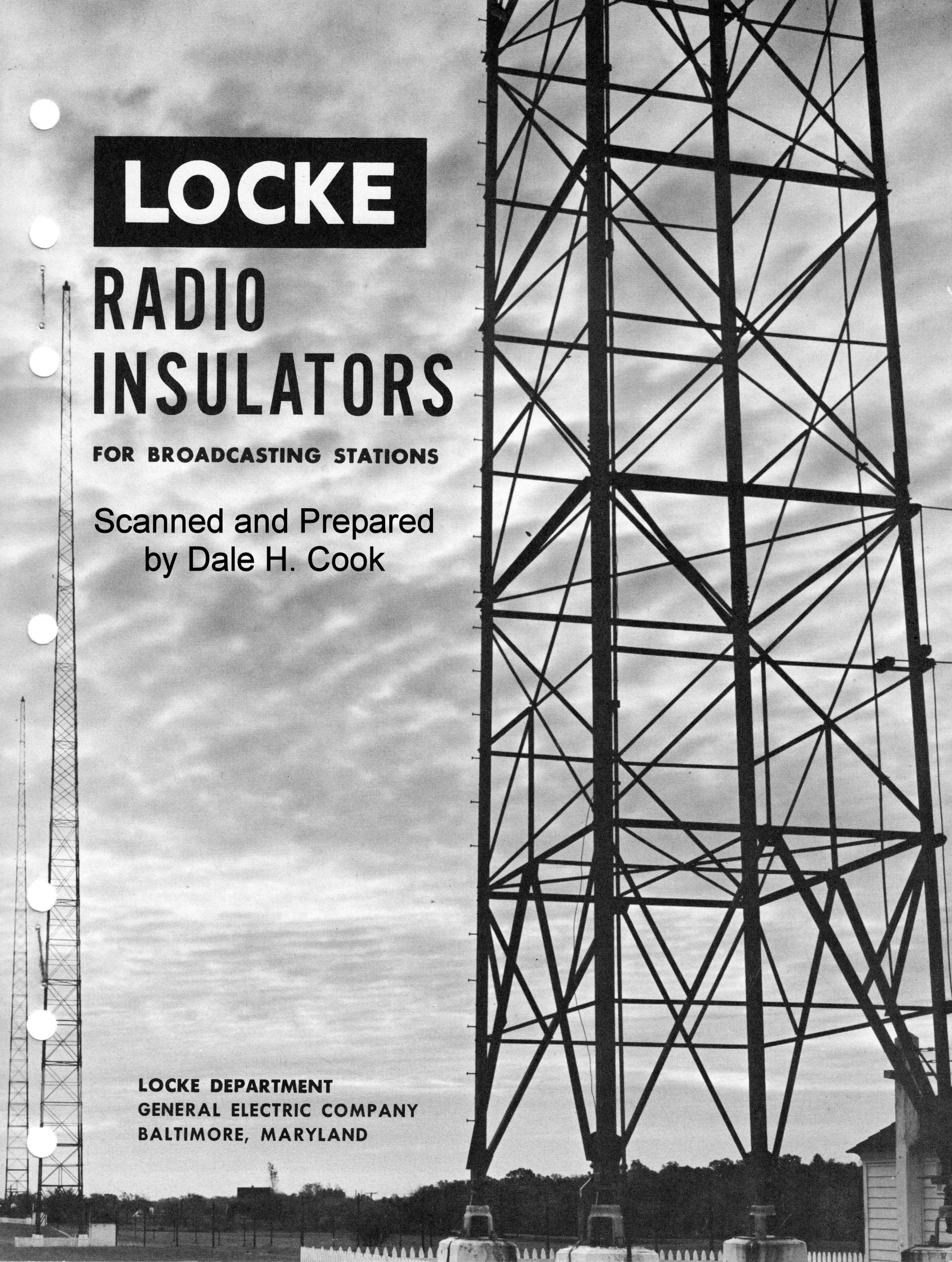


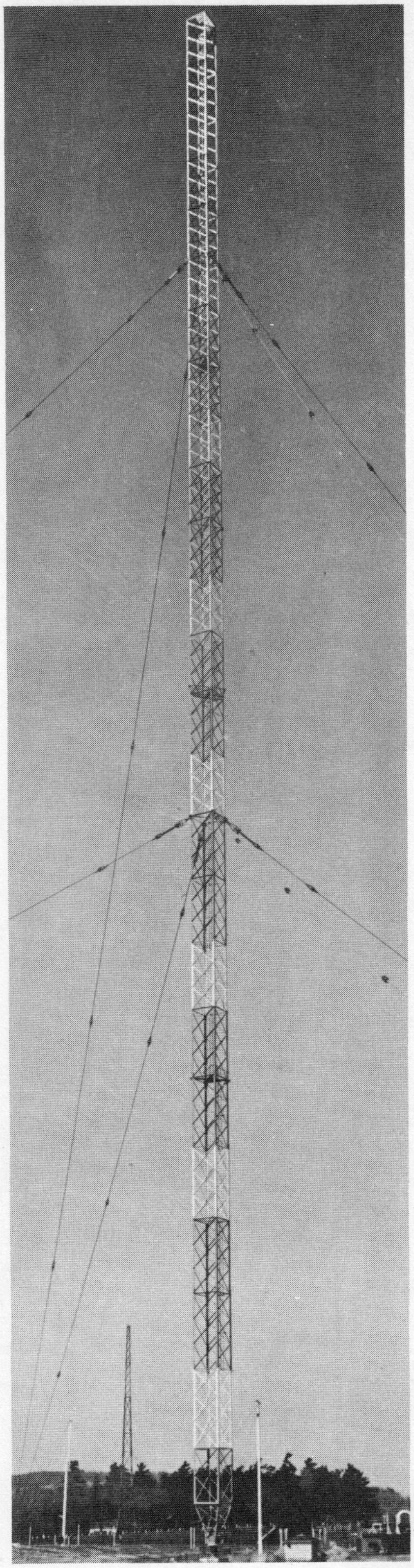
LOCKE

RADIO INSULATORS

FOR BROADCASTING STATIONS

Scanned and Prepared
by Dale H. Cook

LOCKE DEPARTMENT
GENERAL ELECTRIC COMPANY
BALTIMORE, MARYLAND



The insulation problems presented by the first broadcasting stations erected in this country were practically the same as those faced by the regular broadcasting stations today.

Notable among the early broadcasting installations were the United States Navy Station at Radio, Virginia, the Darien Station in the Canal Zone and the United States Navy Station at Arlington, Virginia. For all of these stations, Locke designed and manufactured the insulators.

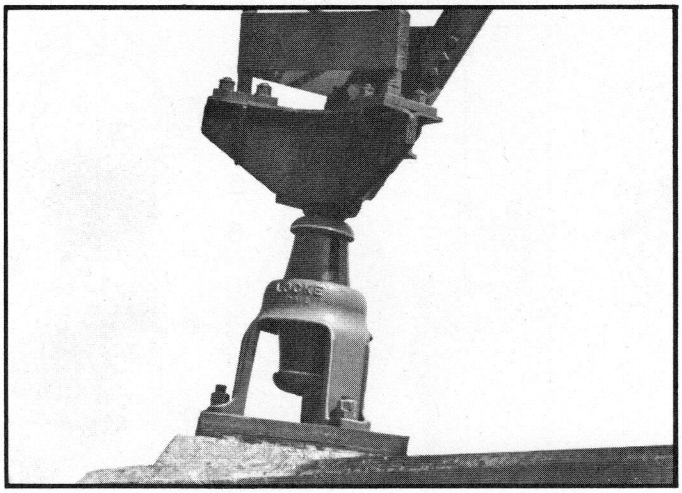
Since then, Locke has furnished the insulators for a large number of the commercial broadcast towers in use today. In addition to furnishing the Radio Insulators, Locke is in position to furnish certain hardware and associated material used for antennas, transmission lines, grounds and counterpoises.

Only equipment generally used has been listed in this catalog. If what you require is not listed here, refer to Locke Department, General Electric Company, Baltimore 3, Maryland.

INDEX

PUSH-PULL INSULATORS

For Self-supporting Vertical Radiators



Self-supporting vertical radiators—usually three or four legged structures—are supported by one "Push-Pull" tower base insulator under each leg.

The structure is generally mounted on a concrete pier. When buildings of sufficient size are available, towers are often mounted on the roof.

Due to absence of guys and their need for ground space, the self-supporting structure is most economical for limited coverage and is practical for radiators up to 500 ft. high. Beyond that, it is most difficult to design economical "Push-Pull" base insulators. This may limit the height of self-supporting towers to 1/4 or 3/8 of the wave length. Fortunately, such a ratio provides a highly effective antenna for the area involved.

The "Push-Pull" insulator's main part is an extremely rugged porcelain double cone which is uniform, homogeneous and free of imperfections.

It is supported at its mid-section by a high grade cast steel flange with three legs. Special cast steel caps are permanently cemented to each end of the porcelain. The central stud passing through the capped insulator is provided with a ball nut which is automatically self-seating in the tapered recess of the lower cap. Thus, the uplift or over-turning moment of the tower is transmitted directly through the insulator to the base bolts.

Between the tower shoe and the upper cap of the insulator is an equalizing washer. Its rounded under-surface, in contact with the rounded surface of the top cap, forms a rolling joint which permits exact alignment despite possible slight deviations and avoids undue stress or concentrated cantilever force on the porcelain. This also minimizes the stresses which might be placed on the porcelain by the weaving of the tower.

The tower leg shoe rests firmly on the flat top of the equalizing washer and is held fast by a hex nut, surmounted by a jam nut.

It is recommended that these insulators be supplied with one spark gap.

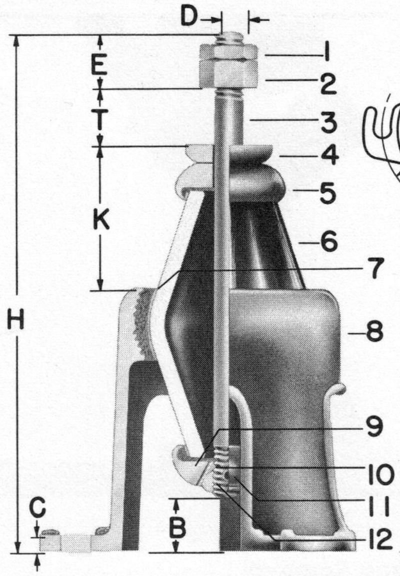
Installation and Removal

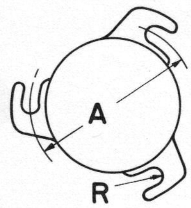
Three anchor bolts, spaced to engage the slotted feet of the base insulator, are built into each pier and should in most cases extend practically to the bottom of the concrete. They extend above the plate grouted into the top of the pier to which the legs of the insulator are bolted. This stable three point support assures proper load equalizing, and materially simplifies removal.

The tower's and the insulator's safety depends on proper installation of the insulators. Each shipment from the factory is accompanied by an instruction bulletin, giving detailed information which should be carefully followed.

To remove the insulator take the nuts from the top end of the stud and let the stud drop. Pull the Lock pin from the ball nut and unscrew it from the bolt. Pull the bolt up and out. Relieve the insulator of the weight of the tower, (no lifting of the leg is necessary). Remove the equalizing washer. Slight anti-clockwise rotation of the insulator clears the feet from the foundation bolts. The unit can then easily be withdrawn.

Locke Radio Insulators have a long record of satisfactory service under all climatic conditions and with many different makes of self-supporting towers. Since the choice of insulator depends largely on the weight of the tower and assumed loading conditions, final selection should generally be left to the tower manufacturer.





PUSH-PULL INSULATORS (Continued)

For Self-supporting Vertical Radiators

1. Jam Nut, steel, galvanized
2. Standard Nut, steel, galvanized
3. Thru Bolt, steel, galvanized
4. Equalizer, steel, galvanized
5. Top Cap, steel, galvanized
6. Porcelain Cone, chocolate compression glaze inside and outside for greater strength and stability.
7. Cement, all exposed surfaces waterproofed.
8. Base, steel, galvanized
9. Bottom Cap, steel, galvanized
10. Drain Hole.
11. Lock Pin, steel, galvanized
12. Ball Nut, steel, galvanized

All galvanizing is hot double dip, applied by the Locke Permazinc process

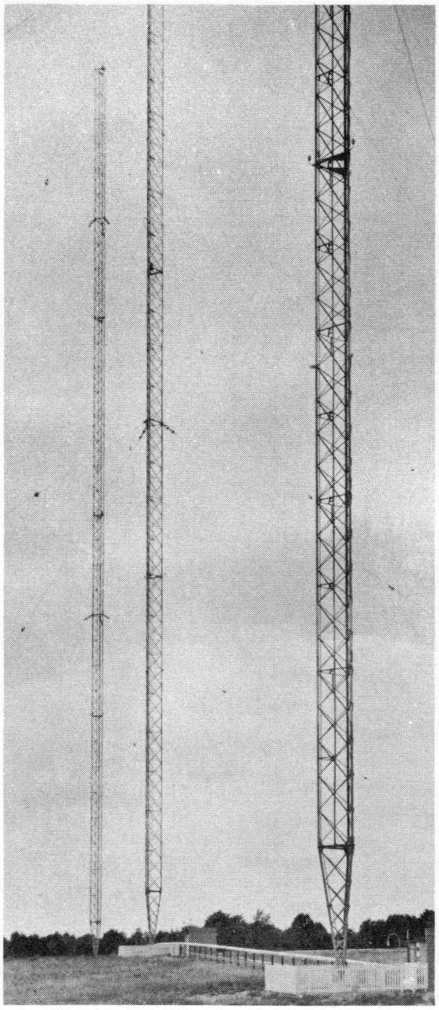
DIMENSIONS

Catalog Number	Dimensions are in inches									
	A	B	C	D	E	H	K	R	Diameter Foundation Bolts	Standard * "T" Dimen.
25003	15	2 7/8	3/4	1 3/8	2 3/8	15 1/2	2	9/16	1	7/8
25005	18	2 3/4	1	1 9/16	2 3/4	18 1/2	3	11/16	1 1/4	7/8
25075	21	6	1 1/4	2 1/2	4 3/4	31 7/8	6	1 3/16	2 1/4	1 3/4-2 1/2
25086	15	3 3/4	3/4	1 3/8	2 3/8	24 1/2	6	5/8	1 1/8	1 3/4-2 1/2
25087	18	3 3/4	1	1 5/8	3	25 1/2	6	13/16	1 1/2	1 3/4-2 1/2
25100	18	3 3/4	1	1 5/8	3	25 1/2	6	13/16	1 1/2	1 3/4-2 1/2
25109	21	4 1/4	1 1/4	2 1/2	4	33 3/8	7 1/2	1 5/16	2 1/2	1 3/4-2 1/2
25212	20	4	1 1/8	2	3 5/8	28	6	1 1/16	2	1 3/4-2 1/2

*"T" Dimensions must be specified.
"T" Dimensions other than those shown, can be furnished on request.

CHARACTERISTICS

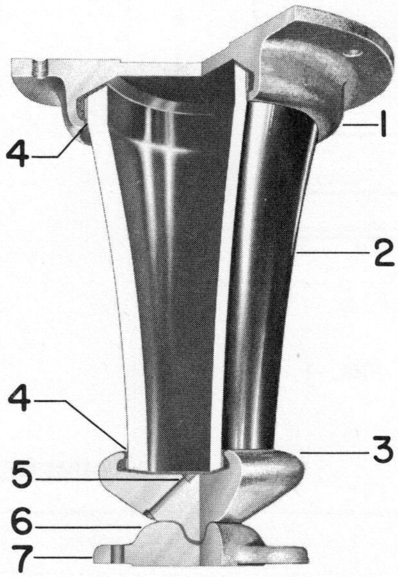
Mechanical Data					60 Cycle Flashover-Kv		Capacity MMF	Net Weight Lb.	Catalog Number
Average Ultimate Strength			Max. Rec. W'king Load						
Tension	Compression	Shear	Tension	Compression	Dry	Wet			
90,000	90,000	4,000	30,000	35,000	30	15	37	83	**25003**
150,000	150,000	7,500	50,000	60,000	35	18	43	154	**25005**
450,000	510,000	11,000	150,000	170,000	60	30	40	370	**25075**
90,000	90,000	3,000	30,000	35,000	60	30	35	100	**25086**
150,000	150,000	4,500	50,000	60,000	60	30	45	175	**25087**
180,000	210,000	4,500	60,000	70,000	60	30	45	175	**25100**
450,000	540,000	9,000	150,000	180,000	75	40	40	410	**25109**
300,000	300,000	12,000	100,000	120,000	60	30	37	315	**25212**



PIVOT INSULATORS

1. Flanged Cap, steel, galvanized
2. Porcelain Cone, compression glazed inside and outside for greater strength and stability
3. Bottom Cap, steel, galvanized
4. Cement, all exposed surfaces water-proofed
5. Drain Hole
6. Socket Base, steel, galvanized
7. Retaining Ring, steel, galvanized

All galvanizing is hot double dip, applied by the Locke Permazinc process.



Guyed vertical radiators are usually slender structures of uniform cross section, or variants such as the single pipe masts made up of sections of steel pipe, each section successively smaller than the section below it. These sections are inserted into each other and connected like an extended telescope. The masts are also supported on a single pivot insulator and held vertical by insulated guys attached at several elevations.

The pivot insulator must normally support the total weight of the structure plus the vertical component of the summation of the tension in the guys. In addition, it must be able to support the weight of ice which may be deposited on the tower and to absorb cantilever stresses produced by an unbalanced wind loading on sections of the structure above and below the point at which the guys are attached.

PIVOT INSULATORS (Continued)

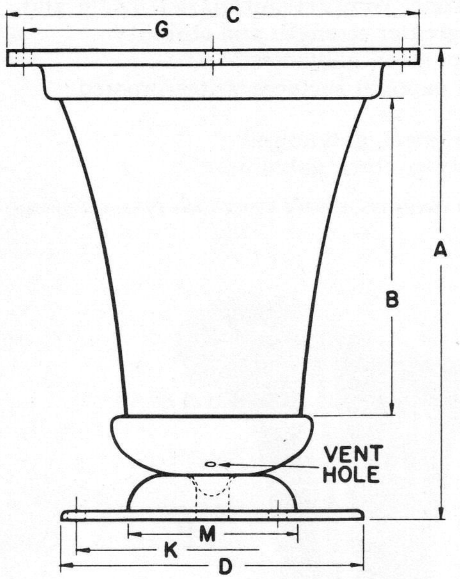


FIG. 1

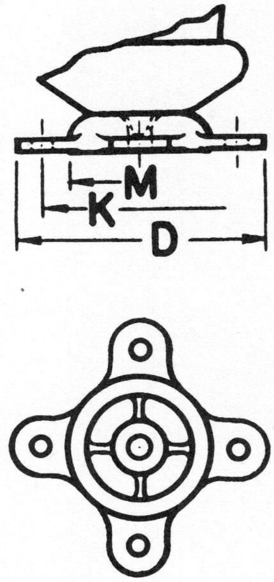
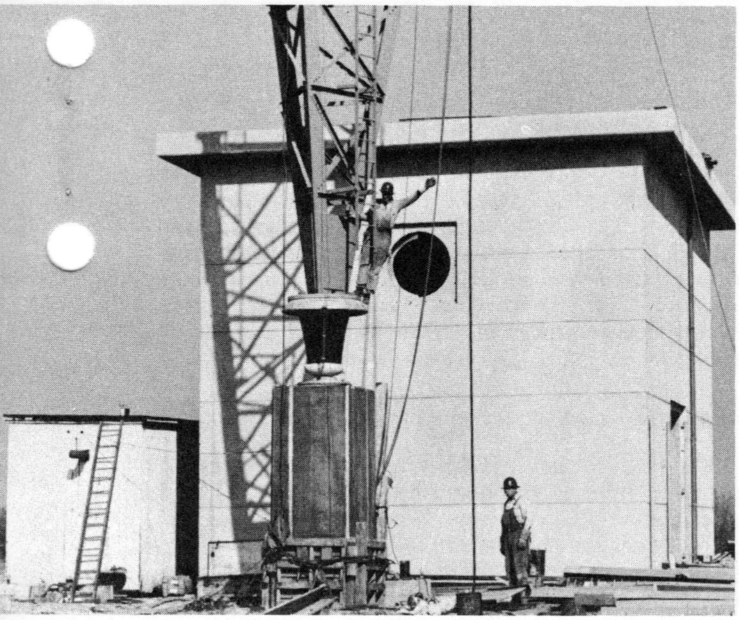


FIG. 2

DIMENSIONS

Catalog Number	Figure No.	Dimensions are in Inches										
		A	B	C	D	M	Bolt Circle Upper G	Bolt Circle Lower K	No. & Size of Bolt Holes Upper		No. & Size of Bolt Holes Lower	
25000	1	42	32	$22\frac{1}{2}$	$21\frac{1}{4}$	$12\frac{1}{4}$	20	17	4	$\frac{7}{8}$	3	$1\frac{1}{8}$
25001	1	$41\frac{3}{4}$	30	28	$24\frac{1}{2}$	$12\frac{1}{4}$	$25\frac{1}{2}$	18	4	$1\frac{1}{8}$	3	$1\frac{1}{4}$
25002	1	$44\frac{1}{2}$	30	38	28	16	35	25	4	$1\frac{3}{8}$	3	$1\frac{5}{8}$
25048	2	$38\frac{7}{8}$	30	$22\frac{1}{2}$	$11\frac{1}{4}$	$6\frac{1}{2}$	20	$8\frac{3}{4}$	4	$\frac{7}{8}$	4	1
25114	1	$45\frac{3}{4}$	30	$42\frac{1}{2}$	30	16	39	25	4	$1\frac{3}{8}$	3	$1\frac{3}{8}$
25047	2	$23\frac{1}{4}$	15	18	$11\frac{1}{4}$	$6\frac{1}{2}$	$15\frac{3}{4}$	$8\frac{3}{4}$	4	$\frac{7}{8}$	4	1
25084	1	28	18	$22\frac{1}{2}$	$21\frac{1}{4}$	$12\frac{1}{4}$	20	17	4	1	3	$1\frac{1}{8}$
25085	1	$28\frac{5}{8}$	18	$22\frac{1}{2}$	$21\frac{1}{4}$	$12\frac{1}{4}$	20	17	4	1	3	$1\frac{1}{8}$
25186	1	$32\frac{1}{2}$	17	$36\frac{1}{2}$	30	16	33	25	4	$1\frac{3}{8}$	3	$1\frac{3}{8}$



The Naval Radio Station, Driver, Virginia*

PIVOT INSULATORS (Continued)

In addition to these mechanical stresses, it must be continuously capable of withstanding the voltage at the bottom of the tower without overheating or corona. Pivot insulators are designed for various mechanical loads ranging from 100,000 to 750,000 lbs. with an average safety factor of 4 and in two classes depending upon the kilowatt rating of the transmitter.

The first group (Catalog Nos. 25048, 25000, 25001, 25002 and 25114) has long effective leakage distance and high flashover values. The second group, (Nos. 25047, 25084, 25085 and 25186) has less leakage distance and lower flashover values.

CHARACTERISTICS

Mechanical Data		60 Cycle Flashover Kv.		Capacity MMF Porcelain Only	Net Weight Lb.	Catalog Number
Average Ultimate Strength—Lb.	Maximum Recommended Working Load—Lb.	Dry	Wet			
640,000	160,000	280	115	2.25	486	**25000**
1,000,000	250,000	265	105	3.32	647	**25001**
1,500,000	375,000	265	105	6.00	1500	**25002**
400,000	100,000	265	105	2.02	306	**25048**
1,800,000	450,000	265	105	7.25	1960	**25114**
400,000	100,000	150	70	3.26	167	**25047**
640,000	160,000	180	85	4.00	412	**25084**
1,000,000	250,000	180	85	4.10	439	**25085**
1,800,000	450,000	170	80	11.2	1400	**25186**

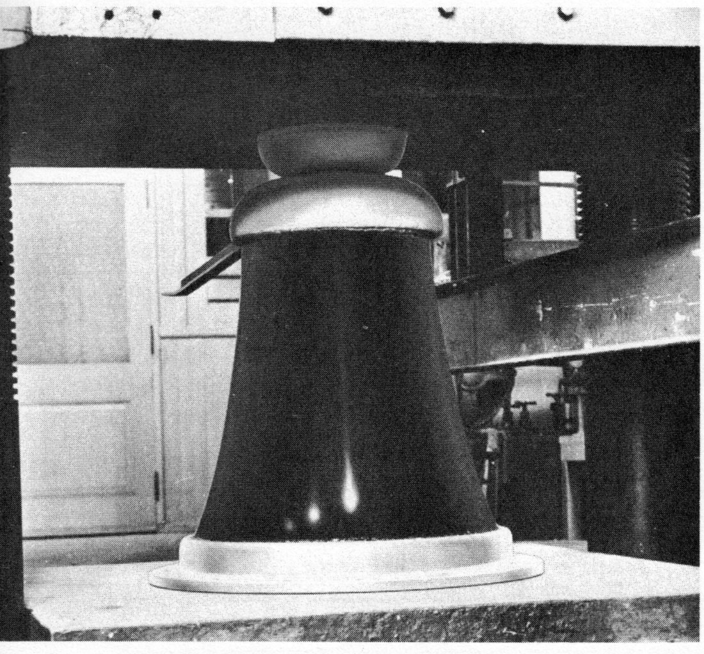
*Constructed under Bureau of Yards and Docks Contract NOy-28492

PIVOT INSULATORS (Continued)

In general, stations operating at or over 50 kilowatt should use the insulator from the first group which meets the mechanical requirements, while those operating with less power can safely use one of the insulators from the second group.

Design

Locke Pivot Insulators consist mainly of a one-piece porcelain cone sufficiently heavy to provide great ruggedness and shock resistance. The cone is used with the large end attached to the tower (except the smaller units used to support pipe masts). This places the largest section of porcelain at the point of greatest flux concentration. Actual tests show materially smaller temperature rise when the voltage is applied at the large end of the porcelain cone than when it is applied at the small end. This, coupled with ample distance between the terminals, prevents overheating from flux concentration. In addition, the cantilever strength of the inverted cone is decidedly higher than that of the upright cone.



Locke Radio Tower Base Insulator undergoing compression test.

The sealed upper end of the pivot insulator is provided with a cast steel cap to which the tower is attached. The lower end of the porcelain is assembled with a cast steel cap, which is rounded and produces a ball and socket joint with a base casting. This end is vented to allow breathing and to prevent condensation of water on the inner surface of the porcelain.

Installation and Removal

The structure is held in place by a circular bearing plate grouted into the concrete foundation. Three foundation bolts project through this plate and hold the annular ring surrounding the base casting. This base casting merely rests on the plate in the foundation and is held in place by the steel ring.

Removal of the insulator may be accomplished as follows:

1. Relieve the weight of the tower from the insulator (some towers are made with provisions for jacks).
2. Remove the nuts from the foundation bolts and lift the annular ring surrounding the base until it clears the ends of the bolts. Rotating it slightly will permit it to rest on the ends of the bolts.
3. Remove the bolts holding the upper flange to the tower structure. The insulator may then be moved out horizontally.

The base casting is made of cast steel. The annular ring is machined from steel plate. All metal parts are smoothly galvanized by the Locke Permazinc process which is considerably superior to average commercial galvanizing.

The lighter insulators Nos. 25047 and 25048 are exceptions to the foregoing. They do not have an annular ring. Instead, the base casting has intergral provision for holding it in place on the foundation plate. If it is necessary to replace one of these insulators, the tower must be raised enough for the pivot point to clear the base casting.

PIVOT INSULATORS FOR PIPE MASTS AND LIGHT STRUCTURES

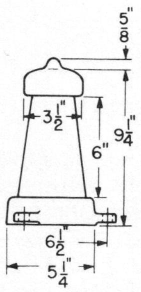
Standard material: Wet process porcelain with chocolate compression glaze. Hardware is steel, Permazinc hot double dip galvanized.

Pipe masts are comparatively light structures presently used only for stations in the lower wattage range.

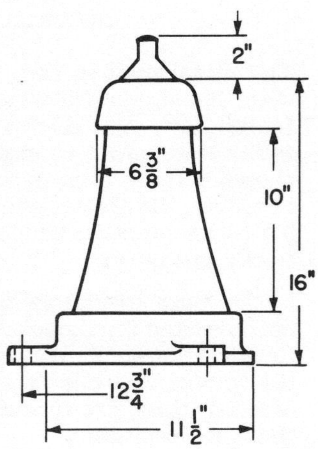
Insulators for this type of antenna are similar to those for fabricated structures and differ mainly in the fittings used for attaching the masts. Since concentration of electrical or mechanical stresses is not a factor, these insulators are made for use in the inverted upright position. This gives desirable flexibility in tower design.

Choice of the insulator is normally determined by physical requirements. Since the bottom of the pipe mast is designed by the tower manufacturer to fit the insulator, it is usually advisable to leave selection of the insulator to the tower manufacturer.

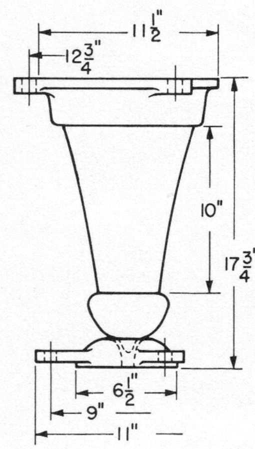
Locke Pivot and Push-Pull Insulators can be furnished with attached rain shields and adjustable gaps, if required.



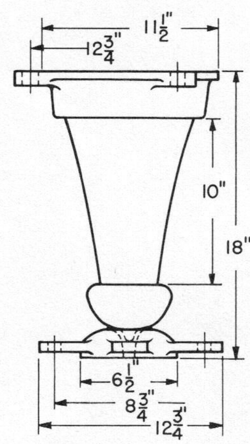
No. 25205



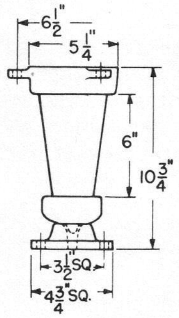
No. 25099



No. 25107



No. 25206



No. 25207

DIMENSIONS AND CHARACTERISTICS

Catalog Number	Mechanical Data		Dimensions are in inches				60 Cycle Flashover Kv.		Net Weight Lb.
	Average Ultimate Strength—Lb.	Maximum Recommended Working Load—Lb.	Upper Bolt Circle	Lower Bolt Circle	No. and Size of Bolt Holes: Upper	No. and Size of Bolt Holes: Lower	Dry	Wet	
25099	200,000	50,000	—	12¾	None	3 1	90	40	80
25107	200,000	50,000	12¾	8¾	3 5/8	3 5/8	85	38	100
25205	80,000	20,000	—	6½	None	3 5/8	60	30	12
25206	200,000	50,000	12¾	9	3 5/8	3 5/8	85	38	95
25207	80,000	20,000	6½	3½*	3 5/8	3 5/8	60	30	16

*Square

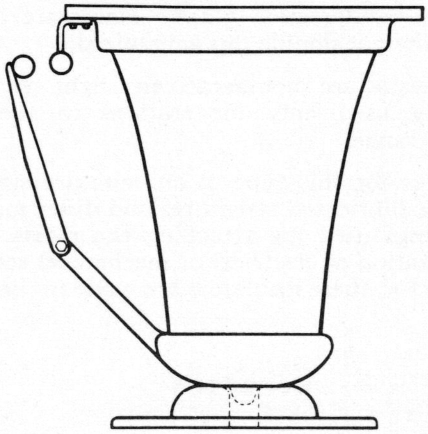
RAIN SHIELDS AND SPARK GAPS

Rain shields are recommended in cases where the peak voltage at the base of the tower is dangerously close to the wet flashover value of the insulator. Properly designed rain shields, by keeping the porcelain relatively dry under all conditions, can remove this hazard and will occasionally permit the use of smaller insulators, than would otherwise be needed.

Adjusting spark gap on Locke Radio Antenna Base Insulator.

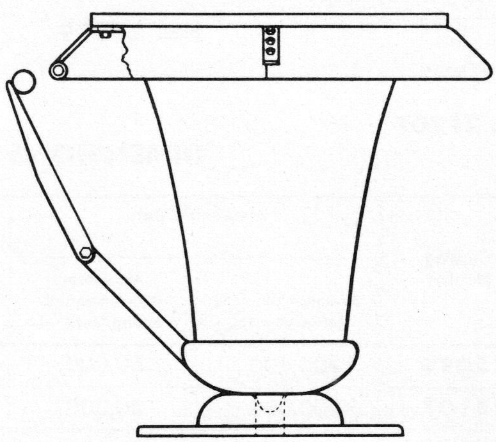
The terminal balls of spark gaps are usually furnished in brass, carefully polished to a smooth surface approximating the laboratory sphere gap as closely as possible.

Since the conditions under which these gaps are required to operate vary widely with individual conditions, no general recommendations can be made but will gladly be given on request when full specific information is made available.

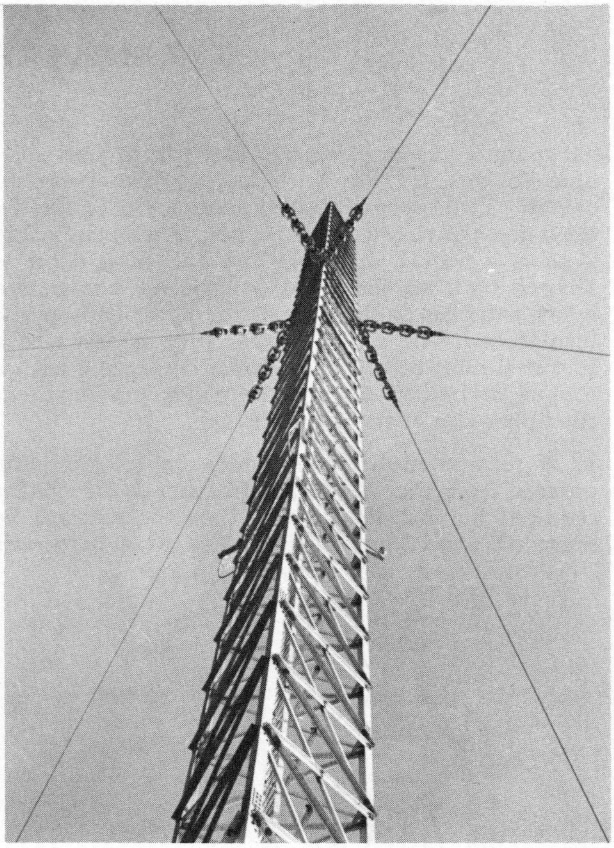


The metal used in rain shields or spark gaps is—with certain limitations—relatively unimportant. In the past, rain shields were principally made of spun aluminum, copper or brass. These were chosen largely because of the ease of fabrication. However, the greater availability of sheet metal has led to its adoption as standard for rain shields for Locke insulators.

Locke base insulators are self-protecting against flashover but for the protection of tuning and transformer equipment against lightning discharges to the towers, spark gaps are often desirable. When ordered, these are furnished as an integral part of the base insulator.



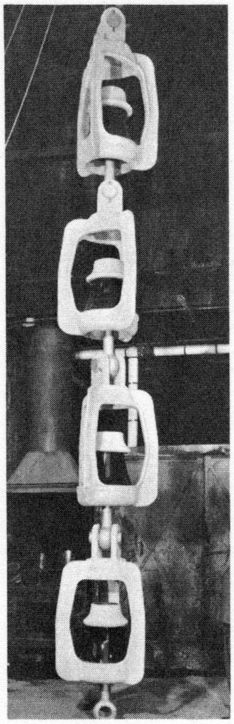
GUY INSULATORS



Standard Material: Wet process porcelain with chocolate compression glaze. Hardware is steel, Permazinc, hot double dip galvanized.

In insulating a guy, two important factors must be taken into consideration: The voltage to be sustained at the point where the guy is attached and the breakup of the guys into sections to minimize absorption of the radiated field.

To take care of the first factor, a suitable number of insulator units should be attached directly to the tower to insulate the radiator itself from the guy. Where the maximum average input to the tower does not exceed 10 kw, one standard guy insulator with 6″ leakage distance is satisfactory for normal operating conditions. Where the average input to the tower is from 10 to 25 kw, two such units are recommended and from 25 to 60 kw, three units. These units are interconnected and the top clevis of the upper unit is attached directly to the tower, as close to it as possible.



Locke Radio Antenna Insulator being rigged for flashover test in Locke high voltage laboratory.

The second factor is met by spacing insulators to divide the guy into short sections. The individual sections should not exceed $\frac{1}{8}$ the wave length of the tower's operating frequency. It is considered good practice to make the upper sections shorter than the maximum length, increasing section length progressively toward the anchor pier so that the last section is about $\frac{1}{8}$ wave length. The insulator nearest the anchor pier should be located as close to the pier as possible, but sufficiently high that it cannot be reached from the ground level.

Two important mechanical factors which govern the selection of guy insulators are the maximum expected working load and the type of cable used for the guys. They are related in that the size and type of cable used in the guys depend on the maximum expected working load.

Both wire rope and high strength steel stranded cables are used for guys. It is usually practical to select a guy cable which will provide a safety factor of three against the maximum working load and to select insulators with ultimate strength at least equal to the strength of the guy.

GUY INSULATORS (Continued)

All manufacturers of such cables can furnish suitable sockets for use with the various types of cables. Two types of sockets generally used are the open and the closed basket type. The open basket type is a socket in which the end of a cable is secured with an alloy and a clevis pin connection which attaches to the eyes at the lower ends of the insulators. The closed basket type consists of a socket similar to the open basket type, but with a tongue or bail to engage the clevis pin detail at the upper end of the insulator.

It is recommended that cables be selected and ordered from the cable manufacturer in the lengths required for installation and that the sections be socketed according to the cable manufacturer's recommendations with the closed basket type on one end and the open basket type on the other. Sections can be proof tested and pre-stressed by the cable manufacturer and delivered to the tower site ready for connection.

The complete line of Locke compression cone guy insulators is coordinated in strength and end fitting dimensions with all types of cables customarily used for guying vertical radiators. Essential dimensions, safe working load ratings, and recommended proof test loads are shown below. To further assist you in making the correct selection, the tables below show the cable sizes and stranding of strand and wire rope for which each of the insulators is intended.

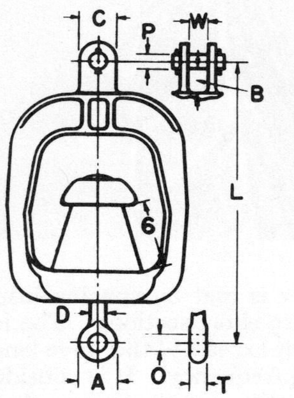


FIG. 1

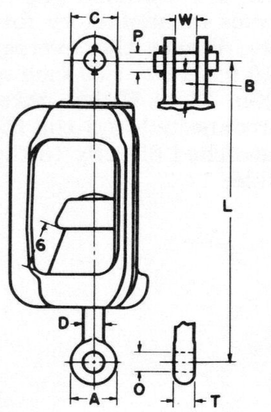


FIG. 2

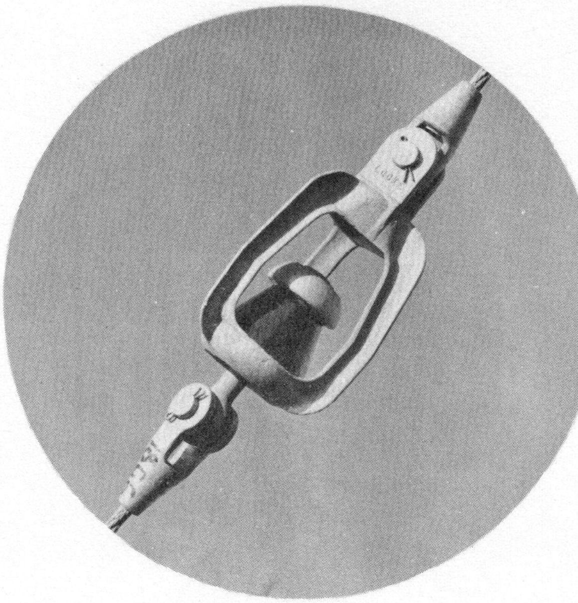
DIMENSIONS

Catalog Number	Figure No.	Dimensions are in Inches								
		A	W	P	T	O	D	B	C	L
25118	1	$2\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{3}{16}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$2\frac{3}{8}$	$2\frac{1}{4}$	$27\frac{1}{4}$
25120	1	3	$1\frac{1}{2}$	$1\frac{3}{8}$	$1\frac{1}{4}$	$1\frac{7}{16}$	$1\frac{1}{4}$	$2\frac{5}{16}$	$2\frac{3}{4}$	$27\frac{1}{4}$
25125	1	$3\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{1}{2}$	$1\frac{11}{16}$	$1\frac{3}{8}$	$2\frac{3}{16}$	$3\frac{1}{4}$	$27\frac{1}{4}$
25130	1	$3\frac{1}{2}$	2	2	$1\frac{3}{4}$	$2\frac{1}{16}$	$1\frac{1}{2}$	2	4	$27\frac{1}{4}$
25135	2	$4\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{1}{4}$	2	$2\frac{5}{16}$	$1\frac{3}{4}$	$2\frac{7}{8}$	$4\frac{1}{2}$	31
25140	2	$4\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{9}{16}$	2	$2\frac{3}{4}$	5	31
25145	2	$5\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{3}{8}$	$2\frac{9}{16}$	$2\frac{1}{4}$	$2\frac{3}{4}$	$5\frac{1}{4}$	31
25150	2	$5\frac{1}{2}$	3	$2\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{13}{16}$	$2\frac{1}{4}$	$2\frac{5}{8}$	$5\frac{1}{4}$	31
25155	2	$5\frac{1}{2}$	3	$2\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{13}{16}$	$2\frac{1}{2}$	$4\frac{1}{8}$	$5\frac{3}{4}$	39
25160	2	$5\frac{1}{2}$	3	3	$2\frac{3}{4}$	$3\frac{1}{16}$	$2\frac{1}{2}$	4	6	39
25165	2	$6\frac{3}{4}$	$3\frac{1}{2}$	$3\frac{1}{2}$	3	$3\frac{9}{16}$	$2\frac{3}{4}$	$3\frac{3}{4}$	$6\frac{1}{2}$	39
25170	2	$6\frac{3}{4}$	$3\frac{1}{2}$	$3\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{9}{16}$	3	$4\frac{1}{4}$	$6\frac{3}{4}$	44
25175	2	$6\frac{3}{4}$	4	$3\frac{3}{4}$	$3\frac{1}{2}$	$3\frac{13}{16}$	3	$4\frac{1}{8}$	7	44
25180	2	$6\frac{3}{4}$	4	$3\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{13}{16}$	$3\frac{1}{4}$	$4\frac{5}{8}$	$7\frac{1}{2}$	52

See Section 6 for other Guy Insulators.

GUY INSULATORS (Continued)

In any given size of wire rope or strand, there will be found some variation in the strength and load recommendations given by individual cable manufacturers. Strength ratings on the insulators have been established to meet the highest values given for each size and stranding. This means that the selected insulator will be at least as strong as the cable for which it should be used and will properly fit the sockets furnished by all manufacturers. Locke guy insulators are standard with clevis connections at the upper end and eyes in the lower end. This design makes it possible for you to obtain insulators proof tested and ready for assembly in guys and suitable cable sections proof tested, pre-stressed and ready for installation.

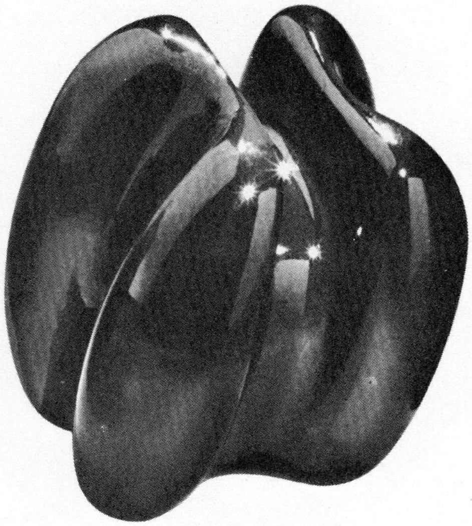


CHARACTERISTICS

Cable Size		Average Ultimate Strength Lb.	Maximum Recommended Working Load Lb.	Net Weight Lb.	Catalog Number
Rope	Strand				
5/8	1/2	36,000	12,000	94	**25118**
3/4	5/8	52,000	17,000	97	**25120**
7/8	3/4	70,000	23,000	100	**25125**
1	7/8	94,000	31,000	105	**25130**
1 1/8	1-37 Str.	124,000	42,000	165	**25135**
1 1/4, 1 3/8	1-19 Str., 1 1/8	156,000	52,000	175	**25140**
1 3/8	—	194,000	65,000	187	**25145**
1 1/2	1 1/4	194,000	65,000	190	**25150**
1 1/2	1 3/8-61 Str.	232,000	78,000	on application	**25155**
1 5/8	1 3/8-37 Str., 1 1/2-61 Str.	276,000	92,000	on application	**25160**
—	1 1/2-37 Str.	276,000	92,000	on application	**25165**
1 3/4, 1 7/8	1 5/8	334,000	112,000	490	**25170**
2	1 3/4	380,000	126,000	500	**25175**
2 1/8	—	428,000	143,000	on application	**25180**

See Section 6 for other Guy Insulators.

GUY INSULATORS (Continued)
OPEN-END TYPE

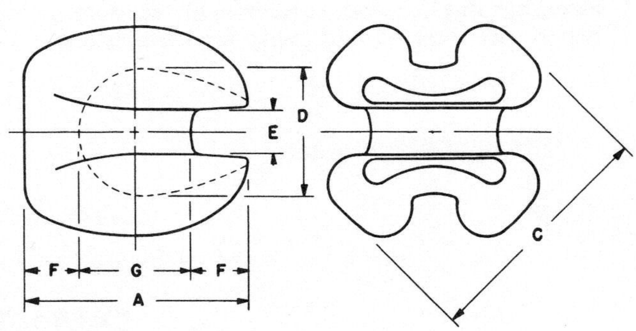


Locke open-end guy insulators are designed for use where unusually high mechanical strengths are necessary. They are generally used with strand having preformed interlocking loops, the insulators being inserted into the guys after erection.

While not suited for use as primary insulators the high degree of mechanical strength which they will develop and the ease with which they can be assembled into the structure recommends them for special applications beyond the strength range of the standard guy insulators.

In addition to their other uses these are extensively used in radio tower guys and for similar duty on marine radio work.

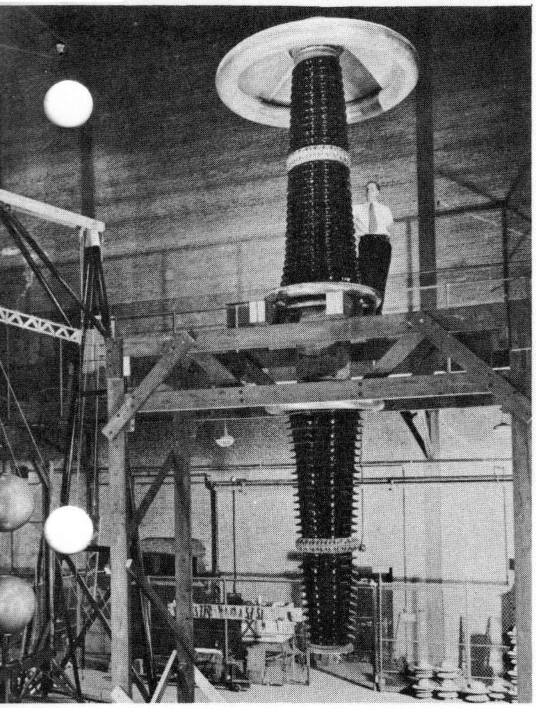
These insulators are made from wet process porcelain only and conform to Navy Specifications 16-I-2-D.



DIMENSIONS AND CHARACTERISTICS

Catalog Number	Cable Size Inches	Dimensions—Inches						Mechanical Strength Pounds	60 Cycle Flashover, kv.		Wt. Lb. per C		Std. Pkg.
		A	C	D	E	F	G		Dry	Wet	Net	Pkd.	
24273	1/4	3	3 3/16	1 1/2	3/8	5/8	1 3/4	12,000	16	7.5	110	122	32
24272	3/8	3 5/16	3 9/16	1 3/4	9/16	3/4	1 13/16	15,000	15	8	150	162	50
24210	1/2	3 3/4	4 1/8	2 1/16	11/16	29/32	1 15/16	20,000	16	8	200	215	32
24212	5/8	4 5/16	4 11/16	2 7/16	7/8	1 3/32	2 1/8	30,000	18	9	300	325	18
24369	3/4	4 5/8	5 5/16	2 13/16	1 1/16	1 3/16	2 1/4	42,000	21	10.5	435	485	12
24213	7/8	5 1/2	6 7/16	3 1/2	1 5/16	1 13/32	2 11/16	57,000	25	13	700	775	8
24221	1	6	7 3/8	4	1 1/2	1 1/2	3	78,000	30	15	1020	1195	8

Locke Insulator Plant,
Baltimore, Maryland.



300,000 Volt Radio Frequency
Bushing built by Locke.

The high standards of quality which have made the name Locke synonymous with porcelain quality all over the world, are reflected in every Locke Radio Insulator.

Engineering skill, experience and laboratory testing facilities are combined to give you not only superb performance of the Radio Insulators listed in this catalog, but also expert assistance in special radio insulation problems.

Trained Locke representatives are located throughout the country. If you desire further information, please address your letter as shown below.

LOCKE DEPARTMENT • GENERAL ELECTRIC COMPANY

P. O. BOX 57, BALTIMORE 3, MARYLAND

LOCKE

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GENERAL ELECTRIC COMPANY
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