2004-06 Scion xA & xB

Manual & Automatic Transmission Vehicle

CRUISE CONTROL INSTALLATION INSTRUCTIONS PART No. 250-1755

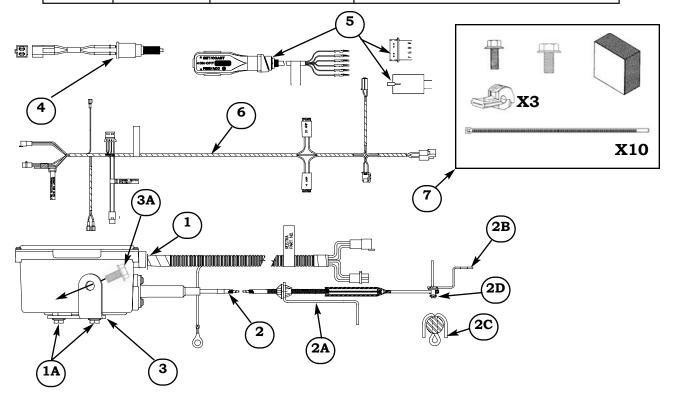


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PARTS IDENTIFICATION

ITEM	QUANTITY	PART NUMBER	DESCRIPTION
1 A	1 2	250-2613 **	Module/Harness Assembly Module Mounting Screws
2 A B C	1 1 1 1 2	250-2614 250-2615 250-2616 *** **	Cable Assembly Cable Bracket Throttle Lever Bracket Cotter Pin Washer-Plain #10
3 A	1 1	250-2617 **	Module Bracket 6 mm Bolt
4	1	250-3372	Clutch Switch
5 A B C D	1 1 1 1 2 2	250-3717 *** *** *** ***	CONTROL SWITCH ASSEMBLY NUT-HEX 3/8"-24 THIN CONNECTOR-FEMALE 2 PIN CONNECTOR-FEMALE 4 PIN LOCKWASHER-3/8" INTERNAL WEDGE-17.5 DEGREES
6	1	250-2618	Harness Assembly
7	1	250-2619	HARDWARE PACKAGE: M8-1 BOLT, M6-1 BOLT, FEMALE T-TAP (3), TIE STRAPS (10), PUTTY



HELPFUL HINTS

1. BEFORE STARTING INSTALLATION:

FAMILIARIZE YOURSELF WITH THE **I**NSTALLATION INSTRUCTIONS AND CRUISE CONTROL COMPONENTS.

2. MATING CONNECTORS:

A. When disconnecting connectors, hold connector and press the lock downward while pulling connectors apart. **Figure 1**

CAUTION: DO NOT PULL ON WIRES

B. When connecting mating connectors, push connectors tors together until locking mechanisms are firmly locked together. *Figure 2*

3. ANTI-THEFT RADIO:

IF VEHICLE IS EQUIPPED WITH AN ANTI-THEFT RADIO, THE RADIO CODE MUST BE WRITTEN DOWN PRIOR TO DISCONNECT ING BATTERY CABLE. THE CODE MUST BE REENTERED WHEN THE NEGATIVE BATTERY CABLE IS REINSTALLED.

4. REMOVAL OF NEGATIVE BATTERY CABLE:

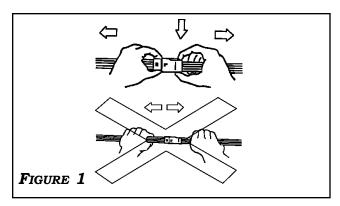
Remove the negative battery cable before installing the Cruise Control components for safety precautions. $\pmb{Figure~3}$

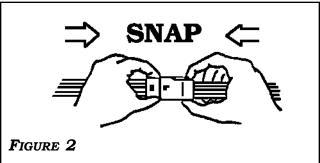
5. FEMALE T-TAP CONNECTOR:

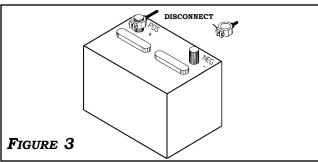
When installing female **T-Tap Connectors**, ensure wire is inside groove of the female **T-Tap Connector** before closing on wire with pliers. *Figure 4*

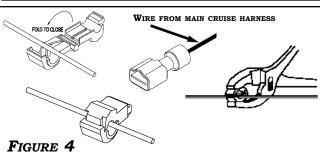
6. JUMPER CLIP:

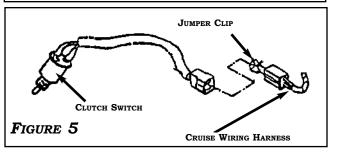
The **Jumper Clip** is installed in the **Cruise Harness** and is <u>removed only on Manual Transmission vehicles</u> for connection to the clutch switch. **Figure 5**











STEP 1: WIRE HARNESS ROUTING LOCATION: DRIVER'S SIDE FIREWALL ACCESS.

- 1. Route Module Harness through OEM main wiring harness grommet, *Figure 6*, to the driver's side compartment. Secure Module Harness with Cable Tie to Module Bracket *(once Installed)*.
- **2.** From outside the vehicle, remove OEM main harness grommet from bulkhead at the driver's side. Cut a 1" Slit at location shown. **Figure 6**
- **3.** When cutting SLIT, <u>remain away from OEM main har</u> <u>NESS.</u>
- 4. After routing Cruise Main Harness through SLIT in grommet to inside vehicle, reinstall grommet into vehicle access opening. Seal Cruise Main Harness and SLIT in grommet with Sealing Putty (Dum-Dum) provided in kit. Figure 6

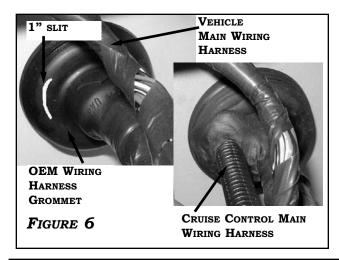
STEP 2: MODULE MOUNTING LOCATION: DRIVER SHOCK TOWER. HARDWARE: (1) 6MM BOLT.

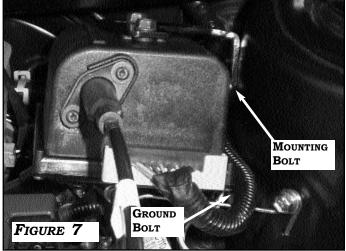
- 1. Remove the OEM ground wire 6mm bolt. Install cruise black ground wire on the 6mm Bolt and secure. *Figure 7*
- **2.** Locate (1) PreThreaded Factory Hole on driver Side Shock Tower.
- 3. Mount Cruise Module Assembly using (1) Bolt supplied in kit and secure ensuring the module remains clear of all hot, sharp & moving parts. Figure 7

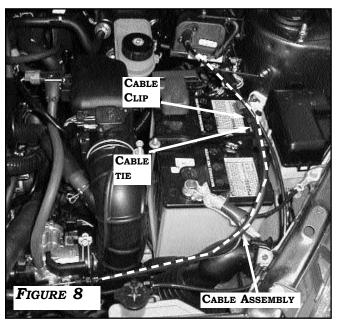
STEP 3: CABLE ROUTING LOCATION: ENGINE COMPARTMENT

- 1. Route Cable Assembly from Module Assembly towards vehicle's throttle area alongside the factory throttle cable. *Figure* 8
- 2. Utilize factory cable clip to secure cruise cable. Figure 8.
- **3.** Also, Secure **Cable Assembly** with **Cable Ties** as shown in *Figure* **8.**

NOTE: KEEP CABLE CLEAR OF SHARP, HOT OR MOVING OBJECTS





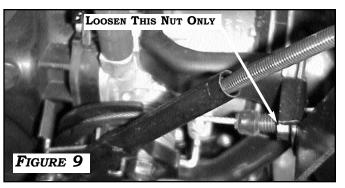


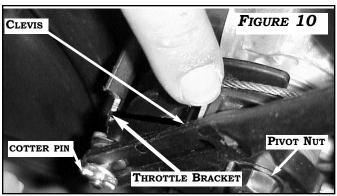
STEP 4: THROTTLE ATTACHMENT

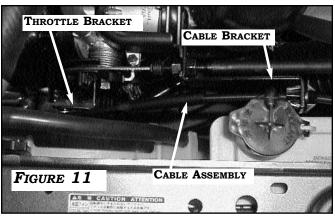
LOCATION: ENGINE THROTTLE SHAFT AREA

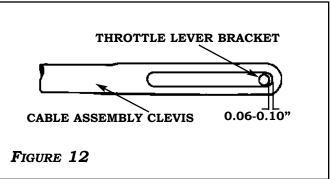
- Loosen the "rear" throttle cable nut enough to insert the Cable Bracket. Retighten the "rear" throttle cable nut. Figure 9
- 2. Remove the pivot nut from the pulley segment of the throttle body. Attach the **Throttle**Lever Bracket as shown. Reinstall the OE pivot nut. Figure 10
- 3. Thread nut by hand to avoid cross threading. Tighten 8mm nut to 60-72 in lbs. DO NOT OVERTIGHTEN.
- 4. Connect the Cruise Control Cable to the Throttle Lever Bracket. Figure 11
- 5. After assembly is secured, make sure the Cable Assembly is not holding the throttle open in any way. There should be 0.06-0.10" slack between the Cruise Control Cable Clevis and the Throttle Lever Bracket Pin. Figure 12

NOTE: TO ACHIEVE PROPER SLACK DIMENSIONS, REMOVE THE THREADED SNAP-IN ADAPTER FROM THE CABLE BRACKET. TURN THREADED SNAP-IN ADAPTER TO ADJUST THE SLACK.









STEP 6: BRAKE SWITCH CONNECTIONS

LOCATION: BRAKE PEDAL ASSEMBLY HARDWARE: MATING CONNECTORS

- DISCONNECT VEHICLE BRAKE SWITCH HARNESS FROM BRAKE SWITCH. FIGURE 13
- 2. Connect mating connectors of **Cruise Main Harness**Assembly to the vehicle brake switch and harness.

 Figure 13
- **3.** Route **Harness Assemblies** so that they do not interfere with any moving components.

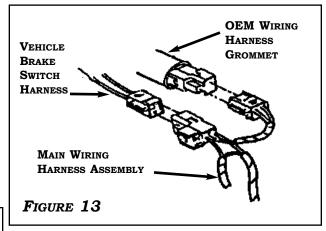
NOTE: Cruise should disengage prior to actual vehicle braking when applying the brake pedal. Refer to TOYOTA REPAIR MANUAL for brake switch adjustments.

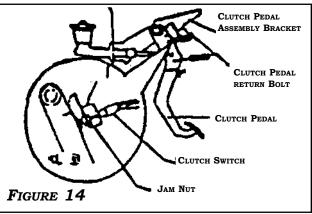
STEP 7: CLUTCH SWITCH (MANUAL TRANSMISSION ONLY)

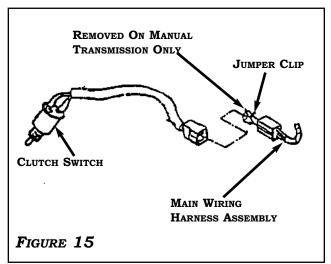
LOCATION: CLUTCH PEDAL ASSEMBLY HARDWARE: CLUTCH SWITCH (1)

- 1. Record position of clutch pedal in its free, undepressed position. Remove stop bolt and thread **Clutch Switch** so that the plunger is completely depressed when the clutch pedal is in its free, undepressed position. Secure **Clutch Switch** with Jam nut removed from the stop bolt. **Figure 14**
- 2. Remove the JUMPER CLIP from the **Cruise Control**Main Harness and plug to the mating connector on the
 Clutch Switch. Figure 15
- 3. SECURE THE CLUTCH SWITCH HARNESS WITH CABLE TIES.

NOTE: KEEP HARNESS CLEAR OF SHARP, HOT OR MOVING OBJECTS.







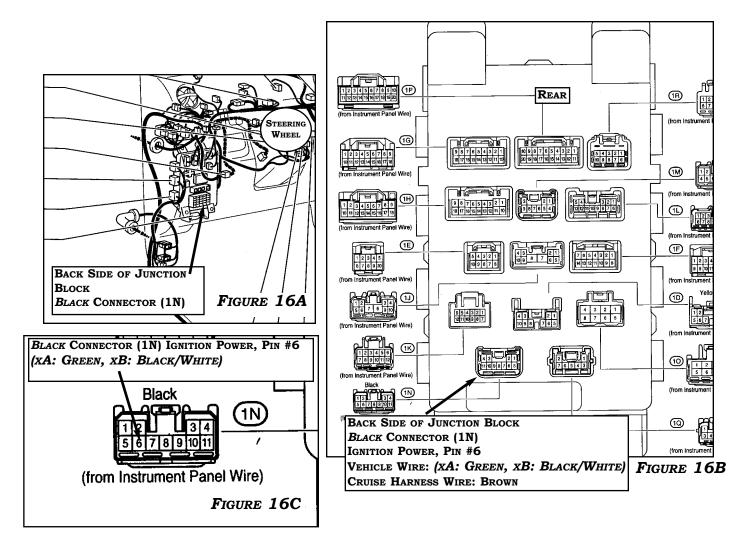
STEP 8: POWER CONNECTION

LOCATION: POWER, DRIVER SIDE CONNECTOR (1N)
HARDWARE: (1) FEMALE T-TAP CONNECTORS (RED)

- 1. Locate the Black 11 Pin connector (1N) on the back side of the Junction Block, Figures 16A & 16B,
- 2. ROUTE BROWN WIRE (POWER) TOWARDS THE (1N) 11 PIN CONNECTOR. FIGURE 16A
- 3. Install the *Red* T-Tap connector on the *(xA: Green, xB: Black/White)* Pin #6 wire and connect the *Brown* wire to

THE T-TAP CONNECTOR. FIGURE 16A

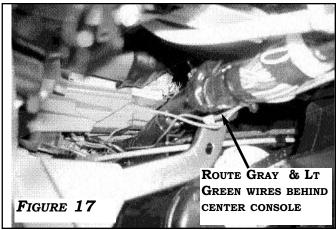
4. SECURE ALL WIRES UNDER DASH WITH CABLE TIES.

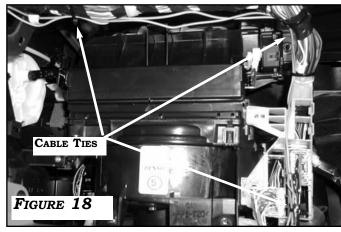


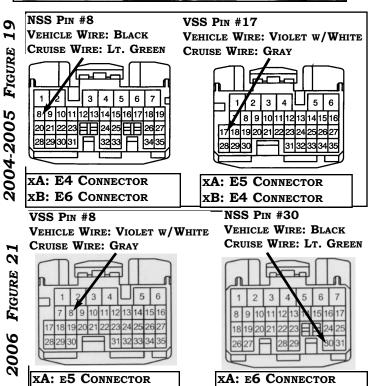
STEP 9: VEHICLE SPEED SIGNAL & NEUTRAL SAFETY

LOCATION: PASSENGER SIDE, LOCATED AT COMPUTER BENEATH PASSENGER DASH.

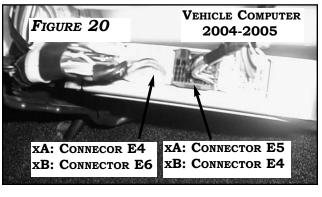
- 1. Unsnap Plastic cover to gain access to the Vehicle ECU loacted beneath the passenger side glovebox.
- 2. Route Lt Green (NSS) and Gray (VSS) wires from main cruise harness along the ECU harness Figure 17, behind center console towards the ECU located underneath the Passenger Glove Box. Figures 17 & 18.
- 3. Install the **Red T-Tap** to the **Violet /White** wire, White Connector **2004-05**: **xA Conn E5**, **xB Conn E4**, Pin #17 **Figures** 19 & 20. 2006: **xA Conn E6**, **xB Conn E3**, Pin #8 **Figures** 21 & 22. Connect the **VSS (Gray)** wire to the T-Tap Connector.
- 4. Automatic Transmission Only: Install the *Red* T-Tap to the *Black* wire, White Connector 2004-05: xA Conn E4, xB Conn E6, Pin #8 Figures 19 & 20. 2006: xA Conn E6, xB Conn E3 Figures 21 & 22. Connect the NSS (Lt. Green) wire to the T-Tap Connector. Secure all wires under dash with Cable Ties.

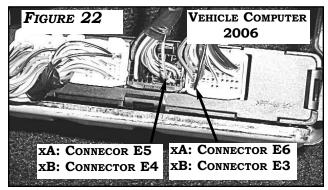






xB: e3 Connector



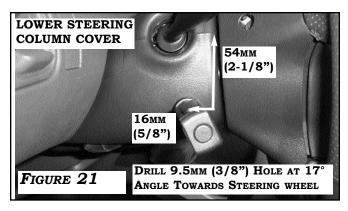


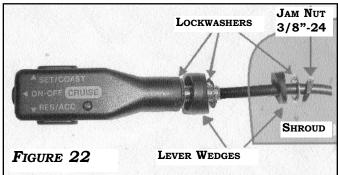
xB: e4 Connector

STEP 10: CONTROL SWITCH

LOCATION: LEFT SIDE LOWER STEERING COLUMN
COVER

- 1. Remove lower steering column cover. Figure 21
- 2. Using the Lever Wedge as an angle template, drill 9.5mm hole in lower shroud as shown in *Figure 21*
- 3. Ensure Lever Wedges are assembled as shown in *Figure 22*. To prevent the cruise control switch from rotating and creating a more positive lock when mounting, position the Lockwashers as shown in *Figure 22*. Start nut and position lettering for driver's best view. Fully secure nut at 22-25 in lbs. <u>DO NOT OVERTIGHTEN</u>.
- **4.** Route **Control Switch Wire Harness** so there is no interference with any moving parts. Operate tilt column if equipped. Secure steering column shroud.
- **5.** Ensure that the switch can be seen during normal driving seating positioning. *Figure* 23

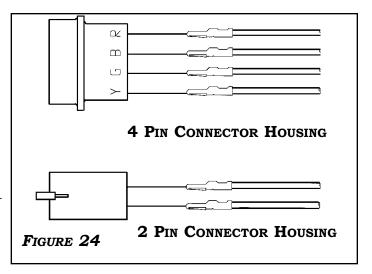






CONTROL SWITCH CONNECTION TO MOD-ULE ASSEMBLY HARNESS

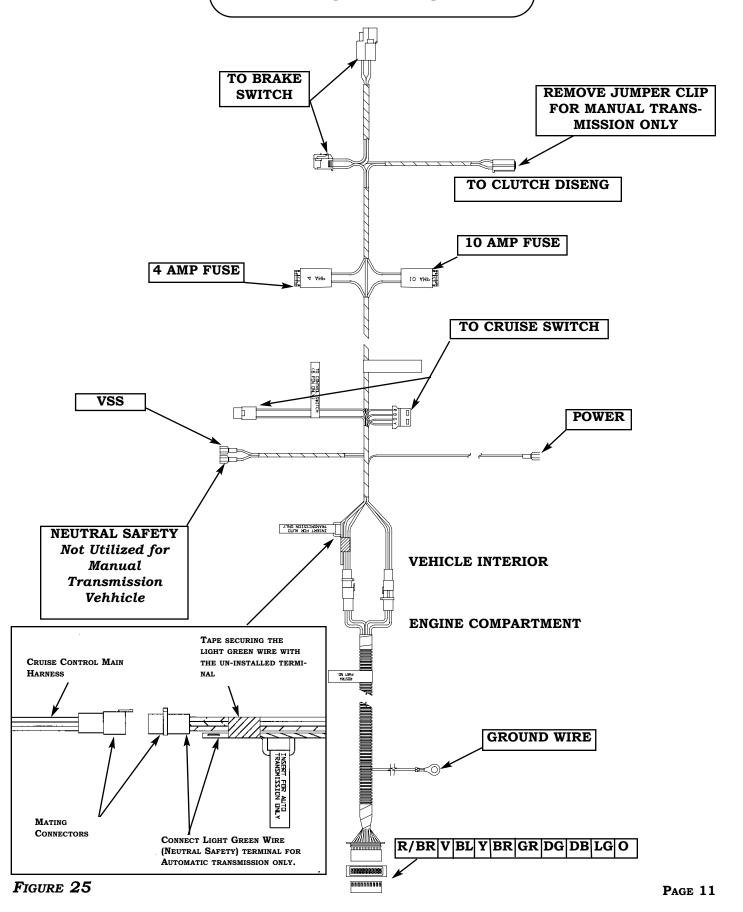
- 6. Install 4 pin connector on **Red**, **Brown**, **Green**, and **Yellow** wires. Install 2 pin connector on to **Blue** and **Black** wires of switch harness. **NOTE: The mating connector to this 4 pin connector will have a Red** wire mating to the **Brown** wire, all other colors should match. Connect 4-pin and 2-pin connectors to **Module Assembly Harness**. Ensure that all pins lock into connector. **Figure 24**
- 7. SECURE MODULE ASSEMBLY HARNESS WITH CABLE TIES TO PREVENT HARNESS FROM COMING INTO CONTACT WITH HOT, SHARP OR MOVING OBJECTS.



STEP 10: REASSEMBLY

- 1. RECONNECT NEGATIVE BATTERY CABLE AND TORQUE TO 35 IN LBS. FIGURE 3
- 2. If equipped with anti-theft Radio, reenter the code and pre-recorded stations

WIRING DIAGRAM



TROUBLESHOOTING

A. ELECTRICAL TESTING:

- 1. TESTING OF THE CRUISE CONTROL SYSTEM IS BEST DONE AT THE (10) WIRES AT THE CRUISE CONTROL MODULE.
- 2. Depending upon the test being conducted, a VOLT <u>OR</u> OHM METER must be used for accurate results. A test light will **NOT** provide accurate information in some circuits being tested

WARNING: TEST LIGHTS MAY CAUSE DAMAGE TO THE VEHICLE.

3. Using a VOLT/OHM METER, conduct the following tests where the wiring harness enters the Cruise Control Module. View Figure 26 for wire color and location at rear of cruise control module.

R/BR|V|BL|Y|BR|GR|DG|DB| LG|O

FIGURE 26

CONNECTOR AS VIEWED FROM THE HARNESS SIDE

R/BR=RED/BROWN=CONTROL SWITCH POWER
V=VIOLET=BRAKE LIGHT GROUND
BL=BLACK=MODULE GROUND
Y=YELLOW=ACCEL/RESUME
DB=DARK BLUE=NO CONNECTION

BR=BROWN=IGNITION POWER
GR=GRAY=VSS SIGNAL CIRCUIT
DG=DARK GREEN=SET/COAST
LG=LIGHT GREEN=NEUTRAL SAFETY
O=ORANGE=NO CONNECTION

TEST	FUNCTION	CONDITION	DESIRED RESULTS	OK	NG
A-1	"OFF"	Ignition "OFF"	ZERO VOLTS AT ALL WIRES	A-2	B-1
		CONTROL SWITCH "OFF"			
A-2	SYSTEM POWER	Ignition "ON"	12vdc on BROWN wire only	A-3	B-2
		CONTROL SWITCH "OFF"			
A-3	CRUISE SWITCH	Ignition "ON"	12vdc on BROWN wire	A-4	B-3
	POWER	CONTROL SWITCH "ON"	12vdc on RED wire		
A-4	BRAKE CIRCUIT	Ignition "ON"	12vdc on VIOLET wire	A -5	B-1
		CONTROL SWITCH "ON"			
		Push Brake Pedal			
A-5	SET/COAST	IGNITION "ON"	12vdc on DARK GREEN WIRE	A-6	B-4
		CONTROL SWITCH "ON"			
		Push SET Button			
A-6	ACCEL/RESUME	IGNITION "ON"	12vdc on YELLOW wire	A-7	B-4
		CONTROL SWITCH "ON"			
		Push ACCEL Button			
A-7	VEHICLE SPEED	Ignition "ON"	4.5vdc to Zero volts on GRAY	A-8	B-5
	SENSOR	CONTROL SWITCH "ON"	wire, 3-4 times in 10 feet		
		ROLL VEHICLE 10 FEET			
A-8	SYSTEM GROUND	Ignition "ON"	CONTINUITY TO GROUND ON	A-9	B-6
	(OHM METER)	CONTROL SWITCH "ON"	BLACK WIRE		
A-9	NEUTRAL SAFETY	Ignition "ON"	ZERO TO 0.5 VOLTS IN "P" OR "N"	A-10	B-7
	AUTOMATIC ONLY	CONTROL SWITCH "ON"	ON <i>LIGHT GREEN</i> WIRE		
	(VOLT METER)	Move shift lever from "P"			
		OR "N" TO ANY GEAR POSITION			
A-10	CLUTCH SWITCH		CONTINUITY TO GROUND WITH CLUTCH	C-1	B-8
	MANUAL	CONTROL SWITCH "ON"	PEDAL NOT DEPRESSED AND "NO"		
	(OHM METER)	Push on Clutch Pedal	CONTINUITY TO GROUND WITH CLUTCH		
	•		PEDAL DEPRESSED ON THE VIOLET W	IRE	
					,

TROUBLESHOOTING

B. ELECTRICAL TESTING DIAGNOSTIC:

- B-1....CHECK Brake Light Fuse, Bulbs, wires & connectors to Brake Switch and clutch switch if manual
- B-2.....CHECK IGNITION SWITCH LINK WIRES, CONNECTOR AND IGNITION FUSE.
- B-3.....CHECK IGNITION SWITCH LINK WIRES, CONNECTOR AND IGNITION FUSE, CRUISE SWITCH WIRES AND CONNECTOR.
- B-4.....CHECK CRUISE CONTROL SWITCH WIRES AND CONNECTOR.
- B-5.....CHECK VEHICLE ECU WIRE AND CONNECTOR, T-TAP AT VSS WIRE.
- B-6.....CHECK VEHICLE BATTERY GROUND, MODULE GROUND WIRE CONNECTION.
- B-7..... CHECK IGNITION LINK HARNESS, WIRES AND CONNECTOR, VEHICLE NEUTRAL SAFETY SWITCH.
- B-8....CHECK WIRES AND CONNECTOR, CLUTCH SWITCH FOR DAMAGE AND/OR ADJUST SWITCH.

C. MECHANICAL TESTING PROCEDURES:

C-1 VERIFY CABLE AND/OR LINKAGE:

VISUALLY INSPECT ALL RELATED PARTS OF THE THROTTLE CONNECTION. ENSURE THAT CABLE OPERATES FREELY AND ALL BRACKETS ARE SECURED AND NOT DAMAGED. REPLACE ANY DAMAGED OR WORN PARTS.

NOTES

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OPERATING INSTRUCTIONS

SPEED CONTROL OPERATING INSTRUCTIONS

ON- TO OPERATE THE CRUISE CONTROL, PUSH THE CRUISE "ON/OFF" BUTTON "ON". (GREEN INDICATOR WILL LIGHT.) WAIT 3 SECONDS BEFORE SETTING SPEED.

SET SPEED- TO ENGAGE SYSTEM, DRIVE AT ANY SPEED ABOVE 33 MPH, PRESS "SET/COAST" OR PRESS "RESUME/ACCEL" AND RELEASE, THEN REMOVE YOUR FOOT FROM THE ACCELERATOR PEDAL. AUTOMATIC CONTROL WILL BE AT THE SPEED OF THE VEHICLE WHEN BUTTON IS RELEASED PLUS OR MINUS 1- 1/2 MPH. PRESS ACCELERATOR AND SPEED WILL INCREASE, RELEASE ACCELERATOR AND YOU WILL RETURN TO SET SPEED. THE RESUME/ACCEL BUTTON WILL SET THE CRUISE CONTROL WITHOUT PRESSING THE SET BUTTON FIRST.

COAST- PRESS AND HOLD THE "SET/COAST" BUTTON AND YOUR SPEED WILL DECREASE. RELEASE BUTTON AND SPEED OF VEHICLE AT TIME BUTTON IS RELEASED WILL BE NEW SET SPEED IF ABOVE 33 MPH.

ACCEL- PRESS AND HOLD THE "RESUME/ACCEL" BUTTON AND YOUR SPEED WILL INCREASE. RELEASE BUTTON AND YOU WILL HAVE A NEW HIGHER SET SPEED.

TAP-UP- You can gradually increase your speed by QUICKLY PRESSING AND RELEASING THE"RESUME/ACCEL" BUTTON. Each time you press AND RELEASE THE BUTTON YOUR SPEED WILL INCREASE BY ONE TO TWO MPH.

TAP-DOWN- YOU CAN GRADUALLY DECREASE YOUR SPEED BY QUICKLY PRESSING AND RELEASING THE "SET/COAST" BUTTON. EACH TIME YOU PRESS AND RELEASE THE BUTTON YOUR SPEED WILL DECREASE BY ONE OR TWO MPH.

DISENGAGE- DEPRESS BRAKE PEDAL SLIGHTLY - AUTO-MATIC SPEED CONTROL WILL CEASE BUT SET SPEED WILL STAY IN SYSTEM'S MEMORY. ALSO, YOU CAN DISENGAGE BY PRESSING BUTTON TO OFF POSITION, BUT THIS ERASES THE MEMORY. TO GET THE RESUME FEATURE TO WORK AGAIN, YOU MUST FIRST SET A SPEED. TURNING OFF THE IGNITION ALSO CLEARS THE SYSTEM'S MEMORY.

RESUME- AFTER DISENGAGING SYSTEM WITH BRAKE OR CLUTCH, RETURN TO SET SPEED BY DRIVING ABOVE 33 MPH. THEN PRESS "RESUME/ACCEL" BUTTON AND RELEASE IT. IF ACCELERATION RATE IS FASTER OR SLOWER THAN YOU LIKE, DRIVE TO WITHIN A FEW MPH OF YOUR SET SPEED, THEN PRESS AND RELEASE THE RESUME/ACCEL BUTTON.

THINGS YOU SHOULD KNOW ABOUT YOUR CRUISE CONTROL

THE PERFORMANCE OF THE CRUISE CONTROL IS DEPENDENT UPON THE CONDITION OF THE ENGINE, ITS SIZE AND EVEN BY THE TYPE OF EMISSION CONTROL EQUIPMENT IT HAS.

DRIVING AT HIGHER ALTITUDE WILL HAVE AN EFFECT ON THE VEHICLE CRUISE CONTROL PERFORMANCE.

Under normal conditions and with proper regulator adjustments, speed should be controlled within plus or minus 1- 1/2 MPH. There may be situations; however, which make it seem as if the Cruise Control is not capable of functioning accurately, such as an extra heavy load, a very steep hill, or a severe headwind.

CAUTION: Do not use Cruise Control on a slippery road nor in heavy traffic.

CAUTION: (MANUAL TRANSMISSION) WHILE DRIVING WITH CRUISE CONTROL "ON", DO NOT SHIFT TO NEUTRAL WITHOUT DEPRESSING THE CLUTCH PEDAL, AS THIS MAY CAUSE ENGINE RACING OR OVERREVING. IF THIS HAPPENS, DEPRESS THE CLUTCH PEDAL OR TURN "OFF" THE MAIN CRUISE CONTROL SWITCH IMMEDIATELY.

