MAZDA ROTARY ENGINE CHOKE RETURN & HOT START ASSIST SYSTEMS

RX7

DESCRIPTION

The Choke Return system prevents the choke knob from being left unreturned to prevent overheating of the exhaust system. The Hot Start Assist system opens the throttle valve partially during cranking of warm engine to optimize air/fuel mixture to improve starting. The choke return system components include No. 1 water temperature switch, choke relay, choke magnet and choke switch. The hot start assist system components include No. 1 water temperature switch, hot start relay and hot start motor.

OPERATION

Choke Return System – When cold engine is started with assist of choke knob, the knob is held in pulled position by the choke magnet. Full release of choke knob is achieved as engine coolant temperature reaches 158°F (70°C). The No. 1 water temperature switch stops the flow of electrical current to magnet and the choke knob is released.

Hot Start Assist System – During cranking of a warm engine, the No. 1 water temperature switch provides power to the hot start relay when starter is engaged. When hot start relay is activated, the hot start motor pulls the hot start cable which opens the throttle valve.

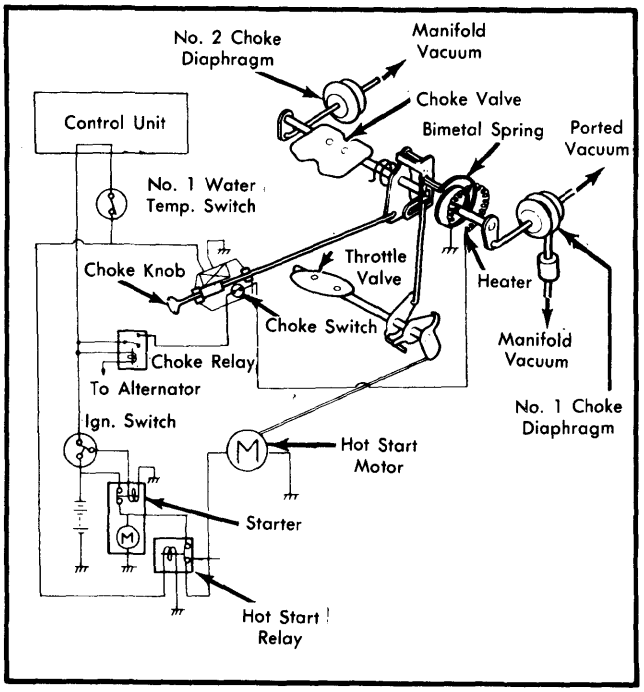

Fig. 1 Choke Return and Hot Start Assist Systems

TESTING

CHOKE RETURN SYSTEM

1) With engine cold and ignition switch "OFF", pull choke knob out fully. Choke knob should return automatically.

2) Connect tachometer to engine. Start engine and set engine speed at 2000 RPM with choke knob. With engine running, choke knob should automatically return when engine temperature indicator is in position shown in *Fig. 2*.

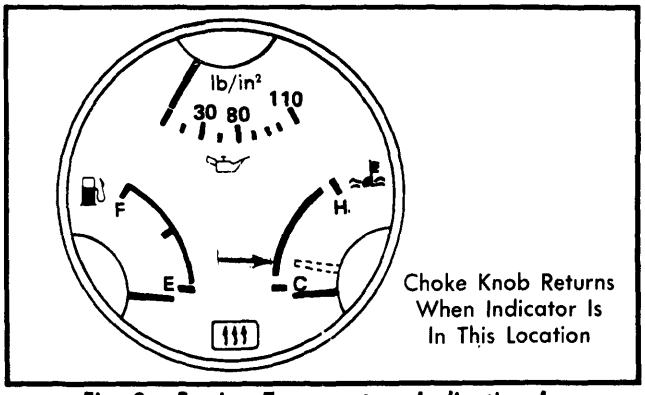

Fig. 2 Engine Temperature Indication for Release of Choke Knob

CHOKE MAGNET

Disconnect electrical connector from choke switch. Using an ohmmeter, check continuity between terminals. Continuity should exist between terminals No. 6 and No. 8. *See Fig. 3.*

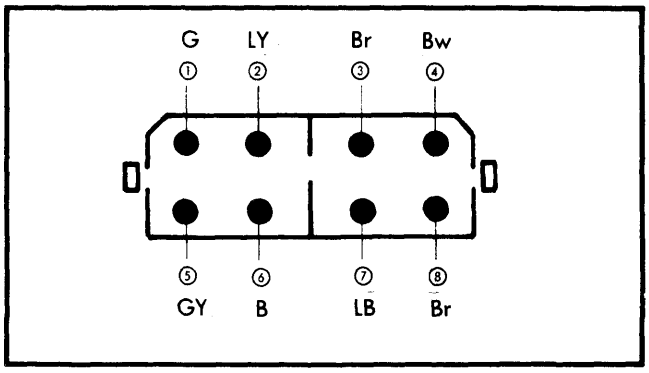

Fig. 3 Choke Switch Terminal Numbering

HOT START ASSIST SYSTEM

NOTE – *Before replacing hot start motor or relay, check No. 1 water temperature switch as outlined in "Mazda Rotary Engine Auxiliary Control Device" article in this section.*

1) Inspect hot start assist cable and linkage for proper installation, no binding or sticking, and full return. Warm engine to normal operating temperature and stop engine.

2) Disconnect leading and trailing primary wires from ignition coils. Crank engine. Hot start lever should open throttle valve. If hot start system does not respond as outlined, check hot start assist relay.

HOT START ASSIST RELAY

1) Disconnect electrical connector from hot start relay. Using an ohmmeter, check continuity between terminals. Continuity should exist between terminals No. 1 and No. 5 without power applied. Continuity should not exist between terminals No. 1 and No. 3 without power applied.

2) Connect battery power to relay (positive to terminal No. 2, negative to terminal No. 4). With battery power applied, continuity should exist between terminals No. 1 and No. 3. Continuity should not exist between terminals No. 1 and No. 5 with power applied.

MAZDA ROTARY ENGINE CHOKE RETURN & HOT START ASSIST SYSTEMS (Cont.)

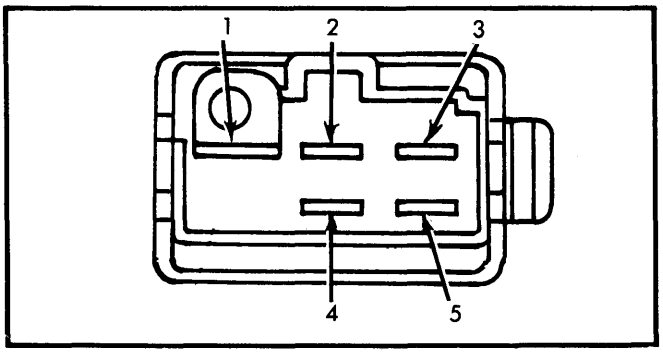

Fig. 4 Hot Start Assist Relay Terminal Numbering

HOT START ASSIST CABLE ADJUSTMENT

1) Remove hot start assist cable lock spring from cable bracket. Slowly pull outer cable until hot start lever just touches stopper lever. Check clearance between cable bracket and cable lock nut.

2) If clearance is not .02-.08" (0.5-2.0 mm), adjust clearance by turning lock nut. Recheck clearance and install lock spring.

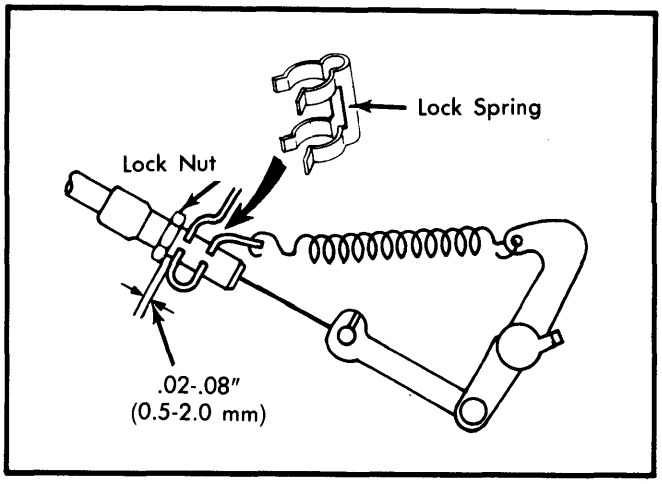

Fig. 5 Adjusting Hot Start Relay Cable