

# INSTRUCTIONS for INSTALLING and ADJUSTING "GENUINE DETROIT" CA-655-R REVERSE ACTING CONTROL

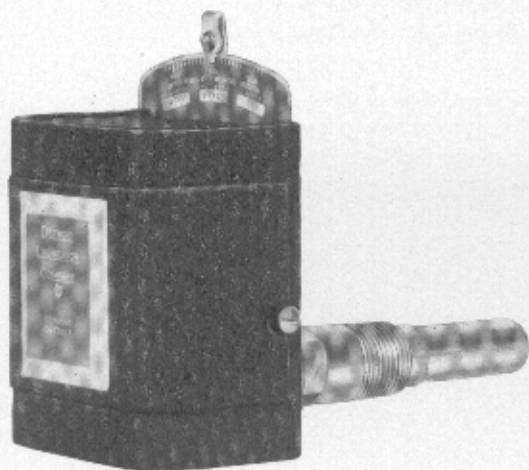


Fig 1—CA 655-R

The CA-655-R is an immersion type reverse acting control. It closes the circuit on rising temperature and opens the circuit on decreasing temperature.

If used as a low limit control to stop circulator operation when boiler water temperature is inadequate for maintaining the domestic water supply, the control should be set approximately 10° higher than the required boiler water temperature.

If used as an overrun control on a stoker fired water boiler to prevent excessive boiler water temperature, the control should be set to start the circulator 20 to 25 degrees above the temperature at which the limit control opens the circuit.

Temperature Range: 115° to 235°.

Temperature Differential: 7° non-adjustable.

Scale indicates temperature at which the circuit closes.

Circuit opens at range setting less the differential.

Immersion Well: (See Fig. 2) 1/2" I.P.T. Connection.

Adapter size, 3/4" I.P.T.

### Electrical Rating:

Voltage	Non-Inductive Load		A. C. Motors 25 to 60 Cycles		D. C. Motors
	A. C.	D. C.	R. I. and Capacitor Types	Split Phase	
115 230	10 Amp.	3 Amp.	1 H.P.	1/4 H.P.	1/4 H.P.

### Application:

Since the firing rate on the boiler, the quality of combustion and other inherent characteristics of a particular heating system affect the closing point of the control, the instrument has been so adjusted to close the circuit at the temperature indicated on the boiler thermometer when the boiler is fired at its rating.

When firing the load, particularly if the load is somewhat less than the rating of the boiler, the control may close the circuit at a boiler thermometer temperature slightly under that indicated by the range plate, and conversely, when the boiler is over-fired, the boiler thermometer temperature may be slightly higher than the range setting of the instrument.

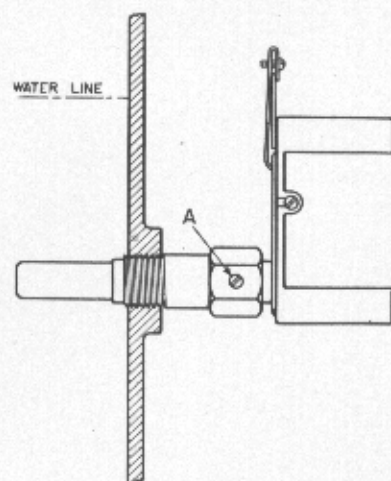


Fig. 2—Typical Application of CA-655-R

### Installation:

The CA-655-R Reverse Acting Control is equipped with a removable well having an extended hub to permit installation on jacketed boilers, see Fig. 2. The well connection is 1/2" I.P.T. and a 3/4" I.P.T. adapter is also furnished. When removing well **DO NOT ATTEMPT TO OPERATE CONTROL BY TWISTING BI-METAL COIL.**

The bulb must be located so that it will project into the water to be controlled. The bulb must be in free circulation, usually as near the top of the boiler as possible. Do not insert the bulb in a dead end of a pipe or at any place where it will not meet the average temperature of the water. Be sure there

is sufficient space for the bulb so that it will not be damaged by coming in contact with bottom or opposite side of opening. The control will operate in any position.

### Wiring

If BX is used prepare as shown (Fig. 3) by removing three inches of armor, then remove one inch of insulation from ends of wires. If Greenfield is used, allow 3 inches as indicated and use a standard adapter. Unscrew binding screws until wire connection can be made, bend end of wires around screws and tighten down.



Fig. 3

### Adjustment:

The temperature scale and pointer on the outside of the box indicate the temperature at which the control will close the circuit. Changing this range adjustment does not affect the differential.

Should it be desired to check the calibration of this control, remove the control from the well and immerse the bi-metal coil in hot water, the temperature of which is known (approx. 150° F.). Open the switch by moving the range adjustment lever toward high end of dial until switch opens. Then slowly move lever toward low end of dial until switch JUST closes. The indicator should

now read 10° to 15° higher than the water temperature. This difference is to compensate for well loss and other variables covered under "Application."

If dial recalibration is necessary, turn calibrating screw "B" Fig. 4 to the right to increase the difference between bi-metal (water) temperature and dial reading, or to the left to reduce the difference between dial reading and bi-metal operating temperature. ONE TURN of calibrating screw changes dial reading approximately 14 DEGREES.

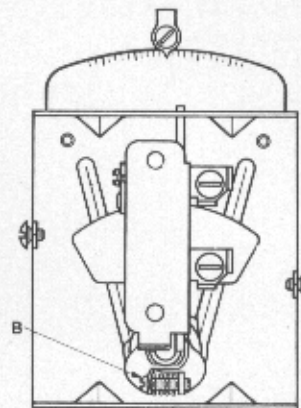


Fig. 4

Keep water constantly at test temperature and the bi-metal coil in the water while making all tests and adjustments.

### Dimensions

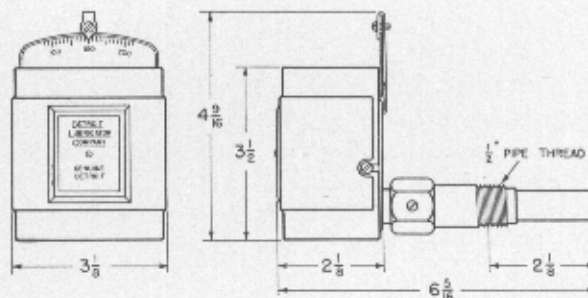


Fig. 5—Dimensions of CA-655-R



# DETROIT LUBRICATOR COMPANY

ESTABLISHED 1877

MAIN OFFICE AND FACTORY

5900 TRUMBULL AVENUE, DETROIT, MICHIGAN, U. S. A.