

INSTRUMENT PANEL
Article Text
1993 Mazda 929
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Thursday, March 25, 1999 12:01AM

ARTICLE BEGINNING

1993 ACCESSORIES/SAFETY EQUIPMENT
Mazda Instrument Panels

929

DESCRIPTION & OPERATION

Speedometer senses road speed through a speed sensor (AC voltage signal generator). Fuel gauge, oil pressure gauge and temperature gauge receive signals from variable-resistance sending units. See ELECTRICAL COMPONENT LOCATIONS table.

ELECTRICAL COMPONENT LOCATIONS TABLE

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Component	Location
Oil Pressure Sensor (Gauge) .....	Near Oil Filter
Speed Sensor .....	On Transmission
Temp. Gauge Sending Unit .....	Near Upper Radiator Hose Connection
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TESTING

NOTE: Checker (49-0839-285) simulates sending unit resistance when testing gauges. If checker is not available, gauges may be tested with specific resistors listed in appropriate table.

FUEL GAUGE TEST

1) Disconnect fuel gauge sending unit connector at fuel tank. Connect Red wire lead of Checker (49-0839-285) to Yellow wire terminal of sending unit connector. Ground checker Black wire lead.

2) Turn ignition on. Set checker to specified resistance value. See FUEL GAUGE RESISTANCE table. If fuel gauge needle rests at specified position for each resistance value setting, replace fuel gauge sending unit. If fuel gauge needle does not rest at specified position, check wiring. If wiring is okay, replace fuel gauge.

NOTE: After changing checker resistance value, allow 2 minutes for needle to stabilize. Allowable limit of needle deflection is twice width of needle.

FUEL GAUGE TEST TABLE

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Resistance Setting (Ohms)	Needle Position
7 .....	Full
33 (1) .....	Half

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95 ..... Empty  
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**FUEL GAUGE SENDING UNIT TEST**

**WARNING:** On vehicles with fuel-injected engine, relieve fuel pressure before servicing fuel system.

1) Remove fuel gauge sending unit. Connect ohmmeter between the following wire terminals of sending unit connector:

- * Yellow and Black

2) Check resistance with sending unit float at specified position. See FUEL GAUGE SENDING UNIT RESISTANCE table. If resistance is not as specified, replace fuel gauge sending unit.

**FUEL GAUGE SENDING UNIT RESISTANCE TABLE (1)**

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Float Position	Ohms
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Fully Raised .....	6
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Mid-Range .....	33
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(1) - Resistance values and float positions are approximate.

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**OIL PRESSURE SWITCH TEST**

Check continuity between oil pressure switch connector terminal and ground. With engine stopped, there should be continuity. With engine running, there should be no continuity. Replace oil pressure switch if continuity is not as specified.

**SPEEDOMETER TEST**

**NOTE:** Tire size, wear and incorrect inflation can affect speedometer reading and odometer measurement. Allowable variance between actual vehicle speed and indicated speed is about 1/2 MPH for every 10 MPH of vehicle speed.

Disconnect speed sensor connector. Connect AC voltmeter (5-volt scale) across speed sensor connector terminals. With transmission in Neutral, slowly turn drive wheels. If voltage pulses are not detected, replace speed sensor. If voltage pulses are detected, check wiring. If wiring is okay, replace speedometer.

**TACHOMETER VARIANCE TEST**

Connect positive lead of test tachometer to negative terminal of ignition coil. Connect negative lead of tachometer to ground. Start engine. Compare vehicle tachometer with test tachometer. Vehicle

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tachometer performance is acceptable if specification is within allowable range. See TACHOMETER VARIATION SPECIFICATIONS table. If tachometer performance is not within specifications, replace tachometer.

**TACHOMETER VARIATION SPECIFICATIONS TABLE**

Standard Indication		Allowable Range
1000 RPM	.....	880-1060 RPM
2000 RPM	.....	1970-2150 RPM
3000 RPM	.....	3000-3180 RPM
4000 RPM	.....	4000-4240 RPM
5000 RPM	.....	5000-5300 RPM
6000 RPM	.....	6000-6360 RPM
7000 RPM	.....	7000-7420 RPM
8000 RPM	.....	8000-8480 RPM

**TEMPERATURE GAUGE TEST**

**NOTE:** After changing checker resistance value, allow 2 minutes for needle to stabilize. Allowable limit of needle deflection is twice width of needle.

1) Disconnect temperature gauge sending unit connector. Connect Red wire lead of Checker (49-0839-285) to sending unit connector terminal and Black wire lead to ground.

2) Turn ignition on. Set checker to specified resistance value. See TEMPERATURE GAUGE RESISTANCE table. If gauge needle rests at specified position for each resistance value setting, replace sending unit. If gauge needle does not rest at specified position, check wiring. If wiring is okay, replace gauge.

**TEMPERATURE GAUGE RESISTANCE TABLE**

Application & Resistance Setting (Ohms)		Needle Position
18	.....	HOT
181	.....	COLD

**TEMPERATURE GAUGE SENDING UNIT TEST**

Remove sending unit. Place sending unit in a pan of water with a thermometer. Gradually heat water. Measure resistance between sending unit connector terminal and sending unit body. Replace sending unit if resistance is not as specified. See TEMPERATURE GAUGE SENDING UNIT RESISTANCE table.

**TEMPERATURE GAUGE SENDING UNIT RESISTANCE TABLE**

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Application Specification

929 ..... 190-260 Ohms @ 122°F (50°C)

## REMOVAL & INSTALLATION

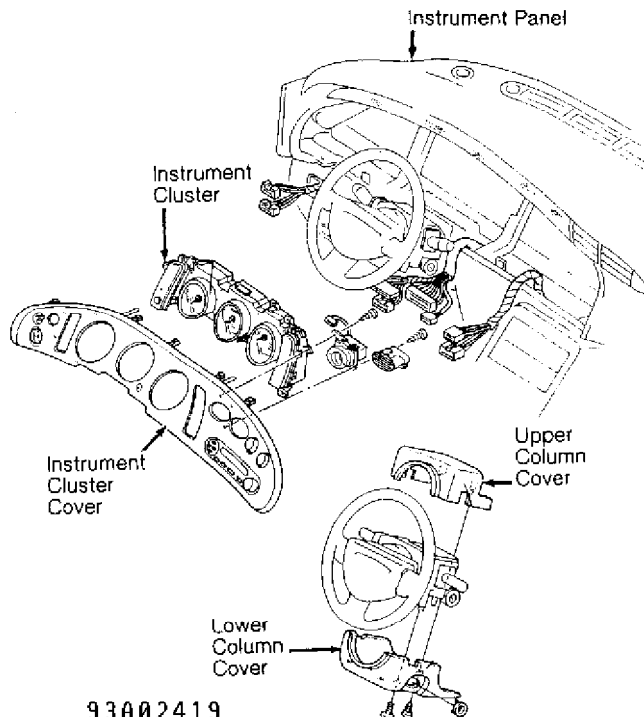
NOTE: For exploded view of instrument cluster, see Fig. 2.

### INSTRUMENT CLUSTER

WARNING: 929 is equipped with air bag restraint system. See AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIPMENT section for warnings and safety precautions.

#### Removal & Installation

Remove upper and lower column covers. See Fig. 1. Remove upper steering column mounting bolts. Lower steering column. Remove instrument cluster cover. Remove instrument cluster. Disconnect wiring harness connectors. To install, reverse removal procedure.



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Fig. 1: Removing Instrument Cluster  
Courtesy of Mazda Motors Corp.

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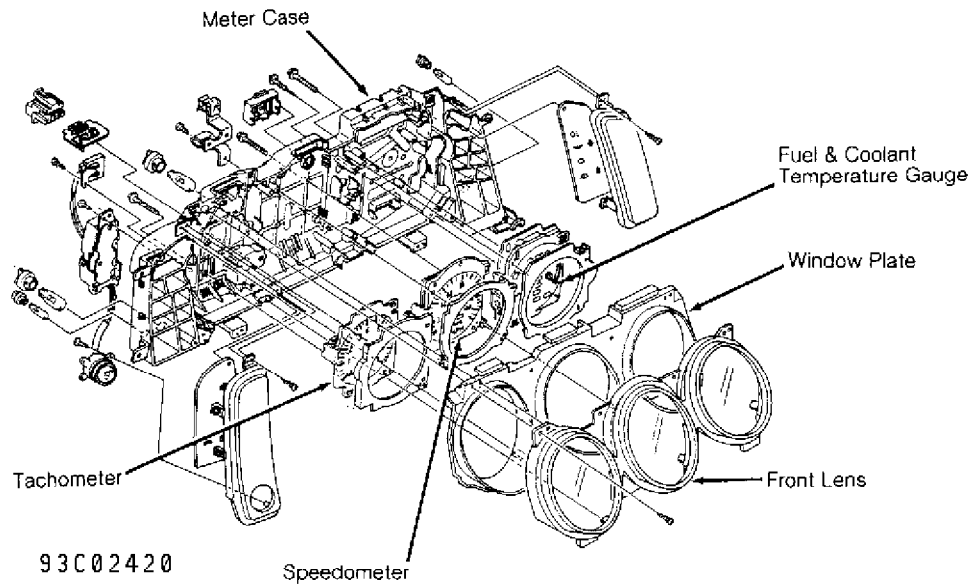


Fig. 2: Exploded View Of Instrument Cluster  
Courtesy of Mazda Motors Corp.

## WIRING DIAGRAMS

Refer to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.

**END OF ARTICLE**