

CRUISE CONTROL SYSTEM

1988 Toyota Celica

1988 ACCESSORIES & EQUIPMENT
Toyota - Cruise Control System

Celica

DESCRIPTION

A main switch is used to activate the cruise control system. The main switch is located on the stalk on instrument panel. A control switch, with "SET/COAST" and "ACCEL/RESUME" settings, is used to set desired speed. The control switch is mounted in steering wheel pad. System is computer controlled. System will not operate at speeds below 25 MPH.

The cruise control computer has diagnostic capabilities. Models employ "Type A" and "Type B" indicator codes. "Type A" indicator codes verify that cruise control system is functioning properly. "Type B" indicator codes signal malfunctions within the cruise control system.

OPERATION

MAIN SWITCH

Depressing main switch activates system and illuminates indicator light. On models equipped with a "SET", the light will be illuminated to signal operator that desired cruising speed can be selected. Depressing the button a second time turns system and indicator lights off. Ensure main switch is off when cruise control system is not being used.

CONTROL SWITCH

When control switch is placed in "SET/COAST" position and released, desired vehicle speed is set. If switch is continuously held, vehicle speed will gradually decrease until released.

When control switch is placed in "ACCEL/RESUME" position and held, vehicle speed will gradually increase. Releasing the switch sets new vehicle speed.

To resume set speed after cancellation, place control switch in "ACCEL/RESUME" position. Vehicle speed will be reset, unless the previous speed was canceled due to vehicle speed falling below minimum set speed.

TROUBLE SHOOTING

CRUISE CONTROL SYSTEM DOES NOT OPERATE

Diagnose "Type A" and "Type B" codes. See "TYPE A" CODES and "TYPE B" CODES under DIAGNOSTICS. If diagnostics reveal a problem, see appropriate circuit check under TESTING. If no problem is found, see POWER SOURCE CIRCUIT, ACTUATOR CIRCUIT or SPEED SENSOR CIRCUIT under TESTING.

VEHICLE DOES NOT ACCELERATE WITH "ACCEL" PUSHED ON

Diagnose "Type A" codes. See ACCEL/RESUME ON condition in "TYPE A" CODES under DIAGNOSTICS. If result is as

specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If result is not as specified, see "ACCEL/RESUME" SWITCH CIRCUIT under TESTING.

DOES NOT RETURN TO MEMORIZED SPEED WITH "RESUME" FUNCTION

Diagnose "Type A" codes. See ACCEL/RESUME ON condition in "TYPE A" CODES under DIAGNOSTICS. If result is as specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If result is not as specified, see "ACCEL/RESUME" SWITCH CIRCUIT under TESTING.

SPEED DOES NOT DECREASE WHEN "COAST" IS ACTIVATED

Diagnose "Type A" codes. See SET/COAST ON condition in "TYPE A" CODES under DIAGNOSTICS. If result is as specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If result is not as specified, see "SET/COAST" SWITCH CIRCUIT under TESTING.

SPEED FLUCTUATES WHEN "SET" IS ACTIVATED

Diagnose "Type A" codes. See ACCEL/RESUME ON condition in "TYPE A" CODES under DIAGNOSTICS. If result is as specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If result is not as specified, see "ACCEL/RESUME" SWITCH CIRCUIT under TESTING.

VEHICLE SPEED IS LOWER OR HIGHER THAN SET SPEED

See ACTUATOR CIRCUIT, and SPEED SENSOR CIRCUIT under TESTING.

RETURN & ACCELERATION RESPONSE SLUGGISH (ABS ONLY)

Diagnose "Type A" codes. See VACUUM SWITCH ON condition in "TYPE A" CODES under DIAGNOSTICS. If result is as specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If result is not as specified, check vacuum switch. See VACUUM SWITCH CIRCUIT under TESTING.

SET SPEED DOES NOT CANCEL WHEN BRAKES ARE APPLIED

Diagnose "Type A" codes. See BRAKE ON condition in "TYPE A" CODES under DIAGNOSTICS. If result is as specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If result is not as specified, check stoplight switch circuit. See STOPLIGHT SWITCH CIRCUIT under TESTING.

SET SPEED DOES NOT CANCEL WHEN PARKING BRAKE IS APPLIED

Diagnose "Type A" codes. See PARK BRAKE ON condition in "TYPE A" CODES under DIAGNOSTICS. If result is as specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If result is not as specified, check parking brake switch circuit. See PARKING BRAKE SWITCH CIRCUIT under TESTING.

SET SPEED DOES NOT CANCEL WHEN CLUTCH IS DEPRESSED

Manual Transmission

Diagnose "Type A" codes. See CLUTCH ON in "TYPE A" CODES under DIAGNOSTICS. If result is as specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If result is not as specified, check clutch switch circuit. See CLUTCH SWITCH CIRCUIT under TESTING.

SET SPEED DOES NOT CANCEL WHEN TRANSMISSION IS SHIFTED TO "N"

Automatic Transmission

Diagnose "Type A" codes. See TRANS IN "N" in "TYPE A" CODES under DIAGNOSTICS. If result is as specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If result is not as specified, check neutral/start switch circuit. See NEUTRAL/START SWITCH CIRCUIT under TESTING.

SPEED CAN BE SET BELOW 25 MPH

Diagnose "Type A" codes. See ABOVE 25 MPH and BELOW 25 MPH in "TYPE A" CODES under DIAGNOSTICS. If results are as specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If results are not as specified, check speed sensor circuit. See SPEED SENSOR CIRCUIT under TESTING.

SYSTEM WILL NOT DEACTIVATE BELOW 25 MPH

Diagnose "Type A" codes. See ABOVE 25 MPH and BELOW 25 MPH in "TYPE A" CODES under DIAGNOSTICS. If results are as specified, check actuator circuit. See ACTUATOR CIRCUIT under TESTING. If results are not as specified, check speed sensor circuit. See SPEED SENSOR CIRCUIT under TESTING.

ABOUT 14 SECONDS AFTER OVERDRIVE CUTS OUT, OVERDRIVE RESUMES

Check Electronically Controlled Transmission (ECT) solenoid circuit. See ELECTRONIC CONTROLLED TRANSMISSION (ECT) SOLENOID CIRCUIT under TESTING.











DIAGNOSTICS

"TYPE A" CODES

1) To enable diagnostics to read "Type A" codes, turn ignition on. Turn main switch and "SET/COAST" switch on simultaneously. Refer to "TYPE A" DIAGNOSTIC CODE SWITCH CONDITIONS figure. See Fig. 1.

2) Read output codes by observing indicator light flashes on main switch. The indicator light will glow for 1/4 second and go out for 1/4 second to display codes. There is a one second delay between codes. The codes will display beginning with first code set. Each code will be repeated until next function is selected.

3) "Type A" codes indicate that computer and all switch circuits are operating properly. If a code is not displayed, trouble is indicated on that particular circuit. To test a particular circuit, go to TESTING. If no code is displayed and problems still exist, see POWER SOURCE CIRCUIT.

Condition	Code Pattern	Result
"Set/Coast" On ON OFF		"Set/Coast" Circuit Okay
"Accel/Res" On ON OFF		"Accel/Res" Circuit Okay
"Cancel" Sw. On ² ON OFF		"Cancel" Sw. Cir. Okay
Vacuum Sw. On ON OFF		Vacuum Switch Circuit Okay
Brake On ¹ ON OFF		Stop Light Sw. Circuit Okay
Park Brake On ¹ ON OFF		Park. Brake Sw. Cir. Okay
Clutch On ¹ ON OFF		Clutch Switch Circuit Okay
Trans. in "N" ¹ ON OFF		Neutral/Start Switch Okay
Above 25 MPH ¹ ON OFF		Speed Sensor Circuit Okay
Below 25 MPH ¹ ON OFF		Speed Sensor Circuit Okay

¹ - Test with Vehicle jacked up and idling.

² On Vehicles with "Cancel" function in Control Switch.

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Fig. 1: Type "A" Diagnostic Code Switch Conditions Table
Courtesy of Toyota Motor Sales, U.S.A., Inc.

"TYPE B" CODES

1) To enable diagnostics to read "Type B" codes, DO NOT turn ignition switch and main switch off (if vehicle is exiting "Type A" diagnostics). If vehicle is not provided with "Type A" codes, turn ignition switch and cruise control main switch to "ON" position. On all models, drive at a speed of 10 MPH or less, activate "SET/COAST" switch 3 times within 2 seconds. Refer to "TYPE B" DIAGNOSTIC CODES figure. See Fig. 2.

2) Read output codes by observing indicator light flashes on main switch. If no malfunctions are recorded in cruise control computer, indicator light will glow (blink on) for 1/4 second and go out for 1/4 second.

3) If malfunctions are recorded in computer, indicator light will glow for 1/2 second and go out for 1.5 seconds to display codes. There is a 4 second delay between codes. The codes will display beginning with Code 11. Each code will be repeated until next function is selected.

4) "Type B" codes indicate a malfunction in a particular circuit. See appropriate circuit test under TESTING. If code for normal system operation is displayed and problems still exists, see POWER SOURCE CIRCUIT.

"TYPE B" DIAGNOSTIC CODES

Code No.	Code Pattern	Result
No Code		Cruise Control System Okay
Code 11		Problem In Actuator Circuit
Code 21		Problem In Speed Sensor Circuit
Code 23		Problem In Speed Sensor & Actuator Circuit
Code 31		Problem In "Accel/Resume" Circuit
Code 33		Problem In "Accel/Resume" & "Set/Coast" Circuit

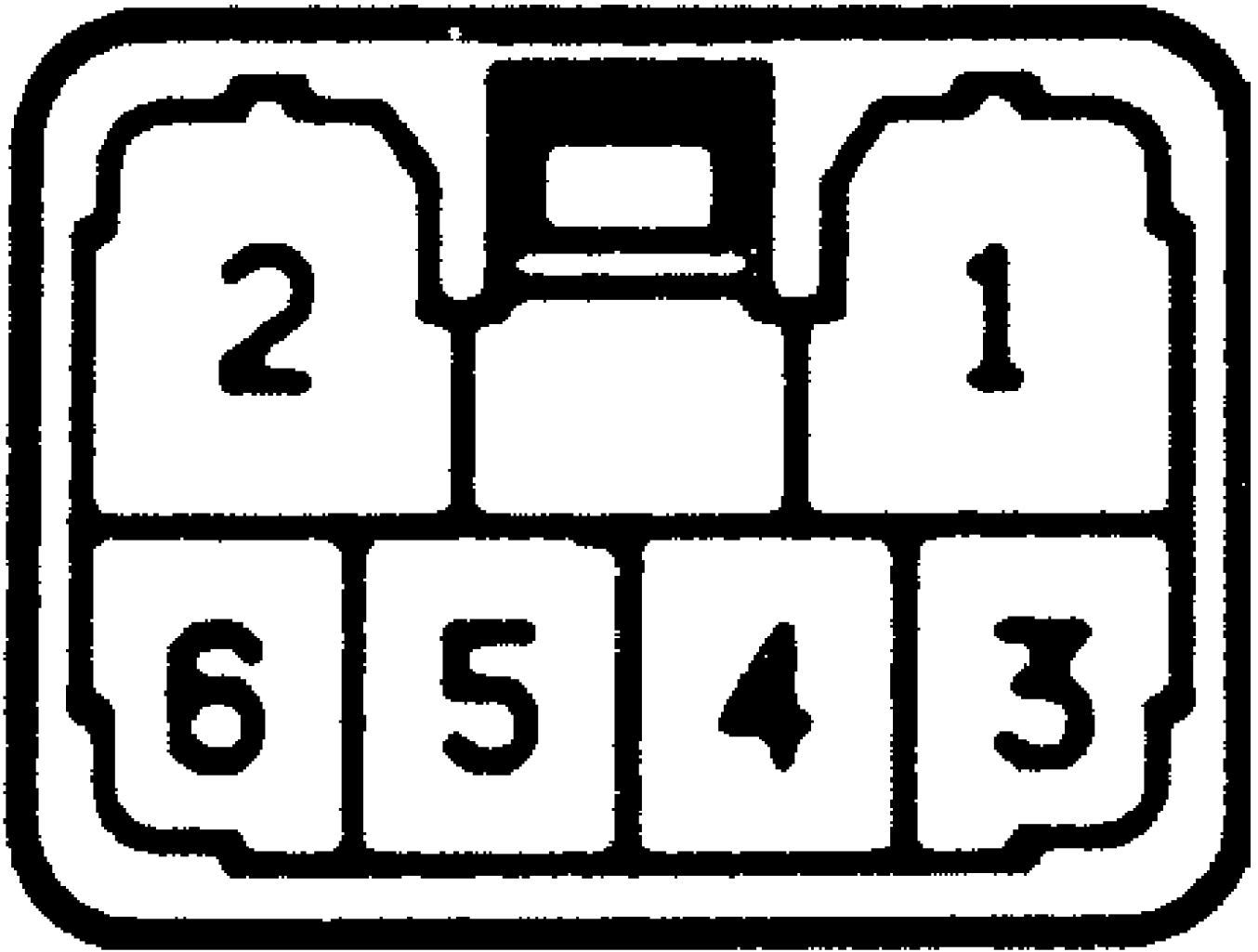
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Fig. 2: Type "B" Diagnostic Codes
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

POWER SOURCE CIRCUIT

NOTE: Proceed with following tests only if directed from TROUBLE SHOOTING, Type "A" or Type "B" diagnostic codes. If cruise control system is diagnosed out of sequence, replacement of good components could result.

Turn ignition on. Check fuse ("ECU-IG"). If fuse is okay, go to step 1 under MAIN SWITCH. If fuse is blown, replace fuse and recheck system. If fuse blows again, check for short circuit between fuse and main switch connector terminal 2. See Fig. 3. If no short is located, go to step 6) under MAIN SWITCH.



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Fig. 3: Main Switch Connector Terminal Identification
Courtesy of Toyota Motor Sales, U.S.A., Inc.

Main Switch

1) Check for continuity between terminal 3 of main switch and body ground. See Fig. 3. If continuity is present, go to next step. If continuity is not present, check for open between terminal 3 and ground. See WIRING DIAGRAMS.

2) Check for battery voltage between terminal 2 of switch and body ground. See Fig. 3. If battery voltage is not present, check for open in wire between main switch terminal 2 and fuse. See WIRING DIAGRAMS. If battery voltage is present, go to next step.

3) Check for battery voltage between main switch connector terminal 6 and body ground with main switch turned ON. See Fig. 3. If battery voltage is present, go to next step. If battery voltage is not present, check for short circuit in wire between main switch connector terminal 6 and cruise control computer connector terminal 10. See WIRING DIAGRAMS. If no short is found, go to step 6).

4) Check for battery voltage between main switch terminal 6 and body ground with main switch turned OFF. If battery voltage is present, go to step 6). If battery voltage is not present, go to next

step.

5) Inspect indicator light operation. Connect main switch terminal 4 to body ground. See Fig. 3. Indicator light should illuminate with main switch turned ON. If indicator light does not illuminate, go to next step. If indicator light does illuminate, check to see if light illuminates with main switch turned OFF. If light illuminates with main switch off, go to next step. If light does not illuminate with main switch turned off, see COMPUTER CIRCUIT below.

6) Disconnect main switch. Jumper from positive battery lead to main switch terminal 2, and from negative battery lead to terminal 3. Turn main switch ON and check for continuity between terminals 2 and 6. See Fig. 3. Check that there is no continuity between terminals 2 and 6 with main switch turned OFF. If results are not as specified, replace main switch.

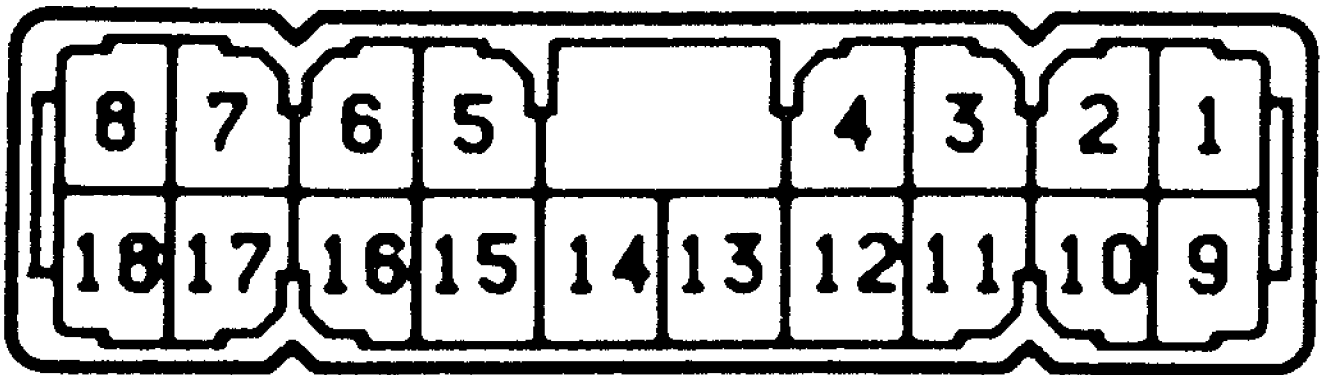
Computer Circuit

1) Disconnect computer connector and check for continuity between connector terminal 13 and ground. See Fig. 4. If continuity is present, go to next step. If there is no continuity, repair open in wire between connector and ground, or repair faulty ground. See WIRING DIAGRAMS.

2) Check for battery voltage between connector terminal 10 and body ground with main switch turned ON. See Fig. 4. If battery voltage is present, go to next step. If battery voltage is not present, repair open in wire between computer connector terminal 10 and main switch connector terminal 6. See WIRING DIAGRAMS.

3) Jumper computer connector terminal 3 to ground, and verify that light illuminates with main switch turned ON. See Fig. 4. If light illuminates, go to next step. If light does not illuminate, repair open in wire between computer connector terminal 3 and main switch connector terminal 4. See WIRING DIAGRAMS.

4) Disconnect jumper. Disconnect main switch. Check for continuity between computer connector terminal 3 and ground. See Fig. 4. If there is no continuity, replace computer. If continuity is present, repair short in wire between main switch connector terminal 4 and computer connector terminal 3. See WIRING DIAGRAMS.



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Fig. 4: Computer Connector Terminal Identification
Courtesy of Toyota Motor Sales, U.S.A., Inc.

TESTING

* PLEASE READ THIS FIRST *

NOTE: Proceed with following tests only if directed from
TROUBLE SHOOTING, Type "A" or Type "B" diagnostic codes.

If cruise control system is diagnosed out of sequence, replacement of good components could result.

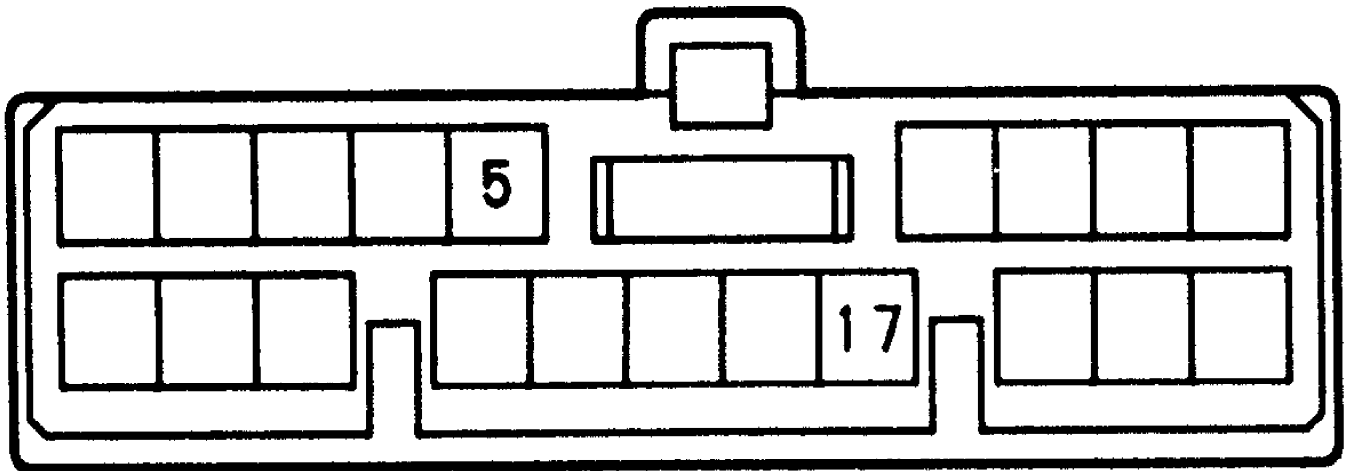
"SET/COAST" SWITCH CIRCUIT

1) Turn ignition OFF. Disconnect electrical connector from cruise control (SET/COAST, RESUME/ACCEL and CANCEL) switch. Check for continuity between harness side switch connector terminal 17 and body ground. See Fig. 5.

2) If no continuity is present, check for open in wire between terminal 17 and body ground, or faulty ground connection. If continuity is present, go to next step.

3) Check resistance between switch terminals 5 and 17. With switch in "SET/COAST" position, resistance should be about 198 Ohms. If resistance is not as specified, replace control switch. If resistance is as specified, go to next step.

4) Reconnect control switch connector. Disconnect computer connector. Check resistance value between cruise control computer connector terminal 17 and good body ground with "SET/COAST" switch turned ON. See Figs. 4. Resistance value should be about 198 ohms. If resistance value is not as specified, check for open or short in White wire between terminal 17 of computer and terminal 5 of control switch. See WIRING DIAGRAMS. If resistance value is as specified, replace cruise control computer.



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Fig. 5: Control Switch Connector Terminal Identification
Courtesy of Toyota Motor Sales, U.S.A., Inc.

"ACCEL/RESUME" SWITCH CIRCUIT

1) Turn ignition OFF. Disconnect electrical connector from cruise control (SET/COAST, RESUME/ACCEL and CANCEL) switch. Check for continuity between harness side switch connector terminal 17 and body ground. See Fig. 5.

2) If no continuity is present, check for open in wire between terminal 17 and body ground, or faulty ground connection. If continuity is present, go to next step.

3) Check resistance between switch terminals 5 and 17. With switch in "ACCEL/RESUME" position, resistance should be about 68 Ohms. If resistance is not as specified, replace control switch. If resistance is as specified, go to next step.

4) Reconnect control switch connector. Disconnect computer connector. Check resistance value between cruise control computer

connector terminal 17 and good body ground with "ACCEL/RESUME" switch turned on. See Fig. 4. Resistance value should be about 68 ohms. If resistance value is not as specified, check for open or short in White wire between terminal 17 of computer and terminal 5 of control switch. If resistance value is as specified, replace cruise control computer. See WIRING DIAGRAMS.

"CANCEL" SWITCH CIRCUIT

1) Turn ignition OFF. Disconnect electrical connector from cruise control (SET/COAST, RESUME/ACCEL and CANCEL) switch. Check for continuity between harness side switch connector terminal 17 and body ground. See Fig. 5.

2) If no continuity is present, check for open in wire between terminal 17 and body ground, or faulty ground connection. If continuity is present, go to next step.

3) Check resistance between switch terminals 5 and 17. See Fig. 5. With switch in "CANCEL" position, resistance should be about 418 Ohms. If resistance is not as specified, replace control switch. If resistance is as specified, go to next step.

4) Reconnect control switch connector. Disconnect computer connector. Check resistance value between cruise control computer connector terminal 17 and good body ground with "CANCEL" switch turned ON. See Fig. 4. Resistance value should be about 418 ohms. If resistance value is not as specified, check for open or short in White wire between terminal 17 of computer and terminal 5 of control switch. If resistance value is as specified, replace cruise control computer. See WIRING DIAGRAMS.

VACUUM SWITCH CIRCUIT (W/ ABS ONLY)

1) Turn ignition OFF. Check vacuum hoses for cracks or leaks. Replace hoses as necessary. If no vacuum leaks are found, go to next step.

2) Disconnect vacuum switch connector. Check for continuity between switch connector terminal and ground (White/Black wire on non-turbo), or between switch case and ground (turbo). If there is continuity, go to next step. If there is no continuity, check for open in White/Black wire or faulty ground (non-turbo), or faulty switch mounting (turbo). See WIRING DIAGRAMS.

3) Check that there is no continuity between terminals of vacuum switch (non turbo), or between terminal and switch housing (turbo), with vacuum applied. Check that there is continuity with vacuum released. If continuity is as specified, go to next step. If continuity is not as specified, replace switch.

3) Disconnect vacuum pump connector. Check for continuity between pump connector terminal 2 (White/Black wire) and body ground. If continuity is present, go to next step. If there is no continuity, check for open in White/Black wire between pump connector terminal 2 and body ground, or faulty ground connection. See WIRING DIAGRAMS.

4) Connect a hand-held vacuum pump to pump "ACT" port. Connect jumper from positive battery lead to pump terminal 1 (Light Green wire), and from negative battery lead to pump terminal 2 (White/Black wire). See WIRING DIAGRAMS. Vacuum pump should generate at least 7.87 In. Hg. (26.7 kPa). If vacuum is as specified, go to next step. If vacuum is not as specified, replace pump.

5) Reconnect vacuum switch and pump connectors. Disconnect computer connector and check for continuity between computer connector terminal 9 and body ground. See Fig. 4. If continuity is present, go to next step. If there is no continuity, check for open between terminal 9 of computer and terminal of vacuum switch. See WIRING DIAGRAMS.

6) Start engine and let engine idle. Check for continuity

between computer connector terminal 9 and body ground. See Fig. 4. If continuity is present, check for short circuit between terminal 9 of computer and terminal of vacuum switch. See WIRING DIAGRAMS. If no continuity is present, go to next step.

7) Stop engine and check for continuity between vacuum pump connector terminal (White/Black wire) and body ground (with connector connected). If there is continuity, go to next step. If no continuity is present, check for open in White/Black wire between pump connector terminal and ground. See WIRING DIAGRAMS.

8) Disconnect vacuum pump connector. Check for continuity between vacuum pump connector terminal (White/Black wire) and body ground. If there is no continuity, replace computer. If there is continuity, check for short in Light Green wire between pump connector terminal and computer connector terminal 1. See WIRING DIAGRAMS.

STOPLIGHT SWITCH CIRCUIT

1) Turn ignition OFF. Check STOP fuse. If fuse is blown, replace fuse and recheck operation. If fuse blows again, check for short between computer connector terminal 16, or stoplight switch connector terminal 1, and fuse. See Fig. 6. See WIRING DIAGRAMS.

2) Disconnect stoplight switch connector, check for continuity between terminal 3 and body ground. See Fig. 6. If continuity is present, go to next step. If no continuity is present, check for open between terminal 3 and body ground, or faulty ground connection. See WIRING DIAGRAMS.

3) Check operation of stoplight switch. With brake pedal depressed, (switch free), there should be continuity between terminals 1 and 3, and no continuity between terminals 2 and 4. With brake pedal released, (switch depressed), there should be continuity between terminals 2 and 4, and no continuity between terminals 1 and 3. See Fig. 6. If results are not as specified, replace stoplight switch. If results are as specified, go to next step.

4) Reconnect stop light switch connector. Disconnect computer connector, check for battery voltage between computer connector terminal 16 and body ground with brake pedal released. See Fig. 4. If no battery voltage is present, check for open between terminal 16 of computer and STOP fuse. See WIRING DIAGRAMS. If battery voltage is present, go to next step.

5) Check for battery voltage between computer connector terminal 15 and ground with brake pedal depressed. See Fig. 4. If no battery voltage is present, check for open in wire between computer connector terminal 15 and stoplight switch connector terminal 3. See WIRING DIAGRAMS. If battery voltage is present, replace cruise control computer.

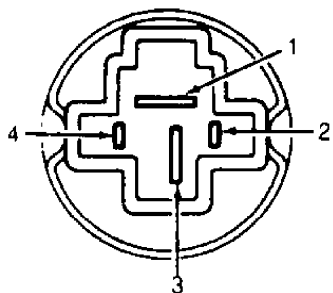


Fig. 6: Stoplight Switch Terminal Identification
Courtesy of Toyota Motor Sales, U.S.A., Inc.

PARKING BRAKE SWITCH CIRCUIT

1) Turn ignition OFF. Check alternator operation. See ALTERNATOR & REGULATOR article in ELECTRICAL section. If alternator is not operating properly, replace alternator. If alternator is operating properly, disconnect brake fluid level warning switch connector.

2) Check for continuity between terminal 2 of connector and body ground. See Fig. 7. If no continuity is present, check for open between terminal 2 and body ground, and check ground connection.

3) If continuity is present, check operation of brake fluid level warning switch. There should be continuity between fluid level switch terminals with float in the down position, and no continuity in the up position. If switch operates as specified, go to next step. If switch does not operate properly, replace switch.

4) Reconnect brake warning switch connector. Disconnect parking brake switch connector. Check that there is continuity between switch terminal and switch mounting screw hole with brake lever pulled up. Check that there is no continuity with brake lever released. If switch is not operating properly, replace switch.

5) Reconnect parking brake switch connector. Disconnect cruise control computer connector. Check for voltage between computer connector terminal 12 and body ground. See Fig. 4. There should be voltage with parking brake pulled up, and no voltage with parking brake released. If voltage is as specified, replace computer. If there is no voltage in either position, check for open in wires. If there is voltage in both positions, check for short in wires. See WIRING DIAGRAMS.

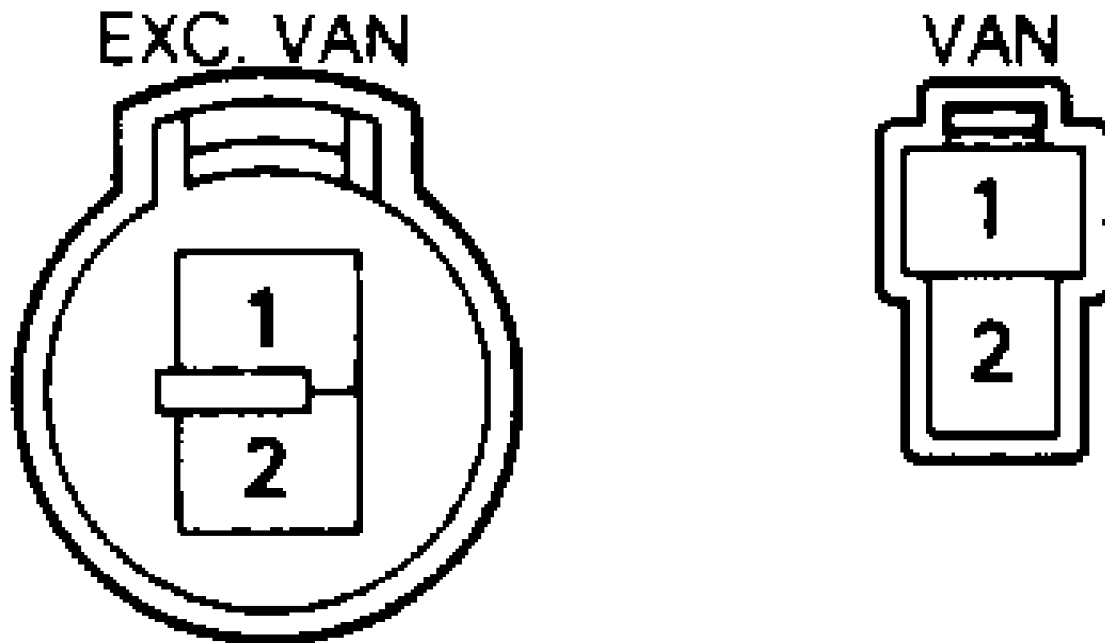


Fig. 7: Brake Fluid Level Switch Connector Terminal Identification
Courtesy of Toyota Motor Sales, U.S.A., Inc.

CLUTCH SWITCH CIRCUIT

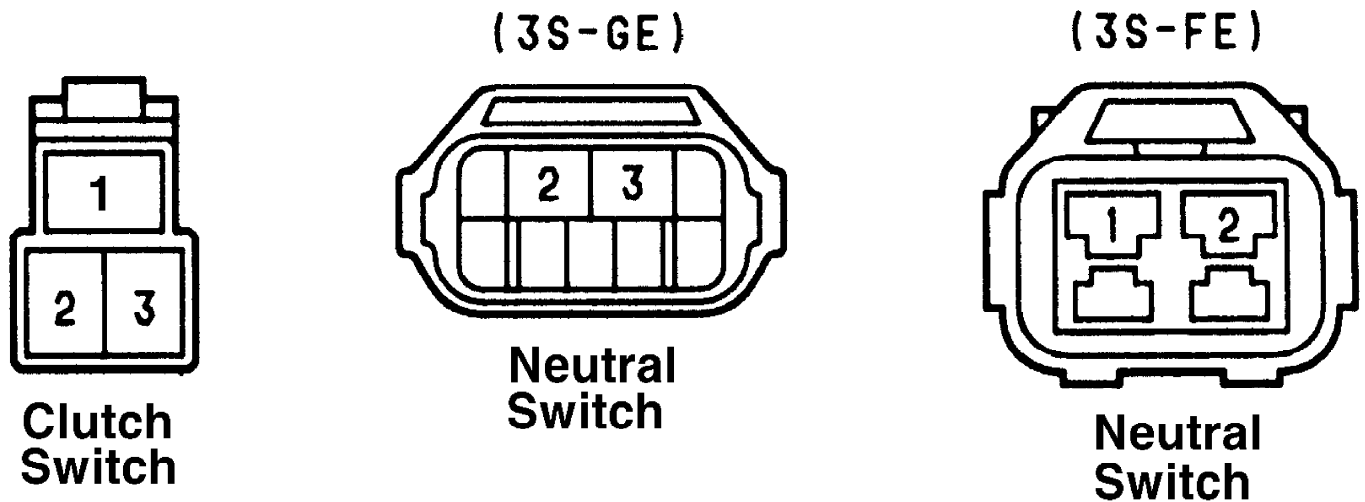
Manual Transmission

1) Turn ignition OFF. Disconnect clutch switch connector. Check for continuity between terminal 2 and body ground. See Fig. 8. If no continuity is present, check for open between terminal 2 and body ground. See WIRING DIAGRAMS. If continuity is present, go to next step.

2) Check clutch switch operation. There should be continuity between switch terminals 2 and 3 with clutch pedal depressed, and no continuity with clutch pedal released. See Fig. 8. If switch does not operate as specified, replace clutch switch. If switch operates properly, reconnect clutch switch connector and go to next step.

3) Disconnect computer connector, check for continuity between computer connector terminal 11 and body ground with clutch pedal depressed. See Fig. 4. If continuity is present, go to next step. If no continuity is present, check for open between computer connector terminal 11 and clutch switch connector terminal 3. See WIRING DIAGRAMS.

4) Check for continuity between computer connector terminal 11 and body ground with clutch pedal released. See Fig. 4. If there is no continuity, replace cruise control computer. If continuity is present, check for short between computer connector terminal 11 and clutch switch connector terminal 3.



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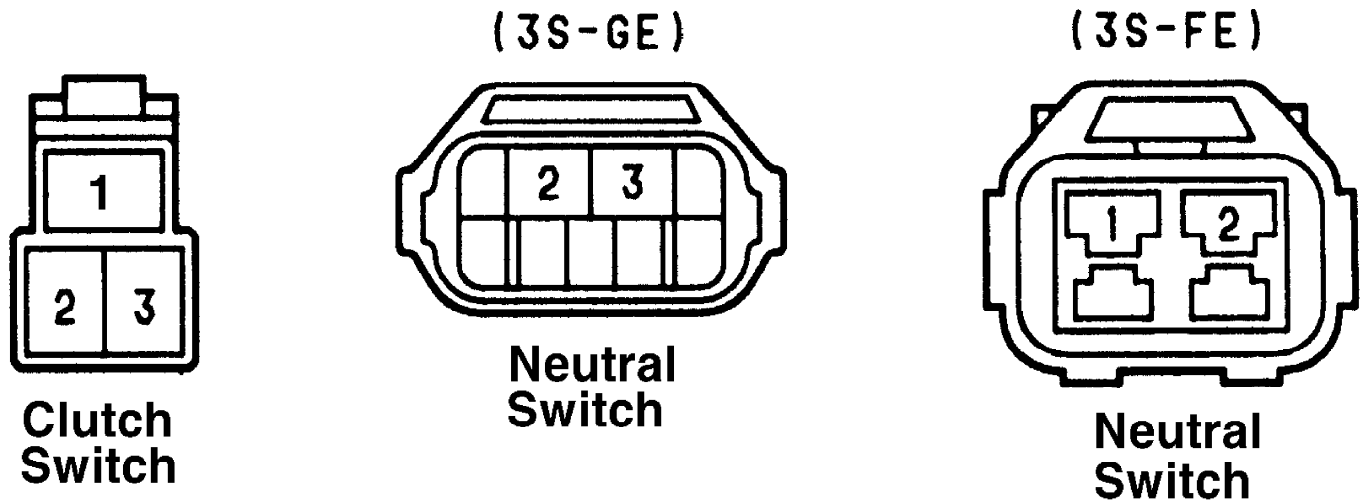
Fig. 8: Clutch Switch Connector Terminal Identification
Courtesy of Toyota Motor Sales, U.S.A., Inc.

NEUTRAL/START SWITCH CIRCUIT

1) Turn ignition OFF. Disconnect neutral/start switch connector. Check for continuity between terminal 1 (3S-FE), or terminal 3 (3S-GE) and body ground. See Fig. 9. If no continuity is present, check for open between terminal 3 or 1 and body ground. See WIRING DIAGRAMS. If continuity is present, go to next step.

2) Check that there is continuity between switch terminals 1 and 2 (3S-FE), or terminals 2 and 3 (3S-FE) with transaxle range selector in "P" or "N" position. If switch does not operate as specified, replace switch. If switch operates properly, reconnect switch connector and go to next step.

3) Disconnect computer connector, check for continuity between computer connector terminal 11 and body ground with transaxle range selector in "N" or "P". If continuity is present, replace computer. If no continuity is present, check for open between computer connector terminal 11 and neutral/start switch connector terminal 2.



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Fig. 9: Neutral/Start Switch Connector Terminal Identification
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

SPEED SENSOR CIRCUIT

- 1) Check for fluctuation of speedometer while driving at a steady speed. If speedometer fluctuates, speedometer cable might be faulty or dry. If speedometer does not fluctuate, turn ignition off.
- 2) Disconnect speed sensor connector. Check for continuity between body ground and sensor connector terminal 2. See Fig. 10. If no continuity is present, check for open between speed sensor terminal 2 and body ground. See WIRING DIAGRAMS. If continuity is present, go to next step.

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Fig. 10: Speed Sensor Connector Terminal Identification
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

- 3) Check for continuity between speed sensor terminals as sensor is rotated. Continuity should exist 4 times per revolution.

(Speed sensor may be removed from vehicle and turned with screwdriver). If speed sensor is not operating properly, replace sensor. If sensor is operating properly, go to next step.

4) Check for continuity between speed sensor connector terminal 1 and cruise control computer connector terminal 7. If no continuity is present, check for open between speed sensor connector terminal 1 and computer connector terminal 7. See WIRING DIAGRAMS. If continuity is present, replace cruise control computer.

ACTUATOR CIRCUIT

1) Turn ignition OFF. Check vacuum hoses for cracks or leaks. Replace hoses as necessary. If no vacuum leaks are found, check control cable freeplay. Cable freeplay should be less than .39" (10 mm). Adjust if necessary and check operation. If system still operates improperly, go to next step.

2) Disconnect actuator connector. Measure resistance between actuator terminals. Between terminals 2 and 3 resistance should be approximately 30 Ohms. Between terminals 1 and 3 resistance should be approximately 68 Ohms. See Fig. 11. If resistance is as specified, go to next step. If resistance is not as specified, replace actuator.

3) Disconnect stoplight switch connector. Check for continuity between switch connector terminal 4 and body ground. See Fig. 6. If there is no continuity, go to next step. If continuity is present, repair short in wire between actuator connector terminal 1 and stoplight switch connector terminal 4. See WIRING DIAGRAMS.

4) Reconnect actuator connector. Check for continuity between stoplight switch connector terminal 4 and body ground. See Fig. 6. If continuity is present, go to next step. If there is no continuity, check for open in wire between actuator connector terminal 1 and stoplight switch connector terminal 4. See WIRING DIAGRAMS.

6) Check continuity of stoplight switch. With the switch pin pushed, there should be continuity between stoplight switch terminals 1 and 3, and no continuity between terminals 2 and 4. See Fig. 6. With the switch pin free, there should be continuity between stoplight switch terminals 2 and 4, and no continuity between terminals 1 and 3. See Fig. 6. If continuity is as specified, go to next step. If continuity is not as specified, replace stoplight switch.

7) Reconnect stoplight switch connector. Disconnect computer connector. Check for continuity between computer connector terminals 2 and 14 with stoplight switch released. If continuity is present, go to next step. If there is no continuity, check for open in wires between computer connector terminals 2 or 14, actuator connector terminals 1 or 3, or stoplight switch connector terminals 2 or 4. See Figs. 4, 7 or 11.

8) Check for continuity between computer connector terminals 2 and 14 with stoplight switch depressed. See Fig. 4. If there is no continuity, go to next step. If continuity is present, check for short circuit in wires between computer connector terminals 2 or 14, actuator connector terminals 1 or 3, or stoplight switch connector terminals 2 or 4. See Figs. 4, 7 or 11.

9) Check for continuity between computer connector terminals 4 and 14. If there is no continuity, check for open in wire between computer connector terminal 4 and actuator terminal 2, or in wire between computer connector terminal 14 and actuator connector terminal 3. If continuity is present, replace cruise control computer.



Fig. 11: Actuator Terminal Identification
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

ELECTRONIC CONTROLLED TRANSMISSION (ECT) SOLENOID CIRCUIT

1) Turn ignition OFF. Disconnect electrical connector from ECT computer. Check for continuity between cruise control computer connector terminal 8 and ECT computer connector terminal 11. See Figs. 4 and 12. If continuity is present, go to next step. If no continuity is present, check for open in Brown/Black wire between cruise control computer connector terminal 8 and ECT computer connector terminal 11. See WIRING DIAGRAMS.

2) Check resistance value between cruise control computer connector terminal 8 and body ground. See Fig. 4. Resistance should be 11-15 ohms. If resistance is as specified, go to next step. If resistance is not as specified, check for open or short in Brown/Black wire between cruise control computer connector terminal 8 and ECT computer terminal 11, or ECT solenoid (No. 2). See WIRING DIAGRAMS.

3) Check for continuity between cruise control computer connector terminal 6 and ECT computer connector terminal 17. See Fig. 4 and 12. If continuity is present, replace cruise control computer. If no continuity is present, check for open in wire between cruise control computer connector terminal 6 and ECT computer connector terminal 17.

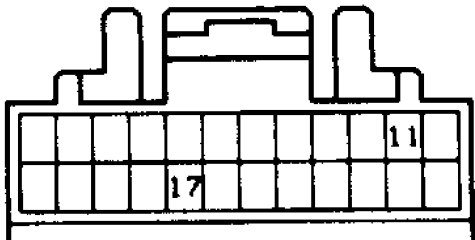


Fig. 12: Electronic Controlled Trans Computer Connector Terminal ID
 Courtesy of Toyota Motor Sales, USA., Inc.

CRUISE CONTROL COMPUTER CIRCUIT

Turn ignition OFF. Disconnect electrical connector from computer. Ensure terminals are clean and in good condition. Test circuits using CRUISE CONTROL COMPUTER CIRCUIT TEST SEQUENCE chart. See Fig. 13.

Connection or measure item	Check for	Tester connection	Condition	Specified value
Stop Fuse	Voltage	16 – Body ground	—	Battery voltage
Stop Light Switch	Voltage	15 – Body ground	Brake pedal depressed	Battery voltage
			Brake pedal released	No voltage
Stop Light Switch and Release Valve	Resistance	2 – 14	Brake pedal released	Approx. 68 ohm
Control Valve	Resistance	4 – 14	—	Approx. 30 ohm
Main Switch	Voltage	10 – Body ground	Turn ignition switch and main switch on	Battery voltage
			Turn ignition switch and main switch off	No voltage
Main Switch (indicator circuit)	Voltage	3 – Body ground	Turn ignition switch and main switch on	Battery voltage
			Turn ignition switch and main switch off	No voltage
Control Switch (set/coast)	Resistance	17 – Body ground	Push set/coast switch on	Approx. 198 ohm
Control Switch (resume/accel)	Resistance	17 – Body ground	Push resume/accel switch on	Approx. 68 ohm
Control Switch (cancel)	Resistance	17 – Body ground	Push cancel switch on	Approx. 418 ohm
Speed Sensor	Continuity	7 – Body ground	Vehicle moving slowly	1 pulse each 40 cm (15.75 in.)
Clutch Switch (M/T) or Neutral Start Switch (A/T)	Continuity	11 – Body ground	Clutch pedal depressed or shifted into "N" and "P" range	Continuity
			Clutch pedal released or shifted into only range except "N" range	No continuity
Parking Brake Switch	Voltage	12 – Body ground	Remove CHARGE fuse and ignition switch turned on with parking brake lever pulled up.	No voltage
			Remove CHARGE fuse and ignition switch turned on with parking brake lever released.	Battery voltage
Body Ground	Continuity	13 – Body ground	—	Continuity

Courtesy of Toyota Motor Sales, U.S.A., Inc.

Fig. 13: Cruise Control Computer Circuit Test Sequence
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

WIRING DIAGRAMS

NOTE: For wiring diagrams, see chassis wiring in WIRING DIAGRAMS section.