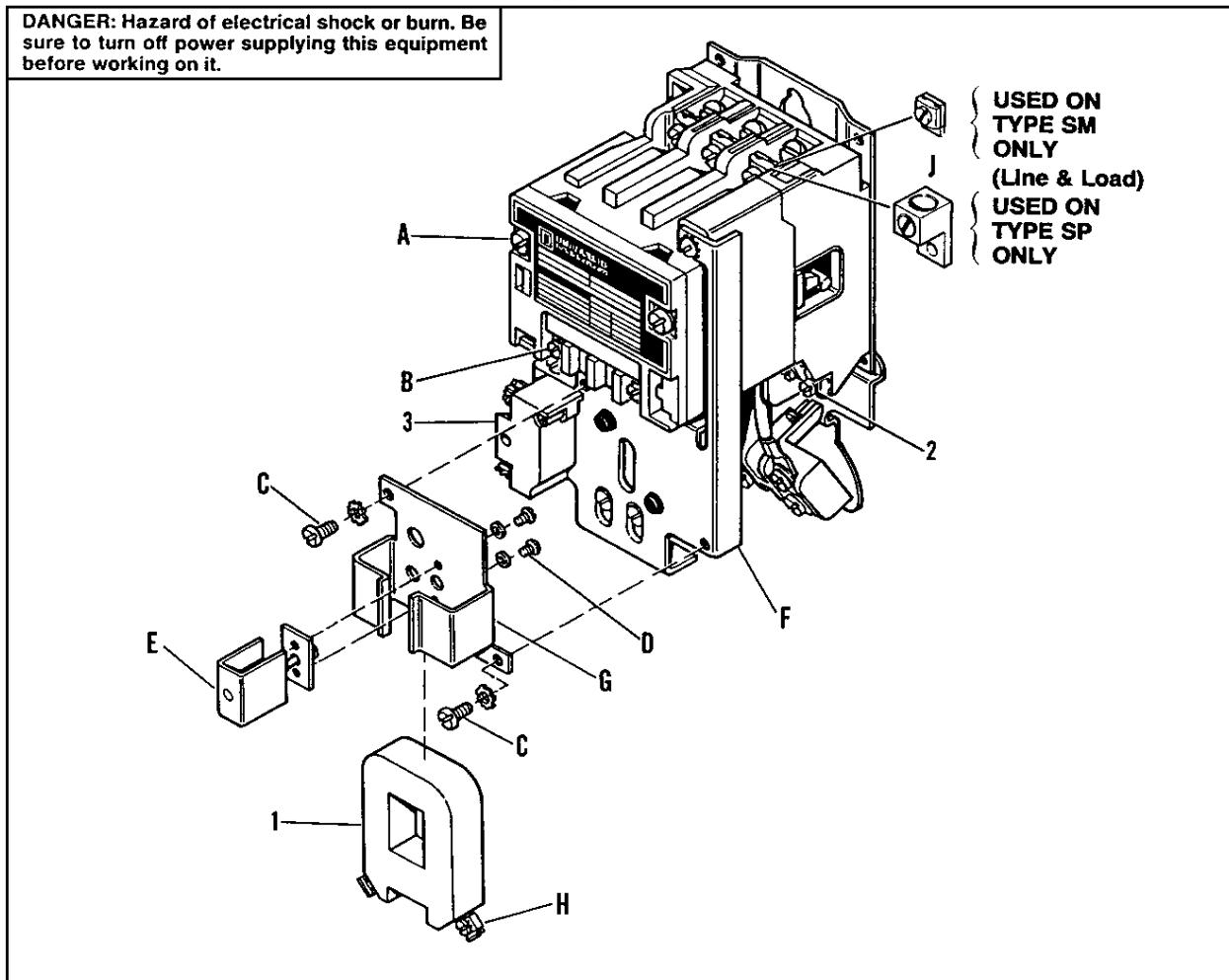




Class 8903 — 30 Ampere & 60 Ampere Mechanically Held AC Magnetic Lighting Contactors, Types SM & SP, Series A

DANGER: Hazard of electrical shock or burn. Be sure to turn off power supplying this equipment before working on it.



GENERAL: This service bulletin covers information pertaining to the mechanical latch. For information regarding the contactor, refer to 8903-331 (30 Ampere) or 8903-332 (60 Ampere).

TERMINALS — Power terminals on standard 60 Ampere Type SP contactors manufactured after February 1, 1978 are suitable for use with either copper or aluminum conductors. The lugs on these terminals can be identified by their aluminum appearance and by the CU-AL marking on them. LUGS ON CONTACTORS MANUFACTURED BEFORE FEBRUARY 1, 1978 ARE SUITABLE FOR COPPER CONDUCTORS ONLY. Power terminals on standard 30 Ampere Type SM contactors are suitable for use with copper conductors only.

CONTACTS — Are not harmed by discoloration and slight pitting. DO NOT FILE THEM as dressing wastes contact material. Replacement is necessary only when the contact has worn thin.

ASSEMBLY INSTRUCTIONS — Factory recommended torques for mechanical, electrical and pressure wire connections are listed in the Recommended Driving Torque Table. These must be followed to insure proper functioning of the device, and can be found in the Instruction Sheets.

SHORT CIRCUIT PROTECTION — Branch-circuit overcurrent protection must be provided for each contactor in accordance with the National Electrical Code.

MAGNET COIL REPLACEMENT

Latch Coil —

1. Disconnect wires from coil terminals (Item B).
2. Loosen the two captive cover screws (Item A) and remove cover.
3. Remove the coil and magnet assembly.
4. Separate the coil from the magnet assembly.
5. Replace coil.
6. Reassembly is a reversal of the above.

Unlatch Coil —

1. Disconnect wires from coil terminals (Item H).
2. Remove unlatch assembly fastening screws (Item C).
3. Remove the unlatch coil and magnet assembly.
4. Remove armature retaining screws (Item D).
5. Separate the armature (Item E) from the unlatch assembly (Item F).
6. Slide coil from holding bracket (Item G).
7. Replace coil.
8. Reassembly is a reversal of the above.

Supersedes 363AS as dated February, 1979



DISTANT CONTROL OF MECHANICALLY HELD LIGHTING CONTACTORS — To assure proper contactor operation, series impedance of the control circuit must be considered. Mechanically held devices are unaffected by shunt capacitance because the coils are always turned off at the contactor through the coil clearing contacts. The tables below and at right are based entirely on series impedance and allow for 5% voltage drop between source and coil.

Coil Voltage (60 Hz)	Maximum Control Distance (in feet)		
	#16 Copper Wire	#14 Copper Wire	#12 Copper Wire
30A Contactor (Type SM)			
120	535	845	1300
208	1600	2500	3900
240	2100	3300	5200
277	2800	4500	7000
480	8600	13,500	21,000

Coil Voltage (60 Hz)	Maximum Control Distance (in feet)		
	#16 Copper Wire	#14 Copper Wire	#12 Copper Wire
60A Contactor (Type SP) 2 & 3 Pole			
120	515	810	1200
208	1500	2400	3700
240	2000	3200	5000
277	2700	4300	6600
480	8300	12,900	20,000
60A Contactor (Type SP) 4 & 5 Pole			
120	385	595	920
208	1150	1790	2760
240	1530	2385	3675
277	2040	3180	4900
480	6130	9540	14,705

ORDERING INSTRUCTIONS — Specify quantity, part number and description of part, giving complete nameplate data of the device. For example: One latch coil clearing contact Class 9001 Type KA3 for Class 8903 Type SMO-12, Series A, mechanically held lighting contactor.

PARTS LIST†				
Item	Description	Part Number	Quantity	
			Type SM	Type SP
1	Unlatch Coil	See Table Below	1	1
2	Unlatch Coil Clearing Contact	Class 9999 Type SX-11	1	1
3	Latch Coil Clearing Contact	Class 9001 Type KA-3	1	1
C	Unlatch Assembly Fastening Screw #8-32 x 5/16	21911-14101	2	2
D	Armature Retaining Screw Assembly — #6-32 x 3/8	21916-12120	2	2
J	Lug	31036-015-50	6	—
	Lug Ass'y (Line Side)	25065-03802	—	3
	Lug Ass'y (Load Side)	30016-060-01	—	3

† Refer to GENERAL paragraph on page 1 for information regarding contactor parts.

MAGNET COILS®													
No. of Poles	Coil* Prefix	Hertz	Coil Suffix Numbers										
			24 Volts	110 Volts	120 Volts	208 Volts	220 Volts	240 Volts	277 Volts	440 Volts	480 Volts	550 Volts	600 Volts
30 AMPERE — Type SM Contactor													
Latching Coil													
2-5	31041-400-	60	20	Δ	42	48	Δ	51	52	Δ	60	Δ	62
		50	22	42	43	...	51	53	...	60	...	62	...
Unlatching Coil													
2-5	2959-S13-	60	W23B	Δ	W30B	W33A	Δ	W33B	W34A	Δ	W36B	Δ	W37B
		50	W21B	W30B	W31B	...	W33B	W34B	...	W36B	...	W37B	...
60 AMPERE — Type SP Contactor													
Latching Coil													
2 & 3	31063-409-	60	16	Δ	38	44	Δ	47	49	Δ	57	Δ	60
		50	17	38	39	...	47	48	...	57	...	60	...
4 & 5	31063-400-	60	16	Δ	38	44	Δ	47	49	Δ	57	Δ	60
		50	17	38	39	...	47	48	...	57	...	60	...
Unlatching Coil													
2-5	2959-S13-	60	W23B	Δ	W30B	W33A	Δ	W33B	W34A	Δ	W36B	Δ	W37B
		50	W21B	W30B	W31B	...	W33B	W34B	...	W36B	...	W37B	...

* Complete part number of coil consists of prefix followed by the suffix. (Example: For 30A mechanically held lighting contactor 120V, 60 hertz latch coil order by part #31041-400-42.)

® When ordering replacement coils, give part number, voltage and frequency of coil being replaced.

Δ Use next higher voltage 60 hertz coil.