

**MA MASTER SWITCH****FOLIO 2 & 2A****INSTRUCTIONS**

General: EC&M class 9004 type MA master switch is a heavy duty control circuit switch for use with all types of magnetic controllers used on mill accessories and similar applications. It is built in 3 frame sizes, construction features of which are identical. These 3 frames provide for 3-6 and 9 circuits and 5 speed points in each direction.

Hardened steel operating cams, steel spacers, and a hardened steel notching cam are assembled on a hexagonal steel shaft. The cam shaft, which has ball bearings at each end, is direct operated by the vertical ball handle.

If necessary, the entire switch mechanism can be removed from the case by detaching the operating handle and removing two screws from the outside of the case. The camshaft can be reassembled after removing a hex-nut from the end of the shaft. Switches are supplied either "right hand" or "left hand". To convert a "right hand" switch to a "left hand" switch it will be necessary to turn the switch 180° and reverse certain cams that are nonsymmetrical about the contact finger roller which is the reference point.

SPRING RETURN: Masters can be converted to spring return by reversing the notching cam (item 23) and replacing handle (item 2) with handle (item 3).

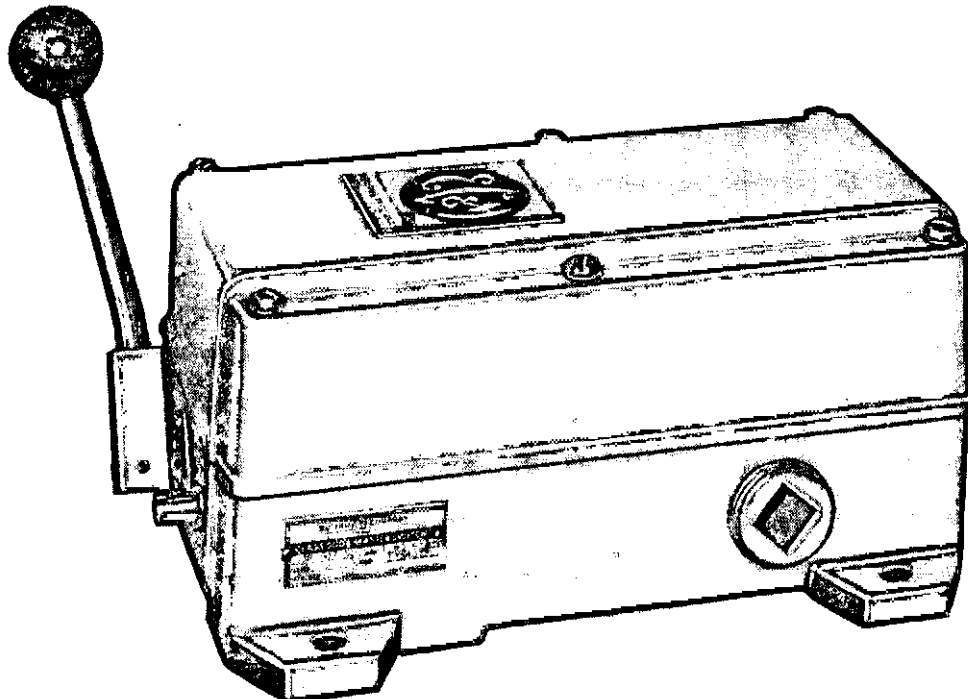
LUBRICATION: Occasionally the cam shaft ball bearings and the assembled spring return bellcrank pivot points will require lubrication with a No. 30 grade oil.

CONTACTS: The spring closed, double break contact bridges, which have coin silver contacts, are readily removable from the contact arm without tools.

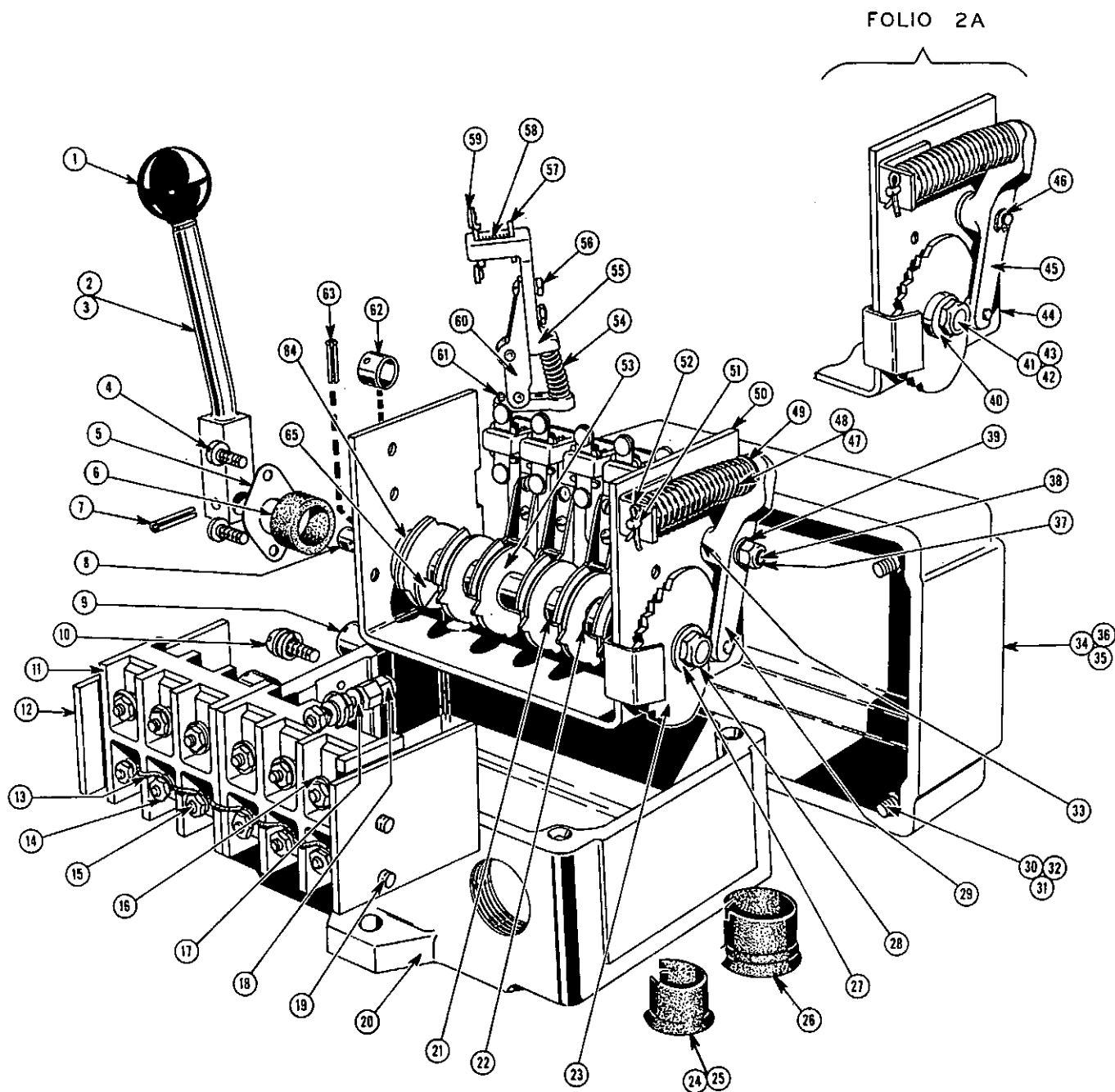
Stationary studs, which also have coin silver contacts, are renewable from the top of the terminal stud. This can be performed without disturbing the wire connection.

The MA master contacts have a rating for d-c inductive loads such as type L contactors, and a-c loads such as LZ contactors as follows:

	A.C. 110V	A.C. 220V	A.C. 440V	A.C. 550V	D.C. 115V	D.C. 230V	D.C. 550V
Inrush Amperes	30	30	30	30	—	—	—
Continuous Amperes	15	15	15	15	15	15	15
Interrupting Amperes	10	10	5	5	1.5	.9	.3



MA MASTER SWITCH, FOLIO 2 & 2A



ADVISE NAME PLATE MARKING WHEN ORDERING PARTS

MA MASTER SWITCH, FOLIO 2 & 2A

Item No.	List No.	Description	Item No.	List No.	Description
1	FP-12A13	Handle Ball.....	30	MA-75	Slotted H.I. Cap Screw.....
2	MA-81	Handle.....	31	FP-40D14	Weatherseal Washers, For Item 30.....
3	A5-1088-024-01	Handle, For Spring Return Only.....	32	FP-66A1	Speed Clip, For Item 30.....
4		8-32 x 3/8" R. Stl. Mach. Screw & Lk. Washer	33	B5-0502-051-06	Sleeve, Fits Inside Item 29.....
5	MA-51	Dust Seal Cover.....	34	MA-59	Cover, For 3 Circuit Masters.....
6	MA-52	Dust Seal.....	35	MA-56	Cover, For 6 Circuit Masters.....
7	FP-59A13	Rollpin.....	36	C5-1088-014-01	Cover, For 9 Circuit Masters.....
8	MA-82	Cam Shaft, 3 Circuit, Folio 2 Master.....	37	FP-32A17	Elastic Stop Nut.....
	MA-83	Cam Shaft, 6 Circuit, Folio 2 Master.....	38		1/4"-28 x 1 1/4" Fl. Socket Hd. Cap Screw.....
	MA-116	Cam Shaft, 9 Circuit, Folio 2 Master.....	39		1/4" S.A.E. Pl. Washer.....
9	VM-63	Stop Screw, 3/8" Diameter.....	40	B5-0502-052-28	Spacer.....
	A5-1088-015-01	Stop Screw, 1 1/2" Diameter.....	41	A5-1088-531-01	Cam Shaft, For 3 Circuit, Folio 2A Masters.....
	A5-1088-015-02	Stop Screw, 1 1/8" Diameter.....	42	A5-1088-531-02	Cam Shaft, For 6 Circuit, Folio 2A Masters.....
	A5-1088-015-03	Stop Screw, 1 1/2" Diameter.....	43	A5-1088-531-03	Cam Shaft, For 9 Circuit, Folio 2A Masters.....
	A5-1088-015-04	Stop Screw, 2" Diameter.....	44	A5-1088-532-52	Assembled Frame, For 3 Circuit, Folio 2A Master.....
A5-1088-015-05	Stop Screw, 1 3/8" Diameter.....	A5-1088-532-51		Assembled Frame, For 6 Circuit, Folio 2A Master.....	
	1/4"-20 x 3/8" Fillister Screw & Lk. Washer....	A5-1088-532-50		Assembled Frame, For 9 Circuit, Folio 2A Master.....	
10		Contact Board.....	45	A5-1088-528-50	Assembled Bellcrank & Roller, Folio 2A.....
11	MA-1	Contact Board.....	46	FP-27A30	Retaining Ring.....
12	MA-7	Frame Insulator.....	†47	MA-76	Spring.....
13	NX-73-A	Connector, (3 Terminals) For Folio 2 Masters	†48	MA-118	Spring, For Spring Return Masters, Only.....
	MA-79-A	Connector, (4 Terminals) For Folio 2 Masters	49		1/4" S.A.E. Pl. Washer.....
	B5-0502-405-03	Connector, (3 Terminals) For Folio 2A Masters	50	A5-1088-011-52	Assembled Frame, For 3 Circuit, Folio 2 Masters
	B5-0502-405-04	Connector, (4 Terminals) For Folio 2A Masters		A5-1088-011-51	Assembled Frame, For 6 Circuit, Folio 2 Masters
14		10-24 H.I. Nut & 3/16" Plain Lk. Washer.....	A5-1088-011-50	Assembled Frame, For 9 Circuit, Folio 2 Masters	
15	MA-62	Contact Stud.....	51	A5-1088-016-02	Spring Rod.....
16	ZO-1121	Cup Washer.....	52		1/2" x 1/2" Cotter Pin.....
17	K-73	Washer.....	53		Cam, Advise Name Plate Data.....
†18	CM-311-A	Contact Tip.....	†54	MA-102	Spring.....
19	MA-29	Contact Board Screw, For 3 Circuit Master....	55	MA-31	Contact Arm.....
	MA-30	Contact Board Screw, For 6 Circuit Master....	56		8-32 x 1/2" R.I. Mach. Screw, Lk. Washer & H.I. Nut.....
	MA-117	Contact Board Screw, For 9 Circuit Master....	57	EL-87	Spring Retainer.....
20	MA-58	Case, For 3 Circuit Master.....	†58	CM-285	Spring.....
	MA-57	Case, For 6 Circuit Master.....	†59	EL-84-A	Contact Bridge.....
	D5-1088-013-01	Case, For 9 Circuit Master.....	60	MA-50-A	Assembled Contact Bracket.....
	B5-0502-051-12	Spacer, .300" Long.....	61		8-32 x 1/2" R.I. Mach. Screw & Lk. Washer, 2 Req'd.....
	B5-0502-051-13	Spacer, .672" Long.....	62	B5-0502-052-17	Spacer.....
21	B5-0502-051-14	Spacer, 1.313" Long.....	63	FP-59A35	Rollpin.....
	B5-0502-051-15	Spacer, 2.190" Long.....	64	FP-24H19	Ball Bearing, 2 Req'd.....
	B5-0502-051-21	Spacer, .422" Long.....	65		Stop Cam, Folio 2 Only, Advise Name Plate Data.....
22	MA-73	Shim Washer, As Req'd.....			
23	A5-1088-017-01	Index & Spring Return Cam, Advise Name Plate Data.....			
24	FP-35P1	Insuliner Sleeve, For 3/4" Conduit.....			
25	FP-35P2	Insuliner Sleeve, For 1" Conduit.....			
26	FP-35P3	Insuliner Sleeve, For 1 1/4" Conduit.....			
27		3/8" S.A.E. Pl. Washer.....			
28	FP-32A13	Elastic Stop Nut.....			
29	MA-113-A	Assembled Bellcrank & Roller, For Folio 2 Only.....			

†Essential Parts for General Maintenance.



MA MASTER SWITCH

FOLIO 2 & 2A

INSTRUCTIONS

General: Square D class 9004 type MA master switch is a heavy duty control circuit switch for use with all types of magnetic controllers used on mill accessories and similar applications. It is built in 3 frame sizes, construction features of which are identical. These 3 frames provide for 3-6 and 9 circuits and 5 speed points in each direction.

Hardened steel operating cams, steel spacers, and a hardened steel notching cam are assembled on a hexagonal steel shaft. The cam shaft, which has ball bearings at each end, is direct operated by the vertical ball handle.

If necessary, the entire switch mechanism can be removed from the case by detaching the operating handle and removing two screws from the outside of the case. The camshaft can be reassembled after removing a hex-nut from the end of the shaft. Switches are supplied either "right hand" or "left hand". To convert a "right hand" switch to a "left hand" switch it will be necessary to turn the switch 180° and reverse certain cams that are nonsymmetrical about the contact finger roller which is the reference point.

SPRING RETURN: Masters can be converted to spring return by reversing the notching cam (item 23) and replacing handle (item 2) with handle (item 3).

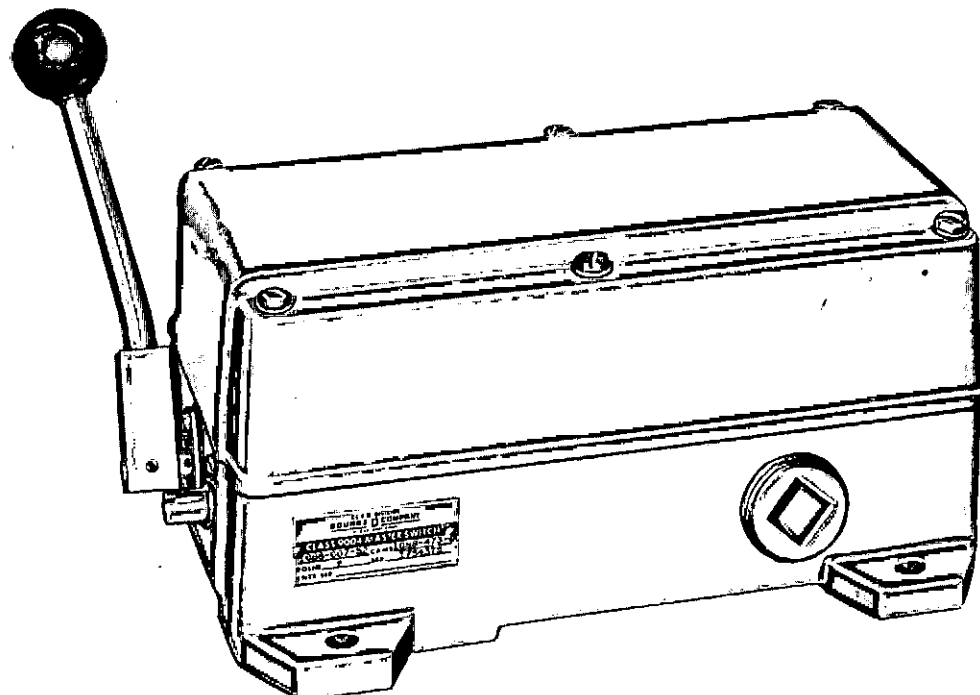
LUBRICATION: Occasionally the cam shaft ball bearings and the assembled spring return bellcrank pivot points will require lubrication with a No. 30 grade oil.

CONTACTS: The spring closed, double break contact bridges, which have coin silver contacts, are readily removable from the contact arm without tools.

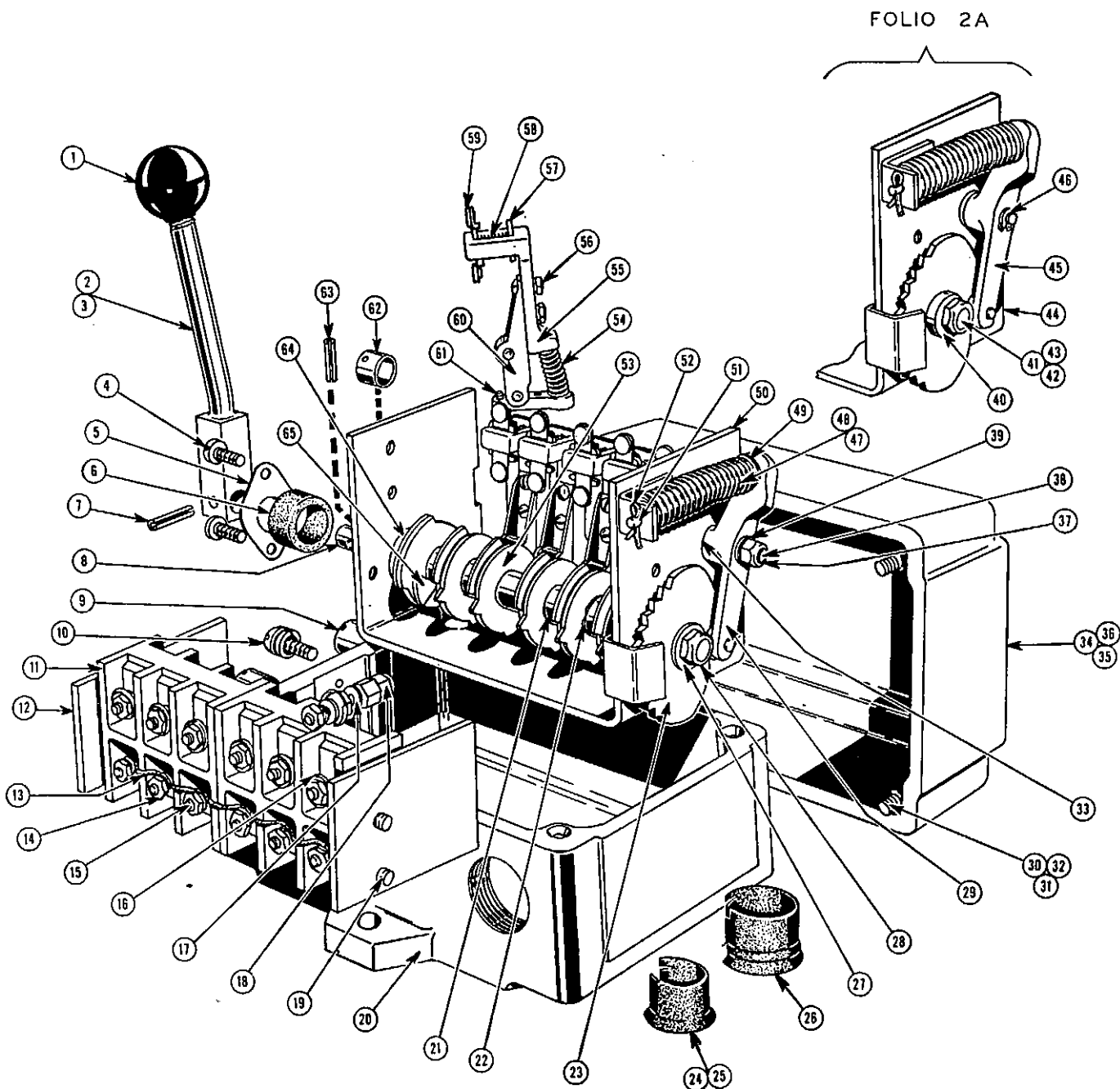
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The MA master contacts have a rating for d-c inductive loads such as type L contactors, and a-c loads such as LZ contactors as follows:

	A.C. 110V	A.C. 220V	A.C. 440V	A.C. 550V	D.C. 115V	D.C. 230V	D.C. 550V
Inrush Amperes	30	30	30	30	—	—	—
Continuous Amperes	15	15	15	15	15	15	15
Interrupting Amperes	10	10	5	5	1.5	.9	.3



MA MASTER SWITCH, FOLIO 2 & 2A



ADVISE NAMEPLATE MARKING WHEN ORDERING PARTS

MA MASTER SWITCH, FOLIO 2 & 2A

Item No.	List No.	Description	Item No.	List No.	Description
● 1	29203-01032	Handle Ball.....	30	MA-75	Slotted H.I. Cap Screw.....
2	MA-81	Handle.....	31	FP-40D14	Weatherseal Washers, For Item 30.....
3	A5-1088-024-01	Handle, For Spring Return Only.....	● 32	23301-04200	Speed Clip, For Item 30.....
4		8-32 x 3/8" R. Srl. Mach. Screw & Lk. Washer.....	33	B5-0502-051-06	Sleeve, Fits Inside Item 29.....
5	MA-51	Dust Seal Cover.....	34	MA-59	Cover, For 3 Circuit Masters.....
6	MA-52	Dust Seal.....	35	MA-56	Cover, For 6 Circuit Masters.....
7	24209-12280	Rollpin.....	36	C5-1088-014-01	Cover, For 9 Circuit Masters.....
8	MA-82	Cam Shaft, 3 Circuit, Folio 2 Master.....	● 37	23201-00210	Elastic Stop Nut.....
	MA-83	Cam Shaft, 6 Circuit, Folio 2 Master.....	38		1/4"-28 x 1 1/4" Fl. Socket Hd. Cap Screw.....
	MA-116	Cam Shaft, 9 Circuit, Folio 2 Master.....	39		1/4" S.A.E. Pl. Washer.....
9	VM-63	Stop Screw, 3/8" Diameter.....	40	B5-0502-052-28	Spacer.....
	A5-1088-015-01	Stop Screw, 1/2" Diameter.....	41	A5-1088-531-01	Cam Shaft, For 3 Circuit, Folio 2A Masters.....
	A5-1088-015-02	Stop Screw, 1 1/4" Diameter.....	42	A5-1088-531-02	Cam Shaft, For 6 Circuit, Folio 2A Masters.....
	A5-1088-015-03	Stop Screw, 1 1/2" Diameter.....	43	A5-1088-531-03	Cam Shaft, For 9 Circuit, Folio 2A Masters.....
	A5-1088-015-04	Stop Screw, 2" Diameter.....	44	A5-1088-532-52	Assembled Frame, For 3 Circuit, Folio 2A Master.....
A5-1088-015-05	Stop Screw, 1 3/8" Diameter.....	A5-1088-532-51		Assembled Frame, For 6 Circuit, Folio 2A Master.....	
10		1/4"-20 x 3/8" Fillister Screw & Lk. Washer.....		A5-1088-532-50	Assembled Frame, For 9 Circuit, Folio 2A Master.....
11	MA-1	Contact Board.....	45	A5-1088-528-50	Assembled Bellcrank & Roller, Folio 2A.....
12	MA-7	Frame Insulator.....	46	FP-27A30	Retaining Ring.....
13	NX-73-A	Connector, (3 Terminals) For Folio 2 Masters.....	†47	MA-76	Spring.....
	MA-79-A	Connector, (4 Terminals) For Folio 2 Masters.....	†48	MA-118	Spring, For Spring Return Masters, Only.....
	B5-0502-405-03	Connector, (3 Terminals) For Folio 2A Masters.....	49		1/4" S.A.E. Pl. Washer.....
	B5-0502-405-04	Connector, (4 Terminals) For Folio 2A Masters.....	50	A5-1088-011-52	Assembled Frame, For 3 Circuit, Folio 2 Masters.....
14				A5-1088-011-51	Assembled Frame, For 6 Circuit, Folio 2 Masters.....
15	MA-62	Contact Stud.....		A5-1088-011-50	Assembled Frame, For 9 Circuit, Folio 2 Masters.....
16	ZO-1121	Cup Washer.....	51	A5-1088-016-02	Spring Rod.....
● 17	23602-11204	Washer.....	52		3/8" x 1/2" Cotter Pin.....
†18	CM-311-A	Contact Tip.....	53		Cam, Advise Name Plate Data.....
19	MA-29	Contact Board Screw, For 3 Circuit Master.....	†54	MA-102	Spring.....
	MA-30	Contact Board Screw, For 6 Circuit Master.....	55	MA-31	Contact Arm.....
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	D5-1088-013-01	Case, For 9 Circuit Master.....	†59	EL-84-A	Contact Bridge.....
	B5-0502-051-12	Spacer, .300" Long.....	60	MA-50-A	Assembled Contact Bracket.....
	B5-0502-051-13	Spacer, .672" Long.....	61		8-32 x 1/2" R.I. Mach. Screw & Lk. Washer, 2 Req'd.....
	B5-0502-051-14	Spacer, 1.313" Long.....	62	B5-0502-052-17	Spacer.....
21	B5-0502-051-15	Spacer, 2.190" Long.....	63	24209-12201	Rollpin.....
	B5-0502-051-21	Spacer, .422" Long.....	64	FP-24H19	Ball Bearing, 2 Req'd.....
	22	MA-73	Shim Washer, As Req'd.....	65	
23	A5-1088-017-01	Index & Spring Return Cam, Advise Name Plate Data.....			
● 24	25221-51001	Insuliner Sleeve, For 3/4" Conduit.....			
● 25	25221-51002	Insuliner Sleeve, For 1" Conduit.....			
● 26	25221-51003	Insuliner Sleeve, For 1 1/4" Conduit.....			
27		3/8" S.A.E. Pl. Washer.....			
● 28	23201-20251	Elastic Stop Nut.....			
● 29	A51088-528-51	Assembled Bellcrank & Roller, For Folio 2 Only.....			

†Essential Parts for General Maintenance.

●Minor revision since previous issue



MA MASTER SWITCH FOLIO 2 & 2A

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•**SPRING RETURN:** Masters can be converted to spring return by reversing the notching cam (item 23) to the position shown on page 2, replacing handle (item 2) with handle (item 3), and replacing spring (item 47) with spring (item 48).

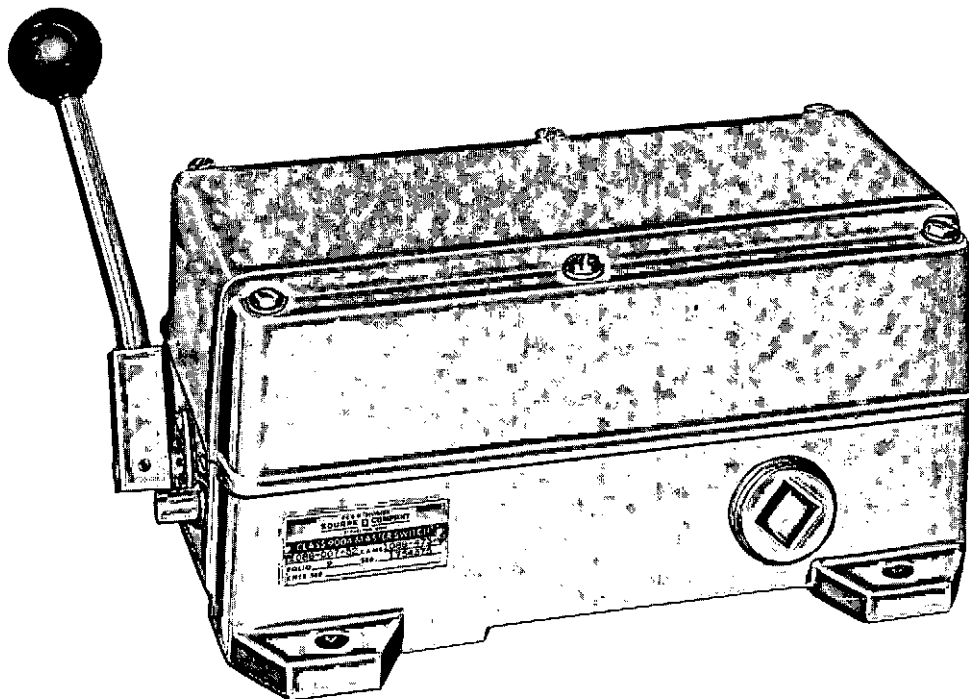
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The MA master contacts have a rating for dc inductive loads such as type L contactors, and ac loads such as LZ contactors as follows:

	A.C. 110V	A.C. 220V	A.C. 440V	A.C. 550V	D.C. 115V	D.C. 230V	D.C. 550V
Inrush Amperes	30	30	30	30	—	—	—
Continuous Amperes	15	15	15	15	15	15	15
Interrupting Amperes	10	10	5	5	1.5	.9	.3



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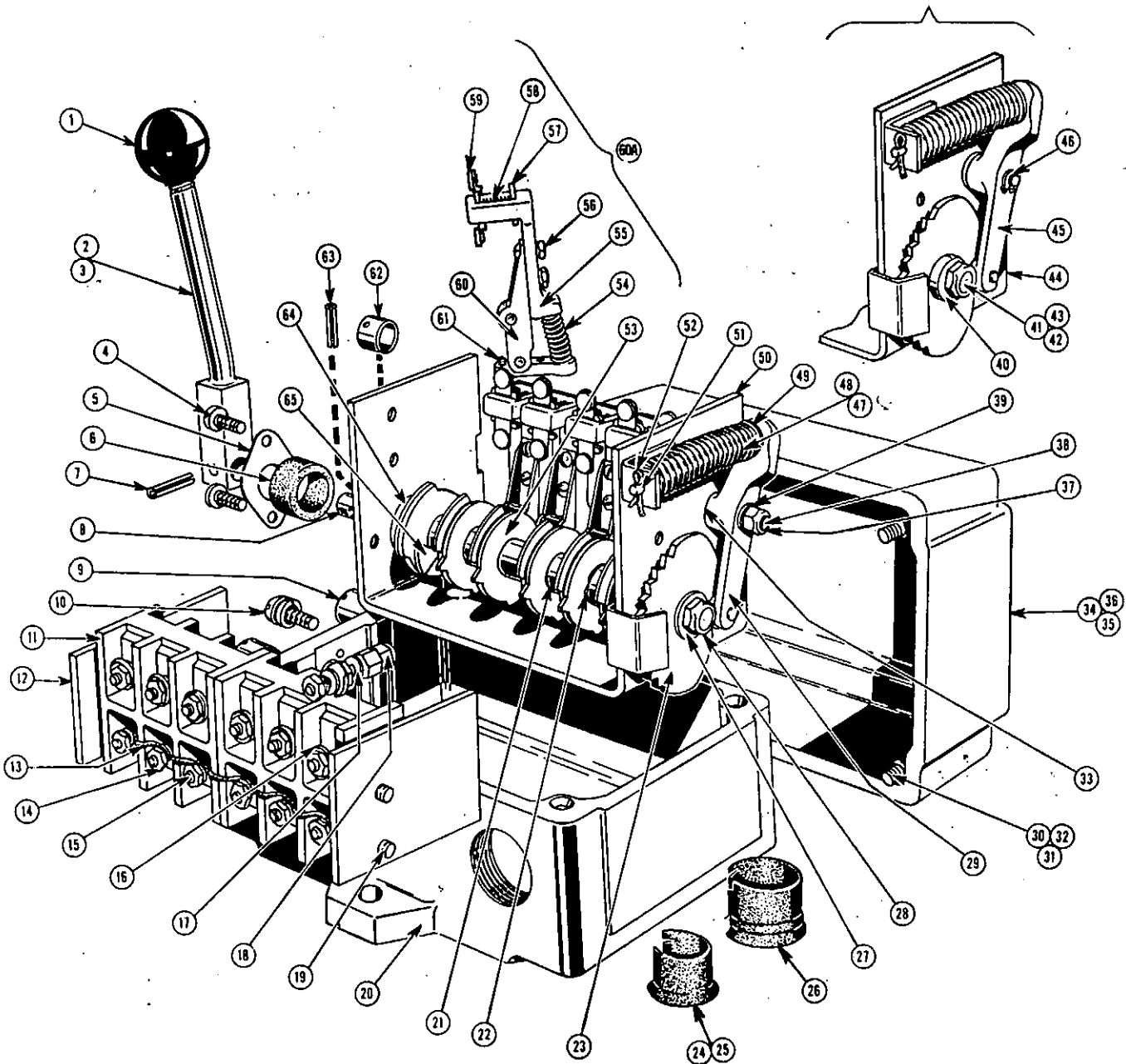
Supersedes SB 9004-10 Dated 4-72

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IN
U.S.A.



MA MASTER SWITCH, FOLIO 2 & 2A

FOLIO 2A



ADVISE NAMEPLATE MARKING WHEN ORDERING PARTS



MA MASTER SWITCH, FOLIO 2 & 2A

Item No.	*Part No.	Description	Item No.	*Part No.	Description
1	29203-01032	Handle Ball	28	23201-20251	Elastic Stop Nut
2	MA-81	Handle	29	A51088-528-51	Assembled Bellcrank & Roller, For Folio 2 Only
3	A5-1088-024-01	Handle, For Spring Return Only	30	MA-75	Slotted H.I. Cap Screw
4		8-32 x 3/8" R. Stl. Mach. Screw & Lk. Washer	31	29204-03170	Weatherseal Washers, For Item 30
5	MA-51	Dust Seal Cover	32	23301-04200	Speed Clip, For Item 30
6	MA-52	Dust Seal	33	B5-0502-051-06	Sleeve, Fits Inside Item 29
7	24209-12280	Rollpin	34	MA-59	Cover, For 3 Circuit Masters
8	MA-82	Cam Shaft, 3 Circuit, Folio 2 Master	35	MA-56	Cover, For 6 Circuit Masters
	MA-83	Cam Shaft, 6 Circuit, Folio 2 Master	36	C5-1088-014-01	Cover, For 9 Circuit Masters
	MA-116	Cam Shaft, 9 Circuit, Folio 2 Master	37	23201-00210	Elastic Stop Nut
9	VM-63	Stop Screw, 5/8" Diameter	38		1/4"-28 x 1 1/4" Fl. Socket Hd. Cap Screw
	A5-1088-015-01	Stop Screw, 15/32" Diameter	39		1/4" S.A.E. Pl. Washer
	A5-1088-015-02	Stop Screw, 1 1/16" Diameter	40	B5-0502-052-28	Spacer
	A5-1088-015-03	Stop Screw, 1 5/32" Diameter	41	A5-1088-531-01	Cam Shaft, For 3 Circuit, Folio 2A Masters <i>obsolete</i>
	A5-1088-015-04	Stop Screw, 2" Diameter	42	A5-1088-531-02	Cam Shaft, For 6 Circuit, Folio 2A Masters
	A5-1088-015-05	Stop Screw, 1 5/8" Diameter	43	A5-1088-531-03	Cam Shaft, For 9 Circuit, Folio 2A Masters
10		1/4" - 20 x 5/8" Fillister Screw	44	A5-1088-532-52	Assembled Frame, For 3 Circuit, Folio 2A Master <i>obsolete</i>
		Lk. Washer	44	A5-1088-532-51	Assembled Frame, For 6 Circuit, Folio 2A Master
11	MA-1	Contact Board	44	A5-1088-532-50	Assembled Frame, For 9 Circuit, Folio 2A Master
12	MA-7	Frame Insulator	45	A5-1088-528-50	Assembled Bellcrank & Roller, Folio 2A
13	NX-73-A	Connector, (3 Terminals) For Folio 2 Masters	46		Retaining Ring
	MA-79-A	Connector, (4 Terminals) For Folio 2 Masters	47	MA-76	Spring
	B5-0502-405-03	Connector, (3 Terminals) For Folio 2A Masters	48	MA-118	Spring, For Spring Return Masters, Only
	B5-0502-405-04	Connector, (4 Terminals) For Folio 2A Masters	49	23601-00200	1/4" S.A.E. Pl. Washer
14		10-24 H.I. Nut and # 10 Lk. Washer	50	A5-1088-011-52	Assembled Frame, For 3 Circuit, Folio 2 Masters <i>obsolete</i>
15	MA-62	Contact Stud	50	A5-1088-011-51	Assembled Frame, For 6 Circuit, Folio 2 Masters
16	Z0-1121	Cup Washer	50	A5-1088-011-50	Assembled Frame, For 9 Circuit, Folio 2 Masters
17	23602-11204	Washer	51	A5-1088-016-02	Spring Rod
18	CM-311-A	Contact Tip	52		3/32" x 1/2" Cotter Pin
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	MA-30	Contact Board Screw, For 6 Circuit Master	54	MA-102	Spring
	MA-117	Contact Board Screw, For 9 Circuit Master	55	MA-31	Contact Arm
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	MA-57	Case, For 6 Circuit Master			Lk. Washer,
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	B5-0502-051-12	Spacer, .300" Long			
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	B5-0502-051-21	Spacer, .422" Long	59	EL-84-A	Contact Bridge
			60	MA-50-A	Assembled Contact Bracket
22	MA-73	Shim Washer, As Req'd.	60A	MA-49-A	Assembled Contact Finger (Includes items 54-60)
23	A5-1088-017-01	Index & Spring Return Cam, Advise Name Plate Data	61		8-32 x 1/2" R.I. Mach. Screw, 2 Req'd., Lk. Washer.
24	25221-51001	Insuliner Sleeve, For 3/4" Conduit	62	B5-0502-052-17	Spacer
25	25221-51002	Insuliner Sleeve, For 1" Conduit	63	24209-12201	Rollpin
26	25221-51003	Insuliner Sleeve, For 1 1/4" Conduit	64	29002-63200	Ball Bearing, 2 Req'd.
27		3/8" S.A.E. Pl. Washer	65		Stop Cam, Folio 2 Only, Advise Name Plate Data

*Standard hardware, listed without a Square D part number, should be obtained from a local hardware supplier.

†Essential Parts for General Maintenance.

•Minor revision since previous issue.