

SECTION I

GENERAL INFORMATION

1-1. DESCRIPTION.

1-2. The Model 180A/AR, Figure 1-1, is a light weight, general purpose oscilloscope with plug-in capabilities. Both the Model 180A and Model 180AR, as shipped from the factory, are intended for bench use. The Model 180AR however, may be rack mounted as described in Section II.

1-3. All active components in the Model 180A/AR are solid state devices (no vacuum tubes except the CRT). The Model 180A/AR is convection cooled and operates within specifications from -28°C to $+65^{\circ}\text{C}$.

1-4. The horizontal amplifier bandwidth is dc to 5 MHz with direct coupling and 5 Hz to 5 MHz with capacitive coupling. A BNC connector is provided to attach an external deflection signal. The amplifier's dynamic range is ± 5 V. The deflection factor is adjustable between 0.1 V/div to 1 V/div.

1-5. A BNC connector is provided to connect an external intensity modulation signal. The input resistance is 5100 ohms. Approximately +2 Vdc to 15 MHz blanks a beam of normal intensity.

1-6. Four other BNC connectors are provided to couple signals from the plug-ins to external equipment. Since

these outputs are dependent upon the specific plug-ins, refer to applicable plug-in manuals for identification. The outputs can supply 3 mA and will drive impedances as low as 1 k ohm without distortion.

1-7. A 1 kHz square wave signal at two amplitudes, 250 mV and 10 V, is available at the front panel. Its amplitude is accurate to 1% and its risetime is 3 usec. The signal may be used to adjust horizontal and vertical deflection factors and to compensate divider probes.

1-8. CATHODE-RAY TUBE.

1-9. The Model 180A/AR uses an internal graticule CRT which eliminates display parallax. The CRT is furnished with P31 aluminized phosphor and is equipped with a safety faceplate. P2, P7, and P11 phosphors are also available.

1-10. WARRANTY.

1-11. This instrument is certified and warranted as stated on the inside front cover of this manual. The CRT however, is covered by a warranty separate from the rest of the instrument. The CRT warranty and warranty claim forms are located at the rear of this manual. Should the CRT fail within the time specified on the warranty, return the CRT with the warranty form completed.

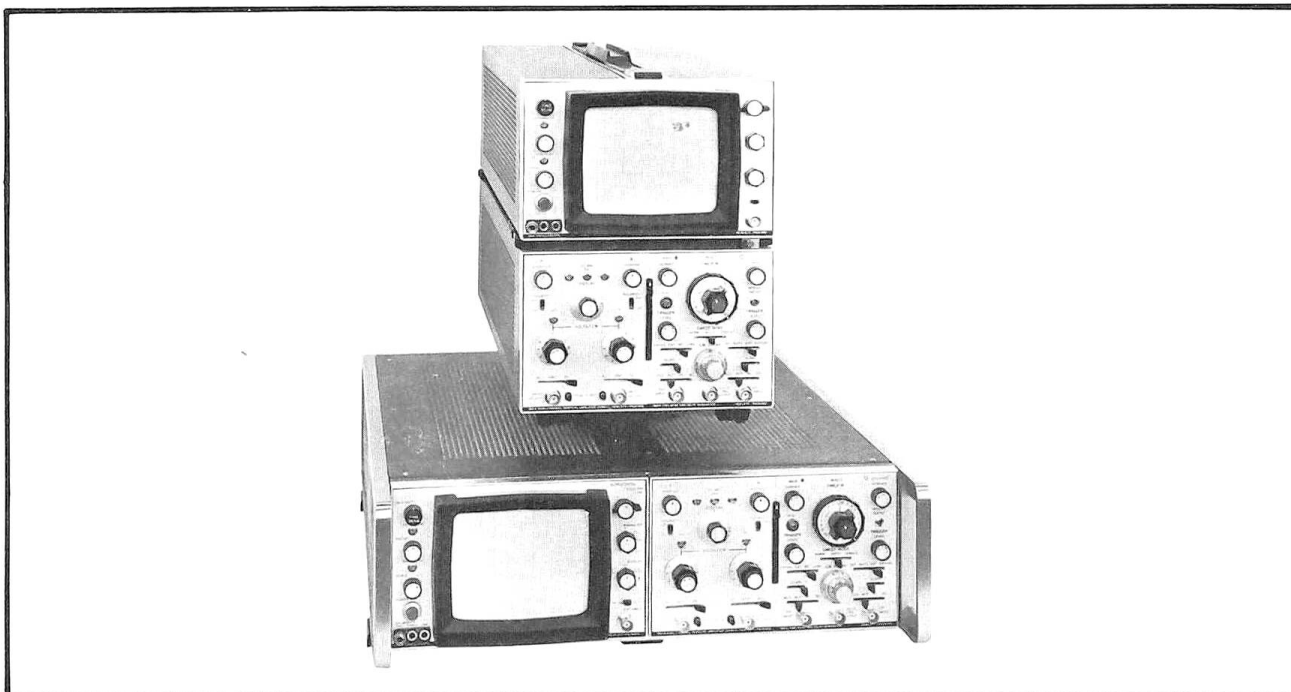


Figure 1-1. Models 180A and 180AR Oscilloscopes

1-12. INSTRUMENT IDENTIFICATION.

1-13. Hewlett-Packard uses a two-section eight-digit serial number to identify instruments. The first three digits (preceding the dash) are the serial prefix which identifies a series of instruments; the last five digits identify a particular instrument in the series. The serial number appears on a plate located on the rear panel. All correspondence with a Hewlett-Packard Sales/Service Office in regard to an instrument should reference the complete serial number.

1-14. MANUAL CHANGES.

1-15. This manual provides operating and service information for the HP Model 180A/AR Oscilloscope. Information in this manual applies directly to instruments (as manufactured) with serial numbers prefixed by the three digits indicated on the title page. If the serial prefix of the instrument is different from that on the title page, a MANUAL CHANGES sheet supplied, or Section VII of this manual, will describe changes which will adapt this manual to provide correct coverage. Technical corrections (if any) to this manual, due to known errors in print, are called Errata and are shown on the change sheet. For information on manual coverage of any HP instrument, contact the nearest HP Sales/Service Office (addresses are listed at the rear of this manual).

1-16. ACCESSORIES FURNISHED.

1-17. The Model 180A/AR Oscilloscope is equipped with a mesh contrast filter, and a detachable power cord. Also included with the Model 180AR is a rack mounting kit.

1-18. The mesh contrast filter snaps into place under the

light shield and provides increased display visibility. All parts and hardware required to convert the Model 180AR for rack mounting are provided in the kit supplied.

1-19. AVAILABLE ACCESSORIES.

1-20. A series of mobile test stands are available for both the Model 180A and Model 180AR. The Model 1118A is a tripod testmobile intended for use with the cabinet Model 180A, and provides adjustable height, tilt, and rotation. It is also equipped with locking wheels and is readily collapsible for transport. The Model 1119A/B Testmobiles are intended for use with rack model instruments such as the Model 180AR, while the Model 1119C/D Testmobiles are intended for use with cabinet model instruments such as the Model 180A. The Model 1119-series Testmobiles are general purpose test stands designed for maximum utility while requiring a minimum of floor space. These testmobiles allow the instrument to be tilted at least 40 degrees above and below horizontal in 10 degree steps.

1-21. A front-panel cover of fiberglass material, HP Model 10166A, can be used to provide front-panel protection for the cabinet Model 180A, and a cover for the rack Model 180AR is available as HP Part No. 5060-0437.

1-22. For ease of calibration and maintenance an HP Model 10407A Plug-in Extender can be obtained. It provides for removal of the plug-ins from the frame and exposes components and adjustments for servicing.

1-23. Cameras, probes, viewing hoods, terminations, and other accessory items are available for specialized requirements. Information on these and the above described accessories may be obtained from HP Sales/Service Offices listed in the rear of this manual.

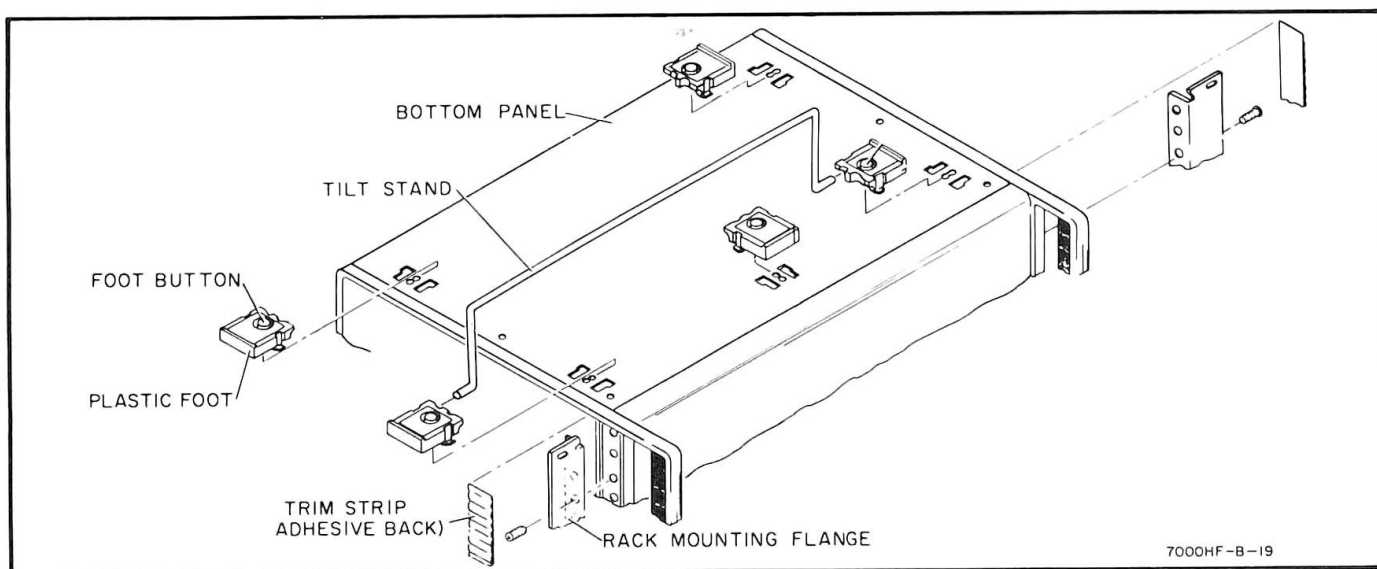


Figure 2-1. Rack Mount Procedure

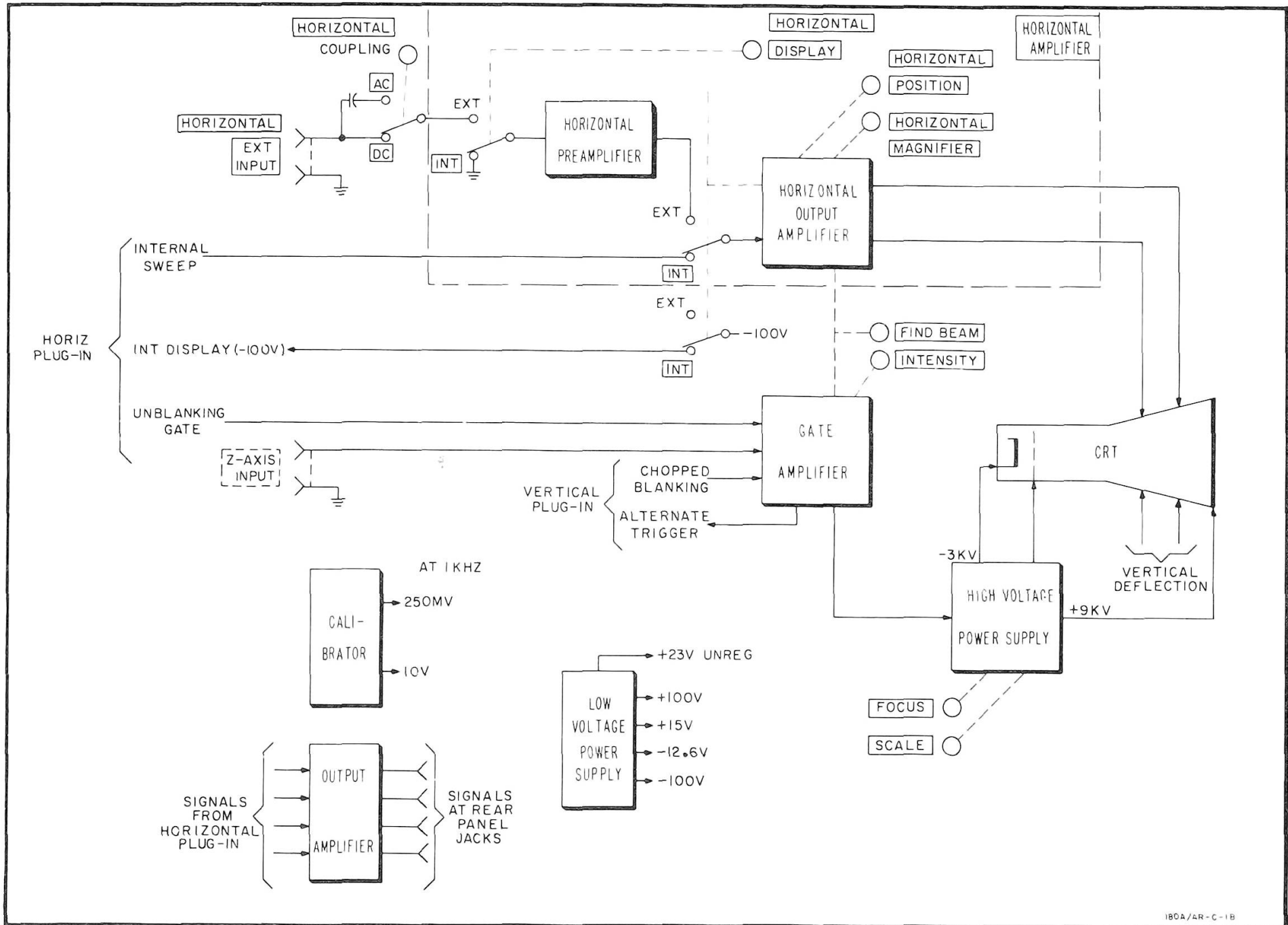


Figure 4-1. Model 180A/AR Overall Block Diagram

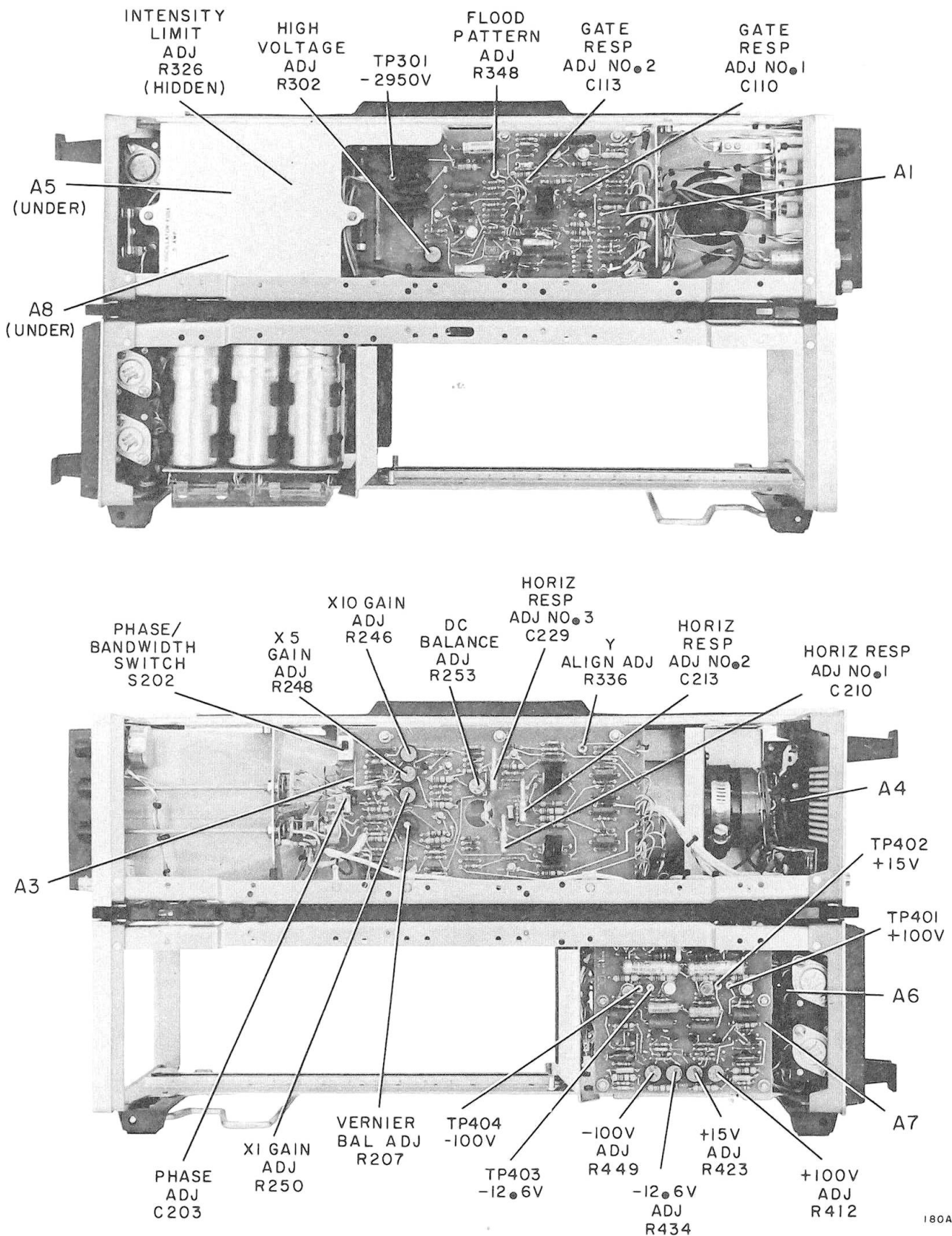


Figure 5-1. Adjustment Locations
5-7

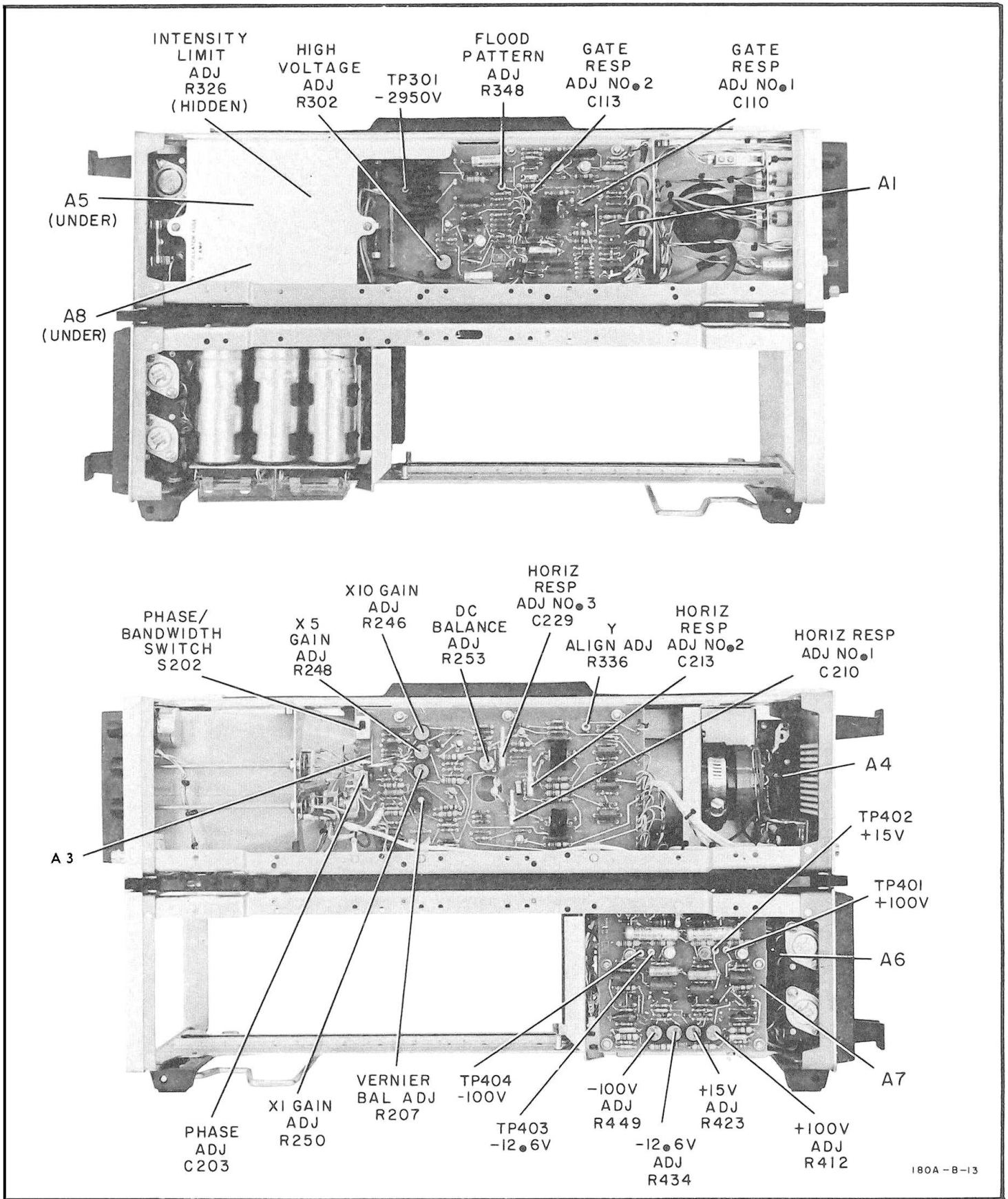
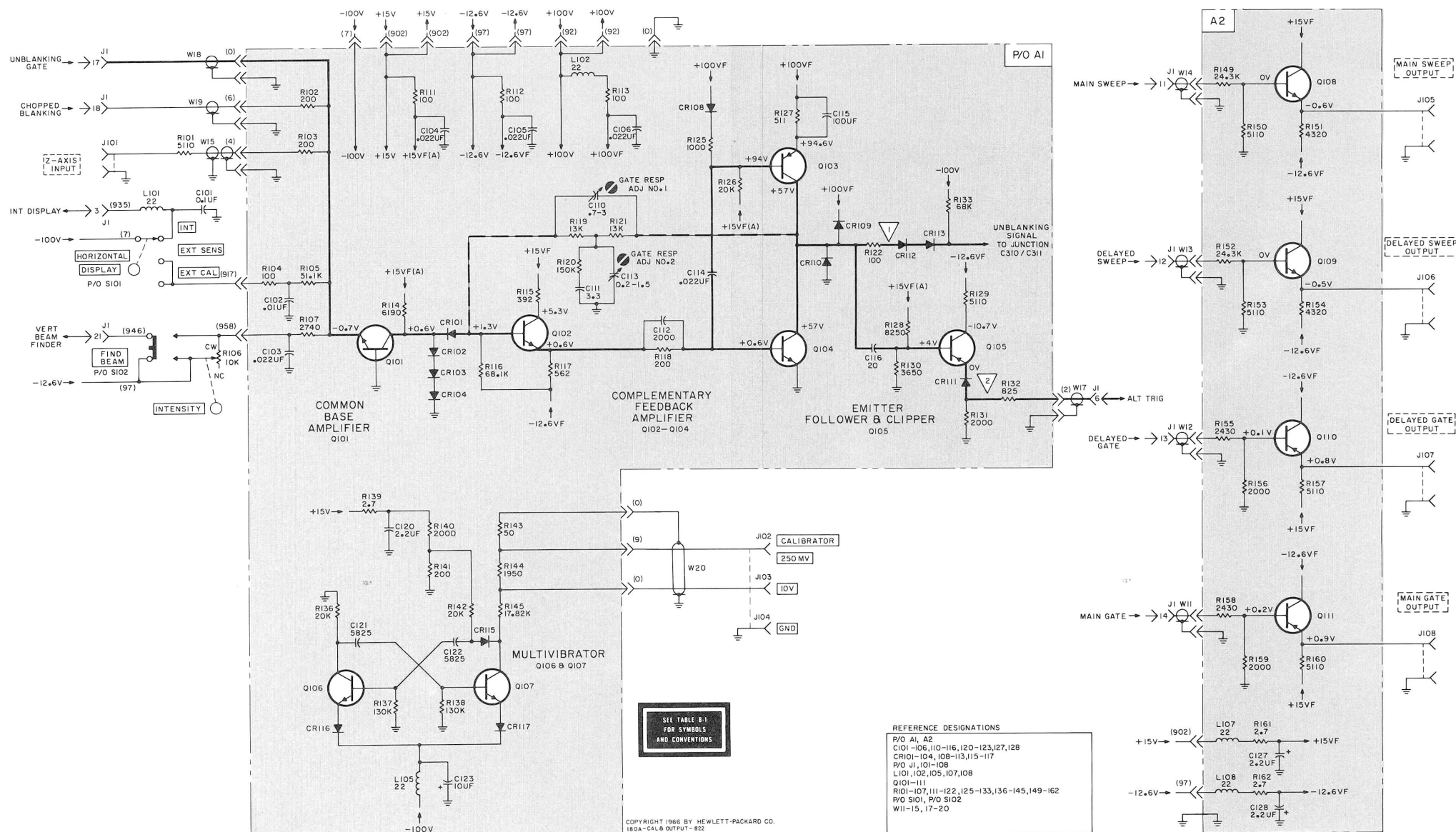
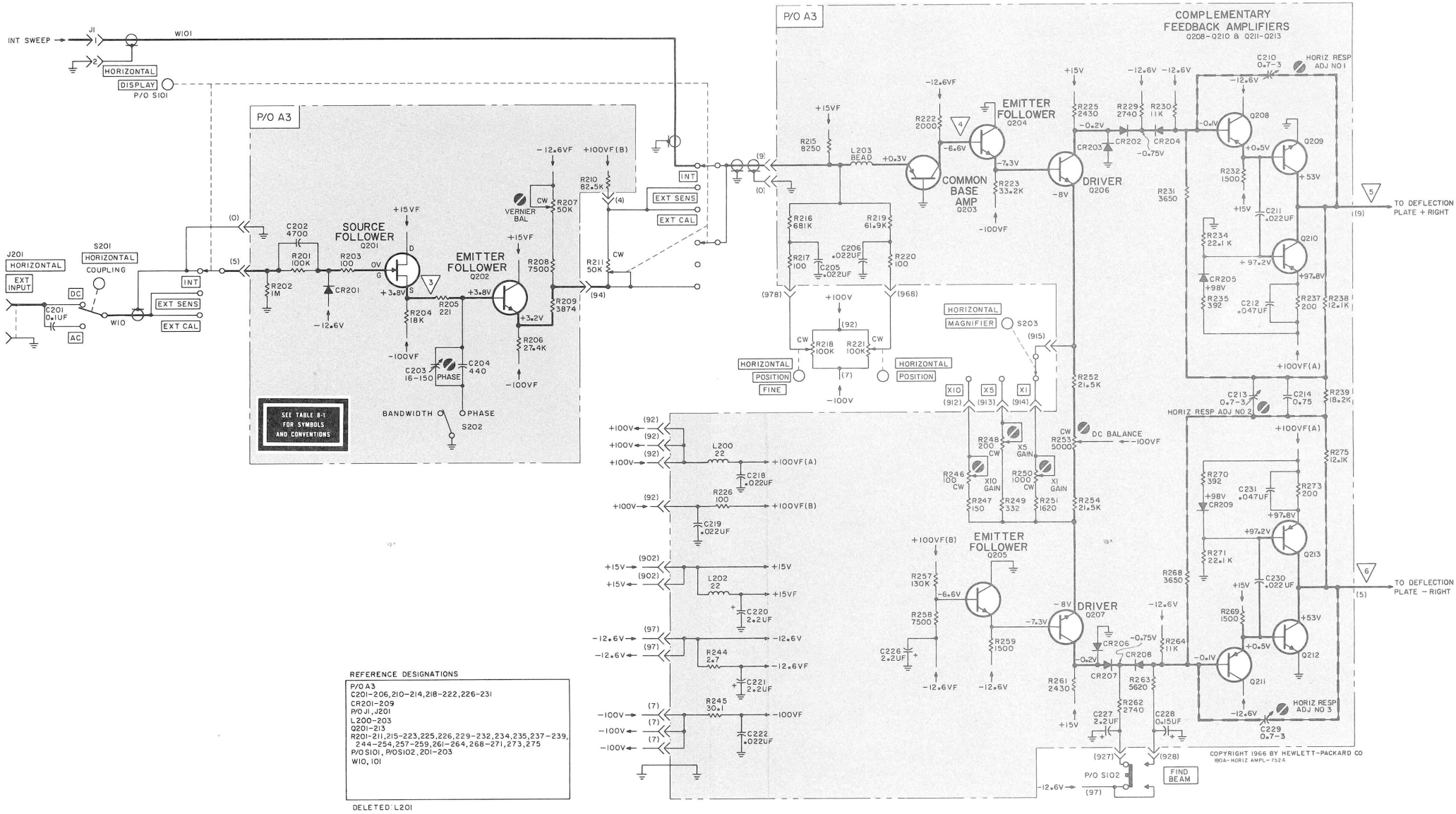
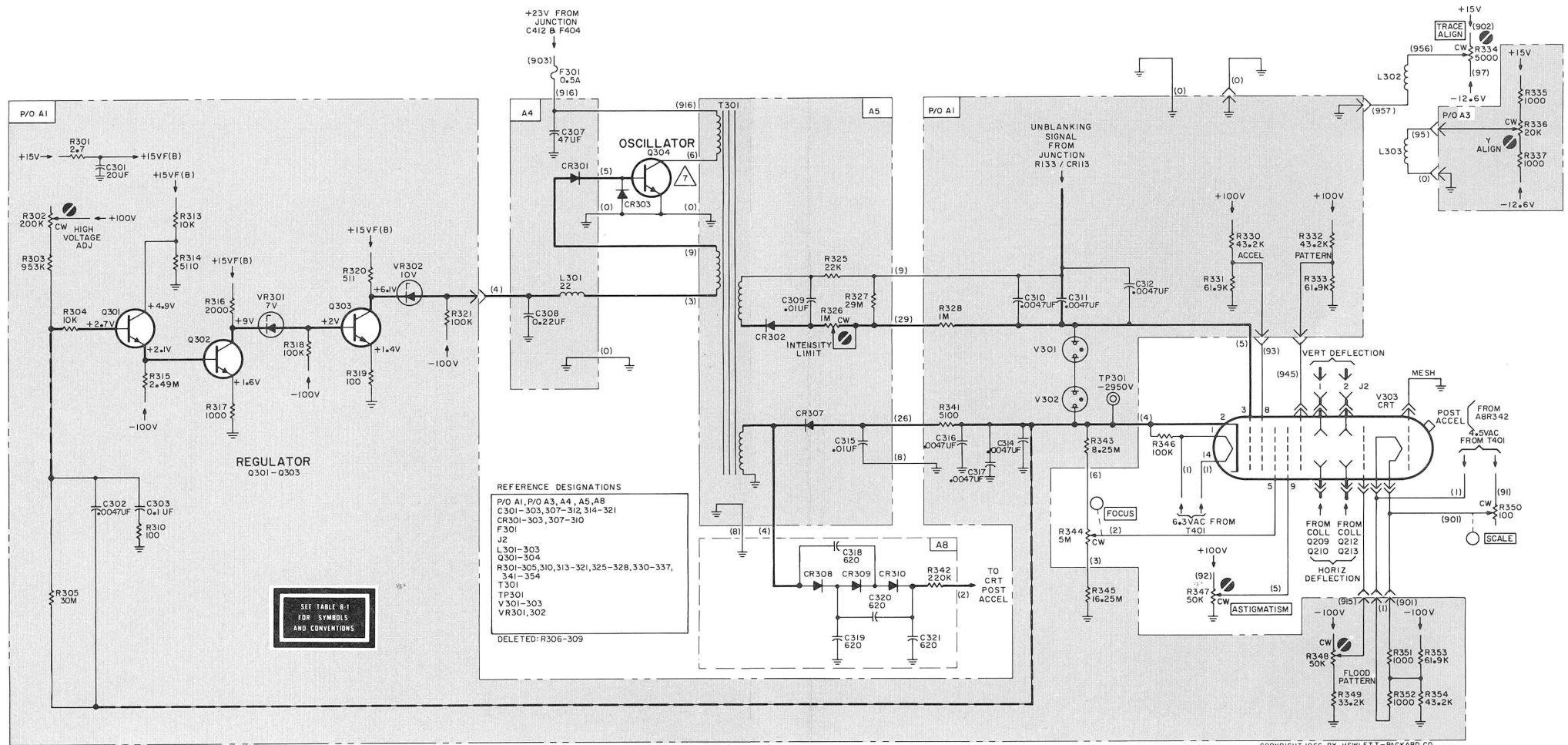


Figure 5-1. Adjustment Locations
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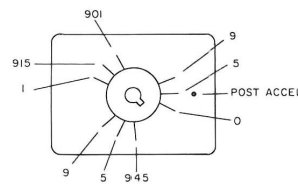




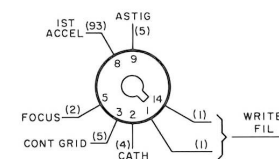
p/o Figure 8-4. Horizontal Amplifier
8-7



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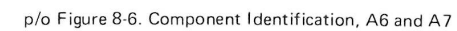


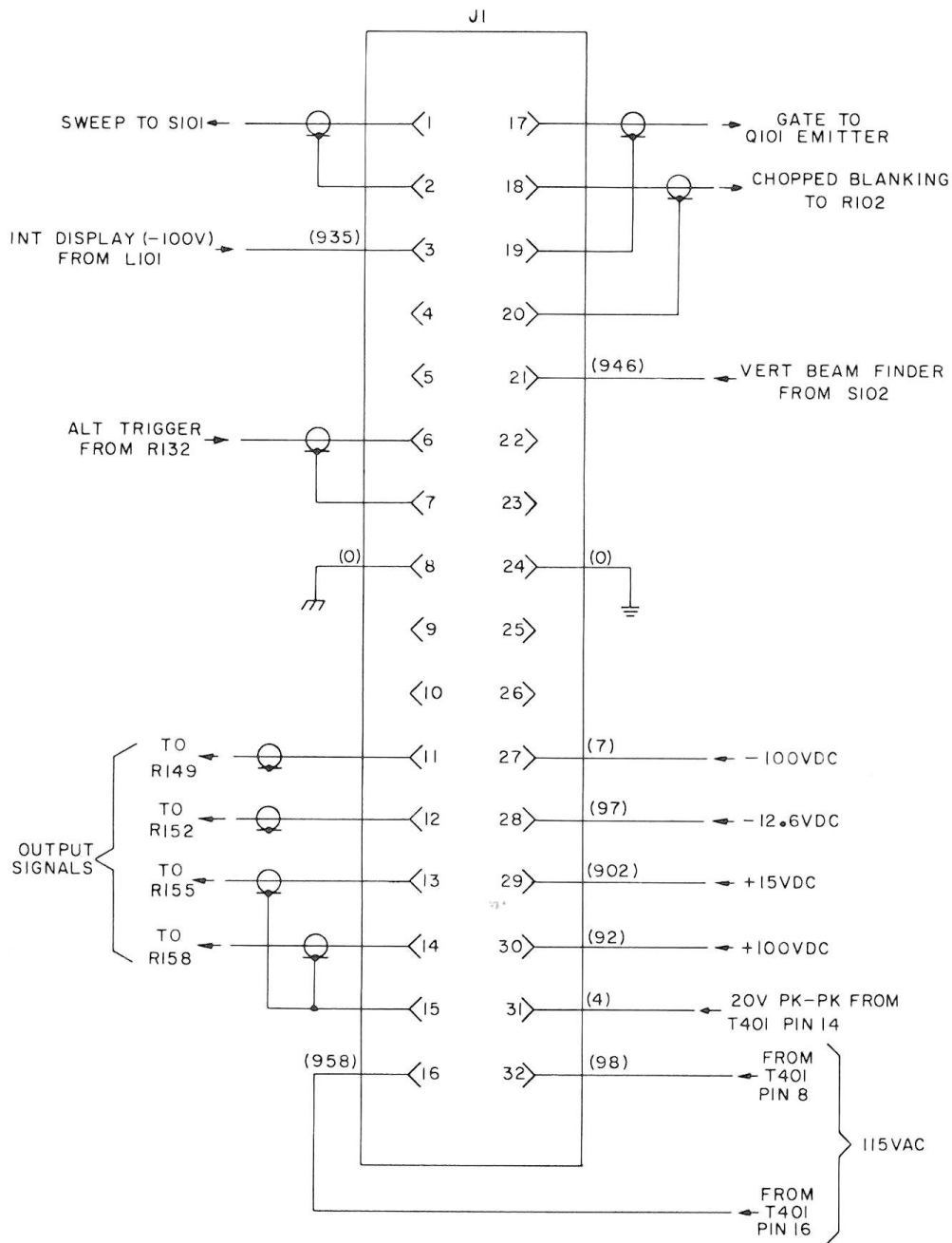
REAR VIEW
CRT NECK PIN CONNECTIONS



p/o Figure 8-5. High Voltage Power Supply
8-9







180A-C-6A

Figure 8-7. Jack Connections