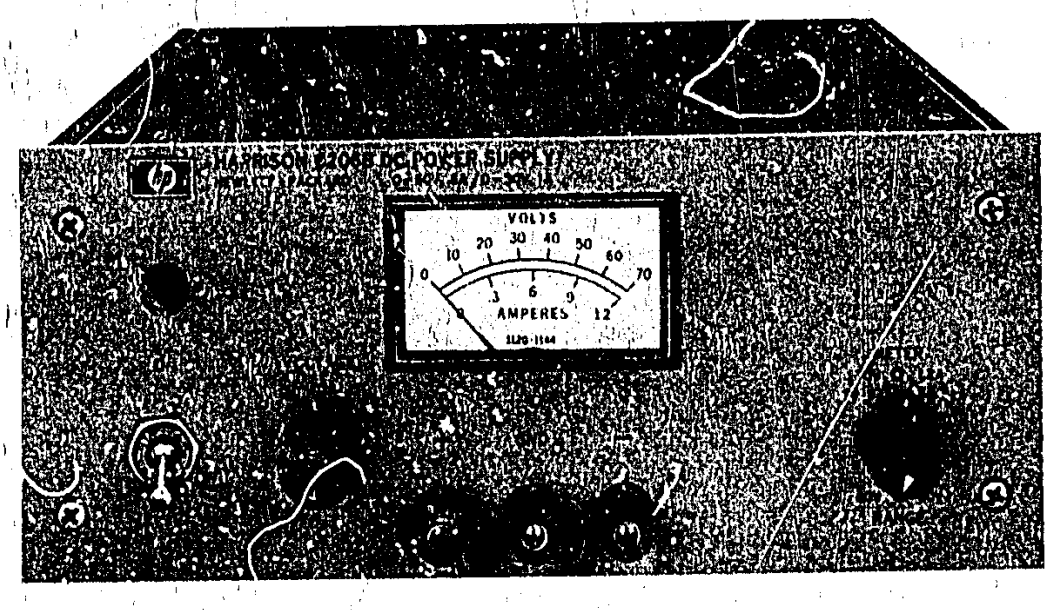


Figure 1-1. DC Power Supply, Model 6206B

# SECTION I
# GENERAL INFORMATION

## 1-1 DESCRIPTION

1-2 This power supply, Figure 1-1, is completely transistorized and suitable for either bench or relay rack operation. It is a dual range, compact, regulated, Constant Voltage/Current Limiting supply. The unit can be operated in one of two modes with selection of the operating mode provided by the front panel RANGE switch. The output voltage can be continuously adjusted throughout either output range. The power supply is fully protected from overloads by a fixed current limit which is set by means of an internal adjustment.

1-3 The power supply has both front and rear terminals. Either the positive or negative output terminal may be grounded or the power supply can be operated floating at up to a maximum of 300 Volts off ground.

1-4 A single meter is used to measure either output voltage or output current in one of two ranges for each operating mode. The voltage or current range is selected by the METER switch on the front panel.

1-5 The programming terminals located at the rear of the unit allow ease in adapting to the many operational capabilities of the power supply. A brief description of these capabilities is given below:

a. Remote Programming. The power supply may be programmed from a remote location by means of an external voltage source or resistance.

b. Remote Sensing. The degradation in regulation which would occur at the load because of the voltage drop which takes place in the load leads can be reduced by using the power supply in the remote sensing mode of operation.

c. Series and Auto-Series Operation. Power supplies may be used in series when a higher output voltage is required in the voltage mode of operation or when greater voltage compliance is required in the constant current mode of operation. Auto-Series operation permits one knob control of the total output voltage from a "master" supply.

d. Parallel and Auto-Parallel Operation. The power supply may be operated in parallel with a similar unit when greater output current capability is required. Auto-Parallel operation permits one knob control of the total output current from a "master" supply.

e. Auto-Tracking. The power supply may be used as a "master" supply, having control over one (or more) "slave" supplies that furnish various voltages for a system.

## 1-6 SPECIFICATIONS

1-7 Detailed specifications for the power supply are given in Table 1-1.

## 1-8 OPTIONS

1-9 Options are factory modifications of a standard instrument that are requested by the customer. The following options are available for the instrument covered by this manual. Where necessary, detailed coverage of the options is included throughout the manual.

| Option No. | Description |
|---|---|
| 07 | Voltage 10-Turn Pot: A single control that replaces both coarse and fine voltage controls and improves output settability. |
| 11 | Overvoltage Protection "Crowbar": A completely separate circuit for protecting delicate loads against power supply failure or operator error. This independent device monitors the output voltage and within 10μsec imposes a virtual short-circuit (crowbar) across the power supply output if the preset trip voltage is exceeded. When Option 11 is requested by the customer the device is connected at the factory.<br><br>Trip Voltage Range: 2.5 to 44 Volts, screwdriver adjustable.<br><br>Detailed coverage of Option 11 is included in Appendix A at the rear of manuals that support power supplies containing Option 11. |
| 13 | Three Digit Graduated Decadial Voltage Control: Control that replaces coarse and fine voltage controls permitting accurate resettability. |
| 28 | 230Vac Input: Supply as normally |

| Option No. | Description |
|---|---|
| (28) | shipped is wired for 115Vac input. Option 28 consists of reconnecting the input transformer for 230Vac operation. |

## 1-10 ACCESSORIES

1-11 The accessories listed in the following chart may be ordered with the power supply or separately from your local Hewlett-Packard field sales office (refer to list at rear of manual for addresses).

| HP Part No. | Description |
|---|---|
| C05 | 8" Black Handle that can be attached to side of supply. |
| 14513A | Rack Kit for mounting one 3½" high supply. (Refer to Section II for details.) |
| 14523A | Rack Kit for mounting two 3½" high supplies. (Refer to Section II for details.) |

## 1-12 INSTRUMENT AND SERVICE MANUAL IDENTIFICATION

1-13 Hewlett-Packard power supplies are identified by a three-part serial number tag. 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, with "I" omitted. The third part is the power supply serial number.

1-14 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.

## 1-15 ORDERING ADDITIONAL MANUALS

1-16 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 part number provided on the title page.

Table 1-1. Specifications

INPUT:
115Vac ± 10%, single phase, 48-440Hz.

OUTPUT:
0-30 volts @ 1 ampere or 0-60 volts @ 0.5 ampere.

LOAD REGULATION:
Less than 0.01% plus 4mV for a full load to no load change in output current.

LINE REGULATION:
Less than 0.01% plus 4mV for any line voltage change within the input rating.

RIPPLE AND NOISE:
Less than 200μVrms / 15mV peak-to-peak.

TEMPERATURE RANGES:
Operating: 0 to 55°C. Storage: -40 to +75°C.

TEMPERATURE COEFFICIENT:
Less than 0.02% plus 1mV per degree Centigrade.

STABILITY:
Less than 0.10% plus 5mV total drift for eight hours after an initial warm-up time of 30 minutes at constant ambient, constant line voltage, and constant load.

INTERNAL IMPEDANCE AS A CONSTANT VOLTAGE SOURCE:
Less than 0.02 ohms from dc to 1kHz.
Less than 0.5 ohms from 1kHz to 100kHz.
Less than 3.0 ohms from 100kHz to 1MHz.

TRANSIENT RECOVERY TIME:
Less than 50μsec for output recovery to within 10mV following a full load current change in the output.

OVERLOAD PROTECTION:
A fixed current limiting circuit protects the power supply for all overloads including a direct short placed across the terminals in constant voltage operation. The current limit can be changed by utilizing terminals available at the rear of the unit.

METER:
The front panel meter can be used as either a 0-70V or 0-7V voltmeter or as a 0-1.2A or 0-0.12 ampere ammeter.

OUTPUT CONTROLS:
Range switch selects desired opereting mode. Course and fine voltage controls set desired output voltage.

OUTPUT TERMINALS:
Three "five-way" output posts are provided on the front panel and an output terminal strip is located on the rear of the chassis. All power supply output terminals are isolated from the chassis and either the positive or negative terminal may be connected to the chassis through a separate ground terminal located on the output terminal strip.

ERROR SENSING:
Error sensing is normally accomplished at the front terminals if the load is attached to the front or at the rear terminals if the load is attached to the rear terminals. Also, provision is included on the rear terminal strip for remote sensing.

REMOTE PROGRAMMING:
Remote programming of the supply output at approximately 300 ohms per volt in constant voltage operation is made available at the rear terminals.

COOLING:
Convection cooling is employed. The supply has no moving parts.

SIZE:
3½" H x 12-5/8" D x 8½" W. Two of the units can be mounted side by side in a standard 19" relay rack.

WEIGHT: 10 lbs. net, 13 lbs. shipping.

FINISH: Light gray panel with dark gray case.

POWER CORD:
A three-wire, five-foot power cord is provided with each unit.