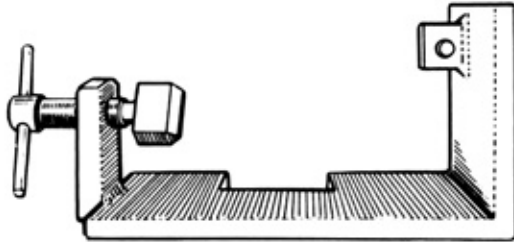


## 22. SPECIAL SERVICE TOOL (SST)

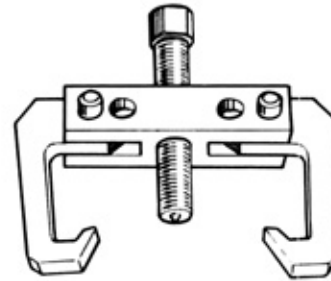
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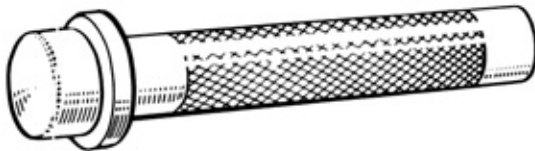
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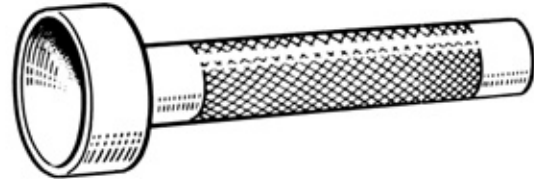
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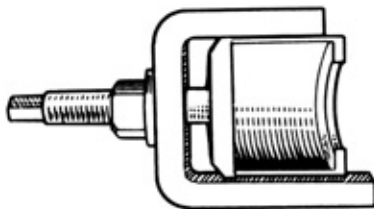
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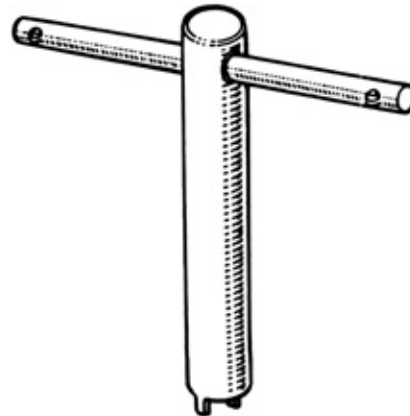
Needle Bearing Replacer & Remover  
09295-60010



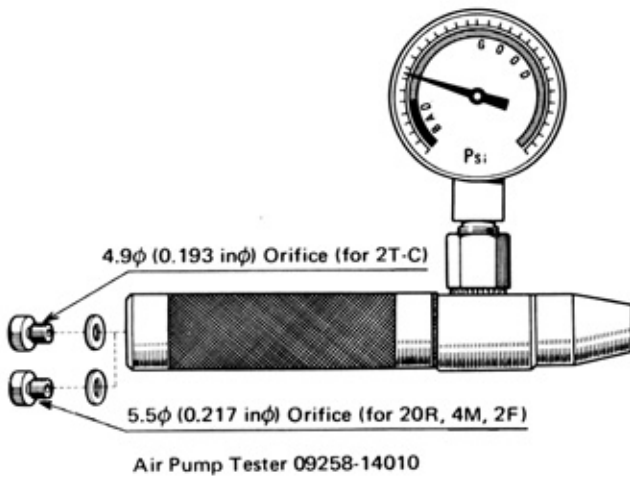
Relief Valve Replacer 09296-60010



Relief Valve Puller 09297-60010



Switch Lock Nut Wrench (09810-25010)



Air Pump Tester 09258-14010

Fig. 22-1 SST

'75 EMISSION DEVICE CHECKER (09990-00080)

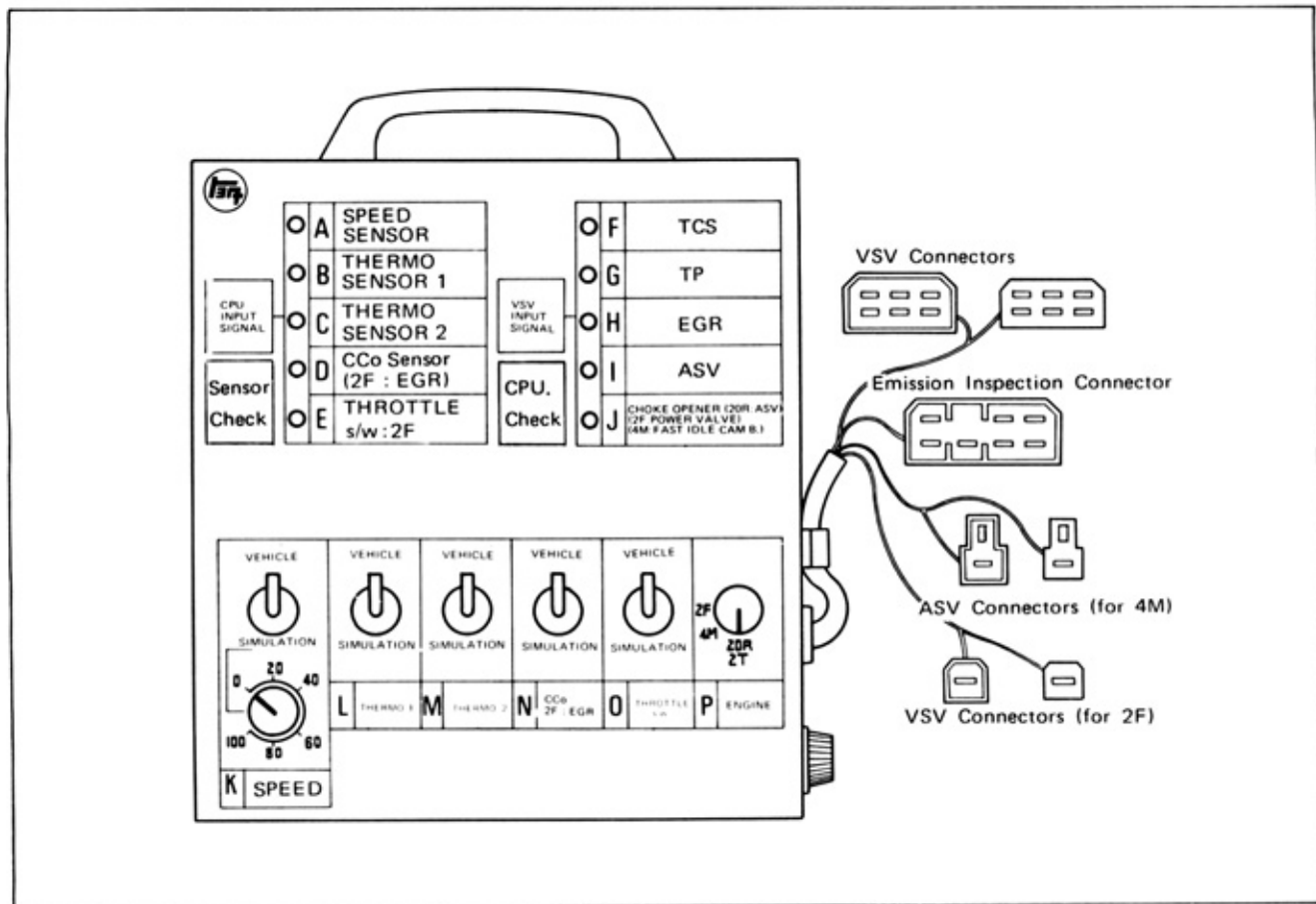


Fig. 22-2 '75 Emission Device Checker (09990-00080)

DESCRIPTION OF SWITCHES AND INDICATOR LIGHTS

Dial "P"	All vehicles	Engine selection dial: Set the dial to the engine to be inspected before starting inspection.
Switch "O"	2F	Throttle position switch: VEHICLE – The "ON"–"OFF" signals of vehicle throttle position switch are sent directly to VSV. SIMULATION – The "ON" signal (full throttle) of throttle position switch is sent to VSV.
Switch "N"	2T-C 2OR 4M	Thermo sensor (for catalytic converter temperature): VEHICLE – The vehicle thermo sensor signal (resistance change) is sent directly to computer. SIMULATION – High temperature signal (above 1800°F) is sent to computer. (At this time, the warning light "EXH. TEMP" will go on.)
	2F	Thermo sensor (for EGR gas temperature inside EGR valve) VEHICLE – The vehicle thermo sensor signal (resistance change) is sent directly to computer. SIMULATION – High temperature signal (above 570°F) is sent to computer.

Switch "M"	2T-C 20R 4M	Thermo switch (for coolant temperature): VEHICLE – The "ON"–"OFF" signals of vehicle thermo switch are sent directly to computer. SIMULATION – Thermo switch "OFF" signal (below 43°F, or above 230°F) is sent to computer.
	2F	Thermo switch (for coolant temperature): VEHICLE – The "ON"–"OFF" signals of vehicle thermo switch are sent directly to computer. SIMULATION – Thermo switch "OFF" signal (below 109°F) is sent to computer.
Switch "L"	2T-C	Thermo switch (for coolant temperature): VEHICLE – The "ON"–"OFF" signals of vehicle thermo switch are sent directly to computer. SIMULATION – Thermo switch "OFF" signal (below 117°F) is sent to computer.
	4M	Thermo sensor (for coolant temperature): VEHICLE – The vehicle thermo sensor signal (resistance change) is sent directly to computer. SIMULATION – Low temperature signal (below 117°F) is sent to computer.
	2F	Thermo sensor (for carburetor flange temperature): VEHICLE – The vehicle thermo sensor signal (resistance change) is sent directly to computer. SIMULATION – Made to send low temperature signal (below 43°F) to computer, but when flange temperature is above 80°F, the checker cannot simulate. Thus, do not use this switch but directly disconnect the thermo sensor wiring to attain low temperature simulation.
Switch "K"	All vehicles	Speed sensor: VEHICLE – The vehicle speed signals are sent directly to computer. SIMULATION – By turning dial "K", vehicle speed change signals can be sent to computer, with vehicle actually at standstill.
Dial "K"	All vehicles	Vehicle speed simulator dial: With switch "K" at "SIMULATION" side, this dial allows sending simulated speed signals to computer.

Light "A"	All vehicles	Speed sensor: With switch "K" at "VEHICLE" side, running the vehicle at low speed (about 5 mph) will cause this light to flash in accordance with the speed sensor pulses. (Flashes on-and-off twice for every one revolutions of speedometer cable)
Light "B"	2T-C	Thermo switch (for coolant temperature): When coolant temperature rises above 117°F, the thermo switch turns "OFF" (system "ON" signal). If at this time, checker switch "L" is at "VEHICLE" side, light "B" will turn on.
	4M	Thermo sensor (for coolant temperature): When coolant temperature rises above 117°F, the thermo sensor resistance becomes small (system "ON" signal). If at this time, checker switch "L" is at "VEHICLE" side, light "B" will turn on.
	2F	Thermo sensor (for carburetor flange temperature): When carburetor flange temperature is below 43°F, the thermo sensor resistance will be small (system "ON" signal). If at this time, checker switch "L" is at "VEHICLE" side, light "B" will turn on.
Light "C"	2T-C 20R 4M	Thermo switch (for coolant temperature): When coolant temperature is between 43°F and 230°F, thermo switch will be "OFF" (system "ON" signal). If at this time, checker switch "M" is at "VEHICLE" side, light "C" will turn on.
	2F	Thermo switch (for coolant temperature): When coolant temperature is below 109°F, the thermo switch will be "OFF" (system "ON" signal). If at this time, checker switch "M" is at "VEHICLE" side, light "C" will turn on.
Light "D"	2T-C 20R 4M	Thermo sensor (for catalytic converter): When the temperature within the catalytic converter is below 1380°F, the thermo sensor resistance will be large and the sensor will send out "ON" signal. But, this light is designed as follows: ○ When catalytic converter temp. is below about 1200°F, light "D" will turn on. ○ When catalytic converter temp. is above about 1200°F, light "D" will turn off.
	2F	Thermo sensor (for EGR gas temperature inside EGR valve): When the temperature of EGR gas is below 320°F, the thermo sensor resistance will be large and the sensor will send out "ON" signal. If at this time, checker switch "N" is at "VEHICLE" side, light "D" will turn on.
Light "E"	2F	Throttle position switch At full throttle, throttle position switch will send out "ON" signal. If at this time, checker switch "O" is at "VEHICLE" side, light "D" will turn on.

## Note

Lights "A" to "E" will not operate properly if the checker switches are at the "SIMULATION" sides.

Light "F"	All vehicles	TCS: Light "F" will be on when the computer is sending TCS system "ON" signal to the VSV.
Light "G"	All vehicles	TP: Light "G" will be on when the computer is sending TP system "ON" signal (also EVAP "ON" signal in case of 2T-C, 20R, and 2F) to the VSV.
Light "H"	20R 4M 2F	EGR Light "H" will be on when the computer is sending EGR system "ON" signal to the VSV.
Light "I"	2T-C 4M	ASV: Light "I" will be on when the computer is sending ASV system "ON" signal to the VSV.
Light "J"	2T-C	Choke opener: Light "J" will be on when the computer is sending choke opener system "ON" signal to the VSV.
	20R	ASV and choke opener: Light "J" will be on when the computer is sending ASV and choke opener system "ON" signal to the VSV.
	4M	Fast idle breaker: Light "J" will be on when the computer is sending fast idle breaker system "ON" signal to the VSV.
	2F	Power valve: Light "J" will be on when the computer is sending power valve "ON" signal to the VSV.

### FEATURES OF CHECKER

1. By means of lights "A" to "E", possible to determine if any thermo switch or sensor is good or bad.
2. By means of lights "F" to "J", possible to determine if computer is good or bad.
3. By means of dial "K", possible to check the operation of various vacuum circuits with the vehicle parked.
4. By means of switches "K" to "O", computer input signals can be simulated, to allow easy checking of the computer, VSV, and various vacuum units.
5. Applicable engines – 2T-C engine for California
  - 20R engine
  - 4M engine
  - 2F engine

### METHOD OF CONNECTING CHECKER TO VEHICLE

1. Plug in the connector (1) to emission inspection terminals.
2. Unplug the VSV wiring connector, and plug in connector (2) to the VSV side and connector (3) to the wiring harness side.
3. Turn on the ignition switch.

Caution:

After completing inspection, make sure to properly plug in the VSV connector to its former location.

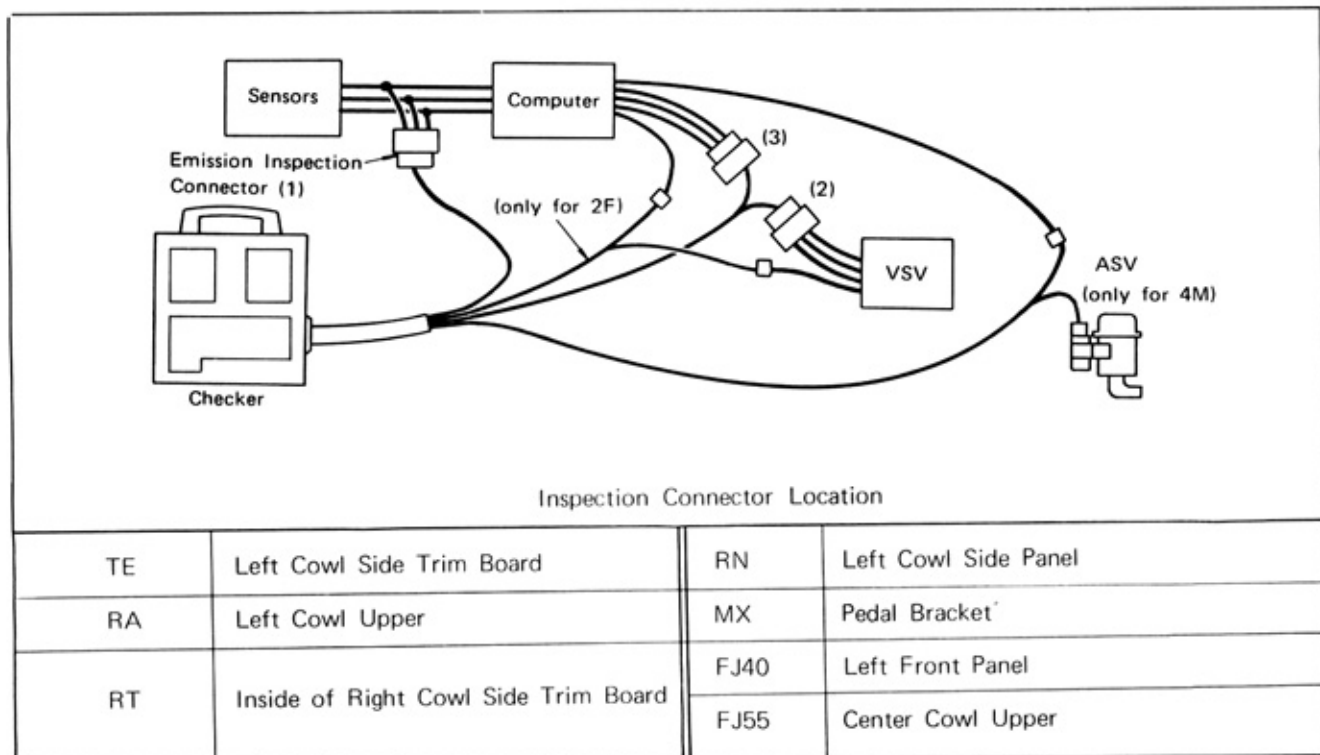


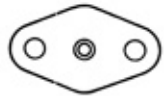
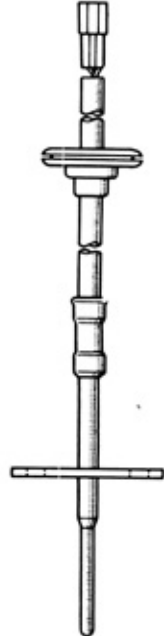


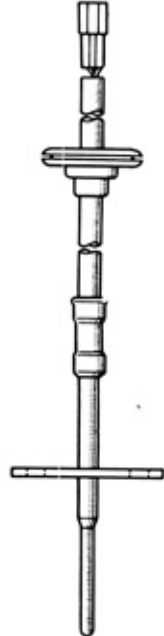
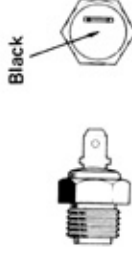
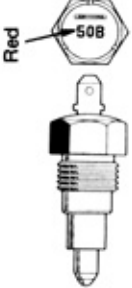



Fig. 22-3 Connection Method

### METHOD OF DETERMINING SYSTEM CONDITION

1. In case the inspection has been made with the checker switches tilted to "VEHICLE" side and in accordance with the inspection procedures for the various systems, and if any of the lights "A" to "E" fails to indicate as specified, the sensor or switch applicable to that light indicating faulty condition or the related wiring can be determined as being defective.
2. In case the checker lights "A" to "E" indicate normally but if any of the lights "F" to "J" fails to indicate as specified when the various systems are checked in accordance with the inspection procedures, the computer or the wiring can be determined as being defective.
3. In case the checker lights "F" to "J" indicate normally, and the inspection had been made in accordance with the inspection procedures for the various system, if the vacuum units fail to operate properly, check the vacuum units. If they are on good condition, the VSV or its wiring can be determined as being defective. The VSV condition can also be checked by operating the checker simulation switches for presence of VSV vacuum.

RELATIONSHIP BETWEEN CHECKER TO THERMO SWITCHES AND THERMO SENSORS

Lamp	B	C	D
Switch	L	M	N
2T-C Engine	<p>Thermo Switch (at Intake Manifold)</p> 	<p>Thermo Switch (at Radiator)</p> 	<p>Thermo Sensor (at Catalytic Converter)</p> 
20R Engine	/		<p>Thermo Sensor (at Catalytic Converter)</p> 
4M Engine	<p>Thermo Sensor (at Intake Manifold)</p> 	<p>Thermo Switch (at Water Outlet)</p> 	<p>Thermo Sensor (at Catalytic Converter)</p> 
2F Engine	<p>Thermo Sensor (at Carburetor)</p> 	<p>Thermo Switch (at Cylinder Head)</p> 	<p>Thermo Sensor (at EGR Valve)</p> 



**PRECAUTIONS ON INSPECTION AT COLD ENGINE**

If the outdoor temperature is too high to allow the coolant temperature (carburetor temperature for 2F engine) to drop below 40°F even if the vehicle is left out in the shade for long time, the checker light "C" (light "B" in case of 2F engine) will be on, making it impossible to perform cold condition inspection of the thermo switch (thermo sensor in case of 2F engine) and the system.

At such time, check the system after grounding the wiring terminals of the thermo switch (at radiator in 2T-C engine and at water outlet in 20R and 4M engines). For 2F engine, check the system after unplugging the carburetor thermo sensor wiring connector.

After completing the inspection, make unit test of the thermo switch or thermo sensor (2F). (Refer to pages 1-5 to 1-6)

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