SECTION 10-03 Speed Control System

VEHICLE APPLICATION

Capri.

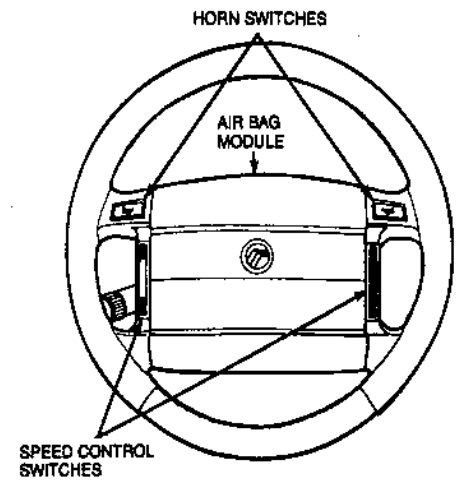
DESCRIPTION AND OPERATION

The speed control system consists of:

- Operator controls
- Electronic throttle actuator
- Electronic control unit
- Clutch and brake switches
- Electronic speed sensor

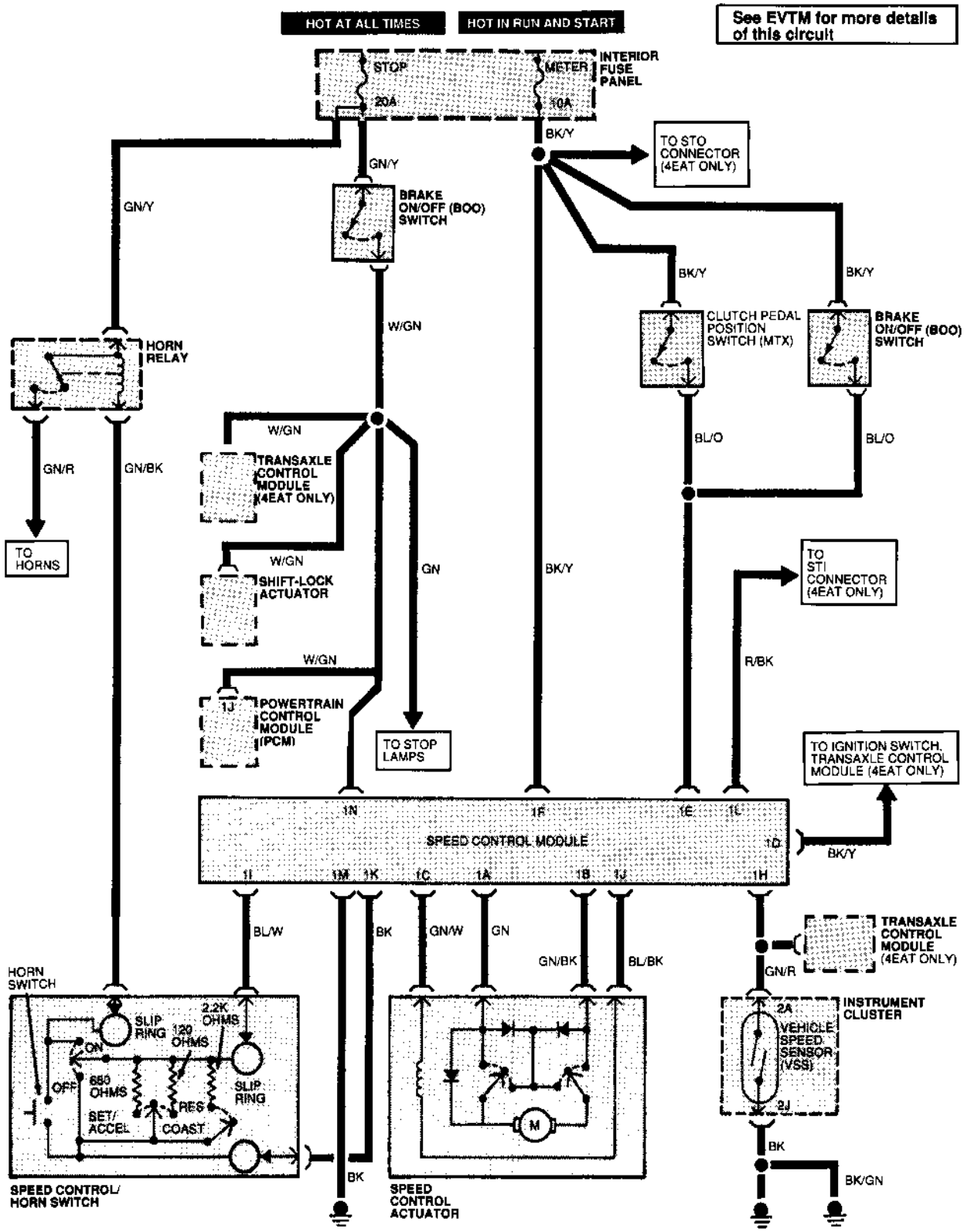
The location of the system components are as follows:

- Operator controls are mounted in the steering wheel.
- Electronic actuator is mounted in the engine compartment and is connected to the throttle by a cable.
- Clutch and brake switches are mounted to the pedal assembly.
- Electronic control unit is located behind the instrument panel.
- Electronic speed sensor is located on the speedometer cable at the upper and lower cable connection in the engine compartment.

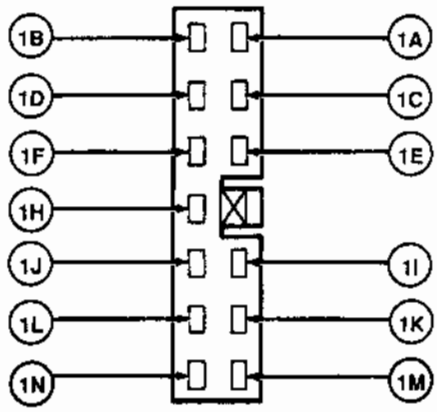


DIAGNOSIS AND TESTING

Electrical Schematic—Speed Control System

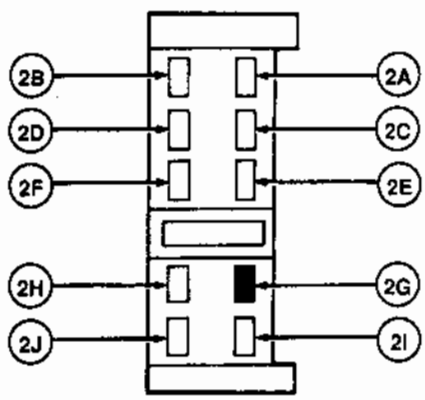


DIAGNOSIS AND TESTING (Continued)



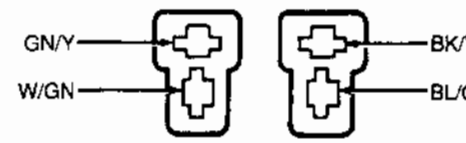
SPEED CONTROL MODULE L8224-A

Pin Number	Wire Color	Circuit Function
1A	GN	Speed Control Actuator
1B	GN/BK	Speed Control Actuator
1C	GN/W	Speed Control Actuator
1D	BK/Y	START Signal
1E	BL/O	Brake On/Off Switch (Auto Only), Clutch Pedal Position Switch (MTX)
1F	BK/Y	Vehicle Power
1H	GN/R	Vehicle Speed Sensor
1I	BL/W	Speed Control/Horn Switch
1J	BL/BK	Speed Control Actuator
1K	BK	Ground
1L	R/BK	STI Connector (Auto Only)
1M	BK	Ground
1N	W/GN	Brake On/Off Switch



INSTRUMENT CLUSTER L8225-A

Pin Number	Wire Color	Circuit Function
2A	GN/R	Vehicle Speed Sensor
2B	Y/BK	Air Bag Diagnostic Module Indicator
2C	BK	Ground
2D	BK/Y	Safety Belt Warning Indicator Lamp Power
2E	BK	Ground
2F	GN/O	Safety Belt Warning Indicator Lamp Ground
2G	—	Not Used
2H	BK/Y	Gauge Feed
2I	Y/BL	Ignition Coil (Tach Pulse)
2J	BK/GN	Ground



BRAKE ON/OFF SWITCHES L8226-A

System Inspection—Speed Control System

1. Visually inspect the components of the speed control system.

VISUAL INSPECTION CHART

Mechanical	Electrical
• Brake On/Off (BOO) Switch Adjustment	• Blown Fuses: • 10 amp METER • 20 amp STOP
• Actuator Mounting	• Damage to wiring harness
• Cable Freedom and Adjustment	• Loose or corroded connections
• Throttle Linkage Freedom • Clutch Pedal Position Switch Adjustment (MTX Only)	

2. Depress the accelerator pedal. Check the actuator cable, accelerator cable and 4EAT throttle valve cable for freedom and proper adjustment.
3. Check the wiring harness for obvious signs of shorts, opens, bad connections or damage.
4. Make sure the speedometer, stoplamps and clutch pedal function properly.
5. If fault is not visually evident, verify condition and refer to the following condition chart.

DIAGNOSIS AND TESTING (Continued)

CONDITION CHART—SPEED CONTROL SYSTEM

CONDITION	POSSIBLE SOURCE	ACTION
• Speed Control System Does Not Operate	• Fuse. • Speed control/horn switch. • Speed control module. • Speed control actuator. • Vehicle speed sensor (VSS). • Circuit.	• Go to **A1.** • Go to **A16.** • Go to **A24.** • Go to **A23.** • Go to **A21.** • Go to **A4.**
• Speed Control System Will Not Set Speed	• Speed control/horn switch. • Vehicle speed sensor (VSS). • Speed control module. • Circuit.	• Go to **A16.** • Go to **A21.** • Go to **A24.** • Go to **A4.**
• Speed Control System Works Intermittently	• Speed control actuator. • Speed control module. • Vehicle speed sensor (VSS). • Circuit.	• Go to **A23.** • Go to **A24.** • Go to **A21.** • Go to **A4.**
• Speed/Horn Switch Position Do Not Operate	• Speed control/horn switch. • Speed control module. • Speed control actuator. • Circuit.	• Go to **A16.** • Go to **A24.** • Go to **A23.** • Go to **A4.**
• Set Speed Fluctuates	• Speed control actuator. • Vehicle speed sensor (VSS). • Speed control module. • Circuit.	• Go to **A23.** • Go to **A21.** • Go to **A24.** • Go to **A4.**
• Speed Control System Does Not Shut Off With Brakes Depressed	• Brake on/off (BOO) switch. • Speed control module. • Speed control actuator. • Circuit.	• Go to **A10.** • Go to **A24.** • Go to **A23.** • Go to **A4.**
• Speed Control System Does Not Shut Off With Clutch Depressed	• Clutch pedal position switch. • Speed control module. • Speed control actuator. • Circuit.	• Go to **A7.** • Go to **A24.** • Go to **A23.** • Go to **A4.**

PINPOINT TEST A—SPEED CONTROL SYSTEM

TEST STEP		RESULT ▶	ACTION TO TAKE
A1	CHECK FUSES		
	• Key OFF. • Locate interior fuse panel. • Check 20 amp STOP fuse and 10 amp METER fuse. • **Are fuses OK?**	Yes ▶ No ▶	GO to **A4.** GO to **A2.**
A2	CHECK SYSTEM		
	• Replace blown fuses. • Key ON. • **Did fuse(s) fail again?**	Yes ▶ No ▶	GO to **A3.** GO to **A4.**
A3	CHECK FOR SHORT TO GROUND		
	• Key OFF. • Locate and disconnect interior fuse panel connectors. • Measure resistance between the GN/Y wire at the interior fuse panel connector and ground. • Measure resistance between the BK/Y wire at the interior fuse panel connector and ground. • **Are resistances less than 5 ohms?**	Yes ▶ No ▶	SERVICE wire(s) in question. GO to **A4.**
A4	CHECK POWER SUPPLY TO SPEED CONTROL MODULE		
	• Locate and disconnect speed control module. • Key ON. • Measure voltage on the BK/Y wire at the speed control module connector. • **Is voltage greater than 10 volts?**	Yes ▶ No ▶	GO to **A5.** SERVICE BK/Y wire.

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST A—SPEED CONTROL SYSTEM (Continued)

TEST STEP		RESULT ▶	ACTION TO TAKE
A5	CHECK POWER SUPPLY TO BRAKE ON/OFF (BOO) AND CLUTCH PEDAL POSITION SWITCHES		
	• Locate clutch pedal position and brake on/off (BOO) switches. • Measure voltage on the BK/Y wire at each connector. • **Are voltages greater than 10 volts?**	Yes ▶ No ▶	GO to **A6.** SERVICE BK/Y wire(s) in question.
A6	CHECK BRAKE ON/OFF (BOO) SWITCH		
	• Key OFF. • Depress brake pedal. • Measure voltage on the BL/O wire at brake on/off (BOO) switch connector. • **Is voltage greater than 10 volts?**	Yes ▶ No ▶	GO to **A7.** REPLACE brake on/off (BOO) switch.
A7	CHECK CLUTCH PEDAL POSITION SWITCH		
	• Release brake pedal. • Depress clutch pedal position switch. • Measure voltage on the BL/O wire at the clutch pedal position switch connector. • **Is voltage greater than 10 volts?**	Yes ▶ No ▶	GO to **A8.** REPLACE clutch pedal position switch.
A8	CHECK WIRES FROM SWITCHES TO SPEED CONTROL MODULE		
	• Locate speed control module. • Measure resistance of the BL/O wire between the brake on/off (BOO) and clutch pedal position switches and the speed control module. • **Is resistance less than 5 ohms?**	Yes ▶ No ▶	GO to **A9.** SERVICE BL/O wire.
A9	CHECK POWER SUPPLY TO BRAKE ON/OFF (BOO) SWITCH		
	• Locate brake on/off (BOO) switch. • Measure voltage on the GN/Y wire at the brake on/off (BOO) switch connector. • **Is voltage greater than 10 volts?**	Yes ▶ No ▶	GO to **A10.** SERVICE GN/Y wire.
A10	CHECK BRAKE ON/OFF (BOO) SWITCH		
	• Depress brake pedal. • Measure voltage on the W/GN wire at brake on/off (BOO) switch connector. • **Is voltage greater than 10 volts?**	Yes ▶ No ▶	GO to **A11.** REPLACE brake on/off (BOO) switch.
A11	CHECK WIRE TO SPEED CONTROL MODULE		
	• Key OFF. • Locate speed control module. • Measure resistance of the W/GN wire between the brake on/off (BOO) switch and the speed control module. • **Is resistance less than 5 ohms?**	Yes ▶ No ▶	GO to **A12.** SERVICE W/GN wire.
A12	CHECK POWER SUPPLY TO HORN RELAY		
	• Locate horn relay. • Measure voltage on the GN/Y wire at the horn relay. • **Is voltage greater than 10 volts?**	Yes ▶ No ▶	GO to **A13.** SERVICE GN/Y wire.
A13	CHECK CONTINUITY THROUGH HORN RELAY		
	• Measure voltage on the GN/BK wire at the horn relay connector. • **Is voltage greater than 10 volts?**	Yes ▶ No ▶	GO to **A14.** REPLACE horn relay.
A14	CHECK WIRE BETWEEN HORN RELAY AND SPEED CONTROL/HORN SWITCH		
	• Locate and disconnect speed control/horn switch connector. • Measure voltage on the GN/BK wire at the speed control/horn switch connector. • **Is voltage greater than 10 volts?**	Yes ▶ No ▶	GO to **A15.** SERVICE GN/BK wire.

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST A—SPEED CONTROL SYSTEM (Continued)

TEST STEP		RESULT ▶	ACTION TO TAKE
A15	CHECK SPEED CONTROL/HORN SWITCH GROUND		
	• Key OFF. • Measure resistance between the BK wire at the speed control/horn switch and ground. • **Is resistance less than 5 ohms?**	Yes ▶ No ▶	GO to **A16**. SERVICE BK wire.
A16	CHECK SPEED CONTROL/HORN SWITCH		
	• Disconnect speed control/horn switch. • Connect positive lead of the ohmmeter to the BL/W wire terminal of the speed control/horn switch and the negative lead to the BK wire terminal at the speed control/horn switch. • Measure resistances between the BL/W wire terminal and the BK wire terminal while holding the speed control/horn switch in the following positions:	Yes ▶ No ▶	GO to **A17**. REPLACE speed control/horn switch.

Switch Position	Resistance
OFF	Less than 5 ohms
ON	Greater than 10,000 ohms
SET/ACCEL	Approximately 680 ohms
RESUME	Approximately 2,200 ohms
COAST	Approximately 120 ohms

	• **Are resistances correct?**		
A17	CHECK WIRE BETWEEN SPEED CONTROL/HORN SWITCH AND SPEED CONTROL MODULE		
	• Key OFF. • Locate speed control module. • Measure resistance of the BL/W wire between the speed control/horn switch and the speed control module. • **Is resistance less than 5 ohms?**	Yes ▶ No ▶	GO to **A18**. SERVICE BL/W wire.
A18	CHECK SPEED CONTROL MODULE GROUND		
	• Measure resistance between the BK wires at the speed control module and ground. • **Are resistances less than 5 ohms?**	Yes ▶ No ▶	GO to **A19**. SERVICE BK wire(s).
A19	CHECK WIRE BETWEEN SPEED CONTROL MODULE AND VEHICLE SPEED SENSOR (VSS)		
	• Locate vehicle speed sensor (VSS) (instrument cluster connector). • Measure resistance of the GN/R wire between the speed control module and the vehicle speed sensor (VSS) (instrument cluster connector). • **Is resistance less than 5 ohms?**	Yes ▶ No ▶	GO to **A20**. SERVICE GN/R wire.
A20	CHECK VEHICLE SPEED SENSOR (VSS) GROUND		
	• Measure resistance between the BK wire at the vehicle speed sensor (VSS) (instrument cluster connector) and ground. • **Is resistance less than 5 ohms?**	Yes ▶ No ▶	GO to **A21**. SERVICE BK wire.
A21	CHECK VEHICLE SPEED SENSOR (VSS)		
	• Disconnect speedometer cable at the transaxle. • Disconnect speed control module. • Check for continuity between the BK and GN/R wires at the vehicle speed sensor (VSS) (instrument cluster connector. • **Does continuity exist four times per one speedometer cable rotation?**	Yes ▶ No ▶	GO to **A22**. REPLACE vehicle speed sensor (VSS).

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST A—SPEED CONTROL SYSTEM (Continued)

TEST STEP		RESULT ▶	ACTION TO TAKE
A22	CHECK WIRES TO SPEED CONTROL ACTUATOR		
	• Locate speed control actuator connector. • Measure resistance of the GN/W, GN, BL/BK and GN/BK wires between the speed control module and the speed control actuator. • **Are resistances less than 5 ohms?**	Yes ▶ No ▶	GO to **A23**. SERVICE wires in question.
A23	CHECK SPEED CONTROL ACTUATOR		
	• Disconnect speed control actuator connector. • Apply 12 volts and ground to the following terminals at the speed control actuator. • Check to see if the speed control actuator responds as indicated. • **Are the control cable operations verified?**	Yes ▶ No ▶	GO to **A24**. REPLACE speed control actuator.

GN/W	GN	GN/BK	BL/BK	Control Cable Operation (Actuator Response)
GND	GND	+12 volts	+12 volts	Pull cable
GND	N/C	N/C	+12 volts	Lock cable
+12 volts	+12 volts	GND	GND	Extend cable
N/C	N/C	N/C	N/C	Release cable

+12 volts—Apply 12 volts

GND—Apply Ground

N/C—No connection

NOTE: Ground and voltage must be applied to all four terminals at once as indicated for the actuator to respond correctly.

TEST STEP		RESULT ▶	ACTION TO TAKE
A24	CHECK SPEED CONTROL MODULE		
	• Start engine. • Drive safely at approximately 40 mph. • Operate speed control system. • **Does system operate correctly?** NOTE: Set speed control switch ON. The speed control module takes several seconds performing diagnostics before accepting a "set" command.	Yes ▶ No ▶	RETURN to condition chart. REPLACE speed control module.

REMOVAL AND INSTALLATION

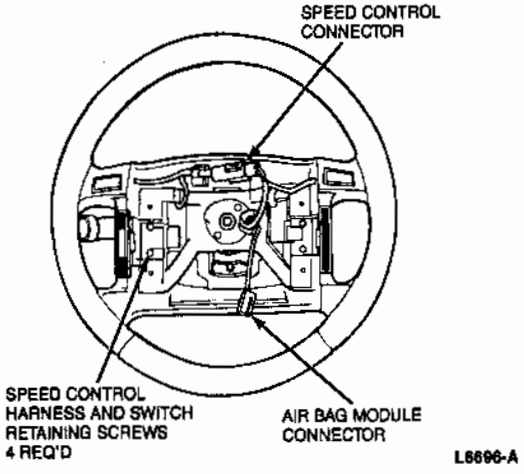
Control Switches

Removal

1. Disconnect negative battery terminal and air bag back-up power supply. Refer to Section 01-20B.
2. Remove air bag module.
3. Disconnect speed control harness connector.
4. Using a small flat blade screwdriver, pry out horn switches and disconnect horn wires.
5. Remove speed control switches retaining screws.

REMOVAL AND INSTALLATION (Continued)

6. Remove speed control switches and harness assembly.



Installation

1. Position switches and harness assembly in steering wheel.
2. Route horn switch wires to horn switches.
3. Connect horn switches and install.
4. Install speed control switches and wiring retainers.
5. Connect speed control electrical connector. Install retaining screws.
6. Install air bag module. Refer to Section 01-20B.
7. Connect backup power supply and negative battery terminal.

Stoplamp Switch

Removal and Installation

Refer to Section 17-01 for removal and installation procedures.

Clutch Pedal Position (CPP) Switch

Removal and Installation

Refer to Section 08-02 for removal and installation procedure.

Park/Neutral Position (PNP) Switch

Removal and Installation

Refer to Section 07-01 for removal and installation procedures.

Control Module

NOTE: The control module is mounted under the front of the floor console. The ash receptacle can be removed to gain access to the module for testing.

Removal

1. Disconnect negative battery cable.
2. Remove front console side covers and front console. Refer to Section 01-12.
3. Remove screws retaining control unit.
4. Disconnect electrical connector and remove control unit.

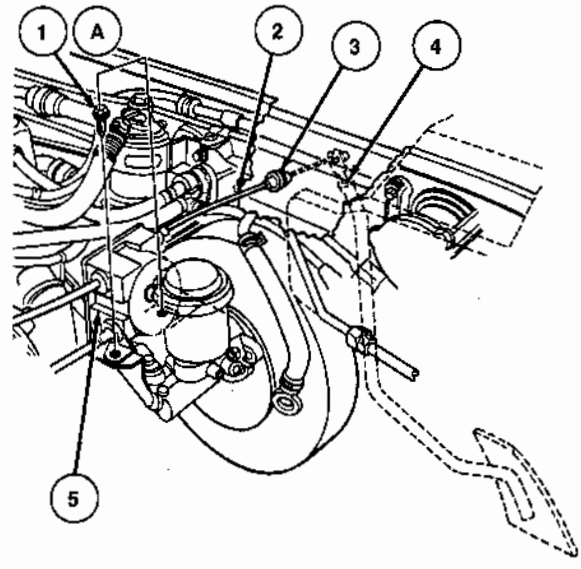
Installation

1. Connect electrical connector and place control unit in position.
2. Install screws retaining control unit.
3. Install front console and side covers.
4. Connect negative battery cable.

Cable/Actuator Assembly

Removal

1. Remove two bolts from cable actuator.
2. Release cable from accelerator pedal and pull cable into engine compartment.



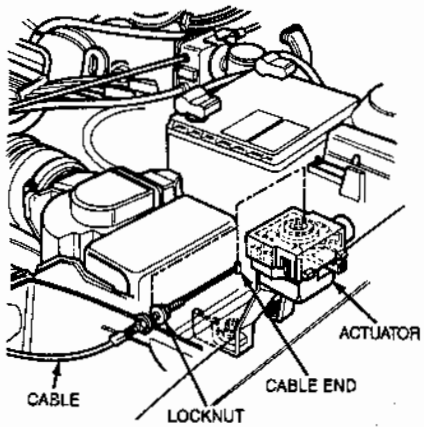
Item	Part Number	Description
1A	—	Bolt (2 Req'd)
2	—	Cable (part of 9A826)
3	—	Grommet (part of 9A826)
4	—	Accelerator Pedal
5	9A826	Cable/Actuator Assy

(Continued)

REMOVAL AND INSTALLATION (Continued)

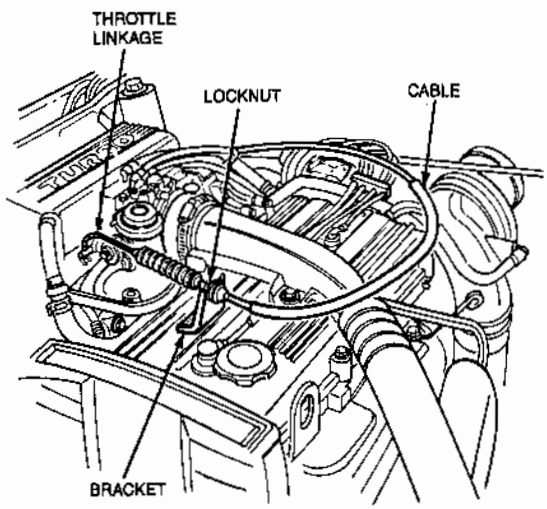
Item	Part Number	Description
A		Tighten to 10-15 N·m (8-11 Lb-Ft)

3. Loosen locknut and remove cable from actuator.



L6736-A

4. Loosen locknut and remove cable from bracket and throttle linkage.
5. Remove cable / actuator assembly.



L6737-A

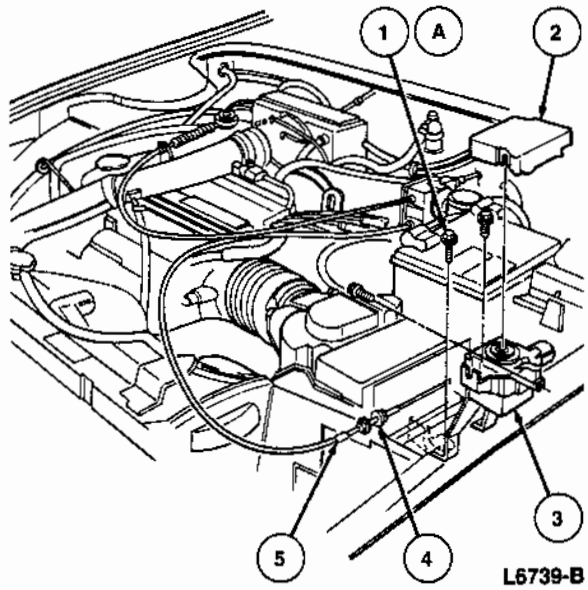
Installation

1. Install cable into throttle linkage.
2. Install cable into bracket on valve cover. Tighten locknut.
3. Install cable into actuator. Do not tighten locknut at this time. Install boot.
4. Route cable through dash and install grommet. Connect cable to accelerator pedal.
5. Secure cable / actuator assembly with two bolts. Tighten to 10-15 N·m (8-11 lb-ft).
6. Adjust cable at actuator as outlined.

Actuator

Removal

1. Remove actuator cover and disconnect wiring.
2. Loosen locknut and remove cable from actuator.
3. Remove three bolts and actuator.



L6739-B

Item	Description
1A	Bolt
2	Cover
3	Actuator
4	Locknut
5	Cable
A	Tighten to 9-13 N·m (7-10 Lb-Ft)

Installation

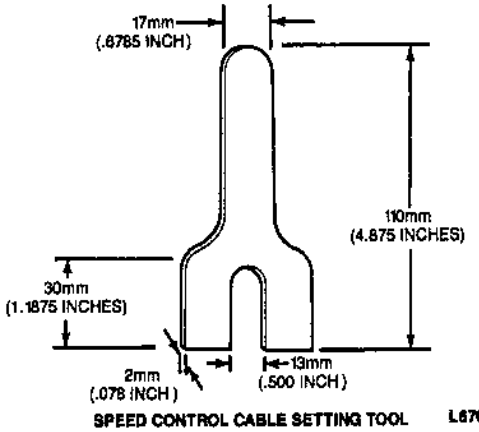
1. Install actuator with three bolts. Tighten bolts to 9-13 N·m (7-10 lb-ft).
2. Connect cable to actuator.
3. Adjust cable as outlined.
4. Install cover and connect wiring.
5. Check speed control for proper operation.

ADJUSTMENTS

Actuator Cable

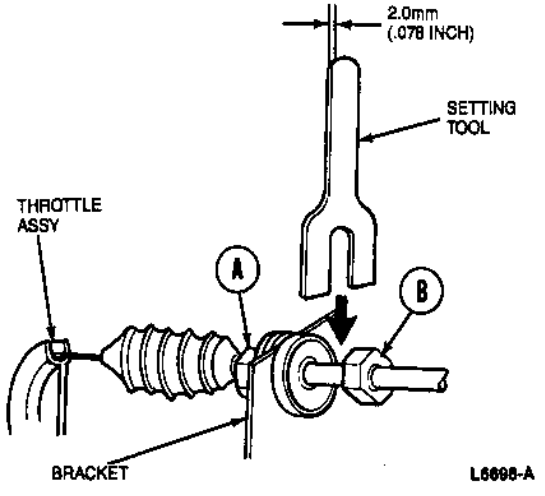
Cable at Throttle Body

NOTE: A setting tool must be fabricated as shown to properly adjust speed control cables.



SPEED CONTROL CABLE SETTING TOOL L6700-A

1. Disconnect cable from cruise control actuator.
2. Slightly loosen cable retaining nuts at bracket on cylinder head cover.
3. Insert setting tool between nut "B" and bracket, as shown.



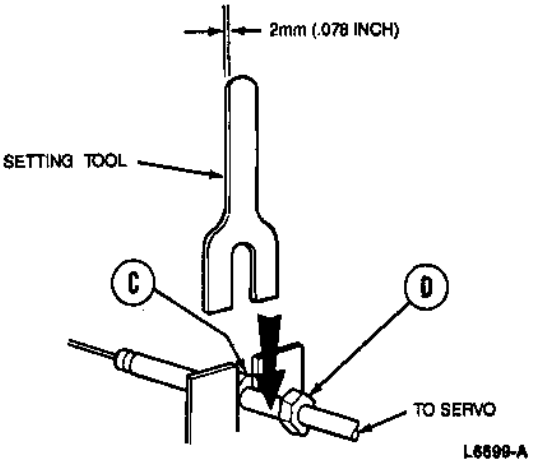
L6698-A

4. Tighten both nuts to eliminate all cable slack.
5. Loosen nut "A" only enough to remove tool. Do not adjust nut "B".
6. Tighten nut "A" without moving nut "B".

Cable at Actuator

NOTE: To be performed after throttle body end adjustment.

1. Slightly loosen cable retaining nuts at bracket.
2. Insert setting tool between bracket and nut "D" as shown.



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3. Tighten both nuts to eliminate all slack at throttle body end of cable.
4. Loosen nut "C" only enough to remove setting tool. Do not adjust nut "D".
5. Tighten nut "C" without moving nut "D".

Clutch Pedal Height

Measure the distance from the center of the clutch pedal to lower dash panel (front area of footwell). Pedal height must be 214.5-219.5mm (8.44-8.64 inches). Adjust if necessary as follows:

1. Loosen locknut and turn clutch switch until desired pedal height is obtained.
2. Tighten locknut when clutch pedal height is achieved.

Brake Pedal Height

The stoplamp switch is mounted at the top of the brake pedal. Refer to Section 17-01 for adjustment procedures.

SPECIFICATIONS

TORQUE SPECIFICATIONS

Description	N-m	Lb-Ft
Cable / Actuator Retaining Bolt	10-15	8-11
Actuator Retaining Bolt	9-13	7-10