1974-79 EXHAUST EMISSION SYSTEMS
Toyota Choke Opener & Choke Return Systems

1975-77 Models

DESCRIPTION

CHOKE OPENER SYSTEM

This system forcibly opens choke during cold engine operation to reduce exhaust emissions during this mode of operation. On some models, system consists of a vacuum operated choke opener diaphragm and thermostatic vacuum switching valve. On other models, system consists of vehicle speed sensor, coolant temperature sensors, computer, and vacuum switching valve.

CHOKE RETURN SYSTEM

This system automatically moves the manual choke to the off position when vehicle warms up. This is to assist the driver in case he forgets to push the choke knob back in. By releasing the choke knob, overheating of the exhaust system is prevented. If the exhaust system should overheat, the catalytic converter could be damaged.

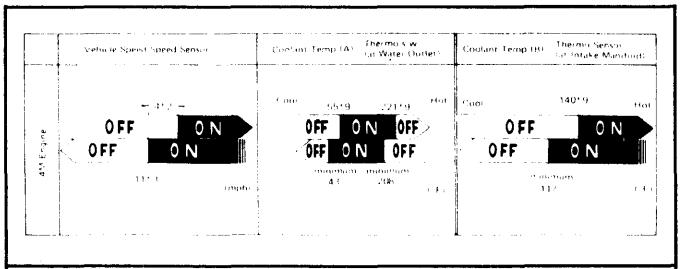

Fig. 1: 1975 Choke Opener System (2T-C Engine)

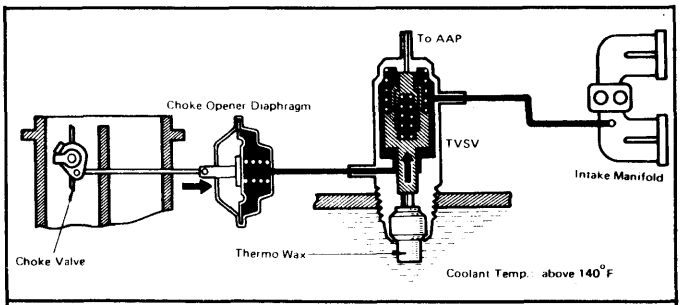

Fig. 2: 1976 Choke Opener System (2T-C Engine)

OPERATION

CHOKE OPENER SYSTEM

On 1975 20R and California 2T-C engines, the choke opener system will be on when all sensors in choke opener system are on. If one or more sensors are off, the system will be off. When vehicle speed, coolant temperature, and catalytic converter (if equipped) temperature all enter on range, computer turns Vacuum Switching Valve (VSV) on. This allows intake manifold vacuum to act on choke opener diaphragm and force choke open.

On 1975-76 4M engine, when vehicle speed and/or coolant temperature enter the on range, the computer turns Vacuum Switching Valve (VSV) on. This allows intake manifold vacuum to act on choke opener diaphragm and force choke open. With vehicle speed and/or coolant temperature in off range, the VSV is turned off. This allows atmospheric pressure to act on choke opener diaphragm and choke will operate normally.

On 1976-77 2T-C engine, when coolant temperature rises above 140°F (60°C), the Thermostatic Vacuum Switching Valve (TVSV) will open vacuum passage between choke opener diaphragm and intake manifold vacuum source. Vacuum acting on diaphragm will then force choke valve open. If coolant temperature drops below 95°F (35°C), the TVSV will close and choke will operate normally.

CHOKE OPENER SYSTEM OPERATING SPEEDS

Application	On Range (MPH)	Off Range (MPH)
2T-C Engine	Above 11	Below 4
4M Engine	Above 11	Below 4
20R Engine	Below 20	Above 65

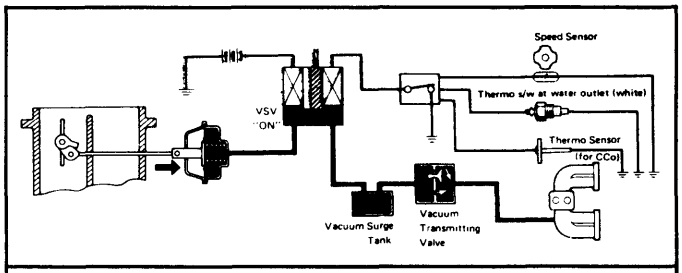

Fig. 3: 1975 Choke Opener System (20R Engine)

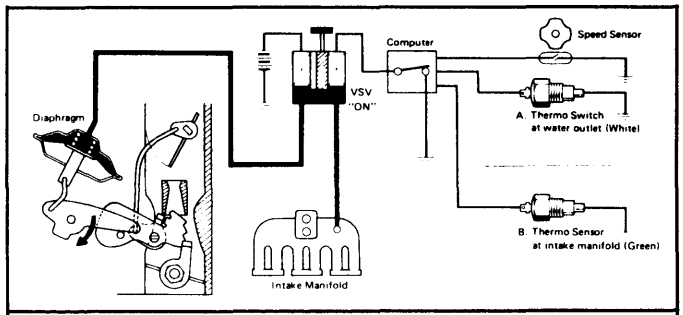

Fig. 4: 1975 Choke Opener System (4M Engine)

CHOKE RETURN SYSTEM

While coolant is below 104-127°F (40-53°C), the thermal switch is energized and holds the choke knob in the on position. *See Fig. 5.* The driver can manually control the choke setting. When engine coolant temperature nears 149°F (65°C), the thermal switch is turned off. Electrical current no longer flows to choke control magnet and the spring-loaded choke knob is returned to the off position.

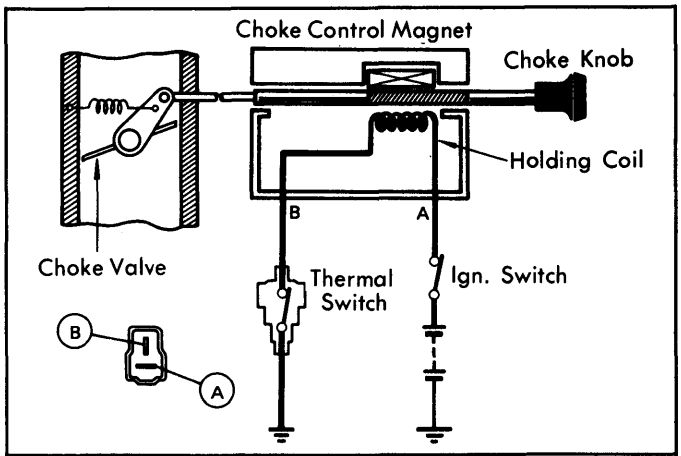

Fig. 5: 1978-79 Choke Return System

TESTING

CHOKE OPENER SYSTEM

1975 Models - See applicable choke opener system diagnostic chart and perform choke opener system test as outlined. *See Figs. 6, 7 and 8.* A cold engine means that either the coolant temperature is below 40°F (4.5°C) or thermo switch is grounded (simulating a cold engine).

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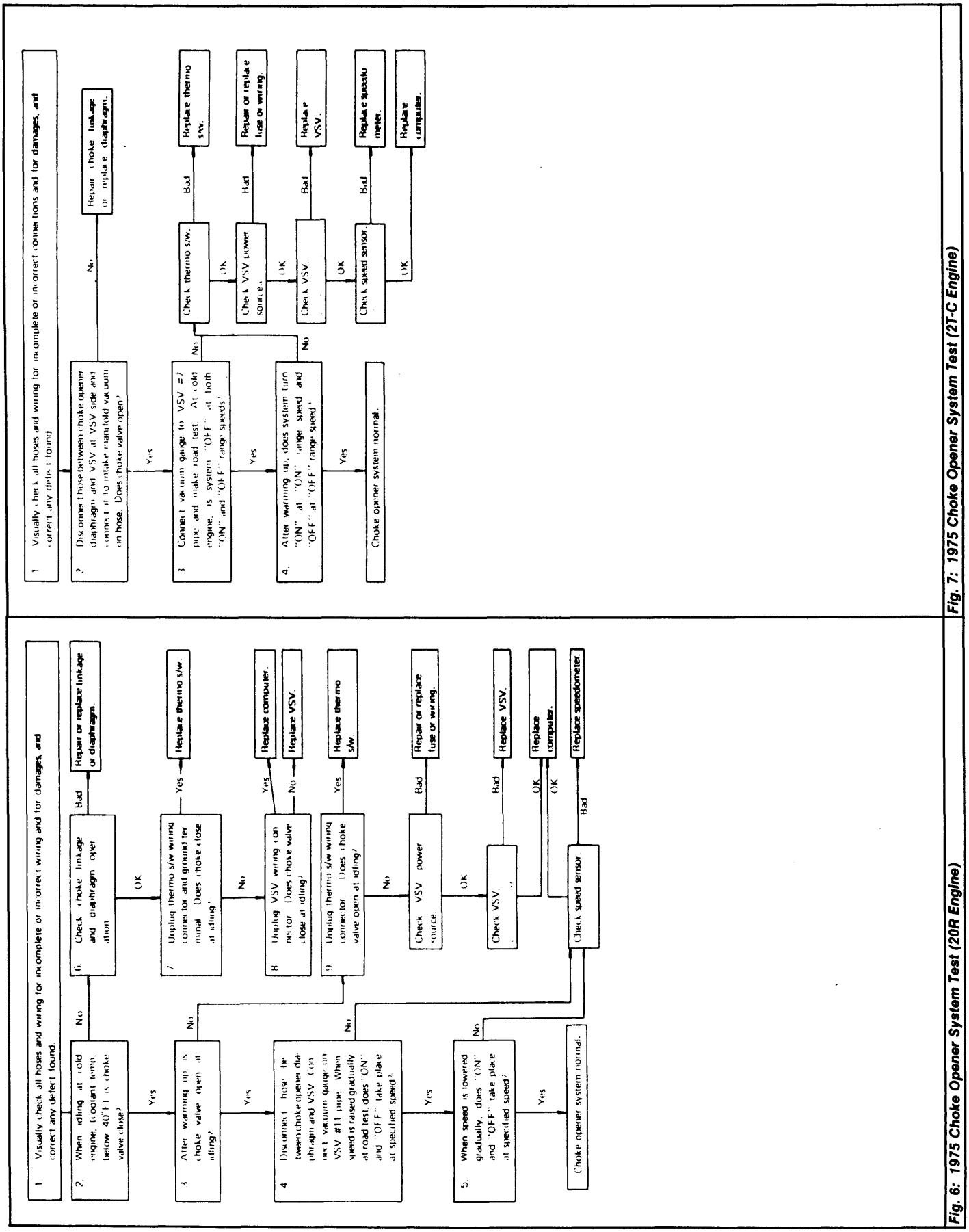
Toyota Choke Opener & Choke Return Systems (Cont.)



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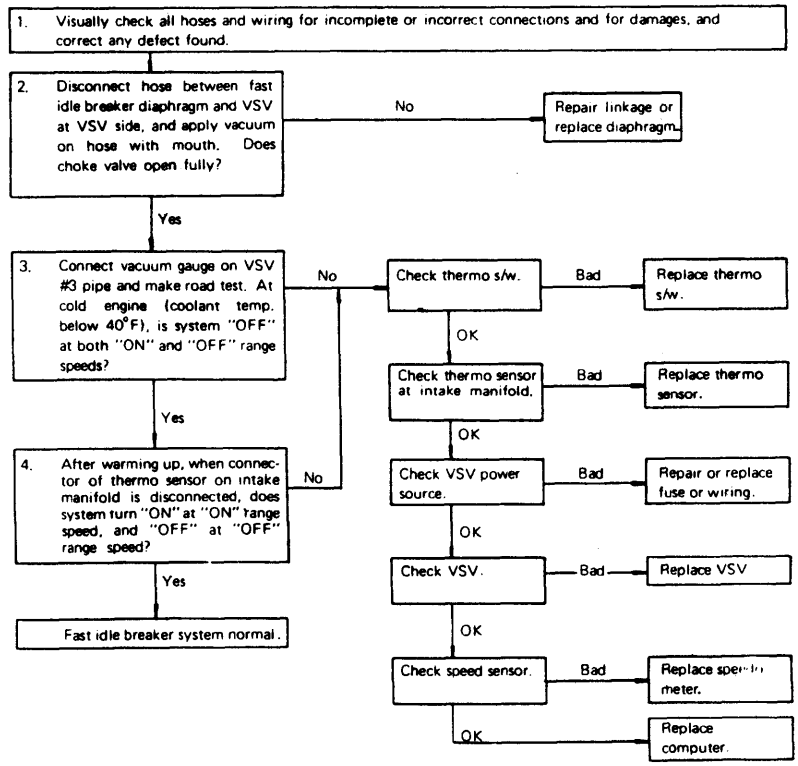

Fig. 8: 1975 Choke Opener System Test (4M Engine)

1976-77 2T-C Engine (Calif.) - With engine cold and idling, make sure choke valve is closed. When engine warms up, check that vacuum is applied to choke opener diaphragm and that choke valve is open. If choke does not operate as indicated, check diaphragm, linkage and thermostatic vacuum switching valve

CHOKE RETURN SYSTEM

1978-79 Models - 1) Remove thermal switch from vehicle. Place thermometer and thermal switch sensing portion in pan of cold water. Check continuity between switch body and terminal. Ohmmeter should read zero (0) ohms. Heat water to above 149°F (65°C). Check continuity. Ohmmeter should now read infinity.

2) To test choke control magnet, disconnect magnet. Using an ohmmeter, check continuity between each terminal and magnet body. There should be no continuity (infinity reading). Check continuity between both terminals of the plug. There should be continuity (zero reading).

SPEED SENSOR

1) Check sensor terminals at back of speedometer for proper connections. Block front wheels and jack up one rear wheel off ground. Release parking brake and place transmission in Neutral.

2) Unplug wiring connector from computer. Using a 10 ohm resistor, connect positive lead of ohmmeter to computer connector speed sensor terminal. *See Fig. 9.* Connect negative ohmmeter lead to a known good ground.

3) Have an assistant turn rear wheel slowly and observe voltmeter. Ohmmeter should fluctuate near infinity mark. If not, replace speedometer assembly if wiring is not defective.

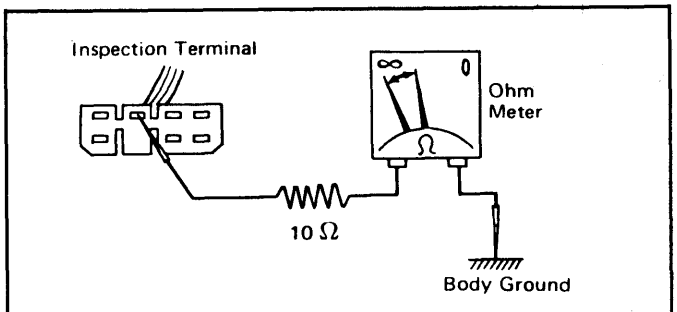

Fig. 9: Speed Sensor Test