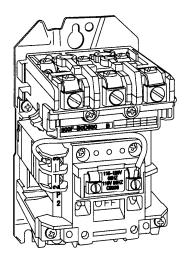




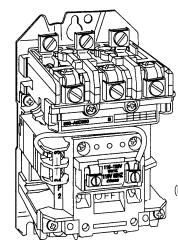
# Allen-Bradley

# NEMA AC Contactors for Motor Loads (Bulletin 500) and Non-motor Loads (Bulletin 500L) Sizes 0 through 4 (all series), Size 5 (series L)

Renewal Parts



Bulletin 500F - Size 1
3-Pole Motor Load
Feed-through Construction
(Bulletin 500FL similar in appearance)



Bulletin 500 -Size 0
3-Pole Motor Load
Top Wiring Construction
(Bulletin 500L similar in appearance)

# **Table of Contents**

# Your order must include: Part No. Description of part

- Cat. No. of contactor
- Series letter of contactor

#### **Important:** Save renewal parts list for future reference.

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# **Description**

Bulletin 500 line of contactors (NEMA sizes 0 through 5) offer a wide variety of applications. Contactors are available for control of motors when overload protection is provided separately, or for control of non-motor loads such as lighting and resistance heating.

# **Operating Environment**

Contactors should always be maintained in a clean and dry condition for dependable operation. Choice of the proper NEMA enclosure type for the application is very important.

## **Preventive Maintenance**

For recommended preventive maintenance instructions of Industrial Control equipment, refer to Publication IC-906.

## Wiring

For typical wiring diagrams, refer to Publication GI-2.0.

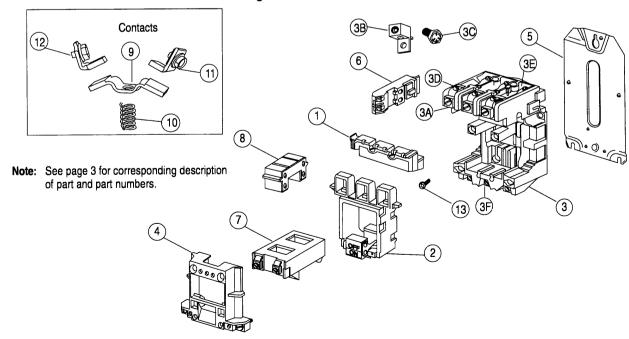


**ATTENTION:** To prevent electrical shock, disconnect from power source before installing or servicing. Install in suitable enclosure. Keep free from contaminants.

Contactors can be disassembled as depicted in the "exploded" illustration, Figure 1.

Primary parts illustrated are similar in appearance for all sizes. Secondary parts such as mounting plate, lugs, etc. will vary in appearance.

Figure 1



#### Renewal Partso

| ltem             | Description of Renewal Parts   | Size 0<br>15/20A                  | Size 1<br>30A         | Size 2<br>60A                        | Size 3<br>100A                                | Size 4<br>200A                            | Size 5 (Series L)@<br>300A           |
|------------------|--|-----------------------------------|-----------------------|--------------------------------------|---|---|--------------------------------------|
| Rem              | Description of Henowall and  | Part No.                          | Part No.              | Part No.                             | Part No.                                      | Part No.                                  | Part No.                             |
| 1                | Contact Block Cover  | 40410-499-01                      | 40410-499-02          | 40420-499-01                         | 40430-457-51                                  | 40440-456-51                              | 42450-800-01                         |
| 20               | Movable Contact Support and Armature<br>Assembly   | 40410-                            | 498-01                | 40420-498-01                         | 40430-452-51                                  | 40440-453-51                              | 42450-801-01                         |
| 3 <b>⊚</b>       | Stationary Contact Block and Base<br>Assembly  |                                   |                       | S                                    | ee Table Below.                               |   |                                      |
| 3A               | Saddle Clamp Assembly (for size 0 and 1)   | X-22                              | 5492                  |                                      | _   | _   |                                      |
| 3B               | Lug  | _                                 | _                     | X-316012                             | 40430-461-51                                  | 40440-460-51                              | 42450-804-01                         |
| 3C               | Bolt   |                                   | _                     | M-6289                               | M-6532  | M-6834                                    | _                                    |
| 3D               | Front Terminal without Contacts  |                                   |                       |                                      | 40430-022-02                                  | 40440-030-02                              | 42450-302-52                         |
| 3E               | Rear Terminal without Contacts   | 4                                 | •                     | Ø                                    | 40430-024-02                                  | 40440-314-51                              | 40440-314-51                         |
| 3F               | Front/Rear Terminal Screw  |                                   | •                     |                                      | 28168-107-26                                  | 28168-502-26                              | Front: 28168-503-26<br>Rear: -502-26 |
| 4                | Coil Cover   | 40410-496-01                      |                       | 40420-497-01                         | 40430-454-51                                  | 40440-454-51                              | 42450-803-01                         |
| 5                | Mounting Plate   | 40410-                            | 031-02                | 40420-014-02                         | 40430-044-02                                  | 40440-027-02                              |                                      |
| 6                | Auxiliary Contact Block (refer to page 16)   |                                   |                       |                                      | 5-A (used as hold-in conta                    | act)                                      |                                      |
| 7                | Operating Coil   |                                   |                       |                                      | See page 4                                    |   |                                      |
| 8                | Yoke (50–60 Hz)  | 40410-                            | 497-01                | 40410-497-02                         | 40430-455-51                                  | 4044                                      | 0-458-51                             |
| 9                | Movable Contact  |                                   |                       |                                      |   |   |                                      |
| 10               | Contact Spring   |                                   |                       | Order S                              | single Pole Contact Set                       |   |                                      |
| 11               | Front Stationary Contact   |                                   |                       | Ofuel 3                              | ingle Fole Contact Set                        |   |                                      |
| 12               | Rear Stationary Contact  |                                   |                       |                                      |   |   |                                      |
| <b>9</b> –12     | Single Pole Contact Set [includes (1) each item 9–12] for Motor Load Contactors                  | 40410-331-51                      | 40410-331-52          | <b>40420-322-51</b>                  | <b>⇔</b> 40430-300-51 <b>⊚</b>                | <b>☎</b> 40440-300-51 <b>७</b>            | <b>○</b> 42450-805-01 <b>⊙</b>       |
| <b>⑤</b><br>9–12 | Single Pole Contact Set [includes (1) each item 9–12] for Non-motor Load and Lighting Contactors | <b>4</b> 0410-331-53              | <b>Q</b> 40410-331-54 | <b>○</b> 40420-322-52                | ◆ 40430-300-52<br>4 Pole: 40430-300-53        | ◆ 40440-325-52<br>4 Pole:<br>40430-325-53 | <b>42450-805-02</b>                  |
| 13               | Mtg. Screw w/Washer (3 req'd)  | 28169-100-26<br>(#8-32 × 5/8 in.) |                       | 28169-101-26<br>(#10-32 × 23/32 in.) | 40430-460-51<br>(1/4 in. – 28 ×<br>1-1/8 in.) | 1   | .0-459-51<br>24 × 1-1/4 in.)         |

Parts indicated with • are recommended spare parts.

- Renewal parts apply to 2-3 Power Poles. 4 Pole contactors consist of basic 2 Pole contactor with Power Pole Kits added. Refer to page 9 for replacement Power Pole Kits.
- This renewal parts list does not apply to Size 5 Series A construction. Refer to the nearest sales office for information.
- Less contacts, order Single Pole Contact Sets as required.
- Front and rear terminal assembly not available as a renewal part. Replace stationary contact block and base assembly.
- Front Terminal Screw Part No. 28168-503-26 and Rear Terminal Screw Part No. 28168-502-26.
- Order necessary Power Pole Kits in addition to noted Contact Sets when replacements are for use on 4 or 5 Power Pole Contactors.
- Include Power Pole Adder.

#### **Stationary Contact Block and Base Assembly**

|           | Top Wiring C    | onstruction   | Feed-through   | Construction  |
|-----------|-----------------|---------------|----------------|---------------|
| Size      | 2 Power Poles 🕏 | 3 Power Poles | 2 Power Poles® | 3 Power Poles |
| 0 (20 A)  | 40410-493-03    | 40410-495-03  | 40410-492-03   | 40410-494-03  |
| 1 (30 A)  | 40410-493-04    | 40410-495-04  | 40410-492-04   | 40410-494-04  |
| 2 (60 A)  | 40420-494-02    | 40420-496-02  | 40420-493-02   | 40420-495-02  |
| 3 (100 A) | 40430-462-53    | 40430-462-54  | 40430-462-51   | 40430-462-52  |
| 4 (200 A) | 40440-462-53    | 40440-462-54  | 40440-462-51   | 40440-462-52  |
| 5 (300 A) | 40450-802-01    | 42450-802-03  | 42450-802-02   | 42450-802-04  |

<sup>4</sup> Power Pole Contactor in top wiring construction consists of the basic 2 Pole Contactor plus two power pole kits added. Refer to page 10 for replacement Power Pole Kits.

#### O Operating Coils

| Coil                    | Size 0-1         Size 2           Frequency         Size 15/20A-30A         Size 60A |           |  |           | ze 3<br>100A                             | Size<br>Size           | Size 5<br>Size 300A                      |  |  |                   |
|-------------------------|--|-----------|--|-----------|--|------------------------|--|--|--|-------------------|
| Voltage                 | (Hz)   | 2-3 Poles | 4 Poles <b>①</b><br>4–5 Poles <b>②</b> | 2 Poles@@ | 3–4 Poles <b>©</b><br>3–5 Poles <b>©</b> | 2 Poles①<br>2-3 Poles② | 3–4 Poles <b>①</b><br>4–5 Poles <b>②</b> | 2 Poles <b>0</b><br>2-3 Poles <b>0</b> | 3-4 Poles <b>①</b><br>4-5 Poles <b>②</b> | Series L <b>©</b> |
| 0.01                    | 60   | CB013     | CB013                                  | CC013     | CC013C                                   | CD013                  | CD013                                    | -                                      | _  | _                 |
| 24V                     | 50   | CB407     | CB407C                                 | CC407     | CC407C                                   | CD407                  | CD407C                                   | CE407                                  | _  | AF407             |
| 110V                    | 50   | CB236     | CB236                                  | CC236     | CC236C                                   | CD236                  | CD236C                                   | CE236                                  | CE236C                                   | AF236             |
| 110-115V                | 50   | CB322     | CB322C                                 | CC322     | CB322C                                   | CD322                  | CD322C                                   | CE322                                  | CE322C                                   | AF322             |
| 115-120V                | 60   | CB236     | CB236                                  | CC236     | CC236C                                   | CD236                  | CD236C                                   | CE236                                  | CE236C                                   | AF236             |
| 200-208V                | 60   | CB249     | CB249C                                 | CC249     | CC249C                                   | CD249                  | CD249C                                   | CE249                                  | CE249C                                   | AF249             |
| 220-230V                | 50   | CB339     | CC339                                  | CC339     | CC339C                                   | CD339                  | CD339C                                   | CE339                                  | CE339C                                   | AF339             |
|                         | 50   | CB242     | CB342C                                 | CC342     | CC342C                                   | CD342                  | CD342C                                   | CE342                                  | CE342C                                   | AF342             |
| 230-240V                | 60   | CB254     | CB254                                  | CC254     | CC254C                                   | CD254                  | CD254C                                   | CE254                                  | CE254C                                   | AF254             |
| 277V                    | 60   | CB260     | CB260                                  | CC260     | CC260C                                   | CD260                  | CD260C                                   | CE260                                  | CE260C                                   | AF260             |
| 380V                    | 50   | CB354     | CB354C                                 | CC354     | CC354C                                   | CD354                  | CD354C                                   | CE354                                  | CE354C                                   | AF354             |
| 380-400V<br>("KN" Code) | 50   | CB390     | CB390C                                 | CC390     | CC390C                                   | CD390                  | CD390C                                   | CE390                                  | CE390C                                   | AF390             |
| 415V                    | 50   | CB357     | CB357C                                 | CC357     | CC357C                                   | CD357                  | CD357C                                   | CE357                                  | CE357C                                   | AF357             |
| 440-460V                | 50   | CB360     | CB360C                                 | CC360     | CC360C                                   | CD360                  | CD360C                                   | CE360                                  | CE360C                                   | AF360             |
| 460-480V                | 60   | CB273     | CB273                                  | CC273     | CC273C                                   | CD273                  | CD273C                                   | CE273                                  | CE273C                                   | AF273             |
| 500V                    | 50   | CB364     | CB364C                                 | CC364     | CC364C                                   | CD364                  | CD364C                                   | CE364                                  | CE364C                                   | AF364             |
| 575-600V                | 60   | CB278     | CB278                                  | CC278     | CC278C                                   | CD278                  | CD278C                                   | CE278                                  | CE278C                                   | AF278             |

Parts indicated with  $\odot$  are recommended spare parts.

- For Non-motor Loads (Bulletin 500L).
- For Motor Rated Contactors.
- For Size 5 Series A coils, the nearest sales office for information.

# **Operating Coil Data**

| Contactor<br>Size | No.   |         |        |        |         | Voltam | peres Burde   | n for 60 Hz ( | Coils <b>O</b> |        |               |        |               |  |
|-------------------|-------|---------|--------|--------|---------|--------|---------------|---------------|----------------|--------|---------------|--------|---------------|--|
| Motor             | of    | 24 Vois |        | 115–12 | 0 Volts | 200-20 | 200-208 Volts |               | 230-240 Volts  |        | 460-480 Volts |        | 575-600 Volts |  |
| Load              | Poles | Inrush  | Sealed | Inrush | Sealed  | Inrush | Sealed        | Inrush        | Sealed         | Inrush | Sealed        | Inrush | Sealed        |  |
| 0                 | 2–5   | 192     | 29     | 192    | 29      | 192    | 29            | 192           | 29             | 192    | 29            | 192    | 29            |  |
| 1                 | 2–5   | 192     | 29     | 192    | 29      | 192    | 29            | 192           | 29             | 192    | 29            | 192    | 29            |  |
| 2                 | 2–3   | 240     | 29     | 240    | 29      | 240    | 29            | 240           | 29             | 240    | 29            | 240    | 29            |  |
| 2                 | 4–5   | 315     | 38     | 315    | 38      | 315    | 38            | 315           | 38             | 315    | 38            | 315    | 38            |  |
| 3                 | 2–3   | 660     | 45     | 660    | 45      | 660    | 45            | 660           | 45             | 660    | 45            | 660    | 45            |  |
| 3                 | 4–5   | 840     | 58     | 840    | 58      | 840    | 58            | 840           | 58             | 840    | 58            | 840    | 88            |  |
| 4                 | 2-3   | _       | _      | 1225   | 69      | 1225   | 69            | 1225          | 69             | 1225   | 69            | 1225   | 69            |  |
| 4                 | 4–5   | _       | _      | 1490   | 96      | 1490   | 96            | 1490          | 96             | 1490   | 96            | 1490   | 96            |  |
| 5<br>(Series L)   | 2–3   | _       | _      | 1490   | 96      | 1490   | 96            | 1490          | 96             | 1490   | 96            | 1490   | 96            |  |

<sup>•</sup> For 50 Hz coils, consult your nearest Allen-Bradley Sales Office.

# Disassembly

**Replacing Contacts** 



**ATTENTION:** To prevent electrical shock, disconnect from power source before installing or servicing. Install in suitable enclosure. Keep free from contaminants.

The following procedures and techniques are suggested to aid in the disassembly and re-assembly of a typical motor contactor. It is not necessary to remove the contactor from its enclosure or to remove the line wiring. It may be convenient to remove the line wiring on top-wiring contactors for better access to the rear stationary contact mounting screws. Refer to Rear Stationary Contacts, on page 7. Refer to exploded view, Figure 1, for item numbers.

- 1. Remove all control wires from the operating coil (item 7).
- 2. Loosen two captive screws and lift off the contact block cover (item 1).
- 3. Loosen four captive screws from the coil cover (item 4).
- 4. With the coil cover screws loosened, the auxiliary contact block(s) (item 6) can be removed and the coil cover lifted off.
- 5. Lift out the movable contact support and armature assembly (item 2), the yoke (item 8), and the operating coil as a unit. The yoke and the operating coil can now be lifted up and out of the movable contact support assembly.

When severe contact wear is evidenced, it is recommended that all contacts be replaced, including the modular power pole kits on 4 and 5 pole devices. Replacing all contacts will guard against uneven contact closings. Be sure to check contact spring flexibility and replace if necessary. Order the required number of single pole contact sets from the part listings on page 3 and refer

to page 9 for Cat. No. and details on Power Pole Kit. Follow disassembly steps 1-5.

#### Torque for Stationary Contact Replacement

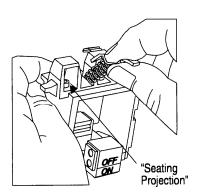
| Size | Front and Rear Torque (approximately) |
|------|---------------------------------------|
| 0    | 8 - 10 lbsin.                         |
| 1    | 14-17 lbsin.                          |
| 2    | 50 lbs i n.                           |
| 3    | 90 lbs in.                            |
| 4    | 180 lbs in.                           |
| 5    | 90-130 Ibs in.                        |

Note: Coil cover torque for sizes 0 to 2 is approximately 14-17 lbs.-in. For sizes 3 to 5 torque is approximately 25-30 lbs.-in.

sizes 3 to 5 torque is approximately 25-30 lbs.-in.

# Replacing Contacts (cont.) Movable Contacts

#### Figure 2



Refer to exploded view, Figure 1, for item numbers.

- 1. Remove the movable contact (item 9) by depressing the contact spring (item 10) and pushing the contact out to either side. The contact spring will fall free or can be lifted out.
- 2. Hold the replacement spring and contact in one hand as shown in Figure 2.
- 3. Insert the contact spring over the "seating projection" on the movable contact support assembly. Slip the movable contact and spring into position in the opening on the movable contact support assembly. Rock the spring into position over the seating projection on the movable contact support and the movable contact.
- 4. Check to determine that the spring is holding the contact in a centered position.

#### **Front Stationary Contacts**

Refer to exploded view, Figure 1, for item numbers.

The mounting screws or bolts that secure the front stationary contacts (item 11) are accessible from the front and are located directly below and to the back of the front terminal assemblies. A socket wrench should be used to loosen and tighten contact securing bolts.

Note: Front and rear contacts should be removed and replaced in pairs, one at a time.

- 1. Loosen and remove the screw or bolt and lift out the contact.
- 2. Install the replacement contact (front and rear stationary contacts are identical) and tighten the contact mounting screw or bolt securely.

#### **Rear Stationary Contacts**

Refer to exploded view, Figure 1, for item numbers.

The mounting screws or bolts that secure the rear stationary contacts (item 12) are accessible from the top and are located at an angle in the cavities directly behind the front terminal assemblies.

- 1. Loosen and remove the mounting screw or bolt while holding the contact within the contact block assembly.
- 2. Push the loose contact up and out or allow it to drop down.
- 3. Install the replacement contact from the top, catching it from within the contact block assembly.
- 4. Insert the mounting screw or bolt and tighten securely.

#### Replacing the Stationary Contact Block and Base Assembly

Refer to exploded view, Figure 1, for item numbers.

The block and base assembly (item 3) can be removed from a partially disassembled starter, if necessary. First follow Disassembly steps 1-5. The block and base assembly is connected to the incoming lines.

- 1. Remove the line wiring and label or mark all wires.
- 2. The block and base assembly is connected to the mounting plate (item 5) by three mounting screws with washers (item 13). Remove these screws, and the stationary contact block and base assembly (item 3) can be lifted up and out.
- 3. If new contacts **are not** being installed, remove stationary contacts **one at a time** from the old block and base assembly and install them in the **same positions** in the new assembly. See instructions under Replacing Contacts on page 5. Follow those instructions also if installing new contact sets.
- 4. If the contactor is of the 4 or 5 pole power pole construction, and new contacts are not being installed, remove the power pole kit(s) and/or load balancer, and install them in the same position on the new assembly. Refer to page 10 for instruction on removal and installation of Power Pole Kit.
- 5. Install the replacement block and base assembly and secure the three screws with washers and tighten securely.
- 6. Reconnect line wiring.

# Reassembly

Refer to exploded view, Figure 1, for item numbers.

- **1.** Place the movable contact support and armature assembly (item 2) in the contactor base. Attach the contact block cover(s) and tighten screws securely (approximately 25-30 lbs.-in.).
- 2. Insert the yoke (item 8) into the operating coil (item 7). Place the yoke-coil assembly into the contactor base. The parts are keyed to fit only one way.
- 3. Replace the coil cover (item 4). If used, check the tie point terminal for proper position. Tighten the coil cover screws securely (approximately 25-30 lbs.-in.).
- 4. With the movable contact support and armature assembly in the "OFF" position, install the auxiliary contact block(s) (item 6), if used, using instructions provided on the auxiliary contact block label.
- 5. Reconnect all control wirings.

# Replacing Coil

Refer to exploded view, Figure 1, for item numbers.

- **1.** Remove all wires from coil.
- 2. Remove coil cover (item 4).

**Note:** Auxiliary contact will come off with coil cover.

- 3. Slide out coil (item 7) and yoke (item 8) from movable contact support and armature assembly (item 2).
- 4. Replace coil and reassemble with yoke.
- 5. Slide yoke and coil back into movable contact and armature assembly.
- 6. Reattach coil cover.
- 7. Reattach wire to coil.
- 8. Reattach auxiliary contact (see p. 19).

# Replacing Magnet (Yoke and Armature)

Refer to exploded view, Figure 1, for item numbers.

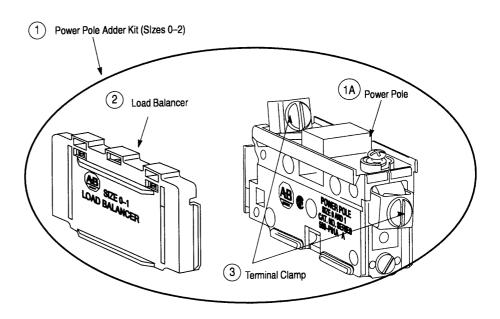
#### 1. Always replace yoke and armature at the same time.

- 2. Remove contact block cover (item 1), coil cover (item 4), coil (item 7), yoke (item 8), and movable contact support and armature assembly (item 2).
- 3. Replace yoke and movable support armsture assembly.
- 4. Reassemble as previously noted.

## **Accessories**

#### **Power Pole Adder**

Figure 3



The N.O. and N.C. power poles may be field-added to all Size 0–4 Bulletin 500 line contactors and starters except the Bulletin 500L and 500FL. Both 2 and 3 pole contactors will accept a maximum of two adder poles and 4 pole devices will accept one adder pole. Each adder pole kit includes a mechanical load balancer to be used when only one power pole is added.

**Important:** When power poles are added to Size 2, 3, or 4 (2 or 3 pole devices), the operating coil must be changed. See page 4 and refer to the listing for the size of your contactor and order the operating coil listed for a 4–5 pole device.

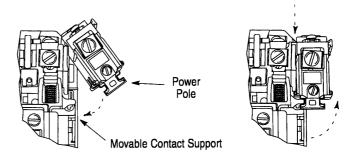
### Power Pole Adder Kits for Bulletin 500 and 500F Devices, Sizes 0-2

| Item O      | 1                       | 2                             | 3                     |
|-------------|-------------------------|-------------------------------|-----------------------|
| Description | Power Pole Adder Kit @  | Load Balancer                 | Lug/Terminal<br>Clamp |
|             | 599-P01A (1 N.O.)       | 599-P01B (1 N.C.)             | 40410-342-51          |
|             | 599-P01B (1 N.C.)       | 599-P01BL (1 N.C. Late Break) | 40410-342-51          |
|             | 599-P01BL (1 N.C. L.B.) | 599-P2A (1 N.O.)              | 40420-330-51          |
| Part No.    | 599-P2A (1 N.O.)        | 599-P2B (1 N.C.)              | 40420-330-51          |
|             | 599-P2B (1 N.C.)        | 599-P2BL (1 N.C. Late Break)  | 40420-330-51          |
|             | 599-P2BL (1 N.C. L.B.)  | 599-P3A (1 N.O.)              | 40430-458-51          |

- See Figure 3
- Power Pole Adder Kit contains power pole and items 2 and 3

# Accessories (cont'd)

Figure 4



#### Removal of Power Pole for Sizes 0, 1, and 2

The movable contact support and armature assembly must be completely open (the word "OFF" totally visible).

- 1. Loosen two captive screws and lift off the contact block cover.
- 2. Exert a downward force across the top of the modular housing while simultaneously pivoting the bottom portion of the housing away from the contactor (Figure 4).
- 3. Lift the modular power pole kit up and out.

#### Installing or Replacing Power Pole for Sizes 0, 1, and 2

The movable contact support and armature assembly must be completely open (the word "OFF" totally visible). The contact block cover must be removed.

- 1. Hold the power pole adder with the side from which the power terminals are serviceable facing forward.
- 2. At an angle, hook the top side edge of the adder into the groove provided on the top edge of the stationary contact block. See Figure 4.
- **3.** Push the power pole adder toward the contactor mounting plate as far as possible.
- **4.** Exert a pivotal force near the bottom of the power pole adder housing "snapping" it in place.
- 5. Make sure that the projection on the movable contact support gages the slot on the operator of the power pole adder. See Figure 4.
- 6. If the mechanical load balancer is to be used, it can be installed similarly to a power pole adder; hook the three tabs located along the top side edge into the groove.

#### Power Pole Adder Kits for Bulletin 500 and 500F Devices, Sizes 3-5

| Item 0      | 1                         | 1A                                  | 1B                                 | 1C   | 2                                    | 2A                               | 2B           |
|-------------|---------------------------|-------------------------------------|------------------------------------|--|--------------------------------------|----------------------------------|--------------|
| Description | Power Pole<br>Adder Kit @ | Hardware for<br>Power Pole<br>Adder | Adder Pole<br>Contact<br>Carrier ® | Hardware for<br>Adder Pole<br>Contact<br>Carrier | Load<br>Balancer<br>Less<br>Hardware | Hardware for<br>Load<br>Balancer | Special Nut  |
|             | 599-P3A<br>(1 N.O.)       | 40430-801-51                        | 40430-456-51                       | 40430-800-51                                     | 40430-458-51                         | 40430-802-52                     | 40430-017-02 |
|             | 599-P3B<br>(1 N.C.)       | 40430-801-51                        | 40430-456-51                       | 40430-800-51                                     | 40430-458-51                         | 40430-802-52                     | 40430-017-02 |
| Part No.    | 599-P4A<br>(1 N.O.)       | 40440-801-52                        | 40440-457-51                       | 40440-800-51                                     | 40440–455–51                         | 40440-802-52                     | 40430-017-02 |
|             | 599-P4B<br>(1 N.C.)       | 40440-801-52                        | 40440–457–51                       | 40440-800-51                                     | 40440-455-51                         | 40440-802-52                     | 4043001702   |
|             | 42450-600-01<br>(1 N.O.)  | 40440-801-52                        | 40440–457–51                       | 40440-800-51                                     | 40440-455-51                         | 40440-802-52                     | 40430-017-02 |

- See figures 5 and 6
- Power Pole Adder Kit contains power pole and items 2, 2A, 1A, and 1B
- 18 Item 18 offered less contacts and mounting hardware, which are available separately (see pg. 3, items 9-10)



**ATTENTION:** Disconnect power source before proceeding with assembly.

#### Power Pole Adder Assembly Procedure for Sizes 3, 4, and 5

**Important:** All Size 3 and 4 contactors require a special coil (coil number ending with the letter "C") whenever one or two power poles are added.

**Note:** Normally closed contacts are not replaceable in the field. Factory adjustment is required.

- 1. Remove all control wires from the coil and tie point terminals.
- 2. Loosen completely the two contact block cover screws and the four coil cover screws. Remove contact block cover, coil cover, auxiliary contact block(s) (if present), coil, magnet yoke, and movable contact carrier from the contactor.
- 3. Attach the adder pole contact carrier to the movable contact carrier as shown in Figure 5. Position the square nut in the nut pocket and tighten the #10-32 × 1" (Size 3) or #10-32 × 1-1/8" (Size 4 and 5) screw securely (approximately 30 lb.-in. torque).
- 4. Refer to Figure 6. Using a screwdriver, push the two special nuts into the nut pockets in the stationary contact block, making sure that the extruded rims on the threaded holes are to the inside of the contactor.
- 5. Position the power pole adder base against the contactor base. The projections on the power pole adder base fit into the rectangular slot in the contactor base when positioned correctly. Using the screw length specified for each position, install the three mounting screws, lock

# Accessories (cont'd)

- washers, and flat washers according to Figure 6. Tighten screws securely (approximately 16-20 lb.-in. torque).
- 6. Place the movable contact carrier in the contactor base. Attach the contact block covers on both the controller and the power pole adder. Tighten screws securely (approximately 25-30 lb.-in. torque).
- 7. Insert the magnet yoke in the coil (see page 4). Place the yoke-coil assembly in the contactor base. The parts are keyed to fit only one way.
- 8. Replace the coil cover. Check the tie point terminal for proper position. Tighten coil cover screws securely (approximately 25-30 lb.-in.)
- 9. With the movable contact support in the "OFF" position, install the auxiliary contact block(s) according to the instructions on the auxiliary contact block label.
- 10. Properly reconnect all control wiring.

Right Side Assembly

Square Nut

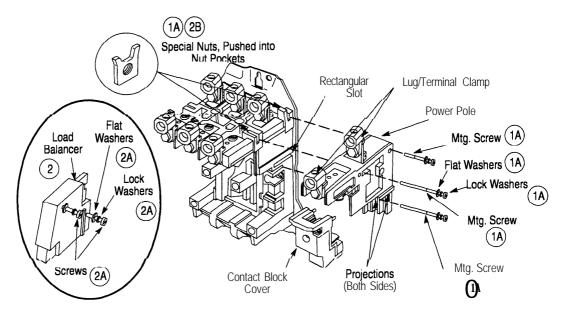
Adder Pole
Contact Carrier
(less contacts
and spring) 1B

Movable
Contact
Carrier

OFF
ON

Screw With Washer
1C

Figure 6 Right Side Installation



#### Installation for Normally Open and Normally Closed Sizes 3,4, and 5 Power Pole Adders and Load Balancers

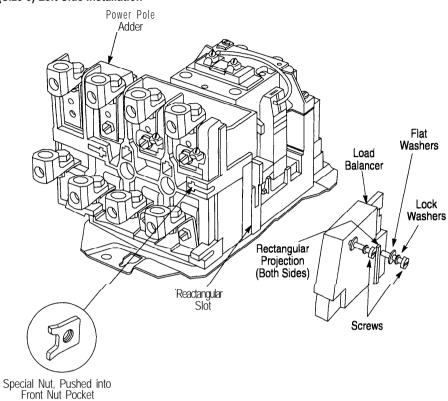
**Note:** When a single power pole adder (Figure 6) is added to a contactor, a load balancer (Figure 7 and Figure 8) must be added to the opposite side of the contactor. Each kit contains one power pole adder, one load balancer, one adder pole contact carrier, and mounting hardware. When installing two power pole adders to a single contactor, install a power pole adder on each side and discard load balancers.

#### **Load Balancer Assembly Procedure for Size 3 (See Figure 7)**

- 1. Using a screwdriver, push a special nut into the front nut pocket, making sure that the extruded rim on the threaded hole is to the inside of the contactor.
- 2. Position the load balancer against the contactor base. The rectangular projection on the load balancer fits into the rectangular slot in the contactor base when positioned correctly. Install the two #8-32 X 1-9/16" screws, lock washers, and flat washers as shown in Figure 7. Tighten screws securely (approximately 16-20 lb.-in. torque).

# Accessories (cont.)

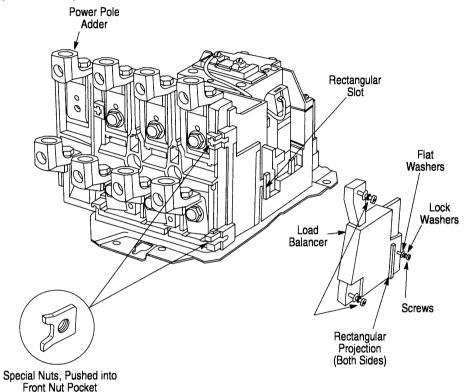
Figure 7 (Size 3) Left Side Installation



# Load Balancer Assembly Procedure for Size 4 and (See Figure 8)

- **1.** Using a screwdriver, push the special nuts into the nut pocket, making sure that the extruded rims on the threaded holes are to the inside of the contactor.
- 2. Position the load balancer against the contactor base. The rectangular projection on the load balancer fits into the rectangular slot in the contactor base when positioned correctly. Install the three mounting screws, lock washers, and flat washers according to Figure 8, using the screw lengths specified for each position. Tighten screws securely (approximately 16-20 lb. -in. torque).

Figure 8 (Sizes 4 and 5) Left Side Installation



# Power Pole Replacement Parts for Bulletin 500L and 500 FL 4 Pole Devices Sizes 0–2

| Item O      |            | 1A                    | 3                      |
|-------------|------------|-----------------------|------------------------|
| Description | Rating (A) | Power Pole Adder ❷    | Lug/Termina<br>Clamp ❸ |
|             | 15/20      | 40410-452-04 (1 N.O.) | X-225492               |
| Part No.    | 30         | 40410-452-08 (1 N.O.) | X-225492               |
|             | 60         | 40420-452-04 (1 N.O.) | X-316012               |

- See Figure 3. (Load balancer not required for 500L and 500FL.)
- Includes contacts and terminal clamp assembly or lug. Contacts are not replaceable in these part numbers.
- 15/20 amp and 30 amp devices use a terminal clamp assembly; 60 amp devices use a lug.

# **Accessories (cont.)**

Power Pole Replacement Parts for Bulletin 500L and 500 FL 4 Pole Devices Sizes 3–5  $\,$ 

| Item O      |            | 1                        | 1A                                  | 1B                               | 1C   | 2B           |
|-------------|------------|--------------------------|-------------------------------------|----------------------------------|--|--------------|
| Description | Rating (A) | Power Pole<br>Adder @    | Hardware for<br>Power Pole<br>Adder | Adder Pole<br>Contact<br>Carrier | Hardware for<br>Adder Pole<br>Contact<br>Carrier | Special Nut  |
|             | 100        | 40430-453-51<br>(1 N.O.) | 40430-801-51                        | 40430–456–51                     | 40430-800-51                                     | 40430-017-02 |
| Part No.    | 200        | 40440-452-51<br>(1 N.O.) | 40440-801-52                        | 40440–457–51                     | 40440-800-51                                     | 40430-017-02 |
|             | 300        | 42450-600-01<br>(1 N.O.) | 40440-801-52                        | 40440–457–51                     | 40440-800-51                                     | 40430-017-02 |

- See figures 5 and 6 (Load balancer not required for 500L and 500FL.)
- Offered less contacts and lugs (available separately see pg 3) Includes items 1A and 1B

#### **Tie Point Terminal**

Figure 9

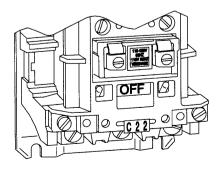


The tie point terminal provides a convenient terminal point for control circuit wiring. One tie point may be added to the left side of the coil cover. Bulletin 500 contactors are not shipped with tie points, but provision is made to add one or two.

| NEMA Size   | Cat. No. |  |
|-------------|----------|--|
| 0, 1, and 2 | 599-TP02 |  |
| 3, 4, and 5 | 599-TP34 |  |

#### **Device Markers**

Figure 10



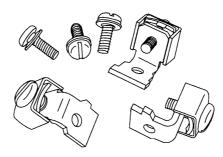
Device markers snap easily into the coil cover of contactors for component identification. A maximum of five markers will fit on each contactor

| NEMA Size | Cat. No.              |
|-----------|-----------------------|
| 0–5       | 599-DM <sup>●</sup> 5 |

To complete Cat. No. insert in the third position the desired numeric symbol (0–9) or one of the following letters: A, B, C, D, E, F, H, L, M, P, R, S, T, U, or W.

#### **Top Wiring Kit**

Figure 11



The top wiring kit consists of three power lugs for the purpose of making extra connections to the load side of the contactor. A second set of overload relays can be wired to these lugs if two motors are being controlled by a single contactor.

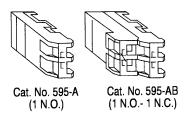
| NEMA Size | Cat. No.          |
|-----------|-------------------|
| 0–1       | 599-TW01          |
| 2         | 599-TW2           |
| 3         | 599-TW3           |
| 4         | 599-TW4           |
| 5         | 599-T <b>W</b> 5P |

The following modifications are common. For information on any modification or accessory not listed, refer to any Allen-Bradley sales office.

#### **Auxiliary Contacts**

Figure 12

#### **Modifications**



Bulletin 500 contactors are designed to accept up to four Bulletin 595 Auxiliary Contact Blocks, which can provide up to six auxiliary contacts of the user's choice. Auxiliary contact blocks mount beneath the coil cover at positions marked P1, P2, P3, or P4 on the coil cover. They can be mounted without the use of tools or additional hardware.

| Auxiliary Contact Description                             | Cat. No. C |
|---|------------|
| One Normally Open (1 N.O.)                                | 595-A      |
| One Normally Closed (1 N.C.)                              | 595-B      |
| One Normally Closed (1 N.C. Late Break)                   | 595-BL     |
| One Normally Open – One Normally Closed (1 N.O. – 1 N.C.) | 595-AB     |
| Two Normally Open (2 N.O.)                                | 595-AA     |
| Two Normally Closed (2 N.C.)                              | 595-BB     |

Parts indicated with • are recommended spare parts.

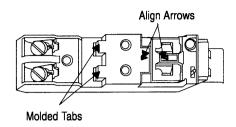
# **Removal of Auxiliary Contact Block**

Loosen coil cover screws and lift out the auxiliary contact block by pivoting its back end away from contactor.

# Installing or Replacing an Auxiliary Contact Block

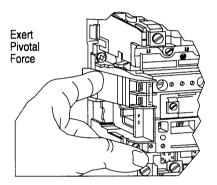
The movable contact support and armature assembly must be completely open (the word "OFF" totally visible). The coil cover must be in place and properly secured.

Figure 13



- 1. Align arrows molded on auxiliary contact block (see Figure 13).
- 2. Locate molded tabs on side with arrows (see Figure 13).
- **3.** Hook tabs under coil cover at any pocket location marked P1, P2, P3, or P4.

Figure 14



**4.** Exert a pivotal force at the lower end of the block until it snaps into place (Figure 14).

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