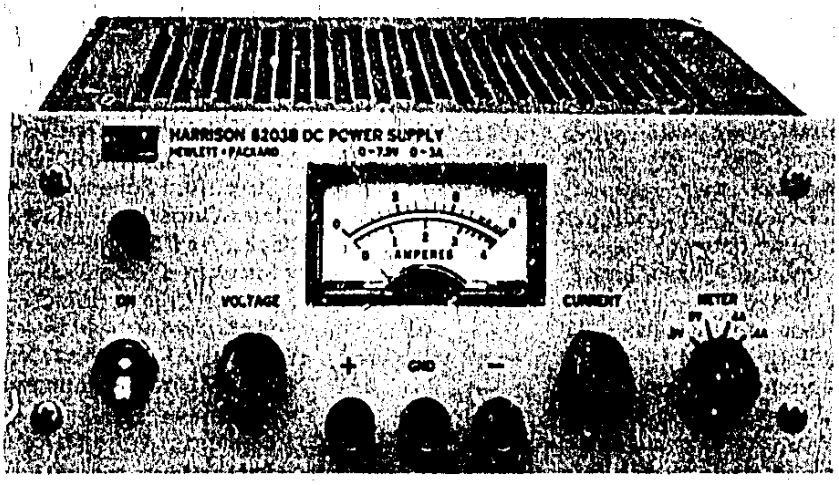

Figure 1-1. DC Power Supply, Model 6203B

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 compact, well-regulated, Constant Voltage / Constant Current supply that will furnish full rated output voltage at the maximum rated output current or can be continuously adjusted throughout the output range. The front panel CURRENT controls can be used to establish the output current limit (overload or short circuit) when the supply is used as a constant voltage source and the VOLTAGE control can be used to establish the voltage limit (ceiling) when the supply is used as a constant current source. The supply will automatically crossover from constant voltage to constant current operation and vice versa if the output current or voltage exceeds these preset limits.

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. The voltage or current ranges are selected by a METER switch on the front panel.

1-5 Barrier strip 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 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
05	50 Hz Regulator Realignment: Standard instruments will operate satisfactorily at both 60 and 50 Hz without adjustment. However Option 05 factory realignment results in more efficient operation at 50 Hz, and is recommended for all applications when continuous operation from a 50 Hz ac input is intended.

Table 1-1. Specifications

INPUT:
105-125/210-250VAC, single phase, 50-400 cps.

OUTPUT:
0-7.5 volts @ 3.0 amps.

LOAD REGULATION:
Constant Voltage -- Less than 5mv for a full load to no load change in output current.
Constant Current -- Less than 0.03% plus 250μa for a zero to maximum change in output voltage.

LINE REGULATION:
Constant Voltage -- Less than 3mv for any line voltage change within the input rating.
Constant Current -- Less than 0.01% plus 250μa for any line voltage change within the input rating.

RIPPLE AND NOISE:
Constant Voltage -- Less than 200μv rms.
Constant Current -- Less than 500μa rms.

TEMPERATURE RANGES:
Operating: 0 to 50°C. Storage: -40 to +85°C.

TEMPERATURE COEFFICIENT:
Constant Voltage -- Less than 0.02% plus 1mv per degree Centigrade.
Constant Current -- Less than 0.02% plus 2ma per degree Centigrade.

STABILITY:
Constant Voltage -- Less than 0.10% plus 5mv total drift for 8 hours after an initial warmup time of 30 minutes at constant ambient, constant line voltage, and constant load.
Constant Current -- Less than 0.10% plus 10ma total drift for 8 hours after an initial warmup time of 30 minutes at constant ambient, constant line voltage, and constant load.

INTERNAL IMPEDANCE AS A CONSTANT VOLTAGE SOURCE:
Less than 0.02Ω from DC to 1Kc.
Less than 0.5Ω from 1Kc to 100Kc.
Less than 3.0Ω from 100Kc to 1 Mc.

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

OVERLOAD PROTECTION:
A continuously acting constant current circuit protects the power supply for all overloads including a direct short placed across the terminals in constant voltage operation. The constant voltage circuit limits the output voltage in the constant current mode of operation.

METER:
The front panel meter can be used as either a 0-9 or 0-.9 volt voltmeter or as a 0-4 or 0-.4 amp ammeter.

OUTPUT CONTROLS:
Coarse and fine voltage controls and coarse and fine current controls are provided on the front panel.

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 200 ohms per volt in constant voltage is made available at the rear terminals. In constant current mode of operation, the current can be remotely programmed at approximately 500 ohms per ampere.

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

SIZE:
3-1/2" H x 12-5/8" D x 8-1/2" W. Two of the units can be mounted side by side in a standard 19" relay rack.

WEIGHT:
14 lbs. net, 19 lbs. shipping.

FINISH:
Light gray front panel with dark gray case.

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