

March 18 1964



B R O A D C A S T
TRANSMISSION
LINE

E Q U I P M E N T
for
TELEVISION

(THIRD EDITION)

VHF COAXIAL LINE & FITTINGS

LINE ACCESSORIES

GASSING EQUIPMENT

UHF COAXIAL LINE & FITTINGS

DIRECTIONAL COUPLERS

POWER SWITCHING

BROADCAST TRANSMISSION LINE EQUIPMENT CATALOG

(Third Edition)

PRICE: \$1.00



RADIO CORPORATION OF AMERICA

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ABOUT THIS CATALOG

This catalog provides information on RCA broadcast transmission line for television and closed circuit use. Other RCA Broadcast Equipment Catalogs supply information on TV camera, film, tape, terminal, microwave and audio equipment; also on AM, FM and TV transmitters, antennas, and test equipment.

The information contained in this catalog is intended to serve as a buying guide for the user. Complete specifications and ordering information are supplied. Readers who desire more information or individual bulletins on particular equipment items are invited to write to their RCA Broadcast Representative.

OTHER RCA TECHNICAL PRODUCTS

RCA also manufactures many other electronic products, including: two-way radio and microwave relay communications equipment; optical and magnetic film recording equipment; sound systems of all types; 16mm projectors and magnetic recorders; industrial inspection and automation equipment; scientific instruments, such as the electron microscope; closed-circuit television systems; and many types of custom-built equipment for industry, the military, educational and medical services. Information describing these products may be obtained from RCA Sales Offices in the United States and Canada or internationally from local RCA Distributors or RCA International Division, Clark, N. J.

PRICES

Domestic prices of the equipment shown in this catalog are provided in a separate price list. Prices are listed in the order in which they are shown in the catalog. To determine the price of any equipment first note the page on which it is shown in the catalog, then consult the price list in accordance with this page number. Equipments are identified by type and MI (Master Item) numbers which are used to identify apparatus on invoices and packing slips. International prices for the various equipment items shown in this catalog are available from your local RCA Distributors or RCA International Division, Clark, N. J.

HOW TO ORDER

The RCA Transmission Line Equipment shown in this catalog is sold directly through RCA Broadcast Representatives, who are familiar with broadcast equipment and related problems. These RCA Representatives are located in convenient offices. Domestic orders for equipment shown in this catalog, or requests for additional information, should be directed to the nearest RCA Sales Office. International Readers are invited to contact their local RCA Distributor or the RCA International Division Office, Clark, N. J.

QUICK REFERENCE DATA

MECHANICAL AND ELECTRICAL SPECIFICATIONS OF RCA COAXIAL TRANSMISSION LINES

Each of the various types of RCA transmission line is designed for a particular application. The choice of line for an installation will depend principally upon the frequency in use and the power to be handled. Selection of the proper line will provide the most economical and efficient installation.

There is a comprehensive data table included below which should be helpful to the reader. Broadcast engineers and planners, by referring to this "Quick Reference Chart", can study the general overall characteristics and specifications

of RCA's entire complement of transmission lines. In this manner, the reader can select the particular transmission line meeting his application requirements and refer to the proper pages in this catalog for additional data and information.

For broadcast installations, the line selected should have a power rating which equals or exceeds the power output of the transmitter. If power increases are contemplated, it will be economical to install larger line than initially required, thus saving the cost of a new installation at a later time.

Catalog Page Nos.	Size	Stock Identification	Description	Impedance	O.D. of Inner Conductor (in.)	I.D. of Inner Conductor (in.)	Insulators Type—Spacing (in.)	Wt. lbs. per 100 ft.	Class of Service	
6-8	3 1/8"	MI-27791-D	Quick disconnect flanged fittings—pressurized	50-ohm	1.315	1.231	Teflon (Wafer)	—	280	VHF/UHF Television and FM installations
9-10	6 1/8"	MI-27792-D	Quick disconnect flanged fittings—pressurized	75-ohm	1.711	1.661	Teflon (Wafer)	—	650	VHF/UHF Television and FM installations
11-12	9 3/16"	MI-27793-D	Quick disconnect flanged fittings—pressurized	75-ohm	2.580	2.516	Teflon (Wafer)	—	1100	Designed for UHF Television installations. Can be used for VHF.
24-26	3 1/8"	MI-19113-C	Flanged fittings—pressurized	51.5-ohm	1.200	1.136	Steatite (Wafer)	12	250	VHF Television and FM installations (up to 108 mc), AM lines
27	3 1/8"	MI-27791-K	Unflanged fittings—unpressurized	50-ohm	1.315	1.231	Teflon (Wafer)	12	230	VHF Television indoor applications
28-30	3 1/8"	MI-19313	Flanged fittings—pressurized	51.5-ohm	1.281	1.232	Teflon (Wafer)	—	270	VHF Television (up to 220 mc) and FM installations, AM lines
31-33	6 1/8"	MI-19314-C	Flanged fittings—pressurized	51.5-ohm	2.500	2.435	Steatite (Pin Type)	12	730	VHF Television (up to 220 mc) and FM installations. For high power, high efficiency and exceptionally long runs
40-42	3 1/8"	MI-19089	Flanged fittings—pressurized	51.5-ohm	1.315	1.231	Teflon (Wafer)	—	270	Designed for UHF Television installations. Can be used for VHF
43-45	6 1/8"	MI-19387	Flanged fittings—pressurized	75-ohm	1.711	1.661	Teflon (Wafer)	—	720	For UHF Television installations requiring higher power, less attenuation

Universal Coaxial Transmission Line



FEATURES

- Maximum stability provided by low-loss Teflon dielectric
- Maximum life due to built-in expansion joint in inner conductor
- Minimum attenuation—maximum efficiency—low standing wave ratio
- Special Teflon insulators permit the line to be cut at any point along its length
- For VHF and UHF use
- New quick connect flange
- Positive contact and positive alignment—no centering pins required
- Complete line of fittings and accessories for installation versatility

USES

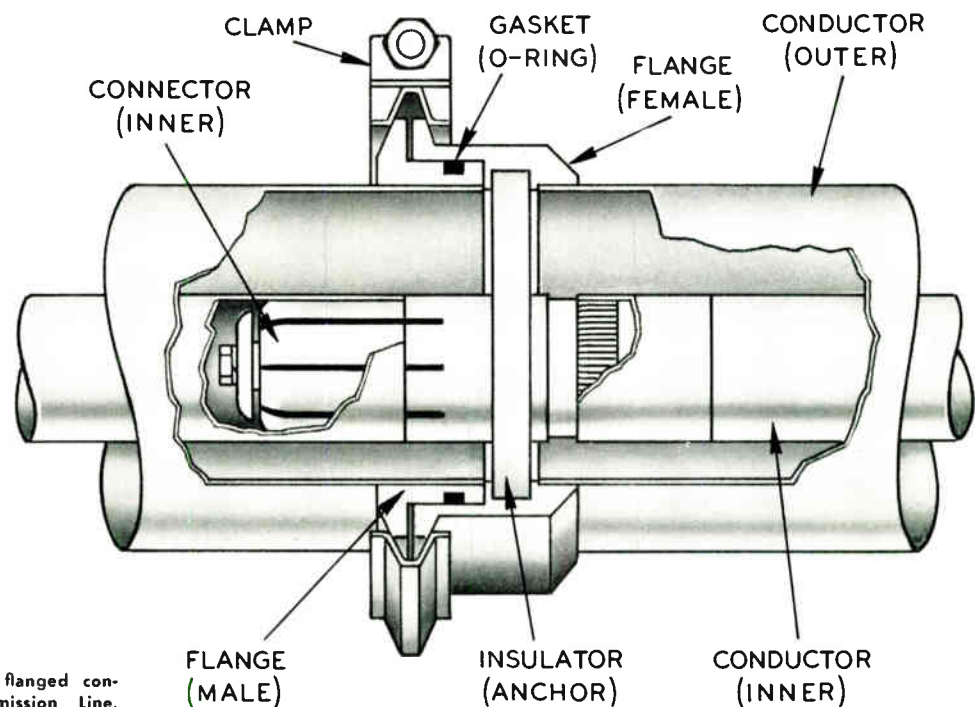
RCA's Universal Coaxial Transmission Line is a high efficiency Teflon insulated coaxial cable that can be used for both VHF and UHF television applications. It is designed to transfer r-f energy from a source to a load in the most efficient manner. To provide a wide choice of desired efficiencies and power handling capabilities it is made available in three sizes: 3 $\frac{1}{8}$ "—50 ohm, 6 $\frac{1}{8}$ "—75 ohm, and 9 $\frac{3}{8}$ "—75 ohm.

Universal transmission line is available in standard lengths of 20 feet, and also in 19 $\frac{1}{2}$ foot sections for those channels requiring the shorter length. Special Teflon insulators allow the universal line to be cut at any reasonable point along its length when installation plans demand.

The choice of the transmission lines used to connect the visual and aural transmitters to the filterplexers or bridge diplexer and the filterplexer output to the antenna is based on both the required efficiency and the power handling capability. A line size should be chosen having efficiency which will permit the desired effective radiated power, with some reserve, so that the transmitter need not be used at the extreme limit of its rating. A large size having a very low attenuation may increase the cost of the installation not only because of the increased cost of the line, but also because the windload on the tower will be increased by the larger projected area with a resulting increase in the tower cost. The line layout should also be made with a minimum number of elbows to both reduce cost and to keep the number of connections down to a minimum.

Pressurization must be used in the line so that moisture will not enter. It is necessary to maintain only a very small pressure to keep the line interior clean and dry. Either dry nitrogen, or dehydrated air may be used. Dry nitrogen is recommended for UHF line installations. The mating flanges are kept pressure-tight through the use of "O" rings.

Cut-away drawing showing flanged connector assembly of Transmission Line.



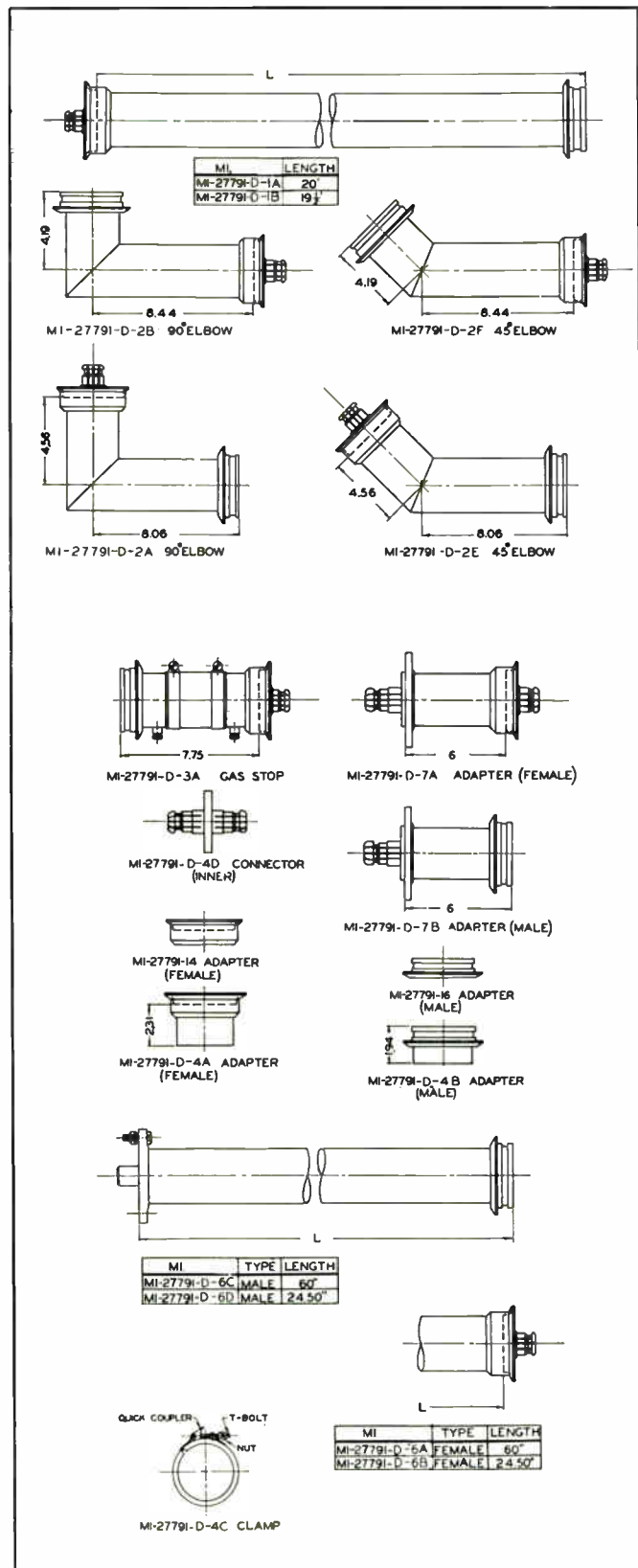
DESCRIPTION

RCA's Universal Coaxial Transmission Line employs conductors which are made of high-conductivity, hard-drawn copper tubing. It has the inherent advantages of "flat" characteristic impedance of 50 or 75 ohms across a wide range of frequencies. This is made possible by development of a special Teflon undercut support insulator having a characteristic impedance equal to the air dielectric portion of the line over the useful operating range.

The Teflon insulator is "Electrically Transparent" and introduces no discontinuity or "bump" at the support points. This transparent characteristic avoids a standing wave pattern between insulators; consequently the line may be cut at any reasonable point along its length without changing operating impedance. The construction of special undercut Teflon support and anchor insulators contributes many factors assuring efficiency of the line. Attenuation is held to an absolute minimum. Voltage standing wave ratio is extremely low. The power-handling capability is excellent over the UHF or VHF band as may be seen in the power rating curves.

Universal Line is extremely flexible for any type run. It comes in straight flanged sections with a complete line of fittings. All flange connections are inherently swivel adapting it to any rotational angle. Quick and positive assembly is made through use of a Marman type clamp requiring only one bolt to tighten. The "O" ring is held captive on the male flange, preventing damage due to mis-alignment or dropping during assembly. The "O" ring is held between cylindrical surfaces and removed from the electrical con-

OUTLINE DRAWINGS . . . 3 1/8" UNIVERSAL LINE



tact surfaces so that a damaged ring cannot prevent electrical contact. This new male-female quick connect flange provides positive alignment by coaxial cylindrical surfaces which eliminates centering pins. The lines make use of an anchor insulator bullet assembly which supports the inner conductor in place on vertical runs. The bullet is made in one piece and uses spring expanders to make positive electrical contact with the inner conductor. Each inner conductor contains a built-in expansion joint to allow for expansion and contraction due to heating.

A complete line of fittings and accessories is available from RCA as a single source to provide "matched" equipment for any desired installation. Line pressurizing equipment and tower mounting accessories are also available.

3 1/8" UNIVERSAL 50-OHM LINE

MI-27791-D-1A TRANSMISSION LINE

This line is supplied in 20 foot length with flanges silver-soldered to ends. The outer conductor is 3.125" O.D. with an inner conductor of 1.315" O.D. centered by special low loss Teflon insulators. The line is designed to allow removal of the inner conductor for inspection. It is supplied with a single anchor insulator connector (part of inner conductor) one "O" ring (MI-27791-D-4E) and one Marman Clamp (MI-27791-D-4C).

MI-27791-D-1B TRANSMISSION LINE

Same as MI-27791-D-1A except 19 1/2 feet in length. (See table for channels requiring 19 1/2 foot sections.)

MI-27791-D-2A COUPLING, 90° ELBOW (FEMALE OUTER, SHORT LEG)

A 90° elbow, supplied with one "O" ring, one anchor insulator connector and one Marman clamp.

MI-27791-D-2B COUPLING, 90° ELBOW (MALE OUTER, SHORT LEG)

A 90° elbow supplied with one "O" ring, one anchor insulator connector and one Marman clamp.

MI-27791-D-2E COUPLING, 45° ELBOW (FEMALE OUTER, SHORT LEG)

A 45° elbow supplied with one "O" ring, one anchor insulator connector and one Marman clamp.

MI-27791-D-2F COUPLING, 45° ELBOW (MALE OUTER, SHORT LEG)

A 45° elbow supplied with one "O" ring, one anchor insulator connector and one Marman clamp.

MI-27791-D-3A GAS STOP

A stop designed for insertion between two flanged sections of line to seal a gas section from an ungas section. The stop is supplied with two 1/8" pipe plugs at the gas connections, one "O" ring, one anchor insulator connector, and one Marman clamp. The gas stop can be pressurized from either side.

**MI-27791-D-4A ADAPTOR, FEMALE
(SOFT SOLDER ASSEMBLY)**

An adaptor for mechanically adapting the end of field-cut length of line where the original silver soldered flange has been removed in shortening the line.

**MI-27791-D-4B ADAPTOR, MALE
(SOFT SOLDER ASSEMBLY)**

A male adaptor installed by soft-soldering.

MI-27791-D-4C MARMAN CLAMP

A stainless steel clamp for 3/8" line which uses one bolt to firmly secure sections of coaxial line or fittings.

MI-27791-D-4D CONNECTOR, INNER

This anchor insulator bullet assembly consists of a Teflon insulator and two spring expanders to make positive electrical contact with the inner conductor.

MI-27791-D-4E GASKET ("O" RING)

A synthetic rubber ring for 3/8" line used to seal the gas in the pressurized coaxial line.

**MI-27791-D-6A ADAPTOR (FEMALE OUTER TO
3/8"—51.5 OHM COAXIAL LINE)**

This special type female fitting adapts the new Universal line to special lines MI-19113 or MI-19313 for use on channels 2 through 6 only. Specify channel when ordering.

**MI-27791-D-6B ADAPTOR (FEMALE OUTER TO
3/8"—51.5 OHM COAXIAL LINE)**

Same as MI-27791-D-6A only for use on channels 7 through 13 only. Specify channel when ordering.

**MI-27791-D-6C ADAPTOR (MALE OUTER TO
3/8"—51.5 OHM COAXIAL LINE)**

A male outer fitting to adapt the new Universal line to special lines MI-19113 or MI-19313 for use on channels 2 through 6 only. Specify channel when ordering.

**MI-27791-D-6D ADAPTOR (MALE OUTER TO
3/8"—51.5 OHM COAXIAL LINE)**

Same as above only for use on channels 7 through 13 only. Specify channel when ordering.

**MI-27791-D-7A ADAPTOR (FEMALE OUTER TO
EIA 3/8"—50 OHM COAXIAL LINE)**

This female fitting adapts the new Universal line to standard EIA type line (MI-19089).

**MI-27791-D-7B ADAPTOR (MALE OUTER TO
EIA 3/8"—50 OHM COAXIAL LINE)**

Same as above except male outer to connect to MI-19089 type line.

**MI-27791-D-7C ADAPTOR (MALE BOTH ENDS
UNIVERSAL)**

Adaptor used to mate two female transmission line sections.

MI-27791-D-8A END CAP, FEMALE

Used to cap the end of MI-27791-D line to keep out moisture during installation, or for temporary capping of the line.

MI-27791-D-8B END CAP, MALE

Same as MI-27791-D-8A except male.

**MI-27791-14 ADAPTOR, FEMALE
(SILVER SOLDER ASSEMBLY)**

Same as MI-27791-D-4A only installed with silver solder.

**MI-27791-16 ADAPTOR, MALE
(SILVER SOLDER ASSEMBLY)**

Same as MI-27791-D-4B except installed with silver solder.

MI-19089-15 CUT-OFF GAUGE

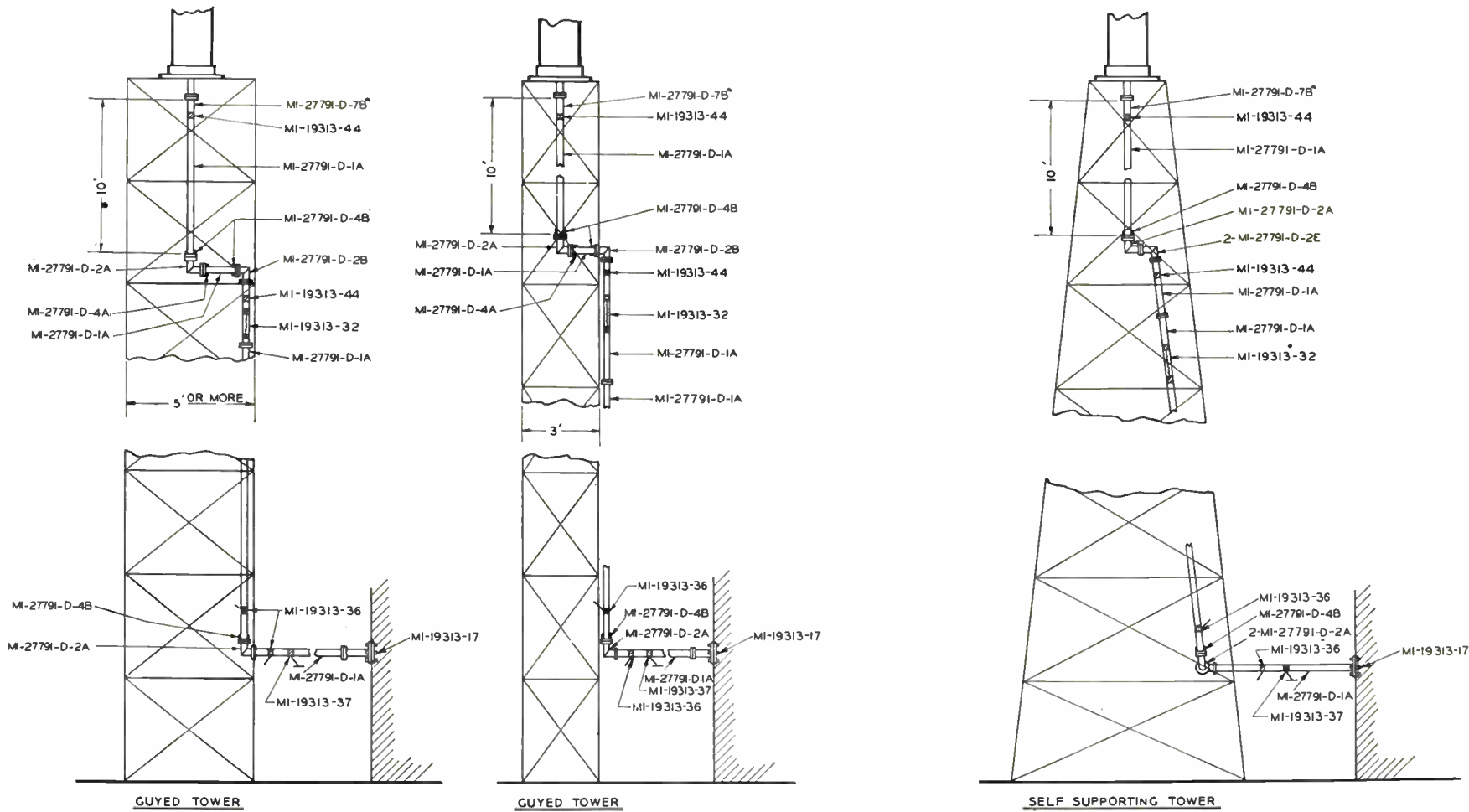
A specially-designed tool for cutting and dressing the end of the outer conductor to insure a precision cut.

MI-19089-16 CUT-OFF GAUGE

Similar to MI-19089-15 except for use on inner conductor.

3 1/8" TRANSMISSION LINE TOWER LAYOUT

TYPICAL GRAPHIC CHARTS



LEGEND

27791-D-1A 3 1/8" T/L 20' Long

27791-D-2A 3 1/8" 90° Miter Elbow, Female Outer Short Leg

27791-D-2B 3 1/8" 90° Miter Elbow, Male Outer Short Leg

27791-D-2E 3 1/8" 45° Miter Elbow, Female Outer Short Leg

27791-D-4A Adaptor, Female, Soft Solder

27791-D-4B Adaptor, Male, Soft Solder

19313-32 3 1/8" Spring Hanger (Direct Mounting)

19313-44 3 1/8" Fixed Hanger (Direct Mounting)

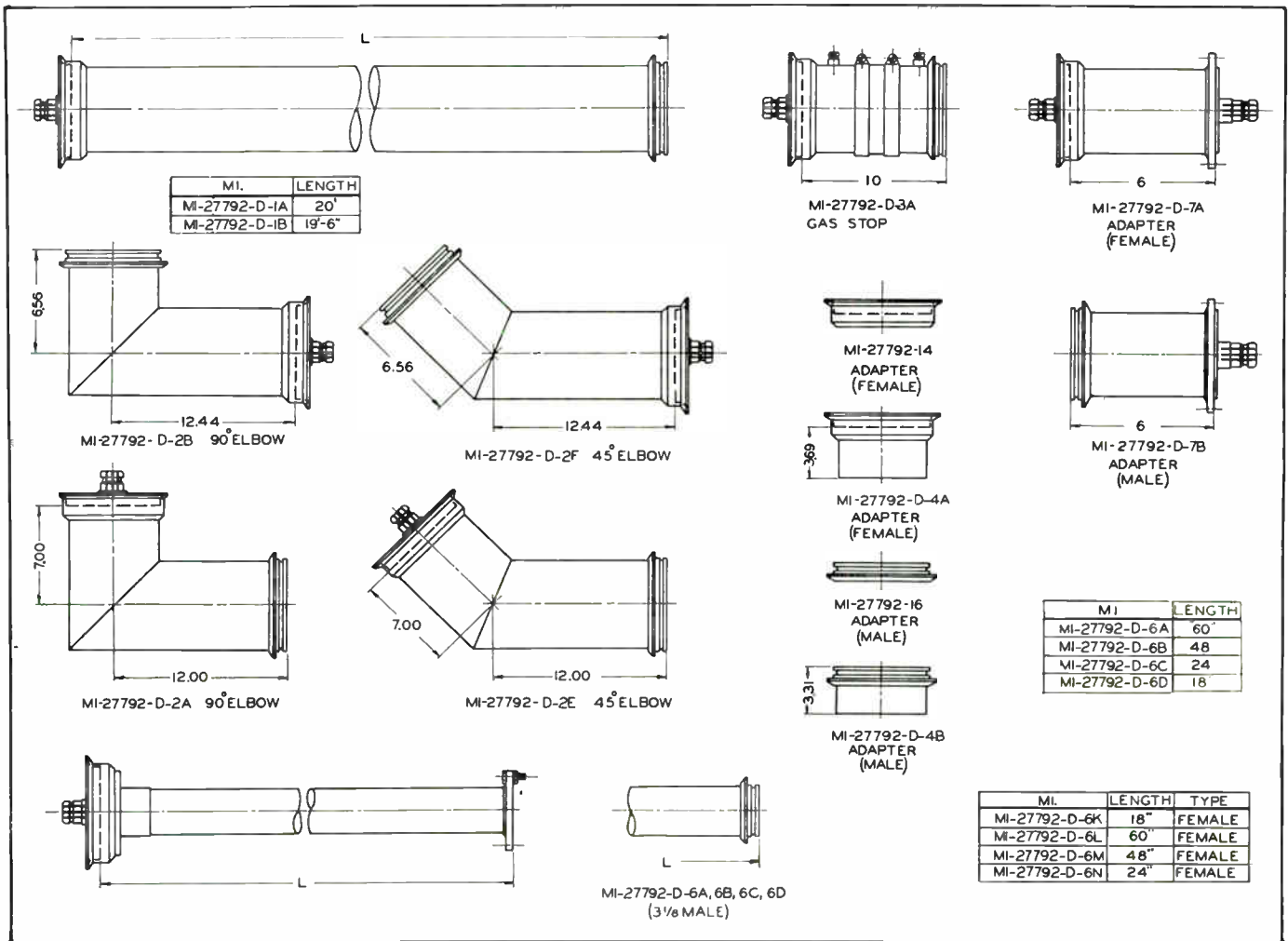
19313-17 3 1/8" Horizontal Anchor (Single)

19313-36 Lateral Brace

19313-37 3 1/8" Swivel Hanger (Single)

* Use adaptor, MI-27791-D-7B, for UHF to mate with MI-19089 flanged connection. For other UHF or VHF antenna inputs use appropriate MI adaptor.

OUTLINE DRAWINGS . . . 6 1/8" UNIVERSAL LINE



6 1/8" UNIVERSAL 75-OHM LINE

The basic design of RCA 6 1/8" Universal Transmission Line, MI-27792-D-1A, is similar to the 3 1/8" line (MI-27791-D-1A). The main differences are size and the characteristic impedance. The size and characteristic impedance of 6 1/8"—75 ohm line contribute to very low attenuation and provide a higher power-handling capability. Included in this catalog are comparative curves to show electrical characteristic.

MI-27792-D-1A TRANSMISSION LINE

This line is supplied in 20-foot lengths with flanges silver-soldered to ends. The outer conductor is 6.125" O.D. with an inner conductor of 1.711" O.D. centered by special low loss Teflon insulators. The line is designed to allow removal of the inner conductor for inspection. It is supplied with a single anchor insulator connector, one "O" ring (MI-27792-D-4D) and one Marman Clamp (MI-27792-D-4C).

MI-27792-D-1B TRANSMISSION LINE

Same as MI-27792-D-1A except supplied in 19 1/2-foot length. (See table for channels requiring 19 1/2-foot sections.)

MI-27792-D-2A COUPLING, 90° ELBOW (FEMALE OUTER, SHORT LEG)

A 90° elbow fitting supplied with one "O" ring, one anchor insulator connector and one Marman clamp.

MI-27792-D-2B COUPLING, 90° ELBOW (MALE OUTER, SHORT LEG)

A 90° elbow fitting supplied with one "O" ring, one anchor insulator connector and one Marman clamp.

MI-27792-D-2E COUPLING, 45° ELBOW (FEMALE OUTER, SHORT LEG)

A 45° angle fitting supplied with one "O" ring, one anchor insulator connector and one Marman clamp.

MI-27792-D-2F COUPLING 45° ELBOW (MALE OUTER, SHORT LEG)

A 45° angle fitting supplied with one "O" ring, one anchor insulator connector and one Marman clamp.

MI-27792-D-3A GAS STOP

A stop designed for insertion between two flanged sections of 6 1/8" line to seal a gas section with two 1/8" pipe plugs

at the gas connections, one "O" ring, one anchor insulator connector, and one Marman clamp. The gas stop can be pressurized from either side.

**MI-27792-D-4A ADAPTOR, FEMALE
(SOFT SOLDER ASSEMBLY)**

An adaptor for mechanically adapting the end of field-cut length of 6 $\frac{1}{8}$ " line where the original silver-solder flange has been removed in shortening the line.

**MI-27792-D-4B ADAPTOR, MALE
(SOFT SOLDER ASSEMBLY)**

A male adaptor installed by soft-soldering.

MI-27792-D-4C MARMAN CLAMP

A stainless steel clamp for 6 $\frac{1}{8}$ " line which uses one bolt to firmly secure sections of coaxial line or fittings.

MI-27792-D-4D CONNECTOR, INNER

Anchor insulator bullet assembly for use with 6 $\frac{1}{8}$ " O.D. coaxial line consisting of a Teflon insulator with two spring expanders to make positive electrical contact with the inner conductor.

MI-27792-D-4E GASKET ("O" RING)

A long-life synthetic rubber gasket for use between flanges to make flange joints pressure-tight.

**MI-27792-D-6A ADAPTOR—REDUCER (FEMALE OUTER
TO UNIVERSAL 3 $\frac{1}{8}$ "—50 OHM MI-27791-D
MALE OUTER)**

For VHF channels 2 and 3 (specify channel).

**MI-27792-D-6B ADAPTOR—REDUCER (FEMALE OUTER
TO UNIVERSAL 3 $\frac{1}{8}$ "—50 OHM MI-27791-D
MALE OUTER)**

For VHF channels 4, 5 and 6 (specify channel).

**MI-27792-D-6C ADAPTOR—REDUCER (FEMALE OUTER
TO UNIVERSAL 3 $\frac{1}{8}$ "—50 OHM MI-27791-D
MALE OUTER)**

For VHF channels 7 through 13 (specify channel).

**MI-27792-D-6D ADAPTOR—REDUCER (FEMALE OUTER
TO UNIVERSAL 3 $\frac{1}{8}$ "—50 OHM COAXIAL WITH
MALE OUTER)**

This component adapts MI-27792-D line to MI-27791-D line. Channels 14 to 83 only (specify channel).

**MI-27792-D-6K ADAPTOR—REDUCER (FEMALE OUTER
TO 3 $\frac{1}{8}$ "—50 OHM LINE MI-19089)**

Channels 14 to 83 only (specify channel).

**MI-27792-D-6L ADAPTOR (FEMALE OUTER TO
3 $\frac{1}{8}$ "—51.5 OHM COAXIAL LINE)**

A similar female fitting to adapt the 6 $\frac{1}{8}$ " Universal line to 3 $\frac{1}{8}$ "—51.5 ohm coaxial line, MI-19113 and MI-19313, for channels 2 and 3.

**MI-27792-D-6M ADAPTOR (FEMALE OUTER TO
3 $\frac{1}{8}$ "—51.5 OHM COAXIAL LINE)**

A similar female fitting to adapt the 6 $\frac{1}{8}$ " Universal line to 3 $\frac{1}{8}$ "—51.5 ohm coaxial line, MI-19113 and 19313, for channels 4, 5 and 6.

**MI-27792-D-6N ADAPTOR (FEMALE OUTER TO
3 $\frac{1}{8}$ "—51.5 OHM COAXIAL LINE)**

A similar female fitting to adapt the 6 $\frac{1}{8}$ " Universal line to 3 $\frac{1}{8}$ "—51.5 ohm coaxial line, MI-19113 and 19313, for channels 7 through 13.

**MI-27792-D-6R ADAPTOR—TRANSFORMER (FEMALE
OUTER TO 6 $\frac{1}{8}$ "—51.5 OHM MI-19314 FLANGED LINE)**

For VHF channels 2 and 3 (specify channel).

**MI-27792-D-6T ADAPTOR—TRANSFORMER (FEMALE
OUTER TO 6 $\frac{1}{8}$ "—51.5 OHM MI-19314 FLANGED LINE)**

For VHF channels 4, 5 and 6 (specify channel).

**MI-27792-D-6U ADAPTOR—TRANSFORMER (FEMALE
OUTER TO 6 $\frac{1}{8}$ "—51.5 OHM MI-19314 FLANGED LINE)**

For VHF channels 7 through 13 (specify channel).

**MI-27792-D-7A ADAPTOR (FEMALE OUTER TO
BOLT FLANGE, 6 $\frac{1}{8}$ "—75 OHM COAXIAL LINE)**

This female fitting adapts the new Universal 6 $\frac{1}{8}$ " line to standard flange type 6 $\frac{1}{2}$ " O.D. coaxial transmission line (MI-19387).

**MI-27792-D-7B ADAPTOR (MALE OUTER TO
BOLT FLANGE, 6 $\frac{1}{8}$ "—75 OHM COAXIAL LINE)**

Similar to above only with male outer adaptor.

MI-27792-D-7C ADAPTOR (MALE BOTH ENDS)

Adaptor used to mate two female transmission line sections.

MI-27792-D-8A END CAP (FEMALE)

Used to cap the end of MI-27792-D line to keep out moisture during installation, or for temporary capping of the line.

MI-27792-D-8B END CAP (MALE)

Same as MI-27792-D-8A except male.

**MI-27792-14 ADAPTOR, FEMALE
(SILVER SOLDER ASSEMBLY)**

Same as MI-27792-D-4A except installed with silver solder.

**MI-27792-16 ADAPTOR, MALE
(SILVER SOLDER ASSEMBLY)**

Same as MI-27792-D-4B except installed with silver solder.

MI-19387-15 CUT-OFF GAUGE

A specially-designed tool for cutting and dressing the end of the outer conductor to insure a precision cut.

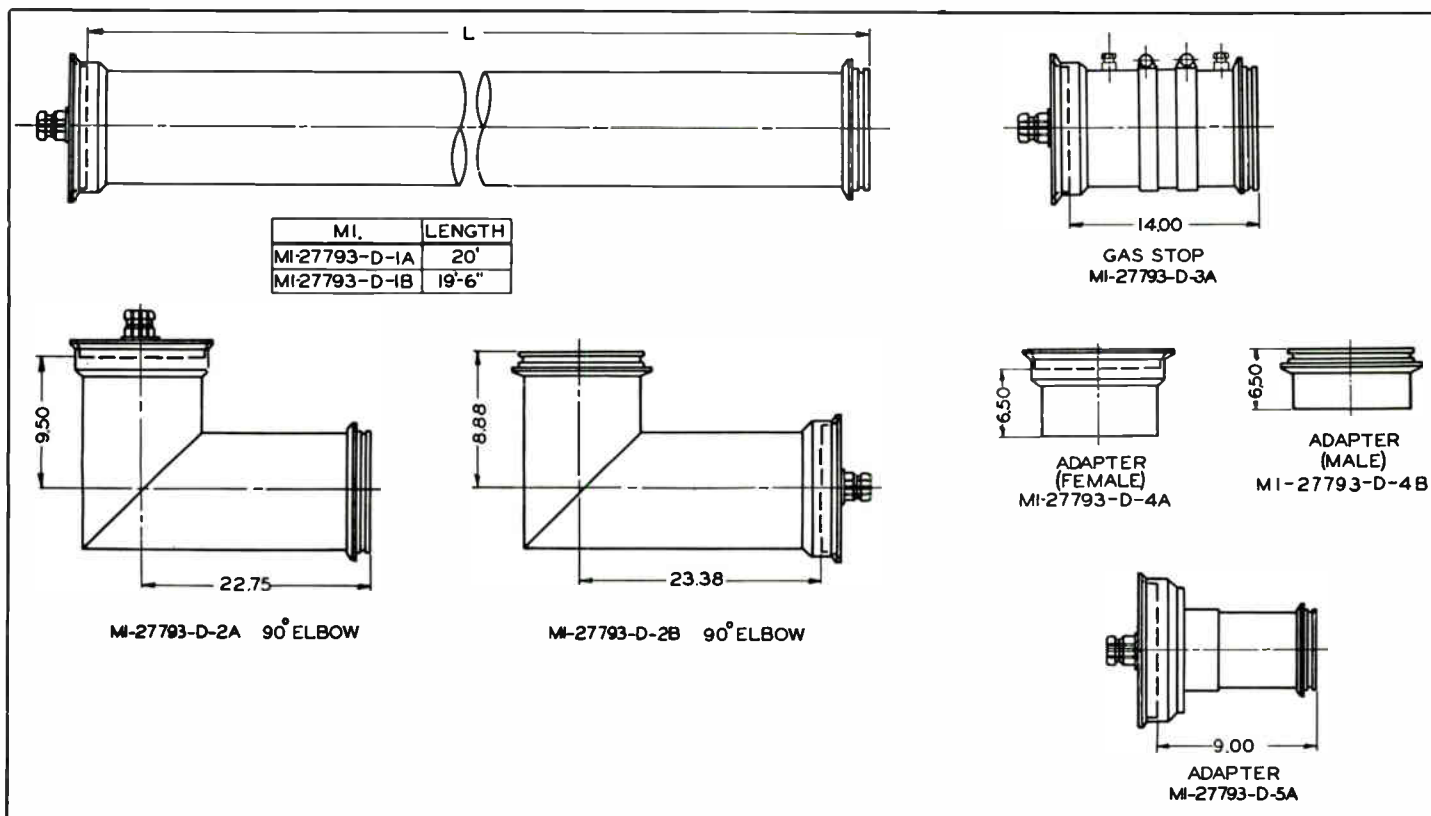
MI-19387-16 CUT-OFF GAUGE

Similar to MI-19387-15 except for use on inner conductor.

MI-19089-18 SILICON COMPOUND

A special grease used only to facilitate assembly of transmission line joints on horizontal runs.

OUTLINE DRAWINGS . . . 9³/₁₆" UNIVERSAL LINE



9³/₁₆" UNIVERSAL LINE

For highest power handing capability and extremely low attenuation, RCA provides the 9³/₁₆" Universal Transmission Line, MI-27793. It is similar to the smaller 3¹/₈" and 6¹/₈" Universal Line, the main differences being size, characteristic impedance, and power rating. Comparative curves are represented in the graphs.

MI-27793-D-1A TRANSMISSION LINE

This line is supplied in 20-foot lengths with flanges Heliarc welded to ends. The outer conductor is 9.166" O.D. with an inner conductor of 2.580" O.D. centered by special low loss Teflon insulators. The inner conductor can be removed for inspection. It is supplied with a connector which is a part of the expansion joint and anchor insulator, one "O" ring (MI-27793-D-4E) and one Marman Clamp (MI-27993-D-4C).

MI-27793-D-1B TRANSMISSION LINE

Same as MI-27793-D-1A except supplied in 19¹/₂-foot length. (See table for channels requiring 19¹/₂-foot sections.)

MI-27793-D-2A COUPLING, 90° ELBOW (FEMALE OUTER, SHORT LEG)

A 90° elbow fitting supplied with one "O" ring, one anchor insulator connector and a Marman clamp.

MI-27793-D-2B COUPLING, 90° ELBOW (MALE OUTER, SHORT LEG)

A 90° elbow fitting supplied with one "O" ring, one anchor insulator connector and one Marman clamp.

MI-27793-D-3A GAS STOP

Gas stop for insertion between two flanged sections of 9³/₁₆" line to seal a gas section from an ungas section. It is supplied with two 1/8" pipe plugs at the gas connections, one "O" ring, one anchor insulator connector, and one Marman clamp. The gas stop can be pressurized from either side.

MI-27793-D-4A ADAPTOR, FEMALE (SOFT SOLDER ASSEMBLY)

A female adaptor for mechanically adapting the end of field-cut length of 9³/₁₆" line where the original silver soldered flange has been removed in shortening the line.

**MI-27793-D-4B ADAPTOR, MALE
(SOFT SOLDER ASSEMBLY)**

A male adaptor for mechanically adapting the end of field-cut length of 9³/₁₆" line where the original silver soldered flange has been removed in shortening the line.

MI-27793-D-4C MARMAN CLAMP

A stainless steel clamp for 9³/₁₆" line to firmly secure sections of coaxial line or fittings.

MI-27793-D-4D CONNECTOR, INNER

Anchor insulator bullet assembly for use with 9³/₁₆" O.D. coaxial line consisting of a Teflon insulator with two spring expanders to make positive electrical contact with the inner conductor.

MI-27793-D-4E GASKET ("O" RING)

A long-life synthetic rubber gasket for use between flanges to make flanged joints pressure-tight.

**MI-27793-D-5A ADAPTOR (FEMALE OUTER
TO 6¹/₈"—75 OHM UNIVERSAL LINE (MI-27792) WITH
MALE OUTER)**

This female fitting adapts the new Universal 9³/₁₆" line to smaller Universal line 6¹/₈"—75 ohms having male outer connector.

**MI-27793-D-5B ADAPTOR (FEMALE OUTER
TO 6¹/₈"—75 OHM UNIVERSAL LINE (MI-27792) WITH
FEMALE OUTER)**

Adaptor with 9³/₁₆" female flange on one end and a 6¹/₈" female flange on the other end.

MI-27793-D-7C ADAPTOR (MALE BOTH ENDS)

Adaptor used to mate two female transmission line sections.

MI-27793-D-8A SEALING CAP, FEMALE

MI-27793-D-8B SEALING CAP, MALE

**MI-27793-D-5C ADAPTOR (FEMALE OUTER
TO 6¹/₈"—75 OHM BOLT FLANGE LINE (MI-19387))**

A similar female fitting to adapt Universal 9³/₁₆" line to standard MI-19387 bolt flange type 6¹/₈" transmission line.

SPECIFICATIONS

Electrical Specifications

	3 ¹ / ₈ " Line MI-27791-D	6 ¹ / ₈ " Line MI-27792-D	9 ³ / ₁₆ " Line MI-27793-D
Characteristic Impedance	50 ohms	75 ohms	75 ohms
Frequency Range.....	0-1000 mc	0-890 mc	0-632 mc
Attenuation and Efficiency	See curves and tables	See curves and tables	See curves and tables
Power Rating	See curves	See curves	See curves
Velocity of Propagation	99.8%	99.8%	99.8%

Mechanical Specifications

Standard Length (see table below)	20' and 19 ¹ / ₂ '	20' and 19 ¹ / ₂ '	20' and 19 ¹ / ₂ '
Outer Conductor:			
O.D.	3.125"	6.125"	9.166"
I.D.	3.027"	5.981"	9.000"
Inner Conductor:			
O.D.	1.315"	1.711"	2.580"
I.D.	1.231"	1.661"	2.516"
Weight (per section approx.)	56 lbs.	130 lbs.	220 lbs.

Channel Selection Table of Lengths

CHANNELS REQUIRING 20-FOOT SECTIONS

2, 3, 4	52, 53
5, 6, 7, 8	56, 57
9, 11, 12, 13	60, 61
14, 15	64, 65
18, 19	68, 69
23, 24	72, 73
27, 28	77
31, 32	80, 81
35, 36	
39, 40	
43, 44	
47, 48	

CHANNELS REQUIRING 19¹/₂-FOOT SECTIONS

10	54, 55
16, 17	58, 59
20, 21, 22	62, 63
25, 26	66, 67
29, 30	70, 71
33, 34	74, 75, 76
37, 38	79
41, 42	82, 83
45, 46	
49, 50, 51	

For Channel 78 Alternate 19¹/₂ and 20 ft. Lengths.

SPECIFICATIONS

Optional and Accessory Equipment

Hanger, dual, grounded, direct, short length, spring	MI-19113-14
Hanger, dual, grounded, direct, short length, fixed	MI-19113-15
Hanger, insulated, direct, long length, spring	MI-19113-48
Hanger, insulated, direct, long length, fixed	MI-19113-49
Extension Kit (for making grounded long hangers of short length)	MI-19113-16
Horizontal Anchor (single line)	MI-19313-17
Horizontal Anchor (dual line)	MI-19313-18
Line Spreader	MI-19313-19
Hanger (grounded, flat, short length)	MI-19313-20
Hanger (grounded, flat, long length)	MI-19313-21
Hanger (insulated, flat, long length)	MI-19313-22
Hanger (grounded, round, short length 1" to 2 1/4")	MI-19313-23
Hanger (grounded, round, long length 1" to 2 1/4")	MI-19313-24
Hanger (insulated, round, long length 1" to 2 1/4")	MI-19313-25
Hanger (grounded, round, short length 2 1/4" to 5")	MI-19313-26
Hanger (grounded, round, long length 2 1/4" to 5")	MI-19313-27
Hanger (insulated, round, long length 2 1/4" to 5")	MI-19313-28
Hanger (grounded, angle, short length)	MI-19313-29
Hanger (grounded, angle, long length)	MI-19313-30
Hanger (insulated, angle, long length)	MI-19313-31
Hanger (grounded, direct, short length)	MI-19313-32
Hanger (grounded, direct, long length)	MI-19313-33
Hanger (insulated, direct, long length)	MI-19313-34
Roller Assembly	MI-19313-35
Lateral Brace	MI-19313-36
Hanger (swivel, for single line)	MI-19313-37
Hanger (swivel, for dual line)	MI-19313-38
Clamp (adjustable 3 1/2" max.)	MI-19313-39
Hanger (fixed, flat)	MI-19313-40
Hanger (fixed, round 1" to 2 1/4")	MI-19313-41

Hanger (fixed, round 2 1/4" to 5")	MI-19313-42
Hanger (fixed, angle)	MI-19313-43
Hanger (fixed, direct)	MI-19313-44
Hanger (fixed, direct, long length)	MI-19313-47

Large Size Hangers

	For 6 1/8" Line	For 9 3/8" Line
Hanger (grounded, direct)	MI-19314-32	MI-27900-32
Hanger (insulated, direct)	MI-19314-34	MI-27900-34
Roller Assembly	MI-19314-35	MI-27900-35
Lateral Brace	MI-19314-36	MI-27900-36
Hanger (fixed, direct)	MI-19314-44	MI-27900-44
Horizontal Anchor (single)	MI-19314-48	MI-27900-48
Horizontal Anchor (dual)	MI-19314-49	MI-27900-49
Hanger, Horizontal Spring (single)	MI-19314-50	MI-27900-50
Hanger, Horizontal Spring (dual)	MI-19314-51	MI-27900-51

Gassing Equipment

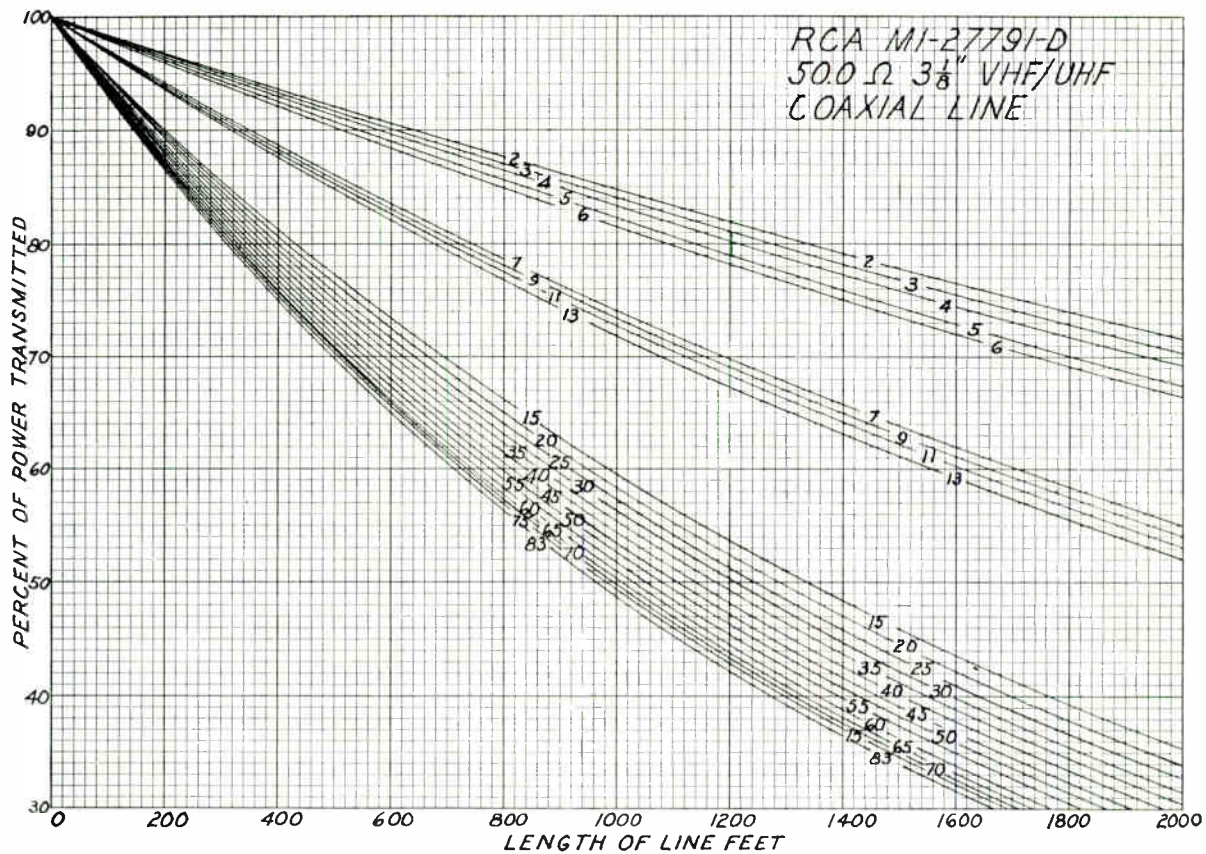
Accessory Kit for Gassing (dehydrating, single line)	MI-19315-20
Regulator for Nitrogen Gassing (2 stage)	MI-19315-21
Regulator for Nitrogen Gassing (single stage)	MI-19315-22
Accessory Kit for Nitrogen Gassing (single line)	MI-19315-24
Directional Coupler for 3 1/8"—50 ohm line	ES-34231-1, 8
Directional Coupler for 6 1/8"—75 ohm line	ES-34232-1, 5
Directional Coupler for 3 1/8"—50 ohm inside line	ES-34231-1, 7

Other Accessories

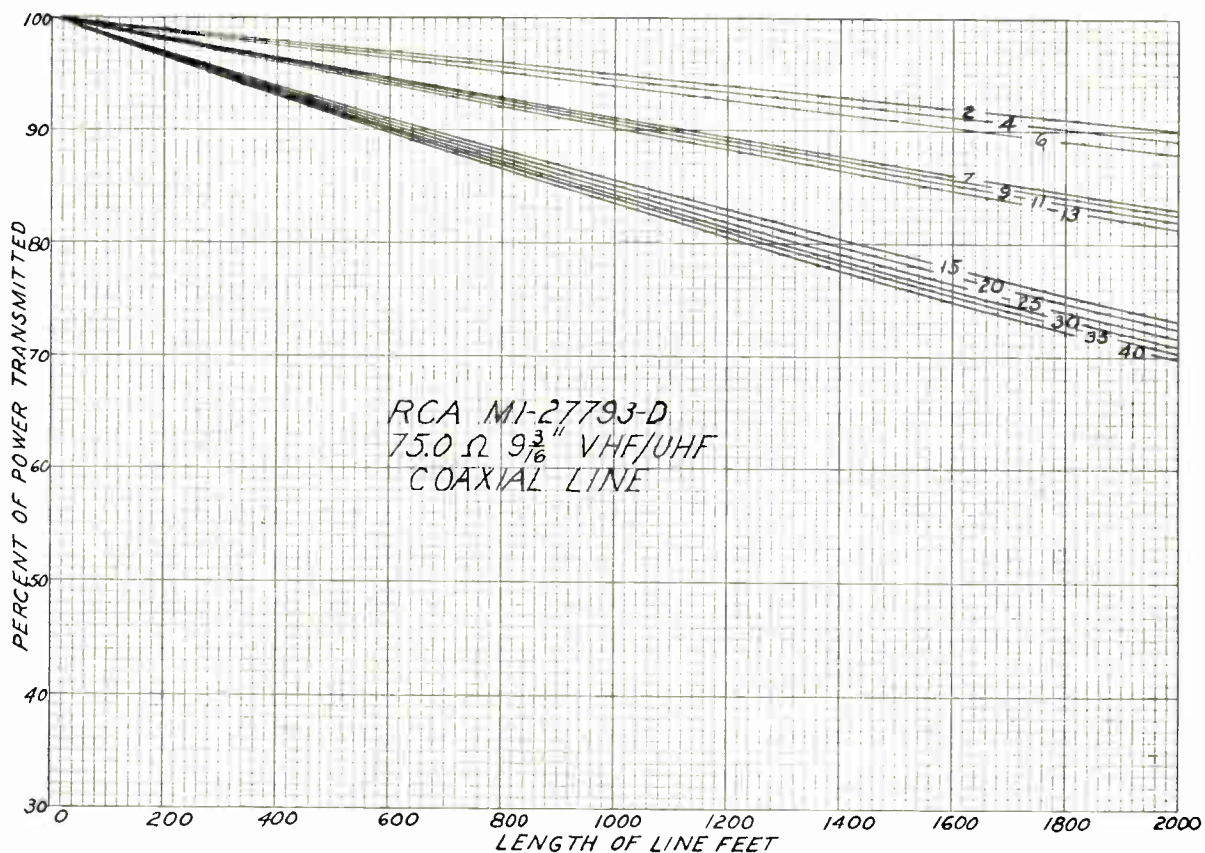
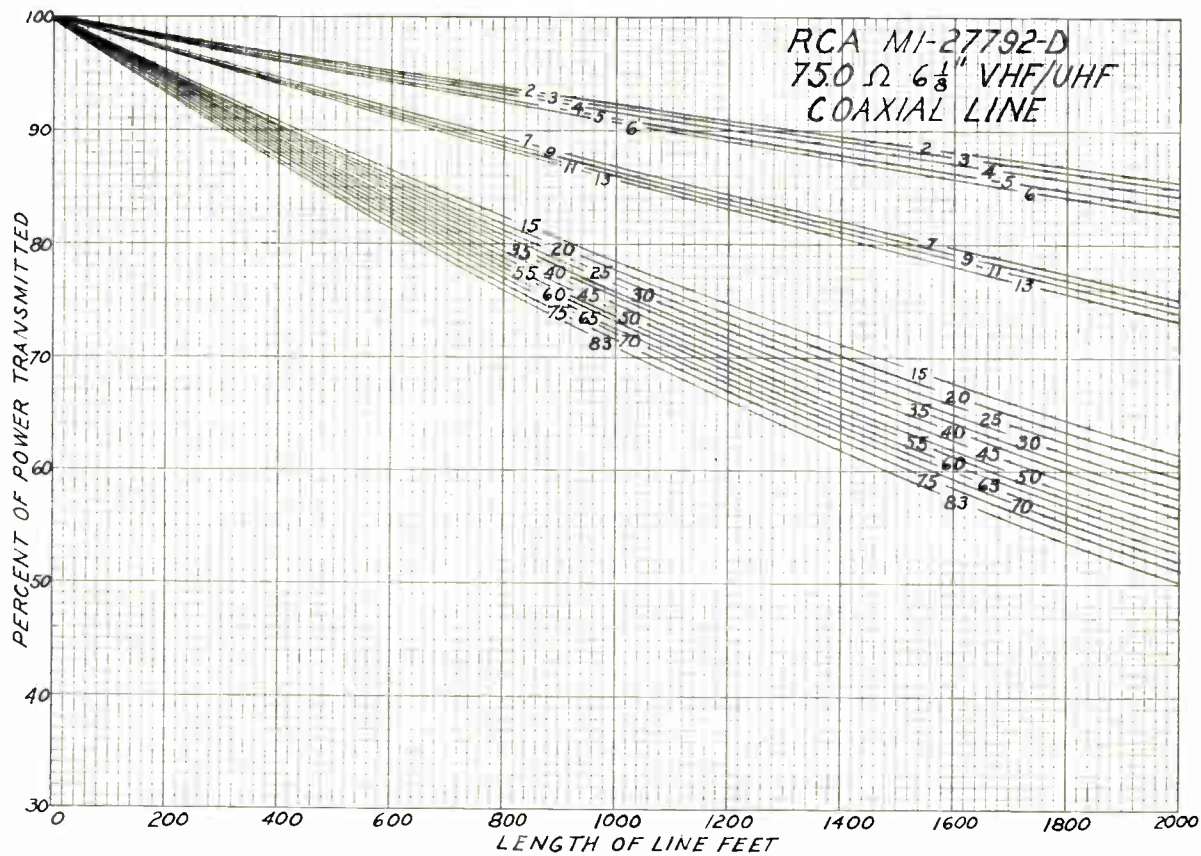
Automatic Dehydrators to supply 1 CFM or 3 CFM of dry air are available.

Unflanged 3 1/8"—50 ohm Teflon Transmission Line and Fittings (for ungassed VHF internal installations only) MI-27791-K-6 Ch.

POWER TRANSMISSION TABLES

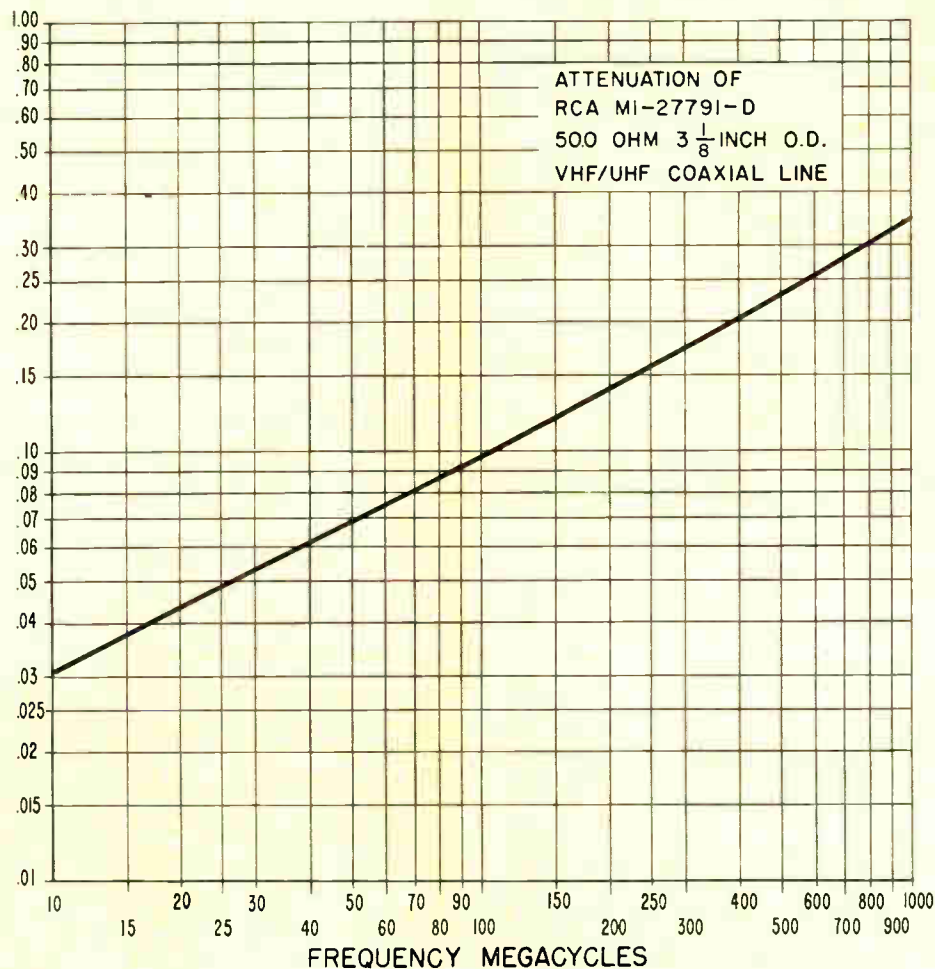


POWER TRANSMISSION TABLES

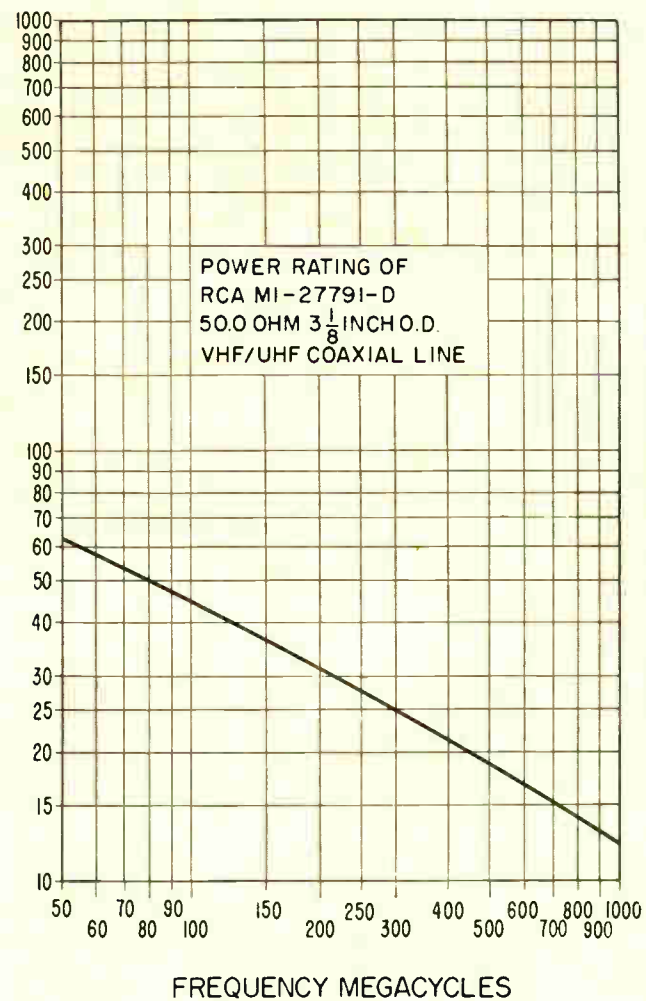


3 1/8" UNIVERSAL TRANSMISSION LINE, MI-27791-D

ATTENUATION AND POWER RATING CURVES



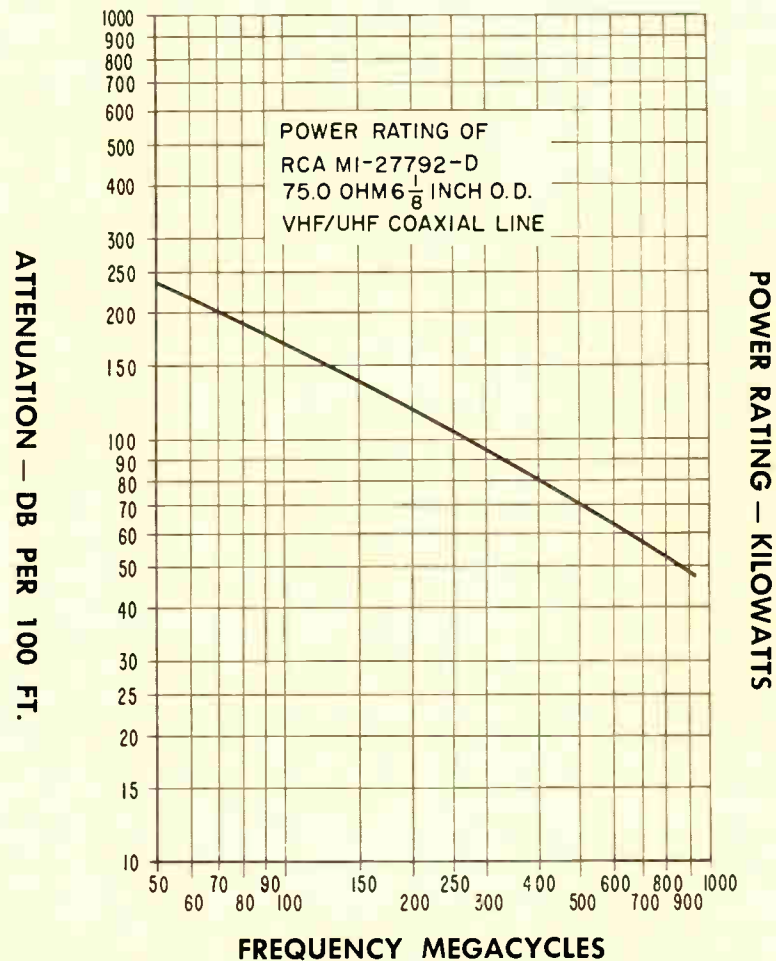
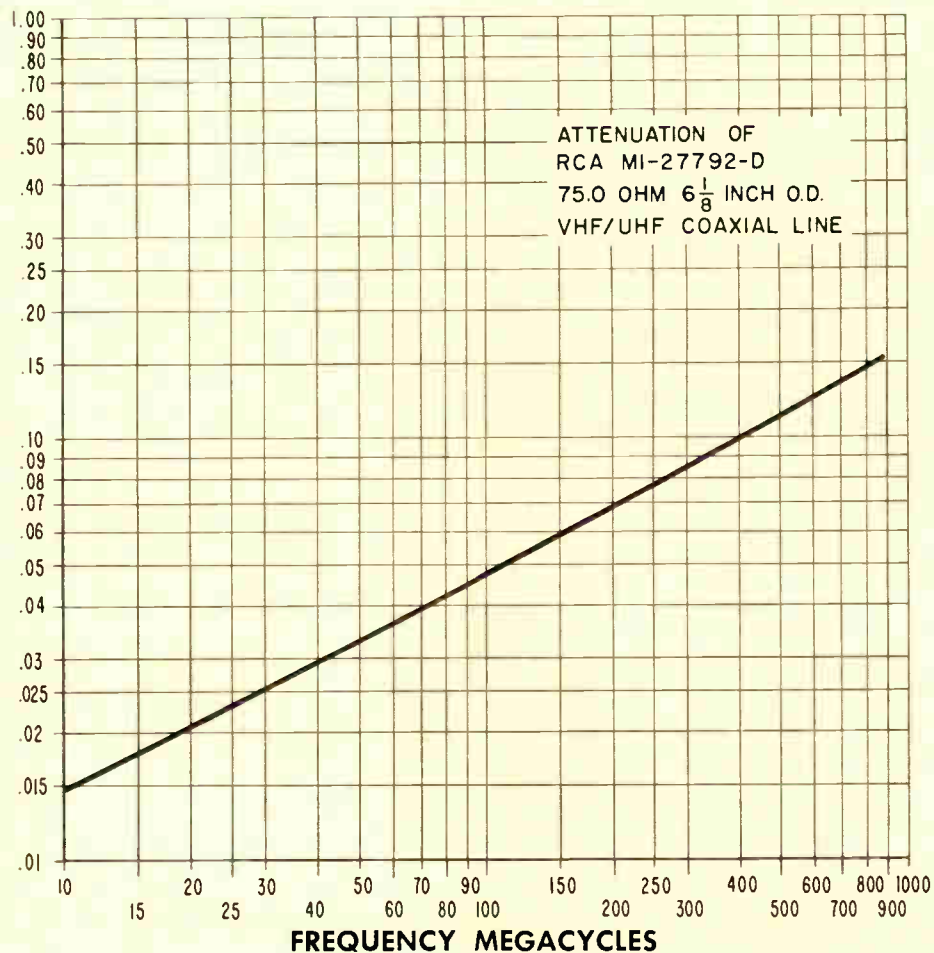
ATTENUATION — DB PER 100 FT.



POWER RATING — KILOWATTS

6 $\frac{1}{8}$ " UNIVERSAL TRANSMISSION LINE, MI-27792-D

ATTENUATION AND POWER RATING CURVES

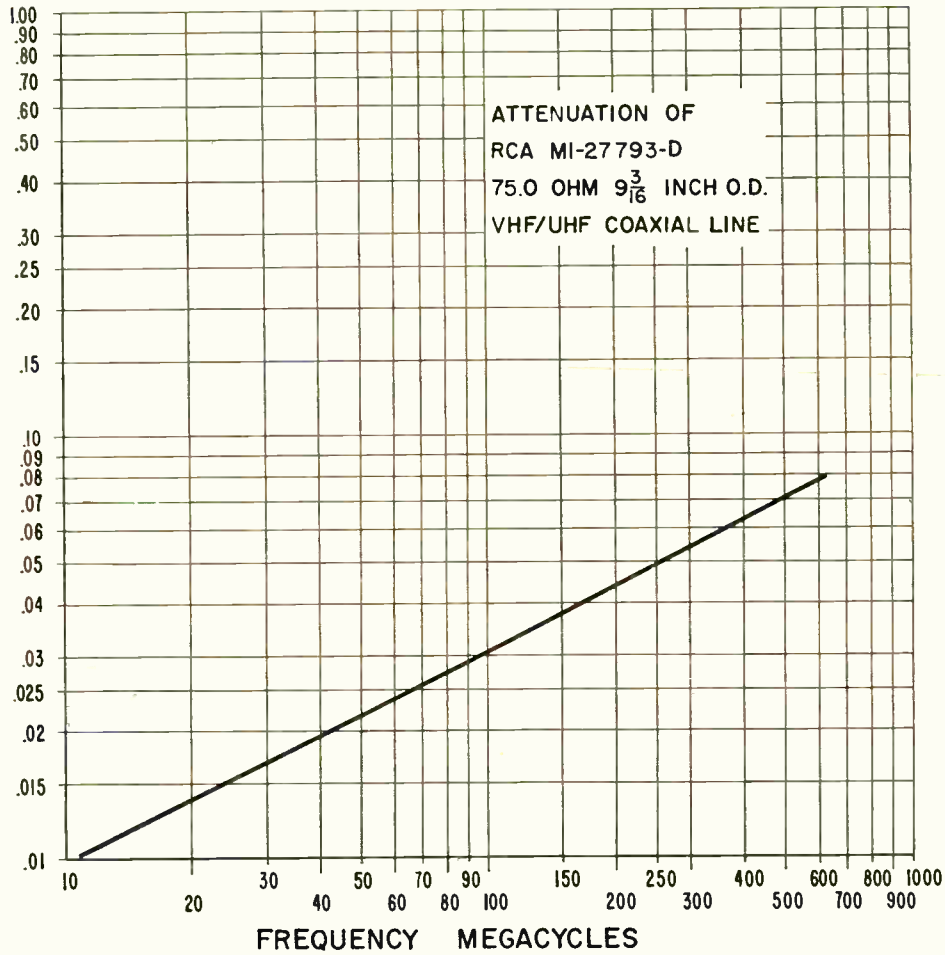


ATTENUATION - DB PER 100 FT.

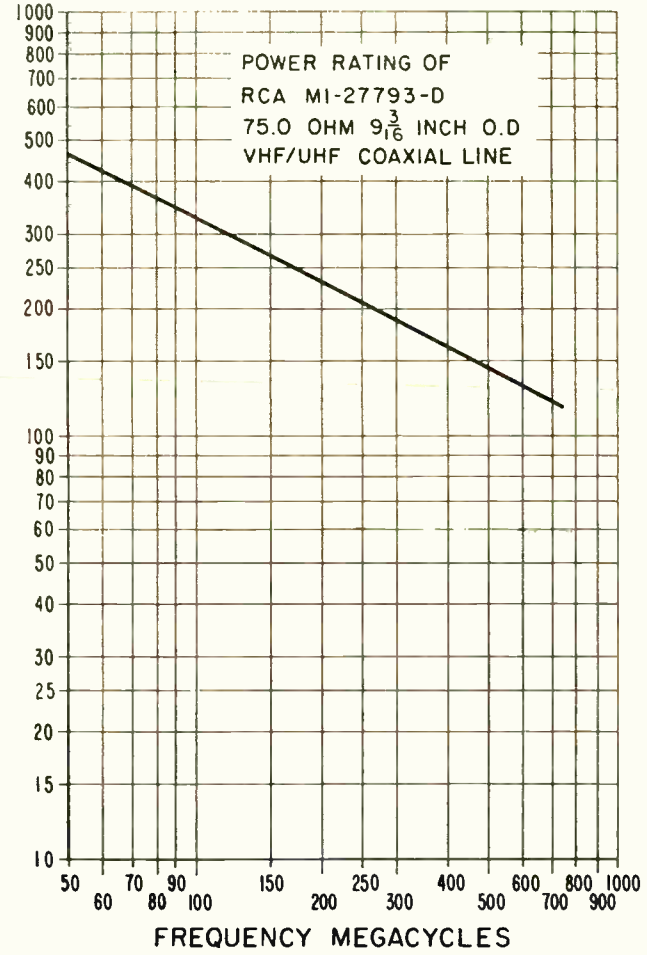
POWER RATING - KILOWATTS

9³/₁₆" UNIVERSAL TRANSMISSION LINE, MI-27793-D

ATTENUATION AND POWER RATING CURVES



ATTENUATION — DB PER 100 FT.



POWER RATING — KILOWATTS

UNIVERSAL COAXIAL LINE

3 1/8" UNIVERSAL TRANSMISSION LINE, MI-27791-D—EFFICIENCY IN PER CENT

CHANNEL	DB LOSS PER 100 FT.	LENGTH IN FEET													
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	
2	.0723	98.3	96.7	95.1	93.6	92.0	90.5	89.8	87.5	86.1	84.7	81.9	79.2	76.6	
3	.0762	98.3	96.6	94.9	93.2	91.6	90.0	88.4	87.0	85.4	83.9	81.0	78.2	75.5	
4	.080	98.2	96.4	94.6	92.9	91.2	89.5	87.9	86.3	84.7	83.2	80.2	77.3	74.5	
5	.086	98.0	96.1	94.4	92.4	90.6	88.9	87.1	85.4	83.6	82.1	78.9	75.9	72.8	
6	.089	98.0	96.0	94.0	92.1	90.3	88.4	86.6	84.9	83.2	81.5	78.2	75.1	72.0	
7	.130	97.0	94.2	91.4	88.7	86.1	83.6	81.1	78.7	76.4	74.1	69.9	65.8	62.0	
8	.132	97.0	94.1	91.3	88.5	85.9	83.4	80.9	78.4	76.1	73.8	69.5	65.3	61.5	
9	.134	97.0	94.0	91.1	88.3	85.7	83.1	80.7	78.1	75.7	73.4	69.2	64.9	61.0	
10	.136	96.9	94.0	90.9	88.1	85.5	82.9	80.4	77.8	75.4	73.1	68.8	64.5	60.6	
11	.138	96.9	93.8	90.9	88.1	85.3	82.6	80.1	77.6	75.1	72.8	68.3	64.1	60.2	
12	.141	96.8	93.7	90.7	87.8	85.0	82.3	79.7	77.1	74.7	72.3	67.7	63.5	59.5	
13	.143	96.8	93.6	90.6	87.7	84.8	82.1	79.4	76.8	74.4	71.9	67.4	63.1	59.1	
14	.223	95.0	90.2	85.7	81.4	77.4	73.5	69.8	66.3	63.0	59.8	54.0	48.7	44.0	
15	.225	95.0	90.2	85.6	81.3	77.2	73.3	69.6	66.1	62.7	59.6	53.7	48.4	43.7	
16	.227	94.9	90.1	85.5	81.1	77.0	73.1	69.4	65.8	62.5	59.3	53.4	48.1	43.3	
17	.229	94.9	90.0	85.4	81.0	76.8	72.9	69.1	65.6	62.2	59.0	53.1	47.8	43.0	
18	.231	94.8	89.9	85.3	80.8	76.7	72.7	68.9	65.3	62.0	58.8	52.8	47.5	42.7	
19	.233	94.8	89.8	85.1	80.7	76.5	72.5	68.7	65.1	61.7	58.5	52.5	47.2	42.4	
20	.234	94.8	89.8	85.1	80.6	76.4	72.4	68.6	65.0	61.6	58.3	52.4	47.0	42.2	
21	.235	94.7	89.7	85.0	80.5	76.3	72.3	68.5	64.9	61.5	58.2	52.2	46.9	42.1	
22	.237	94.7	89.7	84.9	80.4	76.1	72.1	68.3	64.6	61.2	57.9	52.0	46.6	41.8	
23	.239	94.6	89.6	84.8	80.2	75.9	71.9	68.0	64.4	60.9	57.7	51.7	46.3	41.5	
24	.240	94.6	89.5	84.7	80.2	75.9	71.8	67.9	64.3	60.8	57.5	51.5	46.1	41.3	
25	.242	94.6	89.5	84.6	80.0	75.7	71.6	67.7	64.0	60.6	57.3	51.2	45.8	41.0	
26	.243	94.6	89.4	84.6	80.0	75.6	71.5	67.6	63.9	60.4	57.2	51.1	45.7	40.9	
27	.245	94.5	89.3	84.4	79.8	75.4	71.3	67.4	63.7	60.2	56.9	50.8	45.4	40.6	
28	.247	94.5	89.3	84.3	79.7	75.3	71.1	67.2	63.5	60.0	56.6	50.5	45.1	40.3	
29	.249	94.4	89.2	84.2	79.5	75.1	70.9	67.0	63.2	60.0	56.4	50.3	44.8	40.0	
30	.250	94.4	89.1	84.1	79.4	75.0	70.8	66.8	63.1	59.6	56.2	50.1	44.7	39.8	
31	.252	94.4	89.0	84.0	79.3	74.8	70.6	66.6	62.9	59.3	56.0	49.8	44.4	39.5	
32	.254	94.3	89.0	83.9	79.1	74.6	70.4	66.4	62.6	59.1	55.7	49.6	44.1	39.2	
33	.255	94.3	88.9	83.9	79.1	74.6	70.3	66.3	62.5	59.0	55.6	49.4	43.9	39.1	
34	.256	94.3	88.9	83.8	79.0	74.5	70.2	66.2	62.4	58.8	55.5	49.3	43.8	38.9	
35	.257	94.3	88.8	83.7	78.9	74.4	70.1	66.1	62.3	58.7	55.3	49.2	43.7	38.8	
36	.258	94.2	88.8	83.7	78.9	74.3	70.0	66.0	62.2	58.6	55.2	49.0	43.5	38.7	
37	.260	94.2	88.7	83.6	78.7	74.1	69.8	65.8	61.9	58.3	55.0	48.8	43.3	38.4	
38	.262	94.1	88.6	83.4	78.6	74.0	69.6	65.6	61.8	58.1	54.7	48.5	43.0	38.1	
39	.264	94.1	88.6	83.3	78.4	73.8	69.4	65.3	61.5	57.9	54.5	48.2	42.7	37.8	
40	.265	94.1	88.5	83.3	78.3	73.7	69.3	65.2	61.4	57.7	54.3	48.1	42.6	37.7	
41	.266	94.1	88.5	83.2	78.3	73.6	69.3	65.1	61.3	57.6	54.2	48.0	42.4	37.5	
42	.267	94.0	88.4	83.2	78.2	73.5	69.2	65.0	61.2	57.5	54.1	47.8	42.3	37.4	

3 1/8" UNIVERSAL TRANSMISSION LINE, MI-27791-D—EFFICIENCY IN PER CENT (Cont'd)

CHANNEL	DB LOSS PER 100 FT.	LENGTH IN FEET												
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600
43	.269	94.0	88.3	83.0	78.0	73.4	69.0	64.8	60.9	57.3	53.8	47.6	42.0	37.1
44	.270	94.0	88.3	83.0	78.0	73.3	68.9	64.7	60.8	57.2	53.7	47.4	41.9	37.0
45	.272	93.9	88.2	82.9	77.8	73.1	68.7	64.5	60.6	56.9	53.5	47.2	41.6	36.7
46	.274	93.9	88.1	82.8	77.7	72.9	68.5	64.3	60.4	56.7	53.2	46.9	41.3	36.4
47	.275	93.8	88.0	82.7	77.6	72.9	68.4	64.2	60.3	56.6	53.1	46.8	41.2	36.3
48	.276	93.8	88.1	82.6	77.6	72.8	68.3	64.1	60.1	56.4	53.0	46.6	41.1	36.2
49	.278	93.8	88.0	82.5	77.4	72.6	68.1	63.9	59.9	56.2	52.7	46.4	40.8	35.9
50	.279	93.8	87.9	82.5	77.3	72.5	68.0	63.8	59.8	56.1	52.6	46.3	40.7	35.8
51	.281	93.7	87.9	82.4	77.2	72.4	67.8	63.6	59.6	55.9	52.4	46.0	40.4	35.5
52	.282	93.7	87.8	82.3	77.1	72.3	67.7	63.5	59.5	55.7	52.2	45.9	40.3	35.4
53	.283	93.7	87.8	82.2	77.1	72.2	67.6	63.4	59.4	55.6	52.1	45.7	40.2	35.3
54	.284	93.7	87.7	82.2	77.0	72.1	67.5	63.3	59.3	55.5	52.0	45.6	40.0	35.1
55	.285	93.7	87.6	82.1	76.9	72.0	67.5	63.2	59.2	55.4	51.9	45.5	39.9	35.0
56	.286	93.6	87.7	82.1	76.8	71.9	67.4	63.1	59.1	55.3	51.8	45.4	40.0	34.9
57	.287	93.6	87.6	82.0	76.8	71.9	67.3	63.0	58.9	55.2	51.6	45.2	39.6	34.7
58	.290	93.5	87.5	81.8	76.6	71.6	67.0	62.7	58.6	54.8	51.3	44.9	39.3	34.4
59	.292	93.5	87.4	81.7	76.4	71.5	66.8	62.5	58.4	54.6	51.1	44.6	39.0	34.1
60	.294	93.5	87.3	81.6	76.3	71.3	66.6	62.3	58.2	54.4	50.8	44.4	38.8	33.9
61	.295	93.4	87.3	81.6	76.2	71.2	66.5	62.2	58.1	54.3	50.7	44.3	38.6	33.7
62	.297	93.4	87.2	81.5	76.1	71.0	66.3	62.0	57.9	54.0	50.5	44.0	38.4	33.5
63	.298	93.4	87.2	81.4	76.0	71.0	66.3	61.9	57.8	53.9	50.3	43.9	38.3	33.4
64	.299	93.3	87.1	81.3	75.9	70.9	66.2	61.8	57.7	53.8	50.2	43.8	38.1	33.2
65	.300	93.3	87.1	81.3	75.9	70.8	66.1	61.7	57.5	53.7	50.1	43.7	38.0	33.1
66	.301	93.3	87.1	81.2	75.8	70.7	66.0	61.6	57.4	53.6	50.0	43.5	37.9	33.0
67	.302	93.3	87.0	81.2	75.7	70.6	65.9	61.5	57.3	53.5	49.9	43.4	37.8	32.9
68	.3025	93.3	87.0	81.1	75.7	70.6	65.8	61.4	57.3	53.4	49.8	43.4	37.7	32.8
69	.303	93.3	87.0	81.1	75.6	70.6	65.8	61.4	57.2	53.4	49.8	43.3	37.7	32.7
70	.3035	93.2	87.0	81.1	75.6	70.5	65.8	61.3	57.2	53.3	49.7	43.2	37.6	32.7
71	.304	93.2	86.9	81.1	75.6	70.5	65.7	61.3	57.1	53.3	49.7	43.2	37.5	32.6
72	.305	93.2	86.9	81.0	75.5	70.4	65.6	61.2	57.0	53.1	49.5	43.1	37.4	32.5
73	.306	93.2	86.7	81.0	75.4	70.3	65.5	61.1	56.9	53.0	49.4	42.9	37.3	32.4
74	.307	93.2	86.8	80.9	75.4	70.2	65.4	61.0	56.8	52.9	49.3	42.8	37.2	32.3
75	.3075	93.2	86.8	80.9	75.3	70.2	65.4	60.9	56.8	52.8	49.3	42.8	37.1	32.2
76	.308	93.2	86.8	80.8	75.3	70.1	65.3	60.9	56.7	52.8	49.2	42.7	37.1	32.2
77	.3085	93.1	86.8	80.8	75.3	70.1	65.3	60.8	56.7	52.8	49.2	42.6	37.0	32.1
78	.309	93.1	86.7	80.8	75.2	70.1	65.3	60.8	56.6	52.7	49.1	42.6	36.9	32.0
79	.310	93.1	86.7	80.7	75.2	70.0	65.2	60.7	56.5	52.6	49.0	42.5	36.8	31.9
80	.311	93.1	86.7	80.7	75.1	70.0	65.1	60.6	56.4	52.5	48.9	42.3	36.7	31.8
81	.312	93.1	86.6	80.6	75.0	69.8	65.0	60.5	56.3	52.4	48.8	42.2	36.6	31.7
82	.3125	93.1	86.6	80.6	75.0	69.8	64.9	60.4	56.2	52.3	48.7	42.2	36.5	31.6
83	.313	93.0	86.6	80.6	75.0	69.7	64.9	60.4	56.2	52.2	48.6	42.1	36.5	31.6

6 1/8" UNIVERSAL TRANSMISSION LINE, MI-27792-D—EFFICIENCY IN PER CENT

CHANNEL	DB LOSS PER 100 FT.	LENGTH IN FEET													
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	
2	.0339	99.2	98.5	97.7	96.9	96.2	95.4	94.7	94.1	93.2	92.5	91.1	89.6	88.3	
3	.0355	99.2	98.4	97.6	96.8	96.0	95.2	94.4	93.7	92.9	92.1	90.7	89.2	87.7	
4	.0372	99.1	98.3	97.5	96.6	95.8	95.0	94.2	93.4	92.6	91.8	90.2	88.7	87.2	
5	.040	99.1	98.2	97.3	96.4	95.5	94.6	93.8	92.9	92.0	91.2	89.5	87.9	86.3	
6	.0417	99.0	98.1	97.2	96.2	95.3	94.4	93.5	92.6	91.7	90.8	89.1	87.4	85.8	
7	.0615	98.6	97.1	95.9	94.5	93.1	91.8	90.5	89.4	88.0	86.7	84.4	82.0	79.7	
8	.0625	98.6	97.1	95.8	94.4	93.0	91.7	90.4	89.1	87.8	86.6	84.1	81.7	79.4	
9	.0635	98.6	97.0	95.7	94.3	92.9	91.6	90.2	88.9	87.6	86.4	83.9	81.5	79.1	
10	.0645	98.5	97.1	95.6	94.2	92.8	91.5	90.1	88.8	87.5	86.2	83.7	81.2	78.9	
11	.0655	98.5	97.0	95.6	94.1	92.7	91.4	90.0	88.6	87.4	86.0	83.5	81.0	78.6	
12	.0665	98.5	97.0	95.5	94.1	92.6	91.2	89.8	88.5	87.1	85.8	83.2	80.7	78.3	
13	.0675	98.5	96.9	95.4	94.0	92.5	91.1	89.7	88.3	86.9	85.6	83.0	80.4	78.0	
14	.105	97.6	95.3	93.0	90.8	88.6	86.5	84.4	82.4	80.4	78.5	74.8	71.3	67.9	
15	.106	97.6	95.2	92.9	90.7	88.5	86.4	84.3	82.3	80.3	78.4	74.6	71.1	67.7	
16	.107	97.6	95.2	92.9	90.6	88.4	86.3	84.2	82.1	80.1	78.2	74.4	70.8	67.4	
17	.1075	97.6	95.2	92.8	90.6	88.4	86.2	84.1	82.0	80.0	78.1	74.3	70.7	67.3	
18	.108	97.5	95.2	92.8	90.5	88.3	86.1	84.0	82.0	80.0	78.0	74.2	70.6	67.2	
19	.109	97.5	95.1	92.8	90.5	88.2	86.0	83.9	81.8	79.8	77.8	74.0	70.4	66.9	
20	.1095	97.5	95.1	92.7	90.4	88.2	86.0	83.8	81.7	79.7	77.7	73.9	70.3	66.8	
21	.110	97.5	95.1	92.7	90.4	88.1	85.9	83.8	81.7	79.6	77.6	73.8	70.2	66.7	
22	.111	97.5	95.0	92.6	90.3	88.0	85.8	83.6	81.5	79.4	77.5	73.6	70.0	66.4	
23	.112	97.5	95.0	92.6	90.2	87.9	85.7	83.5	81.4	79.3	77.3	73.4	69.7	66.2	
24	.113	97.4	94.9	92.5	90.1	87.8	85.5	83.3	81.2	79.1	77.1	73.2	69.5	65.9	
25	.1135	97.4	94.9	92.5	90.1	87.8	85.5	83.3	81.1	79.0	77.0	73.1	69.4	65.8	
26	.1140	97.4	94.9	92.4	90.0	87.7	85.4	83.2	81.1	79.0	76.9	73.0	69.3	65.7	
27	.1145	97.4	94.9	92.4	90.0	87.7	85.4	83.1	81.0	78.9	76.8	72.9	69.1	65.6	
28	.115	97.4	94.8	92.4	90.0	87.6	85.3	83.1	80.9	78.8	76.7	72.8	69.0	65.5	
29	.116	97.4	94.8	92.3	89.9	87.5	85.2	83.0	80.8	78.6	76.6	72.6	68.8	65.2	
30	.117	97.3	94.8	92.3	90.0	87.4	85.1	82.8	80.6	78.5	76.4	72.4	68.6	65.0	
31	.1175	97.3	94.7	92.2	89.7	87.3	85.0	82.7	80.5	78.4	76.3	72.3	68.5	64.9	
32	.118	97.3	94.7	92.2	89.7	87.3	85.0	82.7	80.5	78.3	76.2	72.2	68.4	64.7	
33	.1185	97.3	94.7	92.1	89.7	87.2	84.9	82.6	80.4	78.2	76.1	72.1	68.3	64.6	
34	.119	97.3	94.7	92.1	89.6	87.2	84.8	82.6	80.3	78.1	76.0	72.0	68.2	64.5	
35	.120	97.3	94.6	92.1	89.5	87.1	84.7	82.4	80.2	78.0	75.9	71.8	67.9	64.3	
36	.1205	97.3	94.6	92.0	89.5	87.0	84.7	82.3	80.1	77.9	75.8	71.7	67.8	64.2	
37	.121	97.3	94.6	92.0	89.5	87.0	84.6	82.3	80.0	77.8	75.7	71.6	67.7	64.0	
38	.1215	97.2	94.6	91.9	89.4	86.9	84.5	82.2	79.9	77.7	75.6	71.5	67.6	63.9	
39	.122	97.2	94.5	91.9	89.4	86.9	84.5	82.2	80.0	77.7	75.5	71.4	67.5	63.8	
40	.123	97.2	94.5	91.9	89.3	86.8	84.4	82.0	79.7	77.5	75.3	71.2	67.3	63.6	
41	.1235	97.2	94.5	91.8	89.2	86.7	84.3	82.0	79.6	77.4	75.2	71.0	67.1	63.4	
42	.124	97.2	94.5	91.8	89.2	86.7	84.3	81.9	79.6	77.3	75.2	71.0	67.1	63.3	

6 1/8" UNIVERSAL TRANSMISSION LINE, MI-27792-D—EFFICIENCY IN PER CENT (Cont'd)

CHANNEL	DB LOSS PER 100 FT.	LENGTH IN FEET												
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600
43	.1245	97.2	94.4	91.8	89.2	86.6	84.2	81.8	79.5	77.3	75.1	70.9	66.9	63.2
44	.125	97.2	94.4	91.7	89.1	86.6	84.1	81.8	79.4	77.2	75.0	70.8	66.8	63.1
45	.126	97.1	94.4	91.7	89.0	86.5	84.0	81.6	79.3	77.0	74.8	70.5	66.6	62.9
46	.1265	97.1	94.3	91.6	89.0	86.4	84.0	81.6	79.2	76.9	74.7	70.0	66.5	62.7
47	.127	97.1	94.3	91.6	89.0	86.4	83.9	81.5	79.1	76.9	74.6	70.4	66.4	62.6
48	.128	97.1	94.3	91.5	88.9	86.3	83.8	81.4	79.0	76.7	74.0	70.2	66.2	62.4
49	.129	97.1	94.2	91.5	88.8	86.2	83.7	81.2	78.9	76.5	74.3	70.0	66.0	62.2
50	.130	97.1	94.2	91.4	88.7	86.1	83.6	81.1	78.7	76.4	74.1	69.8	65.8	61.9
51	.1305	97.0	94.2	91.4	88.7	86.1	83.5	81.0	78.6	76.3	74.0	69.7	65.7	61.8
52	.131	97.0	94.1	91.4	88.6	86.0	83.4	81.0	78.6	76.2	74.0	69.6	65.6	61.7
53	.132	97.0	94.1	91.3	88.5	85.9	83.3	80.8	78.4	76.1	73.8	69.4	65.3	61.5
54	.1325	97.0	94.1	91.3	88.5	85.9	83.3	80.8	78.3	76.0	73.7	69.3	65.2	61.4
55	.133	97.0	94.1	91.2	88.5	85.8	83.2	80.7	78.3	75.9	73.6	69.3	65.1	61.3
56	.1335	97.0	94.0	91.2	88.4	85.8	83.2	80.6	78.1	75.8	73.5	69.1	65.0	61.2
57	.134	97.0	94.0	91.2	88.4	85.7	83.1	80.6	78.1	75.8	73.5	69.1	64.9	61.0
58	.1345	96.9	94.0	91.1	88.3	85.7	83.0	80.5	78.0	75.7	73.4	69.0	64.8	60.9
59	.135	96.9	94.0	91.1	88.3	85.6	83.0	80.4	78.0	75.6	73.3	68.9	64.7	60.8
60	.136	96.9	93.9	91.0	88.2	85.5	82.9	80.3	77.8	75.4	73.1	68.7	64.5	60.6
61	.1365	96.9	93.9	91.0	88.2	85.5	82.8	80.3	77.8	75.4	73.0	68.6	64.4	60.5
62	.137	96.9	93.9	91.0	88.1	85.4	82.8	80.2	77.7	75.3	72.9	68.5	64.3	60.4
63	.1375	96.9	93.9	90.9	88.1	85.4	82.7	80.1	77.6	75.2	72.9	68.4	64.2	60.3
64	.138	96.9	93.8	90.9	88.1	85.3	82.6	80.1	77.6	75.1	72.8	68.3	64.1	60.2
65	.1385	96.9	93.8	90.0	88.0	85.3	82.6	80.0	77.5	75.0	72.7	68.2	64.0	60.0
66	.139	96.9	93.8	90.8	88.0	85.2	82.5	79.9	77.4	75.0	72.6	68.1	63.9	60.0
67	.140	96.8	93.8	90.8	87.9	85.1	82.4	79.8	77.3	74.8	72.4	67.9	63.7	59.7
68	.141	96.8	93.7	90.7	87.8	85.0	82.3	79.7	77.1	74.7	72.3	67.7	63.5	59.5
69	.1415	96.8	93.7	90.7	87.8	85.0	82.2	79.6	77.1	74.6	72.2	67.6	63.4	59.4
70	.142	96.8	93.7	90.7	87.7	84.9	82.2	79.5	77.0	74.5	72.1	67.5	63.3	59.3
71	.1425	96.8	93.7	90.6	87.7	84.9	82.1	79.5	76.9	74.4	72.0	67.5	63.2	59.2
72	.143	96.8	93.6	90.6	87.7	84.8	82.1	79.4	76.8	74.4	71.9	67.4	63.1	59.1
73	.1435	96.7	93.6	90.6	87.6	84.8	82.0	79.4	76.8	74.3	71.9	67.3	63.0	58.9
74	.144	96.7	93.6	90.5	87.6	84.7	82.0	79.3	76.7	74.2	71.8	67.2	62.9	58.8
75	.145	96.7	93.5	90.5	87.5	84.6	81.9	79.2	76.6	74.1	71.6	67.0	62.7	58.6
76	.1455	96.7	93.5	90.4	87.5	84.6	81.8	79.1	76.5	74.0	71.5	66.9	62.6	58.5
77	.146	96.7	93.5	90.4	87.4	84.5	81.7	79.0	76.4	73.9	71.4	66.8	62.5	58.4
78	.1465	96.7	93.5	90.4	87.4	84.5	81.7	79.0	76.3	73.8	71.4	66.7	62.4	58.3
79	.147	96.7	93.5	90.3	87.3	84.4	81.6	79.0	76.3	73.8	71.3	66.6	62.3	58.2
80	.1475	96.7	93.4	90.3	87.3	84.4	81.6	78.8	76.2	73.7	71.2	66.5	62.2	58.1
81	.148	96.7	93.4	90.3	87.3	84.3	81.5	78.8	76.1	73.6	71.1	66.4	62.1	58.0
82	.149	96.6	93.4	90.2	87.2	84.2	81.4	78.6	76.0	73.5	71.0	66.3	61.9	57.8
83	.1495	96.6	93.3	90.2	87.1	84.2	81.3	78.6	75.9	73.4	70.9	66.2	61.8	57.7

9³/₁₆" UNIVERSAL TRANSMISSION LINE, MI-27793-D—EFFICIENCY IN PER CENT

CHANNEL	DB LOSS PER 100 FT.	LENGTH IN FEET													
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	
2	.0226	99.5	99.0	98.5	97.9	97.4	96.9	96.4	95.9	95.4	94.9	93.9	93.0	92.0	
3	.0234	99.5	98.9	98.4	97.9	97.3	96.8	96.3	95.8	95.3	94.8	93.7	92.7	91.7	
4	.025	99.3	98.9	98.3	97.7	97.2	96.6	96.1	95.5	94.9	94.4	93.3	92.3	91.2	
5	.0268	99.4	98.8	98.2	97.6	97.0	96.4	95.8	95.2	94.6	94.0	92.9	91.7	90.6	
6	.0278	99.4	98.7	98.1	97.5	96.9	96.2	95.6	95.0	94.4	93.8	92.6	91.4	90.3	
7	.0408	99.1	98.1	97.2	96.3	95.4	94.5	93.6	92.8	91.9	91.0	89.3	87.7	86.0	
8	.0413	99.0	98.1	97.2	96.3	95.4	94.5	93.6	92.7	91.8	90.9	89.2	87.5	85.9	
9	.042	99.0	98.1	97.1	96.2	95.3	94.4	93.5	92.6	91.7	90.8	89.0	87.3	85.7	
10	.0428	99.0	98.0	97.1	96.1	95.2	94.3	93.3	92.4	91.5	90.6	88.8	87.1	85.4	
11	.0435	99.0	98.0	97.0	96.1	95.1	94.2	93.2	92.3	91.4	90.5	88.7	86.9	85.2	
12	.0441	99.0	98.0	97.0	96.0	95.0	94.1	93.1	92.2	91.3	90.3	88.5	86.7	85.0	
13	.0448	99.0	98.0	97.0	96.0	95.0	94.0	93.0	92.1	91.1	90.2	88.4	86.6	84.8	
14	.0678	98.5	96.9	95.4	93.9	92.5	91.1	89.6	88.3	86.9	85.5	82.9	80.4	77.9	
15	.068	98.4	96.9	95.4	93.9	92.5	91.0	89.6	88.2	86.9	85.5	82.9	80.3	77.8	
16	.0685	98.4	96.9	95.4	93.9	92.4	91.0	89.5	88.1	86.8	85.4	82.8	80.2	77.7	
17	.069	98.4	96.9	95.3	93.8	92.4	90.9	89.5	88.1	86.7	85.3	82.6	80.1	77.6	
18	.0696	98.4	96.8	95.3	93.8	92.3	90.8	89.4	88.0	86.6	85.2	82.5	79.9	77.4	
19	.070	98.4	96.9	95.4	93.8	92.2	90.8	89.4	87.9	86.5	85.1	82.4	79.9	77.3	
20	.0704	98.4	96.8	95.3	93.7	92.2	90.7	89.3	87.8	86.4	85.0	82.3	79.7	77.2	
21	.0709	98.4	96.8	95.2	93.7	92.2	90.7	89.2	87.8	86.3	84.9	82.2	79.6	77.0	
22	.0715	98.4	96.8	95.2	93.6	92.1	90.6	89.1	87.7	86.2	84.8	82.1	79.4	76.8	
23	.072	98.4	96.7	95.1	93.6	92.0	90.5	89.0	87.6	86.1	84.7	82.0	79.3	76.7	
24	.0724	98.3	96.7	95.1	93.5	92.0	90.5	89.0	87.5	86.1	84.6	81.9	79.2	76.6	
25	.0727	98.3	96.7	95.1	93.5	92.0	90.4	88.9	87.5	86.0	84.6	81.8	79.1	76.5	
26	.073	98.3	96.7	95.1	93.5	91.9	90.4	88.9	87.4	86.0	84.5	81.7	79.0	76.4	
27	.0735	98.3	96.7	95.0	93.5	91.9	90.3	88.8	87.3	85.9	84.4	81.6	78.9	76.3	
28	.074	98.3	96.6	95.0	93.4	91.8	90.3	88.8	87.3	85.8	84.3	81.5	78.8	76.1	
29	.0745	98.3	96.6	95.0	93.4	91.8	90.2	88.7	87.2	85.7	84.2	81.4	78.6	76.0	
30	.075	98.3	96.6	94.9	93.3	91.7	90.2	86.6	87.1	85.6	84.1	81.3	78.5	75.9	
31	.0755	98.3	96.6	94.9	93.3	91.7	90.1	88.5	87.0	85.5	84.0	81.2	78.4	75.7	
32	.076	98.3	96.6	94.9	93.2	91.6	90.0	88.5	86.9	85.4	83.9	81.1	78.3	75.6	
33	.0763	98.3	96.5	94.9	92.2	91.6	90.0	88.4	86.9	85.4	83.9	81.0	78.2	75.5	
34	.0766	98.3	96.5	94.8	93.2	91.6	90.0	88.4	86.8	85.3	83.8	80.9	78.1	75.4	
35	.0768	98.3	96.5	94.8	93.2	91.5	89.9	88.4	86.8	85.3	83.8	80.9	78.1	75.4	
36	.077	98.2	96.5	94.9	93.2	91.6	89.9	88.4	86.9	85.5	83.8	80.9	78.1	75.3	
37	.0773	98.2	96.5	94.8	93.1	91.5	89.9	88.3	86.7	85.2	83.7	80.8	77.9	75.2	
38	.0777	98.2	96.5	94.8	93.1	91.4	89.8	88.2	86.7	85.1	83.6	80.7	77.8	75.1	
39	.078	98.2	96.5	94.8	93.1	91.4	89.8	88.2	86.6	85.1	83.6	80.6	77.8	75.0	
40	.0783	98.2	96.5	94.7	93.0	91.4	89.8	88.1	86.6	85.0	83.5	80.5	77.7	74.9	

VHF Coaxial Transmission Line

FEATURES

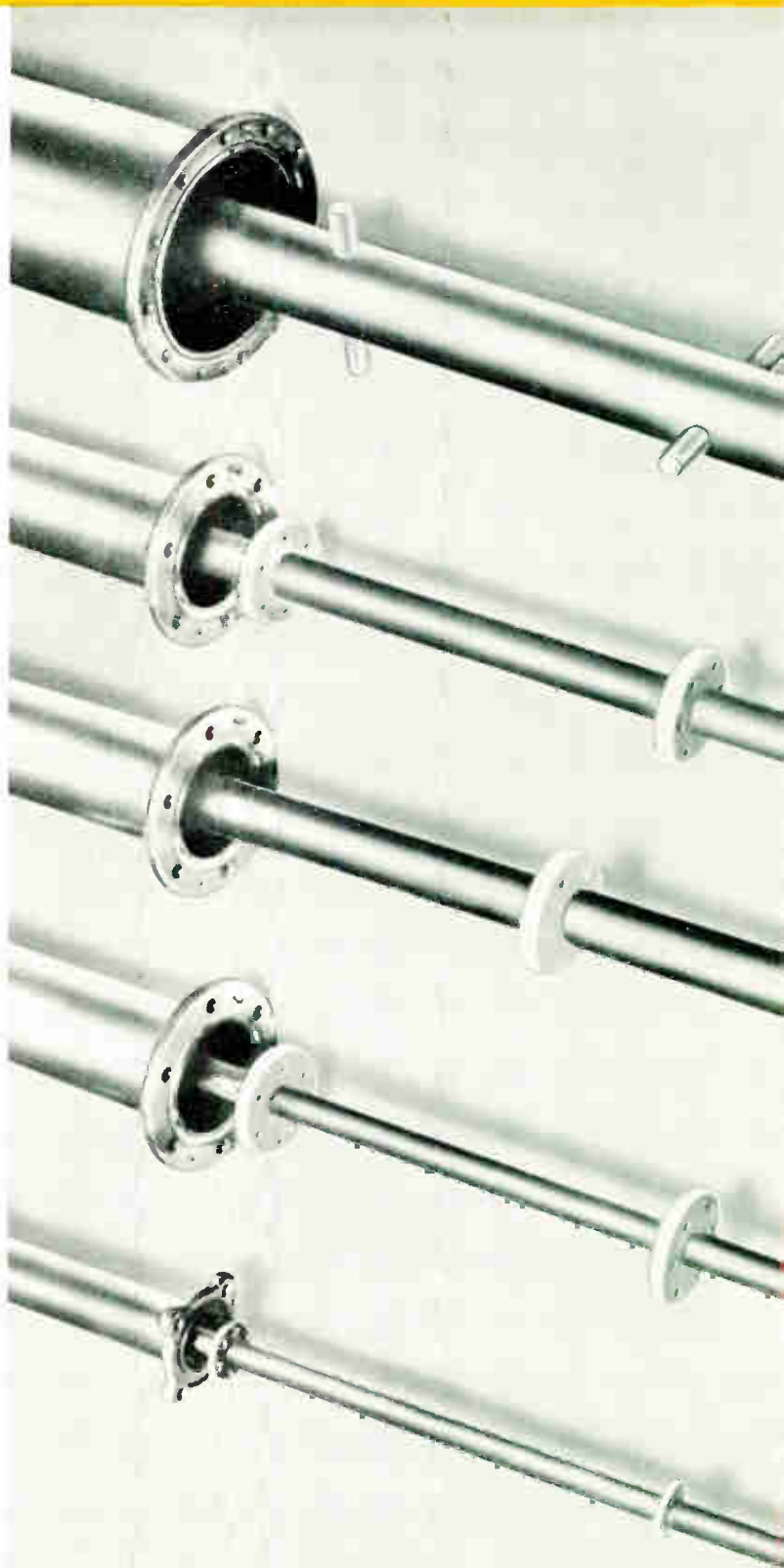
- Provides efficient transfer of power for TV application up to 220 mc
- Maximum stability provided by low loss dielectrics
- Minimum attenuation—maximum efficiency—low standing wave ratio
- Excellent power handling capability
- Alignment pins in each flange assure precise, accurate assembly
- Complete line of fittings and accessories for installation versatility

USES

RCA coaxial transmission line provides an efficient means of transferring r-f power to VHF television antennas. It is manufactured in various sizes and types to accommodate many different power and installation requirements.

RCA transmission line equipment features the high efficiency with which it transmits r-f energy. This line is supplied in convenient lengths with flanges silver soldered to the ends. Thus, line sections can be easily bolted together. A specially designed connector which compensates for line expansion and contraction is used for joining the inner conductors. Mating flanges are automatically sealed for pressure by insertion of a neoprene O-ring gasket before assembly.

NOTE: Transmission Lines MI-19112 and MI-19113 give satisfactory operation on channels 2 to 6; however, they are not recommended for channels 7 to 13 or when the transmission line run exceeds 500 feet.



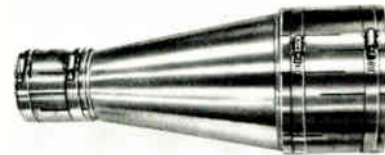
3/8" VHF STEATITE 51.5-OHM LINE, MI-19113-C



MI-19113-C-1
TRANSMISSION LINE



GAS STOP
MI-19113-C-5



REDUCER, COUPLING (UNFLANGED)
MI-19113-C-7



90° ELBOW (FLANGED)
MI-19113-C-18



STRAIGHT COUPLING
MI-19113-C-8



45° MITRE ELBOW (FLANGED)
MI-19113-C-22



REDUCER
(3/8" TO 1 5/8" FLANGED)
MI-19113-C-6



90° MITRE ELBOW (UNFLANGED)
MI-19113-C-18F



INSERT BUSHING
MI-19113-C-11



FIELD FLANGE
MI-19113-C-55

INNER CONNECTOR
MI-19113-C-11

DESCRIPTION

RCA 3/8" 51.5-ohm Steatite Transmission Line, Type MI-19113-C, is a hard-tempered copper line designed for use in Television installations. This type line has excellent VSWR characteristics on Channels 2-6.** Its efficiency on these channels is greatly attributed to the use of a low loss dielectric. Components are ruggedly and precisely constructed. Mitre Elbows are fabricated with thick-wall tubing and Teflon dielectric inner conductor supports. A complete line of fittings and accessories provide installation versatility.

MI-19113-C-1 TRANSMISSION LINE

This line is supplied in 20-foot lengths* with flanges silver soldered to ends. The outer conductor is 3/8" O.D. with an

* May be ordered less than 20 feet. For television installations line section should be in multiples of 1 foot whenever possible. Other wise, the Special Conductor MI-19113-C-9 should be used to join these sections. When ordering transmission line, specify the MI-number and the length required.

** Recommended for Channels 2-6 only.

inner conductor of 1.200 diameter which is supported by Steatite insulators. The outer conductor is designed to allow for removing the inner conductor for inspection. Includes solderless inner connector, O-ring gasket and silicon copper hardware.

MI-19113-C-1-F TRANSMISSION LINE

Same as MI-19113-C-1 except one flange is omitted.

MI-19113-C-1-NF TRANSMISSION LINE

Same as MI-19113-C-1 except both flanges are omitted.

*MI-19113-C-1-SF TRANSMISSION LINE

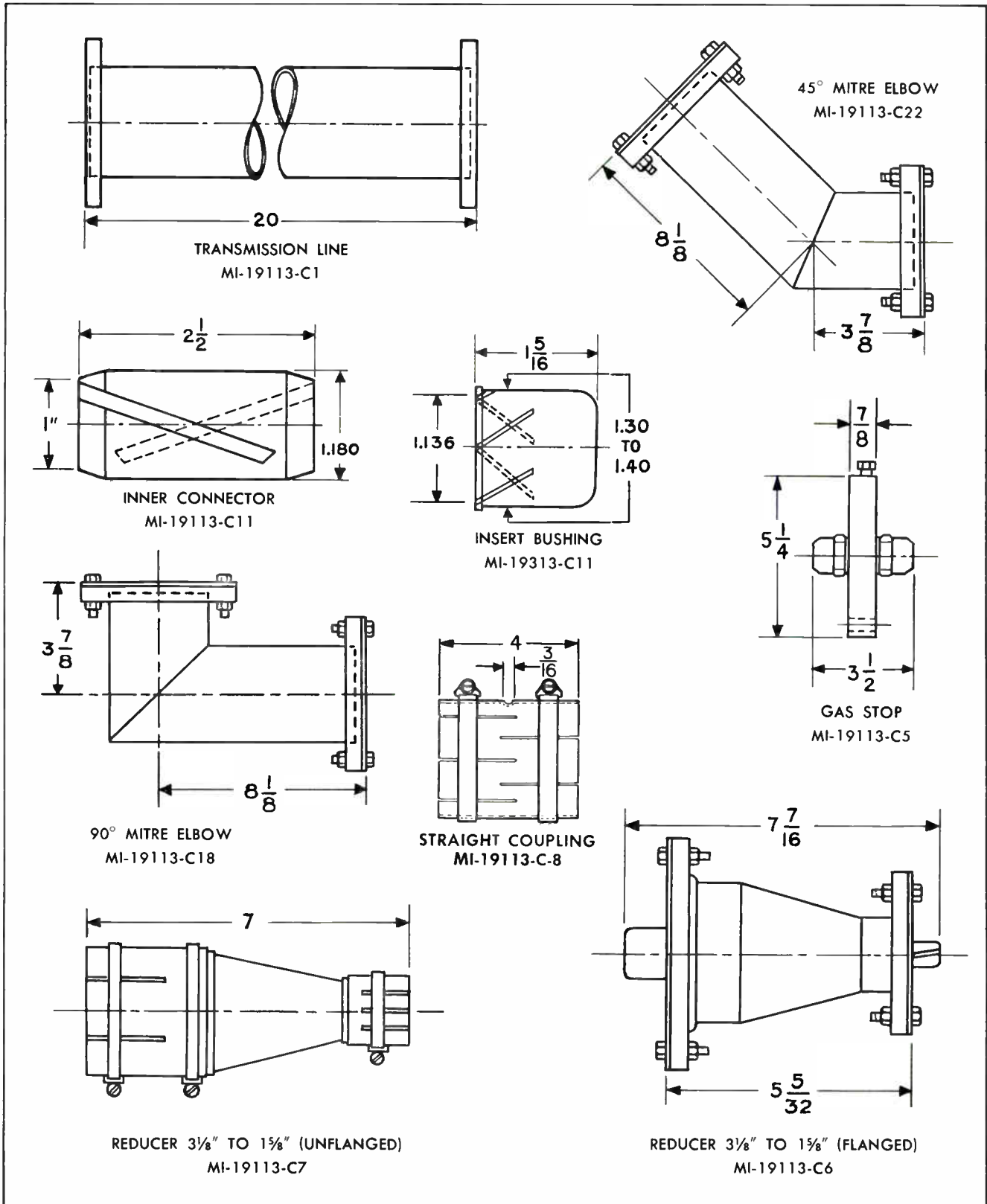
Same as MI-19113-C-1 except one of the two flanges is a swivel flange.

MI-19113-C-5 GAS STOP

To be inserted between two flanged sections of line to seal a gassed section from an ungassed section of line.

MI 19113 for Chan 2-6 ONLY

OUTLINE DIMENSIONS . . . 3 1/8" 51.5-OHM VHF LINE
(MI-19113)



MI-19113-C-6 REDUCER COUPLING, FLANGED

Flanged coupling used for reducing from 3 $\frac{1}{8}$ " 51.5-ohm line to 1 $\frac{5}{8}$ " 51.5-ohm line. Complete with inner conductor and connectors. O-ring gaskets and hardware.

MI-19113-C-7 REDUCER COUPLING, UNFLANGED

Used for reducing 3 $\frac{1}{8}$ " 51.5-ohm to 1 $\frac{5}{8}$ " 51.5-ohm un-gassed line. Complete with outer and inner conductor and connectors and stainless steel clamps.

MI-19113-C-8 STRAIGHT COUPLING

Used for coupling two sections of 3 $\frac{1}{8}$ " 51.5-ohm unflanged lines. (Not to be used for gassed line.) Consists of outer and inner connectors with stainless steel clamps.

MI-19113-C-8-NB STRAIGHT COUPLING

Similar to MI-19113-C-8 except less connector and having two hose clamps.

MI-19113-C-9 SPECIAL INNER CONDUCTOR

Used for splicing lengths of line which are cut at points between the supporting insulators (these are spaced 12"). Inner conductor as supplied is 1.282 O.D. x 1.136 I.D. x 12 feet long. The special inner conductor will fit inner connector MI-19113-C-11.

MI-19113-C-10 O-RING GASKET

A long-life synthetic rubber gasket for use between the flanges to make flanged joints pressure tight.

MI-19113-C-11 INNER CONNECTOR

A specially designed solderless inner connector for joining inner conductors of 3 $\frac{1}{8}$ " 51.5-ohm MI-19113-C line.

MI-19113-C-13 COVER PLATE

Used to cap the end of 3 $\frac{1}{8}$ " line to keep moisture out during installation, or for other temporary capping of the line.

MI-19113-C-18 COUPLING, 90° MITRE ELBOW

A 90° Mitre Elbow having unequal-length legs with swivel flanges which provide any rotational angle. Inner conductor is supported by Teflon insulators. Furnished with two connectors, O-ring gasket and silicon copper hardware.

MI-19113-C-18-F COUPLING, 90° MITRE ELBOW

Same as MI-19113-C-18 except the flange is omitted from the short leg.

MI-19113-C-18-NF COUPLING, 90° MITRE ELBOW

Same as MI-19113-C-18 except both flanges are omitted.

MI-19113-C-19 HARDWARE KIT

Consists of six bolts, six nuts and six lockwashers for 3 $\frac{1}{8}$ " line.

MI-19113-C-20 FIXED FLANGE, SILVER SOLDER TYPE

The flange which forms an integral part of MI-19113-C Transmission Line, is useful for adapting the end of a field-cut-length of line where the original silver-soldered flange has been removed in shortening the line. Installation is made by silver soldering.

MI-19113-C-21 SWIVEL FLANGE, SILVER SOLDER TYPE

Similar to the flange MI-19113-C-20 except flange is free to rotate.

MI-19113-C-22 COUPLING, 45° MITRE ELBOW

Same as MI-19113-C-18 except 45°.

MI-19113-C-51 CUT-OFF GAUGE

A specially-designed tool for cutting and dressing the end of the 1.282 O.D. inner conductor to insure a precision cut.

MI-19113-C-54 CUT-OFF GAUGE

Similar to MI-19113-C-51 except for use on 1.200 O.D. inner conductor.

MI-19113-C-55 FIELD FLANGE

Used to flange the cut end of MI-19113-C line when the original flange has been removed in the field. Installed by means of soft solder.

MI-19113-C-58 REDUCER

A cone reducer with a special built-in connector at one end and a type "N" 51.5-ohm jack at the other. Supplied with special integral outer connector and special clamp.

MI-19113-C-60 FLANGED TO UNFLANGED ADAPTER

Adapts unflanged piece of line to flanged section. Not pressure tight so use only with un-gassed line. Adapter is 2" long.

MI-19089-18 SILICONE COMPOUND

Used to position the O-rings associated with the flanges of MI-19113-C line during installation.

MI-19313-11 INSERT BUSHING

Used to reduce the inside diameter of the inner conductor of MI-19313 line to enable it to mate with the inner connector of MI-19113-C-1 Steatite line.

See Page 34 for Specifications.

*Recommend for class 2 to only
FREQ of 54-108 MC*

UNFLANGED 3 $\frac{1}{8}$ " VHF TEFLON 50-OHM LINE, MI-27791-K



Type MI-27791-K, 3 $\frac{1}{8}$ " 50-ohm Unflanged Transmission Line shown with 45° Elbow, Adjustable Clamp and Inner Connector.

FEATURES

- Teflon VHF line . . . developed by RCA
- Especially recommended for inside use in TV installations
- Minimum attenuation—maximum efficiency—low VSWR
- Mitre elbows for versatile installation and convenience in crowded locations
- Maximum stability provided by low loss Teflon dielectric

DESCRIPTION

RCA Type MI-27791-K, is a hard-tempered copper line designed for interior use in VHF television installations. This line has excellent VSWR characteristics and operates very efficiently at VHF Channels 2-13. Its high efficiency is greatly attributed to the use of low loss Teflon dielectric. Components are ruggedly and precisely constructed. Mitre Elbows are fabricated with thick-wall tubing. A complete line of fittings and accessories provide installation versatility. Outline dimensions for the MI-27791-K components are same as MI-19113-C unflanged components.

See Page 34 for Specifications.

MI-27791-K-1 TRANSMISSION LINE

This line is supplied in 20-foot lengths unflanged. The outer conductor is 3 $\frac{1}{8}$ " O.D. with an inner conductor of 1.315" diameter which is supported by Teflon insulators. The outer conductor is designed to allow for removing the inner conductor for inspection.

MI-27791-K-2A COUPLING, 90° MITRE ELBOW

A 90° Mitre Elbow having unequal length legs without flanges. The inner conductor is supported by Teflon insulators.

MI-27791-K-2B COUPLING, 45° MITRE ELBOW

Same as MI-27791-K-2A except 45°.

MI-27791-K-4A COUPLING

Special coupling consisting of an outer sleeve, inner connector and two adjustable clamps for joining sections of line, elbows and other line fittings.

MI-27791-K-4B INNER CONNECTOR

A specially designed solderless inner connector for joining the 1.315" inner conductor of MI-27791-K Teflon line.

MI-27791-K-4C ADJUSTABLE CLAMP

A stainless steel clamp used to secure 3 $\frac{1}{8}$ " unflanged line and fittings.

MI-27791-K-5A REDUCER

An unflanged cone reducer with a special built-in connector at one end and a type "N" 50-ohm jack at the other.

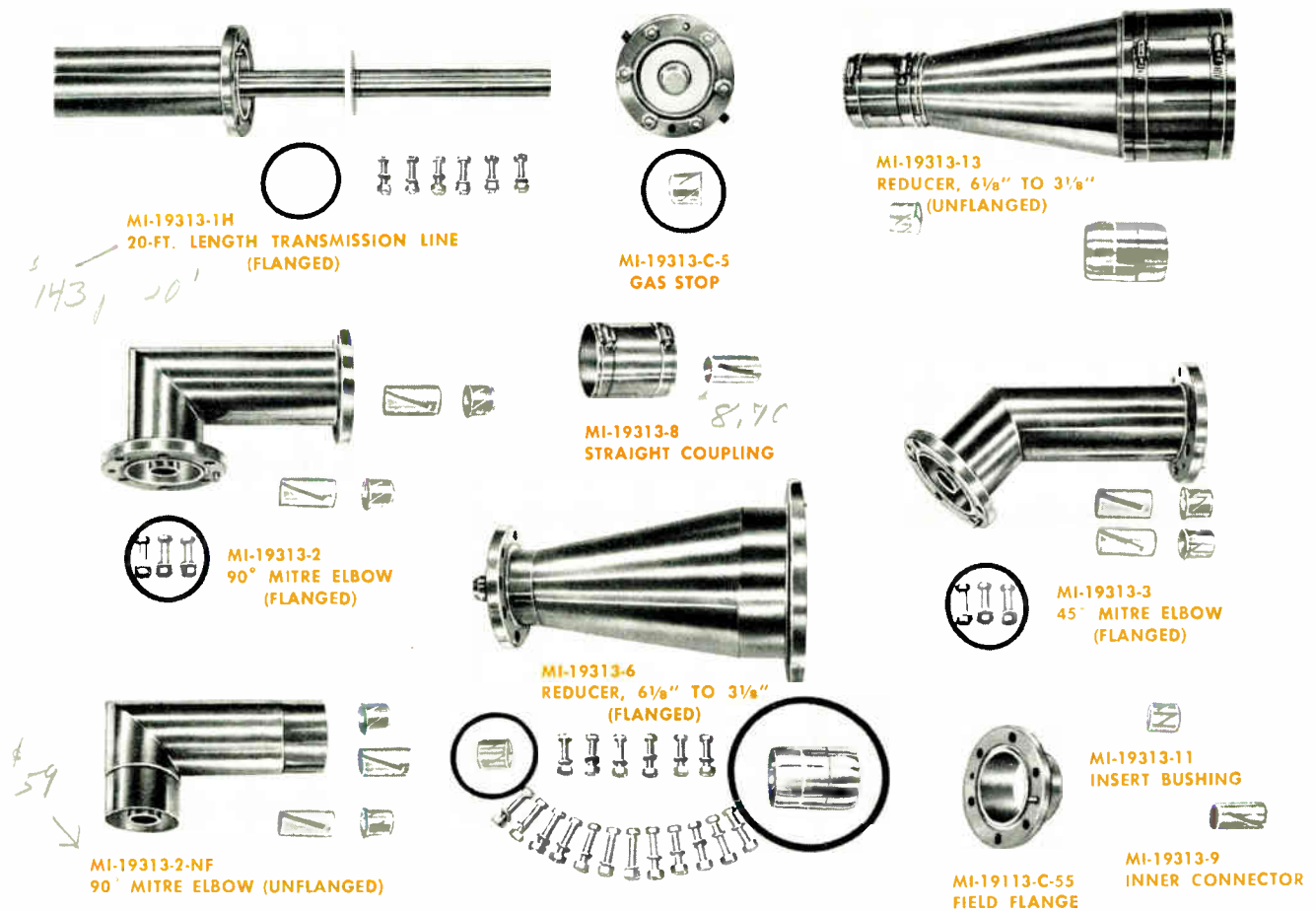
MI-27791-K-7A ADAPTER

A clamp type adapter consisting of a female outer, anchor-insulator conductor, and adjustable clamp. It is used to adapt unflanged 3 $\frac{1}{8}$ " Teflon transmission line to MI-27791-D Universal Coaxial Transmission Line.

MI-27791-K-7B ADAPTER

Similar to MI-27791-K-7A except consisting of a male outer and adjustable clamp only, and used to adapt MI-27912-K Transmission Line to MI-27791-D Universal Line.

3 1/8" VHF TEFLON 51.5-OHM LINE, MI-19313



DESCRIPTION

RCA 3 1/8-inch 51.5-ohm Teflon Transmission Line, MI-19313, is a hard-tempered copper line designed for use in VHF television installations. This type line has excellent VSWR characteristics and operates very efficiently at VHF channels 2-13. Its high efficiency is greatly attributed to the use of low loss Teflon dielectric. Components are ruggedly and precisely constructed. Mitre elbows are fabricated with thick-wall tubing. Alignment pins assure accurate positioning of the line sections during installations; gas sealing is accomplished by an O-ring gasket placed between the flanges. A complete line of fittings and accessories provide installation versatility.

MI-19313-1H TRANSMISSION LINE

This line is supplied in 20-foot lengths with flanges heliarc welded to the ends. The outer conductor is 3 1/8-inch O.D. with an inner conductor of 1.281 diameter which is sup-

ported by Teflon insulators. Inner conductor contains built-in expansion joint to allow for expansion and contraction due to heating. Includes solderless inner conductor, O-ring gasket and silicon copper hardware.

MI-19313-1BH TRANSMISSION LINE

Same as MI-19313-1H except 19 feet 6 inches in length for use in TV antenna system operating on Channel 10.

MI-19313-1-F TRANSMISSION LINE

Same as MI-19313-1H except one flange and expansion joint are omitted.

MI-19313-1-NF TRANSMISSION LINE

Same as MI-19313-1H except both flanges and expansion joint are omitted.

MI-19313-1-SFH TRANSMISSION LINE

Same as MI-19313-1H except one of the two flanges is a swivel flange.

MI-19313-2 90° MITRE ELBOW

A 90 degree Mitre Elbow having unequal-length legs with swivel flanges which provide any rotational angle. Inner conductor is supported by Teflon insulators. Furnished with two connectors, O-ring gasket and silicon copper hardware.

MI-19313-2-F 90° MITRE ELBOW

Same as MI-19313-2 except the flange is omitted from the short leg.

MI-19313-2-NF 90° MITRE ELBOW

Same as MI-19313-2 except both flanges are omitted.

MI-19313-3 45° MITRE ELBOW

Same as MI-19313-2 except 45°.

MI-19313-3-F 45° MITRE ELBOW

Same as MI-19313-3 except the flange is omitted from the short leg.

MI-19313-3-NF 45° MITRE ELBOW

Same as MI-19313-3 except both flanges are omitted.

MI-19113-C-5 GAS STOP

To be inserted between two flanged sections of line to seal a gassed section from an ungassed section of line.

MI-19314-C-4 REDUCER COUPLING

For connecting 6 $\frac{1}{8}$ " diameter line to 3 $\frac{1}{8}$ " diameter line. Flange type complete with inner conductor, O-ring gasket and hardware.

MI-19313-8 STRAIGHT COUPLING

Used for coupling two sections of unflanged 3 $\frac{1}{8}$ -inch 51.5-ohm line (ungassed). Consists of outer and inner connector and stainless steel clamps.

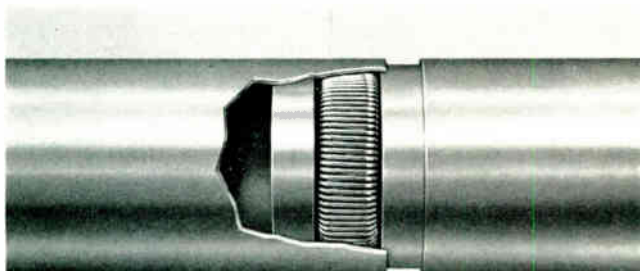
MI-19313-8-NB STRAIGHT COUPLING

Same as MI-19313-8 except inner connector is omitted.

MI-19313-9 INNER CONNECTOR

A solderless inner connector for joining inner conductor of 3 $\frac{1}{8}$ -inch 51.5-ohm MI-19313 Line. (1.282-inch diameter.)

Inner conductor showing built-in expansion joint.

**MI-19313-10 INNER CONNECTOR ADAPTER**

A solderless inner connector for joining the 1.282-inch diameter inner conductor of MI-19313 Teflon line with the 1.200-inch diameter inner conductor of MI-19113-C-1 Steatite insulated line.

MI-19313-11 INSERT BUSHING

Used to reduce the inside diameter of the inner conductor of MI-19313 line to enable it to mate with the inner connector of MI-19113-C-1 Steatite line.

MI-19314-C-13 REDUCER COUPLING (UNGASSED)

Used for reducing from 6 $\frac{1}{8}$ " 51.5-ohm Steatite line to 3 $\frac{1}{8}$ " 51.5-ohm Teflon ungassed line. Outer conductor is made in one piece with a precisely supported inner conductor—provides excellent VSWR characteristic.

MI-19313-39 HOSE CLAMP

Adjustable stainless steel clamp used to secure 3 $\frac{1}{8}$ -inch unflanged line and fittings.

MI-19113-C-6 REDUCER (FLANGED)

A flanged reducer used for reducing from 3 $\frac{1}{8}$ -inch 51.5-ohm line (MI-19313) to 1 $\frac{5}{8}$ -inch 51.5-ohm (MI-19112). Complete with inner conductor and connectors. O-ring gaskets and hardware.

MI-19113-C-7 REDUCER (UNFLANGED)

Used for reducing from 3 $\frac{1}{8}$ -inch 51.5-ohm unflanged MI-19313 line to 1 $\frac{5}{8}$ -inch 51.5-ohm unflanged MI-19112 line.

MI-19113-C-10 O-RING GASKET

A synthetic rubber gasket for use between the flanges of MI-19313 line to make the flanged joints pressure tight.

MI-19113-C-13 COVER PLATE

Used to cap the end of 3 $\frac{1}{8}$ -inch flanged line to keep moisture out during installation, or for temporary capping of the line.

MI-19113-C-19 HARDWARE KIT

Consists of six each Duronze bolts, nuts and lockwashers for use with the flanges of 3 $\frac{1}{8}$ -inch line.

MI-19113-C-20 FIXED FLANGE, SILVER SOLDER TYPE

Used to flange the cut end of MI-19313 line when the original flange has been removed in the field.

MI-19113-C-21 SWIVEL FLANGE, SILVER SOLDER TYPE

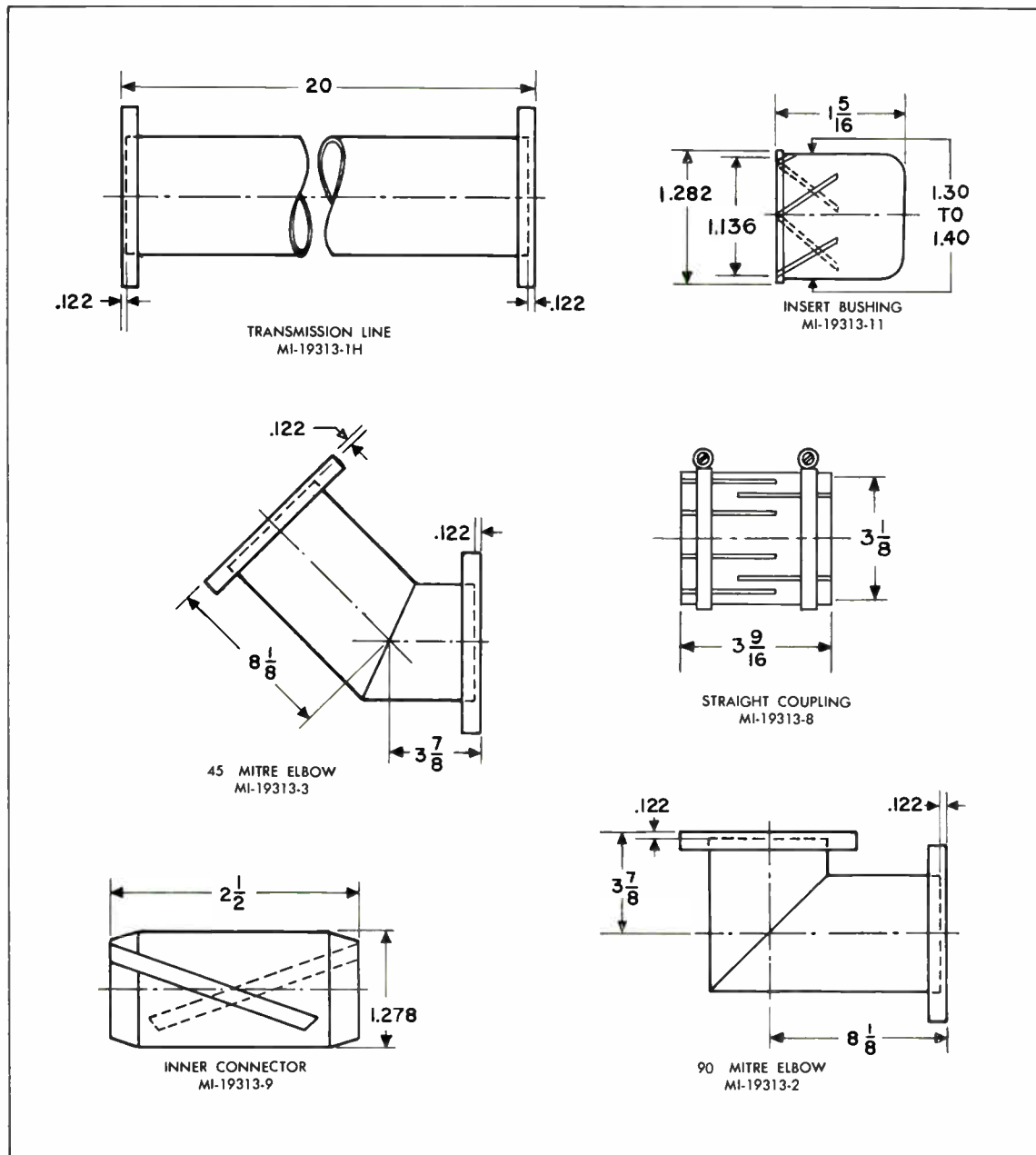
Same as MI-19113-C-20 except flange is free to rotate.

MI-19113-C-51 CUT-OFF GAUGE (INNER CONDUCTOR)

A tool used when cutting and dressing the inner conductor of MI-19313 line when cut in the field.

MI 19313 BEST FOR CHAN 8

OUTLINE DRAWING . . . 3 1/8" 51.5-OHM VHF LINE
(MI-19313)



MI-19113-C-52 REDUCER ADAPTER, FLANGED

Used for reducing from MI-19313 or MI-19113-C coax line to 1 5/8-inch 50-ohm EIA flanged line.

MI-19089-15 CUT-OFF GAUGE (OUTER CONDUCTOR)

A tool used when cutting and dressing the outer conductor of MI-19313 line when cut in the field.

MI-19113-C-55 FIELD FLANGE

Used to flange the cut end of MI-19313 line when the original flange has been removed in the field. Installed by means of soft solder.

MI-19113-C-58 REDUCER (UNFLANGED)

Used for reducing from 3 1/8-inch 51.5-ohm unflanged line to type "N" 51.5-ohm jack. Complete with connector and stainless steel clamp.

MI-19113-C-60 FLANGE TO UNFLANGED ADAPTER

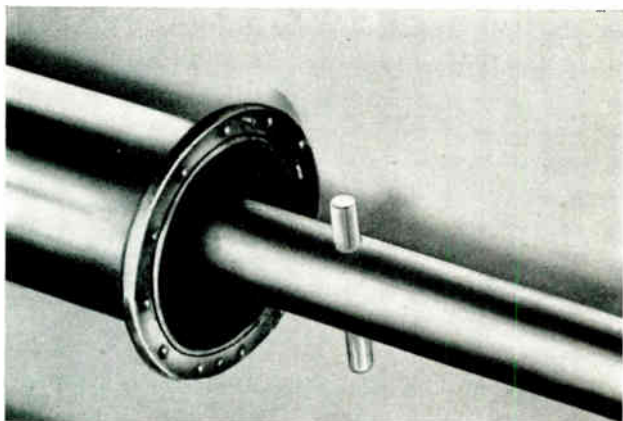
Clamp type adapter used to connect flanged to unflanged outer conductor. For inside use only.

MI-19089-18 SILICON COMPOUND

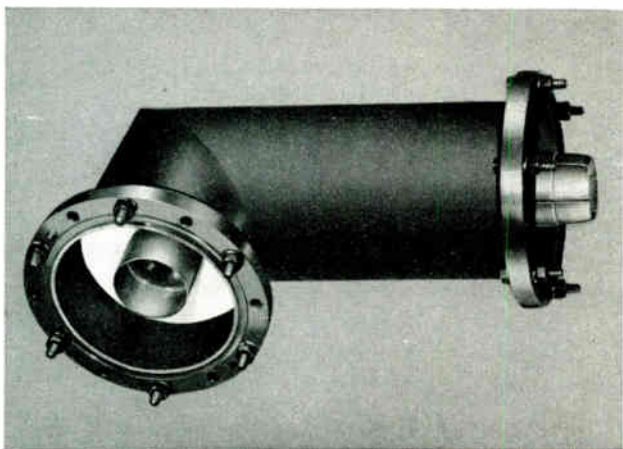
Used to position the O-rings associated with the flanges of MI-19313 line during installation.

See Page 34 for Specifications.

6 1/8" VHF STEATITE 51.5-OHM LINE, MI-19314-C



6 1/8" STEATITE TRANSMISSION LINE, MI-19314-C-1



90° MITRE ELBOW, MI-19314-C-18

DESCRIPTION

RCA 6 1/8" Steatite Coaxial Transmission Line, Type MI-19314-C is a hard-tempered copper line with an impedance of 51.5 ohms. This transmission line has an improved pin centering device and the anchor pin is locked into bosses for positive anchoring of the inner conductor. This permits shipment of the inner conductor assembled inside of the outer conductor. Maximum power 166 kw at 100 mc. Attenuation 0.056 db maximum per 100 feet at 100 mc. This line is supplied with 2 1/2" diameter inner conductor. The inner conductor is supported by ceramic pin-type insulators spaced 12 inches apart and alternately staggered 60 degrees. The large size and low impedance of this line adapts it for use in very high power TV installations. It is particularly suitable for use where the transmission line run is exceptionally long and for use on VHF Channels 2-13.

MI-19314-C-1A TRANSMISSION LINE

A 10-foot length of 6 1/8" 51.5-ohm line with no flanges. For use within the transmitter building.

MI-19314-C-1B TRANSMISSION LINE

A 19-foot length of 6 1/8" 51.5-ohm line with two fixed flanges for use on Channel 10 only.

MI-19314-C-1C TRANSMISSION LINE

Same as MI-19314-C-1B only supplied with 20-foot lengths for use on Channels 2-9 and 11-13 inclusive.

MI-19314-C-1-SF TRANSMISSION LINE

Similar to MI-19314-C-1C except 20-foot lengths with one fixed and one swivel flange.

MI-19314-C-1-BSF TRANSMISSION LINE

Similar to MI-19314-C-1B except 19-foot lengths with one fixed and one swivel flange.

MI-19314-C-1F TRANSMISSION LINE

Similar to MI-19314-C-1C except 20-foot lengths with one fixed flange only.

MI-19314-C-4 REDUCER COUPLING

For connecting 6 1/8" diameter line to 3 1/8" diameter line. Flange type complete with inner conductor, O-ring gasket and hardware.

MI-19314-C-5 INNER CONNECTOR

A connector to couple the 2 1/2" diameter inner conductors of 6 1/8" line.

MI-19314-C-7 STRAIGHT COUPLING

Used for coupling two section of 6 1/8" 51.5-ohm unflanged line. (Not to be used for gassed line.) Consists of outer and inner connectors with stainless steel clamps.

MI-19314-C-8 COVER PLATE

Used to cap the end of 6 1/8" line to keep moisture out during installation, or for other temporary capping of the line.

MI-19314-C-9 O-RING GASKET

A long-life synthetic gasket for use between the flanges to make flanged joints pressure tight.

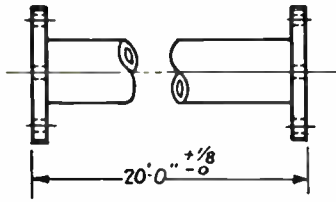
MI-19314-C-10 HARDWARE KIT

Consists of twelve bolts, twelve nuts and twelve lock-washers for 6 1/8" line.

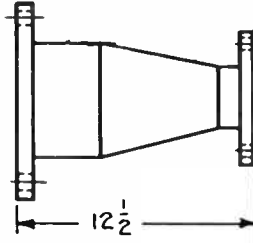
MI-19314-C-11 FLANGE, FIXED

The same flange which is used as an integral part of MI-19314-C Transmission Line. Used for adapting the end of a field-cut-length of line where the original silver-soldered flange has been removed in shortening the line. Installation is made by silver soldering.

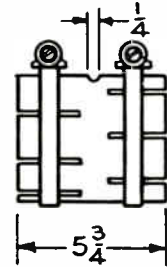
OUTLINE DIMENSIONS . . . 6 1/8" 51.5-OHM VHF LINE
(MI-19314-C)



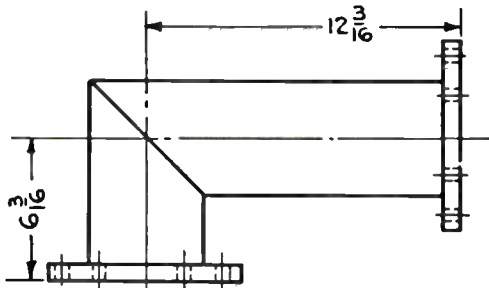
TRANSMISSION LINE
MI-19314-C-1C



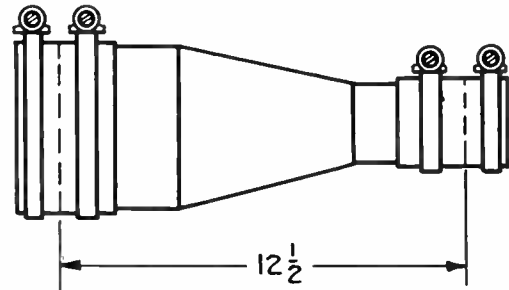
REDUCER (GASSED) 6 1/8-3 1/8
MI-19314-C-4



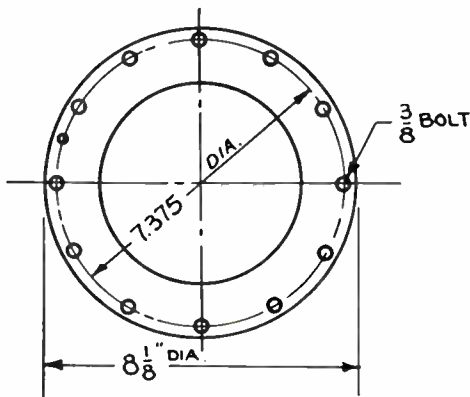
STRAIGHT COUPLING
MI-19314-C-7



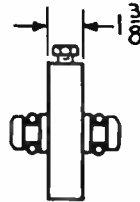
90° MITRE ELBOW
MI-19314-C-18



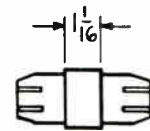
REDUCER (UNGASSED) 6 1/8-3 1/8
MI-19314-C-13



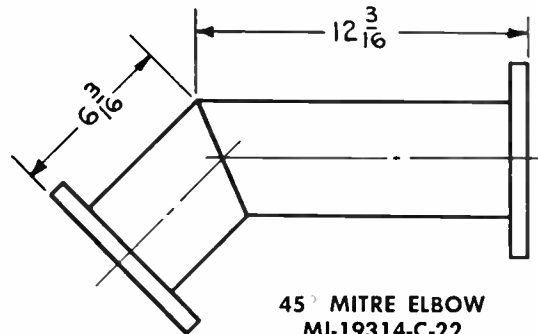
FIXED FLANGE
MI-19314-C-11
OR
SWIVEL FLANGE
MI-19314-C-12



GAS STOP
MI-19314-C-52



INNER CONNECTOR
MI-19314-C-5



45° MITRE ELBOW
MI-19314-C-22

MI-19314-C-12 FLANGE, SWIVEL

Similar to the MI-19314-C-11 flange except free to rotate.

MI-19314-C-13 REDUCER COUPLING (Ungassed)

Used for reducing from 6 $\frac{1}{8}$ " 51.5-ohm Steatite line to 3 $\frac{1}{8}$ " 51.5-ohm Teflon ungassed line. Outer conductor is made in one piece with a precisely supported inner conductor—provides excellent VSWR characteristic.

MI-19314-C-14 ADAPTER, SOLDER TYPE

Used for adapting the end of a field-cut-length of line where the original silver-soldered flange has been removed in shortening the line. Installation is made by soft soldering.

MI-19314-C-16 CUT-OFF GAUGE

A specially designed tool for cutting and dressing the end of a 2.500 diameter inner conductor.

MI-19314-C-18 COUPLING, 90° MITRE ELBOW

A 90° Mitre Elbow having unequal-length legs with swivel flanges providing any rotational angle. Inner conductor is supported by Teflon insulators. Furnished with two connectors, O-ring gasket and silicon copper hardware.

MI-19314-C-18-F COUPLING, 90° MITRE ELBOW

Same as MI-19314-C-18 except with flange omitted on short leg.

MI-19314-C-18-NF COUPLING, 90° MITRE ELBOW

Same as MI-19314-C-18 except both flanges are omitted.

MI-19314-C-22 COUPLING, 45° MITRE ELBOW

A 45° Mitre Elbow having unequal-length legs with swivel flanges providing any rotational angle. Inner conductor is supported by Teflon insulators. Furnished with two connectors, O-ring gasket and silicon copper hardware.

MI-19314-C-22-F COUPLING, 45° MITRE ELBOW

Same as MI-19314-C-22 except with flange omitted on short leg.

MI-19314-C-22-NF COUPLING, 45° MITRE ELBOW

Same as MI-19314-C-22 except both flanges are omitted.

MI-19314-C-23 SPECIAL INNER CONDUCTOR

Used for splicing lengths of line which are cut at points between the supporting insulators (these are spaced 12"). Inner conductor as supplied is 2.532" O.D. x 12 feet long. The special inner conductor will fit inner connector MI-19314-C-5.

MI-19314-C-39 HOSE CLAMP

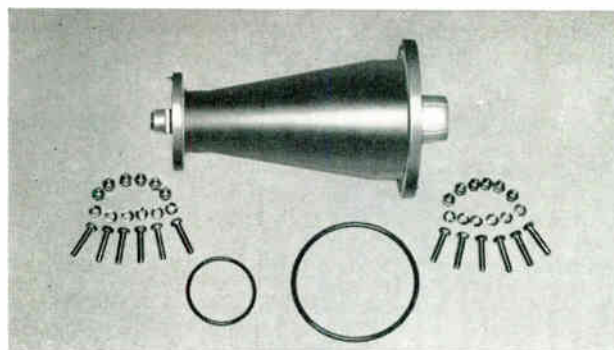
Stainless steel clamp adjustable to 6 $\frac{1}{8}$ " maximum.

MI-19314-C-52 GAS STOP

To be inserted between two flanged sections of line to seal a gassed section from an ungassed section of line.

MI-19314-C-53 TOOL KIT

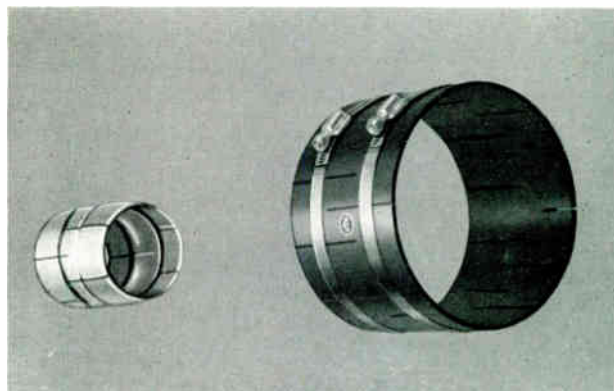
Kit consisting of one Forked Spreader and one $\frac{5}{16}$ " hex "T" wrench 12 $\frac{3}{4}$ " long for adjusting anchor pin assembly of MI-19314-C Steatite Coaxial Transmission Line.



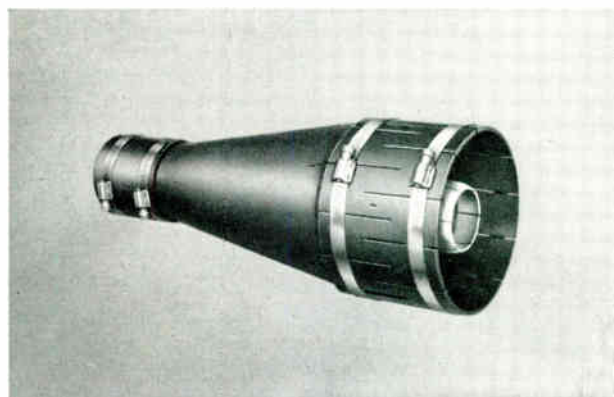
REDUCER COUPLING, MI-19314-C-4



45° MITRE ELBOW, MI-19314-C-22



STRAIGHT COUPLING, MI-19314-C-7



REDUCER COUPLING, MI-19314-C-13

See Page 34 for Specifications.

SPECIFICATIONS

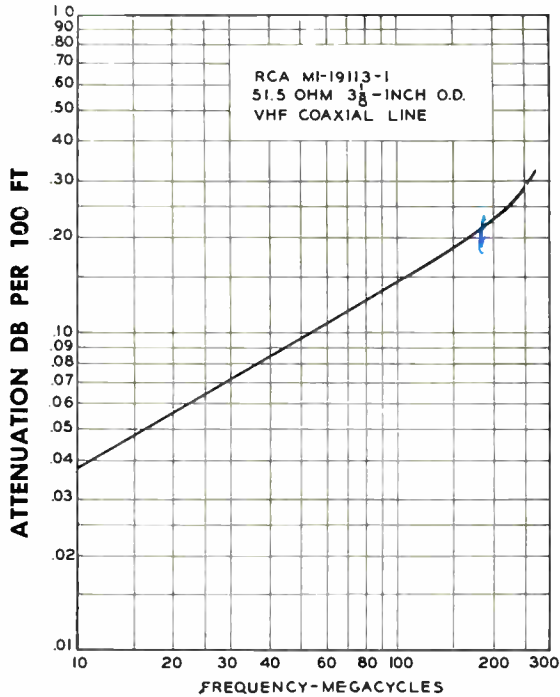
Electrical Specifications

	3/8" Line MI-19113-C	3/8" Line MI-19313	3/8" Line MI-27791-K	6/8" Line MI-19314-C
Characteristic Impedance	51.5 ohms	51.5 ohms	50 ohms	51.5 ohms
Frequency Range	54-108 mc	54-216 mc	54-216 mc	54-216 mc
VSWR, Attenuation & Efficiency, and Power Rating	See Curve and Table	See Curve and Table	See Curve and Table for MI-19313	See Curve and Table
Velocity of Propagation	92.6%	100%	100%	98.7%

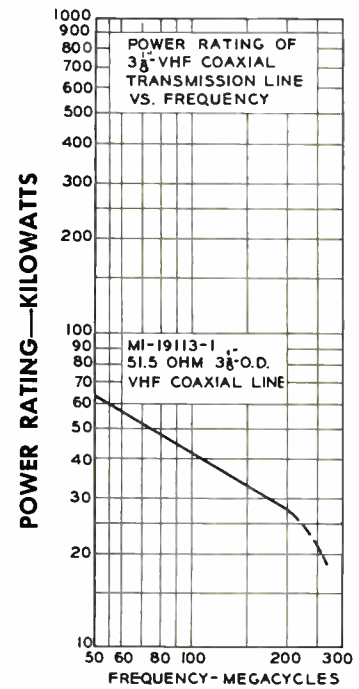
Mechanical Specifications

	3/8" Line MI-19113-C	3/8" Line MI-19313	3/8" Line MI-27791-K	6/8" Line MI-19314-C
Standard Length	20'	20'/19.5'	20'	20' and 19'
Outer Conductor:				
O.D.	3.125"	3.125"	3.125"	6.125"
I.D.	3.027"	3.027"	3.027"	5.981"
Inner Conductor:				
O.D.	1.200"	1.281"	1.315"	2.500"
I.D.	1.136"	1.232"	1.231"	2.435"
Weight (per section) approx.	55 lbs.	55 lbs.	50 lbs.	150 lbs.

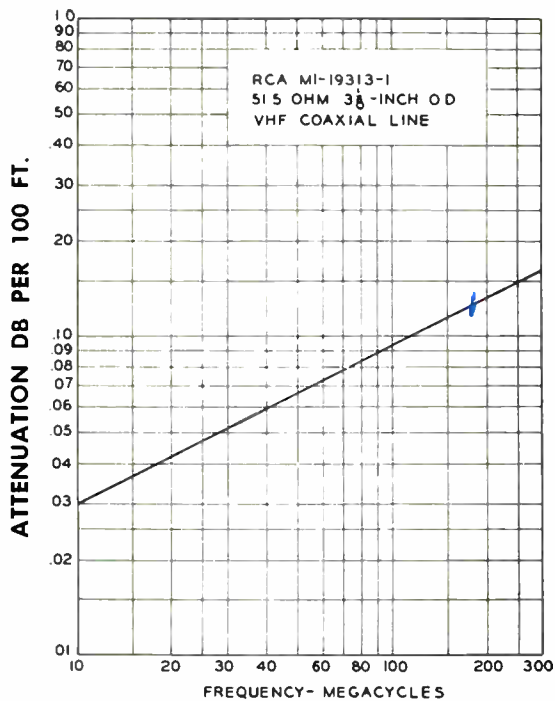
ATTENUATION—3/8" LINE



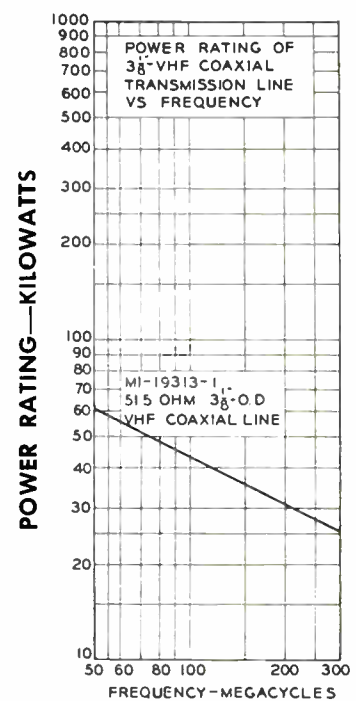
POWER RATING—3/8" LINE



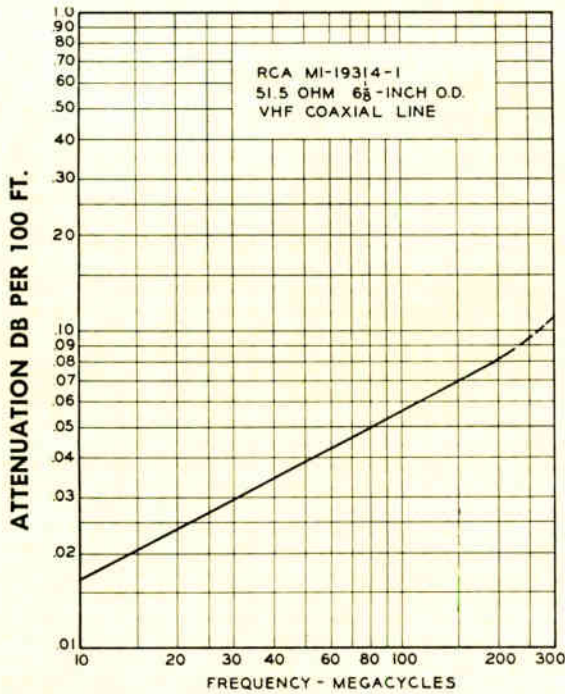
ATTENUATION—3/8" LINE



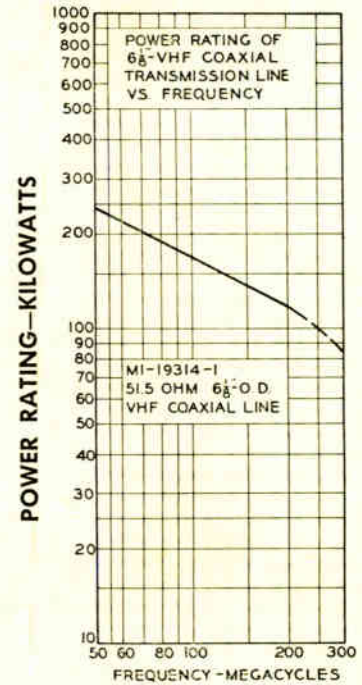
POWER RATING—3/8" LINE



ATTENUATION—6 1/8" LINE



POWER RATING—6 1/8" LINE



3 1/8" VHF TRANSMISSION LINE, MI-19113—EFFICIENCY IN PER CENT

CHANNEL	DB LOSS PER 100 FT.	LENGTH IN FEET													
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	
2	.1018	97.7	95.4	93.2	91.1	88.9	86.9	84.9	82.9	81.0	79.1	75.5	72.0	68.7	
3	.1081	97.5	95.2	92.8	90.5	88.3	86.1	84.0	82.0	79.9	78.0	74.2	70.6	67.2	
4	.1146	97.4	94.9	92.4	90.0	87.6	85.4	83.1	81.0	78.9	76.8	72.9	69.1	65.6	
5	.1246	97.2	94.4	91.8	89.2	86.6	84.2	81.8	79.5	77.2	75.1	70.9	66.9	63.2	
6	.1306	97.0	94.2	91.4	88.7	86.0	83.5	81.0	78.6	76.3	74.0	69.7	65.6	61.8	

6 1/8" VHF TRANSMISSION LINE, MI-19314-C—EFFICIENCY IN PER CENT

CHANNEL	DB LOSS PER 100 FT.	LENGTH IN FEET													
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	
2	.0415	99.1	98.1	97.2	96.3	95.3	94.4	93.5	92.6	91.8	90.9	89.2	87.5	85.8	
3	.0437	99.0	98.0	97.0	96.1	95.1	94.1	93.2	92.3	91.3	90.4	88.6	86.9	85.1	
4	.0459	99.0	97.9	96.9	95.9	94.9	93.9	92.9	91.9	90.9	90.0	88.1	86.2	84.5	
5	.0494	98.9	97.8	96.7	95.6	94.5	93.4	92.3	91.3	90.3	89.3	87.2	85.3	83.4	
6	.0514	98.8	97.7	96.5	95.4	94.2	93.1	92.1	91.0	89.9	88.8	86.8	84.7	82.8	
7	.0761	98.3	96.6	94.9	93.2	91.6	90.0	88.5	86.9	85.4	83.9	81.0	78.3	75.6	
8	.0774	98.2	96.5	94.8	93.1	91.5	89.9	88.3	86.7	85.2	83.7	80.7	77.9	75.2	
9	.0788	98.2	96.4	94.7	93.0	91.3	89.7	88.1	86.5	84.9	83.4	80.4	77.6	74.8	
10	.0801	98.2	96.4	94.6	92.9	91.2	89.5	87.9	86.3	84.7	83.2	80.2	77.2	74.4	
11	.0815	98.2	96.3	94.5	92.8	91.0	89.4	87.7	86.1	84.5	82.9	79.8	76.9	74.1	
12	.0828	98.1	96.3	94.4	92.7	90.9	89.2	87.5	85.9	84.2	82.6	79.6	76.6	73.7	
13	.0840	98.1	96.2	94.4	92.6	90.8	89.0	87.3	85.7	84.0	82.4	79.3	76.3	73.4	

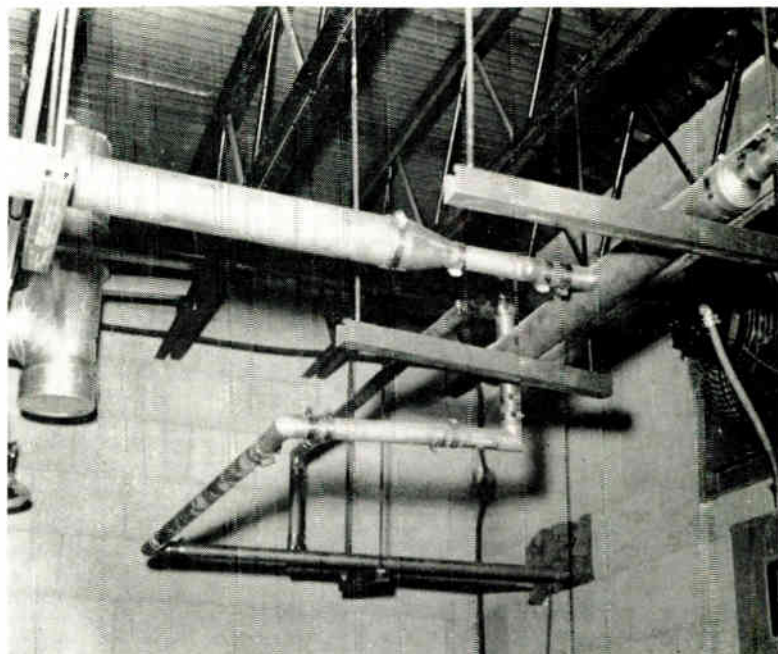
INSTALLATION AND LAYOUT OF TRANSMISSION LINES

Before ordering transmission line or fittings, it is recommended that a dimensioned layout be made of the tower or supporting structure (with antenna mounted), the routing of the transmission line between the tower and transmitter room, and routing of the lines within the transmitter room. This layout will give an idea as to what elbows and fittings will be needed and the length of line required. Reference to layout chart will aid in determining list of items to be ordered. The standard lengths of transmission are 19½' and 20 feet. Shorter lengths may be obtained by ordering the desired length with flanges soldered on at the factory, or a 20-foot section may be cut and a soft solder adaptor used. The RCA MI-19113-C lines have a rolled groove in one end of each of the outer conductors to prevent the inner conductor from moving in one direction. The opposite end is free to permit removal of the inner conductor and insulators, for inspection. The rolled groove supports the end insulator and also the inner conductor when the line is in a vertical position, and this end should always be placed in the lower position to prevent the inner conductor from dropping out. For horizontal runs, rolled groove is placed at alternate joints so that for each two adjacent sections the line is locked in position by the opposing rolled grooves. RCA MI-19313 are similarly installed, but the inner conductor on this line cannot be removed without the aid of special tools. Removal is not recommended.

All RCA lines and fittings that are to be used outdoors should use the flange type line. The unflanged lines may be used inside buildings where gassing may not be necessary or where changes in transmission line connections are frequently made for tests. An O-ring gasket is supplied which fits into a groove of each mating flange of the flanged line. Also included are bolts, lock washers, and nuts made of silicon copper for each coupling. Care must be exercised when placing the gasket in the groove to avoid pinching the gasket. If the gasket is not assembled properly, a pressure leak may result. It is suggested that additional gaskets, bolts, and O-rings should be ordered to replace damage and loss during installation.

The gassed lines should be brought inside the building and connected to a gas stop. Assemble the gas stop with the pipe plug toward the gassed line. From the gas stop to a transmitter, flanged or unflanged line may be used.

There is a wide choice of hangers for supporting the transmission line. See tables, photos and drawings in the Transmission Line and Accessories catalog . . . B.5050. The horizontal run, when it leaves the tower should be spring supported to allow for the differential expansion and contraction between the copper line and the steel tower. The length to be spring supported depends upon the tower height and line size. (See IB-36337 Planning Guide for Transmission Line Systems for details.) A complete selection of these hangers is available. If it is necessary to run a line through a wall or building, make a hole large



View at rear of transmitter showing typical mounting of diplexer and phasing section utilizing 1½" transmission line for construction of phasing section and 3¼" Teflon line in balance of installation.

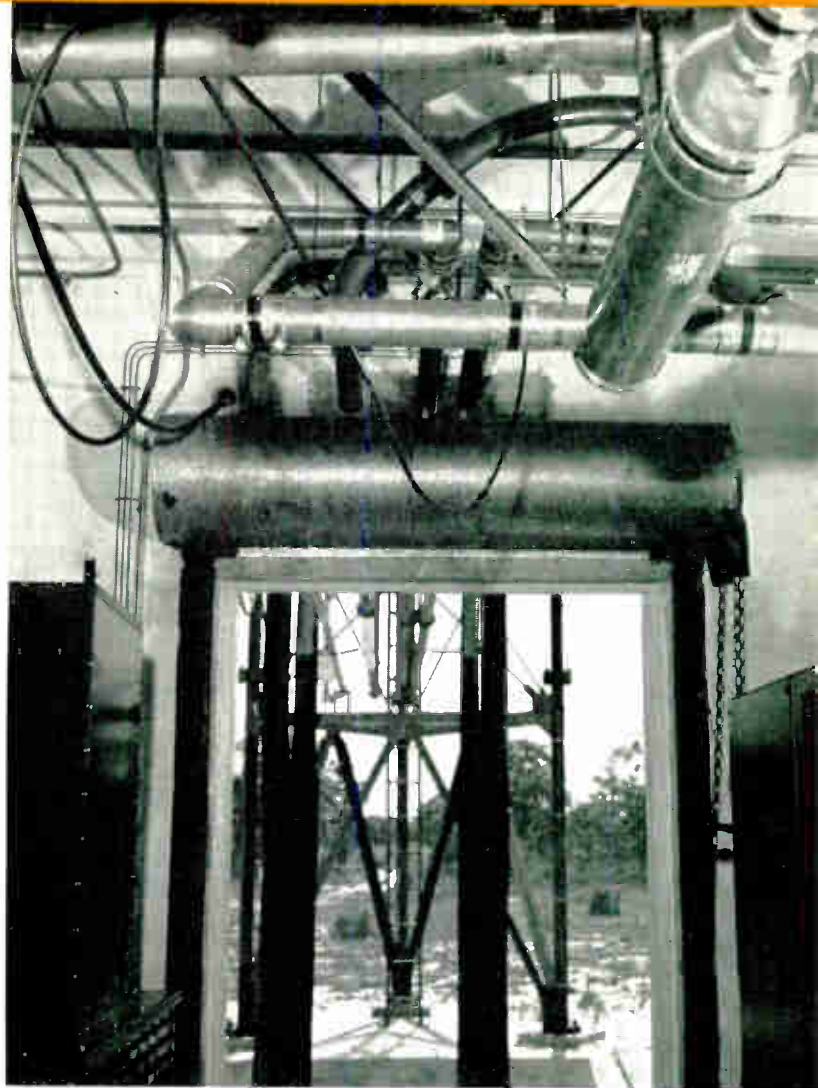
enough to clear the diameter of a transmission line flange and mount MI-19312-17 or -18, MI-19313-17 or -18, MI-19314-48 or MI-27970-35 horizontal anchors on both sides of the wall securing same with bolts. A detailed description for each type hanger is given in the hanger section catalog B.5050.

Do not make up an installation in rainy or stormy weather unless the ends of the transmission line and fittings are protected from moisture. If it is necessary to stop work on an installation, cover both ends of the line to keep water out. If water gets into the line in cold weather, it may freeze and crack the line. This is very important since water can be trapped in low sections of line or antenna harnesses and it is difficult to purge from the line with the result that high standing wave ratios may be set up that will permanently damage the line or antenna. Even at normal temperature, if water gets in the line it is difficult to dry out the line by gas or air pressure. A cover plate, MI-19113-C-13 or MI-19314-C-8, may be used for closing off the line temporarily. After the complete installation, open up a bleeder valve at the antenna end and apply dry gas or dry air under pressure until all moisture has been blown out after which the bleeder valve must be closed. It is advisable to measure the insulation resistance with a voltohmmyst and bleed the line until 80 megohms or more resistance is obtained. Care should be exercised not to drop the transmission line as the insulators may break. Do not bend the line more than that listed in the upper portion of the layout chart.

TV INSTALLATIONS

Bridge diplexers are usually used with TV Super Turnstile Antennas and two transmission lines are used. One line is a quarter wave longer than the other. The quarter wave extra length in one line is usually installed inside the building near the diplexer unit. It is very important to keep the lines exactly the same length to the point of the phasing section. This includes all of the elements in the system such as elbows, reducers, etc. A typical TV installation and a material list appears on the following page. In TV it is mandatory that the MI-19113-C and MI-19314-C transmission lines, if cut, must be cut at the 1-foot interval marks placed on the outer conductor of the line; or if cut at other points, that a special inner conductor be utilized. These precautions are necessary to avoid an increase in standing wave ratio. It is also important that after receipt, the inner conductor be withdrawn and checked for bends and insulators checked for transportation damage. A broken insulator will make a noticeable change in the standing wave ratio. The routing of the TV lines should be designed to keep the number of elbows and reducers at a minimum for the purpose of obtaining lowest possible standing wave ratios.

Typical VHF Transmission Line run from diplexer through building wall to exterior tower. ▶



▼ Exterior transmission line run where ice deflecting canopy safeguards horizontal run against possible falling ice. Transmission line runs to tower should be short as possible and number of elbows held to a minimum.

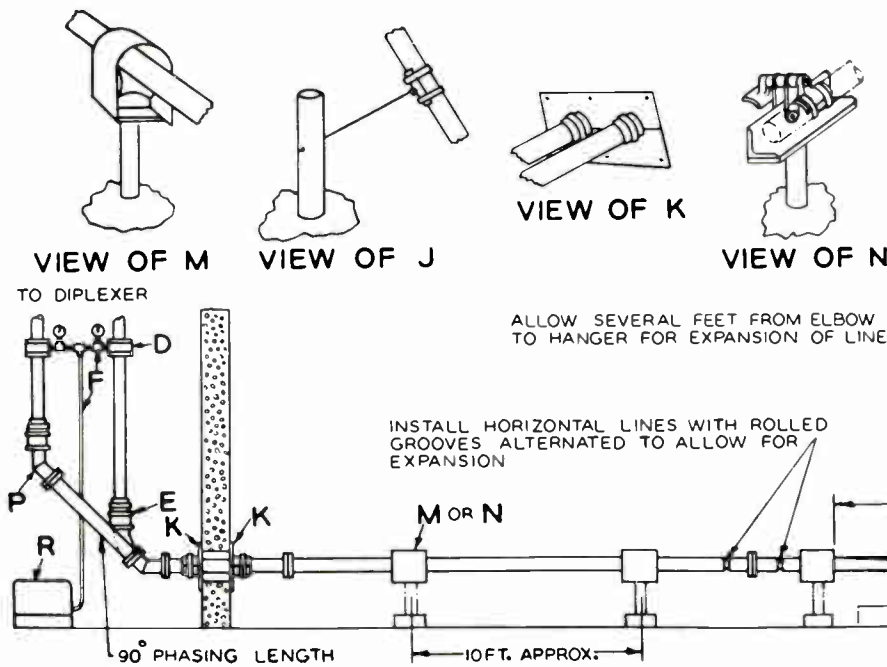
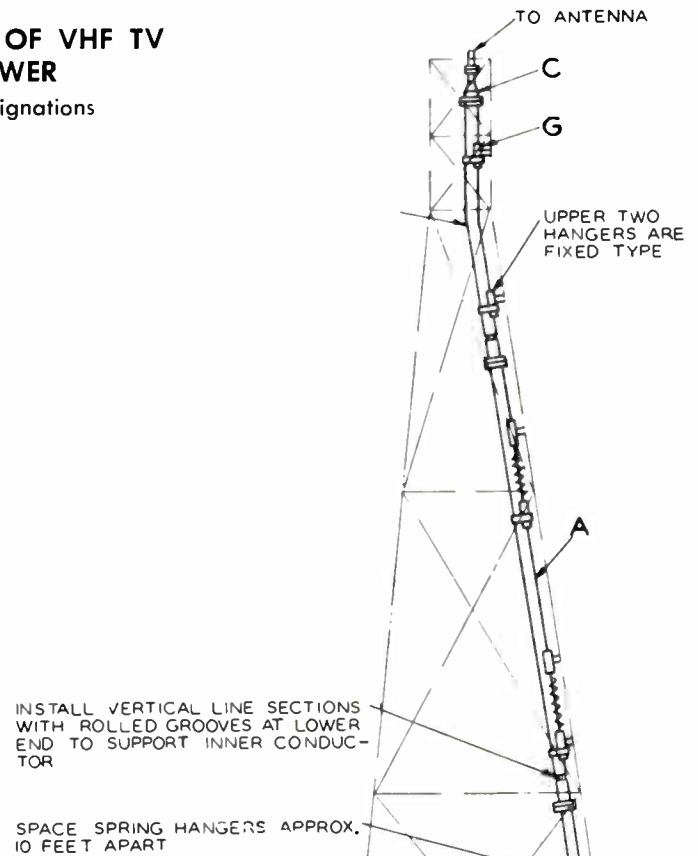


INSTALLATION AND LAYOUT OF TRANSMISSION LINES

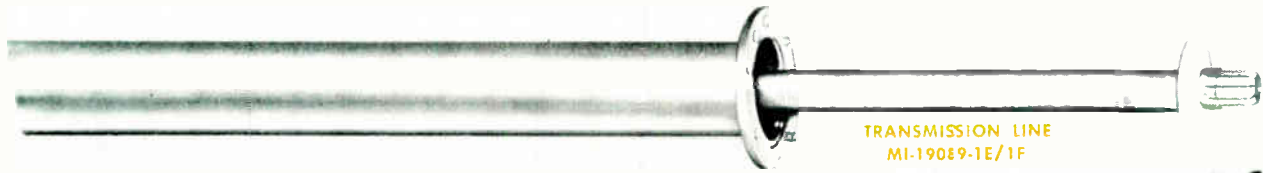
TYPICAL DUAL LINE INSTALLATION OF VHF TV TRANSMISSION LINE ON TOWER

Refer to Table Below for Symbol Designations

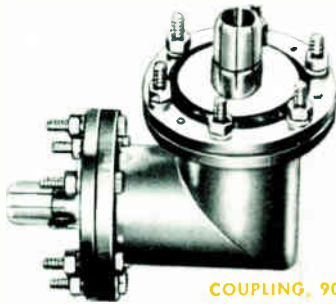
SYMBOL	DESCRIPTION	3/8 DIA. STEATITE	6/8 DIA. MI NO.
A	TRANSMISSION LINE	19113-C-1	19314-C-1C
B	90° ELBOW	19113-C-18	19314-C-18
C	REDUCER 3/8 TO 1/8	19113-C-6	
C	REDUCER 6/8 TO 3/8		19314-C-4
D	GAS STOP	19113-C-5	19314-C-52
E	ADAPTER	19113-C-55	19314-C-4
F	GASSING ACCESSORIES	19113-C-12	19112-12
G	FIXED HANGER	19113-15	
H	SPRING HANGER	19113-14	
J	LATERAL BRACE	19313-36	19314-36
K	HORIZONTAL ANCHOR	19313-18	27970-35
M	ROLLER ASSEMBLY	19313-35	19314-35
N	SWIVEL HANGER	19313-38	
P	45° ELBOW	19113-C-22	19314-C-22
R	DEHYDRATOR	ON APPLICATION	



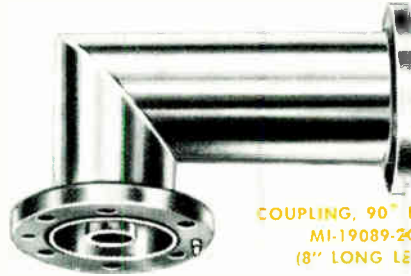
UHF Coaxial Transmission Line



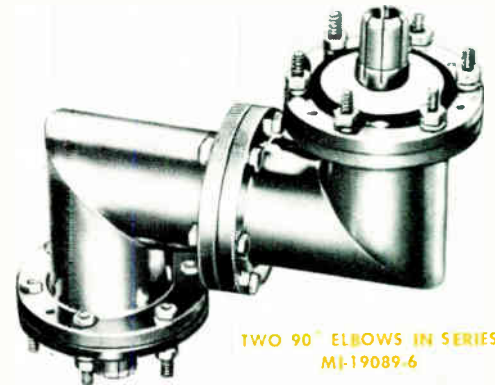
TRANSMISSION LINE
MI-19089-1E/1F



COUPLING, 90° ELBOW
MI-19089-2A



COUPLING, 90° ELBOW
MI-19089-2C
(8" LONG LEG)



TWO 90° ELBOWS IN SERIES
MI-19089-6



O-RING
MI-19113-C-10



SWIVEL FLANGE
MI-19089-12



SEALING CAP
MI-19089-26



ANCHOR INSULATOR
MI-19089-10A



HARDWARE KIT
MI-19113-C-19



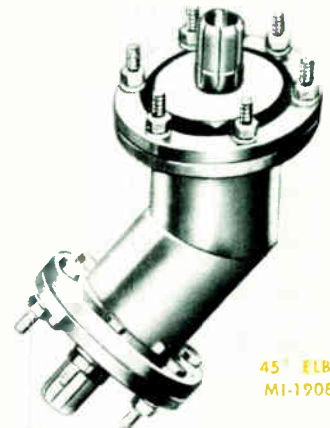
FIXED FLANGE
MI-19089-11



ADAPTER, SOLDER TYPE
MI-19089-14



GAS STOP
MI-19089-4



45° ELBOW
MI-19089-3

FEATURES

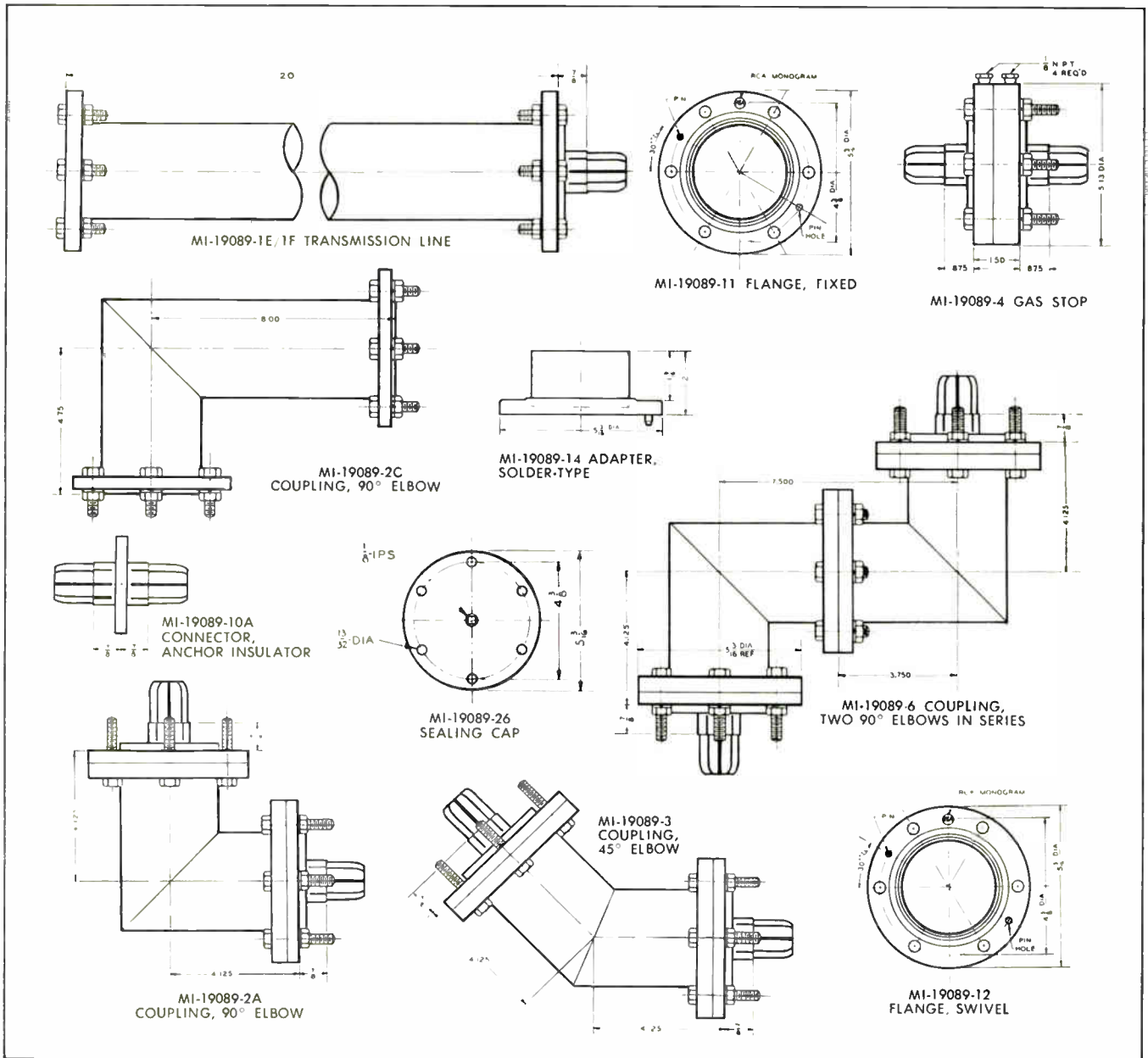
- Maximum stability provided by low loss Teflon dielectric
- Minimum attenuation—maximum efficiency—low standing wave ratio
- Special Teflon insulators permit the line to be cut at any point along its length
- Excellent power handling capability
- Suitable for use in conjunction with waveguide
- New type anchor insulators—easy to disconnect from line
- Complete line of fittings and accessories for installation versatility

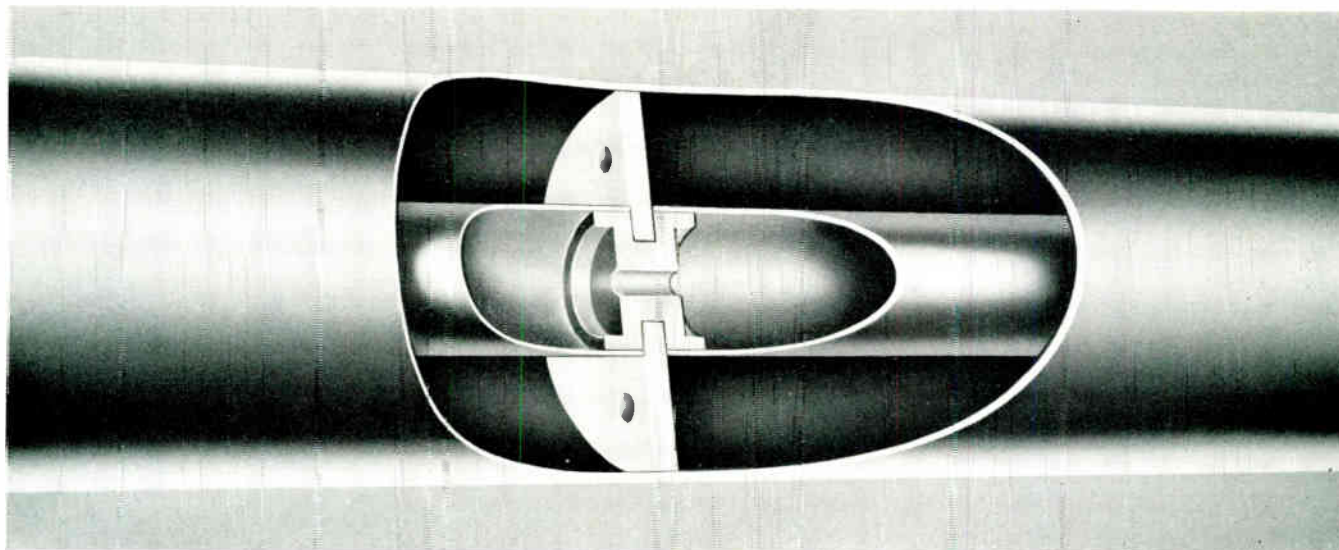
3 1/8" UHF TEFLON 50-OHM LINE, MI-19089

RCA Series MI-19089 3 1/8-inch Teflon 50-ohm Transmission line is used primarily for indoor UHF installations. The transmission line MI-19089-1E and MI-19089-1F is to be used for outdoor replacement of MI-19089-1 only.

MI-19089 Series Line which was developed by RCA employs conductors which are made of high-conductivity, hard-drawn copper tubing. It has the inherent advantages of "flat" characteristic impedance of 50 ohms across a

OUTLINE DRAWINGS . . . 3 1/8" UHF 50-OHM LINE (MI-19089)





The "Electrically Transparent" Teflon undercut support insulator provides precise centering of the inner conductor. Holes shown in dielectric permit gassing of the line.

wide range of frequencies. This is made possible by development of a special Teflon insulator. The inner conductor is undercut so that the effect will have a characteristic impedance equal to the air dielectric portion of the line over the useful operating range. The Teflon insulator is "Electrically Transparent" and introduces no discontinuity or "bump" at the support points. This transparent characteristic avoids a standing wave pattern between insulators; consequently the line may be cut at any reasonable point along its length without changing operating impedance. The revolutionary construction of the special undercut Teflon support and anchor insulators contributes many factors assuring efficiency of the line. Attenuation is held to an absolute minimum. A complete line of fittings and accessories is available from RCA as a single source to provide "matched" equipment for any desired installation including line pressurizing equipment, tower mounting accessories, test and measuring devices.

3 1/8-INCH UHF LINE

MI-19089-1C TRANSMISSION LINE

This line is supplied in 20-foot lengths* with flanges silver-soldered to ends. The line is designed to allow removal of the inner conductor for inspection. Supplied with one "O" ring (MI-19113-10), six 3/8-inch bolts, six nuts and lockwashers. See table for channel length selection.

MI-19089-1D TRANSMISSION LINE

Same as MI-19089-1C except length is 19 1/2 feet. See table for channel length selection.

* May be ordered in lengths less than 20 feet. When ordering transmission line, specify MI-Number and length required.

MI-19089-1E TRANSMISSION LINE

This line is supplied in 20-foot lengths and is furnished with an expansion anchor connector, which is recommended for vertical runs. See table for channel length selection.

MI-19089-1F TRANSMISSION LINE

Same as MI-19089-1E except length is 19 1/2 feet. See table for channel length selection.

MI-19089-2A COUPLING, 90-DEGREE ELBOW

An elbow with swivel flanges for adapting it to any rotational angle. Locked-in connectors at each end provide mechanical stability. Supplied with one "O" ring, twelve 2-inch bolts (locked in), twelve nuts and lockwashers.

MI-19089-2B COUPLING, 90-DEGREE ELBOW

A special adaptation of MI-19089-2A, for connecting to a locked-in male inner connector. Supplied with one "O" ring, six 2-inch bolts (locked in), three 1 3/8-inch bolts, nine nuts and lockwashers. Order for replacement only.

MI-19089-2C COUPLING, 90-DEGREE ELBOW

An elbow with 8-inch long leg and 4 3/4-inch short leg, female connections both ends; supplied with "O" ring, six 1 3/8-inch bolts, nuts and lock washers. No anchor insulators included. If anchor insulator connectors are required, use MI-19089-10A with this elbow.

MI-19089-3 COUPLING, 45-DEGREE ELBOW

Similar to MI-19089-2A except 45 degrees. Supplied with "O" ring and same hardware as MI-19089-2A.

MI-19089-4 GAS STOP

Contains a Teflon insulator with "O" rings locked between two flanges. Can be inserted in transmission line with one or both sides gassed. Supplied with hardware and two gassing ports. Insertion length 1½ inches.

MI-19089-6 COUPLING, TWO 90-DEGREE ELBOWS IN SERIES

Two 90-degree mitre elbows similar to MI-19089-2A made as a unit in series to save assembly time and provide installation versatility. Supplied with one "O" ring and twelve 1¾-inch bolts, nuts and lockwashers used to fasten assembly.

MI-19089-10A CONNECTOR, ANCHOR INSULATOR

A specially designed, solderless connector less locking groove for joining and anchoring the inner conductor of 3¾-inch 50-ohm flanged line.

MI-19089-11 FLANGE, FIXED

The same flange which is used as an integral part of MI-19089-1A Transmission Line. Used for adapting the end of a field-cut-length of line where the original silver-soldered flange has been removed in shortening the line. Installation is made by silver soldering.

MI-19089-12 FLANGE, SWIVEL

Similar to the flange incorporated in MI-19089-11, except flange is free to rotate.

MI-19089-14 ADAPTER, SOLDER-TYPE

Similar to MI-19089-11, except installed by soft-soldering. Made in one piece—bolts not included.

MI-19089-15 CUT-OFF GAUGE

A specially-designed tool for cutting and dressing the end of the outer conductor to insure a precision cut.

MI-19089-16 CUT-OFF GAUGE

Similar to 19089-15 except for use on inner conductor.

MI-19089-17 REDUCER

A cone reducer with a male 3¾-inch 50-ohm connector at one end and a type "N" 50-ohm jack at the other. Supplied with bullet connector at one end and "N" plug connector at other end. Six 2-inch bolts (locked in). Six nuts and lockwashers.

MI-19089-18 SILICON COMPOUND

A special grease used only to facilitate assembly of transmission line joints on horizontal runs.

MI-19089-19 ADAPTER

Type "N" plug to "HN" jack. May be used on MI-19089-17 to adapt type "N" jack to type "HN."

MI-19089-20 PLIERS

Used to remove anchor insulator connector from inner conductor on MI-19089 and MI-19387 Transmission Line.

MI-19089-21 REDUCER

A cone reducer with a 3¾-inch flange 50-ohm less connector on one end and a type "HN" 50-ohm jack at the other.

MI-19089-22 DIRECTIONAL COUPLER MOUNTING ASSEMBLY

A section of 50-ohm 3¾-inch line with flange on both ends. 12½-inch overall length. One anchor insulator connector on one end, with hole for insertion of coupler.

MI-19089-23 EXPANSION JOINT (Field Replacement Kit)

The kit consists of an anchor insulator connector which incorporates an expansion joint. It is designed for use with MI-19089-1A or 1B transmission line.

MI-19089-24 ADAPTER

Female outer conductor, Marmon Type Flange to connect MI-27791-D 3¾-inch Universal to MI-19089 3¾-inch Teflon transmission line.

MI-19089-25 ADAPTER

Male outer conductor, Marmon Type Flange to connect MI-27791-D 3¾-inch Universal to MI-19089 3¾-inch Teflon transmission line.

MI-19089-26 SEALING CAP

Used to cap MI-19089 line to keep moisture out during installation, or for other temporary capping of the line. This cap is designed to be used with captive anchor insulator connector inserted in transmission line.

MI-19089-27 ELBOW

Special 90-degree elbow for use only with TFU-6B Antennas with MI-19089 flange input.

MI-19089-28 ELBOW

Special 90-degree elbow for use only with TFU-6B Antennas with MI-27791-D male outer input.

MI-19089-29 LANCING TOOL

Consisting of anvil and two punches for servicing MI-19089 transmission line.

MI-19089-30CH TRANSFORMER

Reducer/Adapter 75 to 50 ohms, 6¼- to 3¾-inch, MI-27792 Female outer to MI-19089 female inner. Used only on channel 14 to 83 and specify channel on order.

MI-19089-31CH TRANSFORMER

Reducer/Adapter 75 to 50 ohms, 6¼- to 3¾-inch, MI-27792 Male outer to MI-19089 female inner. Use only on channels 14 to 83 and specify channel on order.

MI-19113-C-10 O-RING GASKET

A long-life synthetic rubber gasket for use between the flanges to make flanged joints pressure-tight.

MI-19113-C-13 EMERGENCY COVER PLATE

Used to cap the end of 3¾-inch line to keep moisture out during installation, or for other temporary capping of the line. Cannot be used with line if captive anchor insulator is in place.

MI-19113-C-19 HARDWARE KIT

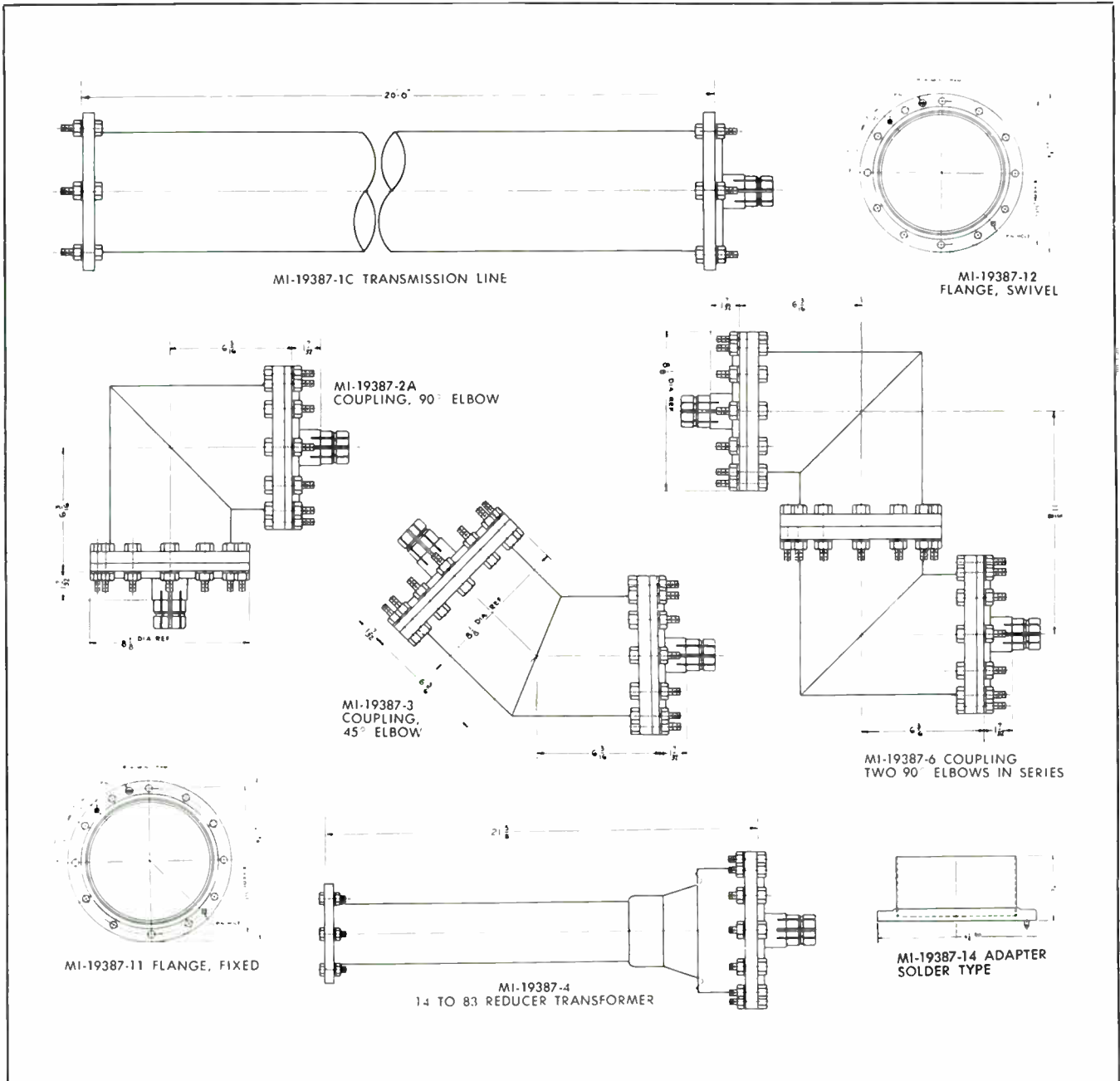
Consists of six bolts, six nuts and six lockwashers for 3¾-inch line.

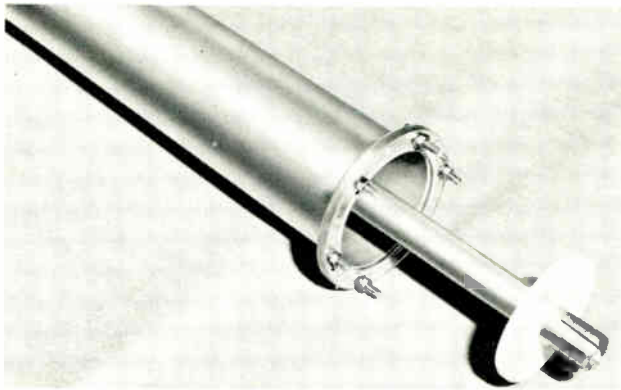
6 1/8" UHF TEFLON 75-OHM LINE, MI-19387

RCA Series MI-19387, 6 1/8-Inch Teflon 75-ohm Transmission Line is used primarily for indoor UHF installations. The transmission line MI-19387-1E and 1F is to be used for outdoor replacements of MI-19387-1 only.

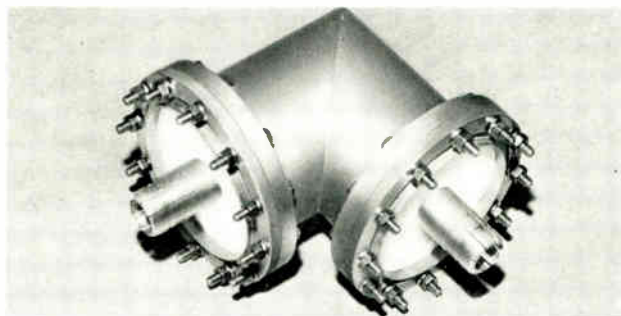
The Basic Design of RCA 6 1/8-inch UHF Transmission Line (MI-19387) is similar to the 3 1/8-inch line (MI-19089). The main differences are size, number of bolts used to secure flanges and the characteristic impedance.

OUTLINE DRAWINGS . . . 6 1/8" UHF 75-OHM LINE (MI-19387)

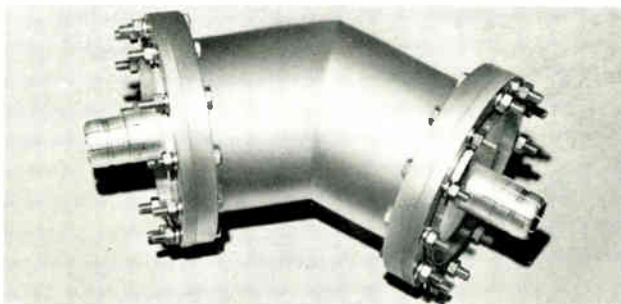




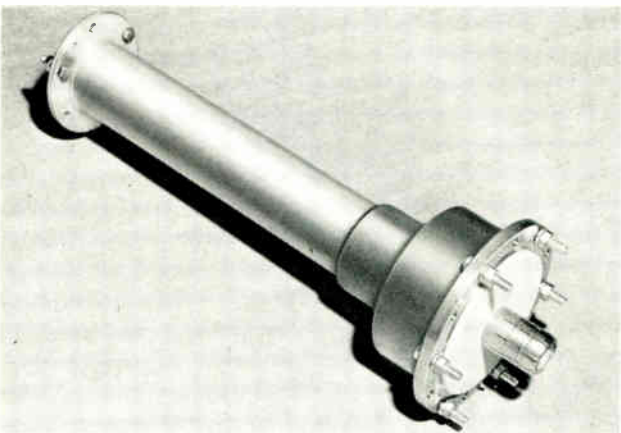
6 1/8" UHF Teflon Transmission Line (MI-19387-1C).



6 1/8" 90° Mitre Elbow Coupling (MI-19387-2A).



6 1/8" 45° Mitre Elbow Coupling (MI-19387-3).



Reducer Transformer (MI-19387-4).

MI-19387-1C TRANSMISSION LINE

This line is supplied in 20-foot lengths* with flanges silver-soldered to ends. The line is designed to allow removing the inner conductor for inspection. Supplied with one "O" ring (MI-19314-C9), twelve 3 1/8-inch by 1 3/4-inch bolts, twelve nuts and lockwashers. See table for channel length selection.

MI-19387-1D TRANSMISSION LINE

Same as MI-19387-1C except length is 19 1/2 feet. See table for channel length selection.

MI-19387-1E TRANSMISSION LINE

This line is supplied in 20-foot lengths and is furnished with an expansion anchor connector which is recommended for high power rated vertical runs. See table for channel length selection.

MI-19387-1F TRANSMISSION LINE

Same as MI-19387-1E except length is 19 1/2 feet. See table for channel length selection.

MI-19387-2A COUPLING, 90-DEGREE ELBOW

Elbow has swivel flanges adapting it to any rotational angle. Locked-in connectors at each end provide mechanical stability. Supplied with one "O" ring, twenty-four 2 1/4-inch bolts (locked in), twenty-four nuts and lockwashers.

MI-19387-2B COUPLING, 90-DEGREE ELBOW

Similar to MI-19387-2A except it uses a connector on one end only. Order for replacement only.

MI-19387-2C COUPLING, 90-DEGREE ELBOW

An elbow with long 12-inch leg and short 7-inch leg, female connections both ends; supplied with "O" ring, twelve 1 3/4-inch bolts (locked in), nuts and lock washers.

MI-19387-3 COUPLING, 45-DEGREE ELBOW

Similar to MI-19387-2A except 45 degrees. Supplied with "O" ring and same hardware as MI-19387-2A.

MI-19387-4, 14 TO 83 REDUCER TRANSFORMER

This transformer is required to couple 6 1/8-inch 75-ohm transmission line (MI-19387-1C or 1D) to 3 1/8-inch 50-ohm line (MI-19089) series line. UHF channel number must be specified when ordering. Supplied with 6 1/8-inch connector only and one "O" ring (MI-19314-C9) in the 6 1/8-inch end. Also three 1 3/8-inch bolts for the 3 1/8-inch end, six 1 3/4-inch bolts for 6 1/8-inch end and nine nuts and lockwashers.

MI-19387-5 GAS STOP

Contains a Teflon insulator with "O" rings locked between two flanges. Can be inserted in transmission line with one or both sides gassed. Supplied with hardware and two gassing ports. Insertion length 2 inches.

* May be ordered in lengths less than 20 feet. When ordering transmission line, specify MI-Number and length required.

MI-19387-6 COUPLING, TWO 90-DEGREE ELBOWS IN SERIES

Two 90-degree mitre elbows similar to MI-19387-2A made as a unit in series to save assembly time and provide installation versatility. Supplied with one "O" ring and same hardware as MI-19387-2A except for twelve additional bolts, nuts and lockwashers used to fasten assembly.

MI-19387-10A CONNECTOR, ANCHOR INSULATOR

A specially designed, solderless connector less locking groove for joining and anchoring the inner conductor of 6 1/8-inch 75-ohm flanged line.

MI-19387-11 FLANGE, FIXED

The same flange which is used as an integral part of MI-19387-1 Transmission Line. Used for adapting the end of a field-cut-length of line where the original silver-soldered flange has been removed in shortening the line. Installation is made by silver soldering.

MI-19387-12 FLANGE, SWIVEL

Similar to the flange incorporated in MI-19387-11, except flange is free to rotate.

MI-19387-14 ADAPTER, SOLDER TYPE

Used for adapting the end of a field-cut-length of 6 1/8-inch line where the original silver soldered flange has been re-

moved in shortening the line. Installation is made by soft soldering. This adaptor flange has a two-inch sleeve which fits over outer conductor for soft soldering purposes, as it is designed to give added strength to the joint.

MI-19387-15 CUT-OFF GAUGE

A specially-designed tool for cutting and dressing the end of the outer conductor to insure a precision cut.

MI-19387-16 CUT-OFF GAUGE

Similar to MI-19387-15 except for use on inner conductor.

MI-19387-20 DIRECTIONAL COUPLER MOUNTING ASSEMBLY

A section of 50-ohm 6 1/8-inch line with flange on both ends, 12 1/8-inch overall length. One anchor insulator connector on one end, with hole for insertion of coupler.

MI-19387-23 EXPANSION JOINT (Field Replacement Kit)

This kit consists of an anchor insulator connector which incorporates an expansion joint. It is designed for use with MI-19387-1A or 1B Transmission Line.

MI-19387-29 LANCING TOOL

Consisting of anvil and two punches for servicing MI-19387 transmission line.

SPECIFICATIONS

Electrical Specifications

	MI-19089 3 1/8" Line	MI-19387 6 1/8" Line
Characteristic Impedance	50 ohms	75 ohms
Frequency Range	470-890 mc	470-890 mc
Attenuation and Efficiency	See Tables	See Tables
Velocity of Propagation	99.8%	99.8%

Mechanical Specifications

Standard Length (see table below)	20 ft. and 19 1/2 ft. 20 ft. and 19 1/2 ft.	
Outer Conductor:		
O.D.	3.125"	6.125"
I.D.	3.027"	5.981"
Inner Conductor:		
O.D.	1.315"	1.711"
I.D.	1.231"	1.661"
Weight (per section, approx.)	54 lbs.	130 lbs.

Type of Connecting Terminals:

Connecting terminals are in accordance with proposed EIA connector standards for 3 1/8-inch O.D., 50-ohm air dielectric coaxial line and 6 1/8-inch O.D., 75-ohm air dielectric coaxial line.

Materials Used in Construction:

Inner and Outer Conductors.....Hard drawn high conductivity copper tubing
 Flanges.....Forged or cast brass
 Inner Connectors.....Tellurium copper and phosphor bronze
 Insulators.....Teflon
 Bolts.....Silicon copper (Duronze)
 "O" Rings.....Neoprene

Shipping:

Transmission Line:
 Four 20 ft. lengths in closed box,
 each length individually supported..... MI-19089-1
 Two 20 ft. lengths in closed box,
 each length individually supported..... MI-19387-1

Other components individually packaged and numbered.

CHANNEL SELECTION TABLE OF LENGTHS

Channels Requiring 20-Foot Sections										Channels Requiring 19 1/2-Foot Sections															
14,	15,	18,	19,	23,	24,	27,	28,	31,	32,	35,	16,	17,	20,	21,	22,	25,	26,	29,	30,	33,	34,	37,	38,		
36,	39,	40,	43,	44,	47,	48,	52,	53,	56,	57,	41,	42,	45,	46,	49,	50,	51,	54,	55,	58,	59,	62,	63,		
60,	61,	64,	65,	68,	69,	72,	73,	77,	80,	81	66,	67,	70,	71,	74,	75,	76,	79,	82,	83					

For Channel 78 Alternate 19 1/2- and 20-Foot Lengths.

3 1/8" UHF TRANSMISSION LINE, MI-19089—EFFICIENCY IN PER CENT

Channel	DB Loss Per 100 Ft.	LENGTH IN FEET													
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600	
14	.220	95.1	90.4	85.9	81.7	77.6	73.8	70.2	66.7	63.4	60.3	54.5	49.2	44.5	
15	.221	95.0	90.3	85.8	81.6	77.5	73.7	70.0	66.6	63.3	60.1	54.3	49.1	44.3	
16	.223	95.0	90.2	85.7	81.4	77.4	73.5	69.8	66.3	63.0	59.8	54.0	48.7	44.0	
17	.225	95.0	90.2	85.6	81.3	77.2	73.3	69.6	66.1	62.7	59.6	53.7	48.4	43.7	
18	.227	94.9	90.1	85.5	81.1	77.0	73.1	69.4	65.8	62.5	59.3	53.4	48.1	43.3	
19	.229	94.9	90.0	85.4	81.0	76.8	72.9	69.1	65.6	62.2	59.0	53.1	47.8	43.0	
20	.230	94.8	90.0	85.3	80.9	76.7	72.8	69.0	65.5	62.1	58.9	53.0	47.6	42.9	
21	.231	94.8	89.9	85.3	80.8	76.7	72.7	68.9	65.3	62.0	58.8	52.8	47.5	42.7	
22	.233	94.8	89.8	85.1	80.7	76.5	72.5	68.7	65.1	61.7	58.5	52.5	47.2	42.4	
23	.234	94.8	89.8	85.1	80.6	76.4	72.4	68.6	65.0	61.6	58.3	52.4	47.0	42.2	
24	.235	94.7	89.7	85.0	80.5	76.3	72.3	68.5	64.9	61.5	58.2	52.2	46.9	42.1	
25	.236	94.7	89.7	85.0	80.5	76.2	72.2	68.4	64.8	61.3	58.1	52.1	46.7	41.9	
26	.237	94.7	89.7	84.9	80.4	76.1	72.1	68.3	64.6	61.2	57.9	52.0	46.6	41.8	
27	.238	94.7	89.6	84.9	80.3	76.0	72.0	68.1	64.5	61.1	57.8	51.8	46.4	41.6	
28	.240	94.6	89.5	84.7	80.2	75.9	71.8	67.9	64.3	60.8	57.5	51.5	46.1	41.3	
29	.241	94.6	89.5	84.7	80.1	75.8	71.7	67.8	64.2	60.7	57.4	51.4	46.0	41.2	
30	.243	94.6	89.4	84.6	80.0	75.6	71.5	67.6	63.9	60.4	57.2	51.1	45.7	40.9	
31	.245	94.5	89.3	84.4	79.8	75.4	71.3	67.4	63.7	60.2	56.9	50.8	45.4	40.6	
32	.247	94.5	89.3	84.3	79.7	75.3	71.1	67.2	63.5	60.0	56.6	50.5	45.1	40.3	
33	.249	94.4	89.2	84.2	79.5	75.1	70.9	67.0	63.2	60.0	56.4	50.3	44.8	40.0	
34	.251	94.4	89.1	84.1	79.4	74.9	70.7	66.7	63.0	59.4	56.1	50.0	44.5	40.0	
35	.253	94.3	89.0	84.0	79.2	74.7	70.5	66.5	62.8	59.2	55.9	49.7	44.2	39.4	
36	.255	94.3	88.9	83.9	79.1	74.6	70.3	66.3	62.5	59.0	55.6	49.4	43.9	39.1	
37	.259	94.2	88.8	83.6	78.8	74.2	69.9	65.9	62.1	58.5	55.1	48.9	43.4	38.5	
38	.262	94.1	88.6	83.4	78.6	74.0	69.6	65.6	61.8	58.1	54.7	48.5	43.0	38.1	
39	.264	94.1	88.6	83.3	78.4	73.8	69.4	65.3	61.5	57.9	54.5	48.2	42.7	37.8	
40	.266	94.1	88.5	83.2	78.3	73.6	69.3	65.1	61.3	57.6	54.2	48.0	42.4	37.5	
41	.268	94.0	88.4	83.1	78.1	73.5	69.1	64.9	61.0	57.4	54.0	47.7	42.2	37.3	
42	.270	94.0	88.3	83.0	78.0	73.3	68.9	64.7	60.8	57.2	53.7	47.4	41.9	37.0	
43	.273	93.9	88.2	82.8	77.8	73.0	68.6	64.4	60.5	56.8	53.3	47.0	41.5	36.6	
44	.276	93.8	88.1	82.6	77.6	72.8	68.3	64.1	60.1	56.4	53.0	46.6	41.1	36.2	
45	.279	93.8	87.9	82.5	77.3	72.5	68.0	63.8	59.8	56.1	52.6	46.3	40.7	35.8	
46	.281	93.7	87.9	82.4	77.2	72.4	67.8	63.6	59.6	55.9	52.4	46.0	40.4	35.5	
47	.284	93.7	87.7	82.2	77.0	72.1	67.5	63.3	59.3	55.5	52.0	45.6	40.0	35.1	
48	.286	93.6	87.7	82.1	76.8	71.9	67.4	63.1	59.1	55.3	51.8	45.4	40.0	34.9	

3 1/8" UHF TRANSMISSION LINE, MI-19089—EFFICIENCY IN PER CENT (Cont'd)

Channel	DB Loss Per 100 Ft.	LENGTH IN FEET												
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600
49	.289	93.6	87.5	81.9	76.6	71.7	67.1	62.8	58.7	54.9	51.4	45.0	39.4	34.5
50	.292	93.5	87.4	81.7	76.4	71.5	66.8	62.5	58.4	54.6	51.1	44.6	39.0	34.1
51	.295	93.4	87.3	81.6	76.2	71.2	66.5	62.2	58.1	54.3	50.7	44.3	38.6	33.7
52	.298	93.4	87.2	81.4	76.0	71.0	66.3	61.9	57.8	53.9	50.3	43.9	38.3	33.4
53	.302	93.3	87.0	81.2	75.7	70.6	65.9	61.5	57.3	53.5	49.9	43.4	37.8	32.9
54	.306	93.2	86.7	81.0	75.4	70.3	65.5	61.1	56.9	53.0	49.4	42.9	37.3	32.4
55	.309	93.1	86.7	80.8	75.2	70.1	65.3	60.8	56.6	52.7	49.1	42.6	36.9	32.0
56	.312	93.1	86.6	80.6	75.0	69.8	65.0	60.5	56.3	52.4	48.8	42.2	36.6	31.7
57	.314	93.0	86.5	80.5	75.9	69.7	64.8	60.3	56.1	52.2	48.5	42.0	36.3	31.5
58	.317	93.0	86.4	80.3	74.7	69.4	64.5	60.0	55.8	51.8	48.2	41.7	36.0	31.1
59	.320	92.9	86.3	80.2	74.5	69.2	64.3	59.7	55.5	51.5	47.9	41.3	35.7	30.8
60	.323	92.8	86.2	80.0	74.3	69.0	64.0	59.4	55.2	51.2	47.5	41.0	35.3	30.4
61	.326	92.8	86.1	79.8	74.1	68.7	63.7	59.1	54.9	50.9	47.2	40.6	35.0	30.1
62	.329	92.7	85.9	79.7	73.9	68.5	63.5	58.8	54.6	50.6	46.9	40.3	34.6	29.8
63	.332	92.6	85.8	79.5	73.7	68.2	63.2	58.6	54.3	50.3	46.6	40.0	34.3	29.4
64	.335	92.6	85.7	79.3	73.5	68.0	63.0	58.3	54.0	50.0	46.3	39.6	34.0	29.1
65	.338	92.5	85.6	79.2	73.3	67.8	62.7	58.0	53.7	49.6	45.9	39.3	33.6	28.8
66	.342	92.4	85.4	79.0	73.0	67.5	62.3	57.6	53.3	49.2	45.5	38.9	33.2	28.4
67	.345	92.4	85.3	78.8	72.8	67.3	62.1	57.4	53.0	48.9	45.2	38.6	32.9	28.1
68	.348	92.3	85.2	78.6	72.6	67.0	61.8	57.1	52.7	48.6	44.9	38.2	32.6	27.8
69	.352	92.2	85.0	78.4	72.3	66.7	61.5	56.7	52.3	48.2	44.5	37.8	32.2	27.3
70	.355	92.2	84.9	78.3	72.1	66.5	61.2	56.4	52.0	47.9	44.2	37.5	31.8	27.0
71	.359	92.1	84.8	78.0	71.8	66.2	60.9	56.1	51.6	47.5	43.8	37.1	31.4	26.6
72	.362	92.0	84.7	77.9	71.7	65.9	60.7	55.8	51.3	47.5	43.5	36.8	31.1	26.4
73	.365	91.9	84.5	77.7	71.5	65.7	60.4	55.5	51.1	46.9	43.2	36.5	30.8	26.1
74	.370	91.8	84.3	77.5	71.1	65.3	60.0	55.1	50.6	46.5	42.7	36.0	30.3	25.6
75	.374	91.8	84.2	77.2	70.9	65.0	59.7	54.8	50.2	46.1	42.3	35.6	30.0	25.2
76	.378	91.7	84.0	77.0	70.6	64.7	59.3	54.4	49.8	45.7	41.9	35.2	29.6	24.8
77	.382	91.6	83.9	76.8	70.3	64.4	59.0	54.0	49.5	45.3	41.5	34.8	29.2	24.5
78	.386	91.5	83.7	76.6	70.1	64.1	58.7	53.7	49.1	44.9	41.1	34.4	28.8	24.1
79	.390	91.4	83.6	76.4	69.8	63.8	58.3	53.3	48.8	44.6	40.7	34.0	28.4	23.8
80	.394	91.3	83.4	76.2	69.6	63.5	58.0	53.0	48.4	44.2	40.4	33.7	28.1	23.4
81	.398	91.2	83.3	76.0	69.3	63.2	57.7	52.7	48.0	43.8	40.0	33.3	27.7	23.1
82	.402	91.2	83.1	75.8	69.1	63.0	57.4	52.3	47.7	43.5	39.6	32.9	27.4	22.7
83	.406	91.1	83.0	75.6	68.8	62.7	57.1	51.9	47.3	43.1	39.3	32.6	27.0	22.4

6 1/8" UHF TRANSMISSION LINE, MI-19387—EFFICIENCY IN PER CENT

Channel	DB Loss Per 100 Ft.	LENGTH IN FEET												
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600
14	.102	97.7	95.4	93.2	91.0	88.9	86.9	84.8	82.9	81.0	79.1	75.4	72.0	68.7
15	.102	97.7	95.4	93.2	91.0	88.9	86.8	84.8	82.9	81.0	79.1	75.4	72.0	68.7
16	.103	97.7	95.4	93.1	91.0	88.8	86.7	84.7	82.7	80.8	78.9	75.2	71.8	68.4
17	.104	97.6	95.3	93.1	90.9	88.7	86.6	84.6	82.6	80.6	78.7	75.0	71.5	68.2
18	.105	97.6	95.3	93.0	90.8	88.6	86.5	84.4	82.4	80.4	78.5	74.8	71.3	67.9
19	.106	97.6	95.2	92.9	90.7	88.5	86.4	84.3	82.3	80.3	78.4	74.6	71.1	67.7
20	.107	97.6	95.2	92.9	90.6	88.4	86.3	84.2	82.1	80.1	78.2	74.4	70.8	67.4
21	.108	97.5	95.2	92.8	90.5	88.3	86.1	84.0	82.0	80.0	78.0	74.2	70.6	67.2
22	.109	97.5	95.1	92.8	90.5	88.2	86.0	83.9	81.8	79.8	77.8	74.0	70.4	66.9
23	.110	97.5	95.1	92.7	90.4	88.1	85.9	83.8	81.7	79.6	77.6	73.8	70.2	66.7
24	.111	97.5	95.0	92.6	90.3	88.0	85.8	83.6	81.5	79.4	77.5	73.6	70.0	66.4
25	.112	97.5	95.0	92.6	90.2	87.9	85.7	83.5	81.4	79.3	77.3	73.4	69.7	66.2
26	.113	97.4	94.9	92.5	90.1	87.8	85.5	83.4	81.2	79.1	77.1	73.2	69.5	66.0
27	.113	97.4	94.9	92.5	90.1	87.8	85.5	83.4	81.2	79.1	77.1	73.2	69.5	66.0
28	.114	97.4	94.9	92.4	90.0	87.7	85.4	83.2	81.1	79.0	76.9	73.0	69.3	65.7
29	.116	97.4	94.8	92.3	89.9	87.5	85.2	83.0	80.8	78.6	76.6	72.6	68.8	65.2
30	.117	97.3	94.8	92.3	90.0	87.4	85.1	82.8	80.6	78.5	76.4	72.4	68.6	65.0
31	.118	97.3	94.7	92.2	89.7	87.3	85.0	82.7	80.5	78.3	76.2	72.2	68.4	64.7
32	.119	97.3	94.7	92.1	89.6	87.2	84.8	82.6	80.3	78.1	76.0	72.0	68.2	64.5
33	.119	97.3	94.7	92.1	89.6	87.2	84.8	82.6	80.3	78.1	76.0	72.0	68.2	64.5
34	.120	97.3	94.6	92.1	89.5	87.1	84.7	82.4	80.2	78.0	75.9	71.8	67.9	64.3
35	.121	97.3	94.6	92.0	89.5	87.0	84.6	82.3	80.0	77.8	75.7	71.6	67.7	64.0
36	.122	97.2	94.5	91.9	89.4	86.9	84.5	82.2	80.0	77.7	75.5	71.4	67.5	63.8
37	.123	97.2	94.5	91.9	89.3	86.8	84.4	82.0	79.7	77.5	75.3	71.2	67.3	63.6
38	.124	97.2	94.5	91.8	89.2	86.7	84.3	81.9	79.6	77.3	75.2	71.0	67.1	63.3
39	.125	97.2	94.4	91.7	89.1	86.6	84.1	81.8	79.4	77.2	75.0	70.8	66.8	63.1
40	.127	97.1	94.3	91.6	89.0	86.4	83.9	81.5	79.1	76.9	74.6	70.4	66.4	62.6
41	.128	97.1	94.3	91.5	88.9	86.3	83.8	81.4	79.0	76.7	74.0	70.2	66.2	62.4
42	.129	97.1	94.2	91.5	88.8	86.2	83.7	81.2	78.9	76.5	74.3	70.0	66.0	62.2
43	.130	97.1	94.2	91.4	88.7	86.1	83.6	81.1	78.7	76.4	74.1	69.8	65.8	61.9
44	.131	97.0	94.1	91.4	88.6	86.0	83.4	81.0	78.6	76.2	74.0	69.6	65.6	61.7
45	.132	97.0	94.1	91.3	88.5	85.9	83.3	80.8	78.4	76.1	73.8	69.4	65.3	61.5
46	.133	97.0	94.1	91.2	88.5	85.8	83.2	80.7	78.3	75.9	73.6	69.3	65.1	61.3
47	.134	97.0	94.0	91.2	88.4	85.7	83.1	80.6	78.1	75.8	73.5	69.1	64.9	61.0
48	.135	96.9	94.0	91.1	88.3	85.6	83.0	80.4	78.0	75.6	73.3	68.9	64.7	60.8

6 1/8" UHF TRANSMISSION LINE, MI-19387—EFFICIENCY IN PER CENT (Cont'd)

Channel	DB Loss Per 100 Ft.	LENGTH IN FEET												
		100	200	300	400	500	600	700	800	900	1000	1200	1400	1600
49	.136	96.9	93.9	91.0	88.2	85.5	82.9	80.3	77.8	75.4	73.1	68.7	64.5	60.6
50	.137	96.9	93.9	91.0	88.1	85.4	82.8	80.2	77.7	75.3	72.9	68.5	64.3	60.4
51	.138	96.9	93.8	90.9	88.1	85.3	82.6	80.1	77.6	75.1	72.8	68.3	64.1	60.2
52	.140	96.8	93.8	90.8	87.9	85.1	82.4	79.8	77.3	74.8	72.4	67.9	63.7	59.7
53	.141	96.8	93.7	90.7	87.8	85.0	82.3	79.7	77.1	74.7	72.3	67.7	63.5	59.5
54	.143	96.8	93.6	90.6	87.7	84.8	82.1	79.4	76.8	74.4	71.9	67.4	63.1	59.1
55	.144	96.7	93.6	90.5	87.6	84.7	82.0	79.3	76.7	74.2	71.8	67.2	62.9	58.8
56	.145	96.7	93.5	90.5	87.5	84.6	81.9	79.2	76.6	74.1	71.6	67.0	62.7	58.6
57	.147	96.7	93.5	90.3	87.3	84.4	81.6	79.0	76.3	73.8	71.3	66.6	62.3	58.2
58	.148	96.7	93.4	90.3	87.3	84.3	81.5	78.8	76.1	73.6	71.1	66.4	62.1	58.0
59	.150	96.6	93.3	90.2	87.1	84.1	81.3	78.5	75.9	73.3	70.8	66.1	61.7	57.5
60	.151	96.6	93.3	90.1	87.0	84.0	81.7	78.4	75.7	73.1	70.6	65.9	61.5	57.3
61	.153	96.5	93.2	90.0	86.9	83.9	80.0	78.1	75.4	72.8	70.3	65.5	61.1	56.9
62	.155	96.5	93.1	89.9	86.7	83.7	80.7	77.9	75.2	72.5	70.0	65.2	60.7	56.5
63	.157	96.5	93.0	89.7	86.5	83.5	80.5	77.7	74.9	72.2	69.7	64.8	60.3	56.1
64	.159	96.4	92.9	89.6	86.4	83.3	80.3	77.4	74.6	71.9	69.3	64.5	59.9	55.7
65	.161	96.4	92.9	89.5	86.2	83.1	80.1	77.1	74.3	71.6	69.0	64.1	59.5	55.3
66	.162	96.3	92.8	89.4	86.1	83.0	80.0	77.0	74.2	71.5	68.9	63.9	59.3	55.1
67	.164	96.3	92.7	89.3	86.0	82.8	79.7	76.8	73.9	71.2	68.6	63.6	58.9	54.7
68	.165	96.3	92.7	89.2	85.9	82.7	79.6	76.7	73.8	71.0	68.4	63.4	58.8	54.5
69	.167	96.2	92.6	89.1	85.7	82.5	79.4	76.4	73.5	70.8	68.1	63.0	58.4	54.1
70	.169	96.2	92.5	89.0	85.6	82.3	79.2	76.2	73.3	70.5	67.8	62.7	58.0	53.7
71	.172	96.1	92.4	88.8	85.4	82.0	78.9	75.8	72.8	70.0	67.3	62.2	57.4	53.1
72	.175	96.1	92.3	88.6	85.1	81.8	78.5	75.4	72.4	69.6	66.8	61.7	56.9	52.5
73	.178	96.0	92.1	88.4	84.9	81.5	78.2	75.1	72.1	69.2	66.4	61.2	56.3	51.9
74	.180	95.9	92.1	88.3	84.7	81.3	78.0	74.8	71.8	68.9	66.1	60.8	56.0	51.5
75	.182	95.9	92.0	88.2	84.6	81.1	77.8	74.6	71.5	68.6	65.8	60.5	55.6	51.2
76	.185	95.9	91.8	88.0	84.3	80.8	77.5	74.2	71.1	68.2	65.3	59.9	55.1	50.6
77	.188	95.8	91.7	87.8	84.1	80.5	77.1	73.9	70.7	67.7	64.8	59.5	54.6	50.0
78	.191	95.7	91.6	87.6	83.9	80.2	76.8	73.5	70.3	67.3	64.4	59.0	54.0	49.5
79	.195	95.6	91.4	87.4	83.6	79.9	76.4	73.0	69.8	66.7	63.8	58.3	53.3	48.8
80	.199	95.5	91.2	87.2	83.3	79.5	76.0	72.6	69.3	66.2	63.2	57.7	52.7	48.0
81	.203	95.4	91.1	86.9	83.0	79.2	75.6	72.1	68.8	65.7	62.7	57.1	52.0	47.3
82	.207	95.4	90.9	86.7	82.6	78.8	75.1	71.6	68.3	65.1	62.1	56.4	51.3	46.6
83	.210	95.3	90.8	86.5	82.4	78.5	74.8	71.3	67.9	64.7	61.7	56.0	50.8	46.1

TV Transmission Line Hangers



FEATURES

- Hangers available for any Television transmission line mounting requirements
- Designed for maximum ease of installation
- Materials used for construction resist deterioration from weather
- Sturdy rugged construction assures permanent, reliable installation
- Other accessories such as horizontal roller supports, horizontal anchors, lateral braces, indoor hanger kits, etc., afford a complete "matched" installation

USES

RCA's complete line of Television Transmission Line Hangers offers maximum flexibility, efficiency and economy in meeting modern needs in supporting transmission line runs whether on the tower or in the horizontal run from transmitter to tower. Installation engineers have carefully selected a representative line of fixed and expansion type hangers including special miscellaneous type accessories and convenient indoor mounting kits needed for a workable and versatile transmission system.

Hangers are available for any television transmission line mounting requirement of either VHF or UHF broadcast stations. The hangers are designed for maximum ease of installation, and all materials used for construction resist deterioration from weather conditions. Their sturdy, rugged construction assures permanent, reliable installation.

DESCRIPTION

RCA has a complete line of hangers designed for 1 $\frac{5}{8}$ ", 3 $\frac{1}{8}$ ", 6 $\frac{1}{8}$ " and 9 $\frac{3}{8}$ " diameter TV transmission lines. There are hangers for mounting both single and dual lines either vertically or horizontally to flat members, pipes, or angular members. These hangers consist of several general types, i.e., spring suspended expansion hangers (which permit differential thermal expansion of the line and tower), swivel hangers which provide for either horizontal or vertical mounting of the line, and lateral braces and direct mounting anchors. Of these there are short hangers for close mounting, long hangers to provide additional clearance, and insulated as well as noninsulated types. The direct mounting type of hanger requires drilling of a hole in the mounting surface, but no drilling is required for the other types.

FIXED HANGERS FOR SINGLE LINE



(CLAMP ON ROUND MEMBERS)
 MI-19312-41-1 $\frac{1}{8}$
 MI-19312-42-3 $\frac{1}{8}$
 MI-19313-41-3 $\frac{1}{8}$
 MI-19313-42-3 $\frac{1}{8}$



(MOUNT THROUGH HOLE)
 MI-19314-44-6 $\frac{1}{8}$
 MI-27900-44-9 $\frac{3}{8}$



(MOUNT THROUGH HOLE)
 MI-19312-44-1 $\frac{1}{8}$
 MI-19312-47-1 $\frac{1}{8}$
 MI-19313-44-3 $\frac{1}{8}$
 MI-19313-47-3 $\frac{1}{8}$



(CLAMP ON ANGULAR MEMBERS)
 MI-19312-43-1 $\frac{1}{8}$
 MI-19313-43-3 $\frac{1}{8}$

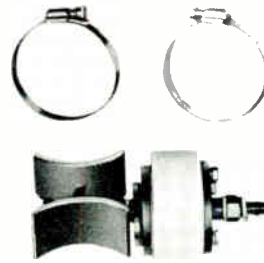


(CLAMP ON FLAT MEMBERS)
 MI-19312-40-1 $\frac{1}{8}$
 MI-19313-40-3 $\frac{1}{8}$

FIXED HANGERS FOR DUAL LINES



(MOUNT THROUGH HOLE)
 MI-19112-15-1 $\frac{1}{8}$
 MI-19113-15-3 $\frac{1}{8}$



(MOUNT THROUGH HOLE)
 MI-19112-49-1 $\frac{1}{8}$
 MI-19113-49-3 $\frac{1}{8}$

DESCRIPTION (Cont.)

A convenient line of inside hanger kits designed to meet special mounting requirements greatly simplifies indoor station installations. Hanger Kits MI-27700 and MI-27701 are designed for overhead mounting of 3 1/8" and 6 1/8" line respectively. MI-27702 is a bracket type kit for wall mounting of transmission line. Other kits meet special mounting requirements from metal beams, concrete type walls or ceilings, etc.

The instructions supplied with each spring-suspension hanger should be closely followed for proper installation.

The practice is to space the hangers at approximate 10-foot intervals. The line section at the tower top is firmly secured by two fixed hangers, and the lower sections are suspended by spring hangers to allow for differential thermal expansion.

Descriptive information on individual fixed, expansion and miscellaneous type hangers is provided in the following tables where other pertinent information, including ordering information is set forth. Pictures of each type hanger and outline drawing keyed to the tables should be consulted.

DESCRIPTIONS AND SPECIFICATIONS FOR FIXED HANGERS

ITEM	DIMENSIONS (inches)			GROUNDED OR INSULATED	Line Size Inches	Capacity	STOCK IDENTIFICATION
	A	B	C				
<p>FIXED HANGERS, CLAMP ON ROUND MEMBERS</p> <p>For fastening 1 line to round member. Supplied with 1 hose clamp and pivot bolt to compensate for line misalignment. SEE OUTLINE DIMENSION "A"</p>	<p>4 3/8 - 5 5 1/16 - 6 7/16 5 1/4 - 5 3/4 5 13/16 - 7 3/16</p>	<p>1 - 2 1/4 2 1/4 - 5 1 - 2 1/4 2 1/4 - 5</p>		<p>grounded grounded grounded grounded</p>	<p>1 3/8 1 5/8 3 1/8 3 1/8</p>	<p>(1) (1) (1) (1)</p>	<p>MI-19312-41 MI-19312-42 MI-19313-41 MI-19313-42</p>
<p>FIXED HANGERS, MOUNT THROUGH HOLE</p> <p>For direct mounting of 1 line. Requires mounting hole. Mounting bolt and hose clamp supplied. Type with B dimension may be suspended by moving mounting bolt to other hole. SEE OUTLINE DIMENSION "B"</p>	<p>5 3/8 6 7/8 7 3/8</p>		<p>5/8 5/8 (2) 5/8</p>	<p>grounded grounded grounded</p>	<p>6 1/8 6 1/8 9 3/16</p>	<p>(1) (1) (1)</p>	<p>MI-19314-44 MI-27970-33 MI-27900-44</p>
<p>FIXED HANGER, MOUNT THROUGH HOLE</p> <p>For direct mounting. Requires mounting hole. Similar to preceding Type "B" but has pivot bolt to compensate for line misalignment. SEE OUTLINE DIMENSION "C"</p>	<p>3 13/16 7 3/4 5 8 7/16</p>		<p>3/8 1/2 1/2 1/2</p>	<p>grounded grounded grounded grounded</p>	<p>1 3/8 1 3/8 3 1/8 3 1/8</p>	<p>(1) (1) (1) (1)</p>	<p>MI-19312-44 MI-19312-47 MI-19313-44 MI-19313-47</p>
<p>FIXED HANGER, MOUNT THROUGH HOLE</p> <p>For direct mounting of two lines. Requires mounting hole. Complete with hose clamps. SEE OUTLINE DIMENSION "D"</p>	<p>3 3/4 3 3/4 5 1/2 5 1/2</p>	<p>2 9/32 5 3 1/32 5</p>	<p>1/2 1/2 1/2 1/2</p>	<p>grounded insulated grounded insulated</p>	<p>1 3/8 1 3/8 3 1/8 3 1/8</p>	<p>(2) (2) (2) (2)</p>	<p>MI-19112-15 MI-19112-49 MI-19113-15 MI-19113-49</p>
<p>FIXED HANGERS, CLAMP ON FLAT MEMBER</p> <p>For fastening 1 line to flat members. Uses adjustable vise-like clamp. Pivot bolt compensates for line misalignment. Complete with hose clamp. SEE OUTLINE DIMENSION "E"</p>	<p>4 9/16 5 3/16</p>	<p>adjustable adjustable</p>		<p>grounded grounded</p>	<p>1 3/8 3 1/8</p>	<p>(1) (1)</p>	<p>MI-19312-40 MI-19313-40</p>
<p>FIXED HANGER, CLAMP ON ANGLE MEMBERS</p> <p>For clamping 1 line to structural angle members. Pivot bolt compensates for line misalignment. Complete with hose clamps. SEE OUTLINE DIMENSION "F"</p>	<p>4 3/4 5 1/2</p>	<p>1 - 7 1 - 7</p>		<p>grounded grounded</p>	<p>1 3/8 3 1/8</p>	<p>(1) (1)</p>	<p>MI-19312-43 MI-19313-43</p>

EXPANSION HANGERS FOR SINGLE LINE



(CLAMP ON ROUND MEMBER)
MI-19312-23-1 1/8
MI-19313-23-3 1/8



(CLAMP ON ROUND MEMBER)
MI-19312-24-1 1/8
MI-19313-24-3 1/8



(CLAMP ON ROUND MEMBER)
MI-19312-25-1 1/8
MI-19313-25-3 1/8



(CLAMP ON ROUND MEMBER)
MI-19312-26-1 1/8
MI-19313-26-3 1/8



(CLAMP ON ROUND MEMBER)
MI-19312-27-1 1/8
MI-19313-27-3 1/8



(CLAMP ON ROUND MEMBER)
MI-19312-28-1 1/8
MI-19313-28-3 1/8



(MOUNT THROUGH HOLE)
MI-19314-32-6 1/8
MI-27900-32-9 3/8



(MOUNT THROUGH HOLE)
MI-19314-34-6 1/8
MI-27900-34-9 3/8



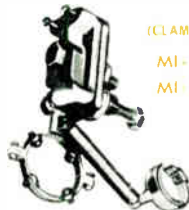
(MOUNT THROUGH HOLE)
MI-19312-32-1 1/8
MI-19313-32-3 1/8



(MOUNT THROUGH HOLE)
MI-19312-33-1 1/8
MI-19313-33-3 1/8



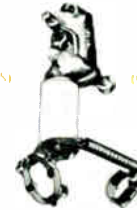
(MOUNT THROUGH HOLE)
MI-19312-34-1 1/8
MI-19313-34-3 1/8



(CLAMP ON FLAT MEMBERS)
MI-19312-22-1 1/8
MI-19313-22-3 1/8



(CLAMP ON FLAT MEMBERS)
MI-19312-21-1 1/8
MI-19313-21-3 1/8



(CLAMP ON FLAT MEMBERS)
MI-19312-22-1 1/8
MI-19313-22-3 1/8



(CLAMP ON ANGULAR MEMBERS)
MI-19312-29-1 1/8
MI-19313-29-3 1/8



(CLAMP ON ANGULAR MEMBERS)
MI-19312-30-1 1/8
MI-19313-30-3 1/8

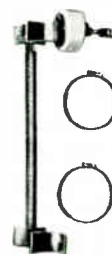


(CLAMP ON ANGULAR MEMBER)
MI-19312-31-1 1/8
MI-19313-31-3 1/8

EXPANSION HANGERS FOR DUAL LINES



(MOUNT THROUGH HOLE)
MI-19112-14-1 1/8
MI-19113-14-3 1/8

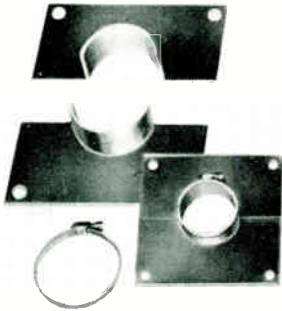


(MOUNT THROUGH HOLE)
MI-19112-48-1 1/8
MI-19113-48-3 1/8

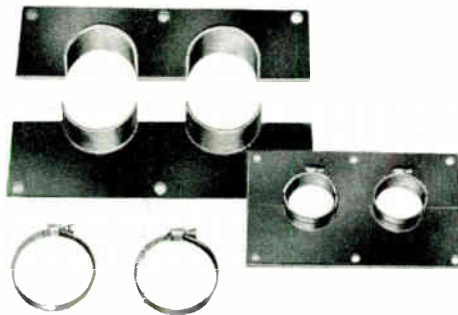
DESCRIPTION AND SPECIFICATIONS FOR EXPANSION HANGERS

ITEM	DIMENSIONS (inches)			GROUNDED OR INSULATED	Line Size Inches	Capacity	RCA REFERENCE NO.
	A	B	C				
EXPANSION HANGERS, CLAMP ON ROUND MEMBERS Spring-suspended hanger for clamping single line to round member. Complete with hose clamps and pivot bolt to compensate for line misalignment. Spring must be preloaded at installation. SEE OUTLINE DIMENSION "G"	4 3/8 - 5	1 - 2 1/4		grounded	1 3/8	(1)	MI-19312-23
	7 7/8 - 8 1/2	1 - 2 1/4		grounded	1 3/8	(1)	MI-19312-24
	5 1/8 - 6 7/16	2 1/4 - 5		grounded	1 3/8	(1)	MI-19312-26
	8 7/16 - 9 5/16	2 1/4 - 5		grounded	1 3/8	(1)	MI-19312-27
	8 11/16 - 9 5/16	1 - 2 1/4		insulated	1 3/8	(1)	MI-19312-25
	8 9/16 - 9 13/16	2 1/4 - 5		insulated	1 3/8	(1)	MI-19312-28
	5 7/8 - 5 3/4	1 - 2 1/4		grounded	3 1/8	(1)	MI-19313-23
	8 11/16 - 9 5/16	1 - 2 1/4		grounded	3 1/8	(1)	MI-19313-24
	5 13/16 - 7 3/16	2 1/4 - 5		grounded	3 1/8	(1)	MI-19313-26
	9 3/8 - 10 3/4	2 1/4 - 5		grounded	3 1/8	(1)	MI-19313-27
	8 11/16 - 9 5/16	1 - 2 1/4		insulated	3 1/8	(1)	MI-19313-25
	9 3/8 - 10 3/4	2 1/4 - 5		insulated	3 1/8	(1)	MI-19313-28
EXPANSION HANGERS, MOUNT THROUGH HOLE Spring-suspended hanger for mounting through single hole. Complete with hose clamp. Spring must be preloaded at installation. SEE OUTLINE DIMENSION "H"	6 7/8	1 (max.)	2 3/8	grounded	6 1/8	(1)	MI-27970-31
	5 3/8	1 (max.)	3/8	grounded	6 1/8	(1)	MI-19314-32
	6 3/8	1 (max.)	3/8	grounded	9 3/16	(1)	MI-27900-32
	8 1/16	1 (max.)	3/8	insulated	6 1/8	(1)	MI-19314-34
	11 3/8	1 (max.)	1/2	insulated	9 3/16	(1)	MI-27900-34
EXPANSION HANGERS, MOUNT THROUGH HOLE Spring-suspended for mounting through single hole. Similar to preceding type "H" but has pivot bolt to compensate for line misalignment. Spring must be preloaded at installation. SEE OUTLINE DIMENSION "I"	4 1/4		1/2	grounded	1 3/8	(1)	MI-19312-32
	7 3/4		1/2	grounded	1 3/8	(1)	MI-19312-33
	7 3/4		1/2	insulated	1 3/8	(1)	MI-19312-34
	5		1/2	grounded	3 1/8	(1)	MI-19313-32
	8 7/16		1/2	grounded	3 1/8	(1)	MI-19313-33
8 7/16		1/2	insulated	3 1/8	(1)	MI-19313-34	
DUAL EXPANSION HANGERS, MOUNT THROUGH HOLE For spring-suspension of two lines. Requires mounting hole. Complete with hose clamps. Spring preloaded at installation. SEE OUTLINE DIMENSION "J"	3 3/4	2 5/32	1/2	grounded	1 3/8	(2)	MI-19112-14
	3 3/4	5	1/2	insulated	1 3/8	(2)	MI-19112-48
	5 1/2	3 1/32	1/2	grounded	3 1/8	(2)	MI-19113-14
	5 1/2	5	1/2	insulated	3 1/8	(2)	MI-19113-48
EXPANSION HANGERS, CLAMP ON FLAT MEMBERS Spring-suspended hanger for fastening 1 line to flat members. Uses adjustable vise-like clamp. Pivot bolt compensates for line misalignment. Complete with hose clamp. Spring must be preloaded at installation. SEE OUTLINE DIMENSION "K"	4 7/16			grounded	1 3/8	(1)	MI-19312-20
	8 1/16			grounded	1 3/8	(1)	MI-19312-21
	8 1/16			insulated	1 3/8	(1)	MI-19312-22
	5 5/16			grounded	3 1/8	(1)	MI-19313-20
	8 7/8			grounded	3 1/8	(1)	MI-19313-21
	8 7/8			insulated	3 1/8	(1)	MI-19313-22
EXPANSION HANGERS, CLAMP ON ANGLE MEMBERS Spring-suspended hanger for clamping 1 line to structural angles. Pivot bolt compensates for line misalignment. Complete with hose clamp. Spring must be preloaded at installation. SEE OUTLINE DIMENSION "L"	4 3/4	7 (max.)		grounded	1 3/8	(1)	MI-19312-29
	8 1/4	7 (max.)		grounded	1 3/8	(1)	MI-19312-30
	8 1/4	7 (max.)		insulated	1 3/8	(1)	MI-19312-31
	5 1/2	7 (max.)		grounded	3 1/8	(1)	MI-19313-29
	9 1/16	7 (max.)		grounded	3 1/8	(1)	MI-19313-30
	9 1/16	7 (max.)		insulated	3 1/8	(1)	MI-19313-31
EXPANSION HANGERS, SPECIAL 3-POINT SPRING SUSPENSION See under Miscellaneous Accessories.							

MISCELLANEOUS ACCESSORIES



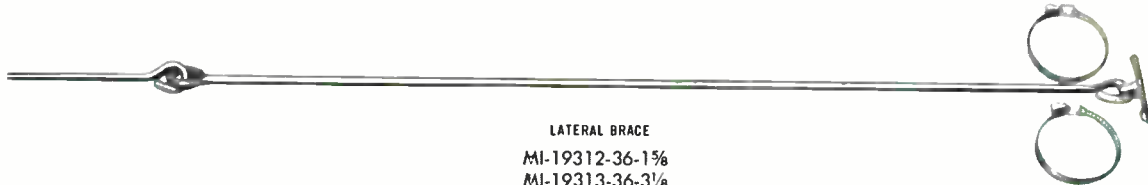
HORIZONTAL ANCHOR FOR SUPPORTING SINGLE LINE
 MI-19312-17-1 1/8
 MI-19313-17-3 1/8
 MI-19314-48-6 1/8
 MI-27900-48-9 3/16



HORIZONTAL ANCHOR FOR SUPPORTING DUAL LINES
 MI-19312-18-1 1/8
 MI-19313-18-3 1/8
 MI-27970-35-6 1/8
 MI-27900-49-9 3/16



HORIZONTAL ROLLER ASSEMBLY
 MI-19312-35-1 1/8
 MI-19313-35-3 1/8
 MI-19314-35-6 1/8
 MI-27900-35-9 3/16



LATERAL BRACE
 MI-19312-36-1 1/8
 MI-19313-36-3 1/8
 MI-19314-36-6 1/8
 MI-27900-36-9 3/16



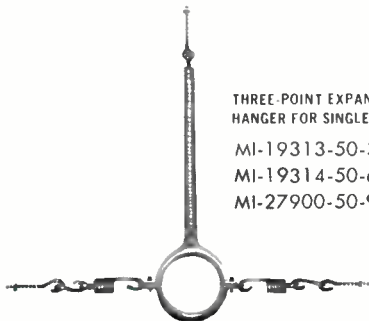
SWIVEL HANGER FOR SUPPORTING SINGLE LINE
 MI-19312-37-1 1/8
 MI-19313-37-3 1/8



SWIVEL HANGER FOR SUPPORTING DUAL LINES
 MI-19312-38-1 1/8
 MI-19313-38-3 1/8



LINE SPREADER
 MI-19312-19-1 1/8
 MI-19313-19-3 1/8



THREE-POINT EXPANSION HANGER FOR SINGLE LINE
 MI-19313-50-3 1/8
 MI-19314-50-6 1/8
 MI-27900-50-9 3/16

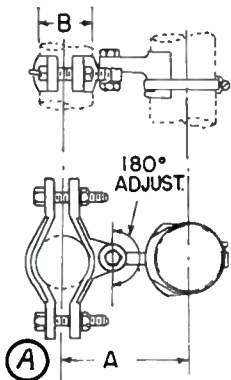


THREE-POINT EXPANSION HANGER FOR DUAL LINES
 MI-19313-51-3 1/8
 MI-27970-34-6 1/8
 MI-27900-51-9 3/16

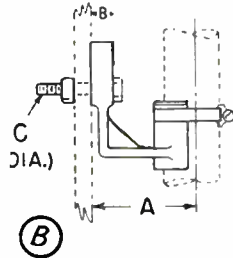
DESCRIPTIONS AND SPECIFICATIONS FOR MISCELLANEOUS ACCESSORIES

ITEM	DIMENSIONS (inches)						GROUNDED OR INSULATED	Line Size Inches	Capacity	RCA REFERENCE NO.
	A	B	C	D	E	F				
HORIZONTAL ANCHOR, SINGLE Supports single line at point of entry through a wall. Furnished split in 2 pieces to facilitate installation. Hose clamp anchors line. One anchor required on each side of wall. Mounting bolts not supplied. SEE OUTLINE DIMENSION "M"	6 8 11 3/4 16	4 7/8 6 7/8 10 1/4 8	3 4 5 1/8 6 3/4	9/16 9/16 3/4 1 1/4			grounded grounded grounded grounded	1 5/8 3 1/8 6 1/8 9 3/8	(1) (1) (1) (1)	MI-19312-17 MI-19313-17 MI-19314-48 MI-27900-48
HORIZONTAL ANCHOR, DUAL Same as Type "M" except supports 2 lines. SEE OUTLINE DIMENSION "N"	9 3/4 13 1/2 22 28	6 8 11 3/4 16	8 3/8 12 3/8 20 1/2 25 1/2	4 7/8 6 7/8 10 1/4 13 1/2	4 5/16 6 3/16 10 1/4 12 3/4	3 3/4 5 1/2 10 1/4 12 1/2	grounded grounded grounded grounded	1 5/8 3 1/8 6 1/8 9 3/8	(2) (2) (2) (2)	MI-19312-18 MI-19313-18 MI-27970-35 MI-27900-49
HORIZONTAL ROLLER ASSEMBLY For supporting single horizontal line. Revolving roller permits line expansion. Hood protects roller. Dual lines require two assemblies. Mounting bolts not furnished. SEE OUTLINE DIMENSION "O"	2 1/16 5 3/16 7 7/8 10 3/8	1 13/16 3 5 1/2 7 1/4	3 1/16 4 3/4 8 11 5/16	6 8 12 20			grounded grounded grounded grounded	1 5/8 3 1/8 6 1/8 9 3/8	(1) (1) (1) (1)	MI-19312-35 MI-19313-35 MI-19314-35 MI-27900-35
LATERAL BRACE For maintaining single line at fixed distance from tower or building. Mounts through single hole. Complete with two hose clamps. SEE OUTLINE DIMENSION "P"	8 8 7 3/4 7 3/4	38 1/2 38 1/2 38 3/4 38 3/4	1/2 1/2 3/8 3/8				grounded grounded grounded grounded	1 5/8 3 1/8 6 1/8 9 3/8	(1) (1) (1) (1)	MI-19312-36 MI-19313-36 MI-19314-36 MI-27900-36
LINE SPREADER For maintaining spacing between two lines. Asbestos-lined surfaces hold lines without scoring. Two hose clamps supplied. SEE OUTLINE DIMENSION "Q"	3 3/4 5 1/2							1 5/8 3 1/8	(2) (2)	MI-19312-19 MI-19313-19
SWIVEL HANGERS For use in horizontal runs to accommodate uneven terrain or line misalignment. Will also take care of some line expansion. Angle support may be mounted horizontally or vertically. Angle support pivots on one pin and support, casting pivots on another pin. For single or dual lines, as noted. Complete with hose clamps. SEE OUTLINE DIMENSION "R"	— 3 3/4 — 5 1/2	2 1 7/32 2 1 7/32 2 1 7/32 2 1 7/32	1 1/8 1 1/8 1 1/8 1 1/8	5 5 5 5	5/32 5/32 7/16 7/16	1/2 1/2 1/2 1/2	grounded grounded grounded grounded	1 5/8 1 5/8 3 1/8 3 1/8	(1) (2) (1) (2)	MI-19312-37 MI-19312-38 MI-19313-37 MI-19313-38
3-POINT EXPANSION HANGER, SINGLE For horizontal suspension of single line. Fastened at three points with eye bolts and springs. SEE OUTLINE DIMENSION "S"	20 3/4 28 29 1/2	15 16 3/4 18 3/8					grounded grounded grounded	3 1/8 6 1/8 9 3/8	(1) (1) (1)	MI-19313-50 MI-19314-50 MI-27900-50
3-POINT EXPANSION HANGER, DUAL Same as Type "S" but accommodates 2 lines. SEE OUTLINE DIMENSION "T"	20 3/4 28 29 1/2	15 16 3/4 18 3/8	15 1/2 10 1/4 14				grounded grounded grounded	3 1/8 6 1/8 9 3/8	(2) (2) (2)	MI-19313-51 MI-27970-34 MI-27900-51
EXTENSION KIT Extends the mounting of grounded dual hangers to align with insulated dual hangers. SEE OUTLINE DIMENSION "U"	4 1/2	7 1/2	1/2							MI-19113-16

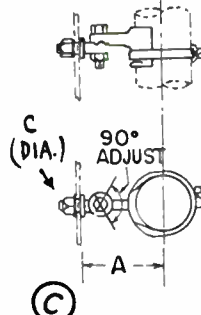
OUTLINE DIMENSIONS OF FIXED AND EXPANSION HANGERS



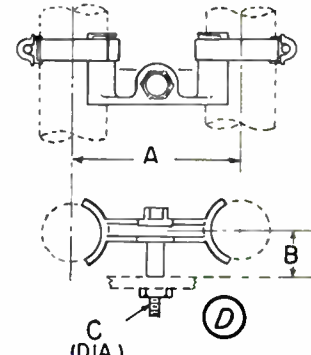
(WITH PIVOT. CLAMP ON ROUND MEMBERS)



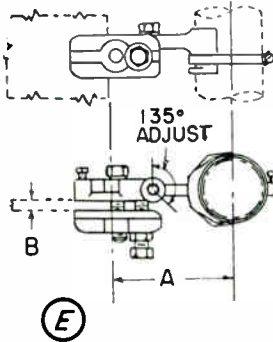
(MOUNT THROUGH HOLE)



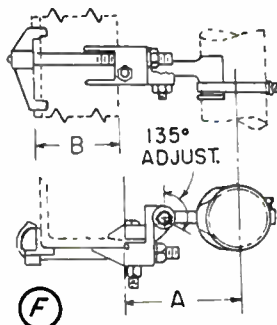
(WITH PIVOT. MOUNT THROUGH HOLE)



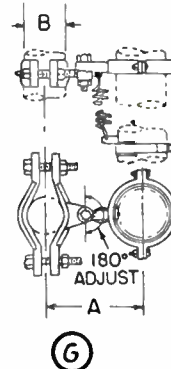
(MOUNT THROUGH HOLE)



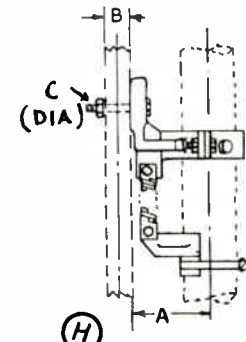
(WITH PIVOT. CLAMP ON FLAT MEMBERS)



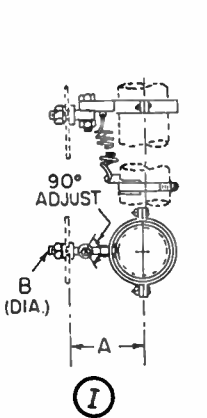
(WITH PIVOT. CLAMP ON ANGLES)



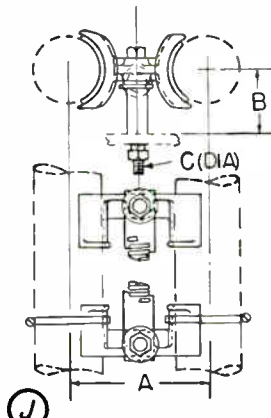
(WITH PIVOT. CLAMP ON ROUND MEMBERS)



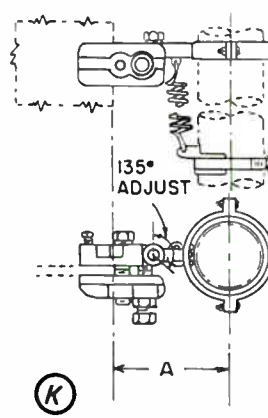
(MOUNT THROUGH HOLE)



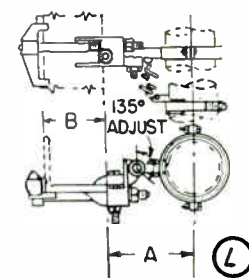
(WITH PIVOT. MOUNT THROUGH HOLE)



(MOUNT THROUGH HOLE)

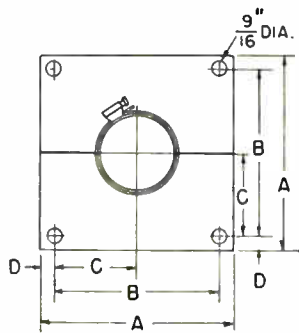


(WITH PIVOT. CLAMP ON FLAT MEMBERS)

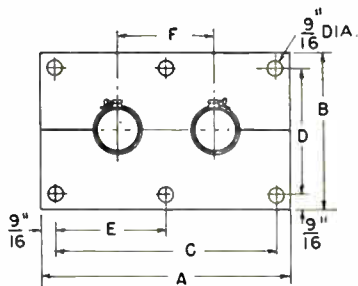


(WITH PIVOT. CLAMP ON ANGLES)

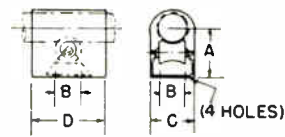
OUTLINE DIMENSIONS OF MISCELLANEOUS ACCESSORIES



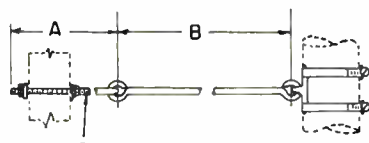
(M)
(HORIZONTAL ANCHOR, SINGLE)



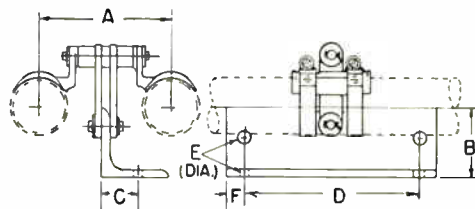
(N)
(HORIZONTAL ANCHOR, DUAL)



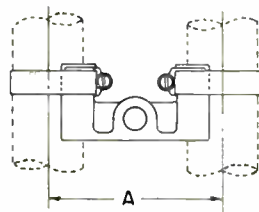
(O)
(HORIZONTAL ROLLER ASSY.)



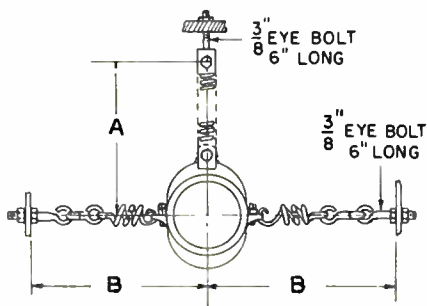
(P)
(LATERAL BRACE)



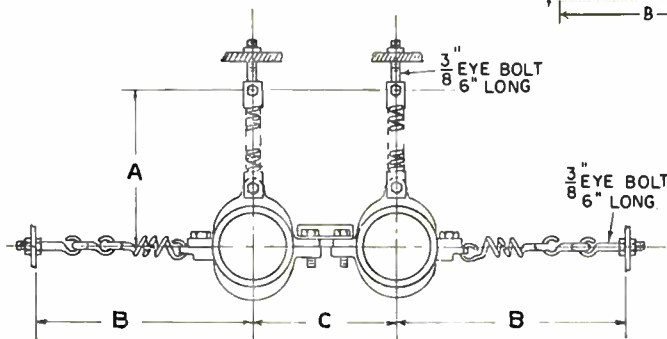
(R)
(SWIVEL HANGERS)



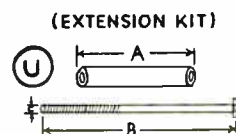
(Q)
(LINE SPREADER)



(S)
(3-POINT HANGER, SINGLE)

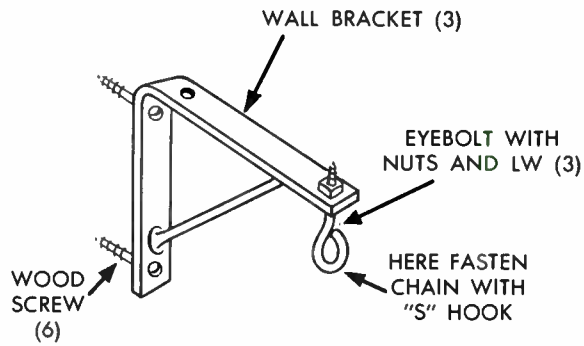


(T)
(3-POINT HANGER, DUAL)



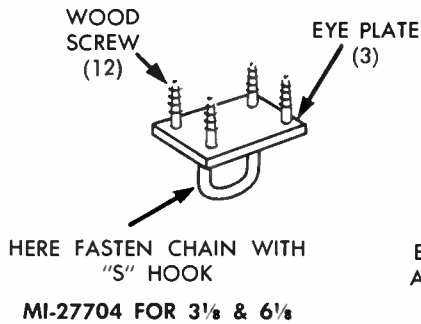
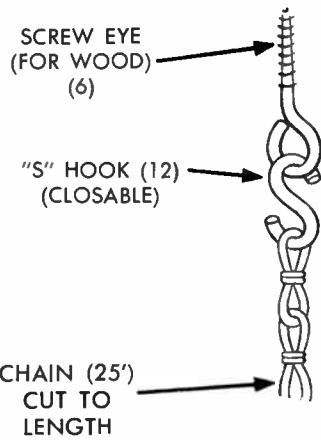
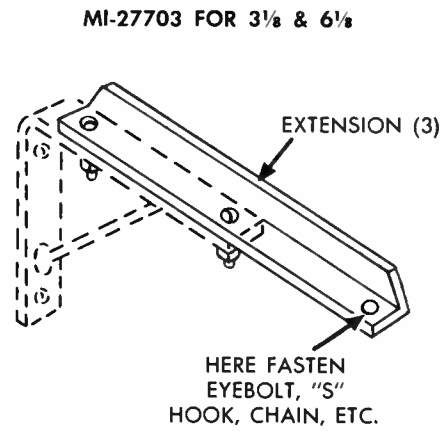
(EXTENSION KIT)

RCA SPECIAL INDOOR HANGER KITS

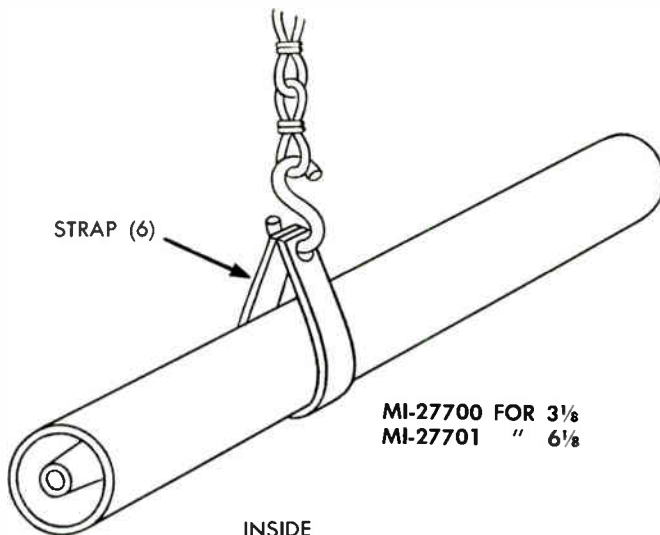
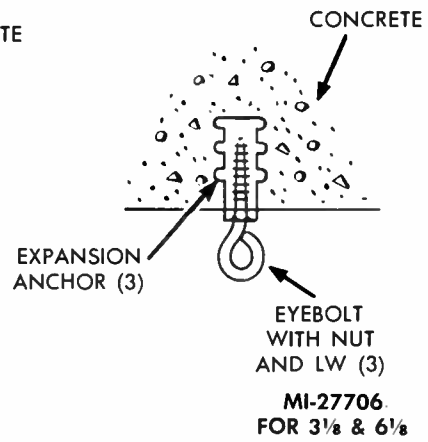


MI-27702 FOR 3 1/8 & 6 1/8

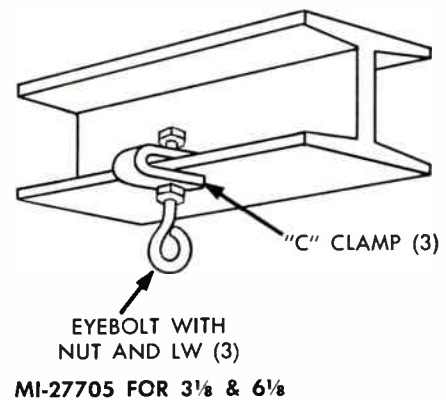
BOLT WITH NUT AND LW (6) (FASTEN TO WALL BKT)



MI-27704 FOR 3 1/8 & 6 1/8



INSIDE HANGERS AND VARIOUS FASTENERS



DESCRIPTIONS AND SPECIFICATIONS FOR RCA SPECIAL INDOOR HANGER KITS

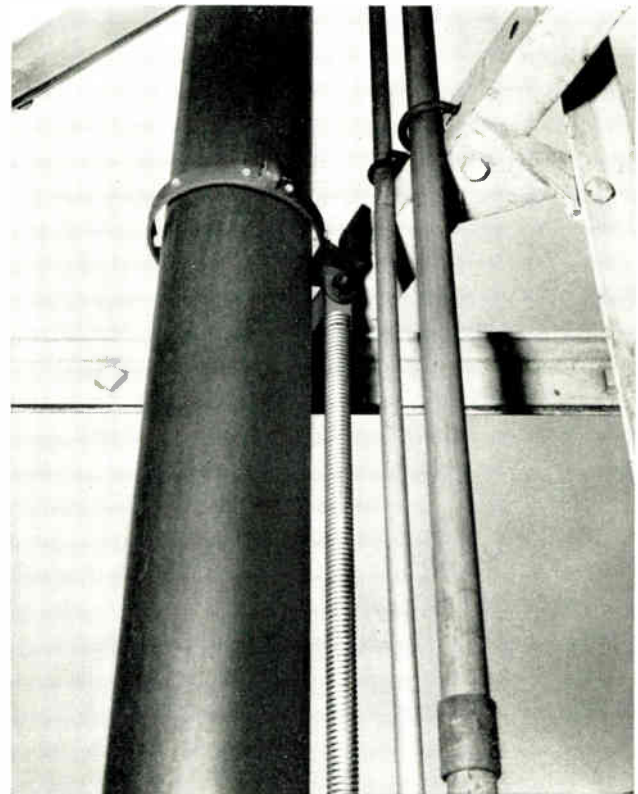
ITEM	LINE SIZE AND CAPACITY	STOCK IDENTIFICATION
Inside Hanger Kit for 3 1/8" Line, attaches to line for ceiling support. Kit consists of stainless steel straps, 25-feet of chain and mounting hardware suitable for supporting line at six points. Tensile strength of chain 260 pounds.	3 1/8"	MI-27700
Inside Hanger Kit for 6 1/8" Line, same as MI-27700 Kit except suitable for supporting larger transmission line.	6 1/8"	MI-27701
Inside Hanger Wall Bracket Kit, for supporting line from wall of building. Kit contains three heavy duty brackets 1 1/2" wide with 7 1/2" arms and mounting hardware for supporting line at three points.	3 1/8" or 6 1/8"	MI-27702
Inside Wall Bracket Extension Kit, containing three heavy duty angle extensions and hardware for use with MI-27702 to extend line out from wall of building. Extension angles are 12" long, 1/8" thick and 1 1/4" x 1 1/4" on side.	3 1/8" or 6 1/8"	MI-27703
Inside Hanger Plate Mounting Kit, for attaching MI-27700 or MI-27701 to plaster or wood surface. Contains three steel eye plates and mounting hardware sufficient for three supporting points.	3 1/8" or 6 1/8"	MI-27704
Inside Hanger "I" Beam Mounting Kit, consisting of hardware for attaching MI-27700 or MI-27701 to "I" beam at three supporting points.	3 1/8" or 6 1/8"	MI-27705
Inside Hanger Concrete Mounting Kit, consisting of eye bolts and expansion anchors suitable for attaching to concrete wall or ceiling MI-27700 or MI-27701 at three supporting points.	3 1/8" or 6 1/8"	MI-27706

HANGER INSTALLATION DATA

Due to the many precautions that surround transmission line installations, its assembly should be entrusted to only the most competent engineers. In using RCA fixed and expansion type hangers for single and dual runs, RCA engineers are prepared to recommend proper types for all horizontal or tower installations. The following tables on differential expansion should be taken into consideration when installing VHF or UHF transmission line.

Differential expansion between line and tower is accommodated by suspending the line from spring hangers within the tower. Two hangers at the top of the tower are fixed so that the line cannot move vertically through them. The rest of the hangers are of the spring type which permit the line to move vertically. Each hanger exerts an upward force equal to the weight of ten feet of line. The hangers are spaced at approximately ten foot intervals and hence there is no tension on the line under the average temperature condition. The line moves upward or downward in the hangers as differential expansion takes place. At the tower base the vertical movement is permitted to deflect the horizontal run as expansion takes place. In a similar manner movement of the horizontal run from the transmitter building to tower deflects the bottom few feet of the line in the tower. The amount of deflection that is permissible is limited to values which will not cause mechanical change to the line or result in change in impedance. Bending in the line should be limited to 2 inches in 20 feet for 3 1/8" line, or 1 inch in 20 feet for 6 1/8" line. Sliding type hangers are available to prevent lateral motion of line, and insulated hangers are used when the transmission line feeds an antenna mounted on an AM tower. Isolation

of the transmission line in a tower used for medium frequency broadcasting is accomplished by using insulated hangers in the tower for a distance from the base equal to a quarter wavelength at the medium frequency.



Detail view showing transmission line hangers which secure line to structural members of antenna tower. Expansion type hangers shown above or fixed hangers are most commonly used to assure permanent, reliable installation.

SPRING PRE-LOADING DIMENSIONS FOR EXPANSION HANGERS TYPE C

Hanger Installation Settings for MI-27792 6 1/8" Universal Transmission Line in Inches, 10' Average Spacing.* (For other 6 1/8" lines, increase values 1 inch.)

DISTANCE DOWN FROM LOWEST FIXED HANGER—FT.	AMBIENT TEMPERATURE DEGREES F AT TIME OF INSTALLATION				
	0-20	20-40	40-60	60-80	80-100
0-200	26 1/8	26 1/8	26 1/8	26 1/8	26 1/8
200-400	25 9/8	25 7/8	25 3/4	26 3/8	26 5/8
400-600	25 3/16	25 11/16	25 3/4	26 1/2	26 15/16
600-800	25	25 3/16	25 3/4	26 11/16	27 1/4
800-1000	24 11/16	25 3/8	25 3/4	26 7/8	27 3/16
1000-1200	24 3/8	25 1/4	25 3/4	27	27 1/2
1200-1400	24 1/16	25 1/16	25 3/4	27 1/8	28 3/16
1400-1600	23 3/4	24 13/16	25 3/4	27 5/8	28 1/2

Dimension Taken Over Spring as shown in diagram

* For every 1 ft. difference of average hanger spacing (up to 3 ft.) change the settings by 1/16 inch, adding if the spacing is greater than 10 ft., subtracting if less. Consult RCA for exceptions. (For lines other than MI-27792 Universal type, change setting by 7/8 inch.)

Hanger Installation Settings for MI-27793, 9 3/16" Universal Transmission Line in Inches, 10' Average Spacing.*

DISTANCE DOWN FROM LOWEST FIXED HANGER—FT.	AMBIENT TEMPERATURE DEGREES F AT TIME OF INSTALLATION				
	0-20	20-40	40-60	60-80	80-100
0-200	24 3/4	24 3/4	24 3/4	24 3/4	24 3/4
200-400	24 1/4	24 1/2	24 3/4	25	25 1/4
400-600	23 15/16	24 5/16	24 3/4	25 1/8	25 5/16
600-800	23 5/8	24 3/16	24 3/4	25 5/16	25 7/8
800-1000	23 5/16	24	24 3/4	25 1/2	26 3/16
1000-1200	23	23 7/8	24 3/4	25 5/8	26 1/8
1200-1400	22 11/16	23 11/16	24 3/4	25 3/4	26 13/16
1400-1600	22 3/8	23 5/16	24 3/4	25 5/16	27 1/8

Dimension Taken Over Spring as shown in diagram

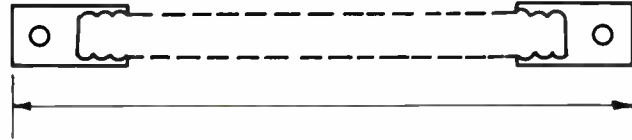
* For every 1 ft. difference of average hanger spacing (up to 3 ft.) change the setting by 1/16 inch, adding if the spacing is greater than 10 ft. subtracting if less. Consult RCA for exceptions.

Hanger Installation Settings for MI-19314 or MI-19387, 6 1/8" Single Transmission Lines in Inches, 10' Average Spacing.*

DISTANCE DOWN FROM LOWEST FIXED HANGER—FT.	AMBIENT TEMPERATURE DEGREES F AT TIME OF INSTALLATION				
	0-20	20-40	40-60	60-80	80-100
0-200	26 3/4	26 3/4	26 3/4	26 3/4	26 3/4
200-400	26 1/4	26 1/2	26 3/4	27	27 1/4
400-600	25 15/16	26 3/16	26 3/4	27 1/8	27 7/16
600-800	25 5/8	26 3/16	26 3/4	27 3/16	27 7/8
800-1000	25 3/16	26	26 3/4	27 1/2	28 3/16
1000-1200	25	25 7/8	26 3/4	27 5/8	28 1/8
1200-1400	24 11/16	25 11/16	26 3/4	27 3/4	28 13/16
1400-1600	24 3/8	25 1/16	26 3/4	27 5/16	29 1/8

Dimension Taken Over Spring as shown in diagram

* For every 1 ft. difference of average hanger spacing (up to 3 ft.) change the setting by 7/8 inch, adding if the spacing is greater than 10 ft., subtracting if less. Consult RCA for exceptions.



Drawing showing points of measurement used in spring pre-loading tables for RCA expansion hangers. Charts give length in inches.

SPRING PRE-LOADING DIMENSIONS FOR EXPANSION HANGERS TYPE E

Hanger Installation Settings for MI-19112, 1 5/8" Dual Transmission Line in Inches, 10' Average Spacing.*

DISTANCE DOWN FROM LOWEST FIXED HANGER—FT.	AMBIENT TEMPERATURE DEGREES F AT TIME OF INSTALLATION				
	0-20	20-40	40-60	60-80	80-100
0-200	18 5/8	18 5/8	18 5/8	18 5/8	18 5/8
200-400	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8
400-600	17 3/4	18 1/4	18 5/8	19 1/16	19 7/16
600-800	17 7/16	18 1/16	18 5/8	19 3/16	19 3/4
800-1000	17 1/8	17 7/8	18 5/8	19 3/16	20 1/8
1000-1200	16 13/16	17 3/4	18 5/8	19 1/2	20 3/8

Dimension Taken Over Spring as shown in diagram

* For every 1 ft. difference of average hanger spacing, change the setting by 1/16 inch, adding if the spacing is greater than 10 ft., subtracting if less.

Hanger Installation Settings for MI-19113, 3 1/8" Dual Transmission Line in Inches, 10' Average Spacing.*

DISTANCE DOWN FROM LOWEST FIXED HANGER—FT.	AMBIENT TEMPERATURE DEGREES F AT TIME OF INSTALLATION				
	0-20	20-40	40-60	60-80	80-100
0-200	24 3/8	24 3/8	24 3/8	24 3/8	24 3/8
200-400	23 7/8	24 1/8	24 3/8	24 5/8	24 7/8
400-600	23 3/16	23 15/16	24 3/8	24 3/4	25 3/16
600-800	23 1/4	23 5/16	24 3/8	24 15/16	25 1/2
800-1000	22 15/16	23 5/8	24 3/8	25 1/8	25 3/16
1000-1200	22 5/8	23 1/2	24 3/8	25 1/4	26 1/8

Dimension Taken Over Spring as shown in diagram

* For every 1 ft. difference of average hanger spacing, change the setting by 5/8 inch, adding if the spacing is greater than 10 ft., subtracting if less.

SPRING PRE-LOADING DIMENSIONS FOR HANGERS (Outline Types "G," "I," "K," and "L")

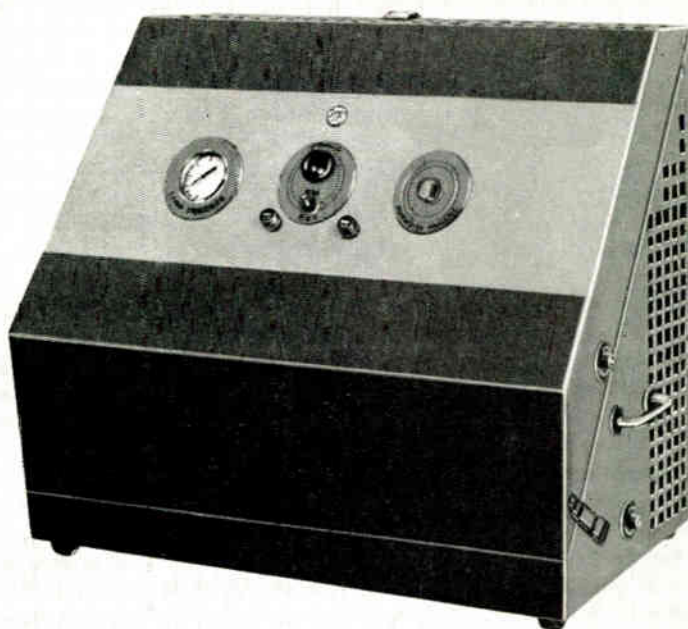
ELEVATION AND TEMPERATURE	LINE SIZE	SPRING LENGTH, EXPANDED
All	1 5/8"	8 1/2 inches
All	3 1/8"	24 inches

Dehydrators For Coaxial Line

MI-27348 SERIES

FEATURES

- Compressor inoperative during most of re-activation period . . . providing economical operation and long life
- Attractive space-saving design
- Completely accessible for quick and easy maintenance
- Operates from 115 volt, 60 cycle source
- Convenient arrangement of operation indicating devices
- Choice of single or double desiccants.



DESCRIPTION

It is extremely important that coaxial transmission lines feeding present day antennas be kept free of moisture. Because of their sectionalized construction, exposure to the effects of weather and temperature, and their comparative inaccessibility for maintenance, they are particularly susceptible to the entry of water, either directly or suspended in vapor drawn in by "breathing" of the line due to temperature change. Moisture in antenna systems can change the loading characteristics of the antenna and set up high standing wave ratios. The danger of arc-over is increased, with possible permanent damage to the antennas which can be corrected only by expensive rigger work and possibly a new antenna system. During sub-zero weather, the freezing water can fracture the lines.

To guard against such danger, all coaxial sections of the system should be pressurized with a moisture-free gas. Because the gas is vapor-free, condensation within the line is avoided, and the pressure acts to prevent the entry of water if small leaks develop. The pressurizing should be done only after the lines have been bled thoroughly and over a number of hours to insure that any trapped moisture has had an opportunity to be assimilated by the gas and discharged from the system.

Either nitrogen or dehydrated air is generally used to keep lines dry. The former may be procured locally in tanks. Special adapters and fittings may be secured from RCA. Except for short runs of line and very pressure tight sys-

tems, the use of nitrogen is awkward and uneconomical. Bleeding a system of re-pressurizing requires a considerable volume of gas and the constant drop in pressure due to even small leaks common to most systems is a constant drain on the source of the gas. As a consequence, the trend is toward the use of dehydrated air. Dehydrated air is obtained through the use of mechanical dehydrators. RCA makes available a wide range of such units.

The RCA MI-27348 Series of Automatic Dehydrator Equipment for coaxial transmission lines provide a choice of single desiccant or double desiccant automatic equipments that operate from a 115 volt, 60 cycle power source. The equipments are attractively housed in space-saving cabinets with sloping panel for control and indicating devices. They are completely accessible for quick, easy maintenance.

The single-desiccant automatic dehydrator automatically reactivates the desiccant according to a set time cycle of operation. Pressure is maintained constant except during reactivation, when no pressure is applied to the line.

The disadvantage of lack of pressure during reactivation time in the above type is overcome in the fully automatic type by the use of two desiccant chambers in conjunction with an electric program timer and solenoid valve arrangement. With this type equipment, pressure is maintained constant at all times and the reactivation is automatic.

Dehydrator Accessories



PRESSURE GAUGE
MI-19315-14

¼ DIA. TUBING
MI-19315-1



MANIFOLD
MI-19315-15



PLUG
MI-19315-8



ELBOW
MI-19315-2



FLARE NUT
MI-19315-5



PLUG
MI-19315-7



FLARE FITTING
MI-19315-3



FLARE FITTING
MI-19315-6



VALVE
MI-19315-10



VALVE
MI-19315-12



NIPPLE
MI-19315-9



TEE
MI-19315-13



FLARE FITTING
MI-19315-4



VALVE
MI-19315-11

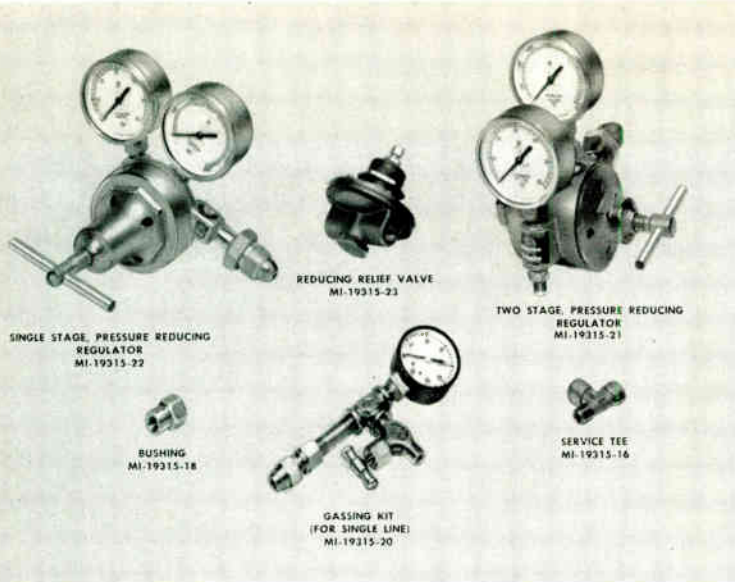
FEATURES

- Assure maximum performance and protection of pressurized TV transmission lines
- Complete line of pressure accessories for use with single, and double desiccant dehydrators or nitrogen gassing
- Feed any number of lines from one source through manifold system
- Highest quality corrosion resistant construction
- Precision gauges for gassed systems
- Packaged kits for standard systems

USES

Line gassing and dehydrator accessories are provided for use with all types of RCA Television Transmission line systems. A wide choice of fittings is available for either VHF or UHF lines incorporating double or single desiccant type dehydrators or bottled nitrogen for line pressurizing. They provide maximum performance and protection of gassed transmission line runs. Each fitting is of highest quality construction and corrosion resistant material.

As a special convenience in ordering for standard station installations, several line gassing accessory kits are available. Kit MI-19112-12 is available for use with a VHF dehydrator system, and Accessory Kit MI-19315-20 is its UHF counterpart. For bottled nitrogen systems, Kit MI-19315-24 is recommended. A choice of single or two stage regulators are offered by RCA for use on nitrogen gassed lines. The two stage regulator gives better regulation as pressure in the nitrogen bottle drops. Manifold MI-19315-15 will prove a convenient means for distributing dry air or gas from one or more sources to several transmission lines.



Precision gauges and accessories for gassed systems.

DESCRIPTION

The following accessories are available for air or nitrogen gassed television transmission lines:

MI-19112-12 LINE GASSING ACCESSORIES KIT

Consisting of two pressure indicators, three tee fittings, two needle valves, two elbows, five union nuts, three couplings, and 25-foot coil of type "K" 1/4" O.D. copper tubing. May be used for remotely indicating pressure of two lines fed by one pressure source or two pressure sources feeding one line.

MI-19315-1

1/4" O.D. soft drawn copper tubing. (Furnished in 50-foot coils).

MI-19315-2 FITTING (3 in a package)

90° brass elbow. 1/8" x 1/8" IPS.

MI-19315-3 FLARE FITTING (3 in a package)

Female for 1/4" soft drawn copper tubing. 1/8" IPS.

MI-19315-4 FLARE FITTING (3 in a package)

Male for 1/4" soft drawn copper tubing. 1/8" IPS.

MI-19315-5 NUT (3 in a package)

A flare fitting union nut for 1/4" soft drawn copper tubing having a 3/16"-20 thread.

MI-19315-6 FLARE FITTING (3 in a package)

Female for 1/4" soft drawn copper tubing to 1/4" IPS.

MI-19315-7 PIPE PLUG (3 in a package)

A specially designed brass 1/8" IPS pipe plug..

MI-19315-8 PIPE PLUG (3 in a package)

A specially designed brass 1/4" IPS pipe plug.

MI-19315-9 NIPPLE (3 in a package)

A brass nipple 1/8" IPS thread x 1 1/2" long.

MI-19315-10 VALVE

A precision needle valve with stainless steel needle stem having 1/8" IPS thread for inlet and outlet. When installing have arrow pointing in direction of air pressure.

MI-19315-11 VALVE

A gas admission valve with removable cap to keep foreign material from entering valve stem. Has 1/8" IPS thread.

MI-19315-12 VALVE

Used as a bleeder valve for bleeding the pressure from line. Furnished with key to open or close valve stem. Has 1/8" IPS thread.

MI-19315-13 TEE FITTING (3 in a package)

Brass tee female 1/8" x 1/8" x 1/8" IPS.

MI-19315-14 GAUGE

Used for measuring air or gas pressure up to 30 pounds. Has 1/8" IPS connection. Has glass cover to protect scale.

MI-19315-15 MANIFOLD

Used for distributing dry air or gas from one or more sources to several transmission lines. Has two 1/4" IPS ports in ends of hollow body with eight 1/8" IPS outlets (4 on each side). Plugs may be inserted in unused ports.

MI-19315-16 SERVICE TEE

Similar to MI-19315-13 except one end of tee. Male fitting 1/8" IPS thread.

MI-19315-17 FITTING NIPPLE

1/4" IPS brass nipple, 1 1/2" O.D.

MI-19315-18 BUSHING

Brass, hexagon reducing bushing 1/4" IPS to 1/8" IPS.

MI-19315-20 KIT OF ACCESSORIES

Used to gas a single line and consisting of one each: MI-19315-1, 19315-9, 19315-13, 19315-14, 19315-3, and MI-19315-10.

MI-19315-21 REGULATOR

Two stage pressure reducing regulator for UHF nitrogen gassed lines with 60 lb. and 3000 lb. Airco Standard gauges and having 1/4" half-union take off fitting and 906-14 R.H. thread union nut to fit nitrogen bottle.

MI-19315-22 REGULATOR

Single stage pressure reducing regulator for UHF nitrogen gassed line with 60 lb. and 3000 lb. Airco Standard gauges and 906-14 R.H. thread union nut to fit nitrogen bottle.

MI-19315-23 REDUCING RELIEF VALVE

1/4" IPS inlet and outlet no bleed, soft seat.

MI-19315-24 KIT OF ACCESSORIES

For gassing single line with nitrogen and including one each of MI-19315-1, 19315-3, 19315-5, 19315-10, and 19315-21.

MI-19315-25 UNION FITTING

Flared double ended to join lengths of tubing, 1/4" O.D. threaded 3/16"-20, 1 3/16" long overall.

MI-19315-26 PLAIN PIPE COUPLING

1/8" IPS, 1 3/16" across flats, brass.

MI-19315-27 DEHYDRATOR HOSE

15-foot long 1/2" coupling hose with snap on connectors on each end capable of withstanding 100 lbs. pressure per sq. inch.

MI-19315-28 FLARING AND CUTTING TOOL KIT

Consisting of one flaring tool for 3/16", 1/4", 5/16", 3/8", 7/8", and 1/2" O.D. tubing and one tubing cutter for 1/8" to 1" O.D. tubing with extra wheel, contained in a steel tool box. Weight 3 lbs.

MI-27328 GASSING KIT

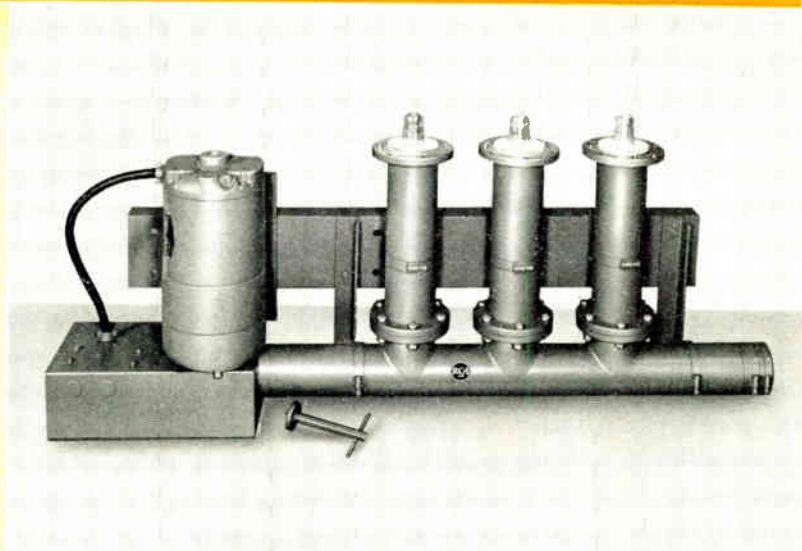
Used to gas MI-10986-D and ES-27254 UHF filterplexers. It consists of 25-ft. 1/4-inch tubing, fittings and pressure regulator for sulphur hexafluoride gas. The regulator has left hand thread input.

Motor Driven Coaxial Switches

MI-27330 & MI-27335-A

FEATURES

- Motor driven—permits rapid remote-control R-F circuit switching in less than one second
- Useful for power cut-back, emergency transmitter or antenna switching
- Micro-switches facilitate high voltage interlock circuits for R-F protection during switching cycle
- Power rating same as 3/8-inch line

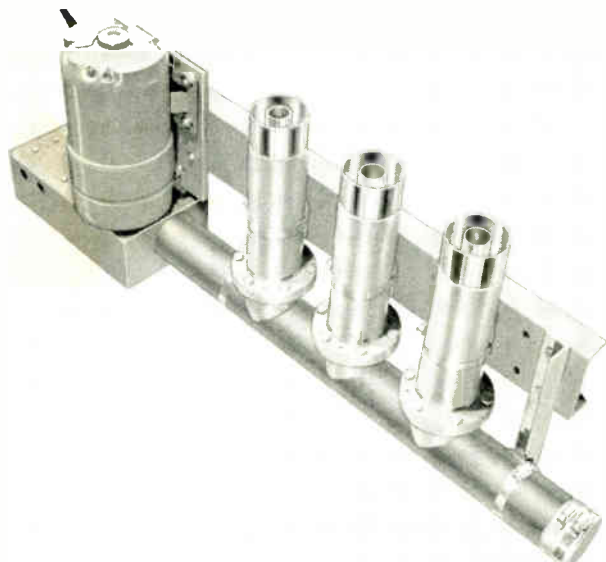


3/8-inch, 50 ohm, Coaxial Switch (Channels 2-83) MI-27335-A.

DESCRIPTION

The motor driven coaxial switch is useful for R-F switching in emergency power cut-back systems; standby transmitters or standby antennas; between a transmitter and divided antenna with emergency diplexer connections; or other R-F systems to meet individual station requirements. Another common application is rapid switching of transmitter outputs or diplexer outputs to permanently mounted R-F load-/wattmeters for maintenance periods or emergency adjustments.

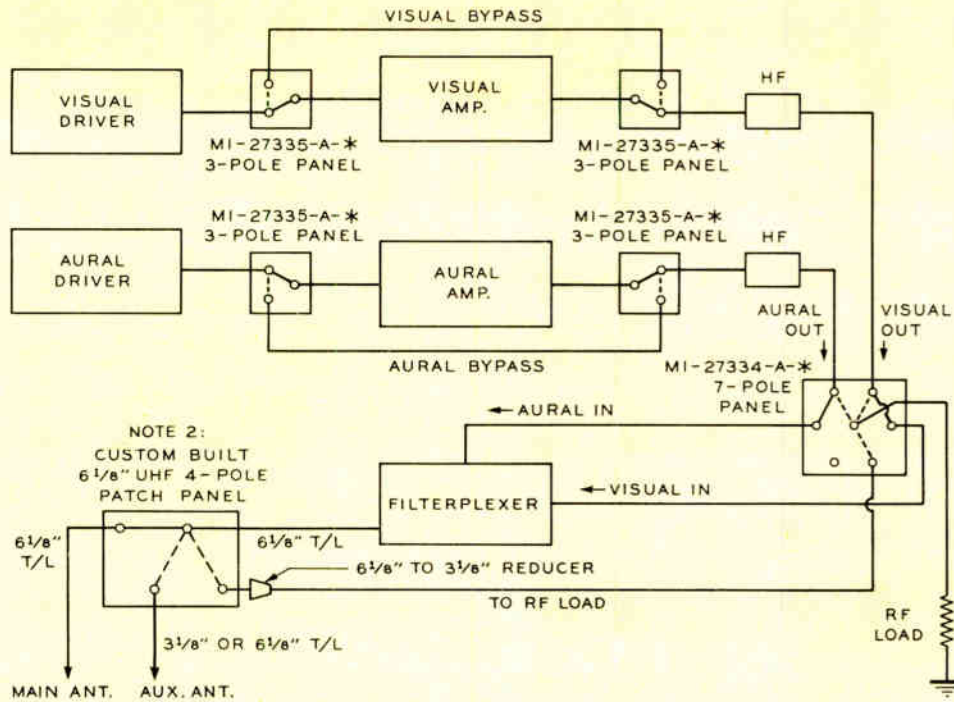
3/8-inch, 51.5 ohm, Coaxial Switch (Channels 2-13 only), MI-27330.



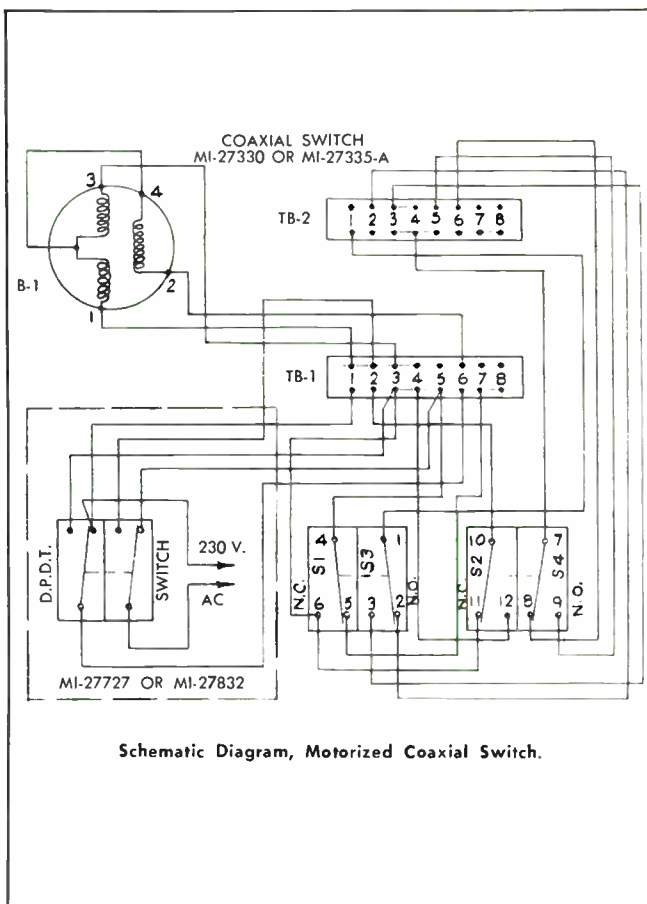
The Motor Driven Coaxial Switch is a single-pole, two-position switch for use with 3/8" transmission line. The switch consists of a manifold assembly with three parallel branches, the center being the common connection, a motor driven system and its associated limiting switches. This entire assembly is mounted on an aluminum channel assembly suitable for mounting in any convenient position.

Switching from one position to the other is accomplished by means of a piston rod provided with alternate-conducting and insulated sections that engage conducting sleeves attached to the inner conductors of the three parallel coaxial lines. As this piston moves back and forth, adjacent coaxial lines are either electrically-interconnected or isolated from each other. One end of this piston is connected to a rack which engages a pinion gear driven by the motor. Pins mounted on this rack engage micro-switches to control the length of time voltage is applied to the drive motor. Automatic or manual controls are listed under accessory equipment. Maximum VSWR is 1.04 to 1.0 or better for all channels.

Micro-switches are available at each position in order to operate external position indicating devices and for operation of power interlock circuits and associated functions. Removal of R-F power is a necessary precaution during operation of the switch. Since the circuitry, control, and indicating devices and their location will vary widely in different applications, these accessory items are not provided with the switch.



NOTE 2:
CUSTOM BUILT
6 1/8" UHF 4-POLE
PATCH PANEL
6 1/8" T/L
6 1/8" TO 3 1/8" REDUCER
3 1/8" OR 6 1/8" T/L
MAIN ANT. AUX. ANT.
TO RF LOAD
RF LOAD



Schematic Diagram, Motorized Coaxial Switch.

SPECIFICATIONS

	MI-27330	MI-27335-A
Frequency	Channels 2-13	Channels 2-83
Input	51.5 ohms	50 ohms
Output	3 1/8" (sleeve fitting) Coaxial Line	3 1/8" (flanged) Coaxial Line
Power Rating	Same as transmission line used	Same as transmission line used
VSWR	1.04 to 1.0 or better	1.04 to 1.0 or better
Driving Motor	220 V, 1 phase, 60 cps., 11 amps., locked rotor	220 V, 1 phase, 60 cps., 11 amps., locked rotor
Micro Switch Contacts	15 amps at 250 V	15 amps at 250 V
Ambient Temperature	45°C	45°C
Mounting	Any convenient position	Any convenient position
Dimensions Overall:		
Length	48"	48"
Height	16"	16"
Depth	9"	9"
Weight	107 lbs.	107 lbs.

Ordering Information

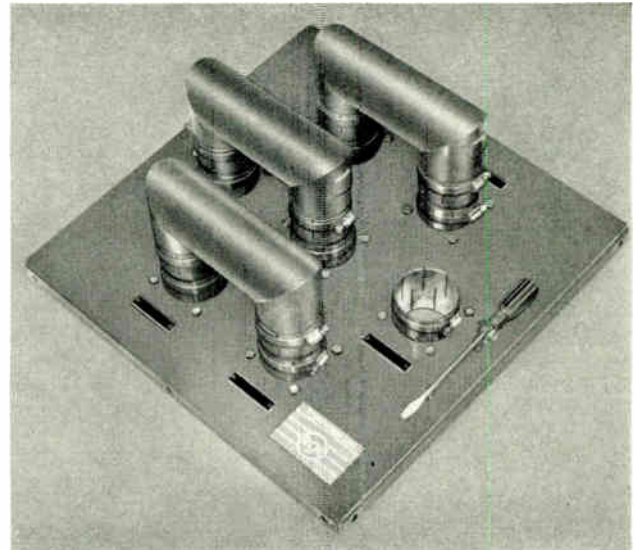
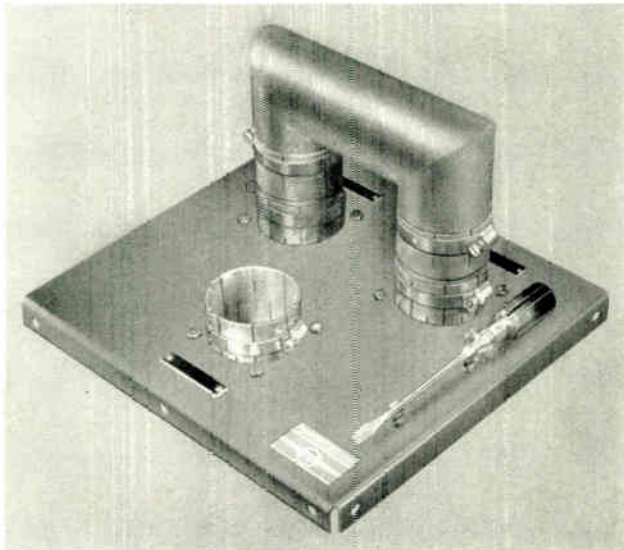
Motor Driven Coaxial Switch (3 1/8"—51.5 ohms for use with sleeve fitting MI-19113-C or MI-19313 Transmission Line) MI-27330*
 Motor Driven Coaxial Switch (3 1/8"—50 ohms for use with flanged MI-19089 Transmission Line) MI-27335-A*

(* Sales order must add customer's assigned channel number following MI number.)

Accessory Equipment

Motor Control Switch, hand operated, 3 stage, 2 positions MI-27727
 Contactor MI-27832

VHF Manual Transfer Panels



FEATURES

- Sturdy steel panel
- Affords convenient, rapid switching of r-f power circuits
- Completely avoids crosstalk
- Performs functions such as power cutback, dummy load switching, emergency or spare antenna and transmitter switching
- VSWR better than 1.02 to 1

USES

RCA Manual Transfer Panels provide a convenient and rapid means of switching the r-f power circuits which extend between the transmitter and the antenna. Functions such as power cutback, dummy load switching, emergency antenna connections, spare antenna, and spare transmitter switching are readily accomplished by means of these coaxial panels.

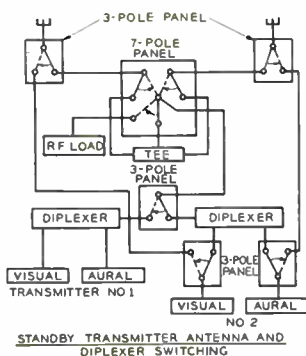
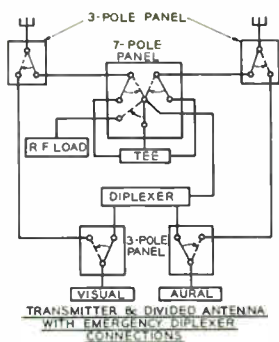
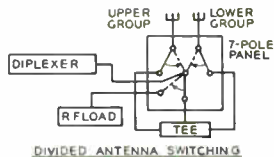
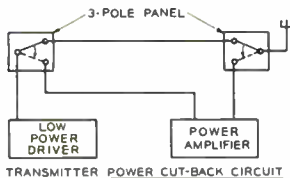
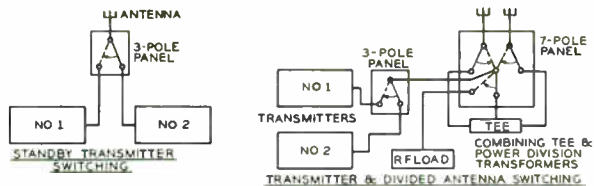
Electrically all manual transfer panels are similar, but mechanically they differ in construction to meet the needs of the various sizes and types of transmission lines. The summary table should be consulted for ordering purposes.

Convenient Summary of RCA Type Manual Transfer Panels

Stock Identification	Diameter	Impedance	Pole	Type Connector	For Use with RCA Line
MI-27717	3 1/8"	51.5	3	Sleeve	MI-19113-C or MI-19313
MI-27718	3 1/8"	51.5	7	Sleeve	MI-19113-C or MI-19313
MI-27719	6 1/8"	51.5	3	Sleeve	MI-19314-C
MI-27720	6 1/8"	51.5	7	Sleeve	MI-19314-C
MI-27791-50	3 1/8"	50	3	Clamp Universal	MI-27791
MI-27791-51	3 1/8"	50	7	Clamp Universal	MI-27791
MI-27792-50	6 1/8"	75	3	Clamp Universal	MI-27792
MI-27792-51	6 1/8"	75	7	Clamp Universal	MI-27792
MI-27912-50	3 1/8"	50	3	Inside, Universal	MI-27791-K
MI-27912-51	3 1/8"	50	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.

Suggested Uses for Manual Transfer Panels



DESCRIPTION

The RCA Manual Transfer Panels utilize standard coaxial transmission line fittings which are mounted on a panel in such a way that switching functions are readily accomplished by the "patch cord" method. Fittings come in 3 1/8" or 6 1/8" diameter sizes and the switching plugs are constructed of double 3 1/8" or 6 1/8" elbows which form a "U" section. Therefore, the transmission line impedance is maintained through the panel. The panels are made up of a sturdy steel base plate reinforced with angle bends on all four sides. Holes are provided in side angles for mounting.

Two type panels are available, the 3-pole panel provided with one "U" type connector, and the 7-pole panel with three "U" type connectors. Adjustable clamps are provided for clamping the "U" type sleeve connectors to the fittings. There are different connections and impedances to suit all RCA VHF, UHF and Universal types of Transmission Line.

Manual transfer panels for coaxial lines with flange or clamp connections (as distinguished from sleeve) require at every connection an anchor connector of appropriate type. These are not provided with the connectors as some will be available in mating components. A survey must be made of additional connectors needed for each installation.

SPECIFICATIONS

Electrical:

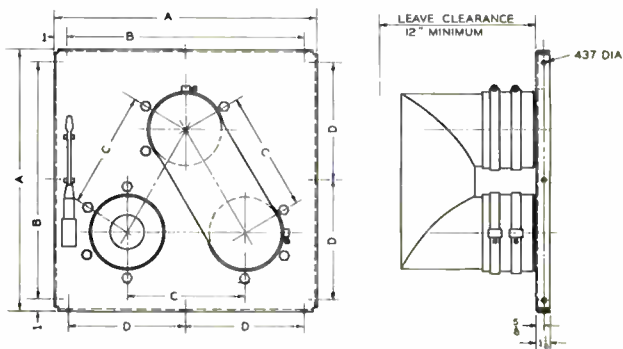
Power rating..... Same as various Transmission Line to which they apply
 Ambient Temperature..... to 50° C
 Elevation..... 5000 ft. max. for full power rating
 VSWR..... 1.02 to 1 or better
 Impedance..... See Summary Table

Mechanical:

Dimensions..... See Outline Drawings
 Weight:
 3 Pole 3 1/8" Models..... 32 lbs. Approx.
 7 Pole 3 1/8" Models..... 67 lbs. Approx.
 3 Pole 6 1/8" Models..... 75 lbs. Approx.
 7 Pole 6 1/8" Models..... 220 lbs. Approx.

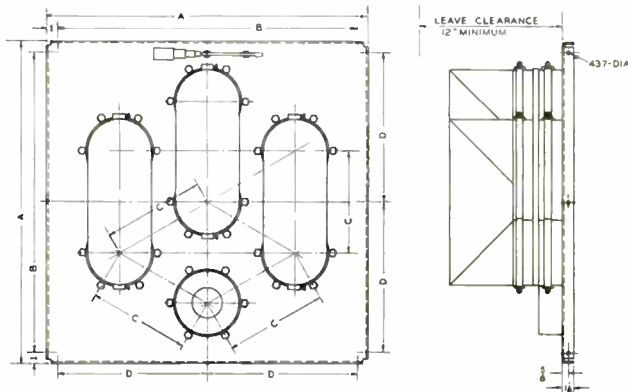
Accessory Equipment:

3 1/8" dia.—50 ohm adaptor for use with MI-27912-50 and 51..... MI-27912-52
 3 1/8" dia.—51.5 ohm adaptor for use with MI-27717 and MI-27718..... MI-27337
 6 1/8" dia.—51.5 ohm adaptor for use with MI-27719 and MI-27720..... MI-27709
 3 1/8" anchor connector for use with MI-27791-50 and 51..... MI-27791-12
 6 1/8" anchor connector for use with MI-27792-50 and 51..... MI-27792-12
 3 1/8" anchor connector for use with MI-27333 and MI-27334..... MI-19089-10
 6 1/8" anchor connector for use with MI-27710 and MI-27711..... MI-19287-10



SIZE	A	B	C	D
3 1/8"	15 1/2	13 1/2	7	—
6 1/8"	25	23	13	11 1/2

Outline Dimensions, 3-Pole Panels



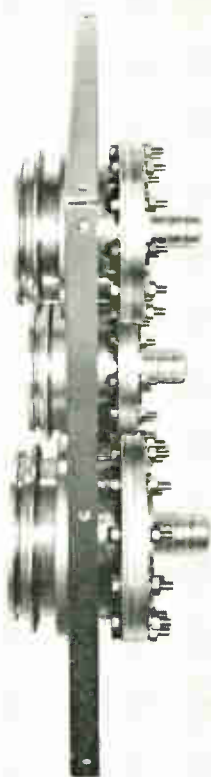
SIZE	A	B	C	D
3 1/8"	23	21	7	—
6 1/8"	36	36	13	18

Outline Dimensions, 7-Pole Panels

UHF Manual Transfer Panels

FEATURES

- Fast disconnect "U" bends with Marman flange
- Positive contact with Universal flanges and Marman clamps
- Anchored inner conductor in all ports
- Catch assembly for easy transfer of 6 $\frac{1}{8}$ -inch switches
- VSWR better than 1.02 to 1
- Can be gassed for outdoor use



Side view showing Manual Transfer Panel.

DESCRIPTION

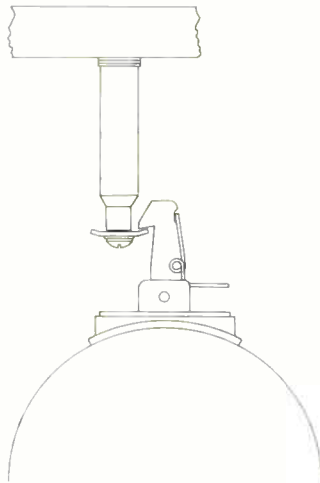
The latest type of UHF manual transfer panels provide a convenient and rapid means of switching the r-f power circuits between transmitter and the antenna. Functions such as power cutback, dummy-load switching, emergency-antenna connections, spare-antenna and spare-transmitter switching are readily accomplished by means of these coaxial panels.

Electrically the panels are similar but mechanically they differ in construction to meet the needs of the various sizes and types of transmission lines. Two types of panels are available: a 3-pole panel with one U-type connector, and a 7-pole panel with three U-type connectors.

The UHF switches use Universal flanges with Marman clamps for U-bend connections to panel ports on the front side of the panel. Each port includes an inner conductor, anchored in place, with an anchor insulator and locking-flange ring on the transmission line side of the port. The flange connections on the transmission line side of the panel accommodate 3 $\frac{1}{8}$ -inch, MI-19089 50-ohm transmission line or MI-19387 6 $\frac{1}{8}$ -inch 75-ohm line.

All 6 $\frac{1}{8}$ -inch transfer panels are equipped with a catch assembly which permits one man to rapidly change the U-bend from one position to another. The clamps have a

T-bar screw handle (for loosening and retightening) eliminating the usual wrench or screwdriver. The catch assembly holds the U-bend in position while the clamps are removed to simplify changeover. The U-bend is then switched into the new position, and clamps reinstalled and retightened.



Sketch showing side view of latch assembly supplied on all 6 1/8-inch UHF Manual Transfer Panels, MI-27710-A and MI-27711-A. This latch supports U-bends while operators position them for routing the r-f path and affix Marman flanges for permanent support.

SPECIFICATIONS

Electrical

Power Rating.....	Same as various transmission lines to which they apply
Ambient Temperature.....	50°C max.
VSWR.....	1.02 to 1 or better
Impedance:	
3 1/8".....	50 ohms
6 1/8".....	75 ohms

Mechanical

Dimensions (overall):	
3-pole, 3 1/8".....	15" square by 15" deep
3-pole, 6 1/8".....	25" square by 16 1/2" deep
7-pole, 3 1/8".....	23" square by 15" deep
7-pole, 6 1/8".....	38" square by 16 1/2" deep

Weight (approximately):	
3-pole, 3 1/8".....	40 lbs.
3-pole, 6 1/8".....	100 lbs.
7-pole, 3 1/8".....	90 lbs.
7-pole, 6 1/8".....	275 lbs.

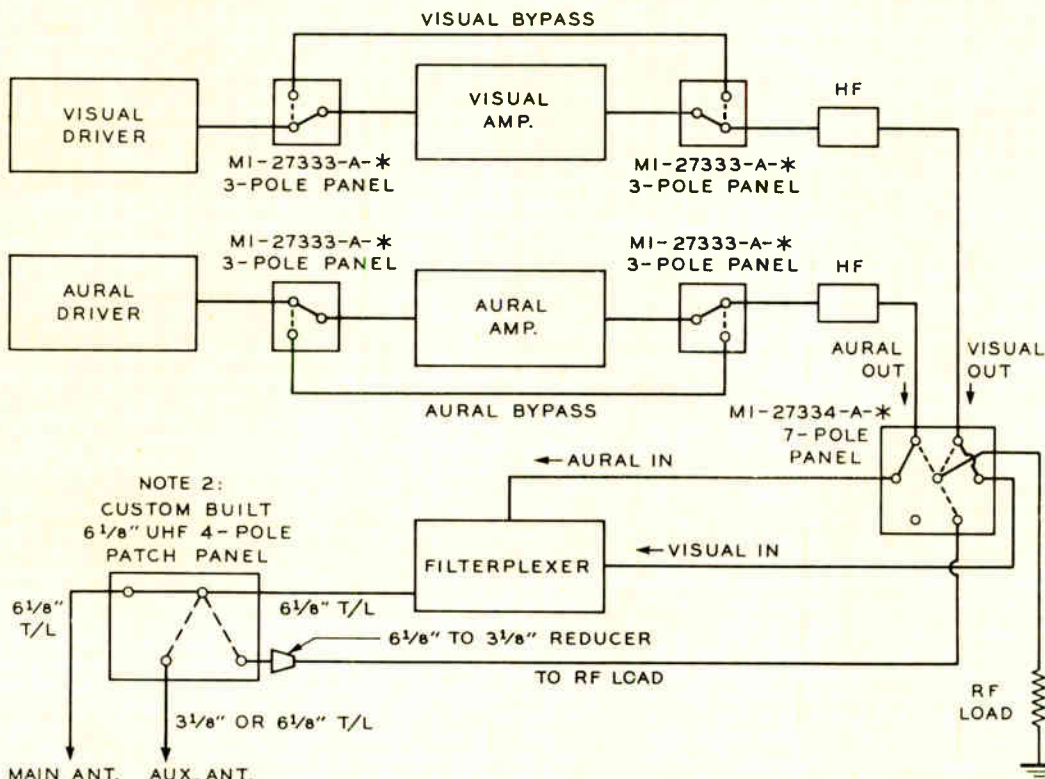
Ordering Information

3-pole Switch for MI-19089 (3 1/8", 50-ohm Line).....	MI-27333-A*
7-pole Switch for MI-19089 (3 1/8", 50-ohm Line).....	MI-27334-A*
3-pole Switch for MI-19387 (6 1/8", 75-ohm Line).....	MI-27710-A*
7-pole Switch for MI-19387 (6 1/8", 75-ohm Line).....	MI-27711-A*

Accessories

3 1/8" Universal U-Bend (spare).....	MI-27098*
6 1/8" Universal U-Bend (spare).....	MI-27099*

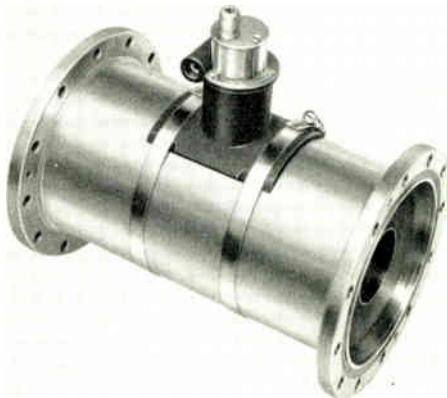
*Sales order must specify customers channel.



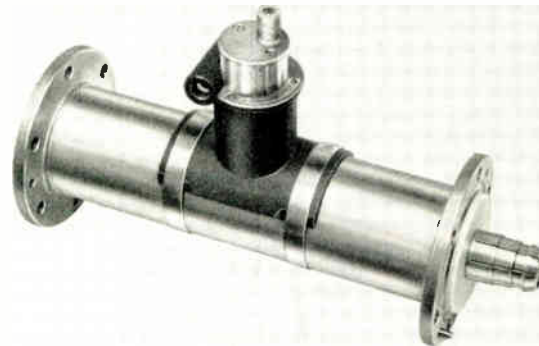
Typical layout depicting a TTU-12A or TTU-25B UHF Transmitter and associated equipment with manual transfer panels provided for cutting back either the visual or aural transmitters or both to the 1 KW driver. Either transmitter or driver can be terminated in the r-f load MI-19198-A-2 either before or after the filterplexer. Also shown here is a custom built 4-pole 6 1/8-inch Manual Transfer Panel of the same design for switching the output of the filterplexer from main antenna to standby antenna or r-f load.

UHF/VHF DIRECTIONAL COUPLERS

MI-19396-1B - MI-27389 - MI-27390



MI-27389 on 6 1/8" Line.



MI-27390 on 3 1/8" Line.

DESCRIPTION

The RCA VHF/UHF Directional Couplers are designed to afford a means for coupling external monitoring equipment to the outputs of both VHF or UHF television transmitters to facilitate measurements required in conjunction with tuning, operating and maintenance of the transmitter. By installing several couplers in the output transmission lines, it is possible to couple measuring or monitoring equipment to the transmitter output at either side of the sideband filter (or Filterplexer), or at the Diplexer output.

RCA Directional Couplers, MI-19396-1B, MI-27389 and MI-27390 which contain a coupling loop, are designed for mounting in a section of 6 1/8" or 3 1/8" transmission line respectively. Angle and penetration scales on the coupler assembly enable precise adjustments to be made of the loop position. The coupler includes etched scales for accurately setting the depth of penetration of the r-f coupling loop, and the angular position of the coupling loop for calibration of the output voltage at the particular channel desired. The unit is capable of coupling adequate signal voltages with a VSWR of 1.03/1.0 or less.

The directional property of the coupler permits sampling on a transmitter output line without any of the attendant variations in frequency response observed with non-directional couplers. The monitor voltage obtained with a directional coupler in a transmitter output line is a sample voltage of the amplitude desired of either the incident or reflected wave, as chosen. In addition, the directional coupler presents a source impedance to the monitor cable

essentially equal to the characteristic impedance of the monitor cable and independent of cable length.

Units such as the Sideband Response Analyzer (BW-5B, or BWU-5B), Demodulators (BW-4B or BWU-4B) and Monitoring Diodes utilize directional couplers to provide signal sampling for these instruments. Reflectometers for VSWR and power output measurements require a coupler for incident and one for reflected wave readings.

The Directional Couplers are easily affixed to transmission line when proper holes are cut. A 12-inch section of various flanged or unflanged 3 1/8" and 6 1/8" transmission lines with hole for the coupler mounting can be provided by RCA for more convenient installation as in items ES-34231 or ES-34232 as shown in the table. When proper holes are cut in the existing transmission line, MI-27389 may be mounted in any type 6 1/8" transmission lines while the MI-27390 coupler is designed for all 3 1/8" lines. The ungasged directional coupler for 3 1/8" line is MI-19396-1B. The directional couplers are 4 1/2" long and extend approximately 3 3/4" above the coupler housing. The overall height is slightly more than 4 1/2" and the diameter approximately 1 3/4". The coupler has a 5/8-24 thread by 3/4" deep to fit an "N" type plug connector with dust cap. They are provided with allen head locking screw (which may be on either side) and both horizontal and vertical scales to indicate angle and penetration settings. Both have a fixed composition resistor rated 50 ohms $\pm 1\%$ which may be renewed when necessary.



Directional Coupler and Mounting Hardware.

SPECIFICATIONS

VSWR.....1.03/1.0 or less, for normal voltage coupling ranges
 Dimensions.....See diagrams and table
 Ambient Temperature45°C.
 Weight.....5 lbs.
 Stock Identification:
 Directional Coupler (for 6 1/8" pressurized transmission line) MI-27389
 Directional Coupler (for 3 1/8" pressurized transmission line) MI-27390
 Directional Coupler (for 3 1/8" ungasged transmission line) MI-19396-1B
 Coupler and 12-inch Transmission Line Housings.....See Below

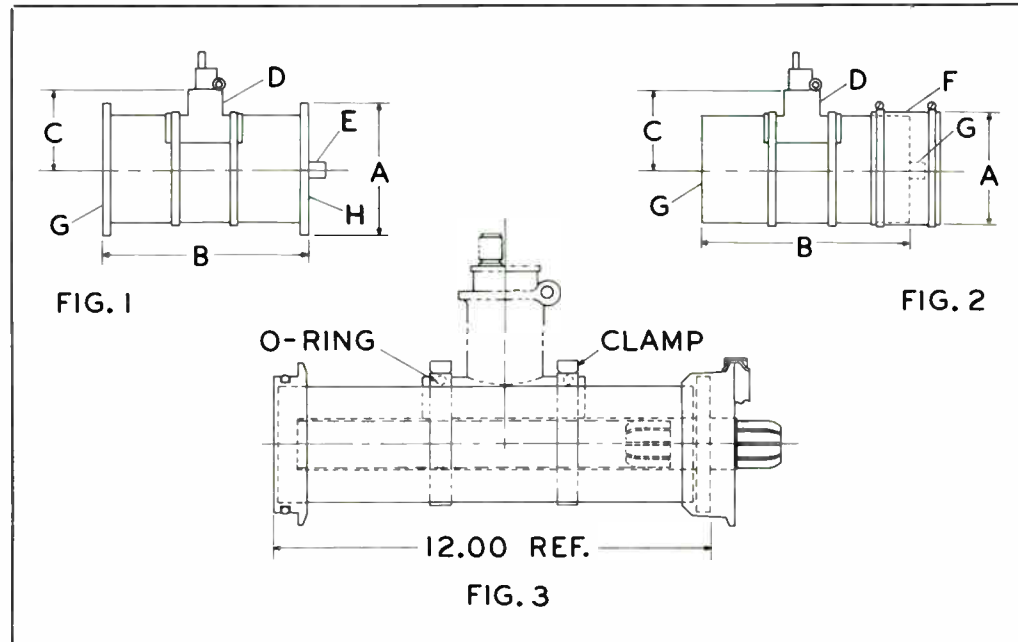


TABLE OF SPECIFICATIONS FOR DIRECTIONAL COUPLER ACCESSORIES

Transmission Line Type	MI-19089	MI-19113-C (flanged)	MI-19113-C (unflanged)	MI-19313 (flanged)	MI-19313 (unflanged)	MI-19314-C (flanged)	MI-19314-C (unflanged)	MI-19387	MI-27791-D	MI-27792-D	MI-27791-K
Mounted Coupler Drawing	Fig. 2A	Fig. 2A	Fig. 2B	Fig. 2A	Fig. 2B	Fig. 2A	Fig. 2B	Fig. 2A	Fig. 2C	Fig. 2C	Fig. 2B
Diameter "A"	3 1/8"	3 1/8"	3 1/8"	3 1/8"	3 1/8"	6 1/8"	6 1/8"	6 1/8"	3 1/8"	6 1/8"	3 1/8"
Length "B"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"
"C" Dimension (Maximum)	6 1/2"	6 1/2"	6 1/2"	6 1/2"	6 1/2"	8 1/2"	8 1/2"	8 1/2"	6 1/2"	8 1/2"	6 1/2"
Coupler "D"	MI-27390	MI-27390	MI-27390*	MI-27390	MI-27390*	MI-27389	MI-27389	MI-27389	MI-27390	MI-27389	MI-27390*
Connector "E"	MI-19089-10A	MI-19113-C11	—	MI-19313-9	—	MI-19314-C5	—	MI-19387-10A	MI-27791-D-4D	MI-27791-D-4D	—
Coupling "F" (inner and outer)	—	—	MI-19113-C8	—	MI-19313-8	—	MI-19314-C7	—	—	—	MI-27791-K-9A
Adapter "G"	—	MI-19313-11	MI-19313-11	—	—	—	—	—	—	—	—
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Impedance (ohms)	50	51.5	51.5	51.5	51.5	51.5	51.5	75	50	75	50
TV Band	VHF and UHF	VHF	VHF	VHF	VHF	VHF	VHF	VHF and UHF	VHF and UHF	VHF and UHF	VHF and UHF
May Be Pressurized	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No
Stock Identification	ES-34231-1, 2	ES-34231-1, 4	ES-34231-1, 6	ES-34231-1, 3	ES-34231-1, 5	ES-34232-1, 3	ES-34232-1, 4	ES-34232-1, 2	ES-34231-1, 8	ES-34232-1, 5	ES-34231-1, 7

* MI-19396-1B Directional Coupler may be specified for use with Demodulators, Monitoring Diodes, etc.

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UNIVERSAL COAXIAL LINE (For UHF/VHF Applications)

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6	Transmission Line, 19 1/2-ft. Length.....	MI-27791-D-1B
6	Coupling, 90° Elbow (Female outer, short leg).....	MI-27791-D-2A
6	Coupling, 90° Elbow (Male outer, short leg).....	MI-27791-D-2B
6	Coupling, 45° Elbow (Female outer, short leg).....	MI-27791-D-2E
6	Coupling, 45° (Male outer, short leg).....	MI-27791-D-2F
7	Gas Stop	MI-27791-D-3A
7	Adaptor, Female (soft solder assembly).....	MI-27791-D-4A
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7	Marman Clamp	MI-27791-D-4C
7	Connector, Inner	MI-27791-D-4D
7	O-Ring Gasket	MI-27791-D-4E
7	Adaptor (Female outer to 3/8-inch—51.5-ohm Coaxial Line, Channels 2 through 6 only).....	MI-27791-D-6A
7	Adaptor (Female outer to 3/8-inch—51.5-ohm Coaxial Line, Channels 7 through 13 only).....	MI-27791-D-6B
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7	Adaptor (Female outer to EIA 3/8-inch—50-ohm Coaxial Line).....	MI-27791-D-7A
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7	Adaptor (Male both ends, Universal).....	MI-27791-D-7C
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7	Adaptor, Female (Silver solder assembly).....	MI-27791-14
7	Adaptor, Male (Silver solder assembly).....	MI-27791-16

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9	Coupling, 90° Elbow (Female outer, short leg).....	MI-27792-D-2A
9	Coupling, 90° Elbow (Male outer, short leg).....	MI-27792-D-2B
9	Coupling, 45° Elbow (Female outer, short leg).....	MI-27792-D-2E
9	Coupling, 45° Elbow (Male outer, short leg).....	MI-27792-D-2F
9	Gas Stop	MI-27792-D-3A
10	Adaptor, Female (Soft solder assembly).....	MI-27792-D-4A
10	Adaptor, Male (Soft solder assembly).....	MI-27792-D-4B
10	Marman Clamp	MI-27792-D-4C
10	Connector, Inner	MI-27792-D-4D
10	O-Ring Gasket	MI-27792-D-4E
10	Adaptor-Reducer (Female outer to Universal 3/8-inch—50-ohm MI-27791-D Male Outer, Channels 2 and 3).....	MI-27792-D-6A
10	Adaptor-Reducer (Female outer to Universal 3/8-inch—50-ohm MI-27791-D Male outer, Channels 4, 5 and 6).....	MI-27792-D-6B
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10	Adaptor-Reducer (Female outer to Universal 3/8-inch—50-ohm coaxial with male outer, Channels 14 to 83 only).....	MI-27792-D-6D
10	Adaptor-Reducer (Female outer to Universal 3/8-inch—50-ohm EIA line MI-19089, Channels 14 to 83 only).....	MI-27792-D-6K
10	Adaptor (Female outer to 3/8-inch—51.5-ohm coaxial line, Channels 2 and 3).....	MI-27792-D-6L
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10	Adaptor-Transformer (Female outer to 6 1/8-inch—51.5-ohm MI-19314 Flanged line, Channels 2 and 3).....	MI-27792-D-6R
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10	Adaptor-Transformer (Female outer to 6 1/8-inch—51.5-ohm MI-19314 Flanged line, Channels 7 through 13).....	MI-27792-D-6U
10	Adaptor (Female outer to bolt flange 6 1/8-inch—75-ohm coaxial line).....	MI-27792-D-7A
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VHF COAXIAL TRANSMISSION LINE

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26	Reducer Coupling, Unflanged.....	MI-19113-C-7
26	Straight Coupling.....	MI-19113-C-8
26	Straight Coupling.....	MI-19113-C-8-NB
26	Special Inner Conductor.....	MI-19113-C-9
26	O-Ring Gasket.....	MI-19113-C-10
26	Inner Connector.....	MI-19113-C-11
26	Cover Plate.....	MI-19113-C-13
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31	Reducer Coupling, 6¼-inch to 3¼-inch Gassed Line.....	MI-19314-C-4
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UHF COAXIAL TRANSMISSION LINE

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