

Installation Instructions for the Lightning Dissipation Spur Kits

CAUTION: Contact with the sharp points can result in physical harm. ERI recommends masking the points during installation for worker protection. Do not attempt to install this product during unfavorable weather conditions.



ERI LRK0004-A3 Lightning Spur Kit

The Lightning Spur has two basic configuration kits depending upon the size, type of structure, and protection level desired. The LRK0004-A and LRK0008-A series kits mount to a tower leg or inner member. The LRK0005-C series kit mounts to the beacon plate. The number after the kit letter indicates the number of kits in the assembly. As an example, an A3 assembly is comprised of three (3) A1 kits.

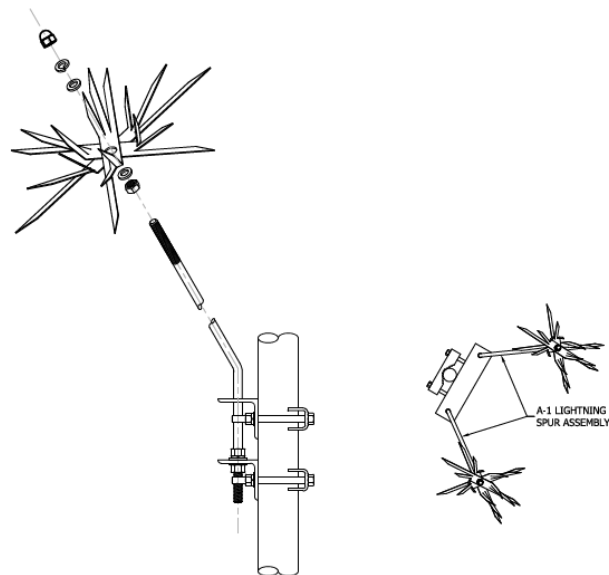
A detailed summary of parts included in each type of kit is listed on the back page. Please inventory all parts and review these instructions prior to attempting installation. Call ERI at +1 (812) 925-6000 or e-mail technicalsupport@eriinc.com if any questions arise.

Installation:

1. Prior to installation, attach the stainless-steel blades to the top of each rod with the points up.
2. With the blades in the collapsed position, mask the tips.
3. Remove all paint or non-conductive coatings from the area of contact between the mounting bracket or link plate, U-bolts, and mounting member.
4. When installing the A kit (shown on previous page) or A-J kit to a vertical member, use the U-bolts or J-bolts for the round member diameter specified at the time of purchase. Any 3/8" galvanized or suitable stainless-steel structural U-bolt or J-bolts and chain may be substituted.

When installing the A-H or LRK000A-HW kit mounting bracket to a horizontal member, use the U-bolts and extension plates specified at the time of purchase, or substitute any structural, galvanized or stainless 3/8-inch U-bolt.

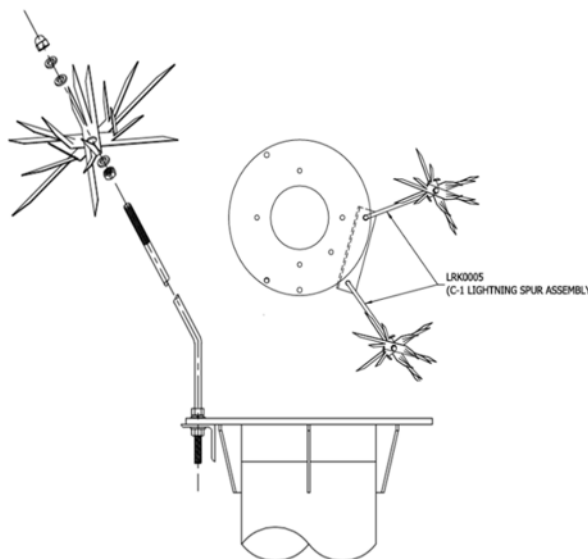
When installing any "A" kit, bolt the angle brackets directly to the vertical or horizontal member as shown. The top and bottom round holes should be vertically aligned. The top bracket should be placed above the threads of the rod. When in place, torque the U-bolt or J-bolt assemblies sufficiently to prevent rotation.



ERI A1 Lightning Spur Kit includes two (2) angle brackets for vertical or horizontal member mount.

When installing LRK0005-C1 or LRK0005-C2 kit to a beacon plate three possible alternatives are available:

- A. Remove a beacon attachment bolt and use the threaded ends of the furnished rods to pass through the beacon bolt holes. Secure the beacon using the rods of the Lightning Spur.
- B. Remove a beacon attachment bolt, use the furnished 5/8-inch extended stainless-steel bolts attach the mounting plate or the link plate to the beacon plate and beacon assembly.
- C. Use an existing, or drilled, 13/16-inch diameter hole in the beacon plate to attach either the Lightning Spur rods directly, or the link plates and mounting bracket. All ERI beacon plates are manufactured with four additional holes.
- D. When using the link plates and mounting bracket, attach to the beacon plate in two locations.



ERI LRK0005-C1 Lightning Spur Kit includes one (1) angle brackets and two (2) flat brackets for the tower top beacon plate mount.

1. Remove the masking tape and rotate the collapsed blades to provide maximum tip to tip separation distance. Secure the blades in this position with the top galvanized flat washer, lock washer and nut. Fully thread the top nut. Do not allow any threads to extend beyond the nut.
2. Install each rod through the top bracket and lower mounting bracket. Secure with the double nut, lock washer and flat washer sets at the lower bracket only. Arrange the rods to achieve the desired array configuration and maximum separation.
3. Torque each bolt assembly sufficiently to prevent rotation.
4. If desired, attach an optional grounding wire by means of the bolt assembly.
5. A direct, continuous, and low impedance path to earth, and a low resistance interface with the earth is essential for proper operation of the Lightning Spur. Additional grounding materials are available from ERI.

Maintenance

When dissipating the electrical charge, ionization and material loss will occur at the pointed tips of each blade of the Lightning Spur. Sufficient material loss will reduce the effectiveness of this product. During the tower's annual inspection or beacon bulb replacement, the degree of material loss and resulting blunting of the tips should be investigated and blades replaced if necessary. Replacement blades and hardware are available from ERI.

Warranty

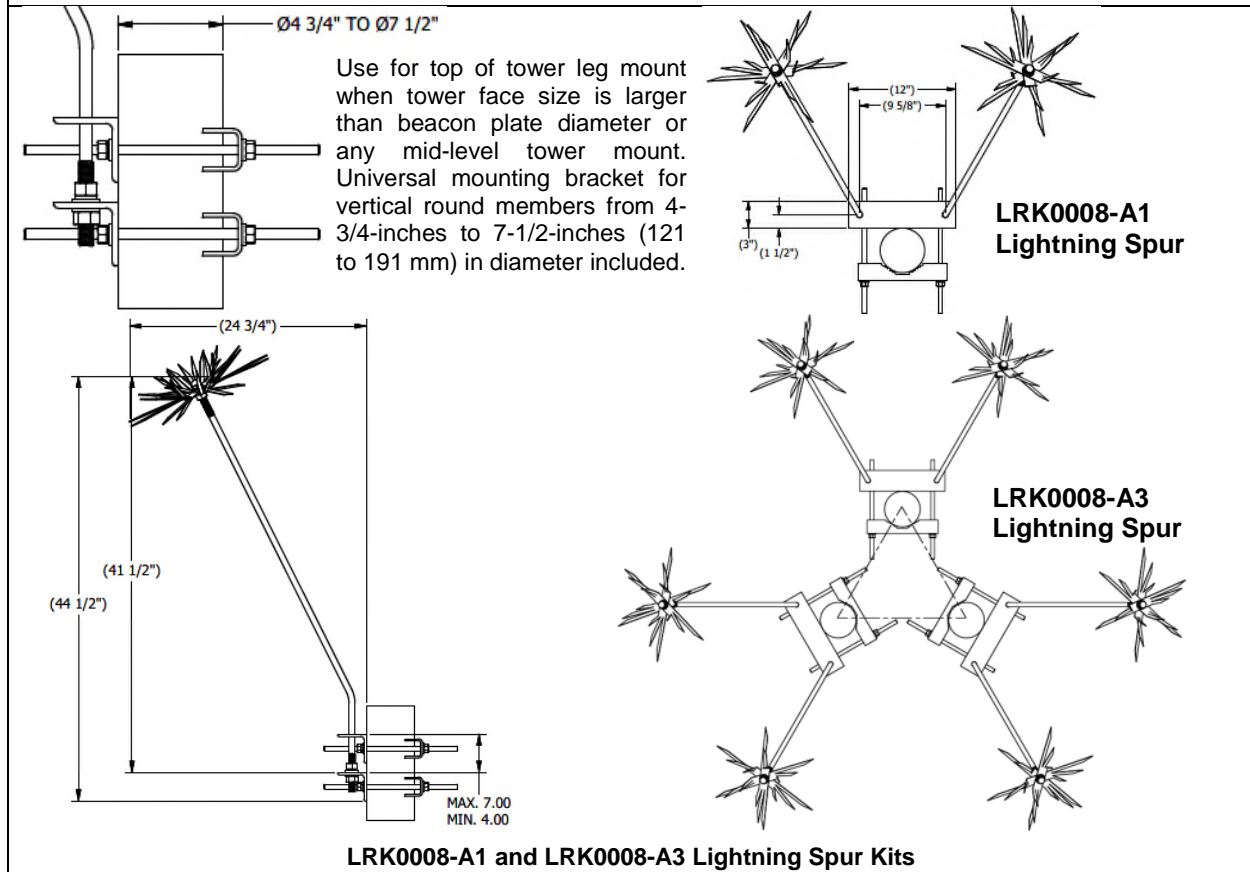
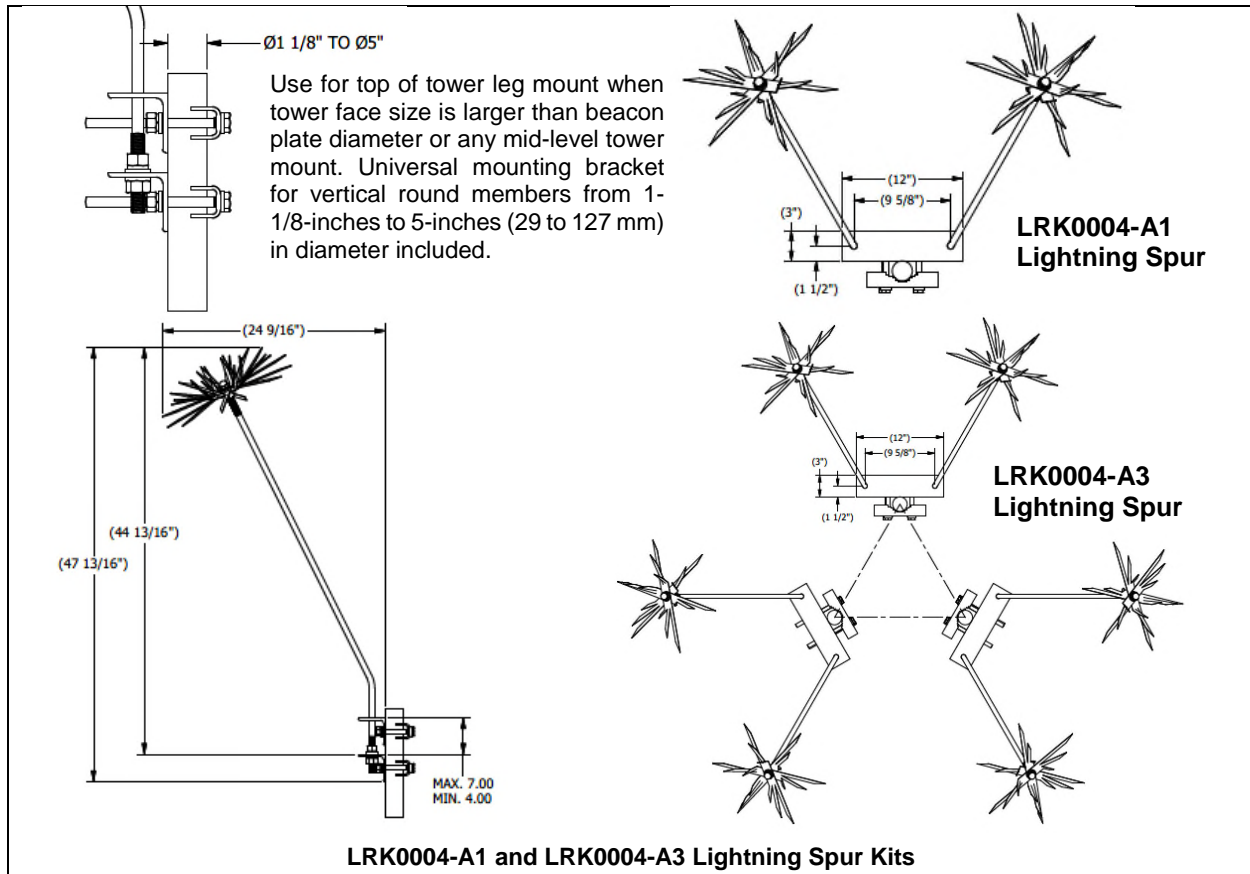
Electronics Research, Inc. (ERI) warrants the material and workmanship of the Lightning Spur as designed and manufactured by ERI and installed in accordance with the above instructions for one year from the date of purchase. If you are dissatisfied with the product during its period, ERI will refund the original purchase price upon return of the product. Due to the unpredictable nature of lightning and the variable grounding conditions encountered, ERI makes neither claim nor guarantee that the Lightning Spur system will prevent lightning strikes or equipment damage.

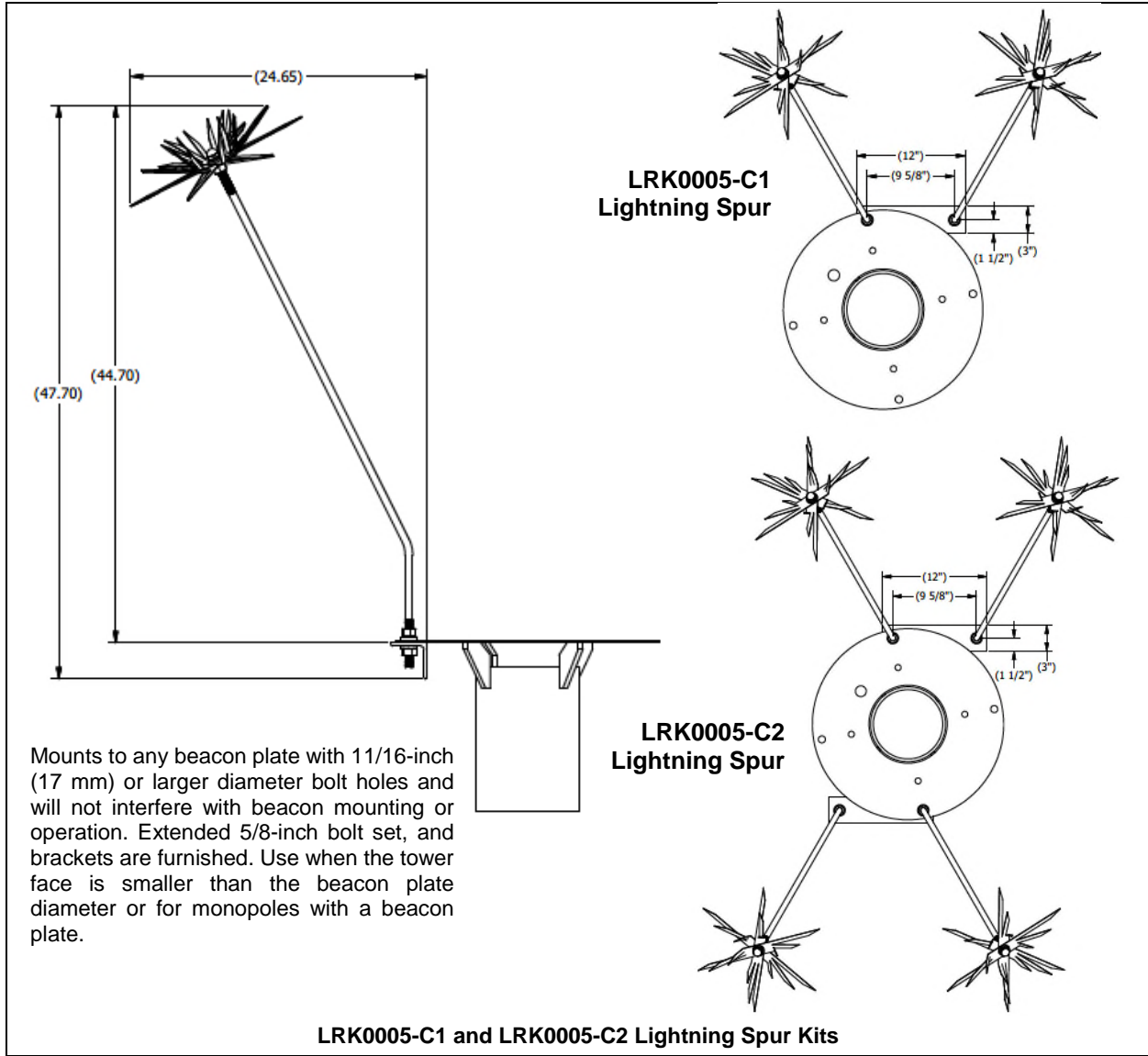
INSTALLATION NOTES:

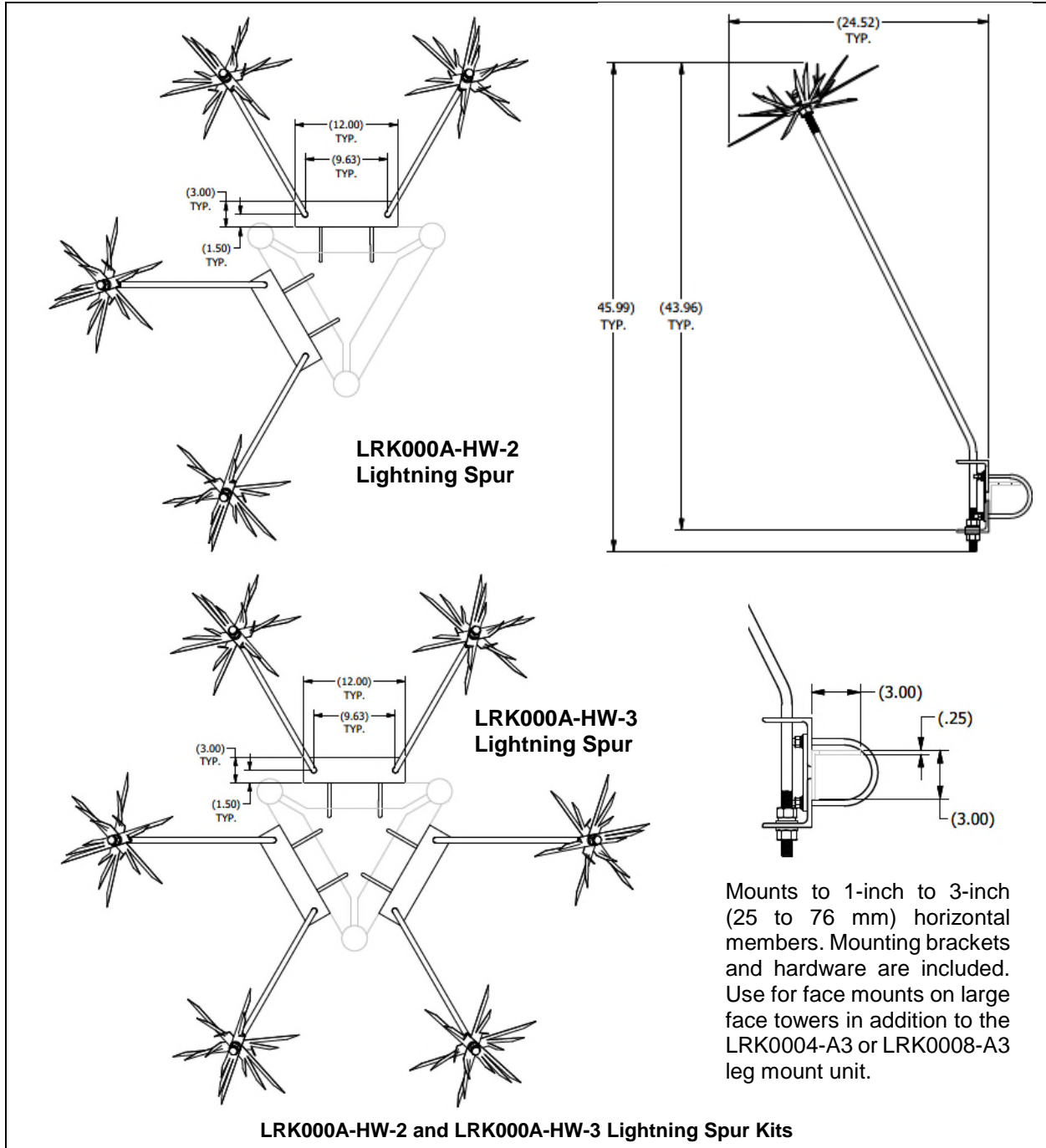
1. LIGHTNING SPURS SHOULD BE INSTALLED AT TOP OF TOWER, ABOVE BEACON LEVELS, AND ABOVE ANY CRITICAL ANTENNAS.
2. BENT ROD SPUR ASSEMBLIES SHOULD BE ROTATED SUCH THAT THEY ARE EVENLY SPACED ABOUT THE OUTSIDE OF THE TOWER.
3. IT IS ERI'S INTENTION THAT A NUT LOCKING DEVICE BE PROVIDED ON ALL BOLTED CONNECTIONS, UNLESS OTHERWISE NOTED.
4. FLAT WASHERS ARE NOT REQUIRED ON CONNECTIONS WITH STANDARD HOLES, BUT MAY BE PROVIDED AND INSTALLED TO ACCOUNT FOR BOLT ASSEMBLY TOLERANCES TO PREVENT NUT JAMMING IN CASE THE BOLT SHANK PROTRUDES OUTSIDE OF THE CONNECTED PLIES. ASTM F436 FLAT WASHERS ARE REQUIRED FOR ALL CONNECTIONS WITH OVERSIZED OR SHORT-SLOTTED HOLES. STRUCTURAL STEEL GRADE PLATE WASHERS OR CONTINUOUS BAR NOT LESS THAN 5/16" THICK SHALL BE USED FOR ALL CONNECTIONS WITH LONG-SLOTTED HOLES.
5. UNLESS OTHERWISE NOTED, ALL BOLTED CONNECTIONS SHALL INITIALLY BE BROUGHT TO A SNUG-TIGHT CONDITION WHERE JOINT TIGHTNESS IS ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE PLIES INTO FIRM CONTACT. A SYSTEMATIC APPROACH SHALL BE USED TO BRING THE JOINT INTO A SNUG-TIGHT CONDITION STARTING WITH THE MOST RIGID PART OF THE JOINT AND PROCEEDING TOWARD THE FREE EDGES.
6. FOR FINAL TIGHTENING, ERI RECOMMENDS AN ADDITIONAL 1/3 TURN BE APPLIED TO ALL BOLTS UP TO 3/4"Ø OR TORQUED AN ADDITIONAL 150 FT-LBS FOR BOLTS OVER 3/4"Ø, UNLESS OTHERWISE NOTED. FINAL TIGHTENING OF ALL BOLTS SHOULD BE COMPLETED AFTER FINAL CONSTRUCTION OF THE STRUCTURE/ASSEMBLY. PLEASE NOTE, SPECIAL ATTENTION SHALL BE GIVEN TO TIGHTENING OF 1/2"-DIAMETER A325 BOLTS, U-BOLTS, AND THREADED RODS AS TO PREVENT STRIPPING THE THREADS FROM OVER-TIGHTENING.

Hardware Torque Specifications

Hardware Size	Torque Value
1/4-inch (6 mm)	7 lb-ft (9 Nm)
5/16-inch (8 mm)	12 lb-ft (16 Nm)
3/8-inch (10 mm)	21 lb-ft (28 Nm)
1/2-inch (13 mm)	46 lb-ft (62 Nm)
5/8-inch (16 mm)	76 lb-ft (103 Nm)







Mounts to 1-inch to 3-inch (25 to 76 mm) horizontal members. Mounting brackets and hardware are included. Use for face mounts on large face towers in addition to the LRK0004-A3 or LRK0008-A3 leg mount unit.

Accessories

- LRK0006 Lightning Dissipation Spur replacement blades:
 - A1 or C1 requires two (2) kits.
 - C2 requires four (4) kits.
 - A3 requires six (6) kits.

- LRK0007-KIT Replacement hardware kit for one (1) Lightning Spur. Includes 4 each NU1011GA 5/8-inch 11 galvanized nuts, 4 each WF10GA 5/8-inch galvanized flat washers, 2 each WL10GA 5/8-inch galvanized lock washers, and 2 each WF12GA 3/4-inch galvanized flat washers.

Lightning Spur Kit Bills of Material

LRK0004-A3		
QTY	PART NUMBER	DESCRIPTION
4	SC0813H0400GAGR2	1/2-13 X 4-INCH GRADE 2 GALV.FULL THD BOLT
4	SC0813H0700GAGR2	1/2-13 X 7-INCH GRADE 2 GALV. FULL THREAD
1	BOX0011	BOX 12 X 4 X 3 INSULATOR & BUSS BAR
4	NU0813GA	1/2-13 NUT HDG A563 DH TYPE 1
8	WF08GA	1/2-INCH FLAT WASHER F436 HDG STRUCTURAL
4	WL08GA	1/2-INCH, GALV. LOCK WASHER
2	HR0014SGA	ROUND MEMBER CLAMP SLOT. 1-1/8-INCH TO 5-INCH
3	HRK0003S	ROUND MEMBER CLAMP KIT
6	NUA1011BR	5/8-11 SS ACORN NUT TAPPED OVER SIZED, BRASS
18	LR0075-N003	LIGHTNING ROD ARRESTOR TIP
6	NU1011GA	5/8-INCH NUT HDG A563 DH TYPE 1
12	WL10GA	5/8-INCH, GALV. LOCK WASHER
24	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
6	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
6	LR0002	LIGHTNING SPUR MOUNTING ANGLE

LRK-0004-A1		
QTY	PART NUMBER	DESCRIPTION
4	SC0813H0400GAGR2	1/2-13 X 4-INCH GRADE 2 GALV.FULL THD BOLT
4	SC0813H0700GAGR2	1/2-13 X 7-INCH GRADE 2 GALV. FULL THREAD
1	BOX0011	BOX 12 X 4 X 3 INSULATOR & BUSS BAR
4	NU0813GA	1/2-13 NUT HDG A563 DH TYPE 1
8	WF08GA	1/2-INCH FLAT WASHER F436 HDG STRUCTURAL
4	WL08GA	1/2-INCH, GALV. LOCK WASHER
2	HR0014SGA	ROUND MEMBER CLAMP SLOT. 1-1/8-INCH TO 5-INCH
1	HRK0003S	ROUND MEMBER CLAMP KIT
2	NUA1011BR	5/8-11 SS ACORN NUT TAPPED OVER SIZED, BRASS
6	LR0075-N003	LIGHTNING ROD ARRESTOR TIP
2	NU1011GA	5/8-INCH NUT HDG A563 DH TYPE 1
4	WL10GA	5/8-INCH, GALV. LOCK WASHER
8	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
2	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
2	LR0002	LIGHTNING SPUR MOUNTING ANGLE

LRK0008-A3		
QTY	PART NUMBER	DESCRIPTION
1	BOX0095	TUBE 3-INCH X 15-INCH SNAP SEAL CARDBOARD
4	WL08GA	1/2-INCH, GALV. LOCK WASHER
8	WF08GA	1/2-INCH FLAT WASHER F436 HDG STRUCTURAL
4	STQ0813-1400GAGR5	1/2-13 X 14-INCH W/2 NUTS GALV. THREADED ROD
2	HR0068GA	ROUND MEMBER CLAMP
3	HRK0068	ROUND MEMBER CLAMP KIT
6	NUA1011BR	5/8-INCH SS ACORN NUT TAPPED OVER SIZED, BRASS
18	LR0075-N003	LIGHTNING ROD ARRESTOR TIP
6	NU1011GA	5/8-INCH NUT HDG A563 DH TYPE 1
24	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
12	WL10GA	5/8-INCH, GALV. LOCK WASHER
6	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
6	LR0002	LIGHTNING SPUR MOUNTING ANGLE

Lightning Spur Kit Bills of Material

LRK0008-A1		
QTY	PART NUMBER	DESCRIPTION
1	BOX0095	TUBE 3-INCH X 15-INCH SNAP SEAL CARDBOARD
4	WL08GA	1/2-INCH, GALV. LOCK WASHER
8	WF08GA	1/2-INCH FLAT WASHER F436 HDG STRUCTURAL
4	STQ0813-1400GAGR5	1/2-13 X 14-INCH W/2 NUTS GALV. THREADED ROD
2	HR0068GA	ROUND MEMBER CLAMP
1	HRK0068	ROUND MEMBER CLAMP KIT
6	LR0075-N003	5/8-INCH SS ACORN NUT TAPPED OVER SIZED, BRASS
2	NUA1011BR	LIGHTNING ROD ARRESTOR TIP
2	NU1011GA	5/8-INCH NUT HDG A563 DH TYPE 1
8	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
4	WL10GA	5/8-INCH, GALV. LOCK WASHER
2	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
2	LR0002	LIGHTNING SPUR MOUNTING ANGLE

LRK0005-C2		
QTY	PART NUMBER	DESCRIPTION
4	NUA1011BR	5/8-INCH SS ACORN NUT TAPPED OVER SIZED, BRASS
12	LR0075-N003	LIGHTNING ROD ARRESTOR TIP
1	BP0018-2200	Ø22-INCH MID LEVEL BEACON MOUNT PLATE
4	NU10-INCHGA	5/8-INCH NUT HDG A563 DH TYPE 1
8	WL10GA	5/8-INCH, GALV. LOCK WASHER
16	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
4	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
2	LR0002	LIGHTNING SPUR MOUNTING ANGLE

LRK0005-C1		
QTY	PART NUMBER	DESCRIPTION
2	NUA1011BR	5/8-INCH SS ACORN NUT TAPPED OVER SIZED, BRASS
6	LR0075-N003	LIGHTNING ROD ARRESTOR TIP
1	BP0018-2200	Ø22-INCH MID LEVEL BEACON MOUNT PLATE
2	NU1011GA	5/8-INCH NUT HDG A563 DH TYPE 1
4	WL10GA	5/8-INCH, GALV. LOCK WASHER
8	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
2	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
1	LR0002	LIGHTNING SPUR MOUNTING ANGLE

LRK000A-HW-3		
QTY	PART NUMBER	DESCRIPTION
6	NUA1011BR	5/8-INCH SS ACORN NUT TAPPED OVER SIZED, BRASS
12	NU0616	3/8-16 SS HEX NUT, WAX COATED
12	WL06SS	3/8-INCH, SS LOCK WASHER
12	WF06SS	3/8-INCH, SS FLAT WASHER
6	UB0616-0375	3/8-16 X 3-3/4-INCH C-C U-BOLT, STAINLESS STEEL
18	LR0075-N003	LIGHTNING ROD ARRESTOR TIP
12	NU1011GA	5/8-INCH-11 NUT HDG A563 DH TYPE 1
12	WL10GA	5/8-INCH, GALV. LOCK WASHER
24	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
6	LR0004	GALVANIZED STEEL BRACKET
6	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
6	LR0002	LIGHTNING SPUR MOUNTING ANGLE

Lightning Spur Kit Bills of Material

LRK000A-HW-2		
QTY	PART NUMBER	DESCRIPTION
4	NUA1011BR	5/8-INCH SS ACORN NUT TAPPED OVER SIZED, BRASS
8	NU0616	3/8-16 SS HEX NUT, WAX COATED
8	WL06SS	3/8-INCH, SS LOCK WASHER
8	WF06SS	3/8-INCH, SS FLAT WASHER
4	UB0616-0375	3/8-16 X 3-3/4-INCH C-C U-BOLT, STAINLESS STEEL
12	LR0075-N003	LIGHTNING ROD ARRESTOR TIP
8	NU1011GA	5/8-INCH-11 NUT HDG A563 DH TYPE 1
8	WL10GA	5/8-INCH, GALV. LOCK WASHER
16	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
4	LR0004	GALVANIZED STEEL BRACKET
4	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
4	LR0002	LIGHTNING SPUR MOUNTING ANGLE

A-J-3		
QTY	PART NUMBER	DESCRIPTION
6	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
6	LR0002	LIGHTNING SPUR MOUNTING ANGLE
6	NU1011GA	5/8-INCH-11 NUT HDG A563 DH TYPE 1
12	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
24	WL10GA	5/8-INCH, GALV. LOCK WASHER
18	LR0075-N003	LIGHTNING ROD ARRESTOR TIP
6	NUA1011BR	5/8-11 SS ACORN NUT TAPPED OVER SIZED, BRASS
12	JB0616	3/8-16 X 6-INCH- "J" BOLT STAINLESS
12	NU0616	3/8-16 HEX NUT STAINLESS STEEL- COATED
12	WF06SS	3/8-INCH FLAT WASHER STAINLESS STEEL
12	WL06SS	3/8-INCH SPLIT LOCK WASHER SST COATED
6	CH0375	LENGTHS OF 3/8-INCH GALVANIZED CHAIN

A-J-1		
QTY	PART NUMBER	DESCRIPTION
2	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
2	LR0002	LIGHTNING SPUR MOUNTING ANGLE
2	NU1011GA	5/8-INCH-11 NUT HDG A563 DH TYPE 1
4	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
8	WL10GA	5/8-INCH, GALV. LOCK WASHER
6	LR0075-N003	LIGHTNING ROD ARRESTOR TIP
2	NUA1011BR	5/8-11 SS ACORN NUT TAPPED OVER SIZED, BRASS
4	JB0616	3/8-16 X 6-INCH- "J" BOLT STAINLESS
4	NU0616	3/8-16 HEX NUT STAINLESS STEEL- COATED
4	WF06SS	3/8-INCH FLAT WASHER STAINLESS STEEL
4	WL06SS	3/8-INCH SPLIT LOCK WASHER SST COATED
2	CH0375	LENGTHS OF 3/8-INCH GALVANIZED CHAIN

A-H-3		
QTY	PART NUMBER	DESCRIPTION
6	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
6	LR0002	LIGHTNING SPUR MOUNTING ANGLE
6	NU1011GA	5/8-INCH-11 NUT HDG A563 DH TYPE 1
12	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
24	WL10GA	5/8-INCH, GALV. LOCK WASHER
18	LR0075-N003	LIGHTNING ROD ARRESTOR TIP

Lightning Spur Kit Bills of Material

6	NUA1011BR	5/8-11 SS ACORN NUT TAPPED OVER SIZED, BRASS
12	UB0616-0150-0175	3/8-16 X 1-1/2-INCH C-C X 1-3/4-INCH U-BOLT SST
24	NU0616	3/8-16 HEX NUT STAINLESS STEEL- COATED
24	WF06SS	3/8-INCH FLAT WASHER STAINLESS STEEL
24	WL06SS	3/8-INCH SPLIT LOCK WASHER SST COATED

A-H-1		
QTY	PART NUMBER	DESCRIPTION
2	LR0062-4800GA-N001	5/8-INCH-11 X 48-INCH 30 DEG BENT GALV W/2 NUT
2	LR0002	LIGHTNING SPUR MOUNTING ANGLE
2	NU1011GA	5/8-INCH-11 NUT HDG A563 DH TYPE 1
4	WF10GA	5/8-INCH FLAT WASHER F436 HDG STRUCTURAL
8	WL10GA	5/8-INCH, GALV. LOCK WASHER
6	LR0075-N003	LIGHTNING ROD ARRESTOR TIP
2	NUA1011BR	5/8-11 SS ACORN NUT TAPPED OVER SIZED, BRASS
4	UB0616-0150-0175	3/8-16 X 1-1/2-INCH C-C X 1-3/4-INCH U-BOLT SST
8	NU0616	3/8-16 HEX NUT STAINLESS STEEL- COATED
8	WF06SS	3/8-INCH FLAT WASHER STAINLESS STEEL
8	WL06SS	3/8-INCH SPLIT LOCK WASHER SST COATED

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