



**ELECTRO RESEARCH Class A Amplifier.** Rated power: 75 watts per channel [Pure Class A] at 8 ohms. Retail price: \$1750.00. Unit tested: #10103. Source: manufacturer's loan. Produced by Electro Research Corporation, 953 North Elm St., Orange, Ca. 92663.

The Electro Research Class A amplifier comes closer to a straight wire with gain than any amp we have heard to date. There is, as far as we could tell, no subjective frequency response variation and the overall sound is the most neutral that we have yet experienced.

As you can see by the faceplate, the Electro Research is no ordinary power amp. It was originally designed for commercial and industrial applications — more of a laboratory test instrument than a home power source. Due to the unique nature of some of the front panel controls, we asked the manufacturer to supply us with a detailed description of the function of each. The text is from Electro Research. We offer it as received — without comment.

**POWER:** The push button of this assembly actuates a micro switch having a two ampere rating. The maximum load, controlled by this switch, is less than one-tenth the rating required by the coil of a forty amp relay. This relay then performs the actual high current switching of the amplifier AC line input. The reason for this sequence is to prevent power switch failures due to current surges or excessive temperatures. By this means, the power switch will last essentially the mechanical life of the moving parts.

**LOAD 1 and LOAD 2:** This indicator combines load status readouts for both channels independently. In the event of excessive load current from either channel, the top or bottom half of the indicator will be illuminated, indicating in the respective channel where a load fault exists.

**NORMAL/SUPPLY:** This readout indicates power supply status. When the amplifier is first turned on and the supplies are in the controlled voltage build-up, or ramp mode, the bottom half or "SUPPLY" portion will be illuminated. This indicates the instrument is not ready or capable of delivering full rated power output. In the event of low AC line input, the SUPPLY indicator will remain illuminated until the low-line condition is corrected. When satisfactory operating conditions are present and all supplies are at or above the regulation point, the SUPPLY indicator will extinguish and the NORMAL indicator will be illuminated.

**STANDBY/TEMP:** This assembly combines two status indicators and a momentary contact micro switch. The bottom half of this unit indicates if the amplifier has reached the limit of the assigned desirable operating temperature. In this event the instrument will turn off until it has cooled to a point well within the allowed temperature range.

If you wish to disconnect inputs or voluntarily shut down the amplifier while maintaining all input circuitry on and stabilized, the STANDBY lens may be momentarily depressed. This triggers electronic circuitry which de-energizes the main supply series pass regulators thereby removing power from the output stage. When this circuitry is energized, the STANDBY/RESET and SUPPLY indicators are energized. RESET is illuminated, meaning that when it is momentarily depressed normal operation will resume and SUPPLY is illuminated to verify de-activation of the output stage.

**RESET/FREQUENCY:** This also is an assembly combining two status indicators and a momentary contact micro switch. The bottom half is an over frequency indicator which will be triggered electronically in the event of excessive high frequency amplitude present at the output of the amplifier. In this case the output stage will shut down causing the supply and reset indicators to be illuminated. This indicates the amplifier may be reset by the user once the source of excessively high frequency is removed. It is not possible to reset the amplifier until this has occurred. This function is to provide some protection of the load, particularly loudspeakers, since the amplifier is capable of continuous full power operation at frequencies as high as 500 kHz.

While this ultra-wide power bandwidth provides for sound transparency, it must be used with highly stable and well shielded pre-amplifiers since high frequency oscillations of the pre-amp or RF pick-up of the audio leads will be amplified and passed on to the load. Therefore the sensitivity of the frequency circuit increases exponentially to ensure maximum protection of the load without affecting the sound.

**CALIBRATOR:** The calibrator section is provided for maintenance of the amplifier at optimum operating conditions. This section consists of complete facilities for precise input and output null balance adjustments. The input trim adjustments are for variable coupling co-efficient of the amplifier to its drive source. For audio applications this provides for optimum matching to any given pre-amp.

**COOLING SYSTEM:** This instrument simultaneously utilizes two cooling systems. One is convection, the other is forced air. Convection cooling is provided by massive extruded heat sinks secured to the  $\frac{1}{2}$ " thick side panels. The total radiating area exposed to convection is greater than sixteen-hundred square inches. The forced air cooling is facilitated by pressurizing the case and allowing controlled escape of the air through holes between the extruded fins. This causes all internal surface areas of the amplifier to assist in the cooling process and prevents any localized hot spots. Moreover, by mounting forty-four output transistors directly to the machined heat sink assemblies [which weigh a total of twenty pounds] thermal impedance is reduced to absolute minimum and thermal shock to the transistors is eliminated. In aggregate this cooling system is so efficient that this instrument will meet FTC power rating requirements into two ohms.