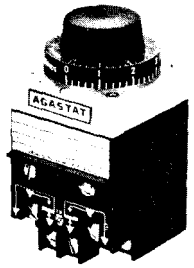
AGASTAT®

7000 Series timing relay
Models 7012, 7022, 7032
INSTALLATION AND OPERATION



Every AGASTAT timing relay is a precise timing instrument which balances pneumatic, electrical and mechanical forces in a unique design using a minimum of moving parts. Its accuracy and performance to specifications have been carefully tested before shipment. Properly applied, it offers exceptional life expectancy. A few minutes spent in familiarizing yourself with these instructions will help you get the best possible service from this unit in your application.

Because of the skilled calibration and adjustment required on certain components prior to final assembly, we recommend that field servicing be limited to the replacement of the switch-block and coil assemblies, listed below. These have been designed to insure factory-built performance after field servicing without elaborate calibration. In cases where damage or abuse make it impossible to restore satisfactory performance by replacing these assemblies, the unit should be returned to the factory for repair or replacement.

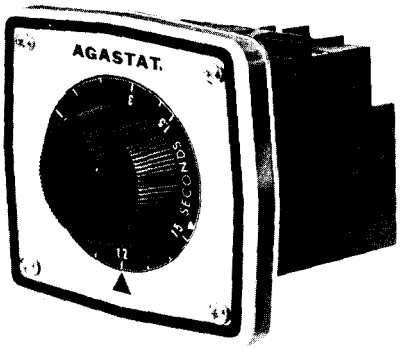
MOUNTING INSTRUCTIONS

A. VERTICAL

Normal mounting for the basic 7000 Series unit is in a vertical position, from the back of the panel. Four 8-32 tapped holes are provided in the back plate, making it interchangeable with earlier models. Mounting screws should not project more than 5/32" into the back of the unit, to prevent internal damage.

A bracket for mounting the unit from the front, and the screws required to attach it to the relay are also supplied with each unit. The bracket extends approximately 3/8" from each side of the unit.

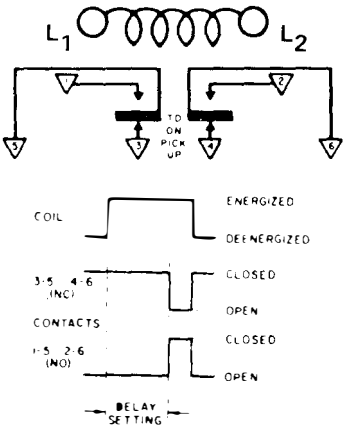
B. HORIZONTAL/PANELMOUNT



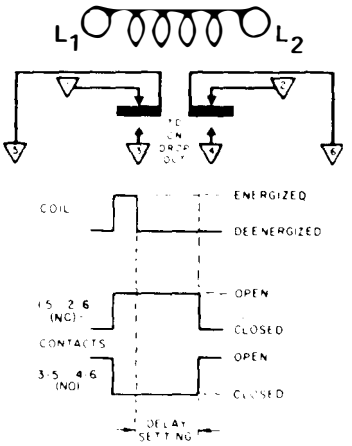
All basic 7000 Series units may be mounted horizontally. However, a dial calibration error (as much as 32% in some units) will result unless the timer is factory equipped with horizontal operation option X or Y1. A unit factory equipped with vertical-horizontal operation option Y2 will require the removal of the Position Compensation Spring in order to maintain accurate calibration. This spring may be removed after the removal of the plastic dust cover, which is fastened to the bottom of the timer with two screws. The dust cover must be replaced after removing the spring.

If the Panel Mounting Kit (option X) is added in the field to units not factory equipped with options Y1 or Y2, an error in dial calibration will result.

7012 SERIES



7022 SERIES



AUXILIARY SWITCH ADJUSTMENT

MODEL 7012

(INSTANT TRANSFER AUX. SWITCH (CODE L OR CODE LL)

Aux. switch should transfer immediately when relay coil is energized, and should reset shortly before solenoid core returns to its normal position, following deenergization. If it fails to reset before end of core's downword stroke, loosen screw in slotted hole of mounting bracket and move switch closer to terminal block.

TWO STEP AUX. SWITCH (CODE T)

Aux. switch contacts should transfer following first delay period after coil energization, and should reset shortly before core returns to its normal position, following coil deenergization. To increase first delay period, increase the distance between actuator screw head and arm by turning it clockwise, using 1/4" open end wrench.*

MODEL 7022

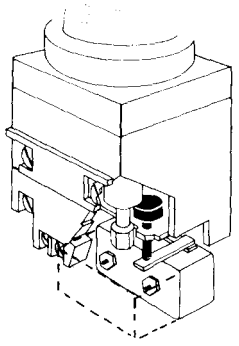
INSTANT TRANSFER AUX. SWITCH (CODE T)

Aux. switch should transfer immediately when relay coil is energized, and should reset shortly before spindle returns to its normal position, following deenergization. To increase aux. switch delay period, increase the distance between actuator screw head and arm by turning it clockwise, using 1/4" open end wrench.

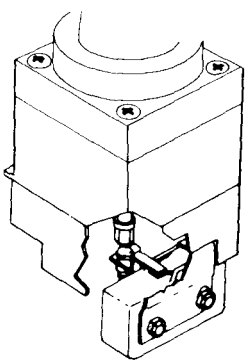
TWO STEP AUX. SWITCH (CODE T)

Check operation as for Instant Transfer, above. Increase first delay period by turning actuator screw clockwise until the desired delay before aux. switch transfer is reached.

*First delay is independently adjustable, but must be no more than 30% of overall delay. (Recommended max. 100 sec.)



CODE L & LL



CODE T

Coil Data

Coil Part Number	Code Letter	Rated Voltage @ 60 Hz	Operating Voltage Range @ 60 Hz	Rated Voltage @ 50 Hz	Operating Voltage Range @ 50 Hz
7000—	A	120	102 - 132	110	93.5 - 121
	B	240	204 - 264	220	187 - 242
	C	480	408 - 528		
	D	550	468 - 605		
	E	24	20.5 - 26.5		
	F			127	108 - 140
	G			240	204 - 264
	H	12	10.2 - 13.2		
	I	6	5.1 - 6.6		
	J	208	178 - 229		
	K	DUAL VOLTAGE COIL (COMBINES A & B)			

AC SPECIALS L1, L2, etc.

AC Coils (Part No. = 7000 followed by dash and code letter above)

Coil Part Number	Code Letter	Rated Voltage	Operating Voltage Range DC
7010—	M	28	22.5 - 33.5
	N	48	38.5 - 57.5
	O	24	19.2 - 28.8
	P	125	100 - 150
	Q	12	9.6 - 14.4
	R	60	48 - 74
	S	250	200 - 300
	T	550	440 - 660
	U	16	12.8 - 19.2
	V	32	25.6 - 38.4
	W	96	76.8 - 115
	Y	6	4.8 - 7.2
	Z	220	176 - 264

DC SPECIALS X1, X2, etc.

DC Coils (Part No. = 7010 followed by dash and code letter above)

All units draw approximately 8 watts power at rated voltage.

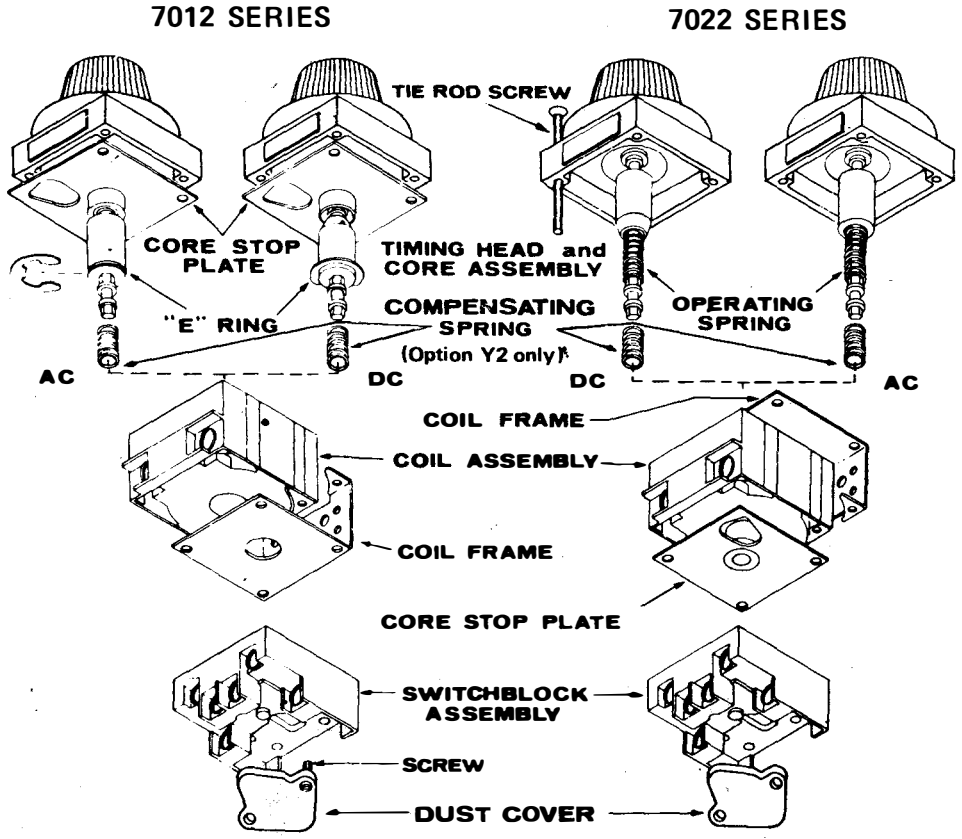
Minimum operating voltages are based on vertically mounted 7012 (on-delay) units. 7012 horizontally mounted or 7022 (off-delay) vertically or horizontally mounted units will operate satisfactorily at minimum voltages approximately 5% lower than those listed.

AC units drop out at approximately 50% of rated voltage DC units drop out at approximately 10% of rated voltage.

All units may be operated on intermittent duty cycle at voltages 10% above the listed maximums. (Intermittent duty—maximum 50% duty cycle and 30 minutes "on" time.)

REPLACING SWITCHBLOCK AND COIL ASSEMBLIES – MODEL 7012 AND 7022

Switchblock assemblies are universally interchangeable between all standard 7000 Series units. The same assembly is used for A C and D C models for delay on pull-in or delay on dropout service. Neither timing head/core assembly nor coil assembly is interchangeable between A C and D C models.

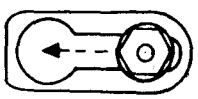


REMOVING SWITCHBLOCK

(Before disassembling unit: Slice decal on right side of unit with razor blade between switchblock and coil assembly.)

1. Remove four tie rod screws.
2. Hold timing head and coil assembly in one hand, switchblock in the other.
3. Slide switchblock 1/2" forward of coil assembly to center spindle in large end of keyhole slot in switch blade. (See diagram A).
4. Slowly lift timing head and coil assembly off switchblock, being careful to keep spindle collar away from switchblade while withdrawing it.

REVERSE THIS PROCEDURE TO INSTALL NEW SWITCHBLOCK.



A

REMOVING COIL

Follow steps 1 to 4 above, then:

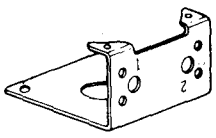
5. Remove timing head and core assembly. (On Model 7022 units the core stop plate and operating spring are loose pieces, located below the core rather than attached to the timing head and core assembly, as on the Model 7012 units. These two pieces should be removed before removing the coil frame, to prevent loss of the loose spring.)

7012 models require removal of "E" ring from core to permit removing core from coil.

6. Slide off coil frame.

When installing new coil, be sure to replace coil frame with proper side up. Number "1" on back of frame should be up on 7012 (Delay on Pull-in) Models, Number "2" should be up on 7022 (Delay on Drop-out) Models. See Diagram B.

On 7012 models, replace "E" ring in core slot after assembling coil frame to coil.



B

REPLACEMENT ASSEMBLIES

	Part No.
AC Coil Assembly	7000-*
DC Coil Assembly	7010-*
Switchblock Assembly	700030
Auxiliary Switch Kit (Code L)	700047
Auxiliary Switch Kit (Code T)	700121
Auxiliary Switch Kit (Code LL)	700048

*Specify voltage with code letter.

LINEAR TIMING RANGES

Time Range Code	Models 7012, 7022	Model 7032
A	.1 to 1 Sec.	.2 to 2 Sec.
B	.5 to 5 Sec.	.7 to 7 Sec.
C	1.5 to 15 Sec.	2 to 20 Sec.
D	5 to 50 Sec.	10 to 100 Sec.
E	20 to 200 Sec.	30 to 300 Sec.
F	1 to 10 Min.	1.5 to 15 Min.
H	3 to 30 Min.	3 to 30 Min.
I	6 to 60 Min.	Not avail.
J	3 to 120 Cyc.	Not avail.
K	1 to 300 Sec.	Not.avail.

Basic models are furnished with dials calibrated in linear increments covering the range selected. In addition, time-calibrated ranges B through K provide non-linear adjustment from .2 second to the beginning of the linear zone. For easiest adjustment and lowest cost, the shortest time range suitable for the application should be selected.

*Models 7014, 7031 and 7032 are available with letter calibrated dials only. The upper end of the time ranges in these models may be twice the values shown.

CONTACT RATINGS

Contact Capacity in Amperes (Resistive Loads)

Contact Voltage	Min. 100,000 Operations	Min. 1,000,000 Operations
30 vdc	15.0	7.0
110 vdc	1.0	0.5
120 v 60 Hz	20.0	15.0
240 v 60 Hz	20.0	15.0
480 v 60 Hz	12.0	10.0

Contact Ratings as listed under the UL Component Recognition Program for 100,000 operations:

10 Amps Resistive, 240 VAC
¼ Horsepower, 120 VAC/240 VAC
15 Amps. 30 VDC
5 Amps., General Purpose, 600 VAC
} Per Pole

WARRANTY

The AGASTAT timing relay is warranted against mechanical and electrical defects for a period of one year from date of shipment from factory if it has been installed and used in accordance with factory recommendations. New parts will be furnished free of charge in exchange for parts which have proven defective. The furnishing of these parts shall constitute fulfillment of the Company's obligations and liabilities.

FOR REPAIR SERVICE

Return defective units to:

CONTROL PRODUCTS DIVISION
AMERACE CORPORATION
1000 Hickory Street
Grafton, Wisconsin 53024

ATTENTION: Product Service Department

CONTROL PRODUCTS DIVISION
Amerace Corporation
Control Products Division
2330 Vauxhall Road
Union, New Jersey 07083

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| = Revised since last printing.