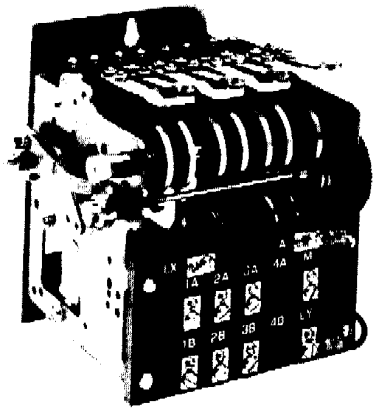
TIME CONTROL

HO SERIES
POLYFLEX® TIMERS



The HO Series POLYFLEX® timer is an electromechanical synchronous motor driven multiple circuit reset timer. It is available in 3 frame sizes, with 3, 7, or 11 load circuits, and in 6 standard time ranges.

The timer has one ON and one OFF generated curve type cam for each circuit, individually adjustable for any portion of the chosen time range. The time interval covered by the timer is adjustable to any position of the chosen time range by adjusting an integral motor cam and cut out switch. Thus, a 20 second total time cycle may be accomplished with a 60 second time range. At the end of the total time cycle the clutch circuit is opened and the timer resets.

The timer is an open frame unit, with a large terminal panel and screw terminals that will accept #14 wire. There are two terminals for each single pole-single throw switch circuit. These circuits may be normally open or normally closed, defined by the relative position of the ON cam with the OFF cam.

Some of the advantages of the Polyflex® timer are:

- Rugged Industrial Design
- Heavy Duty Coin Silver Contacts
- Fast Make and Fast Break Contacts
- Solenoid Operated Clutch
- Standard or Reverse Clutch Operation
- Accurate, Synchronous With Line Frequency
- Multiple Circuit Reset Type

SPECIFICATIONS

Time Ranges

SYMBOL	TIME RANGES	SYMBOL	TIME RANGES
02	10-60 Sec.	05	12-67 Min
03	2-11 Min.	11*	5-30 Sec
04	6-33 Min	12 *	30-180 Sec.

*Requires Heavy Duty Motor

Number of Circuits

CAT. SYM.	NO. OF CIRCUITS	CAT. SYM.	NO. OF CIRCUITS	CAT. SYM.	NO. OF CIRCUITS
HO43	3	HO54	7	HO64	11
Each timer has one circuit (LY-M) for timer control in addition to the number of load circuits listed above.					

Cam Setting Accuracy
1% of maximum time range chosen.

Reset Time
500 milliseconds

Maximum Cam Shaft Rotation
325° CCW Direction

Number of Frame Sizes
3 - 7 - 11 Circuits, Standard

Contact Pressure
40 Grams, - 5 Grams

Output Rating
10 Amps - 120 Volt
5 Amps - 240 Volt
3 Amps - 440 Volt
Solenoids having inrush currents 3 times the above ratings can be controlled directly by the Polyflex contacts.

Voltage & Frequency
120 VAC (+10 -15%) 60 Hz
240 VAC (+10 -15%) 60 Hz

Temperature
0° to 140°F (-18° to +60°C)

Laboratory Testing
C.S.A. Certification LR-26861

Request Bulletin 140C for additional specifications, operating and maintenance instructions. Bulletin 140E (timer parts list) is also available.

Eagle Signal Controls
A Division of Mark IV Industries, Inc.
8004 Cameron Road, Austin, Texas 78753 U.S.A.

TIME CONTROL

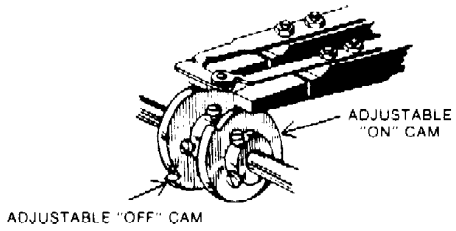
TIME RANGE ADJUSTMENTS

The POLYFLEX® model timer is available in 6 time ranges determined by a constant speed motor and a selection of cycle gear assemblies.

Four cycle gear assemblies are available to produce 7 different camshaft speeds with any given constant speed motor.

The chart lists the time cycles provided when any one of the cycle gear assemblies are installed. 80 tooth gear normally furnished unless otherwise specified.

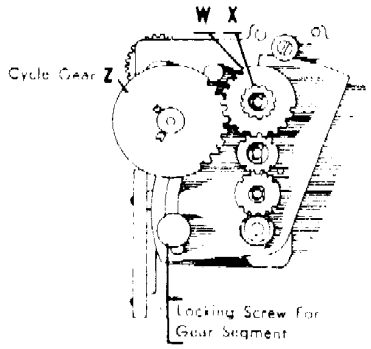
The POLYFLEX® cam shaft rotates its maximum 325° of travel in the time listed. Each cam on the camshaft can be set to close or open its contact at any point in this travel. The motor cam and cutout switch can be adjusted to open and stop the timer at any intermediate point, when the desired timed interval is less than the 325° camshaft rotation.



OPERATION

The timer is normally held in the reset position when voltage is OFF. Energizing the clutch solenoid lowers the contact fingers on the cams and engages the timer clutch to start timing. Opening the timer control contact LY-M stops the timer motor at the end of the timed period. When the clutch solenoid is de-energized, the contact fingers are raised off the cams and the timer is spring reset to "0".

TO CHANGE CYCLE GEARS



A. Gear "W"-"X" is a two section gear consisting of a 50 T and 25 T gear stacked together.

B. Position cycle gear "Z" on clutch shaft in alignment with gear "W" or "X". Cycle gear meshed with gear "W" doubles the speed of the clutch shaft. Cycle gear meshed with gear "X" halves the speed of the clutch shaft.

C. With clutch disengaged, set cycle gear with .005 minimum clearance between back side of cycle gear and timer frame or gear "W". Check that clutch shaft slides free.

D. Position gear plate. Check for bending of cycle gear and gear "W" or "X". Tighten gear plate locking screw.

TIME RANGE SYMBOL	RANGE	CYCLE GEAR LETTER							
		A	B	C	D	E	F	G	H
		HO10-50	HO10-51	HO10-52	HO10-57	HO10-53	HO10-52	HO10-57	HO10-53
		CYCLE TIME IN SECONDS							
11*	5-30	5	7-1/2	10	13-2/3	15	20	27-1/3	30
02	11-67	11-1/4	16-3/4	22-1/2	30	33-3/4	45	60	67-1/2
12*	30-180	30	45	60	82	90	120	164	180
		CYCLE TIME IN MINUTES							
03	1m52s - 11m15s	1m52s	2m48s	3m45s	5m	5m37s	7m30s	10m	11m15s
04	5m37s - 33m45s	5m37s	8m26s	11m15s	15m	16m52s	22m30s	30m	33m45s
05	11m15s - 67m30s	11m15s	16m15s	22m30s	30m	33m45s	45m	60m	67m30s

* Requires heavy duty motor.

HO WIRING DIAGRAMS

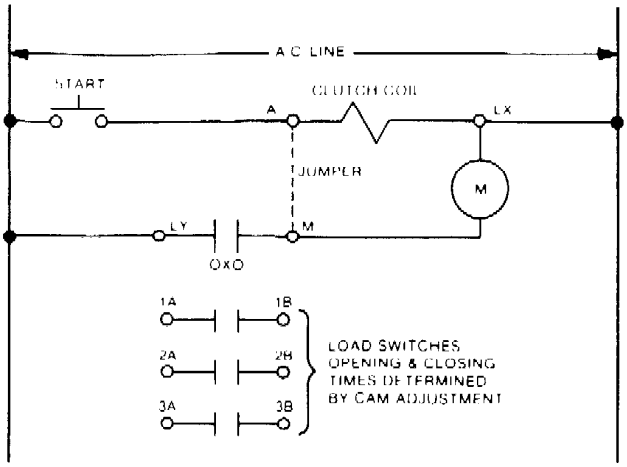


Figure 1 — Wiring Configuration A

Momentary Start Automatic Reset - This diagram shows the circuit construction for the HO Series, started by a momentary input switch closure with an automatic reset.

This control circuit shows the standard requirement for momentary start-automatic reset, which is an OXO contact to control both the clutch and motor. As the LY-M contacts close, the timing circuit is sealed and upon opening, the timer is reset.

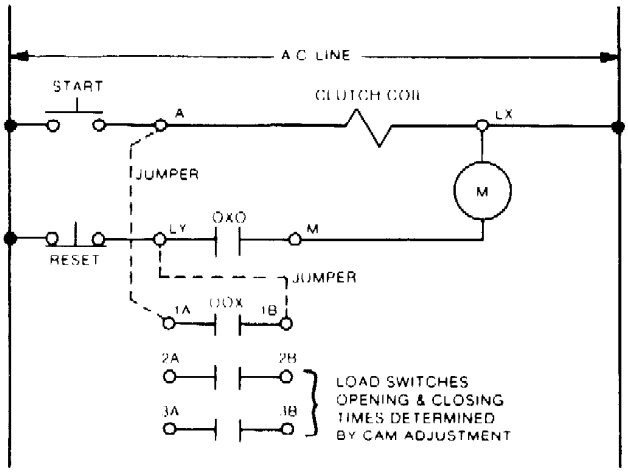


Figure 3 — Wiring Configuration C

Momentary Start, Manual Reset - This diagram shows the momentary start-manual reset mode of operation. Note that this operation requires an additional timer contact for the holding circuit. To reduce jumper wire length, terminals nearest LY-M terminals are used as clutch holding circuit.

For this application, contacts 1A-1B are set to become an instantaneous contact. The LY-M contacts are set for OXO to shut the motor off at the end of timing. Opening the reset switch resets the timer.

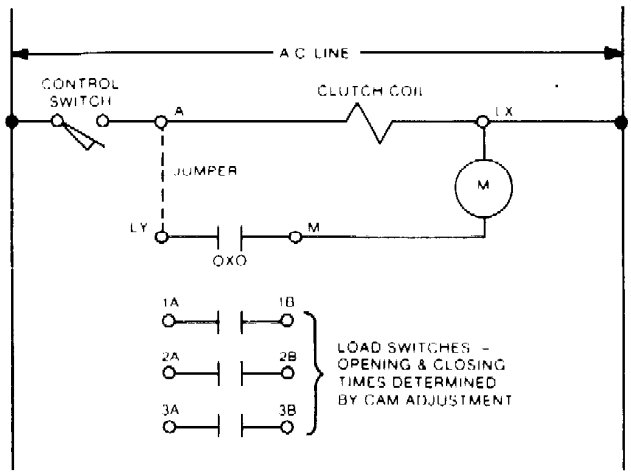


Figure 2 — Wiring Configuration B

Sustained Control Switch. Open to Reset. Contacts LY-M are for motor control and are constructed to operate OXO (Open in Reset, closed during timing, and open in timed out).

When the control switch is closed, the clutch becomes energized and the motor receives power through the closed LY-M contacts. At time out, the LY-M contacts open to shut off the motor. The individual circuit contacts are programmed to be open or closed as determined by the cam settings.

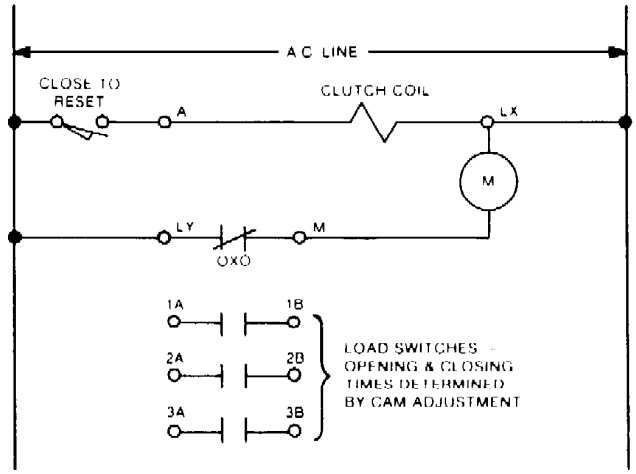


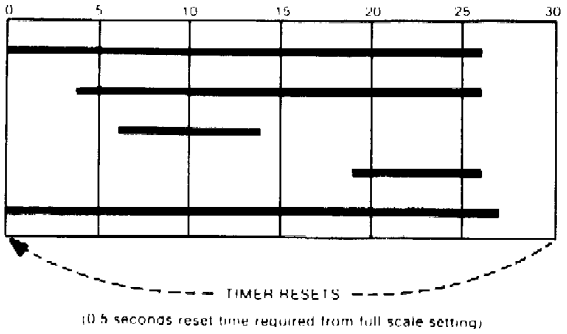
Figure 4 — Wiring Configuration D

Reverse Clutch. Close Switch to Reset - Clutch coil de-energized during timing. Clutch operation reversed so that clutch is normally engaged and timer does not reset upon a power interruption or failure. Closing the control switch resets timer to zero. Opening the control switch starts timer.

TIME CONTROL

CAM CHART EXAMPLES

SECONDS/MINUTES

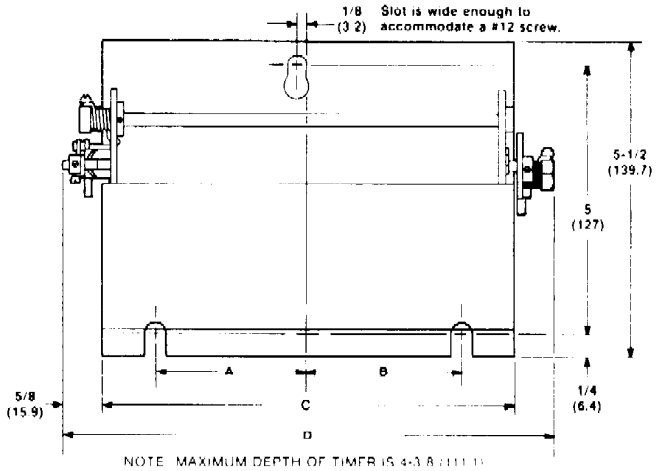


TERMINALS	SECONDS/MIN./HOURS	
1A - 1B	Close at 0	Open at 26
2A - 2B	Close at 4	Open at 26
3A - 3B	Close at 6	Open at 14
4A - 4B	Close at 19	Open at 26
LY - M	Close at 0	Open at 27

MOUNTING DIMENSIONS

	A	B	C	D
HO43	1-5/8 (41.3)	1-5/8 (41.3)	4-1/2 (114.3)	5-3/4 (146.1)
HO54	3-5/8 (92.1)	3-5/8 (92.1)	8-1/2 (215.9)	9-3/4 (247.6)
HO64	5-3/8 (136.6)	5-3/8 (136.6)	12-1/2 (317.5)	13-3/4 (349.3)

NOTE: Dimensions in parenthesis are millimeters.



ORDERING INFORMATION

Consult Eagle for availability of other time ranges, voltages, and frequencies.

HO 43 04 A A6 7 B

FRAME SIZE

SYMBOL	NUMBER OF CIRCUITS
43	3
54	7
64	11

TIME RANGE

SYMBOL	From Time Range/ Cycle Gear Chart

CYCLE GEAR

SYMBOL	From Time Range/ Cycle Gear Chart

VOLTAGE & FREQUENCY

SYMBOL	DESCRIPTION
A6	120 Volt 60 Hz
B6	240 Volt 60 Hz

WIRING CONFIGURATION

SYMBOL	DESCRIPTION
A	Momentary Start Switch — Automatic Reset
B	Sustained Start Switch — Open Switch to Reset
C	Momentary Start Switch — Manual Reset
D	Reverse Start — Close Switch to Reset — Open Switch to Start

FEATURES

SYMBOL	DESCRIPTION
0 or Blank	Standard
7	Heavy Duty Motor Required for 11 Time Range
M	Removable Terminal Panel

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