JEEP CORP.

Jeep

DESCRIPTION

"CJ" Models – Instrument cluster is composed of speedometer housing, panel lights, high beam indicator, turn signal indicators, brake failure/parking brake warning indicator, Emergency Drive indicator, temperature gauge, and combination fuel gauge and constant voltage regulator (CVR). Other gauges include tachometer, voltmeter and oil pressure gauge.

Cherokee, Wagoneer & "J" Models – Instrument cluster is composed of speedometer housing, panel lights, high beam indicator, turn signal indicators, ammeter, oil pressure gauge, temperature and fuel gauges, constant voltage regulator (CVR), brake failure warning bulb, lockout warning bulbs (Quadra-Trac), heater control lights, wiper/washer control lights and blower motor fan switch.

OPERATION

Ammeter – Used to indicate current flow into or out of battery, depending upon vehicle electrical load. Regular equipment on all but "CJ" Models.

Temperature Gauge – System consists of gauge and sending unit, appropriate wiring and constant voltage regulator (CVR). Gauge is grounded through variable resistance of sending unit. Changes in coolant temperature vary resistance in sending unit, increasing or decreasing indication on gauge.

Fuel Level Gauge – System consists of a fuel gauge, sending unit in fuel tank, appropriate wiring and constant voltage regulator (CVR). Gauge is grounded through variable resistance of sending unit. A float attached to a slide rheostat follows fuel level and varying resistance increases or decreases indicator reading.

Voltmeter – Used on "CJ" models only, system consists of a voltmeter and related wiring. Voltmeter indicates regulated voltage to provide an indication of the charging systems ability to maintain battery charge.

Oil Pressure Gauge – Consists of magnetic type gauge, a variable resistance sending unit and wiring on "CJ" Models. There are two coils in gauge, one directly grounded, the other connected to sending unit. Resistance is controlled in sending unit by oil pressure. Magnetic fields are created around both coils in gauge. Needle is attracted to coil having greater current flow. On all other models, oil pressure gauge system consists of CVR-powered gauge, variable resistance sending unit, and CVR. Gauge needle, attached to bi-metal strip, responds to temperature changes. It moves as current flows from CVR through heating coil around bi-metal strip, and to ground at sending unit on engine.

Constant Voltage Regulator – 1) On "CJ" models, CVR is built into the fuel gauge and on all other models it is built into the temperature gauge. CVR provides equal regulated voltage to each gauge.

2) The CVR's function is to regulate the variable input voltage available from car battery, or charging system to provide a constant 5 volt output to gauges. The CVR does not produce a steady DC voltage output, but rather a pulsating voltage averaging 5 volts. Output voltage averaging lower or higher than 5 volts will result in proportionately higher or lower gauge readings.

TESTING

OIL PRESSURE GAUGE

1) To test accuracy of oil pressure gauge, use a variable resistance tester (J-24538 or equivalent).

2) Disconnect wire from sending unit on engine. Turn ignition switch "ON". Connect one lead of tester to ground and other leading to sending unit wire. Compare results with specifications shown in table.

Oil Press. Gauge Test Readings

Application	Psi	Ohms
CJ Models	0	73
	40	20
	80	10
Cherokee, Wagoneer & J Models	0	69-77
	10	35-38
	60	13-15
	80	9.5-10.5

FUEL & TEMPERATURE GAUGE

1) Using a variable resistance tester (J-24538 or equivalent), attach one lead to fuel tank sending unit and other lead to sending unit ground wire. Move float arm and mark arm location at each of the appropriate resistance values.

2) Disconnect sending wire from sending unit. Connect one lead of tester to sending wire and other lead to ground. Turn ignition to "ON" position. Adjust tester to known ohm values and observe gauge indication at each ohm setting.

NOTE – *Fuel and temperature gauge indications may vary width of needles at any specific resistance value. Preceding test applies to both gauges.*

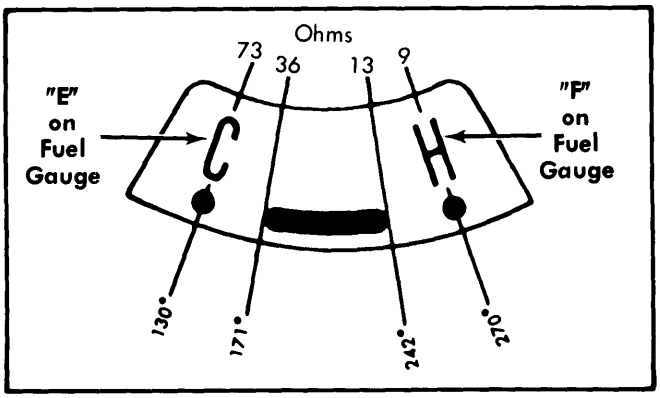

Fig. 1 Fuel and Temperature Gauge Test Band by Ohms and Needle Position

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VOLTMETER

Connect voltmeter of known accuracy across battery terminals. Turn ignition switch "ON" and compare indication of test voltmeter with indication of vehicle voltmeter. Replace if readings vary.

REMOVAL & INSTALLATION

SPEEDOMETER & GAUGES

All Models – Instrument panel must be removed to gain access to speedometer and gauges for repair or replacement.

INSTRUMENT CLUSTER

"CJ" Models – Disconnect battery ground cable. Separate speedometer cable from speedometer head. Remove four attaching nuts and pull cluster from mounting studs. Note position of all lamps and wires. Remove gauge wires and lamps. To install, reverse removal procedure.

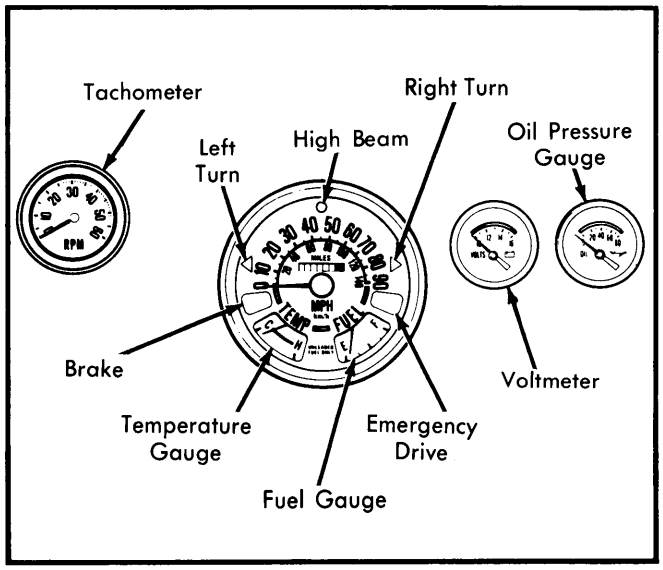

Fig. 2 Jeep Instrument Cluster ("CJ" Models)

Cherokee, Wagoneer & "J" Models – 1) Disconnect battery and remove six cluster retaining screws. Disconnect speedometer cable. Pull cluster pin terminal plug straight away from cluster. Disconnect four-terminal plug, fan switch connector plug, and vacuum hoses from heater control. Mark ammeter wires and disconnect them.

NOTE – *Tag hoses to ensure proper connections when installing the cluster.*

2) Remove two heater control panel lights, and disconnect temperature control wire from lever. Remove instrument cluster assembly. To install, reverse removal procedure.

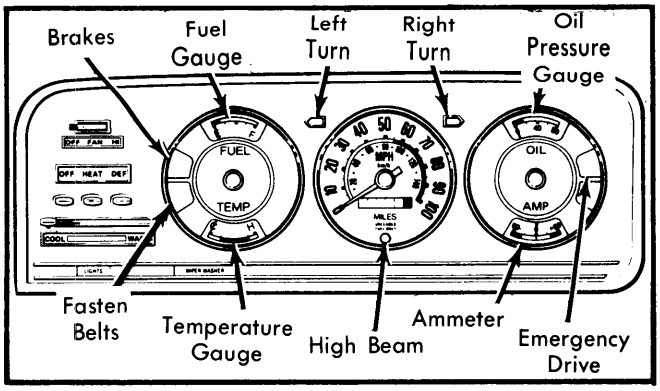

Fig. 3 Jeep Instrument Cluster (Cherokee, Wagoneer & "J" Models)

PRINTED CIRCUITS

NOTE – *Only Cherokee, Wagoneer & "J" Models use printed circuit board. "CJ" Models use direct wiring for all gauges and cluster lamps.*

Cherokee, Wagoneer & "J" Models – Remove instrument cluster, radio noise suppressor, and all lamps from cluster (twist counterclockwise to remove). Remove circuit board and gauge assembly. Remove retaining nuts from ammeter and oil pressure gauges. Lift ammeter, oil pressure gauge and plate out of cluster as an assembly. Remove retaining nuts from fuel and temperature gauges. Remove large ground screw from circuit board above speedometer. Remove speedometer, fuel gauge, and temperature gauge as an assembly. To install, reverse removal procedure, checking gauge lenses for fingerprints.

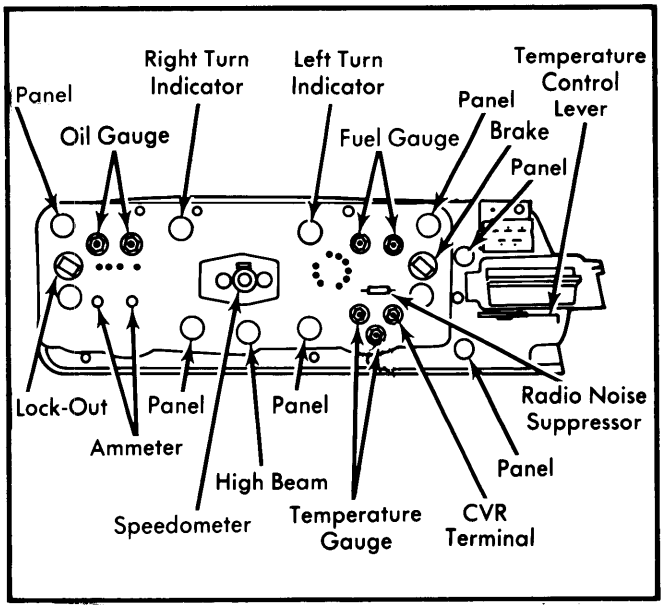

Fig. 4 Rear View of Jeep Instrument Cluster (Cherokee, Wagoneer & "J" Models)

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CONSTANT VOLTAGE REGULATOR

CVR is integral part of fuel gauge on "CJ" models and of temperature gauge on other models. If regulator requires replacement, entire gauge must be replaced.

HEADLIGHT SWITCH

All Models – Disconnect connector plug from switch, pull control knob out to second position. From behind instrument panel, depress knob release button and pull knob out of switch. Remove retaining nut and bezel. Remove switch through rear of instrument panel. To install, reverse removal procedures.

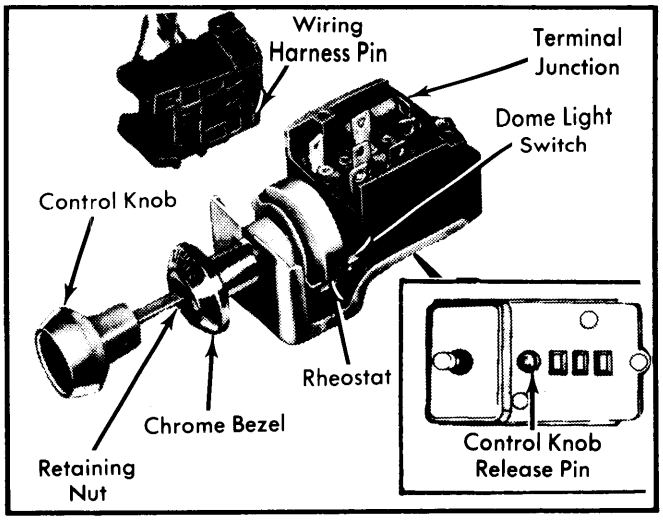

Fig. 5 Jeep Headlight Switch & Harness Connector