Spectra Series™ Power Panelboards

Bolt-On Circuit Breaker Kits

Application

These instructions apply to bolt-on circuit breaker kits with catalog numbers AMCB6GB and AMCB4GB.

For use with circuit breaker types SGH, SGL and SGP.

For use with circuit breaker cover kit AFP4SGD.

Installation

WARNING: Danger of electrical shock or injury. Turn OFF power ahead of the panelboard or switchboard before working inside the equipment or removing any component. Equipment is to be installed and maintained by properly trained and qualified personnel only.

In the following instructions numbers in brackets in the text and figures refer to the items in Table 1.

1. **Confirm the contents of the kit.** These kits are used to install double-branch G-frame Spectra circuit breakers into Spectra APNB bolt-on–style interiors. The vertical space required for each kit is 5.50 inches (4X).

   Figure 1 illustrates the parts included in this kit, which are listed in Table 1.

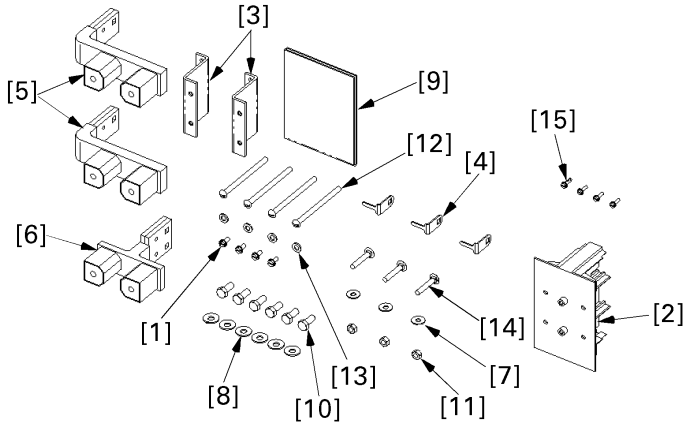

Figure 1. Parts included in the kits AMCB4GB and AMCB6GB.

Item	Part #	Description	Qty. in AMCB4GB	Qty. in AMCB6GB.
1	192A6976P189	Thread-forming screw, #10-32 x 7/16"	4	4
2	252B3575P1	Circuit breaker mounting bracket	2	2
3	208C2291P1	Filler center	2	2
4	252B3613P1	Antiturn clip	2	3
5	252B3618G10	G Frame double strap	2	2
6	252B3618G11	G Frame double strap	1	1
7	75A105503P101	Conical spring washer, 1/4"	4	4
8	75A105503P105	Conical spring washer, 5/16"	4	6
9	DEH40129	Installation instructions	1	1
10	N22P23012B6	Hex-head bolt, 5/16-18 x 3/4"	4	6
11	N245P21B6	Nut, 1/4-20	2	3
12	N37P21969B6	Machine screw, 1/4-20 x 3 3/4"	4	4
13	N402P11B6	Flat washer, 1/4"	4	4
14	N657P21024B6	Carriage bolt, 1/4-20 x 1 1/2"	2	3
15	N730BP1308B6	Thread-forming screw, #6 x 1/2"	4	4

Table 1. Parts list for kits AMCB4GB and AMCB6GB.

2. **Locate the side of the interior with a 2.75-inch reference distance.** The circuit breaker straps are mounted on the side of the panel interior bus at which the distance from the vertical bus face to the inner face of the bus-support rail is 2.75 inches, as indicated in Figure 2.

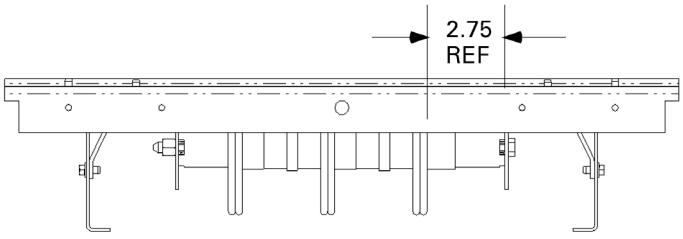

Figure 2. Illustration of the 2.75-inch reference distance.

3. **Assemble antiturn clips onto carriage bolts.** Slide an antiturn clip [4] over the square shank of each carriage bolt [14], as shown in Figure 3. Figure 4 illustrates the installation of a bolt and antiturn clip onto the interior, as called for in the remaining steps.

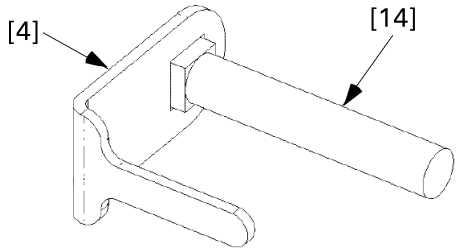

Figure 3. Assembling an antiturn clip [4] with a carriage bolt [14].

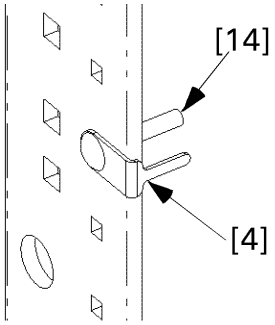

Figure 4. Installing a carriage bolt [14] and antiturn clip [4] into the interior.

NOTE: For three-phase installations, continue with step 4. For two-pole installations, proceed to step 5.

4. **Three-phase installations.** Use the following procedure for all three-phase installations (kit AMCB6GB).

   4a. Install carriage bolt assemblies. Position the carriage bolt [14] and antiturn clip [4] assemblies as shown in Figures 5 and 6.

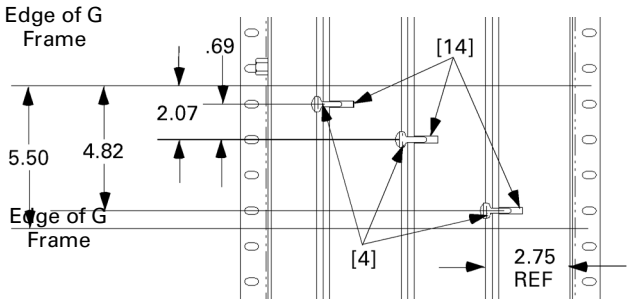

Figure 5. Carriage bolt and antiturn clip installation for three-phase connections.

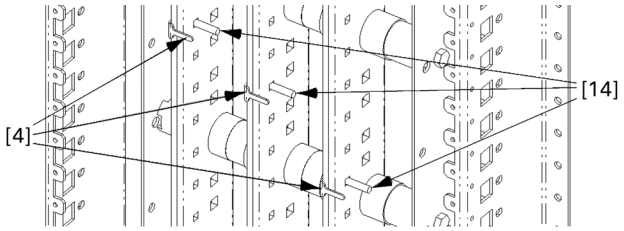

Figure 6. Carriage bolt and antiturn clip installation for three-phase connections, isometric view.

   4b. Install straps. Place the G frame straps [5, 6] over the carriage bolts and antiturn clips, as shown in Figures 7 and 8. Place conical washers [7] on the bolts and secure with nuts [11]. Leave the connections finger tight.

   If the group assembly selection is three-phase and the assembly looks like Figure 8, then go to step 6.

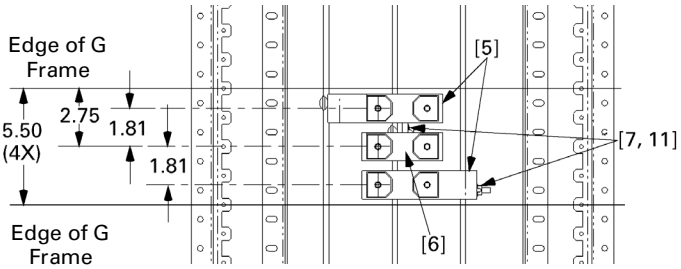

Figure 7. Installing the straps for three-phase connections.

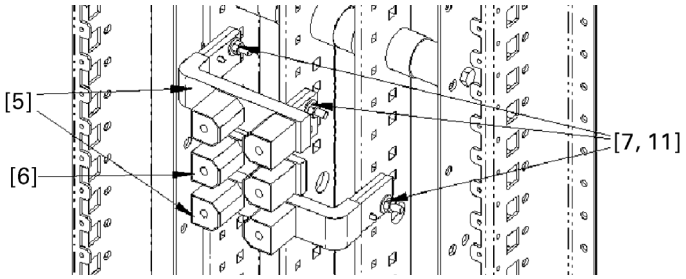

Figure 8. Installing the straps for three-phase connections, isometric view.

5. **Two-pole installations.** Use the following procedure for all two-pole installations (kit AMCB4GB).
   - For installations using phases A and B, continue with step 5a.
   - For installations using phases A and C, proceed to step 5c.
   - For installations using phases B and C, proceed to step 5e.

5a. Install carriage bolt assemblies on phases A and B. Position the carriage bolt [14] and antiturn clip [4] assemblies as shown in Figures 9 and 10.

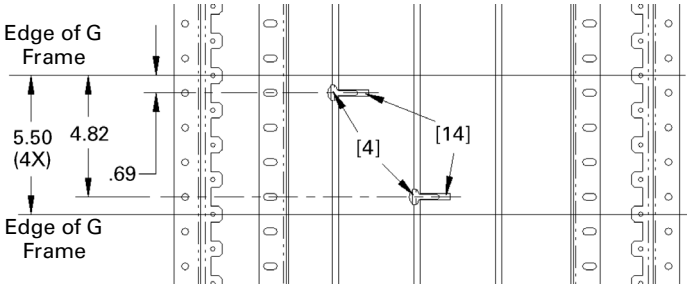

Figure 9. Installing carriage bolt assemblies on phases A and B.

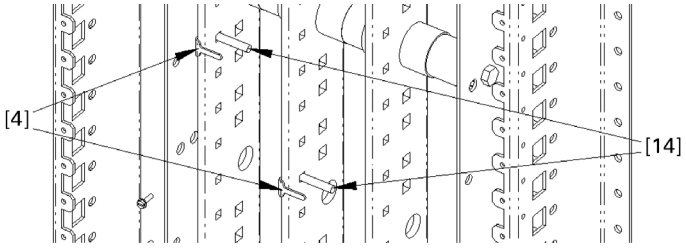

Figure 10. Installing carriage bolt assemblies on phases A and B, isometric view.

5b. Install straps on phases A and B. Place the G frame straps [5, 6] over the carriage bolts and antiturn clips, as shown in Figures 11 and 12. Place conical washers [7] on the bolts and secure with nuts [11]. Leave the connections finger tight.

If the group assembly selection is two-pole and the assembly looks like Figure 12, then go to step 6.

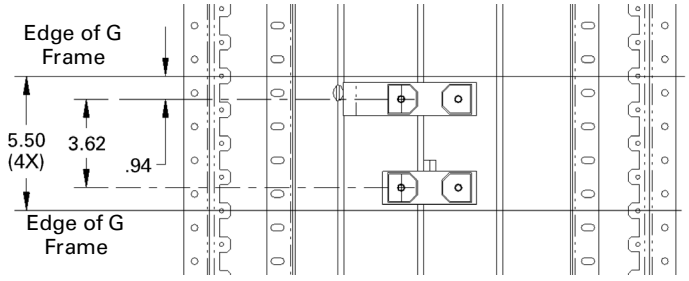

Figure 11. Installing straps on phases A and B.

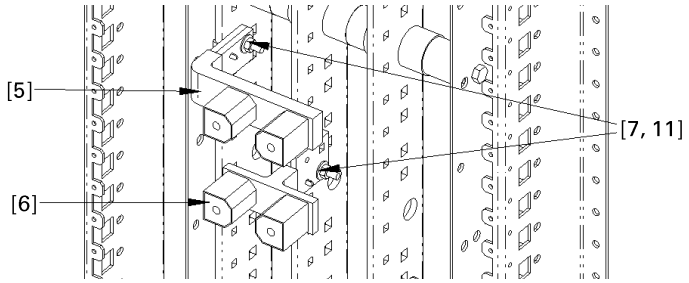

Figure 12. Installing straps on phases A and B, isometric view.

5c. Install carriage bolt assemblies on phases A and C. Position the carriage bolt [14] and antiturn clip [4] assemblies as shown in Figures 13 and 14.

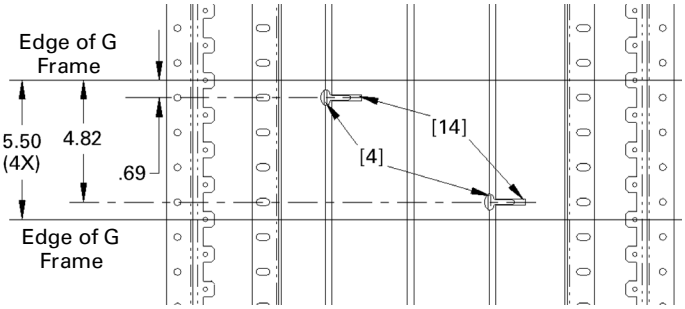

Figure 13. Installing carriage bolt assemblies on phases A and C.

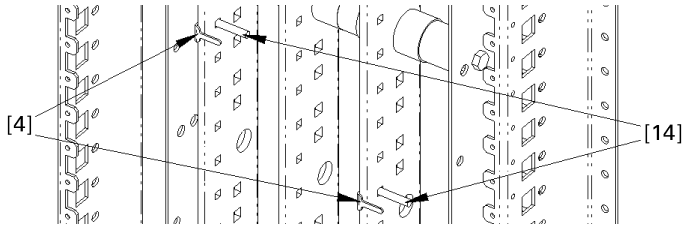

Figure 14. Installing carriage bolt assemblies on phases A and C, isometric view.

5d. Install straps on phases A and C. Place the G frame straps [5] over the carriage bolts and antiturn clips, as shown in Figures 15 and 16. Place conical washers [7] on the bolts and secure with nuts [11]. Leave the connections finger tight.

If the group assembly selection is two-pole and the assembly looks like Figure 16, then go to step 6.

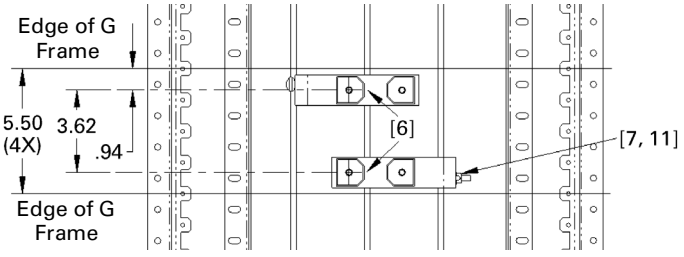

Figure 15. Installing straps on phases A and C.

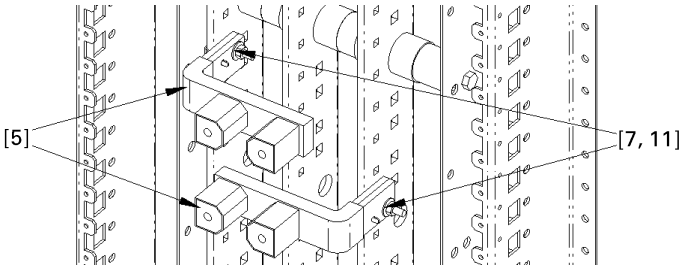

Figure 16. Installing straps on phases A and C, isometric view.

5e. Install carriage bolt assemblies on phases B and C. Position the carriage bolt [14] and antiturn clip [4] assemblies as shown in Figures 17 and 18.

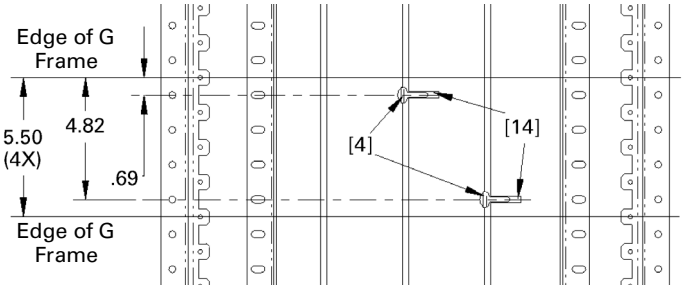

Figure 17. Installing carriage bolt assemblies on phases B and C.

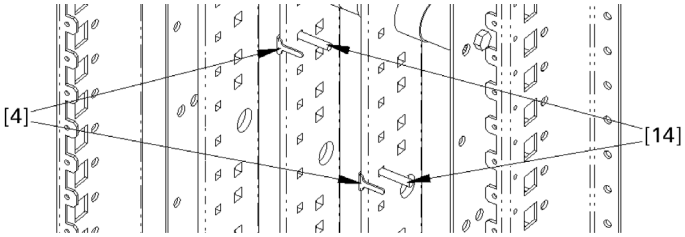

Figure 18. Installing carriage bolt assemblies on phases B and C, isometric view.

5f. Install straps on phases B and C. Place the G frame straps [5, 6] over the carriage bolts and antiturn clips, as shown in Figures 19 and 20. Place conical washers [7] on the bolts and secure with nuts [11]. Leave the connections finger tight.

If the group assembly selection is two-pole and the assembly looks like Figure 20, then go to step 6.

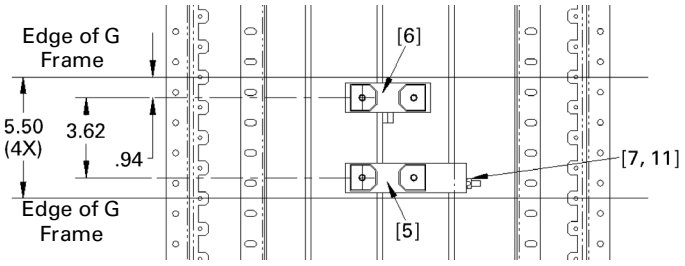

Figure 19. Installing straps on phases B and C.

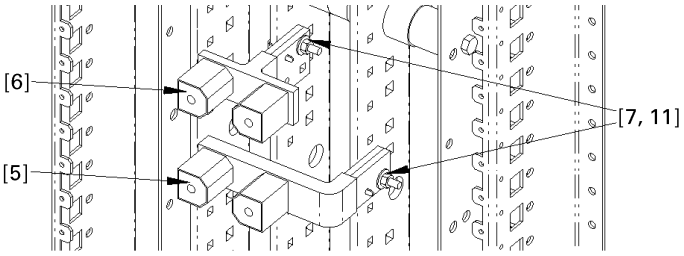

Figure 20. Installing straps on phases B and C, isometric view.

6. Install the breaker mounting brackets. Secure the breaker mounting brackets [3] to the panel side rail with thread-forming screws [1], as shown in Figure 21. Tighten the screws to 30 in-lb.

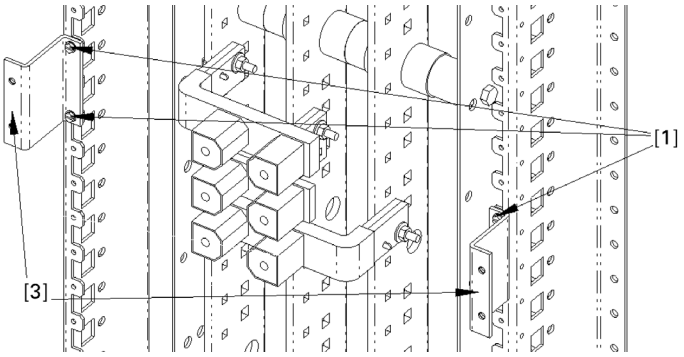

Figure 21. Installing the breaker mounting brackets [3].

7. Install the circuit breakers. Position the breakers so that the line- or ON-side terminals rest on the underlying strap contact blocks and the opposite sides are supported by the mounting brackets [3], as shown in Figure 22. Align the holes in each breaker housing with the corresponding holes in the mounting brackets. Secure the breakers to the brackets with the machine screws [12] and flat washers [13] and tighten to 18 in-lb. Attach the line-side breaker terminals to the threaded holes in the strap contact blocks with conical spring washers [8] and hex-head bolts [10]. Tighten each connection to 75 in-lb.

NOTE: Straps may require minor adjustments for proper hole alignment.

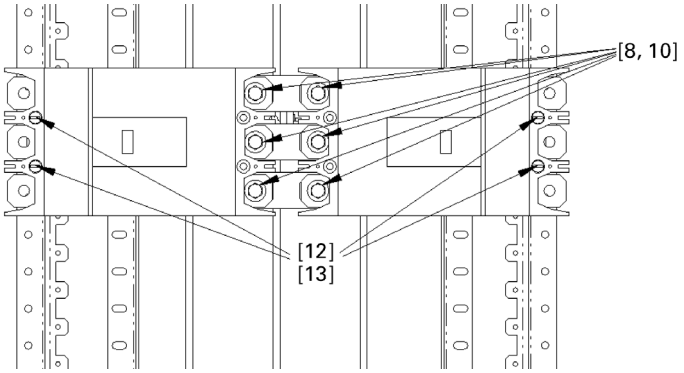

Figure 22. Installing the circuit breakers on the mounting brackets and strap blocks.

8. **Install the terminal cover.** Install the terminal cover over the center of the assembly, as shown in Figure 23. Secure the cover with thread-cutting screws [15].

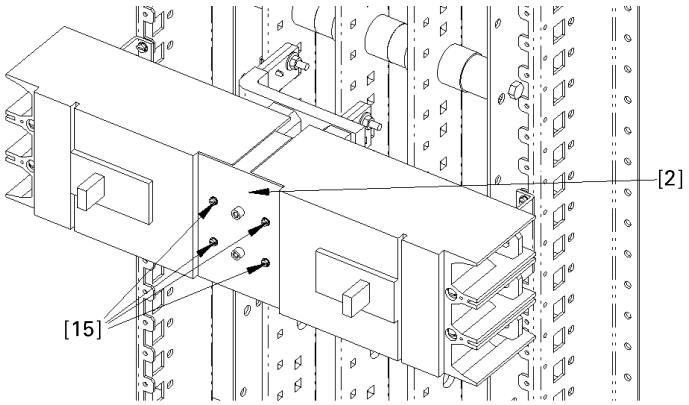

Figure 23. Installing the terminal cover over the breaker terminals.

9. **Tighten the strap connections.** Tighten the bolted strap connections to the vertical bus to 65 in-lb. It may be necessary to remove an adjacent breaker to allow access to the bolted connections at the vertical bus.
10. **Insulate unused strap surfaces.** The double-branch assembly may be installed with only one active circuit breaker and the other branch left open for future use. In this case, insulate the exposed surfaces of the strap contact blocks in the unused branch. Cover the contact surfaces with two layers of a UL-recognized 105° C thermoplastic tape (OANZ2, such as Permacel P-30-105 or 3M 66R) to achieve a minimum insulation thickness of 0.013 inch.

These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation, or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, the matter should be referred to the GE Company.

GE Industrial Systems

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