INSTRUMENT PANEL

1993 Toyota Celica

1993 ACCESSORIES/SAFETY EQUIPMENT
Toyota Instrument Panels

Celica

* PLEASE READ THIS FIRST *

WARNING: Celica is equipped with a driver-side air bag; use extreme caution while working around steering column. To disable air bag system, ensure ignition switch is in LOCK position and negative battery terminal is disconnected for at least one minute before attempting any repair. DO NOT apply electrical power to any instrument panel connector without disconnecting air bag control unit. Information labels are attached to air bag components. Follow all notices on labels. Use only DVOM (volt/ohmmeter) with minimum of 10-k/ohm impedance to check ANY circuit.

DESCRIPTION & OPERATION

GAUGES

Standard instrument clusters contain fuel and temperature gauges with tell-tale warning lights. Some optional instrument panels are equipped with a tachometer, oil pressure gauge and voltmeter. Gauge internal operating components use either a 2-terminal bimetallic strip type, or a 3-terminal coil type. The 2-terminal type gauges are generally used on clusters without tachometers.

SWITCHES

Celica contains a hazard warning switch and cruise control main ON/OFF switch on instrument panel. Celica uses a combination switch for headlight, turn signal, wiper/washer, and cruise control switches. Combination switch is mounted on steering column. For testing and/or removal and installation procedures for combination switch components, see STEERING COLUMN SWITCHES article in the ACCESSORIES/SAFETY EQUIPMENT section.

TESTING - GAUGES

FUEL GAUGE & WARNING LIGHT

Fuel Gauge And Wiring Harness Operational Test

1) Unplug fuel tank sending unit connector. Turn ignition on. If fuel gauge indicates EMPTY, go to next step. If fuel gauge does not indicate EMPTY, repair short circuit in wiring harness. See appropriate chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.

2) Connect a 12-volt, 3.4-watt test light between appropriate terminals of sending unit wiring harness connector. See FUEL GAUGE & HARNESS TEST table. See Fig. 1.

3) With ignition on, test light should flash and gauge needle should move toward FULL. If test light does not flash and gauge needle does not move, check wiring harness for open circuit. Repair or replace as necessary. If wiring harness checks good, replace fuel gauge.

FUEL GAUGE & HARNESS TEST TABLE

Model	Sending Unit Harness Connector Terminals
Celica	3 & 4

Fig. 1: Fuel Sending Unit Harness Connector Terminal ID
Courtesy of Toyota Motor Sales, U.S.A., Inc.

FUEL SENDING UNIT TESTS

Fuel Sending Unit Resistance Test

1) Turn ignition off. Remove fuel sending unit from tank. Connect ohmmeter to appropriate sending unit terminals. See FUEL SENDING UNIT CONNECTOR TERMINALS table. Sending unit connector terminals are located opposite harness connector terminals. See Fig. 1.

2) Move sender arm and ensure resistance is within specifications. See FUEL SENDING UNIT RESISTANCE SPECIFICATIONS table. After a short delay, gauge pointer should move when sender is connected and float arm is moved.

FUEL SENDING UNIT CONNECTOR TERMINALS TABLE

Model	Sending Unit Connector Terminals
Celica	3 & 4

FUEL SENDING UNIT RESISTANCE SPECIFICATIONS TABLE

Float Position	Ohms
Full	3
Empty	110

Low Fuel Warning Light Sensor Operational Test

1) Remove fuel sending unit from gas tank. Prepare a battery to connect voltage to warning light sensor terminals of sending unit connector. See LOW FUEL WARNING LIGHT SENSOR TERMINALS table.

2) Connect a 12-volt, 3.4-watt test light between positive battery terminal and one warning light sensor terminal of sending unit connector. Connect other warning light sensor terminal to negative battery terminal.

3) With sending unit float/sensor dry, test light should come on within about 40 seconds. With sending unit float/sensor submerged in gasoline or water, test light should not come on. If test light does not function as described, reverse wire connections at battery terminals and retest. If test light still does not function as described, replace sensor or complete sending unit.

LOW FUEL WARNING LIGHT SENSOR TERMINALS TABLE

Model	Sending Unit Connector Terminals
3S-GTE	2 & 4
4A-FE & 5S-FE	1 & 4

Fuel Gauge Resistance Test

Remove instrument cluster. Unplug cluster connector(s). Using an ohmmeter, check fuel gauge resistance by measuring across appropriate terminals. See Fig. 2. See FUEL GAUGE RESISTANCE SPECIFICATIONS table. Replace fuel gauge if not within specifications.

FUEL GAUGE RESISTANCE SPECIFICATIONS TABLE

Application & Terminals	Ohms
3S-GTE	
Terminals "A" & "B"	101
Terminals "A" & "C"	252
Terminals "B" & "C"	151
4A-FE & 5S-FE	
Terminals "A" & "B"	86
Terminals "A" & "C"	274
Terminals "B" & "C"	188

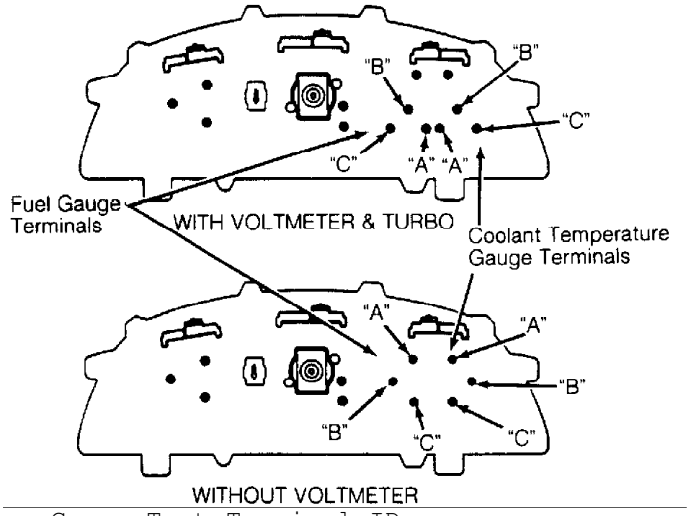

Fig. 2: Gauge Test Terminal ID
Courtesy of Toyota Motor Sales, U.S.A., Inc.

Wiring Harness Operational Test

1) Unplug connector at coolant temperature sender. Turn ignition on. Temperature gauge should indicate COOL. Turn ignition off. Connect a 12-volt, 3.4-watt test light between coolant temperature sender harness connector terminal and ground.

2) Turn ignition on. Test light should glow and temperature gauge should slowly move to HOT. If gauge functions as described, replace sending unit. If gauge does not function as described, perform TEMPERATURE GAUGE RESISTANCE TEST.

Temperature Gauge Resistance Test

Remove instrument cluster. Using ohmmeter, check gauge resistance across appropriate terminals. See Fig. 2. Ensure ignition is off and harness connector is unplugged from instrument cluster. See TEMPERATURE GAUGE RESISTANCE SPECIFICATIONS table. Replace gauge if not within specification. If gauge is within specification, repair open or short circuit in wiring harness.

TEMPERATURE GAUGE RESISTANCE SPECIFICATIONS TABLE

Application	Ohms
Terminals "A" & "B"	182
Terminals "A" & "C"	131
Terminals "B" & "C"	51

TACHOMETER TEST

Connect a tune-up test tachometer and start engine. Compare vehicle tachometer RPM reading against test tachometer. If vehicle tachometer reading is outside allowable range, replace tachometer. See TACHOMETER TEST table.

TACHOMETER TEST TABLE

Vehicle RPM Reading	Allowable Range
700	610-750
3000	2800-3200
5000	4800-5200
7000	6700-7300

TURBO GAUGE

Turbo Gauge & Harness Operational Test

1) Disconnect turbo pressure sensor harness connector located on right rear of firewall. Turn ignition on. Turbo gauge needle should move to top of gauge.

2) Jump terminal No. 2 of turbo pressure sensor harness connector to ground. See Fig. 4. Turbo gauge needle should move to bottom of gauge. If gauge needle functions as described, test turbo pressure sensor and meter drive circuit. If gauge needle does not function as described, test turbo gauge resistance.

Turbo Gauge Resistance

Remove instrument cluster enough to leave harness connectors connected and still access turbo gauge terminals on rear of cluster. Using ohmmeter, check turbo gauge resistance. See Fig. 3. If resistance is not 72 ohms, replace turbo gauge. If turbo gauge resistance is 72 ohms, test turbo pressure sensor.

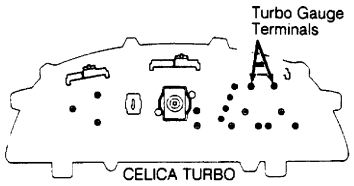

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Fig. 3: Turbo Gauge Test Terminal ID (Turbo)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

Turbo Pressure Sensor (Voltage Test)

1) Connect three 1.5-volt dry cell batteries in series. Disconnect turbo pressure sensor connector located on right rear of firewall. Connect positive wire from batteries to terminal No. 3 of pressure sensor connector. See Fig. 4.

2) Connect negative wire of batteries to terminal No. 1 of pressure sensor connector. Using DVOM, check voltage between terminals No. 1 and 2. If voltage is not as specified, replace pressure sensor. See TURBO PRESSURE SENSOR VOLTAGE SPECIFICATIONS table. If voltage is within specification, go to next step.

TURBO PRESSURE SENSOR VOLTAGE SPECIFICATIONS TABLE

Application	Approximate Voltage
Turbo	2.4

3) Apply 8 in. Hg (vacuum) to pressure sender. Check DVOM voltage reading to drop below specification. Using SST 09992-00241, apply 7 psi (.5 kg/cm^2) air pressure to pressure sender. Ensure DVOM voltage reading increases slightly more than specification. See TURBO PRESSURE SENSOR VOLTAGE SPECIFICATIONS table.

4) If voltage readings do not change as described, replace turbo pressure sensor. If turbo pressure sensor tests okay, check wiring harness. Repair as necessary. For more information, see appropriate I - SYSTEM/COMPONENT TESTS article in the ENGINE PERFORMANCE section.

WIRING HARNESS CONNECTOR SIDE SHOWN

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Fig. 4: Turbo Pressure Sensor Connector Terminal ID
Courtesy of Toyota Motor Sales, U.S.A., Inc.

Turbo Meter Drive Circuit

1) Disconnect turbo pressure sensor connector. Remove

instrument cluster. See INSTRUMENT CLUSTER under REMOVAL & INSTALLATION. Inspect cluster wiring harness connectors/terminals for damage or poor connections.

2) Using DVOM, check turbo meter drive circuit terminals for correct values. See Fig. 5. See TURBO METER DRIVE CIRCUIT SPECIFICATIONS table. If values are not as specified, replace turbo meter drive circuit.

TURBO METER DRIVE CIRCUIT SPECIFICATIONS TABLE

Connector-Terminal	Ignition	Specified Value
Resistance Check		
"A" - "B"	Off	Continuity
"C" - 2 (1)	Off	Continuity
"D" - Ground	Off	Continuity
1 (1) - Ground	Off	Continuity
Voltage Check		
"E" - Ground	Off	Zero Volts
"E" - Ground	On	Battery Voltage
3 (1) - Ground	Off	Zero Volts
3 (1) - Ground	On	Battery Voltage

(1) - Terminal number is located on turbo pressure sensor wiring harness connector. See Fig. 4.

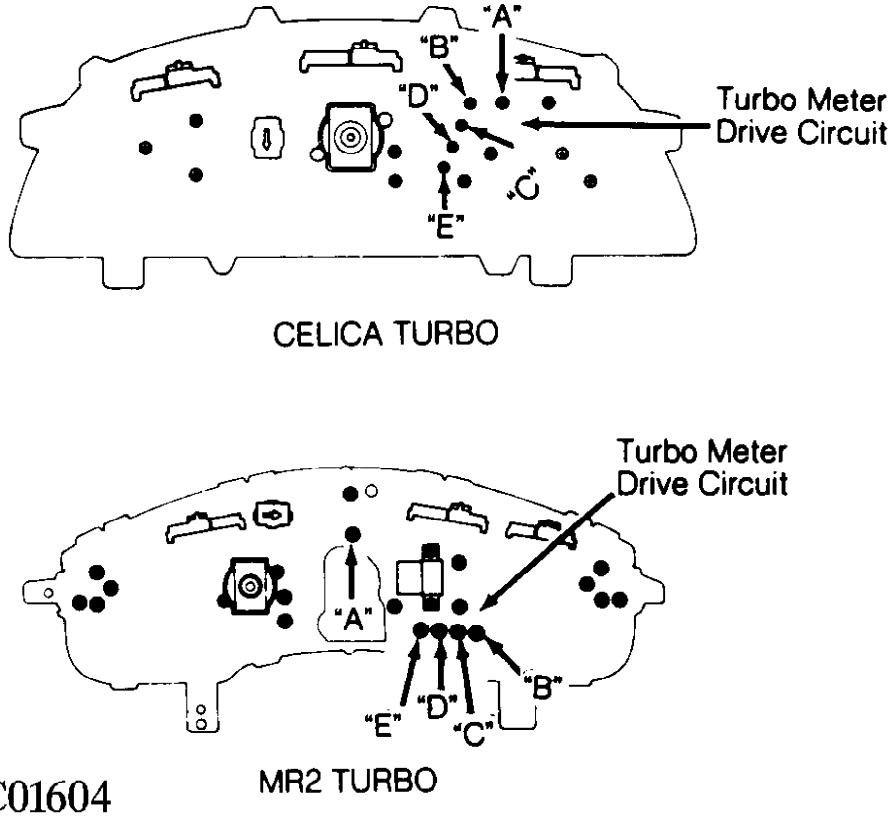

Fig. 5: Turbo Meter Drive Circuit Terminal ID
Courtesy of Toyota Motor Sales, U.S.A., Inc.

TESTING - SWITCHES

HAZARD WARNING SWITCH

1) Ensure HAZARD-HORN and/or TURN fuses are good. Ensure flasher is good. See TURN SIGNAL FLASHER LOCATION table. With hazard warning switch removed from dash, ensure voltage is at switch wiring harness connector terminal No. 8. See Fig. 6. If voltage does not exist, check/repair fuses and wiring circuit. If voltage exists, disconnect switch from connector.

2) Using DVOM, ensure switch continuity exists between terminals listed, with switch in specified position. See HAZARD WARNING SWITCH CONTINUITY TEST table. Replace switch if continuity is not as specified. If switch is good, check wiring circuit. See appropriate chassis wiring diagram in WIRING DIAGRAMS.

TURN SIGNAL FLASHER LOCATION TABLE

Model	Location
Celica	Top Relay In Junction/Relay Block No. 1, Behind Left Kick Panel

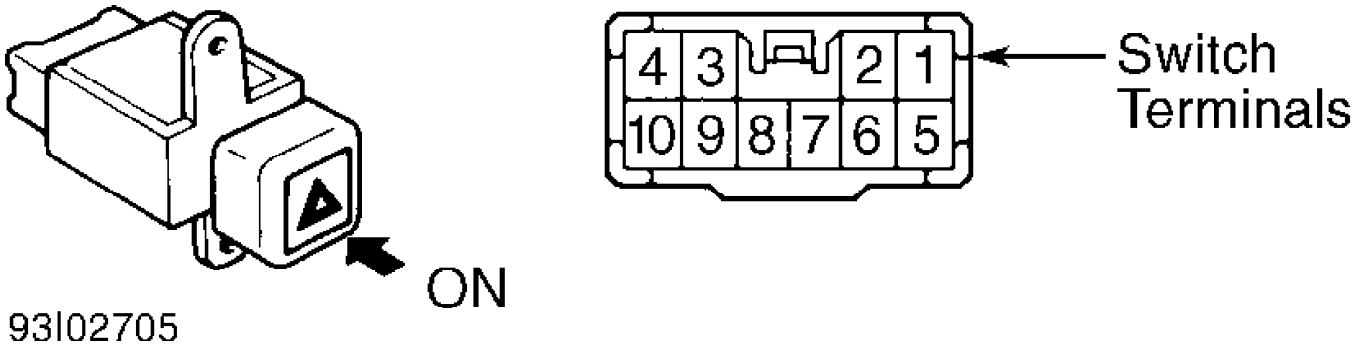

Fig. 6: Hazard Warning Switch Terminal ID
Courtesy of Toyota Motor Sales, U.S.A., Inc.

HAZARD WARNING SWITCH CONTINUITY TEST TABLE (1)

Switch Position	Terminal Numbers	Continuity
Off	7 & 10	Yes
On	4, 5, 6 & 9; 7 & 8	Yes

(1) - Terminals No. 2 and 3 are for switch illumination bulb.

REMOVAL & INSTALLATION

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all notices on labels. Use only DVOM (volt/ohmmeter) with minimum of 10-k/ohm impedance to check ANY circuit.

HAZARD WARNING SWITCH

Removal & Installation

Hazard warning switch is mounted to center air duct register, to left of clock. See Fig. 7. Using flat-blade screwdriver, pry top of register outward, away from dash opening and disconnect connectors. Remove switch from rear of register. To install, reverse removal procedure.

INSTRUMENT CLUSTER

CAUTION: When removing steering wheel horn/pad, DO NOT pull on air bag wiring harness. When storing steering wheel horn/pad, ensure pad surface faces upward.

Removal (With Air Bag)

1) Turn ignition switch to LOCK position. Disconnect negative battery cable. Wait at least one minute before continuing. Ensure front wheels are in straight-ahead position. Remove steering wheel. See STEERING WHEEL.

2) Remove steering column covers. Remove plastic screw covers from instrument panel lower finish panel and remove 6 retaining screws. See Fig. 7. Remove 5 bolts securing inner pad of lower finish panel and remove inner pad.

3) Pry off lower instrument cluster finish panel from around ignition key bezel and steering column. Remove 5 screws retaining instrument cluster finish panel. Pull cluster finish panel outward from heater controls and instrument cluster.

4) Remove instrument cluster retaining screws. Pull instrument cluster out far enough to disconnect harness connectors and speedometer cable (if equipped). Remove instrument cluster.

Installation

To install, reverse removal procedure. Before installing steering wheel, center spiral cable.

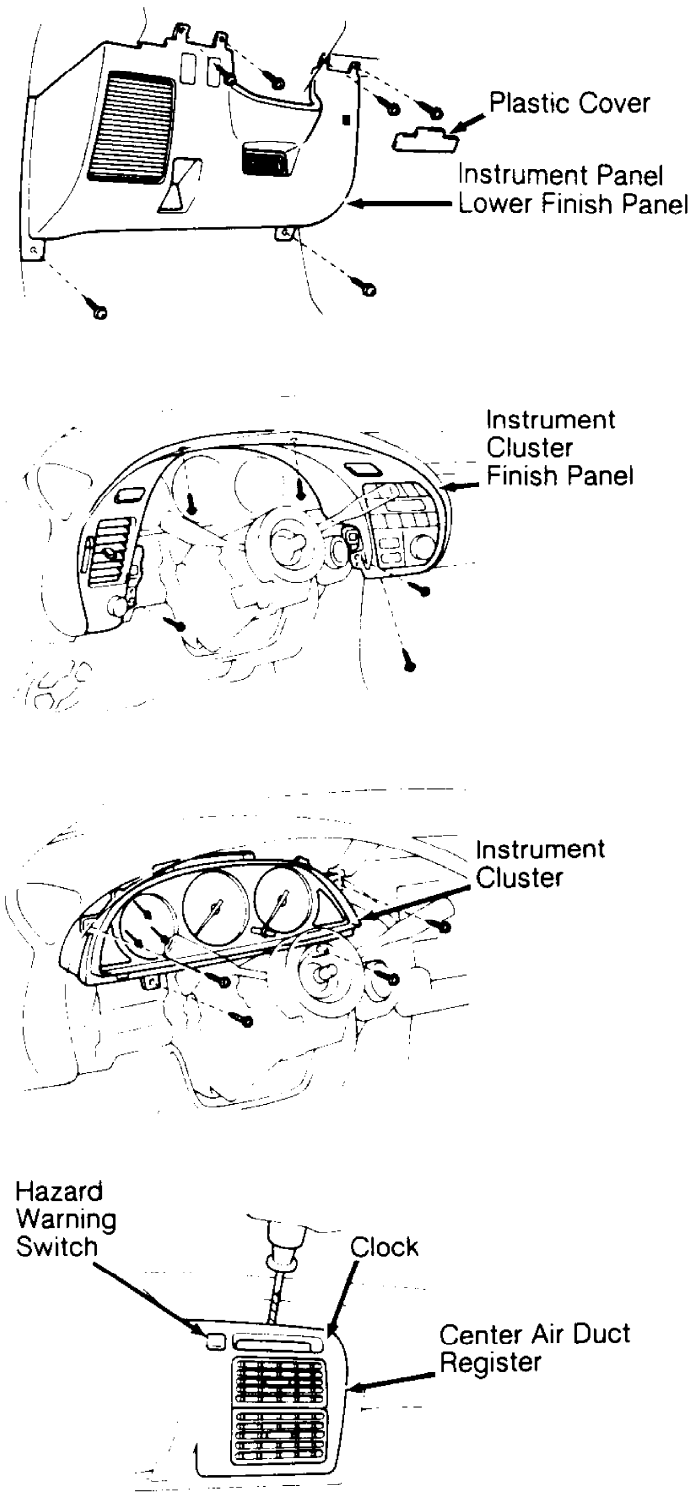

Fig. 7: Removing Instrument Cluster & Hazard Warning Switch
Courtesy of Toyota Motor Sales, U.S.A., Inc.

STEERING WHEEL

Removal (Without Air Bag)

1) On rear of steering wheel, locate and remove retaining screw securing horn pad. Pull horn pad out enough to disconnect horn electrical connector(s).

2) Remove steering wheel lock nut and washer. Make alignment mark on steering shaft and steering wheel for installation reference. Install suitable steering wheel puller and pull steering wheel from shaft.

Installation

Align reference marks on steering shaft and steering wheel. Tighten steering wheel lock nut to 25 ft. lbs. (34 N.m). Connect horn wiring and install horn pad.

Removal (With Air Bag)

1) Ensure front wheels are in straight-ahead position. Place ignition switch in LOCK position and remove key. Disconnect negative battery cable. Remove 2 screw covers from sides of steering wheel. See Fig. 8. Using Torx Wrench (T30), loosen 4 air bag pad retaining screws until screw head is snug against screw case.

2) Carefully pull air bag pad away from steering wheel enough to unlock and disconnect air bag electrical connector. DO NOT forcefully pull on electrical connector or wiring. Place air bag pad aside with pad facing upward.

3) Remove steering wheel lock nut and washer from steering shaft. Make alignment mark on steering shaft and steering wheel for installation reference. Using appropriate steering wheel puller, pull steering wheel from shaft while guiding spiral cable wire through steering wheel opening.

Installation

1) Ensure front wheels are in straight-ahead position. Connect and install spiral cable to combination switch. Turn spiral cable counterclockwise by hand until it is hard to turn. Turn spiral cable clockwise about 2 1/2 turns and align Red mark at bottom with opening.

2) Guide spiral cable through steering wheel opening while installing steering wheel to shaft. Align reference marks on steering shaft and steering wheel. Tighten steering wheel lock nut to 25 ft. lbs. (34 N.m).

3) Connect air bag electrical connector and snap down connector lock. Ensure air bag pad Torx screws are retracted and snug against screw case. See Fig. 8. Install air bag pad to steering wheel ensuring wiring is not pinched and does not interfere with other moving parts. Tighten 4 Torx screws to 65 INCH lbs. (7.4 N.m). Install screw covers. Connect negative battery cable.

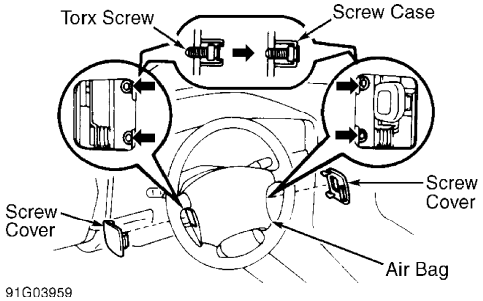

Fig. 8: Removing Air Bag From Steering Wheel
Courtesy of Toyota Motor Sales, U.S.A., Inc.

WIRING DIAGRAMS

Proceed to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.