

**SteppIR**™

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# ***Dream Beam 36***

***Assembly Manual***



## Boom Saddle & Hardware Kit Bag 1 72-0019-01

Inventory check	QTY	Part #	Description
	24	10-1601-02	1 3/4" Aluminum saddle
	16	60-0065	5/16 X 3 1/2" SS Hex Bolt
	16	60-0046	5/16" Nylock Nuts
	35	60-0112	10-32 X 1/4" SS set screw

## Boom Saddle & Hardware Kit Bag 2 72-0019-21

Inventory check	QTY	Part #	Description
	4	10-1601-22	2" Aluminum saddle
	10	10-1601-32	2 1/4" Aluminum saddle
	8	60-0066	5/16 X 4" SS Hex Bolt
	4	60-0065	5/16 X 3 1/2" SS Hex Bolt
	12	60-0046	5/16" Nylock Nuts

## Boom Assembly Kit 72-0020-01

Inventory check	QTY	Part #	Description
	4	60-0029	1/4-20 X 3" Stainless Steel hex bolt
	4	60-0063	1/4-20 X 3 1/4" Stainless Steel hex bolt
	4	60-0100	1/4-20 X 3 1/2" Stainless Steel hex bolt
	60	60-0041	1/4" Stainless Steel washer
	1	60-0037	4" Stainless Steel eye bolt
	1	60-0046	5/16" Nylock Nuts
	12	60-0030	1/4-20 Nylock nut
	1	09-0004	10' silicone tape
	2	09-0001	66' Electrical tape
	1	N/A	Syringe with grease for SS bolts

## Truss Hardware Kit Bag 1 72-0021-01

Inventory check	QTY	Part #	Description
	16	60-0045	3/16" wire clips
	1	60-0110	1/4" X 1 1/4" SS Hex bolt
	4	60-0044	Phillystran cap black
	1	60-0030	1/4-20 Nylock nut

Inventory check	QTY	Part #	Description
	2	60-0034	3/8" SS washer
	4	60-0083	4" SS turnbuckle
	2	10-1607-01	Truss attachment plate
	1	60-0046	5/16" Nylock nut
	1	60-0093	5/16" X 2-3/4 SS hex bolt
	2	60-0033	5/16" SS washer
	2	60-0106	3/4" SS ring
	4	60-0107	3/16" SS eye bolt w/ nut and washers
	4	60-0111	10-24 Nylock nut for eye bolts only
	4	60-0048	3/16" Thimble
	2	60-0114	5/16" X 3 3/4" SS hex bolt
	2	10-1601-32	2 1/4" Aluminum saddle

### Truss Hardware Kit Bag 2 72-0021-21

Inventory check	QTY	Part #	Description
	1	60-0044	201" Phillystran
	1	60-0044	176" Phillystran
	2	10-1055-01	60" Dacron rope with 2 crimped loops
	2	10-1055-01	285" Dacron rope with 1 crimped loop

### Terminal Strip Kit

(if you ordered the Connector Box you will not have this kit, refer to kit 72-0027-01)

### 72-0022-01

Inventory check	QTY	Part #	Description
	2	20-6020-8	8 position terminal connector
	1	20-6020-01	1 position terminal connector
	1	10-1029-01	Connector Protector
	1	N/A	terminal housing with cap
	1	60-6000-40	SS hose clamp marked 056

### 49' Driven Element hardware Kit 72-0023-01

Inventory check	QTY	Part #	Description
	12	10-1601-02	1 3/4" Aluminum Saddle
	4	10-1613-01	1" Aluminum Spacer
	8	10-1613-11	1/4" Aluminum Spacer
	4	60-0101	3/4" X 10-32 Screw with Nylon Patch (in separate small bag)

Inventory check	QTY	Part #	Description
	4	60-0066	5/16" X 4" SS Hex Bolt
	2	10-1606-01	2 1/4" Reinforcement Plate
	16	60-0046	5/16" Nylock Nut
	8	60-0017	10-32 X 3/4" SS Screw
	8	60-0019	10-32 Nylock Nut
	2	60-6000-15	SS hose clamp 016
	8	60-0065	5/16" X 3 1/2" SS Hex Bolt
	4	60-0018	# 10 SS washer for 60-0101(in small bag with 60-0101)
	4	60-0115	5/16" X 4 1/2" SS Hex Bolt

## REF, DIR, DIR 2 Hardware Kit 72-0024-01

Inventory check	QTY	Part #	Description
REFLECTOR	10	60-0017	10-32 X 3/4" SS Screw
	10	60-0018	# 10 SS washer
	10	60-0019	10-32 Nylock Nut
	4	60-0046	5/16" Nylock Nut
	4	60-0075	5/16 X 3 1/4" SS hex bolt
DIRECTOR 2	10	60-0017	10-32 X 3/4" SS Screw
	10	60-0018	# 10 SS washer
	10	60-0019	10-32 Nylock Nut
	4	60-0046	5/16" Nylock Nut
	4	60-0075	5/16 X 3 1/4" SS hex bolt
DIRECTOR 1	12	60-0017	10-32 X 3/4" SS Screw
	12	60-0018	# 10 SS washer
	12	60-0019	10-32 Nylock Nut
	4	60-0046	5/16" Nylock Nut
	4	60-0114	5/16 X 3 3/4" SS hex bolt
IN LARGE BAG	4	10-1509-02	Diverter cone

## DB 36 Mast Plate Hardware kit 72-0025-01

Inventory check	QTY	Part #	Description
	2	60-0006	2 1/2" SS U-bolt with folded saddle
	6	60-0050	3/8" nylock nut
	8	10-1601-22	2" Aluminum saddle
	4	10-1601-02	1 3/4" aluminum saddle
	4	60-0115	5/16 X 4 1/2 " SS hex bolt

Inventory check	QTY	Part #	Description
	1	60-0049	3/8" regular nut
	4	60-0034	3/8" SS washer
	4	60-0113	10-32 X 5/8" SS screw
	1	60-0085	3/8" X 4" SS all thread hex bolt
	4	10-1613-01	1" Aluminum spacer
	8	60-0114	5/16" X 3 3/4" SS hex bolt
	12	60-0046	5/16" nylock nut

## DB 36 Sweep Hardware Kit 72-0030-01

Inventory check	QTY	Part #	Description
REFLECTOR	16	60-0014-01	6-32 x 7/8 Panhead Screw
	16	60-0014	6-32 Nylock Nut
	4	60-0020	4-40 X 3/4 Panhead screw
	8	60-0021-01	4-40 X 5/8 Panhead
	12	60-0022	4-40 Nylock
DIRECTOR 2	16	60-0014-01	6-32 x 7/8 Panhead Screw
	16	60-0014	6-32 Nylock Nut
	4	60-0020	4-40 X 3/4 Panhead screw
	8	60-0021-01	4-40 X 5/8 Panhead
	12	60-0022	4-40 Nylock
DRIVEN	16	60-0014-01	6-32 x 7/8 Panhead Screw
	16	60-0014	6-32 Nylock Nut
	4	60-0020	4-40 X 3/4 Panhead screw
	8	60-0021-01	4-40 X 5/8 Panhead
	12	60-0022	4-40 Nylock
IN LARGE BAG	3	09-0005	1 1/2" X 44' PVC tape

## DB 36 Element Plate Kit 72-0031-01

Inventory check	QTY	Part #	Description
	2	70-2030-01	Element mounting plate with aligning gasket 40m
	1	70-2030-11	Element mounting plate with aligning gasket 20m

## DB 36 Rubber Boot Kit 72-0032-01

Antenna will come with two of these kits

Inventory check	QTY	Part #	Description
	7	60-1006-21	1 1/2" - 1 1/4" Rubber boot

**NOTE : BELOW ARE KIT LISTS FOR OPTIONS THAT ARE AVAILABLE FOR THE DB36**

### Connector Box Kit Option (Located in Antenna Box) 72-0027-01

Inventory check	QTY	Part #	Description
	4	60-0022	4-40 nylock nut
	1	10-1053-02	Connector box mounting plate
	1	10-1029-01	connector protector
	1	N/A	Connector box with lid

### 80m coil Hardware kit Bag 1(Located in Antenna Box) 72-0028-01

Inventory check	QTY	Part #	Description
	2	N/A	25' Ultra Flex wire with inductance coil
	1	60-0112	10-32 SS set screw
	2	60-0075	5/16" X 3 1/4" SS hex bolt
	2	10-1601-02	1 3/4" Solid Saddles
	2	60-0046	5/16" Nylock Nuts
	2	60-0028	1/4" X 2 1/4" SS hex bolt
	2	60-0034	3/8" SS washer
	2	60-0116	1/4" Regular nut
	2	60-0030	1/4" Nylock nut
	2	60-0094	3/16" SS Quick Link
	2	60-0107	3/16" SS eyebolt with nut and washers
	2	60-0111	10-24 Nylock nut for eye bolts
	1	60-0117	Cable clip with adhesive back
	2	10-1613-01	1" Aluminum spacers
	1	10-1029-01	Connector Protector

### 80m coil Hardware kit Bag 2(Located in Antenna Box) 72-0028-11

Inventory check	QTY	Part #	Description
	2	10-1607-01	Truss attachment plate
	2	N/A	25' 3/16" Dacron rope
	1	N/A	6' RG 213 Jumper COAX cable
	1	21-5001-01	30" 4 conductor control cable
	1	09-0001	Electrical tape 66' X 3/4"
	1	20-6020-4	4 position terminal strip

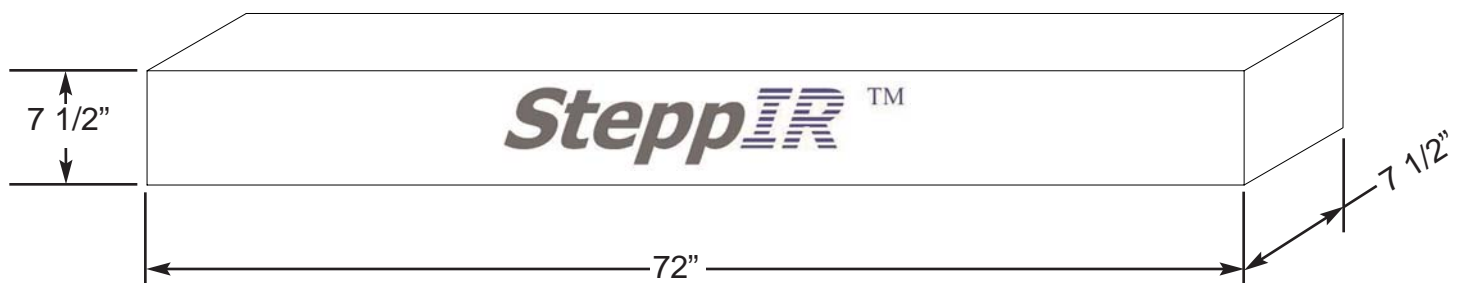
## 39' Element Truss Kit Option for REF and DIR 2 (Located in Antenna Sweep Box)

If you have this option you will have two of these kits  
**72-0018-01**

Inventory check	QTY	Part #	Description
	2	10-1601-02	1 3/4" Solid Saddles
	4	60-0103	3/16" x 2" Stainless Eye Bolts
	2	60-0083	4" Stainless Turnbuckles
	2	60-0106	3/4" Stainless Rings
	1	60-0110	1/4-20 x 1 1/4" Hex Bolt
	1	60-0030	1/4-20 Nylock Nut
	2	60-0065	5/16" x 3 1/2" Hex Bolt
	2	60-0046	5/16" Nylock Nuts
	2	60-0033	5/16" Washers
	4	60-0111	10-24 Nylock Nuts
	2	10-1055-01	60" Dacron Rope with 2 Crimped Loops
	2	10-1055-11	202" Dacron Rope with 1 Crimped Loop
	1	10-1029-01	Connector Protector
	1	09-0001	Electrical Tape
	1	60-0112	Set Screw

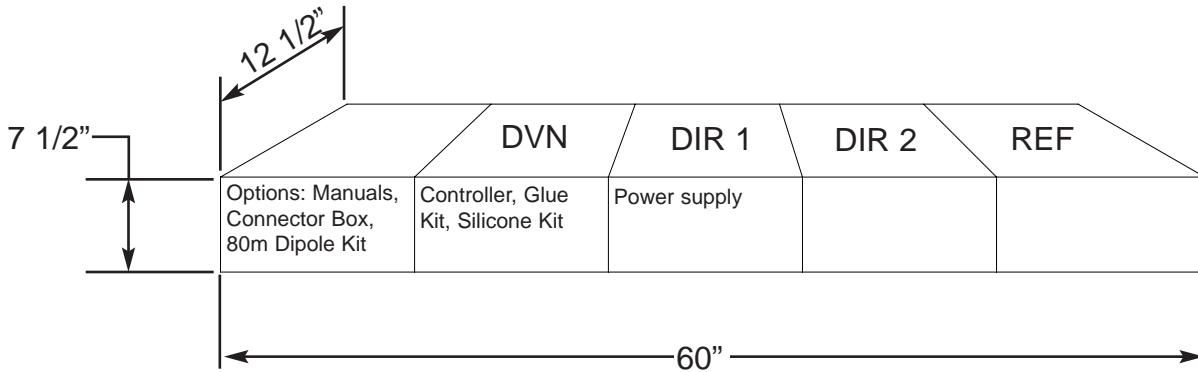
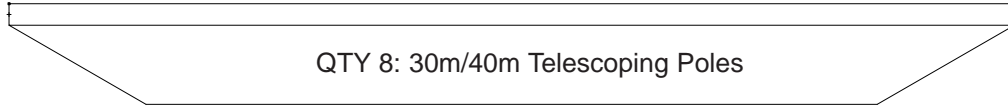
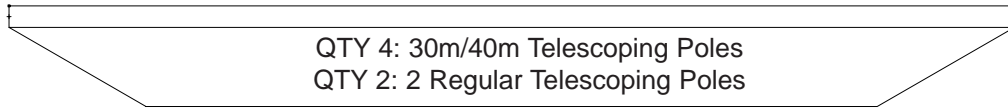
### BOX NAMES AND SIZES WITH CONTENT

#### Antenna Boom Box



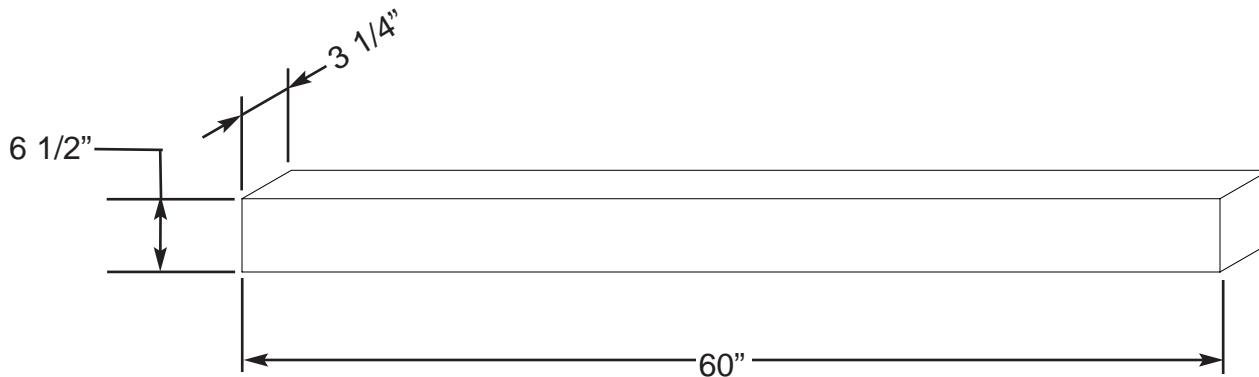
	Part Number	Description		Part Number	Description
2	10-1202-01	1 3/4" X 72" Boom Section	1	70-2028-01	66 3/8" EST extension with ring
2	10-1202-11	2" X 72" Boom Section	1	70-2027-01	69 3/8" EST extension w/ ring and 6" splice
2	10-1202-21	2 1/4" X 48" Boom Section	2	10-1617-01	64" CPVC w/foam sealing Ring and Rubber Coupler
1	10-1202-31	2 1/2" X 72" Boom Section	6	70-2025-23	43 1/2" CPVC
1	10-1618-01	1 3/4" X 30 Boom Truss Mast	6	70-2025-13	49 " CPVC with coupler
2	70-2029-01	60 3/4" EST extension with ring	1	10-1054-01	38" Truss support

## Inside the Antenna Box



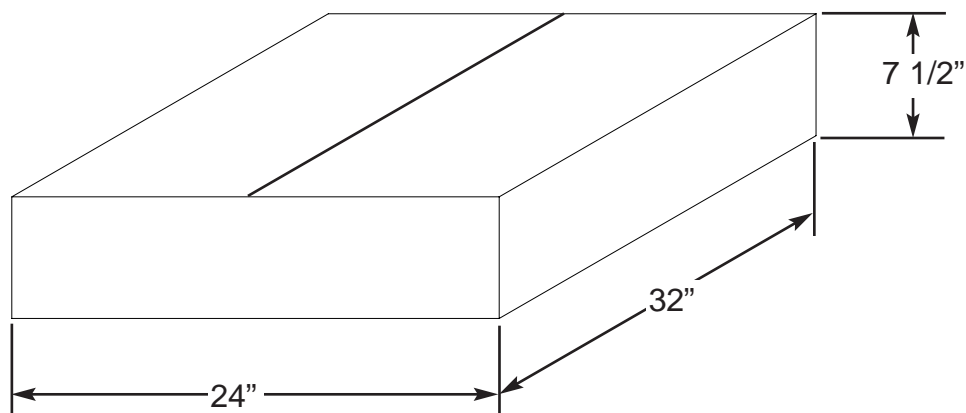
	Part Number	Description		Part Number	Description
1	N/A	Driven Element Housing (DVN)	1	20-8020-01	Power Supply
1	N/A	Director 1 Element Housing (DIR 1)	12	10-1013-32	30m/40m Telescoping Poles
1	N/A	Director 2 Element Housing (DIR 2)	2	10-1013-02	Regular Telescoping Poles
1	N/A	Reflector Element Housing (REF)	1	N/A	Connections Box Option
1	N/A	Antenna Controller	1	N/A	80m Dipole Option

## 6m Passive Box (option)



	Part Number	Description		Part Number	Description
1	70-1001-61	DB 36 6m Passive Long 112"	1	N/A	DB 36 6m Passive Long 112" hardware kit
1	70-1001-61	DB 36 6m Passive short 105"	1	N/A	DB 36 6m Passive short 105" hardware kit

## Antenna Sweep Box



	Part Number	Description		Part Number	Description
6	70-2026-01	30m40m Sweep Assembly	1	72-0021-01	Truss Hardware Kit Bag 1
2	10-1610-01	11" Mast Plate	1	72-0021-21	Truss Hardware Kit bag 2
3	10-1608-01	Return Plate	1	72-0022-01	Terminal Strip Kit (only if you didnt order the connector box)
1	10-1605-02	Driven Element Plate	1	72-0023-01	49' Element Hardware Kit
1	N/A	Control Cable if ordered	1	72-0024-01	REF, DIR, DIR 2 Hardware Kit
3	10-1503-01	28" Fiberglass rod for sweep assembly (in sets of 2)	1	72-0025-01	DB 36 Mast Plate Hardware Kit
2	10-1015-11	12" return EST for DIR 2 and REF	1	72-0030-01	DB 36 Sweep Hardware Kit
1	72-0019-01	Boom Saddle & Hardware Kit Bag 1	1	72-0031-01	DB 36 Element Plate Kit
1	72-0019-21	Boom Saddle & Hardware Kit Bag 2	2	72-0032-01	Rubber boot Kit
1	72-0020-01	Boom Assembly Kit	2	72-0018-01	39' Element Truss Kit Option (only if ordered)

### Tools you will need for Assembling Antenna

- 12" Level
- 25' Tape Measure
- 5/16", 7/16", 1/2", 9/16", 3/8" sockets and wrench
- (deep well works best)
- 12" Handclamp or C clamp
- Screwdriver
  - #1 Flat head
  - #1 Phillips
  - #2 Phillips

- Razor Knife
- 3/32 allen wrench
- 2 work benches for assembling antenna (saw horses or clamping work benches work the best)
- 5/16" nut driver (or drill works well with driver bit)
- Pliers
- Hammer
- Wire Cutters

## STARTING ASSEMBLY

### Notes:

As with any antenna a large open flat area is the ideal site to do the assembly. An area 40 ft X 50 ft would be perfect. This allows you to assemble the boom on sawhorses or tables and then get all of the elements nice and straight using either a level or eyeballing it by sighting down the boom. From a performance stand point having the elements level is not very important but aesthetically no one likes a crooked antenna! If you do not have a large open area at the tower base you can pre-assemble the antenna somewhere else and then disassemble it to whatever degree is necessary and move it out to the tower for final assembly. The most important aspect of getting the antenna straight is to get the Element Housing Units (EHU) mounted level on the boom. This can be done anywhere you have a 40 ft space to build just the boom and then use a level to mount all of the EHU mounting brackets level. Then when you put the telescoping poles on at the antenna site they will all be level with respect to each other.

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## BOOM ASSEMBLY PROCEDURE

### Locate boom pieces in the Antenna Boom Box

QTY 2	1 3/4" X 72" (One end will be blue)
QTY 2	2" X 72" (Both ends will be red)
QTY 2	2 1/4" X 48" (Both ends will be black)
QTY 1	2 1/2" X 72" (Section will not have ends painted)

### Locate Boom assembly Kit 72-0020-01 from Antenna Sweep Box

#### NOTES:

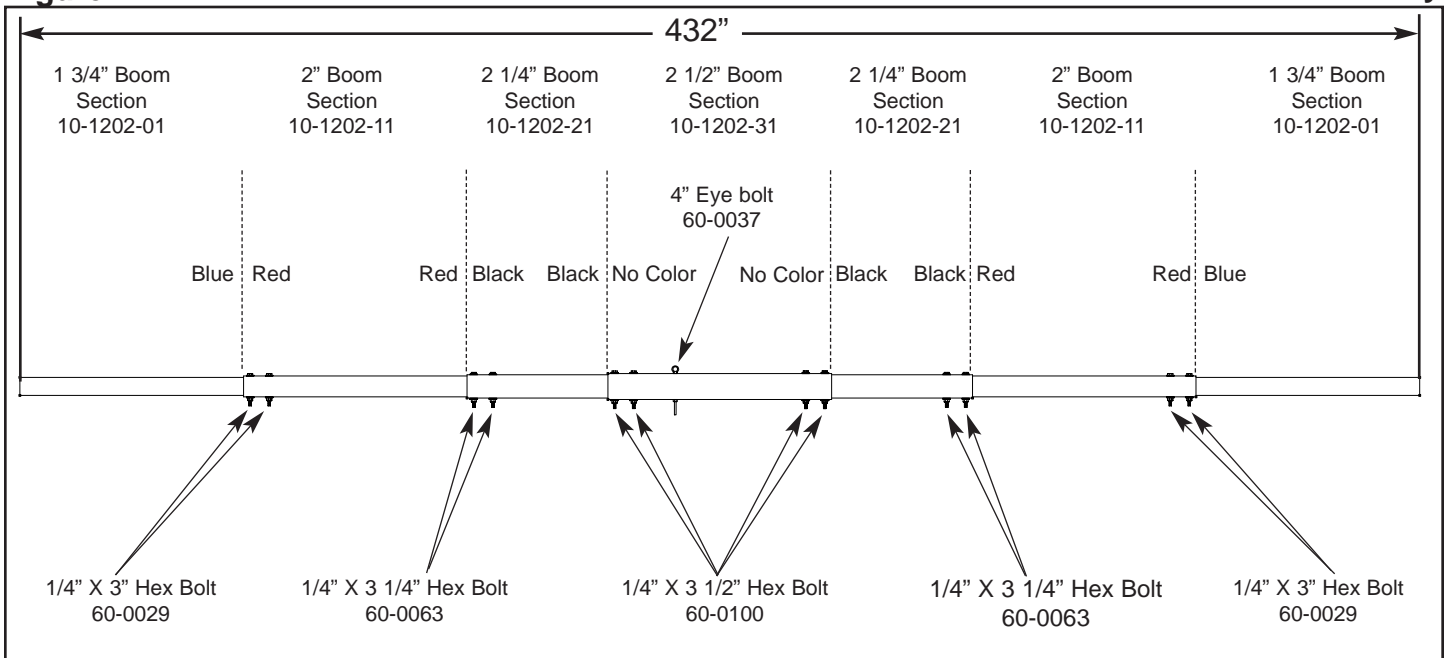
Our boom pieces are all drilled on a very precise drill press. This insures that all the bolts are snug when assembled. Your new DB 36 Boom is the first of this new interchangeable boom design. If your boom ever gets damaged or destroyed we can now just send you whatever boom section is damaged.

**Always apply lubricant to stainless steel bolts that are using stainless steel nuts.** This will prevent the two from galling together. Each bolt has a specific length for the tubing it is holding together this is critical so that only the shank is engaged in the tubing. Use 5 washers per bolt to secure the bolt. **Figure 2**

- Apply a thin film of connector protector or a spray-on lubricant (i.e. WD-40, Dry Lube) to the male engagement area of the boom sections.
- The boom ends will have a color coding so that you know which pieces slide into each other.
- Match the colors as shown in **Figure 1** below and slide the boom pieces together until the pre-drilled holes align.
- Secure the correct 1/4" bolts and washers onto the boom as shown in **Figure 2**
- Repeat this for each section until the boom is completely assembled.
- The final step is to secure the eyebolt as shown in **Figure 1** and **Figure 2**

Figure 1

Boom Assembly

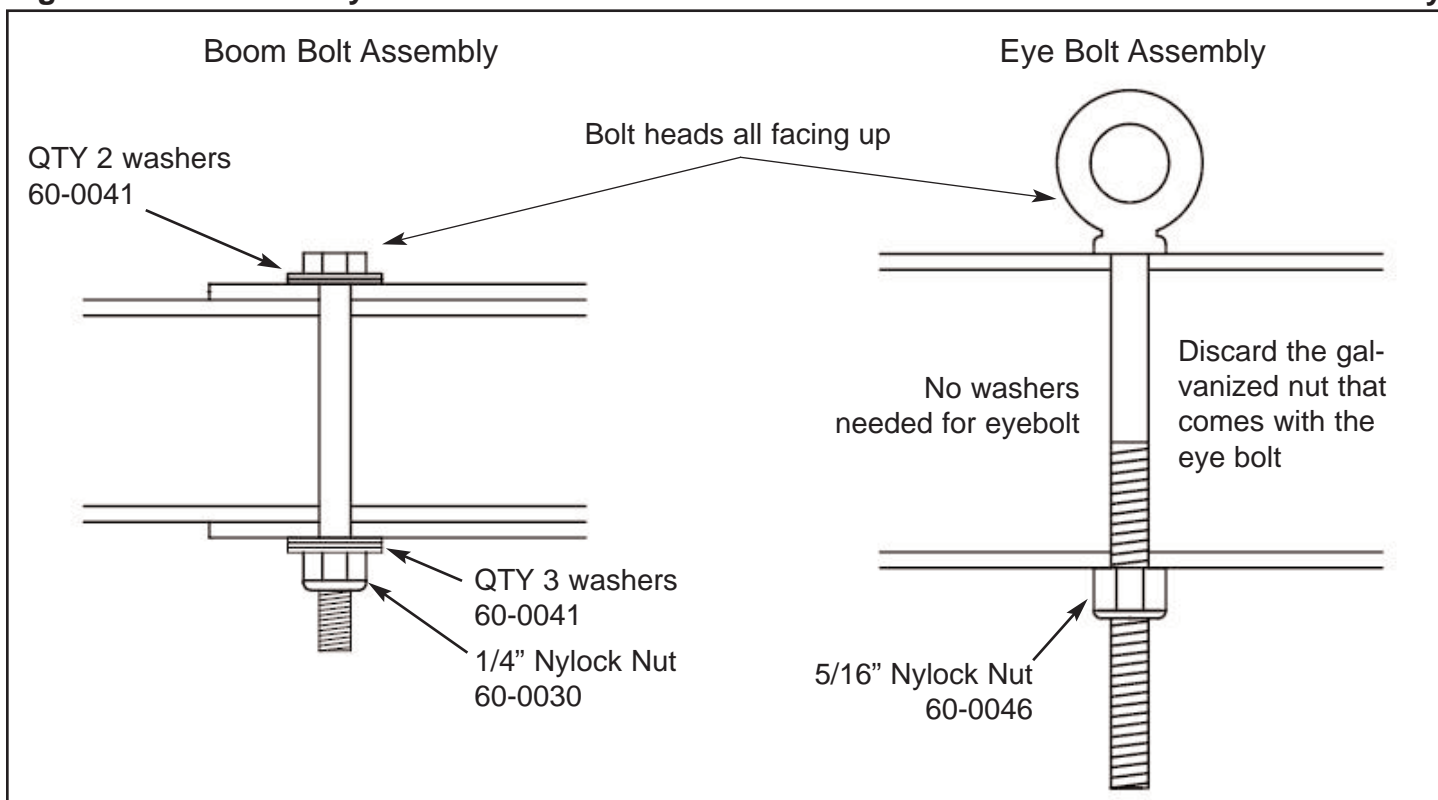


## NOTES:

When securing the eye bolt and boom bolts to the boom, install the eye and the head of the bolts on the same side of the boom, so that they will be facing upwards when the boom is secured to the tower.

**Figure 2 Bolt Assembly**

**Bolt Assembly**



## ELEMENT HOUSING UNIT SPACING

### Locate the four Element Housing Units (EHU) with gaskets, in the Antenna Box

- QTY 1 Driven EHU 30m/40m (This is the only EHU that has a plastic lid)
- QTY 2 Director 2 / Reflector EHU 30m/40m (both are identical)
- QTY 1 Director 1 EHU 20m

### Locate the following parts for assembling the EHU's, located in the Antenna Sweep Box

- QTY 2 Return Element Support Tube (EST)
- QTY 3 10-1608-01 Element Return Plate Small

### Locate the following kits to assembly the EHU's to the boom, located in the Sweep box

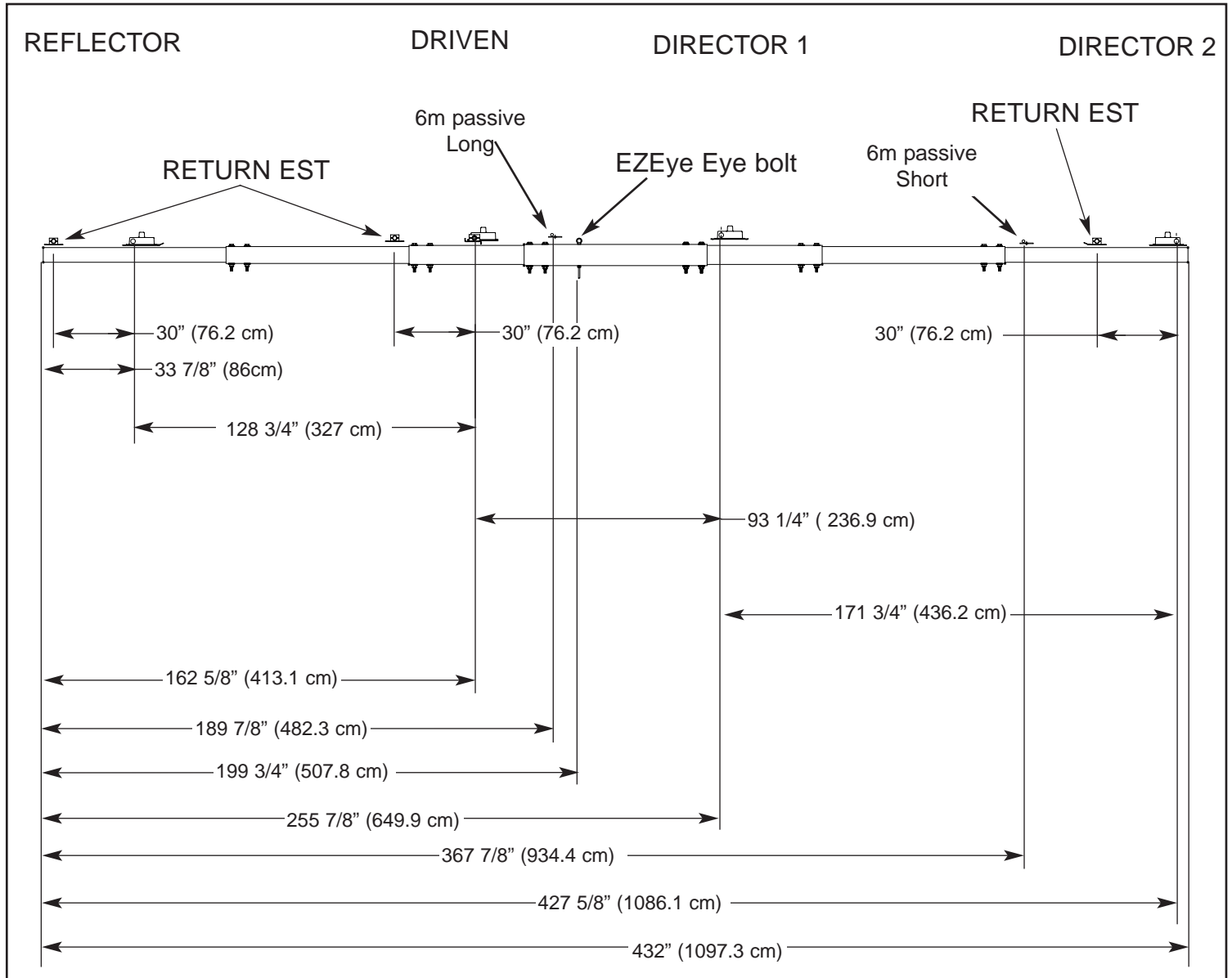
- QTY 1 72-0019-01 Boom Saddle & Hardware Kit Bag 1
- QTY 1 72-0019-21 Boom Saddle & Hardware Kit Bag 2
- QTY 1 72-0023-01 49' Element Hardware Kit
- QTY 1 72-0024-01 REF, DIR, DIR 2 Hardware Kit
- QTY 1 72-0021-01 Truss Hardware Kit bag 1
- QTY 1 72-0031-01 Element Plate Kit

**NOTES:**

Spacing of the element in relationship to each other is very critical. Take great care in making sure the elements are mounted as shown in **Figure 3**. All dimensions are taken from the center of the element. This point is at the center of the fiberglass tube in both the EHU or Return EST.

With the boom completely assembled, use a marker and a tape measure to mark where the center of the elements will be. These marks will act as a guide for element placement while assembling the antenna. **Take note in the orientation of the housings and how they are facing in comparison to the boom.** For example with the 30m/40m housing's (REF, DVN and DIR 2) pay close attention to the orientation of the EHU boxes when mounting them onto the boom. They must be EXACTLY as shown in **Figure 3**. The REF and DVN are mounted so the housing is outside of the sweep but the DIR 2 is mounted the opposite way. This is critical for achieving the best possible performance from the antenna.

**Figure 3** **Antenna Element Spacing**



## DRIVEN ELEMENT HOUSING UNIT ASSEMBLY PROCEDURE

### Locate pieces for Driven element assembly

QTY 1	Driven Element Housing, with gasket and lid (located in Antenna box)
QTY 1	10-1605-02 Aluminum Element Support Plate 6 1/2" X 27" (Located in Sweep Box)
QTY 1	10-1608-01 Element Return Plate (Located in Sweep box)
QTY 2	70-2029-01 Element Support Tube EST extension (Located in Boom Box)
QTY 1	70-2028-01 Return EST extension (Located in Boom Box)
QTY 1	70-2027-01 Return EST extension with 6" aluminum splice (Located in Boom Box)

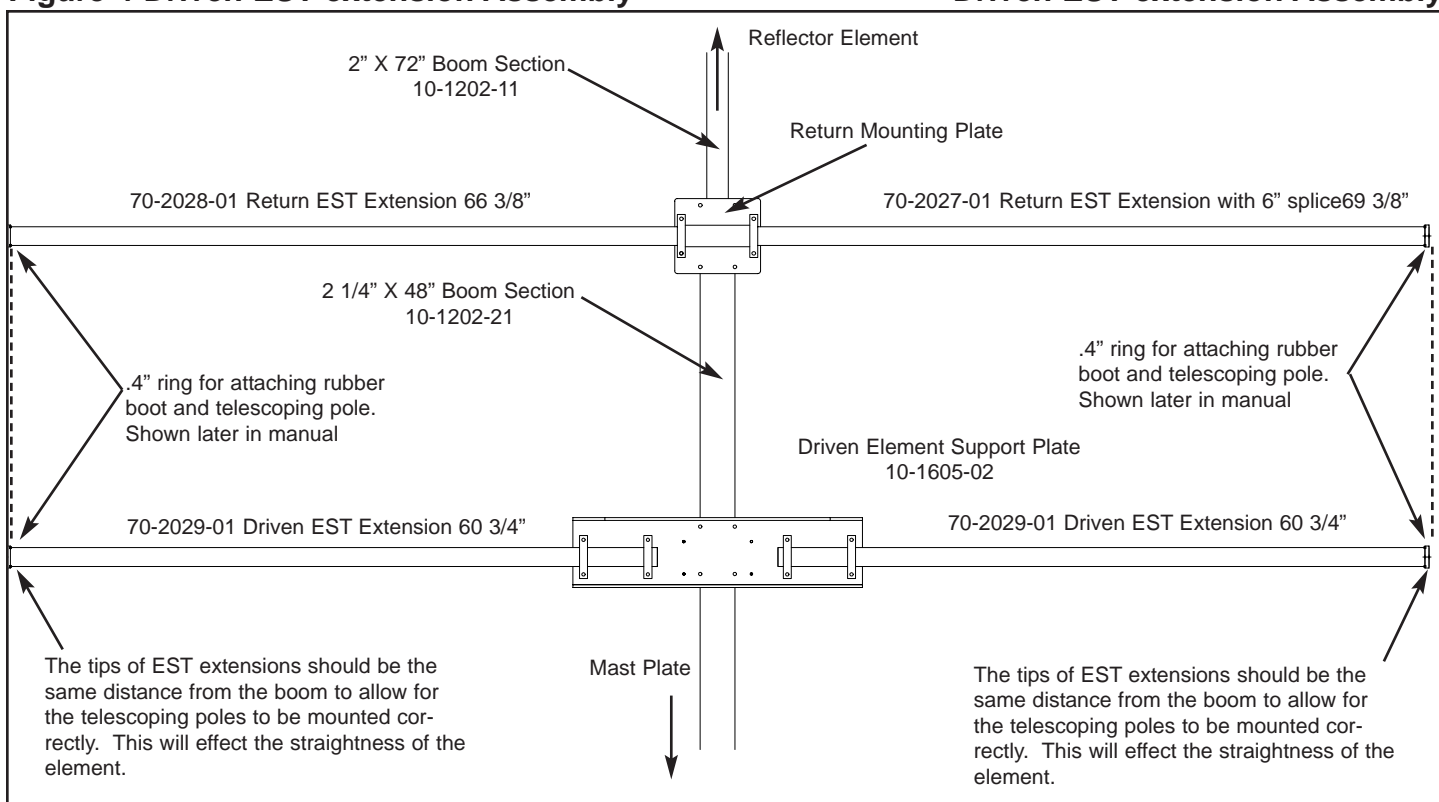
### Locate the following kits for assembling the Driven 49' Element

QTY 1	72-0023-01 49' Element Hardware Kit (Located in Antenna Sweep Box)
QTY 1	72-0019-21 Boom Saddle & Hardware Kit bag 2 (Located in Sweep Box)

- Refer to the marks on the boom you made for the driven element from **Figure 3** for correct placement of the driven element.
- Refer to **Figure 5** for Driven Element Housing and Return EST assembly.
- Mount the Element Support Plate and Return Plate to the boom first, leave the bolts loose enough to allow leveling adjustments.
- Level the plates to the boom first, so that the eye of the EZ eye is on the top side of the boom. Then attach the EST extensions once the plates are secured. Tighten boom saddle bolts to 20ftlbs (27.09Nm) Tighten the EST extension saddle bolts to 7 ftlbs (9.5Nm) This will prevent the fiberglass from cracking or breaking.
- Follow **Figure 4** for correct assembly of EST extensions.

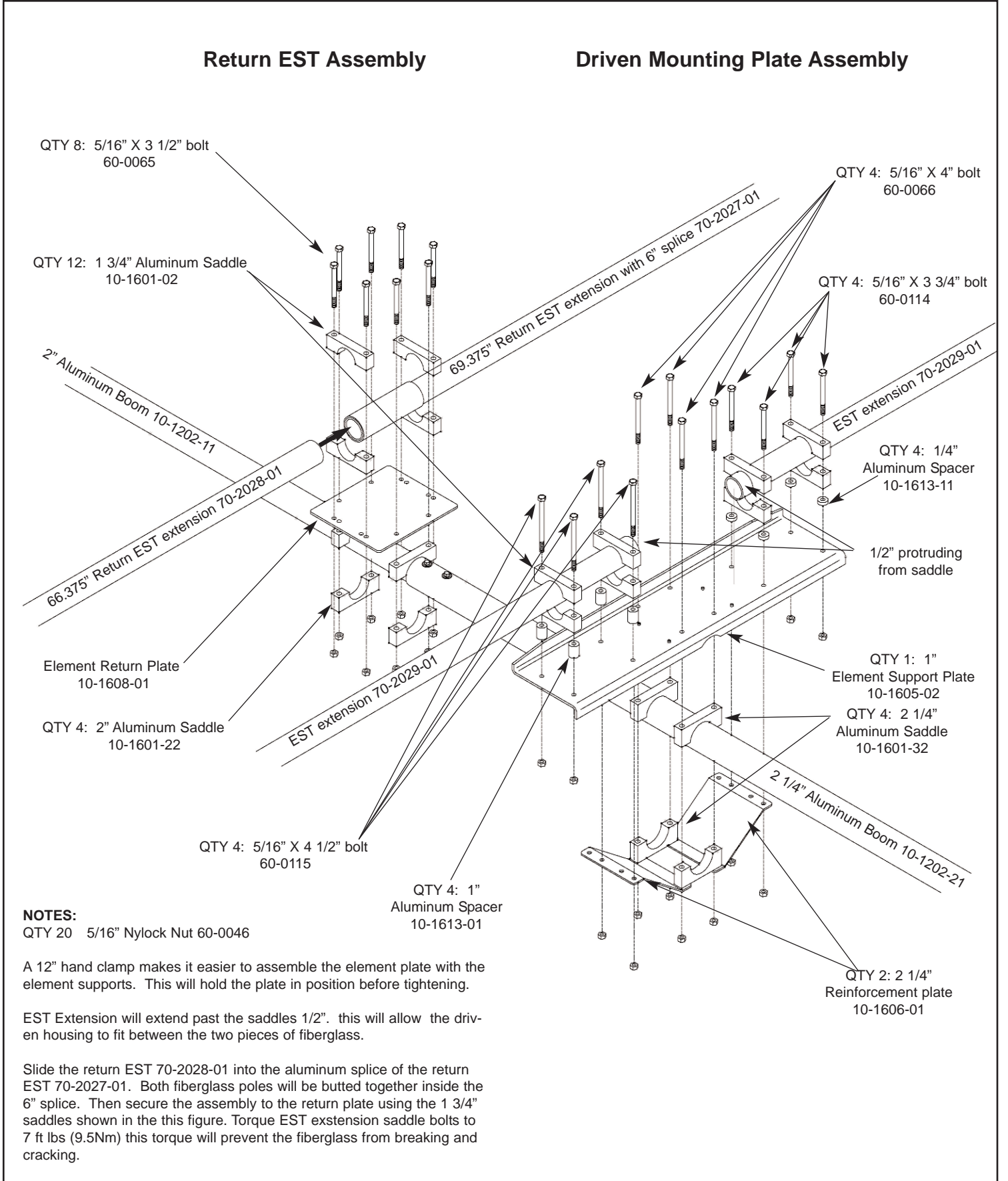
**Figure 4 Driven EST extension Assembly**

**Driven EST extension Assembly**



**Figure 5**

**Driven Assembly**



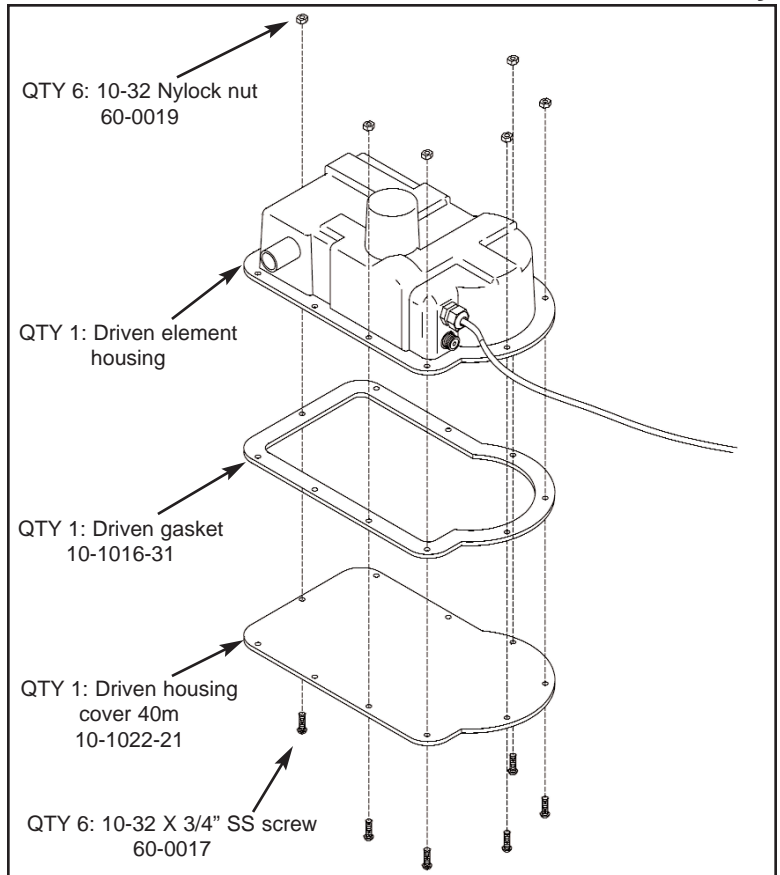
## NOTES:

With the 1/4" spacers under the housing the CPVC extensions should roughly align with the center of the 1 3/4" fiberglass. Once the element has been mounted make sure to check that both the element plate and return plate are level. All elements can be adjusted by loosening the saddles and rotating the element until it is level to the other elements of the antenna.

- Remove foam pad from inside driven housing.
- Refer to **Figure 6** for assembly of the driven housing
- Once the six screws are secured to the driven housing it can now be installed to the driven element plate.
- Follow **Figure 7** for attaching the driven housing to the element plate.

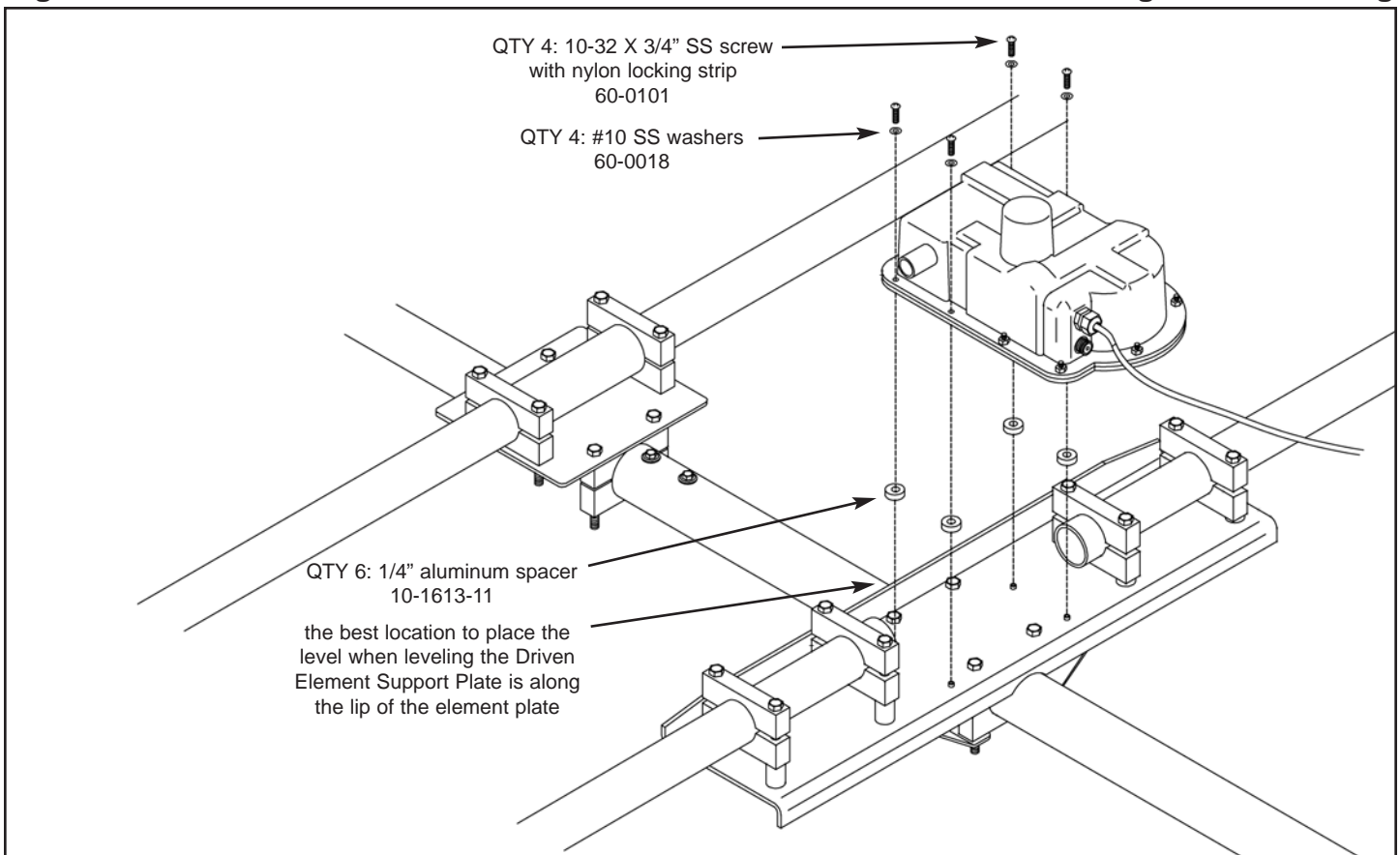
### Figure 6

### Driven Assembly



### Figure 7

### Mounting Driven Housing

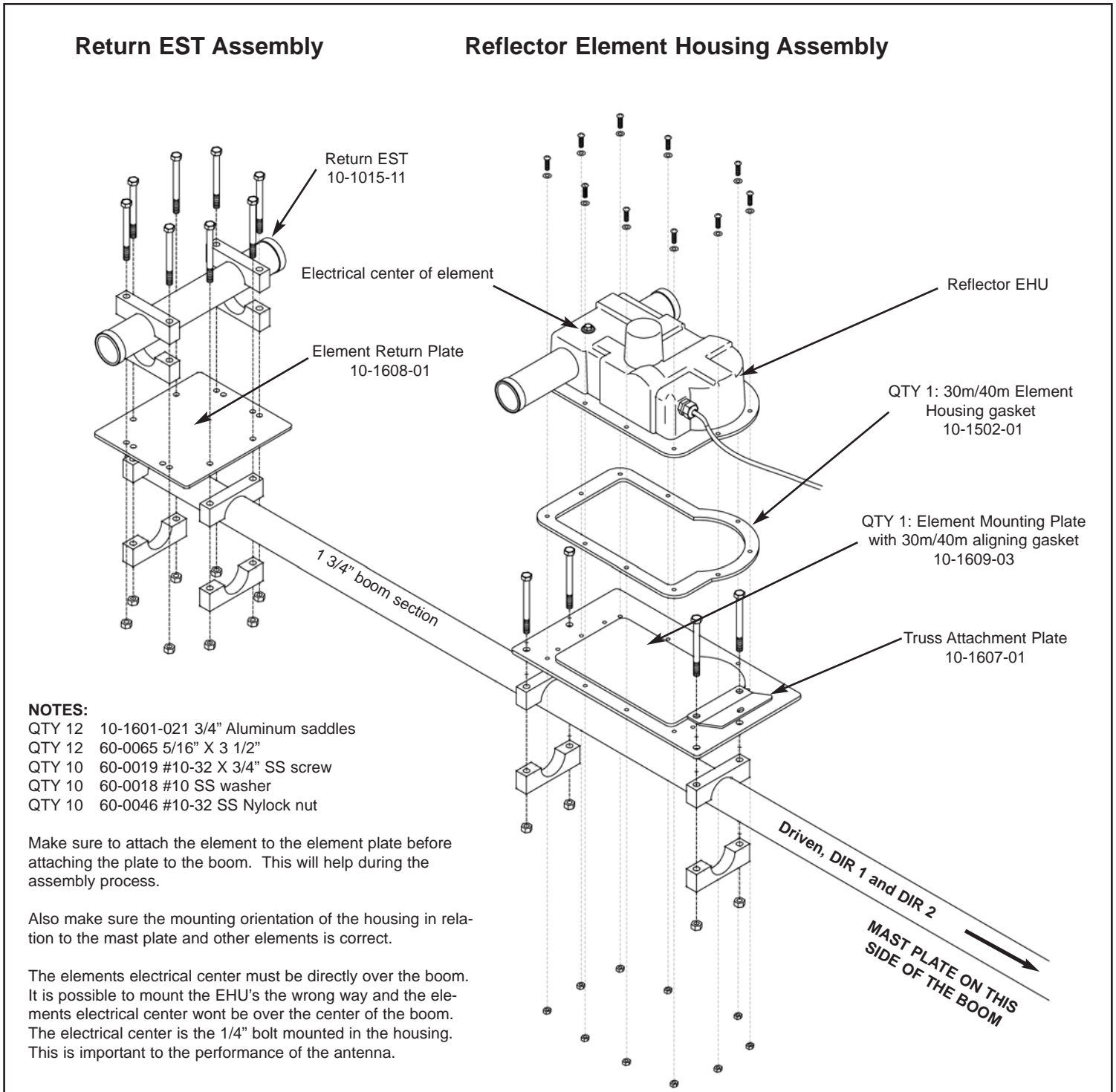


## REFLECTOR EHU MOUNTING PROCEDURE

- First attach the Reflector Element to the EHU mounting plate and return EST to its mounting plate. Then attach the plates to the boom. See **Figure 4**
- Use a level to check the EHU and Return EST before tightening the aluminum saddles to the boom. When the plate is level tighten the saddle bolts to 20 ft/lbs (27.09Nm)
- Dont forget to mount the truss attachment plate (10-1607-01)

Figure 8

### Reflector Assembly



## DIRECTOR 1 ELEMENT HOUSING UNIT ASSEMBLY PROCEDURE

### Locate pieces for Director 1 element Housing (20m) element assembly

- QTY 1 Director 1 Element Housing Unit 20m, with gasket (located in Antenna box)
- QTY 1 10-1609-31 Element mounting plate with square aligning gasket (located in sweep box)

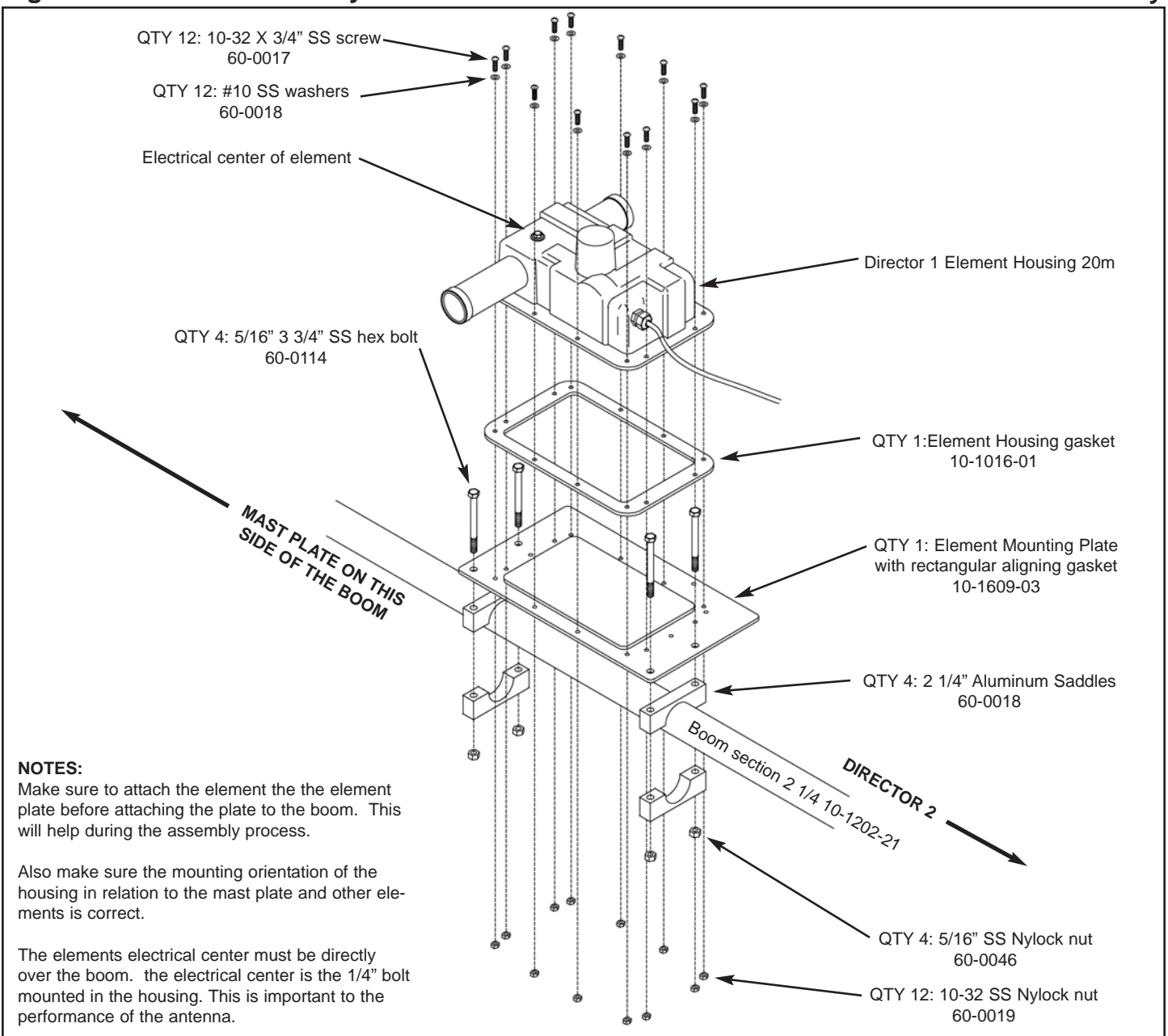
### Locate the following kits for assembling the Director 1 Element

- QTY 1 72-0019-21 Boom Saddle & hardware Kit Bag 2 (Located in Antenna Sweep Box)
- QTY 1 72-0024-01 REF, DIR, DIR 2 Hardware Kit (Located in Sweep Box)

- First attach the Director 1 EHU to the element mounting plate. Then attach the plate to the boom so the element center is in the proper position (the boom was marked earlier). See **Figure 9**
- Use a level to check the EHU before tightening the aluminum saddles to the boom.

**Figure 9 Director 1 Assembly**

**Director 1 Assembly**

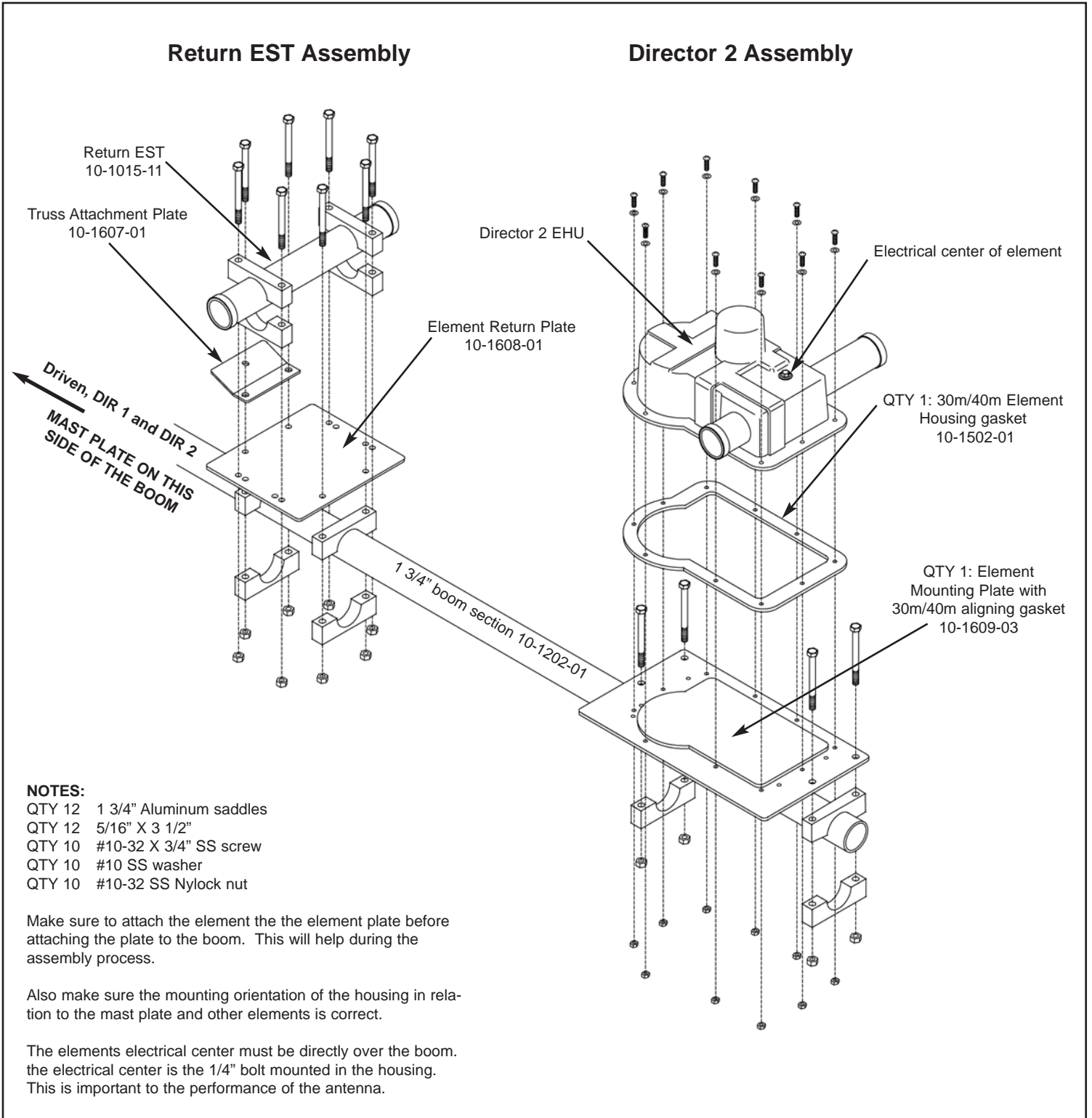


## DIRECTOR 2 ELEMENT HOUSING (40m) ASSEMBLY PROCEDURE

- First attach the Director 2 Element to the EHU mounting plate and return EST to its mounting plate. Then attach the plates to the boom. See **Figure 10**
- Use a level to check the EHU and Return EST before tightening the aluminum saddles to the boom. When the plate is level tighten the saddle bolts to 20 ft/lbs (27.09Nm)
- Dont forget to mount the truss attachment plate (10-1607-01)

Figure 10 Director 2 Assembly

Figure 10 Director 2 Assembly



## MAST PLATE ASSEMBLY PROCEDURE

### Locate pieces for Mast Plate assembly

- QTY 2      10-1610-01 Boom to mast plate 11 1/2" X 11 1/2" (Located in Antenna Sweep Box)
- QTY 1      10-1618-01 Boom truss support mast 30" X 1 3/4" (Located in Antenna Boom Box)

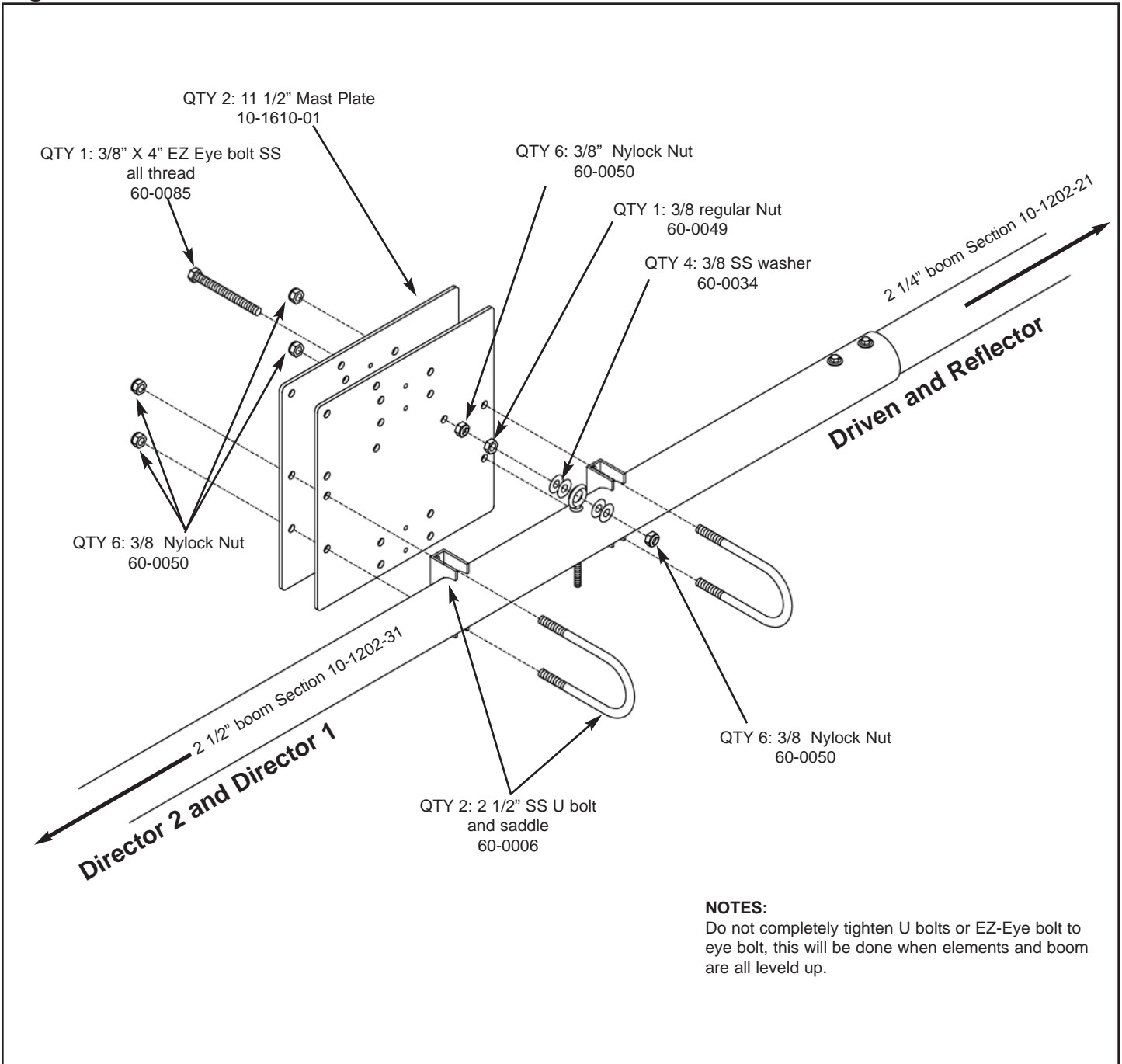
### Locate the following kits for assembling the Driven 49' Element

- QTY 1      72-0025-01 Boom Saddle & hardware Kit Bag 2 (Located in Antenna Sweep Box)

- Mount the mast plate to the boom such that the EZ Eye bolt is centered in the eye olt mounted to the 2 1/4" boom section. Use **Figure 11** for the first part of the mast plate assembly.

**Figure 10**

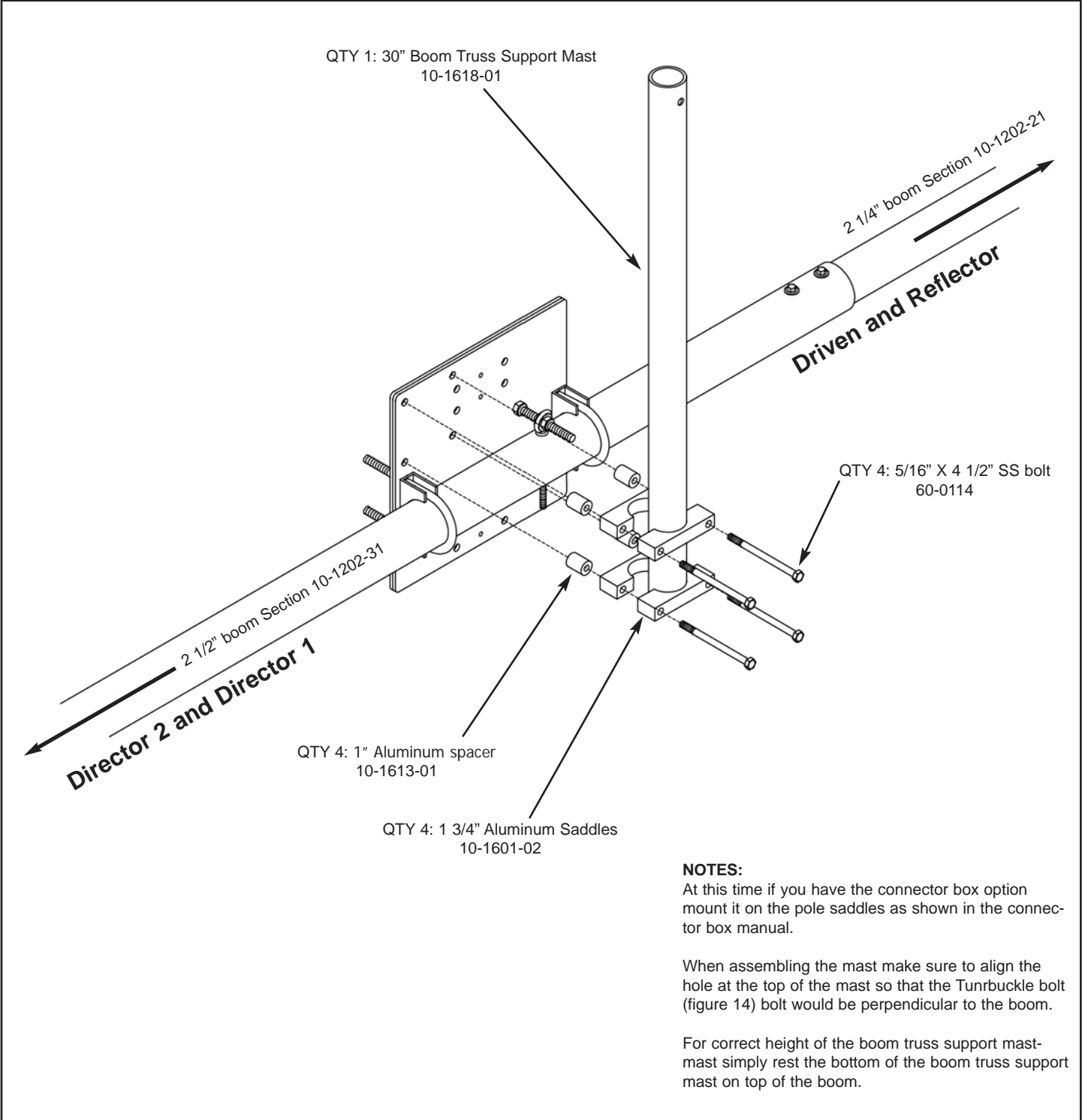
**Mast Plate and EZ Eye Assembly**



- With the Mast plate loosely attached to the boom and secured in the EZ Eye, follow **Figure 12** for assembling the mast to the mast plate.
- Make sure the truss support mast is resting on the center of the boom before you tighten the saddles around it.
- Align the hole in the mast so that the Turnbuckle bolt (**Figure 14**) would be perpendicular to the boom.

**Figure 12**

**Mast to Mast plate Assembly**



## BOOM TRUSS ASSEMBLY PROCEDURE

### Locate the following kits for assembling the Boom Truss

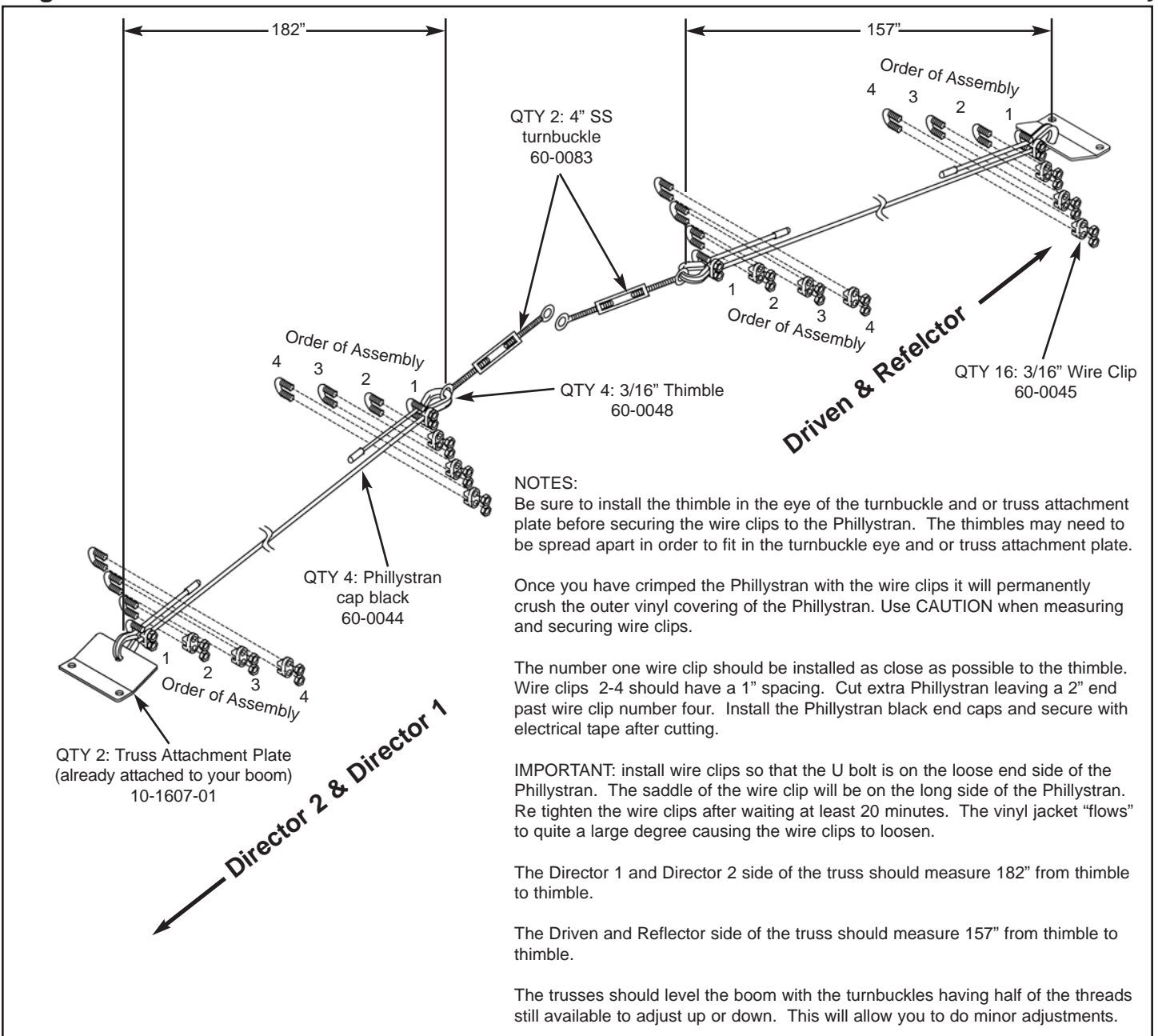
- QTY 1      72-0021-01 Truss Hardware Kit Bag 1 (Located in Antenna Sweep Box)
- QTY 1      72-0021-21 Truss Hardware Kit Bag 2 (Located in Antenna Sweep Box)

### Boom Truss Assembly

- Locate the two different lengths of Phillystran, 201" and 176", these will be used to assemble the boom truss.
- Assemble the truss supports as per **Figure 13**
- The truss supports are different lengths by design. The Director 2 side of the boom truss will be longer at 182" once assembled. The Reflector side of the boom truss will be 157" once assembled.

**Figure 13**

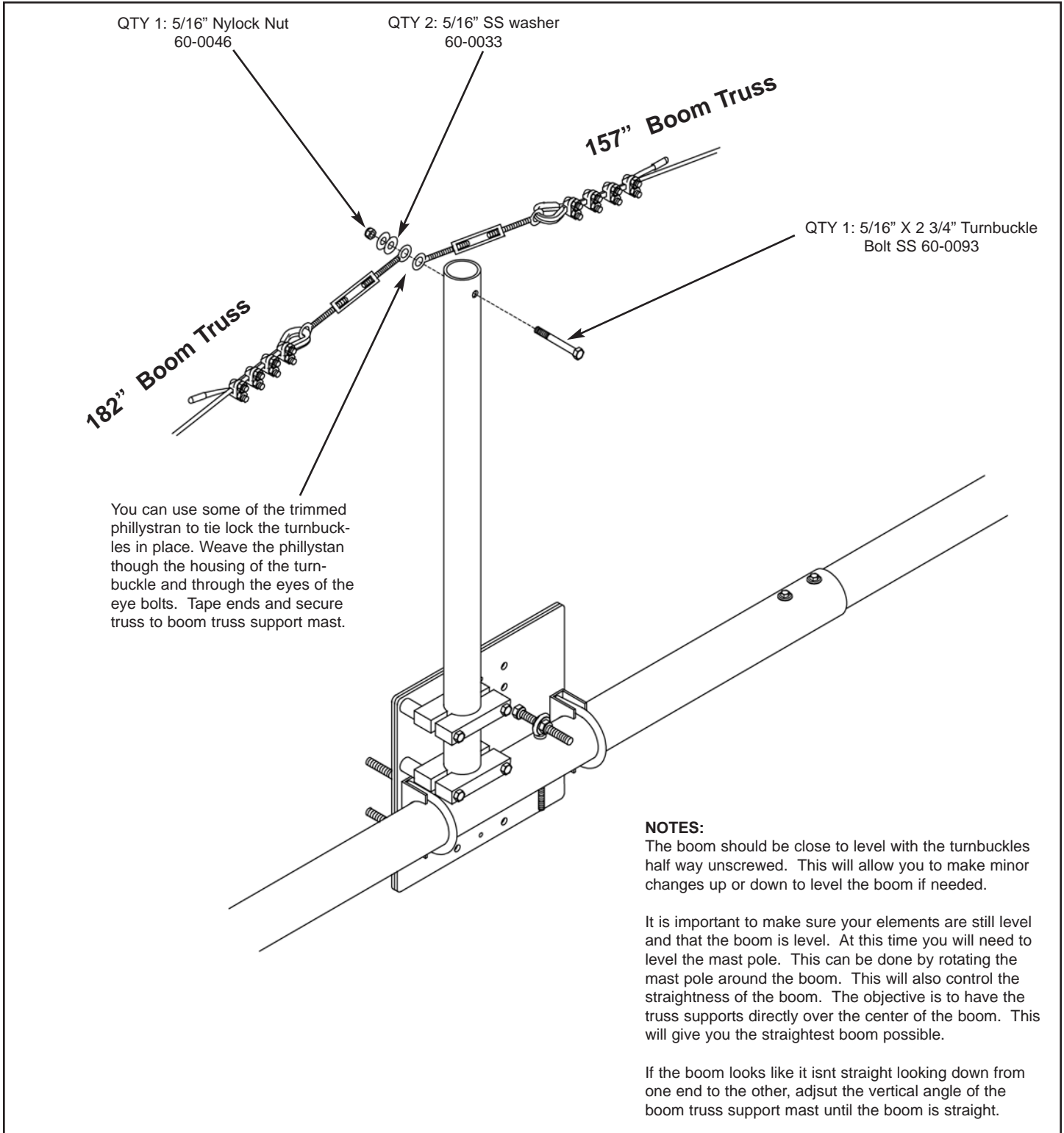
**Truss Assembly**



- With the truss attachment plates already secured to the boom you just need to secure the turnbuckle side of the truss to the mast pole.
- Assemble the truss to the mast pole as per **Figure 14**
- This process is much easier with two people one to lift the end of the boom while the other person attaches the turnbuckle to the mast pole.

**Figure 14**

**Truss to Mast Pole Assembly**



## MOUNTING TERMINAL HOUSING

### Locate the following kits for assembling Terminal Housing

QTY 1      72-0022-01 Terminal Strip Kit (Located in Antenna Sweep Box)

#### NOTES:

If you ordered the Connector box option this kit will not be included in your antenna. The Connector Box Option will directly replace the terminal housing and the kit needed for the terminal housing. Refer to the Connector Box manual for installation.

The terminal housing can be installed anywhere in the middle of the boom. Location is not that important, as long as all element control cables can reach and the control wire from your shack will reach. We recommend mounting it as close to the mast plate as possible.

- Unscrew the SS hose clamp 056 (60-6000-40) so that it can be fitted around the boom.
- Use the SS hose clamp to secure the terminal housing to the boom or mast. The housing can be horizontal or vertical.
- Regardless of the mounting orientation make sure that the hole in the end cap of the terminal housing will be facing down when you attach it. This is to allow the housing to drain and prevent water from collecting in the housing.

**DO NOT SEAL THE TERMINAL HOUSING  
IT NEEDS TO BREATHE OUT THE BOTTOM DRAIN HOLE**

---

## RUNNING ELEMENT CONTROL CABLE

### Locate the following kit for securing the control cable to the boom

QTY 1      72-0020-01 Boom Assembly Kit (Located in the Antenna Sweep Box)

#### NOTES:

Make sure not to bend any control cable over any sharp corners. This could result in damage that causes a short circuit. Also do not clamp anything over the cables that could possibly pinch or damage the cable.

When taping the cable start on the ends of the boom and work towards the mast plate. This will allow you to trim the cable to the exact length if desired.

- Secure the cables from the elements to the boom.
- Use the electrical tape (09-0001) to secure the cable to the boom
- Only two wraps of the tape are needed to hold the cable to the boom.
- Tape the cable to the boom approximately every two feet.
- Once cable is ran to the terminal housing or connector box it can either be trimmed to length or coiled up and out of the way.
- Wiring up the cable will be done at a later time.

## ASSEMBLING THE REGULAR TELESCOPING POLES (DIRECTOR 1 ONLY)

### Locate pieces for Driven element assembly

QTY 2      20m regular Telescoping Pole (located in Antenna box)

### Locate the following kits for assembling the Telescoping Poles

QTY 1      72-0020-01 Boom Assembly Kit (Located in Antenna Sweep Box)

### NOTES:

The telescoping poles are not all the same so make sure you identify them correctly.

The regular poles will have a foam filter inserted into the tip end. The 30m/40m telescoping poles have been cut to a specific length and have an O ring secured to the tip with a piece of adhesive sand paper also secured to the tip. It is critical that you separate the 2 regular telescoping poles from the 12 30m/40m telescoping poles. DIRECTOR 1 is the only element that will have the regular telescoping pole.

If you are having trouble extending the telescoping pole to the proper length, try collapsing the entire pole and re-extend it using more force than the first time. If you still are having trouble getting the pole the correct length you can try and extend the telescoping pole using a throwing method. Similar to casting a fishing pole hold the large section and use your best casting form to extend the pole. This method can produce a significant difference in the extended length of some poles as a last resort. Make sure you are in an open area so not to damage the pole or yourself.

- Extend the Regular Telescoping Poles to full length by FIRMLY pulling out each section in a twisting motion.
- This will lock the pole sections to the extent it should be difficult to collapse them. The poles will vary in length but must be at least **17 feet 8 inches**, longer is ok. This is measured from the base of the large section to the tip of the small section.
- Double check the length of poles before taping joints and installing into the element housing.
- When wrapping the electrical tape around the joints, apply one complete wrap around the fiberglass pole then begin to wrap across the joint and then back across the joint. This should leave the complete joint covered with tape.
- When cutting the tape after the joint has been covered use scissors or a knife, DO NOT TEAR OR RIP the tape. Do not stretch the last wrap of tape.
- Rub the tape smooth so that it makes a good bond.
- Wrap each joint in the same manner. Each joint should have a full width of tape on either side of the joint.

### Notes:

Per the manufacturers specifications the silicone tape has a shelf life of 12 months before it is used and should be stored in a cool dry environment. Silicone tape will not stick to other surfaces. It only bonds to itself. be sure to remove all the connector protector residue from your hands before handling silicone tape, this residue will cause the silicone wrap not to adhere to itself. Take care to keep the silicone wrap free of dirt and debris. This tape MUST be cut, do not tear. Wash your hands before completing the following steps.



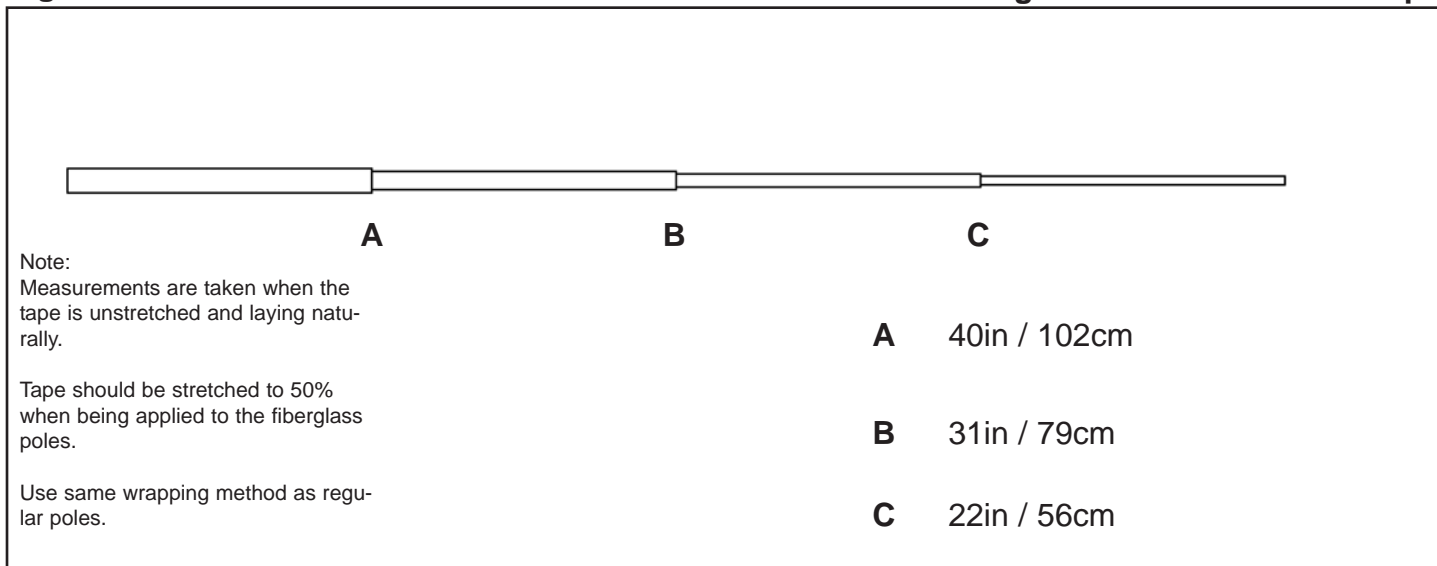
## NOTES:

Follow the same procedure as the regular pole but the length of these poles determines how straight the loop element is so check the length carefully or the element will no look very good. The pole must be **17 feet 8 inches +/- 1 inch**.

Taping procedures will be different for these poles than they were for the regular telescoping poles. The 30m/40m poles are taped using 1 1/2" wide PVC tape. This tape is wide to prevent the telescoping pole joints from twisting in the wind. Follow **Figure 16** for correct tape lengths on the 30m/40m telescoping pole.

**Figure 16**

**Lengths for 1 1/2 inch PVC tape**



## Procedure for taping the 30m/40m Telescoping Poles

- Once the pole is extended and within the correct length specified on the previous page, the joints can be taped as follows.
- Start the tape with one complete wrap of electrical tape around the telescoping pole section joint.
- Make sure to smooth the tape as you wind it around the joint. To prevent any air bubbles and to create better adhesion. Wrap the tape past the joint by about 3 inches using a half-overlapping method.
- Wrap back down to the smaller fiberglass pole section using the same technique so that you
- finish where you started. Apply the last full wrap with no tension, to prevent from the tape coming undone and flagging over time.
- CAUTION: never tear the tape to terminate it, use a knife or scissors to cut the tape.
- Rub the end of the tape firmly to ensure the tape is bonded and smooth out any air bubbles.
- Repeat this for joints A, B, and C on the telescoping pole.

## NOTES:

CAUTION: Petroleum base lubricants or glues will damage the polycarbonate sweep coupler. **Only use the provided pure silicone grease** that act as a lubricant while inserting the telescoping pole into the sweep coupler.

## NOTES:

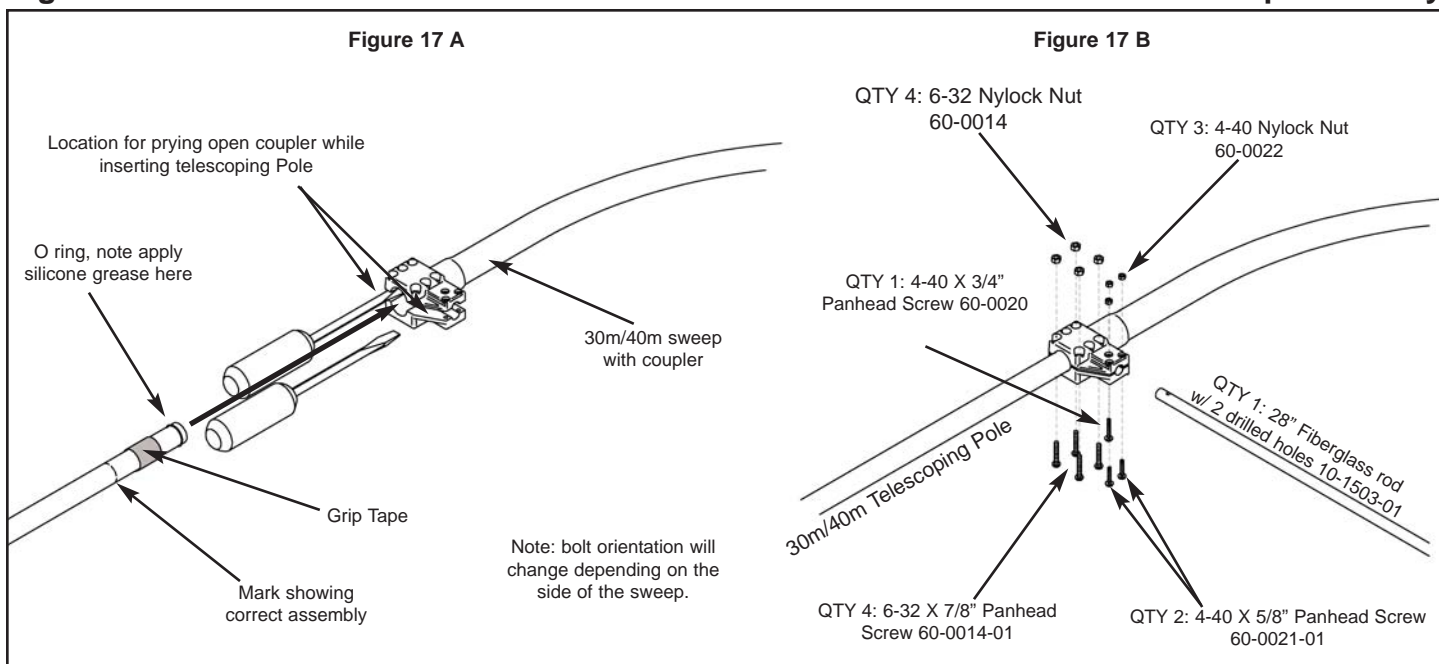
The most important aspect of assembling the 30m/40m Sweep Assembly (the Sweep is a half circle polyethylene tube with black plastic couplers attached) is making sure the pole tip is completely inserted into the coupler and the O ring is not damaged in the process. Failure to do this step properly might allow water to enter the Sweep and freeze, which could then impede the copper tape.

Refer to Fig. 24 to familiarize yourself with what the completed 30m/40m element looks like. Each element half consists of two telescoping poles and the black Sweep tube with the two plastic couplers.

## Procedure for assembling sweeps and securing them to the 30m/40m telescoping pole.

- Make a mark on the pole 2 3/8" from the tip of the pole as shown. This pole tip must be inserted such that the mark you made is very close to the edge of the coupler, indicating the pole is seated properly in the coupler.
- Apply the provided pure silicone grease to the O ring on the telescoping pole. This provides lubrication that allows proper seating of the pole without damaging the O ring.
- Spread the coupler apart using two flat bladed screwdrivers as shown, don't use very small screwdrivers as they may not spread the coupler apart sufficiently to easily slide the pole in. The polycarbonate plastic is very strong so don't worry about breaking it (within reason of course). Make sure the screwdriver tips do not protrude into the hole for the pole tip where they could damage the O ring. **Figure 17A**
- Carefully insert the telescoping pole tip completely into the Sweep Coupler. Verify your mark is lined up with edge of the Sweep coupler. If you have trouble getting the tip all of the way in try spreading the coupler more by careful readjusting of the screwdrivers.
- Insert the Fiberglass Rod as shown secure it with a 4-40 screw and nylok nut (60-0020, 60-0022). **Figure 17B**
- Install and tighten all remaining hardware as shown.
- Repeat this procedure for the other side of the Sweep Assembly and then repeat the entire procedure for each of the 30m/40m element halves.

Figure 17A/B



## PROCEDURE FOR CPVC AND DIVERTER CONE ASSEMBLY

### Locate pieces for Driven element assembly

- QTY 6 72-2025-13 49" CPVC inner support tube with coupler (located in Antenna Boom Box)
- QTY 6 72-2025-23 43.5" CPVC inner support tube with no coupler (located in Antenna Boom Box)
- QTY 2 10-1617-01 CPVC inner support tube with rubber coupler and foam seal ring (Located in Boom Box)

### Locate the following kits for assembling the Telescoping Poles

- QTY 1 72-0023-01 49' Element Hardware Kit (Located in Antenna Sweep Box)
- QTY 1 72-0024-01 REF, DIR, DIR 2 Hardware Kit (Located in Antenna Sweep Box)
- QTY 2 Glue Kit (located in Antenna Box in DIR 1 element box)

### Procedure for assembling the Inner Support Tube for the REF and DIR 2 elements

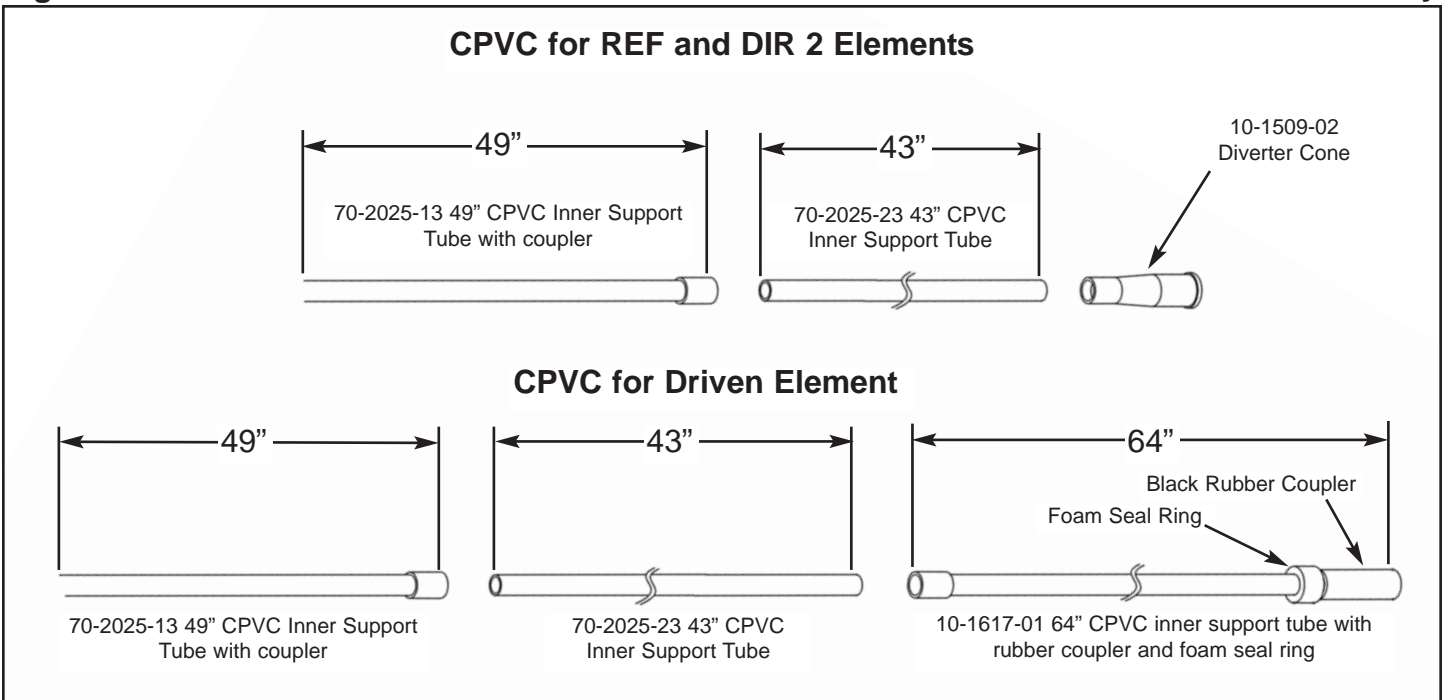
- Apply a thin layer of the provided glue to the outside of the bare ends of the 43" CPVC support tube.
- On one end glue on the Diverter Cone 10-1509-02
- On the other end glue the 49" CPVC Inner Support Tube with the coupler. Follow **Figure 18** for gluing procedure. Let glue set for at least 1 hour.

### Procedure for assembling the Inner Support Tube for the Driven Element

- Apply a thin layer of the provided glue to the outside of the bare ends of the 43" CPVC support tube.
- On one end glue on Inner Support Tube with rubber coupler and foal Seal ring 10-1617-01
- On the other end glue the 49" CPVC Inner Support Tube with the coupler. Follow **Figure 18** for gluing procedure. Let glue to set for at least 1 hour.

Figure 18

Inner CPVC Assembly



## PROCEDURE FOR SECURING TELESCOPING POLES TO ELEMENT HOUSING UNIT

### Locate pieces for 30m/40m sweep assembly

- QTY 6 Telescoping Poles with 30m/40m sweep assembly. (The assembly you just put together)
- QTY 2 Regular Telescoping poles that have been taped at the joints.
- QTY 4 Inner support tube for REF and DIR 2, complete assembly (with cone)
- QTY 2 Inner support tube for Driven element, complete assembly (with rubber coupler and foam sealing ring)

### Locate the following kits for assembling the Telescoping Poles

- QTY 2 72-0032-01 Rubber Boot Kit (Located in Antenna Sweep Box)
- QTY 1 72-0023-01 49" Element Hardware Kit (Located in Antenna Sweep Box)

### Procedure for Securing Telescoping Poles to REF and DIR 2 Element Housings

- To secure the telescoping poles to the Element Housing Unit, first slide a rubber boot over the base section of the telescoping pole. Refer to **Figure 19** for assembly.
- **Before attaching the 30m/40m sweep element make sure the label that says "THIS WAY UP", on the sweep will be skyward when the element is mounted. Failure to do this puts the drain holes up and water will collect in the element.**
- Slide the CPVC and Diverter Cone assembly inside the telescoping pole as shown in **Figure 19**
- Insert the assembly far enough that the flange of the Diverter Cone is flush with the base of the telescoping pole.
- There is no inner liner for the return side of the 30m/40m loop.
- Slide the Telescoping Pole with Diverter Cone assembly inside the EST of the Element housing until it bottoms out. Procedure will be the same for both REF and DIR 2.
- Slide the rubber boot over the metal ring on the EST of the element housing. Make sure the large hose clamp on the rubber boot slides over the metal ring on the EST of the Element housing.
- The smaller hose clamp of the rubber boot should be outside of the black raised ring on the telescoping pole. This prevents the pole from ever unintentionally coming off.
- Once the rubber boot is in the correct location tighten both hose clamps. Due to cold flow of the rubber you should retighten the hose clamps after 30 minutes.  
Repeat the same process for all the telescoping poles of the REF and DIR 2.

### Procedure for Securing Telescoping Poles to DIR 1 Element Housing

- To secure the telescoping poles to the Element Housing Unit, first slide a rubber boot over the base section of the telescoping pole. Use **Figure 19** for assembly.  
there is no Inner Support tube on this element.
- Slide the Telescoping Pole inside the EST of the Element housing. Make sure the pole goes all the way in until it hits the stop in the EHU.
- Slide the rubber boot over the metal ring on the EST of the element housing. Make sure the large hose clamp on the rubber boot slides over the metal ring on the EST of the Element housing.
- The smaller hose clamp of the rubber boot should be outside of the black raised ring on the telescoping pole. This prevents the pole from ever unintentionally coming off.
- Once the rubber boot is in the correct location tighten both hose clamps. Due to cold flow of the rubber you should retighten the hose clamps after 30 minutes.
- Repeat the same process for the other telescoping pole.

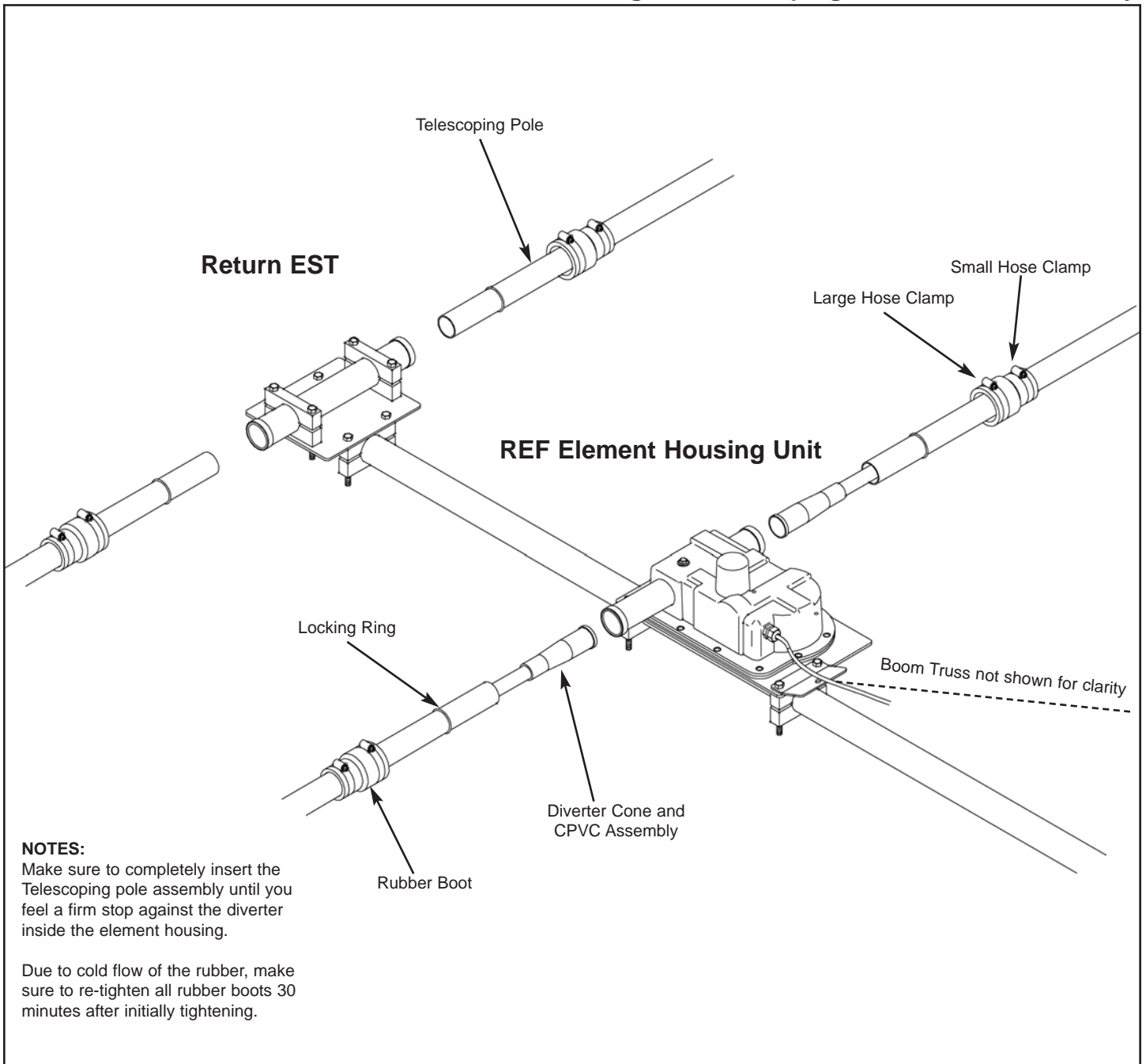
**NOTES:**

**Figure 19** shows the REF element but the DIR 2 element is assembled in the same manner. The DIR 1 element is assembled much like the return side of the element shown below.

**LAST MINUTE CHECK OFF LIST**

1. Check all fasteners for tightness, especially the EHU saddles and boom bolts.
2. Do all of the sweeps have the "THIS WAY UP" label correct.
3. Tighten the boom truss wire clips one last time.
4. Tighten the rubber boot hose clamps one last time.
5. Check all taping for loose ends.
6. Have all trusses benn tightened

**Figure 19** **Securing the Telescoping Poles to EHU Assembly**



## PROCEDURE FOR SECURING TELESCOPING POLES TO THE DRIVEN ELEMENT

### NOTES:

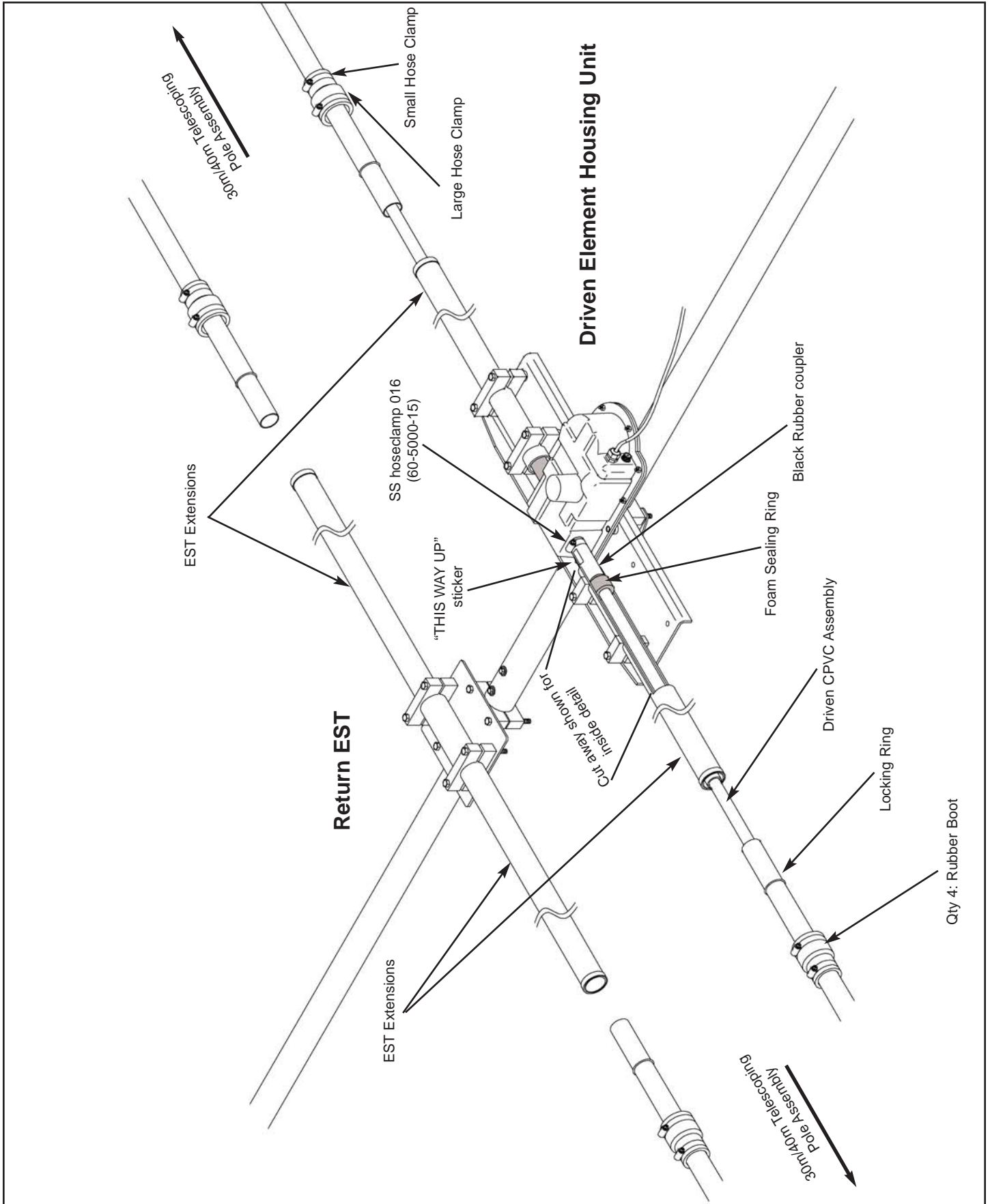
Make sure while installing the, CPVC with foam seal ring and black rubber coupler, that the “THIS WAY UP” sticker is facing up. This will align the slot in the foam ring to be facing up inside the EST extension. This slot is to allow the element to breath and ventilate any condensation that builds up inside the fiberglass poles.

To straighten the 30m/40m telescoping pole assembly the poles can be twisted inside the EST extensions before the rubber boots are tightened. To check for straightness sight along the boom to check if the sweep assembly is aligned correctly.

- To secure the telescoping poles to the Element Housing Unit, first slide a rubber boot over the base section of the telescoping pole. Use **Figure 20** for assembly.
- Slide the CPVC Inner Support Tube assembly for driven element (about 156” long), that you glued in **Figure 18**, inside a 30m/40m telescoping pole assembly as shown in **Figure 20**.
- There will be no CPVC for the return side of the 30m/40m loop.
- Slide the rubber coupler and foam sealing ring inside the EST extension. The rubber coupler should align with the CPVC sticking out of the driven element housing.
- From kit the 49' Element hardware kit (72-0023-01) locate the SS hose clamp 016 (60-500-15). Place the hose clamp over the rubber coupler before fitting the coupler onto the driven element.
- Once the rubber coupler is seated flush against the driven element housing and the “THIS WAY UP” sticker on the rubber coupler is up, slide the hose clamp up against the housing and tighten.
- This will leave the Driven CPVC assembly hanging out of the EST extension.
- Slide the 30m/40m telescoping pole assembly over the CPVC assembly and into the EST extensions.
- Slide the rubber boot over the metal ring on the EST extensions. The large hose clamp on the rubber boot must be slid over the metal ring on the EST of the EST extensions.
- The smaller hose clamp of the rubber boot should not slide over the locking ring on the telescoping pole.
- Once the rubber boot is in the correct location tighten both hose clamps. Due to cold flow of the rubber you should re-tighten the hose clamps after 30 minutes. Repeat the same process for all other poles on the driven element.

Figure 20

Driven Telescoping pole assembly



## PROCEDURE FOR MOUNTING AND ASSEMBLING THE 30m/40m DRIVEN ELEMENT (49') TRUSS

### Locate pieces for 30m/40m sweep assembly

QTY 1      10-1054-01 38" truss support

### Locate the following kits for assembling the Telescoping Poles

QTY 1      72-0021-01 Truss Hardware Kit Bag 1 (Located in Antenna Sweep Box)

QTY 1      72-0021-21 Truss Hardware Kit Bag 2 (Located in Antenna Sweep Box)

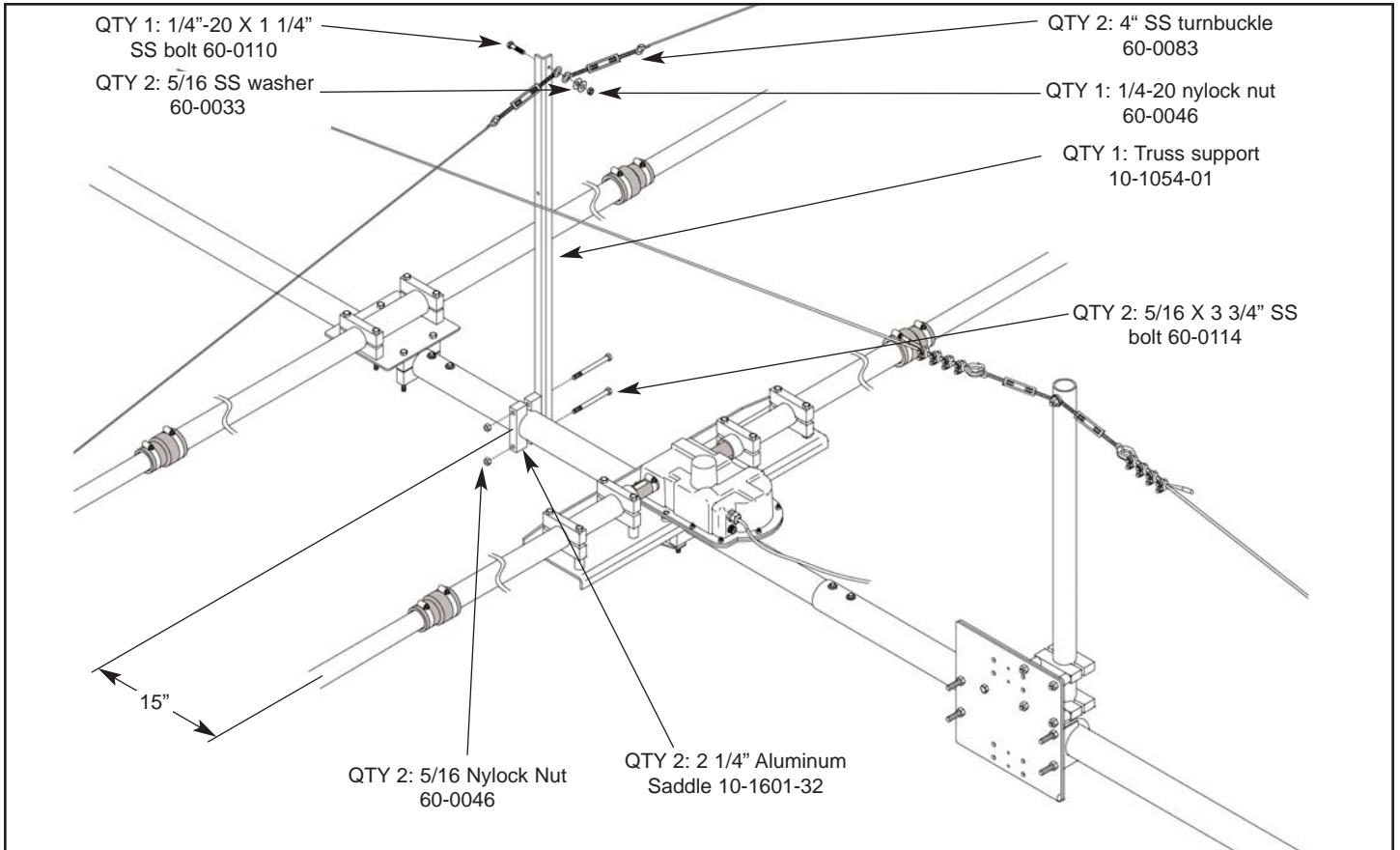
### Notes:

It is important that the truss support is mounted as shown in Figure 21. Please note that the optional 39' truss supports mounts on the same side of the boom as the mast plate which is the opposite of the 49' truss support. Also be aware the dacron rope for the 39ft truss kits is much shorter than the 49' truss (202" versus 285"). The hardware and parts for the optional 39' trusses will be in the Antenna Sweep Box.

- Secure the truss support, saddles and turnbuckles as shown in **Figure 21**.
- The truss support must be mounted on the opposite side of the boom from the mast plate. Position the truss support so it is perpendicular to the EHU mounting plates. This is not critical as long as you get it reasonably close.
- Locate the short section of Dacron rope (60") (10-1055-01), it will have two loops on each end.
- Secure each 3/16" SS eye bolt to the loops of the small Dacron rope by threading the loop of the rope through the eye of the eye bolt. Pull the loop over the shank of the eye bolt and then tighten the rope by pulling the opposite end of the Dacron rope. Repeat this procedure for the other eye bolt.
- Unscrew the SS nut from eye bolt and discard. You will use the small SS washers so be sure to keep them for this assembly. Secure the eye bolt to the coupler on the 30m/40m sweep as per **Figure 22**
- Secure 3/4" SS ring to the short section of the Dacron rope as shown in **Figure 23**. Use the same procedure that was used to attach the eye bolts to the rope, but position the SS ring in the middle of the short Dacron rope.
- Locate the long section of Dacron rope, secure the looped end of the rope to the SS ring using the same procedure as the eye bolts and the SS ring. See **Figure 23** for SS ring assembly.
- Lengthen the turnbuckles until only 2 or 3 threads are left before it comes apart. To attach the loose end of the long Dacron rope you will need to run the rope through the open eye of the turnbuckle. Pull the rope tight enough so that the telescoping poles are close to level. Once the 30m/40m loop is close to level secure the rope to the turnbuckle by looping the rope twice through the eye and tying 3 half hitches. Finish the knot by covering the half hitches with the provided electrical tape.
- Use the turnbuckles to do any fine tune adjusting to your element. **DO NOT** pull up too high on the 30m/40m element. This will cause the element to collect water and damage the antenna. In any case the tip of the sweep should never be higher than any other part of the telescoping pole. Don't try to get the element perfectly straight, if you pull it up just enough so that it is close to the droop of the 20m element it will look great. Lock down the turnbuckle by tightening the small nuts on the turnbuckle.
- Repeat steps 6-12 to complete the other half of the truss support. **Figure 24** for complete layout of 49' driven element with truss.

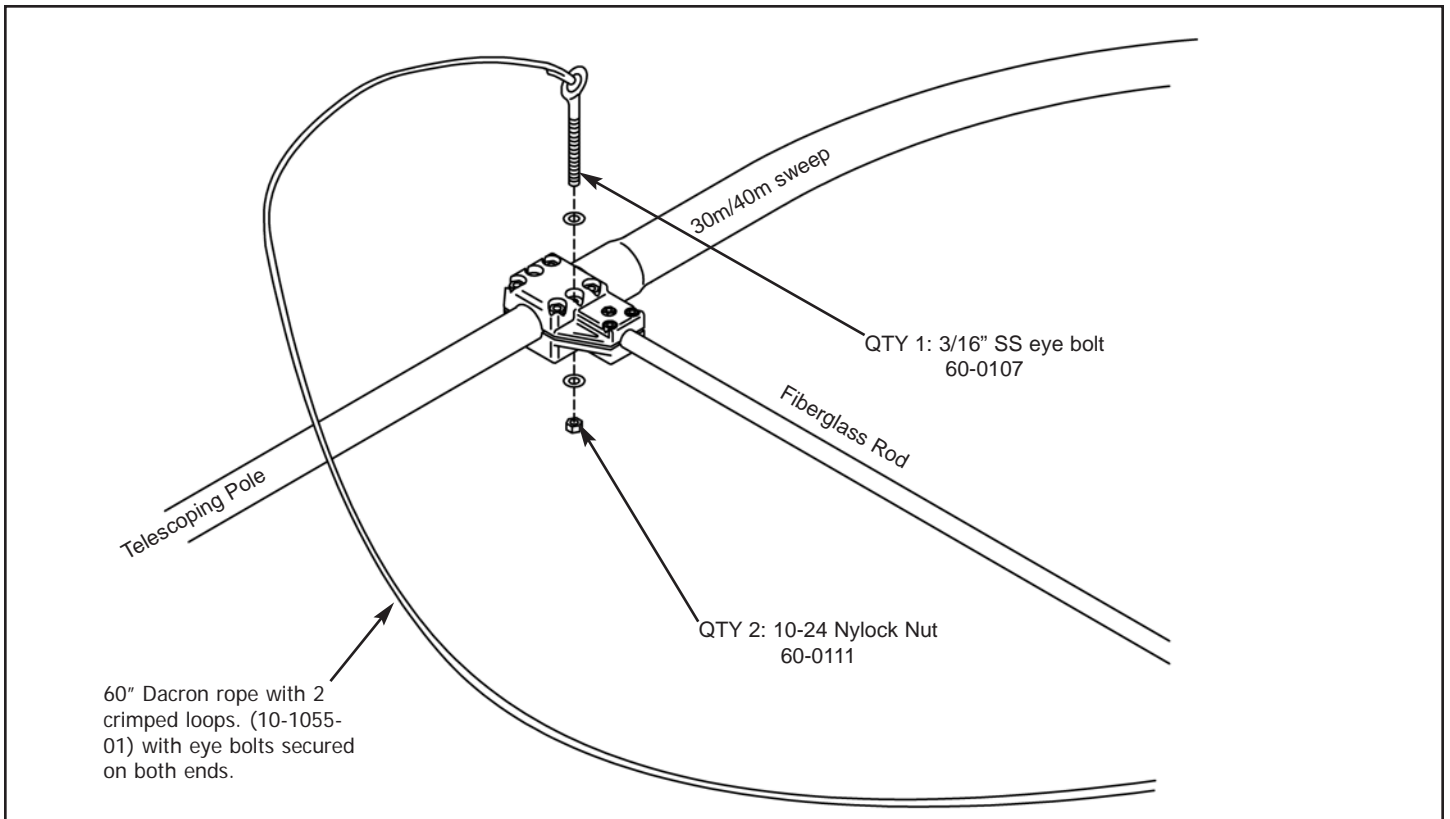
**Figure 21**

**30m/40m Truss Support Assembly**

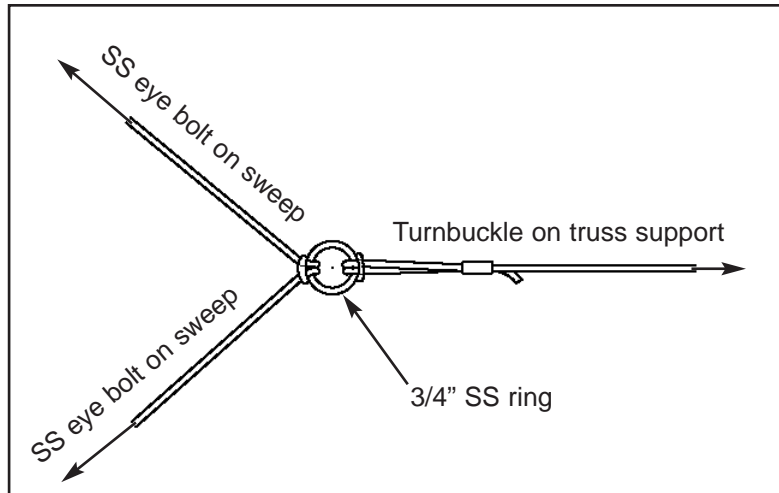


**Figure 22**

**Truss Eyebolt Assembly**

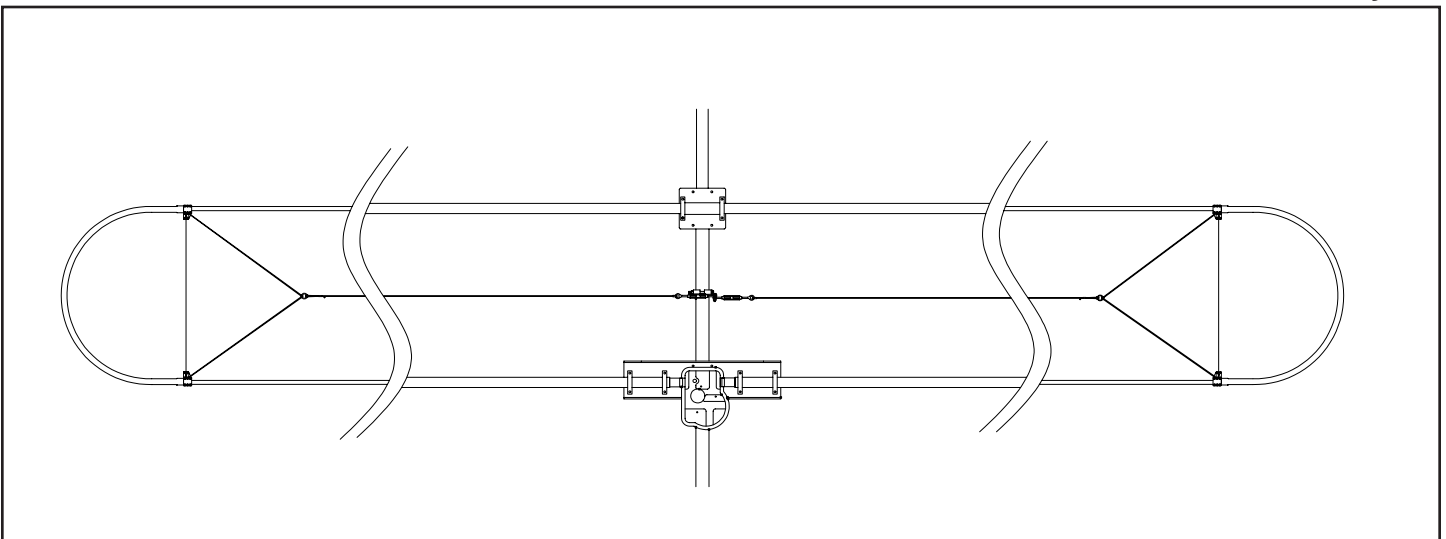


**Figure 23** **SS ring Assembly**



**Figure 24**

**Truss Layout**



## PROCEDURE FOR MOUNTING AND ASSEMBLING THE 6m PASSIVE ELEMENT OPTION

### Locate pieces for 6m passive element

QTY 1      70-1001-61 6m passives Long and Short are both in this box

### Locate the following kits for assembling the Telescoping Poles

The 6m passive kit will be attached to the 6m passive.

### NOTES:

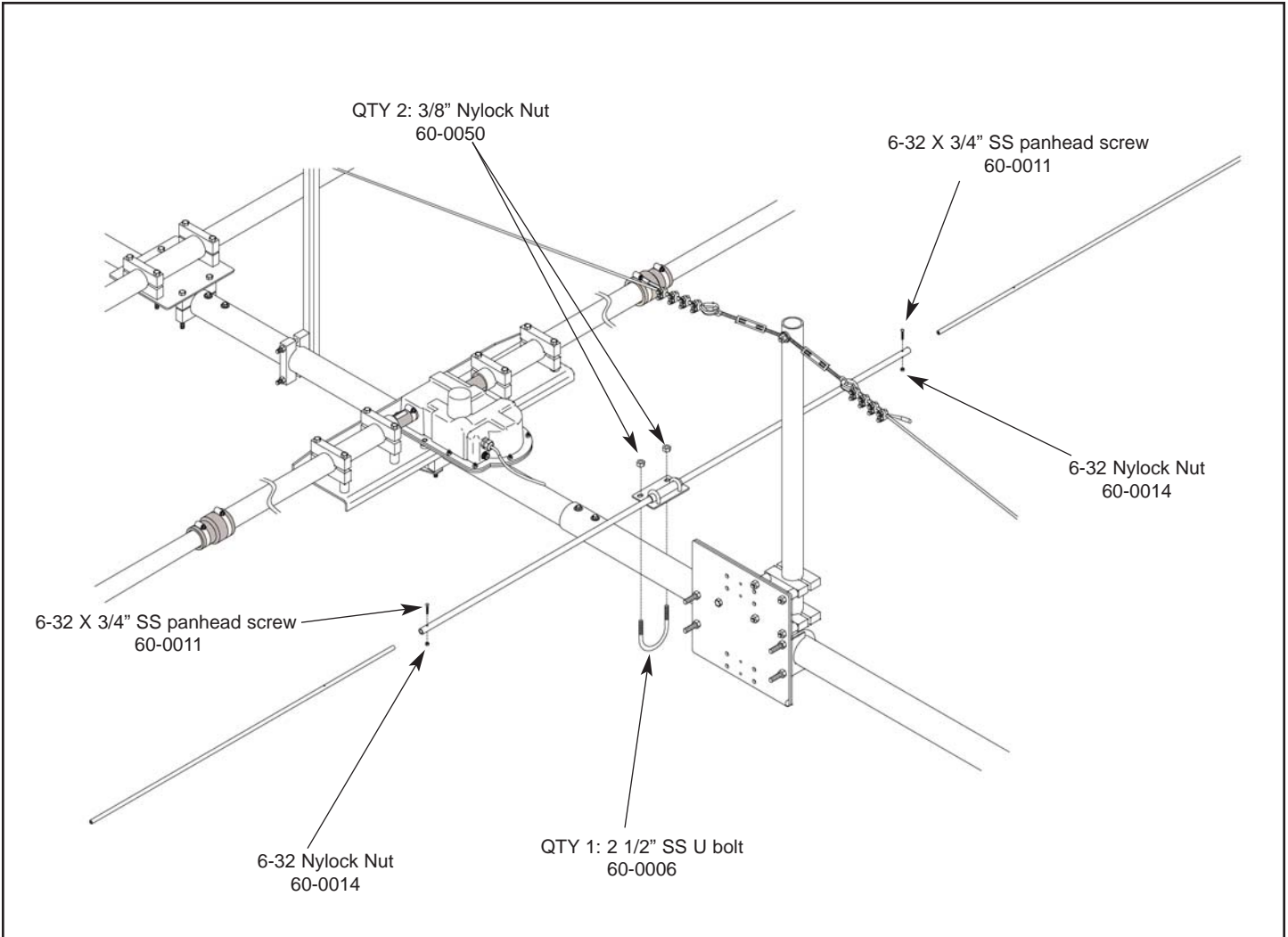
It is very important that your 6m passive elements are mounted in the correct location and are the correct length. **Figure 3** shows you the correct spacing for mounting the 6m passive elements. Both elements are assembled the same way they are just different in length and the mounting plates are different to allow for the change in boom diameters.

- Follow **Figure 25** for assembling the 6m passive element. The figure is showing the 6m long element. You can use this same procedure for mounting the 6m passive short.
- Make sure to check the total length of the 6m passive elements.

<b>Long element</b>	<b>112"</b>
<b>Short element</b>	<b>105"</b>

**Figure 25**

**6m Passive Assembly**



## PROCEDURE FOR WIRING THE ELEMENT HOUSINGS

### Locate pieces for wiring the DB 36

QTY 1 Terminal Housing Enclosure already mounted to the boom close to the Mast plate

### Locate the following kits for assembling the Telescoping Poles

QTY 1 72-0022-01 Terminal Housing kit

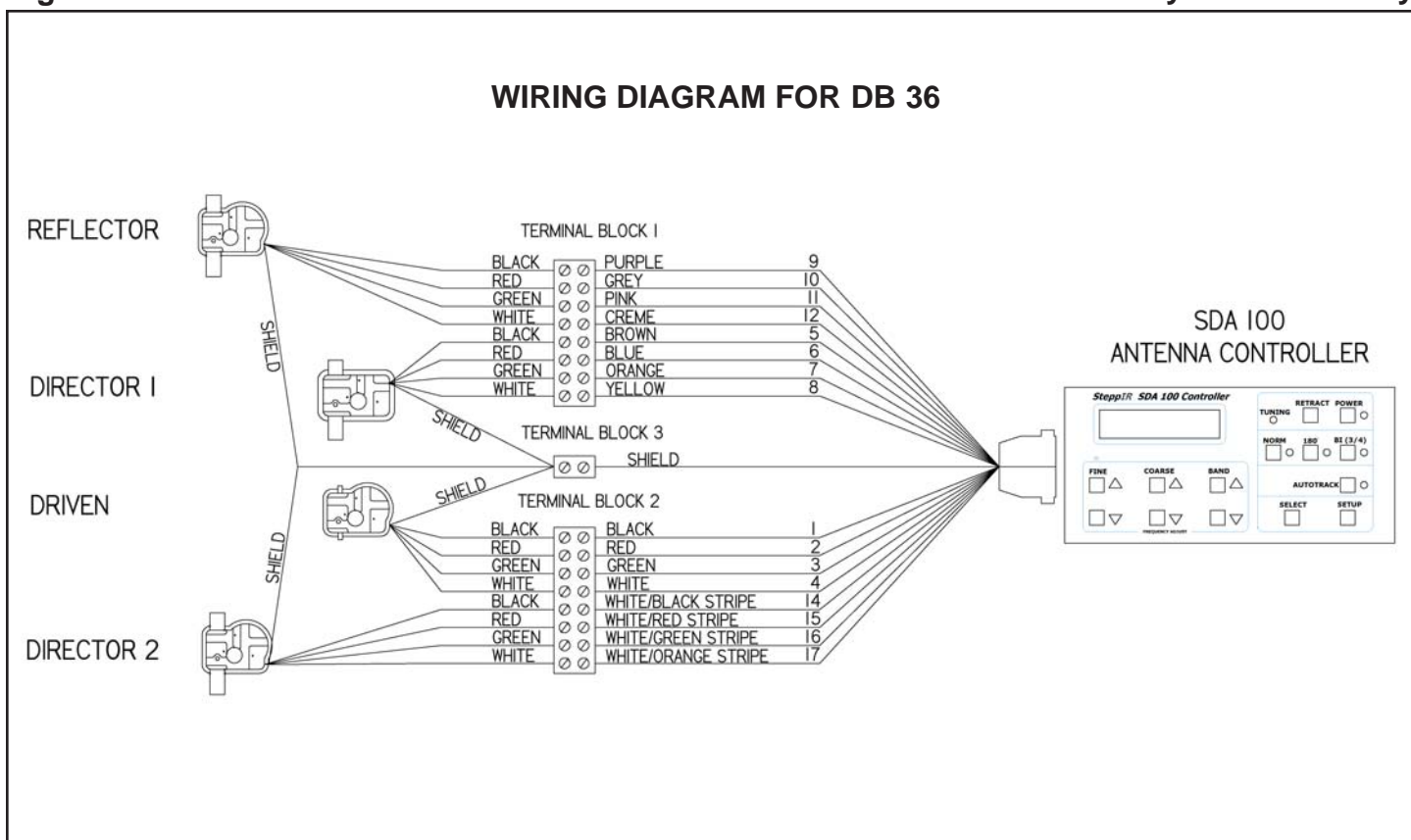
### NOTES:

If you have purchased the connector box option you will need to use the provided manual that was included with the connector box option. It will have instructions for mounting and wiring the connector box option.

- Ensure all of the control cables are taped and secured to the boom.
- If you have purchased the connector box option refer to the connector box manual for correct wiring.
- Apply a thin coat of connector protector to the the exposed wires.
- Follow **Figure 23** for correct wiring. Also note that the ground wires are all connected together and use a single position terminal strip that is provided.
- Be careful not to over tighten the screws on the terminal housings.
- Once all the control cables from the EHU's and control cable are correctly wired, fit the terminal strip into the terminal housing that has been mounted close to the mast plate.
- To fit the terminals into the terminal housing place the two 8 position terminals parallel to each other and slide them into the terminal housing.
- Make a couple of wraps of electrical tape around the control cable bundle where it will pass through the notch in the threaded plug. This will help to protect the cable sheath from the threads in the tube.
- Guide the control cable into the drain hole on the black screw on cap.
- Tighten the cap onto the terminal housing, CAUTION Be careful not to cut or damage the control cable as you tighten the terminal housing cap.

Figure 23

Truss Eyebolt Assembly



## PRELIMINARY TESTING

It is highly recommended that the antenna be thoroughly tested before being installed on the tower. Connect the control cable to the antenna and carefully inspect for loose wires that could cause short circuits that could damage the controller.

Power up the controller and verify that it is in the elements RETRACTED mode.

Refer to the Operators Manual and place the controller In the “Create, Modify” mode.

Go to the REF element first (this is not critical it just makes it easier to remember which elements have been tested) and run the tape out as far as it will go. Listen carefully while doing this. The sequence of sounds is as follows; First there is a slow ramp up for a few seconds that sounds like distinct clicks followed by a smooth humming noise that persists until the end of the tape is near and then you hear a very quick ramp down. If you hear any buzzing or rattling noise during the “humming” phase it may indicate a problem. Once the tape has stopped at maximum length physically shake each element half and verify the tape is extended. Now run the tape all the way back in listening again for the same sounds as before. If the tape was impeded for any reason when it was extending it will then make a very loud ratcheting noise when the end of the tape comes home prematurely. If no problems were encountered repeat this procedure for each of the elements on the antenna, otherwise refer to Startup Problems section.

Startup Problems:

A miswired cable is the most probable cause, check all of the wiring again.

Damaged driver chip in the controller. Note that certain miswires can cause damage to the driver board. So if a miswire was found and you are still having trouble the driver board could now be the problem.

Faulty power supply

Mechanical blockage of the telescoping fiberglass tubes by packaging popcorn , debris or failure to remove the rubber stopper from the butt end of the pole.

Mechanical failure of the EHU

Improper assembly; Telescoping pole not seated, 30m/40m Loop not assembled right, Telescoping pole not extended to full length

Review the Troubleshooting guide for more ideas

## ATTACHING ANTENNA TO TOWER MAST

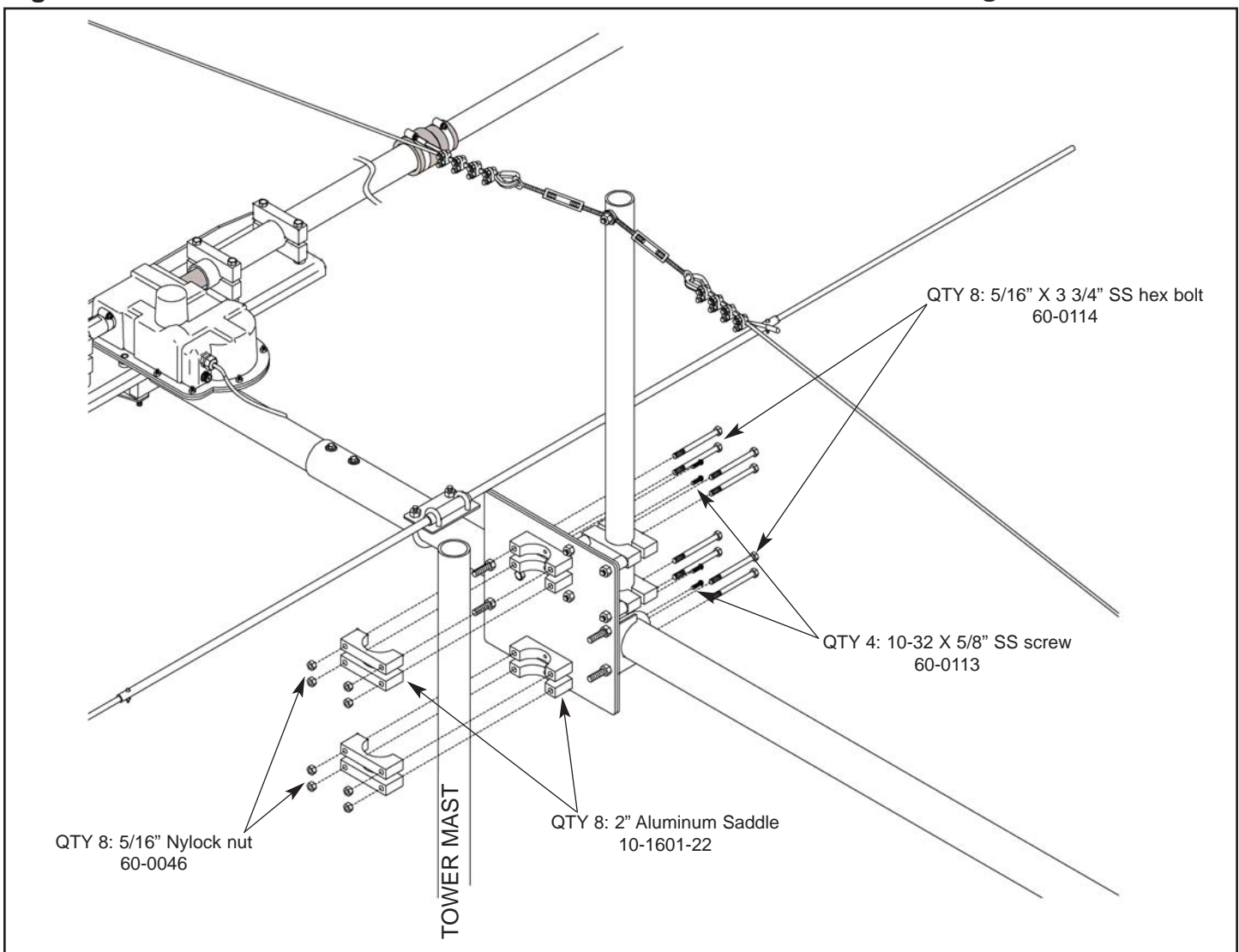
Locate the following kits for assembling the Boom Truss

QTY 1 72-0025-01 DB 36 Mast Plate Hardware Kit (Located in Antenna Sweep Box)

- Follow **Figure 24** for attaching the DB 36 to the tower mast.
- First secure one half of the 2" saddles to the mast using the 10-32 SS screws. This will help to align the tower mast to the mast plate.
- Once the antenna is in position, secure the other half of the saddles around the tower mast.
- Tape the control cable and COAX cable together and make the appropriate rotating loop and run cable down tower.

Figure 24

Attaching antenna to tower



**DREAM BEAM 36 LAYOUT**

