

SERVICE BULLETIN

CAB SERVICE & PARTS CORPORATION

#78

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Subject: FUEL SYSTEM

Description: CARBURETOR - AUTOMATIC CHOKE CONTROL

GENERAL DESCRIPTION

The automatic choke control, as adapted to the carburetors, is made as part of the carburetor assembly. It controls the opening and closing of the choke plate (air shutter) during the entire range of engine operation. It is directly connected to the choke shaft which assures positive action and accurate control under various operation temperatures.

The manifold vacuum reaches the vacuum cylinder in the choke housing through an internal channel which is an extension of the channel to the power jet vacuum cylinder in the carburetor.

Mainfold vacuum is used to partially open the choke plate after the initial firing of the engine, and heat is used on the thermostat spring to control the amount of opening during the warming up period. Heat for the thermostat is provided by an electric heating element in the thermostat chamber. A throttle advance mechanism provides fast idling during the warming up period and a pin located on the stop lever provides a positive means to open the choke plate if the engine fails to start due to over-choking. This is accomplished by opening the throttle to a wide open position.

The electrical connection from the automatic choke should be to the ignition switch so that current will flow only when the ignition switch is turned on. This furnishes heat to control the tension of the thermostat.

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OPERATION

A throttle advance lever on the throttle body is actuated by a rod and lever on the choke shaft so that, while the choke plate is partially closed, the engine speed is automatically increased to prevent stalling during the warming up period. With a cold engine the choke plate will not close until the throttle has been opened slightly. When starting a cold, or warm, engine it is always necessary to open the throttle slightly during the cranking period.

The heating element gradually warms the thermostat decreasing its resistance to the pull of piston which gradually causes the choke plate to open as the engine warms up. This action also moves the throttle advance lever to the warm idle position.

While the thermostat is only partially warmed up tension is sufficient to hold the choke plate partially closed during acceleration at which time the manifold vacuum is too low to exert much pull on the piston.

When the thermostat becomes completely warmed up tension is reversed and holds the choke plate open regardless of manifold vacuum.

THERMOSTAT ADJUSTMENT

All units are shipped from the factory with the thermostat adjusted; however, it may be necessary in some cases to increase or decrease the tension of the thermostat so as to provide smooth engine performance during the warm up period.

This can be done by loosening the three screws of the cover plate so that cover may be adjusted to the position best suited for the particular installation. The arrow indicates the direction to increase the tension and enrichen the mixture.

To examine and check thermostat proceed as follows:

1. Remove the three cover plate screws and the cover plate and allow the thermostat to cool or warm until it has reached the temperature of 70°F. THIS IS VERY IMPORTANT and should be done in a room having a temperature of 70°.

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THERMOSTAT ADJUSTMENT (continued)

2. When the thermostat reaches 70° the inside of the eye at the end of the thermostat should coincide with the "zero" marking on the outside of the cover, which is the original setting made at the factory. When installing a new thermostat, or other parts, check the "zero" location very carefully at 70° temperature and change the location if necessary.

NOTE: If it is impossible to maintain a room temperature of 70° you can provide for the difference by allowing one graduation on thermostat cover for each 5° variation in temperature. For example, if temperature is 60°, the eye on the thermostat will coincide with the second graduation to the right of the "zero" marking; or, if the temperature is 80°, the eye will coincide with the second graduation to the left of the zero.

3. To adjust thermostat, reassemble cover onto the case so the eye is in position on the pin on the lever, with no tension on the thermostat and with the air shutter in wide open position. The "zero" marking on the cover will be 3 to 4 graduations to the left of the indicator line on the case. Move cover to bring the "zero" marking up to the indicator line, then;
4. Rotate cover fifteen notches or graduations rich as indicated by the arrow on the cover and fasten screws securely.

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The starting procedure of the automatic choke varies somewhat from that used for the manual choke. To eliminate any adverse operational characteristics which could possibly be experienced, the following cold starting and warm-up and hot starting procedure is recommended.

COLD STARTING AND WARM-UP

Do not turn the ignition switch on for over one minute without starting the engine. Insufficient choke may result if the ignition switch is left on over one minute without the engine running as the heat for de-choking is supplied by an electrical element, controlled by the ignition switch.

HOT STARTING

The element in the automatic choke cools off at a faster rate than the engine cools, allowing the choke to close. It is possible, therefore, to exceed the amount of choke required for a warm engine. If this occurs, the following procedure is recommended.

1. Turn on the ignition and crank the engine with the throttle in the wide open position. The choke linkage is connected to the throttle linkage to provide de-choking at wide open throttle.
2. If a successful start cannot be made, leave the ignition switch on for a period of 3 to 4 minutes before another starting attempt is made. This allows at least a partial opening of the choke.

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CHOKE SETTINGS:

Adjustments and procedures for obtaining correct tension on the thermostat element of the choke unit are as follows:

1. Use a $\frac{1}{2}$ " drill shank as gauge for setting choke plate position.
2. Reset the thermo-element 4 points rich from the star or 19 points clockwise from zero.

The following precautions are necessary whenever adjusting thermo-element for proper tension.

1. The center of the eye on thermostat should be opposite zero stamp on choke cover.
2. Tolerances of 2 points - plus or minus - from zero position are accepted whenever element is at a 65° to 70° temperature.
3. If the position of the thermostat eye does not stay in above limits, it is satisfactory to compensate for variation by setting choke 19 points rich from the observed zero position of thermostat eye.

The above procedures are suggested whenever a "hard starting" condition may exist due to improper choke unit adjustments.

By: NEW YORK SERVICE DEPARTMENT