



Universal Disconnect Switch Installation Instructions (30A, 60A, 100A)

(Cat 1494U-D30; 1494U-D60; 1494U-D100; Series A)



WARNING: To prevent electrical shock, disconnect from power source before installing or servicing. Follow NFPA 70E requirements. Install in suitable enclosure. Keep free from contaminants.

Installation, adjustments, putting into service, use, assembly, disassembly, and maintenance shall be carried out by suitably trained personnel in accordance with applicable code of practice. In case of malfunction or damage, no attempts at repair should be made. The product should be returned to the manufacturer for repair. Do not dismantle the product.



WARNING: The following procedures are critical to the proper operation of the disconnect handle and switch. Failure to follow these steps can result in damage to the equipment and/or serious injury or death to the operator.

Tools Needed: 7/16" Nut Driver, 5/16" Nut Driver, Hammer, Center Punch, File, T27 Torx Driver, Phillips Screwdriver, 11/64" Drill Bit, Needlenose Pliers

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Rod and Cable Operated Disconnect Switch Location

1 Disconnect Switch Location and Installation

- A) For Rod Operated Switches, follow steps 1 - 5 below.
- B) For Cable Operated Switches, follow steps 3 - 5 below.

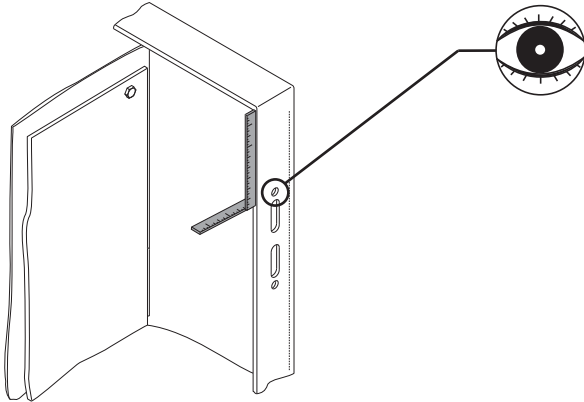
IMPORTANT: When locating the 30A, 60A and 100A cable operated switch, verify that the minimum diameter for the loop of the cable between the switch mechanism and handle mechanism is not less than 6 inches.

Any reduction to the diameter of the bend loop for the cable will reduce the efficiency of the cable system, create additional drag and friction within the cable conduit and possibly decrease system life.

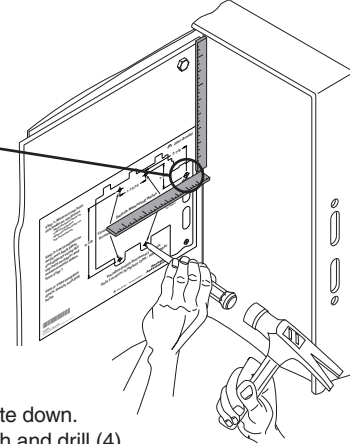
- 1** Measure top hole of handle on enclosure.

Measure hole center to side of enclosure: _____

Measure hole center to top of enclosure: _____

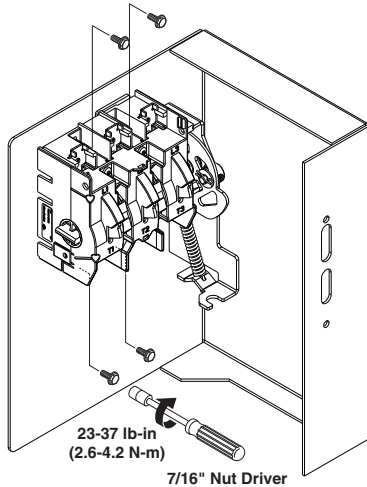


- 2** Use template PN-254969 to locate handle holes on mounting plate. Lay template on enclosure back plate. Align using the top hole on paper and measurements taken from step 1.

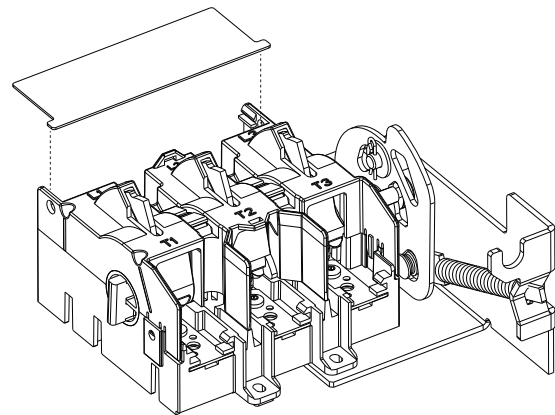


- 3** Tape template down. Center punch and drill (4) 11/64" holes for thread forming (TAP-TITE) screws provided with switch.

- 4** Install Disconnect Switch.

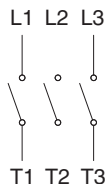


- 5** Install Line Terminal Guard.

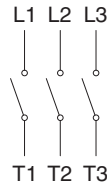


Wiring Diagrams

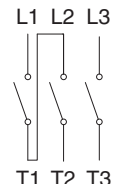
Single Phase AC



Three Phase AC



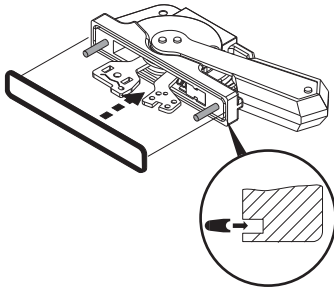
Direct Current



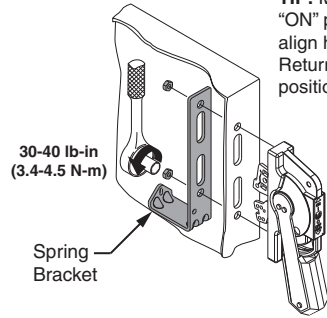
Rod Operated Switch Installation

1 1494U Handle Installation

1 Install gasket.

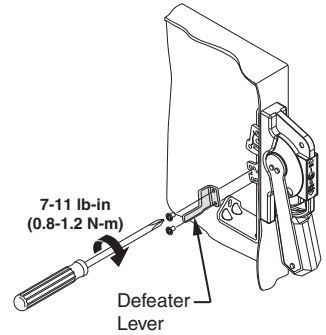


2 Install spring bracket and handle.



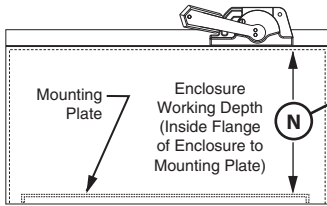
TIP: Move handle to "ON" position to help align handle and bracket. Return handle to "OFF" position once connected.

3 Install defeater lever.



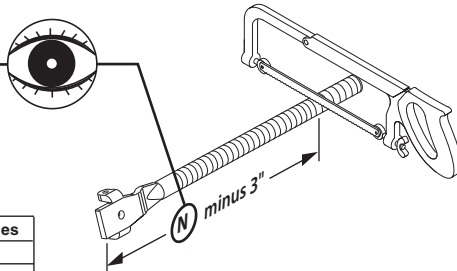
2 Cutting Connecting Rod

1 Measure working depth of enclosure.

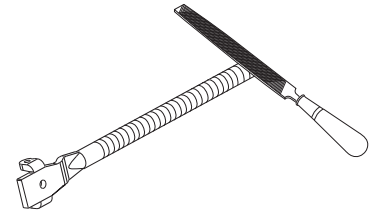


Connecting Rod	30A - 60A - 100A Disconnect Switches	
	Enclosure Working Depth "N"	
	Min.	Max.
1494U-R1	6-1/2"	19"

2 Measure, mark and cut connecting rod.



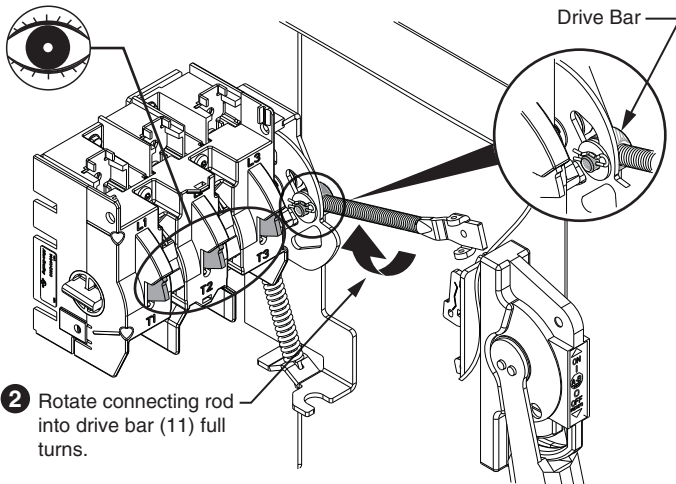
3 Remove burrs.



For enclosures with a working depth greater than 19" but less than 23", use connecting rod kit 1494V-RA4.

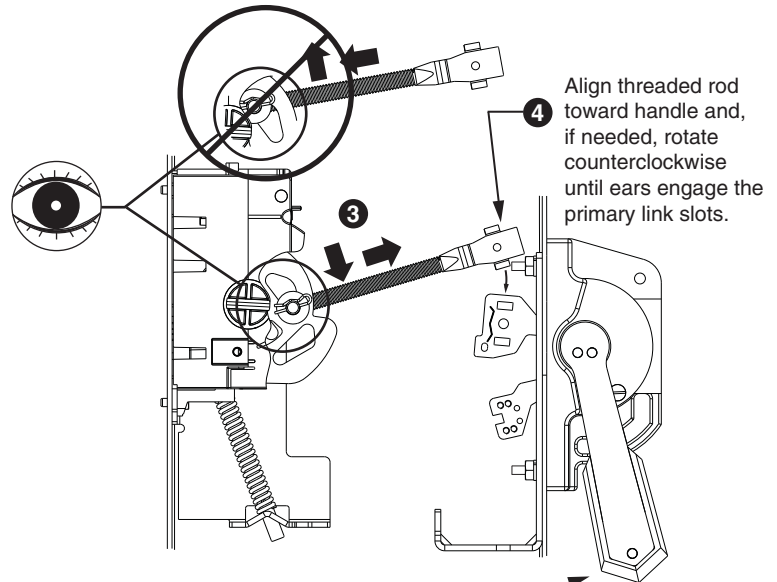
3 Connecting Rod Installation

1 Verify that disconnect switch and handle are in "OFF" position (Switch blades will be visible).



2 Rotate connecting rod into drive bar (11) full turns.

See steps 3 and 4 for final rod alignment.

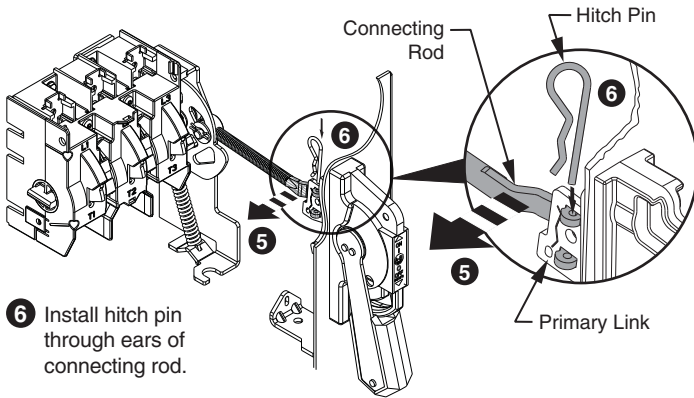


Ensure that the handle is in the full "OFF" position.

Rod Operated Switch Installation (Cont'd)

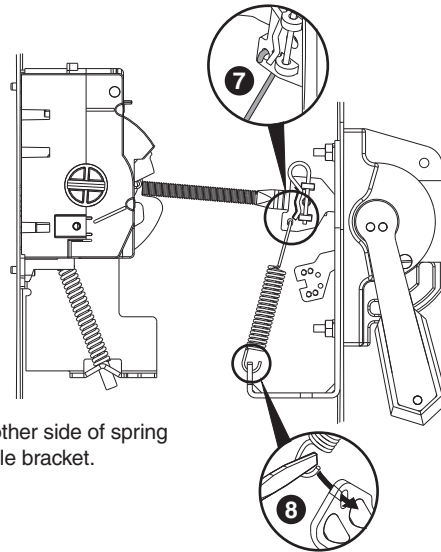
3 Connecting Rod Installation (Cont'd)

5 Engage ears of connecting rod into slots of handle link.



6 Install hitch pin through ears of connecting rod.

7 Install spring to handle link.



8 Install other side of spring to handle bracket.



Rod Adjustment Procedure

Adjustment Procedure if switch does not turn "ON".

1. Move handle to "ON" position.
2. If switch does not fully close, return handle to "OFF" position.
3. Remove link spring and hitch pin to disengage the connecting rod from the primary link.
4. Turn connecting rod counter-clockwise (1 or more) full turns.
5. Re-engage connecting rod in primary link of handle, insert hitch pin and re-test.
6. Repeat steps 1 - 5 as necessary.
7. Re-install link spring.

Adjustment Procedure if switch does not turn "OFF".

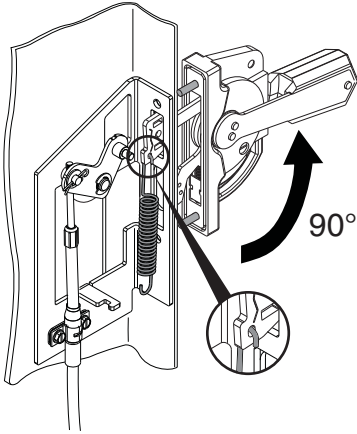
1. Move handle to "OFF" position.
2. If switch does not fully open, return handle to "ON" position.
3. Remove link spring and hitch pin to disengage the connecting rod from the primary link.
4. Turn connecting rod clockwise (1 or more) full turns.
5. Re-engage connecting rod in primary link of handle, insert hitch pin and re-test.
6. Repeat steps 1 - 5 as necessary.
7. Re-install link spring.

Cable Operated Switch Installation

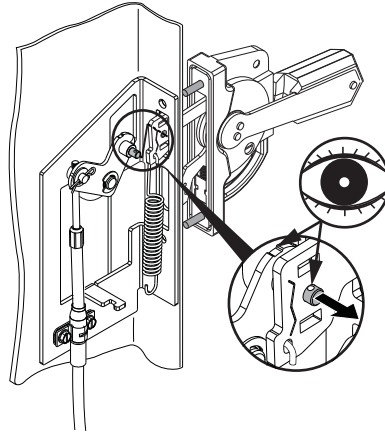
1 1494U Handle and Cable Mechanism Installation

Enclosures with Right Flange

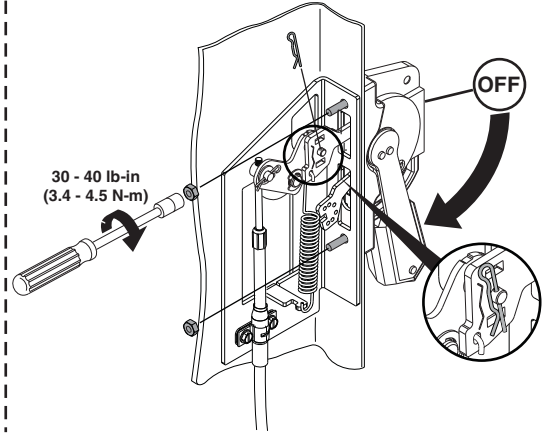
1a Install spring to handle link.



2a Connect handle link to lever pin.

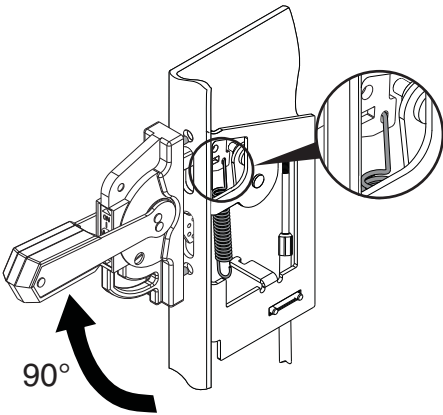


3 Install handle nuts and hitch pin.

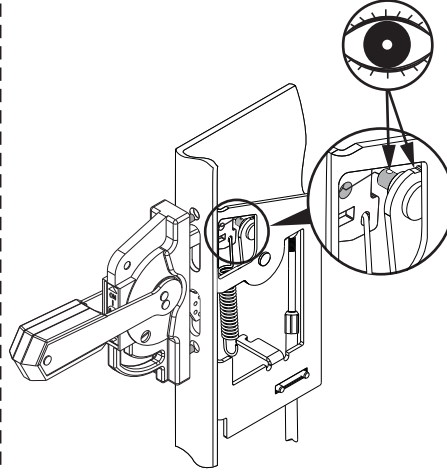


Enclosures with Left Flange

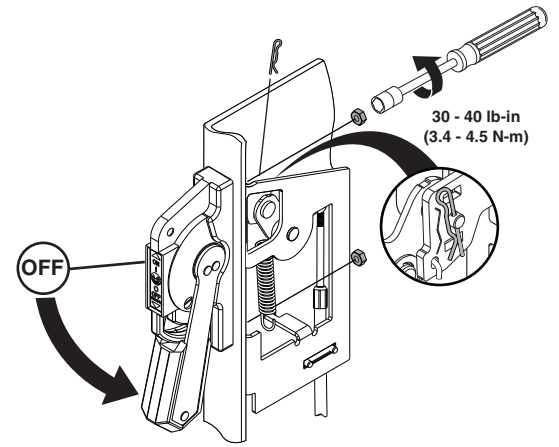
1b Install spring to handle link.



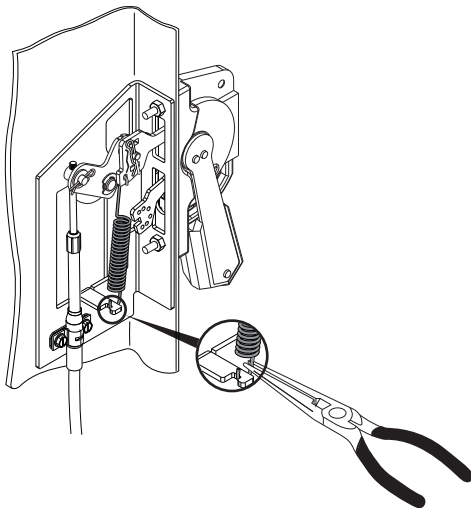
2b Connect handle link to lever pin..



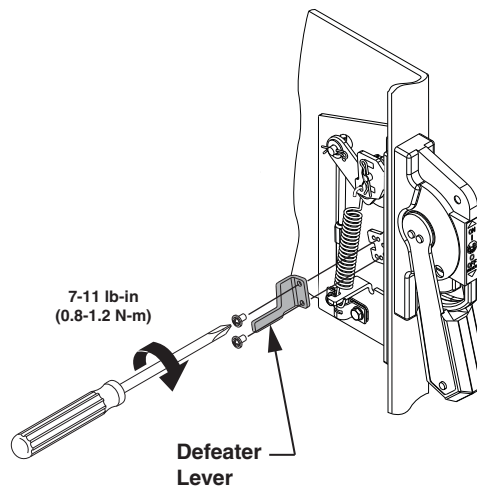
3 Install handle nuts and hitch pin.



4 Install other end of spring to cable mechanism bracket using needlenose pliers.



5 Install defearer lever.



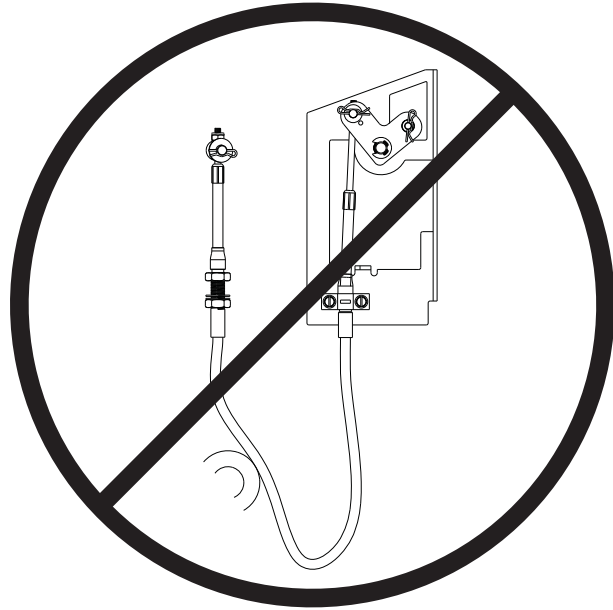
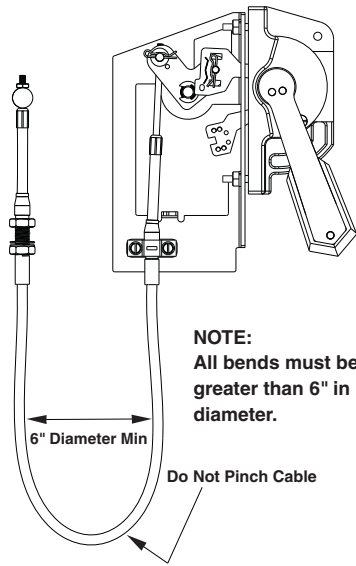
Cable Operated Switch Installation (Cont'd)

2 Cable to Switch Mechanism Installation

IMPORTANT: Verify that the cable assembly does not interfere with any mechanical and moving parts. Keep the cable conduit a minimum of 1/2" from all heat sources and current carrying terminals, fuses, transformers, etc.

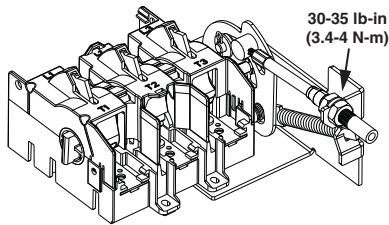
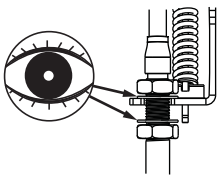
IMPORTANT: When locating the 30A, 60A and 100A switch, verify that the minimum diameter for the loop of the cable between the switch mechanism and the handle mechanism is not less than 6 inches.

- 1 Locate switch as to not pinch the cable or create a bend less than 6" in diameter.



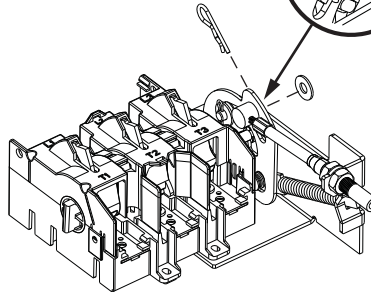
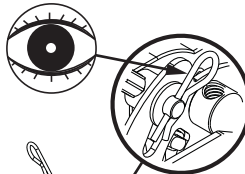
- 1 Tighten cable nuts onto switch bracket.

Check for one washer on each side of the switch bracket.

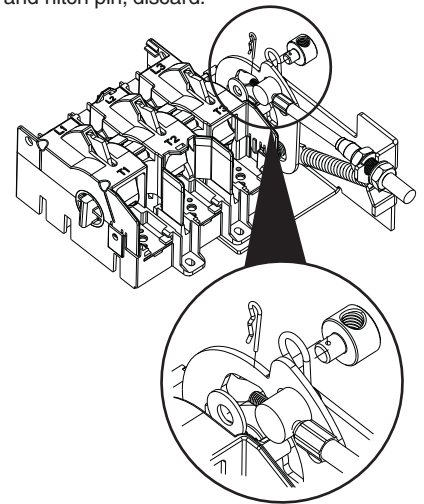


- 2 Use washer and hitch pin to attach cable pivot to switch mechanism cable slot.

Install pin as shown. Do not push past second bend on clip.

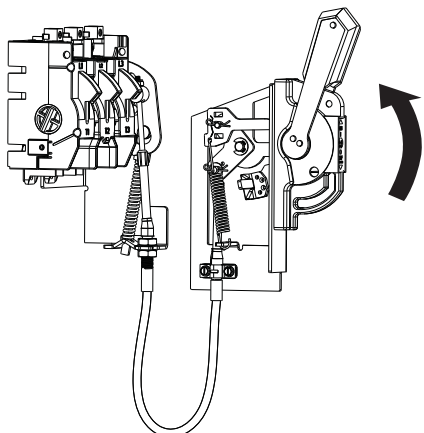


- 3 Remove drive bar for rod operation, washer and hitch pin; discard.

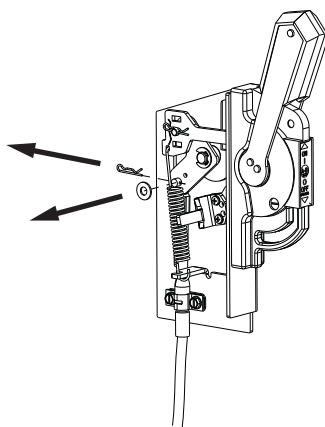


Cable Adjustment Procedure

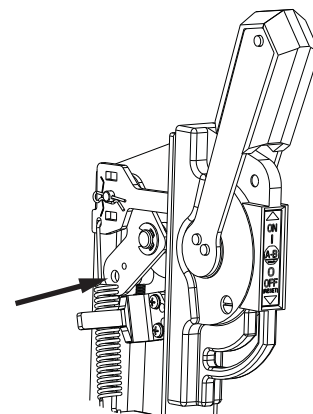
1 Move handle to "ON" position.



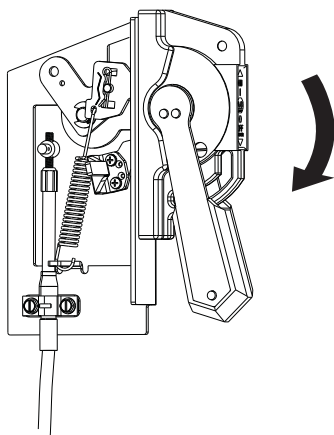
2 Remove cable pivot hitch pin and washer.



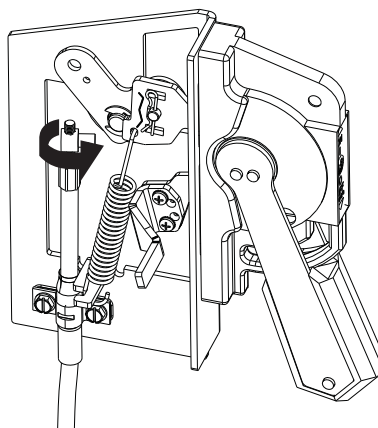
3 Push cable pivot out of handle bracket.



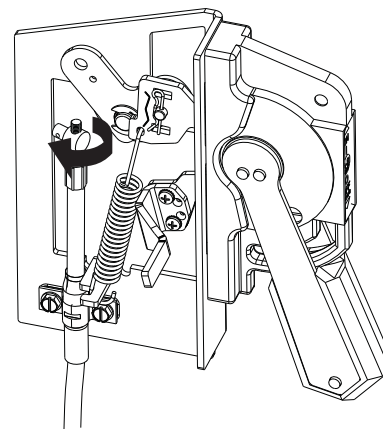
4 Return handle to "OFF" position.



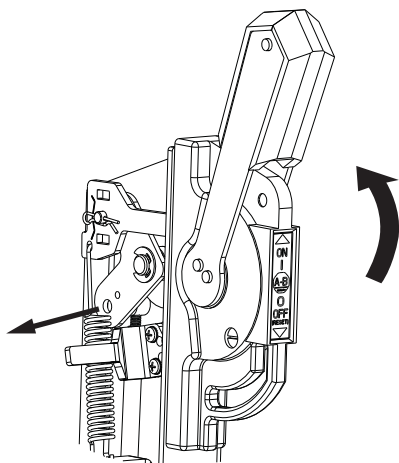
5 (a) **ADJUSTMENT PROCEDURE IF SWITCH DOES NOT FULLY CLOSE**
Unscrew cable pivot ONE full turn counter-clockwise to extend cable.



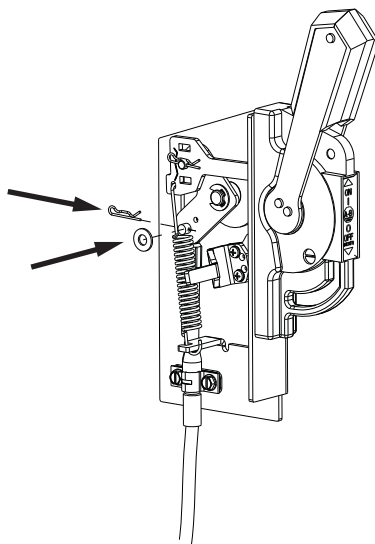
5 (b) **ADJUSTMENT PROCEDURE IF SWITCH DOES NOT FULLY OPEN**
Turn cable pivot ONE full turn clockwise to shorten cable.



6 Return handle to "ON" position and insert cable pivot back into mechanism.



7 Re-install cable pivot washer and hitch pin.

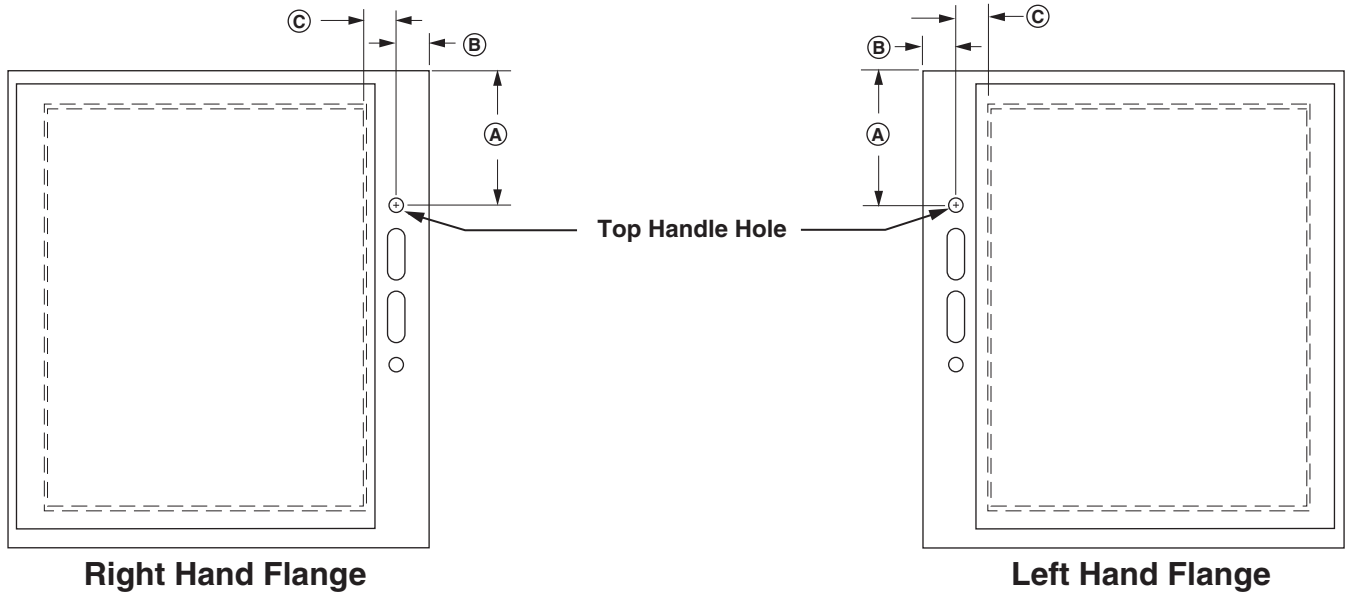


8 Confirm switch operates properly and repeat steps 5-7 if necessary.

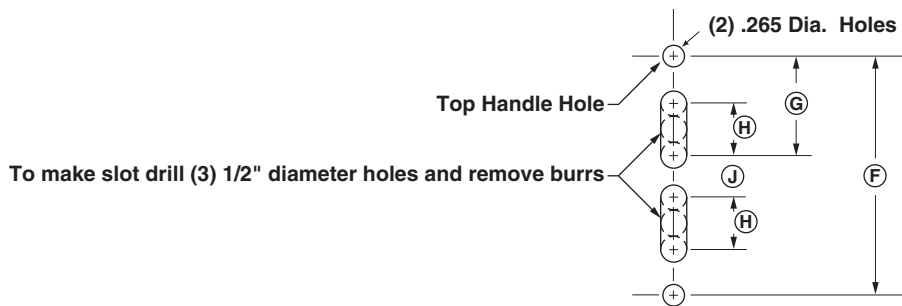
Enclosure without Handle Cutout

- Some Enclosures with hinged flange panels may require additional flange support brackets to stiffen panel. Consult your local enclosure manufacturer.

1 Locate Handle



2 Drill Handle Holes



Enclosure Dimensions

NEMA SIZE	A (min)	B (min)	C (max)	F	G	H	J
30A, 60A	4 - 5/8"	1 - 1/4"	1 - 3/32"	4 - 11/16"	1 - 9/16"	1"	7/8"
100A	6 - 1/16"						

Door Catch Bracket Installation

Right hand installation shown (for left hand installation follow similar procedures)

Door Catch Mounting Bracket:

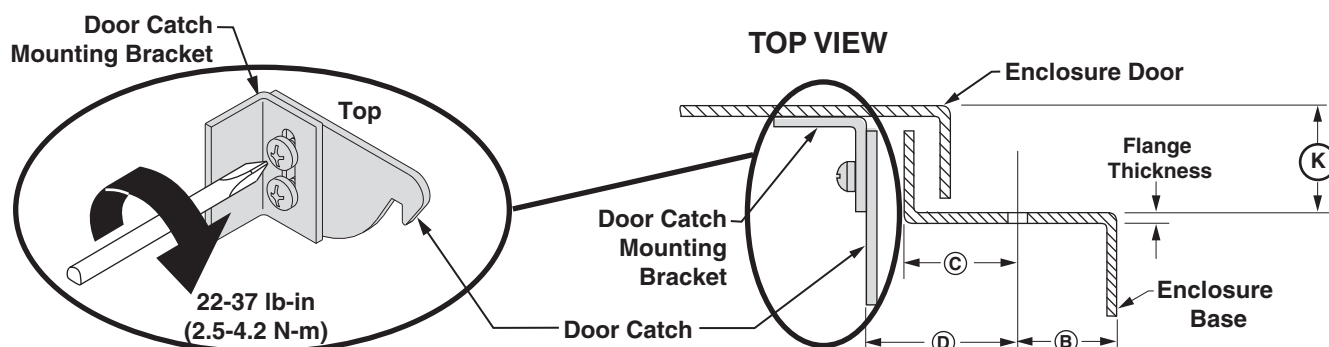
- Provided with projections for welding.
- Projections can also be used as a guide for drilling holes.
- Can be used as a template to drill corresponding holes in the enclosure door.
- User to supply the hardware for fastening the bracket.
- The bracket hardware must be inaccessible to unauthorized personnel.
- Fasteners must provide the degree of ingress protection for the environmental rating of the enclosure.

Dimension \textcircled{K} (3/4" to 1")

- When using small disconnect handle kit only (1494U-HP1, -HM1 or -HS1), use door catch provided with handle kit.
- When using small disconnect handle kit and small door hardware kits (1494V-L1, -LL1, -L2 or -LL2), use door catch provided with door hardware kit.

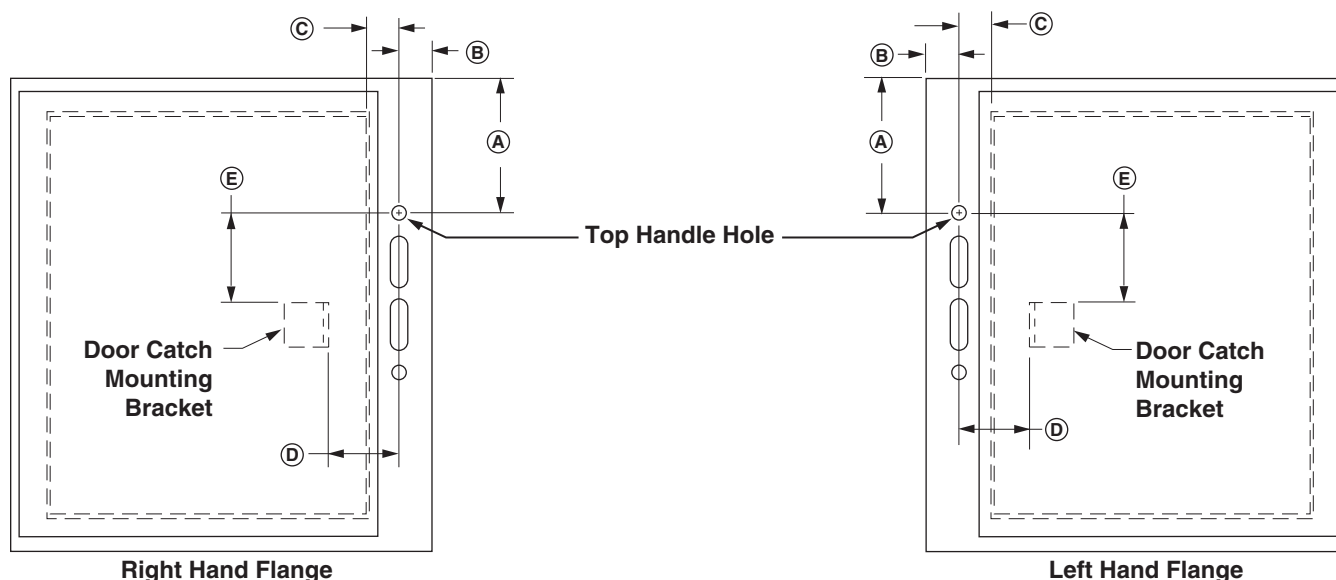
Dimension \textcircled{K} (1-1/8" to 1-3/8")

- When using small disconnect handle kit only (1494U-HP1, -HM1 or -HS1), use door catch (40492-080-02) which can be ordered from factory.
- When using small disconnect handle kit and large door hardware kits (1494V-L3 or -LL3), use door catch provided with door hardware kit.



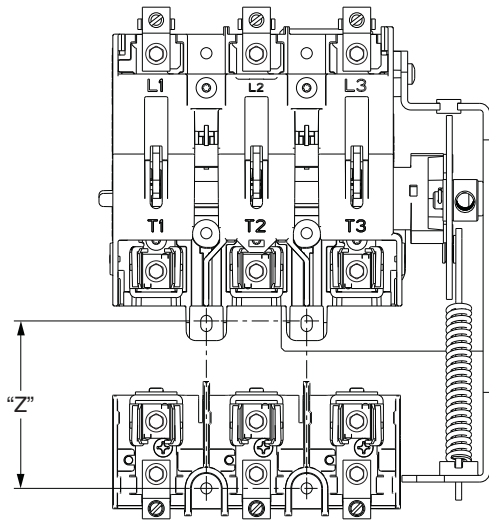
Enclosure Dimensions

NEMA SIZE	A (min)	B (min)	C (max)	D	E
30A, 60A	4 - 5/8"	1 - 1/4"	1 - 3/32"	1 - 5/8"	2 - 3/8"
100A	6 - 1/16"				



Trailer Fuse Block and Phase Barrier Installation

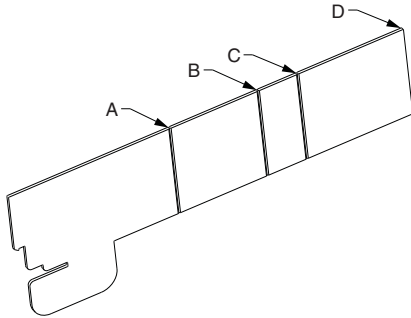
1 Trailer Fuse Block Location



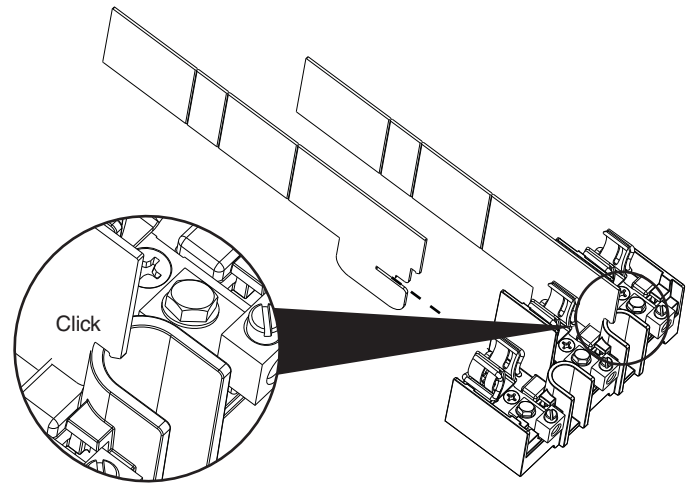
Fuse			DIM "Z" (in)	Phase Barrier
Amps	Volts	Class		
30	250	H/R	1.791	**
30	600	H/R	4.585	B
30	600	J	1.791	**
30	600	HRCII-C	3.024	A
60	250	H/R	2.622	A
60	600	H/R	5.122	B
60	600	J	1.976	**
60	600	HRCII-C	3.024	A
100	250	H/R	5.636	C
100	600	H/R	7.636	D
100	600	J	4.449	B
100	600	HRCII-C	4.402	B

**Phase barrier not required.

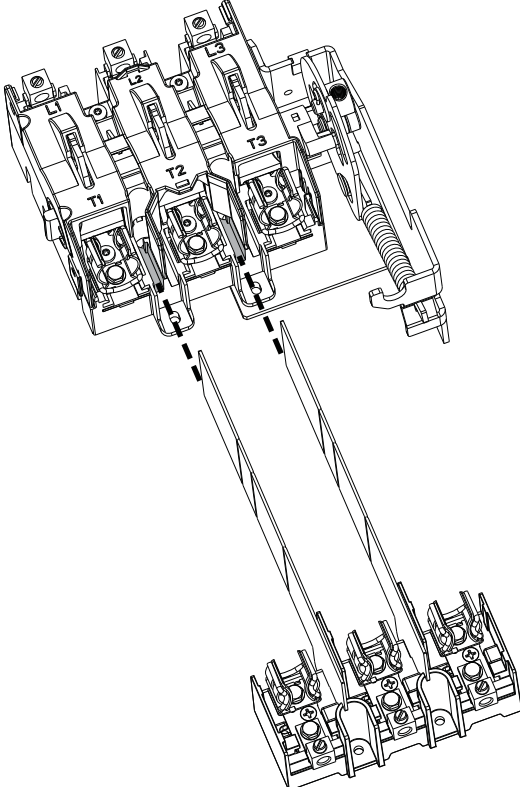
2 Snap phase barrier off to desired length as shown in table above.



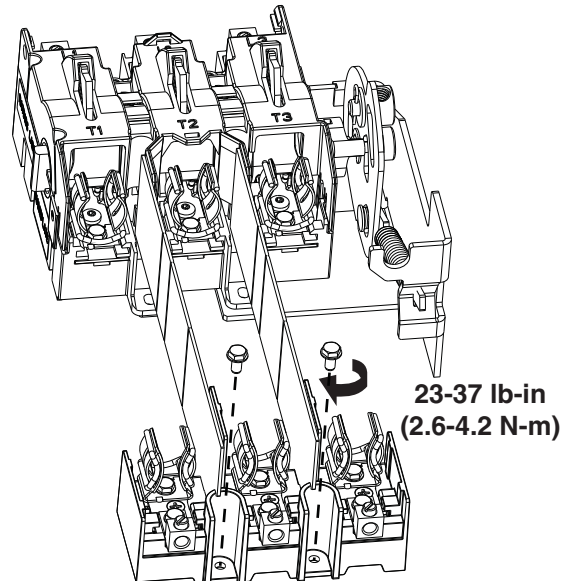
3 Slide phase barriers into fuse block and click in place.



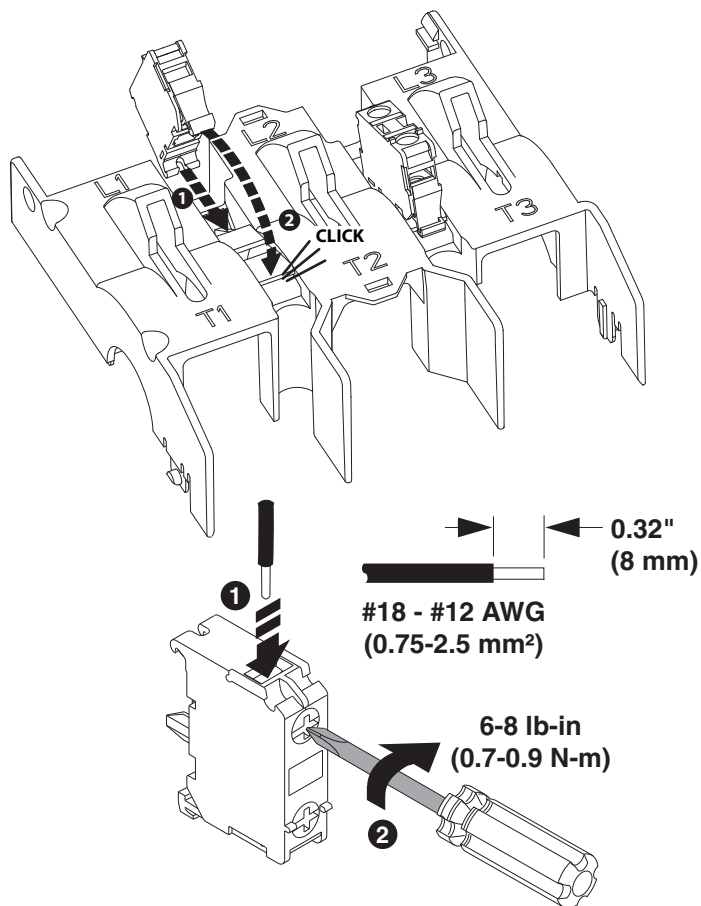
4 Slide phase barriers into left channels on switch.



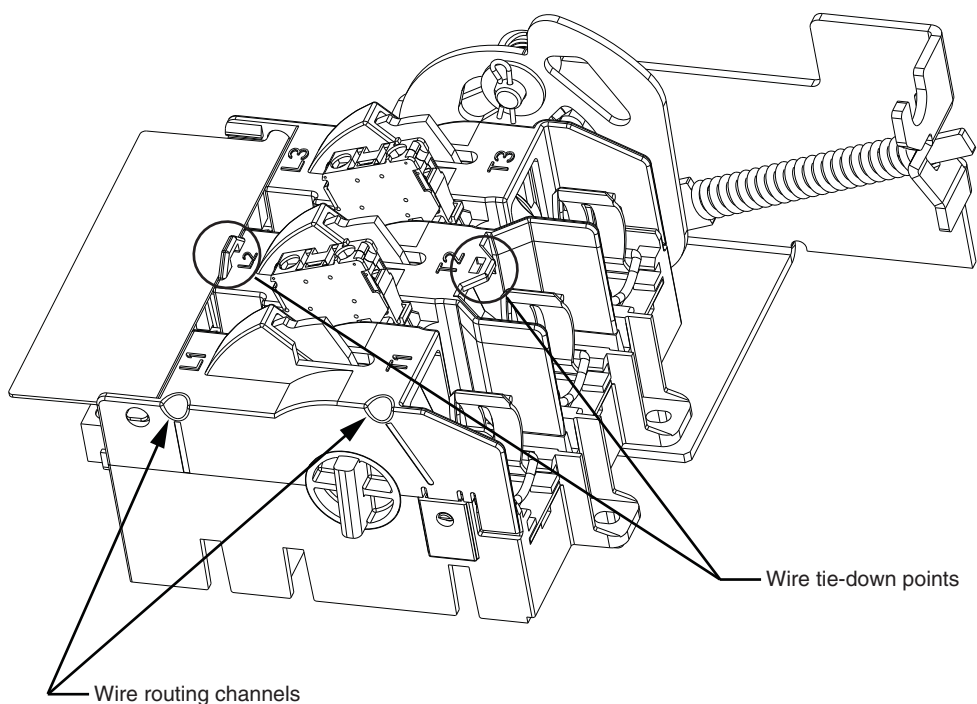
5 Fasten fuse block to panel.



Auxiliary Contact Installation



Auxiliary Contact Wire Routing



Lug Connectors

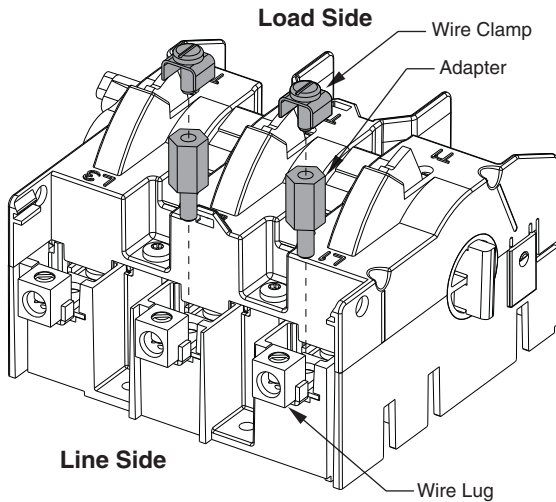
Switch Rating (A)	Lug Kit	Lug Description	Wire Range	Lug Material	Wire Material	Lug to Terminal Torque
30...60	1494U-LA36	Single Port	(1) 14 AWG ... 2 AWG (Cu) (1) 12 AWG ... 2 AWG (Al) (2) 14 AWG ... 10 AWG (Cu) (2) 12 AWG ... 10 AWG (Al)	Al	Cu or Al	40-60 lb-in (4.5-6.8 N-m)
100	1494U-LA100		(1) 14 AWG ... 1/0 AWG (Cu) (1) 12 AWG ... 1/0 AWG (Al) (2) 12 AWG ... 4 AWG (Cu-Al)			
30...100	1494U-LM31	Multi-port	(1) 14 AWG ... 4 AWG (Cu) (1) 12 AWG ... 4 AWG (Al) (2*) 10 AWG (Cu - Al)	Cu	Cu Only	
30...60	1494U-LC36	Single Port	(1) 14 AWG ... 4 AWG (Cu) (2*) 14 AWG ... 8 AWG (Cu) (4) 16 AWG (Cu)			
100	1494U-LC100		(1) 8 AWG...1/0 AWG (Cu)			

*Wire pairs must be same size and material.

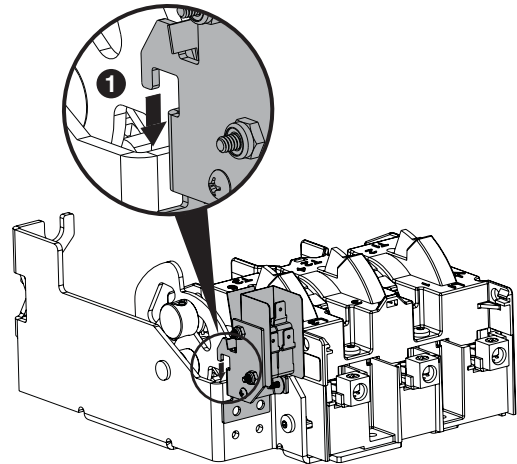
Wire Torque

Lug	1494U-LA36	1494U-LA100	1494U-LM31	1494U-LC36	1494U-LC100
Wire Gauge (AWG)	Torque (in-lbs)				
1/0...2	-	50	-	-	120
4...6	45		35	45	
8			25		
10...14			20		

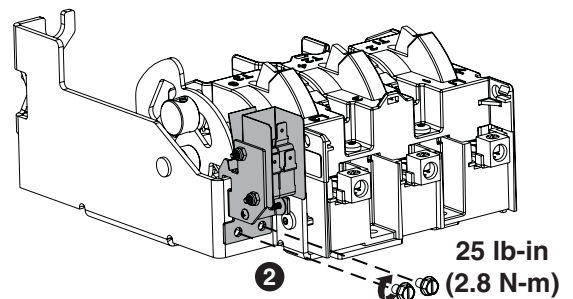
Line Terminal Adapter Installation



Electrical Interlock Installation

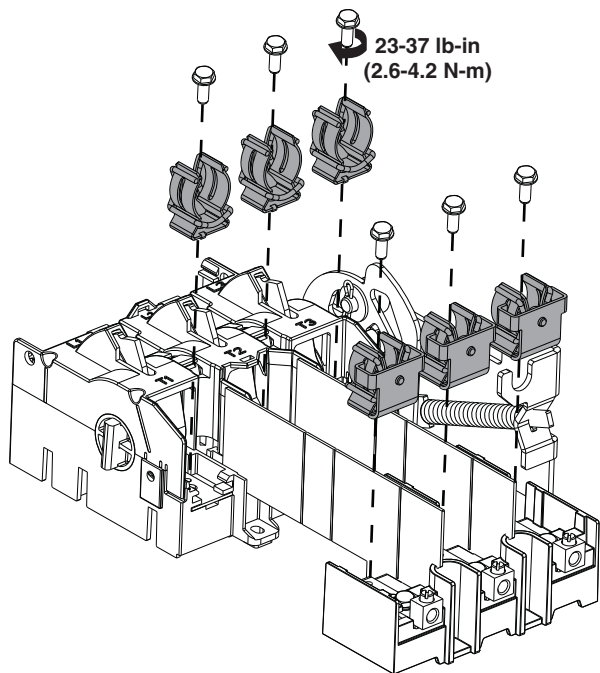


Lug Adapter Kit				
Catalog Number	Disconnect Switch Rating (Size)	Adapter Torque	Wire Clamp	
			Torque	Wire Range
1494U-ALT31	30A/60A/100A	50 lb-in (5.6 N-m)	25 lb-in (2.8 N-m)	(1) 14-10 STR/SOL (1) 8 STR (2) 14 SOL/SOL (2) 14 STR/STR (2) 12 SOL/SOL (2) 12 STR/STR (2) 10 SOL/SOL (2) 10 STR/STR (2) 8 STR/STR

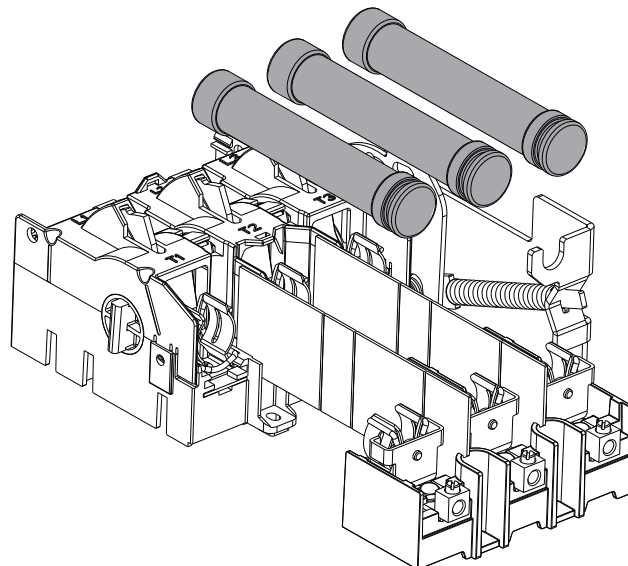


Fuse Clip and Fuse Installation

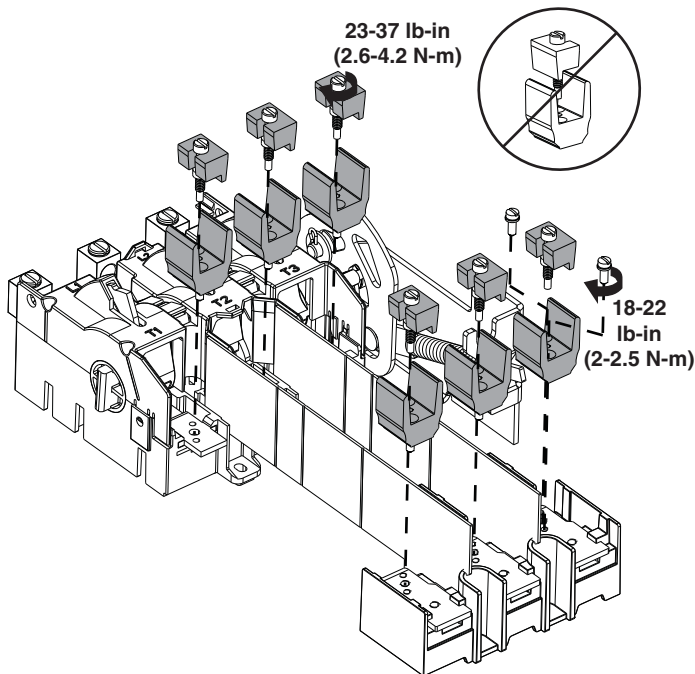
30A/60A Fuse Clip Installation



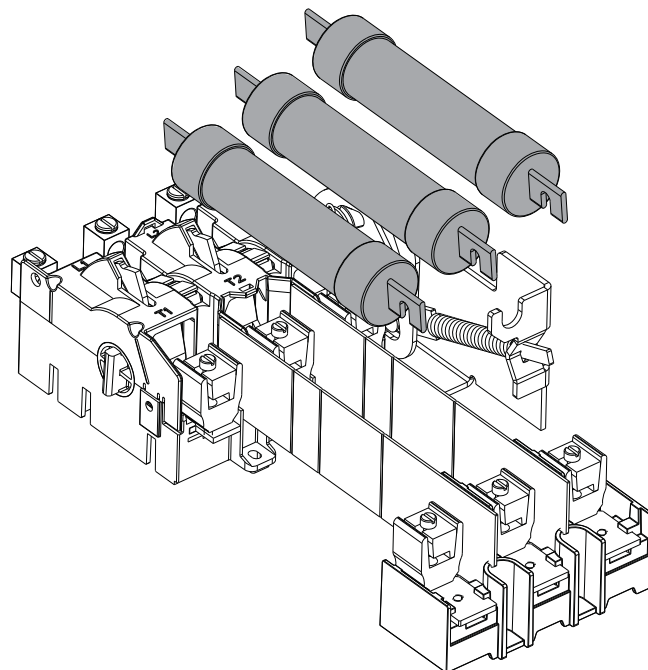
30A/60A Fuse Installation



100A Fuse Clip Installation

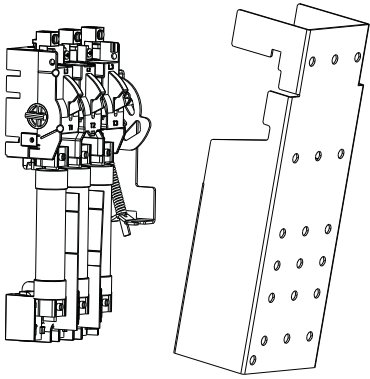


100A Fuse Installation

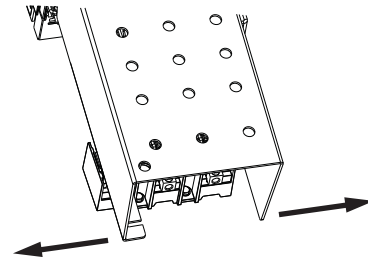


Protective Cover Installation

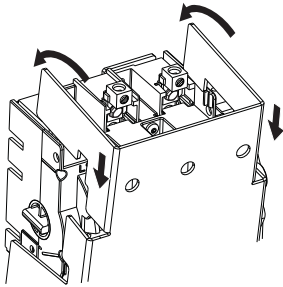
- 1** Position cover in front of switch as shown. Remove line side shield.



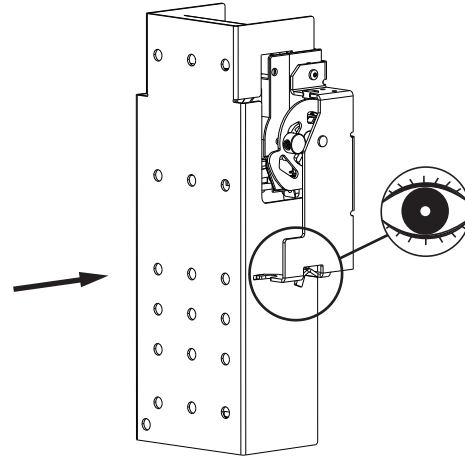
- 2** Spread sides apart at bottom to fit around fuse block.



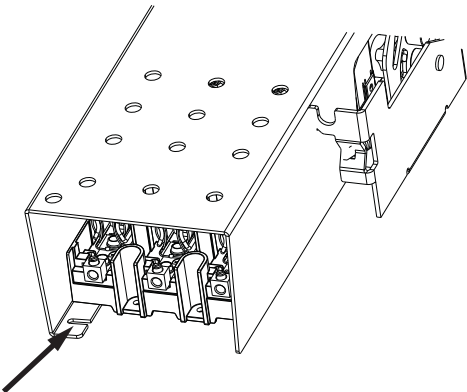
- 3** Rotate cover up and slide top sides into tracks shown on switch. Push in until fully inserted and pull cover down slightly to ensure engagement.



- 4** Press center of cover tight to mounting plate to engage notch in right side of cover with switch bracket.

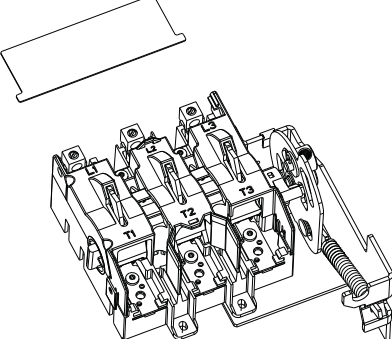
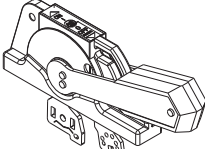
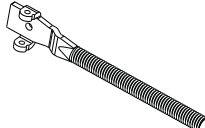
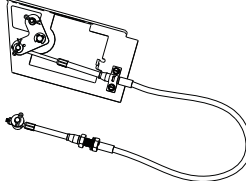
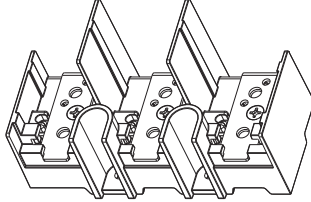
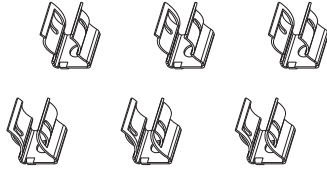


- 5** Ensure flange on left side of cover has snapped under fuse block.

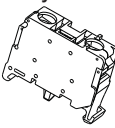
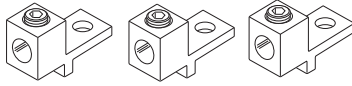
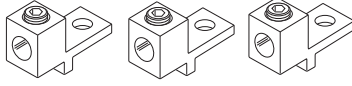
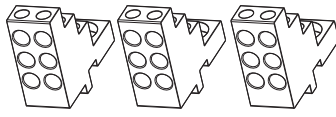
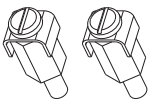
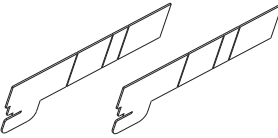
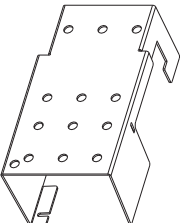


- 6** Optional: Install high-vibration application screw in bottom slot.

Bulletin 1494U Disconnect Switch Component Accessory List

Component	Cat No.
<p>Disconnect Switch and Mechanism</p>  <p>(1494U-D30 shown)</p>	<p>Switch and Mechanism 1494U-D30 (30A) 1494U-D60 (60A) 1494U-D100 (100A)</p> <p>Includes: Line Side Lugs Line Side Shield (Field Installed) Load Side Lugs (Field Installed) 1494U-AL36 (30A/60A) (Pkg Qty 3) 1494U-AL100 (100A) (Pkg Qty 3)</p>
<p>Handle</p>  <p>(1494U-HM1 shown)</p>	<p>1494U-HM1 (5-1/2" Painted Metal) (30A - 200A) 1494U-HP1 (5-1/2" Molded Plastic) (30A - 200A) 1494U-HS1 (5-1/2" Stainless Steel) (30A - 200A)</p>
<p>Connecting Rod</p> 	<p>1494U-R1 (30A-100A) Enclosure Working Depth: 6-1/2" to 19"</p>
<p>Cable-Operated Handle Mechanism</p> 	<p>Cable Handle Mechanism: 1494U-C313 (3 ft. Cable) 1494U-C314 (4 ft. Cable) 1494U-C315 (5 ft. Cable) 1494U-C316 (6 ft. Cable)</p>
<p>Fuse Block</p>  <p>(1494U-F30 shown)</p>	<p>1494U-F30 (30A) 1494U-F60 (60A) 1494U-F100 (100A)</p> <p>Includes: Phase Barriers 1494U-PB31 (Field Installed) (Pkg Qty 2)</p>
<p>Fuse Clip Kits</p>  <p>(1494U-FC30J shown)</p>	<p>Fuse Clip Kits (Pkg Qty 6): 1494U-FC302J (30A 250V Class J) 1494U-FC302R (30A 250V Class R) 1494U-FC30J (30A 600V Class J) 1494U-FC60J (60A 600V Class J) 1494U-FC100J (100A 600V Class J) 1494U-FC30R (30A 600V Class R) 1494U-FC60R (60A 600V Class R) 1494U-FC100R (100A 600V Class R)</p>

Bulletin 1494U Disconnect Switch Component Accessory List (Cont'd)

Component	Cat No.					
Auxillary Contacts 	1494U-NO (1 N.O.) 1494U-NC (1 N.C.) 1494U-NOLV (1 N.O. Low Level) 1494U-NCLV (1 N.C. Low Level)					
Aluminum Lugs  (1494U-LA100 shown)	1494U-LA36 (30A - 60A) 1494U-LA100 (100A) (Pkg Qty 3)					
Copper Lugs  (1494U-LC100 shown)	1494U-LC36 (30A - 60A) 1494U-LC100 (100A) (Pkg Qty 3)					
Multiport Lugs 	1494U-LM31 (30A - 100A) (Pkg Qty 3)					
Line Terminal Adapters 	1494U-ALT31 (Pkg Qty 2)					
Phase Barriers 	1494U-PB31 (Pkg Qty 2)					
Fuse Cover 	Switch Rating	Fuse Class	Fuse Clip Rating		Fuse Clip Cat No.	Fuse Cover Cat No.
	30/60/100A	Non-Fusible	250V	600V	----	1494U-PC1
	30A	H,J	30A	----	1494U-FC302J	
	30A	R	30A	----	1494U-FC302R	
	30A	H,J	----	30A	1494U-FC30J	
	60A	H,J	----	60A	1494U-FC60J	1494U-PC2
	100A	H,J	----	100A	1494U-FC100J	
	30A	R	----	30A	1494U-FC30R	
	60A	R	----	60A	1494U-FC60R	
	100A	R	----	100A	1494U-FC100R	

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PN-335193

DIR 10001182729 (Version 07)

Publication 1494U-IN001H-EN-P - October 2016

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