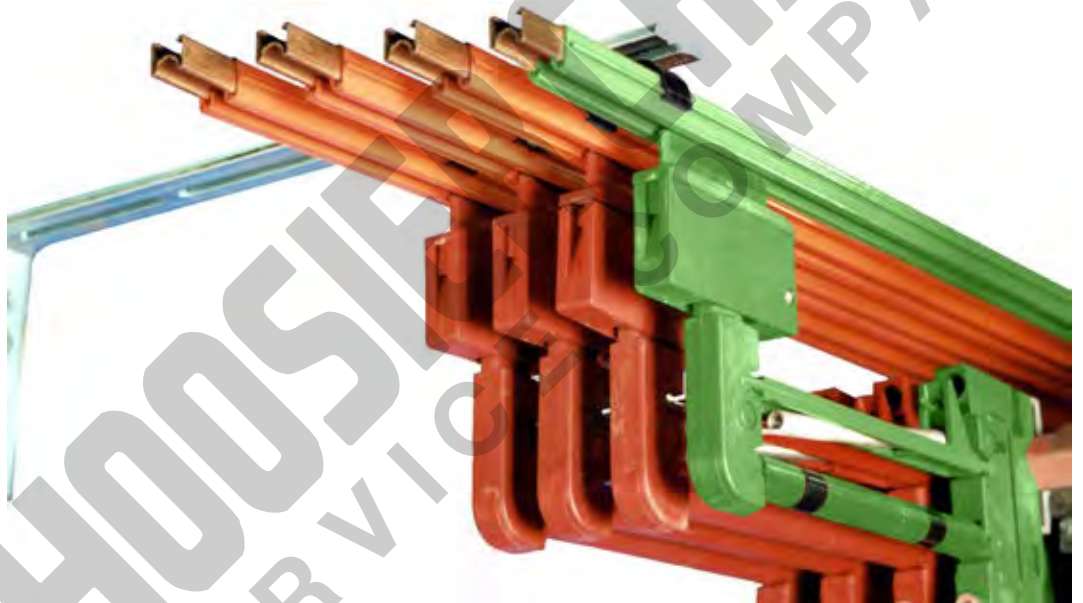


Conductor Bar Manual

Safe-Lec 2 “V” Contact Bar



CONDUCTIX INCORPORATED

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HOOSIER CRANE
SERVICE COMPANY

SECTION 1 - SAFETY

Safety Information Responsibility

All owner, operator, and maintenance personnel must read and understand all manuals associated with this product before installation, operation, or maintenance.

The manual provides information on the recommended installation, operation, and maintenance of this product. Failure to read and follow the information provided could cause harm to yourself or others and/or cause product damage. No one should install, operate, or attempt maintenance of this product prior to familiarizing themselves with the information in this manual.

Safety Messages

The following safety messages are used in this manual to alert you to specific and important safety related information.

CAUTION

- CAUTION indicates unsafe actions or situations that have the potential to cause injury, and/or minor equipment or property damage.

DANGER

- DANGER indicates hazards that have the potential to cause severe personal injury or death.

WARNING

- WARNING indicates unsafe actions or situations that have the potential to cause severe injury, death, and/or major equipment or property damage.














NOTE

- NOTE is used to alert you to installation, operation, programming, or maintenance information that is important, but not hazard related.



SECTION 2 - OVERVIEW

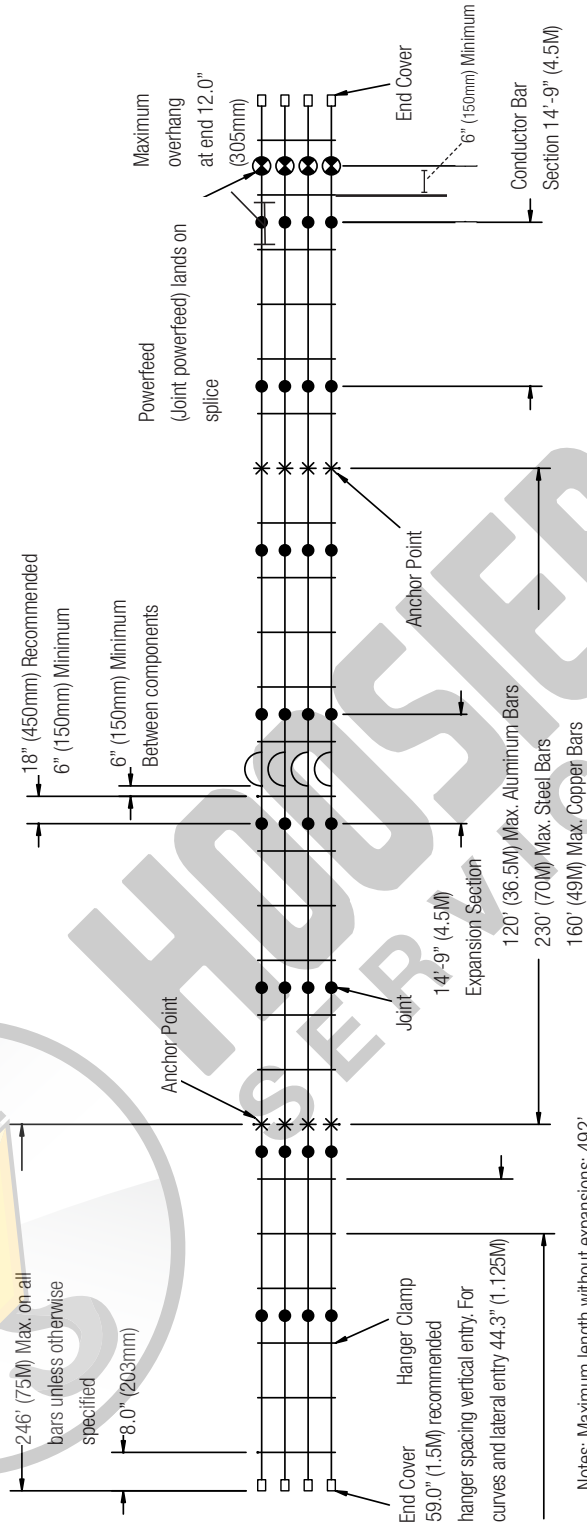
Conductor System Nomenclature

	Single Conductor		Hanger Clamp
	Joint Position		Anchor Position
	Expansion Section		Powerfeed
	Transfer Cap		Pickup Guide
	End Cap		Isolation Section Isolation = Air Gap
	Isolation Section Isolation = Insulating Material		Collector
			Power Interrupt



SECTION 2 - OVERVIEW

Typical 3-Phase System Overview



NOTE

- Dimensions are in inches (mm).
- Maximum Recommended Hanger Spacing:
 - » 1.5 Meters (59.0") on straight runways
 - » 1.125 Meters (44.3") on all Lateral Mount Systems and Curved Systems (curved section only)

ATTENTION

- Curved bar to be factory bent only.

SECTION 2 - OVERVIEW

Environmental Considerations

- Standard Cover (PVC) is suitable up to 160F.
- Medium Heat Cover (Polycarbonate) is suitable up to 250F.

The following acidic or corrosive environments require the use of stainless steel hangers:

- Hydrochloric Acid
- Hydrofluoric Acid
- Sodium Hydrochloride
- Ammonium Chloride
- Chlorine Bleach
- Chloride Ions
- Fluoride Ions



WARNING

- Do not use standard (black) or medium heat (red) hangers in these environments.



SECTION 2 - OVERVIEW

Installation Tools

- Man lift or platform lift for access to the installation location (if Needed)
- Sharp knife - to cut powerfeed grommets
- Straight blade screwdriver - for securing feed cable to collectors and replacing collector shoes
- Steel rule or tape measure - to position collectors during installation
- Wire/cable stripper
- Cable lug crimping tool (see section 14)
- Cordless drill with socket adapter (1/4" or 3/8" drive)
- Deep sockets for cordless drill
 - » 8mm - for anchor cross bolts
 - » 10mm - for splices, isolation sections, and powerfeeds
 - » 13mm - for mounting hangers, collectors, anchors and transfer caps.
- Torque wrench for sockets listed above
- Open/box end wrenches (use ratcheting box-end wrenches if you have them)
 - » 8mm
 - » 10mm
 - » 13mm
- Hacksaw
- Flat file and/or rat tail file to remove burrs on field cut conductors
- Pliers



SECTION 2 - GENERAL ASSEMBLY INSTRUCTIONS



WARNING

- Always lock out/tag out all electrical power before starting work.

Installation Overview

This manual provides detailed instructions in the general order of system installation.

System installation consists of 5 phases:

1. Identifying and organizing the materials
2. Installation of brackets along the runway
3. Pre-install assemblies on the ground
4. Installation of hangers and conductors and final assembly along the runway
5. Installation and alignment of collectors on the crane

Identifying and Organizing the Materials

Check the pack list against the items received. Parts are labeled for your convenience. Review your specific installation layout drawing (if provided) or the typical layout diagram seen previously in this manual to become familiar with component location on the system. Note where the anchors, expansions, powerfeeds, and other assemblies will be located along the runway. Read through these instructions before starting work.

NOTE

- Make sure to check for smaller components that may be located inside the false bottom of the package.

Install Brackets

Install brackets per the diagram included at the start of this manual. Keep them as level and evenly spaced as possible. You may install the hangers on the brackets before or after they are mounted along the runway.

Assemble as much as possible on the ground. It's faster, easier, safer, and more convenient should you drop something.

Conductor Bar and Expansion Sections will come from the factory with one splice pre-installed.

1. Install end caps on the end conductors, keeping these separated from the main runway conductors.
2. Install isolation splices (if included) on the ends of the conductors in accordance with the installation layout drawing and the instructions (see Table of Contents).
3. Install transfer caps on the conductor ends (if included).

Final Installation Along the Runway

The installation will most likely be accomplished from a lift or work platform.

1. Ensure the power is locked out/tagged out.
2. Install the hangers per instructions (see Table of Contents).
3. Roll adjacent conductors in the hangers as shown in Section 4. Conductix-Wampfler recommends the first accessible conductor being the ground conductor.
4. Move down the runway, install the next inboard conductor and join it to the corresponding conductor installed in step 3. Install the splice cover. Keep the splice assemblies 6-12" from the hanger brackets to allow for conductor movement from expansion. Repeat for the remaining phases and ground conductors.
5. When you get to where the expansion assemblies are to be installed, refer to those instructions (see Table of Contents). Be sure to divide the total expansion gap distance (from chart) between the two air gap locations in the expansion assembly.
6. Proceed with system installation, ensuring anchors are positioned the correct distance from the expansions and that they are tightened to the correct torque.
7. If a conductor must be cut to a specific length, ensure that the cut end is properly de-burred. The conductor cover is always shorter than the bar length, the proper cover length is 66mm (2.60") shorter than bar length. (33mm / 1.30" on each end).
8. When you run the feed cable to the powerfeed assembly, ensure the cables have sufficient free length and are flexible enough to enable movement of the conductor due to expansion. Locating the powerfeed as close as possible to the anchors minimizes this concern. Do not support the weight of the feed cables with the conductors.
9. Install powerfeeds on conductor bars per layout and the instructions (see Table of Contents).

SECTION 2 - GENERAL INSTALLATION INSTRUCTIONS

Collector Positioning

Collectors must be properly positioned and aligned to ensure safe, reliable operation.

- The collector mounting post must be 127mm (5.0") for 200 Amp. collectors, 102mm (4.0") for 100 Amp. DI collectors and 90mm (3.5") for 50 Amp. SI collectors, below the contact surface of the conductor and the arms level from end to end.
- Slide the collectors on the mounting staff. Ensure the mounting base of each collector is centered below the corresponding conductor. Ensure the collectors are evenly spaced. Tighten hardware to specifications and connect the supply cable to the collector per diagram (see Table of Contents).

NOTE

- Follow lockout/tagout procedures
- Keep accessories at least 6" from hanger brackets
- Follow all torque specifications
- Allow for movement of accessories due to expansion
- Connect only flexible power cables to powerfeed assemblies
- Keep collectors straight, level and aligned with conductors



SECTION 3 - SUPPORT BRACKETS

Support Bracket Installation

1. Locate and secure support brackets at the recommended spacing. See **Figure 13-1**.

NOTE

- Locate support brackets at a spacing that is divisible into the conductor bar lengths. This will always ensure that the joint positions do not interfere with the support brackets.

2. Observe all alignment tolerances. See **Figure 13-1**.

- » Datum height
- » Maximum allowable deviation from datum height + 5.0mm (+3/16").

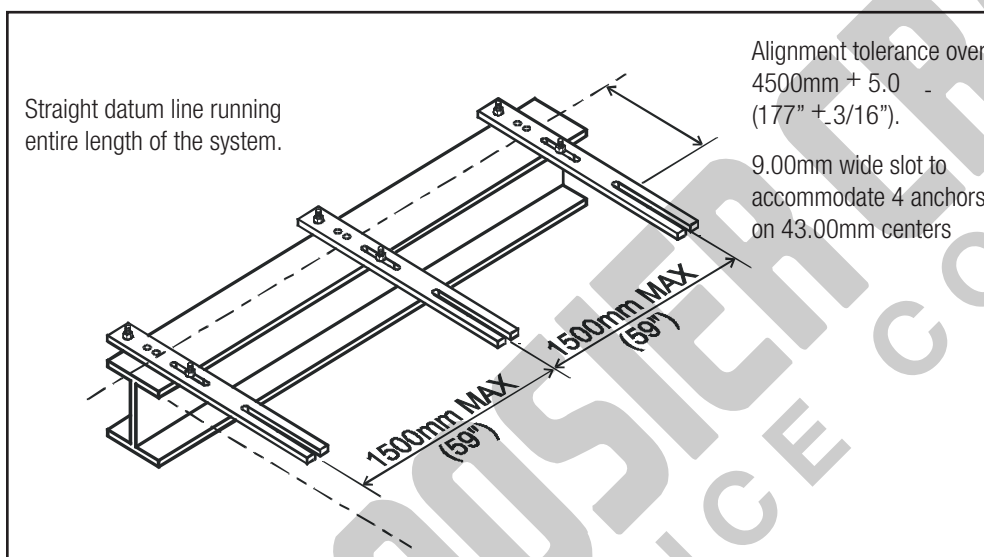


Figure 13-1

Conductix-Wampfler Brackets

Hanger support brackets come complete with all necessary mounting holes for easy installation of hangers via slide in slots or holes.



SECTION 4 - CONDUCTOR HANGERS

Four Bar Conductor Hanger Mounting

NOTE

- For Indoor and Limited Outdoor use, PN XA-310821.
- For Lateral Mount - Consult Factory

Tools Needed

- 13mm A/F wrench

Mounting Instructions

1. Remove nut, lock washer, and washer from hanger assembly (the M8 bolt will stay in place inside the molding).
2. Assemble as shown in the diagram ensuring the correct alignment is observed. See **Figure 14-1**.
3. Finger tighten M8 nut.
4. Snap conductor bars into hangers.
5. Tighten M8 nut to Conductix-Wampfler recommended torque of 8 Nm (5-6 ft-lbs.)

NOTE

- This hanger may be used outside when the bar system is covered and protected from the elements. If the bar system will be exposed to rain, snow, ice, fog etc., then a single pole insulated hanger must be used.

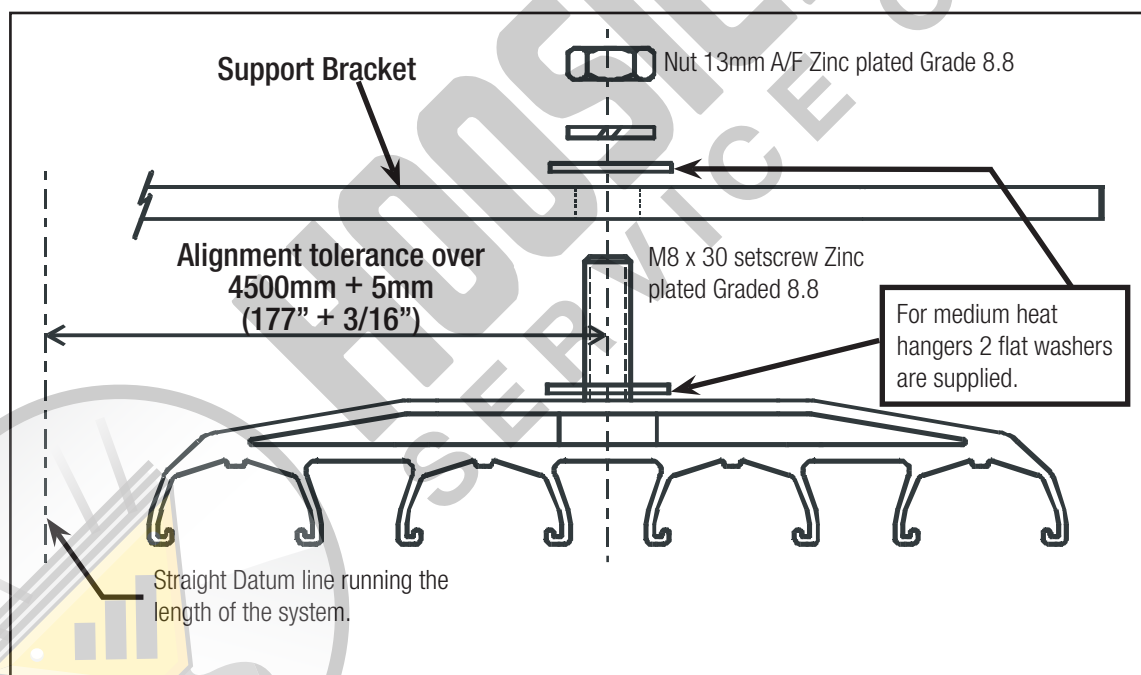


Figure 14-1

SECTION 4 - CONDUCTOR HANGERS

Installing Conductors Into Hanger

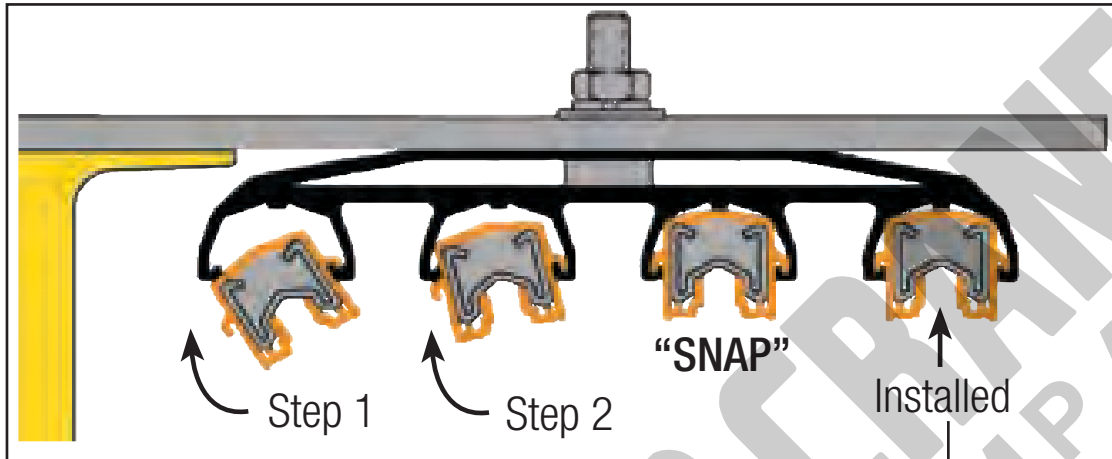


Figure 15-1



SECTION 5 - ANCHOR HANGER SUPPORT ASSEMBLY

NOTE

- For ease of access to clamping screws, install anchor hanger assemblies as shown below.

Tools Needed

- 13mm A/F open ended wrench.
- 8mm A/F open ended wrench.

Anchor Hanger Support Installation

1. Assemble anchor over cover so it is free to slide.
2. Insert anchor hanger into support bracket.
3. Tighten M5 Bolts until anchor stops meet (check anchor is tight on cover).
4. Tighten M8 Bolt to a torque of 8 Nm (5-6 ft. lbs.).

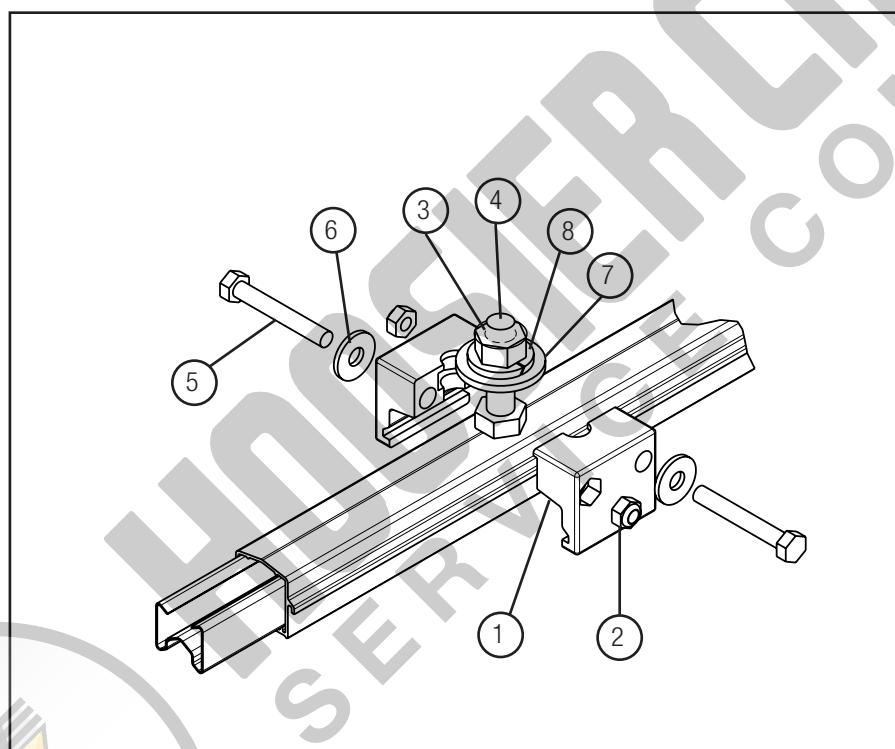


Figure 16-1

1. Clamp Anchor Half	5. M5 Screw
2. M5 Nut	6. M5 Flat Washer
3. M8 Nut	7. M8 Flat Washer
4. M8 Screw	8. M8 Lock Washer

SECTION 6 - BOLTED STEEL/COPPER JOINT ASSEMBLY

Tools Needed

- 10mm A/F open ended wrench

Bolted Steel/Copper Joint Installation

1. Fit bolt into joint plate (ensure tab captivates the head on the setscrew).
2. Slide bolt and joint plate into conductor bar ends.
3. Place joint over bolt, making sure alignment mark is in line with end faces of conductor bar.
4. Fit washer and nut onto bolt in the order shown.
5. Tighten nut to recommended torque of 8 Nm (5-6 ft-lbs).
6. Check that both faces of the conductor bar are touching each other and there is no gap exceeding 0.5mm (0.02") at the faces.

NOTE

- If the conductor was field cut, file off all burrs on conductor ends before assembling splices.

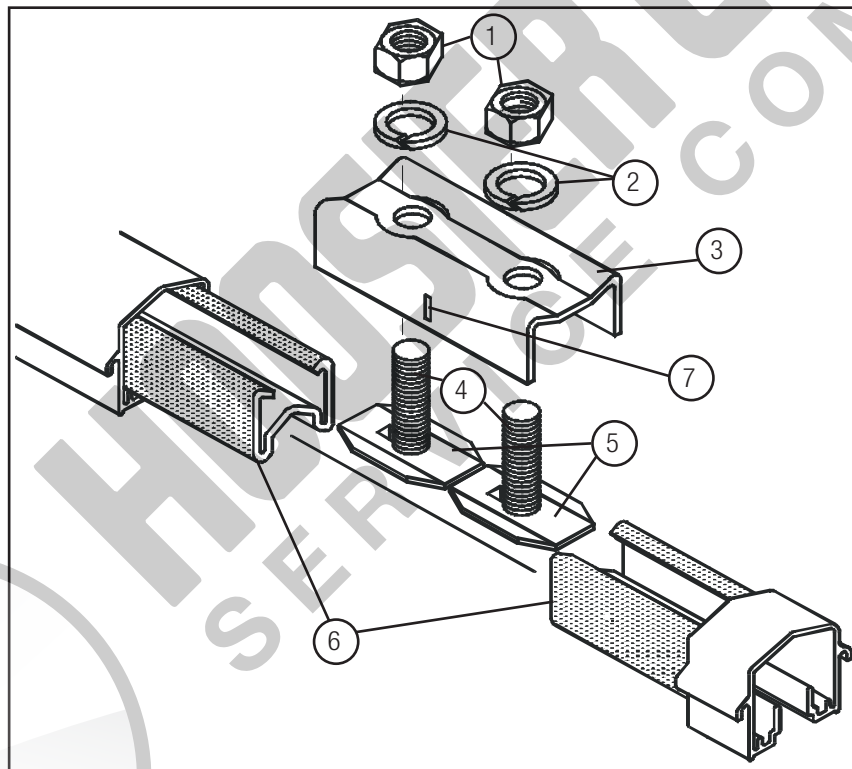


Figure 17-1

- | | |
|-----------|-------------------|
| 1. Nut | 5. Joint Plate |
| 2. Washer | 6. Conductor Bar |
| 3. Joint | 7. Alignment Mark |
| 4. Bolt | |

SECTION 7 - BOLTED ALUMINIUM JOINT ASSEMBLY

Tools Needed

- 10mm A/F open ended wrench
- Electrical Joint Compound (PN XA-15629)

Bolted Aluminium Joint Installation

1. Apply electrical joint compound to all mating surfaces.
2. Slide bolt into conductor bar ends.
3. Place joint plate over bolts.
4. Fit washer and nut as shown.
5. Tighten nut to recommended torque of 8 Nm (5-6 ft-lbs).
6. Check that both faces of conductor bar are touching each other and that there is no gap exceeding 0.5mm (0.02") at the faces.

NOTE

- If the conductor was field cut, file off all burrs on conductor ends before assembling splices. Exposed length of bar should be 33mm (1.3") per end.

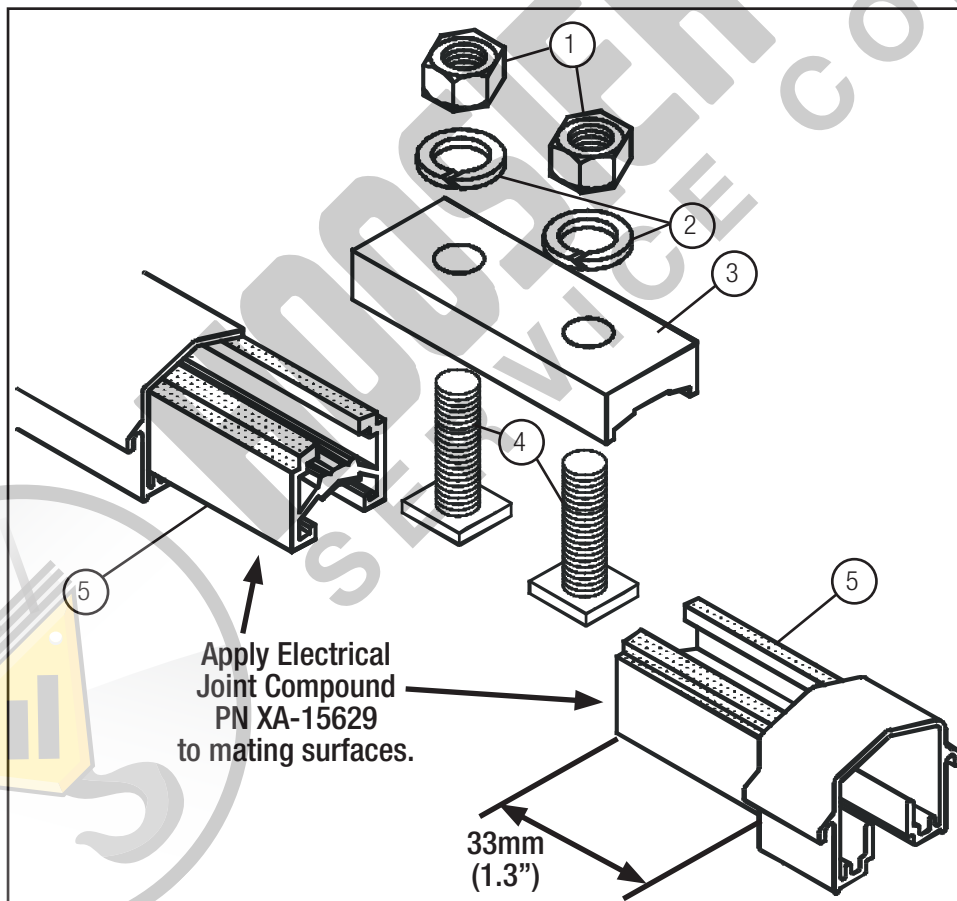


Figure 18-1

1. Nut
2. Washer
3. Joint Plate
4. Bolt
5. Conductor Bar

SECTION 8 - JOINT COVER ASSEMBLY

Install Joint Cover onto Bolted Joint Assemblies

1. Spring legs out in the directions "A-A" as shown (this is to ease the fitting of the joint cover over the conductor bar).
2. Fit the joint cover over the bolted joint. Joint cover MUST NOT be opened up more than 45° on either side during the assembly over the joint. Ensure the "Location Section" sits between the two bolts.
3. Close the flaps in the direction "D". Ensure the flaps "click" home on both sides.

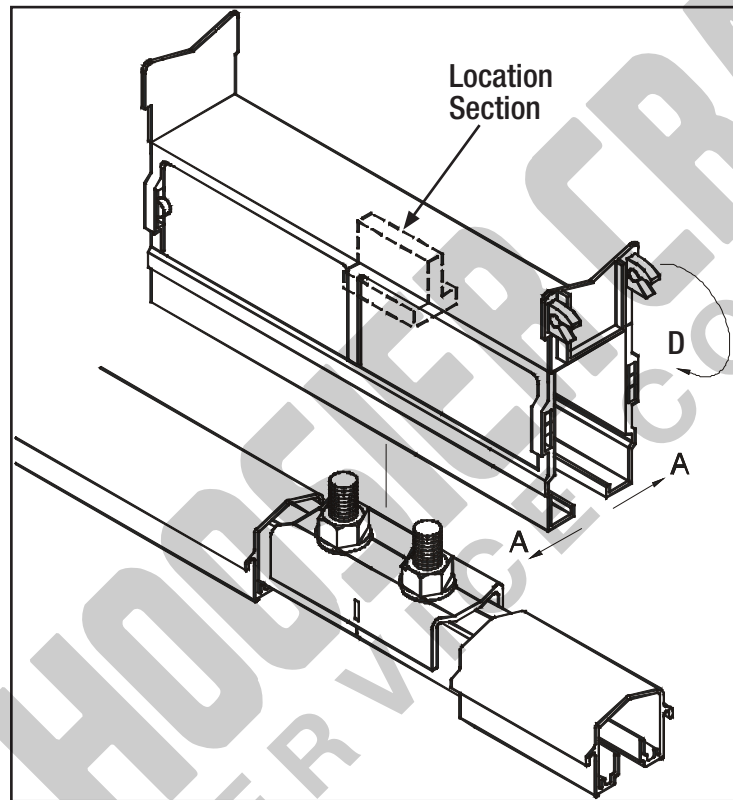
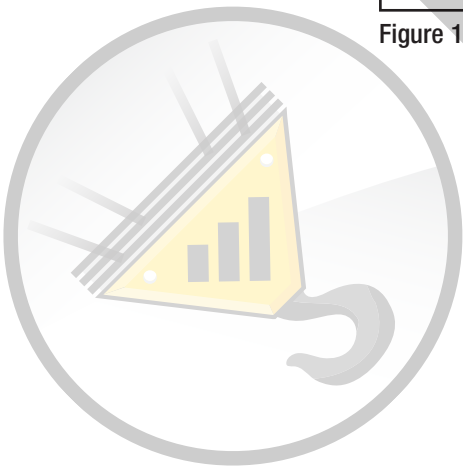


Figure 19-1



SECTION 9 - END CAP ONTO CONDUCTOR BAR ASSEMBLY

Galvanized Steel and Copper Conductor Bar Installation

Install end caps onto galvanized steel and copper conductor bars. See **Figure 20-1**.

Tools Needed

- 10mm A/F open ended wrench

Installation

1. Fit bolt into joint plate (ensure tab captivates the head on the set screw).
2. Place bolt and joint plate assembly into conductor bar.
3. Place end cover clamp, washer, and nut over bolt and joint plate assemblies (ensure end cover clamp is flush with conductor bar face).
4. Tighten nut to a recommended torque of 8 Nm (5-6 ft-lbs).
5. Push end cover over assembly (ensure bolt is located in point "A" on end cover).

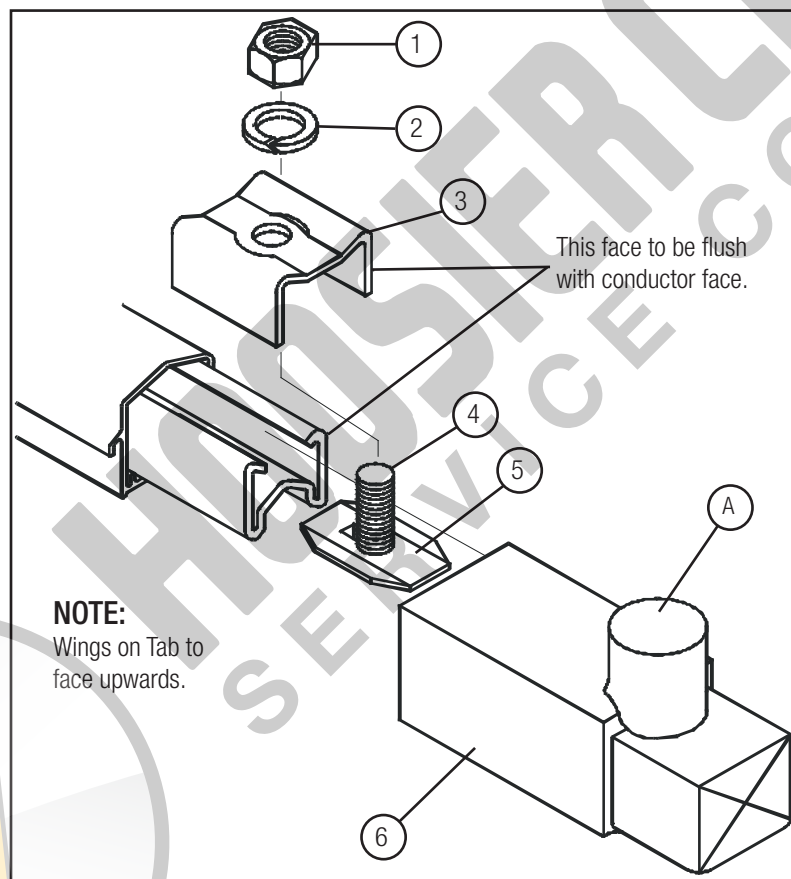


Figure 20-1

- | | |
|--------------------|----------------|
| 1. Nut | 4. Bolt |
| 2. Washer | 5. Joint Plate |
| 3. End Cover Clamp | 6. End Cover |

SECTION 9 - END CAP ONTO CONDUCTOR BAR ASSEMBLY

Aluminium/Stainless Steel Conductor Bar Installation

Install end caps onto aluminium/stainless steel conductor bars.

Tools Needed

- 10mm A/F open ended wrench

Installation

1. Mark conductor bar top surface 13mm (0.50") in from end face.
2. Fit bolt into conductor bar.
3. Ensure center line of setscrew bolt is on the center line marked on the conductor surface.
4. Place nut, lock washer, and flat washer on bolt in the order shown.
5. Tighten nut to a recommended torque of 8 Nm (5-6 ft-lbs).
6. Push end cover over assembly (ensure bolt is located in point "A" on end cover).

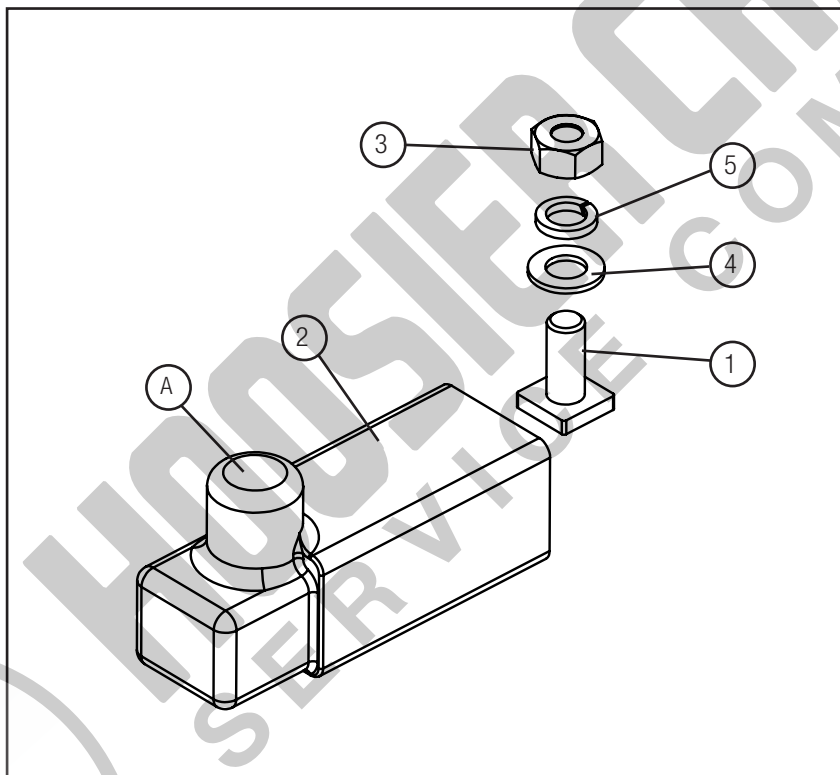


Figure 21-1

1. Bolt
2. End Cover
3. Nut
4. Flat Washer
5. Lock Washer

SECTION 10 - EXPANSION SECTION ASSEMBLY

Allowable Length and Distance

- The maximum allowable conductor system length without an Expansion Section is 150 meters (492') - Assuming a Maximum Temperature Range of 110°F
- The maximum distance between anchor points with an Expansion Section at mid-point is 70m (230') steel, 49m (160') copper, 36.5m (120') aluminum

Expansion Section Installation

- Set expansion air gaps when installing assembly to appropriate gap setting for ambient temperature (see **Table 22-1**). The gap is adjusted by sliding the moving lengths of conductor in or out of the expansion assembly (BOTH HALVES MUST BE SET EQUAL). Always allow sufficient time for the conductor bars to achieve ambient temperature before setting Expansion gap. All Expansion assemblies must be set at site, they are not pre-set before leaving the factory. Failure to set this part correctly could result in buckling of all conductors.
- Set anchor clamp and torque on one side, install up to next anchor clamp but DO NOT TIGHTEN. Go back and set expansion to correct gap setting per current ambient temperature. Once gap is set, go to second anchor clamp and tighten.



		ACTUAL SITE AMBIENT: °C (°F)																
		-25° (-13°)	-20° (-4°)	-15° (5°)	-10° (14°)	-5° (23°)	0° (32°)	5° (41°)	10° (50°)	15° (59°)	20° (68°)	25° (77°)	30° (86°)	35° (95°)	40° (104°)	45° (113°)	50° (122°)	55° (131°)
LOWEST POSSIBLE SITE AMBIENT °C (°F) [SEE NOTE]	25° (77°)											50 (1.97)	45 (1.77)	41 (1.61)	36 (1.42)	32 (1.26)	27 (1.06)	23 (0.91)
	20° (68°)										50 (1.97)	46 (1.81)	42 (1.65)	38 (1.50)	33 (1.30)	29 (1.14)	25 (0.98)	21 (0.83)
	15° (59°)									50 (1.97)	46 (1.81)	42 (1.65)	38 (1.50)	35 (1.38)	31 (1.22)	27 (1.06)	23 (0.91)	19 (0.75)
	10° (50°)								50 (1.97)	46 (1.81)	43 (1.69)	39 (1.54)	36 (1.42)	32 (1.26)	29 (1.14)	25 (0.98)	21 (0.83)	18 (0.71)
	5° (41°)							50 (1.97)	47 (1.85)	43 (1.69)	40 (1.57)	37 (1.46)	33 (1.30)	30 (1.18)	27 (1.06)	23 (0.91)	20 (0.79)	17 (0.67)
	0° (32°)						50 (1.97)	47 (1.85)	44 (1.73)	41 (1.61)	38 (1.50)	34 (1.34)	31 (1.22)	28 (1.10)	25 (0.98)	22 (0.87)	19 (0.75)	16 (0.63)
	-5° (23°)					50 (1.97)	47 (1.85)	44 (1.73)	41 (1.61)	38 (1.50)	35 (1.38)	32 (1.26)	29 (1.14)	26 (1.02)	24 (0.94)	21 (0.83)	18 (0.71)	15 (0.59)
	-10° (14°)			50 (1.97)	47 (1.85)	44 (1.73)	42 (1.65)	39 (1.54)	36 (1.42)	33 (1.30)	31 (1.22)	28 (1.10)	25 (0.98)	22 (0.87)	19 (0.75)	17 (0.67)	14 (0.55)	
	-15° (5°)		50 (1.97)	47 (1.85)	45 (1.77)	42 (1.65)	39 (1.54)	37 (1.46)	34 (1.34)	32 (1.26)	29 (1.14)	26 (1.02)	24 (0.94)	21 (0.83)	18 (0.71)	16 (0.63)	13 (0.51)	
	-20° (-4°)		50 (1.97)	48 (1.89)	45 (1.77)	43 (1.69)	40 (1.57)	38 (1.50)	35 (1.38)	33 (1.30)	30 (1.18)	28 (1.10)	25 (0.98)	23 (0.91)	20 (0.79)	18 (0.71)	15 (0.59)	13 (0.51)
	-25° (-13°)	50 (1.97)	48 (1.89)	45 (1.77)	43 (1.69)	40 (1.57)	38 (1.50)	36 (1.42)	33 (1.30)	31 (1.22)	29 (1.14)	26 (1.02)	24 (0.94)	21 (0.83)	19 (0.75)	17 (0.67)	14 (0.55)	12 (0.47)

Table 22-1 Expansion Air Gap Setting For Conductor Bars With PVC Cover

SECTION 11 - END POWERFEED ASSEMBLY

NOTE

- Installation is for 100 Amp Conductor Bar only.

Tools Needed

- 10mm A/F Wrench
- Suitable Sharp Knife
- Cable Stripper
- Cable Crimping Tool
- Suitable Cable Terminal (see list of recommended suppliers and references).

End Powerfeed Installation

1. Cut powerfeed end cap to suit cable diameter.
2. Pass cable through powerfeed end cap.
3. Crimp terminal to cable.
4. Fit bolt into joint plate (wings on tab to face upward).
5. Fit assembly into conductor bar.
6. Fit clamp end over joint plate and bolt. Secure with half nut. Tighten half nut to recommended torque value of 10Nm (7-8 ft-lbs).
7. Fit terminal and secure washer and nut.
8. Tighten nut to recommended torque of 8 Nm (5-6 ft-lbs).
9. Push powerfeed end cap over assembly (ensure bolt is located in point "A" on powerfeed end cap).

NOTE

- Max cable size is 25 sq. mm pvc 600/1000V stranded copper conductor (#4 AWG Extra Flexible).

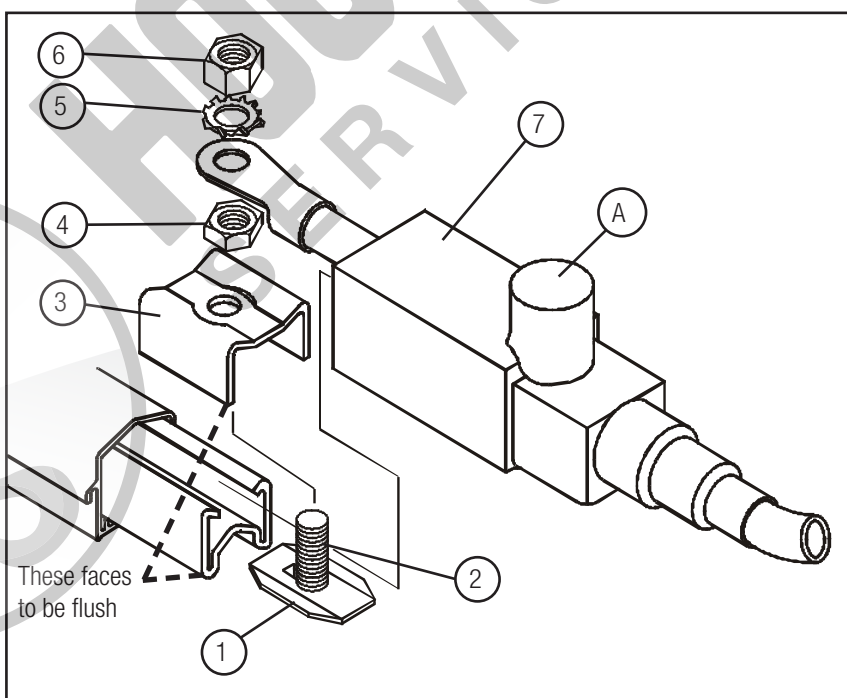


Figure 23-1

- | | |
|----------------|----------------------|
| 1. Joint Plate | 5. Washer |
| 2. Bolt | 6. Nut |
| 3. Clamp End | 7. Powerfeed End Cap |
| 4. Half Nut | |

SECTION 12 - LOW AMP JOINT POWERFEED ASSEMBLY

NOTE

- Installation up to 100 Amp.

Tools Needed

- 10mm A/F Wrench
- Suitable Sharp Knife
- Cable Stripper
- Cable Crimping Tool
- Suitable Cable Terminal (see list of recommended suppliers and references).

Low Amp Joint Powerfeed Installation

1. Remove black plug on powerfeed cap.
2. Assemble joint to conductor bar as described previously.
3. Pass supply cable through grommet.
4. Crimp terminal to supply cable.
5. Secure terminal to joint using washer and nut and tighten nut to a recommended torque of 8 Nm (5-6 ft-lbs).
6. Fit powerfeed cap over assembly (ensure the cable is threaded carefully through grommet).
7. Once in position close flaps and ensure flaps click home.

NOTE

- Joint must not support the cable.
- Max cable size 10sq. mm pvc 600/1000V stranded copper conductor (#8 AWG Extra Flexible).

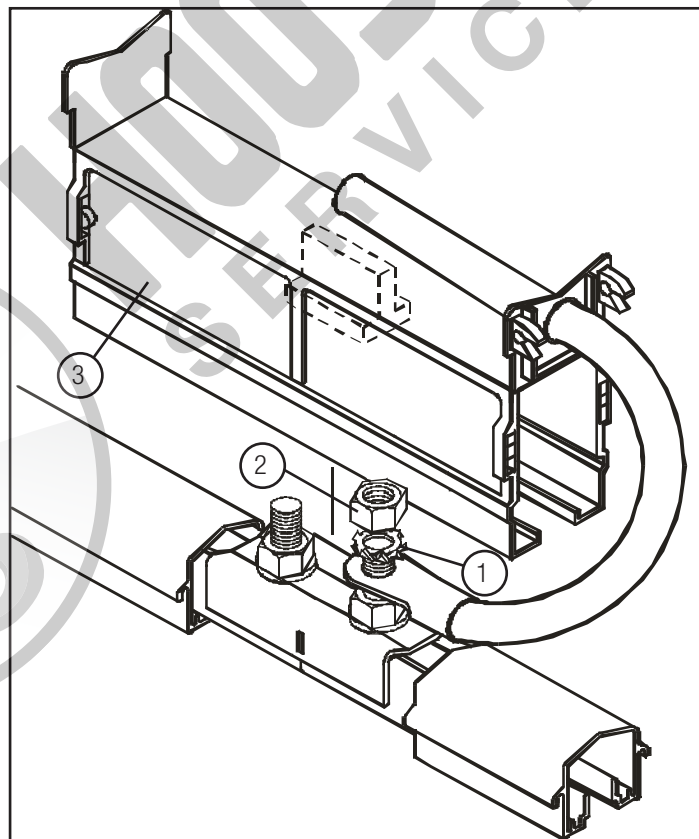


Figure 24-1 1. Washer
2. Nut
3. Powerfeed Cap

SECTION 12 - LOW AMP JOINT POWERFEED ASSEMBLY

NOTE

- Clean all mating surfaces with 3M Scotch Brite Pad, apply a small amount of Electrical Joint Compound (EJC) to all mating parts.
- Apply anti-seize to bolt ends prior to assembly to any stainless steel nuts.

Installation Up to and Including 250 Amps (PN XA-310910B)

1. Assemble joint to conductor bar as described previously (do not fit washers and nuts).
2. Fit powerfeed top hat assembly to joint assembly. On copper and aluminum conductors apply Electrical Joint Compound (EJC) between mating surfaces.
3. Discard spring washers originally fitted to the joint assembly and fit external tooth lock washers (supplied in the kit) along with nuts and bolts and tighten to a recommended torque of 8 Nm (5-6 ft-lbs).
4. Fit joint powerfeed cover as shown previously.
5. Cut out grommet using suitable knife and fit over cable.
6. Crimp terminal to supply cable (see list of recommended terminals).
7. Ensure the terminal is properly crimped as failure to do so will result in over-heating on the powerfeed assembly.
8. Fit terminal to powerfeed top hat assembly and secure using washer and bolts. Torque bolt to 8 Nm (5-6 ft-lbs).
9. There is a second set of hardware (washers and bolt) for use with two cable feeds and should be left tight on powerfeed top hat assembly if only one feed is used.
10. Fit powerfeed joint cover to assembly.
11. Ensure both grommets are fitted into powerfeed cover before closing halves together.
12. Make sure the legs of the cover fit under the conductor cover support ears (a little pressure at points "x-x" will ensure this).
13. Fit powerfeed case clip assembly to powerfeed cover and secure with screws.

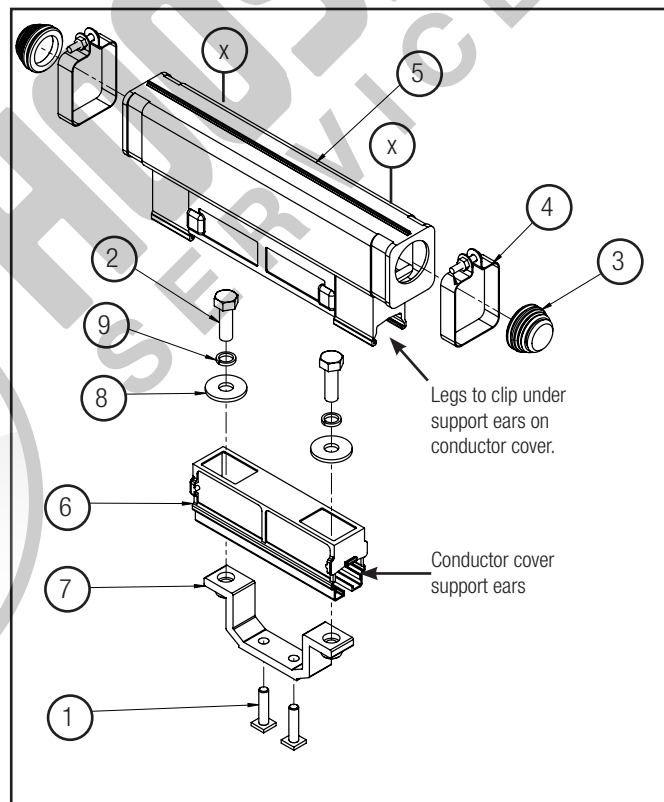


Figure 25-1

1. Splice Bolt	5. Powerfeed Cover
2. Bolt	6. Powerfeed Joint Cover
3. Grommet	7. Powerfeed Top Hat Assembly
4. Powerfeed Case Clip Assembly	8. Washer
	9. Washer

SECTION 13 - POWERFEED AND COVER ASSEMBLY

Installation Over 250 Up to 400 Amps (PN XA-310912B)

1. Assemble joint to conductor bar as described previously (do not fit washers and nuts).
2. Fit powerfeed top hat assembly to joint assembly. On copper and aluminum conductors apply Electrical Joint Compound (EJC) between mating surfaces.
3. Discard spring washers originally fitted to the joint assembly and fit external tooth lock washers (supplied in the kit) along with nuts and tighten to a recommended torque of 8 Nm (5-6 ft-lbs).
4. Fit powerfeed joint cover as shown previously.
5. Apply EJC between mating surfaces on powerfeed top hat assembly and powerfeed shunt link.
6. Place powerfeed shunt link over powerfeed top hat assembly and secure with screws. Torque to 8 Nm (5-6 ft-lbs).
7. Cut out grommet using suitable knife and fit over cable.
8. Crimp terminal to supply cable. (See list of recommended terminals).
9. Ensure the terminal is properly crimped as failure to do so will result in over-heating on the powerfeed assembly.
10. Apply EJC to the center arc of powerfeed shunt link.
11. Fit lug to the center powerfeed shunt link and secure using bolt, washer, and nut in the order shown. Torque to 8 Nm (5-6 ft-lbs).
12. Fit powerfeed cover to assembly.
13. Ensure both grommets are fitted to powerfeed cover before closing halves together.
14. Make sure the legs of the cover fit under the conductor cover support ears. A little pressure at points "x-x" will ensure this.
15. Fit powerfeed case clip assembly to powerfeed cover and secure with screws.

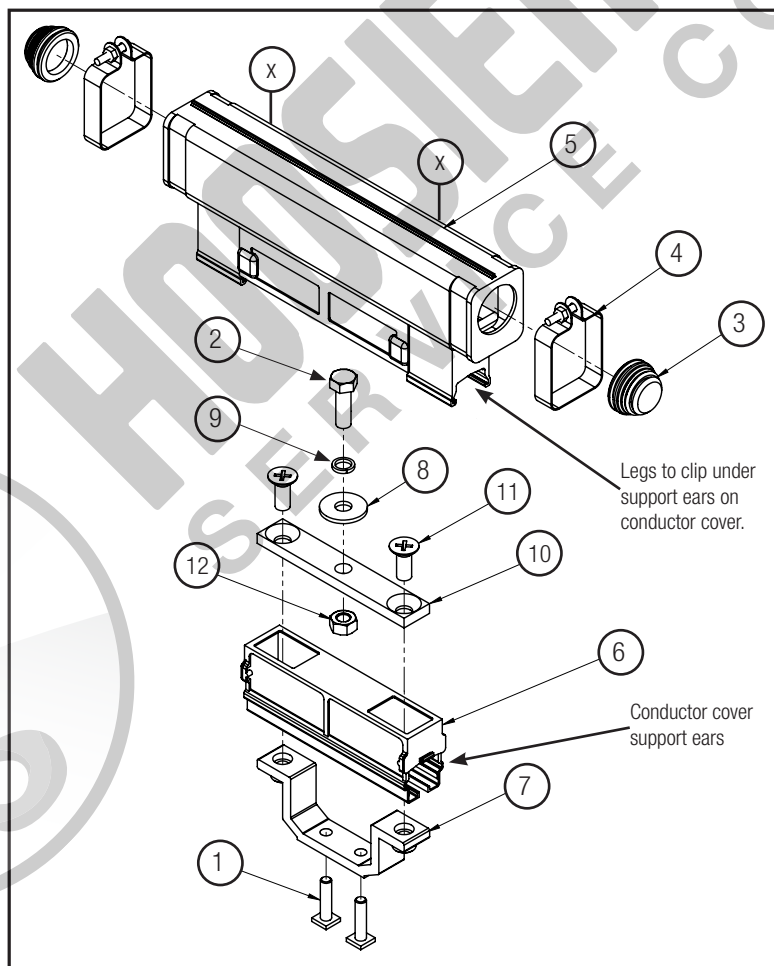
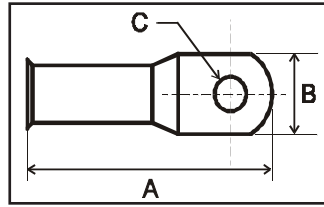


Figure 26-2

- | | | |
|---------------------------------|-------------------------------|--------------------------|
| 1. Splice Bolt | 5. Powerfeed Cover | 9. Washer |
| 2. Bolt | 6. Powerfeed Joint Cover | 10. Powerfeed Shunt Link |
| 3. Grommet | 7. Powerfeed Top Hat Assembly | 11. Screw |
| 4. Powerfeed Case Clip Assembly | 8. Washer | 12. Nut |

SECTION 14 - TERMINAL CHART FOR GUIDELINES ONLY

T&B terminal part numbers are for reference only. Dimensions shown are the maximum allowable sizes. All powerfeeds must have expansion loops incorporated in their installation. Conductix-Wampfler DOES NOT recommend the termination of solid conductors into their powerfeed assemblies. (Flexible Cables are Recommended.)



Powerfeed	TandB PN	Dim "A"	Dim "B"	Dim "C"	Cable Size	
PN XA-310910B	XA-310101	E72	1.32	.60	5/16	6 AWG
	XA-310201	F72	1.35	.60	5/16	4 AWG
	XA-310301	G972	1.59	.69	5/16	1-2 AWG
	XA-310601	J972	1.94	.84	5/16	#1/0AN-#2/0
	XA-310401	L973	2.25	1.04	3/8	#3/0AN-#4/0
PN XA-310912B	XA-310701	M972	2.28	1.12	5/16	#4/0AN-250kcmil
	XA-310501	54178	2.33	1.25	5/16	300 kcmil
End Powerfeed PN XA-310911	XA-310101	E71	1.13	.48	1/4	6 AWG
Low Amp Joint Powerfeed PN XA-310034B	XA-310101	D71	1.13	.48	1/4	8 AWG



SECTION 15 - 100 AMP DI COLLECTOR MOUNTING DETAILS

PN XA-310990 Red

PN XA-399355 Green

This collector is rated at 50 Amps continuously in a stationary position on copper and galvanized steel. It is rated for 25 amps on Aluminum/Stainless for the same condition.

Tools Needed

- 13mm A/F wrench
- Steel rule or suitable tape measure
- Flat bladed screwdriver
- Cable Stripper

Installation

1. Fix collector mounting bracket to a suitable support at the correct setting height (see diagram).
2. Place collector on the mounting bracket.
3. Ensure collectors are directly aligned with the center of the conductor bars.
4. Tighten nuts 1 and 2 to a recommended torque of 11 Nm (8-10 ft-lbs).

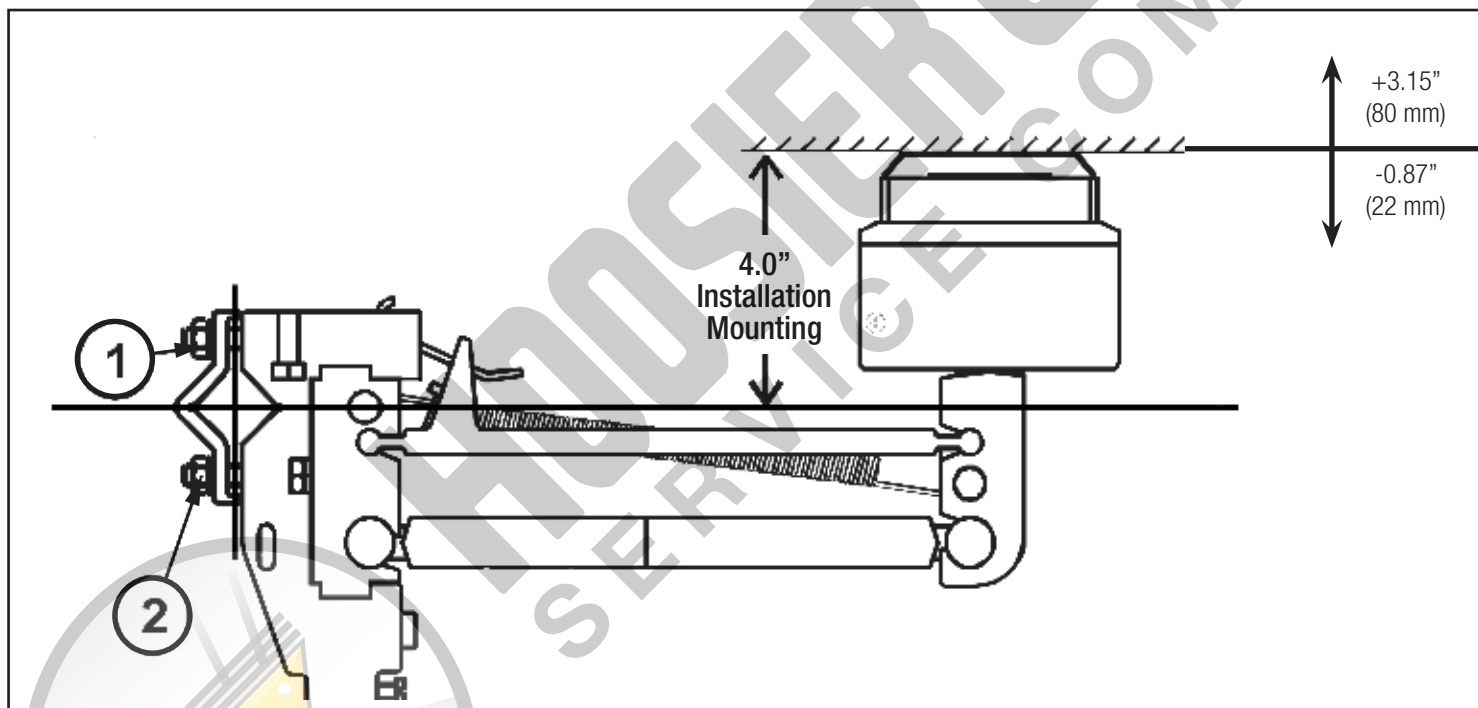


Figure 28-1

SECTION 16 - 50 AMP SI COLLECTOR MOUNTING DETAILS

This collector is rated for 25 Amps continuous in a stationary position on copper and galvanized steel. It is rated for 12 Amps on Aluminum / Stainless for the same condition.

Installation

1. Fix collector mounting bracket to a suitable support at the correct setting height (see diagram).
2. Place collector on the mounting bracket
3. Ensure collectors are directly aligned with the center of the conductor bars.
4. Tighten nuts 1 and 2 to a recommended torque of 8 Nm (5-6 ft-lbs).

PN XA-399360 Red
PN XA-399380 Green

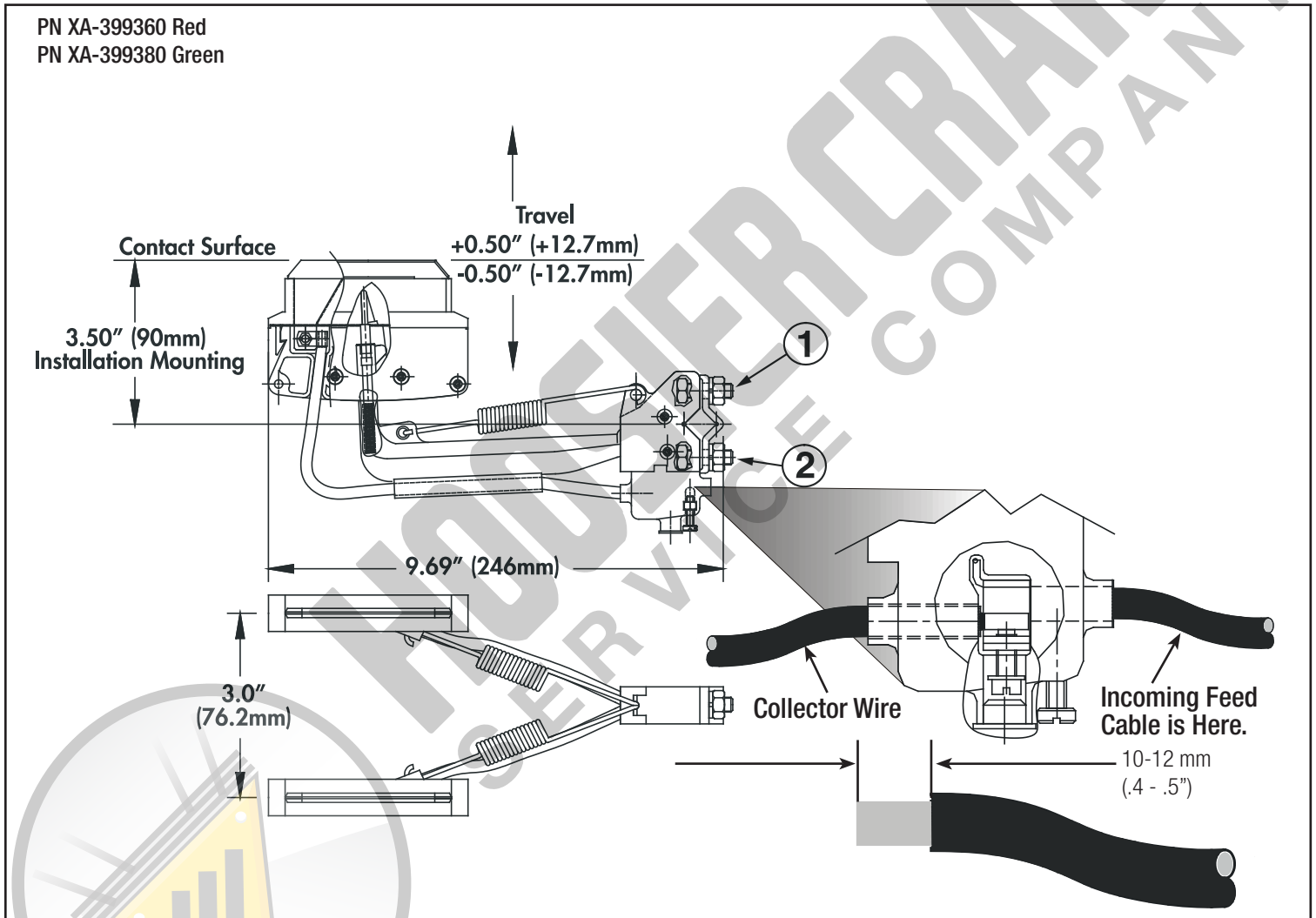


Figure 29-1 1. Nut
2. Nut

SECTION 16 - CUSTOMER SUPPLIED CABLE INSTALLATION

1. Strip customer supplied cable back 13 - 15 mm (0.5-0.6"), using a suitable cable stripping tool.
2. Remove protection plug from the hole.
3. Loosen screw number 1.
4. Loosen screw number 2 until clear from entry hole.
5. Push customer supply cable into entry hole.
6. Tighten screw number 1 fully and ensure that the cable is clamped firmly into position.
7. Tighten cable clamp screw number 2.
8. Replace protection plug.

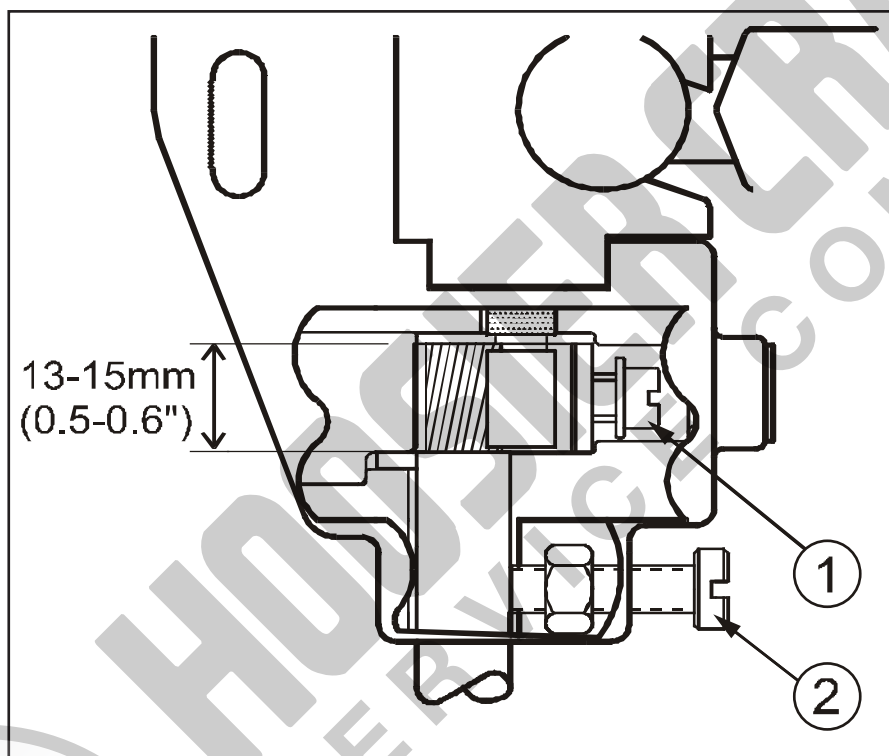


Figure 30-1 1. Screw
2. Screw

SECTION 17 - 200 AMP COLLECTOR

NOTE

- Torque mounting hardware per the chart below.
- This collector is UL rated at 100 Amps continuous duty in a stationary position on copper and galvanized steel. It is rated at 50 Amps on Aluminum Stainless for the same condition.

Collector Base Material	Torque Spec
Stainless Steel	18-20 ft-lbs
Aluminum	18-20 ft-lbs
Plastic	8-10 ft-lbs

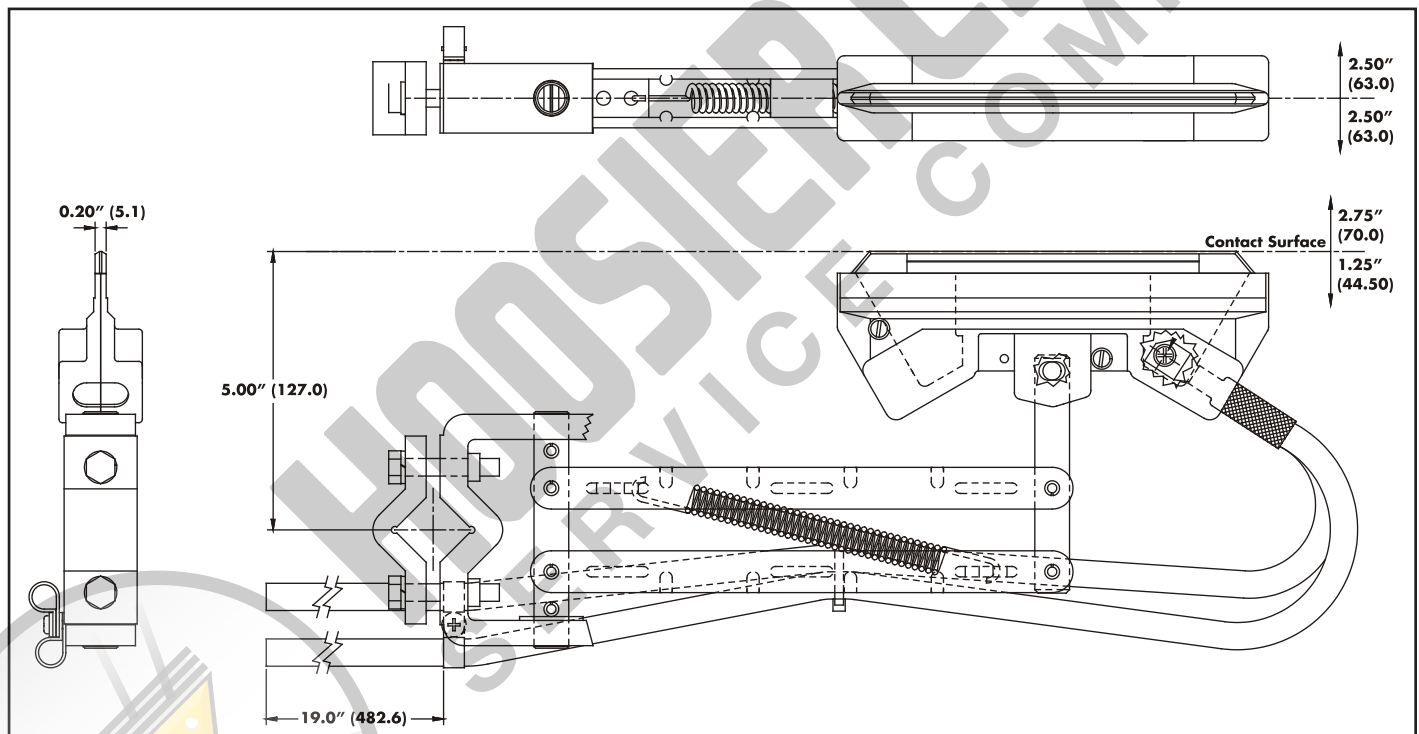


Figure 31-1

SECTION 18 - TRANSFER CAP ASSEMBLY

Tools Needed

- 13mm A/F wrench
- Soft mallet

Transfer Cap Installation

1. Mark conductor cover 22mm (0.87") in from end of cover.
2. Gently tap transfer cap onto bar and cover assembly using a soft mallet.
3. Line up back edge of transfer cap with mark on the cover.
4. Install transfer cap into support bracket (not shown) at 43mm (1.7") centers.
5. Fit nut and washers in the order shown.
6. Tighten nut to a recommended torque of 28.4 Nm (20 - 21 ft-lbs).

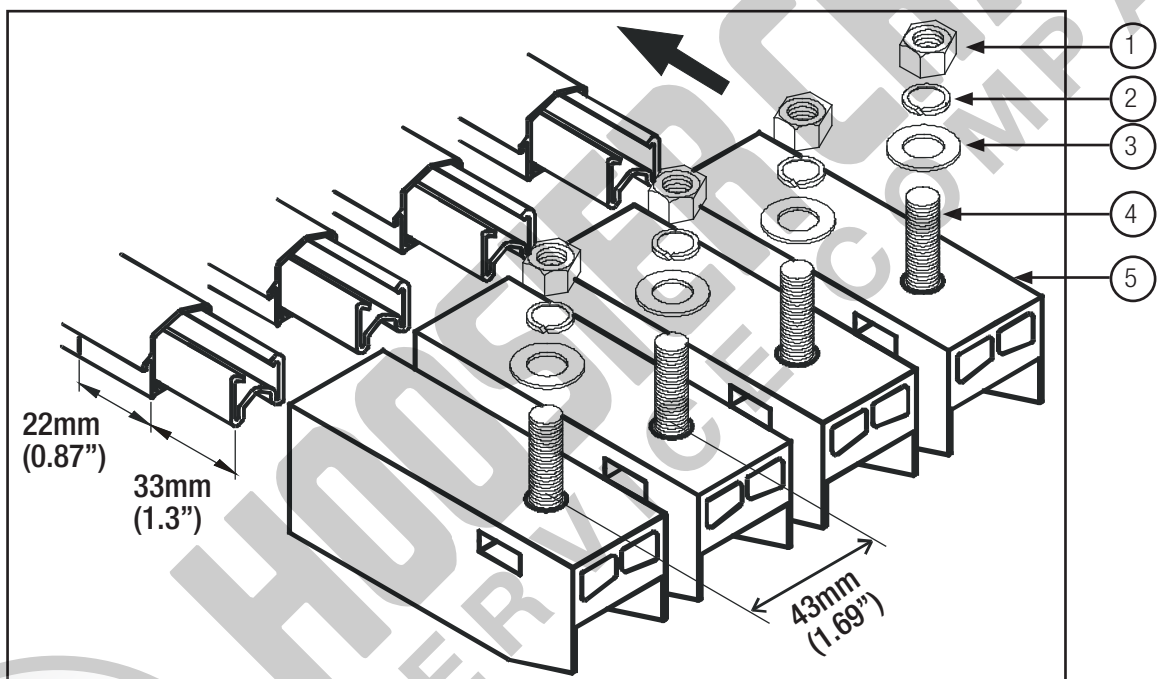
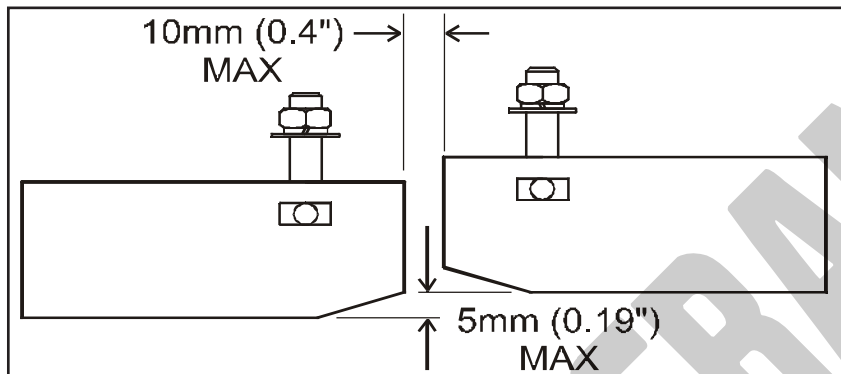


Figure 32-1

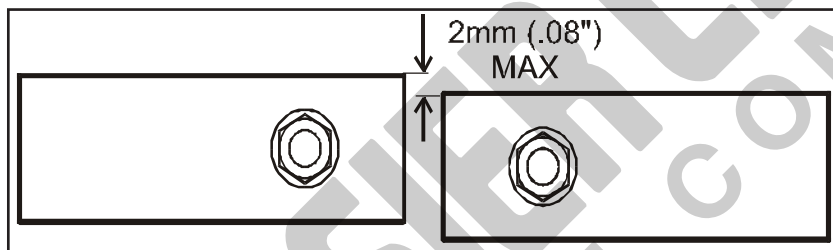
1. Nut
2. Washer
3. Washer
4. Support Stud
5. Transfer Cap

SECTION 19 - TRANSFER CAP MOUNTING DETAILS

Side view of transfer caps showing maximum alignment tolerance.



Plan view of transfer caps showing maximum alignment tolerance.



Please note: Where transfer caps are used in a system, tandem collectors must be used.



SECTION 20 - ASSEMBLY OF ISOLATION SPLICE ASSEMBLIES

Tools Needed:

- 10mm A/F open ended wrench

Installation

1. Fit bolt into joint plate. Ensure tab captivates the head on the setscrew.
2. Slide bolt and joint plate into conductor bar ends respectively.
3. Place cap over bolt.
4. Fit washers and nuts in the order shown.
5. Tighten nuts to a recommended value of 8 Nm (5-6 ft-lbs).

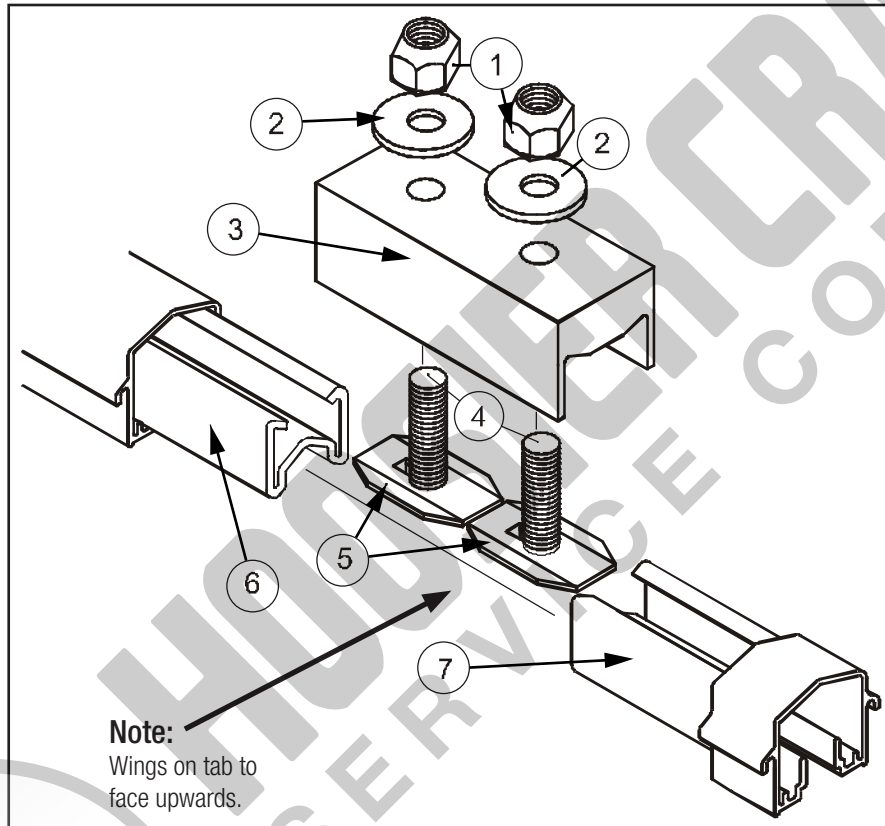


Figure 34-1

1. Nut
2. Washer
3. Cap
4. Bolt
5. Joint Plate
6. Conductor Bar
7. Conductor Bar

SECTION 21 - SYSTEM MAINTENANCE AND INSTALLATION NOTES

Maintenance Notes

1. Contact shoes should be checked for wear on a monthly basis until a wear pattern can be established.
2. Check alignment of collector and conductor bars. Base of collector should be directly in-line with associated conductor.
3. Check conductor system to ensure no damage to insulation cover.
4. In environments that are subject to considerable build up of dust, especially conductive dust, remove this dust at regular intervals by brushing.
5. Check collector pivot points are free from any contamination.
6. Uneven shoe wear indicates less than optimal collector alignment.

Installation Notes

1. Ensure all power is disconnected before attempting to install or maintain the system.
2. Ensure all electrical joints are free from any contamination.
3. Ensure correct alignment and location of support brackets.
4. Ensure conductor joints are not against hanger clamps. Adequate clearance must be allowed for expansion and contraction.
5. Ensure correct alignment of collector with conductor bar. Collector arms should be parallel with contact surface.
6. Ensure all power cables are flexible to allow expansion and contraction of the conductor bar system.
7. Ensure all armored cables are terminated into a suitable junction box and only flexible cables are installed into the powerfeed assemblies.
8. Ensure conductor bars DO NOT support the weight of the feed cables.
9. Conductix-Wampfler recommends that the first accessible conductor bar should be the ground bar.



SECTION 22 - DI AND SI COLLECTOR CONTACT SHOE AND SHOE HOLDER

NOTE

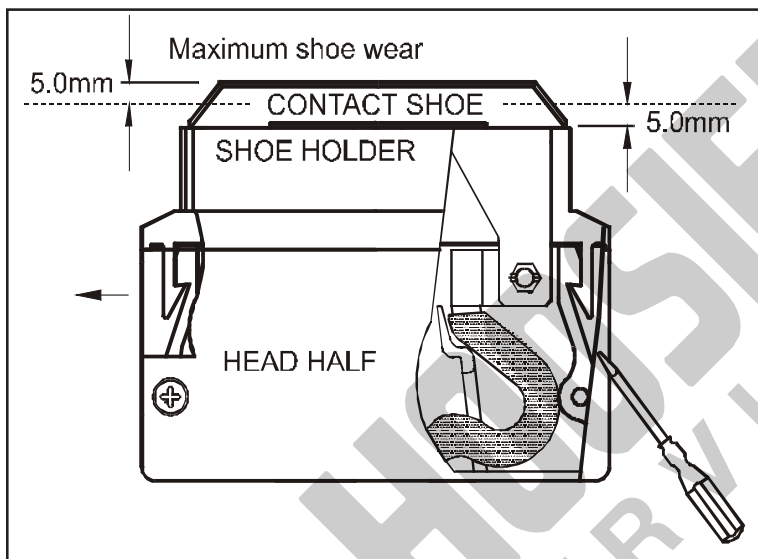
- Collector contact shoe and shoe holder are supplied as replacement PN XA-310993 for phase collectors and PN XA-399357 for ground collectors. For Ground Shoes with deflector consult factory.

Tools Needed

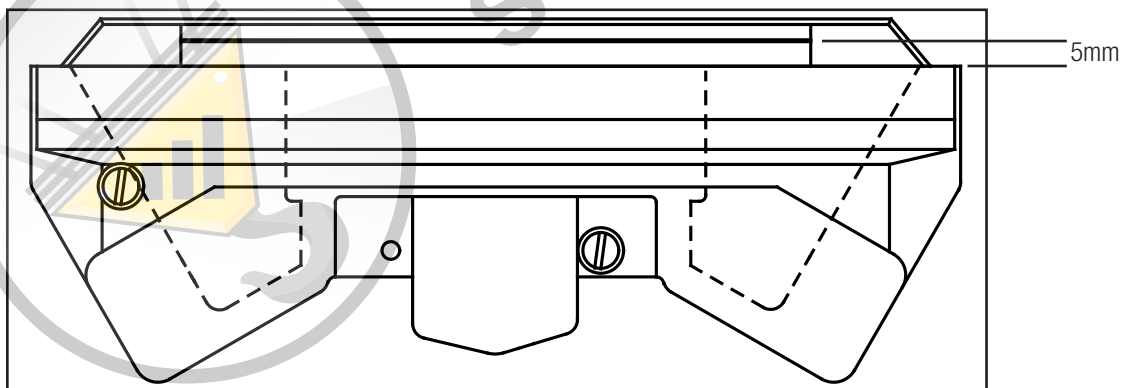
- Flat Blade Screwdriver
- 7Mm A/F Wrench

Replacement Instructions

1. Remove screws to separate shoe halves.
2. Disconnect cables from collector shoe.
3. Replace shoe and torque cable hardware to 31 in-lbs.
4. Ensure shoe seats properly in case halves.
5. Screw case halves together, torque to 9-10 in-lbs.



Replacement of 200 Amp Collector Contact Shoe



SECTION 23 - ASSEMBLY FOR 1, 2, 3, & 4-WAY PICKUP GUIDE

Assembly Instructions

1. Remove nut, lock washer, and flat washer.
2. Remove transfer caps from pickup guide.

NOTE

- Bracket width must not exceed 40.0mm (1.55").

3. Fit transfer caps on to the ends of the conductor bars.
4. Ensure any hanger clamps are at least one meter back from the transfer caps.
5. Squeeze transfer caps together and fit pickup guide over support stud.
6. Fit transfer cap support bracket over support stud.
7. Fit nut, lock washer, and flat washer in order shown.
8. Tighten nut to a recommended torque of 28.4 Nm. (20-21 ft-lbs).
9. Remove nut, lock washer, and flat washer.
10. Fit bracket over bolt.
11. Fit nut, lock washer, flat washer.
12. Tighten nut to a recommended torque of 28.4 Nm (20-21 ft-lbs).

NOTE

- Bracket width must not exceed 40.0mm (1.55").

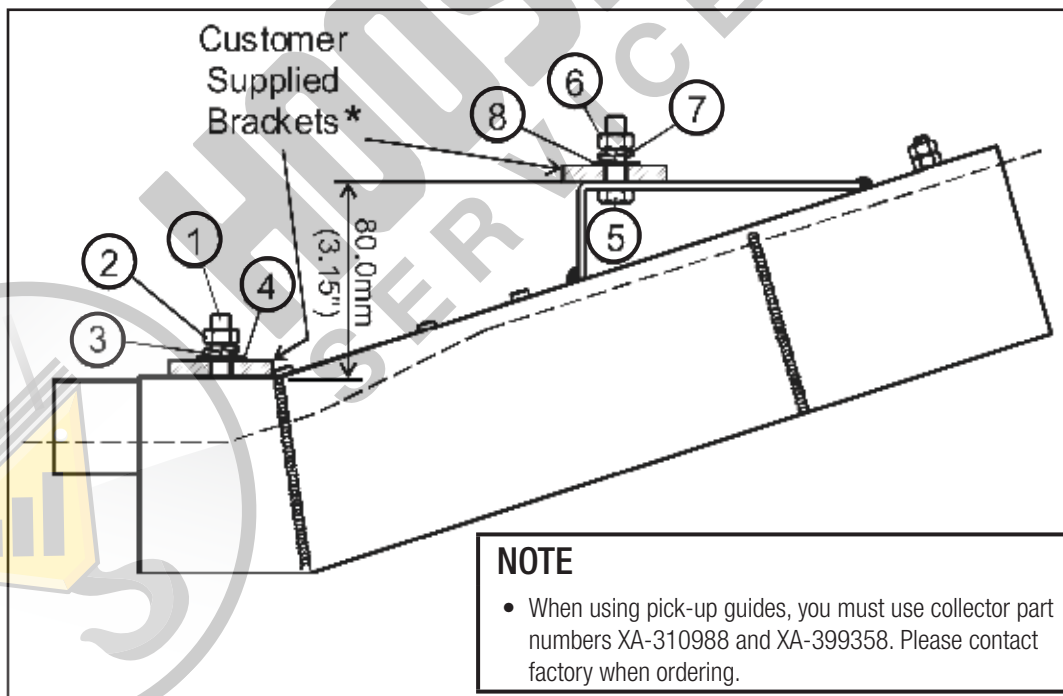
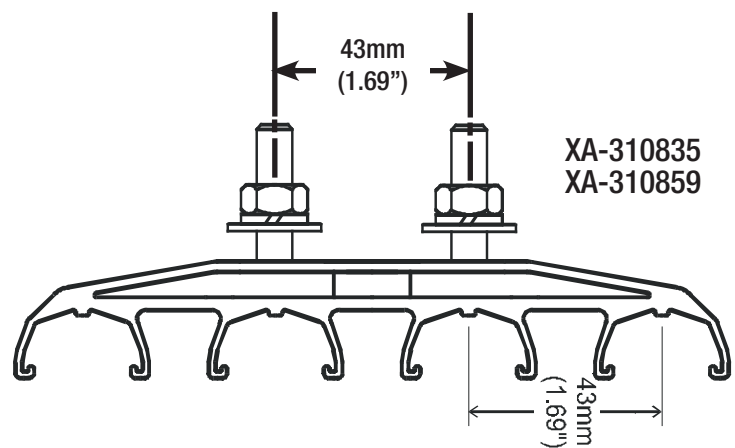
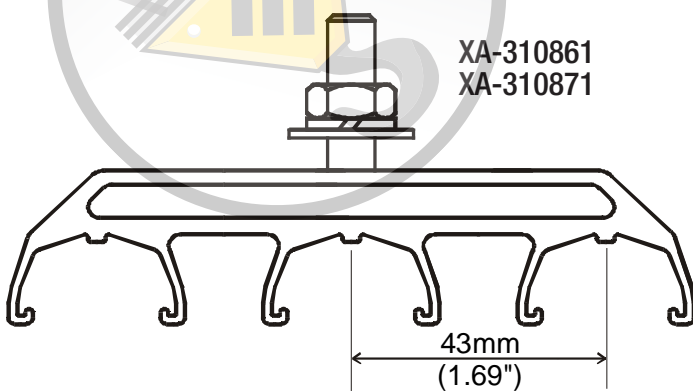
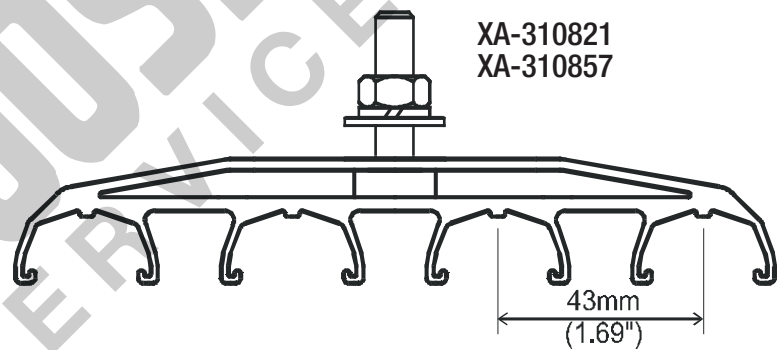
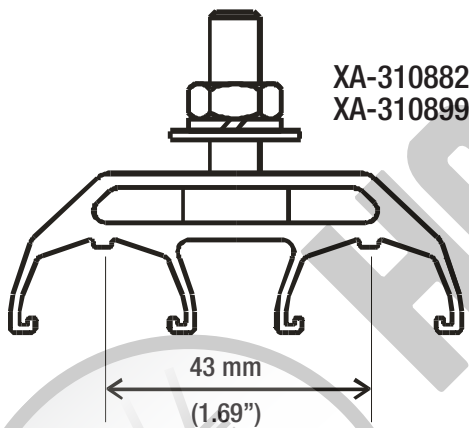
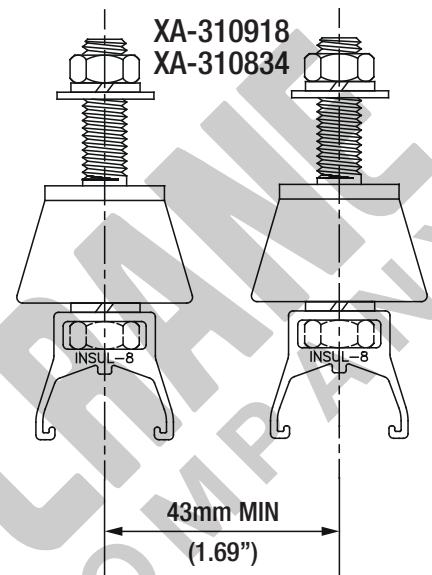
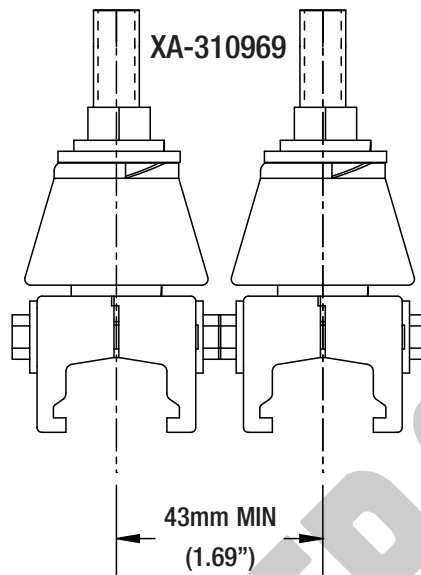
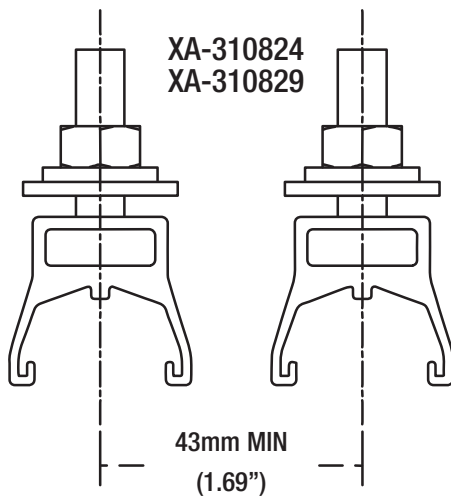


Figure 37-1

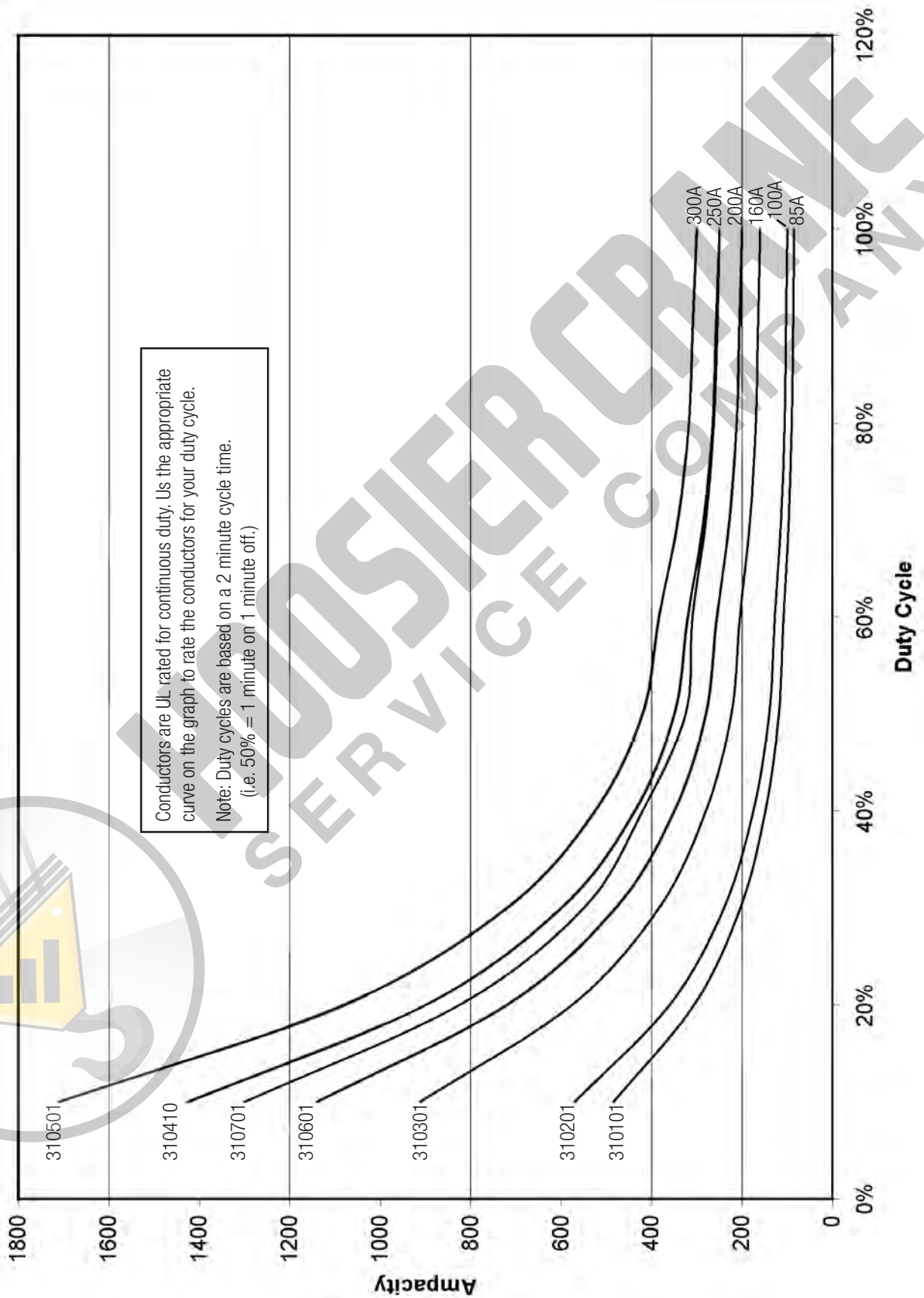
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|-----------------|----------------|
| 1. Support Stud | 5. Bolt |
| 2. Nut | 6. Nut |
| 3. Lock Washer | 7. Lock Washer |
| 4. Flat Washer | 8. Flat Washer |

SECTION 24 - HANGER CENTERS DIAGRAMS



SECTION 25 - CONDUCTOR BAR DE-RATING CHART

Conductor De-rating



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