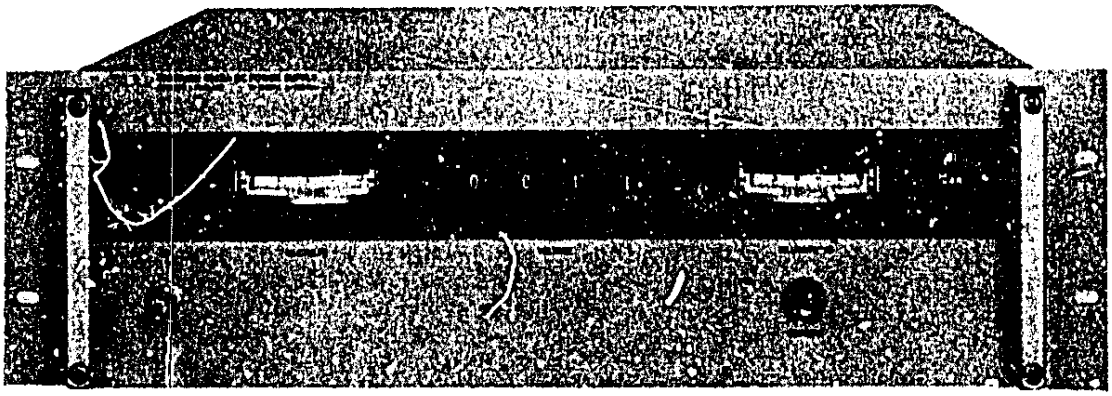

Figure 1-1. DC Power Supply, Model 6522A

SECTION I
GENERAL INFORMATION

1-1 DESCRIPTION

1-2 The HVR (High Voltage Rack) Series of DC Power Supplies (Figure 1-1) are all semiconductor, compact, well-regulated, constant voltage/constant current models suitable for either bench or rack operation. A three-wire five-foot input power cord is provided. The output is continuously variable between zero and the maximum rating of the supply. The continuously variable current control may be used to set the maximum output current (overload or short-circuit current) when the supply is used as a constant voltage source or the voltage control may be used to set the maximum output voltage (voltage ceiling) when the power supply is used as a constant current source. Detailed specifications are given in Table 1-1.

1-3 OVERLOAD PROTECTION

1-4 A crossover feature protects both power supply and load in constant voltage operation. Automatic crossover circuitry switches the power supply from constant voltage to constant current operation if the output current exceeds a preset limit. This crossover circuitry also protects the load from overvoltage during constant current operation by automatically switching the power supply into constant voltage operation if the output voltage exceeds the preset limit. The user can adjust the crossover point via the front panel controls (Paragraph 3-1).

1-5 The power supply is protected from reverse voltage (positive voltage applied to negative terminal) by an internal protection diode and the diode bridge network that shunts current across the output terminals when this condition exists, clamping the reverse voltage. Protection from reverse current (current forced into the power supply in the direction opposite to the output current) must be provided by preloading the power supply (Paragraph 3-29). The power supply cannot accept reverse current without damage.

1-6 COOLING

1-7 Convection cooling is used. No fan is required. The power supply has no moving parts (except for meter movement).

1-8 OUTPUT TERMINALS

1-9 Output power is available via two UG-931/U connectors at the rear of the power supply. Mating connectors (UG-932/U) are supplied with the unit. The output terminals are isolated from the chassis and either the positive or the negative terminal may be connected to the chassis by shorting the center pin and case of the applicable UG-931/U connector, or by grounding a wire from the connector to the chassis. The power supply is insulated to permit operation up to 2,000 vdc off ground, i.e. the maximum potential between either output terminal and ground shall not exceed 3 KV DC.

1-10 INSTRUMENT IDENTIFICATION

1-11 Hewlett-Packard power supplies are identified by a three-part serial number tag located on the rear of the unit. The first part is the power supply model number. The second part is the serial number prefix, which consists of a number-letter combination that denotes the date of a significant design change. The number designates the year, and the letter, A through L, designates the month, January through December respectively. The third part is the power supply serial number.

1-12 If the serial number prefix on your power supply does not agree with the prefix on the title page of this manual, change sheets are included to update the manual. Where applicable, backdating information is given in an appendix at the rear of the manual.

1-13 ORDERING ADDITIONAL MANUALS

1-14 One manual is shipped with each power supply. Additional manuals may be purchased from your local Hewlett-Packard field office (see list at rear of this manual for addresses). Specify the model number, serial number prefix, and HP stock number provided on the title page.

Table 1-1. Specifications

INPUT:
105-125 Vac, 50-500 cps., 4A, 270W.

OUTPUT:
0-2000 Vdc, 0-100 mA.

LOAD REGULATION:
Constant Voltage: Less than 0.002% plus 10 mV for a full load to no load change in output current.
Constant Current: Less than 2% or 1 mA for a full load to no load change in output voltage.

LINE REGULATION:
For a change in line voltage from 105 to 125 (or 125 to 105) at any output voltage and current within rating
Constant Voltage: Less than 0.001% plus 10 mV.
Constant Current: Less than 1 mA.

RIPPLE AND NOISE:
At any line voltage and under any load condition within rating
Constant Voltage: Less than 1 mV rms.
Constant Current: Less than 1 mA rms.

TRANSIENT RECOVERY TIME:
Less than 50 μsec is required for output voltage recovery to within 0.005% or 20 mV, whichever is greater, following a full load to no load or no load to full load change in output current.

TEMPERATURE RATINGS:
Operating: 0 to 50°C Storage: -20 to 70°C.

TEMPERATURE COEFFICIENT:
Output change per degree centigrade change in ambient following 30 minutes warm-up
Constant Voltage: 0.012% plus 1 mV.
Constant Current: 0.2% plus 0.1 mA.

STABILITY:
Under constant ambient conditions, total drift for 8 hours following 60 minutes warm-up
Constant Voltage: 0.036% plus 3 mV.
Constant Current: 0.25% plus 0.25 mA.

CONTROLS:
Voltage controls consist of a three decade thumbwheel switch plus a thumbwheel vernier with 0.002% resolution. A single turn potentiometer controls output current.

METERS:
Zero to 2 kV and 0-100 mA front panel meters are included. They provide accuracy of 2% full scale.

CALIBRATION ACCURACY:
One percent of the voltage control setting.

OUTPUT IMPEDANCE:
DC to 100 Hz (cps.) -- less than 0.01Ω.
100 Hz to 1 kHz -- less than 0.02Ω.
1 kHz to 100 kHz -- less than 0.5Ω.
100 kHz to 1 MHz -- less than 3Ω.

SIZE:
5¼" H x 18" D x 19" W (standard rack width).

WEIGHT:
50 lbs. net, 60 lbs. shipping.

FINISH:
Light gray front panel with dark gray case.