

400 OR 600 AMP

L-FRAME MAIN OR FEEDER CIRCUIT BREAKER FIELD INSTALLATION INSTRUCTIONS



ATTENTION: BEFORE BEGINNING INSTALLATION OF THIS MAIN OR FEEDER CIRCUIT BREAKER, DE-ENERGIZE AND LOCK OUT THE MAIN HORIZONTAL BUS SUPPLY TO THE MOTOR CONTROL CENTER.

READ ALL INSTRUCTIONS AND STUDY FIGURES 1 THRU 9 BEFORE INSTALLING THE MAIN OR FEEDER CIRCUIT BREAKER UNIT.

Figures 1a and 1b illustrates the parts supplied for field installation of a main or feeder circuit breaker kit. Note: The middle drawings of the sections show the kit assembled with the horizontal bus access cover removed.

The main or feeder circuit breaker unit must be installed in either the top or bottom 2.0 space factors (26 inches) of any section with a vertical wireway. For ease of assembly, Allen-Bradley recommends that the main or feeder circuit breaker unit be installed in the left most section of a shipping block, (where holes exist for the cable connections on the left end of the horizontal bus), or at a horizontal bus splice point. Refer to Figure 3a or 3b.

The main or feeder circuit breaker unit may also be installed in any other section location with some modification to the horizontal bus for cable connections. Refer to Figure 3c.

From here on the main or feeder circuit breaker unit will be referred to as a circuit breaker unit to reduce wordiness.

STEPS FOR INSTALLING THE CIRCUIT BREAKER UNIT:



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1. Remove all unit doors, starter units and unit support pans from section. (For removal of units refer to the "Unit Removal and Installation" section of Instructions Publication 2100-5.0).
2. Remove the top horizontal wireway cover and wireway pan for top mounted installations, refer to Figure 2a; or remove the bottom horizontal wireway cover and wireway pan for bottom mounted installations, refer to Figure 2b.
3. For circuit breaker unit installations in sections other than the left most section of shipping blocks, refer to Figure 3c. Remove and discard either a flat horizontal two section bus access cover, refer to Figure 4b; or the horizontal bus access cover from the left side of the desired section, refer to Figures 3c and 4a. If a flat horizontal two section cover has been removed, cover the horizontal bus access opening in the adjacent left section with a full horizontal bus access cover, refer to Figure 4c. Proceed to Step 4.1.

4. If the circuit breaker assembly is to be installed in the left most section of a shipping block (Figure 3a or 4a), remove and discard the horizontal bus access cover from the left side of the section. Refer to Figure 4a. Proceed to Step 5.
- 4.1 If the circuit breaker assembly is to be installed in a section other than the left most section of a shipping block (Figure 3c), the horizontal bus must have four 7/16 inch diameter holes drilled per phase. For drilling dimensions, see Figure 9.



ATTENTION: Remove all chips and other debris after drilling, to avoid potentially hazardous malfunctions such debris could cause. Vacuum cleaning is recommended. DO NOT CLEAN USING COMPRESSED AIR AS IT CONTAINS MOISTURE AND MAY BLOW DEBRIS INTO THE CONTROL EQUIPMENT.

5. If the circuit breaker assembly is to be installed in the top of a section, install a unit support pan and secure with a nylon retaining clip. (For location and installation of the unit support pan, refer to Figure 5a and to the "Unit Removal and Installation" section of Instructions Publication 2100-5.0). Proceed with Step 6.
- 5.1 If the circuit breaker assembly is to be installed in the bottom of a section, proceed with Step 6.
6. Locate and install the circuit breaker assembly. Refer to Figure 5a for top mounted installations or to Figure 5b for bottom mounted installations. The right side of the circuit breaker assembly has a hanger on it. Lift the circuit breaker assembly and hook the right side on a vertical wireway opening, see Figure 5c, then secure the left side with two 1/4-20x1/2 inch taptites. See Figure 5a. Torque to 65 ±5 in. lbs.
7. Install two vertical wireway closing plates. Refer to Figure 5c.
8. Secure three nut plates, one per phase, to the back side of the horizontal bus with two 3/8 inch diameter, Grade 5 bolts, two flat washers and two conical washers. Torque to 25 ±2 ft. lbs. For bolt locations and lengths, refer to Figures 6a and 6b for top mounted installations or to Figures 6a and 6c for bottom mounted installations.
- 8.1 For installations at a bus splice, remove four nuts and hardware from the cable connection point (Figure 3b). Install three nut plates as in Step 8.
9. Using the cables marked L1, L2 and L3 respectively, cable the circuit breaker to the horizontal bus using two lugged 250 MCM cables per phase. Connections to the horizontal bus are to be made with two 3/8 inch diameter, Grade 5 bolts, two flat washers, and two conical washers per phase. Torque to 25 ±2 ft. lbs. For bolt locations and lengths, refer to Figures 6a and 6b for top mounted installations or to Figures 6a and 6c for bottom mounted installations. Cable connections to the circuit breaker are to be made with one 3/8 inch nut, one flat washer and one lock washer per phase, which are put on the 3/8 inch diameter bolt clamp mounted in the circuit breaker. Torque to 25 ±2 ft. lbs. (See note on top of page 3).

IMPORTANT:

If the circuit breaker unit is top mounted, cable to the horizontal bus and torque the connections in this order: Phase L1 or A, Phase L2 or B, and Phase L3 or C.

If the circuit breaker unit is bottom mounted, cable to the horizontal bus and torque the connections in this order: Phase L3 or C, Phase L2 or B, and Phase L1 or A.

Inspect all connections for proper clearances per National Electric Code (NEC).

10. Install the cutoff horizontal bus access cover and secure with two 1/4-20 screws. Torque to 20 ±5 in. lbs. Refer to Figure 4d.
- 10.1 If the circuit breaker unit is located in the bottom of the section, install the unit support pan above the circuit breaker. (for location and installation of the unit support pan, refer to Figure 5b and to the "Unit Removal and Installation" section of Instructions Publication 2100-5.0).
11. Install the top or bottom, left side horizontal wireway baffle and secure with one 1/4-20 x 1/2" taptite. Torque to 65 ±5 in. lbs. Refer to Figure 7.
12. Install the top or bottom, vertical wireway extension baffle and secure with two 1/4-20 x 1/2" taptites. Torque to 65 ±5 in. lbs. Refer to Figure 7.
13. Install the top or bottom, sealing angle and secure with two #10-32 x 3/8" taptites. Torque to 32 ±3 in. lbs. Refer to Figure 7.
14. Install unit door. (For unit door installation refer to the "Unit Removal and Installation" section of Instructions Publication 2100-5.0). Check to make sure that the door cannot be opened while the circuit breaker is in the "ON" position. If the door can be opened while the circuit breaker is in the "ON" position, or the circuit breaker handle cannot be operated when the door is closed, door adjustment is necessary. Door adjustment is accomplished by loosening the 1/4-20 screws which secure the hinges, shifting the hinges either up or down until the door cannot be opened while the circuit breaker is in the "ON" position, and finally retighten the 1/4-20 screws and torque to 45 ±5 in. lbs. Refer to Figure 8.

Inspect the interior for dust and dirt; vacuum cleaning is recommended. **DO NOT CLEAN USING COMPRESSED AIR AS IT CONTAINS MOISTURE AND MAY BLOW DEBRIS INTO THE CONTROL EQUIPMENT.**

15. A ground lug assembly has been supplied. If required, and a horizontal ground bus is not supplied, mount assembly to sidesheet in horizontal wireway. If a horizontal ground bus is supplied in the horizontal wireway the ground lugs may be bolted directly to the ground bus using the 3/8 hardware supplied. Torque to 25 ±2 ft. lbs.
16. Replug the unit support pans, starter units and unit doors removed in Step 1. (For installation of units refer to the "Unit Removal and Installation" section of Instructions Publication 2100-5.0).

Note: (For wiring to circuit breaker refer to the "Conduit and Cable Installation" section of Instructions Publication 2100-5.0).

(For energizing the motor control center, refer to the "Final Check List Before Energizing" and "Energizing Equipment" sections of Instructions Publication 2100-5.0).

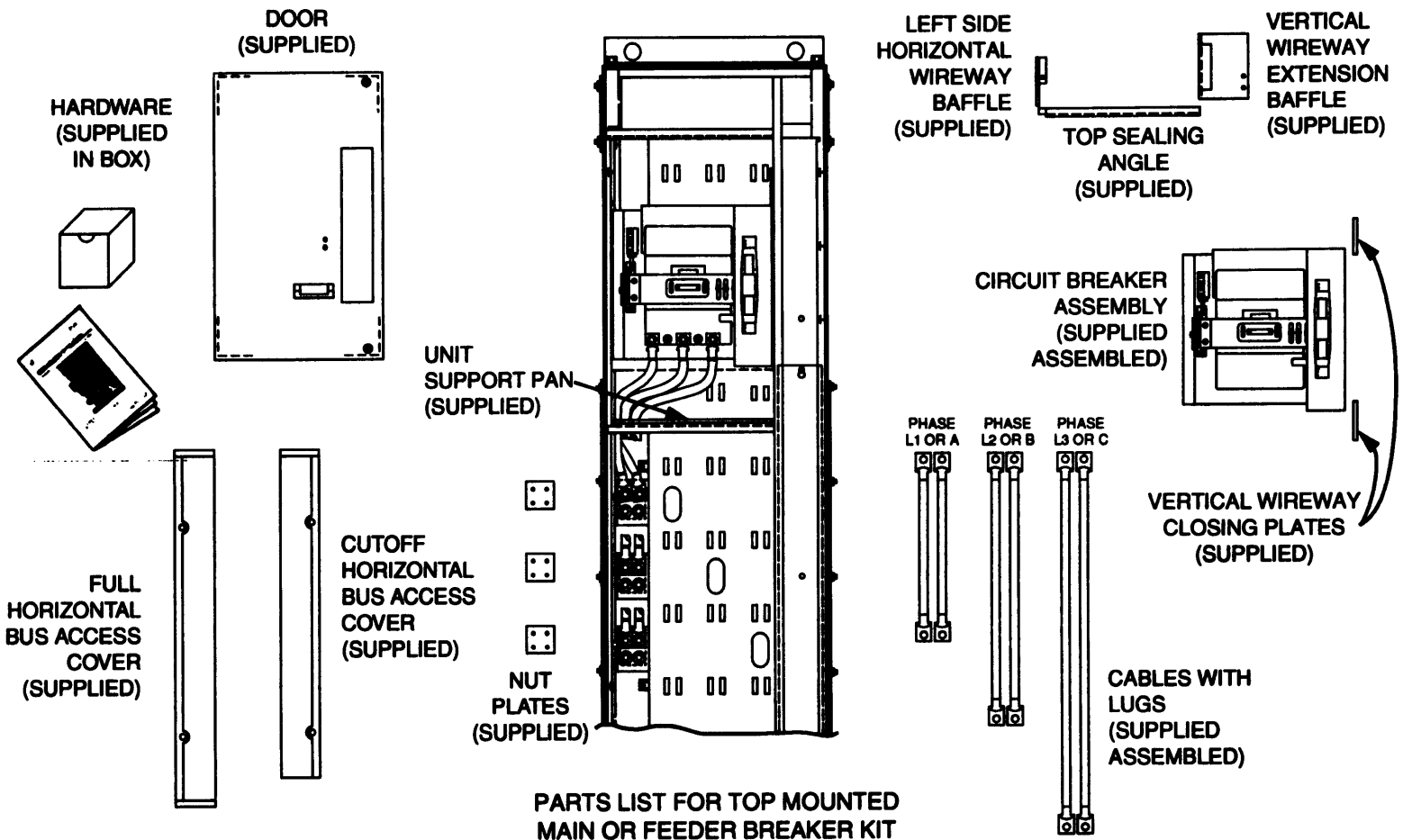


FIGURE 1a

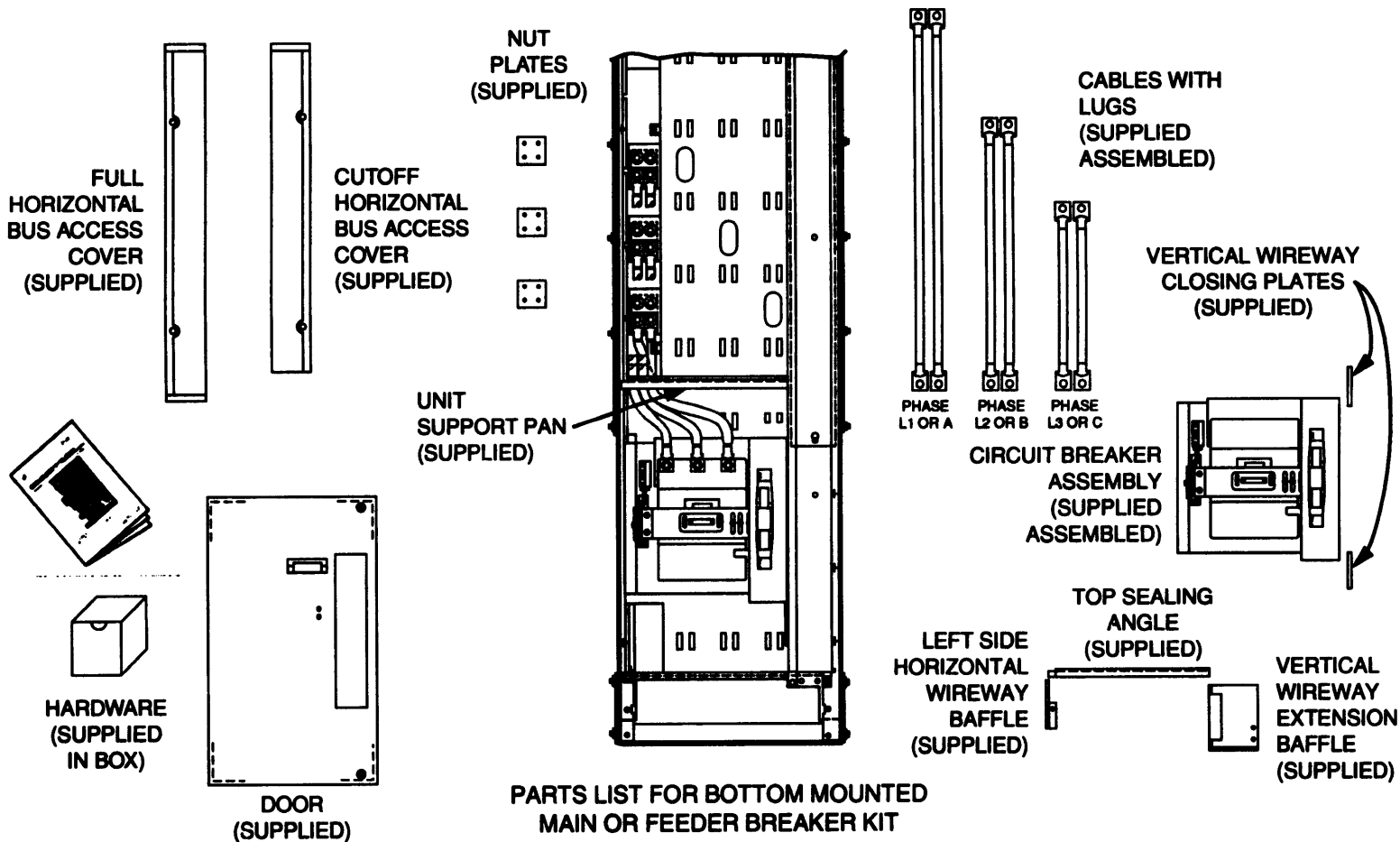
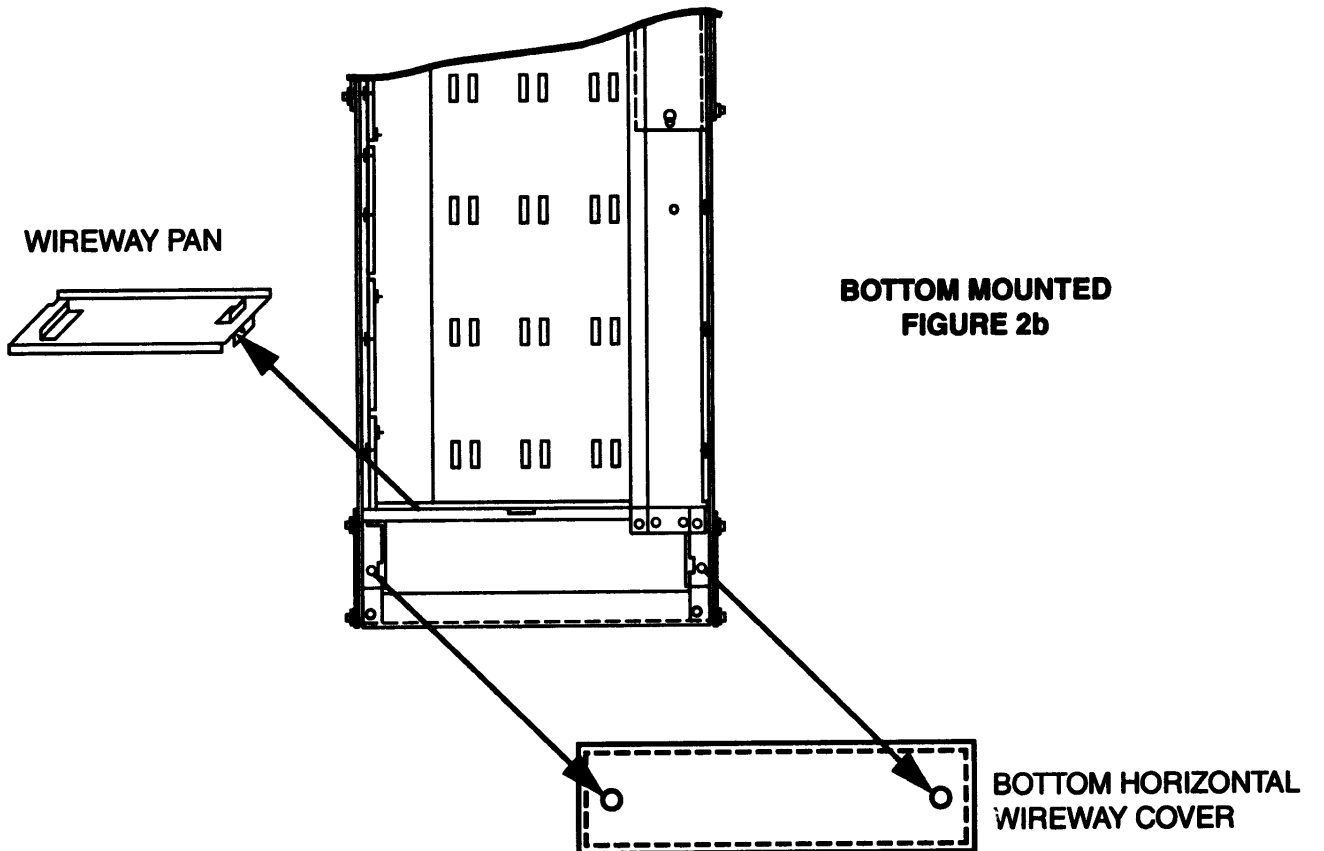
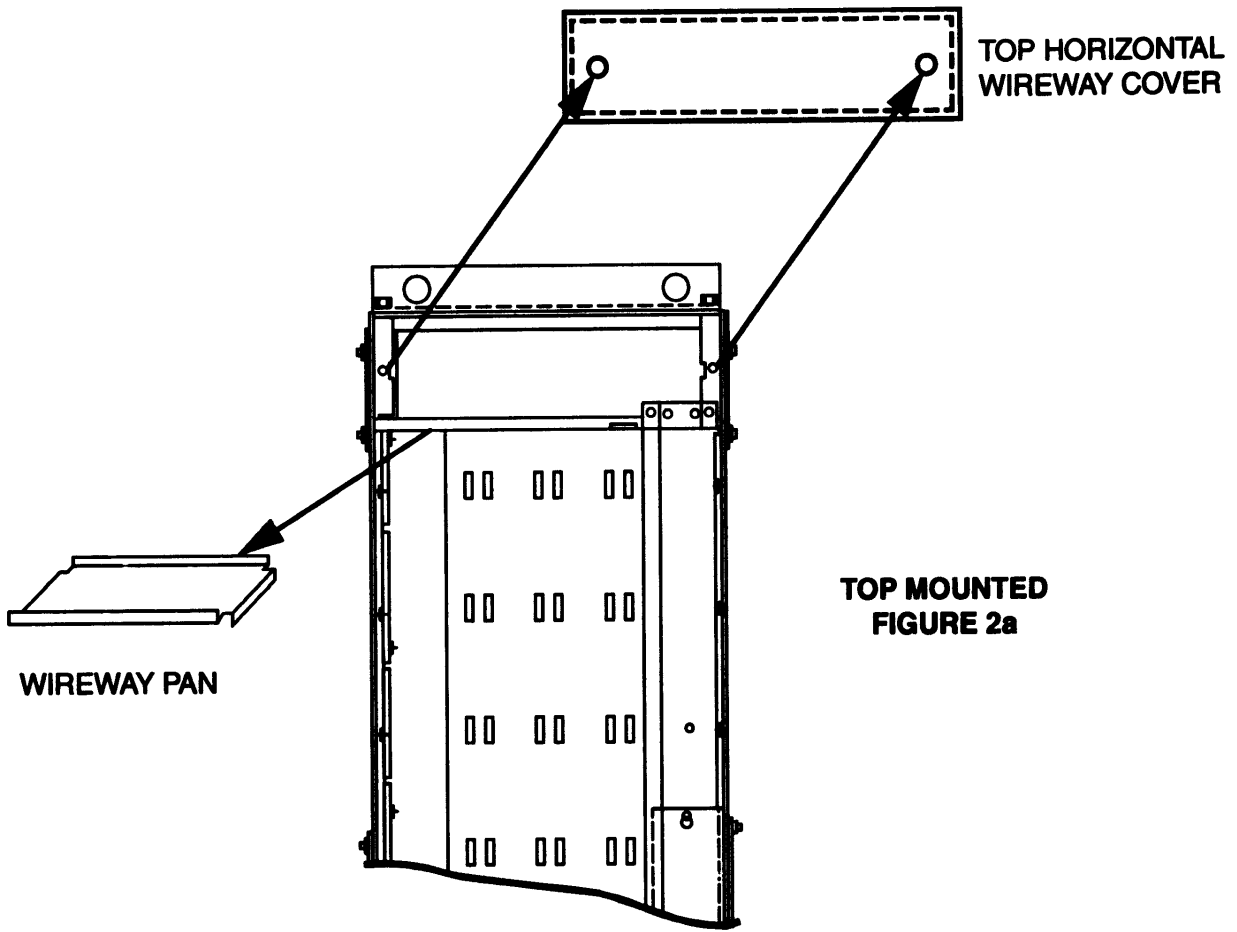
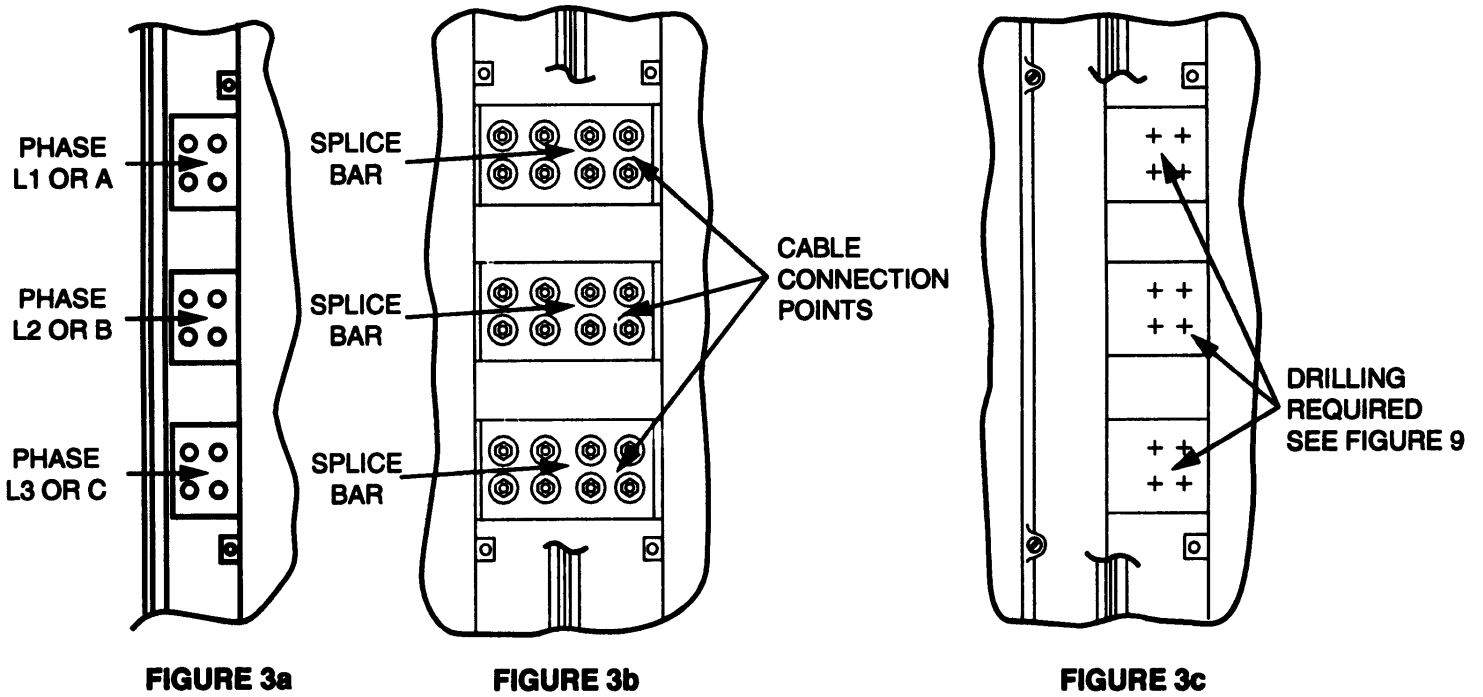
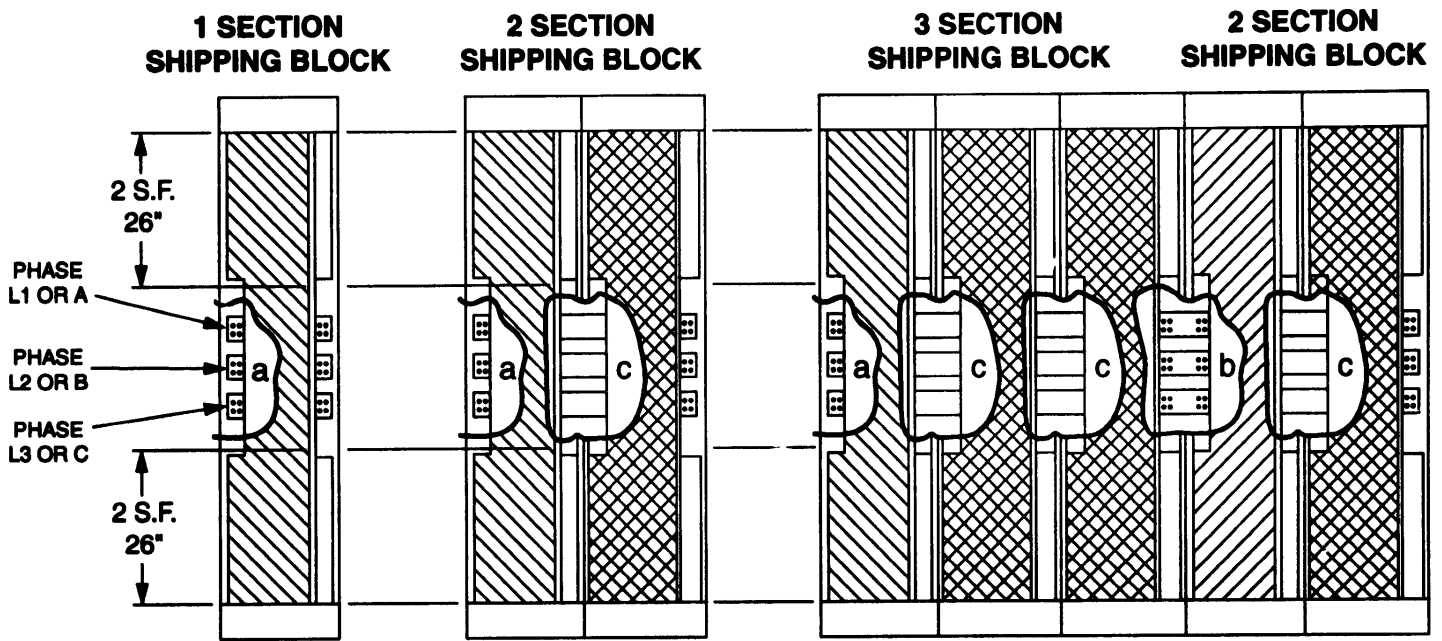


FIGURE 1b





SECTION LOCATION
TOP OR BOTTOM
NO DRILLING
REQUIRED

SECTION LOCATION
TOP OR BOTTOM
TERMINATION
OR SPLICE

SECTION LOCATION
TOP OR BOTTOM
THAT REQUIRES
DRILLING 12 HOLES

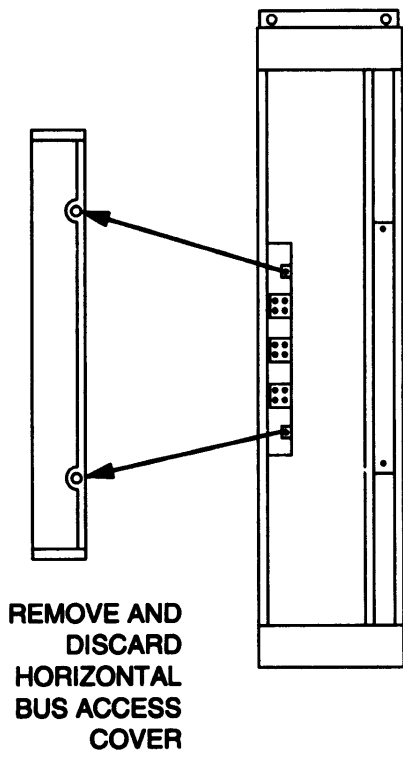


FIGURE 4a

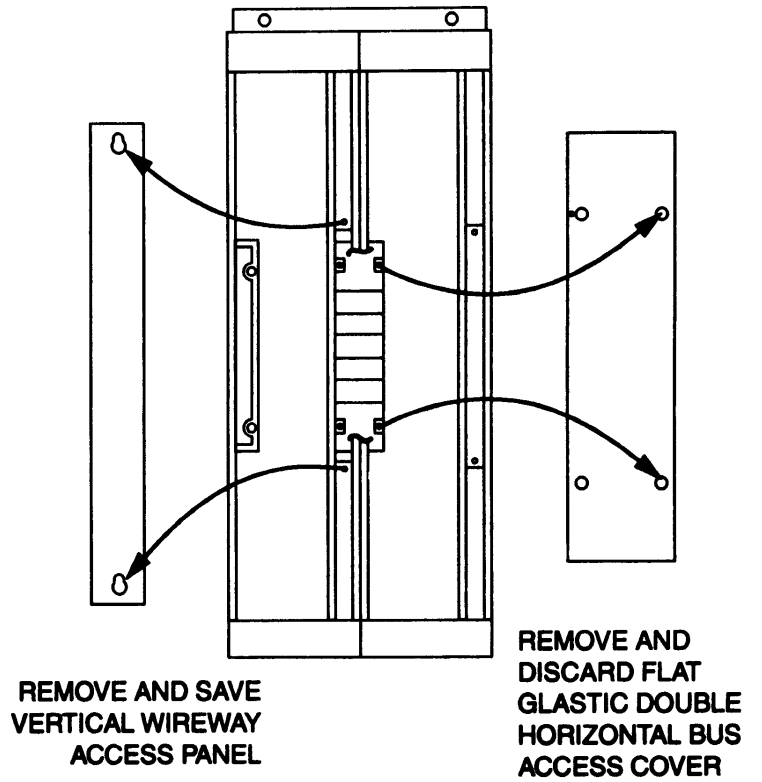


FIGURE 4b

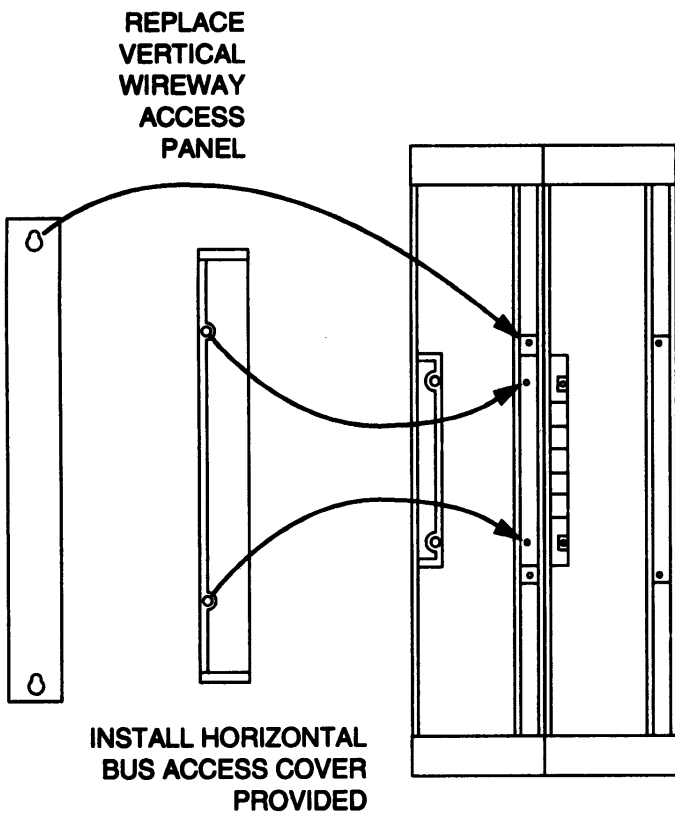


FIGURE 4c

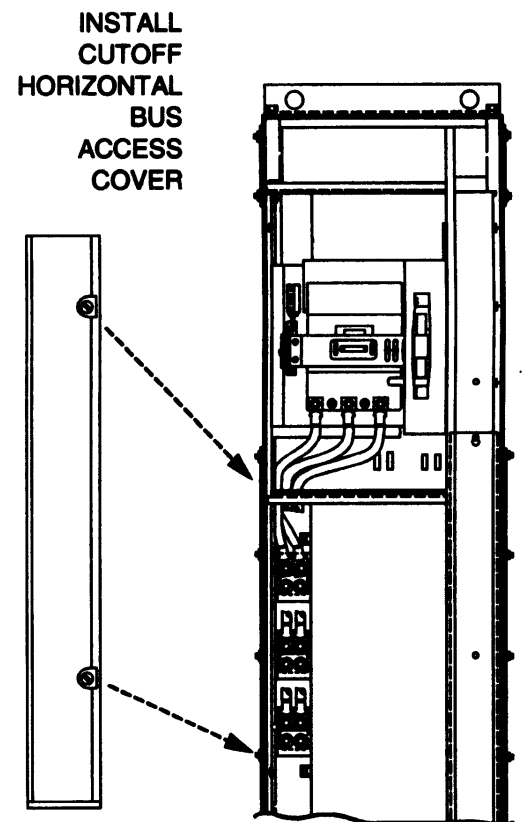
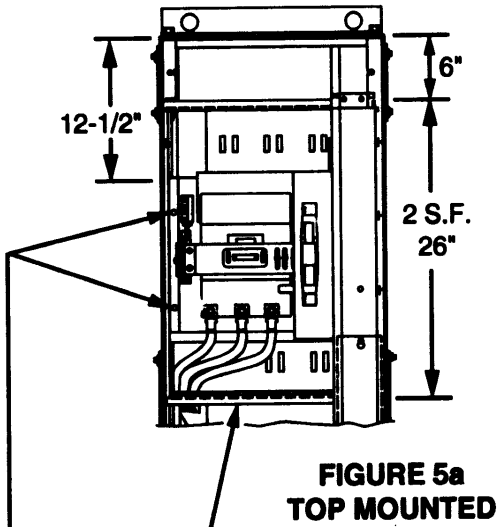


FIGURE 4d



UNIT
SUPPORT
PAN

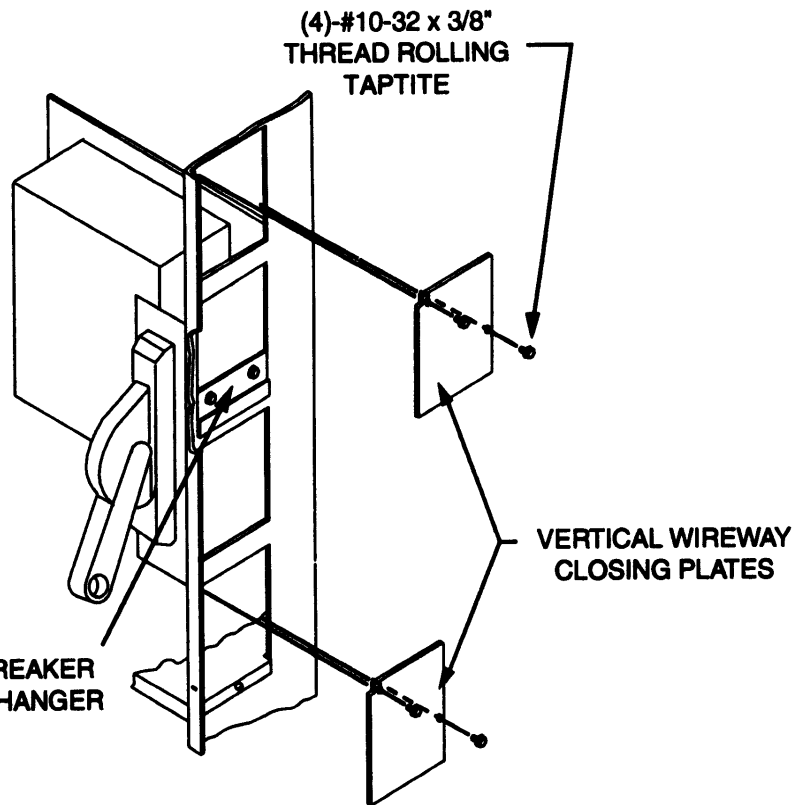
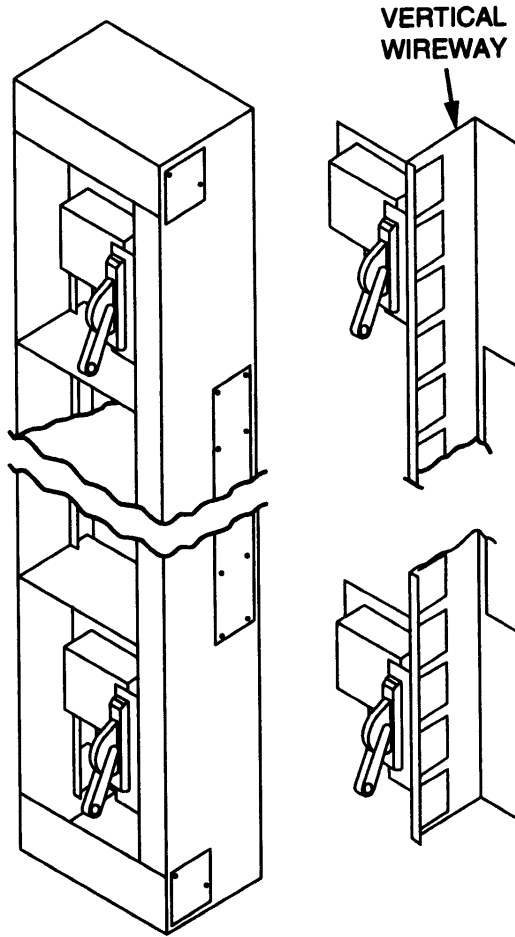
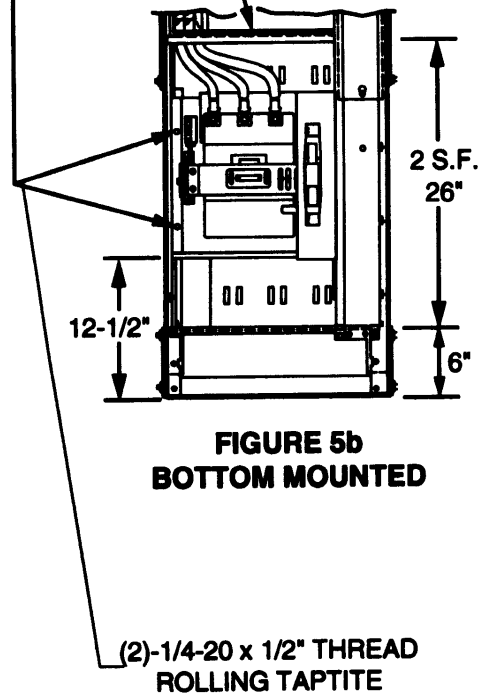
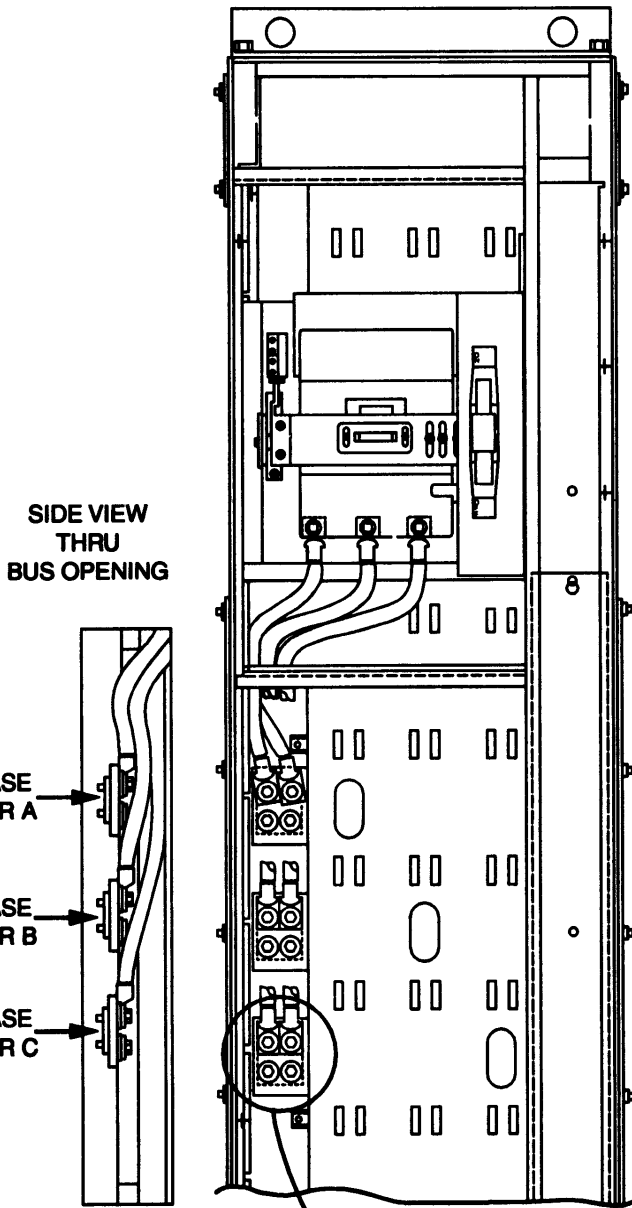
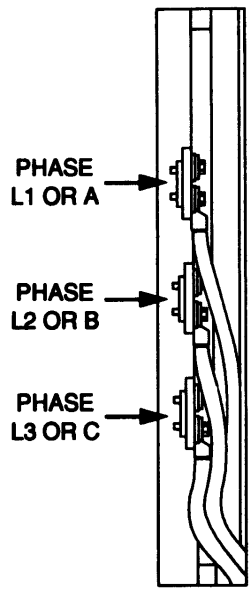


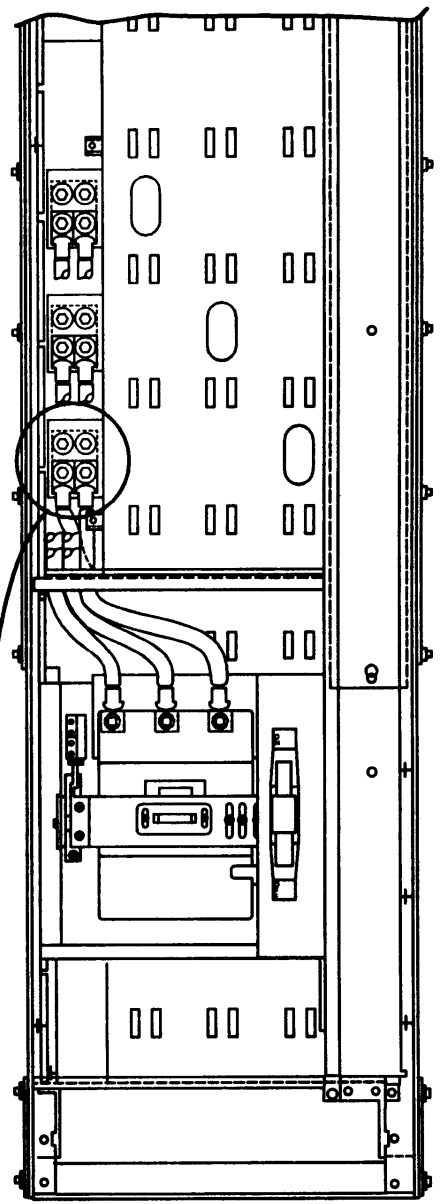
FIGURE 5c



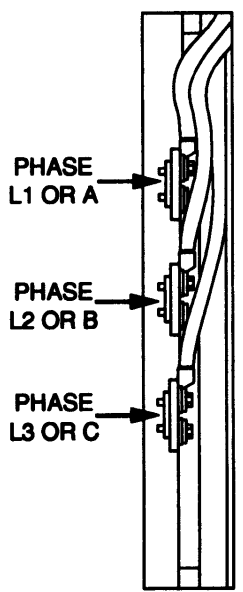
**FIGURE 6b
TOP MOUNTED**



**SIDE VIEW
THRU
BUS OPENING**



**FIGURE 6c
BOTTOM MOUNTED**



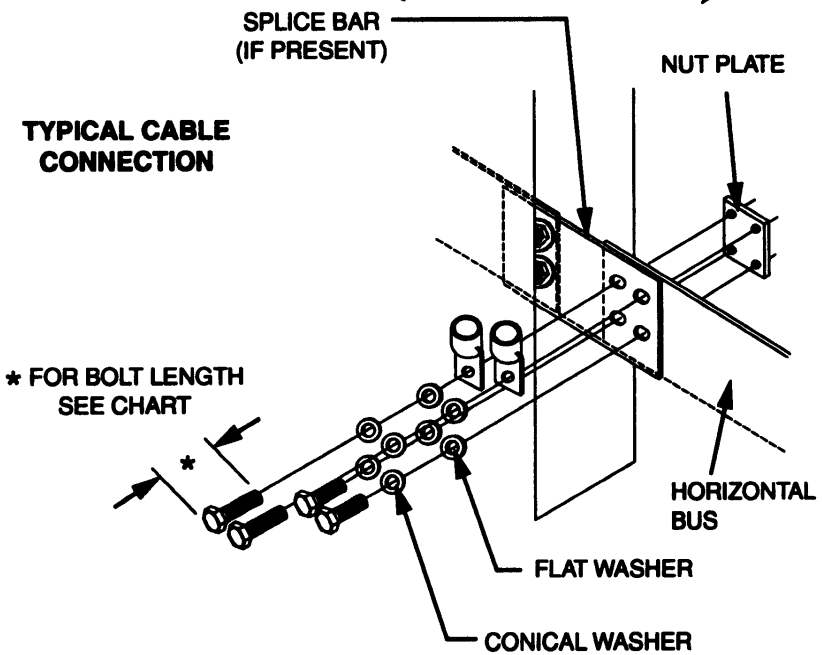
**SIDE VIEW
THRU
BUS OPENING**

PHASE
L1 OR A

PHASE
L2 OR B

PHASE
L3 OR C

TYPICAL CABLE CONNECTION



* FOR BOLT LENGTH
SEE CHART

| HORIZONTAL BUS | AMP. RATING | SPLICE AT BUS | BOLTS QUANTITY SUPPLIED (TOTAL) | LENGTH (INCHES) |
|----------------|-------------|---------------|---------------------------------|-----------------|
| 1/8" AI | 600 A | NO | 12 | 1.0 |
| 1/8" AI | 600 A | YES | 12 | 1.0 |
| 1/8" CU | 800 A | NO | 12 | 1.0 |
| 1/8" CU | 800 A | YES | 12 | 1.0 |
| 3/16" AI | 800 A | NO | 12 | 1.0 |
| 3/16" AI | 800 A | YES | 12 | 1.5 |
| 3/16" CU | 1000 A | NO | 12 | 1.0 |
| 3/16" CU | 1000 A | YES | 12 | 1.5 |
| 5/16" AI | 1000 A | NO | 12 | 1.0 |
| 5/16" AI | 1000 A | YES | 12 | 1.5 |
| 1/4" CU | 1200 A | NO | 12 | 1.0 |
| 1/4" CU | 1200 A | YES | 12 | 1.5 |
| 1/2" CU | 1600 A | NO | 12 | 1.5 |
| 1/2" CU | 1600 A | YES | 12 | 2.0 |
| 5/8" CU | 2000 A | NO | 12 | 1.5 |
| 5/8" CU | 2000 A | YES | 12 | 2.0 |

FIGURE 6a

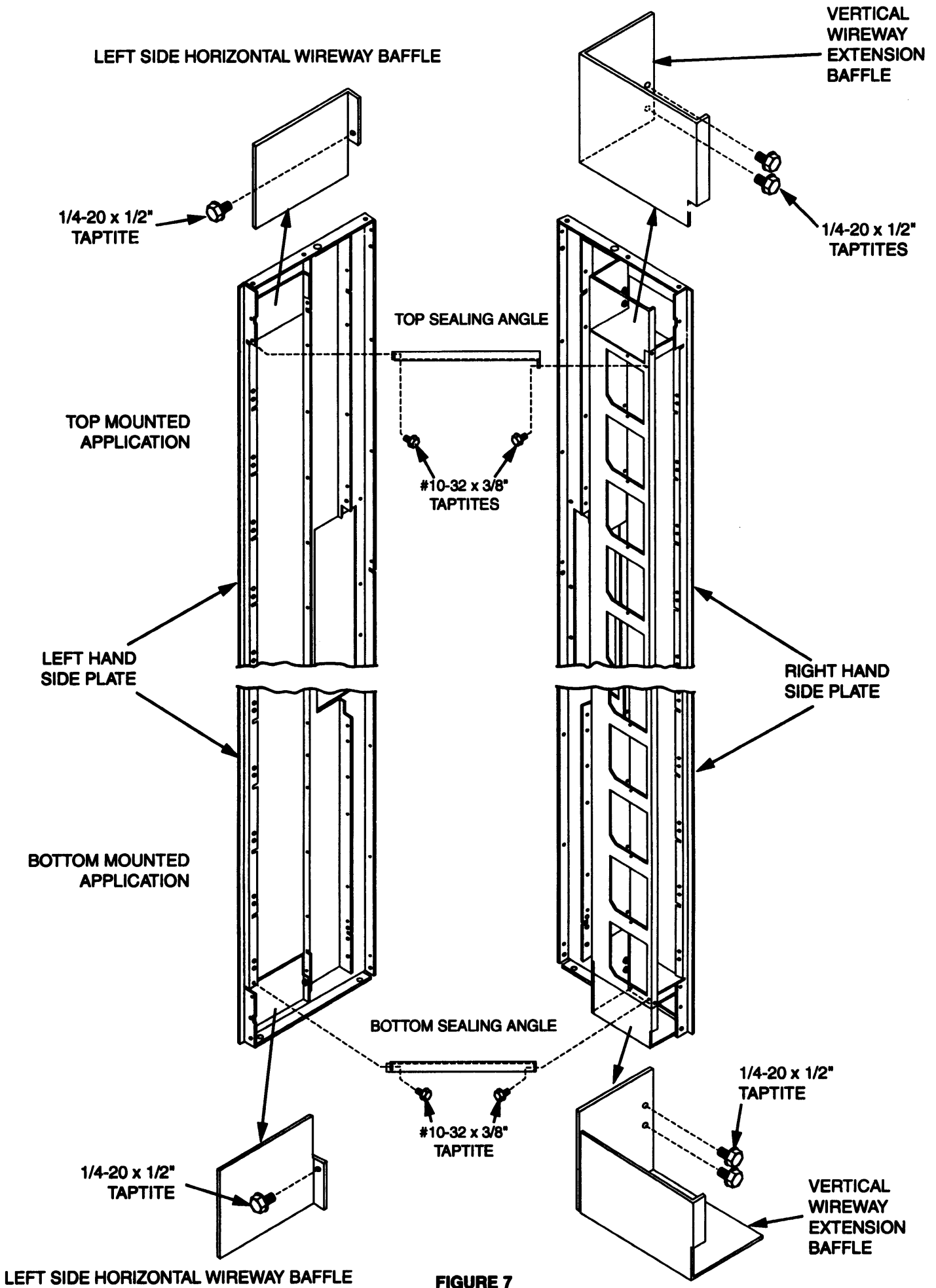
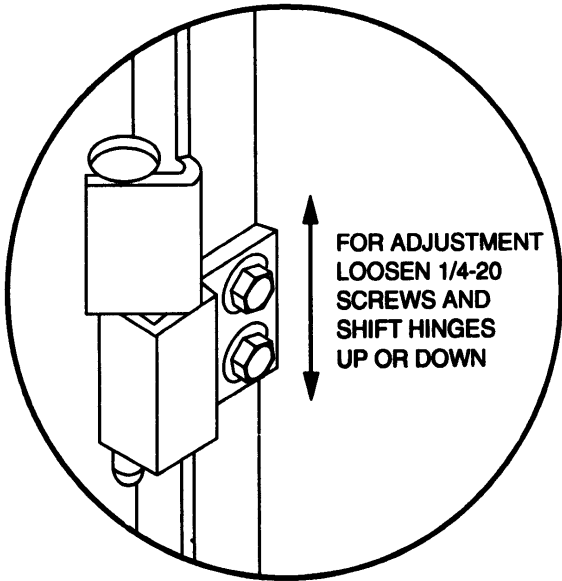


FIGURE 7



**NOTE:
FOR STRUCTURES WITH SERIES LETTER
"H" OR LATER NO ADJUSTMENT IS
NECESSARY.**

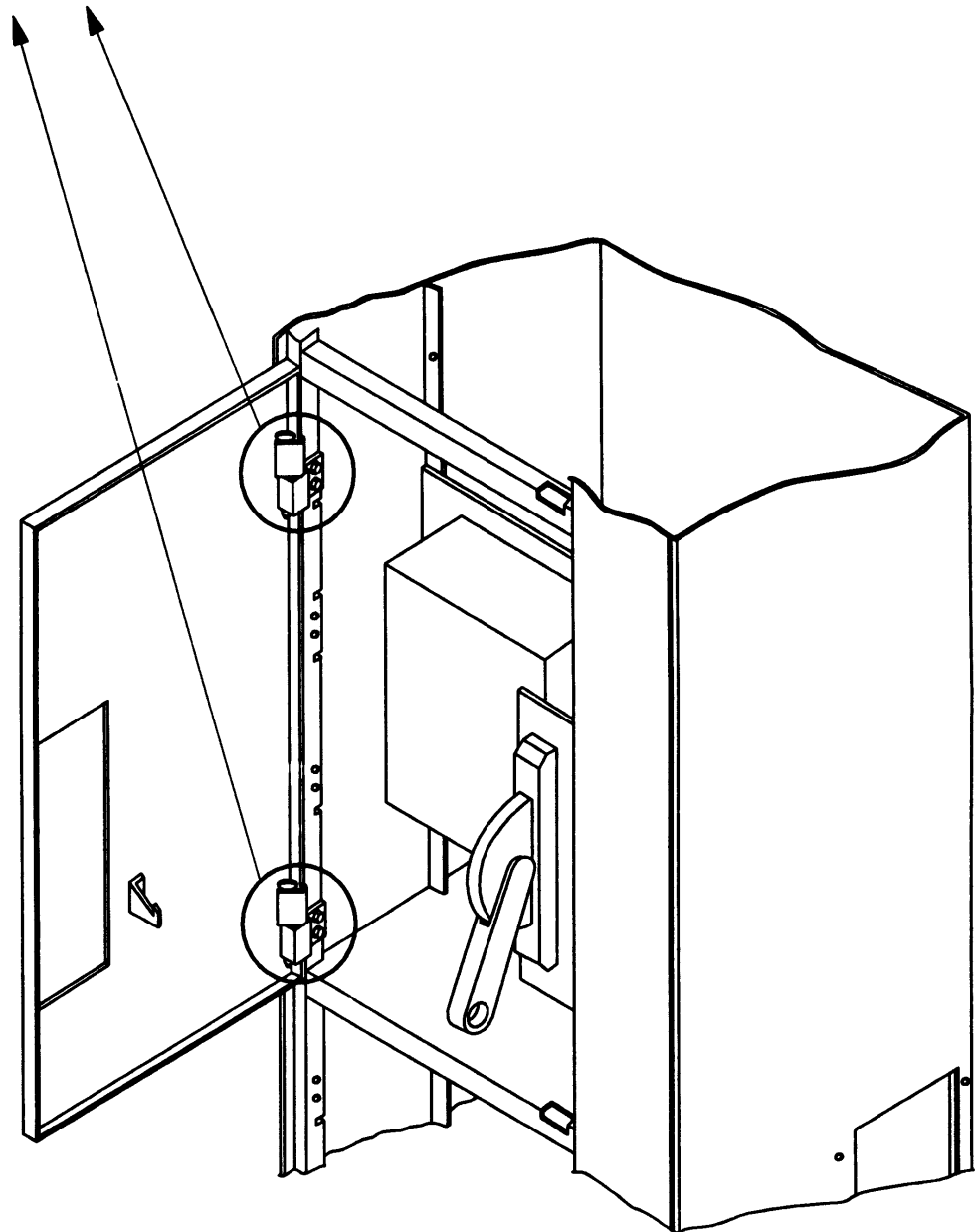
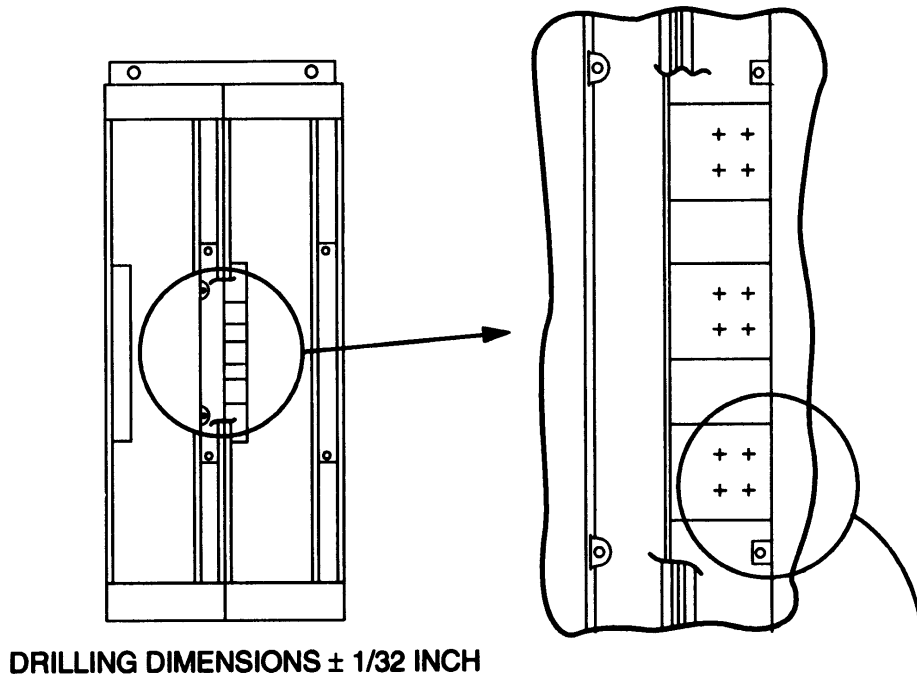
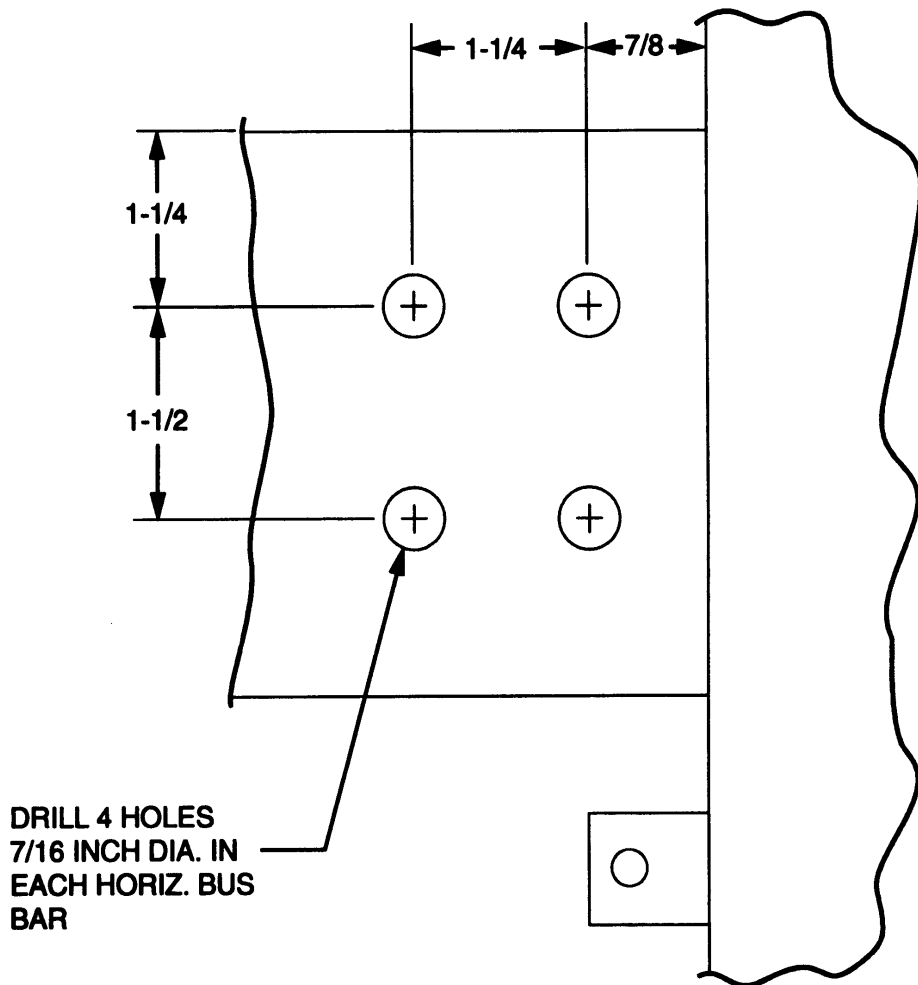


FIGURE 8



DRILLING DIMENSIONS $\pm 1/32$ INCH



DRILL 4 HOLES
7/16 INCH DIA. IN
EACH HORIZ. BUS
BAR

FIGURE 9