



STARLINE

CATV CABLE POWER SUPPLY Model SPS-30/60A

1.0 DESCRIPTION

1.1 Model SPS-30/60A is a constant voltage supply for CATV systems where coaxial cables have to carry both r.f. energy and a.c. power. The unit is designed to provide either 30 or 60 V rms on each of two outputs and operates from a 115 V 60 Hz utility line.

1.2 The power supply has a voltage regulating, dual winding power transformer, a U/L listed circuit breaker, 2 self-healing, gas-filled surge protectors, an a.c. test point, and a 115 V a.c. auxiliary output jack.

CAUTION: This jack may not be used as an emergency a.c. input!

1.3 The power supply is housed in a sheet aluminum weatherproof cabinet which has a padlock facility and

is equipped with appropriate mounting brackets; the unit can be mounted on a utility pole, cross-arm, or on any surface where a 115 V, 3-wire source is available. A lightning arrester can be ordered as an optional item for installation on the housing and connection to the circuit breaker.

1.4 The power supply is shipped from the factory with shorting buses on the transformer terminal block connected to provide a 30 V output. A simple change in the bus connections will provide a 60 V output. The output will be constant within 1% for line changes between 95 and 130 V. The outputs of the power supply are fed through Jerrold power inserters Model SPJ-3 (to be procured separately) which are mounted at any convenient point on the coaxial r.f. cable.

2.0 SPECIFICATIONS

	Model SPS-30A (factory-wired)	Model SPS-60A (field-option)
PRIMARY	95 to 130 V, 60 Hz, 900 Watts (full load)	95 to 130 V, 60 Hz, 900 Watts (full load)
SECONDARY, 2 outputs, each	30 V rms, $\pm 2\%$, at 14 A, at 117.5 V in	60 V rms, $\pm 2\%$, at 7 A, at 117.5 V in
LINE REGULATION	30 V rms, $\pm 1\%$ output for 95 to 130 V input variations	60 V rms, $\pm 1\%$ output for 95 to 130 V input variations
LOAD REGULATION	30 V rms, +2 —0% output for 28 to 8 A load variations	60 V rms, +2 —0% output for 14 to 4 A load variations
SURGE PROTECTION		
Striking Voltage	200 V d.c., non-polarized	
Striking Time	3 μ s (1.5 kV surge, 10 μ s wavefront)	
Short-term Surge Current	5 kA max.	

3.0 INSTALLATION

3.1 Before installation, physically inspect the power supply to make sure it was not damaged while in transit. Then its output voltage should be checked. For this purpose it is necessary to construct a test cable as follows:

a. Use an adequate length of 3-wire type SJT cable.

b. Cut back the cable jacket at both ends and expose about $\frac{1}{8}$ inch of the conductors; tin the conductor ends and then solder the three wires on one cable end to the pins of the plug as shown in Fig. 1.

In addition to the test cable, a true rms reading meter such as a dynamometer or iron vane type meter (e.g., WESTON Model 204 or 304) is needed.

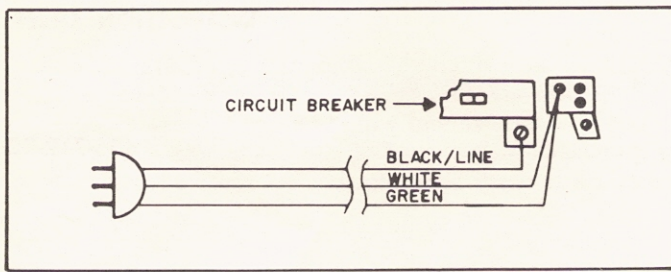


Fig. 1—Test Cable Connections

- 3.2** Open the SPS cabinet by loosening the two locking bolts at the bottom and sliding the cover down; a tilting of the cover sideways will permit to remove it entirely. Then remove the cover from the circuit breaker box and connect the three wires of the other end of the test cable as shown in Fig. 1. Make sure the circuit breaker is in the OFF position.
- 3.3** If the factory-wired 30 V unit has to be adapted for 60 V output, simply change the shorting buses on the terminal block mounted on the transformer frame as illustrated in Fig. 2.

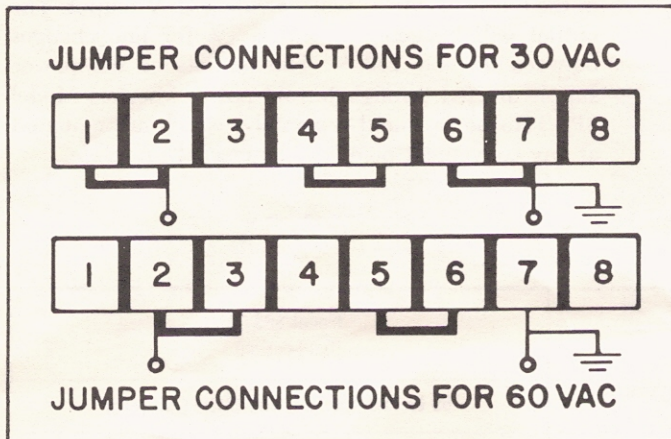


Fig. 2—30 and 60 V Bus Connections

- 3.4** Remove the covers from the output terminal and surge arrester boxes by loosening the screws at the bottom, sliding the covers up and lifting them off. Then connect actual load (trunk station) or dummy load (4 to 10 Ω , 300 W) to the output terminal (see Fig. 4).
- 3.5** Connect the plug of the test cable to a 115 V a.c., 3-wire outlet and set the circuit breaker to the ON position.
- 3.6** Now test for 30 or 60 V rms at both the output terminal screws and the test point (binding post), with the negative test lead on chassis ground.
- 3.7** After test, switch off the circuit breaker, remove the plug of the test cable from the 115 V outlet, disconnect the other end of the test cable from the circuit breaker terminals, and then replace the covers on the circuit breaker box, the output terminal boxes, and the cabinet. The power supply can now be transported to its mounting location, preferably in its shipping carton.

- 3.8** Mounting hardware required:
- One $\frac{5}{8}$ " x 14" galvanized steel bolt with two washers and one nut (not supplied with power supply).
 - One $\frac{5}{16}$ " x 2" galvanized lag bolt (supplied with unit).
 - One VSF fitting for the type of coaxial cable used for each output.
- 3.9** Mounting on utility pole:
- Drill a $\frac{5}{8}$ " hole all the way through the utility pole at the height required for mounting the power supply. Local regulations and ordinances should be consulted for this type of electrical equipment installation.
 - Force the 14" steel bolt through the hole, having placed one washer under the head of the bolt; then place the other washer over the end of the bolt and loosely thread on the nut.
 - Slip the upper (slotted) mounting bracket (Fig. 3) on to the bolt so that the bracket is between the bolt head and the washer.
 - Keeping the housing vertical, wrench-tighten the nut. Then fasten the lower bracket to the pole using the 2" lag bolt supplied with the unit.
 - Loosen the two locking bolts on the front cover and remove the cover. Remove the covers from the output terminal boxes, remove the cover from the circuit breaker box, and remove and discard the plastic cap plugs from the a.c. output apertures in the housing bottom. If you intend to install a lightning arrester, knock out the metal disc from the aperture provided in the housing bottom and the one beneath it in the wall of the circuit breaker box (Figs. 4 and 5).
 - Install the VSF fittings in the a.c. output apertures as described in the relevant instruction sheet for the type of fitting used.

NOTE: Where cross-arm mounting is required, regular spacing of 7 $\frac{1}{2}$ " between cross-arms will permit mounting the power supply in the same manner as on a pole; a shorter $\frac{5}{8}$ " diameter mounting bolt may suffice in this case.

- 3.10** Electrical Connections:
- It is assumed that sufficient coaxial cable has been looped off at the location to permit forming expansion loops. Prepare the cable ends as required for the type of VSF fittings used on the power supply; for jacketed types of cable a heat shrinking apparatus and sealing material should be available, or at least weatherboots for weatherproofing the coaxial cable connection. Now feed the cable ends all the way through the fittings until the bare center conductors are visible beyond the crown washers under the terminal screws in the a.c. output terminal boxes. Tighten the clamp nuts and the gland nuts on the VSF fittings and then tighten the terminal screws in the a.c. output terminal boxes. Replace the covers on the a.c. output boxes,

then form expansion loops on the a.c. output cables and lash the cables to the messenger wire close to the point where connection is to be made to the SPJ-3 units.

- b. Feed the 115 V, 3-wire cable through the bushing in the bottom of the power supply housing into the circuit breaker box and connect the wire ends as shown in Fig. 4. Replace the cover on the circuit breaker box and make sure the switch is in the OFF position. Also make sure the 115 V plug is properly seated in the receptacle on the transformer chassis.
- c. The other end of the 115 V, 3-wire cable can now be connected to the utility line outlet; setting the circuit breaker to the ON position will energize the trunk line section served by the power supply. Using the voltmeter, check for a 30 or 60 V rms reading between the test point (binding post) and the transformer chassis. Finally, replace the cover on the power supply housing. It is recommended

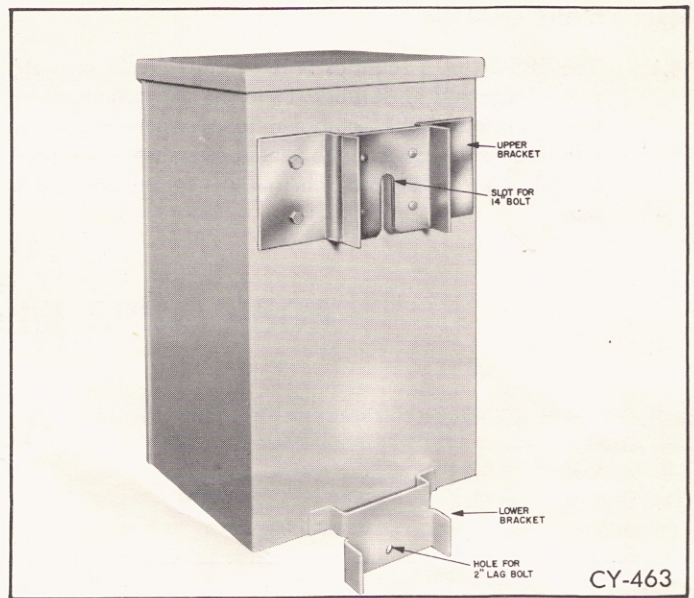


Fig. 3—SPS-30/60A Housing, Rear View

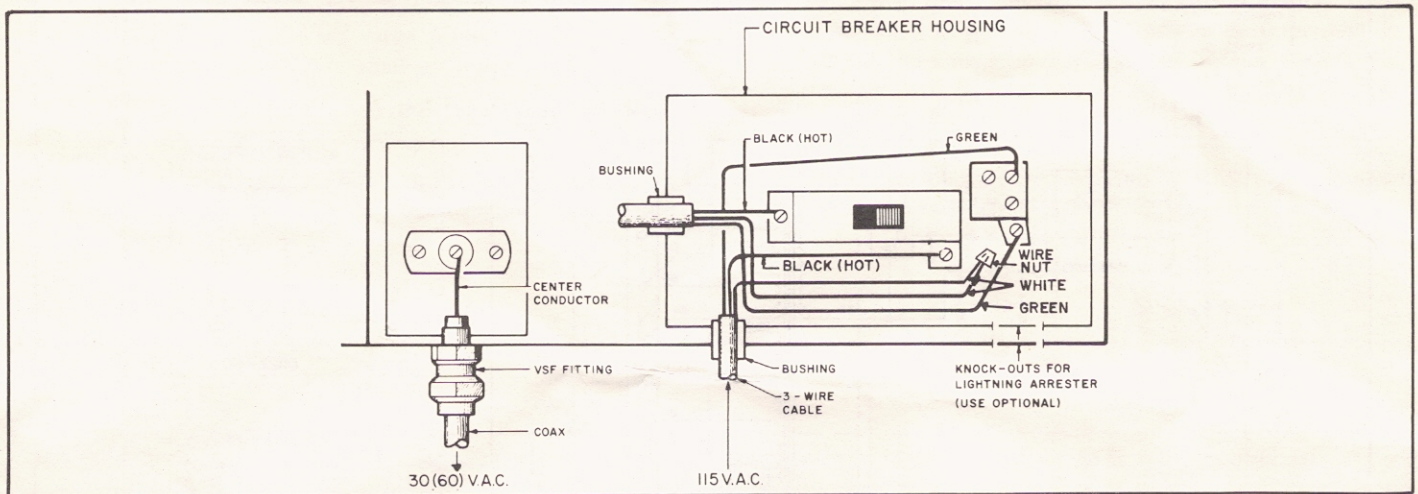


Fig. 4—Coax and Line Wire Connections

to padlock the housing to prevent tampering by unauthorized persons.

- d. Where it is desired to use a lightning arrester, after step b, first mount a 1/2" conduit bushing at the arrester aperture in the bottom of the power supply housing (Fig. 5). Then remove 1/2" of the insulation on the three leads of the arrester, tin the exposed wire ends, and solder the ends of the black leads together. Feed the wires through the bushing into the circuit breaker box and screw the arrester body onto the bushing. Inside the circuit breaker box, connect the black leads to the terminal on the circuit breaker and the white lead to one of the four terminals on the terminal bank as shown in Fig. 4. Then continue with step c above.

NOTE: Complete wiring diagrams and installation instructions for the lightning arrester are also printed on the inside of the carton in which the arrester is supplied.

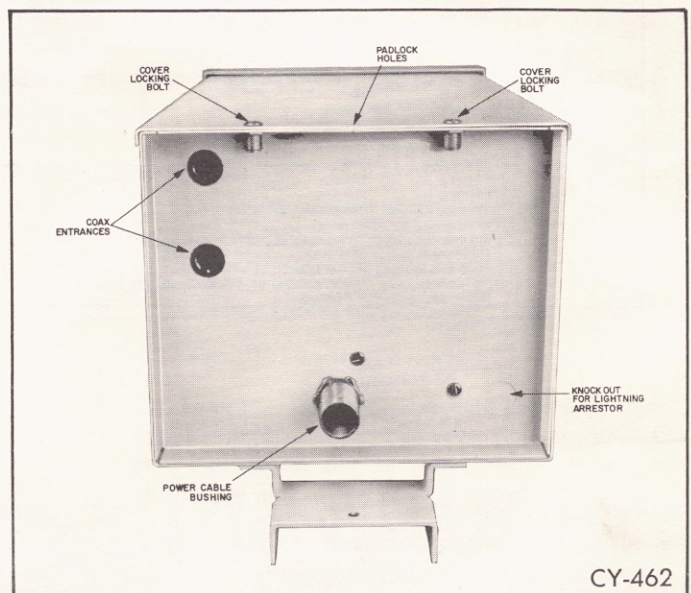


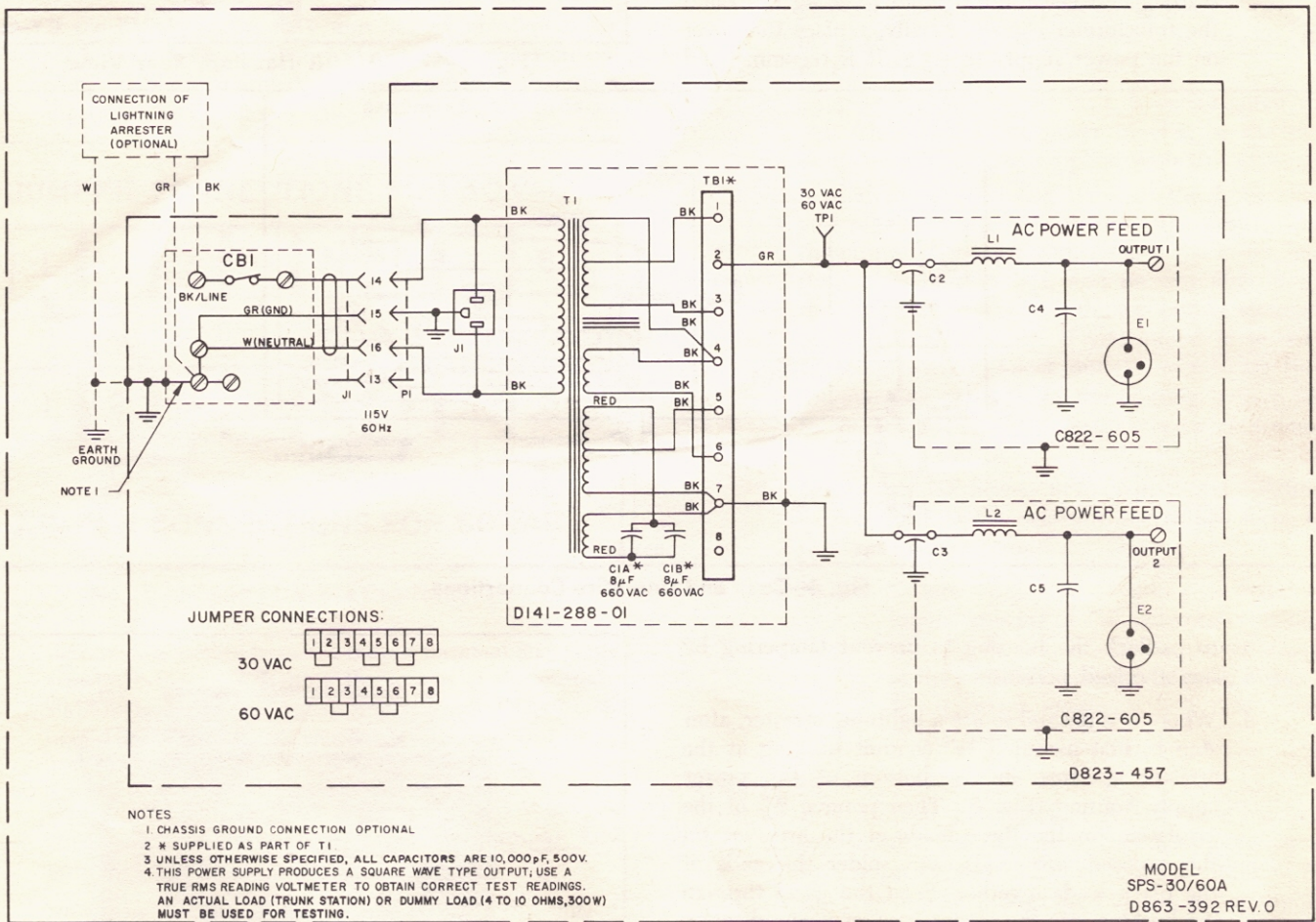
Fig. 5—SPS-30/60A Housing, Bottom View

4.0 MAINTENANCE

4.1 The SPS-30/60A requires only routine checks on output voltage and on firmness of cable connections. System operators should keep a unit as a spare in case a total failure occurs. For the benefit of maintenance personnel, a parts list and schematic diagram are given here.

REPLACEMENT PARTS LIST

REF. DWG. NO.: D863-392				
ITEM	SCHEMATIC DESIGNATION	QTY.	DESCRIPTION	JERROLD PART NO.
1	C2, 3	2	Capacitor: 10,000 pF, 500 V, feed-thru	129-117
2	C4, 5	2	10 pF, 500 V, ±20%	124-339
3	CB1	1	Circuit breaker assembly	C811-824
4	E1, 2	2	Surge protector: 200 V d.c., ±20%	S137-263
5	T1	1	Power transformer assembly (includes C1A, C1B, and TB1)	D141-288-01



All data subject to change without notice.

JERROLD ELECTRONICS CORPORATION
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