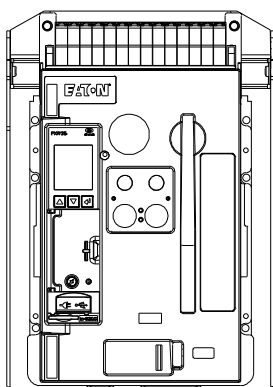


65kA fixed front connect extension kit - NF

Instructions apply to:



UL489 : PD-NF, Series NRX NF
IEC : PD-NF, IZMX16
UL1066/ANSI : Series NRX NF

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⚠ WARNING

(1) ONLY QUALIFIED ELECTRICAL PERSONNEL SHOULD BE PERMITTED TO WORK ON THE EQUIPMENT.

(2) ALWAYS DE-ENERGIZE PRIMARY AND SECONDARY CIRCUITS IF A CIRCUIT BREAKER CANNOT BE REMOVED TO A SAFE WORK LOCATION.

(3) DRAWOUT CIRCUIT BREAKERS SHOULD BE LEVERED (RACKED) OUT TO THE DISCONNECT POSITION.

(4) ALL CIRCUIT BREAKERS SHOULD BE SWITCHED TO THE OFF POSITION AND MECHANISM SPRINGS DISCHARGED.

FAILURE TO FOLLOW THESE STEPS FOR ALL PROCEDURES DESCRIBED IN THIS INSTRUCTION LEAFLET COULD RESULT IN DEATH, BODILY INJURY, OR PROPERTY DAMAGE.

⚠ WARNING

THE INSTRUCTIONS CONTAINED IN THIS IL AND ON PRODUCT LABELS HAVE TO BE FOLLOWED. OBSERVE THE FIVE SAFETY RULES:

- DISCONNECTING
- ENSURE THAT DEVICES CANNOT BE ACCIDENTALLY RESTARTED
- VERIFY ISOLATION FROM THE SUPPLY
- EARTHING AND SHORT-CIRCUITING
- COVERING OR PROVIDING BARRIERS TO ADJACENT LIVE PARTS

DISCONNECT THE EQUIPMENT FROM THE SUPPLY. USE ONLY AUTHORIZED SPARE PARTS IN THE REPAIR OF THE EQUIPMENT. THE SPECIFIED MAINTENANCE INTERVALS AS WELL AS THE INSTRUCTIONS FOR REPAIR AND EXCHANGE MUST BE STRICTLY ADHERED TO PREVENT INJURY TO PERSONNEL AND DAMAGE TO THE EQUIPMENT.

General information

This Type NF 65 kA bus extension kit is for a three-pole, fixed front connect configuration (**Figure 1**). The arc hood on a fixed circuit breaker is positioned over the breaker's arc chambers to primarily direct arc gas discharge. An arc hood is used on all fixed circuit breakers whether they are configured for rear or front connection. This front connect configuration also contains a shroud mounted on the load side of the breaker. Mounting feet are used to attach breakers to a vertical surface.

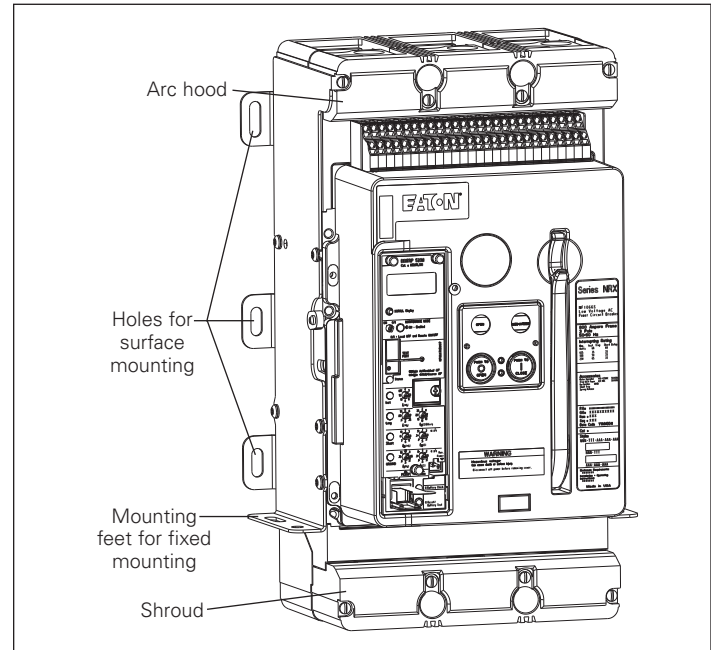


Figure 1. Front connect breaker

⚠ CAUTION

IT IS IMPORTANT NOT TO EXCEED THE RECOMMENDED TORQUE VALUES WHEN MAKING BOLTED CONNECTIONS TO THE EQUIPMENT OR TO THE ADAPTERS THEMSELVES, ALL WHICH HAVE PRE-TAPPED HOLES. FAILURE TO FOLLOW THESE REQUIREMENTS COULD RESULT IN EQUIPMENT DAMAGE AND/OR FAILURE.

The front connect breaker configuration has bus adapters that are internal to the breaker and are intended to accommodate cable terminals with bus extension connections. These cannot be replaced in the field.

Note: Integral wire terminals are **not** permitted on line side of breakers.

The arc hood on the line side and the shroud on the load side serve to insulate the bus adapters from their surroundings (**Figure 2**). Refer to **Table 1** for a list of available bus extension kits.

Note: For applications up to 65 kA, the bus extension kits below may be utilized for the line-side only.

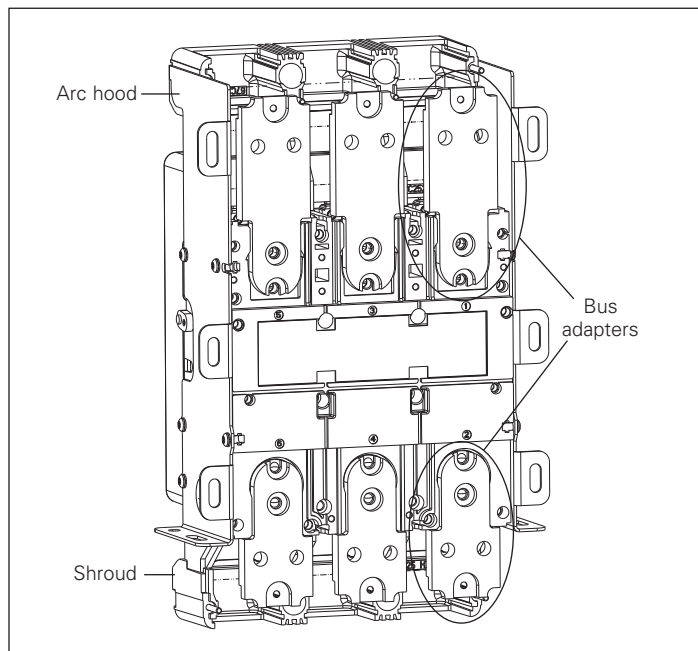


Figure 2. Bus adapters at the line and load sides—back cover not shown to highlight the bus adapters

Table 1. List of bus extension kits for use with 65 kA front connect, line side

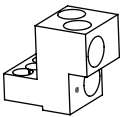
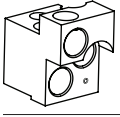
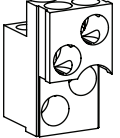
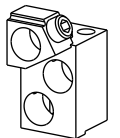
	List number	Connector	Catalog number
	1	Cable terminal (2 holes)	NRXBUSEXT65-TA700M
	2	Cable terminal (3 holes)	NRXBUSEXT65-TA1000M
	3	Cable terminal (4 holes)	NRXBUSEXT65-TA1200M
	4	Cable terminal (3 holes)	NRXBUSEXT65-TA1201M

Table 1a. Optional load assembly bus extension kit

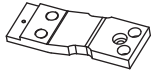
	List number	Connector	Catalog number
	5	Select from Table 2	NRXBUSEXT65-LS

Table 2. Optional cable terminal specifications (for use with 42/50 kA applications or 65 kA load side)

Maximum breaker amperes	Terminal body material	Wire type	AWG wire range / number of conductors	Metric wire range mm ²	Catalog number (as sold separately)
Standard Cu/Al pressure terminals					
700	Aluminum	Cu/Al	1–500 kcmil (2)	50–240	TA700NB1M TA700NB1MCWT
1000	Aluminum	Cu/Al	3/0–400 kcmil (3)	95–185	TA1000NB1M TA1000NB1MCWT
1200	Aluminum	Cu/Al	4/0–500 kcmil (4)	120–240	TA1200NB1M TA1200NB1MCWT
1200	Aluminum	Cu/Al	500–750 kcmil (3)	300	TA1201NB1M TA1201NB1MCWT TA1201NB1 TA1201NB1CWT

Instructions to assemble

Bus extension kit installation

In order to attach bus conductor extensions to the line bus adapters, proceed with the following steps.

Step 1

Remove the four screws while holding the front of the arc hood (**Figure 3**). Loosen side sheet screws on both sides. Remove fixed mounting feet from both sides.

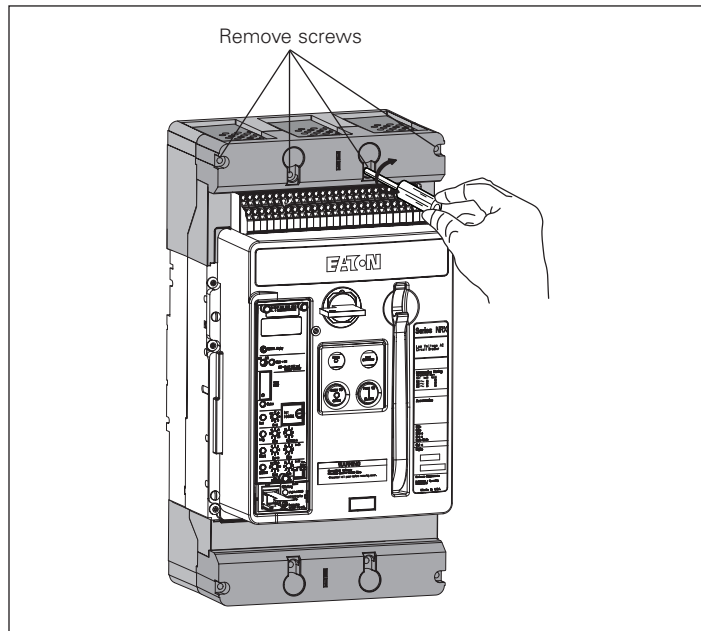


Figure 3. Step 1

Step 2

With the screws removed, pull out the front of the arc hood and set it aside (**Figure 4**).

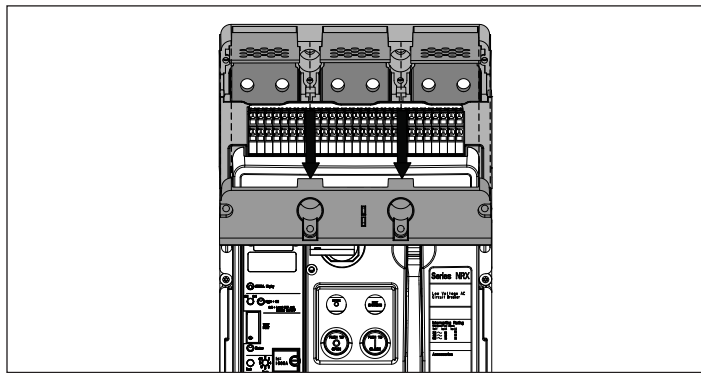


Figure 4. Step 2

Step 3

Slide each of the baffles forward and out to provide proper access to the bus adapters (**Figure 5**).

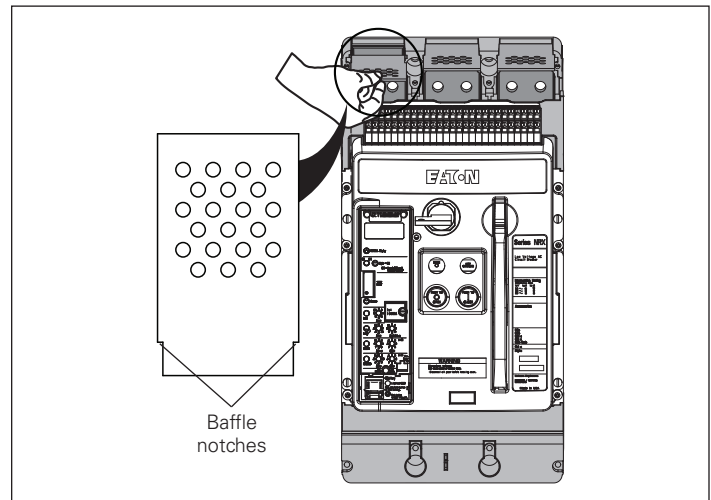


Figure 5. Step 3

Step 4

Remove four screws and lift up front cover. On the **line** side, remove the three screws on the secondary contact block assembly. Slide out secondary contact block shield. With the screws removed, pull out the secondary contact block assembly (**Figure 6**).

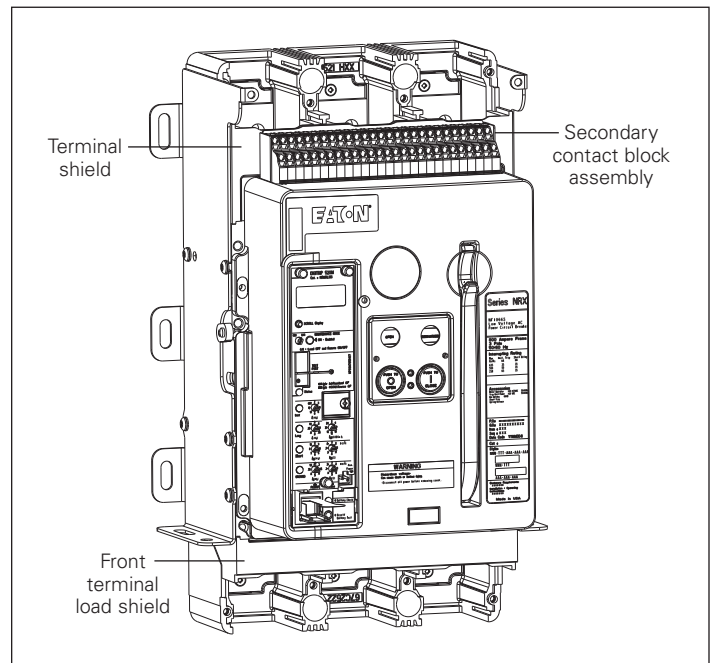


Figure 6. Step 4

Step 5

Access is now available to make the required bus conductor extension connections (**Figure 7**).

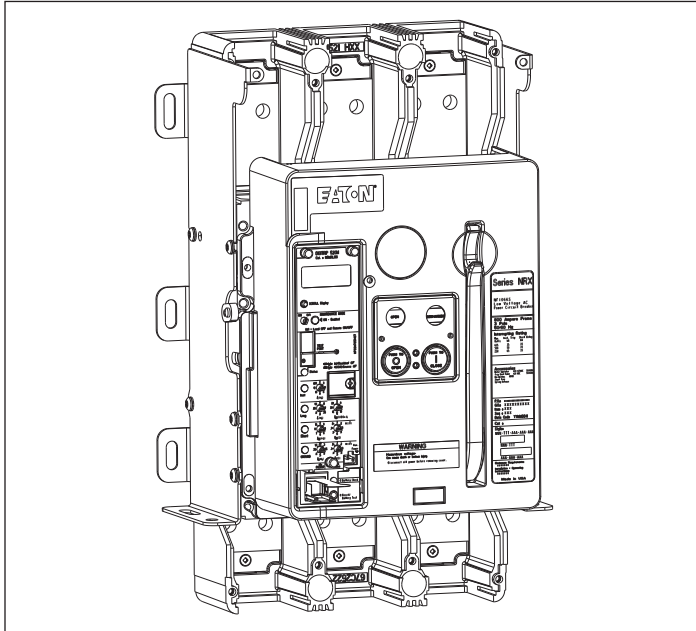


Figure 7. Step 5

Step 6

Bolt the bus conductor extensions to the breaker bus adapters using the provided hardware. Refer to **Figure 8**.

65 kA FMFC assembly with supported extenders (line side)

The first step is to remove the long side sheets from both sides of the breaker and also remove the secondary terminal shield and baffles. Refer to **Figure 3** through **Figure 6**.

Start the assembly per **Figure 8**.

1. Get 6 of the M12 x 30 cap HD screws (**5**) and to each add an M12 lock washer (**6**) and an M12 flat washer (**7**).
2. Get 3 of the M8 x 20 socket HD cap screws (**2**) and to each add an M8 Belleville washer (**3**) and an M8 flat washer (**4**).
3. Use this hardware to attach the extenders (**1**) to the adapter bus inside the breaker housing. Place the M12 assemblies into the two, larger counter bored holes and the M8 into the smaller counter bored hole.
4. Torque the M12 screws to 35 ft-lb (47 N·m) and the M8 screws to 120 in-lb (14 N·m).

Assemble the following per **Figure 9**.

1. Get the 6, long M12 (**length depends upon terminal**) (**1**) hex head bolts in the kit.
2. To each M12 bolt, assemble first the M12 Belleville washer (**2**) and then the thin, M12 shim washer (**3**).
3. Get the extender support block (**4**).
4. Place each of the M12 bolts assembled above through the holes in the recessed side of the extender support block.
5. Screw each of the M12 bolts into the tapped holes of the extenders (**5**) from **Figure 8**.
6. Now tighten the bolts going through the extender support to 35 ft-lb (47 N·m).

Return to **Figure 9** to complete the assembly.

1. Unpack the cable terminals and discard the hardware supplied with the terminals.
2. Place a cable terminal (**6**) on each pair of the M12 bolts that protrude from the extenders and add an M12 Belleville washer (**7**) and an M12 hex steel nut (**8**). While holding the head of the bolt in the extender support securely, torque M12 hex steel nut to 35 ft-lb (47 N·m).
3. Only after the bolts/nuts holding the cable terminals are properly torqued in place can you place the back sheet (**9**) onto the back of the extender support. Note that you must remove the backing from the back sheet to expose the adhesive surface needed to adhere to the extender support.
4. Slide each of the front connect baffles (**10**) into the arc hood (**11**) and then insert this assembly into line side. Secure by installing the middle two M4 x 80 Phillips pan head screws (**12**) (leave the outer two screws to secure the long side sheets later).
5. Reinstall the two long side sheets and use the two remaining M4 x 80 Phillips pan head screws to secure the top leg of the side sheets to the arc hood. Tighten all 4 of the M4 x 80 Phillips pan head screws to 1.3 ft-lb (1.7 N·m).

Final assembly steps **Figure 9**.

1. Replace the secondary contact block assembly previously removed in **Step 4**.
2. Replace the front of the shroud previously removed in **Step 1** and **Step 2**. Replace front cover.
3. Phase barriers (**13**) made from flexible rubber material are supplied with the bus extension kit, along with the cable terminals. The phase barriers should be installed to the right and left of the center bus connector extension on both the line and the load sides (if required). These phase barriers provide proper insulation integrity.

⚠ CAUTION

MAKE SURE THE PHASE BARRIERS ARE PROPERLY INSTALLED BEFORE PLACING THE CIRCUIT BREAKER INTO SERVICE. FAILURE TO FOLLOW THESE REQUIREMENTS COULD RESULT IN EQUIPMENT DAMAGE AND/OR FAILURE.

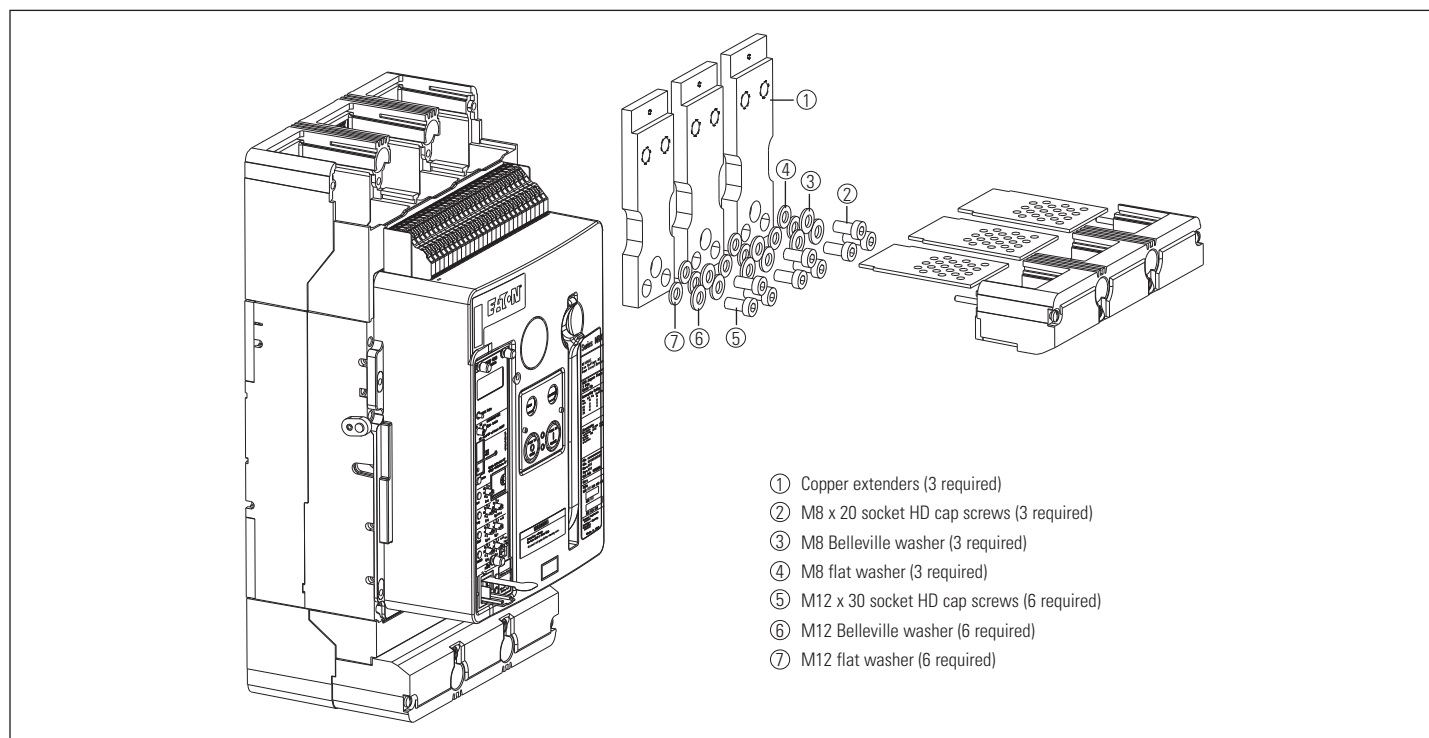


Figure 8. Assembly view (refer to only the line side for this kit)

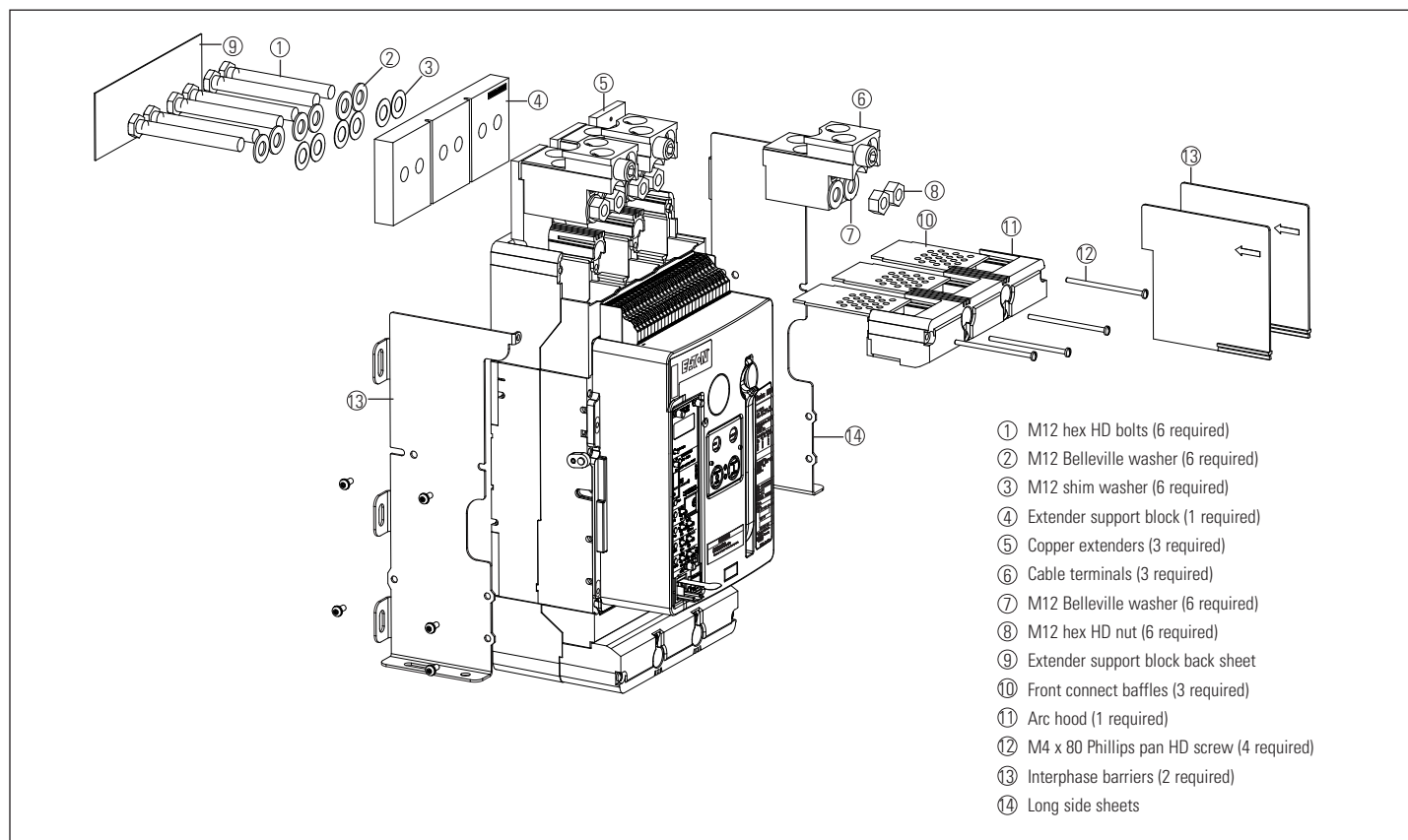


Figure 9. Assembly view (refer to only the line side for this kit)

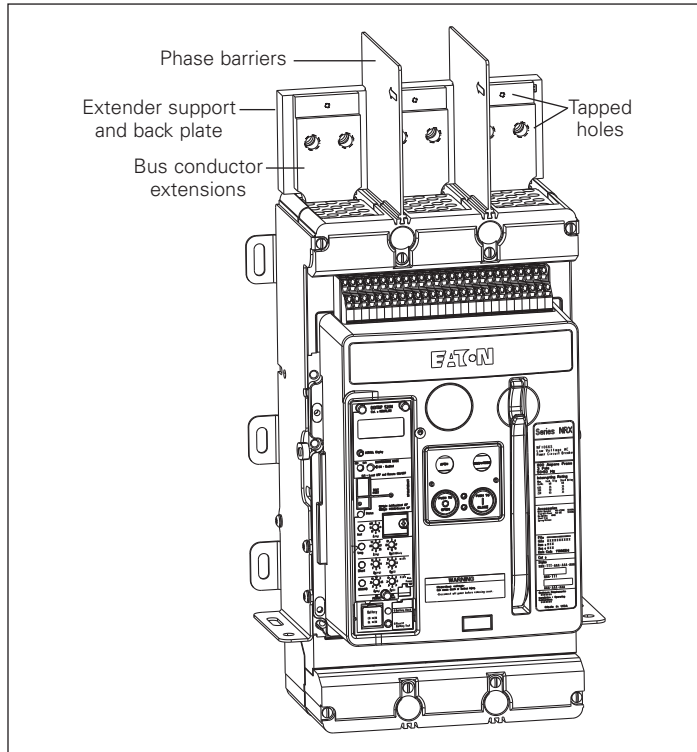


Figure 10. Assembly parts identification

Load-side assembly instructions

Optional bus extensions or cable terminal installations.

Cable terminal kit installation

Note: Before proceeding with **Step 7**, make sure the front cover is removed as per **Step 4**. Remove the front terminal load shield shown in **Figure 6**. Remove shroud as shown in **Figure 1**.

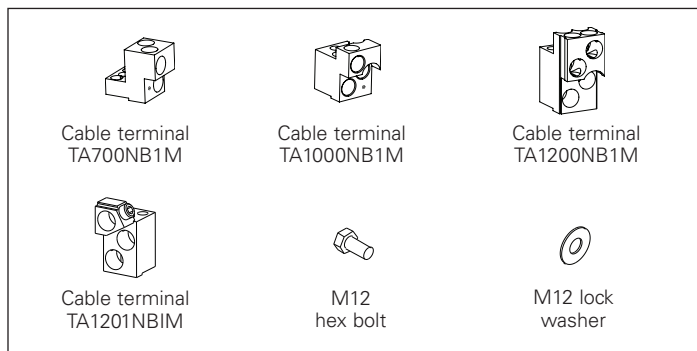


Figure 11. Cable terminal kit

Note: Terminals sold separately.

NOTICE				
Terminal Cat. No.	Wire Size AWG/MCM	(mm ²)	Conductor Material	Torque Lb-In (N-m)
TA700NB1(M)	[2]	1 – 500 (50 – 240)	CU/AL	375 (42)
TA1000NB1(M)	[3]	3/0 – 400 (95 – 185)	CU/AL	375 (42)
TA1200NB1(M)	[4]	4/0 – 500 (120 – 240)	CU/AL	375 (42)
TA1201NB1(M)	[3]	500 – 750 (300)	CU/AL	375 (42)

66B2638H01

Figure 12. Cable terminals torque requirements

Step 7

Cable terminal connections can be made directly to the bus adapters inside the breaker load side or to the bus conductor extensions that extend out of the load side of the breaker (refer to **Step 5**). Cable terminals are shown in **Figure 14** and described in **Table 2**.

To complete the connections, proceed with the following steps.

1. Bolt the cable terminals directly to the bus adapters using the hardware provided (**Figure 14**). Cable terminals can also be bolted to the bus connector extensions (**Figure 13**). Torque the bolted connections to 35 ft-lb (47 N-m).

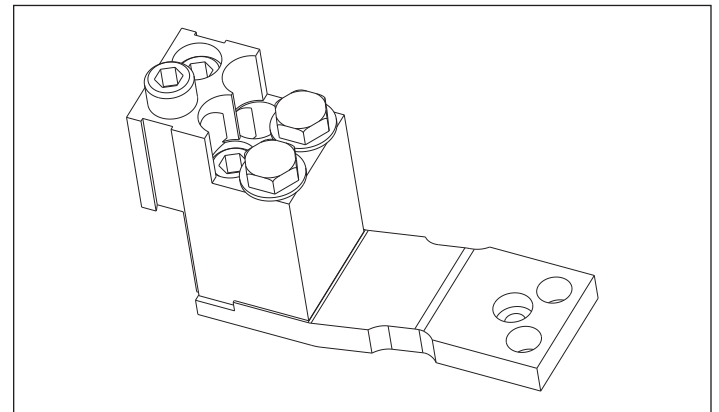


Figure 13. Bus conductor extension with cable terminal

2. Replace the front cover and rear terminal load shield previously removed. After connecting the cable terminals to a bus conductor extension, re-install baffles before replacing the shroud.

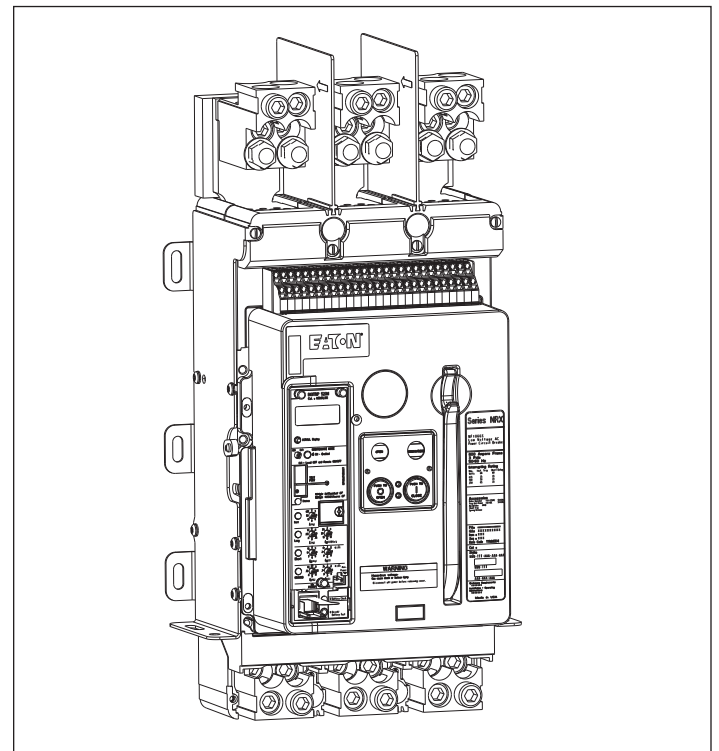


Figure 14. Step 7.1—Cable terminals connected directly to bus adapters on load side and supported bus extenders on line side

3. Phase barriers made from a flexible rubber material are supplied with the kits. If using cable terminals connected to bus connector extensions, phase barriers must be installed to the right and left of the center cable terminal on both the line and the load sides (**Figure 15**). These phase barriers provide proper insulation integrity.

4. When making the cable terminal connections, properly torque the cable retaining screws and periodically check all mounting hardware for proper torque loading. Refer to **Figure 16** for rope lacing support instructions.

To remove the cable terminals, reverse the procedure described above.

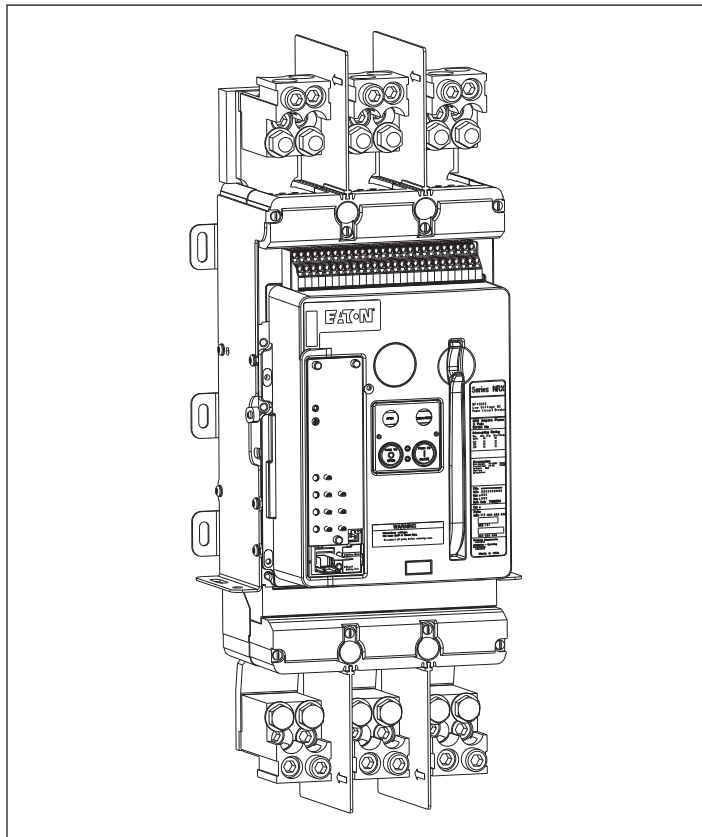


Figure 15. Step 7.3—Cable terminals connected onto bus extensions on both line and load side

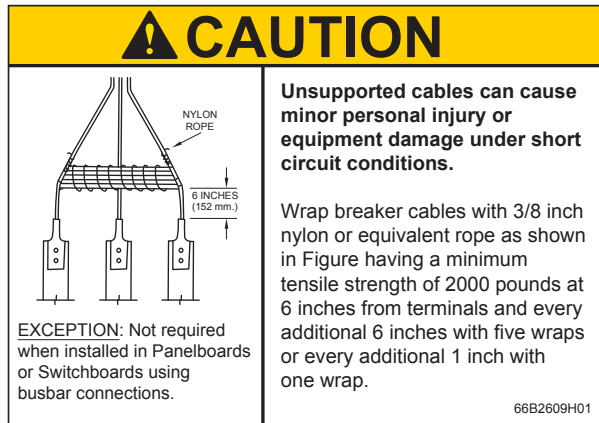


Figure 16. Rope lacing instructions

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