

## Glide Switches 600 Series

These instructions are for 600 Series Glide Switches, as used with TC/American Crane 325 Series Patented Track rail. See the Index to locate the appropriate pages for the model of switch being used.

### DANGER

#### Lifting Operations

Installation of equipment such as TC/American Crane's Switches requires performance of overhead lifting operations. Proper lifting procedures involve training, skills and experience beyond the scope of this document. Workplace supervisors are responsible to assure that all persons under their supervision are properly trained, properly equipped, and are following safety practices appropriate for the lifting operation being employed.

### DANGER

#### Overhead Mechanical Assembly

Persons performing installation and assembly of overhead equipment must use caution while lifting, assembling and adjusting components. These operations are frequently conducted from manlifts or platforms that require specific knowledge, training and operation skills beyond the scope of this document.

Access to the floor below the work area must be restricted to reduce the potential of personnel injury due to falling objects.

Workplace supervisors are responsible to assure that all persons under their supervision are properly trained, properly equipped, and are following appropriate safety practices.

### DANGER

#### Electrical Equipment Installation, Service and Maintenance

Persons performing installation, service or maintenance activities on, near, or with equipment that is electrically powered are exposed to electrical hazards that could result in serious injury or death if proper precautions are not followed. Before performing such work, disconnect the electrical power source for the system at the disconnect device and lock it out, following appropriate Lockout/Tagout (LOTO) procedures, to prevent electric power from being applied while work is being performed.

All persons must use safe work practices appropriate to the electrical system, and follow all workplace procedures and policies. This requires specific knowledge, equipment and training beyond the scope of this document. Workplace supervisors are responsible to assure that all persons under their supervision are properly trained, properly equipped, and are following appropriate safety practices.

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## Switches

TC/American Crane offers several models of switches, for all sizes of our rail. Selection of the appropriate model depends upon the layout of the monorail, the load to be carried, powered travel or hand pushed, service duty class, and other factors.

### Switch Model Numbers:

(general information for all switches)

- The first character(s) of the Model Number identifies the rail size used with this switch:
  - 2 = 200 Series Rail
  - 3 = 325 Series Rail
  - 4 = 400 Series Rail
  - 45 = 450 Series Rail
- The second character(s):
  - S = Switch, non-electrified (without conductor bars)
  - ES = Switch, electrified (with conductor bars)
- The intermediate numbers identify a model series, i.e.:
  - 260 = 200 Series, 2-way glide switch
  - 693 = 600 Series, 2-way glide switch
  - 833 = 800 Series, 3-way glide switch
  - 2710 = 2000 Series, Wye glide switch
  - Etc.
- The next number, or number and letters, may identify the switch as follows:
  - L = Left Hand configuration (or sometimes "LH")
  - R = Right Hand configuration (or sometimes "RH")
  - Y = Wye configuration
  - H = "H" Series rail (in 800 and 2000 Series Switches, 3-way and wye configurations)
  - LH = "H" Series rail (in 800 and 2000 Series Switches, 2-way configurations, left hand)
  - RH = "H" Series rail (in 800 and 2000 Series Switches, 2-way configurations, right hand)
  - 12 = 12" (for 2000 Series only)
  - 12H = 12" deep, "H" Series rail (for 2000 Series only)
  - 14H = 14" deep, "H" Series rail (for 2000 Series only)
  - Etc.

**NOTE: See the appropriate section(s) of these instructions for assembly, installation and maintenance details specific to your Switch model.**

**NOTE: For a specific parts breakdown of the Switch provided with an order, see the drawings provided with that shipment and the Switch Section of TC/American Crane Systems Catalog.**

## General Installation Instructions

### Before beginning the installation:

- When shipment is received, remove all shipping materials and visually inspect all parts for damage. Repair and/or replace if necessary.
- Check packing lists against materials received and identify all parts.
- Gather all TC/American Crane drawings, plus any vendor equipment drawings, and keep in a secure location for reference during installation and start-up, and to give to end user for future reference.
- Store all equipment in a clean, secure area prior to final assembly.

### Installing Switches in a Monorail System:

- Check layout drawings for any notes.
- TC/American Crane Glide Switches are shipped fully assembled and ready to install.
- Begin a monorail installation at one switch location (determine if a particular switch is at a critical location) and work out from there, adding straight rails and curves sequentially.
- Refer to *Suspension* section of this document for notes about primary and auxiliary suspension methods. Use care when installing and leveling switches so that switches are uniformly and equally suspended, with no twisting of the top plate or slide channels of the switch.
- Switches must be installed in alignment with the planned monorail layout. Establish a reference line for the system and take dimensions from there, rather than the building (building may not be accurate and square). Adjust switch suspension so the straight rail of the inner frame (or the centerline of a Wye switch) is aligned with the centerline of the incoming and/or outgoing straight rails.
- If there is more than one switch in a system, add the second and additional switches as the installation progresses. Do not install all switches and then try to force rails into place between them.
- Install all switches, curves and rails snug until all is in place. Then shift and adjust as necessary to assure that straight rails enter and exit the switch straight, and that curves are properly formed and flow smoothly from the switch. See *Treadline and Rail Alignment Adjustment Notes* section of this document.
- Make any adjustments for switch rail height, switch throw and tread alignment. See *Switch Adjustments* section of this document. Adjustments and shimming are a necessary part of normal installations.
- For switches with electric or air operating mechanisms, see the separate *Air Operated Switch Installation Instructions* or *Electric Operated Switch Installation Instructions*.
- Make any final switch leveling adjustments (adjust nuts on threaded rods, or use shims at bolted connections). Use care when installing and leveling switches so that switches are uniformly and equally suspended, with no twisting of the top plate or slide channels of the switch.
- Tighten all suspension components.
- Rod suspended switches must be rigidly sway braced for stability. Sway brace materials are by others.

### Initial Start-Up:

- After lubrication, operate all switches several times through full switch throw in all directions.
- Verify proper latching at each outgoing rail or curve location.
- Run trolleys through the switches to check clearances and smooth transition.
- Verify that safety stops on the switch properly contact the trolley to prevent it from falling off when the switch rail is not aligned to an outgoing rail.
- NOTE: These switches are not designed to be thrown (moving portion of the switch repositioned) with a load on the rail of the inner frame.

### Terminology Notes

The following instructions use these unique terms:

- “Outer Frame” - describes the portion of the switch that is suspended from the building, and is the “fixed” or “non-moving” portion of the switch.
- “Inner Frame” - describes the portion of the switch with straight and curved rail segments that slide from side to side.
- “Right Hand” or “Left Hand” references are based upon looking at the switch from the incoming rail side (single rail leading to the switch).

## 600 Series Glide Switches

### Non-Electrified

<b>3S-693-L2</b>	2-way, LH	Not Shown
<b>3S-693-R2</b>	2-way, RH	Figure 1
<b>3S-694-2</b>	3-way	Not Shown
<b>3S-695-2</b>	Wye	Not Shown

### Electrified

<b>3ES-696-L2</b>	2-way, LH	Not Shown
<b>3ES-696-R2</b>	2-way, RH	Not Shown
<b>3ES-697-2</b>	3-way	Figure 2
<b>3ES-698-2</b>	Wye	Figure 3

**Figure 1:** typical non-electrified 2-Way Glide Switch.

Switches may be provided with either Shielded Channel-Bar or Shielded Figure-8 Bar electrical conductors.

**Figure 2:** electrified 3-Way Glide Switch with Shielded Channel-Bar electrical conductors factory mounted and wired.

**Figure 3:** electrified Wye Glide Switch.

### Non-electrified vs. electrified switches:

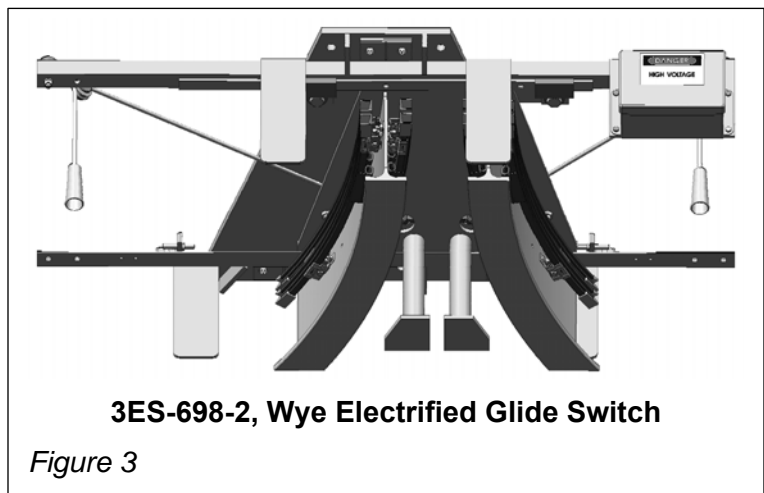
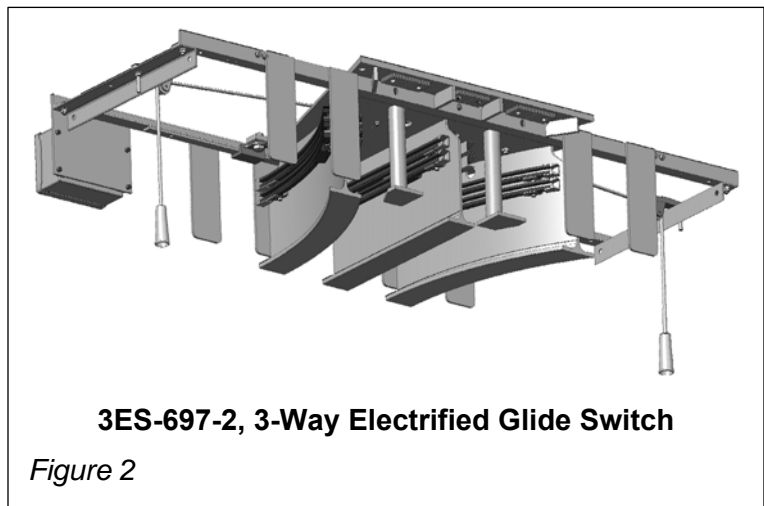
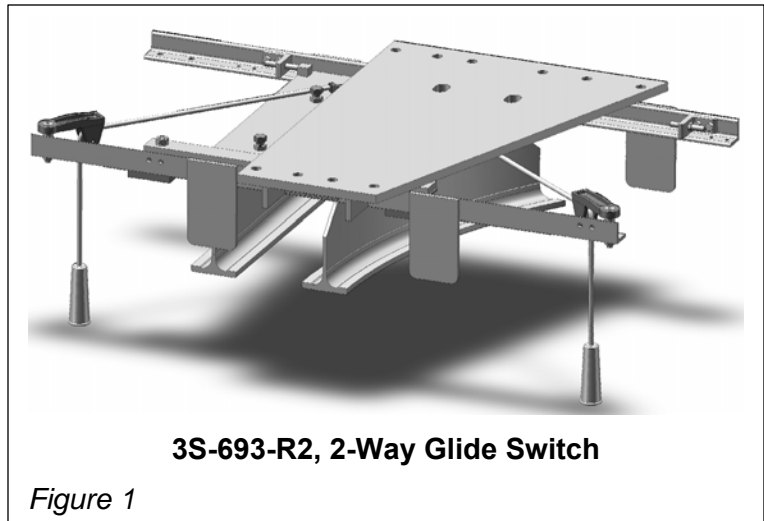
General construction, installation, operation and adjustment are the same for both types of switches.

But, some parts and dimensions of electrified switches are not the same as non-electrified switches, and electrified switches are made with a deeper rail section (to allow for installation of electrical conductor bar at 7½" gage).

See the TC/American Crane Systems Catalog and drawings provided with the shipment for more detail.

**Conductor bars:** are factory wired back to a junction box mounted on the frame of the switch. Building power must be provided to each switch and field connected at the junction box. Building power must be separately provided to incoming and outgoing runs of electrified straight and curved rails. See Figures 33 and 34.

For installation of electrical conductor bar systems, see the TC/American Crane *Shielded Channel-Bar Electrical Conductor Installation Instructions* or *Shielded Figure-8 Electrical Conductor Installation Instructions*.



## Switch Support / Suspension

**Locations:** 600 Series Glide Switches must be supported at the locations shown in Figures 4, 5 and 6. Use 5/8" hanger rods, or bolts to support members, at each of the suspension points.

Use care so the switch frame is equally supported at each location and the frame is not twisted or bent.

**Note:** straight sections of rail and curves are attached to the switch top plate of 600 Series switches, using the same holes as used for switch support. See Figures 7, 8, 11 and 12.

**Leveling, All Switches:** allow space above switch for leveling via threaded hanger rods, or by shims if bolted connection.

Use care when leveling so that the switch frame is not twisted or bent.

**Switch Bracing:** rod suspended switches must be sway braced, laterally and longitudinally. Sway brace materials are by others.

Attach bracing to switch at the 4 holes in the top plate of each switch, as shown in Figures 4, 5 and 6.

Use care so the switch frame is equally braced at each location and the frame is not twisted or bent.

Monorail and switches must be aligned and leveled before bracing is installed. Do not use bracing to force the rail or switch into alignment. Bracing must not carry any of the vertical load at a suspension point.

See Suspension section of TC/American Crane systems catalog for pipe brace fittings and clamps, or fabricate components locally.

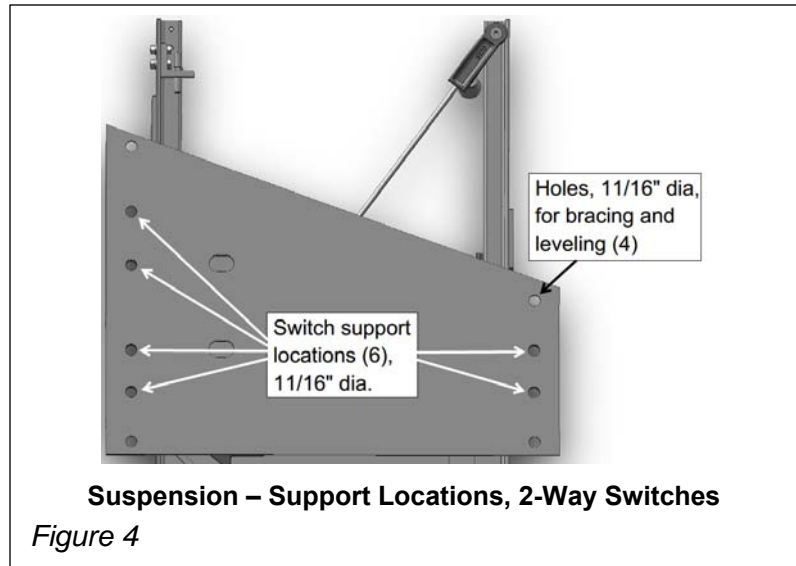


Figure 4

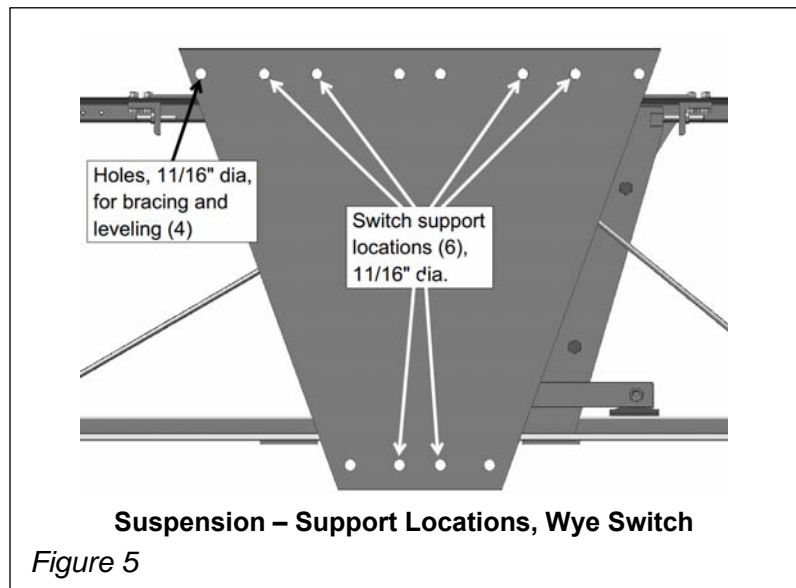


Figure 5

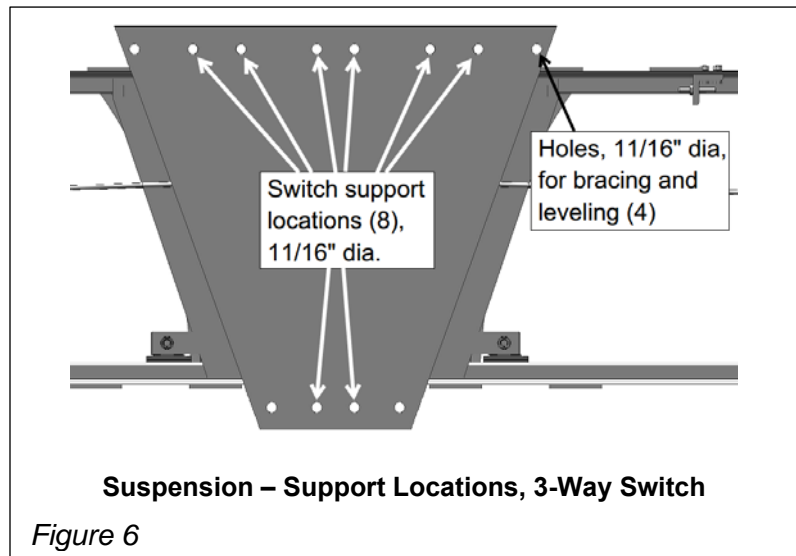


Figure 6

**Monorail and Curve Suspension and Connection to Switches**

**Figures 7 and 8:** typical connection of straight monorail to top plate of 600 Series glide switch (Left Hand, non-electrified shown). Support hardware not shown.

Straight monorail is attached directly to the top plate of 600 Series switches, using the same holes as used for switch support.

Note: suspension hanger rods and hardware, or bolts for “direct bolt” suspension, are by others.

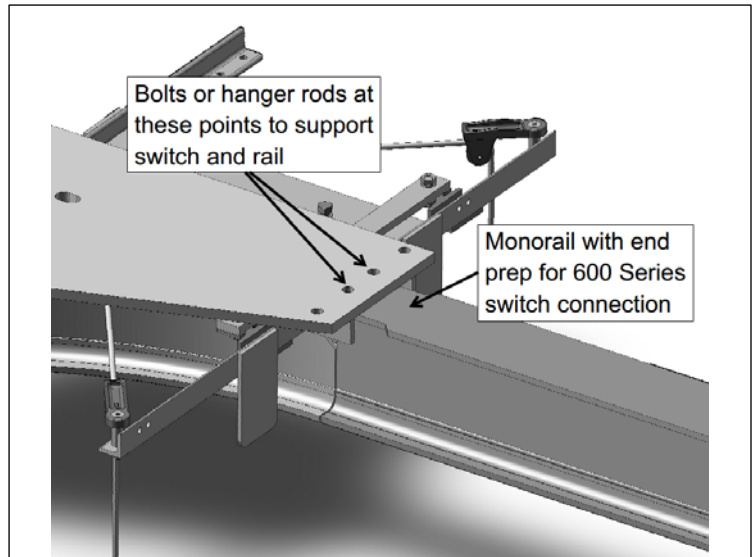
The rail section shown in Figures 7 and 8 is the same depth as the straight and curved rail sections within the switch (on the inner frame). If the incoming or outgoing rails are deeper than the inner frame rails (sometimes required to meet ECL), they must be “step cut” or “notched” as required (see Figure 10).

Note: for Equivalent Center Load (ECL) and calculations, see the Rail Section and the Engineering Section of the TC/American Crane Systems Catalog.

**Figure 9:** typical straight rail “end prep” for incoming and outgoing straight rail sections at a 600 Series Switch.

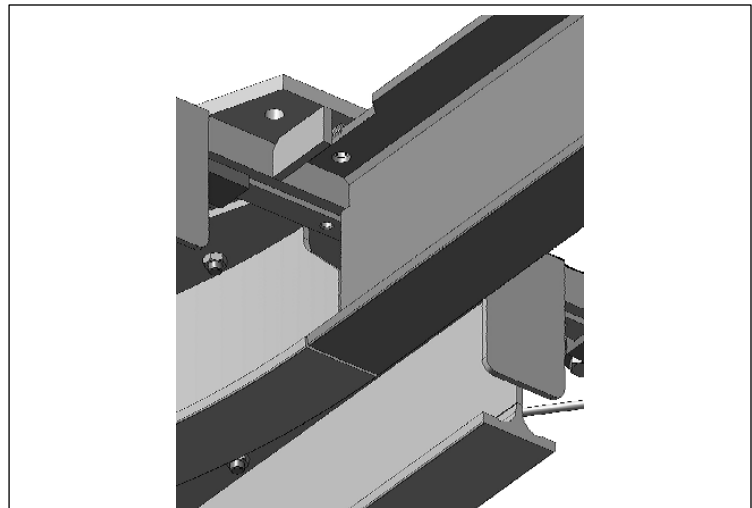
Note: this rail shown is the same depth as the switch rail in the inner frame. No step cut required.

**Figure 10:** typical “step cut” or “notch” in end of rail. This reduces height of rail where it connects to the 600 Series Switch to same height as rail in the inner frame of the switch.



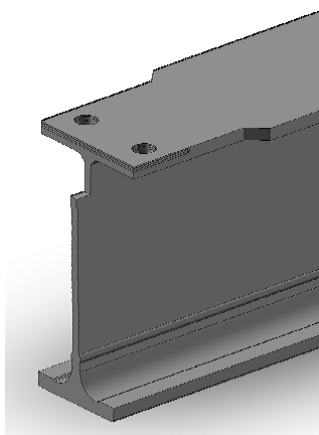
**3S-693-L2 Switch with Monorail Connection**

*Figure 7*



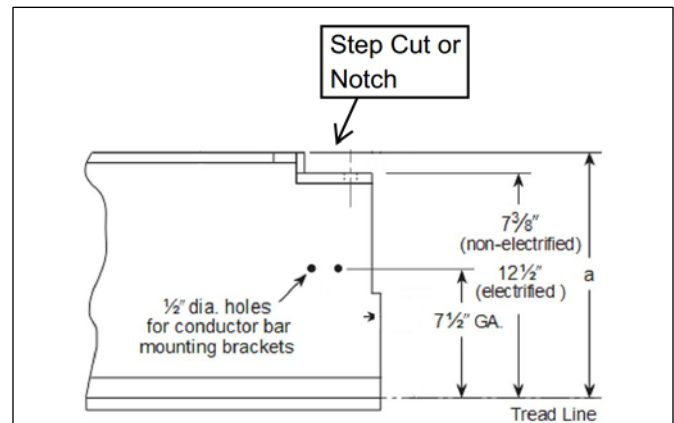
**Straight Rail to 600 Series Switch Connection**

*Figure 8*



**Prep for Straight Rails for 600 Series Switch Connection**

*Figure 9*



*Figure 10*

**Figures 11, 12 and 13:** typical connection of switch curve to top plate of 600 Series Glide Switch (Left Hand, non-electrified shown).

Switch curve is attached using the same holes as used for switch support.

Hardware to connect curved rail to switch, and for switch support, is not shown.

Out going straight rail not shown.

Note: suspension hanger rods and hardware, or bolts for "direct bolt" suspension, are by others.

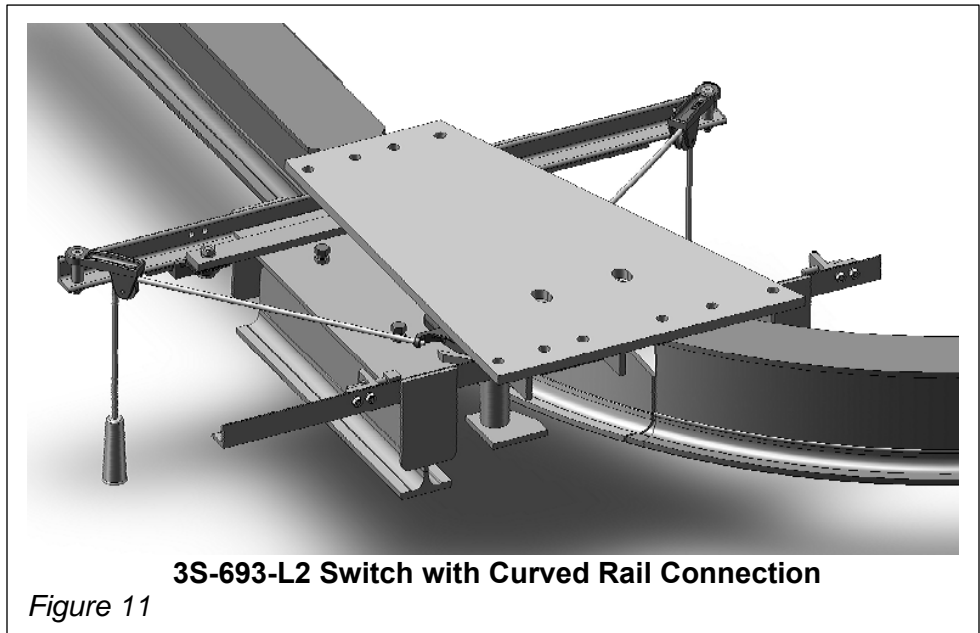


Figure 11

**Switch Curves Matched to Switch Assembly**

Curved rails for the switch inner frame and for the outgoing switch curve are formed in the shop as a single piece, then cut as required. Top flange of the switch curve is match drilled to switch frame, and must be installed as a complete pair in the field.

Systems with multiple switches and curves are provided with match marks on the bottom of the tee section of the curve and the curved section of the inner frame. Matched pairs of switches and curves must be installed together.

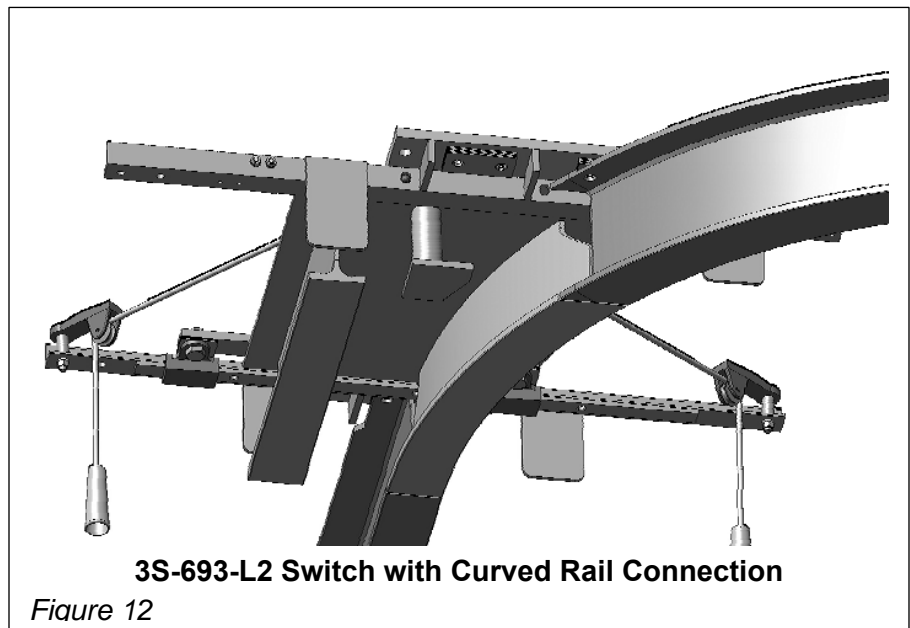
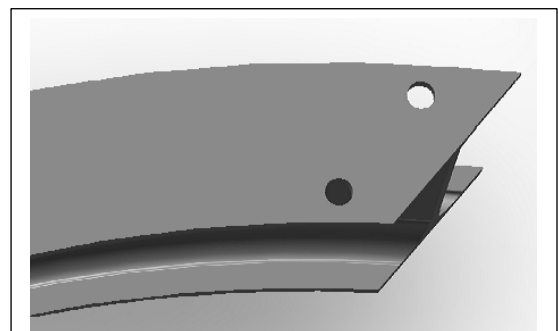


Figure 12

**Field Replacement of Switch or Curve**

If a switch curve is being field replaced independently of the switch, it will be provided less the top flange holes. Place switch curve into position, align the tee section, transfer punch the switch to the top flange of the curve, and then drill to fit.

If a switch is field replaced independently of the switch curve, it will be provided less the holes for mounting the curve to the switch. Place switch curve into position, align the tee section, transfer punch the existing curve top flange holes to the top plate of the switch, and then drill to fit.



Prep for Curved Rail for 600 Series Switch Connection

Figure 13

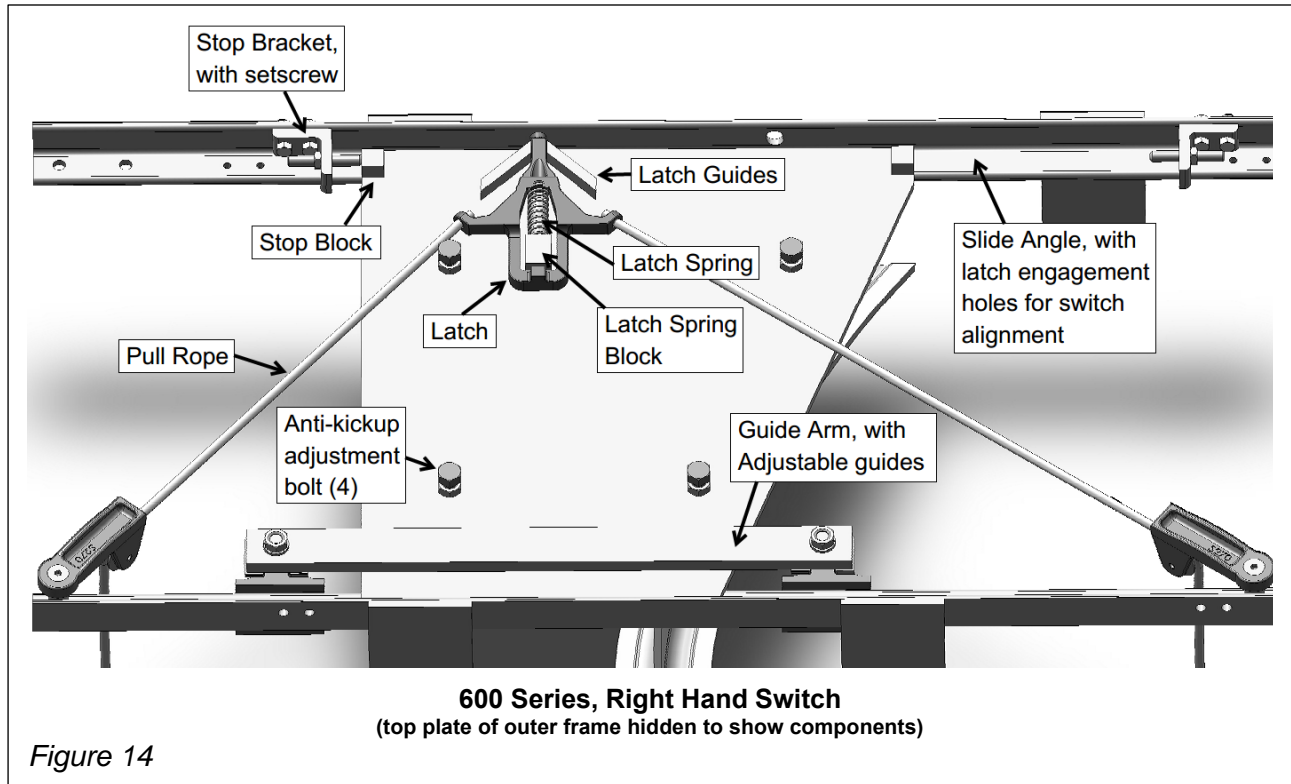


## Switch Latching and Operating Mechanisms

### 2-Way and Wye Glide Switch and Latch Operation

(ref: Figures 14 and 15)

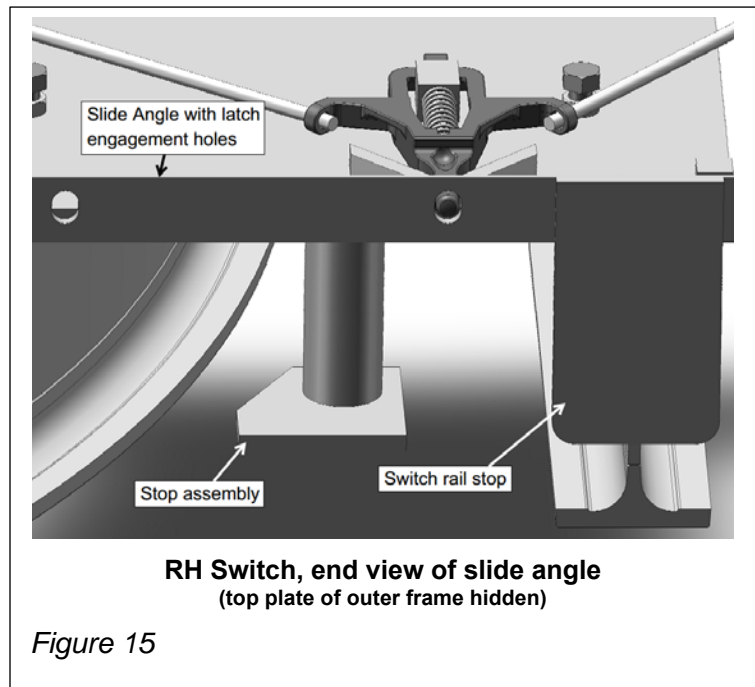
**Operation:** 2-Way and Wye Glide Switches are operated by pulling on one of the two 5/16" diameter yellow poly ropes connected to the switch latch mechanism. Each rope is approximately 12' long and is routed from the latch through sheaves mounted on arms that extend to each side of the switch (see Figures 1, 3 and 14). Pulling a rope disengages the latch mechanism and sequentially pulls the inner frame right or left to reposition the alignment of the inner frame rail to the outgoing rail.



Rope length may be adjusted as needed to meet the height and layout of the monorail system (by others, unless special ordered). Additional sheaves may be furnished locally to route the ropes as required.

Since the inner frame (moving portion) of these switches slides on a face of the slide angles, be sure all surfaces are smooth and clean. Lubricate as needed. A firm pull on the rope repositions the inner frame of the switch.

- A. Operation from Straight to RH Curve: Pull the rope on the left side of the switch (side to which you want the inner frame to move so the curved rail will move into position with the incoming rail). Pulling the rope moves the latch backwards and disengages the latch nose from an alignment hole in the slide angle.



Continued pull on the rope slides the inner frame in the direction of pull until the stop block contacts a set screw at the end of the slide angle (see Figures 14 and 16). Releasing pressure on the rope allows the latch spring to push the latch nose into the alignment hole at that point of the switch. This locks the switch into position with the outgoing curved rail. Switch operation to the Right Hand curve position is complete, and normal monorail use may proceed.

- B. Operation from Straight to LH Curve: similar as described in "A" above.
- C. Operation from RH Curve or LH Curve to Straight: opposite of "A" and "B" above.

**3-Way Switch and Latch Operation**

(ref: Figure 16, switch aligned in center position)

**Operation:** 3-way switches are operated by pulling on one of the two 5/16" yellow poly ropes connected to the latch mechanism. Each rope is approximately 12' long and is routed from the latch through sheaves mounted on the top plate of the inner frame, and on arms extended to each side of the switch. See Figures 2 and 16. Pulling a rope disengages the latch mechanism and sequentially pulls the inner frame right or left to reposition the alignment of the inner frame rail to the outgoing rail.

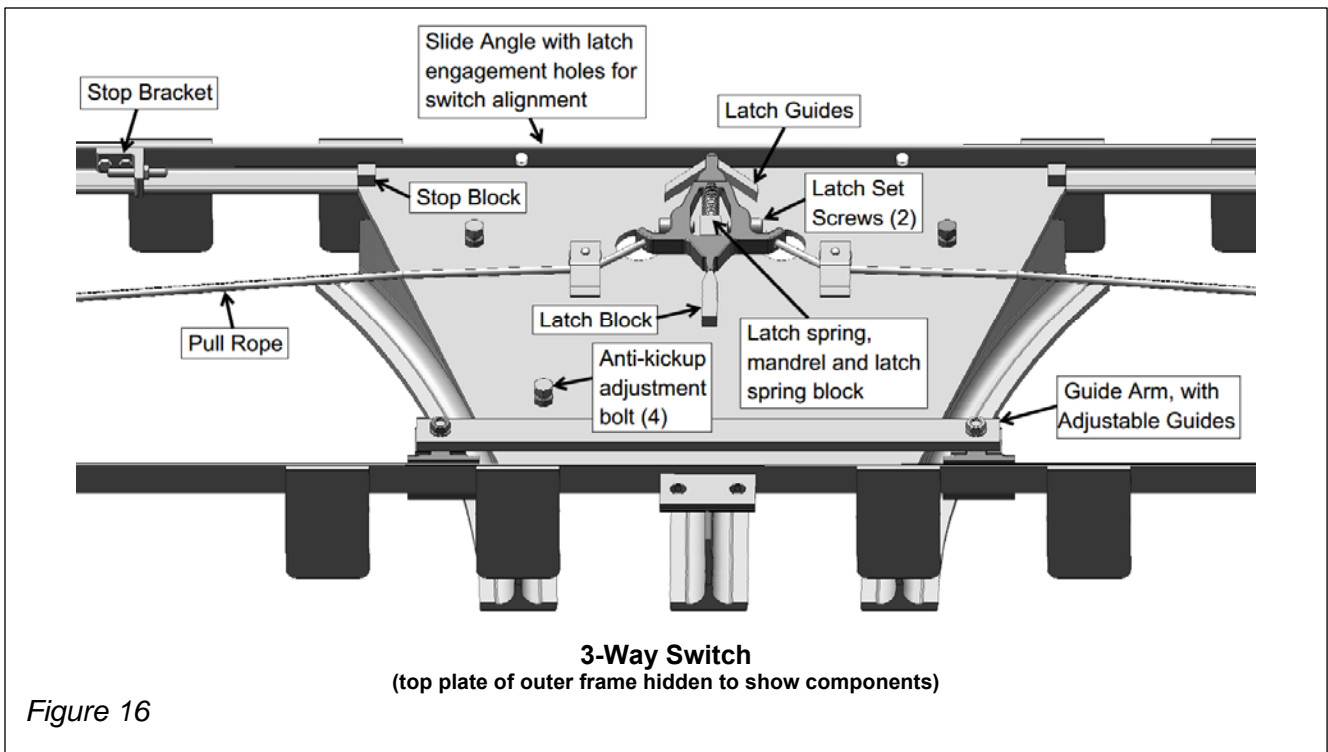


Figure 16

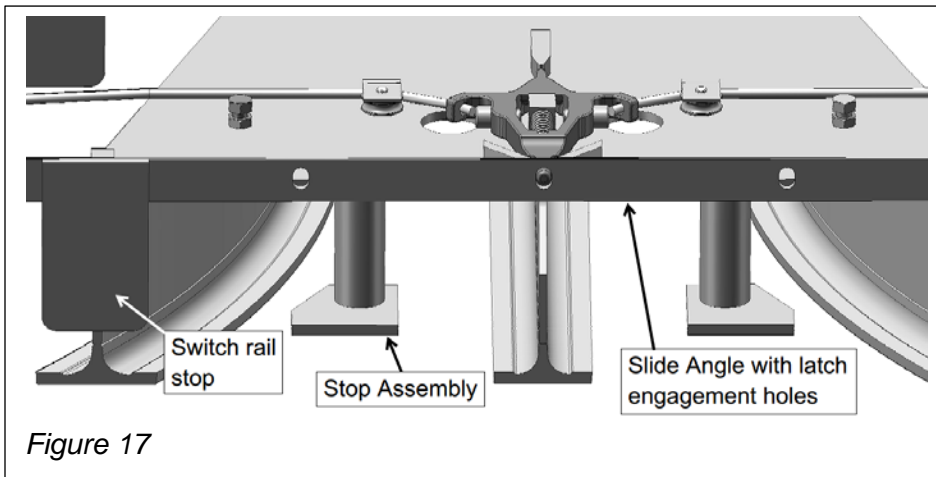


Figure 17

Rope length may be adjusted as needed to meet the height and layout of the monorail system. Additional sheaves may be furnished locally to route the ropes as required. Because the inner frame (moving portion) of these switches slides on a mating surface in the slide angles, be sure all surfaces are smooth and clean. Lubricate as needed. A firm pull on the rope repositions the switch.

- A. Operation from Center position to Right Hand (RH) Curve: pull the rope on the left side of the switch which is attached to a latch arm. This makes the latch “cock” slightly to the left and it simultaneously moves back (see *Latch Set Screw Adjustment* in the Adjustments section). This pulls the tailpiece of the switch latch to the left side of the latch block (latch block is welded to the top plate of the outer frame) and disengages the latch nose from the center alignment hole in the slide channel. Continued pull on the rope slides the inner frame to the left until it contacts a stop screw (see Figure 15). When operator pull on the rope is released, the latch spring pushes the latch forward to engage the nose into an alignment hole and lock the switch in place. Switch movement to the Right Hand position is complete and normal monorail use may proceed.
- B. Operation from RH Curve to Center: pull the rope on the right hand side of the switch. This “cocks” the latch slightly to the right and simultaneously moves it back, disengaging the nose from the alignment hole. Continued pull on the rope slides the inner frame to the right. When the center rail of the inner frame reaches the center position of the switch, the latch tailpiece contacts the left hand side of the latch block and stops the inner frame in alignment with the center rail hanger. When pull pressure on the rope is released, the latch spring pushes the latch nose forward to engage the center alignment hole and the latch tailpiece slides forward on the latch block to rest on the latch block nose. Switch movement to the Center position is complete, and normal monorail use may proceed.
- C. Operation from Center to Left Hand: similar as the procedure in “A” above. Switch movement from LH to Center is the opposite of the description in “B” above.
- D. **NOTE:** direct switch throw from full RH to full LH, or full LH to full RH, cannot be made; the inner frame movement must stop at the Center position, and pressure released on the pull rope, before continuing to move to the far LH or RH position (this allows the tailpiece of the latch to “jog” around the latch block).

**Moving Switch with a Load on the Inner Frame:** These switches are not designed to be thrown (moving portion of the switch repositioned) with a load on the rail of the inner frame.

### Motorized or Air Powered Operating Mechanisms

All switches shown in this installation instruction sheet are shown with manual (pull rope) operating mechanisms to shift the inner frame of the switch.

Electric motor operated or air powered mechanisms are available. See the separate *Air Operated Switch Installation Instructions* or *Electric Operated Switch Installation Instructions*.

## Glide Switch Adjustments

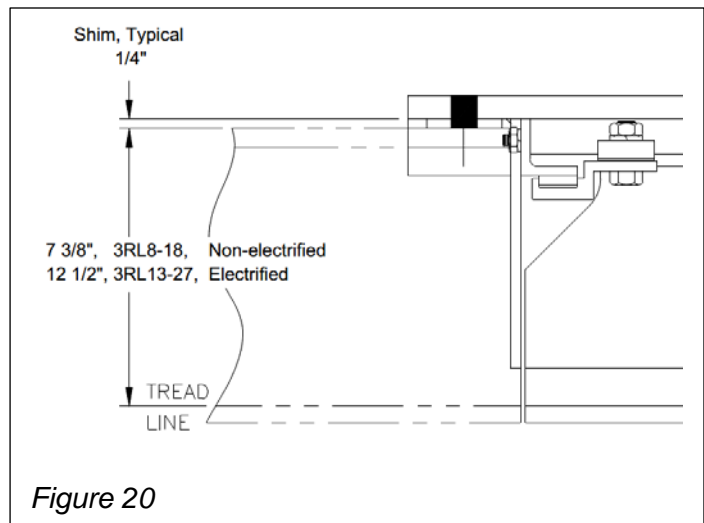
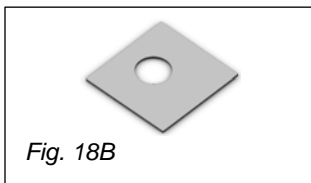
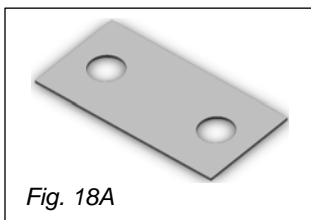
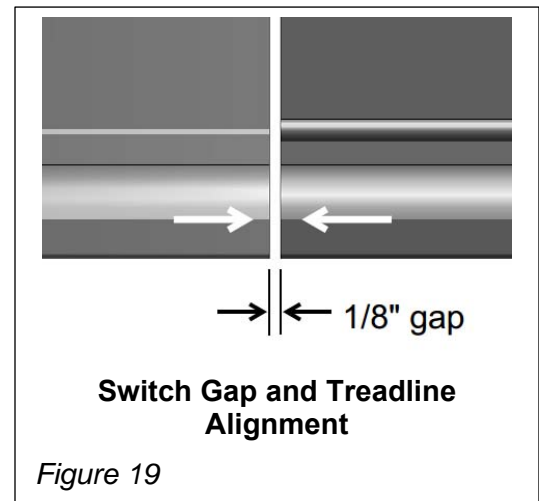
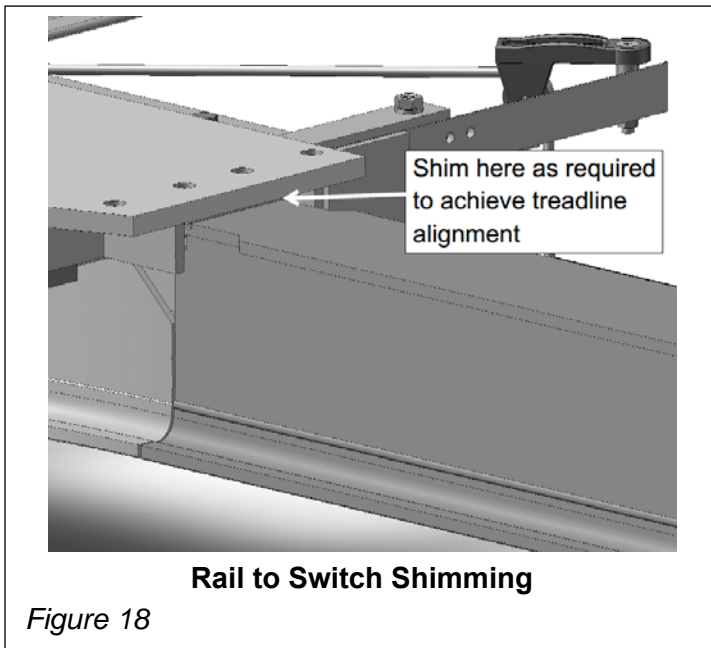
### A. Incoming and Outgoing Rail – Treadline Alignment and Switch Gap

**Treadline alignment:** adjust by shimming as required between the switch top plate and top flange of rail. See Figures 18, 19 and 20. Support hardware not shown.

The riding tread (treadline) of the switch rail and the monorail or curve must be at the same elevation (see Figure 19). Monorail beams can vary slightly in overall height, and the tee section thickness and width may also vary within tolerances. After shimming to best alignment, it is allowable to grind and feather very slightly at the adjoining rails to assure a smooth transition.

Note: a package of 16 gauge (0.0598") full and split shims are provided with each switch for each hanger point. Full shims (see Fig. 18A) are installed using both suspension holes, and are used to make up the typical 1/4" shim space shown in Figure 20. Split shims (see Fig. 18B) are installed at one suspension hole and are used to compensate for any "crowning" or "unlevel top flange" of the rail. A properly shimmed rail results in the tee section aligned and level to the adjoining tee of the switch.

**Switch gap:** adjust for 1/8" maximum via 11/16" holes in the top plate vs. 5/8" diameter hanger rods or bolts.

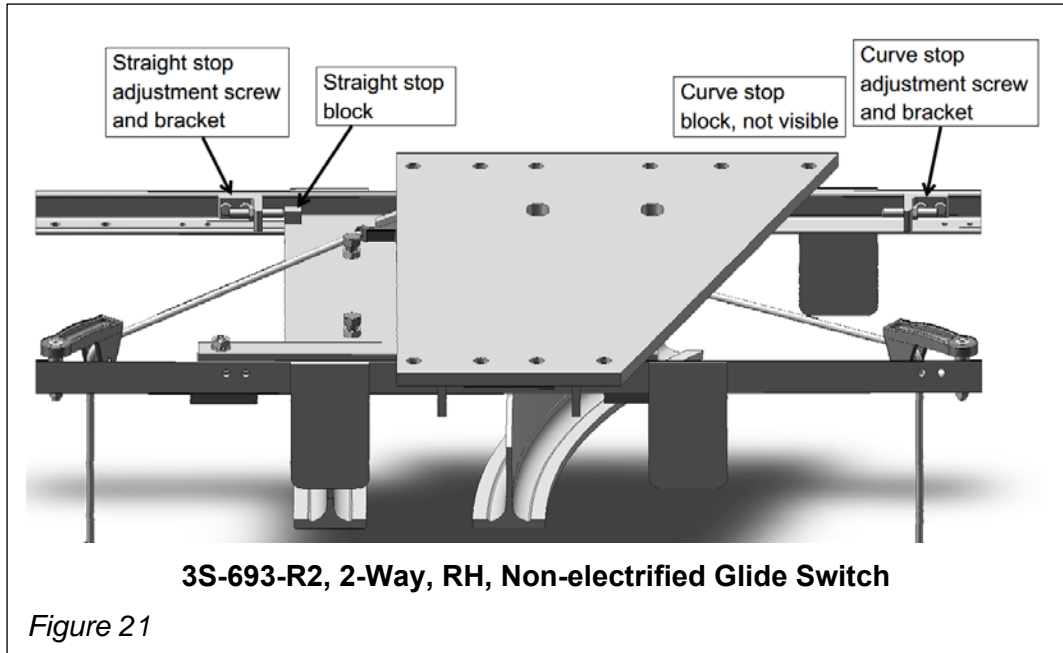


**B. Glide Switch Throw**

**2-Way and Wye Switches:**

**Figure 21**, (2-Way, right hand switch shown): full throw to left and right is adjusted via adjustment set screws on the slide angles. The set screw contacts a stop block on each side of the switch inner frame. When the switch is fully thrown, rail on the inner frame must be in line with the corresponding outgoing straight or curved rail, and nose of the latch must be aligned with a hole in the slide angle.

To adjust throw, loosen set screw (see Figure 22) and position the inner frame fully left or right to align the nose of the latch with a corresponding alignment hole in the slide channel (see Figure 15, typical). With the latch nose fully engaged into the slide channel hole, adjust set screw to contact the stop block on

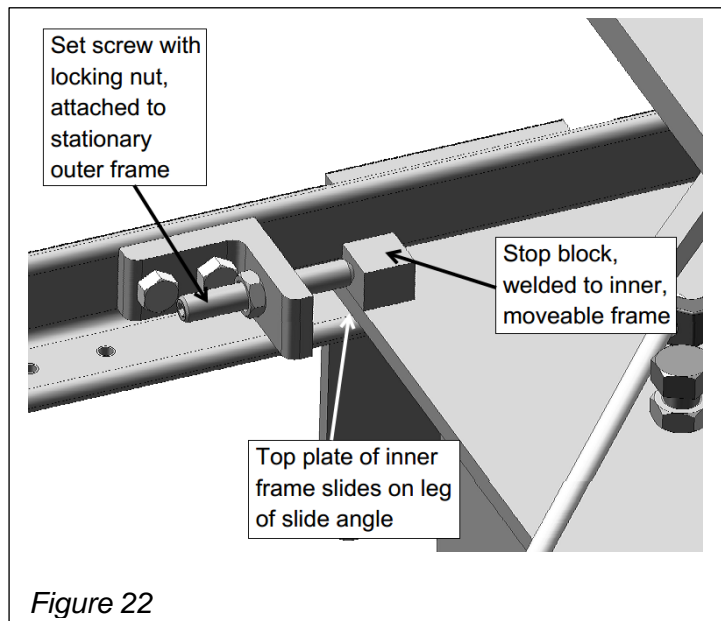


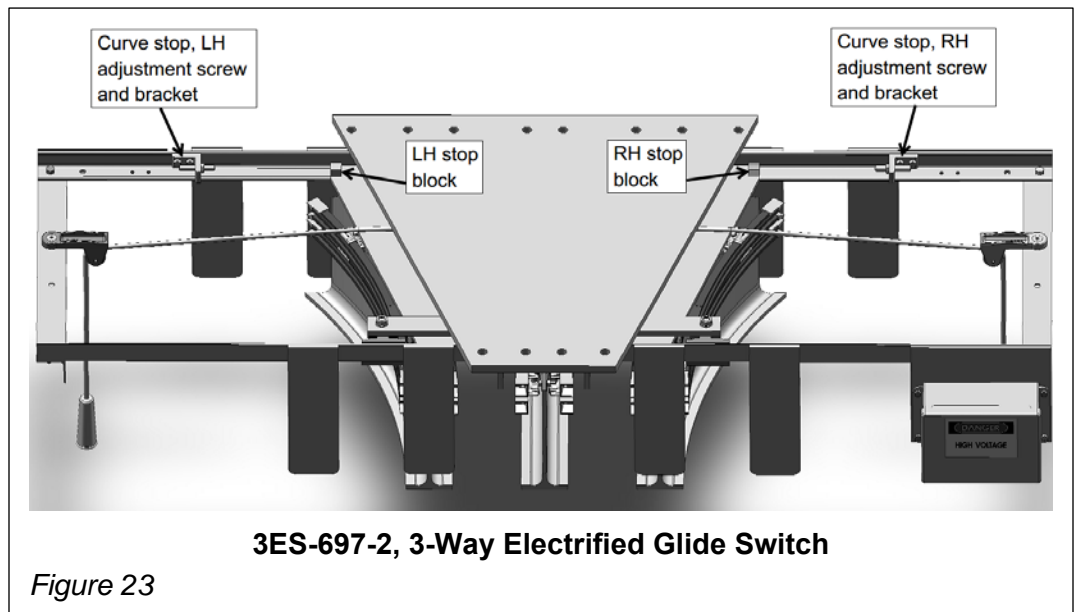
the inner frame (see Figure 22). Tighten locking nut. Repeat process for other side. Use 3/16" hex wrench for set screw. Allow for slight oversize of the alignment hole as compared to the nose of the latch.

**3-Way Switches:**

**Figure 23:** Same process for full left and right as described for 2-Way and Wye Switches. The center alignment is factory set by the alignment of the latch hole in the slide angle and the support holes for the center rails.

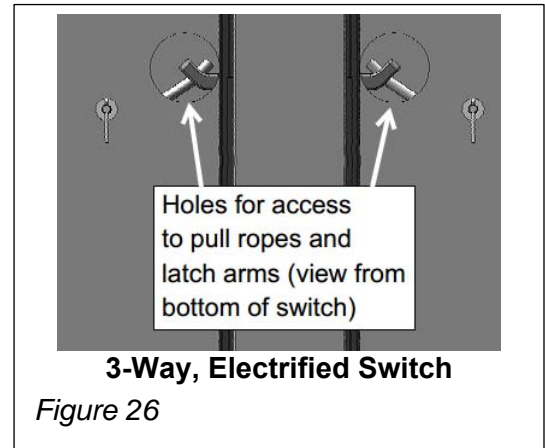
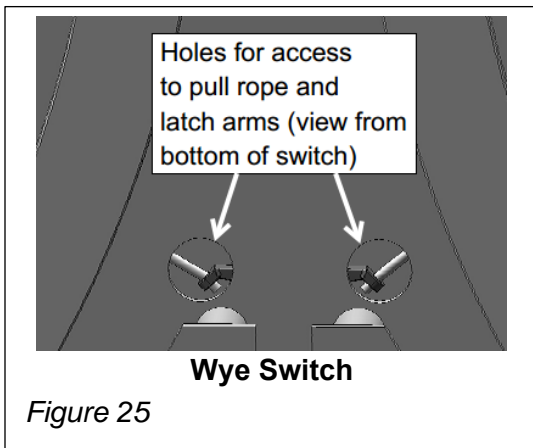
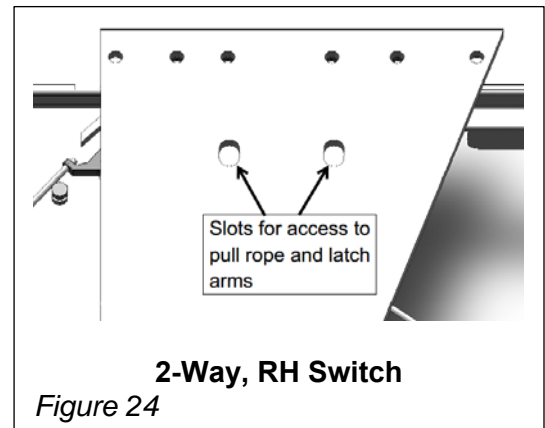
**All Switches:** Operate switch through several cycles of movement to be sure the throw is properly adjusted. The nose of the switch latch should easily and positively engage the hole in the slide angle.





**Access Holes, Pull Rope to Latch Arms**

600 Series Switches are provided with slots in the top plate of the outer frame (2-Way, RH and LH switches) or holes in the top plate of the inner frame (Wye and 3-Way switches) for access to the latch arm and pull rope connection. See Figures 24, 25 and 26.



## Slide Angle and Switch Guides Adjustment – All Glide Switches

**Figures 27, 28 and 29:** On all 600 Series Glide Switches, the slide angle on the incoming rail side of the switch has a guide bar welded to the bottom of the angle. The top plate of the inner frame rides on and is supported by the face of this angle. Switch guides are attached to each end of the guide arm with an eccentric adjusting bolt. The switch guides engage and follow the guide bar.

Switch guides are used to:

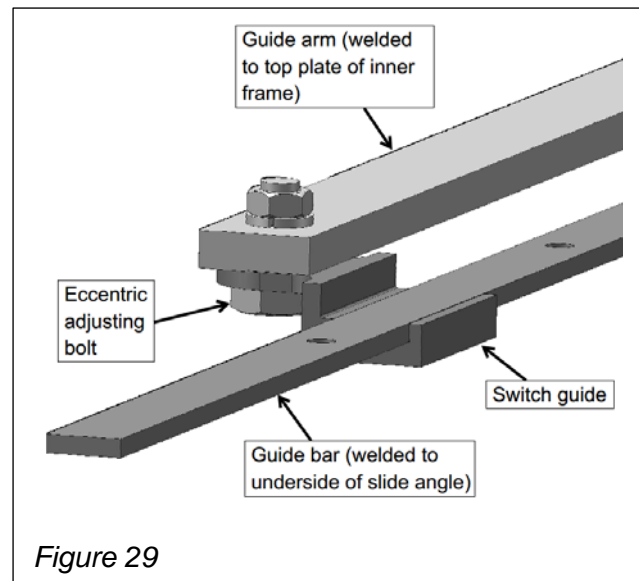
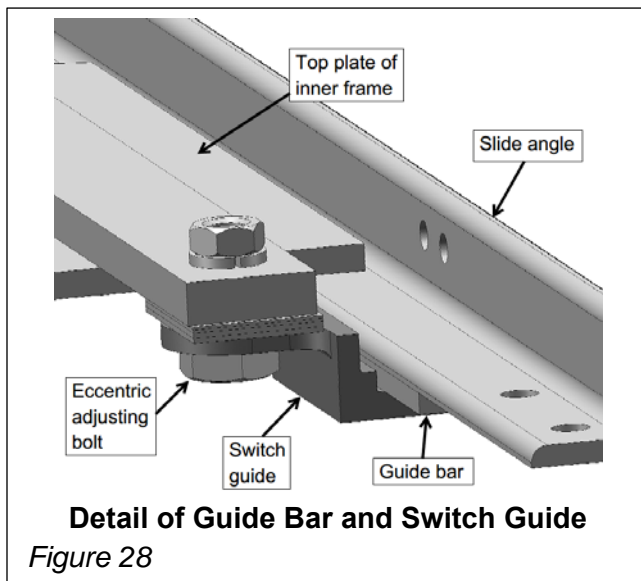
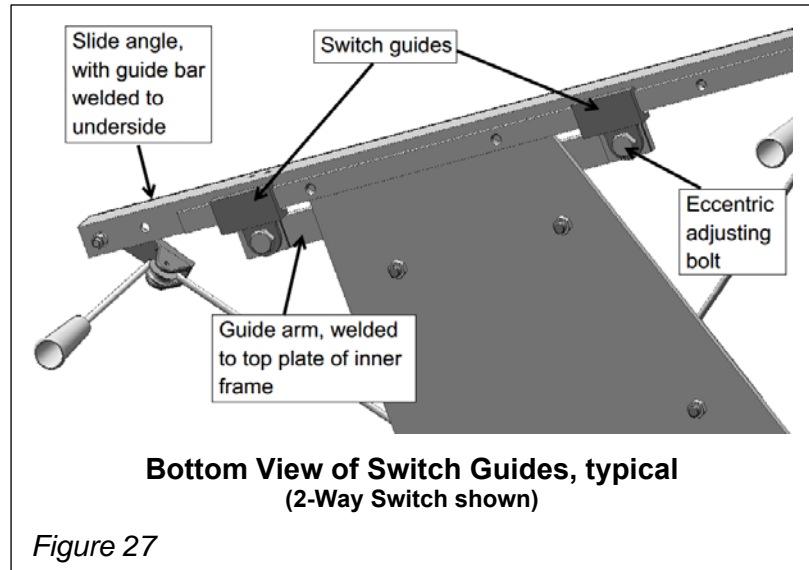
- prevent the inner frame from “cocking” when the ropes are pulled to move the inner frame
- adjust the switch gap
- hold the inner frame in position when a trolley with a load passes through
- adjust alignment of inner frame rails to incoming and outgoing rails (see Notes for Treadline and Rail Alignment Adjustment and Figure 30).

Switch guides are factory adjusted to a “neutral” position with the eccentric adjusting bolt.

Field adjustments:

- move inner frame to either end of travel.
- measure rail gap at incoming and outgoing rails (see Figure 19).
- check alignment of incoming and outgoing rails relative to inner frame rails.
- loosen eccentric bolts on both switch guides just enough so they can be turned.
- adjust eccentric bolts as needed to equalize the rail gap at each end of inner frame, and to “cock” the ends of the inner frame rails into alignment with the incoming and outgoing rails. Note that the best result of this procedure may be a compromise at each position.
- tighten both eccentric bolt nuts very securely.
- move switch through several full cycles of motion, verify rail alignment and gap at each position. Readjust if required.

Verify that slide areas are clean and clear. Lubricate as needed for smooth operation.



### C. Removing Inner Frame from Switch Assembly

The inner frame of Glide Switches can be removed from the outer frame by removing a switch throw adjustment bracket from one side of the switch, loosen switch guide eccentric bolts, disengage the latch mechanism and slide the inner frame out.

Note that 3-Way switches have bolted side angles on the outer frame arms which also must be removed. See Figures 2 and 23 for typical examples.

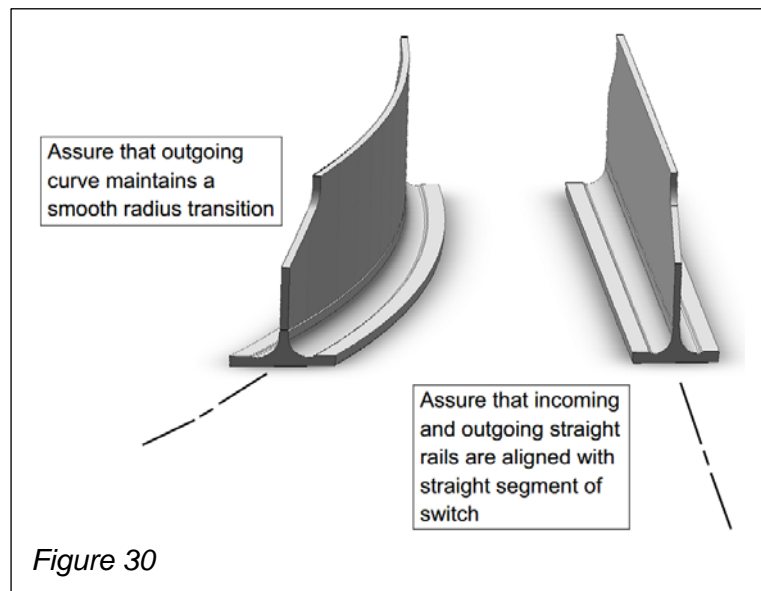
### D. Notes for Treadline and Rail Alignment Adjustment

Minor misalignment of the treadline and edges of the switch inner frame rail to the treadline and edges of the outgoing rail or curves may be caused by various manufacturing tolerances in fabrication of the rail or assembly of the switch, various switch adjustments, proper location of the incoming and outgoing rails relative to the switch and general monorail layout, plus clearance of the latch nose to the slide angle holes. See Figure 30.

Satisfactory final adjustments and alignment must be considered to be the result of the fine art of installation.

For alignment, check the following:

- straight rail of the monorail system must leave the switch in a straight line along the monorail path. If switch is not suspended in line with the planned monorail path, or if the straight rail of the monorail enters or leaves the switch at an angle, the edges of the straight rail will not be aligned with the edges of the switch rail and may cause an excessive gap between rail ends.
- relocate or adjust suspension of the outgoing straight rail to hold it in proper alignment.
- verify that curved rails make a smooth transition from the switch to the monorail path. Relocate or adjust suspension of the outgoing curved rail to hold it in proper alignment.



- switch guides may need adjusting via the eccentric adjusting bolt to bring the rail ends of the inner frame into alignment with the incoming and outgoing rails, as well as to adjust the rail gap. See Figures 27, 28 and 29.
- verify that the switch is supported securely, rigidly, aligned and level, whether by hanger rods, bolts or other support structure. Rod suspended systems (switches, curves and rail) must be braced to prevent movement. The monorail system must be fully aligned and leveled before installing bracing. The frame of the switch must not be twisted by unequal tightening of hanger rods, unequal shimming or a support structure that can flex. The switch must not be forced into position or alignment.

Satisfactory final alignment of the straight and curved monorail sections to the switch will likely be the result of a combination, and perhaps a best compromise, of all of the installation and switch adjustment procedures.

All of the above are a part of normal installation. Installers must take care to properly suspend, align, shim and adjust all points within the switch and monorail components, recognizing that they have the final responsibility and ability to provide the customer with a properly operating system.



### E. Anti-Kickup Adjustment Bolts

The top plate of the inner frame of each switch has four 1/2" diameter bolts installed (see Figures 14 and 16) to serve as anti-kickup control.

Adjust as shown in Figure 31.

Excessive clearance may allow kickup of the inner frame as a loaded trolley transitions the switch. This kickup may cause excessive treadline misalignment and difficulty for a trolley to pass through smoothly.

Too little clearance may cause the head of the adjustment bolts to drag on the underside of the outer frame top plate and make switch operation difficult.

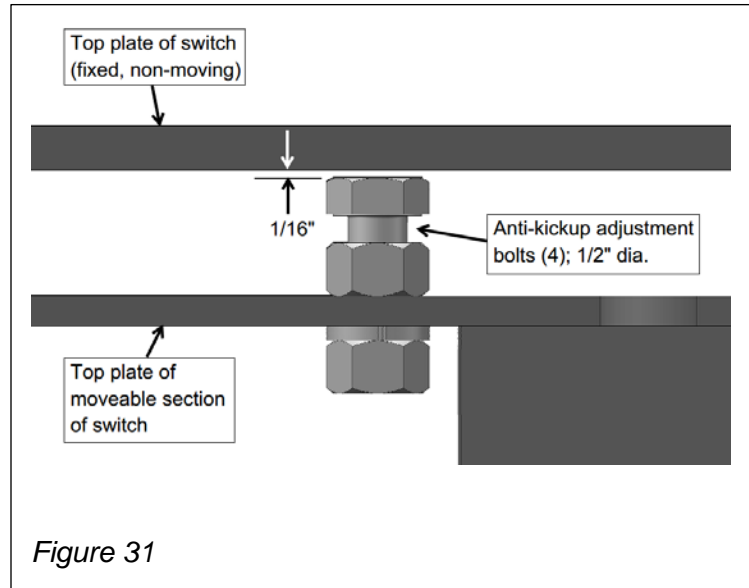


Figure 31

### F. 3-Way Switch, Latch Set Screw Adjustment

Set screws on the 3-Way Switch Latch Assembly control the amount of “cocking” of the latch assembly to the left or right as the ropes are pulled. See Figure 32.

Factory set clearance of the set screw to the latch spring block is approximately 1/8" on each side.

Excessive clearance will allow too much “cocking” and will make the latch difficult to pull back. Too little clearance will not provide enough “cock” to allow the tailpiece to move across the nose of the latch block.

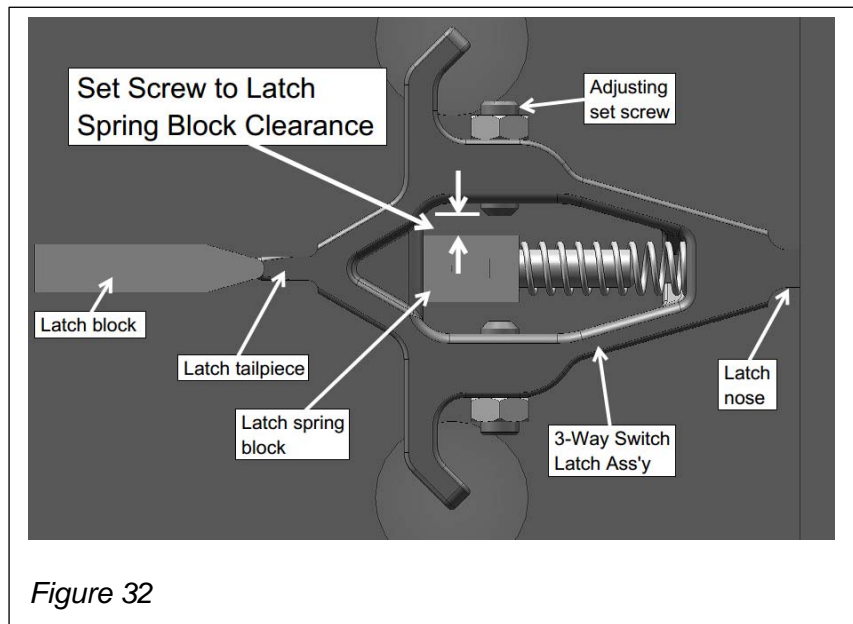


Figure 32

**Typical Wiring Harness Diagrams**

TC/American Crane 600 Series Electrified Switches are factory wired from a power supply junction box to the conductor bars mounted on the straight and curved rail sections on the switch inner frame. See Figures 33 and 34 below. Refer to drawings provided with the switch for more details.

Building power must be brought to the junction box at each switch location, plus separately to the conductor bars mounted on the monorail sections. The number and spacing of power feeds will depend upon overall monorail length, total amperage load on the system, and voltage drop. For more information, see the Engineering Section of the TC/American Crane Systems Catalog. Consult a qualified electrician for layout of the power distribution system.

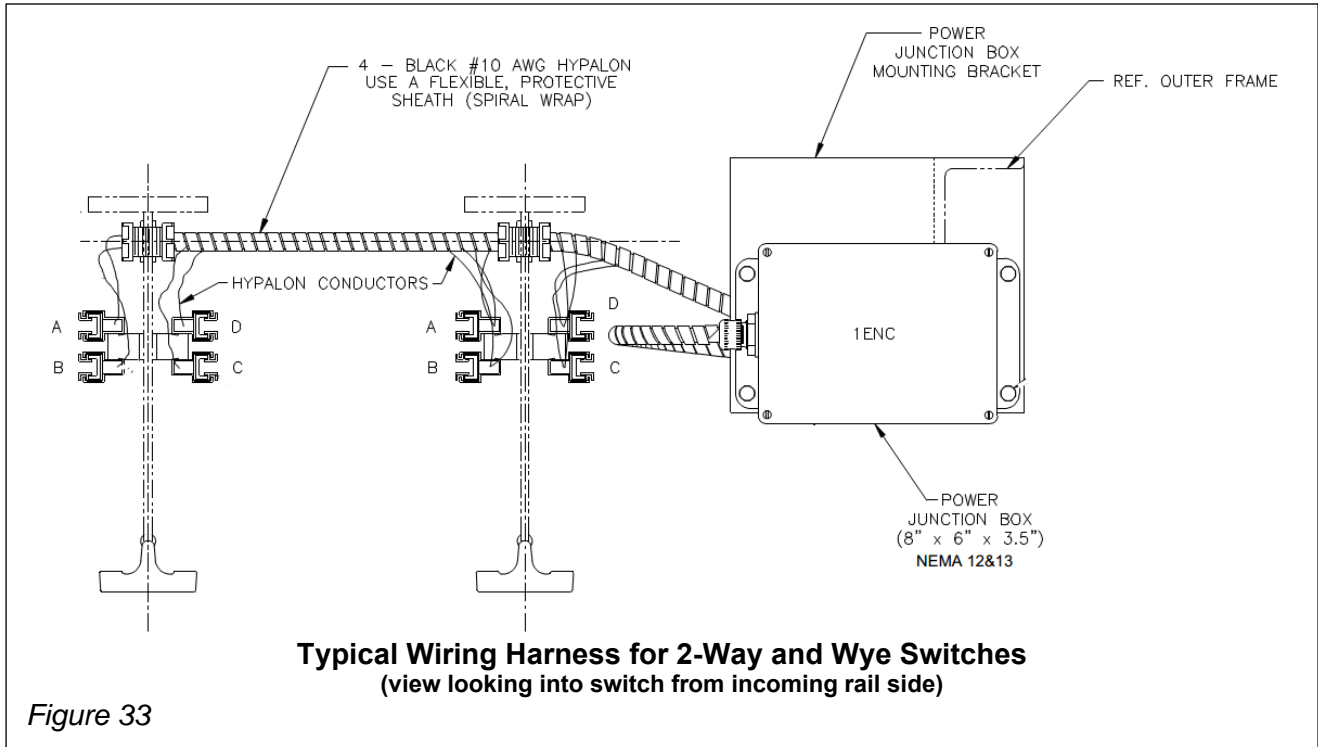


Figure 33

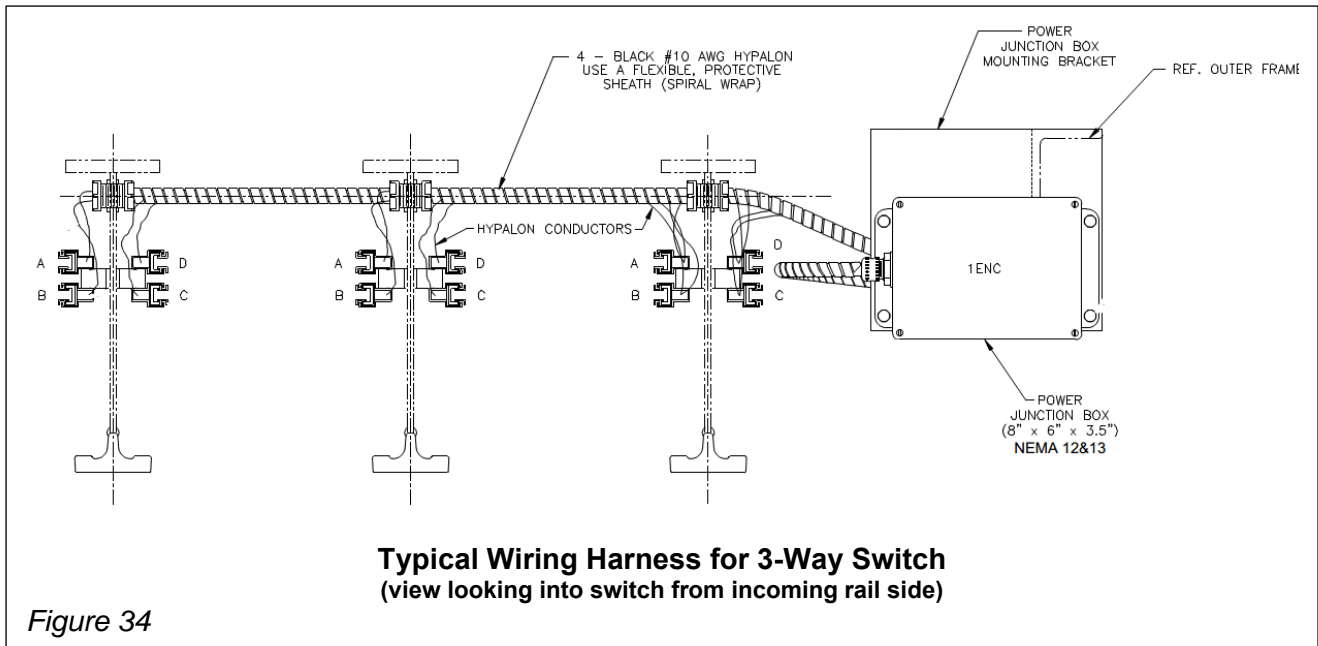


Figure 34

## Lubrication

### General Lubrication Information

#### 1. Latch Mechanism

Lubricate the latch mechanism upon installation. Work grease into and under the latch where it slides on the top plate of the inner frame.

#### 2. Slide Angles

- a) Lubricate the inside lower surface of the slide angle on the outgoing rail side of the switch where the end of the rail section rides upon it. See Figure 14.
- b) Lubricate the area between the Switch Guides and the bar under the slide angle on the incoming rail side of the switch. See Figures 15 and 16.

### Lubrication Frequency

Recommended approximately each 6 months for normal operation, more frequently for heavy useage. Each application must be evaluated on its own merits, including: service duty, number of operations per shift, and operating environment.

Maintenance personnel should develop and maintain a record of all monthly inspections. Frequency of lubrication may be adjusted to match operational demands, based upon inspection reports.

### Recommended Switch Lubricants

(for standard industrial operating environments)

Latch Mechanism

Good grade multi-purpose lithium grease

Slide Angles

Good grade multi-purpose lithium grease

Note: TC/American Crane does not normally make a 'brand name' recommendation for lubricants. Each customer may have a preference based upon many legitimate reasons. TC/A recommends to use a "good quality" lubricant and, when one is chosen, to not mix them.

Adjust lubrication type and frequency based upon the operating environment and customer requirements.

**NOTE: before lubricating equipment that will be taken onto a customer's site, check with the customer for any preferences on brands or types (to maintain customer stock uniformity of products used and records maintenance).**

**NOTE: have Material Safety Data Sheet (MSDS) info available for any lubricants brought onto a work site.**

**NOTE: verify with customer that lubricants being used will not have an effect upon any production processes.**