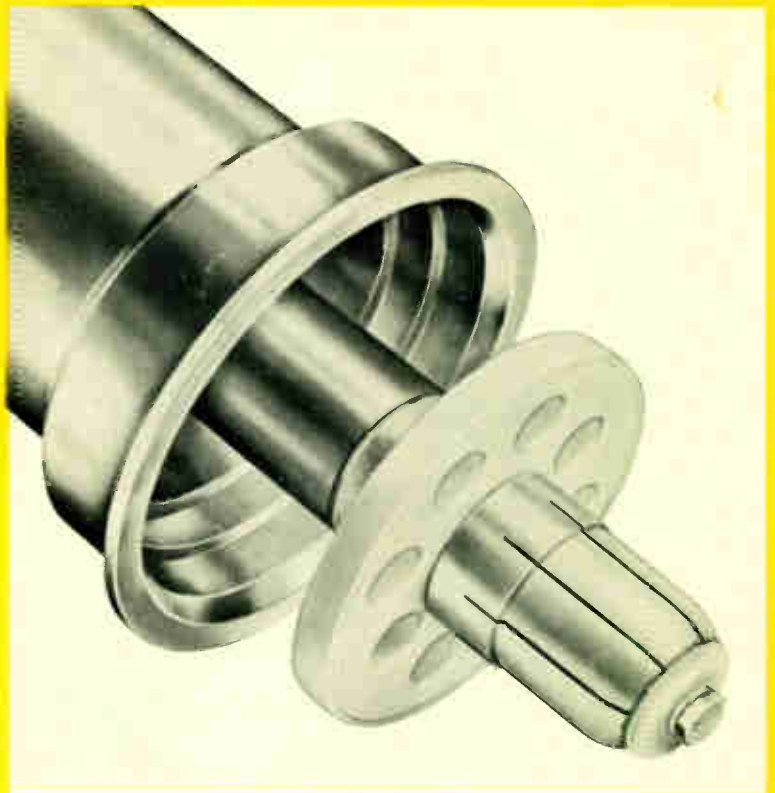


**FLANGED
UNFLANGED
HANGERS
ACCESSORIES**

Broadcast Transmission Line Equipment





About This Catalog

This is one of several catalogs published by RCA Broadcast Systems Department. It describes RCA products that serve the RF-power transmission portion of the TV-broadcast plant.

Other catalogs in this series describe equipment for the TV studio such as cameras, film and tape equipment; terminal and switching gear; audio items; AM-FM transmitters; UHF- and VHF-TV transmitters; towers and antennas.

These catalogs are available at RCA Regional offices. Each office is staffed by a sales representative with broad experience in the broadcast business. He can help you plan your equipment facilities and supply the information you need.

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There are important quality differences between the brands of transmission line, but all are not readily apparent. Often the superiority of one brand over another is not obvious until after the product has served for a time without failure. To find and correct all the factors that affect the life and performance of transmission line components takes long use, much investigation and many design changes. Ultimately, the improved product is fundamentally different because it incorporates modifications that come from continued attempts to eliminate possible failures.

Here are some examples of RCA attention to product improvement:

- Heliarc welding of outer conductors, though more expensive than soldering, corrects the weakness found in earlier silver-soldered lines. Flux, unavoidably imbedded in the silver solder, causes gas leaks; the dispersed and prolonged heat of soldering anneals the copper near the flanges. Heliarc welding requires no flux; it concentrates the heat and

prevents material from running under the flange to the inside of the line.

- Strong elbows fabricated from thick-wall tubing eliminate the mechanical distortion, gas leaks and seam-splitting that takes place in light-duty elbows when they come under heavy stress and movement. Also, two insulator supports are placed in the long leg, with one in the short leg, for mechanical and electrical stability and to reduce the risk of a bad connection at installation.
- The need for extra dependability and ease of assembly brought about by tall towers resulted in development of "Universal" line, of which more than 300,000 feet are now in use. A clamp replaces all flange bolts, reducing assembly operations to a minimum; all joints inherently swivel, making it unnecessary to match position. Split-proof inner connectors prevent misalignment during installation, and a "wristband" expansion joint virtually eliminates galling.
- The extra stresses in long runs

of 8-inch diameter transmission line predicated the development of "Cap-Lock" line, an extension of "Universal" line in which captive screws replace the Marmon flange clamp. "Cap-Lock" line includes all of the many advantages of Universal line—the "wristband" expansion joint, split-proof inner-conductor connectors, etc.—and combines them with greater flange-connection strength. Cap-Lock line is an alternative to Universal line in systems with very tall towers and long vertical runs of large-diameter line.

These are a few of the many RCA developments that make possible the exceptionally efficient and reliable transmission line components presented in this catalog. Consider them when selecting a design. Remember the maxim that a transmission line system cannot be overdesigned. The superior product, though it costs a little more initially, proves to be a most worthwhile investment because, the cost of a single failure can completely wipe out any initial savings the lesser design produced.

Table 1. Summary of RCA Rigid Coaxial Transmission Line

Nominal Diameter	Recommended Service	Coupling Device	Pressure Tight	Power Rating	WT/100' LBS/KG	Stock Identification	Catalog Page No.
50-Ohm Impedance — Teflon Insulated							
1 5/8"	FM, VHF-TV	Unflanged	No		115/52	MI-561565	TR.2501
3 1/8"	AM, FM, VHF-, UHF-TV	Clamped Flanges	Yes		280/127	MI-277791D	TR.2101
3 1/8"	AM, FM, VHF-TV	Unflanged	No		230/104	MI-27791K	TR.2501
3 1/8"	FM, VHF-, UHF-TV	Bolted Flanges	Yes		270/122	MI-19089	TR.2301
6 1/8"	FM, VHF-TV	Unflanged	No		625/284	MI-561579	TR.2501
51.5-Ohm Impedance — Steatite Insulated							
1 5/8"	AM, FM	Bolted Flanges	Yes	See Curves Fig. 7	125/57	MI-19112	TR.2401
1 5/8"	AM, FM	Unflanged	No		120/55	MI-19112	TR.2401
3 1/8"	AM, FM, VHF-TV	Bolted Flanges	Yes*		250/113	MI-19113C	TR.2401
3 1/8"	AM, FM, VHF-TV*	Bolted Flanges*	Yes*		255/115*	MI-19313C*	TR.2401
3 1/8"	AM, FM, VHF-TV*	Unflanged*	No*		240/109*	MI-19313C*	TR.2401
6 1/8"	AM, FM, VHF-TV	Bolted Flanges	Yes		730/331	MI-19314C	TR.2401
6 1/8"	AM, FM, VHF-TV	Unflanged	No		1310/595	MI-19314C	TR.2401
75-Ohm Impedance — Teflon Insulated							
6 1/8"	FM, VHF-, UHF-TV	Clamped Flanges	Yes		650/295	MI-27792D	TR.2101
6 1/8"	FM, VHF-, UHF-TV	Bolted Flanges	Yes		670/304	MI-19387	TR.2301
8 3/8"	VHF-, UHF-TV	Clamped Flanges	Yes		960/435	MI-561566D	TR.2101
8 3/8"	VHF-, UHF-TV	"Cap-Lock" Flanges	Yes		960/435	MI-561671	—
9 3/8"	VHF-, UHF-TV	Clamped Flanges	Yes		1100/499	MI-27793D	TR.2101
9 3/8"	VHF-, UHF-TV	"Cap-Lock" Flanges	Yes		1100/499	MI-561672	—

*Teflon insulated

This catalog was prepared to assist VHF and UHF transmitter-plant planners in selecting, from a wide variety of designs, the most economical and efficient transmission line system for his application.

Complete specifications and ordering information for each of four major families of RCA rigid coaxial transmission line and associated equipment are printed in separate catalog sections:

TR.2101: *Universal* T/L; TR.2301: Bolt-Flanged T/L; TR.2401: 51.5-Ohm T/L; TR.2501: Unflanged T/L; TR.3101: T/L Hangers; TR.4101: T/L Pressurizing Accessories; TR.5101: Coaxial T/L Switches.

RCA Transmission Line for AM- and FM-radio applications is described in a catalog available separately from any RCA Broadcast Equipment office.

RCA transmission-line equipment includes several diameters and types plus the necessary hardware and accessories to accommodate a wide range of broadcast requirements. RCA rigid coaxial transmission line, because of its superiority in ratings and characteristics, is recommended over solid-dielectric line for all television and many FM-radio applications. Recommendations for various classes of service can be found in Table 1. "Summary of RCA Rigid Coaxial Line".

Selecting the Proper Line

Choice of line for an installation depends upon power, frequency, and line length. The line selected should have a power rating which equals or exceeds the power output of the transmitter, with possible future power increases included. The operating channel should be within the upper frequency limit of the line and, for line lengths over a few hundred feet, the amount of power attenuated by a given diameter line should be considered. Mechanical and electrical specifications, including power ratings, efficiencies and recommended frequencies, for the various types and sizes are presented herein.

Rigid transmission line of a given diameter and impedance can be broadly classified as flanged or unflanged, and steatite- or *Teflon*-insulated. Outdoor portions of a system are usually pressurized against moisture and require flanged line, which can have either bolt-type or *Marm*-clamp flanges. Indoor line for UHF should be unpressurized but flanged. The 3/8-inch and 6/8-inch Series (MI-19089 and MI-19387) lines are recommended. For indoor VHF applications, 1 5/8-, 3 1/8- or 6 1/8-inch, unflanged, 50-ohm line (MI-561565, MI-27791K or MI-561579) is recommended.

Frequency vs Line Length

Line is normally furnished in 20-foot (6.1 m) sections. However, at certain frequencies, reflections from the flanges of 20-foot lengths combine to cause an abnormally high VSWR. For those frequencies, 19- and 19 1/2-foot sections are employed. (See Table 2, Recommended Section Length".)

The section length to be avoided at a particular frequency is given by the formula:

$$L = (490.4n)/f$$

where: f = freq. in MHz

n = any integer

L = section length in feet to be avoided.

Lengths shorter than the 19-, 19 1/2- and 20-foot sections, with or without welded

flanges, are available on special order or, standard sections may be cut to length and soft solder flanges field installed.

Transmission Line Layout

The design of a transmission line run from the transmitter output to the antenna input must satisfy a number of inter-related electrical and mechanical requirements. All of these are extremely important to the correct and reliable functioning of the system.

Before ordering transmission line or fittings, a dimensional layout should be made of the tower and routing of lines between tower and transmitter. This aids in determining the length of line required and the items to be ordered. Routing should keep the number of elbows and

Table 2. Recommended Section Lengths—U.S. TV Channels

Channel No.	20' Only	19 1/2' Only	Either 19 1/2' or 20'	Channel No.	20' Only	19 1/2' Only	Either 19 1/2' or 20'
2			●	37		●	
3			●	38			●
4			●	39			●
5	●			40	●		
6			●	41		●	
7	●			42		●	
8			●	43			●
9			●	44	●		
10		●*		45		●	
11	●			46		●	
12			●	47			●
13			●	48	●		
14			●	49		●	
15	●			50		●	
16			●	51			●
17		●		52	●		
18			●	53	●		
19	●			54		●	
20			●	55			●
21		●		56			●
22			●	57	●		
23	●			58		●	
24			●	59			●
25		●		60			●
26			●	61	●		
27	●			62		●	
28			●	63			●
29		●		64			●
30			●	65	●		
31	●			66		●	
32	●			67			●
33		●		68			●
34			●	69	●		
35			●	70		●	
36	●						

*Use 19' section with 6 1/8" steatite-insulated line (MI-19314)

FM Frequencies

88 to 97 MHz: 19 1/2 or 20' sections

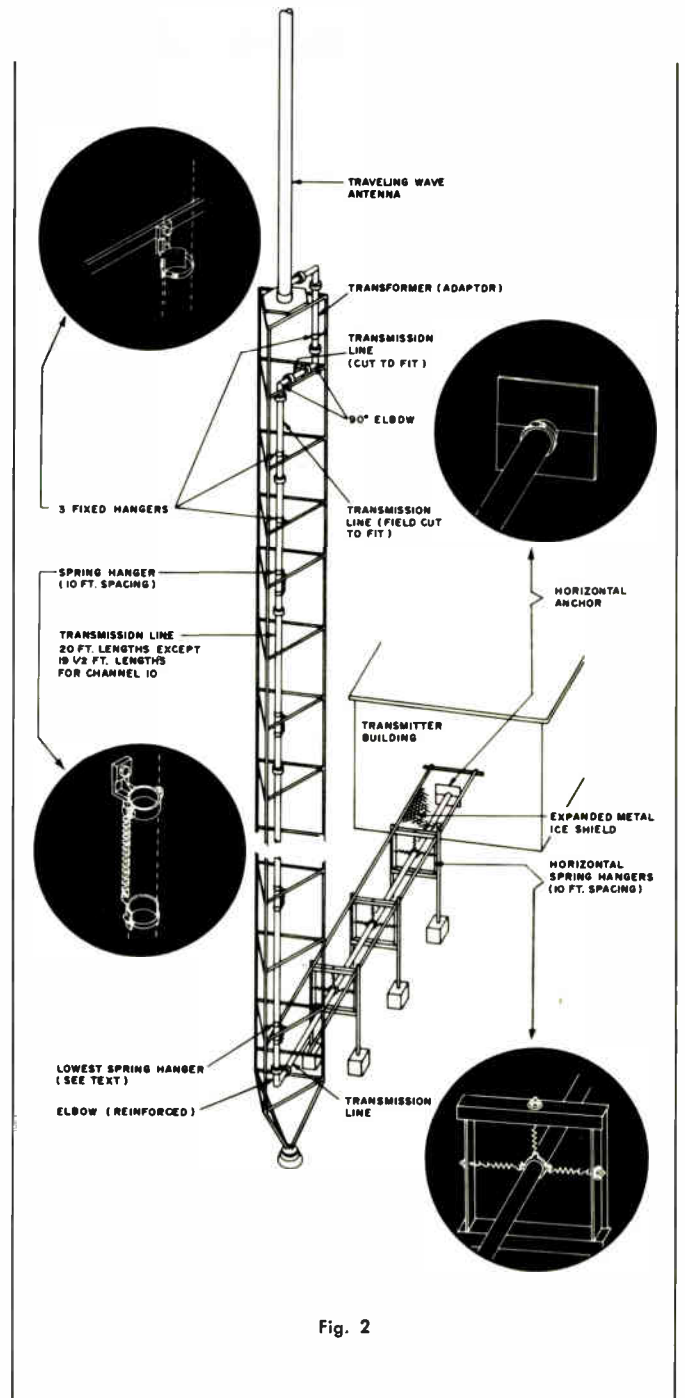
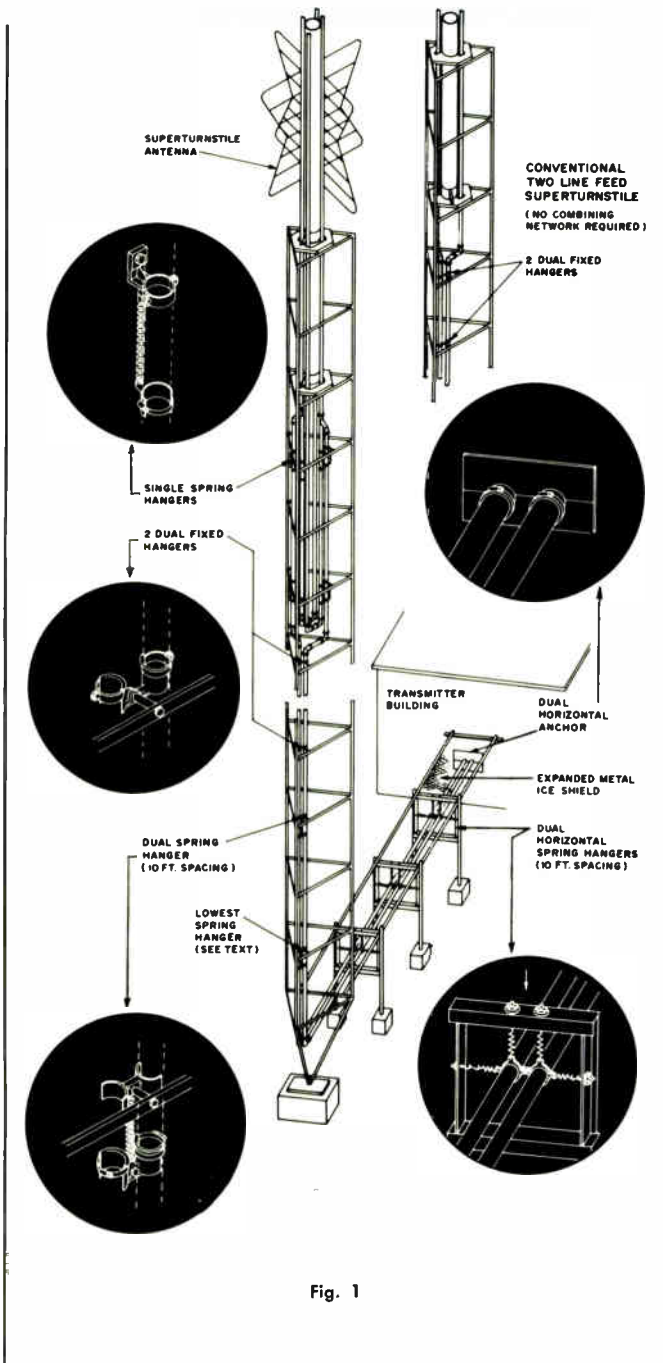
97 to 99 MHz: 19 1/2' sections only

99 to 102 MHz: 20' sections only

102 to 108 MHz: 19 1/2 or 20' sections

**Typical Transmission Line Layout
Superturnstile Antenna
Utilizing Combining Network in Tower**

**Typical Transmission Line Layout
Traveling Wave Antenna**



Typical Transmission Line Layout UHF Pylon Antenna (Guyed Tower)

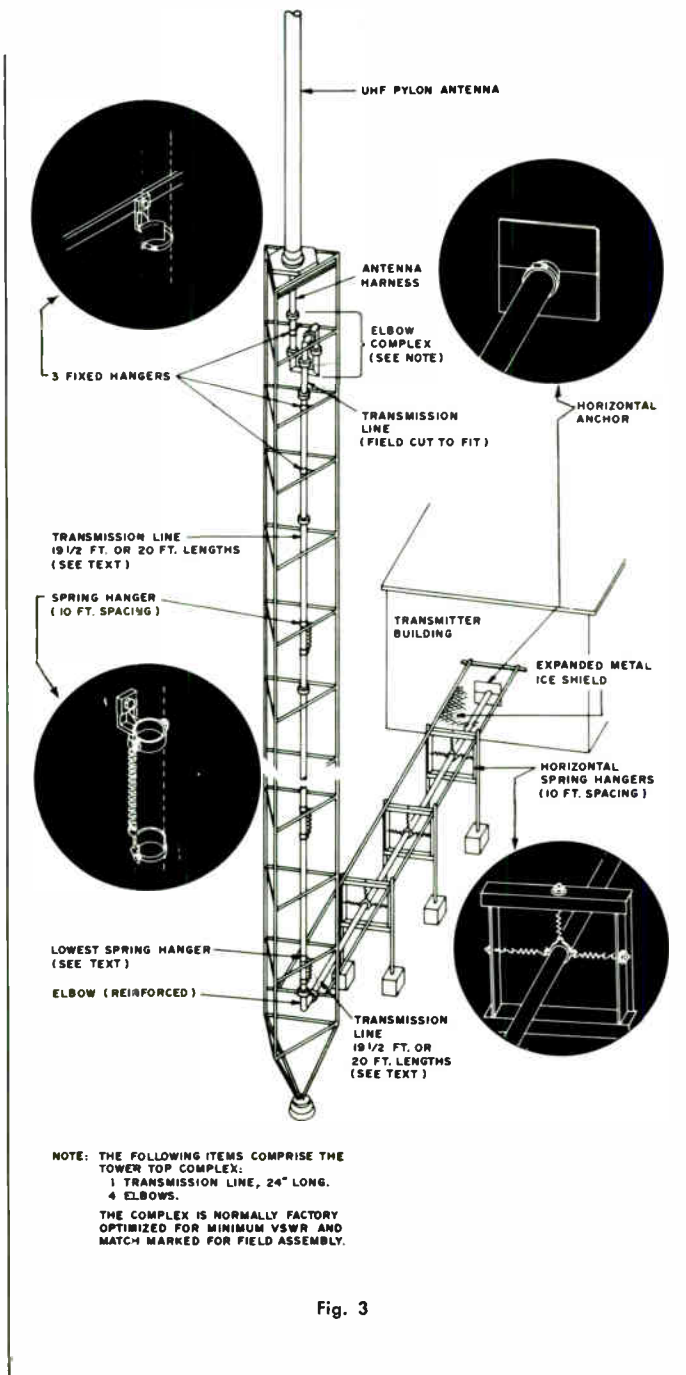


Fig. 3

reducers to a minimum to obtain lowest possible standing-wave ratios (VSWR).

Outdoor layout planning is normally the work of the tower designer after the choice of line and components has been made by the customer with the assistance of his engineering consultant and RCA. Wherever particularly critical specifications are to be met, it is advisable for the tower designer to submit the proposed transmission line layout for review and otherwise coordinate closely with RCA.

Installation Precautions

Care is required in handling the various transmission line components to prevent damage and assure proper installation. Procedures are outlined in Table 9, "Transmission Line Do's and Don'ts". These recommendations are important.

Tower steel must be designed to support the vertical run in a straight line, and maintain line clearance within spring hanger guide rings under load.

Antenna Input Connections

Special components such as reducers and impedance-transformers that may be necessary to connect the antenna input to the top of the vertical run should be determined from the antenna specifications and installed. Figs. 1, 2 and 3 show typical connections for RCA *Superturstile*, *Traveling Wave* and *Pylon* antennas, respectively.

Elbow complexes at the tower top should use special transmission-line lengths specified to the nearest 1/32 inch (0.79 mm). The electrical characteristics of these complexes are vital to satisfactory operation of the system. It may be necessary to have RCA optimize them (make electrically transparent) during fabrication. It is then important that the components be installed in the exact orientation shown on the installation prints supplied and that match markings be followed exactly.

Vertical Run Considerations

Provision must be made to accommodate the difference in expansion coefficients between the copper of the line and the steel of the tower. Copper temperature rise, due to RF heating (I-R drop) as well as ambient temperature changes, must be taken into account. In the vertical run this is accomplished by fixing the line at the tower top and "floating" it down the tower on spring hangers, with expansion accumulating at the bottom of the tower. To accommodate this movement, the length of the horizontal run must be as specified in Fig. 4. In addition, the minimum distance from the horizontal run to the first vertical support ring must be

maintained as specified in Fig. 5 to accommodate movement of the horizontal run.

Generally, only standard lengths should be included in the vertical run except at the top. However, one or two special lengths may be inserted if it permits a better pattern of hangers. Positions of flanges relative to hangers, guide rings and tower members must be carefully planned to avoid interference as the line moves relative to the tower. Where interference between line flanges and spring hangers may occur due to a peculiar spacing of tower horizontal members, a steel plate may be used to mount the hanger a sufficient distance above or below the flange to avoid such interference.

Ideally, spring hangers supporting the

vertical run of transmission line should occur every 10 feet (3.1 m) however minor variations may be used provided an average of one hanger for each 10 feet of line is maintained. The vertical portion of line near the top of the run should be anchored firmly using an appropriate hanger. Spring-loading charts are used to set spring tensions of expansion hangers. As finally installed, the line must be *vertical* and *free to move* in the hanger guides. When installing transmission line, the preferred method is to start at the bottom and work toward the top. The transmission line Series MI-27791D, MI-27792D, MI-561566D, MI-561669D, MI-561671, MI-19089 and MI-19387 must be mounted with the anchor insulator of each

section at the top end. Series MI-19313, MI-19113C, and MI-19112 lines must be mounted with the rolled outer conductor insulator-supporting grooves at the lower end. In most cases, the elbow which joins the vertical and horizontal runs should be a reinforced type.

Horizontal Run Considerations

In complex horizontal-line layouts involving elevation and direction changes, care must be exercised not to overstress miter elbows or introduce excessive flexing of the line. Frequently back to back elbows will be required to achieve desired angles.

As stated previously, the horizontal run should be at least as long as indicated in Fig. 4 to allow for sufficient movement due

Fig. 4. RECOMMENDED HORIZONTAL RUN

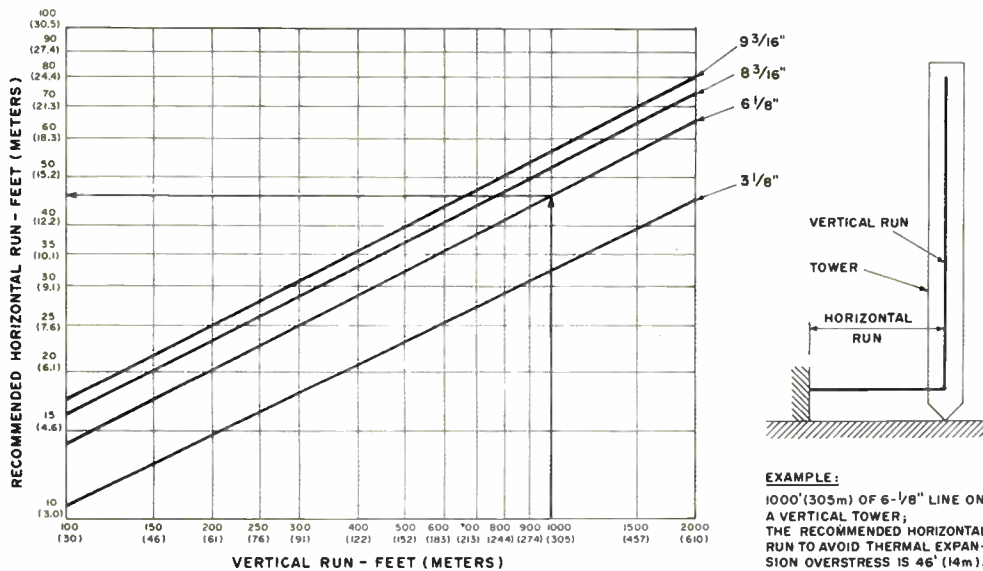
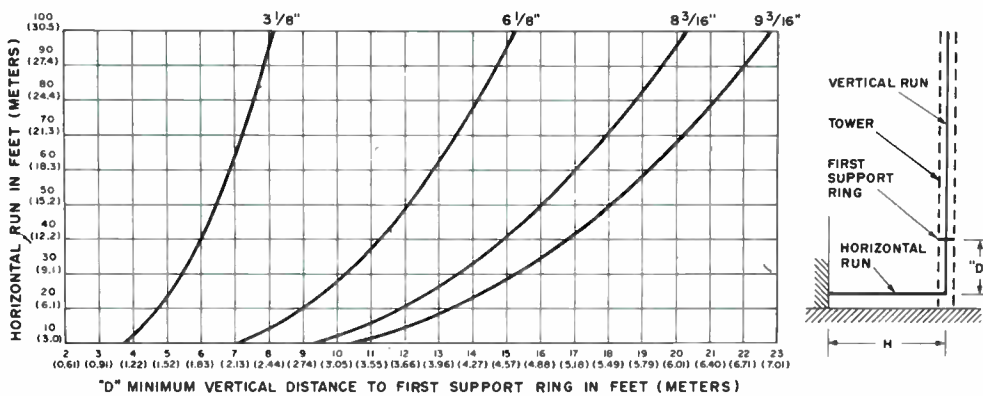


Fig. 5. MINIMUM DISTANCE TO FIRST SUPPORT RING - VS - HORIZONTAL RUN LENGTH



to expansion of the vertical run; adequate bending of the vertical line to allow for movement of the horizontal run is assured by proper placement of the first vertical support ring as specified in Fig. 5. Three-point-suspension spring hangers should be used in the horizontal run for at least the distance shown in Fig. 4. Beyond the minimum distance specified, horizontal roller assemblies or swivel hangers may be used to support the line. Where several lines are in close proximity, special provision may be required to prevent lateral movement while allowing vertical movement. The line should be secured at the wall of the building using a horizontal anchor plate. Lines should be protected from falling ice.

When installing 51.5-ohm, 3/8-inch line (MI-19113 and MI-19313), the sections in the horizontal run must connect the grooved end of one section with the grooved end of the adjacent section. (The "groove" is a radial groove 5 3/4 inches from the end.) Similarly, the ungrooved end of each section must connect with the ungrooved end of the adjacent section. This arrangement anchors the inner conductor in both directions.

Indoor Installation Considerations

The indoor part of the transmission line is normally not pressurized. Therefore, a Gas Stop device is usually installed inside the building wall, and unpressurized line components are used between that point and the output of the transmitter. The arrangement should permit disconnecting the ungasged portion of the line from the Gas Stop without disturbing the gas-stop joints. This requirement is satisfied when a gasged filterplexer, having at least two flanged joints between the filterplexer and transmission line gas stops, is used.

Indoor runs should be provided with a convenient arrangement of fittings on the output lines of the visual transmitter, aural transmitter and filterplexer to facilitate connection of an RF wattmeter and dummy load.

Purging Moisture from New Line

A transmission line installation must be free of moisture before power is applied, since operating a line with moisture inside is likely to cause substantial damage. If moisture is suspected, the uppermost part of the line should be opened by using the petcock supplied, or by loosening, slightly, the most-distant flange. The line should then be bled with dry (oil-pumped) nitrogen. Lines should be continuously pressurized from a nitrogen or a dry-air source.

After any complete loss of pressure, where moisture may have entered, the line should be purged before it is again placed in use.

Directional Couplers

Directional Couplers provide RF sampling sources for transmitter-monitoring and test equipment. The coupler mounts on the transmission line and protrudes into the line through a hole in the outer conductor. Use of a standard mounting section of transmission line with a factory-drilled and -finished hole is the recommended method of mounting the directional coupler. See Table 13 for data concerning these components.

Table 3

Recommended Bolt Torque

Line Dia.	MARMAN-CLAMP BOLTS		FLANGE BOLTS	
	in-lb/kg-cm		Bolt Dia.	in-lb/kg-cm
3 1/8"	180/36		1/4"	48/8.6
6 1/8"	210/37		3/16"	54/9.6
8 3/6"	210/37		3/8"	130/23.0
9 3/6"	210/37			

Cap-Lock Line: 110 ft/lbs (15 kg-m) minimum

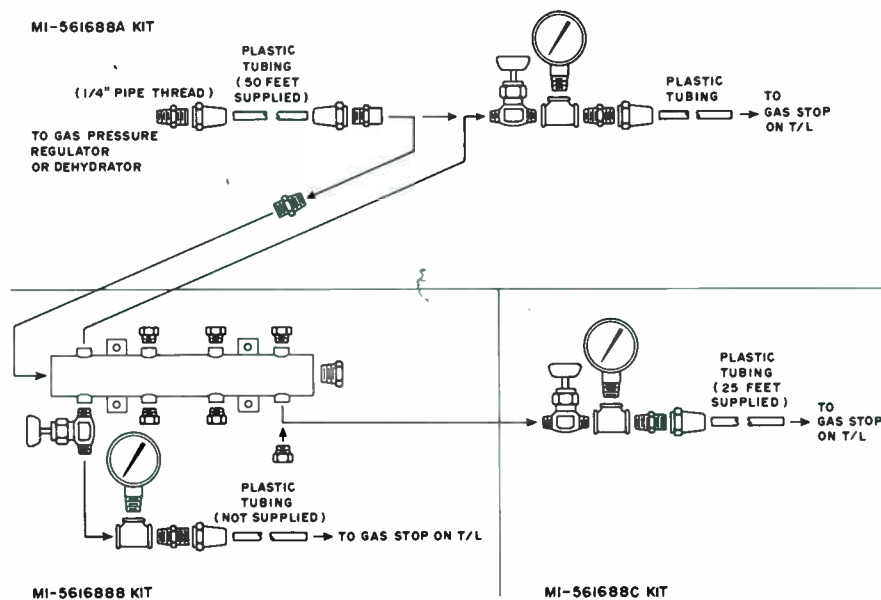


Fig. 6

Schematic relationships of the three gasging kits RCA packages for transmission line pressurization. See "Dehydrator and Accessories" section of catalog.

Line Dehydrating Equipment

Transmission-line gassing-and-dehydrator equipment keeps lines pressurized and free of moisture, assuring stable, trouble-free operation. There are dehydrators for transmission-line systems of all sizes and lengths. RCA offers dehydrators, pressure regulators and three fitting kits (see Fig. 6).

Waveguide

The efficiency and power handling capability of waveguide for UHF energy-transfer may recommend its use in certain applications. For these applications RCA can supply complete waveguide transmission systems.

Fig. 7. POWER RATING VS. FREQUENCY

POWER RATING VS. FREQUENCY

(40°C AMBIENT; 120°C INNER CONDUCTOR;
PRESSURIZED TO 1 ATM; UNITY VSWR)

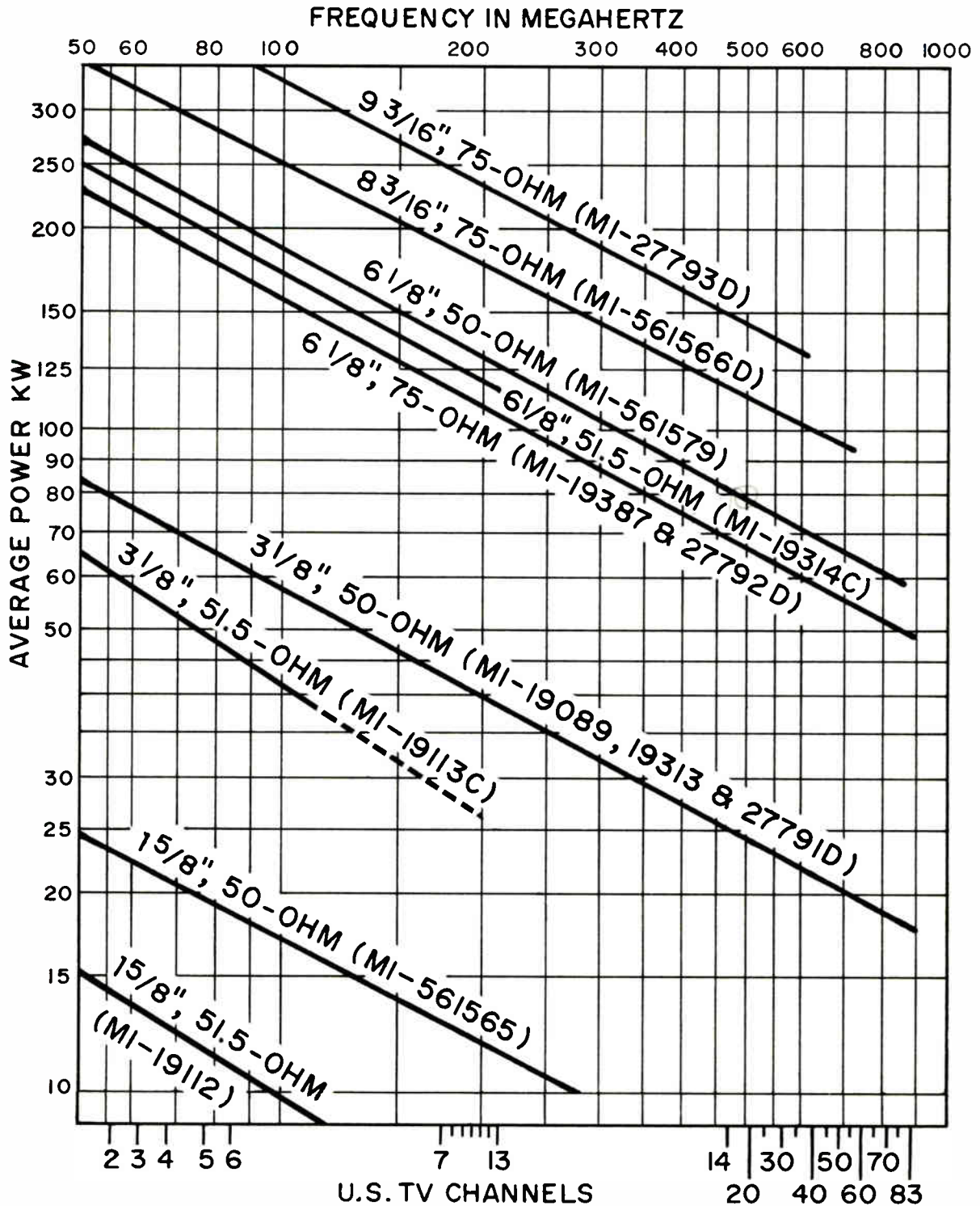


Table 4
Transfer Efficiency (%)
1 5/8" Line
(MI-19112)

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)									
		200 (60.96)	400 (121.9)	600 (182.9)	800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.8)	1800 (548.7)	2000 (609.6)
2	0.171	92.3	85.2	78.7	72.9	67.5	62.4	57.7	53.3	49.2	45.2
3	0.180	91.9	84.6	77.8	71.7	66.0	60.8	56.0	51.6	47.3	43.4
2	0.190	91.5	83.7	76.7	70.5	64.6	59.2	54.2	49.5	45.1	41.6
5	0.204	91.0	82.7	75.3	68.7	62.5	56.8	51.7	47.2	42.9	39.0
6	0.214	90.3	81.9	74.3	67.4	61.3	55.3	50.0	45.3	41.0	37.0

Table 5
Transfer Efficiency (%)
3 1/8" 51.5-ohm Line
(MI-19113)

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)								
		200 (60.96)	400 (121.9)	600 (182.9)	800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)
2	0.1018	95.4	91.1	86.9	82.9	79.1	75.5	72.0	68.7	65.4
3	0.1083	95.2	90.5	86.1	82.0	78.0	74.2	70.6	67.2	63.8
4	0.1146	94.9	90.0	85.4	81.0	76.8	72.9	69.1	65.6	62.2
5	0.1246	94.4	89.2	84.2	79.5	75.1	70.9	66.9	63.2	59.6
6	0.1306	94.2	88.7	83.5	78.6	74.0	69.7	65.6	61.8	58.2

Table 6
Transfer Efficiency (%)
3 1/8" 51.5-ohm Line
(MI-19313)

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)									
		200 (60.96)	400 (121.9)	600 (182.9)	800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)	2000 (609.6)
2	.0723	96.7	93.6	90.5	87.5	84.7	81.9	79.2	76.6	74.1	72.0
3	.0762	96.6	93.2	90.0	87.0	83.9	81.0	78.2	75.5	72.9	70.3
4	.080	96.4	92.9	89.5	86.3	83.2	80.2	77.3	74.5	71.7	69.2
5	.086	96.1	92.4	88.9	85.4	82.1	78.9	75.9	72.8	69.8	67.4
6	.089	96.0	92.1	88.4	84.9	81.5	78.2	75.1	72.0	69.2	66.4
7	.130	94.2	88.7	83.6	78.7	74.1	69.9	65.8	62.0	58.3	54.9
8	.132	94.1	88.5	83.4	78.4	73.8	69.5	65.3	61.5	57.9	54.4
9	.134	94.0	88.3	83.1	78.1	73.4	69.2	64.9	61.0	57.3	53.8
10	.136	94.0	88.1	82.9	77.8	73.1	68.8	64.5	60.6	56.8	53.4
11	.138	93.8	88.1	82.6	77.6	72.8	68.3	64.1	60.2	56.4	52.9
12	.141	93.7	87.8	82.3	77.1	72.3	67.7	63.5	59.5	55.8	52.2
13	.143	93.6	87.7	82.1	76.8	71.9	67.4	63.1	59.1	55.3	51.6

Table 7. Transfer Efficiency (%)
3/8" Line (MI-27791D, MI-19089)

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)									
		200 (60.96)	400 (121.9)	600 (182.9)	800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)	2000 (609.6)
2	0.072	96.7	93.6	90.5	87.5	84.7	81.9	79.2	76.6	74.1	71.7
3	0.076	96.6	93.2	90.0	87.0	83.9	81.0	78.2	75.5	72.9	70.3
4	0.080	96.4	92.9	89.5	86.3	83.2	80.2	77.3	74.5	71.7	69.2
5	0.086	96.1	92.4	88.9	85.4	82.1	78.9	75.9	72.8	69.8	67.4
6	0.089	96.0	92.1	88.4	84.9	81.5	78.2	75.1	72.0	69.2	66.4
7	0.130	94.2	88.7	83.6	78.7	74.1	69.9	65.8	62.0	58.3	54.9
8	0.132	94.1	88.5	83.4	78.4	73.8	69.5	65.3	61.5	57.9	54.4
9	0.134	94.0	88.3	83.1	78.1	73.4	69.2	64.9	61.0	57.3	53.8
10	0.136	94.0	88.1	82.9	77.8	73.1	68.8	64.5	60.6	56.8	53.4
11	0.138	93.8	88.1	82.6	77.6	72.8	68.3	64.1	60.2	56.4	52.9
12	0.141	93.7	87.8	82.3	77.1	72.3	67.7	63.5	59.5	55.8	52.2
13	0.143	93.6	87.7	82.1	76.8	71.9	67.4	63.1	59.1	55.3	51.6
14	0.223	90.2	81.4	73.5	66.3	59.8	54.0	48.7	44.0	39.6	35.7
15	0.225	90.2	81.3	73.3	66.1	59.6	53.7	48.4	43.7	39.3	35.5
16	0.227	90.1	81.1	73.1	65.8	59.3	53.4	48.1	43.3	39.0	35.1
17	0.229	90.0	81.0	72.9	65.6	59.0	53.1	47.8	43.0	38.6	34.8
18	0.231	89.9	80.8	72.7	65.3	58.8	52.8	47.5	42.7	38.4	34.5
19	0.233	89.8	80.7	72.5	65.1	58.5	52.5	47.2	42.4	38.0	34.2
20	0.234	89.8	80.6	72.4	65.0	58.3	52.4	47.0	42.2	37.9	33.9
21	0.235	89.7	80.5	72.3	64.9	58.2	52.2	46.9	42.1	37.8	33.8
22	0.237	89.7	80.4	72.1	64.6	57.9	52.0	46.6	41.8	37.4	33.5
23	0.239	89.6	80.2	71.9	64.4	57.7	51.7	46.3	41.5	37.0	33.2
24	0.240	89.5	80.2	71.8	64.3	57.5	51.5	46.1	41.3	36.9	33.0
25	0.242	89.5	80.0	71.6	64.0	57.3	51.2	45.8	41.0	36.7	32.8
26	0.243	89.4	80.0	71.5	63.9	57.2	51.1	45.7	40.9	36.4	32.7
27	0.245	89.3	79.8	71.3	63.7	56.9	50.8	45.4	40.6	36.2	32.3
28	0.247	89.3	79.7	71.1	63.5	56.6	50.5	45.1	40.3	36.0	32.0
29	0.249	89.2	79.5	70.9	63.2	56.4	50.3	44.8	40.0	35.7	31.8
30	0.250	89.1	79.4	70.8	63.1	56.2	50.1	44.7	39.8	35.5	31.5
31	0.252	89.0	79.3	70.6	62.9	56.0	49.8	44.4	39.5	35.1	31.3
32	0.254	89.0	79.1	70.4	62.6	55.7	49.6	44.1	39.2	34.9	31.1
33	0.255	88.9	79.1	70.3	62.5	55.6	49.4	43.9	39.1	34.8	30.9
34	0.256	88.9	79.0	70.2	62.4	55.5	49.3	43.8	38.9	34.5	30.8
35	0.257	88.8	78.9	70.1	62.3	55.3	49.2	43.7	38.8	34.4	30.5
36	0.258	88.8	78.9	70.0	62.2	55.2	49.0	43.5	38.7	34.3	30.4

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)									
		200 (60.96)	400 (121.9)	600 (182.9)	800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)	2000 (609.6)
37	0.260	88.7	78.7	69.8	61.9	55.0	48.8	43.3	38.4	33.9	30.2
38	0.262	88.6	78.6	69.6	61.8	54.7	48.5	43.0	38.1	33.7	29.9
39	0.264	88.6	78.4	69.4	61.5	54.5	48.2	42.7	37.8	33.5	29.7
40	0.265	88.5	78.3	69.3	61.4	54.3	48.1	42.6	37.7	33.2	29.4
41	0.266	88.5	78.3	69.3	61.3	54.2	48.0	42.4	37.5	33.1	29.3
42	0.267	88.4	78.2	69.2	61.2	54.1	47.8	42.3	37.4	33.0	29.2
43	0.269	88.3	78.0	69.0	60.9	53.8	47.6	42.0	37.1	32.8	28.9
44	0.270	88.3	78.0	68.9	60.8	53.7	47.4	41.9	37.0	32.7	28.8
45	0.272	88.2	77.8	68.7	60.6	53.5	47.2	41.6	36.7	32.3	28.6
46	0.274	88.1	77.7	68.5	60.4	53.2	46.9	41.3	36.4	32.1	28.3
47	0.275	88.0	77.6	68.4	60.3	53.1	46.8	41.2	36.3	32.0	28.2
48	0.276	88.1	77.6	68.3	60.1	53.0	46.6	41.1	36.2	31.8	28.0
49	0.278	88.0	77.4	68.1	59.9	52.7	46.4	40.8	35.9	31.5	27.7
50	0.279	87.9	77.3	68.0	59.8	52.6	46.3	40.7	35.8	31.4	27.6
51	0.281	87.9	77.2	67.8	59.6	52.4	46.0	40.4	35.5	31.2	27.4
52	0.282	87.8	77.1	67.7	59.5	52.2	45.9	40.3	35.4	31.1	27.2
53	0.283	87.8	77.1	67.6	59.4	52.1	45.7	40.2	35.3	30.9	27.1
54	0.284	87.7	77.0	67.5	59.3	52.0	45.6	40.0	35.1	30.8	27.0
55	0.285	87.6	76.9	67.5	59.2	51.9	45.5	39.9	35.0	30.6	26.9
56	0.286	87.7	76.8	67.4	59.1	51.8	45.4	40.0	34.9	30.5	26.8
57	0.287	87.6	76.8	67.3	58.9	51.6	45.2	39.6	34.7	30.4	26.6
58	0.290	87.5	76.6	67.0	58.6	51.3	44.9	39.3	34.4	30.0	26.3
59	0.292	87.4	76.4	66.8	58.4	51.1	44.6	39.0	34.1	29.8	26.1
60	0.294	87.3	76.3	66.6	58.2	50.8	44.4	38.8	33.9	29.6	25.8
61	0.295	87.3	76.2	66.5	58.1	50.7	44.3	38.6	33.7	29.4	25.7
62	0.297	87.2	76.1	66.3	57.9	50.5	44.0	38.4	33.5	29.1	25.5
63	0.298	87.2	76.0	66.3	57.8	50.3	43.9	38.3	33.4	29.0	25.3
64	0.299	87.1	75.9	66.2	57.7	50.2	43.8	38.1	33.2	28.9	25.2
65	0.300	87.1	75.9	66.1	57.5	50.1	43.7	38.0	33.1	28.8	25.1
66	0.301	87.1	75.8	66.0	57.4	50.0	43.5	37.9	33.0	28.7	25.0
67	0.302	87.0	75.7	65.9	57.3	49.9	43.4	37.8	32.9	28.6	24.9
68	0.2025	87.0	75.7	65.8	57.3	49.8	43.4	37.7	32.8	28.5	24.8
69	0.303	87.0	75.6	65.8	57.2	49.8	43.3	37.7	32.7	28.5	24.8
70	0.3035	87.0	75.6	65.8	57.2	49.7	43.2	37.6	32.7	28.4	24.7

**Table 8. Transfer Efficiency (%)
6 1/8" 51.5-ohm Line (MI-19314)**

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)									
		200 (60.96)	400 (121.9)	600 (182.9)	800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)	2000 (609.6)
2	0.0415	98.1	96.3	94.4	92.6	90.9	89.2	87.5	85.8	84.2	82.6
3	0.0437	98.0	96.1	94.1	92.3	90.4	88.6	86.9	85.1	83.3	81.7
4	0.0459	97.9	95.9	93.9	91.9	90.0	88.1	86.2	84.5	82.6	81.0
5	0.0494	97.8	95.6	93.4	91.3	89.3	87.2	85.3	83.4	81.5	79.7
6	0.0514	97.7	95.4	93.1	91.0	88.8	86.8	84.7	82.8	80.8	78.8
7	0.0761	96.6	93.2	90.0	86.9	83.9	81.0	78.3	75.6	72.9	70.3
8	0.0774	96.5	93.1	89.9	86.7	83.7	80.7	77.9	75.2	72.5	70.0
9	0.0788	96.4	93.0	89.7	86.5	83.4	80.4	77.6	74.8	72.0	69.5
10	0.0801	96.4	92.9	89.5	86.3	83.2	80.2	77.2	74.4	71.7	69.2
11	0.0815	96.3	92.8	89.4	86.1	82.9	79.8	76.9	74.1	71.4	68.7
12	0.0828	96.3	92.7	89.2	85.9	82.6	79.6	76.6	73.7	70.8	68.2
13	0.0840	96.2	92.6	89.0	85.7	82.4	79.3	76.3	73.4	70.5	67.8

**Table 9
Transmission Line
Do's and Don'ts**

DO'S

- DO store packaged transmission line in clean dry place to prevent contamination.
- DO check operation of inner expander assembly* and any components suspected of contamination with dirt or moisture.
- DO cap all unpacked components against the entry of moisture.
- DO hoist components with connector end up unless component is marked otherwise.
- DO check the line in the spring hanger guides after each section is installed to insure free movement for expansion. Shimming of guides at tower support may be necessary.
- DO consult spring-loading dimension chart (in Hangers section) for proper spring tension on expansion hangers and adjust each position on the tower accordingly.
- DO loosen all bolts on Cap-Lock line female flange prior to assembly. Lift and move clamping block assemblies outward as far as they will go. After joining male and female flanges, lift clamping blocks in a place on the male flange and slide over until they drop onto the detent pins in the female flanges.
- DO ascertain that inner conductors of adjacent sections match alignment to prevent inadvertent damage to the connector. Hold top connector insulator in place and see that the insulator is well seated before installing the next section.
- DO tap outside of universal line Marman clamps with plastic-faced hammer, all the way around, to seat clamp as it is tightened.
- DO tighten flange bolts alternately, one side, then the other, before final torquing.
- DO use torque wrench for final tightening.
- DO pressurize line immediately following installation and maintain 3 lbs/in² (0.21 kg/cm²) at all times. Leaks must be repaired immediately.
- DO keep ends of transmission line capped during installation. If installation is halted, seal installed line ends and pressurize to at least 0.5 lbs/in² (0.04 kg/cm²) with dry air or nitrogen.
- DO coat O-ring gaskets lightly with Dow-Corning DC-4 silicone compound to ease assembly.
- DO check O-ring and its groove for dirt or other foreign material and ascertain that ring is properly seated before flange assembly.

DON'TS

- DON'T hoist coupled sections of transmission line. The stresses involved damage components.
- DON'T use force when fitting components one to another. If cause cannot be corrected or isn't evident visually, call for RCA assistance.
- DON'T assemble line components that contain water or condensation.
- DON'T assemble line components that contain dust, dirt, packing material or other foreign objects. Consult RCA regarding any loose or suspicious material in the line as it is unpacked.
- DON'T assemble match-marked components unless the marking is clear and understood. DON'T interchange match-marked items. Consult RCA about proper assembly.
- DON'T install any line component with dust, dirt or grease on insulators.
- DON'T install line that exhibits any evidence of damage.
- DON'T attempt to correct defects discovered unless instructed and authorized by RCA.
- DON'T dismiss rigger until transmission line is completely installed and pressurized for at least 12 hours and the appropriate electrical tests performed.
- DON'T power the transmission line until the line is known to be dry and pressurized to at least 3 lbs/in² (0.2 atm.).
- DON'T exceed specified torque for clamp or flange bolts (see Table 3)
- DON'T use a line flange with evidence of over-stressed.
- DON'T use a damaged O-ring gasket. Use a new gasket whenever in doubt. The same goes for Marman Clamps.
- DON'T bend elbow components to fit. If leg angle is incorrect, consult RCA.
- DON'T let rigging equipment damage components. Provide proper protection.
- DON'T cut tubing without a cut-off gauge and remove all burrs and chips from inside and outside of tubing.
- DON'T assemble a horizontal run without proper support.

*Check inner conductor expansion joint for an excursion of 0.2 inch (5 mm) travel and in the extended position check for presence of contacting spring through exposed groove on inner conductor. In some lines the contacting spring is not visible in the extended position. Presence of the spring can be determined by inserting a 6-mil (0.15 mm) thick feeler gauge (0.5-inch or 13-mm wide) between the tubing inner surface and the connector body outer surface. If spring is present the feeler gauge can be inserted 0.25 inch (6.4 mm). If gauge goes in 0.5 inch (13 mm), spring is missing and line section must not be used.

**Table 10. Transfer Efficiency (%)
6 1/8" "Universal" Line (MI-27792D)**

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)									
		200 (60.96)	400 (121.9)	600 (182.9)	800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)	2000 (609.6)
2	0.0339	98.5	96.9	95.4	94.1	92.5	91.1	89.6	88.3	86.8	85.5
3	0.0355	98.4	96.8	95.2	93.7	92.1	90.7	89.2	87.7	86.3	84.8
4	0.0372	98.3	96.6	95.0	93.4	91.8	90.2	88.7	87.2	85.7	84.2
5	0.040	98.2	96.4	94.6	92.9	91.2	89.5	87.9	86.3	84.6	83.1
6	0.0417	98.1	96.2	94.4	92.6	90.8	89.1	87.4	85.8	84.0	82.4
7	0.0615	97.1	94.5	91.8	89.4	86.7	84.4	82.0	79.7	77.4	75.1
8	0.0625	97.1	94.4	91.7	89.1	86.6	84.1	81.7	79.4	77.0	74.9
9	0.0635	97.0	94.3	91.6	88.9	86.4	83.9	81.5	79.1	76.8	74.6
10	0.0645	97.1	94.2	91.5	88.8	86.2	83.7	81.2	78.9	76.5	74.3
11	0.0655	97.0	94.1	91.4	88.6	86.0	83.5	81.0	78.6	76.4	73.9
12	0.0665	97.0	94.1	91.2	88.5	85.8	83.2	80.7	78.3	75.8	73.6
13	0.0675	96.9	94.0	91.1	88.3	85.6	83.0	80.4	78.0	75.5	73.2
14	0.105	95.3	90.8	86.5	82.4	78.5	74.8	71.3	67.9	64.6	61.6
15	0.106	95.2	90.7	86.4	82.3	78.4	74.6	71.1	67.7	64.4	61.4
16	0.107	95.2	90.6	86.3	82.1	78.2	74.4	70.8	67.4	64.1	61.1
17	0.1075	95.2	90.6	86.2	82.0	78.1	74.3	70.7	67.3	64.0	60.9
18	0.108	95.2	90.5	86.1	82.0	78.0	74.2	70.6	67.2	64.0	60.8
19	0.109	95.1	90.5	86.0	81.8	77.8	74.0	70.4	66.9	63.6	60.5
20	0.1095	95.1	90.4	86.0	81.7	77.7	73.9	70.3	66.8	63.5	60.3
21	0.110	95.1	90.4	85.9	81.7	77.6	73.8	70.2	66.7	63.3	60.2
22	0.111	95.0	90.3	85.8	81.5	77.5	73.6	70.0	66.4	63.0	60.0
23	0.112	95.0	90.2	85.7	81.4	77.3	73.4	69.7	66.2	62.8	59.7
24	0.113	94.9	90.1	85.5	81.2	77.1	73.2	69.5	65.9	62.5	59.4
25	0.1135	94.9	90.1	85.5	81.1	77.0	73.1	69.4	65.8	62.4	59.3
26	0.1140	94.9	90.0	85.4	81.1	76.9	73.0	69.3	65.7	62.4	59.1
27	0.1145	94.9	90.0	85.4	81.0	76.8	72.9	69.1	65.6	62.2	58.9
28	0.115	94.8	90.0	85.3	80.9	76.7	72.8	69.0	65.5	62.0	58.8
29	0.116	94.8	89.9	85.2	80.8	76.6	72.6	68.9	65.2	61.7	58.6
30	0.117	94.8	90.0	85.1	80.6	76.4	72.4	68.6	65.0	61.6	58.3
31	0.1175	94.7	89.7	85.0	80.5	76.3	72.3	68.5	64.9	61.4	58.2
32	0.118	94.7	89.7	85.0	80.5	76.2	72.2	68.4	64.7	61.2	58.0
33	0.1185	94.7	89.7	84.9	80.4	76.1	72.1	68.3	64.6	61.1	57.9
34	0.119	94.7	89.6	84.8	80.3	76.0	72.0	68.2	64.5	60.9	57.8
35	0.120	94.6	89.5	84.7	80.2	75.9	71.8	67.9	64.3	60.8	57.7
36	0.1205	94.6	89.5	84.7	80.1	75.8	71.7	67.8	64.2	60.7	57.4

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)									
		200 (60.96)	400 (121.9)	600 (182.9)	800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)	2000 (609.6)
37	0.121	84.6	89.5	84.6	80.0	75.7	71.6	67.7	64.0	60.5	57.3
38	0.1215	94.6	89.4	84.5	79.9	75.6	71.5	67.6	63.9	60.3	57.1
39	0.122	94.5	89.4	84.5	80.0	75.5	71.4	67.5	63.8	60.3	57.0
40	0.123	94.5	89.3	84.4	79.7	75.3	71.2	67.3	63.6	60.0	56.8
41	0.1235	94.5	89.2	84.3	79.6	75.2	71.0	67.1	63.4	59.9	56.5
42	0.124	94.5	89.2	84.3	79.5	75.2	71.0	67.1	63.3	59.7	56.5
43	0.1245	94.4	89.2	84.2	79.5	75.1	70.9	66.9	63.2	59.7	56.4
44	0.125	94.4	89.1	84.1	79.4	75.0	70.8	66.8	63.1	59.5	56.2
45	0.126	94.4	89.0	84.0	79.3	74.8	70.5	66.6	62.9	59.3	55.9
46	0.1265	94.3	89.0	84.0	79.2	74.7	70.0	66.5	62.7	59.1	55.8
47	0.127	94.3	89.0	83.9	79.1	74.6	70.4	66.4	62.6	59.1	55.6
48	0.128	94.3	88.9	83.8	79.0	74.0	70.2	66.2	62.4	58.8	55.3
49	0.129	94.2	88.8	83.7	78.9	74.3	70.0	66.0	62.2	58.5	55.2
50	0.130	94.2	88.7	83.6	78.7	74.1	69.8	65.8	61.9	58.3	54.9
51	0.1305	94.2	88.7	83.5	78.6	74.0	69.7	65.7	61.8	58.2	54.7
52	0.131	94.1	88.6	83.4	78.6	74.0	69.6	65.6	61.7	58.0	54.7
53	0.132	94.1	88.5	83.3	78.4	73.8	69.4	65.3	61.5	57.9	54.4
54	0.1325	94.1	88.5	83.3	78.3	73.7	69.3	65.2	61.4	57.7	54.3
55	0.133	94.1	88.5	83.2	78.3	73.6	69.3	65.1	61.3	57.6	54.1
56	0.1335	94.0	88.4	83.2	78.1	73.5	69.1	65.0	61.2	57.4	54.0
57	0.134	94.0	88.4	83.1	78.1	73.5	69.1	64.9	61.0	57.4	54.0
58	0.1345	94.0	88.3	83.0	78.0	73.4	69.0	64.8	60.9	57.3	53.8
59	0.135	94.0	88.3	83.0	78.0	73.3	68.9	64.7	60.8	57.1	53.7
60	0.136	93.9	88.2	82.9	77.8	73.1	68.7	64.5	60.6	56.8	53.4
61	0.1365	93.9	88.2	82.8	77.8	73.0	68.6	64.4	60.5	56.8	53.2
62	0.137	93.9	88.1	82.8	77.7	72.9	68.5	64.3	60.4	56.8	53.1
63	0.1375	93.9	88.1	82.7	77.6	72.9	68.4	64.2	60.3	56.5	53.1
64	0.138	93.8	88.1	82.6	77.6	72.8	68.3	64.1	60.2	56.4	52.9
65	0.1385	93.8	88.0	82.6	77.5	72.7	68.2	64.0	60.0	56.2	52.8
66	0.139	93.8	88.0	82.5	77.4	72.6	68.1	63.9	60.0	56.2	52.7
67	0.140	93.8	87.9	82.4	77.3	72.4	67.9	63.7	59.7	55.9	52.4
68	0.141	93.7	87.8	82.3	77.1	72.3	67.7	63.5	59.5	55.8	52.3
69	0.1415	93.7	87.8	82.2	77.1	72.2	67.6	63.4	59.4	55.6	52.1
70	0.142	93.7	87.7	82.2	77.0	72.1	67.5	63.3	59.3	55.5	52.0

Table 11. Transfer Efficiency (%)
6 1/8" 75-ohm Line (MI-19387)

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)									
		200 (60.96)	400 (121.9)	600 (182.9)	800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)	2000 (609.6)
14	0.102	95.4	91.0	86.9	82.9	79.1	75.4	72.0	68.7	65.6	62.5
15	0.102	95.4	91.0	86.8	82.9	79.1	75.4	72.0	68.7	65.6	62.5
16	0.103	95.4	91.0	86.7	82.7	78.9	75.2	71.8	68.4	65.2	62.2
17	0.104	95.3	90.9	86.6	82.6	78.7	75.0	71.5	68.2	64.9	61.9
18	0.105	95.3	90.8	86.5	82.4	78.5	74.8	71.3	67.9	64.6	61.6
19	0.106	95.2	90.7	86.4	82.3	78.4	74.6	71.1	67.7	64.4	61.4
20	0.107	95.2	90.6	86.3	82.1	78.2	74.4	70.8	67.4	64.1	61.1
21	0.108	95.2	90.5	86.1	82.0	78.0	74.2	70.6	67.2	64.0	60.8
22	0.109	95.1	90.5	86.0	81.8	77.8	74.0	70.4	66.9	63.6	60.5
23	0.110	95.1	90.4	85.9	81.7	77.6	73.8	70.2	66.7	63.3	60.2
24	0.111	95.0	90.3	85.8	81.5	77.5	73.6	70.0	66.4	63.0	60.0
25	0.112	95.0	90.2	85.7	81.4	77.3	73.4	69.7	66.2	62.8	59.7
26	0.113	94.9	90.1	85.5	81.2	77.1	73.2	69.5	66.0	62.5	59.4
27	0.113	94.9	90.1	85.5	81.2	77.1	73.2	69.5	66.0	62.5	59.4
28	0.114	94.9	90.0	85.4	81.1	76.9	73.0	69.3	65.7	62.4	59.1
29	0.116	94.8	89.9	85.2	80.8	76.6	72.6	68.8	65.2	61.7	58.6
30	0.117	94.8	90.0	85.1	80.6	76.4	72.4	68.6	65.0	61.6	58.3
31	0.118	94.7	89.7	85.0	80.5	76.2	72.2	68.4	64.7	61.3	58.0
32	0.119	94.7	89.6	84.8	80.3	76.0	72.0	68.2	64.5	60.9	57.7
33	0.119	94.7	89.6	84.8	80.3	76.0	72.0	68.2	64.5	60.9	57.7
34	0.120	94.6	89.5	84.7	80.2	75.9	71.8	67.9	64.3	60.8	57.6
35	0.121	94.6	89.5	84.6	80.0	75.7	71.6	67.7	64.0	60.5	57.3
36	0.122	94.5	89.4	84.5	80.0	75.5	71.4	67.5	63.8	60.3	57.0
37	0.123	94.5	89.3	84.4	79.7	75.3	71.2	67.3	63.6	60.0	56.7
38	0.124	94.5	89.2	84.3	79.6	75.2	71.0	67.1	63.3	59.7	56.5
39	0.125	94.4	89.1	84.1	79.4	75.0	70.8	66.8	63.1	59.5	56.2
40	0.127	94.3	89.0	83.9	79.1	74.6	70.4	66.4	62.6	59.1	55.6
41	0.128	94.3	88.9	83.8	79.0	74.0	70.2	66.2	62.4	58.8	55.5
42	0.129	94.2	88.8	83.7	78.9	74.3	70.0	66.0	62.2	58.5	55.2

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)									
		200 (60.96)	400 (121.9)	600 (182.9)	800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)	2000 (609.6)
43	0.130	94.2	88.7	83.6	78.7	74.1	69.8	65.8	61.9	58.3	54.9
44	0.131	94.1	88.6	83.4	78.6	74.0	69.6	65.6	61.7	58.0	54.7
45	0.132	94.1	88.5	83.3	78.4	73.8	69.4	65.3	61.5	57.9	54.4
46	0.133	94.1	88.5	83.2	78.3	73.6	69.3	65.1	61.3	57.6	54.1
47	0.134	94.0	88.4	83.1	78.1	73.5	69.1	64.9	61.0	57.4	54.0
48	0.135	94.0	88.3	83.0	78.0	73.3	68.9	64.7	60.8	57.1	53.7
49	0.136	93.9	88.2	82.9	77.8	73.1	68.7	64.5	60.6	56.8	53.4
50	0.137	93.9	88.1	82.8	77.7	72.9	68.5	64.3	60.4	56.7	53.1
51	0.138	93.8	88.1	82.6	77.6	72.8	68.3	64.1	60.2	56.4	52.9
52	0.140	93.8	87.9	82.4	77.3	72.4	67.9	63.7	59.7	55.9	52.4
53	0.141	93.7	87.8	82.3	77.1	72.3	67.7	63.5	59.5	55.8	52.2
54	0.143	93.6	87.7	82.1	76.8	71.9	67.4	63.1	59.1	55.3	51.6
55	0.144	93.6	87.6	82.0	76.7	71.8	67.2	62.9	58.8	55.0	51.5
56	0.145	93.5	87.5	81.9	76.6	71.6	67.0	62.7	58.6	54.9	51.2
57	0.147	93.5	87.3	81.6	76.3	71.3	66.6	62.3	58.2	54.4	50.8
58	0.148	93.4	87.3	81.5	76.1	71.1	66.4	62.1	58.0	54.1	50.5
59	0.150	93.3	87.1	81.3	75.9	70.8	66.1	61.7	57.5	53.7	50.1
60	0.151	93.3	87.0	81.7	75.7	70.6	65.9	61.5	57.3	53.4	49.8
61	0.153	93.2	86.9	80.0	75.4	70.3	65.5	61.1	56.9	52.9	49.4
62	0.155	93.1	86.7	80.7	75.2	70.0	65.2	60.7	56.5	52.5	49.0
63	0.157	93.0	86.5	80.5	74.9	69.7	64.8	60.3	56.1	52.1	48.5
64	0.159	92.9	86.4	80.3	74.6	69.3	64.5	59.9	55.7	51.6	48.0
65	0.161	92.9	86.2	80.1	74.3	69.0	64.1	59.5	55.3	51.2	47.6
66	0.162	92.8	86.1	80.0	74.2	68.9	63.9	59.3	55.1	51.1	47.4
67	0.164	92.7	86.0	79.7	73.9	68.6	63.6	58.9	54.7	50.6	47.0
68	0.165	92.7	85.9	79.6	73.8	68.4	63.4	58.8	54.5	50.4	46.7
69	0.167	92.6	85.7	79.4	73.5	68.1	63.0	58.4	54.1	50.1	46.3
70	0.169	92.5	85.6	79.2	73.3	67.8	62.7	58.0	53.7	49.7	45.9

Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)								
		800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)	2000 (609.6)	2200 (670.6)	
14	0.0789	86.5	83.4	80.4	77.5	74.8	72.1	69.5	67.0	
15	0.0794	86.4	83.3	80.3	77.4	74.6	72.0	69.4	66.9	
16	0.0799	86.3	83.2	80.2	77.3	74.5	71.8	69.2	66.7	
17	0.0804	86.2	83.1	80.1	77.2	74.4	71.7	69.0	66.5	
18	0.0809	86.2	83.0	80.0	77.0	74.2	71.5	68.9	66.4	
19	0.0814	86.1	82.9	79.9	76.9	74.1	71.4	68.7	66.2	
20	0.0819	86.0	82.8	79.7	76.8	74.0	71.2	68.6	66.0	
21	0.0824	85.9	82.7	79.6	76.7	73.8	71.1	68.4	65.9	
22	0.0829	85.8	82.6	79.5	76.6	73.7	70.9	68.3	65.7	
23	0.0833	85.8	82.5	79.4	76.4	73.6	70.8	68.1	65.6	
24	0.0838	85.7	82.4	79.3	76.3	73.4	70.7	68.0	65.4	
25	0.0843	85.6	82.4	79.2	76.2	73.3	70.5	67.8	65.2	
26	0.0848	85.5	82.3	79.1	76.1	73.2	70.4	67.7	65.1	
27	0.0852	85.5	82.2	79.0	76.0	73.1	70.2	67.5	64.9	
28	0.0857	85.4	82.1	78.9	75.9	72.9	70.1	67.4	64.8	
29	0.0862	85.3	82.0	78.8	75.8	72.8	70.0	67.3	64.6	
30	0.0866	85.3	81.9	78.7	75.6	72.7	69.8	67.1	64.5	
31	0.0871	85.2	81.8	78.6	75.5	72.6	69.7	67.0	64.3	
32	0.0875	85.1	81.7	78.5	75.4	72.4	69.6	66.8	64.2	
33	0.0880	85.0	81.7	78.4	75.3	72.3	69.4	66.7	64.0	
34	0.0884	85.0	81.6	78.3	75.2	72.2	69.3	66.5	63.9	
35	0.0889	84.9	81.5	78.2	75.1	72.1	69.2	66.4	63.7	
36	0.0893	84.8	81.4	78.1	75.0	72.0	69.1	66.3	63.6	
37	0.0898	84.8	81.3	78.0	74.9	71.8	68.9	66.1	63.5	
38	0.0902	84.7	81.2	77.9	74.8	71.7	68.8	66.0	63.3	
39	0.0906	84.6	81.2	77.8	74.7	71.6	68.7	65.9	63.2	
40	0.0911	84.6	81.1	77.7	74.6	71.5	68.6	65.7	63.0	
41	0.0915	84.5	81.0	77.7	74.5	71.4	68.4	65.6	62.9	
42	0.0920	84.4	80.9	77.6	74.3	71.3	68.3	65.5	62.8	
43	0.0924	84.4	80.8	77.5	74.2	71.2	68.2	65.3	62.6	
44	0.0928	84.3	80.8	77.4	74.1	71.0	68.1	65.2	62.5	
45	0.0932	84.2	80.7	77.3	74.0	70.9	67.9	65.1	62.4	
46	0.0937	84.2	80.6	77.2	73.9	70.8	67.8	65.0	62.2	
47	0.0941	84.1	80.5	77.1	73.8	70.7	67.7	64.8	62.1	
48	0.0945	84.0	80.4	77.0	73.7	70.6	67.6	64.7	62.0	
49	0.0949	84.0	80.4	76.9	73.6	70.5	67.5	64.6	61.8	
50	0.0954	83.9	80.3	76.8	73.5	70.4	67.4	64.5	61.7	
51	0.0958	83.8	80.2	76.8	73.4	70.3	67.2	64.3	61.6	
52	0.0962	83.8	80.1	76.7	73.3	70.2	67.1	64.2	61.4	
53	0.0966	83.7	80.1	76.6	73.2	70.1	67.0	64.1	61.3	
54	0.0970	83.6	80.0	76.5	73.1	70.0	66.9	64.0	61.2	
55	0.0974	83.6	79.9	76.4	73.1	69.8	66.8	63.9	61.1	
56	0.0978	83.5	79.8	76.3	73.0	69.7	66.7	63.7	60.9	

Table 12
Transfer Efficiency (%)
8-3/16" Line
(MI-5611566D, 561671)

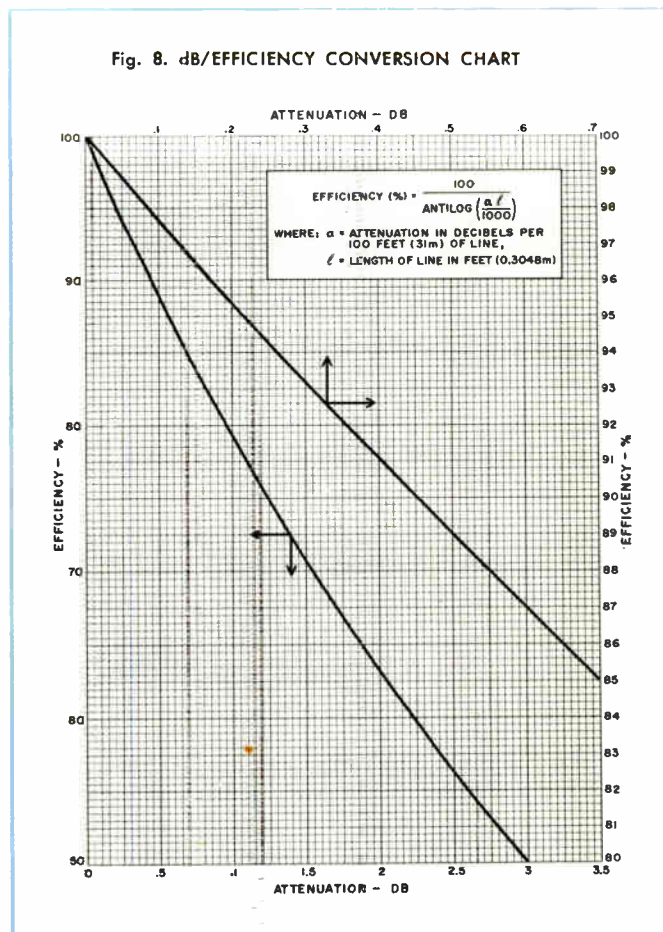


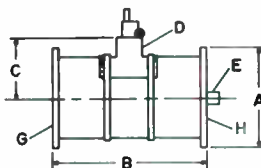
Table 13. Directional Coupler Accessories Data

Line Nom Diameter	RCA Stock Identification	Reference Drawing	Diameter (Dim A)	Length (Dim B)	Protrusion (Dim C)	Coupler (D) Id. No.	Connector (E) Id. No.	Coupling (F) Id. No.	Flange (G) Id. No.	Flange (H) Id. No.	Line Sect. Id. No.	Recommended Service	Pressure Tight
50-Ohm, Teflon-Insulated Line													
3/8"	MI-19089	1	5.19(132)	12"(305)	6.81(173)	MI-19396-1B*	MI-19089-10A	—	MI-19089-11	MI-19089-11	MI-19396-2	VHF, UHF	No*
3/8"	MI-27791-D	3	4.5(114)	12"(305)	6.81(173)	MI-19396-1B*	MI-27791-D4D	—	MI-27791-D4D	MI-27791-D4D	MI-27791-D9A	VHF, UHF	No*
3/8"	MI-27791-K	2	3.13(80)	12"(305)	6.81(173)	MI-19396-1B	—	MI-27791-K9A	—	—	MI-27791-K9A	VHF	No
51.5-Ohm, Steatite-Insulated Line													
3/8"	MI-19313†	2	3.13(80)	12"(305)	6.81(173)	MI-19396-1B	—	MI-19313-8	—	—	MI-19396-3	VHF	No
6/8"	MI-19314	2	6.13(156)	12"(305)	8.31(211)	MI-27389	—	MI-19314C-7	—	—	MI-19314C-25	VHF	No
75-Ohm, Teflon-Insulated Line													
6/8"	MI-19387	1	8.13(207)	12"(305)	8.31(211)	MI-27389	MI-19387-10A	—	MI-19387-14	MI-19387-14	MI-19387-20	VHF, UHF	Yes
6/8"	MI-27792D	3	7.63(194)	12"(305)	8.31(211)	MI-27389	MI-27792-D4D	—	MI-27792-D4B	MI-27792-D4A	MI-27792-D9A	VHF, UHF	Yes

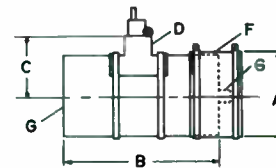
*For pressurized line, specify Coupler MI-27390 †Teflon insulated

Table 14
Transfer Efficiency (%) 9-3/16" Line (MI-27793D)

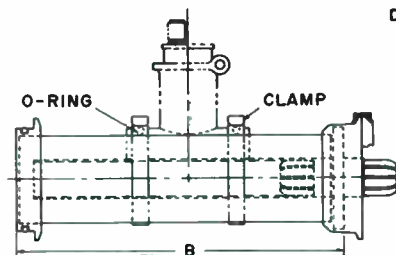
Channel	Loss dB/100' (30.48 m)	Total Length in Feet (Meters)								
		800 (243.8)	1000 (304.8)	1200 (365.8)	1400 (426.7)	1600 (487.7)	1800 (548.7)	2000 (609.6)	2200 (670.6)	
14	0.0682	88.2	85.5	82.8	80.3	77.8	75.4	73.1	70.8	
15	0.0686	88.1	85.4	82.7	80.2	77.7	75.3	72.9	70.6	
16	0.0690	88.1	85.3	82.6	80.0	77.5	75.1	72.8	70.5	
17	0.0695	88.0	85.2	82.5	79.9	77.4	75.0	72.6	70.3	
18	0.0699	87.9	85.1	82.4	79.8	77.3	74.9	72.5	70.2	
19	0.0703	87.9	85.1	82.3	79.7	77.2	74.7	72.3	70.0	
20	0.0707	87.8	85.0	82.2	79.6	77.1	74.6	72.2	69.9	
21	0.0712	87.7	84.9	82.2	79.5	76.9	74.5	72.1	69.7	
22	0.0716	87.6	84.8	82.1	79.4	76.8	74.3	71.9	69.6	
23	0.0720	87.6	84.7	82.0	79.3	76.7	74.2	71.8	69.4	
24	0.0724	87.5	84.6	81.9	79.2	76.6	74.1	71.6	69.3	
25	0.0728	87.4	84.6	81.8	79.1	76.5	74.0	71.5	69.2	
26	0.0732	87.4	84.5	81.7	79.0	76.4	73.8	71.4	69.0	
27	0.0736	87.3	84.4	81.6	78.9	76.2	73.7	71.2	68.9	
28	0.0740	87.3	84.3	81.5	78.8	76.1	73.6	71.1	68.7	
29	0.0744	87.2	84.3	81.4	78.7	76.0	73.5	71.0	68.6	
30	0.0748	87.1	84.2	81.3	78.6	75.9	73.3	70.9	68.5	
31	0.0752	87.1	84.1	81.2	78.5	75.8	73.2	70.7	68.3	
32	0.0756	87.0	84.0	81.1	78.4	75.7	73.1	70.6	68.2	
33	0.0760	86.9	83.9	81.1	78.3	75.6	73.0	70.5	68.0	
34	0.0764	86.9	83.9	81.0	78.2	75.5	72.9	70.3	67.9	
35	0.0768	86.8	83.8	80.9	78.1	75.4	72.7	70.2	67.8	
36	0.0772	86.8	83.7	80.8	78.0	75.3	72.6	70.1	67.6	
37	0.0775	86.7	83.6	80.7	77.9	75.2	72.5	70.0	67.5	
38	0.0779	86.6	83.6	80.6	77.8	75.0	72.4	69.8	67.4	
39	0.0783	86.6	83.5	80.5	77.7	74.9	72.3	69.7	67.3	
40	0.0787	86.5	83.4	80.5	77.6	74.8	72.2	69.6	67.1	



DRAWING 1



DRAWING 2



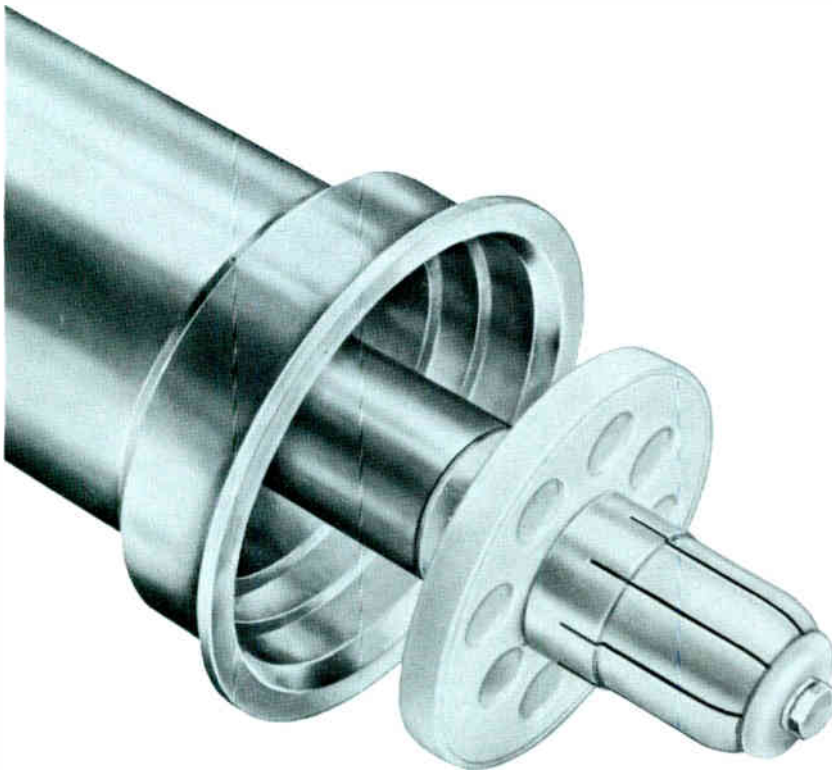
DRAWING 3

Reference drawings for Table 13.



Universal 50- and 75-Ohm Teflon Transmission Line

- Ease of assembly
- Positive conductor alignment
- Heliarc welded flanges
- Fully captive O-ring
- High efficiency Teflon insulation



RCA Universal Transmission Line has proved in use to be a most versatile and successful type. Of the several hundred thousand feet that are now in service, not one failure has occurred as a result of insulator flashover from inner conductor galling. Differential expansion takes place inside the inner conductor and all movement occurs on a silver plated beryllium, watchband spring. Universal line has a unique error-proof coupling. There are no flange bolts; instead, a single stainless steel clamp surrounds the beveled edges of the heliarc welded male and female flanges and holds them in complete alignment. The O-ring is held securely by a groove in the male flange with no chance of being squeezed out of place to cause a leaky joint. All flange connections inherently swivel so it is unnecessary to match the position of line sections. A thick Teflon insulator recessed in the female flange supports the inner conductor which is easily removed for inspection.

Power handling capability, efficiency and useful frequency ranges of RCA Universal line are given in "Planning and Data for Transmission Line," TR.1101A.

In This Section:

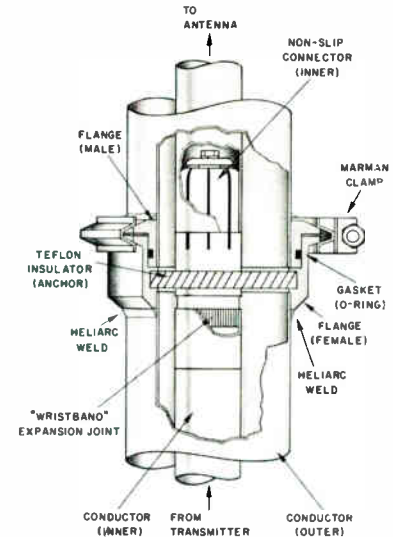
- 3½-inch, 50-ohm MI-27791D
- 6½-inch, 75-ohm MI-27792D
- 8-3/16-inch, 75-ohm . . MI-561566D
- 9-3/16-inch, 75-ohm . . MI-27793D

Universal 50- and 75-Ohm Teflon Transmission Line

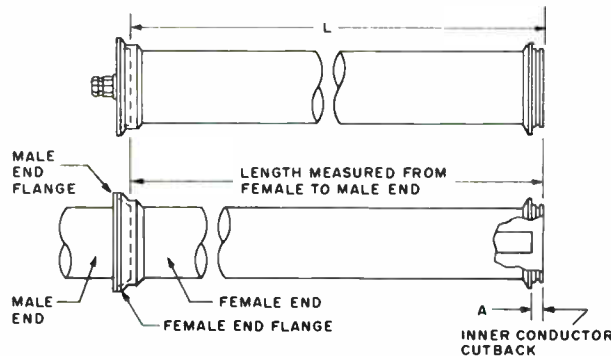
General Specifications

	OUTER		INNER		Frequency*
	OD	ID	OD	ID	
MI-27791D 3 3/8-inch, 50 ohm	3.125" (79 mm)	3.027" (77 mm)	1.315" (33 mm)	1.231" (31 mm)	1,000 MHz
MI-27792D 6 1/8-inch, 75 ohm	6.125" (156 mm)	5.981" (152 mm)	1.711" (44 mm)	1.666" (42 mm)	890 MHz
MI-561566D 8 3/8-inch, 75 ohm	8.150" (207 mm)	8.000" (203 mm)	2.293" (58 mm)	2.229" (57 mm)	728 MHz
MI-27793D 9 3/8-inch, 75 ohm	9.166" (233 mm)	9.000" (229 mm)	2.580" (66 mm)	2.516" (64 mm)	632 MHz

*Recommended upper limit for broadcast application.



STRAIGHT SECTIONS



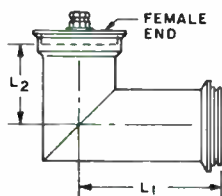
Stock Number	Length (L)	Dim. A	Approx. Weight	Packaged Dimensions	Shipping Weight
MI-27791D-1A	20' (6.1 m)	0.90"-0.97" (23-24 mm)	58 lbs. (263 kg)	248"x12 1/2"x8" (6299x318x203 mm)	162 lbs. (74 kg)
MI-27791D-1B	19 1/2' (6 m)	0.90"-0.97" (23-24 mm)	52 lbs. (236 kg)	248"x12 1/2"x8" (6299x318x203 mm)	149 lbs. (68 kg)
MI-27792D-1A	20' (6.1 m)	1.20"-1.21" (30-31 mm)	127 lbs. (58 kg)	248"x9 1/2"x10 1/2" (6299x241x267 mm)	172 lbs. (78 kg)
MI-27792D-1B	19 1/2' (6 m)	1.20"-1.21" (30-31 mm)	124 lbs. (56 kg)	248"x9 1/2"x10 1/2" (6299x241x267 mm)	169 lbs. (77 kg)
MI-561566D-1A	20' (6.1 m)	1.54"-1.57" (39-40 mm)	192 lbs. (85 kg)	248"x14 1/2"x14 1/2" (6299x368x368 mm)	255 lbs. (116 kg)
MI-561566D-1B	19 1/2' (6 m)	1.54"-1.57" (39-40 mm)	179 lbs. (81 kg)	248"x14 1/2"x14 1/2" (6299x368x368 mm)	253 lbs. (115 kg)
MI-27793D-1A	20' (6.1 m)	1.54"-1.57" (39-40 mm)	227 lbs. (103 kg)	248"x14 1/2"x14 1/2" (6299x368x368 mm)	290 lbs. (132 kg)
MI-27793D-1B	19 1/2' (6 m)	1.54"-1.57" (39-40 mm)	220 lbs. (98 kg)	248"x14 1/2"x14 1/2" (6299x368x368 mm)	283 lbs. (128 kg)

NOTES: MI-27791D-1A and MI-27791D-1B 3 3/8" straight sections are shipped two sections to the package; other sizes, one section per package. Each section includes connector, clamp, expansion joint and O-ring.

The special 19 1/2 ft. lengths are required for certain frequencies. See table for channel length selection in "Planning and Data for Transmission Line," Catalog Sheet TR.1101A. Six-inch line illustrated.

Universal 50- and 75-Ohm Teflon Transmission Line

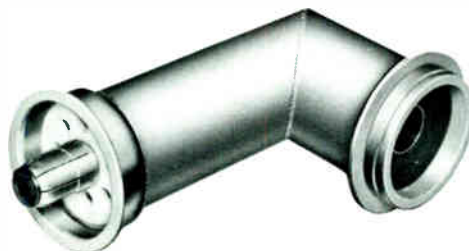
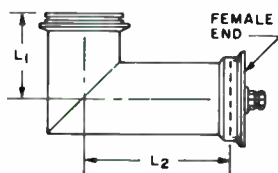
90-DEGREE ELBOWS, SHORT END FEMALE



Stock Number	Line Size	Insert Length L_1	L_2	Approx. Weight	Packaged Dimensions	Shipping Weight
MI-27791D-2A	3 $\frac{1}{8}$ "	8 $\frac{1}{16}$ " (205 mm)	4 $\frac{1}{16}$ " (116 mm)	10 $\frac{3}{4}$ lbs. (5 kg)	25 $\frac{1}{2}$ "x13"x14 $\frac{1}{2}$ " (648x330x368 mm)	15 lbs. (7 kg)
MI-27792D-2A	6 $\frac{1}{8}$ "	12" (305 mm)	7" (178 mm)	25 $\frac{1}{4}$ lbs. (11 kg)	22"x20"x14" (559x508x356 mm)	50 lbs. (23 kg)
MI-561566D-2A	8 $\frac{3}{16}$ "	24" (610 mm)	12" (305 mm)	47 $\frac{1}{2}$ lbs. (22 kg)	36"x25"x14" (914x635x356 mm)	100 lbs. (46 kg)
MI-27793D-2A	9 $\frac{3}{16}$ "	22 $\frac{3}{4}$ " (172 mm)	9 $\frac{1}{2}$ " (241 mm)	57 lbs. (26 kg)	35"x22"x15" (879x559x381 mm)	110 lbs. (51 kg)

Includes connector, clamp and O-ring. Specially reinforced elbow is available for each line size. To order reinforced unit, add suffix "R" to Stock Number shown. Three-inch diameter elbow illustrated.

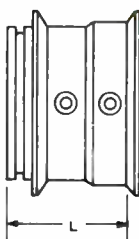
90-DEGREE ELBOWS, LONG END FEMALE



Stock Number	Line Size	Insert Length L_1	L_2	Approx. Weight	Packaged Dimensions	Shipping Weight
MI-27791D-2B	3 $\frac{1}{8}$ "	4-3/16" (115 mm)	8-7/16" (214 mm)	10 $\frac{3}{4}$ lbs. (5 kg)	25 $\frac{1}{2}$ "x13"x14 $\frac{1}{2}$ " (648x330x368 mm)	15 lbs. (7 kg)
MI-27792D-2B	6 $\frac{1}{8}$ "	6-9/16" (167 mm)	12-7/16" (316 mm)	25 $\frac{1}{4}$ lbs. (11 kg)	25 $\frac{1}{2}$ "x13"x14 $\frac{1}{2}$ " (648x330x368 mm)	50 lbs. (23 kg)
MI-561566D-2B	8 $\frac{3}{16}$ "	12" (305 mm)	24" (610 mm)	47 $\frac{1}{2}$ lbs. (21 kg)	39"x21"x14" (991x533x356 mm)	100 lbs. (46 kg)
MI-27793D-2B	9 $\frac{3}{16}$ "	8 $\frac{7}{8}$ " (225 mm)	23 $\frac{3}{8}$ " (594 mm)	57 lbs. (26 kg)	38"x18"x15" (965x457x381 mm)	110 lbs. (51 kg)

Includes connector, clamp and O-ring. Specially reinforced elbow is available for each line size. To order reinforced unit, add suffix "R" to Stock Number shown. Three-inch diameter elbow illustrated.

GAS STOPS

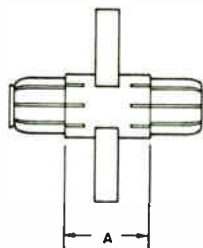


Stock Number	Line Size	Insert Length (L)	Approx. Weight	Shipping Weight
MI-27791D-3A	3 $\frac{1}{8}$ "	4-27/32" (123 mm)	7 lbs. (3 kg)	10 lbs. (4500 g)
MI-27792D-3A	6 $\frac{1}{8}$ "	5-5/8" (143 mm)	18 lbs. (8 kg)	22 lbs. (10 kg)
MI-561566D-3A	8 $\frac{3}{16}$ "	6-15/16" (176 mm)	43 lbs. (20 kg)	50 lbs. (23 kg)
MI-27793D-3A	9 $\frac{3}{16}$ "	6-15/16" (176 mm)	60 lbs. (27 kg)	65 lbs. (29 kg)

Seals gassed from ungassed section. Each stock number includes clamp and O-ring. Six-inch diameter stop illustrated.

Universal 50- and 75-Ohm Teflon Transmission Line

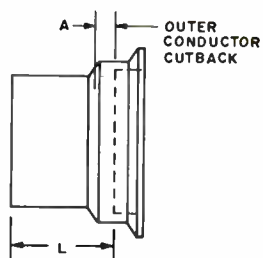
INNER CONNECTORS



Stock Number	Line Size	Insert Length (A)	Approx. Weight
MI-27791D-4D	3 $\frac{3}{8}$ "	1 $\frac{3}{4}$ " (44 mm)	1 lb. (454 g)
MI-27792D-4D	6 $\frac{1}{8}$ "	2 $\frac{3}{8}$ " (61 mm)	2 lbs. (908 g)
MI-561566D-4D	8 $\frac{3}{16}$ "	3 $\frac{1}{8}$ " (79 mm)	4 lbs. (2 kg)
MI-27793D-4D	9 $\frac{3}{16}$ "	3 $\frac{1}{8}$ " (79 mm)	5 lbs. (2.3 kg)

Connector for use with Universal elbows, gas stops and certain adapters. Six-inch line connector illustrated.

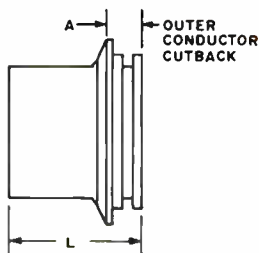
SOFT SOLDER FLANGES, FEMALE



Stock Number	Line Size	Length (L)	Insert Length (A)	Approx. Weight
MI-27791D-4A	3 $\frac{3}{8}$ "	2 $\frac{5}{16}$ " (59 mm)	$\frac{5}{8}$ " (16 mm)	2 $\frac{1}{2}$ lbs. (1.2 kg)
MI-27792D-4A	6 $\frac{1}{8}$ "	3" (76 mm)	11/16" (17 mm)	6 lbs. (3 kg)
MI-561566D-4A	8 $\frac{3}{16}$ "	6 $\frac{1}{2}$ " (165 mm)	1" (25 mm)	17 $\frac{1}{2}$ lbs. (8 kg)
MI-27793D-4A	9 $\frac{3}{16}$ "	6 $\frac{1}{2}$ " (165 mm)	1" (25 mm)	17 $\frac{3}{4}$ lbs. (8.1 kg)

To flange field cut line. Includes clamp. 8 $\frac{3}{16}$ -inch flange illustrated.

SOFT SOLDER FLANGES, MALE



Stock Number	Line Size	Length (L)	Insert Length (A)	Approx. Weight
MI-27791D-4B	3 $\frac{3}{8}$ "	1 $\frac{7}{8}$ " (48 mm)	17/32" (14 mm)	2 lbs. (908 g)
MI-27792D-4B	6 $\frac{1}{8}$ "	3 $\frac{3}{16}$ " (74 mm)	27/32" (18 mm)	5 $\frac{3}{4}$ lbs. (2.6 kg)
MI-561566D-4B	8 $\frac{3}{16}$ "	6 $\frac{1}{2}$ " (165 mm)	1" (25 mm)	13 $\frac{1}{2}$ lbs. (6.3 kg)
MI-27793D-4B	9 $\frac{3}{16}$ "	6 $\frac{1}{16}$ " (164 mm)	11/16" (17 mm)	15 $\frac{3}{4}$ lbs. (7.1 kg)

To flange field cut line. Includes O-ring gasket. 8 $\frac{3}{16}$ -inch flange illustrated.

Universal 50- and 75-Ohm Teflon Transmission Line

SILVER SOLDER FLANGES, FEMALE



Stock Number	Line Size	Length	Insert Length (A)	Approx. Weight
MI-27791-14	3 $\frac{1}{8}$ "	1 $\frac{1}{2}$ " (38 mm)	$\frac{1}{2}$ " (13 mm)	1 $\frac{1}{4}$ lbs. (567 g)
MI-27792-14	6 $\frac{1}{8}$ "	1 $\frac{7}{8}$ " (48 mm)	$\frac{1}{2}$ " (13 mm)	2 $\frac{3}{4}$ lbs. (1.2 kg)

To flange 3 $\frac{1}{8}$ " and 6 $\frac{1}{8}$ " Universal line.
Not for field installation.

SILVER SOLDER FLANGES, MALE



Stock Number	Line Size	Length	Insert Length (A)	Approx. Weight
MI-27791-16	3 $\frac{1}{8}$ "	1" (25 mm)	$\frac{1}{2}$ " (13 mm)	1 lb. (454 g)
MI-27792-16	6 $\frac{1}{8}$ "	1 $\frac{1}{4}$ " (36 mm)	$\frac{7}{8}$ " (20 mm)	2 $\frac{3}{4}$ lbs. (1.2 kg)

To flange 3 $\frac{1}{8}$ " and 6 $\frac{1}{8}$ " Universal line.
Not for field installation.

END CAPS, FEMALE



Stock Number	Line Size	Length (L)	Approx. Weight
MI-27791D-8A	3 $\frac{1}{8}$ "	2 $\frac{1}{16}$ " (62 mm)	2 $\frac{1}{2}$ lbs. (1.1 kg)
MI-27792D-8A	6 $\frac{1}{8}$ "	2 $\frac{3}{4}$ " (70 mm)	6 lbs. (2.7 kg)
MI-561566D-8A	8 $\frac{3}{16}$ "	3 $\frac{1}{8}$ " (79 mm)	16 $\frac{3}{4}$ lbs. (7.7 kg)
MI-27793D-8A	9 $\frac{3}{16}$ "	2 $\frac{7}{8}$ " (73 mm)	19 $\frac{3}{4}$ lbs. (9 kg)

For temporarily capping male end of line to prevent entrance of moisture. Fitted for bleeding and gassing line.

END CAPS, MALE



Stock Number	Line Size	Length (L)	Approx. Weight
MI-27791D-8B	3 $\frac{1}{8}$ "	4" (102 mm)	1 $\frac{3}{4}$ lbs. (793 g)
MI-27792D-8B	6 $\frac{1}{8}$ "	4" (102 mm)	6 $\frac{3}{4}$ lbs. (3 kg)
MI-561566D-8B	8 $\frac{3}{16}$ "	5" (127 mm)	13 $\frac{1}{2}$ lbs. (6 kg)
MI-27793D-8B	9 $\frac{3}{16}$ "	5" (127 mm)	16 $\frac{1}{2}$ lbs. (7 kg)

For temporarily capping female end of line to prevent entrance of moisture. Fitted for bleeding and gassing of line.

ADAPTERS, MALE BOTH ENDS

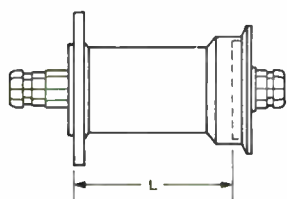


Stock Number	Line Size	Length (L)	Approx. Weight
MI-27791D-7C	3 $\frac{1}{8}$ "	12" (304 mm)	5 lbs. (2.2 kg)
MI-27792D-7C	6 $\frac{1}{8}$ "	12" (304 mm)	11 $\frac{1}{4}$ lbs. (5 kg)
MI-561566D-7C	8 $\frac{3}{16}$ "	12" (304 mm)	19 lbs. (8.6 kg)
MI-27793D-7C	9 $\frac{3}{16}$ "	12" (304 mm)	25 $\frac{3}{4}$ lbs. (12 kg)

Couples female ends of Universal line by providing two male ends. Furnished with two O-rings.

Universal 50- and 75-Ohm Teflon Transmission Line

ADAPTERS (Provide 3/8" Universal Female and EIA Flanged Ends)



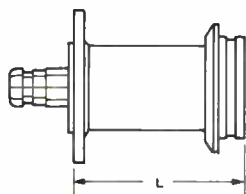
Stock Number	Length (L)	Approx. Weight
MI-27791D-7A	6" (152 mm)	7 lbs. (3 kg)
MI-27792D-7A	6" (152 mm)	16 lbs. (7 kg)

MI-27791D-7A couples 3/8" Universal male end to 3/8" MI-19089 or EIA by providing Universal female and EIA flanged ends. Includes two connectors, clamp, O-ring, 6 bolts, nuts and lockwashers.



MI-27792D-7A couples 6/8" Universal male end to 6/8" MI-19387 or EIA by providing Universal female and EIA flanged ends. Includes two connectors, clamp, O-ring, 12 bolts, nuts and lockwashers.

ADAPTERS (Provide Universal Male and EIA Flanged Ends)



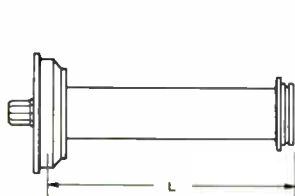
Stock Number	Length (L)	Approx. Weight
MI-27791D-7B	6" (152 mm)	5 lbs. (2.2 kg)
MI-27792D-7B	6" (152 mm)	12 1/2 lbs. (6 kg)

MI-27791D-7B couples 3/8" Universal female end to 3/8" MI-19089 or EIA by providing Universal male and EIA flanged ends. Includes connector, two O-rings, 6 bolts, nuts and lockwashers.

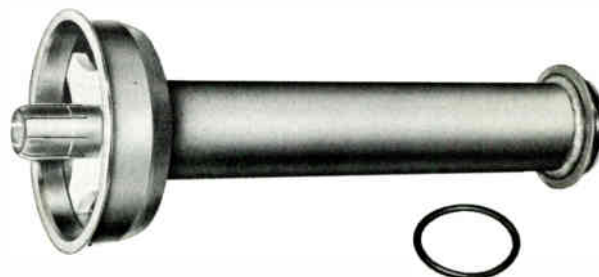


MI-27792D-7B couples 6/8" Universal female end to 6/8" MI-19387 or EIA by providing Universal male and EIA flanged ends. Includes connector, two O-rings, 12 bolts, nuts and lockwashers.

REDUCER-TRANSFORMERS (Provide 6/8" Universal Female and 3/8" Universal Male Ends)



Stock Number	Length (L)	Approx. Weight	U. S. Channels
MI-27792D-6A	60" (1.5 m)	40 lbs. (18 kg)	2 or 3
MI-27792D-6B	48" (1.2 m)	30 lbs. (14 kg)	4, 5 or 6
MI-27792D-6C	24" (610 mm)	20 lbs (9 kg)	7 thru 13
MI-27792D-6D	18" (457 mm)	17 1/4 lbs. (8 kg)	14-83



Reduces and transforms 6/8" 75-ohm Universal male end to 3/8" 50 ohm Universal female end by providing Universal 6/8" female and 3/8" male flanges. Includes captive connector, clamp and O-ring.

Universal 50- and 75-Ohm Teflon Transmission Line

REDUCER-TRANSFORMER (Provides 6 1/8" Universal Female and 3 1/8" 50-Ohm Flanged Ends)



Stock Number	Length (L)	Approx. Weight	U. S. Channels
MI-27792D-6K	18" (457 mm)	17 1/4 lbs. (8 kg)	14-83

Reduces and transforms 6 1/8" 75 ohm Universal male end to 3 1/8" 50 ohm flanged MI-19089 or EIA by providing Universal 6 1/8" female and 3 1/8" EIA flanges. Includes captive connector, clamp, O-ring, 6 bolts, nuts and lockwashers.

REDUCER-TRANSFORMER (Provides 6 1/8" Universal Male and 3 1/8" EIA Flanged Ends)



Stock Number	Length (L)	Approx. Weight	U. S. Channels
MI-19089-31ch	18" (457 mm)	17 lbs. (8 kg)	14-83

Reduces and transforms 6 1/8" 75 ohm Universal female end to 3 1/8", 50 ohm flanged MI-19089 or EIA by providing 6 1/8" Universal male and 3 1/8" EIA flanges. Includes O-ring, 6 bolts, nuts and lockwashers. Specify channel number.

REDUCER-TRANSFORMERS (Provide 6 1/8" Universal Female and 3 1/8" 51.5-Ohm Flanged Ends)

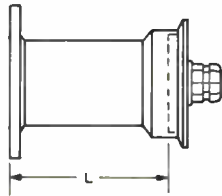


Stock Number	Length (L)	Approx. Weight	U. S. Channels
MI-27792D-6L	60" (406 mm)	40 lbs. (18 kg)	2 or 3
MI-27792D-6M	48" (1.2 m)	30 lbs. (14 kg)	4, 5 or 6
MI-27792D-6N	24" (610 mm)	20 lbs (9 kg)	7 thru 13

Reduces and transforms 6 1/8" 75 ohm Universal male end to 3 1/8" 51.5 ohm flanged MI-19113C or 19313 by providing Universal 6 1/8" female and 3 1/8" EIA flanges. Includes captive connector, clamp, O-ring, 6 bolts, nuts and lockwashers.

Universal 50- and 75-Ohm Teflon Transmission Line

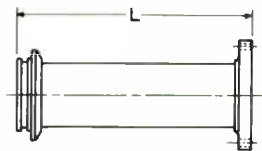
TRANSFORMERS (Provide 6 1/8" Universal Female and 6 1/8" 51.5-Ohm Flanged Ends)



Stock Number	Length (L)	Approx. Weight	U. S. Channels
MI-27792D-6R	62" (1.6 m)	45 lbs. (20 kg)	2 or 3
MI-27792D-6T	52" (1.3 m)	35 lbs. (16 kg)	4, 5 or 6
MI-27992D-6U	26" (660 mm)	25 lbs. (11 kg)	7 thru 13

Transforms 6 1/8" 75 ohm Universal male end to 6 1/8" 51.5 ohm MI-19314 flanged end by providing Universal 6 1/8" female and 6 1/8" 51.5 ohm flanges.

ADAPTER (Provides Universal Male and 3 1/8" MI-19113C or MI-19313 Flanged Ends)



Stock Number	Length (L)	Approx. Weight
MI-27988-7B	6" (152 mm)	4.4 lbs. (1.9 kg)

Couples MI-27791D Universal female end to MI-19113C or 19313 51.5 ohms 3 1/8" flanged by providing Universal male and 51.5 ohm flanged ends. For FM applications only.

CUTOFF GUIDES



Stock Number	Approx. Weight	Guide for Cutting
MI-19089-15	2 1/4 lbs. (1.1 kg)	3 1/8" outer
MI-19089-16	6 ozs. (171 g)	3 1/8" inner
MI-19387-15	6 lbs. (2.7 kg)	6 1/8" outer
MI-19387-16	6 ozs. (171 g)	6 1/8" inner

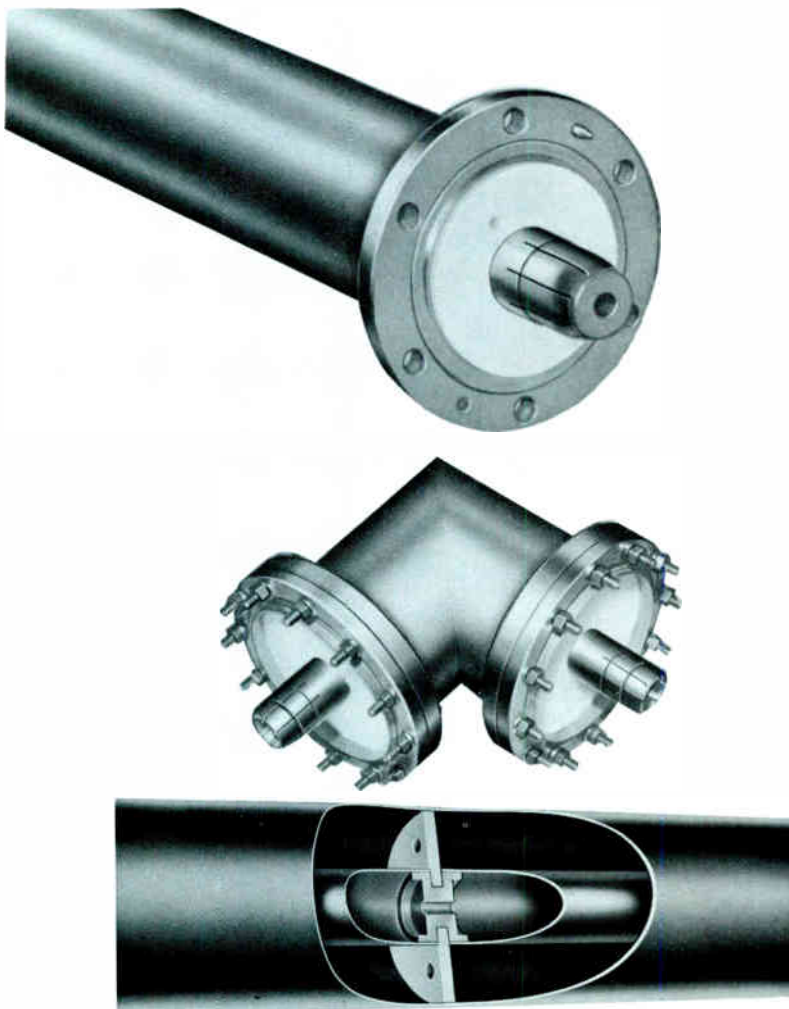
MISCELLANEOUS

O-Ring Gasket for 3 1/8" MI-27791D	MI-27791D-4E
O-Ring Gasket for 6 1/8" MI-27792D	MI-27792D-4E
O-Ring Gasket for 8 3/8" MI-561566	MI-561566D-4E
O-Ring Gasket for 9 3/8" MI-27793D	MI-27793D-4E
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Marman Clamp for 3 1/8" MI-27791D	MI-27791D-4C
Marman Clamp for 6 1/8" MI-27792D	MI-27792D-4C
Marman Clamp for 8 3/8" MI-561566D	MI-561566D-4C
Marman Clamp for 9 3/8" MI-27793D	MI-27793D-4C
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Silicon Grease, 2 oz. tube	MI-19089-18

T. Bolt - A 6657-11

Bolt Flanged 50 and 75 Ohm Teflon Insulated Transmission Line

- Low loss Teflon dielectric
- High power capability
- Excellent VSWR



RCA Bolt Flanged 50- and 75-ohm Transmission Lines are efficient, precision types designed for medium to high power installations at frequencies up to 1,000 MHz and higher. These lines feature excellent VSWR and a flat characteristic impedance over a wide range of frequencies.

This is the result of a specially developed Teflon insulator which is electrically "transparent" and introduces minimum discontinuity. RF attenuation is low and efficiency is high. Characteristics of the insulator and precise centering of the inner conductor permit the line to be cut at any point along its length without changing operating impedance.

Power ratings and efficiency are given in "Planning and Data for Transmission Line," Catalog Sheet TR.1101A.

In This Section:

3 1/8-inch Teflon	
50-Ohm	MI-19089
6 1/8-inch Teflon	
75-Ohm	MI-19387

3/8-inch Teflon-Insulated, 50-Ohm Transmission Line, MI-19089

General Specifications

Frequency (Recommended upper limit for broadcast applications)1400 MHz
 Characteristic Impedance50 ohms
 OD, Outer Conductor3.125" (79 mm)
 ID, Outer Conductor3.027" (77 mm)
 OD, Inner Conductor1.315" (33 mm)
 ID, Inner Conductor1.231" (31 mm)
 Flange Diameter5 5/8" (132 mm)

Dimensionally, this line is equivalent to EIA 50 ohm 3/8" line. However, the connectors associated with straight sections are captive.

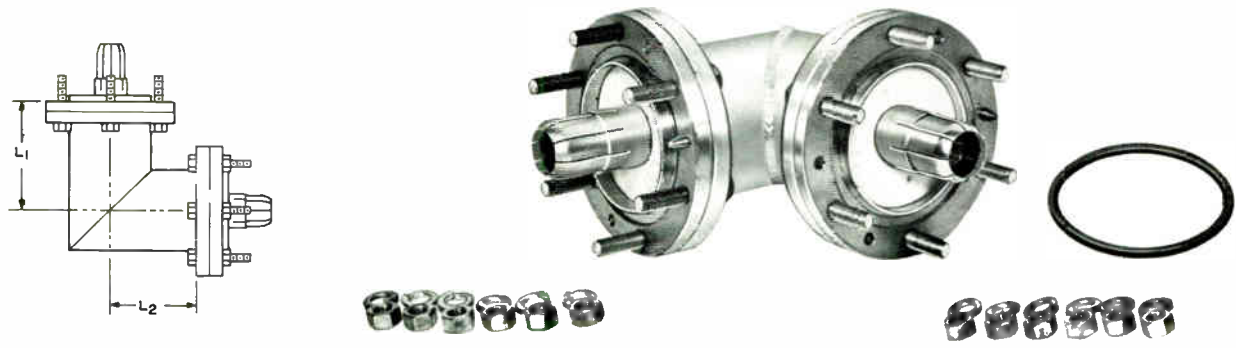
NOTES: MI-19089-1E and -1F include one captive anchor insulator and expansion joint. MI-19089-1C and -1D have neither anchor insulator nor expansion joint, and are offered for short, indoor runs only. When ordering for replacement use, specify that line section include one swivel flange. The 19 1/2-foot sections are required for certain frequencies. See table for length selection in "Planning and Data for Transmission Line," B.6900.

STRAIGHT SECTIONS



Stock Number	Length (L)	Flanges	Dim. A	Approx. Weight	Package Dimensions (two lengths per package)	Shipping Weight
MI-19089-1E	20' (6.1 m)	2 fixed	1 1/8" (29 mm)	60 lbs. (27 kg)	248" x 13" x 8" (6300 x 330 x 203 mm)	162 lbs. (73 kg)
MI-19089-1F	19 1/2' (6 m)	2 fixed	1 1/8" (29 mm)	57 lbs. (26 kg)	240" x 13" x 8" (6096 x 330 x 203 mm)	158 lbs. (72 kg)
MI-19089-1C	20' (6.1 m)	2 fixed	1" (25 mm)	60 lbs. (27 kg)	248" x 13" x 8" (6300 x 330 x 203 mm)	162 lbs. (73 kg)
MI-19089-1D	19 1/2' (6 m)	2 fixed	1" (25 mm)	57 lbs. (25 kg)	240" x 13" x 8" (6096 x 330 x 203 mm)	158 lbs. (72 kg)

90-DEGREE ELBOW, MALE

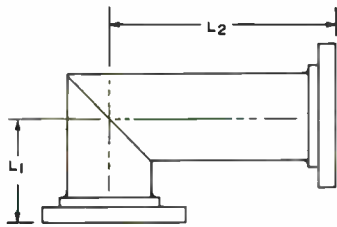


Stock Number	L1	L2	Flanges	Approx. Weight
MI-19089-2A	4 1/8" (105 mm)	4 1/8" (105 mm)	2 Swivel	13 lbs. (6 kg)

Includes locked-in connector at each end.

3/8-inch Teflon-Insulated, 50-Ohm Transmission Line, MI-19089

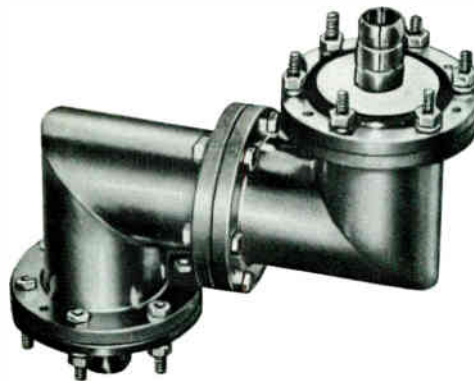
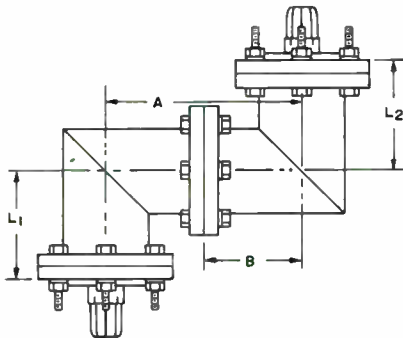
90-DEGREE ELBOW, FEMALE



Stock Number	L ₁	L ₂	Flanges	Approx. Weight
MI-19089-2C	4 3/4" (111 mm)	8" (203 mm)	2 Swivel	11 lbs. (5 kg)

MI-19089-2CR same as above but with reinforced, welded gussets. If anchor insulator connectors are required, use connector MI-19089-10A with this elbow (see next page).

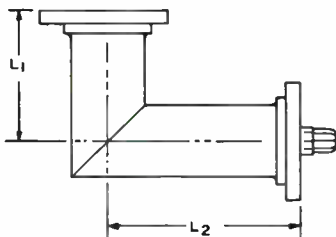
TWO 90-DEGREE ELBOWS IN SERIES



Stock Number	L ₁	L ₂	Dimensions A	B	Flanges	Approx. Weight
MI-19089-6	4 1/8" (105 mm)	4 1/8" (105 mm)	7 1/2" (190 mm)	3 3/4" (95 mm)	2 Swivel	23 lbs. (10 kg)

Swivel tandem elbows supplied with one O-ring, and at each end, 6 1 3/8" bolts, nuts, lockwashers and one locked-in connector.

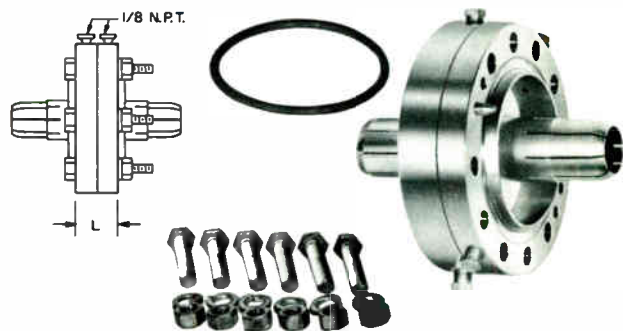
90-DEGREE ELBOW (For Replacement Use)



Stock Number	Insert Length L ₁	L ₂	Flanges	Approx. Weight
MI-19089-2B	3 7/8" (97 mm)	4 1/8" (105 mm)	2 Swivel	11 lbs. (5 kg)

Furnished with one locked-in inner connector, O-ring, 6 bolts, nuts and lockwashers.

GAS STOP

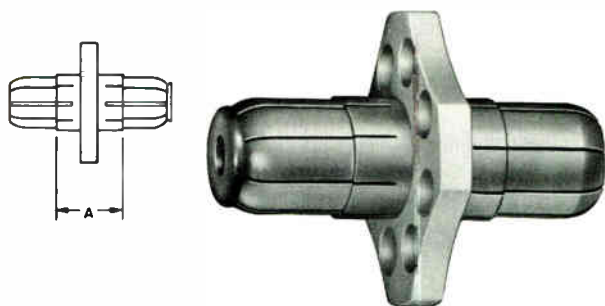


Stock Number	Insert Length (L)	Approx. Weight
MI-19089-4	1 1/2" (48 mm)	7 lbs. (3.2 kg)

Seals gassed from ungassed sections.

3/8-inch Teflon-Insulated, 50-Ohm Transmission Line, MI-19089

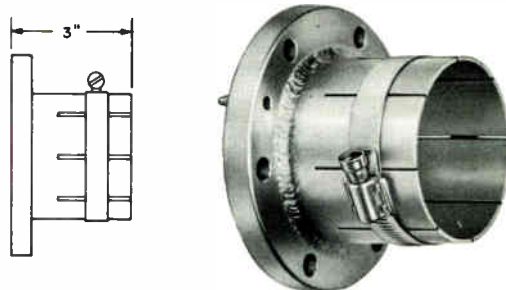
CONNECTOR, ANCHOR INSULATOR



Stock Number	Insert Length (A)	Approx. Weight
MI-19089-10A	1 3/4" (44 mm)	1 lb. (454 g)

Used to join inner conductors of MI-19089 line.

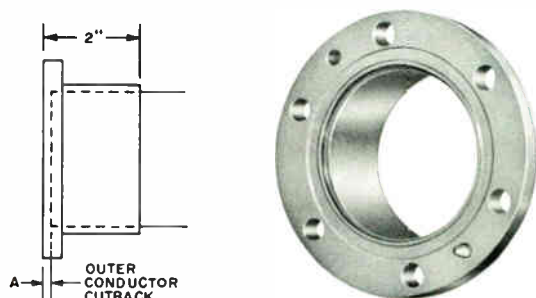
MECHANICAL FLANGE



Stock Number	Approx. Weight
MI-27988-4C	3 lbs. (1.4 kg)

To flange field cut line. Cannot be pressurized.

SOFT SOLDER FLANGE



Stock Number	Insert Length (A)	Approx. Weight
MI-19089-14	1/4" (6.3 mm)	3 lbs. (1.4 kg)

To flange field cut line. Flange is non-swivel.

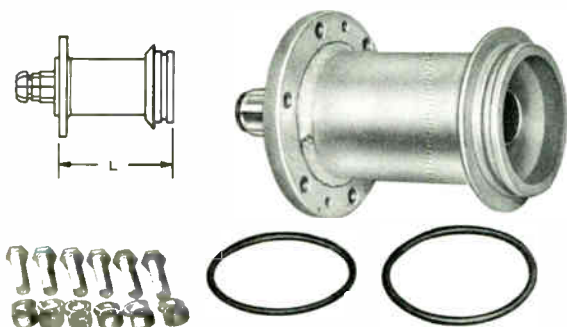
SILVER SOLDER FLANGES



Stock Number	Insert Length (A)	Approx. Weight
MI-19089-11	1/4" (6.3 mm)	1 3/4 lbs. (.8 kg)
MI-19089-12	1/4" (6.3 mm)	1 3/4 lbs. (.8 kg)

MI-19089-11 is fixed and MI-19089-12 is a swivel flange. Not recommended for field installation.

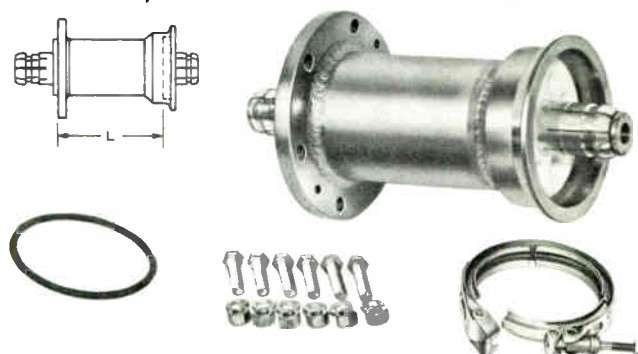
ADAPTER, TO 3/8" UNIVERSAL MALE



Stock Number	Insert Length (L)	Approx. Weight
MI-19089-25	6" (152 mm)	5 lbs. (2.3 kg)

Converts MI-19089 and EIA flanged components to 3/8" Universal male end.

ADAPTER, TO 3/8" UNIVERSAL FEMALE

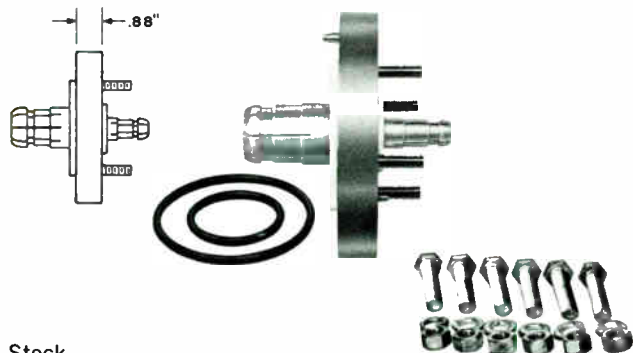


Stock Number	Insert Length (L)	Approx. Weight
MI-19089-24	6" (152 mm)	7 lbs. (3.2 kg)

Converts MI-19089 and EIA flanged components to 3/8" Universal female.

3/8-inch Teflon-Insulated, 50-Ohm Transmission Line, MI-19089

REDUCER, TO 1 5/8" EIA

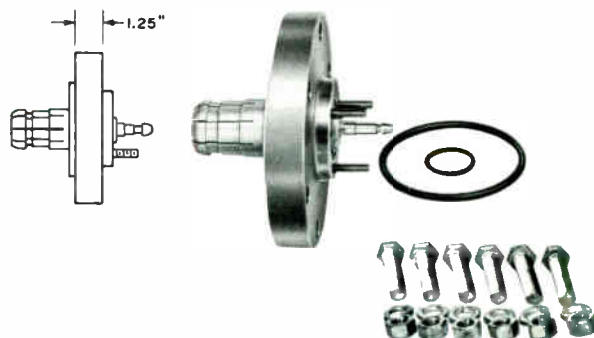


Stock Number Approx. Weight

MI-27988-5C 3 lbs. (1.4 kg)

Reduces flanged MI-19089 to 1 5/8" 50 ohm EIA components.

REDUCER, TO 7/8" EIA



Number Stock Approx. Weight

MI-27988-5D 3 lbs. (1.3 kg)

Reduces flanged MI-19089 to 7/8" 50 ohm EIA components.

REDUCER, TO N FITTING



Stock Number Length Approx. Weight

MI-19089-17 8" (203 mm) 5 3/4 lbs. (2.6 kg)

Converts MI-19089 to Type N female.

REDUCER, TO TYPE HN FITTING

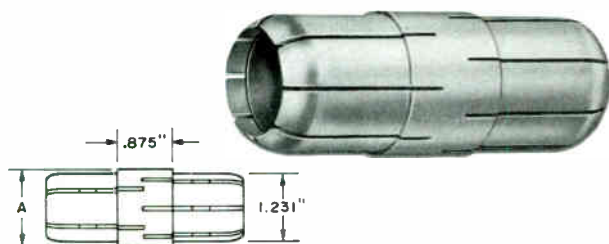


Stock Number Length Approx. Weight

MI-19089-21 7 3/8" (187 mm) 4 lbs. (1.8 kg)

Converts MI-19089 to Type HN female.

INNER CONDUCTOR ADAPTERS



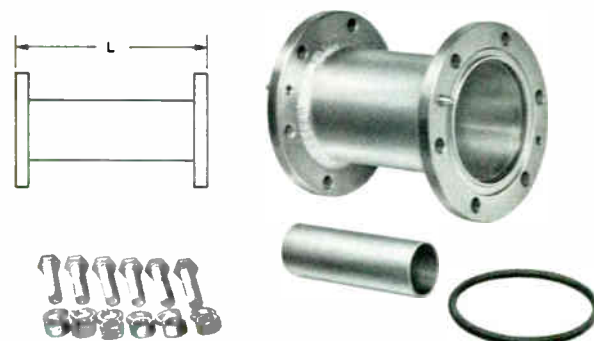
Stock Number Dim. A Approx. Weight

MI-27988-4A 1.136" (28 mm) 6 ozs. (171 g)

MI-27988-4B 1.232" (31 mm) 6 ozs. (171 g)

MI-27988-4A adapts MI-19089 inner conductors to MI-19113C inner conductors. MI-27988-4B adapts MI-19089 inner conductors to MI-19313 inner conductors.

ADAPTER, MALE TO MALE



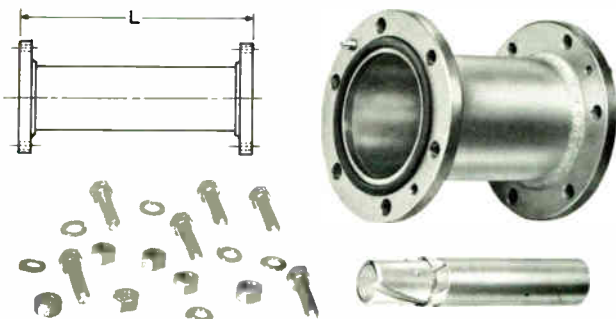
Stock Number Insert Length (L) Approx. Weight

MI-27988-7E 6" (152 mm) 5 1/2 lbs. (2.5 kg)

Connects male ends of MI-19089 and EIA components.

3/8-inch Teflon-Insulated, 50-Ohm Transmission Line, MI-19089

ADAPTER, FLANGED TO EIA FLANGED



Stock Number	Length (L)	Approx. Weight
MI-27988-7A	6" (152 mm)	5½ lbs. (2.5 kg)

Adapts MI-19089 and EIA components to MI-19113C or MI-19313 components. For FM applications.

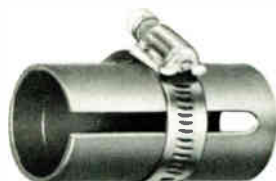
END CAP



Stock Number	Approx. Weight
MI-19089-26	3 lbs. (1.4 kg)

For temporary closure of line to prevent entrance of moisture. Includes pipe plug for bleeding and gassing line.

CUTOFF GUIDES



Stock Number	Approx. Weight	Guide for Cutting
MI-19089-15	2.3 lbs. (1.1 kg)	3/8 inch outer
MI-19089-16	6 ozs. (171 g)	3/8 inch inner

MISCELLANEOUS ITEMS

Item	Stock Number
O-Ring Gasket	MI-19113C-10
Hardware Kit consisting of 6 bolts, nuts and lockwashers	MI-19113C-19
Tool for lancing 3/8" line	MI-19089-29
Extractor for removing anchor insulator from inner conductor	MI-19089-20
Expansion Joint Anchor Insulator—Field Replacement Kit	MI-19089-23
20' Length of Inner Conductor for use with MI-19089-23	MI-19089-99-1
Silicone Grease, 2 oz. tube	MI-19089-18

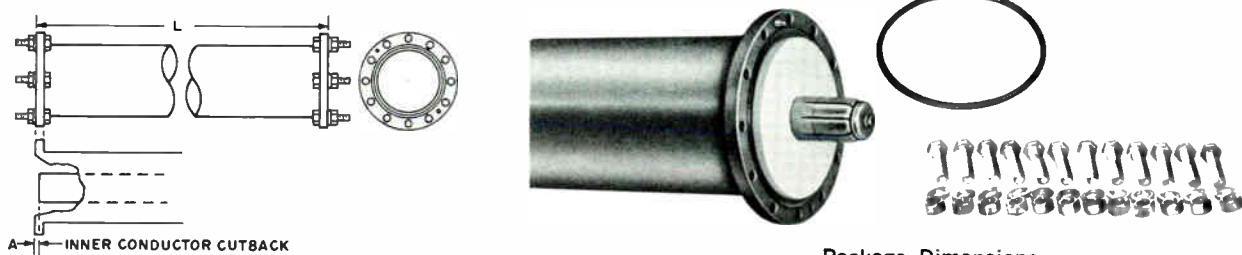
6 1/8-inch Teflon-Insulated, 75-Ohm Transmission Line, MI-19387

General Specifications

Frequency (Recommended upper limit for broadcast applications)	900 MHz
Characteristic Impedance	75 ohms
OD, Outer Conductor	6.125" (156 mm)
ID, Outer Conductor	5.981" (152 mm)
OD, Inner Conductor	1.711" (43 mm)
ID, Inner Conductor	1.661" (42 mm)
Flange Diameter	8 1/8" (206 mm)

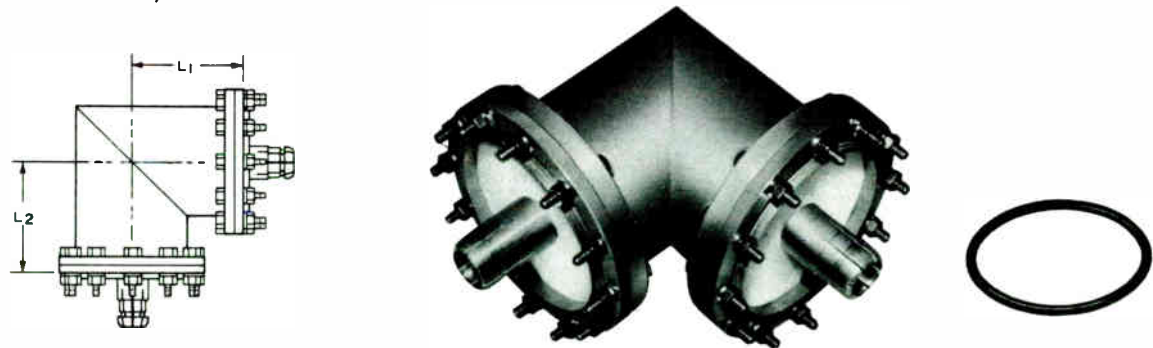
NOTES: MI-19387-1E and -1F include one captive insulator and expansion joint. MI-19089-1C and -1D have neither anchor insulator nor expansion joint, and are offered for short inside runs only. When ordering for replacement, specify that line include one swivel flange. The special 19 1/2' lengths are required for certain frequencies. See table for channel length selection in "Planning and Data for Transmission Line," B.6900.

STRAIGHT SECTIONS



Stock Number	Length (L)	Flanges	Dim. A	Approx. Weight	Package Dimensions (one length per package)	Shipping Weight
MI-19387-1E	20' (6.1 m)	2 fixed	1 1/8" (29 mm)	131 lbs. (60 kg)	248" x 10 1/2" x 10" (6300 x 267 x 254 mm)	175 lbs. (80 kg)
MI-19387-1F	19 1/2' (6 m)	2 fixed	1 1/8" (29 mm)	124 lbs. (56 kg)	240" x 10 1/2" x 10" (6096 x 267 x 254 mm)	168 lbs. (76 kg)
MI-19387-1C	20' (6.1 m)	2 fixed	1" (25 mm)	131 lbs. (60 kg)	248" x 10 1/2" x 10" (6300 x 267 x 254 mm)	175 lbs. (80 kg)
MI-19387-1D	19 1/2' (6 m)	2 fixed	1" (25 mm)	124 lbs. (56 kg)	240" x 10 1/2" x 10" (6096 x 267 x 254 mm)	168 lbs. (76 kg)

90-DEGREE ELBOW, MALE

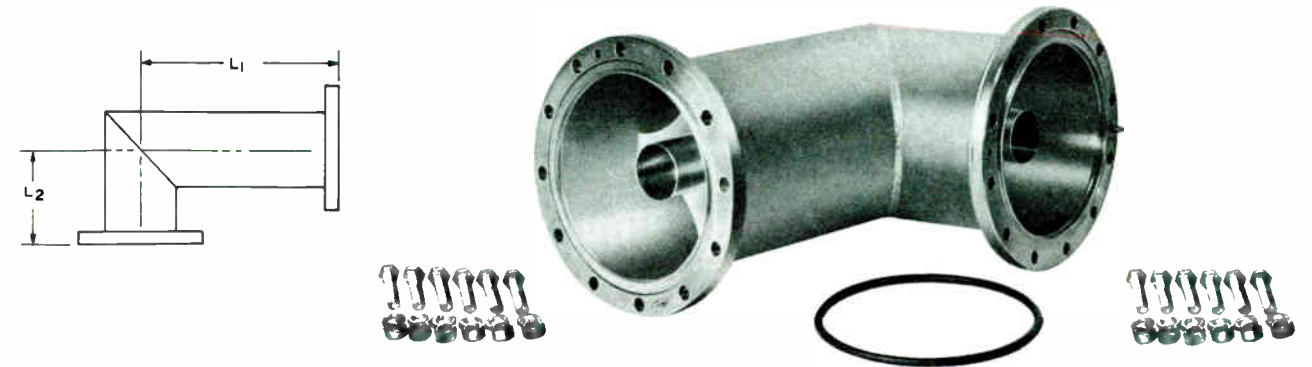


Stock Number	Insert Length L1	Insert Length L2	Flanges	Approx. Weight
MI-19387-2A	6 3/16" (157 mm)	6 3/16" (157 mm)	2 Swivel	31 lbs. (14 kg)

Includes two locked-in connectors, O-ring, 24 bolts, nuts and lockwashers.

6 1/8-inch Teflon-Insulated, 75-Ohm Transmission Line, MI-19387

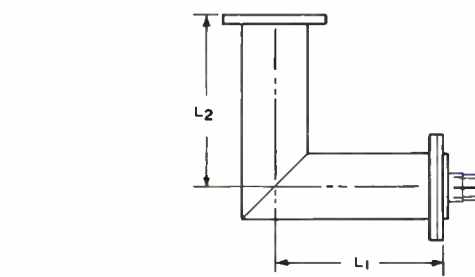
90-DEGREE ELBOW, FEMALE



Stock Number	Insert Length L1	Insert Length L2	Flanges	Approx. Weight
MI-19387-2C	12" (305 mm)	7" (178 mm)	2 Swivel	26 lbs. (12 kg)

MI-19387-2CR same as above but with reinforced, welded gussets. If anchor insulator connectors are required, use connector MI-19387-10A with this elbow (see lower right panel, this page).

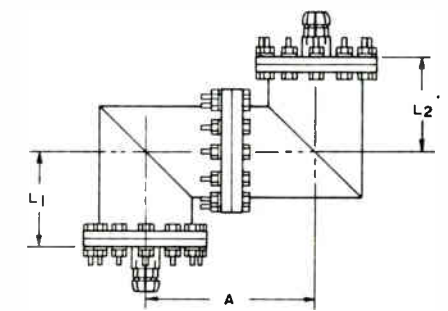
90-DEGREE ELBOW (For Replacement Use)



Stock Number	Insert Length L1	Insert Length L2	Flanges	Approx. Weight
MI-19387-2B	6 3/16" (157 mm)	5 1/8" (144 mm)	2 Swivel	24 lbs. (11 kg)

Includes one locked-in inner connector, O-ring, 24 bolts, nuts and lockwashers.

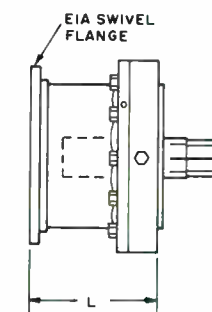
TWO 90-DEGREE ELBOWS IN SERIES



Stock Number	Dimensions L1	Dimensions L2	Dimensions A	Flanges	Approx. Weight
MI-19387-6	6 3/16" (157 mm)	6 3/16" (157 mm)	11 3/8" (289 mm)	2 Swivel	55 lbs. (25 kg)

Swivel tandem elbows supplied with 12 bolts, nuts, and lockwashers at each end, 2 locked-in connectors and one O-ring.

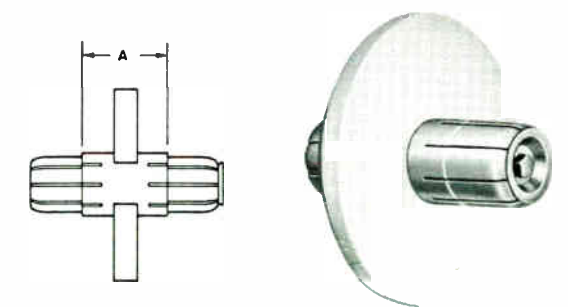
GAS STOP



Stock Number	Insert Length (L)	Approx. Weight
MI-19387-5A	5 3/8" (137 mm)	17.5 lbs. (8 kg)

Seals gassed from ungassed sections. Supplied with one O-ring, 12 bolts, nuts and lockwashers.

CONNECTOR, ANCHOR INSULATOR

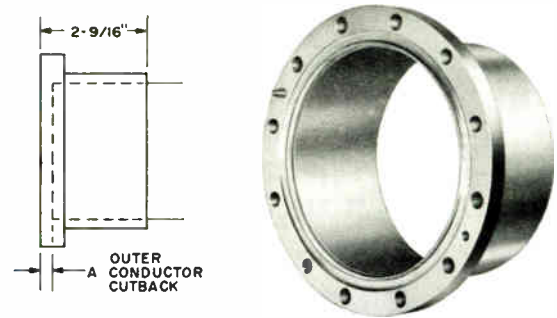


Stock Number	Insert Length (A)	Approx. Weight
MI-19387-10A	2 3/8" (61 mm)	2 3/4 lbs. (1 kg)

Used to join inner conductors of MI-19387 line.

6 1/8-inch Teflon-Insulated, 75-Ohm Transmission Line, MI-19387

SOFT SOLDER FLANGE



Stock Number	Insert Length (A)	Approx. Weight
MI-19387-14	3/8" (9.5 mm)	7 lbs. (3.2 kg)

To flange field cut line. Flange is non-swivel.

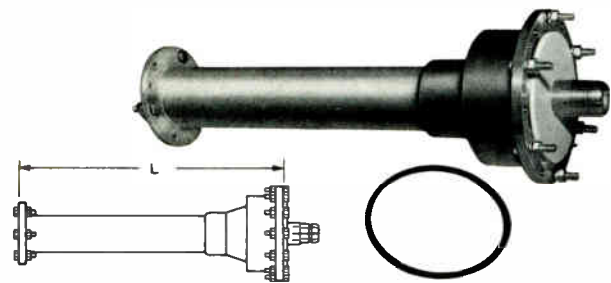
SILVER SOLDER FLANGES



Stock Number	Insert Length (A)	Approx. Weight
MI-19387-11	9/32" (7 mm)	3 1/2 lbs. (1.6 kg)
MI-19387-12	3/8" (9.5 mm)	3 1/2 lbs. (1.6 kg)

MI-19387-11 is fixed and MI-19387-12 is a swivel flange. Not recommended for field installation.

UHF REDUCER-TRANSFORMER, TO 3 1/8" 50-OHM



Stock Number	Insert Length (L)	Approx. Weight
MI-19387-4-ch	21 5/8" (544 mm)	19 lbs. (8.7 kg)

Reduces and transforms 6 1/8" 75 ohm MI-19387 to 3 1/8" 50 ohm MI-19089 and EIA components. Specify UHF channel or frequency with order. Furnished with one captive inner connector, O-ring MI-19314C-9, three 1 3/8" bolts, six 1 3/4" bolts, 9 nuts and lockwashers.

CUTOFF GUIDES



Stock Number	Approx. Weight	Guide for Cutting
MI-19387-15	6 lbs. (2.7 kg)	6 1/8 inch outer
MI-19387-16	6 ozs. (171 g)	6 1/8 inch inner

END CAP



Stock Number	Approx. Weight
MI-19387-26	10 lbs. (4.5 kg)

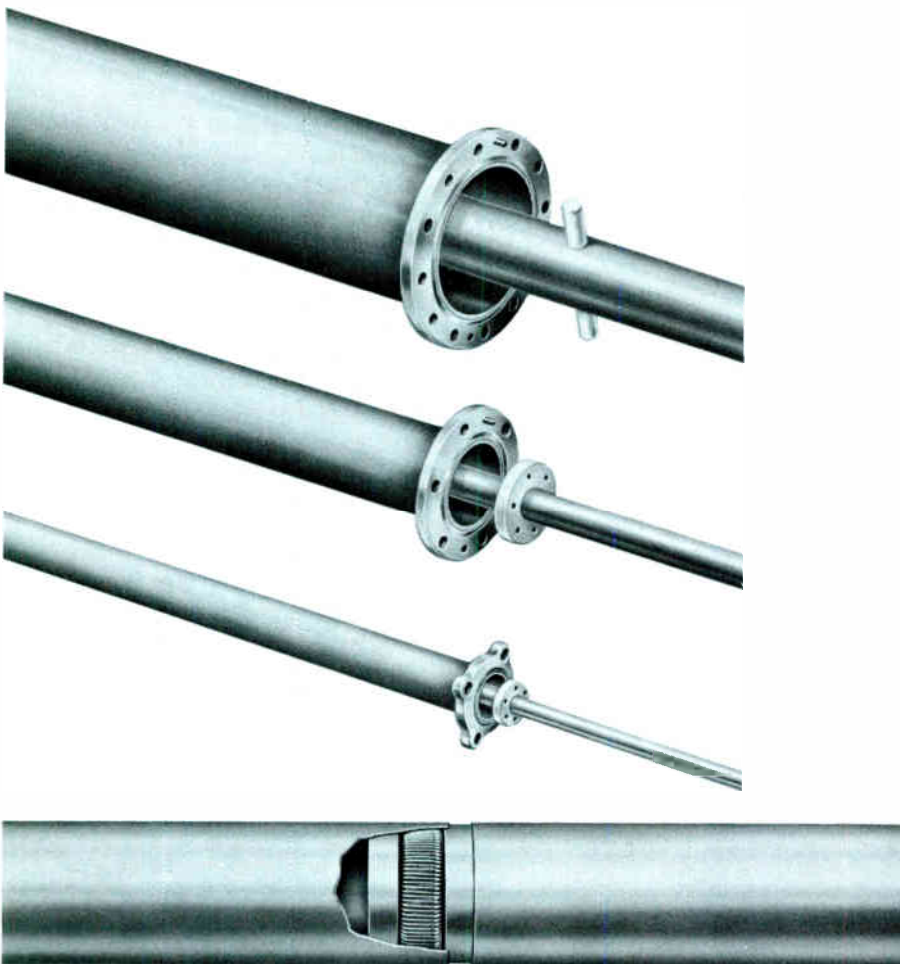
For temporary closure of transmission line to prevent entrance of moisture. Includes pipe plug for bleeding and gassing line.

MISCELLANEOUS ITEMS

Item	Stock Number
O-Ring Gasket	MI-19314C-9
Hardware Kit consisting of 12 bolts, nuts and lockwashers	MI-19314C-10
Tool for lancing MI-19387 line	MI-19387-29
Expansion Joint Anchor Insulator— Field Replacement Kit	MI-19387-23
20' Length of Inner Conductor for use with MI-19387-23	MI-19387-99-1
Silicone Grease, 2 oz. tube	MI-19089-18

51.5 Ohm Rigid Coaxial Transmission Cable

- High transfer efficiency
- Precision flanges
- Extra-strength elbow units
- Installation ease and economy



Cutaway of inner conductor expansion joint used in Teflon-insulated transmission line.

RCA 51.5 ohm rigid coaxial transmission line serves all AM, FM and TV broadcast applications at frequencies through 254 MHz.

The 1½ inch (41 mm) line is steatite insulated and intended for low power TV and FM broadcast (108 MHz and lower). Steatite insulated 3½ inch (79 mm) line serves moderate power level FM and lowband VHF TV stations. Teflon-insulated 3½ inch line covers the entire VHF TV and FM broadcast spectrum with moderate power handling capability. Teflon insulated line features a "wristband spring" inner conductor expansion joint that prevents galling and contamination of the Teflon insulation.

Steatite insulated 6½ inch (156 mm) line offers extra transmission efficiency and higher power capability for all VHF TV and FM broadcast frequencies.

Power ratings and efficiency are given in "Planning and Data for Transmission Line," TR.1101A.

In This Section:

1½-inch Steatite	MI-19112
3½-inch Steatite	MI-19113C
3½-inch Teflon	MI-19313
6½-inch Steatite	MI-19314C

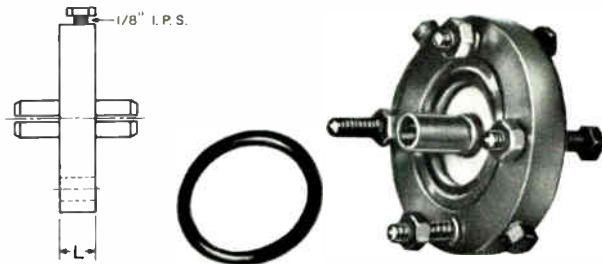
1 5/8-inch Steatite-Insulated, 51.5-Ohm Transmission Line, MI-19112

General Specifications

Frequency (Recommended upper limit for broadcast applications)	108 MHz
Characteristic Impedance	51.5 ohms
OD, Outer Conductor	1.625" (41 mm)
ID, Outer Conductor	1.527" (39 mm)
OD, Inner Conductor	0.625" (16 mm)
ID, Inner Conductor	0.569" (14 mm)
Flange Clearance Diameter	4" (100 mm)

For all AM and FM channels, TV channels 2 through 6 (54-88 MHz)

GAS STOP



Stock Number	Insert Length (L)	Approx. Weight
MI-19112-5	5/8" (16 mm)	3 lbs. (1.4 kg)

Seals gassed sections from ungassed sections.

STRAIGHT SECTIONS



Stock Number	Length (L)	Flanges	Approx. Weight	Package Dimensions	Shipping Weight
MI-19112-1	20' (6.1 m)	2	25 lbs. (11.3 kg)	248" x 13" x 8 1/2" (6300 x 330 x 216 mm)	203 lbs. (92 kg)
MI-19112-1NF	20' (6.1 m)	None	24 lbs. (10.9 kg)		

MI-19112-1NF includes inner connector. Six sections per package.

90-DEGREE ELBOW

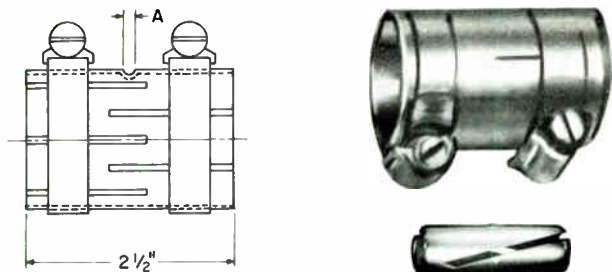


Stock Number	Insert Length L ₁	Insert Length L ₂	Flanges	Approx. Weight
MI-19112-18	6 1/8"	2 3/8"	2 Swivel	4 1/4 lbs. (2.2 kg)
MI-19112-18NF	(153 mm)	(65 mm)	None	2 lbs. (1 kg)

MI-19112-18NF includes inner connector.

1⁵/₈-inch Steatite-Insulated, 51.5-Ohm Transmission Line, MI-19112

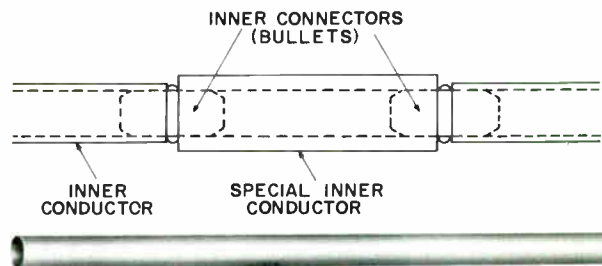
UNFLANGED COUPLING



Stock Number	Insert Length (A)	Approx. Weight
MI-19112-8	1/8" (3.2 mm)	8 oz. (228 g.)

Connects unflanged line sections. (MI-19112-1NF).

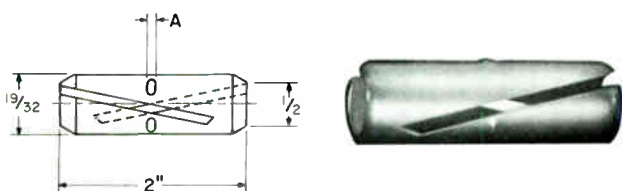
SPLICING INNER CONDUCTOR



Stock Number	Dimensions			Approx. Weight
	OD	ID	Length	
MI-19112-9	0.645" (16.4 mm)	0.569" (14.5 mm)	12' (3.7 m)	3 1/2 lbs. (1.6 kg)

Thick-wall tubing for splicing inner conductor at points other than midpoint between insulators. Requires two inner connectors for each splice (not supplied, see MI-19112-11 at below and to left).

INNER CONNECTOR



Stock Number	Insert Length (A)	Approx. Weight
MI-19112-11	1/16" (1.6 mm)	1 oz. (28 g)

Connector for joining inner conductors of all MI-19112 components.

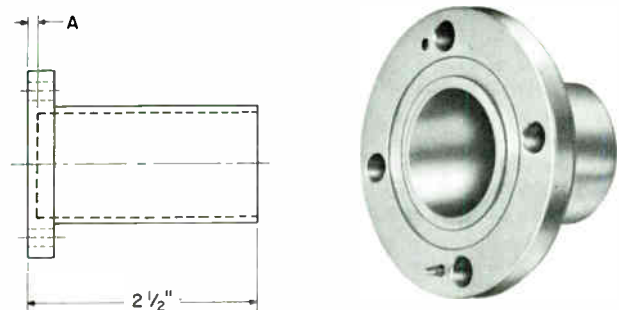
MECHANICAL FLANGE



Stock Number	Length (L)	Approx. Weight
MI-19112-16	2 1/8" (53 mm)	1 lb. (454 g)

To flange MI-19112-1NF line. Cannot be pressurized.

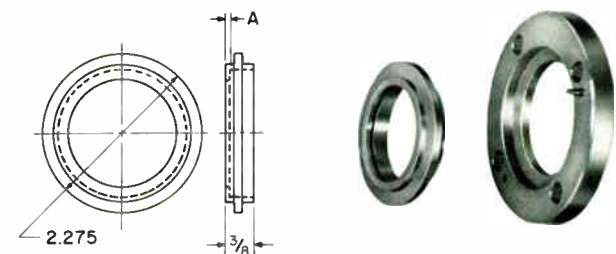
SOFT-SOLDER FLANGE



Stock Number	Insert Length (A)	Approx. Weight
MI-19112-60	9/64" (3.5 mm)	1 3/4 lbs. (790 g)

To flange field-cut line. Flange is non-swivel.

SILVER-SOLDER FLANGES



Stock Number	Insert Length (A)	Approx. Weight
MI-19112-20	5/64" (2 mm)	15 oz. (427 g)
MI-19112-21	5/64" (2 mm)	16 oz. (454 g)

To flange MI-19112 line. MI-19112-20 is a fixed flange, and MI-19112-21 is a swivel flange. Not for field installation.

1 5/8-inch Steatite-Insulated, 51.5-Ohm Transmission Line, MI-19112

REDUCER, UNFLANGED TO TYPE "N"



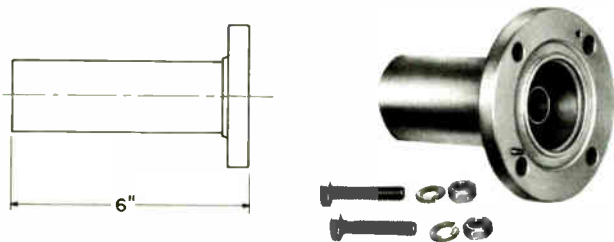
Stock Number	Length	Approx. Weight
MI-19112-58	5" (127 mm)	25 oz. (712 g)
Converts unflanged MI-19112 to Type "N" female.		

REDUCER, FLANGED TO TYPE "N"



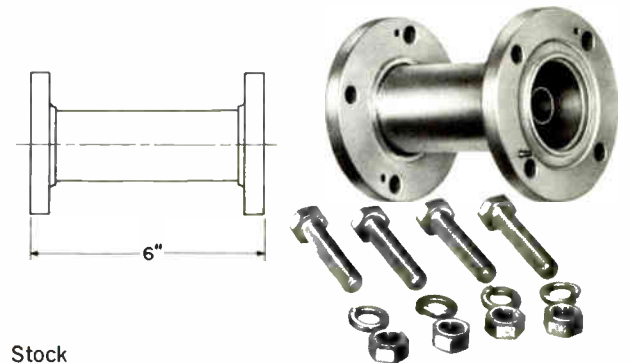
Stock Number	Length	Approx. Weight
MI-19112-59	5" (127 mm)	2 1/4 lbs. (1020 g)
Converts flanged MI-19112 to Type "N" female.		

ADAPTER, UNFLANGED TO EIA FLANGED



Stock Number	Length	Approx. Weight
MI-27988-7F	6" (152 mm)	2 lbs. (907 g)
Converts unflanged MI-19112 to EIA flanged, 50-ohm components.		

ADAPTER, FLANGED TO EIA FLANGED



Stock Number	Length	Approx. Weight
MI-27988-7G	6" (152 mm)	2.5 lbs. (1100 g)
Converts flanged MI-19112 to EIA flanged, 50-ohm components.		

END CAP



Stock Number	Approx. Weight
MI-19112-13	5 oz. (143 g)
For temporary closure of line to prevent entrance of moisture.	

MISCELLANEOUS



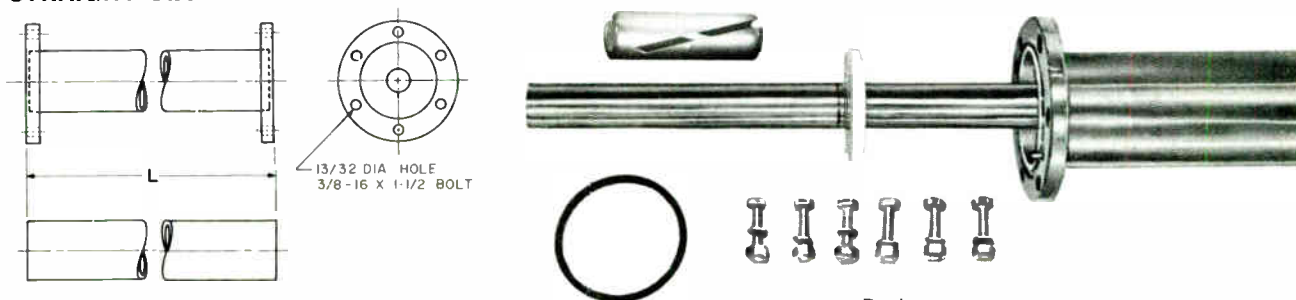
MI-19112-10	O-Ring Gasket
MI-19112-19	Hardware Kit consisting of four bolts, nuts, lockwashers
MI-19112-39	Hose Clamp for 1 5/8-inch unflanged components
MI-19089-18	Silicone Grease, 2 oz. tube

3/8-inch Steatite-Insulated, 51.5-Ohm Transmission Line, MI-19113C

General Specifications

Frequency (Recommended upper limit for broadcast applications)108 MHz
 Characteristic Impedance51.5 ohms
 OD, Outer Conductor3.125" (79.4 mm)
 ID, Outer Conductor3.027" (76.9 mm)
 OD, Inner Conductor1.200" (30.5 mm)
 ID, Inner Conductor1.136" (28.9 mm)
 Flange Clearance Diameter6" (152 mm)
 For AM, FM & VHF-TV Channels 2-6 (54-88 MHz)

STRAIGHT SECTIONS



Stock Number	Length (L)	Flanges	Approx. Weight	Package Dimensions	Shipping Weight
MI-19113C-1	20' (6.1 m)	2 Fixed	53 lbs. (24 kg)	24 1/2" x 13" x 8 1/2" (630H x 330 x 216 mm)	150 lbs. (68 kg)
MI-19113C-1NF	20' (6.1 m)	None	52 lbs. (23.6 kg)		148 lbs. (67 kg)
MI-19113C-1SF	20' (6.1 m)	2 (one swivel)	53 lbs. (24 kg)		150 lbs. (68 kg)

For field replacement, use MI-19113C-1SF. MI-19113C-1NF includes inner connector. U.S. TV Channel 10 and FM Channels between 97.1 and 98.9 MHz require 19 1/2-foot (5.94 m) sections. Two sections per package.

90-DEGREE ELBOWS

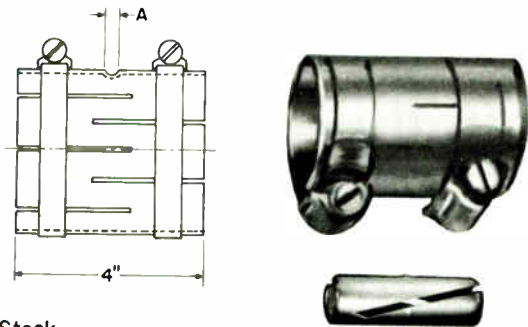


Stock Number	Insert Length L ₁	Insert Length L ₂	Flanges	Approx. Weight	Package Dimensions	Shipping Weight
MI-19113C-18	3 7/8" (98 mm)	8 1/8" (206 mm)	2 Swivel	11 1/4 lbs. (5.1 kg)	12 1/2" x 12 1/2" x 7" (317 x 317 x 178 mm)	14 lbs. (6 kg)
MI-19113C-18NF	3 7/8" (98 mm)	8 1/8" (206 mm)	None	6 1/4 lbs. (2.8 kg)	10" x 6" x 4" (254 x 152 x 102 mm)	7 lbs. (3 kg)

MI-19113C-18NF includes inner conductor.

3/8-inch Steatite-Insulated, 51.5-Ohm Transmission Line, MI-19113C

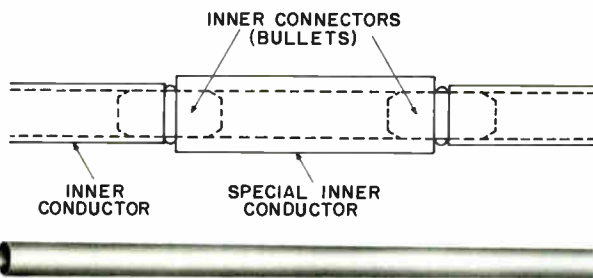
UNFLANGED COUPLING



Stock Number	Insert Length (A)	Approx. Weight
MI-19113C-8B	3/16" (5 mm)	1 1/4 lbs. (567 g)
MI-19113C-8NB	3/16" (5 mm)	1 1/8 lbs. (510 g)

Couples unflanged line sections and components. MI-19113C-8NB coupling omits inner connector.

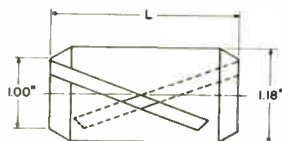
SPLICING INNER CONDUCTOR



Stock Number	Dimensions			Approx. Weight
	OD	ID	Length	
MI-19113C-9	1.282" (33 mm)	1.136" (28 mm)	12' (3.7 m)	12 1/2 lbs. (5.7 kg)

Oversize inner conductor for splicing MI-19113C line when it has been cut at other than the midpoint between insulators. Each splice requires two standard inner connectors (Connector not supplied. See MI-19113C-11 below).

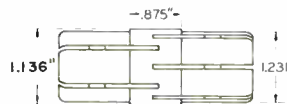
INNER CONNECTOR



Stock Number	Length (L)	Approx. Weight
MI-19113C-11	2 1/2" (64 mm)	2 oz. (57 g)

Inner connector for joining inner conductor of MI-19113C components.

INNER CONDUCTOR ADAPTER



Stock Number	Insert Length (L)	Approx. Weight
MI-27988-4A	7/8" (22 mm)	6 oz. (171 g)

Connects inner conductors of MI-19113C and MI-19089 components.

RCA Combining Network
Sectionalizing Kit
MI-27353

WJAR

3 1/8" END PLATES

MI-19 113C-13 Dudley

3 1/8" Short ELBOWS

3 1/8" Long ELBOW

MI-19113C-18

3" "O" Rings

MI-19113C-10

3" End Cap MI-19089-26

Grease

803 MI-19089-18A

203 MI-19089-18

Feed Line Straps

8824427-1

Stock # 97898

-2

97899

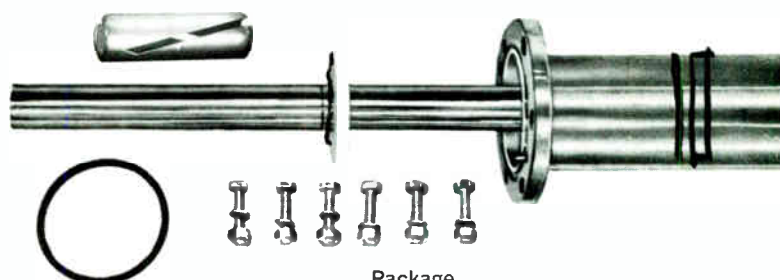
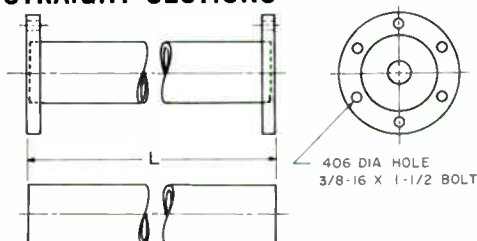
3/8-inch Teflon-Insulated, 51.5-Ohm Transmission Line, MI-19313

General Specifications

Frequency (Recommended upper limit for broadcast applications)400 MHz
 Characteristic Impedance51.5 ohms
 OD, Outer Conductor3.125" (79.4 mm)
 ID, Outer Conductor3.027" (76.9 mm)
 OD, Inner Conductor1.282" (32.5 mm)
 ID, Inner Conductor1.231" (31.4 mm)
 Flange Clearance Diameter6" (152 mm)
 For all AM, FM & VHF-TV Channels (54-400 MHz).



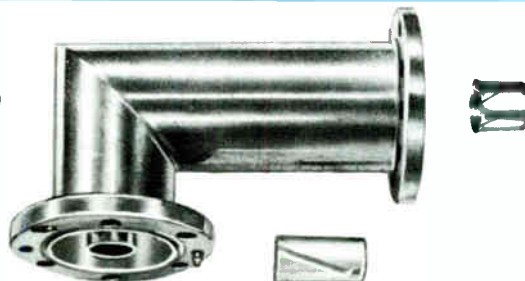
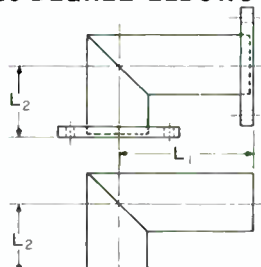
STRAIGHT SECTIONS



Stock Number	Length (L)	Flanges	Approx. Weight	Package Dimensions	Shipping Weight
MI-19313-1H	20' (6.1 m)	2 Fixed	51 lbs. (23 kg)	248" x 13" x 8 1/2" (6300 x 330 x 216 mm)	149 lbs. (68 kg)
MI-19313-1NF	20' (6.1 m)	None	48 lbs. (22 kg)		143 lbs. (65 kg)
MI-19313-1SFH	20' (6.1 m)	2 (one swivel)	52 lbs. (24 kg)		150 lbs. (68 kg)
MI-19313-1BH	19 1/2' (5.9 m)	2 Fixed	47 1/2 lbs. (22 kg)		147 lbs. (67 kg)
MI-19313-1BSFH	19 1/2' (5.9 m)	2 (one swivel)	48 lbs. (22 kg)		148 lbs. (67 kg)

For field replacement, use MI-19313-1SFH or MI-19313-1BSFH. MI-19313-1NF includes inner connector. U.S. TV Channel 10 and FM Channels between 97.1 and 98.9 MHz require 19 1/2-foot MI-19313-1BH or -1BSFH sections. Shipped two per pkg.

90-DEGREE ELBOWS

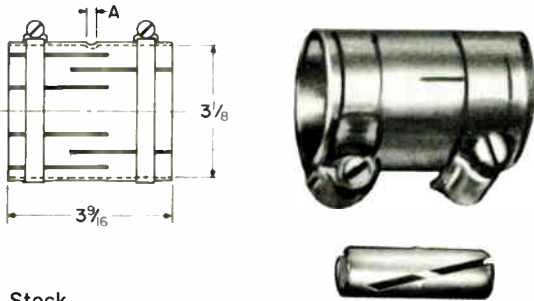


Stock Number	Insert Length L ₁	Insert Length L ₂	Flanges	Approx. Weight	Package Dimensions	Shipping Weight
MI-19313-2	8 1/2" (208 mm) 8" (205 mm)	3 7/8" (98 mm)	2 Swivel	11 1/2 lbs. (5.2 kg)	12 1/2" x 12 1/2" x 7" (317 x 317 x 178 mm)	14 lbs. (6 kg)
MI-19313-2NF		3 3/4" (95 mm)	None	6 1/2 lbs. (2.9 kg)		9 lbs. (4 kg)
MI-19313-2R			2 Swivel	12 lbs. (5.5 kg)		14 1/2 lbs. (7 kg)

MI-19313-2NF includes two connectors and two adapters. MI-19313-2R is MI-19313-2 with reinforced welded gussets.

3/8-inch Teflon-Insulated, 51.5-Ohm Transmission Line, MI-19313

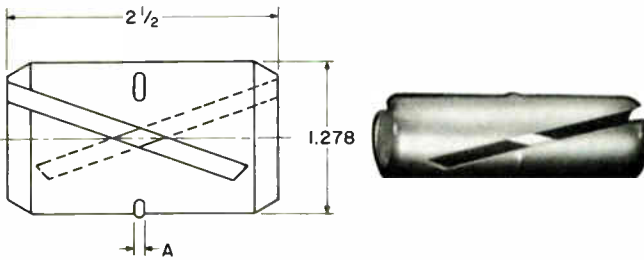
UNFLANGED COUPLING



Stock Number	Insert Length (A)	Approx. Weight
MI-19313-8	3/16" (4.8 mm)	1 1/4 lbs. (567 g)
MI-19313-8NB	3/16" (4.8 mm)	1 1/8 lbs. (510 g)

Connects unflanged line sections. MI-19313-8NB coupling omits inner connector.

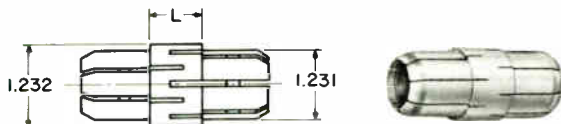
INNER CONNECTOR



Stock Number	Insert Length (A)	Approx. Weight
MI-19313-9	1/16" (1 mm)	2 oz. (57 g)

For joining inner conductors of MI-19313 transmission line sections.

INNER CONDUCTOR ADAPTER

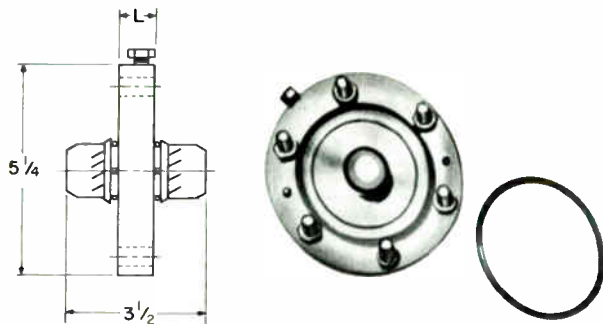


Stock Number	Insert Length (L)	Approx. Weight
MI-27988-4B	7/8" (22 mm)	6 oz. (171 g)

Connects inner conductor of MI-19313 and MI-19089 components.

Accessories for 3/8-inch, 51.5-Ohm Transmission Line

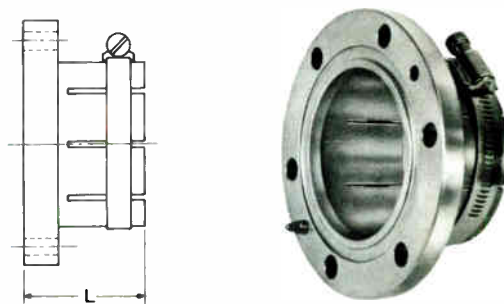
GAS STOP



Stock Number	Insert Length (L)	Approx. Weight
MI-19113C-5	7/8" (22 mm)	4 3/4 lbs. (3 kg)

Used between flanged MI-19113C or MI-19313 components. Seals pressurized from unpressurized sections.

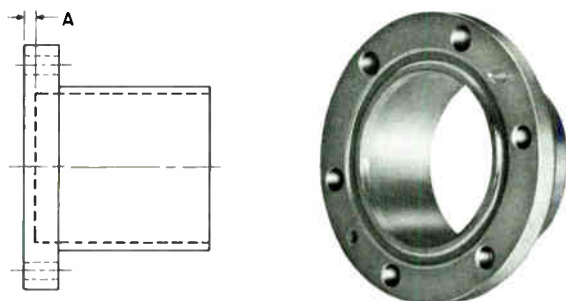
MECHANICAL FLANGE



Stock Number	Length (L)	Approx. Weight
MI-19113C-60	2" (51 mm)	3 1/4 lbs. (1.5 kg)

To flange MI-19113C or MI-19313 line. Cannot be pressurized.

SOFT-SOLDER FLANGE



Stock Number	Insert Length (A)	Approx. Weight
MI-19113C-55	1/4" (6.4 mm)	3 lbs. (1.4 kg)

To flange field-cut MI-19113C or MI-19313 line.

SILVER-SOLDER FLANGES



Stock Number	Insert Length (A)	Approx. Weight
MI-19113C-20	1/8" (2.8 mm)	1 3/4 lb. (790 g)
MI-19113C-21	1/8" (2.8 mm)	1 3/4 lb. (790 g)

To flange MI-19113C or MI-19313 line. MI-19113C-20 is a fixed flange. MI-19113C-21 allows 360° swivel. Not recommended for field installation.

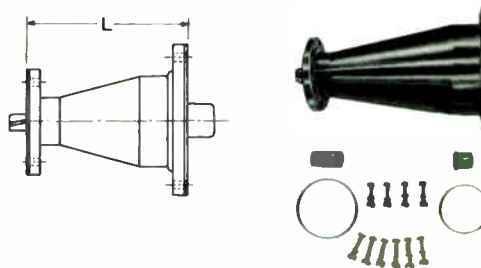
CUTOFF GUIDES



Stock Number	Approx. Weight
MI-19113C-51	6 oz. (171 g)
MI-19113C-54	5 oz. (143 g)
MI-19089-15	10 oz. (286 g)

MI-19113C-51 guide for cutting inner conductor of MI-19313. MI-19113C-54 guide for MI-19113C inner conductor or 19113C-9 splicing inner conductor. MI-19089-15 guide for cutting MI-19113C or MI-19313 outer conductors.

REDUCER, FLANGED TO 1 5/8" FLANGED

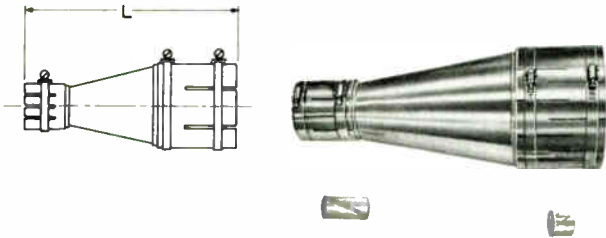


Stock Number	Insert Length (L)	Approx. Weight
MI-19113C-6	5-5/32" (131 mm)	5 5/8 lbs. (2.6 kg)

Reduces 3/8-inch, flanged MI-19113C or MI-19313 to 1 5/8-inch, flanged MI-19112.

Accessories for 3 1/8-inch, 51.5-Ohm Transmission Line

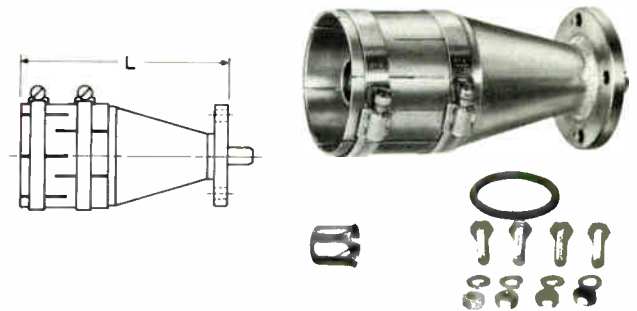
REDUCER, UNFLANGED TO 1 5/8" UNFLANGED



Stock Number	Length (L)	Approx. Weight
MI-19113C-7	7" (178 mm)	3 lbs. (1.4 kg)

Reduces 3 1/8-inch unflanged MI-19113C or 19313 to MI-19112 1 5/8-inch unflanged.

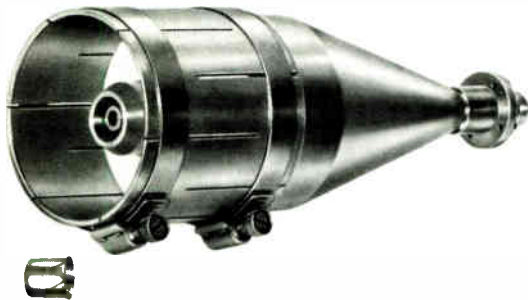
REDUCER, TO 7/8" EIA



Stock Number	Insert Length	Approx. Weight
MI-27988-5A	1.25" (32 mm)	8 oz. (228 g)

Reduces flanged MI-19113C or 19313 to 7/8-inch EIA flanged components. For FM application.

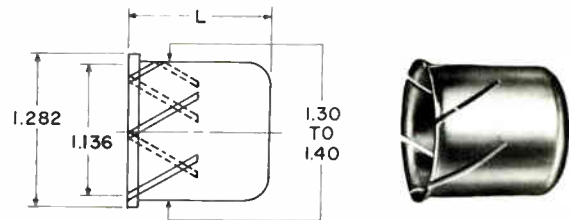
REDUCER, UNFLANGED TO TYPE "N"



Stock Number	Approx. Weight
MI-19113C-58	4 lbs. (1.8 kg)

Converts unflanged MI-19113C or 19313 line to a Type "N" female.

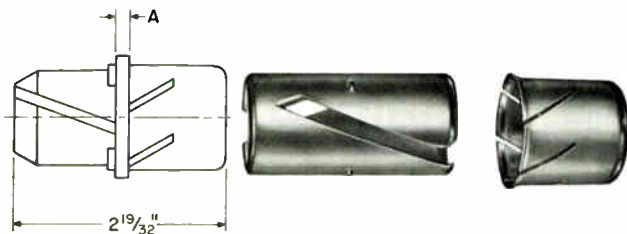
ADAPTER BUSHING



Stock Number	Length (L)	Approx. Weight
MI-19313-11	1 1/6" (33 mm)	2 oz. (57 g)

Used to reduce inner diameter of MI-19313 inner conductor to permit it to mate with inner conductor of MI-19113 components.

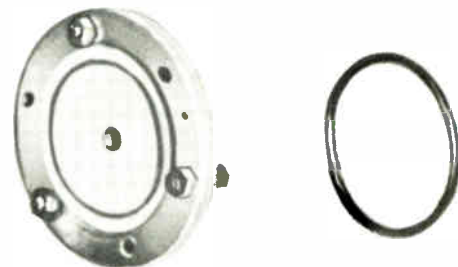
INNER CONDUCTOR ADAPTER



Stock Number	Insert Length (A)	Approx. Weight
MI-19313-10	1/8" (3 mm)	4 oz. (114 g)

Consists of MI-19113C-11 plus MI-19313-11 insert bushing. Used to connect inner conductors of MI-19113C and MI-19313.

END CAP



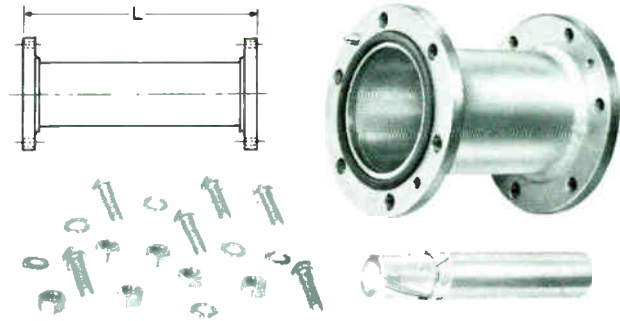
Stock Number	Approx. Weight	Package Dimensions
MI-19113C-13	14 1/4 lbs. (6.5 kg)	6" x 6" x 4 1/2" (152 x 152 x 114 mm)

For temporary capping of ends of MI-19113C or 19313 line to prevent entrance of moisture during installation.

Accessories for 3 1/8-inch, 51.5-Ohm Transmission Line

6 1/8-inch Steatite-Insulated, 51.5-Ohm Transmission Line, MI-19314C

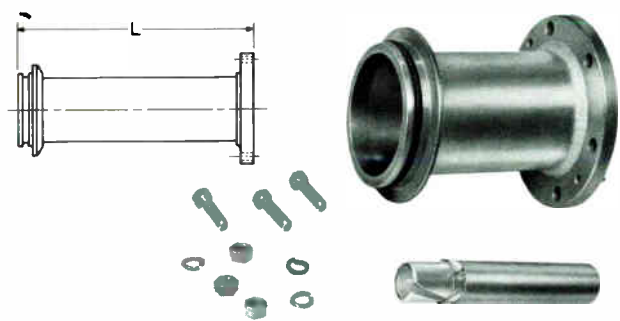
ADAPTER, FLANGED TO EIA FLANGED



Stock Number	Length (L)	Net Weight
MI-27988-7A	6" (152 mm)	5.5 lbs. (2.5 kg)

Adapts flanged MI-19113C or 19313 to 3 1/8" 50 ohm EIA, including MI-19089. For FM applications.

ADAPTER, TO UNIVERSAL



Stock Number	Length (L)	Net Weight
MI-27988-7B	6" (152 mm)	4.4 lbs. (1.9 kg)

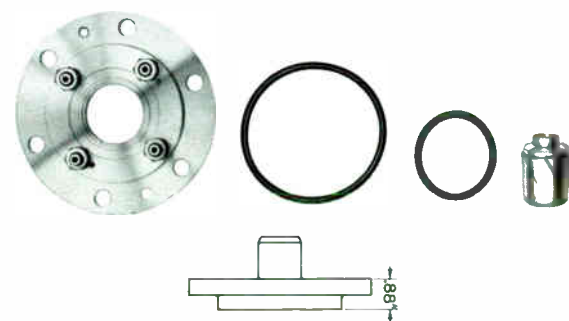
Converts flanged MI-19113C or 19313 to 3 1/8" Universal male.

MISCELLANEOUS



MI-19113C-10	O-Ring Gasket
MI-19113C-19	Hardware Kit consisting of 6 bolts, 6 nuts, 6 lockwashers
MI-19313-39	Hose Clamp for 3 1/8-inch unflanged components
MI-19089-18	Silicone Grease, 2 oz. tube

REDUCER, TO 1 5/8" EIA



Stock Number	Insert Length	Approx. Weight
MI-27988-5B	0.88" (22 mm)	8 oz. (228 g)

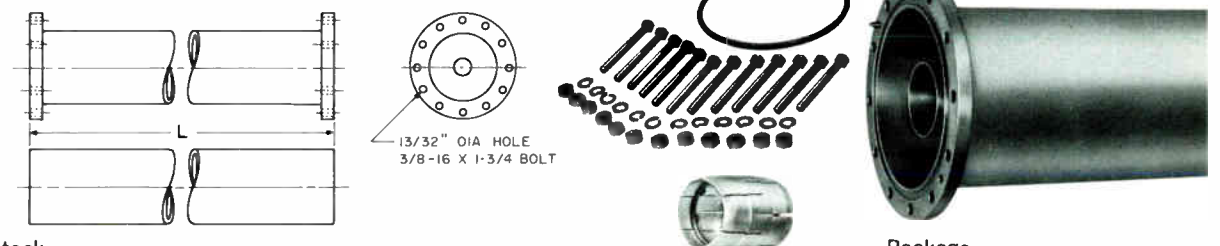
Reduces flanged MI-19113C or MI-19313 to 1 5/8-inch, 50-ohm EIA flanged components. For FM radio applications.

General Specifications

Frequency (Recommended upper limit for broadcast applications)	250 MHz
Characteristic Impedance	51.5 ohms
OD, Outer Conductor	6.125" (156 mm)
ID, Outer Conductor	5.981" (152 mm)
OD, Inner Conductor	2.500" (64 mm)
ID, Inner Conductor	2.435" (62 mm)
Flange Clearance Diameter	9" (229 mm)

For all AM, FM and VHF-TV Channels to 250 MHz.

STRAIGHT SECTIONS



Stock Number	Length (L)	Flanges	Approx. Weight	Package Dimensions	Shipping Weight
MI-19314C-1	20' (6.1 m)	2 Swivel	139 lbs. (63 kg)	248" x 10 1/2" x 10" (6300 x 266 x 254 mm)	185 lbs. (84 kg)
MI-19314C-1A	10' (3.0 m)	None	131 lbs. (60 kg)		180 lbs. (82 kg)
MI-19314C-1SF	20' (6.1 m)	2 (one Swivel)	140 lbs. (64 kg)	236" x 10 1/2" x 10" (6000 x 266 x 254 mm)	186 lbs. (84 kg)
MI-19314C-1B	19' (5.8 m)	2 Swivel	132 lbs. (60 kg)		177 lbs. (80 kg)
MI-19314C-1BSF	19' (5.8 m)	2 (one Swivel)	139 lbs. (63 kg)		177 lbs. (80 kg)

For field replacement, use MI-19314C-1SF or MI-19314C-1BSF. MI-19314C-1A includes no hardware. U.S. TV Channel 10 and FM Channels between 97.1 and 98.9 MHz require 19-foot (5.79 m) sections MI-19314C-1B or -1BSF.

90-DEGREE ELBOWS



Stock Number	Insert Length L1	Insert Length L2	Flanges	Approx. Weight	Packaged Dimensions	Shipping Weight
MI-19314C-18	12 3/8" (310 mm)	6 3/8" (157 mm)	2 Swivel	30 1/2 lbs. (14 kg)	21" x 13" x 10" (533 x 330 x 254 mm)	40 lbs. (18 kg)
MI-19314C-18NF	—	—	None	21 1/2 lbs. (10 kg)	—	31 lbs. (14 kg)
MI-19314C-18R	—	—	2 Swivel	33 1/2 lbs. (18.3 kg)	—	43 lbs. (23.5 kg)

MI-19314C-18NF includes inner connector. MI-19314C-18R is the same as MI-19314C-18 except that it has reinforced welded gussets.

6 1/8-inch Steatite-Insulated, 51.5-Ohm Transmission Line, MI-19314C

6 1/8-inch Steatite-Insulated, 51.5-Ohm Transmission Line, MI-19314C

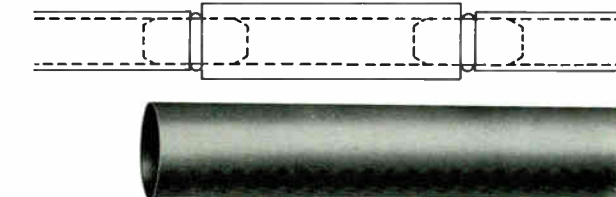
GAS STOP



Stock Number	Insert Length (A)	Approx. Weight
MI-19314C-52	1 3/8" (35 mm)	15 1/2 lbs. (7 kg)

Seals gassed from ungassed sections. Packaged dimensions are: 12" (304 mm) x 12" (304 mm) x 14" (356 mm) and shipping weight is 22 lbs. (10 kg).

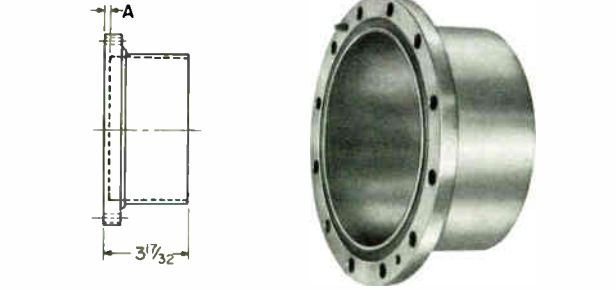
SPLICING INNER CONDUCTOR



Stock Number	OD	Dimensions ID	Length (L)	Approx. Weight
MI-19314C-23	2.5" (64 mm)	2.435" (63 mm)	12' (3.7 mm)	18 lbs (8 kg)

Oversize inner conductor for splicing MI-19314C line at points other than midpoint between insulators. Two inner connectors are required for each splice (not supplied, see MI-19314C-5). Packaged dimensions are: 148" (3759 mm) x 13" (330 mm) x 8" (203 mm) and shipping weight is 38 lbs. (17 kg).

SOFT-SOLDER FLANGE



Stock Number	Insert Length (A)	Approx. Weight
MI-19314C-14	1/4" (6.4 mm)	7 lbs. (3.2 kg)

To flange field cut line.

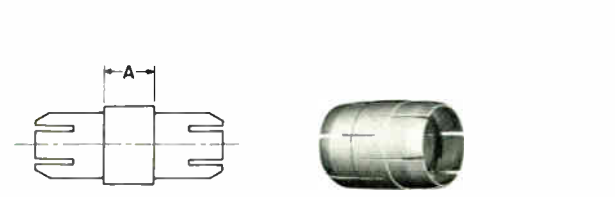
UNFLANGED COUPLING



Stock Number	Insert Length (A)	Approx. Weight
MI-19314C-7	1/4" (6.4 mm)	5 lbs. (23 kg)

Connects unflanged line sections.

INNER CONNECTOR



Stock Number	Insert Length (A)	Approx. Weight
MI-19314C-5	1 1/8" (27 mm)	10 oz. (285 g)

Joins inner conductors of MI-19314C components.

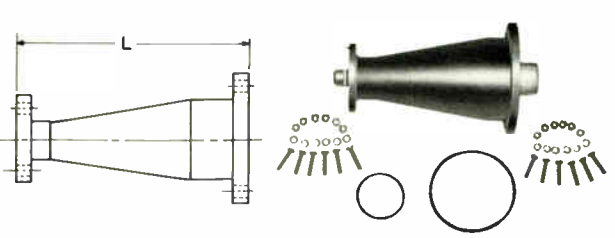
SILVER-SOLDER FLANGES



Stock Number	Insert Length (A)	Approx. Weight
MI-19314C-11	3/16" (5 mm)	3 1/4 lbs. (1.5 kg)
MI-19314C-12	1/8" (3 mm)	3 1/2 lbs. (1.6 kg)

To flange MI-19314C line. Not for field installation. MI-19314C-11 fixed flange and MI-19314C-12 swivel flange.

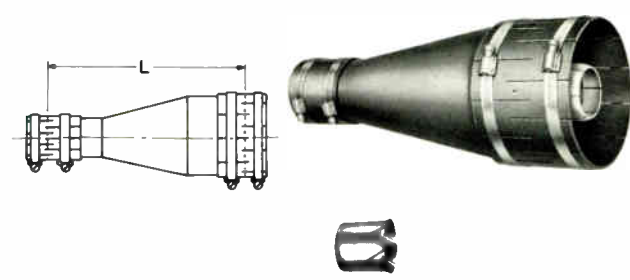
REDUCER, FLANGED TO 3 1/8" 51.5 OHM FLANGED



Stock Number	Insert Length (L)	Approx. Weight
MI-19314C-4	12 1/2" (318 mm)	15 1/4 lbs. (7 kg)

Reduces flanged 6 1/8" components to flanged 3 1/8" MI-19113C and 19313 components.

REDUCER, UNFLANGED TO 3 1/8" 51.5 OHM UNFLANGED



Stock Number	Insert Length (L)	Approx. Weight
MI-19314C-13	12 1/2" (318 mm)	14 1/4 lbs. (6.5 kg)

Reduces unflanged MI-19314C to 3 1/8-inch unflanged MI-19313 or MI-19113C components. Packaged dimensions are: 21" (533 mm) x 13" (330 mm) x 10" (254 mm). Shipping weight is 21 lbs. (10 kg).

END CAP



Stock Number	Approx. Weight
MI-19314C-8	8 3/4 lbs. (4 kg)

For temporary closure of transmission line to prevent entrance of moisture. Includes pipe plug.

CUTOFF GUIDES



Stock Number	Approx. Weight
MI-19314C-16	14 oz. (40 g)
MI-19387-15	2 lbs. (907 g)

MI-19314C guide for cutting inner conductors in the field. MI-19387-15 guide for cutting outer conductors in the field.

TOOL KIT



Stock Number	Approx. Weight
MI-19314C-53	20 oz. (621 g)

Forked spreader and 6 5/16" wrench to adjust anchor pin assembly.

MISCELLANEOUS



- MI-19314C-9O-Ring Gasket
- MI-19314C-39Hose Clamp for 6 1/8" unflanged components
- MI-19314C-10Hardware Kit consisting of 12 bolts, 12 nuts and 12 lockwashers
- MI-19089-18Silicone Grease, 2 oz. tube

50-Ohm Unflanged, Rigid Coaxial Transmission Line

- Excellent VSWR characteristics
- Low loss Teflon dielectric
- Heliarc welded miter elbows
- Heavy wall tubing



RCA 50-ohm unflanged is a hard tempered copper transmission line designed for unpressurized indoor applications in AM, FM and VHF television installations. It has excellent VSWR characteristics, and since it employs low loss Teflon dielectric, operates with high efficiency.

Components are ruggedly and precisely constructed. Miter elbows are made of heavy wall tubing and are heliarc welded for utmost strength and reliability. The inner conductor of the elbow is supported at three points. A complete line of components in 1½, 3½ and 6½-inch line sizes provides installation versatility for a wide power range.

Consult Catalog Sheet TR.1101A for ratings.

In This Section:

1½-inch	MI-561565
3½-inch	MI-27791K
6½-inch	MI-561579

1 5/8", 3 1/8", 6 1/8" Teflon-Insulated, 50-Ohm Transmission Line

General Specifications

Characteristic Impedance50 ohms

Line Size 1 5/8" (Stock Number MI-561565):

Outer Conductor, OD1.625" (41 mm)
 Outer Conductor, ID1.527" (38 mm)
 Inner Conductor, OD0.664" (17 mm)
 Inner Conductor, ID0.588" (15 mm)

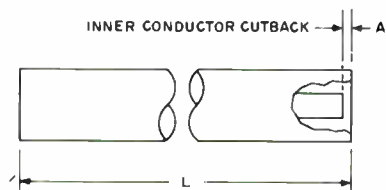
Line Size 3 1/8" (Stock Number MI-27791K):

Outer Conductor, OD3.125" (79 mm)
 Outer Conductor, ID3.027" (77 mm)
 Inner Conductor, OD1.315" (33 mm)
 Inner Conductor, ID1.231" (31 mm)

Line Size 6 1/8" (Stock Number MI-561579):

Outer Conductor, OD6.128" (168 mm)
 Outer Conductor, ID5.981" (152 mm)
 Inner Conductor, OD2.600" (66 mm)
 Inner Conductor, ID2.520" (64 mm)

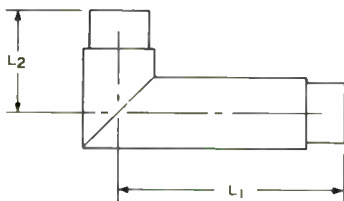
STRAIGHT SECTIONS



Stock Number	Line Size	Dim. A	Approx. Weight	Package Dimensions	No. Lengths	Shipping Weight
MI-561565-1A	1 5/8"	.015" (.39 mm)	25 lbs. (11 kg)	8 1/2" x 13" x 248" (216 x 330 x 6299 mm)	6	203 lbs. (93 kg)
MI-27791K-1A	3 1/8"	.215" (5.4 mm)	52 lbs. (24 kg)	8 1/2" x 13" x 248" (216 x 330 x 6299 mm)	2	148 lbs. (67 kg)
MI-561579-1A	6 1/8"	.71" (18 mm)	67 lbs. (30 kg)	10" x 10" x 248" (254 x 254 x 6299 mm)	1	112 lbs. (51 kg)

Each section 20' (6.1 m) in length. (Dimension L)

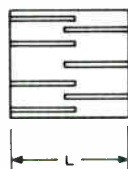
90 DEGREE ELBOWS



Stock Number	Line Size	Dimensions		Approx. Weight
		L ₁	L ₂	
MI-561565-2A	1 5/8"	6" (151 mm)	2 7/16" (62 mm)	2 3/4 lbs. (1.3 kg)
MI-27791K-2A	3 1/8"	8" (205 mm)	3 3/4" (95 mm)	6 lbs. (2.7 kg)
MI-561579-2A	6 1/8"	12" (305 mm)	6" (152 mm)	21 1/2 lbs (10 kg)

MI-561565, MI-27791K, MI-561579

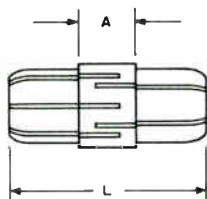
COUPLINGS



Stock Number	Line Size	Length (L)	Approx. Weight
MI-561565-4A	1 $\frac{5}{8}$ "	2 $\frac{3}{8}$ " (59 mm)	8 ozs. (228 g)
MI-27791K-4A	3 $\frac{3}{8}$ "	4" (102 mm)	20 ozs. (570 g)
MI-561579-4A	6 $\frac{1}{8}$ "	4 $\frac{1}{2}$ " (114 mm)	65 ozs. (1800 g)

For joining line sections and fittings. Consists of outer sleeve, inner connector and two clamps.

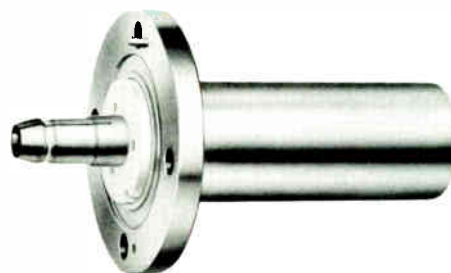
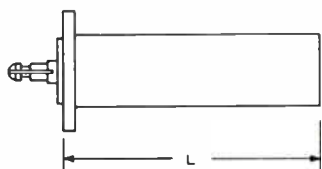
INNER CONNECTORS



Stock Number	Line Size	Length (L)	Dimension A	Approx. Weight
MI-561565-4B	1 $\frac{5}{8}$ "	2" (51 mm)	$\frac{1}{8}$ " (1.6 mm)	2 ozs. (57 g)
MI-27791K-4B	3 $\frac{3}{8}$ "	2 $\frac{1}{2}$ " (64 mm)	$\frac{1}{8}$ " (1.6 mm)	3 ozs. (85 g)
MI-561579-4B	6 $\frac{1}{8}$ "	3 $\frac{1}{2}$ " (89 mm)	1 $\frac{1}{8}$ " (27 mm)	8 ozs. (227 g)

Connectors for joining inner conductors of 1 $\frac{5}{8}$ ", 3 $\frac{3}{8}$ ", or 6 $\frac{1}{8}$ " line.

ADAPTER 1 $\frac{5}{8}$ " UNFLANGED TO 1 $\frac{5}{8}$ " EIA

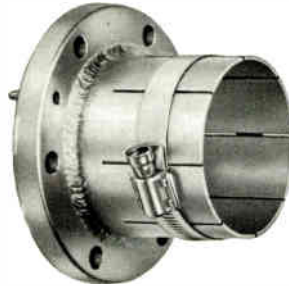
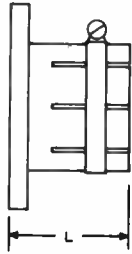


Stock Number	Length (L)	Approx. Weight
MI-561565-7A	4 $\frac{1}{2}$ " (114 mm)	1 $\frac{1}{2}$ lbs. (681 g)

Converts unflanged MI-561565 to 1 $\frac{5}{8}$ " EIA flanged components using coupling (MI-561565-4A) not supplied.

1 $\frac{5}{8}$ " , 3 $\frac{1}{8}$ " , 6 $\frac{1}{8}$ " Teflon-Insulated, 50-ohm Transmission Line

ADAPTER, 3 $\frac{1}{8}$ " UNFLANGED TO 3 $\frac{1}{8}$ " EIA FLANGED

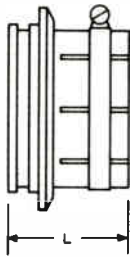


Stock Number	Length (L)	Approx. Weight
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MI-27988-4C	3" (76 mm)	2 $\frac{1}{2}$ lbs. (1100 g)
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Converts 3 $\frac{1}{8}$ " 50-ohm unflanged MI-27791K to 3 $\frac{1}{8}$ " 50-ohm flanged MI-19089 EIA line. Not pressure tight.

ADAPTER, 3 $\frac{1}{8}$ " UNFLANGED TO 3 $\frac{1}{8}$ " UNIVERSAL

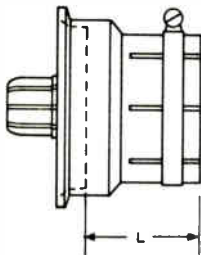


Stock Number	Length (L)	Approx. Weight
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MI-27791K-7B	2 $\frac{5}{8}$ " (66 mm)	2 $\frac{1}{4}$ lbs. (1000 g)
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Provides Universal MI-27791D male flange on MI-27791K line. Not pressure tight.

ADAPTER, 3 $\frac{1}{8}$ " UNFLANGED TO 3 $\frac{1}{8}$ " UNIVERSAL



Stock Number	Length (L)	Approx. Weight
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MI-27791K-7A	2 $\frac{1}{2}$ " (63 mm)	3 $\frac{1}{2}$ lbs. (1400 g)
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Provides Universal MI-27791D female flange on MI-27791K line. Not pressure tight.

MI-561565, MI-27791K, MI-561579

ADAPTER, 6 $\frac{1}{8}$ " UNFLANGED TO 6 $\frac{1}{8}$ " FLANGED



Stock Number	Length (L)	Approx. Weight
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MI-561579-7A	3 $\frac{5}{8}$ " (93 mm)	8 lbs. (3.6 kg)
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Converts 6 $\frac{1}{8}$ " 50-ohm unflanged MI-561579 to 6 $\frac{1}{8}$ " 51.5-ohm flanged MI-19314-C line. Not pressure tight.

REDUCER, 1 $\frac{5}{8}$ " UNFLANGED TO TYPE "N"

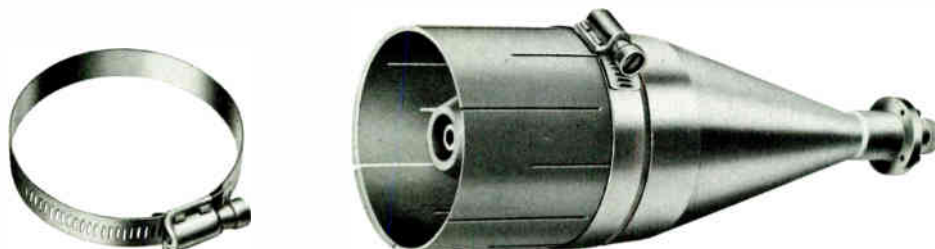


Stock Number	Approx. Weight
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MI-561565-5B	8 ozs. (227 g)
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Converts 1 $\frac{5}{8}$ " 50-ohm unflanged MI-561565 to Type "N" female.

REDUCER, 3 $\frac{1}{8}$ " UNFLANGED TO TYPE "N"



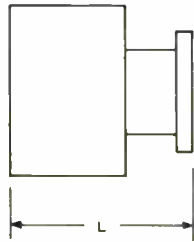
Stock Number	Approx. Weight
--------------	----------------

MI-27791K-5A	4 $\frac{1}{4}$ lbs. (2 kg)
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Converts 3 $\frac{1}{8}$ " 50-ohm unflanged MI-27791K to Type "N" female.

1 $\frac{5}{8}$ "", 3 $\frac{1}{8}$ "", 6 $\frac{1}{8}$ " Teflon-Insulated, 50-ohm Transmission Line

REDUCER, 6 $\frac{1}{8}$ " UNFLANGED TO 3 $\frac{1}{8}$ " EIA FLANGED

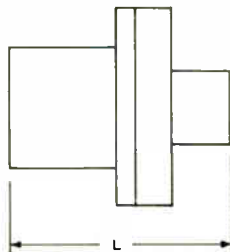


Stock Number	Length (L)	Approx. Weight
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MI-561579-5B	6 $\frac{3}{4}$ " (171 mm)	9 lbs. (4 kg)
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Reduces 6 $\frac{1}{8}$ " 50-ohm unflanged MI-561579 to 3 $\frac{1}{8}$ " 50-ohm flanged EIA MI-19089.

REDUCER, 3 $\frac{1}{8}$ " 50-OHM UNFLANGED TO 1 $\frac{5}{8}$ " 50-OHM UNFLANGED



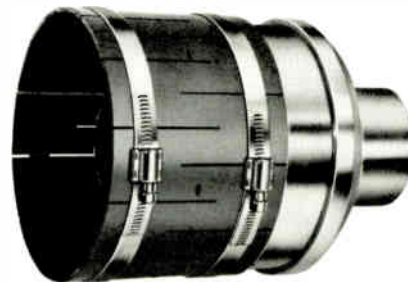
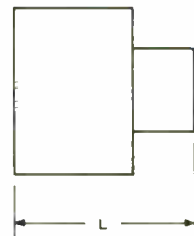
REDUCER, 3 $\frac{1}{8}$ " 50-OHM UNFLANGED TO 1 $\frac{5}{8}$ " 50-OHM UNFLANGED

Stock Number	Length (L)	Approx. Weight
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MI-561565-5A	5" (127 mm)	3 $\frac{1}{4}$ lbs. (1.5 kg)
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Reduces 3 $\frac{1}{8}$ " MI-27791K to 1 $\frac{5}{8}$ " MI-561565 using couplings (MI-27791K-4A and MI-561565-4A) not supplied.

REDUCER, 6 $\frac{1}{8}$ " TO 3 $\frac{1}{8}$ "



REDUCER, 6 $\frac{1}{8}$ " TO 3 $\frac{1}{8}$ "

Stock Number	Length (L)	Approx. Weight
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MI-561579-5A	6 $\frac{3}{4}$ " (171 mm)	8.5 lbs (3.8 kg)
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Reduces 6 $\frac{1}{8}$ " MI-561579 to 3 $\frac{1}{8}$ " MI-27791K using coupling (MI-27791K-4A) not supplied.

MI-561565, MI-27791K, MI-561579

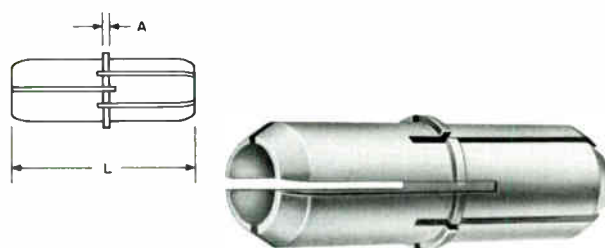
TRANSFORMER-ADAPTER, 6 1/8" 50-OHM UNFLANGED TO 6 1/8" 75-OHM UNIVERSAL FEMALE



Stock Number	TV Channel	Insert Length (L)	Approx. Weight
MI-561579-6R	2, 3	62" (1574 mm)	47 lbs. (21 kg)
MI-561579-6T	4, 5, 6	52" (1221 mm)	32 lbs. (17 kg)
MI-561579-6U	7 thru 13	26" (660 mm)	24 lbs. (11 kg)

Transforms 6 1/8" 50-ohm MI-27791K to 6 1/8" 75-ohm MI-27792D and provides universal female flange. Universal connector and clamp supplied. Unflanged end requires coupling not supplied. Specify TV channel or frequency when ordering.

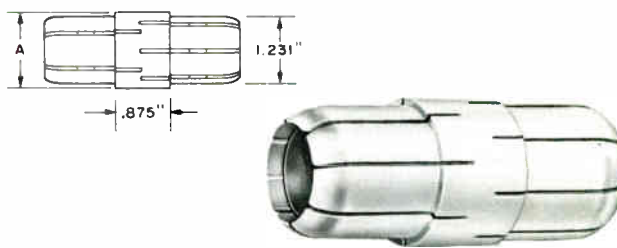
INNER CONNECTOR ADAPTER, 1 5/8" 50-OHM TO 1 5/8" 51.5-OHM



Stock Number	Length (L)	Dimension A	Approx. Weight
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MI-561565-8A 2" (51 mm) 1/8" (1.6 mm) 2 ozs. (57 g)
 Couples inner conductor of 50-ohm 1 5/8" MI-56156 to inner conductor of 51.5-ohm 1 5/8" MI-19112.

INNER CONNECTOR ADAPTER, 3/8" 50-OHM TO 51.5-OHM

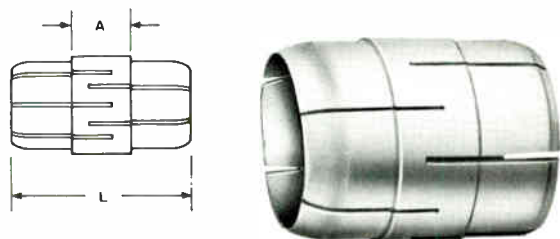


Type	Dim. A	To Adapt
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27988-4A 1.136 MI-19113C to MI-19089
 27988-4B 1.232 MI-19313 to MI-19089

Couples inner conductor of 50-ohm 3/8" MI-27791K to inner conductor of 51.5-ohm 3/8" MI-19113C or MI-19313. Weight is 6 ozs (171 g).

INNER CONNECTOR ADAPTER, 6 1/8" 50-OHM TO 6 1/8" 51.5-OHM



Stock Number	Length (L)	Dimension A	Approx. Weight
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MI-561579-8A 3 1/2" (81 mm) 1 1/4" (27 mm) 12 ozs (342 g)
 Couples inner conductor of 50-ohm 6 1/8" MI-561579 to inner conductor of 51.5-ohm 6 1/8" MI-19314C.

MISCELLANEOUS



Coupling Clamp for 1 5/8" lineMI-561565-4C
 Coupling Clamp for 3/8" lineMI-27791K-4C
 Coupling Clamp for 6 1/8" lineMI-561579-4C



Hangers for Rigid Transmission Line

- Fixed and expansion, dual and single
- For vertical support
- For horizontal support
- Spring loading dimensions included



RCA offers a wide variety of hangers and accessories for the support of rigid coaxial transmission line. Hangers can be supplied for vertical and horizontal runs and for indoor and outdoor use. Special hangers for supporting dual lines, and insulated types that permit use of FM and TV antennas on insulated AM towers are also available. Hanger arm extension length must be chosen to align the guides one above the other so that the line may move up and down freely. All tower mounting hangers are bolt-through-hole types.

Hangers and accessories are generally shipped in kegs. Total shipping weight, therefore, equals the weight of the hangers plus about ten pounds (4.6 kg) for the keg.

In This Section:

1 $\frac{5}{8}$ -Inch Hangers for:
MI-19112 Series, MI-561565 Series

3 $\frac{1}{8}$ -Inch Hangers for:
MI-19089 Series, MI-19113 Series,
MI-19313 Series, MI-27791 Series

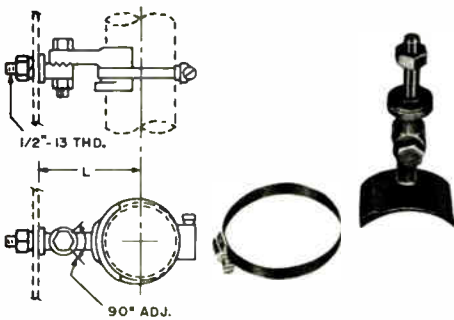
6 $\frac{1}{8}$ -Inch Hangers for:
MI-19314 Series, MI-19387 Series,
MI-27792 Series, MI-561579 Series

8 $\frac{3}{8}$ -Inch Hangers for:
MI-561566 Series, MI-561671 Series

9 $\frac{3}{8}$ -Inch Hangers for:
MI-27793 Series

1 5/8-Inch Rigid Transmission Line Hangers

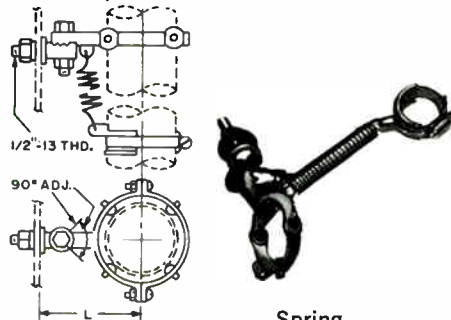
SINGLE, FIXED



Stock Number	Dimension L	Approx. Weight
MI-19312-44	4 1/4" (107 mm)	1 1/4 lbs. (567 g)
MI-19312-47	7 3/4" (197 mm)	1 1/2 lbs. (618 g)

Long arm unit (-47) matches standoff of insulated hanger.

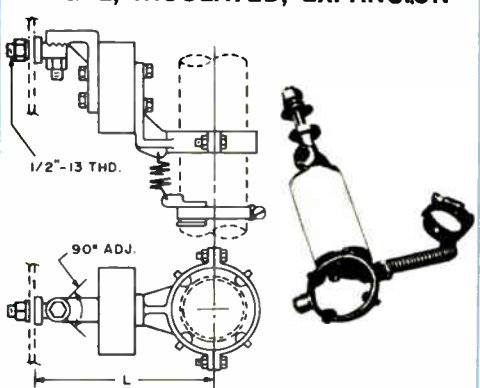
SINGLE, EXPANSION



Stock Number	Dimension L	Spring Chart Fig.	Approx. Weight
MI-19312-32	4 1/4" (107 mm)	A	6 lbs. (2.7 kg)
MI-19312-33	7 3/4" (197 mm)	A	2 3/4 lbs. (1.3 kg)

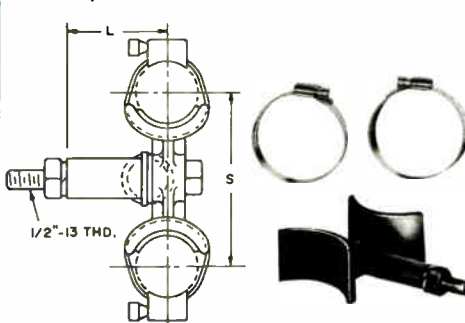
Long arm unit (-33) matches standoff of insulated hanger.

SINGLE, INSULATED, EXPANSION



Stock Number	Dimension L	Spring Chart Fig.	Approx. Weight
MI-19312-34	7 3/4" (197 mm)	A	6 lbs. (2.7 kg)

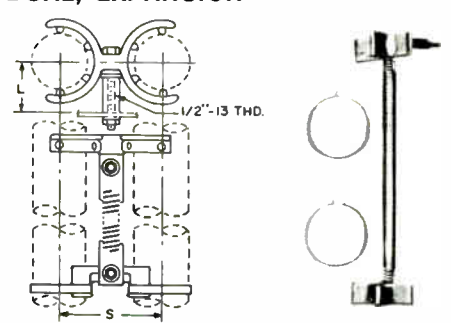
DUAL, FIXED



Stock Number	Dimensions L S	Approx. Weight
MI-19112-15	2-9/32" (58 mm) 3 3/4" (95 mm)	1 1/4 lbs. (567 g)

Requires one MI-19113-16 Extension Kit when used with MI-19112-48 insulated hanger.

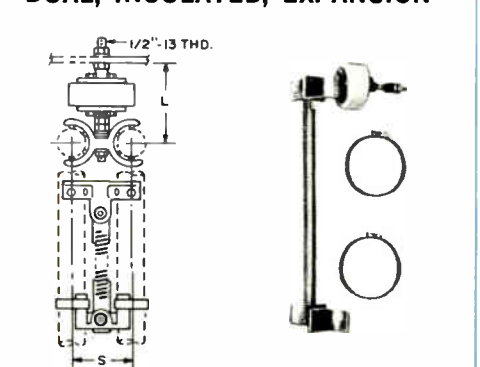
DUAL, EXPANSION



Stock Number	Dimensions L S	Spring Chart Fig.	Approx. Weight
MI-19112-14	2 1/4" (57 mm) 3 3/4" (95 mm)	B	3 1/2 lbs. (1.6 kg)

Requires one MI-19113-16 Extension Kit when used with MI-19112-48 insulated hanger. (See Hanger Accessories.)

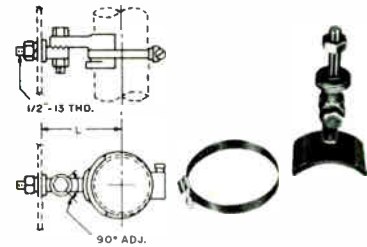
DUAL, INSULATED, EXPANSION



Stock Number	Dimensions L S	Spring Chart Fig.	Approx. Weight
MI-19112-48	5" (127 mm) 5" (127 mm)	B	7 1/2 lbs. (3.4 kg)

3/8-Inch Rigid Transmission Line Hangers

SINGLE, FIXED

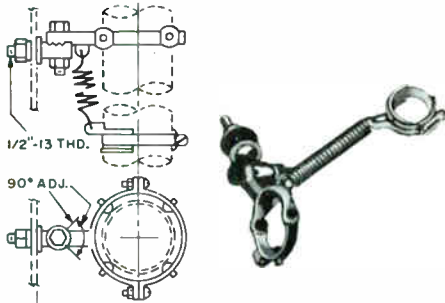


Stock Number	Dimension L	Approx. Weight
MI-19313-44	5" (127 mm)	1½ lbs. (681 g)
MI-19313-47	8⅞" (217 mm)	1¾ lbs. (793 g)

Long arm unit (-47) matches standoff of insulated hanger.

Use heavy-duty hanger (MI-19313-41, see below) for runs 750' and longer.

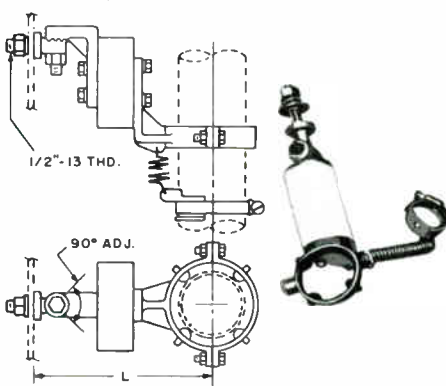
SINGLE, EXPANSION



Stock Number	Dimension L	Spring Chart Fig.	Approx. Weight
MI-19313-32	5" (127 mm)	C	3 lbs. (1.4 kg)
MI-19313-33	8⅞" (217 mm)	C	3¼ lbs. (1.5 kg)

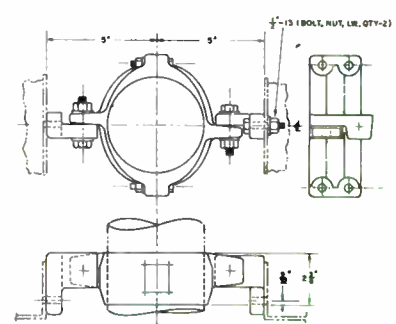
Long arm unit (-33) matches standoff of insulated hanger.

SINGLE, INSULATED, EXPANSION



Stock Number	Dimension L	Spring Chart Fig.	Approx. Weight
MI-19313-34	8⅞" (217 mm)	C	7 lbs. (3 kg)

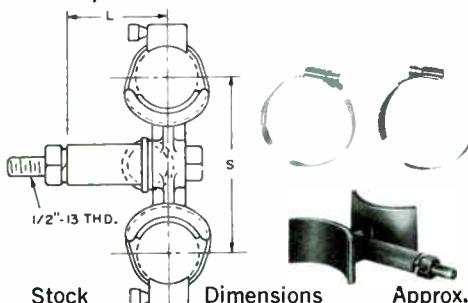
HEAVY DUTY, FIXED



Stock Number	Approx. Weight
MI-19313-41	13½ lbs. (6 kg)

Use hanger for runs of 750' and longer. Dotted lines in drawing are tower members. Mounting details packed with product.

DUAL, FIXED

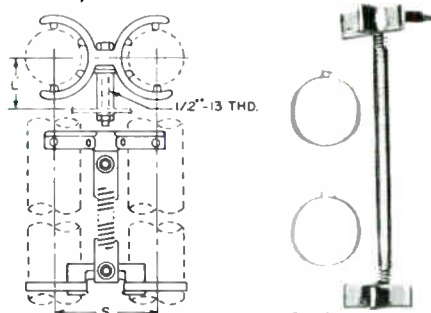


Stock Number	Dimensions L	S	Approx. Weight
MI-19113-15	3-1/32" (77 mm)	5½" (140 mm)	2 lbs. (908 g)

Requires one MI-19113-16 Extension Kit when used with MI-19113-48 insulated hanger.

Use at least two on runs of 750' and shorter. Use heavy-duty hanger (MI-19313-41) for each line in runs 750' and longer.

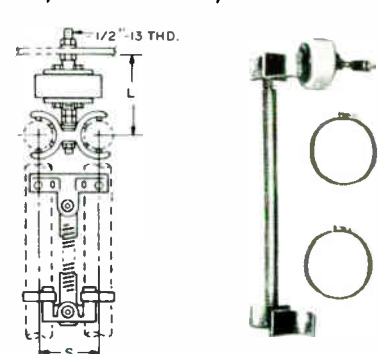
DUAL, EXPANSION



Stock Number	Dimensions L	S	Spring Chart Fig.	Approx. Weight
MI-19113-14	3" (76 mm)	5½" (140 mm)	D	5¾ lbs. (2.6kg)

Requires one MI-19113-16 Extension Kit when used with MI-19113-48 insulated hanger. (See **Hanger Accessories**).

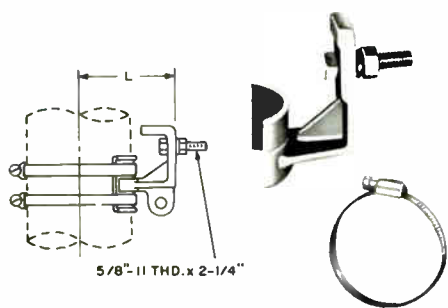
DUAL, INSULATED, EXPANSION



Stock Number	Dimensions L	S	Spring Chart Fig.	Approx. Weight
MI-19113-48	5" (127 mm)	5½" (140 mm)	D	9½ lbs. (4 kg)

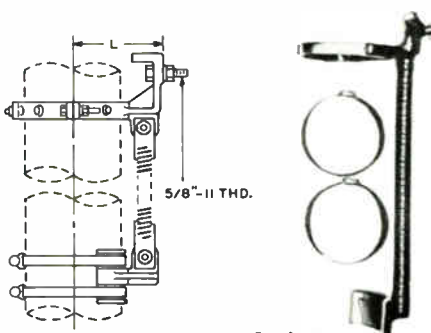
6/8-Inch Rigid Transmission Line Hangers

SINGLE, FIXED (600' and shorter)



Stock Number	Length	Approx. Weight
MI-19314-44	5 5/8" (143 mm)	3 1/4 lbs. (1.5 kg)

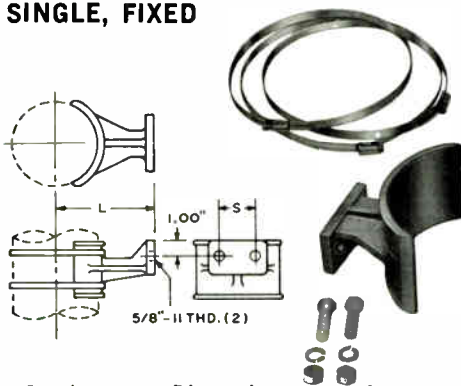
SINGLE, EXPANSION (600' and shorter)



Stock Number	Length	Spring Chart Fig.	Approx. Weight
MI-19314-32	5 5/8" (143 mm)	E	8 1/4 lbs. (4 kg)

Spring Drawing # C3471-505
Bottom piece C8125-1

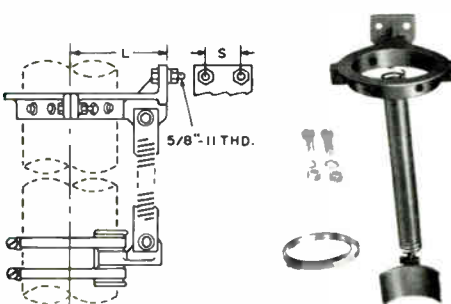
SINGLE, FIXED



Stock Number	Dimensions L	S	Approx. Weight
MI-27970-33	6 7/8" (174 mm)	2 3/8" (60 mm)	6 1/4 lbs. (3 kg)

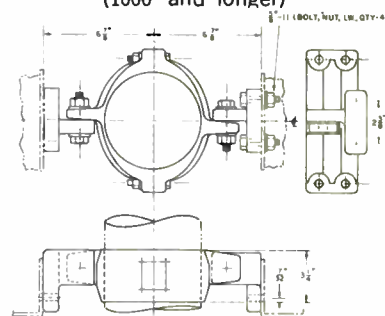
Use with MI-27970 Series hangers only.
Use at least two hangers for runs of 1000' and shorter. For longer runs, use MI-27970-41 described at lower right.

SINGLE, EXPANSION



Stock Number	Dimensions L	S	Spring Chart Fig.	Approx. Weight
MI-27970-37 ¹	6 7/8" (174 mm)	2 3/8" (60 mm)	F	18 1/2 lbs. (8 kg)
MI-27970-38 ²	6 7/8" (174 mm)	2 3/8" (60 mm)	G	18 1/2 lbs. (8 kg)

HEAVY DUTY, SINGLE, FIXED (1000' and longer)



Stock Number	Approx. Weight
MI-27970-41	24 lbs. (11 kg)

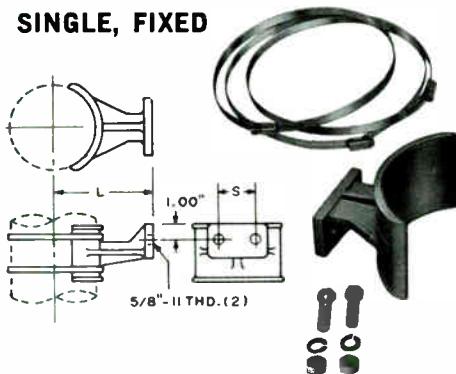
Use hanger for runs of 1000' and longer. Dotted lines in drawing are tower members. Mounting details packed with product.

¹ For use with MI-19314C Line.

² For use with MI-27792D and MI-19387 Line.

8³/₁₆-Inch Rigid Transmission Line Hangers

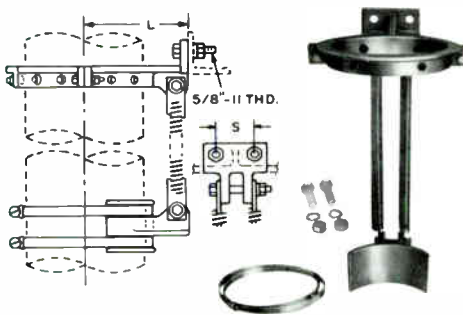
SINGLE, FIXED



Stock Number	Dimensions		Approx. Weight
	L	S	
MI-561569-40	8"	3"	10¾ lbs. (5 kg)

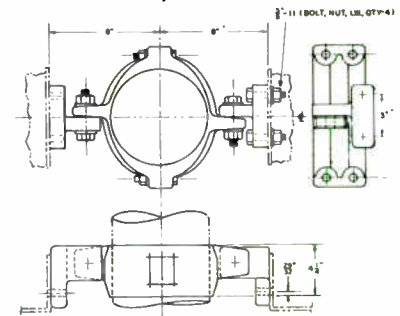
Use at least two hangers for runs of 750' and shorter. For longer runs, use MI-561569-41 described at far right.

SINGLE, EXPANSION



Stock Number	Dimensions		Spring Chart Fig.	Approx. Weight
	L	S		
MI-561569-38	8"	3"	H	25¼ lbs. (12 kg)

HEAVY DUTY, FIXED

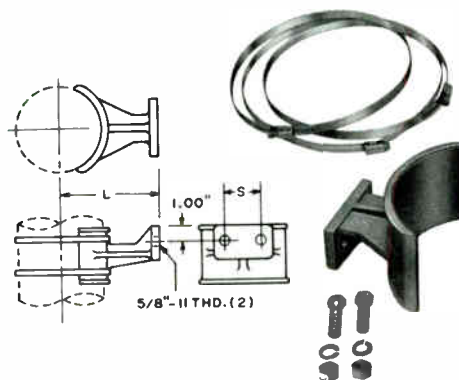


Stock Number	Approx. Weight
MI-561569-41	41 lbs. (18.5 kg)

Use hanger for runs of 750' and longer. Dotted lines in drawing are tower members. Mounting details packed with product.

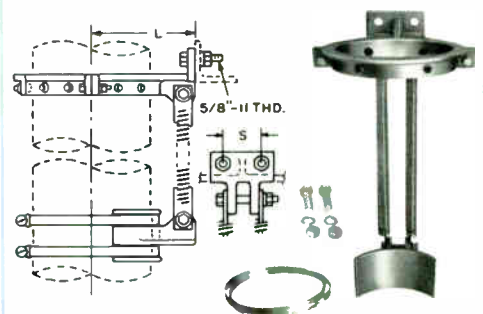
9³/₁₆-Inch Rigid Transmission Line Hangers

SINGLE, FIXED



Stock Number	Dimensions		Approx. Weight
	L	S	
MI-27900-40	8"	3"	10¾ lbs. (5 kg)

SINGLE, EXPANSION

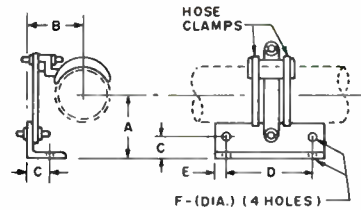


Stock Number	Dimensions		Spring Chart Fig.	Approx. Weight
	L	S		
MI-27900-38	8"	3"	I	26½ lbs. (12 kg)

Hanger Accessories

SINGLE SWIVEL HANGERS

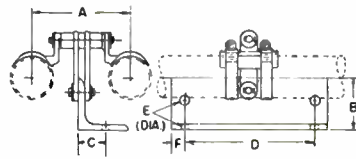
For single horizontal line runs. Takes care of some horizontal line expansion but permits no vertical movement. Use 3-point suspension hangers for horizontal runs when length of vertical run or stiffness of line will require vertical as well as horizontal movement of the horizontal run.



Stock Number	Line Size	Dimensions						Approx. Weight
		A	B	C	D	E	F	
MI-19312-37	1 $\frac{5}{8}$ "	2 $\frac{1}{8}$ " (53 mm)	1 $\frac{1}{2}$ " (38 mm)	1 $\frac{1}{8}$ " (28 mm)	5" (127 mm)	$\frac{1}{2}$ " (13 mm)	9/32" (7 mm)	2 $\frac{1}{4}$ lbs. (1.1 kg)
MI-19313-37	3 $\frac{1}{8}$ "	2-17/32" (64 mm)	2 $\frac{7}{8}$ " (73 mm)	1 $\frac{1}{8}$ " (28 mm)	5" (127 mm)	$\frac{1}{2}$ " (13 mm)	7/16" (11 mm)	3 lbs. (1.4 kg)

DUAL SWIVEL HANGERS

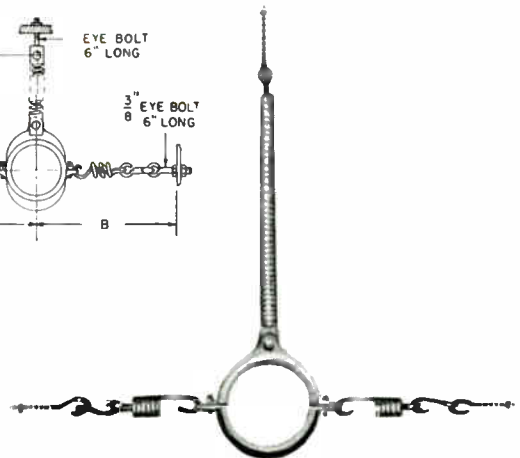
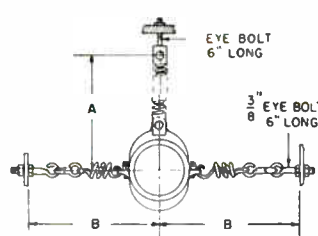
For dual horizontal line runs. Takes care of some horizontal line expansion but permits no vertical movement. Use 3-point suspension hangers for horizontal runs when length of vertical run or stiffness of line will require vertical as well as horizontal movement of the horizontal run.



Stock Number	Line Size	Dimensions						Approx. Weight
		A	B	C	D	E	F	
MI-19312-38	1 $\frac{5}{8}$ "	3 $\frac{3}{4}$ " (95 mm)	2 $\frac{1}{8}$ " (53 mm)	1 $\frac{1}{8}$ " (28 mm)	5" (127 mm)	7/16" (11 mm)	$\frac{1}{2}$ " (13 mm)	3 lbs. (1.4 kg)
MI-19313-38	3 $\frac{1}{8}$ "	5 $\frac{1}{2}$ " (140 mm)	2-17/32" (64 mm)	1 $\frac{1}{8}$ " (28 mm)	5" (127 mm)	7/16" (11 mm)	$\frac{1}{2}$ " (13 mm)	4 lbs. (1.8 kg)

SINGLE THREE-POINT SUSPENSION HANGERS

For horizontal suspension of single line.

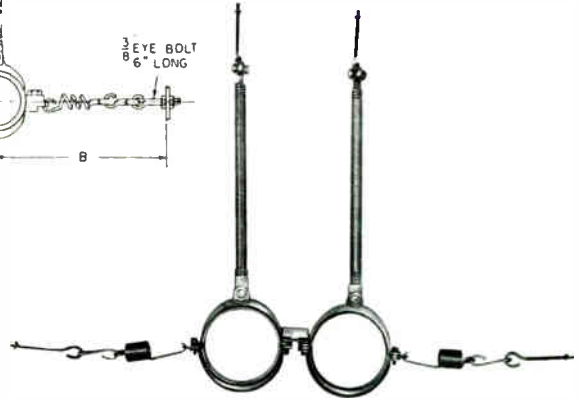
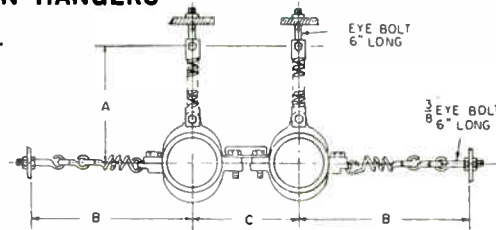


Stock Number	Line Size	Dimensions		Approx. Weight
		A	B	
MI-19313-50	3 $\frac{1}{8}$ "	20 $\frac{3}{4}$ " (527 mm)	15" (381 mm)	5 $\frac{1}{4}$ lbs. (2.3 kg)
MI-19314-50	6 $\frac{1}{8}$ "	28" (716 mm)	16 $\frac{3}{4}$ " (425 mm)	11 $\frac{1}{2}$ lbs. (5.2 kg)
MI-561569-50	8 $\frac{3}{8}$ "	28 $\frac{1}{2}$ " (728 mm)	17 $\frac{7}{8}$ " (454 mm)	30 lbs. (13.6 kg)
MI-27900-50	9 $\frac{1}{8}$ "	29 $\frac{1}{2}$ " (754 mm)	18 $\frac{3}{8}$ " (467 mm)	18 lbs. (8.2 kg)

Hanger Accessories

DUAL THREE-POINT SUSPENSION HANGERS

For horizontal suspension of dual lines.



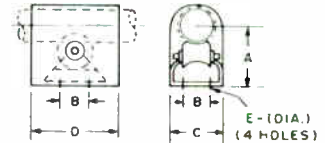
Stock Number	Line Size	Dimensions			Approx. Weight
		A	B	C	
MI-19313-51	3 $\frac{1}{8}$ "	20 $\frac{3}{4}$ " (527 mm)	15" (381 mm)	15 $\frac{1}{2}$ " (394 mm)	9 $\frac{1}{4}$ lbs. (4.2 kg)
MI-27970-34	6 $\frac{1}{8}$ "	28" (716 mm)	16 $\frac{3}{4}$ " (425 mm)	10 $\frac{1}{2}$ " (267 mm)	18 $\frac{3}{4}$ lbs. (8.5 kg)
MI-561569-51	8 $\frac{3}{8}$ "	28 $\frac{1}{2}$ " (728 mm)	17 $\frac{7}{8}$ " (454 mm)	13" (330 mm)	51 lbs. (23 kg)
MI-27900-51	9 $\frac{1}{8}$ "	29 $\frac{1}{2}$ " (754 mm)	18 $\frac{3}{8}$ " (467 mm)	14" (355 mm)	55 lbs. (25 kg)

HORIZONTAL ROLLER ASSEMBLY

Supports single horizontal line. Two required for dual lines. Mounting bolts not supplied. Rollers accommodate no vertical movement; use 3-point suspension hangers for horizontal runs when length of vertical run or stiffness of line will require vertical as well as horizontal movement of the horizontal run.



Stock Number	Line Size	Dimensions					Approx. Weight
		A	B	C	D	E	
MI-19312-35	1 $\frac{5}{8}$ "	2-7/16" (62 mm)	1 $\frac{3}{4}$ " (108 mm)	2 $\frac{3}{8}$ " (61 mm)	6" (152 mm)	7/32" (6 mm)	1 lb. (454 g)
MI-19313-35	3 $\frac{1}{8}$ "	4 $\frac{1}{4}$ " (108 mm)	3" (76 mm)	4 $\frac{3}{4}$ " (121 mm)	8" (203 mm)	7/32" (6 mm)	2 $\frac{1}{4}$ lbs. (1.1 kg)
MI-19314-35	6 $\frac{1}{8}$ "	8" (203 mm)	5 $\frac{1}{2}$ " (140 mm)	7-15/16" (202 mm)	12" (305 mm)	9/32" (7 mm)	8 $\frac{1}{4}$ lbs. (3.7 kg)
MI-561569-35	8 $\frac{3}{8}$ "	9 $\frac{7}{8}$ " (251 mm)	7 $\frac{1}{4}$ " (184 mm)	11-5/16" (287 mm)	20" (508 mm)	9/32" (7 mm)	15 lbs. (6.8 kg)
MI-27900-35	9 $\frac{1}{8}$ "	10 $\frac{3}{8}$ " (264 mm)	7 $\frac{1}{4}$ " (184 mm)	11-5/16" (287 mm)	20" (508 mm)	9/32" (7 mm)	15 lbs. (6.8 kg)

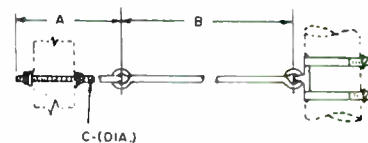


LATERAL BRACES

Mounts through single hole. Complete with two hose clamps. Used to restrict lateral motion of line while permitting vertical and horizontal movement.



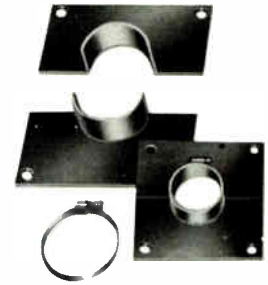
Stock Number	Line Size	Dimensions			Approx. Weight
		A	B	C	
MI-19312-35	1 $\frac{5}{8}$ "	8" (203 mm)	38 $\frac{1}{2}$ " (978 mm)	$\frac{1}{2}$ " (13 mm)	2 lbs. (1 kg)
MI-19313-36	3 $\frac{1}{8}$ "	8" (203 mm)	38 $\frac{1}{2}$ " (978 mm)	$\frac{1}{2}$ " (13 mm)	2 $\frac{1}{4}$ lbs. (1.1 kg)
MI-19314-36	6 $\frac{1}{8}$ "	7 $\frac{3}{4}$ " (297 mm)	38 $\frac{3}{4}$ " (985 mm)	$\frac{3}{8}$ " (10 mm)	2 $\frac{1}{4}$ lbs. (1.1 kg)
MI-561559-36	8 $\frac{3}{8}$ "	7 $\frac{3}{4}$ " (297 mm)	38 $\frac{3}{4}$ " (985 mm)	$\frac{3}{8}$ " (10 mm)	3 $\frac{1}{2}$ lbs. (1.5 kg)
MI-27900-36	9 $\frac{1}{8}$ "	7 $\frac{3}{4}$ " (297 mm)	38 $\frac{3}{4}$ " (985 mm)	$\frac{3}{8}$ " (10 mm)	3 $\frac{1}{2}$ lbs. (1.5 kg)



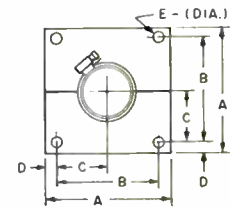
Hanger Accessories

SINGLE HORIZONTAL ANCHOR

Supports single line at point of entry through wall. One anchor required on each side of wall. Mounting bolts not supplied.

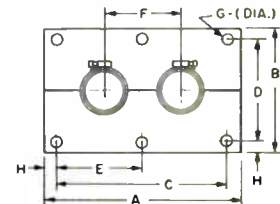


Stock Number	Line Size	Dimensions					Approx. Weight
		A	B	C	D	E	
MI-19312-17	1½"	6" (152 mm)	47⁄8" (124 mm)	2-7⁄16" (62 mm)	¾" (14 mm)	¾" (14 mm)	2¼ lbs. (1.1 kg)
MI-19313-17	3⁄8"	8" (203 mm)	67⁄8" (174 mm)	3-7⁄16" (87 mm)	¾" (14 mm)	¾" (14 mm)	3½ lbs. (1.5 kg)
MI-19314-48	6⁄8"	11¾" (299 mm)	10¼" (260 mm)	5⁄8" (130 mm)	¾" (19 mm)	¾" (19 mm)	15 lbs. (6.8 kg)
MI-561569-48	8¾"	16" (406 mm)	13½" (343 mm)	5½" (140 mm)	1¼" (32 mm)	¾" (19 mm)	32 lbs. (14 kg)
MI-27900-48	9¾"	16" (406 mm)	13½" (343 mm)	5½" (140 mm)	1¼" (32 mm)	¾" (19 mm)	29 lbs. (13 kg)



DUAL HORIZONTAL ANCHOR

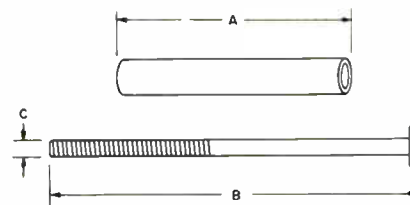
Supports two lines at point of entry through wall. One anchor required on each side of wall. Mounting bolts not supplied.



Stock Number	Line Size	Dimensions								Approx. Weight
		A	B	C	D	E	F	G	H	
MI-19312-18	1½"	9¾" (248 mm)	6" (152 mm)	85⁄8" (219 mm)	47⁄8" (124 mm)	43⁄16" (110 mm)	3¾" (95 mm)	¾" (14 mm)	¾" (14 mm)	3½ lbs. (1.5 kg)
MI-19313-18	3⁄8"	13½" (343 mm)	8" (203 mm)	123⁄8" (314 mm)	67⁄8" (174 mm)	63⁄16" (157 mm)	5½" (140 mm)	¾" (14 mm)	¾" (14 mm)	6½ lbs. (3 kg)
MI-27970-35	6⁄8"	22" (559 mm)	11¾" (298 mm)	20½" (523 mm)	10¼" (260 mm)	10¼" (260 mm)	10¼" (260 mm)	¾" (14 mm)	¾" (19 mm)	30 lbs. (13.6 kg)
MI-561569-49	8¾"	26" (660 mm)	15" (381 mm)	23½" (597 mm)	12½" (242 mm)	11¾" (298 mm)	11½" (292 mm)	¾" (19 mm)	1¼" (32 mm)	57 lbs. (25.8 kg)
MI-27900-49	9¾"	28" (716 mm)	16" (406 mm)	25½" (648 mm)	13½" (343 mm)	12¾" (324 mm)	¾" (242 mm)	12½" (19 mm)	1¼" (32 mm)	57 lbs. (25.8 kg)

EXTENSION KIT

Aligns grounded dual hangers with insulated dual hangers. For use with 3⁄8-inch line hangers.



Stock Number	Dimensions			Approx. Weight
	A	B	C	
MI-19113-16	4½" (115 mm)	7½" (191 mm)	½" (13 mm)	¾ lbs. (339 g)

Spring Loading Dimensions for Expansion Hangers

SINGLE 1 5/8-INCH LINE

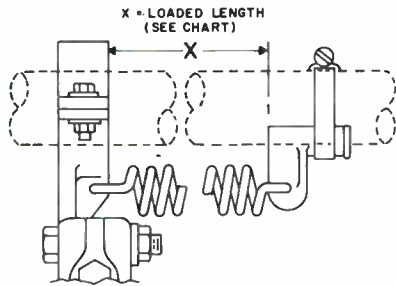


Fig. A
(MI-19312-32, -33, -34)

Distance Below Lowest Fixed Hanger		Loaded Length at Ambient in °F (°C)									
		0-20° (-18--7°)		20-40° (-7--4°)		40-60° (4-16°)		60-80° (16-27°)		80-100° (27-38°)	
Feet	Meters	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
0- 200	0- 61	14 1/4	362	14 1/4	362	14 5/8	365	14 1/2	368	14 1/2	368
200- 400	61-122	14	356	14 1/8	359	14 3/8	365	14 5/8	371	14 3/4	375
400- 600	122-183	13 3/4	349	14 1/8	359	14 3/8	365	14 5/8	371	14 7/8	378
600- 800	183-244	13 5/8	346	14	356	14 3/8	365	14 3/4	375	15 1/8	384
800-1000	244-305	13 3/8	340	13 7/8	352	14 3/8	365	14 7/8	378	15 1/4	387
1000-1200	305-366	13 1/4	337	13 3/4	349	14 3/8	365	14 7/8	378	15 1/2	394

DUAL 1 5/8-INCH LINE

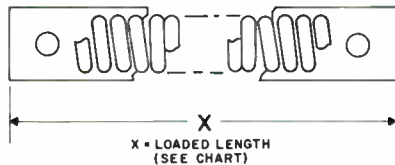


Fig. B
(MI-19112-14, -48)

Distance Below Lowest Fixed Hanger		Loaded Length at Ambient in °F (°C)									
		0-20° (-18--7°)		20-40° (-7--4°)		40-60° (4-16°)		60-80° (16-27°)		80-100° (27-38°)	
Feet	Meters	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
0- 200	0- 61	19 1/8	486	19 1/4	489	19 1/4	489	19 3/8	492	19 3/8	492
200- 400	61-122	18 7/8	479	19 1/8	486	19 1/4	489	19 1/2	495	19 5/8	498
400- 600	122-183	18 3/4	476	19	483	19 1/4	489	19 1/2	495	19 7/8	505
600- 800	183-244	18 1/2	470	18 7/8	479	19 1/4	489	19 5/8	498	20	508
800-1000	244-305	18 5/8	467	18 3/4	476	19 1/4	489	19 3/4	502	20 1/4	514
1000-1200	305-366	18 1/4	464	18 3/4	476	19 1/4	489	19 3/4	502	20 3/8	518

SINGLE 3 1/8-INCH LINE

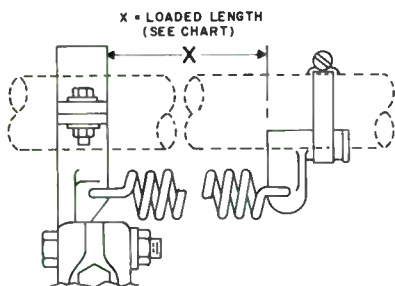


Fig. C
(MI-19313-32, -33, -34)

Distance Below Lowest Fixed Hanger		Loaded Length at Ambient in °F (°C)									
		0-20° (-18--7°)		20-40° (-7--4°)		40-60° (4-16°)		60-80° (16-27°)		80-100° (27-38°)	
Feet	Meters	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
0- 200	0- 61	15	381	15 1/8	384	15 1/4	387	15 1/4	387	15 3/8	391
200- 400	61-122	14 3/4	375	15	381	15 1/4	387	15 3/8	391	15 5/8	397
400- 600	122-183	14 1/2	368	14 7/8	378	15 1/4	387	15 1/2	394	15 7/8	403
600- 800	183-244	14 1/4	362	14 3/4	375	15 1/4	387	15 5/8	397	16 1/8	410
800-1000	244-305	14	356	14 5/8	371	15 1/4	387	15 3/4	400	16 3/8	416
1000-1200	305-366	13 7/8	352	14 1/2	368	15 1/4	387	15 7/8	403	16 1/2	413
1200-1400	366-427	13 3/4	349	14 1/2	368	15 1/4	387	15 7/8	403	16 5/8	422
1400-1600	427-488	13 5/8	346	14 1/2	368	15 1/4	387	16	406	16 3/4	425
1600-1800	488-549	13 1/2	343	14 3/8	365	15 1/4	387	16	406	16 7/8	429
1800-2000	549-610	13 1/2	343	14 3/8	365	15 1/4	387	16	406	16 7/8	429

Spring Loading Dimensions for Expansion Hangers

DUAL 3/8-INCH UNIVERSAL LINE

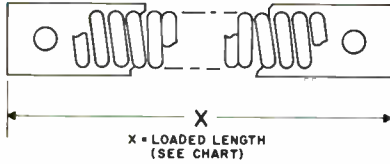


Fig. D
(MI-19113-14, -48)

Distance Below Lowest Fixed Hanger		Loaded Length at Ambient in °F (°C) (Dimension X)									
		0-20° (-18--7°)		20-40° (-7--4°)		40-60° (4-16°)		60-80° (16-27°)		80-100° (27-38°)	
Feet	Meters	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
0- 200	0- 61	24½	622	24½	625	24¾	629	24¾	629	24¾	632
200- 400	61-122	24¼	616	24½	622	24¾	629	24¾	632	25½	638
400- 600	122-183	24	610	24¾	619	24¾	629	25	635	25¾	645
600- 800	183-244	23¾	603	24¼	616	24¾	629	25½	638	25¾	651
800-1000	244-305	23¾	600	24½	613	24¾	629	25¼	641	25¾	657
1000-1200	305-366	23¾	594	24	610	24¾	629	25¾	645	26	660
1200-1400	366-427	23¼	591	24	610	24¾	629	25¾	645	26½	664
1400-1600	427-488	23¼	591	24	610	24¾	629	25½	648	26¼	667
1600-1800	488-549	23½	587	23¾	606	24¾	629	25½	648	26¾	670
1800-2000	549-610	23	584	23¾	606	24¾	629	25½	648	26¾	670

SINGLE 6/8-INCH LINE

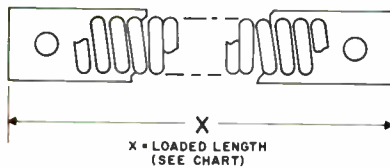


Fig. E
(MI-19314-32)

Distance Below Lowest Fixed Hanger		Loaded Length at Ambient in °F (°C) (Dimension X)									
		0-20° (-18--7°)		20-40° (-7--4°)		40-60° (4-16°)		60-80° (16-27°)		80-100° (27-38°)	
Feet	Meters	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
0-200	0- 61	26¼	667	26¾	670	26½	673	26½	673	26¾	676
200-400	61-122	26	660	26¼	667	26½	673	26¾	676	26¾	683
400-600	122-183	25¾	654	26½	664	26½	673	26¾	679	27½	689

DO NOT USE OVER 600 FT.

SINGLE 3/8-INCH UNIVERSAL LINE



Fig. F
(MI-27970-37)

Distance Below Lowest Fixed Hanger		Loaded Length at Ambient in °F (°C) (Dimension X)									
		0-20° (-18--7°)		20-40° (-7--4°)		40-60° (4-16°)		60-80° (16-27°)		80-100° (27-38°)	
Feet	Meters	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
0- 200	0- 61	32	813	32	813	32½	816	32½	816	32¼	819
200- 400	61-122	31¾	806	31¾	810	32½	816	32¾	822	32½	816
400- 600	122-183	31¾	797	31¾	806	32½	816	32½	826	32¾	835
600- 800	183-244	31½	791	31¾	803	32½	816	32¾	829	33½	841
800-1000	244-305	30¾	784	31½	800	32½	816	32¾	832	33¾	848
1000-1200	305-366	30¾	778	31¾	797	32½	816	32¾	835	33¾	854
1200-1400	366-427	30½	775	31¼	794	32½	816	33	838	33¾	857
1400-1600	427-488	30¼	768	31½	791	32½	816	33	838	34	864
1600-1800	488-549	30	762	31½	791	32½	816	33¾	841	34¾	867
1800-2000	549-610	29¾	759	31	787	32½	816	33¾	857	34¼	870

Spring Loading Dimensions for Expansion Hangers

SINGLE 6¹/₈-INCH LINE

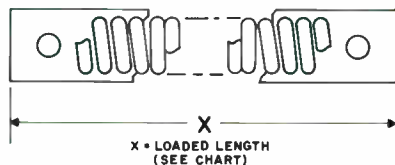


Fig. G
(M1-27970-38)

Distance Below Lowest Fixed Hanger		Loaded Length at Ambient in °F (°C) (Dimension X)									
		0-20° (-18--7°)		20-40° (-7-4°)		40-60° (4-16°)		60-80° (16-27°)		80-100° (27-38°)	
Feet	Meters	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
0- 200	0- 61	33½	851	33½	851	33¾	855	33¾	855	33¾	857
200- 400	61-122	33¾	841	33¾	848	33¾	855	33¾	857	34	864
400- 600	122-183	32¾	835	33¼	857	33¾	855	33¾	860	34¼	870
600- 800	183-244	32¾	829	33¾	841	33¾	855	34	864	34½	876
800-1000	244-305	32¾	822	33	838	33¾	855	34¼	870	34¾	883
1000-1200	305-366	32¾	816	32¾	835	33¾	855	34¾	873	35	889
1200-1400	366-427	31¾	810	32¾	832	33¾	855	34½	876	35¼	895
1400-1600	427-488	31¾	806	32¾	829	33¾	855	34½	876	35½	902
1600-1800	488-549	31½	800	32½	826	33¾	855	34¾	879	35¾	906
1800-2000	549-610	31¾	797	32½	826	33¾	855	34¾	879	35¾	908

SINGLE 8-3/16-INCH LINE

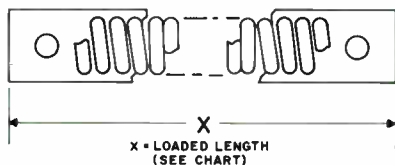


Fig. H
(M1-561569-38)

Distance Below Lowest Fixed Hanger		Loaded Length at Ambient in °F (°C) (Dimension X)									
		0-20° (-18--7°)		20-40° (-7-4°)		40-60° (4-16°)		60-80° (16-27°)		80-100° (27-38°)	
Feet	Meters	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
0- 200	0- 61	27¾	606	24	610	24	610	24	610	24¼	613
200- 400	61-122	23¾	600	23¾	603	24	610	24¼	616	24¾	619
400- 600	122-183	23¼	591	23¾	600	24	610	24¾	619	24¾	625
600- 800	183-244	23¾	587	23½	597	24	610	24½	622	24¾	632
800-1000	244-305	22¾	581	23¾	594	24	610	24¾	625	25¼	638
1000-1200	305-366	22¾	578	23¾	594	24	610	24¾	625	25¼	641
1200-1400	366-427	22¾	575	23¼	591	24	610	24¾	629	25¾	645

SINGLE 9-3/16-INCH LINE



Fig. I
(M1-27900-38)

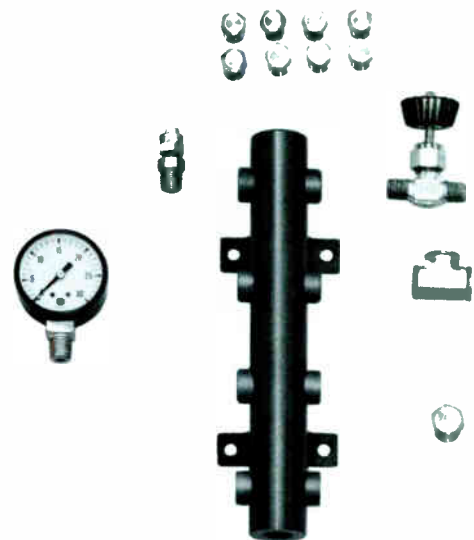
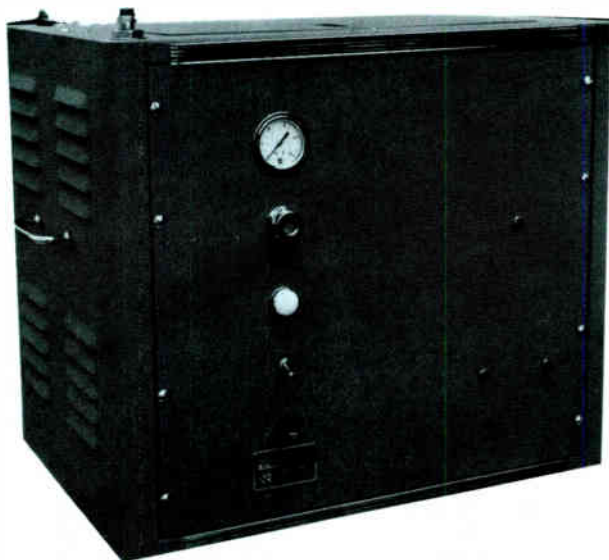
Distance Below Lowest Fixed Hanger		Loaded Length at Ambient in °F (°C) (Dimension X)									
		0-20° (-18--7°)		20-40° (-7-4°)		40-60° (4-16°)		60-80° (16-27°)		80-100° (27-38°)	
Feet	Meters	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
0- 200	0- 61	24¾	629	24¾	629	24¾	632	24¾	619	25	635
200- 400	61-122	24¾	619	24¾	625	24¾	632	25	635	25¼	641
400- 600	122-183	24¾	613	24½	622	24¾	632	25¼	641	25½	648
600- 800	183-244	23¾	606	24¾	619	24¾	632	25¾	645	25¾	654
800-1000	244-305	23¾	603	24¼	616	24¾	632	25½	648	26	660



Pressurizing Equipment: Dehydrators and Gassing System Kits

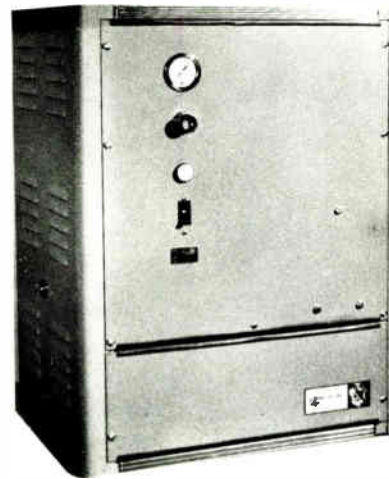
- Choice of two dehydrators
- Nitrogen-bottle regulators
- Expandable system kits
- Flexible plastic tubing
- Brass and bronze fittings

Described here is equipment and material for the pressurization of flanged transmission line. There are two dehydrator/compressors and three "gassing kits". The dehydrator/compressors differ in size and capacity, to accommodate various transmission-line system requirements. The three gassing kits combine the fittings and components into complete packages that simplify installation.



Heatless Compressor/Dehydrators

- Discharge air dewpoint -40°
- Available in two capacities
- Two-cylinder, oil-less compressors
- Adjustable outlet pressure



Engineered and manufactured specifically for pressurizing RF transmission lines, these two compressor/dehydrator units differ only in output capacity and physical dimensions. The units deliver dry, compressed air at the rate of one or two cubic feet per minute (0.028 or 0.056 m³).

Oil-Less Compressor

Both units use an oil-less, two-cylinder air compressor with a direct-drive 1/2- or 3/4-horsepower electric motor. All operate from 115/230 V, 60-Hz power (50-Hz units are available on special order, see *Ordering Information*).

“Dry-Pak” Dehydrator

The “Dry-Pak” dehydrator provides a continuous supply of dry air. The dew point of this air is below -40 degrees C. The Dry-Pak dehydrator uses a system of air expansion and silica-gel dessicants to achieve this dryness.

A program timer, within the Dry-Pak, recycles the dessicant as required and entirely automatically. The device includes an adjustable pressure switch which maintains discharge pressure at any level between 1 and 15 lbs./in² (0.07-1.05 kg/cm²). The switch is factory set for 4 to 7 lbs/in² (0.28 to 0.49 kg/cm²).

Maintenance-Free System

Dry-Pak Compressor Dehydrators require no routine maintenance. After many hours of use, the *Teflon* piston rings of the compressor might need replacement to restore the unit’s pressure capability. These are available as spare parts.

Specifications

Output Air:
 Dewpoint -40° C
 Pressure1-15 lbs/in² (0.07-1.05 kg/cm²)

Volume:
 Half-Horsepower Unit1 ft³/min. (0.0283 m³/min.)
 Three-Quarter Horsepower Unit2 ft³/min. (0.0566 m³/min.)

Input Air:
 Temperature125° F (52° C) max.
 Relative Humidity0-100%
 Power Requirements115/230 V, 60 Hz or 115/230 V, 50 Hz

Pressurizing Capacity	1 5/8" Line	3 1/8" Line	6 1/8" Line	9 3/16" Line
Half-Horsepower Unit (1 SCFM)*	10,000' (3048 m)	2500' (76 m)	700' (213 m)	250' (76 m)
Three-Quarter Horsepower Unit (2 SCFM)*	40,000' (1220 m)	10,000' (305 m)	3,000' (914 m)	1000' (305 m)

Dimensions
 Half-Horsepower Unit20" H; 22" W; 15" D (508, 558, 381 mm)
 Three-Quarter Horsepower Unit28" H; 22" W; 15" D (711, 558, 381 mm)

Weight
 Half-Horsepower Unit95 lbs. (43 kg)
 Three-Quarter Horsepower Unit117 lbs. (53 kg)

Ordering Information

Heatless Compressor/Dehydrator (115/230 V 60 Hz):
 Half-Horsepower UnitMI-563170-1
 Three-Quarter Horsepower UnitMI-563170-2
 Heatless Compressor/Dehydrator (for 50-Hz power)
 Half-Horsepower UnitMI-563170-1A
 Three-Quarter Horsepower UnitMI-563170-2A

*SCFM = Standard cubic feet per minute.

Gassing System Kits

- For one- to eight-line systems
- For dry air or dry nitrogen
- Precision needle valves
- Highly flexible PVC tubing
- Gauges included

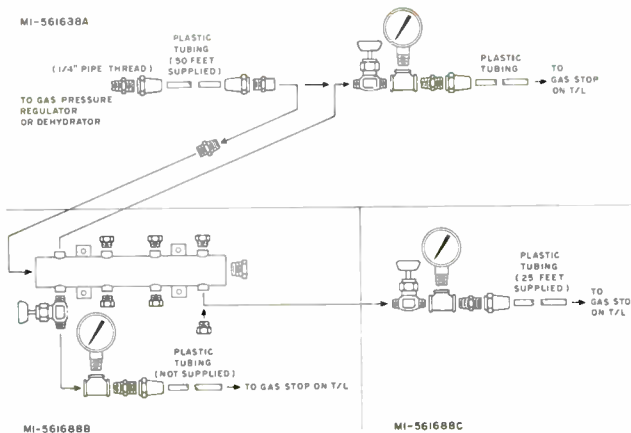
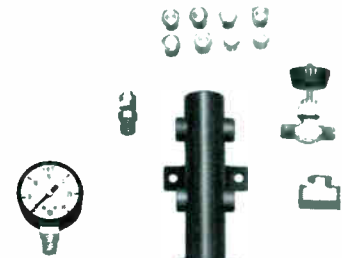
Gassing Kit "A"

Kit "A" provides the fittings, tubing, valve and gauge required to pressurize a single transmission line from a compressor/dehydrator or a regulated source of compressed dry nitrogen.



Gassing Kit "B"

Kit "B" expands the load capabilities of Kit "A" to handle a dual T/L system. It includes an eight-port manifold and the valve, gauge and fittings required for the additional transmission line. The kit includes no plastic tubing on the basis that surplus is available from Kit A. Should additional tubing be required, it is available separately, see *Accessories*.



There are three gassing system kits: an "A" kit which is basic to Kit "B" which, in turn, is basic to Kit "C".

Accessories

Single-Stage Pressure Regulator (See photo below)

For use where bottled dry nitrogen is the pressurizing source instead of dehydrated compressed air. Connects between nitrogen flask valve and gassing system input fittingMI-19315-22

Plastic Tubing

For situations where the tubing included in Gassing Kits "A" and "C" is insufficient for requirements. In 50-foot (15.2 m) coilsMI-561668A-1

Ordering Information

Gassing Kit AMI-561668A
 Gassing Kit BMI-561668B
 Gassing Kit CMI-561668C



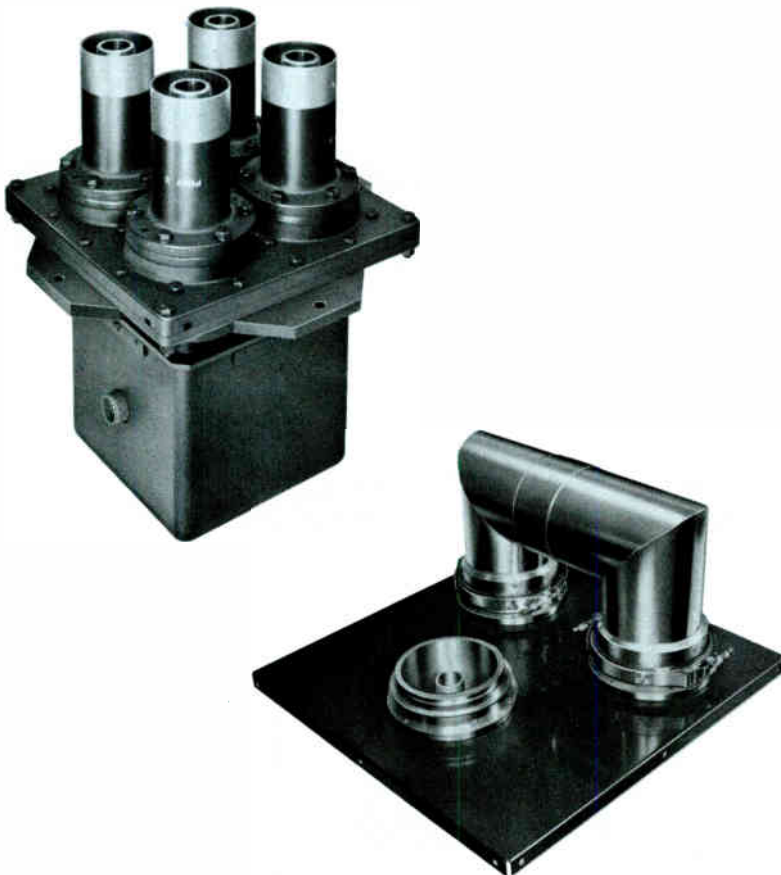
Gassing Kit "C"

Kit "C" expands the capabilities of Kit "B" by one. It includes a valve, a gauge, 25 feet (7.6 m) of plastic tubing and the fittings necessary to connect a Kit A and a Kit B to an additional transmission line. Thus, if the system uses four pressurized transmission lines, it should be equipped with one Kit A, one Kit B and two Kits C. It is important to note that, to use a Kit C, Kits A and B must be available.



Coaxial Transmission Line Switches

- Low VSWR
- Maximum isolation
- High reliability
- Wide frequency range
- Manual and motor-driven types



Coaxial transmission line switches provide convenient, rapid and reliable switching of rf power circuits. Standby transmitter changeover, emergency antenna selection, dummy load connections, temporary by-passing of components, and many other functions are readily accomplished.

Switches for either manual or powered switching accommodate different sizes and types of rigid lines, and single- or multiple-line power transfer. They maintain high reliability, maximum isolation and low VSWR in all VHF and UHF circuits in which they are used.

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VHF/UHF Motor Driven Coaxial Switches

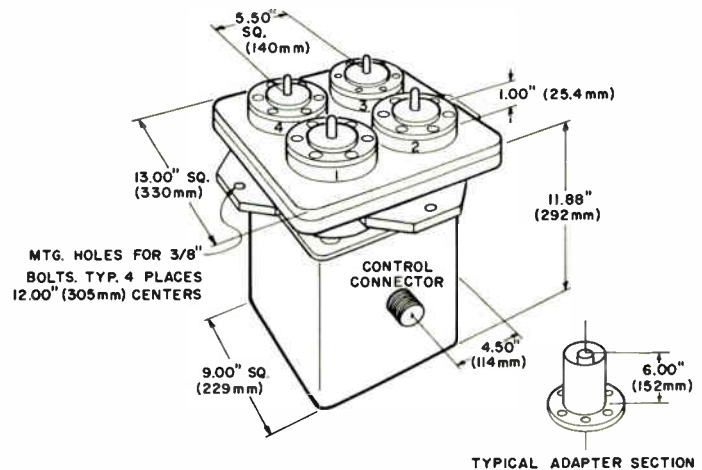
The motor driven 3 1/8-inch coaxial switch, MI-561562, is a simple but extremely versatile component that provides reliable and fast switching of r-f energy between coaxial lines with control from a remote point.

Completely compatible with standard coaxial line components, the switch may be used as a four-port transfer switch or a three-port single-pole, double-throw switch. This versatility lets the switch serve a variety of switching situations.

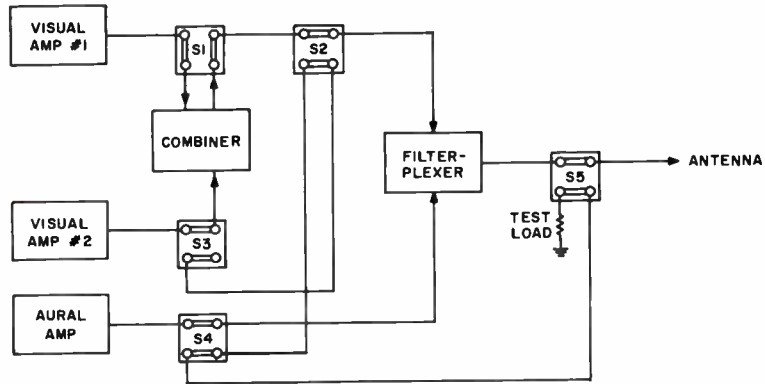
Reliability is an outstanding feature of this switch. The mechanical drive is simple and the number of moving r-f conductors is at a minimum so that operations in excess of 100,000 cycles are possible without failure.



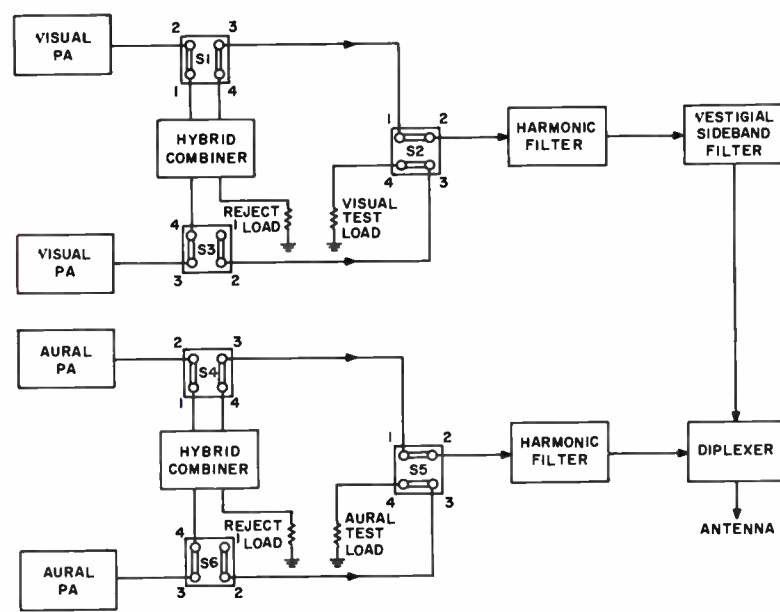
- Mounts in any position
- Includes auxiliary contacts for tally lights and transmitter-interlock circuitry
- DPDT or SPDT switching
- Emergency manual operation



Suggested Switching Plans



Typical UHF transmitter switching arrangement.



Typical redundant VHF transmitter/antenna switching arrangement.

Specifications

- Electrical**
- Operating FrequencyAny to 900 MHz
 - Characteristic Impedance50 or 51.5 ohms
 - Power RatingIdentical to T/L used
 - VSWR
 - 50-220 MHz1.05:1 or less
 - 450-900 MHz1.03:1 or less
 - Insertion Loss0.05 dB or less
 - Isolation (50-880 MHz)60 dB or more
 - Switchover Time (nominal)2 seconds
 - Drive Motor:
 - Voltage115V ±10%
 - Frequency50/60 Hz
 - Current:
 - Start2.0A
 - Run0.48A
 - Current Rating of Auxiliary Relay Contacts15A, 250V AC
- Mechanical**
- Dimensionssee drawing
 - Weight65 lbs. (28 kg)

Ordering Information

- Motor driven Coaxial SwitchMI-561562(*)
- *Designate suffix letter from Table below:
- | MI Designation | Transmission Line Type |
|----------------|------------------------------------|
| MI-561562-A | MI-19089, 50 ohms, flanged |
| MI-561562-B | MI-27791-K, 50 ohms, unflanged |
| MI-561562-C | MI-19313-NF, 51.5 ohms, unflanged |
| MI-561562-D | MI-19313, 51.5 ohms, flanged |
| MI-561562-E | MI-27791-D, 50 ohms, male flange |
| MI-561562-F | MI-27791-D, 50 ohms, female flange |

Accessory

An optional control panel for use with the MI-561562 Switch is available. It mounts in a standard 19-inch relay rack and includes an On-Off switch, operating switch and position-indicator lights. Order as MI-561596.

Note: Contact RCA representative for information on similar switches for other line sizes.

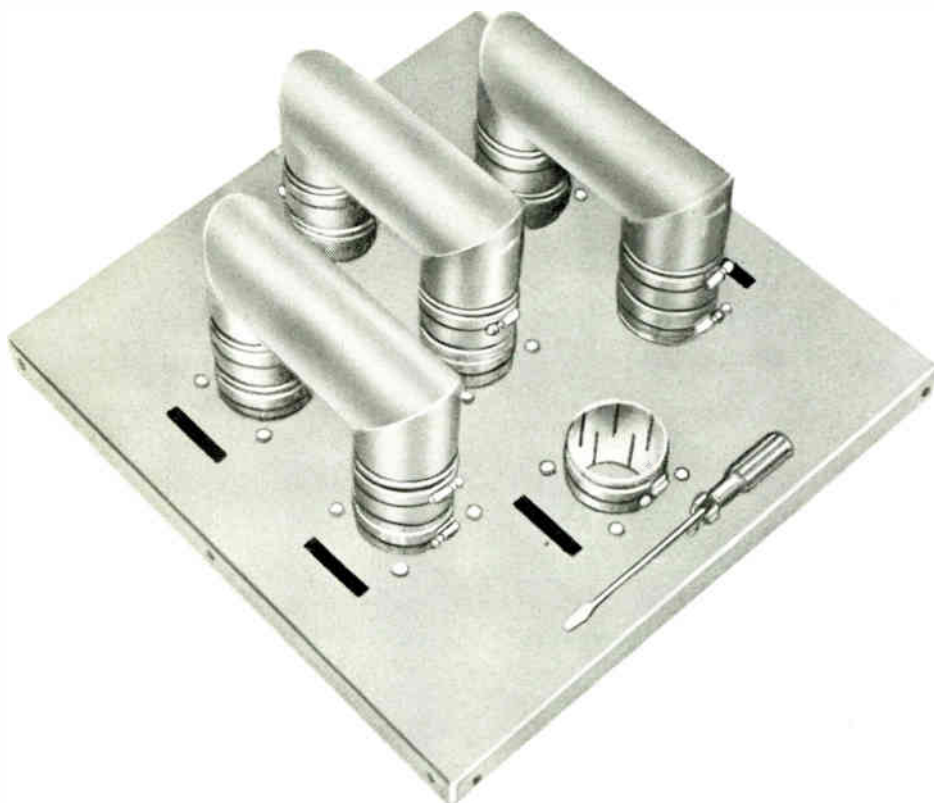
VHF Manual Coaxial Switches

RCA manual coaxial switches for VHF provide a convenient and rapid means of switching r-f-power circuits. They utilize standard coaxial transmission line fittings mounted on a panel in a way that switching functions are readily accomplished by the "patch cord" method. Switches differ in construction to meet the

various sizes and types of transmission lines. The accompanying table should be consulted for ordering purposes.

Fittings come in 3 1/8- or 6 1/8-inch sizes and the switch plugs are constructed of double 3/8- or 6/8-inch elbows which form a U section, maintaining line impedance throughout the switch. Panels are

reinforced with angle bends on all four sides. Holes in the side angles provide for mounting. The 3-pole switch has one U-type connector, and the 7-pole, three. The U-connectors clamp to the fittings. Various connections and impedances are available. See *Ordering Information*, below.



- Sturdy, reinforced steel bases
- 3-pole and 7-pole types
- Low VSWR
- Maximum isolation

Specifications

Electrical

Power Rating.....	Same as various Transmission Line to which they apply
Ambient Temperature.....	To 50° C
Elevation	5000 ft. (1500 m) max. for full power rating
VSWR.....	1.02 to 1 or better
Impedance	See Ordering Information

Mechanical

Dimensions.....See Outline Drawings
Weight:

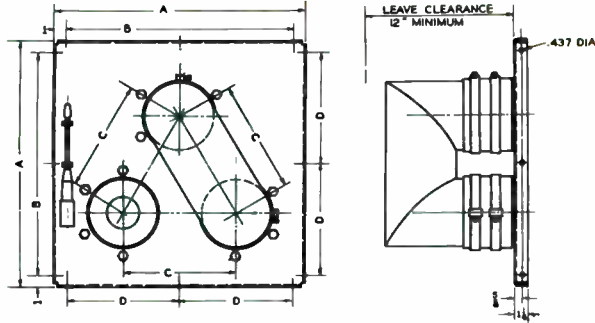
3 Pole, 3 1/8" (79 mm) Models	32 lbs. (14.5 kg)
7 Pole, 3 1/8" (79 mm) Models	67 lbs. (30.4 kg)
3 Pole, 6 1/8" (156 mm) Models	75 lbs. (34 kg)
7 Pole, 6 1/8" (156 mm) Models	220 lbs. (100 kg)

Accessories

3 1/8" 50 ohm adaptor used to connect straight sections of line to MI-27912-50 and 51	MI-27912-52
3 1/8" 51.5 ohm adaptor used to connect straight sections of line to MI-27717 and MI-27718	MI-27337
6 1/8" 51.5 ohm adaptor used to connect straight sections of line to MI-27719 and MI-27720	MI-27709
Spare "U" bend 3 1/8", 7" (178 mm) centers for use with MI-27717 and MI-27718	MI-27999

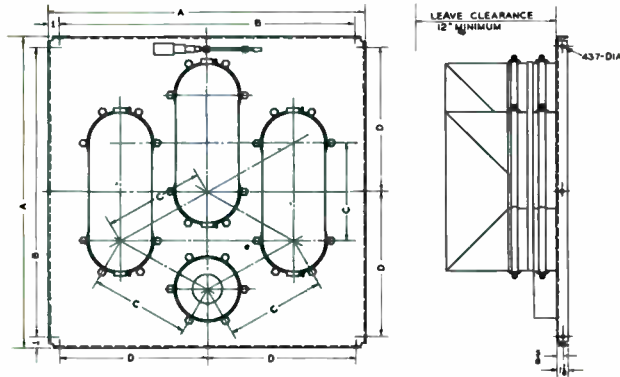
INSTALLATION NOTE:

Because of inner conductor considerations, either an elbow or an adaptor component must connect to the several switch ports.



SIZE	A	B	C	D
3½"	15½"	13½"	7"	—
80 mm	393	343	178	—
6½"	25"	23"	13"	11½"
156 mm	635	584	330	292

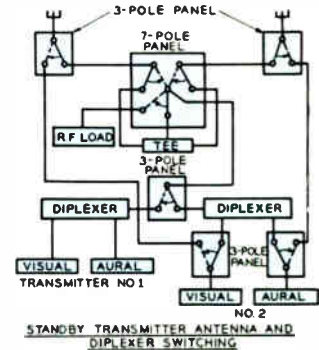
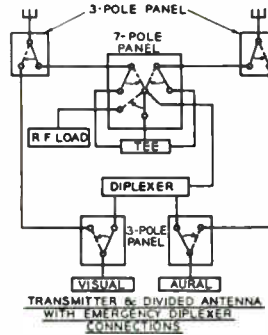
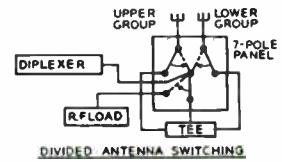
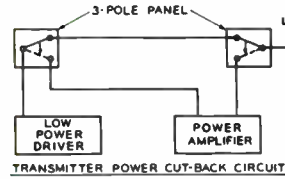
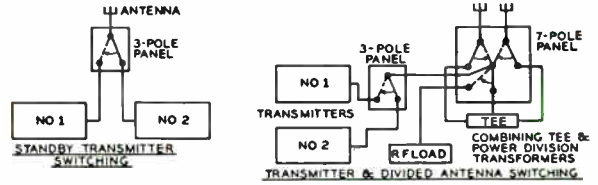
Outline Dimensions, 3-Pole Panels



SIZE	A	B	C	D
3½"	23"	21"	7"	—
80 mm	584	533	178	—
6½"	38"	36"	13"	18"
156 mm	965	914	330	457

Outline Dimensions, 7-Pole Switches

Suggested Uses for Manual Coaxial Switches



Ordering Information

Stock Identification	Diameter	Impedance	Poles	Type Connector	For Use with RCA Line
MI-27717	3½" (79 mm)	51.5 ohms	3	Sleeve	MI-19113-C or MI-19313
MI-27718	3½" (79 mm)	51.5 ohms	7	Sleeve	MI-19113-C or MI-19313
MI-27719	6½" (156 mm)	51.5 ohms	3	Sleeve	MI-19314-C
MI-27720	6½" (156 mm)	51.5 ohms	7	Sleeve	MI-19314-C
MI-27912-50	3½" (79 mm)	50 ohms	3	Inside, Universal	MI-27791-K
MI-27912-51	3½" (79 mm)	50 ohms	7	Inside, Universal	MI-27791-K

The above are standard designs fitting most requirements. Other configurations to fit special switching requirements are available on special order.

UHF Manual Coaxial Switches

Convenient and efficient switching of coaxial r-f power lines is achieved by this advanced UHF manual coaxial switch. Power cutback, dummy-load switching, emergency-antenna connection and standby-transmitter switching are accomplished easily and quickly. Two switch types are available: a 3-pole switch with

a single *U*-connector, and 7-pole switch with three *U*-connectors. Typical switching arrangements are shown in the diagrams.

Quick disconnect Marman clamps on universal flanges hold *U*-connectors securely in place. Each port includes an inner conductor, anchored in place with an

insulator and locking flange ring on the "rear" side of the port. Flange connections on this side of the switch accommodate 3½-inch (MI-19089), 50-ohm line, 6⅞-inch, 75-ohm line (MI-19387), 8-3/16-inch line (MI-561566D), or 9-/316-inch, 75-ohm line (MI-27793D).



- Fast disconnect Marman clamps
- Anchored inner conductor
- 3-pole and 7-pole types
- Low VSWR

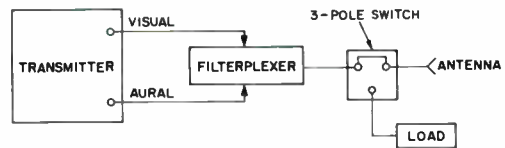
Specifications

Power Rating.....	Same as various transmission lines to which they apply
Ambient Temperature.....	45°C max.
VSWR.....	1.02 to 1 or better
Impedance	See Ordering Information
Dimensions	See Outline Drawings
Weight (Approx.):	(on page B.6950-8)
3-pole, 3½" (79 mm)	65 lbs. (30 kg)
3-pole, 6⅞" (156 mm)	175 lbs. (80 kg)
3-pole, 8⅞" (208 mm)	355 lbs. (160 kg)
3-pole, 9⅞" (233 mm)	370 lbs. (167 kg)
7-pole, 3½" (79 mm)	165 lbs. (75 kg)
7-pole, 6⅞" (156 mm)	400 lbs. (182 kg)

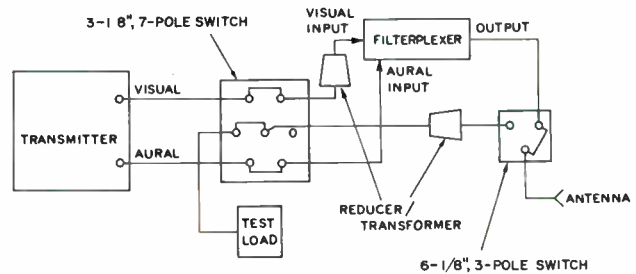
Accessories

Spare "U" bend, 3½", 7" (178 mm) centers for use with MI-27333-A and MI-27334-A	MI-27098*
Spare "U" bend, 6⅞", 13" (330 mm) centers for use with MI-27710-A and MI-27711-A	MI-27099*
Spare "U" bend, 8⅞", 22" (559 mm) centers for use with MI-561570	MI-561571*
Spare "U" bend, 9⅞", 23" (584 mm) centers for use with MI-561568	MI-561567*

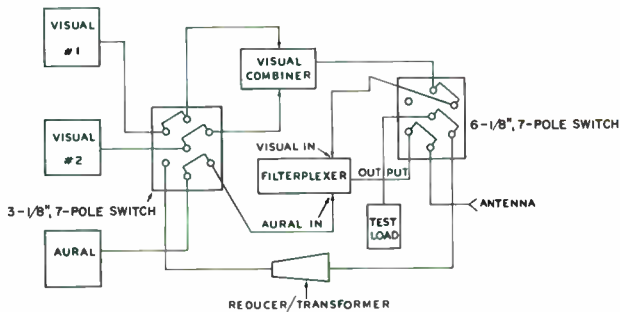
Typical Coaxial-Switch Schematics



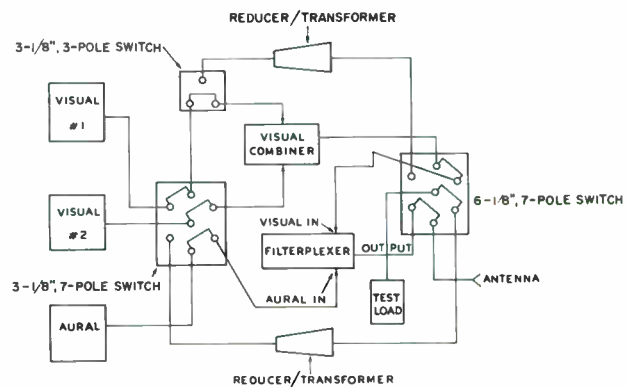
Basic Antenna/Test Load Switch Circuit



Adding a 7-Pole Switch to Basic Circuit
Increases Switching Flexibility



Typical Dual 7-Pole Switch Arrangement



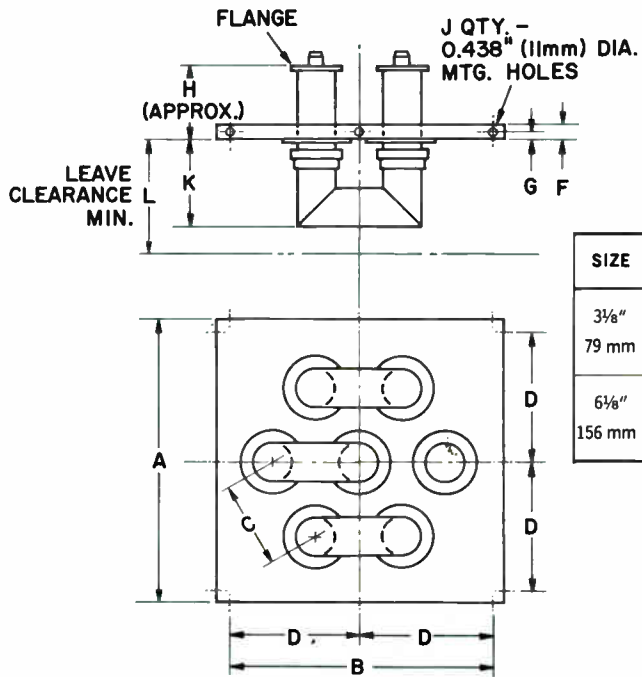
Two 7-Pole and One 3-Pole, Maximum Flexibility

Ordering Information

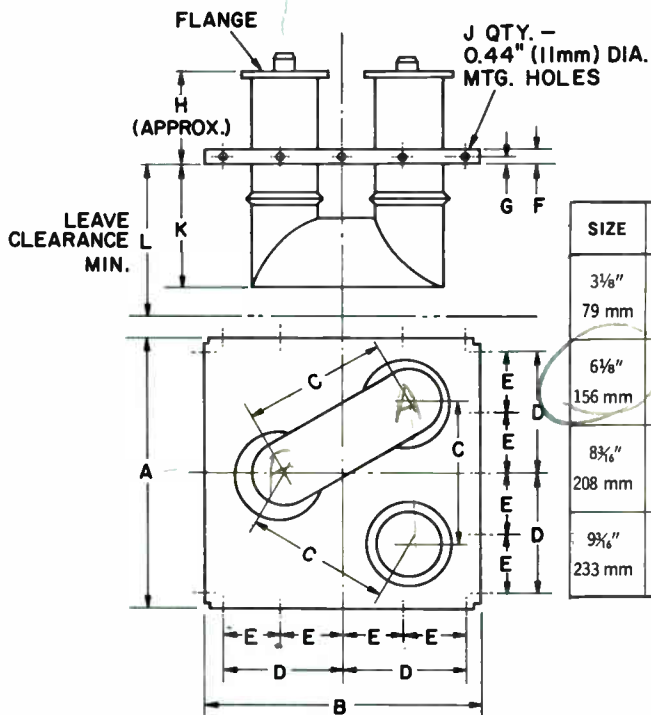
Stock Identification	Diameter	Impedance	Pole	Type Connector	For use with RCA Line
MI-27333-A*	3 1/8" (79 mm)	50	3	EIA Flange	MI-19089
MI-27334-A*	3 1/8" (79 mm)	50	7	EIA Flange	MI-19089
MI-27710-A*	6 1/8" (156 mm)	75	3	EIA Flange	MI-19387
MI-27711-A*	6 1/8" (156 mm)	75	7	EIA Flange	MI-19387
MI-561570*	8 3/8" (208 mm)	75	3	Marman Flange	MI-561566-D
MI-561568*	9 3/8" (233 mm)	75	3	Marman Flange	MI-27793-D

* Sales order must specify customers channel.

Outline Drawings-UHF Manual Switches



SIZE	A	B	C	D	F	G	H	J	K	L	Flange For Use With	
3 1/8" 79 mm	23 584	21 533	7 178	10 1/2 267	1 1/8 29	5/8 16	4 102	12 305	7 178	9 229	EIA	MI-19089
6 1/8" 156 mm	38 965	36 914	13 330	18 457	1 1/4 32	3/4 19	3 3/4 83	12 305	11 3/4 298	13 3/4 349	EIA	MI-19387



SIZE	A	B	C	D	E	F	G	H	J	K	L	Flange For Use With	
3 1/8" 79 mm	15 1/2 394	15 1/2 394	7 178	6 3/4 171	—	1 1/8 29	5/8 16	4 102	12 305	7 178	9 229	EIA	MI-19089
6 1/8" 156 mm	25 635	25 635	13 330	11 1/2 292	—	1 1/2 38	31/32 25	3/4 83	12 305	11 3/4 298	13 3/4 349	EIA	MI-19387
8 3/8" 208 mm	41 1041	38 965	22 559	16 406	8 203	2 1/4 57	1 3/8 35	10 3/4 273	20 508	14 1/2 368	18 1/2 470	Universal	MI-561566-D
9 3/8" 233 mm	43 1092	40 1016	23 584	16 406	8 203	2 1/4 57	1 3/8 35	10 3/4 273	20 508	15 381	19 483	Universal	MI-27793-D



TV TRANSMISSION LINE CUSTOMER PRICE LIST

All sales are subject to RCA's Standard Terms and Conditions of Sale which are available upon request from your Broadcast Equipment Field Sales Representative.

Prices subject to change without notice.

MI NUMBER	DESCRIPTION	PRICE
51.5-OHM, 1$\frac{5}{8}$" DIA. STEATITE-INSULATED LINE, MI-19112 SERIES		
19112-1	20' Section—Flanged ¹	\$ 79.00
19112-1F	20' Section—One Flange ¹	72.00
19112-1NF	20' Section—No Flanges ¹	65.00
19112-5	Gas Stop	25.25
19112-8	Straight Coupling (Includes Bullet)	72.00
19112-9	Special Size Inner Conductor for TV Splicing (0.647" O.D. x 12')	80.00
19112-11	Inner Connector	2.30
19112-16	Adaptor Flanged to Unflanged Line Clamp Type	14.00
19112-18	90° Miter Elbow (Flanged)	53.00
19112-18NF	90° Miter Elbow (No Flange)	32.50
19112-20	1 $\frac{5}{8}$ " Fixed Flange	7.00
19112-21	1 $\frac{5}{8}$ " Swivel Flange	14.00
19112-58	Reducer 1 $\frac{5}{8}$ " to Type "N" No Flange	49.50
19112-59	1 $\frac{5}{8}$ " Reducer to Type "N" Flanged	53.00
19112-60	Field Flange	17.00
27988-7F	Adaptor 1 $\frac{5}{8}$ " 51.5 ohm unflanged T/L to 1 $\frac{5}{8}$ " 50 ohm EIA flange (no bullets) 6" long	18.25
27988-7G	Adaptor 1 $\frac{5}{8}$ " 51.5 ohm flange male to 1 $\frac{5}{8}$ " 50 ohm EIA flange male (no bullets) 6" long	27.00
¹ Lengths less than 20' \$3.35 per foot plus \$7.00 for each flange, \$2.30 for each bullet, and \$1.60 for hardware kit.		
50-OHM, 1$\frac{5}{8}$" DIA. TEFLON-INSULATED LINE, MI-561565 SERIES		
561565-1A	20' Section, Non-flanged ²	74.00
561565-2A	90° Miter Elbow, Non-flanged	21.00
561565-4A	Coupling Assembly	12.00
561565-4B	Connector, Inner	6.80
561565-4C	Clamp, Adjustable	0.50
561565-4D	Coupling Sleeve, Outer	4.20
561565-5A	Reducer, Quick Step, 3 $\frac{1}{8}$ " to 1 $\frac{5}{8}$ ", Unflanged	87.00
561565-7A	Adaptor 1 $\frac{5}{8}$ " Flanged to Unflanged	23.00
561565-8A	Connector, Inner, 1 $\frac{5}{8}$ " 50 ohm to 51.5 ohm	6.80
² Lengths less than 20' \$3.70 per foot.		
ACCESSORIES FOR 1$\frac{5}{8}$" TRANSMISSION LINE		
19112-10	"O" Ring Gasket	0.35
19112-13	Cover Plate	5.40
19112-19	Hardware Kit	1.60
19112-39	1 $\frac{5}{8}$ " Hose Clamp	0.75
51.5-OHM, 3$\frac{1}{8}$" DIA. STEATITE-INSULATED LINE, MI-19113 SERIES		
19113C-1	20' Section—Flanged ³	187.00
19113C-1NF	20' Section—No Flange ³	158.00
19113C-1SF	20' Section—One Fixed Flange, One Swivel Flange ³	194.00
19113C-8	Straight Coupling (Includes Bullet and 2 Hose Clamps)	9.80
19113C-8NB	Straight Coupling (Less Bullet but Including 2 Hose Clamps)	7.00
19113C-9	Inner Conductor for TV Splicing (1.282" O.D. x 12')	28.75
19113C-11	Inner Connector	2.30
19113C-17	End Seal	137.00
19113C-18	90° Miter Elbow—Flanged	90.00
19113C-18NF	90° Miter Elbow—No Flange	65.00
19113C-60	Flanged to Unflanged Coupling (Ungassed Mechanical)	35.75
³ Lengths less than 20' \$8.00 per foot plus \$14.25 for each fixed flange, \$2.30 for each connector, plus \$2.30 for hardware kit.		

MI NUMBER	DESCRIPTION	PRICE
51.5-OHM, 3/8" DIA. TEFLON-INSULATED LINE, MI-19313 SERIES		
19313	20' Section—Flanged ⁴	\$ 198.00
19313-1NF	20' Section—No Flange ⁴	158.00
19313-1SFH	20' Section—One Fixed Flange, One Swivel Flange ⁴	194.00
19313-1BH	19.5' Section—Flanged	198.00
19313-1BSFH	19.5' Section—One Fixed Flange, One Swivel Flange	205.00
19313-2	90° Miter Elbow—Flanged	90.00
19313-2R	90° Miter Elbow—Flanged (Reinforced Miter)	173.00
19313-2NF	90° Miter Elbow—No Flange	65.00
19313-8	Straight Coupling Ungassed (Includes Bullet)	10.00
19313-8NB	Straight Coupling (Less Bullet but Including 2 Hose Clamps)	7.00
19313-9	Inner Connector	2.80
19313-6	Reducer Coupling (Gassed)—(19314 to 19313 Line)	181.00
⁴ Lengths less than 20' \$8.00 per foot plus \$14.25 for each fixed flange, \$2.30 for hardware kit, \$2.80 for each standard connector or \$12.00 for inner expander connector. (Specify inner expander connector for line lengths of 10' or longer.)		
ACCESSORIES FOR 3/8" STEATITE-INSULATED LINE		
19113C-5	Gas Stop ⁵	74.00
19113C-6	Reducer, 3/8" to 1/8" (Flanged)	57.00
19113C-7	Reducer, 3/8" to 1/8" (Unflanged)	46.00
19113C-10	"O" Ring Gasket	0.60
19113C-13	Cover Plate	14.75
19113C-19	Hardware Kit	2.30
19113C-20	Flange (fixed) silver-solder type	14.25
19113C-21	Flange (swivel) silver-solder type	21.00
19113C-51	1.282" Cutoff Gauge (For MI-19313 Inner Conductor or MI-19113 Splicing Inner Conductor)	7.00
19113C-54	1.200" Cutoff Gauge (For MI-19113 Inner Conductor)	8.90
19113C-55	Adaptor Plain to Flange Line (soft-solder type)	44.50
19113C-58	Reducer from 3/8" to Type "N" (Ungassed) ⁴	124.00
19313-10	Special Inner Connector to Connect MI-19113 to MI-19313 Line	3.50
19313-11	Insert Sleeve to Adapt MI-19313 to MI-19113-C Components	1.30
19313-39	3/8" Hose Clamp	0.80
19113C-61	⁵ Reducer Adaptor: 3/8" 51.5 ohm unflanged to 1/8" ohm flanged	32.50
50-OHM, 3/8" DIA. EIA TYPE TEFLON UHF LINE, MI-19089 SERIES		
19089-1E	20' Section—Flanged with anchor insulator and expansion joint ⁶	210.00
19089-1F	19 1/2" Section—Flanged with anchor insulator and expansion joint	210.00
19089-1C	20' Section—Flanged less anchor insulator connector ⁶	187.00
19089-1D	19 1/2" Section—Flanged less anchor insulator connector	187.00
19089-2A	90° Miter Elbow with swivel flanges and locked-in connectors at each end	128.00
19089-2B	90° Elbow with swivel flanges and one locked-in connector, Replacement only	109.00
19089-2C	90° Miter Elbow with swivel flanges, less anchor connectors	114.00
19089-2CR	90° Miter Elbow with swivel flanges, less anchor connectors, reinforced	204.00
19089-4	Gas Stop	105.00
19089-6	Two 90° Miter Elbows locked together with connectors at each end	233.00
19089-10A	Connector (Anchor insulator)	24.75
19089-11	Flange (fixed) silver-solder type	17.75
19089-12	Flange (swivel) silver-solder type	24.75
19089-14	Adaptor Flange—soft-solder type	38.25
19089-15	Cut-off Gauge for outer conductor	13.25
19089-16	Cut-off Gauge for inner conductor	7.40
19089-17	Reducer Cone, 3/8" to Type "N" Connector	124.00
19089-18	Silicone Grease—2 oz. tube	3.50

MI NUMBER	DESCRIPTION	PRICE
50-OHM, 3/8" DIA. EIA TYPE TEFLON UHF LINE, MI-19089 SERIES (Cont.)		
19089-19	Adaptor—Type "N" to "HN" (for use with MI-19089-17)	\$ 33.75
19089-20	Tool—Pliers to remove anchor insulator connector from inner conductor	12.00
19089-21	Reducer Cone, 3/8" to Type "HN" Connector	123.00
19089-22	Directional Coupler Mounting Assembly—Flanged with one connector	75.00
19089-23	Exuansion Joint Anchor Insulator Connector—Field replacement kit	69.00
19089-24	Adaptor, MI-19089 EIA Fange to MI-27791-D Universal female flange	94.00
19089-25	Adaptor, MI-19089 EIA Flange to MI-27791-D Universal male flange	60.00
19089-26	Sealing Cap—designed for use with captive anchor insulator	63.00
19089-99-1	20' Inner Conductor Section (for use with MI-19089-23 above)	122.00
19089-29	Lancing Tool for 3/8" Line	90.00
19089-30 (Ch)	Transformer—Reducer/Adaptor MI-27792-D 6/8" 75 ohm Universal female flange to MI-19089 3/8" 50 ohm EIA Flange. Specify UHF channel of operation	248.00
19089-31 (Ch)	Transformer—Reducer/Adaptor MI-27792-D 6/8" 75 ohm Universal male flange to MI-19089 3/8" 50 ohm EIA Flange. Specify UHF channel of operation	248.00
19113C-10	"O" Ring Gasket for use with MI-19089 Series	0.60
19314C-19	Hardware Kit, for use with MI-19089 Series	2.30
<p>⁶Flanged lengths less than 20' \$8.00 per foot plus \$17.75 for each fixed flange, \$2.30 for each hardware kit, \$0.60 for each "O" Ring, and \$24.75 for standard connector or \$36.00 for expansion connector.</p>		
51.5-OHM, 6/8" DIA. STEATITE-INSULATED LINE, MI-19314 SERIES		
19113C-19	20' Section—Flanged ⁷	491.00
19314C-1NF	20' Section—No Flange ⁷	548.00
19314C-1SF	20' Section—One Fixed Flange, One Swivel Flange ⁷	502.00
19314C-1A	10' Section—No Flange	245.00
19314C-1B	19' Long—Flanged	477.00
19314C-1BSF	19' Long—One Fixed Flange, One Swivel Flange	502.00
19314C-4	Reducer 6/8" to 3/8" (Flanged)	181.00
19314C-5	Inner Connector	17.75
19314C-7	Straight Coupling (Ungassed) including Bullet	42.25
19314C-8	Cover Plate	34.50
19314C-9	"O" Ring	1.60
19314C-10	Hardware Kit	4.70
19314C-11	Flange (fixed) silver-solder type	28.75
19314C-12	Flange (swivel) silver-solder type	40.25
19314C-13	Reducer 6/8" to 3/8" (Unflanged) ⁸	170.00
19314C-14	Flange Adaptor, soft-solder type	57.00
19314C-16	Cut-off Gauge, 2.5" (Inner Conductor)	8.90
19314C-18	90° Miter Elbow—Flanged	224.00
19314C-18R	90° Miter Elbow—Flanged (Reinforced Miter)	307.00
19314C-18NF	90° Miter Elbow—No Flange	179.00
19314C-23	Special Inner Conductor for Splicing MI-14314-1 Line Sections (12' Long)	37.50
19314C-39	Hose Clamp	0.85
19314C-52	Gas Stop	348.00
19314C-53	Tool Kit for installing 6/8" Line	17.50
<p>⁷Lengths less than 20' \$27.50 per foot plus \$28.75 for each fixed flange, \$17.75 for each inner connector, and \$4.70 for hardware kit.</p> <p>⁸Adapts to steatite- or Teflon-insulated line.</p>		
50-OHM, 6/8" UNFLANGED LINE AND ACCESSORIES, MI-561579 SERIES		
561579-1A	20' Section ⁹	457.00
561579-2A	90° Miter Elbow	165.00
561579-4A	Coupling Assembly	44.00
561579-4B	Inner Connector	22.50

MI NUMBER	DESCRIPTION	PRICE
50-OHM, 6$\frac{1}{8}$" UNFLANGED LINE AND ACCESSORIES, MI-561579 SERIES (Cont.)		
561579-4C	Clamp, Adjustable	\$ 1.00
561579-4D	Coupling Sleeve (includes 2 clamps)	25.50
561579-5A	Reducer, Quick-Step 6 $\frac{1}{8}$ " 50 ohms unflanged (MI-27791K)	218.00
561579-5B	Reducer, Quick-Step 6 $\frac{1}{8}$ " 50 ohms to 3 $\frac{1}{8}$ " 50 ohms EIA flanged (MI-19089)	238.00
561579-6R	Adaptor-Transformer 6 $\frac{1}{8}$ " 50 ohms to 6 $\frac{1}{8}$ " 75 ohms (MI-561579 to MI-27792D, female outer). For Channels 2 and 3, specify channel	361.00
561579-6T	Adaptor-Transformer 6 $\frac{1}{8}$ " 50 ohms to 6 $\frac{1}{8}$ " 75 ohms (MI-561579 to MI-27792D, female outer). For Channels 4, 5 and 6, specify channel	340.00
561579-6U	Adaptor-Transformer 6 $\frac{1}{8}$ " 50 ohms to 6 $\frac{1}{8}$ " 75 ohms (MI-561579 to MI-27792D, female outer). For Channels 7 through 13, specify channel	295.00
561579-7A	Adaptor 6 $\frac{1}{8}$ " 50 ohms unflanged to 6 $\frac{1}{8}$ " 51.5 ohms flanged (MI-56157 to MI-19314C)	29.50
561579-8A	Connectors Inner (adaptor) 6 $\frac{1}{8}$ " 50 ohms to 6 $\frac{1}{8}$ " 51.5 ohms (MI-561579 to MI-19314C) "Lengths less than 20', \$23.00 per foot.	89.00
75-OHM, 6$\frac{1}{8}$" EIA TYPE TEFLON LINE, MI-19387 SERIES		
19387-1E	20' Section—Flanged with Anchor Insulator and Expansion Joint ¹⁰	25.50
19387-1F	19 $\frac{1}{2}$ ' Section—Flanged with Anchor Insulator and Expansion Joint	25.50
19387-1C	20' Section—Flanged without Anchor Insulator Connector ¹⁰	406.00
19387-1D	19 $\frac{1}{2}$ ' Section—Flanged without Anchor Insulator Connector	406.00
19387-2A	90° Miter Elbow with swivel flanges and locked-in connector at each end	312.00
19387-2B	90° Miter Elbow with swivel flanges and one locked-in connector, replacement use only	303.00
19387-2C	90° Miter Elbow with swivel flanges, but no Anchor connectors	243.00
19387-2CR	90° Miter Elbow with swivel flanges, but no Anchor connectors, reinforced	328.00
19387-4 (Ch)	Reducer Transformer (MI-19387 to MI-19089)	291.00
19387-5	Gas Stop	329.00
19387-6	Two 90° Miter Elbows locked together with swivel flanges and connectors	606.00
19387-10A	Connector (Anchor Insulator)	70.00
19387-11	Flange (fixed) silver-solder type	31.75
19387-12	Flange (swivel) silver-solder type	51.00
19387-14	Adaptor Flange—soft-solder type	74.00
19387-15	Cut-off Gauge for Outer Conductor	32.25
19387-16	Cut-off Gauge for Inner Conductor	86.50
19387-20	Directional Coupler Mounting Assembly—Flanged with Anchor Insulator	155.00
19387-23	Expansion Joint Anchor Insulator Connector—Field Replacement Kit	107.00
19387-26	Sealing Cap—Designed for use with Captive Anchor Insulator	95.00
19387-99-1	20' Length of Inner Conductor (for use with MI-19387-23)	236.00
19387-29	Lancing Tool for 6 $\frac{1}{8}$ " Line	90.00
19314C9	"O" Ring Gasket, for use with MI-19387 Series	1.60
19314C10	Hardware Kit, for use with MI-19387 Series	4.70
¹⁰ Flanged lengths less than 20' \$21.00 per foot plus \$31.75 for each fixed flange, \$4.70 for each hardware kit, \$1.60 for each "O" Ring, and \$70.00 for standard connector or \$85.00 for expansion connector.		
50-OHM, 3$\frac{1}{8}$" UNIVERSAL LINE AND ACCESSORIES, MI-27791 SERIES		
27791D-1A	20' Section ¹¹	198.00
27791D-1B	Universal T/L, 19 $\frac{1}{2}$ ' Section	198.00
27791D-2A	90° Miter Elbow	109.00
27791D-2AR	90° Miter Elbow (Reinforced)	195.00
27791D-2B	90° Miter Elbow	109.00
27791D-2BR	90° Miter Elbow (Reinforced)	195.00
27791D-3A	Gas Stop	88.00
27791D-4A	Field Flange, Soft Solder, Female	41.75
27791D-4B	Field Flange, Soft Solder, Male	38.00

MI NUMBER	DESCRIPTION	PRICE
50-OHM, 3/8" UNIVERSAL LINE AND ACCESSORIES, MI-27791 SERIES (Cont.)		
27791D-4C	Marman Clamp	\$ 8.10
27791D-4D	Connector (Anchor Insulator)	24.00
27791D-4E	"O" Ring	0.50
27791D-6A	Adaptor-Transformer, Universal Female, Channel 2 to 6	123.00
27791D-6B	Adaptor-Transformer, Universal Female, Channel 7 to 13	89.00
27791D-6C	Adaptor-Transformer, Universal Male, Channel 2 to 6	121.00
27791D-6D	Adaptor-Transformer, Universal Male, Channel 7 to 13	
27791D-7A	Adaptor, Universal Female	
27791D-7B	Adaptor, Universal Male	
27791D-7C	Adaptor, Male Both Ends (12" long)	
27791D-8A	Female End Cap	
27791D-8B	Male End Cap	
27791-14	Female Flange	
27791-16	Male Flange	
19089-15	Cut-off Gauge for Outer Conductor	
19089-16	Cut-off Gauge for Inner Conductor	
19089-18	Silicone Grease—2 oz. tube	
	¹¹ Flanged lengths less than 20' \$8.00 per foot plus \$9.70 for female flange and \$8.10 for male flange, \$8.10 for each Marman clamp, \$0.50 for "O" Ring plus \$24.00 for standard connector or \$30.00 for inner expander connector. (Specify inner expander connector for line lengths of 10' or longer.)	
MI-27791K 3/8" UNFLANGED UNIVERSAL LINE AND ACCESSORIES		
27791K-1A	20' Section, unflanged (for indoor use) ¹²	143.00
27791K-2A	90° Miter Elbow, unflanged	55.00
27791K-4A	Coupling, includes hose clamps and inner connector	9.70
27791K-4B	Inner Connector	3.10
27791K-4C	Hose Clamp	0.75
27791K-5A	Reducer to Type "N" Fitting	124.00
27791K-7A	Mechanical Adaptor, Female (Mates with the male end of MI-27791 Line)	29.50
27791K-7B	Mechanical Adaptor, Male (Mates with the female end of MI-27791 Line)	20.50
	¹² Lengths less than 20' \$7.20 per foot.	
75-OHM, 6/8" UNIVERSAL LINE AND ACCESSORIES, MI-27792 SERIES		
27792D-1A	20' Section ¹³	491.00
27792D-1B	Universal Transmission Line 19 1/2' Section	491.00
27792D-2A	90° Miter Elbow	268.00
27792D-2AR	90° Miter Elbow (Reinforced)	358.00
27792D-2B	90° Miter Elbow	268.00
27792D-2BR	90° Miter Elbow (Reinforced)	358.00
27792D-3A	Gas Stop	433.00
27792D-4A	Field Flange, Female, Soft-Solder Type	73.00
27792D-4B	Field Flange, Male, Soft-Solder Type	73.00
27792D-4C	Marman Clamp	22.25
27792D-4D	Connector (Anchor Insulator)	52.00
27792D-4E	"O" Ring Gasket	1.40
27792D-6A	Reducer-Transformer (Specify Channel)	282.00
27792D-6B	Reducer-Transformer (Specify Channel)	286.00
27792D-6C	Reducer-Transformer (Specify Channel)	248.00
27792D-6D	Reducer-Transformer	248.00
27792D-6E	Reducer-Transformer	285.00
27792D-6F	Reducer-Transformer	271.00
27792D-6G	Reducer-Transformer	235.00
27792D-6K	Reducer-Transformer	248.00

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MI NUMBER	DESCRIPTION	PRICE
75-OHM, 6$\frac{1}{8}$" UNIVERSAL LINE AND ACCESSORIES, MI-27792 SERIES (Cont.)		
27792D-6L	Reducer-Transformer (Specify Channel)	\$ 282.00
27792D-6M	Reducer-Transformer (Specify Channel)	286.00
27792D-6N	Reducer-Transformer (Specify Channel)	248.00
27792D-6R	Transformer—Female	271.00
27792D-6T	Transformer	242.00
27792D-6U	Transformer	192.00
27792D-7A	Adaptor	160.00
27792D-7B	Adaptor	160.00
27792D-7C	Adaptor	83.00
27792D-8A	Female End Cap	108.00
27792D-8B	Male End Cap	78.00
27792-14	Flange, Female, Silver Solder	22.50
27792-16	Flange, Male, Silver Solder	22.50
19387-15	Cut-off Gauge (for outer conductor)	32.25
19387-16	Cut-off Gauge (for inner conductor)	8.90
19089-18	Silicone Grease—2 oz. tube	3.50
<p>¹³Flanged lengths less than 20' \$20.00 per foot plus \$22.50 for each flange, \$22.50 for each Marman clamp, \$1.40 for "O" Ring, and \$52.00 for standard connector or \$60.00 for inner expander connector. (Specify inner expander connector for line lengths 10' or longer.)</p>		
75-OHM, 8$\frac{3}{16}$" UNIVERSAL LINE, MI-561566 SERIES		
— For Replacement and Indoor Use Only —		
561566D-1A	20' Section (with Expansion Joint) ¹⁴	896.00
561566D-1B	Universal Transmission Line, 19 $\frac{1}{2}$ ' Section (with Expansion Joint)	896.00
561566D-2A	90° Elbow	408.00
561566D-2AR	90° Elbow (Reinforced)	505.00
561566D-2B	90° Elbow	408.00
561566D-2BR	90° Elbow (Reinforced)	505.00
561566D-3A	Gas Stop (two way)	607.00
561566D-4A	Field Flange, Female, Soft-Solder Type	100.00
561566D-4B	Field Flange, Male, Soft-Solder Type	100.00
561566D-4C	Marman Clamp	31.25
561566D-4F	Inner Connector, Anchor Insulator	105.00
561566D-4E	"O" Ring	2.40
561566D-4F	Flange, Male, heliarc-welded type	53.00
561566D-5A	Reducer 8 $\frac{3}{16}$ " to 6 $\frac{1}{8}$ "	478.00
561566D-5B	Reducer 8 $\frac{3}{16}$ " to 6 $\frac{1}{8}$ "	478.00
561566D-5C	Reducer (Adaptor)	478.00
561566D-7C	Adaptor	178.00
561566D-8A	End Cap, Female	115.00
561566D-8B	End Cap, Male	79.00
561566D-15A	Cut-off Gauge (for outer conductor)	73.00
561566D-15B	Cut-off Gauge (for inner conductor)	12.75
<p>¹⁴Flanged lengths less than 20' \$35.00 per foot plus \$53.00 for female flange \$53.00 for male flange, \$31.25 for Marman clamp, \$2.40 for "O" Ring, and \$105.00 for standard connector or \$120.00 for expansion connector. (Specify Expansion Connector for line lengths of 10' and longer.)</p>		
75-OHM, 8$\frac{3}{16}$" CAPLOCK LINE, MI-561671 SERIES		
561671-1A	20' Section (with Expansion Joint) ¹⁵	896.00
561671-1B	Caplock Transmission Line, 19 $\frac{1}{2}$ ' (with Expansion Joint)	896.00
561671-2A	90° Elbow	408.00
561671-2AR	90° Elbow (Reinforced)	505.00
561671-2B	90° Elbow	408.00

MI NUMBER	DESCRIPTION	PRICE
75-OHM, 8$\frac{3}{16}$" CAPLOCK LINE, MI-561671 SERIES (Cont.)		
561671-2BR	90° Elbow (Reinforced)	\$ 505.00
561671-4A	Field Flange, Female, Soft-Solder Type	98.00
561671-4B	Field Flange, Male, Soft-Solder Type	84.00
561671-4C	Caplock Clamp Kit	54.00
561671-4D	Inner Connector, Anchor Insulator	105.00
561671-4E	"O" Ring	2.40
561671-5A	Adaptor (MI-561671 Female to MI-27792 Universal Male)	507.00
561671-5B	Adaptor (MI-561671 Female to MI-27792 Universal Female)	507.00
561671-5C	Adaptor (MI-561671 Female to MI-19387 EIA Flange)	507.00
561671-5D	Adaptor (MI-561571 Male to MI-27792 Universal Female)	470.00
561671-5E	Adaptor (MI-561671 Male to MI-19387 EIA Flange)	470.00
561671-5F	Adaptor (MI-561671 Male to MI-27792 Male)	470.00
561671-7A	Adaptor (MI-561671 Female to MI-561566 Universal Male)	201.00
561671-7B	Adaptor (MI-561671 Male to MI-561566 Universal Female)	171.00
561671-7C	Adaptor (MI-561671 Male to MI-561671 Male)	164.00
561671-8A	End Cap Female (to cap male end of line)	146.00
561671-8B	End Cap Male (to cap female end of line)	72.00
561566D-15A	Cut-off Gauge (for outer conductor)	73.00
561566D-15D	Cut-off Gauge (for inner conductor)	12.75
<p>¹⁵Flanged lengths less than 20' \$45.00 per foot plus \$45.00 for female flange, \$30.00 for male flange, \$2.40 for "O" Ring, \$105.00 for standard anchor insulator or \$120.00 for expansion connector. (Specify expansion connector for line lengths of 10' and longer.)</p>		
75-OHM, 9$\frac{3}{16}$" UNIVERSAL LINE, MI-27793 SERIES		
— For Replacement Use Only —		
27793D-1A	20' Section (with Expansion Joint) ¹⁶	990.00
27793D-1B	19½' Section (with Expansion Joint)	990.00
27793D-2A	90° Elbow	441.00
27793D-2AR	90° Elbow (Reinforced)	525.00
27793D-2B	90° Elbow	441.00
27793D-2BR	90° Elbow (Reinforced)	525.00
27793D-3A	Gas Stop (Two way)	831.00
27793D-4A	Field Flange, Female, Soft-Solder Type	109.00
27793D-4B	Field Flange, Male, Soft-Solder Type	109.00
27793D-4C	Marman Clamp	41.75
27793D-4D	Inner Connector, Anchor Insulator	130.00
27793D-4E	"O" Ring	2.40
27793D-4F	Flange, Male, heliarc-welded type	49.00
27793D-5A	Reducer	478.00
27793D-5B	Reducer	478.00
27793D-5C	Reducer (Adaptor)	478.00
27793D-7C	Adaptor	178.00
27793D-8A	End Cap Female (to cap male end of line)	162.00
27793D-8B	End Cap Male (to cap female end of line)	110.00
27793D-15A	Cut-off Gauge (for outer conductor)	79.00
27793D-15B	Cut-off Gauge (for inner conductor)	14.50
<p>¹⁶Flanged lengths less than 20' \$45.00 per foot plus \$49.00 for female flange, \$49.00 for male flange, \$41.75 for Marman clamp, \$2.40 for "O" Ring, and \$130.00 for standard connector or \$145.00 for expansion connector. (Specify expansion connector for line lengths of 10' or longer.)</p>		
TRANSMISSION LINE TRANSFORMERS		
19387-4 (Ch)	Reducer Transformer	291.00

MI NUMBER	DESCRIPTION	PRICE
50-OHM, 3/8" COMPONENTS, MI-27988 SERIES		
27988-4A	Inner Connector Adaptor	\$ 15.25
27988-4B	Inner Connector Adaptor	13.50
27988-4C	Adaptor Flange	32.25
27988-7A	Adaptor Section	41.25
27988-7B	Adaptor Section	34.75
27988-7E	Male to Male Adaptor	38.75
1 1/8" LINE HANGERS		
Fixed Hangers (Single Line)		
19312-44	Pivot—Grounded. Mount through hole—Short	12.75
19312-47	Pivot—Grounded. Mount through hole—Long	14.00
Fixed Hangers (Dual Lines)		
19112-15	Grounded. Mount through hole	12.00
Expansion Hangers (Single Line)		
19312-32	Pivot—Grounded. Mount through hole—Short	15.00
19312-33	Pivot—Grounded. Mount through hole—Long	15.00
19312-34	Pivot—Insulated. Mount through hole	24.00
Expansion Hangers (Dual Lines)		
19112-14	Grounded. Mount through hole	20.25
19112-48	Insulated. Mount through hole	41.50
3/8" LINE HANGERS		
Fixed Hangers (Single Line)		
19313-44	Pivot—Grounded. Mount through hole—Short	13.25
Fixed Hangers (Dual Lines)		
19113-15	Grounded. Mount through hole	13.25
19113-49	Insulated. Mount through hole	34.50
Expansion Hangers (Single Line)		
19313-32	Pivot—Grounded. Mount through hole—Short	17.00
19313-33	Pivot—Grounded. Mount through hole—Long	17.75
19313-34	Pivot—Insulated. Mount through hole—Long	25.50
Expansion Hangers (Dual Lines)		
19113-14	Grounded. Mount through hole	27.50
19113-48	Insulated. Mount through hole	59.00
6/8" LINE HANGERS		
Fixed Hangers (Single Line)		
19314-44	Grounded. Mount through hole (For use with MI-19314-32 spring hanger)	20.50
27970-33	Grounded. Mount through hole (For use with MI-27970 Series only)	26.00
Expansion Hangers (Single Line)		
19314-32	Grounded. Mount through hole (For use on towers up to and including 600')	38.25
27970-37	Grounded. Mount through hole (For use on towers over 600' in height)	59.00
27970-36	Guide Ring. Use with 27970 Series	28.25
27970-38	Grounded. Mount through hole (For use with MI-19314 line on towers over 600' tall)	59.00
8 3/8" LINE HANGERS		
Fixed Hangers (Single Line)		
561569-40	Grounded. Mount through hole (For use with MI-561569-38 expansion hanger)	50.00
Expansion Hangers (Single Line)		
561569-38	Grounded. Mount through hole (For use with MI-561569-40 fixed hanger)	83.00

MI NUMBER	DESCRIPTION	PRICE
9$\frac{3}{8}$" LINE HANGERS		
27900-40	Fixed Hangers (Single Line) Grounded. Mount through hole (For use with MI-27900-38 expansion hanger)	\$ 50.00
27900-38	Expansion Hangers (Single Line) Grounded. Mount through hole (For use with MI-27900-40 fixed hanger)	83.00
MISCELLANEOUS LINE INSTALLATION ACCESSORIES		
Horizontal Anchor Assembly (Single)		
19312-17	For 1 $\frac{5}{8}$ " Line	16.75
19313-17	For 3 $\frac{1}{8}$ " Line	30.25
19314-48	For 6 $\frac{1}{8}$ " Line	68.50
561569-48	For 8 $\frac{3}{8}$ " Line	176.00
27900-48	For 9 $\frac{3}{8}$ " Line	176.00
Horizontal Anchor Assembly (Dual)		
19312-18	For 1 $\frac{5}{8}$ " Line	35.25
19313-18	For 3 $\frac{1}{8}$ " Line	60.50
27970-35	For 6 $\frac{1}{8}$ " Line	111.00
561569-49	For 8 $\frac{3}{8}$ " Line	336.00
27900-49	For 9 $\frac{3}{8}$ " Line	353.00
Horizontal Roller Assembly		
19312-35	For 1 $\frac{5}{8}$ " Line	9.30
19313-35	For 3 $\frac{1}{8}$ " Line	16.00
19314-35	For 6 $\frac{1}{8}$ " Line	48.00
561569-35	For 8 $\frac{3}{8}$ " Line	101.00
27900-35	For 9 $\frac{3}{8}$ " Line	101.00
Lateral Brace		
19312-26	For 1 $\frac{5}{8}$ " Line	10.00
19313-36	For 3 $\frac{1}{8}$ " Line	9.70
19314-36	For 6 $\frac{1}{8}$ " Line	10.00
561569-36	For 8 $\frac{3}{8}$ " Line	14.00
27900-36	For 9 $\frac{3}{8}$ " Line	14.00
Swivel Hangers		
19312-37	For Single 1 $\frac{5}{8}$ " Line	9.30
19312-38	For Dual 1 $\frac{5}{8}$ " Line	15.00
19313-37	For Single 3 $\frac{1}{8}$ " Line	19.00
19313-38	For Dual 3 $\frac{1}{8}$ " Line	21.00
Horizontal Three Point Expansion Hangers (Single)		
19313-50	For 3 $\frac{1}{8}$ " Line	28.25
19314-50	For 6 $\frac{1}{8}$ " Line	40.75
561569-50	For 8 $\frac{3}{8}$ " Line	82.00
27900-50	For 9 $\frac{3}{8}$ " Line	82.00
Horizontal Three Point Expansion Hangers (Dual)		
19313-51	For 3 $\frac{1}{8}$ " Line	58.00
27970-34	For 6 $\frac{1}{8}$ " Line	78.00
561569D-51	For 8 $\frac{3}{8}$ " Line	166.00
27900-51	For 9 $\frac{3}{8}$ " Line	166.00
19113-16	Extension Kit (to align grounded dual hangers with insulated dual hangers)	3.50
DEHYDRATORS		
563170-1	Heatless Automatic Dehydrator, 1 SCFM	725.00
563170-3	Heatless Automatic Dehydrator, 2 SCFM	900.00

MI NUMBER	DESCRIPTION	PRICE
DEHYDRATOR ACCESSORIES		
561688A	Gassing Kit "A"	\$ 17.00
561688B	Gassing Kit "B"	35.00
561688C	Gassing Kit "C"	13.50
19315-22	Single-Stage Pressure Regulator	112.00
561688A-1	Plastic Tubing, 50-foot coil	3.00
COAXIAL SWITCHES		
27717	VHF Manual Coaxial Switch	240.00
27718	VHF Manual Coaxial Switch	632.00
561562	VHF/UHF Motor Driven Coaxial Switch	1,282.00
27337	VHF Input Adaptor. For use with above switches	22.00
27912-50	VHF Manual Coaxial Switch	243.00
27912-51	VHF Manual Coaxial Switch	644.00
27912-52	VHF Adaptor (for use with above switches)	25.00
27999	"U" Bend, Replacement for use with MI-27717 and MI-27718 Switches	137.00
561596*	Control Panel for use with single MI-561562 Coaxial Switch ¹⁷	135.00
27719	VHF Manual Coaxial Switch	472.00
27720	VHF Manual Coaxial Switch	1,342.00
27709	VHF Input Adaptor (for use with above switches)	50.00
27333A (Ch) (CB)	UHF Manual Coaxial Switch, 3-Pole	370.00
27334A (Ch) (CB)	UHF Manual Coaxial Switch, 7-Pole	1,206.00
27098 (Ch) (CB)	"U" Bend, Replacement for use with above switches	211.00
27710A (Ch) (CB)	UHF Manual Coaxial Switch	679.00
27711A (Ch) (CB)	UHF Manual Coaxial Switch	1,608.00
27099 (Ch) (CB)	"U" Bend, Replacement for use with above switches	401.00
561570 (Ch) (CB)	UHF Manual Coaxial Switch	1,735.00
561571 (Ch)	"U" Bend, Replacement for use with above switches	960.00
561568 (Ch) (CB)	UHF Manual Coaxial Switch	1,880.00
561567 (Ch)	"U" Bend, Replacement for use with above switches	1,000.00
¹⁷ Control Panel includes operating switch and indicator lights. Interlocking circuitry to transmitter depends upon individual equipment.		

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1.					
2.					
3.					
4.					
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Signature _____ Date _____

Ship Via _____ Our Purchase Order # _____

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Station or Company _____

Address _____

City _____ State _____ Zip _____

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	Quantity	Item No.	Description	MI	Total Price
1.					
2.					
3.					
4.					
5.					

Signature _____ Date _____

Ship Via _____ Our Purchase Order # _____

Name _____ Title _____

Station or Company _____

Address _____

City _____ State _____ Zip _____

*Subject to RCA's standard terms and conditions of sale.

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