

## TOYOTA

### DESCRIPTION & OPERATION

#### GAUGES

All models have a cluster which includes a speedometer, temperature gauge and fuel gauge. The fuel gauge may also have a low fuel warning light. Some models are equipped with a tachometer, oil pressure gauge and voltmeter. A low brake fluid warning light is used on most models.

Gauges may be either the bimetal type (2-terminal) or coil type (3-terminal). Testing procedures for the 2 types vary slightly. All sending units for gauges are variable resistance type.

#### SWITCHES

All models have a combination switch on the steering column. The switch controls the headlights, turn signals, wipers, hazard flashers and high beams. The switch can be removed and component switches replaced.

### TESTING

#### TEMPERATURE GAUGE

1) Unplug connector at coolant temperature sender. Connect a 3.4 watt test lamp between wire and ground. Turn ignition on. Bulb should start flashing and needle of gauge should vibrate.

2) Connect ohmmeter between sender terminal and bod of sender. Check resistance at several coolant temperature. Replace sender if inaccurate.

#### COOLANT TEMPERATURE SENDER RESISTANCE

Model	Temperature F° (°C)	Resistance (Ohms)
Corolla & Pickup	176 (80)	52
	212 (100)	21
	212 (100)	27-28
Land Cruiser	122 (50)	226
	240 (115)	26
Tercel	176 (80)	64-84
	212 (100)	36-45
Celica, Cressida & Supra	176 (80)	71
	212 (100)	37
All Other Models	176 (80)	48-52

3) Check gauge resistance by measuring across terminals with ohmmeter. Ignition must be off and connector unplugged. Resistance should be as shown in "Fuel and Temperature Gauge Resistance" table.

4) Connect one end of test lamp to sender terminal and other end to battery voltage. With engine running, test lamp should flash. Lamp should not light when engine is stopped.

**NOTE:** Bulb may come on briefly when engine is stopped, but should not remain lit.

#### FUEL GAUGE & WARNING LIGHT

1) Unplug connector at fuel tank sending unit. Connect a 3.4 watt test lamp between Yellow/Red wire and ground. Turn ignition on. Bulb should start flashing and needle should vibrate.

2) Connect ohmmeter to sending unit terminal and ground. Move sender arm and check that resistance varies smoothly. Pointer of gauge should move when sender is connected to it and float arm is moved.

#### FUEL SENDING UNIT RESISTANCE

Model	Float Position	(Ohms)
Land Cruiser	Full	15-19
	Half	35-45
	Empty	111-127
All Other Models	Full	1-5
	Half	28-37
	Empty <sup>1</sup>	102-118

<sup>1</sup> — Pickup models are 92-108 ohms.

3) With gauge connector in place and ignition on, check for voltage at gauge terminals. At one terminal, 2-7 volts should be present. Check gauge resistance by measuring across terminals. Be sure ignition is off and connector unplugged.

4) To check low fuel warning light sensor, remove fuel sender from tank. Connect battery voltage to sensor terminal. Connect a 3.4 watt test lamp between body of sending unit and ground. With sensor dry, light should come on within 40 seconds. With sensor in gasoline or water, light should not come on.

#### FUEL & TEMPERATURE GAUGE RESISTANCE

Model	Term. Conn.	Fuel (Ohms)	Temp. (Ohms)
2 Term. Gauge			
Corolla, Tercel & Starlet		55	55
Pickup & Land Cruiser		25	25
3 Term. Gauge			
Celica & Supra	IG-U	102	65
	UE	101	21
Corolla	IG-E	203	46
	IG-FU	102	
	FU-GE	101	
	IG-GE	203	
Corona	IG-TU		90
	TU-GE		58
	IG-GE		248
Cressida	IG-S	60	125
	S-E	160	160
Tercel	IG-U	60	90
	U-E	160	110
	IG-E	220	205
Tercel	IG-U	87	91
	U-E	242	90
	IG-E	348	182

### REMOVAL & INSTALLATION

#### COMBINATION SWITCH

##### Removal (All Models)

1) Disconnect battery ground. On Corolla, remove instrument cluster bezel. On Corona, remove fuse block cover and hood release lever. On all models,

# Switches & Instrument Panels

## TOYOTA (Cont.)

remove trim under steering column. Remove column covers.

2) Remove horn button and pull off steering wheel. Press in locking tabs on connector and unplug it. Remove mounting screws and combination switch.

3) Remove 2 screws and retainer on light switch. Remove nut and set screw. Be careful not to lose ball and spring from light switch lever. Note position of leads and remove leads from connector.

4) Remove wiper switch, hazard flasher switch and dimmer switch. See Fig. 1. Hazard flasher/turn signal switch cannot be removed on Celica.

### Installation

1) Install dimmer, hazard flasher and wiper switches. Insert spring in end of arm on light switch. Install nut and screw. Use a small amount of grease to hold ball on end of switch arm, then install retainer.

2) To complete installation, reverse removal procedure.

### INSTRUMENT CLUSTER

**NOTE:** Removal and installation procedures for Tercel were not available from manufacturer.

#### Removal (Celica & Supra)

1) Disconnect battery ground. Remove heater and radio knobs, then pry off heater bezel. Remove cluster bezel and disconnect warning light wires.

#### Installation

To install, reverse removal procedure

#### Removal (Corolla)

1) Disconnect battery ground. On sedan and station wagon models, remove cluster trim panel. Remove instrument panel attaching screws. Disconnect speedometer cable and electrical connectors. Remove instrument panel.

2) On coupe and liftback models, remove light control rheostat knob. Remove instrument cluster trim panel. Remove instrument panel attaching screws. Dis-

connect wiring connectors and speedometer cable. Remove instrument panel.

### Installation

On all models, to install, reverse removal procedure.

#### Removal (Corona)

Disconnect battery ground. Remove instrument cluster trim panel. Remove screws and pull instrument cluster back. Disconnect speedometer cable and wiring.

### Installation

To install, reverse removal procedure.

#### Removal (Cressida)

1) Disconnect battery ground. Remove trim panel under cluster. Remove rear wiper switch, antenna switch and instrument light dimmer knob.

2) Remove cluster cover panel. Disconnect speedometer cable. Remove cluster screws and pull cluster out. Unplug wiring and remove cluster.

### Installation

To install, reverse removal procedure.

#### Removal (Land Cruiser)

Disconnect battery ground. Remove cluster screws and pull cluster out. Disconnect speedometer cable and wiring. Remove cluster.

### Installation

To install, reverse removal procedure.

#### Removal (Pickup)

Disconnect battery ground. Remove steering column covers. Remove 5 screws and cluster finish panel. Remove screws and pull cluster out. Disconnect wiring and speedometer cable. Remove cluster.

### Installation

To install, reverse removal procedure.

#### Removal (Starlet)

Disconnect battery ground. Remove instrument cluster hood. Disconnect speedometer cable. Remove cluster screws, pull cluster back and unplug wiring. Remove cluster.

### Installation

To install, reverse removal procedure.

Fig. 1 Exploded View of Combination Switch

