## SPECIFICATIONS

| FREQUENCY RESPONSE | Hi-level: $\pm 0.6 \mathrm{~dB} 3 \mathrm{~Hz}-100 \mathrm{KHz}$ with hi-impedance load, $\pm 0.1 \mathrm{~dB}$ $1 \mathrm{OHz}-20 \mathrm{KHz}$ with IHF load; Phono: $\pm 0.5 \mathrm{~dB}$ of RIAA, calibrated |
| :---: | :---: |
| PHASE RESPONSE | Hi-level: typically $\pm 1^{\circ}$ to $-12^{\circ} 20 \mathrm{~Hz}-20 \mathrm{KHz}$ with IHF load; Phono: typically $\pm 5^{\circ} 20 \mathrm{~Hz}-20 \mathrm{KHz}$ additional phase shift |
| HUM AND NOISE | $20 \mathrm{~Hz}-20 \mathrm{KHz}$ inputs shorted; Hi-level: 90dB below rated output (typically 100dB with IHF "A" weighted measurement; Phono: 80dB below 10 mV input) typically $0.5 \mu \mathrm{~V}$ input noise |
| DISTORTION THD | essentially unmeasurable; IM: less than $0.01 \%$ at rated output with IHF measurement (typically under 0.002\%) |
| INPUTS | five hi-level inputs (1 tuner, 2 auxiliary, 2 tape) two equalized phonos |
| INPUT GAIN \& IMPEDANCE | Hi-level: $20.8 \mathrm{~dB} \pm 0.2 \mathrm{~dB}$, 100 K ohms; Phono: $50-70 \mathrm{~dB}$ (adjustable) 47K ohms. Sensitivity: 1 mV @ 1KHz for rated output. |
| PHONO INPUT OVERLOAD | $33-330 \mathrm{mV}$ at 1 KHz , depending on gain $(100 \mathrm{mV}$ when set to 60 dB total preamp gain) |
| OUTPUT | 10v maximum before overload, 2.5 rated, 600 ohms output impedance |
| PHONO OUTPUT \& IMPEDANCE | (at tape out) 600 ohms with typical maximum output of 9 v RMS at 1 KHz into hi-impedance load |
| VOLUME CONTROL | over 60dB dynamic range with calibrated tracking |
| LOUDNESS COMPENSATION | new wide-range design for excellent simulation of FletcherMunson curves down to 60 phons; with exclusive dual R/C bassboost coordinated with volume control |
| PANORAMA CONTROL | unique, continuously-variable control for infinite adjustment from stereo to mono to stereo-reverse, replaces confusing conventional stereo-mode switches and blend controls with the first intuitive control of stereo spatial dimension. |
| TONE CONTROLS | continuously variable $\pm 15 \mathrm{~dB}$ at 30 Hz and 15 KHz , cancel switch bypasses independent bass and treble control settings to give instant true-flat response in both channels |
| MUTING | uses plug-in reed relay - removes turn-on transients from IC-150 output thus protecting speakers |
| FILTERS | Rumble: -3 dB at 50 Hz with 6 dB -per-octave cut-off, Scratch; -3 dB at 5 KHz with 12 dB -per-octave cut-off |
| AC OUTLETS | four switched with 25A switch, one unswitched |
| POWER REQUIREMENTS | about 2 watts at 120 v or $240 \mathrm{v} 50-400 \mathrm{~Hz} \mathrm{AC}$ |
| SEMICONDUCTOR COMPLEMENT | two integrated circuits (equivalent to 42 bipolar transistors and 2 FET) for a total of 54 bipolar transistors, three FET, three zeners and seven diodes |
| DIMENSIONS | $51 / 4 " \mathrm{H} \times 17^{\prime \prime}$ W; $81 / 8^{\prime \prime}$ behind panel |
| WEIGHT | 10 lbs. , with walnut cabinet 16 lbs . |





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VOLTAGE, FOLLOW CONVERSION CHART BELOW. SELECT THE COARECT VOLTAGE VOLTAGE, FOLLOW CONVERSION CHAAT BELOW. SELEC
NOTE: ONLY FOUR TRANSFORMER PRIMARY WIRES ARE USED FOR ANY NOTE: ONLY FOUR TRANSFORMER PRIMARY WIRES ARE USEO FOR ANY
VOLTAGE CONFIGURATION. THESE WIRES ARE SOLDERED TO AN ADJACENT VOLTAGE CONFIGURATION. THESE WIRES ARE SOLDERED TO AN AD.AACENT
TERMINAL STRIP (TP-1, TP-2, TP.3, TP-4, AND TP-S ABOVE). THE EXPOSEDENDS TERMINAL SIRIP ITP-1, TP-2, TP.3, TPU, AND IP-S ABOVEI. THE EXPOSEDENDS AND DAESSED NEXT TO THE CHASS IS NEAR THE TERMINAL STRIP. FOR THE 100 V CONNECTION. TWO JUMPERS ARE REQUIRED: FOR THE $2 O O V$ CONNECTION, ONE JUMPER IS REOUIRED.

| LINE VOLTAGE | JUMPERS | TP-1 | TP. 2 | TP-3 | TP. 4 | TP-5 | UNUSED |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 100 | TP-1 to TP-2 TP. 3 to TP- 4 | WHY | BLK | BLU/WHT | 810 | - | BLK/WHT, RED/BLK |
| 120 | $\begin{aligned} & \text { TP-1 to TP-2 } \\ & \text { TP-3 to TP-4 } \end{aligned}$ | WHT | BLK | BLK/WHT | RED/BLK | - | $\begin{aligned} & \text { BLU/WHT, } \\ & \text { BLU } \end{aligned}$ |
| 200 | TP. 2 10 TP-5 | WHT | BLK | - | 8LU | BLU/WHT | BLK/WHT. AED/BLK |
| 220 | PP-2 to TP. 5 | WHT | BLK | - | BLU | BLK/WHT | BLU/WHT. RED/BLK |
| 240 | TP-2 20 TP. ${ }^{\text {P }}$ | WHT | BLK | - | REO/BLK | BLK/WHT | $\begin{aligned} & \text { BLU. WHT, } \\ & \text { BLU } \end{aligned}$ |

## NOTES:

- CIRCUIT SHOWN STARTS SN 12751, AND APPLIES ONLY TO P.C. BOARD \#7925.
- POWER SUPPLY SHOWN STARTS SN 14467.
- C6 WAS ADDED SN 13551.
- TRANSISTORS 0114-0108 AND 0214-0208 ARE THERMALLY CONNECTED.
- ALL RESISTORS IN OHMS. ALL CAPACITORS IN MICRO-FARADS UNLESS OTHERWISE STATED.
- R135, R235 ARE 3.3K WHEN IC IS UA749. WHEN IC IS UA739, R135, R235 ARE OMITTED UNLESS INSTABILITY OCCURS. THEN RESISTORS ARE 10K.


240 VAC WIRE

