

## 408A POWER SUPPLY

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### 1. GENERAL

1.1 This section provides a circuit description, installation and basic testing information for the San/Bar 408A Power Supply (Fig.1). The 408A is designed for use in key telephone systems equipped with up to six lines. Also available is a model 408A-1 for use in the San/Bar 6600 KTS.

### 2. SPECIFICATIONS

#### 2.1 List of Applicable Drawings

- (a) Schematic Drawing:  
4080001 (Fig.3)
- (b) Assembly Drawing:  
4080000 (Fig.4)

#### 2.2 Electrical Characteristics

- (a) Input power:  
110VAC  $\pm$  10%, 60Hz at 75Watts maximum.
- (b) Output Voltages:  
6-10-18-24VAC, 60Hz at 2 Amps continuous load and 4 Amps intermittent peak load.  
  
24VDC battery at 0.7 Amps continuous load and 1.5 Amps intermittent peak load (such as for intercom during dialing). The output is suitable for B-Battery (signaling) and for A-Battery (talk).
- (c) 24VDC Battery Ripple:  
10mV RMS max. at full load - suitable as talk battery for intercom.

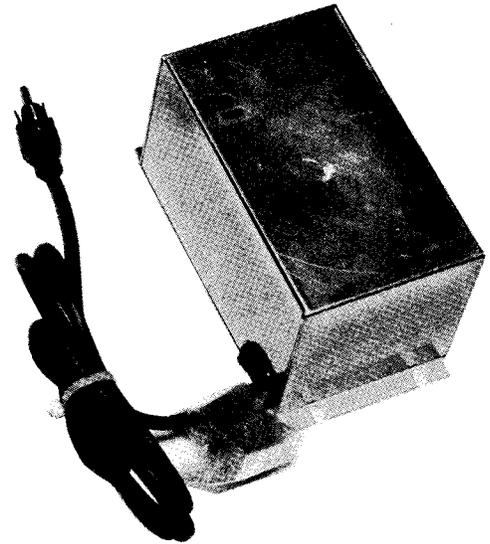


Fig. 1 408A Power Supply

- (d) 24VDC Battery Regulation:  
Less than 2% output variation with full AC input/DC load variation (see Fig. 2)
- (e) Input Protection:  
1 Amp manual reset circuit breaker.
- (f) Output Protection:  
AC: 3 Amp self-resetting circuit breaker.  
DC: 1 Amp self-resetting circuit breaker.
- (g) Operating Environment:  
Temperature - 0°C to 50°C  
Humidity - up to 90%

#### 2.3 Physical Characteristics

- (a) Dimensions:  
7" H X 3-11/16" W X  
3-7/8" D.
- (b) Mounting:  
Flanged for standard 7" panel mounting. No rear mounting depth required (unit may be mounted flush to a wall), front depth required is 3-7/8".

MODEL SB408A POWER SUPPLY REGULATION CURVES

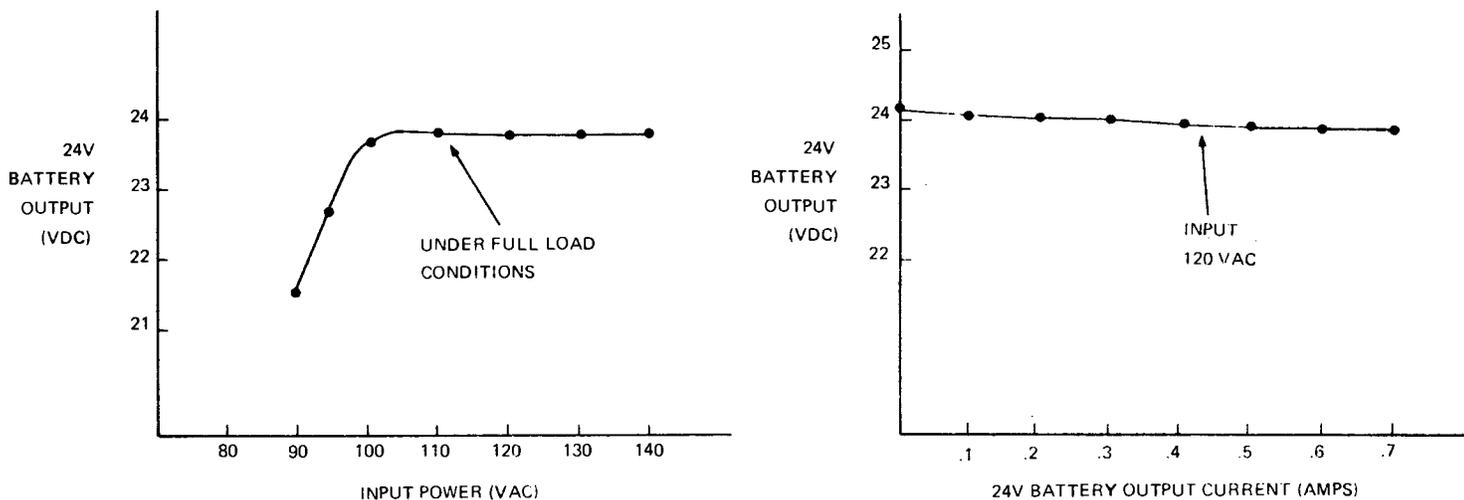


Fig.2 408A Regulation Curves

- (c) Weight:  
4 lbs., 5 ozs.
- (d) Output Connections:  
Model 408A: Screw terminals (backside) Model 408A-1: Quick-disconnect connector for plug-in to the 6600A KTS.
- (e) Power Connection:  
Six foot power cord (three conductor)
- (f) Cover  
A sheet metal frame encloses the front side of the unit and is secured by a center captive screw.

3. INSPECTION

- 3.1 Inspect the unit thoroughly, as soon as possible after delivery. If any part of the unit has been damaged in transit, report the extent of damage to the transportation company immediately. If the unit is to be stored for some time before installation, make an operational check at once. The purpose of this check is to make sure that there is no damage as a result of shipping. If the check indicates satisfactory performance, the unit may be stored for the future installation.

4. MOUNTING

- 4.1 The 408A has the standard 6-1/2" vertical mounting centers for panel mount. Two mounting holes are located on top and bottom, located on 2-3/16"

centers across the width. The overall mounting width required is 3-15/16" (allowing clearance for adjacent units based on horizontal screw holes located on standard 7/16" centers).

The 408A may be flush mounted to a wall. The flanged mounting holes are flush with the rear of the unit. There is a side cut-out to allow the power cord and output wiring to exit the unit.

5. INSTALLER CONNECTIONS

- 5.1 Output connections from the 408A Power Supply are at the screw terminals located on the rear of the unit. The terminals are clearly marked adjacent the terminal strip. All connections should be made with 24 AWG minimum size wire. If the connections are to be terminated at a feature block for distribution, solid conductor wire should be used.

The AC input power ground is frame connected. The 24VDC battery output is floating with a separate terminal provided for the ground lead. The unit is factory strapped with a jumper connecting the 24V positive (+) terminal to the ground terminal.

It is recommended that the battery ground be connected directly to a good earth ground such as a main water pipe. Because of possible potential differences, lightning damage may result to the KTS equipment if the AC power system ground is connected to the battery ground.

The unit is completely self-protected. No fuses are required for installation. Check that the unit is ON by depressing the power input circuit breaker (located through front of the unit's cover-marked RESET)

- 5.2 The 408A-1 Power Supply is designed for use in the San/Bar 6600A KTS. The unit has a pre-wired quick-disconnect connector that provides plug-in capability for the power output connections. This connector is color coded RED to match with the mating-half in the 6600A KTS. Merely plug-in the unit and installation is complete.

## 6. CIRCUIT DESCRIPTION

See schematic drawing no. 4080001 as shown in Figure 3.

- 6.1 Input power to the unit is limited by a manual reset circuit breaker, thus protecting the power transformer T1 from overload. Tapped secondary windings of T1 provide the AC outputs for lamp and buzzer. A thermal self-resetting circuit breaker provides protection for the AC output.
- 6.2 The 24VDC output is provided by a separate isolated winding of T1. The AC output is full wave rectified and filtered by CR1-4 and C1. Circuit breaker CBI limits the DC current to 1 Amp continuous, however, a peak load of 1.5 Amps (such as peak currents required during dialing on intercom) will not cause the breaker to trip. CB1 is a self-resetting breaker. The 24VDC output is regulated by the reference zener diode CR5. This 18V reference establishes a constant base voltage to power transistor Q4. Therefore, the DC output remains constant with AC input variations or load variations. The regulator circuit also provides a low ripple output suitable for talk battery.

## 7 TESTING

- 7.1 If trouble is encountered with the operation of the 408A Power Supply, check that all installer connections and strapping have been made properly. Check to make sure that the manual circuit breaker has been reset. If using the 408A-1, make sure that the quick-disconnect connector is fully engaged. Visually inspect pin terminals for frayed or broken wires.
- 7.2 If trouble persists, use a multimeter (Simpson 263 or equivalent) to check the output voltages. Disconnect the outputs to the KTS.
- (a) Connect the multimeter (set to the 30VAC scale) between output terminal TB1-Common and the AC output used. The output should be within 10% of the marked output voltage. For the 408A-1, make the measurement at the connector terminals (see schematic).
  - (b) Connect the multimeter (set to the 30VDC scale between output terminals -DC and +DC. The multimeter should indicate  $24\text{VDC} \pm 1\text{V}$ ).
  - (c) If all the above voltages check properly, connect the 408A to the KTS and repeat the above measurements. If an output voltage is no longer correct after connecting the power supply, check for shorts in the KTS.
- 7.3 Field repairs involving replacement of components within an assembly is not recommended. The 408A Power Supply is warranted for a period of two years from date of purchase. Return to San/Bar Corporation, 17422 Pullman St., Santa Ana, CA 92705. For technical assistance call (714) 546-6500.

