

BMW

DESCRIPTION

All models have an instrument cluster with speedometer, tachometer, fuel gauge and temperature gauge. The headlight switch is located on the instrument panel. High beam, turn signals and wiper switch are on steering column levers.

The 633CSi and 733i models have a safety check panel at the lower left side of the instrument panel. The gauges use variable resistance sending units. No voltage limiter is used. On 528e and 733i models, the speedometer is electronically operated, with a sending unit on the rear axle.

TESTING

TEMPERATURE GAUGE

Disconnect sending unit wire and connect it to ground. Turn on ignition briefly. Gauge needle should move into Red zone on gauge. If it does, temperature sending unit may be defective. If not, check continuity of sending unit wire. If wiring is good, gauge is inoperative.

FUEL GAUGE

Remove rear seat and tank access cover. Unplug sending unit wire and connect it to ground. Turn ignition on briefly. Gauge needle should move to Full. If it does, sending unit may be defective. If not, check sending unit wire continuity. If wire is good, gauge is inoperative.

RESISTANCE CHECK

NOTE: Most models have a combination temperature sending unit that includes a resistance sender and a temperature switch. The smaller terminal is the resistance sender. Temperature values for the sending unit are stamped in the body of the sender.

1) Connect test resistor between sending unit wire and ground. Turn ignition on. Gauge readings should match those shown in following table.

GAUGE RESISTANCE CHECK

Model & Gauge ¹	Gauge Reading	Resistance (Ohms)
528e	Fuel Gauge Full	3
	..... Half	36
	..... Empty	73
733i	Fuel Gauge Full	5
	..... Half	50
	..... Empty	82
Temperature Gauge	..... 104°F (40°C)	288
	..... 140°F (60°C)	125
	..... 240°F (115°C)	26

¹ — Resistance values were not available for 320i or 633CSi models.

REMOVAL & INSTALLATION

INSTRUMENT CLUSTER

Removal & Installation (320i)

1) Disconnect battery ground. Remove steering wheel. Remove insulation panel under left side of dashboard. Disconnect speedometer cable at middle joint. Do not lose felt ring.

2) Unscrew knurled nut below instrument cluster. Pull out instrument cluster. Unplug wiring from cluster and transmission gear indicator (if equipped). Remove cluster. To install, reverse removal procedure.

Removal & Installation (633CSi)

1) Disconnect battery ground. Remove steering wheel. Remove insulation panel under left side. Pry cover off test panel and remove 3 screws. Pull panel out, but leave wires connected. Unscrew headlight switch knob and remove switch.

2) Pull off left air control knob, then remove trim cover at left edge of heater panel. Remove instrument cluster screws (2 on each side). Loosen screws on each side of steering column and lower column enough to remove cluster. Unplug wiring and remove cluster. To install, reverse removal procedure.

Removal & Installation (528e & 733i)

Disconnect battery ground. Remove insulation panel below left side of dashboard. Remove screws across top of instrument cluster hood. On 733i, move steering column down and out as far as possible. On all models, disconnect wiring, then pull cluster out toward center of vehicle. To install, reverse removal procedure.

COMBINATION SWITCH

Removal & Installation (All Models)

Disconnect battery ground. Remove steering wheel and lower column cover. Remove screws from switch. Cut cable clips, unplug wiring, and remove switch. To install, reverse removal procedure.

HEADLIGHT SWITCH

Removal & Installation (320i, 528e & 633CSi)

Disconnect battery ground. Remove insulation panel below left side of dashboard. Pull out headlight knob. Insert a pin through shaft to keep it from turning, then unscrew knob. Remove switch nut and pull switch out from rear. Unplug wiring and remove switch. To install, reverse removal procedure.

Removal & Installation (733i)

Disconnect battery ground. Remove insulation panel below left side of dashboard. Remove knurled nut on back of headlight switch. Unplug wiring and remove switch. To install, reverse removal procedure.

2) Remove sending unit and check resistance at position or temperature specified. Resistance should be close to specifications in table. If not, replace sending unit.