



MA MASTER SWITCH

FOLIO 1

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 with a reduced number of speed points and circuits. It is built in two frame sizes, construction features of which are identical. The smaller size provides a maximum of three circuits and two speed points, forward and reverse. The larger switch can be provided with up to six circuits and three 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.

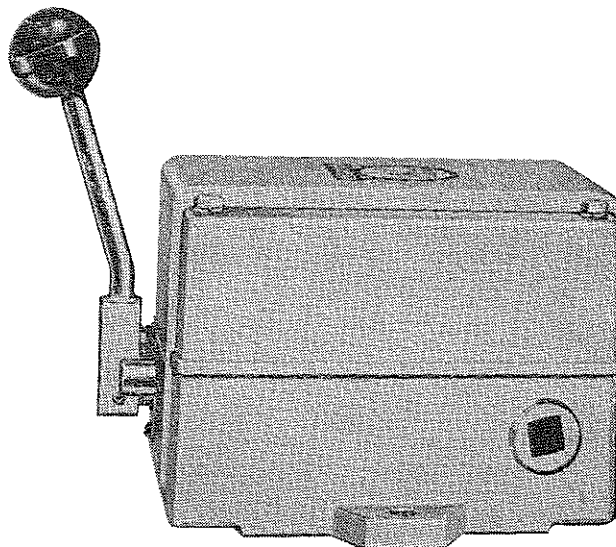
LUBRICATION: Occasionally the cam shaft ball bearings and the assembled spring return bellcrank pivot points will require lubrication with a No. 30 grade oil.

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

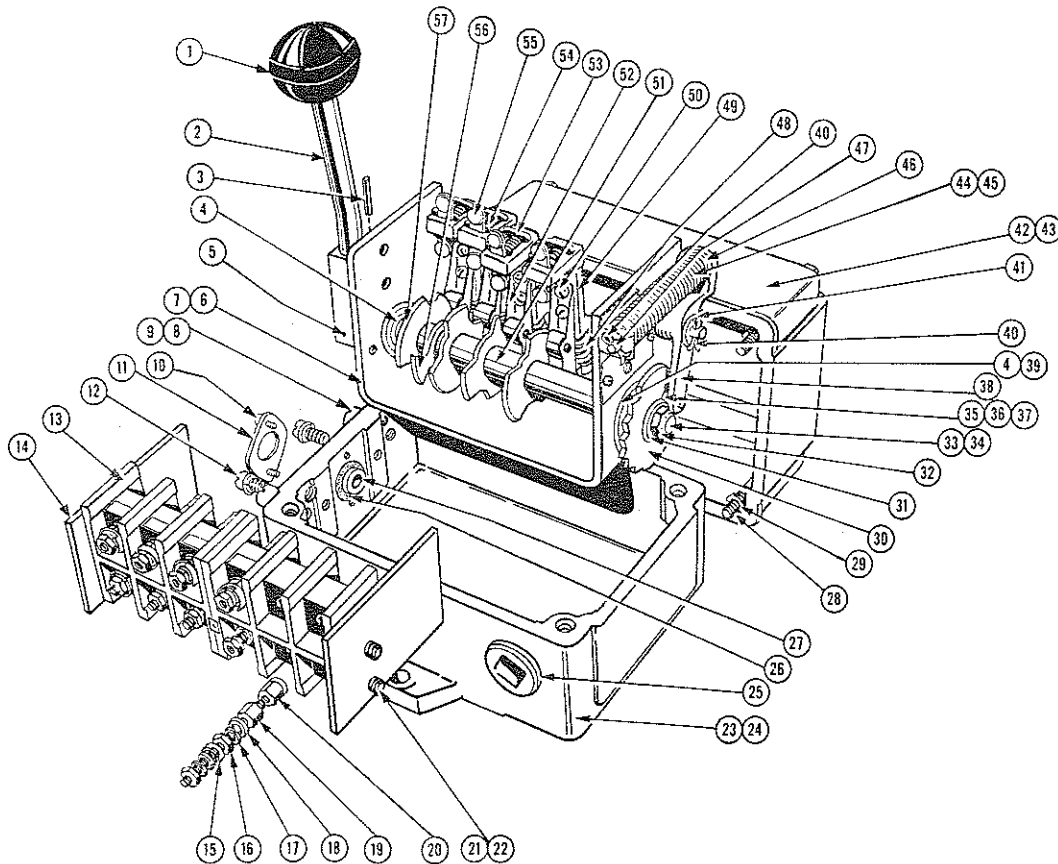
Stationary studs, which also have coin silver contacts, are renewable from the top of the terminal stud. This can be performed without disturbing the wire connection.

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 1



PRINTED IN U. S. A. 3-60

Item No.	List No.	Description	Item No.	List No.	Description
1	FP-12A13	Handle Ball.....	32	FP-32A13	Stop Nut.....
2	MA-81	Handle.....	33	MA-83	Shaft, for 6 Circuit Masters.....
3	FP-59B1	Spiral Pin.....	34	MA-82	Shaft, for 3 Circuit Masters.....
4	FP-24H16	Ball Bearing, 2 req'd.....	35	MA-19	Starwheel Roller.....
5	FP-59A13	Rollpin.....	36	MA-8	Roller Rivet.....
6	MA-32-A	Assembled Frame, for 6 Circuit Masters.....	37	FP-24C43	Oilite Bearing.....
7	MA-33-A	Assembled Frame, for 3 Circuit Masters.....	38	MA-10-A	Assembled Bellcrank.....
8	VM-63	Stop Screw, for 2-3 Point.....	39	MA-2	Spacer, Used Between items 4 & 30.....
9	VM-65	Stop Screw, for 1st Point.....	40	FP-24C44	$\frac{3}{32}$ " x $\frac{1}{2}$ " Cotter Pin.....
10		8-32 x $\frac{1}{2}$ " R. I. Screw & LK. Washer.....	41	FP-24C44	Bearing.....
11	MA-51	Dust Seal Cover.....	42	MA-56	Cover, for 6 Circuit Masters.....
12		$\frac{1}{4}$ -20 x $\frac{3}{8}$ " Fill. Hd. Screw & LK. Washer.....	43	MA-59	Cover, for 3 Circuit Masters.....
13	MA-1	Contact Board.....	†44	MA-12	Spring, for Spring Return Masters only.....
14	MA-7	Frame Insulators.....	†45	MA-76	Spring, for Masters Without Spring Return.....
15	ZO-1121	Cup Washer.....	46		$\frac{5}{16}$ " S. A. E. Washer.....
16		10-24 H. I. Nut.....	47	MA-18	Spring Rod.....
17		$\frac{3}{16}$ " LK. Washer.....	†48	MA-102	Spring.....
18	K-73	Washer.....	49	MA-31	Contact Arm.....
19	MA-62	Contact Stud.....	50		8-32 x $\frac{1}{2}$ " R. I. Screw, LK. Washer & H. I. Nut.....
†20	CM-311-A	Contact Tip.....		MA-14	Spacer, .331 long, 2 req'd.....
21	MA-30	Contact Board Screw, for 6 Circuit Masters.....		MA-15	Spacer, .500 long.....
22	MA-29	Contact Board Screw, for 3 Circuit Masters.....	51	MA-16	Spacer, .784 long.....
23	MA-57	Case, for 6 Circuit Master.....		MA-17	Spacer, .968 long.....
24	MA-58	Case, for 3 Circuit Master.....		MA-66	Spacer, 2.256 long.....
25		1" C'sunk. Pipe Plug.....	52	MA-50-A	Assembled Contact Bracket.....
26	MA-52	Dust Seal.....	53	EL-87	Spring Retainer.....
27	MA-23	Spacer.....	†54	CM-285	Spring.....
28	MA-75	Slotted H. I. Cap Screw.....	†55	EL-84-A	Assembled Contact Bridge.....
29	FP-66A1	Speed Clip.....	56	MA-53	Stop Cam.....
30	MA-55	Index & Spring Return Cam.....	57		Cam, See List Number Stamped on Cam.....
31		$\frac{3}{8}$ " S. A. E. Washer.....			

†Essential Parts for General Maintenance.

ADVISE NAME PLATE MARKING WHEN ORDERING PARTS