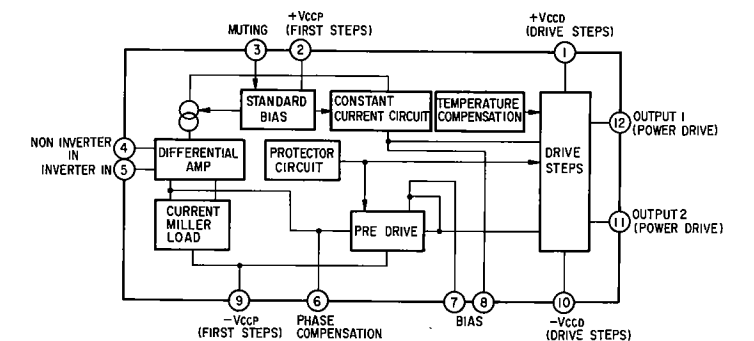
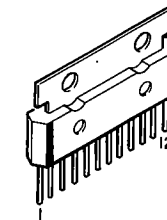
## SEMICONDUCTORS

### • IC's

M-5218P (Mitsubishi)

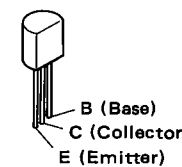


μPC1225H (NEC)

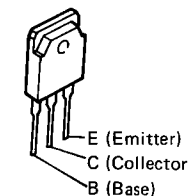


### • TRANSISTORS

2SA1015(Y)  
2SC1815(BL)  
2SA999(F)  
2SC2878(A)/(B)

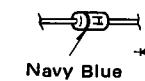


2SA1489(O/Y)  
2SC3853(O/Y)



### • DIODES

1S2076A



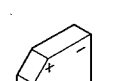
DSM1A2



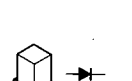
HZ5C-1  
HZ18-2



PBL403



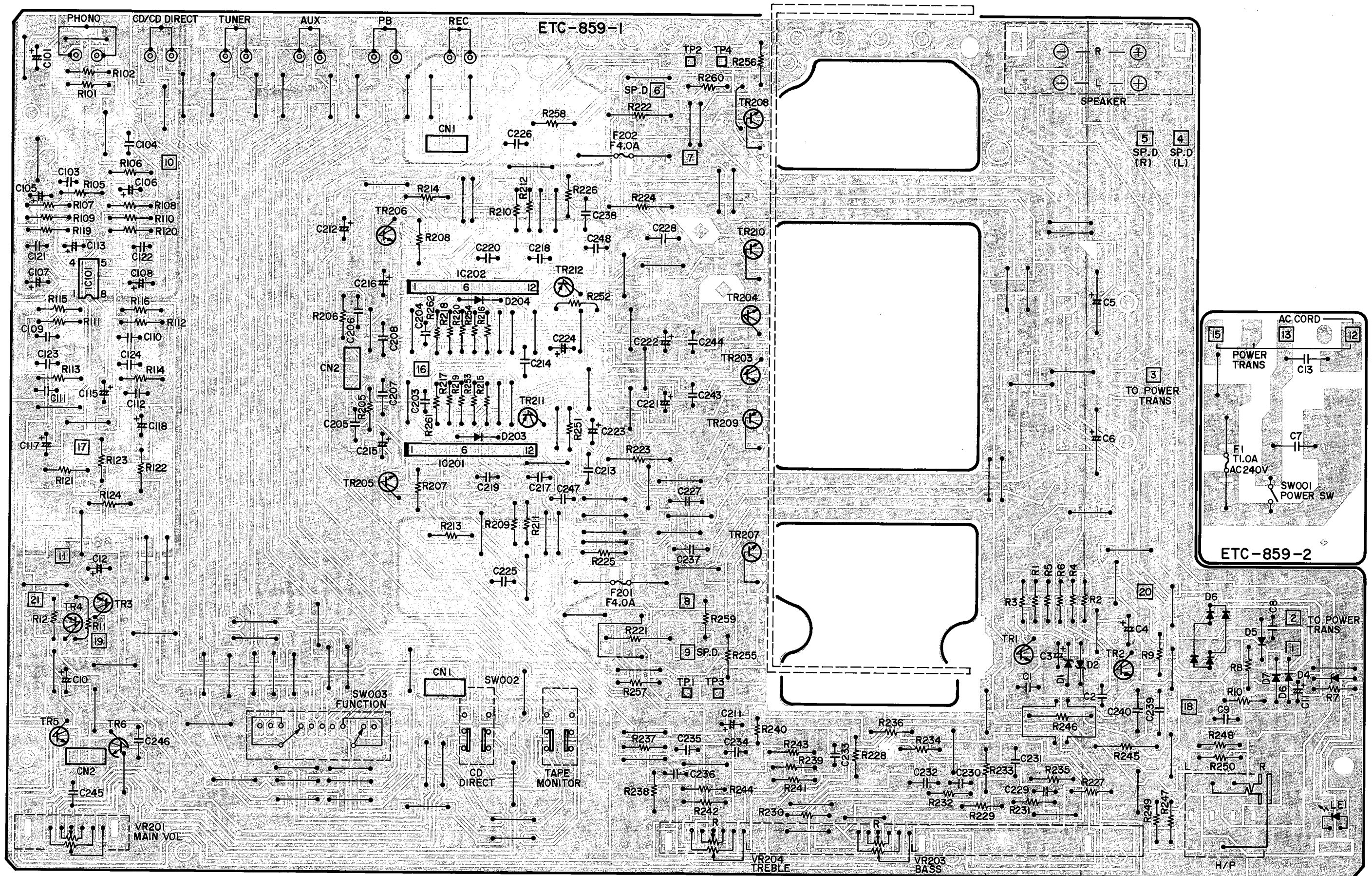
LT9213R  
(LED)



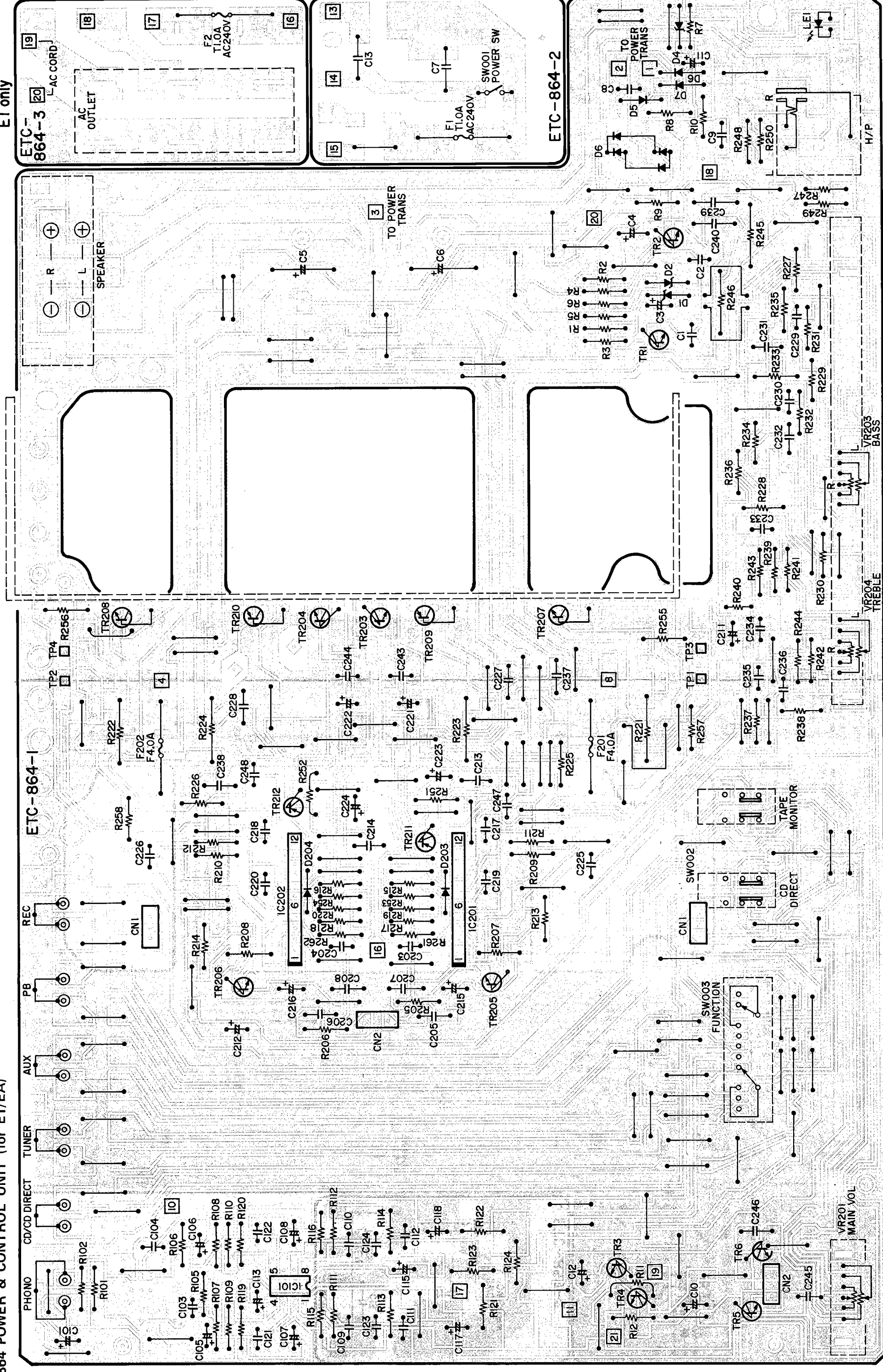
Short (Cathode)  
Long (Anode)



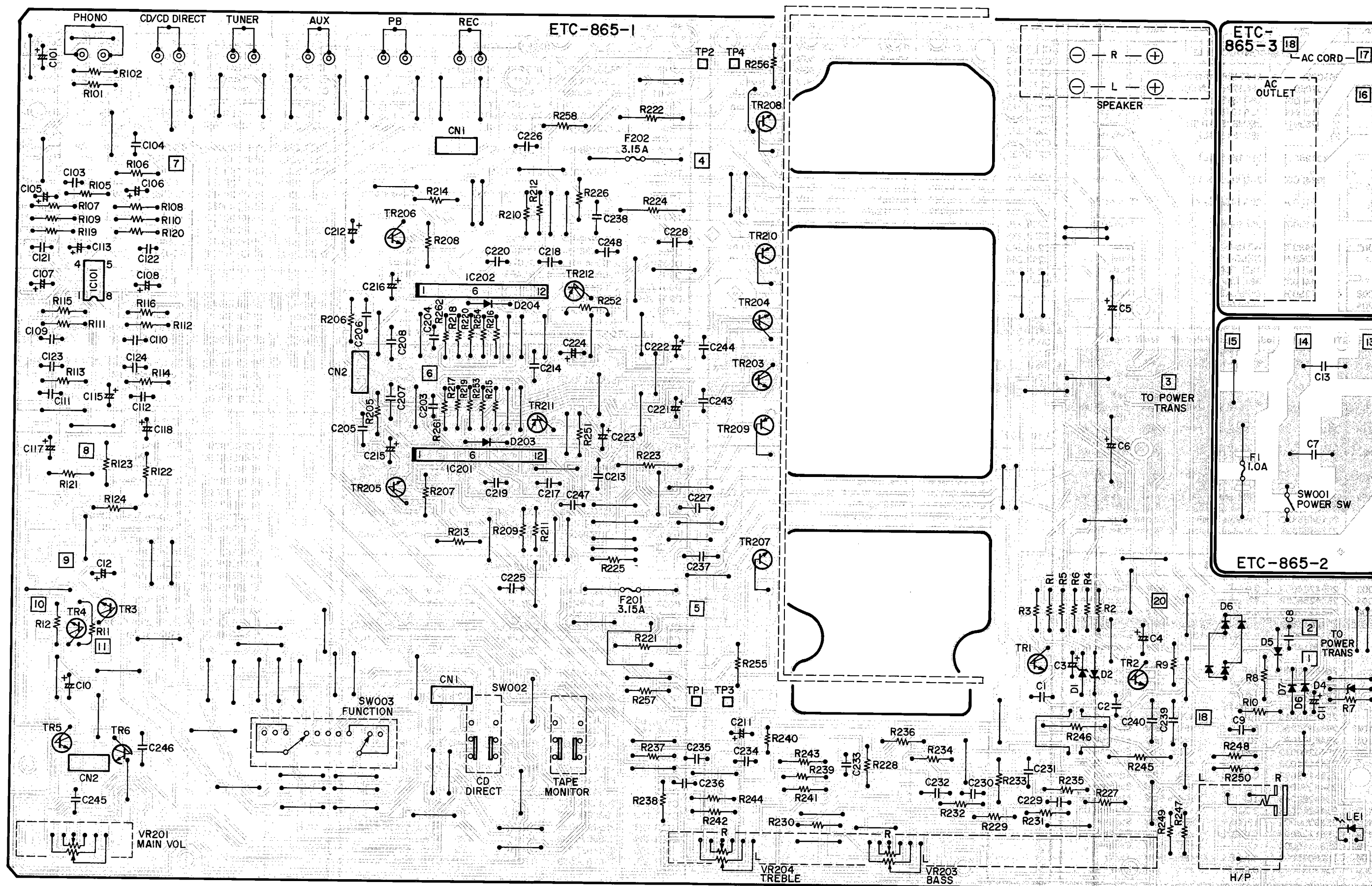
## ETC0859 POWER &amp; CONTROL UNIT (for EK)



## ETC0864 POWER &amp; CONTROL UNIT (for E1/EA)



## ETC0865 POWER &amp; CONTROL UNIT (for EU/EC)



PRINTED WIRING BOARD PARTS LIST  
ETC0863 POWER & CONTROL UNIT PARTS LIST (for E2)

| Ref. No.                                            | Part No.   | Part Name & Descriptions               |                       |            |                    |
|-----------------------------------------------------|------------|----------------------------------------|-----------------------|------------|--------------------|
| SEMICONDUCTORS                                      |            |                                        |                       |            |                    |
| IC101                                               | 2630257001 | M-5218P (Mitsubishi)                   |                       | IC         |                    |
| IC201,202                                           | 2630206007 | μPC1225H (NEC)                         |                       | IC         |                    |
| TR001                                               | 2730198002 | 2SC1815(Y)                             |                       | Transistor |                    |
| TR002                                               | 2710102005 | 2SA1015(Y)                             |                       | Transistor |                    |
| TR003                                               | 2730253015 | 2SC2878(A)/(B)                         |                       | Transistor |                    |
| TR004<br>~006                                       | 2730198015 | 2SC1815(BL)                            |                       | Transistor |                    |
| TR203<br>~206                                       | 2730198015 | 2SC1815(BL)                            |                       | Transistor |                    |
| TR207,<br>208                                       | 2730343006 | 2SC3853(O/Y)                           |                       | Transistor |                    |
| TR209,<br>210                                       | 2710213004 | 2SA1489(O/Y)                           |                       | Transistor |                    |
| TR211,<br>212                                       | 2710113007 | 2SA999(F)                              |                       | Transistor |                    |
| D001,002                                            | 2760249002 | HZ18-2                                 |                       | Zener      |                    |
| D004                                                | 2760236031 | HZ5C-1                                 |                       | Zener      |                    |
| D005                                                | 2760049011 | 1S2076A                                |                       | Diode      |                    |
| D006                                                | 2760448007 | PBL403                                 |                       | Diode      |                    |
| D007,008                                            | 2760433009 | DSM1AZ                                 |                       | Diode      |                    |
| D203,204                                            | 2760049011 | 1S2076A                                |                       | Diode      |                    |
| LE001                                               | 3939173005 | LT9213R                                |                       | LED        |                    |
| RESISTORS (not included Carbon Film ±5%, 1/4W Type) |            |                                        |                       |            |                    |
| R001                                                | 2412314023 | 470 ohm                                | ±5%                   | 1/4W       | Carbon Film (NBF)  |
| R004                                                | 2412314023 | 470 ohm                                | ±5%                   | 1/4W       | Carbon Film (NBF)  |
| R010                                                | 2412370025 | 7.5k ohm                               | ±5%                   | 1/4W       | Carbon Film (NBF)  |
| R213,214                                            | 2412314023 | 470 ohm                                | ±5%                   | 1/4W       | Carbon Film (NBF)  |
| R221~224                                            | 2442013080 | 0.22 ohm                               | ±5%                   | 1W         | Metal Oxide (NBF)  |
| R245,246                                            | 2440017020 | 10 ohm                                 | ±5%                   | 1W         | Metal Oxide (NBF)  |
| R251,252                                            | 2412314023 | 470 ohm                                | ±5%                   | 1/4W       | Carbon Film (NBF)  |
| VR201                                               | 2110485102 | Variable Resistor 100k ohm Main        |                       |            |                    |
| VR203,<br>204                                       | 2110486004 | Variable Resistor 100k ohm Bass Treble |                       |            |                    |
| CAPACITORS                                          |            |                                        |                       |            |                    |
| C001,002                                            | 2554204088 | 0.01μF                                 | ±5%                   | 50V        | Plastic Film       |
| C003,004                                            | 2544256059 | 220μF                                  | ±20%                  | 25V        | Electrolytic       |
| C005,006                                            | 2544212019 | 8200μF                                 | ±20%                  | 45V        | Electrolytic       |
| C007                                                | 2538014003 | 0.01μF                                 | ±20%                  | 400V       | Ceramic (AC)       |
| C008                                                | 2531052004 | 0.0047μF                               | +100,-0% 500V Ceramic |            |                    |
| C009                                                | 2543014027 | 10μF                                   | ±20%                  | 16V        | Electrolytic (B.P) |
| C010                                                | 2544260045 | 1μF                                    | ±20%                  | 50V        | Electrolytic       |
| C011                                                | 2544243004 | 0.47μF                                 | ±20%                  | 50V        | Electrolytic       |
| C012                                                | 2544250005 | 470μF                                  | ±20%                  | 6.3V       | Electrolytic       |
| C013                                                | 2538014003 | 0.01μF                                 | ±20%                  | 400V       | Ceramic (AC)       |
| C101                                                | 2544260045 | 1μF                                    | ±20%                  | 50V        | Electrolytic       |
| C103,104                                            | 2556075008 | 100pF                                  | ±5%                   | 50V        | Styrene            |
| C105,106                                            | 2544254006 | 10μF                                   | ±20%                  | 16V        | Electrolytic       |
| C107,108                                            | 2544250039 | 220μF                                  | ±20%                  | 6.3V       | Electrolytic       |
| C109,110                                            | 2551134038 | 0.022μF                                | ±5%                   | 50V        | Plastic Film       |
| C111,112                                            | 2556119003 | 0.0068μF                               | ±5%                   | 50V        | Styrene            |
| C113                                                | 2544260045 | 1μF                                    | ±20%                  | 50V        | Electrolytic       |
| C115                                                | 2544260045 | 1μF                                    | ±20%                  | 50V        | Electrolytic       |
| C117,118                                            | 2544260058 | 2.2μF                                  | ±20%                  | 50V        | Electrolytic       |
| C121,122                                            | 2536099000 | 1000pF                                 | ±5%                   | 50V        | Styrene            |
| C123,124                                            | 2551134009 | 0.0022μF                               | ±5%                   | 50V        | Plastic Film       |
| C151~158                                            | 2533619005 | 47pF                                   | ±5%                   | 50V        | Ceramic            |
| C203,204                                            | 2556075008 | 100pF                                  | ±5%                   | 50V        | Styrene            |
| C205,206                                            | 2561035075 | 0.68μF                                 | ±5%                   | 50V        | Metalized          |

| Ref. No.           | Part No.   | Part Name & Descriptions     |                    |  |             |
|--------------------|------------|------------------------------|--------------------|--|-------------|
| C207,208           | 2561035059 | 0.47μF ±20% 50V              | Electrolytic       |  |             |
| C209,210           | 2533627000 | 100pF ±5% 50V                | Ceramic            |  |             |
| C211,212           | 2544260045 | 1μF ±20% 50V                 | Electrolytic       |  |             |
| C213,214           | 2561035059 | 0.47μF ±5% 50V               | Metalized          |  |             |
| C215,216           | 2544261028 | 100μF ±5% 50V                | Electrolytic       |  |             |
| C217,218           | 2554200040 | 150pF ±5% 50V                | Plastic Film       |  |             |
| C219,220           | 2533611003 | 22pF ±5% 50V                 | Ceramic            |  |             |
| C221,222           | 2544254006 | 10μF ±20% 16V                | Electrolytic       |  |             |
| C223,224           | 2544261028 | 100μF ±20% 50V               | Electrolytic       |  |             |
| C225,226           | 2543014056 | 33μF ±20% 16V                | Electrolytic (B.P) |  |             |
| C227,228           | 2561035059 | 0.47μF ±5% 50V               | Metalized          |  |             |
| C229,230           | 2551138005 | 0.033μF ±5% 50V              | Plastic Film       |  |             |
| C231,232           | 2551140064 | 0.12μF ±5% 50V               | Plastic Film       |  |             |
| C233,234           | 2591135037 | 0.0012μF ±5% 50V             | Plastic Film       |  |             |
| C235,236           | 2551134012 | 0.0056μF ±5% 50V             | Plastic Film       |  |             |
| C237,238           | 2561035059 | 0.47μF ±5% 50V               | Metalized          |  |             |
| C239,240           | 2554193005 | 0.1μF ±5% 50V                | Plastic Film       |  |             |
| C243,244           | 2554204088 | 0.01μF ±5% 50V               | Plastic Film       |  |             |
| C245,246           | 2561035075 | 0.68μF ±5% 50V               | Metalized          |  |             |
| C247,248           | 2556111001 | 0.0033μF ±5% 50V             | Styrene            |  |             |
| <b>E.U.P.</b>      |            |                              |                    |  | <b>Q'ty</b> |
| Δ SW001            | 2124409006 | Power Switch                 | Power              |  | 1           |
| SW002              | 2124633005 | 2P Push Switch               | TAPE/CDD.          |  | 1           |
| SW003              | 2124632103 | Rotary Switch (4-4) Selector |                    |  | 1           |
| Δ F001             | 2061015029 | Fuse (1A T)                  |                    |  | 1           |
| F201,202           | 2061040049 | Fuse (4A F)                  |                    |  | 2           |
|                    | 2020031002 | Fuse Holder                  |                    |  | 6           |
|                    | 2048166001 | Headphone Jack               |                    |  | 1           |
|                    | 2048226006 | 12P Pin Jack                 | For Inputs         |  | 1           |
|                    | 2050351008 | 4P Terminal                  | For SP             |  | 1           |
| L101,102           | 2350016104 | Inductor                     | 18μH               |  | 2           |
| <b>OTHER PARTS</b> |            |                              |                    |  |             |
|                    | 2221409006 | P.W. Board                   |                    |  | 1           |
|                    | 2090008120 | Jumper Wire P=10mm           |                    |  | 123         |
|                    | EP-5667H1  | Terminal Pin                 |                    |  | 15          |
|                    | 4170278001 | Power Radiator               |                    |  | 1           |
|                    | 4122111006 | Bracket                      |                    |  | 1           |
|                    | 4700012022 | Pan Screw with SW.W 3x12     |                    |  | 4           |
|                    | 4700026005 | Tapping Screw (2) 3x8        |                    |  | 4           |
|                    | 4737002005 | Tapping Screw (S) 3x6        |                    |  | 2           |
|                    | 2034356016 | 3P Connector Cord            |                    |  | 2           |
|                    | 1460852004 | Inner Panel                  |                    |  | 1           |
|                    | 4150309013 | P.V.C. Tube                  |                    |  | 20          |
|                    | 2090152021 | 2C Ribbon Cable              |                    |  | 1           |
|                    | 1460866003 | LED Holder                   |                    |  | 1           |

## ETC0859 POWER &amp; CONTROL UNIT PARTS LIST (for EK)

| Ref. No.                                            | Part No.   | Part Name & Descriptions               |            |      |                    |
|-----------------------------------------------------|------------|----------------------------------------|------------|------|--------------------|
| SEMICONDUCTORS                                      |            |                                        |            |      |                    |
| IC101                                               | 2630257001 | M-5218P (Mitsubishi)                   | IC         |      |                    |
| IC201,202                                           | 2630206007 | μPC1225H (NEC)                         | IC         |      |                    |
| TR001                                               | 2730198002 | 2SC1815(Y)                             | Transistor |      |                    |
| TR002                                               | 2710102005 | 2SA1015(Y)                             | Transistor |      |                    |
| TR003                                               | 2730253015 | 2SC2878(A)/(B)                         | Transistor |      |                    |
| TR004<br>~006                                       | 2730198015 | 2SC1815(BL)                            | Transistor |      |                    |
| TR203<br>~206                                       | 2730198015 | 2SC1815(BL)                            | Transistor |      |                    |
| TR207,<br>208                                       | 2730343006 | 2SC3853(O/Y)                           | Transistor |      |                    |
| TR209,<br>210                                       | 2710213004 | 2SA1489(O/Y)                           | Transistor |      |                    |
| TR211,<br>212                                       | 2710113007 | 2SA999(F)                              | Transistor |      |                    |
| D001,002                                            | 2760249002 | HZ18-2                                 | Zener      |      |                    |
| D004                                                | 2760236031 | HZ5C-1                                 | Zener      |      |                    |
| D005                                                | 2760049011 | 1S2076A                                | Diode      |      |                    |
| D006                                                | 2760448007 | PBL403                                 | Diode      |      |                    |
| D007,008                                            | 2760433009 | DSM1AZ                                 | Diode      |      |                    |
| D203,204                                            | 2760049011 | 1S2076A                                | Diode      |      |                    |
| LE001                                               | 3939173005 | LT9213R                                | LED        |      |                    |
| RESISTORS (not included Carbon Film ±5%, 1/4W Type) |            |                                        |            |      |                    |
| Δ R001                                              | 2412314023 | 470 ohm                                | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R004                                              | 2412314023 | 470 ohm                                | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R010                                              | 2412370025 | 7.5k ohm                               | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R213,314                                          | 2412314023 | 470 ohm                                | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R221~224                                          | 2442013080 | 0.22 ohm                               | ±5%        | 1W   | Metal Oxide (NBF)  |
| Δ R245,246                                          | 2440017020 | 10 ohm                                 | ±5%        | 2W   | Metal Oxide (NBF)  |
| Δ R251,252                                          | 2412314023 | 470 ohm                                | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R259,260                                          | 2432039029 | 0.22 ohm                               | ±5%        | 5W   | Wire Wound         |
| VR201                                               | 2110485102 | Variable Resistor 100k ohm Main        |            |      |                    |
| VR203,<br>204                                       | 2110486004 | Variable Resistor 100k ohm Bass Treble |            |      |                    |
| CAPACITORS                                          |            |                                        |            |      |                    |
| C001,002                                            | 2554204088 | 0.01 μF                                | ±5%        | 50V  | Plastic Film       |
| C003,004                                            | 2544256059 | 220 μF                                 | ±20%       | 25V  | Electrolytic       |
| C005,006                                            | 2544212019 | 8200 μF                                | ±20%       | 45V  | Electrolytic       |
| Δ C007                                              | 2538014003 | 0.01 μF                                | ±20%       | 400V | Ceramic (AC)       |
| C008                                                | 2531052004 | 0.0047 μF                              | +100,—0%   | 500V | Electrolytic       |
| C009                                                | 2543014027 | 10 μF                                  | ±20%       | 16V  | Electrolytic (B.P) |
| C011                                                | 2544243004 | 0.47 μF                                | ±20%       | 50V  | Electrolytic       |
| C012                                                | 2544250005 | 470 μF                                 | ±20%       | 6.3V | Electrolytic       |
| C013                                                | 2538014003 | 0.01 μF                                | ±20%       | 400V | Ceramic (AC)       |
| C101                                                | 2544260045 | 1 μF                                   | ±20%       | 50V  | Electrolytic       |
| C103,104                                            | 2556084002 | 240 pF                                 | ±5%        | 50V  | Styrene            |
| C105,106                                            | 2544254006 | 10 μF                                  | ±20%       | 16V  | Electrolytic       |
| C107,108                                            | 2544250039 | 220 μF                                 | ±20%       | 6.3V | Electrolytic       |
| C109,110                                            | 2551134038 | 0.022 μF                               | ±5%        | 50V  | Plastic Film       |
| C111,112                                            | 2556119003 | 6800 pF                                | ±5%        | 50V  | Styrene            |
| C113                                                | 2544260045 | 1 μF                                   | ±20%       | 50V  | Electrolytic       |
| C115                                                | 2544260045 | 1 μF                                   | ±20%       | 50V  | Electrolytic       |
| C117,118                                            | 2544260058 | 2.2 μF                                 | ±20%       | 50V  | Electrolytic       |
| C121,122                                            | 2536099000 | 1000 pF                                | ±5%        | 50V  | Styrene            |
| C123,124                                            | 2551134009 | 0.0022 μF                              | ±5%        | 50V  | Plastic Film       |
| C203,204                                            | 2556075008 | 100 pF                                 | ±5%        | 50V  | Styrene            |
| C205,206                                            | 2561035075 | 0.68 μF                                | ±5%        | 50V  | Metalized          |
| C207,208                                            | 2561035059 | 0.47 μF                                | ±20%       | 50V  | Electrolytic       |

| Ref. No.    | Part No.   | Part Name & Descriptions  |                              |     |                    |
|-------------|------------|---------------------------|------------------------------|-----|--------------------|
| C211,212    | 2544260045 | 1μF                       | ±20%                         | 50V | Electrolytic       |
| C213,214    | 2561035059 | 0.47μF                    | ±5%                          | 50V | Metalized          |
| C215,216    | 2544261028 | 100μF                     | ±20%                         | 50V | Electrolytic       |
| C217,218    | 2554200040 | 150pF                     | ±5%                          | 50V | Plastic Film       |
| C219,220    | 2533603008 | 10pF                      | ±5%                          | 50V | Ceramic            |
| C221,222    | 2544254006 | 10μF                      | ±20%                         | 16V | Electrolytic       |
| C223,224    | 2544161028 | 100μF                     | ±20%                         | 50V | Electrolytic       |
| C225,226    | 2543014056 | 33μF                      | ±20%                         | 16V | Electrolytic (B.P) |
| C227,228    | 2561035059 | 0.47μF                    | ±5%                          | 50V | Metalized          |
| C229,230    | 2551138005 | 0.033μF                   | ±5%                          | 50V | Plastic Film       |
| C231,232    | 2551140064 | 0.12μF                    | ±5%                          | 50V | Plastic Film       |
| C233,234    | 2591135037 | 0.0012μF                  | ±5%                          | 50V | Plastic Film       |
| C235,236    | 2551134012 | 0.0056μF                  | ±5%                          | 50V | Plastic Film       |
| C237,238    | 2561035059 | 0.47μF                    | ±5%                          | 50V | Metalized          |
| C239,240    | 2554193005 | 0.1μF                     | ±5%                          | 50V | Plastic Film       |
| C243,244    | 2554204088 | 0.01μF                    | ±5%                          | 50V | Plastic Film       |
| C245,246    | 2561035075 | 0.68μF                    | ±5%                          | 50V | Metalized          |
| C247,248    | 2556111001 | 0.0033μF                  | ±5%                          | 50V | Styrene            |
| E.U.P.      |            |                           |                              |     | Q'ty               |
| Δ           | SW001      | 2124409006                | Power Switch                 |     | 1                  |
|             | SW002      | 2124633005                | 2P Push Switch TAPE/CDD.     |     | 1                  |
|             | SW003      | 2124632103                | Rotary Switch (4-4) Selector |     | 1                  |
| Δ           | F001       | 2061015029                | Fuse (1A T)                  |     | 1                  |
|             | F201,202   | 2061040049                | Fuse (4A F)                  |     | 2                  |
| Δ           |            | 2020031002                | Fuse Holder                  |     | 6                  |
|             |            | 2048166001                | Headphone Jack               |     | 1                  |
|             |            | 2048226006                | 12P Pin Jack For Inputs      |     | 1                  |
|             |            | 2050351008                | 4P Terminal For SP           |     | 1                  |
| OTHER PARTS |            |                           |                              |     |                    |
|             | 2221379204 | P.W. Board                |                              |     | 1                  |
|             | 2090008120 | Jumper Wire P=10mm        |                              |     | 122                |
|             | EP-5667H1  | Terminal Pin              |                              |     | 23                 |
|             | 4170278108 | Power Radiator            |                              |     | 1                  |
|             | 4122111006 | Bracket                   |                              |     | 1                  |
|             | 4700012022 | Pan Screw with S.W.W 3x12 |                              |     | 4                  |
|             | 4700026005 | Tapping Screw (2) 3x8     |                              |     | 4                  |
|             | 4737002005 | Tapping Screw (S) 3x6     |                              |     | 2                  |
|             | 2034356016 | 3P Connector Cord         |                              |     | 2                  |
|             | 1460852004 | Inner Panel               |                              |     | 1                  |
|             | 4150365002 | Glass Tube                |                              |     | 1                  |
|             | 4150365015 | Glass Tube                |                              |     | 1                  |
|             | 2090180006 | Wire Ass'y                |                              |     | 1                  |
|             | 2090180019 | Wire Ass'y                |                              |     | 1                  |
|             | 4150309013 | P.V.C. Tube               |                              |     | 20                 |
|             | 2090152021 | 2C Ribbon Cable           |                              |     | 1                  |
|             | 1460866003 | LED Holder                |                              |     | 1                  |

## ETC0864 POWER &amp; CONTROL UNIT PARTS LIST (for E1/EA)

| Ref. No.                                            | Part No.   | Part Name & Descriptions               |            |      |                    |
|-----------------------------------------------------|------------|----------------------------------------|------------|------|--------------------|
| SEMICONDUCTORS                                      |            |                                        |            |      |                    |
| IC101                                               | 2630257001 | M-5218P (Mitsubishi)                   | IC         |      |                    |
| IC201,202                                           | 2630206007 | μPC1225H (NEC)                         | IC         |      |                    |
| TR001                                               | 2730198002 | 2SC1815(Y)                             | Transistor |      |                    |
| TR002                                               | 2710102005 | 2SA1015(Y)                             | Transistor |      |                    |
| TR003                                               | 2730253015 | 2SC2878(A)/(B)                         | Transistor |      |                    |
| TR004<br>~006                                       | 2730198015 | 2SC1815(BL)                            | Transistor |      |                    |
| TR203<br>~206                                       | 2730198015 | 2SC1815(BL)                            | Transistor |      |                    |
| TR207,<br>208                                       | 2730343006 | 2SC3853(O/Y)                           | Transistor |      |                    |
| TR209,<br>210                                       | 2710213004 | 2SA1489(O/Y)                           | Transistor |      |                    |
| TR211,<br>212                                       | 2710113007 | 2SA999(F)                              | Transistor |      |                    |
| D001,002                                            | 2760249002 | HZ18-2                                 | Zener      |      |                    |
| D004                                                | 2760236031 | HZ5C-1                                 | Zener      |      |                    |
| D005                                                | 2760049011 | 1S2076A                                | Diode      |      |                    |
| D006                                                | 2760448007 | PBL403                                 | Diode      |      |                    |
| D007,008                                            | 2760433009 | DSM1AZ                                 | Diode      |      |                    |
| D203,204                                            | 2760049011 | 1S2076A                                | Diode      |      |                    |
| LE001                                               | 3939173005 | LT9213R                                | LED        |      |                    |
| RESISTORS (not included Carbon Film ±5%, 1/4W Type) |            |                                        |            |      |                    |
| Δ R001                                              | 2412314023 | 470 ohm                                | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R004                                              | 2412314023 | 470 ohm                                | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R010                                              | 2412370025 | 7.5k ohm                               | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R213,214                                          | 2412314023 | 470 ohm                                | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R221~224                                          | 2442013080 | 0.22 ohm                               | ±5%        | 1W   | Metal Oxide (NBF)  |
| Δ R245,246                                          | 2440017020 | 10 ohm                                 | ±5%        | 1W   | Metal Oxide (NBF)  |
| Δ R251,252                                          | 2412314023 | 470 ohm                                | ±5%        | 1/4W | Carbon Film (NBF)  |
| VR201                                               | 2110485102 | Variable Resistor 100k ohm Main        |            |      |                    |
| VR203,<br>204                                       | 2110486004 | Variable Resistor 100k ohm Bass Treble |            |      |                    |
| CAPACITORS                                          |            |                                        |            |      |                    |
| C001,002                                            | 2554204088 | 0.01μF                                 | ±5%        | 50V  | Plastic Film       |
| C003,004                                            | 2544256059 | 220μF                                  | ±20%       | 25V  | Electrolytic       |
| C005,006                                            | 2544212019 | 8200μF                                 | ±20%       | 45V  | Electrolytic       |
| Δ C007                                              | 2538014003 | 0.01μF                                 | ±20%       | 400V | Ceramic (AC)       |
| C008                                                | 2531052004 | 0.0047μF +100,—0% 500V Electrolytic    |            |      |                    |
| C009                                                | 2543014027 | 10μF                                   | ±20%       | 16V  | Electrolytic (B,P) |
| C011                                                | 2544243004 | 0.47μF                                 | ±20%       | 50V  | Electrolytic       |
| C012                                                | 2544250005 | 470μF                                  | ±20%       | 6.3V | Electrolytic       |
| C013                                                | 2538014003 | 0.01μF                                 | ±20%       | 400V | Ceramic (AC)       |
| C101                                                | 2544260045 | 1μF                                    | ±20%       | 50V  | Electrolytic       |
| C103,104                                            | 2556084002 | 240pF                                  | ±5%        | 50V  | Styrene            |
| C105,106                                            | 2544254006 | 10μF                                   | ±20%       | 16V  | Electrolytic       |
| C107,108                                            | 2544250039 | 220μF                                  | ±20%       | 6.3V | Electrolytic       |
| C109,110                                            | 2551134038 | 0.022μF                                | ±5%        | 50V  | Plastic Film       |
| C111,112                                            | 2556119003 | 6800pF                                 | ±5%        | 50V  | Styrene            |
| C113                                                | 2544260045 | 1μF                                    | ±20%       | 50V  | Electrolytic       |
| C115                                                | 2544260045 | 1μF                                    | ±20%       | 50V  | Electrolytic       |
| C117,118                                            | 2544260058 | 2.2μF                                  | ±20%       | 50V  | Electrolytic       |
| C121,122                                            | 2536099000 | 1000pF                                 | ±5%        | 50V  | Styrene            |
| C123,124                                            | 2551134009 | 0.0022μF                               | ±5%        | 50V  | Plastic Film       |
| C203,204                                            | 2556075008 | 100pF                                  | ±5%        | 50V  | Styrene            |
| C205,206                                            | 2561035075 | 0.68μF                                 | ±5%        | 50V  | Metalized          |
| C207,208                                            | 2561035059 | 0.47μF                                 | ±20%       | 50V  | Electrolytic       |
| C211,212                                            | 2544260045 | 1μF                                    | ±20%       | 50V  | Electrolytic       |

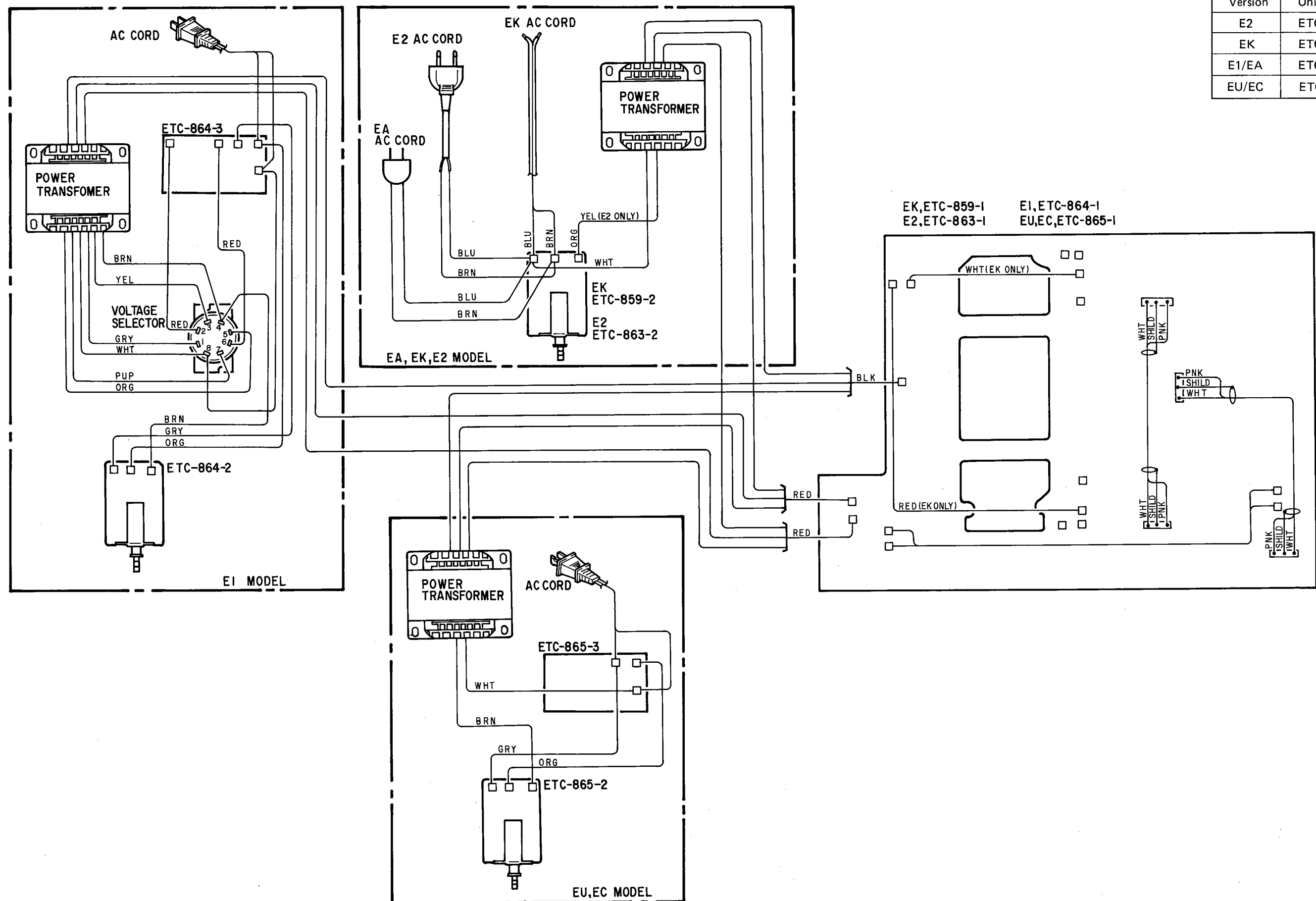
| Ref. No.           | Part No.   | Part Name & Descriptions         |           |     |  |
|--------------------|------------|----------------------------------|-----------|-----|--|
| C213,214           | 2561035059 | 0.47μF ±5% 50V Metalized         |           |     |  |
| C215,216           | 2544261028 | 100μF ±20% 50V Electrolytic      |           |     |  |
| C217,218           | 2554200040 | 150pF ±5% 50V Plastic Film       |           |     |  |
| C219,220           | 2533603008 | 10pF ±5% 50V Ceramic             |           |     |  |
| C221,222           | 2544254006 | 10μF ±20% 16V Electrolytic       |           |     |  |
| C223,224           | 2544161028 | 100μF ±20% 50V Electrolytic      |           |     |  |
| C225,226           | 2543014056 | 33μF ±20% 16V Electrolytic (B.P) |           |     |  |
| C227,228           | 2561035059 | 0.47μF ±5% 50V Metalized         |           |     |  |
| C229,230           | 2551138005 | 0.033μF ±5% 50V Plastic Film     |           |     |  |
| C231,232           | 2551140064 | 0.12μF ±5% 50V Plastic Film      |           |     |  |
| C233,234           | 2591135037 | 0.0012μF ±5% 50V Plastic Film    |           |     |  |
| C235,236           | 2551134012 | 0.0056μF ±5% 50V Plastic Film    |           |     |  |
| C237,238           | 2561035059 | 0.47μF ±5% 50V Metalized         |           |     |  |
| C239,240           | 2554193005 | 0.1μF ±5% 50V Plastic Film       |           |     |  |
| C243,244           | 2554204088 | 0.01μF ±5% 50V Plastic Film      |           |     |  |
| C245,246           | 2561035075 | 0.68μF ±5% 50V Metalized         |           |     |  |
| C247,248           | 2556111001 | 0.0033μF ±5% 50V Styrene         |           |     |  |
| <b>E.U.P.</b>      |            |                                  |           |     |  |
| SW001              | 2124409006 | Power Switch                     | Power     | 1   |  |
| SW002              | 2124633005 | 2P Push Switch                   | TAPE/CDD. | 1   |  |
| SW003              | 2124632006 | Rotary Switch (4-4) Selector     |           | 1   |  |
| F001               | 2061015029 | Fuse (1A T)                      |           | 1   |  |
| F201,202           | 2061040049 | Fuse (4A F)                      |           | 2   |  |
|                    | 2020031002 | Fuse Holder (for E1)             |           | 6   |  |
|                    | 2020031002 | Fuse Holder (for EA)             |           | 8   |  |
|                    | 2048166001 | Headphone Jack                   |           | 1   |  |
|                    | 2048226006 | 12P Pin Jack                     | For Input | 1   |  |
|                    | 2050351008 | 4P Terminal                      | For SP    | 1   |  |
|                    | 2033932004 | AC Outlet (3P) (for E1)          |           | 1   |  |
| F002               | 2061015029 | Fuse (1A T) (for EA)             |           | 1   |  |
| <b>OTHER PARTS</b> |            |                                  |           |     |  |
|                    | 2221426001 | P.W. Board                       |           | 1   |  |
|                    | 2090008120 | Jumper Wire P=10mm               |           | 123 |  |
|                    | EP-5667H1  | Terminal Pin                     |           | 22  |  |
|                    | 4170278001 | Power Radiator                   |           | 1   |  |
|                    | 4122111006 | Bracket                          |           | 1   |  |
|                    | 4700012022 | Pan Screw with S.W.S 3x12        |           | 4   |  |
|                    | 4700026005 | Tapping Screw (2) 3x8            |           | 4   |  |
|                    | 4737002005 | Tapping Screw (S) 3x6            |           | 2   |  |
|                    | 2034356016 | 3P Connector Cord                |           | 2   |  |
|                    | 1460852004 | Inner Panel                      |           | 1   |  |
|                    | 4150309013 | P.V.C. Tube                      |           | 20  |  |
|                    | 2090152021 | 2C Ribbon Cable                  |           | 1   |  |
|                    | 1460866003 | LED Holder                       |           | 1   |  |

## ETC0865 POWER &amp; CONTROL UNIT PARTS LIST (for EU/EC)

| Ref. No.                                            | Part No.   | Part Name & Descriptions                |            |      |                    |
|-----------------------------------------------------|------------|-----------------------------------------|------------|------|--------------------|
| SEMICONDUCTORS                                      |            |                                         |            |      |                    |
| IC101                                               | 2630257001 | M-5218P (Mitsubishi)                    | IC         |      |                    |
| IC201,202                                           | 2630206007 | μPC1225H (NEC)                          | IC         |      |                    |
| TR001                                               | 2730198002 | 2SC1815(Y)                              | Transistor |      |                    |
| TR002                                               | 2710102005 | 2SA1015(Y)                              | Transistor |      |                    |
| TR003                                               | 2730253015 | 2SC2878(A)/(B)                          | Transistor |      |                    |
| TR004<br>~006                                       | 2730198015 | 2SC1815(BL)                             | Transistor |      |                    |
| TR203<br>~206                                       | 2730198015 | 2SC1815(BL)                             | Transistor |      |                    |
| TR207,<br>208                                       | 2730343006 | 2SC3853(O/Y)                            | Transistor |      |                    |
| TR209,<br>210                                       | 2710213004 | 2SA1489(O/Y)                            | Transistor |      |                    |
| TR211,<br>212                                       | 2710113007 | 2SA999(F)                               | Transistor |      |                    |
| D001,002                                            | 2760249002 | HZ18-2                                  | Zener      |      |                    |
| D004                                                | 2760236031 | HZ5C-1                                  | Zener      |      |                    |
| D005                                                | 2760049011 | 1S2076A                                 | Diode      |      |                    |
| D006                                                | 2760448007 | PBL403                                  | Diode      |      |                    |
| D007,008                                            | 2760433009 | DSM1AZ                                  | Diode      |      |                    |
| D203,204                                            | 2760049011 | 1S2076A                                 | Diode      |      |                    |
| LE001                                               | 3939173005 | LT9213R                                 | LED        |      |                    |
| RESISTORS (not included Carbon Film ±5%, 1/4W Type) |            |                                         |            |      |                    |
| Δ R001                                              | 2412314023 | 470 ohm                                 | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R004                                              | 2412314023 | 470 ohm                                 | ±5%        | 1/4W | Carbon Film (NBF)  |
| R008                                                | 2410192001 | 2k ohm                                  | ±5%        | 1/2W | Carbon Film        |
| Δ R010                                              | 2412370025 | 7.5k ohm                                | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R213,214                                          | 2412314023 | 470 ohm                                 | ±5%        | 1/4W | Carbon Film (NBF)  |
| Δ R221~224                                          | 2442013080 | 0.22 ohm                                | ±5%        | 1W   | Metal Oxide (NBF)  |
| Δ R245,246                                          | 2440017020 | 10 ohm                                  | ±5%        | 1W   | Metal Oxide (NBF)  |
| Δ R251,252                                          | 2412314023 | 470 ohm                                 | ±5%        | 1/4W | Carbon Film (NBF)  |
| VR201                                               | 2110485102 | Variable Resistor 100k ohm Main         |            |      |                    |
| VR203,<br>204                                       | 2110486004 | Variable Resistor 100k ohm Bass, Treble |            |      |                    |
| CAPACITORS                                          |            |                                         |            |      |                    |
| C001,002                                            | 2554204088 | 0.01μF                                  | ±5%        | 50V  | Plastic Film       |
| C003,004                                            | 2544256059 | 220μF                                   | ±20%       | 25V  | Electrolytic       |
| C005,006                                            | 2544212019 | 8200μF                                  | ±20%       | 45V  | Electrolytic       |
| Δ C007                                              | 2538014003 | 0.01μF                                  | ±20%       | 400V | Ceramic (AC)       |
| C008                                                | 2531052004 | 0.0047μF                                | +100,—0%   | 500V | Electrolytic       |
| C009                                                | 2543014027 | 10μF                                    | ±20%       | 16V  | Electrolytic (B.P) |
| C011                                                | 2544243004 | 0.47μF                                  | ±20%       | 50V  | Electrolytic       |
| C012                                                | 2544250005 | 470μF                                   | ±20%       | 6.3V | Electrolytic       |
| C013                                                | 2538014003 | 0.01μF                                  | ±20%       | 400V | Ceramic (AC)       |
| C101                                                | 2544260045 | 1μF                                     | ±20%       | 50V  | Electrolytic       |
| C103,104                                            | 2556084002 | 240pF                                   | ±5%        | 50V  | Styrene            |
| C105,106                                            | 2544254006 | 10μF                                    | ±20%       | 16V  | Electrolytic       |
| C107,108                                            | 2544250039 | 220μF                                   | ±20%       | 6.3V | Electrolytic       |
| C109,110                                            | 2551134038 | 0.022μF                                 | ±5%        | 50V  | Plastic Film       |
| C111,112                                            | 2556119003 | 6800pF                                  | ±5%        | 50V  | Styrene            |
| C113                                                | 2544260045 | 1μF                                     | ±20%       | 50V  | Electrolytic       |
| C115                                                | 2544260045 | 1μF                                     | ±20%       | 50V  | Electrolytic       |
| C117,118                                            | 2544260058 | 2.2μF                                   | ±20%       | 50V  | Electrolytic       |
| C121,122                                            | 2536099000 | 1000pF                                  | ±5%        | 50V  | Styrene            |
| C123,124                                            | 2551134009 | 0.0022μF                                | ±5%        | 50V  | Plastic Film       |
| C203,204                                            | 2556075008 | 100pF                                   | ±5%        | 50V  | Styrene            |
| C205,206                                            | 2561035075 | 0.68μF                                  | ±5%        | 50V  | Metalized          |
| C207,208                                            | 2561035059 | 0.47μF                                  | ±20%       | 50V  | Electrolytic       |

| Ref. No.           | Part No.   | Part Name & Descriptions         |           |     |  |
|--------------------|------------|----------------------------------|-----------|-----|--|
| C211,212           | 2544260045 | 1μF ±20% 50V Electrolytic        |           |     |  |
| C213,214           | 2561035059 | 0.47μF ±5% 50V Metalized         |           |     |  |
| C215,216           | 2544261028 | 100μF ±20% 50V Electrolytic      |           |     |  |
| C217,218           | 2554200040 | 150pF ±5% 50V Plastic Film       |           |     |  |
| C219,220           | 2533603008 | 10pF ±5% 50V Ceramic             |           |     |  |
| C221,222           | 2544254006 | 10μF ±20% 16V Electrolytic       |           |     |  |
| C223,224           | 2544161028 | 100μF ±20% 50V Electrolytic      |           |     |  |
| C225,226           | 2543014056 | 33μF ±20% 16V Electrolytic (B.P) |           |     |  |
| C227,228           | 2561035059 | 0.47μF ±5% 50V Metalized         |           |     |  |
| C229,230           | 2551138005 | 0.033μF ±5% 50V Plastic Film     |           |     |  |
| C231,232           | 2551140064 | 0.12μF ±5% 50V Plastic Film      |           |     |  |
| C233,234           | 2591135037 | 0.0012μF ±5% 50V Plastic Film    |           |     |  |
| C235,236           | 2551134012 | 0.0056μF ±5% 50V Plastic Film    |           |     |  |
| C237,238           | 2561035059 | 0.47μF ±5% 50V Metalized         |           |     |  |
| C239,240           | 2554193005 | 0.1μF ±5% 50V Plastic Film       |           |     |  |
| C243,244           | 2554204088 | 0.01μF ±5% 50V Plastic Film      |           |     |  |
| C245,246           | 2561035075 | 0.68μF ±5% 50V Metalized         |           |     |  |
| C247,248           | 2556111001 | 0.0033μF ±5% 50V Styrene         |           |     |  |
| <b>SWITCH</b>      |            |                                  |           |     |  |
| SW001              | 2124409006 | Power Switch                     | Power     |     |  |
| SW002              | 2124633005 | 2P Push Switch                   | Tape/CD,D |     |  |
| SW003              | 2124632006 | Rotary Switch (4-4) Selector     |           |     |  |
| <b>E.U.P.</b>      |            |                                  |           |     |  |
| F001               | 2061039034 | Fuse 1.0A                        |           | 1   |  |
| F201,202           | 2061039089 | Fuse 3.15A                       |           | 2   |  |
|                    | 2020031002 | Fuse Holder                      |           | 6   |  |
|                    | 2048166001 | Headphone Jack                   |           | 1   |  |
|                    | 2048226006 | 12P Pin Jack                     | Input     | 1   |  |
|                    | 2050351008 | 4P Terminal                      | SP        | 1   |  |
|                    | 2033932004 | AC Outlet (3P)                   |           | 1   |  |
| <b>OTHER PARTS</b> |            |                                  |           |     |  |
|                    | 2221443004 | P.W. Board                       |           | 1   |  |
|                    | 2090008120 | Jumper Wire P=10mm               |           | 122 |  |
|                    | EP-5667H1  | Terminal Pin                     |           | 20  |  |
|                    | 1460866003 | LED Holder                       |           | 1   |  |
|                    | 4170278108 | Power Radiator                   |           | 1   |  |
|                    | 4122111006 | Bracket                          |           | 1   |  |
|                    | 4700012022 | Pan Screw with S.W.W 3x12        |           | 4   |  |
|                    | 4700026005 | Tapping Screw 3x8                |           | 4   |  |
|                    | 4737002005 | Tapping Screw 3x6                |           | 2   |  |
|                    | 2034356016 | 3P Connector Cord                |           | 2   |  |
| CN001,002          | 2090152021 | 2C Ribbon Cable                  |           | 1   |  |
|                    | 4150309013 | P.V.C Tube                       |           | 20  |  |

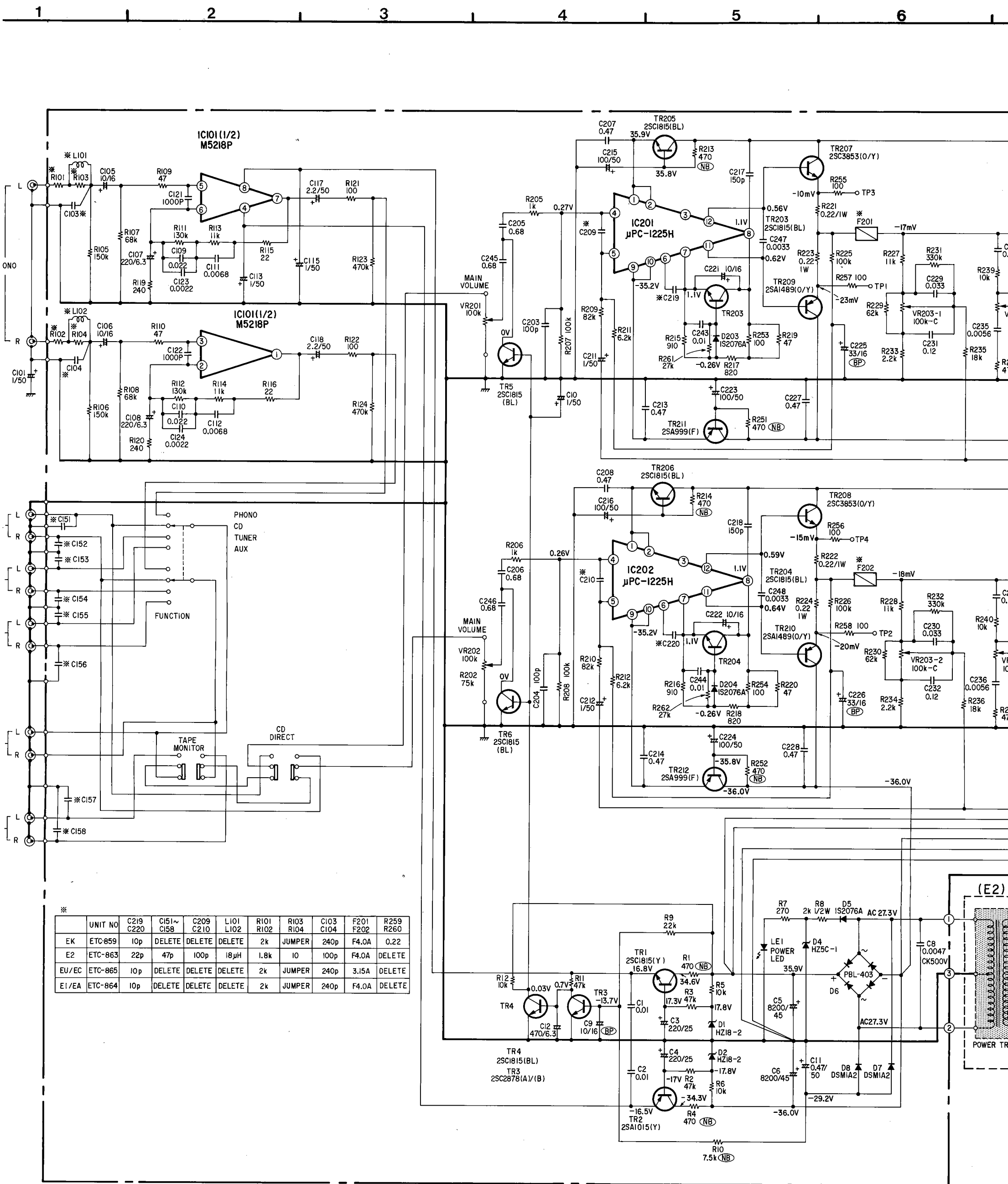
## WIRING DIAGRAM



## ADDENDUM LIST

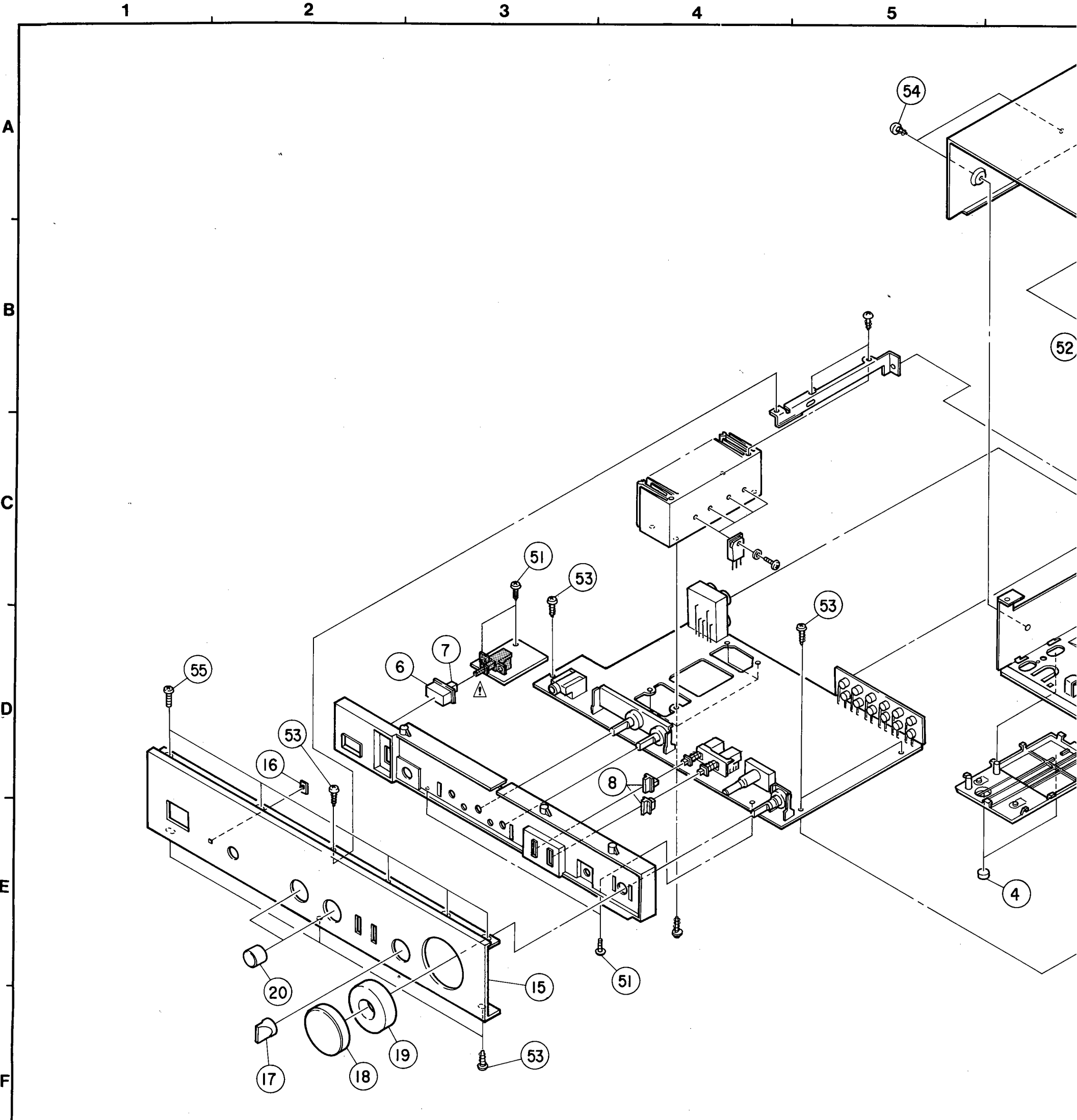
| Ref.<br>No. | Part Name & Descriptions | Part No.           |                    |                   |                    |                    |                    |
|-------------|--------------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|
|             |                          | EK for UK          | E1 for Asia        | EF for France     | EU for U.S.A.      | EC for Canada      | EA for Australia   |
| 5           | POWER & CONTROL UNIT     | ETC0859            | ETC0864            | ETC0859           | ETC0865            | ETC0865            | ETC0864            |
| ▲ 9         | POWER TRANS              | 2335570009         | 2935583009         | 2335576003        | 2335584008         | 2335584008         | 2335570009         |
| 10          | BACK PANEL               | 1050694009         | 1050718008         | 1050694009        | 1050719007         | 1050719007         | 1050694009         |
| ▲ 13        | AC CORD                  | 2062051008         | 2062048008         | 2062047009        | 2062050009         | 2062050009         | 2062025005         |
| ▲ 14        | CORD BUSH                | 4450056008         | 4450056008         | 4450056008        | 4450056008         | 4450056008         | 4450056008         |
| ▲ 30        | AC OUTLET (3P)           | —                  | 2033932004         | —                 | 2033932004         | 2033932004         | —                  |
| ▲ 31        | VOLTAGE SEL SW           | —                  | 2120186022         | —                 | —                  | —                  | —                  |
| 32          | LABEL (A) TAIWAN         | —                  | 5131227003         | —                 | —                  | —                  | —                  |
| 33          | LABEL (B) TAIWAN         | —                  | 5131228002         | —                 | —                  | —                  | —                  |
| 34          | FUSE LABEL               | —                  | —                  | —                 | 5131245001         | 5131245001         | —                  |
| 35          | VINYL WIRE (ORG)         | —                  | 2090183029         | —                 | 2090183029         | 2090183029         | —                  |
| 36          | VINYL WIRE (GRY)         | —                  | 2090183032         | —                 | 2090183032         | 2090183032         | —                  |
| 37          | VINYL WIRE (RED)         | —                  | 2090183045         | —                 | —                  | —                  | —                  |
| 38          |                          |                    |                    |                   |                    |                    |                    |
| 39          |                          |                    |                    |                   |                    |                    |                    |
| 40          |                          |                    |                    |                   |                    |                    |                    |
| 41          |                          |                    |                    |                   |                    |                    |                    |
| 42          |                          |                    |                    |                   |                    |                    |                    |
| 43          |                          |                    |                    |                   |                    |                    |                    |
| 53          | TAPPING SCREW (S) 3x8    | 4737002021<br>(16) | 4737002021<br>(18) | 473002021<br>(16) | 4737002021<br>(16) | 4737002021<br>(16) | 4737002021<br>(16) |
| 103         | CARTON CASE              | 5011137006         | 5011137022         | 5011137019        | 5011137035         | 5011137035         | 5011137006         |
| 107         | CONTROL CARD             | 5131167008         | 5131167008         | 5131167008        | —                  | —                  | 5131167008         |
| 110         | WARRANTY IN ENVELOPE     | —                  | —                  | —                 | 5150400005         | —                  | —                  |
| 111         | DCI WARRANTY             | —                  | —                  | —                 | —                  | 5150399006         | —                  |

## ATIC DIAGRAM





EXPLODED VIEW OF CHASSIS AND CABINET



Note 1. See addendum list right side for the parts with asterisk (\*) on the Ref. No. and the other parts not included in the list.  
2. \* marked not included EXPLODED VIEW OF CHASSIS AND CABINET.  
3. This list is prepared based on E2 BLACK VERSION.  
4. • indicates the parts newly used in this unit.

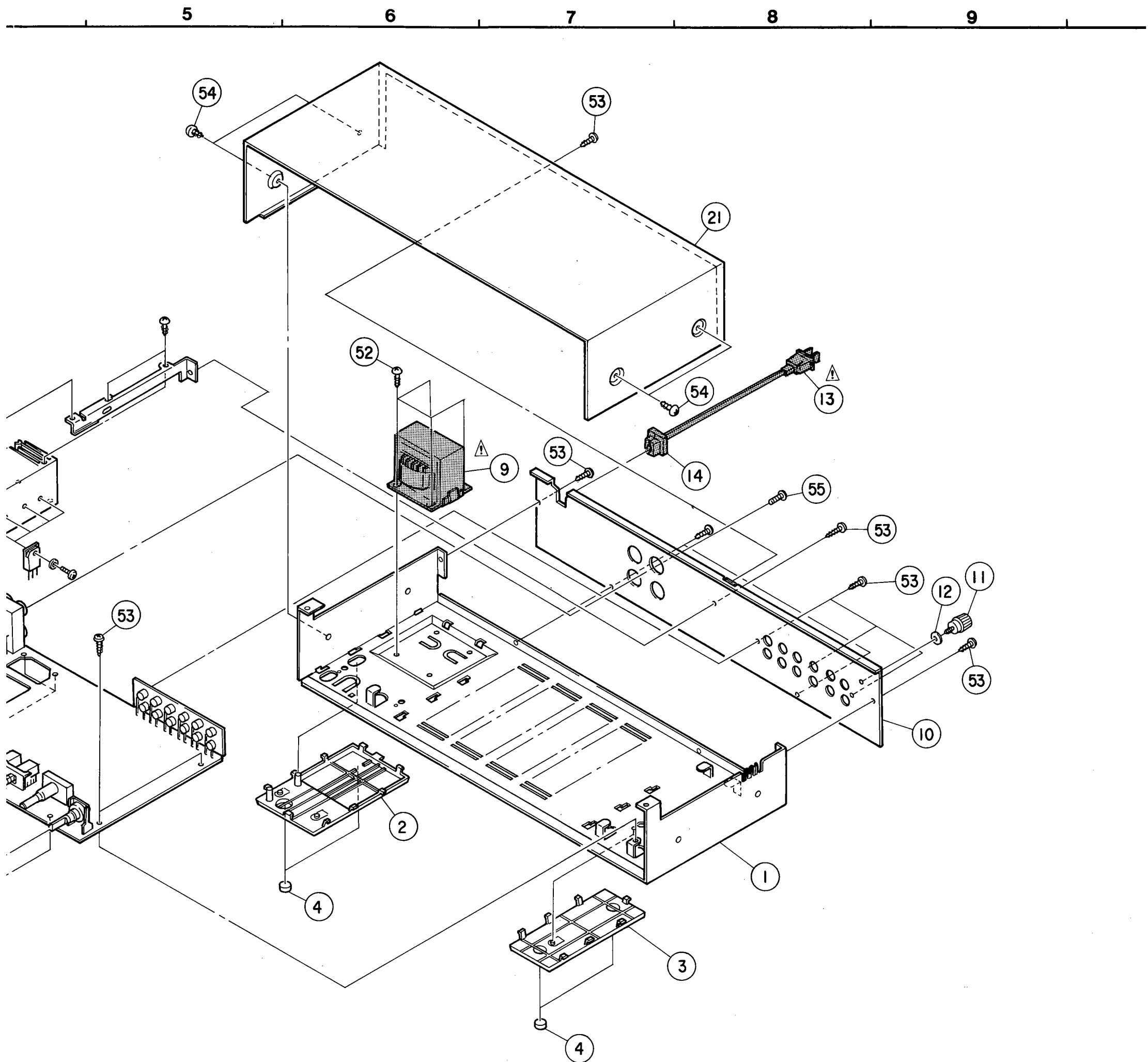
EXPLODED VIEW OF CHASSIS AND CABINET

| Ref. No. | Part No.     | Part Name & Descriptions | Q'ty |
|----------|--------------|--------------------------|------|
| 1        | • 4110595003 | CHASSIS                  | 1    |
| 2        | 1030948005   | BOTTOM COVER (A)         | 1    |
| 3        | 1030949004   | BOTTOM COVER (B)         | 1    |
| 4        | 4610162004   | FELT PAD                 | 4    |
| *5       | ETC0863      | POWER & CONTROL UNIT     | 1    |
| 6        | 1130854002   | PUSH KNOB (P)            | 1    |
| 7        | • 1190058000 | KNOB JOINT               | 1    |
| 8        | • 1130867002 | PUSH KNOB (D)            | 2    |
| Δ *9     | • 2335576003 | POWER TRANS              | 1    |
| *10      | • 1050717009 | BACK PANEL               | 1    |
| 11       | 2050071016   | TERMINAL ASS'Y           | 1    |
| 12       | 4770016001   | WASHER (P-87)            | 1    |
| Δ *13    | • 2062047009 | AC CORD                  | 1    |
| Δ *14    | • 4450056008 | CORD BUSH                | 1    |
| 15       | • 1441542003 | FRONT PANEL              | 1    |
| 16       | • 1430490001 | LENS                     | 1    |
| 17       | • 1120494003 | KNOB (D)                 | 1    |
| 18       | • 1120497000 | KNOB (VOLUME L)          | 1    |
| 19       | • 1120498009 | KNOB (VOLUME R)          | 1    |
| 20       | 1120492005   | KNOB (B)                 | 2    |
| 21       | • 1020263004 | TOP COVER                | 1    |
| 22       |              |                          |      |

| Ref. No.                                           | Part No.     | Part Name & Descriptions | Q'ty |
|----------------------------------------------------|--------------|--------------------------|------|
| SCREWS                                             |              |                          |      |
| 51                                                 | 4737508017   | TAPPING SCREW (P) 3x10   | 4    |
| 52                                                 | 4730453017   | TAPPING SCREW (2) 4x8    | 4    |
| 53                                                 | 4737002021   | TAPPING SCREW (S) 3x8    | 16   |
| 54                                                 | 4734454038   | TRUSS SCREW (2) 4x8      | 4    |
| 55                                                 | 4770281003   | FIXING SCREW             | 6    |
| PACKING & ACCESSORIES (not included EXPLODED VIEW) |              |                          |      |
| 101                                                | 5050133003   | CABINET COVER            | 1    |
| 102                                                | • 5030577003 | CUSHION                  | 2    |
| *103                                               | • 5011137006 | CARTON CASE              | 1    |
| 104                                                | —            | —                        | 1    |
| 105                                                | • 5111469001 | INST. MANUAL             | 1    |
| 106                                                | 5139111014   | COLOR LABEL (BLACK)      | 2    |
| *107                                               | 5131167008   | CONTROL CARD             | 1    |

E2 GOLD VERSION PARTS LIST  
(Same as BLACK VERSION except the followings.)

| Ref. No. | Part No.     | Part Name & Descriptions | Q'ty |
|----------|--------------|--------------------------|------|
| 6        | • 1130854015 | PUSH KNOB (P)            | 1    |
| 8        | • 1130867015 | PUSH KNOB (D)            | 1    |
| 15       | • 1441542016 | FRONT PANEL              | 1    |
| 17       | • 1120494016 | KNOB (D)                 | 1    |
| 18       | • 1120497013 | KNOB (VOLUME L)          | 1    |
| 19       | • 1120498012 | KNOB (VOLUME R)          | 1    |
| 20       | • 1120492018 | KNOB (B)                 | 2    |
| 21       | • 1020263017 | TOP COVER                | 1    |
| 103      | • 5011137048 | CARTON CASE              | 1    |
| 106      | 5139110001   | COLOR LABEL (GOLD)       | 2    |



the Ref. No. and the other parts not included in the list.  
CABINET.

### E2 GOLD VERSION PARTS LIST (Same as BLACK VERSION except the followings.)

| ty | Ref. No. | Part No.     | Part Name & Descriptions | Q'ty |
|----|----------|--------------|--------------------------|------|
|    | 6        | • 1130854015 | PUSH KNOB (P)            | 1    |
|    | 8        | • 1130867015 | PUSH KNOB (D)            | 2    |
|    | 15       | • 1441542016 | FRONT PANEL              | 1    |
|    | 17       | • 1120494016 | KNOB (D)                 | 1    |
|    | 18       | • 1120497013 | KNOB (VOLUME L)          | 1    |
|    | 19       | • 1120498012 | KNOB (VOLUME R)          | 1    |
|    | 20       | • 1120492018 | KNOB (B)                 | 2    |
|    | 21       | • 1020263017 | TOP COVER                | 1    |
|    | 103      | • 5011137048 | CARTON CASE              | 1    |
|    | 106      | 5139110001   | COLOR LABEL (GOLD)       | 2    |

# DENON



## CAUTION

**RISK OF ELECTRIC SHOCK  
DO NOT OPEN**



**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance.

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD.  
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

**For United Kingdom model only.**

### WARNING:

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.  
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

### IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral  
Brown: Live

To prevent the degradation of sound quality, DENON PMA-250 employs "DIRECT CONNECTION" from the power amplifier output to the speaker Terminal. Accordingly, when using headphones for private listening it will be necessary to disconnect your loud speaker leads from the amplifier.

**For U.S.A. and Canada models.**

### CAUTION

**TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.**

**NIPPON COLUMBIA CO., LTD.**  
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MINATO-KU, TOKYO 107 JAPAN

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