

Installation Instructions

Original Instructions



Allen-Bradley

by ROCKWELL AUTOMATION

PowerFlex 755 Transition Section and Splicing Kit for Floor-mount Drives and CENTERLINE 2100 Motor Control Centers

Bulletin Number 2100

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Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Removed publication 2100-IN037 from Additional Resources table	2

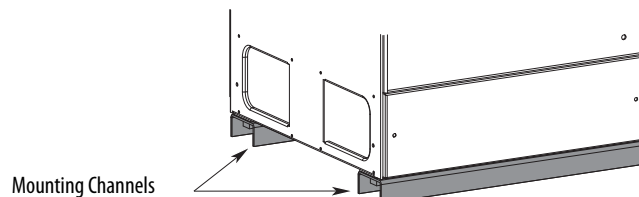
Introduction

This document explains the recommended procedures that you should use when joining and splicing a PowerFlex® 755 floor-mount drive, Frames 8...10, with a CENTERLINE® 2100 Motor Control Center (MCC).

Before you begin, familiarize yourself with the installation requirements and recommendations for both the PowerFlex 755 drive and the CENTERLINE 2100 MCC.

Compatibility

The transition section and splicing kit is designed to join together a PowerFlex 755 floor-mount drive and a CENTERLINE 2100 MCC column with or without 1.5 inch mounting channels.



Diagrams in this publication show the mounting channels installed. Mounting channels will not be used in all installations.

Additional Resources

The following table lists publications that provide general PowerFlex 755 drives and CENTERLINE 2100 MCC related information.

Resource	Description
PowerFlex 750-Series AC Drives Installation Instructions, publication 750-IN001	Provides detailed information on: <ul style="list-style-type: none"> • Installation requirements • Additional safety requirements • Drive assembly removal and handling • Approximate dimensions
CENTERLINE 2100 Low Voltage Motor Control Centers Installation Instructions, publication 2100-IN012	Provides detailed information on: <ul style="list-style-type: none"> • Installation requirements • Handling instructions • Approximate dimensions

You can view or download publications at

<http://www.rockwellautomation.com/literature/>.

To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

What the Kits Contain

A complete installation requires one transition section and one bus bar splicing kit. Depending on the catalog number ordered, the kit will be a left-side mount or a right-side mount relative to the drive. Kits include all joining and splicing hardware. An IP20, NEMA/UL Type 1 enclosure results when kits are installed according to these instructions. If a NEMA Type 12 structure is required, follow the CENTERLINE Motor Control Centers NEMA Type 12 Sealing Instructions.

Left-side Kits	Right-side Kits	Amp Rating	MCC Bus Bar Position	Mounting Channel
20-750-XBUS-LHNB-1200	20-750-XBUS-RHNB-1200	1200	Standard (15 and 20 in. deep)	For use with MCCs that have 1.5 inch mounting channels.
20-750-XBUS-LHNB-2000	20-750-XBUS-RHNB-2000	2000	Standard (15 and 20 in. deep)	
20-750-XBUS-LHNB-3000	20-750-XBUS-RHNB-3000	3000	Standard (15 and 20 in. deep)	
20-750-XBUS-LHBB-1200	20-750-XBUS-RHBB-1200	1200	Bumped Back (20 in. deep)	
20-750-XBUS-LHBB-2000	20-750-XBUS-RHBB-2000	2000	Bumped Back (20 in. deep)	
20-750-XBUS-LHBB-3000	20-750-XBUS-RHBB-3000	3000	Bumped Back (20 in. deep)	
20-750-XSEC-LH-20G ⁽¹⁾	20-750-XSEC-RH-20G ⁽¹⁾	N/A	20 in. deep transition section	N/A
20-750-XBUS-LLNB-1200	20-750-XBUS-RLNB-1200	1200	Standard (15 and 20 in. deep)	For use with MCCs that do not have mounting channels.
20-750-XBUS-LLNB-2000	20-750-XBUS-RLNB-2000	2000	Standard (15 and 20 in. deep)	
20-750-XBUS-LLNB-3000	20-750-XBUS-RLNB-3000	3000	Standard (15 and 20 in. deep)	
20-750-XBUS-LLBB-1200	20-750-XBUS-RLBB-1200	1200	Bumped Back (20 in. deep)	
20-750-XBUS-LLBB-2000	20-750-XBUS-RLBB-2000	2000	Bumped Back (20 in. deep)	
20-750-XBUS-LLBB-3000	20-750-XBUS-RLBB-3000	3000	Bumped Back (20 in. deep)	
20-750-XSEC-BH-15G ⁽²⁾		N/A	15 in. deep transition section	N/A

(1) Hardware is included to install the optional 1.5 mounting channel.

(2) The 15 in. deep transition section can be mounted on the left side or the right side of the PowerFlex 755 drive cabinet.

Remove Power from All Equipment

Remove power from all equipment before proceeding with these instructions. Refer to the product's installation instructions and review all safety precautions before performing work on this equipment.

Left-side Kits

Follow all steps including the [Left-side Kit Assembly](#) sequence for 20 in. deep left-side-mount transition sections and the 15 in. deep left- or right-side-mount transition section.

Right-side Kits

Follow all steps including [Right-side Kit Assembly](#) sequence for 20 in. deep right-side-mount transition sections and the 15 in. deep left- or right-side-mount transition section.

PowerFlex 755 Drive



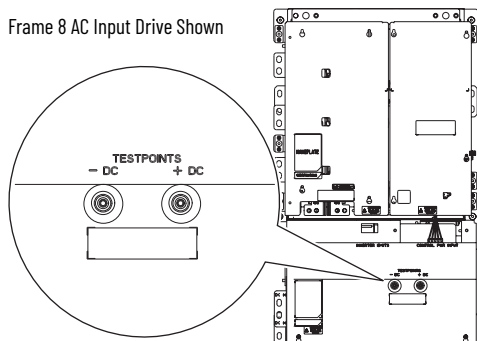
ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged completely before servicing. Measure the DC bus voltage at the -DC and +DC TESTPOINT sockets on the front of the power module (see [Figure 1](#) for location). Remove power before making or breaking cable connections. When you remove or insert a cable connector with power applied, an electrical arc may occur. An electrical arc can cause personal injury or property damage by:

- sending an erroneous signal to your system's field devices, causing unintended machine motion
- causing an explosion in a hazardous environment

Electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.

1. Turn off and lock out all input power, including any and all external power sources.
2. Wait 15 minutes and verify that there is no voltage at the drive's input power terminals.
3. Measure the DC bus voltage at the -DC and +DC TESTPOINT sockets on the front of the power module.

Figure 1 - PowerFlex Drive -DC and +DC Testpoint Sockets



CENTERLINE 2100 MCC



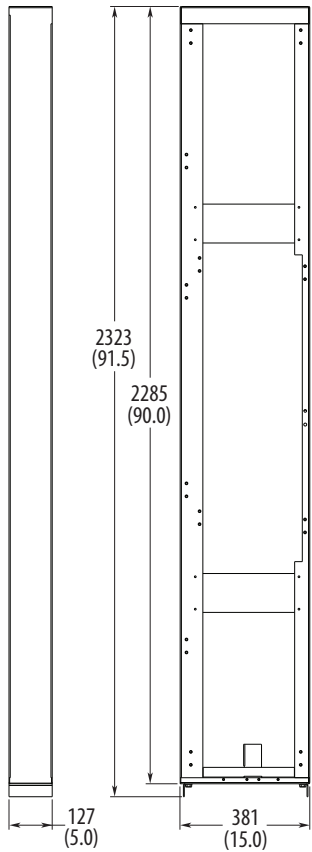
ATTENTION: De-energize all units before installing or removing. When installing or removing MCC units, when possible, deenergize, lockout, and tag-out all sources of power to the MCC.



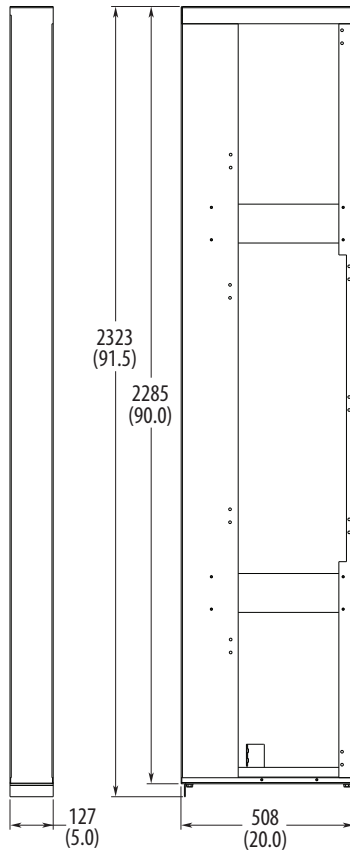
ATTENTION: De-energize all power sources to the motor control center before joining and splicing with the drive. Failure to de-energize all power sources can result in severe injury or death. Using a voltmeter, verify that the MCC remote power sources are disconnected.

Approximate Dimensions

Dimensions are in millimeters and (inches).



20-750-XSEC-BB-20G



20-750-XSEC-RH-20G
20-750-XSEC-LH-20G

Prepare the Transition Section

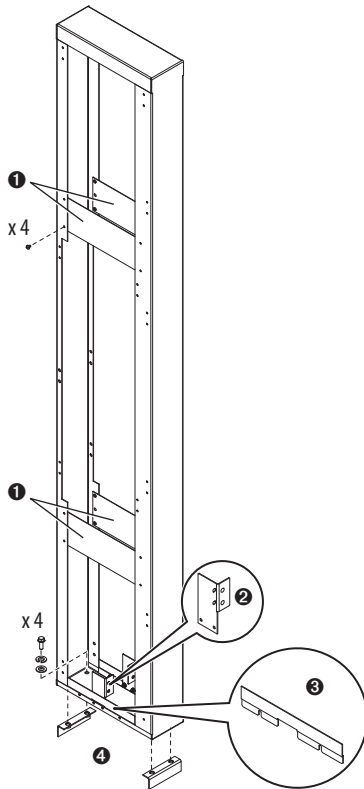
1. Remove and discard the four shipping plates ❶.
2. Remove the masking from the ground terminals ❷.

MCC Columns with Mounting Channels

3. Remove the spacer ❸ on the side of the transition section that will attach to the MCC column.

MCC Columns without Mounting Channels

4. Remove the mounting channels ❹ from the transition section.



No.	Description	No.	Description
❶	Shipping plates	❸	Spacer
❷	Ground Terminal	❹	Mounting Channels

Join Drive, Transition Section, and MCC

Physical restrictions at your installation may not allow the following sequence to be followed exactly as stated.

Step 1: Remove Drive Assembly

The PowerFlex 755 drive assembly must be removed to access side panels and horizontal bus bars. For detailed information on removing and handling the PowerFlex 755 drive assembly, refer to the PowerFlex 750-Series AC Drives Installation Instructions, publication [750-IN001](#). Special equipment is required.



ATTENTION: This drive has a high center of gravity and a tip-over hazard exists. To guard against death, serious personal injury, and/or equipment damage, do not subject the drive to high rates of acceleration or deceleration while transporting. Do not push or pull above the points indicated on the drive.

Step 2: Remove Plug-in Units, Support Pans, and Access Covers

All plug-in units and support pans must be removed to access side panels and horizontal bus bars.



ATTENTION: Plug-in MCC units may be heavy or awkward to handle. Use an assistant or a platform lift device if necessary to help you handle the unit

To remove the plug-in unit, refer to:
 CENTERLINE 2100 MCC Units with Horizontal Operating Handles, publication [2100-IN060](#),
 and CENTERLINE 2100 MCC Doors and Units with Vertical Operating Handles, publication [2100-IN014](#).



ATTENTION: MCCs are top and front heavy. To avoid personal injury or structural damage, never attempt to lift or move the MCC by any means other than the methods outlined in Receiving and Storing Motor Control Centers, publication [2100-IN040](#).

If you are installing a left-mount kit, see [page 6](#).

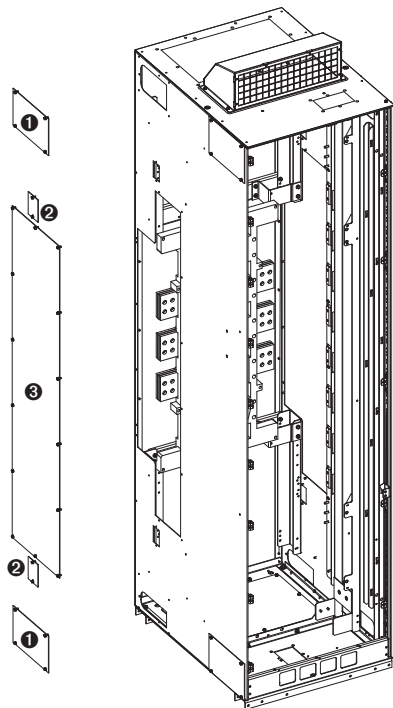
If you are installing a right-mount kit, see [page 11](#).

IMPORTANT After completing these instructions, refer to the publications listed on this page and under [Additional Resources on page 2](#) for detailed information on reinstalling equipment and components.

Left-side Kit Assembly

Step 3 (Left): Join Transition Section to Left-Side of Drive Cabinet

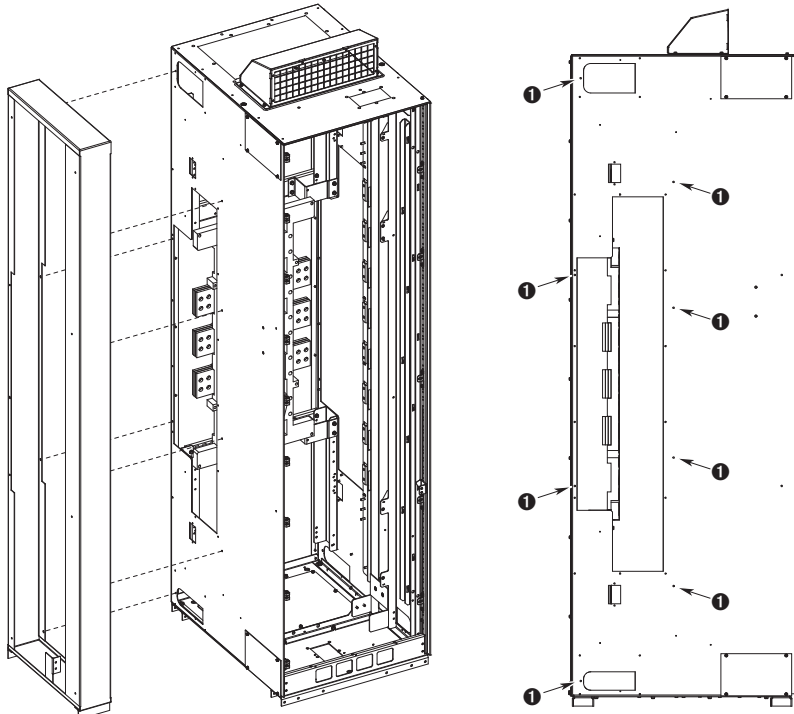
1. Remove panels from the left side of the PowerFlex 755 drive cabinet.



Cabinet door and internal components omitted for clarity.

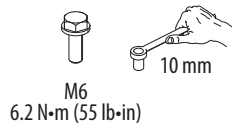
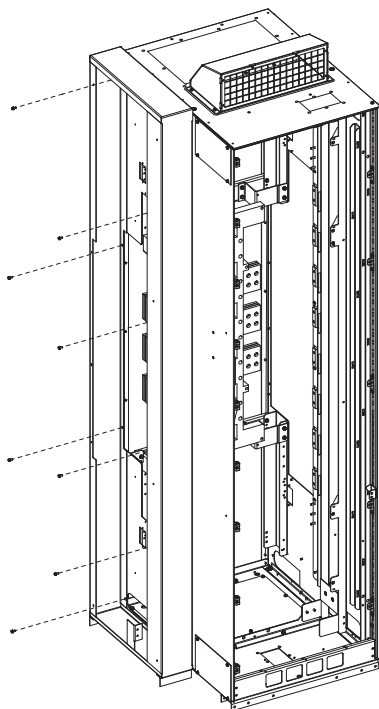
Note No.	Description
①	Top and bottom rear-wireway panels
②	Top and bottom PE bus-bar access panels
③	Main horizontal bus-bar access panel

- Align the left transition section with the drive cabinet.



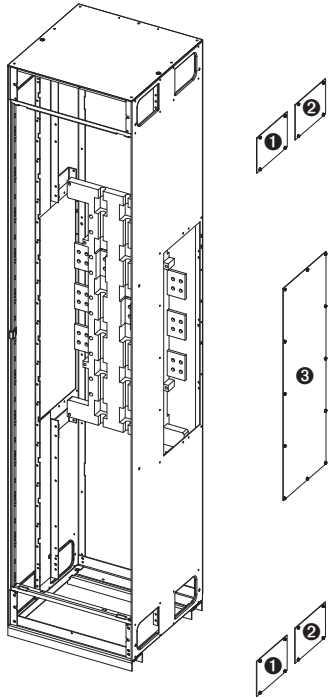
- Bring the transition section and drive cabinet together.
- Pass the M6 x 16 mm hex-head thread-forming screws from inside the transition section through the joining holes and engage the screws with the ① holes in the drive cabinet.
- Make sure the cabinets are level and pushed together tightly.
- Torque the screws in a uniform pattern to a value of 6.2 Nm (55 lb in).

IMPORTANT Do not use the hardware to draw the cabinets together.



Step 4 (Left): Join MCC Column to Left Side of Transition Section

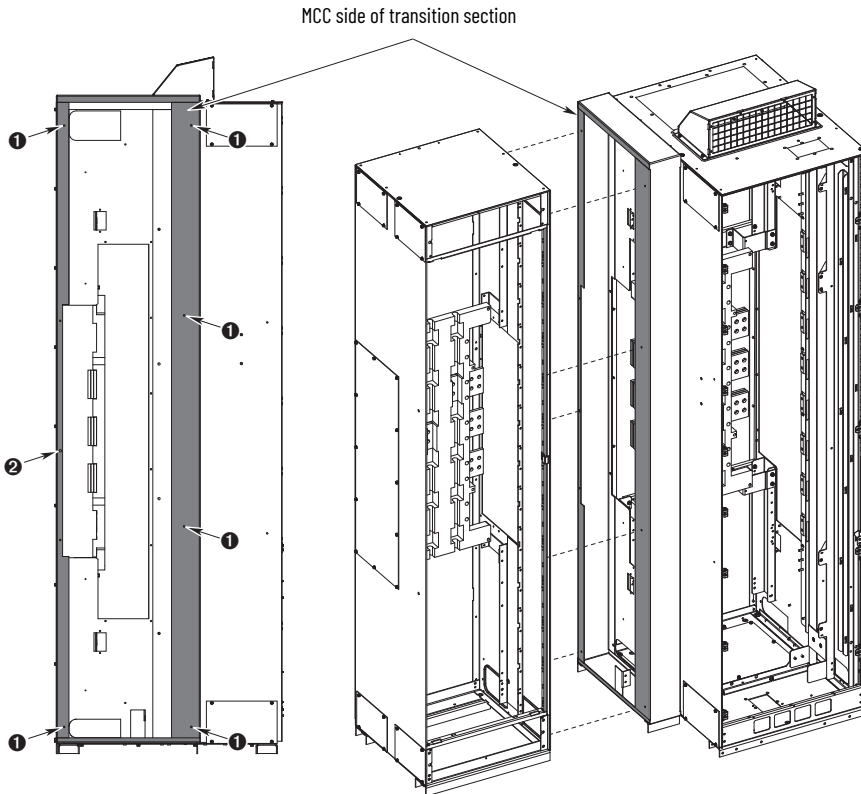
1. Remove the closing plates 1, 2, and 3 from the right side of the MCC column.



Unit doors, support pans, and access covers omitted for clarity.

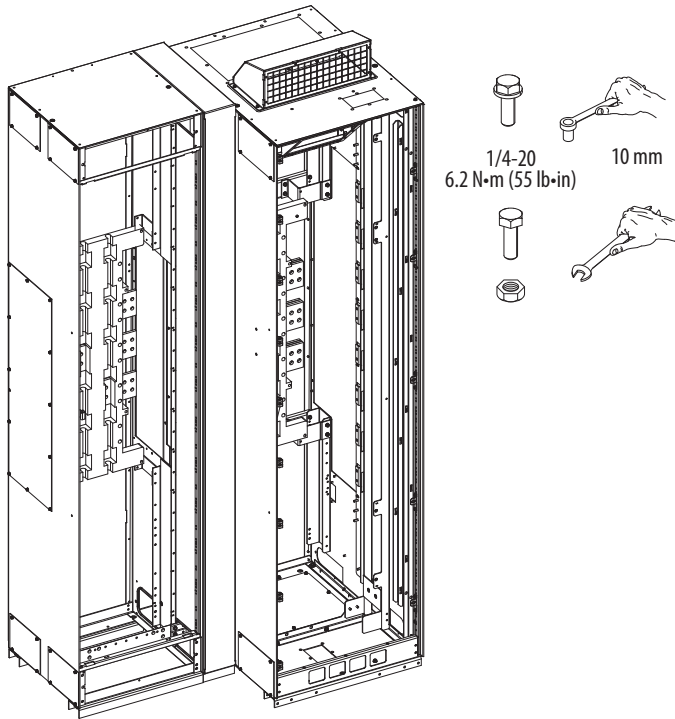
Note No.	Description
❶	Top and bottom front-wireway closing plates.
❷	Top and bottom rear-wireway closing plates.
❸	Main horizontal bus-bar closing plates.

2. Align the MCC column with the left transition section.



3. Bring the MCC column, transition section, and drive cabinet together.
4. Pass the 1/4-20 x 0.5 in. hex-head thread-forming screws from inside the MCC column through the joining holes and engage the screws with the ❶ holes in the transition section.
5. Pass the 1/4-20 x 1 in. screw from inside the MCC column through the transition section joining hole ❷ and secure with the 1/4-20 steel nut.
6. Make sure the cabinets are level and pushed together tightly.
7. Torque the screws in a uniform pattern to a value of 6.2 Nm (55 lb in).

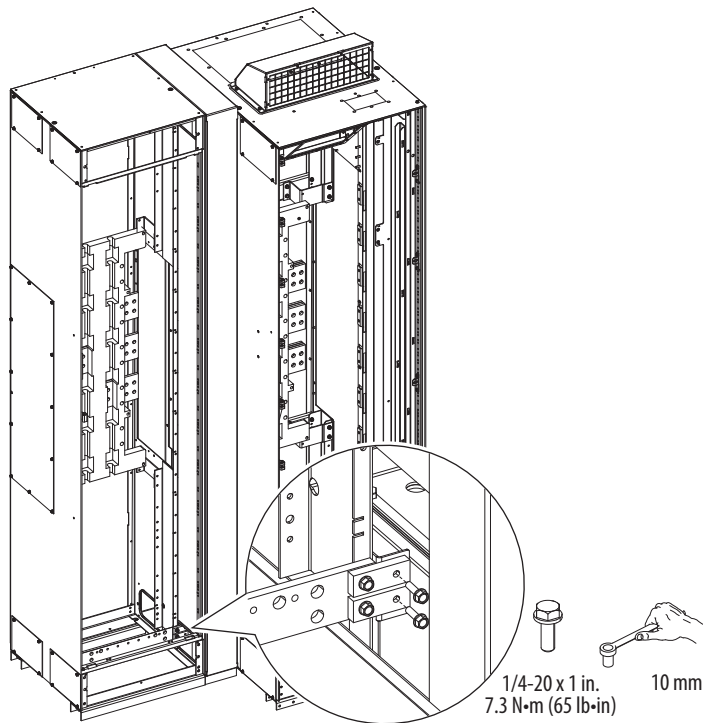
IMPORTANT Do not use the hardware to draw the cabinets together.



Step 5 (Left): Join Positive Earth Bus Bar and Grounding Bracket

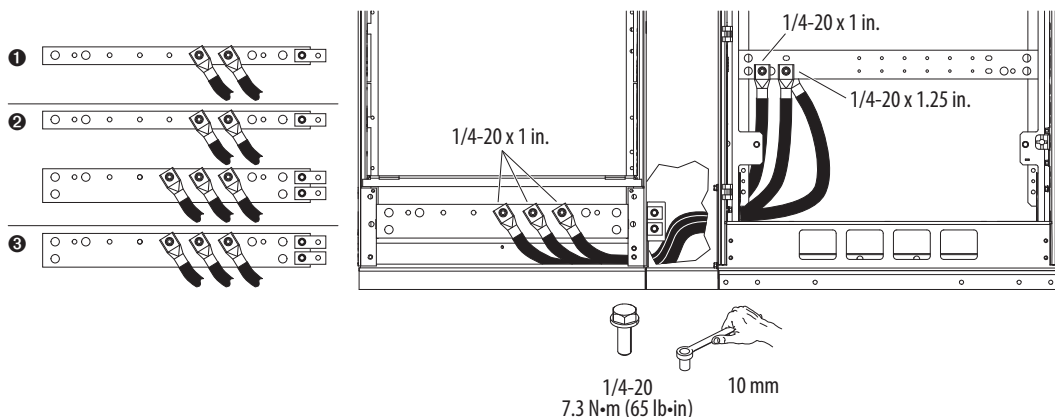
1. Align the protective earth (PE) conductor splicing hardware with the transition section grounding bracket.
2. Insert and tighten the 1/4-20 x 1 in. screws.

IMPORTANT Do not grease or lubricate the hardware.



Step 6 (Left): Connect Positive Earth Splicing Cables

1. Pass the cables through the bottom wireway openings.
2. Connect the PE splicing cables between the MCC and drive PE bus bars.

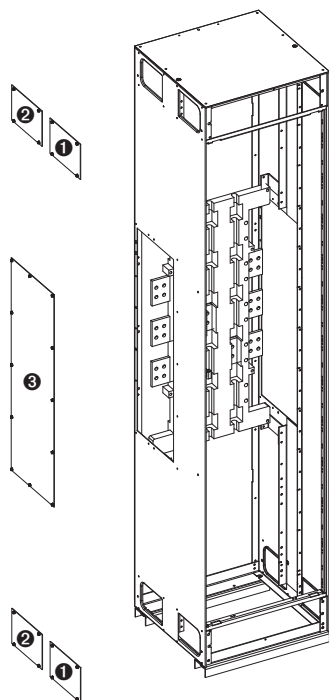


No.	Description	Hardware
1	1200A with 25.4 mm (1 in.) bus bar. Requires two splice cables.	See Table 3 for a list of required hardware.
2	2000A with 25.4 mm (1 in.) bus bar. Requires two splice cables. 2000A with 50.8 mm (2 in.) bus bar. Requires three splice cables.	
3	3000A with 50.8 mm (2 in.) bus bar. Requires three splice cables.	

Right-side Kit Assembly

Step 3 (Right): Join Transition Section to Left-Side of MCC Column

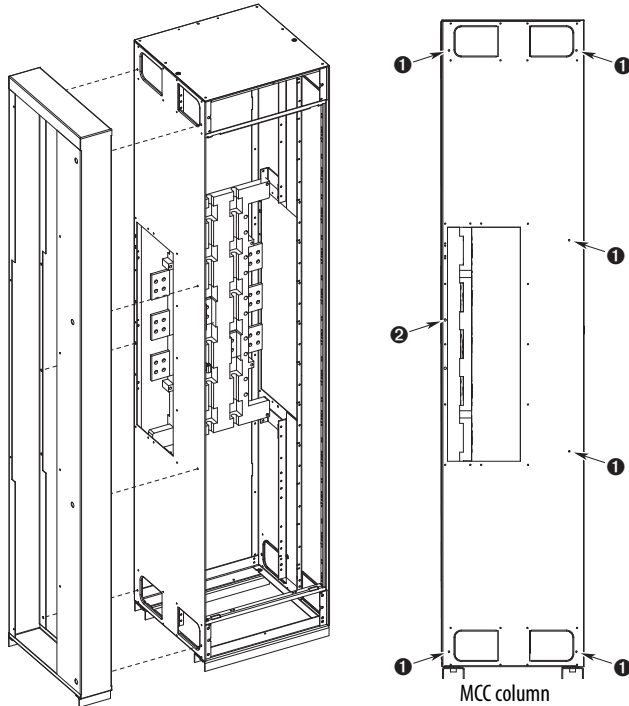
1. Remove the closing plates 1, 2, and 3 from the left side of the MCC column.



Unit doors, support pans, and access covers omitted for clarity.

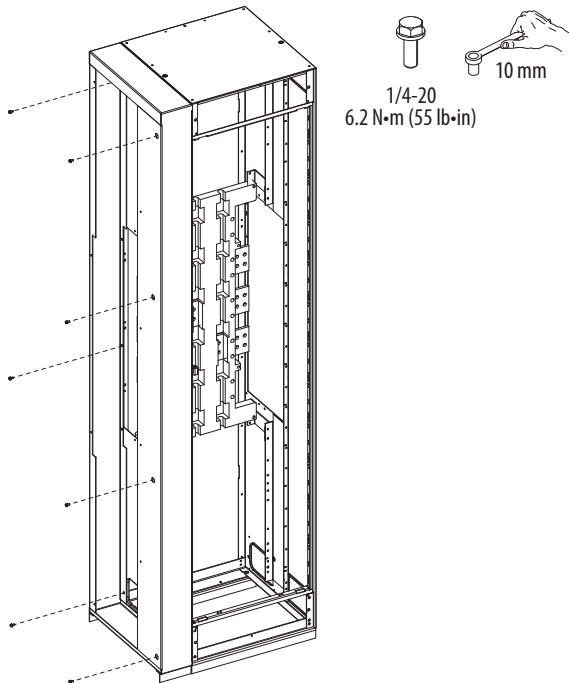
Note No.	Description
1	Top and bottom front-wireway closing plates
2	Top and bottom rear-wireway closing plates
3	Main horizontal bus-bar closing plates

- Align the right transition section with the MCC column



- Bring the transition section and MCC column together.
- Pass the 1/4-20 x 0.5 in. hex-head thread-forming screws from inside the transition section through the joining holes and engage the screws with the ❶ holes in the MCC column.
- Pass the 1/4-20 x 1 in. screw from inside the MCC column through the transition section joining hole ❷ and secure with the 1/4-20 steel nut.
- Make sure the cabinets are level and pushed together tightly.
- Torque the screws in a uniform pattern to a value of 6.2 Nm (55 lb in).

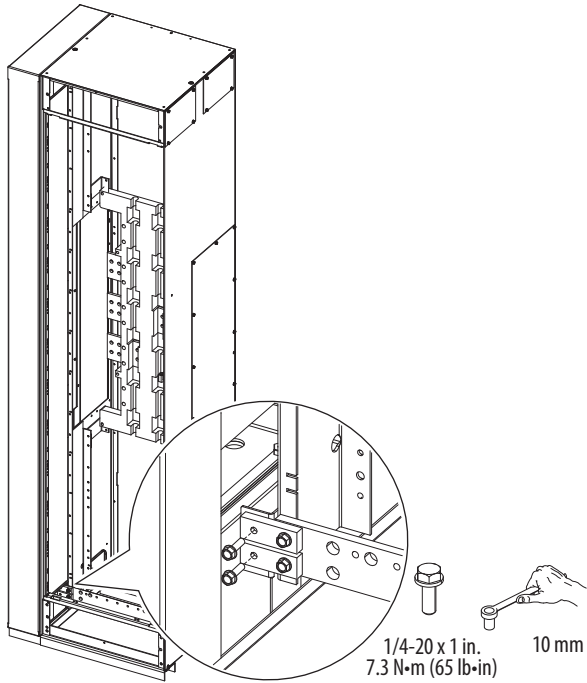
IMPORTANT Do not use the hardware to draw the cabinets together.



Step 4 (Right): Join Positive Earth Bus Bar and Grounding Bracket

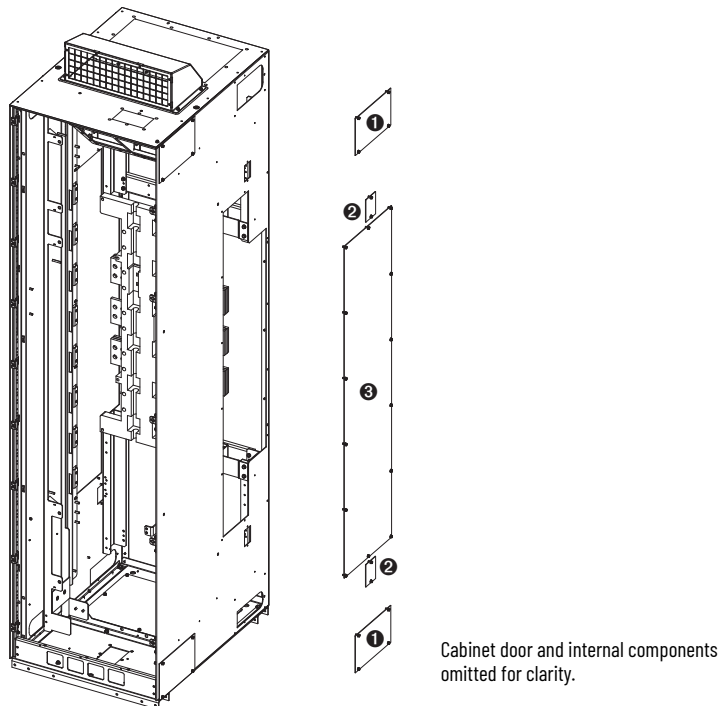
1. Align the protective earth (PE) conductor splicing hardware with the transition section grounding bracket.
2. Insert and tighten the 1/4-20 x 1 in. screws.

IMPORTANT Do not grease or lubricate the hardware.



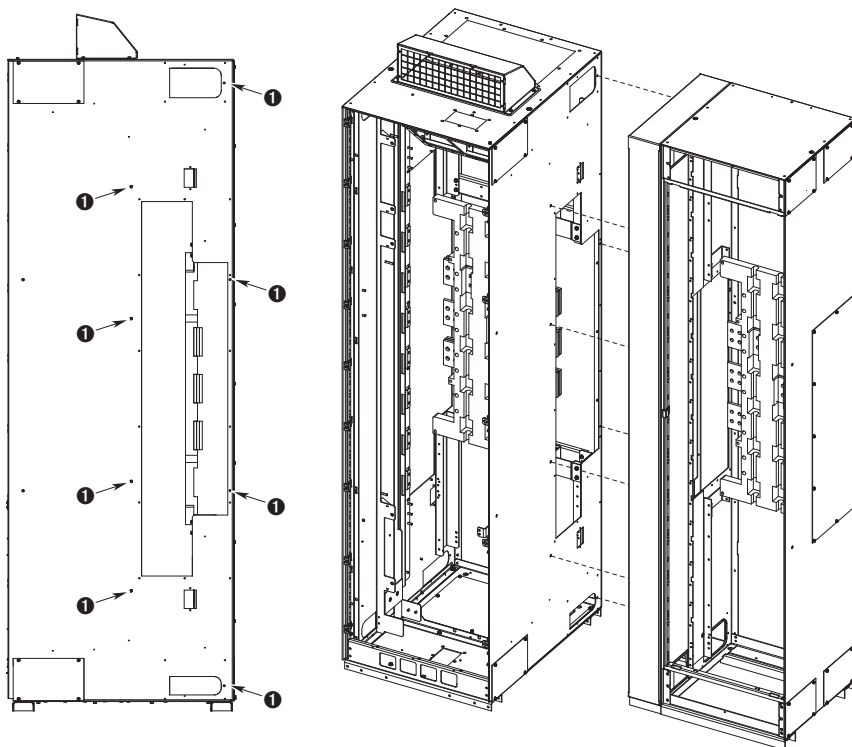
Step 5 (Right): Join Drive Cabinet to Left Side of Transition Section

1. Remove the panels from the right side of the PowerFlex 755 drive cabinet.



Note No.	Description
❶	Top and bottom rear-wireway panels.
❷	Top and bottom PE bus-bar access panels.
❸	Main horizontal bus-bar access panel.

2. Align the right transition section with the drive cabinet.

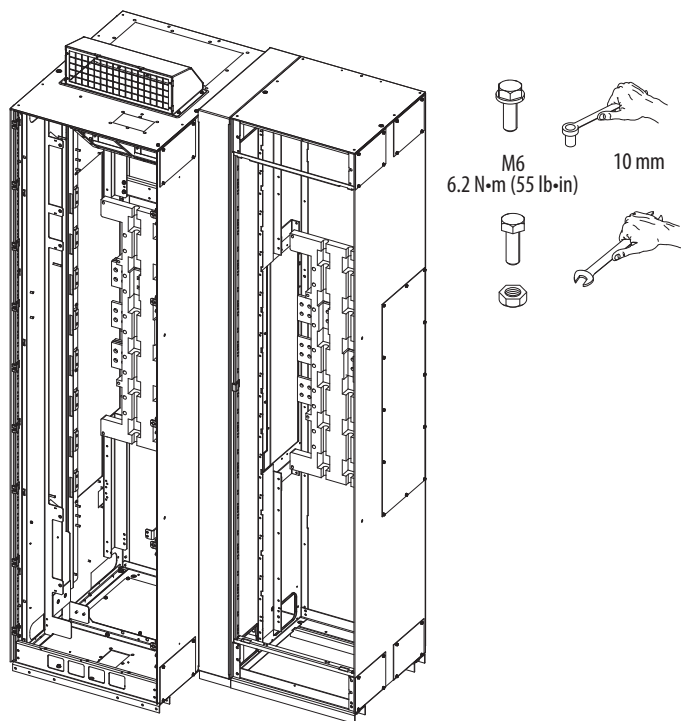


3. Bring the transition section, MCC column, and drive cabinet together.

4. Pass the M6 x 16 mm hex-head thread-forming screws from inside the drive cabinet through the joining holes and engage the screws with the ❶ holes in the transition section.

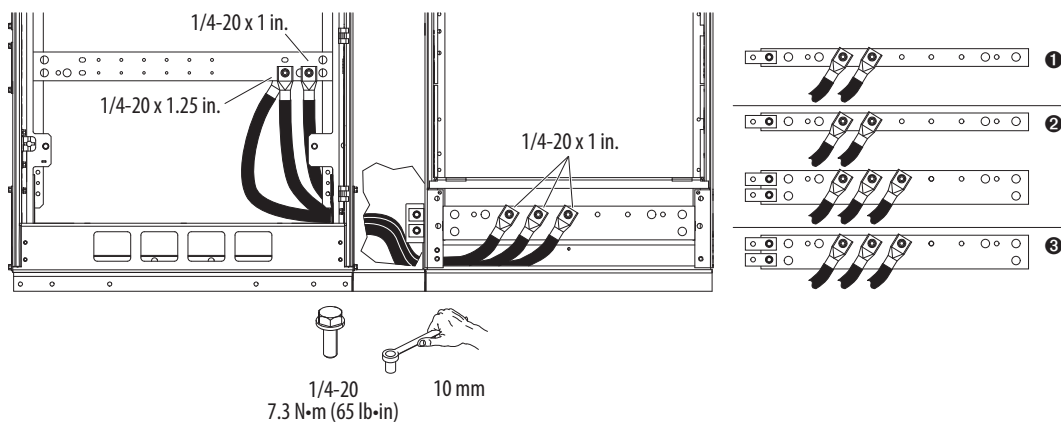
5. Make sure the cabinets are level and pushed together tightly.
6. Torque the screws in a uniform pattern to a value of 6.2 Nm (55 lb-in).

IMPORTANT Do not use the hardware to draw the cabinets together.



Step 6 (Right): Connect Positive Earth Splicing Cables

1. Pass the cables through the bottom wireway openings.
2. Connect the PE splicing cables between the MCC and drive PE bus bars.



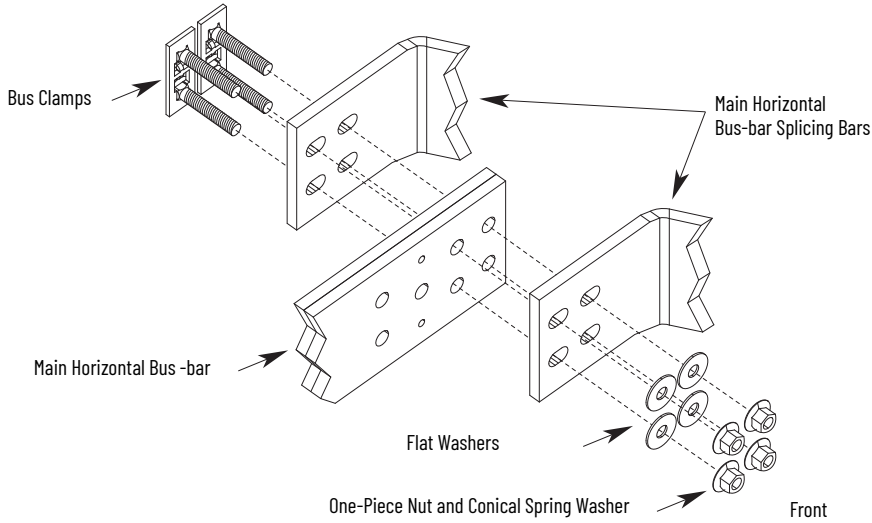
Note No.	Description	Hardware
①	1200A with 25.4 mm (1 in.) bus bar. Requires two splice cables.	See Table 3 for a list of required hardware.
②	2000A with 25.4 mm (1 in.) bus bar. Requires two splice cables.	
	2000A with 50.8 mm (2 in.) bus bar. Requires three splice cables.	
③	3000A with 50.8 mm (2 in.) bus bar. Requires three splice cables.	

Step 7: Join Horizontal Bus and Splicing Bars

Splicing kits will contain either two or four sets of hardware per splice bar, depending on the current rating of the horizontal bus. Assemble hardware as depicted in [Figure 2](#) and uniformly tighten splice kit hardware to the final torque listed in [Table 1](#).

IMPORTANT Note for NO-OX-ID: If you're using corrosion inhibitor on bus bars, do **not** get any on the bus splicing hardware. It will prevent the hardware from being properly torqued. Damage may occur.

Figure 2 - Splicing Hardware Configuration Detail



See [Table 3](#) for main horizontal bus-bar splicing bar dimensions.

Left-side Standard Busbar Splice Kits

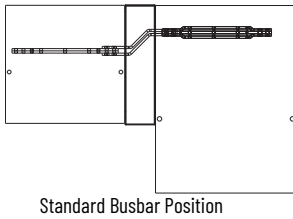


Figure 3 - 1200A (Kit No. 20-750-XBUS-LHNB/LLNB-1200) - Standard Busbar Position

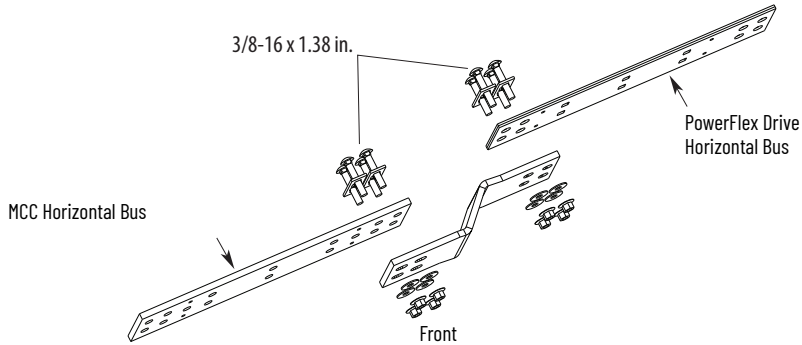


Figure 4 - 2000A (Kit No. 20-750-XBUS-LHNB/LLNB-2000) - Standard Busbar Position

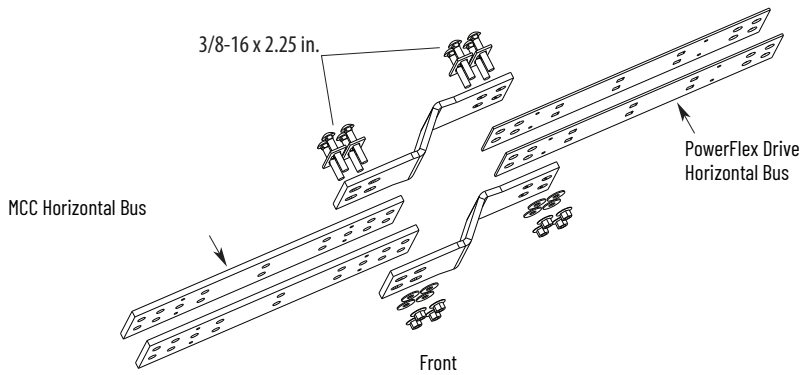
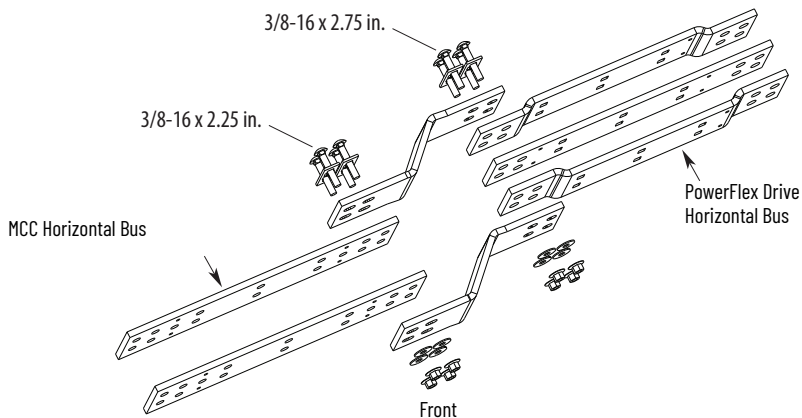


Figure 5 - 3000A (Kit No. 20-750-XBUS-LHNB/LLNB-3000) - Standard Busbar Position



Left-side Bumped-Back Busbar Splice Kits

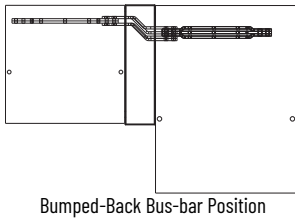


Figure 6 - 1200A (Kit No. 20-750-XBUS-LHBB/LLBB-1200) - Bumped-Back Busbar Position

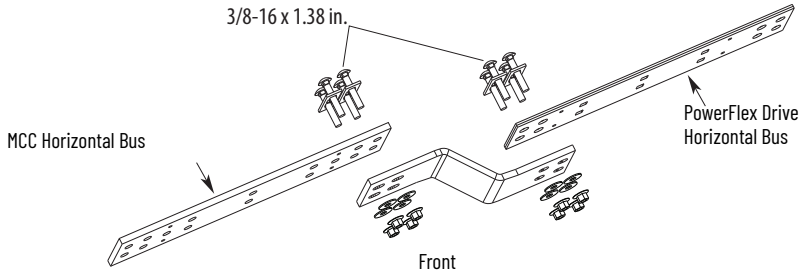


Figure 7 - 2000A (Kit No. 20-750-XBUS-LHBB/LLBB-2000) - Bumped-Back Busbar Position

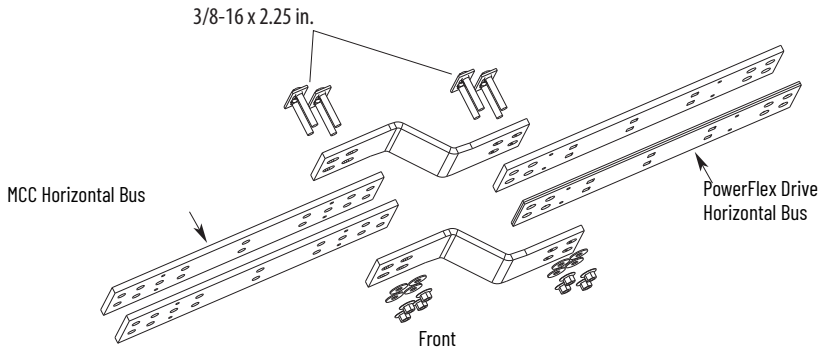
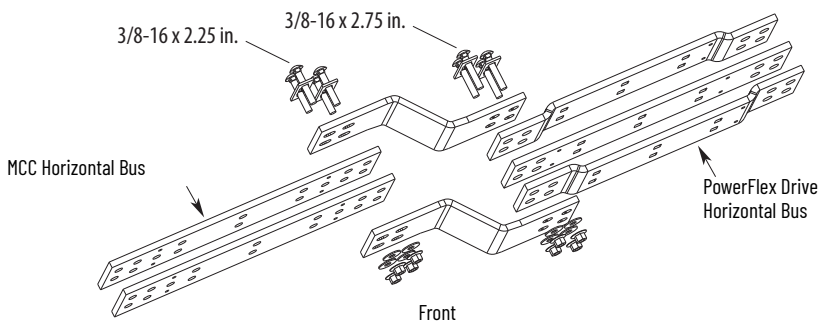


Figure 8 - 3000A (Kit No. 20-750-XBUS-LHBB/LLBB-3000) - Bumped-Back Busbar Position



Right-side Standard Busbar Splice Kits

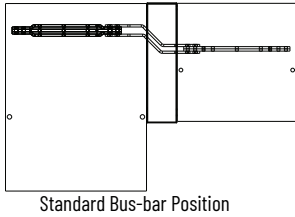


Figure 9 - 1200A (Kit No. 20-750-XBUS-RHNB/RLNB-1200) - Standard Busbar Position

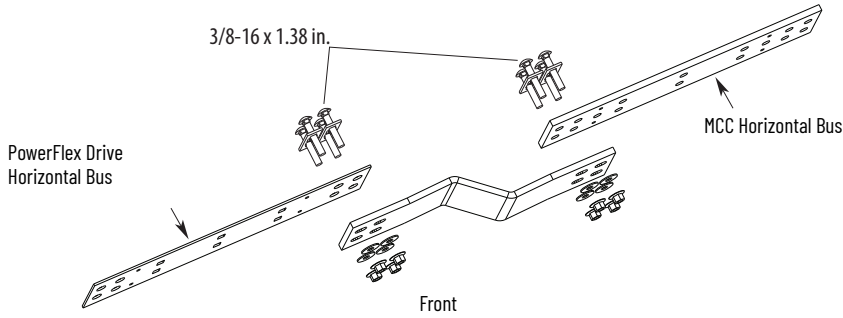


Figure 10 - 2000A (Kit No. 20-750-XBUS-RHNB/RLNB-2000) - Standard Busbar Position

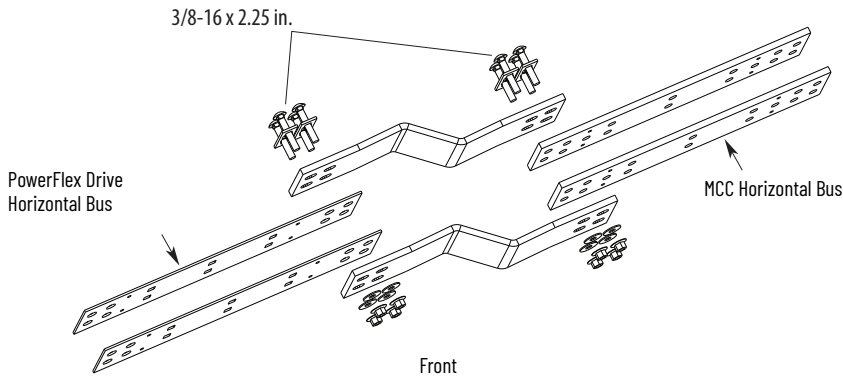
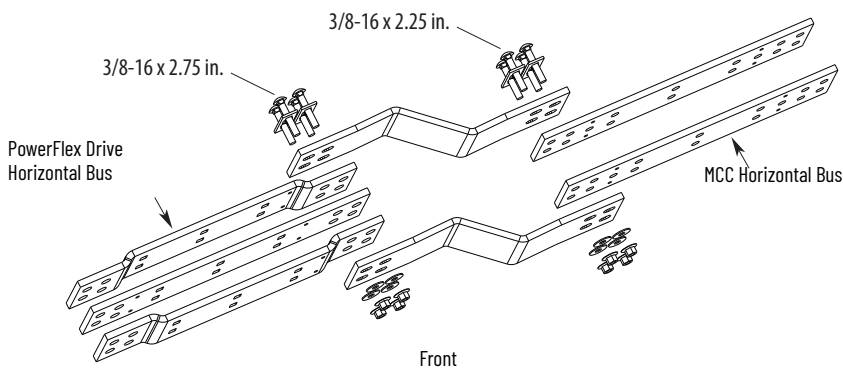


Figure 11 - 3000A (Kit No. 20-750-XBUS-RHNB/RLNB-3000) - Standard Busbar Position



Right-side Bumped-Back Busbar Splice Kits

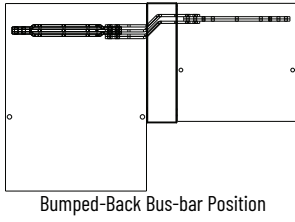


Figure 12 - 1200A (Kit No. 20-750-XBUS-RHBB/RLBB-1200) - Bumped-Back Busbar Position

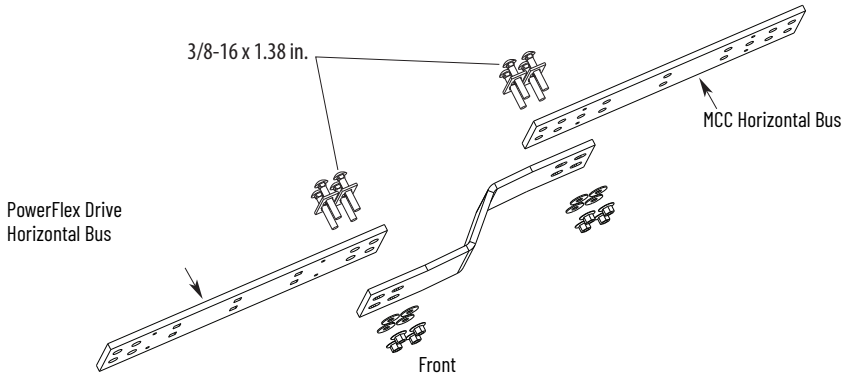


Figure 13 - 2000A (Kit No. 20-750-XBUS-RHBB/RLBB-2000) - Bumped-Back Busbar Position

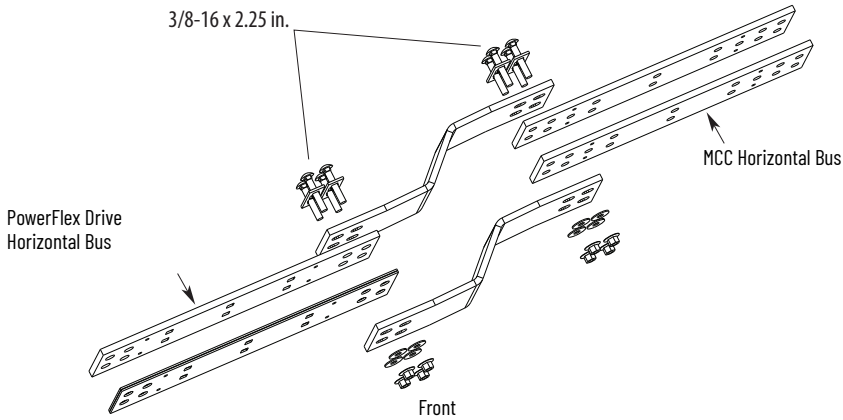
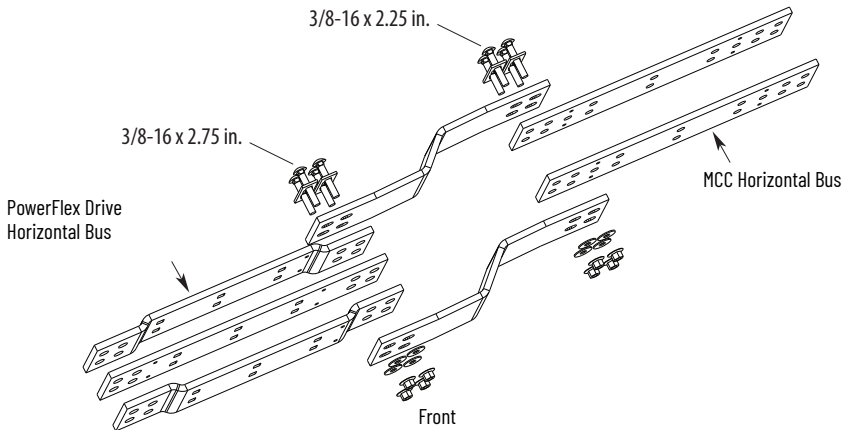


Figure 14 - 3000A (Kit No. 20-750-XBUS-RHBB/RLBB-3000) - Bumped-Back Busbar Position



Specifications

Tighten all bus connections with a torque wrench and socket according to intervals established by your maintenance policy. If a torque wrench is not available, tighten until the conical spring washer is flat. Do not grease or lubricate the hardware.

Table 1 - Torque Requirements

Description	Hardware	Torque
Transition section to drive cabinet joining screws	M6	6.2 N•m (55 lb•in)
Transition section to MCC column joining screws	1/4-20	6.2 N•m (55 lb•in)
Protective earth (PE) conductor splice connection	1/4-20	7.3 N•m (65 lb•in)
Main horizontal bus-bar splice connection	3/8-16	38 N•m (336 lb•in)

Table 2 - Horizontal Bus Required Splice Hardware

Amp Rating	Description	Quantity
1200	3/8-16 x 1.38 in. bus clamp assembly	12
	3/8 flat washer	24
	3/8-16 one-piece nut and conical spring washer	24
2000	3/8-16 x 2.25 in. bus clamp assembly	12
	3/8 flat washer	24
	3/8-16 one-piece nut and conical spring washer	24
3000	3/8-16 x 2.25 in. bus clamp assembly	6
	3/8-16 x 2.75 in. bus clamp assembly	6
	3/8 flat washer	24
	3/8-16 one-piece nut and conical spring washer	24

Table 3 - PE Bus Required Splice Hardware

PE Bus Bar Width	Amp Rating	Description	Quantity
25.4 mm (1.0 in.)	1200 and 2000	762 mm (30 in.) 250 MCM cable	2
		1/4-20 x 1.25 in. hex-head cap screw	1
		1/4-20 x 1.0 in. hex-head cap screw	3
		1/4 flat washer	7
		1/4 conical spring washer	4
		1/4-20 G5 hex nut	3
50.8 mm (2.0 in.)	2000 and 3000	762 mm (30 in.) 250 MCM cable	2
		914 mm (36 in.) 250 MCM cable	1
		1/4-20 x 1.25 in. hex-head cap screw	1
		1/4-20 x 1.0 in. hex-head cap screw	6
		1/4 flat washer	10
		1/4 conical spring washer	7
		1/4-20 G5 hex nut	5

Rockwell Automation Support

Use these resources to access support information.

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Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

Rockwell Otomasyon Ticaret A.Ş. Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400 EEE Yönetmeliğine Uygundur

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AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2663 0600, Fax: (32) 2 663 0640

ASIA PACIFIC: Rockwell Automation SEA Pte Ltd, 2 Corporation Road, #04-05, Main Lobby, Corporation Place, Singapore 618494, Tel: (65) 6510 6608, FAX: (65) 6510 6699

UNITED KINGDOM: Rockwell Automation Ltd., Pitfield, Kiln Farm, Milton Keynes, MK11 3DR, United Kingdom, Tel: (44)(1908) 838-800, Fax: (44)(1908) 261-917

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