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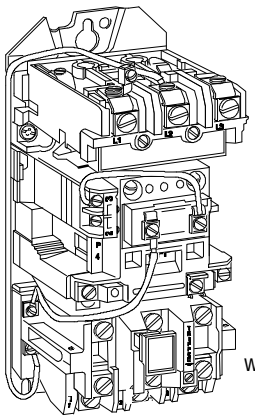
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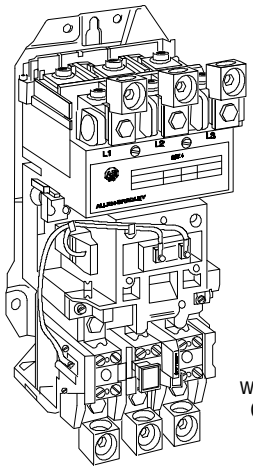
Rockwell Automation
Allen-Bradley

Bulletin 509 3-Phase Full Voltage NEMA Starters with Eutectic Alloy and SMP™ Solid-state Overload Relays Sizes 0 through 4 (all series), Size 5 (series L)

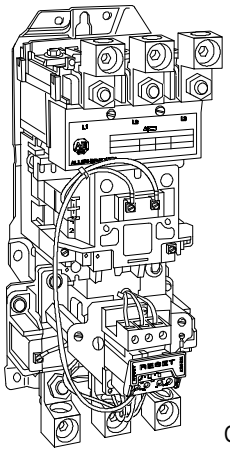
Renewal Parts



Size 1
with Eutectic Alloy
Overload Relay



Size 3
with Eutectic Alloy
Overload Relay



Size 5
with SMP-1
Solid-state
Overload Relay

Important: Save renewal parts list for future reference.

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SMP, SMP-1, SMP-2, and SMP-3 are trademarks of Allen-Bradley Company, Inc.

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Description

Bulletin 509 starters are designed for full voltage voltage starting of polyphase squirrel cage motors. These starters meet NEMA standards, are easy to wire and service, simple to select, and offer Class 10, 15, 20, and 30 overload protection in the complete range of NEMA sizes 00 to 9.

These starters may be operated with push buttons, float switches, thermostats, pressure switches, snap switches, limit switches, or any other suitable two or three wire pilot device.

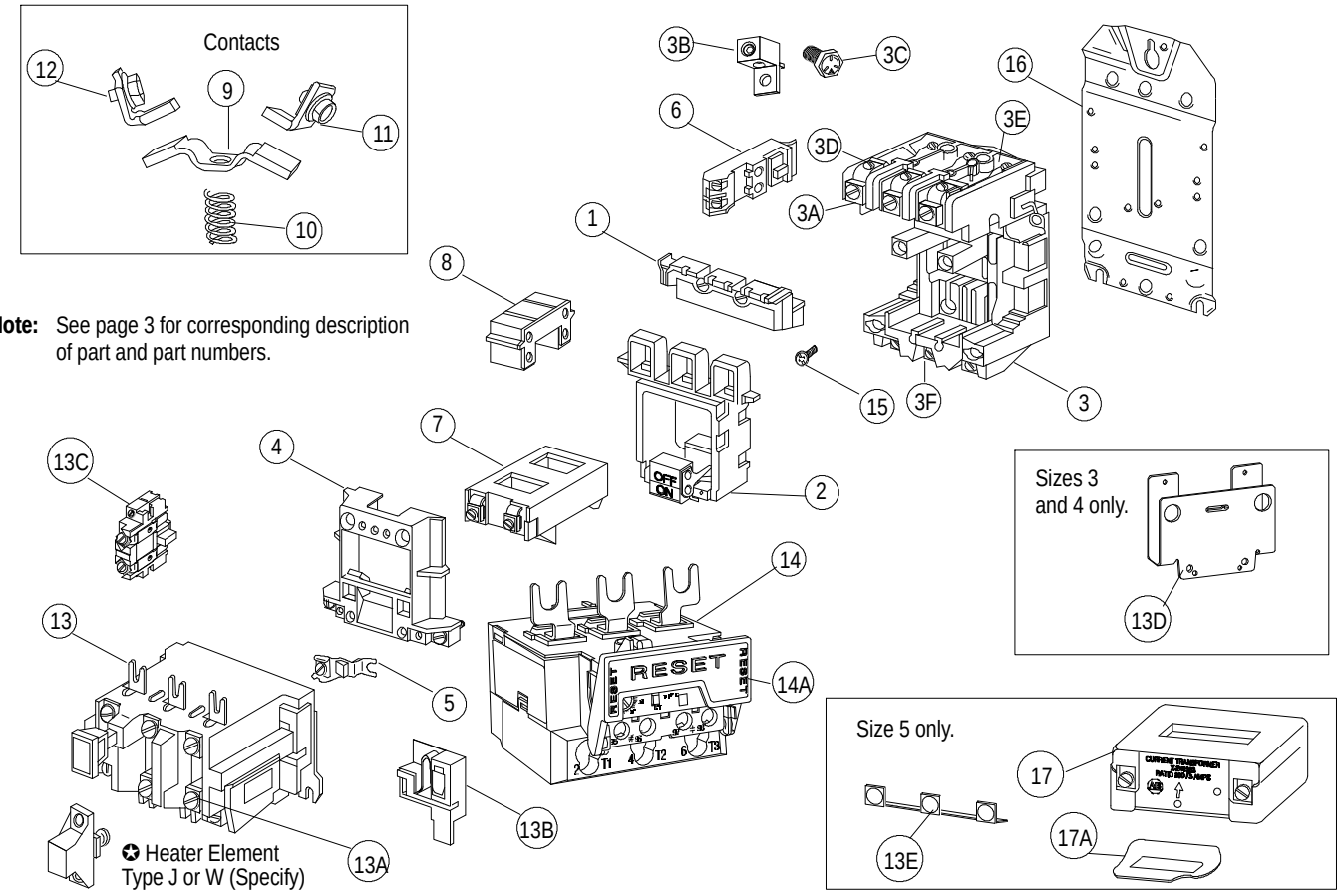
All Bulletin 509 starters are available with Bulletin 592 eutectic alloy overload relays as well as Smart Motor Protectors (SMPs) – Solid-state Overloads for additional flexibility in motor protection.

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

Starters 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, overload relays, etc. will vary in appearance.

Figure 1



Note: See page 3 for corresponding description of part and part numbers.

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Renewal Parts

Item	Description of Renewal Parts	Size 0	Size 1	Size 2	Size 3	Size 4	Size 5 (Series L)❶
		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
2❷	Movable Contact Support and Armature Assembly	40410-498-01 Series A 40410-498-03 Series B		40420-498-01	40430-452-51	40440-453-51	42450-801-01
3❷	Stationary Contact Block and Base Assembly	40410-494-03	40410-494-04	40420-495-02	40430-462-52	40440-462-52	42450-307-62
3A	Saddle Clamp Assembly (for size 0 and 1)	X-225492		—	—	—	—
3B	Lug	—	—	X-316012	40430-461-51	40440-461-51	42450-804-01
3C	Bolt	—	—	M-6289	M-6532	M-6834	—
3D	Front Terminal without Contact	❸	❸	❸	40430-022-02	40440-030-02	42450-302-52
3E	Rear Terminal without Contact				40430-024-02	40440-314-51	40440-314-51
3F	Front/Rear Terminal Screw				28168-107-26	28168-502-26	❹
4	Coil Cover	40410-496-01		40420-497-01	40430-454-51	40440-454-51	42450-803-01
5	Tie Point Terminal	599-TP02			599-TP34		
6	Auxiliary Contact Block (refer to page 14)	✪ 595-A (used as hold-in contact)					
7	Operating Coil	See Table on page 4					
8	Yoke (50–60 Hz)	✪ 40410-497-01		✪ 40410-497-02	✪ 40430-455-51	✪ 40440-458-51	
9	Movable Contact	Order Single Pole Contact Set					
10	Contact Spring						
11	Front Stationary Contact						
12	Rear Stationary Contact						
9–12	Single Pole Contact Set (includes (1) each item 9–12)	✪ 40410-331-51	✪ 40410-331-52	✪ 40420-322-51	✪ 40430-300-51	✪ 40440-300-51	✪ 42450-805-01
13	Eutectic Alloy Overload Relay (includes item 13B test module)	42185-800-01		40185-800-01	40185-801-01	40185-802-01	✪ 592-B0V16❺
13A	Eutectic Alloy Heater Element Screw	M-1552					—
13B	Test Module (included with item 13 overload relay)	40185-499-01			40430-459-51		42450-807-01
13C	Overload Relay Auxiliary Contact (included with item 13)	—			✪ 595-A34 ❻		—
13D	Overload Mounting Plate	—	—	—	40430-045-02	40440-028-02	42450-028-02
13E	Jumper	—	—	—	—	—	42195-800-01
14	Smart Motor Protection (SMP) Solid-state Overload Relay	See Table on page 5					
14A	SMP Reset Bar Only (SMP-1, SMP-2)	40794-011-01					
15	Mtg. Screw w/Washer (3 req'd)	28169-100-26		28169-101-26	40430-460-51	40440-459-51❻	
16	Mounting Plate for Eutectic Alloy, SMP-1™, SMP-2™ ❼	40410-124-02		40420-083-02	40430-044-02	40440-027-02	
	Mounting Plate for SMP-3™ ❼	40794-031-02		40794-032-02			
17	Current Transformer	—	—	—	—	—	X-241563❺
17A	Transformer Spring	—	—	—	—	—	42450-806-01❺

Parts indicated with ✪ are recommended spare parts.

❶ This renewal parts list does not apply to Size 5 Series A construction. Refer to Publication 509-6.4.

❷ Less contacts, order Single Pole Contact Sets as required.

❸ Front and rear terminal assembly not available as a renewal part. Replace stationary contact block and base assembly

❹ Front Terminal Screw Part No. 28168-503-26 and Rear Terminal Screw Part No. 28168-502-26.

❺ For size 5 starter a current transformer assembly (which includes items 13, 15, 17, and 17A) can be ordered. Order Part No. 42452-800-01.

❻ Auxiliary mounted on right-hand side of overload relay provides N.O. contact function. Auxiliary mounted on left-hand side provides N.C. contact function.

❼ Size 0,1, and 2 Eutectic alloy, SMP-1, and SMP-2 overload relays are attached directly to the mounting plate. Sizes 3, 4, and 5 eutectic alloy, SMP-1, and SMP-2 overload relays require a separate mounting plate. See Item 13D for sizes 3 and 4. Size 5 overload relay mounting plate is similar.

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✪ Operating Coils

AC Volts	Hz	Coil No.				
		Size 0-1	Size 2	Size 3	Size 4	Size 5 Series L❶
24	60	CB013	CC013	CD013	—	—
115-120	60	CB236	CC236	CD236	CE236	AF236
110	50					AF236
110-115	50	CB322	CC322	CD322	CE322	AF322
200-208	60	CB249	CC249	CD249	CE249	AF249
220-230	50	CB339	CC339	CD339	CE339	AF339
230-240	60	CB254	CC254	CD254	CE254	AF254
	50	CB342	CC342	CD342	CE342	AF342
277	60	CB260	CC260	CD260	CE260	AF260
380	50	CB354	CC354	CD354	CE354	AF354
415	50	CB357	CC357	CD357	CE357	AF357
440-460	50	CB360	CC360	CD360	CE360	AF360
460-480	60	CB273	CC273	CD273	CE273	AF273
500	50	CB364	CC364	CD364	CE364	AF364
575-600	60	CB278	CC278	CD278	CE278	AF278

Parts indicated with ✪ are recommended spare parts.

❶ For Size 5 Series A coils, refer to Publication 509-6.4.

Coil Data

Contactor or Starter Size / Motor Load	No. of Poles	Voltamperes Burden for 60 Hz Coils❷											
		24 Volts		115-120 Volts		200-208 Volts		230-240 Volts		460-480 Volts		575-600 Volts	
		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 (Series L)	2-3	—	—	1490	96	1490	96	1490	96	1490	96	1490	96

❷ For 50 Hz coils, consult your nearest Allen-Bradley Sales Office.

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SMP Solid-state Overload Relay

Starter Size	Adjustment Range (A)	Class 10 Cat. No.	Class 20 Cat. No.	Class 30 Cat. No.
SMP-1 Overload Relay Manual Reset, Phase Loss Protection, Class 10, 20, or 30				
0, 1	0.19 to 0.6	592-A1BA	592-A2BA	592-A3BA
0, 1	0.32 to 1.0	592-A1CA	592-A2CA	592-A3CA
0, 1	1.0 to 2.9	592-A1DA	592-A2DA	592-A3DA
0, 1	1.6 to 5.0	592-A1EA	592-A2EA	592-A3EA
0, 1	3.7 to 12	592-A1FA	592-A2FA	592-A3FA
0, 1	5.7 to 18	592-A1GA	592-A2GA	592-A3GA
1	12 to 38	592-A1HA	592-A2HA	592-A3HA
2	5.7 to 18	592-A1GC	592-A2GC	592-A3GC
2	12 to 38	592-A1HC	592-A2HC	592-A3HC
2	14 to 45	592-A1JC	592-A2JC	592-A3JC
3	14 to 45	592-A1JD	592-A2JD	592-A3JD
3	23 to 75	592-A1KD	592-A2KD	592-A3KD
3	66 to 110	592-A1LD	592-A2LD	592-A3LD
4	23 to 75	592-A1KE	592-A2KE	592-A3KE
4	66 to 110	592-A1LE	592-A2LE	592-A3LE
4	57 to 180	592-A1ME	592-A2ME	592-A3ME
5	96 to 300	592-A1NF	592-A2NF	592-A3NF
SMP-1 Overload Relay Automatic/Manual Reset, Phase Loss Protection, Class 10, 20, or 30				
0, 1	0.19 to 0.6	592-A4BA	592-A5BA	592-A6BA
0, 1	0.32 to 1.0	592-A4CA	592-A5CA	592-A6CA
0, 1	1.0 to 2.9	592-A4DA	592-A5DA	592-A6DA
0, 1	1.6 to 5.0	592-A4EA	592-A5EA	592-A6EA
0, 1	3.7 to 12	592-A4FA	592-A5FA	592-A6FA
0, 1	5.7 to 18	592-A4GA	592-A5GA	592-A6GA
1	12 to 38	592-A4HA	592-A5HA	592-A6HA
2	5.7 to 18	592-A4GC	592-A5GC	592-A6GC
2	12 to 38	592-A4HC	592-A5HC	592-A6HC
2	14 to 45	592-A4JC	592-A5JC	592-A6JC
3	14 to 45	592-A4JD	592-A5JD	592-A6JD
3	23 to 75	592-A4KD	592-A5KD	592-A6KD
3	66 to 110	592-A4LD	592-A5LD	592-A6LD
4	23 to 75	592-A4KE	592-A5KE	592-A6KE
4	66 to 110	592-A4LE	592-A5LE	592-A6LE
4	57 to 180	592-A4ME	592-A5ME	592-A6ME
5	96 to 300	592-A4NF	592-A5NF	592-A6NF

Continued on next page.

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SMP Solid-state Overload Relay (cont.)

Starter Size	Adjustment Range (A)	Class 10, 15, 20, or 30 Cat. Nos.
SMP-2 Overload Relay Automatic/Manual Reset, Field Selectable Trip Class 10, 15, 20, or 30, Phase Loss, Jam, and Ground Fault Protection		
0, 1	0.19 to 0.6	592-B1BA
0, 1	0.32 to 1.0	592-B1CA
0, 1	1.0 to 2.9	592-B1DA
0, 1	1.6 to 5.0	592-B1EA
0, 1	3.7 to 12	592-B1FA
0, 1	5.7 to 18	592-B1GA
1	12 to 38	592-B1HA
2	5.7 to 18	592-B1GC
2	12 to 38	592-B1HC
2	14 to 45	592-B1JC
3	14 to 45	592-B1JD
3	23 to 75	592-B1KD
3	66 to 110	592-B1LD
4	23 to 75	592-B1KE
4	66 to 110	592-B1LE
4	57 to 180	592-B1ME
5	96 to 300	592-B1NF
SMP-3 Overload Relay Automatic/Manual Reset, Field Selectable Trip Class 10, 15, 20, or 30, Phase Loss, Jam Protection, Ground Fault Protection and Communication Capability ❶❷❸		
0, 1	0.7 to 2.5	592-C1DA
0, 1	2 to 10	592-C1FA
0, 1	7 to 37	592-C1HA
2	7 to 37	592-C1HC
2	20 to 75	592-C1KC
3	20 to 90	592-C1LD
4	40 to 180	592-C1ME
5 ❹	70 to 300	592-C1NFD

❶ For NEMA starters sizes 0–2, a new mounting plate is required for retrofit to existing Bulletin 509 starters. For sizes 0–1 starters, order Part No. 40410-124-02 and for size 2 starters, order Part No. 40420-083-02.

❷ Allen-Bradley recommends using 120 or 240 V AC coils on all SMP-3 NEMA starters. When using coil voltages other than 120 or 240 V AC, consult your nearest Allen-Bradley Sales Office.

❸ The ratings of the triacs and the hard output contact (relay) internal to the SMP-3 must not be exceeded. See the SMP-3 User's Manual for actual ratings.

❹ This SMP-3 overload relay has an interposing relay with a 120 V AC coil.

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Disassembly

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 reassembly of a typical motor starter. It is not necessary to remove the starter from its enclosure or to remove the line wiring. Refer to exploded view, Figure 1 for item numbers.

1. Remove all control wires from the operating coil (item 7) and tie point terminal (item 5).
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). The tie point terminal is now free to be removed, if it is to be replaced.
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 (item 7) as a unit. The yoke and the operating coil can now be lifted up and out of the movable contact support assembly.

Replacing Contacts

When severe contact wear is evidenced, it is recommended that all contacts be replaced, which 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. Follow steps 1–5 under Disassembly.

Torque for Stationary Contact Replacement

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

Note: Torque for coil cover sizes 0 to 2 are approximately 14–17 lbs.-in. Sizes 3 to 5 are approximately 25–30 lbs.-in.

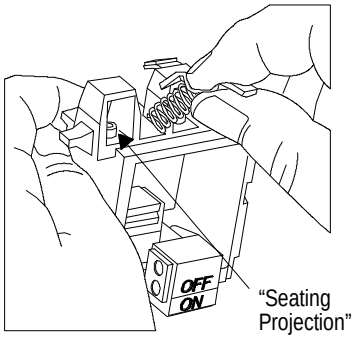
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Replacing Contacts (cont.)

Movable Contacts

Figure 2



Refer to Figure 2 and 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 illustration above.
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.

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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 steps 1–5 under Disassembly. The block and base assembly is connected to the incoming lines and the overload relay (item 13).

1. Remove the line wiring and label or mark all wires.
2. The block and base assembly is connected by bus to the overload relay. Loosen, but do not remove the three terminal screws that connect the block and base assembly to the overload relay for sizes 0, 1, 2, and 5 starters.

   For sizes 3 and 4 starters, remove the three bolts that connect the block base assembly to the overload relay. Then turn the starter over so that the back of the mounting plate faces up. Remove the two screws with washers. The overload relay with the mounting plate can be removed to expose the mounting screw with washer (item 15).
3. The block and base assembly is secured to the mounting plate (item 16) by three mounting screws with washers (item 15). Remove these screws and the stationary contact block and base assembly (item 3) can be lifted up and out.
4. 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 7. Follow those instructions also if installing new contact sets.
5. Install the replacement block and base assembly and secure with the three screws with washers and tighten securely.
6. Retighten terminal screws to overload relay bus securely.
7. Reconnect line wiring.

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Reassembly

The reassembly process is basically the disassembly procedures in the reverse order.

1. Secure the overload relay to the mounting plate with the two previously removed screws with washers. Tighten securely.

   Note: Place the flat washers next to the molded plastic part. Overload relay embossments are provided for proper alignment.

2. Secure the stationary contact block and base assembly with the three screws with washers and tighten securely.
3. Retighten securely the three terminal screws to overload bus.
4. Insert the yoke into the operating coil. It is designed to fit only one way.
5. Insert the yoke and operating coil into the movable contact support assembly.
6. Insert all three parts as a unit into the stationary contact block and base assembly.
7. Replace the coil cover. Check the tie point terminal for proper position. Tighten the coil cover screws securely.
8. Replace contact block cover and tighten screws securely.
9. Install the auxiliary contact block(s). Refer to detailed instructions under Installing or Replacing an Auxiliary Contact Block on page 15.
10. Properly reconnect all wiring and tighten the screws.

Eutectic Alloy Overload Relay Test Module

The eutectic alloy overload relay is equipped with a test module (item 13b) on the right hand side, that allows opening the normally closed overload contact for test purposes,without tripping the relay.

1. To remove, use an appropriate size screwdriver. Hold the blade vertically and insert the screwdriver tip into the slot provided on the test module, to the point where it “bottoms”.
2. Slide the test module out to the right.
3. Slide the replacement test module into place and press firmly until it locks in place.

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Replacing the Eutectic Alloy Overload Relay

Refer to exploded view, Figure 1 for item number.

The overload relay (item 13) is connected to the block and base assembly (item 3), mounting plate, and load lines.

1. Remove the control wire(s) from the overload relay and label wires if necessary.
2. Remove the load wiring from the overload relay terminals. Label all the wires to prevent installing the wires incorrectly.
3. Loosen but do not remove the three terminal screws that connect the overload relay bus to the block and base assembly, approximately three turns.

   Note: Terminal screws on sizes 3, 4, and 5 must be removed.
4. The overload relay is secured to its mounting plate by two mounting screws with washers. Remove these screws, lift the overload relay away from the mounting plate, then slide it down and out.

   Note: Size 5 has an additional mounting plate as part of the overload relay assembly.
5. The replacement overload relay for size 5 will be furnished secured to a mounting plate. Remove and discard the mounting plate. Install the replacement overload relay being sure the bus connects properly to the terminals on the stationary contact block and base assembly. Secure the overload relay to the mounting plate with the two previously removed screws with washers.

   Note: Place the flat washers next to the molded plastic part and tighten securely.
6. Retighten securely the three terminal screws to overload relay bus.
7. Reconnect control and load wiring. Tighten the wires into the wire clamps or lugs to the values specified on the equipment.

Replacing the SMP Solid-state Overload Relay

Figure 3

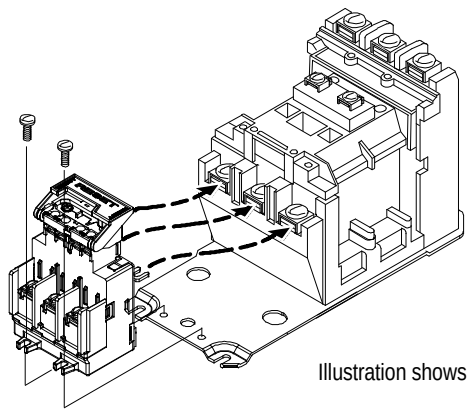


Illustration shows size 1 starter.

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Replacing Current Transformer

Figure 4

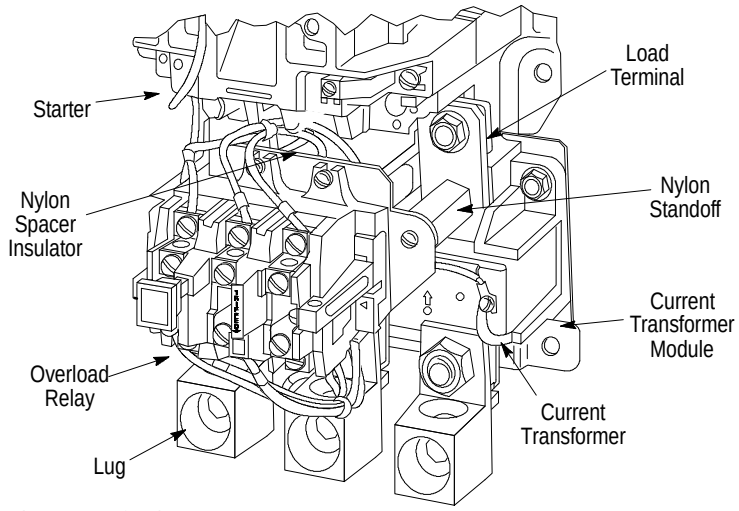


Illustration shows part of a size 5 starter.

Refer to Figure 4 and exploded view, Figure 1 for item numbers. The current transformers (Item 17) are attached to the current transformer module and connected to the overload relay (Item 13).

1. Label and remove all wires from the overload relay. Remove the grounding screw from the current transformer module mounting plate.
2. Loosen and remove the two 10-32 ¢ 1 in. screws and washers which secure the overload relay mounting plate to the 3/4 in. ¢ 1-9/16″ nylon standoffs. The overload relay is now free of the starter.
3. Label and remove the terminal wiring from the current transformer to be replaced. Label to indicate which wire was connected to the terminal near the polarity mark.
4. Loosen and remove the three 5/16 in.-24 ¢ 3/4 in. hexagon head load terminal screws connecting the load terminals to the contactor.
5. Loosen and remove the four 1/4 in.-28 ¢ 3/4 in. hexagon head screws connecting the current transformer module to the mounting plate. The current transformer module is now free of the mounting plate.
6. To replace the center current transformer: Remove the rectangular nylon spacer insulator from the load terminal. The transformer can now be removed and replaced.
7. To replace either of the outer current transformers: Loosen and remove the 3/4 in. ¢ 1-9/16 in. nylon standoff attached to the load terminals. Turn the current transformer module over and remove the 5/16 in.-24 ¢ 1-1/4 in. hexagonal head screw and the 10-32 ¢ 3/4 in. screw from the load terminals.

Continued on next page.

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Turn the module back over and slide the load terminals out of the transformer. The current transformer spring (Item 17A) and current transformer can now be removed from the module. Note the position of the spring before removing.

The replacement current transformer and spring are placed into the module so that the rectangular holes in the center of the spring and transformer are aligned and the spring is below the transformer, concave side facing up. Slide the load terminal through the transformer so that the load terminal lug is on the same side and in the same direction as the other load terminal lugs.

Turn the module over and refasten the 5/16 in.-24 ¢ 1-1/4 in. screw (torque to 50 lbs.-in) and the 10-32 ¢ 3/4 in. screw (torque to 30 lbs.-in.) to the load terminal. Turn the module over (right side up) and refasten the 3/4 in. ¢ 1-9/6 in. nylon standoff to the load terminal torque to 16 lbs.-in.)

8. Refasten the wiring onto the current transformer terminals, observing polarity mark on transformers and labels on wires from step 3. Tighten terminal screws securely.

9. Place the center transformer's nylon spacer insulator over the center load terminal so that the side with the angled indent faces away from the current transformer and the circular indent faces toward the backplate. The current transformer module assembly is now ready to be secured to the contactor and mounting plate.

10. Place the transformer module's line terminals over the contactor load terminals, aligning the center transformer's nylon spacer insulation so that its circular indent fits over the hexagon head of the contactor's lower mounting screw, and the side of the spacer with the angled indent fits flush against the Stationary Contact Block and Base Assembly (Item 3). Align the mounting holes and refasten using the three 3/16 in.-24 ¢ 3/4 in. hexagon head screws tightened to 80 lbs.-in. torque.

11. Refasten the current transformer module to the mounting plate using the four 1/4 in.-28 ¢ 3/4 in. hexagon head screws tightened to 50 lbs.-in.

12. Refasten the green grounding wire and screw securely to the mounting plate.

13. Refasten the overload relay assembly to the standoffs using the two 10-32 ¢ 1 in. screws and washers (torque to 5 lbs.-in.).

14. Securely reconnect labeled control wires according to labels attached to wires in step 1.

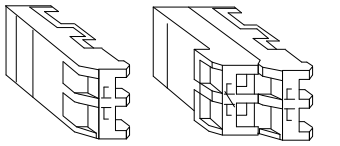
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Modifications

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

Auxiliary Contacts

Figure 5



Cat. No. 595-A (1 N.O.) Cat. No. 595-AB (1 N.O.- 1 N.C.)

Bulletin 509 Starters are designed to accept one 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. ✪
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 starter.

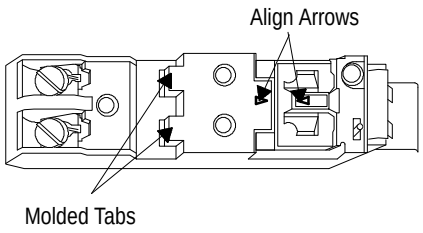
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Installing or Replacing an Auxiliary Contact Block

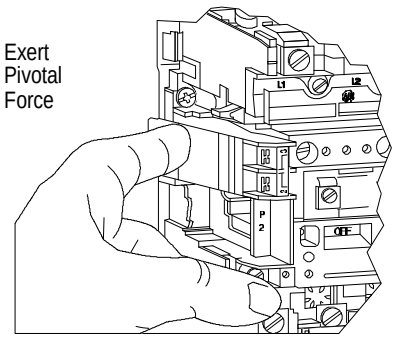
The movable contact support and armature assembly must be completely open (the word “OFF” totally visible). The coil cover must be in place and properly secured.

Figure 6



1. Align arrows molded on auxiliary contact block. See Figure 6.
2. Locate molded tabs on side with arrows. See Figure 6.
3. Hook tabs under coil cover at any pocket location marked P1, P2, P3, or P4.

Figure 7



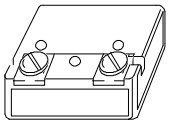
4. Exert a pivotal force at the lower end of the block until it snaps into place. Refer to Figure 7.

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Modifications (cont.)

Auxiliary Contact for Eutectic Alloy Overload Relay for Sizes 0, 1, 2, and 5 Starters

Figure 8



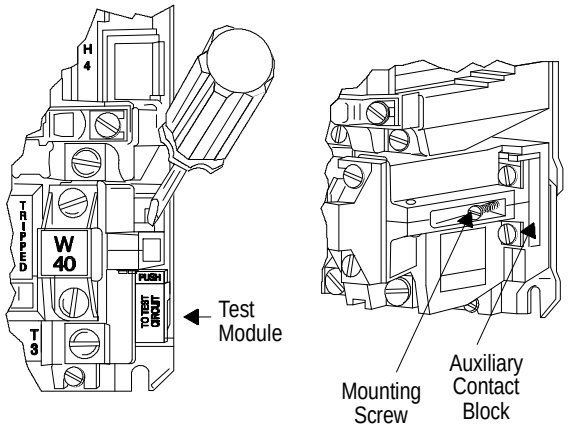
Cat. No. 595-A02 (N.O.)
Cat. No. 595-B02 (N.C.)

This contact can easily be added to the block type eutectic alloy overload relay used on Bulletin 509 sizes 0, 1, 2, and 5 starters. It mounts in place of the standard eutectic alloy overload relay test module. A typical application would be for an alarm circuit indicating when the overload relay has tripped.

Installing (N.O. or N.C) Auxiliary Contact for Eutectic Alloy Overload Relay for Sizes 0, 1, 2, and 5 Starters

This contact can be installed on Bulletin 509 sizes 0, 1, 2, and 5 starters. First remove the test module as indicated below.

Figure 9



1. Use an appropriate size screwdriver.
2. Hold the blade vertically and insert the screwdriver tip into the slot provided on the test module to the point where it “bottoms.” See Figure 9.
3. Slide the test module out to the right.

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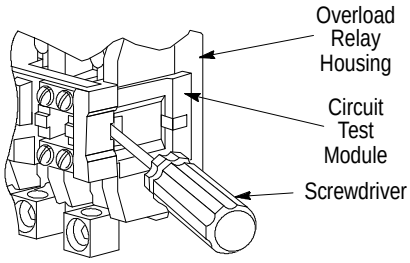
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4. Slide the N.O. or N.C. auxiliary contact block into the overload relay in place of the test module.
5. Secure the block, using the mounting screw provided, through the hole in the overload relay housing. See Figure 9.

Adding an N.O. or N.C. Auxiliary Contact in Place of Circuit Test Module on Eutectic Alloy Overload Relay for Sizes 3 and 4 Starters

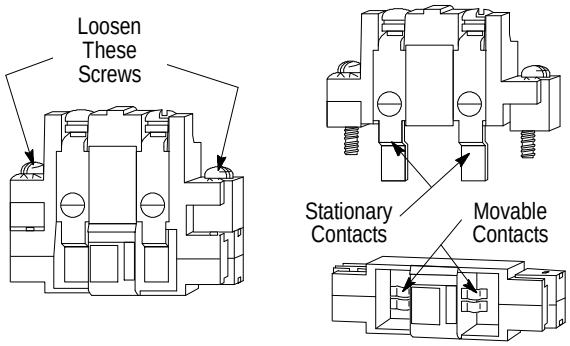
1. Insert proper size screwdriver in slot at the top of Circuit Test Module; press towards mounting plate and pull module from relay. Refer to Figure 10.

Figure 10



2. Loosen two screws holding sections of auxiliary contact together. Refer to Figure 11.

Figure 11



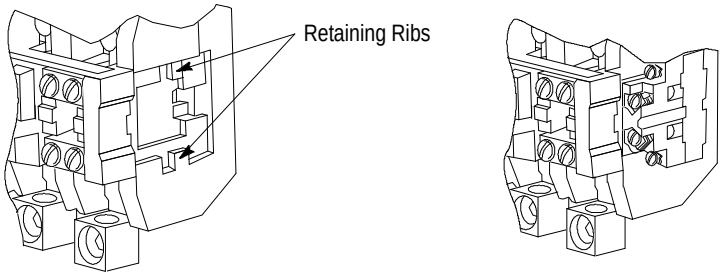
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Modifications (cont.)

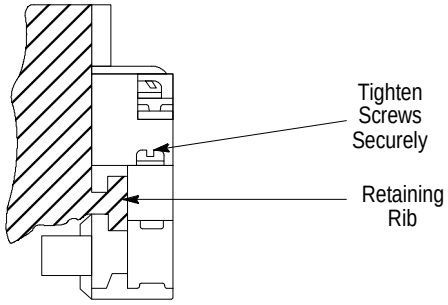
3. Place the section containing the stationary contacts above the retaining ribs on the overload relay and the section containing the movable contacts below the same retaining ribs. Refer to Figure 12.

Figure 12



4. Securely tighten two screws to fasten the two sections of the auxiliary contact together and to the overload relay housing retaining ribs. Refer to Figure 13.

Figure 13



5. Wire N.O. auxiliary contact as required.

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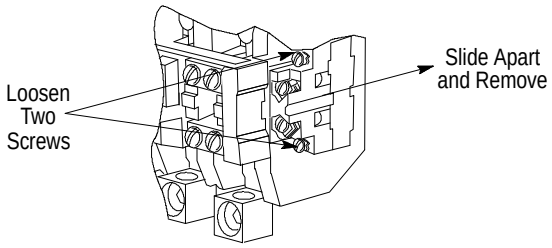
Replacing an N.O. or N.C. Auxiliary Contact on an Overload Relay (for Sizes 3 and 4 Starters)

The function of the auxiliary is N.O. when mounted on the end of the relay furthest from the reset button and N.C. when mounted on the end nearest the reset button.

Note: N.O. and N.C. are stamped on the relay housing to indicate function.

1. Remove control wiring from terminals of auxiliary contact being replaced.
2. Remove the auxiliary contact by loosening the two screws that clamp it to the overload relay, sliding the two sections of the contact apart (approximately 1/8 in.) and removing them from the relay. See Figure 14.

Figure 14



3. Install new contact following instructions given above for adding auxiliary contact.
4. Replace control wires removed in step 1 to terminals of new auxiliary contact.

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