

**FAMOUS**



**PRODUCTS**



**TEMPERATURE  
CONTROLS**

**RELAYS**

**THERMOMETERS**

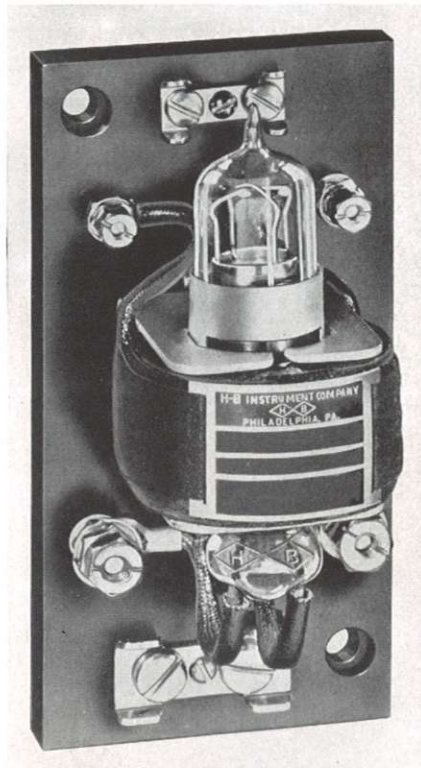
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**CATALOG No. 14**

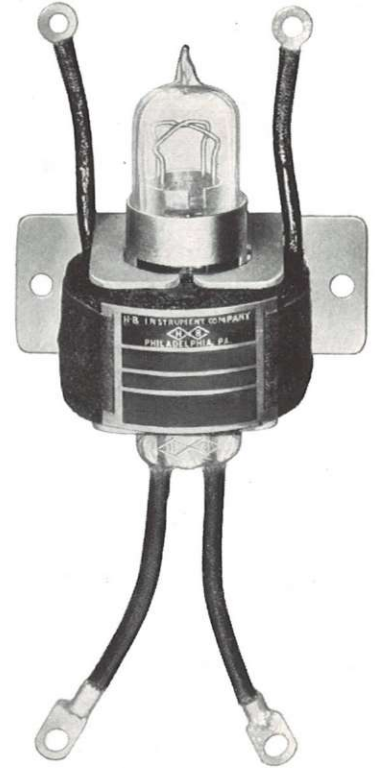
# NORMALLY OPEN RELAYS



**FIG. 1**  
 MERCURY PLUNGER  
 TUBE



**FIG. 2**  
 BAKELITE BASE 2½" x 5" x ⅜" WITH  
 CONVENIENT THRU TERMINALS



**FIG. 3**  
 SWITCH BOARD MOUNTED UNIT.  
 MOUNTING HOLES ON 2⅜" CENTERS

CATALOG NUMBER	MOUNTING	LOAD CIRCUIT	LOAD RATING IN AMPERES				COIL VOLTAGE	UNIT LIST PRICE
			AC		DC			
			110	220	115	230		
7000	Fig. 1	Normally open	30	20			\$ 6.50	
7010	Fig. 1	"			5	2½	6.50	
7020	Fig. 2	"	30	20		110/60	14.00	
7030	Fig. 2	"	30	20		220/60	14.00	
7040	Fig. 2	"	30	20		115 DC	14.00	
7050	Fig. 2	"			5	2½	14.00	
7060	Fig. 2	"			5	2½	14.00	
7070	Fig. 2	"			5	2½	14.00	
7080	Fig. 3	"	30	20		110/60	12.00	
7090	Fig. 3	"	30	20		220/60	12.00	
7100	Fig. 3	"	30	20		115 DC	12.00	
7110	Fig. 3	"			5	2½	12.00	
7120	Fig. 3	"			5	2½	12.00	
7130	Fig. 3	"			5	2½	12.00	



# NORMALLY OPEN RELAYS

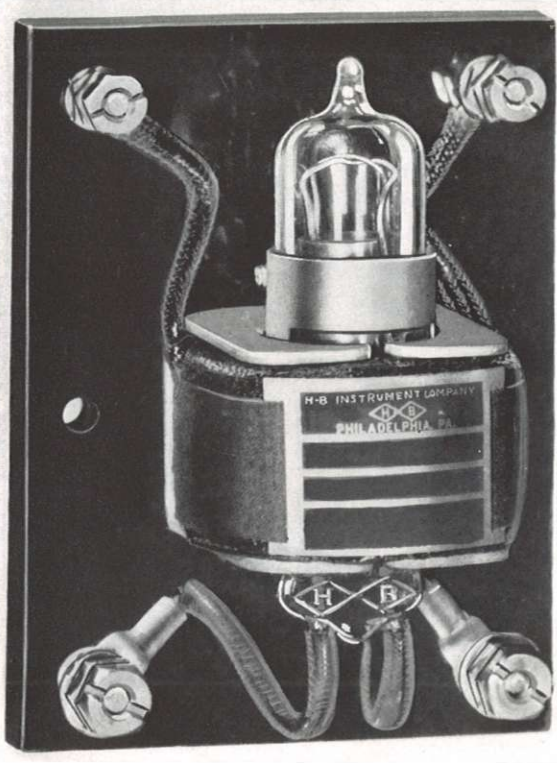


FIG. 4

ALTERNATE OF FIG. 2. BASE 3" x 4" x 3/8". COIL AND LOAD TERMINALS READILY ACCESSIBLE

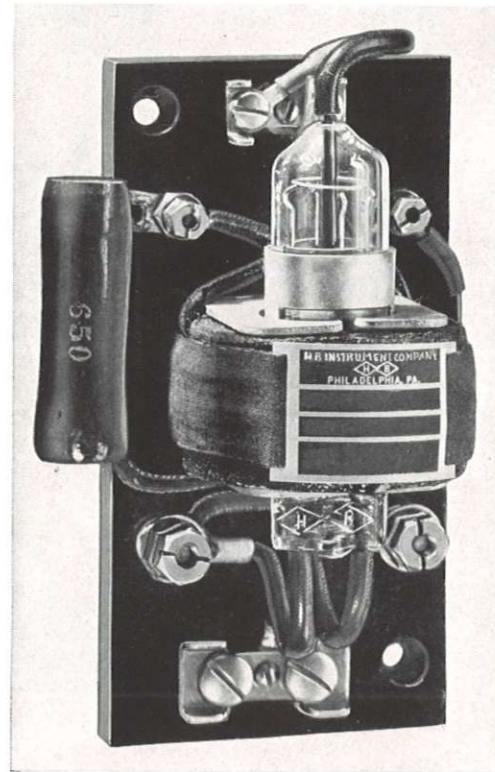


FIG. 5

This electric lock-up type relay is for use with a three wire high, low and common thermostat. It also can be used with off and on push button control. The features of this relay include no voltage release.

CATALOG NUMBER	MOUNTING	LOAD CIRCUIT	LOAD RATING IN AMPERES				COIL VOLTAGE	UNIT LIST PRICE
			AC		DC			
			110	220	115	230		
7140	Fig. 4	Normally open	30	20			110/60	\$14.00
7150	Fig. 4	"	30	20			220/60	14.00
7160	Fig. 4	"	30	20			115 DC	14.00
7170	Fig. 4	"			5	2½	110/60	14.00
7180	Fig. 4	"			5	2½	220/60	14.00
7190	Fig. 4	"			5	2½	115 DC	14.00
7200	Fig. 5	"	30				110/60	22.00
7210	Fig. 5	"		20			220/60	22.00
7220	Fig. 5	"			10		115 DC	22.00

# NORMALLY CLOSED RELAYS



FIG. 6  
 MERCURY  
 PLUNGER  
 TUBE

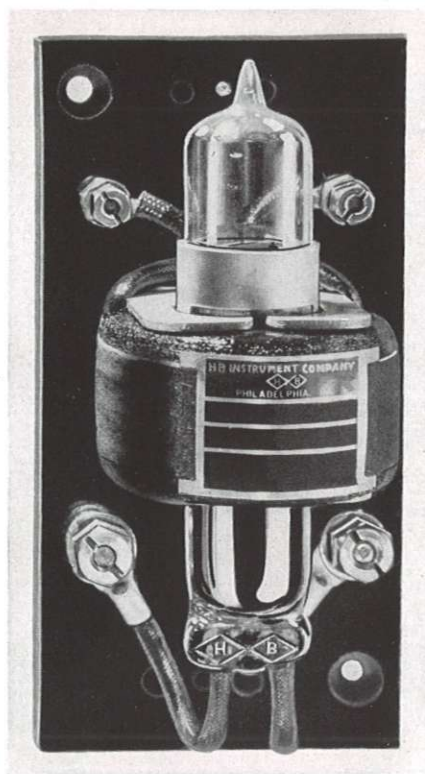


FIG. 7  
 BAKELITE BASE MODEL. BASE 2 1/2" x 5" x 3/8"  
 WITH CONVENIENT THRU TERMINALS

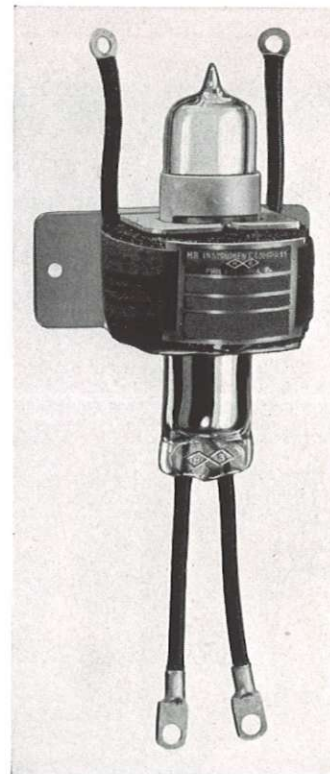


FIG. 8  
 SWITCHBOARD MODEL.  
 MOUNTING HOLES ON 2 3/8"  
 CENTERS

CATALOG NUMBER	MOUNTING	LOAD CIRCUIT	LOAD RATING IN AMPERES				COIL VOLTAGE	UNIT LIST PRICE
			AC		DC			
			110	220	115	230		
7230	Fig. 6	Normally closed	30	20			\$ 7.50	
7240	Fig. 6	"			5	2 1/2	7.50	
7250	Fig. 7	"	30	20		110/60	15.00	
7260	Fig. 7	"	30	20		220/60	15.00	
7270	Fig. 7	"	30	20		115 DC	15.00	
7280	Fig. 7	"			5	2 1/2	110/60	15.00
7290	Fig. 7	"			5	2 1/2	220/60	15.00
7300	Fig. 7	"			5	2 1/2	115 DC	15.00
7310	Fig. 8	"	30	20		110/60	13.00	
7320	Fig. 8	"	30	20		220/60	13.00	
7330	Fig. 8	"	30	20		115 DC	13.00	
7340	Fig. 8	"			5	2 1/2	110/60	13.00
7350	Fig. 8	"			5	2 1/2	220/60	13.00
7360	Fig. 8	"			5	2 1/2	115 DC	13.00



# INCLOSED RELAYS

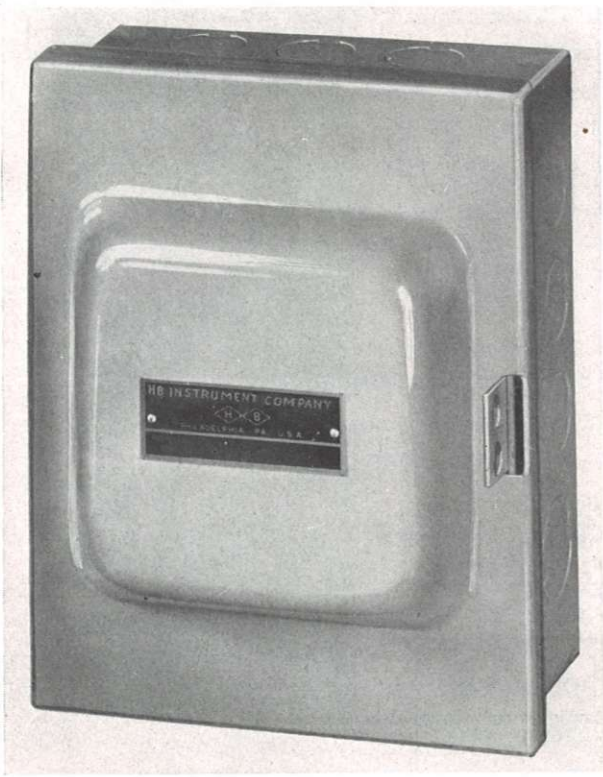


FIG. 9

Furnished in hinged cover housing. Size 6 3/4" x 5 1/4" x 3 1/2". Knockouts on four sides.

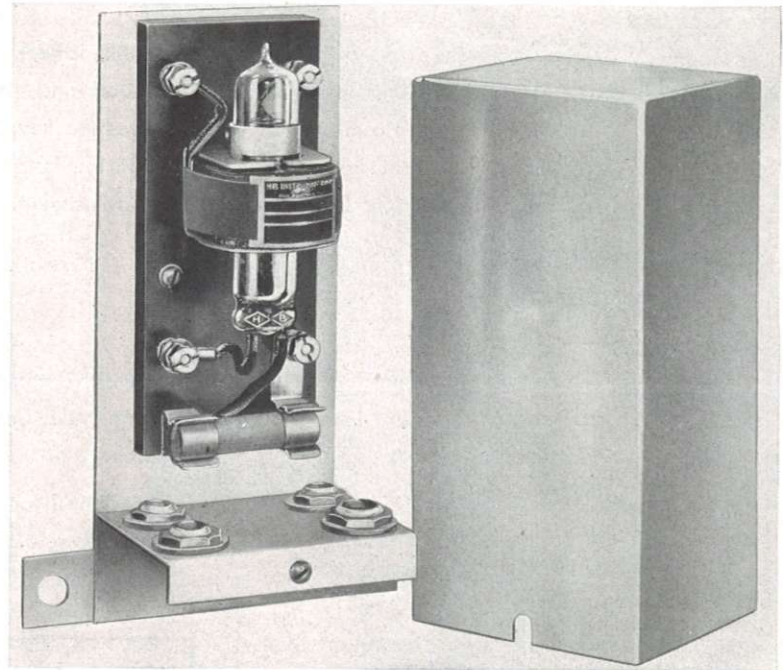


FIG. 10

Multiple street lighting relay. Two-piece weather proof housing for pole mounting. Contact is mercury-to-mercury with a fuse in the load circuit. Connections are made to convenient terminals on the bakelite base.

CATALOG NUMBER	MOUNTING	LOAD CIRCUIT	LOAD RATING IN AMPERES				COIL VOLTAGE	UNIT LIST PRICE
			AC		DC			
			110	220	115	230		
7370	Fig. 9	Normally open	30	20			110/60	\$18.50
7380	Fig. 9	"	30	20			220/60	18.50
7390	Fig. 9	"	30	20			115 DC	18.50
7400	Fig. 9	"			5	2 1/2	110/60	18.50
7410	Fig. 9	"			5	2 1/2	220/60	18.50
7420	Fig. 9	"			5	2 1/2	115 DC	18.50
7430	Fig. 9	Normally closed	30	20			110/60	19.50
7440	Fig. 9	"	30	20			220/60	19.50
7450	Fig. 9	"	30	20			115 DC	19.50
7460	Fig. 9	"			5	2 1/2	110/60	19.50
7470	Fig. 9	"			5	2 1/2	220/60	19.50
7480	Fig. 9	"			5	2 1/2	115 DC	19.50
7490	Fig. 10	Normally open	30	20			110/60	40.00
7500	Fig. 10	"			5	2 1/2	110/60	40.00
7510	Fig. 10	Normally closed	30	20			110/60	42.00
7520	Fig. 10	"			5	2 1/2	110/60	42.00

# Red-Top THERMO-REGULATORS—

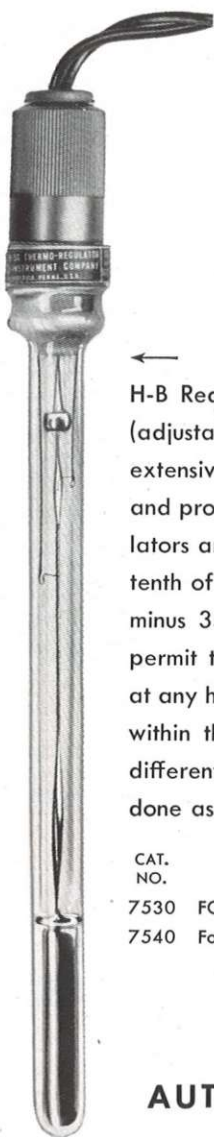


FIG. 11

Response by industry and scientific laboratories to the Red-Top Thermo-regulator, developed and patented (92351) by this company's engineers, was the result not only of the inherent operating accuracy of the instrument but of the provisions for setting and of readjustment.

H-B Red Top Thermo-Regulators (adjustable thermostats) are used extensively in both laboratory and production equipment. Regulators are sensitive to within one-tenth of 1° F. through a range of minus 35° to plus 350° F. They permit the operator to set them at any holding temperature point within their range. Resetting to different holding points may be done as frequently as desired.

CAT. NO.	UNIT LIST PRICE
7530 FOR heating cycle.....	\$28.00
7540 For cooling cycle.....	28.00

This sensitive normally closed relay, for heating cycle, has mercury-to-mercury contacts.

It is designed for use only with a sensitive mercury-to-tungsten regulator as shown in Fig. 11.

CAT. NO.	LOAD	COIL VOLTAGE	UNIT LIST PRICE
7550	30 amps. 110/60 20 amps. 220/60	110/60	\$21.00
7560	30 amps. 110/60 20 amps. 220/60	220/60	21.00
7570	5 amps. 115/DC	115/DC	21.00

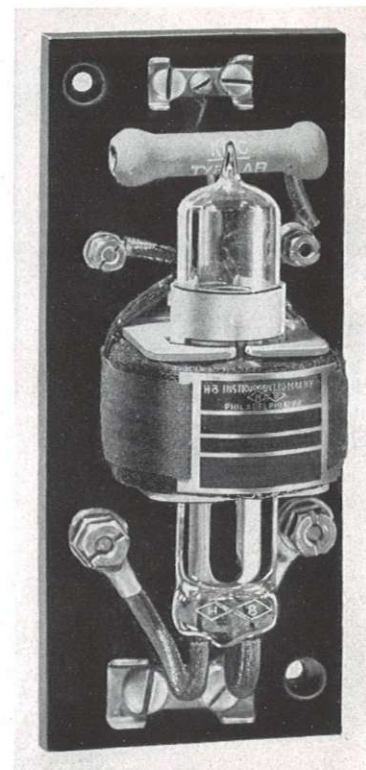


FIG. 12  
 MERCURY PLUNGER RELAY

## AUTOMATIC OVER-TEMPERATURE CUT-OUT WITH MANUAL RESET

This is an auxiliary, single pole, single throw-switch without the temperature controlling mechanism. It is designed for use on portable sterilizers and as a safety device on many appliances where limiting controls are desirable. It will automatically cut off all current and lock the switch in an open position whenever the temperature exceeds the limit set by the pointer indicator. The circuit is made through the contacts of the limiting device by pushing in on the manually oper-

ated re-set button. The contact is made and held in place by a locking device, or safety catch, which is not disturbed until temperature exceeds the limit set.

Furnished with standard 36" capillary tube. Load circuit capable of handling 30 amperes to 125 volts A.C., 20 amperes at 250 volts A.C. and 10 amperes at 115 volts D.C.

CAT. NO.	RANGE	UNIT LIST PRICE
7580	60-250°F.....	\$25.00
7590	200-550°F.....	25.00



FIG. 13



# AND NEW SENSITIVE H-B MERCURY PLUNGER RELAYS

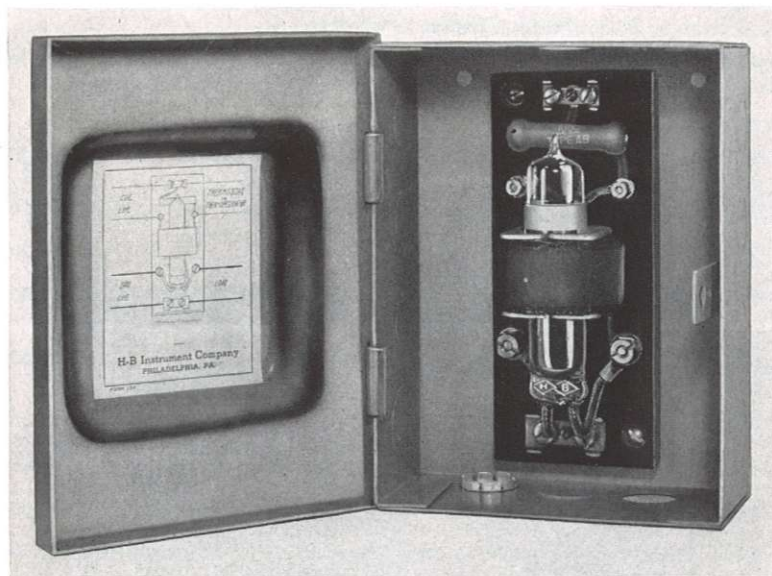


FIG. 14

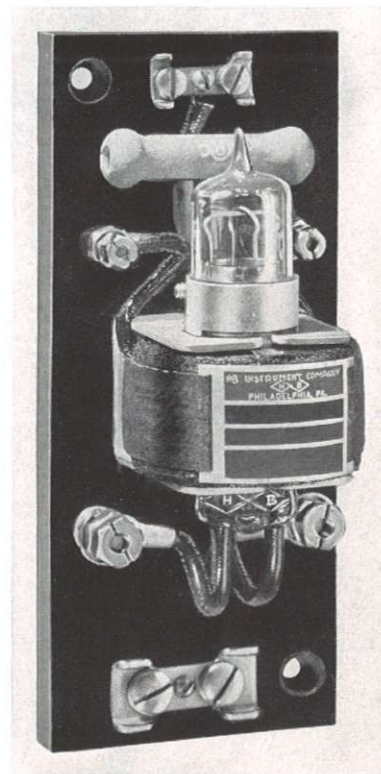


FIG. 15

CATALOG NUMBER	MOUNTING	LOAD CIRCUITS	LOAD RATING IN AMPERES				COIL VOLTAGE	UNIT LIST PRICE
			AC		DC			
			110	220	115	230		
7600	Fig. 14	NORMALLY CLOSED HEATING CYCLE	30	20			110/60	\$27.00
7610	Fig. 14	"	30	20			220/60	27.00
7620	Fig. 14	"	30	20			115 DC	27.00
7630	Fig. 14	"			5	2½	110/60	27.00
7640	Fig. 14	"			5	2½	220/60	27.00
7650	Fig. 14	"			5	2½	115 DC	27.00
7660	Fig. 14	NORMALLY OPEN COOLING CYCLE	30	20			110/60	26.00
7670	Fig. 14	"	30	20			220/60	26.00
7680	Fig. 14	"	30	20			115 DC	26.00
7690	Fig. 14	"			5	2½	110/60	26.00
7700	Fig. 14	"			5	2½	220/60	26.00
7710	Fig. 14	"			5	2½	115 DC	26.00
7720	Fig. 15	"	30	20			110/60	20.00
7730	Fig. 15	"	30	20			220/60	20.00
7740	Fig. 15	"	30	20			115 DC	20.00
7750	Fig. 15	"			5	2½	110/60	20.00
7760	Fig. 15	"			5	2½	220/60	20.00
7770	Fig. 15	"			5	2½	115 DC	20.00

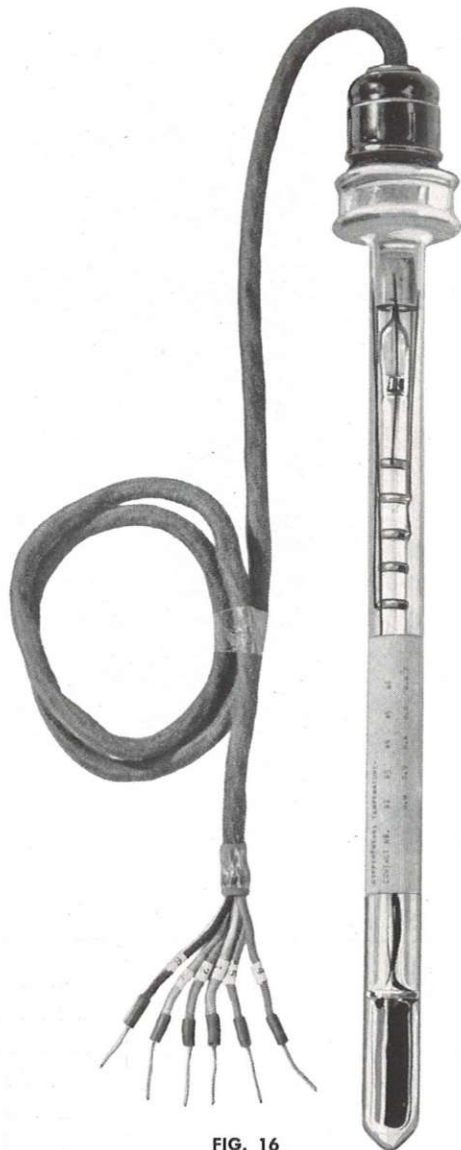


FIG. 16

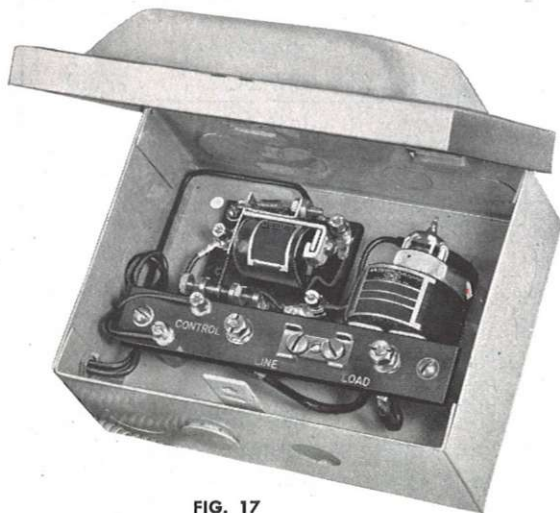


FIG. 17

# MULTI-CONTACT THERMO-REGULATORS

Rapid change from one *holding temperature* to another in either temporary or permanent installations.

Rapid change from one *application* to another.

Functional accuracy about 1/10° F. at each contact. Contacts can be placed as close together as 1° F., or as far apart as 100° F. or more.

CATALOG NO.	CONTACTS	CONTROL	UNIT LIST PRICE
7780	Common and 3 operating spaced 1° F. apart.	Heating cycle.....	\$50.00
7790	Common and 3 operating spaced 1° F. apart.	Cooling cycle.....	50.00
7800	Common and 3 operating spaced more than 1° F. apart (to be specified).	Heating cycle.....	60.00
7810	Common and 3 operating spaced more than 1° F. apart (to be specified).	Cooling cycle.....	60.00
7820	Common and 4 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	70.00
7830	Common and 5 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	80.00
7840	Common and 6 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	90.00
7850	Common and 7 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	100.00
7860	Common and 8 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	110.00
7870	Common and 9 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	120.00
7880	Common and 10 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	130.00
7890	Common and 11 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	140.00
7900	Common and 12 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	150.00
7910	Common and 13 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	160.00
7920	Common and 14 operating contacts spaced 1° F. apart or more.	Specify temperature control levels.	170.00

This unit can be furnished with 3 to 14 operating contacts as required. Each operating contact and the common are wired to a terminal in the head assembly which has a removable cap and cable. The free end of the cable can be connected directly to sensitive relays specially designed for use with this instrument or to a dial type selector switch. When the selector switch is used any one of the operating contacts of the thermo-regulator may be selected by merely turning the knob of the dial to the desired location.

This all-purpose sensitive relay set operates with a control current of approximately 2 milliamperes at 110 volts or 220 volts A.C. The load circuit is operated through a mercury plunger relay which has mercury-to-mercury contacts insuring extra long life with the most severe operating conditions. The relay set has a convenient terminal block which is engraved for simplicity in installation. Furnished as shown in a hinged cover metal housing, 7" wide, 5 1/4" high and 3 1/2" deep.

CATALOG NUMBER	MOUNTING	LINE VOLTAGE	LOAD IN AMPERES	UNIT LIST PRICE
7930	Fig. 17	110/60	30	\$40.00
7940	Fig. 17	220/60	20	40.00

Other voltages and frequencies can be furnished at \$4.00 list additional.





# COMPLEMENTARY RELAYS AND SELECTOR SWITCHES

A self-contained, sensitive instrument ready for use with thermostats and thermo-regulators to operate signal lights, warning bells, solenoid valves, small immersion heaters, etc. The control current is 2 milliamperes at 110 volts or 220 volts A.C. Unit is mounted on a (00" x 00") bakelite base. Relay contacts are single pole, double throw and can be connected for either heating or cooling cycle.

CATALOG NO.	MOUNTING	LINE VOLTAGE	LOAD IN AMPERES	UNIT LIST PRICE
7950	Fig. 18	110/60	2	\$14.00
7960	Fig. 18	220/60	1	14.00

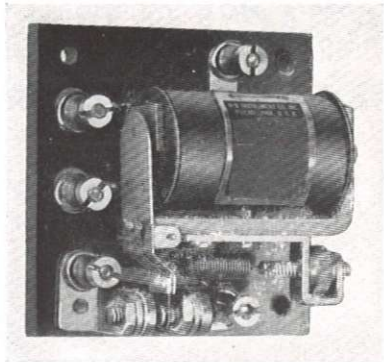


FIG. 18

Same instrument as ST except that it is mounted in a 4" square metal housing. This model was designed primarily where dust and dirt persist. For your convenience a wiring diagram is attached to the inside cover of each relay.

CAT. NO.	MOUNTING	LINE VOLTAGE	LOAD IN AMPERES	UNIT LIST PRICE
7970	Fig. 19	110/60	2	\$16.00
7980	Fig. 19	220/60	1	16.00

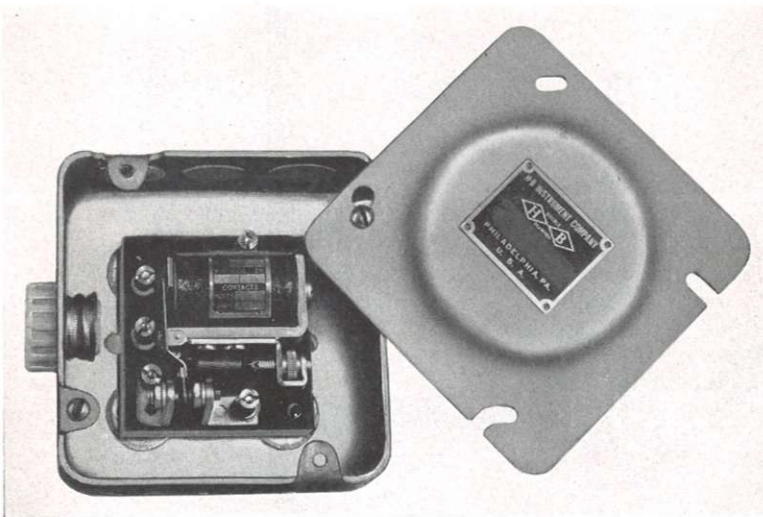


FIG. 19

When it is necessary to use a relay around hazardous vapors or extremely bad atmospheric conditions we recommend the use of explosion-proof housing. The relay is the same as Fig. 18.

CAT. NO.	MOUNTING	LINE VOLTAGE	LOAD IN AMPERES	UNIT LIST PRICE
7990	Fig. 20	110/60	2	\$28.00
7800	Fig. 20	220/60	1	28.00

Other voltages and frequencies can be furnished at \$1.00 list additional.

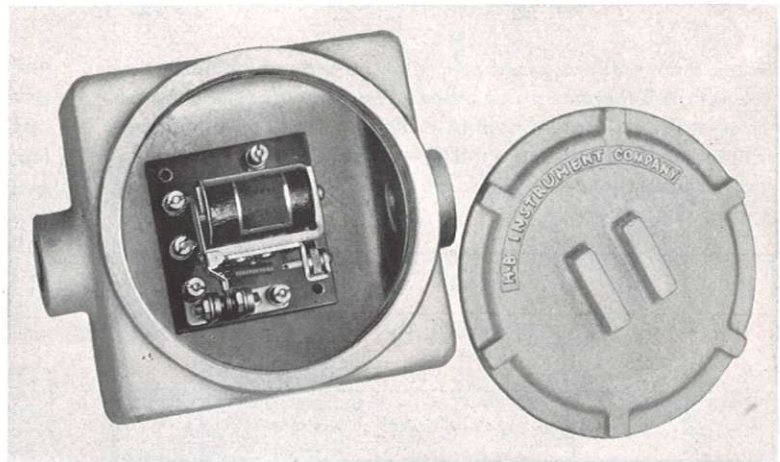


FIG. 20

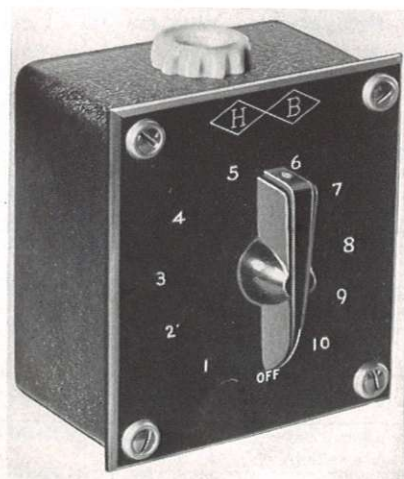


FIG. 21

This rotary selector switch is compact, rugged and has low contact resistance due to silver-to-silver contact. These high grade switches have break-before-make contacts. The unit is mounted in a black finished aluminum box 3 1/2" x 4" x 2" deep. The face of the bakelite panel is engraved for permanent visibility and ease of selection.

CATALOG NUMBER	MOUNTING	CONTACT POSITIONS	UNIT LIST PRICE
7810 A	Fig. 21	Off 1 to 10 incl.	\$20.00
7820 A	Fig. 21	Off 1 to 15 incl.	24.00

# ANGLE THERMOMETERS, THERMOSTATS

For use in the RADIO BROADCASTING FIELD, LABORATORIES

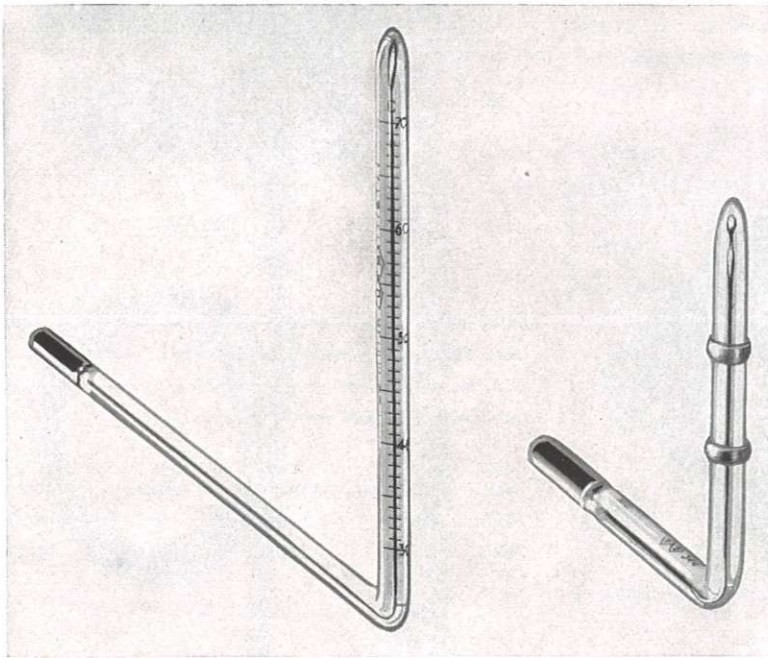


FIG. 22

FIG. 23

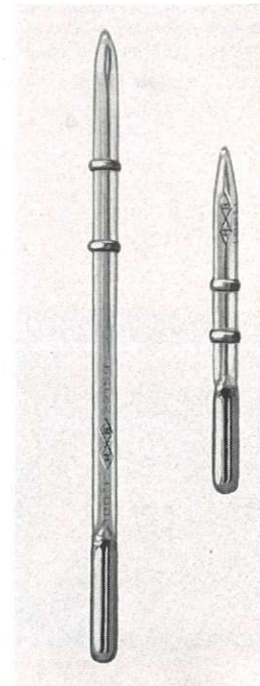


FIG. 24 AND 25

Angle thermometers, mercury-in-glass, designed primarily for use with H-B thermostats or thermo-regulators for the purpose of crystal temperature control in Radio Broadcasting. These instruments are stocked in the following ranges which are most frequently used but can be furnished in other sizes and ranges if necessary.

CAT. NO.	STYLE	RANGE	DIMENSIONS	UNIT LIST PRICE
7830 A	Fig. 22	30° to 70° C., 1° divisions	Upper stem 4 1/2" Lower stem 7" Diameter 1/4"	\$10.00
7840 A	Fig. 22	48° to 52° C., 1/10° divisions	Upper stem 4 1/2" Lower stem 7" Diameter 1/4"	12.00
7850 A	Fig. 22	58° to 62° C., 1/10° divisions	Upper stem 4 1/2" Lower stem 7" Diameter 1/4"	12.00

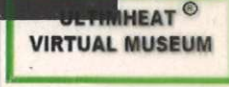
## THERMOSTATS

High precision type mercury-in-glass thermostats can be furnished as shown having round smooth contact bands for clip mounting or if specified will be furnished with 6" leads having closed terminals. These thermostats can be set to operate at any temperature between approximately minus 30 to +200° C. (-30 to +400° F.) and hold a specified tempera-

ture to as close as 0.01° C. Please note that these thermostats are not adjustable in the field so when ordering specify operating temperature desired and whether F. or C.

For your convenience we stock the following ranges but can assure prompt delivery on any other operating temperature within the scope of this style instrument due to the fact that H-B has a large stock of prefabricated thermostats ready to be finished for your requirements. With the use of our thermostats we suggest a specially designed relay either series 7930 or 7950 depending upon your load current.

CAT. NO.	STYLE	FIXED TEMPERATURE	DIMENSIONS	PRICE
7860 A	Fig. 23	50° C.	90° angle 3 1/4" x 3 1/4" x 1/4" dia.	\$18.00
7870 A	Fig. 23	60° C.	90° angle 3 1/4" x 3 1/4" x 1/4" dia.	18.00
7880 A	Fig. 23	Specify desired temperature setting	90° angle 3 1/4" x 3 1/4" x 1/4" dia.	18.00
7890 A	Fig. 24	50° C.	Straight form 6" overall	14.00
7900 A	Fig. 24	60° C.	Straight form 6" overall	14.00
7910 A	Fig. 24	Specify desired temperature setting	Straight form 6" overall	14.00
7920 A	Fig. 25	Specify desired temperature setting	Straight form 3 3/8" overall	12.00



# ... AND THERMO-REGULATORS

or wherever PRECISE TEMPERATURE CONTROL IS REQUIRED

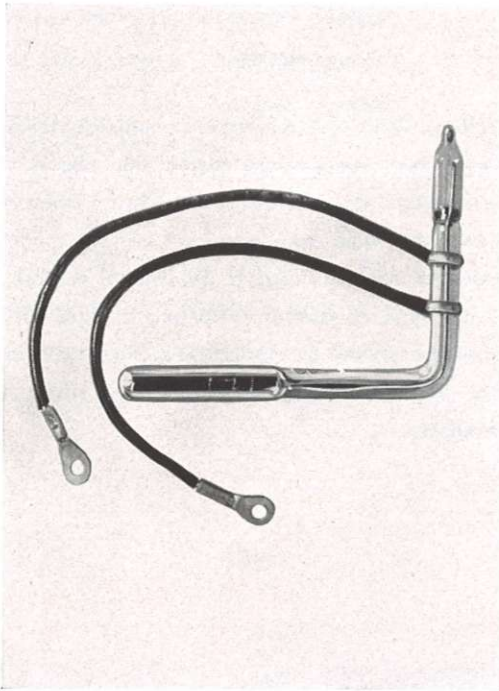


FIG. 26

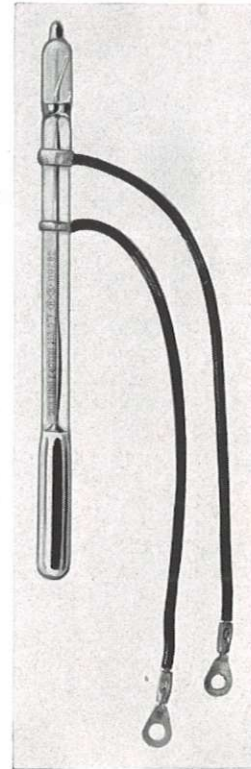


FIG. 27

## ADJUSTABLE FOR DESIRED HIGHER THAN NORMAL TEMPERATURES

CATALOG NUMBER	FIG.	SIZE	UNIT LIST PRICE
7930 <i>A</i>	26	4½" x 4½" Angle.....	\$24.00
7940 <i>A</i>	27	6" overall, straight.....	20.00

Accurate and dependable control of crystal temperatures is essential to good broadcasting. The conditions under which the control instruments must function are frequently not conducive to either accuracy or long life. Vibration and shock are the rule rather than the exception.

As a consequence, H-B radio temperature control and indicating instruments are not only designed to operate with all the accuracy for which the Double Diamond mark is noted; they are also constructed to maintain their accuracy under the most trying conditions.

Years of successful experience in the field of accurate temperature control are the basis for the enviable position that H-B instruments hold in the radio field.

Although these thermoregulators were primarily designed for the Radio field, they are also adopted to many other applications.

# DIFFERENTIAL TEMPERATURE CONTROLS

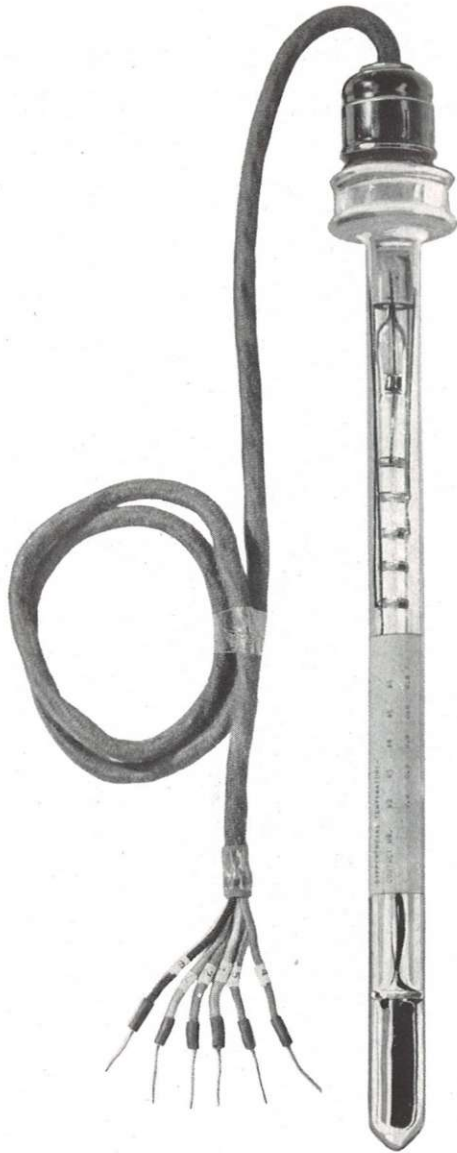


FIG. 28

For applications where it is desirable to maintain temperatures between two temperature points the above multi-contact thermo-regulator can be used. The common is the contact nearest the bulb and any 2 of the other contacts may be selected for obtaining a differential control temperature. This type of control instrument is ideal for preventing unnecessary wear on equipment such as compressors, motors, etc. See thermo-regulators listed on page 8 for types and prices.



When multi-contact thermo-regulators as shown above are used for differential temperature control this differential type relay must be used. Size of housing is 7<sup>7</sup>/<sub>8</sub>" x 5<sup>3</sup>/<sub>4</sub>" x 3<sup>3</sup>/<sub>4</sub>". For convenience a wiring diagram is furnished with each set.

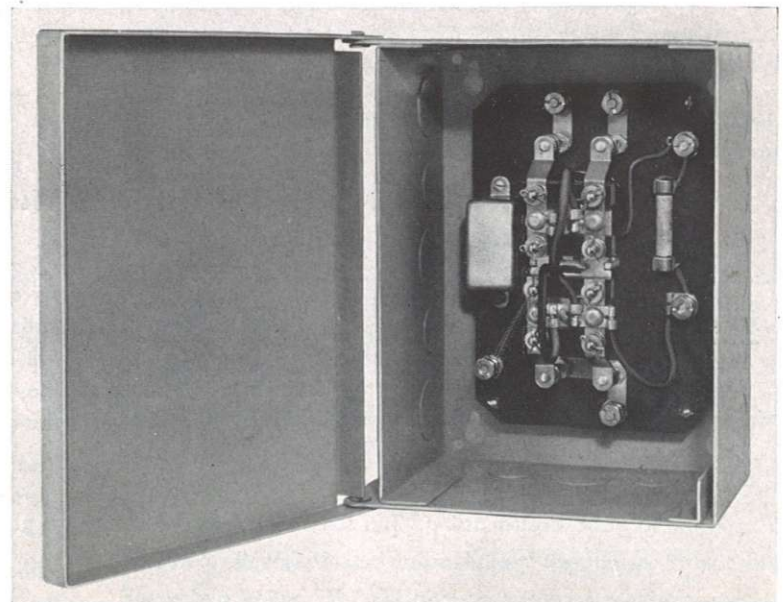


FIG. 29

CAT. NO.	MOUNTING	LINE VOLTAGE	LOAD AMPERES	PRICE
7950 A	Fig. 29	110/60	30	\$40.00



Shown at the right is a mercury plunger relay panel built to customer's specification. This is only a sample of what H-B can furnish for you.

Mercury plunger relays for use on 440 volts 60 cycles are available for loads up to 5 amperes. Coils are available from the low voltage series type to the high voltage potential type.

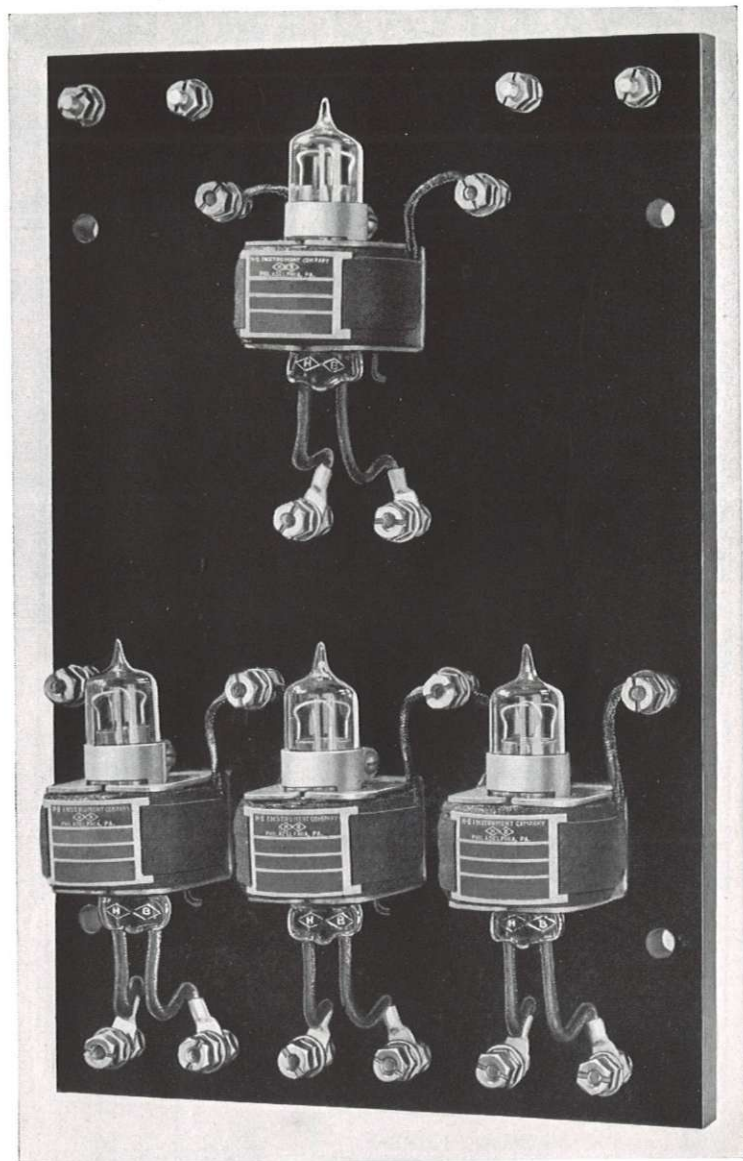


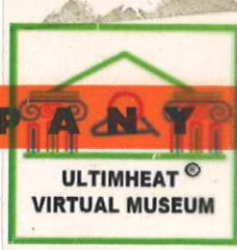
FIG. 30

## ANSWERING INDIVIDUAL NEEDS

Most of the materials listed in this catalog are carried in stock at all times. The variety as shown is such as to satisfy nearly every need for accurate temperature control.

If, however, materials to fill your requirements exactly are

not here listed, get in touch with us immediately. We may have new equipment, unlisted as yet, that will answer your problem . . . or we can, as not infrequently happens, design especially to suit individual needs. In any case, we will serve your best interests.



# STANDARD LABORATORY GRADE

## ENGRAVED STEM THERMOMETERS, Note 1

STOCK RANGES	DIVISIONS	LENGTH		CATALOG NO.	IMMERSION	UNIT LIST PRICE
		IN.	MM.			
Minus 120 to +50° C.	1°	12	305	20010	Total	\$15.00
Minus 80 to +50° C.	1°	12	305	20020	Total	12.00
Minus 60 to +50° C.	1°	12	305	20025	Total	8.00
<b>MERCURY-IN-GLASS</b>						
Minus 35 to +50° C.	1°	12	305	20040	Total	3.60
Minus 15 to +110° C.	1°	12	305	20060	Total	3.60
Minus 10 to +150° C.	1°	12	305	20070	Total	3.60
0 to 200° C.	1°	12	305	20080	Total	4.80
0 to 315° C.	1°	15	381	20090	Total	5.40
0 to 400° C.	1°	15	381	20100	Total	7.20
Minus 35 to +50° C.	1°	12	305	20120	76 mm.	3.60
Minus 15 to +110° C.	1°	12	305	20140	76 mm.	3.60
Minus 10 to +150° C.	1°	12	305	20150	76 mm.	3.60
0 to 200° C.	1°	12	305	20160	76 mm.	4.80
Minus 5 to +315° C.	1°	15	381	20170	76 mm.	5.40
Minus 5 to +400° C.	1°	16	406	20180	76 mm.	7.20
0 to 540° C.†	2°	16	406	20194	76 mm.	14.40
Minus 30 to +120° F.	1°	12	305	20200	Total	3.60
0 to 230° F.	2°	12	305	20220	Total	3.60
0 to 300° F.	2°	12	305	20230	Total	3.60
+30 to 400° F.	2°	12	305	20240	Total	4.80
+30 to 600° F.	2°	15	381	20250	Total	5.40
+30 to 760° F.	2°	15	381	20260	Total	7.20
Minus 30 to +120° F.	1°	12	305	20280	3"	3.60
0 to 230° F.	2°	12	305	20300	3"	3.60
+20 to 300° F.	2°	12	305	20310	3"	3.60
+20 to 400° F.	2°	12	305	20320	3"	4.80
+20 to 600° F.	2°	15	381	20330	3"	5.40
+20 to 760° F.	2°	16	406	20340	3"	7.20
+30 to 1000° F.†	5°	16	406	20355	3"	14.40
Minus 35 to +30° C.	1/10°	15	381	20360	Total	12.00
Minus 1 to +50° C.	1/10°	15	381	20370	Total	12.00
+49 to 105° C.*	1/10°	15	381	20380	Total	15.00
Minus 1 to +105° C.	1/5°	15	381	20390	Total	12.00
+99 to 200° C.*	1/5°	15	381	20400	Total	15.00
+200 to 300° C.*	1/5°	15	381	20410	Total	15.00
Minus 1 to +201° C.	1/2°	15	381	20420	Total	12.00
+200 to 360° C.*	1/2°	15	381	20430	Total	15.00
Minus 1 to 101° C.	1/10°	24	610	20440	Total	18.00
Minus 5 to 200° C.	1/10°	24	610	20450	Total	18.00
Minus 30 to +90° F.	1/5°	15	381	20460	Total	12.00
+30 to 122° F.	1/5°	15	381	20470	Total	12.00
+120 to 220° F.*	1/5°	15	381	20480	Total	15.00
+30 to 220° F.	1/2°	15	381	20490	Total	12.00

\*Auxiliary scale at ice point included.  
 †Borosilicate white back glass, magnifying front.

Note 1: Ask for a complete catalog of Laboratory Thermometers.



# MODERN MIDGET INDUSTRIALS

For all Equipment Requiring Small Accurate Thermometers such as Pasteurizers, Vulcanizers, Pipe Lines

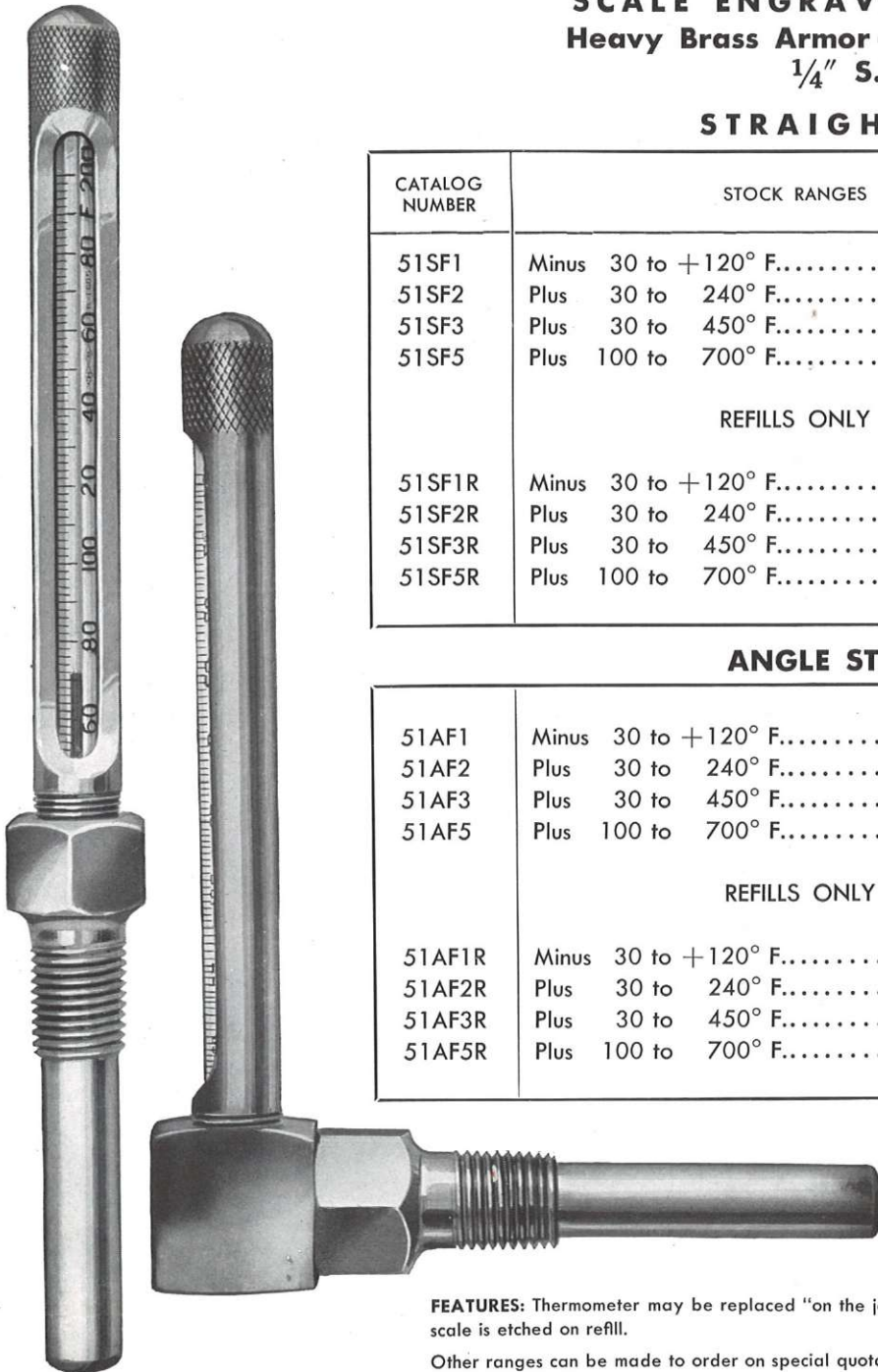
Heavy, Magnifying Lens Front, Mercury Tube  
 SCALE ENGRAVED ON GLASS  
 Heavy Brass Armor—Chromium Plated  
 1/4" S.P.T.

## STRAIGHT STEM

CATALOG NUMBER	STOCK RANGES	DIVISIONS	UNIT LIST PRICE
51SF1	Minus 30 to +120° F.....	2°	\$ 6.50
51SF2	Plus 30 to 240° F.....	2°	6.50
51SF3	Plus 30 to 450° F.....	5°	6.50
51SF5	Plus 100 to 700° F.....	5°	10.50
REFILLS ONLY			
51SF1R	Minus 30 to +120° F.....	2°	3.00
51SF2R	Plus 30 to 240° F.....	2°	3.00
51SF3R	Plus 30 to 450° F.....	5°	3.00
51SF5R	Plus 100 to 700° F.....	5°	7.00

## ANGLE STEM (90°)

51AF1	Minus 30 to +120° F.....	2°	8.50
51AF2	Plus 30 to 240° F.....	2°	8.50
51AF3	Plus 30 to 450° F.....	5°	8.50
51AF5	Plus 100 to 700° F.....	5°	12.50
REFILLS ONLY			
51AF1R	Minus 30 to +120° F.....	2°	4.00
51AF2R	Plus 30 to 240° F.....	2°	4.00
51AF3R	Plus 30 to 450° F.....	5°	4.00
51AF5R	Plus 100 to 700° F.....	5°	8.00



**FEATURES:** Thermometer may be replaced "on the job" without removing socket. Accuracy assured as scale is etched on refill.

Other ranges can be made to order on special quotation.

**NEW**

# QUICK-SET THERMO-REGULATOR EASILY ADJUSTED TO ANY CONTROL TEMPERATURE

*"Micrometric" temperature settings are accomplished by simply turning a knob as directed after initial setting.*

You can adjust the new Quick-Set Thermo-Regulator to control at any temperature within a wide range easily and quickly. Precision adjustments, near the control point, are made by simply turning a knob. No longer is precise temperature control a laborious, time-consuming task in the laboratory or plant.

The Thermo-Regulator controls temperature simply, precisely and economically. A sensitive H-B Electronic Relay must be used in conjunction with the Thermo-Regulator to accommodate the electric load. A suitable temperature indicator is accessory equipment.

## CONTROL POINT QUICKLY ESTABLISHED

H-B Quick-Set Thermo-Regulators control from minus 38° F. to above 600° F. The change from one setting to another is quickly and easily made. (For detailed instructions see reverse side of this sheet).

## VERNIER-LIKE ADJUSTMENTS

After the approximate setting is established, adjustments of several degrees down to 0.01° F., and even smaller under favorable conditions, are obtained by merely turning a ring knob which can be locked in position. By magnetic action, the totally glass-enclosed needle-like metal contact is raised or lowered in the mercury capillary as it turns in a threaded bushing.

## INGENIOUS DESIGN

Compact, self-contained, the Quick-Set Regulator is designed to render long, trouble free service. It is hydrogen filled under pressure to minimize sparking. The metal contact is sharply pointed. Every advance in tungsten-to-mercury contact design is skillfully employed for superior performance.

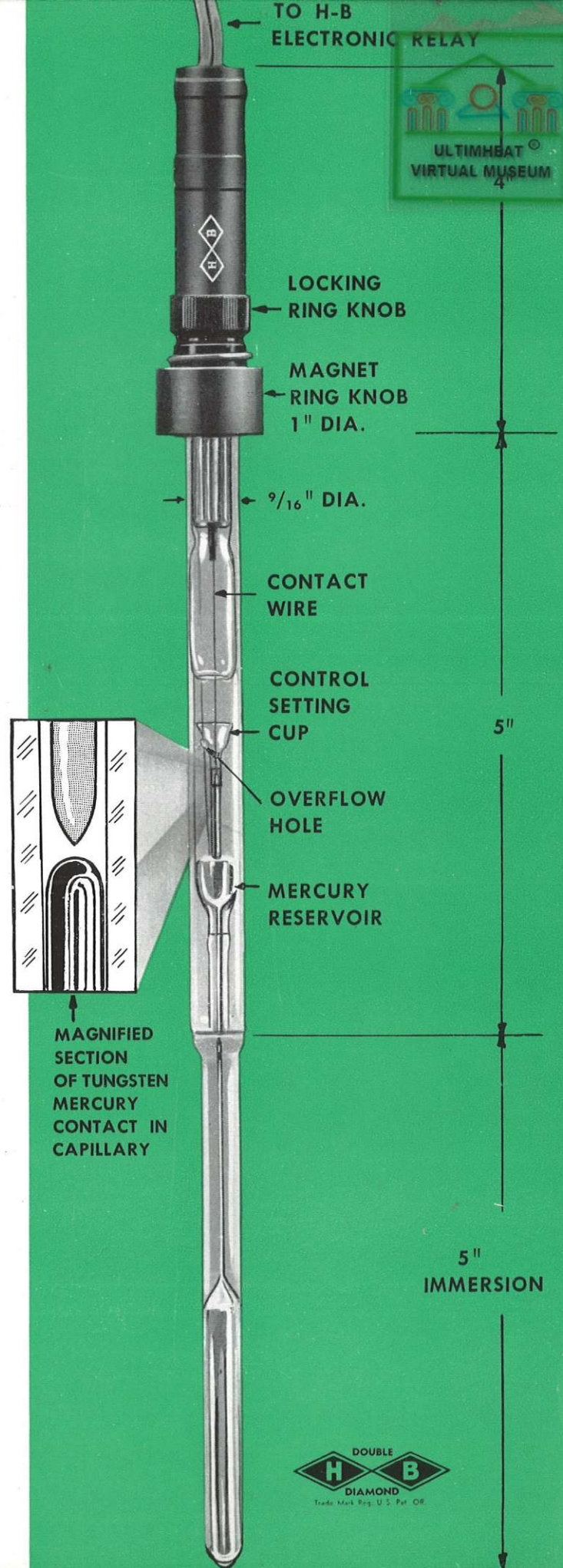
## TWO MODELS COVER WIDE RANGE

QUICK-SET THERMO-REGULATOR CAT. No. 7535 FOR HEATING CYCLE. Range from approximately plus 30° to 600° F. or higher. Overall length: 14". Largest glass diameter:  $\frac{9}{16}$ ". For 5" submergence. The system is hydrogen filled under pressure.

QUICK-SET THERMO-REGULATOR CAT. No. 7545 FOR COOLING CYCLE. Range from minus 38° F. to about plus 50° F. Other specifications same as for CAT. No. 7535.

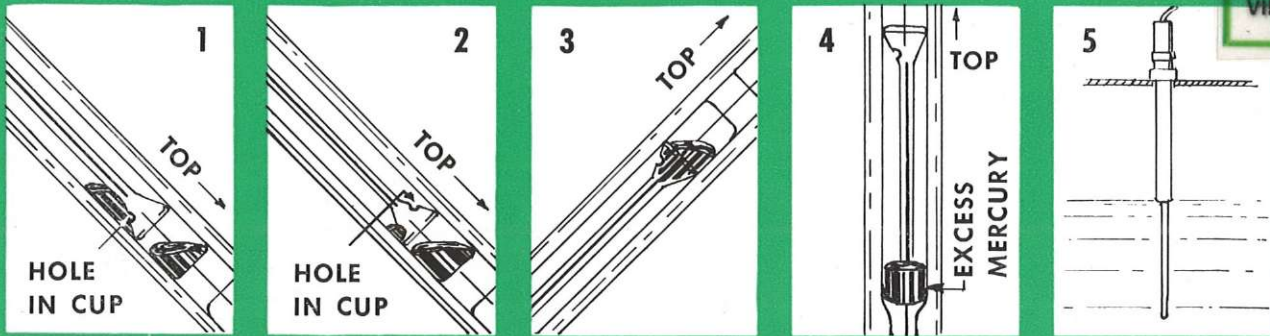
**H-B INSTRUMENT COMPANY**

Bulletin No. 826





# QUICK-SET THERMO-REGULATORS ARE EASILY OPERATED



**1.** Before placing the Thermo-regulator in the medium to be controlled, turn the magnet ring knob until the contact wire is out of the capillary tube, then turn to a 135° angle from the vertical

so that most of the free mercury runs through hole in cup to chamber normally above cup.

**2.** Rotate thermo-regulator 180° around its axis so that hole in cup is at highest point.

**3.** Return thermo-regulator so it is at an angle of 45° from the vertical and allow free mercury to fill cup. Holding this position, insert immersion section in bath at approximately 2° above the control point.

**4.** After about two minutes, return thermo-regulator to vertical position, allowing all excess mercury to return to mercury reservoir. Control point is now set.

**5.** Quick-Set Thermo-regulator is then ready for micrometric temperature settings over approximately 10° F. from the primary setting of the control point by simply turning magnet ring knob.

If the control point is to be changed more than 10° F. from the control setting, repeat the procedure outlined above. When setting to a lower control point, first heat until mercury in capillary raises to the cup, otherwise a broken mercury column will result.

## SENSITIVE H-B ELECTRONIC RELAY FOR THERMO-REGULATORS

To assure long life and maximum sensitivity of the new, easy-Quick-Set Thermo-Regulator, the use of an H-B Electronic Relay is required.

This relay will handle up to 30 amperes on the load circuit at 115 volts, 60 cycles. As it is actuated by approximately 5 micro amperes, the mercury-tungsten thermo-regulator contact is unharmed by continuous operation over a period of years.

The load circuit is controlled by a hermetically sealed mercury-plunger relay that will not pit, stick or burn. Fouling and erosion of the contact are eliminated even under the most severe operating conditions. No cleaning or adjusting is required.

The H-B Electronic Relay is enclosed in a metal box, approximately 8" x 6" x 5", having a removable cover, making it convenient to wire to a terminal strip. An exterior pilot light indicates when load is off or on. Supplied for "normally closed" service. Operation for "normally open" service is obtained by simply reversing a switch.

H-B ELECTRONIC RELAY...CATALOG No. 7935  
(30 amp., 115 volts, 60 cycles)

Also available on special order for higher load capacities and other voltage requirements.



TRADE MARK REG. U. S. PAT. OFF.

## H-B INSTRUMENT COMPANY

Scientific and Industrial Instruments For More Than a Third of a Century

2633 TRENTON AVENUE

PHILADELPHIA 25, PENNA.



H-B INSTRUMENT COMPANY  
2633 TRENTON AVENUE  
PHILADELPHIA 25, PENNA.

CONSUMER DISCOUNTS FOR CATALOG #14

EFFECTIVE DECEMBER 1, 1948

<u>PAGE NO.</u>	<u>DESCRIPTION OF MATERIAL</u>	<u>DISCOUNT SCHEDULE</u>
2	Mercury Plunger Relays	A
3	" " "	A
4	" " "	A
5	" " "	A
6	" " "	A
6	7530-7540 Thermoregulators - Printed List Prices changed to \$36.00	B
6	7580-7590 Automatic Over-Temperature Cut-Out Switches Printed List Prices changed to \$27.50	B
7	Mercury Plunger Relays	A
8	7780-7920 Multi-Contact Thermoregulators	B
8	7930-7940 Sensitive Relay Sets	A
9	7950-7990 Sensitive Relays To correct an error, catalog numbers 7800-7950 on Pages 9-12 are to be regarded as having a suffix "A" added.	B
9	7800A-7820A Sensitive Relay and Selector Switches	B
10	7830A to 7920A Thermometers and Thermostats	B
11	7930A-7940A Thermoregulators	B
12	7950A Differential Relays	B
14	20010-20490 Laboratory Grade Thermometers	C
15	Midget Industrial Thermometers	D

CONSUMER QUANTITY DISCOUNTS

<u>Schedule "A"</u>		<u>Schedule "B"</u>	
1 - 99 . . . . .	.40%	1 - 11 . . . . .	45%
100 - 249 . . . . .	.42½%	12 - 24 . . . . .	47½%
250 - 499 . . . . .	.45%	25 - 49 . . . . .	50%
500 - or more . . . . .	.47½%	50 - or more . . . . .	52½%
<u>Schedule "C"</u>		<u>Schedule "D"</u>	
1 - 5 . . . . .	.45%	1 - 11 . . . . .	40%
6 - 11 . . . . .	.50%	12 - 24 . . . . .	42½%
12 - 71 . . . . .	.55%	25 - 49 . . . . .	45%
72 - 143 . . . . .	.57½%	50 - or more . . . . .	47½%
144 - or more . . . . .	.60%		