



M AINTENANCE I NSTRUCTION

ENGINE INLET WATER TEMPERATURE GAUGES

DESCRIPTION

The water temperature gauges covered in this instruction are used to indicate engine water inlet temperature. The gauges are usually installed in the water inlet line to the engine water pump. However, on some installations the gauge may be applied to the water tank.

There are several models of this gauge, which although similar in size and operating principle, have different dial faces. Fig. 1 illustrates the outline and color coded dial face of gauge 8099907. This gauge dial scale is divided into "Blue" cool water, "Green" operating temperature area, "Yellow" caution area, and "Red" dangerous operating area. Other gauges identified by separate part numbers, as shown in Fig. 2, have dial faces indicating either to a Fahrenheit scale or Centigrade scale or both on the dial face.

OPERATION

In operation the water temperature gauge utilizes a bi-metallic helix which responds quickly and accurately to changes in temperature. This coil-within-coil structure (about 1-1/2" long) is located in the end of the thermometer stem. Changes in temperature cause a rotary action of the helix turning a shaft on which a pointer is mounted. The bi-metallic element is encased in the stainless steel stem sealed to prevent the entrance of fluids. Suitable bearings support and center the shaft with the stem, and the point is affixed to the staff by a friction hub.

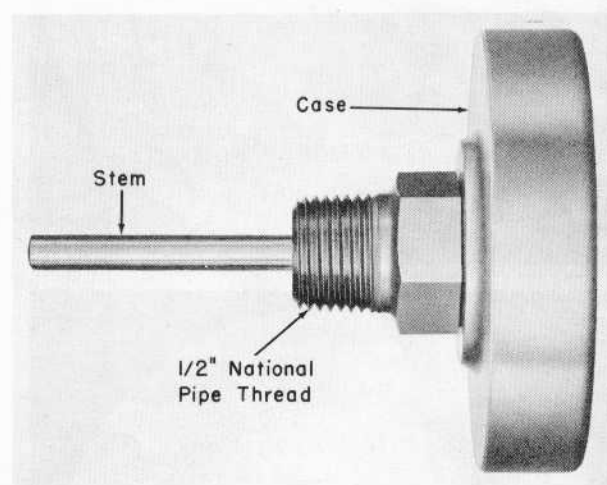
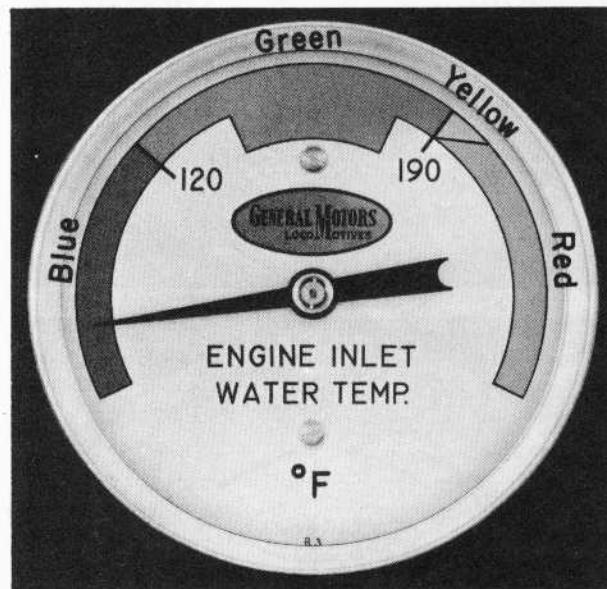
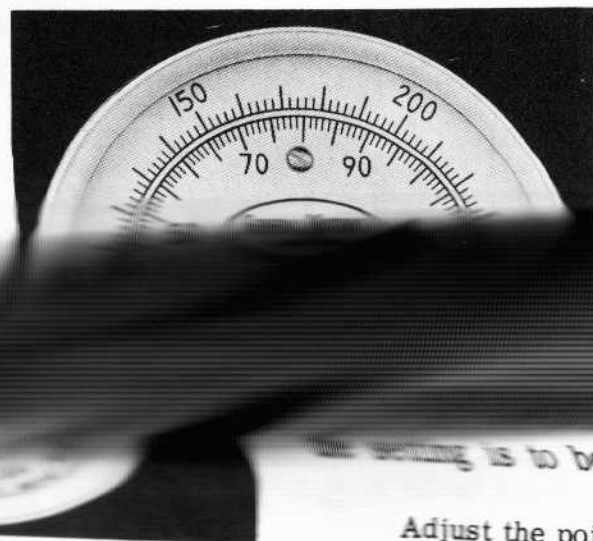
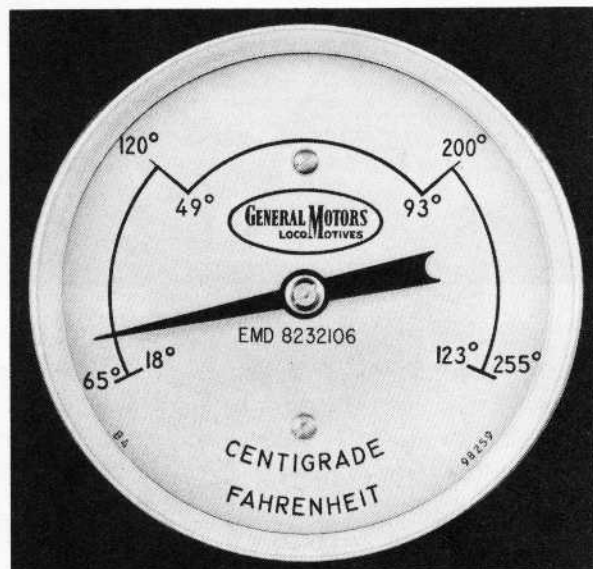
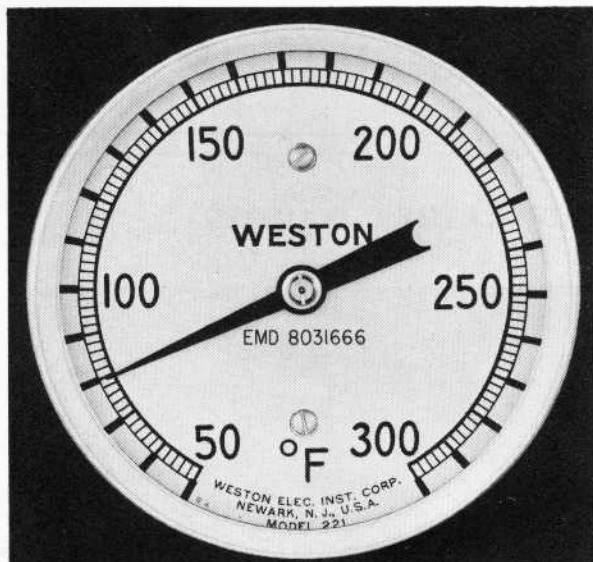


Fig. 1 - Engine Water Temperature Gauge 8099907

MAINTENANCE

The operation and calibration of the gauge should be checked at periods as outlined in the Scheduled Maintenance Program.

* THIS BULLETIN SUPERSEDES ALL ISSUES OF M.I. 809.



CALIBRATION CHECK

The accuracy of the thermometer may be checked by immersing the thermometer stem, including the threads on the connecting nut, in a suitably agitated bath heated to some convenient temperature. A precision laboratory thermometer should also be immersed in the bath with the temperature-sensitive element adjacent to the end of the thermometer stem. The bath should be mechanically agitated in order that temperature differentials at various depths of fluid may be eliminated. If a precision laboratory thermometer is not available, the temperature of boiling water is recommended; however, corrections should be made for variations in the barometric pressure.

A single point check is usually sufficient to determine the accuracy of the thermometer.

ADJUSTMENT

The pointer on this instrument is mounted on a friction hub allowing it to be moved relative to the staff which transmits the angular motion of the bi-metal spring. Thus, if for any reason a change in the pointer setting is required, it can be made.

REMOVAL OF FRONT

The case front is force fitted on the case, and its removal requires a fixture, Fig. 3, constructed to engage the case

Adjustment is to be made.

Adjust the pointer setting by holding the pointer hub stationary with a screw driver inserted in the slot of the hub. Rotate the pointer the amount desired.

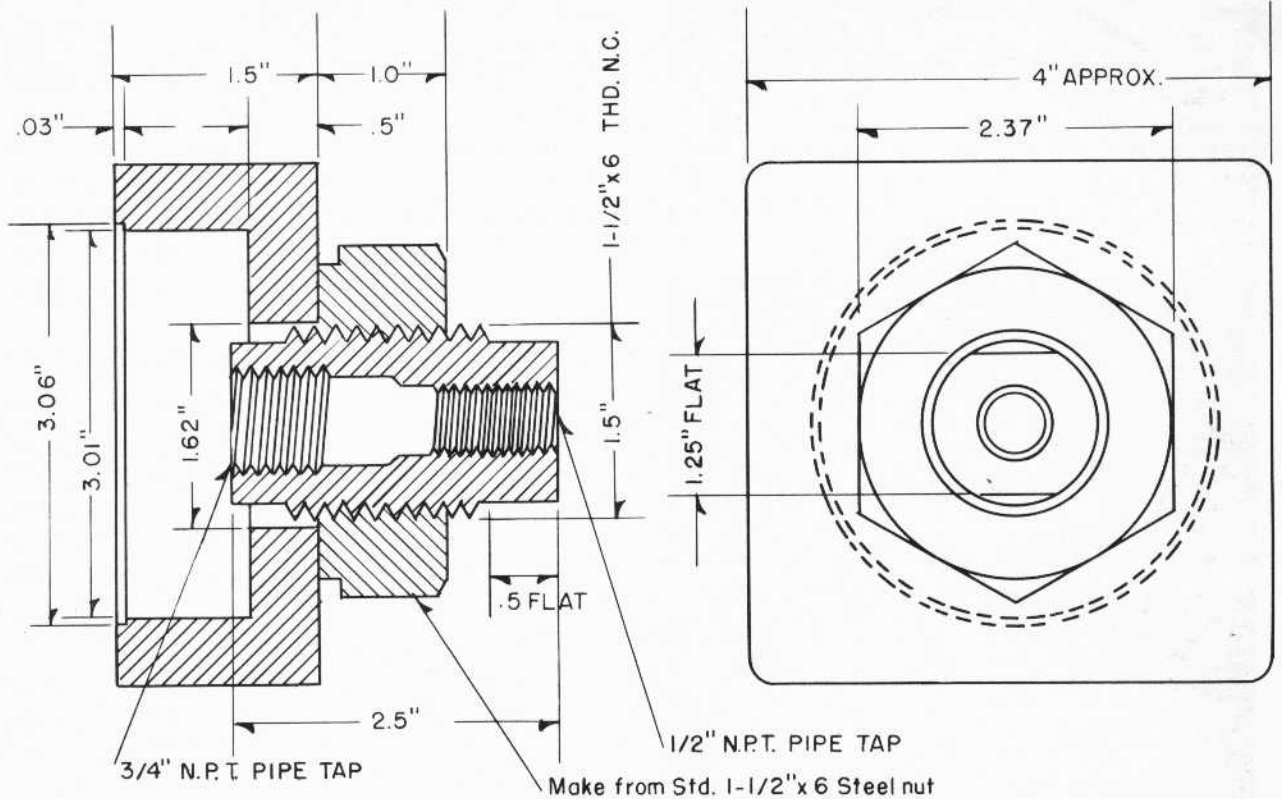


Fig. 3 - Fixture For Removing Case Front

After completing the pointer setting, oscillate the pointer several degrees above and below the setting point to check the adjustment.

the inverted case front in that order. The thermometer case is then forced into the front by use of an arbor press and sleeve to exert force on the back of the connecting nut.

REASSEMBLING THE THERMOMETER

NOTE: The bi-metallic element is sealed into the stem, and readjustment of calibration does not require disassembly of this unit.

Replace the neoprene composition gasket, glass and the cork gasket into