1974-79 EXHAUST EMISSION SYSTEMS
Mazda Auxiliary Controls

1978-79 RX7

DESCRIPTION

The RX7 uses several auxiliary emission control devices. Some of these units may work in conjunction with other exhaust emission systems, or they may have an independent function. These auxiliary controls include the control unit, idle switch, choke switch, full choke switch, acceleration sensor with delay valve, top gear switch, and overdrive switch.

TESTING

CONTROL UNIT

All Models (Except California) - **1)** Check condition of 5-amp fuse. Fuse is located under cover, on side of control unit. *See Fig. 1.* Check that current flows to terminals "A" and "B" when engine is operating at idle (about 3-8 volts).
2) Connect negative probe of voltmeter to terminal "P" and positive probe to other terminals under conditions described. Check that 12 volts exists between terminal "J" and "L" with engine speed decreasing and under 1150 RPM.
3) Check that 12 volts exists at terminal "D" with engine operating at any speed. Check that 12 volts exists at terminal "H" with increasing engine speed over 4000 RPM. Check that 12 volts exists at terminal "G" with decreasing engine speed over 1150 RPM.

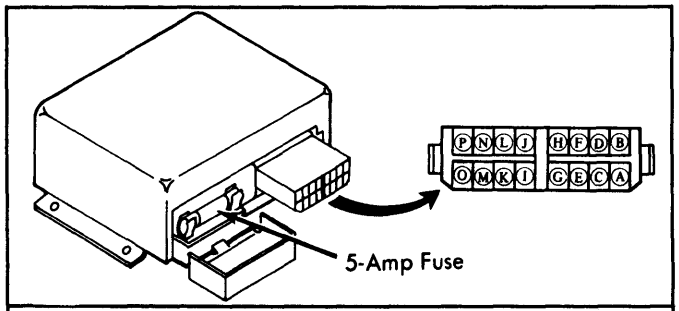

Fig. 1: Control Unit Terminal Identification (All Models Except California)

California Models - **1)** Check condition of 5-amp fuse. Fuse is located on top of control unit. *See Fig. 2.* Check that current flows to terminals "A" and "B" when engine is operating at idle speed (about 3-8 volts).
2) Connect negative probe of voltmeter to terminal "P" and positive probe to other terminals under conditions described. Check that 12 volts exists at terminal "J" with decreasing engine speed less than 1150 RPM.
3) Check that 12 volts exists at terminal "J" with engine operating and applying battery power (with jumper wire) to terminal "E" or "T". Check that 12 volts exists at terminal "L" with decreasing engine speed less than 1150 RPM.
4) Check that 12 volts exists at terminal "M" or "Q" when applying battery power to terminal "S". Engine speed should increase less than 4600 RPM of idle within 130 seconds after engine start with choke knob fully out.
5) Check that 12 volts exists at terminal "M" when applying battery power to terminal "E" and engine operating. Check that 12 volts exists at terminal "D" at any engine operating condition.
6) Check that 12 volts exists at terminal "H" with engine speed increasing more than 4000 RPM of original speed. Check that 12 volts exists at terminal "R" while applying battery power to terminal "S" with engine speed increasing less than 3000 RPM of idle.
7) Check that 12 volts exists at terminal "R" while applying battery power to terminal "S" at any engine speed within 130 seconds after starting engine with choke knob fully out.
8) Check that 12 volts exists at terminal "G" with decreasing engine speed more than 1150 RPM above idle. On 1979 models, check that 12 volts exists at terminal "K" with engine operating and applying battery power to terminal "E" or "T".

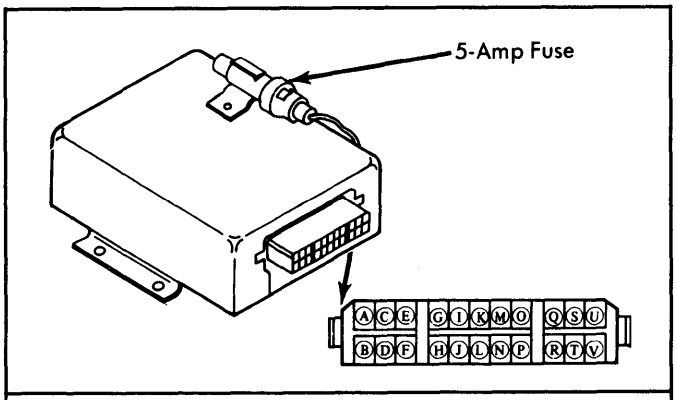

Fig. 2: Control Unit Terminal Identification (California Models

CHOKE SWITCH

Disconnect choke switch. Check continuity between numbered terminals. *See Fig. 3.* Continuity should exist between terminals No. 3 and 7 when choke knob is pulled out about 0.4" (10 mm).

FULL CHOKE SWITCH

California Models - Disconnect choke switch. Check continuity between numbered terminals. *See Fig. 3.* Continuity should exist between terminals No. 4 and 5 when choke knob is pulled out about 1" (25 mm).

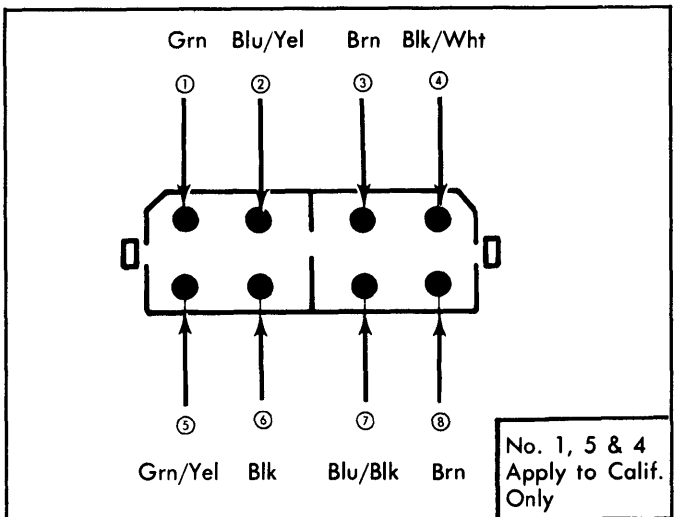

Fig. 3: Terminal Identification For Choke & Full Choke Switch Test

IDLE SWITCH

Man. Trans. Equipped Models - Disconnect idle switch. Check continuity between numbered terminals. *See Fig. 4.* With engine at idle, continuity should exist between terminals No. 1 and 3, with no continuity between terminals No. 1 and 2. Increase engine speed to 1000 RPM. Continuity should exist between terminals No. 1 and 2, with no continuity between terminals No. 1 and 3.

ACCELERATION SENSOR

Auto. Trans. & Calif. Man. Trans. Equipped Models - Disconnect vacuum switch and connect an ohmmeter to terminals "A" and "B". *See Fig. 5.* Start and run engine at idle. No continuity should exist between terminals. Disconnect vacuum sensing tube from vacuum switch. Continuity exists between both terminals.

1974-79 EXHAUST EMISSION SYSTEMS
Mazda Auxiliary Controls (Cont.)

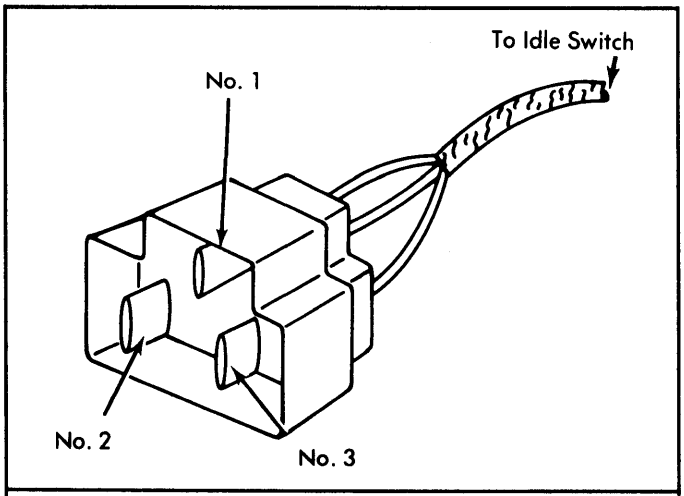

Fig. 4: Idle Switch Terminal Identification

DELAY VALVE

Auto. Trans. & Calif. Man. Trans. Equipped Models - **1)** Disconnect vacuum switch and connect an ohmmeter to terminals "A" and "B". Start and run engine at idle.

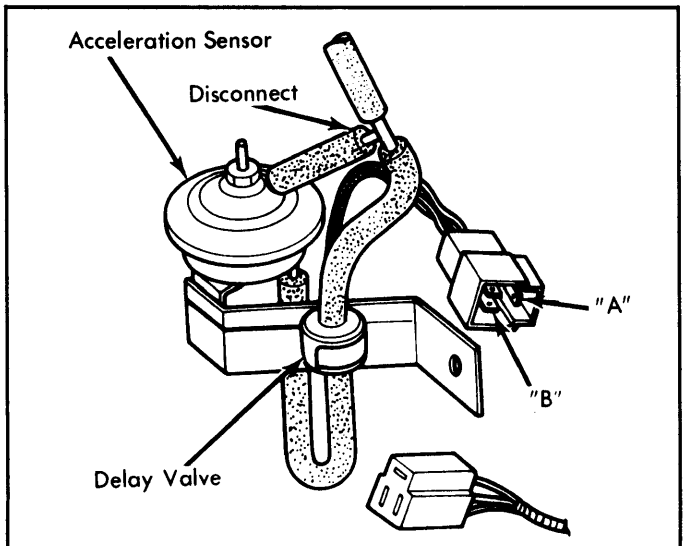

Fig. 5: Testing Acceleration Sensor

2) Increase engine speed to 3000 RPM and keep throttle lever in this position for 2-3 seconds. Quickly release throttle and check continuity between terminals. Continuity should exist for 3-25 seconds.

CHOKE RELAY

1) Disconnect relay and check continuity between terminals. Continuity should exist between terminals No. 1 and 2, No. 4 and 2, and between terminals No. 4 and 1. No continuity should exist between terminals No. 3 and 2, or between terminals No. 3 and 4.
2) Using jumper wires, connect battery positive terminal to choke relay terminal No. 6 and battery negative terminal to terminal No. 5. *See Fig. 6.*
3) Continuity should exist between terminals No. 3 and 2 and between terminals No. 4 and 3. No continuity should exist between terminals No. 1 and 2, No. 4 and 2, or between terminals No. 1 and 4.

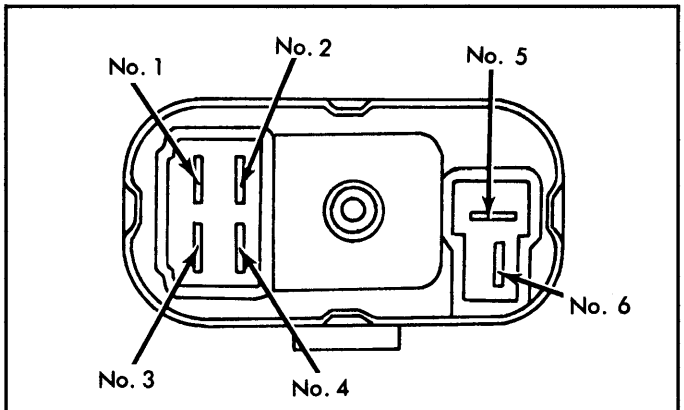

Fig. 6: Choke Relay Terminal Identification

TOP GEAR SWITCH

1979 Calif. Man. Trans. Equipped Models - Raise vehicle and support with safety stands. Detach top gear switch bullet connectors. Top gear switch is located on left side of transmission, just behind clutch lever boot. Connect ohmmeter to both switch terminals. Check that no continuity exists when shifting into 4th gear.

OVERDRIVE SWITCH

1979 Calif. Man. Trans. Equipped Models - Raise vehicle and support with safety stands. Detach overdrive switch bullet connectors. Switch is located on left side of transmission extension housing. Connect ohmmeter to both switch terminals. Check that no continuity exists when shifting into 5th (overdrive) gear.