

Lowering Device Model 1060 (Top Latching With External Drive)



 **WARNING**

This manual must only be used by experienced and qualified pole and lowering device installation contractor/technicians. Read all instructions before beginning the installation process. Perform steps in the order they are supplied. Failure to comply with this installation guide by qualified and experienced personnel may result in substantial property damage, personal injury, or death.

The installing contractor/technicians must comply with local State, Provincial and National codes, laws, regulations, and ordinances. The installing contractor/technician must utilize proper machinery, tools, and attire, and be properly licensed and insured to accept liabilities associated with installation contracting of this nature and scope.

offers on site advisors. This service may be purchased at time of initial order or after the product has been delivered. Please contact for scheduling and pricing. You can also call for general recommendations before or during installation.

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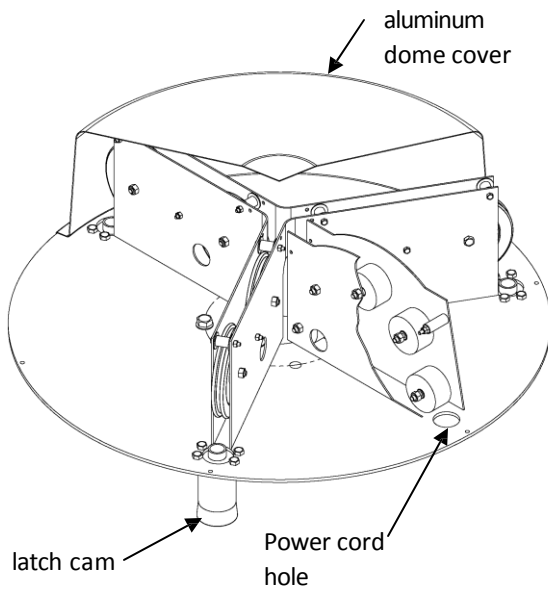
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Chapter 1: Overview, major components

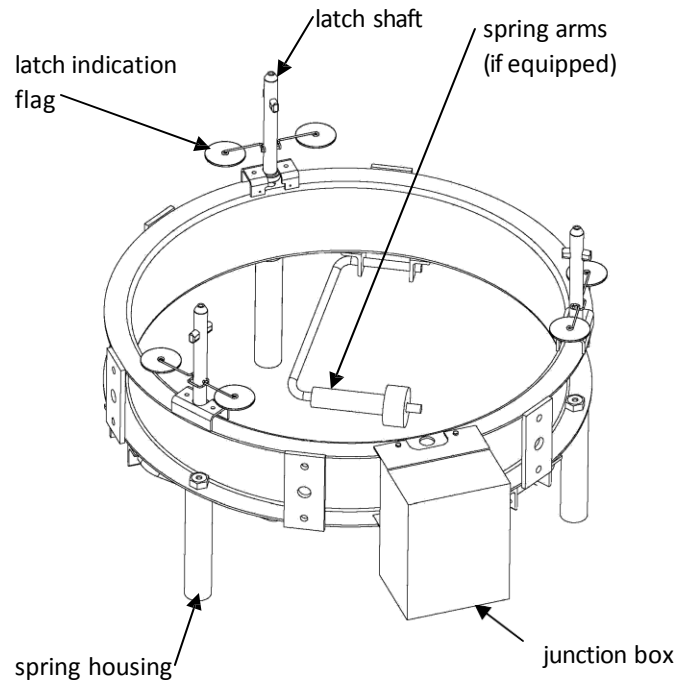
1.1 The Lowering Device (LD) Box

The LD box measures 40" x 40" x 50" and is packed with most if not all of the lowering device components.

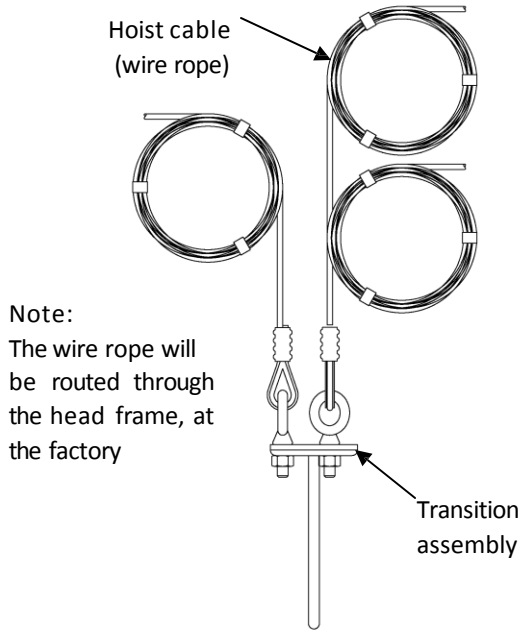
a. Head frame assembly (1 ea.)



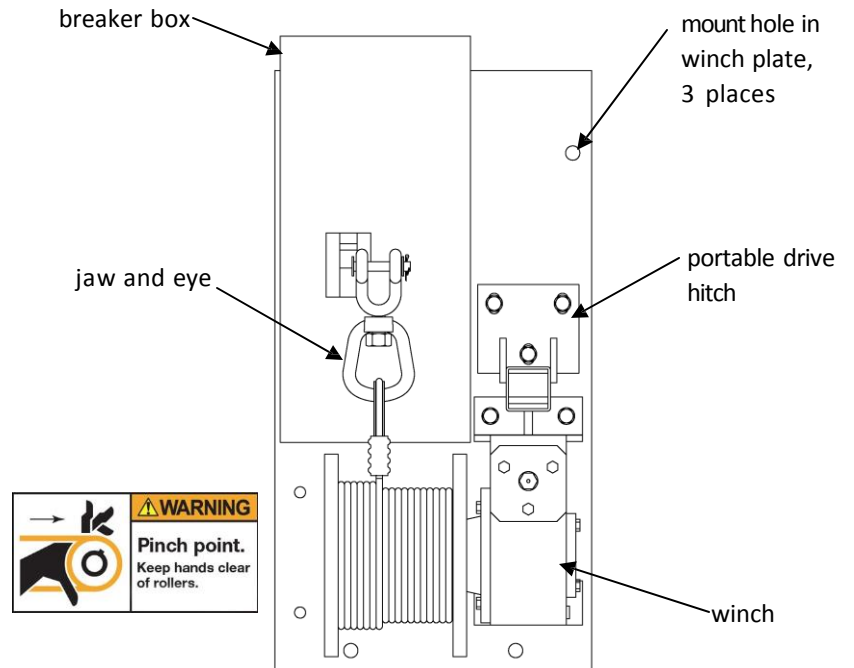
b. Ring platform assembly (1 ea.)



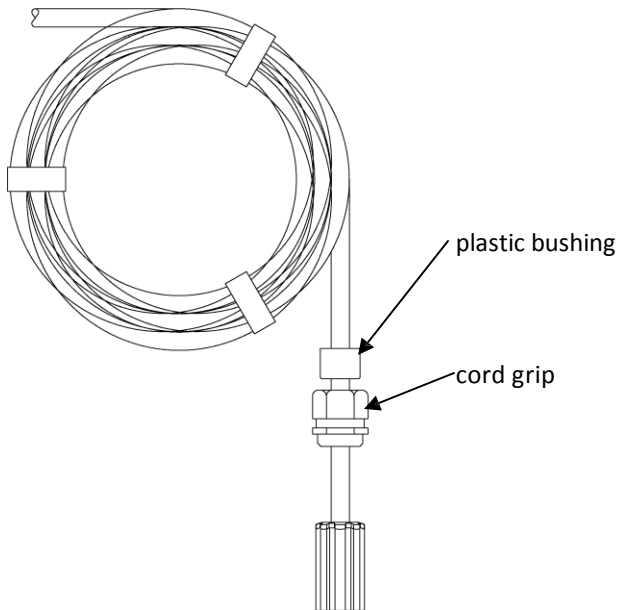
c. Cable transition assembly (1 ea.)



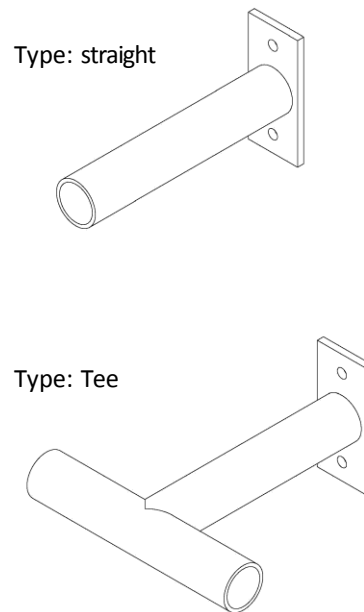
d. Winch plate assembly (1 ea.)



e. Power cord assembly (1 ea.)



f. Mount arm weldment (type and Qty. will vary)

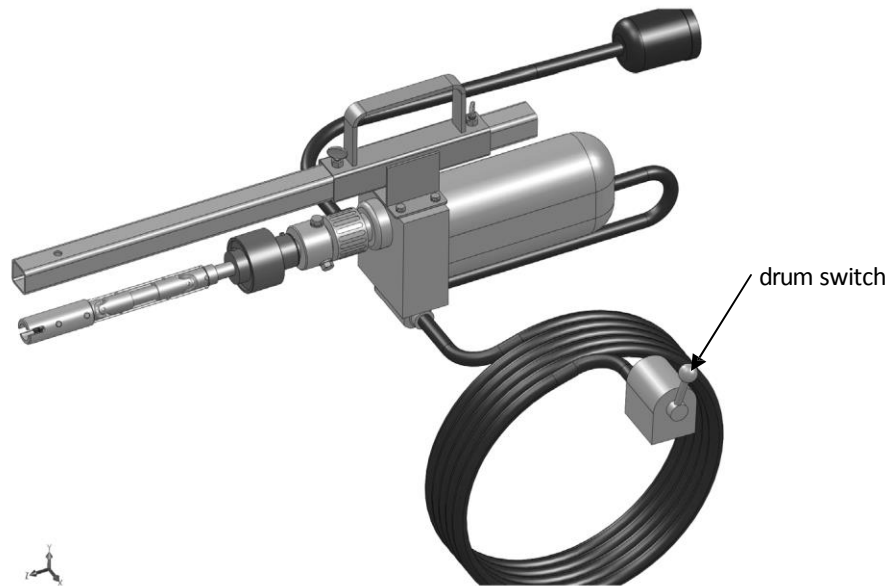


g. Assembly/hardware bags (marked)

- Head frame connecting hardware
- Winch plate connecting hardware
- Mount arm connecting hardware
- Wire rope components
- Compression springs
- Ring leveling components

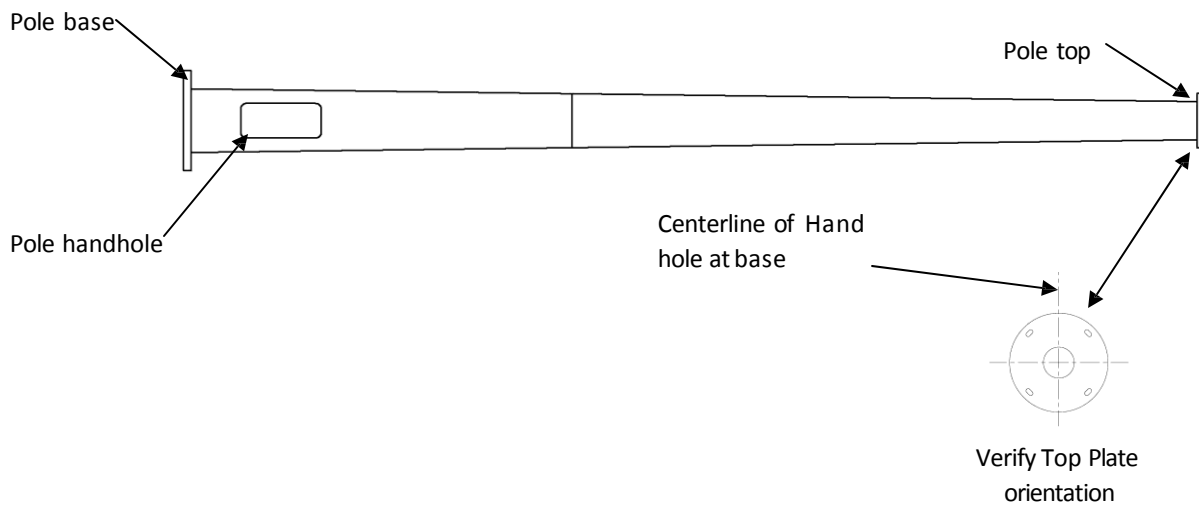
1.2 The Portable Drive Box (if purchased)

This box includes the portable drive unit and may include a transformer (if required).



1.3 Assembled pole (provided separately)

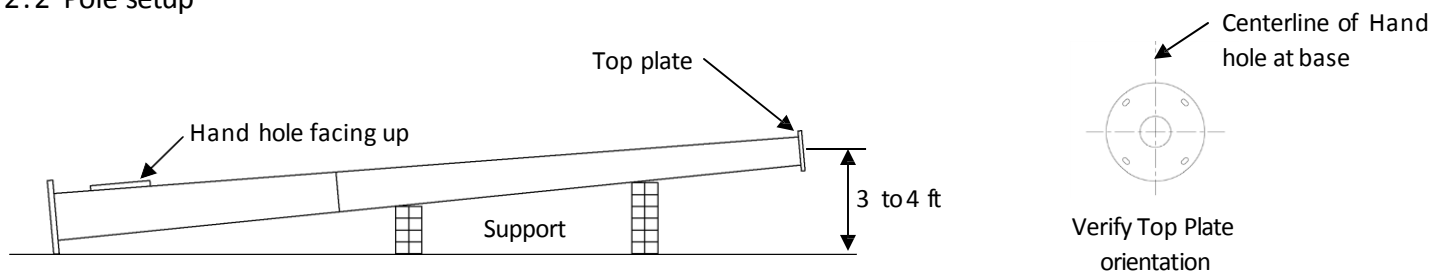
The pole component is assumed to have been already assembled (but not erected) and ready to have the lowering device installed. Read and follow pole manufacturers installation instructions.



2.1 Tools

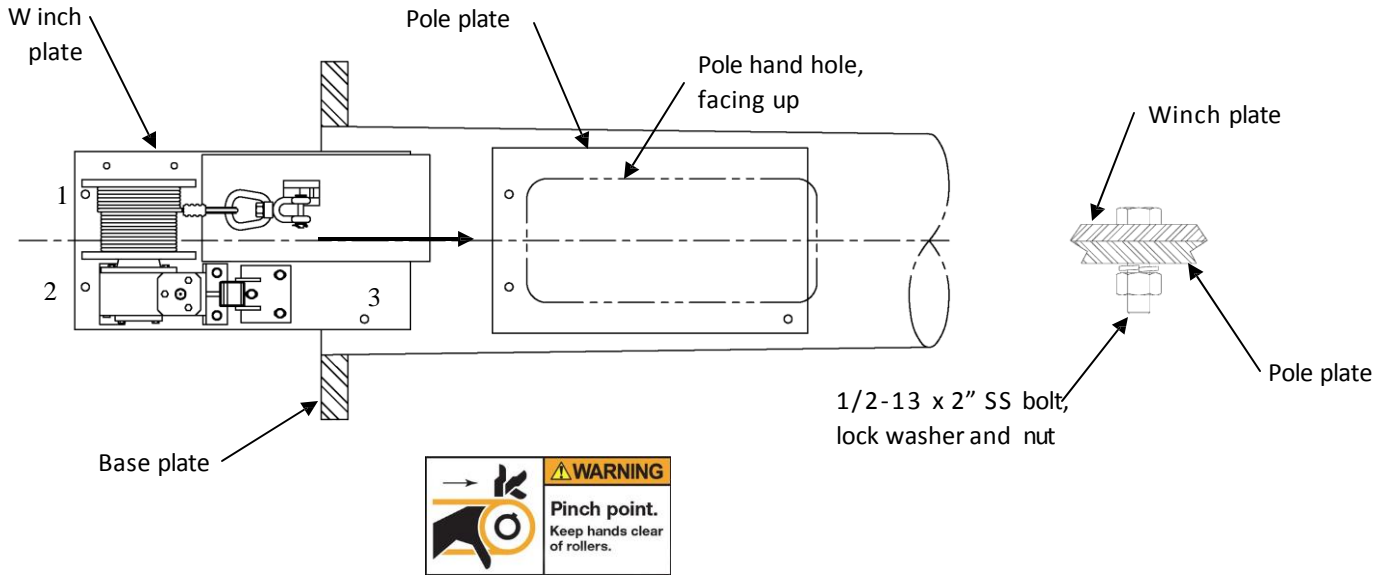
- General standard hand tools
- Wiring snake
- Electrical tape
- rope

2.2 Pole setup



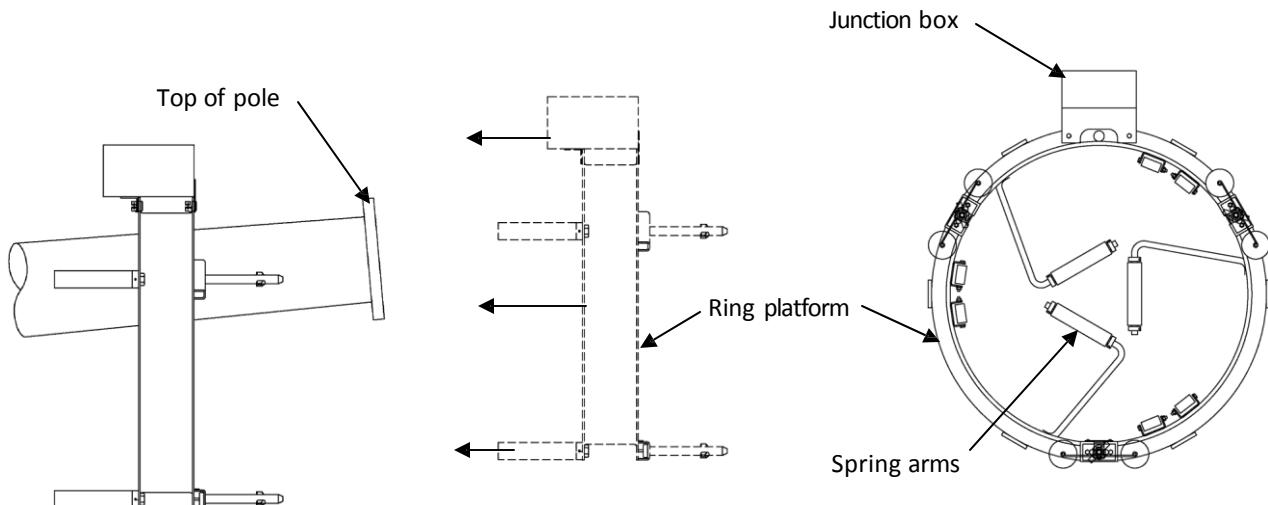
2.3 Winch plate install

- The winch plate will be inserted through the round opening at the base of the pole (base plate).
- Locate the hardware bag labeled “winch plate”.
- The winch plate is connected to the pole plate at three points.



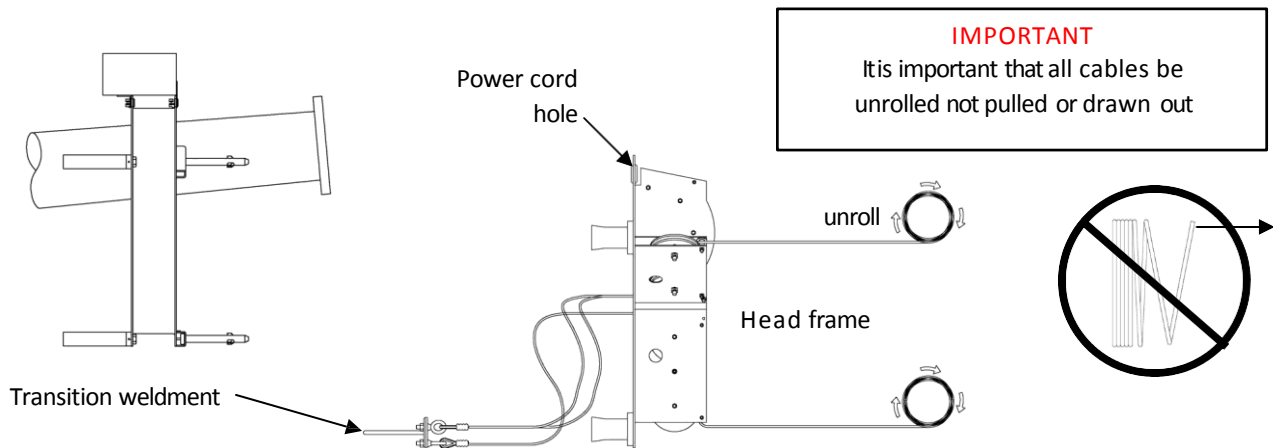
2.4 Ring platform install

- Position the ring platform so that the junction box is at the top and generally aligned with the hand hole at the base of the pole.
- Lift the ring over the top of the pole, push it about 3 ft from the top of the pole and let it rest on the shaft.
- If the ring platform is equipped with spring arms, it will be necessary to spread the arms apart to allow the ring to slip over the top of the pole. The ring platform will rest in this position for now.

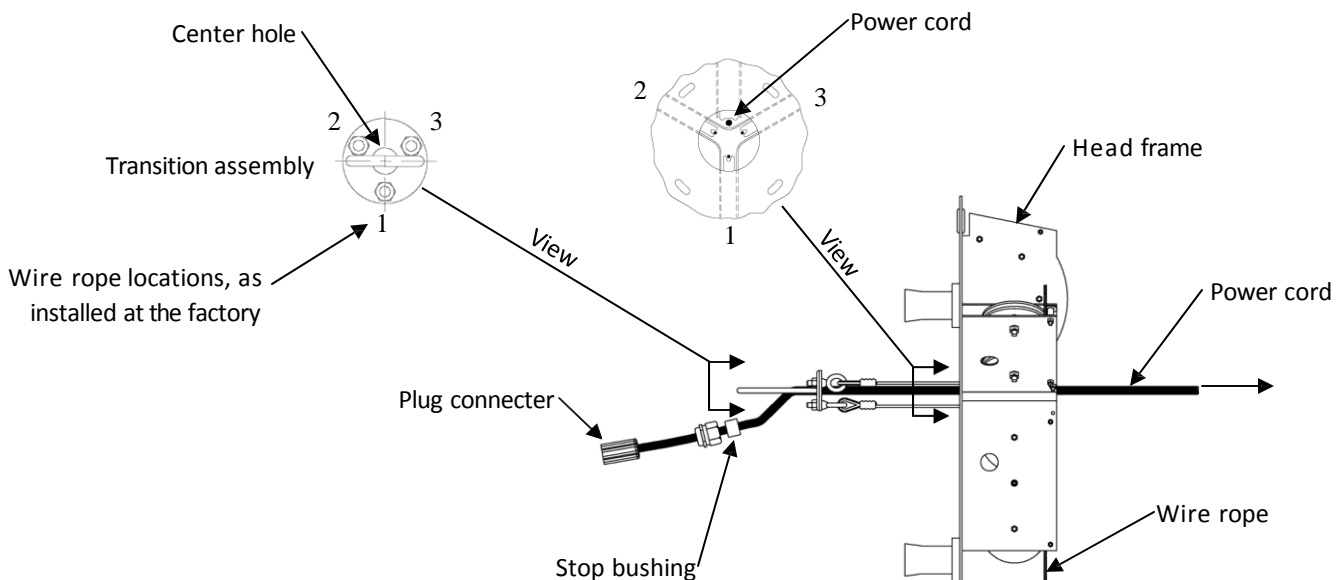


2.5 Head frame and transition assembly

- Remove the aluminum dome cover from the head frame. Set the dome cover aside. (it is attached with (6) 1/4" bolts)
- Prop up the head frame at the end of the pole such that the power cord hole on the head frame is at the top.
- Unwind the (3) hoist cables (wire rope). The wire rope should be completely unwound and laid out on the ground. UNWIND ALL CABLES IN AN UNROLLING MOTION.
- Unwind the (1) power cord. The cord should be completely unwound and laid out parallel and next to the pole. The plug end will be toward the base of the pole.
- It is **IMPORTANT** that all cables be unwound in a manner that eliminates the tendency for twisting.



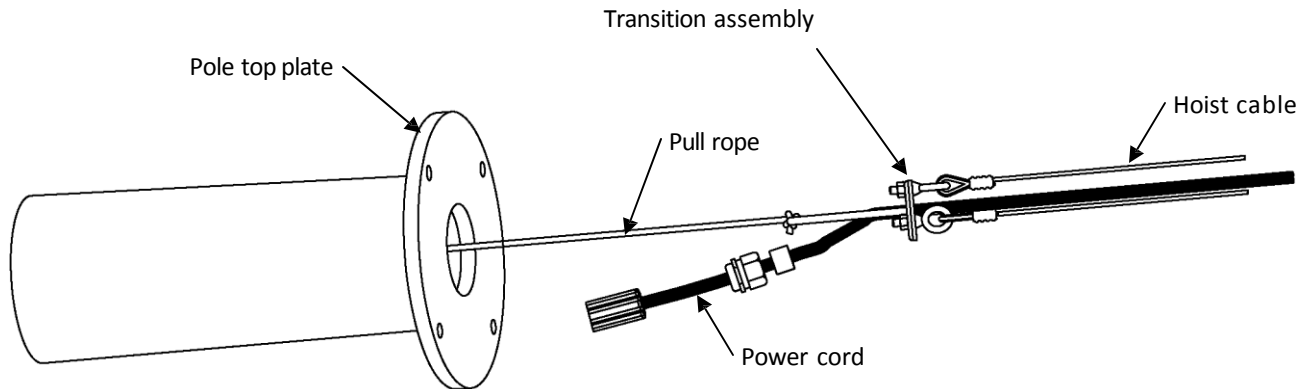
- Take the unfinished (without plug) end of the power cord and insert it into the center hole of the transition assembly.
- Pull the cord thru the transition assembly then insert into the head frame. (see figure below for insertion location into the head frame.)
- Pull the cable thru the head frame until the white plastic stop bushing hits the transition assembly.
- The hoist cables (wire rope) will have been installed at the factory.



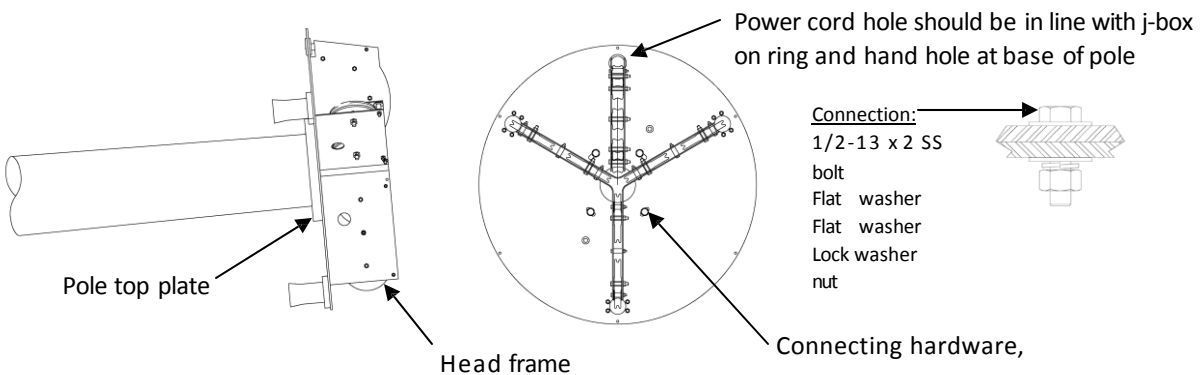
2.6 Mount the head frame

Once the cables have been unwound and fed thru the head frame:

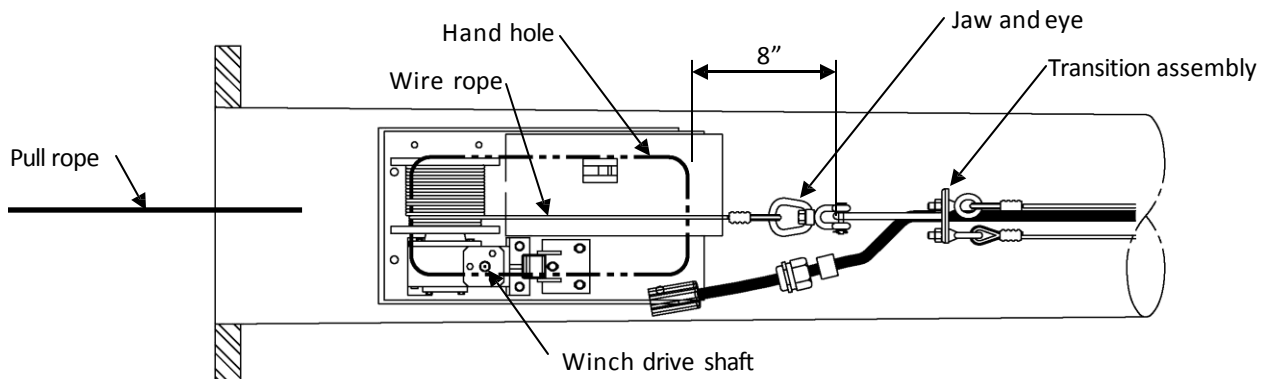
- feed or snake a rope through the pole such that the ends of the rope come out of each end of the pole.
- Take the rope end that comes out of the top of the pole and tie it to the transition assembly.
- At the base end of the pole, one person will pull the rope while another inserts the transition assembly and power cord through the top end of the pole.
- Pull on the rope until the transition assembly is about 4 feet from the top of the pole and stop.



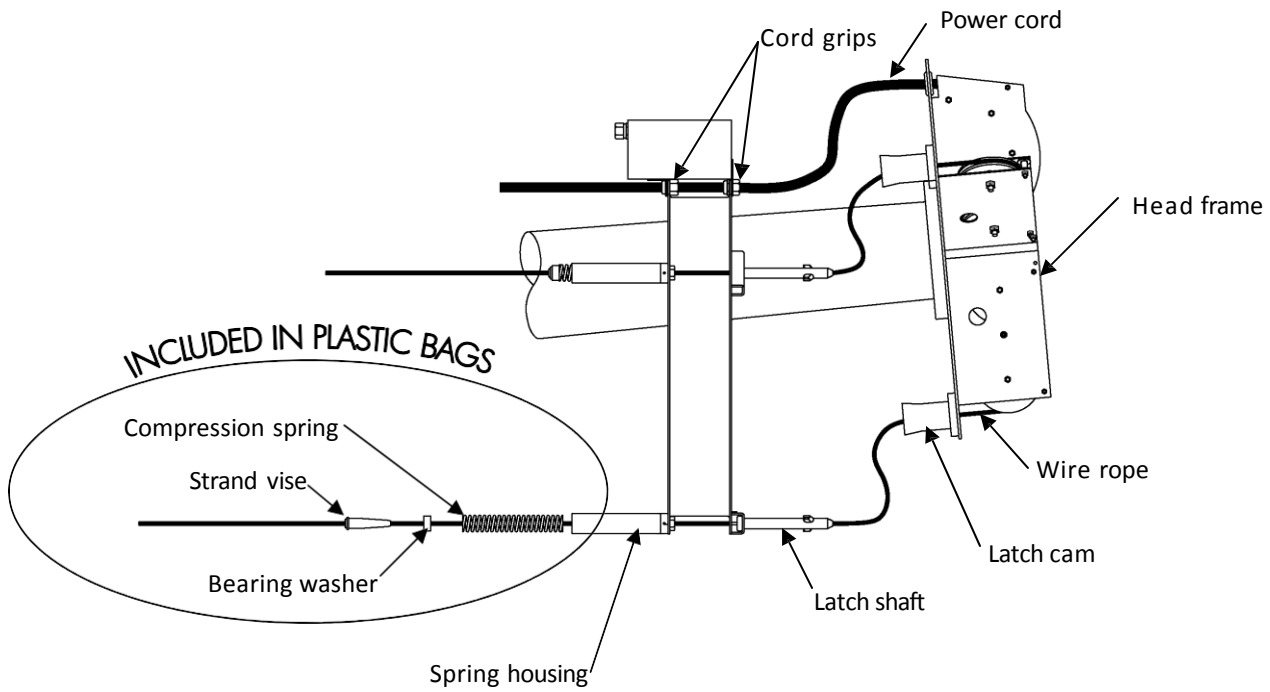
- Lift the head frame into place and connect using (4) 1/2" bolts.



- With head frame bolted in place, one person will pull on the rope at the base of the pole while some- one at the top end of the pole guides the wire rope and power cord as they feed into the head frame.
- Pull the rope to the base until the transition assembly reaches the 8" dimension as shown below. The pull rope can be removed at this point.
- Extend the jaw and eye to the transition assembly. To unwind the wire rope from the winch, turn the winch drive shaft with a wrench.
- Connect the jaw and eye assembly to the transition assembly

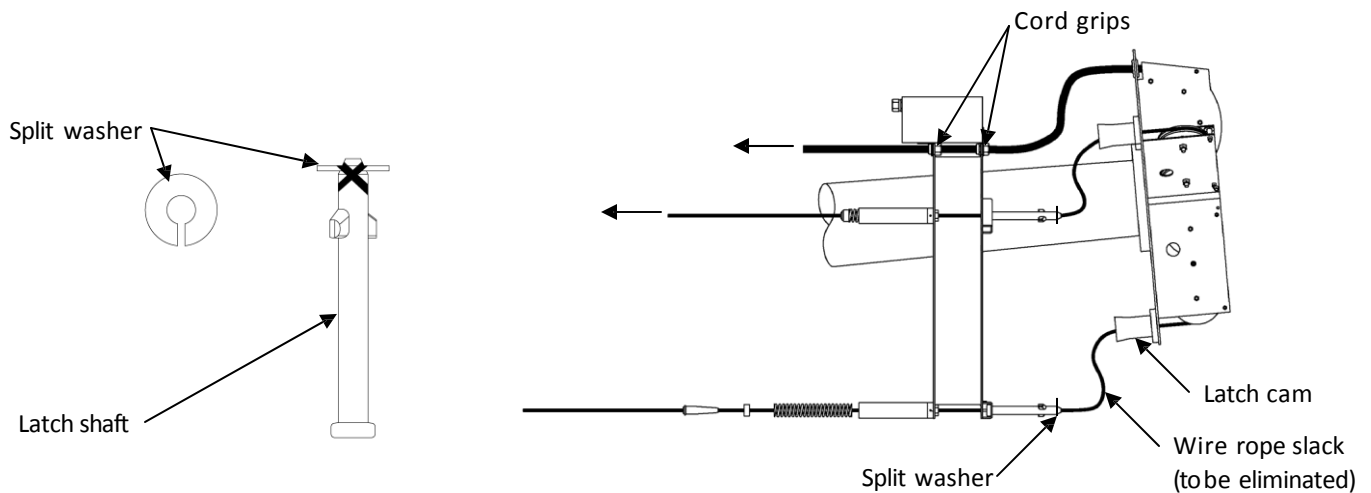


- Verify that each wire rope is set into and tracking in the aluminum sheaves.
- Feed the wire rope through components in this order: latch cam -latch shaft -ring flanges -spring housing - compression spring -bearing washer -strand vise.
- Slide the compression spring into the spring housing so that the spring is seated inside the housing. Move the strand vise toward the spring until the bearing washer contacts the spring. Do this for each wire rope.
- Feed the power cord over the plastic rollers. The cord should travel over the rollers and under the keepers.
- Feed the power cord through the hole in the head frame, then through the ring flanges/cord grips. (2 each)



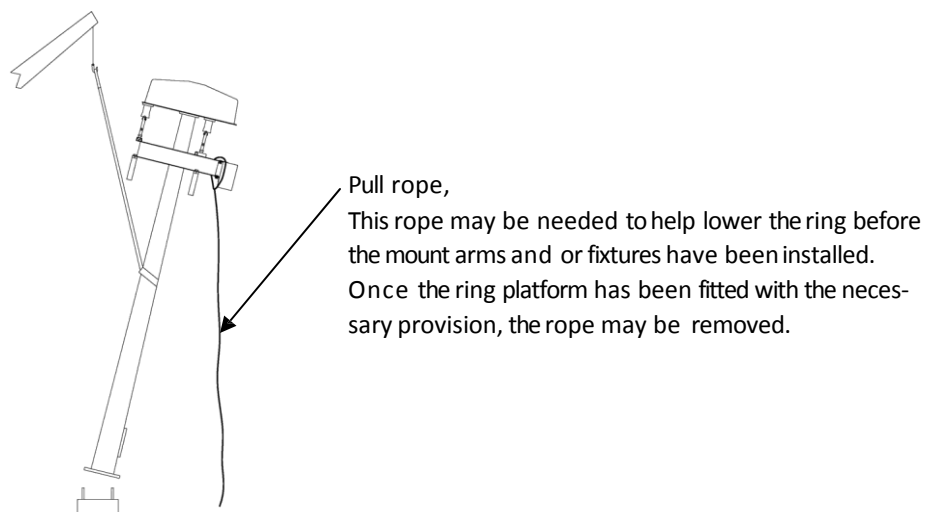
3.1 Lowering device prep

- Using electrical tape, install split washers (provided in hardware bag) onto the (3) latch shafts. Make sure that the washers are securely in place and will not fall off while standing the pole.
- Eliminate the wire rope slack between the split washer and latch cam. Do this by pulling the wire ropes while moving the ring toward the latch cam. The washers should contact the latch cams.
- Pull the power cord and eliminate any slack between the top of the ring and the head frame.
- Also make sure that any slack in the cords, inside the pole, is taken out. The transition assembly should remain as set earlier (8 inches).
- It is **IMPORTANT** that the cord grips be engaged (tightened) to hold the power cord at this time.
- Install the aluminum dome cover on to the head frame. The cover is installed using (6) 1/4" bolts with nylon washers and lock nuts that were removed in chapter 2.



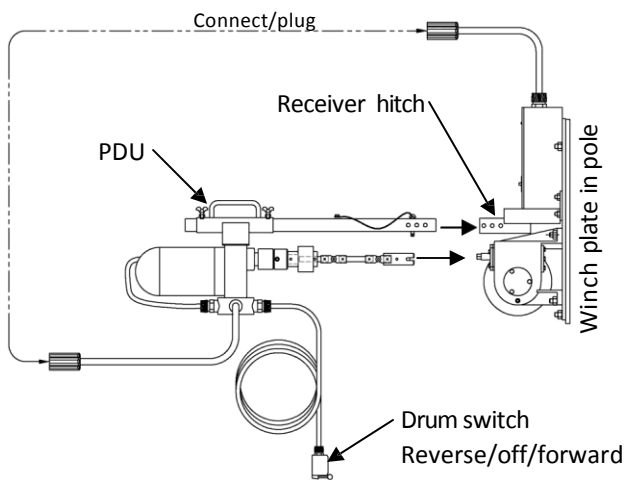
3.2 Erect the pole

- Tie a pull rope to the ring assembly, near the junction box. The rope should be long enough to reach the ground when the pole is standing.
- Erect the pole using standard procedures while being careful not to damage the lowering device components.

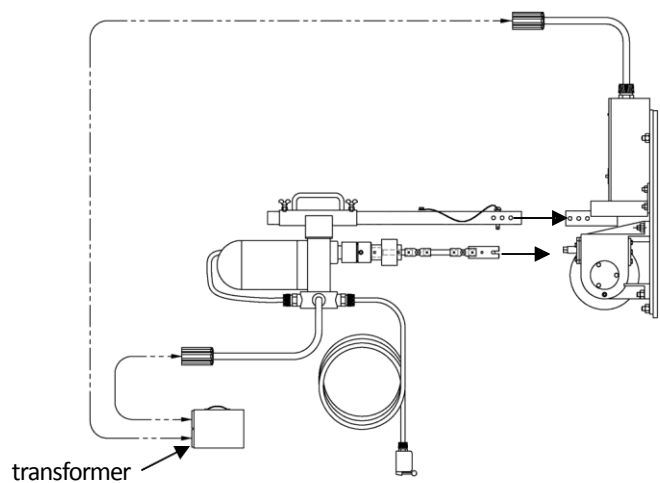


4.1 Operating the drive unit

- Insert the portable drive unit (PDU) into the receiver hitch on the winch plate.
- Make sure that the PDU drive shaft and the winch drive shaft engage.
- Pin the PDU in place using the clevis pin.
- Make the necessary plug connections.
- Extend the drum switch cord and begin operation.
- The drum switch has REVERSE, OFF and FORWARD positions.



PDU without transformer



PDU with transformer

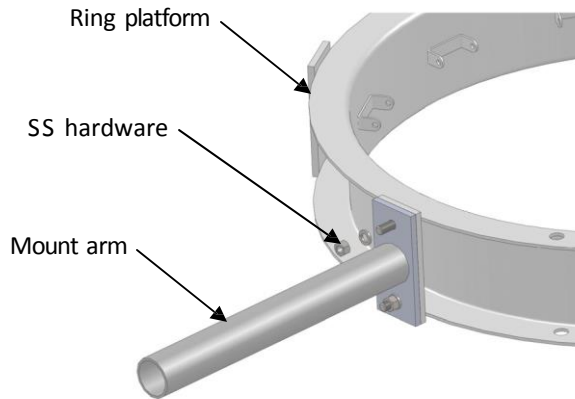
4.2 Lowering the ring

- After making the necessary connections, take the drum switch and step away from the pole until the cord is mostly extended.
- find a position relative to the pole that allows you to look into the hand hole.
- From this point you can look up at the ring and throw the switch into the reverse position. Watch the ring to make sure that it is coming down. If the ring is not coming down or is going up, stop and throw the switch into the opposite position.
- Hold the switch in the position that brings the ring down. It is important to glance at the hand hole during operation and especially when the ring is near the top of the pole to make sure that nothing is getting hung up or being pinched by the rotating winch drum.
- Lower the ring so that the bottom of the ring is 15 inches above the hand hole. (or stop before the spring arms interfere with the hand hole frame.)

4.3 Leveling (squaring) the ring

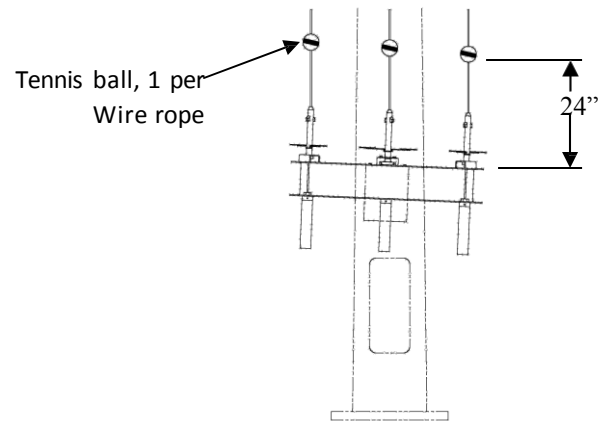
Leveling the ring is a process for making sure that the ring is square with the head frame. This process is important to ensure proper operation of the lowering device.

- **FIRST**, install all mount arms, light fixtures and any other items that will become part of the ring platform.



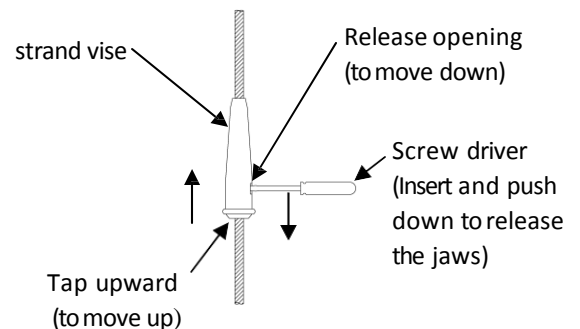
- Locate (3) tennis balls that have been provided in a hardware bag. Each tennis ball has been split to allow it to be installed or clamped on to the wire rope.
- Install one tennis ball on each wire rope cable above the ring. Place each tennis ball about 24 inches above the ring flange.
- Secure each ball to the cable by wrapping it with electrical tape. The ball should be tight enough, on the cable, so that it does not move freely however it will slide on the cable with some effort.

- With the (3) tennis balls in place, raise the ring as described in 4.2.
- Raise the ring until all three tennis balls contact the head frame. It is important that all three make contact.
- Once the balls have made contact, stop and switch to bring the ring down.
- Stop the ring before any interference with the hand hole occurs.
- Take a measurement at each tennis ball. (top of flange to bottom of ball)
- Make a note of the shortest distance measured.
- Adjust the strand vise of the two longer distances to match the short measurement that was noted.
- When all distances equal the shortest distance, the ring is square.



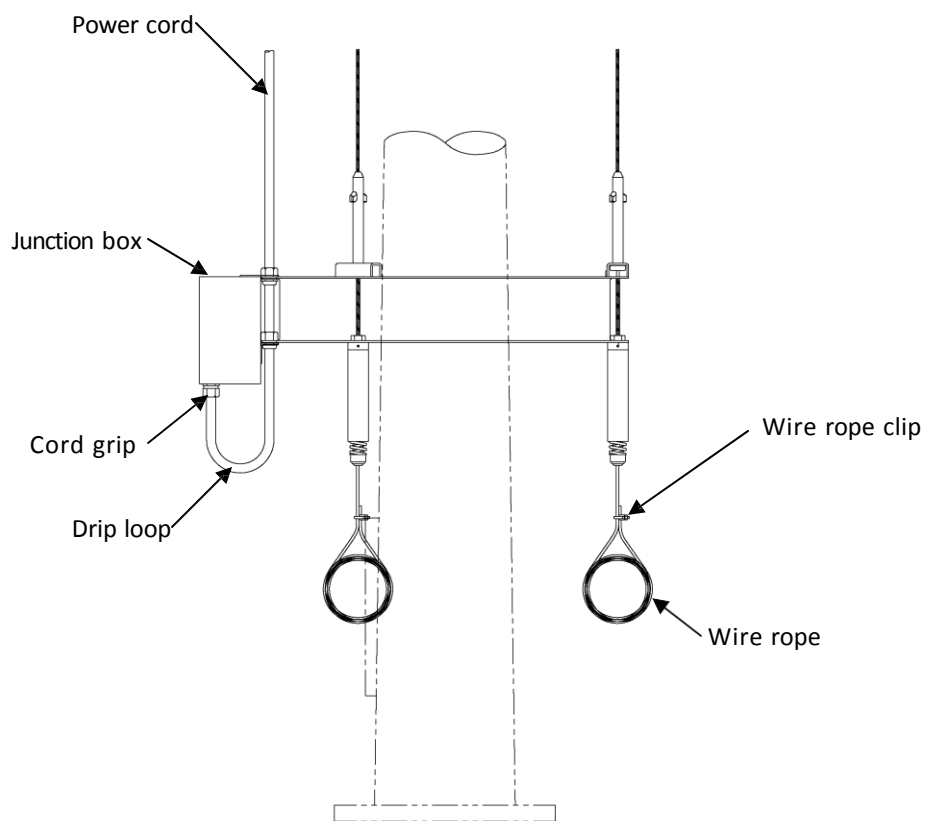
Strand vise adjustment:

- Support the weight of the ring to relieve the load on the wire rope.
- To move up, tap on the bottom of the strand vise in an upward motion.
- To move down, use flat screw driver to release the strand vise jaws.



4.4 Prep for operation

- Remove the tennis balls.
- Remove the split washer from the latch shaft.
- Gather and loop excess wire rope and tie-off with rope clip.
- Insert the power cord into the junction box and make the necessary electrical connections.
- Adjust the cord grip to securely hold the power cord.



4.5 Latching system

The latching system alternates between latched and unlatched every 90 degree cycle.

Latching the ring:

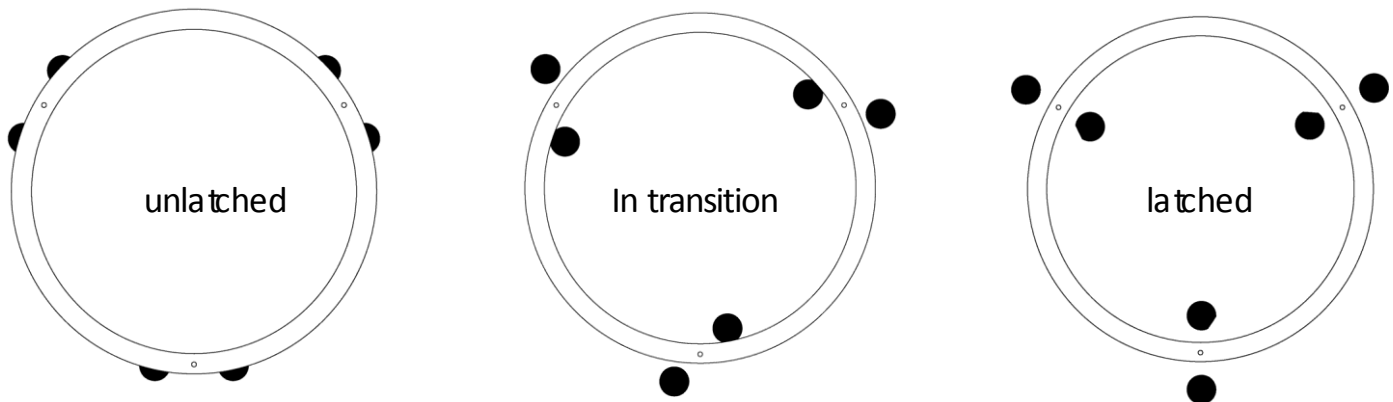
- Before raising the ring, the indicator flags should be placed in the “unlatched” position.
- Raise the ring until the latch shaft engages the latch cam and the flags rotate 45 degrees as shown in the “in transition” position.
- Stop the motor at this point.
- Now reverse the motor to lower the ring.
- The flags will again rotate 45 degrees as shown in the “latched” position.
- At this point the ring is now latched and the weight is being supported by the head frame via the latch cams.
- Continuing to operate the motor in the lower mode will put slack into the winch cable.
- The load should be off of the cable however the cable should still be somewhat taught.

Unlatching the ring:

- The indicator flags will be in the “latched” position.
- Using the drum switch, raise the ring until the flags rotate 45 degrees to the “in transition” position.
- Stop the motor at this point.
- Reverse the motor to lower the ring.
- The flags will rotate another 45 degrees into the “unlatched” position.
- The ring will be unlatched at this point and you can continue to lower the ring.

IMPORTANT

Keep the hand hole in sight during operation and especially when the ring is near the top of the pole to make sure that nothing is getting hung up or being pinched by the rotating winch drum.



Flag indication positions as viewed from the ground looking up.

IMPORTANT

The indicator flags may rotate due to wind or bumping while the ring is being serviced. It is important that before the ring is to be raised and latched that the indicator flags be rotated by hand to the unlatched position.

NOTICE:

Because installation locations will be different, corrosion levels may vary due to differing climates. It is important that the inspecting person be able to recognize when a level of corrosion, mechanical state and or electrical condition may become a safety concern.

The lowering device system requires minimal maintenance. The primary concerns are typically corrosion and wire rope wear. The following should be used as a guideline.
(A two year service interval is recommended.)

5.1 Inspections

Wire Ropes:

- Visually inspect the winch and hoistropes (4 total).
- Check for wear and corrosion.
- A rope with more than 12 broken wires in one strand needs to be replaced.

Winch:

- Check for oil leaks on or below the winch to ensure that fluids are not being lost.
- The system is filled and sealed at the factory. Additional oil should not be required.
- A leaking system will require replacement.

Transition Assembly:

- Visually inspect the weldment for structural soundness.
- Verify that the power cord components are able to move freely.

5.2 Component Replacement

With the exception of winch plate assembly components, it is NOT recommended that components be replaced while the pole is standing. It may however be possible, depending on the component and situation. Please contact _____ for suggestions and advice .

Winch wire rope: (may require two people)

- First make sure that the ring platform is latched at the top of the ring (either via latch cams “top latch” or chain “bottom latch”).
- Undo the jaw and eye from the transition assembly. (see page 9)
- Unwind the cable from the winch drum.
- Remove the rope from the drum. This may require cutting the rope. Note the copper stop sleeve that is swaged on to the end of the wire rope. A new sleeve will need to be installed to the new rope. (see figure below)
- A swaged fitting is also used at the jaw and eye swivel. The old fitting will need to be cut off and a new one installed. (see figure below)
- Wind the new rope onto the drum, making sure that the rope feeds in on the bottom of the winch drum.
- Make sure that the rope wraps on the drum are tight (next to each other).
- This can be a dangerous process, **WATCH YOUR FINGERS!**
- Use the drive unit to drive the winch. (see 4.1).
- Once the wire rope is on the winch, re-connect the jaw and eye to the transition assembly. (see page 9)

