

AUTO TRANS DIAGNOSIS - A-140E

1994 Toyota Celica

AUTOMATIC TRANSMISSIONS
Toyota A-140E Electronic Controls

APPLICATION

APPLICATION

Vehicle	Transmission Model
1993 Camry DX, LE & XLE	A-140E
1994	
Camry DX, LE & XLE	A-140E
Celica GT	A-140E

CAUTION: All models are equipped with a Supplemental Restraint System (SRS). When servicing vehicle, use care to avoid accidental air bag deployment. All SRS electrical connections and wiring harness are covered by Yellow insulation. SRS-related components are located in steering column, center console, instrument panel and lower panel on instrument panel. DO NOT use electrical test equipment on these circuits. If necessary, deactivate SRS before servicing components. See appropriate AIR BAG RESTRAINT SYSTEM article in the ACCESSORIES/SAFETY EQUIP section. Refer to the following menu:

- * 1993 Camry, see: AIR BAG RESTRAINT SYSTEM
- * 1994 Camry, see: AIR BAG RESTRAINT SYSTEM
- * 1994 Celica, see: AIR BAG RESTRAINT SYSTEM

DESCRIPTION

The A-140E automatic transmission is electronically controlled. Transmission shifting and torque converter lock-up are controlled by an Electronic Controlled Transmission (ECT) Electronic Control Unit (ECU). Control unit is referred to as the ECT ECU.

NOTE: ECT ECU is combined with the engine ECU into one unit. This control unit is referred to as the engine and ECT ECU. See Figs. 1-3. In this article, control unit will be referred to as the ECT ECU on all models.

The ECT ECU receives information from various input devices and uses this information to control No. 1 and No. 2 solenoids for transmission shifting and lock-up solenoid for torque converter lock-up.

A pattern select switch is located on center console (Camry). See Figs. 1-3. Pattern select switch contains a POWER (depressed) and a NORMAL (released) operating position. When pattern select switch is depressed, transmission upshifts and downshifts will occur at a higher vehicle speed than with switch released. An indicator light will indicate the pattern select switch position.

An Overdrive (OD) switch is mounted on the shift lever. See Figs. 1-3. When OD switch is depressed to ON position, transmission will shift into 4th gear when shift lever is in "D" position, and OD OFF light on instrument panel will go off. When OD switch is released

to OFF position, transmission will shift into 3rd gear, and OD OFF light on instrument panel will illuminate.

Transmission is equipped with a shift lock and key lock system. Shift lock system prevents shift lever from being moved from Park unless brake pedal is depressed. In case of a malfunction, shift lever can be released by depressing shift lock override button, located near shift lever. Key lock system prevents ignition key from being moved from ACC to LOCK position on ignition switch unless shift lever is in Park. For more information on shift lock and key lock system, see the SHIFT LOCK SYSTEM article.

OPERATION

ELECTRONIC CONTROLLED TRANSMISSION ELECTRONIC CONTROL

UNIT (ECT ECU)

1) The ECT ECU receives information from various input devices and uses this information to control No. 1, No. 2 and lock-up solenoids. The ECT ECU contains a self-diagnostic system, which will store code if failure or problem exists in the electronic control system.

2) Code can be retrieved to determine transmission problem area. See SELF-DIAGNOSTIC SYSTEM. The ECT ECU is located near glove box on Camry models and behind center console on Celica models. See Figs. 4-6.

ECT ECU INPUT DEVICES

Pattern Select Switch

Pattern select switch delivers an input signal to ECT ECU to indicate transmission shift points selected by the operator. Pattern select switch is located near shift lever (Camry models). See Figs. 1 and 2.

Park/Neutral Position Switch

Park/Neutral position switch delivers an input signal to ECT ECU to indicate shift lever position. Park/Neutral position switch is located on side of transmission. See Figs. 1-3.

Throttle Position Sensor

Throttle position sensor delivers an input signal to ECT ECU indicating throttle position. Throttle position sensor is located on side of throttle body.

Vehicle Speed Sensor

Vehicle speed signal is delivered to ECT ECU by speed sensors. Speed sensors are located on transmission.

Brakelight Switch

Brakelight switch delivers input signal to ECT ECU, indicating vehicle braking. Brakelight switch is located on brake pedal support.

OD Switch

The OD switch provides an input signal to ECT ECU to indicate when overdrive is selected by the operator. When OD switch is depressed to ON position, transmission will shift into 4th gear when shift lever is in "D" position, and OD OFF light on instrument panel will go off. See Figs. 1-3. When OD switch is released to OFF position, transmission will shift into 3rd gear, and OD OFF light on instrument panel will come on. The OD switch is mounted on the shift lever.

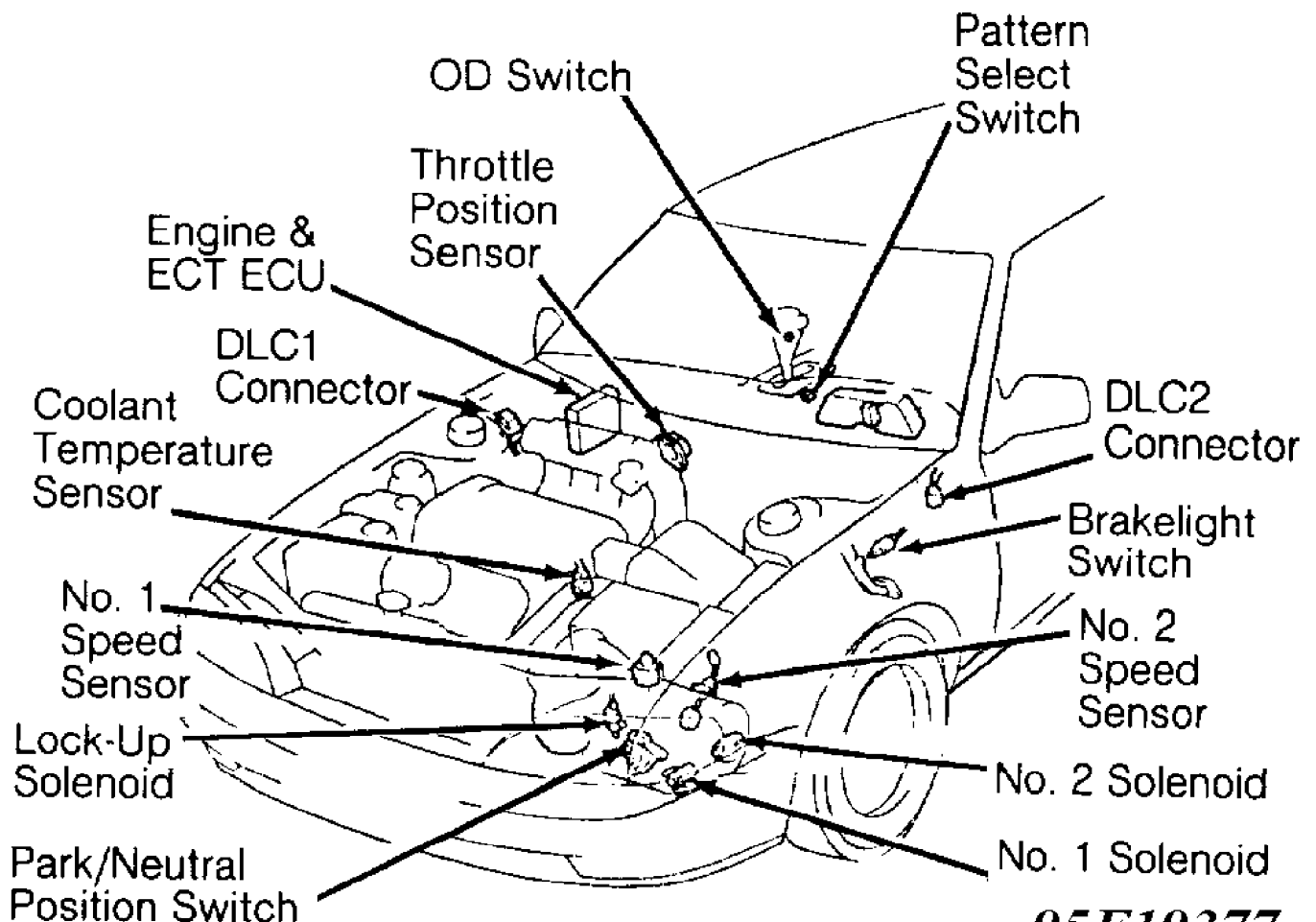
Coolant Temperature Sensor

Coolant temperature sensor delivers input signal to ECT ECU, indicating engine coolant temperature. Coolant temperature sensor is located in coolant passage on rear of engine. See Fig. 24.

Cruise Control Electronic Control Unit (ECU)

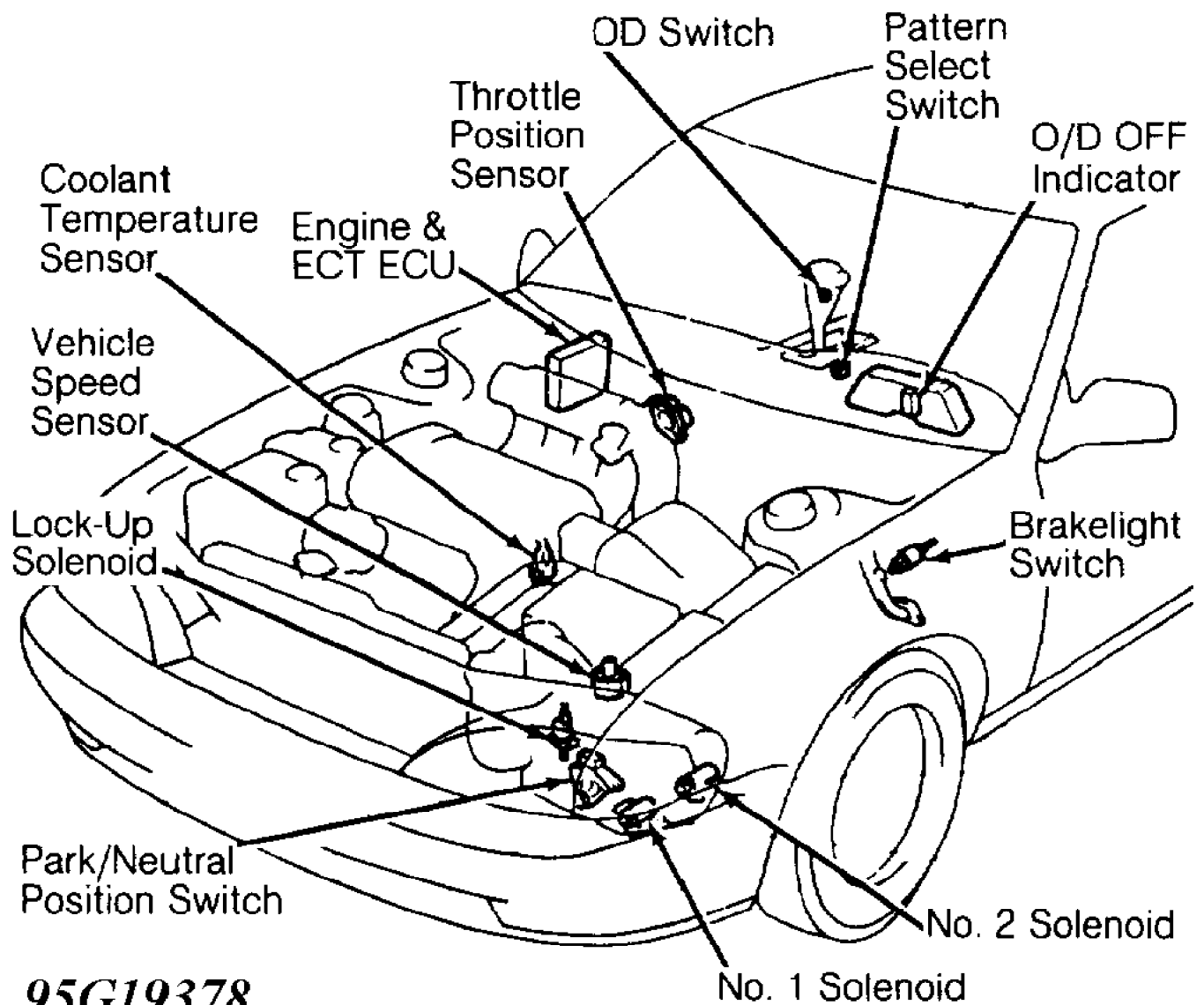
Cruise control ECU delivers an input signal to control overdrive operation in accordance with vehicle speed when cruise control is operating. When in overdrive with cruise control on, if vehicle speed drops 3 MPH less than the set speed, overdrive is released to prevent reduction in vehicle speed. Once vehicle speed is more than the set speed, the overdrive is resumed. Cruise control ECU is located behind instrument panel on passenger's side. See Figs. 4-6.

NOTE: Cruise control ECU may be referred to as cruise control computer.



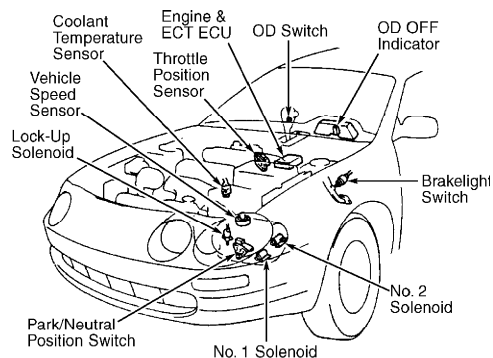
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Fig. 1: Identifying Input & Output Devices (1993 Camry)
Courtesy of Toyota Motor Sales, U.S.A., Inc.



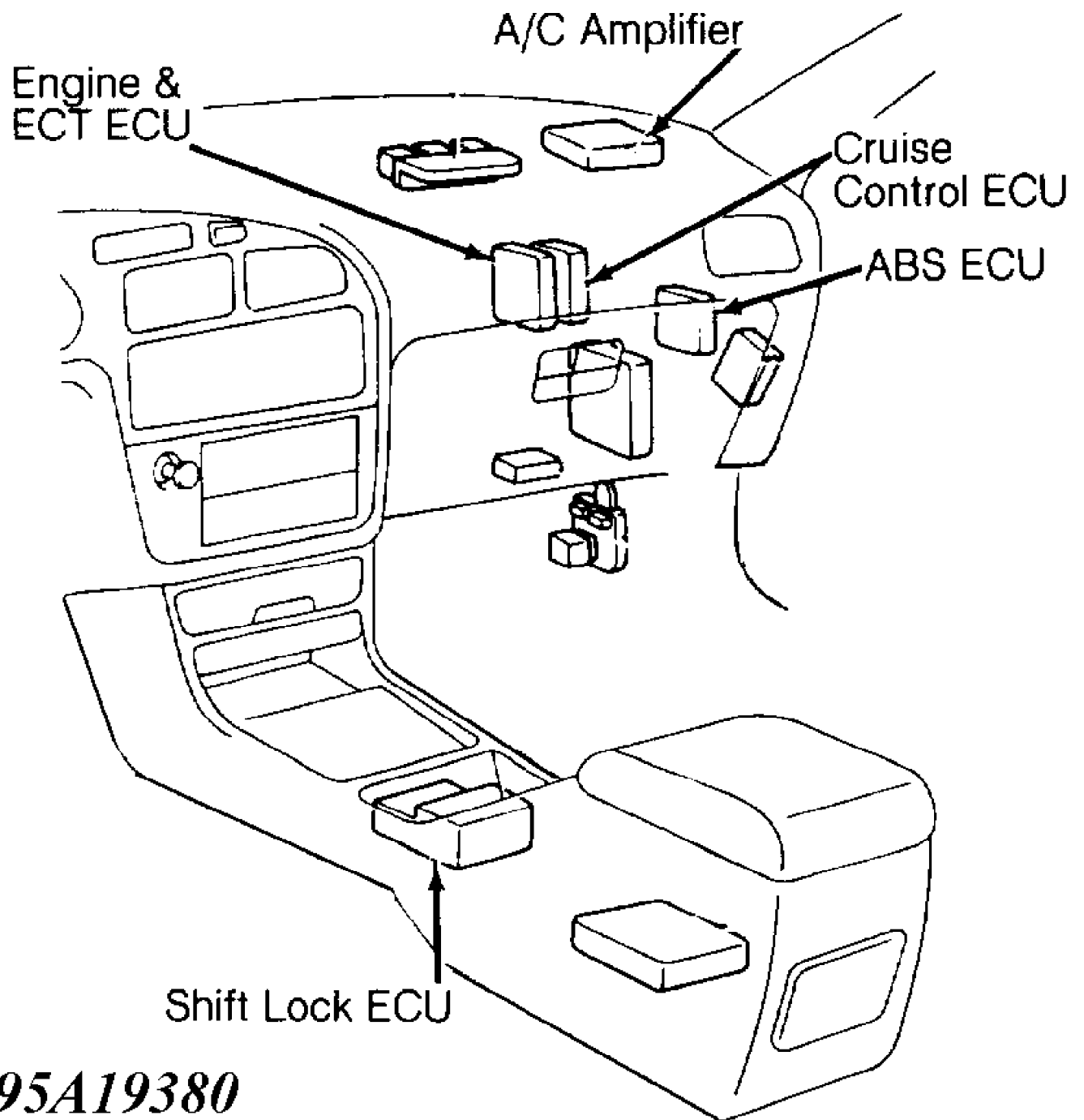
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Fig. 2: Identifying Input & Output Devices (1994 Camry)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 3: Identifying Input & Output Devices (1994 Celica)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 4: Identifying ECU Locations (1993 Camry)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

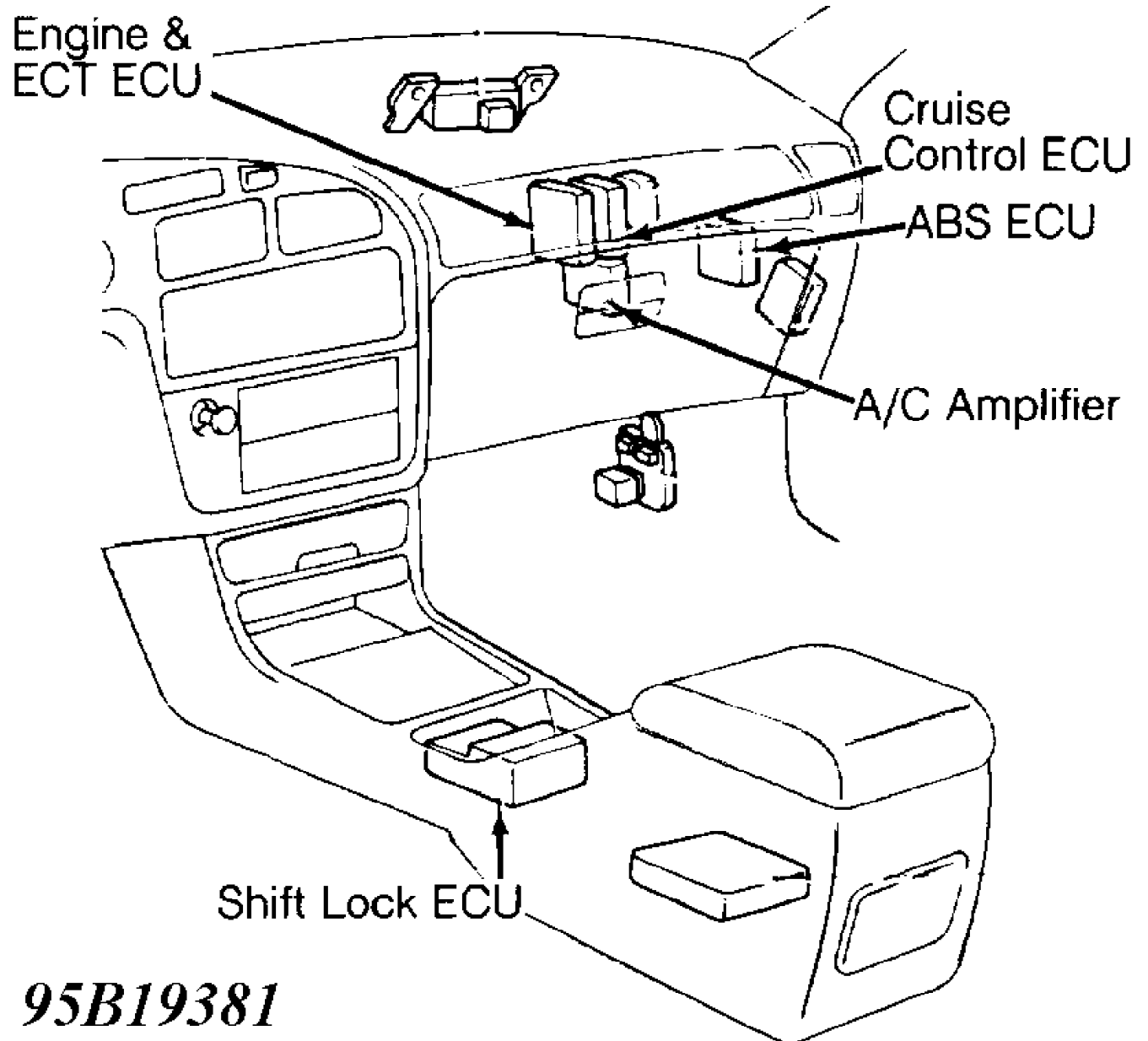
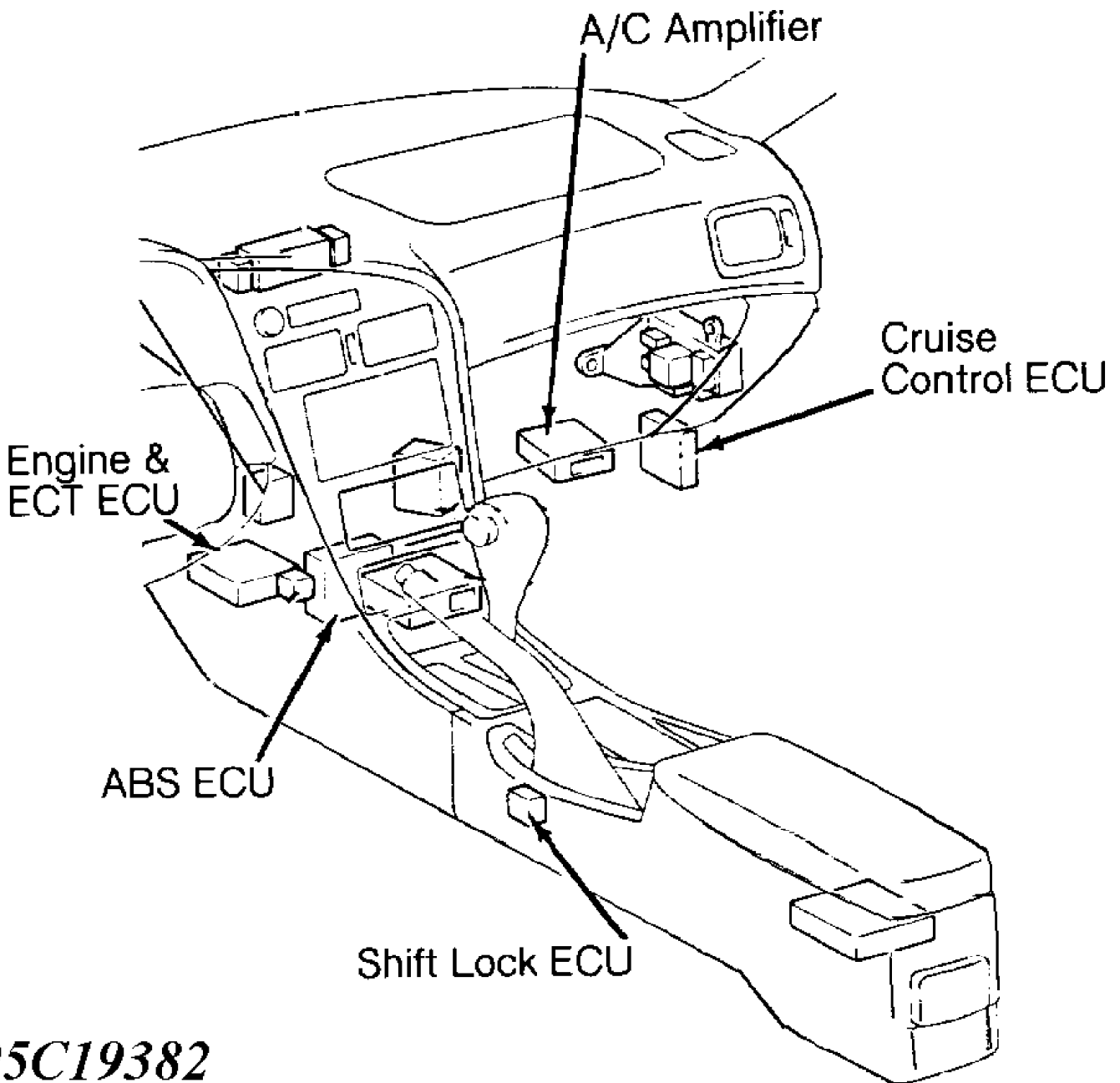


Fig. 5: Identifying ECU Locations (1994 Camry)
Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 6: Identifying ECU Locations (1994 Celica)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

ECT ECU OUTPUT DEVICES

No. 1 & No. 2 Solenoids

The ECT ECU controls transmission shifting by delivering an output signal to operate proper solenoid. Solenoids are located on transmission. See Figs. 1-3. Solenoids are operated in accordance with shift lever range. See Fig. 7. If a solenoid malfunctions, ECT ECU places transmission in a designated gear. See Fig. 7.

NOTE: In some gears, ECT ECU provides a fail-safe system which places transmission in a designated gear depending on which solenoid fails. In some gears, fail-safe system will not be

activated and transmission will be placed in specified gear.
See Fig. 7.

Lock-Up Solenoid

The ECT ECU controls torque converter lock-up by delivering an output signal to lock-up solenoid. Lock-up solenoid is activated when shift lever is in "D" position and vehicle is at specified speed. Lock-up solenoid is located on transmission.

Range	NORMAL			NO. 1 SOLENOID MALFUNCTIONING			NO. 2 SOLENOID MALFUNCTIONING			BOTH SOLENOID MALFUNCTIONING		
	Solenoid valve		Gear Position	Solenoid valve		Gear Position	Solenoid valve		Gear Position	Solenoid valve		Gear Position
	No. 1	No. 2		No. 1	No. 2		No. 1	No. 2		No. 1	No. 2	
D range	ON	OFF	1st	x	ON (OFF)	3rd (O/D)	ON	x	1st	x	x	O/D
	ON	ON	2nd	x	ON	3rd	OFF (ON)	x	O/D (1st)	x	x	O/D
	OFF	ON	3rd	x	ON	3rd	OFF	x	O/D	x	x	O/D
	OFF	OFF	O/D	x	OFF	O/D	OFF	x	O/D	x	x	O/D
2 range	ON	OFF	1st	x	ON (OFF)	3rd (O/D)	ON	x	1st	x	x	3rd
	ON	ON	2nd	x	ON	3rd	OFF (ON)	x	3rd (1st)	x	x	3rd
	OFF	ON	3rd	x	ON	3rd	OFF	x	3rd	x	x	3rd
L range	ON	OFF	1st	x	OFF	1st	ON	x	1st	x	x	1st
	ON	ON	2nd	x	ON	2nd	ON	x	1st	x	x	1st

(): No fail safe function x: Malfunctions

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Fig. 7: Solenoid No. 1 & No. 2 Operation Chart
Courtesy of Toyota Motor Sales, U.S.A., Inc.

SELF-DIAGNOSTIC SYSTEM

SYSTEM DIAGNOSIS

NOTE: Before testing transmission, ensure fluid level is correct and throttle and shift cables are properly adjusted. Ensure engine starts with shift lever in Park and Neutral to ensure proper adjustment of neutral start switch. Transmission must first be tested by checking for stored codes. See RETRIEVING CODES.

ECT ECU monitors transmission operation and contains a self-diagnostic system which stores code if transmission electronic control system failure or problem exists. If a problem exists in No. 1 or No. 2 solenoids or speed sensors and code is set, ECT ECU blinks OD OFF light on instrument panel to warn driver.

OD OFF light on instrument panel will not blink to warn driver if a problem exists or code is stored for lock-up solenoid, or problem exists with brakelight switch signal or throttle position sensor signal.

RETRIEVING CODES

NOTE: Before retrieving codes, ensure proper battery voltage exists for proper self-diagnosis system operation. Perform diagnostic circuit check before retrieving codes to ensure

proper operation of OD OFF light. See DIAGNOSTIC CIRCUIT CHECK.

Diagnostic Circuit Check

1) Turn ignition on. Release OD switch on shift lever to OFF position. Ensure OD OFF light on instrument panel turns on. If OD OFF light does not illuminate, check OD switch and wiring circuit.

2) Depress OD switch to ON position. Ensure OD OFF light on instrument panel goes off. If OD OFF light remains on, check OD switch and wiring circuit. If OD OFF light is blinking, check for stored codes. See ECT ECU CODES heading below.

ECT ECU Codes

1) Turn ignition on. DO NOT start engine. Depress OD switch on shift lever to ON position.

NOTE: Codes can only be retrieved with OD switch on. If OD switch is off, OD OFF light will be on continuously and will not blink the code.

2) Install jumper wire between terminals TE1 and E1 of DLC1 or DLC2 connector. See Figs. 8-10.

3) Note number of flashes from OD OFF light on instrument panel. If normal system operation exists, OD OFF light will flash once every .25 second. See Fig. 11.

4) If system is operating correctly and no code exists, turn ignition off and remove jumper wire. Perform MANUAL SHIFTING TEST under TRANSMISSION SHIFT TESTING to determine if problem is a electrical or mechanical transmission problem. Check system by the symptom. See appropriate symptom under SYMPTOM TROUBLE SHOOTING.

5) If code exists, OD OFF light will blink once every .5 second. Number of blinks equals first digit of code. After a pause of 1.5 seconds, second digit will be displayed. See Fig. 11.

6) If more than one code exists, next code will be displayed after pause of 2.5 seconds. See Fig. 11. Smallest number code will display first and system will progress to largest code. Codes will be repeated.

7) Once code is obtained, determine probable cause and symptom. See CODE IDENTIFICATION table. For diagnosis and repair of codes, see DIAGNOSTIC TESTING. Turn ignition off and remove jumper wire.

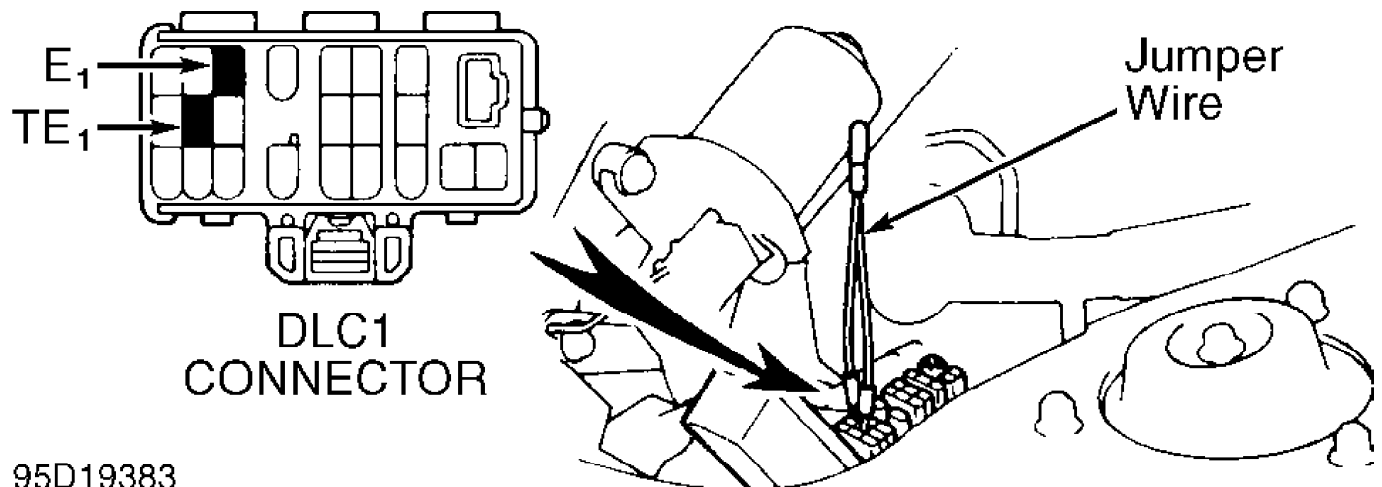
NOTE: Once repairs have been performed, codes must be cleared from ECT ECU memory. See CLEARING CODES under TRANSMISSION TESTING.

CODE IDENTIFICATION

Code	(1) Probable Cause
42	(2) Defective No. 1 Speed Sensor
61	(2) Defective No. 2 Speed Sensor
62	Defective No. 1 Solenoid
63	Defective No. 2 Solenoid
64	Defective Lock-Up Solenoid

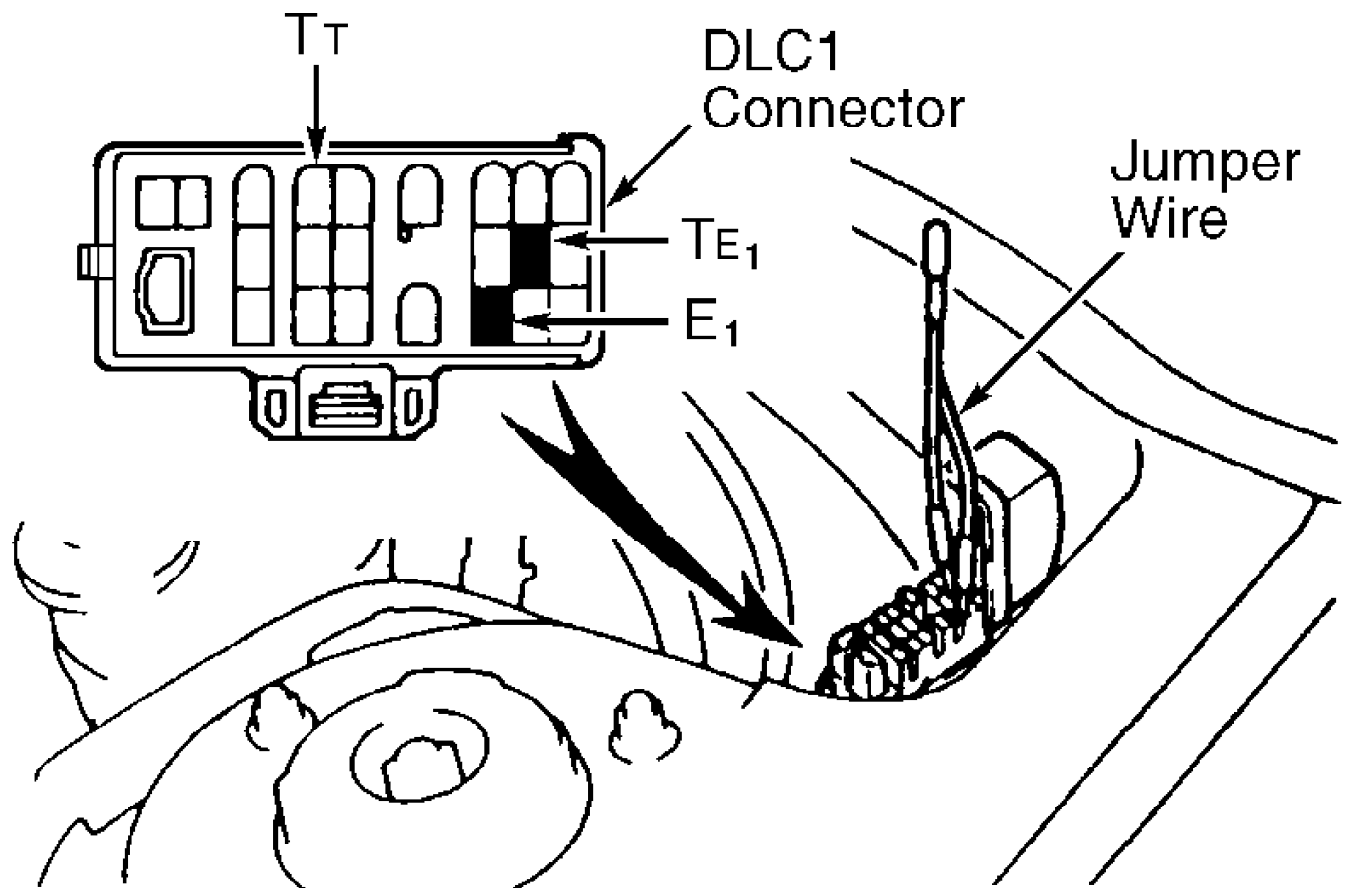
(1) - Check listed component for probable cause. Also check wiring and connections of specified component.

(2) - If both No. 1 and No. 2 speed sensors fail simultaneously, code will not exist, but transmission will not upshift from 1st gear with shift lever in the "D" position.



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Fig. 8: Identifying Data Link Connector 1 Location (Camry)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 9: Identifying Data Link Connector 1 Location (Celica)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

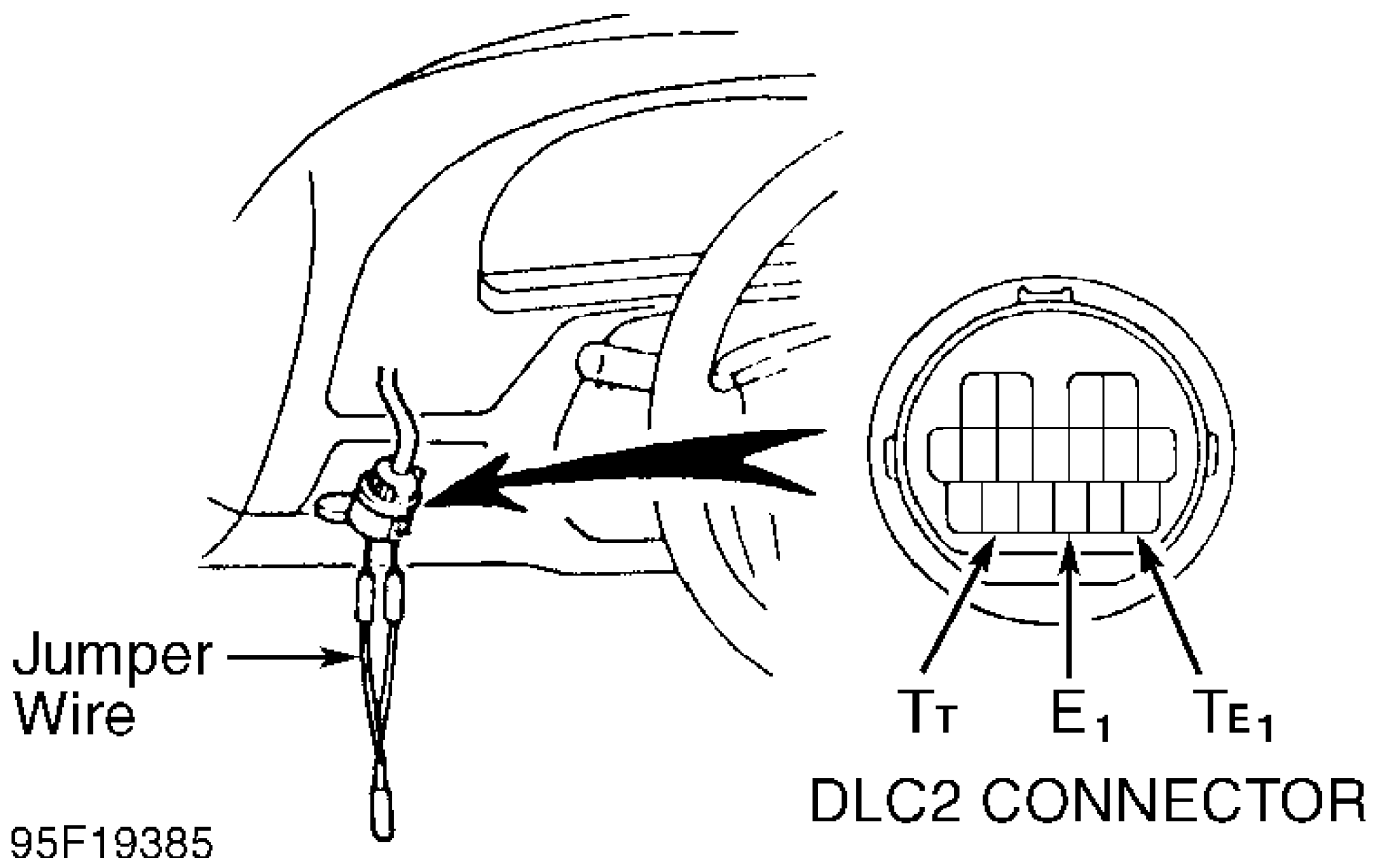
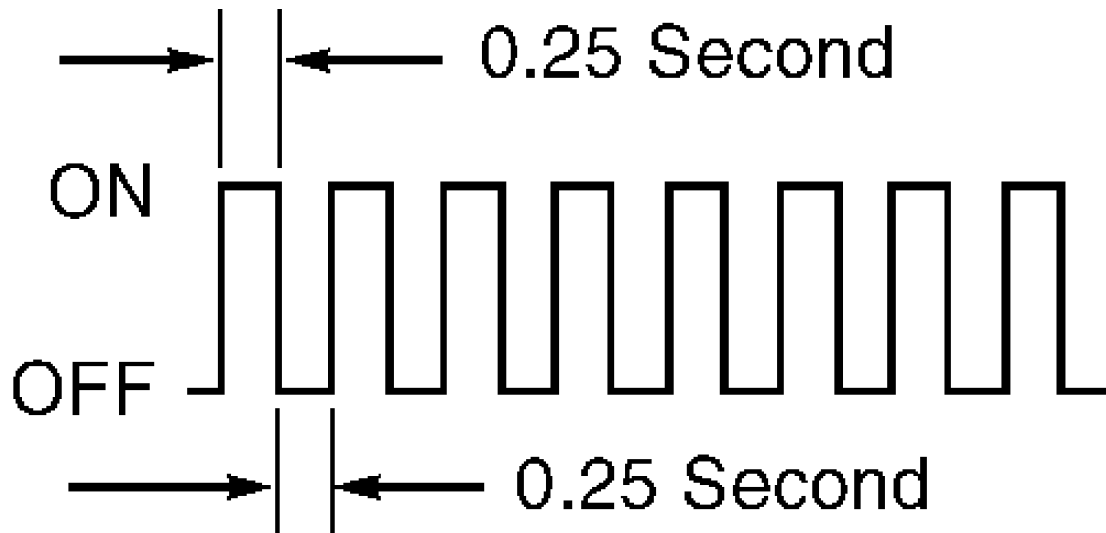
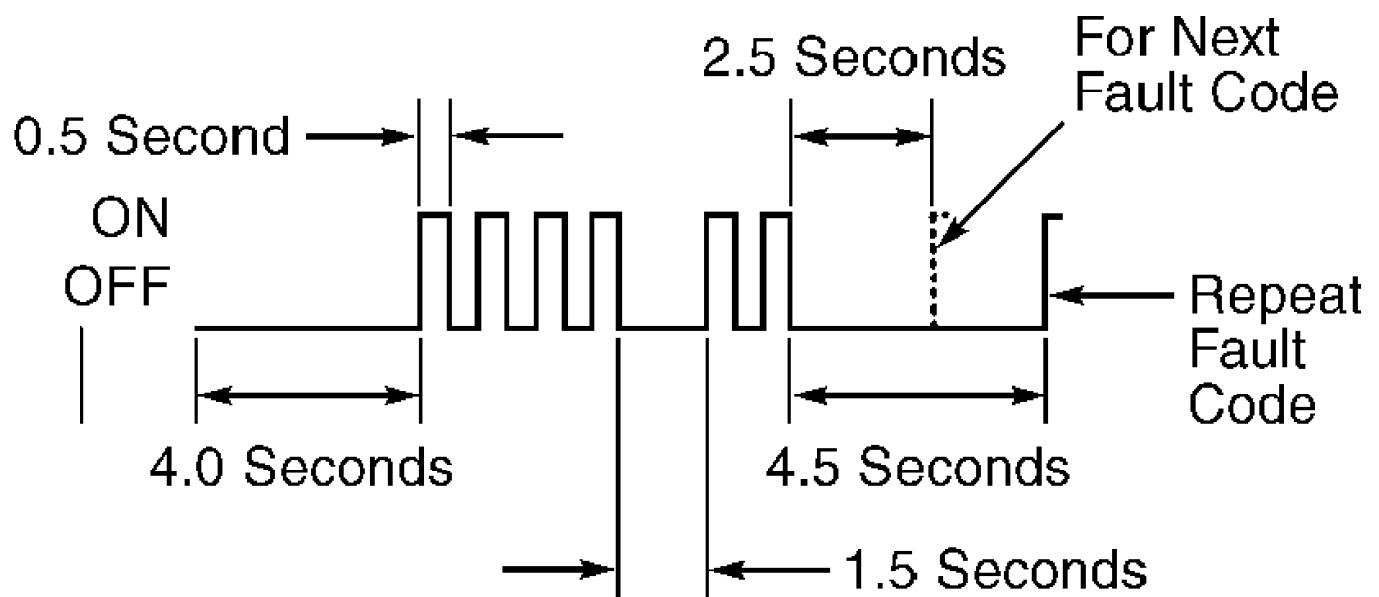


Fig. 10: Identifying Data Link Connector 2 Location (Camry)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 11: Identifying Code Displays
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 12: Identifying Code Displays
Courtesy of Toyota Motor Sales, U.S.A., Inc.

CLEARING CODES

Once repairs have been performed, codes must be cleared from ECT ECU memory. Remove EFI fuse (15-amp) from engine compartment fuse box, near the battery, for 10 seconds or more to clear memory in ECT ECU.

NOTE: Codes may also be cleared by disconnecting negative battery cable, but memory for electronic components will be also be canceled.

DIAGNOSTIC TESTING

When trouble shooting transmission, first check for stored codes and repair as necessary. If no codes exist, perform manual shifting test to determine if problem area is in electrical circuits or a mechanical transmission problem. See MANUAL SHIFTING TEST under TRANSMISSION SHIFT TESTING.

CODE NO. 42 (NO. 1 VEHICLE SPEED SENSOR (VSS) TEST

1) Lift and support vehicle. Disconnect cruise control ECU. See Figs. 4-6. Remove combination meter. Turn ignition on. Using DVOM, measure voltage between SP1 terminal of combination meter connector and ground. See Figs. 13 and 14. Rotate front wheel.

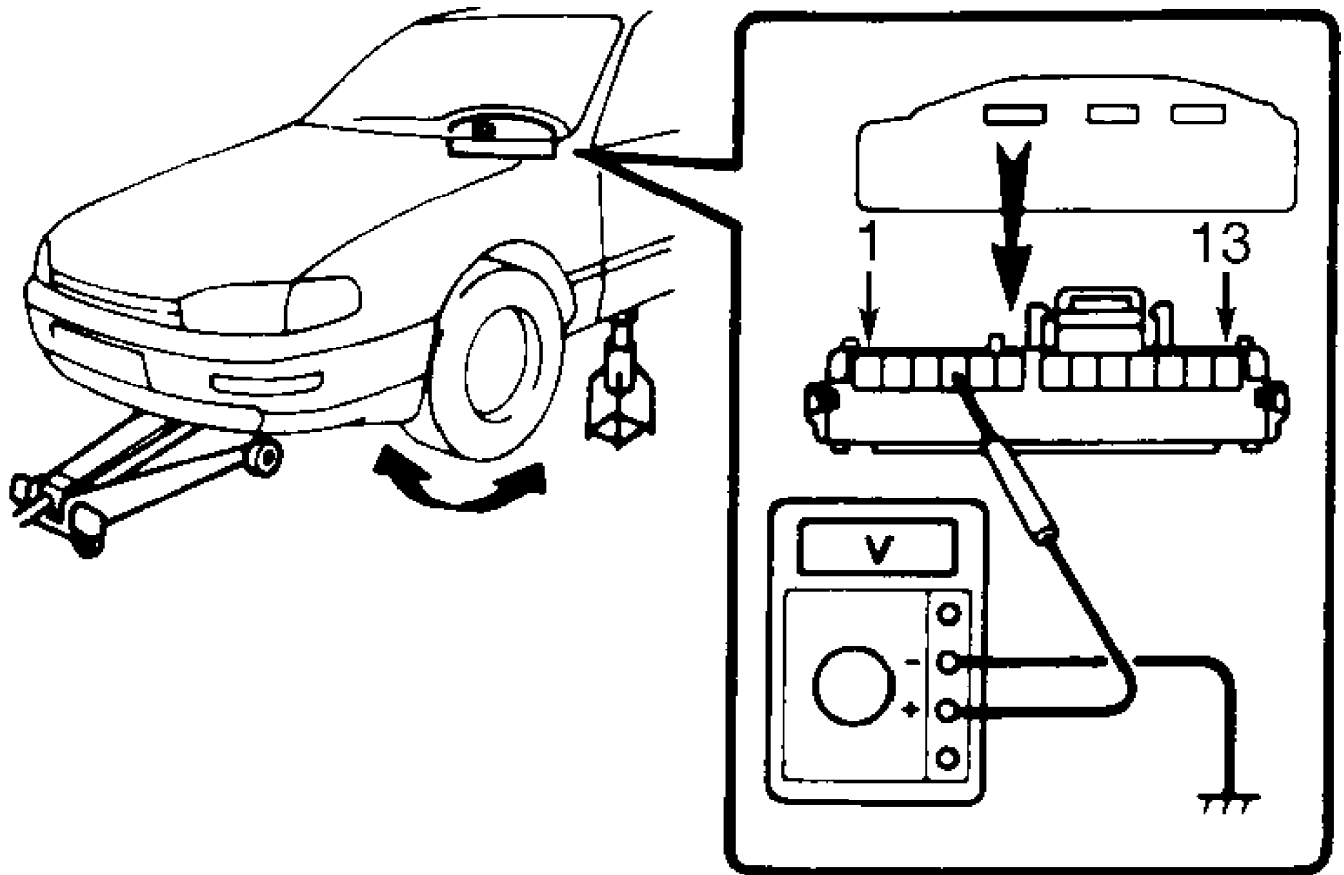
2) If voltage pulses 0-5 volts, check continuity between ECU harness connector E1 terminal and ground. If continuity does not exist, inspect and repair circuit as needed. If continuity does exist, replace ECM and retest. If no voltage is present, go to next step. If voltage is 4-6 volts and remains unchanged, go to step 5).

3) Turn ignition off. Disconnect ECT ECU harness connector. See Figs. 4-6. Using ohmmeter, check continuity between combination meter harness connector SP1 terminal and ECU SP1 terminal. See Figs. 13-14, and 16-18. If continuity exists, go to next step. If continuity does not exist, inspect and repair circuit as needed.

4) Check continuity of 2 circuits between combination meter and VSS. See appropriate wiring diagram in WIRING DIAGRAMS. If continuity does not exist, inspect and repair circuit(s) as needed. If continuity exists, inspect VSS. See NO. 1 VEHICLE SPEED SENSOR under COMPONENT TESTING. Replace as needed.

5) Disconnect VSS harness connector. Turn ignition on. Measure voltage between VSS harness connector terminal No. 1 (Red/Blue wire) and ground. If battery voltage is not present, inspect and repair circuit as needed. If battery voltage is present, replace combination meter and retest.

6) Turn ignition off. Disconnect ECT ECU harness connector. See Fig. 4-6. Using ohmmeter, check continuity between combination meter harness connector SP1 terminal and ECU SP1 terminal. See Figs. 13-14, and 16-18. If continuity exists, replace combination meter and retest. If continuity does not exist, inspect and repair circuit as needed.



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Fig. 13: Identifying Combination Meter Harness Connector (Camry)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

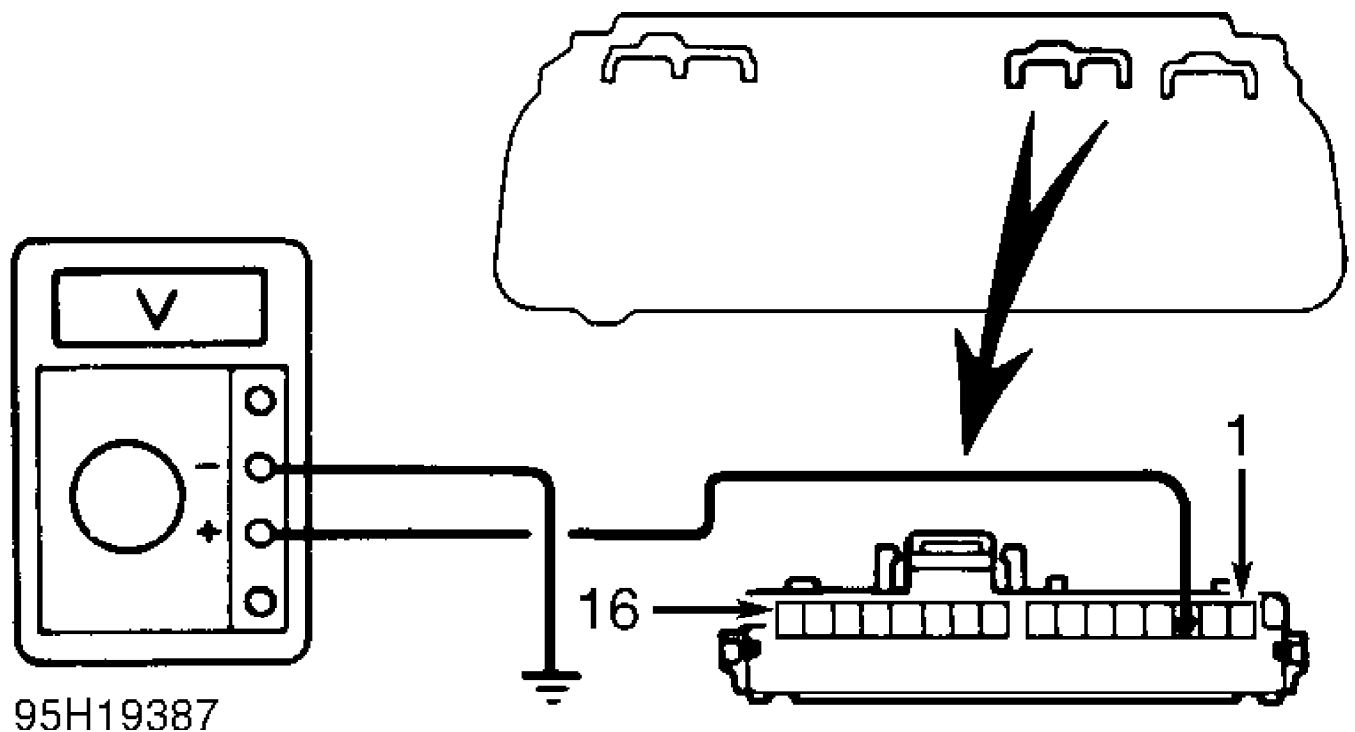


Fig. 14: Identifying Combination Meter Harness Connector (Celica)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

CODE NO. 61 (NO. 2 VEHICLE SPEED SENSOR (VSS) TEST

1) Obtain access to the ECT ECU, located near glove box. See Fig. 4. Using an ohmmeter, check for continuity between terminal SP2 of ECT ECU connector and body ground. See Figs. 17-18.

2) If continuity exists, replace ECT ECU. If continuity does not exist, check No. 2 speed sensor. See NO. 2 SPEED SENSOR under COMPONENT TESTING.

3) Replace No. 2 speed sensor if defective. If No. 2 speed sensor is okay, check wiring between ECT ECU and No. 2 speed sensor. See appropriate wiring diagram in WIRING DIAGRAMS.

CODE NO. 62 (NO. 1 SOLENOID) TEST

1) Access ECT ECU. See Figs. 4-6. Using ohmmeter, check resistance between terminal S1 and body ground with connector removed from ECT ECU. See Figs. 17-18.

2) Resistance should be 11-15 ohms. If resistance is okay, replace ECT ECU. If resistance is not within specification, remove oil pan. Disconnect electrical connector (White wire) at No. 1 solenoid.

3) Check resistance between electrical terminal on No. 1 solenoid and body ground. Replace No. 1 solenoid if resistance is not 11-15 ohms. If resistance is 11-15 ohms, inspect and repair wiring between No. 1 solenoid and ECT ECU.

CODE NO. 63 (NO. 2 SOLENOID) TEST

1) Access ECT ECU. See Figs. 4-6. Using ohmmeter, check resistance between terminal S2 and body ground with connector removed from ECT ECU. See Figs. 17-18.

2) Resistance should be 11-15 ohms. If resistance is okay, replace ECT ECU. If resistance is not within specification, remove oil pan. Disconnect electrical connector (Black wire) at No. 1 solenoid.

3) Check resistance between electrical terminal on No. 1 solenoid and body ground. Replace No. 1 solenoid if resistance is not 11-15 ohms. If resistance is 11-15 ohms, inspect and repair wiring between No. 1 solenoid and ECT ECU.

CODE NO. 64 (LOCK-UP SOLENOID) TEST

1) Access ECT ECU. See Figs. 4-6. Using ohmmeter, check resistance between terminal SL and body ground with connector removed from ECT ECU. See Figs. 17-18.

2) Resistance should be 11-15 ohms. If resistance is okay, replace ECT ECU. If resistance is not within specification, disconnect electrical connector at lock-up solenoid.

3) Check resistance between electrical terminal on lock-up solenoid and body ground. Replace lock-up solenoid if resistance is not 11-15 ohms. If resistance is 11-15 ohms, inspect and repair wiring between lock-up solenoid and ECT ECU.

TRANSMISSION SHIFT TESTING

MANUAL SHIFTING TEST

NOTE: Perform manual shifting test if no codes exist. Manual shifting test determines if problem is in electrical circuits or is a mechanical transmission problem.

1) Ensure ignition is off, disconnect electrical connectors from solenoids on transmission. Electrical connectors are located near neutral start switch on transmission.

2) Road test vehicle and ensure transmission gear changes corresponds with shift lever position. See GEAR APPLICATION table. If abnormality exists, a mechanical transmission problem is possible.

3) If all gears are correct, perform trouble shooting in accordance with the symptom. See SYMPTOM TROUBLE SHOOTING. Turn ignition off.

4) Reconnect all electrical connectors. Clear codes from ECT ECU memory, as disconnecting electrical connectors will set a code. See CLEARING CODES under TRANSMISSION TESTING.

GEAR APPLICATION

Shift Lever Position	Transmission Gear
D	Overdrive
2	3rd Gear
L	1st Gear
R	Reverse
P	Park

TORQUE CONVERTER LOCK-UP

NOTE: Refer to appropriate SHIFT SPEED SPECIFICATION table in the AUTO TRANS OVERHAUL - A-140E & A-140L article for lock-up shift speed.

Road test vehicle. Increase vehicle speed until lock-up should occur. To confirm lock-up operation, very lightly depress brake pedal with left foot and release while maintaining constant speed. Monitor vehicle tachometer. Transmission should downshift into 3rd gear and then upshift into lock-up once brake pedal is released.

SYMPTOM TROUBLE SHOOTING

NOTE: If problem area is not listed under symptom trouble shooting, check throttle position sensor signal, brake signal, gear signal and ECT ECU voltages.

TRANSMISSION WILL NOT SHIFT

1) Warm engine to normal operating temperature. Connect voltmeter between terminals TT and E1 of DLC connector. See Figs. 8-10. Turn ignition on. Note that voltage changes as throttle pedal is depressed.

2) If voltage changes with throttle opening, go to step 6). If voltage does not change with throttle opening, go to next step. Access ECT ECU. See Fig. 4-6.

3) Connect voltmeter between terminals B/K and E1 on ECT ECU connector. See Figs. 17-18. No voltage should exist with brake pedal released. Approximately 10-14 volts should exist with brake pedal depressed.

4) If voltage is not as specified, check for defective brakelight switch. If brakelight switch is okay, inspect and repair circuit between brakelight switch and ECT ECU. See appropriate wiring diagram in WIRING DIAGRAMS.

5) If voltage is as specified, check for defective ECT ECU power source or ground connections. Check for short or open circuit in wire to TT terminal of check connector. Check for defective throttle position sensor or wiring. See THROTTLE POSITION SENSOR COMPONENT TEST under COMPONENT TESTING.

6) Perform MANUAL SHIFTING TEST under TRANSMISSION SHIFT TESTING. If transmission does not perform correctly, disassemble and inspect transmission. If transmission operates correctly, road test vehicle and ensure voltage at terminal TT increases from zero to 7 volts. See GEAR SIGNAL under INPUT & OUTPUT SIGNAL TESTING.

7) If no voltage exists, go to step 9). If voltage increases from zero to 7 volts, transmission or solenoids are faulty. If voltage increases from zero to 4 volts, perform NO UPSHIFT TO OVERDRIVE under SYMPTOM TROUBLE SHOOTING.

8) If voltage increases from zero to 2 volts, check for 10-14 volts between terminals 2 and E1 on ECT ECU with connector connected and shift lever in "D" position. See Figs. 17-18. If 10-14 volts exist, check for defective park/neutral position switch. If switch is okay, inspect and repair circuit(s) between switch and ECT ECU. See appropriate wiring diagram in WIRING DIAGRAMS. If 10-14 volts does not exist, replace ECT ECU.

9) Check for 10-14 volts between terminals "L" and E1 on ECT ECU with connector connected and shift lever in "D" position. See Figs. 17-18. If 10-14 volts exist, check for defective park/neutral position switch. If switch is okay, inspect and repair circuit(s) between switch and ECT ECU. See appropriate wiring diagram under WIRING DIAGRAMS. If 10-14 volts do not exist, replace ECT ECU.

SHIFT POINTS TOO HIGH OR LOW

1) Warm engine to normal operating temperature. Connect voltmeter between terminals TT and E1 of DLC connector. See Figs. 8-10.

2) Turn ignition on. Depress and release throttle pedal. Note if voltage changes with throttle opening. If voltage changes with throttle opening, go to step 6). If voltage does not change with throttle opening, go to next step.

3) Access ECT ECU. See Figs. 4-6. Connect voltmeter between terminals B/K and E1 on ECT ECU with connector connected. See

Figs. 17-18.

4) No voltage should exist with brake pedal released. Approximately 10-14 volts should exist with brake pedal depressed. If voltage is not as specified, check for defective brakelight switch or wiring circuit.

5) If voltage is as specified, check for defective ECT ECU power source or ground connections. See appropriate wiring diagram in WIRING DIAGRAMS. Check for short or open circuit in wire to TT terminal of DLC connector. See THROTTLE POSITION SENSOR (TPS) SIGNAL under INPUT & OUTPUT SIGNAL TESTING and also see the appropriate wiring diagram in WIRING DIAGRAMS. Check for defective throttle position sensor or wiring.

6) Connect voltmeter between terminals PWR and E1 on ECT ECU with connector connected. See Figs. 17-18. Check voltage with pattern select switch in POWER (depressed) and NORMAL (released) operating positions (if applicable).

7) Voltage should be 10-14 volts with switch in POWER position and one volt with switch in NORMAL position. If voltage is as specified, ECT ECU or transmission is defective. If voltage is not as specified, check for defective pattern select switch or wiring circuit. See PATTERN SELECT SWITCH under COMPONENT TESTING.

NO UPSHIFT TO OVERDRIVE

1) Warm engine to normal operating temperature. With ignition off, disconnect solenoid harness connector from transmission. Electrical connectors are located near park/neutral position switch on transmission.

2) Road test vehicle and note if transmission upshifts to overdrive. Reconnect harness connector. Clear codes from ECU memory, as disconnecting electrical connectors may set codes. Refer to CLEARING CODES under SELF-DIAGNOSTIC SYSTEM. If no overdrive upshift exists, disassemble and inspect transmission. If overdrive upshift exists, go to next step.

3) Connect voltmeter between terminals TT and E1 of DLC connector. See Figs. 8-10. Road test vehicle and ensure voltage at terminal TT increases from zero to 7 volts. See GEAR SIGNAL under INPUT & OUTPUT SIGNAL TESTING.

4) If no voltage exists, check for 10-14 volts between terminals L and E1 on ECT ECU with the connector connected, shift lever in "D" position and ignition on. See Figs. 17-18. If 10-14 volts exist, check for defective park/neutral position switch. Refer to PARK/NEUTRAL POSITION (PNP) SWITCH under COMPONENT TESTING.

5) If switch is okay, inspect and repair circuit(s) between switch and ECT ECU. See appropriate wiring diagram in WIRING DIAGRAMS. If 10-14 volts does not exist, replace ECT ECU.

6) If voltage increases from zero to 2 volts, check for 10-14 volts between terminals 2 and E1 on ECT ECU with connector connected, shift lever in "D" position and ignition on.

7) If 10-14 volts exist, check for defective park/neutral position switch. If switch is okay, inspect and repair circuit(s) between switch and ECT ECU. See appropriate wiring diagram in WIRING DIAGRAMS. If 10-14 volts does not exist, replace ECT ECU.

8) If voltage increases from zero to 7 volts between terminals L and E1, solenoids may be faulty. See SOLENOIDS under COMPONENT TESTING. If solenoids are okay, disassemble and inspect transmission. If voltage increases from zero to 4 volts between terminals 1 and E1, connect voltmeter between terminals OD2 and E1 on ECT ECU with connector connected. See Figs. 17-18.

9) Turn ignition on. Check voltage with OD switch on the shift lever released (OFF position) and depressed (ON position). No voltage should exist with switch released and 10-14 volts should exist with switch depressed.

10) If voltage is correct, go to next step. If voltage is not as specified, check for defective OD switch or wiring circuit.

11) Check voltage between terminals OD1 and E1 on ECT ECU with connector connected and ignition on. Voltage should be approximately 5 volts. If voltage is correct, replace ECT ECU. If voltage is not correct, go to next step.

12) Disconnect electrical connector from cruise control ECU. Cruise control ECU is located behind instrument panel on passenger's side and contains a 26-pin connector. See Figs. 17-18.

13) Check voltage between terminals OD1 and E1 on ECT ECU with connector connected and with ignition on. If voltage is approximately 5 volts, replace cruise control ECU. If voltage is not within specification 5 volts, inspect and repair circuit(s) between cruise control ECU and ECT ECU. See appropriate wiring diagram in WIRING DIAGRAMS. If wiring is okay, replace ECT ECU.

NO LOCK-UP

1) Warm engine to normal operating temperature. Connect voltmeter between terminals TT and E1 of DLC connector. See Figs. 8-10.

2) Road test vehicle and ensure voltage at terminal TT is 7 volts in lock-up range. See GEAR SIGNAL under INPUT & OUTPUT SIGNAL TESTING. If voltage is correct, lock-up solenoid, torque converter or transmission is defective.

3) If voltage is not as specified, access the ECT ECU. See Figs. 4-6. Connect voltmeter between terminals B/K and E1 on ECT ECU with connector connected. See Figs. 17-18.

4) No voltage should exist with brake pedal released. Approximately 10-14 volts should exist with brake pedal depressed. If voltage is not as specified, check for defective brakelight switch or wiring circuit.

5) If voltage is as specified, check for defective ECT ECU power source or ground connections. See appropriate wiring diagram in WIRING DIAGRAMS. Check for short or open circuit in wire to TT terminal of check connector. Check for defective throttle position sensor or wiring. See THROTTLE POSITION SENSOR under COMPONENT TESTING.

INPUT & OUTPUT SIGNAL TESTING

THROTTLE POSITION SENSOR (TPS) SIGNAL

1) Connect voltmeter between terminals TT and E1 of DLC connector. See Figs. 8-10. Turn ignition on. Note that voltage gradually increases as accelerator is depressed. Voltage should gradually increase to about 8 volts with throttle fully open.

2) If voltage does not change with throttle opening, check throttle position sensor. See THROTTLE POSITION SENSOR under COMPONENT TESTING. If throttle position sensor is okay, check circuit(s) between TPS and ECT ECU. See appropriate wiring diagram in WIRING DIAGRAMS.

BRAKE SIGNAL

1) Connect voltmeter between terminals TT and E1 of DLC connector. See Fig. 8-10. Depress accelerator pedal until 8 volts exists. Depress brake pedal and note that voltage decreases to no voltage. Release brake pedal and note that voltage increases to 8 volts.

2) If voltage is not as specified, check brakelight switch. See BRAKELIGHT SWITCH under COMPONENT TESTING. If brakelight switch is okay, check circuit between brakelight switch and ECT ECU.

GEAR SIGNAL

1) Warm engine to normal operating temperature. Place pattern select switch in NORMAL (if applicable). Depress OD switch, mounted on shift lever, to the ON position.

2) Connect voltmeter between terminals TT and E1 of DLC2 connector on Camry or DLC1 connector on Celica. See Figs. 8-10.

3) On all models, road test vehicle with shift lever in "D" position and vehicle speed greater than 6 MPH. Voltage should increase as specified in accordance with transmission gear position. Refer to the GEAR SIGNAL VOLTAGES table.

NOTE: Lock-up clutch will come on infrequently during normal 2nd and 3rd gear operation. To get lock-up clutch to operate, depress accelerator pedal to more than 1/2 of pedal travel. With accelerator pedal at less than 1/2 of pedal travel, voltage may change in sequence to 2, 4, 6 and then 7 volts.

4) If voltages are as specified, the electronic control system is operating correctly. If voltages are not as specified, further diagnosis must be performed. Inspect throttle position sensor, brakelight switch, park/neutral position switch and/or TT circuit.

GEAR SIGNAL VOLTAGES

Gear Position	Voltage
1st Gear	0
2nd Gear	2
2nd Gear With Lock-Up	3
3rd Gear	4
3rd Gear With Lock-Up	5
Overdrive	6
Overdrive With Lock-Up	7

OVERDRIVE CANCEL SIGNAL

1) Access ECT ECU. See Figs. 4-6. Turn ignition on. Measure voltage (backprobe) between terminal OD1 of ECT ECU harness connector and ground. If battery voltage is present, substitute known good ECU and retest. If battery voltage is not present, go to next step.

2) Turn ignition off. Disconnect cruise control ECU harness connector. See Figs. 4-6. Turn ignition on. Measure voltage between terminal OD and ground. See Figs. 15 and 16. If battery voltage is present, replace cruise control ECU and retest. If battery voltage is not present, inspect and repair circuit between cruise control ECU and ECT ECU.

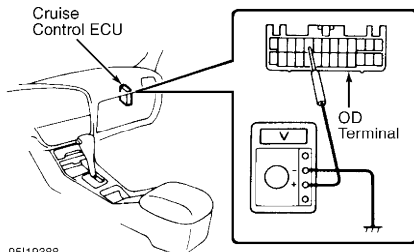
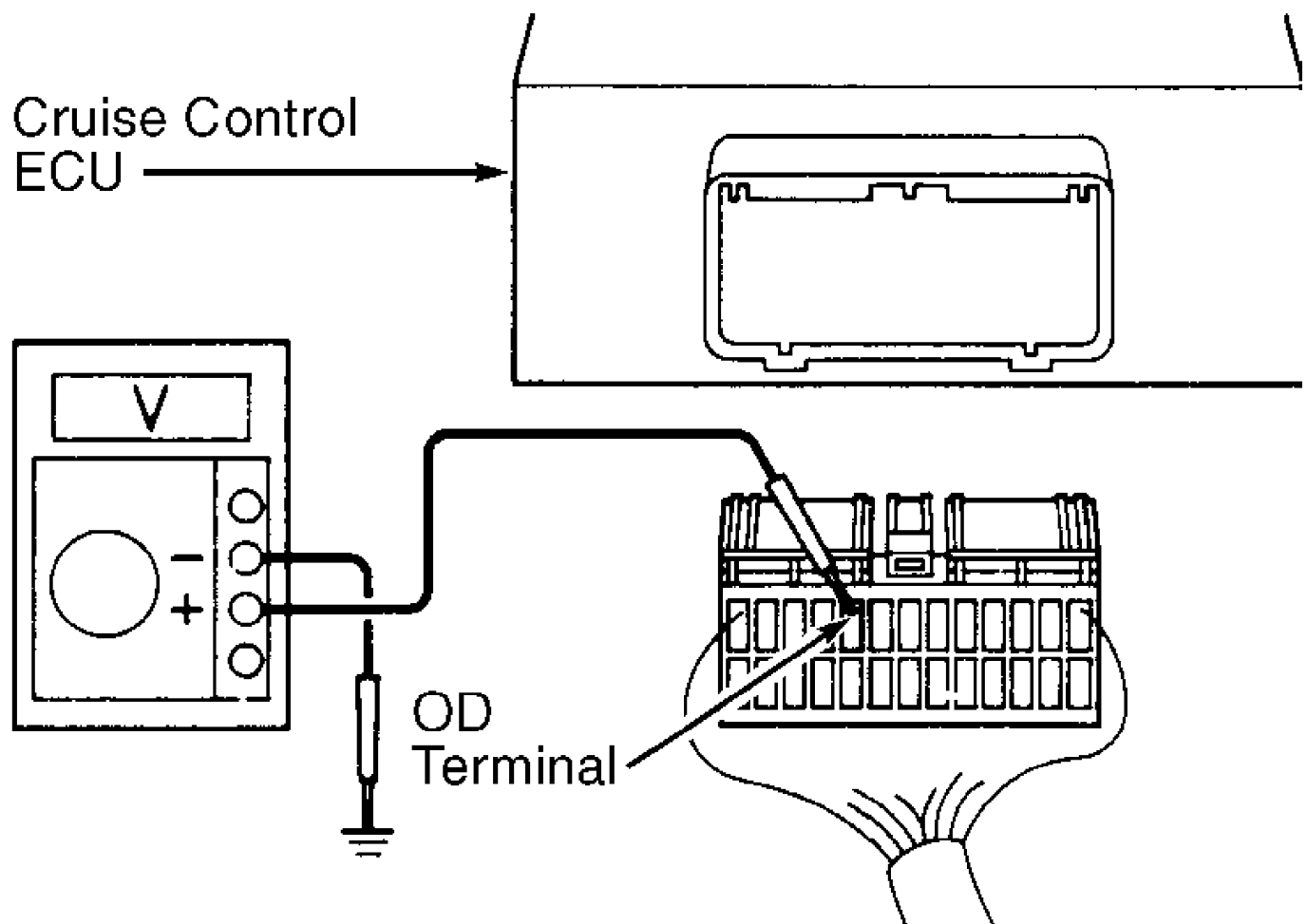


Fig. 15: Identifying Cruise Control ECU Terminals (Camry)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

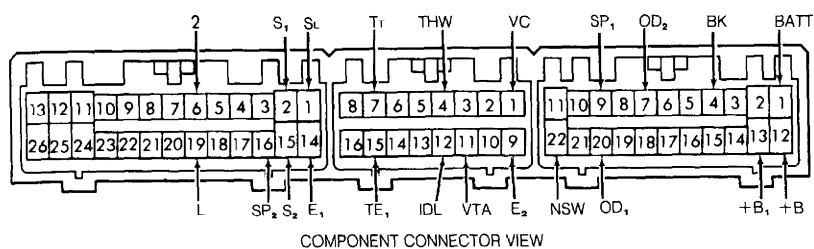


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Fig. 16: Identifying Cruise Control ECU Terminals (Celica)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

ECT ECU VOLTAGES

Access ECT ECU. See Figs. 4-6. Turn ignition on. Using voltmeter, backprobe ECT ECU harness connector. Check voltage between selected terminal and E1 or E2 terminal. Voltage should be as specified. See Figs. 17-18.

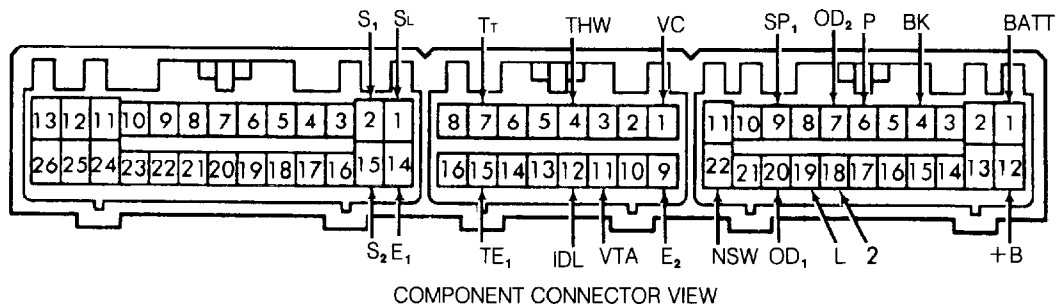


	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Violet	S ₁	No. 1 Solenoid	10-14 Volts With KOEO ¹
Pink/Blue	S ₂	No. 2 Solenoid	1 Volt Or Less With KOEO ¹
Blue/Yellow	S _L	Lock-Up Solenoid	1 Volt Or Less With KOEO ¹
Green/White	B/K	Brakelight Switch Signal	10-14 Volts With Pedal Depressed
Lt. Green	THW	Coolant Temperature Sensor Signal	.1-.8 Volts @ 176°F (80°C)
Blue	IDL	Closed Throttle Sensor Signal	1 Volt Or Less With Throttle Closed
Black	VTA	Throttle Position Sensor Output Signal	4.5-5.5 Volts With Throttle Fully Open
Red	VC	Throttle Position Sensor Input Signal	4.5-5.5 Volts With KOEO ¹
Yellow/Black	OD ₁	OD Output To Cruise Control ECU	10-14 Volts With KOEO ¹
Green/Orange	OD ₂	Overdrive Switch Signal	10-14 Volts With Switch On
Violet/Orange	SP ₁	Vehicle Speed Sensor Signal	1 Volt Or Less With Switch Off ² (Car Parked)
Lt. Green/Black	SP ₂	Vehicle Speed Sensor Signal	0 To 4.5-5.5, Fluctuates, Road Test
Black/White	NSW	Ignition Switch (ST1) Signal	10-14 Volts In "P" Or "N", KOEO ¹
Orange	2	Park/Neutral Position Switch "2" Signal	10-14 Volts In "2", KOEO ¹
Yellow/Blue	L	Park/Neutral Position Switch "L" Signal	10-14 Volts In "L", KOEO ¹
Black/Orange	+B ₁	EFI Main Relay Power Supply	10-14 Volts With KOEO ¹
Black/Orange	+B	EFI Main Relay Power Supply	10-14 Volts With KOEO ¹
White/Green	BATT	Power Supply Voltage	10-14 Volts (Constant)
Brown	E ₁	Ground	Not Applicable
Brown	E ₂	Ground	Not Applicable

¹ - Key On, Engine Off.
² - Cruise control switch off.

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Fig. 17: ECT ECU Pin Voltage Chart (1993 Camry)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



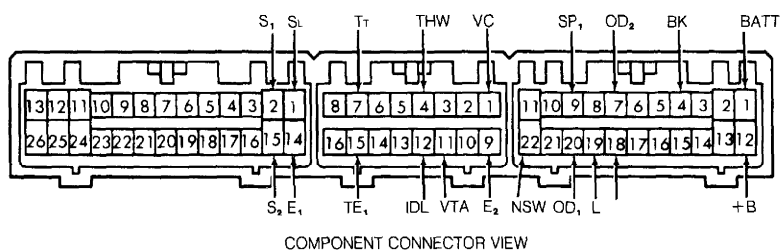
	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Violet	S ₁	No. 1 Solenoid	10-14 Volts With KOEO ¹
Pink/Blue	S ₂	No. 2 Solenoid	1 Volt Or Less With KOEO ¹
Blue/Yellow	S _L	Lock-Up Solenoid	1 Volt Or Less With KOEO ¹
Blue/Red	P	Pattern Select Switch Signal	10-14 Volts In PWR Position
Green/White	B/K	Brakelight Switch Signal	10-14 Volts With Pedal Depressed
Lt. Green	THW	Coolant Temperature Sensor Signal	.1-1.0 Volts @ 176°F (80°C)
Blue	IDL	Closed Throttle Sensor Signal	1 Volt Or Less With Throttle Closed
Black	VTA	Throttle Position Sensor Output Signal	3.0-5.5 Volts With Throttle Fully Open
Yellow/Black	OD ₁	OD Output To Cruise Control ECU	10-14 Volts With KOEO ¹
Green/Orange	OD ₂	Overdrive Switch Signal	10-14 Volts With Switch On
Violet/Orange	SP ₁	Vehicle Speed Sensor Signal	1 Volt Or Less With ECU Unplugged ² (Car Parked)
Black/White	NSW	Ignition Switch (ST1) Signal	10-14 Volts In "P" Or "N", KOEO ¹
Orange	2	Park/Neutral Position Switch "2" Signal	10-14 Volts In "2", KOEO ¹
Yellow/Blue	L	Park/Neutral Position Switch "L" Signal	10-14 Volts In "L", KOEO ¹
Black/Orange	+B	EFI Main Relay Power Supply	10-14 Volts With KOEO ¹
White/Green	BATT	Power Supply Voltage	10-14 Volts (Constant)
Brown	E ₁	Ground	Not Applicable
Brown	E ₂	Ground	Not Applicable

¹ - Key On, Engine Off.

² - Disconnect cruise control ECU harness connector, see Fig. 1.

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Fig. 18: ECT ECU Pin Voltage Chart (1994 Camry)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



	Terminal ID.	Function/Description	Voltage Value (DC Volts Unless Otherwise Specified)
Violet	S ₁	No. 1 Solenoid	10-14 Volts With KOEO ¹
Brown/Yellow	S ₂	No. 2 Solenoid	1 Volt Or Less With KOEO ¹
Yellow/Black	SL	Lock-Up Solenoid	1 Volt Or Less With KOEO ¹
Green/White	B/K	Brakelight Switch Signal	10-14 Volts With Pedal Depressed
Green	THW	Coolant Temperature Sensor Signal	.1-1.0 Volts @ 176°F (80°C)
Blue/White	IDL	Closed Throttle Sensor Signal	1 Volt Or Less With Throttle Closed
Black/White	VTA	Throttle Position Sensor Output Signal	3.0-5.5 Volts With Throttle Fully Open
Pink	OD ₁	OD Output To Cruise Control ECU	10-14 Volts With KOEO ¹
Gray/Blue	OD ₂	Overdrive Switch Signal	10-14 Volts With Switch On
Violet/Orange	SP ₁	Vehicle Speed Sensor Signal	1 Volt Or Less With ECU Unplugged ² (Car Parked)
Black/Yellow	NSW	Ignition Switch (ST1) Signal	10-14 Volts In "P" Or "N", KOEO ¹
Violet/Green	2	Park/Neutral Position Switch "2" Signal	10-14 Volts In "2", KOEO ¹
Violet/Red	L	Park/Neutral Position Switch "L" Signal	10-14 Volts In "L", KOEO ¹
Black/Yellow	+B	EFI Main Relay Power Supply	10-14 Volts With KOEO ¹
Pink	BATT	Power Supply Voltage	10-14 Volts (Constant)
Brown	E ₁	Ground	Not Applicable
Brown	E ₂	Ground	Not Applicable

1 - Key On, Engine Off
2 - Disconnect cruise control ECU harness connector, see Fig. 1.

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Fig. 19: ECT ECU Pin Voltage Chart (1994 Celica)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

COMPONENT TESTING

SOLENOIDS COMPONENT TEST

1) Access ECT ECU. See Figs. 4-6. Ensure ignition is off. Disconnect ECT ECU harness connector. Using ohmmeter, measure resistance between SL, S1 and S2 terminal and ground for appropriate proper solenoid. See Figs. 17-18.

2) Replace solenoid if resistance is not 11-15 ohms. To check solenoid operation, apply battery voltage to SL, S1 or S2 terminal of ECT ECU connector for appropriate solenoid. Ensure operating sound can be heard when battery voltage is connected. Replace solenoid if operating sound cannot be heard.

3) To check solenoid seals, remove suspect solenoid. Connect battery voltage to solenoid. Apply 71 psi (5 kg/cm²) to solenoid with battery voltage connected. See Fig. 20.

4) With battery voltage applied, air should pass through solenoid No. 1 and 2 solenoids. Disconnect voltage to solenoid. Ensure air does not pass through solenoid. Replace solenoid if defective.

5) With battery voltage applied, air should not pass through lock-up solenoid. Disconnect voltage to solenoid. Ensure air passes through solenoid. Replace solenoid if defective.

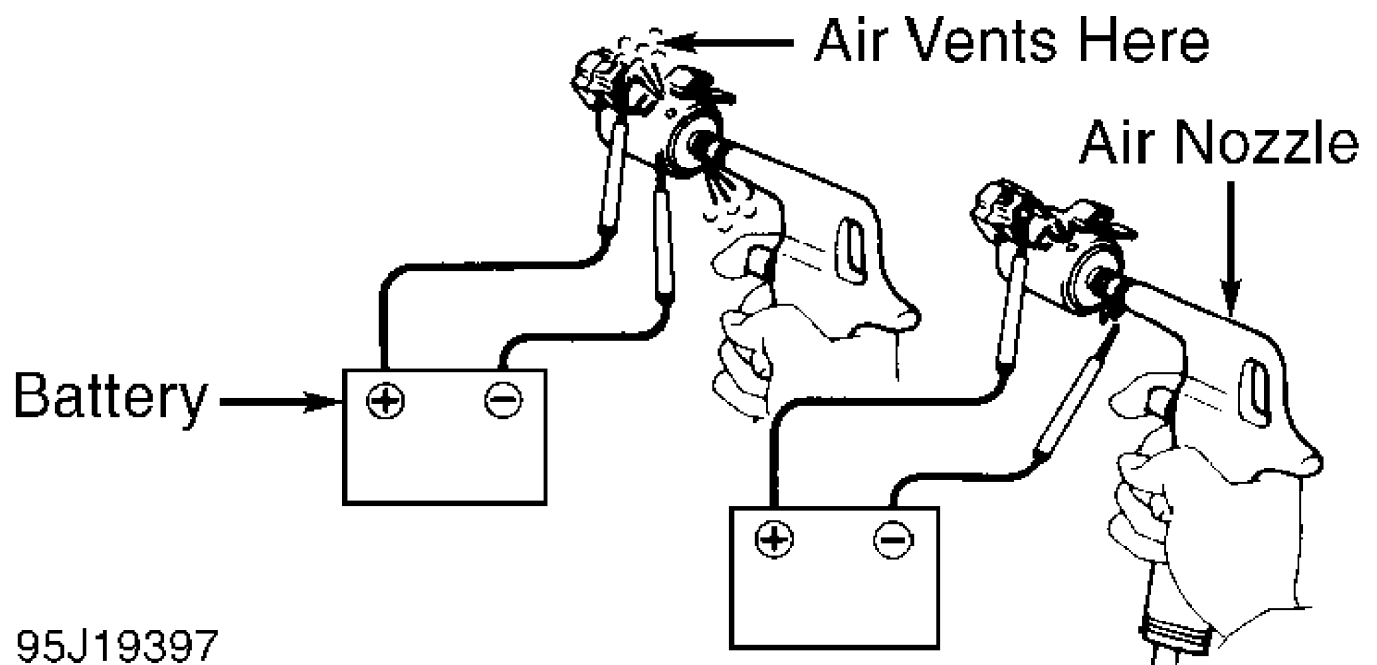
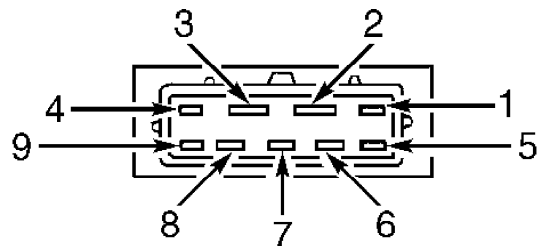


Fig. 20: Checking Solenoids
Courtesy of Toyota Motor Sales, U.S.A., Inc.

PARK/NEUTRAL POSITION (PNP) SWITCH COMPONENT TEST

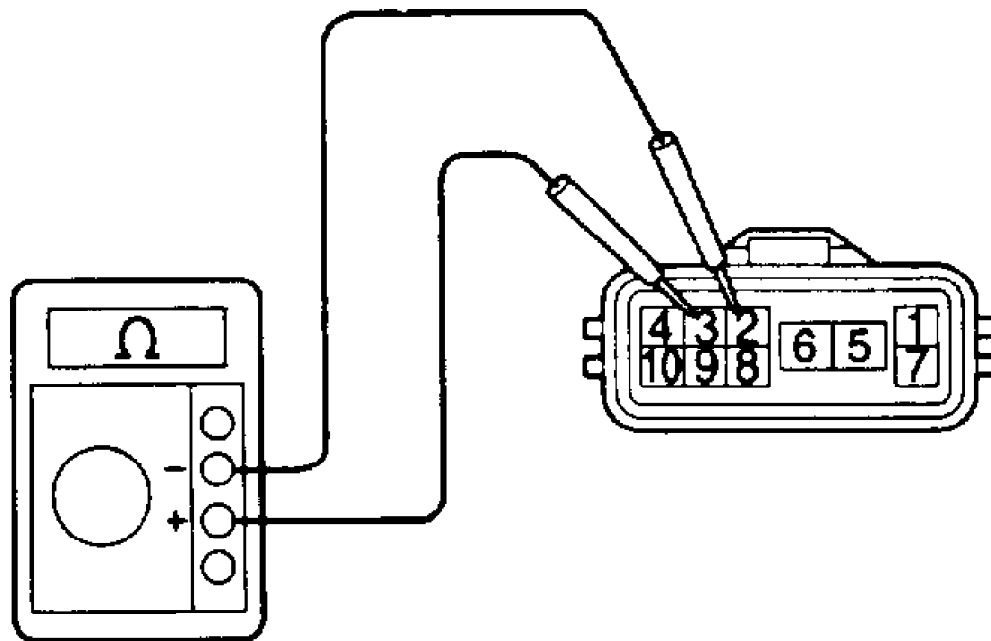
Disconnect harness connector at park/neutral position switch. Switch is located on side of transmission. Using ohmmeter, check for continuity between specified terminals in accordance with shift lever position. See Figs. 21 and 22. Replace PNP switch if defective.



Position \ Terminal	2	3	6	1	5	7	8	9	4
P	○—○		○—○						
R			○—○		○				
N	○—○		○—○			○			
D			○—○				○		
2			○—○					○	
L			○—○						○

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Fig. 21: Testing Park/Neutral Position Switch (1993 Camry)
Courtesy of Toyota Motor Sales, U.S.A., Inc.



○—○ Continuity

Terminal Shift Position	6	5	4	7	8	10	9	2	3
P	○—○		○—○						
R			○—○	○—○					
N	○—○		○—○	○—○	○—○				
D			○—○	○—○	○—○	○—○			
2			○—○	○—○	○—○	○—○	○—○		
L			○—○	○—○	○—○	○—○	○—○	○—○	

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Fig. 22: Testing Park/Neutral Position Switch
(1994 Camry & Celica)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

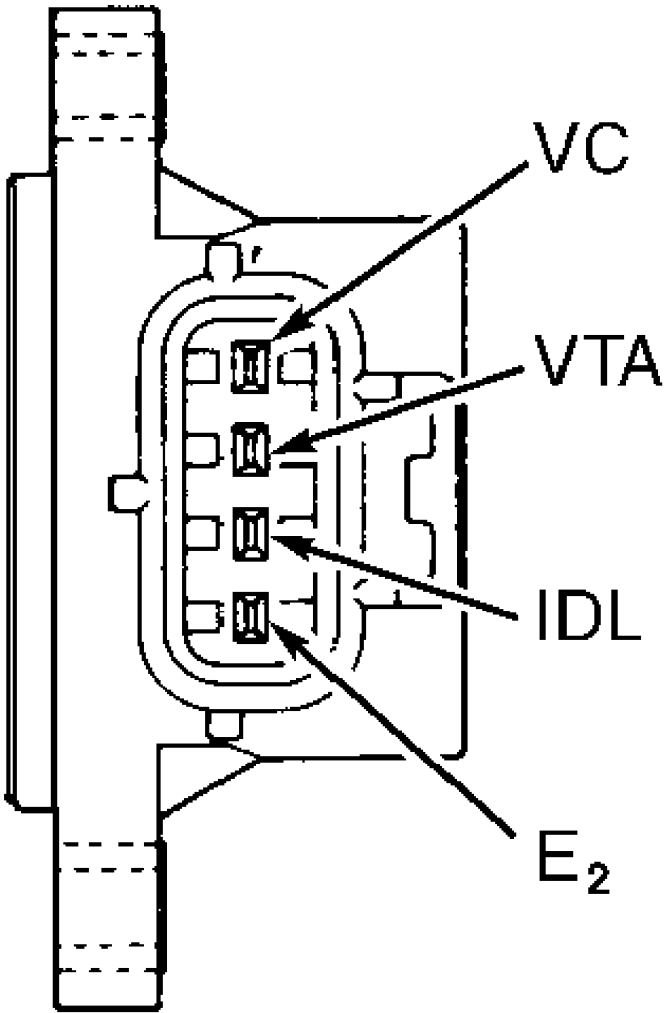
THROTTLE POSITION SENSOR COMPONENT TEST

Disconnect harness connector at throttle position sensor, located on side of throttle body. Using ohmmeter, check resistance between specified terminals in relation to throttle position. Refer to

the THROTTLE POSITION SENSOR RESISTANCE SPECIFICATIONS table. Also, see Fig. 23. Replace throttle position sensor if resistance is not as specified.

THROTTLE POSITION SENSOR RESISTANCE SPECIFICATIONS

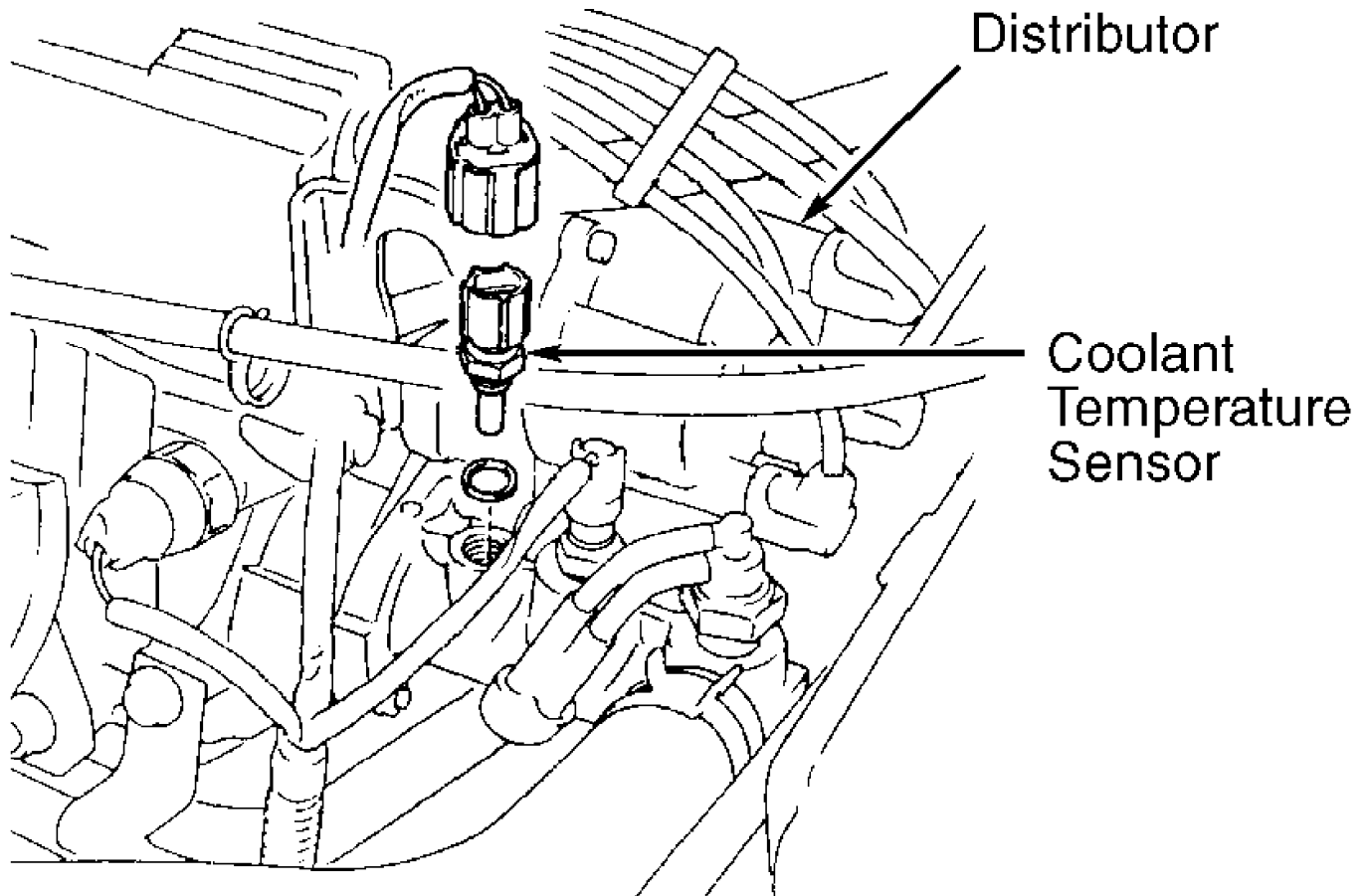
Terminals	Ohms
IDL & E2	
Throttle Fully Closed	0-100
Throttle Fully Open	Infinity
VC & E2	3000-7000
VTA & E2	
Throttle Fully Closed	200-800
Throttle Fully Open	3200-10,000



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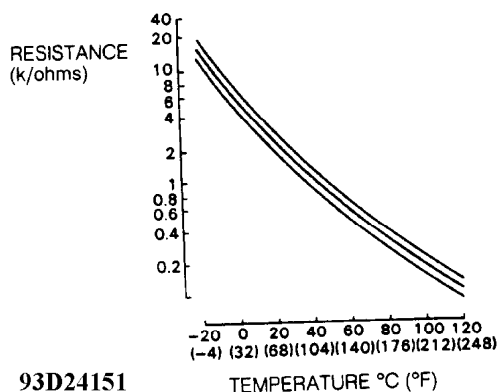
Fig. 23: Identifying Throttle Position Sensor Terminals
Courtesy of Toyota Motor Sales, U.S.A., Inc.

Disconnect electrical connector from CTS. CTS is located in coolant passage on rear of engine. See Fig. 24. Using an ohmmeter, check resistance between terminals of coolant temperature sensor. Resistance should as specified in accordance with coolant temperature. See Fig. 25. Replace sensor if resistance is not within specification.



95H19395

Fig. 24: Identifying Coolant Temperature Sensor (CTS) Location
Courtesy of Toyota Motor Sales, U.S.A., Inc.



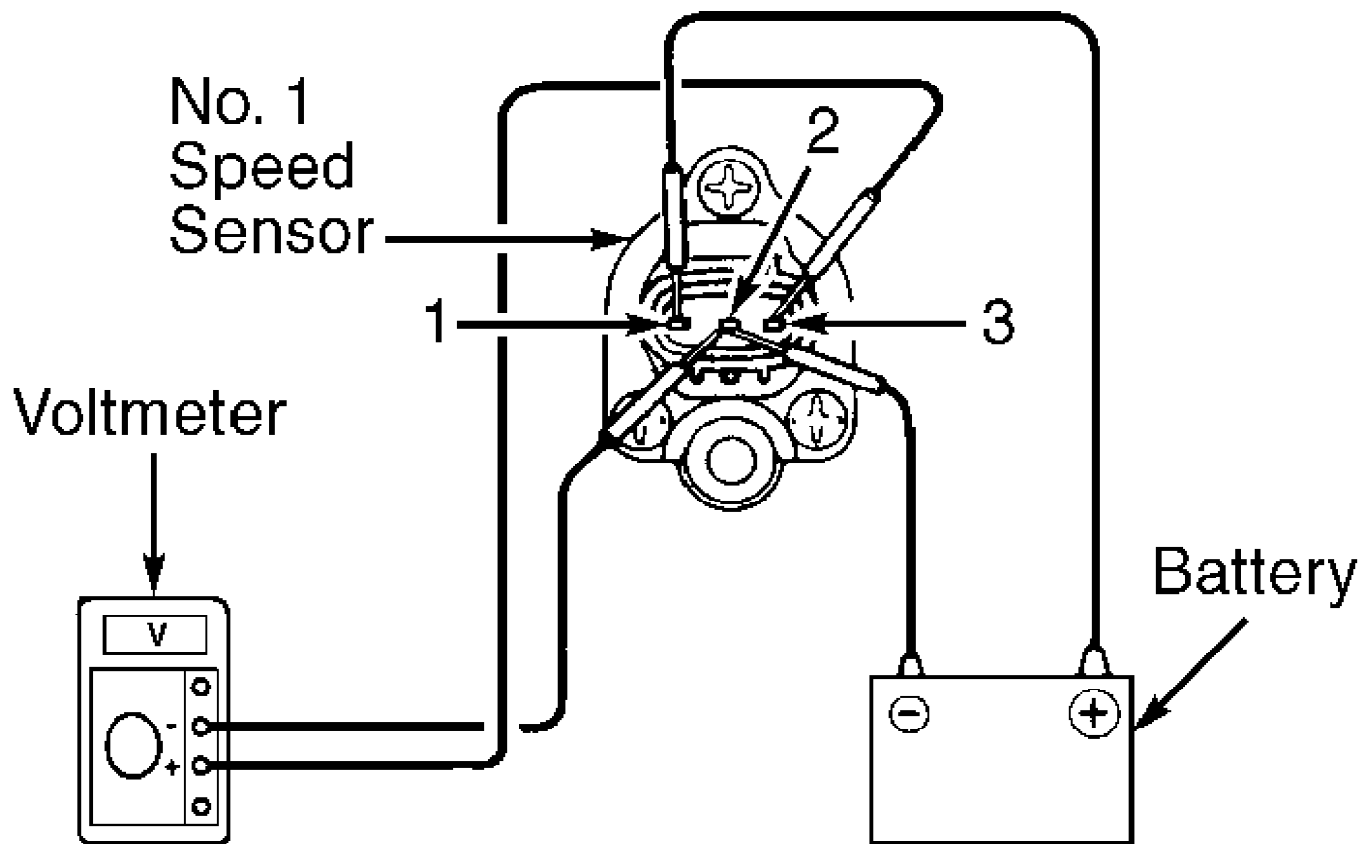
93D24151

Fig. 25: Checking Coolant Temperature Sensor (CTS)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

NO. 1 SPEED SENSOR (VSS) COMPONENT TEST

1) Disconnect electrical connector from No. 1 VSS, located on top of transmission. See Figs. 1-3. Connect positive battery lead to terminal No. 1 and negative lead to terminal No. 2. Connect positive lead of voltmeter to terminal No. 3 and negative lead to terminal No. 2. See Fig. 26.

2) Rotate speedometer cable shaft on speed sensor. Ensure voltage changes from zero to 11 volts. Voltage should change 20 times (1993 Camry or 4 times for 1994 Camry and Celica) per each revolution of speedometer cable shaft. Replace speed sensor if voltage dose not change as specified.



93G24154

Fig. 26: Checking No. 1 Vehicle Speed Sensor
Courtesy of Toyota Motor Sales, U.S.A., Inc.

NO. 2 SPEED SENSOR (1993 CAMRY) COMPONENT TEST

1) Disconnect electrical connector from No. 2 vehicle speed sensor (VSS), located on transmission. See Fig. 1. Raise and support vehicle so front wheels can rotate. Connect ohmmeter between terminals of No. 2 VSS.

2) Rotate front wheel. Note that ohmmeter needle fluctuates from continuity to no continuity. If reading does not fluctuate correctly, remove No. 2 VSS from transmission.

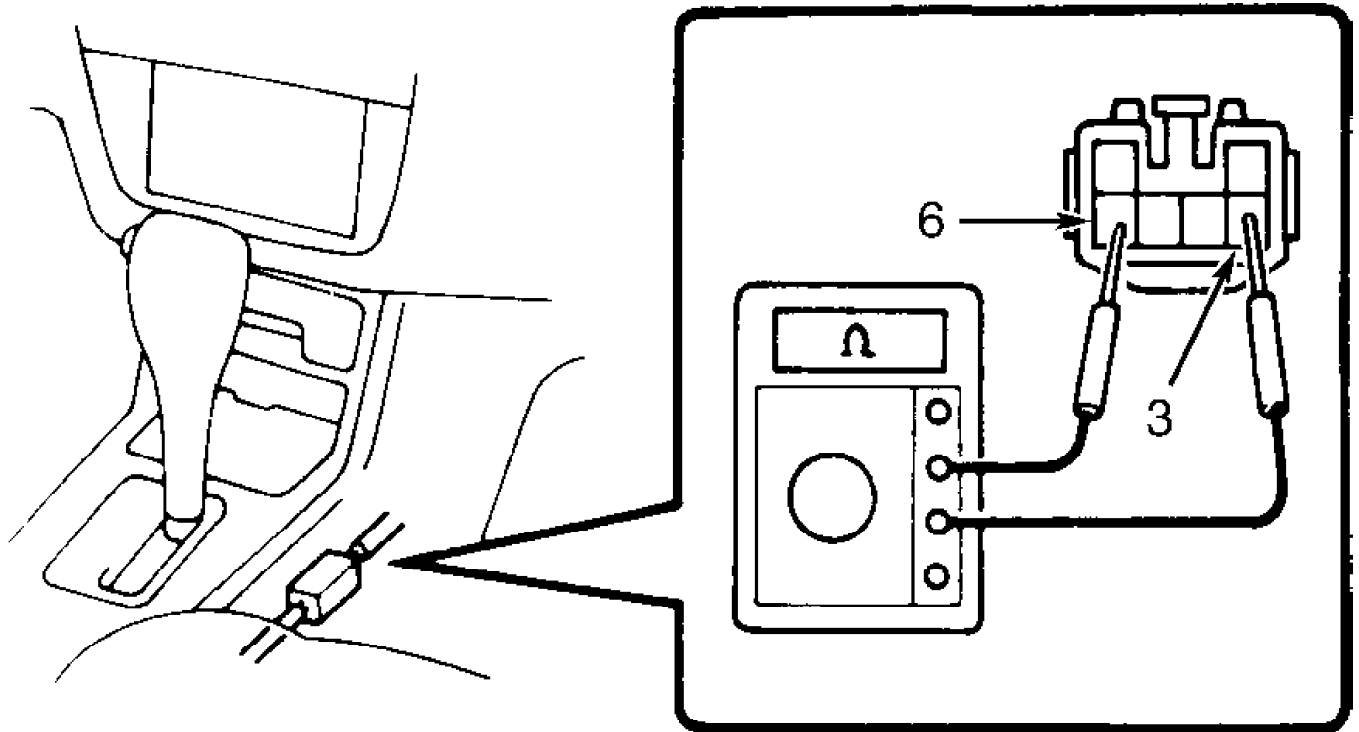
3) Connect ohmmeter between terminals of No. 2 VSS. Note that ohmmeter needle fluctuates from continuity to no continuity when magnet is brought close to sensor and then moved away.

4) Replace speed sensor if reading does not fluctuate. If reading fluctuates correctly, components in transmission for VSS must

be replaced.

PATTERN SELECT SWITCH (CAMRY MODELS) COMPONENT TEST

Disconnect electrical connector from pattern select switch. See Fig. 27. Using ohmmeter, ensure continuity exists between terminals No. 3 and 6 with switch in PWR position. No continuity should exist in NORM position.



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Fig. 27: Identifying Pattern Select Switch Terminals
Courtesy of Toyota Motor Sales, U.S.A., Inc.

OVERDRIVE (OD) SWITCH COMPONENT TEST

Disconnect the electrical connector from the OD switch, located on shift lever. Using an ohmmeter, check that continuity exists between terminals No. 1 and 3 with switch released (OFF position). See Fig. 28. Ensure no continuity exists with switch depressed (ON position). Replace switch if defective.



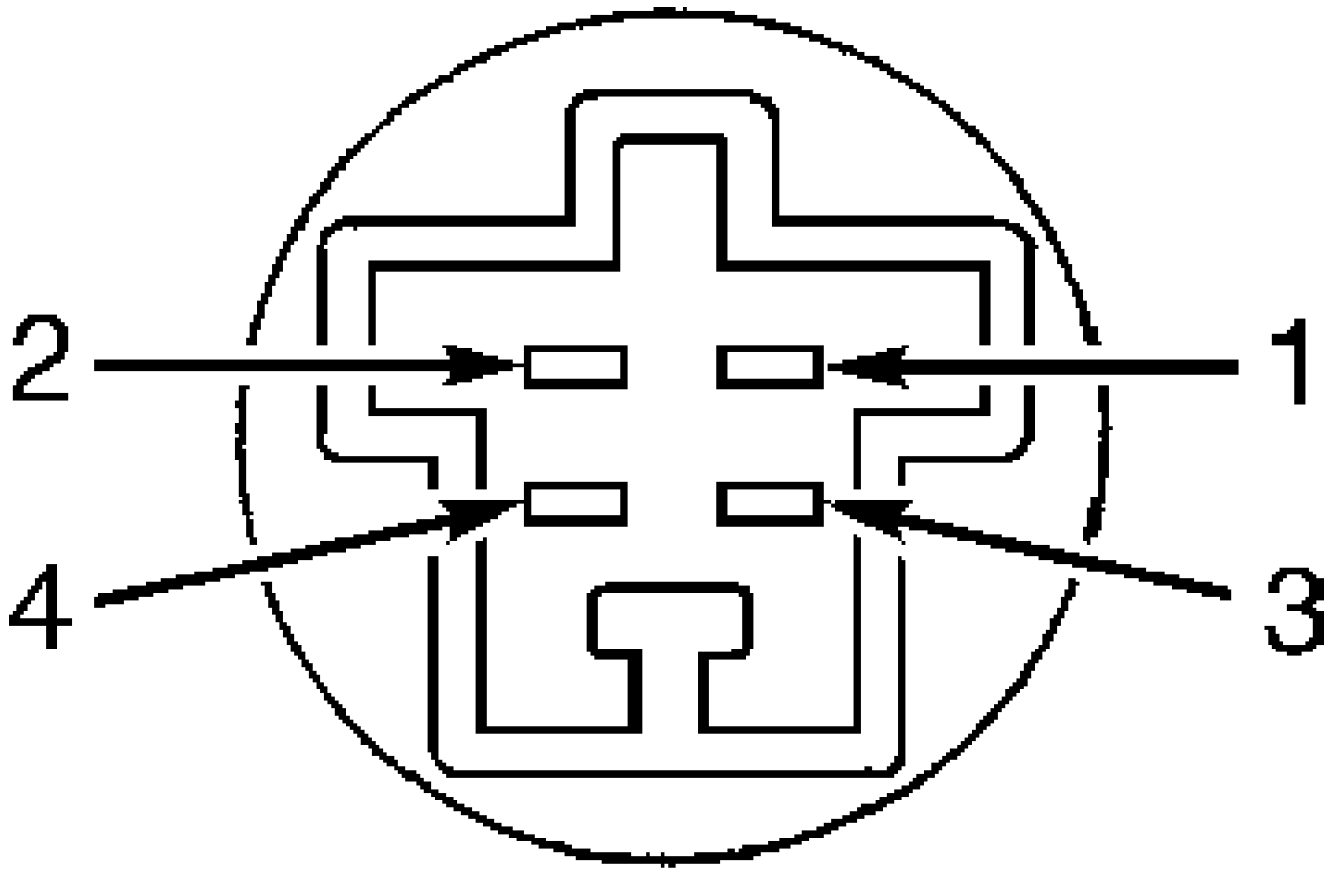
1992 MODELS

93A24158

Fig. 28: Identifying Overdrive (OD) Switch Terminals
Courtesy of Toyota Motor Sales, U.S.A., Inc.

BRAKELIGHT SWITCH COMPONENT TEST

1) Disconnect electrical connector from brakelight switch, located near brake pedal. Using an ohmmeter, ensure continuity exists between switch terminals No. 1 and 2 with brake pedal depressed. See Fig. 29. No continuity should exist with pedal released.



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Fig. 29: Identifying Brakelight Switch Terminals
Courtesy of Toyota Motor Sales, U.S.A., Inc.

REMOVAL & INSTALLATION

BRAKELIGHT SWITCH R & I

Removal & Installation

1) Disconnect electrical connector. Remove lock nut, and unscrew brakelight switch. To install, screw brakelight switch inward until brakelight plunger contacts brake pedal.

2) Unscrew brakelight switch one revolution. Ensure distance between threaded end of brakelight switch and brake pedal is .02-.09" (.5-2.4 mm).

3) Install and tighten lock nut on brakelight switch. Install electrical connector. Ensure brakelights and cruise control operate properly.

COOLANT TEMPERATURE SENSOR (CTS) R & I

Removal & Installation

Coolant temperature sensor is located in coolant passage on rear of engine. See Fig. 24. Drain cooling system. Remove coolant temperature sensor. To install, reverse removal procedure. Fill cooling system.

NO. 1 & NO. 2 SHIFT SOLENOIDS R & I

Removal & Installation

Solenoids are located on valve body. Remove bolt, solenoid and "O" ring from valve body. To install, reverse removal procedure using NEW "O" ring.

LOCK-UP SOLENOID R & I

Removal & Installation

Solenoid is located on transmission. Remove bolt, solenoid and "O" ring from transmission. body. To install, reverse removal procedure using NEW "O" ring.

PARK/NEUTRAL POSITION (PNP) SWITCH R & I

Removal

1) Neutral start switch is located on side of transmission. Remove lock nut, washer and manual lever from control shaft. See Fig. 30.

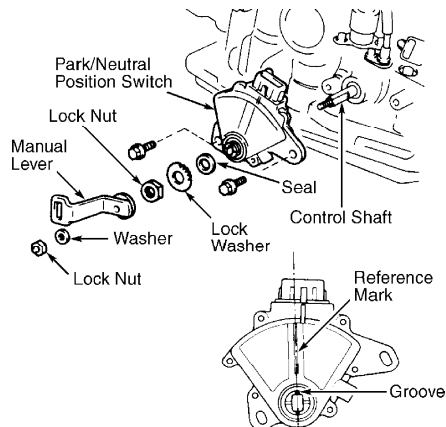
2) Bend up tabs on lock washer. Remove lock nut, lock washer and seal from control shaft. Remove retaining bolts and neutral start switch.

Installation

1) Install switch on control shaft. Loosely install neutral start switch retaining bolts. Install seal and lock washer. Install lock nut and tighten to specification. See TORQUE SPECIFICATIONS. Bend tabs on lock washer over against lock nut.

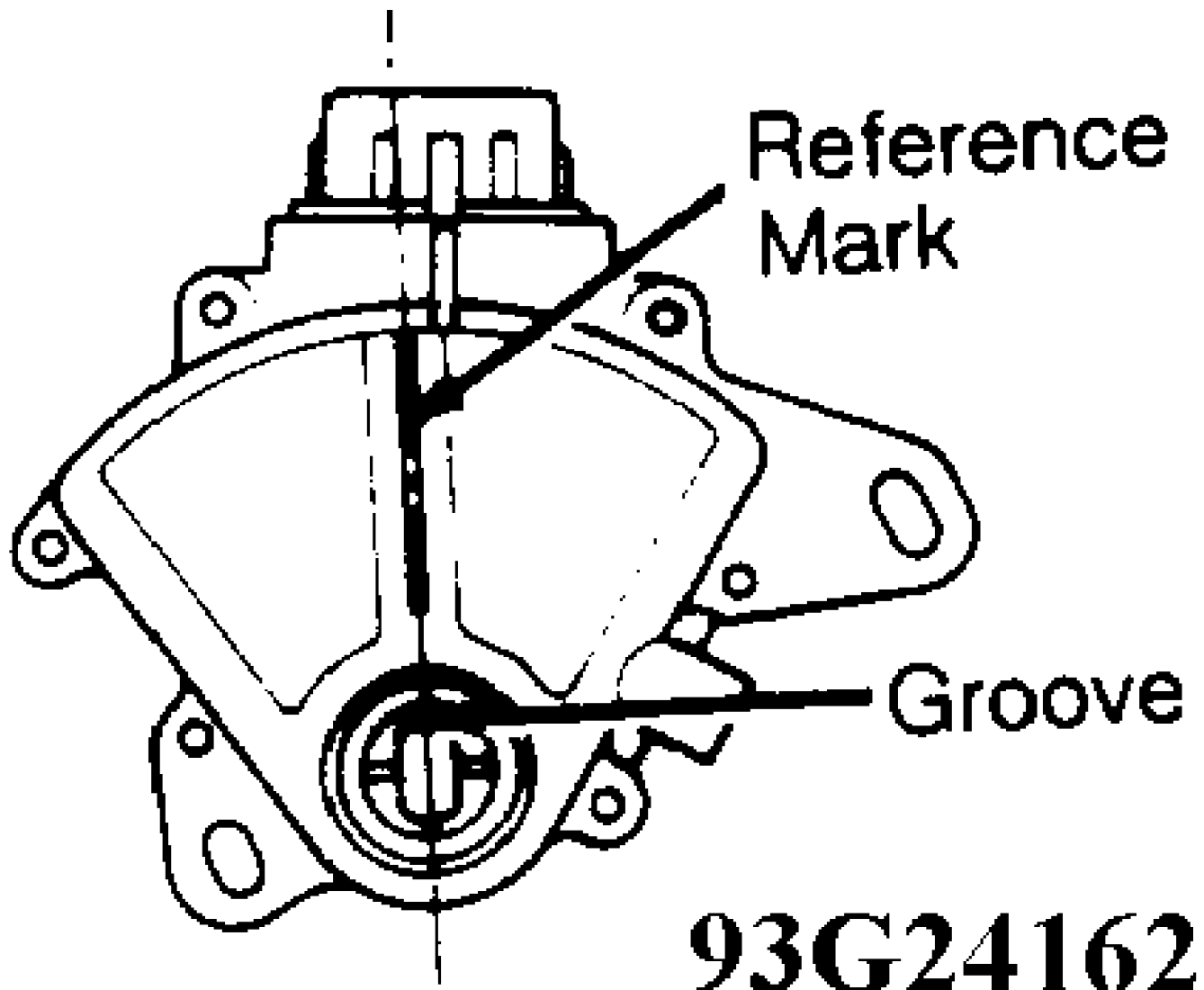
2) Ensure parking brake is applied. Temporarily install manual lever on control shaft. Place shift lever in Neutral. Remove manual lever. Rotate switch and align reference mark on PNP switch with groove. See Fig. 30.

3) Hold neutral switch in this position. Tighten retaining bolts to specification. To install remaining components, reverse removal procedure.



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Fig. 30: Removing & Installing PNP Switch
Courtesy of Toyota Motor Sales, U.S.A., Inc.



93G24162

Fig. 31: Removing & Installing PNP Switch
Courtesy of Toyota Motor Sales, U.S.A., Inc.

OVERDRIVE (OD) SWITCH R & I

Overdrive (OD) switch is mounted on the shift lever. See Figs. 1-3. Replacement information not available from manufacturer.

PATTERN SELECT SWITCH R & I

The pattern select switch is located on the center console. See Figs. 1 and 2. Replacement information not available from manufacturer.

THROTTLE POSITION SENSOR (TPS) R & I

Removal

Ensure ignition is off. Disconnect electrical connector from TPS. TPS is located on throttle body. Remove screws and throttle position sensor.

Installation

1) Install TPS on throttle body with screws loosely installed. Connect ohmmeter leads to IDL and E2 terminals of TPS. See Fig. 23.

2) Apply vacuum to throttle opener on throttle body. Insert a .024" (.60 mm) feeler gauge between throttle stop screw and stop lever. Gradually rotate TPS until ohmmeter indicates a reading and tighten retaining screws.

3) Remove feeler gauge. Insert a .020" (.50 mm) feeler gauge between throttle stop screw and stop lever. Ensure continuity now exists between IDL and E2 terminals. Remove feeler gauge.

4) Insert a .028" (.70 mm) feeler gauge between throttle stop screw and stop lever. Ensure no continuity now exists between IDL and E2 terminals. Remove feeler gauge.

NO. 1 VEHICLE SPEED SENSOR (VSS) R & I

No. 1 speed sensor is mounted on transmission. See Figs. 1-3
Replacement information not available from manufacturer.

NO. 2 VEHICLE SPEED SENSOR (VSS) R & I

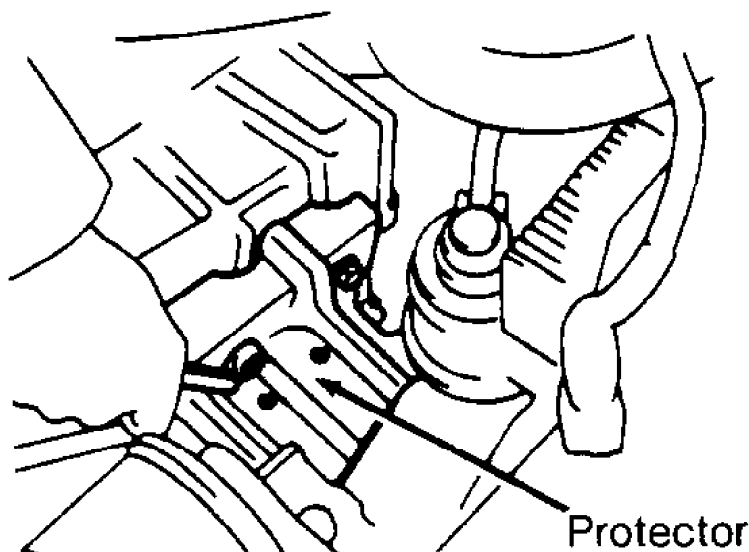
Removal

1) Disconnect electrical connector from No. 2 speed sensor. No. 2 speed sensor is located on transmission. See Fig. 1.

2) Remove protector located on transmission. See Fig. 32. Remove bolts, bracket, No. 2 speed sensor and "O" ring.

Installation

To install, reverse removal procedure using NEW "O" ring. Tighten bracket bolts to specification. See TORQUE SPECIFICATIONS.



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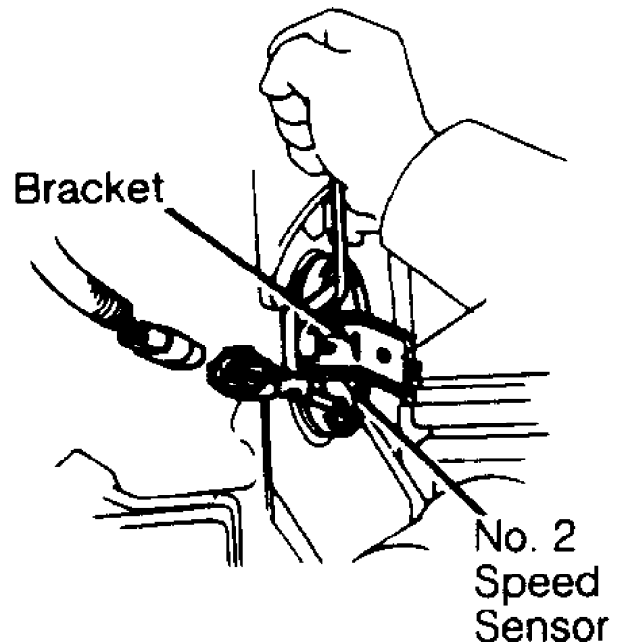


Fig. 32: Removing & Installing No. 2 Speed Sensor
Courtesy of Toyota Motor Sales, U.S.A., Inc.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application INCH Lbs. (N.m)

PNP Switch Bolt	44 (5)
PNP Switch Lock Nut	62 (7)
No. 2 Speed Sensor Bracket Bolt	115 (13)

WIRING DIAGRAMS

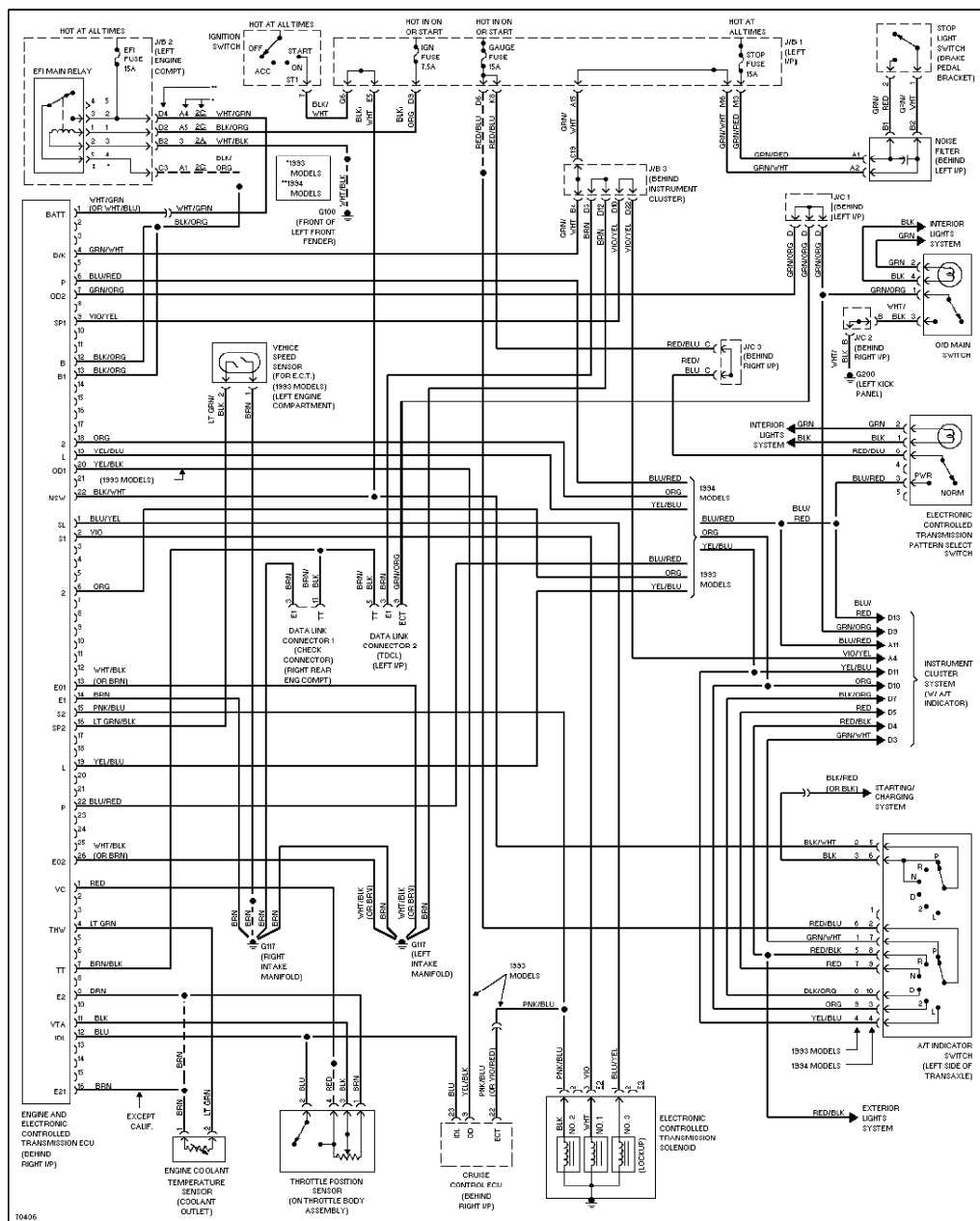


Fig. 33: Transmission Wiring Diagram (1993-94 Camry)

