

DOOR LOCKS - POWER

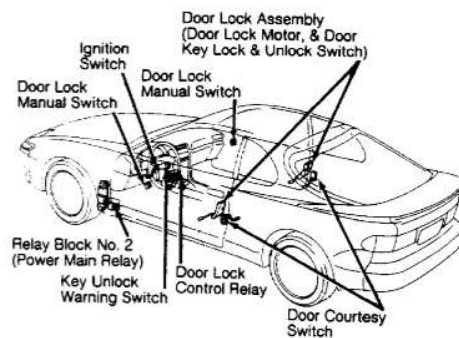
1993 Toyota Celica

1993 ACCESSORIES/SAFETY EQUIPMENT
Toyota Power Door Locks

Celica

DESCRIPTION & OPERATION

All doors can be locked or unlocked simultaneously using either front door. Turning driver door lock once will unlock driver door only, twice will unlock all doors. Door locks can be controlled by a switches on driver or passenger doors within vehicle, or by operating each door lock with key or lock knob. Front door(s) can not be manually locked when key is in ignition switch. See Fig. 1.



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Fig. 1: Locating Power Door Lock Components
Courtesy of Toyota Motor Sales, U.S.A., Inc.

TROUBLE SHOOTING

NOTE: Malfunctions that are most likely to occur are shown in order of their probability.

Door Lock System Does Not Operate.

- * Check Fuse(s).
- * Check Door Lock Switch Signal.
- * Check Door Lock Motor Operation.
- * Check Door Lock Control Relay. See POWER DOOR LOCK CONTROL RELAY CIRCUIT TESTING CHARTS.
- * Check Harness & Connectors.

Door Lock System Does Not Operate With Manual Switch.

- * Check Door Lock Manual Switch.
- * Check Door Lock Control Relay. See POWER DOOR LOCK CONTROL RELAY CIRCUIT TESTING CHARTS.
- * Check Door Lock Motor Operation.
- * Check Harness & Connectors.

Door Lock System Does Not Operate With Door Key.

- * Check Door Key Lock & Unlock Switch.
- * Check Door Lock Control Relay. See POWER DOOR LOCK CONTROL RELAY CIRCUIT TESTING CHARTS.
- * Check Harness & Connectors.

- * Check Door Lock Link Disconnected.

Driver Door 2-Key Turns, Key Unlock Function Does Not Operate.

- * Check Door Key Lock & Unlock Switch.
- * Check Harness & Connectors.
- * Check Door Lock Control Relay. See POWER DOOR LOCK CONTROL RELAY CIRCUIT TESTING CHARTS.

Key In Ignition Switch Warning, Does Not Operate.

- * Check Key Unlock Warning Switch.
- * Check Door Courtesy Switch.
- * Check Door Lock Switch.
- * Check Harness & Connectors.
- * Check Door Lock Control Relay. See POWER DOOR LOCK CONTROL RELAY CIRCUIT TESTING CHARTS.

Only One Door Lock Does Not Operate.

- * Check Door Lock Motor Operation.
- * Check Harness & Connectors.

TESTING

COMPONENT TESTING

Door Courtesy Switch

Locate door courtesy switch in each door next to power door lock assembly. Ensure continuity exists between terminal(s) and switch body with switch pin released (switch ON). Ensure no continuity exists between terminal(s) and switch body with switch pin pushed in (switch OFF). If continuity is not as specified, replace switch and retest system.

Door Key Lock & Unlock Switch

Locate door key lock and unlock switch connector behind door panel. Disconnect 7-pin connector. Ensure continuity exists between switch terminals No. 2 and No. 3, with switch in LOCK position. Ensure continuity exists between switch terminals No. 1 and No. 2, with switch in UNLOCK position. If continuity is not as specified, replace switch and retest system.

Door Lock Manual Switch

Locate door lock manual switch in front door. Disconnect 4-pin connector. Ensure continuity exists between switch terminals No. 2 (White/Black wire) and No. 4 (Blue/Black wire), with switch in lock position. Ensure continuity exists between switch terminals No. 2 and No. 3 (Blue wire), with switch in unlock position. Ensure no continuity in OFF position. If continuity is not as specified, replace switch and retest system.

Door Lock Motor Operation

Locate front or rear door lock motor and disconnect door lock motor 7-pin connector. Connect positive battery lead to terminal No. 7 (Blue/White wire) and negative battery lead to terminal No. 5 (Blue/Red wire). Ensure door lock link moves to LOCK position. Reverse battery leads and ensure door lock link moves to UNLOCK position. If door lock motor operation is not as specified, replace door lock assembly and retest system.

Door Unlock Detection Switch

Locate front door lock motor and disconnect door lock motor 7-pin connector. Ensure continuity exists between connector terminals No. 4 (Green wire) and terminal No. 6 (White/Black wire) with door unlock detection switch in UNLOCK position. Ensure no continuity with switch in LOCK position. If continuity is not as specified, replace door lock assembly and retest system.

Key Unlock Warning Switch

Locate ignition switch 10-pin connector. With key removed from switch, ensure continuity exists between connector terminals No. 1 and No. 5. If continuity is not present, replace key unlock warning switch.

Positive Temperature Coefficient (PTC) Thermistor Operation

1) Locate front or rear door lock motor in door. Disconnect door lock motor 7-pin connector. Connect positive battery lead to door lock motor terminal No. 7 (Blue/White wire). Connect ammeter positive lead to door lock motor terminal No. 5 (Blue/Red wire) and ammeter negative lead to battery negative terminal. Ensure current changes from 3.2 amps to less than 0.5 amps within 20-70 seconds. If current changes as specified, go to next step. If current does not change as specified, replace door lock assembly.

2) Disconnect test leads from terminals and wait at least 60 seconds. Connect positive battery lead to door lock motor terminal No. 5 and battery negative lead to terminal No. 7. Ensure door lock link moves to LOCK position. If operation is not as specified, replace door lock assembly and retest system.

DOOR LOCK SWITCH SIGNAL TEST

NOTE: Ensure power door lock harness & connector circuits are okay before testing door lock switch signal. See appropriate POWER DOOR LOCK HARNESS & CONNECTOR CIRCUIT TESTING and POWER DOOR LOCK CIRCUIT VOLTAGE TESTING under POWER DOOR LOCKS CIRCUIT TESTING CHARTS.

Door Lock Switch Signal

Locate power door lock control relay. Ensure control relay 16-pin connector is connected. Using voltmeter positive lead backprobe connector terminal No. 3 (Blue/Red wire). Using voltmeter negative lead backprobe connector terminal No. 4 (Blue/White wire). Ensure voltage increases from zero to battery voltage for approximately 0.2 seconds with door lock manual switch in UNLOCK position. Reverse voltmeter leads and ensure voltage increases from zero to battery voltage for approximately 0.2 seconds with door lock manual switch in LOCK position. If voltage does not change as specified, replace power door lock control relay and retest system.

POWER DOOR LOCK CONTROL RELAY CIRCUIT TESTING CHARTS

NOTE: Power Door Locks ECU or Control Relay Circuit Testing Charts are provided to pinpoint a malfunctioning circuit. Checking pin voltages at power door locks ECU or Control Relay connectors will help determine if power door locks ECU or Control Relay is receiving and sending proper voltage signals. Using test charts may also help in determining if there is a short or open in harness or connectors.

NOTE: Unless stated otherwise in testing procedures, perform all voltage tests using a Digital Volt-Ohmmeter (DVOM) with a minimum 10-megohm input impedance. Voltage readings may vary

slightly due to battery condition or charging rate.



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Fig. 2: Power Door Lock Harness & Connector Circuit Testing
Courtesy of Toyota Motor Sales, U.S.A., Inc.

POWER DOOR LOCK HARNESS & CONNECTOR CIRCUIT TESTING (CELICA)

NOTE: Turn ignition off and disconnect power door lock relay 16-pin connector. Measure resistance (continuity) between terminal number shown and ground. If resistance is as specified, check door lock switch signal. See DOOR LOCK SWITCH SIGNAL under TESTING.

Test Lead (Red)	Pin No.	Component Description	1 Specified Value		Pin No.	Common Lead (Black)
			ON	OFF		
RED/YEL	2	Driver Door Courtesy Switch (ON – Door Open)	< 1Ω	≥ 1 MΩ	N/A	GROUND
GRN/YEL	5	Pass. Door Unlock Detection Switch (ON – Door Unlocked)	< 1Ω	≥ 1MΩ	N/A	GROUND
GRN	6	Driver Door Unlock Detection Switch (ON – Door Unlocked)	< 1Ω	≥ 1MΩ	N/A	GROUND
YEL	7	Key Unlock Warning Switch (ON – Ignition Key Set)	< 1Ω	≥ 1MΩ	N/A	GROUND
BLU/YEL	9	Driver Door Key Lock & Unlock Switch (ON – Door Key Turned To Unlock Position)	< 1Ω	≥ 1MΩ	N/A	GROUND
BLU/BLK	10	Door Lock Manual Switch Position (ON – Lock Position)	< 1Ω	≥ 1MΩ	N/A	GROUND
BLU	11	Door Lock Manual Switch Position (ON – Unlock Position)	< 1Ω	≥ 1MΩ	N/A	GROUND
BLU	11	Pass. Door Key Lock & Unlock Switch Position (ON – Unlock Position)	< 1Ω	≥ 1MΩ	N/A	GROUND
BLU/ORG	12	Door Key Lock & Unlock Switch Position (ON – Lock Position)	< 1Ω	≥ 1MΩ	N/A	GROUND
RED/GRN	14	Pass. Door Courtesy Switch Position (ON – Door Open)	< 1Ω	≥ 1MΩ	N/A	GROUND
BLU/YEL	15	Power Main Relay Circuit (ON – Ign. Key Off)	70Ω	N/A	N/A	GROUND
WHT/BLK	16	Power Door Lock Control Relay Ground	< 1Ω	N/A	N/A	GROUND

Fig. 3: Power Door Lock Harness & Connector Circuit Testing
Courtesy of Toyota Motor Sales, U.S.A., Inc.

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Fig. 4: Power Door Lock Circuit Voltage Testing
Courtesy of Toyota Motor Sales, U.S.A., Inc.

POWER DOOR LOCK CIRCUIT VOLTAGE TESTING (CELICA)

NOTE: Turn ignition off and disconnect power door lock relay 16-pin connector. Measure voltage between terminal number shown and ground with ignition switch off or in specified position. If voltage is as specified, check door lock switch signal. See DOOR LOCK SWITCH SIGNAL under TESTING.

Test Lead (Red)	Pin No.	Component Description	1 Specified Value		Pin No.	Common Lead (Black)
			ON	OFF		
RED/BLU	1	Door Courtesy Switch (ON - Ign. In ON Position)	B +	N/A	N/A	GROUND
BLU/RED	3	Door Lock Control Switch (ON - Unlocked)	B + ²	N/A	N/A	GROUND
BLU/RED	3	Door Lock Control Switch (ON - Locked W/ Key In Ignition & Driver Door Open) ²	B + ²	N/A	N/A	GROUND
BLU/RED	3	Door Lock Knob (ON - Locked W/ Key In Ignition & Driver Door Open) ²	B + ²	N/A	N/A	GROUND
BLU/RED	3	Driver/Pass. Door (ON - Unlocking Door Cylinder W/ Key)	B + ²	N/A	N/A	GROUND
BLU/WHT	4	Door Lock Control Switch (ON - Switch Locked)	B + ²	N/A	N/A	GROUND
BLU/WHT	4	Driver Or Pass. Door (ON - Locking Door Cylinder W/ Key)	B + ²	N/A	N/A	GROUND
WHT/BLU	8	Constant Power Supply (30 Amp POWER Fuse)	B +	N/A	N/A	GROUND
BLU/YEL	9	Driver Door Lock Cylinder (ON - Unlocked With Key)	ZERO	N/A	N/A	GROUND
BLU/BLK	10	Door Lock Control Switch (ON - Switch Locked)	ZERO	N/A	N/A	GROUND
BLU	11	ON - Door Lock Control Switch Unlocked Or Pass. Door Lock Cylinder Unlocked W/ Key	ZERO	N/A	N/A	GROUND
BLU/ORG	12	Driver & Pass. Door Lock Cylinder (ON - Locked W/ Key)	ZERO	N/A	N/A	GROUND
BLU/YEL	15	Power Main Relay Circuit (ON - Ign. In ON Position)	B +	N/A	N/A	GROUND

¹ - Symbol definitions: < means less than; > means greater than; ≤ means equal to or less than; ≥ means equal to or greater than; B + means battery voltage; Ω means Ohms; MΩ means Mega (Million) Ohms.

² - Key in ignition switch, reminder function.

³ - Battery voltage present for 0.2 seconds after switch operation.

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Fig. 5: Power Door Lock Circuit Voltage Testing
Courtesy of Toyota Motor Sales, U.S.A., Inc.

WIRING DIAGRAMS

Proceed to chassis WIRING DIAGRAMS article in WIRING DIAGRAMS section.