SIGNAL DIVISION
Federal Signal Corporation

256A616
Rev. A 186
Printed in U.S.A.

INSTRUCTIONS FOR MODELS PGA, AR, AF, AR5 AND AF5 TIMERS

I. GENERAL.

A. PGA Timer.

The PGA (Predetermined General Alarm) is primarily used for the control of general alarm sirens, allowing them to sound an up and down scale wailing signal for a predetermined time. The standard PGA timer produces a timing of 8-seconds ON, 4-seconds OFF; repeated 10 times in a two minute cycle.

B. AR And AF Timers.

The Federal Model AR and AF timers contain the devices necessary for the control of outdoor warning sirens.

The Model AR timer (see figure 2 and 5) causes two-signal sirens to produce a steady three-minute "Alert" signal and a three-minute, undulating, up and down scale "Attack" signal. The Model AF timer (see figures 3 and 6) causes three-signal sirens to produce a "Fire" signal as well as the "Attack" and "Alert" signals. The "Fire" signal is a two-minute, undulating, rapidly alternating high and low pitched signal, up scale, and a continuous, dual-tone signal down scale.

These timers do not include a power supply for the control circuits. Therefore, the user must provide an external power supply, such as the Federal Model PS.

C. AR5 And AF5 Timers.

The AR5 and AF5 timers operate in the same manner as the AR and AF except that a five-minute cycle is utilized.

II. CIRCUIT DESCRIPTION.

A. PGA Timer (see figures 1 and 4).

Operation of the timer begins with the closure of its "Alarm" circuit which energizes a holding relay coil. The relay contacts close, providing current to the motor, which start the timer cams rotating. The relay coil is held energized by current through the relay contacts and the cam operated contacts. After the cams have rotated for approximately two seconds, the cam operated motor control contacts close and provide another circuit to the motor allowing the cam operated holding relay contacts to open, releasing the holding relay from the circuit. When the end of the two-minute time cycle is reached, the cam operated motor control contacts open and the motor stops. During the timing cycle, the coding cam opens and closes the coding contact switch to provide impulses to the signal equipment.

The PGA timer can operate from either a 120-volt or 240-volt AC power source. Figures 1 and 4 illustrate the location of the jumper which must be removed for 240-volt operation and installed when operating from 120 VAC.

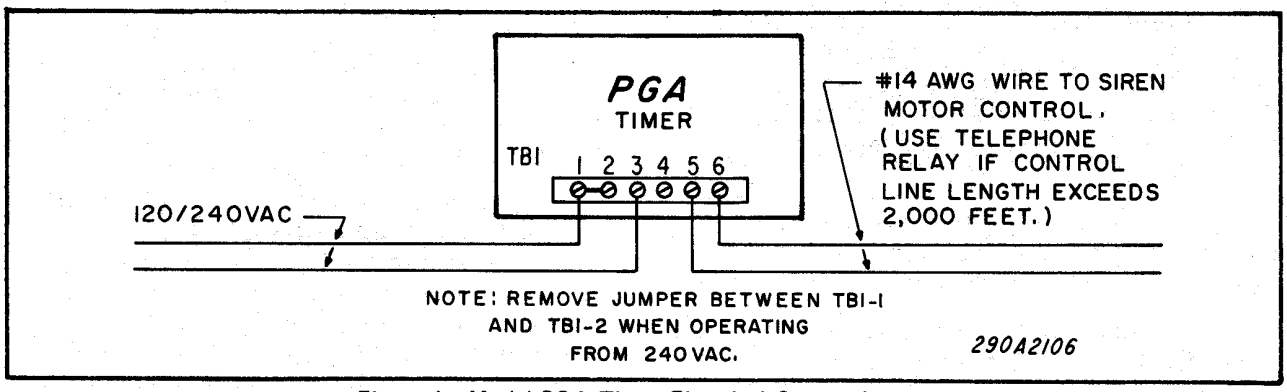

Figure 1. Model PGA Timer Electrical Connections.

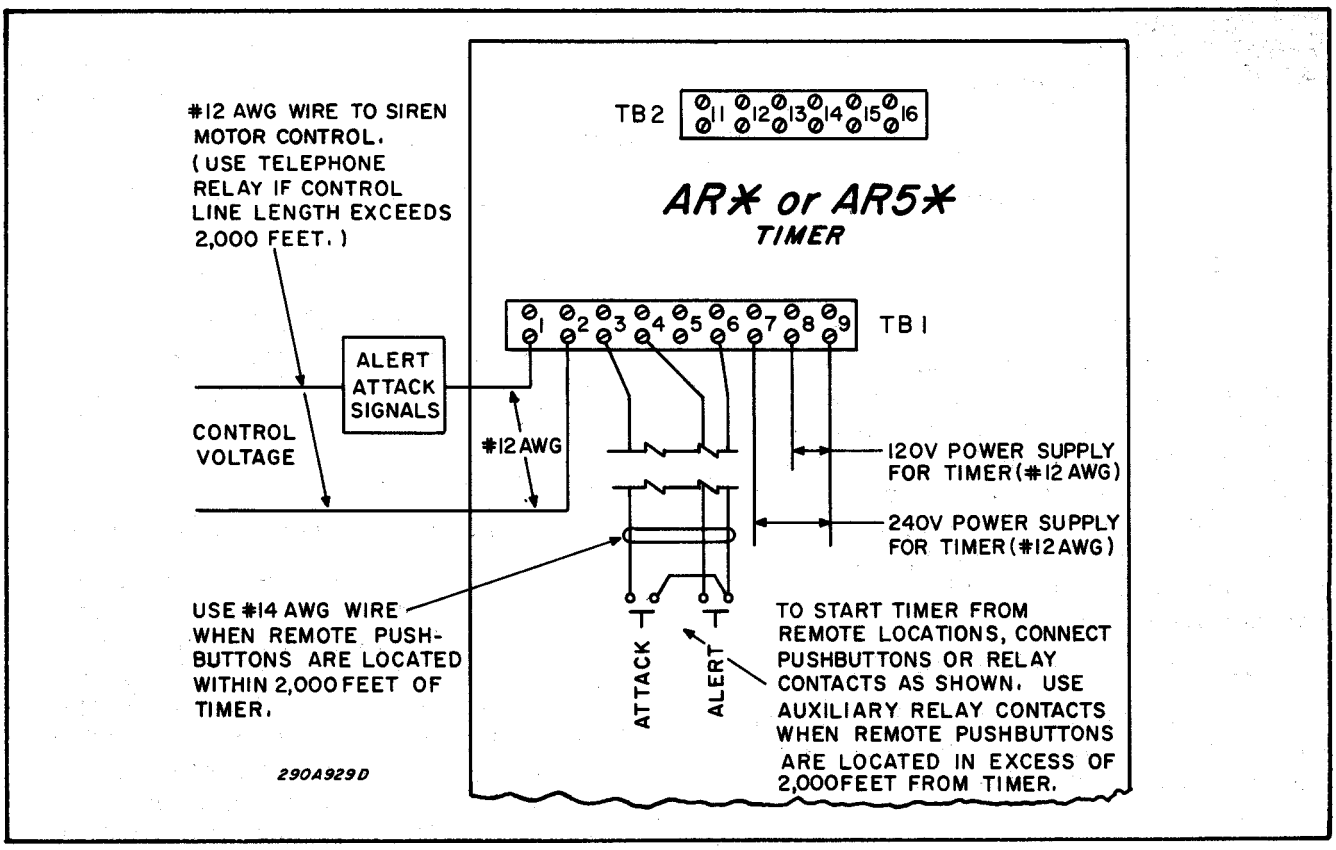

Figure 2. Models AR or AR5 Timer Electrical Connections.

The unit must cycle for two minutes, but the coding cam can be cut for special timing such as:

1. Fewer blasts of siren for shorter signal period.
2. Longer but fewer blasts of siren in two minute cycle.
3. Shorter blasts for small signals such as electric horns and air horns. The ON and OFF time periods cannot be shorter than three seconds each. (This is limited by the diameter of the control cam.)
4. Variations from standard will require an extra charge.

The coding contact circuit is electrically independent of the motor and relay circuit. It can be any required voltage within the limitations of the coding contact capacity i.e. 15 Amp at 48V, 120V, 240V, and 480V 60Hz; and 0.5 Amp at 120VDC.

The TEST timer pushbutton allows for direct manual control of signal, exclusive of timer.

Timer operation can be activated remotely from a number of places if required. Pushbuttons can be located up to 1500 feet away using a #14 gauge wire circuit. For control from places at greater distances, the timer can be activated by a telephone relay over leased telephone lines.

B. AR And AF Timers (also AR5 and AF5). (See Figures 2, 3, 5 and 6).

The AR and AF timers control undulating signals ("ATTACK" and "FIRE") by applying a three-minute series of eight-second control contact closures separated by four-second opens.

Both timer models include a TEST pushbutton (S4 in the AR, S5 in the AF). The TEST pushbutton operates the control devices and the siren only for the time that it is pressed. The timer is not activated because the TEST pushbutton is in the timer output circuit.

The CANCEL button (S3 in the AR, S4 in the AF) enables the siren operator to stop the siren in the event an error was made in the selection of a signal. If a signal is cancelled, the timer motor continues through the 3-minute cycle (or 5-minute cycle). If another signal is selected during the

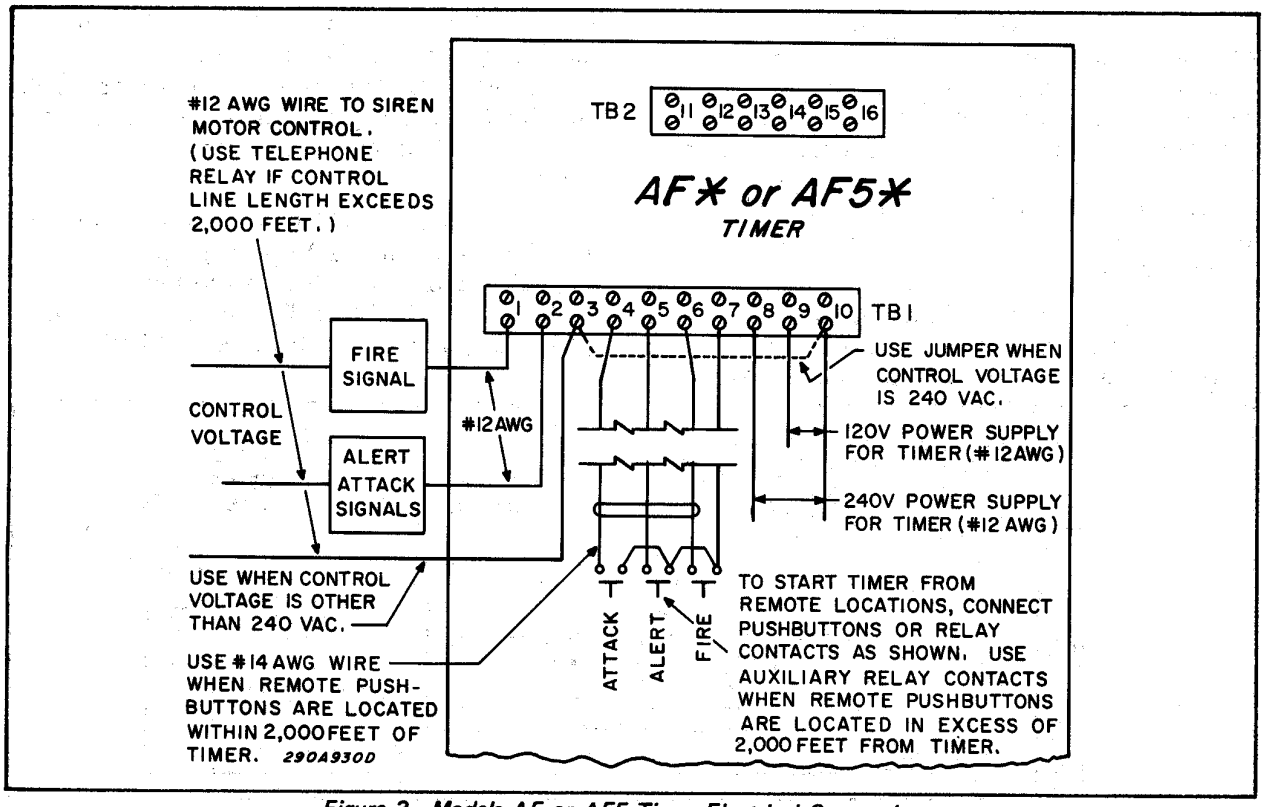

Figure 3. Models AF or AF5 Timer Electrical Connections.

cycle, it will be produced only for the remainder of the 3-minute cycle (or 5-minute cycle).

The AR and AF timers may be operated from either a 120 volt or 240 volt, 50-60 Hz source. When properly connected to the power source transformer, T1 provides 120 volts to the 120 volt components.

The output circuitry is electrically independent of the timing circuitry. Consequently, the output circuit can utilize up to 480V. The capacity of the microswitch contacts in the signal circuits is 15 amperes AC, or 1/4 ampere DC.

The timer is activated by pressing the appropriate local push-button for at least two seconds.

The red pilot light, DS2, on the front panel of the timer, indicates that the timer is cycling. The yellow pilot light, DS1, indicates that power is available to the timer.

When the ALERT, ATTACK or FIRE (Model AF Timer only) push-button is pressed, the respective relay energizes, establishing a holding circuit through the relay holding contacts. Simultaneously, the motor feed contacts apply operating voltage to the timer motor, M, and the motor begins to rotate the cams. After the cams rotate slightly, the motor feed cam contacts close to provide a parallel circuit to the timer motor.

The Control closures required for the production of the "Attack" and "Fire" signals are generated by cam-operated contacts in the Timer. These control closures are applied to the siren Control Cabinet or auxiliary control panel through the signal contacts of the selected relay in the timer. There are no cam-operated contacts for the "Alert" signal. As a result, when the "Alert" signal is selected, a sustained closure is applied to the siren Control Cabinet or auxiliary control cabinet and the siren produces a constant level signal for three minutes.

Several seconds before the end of the three-minute timer cycle, the cam-operated hold contacts open momentarily, releasing the relay holding circuit. The control circuit closure to the Control Cabinet or auxiliary control panel opens, and the motor feed cam contacts open, stopping the timer motor.

The "Attack" signal has priority over all other signals. If "Attack" is initiated while either "Alert" or "Fire" is sounding, "Attack" automatically overrides the signal being sounded until the end of the timer cycle or the CANCEL pushbutton is pressed. Similarly, "Alert" has priority over "Fire".

The CANCEL pushbutton can be used to override a higher priority signal. For example, to override "Attack" with "Alert", press the cancel pushbutton and then press ALERT.

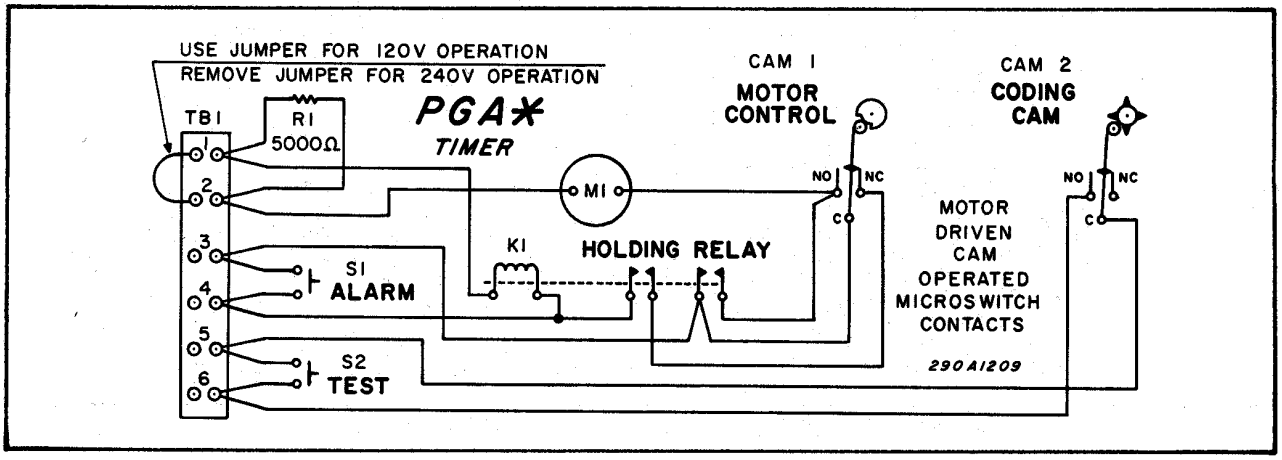

Figure 4. Model PGA Timer Wiring Diagram.

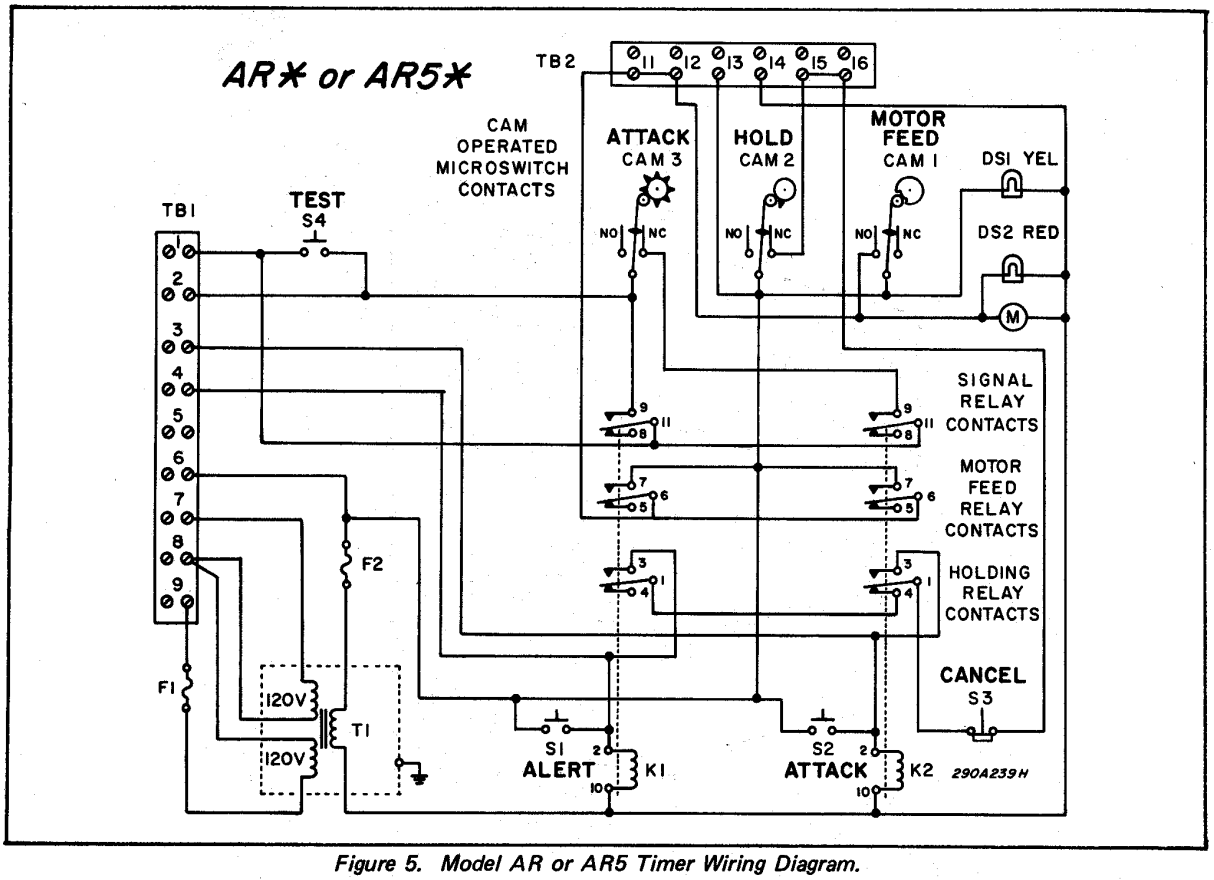

Figure 5. Model AR or AR5 Timer Wiring Diagram.

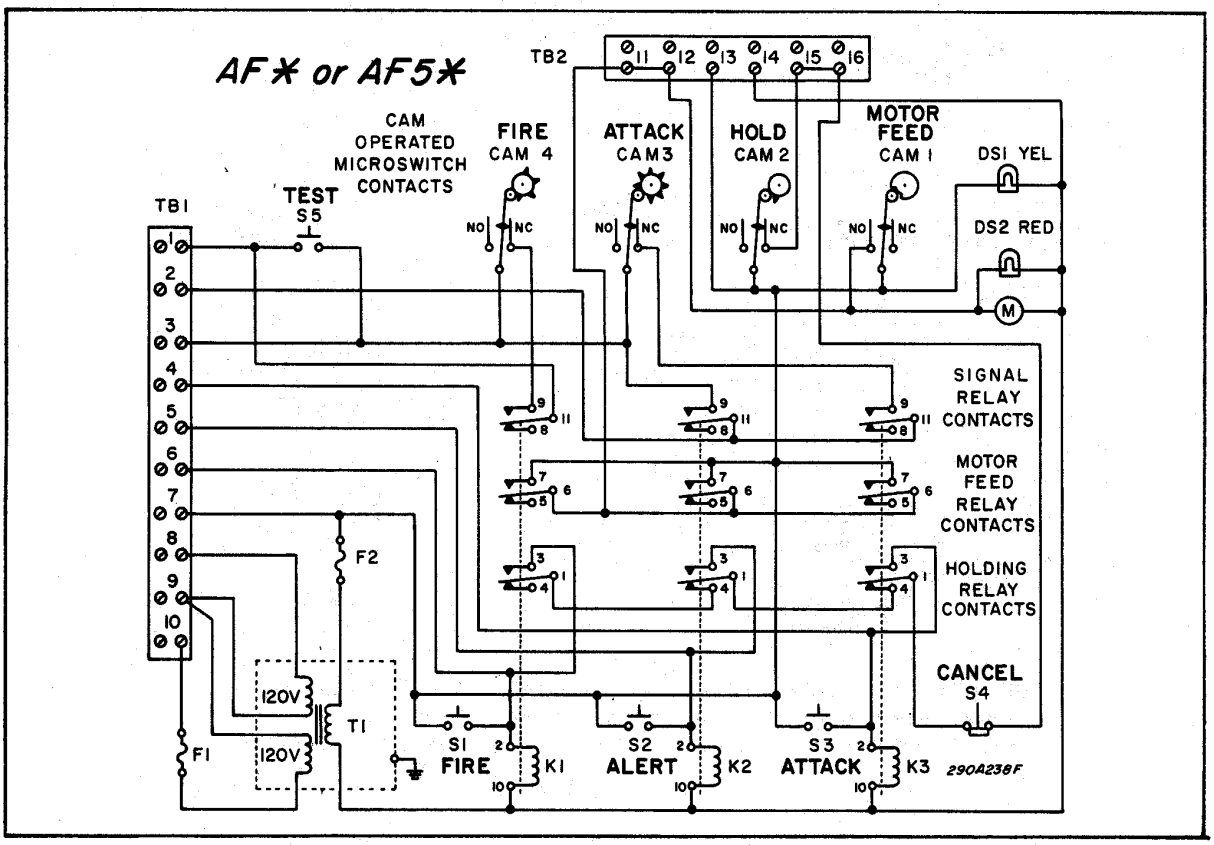

Figure 6. Model AF or AF5 Timer Wiring Diagram.

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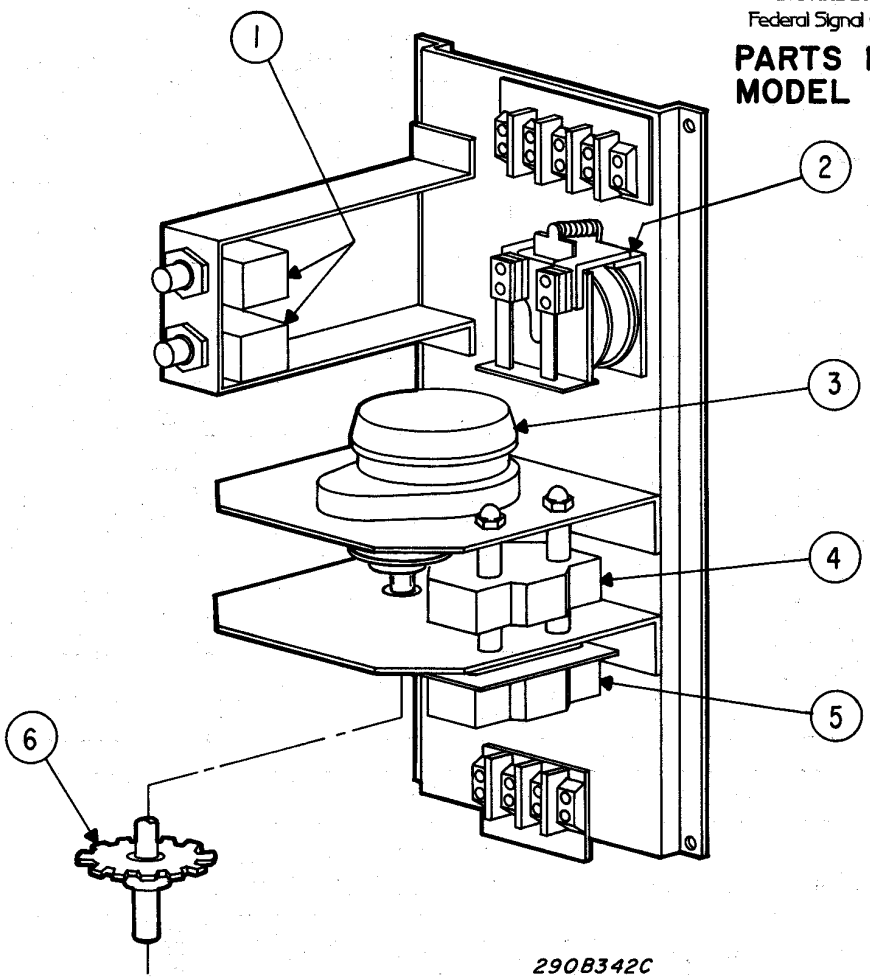
PARTS INDEX
MODEL PGA



TIMER

PPL 0061 PARTS LIST | Model P G A | DECEMBER 1985

Item No.	Description	Part No.	Qty.
1	Switch (Test and Alarm)	8283A955	2
2	Relay , Holding (120V)	8283A897	1 AR
	Relay , Holiding (240V)	8283A896	
3	Motor , 120 Volt	8283A849	1 AR
	Motor , 240 Volt	8283A848	
4	Microswitch , Motor Circuit	8283A932	1
5	Microswitch , Code Circuit	8283A933	1
6	Code Wheel (Standard) (8 on , 4 off , 10 times)	8287A213	1
NOT SHOWN			
	Code Wheel , Blank (uncut)	8283A906	1
	PGA Nameplate	8146A541-31	1

DO NOT ORDER PARTS BY ITEM NUMBER . Give model , voltage , description , and part number . Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts .

Federal Signal Corporation , Signal Division , 2645 Federal Signal Drive , University Park , Illinois 60466 Printed in U.S.A.

Figure 7. Model PGA Timer Parts Index.

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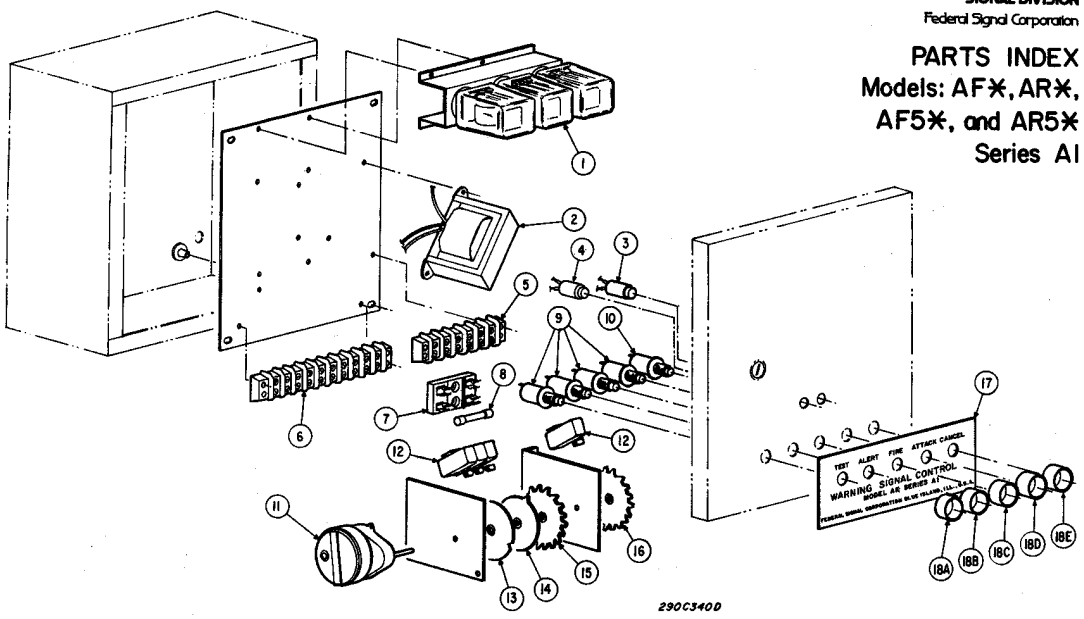
PARTS INDEX
Models: AF✱, AR✱, AF5✱, and AR5✱ Series AI



TIMERS

PPL 0060 PARTS LIST **Models : AF✱ , AR✱ , AF5✱ , and AR5✱** **DECEMBER 1985**

Item No.	Description	Part No.	AF✱	AR✱	AF5✱	AR5✱
1	Relay	8217A082	3	2	3	2
2	Transformer	8217A083	1	1	1	1
3	Motor Pilot Light Assembly	8217A087	1	1	1	1
4	Power Pilot Light Assembly	8217A213A	1	1	1	1
5	Terminal Block , 6 Terminal	8217A086	1	1	1	1
6	Terminal Block , 9 Terminal	8217A173	0	1	0	1
	Terminal Block , 10 Terminal	8217A085	1	0	1	0
7	Fuseholder	8217A091	1	1	1	1
8	Fuse , One Ampere	148A106	2	2	2	2
9	Switch , Red Push-button	8217A089	4	3	4	3
10	Switch , Black Push-button	8217A088	1	1	1	1
11	Motor	8217A084	1	1	0	0
	Motor	8217A240	0	0	1	1
12	Microswitch	8217A081	4	3	4	3
13	Cam Number 1	8217A092	1	1	0	0
	Cam Number 1	8217A241	0	0	1	1
14	Cam Number 2	8217A093	1	1	0	0
	Cam Number 2	8217A241	0	0	1	1
15	Cam Number 3	8217A094	1	1	0	0
	Cam Number 3	8217A243	0	0	1	1
16	Cam Number 4	8217A095	1	0	0	0
	Cam Number 4	8217A244	0	0	1	0
17	Nameplate , AF✱	8146A330	1	0	0	0
	Nameplate , AR✱	8146A331	0	1	0	0
	Nameplate , AF5✱	8146A803	0	0	1	0
	Nameplate , AR5✱	8146A802	0	0	0	1
18A	Switch Guard , Silver	8217A097-05	1	1	1	1
18B	Switch Guard , Blue	8217A097-03	1	1	1	1
18C	Switch Guard , Red	8217A097-01	1	0	1	0
18D	Switch Guard , Yellow	8217A097-02	1	1	1	1
18E	Switch Guard , Black	8217A097-04	1	1	1	1

DO NOT ORDER PARTS BY ITEM NUMBER . Give model , voltage , description , and part number .
Refer to PARTS PRICE LIST (Part No. 1001) for prices of parts.
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Figure 8. Models AF,AF5,AR and AR5 Parts Index.