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STARLINE

POWER COMBINER Models SPJ-3 and SPJ-3VI

DESCRIPTION

Models SPJ-3 and SPJ-3VI are fuse-equipped networks for combining r-f and a.c. power where it is desired to establish a single cable run between an SPS-type power supply and the point of a.c. injection on the coaxial trunk-line cable.

Each unit is factory-equipped with two fuses, one in each leg, rated at 8.0 A with an arc-over voltage of 125 V.

Models SPJ-3 and SPJ-3VI can be used for both 30 V and 60 V powering systems and have current carrying capacity of 12 A, 6 A in each leg. If desired, a.c. can be applied to only one output simply by removing the fuse in the other leg.

Model SPJ-3 has a cast-aluminum utility housing designed for messenger, pole, or pedestal mounting, while Model SPJ-3VI has a cast-iron housing for underground installation. The units have threaded apertures for accepting VSF-type fittings, and internal screw and crown washer terminals for direct seizure of cable center conductors. Special gaskets between lid and body make the SPJ-3 airtight and r-f radiationproof; "B" sealing compound is used for the same purpose in Model SPJ-3VI.

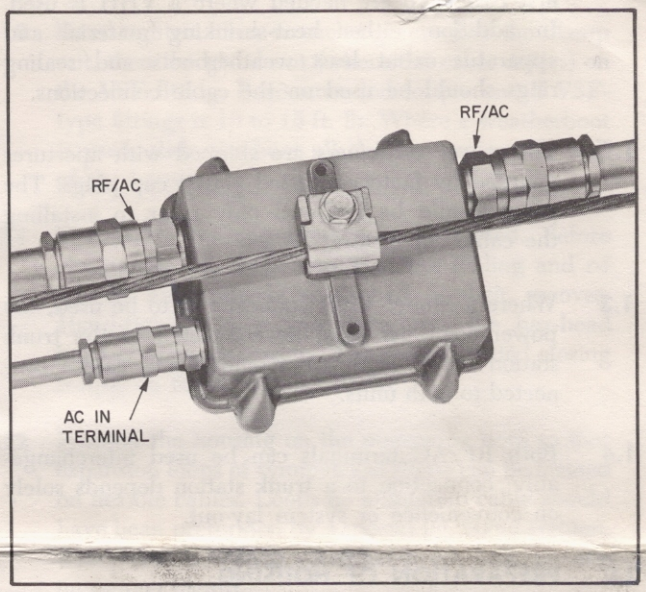

Fig. 1 Model SPJ-3, Messenger-Mounted, Rear View

This power combiner series supersedes Models SPJ-2 and SPJ-2VI.

SPECIFICATIONS

PASSBAND	5-300 MHz
TERMINAL IMPEDANCE	75 Ω, all terminals
RF FEED-THRU LOSS	0.4 dB, over passband stated
RF VSWR	1.22:1 (Min. return loss 20 dB)
POWER CARRYING CAPABILITY	6 A, each leg
FUSING	8 A, each leg, 125 VAC arc-over

PUBLISHED BY THE JERROLD ELECTRONICS CORPORATION, ENGINEERING LABORATORY PUBLICATIONS DEPARTMENT

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INSTALLATION

1.0 GENERAL

1.1 The power combiner is usually installed next to a trunk-line station, either at the input or at the output terminal of the station and can be connected to it either by a short piece of cable or through a housing-to-housing connector Model VHH. Three VSF-type fittings are needed in the first case, two are needed where a VHH is used. In addition, either heat-shrinking material and apparatus or at least weatherboots and sealing rings should be used on the cable connections.

1.2 The power combiners are shipped with apertures guarded by factory-inserted plastic cap plugs. The plugs should be removed only prior to installing the cable connectors.

1.3 Where a Model VHH connector is to be used, the power combiner must be connected to the trunk station before both are mounted and cables connected to both units.

1.4 Both RF/AC terminals can be used interchangeably; connection to a trunk station depends solely on convenience or system lay-out.

2.0 PREPARATION OF HOUSING

2.1 Where a coupling connector is to be employed, first remove the messenger clamp assembly from the utility housing by removing the hex-head bolt and the three cap screws; otherwise start with step 2.2.

2.2 Remove the lid from the housing, or remove 3 of the 4 hex-head bolts and loosen the 4th bolt so that the lid can be pivoted out of the way.

2.3 Remove the plastic cap plugs from the cable apertures.

2.4 Apply silicone grease to the threads of the appropriate VSF fittings.

2.5 Where a VHH coupling connector is to be used, install 2 VSF fittings in the other 2 apertures.

2.6 Otherwise install VSF fittings in all three apertures according to instructions supplied with the fittings.

2.7 Where system lay-out so requires, at this stage remove the fuse in one leg for passing power only in the other leg; then install the unit as described in the following.

3.0 MOUNTING WITH A COUPLING CONNECTOR

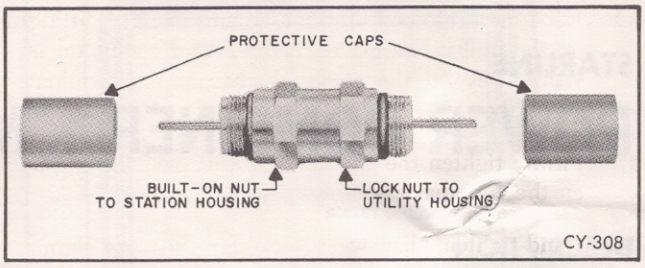

Fig. 2 Model VHH Connector

3.1 Open the station housing and loosen the hex-head machine screw on the input terminal assembly. Remove the protective plastic caps from the VHH connector and apply grease to its threads. Then thread the end of the connector with the built-on hex nut into the input cable aperture in the station housing. The connector pin should feed under the crown washer terminal in the station housing.

3.2 Hand-tighten, then wrench-tighten the VHH connector; recommended closing torque is 10 to 15 ft. lb.

3.3 With a nut driver or screwdriver, firmly tighten the slotted hex-head machine screw over the connector pin in the station housing.

3.4 Check that the lock nut on the VHH connector is fully backed off.

3.5 Loosen the hex-head machine screws in the terminal assemblies of the utility housing.

3.6 Thread the output aperture of the utility housing all the way onto the VHH connector. The connector pin should feed under the crown washer of the output terminal in the utility housing.

3.7 Position the utility housing on the VHH connector so that the housing is perpendicular to the station housing and so that the utility housing will face either down, where the station is mounted vertically, or toward you, where the station is mounted horizontally.

3.8 Firmly holding the utility housing, first hand-tighten, then wrench-tighten (10 to 15 ft. lb.) the lock nut on the VHH connector.

3.9 Firmly tighten the slotted hex-head machine screw on the utility housing terminal assembly.

3.10 Except for the trunk-line input or output connection, mount the trunk station as described in the associated Instruction Sheet.

3.11 Coat the exposed center conductor of the trunk-line cable end with silicone grease; on aluminum-sheathed cable, also coat 1 inch of the sheath.

3.12 Feed the cable end all the way into the VSF fitting on the utility housing until the center conductor is visible beyond the crown washer in the terminal assembly.

3.13 Firmly tighten the slotted hex-head machine screw on the terminal assembly.

3.14 Hand-tighten, then wrench-tighten, first the clamp nut, then the gland nut (where cable enters) on the VSF fitting. Recommended torque on all VSF-type fittings is 10 to 15 ft. lb. Where a weatherboot is used, slide the boot all the way up to the wall of the housing.

3.15 The utility housing must now be closed. Before replacing the lid, make sure that the sealing and r-f gaskets are properly positioned in their grooves. Hand-tighten, then wrench-tighten, the hex-head bolts alternately in opposite corners. Recommended torque on these bolts is 5 ft. lb.

3.16 Continue with the installation of the trunk station as described in the relevant instructions shipped with the trunk station.

4.0 MOUNTING ON MESSENGER WIRE WITH JUMPER TO TRUNK STATION

4.1 Remove enough trunk-line cable to permit mounting the utility housing at the desired point on the messenger.

4.2 Cut a length of jumper cable sufficient for interconnecting the utility housing and station housing and for forming a drip loop.

4.3 Prepare the cable ends as required for the VSF fittings to be used. Where used, slide an appropriate weatherboot over each cable end.

4.4 Loosely engage the messenger wire in the clamp assembly; the clamp will pop open when forced onto the messenger. The hex-head bolt should be closed only so far as to permit the unit to be moved freely for proper positioning on the messenger; one turn of the bolt is sufficient.

4.5 Make sure that the hex-head machine screws in the terminal assemblies are loosened so that the center conductors will not be bent when the cable ends are fed into the terminal assemblies.

4.6 Coat the exposed center conductors at the cable ends with silicone grease; on aluminum-sheathed cable, also coat 1 inch of the sheath.

4.7 First connect the trunk line to the combiner, then interconnect the combiner and the trunk station.

4.8 Feed the cable end all the way through its associated fitting until the bare center conductor is visible beyond the crown washer in the terminal assembly.

4.9 Use a nut driver or a screwdriver for firm tightening of the slotted hex-head machine screw in the terminal assembly.

4.10 Hand-tighten, then wrench-tighten, first the clamp nut, then the gland nut (where the cable enters) on the VSF fitting. Recommended torque on all VSF-type fittings is 10 to 15 ft. lb. Where a weatherboot is used, slide the boot all the way up to the wall of the housing.

4.11 The utility housing must now be closed. Before closing the lid, make sure that the sealing and r-f gaskets are properly positioned in their grooves. Hand-tighten, then wrench-tighten, the hex-head bolts at opposite corners. The recommended closing torque on these bolts is 5 ft. lb.

4.12 Position the housing on the messenger wire so that expansion loops of symmetrical shape can be formed on flexible cables. Loops on aluminum cable should have been preformed by a special jig. Hand-tighten, then wrench-tighten, the hex-head bolt on the messenger clamp.

4.13 Continue with the installation of the station housing as described in the associated Instruction Sheet.

5.0 MOUNTING WITH AN AUXILIARY HANGER BRACKET ON MESSENGER WIRE

5.1 For vertical mounting of the utility housing below a messenger wire carrying a multiple cable line, auxiliary hanger bracket Model AHB-2 or AHB-2A is required; for horizontal mounting in such cases, a Model AHB-4 is required.

5.2 Remove the messenger clamp assembly from the housing by removing the two hex-head bolts and the three cap screws.

5.3 In place of the messenger clamp assembly, install the hanger bracket with the three round-head machine screws supplied.

5.4 Install the messenger clamp assembly on the bracket.

5.5 From here on, mounting the utility housing on the messenger wire is done in the same manner as under steps 4.1 thru 4.12.

6.0 SEALING OF CAST-IRON UTILITY HOUSINGS

6.1 "B" Sealing Compound is used as a gasket for sealing a cast-iron housing. The compound is available in rod form of 5/16" in diameter.

6.2 Make sure the gasket groove and flange areas on the housing are clean and free of oil.

6.3 Cut an appropriate length of sealing rod.

6.4 Start by first inserting the center section of the rod into the gasket groove in the area between LOCKING THREADS #3 and #4, then fill in the groove on both sides and on the top of the housing until the two ends of the rod meet below the JACK SCREW BOSS (see Fig. 3).

6.5 Cut off any overlapping portions of the sealing rod.

6.6 Place the lid in proper position on top of the housing body; be sure the square-head jack screw does not protrude from inside the lid.

6.7 By hand, slightly engage LOCKING BOLTS #1, #3, #2 and #4 in that order.

6.8 In the same order, wrench-tighten each bolt not more than one turn at a time, until all four bolts are completely tightened. The recommended final closing torque is 5 ft. lb.

6.9 Inspect the housing on all four sides where the flanges meet; an even overflow of "B" compound all around the flanges is a good indication for proper sealing.

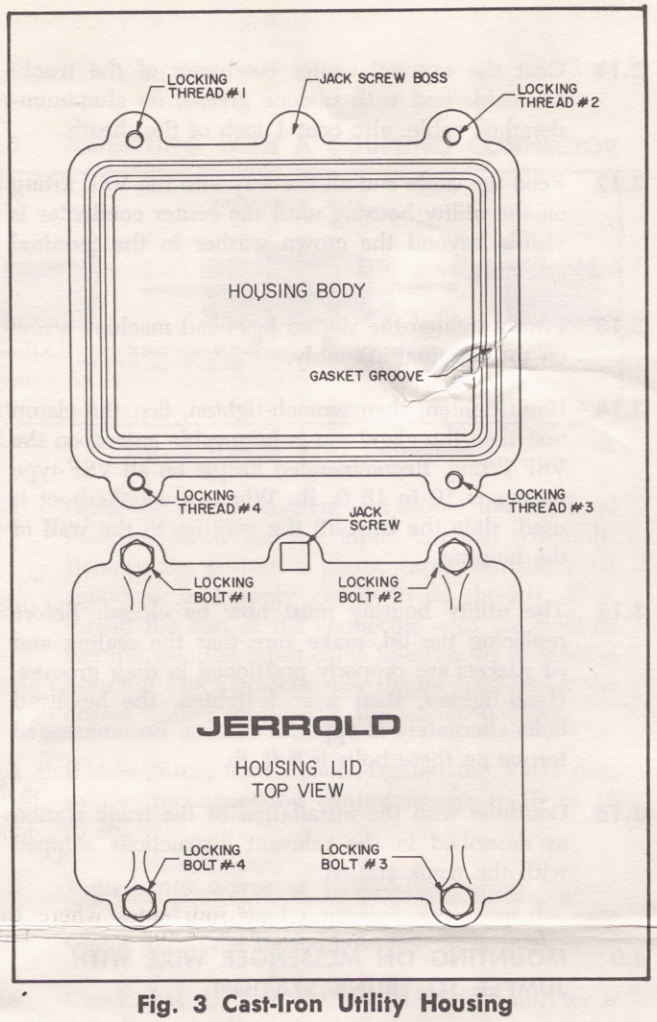

Fig. 3 Cast-Iron Utility Housing