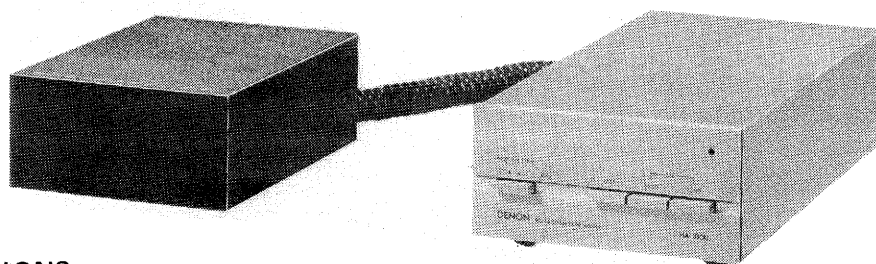


DENON

SERVICE MANUAL MODEL HA-1000

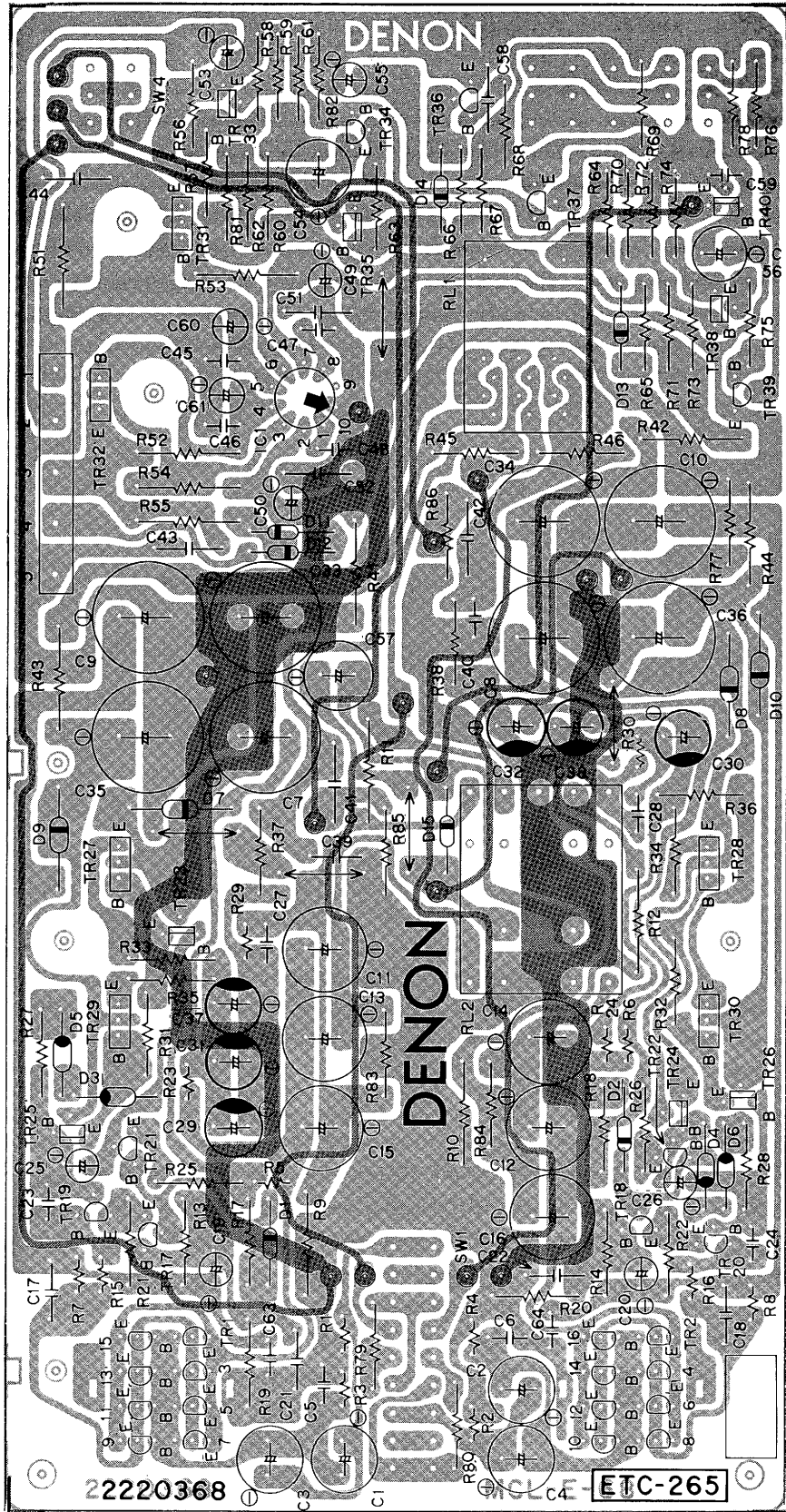
MOVING COIL CARTRIDGE HEAD AMPLIFIER



SPECIFICATIONS

| | |
|---|--|
| Input Impedance: | 100 ohm |
| Voltage Gain: | 32 dB/24 dB/0 dB(MM), (three stages) |
| Maximum Output Level: | 3 Vrms |
| Noise Voltage Referred Input: | -157 dB/V (input terminals shorted IHF "A") |
| Frequency Response: | 8 Hz to 600 kHz $\begin{matrix} +0 \\ -1 \end{matrix}$ dB |
| Total Harmonic Distortion: (20 Hz to 20 kHz) | less than 0.008 % (at 0.3 Vrms output) |
| Intermodulation Distortion: (60 Hz: 7 kHz = 4:1) | less than 0.008 % (at 0.3 Vrms output) |
| Crosstalk (1kHz): | less than -70 dB |
| High Cut Filter: | 100 kHz (-6 dB/oct) |
| Power Source: | AC 120 volt, 60 Hz (for USA and Canada) AC 220/240 volt, 50 Hz (for Europe) |
| Power Consumption: | 12 W |
| Dimensions | |
| Amplifier Section: | 125(W) x 68(H) x 292(D) mm |
| Power Source Section: | 107(W) x 65(H) x 141(D) mm |
| Weight | |
| Amplifier Section: | 1.8 kg |
| Power Source Section: | 1.4 kg |

PRINTED CIRCUIT BOARD PATTERNS AND PARTS LIST
AMPLIFIER/REGULATOR UNIT ETC-265



AMPLIFIER/REGULATOR UNIT ETC-265 PARTS LIST

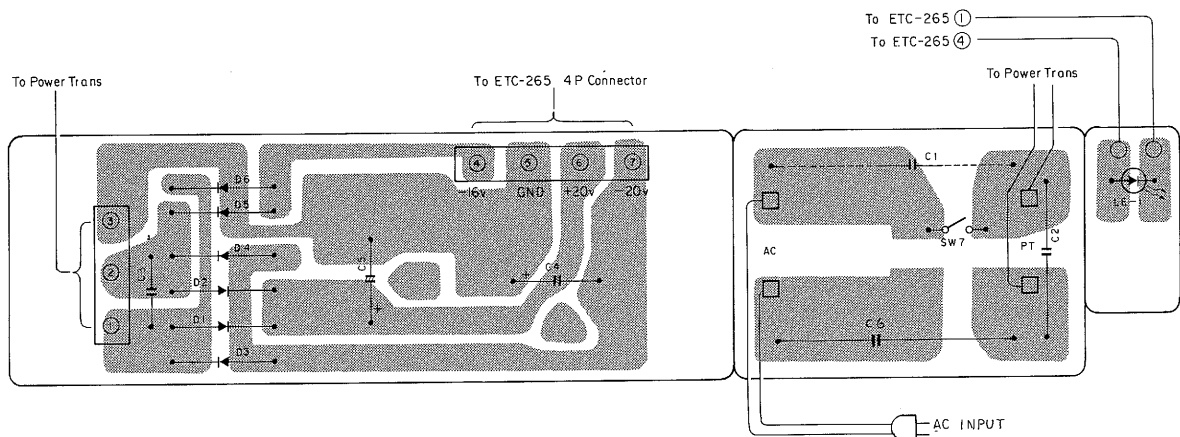
| Ref. No. | Part No. | Description | |
|--------------------------|------------|---------------------------|---------------------------|
| SEMICONDUCTORS | | | |
| TR 1~16 | 2710085012 | 2SA 817 (Y) | TRANSISTOR |
| TR 17~20 | 2730158026 | 2SC 1775 (E) | TRANSISTOR |
| TR 21, 22 | 2710070001 | 2SA 872 (E) | TRANSISTOR |
| TR 23, 24 | 2730111021 | 2SC 1213 (C) | TRANSISTOR |
| TR 25, 26 | 2710040028 | 2SA 673 (C) | TRANSISTOR |
| TR 27, 28, 31 | 2730108021 | 2SC 1162 WT (C) | TRANSISTOR |
| TR 29, 30, 32 | 2710044024 | 2SA 715 WT (C) | TRANSISTOR |
| TR 33, 40 | 2730111050 | 2SC 1213 (C,D) | TRANSISTOR |
| TR 34, 36, 37, 39 | 2730158000 | 2SC 1775 (E,D) | TRANSISTOR |
| TR 35 | 2710040031 | 2SA 673A (D) | TRANSISTOR |
| TR 38 | 2710039026 | 2SA 672 (C,D) | TRANSISTOR |
| RESISTORS | | | |
| R 1, 2, 7, 8 | 2452012013 | 160 ohm 1/4 W | METAL FILM RESISTOR |
| R 3, 4, 15, 16 | 2452012026 | 270 ohm 1/4 W | METAL FILM RESISTOR |
| R 5, 6 | 2452012039 | 390 ohm 1/4 W | METAL FILM RESISTOR |
| R 9, 10 | 2440009009 | 2, 2 ohm 1 W | METAL OXIDE FILM RESISTOR |
| R 11, 12 | 2440007001 | 1, 5 ohm 1 W | METAL OXIDE FILM RESISTOR |
| R 13, 14 | 2410324002 | 2, 7 kohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 17, 18, 25, 26, 27, 28 | 2410304006 | 390 ohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 19, 20, 74 | 2410328008 | 3, 9 kohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 21, 22, 65 | 2410316007 | 1, 2 kohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 23, 24 | 2452012055 | 470 ohm 1/4 W | METAL FILM RESISTOR |
| R 29, 30 | 2452012000 | 39 ohm 1/4 W | METAL FILM RESISTOR |
| R 31, 32 | 2410323003 | 2, 4 kohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 33, 34, 35, 36 | 2410258000 | 4, 7 ohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 37, 38 | 2410278006 | 33 ohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 41, 44 | 2440027007 | 68 ohm $\pm 5\%$ 1 W | METAL OXIDE FILM RESISTOR |
| R 45, 46 | 2410338001 | 10 kohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 51, 52 | 2440025009 | 47 ohm $\pm 5\%$ 1 W | METAL OXIDE FILM RESISTOR |
| R 53, 54 | 2440001007 | 0, 47 ohm $\pm 5\%$ 1 W | METAL OXIDE FILM RESISTOR |
| R 55 | 2440040000 | 820 ohm $\pm 5\%$ 1 W | METAL OXIDE FILM RESISTOR |
| R 56, 62, 69, 73 | 2410332007 | 5, 6 kohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 57 | 2410340002 | 12 kohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 58 | 2410321005 | 2 kohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |
| R 59, 76 | 2410274000 | 22 ohm $\pm 5\%$ 1/4 W | CARBON FILM RESISTOR |

ETC-265 (Con.)

| Ref. No. | Part No. | Description |
|------------------|------------|--|
| R 60 | 2410765001 | 1.0 Mohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 61,68 | 2410300000 | 270 ohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 63 | 2410335004 | 7.5 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 64,77 | 2420013002 | 22 ohm $\pm 10\%$ 1/2 W CARBON COMPOSITION RESISTOR |
| R 66 | 2410319004 | 1.6 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 67 | 2410759004 | 560 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 70 | 2410334005 | 6.8 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 71 | 2410349003 | 30 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 72 | 2410345007 | 20 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 75 | 2410322004 | 2.2 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 78 | 2410336003 | 8.2 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 79,80 | 2412021002 | 47 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 81 | 2410374001 | 330 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 82 | 2410378003 | 470 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| R 83,84 | 2410330009 | 4.7 kohm $\pm 5\%$ 1/4 W CARBON FILM RESISTOR |
| CAPACITORS | | |
| C 1~4 | 2544006005 | 470 μF 6.3 V ELECTROLYTIC CAPACITOR |
| C 5,6 | 2554077082 | 2200 pF $\pm 5\%$ 100 V PLASTIC FILM CAPACITOR |
| C 7~10, 33~36 | 2544076006 | 2200 μF 10 V ELECTROLYTIC CAPACITOR |
| C 11,12,15,16 | 2549016003 | 1000 μF $\pm 10\%$ 6.3 V ELECTROLYTIC CAPACITOR |
| C 13,14 | 2549015033 | 330 μF $\pm 10\%$ 10 V ELECTROLYTIC CAPACITOR |
| C 17,18 | 2554079080 | 0.015 μF $\pm 5\%$ 100 V PLASTIC FILM CAPACITOR |
| C 19,20 | 2544024003 | 4.7 μF 25 V ELECTROLYTIC CAPACITOR |
| C 21,22 | 2554079048 | 0.01 μF $\pm 5\%$ 100 V PLASTIC FILM CAPACITOR |
| C 23,24 | 2533621006 | 56 pF $\pm 5\%$ 50 V CERAMIC CAPACITOR |
| C 25,26 | 2544015009 | 10 μF 16 V ELECTROLYTIC CAPACITOR |
| C 27,28 | 2554078081 | 5600 pF $\pm 5\%$ 100 V PLASTIC FILM CAPACITOR |
| C 29~32 | 2541045001 | 470 μF $\pm 10\%$ 3 V TANTALUM SOLID CAPACITOR |
| C 37,38 | 2541046000 | 220 μF $\pm 10\%$ 6.3 V TANTALUM SOLID CAPACITOR |
| C 39,40 | 2554077008 | 1000 pF $\pm 5\%$ 100 V PLASTIC FILM CAPACITOR |
| C 41,42 | 2554081007 | 0.047 μF $\pm 5\%$ 100 V PLASTIC FILM CAPACITOR |
| C 43,44,51,52,58 | 2531027000 | 0.1 μF $\begin{matrix} +80\% \\ -20\% \end{matrix}$ 50 V CERAMIC CAPACITOR |
| C 45~48,59,63,64 | 2531024003 | 0.01 μF $\begin{matrix} +80\% \\ -20\% \end{matrix}$ 50 V CERAMIC CAPACITOR |
| C 49,50 | 2544044009 | 1 μF 50 V ELECTROLYTIC CAPACITOR |
| C 53 | 2544043000 | 0.47 μF 50 V ELECTROLYTIC CAPACITOR |
| C 54 | 2549015020 | 100 μF $\pm 10\%$ 10 V ELECTROLYTIC CAPACITOR |

| Ref. No. | Part No. | Description | | | |
|----------|------------|-------------|------------|------|------------------------|
| C 55 | 2549015004 | 22 μ F | $\pm 10\%$ | 10 V | ELECTROLYTIC CAPACITOR |
| C 56 | 2544016008 | 33 μ F | | 16 V | ELECTROLYTIC CAPACITOR |
| C 57 | 2544018006 | 100 μ F | | 16 V | ELECTROLYTIC CAPACITOR |
| C 60,61 | 2544025002 | 10 μ F | | 25 V | ELECTROLYTIC CAPACITOR |

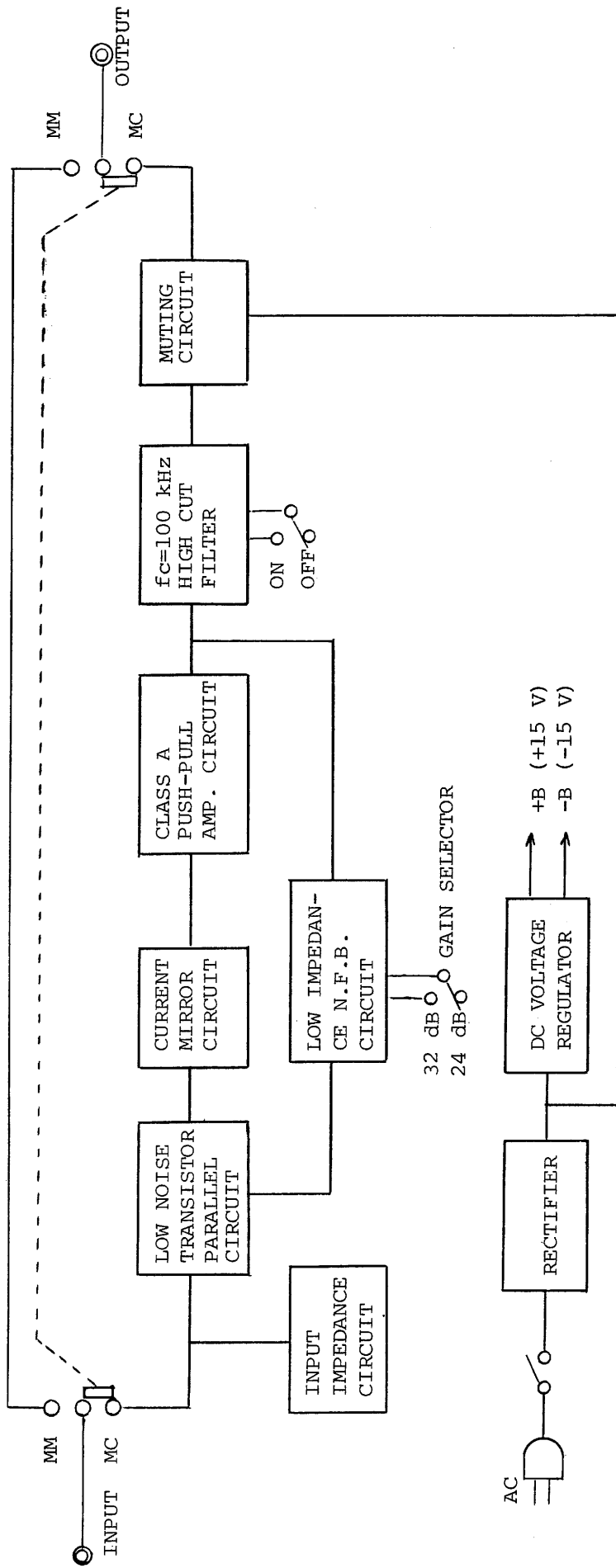
POWER SUPPLY UNIT ETC-266



POWER SUPPLY UNIT ETC-266 PARTS LIST

| Ref. No. | Part No. | Description | | | |
|------------------|------------|--------------|-----------------------|------|------------------------|
| SEMICONDUCTORS | | | | | |
| D 1~4 | 2760158012 | W06B | | | DIODE |
| D 5, 6 | 2760049011 | 1S2076 | | | DIODE |
| LE - 1 | 3939012027 | SEL103R | | | DIODE |
| CAPACITORS | | | | | |
| C 1 (for U.S.A.) | 2568005105 | 0.01 μ F | $\pm 20\%$ | 160V | PLASTIC FILM CAPACITOR |
| C 1 (for Europe) | 2568001007 | 0.01 μ F | $\pm 20\%$ | 125V | PLASTIC FILM CAPACITOR |
| C 2 (for U.S.A.) | 2568005105 | 0.01 μ F | $\pm 20\%$ | 160V | PLASTIC FILM CAPACITOR |
| C 2 (for Europe) | 2568001007 | 0.01 μ F | $\pm 20\%$ | 125V | PLASTIC FILM CAPACITOR |
| C 3 | 2531053003 | 0.01 μ F | $\pm \frac{100}{0}\%$ | 500V | CERMIC CAPACITOR |
| C 4, 5 | 2546012000 | 2200 μ F | | 35V | ELECTROLYTIC CAPACITOR |
| C 6 (for Europe) | 2518001007 | 0.01 μ F | $\pm 20\%$ | | OIL CAPACITOR |

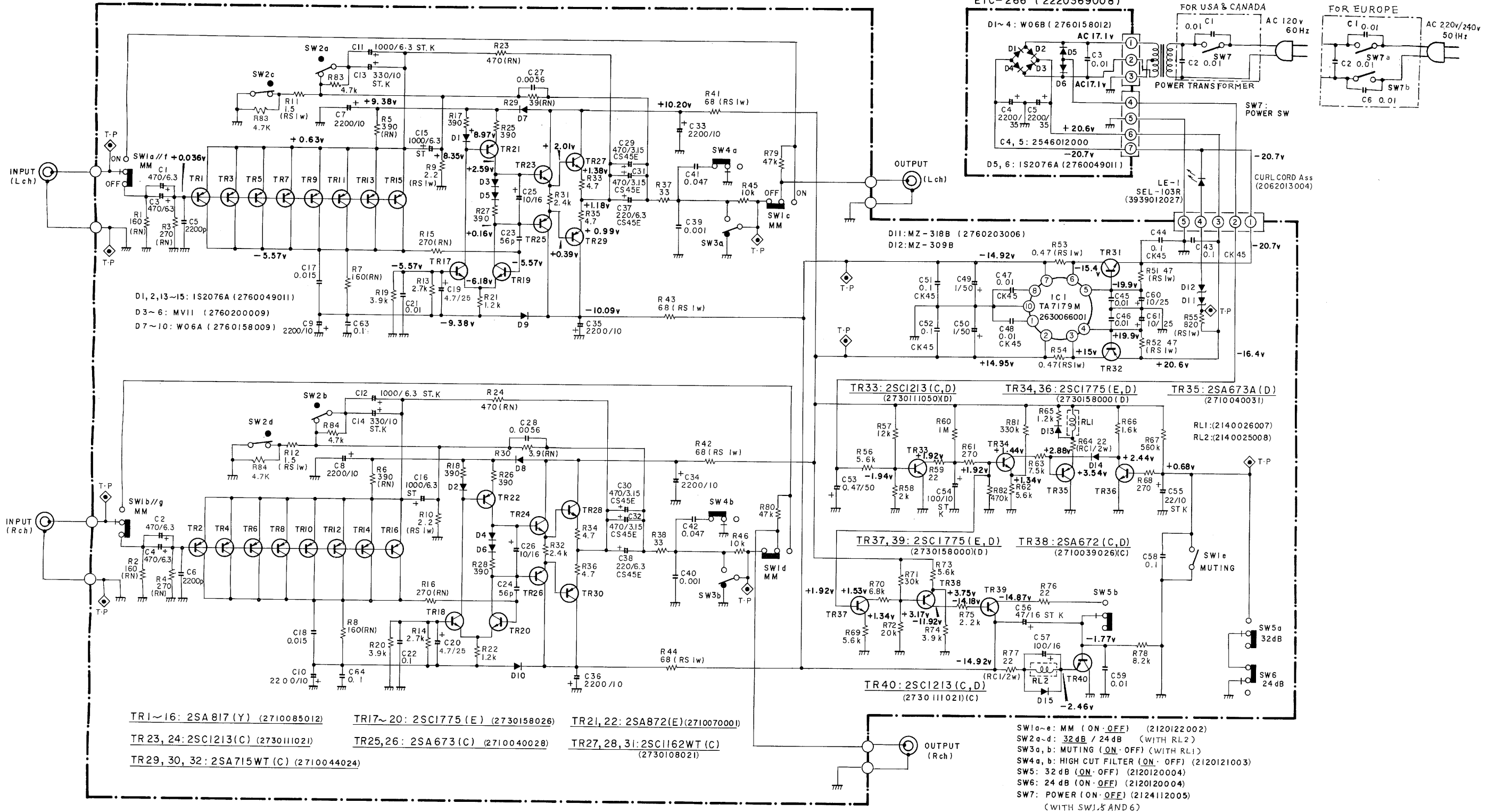
BLOCK DIAGRAM



WIRING DIAGRAM

ETC-265 (2220368009) AMP & REGULATOR UNIT

POWER SUPPLY UNIT
ETC-266 (2220369008)



NOTES
 ALL RESISTANCE VALUES IN OHM K=1,000 OHM M=1,000,000 OHM
 ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
 EACH VOLTAGES AND CURRENTS IS MEASURED AT NO SIGNAL INPUT CONDITION.
 CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE