

2007-2008 KIA RIO

AUTOMATIC TRANSMISSION VEHICLE

CRUISE CONTROL INSTALLATION INSTRUCTIONS PART No. 250-1799

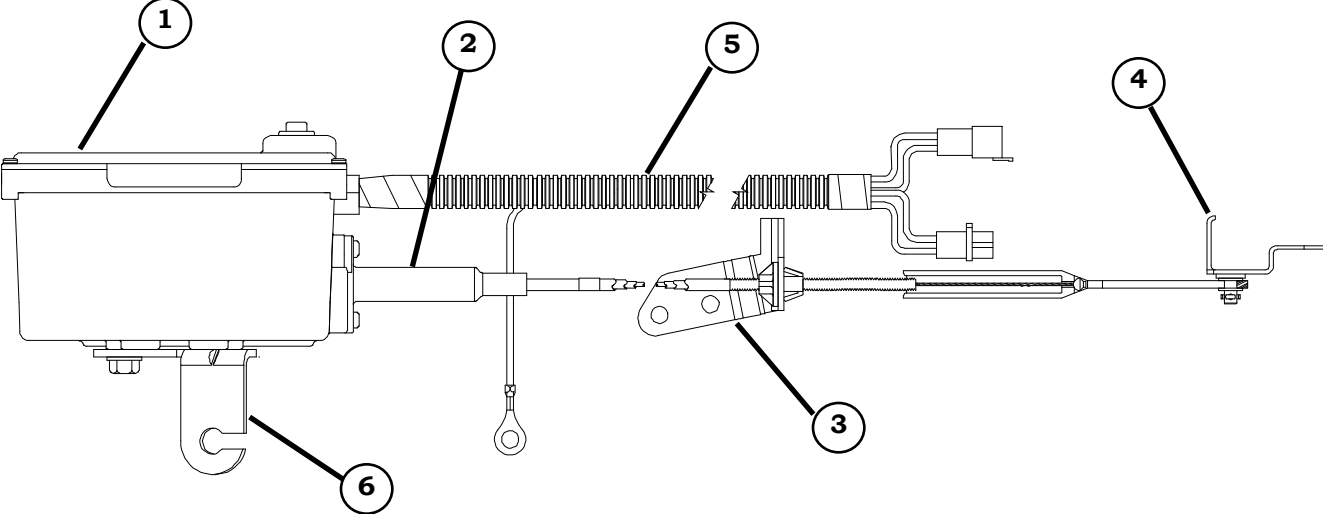
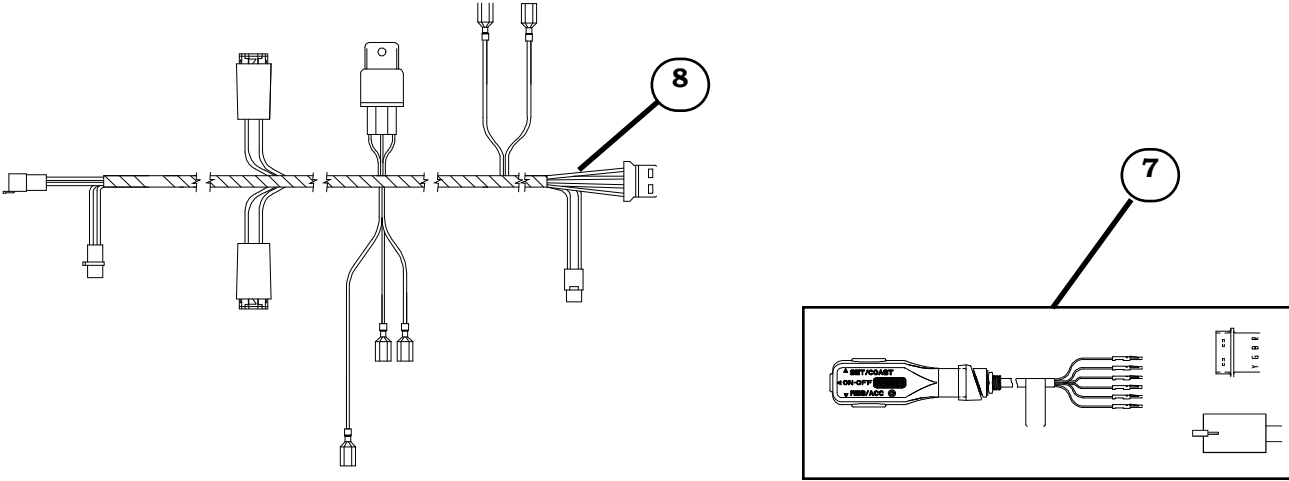


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PARTS IDENTIFICATION

ITEM	QUANTITY	SERVICE NUMBER	DESCRIPTION
1	1	250-2316	SERVO ASSEMBLY
2	1	250-2693	CABLE ASSEMBLY
3	1	250-2694	CABLE BRACKET
4	1	250-2695	THROTTLE LEVER BRACKET
5	1	250-2696	SERVO HARNESS ASSEMBLY
6	1	250-2617	MODULE BRACKET
7	1	250-2684	CONTROL SWITCH ASSEMBLY
8	1	250-2697	EXTENSION HARNESS ASSEMBLY
NOT SHOWN	1	250-2698	HARDWARE PACKAGE
NOT SHOWN	1	250-2699	DIVIDING BRACKET



HELPFUL HINTS

1. BEFORE STARTING INSTALLATION:

FAMILIARIZE YOURSELF WITH THE INSTALLATION 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 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 DISCONNECTING 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. **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**

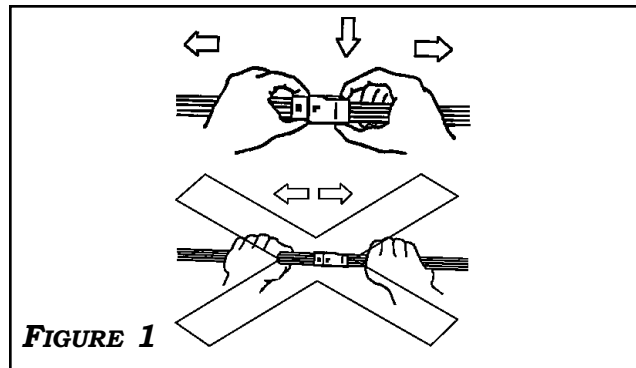


FIGURE 1

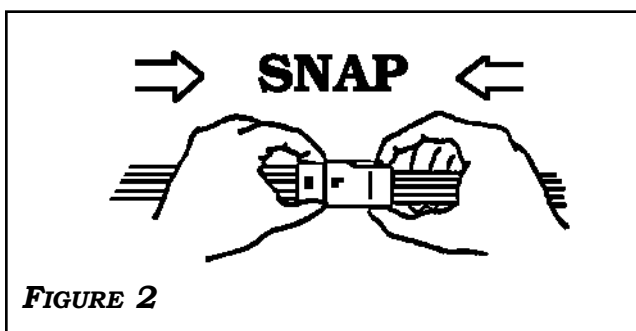


FIGURE 2

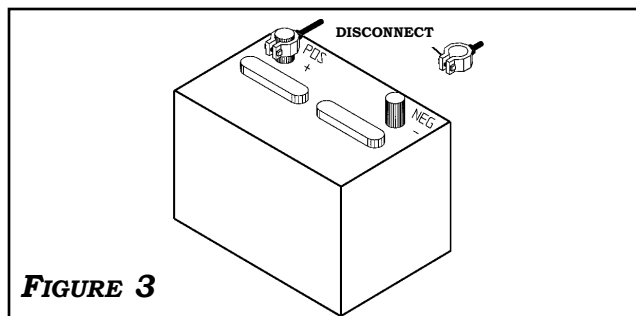


FIGURE 3

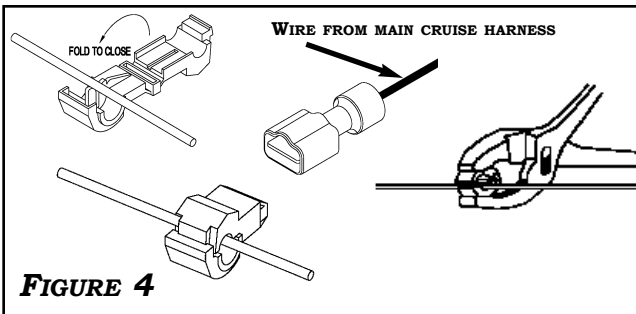


FIGURE 4

INSTALLATION

STEP 1: VEHICLE PREPARATION

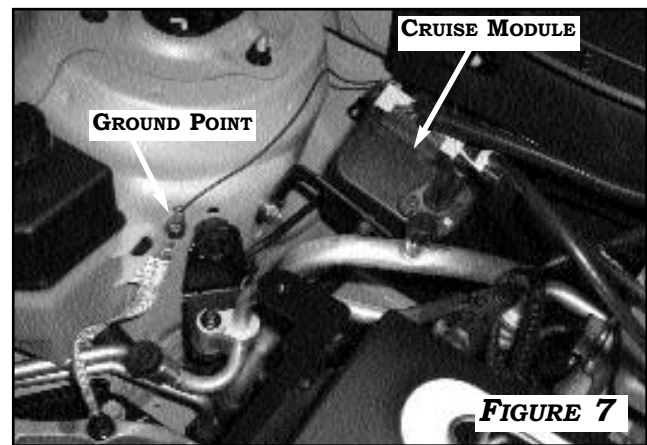
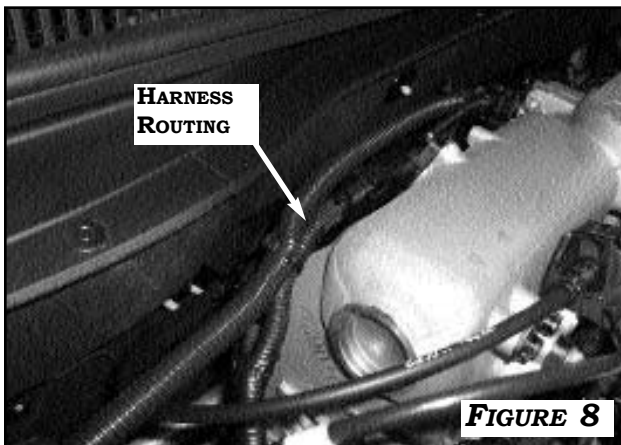
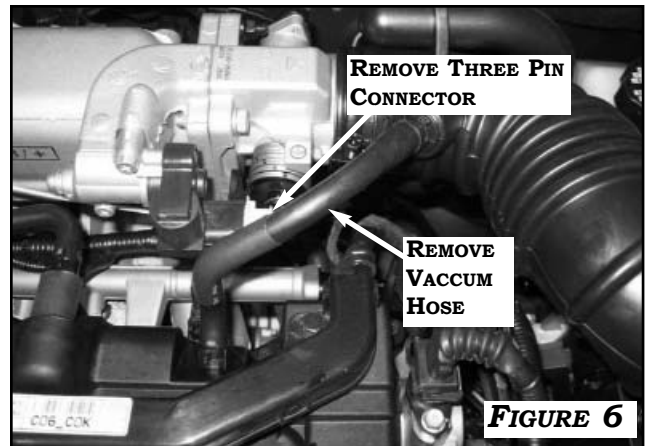
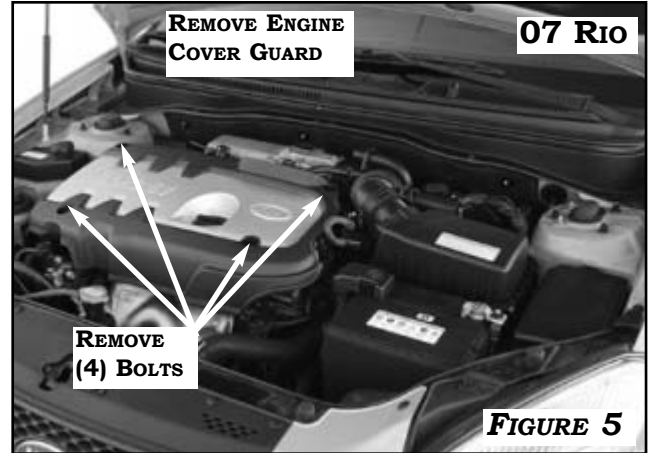
LOCATION: *ENGINE COMPARTMENT*

1. **07 Rio:** REMOVE (4) BOLTS SECURING THE PLASTIC ENGINE COVER GUARD TO EXPOSE ENGINE. **FIGURE 5.**
08 Rio: PROCEED TO STEP TWO.
2. REMOVE VACCUM HOSE AND THREE PIN CONNECTOR FROM AIR INTAKE TO ACCESS THROTTLE. **FIGURE 6**
3. MOUNT MODULE ON PASSENGER SIDE SHOCK TOWER USING SUPPLIED BOLT. **FIGURE 7**

STEP 2: WIRE HARNESS ROUTING

LOCATION: *ENGINE COMPARTMENT*

1. ATTACH WIRE HARNESS GROUND TO FACTORY GROUND POINT ALONG SHOCK TOWER. **FIGURE 7**
2. ROUTE MODULE HARNESS ALONG EXISTING VEHICLE HARNESS AS SHOWN IN **FIGURE 8.**
3. BE SURE HARNESS IS NOT PINCHED OR BOUND.



INSTALLATION

STEP 5: THROTTLE ATTACHMENT

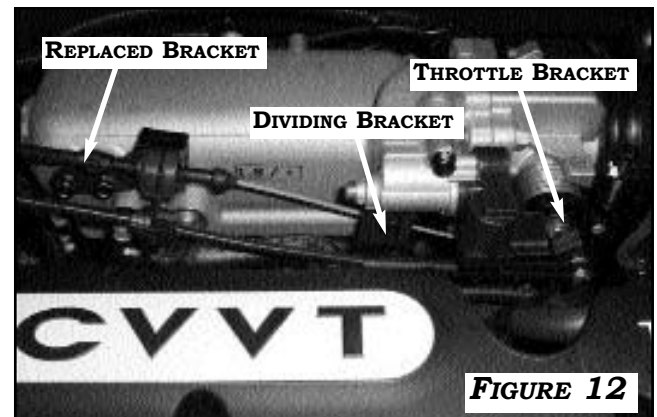
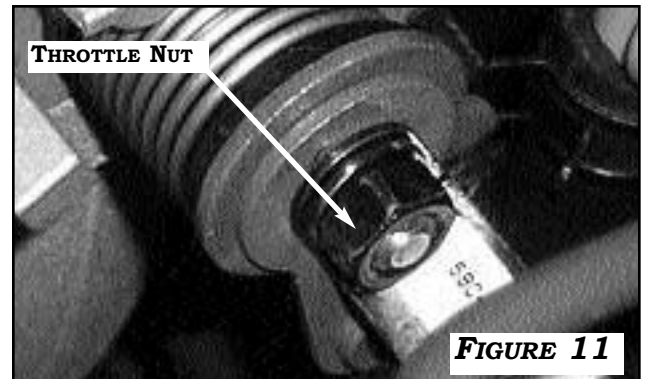
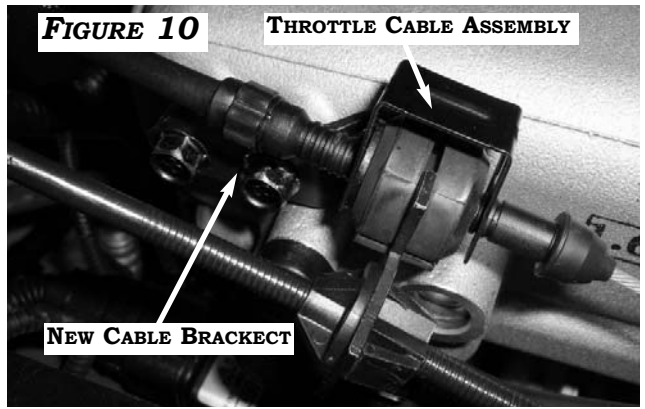
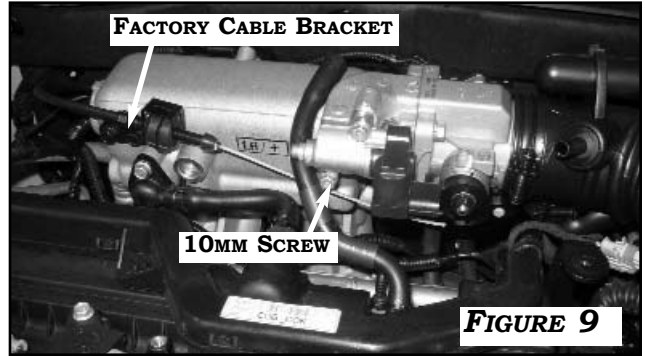
LOCATION: ENGINE THROTTLE SHAFT AREA

1. REMOVE (2) **10MM SCREWS** TO RELEASE FACTORY CABLE BRACKET. REMOVE THROTTLE CABLE ASSEMBLY ON FACTORY BRACKET TO PLACE ON CABLE BRACKET WITH CRUISE CABLE SUPPLIED IN KIT. REMOVE **10MM SCREW** FOR DIVIDING CABLE BRACKET. **FIGURES 9 AND 10.**
2. REMOVE VEHICLE THROTTLE WASHER AND NUT AND PLACE CRUISE THROTTLE BRACKET ON STUD. REINSTALL VEHICLE THROTTLE WASHER AND NUT. **FIGURE 11**
3. AFTER ASSEMBLY IS SECURED AS SHOWN IN **FIGURE 12**, MAKE SURE THE **CABLE ASSEMBLY** IS NOT HOLDING THE THROTTLE OPEN IN ANY WAY. THERE SHOULD BE **0.06-0.10"** SLACK BETWEEN IN CRUISE CONTROL CABLE PLAY.

STEP 6A: HARNESS CONNECTIONS

LOCATION: DRIVER SIDE FIREWALL

1. LOCATE FIREWALL ACCESS GROMMET FROM DRIVER SIDE COMPARTMENT AND PULL **CRUISE CONTROL MODULE HARNESS CONNECTORS** INSIDE VEHICLE. **FIGURE 13**
2. CONNECT MATING **CRUISE CONTROL CONNECTORS**.

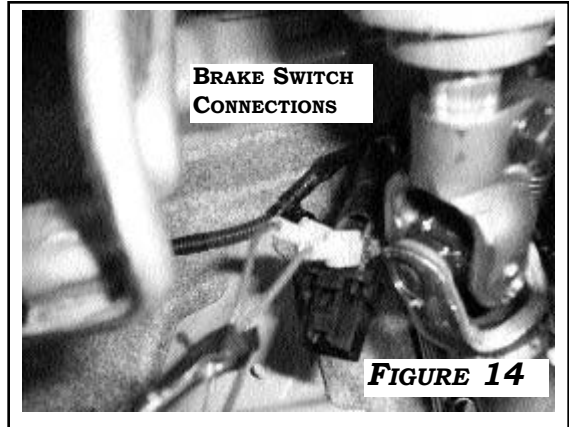


INSTALLATION

STEP 6B: BRAKE SWITCH CONNECTION

LOCATION: BRAKE PEDAL ASSEMBLY

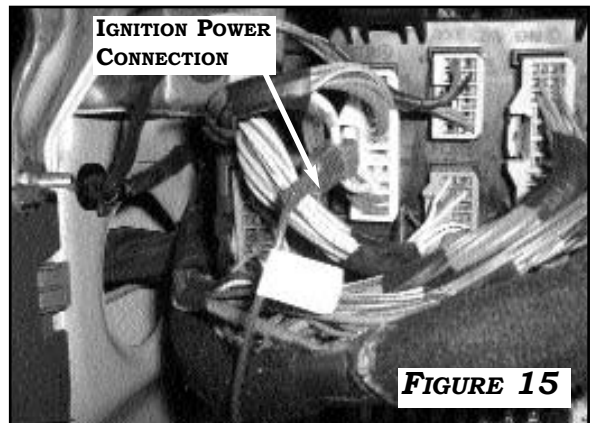
1. ROUTE **HARNESSES ASSEMBLIES** SO THAT THEY DO NOT INTERFERE WITH ANY MOVING COMPONENTS.
2. LOCATE VEHICLE BRAKE SWITCH HARNESS. USING THE SUPPLIED T-TAPS, CONNECT **RED WIRE** FROM CRUISE HARNESS TO THE **RED WIRE** FROM BRAKE SWITCH. CONNECT **VIOLET WIRE** FROM CRUISE HARNESS TO THE **RED/ORANGE WIRE** FROM BRAKE SWITCH. **FIGURE 14**



STEP 6C: HARNESS CONNECTIONS

LOCATION: DRIVER'S SIDE FUSE PANEL AND DIAGNOSTICS CONNECTOR

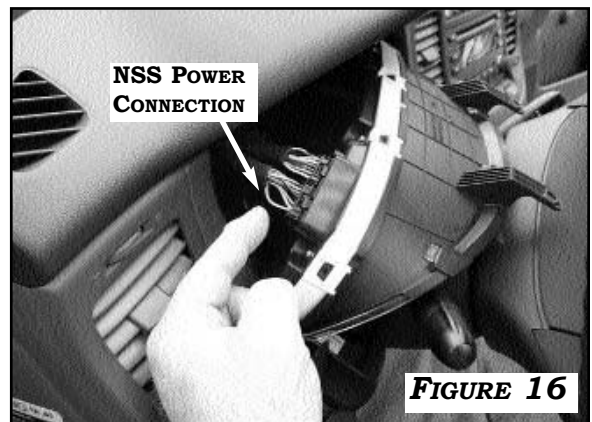
1. LOCATE THE VEHICLE FUSE PANEL UNDER THE DRIVER SIDE DASH.
2. **IGNITION POWER:** USE **BLUE T-TAP** TO CONNECT THE **BROWN WIRE** FROM CRUISE HARNESS TO **PINK WIRE** IN CONNECTOR **FLR A** AS SHOWN IN **FIGURE 15**.



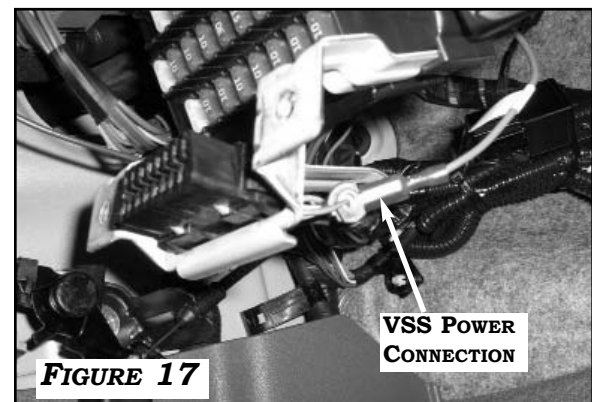
3. NSS CONNECTION:

FOR AUTOMATIC TRANSMISSION VEHICLES: LOCATE BLACK 16 PIN CONNECTOR ON FAR LEFT BEHIND INSTRUMENT CLUSTER. USE THE **RED T-TAP** TO CONNECT **DARK BLUE WIRE** FROM CRUISE HARNESS TO **WHITE/BLACK WIRE** OF CONNECTOR. **FIGURE 16**.

4. **VSS CONNECTION:** LOCATE DIAGNOSTICS CONNECTOR UNDER DASH. USE THE **RED T-TAP** TO CONNECT **GRAY WIRE** FROM CRUISE HARNESS TO **RED/YELLOW WIRE** IN **PIN 3**. **FIGURE 17**



5. SECURE ALL WIRES UNDER DASH WITH **CABLE TIES**.



INSTALLATION

STEP 7: CONTROL SWITCH

LOCATION: LEFT SIDE LOWER STEERING COLUMN COVER

1. REMOVE LOWER STEERING COLUMN COVER. **FIGURE 18**
2. USING THE **LEVER WEDGE** AS AN ANGLE TEMPLATE, DRILL **9.5MM (3/8")** HOLE IN LOWER SHROUD AS SHOWN IN **FIGURE 17**
3. ENSURE **LEVER WEDGES** ARE ASSEMBLED AS SHOWN IN **FIGURE 19**. TO PREVENT THE CRUISE CONTROL SWITCH FROM ROTATING AND CREATING A MORE POSITIVE LOCK WHEN MOUNTING, POSITION THE **LOCKWASHERS** AS SHOWN IN **FIGURE 19**. START NUT AND POSITION LETTERING FOR DRIVER'S BEST VIEW. FULLY SECURE NUT AT **22-25 IN LBS. DO NOT OVERTIGHTEN.**
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 20**

CONTROL SWITCH CONNECTION TO MODULE 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. **FIGURE 21**

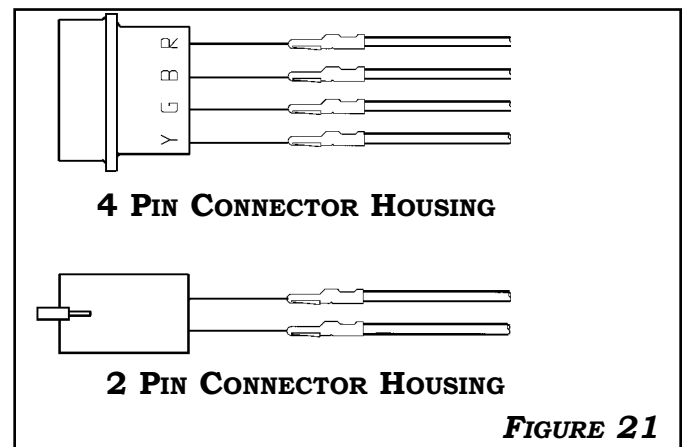
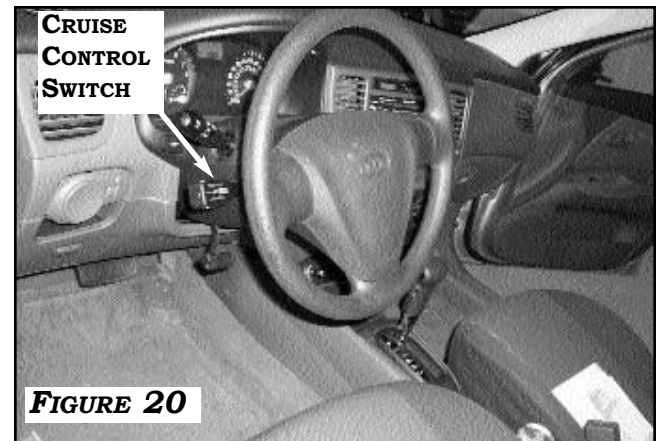
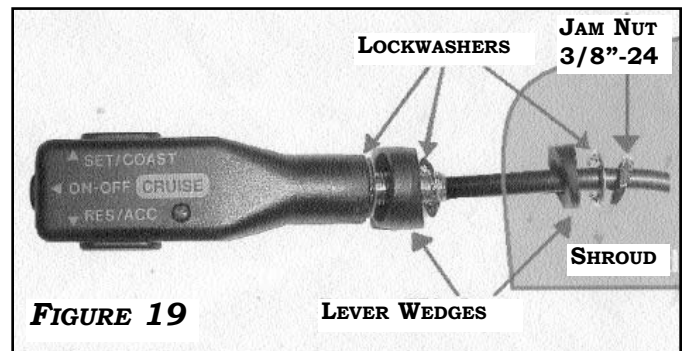
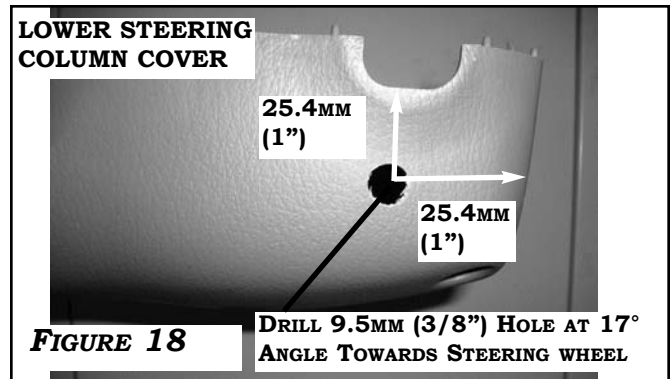
NOTE: THE MATING CONNECTOR TO THIS 4-PIN CONNECTOR WILL HAVE A RED WIRE MATING TO THE BROWN WIRE, ALL OTHER COLORS SHOULD MATCH.

CONNECT 4-PIN AND 2-PIN CONNECTORS TO **MODULE ASSEMBLY HARNESS**. ENSURE THAT ALL PINS LOCK INTO CONNECTOR.

7. SECURE **MODULE ASSEMBLY HARNESS** WITH **CABLE TIES** TO PREVENT HARNESS FROM COMING INTO CONTACT WITH **HOT, SHARP OR MOVING OBJECTS.**

STEP 8: 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

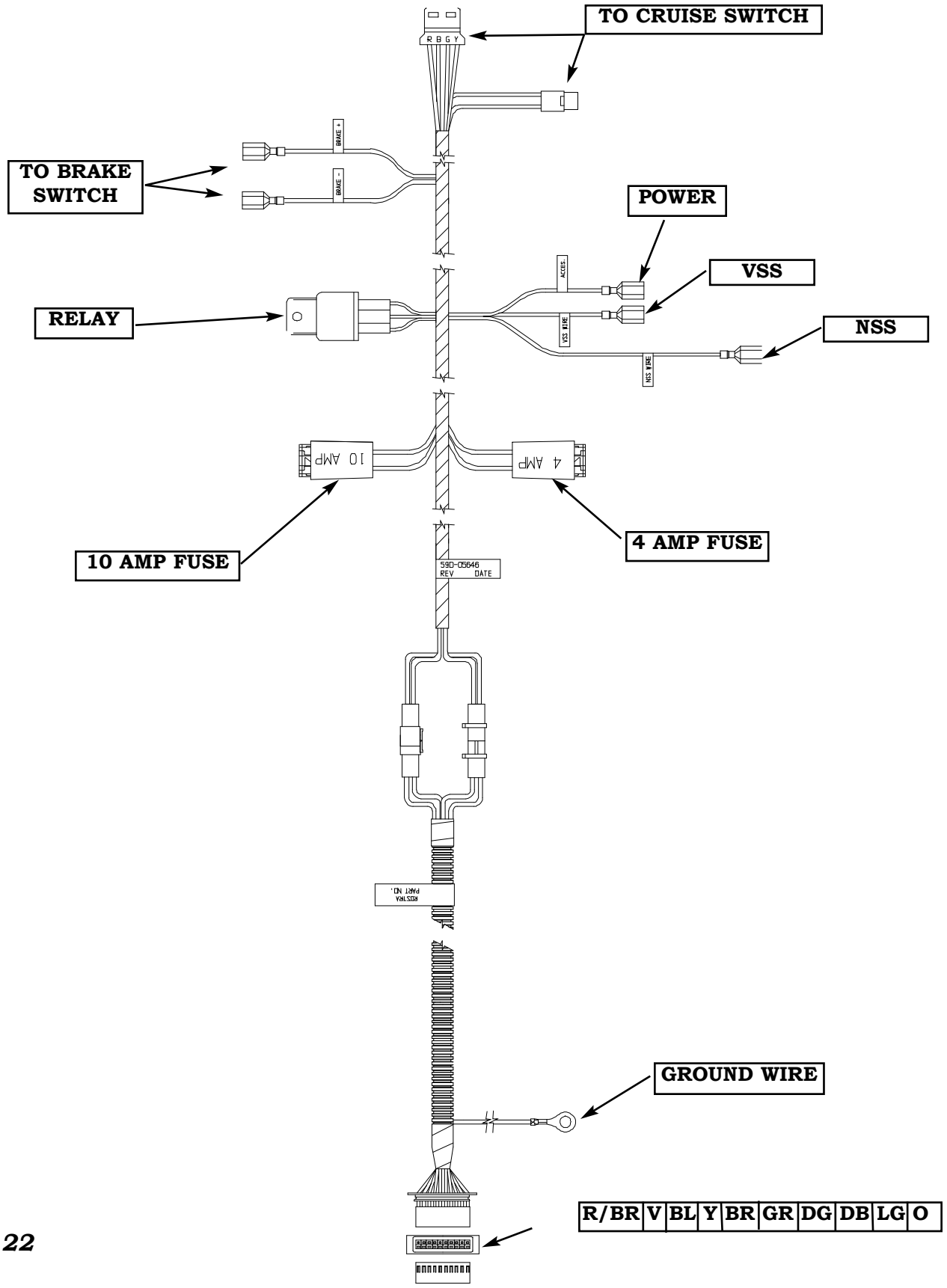


FIGURE 22

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 OR 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 21 FOR WIRE COLOR AND LOCATION AT REAR OF CRUISE CONTROL MODULE.**

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

FIGURE 21

CONNECTOR AS VIEWED FROM THE HARNESS SIDE

<p>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</p>	<p>BR=BROWN=IGNITION POWER GR=GRAY=VSS SIGNAL CIRCUIT DG=DARK GREEN=SET/COAST LG=LIGHT GREEN=NEUTRAL SAFETY O=ORANGE=NO CONNECTION</p>
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TEST	FUNCTION	CONDITION	DESIRED RESULTS	OK	NG
A-1	"OFF"	IGNITION "OFF"	ZERO VOLTS AT ALL WIRES	A-2	B-1
A-2	SYSTEM POWER	CONTROL SWITCH "OFF" IGNITION "ON"	12VDC ON BROWN WIRE ONLY	A-3	B-2
A-3	CRUISE SWITCH	CONTROL SWITCH "OFF" IGNITION "ON"	12VDC ON BROWN WIRE	A-4	B-3
A-4	POWER BRAKE CIRCUIT	CONTROL SWITCH "ON" IGNITION "ON"	12VDC ON RED WIRE	A-5	B-1
A-5	SET/COAST	CONTROL SWITCH "ON" PUSH BRAKE PEDAL IGNITION "ON"	12VDC ON DARK GREEN WIRE	A-6	B-4
A-6	ACCEL/RESUME	CONTROL SWITCH "ON" PUSH SET BUTTON IGNITION "ON"	12VDC ON YELLOW WIRE	A-7	B-4
A-7	VEHICLE SPEED SENSOR	CONTROL SWITCH "ON" PUSH ACCEL BUTTON IGNITION "ON"	4.5VDC TO ZERO VOLTS ON GRAY WIRE, 3-4 TIMES IN 10 FEET	A-8	B-5
A-8	SYSTEM GROUND (OHM METER)	ROLL VEHICLE 10 FEET IGNITION "ON"	CONTINUITY TO GROUND ON BLACK WIRE	A-9	B-6
A-9	NEUTRAL SAFETY AUTOMATIC ONLY (VOLT METER)	CONTROL SWITCH "ON" IGNITION "ON" CONTROL SWITCH "ON" MOVE SHIFT LEVER FROM "P" OR "N" TO ANY GEAR POSITION	ZERO TO 0.5 VOLTS IN "P" OR "N" ON LIGHT GREEN WIRE	A-10	B-7
A-10	CLUTCH SWITCH MANUAL (OHM METER)	IGNITION "ON" CONTROL SWITCH "ON" PUSH ON CLUTCH PEDAL	CONTINUITY TO GROUND WITH CLUTCH PEDAL NOT DEPRESSED AND "NO" CONTINUITY TO GROUND WITH CLUTCH PEDAL DEPRESSED ON THE VIOLET WIRE	C-1	B-8

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

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 - AUTOMATIC 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.

