Rejuvenation Instructions

#553 – 600A Dead-Front Terminations – SPR

This NRI covers the following:

- How to prepare the cable for use with the injection adapter (IA).
- How to swage the IA for SPR injection.
- How to connect and install dead-front components.

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WARNING: It is dangerous working around energized high-voltage systems, pressurized systems, and chemicals. Always work in accordance to the Novinium Field Operations Safety Handbook (FOSH) or other local governing safety standards.

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Introduction

- This NRI describes how to install new 600A dead-break terminations used for the Sustained Pressure Rejuvenation (SPR) process. Using the injection adapter (IA) requires modifying the cutback dimensions.
- All feeder-sized injections must be performed using the SPR method and IAs.

Remove the Existing Connector

1. Determine if the cable has sufficient slack.

Sometimes the lay of the cable does not allow cable length to be removed. Measure and estimate if there will be enough cable length to cut the conductor below the connector, or if the connector must be lug split.

2. If the cable has sufficient slack.

If the cable has enough length to remove the conductor and connector and can be placed back into service, do so.

a. Using cable cutters, a saw, or other cutting tool, remove the old connector with a square cut.
b. The cable is now ready for craftwork. Skip to the “Cable Preparation” section.

3. The cable has insufficient slack.

If the cable does not have enough length to remove the conductor and connector, then the existing connector must be removed to preserve cable length.

a. Retrieve the connector cut-off tool, also known as the lug splitter.
   - There are two varieties of lug slitters: a URD size and a feeder size.
   - Select the correct one for the application.

Figure 1: A lug splitter kit.

b. Cut the existing connector where the conductor strands end with a square cut.
   - The conductor strands usually end just after the “no-crimp” marking line on the connector.
   - Cutting at the no-crimp line will preserve the maximum conductor length possible.

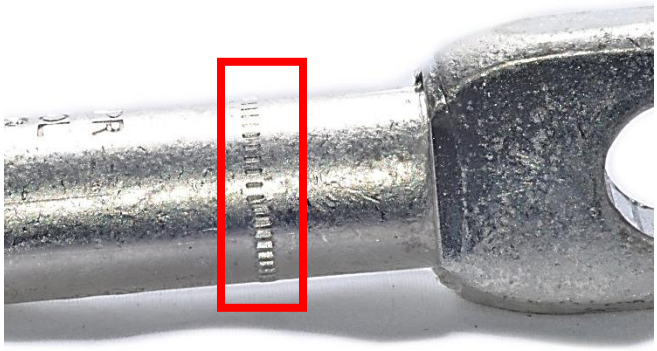


Figure 2: Example of the no-crimp line on a connector.

c. Select the blade block to be used for the cut.

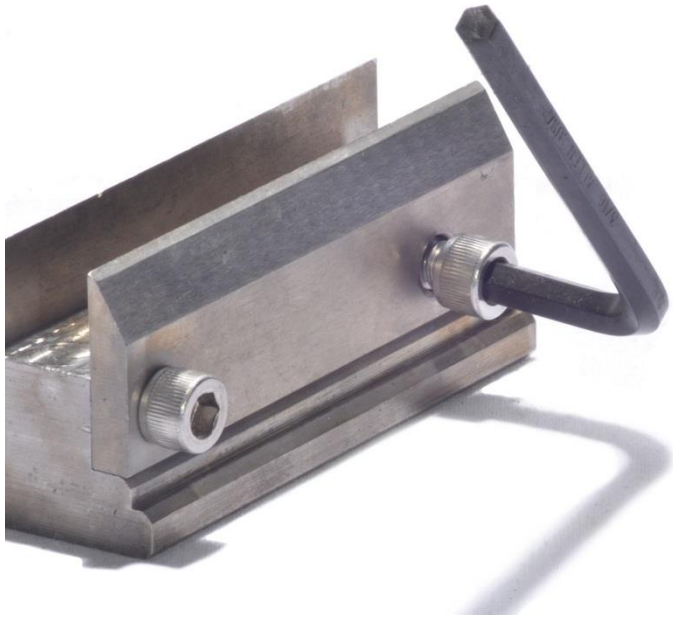
- Be careful! The blades are extremely sharp!
- There are three differently spaced blade blocks in each lug splitter kit.

Figure 3: The three stock varieties of blade block for the lug splitter.

- The distance between the blades should be slightly larger than the strand bundle diameter.
- If a larger space is required, find the accompanying lug splitter tool kit.

Figure 4: Tool kit for the lug splitter.

d. While wearing cut resistant gloves, use the Allen wrench in the kit to loosen the blades from the blade block.



Figures 5 and 6: The supplied Allen wrench is used to loosen the blade block's screws.

e. Insert the available shims between the blades and block. Make sure the shims do not stick above the block, otherwise they will be damaged during the cut.

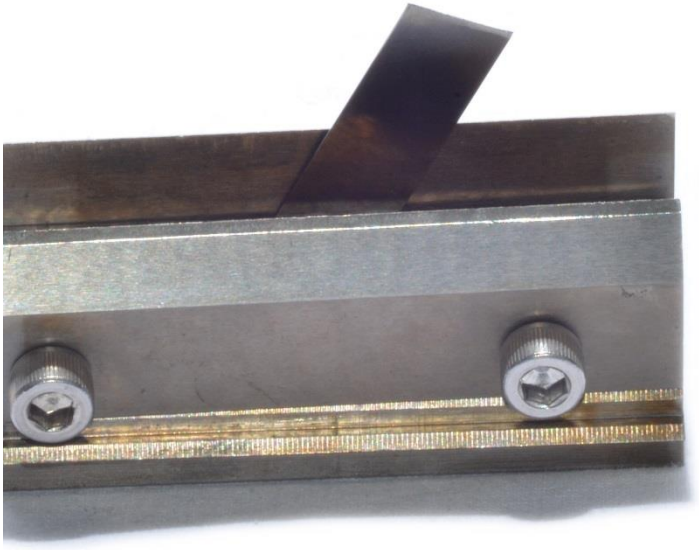


Figure 7: Insert shims between the blades and the block. Lay them flat below the surface of the block.

f. While wearing cut resistant gloves, unscrew the wing bolt, and insert the appropriately spaced blade block into the lug splitter block.

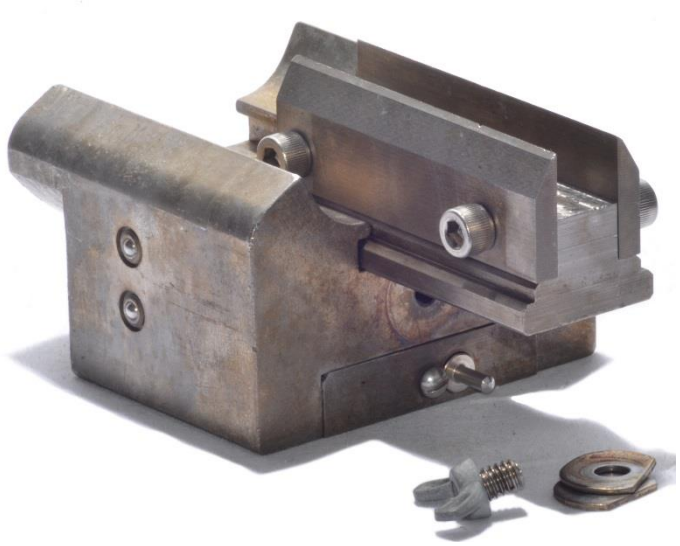


Figure 8: Slide the blade block into the base of the lug splitter head.

g. Tighten the blades to the block.

- Make sure the washers on the wing bolt have the rounded edge over the blade block. The flat edge will not hold the block in during operation.

Figures 9 and 10: The washer that holds the blade block in.

h. Place the lug splitter base and then horseshoe onto the swage press.

i. Align the blades to cut over the connector and around the conductor strands.

- Make sure the blades do not extend over the insulation, otherwise the insulation will be damaged during the cut.

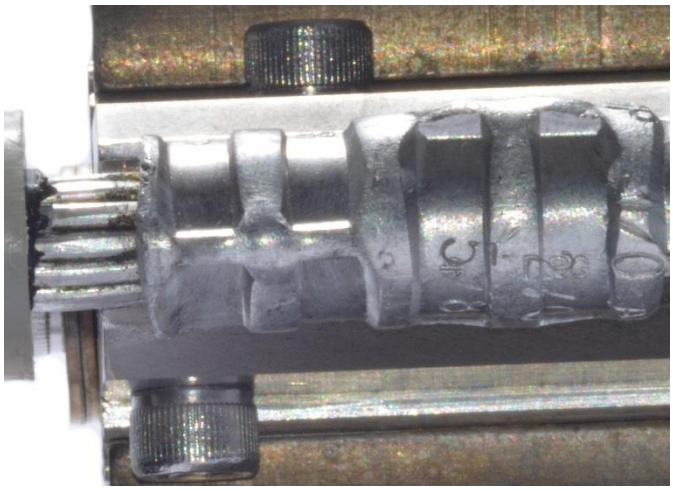


Figure 11: The blades do not extend to the insulation.

j. Taking care not to damage the conductor strands, press the blades into the connnector.

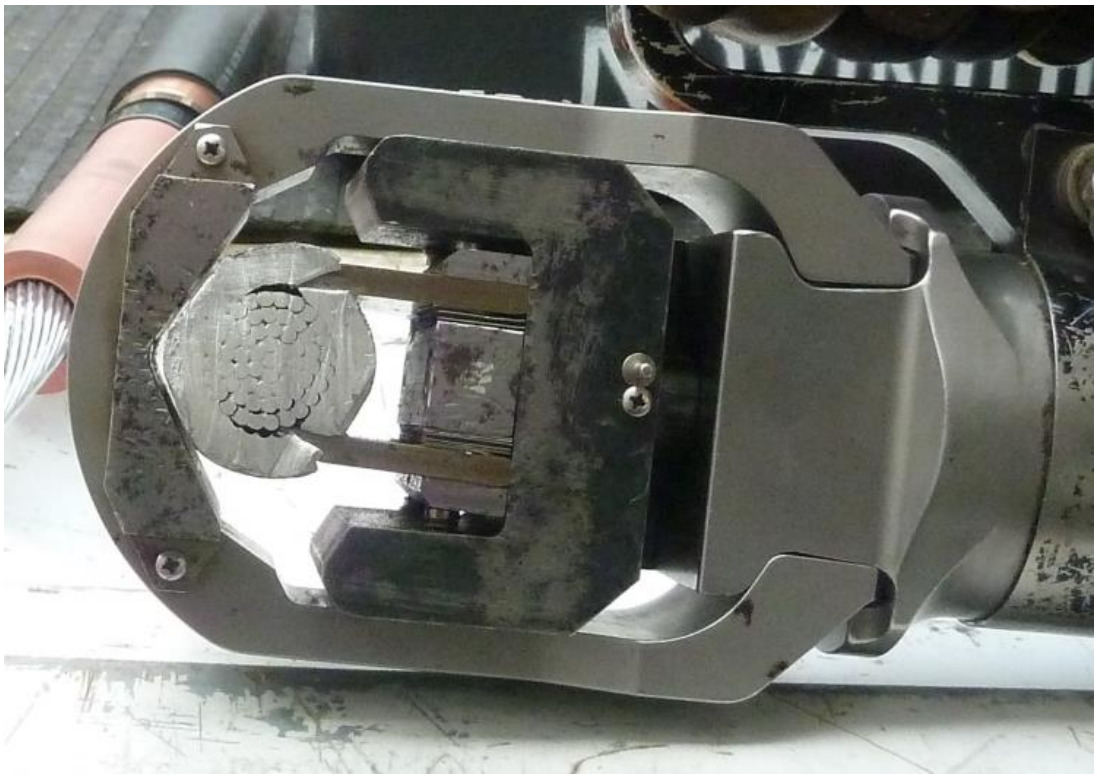


Figure 12: The lug splitter cuts the connector around the strands.

k. Once the blades have pierced through the connector body, retract the blades.

- Longer connectors may need to be cut more than once.

l. Remove the connector along the cuts to expose the conductor.

- Sometimes a connector may need to be cut a few times to come loose.
- If needed, channel locks can be used to help peel connectors apart.

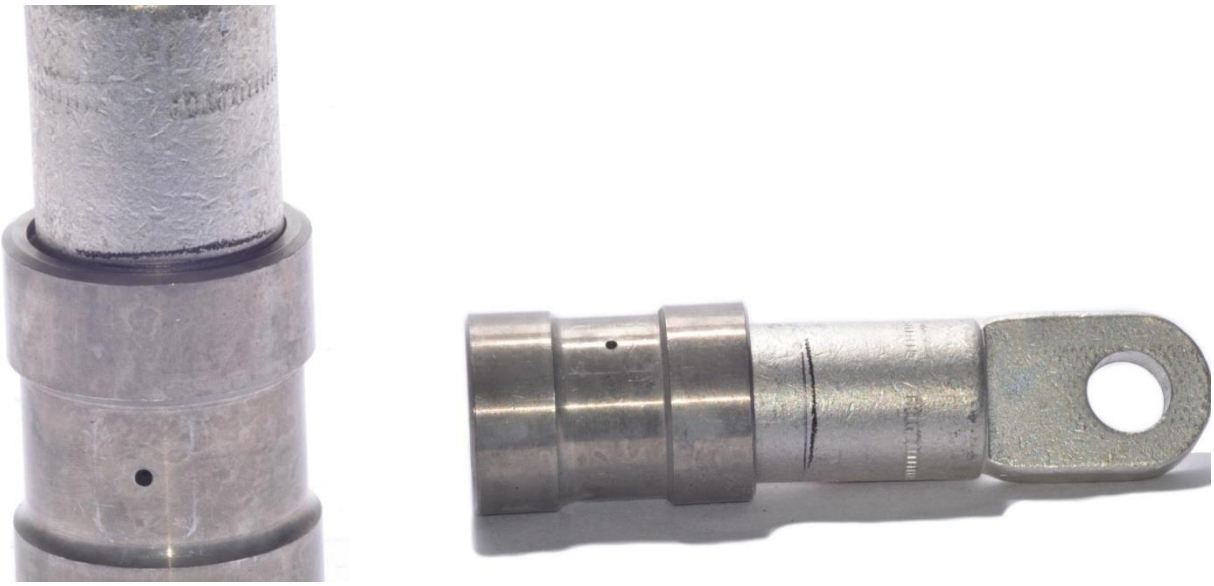
Cable Preparation

1. Mark the connector depth in the IA.

a. Seat the connector fully inside the IA.

Figure 13: The connector is seated in the connector side of the IA.

b. Use a marker to draw a line on the connector, above the edge of the IA. This line will be used as a quality check to show if the IA and connector are seated correctly on the cable and conductor.



Figures 14 and 15: Mark the connector just above the edge of the IA to verify full insertion into the IA.

2. Square the conductor.

Check to make sure the conductor has been cut square to within 1/8”.

- A square cut will allow the conductor to fully insert into the connector, ensuring a good electrical connection is made.

3. Bind and trim strands with a file or saw to meet the specification.

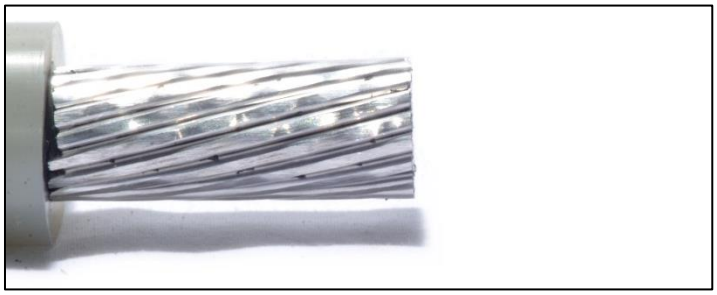


Figure 16: Cut the conductor square to make installation of the connector easier.

4. Remove excess cable jacket and move the neutral conductor

Remove the cable jacket, if present, and adjust the concentric neutral conductor as necessary for cable preparation.

5. Mark the cable with template markings.

Use the designated template to make marks on the cable for the tool-stop, adjusted insulation cutback, semi-con cutback, and marking tape location per **NRI 500, "Templates."**

6. Adjust the insulation and semi-con cutbacks.

Adjust the semi-con cutback by using IEEE® 1816™ approved methods.

a. Place the tool stop on the cable at the previously made tool stop mark.
b. Face the rounded shoulder of the tool stop away from the cable end.

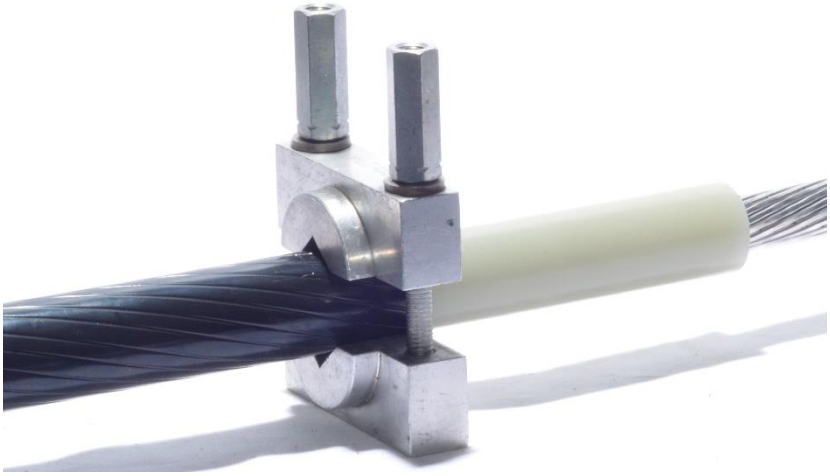


Figure 17: Picture shows tool stop orientation

c. Tighten the tool stop to hand tight. Then with a wrench, tighten a quarter to half turn more.
   - Do not overtighten as the tool stop can deform the insulation.
d. Only use the Novinium mod 2 of the Speed Systems® Mark 1 insulation stripper to remove the insulation.
   - Using the modified Mark 1 stripper in union with the tool stop makes creating a square, accurate cut simple and quick.

e. Turn the insulation stripper clockwise while applying slight pressure down the cable to cut the insulation in a spiral.

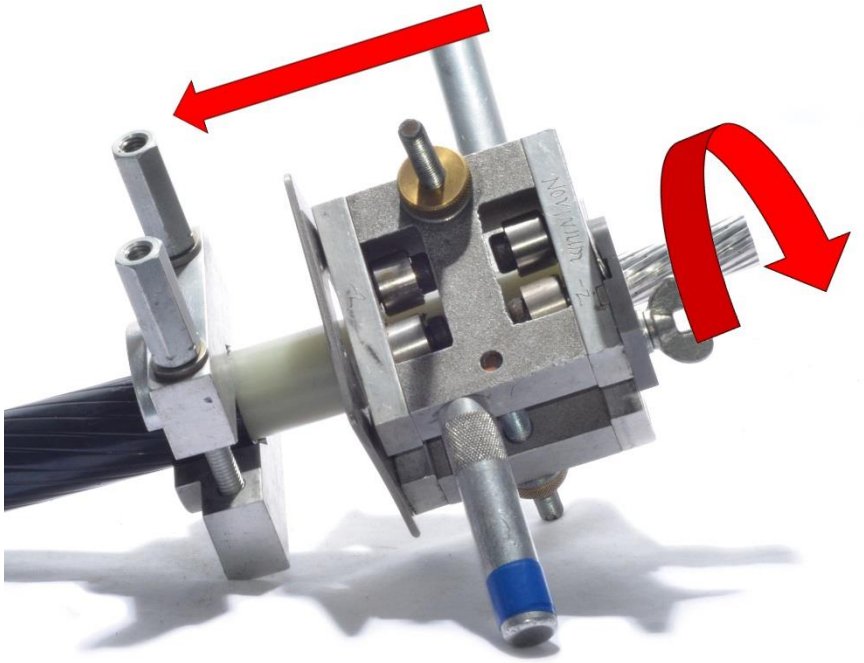


Figure 18: The insulation stripper cuts with a spiral motion.

f. Take care not to cut or nick the conductor strands.
   - If the strands are damaged, the current carrying capacity of the conductor will be reduced.
   - Remove the damaged portion and start preparation over.

g. Continue spinning the insulation stripper until it comes in contact with the tool stop.

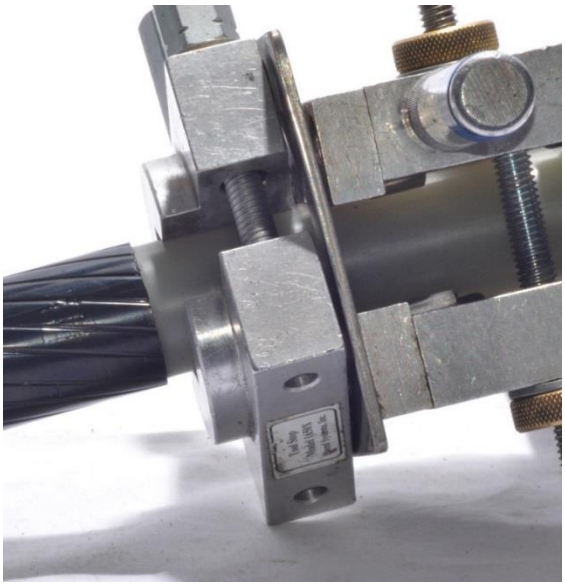


Figure 19: The insulation stripper is bottomed out on the tool stop.

h. Hold the tool stop from below to give the tool stop extra support.

i. Spin the insulation stripper until the cut insulation comes free from the cable.
j. Remove the insulation stripper and tool stop when finished.
k. Check for and smooth out any scratches or gouges made to the cable during the stripping process.
   - If damage to the cable cannot be smoothed out, remove the damaged section and start preparation over.

7. Compare pre-swage cable to the template.

a. Take the cable and check against the template for cutback accuracy.

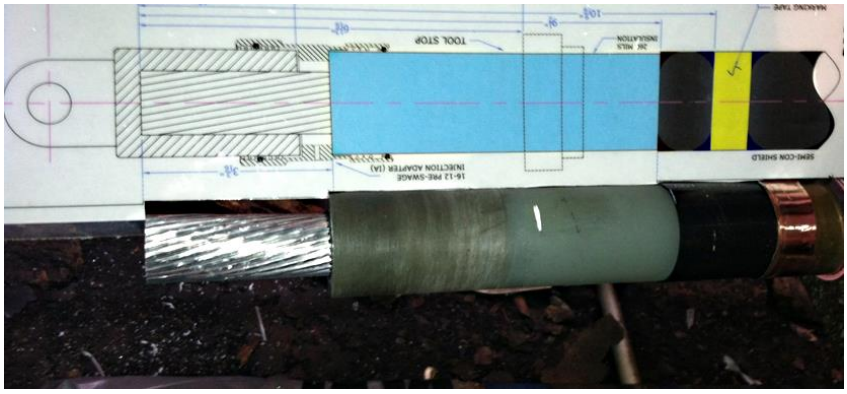


Figure 20: Picture shows cable lined up with template

b. Make any adjustments to cutbacks at this point.

8. Slide the cable adapter onto the cable.

a. Clean and lubricate the cable's insulation.
b. Slide the cable adapter to be installed over the insulation.

Figure 21: Install the cable adapter onto the cable.

c. Align the small edge of the cable adapter flush against the marking tape.

Figure 22: The cable adapter is aligned with the marking tape.

9. Slide the water seal kit down the cable

The water seal kit will be used when the component body is being installed.

Figure 23: Water seal cold-shrink tube.

10. Slide the joint sleeve down the cable

If the component requires the use of a joint sleeve, slide it down the cable to be placed later.

Figure 24: Joint sleeve used in disconnectable joints.

11. Place IA on the insulation and mark overlap position.

a. Seat the IA fully onto the insulation.

Figure 25: The IA placed on the insulation.

b. Use a marker to draw a line on the insulation, below the edge of the IA. This line will be used as a quality check to show if the IA and connector are seated correctly on the cable and conductor.

Figure 26: Making a mark on the insulation below the edge of the IA for QC purposes.

12. Fan the conductor strands.

Fanning the conductor strands allows extra gaps between the conductor strands. This will improve the flow into the cable dramatically.

Fanning will also allow you to remove corrosion and other debris from the conductor strands.

a. Using your fingers or a dental pick, gently separate a single strand from the outer bundle layer.
   - Do not use a knife or other cutting tools as they can damage the conductor strands.

Figure 27: Pulling one strand out allows the outer layer to be fanned.

b. Now that there is a gap in the strand bundle, gently fan out the rest of the outer strand layer.

13. Remove corrosion by sanding/wire brushing.

Removing corrosion from the conductor will increase conductivity, lower operating temperature, and help increase the lifespan of the connection.

For copper conductors with no corrosion:

a. Clean the outer strand layer with solvent and a wire brush.

For aluminum and copper conductors with light corrosion:

a. Clean the strands with solvent and a rag.

Figure 28: Cleaning the strands with solvent and rag for light corrosion.

b. Use a dental pick or wire brush to remove any grease or oxides not removed by the solvent.

Figure 29: Scrape the strands with a wire brush.

For heavily corroded conductors:

The most effective corrosion removal method is to individually abrade each corroded strand with 120 grit aluminum oxide sandpaper.

- Sanding the outer two strand layers and the outer surface of the remaining conductor bundle drastically increases conductivity.
- In situations with extreme corrosion, every strand may need sanding.
- Protect the insulation from conductive particles.
- Do not damage the conductor.

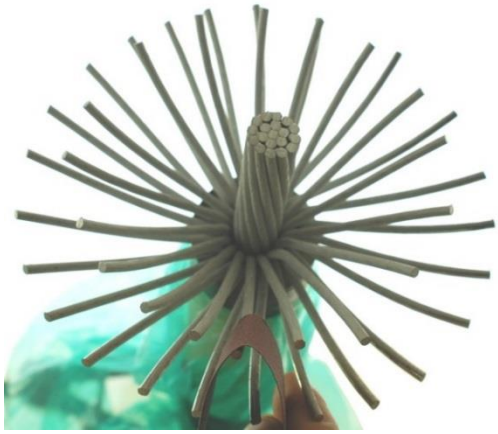


Figure 30: Sanding the conductor provides the best results.

Figure 31: The insulation is protected from debris created from the cleaning process.

14. Apply anti-oxidant grease to the connector and conductor.

a. Insert a wire brush into the connector's barrel to coat it with anti-oxidant grease.
b. Scrape the inside of the connector's barrel to remove the oxide layer and to spread the grease.

Figure 32: Wire brushing the connector

c. Use a wire brush to scrape and apply a thin coat of anti-oxidant grease to the strands.
    - The anti-oxidant grease contains grit allowing a better electrical connection to be made.

15. Place wrap wire in conductor.

There is a high flow resistance when injecting conductors with fewer than 34 strands.

Adding a wrap wire in the conductor will ***always*** help improve flow in and out of the spaces between strands, no matter the conductor size.

Adding the wrap wire in feeder size conductor or critical cables can prevent injection failure and drastically improve injection times.

a. Use 20 ga. (0.032” diameter) wire of the same metal as the conductor.

Figure 33: Wrap wires to improve flow through the conductor.

b. Wrap two to three revolutions of wire around the inner strand bundle.
   - The inner strand bundle is made up of the strands not in the outermost layer.
c. Slide the wrap wire as close as possible to the base of the conductor bundle.
d. Return the strands to their original lay.
   - The strands do not need to be coiled around as they originally were, but can make placing the connector much easier.
   - Fingers are usually enough to return the strands to position.

16. Space the IA for the connector side swage.

a. Slide the appropriate alignment pin bushing onto the alignment pin.
   - Use the standard alignment pin bushing for all except for the 7-2 IA.

Figure 34: Alignment pins and bushings.

Figure 35: Standard bushing on alignment pin.

b. Insert the alignment pin into the injection port hole of the IA.

c. Turn the tool stop so the rounded shoulder is facing downwards.

- Large diameter cables usually use IAs needing swage dies larger than the 1262.

d. Swage head end plates will be damaged by the tool stop's rounded shoulder during swaging.

e. Place the IA inside the tool stop.

f. For ease of injecting later, point the IA's port hole facing away from the tightening nuts.

Figure 36: The rounded shoulder is down for large diameter cables.

Figure 37: IA and pin rest in the tool stop.

g. Position the IA in the tool stop so that the alignment pin bushing sits flush with the tool stop.

- There should not be a gap between the bushing and the tool stop.

Figure 38: Bushing resting flush against the tool stop.

h. Tighten the tool stop to hand tight; then with a wrench, tighten the nuts a quarter to a half turn more.

- Do not overtighten as the IA can become warped and not fit over the insulation.

i. Remove the alignment pin and pushing from the IA.

j. Check for proper alignment with the swage die.

- Take half of the swage head and place it against the tool stop.
- Look to see where the edge of the die's teeth will line up with the IA.
- The IAs have defined swaging regions.
- Make sure that the swage die will not compress on the middle section of the IA. This will cause damage as well as make injection difficult or impossible.

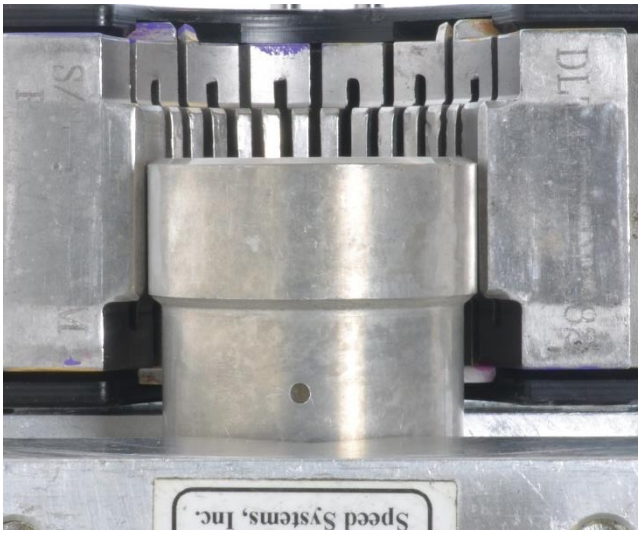


Figure 39: Swaging region of IA lines up with the die.

k. If the swage die does not look like it is aligned correctly, manually adjust the IA's position in the tool stop so that it swages in the correct location.

- Contact Engineering in this case and send pictures showing this issue.

17. Slide the IA and connector onto the cable.

Place the IA onto the cable, and slide the connector onto the conductor.

18. Check against the template.

Now that the cable is prepared and ready for IA and connector installation, check the setup against the template.

a. Check that the IA and connector are in the correct position.

b. Check that the semi-con cutback lines up correctly from the end of the connector.

Selecting Feeder Swage Dies

The radial swage (SWAY-juh), delivered by the dies, compresses the connector and IA to a consistent diameter.

Each swage die has a four digit name referring to its compressed inner diameter of the die in mils (1 mil = 0.001”).

- For example, a 0742 die has a compressed inner diameter of 0.742”.

Each die size is associated with two colors.

- For example, the 1262 die is the red/gold die.
- **NRI 442 – “The Swage and Crimp Die Table”** has all of the common swage dies and their color codes.

Figure 40: The Red/Gold 1262 die.

- Feeder heads require spacers to hold swage dies smaller than the 1682.
- Feeder heads also require 3-hole endplates to hold in place the spacers and swage dies smaller than the 1682.
- Make sure that the end plates and spacers are used.

Figure 41: Feeder swage head with spacers and 3-hole end plate.

1. Select swage dies for the connector.

SPR installations must use additional swages on connectors with crimping regions extending beyond the injection adapter (IA).

Similar to crimping for iUPR, fit as many swages onto the connector as possible.

Figure 43: Additional length above the IA.

The additional swages will improve the conductor compression and reduce resistance between the connector and conductor.

a. Measure the outside diameter of the connector with a digital caliper.
   - Manufacturers have a sizing pattern to their connectors.

b. Refer to **NRI 442** for swage dies based on connectors with a given outside diameter.

2. Select swage dies for the IA.

Typically, the connector and insulation ends of the IA require different die sizes.

a. Look at either **NRI 432 – "The IA Reference Table,"** the IA label (if there is one), or the IA bag label (if there is one).
   - Feeder swage dies require using the larger feeder head for the swage press.

Figure 44: What the IA looks like after swaging.

3. Lubricate the swage dies.

a. Place matching swage die halves into the die head.

b. Lubricate the swage dies and all contact surfaces of the head at least once a day.
   - Use either Corbin Swage Lube or Break Free CLP for lubrication.

c. Protect and keep the swage dies in a clean location throughout cable preparation.

d. Examine dies frequently for debris between the teeth of the die.

Figure 45: Add lubricant to the die.

- Swaging rocks and debris can damage the swage dies, which can lead to IA damage during the swaging process.

e. As an option, swage spare IAs and connectors onto a cable piece as a test. If the dies do not appear to swage the IAs and connector correctly, contact Engineering for assistance.

IA and Connector Installation

1. Verify connector and IA are sitting on the cable correctly.

a. Look at the quality check marks made previously on the connector and insulation.
   - If the IA and/or connector do not line up with the marks, reposition until they do.
   - Using these marks will help prevent failures from an incorrect installation and a poor electrical connection.

Figure 46: The QC marks above and below the edges of the IA.

2. Swage the connector

a. Crimp the connector barrel as many times as possible in the connector's crimping region.
   - Follow IEEE® 1816™ guidelines on how to install the connector.
   - If installing IAs, do not swage or damage the IAs at this time.

b. Make sure that the conductor is fully inserted into the connection and that the IA is sitting against the insulation.

c. Begin crimping/swaging the connector at the “no crimp” line.

d. Crimp/swage the connector as many times as possible, moving towards the cable each time.

Figure 47: Crimp the connector as many times as possible.

3. Swage the IA’s connector side.

a. Fit the swage head with the swage dies for the IA’s connector side onto the swage press.

b. Position the swage press so that the die release button is on the opposite side of the tool stop.

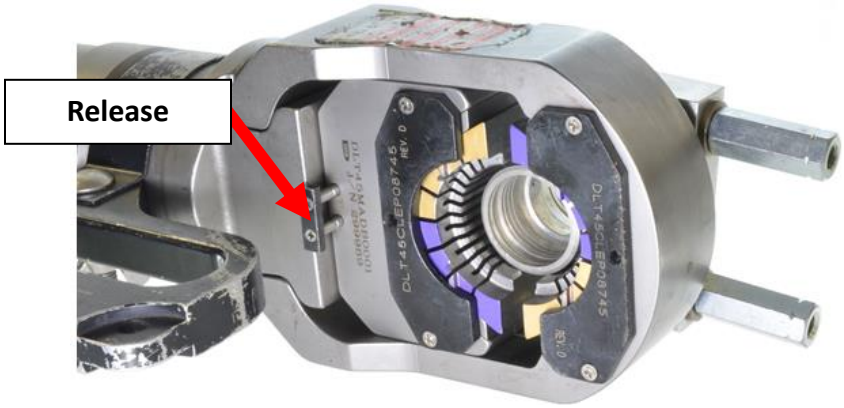


Figure 48: The release button is on the opposite side from the tool stop.

c. Position the swage press around the IA and hold it snug against the tool stop.

- It is important to keep the head square against the tool stop to swage the IA straight.

Figure 49: The swage head is square on the tool stop.

d. Keep fingers away from the closing portion of the press and begin swaging the IA.

e. Continue swaging until the swage head's shoulders make full contact with each other and the attached in-line hydraulic pump reaches at least 9000psi of pressure.

- This ensures full swage die compression, helping eliminate the formation of "ears" on the IA.
- The natural variance between individual swage presses and subjective visual clues are non-factors.

Figure 50: An example in-line hydraulic gauge between the swage press and foot pump. It must read at least 9000psi for a proper swage.

f. Release the swage press now.

4. Space the IA for the insulation side swage.

a. Place the appropriate IA spacer for the IA, given in **NRI 432**, snug against the IA.

b. Place the tool stop snug against the spacer.

c. Tighten the tool stop to hand tight; then with a wrench, tighten a quarter to half-turn more.

d. Do not overtighten as the tool stop can deform the insulation.

e. Remove the IA V-spacer.

5. Swage the IA's insulation side.

a. Attach the head with dies, determined previously, to swage the IA's insulation side to the swage press.

b. Position the swage press so that the die release button is facing away from the tool stop.

Figure 51: The release button is on the opposite side from the tool stop.

c. Hold the swage press around the IA, snug against the tool stop.

d. Keep fingers away from the closing portion of the press and begin swaging the IA.

e. Continue swaging until the swage head's shoulders make full contact with each other and the attached in-line hydraulic pump reaches at least 9000psi of pressure.

Figure 52: An in-line hydraulic gauge between the swage press and foot pump. It must read at least 9000psi.

f. Release the swage press.

6. Quality check the IA swages.

a. The swaged area will often have rough edges. Smooth these rough edges with a file, a 3M® Scotch-brite™ pad, or 120 grit sandpaper.

- Smoothing these edges helps prevent interior damage to component bodies.

b. Check for improper swages and cracks.

- Correct swages will leave the IA's center unmarked and compress the full IA end length.
- Swaging the IA's center may damage the injection port area, preventing injection and sealing with the injection tool and plug pins.

7. Compare the post-swage cable to the template.

a. Lay the swaged cable length next to the post-swage portion of the template.

b. Confirm that all cutbacks and post-swage lengths are within the required ranges. Adjust or redo any if necessary.

c. Check the insulation and semi-con for cracks, gouges, ripples, scratches, dirt, or other defects.

d. Fix any damage found or remove the section of cable and redo the cable preparation.

Inject the Cable

1. Inject cable with SPR process

a. Begin SPR injection using the procedure in **NRI 613 Large Diameter Cables (URD) – SPR**.

b. After finishing SPR injection, go to the next section outlining the application being worked.

Install 600amp T-Body elbows

Install components by the more stringent of manufacturer's installation instructions or circuit owner's standards.

Do not substitute for any of the manufactuer's supplied special greases or tapes required for installation. This can lead to premature failure.

1. Wire brush mating faces

It is critical that all electrically connected mating faces of components be wire brushed to reduce the resistance between items.

Breaking the oxide layer and promoting a good electrical connection will increase conductivity, lower operating temperature, and help increase the lifespan of the connection.

Mating faces include:

- The sides of the compression lug
- Metallic surface of insulating plugs
- Metallic surfaces of connector plugs
- Metallic surfaces of reducing tap plugs
- Metallic surfaces of reducing tap wells

Figure 53: Mating faces of a few pieces in the assembly.

- Check for deformations of mating faces, as these could degrade electrical connections and lead to premature failure.

Figure 54: Any deformities on the mating surfaces can cause premature failures.

2. Apply anti-oxidant grease to mating faces

After wire brushing the mating surfaces, anti-oxidant must be applied to the mating electrical faces to prevent an insulating oxide layer from building up.

3. Readjust and secure the cable adapter

With the IA and connector installed, the cable adapter needs to be readjusted, if necessary, to align the small edge of the cable adapter flush against the marking tape.

- One method to help prevent moving out of position again, is to tightly wrap a few laps of white restricting tape on the small section of the adapter.

Figure 55: White restricting tape.

Figure 56: Wrapping the cable adapter can help to hold it in place.

4. Lubricate cable adapter

Lubricate the outside of the cable adapter to facilitate easy installation of the T-Body.

5. Slide T-body onto cable

a. Hold the cable adapter in place.

b. Slide the T-Body onto the cable.

c. Fully insert the connector into the T-Body, until the T-Body is seated.

- The T-Body will slide over the cable adapter.

6. Check that cable adapter is not pushed out of place

Verify that the cable adapter is flush with the edge of the marking tape, and is in the correct location according to the template.

7. Clean and lubricate apparatus bushing

Maintaining clean interfaces between mating parts will help prevent electrical tracking and premature failure of the components.

Clean the non-conducting surfaces of the apparatus bushing, and lubricate with the supplied lubricant.

8. Clean and lubricate T-Body port lip

Clean the inner lips of the T-Body and lubricate with the supplied lubricant.

Figure 57: The inner lip of the T-Body component.

9. Thread the stud into the apparatus bushing using the correct torque

a. Thread the supplied stud into the apparatus bushing.

b. Using a calibrated torque wrench, tighten the bolt to 40-48ft-lbs as specified in the IEEE 386 standard and manufacturer's data sheets and installation instructions.

10. Align compression lug hole with apparatus bushing.

Line up the hole in the compression lug with the stud on the mating surface of the apparatus bushing.

11. Clean and lubricate the new mating component.

Clean the non-conducting surfaces of the new mating component.

- Never re-use old components. They can be contaminated or damaged, leading to premature failure.

12. Thread new mating component to stud and tighten using correct torque.

a. Insert the new component into the T-Body.

b. Engage the stud's threads and hand tighten.

c. Torque the mating part according to its supplied instructions with a calibrated torque wrench.

- Insulating plugs are to be torqued to 50-60ft-lbs
- Connector plugs, tap plugs, or tap wells are to be torqued to 40-48ft-lbs.

13. Repeat steps for stacking components.

Repeat steps cleaning and tightening steps for each component placed in the stack.

14. Check all pieces of the T-Body assembly are in the correct place

Verify that all pieces of the component assembly are in the correct place per manufacturer's instructions.

15. Connect bare ground wire from the T-Body eyelet to ground

a. Insert one end of a piece of wire with ampacity equivalent to #14 AWG copper through the grounding eyes on each piece of the assembly.

b. Twist the wire to make a small loop around the eye

- Do not damage the eye.

c. Connect the wire to ground using a suitable connector.

16. Connector cable neutral conductor to ground

a. Ground the cable according to the instructions supplied with the grounding device.
- If no grounding device is used, the neutral conductor must be grounded through an alternate method.

17. Deploy water seal kit over T-body and cable to prevent water intrusion

a. Install the water seal kit over the T-body, cable adapter, and cable jacket (if applicable) to seal the components and cable from water intrusion.

- Water intrusion can cause premature failure of the components.

Figure 58: The water seal kit deployed on the cable adapter over to the cable jacket.

18. Installation of the T-Body is complete.

Install Disconnectable I-, Y-, or H-Splices

Install components by the more stringent of manufacturer's installation instructions or circuit owner's standards.

Do not substitute for any of the manufactuer's supplied special greases or tapes required for installation. This can lead to premature failure.

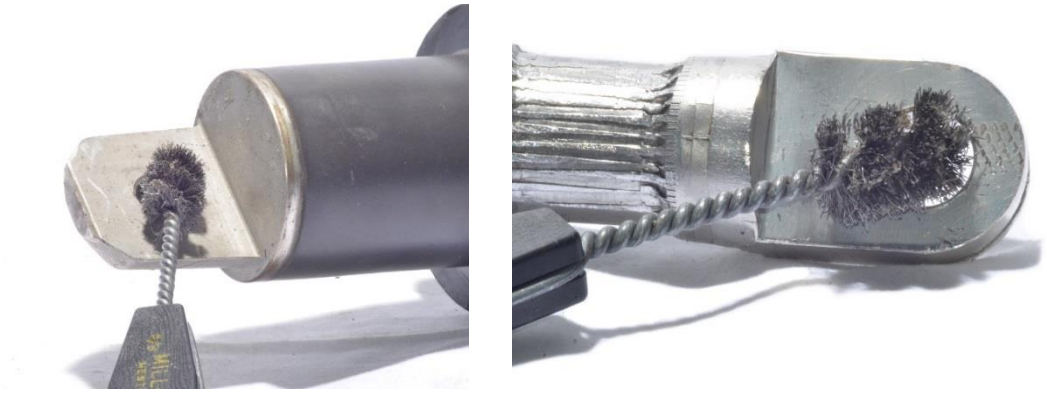
1. Wire brush mating faces

It is critical that all electrically connected mating faces of components be wire brushed to reduce the resistance between items.

Breaking the oxide layer and promoting a good electrical connection will increase conductivity, lower operating temperature, and help increase the lifespan of the connection.

Mating faces include:

- The sides of the compression lug
- Metallic surface of splice bus



Figures 59 and 60: Wire brushing on surface of splice bus and connector.

- Check for deformations of mating faces, as these could degrade electrical connections and lead to premature failure.

Figure 61: Any deformities on the mating surfaces can cause premature failures.

2. Apply anti-oxidant grease to mating faces

After wire brushing the mating surfaces, anti-oxidant must be applied to the mating electrical faces to prevent an insulating oxide layer from building up.

3. Bolt the connector to the spade of the splice bus

a. Place the supplied shear bolts through the eye of the connector and thread into the spade of the splice bus.

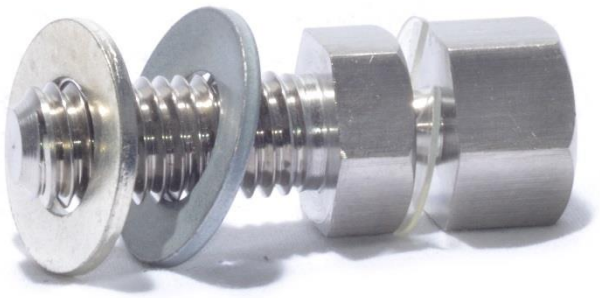


Figure 62: The shear bolt for disconnectable joints.

Figure 63: Connecting the connector to the splice bus.

b. Continue tightening the shearbolt until the bolt's upper hex head breaks off.

- The shearbolt is designed to break at a certain torque, ensuring the proper amount of torque is applied for the component.
- If the shearbolt needs to be removed after it has been broken, a torque wrench is required to properly apply the torque needed.
- A torque of 50-60ft-lbs is required to properly tighten a removed shearbolt.

4. Readjust and secure the cable adapter

With the IA and connector installed, the cable adapter needs to be readjusted, if necessary, to align the small edge of the cable adapter flush against the marking tape.

- To help prevent the cable adapter from moving out of position again, a few wraps of tape on the small section of the adapter can be used to hold it in place.

5. Lubricate cable adapter

Lubricate the outside of the cable adapter to facilitate easy installation of the T-Body.

6. Slide joint sleeves onto cable

a. Hold the cable adapter in place.

b. Secure the sleeve installing tool on the bus body and clamp around the sleeve.

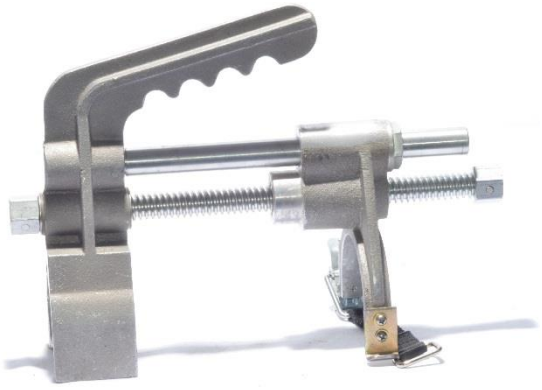


Figure 64: The sleeve installing tool

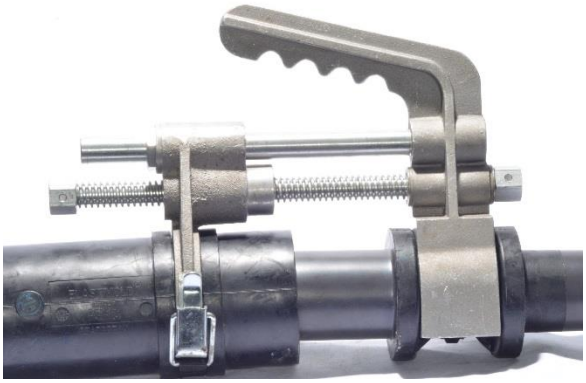


Figure 65: Place the installing tool on the components.

c. Using a wrench or drill with socket on the hex nut of the sleeve installing tool, pull the sleeve towards the bus.

- Do not use an impact drill/wrench to actuate the tool. It will be damaged.

Figure 66: The sleeve installing tool can be run with a wrench on the hex bolt.

d. When the sleeve begins overlapping the bus body, insert the bleed tube between the bus and the sleeve

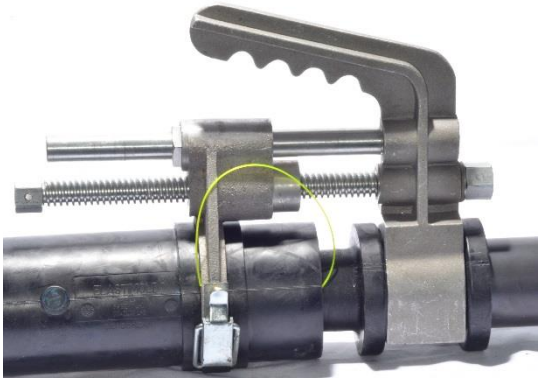


Figure 67: The bleed tube goes between the sleeve and the bus body.

e. Continue bringing the sleeve until snug against the bus body.

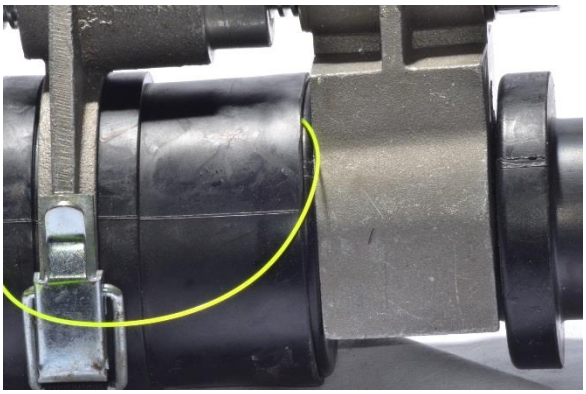


Figure 68: The sleeve is now snug against the bus.

f. Pull the bleed tube from between the sleeve and bus.

7. Check that cable adapter is not pushed out of place

Verify that the cable adapter is flush with the edge of the marking tape, and is in the correct location according to the template.

8. Repeat steps for the additional component legs.

Repeat installation steps for each leg of the component placed in the stack.

9. Install the sleeve braces

Install the supplied sleeve brace to keep the sleeves from moving out of position and exposing energized components.

- The brace hooks into the grooves on the individual sleeves and holds them in place.

Figure 69: Brace to keep together the disconnectable sleeves.

Figure 70: The brace installed.

10. Check all pieces of the disconnectable assembly are in the correct place

Verify that all pieces of the component assembly are in the correct place per manufacturer's instructions.

11. Bond cable neutrals together.

Following the installation instructions, bond together the neutral conductors from the ends of the cable segments using the supplied neutral bonding kit.

12. Connect bare ground wire from the assembly body's eyelets to ground

a. Insert one end of a piece of wire with ampacity equivalent to #14 AWG copper through the grounding eyes on each piece of the assembly.

b. Twist the wire to make a small loop around the eye

- Do not damage the eye.

c. Connect the wire to ground using a suitable connector.

13. Deploy water seal kit over sleeves and cable to prevent water intrusion

a. Install the water seal kit over the joint sleeves, cable adapter, and cable jacket (if applicable) to seal the components and cable from water intrustion.

- Water intrusion can cause premature failure of the components.

Figure 71: The water seal kit deployed on the cable adapter over to the cable jacket.

14. Installation of the Disconnectable Splice is complete.