MAZDA RX7 AUXILIARY CONTROL DEVICE

DESCRIPTION

In addition to the regular exhaust emission control systems previously described, RX7 models use an auxiliary control device. This unit works in conjunction with emission systems previously explained.

The components of the auxiliary control device include the control unit, choke switch, choke magnet, choke relay, No. 1 water temperature switch and No. 2 water temperature switch.

TESTING

CONTROL UNIT

1) Check condition of 5 amp fuse, which is located under terminal connectors.

2) Referring to *Fig. 1.* for terminal locations, check that current flows to terminals "B", "J", "R" and "O" when engine is operating at idle. Voltage of about 3-8 volts should flow to terminal "A" when engine is operating at idle.

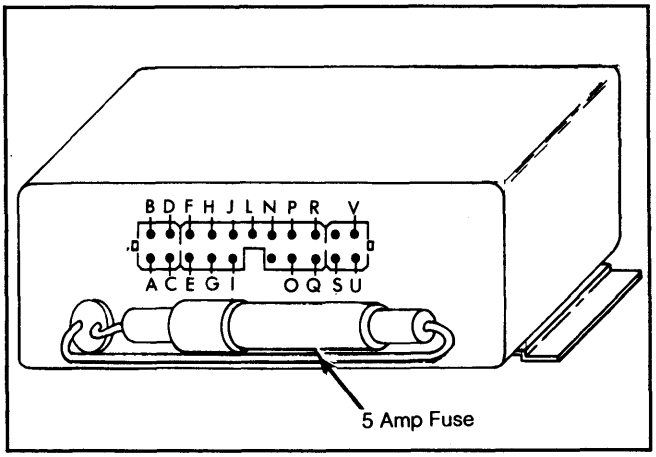
3) Connect negative probe of voltmeter to terminal "P" and positive probe to other terminals as described below and check that 12 volts exist under conditions described:

NOTE: On models with automatic transmission, place transmission in "PARK". Also disconnect electrical coupler from throttle sensor on carburetor and connect a known good throttle sensor to coupler.

- At terminal "D" at any engine operating condition.
- At terminal "E" voltage should be 7.7-8.5 volts at any engine operating condition.
- At terminal "F" with decreasing engine speed more than 1000-1200 RPM with choke knob fully pushed in (throttle sensor rod fully extends).
- At terminal "L" with decreasing engine speed less then 1000-1200 RPM.
- At terminal "N" when applying battery power to terminal "U" with engine operating.
- At terminal "N" with decreasing engine speed more than 3600-4400 RPM (throttle sensor rod fully extends).
- At terminal "N" with decreasing engine speed more than 1000-1200 RPM with No. 2 water temperature switch (on radiator) disconnected (throttle sensor rod fully extended).
- At terminal "Q" (manual transmission) with engine operating and throttle sensor rod fully extended.
- At terminal "Q" (manual transmission) with decreasing engine speed less than 1000-1200 RPM when throttle sensor rod is fully pushed in.
- At terminal "Q" (automatic transmission) at any engine operating condition.
- At terminal "Q" (automatic transmission) with engine operating when throttle sensor coupler (Green/Black wire) is disconnected (throttle sensor rod fully extended).
- At terminal "Q" (automatic transmission) with decreasing engine speed less than 1000-1200 RPM when starting motor magnetic switch coupler (Black/Yellow wire) is disconnected and throttle sensor rod is fully pushed in.
- At terminal "S" (except Calif. manual transmission) with engine operating and battery power applied to terminal "C" or terminal "J".
- At terminal "S" (except Calif. manual transmission) with engine operating and throttle sensor rod fully pushed in.
- At terminal "S" (except Calif. manual transmission) with decreasing engine speed less than 1000-1200 RPM.
- At terminal "U" with engine operating and heat hazard sensor electrical coupler disconnected.

NOTE: On models with automatic transmission, current should stop flowing to terminal "S" when starting motor magnetic switch coupler (Black/Yellow wire) is disconnected.

Fig. 1: Terminal Locations of Control Unit

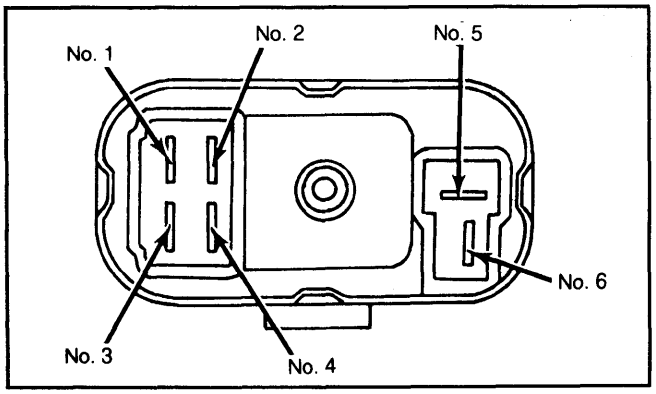


Unit located under left side of dashboard

CHOKE RELAY

1) Disconnect coupler from relay. With engine off and no power applied, check continuity of terminals.

Fig. 2: Choke Relay Terminal Locations



2) There should be continuity between No. 1 and No. 2. There should be no continuity between No. 3 and No. 4.

3) Connect a wire from battery positive post to terminal No. 6 and battery negative post to terminal No. 5.

4) There should be continuity between No. 3 and No. 4. There should be no continuity between No. 1 and No. 2.

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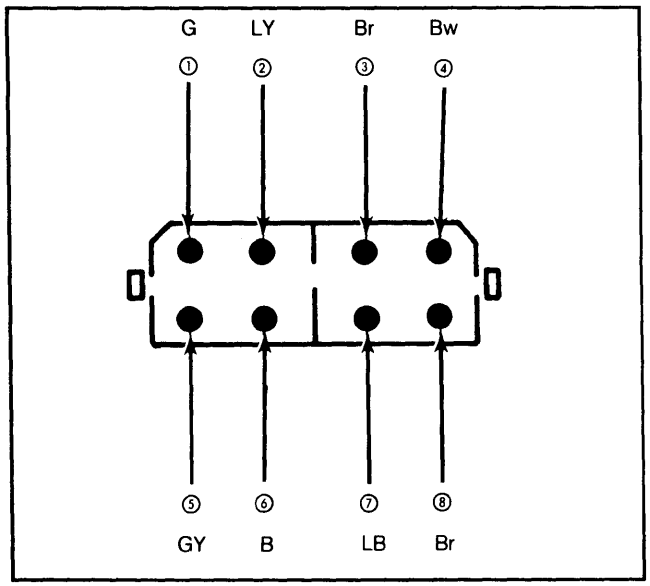
Fig. 3: Choke Switch Terminal Locations



CHOKE SWITCH

1) Disconnect coupler from choke switch. Check continuity between numbered terminals in coupler, using an ohmmeter.

2) Continuity should exist between terminals No. 3 and No. 7 when choke knob is pulled out about 0.4" (10 mm). Continuity should exist between terminals No. 6 and No. 8 when choke knob is at any position. *See Fig. 3* for terminal locations.

WATER TEMPERATURE SWITCHES

No. 1 Switch

Remove switch from water pump housing. Place switch in water with a thermometer. Connect ohmmeter to switch coupler and gradually heat water. Continuity should not exist between terminals when temperature reached 146-170°F (63-77°C). If switch does not respond as described, replace No. 1 water temperature switch.

No. 2 Switch

Remove switch from lower radiator tank and perform same test as for No. 1 water temperature switch. Continuity should exist between terminals when temperature reaches 65-79°F (19-25°C). If switch does not respond as described, replace No. 2 water temperature switch.