GENERAL INSTRUMENT

INSTRUCTION SHEET

435-757-03

JERROLD

DIRECTIONAL COUPLERS, Models STC-* Series D

DESCRIPTION

Models STC-* Series D are passive networks for CATV distribution systems carrying up to 52 channels in the 5 to 400 MHz range. The STC-* series have cast-aluminum housings for messenger, pole, or pedestal mounting.

Model STC-3D is a low-loss, dual hybrid network for splitting a main trunk line into two branches.

Model STC-3-636D is a low-loss hybrid network for splitting a main trunk into three branches.

Models STC-8D and STC-12D a are directional coupler networks for branching a distribution line off a main trunk or for establishing a test terminal at any point on a line, with the tap terminal attenuated a maximum of 9 or 13 dB respectively.

All models will pass AC to a maximum of 10 A rms for powering other units on the same cable past the STC-* location. Where this is not desired, the lead from the RF choke to the terminal where AC is to be stopped, can be cut as shown on the schematics.

The networks are mounted in Starline utility housings which accept VSF-type fittings. The aluminum housings have clamp assemblies for messenger-mounting. Auxiliary brackets are available for extended messenger-mounting, for pole or surface mounting, and for pedestal installation. Aluminum housings have two sealing gaskets between body and lid, making them air-tight and r-f radiation-proof.

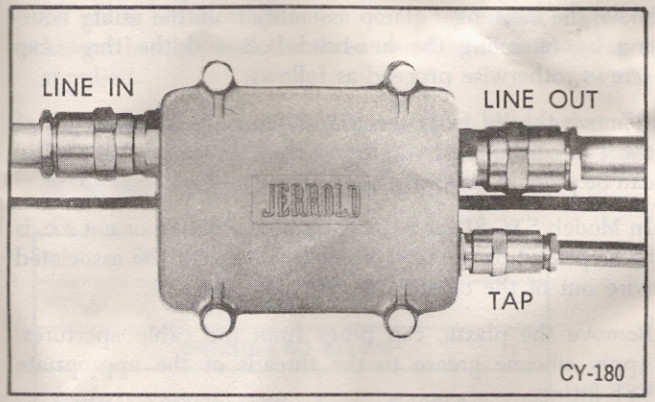


Fig. 1 Typical Model STC-*, Messenger-Mounted

After mounting and after cable connections have been made, no further operational steps are required. In the rare event where servicing may become necessary, this should be done by a skilled technician; for his benefit, schematic circuit diagrams and parts lists are given in this instruction sheet.

INSTALLATION

GENERAL

The STC-* units are shipped with their apertures guarded by factory-mounted plastic cap plugs. Remove and discard these plugs only when installing cable fittings.

Where a Model VHH coupling connector is to be employed, the unit must be connected to the amplifier housing before both units are mounted.

SPECIFICATIONS

Model		STC-3D			STC-3-636D			STC-8D			STC-12D		
PASSBAND MHz		5-10	10-300	300-400	5-10	10-300	300-400	5-10	10-300	300-400	5-10	10-300	300-400
INSERTION LOSS and TAP ATTENUATION, dB, maximum	J1-J2	4.0	4.0	4.5	4.1	4.1	4.5	1.7	1.7	2.0	1.3	1.3	1.5
	J1-J3	4.0	4.0	4.5	7.4	7.4	7.6	9.2	9.0	9.2	13.6	13	13.6
	J1-J4	–	–	–	7.4	7.4	7.6	–	–	–	–	–	–
ISOLATION, dB, minimum between outputs		26	26	22	24	24	20	22	25	22	26	26	22
CHROMA DELAY; at Ch. T7 at Ch. T8		10 ns 2 ns			10 ns 2 ns			10 ns 2 ns			10 ns 2 ns		
HUM MODULATION minimum (by 60 Hz source)		-70 dB	-70 dB	-70 dB	-70 dB	-70 dB	-70 dB	-69 dB	-69 dB	-69 dB	-68 dB	-68 dB	-68 dB
TERMINAL MATCH 75 Ω all terminals minimum returend loss dB		18	18	16	18	18	16	16	18	16	18	18	16
AMBIENT OPERATION TEMPERATURE RANGE		-40°C TO +60°C, ALL MODELS											
CURRENT CARRYING CAPACITY, maximum		10 AMPERES, RMS											

It is assumed that:

a. The mounting location has been determined by the system layout.

b. Coaxial cable ends have been prepared for the type of VSF fittings to be used.

c. The required number of VSF-type fittings and a VHH coupling connector and sealing material as well as any auxiliary mounting brackets are available.

PREPARATION OF HOUSING

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 proceed as follows:

Remove the lid from the STC-° 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.

In Models STC-8D or 12D, determine whether or not a.c. is to be passed to the tap terminal; if not, cut the associated wire out of the circuit; see relevant schematic.

Remove the plastic cap plugs from the cable apertures. Apply silicone grease to the threads of the appropriate VSF fittings.

Where a VHH coupling connector is to be used, install VSF fittings in the line out and tap apertures.

Otherwise install VSF fittings in all apertures according to instructions provided with the fittings.

Where a coupler is to be used as a test facility, the tap terminal must be terminated with a Model STR-75 unit, to be removed only for connection of a test instrument.

MOUNTING WITH A COUPLING CONNECTOR

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

Hand-tighten, then wrench-tighten the VHH connector; recommended closing torque is 120 to 180 lb. in.

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

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

Loosen the hex-head machine screws in the terminal assemblies of the STC-°.

Thread the input aperture of the STC-° housing all the way onto the VHH connector. The connector pin should feed under the crown washer of the input terminal in the housing.

Position the STC-° housing on the VHH connector so that it is perpendicular to the amplifier housing, and so that the

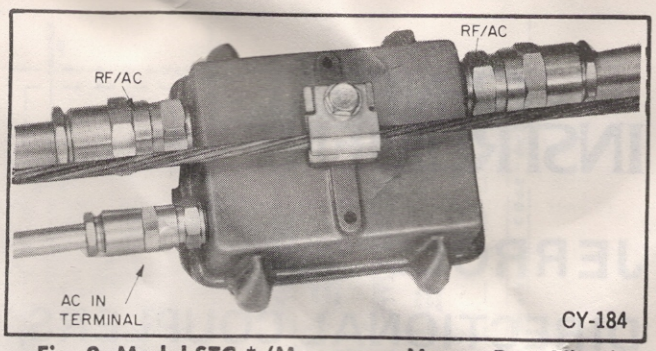


Fig. 2 Model STC-* (Messenger-Mount, Rear View)

STC-° housing will face either down, where the amplifier is mounted vertically, or toward you, where the amplifier is mounted horizontally.

Firmly holding the STC-° housing, first hand-tighten, then wrench-tighten (120 to 180 lb. in) the lock nut on the VHH connector.

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

Except for the trunk line output connection, mount the amplifier as described in its installation instructions.

Coat the exposed center conductor of the trunk-line output cable end with silicone grease.

Feed the cable end all the way into the VSF fitting on the STC-° housing until the center conductor is visible beyond the crown washer in the output terminal assembly.

Firmly tighten the hex-head machine screw on the terminal assembly. Secure the cable in the VSF fitting as described in the VSF instruction sheet.

The STC-° 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 60 lb. in.

Continue with the installation of the amplifier.

MOUNTING THE STC-* ON MESSENGER WIRE

Cut the trunk line cable at the point where it is desired to mount the STC-°.

Prepare the cable ends as required for the VSF fittings to be used. Where necessary, slide an appropriate weather-boot over each end.

Face the trunk line so that r-f signal flow is from left to right; then hold the STC-° housing so that the input terminal is at the left.

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.

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

minal assemblies.

Coat the exposed center conductors at the cable ends with silicone grease.

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.

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

Firmly tighten the hex-head machine screw on the terminal assembly. Secure the cable in the VSF fitting as described in the VSF instruction sheet.

The STC-* 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 60 lb. in.

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.

MOUNTING THE STC-* WITH AN AUXILIARY HANGER BRACKET ON MESSENGER WIRE

For mounting below a messenger wire carrying a multiple cable line, an auxiliary hanger bracket Model AHB-10 is required.

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

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

Install the messenger clamp assembly on the bracket. From here on, mounting the unit on the messenger wire is done in the same manner as described above.

REPLACEMENT PARTS LIST

MODEL NO. STC-3D

DRAWING NO. 863 937

SCHEMATIC DESIGNATIONS OR PART DESCRIPTIONS	JERROLD PART No.
CAPACITORS	
C1, C2, C4	124-411-00
C3	124-061-00
C5	124-034-00
RESISTORS	
R1	112-994-04
R2, R3, R4	112-099-04

REPLACEMENT PARTS LIST

MODEL NO. STC-8D

DRAWING NO. 863 938

SCHEMATIC DESIGNATIONS OR PART DESCRIPTIONS	JERROLD PART No.
CAPACITORS	
C1, C4	124-411-00
C2	124-412-00
C3	124-311-00
C5	124-034-00
RESISTORS	
R1	112-954-04
R2, R3, R4	112-099-04

REPLACEMENT PARTS LIST

MODEL NO. STC-12D

DRAWING NO. 863 939

SCHEMATIC DESIGNATIONS OR PART DESCRIPTIONS	JERROLD PART No.
CAPACITORS	
C1	124-411-00
C2, C4	124-412-00
C3	122-055-00
C5	124-034-00
C6	124-064-00
C7	124-157-00
RESISTORS	
R1	112-954-04
R2, R3, R4	112-099-04

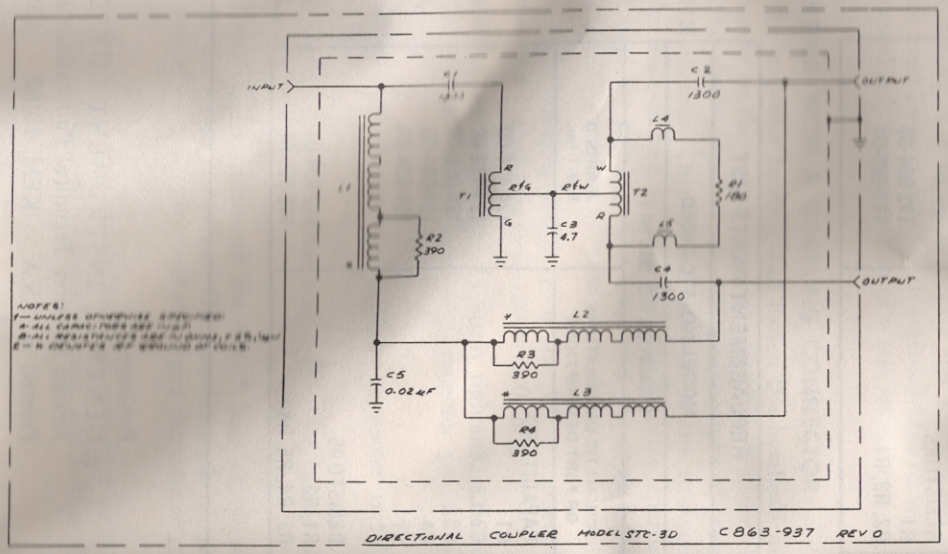
REPLACEMENT PARTS LIST

MODEL NO. STC-3-636D

DRAWING NO. 863 940

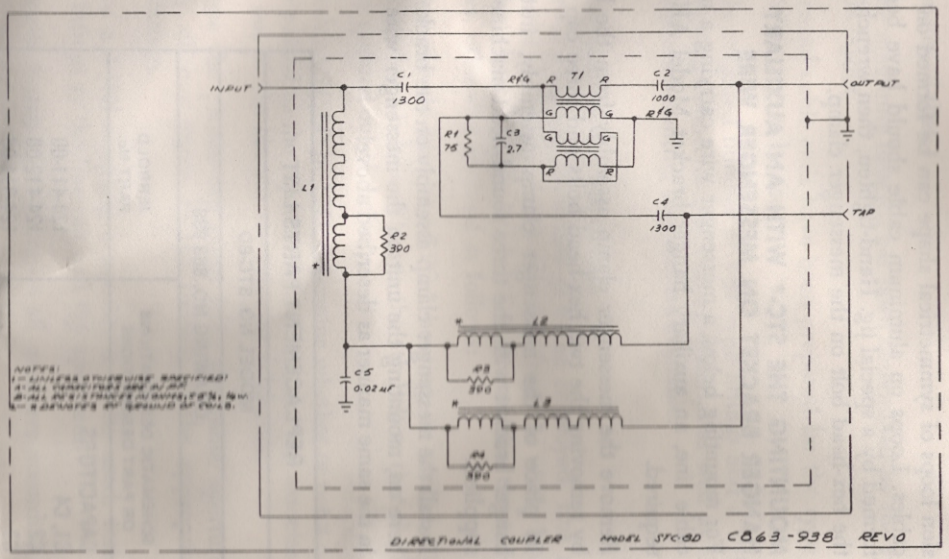
SCHEMATIC DESIGNATIONS OR PART DESCRIPTIONS	JERROLD PART No.
CAPACITORS	
C1	124-411-00
C2, C5, C6	124-412-00
C3	124-086-00
C4	124-084-00
C7	124-034-00
RESISTORS	
R1, R2	112-994-04
R3, R4, R5, R6	112-099-04

Published by
© GENERAL INSTRUMENT CORPORATION
Jerrold Division Technical Publications Department
Printed in U.S.A. KEM, 10/80 435-757-03



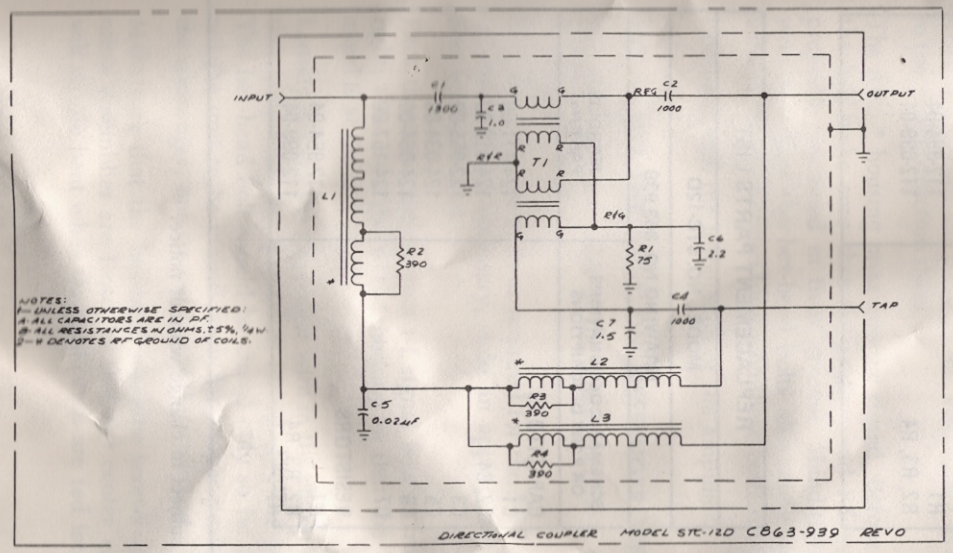
NOTES:
1— UNLESS OTHERWISE SPECIFIED:
A- ALL CAPACITORS ARE IN PF.
B- ALL RESISTANCES IN OHMS, ±5%, ½W.
C— # DENOTES RF GROUND OF COILS.

DIRECTIONAL COUPLER MODEL STC-3D C863-937 REV O



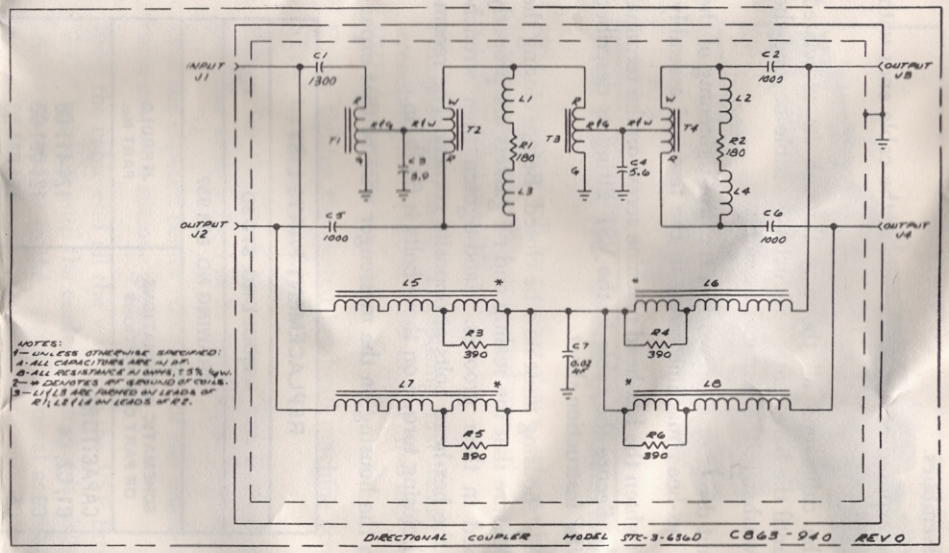
NOTES:
1— UNLESS OTHERWISE SPECIFIED:
A- ALL CAPACITORS ARE IN PF.
B- ALL RESISTANCES IN OHMS, ±5%, ½W.
C— # DENOTES RF GROUND OF COILS.

DIRECTIONAL COUPLER MODEL STC-8D C863-938 REV O



NOTES:
1— UNLESS OTHERWISE SPECIFIED:
A- ALL CAPACITORS ARE IN PF.
B- ALL RESISTANCES IN OHMS, ±5%, ½W.
C— # DENOTES RF GROUND OF COILS.

DIRECTIONAL COUPLER MODEL STC-12D C863-939 REV O



NOTES:
1— UNLESS OTHERWISE SPECIFIED:
A- ALL CAPACITORS ARE IN PF.
B- ALL RESISTANCES IN OHMS, ±5%, ½W.
C— # DENOTES RF GROUND OF COILS.
3— L1/L3 ARE FINISHED ON LEADS OF R1, L2/L4 ON LEADS OF R2.

DIRECTIONAL COUPLER MODEL STC-3-6360 C863-940 REV O