

# SEARS SPEED CONTROL

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With Lever Type  
Engagement Switch

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With Clamp-On Type  
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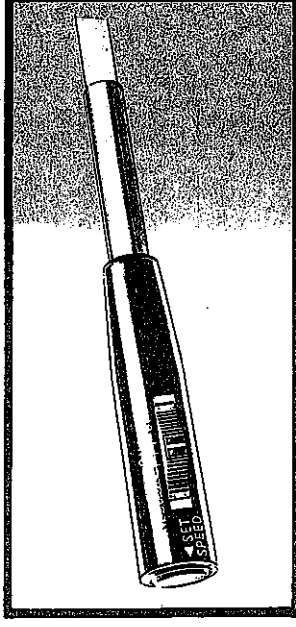
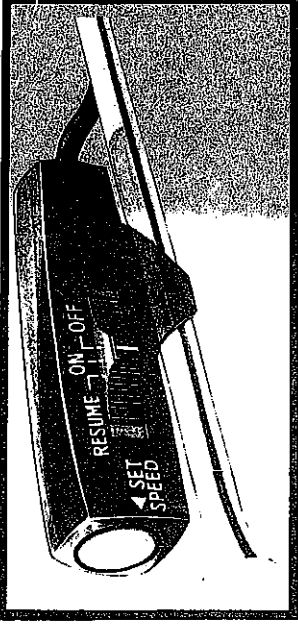
**318.20543**

With Lever Type  
Engagement Switch

**318.20545**

With Clamp-on Type  
Engagement Switch

**CAUTION:**  
Read Rules for  
Safe Operation  
and Instructions  
Carefully



# SEARS SPEED CONTROL

## Installation Operation Repair Parts

Sears, Roebuck and Co., Sears Tower, Chicago, Ill. 60684

Sears, Roebuck and Co., Sears Tower, Chicago, Ill. 60684

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## A SUGGESTION

If, after reviewing these instructions, you feel the operations required exceed your facilities, you may want to consider having your Speed Control installed by someone who has more experience with electro-mechanical systems.

**Caution:** If a two-way radio is in the vehicle or is later installed, the speed control regulator should be located as far from the radio transceiver as practical (at least 3 inches) and the speed control wiring should be routed as far from the radio wires and coaxial cable as practical. The radio should be wired directly to the battery and the standing wave ratio of the antenna should be as low as possible.

Regular periodic service is not required.

**CAUTION:** Do not use your Speed Control on slippery roads, nor in heavy traffic.

## LIMITED ONE YEAR WARRANTY ON SPEED CONTROL

If this speed control fails due to a defect in material or workmanship within one year from the date of purchase, SIMPLY RETURN THE SPEED CONTROL OR DEFECTIVE PART TO THE NEAREST SEARS STORE IN THE UNITED STATES, and Sears will furnish a replacement speed control or part, free of charge, or refund the purchase price.

If the returned speed control or part was installed by Sears, Sears will install the replacement free of charge. If the returned speed control or part was not installed by Sears, installation of its replacement is not included under this warranty. You pay for labor.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

**SEARS, ROEBUCK AND CO.**  
Sears Tower BSC 41-3 Chicago, IL 60694

# Installation Instructions

pedal is depressed, the switch cuts the electrical power to the unit and also, as a safety measure, the valve vents the servo.

**1. Tools required**  
The following is a list of tools that will be required to install this unit properly on your vehicle:

- (a) A socket set or a set of hand wrenches
- (b) Two blade type screwdrivers—1 very small, 1 medium
- (c) 1/8" hex key wrench
- (d) Pliers
- (e) Hammer
- (f) Center punch
- (g) Electric drill
- (h) Drill bits—sizes 5/32", 3/16" and 1/4"
- (i) Jack
- (j) Two jack stands
- (k) 12-volt test light
- (l) Rat tail file
- (m) Bench vise

**Note:** All of these items with exception of the test light are commonly found around most "do-it-yourselfers" homes. If you don't have a test light, we would suggest that you purchase or make one (See Fig. 2). It is relatively inexpensive and is handy when working on any vehicle electrical system.

**2. Parts check**  
Now it's time to familiarize yourself with the parts in the kit. An illustration of all the components of the kit is included in Figure 3.

The new Electronic Speed Control is the finest vehicle speed regulating device on the market today. It is simple to install, requires no special tools, and will provide you with many miles of relaxed, effortless driving.

Figure 1 is a schematic of a typical installation showing the relative location of the unit's five major components—the servo (1, Fig. 1), mounted in the engine compartment; the road speed pick-up (2, Fig. 1), mounted under the car near the drive shaft; the electronic regulator (3, Fig. 1), and the disengagement switch (4, Fig. 1), mounted under the dash; and the engagement switch (5, Fig. 1), attached to the turn signal lever on the steering column.

When the vehicle speed is approximately 30 mph or above, and the engagement switch is activated, the road speed pick-up coil sends a signal to the regulator which electronically senses any difference between actual vehicle speed and the desired set speed. The regulator then signals the servo unit to either open or close the throttle to bring the vehicle to the desired set speed and hold it there.

The disengagement switch on the brake pedal is a combination electrical disconnect and vacuum vent valve. When the brake

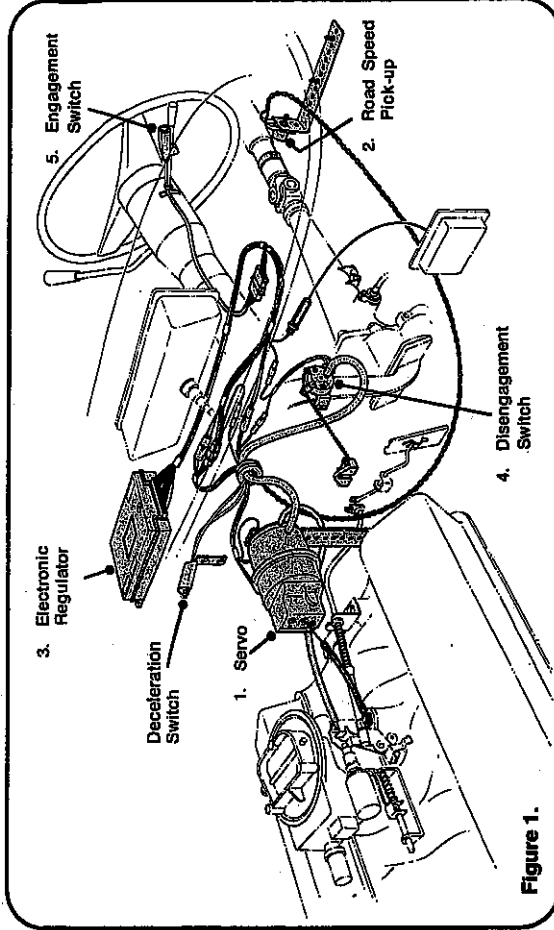


Figure 1.

## Appendix B — Trouble Shooting Guide—(con't.)

| CONDITION   | POSSIBLE CAUSE                                  | REMEDY   |
|---|---|--|
| Erratic operation of Speed Control (cont.)                                      | Ported vacuum (above carburetor throttle plate) | Engine vacuum source to be at a point that has continuous vacuum |
|   | Faulty servo                                    | Replace servo  |
|   | Faulty regulator                                | Replace regulator  |
| Vehicle continues to accelerate after depressing & releasing "Set Speed" button | Faulty servo                                    | Replace servo  |
|   | Faulty regulator                                | Replace regulator  |
| System engages, but loses speed & then slowly returns to set speed selected     | Vacuum leak at disengagement switch             | Adjust disengagement switch. See "Disengagement Switch"          |
| After system has been working & used, erratic operation of Speed Control occurs | Missing drive shaft magnet(s)                   | Replace missing magnet(s)  |
|   | Pick up coil bracket bent, causing improper gap | Set gap to 1/4 inch to 1 1/4 inches                              |

## WIRING SCHEMATIC

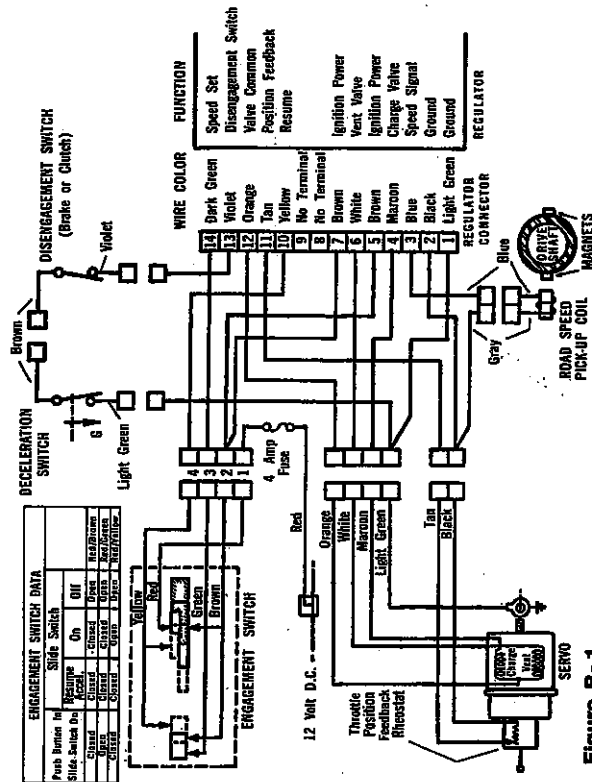


Figure B-1

If any wires are crossed at Regulator connector, replace harness; and if system has been electrically energized while wires are crossed, replace regulator also.

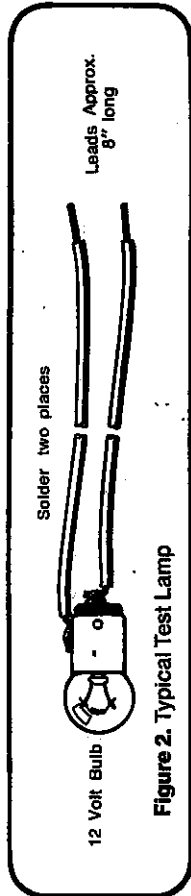


Figure 2. Typical Test Lamp

## Parts List

- |     |          |   |     |          |  |
|-----|----------|---|-----|----------|--|
| 1.  | 250-3000 | Electronic Regulator Assembly                             | 23. | 250-3015 | Servo  |
| 2.  | 250-3002 | Engagement Switch (Includes Small Clamp & Setscrew)       | 24. | *        | Nut & Ext. Tooth Washer Assembly, 1/4 - 20 Hex.              |
| 3.  | 250-3001 | Clamp - Small, Lever (Includes 6-32 x 5/16 Setscrew)      | 25. | 250-3014 | Bracket - Servo Mounting                                     |
| 4.  | 250-3003 | Clamp - Large Lever                                       | 26. | *        | Bolts, 3/8 - 16 x 3/4 Hex Hd. & 7/16 - 14 x 3/4 Hex. Hd.     |
| 5.  | *        | Tie Strap   | 27. | *        | Ext. Tooth Lock Washers 3/8" (2 Required) 7/16" (2 Required) |
| 6.  | 250-3004 | Wiring Harness  | 28. | *        | Connector - Bead Chain                                       |
| 7.  | *        | Self-Stripping Wire Connector (Blue)                      | 29. | *        | Cover - Bead Chain, 18" Long                                 |
| 8.  | 250-3005 | Disengagement Switch (Brake)                              | 30. | *        | Screw, No. 10-32 x 1/2 Hex. Head Machine                     |
| 9.  | *        | Cotter Pins, 1/16 x 5/8 (4 Required)                      | 31. | *        | Clamps - Tube Type Sizes 3/16", 1/4", 5/16" & 1/2"           |
| 10. | *        | Bead Chain (3/16 Bead) 32" Long                           | 32. | *        | Nut, No. 10-32 Hex.  |
| 11. | *        | Screw, 1/4 - 14 x 3/4 Hex Washer Hd. Tapping (7 Required) | 33. | *        | Connector - Bead Chain (Ford Type)                           |
| 12. | 250-3010 | Anchor - Bead Chain                                       | 34. | *        | Sleeve - Hex Linkage (Chrysler Type)                         |
| 13. | 250-3007 | Bracket (Clutch)  | 35. | 250-3016 | Hose - Vacuum 5/32" x 48" Long                               |
| 14. | 250-3006 | Clamp (Clutch)  | 36. | *        | Reducer - Vacuum Hose 1/4" to 3/16"                          |
| 15. | *        | Coupling - Bead Chain (2 Required)                        | 37. | *        | Hose - Vacuum 7/32" x 1 3/8" Long                            |
| 16. | *        | Screw, 8-32 x 3/4 Hex. Hd. Slotted Machine                | 38. | *        | Tees - Vacuum Hose Sizes 1/4", 5/16" & 3/8"                  |
| 17. | 250-3011 | Coil - Road Speed Pick-up                                 | 39. | 250-3009 | Deceleration Switch  |
| 18. | *        | Bolt, 1/4 - 20 x 1 1/2 Hex. Hd.                           | 40. | *        | Screw, 10 - 16 x 1/2 Washer Hd. Tapping (2 Required)         |
| 19. | *        | Nut, 1/4 - 20 Hex Stamped                                 | 41. | *        | Grommet  |
| 20. | 250-3013 | Bracket - Road Speed Pick-up Coil Mounting                | 42. | 250-3008 | Hose - Vacuum 9/32" x 60" Long                               |
| 21. | 250-3012 | Magnets (2 Required) - Includes Glue & Tape               | 43. | No. 1941 | Owner's Manual and Installation Instruction                  |
| 22. | *        | Tie Straps - Beaded (6 Required)                          |     |          |  |

\* Small Parts Package - Part Number 250-3017

## Appendix B - Trouble Shooting Guide-(cont.)

| CONDITION   | POSSIBLE CAUSE                                  | REMEDY  |
|---|---|---|
| "Resume" feature inoperative  | Bad ground connection                           | Check light green wire at servo for ground  |
| Does not disengage when brake is applied  | Improper disengagement switch adjustment        | Adjust disengagement switch. Instructions, "Disengagement Switch".  |
| Re-engages when brake is released   | Faulty disengagement switch (electrical)        | Replace disengagement switch  |
|   | Faulty regulator                                | Replace regulator   |
| "Resume" feature does not cancel when ignition switch is turned off   | Wrong power source, power supply is always on   | Select correct power source-red wire of Speed Control wiring harness to 12 volts with ignition key to "On" or "Acc" position; no voltage when ignition key is in "Off" position |
| Carburetor does not return to normal idle   | Improper Speed Control servo linkage adjustment | Adjust Speed Control servo linkage  |
|   | Improper accelerator linkage adjustment         | Adjust accelerator linkage  |
|   | Weak or disconnected throttle return spring     | Replace or connect spring   |
| Pulsating accelerator pedal   | Sensitivity set too high                        | Rotate "Sensitivity Adj." counterclockwise & reset centering. See "Road Test"   |
|   | Centering adjustment improperly set             | Reset "Centering Adj." See "Road Test"  |
| Vehicle speed increased or decreases more than 2 miles per hour when making a setting with "Set Speed" button | No slack in bead chain                          | Recheck slack with throttle in hot idle position  |
| Engine accelerates when started   | Vacuum connections reversed on servo            | Check servo vacuum connections  |
|   | Faulty servo                                    | Replace servo   |
|   | Loose wiring connections                        | Tighten connections   |
| System disengages on level road without applying brake  | Improper deceleration switch mounting           | Mount on VERTICAL surface. Instructions, "Deceleration Switch"  |
|   | Loose vacuum connections                        | Check vacuum connections  |
|   | Servo linkage broken or throttle clamp slipped  | Repair linkage or tighten clamps  |
|   | Disengagement switch adjustment                 | Adjust disengagement switch. Instructions "Disengagement Switch"  |
| Erratic operation of Speed Control  | Road speed pick up gap too large                | Set gap to 3/4 to 1 1/4"  |
|   | One or both drive shaft magnets inverted        | Install both magnets with sheet metal surface to drive shaft or curved surface of plastic coated magnets to drive shaft.  |

## Appendix A: servo mounting and carburetor linkage—cont.

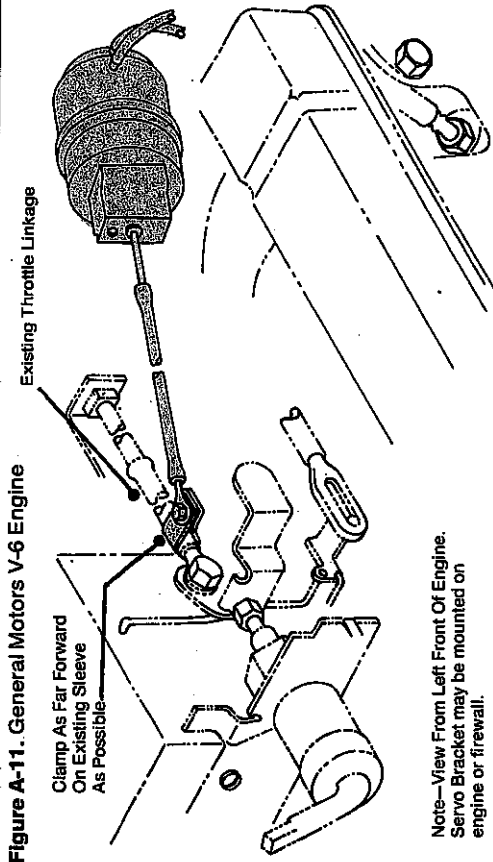


Figure A-11. General Motors V-6 Engine

## Appendix B: — Trouble Shooting Guide

| CONDITION                             | POSSIBLE CAUSE  | REMEDY  |
|---------------------------------------|---|---|
| In line fuse blown                    | Short or ground in Speed Control wiring harness   | Perform electrical checks—<br>Replace fuse with 5 amp max. fuse   |
| Does not engage, "ON-OFF" switch "ON" | No voltage on brown wire at regulator<br><br>Ported vacuum, restricted vacuum, or no vacuum | Repair wiring harness or check for loose connections. Check disengagement switch adjustment. Instructions, "Disengagement Switch."<br><br>Be sure vacuum connection is made to engine at a point that has continuous vacuum (below carburetor throttle plate) |
|                                       | Vacuum leak   | Repair leak   |
|                                       | Electrical  | See "Electrical Checks"   |
|                                       | Faulty electrical or vacuum connections.  | Tighten connections   |
|                                       | Engagement switch inoperative   | Replace engagement switch—see "Electrical Checks"   |
|                                       | Speed pick up coil gap excessive or magnets not installed                                   | Set gap to $\frac{3}{8}$ " to $1\frac{1}{8}$ ". Instructions, "Road Speed Pick Up"  |
|                                       | Faulty regulator  | Replace regulator   |

## PARTS IDENTIFICATION

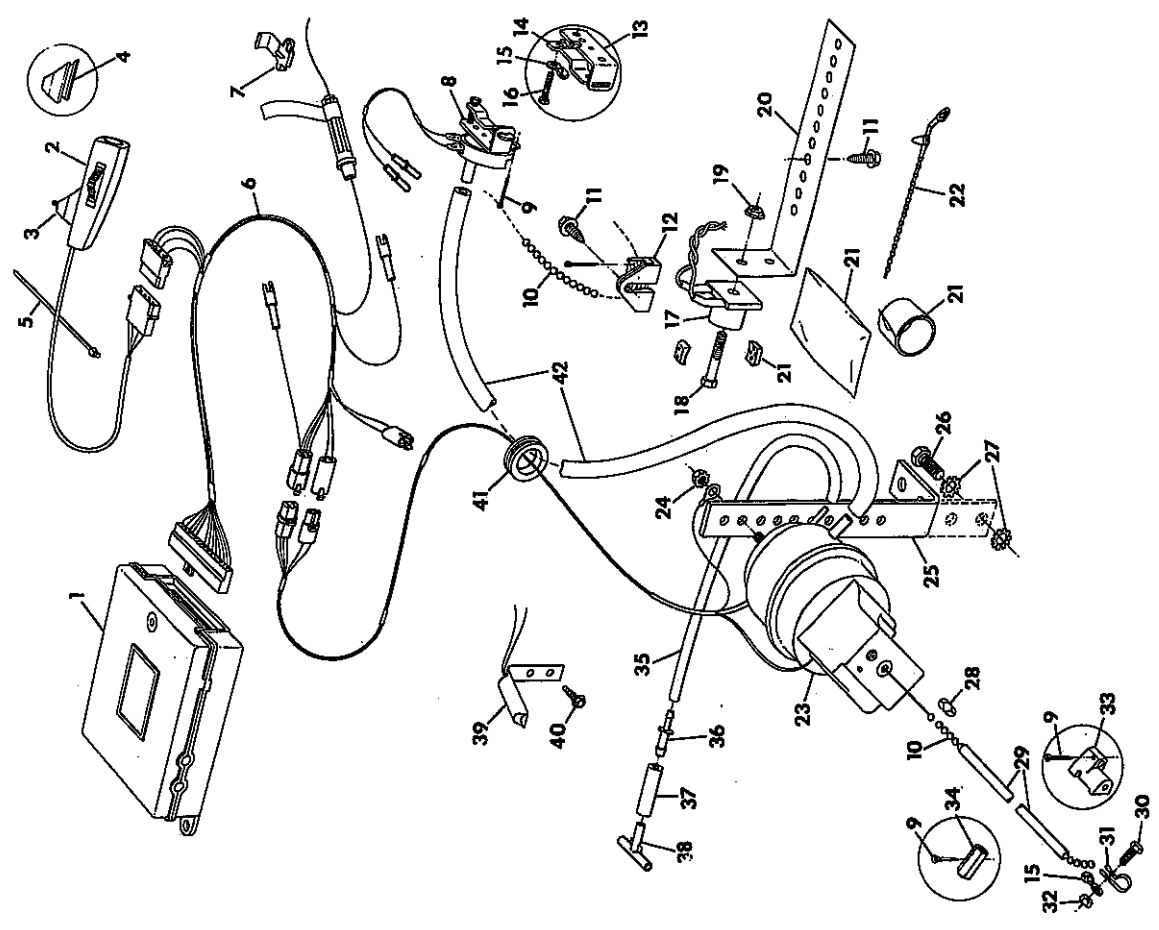


Figure 3

**3. Installation of road speed pick-up coil**

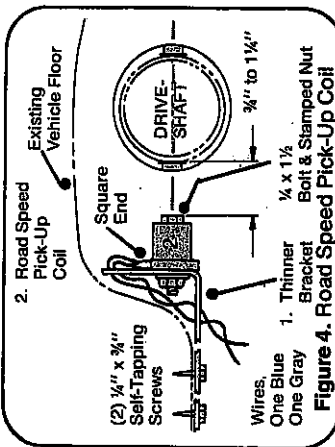
- (a) Block the front wheels.
- (b) Place the transmission in neutral.
- (c) Raise the rear of the vehicle enough that you can work comfortably in the drive shaft area immediately behind the transmission.
- (d) Support the vehicle on jack stands.

**WARNING**

Do not get under any vehicle that is supported only by a jack. Be sure that it is solidly supported on jack stands before working underneath.

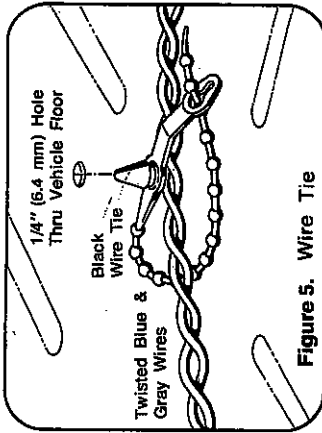
- (e) Assemble the road speed pick-up coil (2, Fig. 4) to the thinner bracket (1, Fig. 4), with square end of pick-up coil against the bracket. Use  $\frac{1}{4}$ "-20 x  $1\frac{1}{2}$ " bolt and stamped nut (Fig. 4).

**Caution**—Tighten stamped nut to 20 to 38 inch. lbs. (23.0 - 43.7 cm/kg). Do not over-tighten the nut for this might damage the pick-up coil.



- (f) Place the bracket against the floor pan so the pick-up is within 12" of the front universal joint and the clearance between it and the drive shaft is  $\frac{3}{8}$ " to  $1\frac{1}{4}$ ".
  - (g) Use the bracket as a template and mark two hole locations. Then drill or punch two  $\frac{3}{16}$ " holes and mount the bracket using two of the  $\frac{1}{4}$ " self-tapping screws provided.
  - (h) Route the blue and the gray twisted wires from the road speed pick-up coil along the floor pan of the vehicle to the area of the left front wheel panel inside the engine compartment. The wires will later be routed to the inside of the vehicle through a hole in the firewall.
- Caution**—Be sure to keep the wires away from the exhaust pipes, transmission linkage, or any other hot or moving parts.

- (i) Support the wires carefully with the black wire ties supplied in the kit by securing them to existing vehicle parts (frame, speedometer cable, existing clamps, etc.) or by drilling  $\frac{1}{4}$ " holes in the floor pan of the vehicle and pressing the ties into them (Fig. 5).



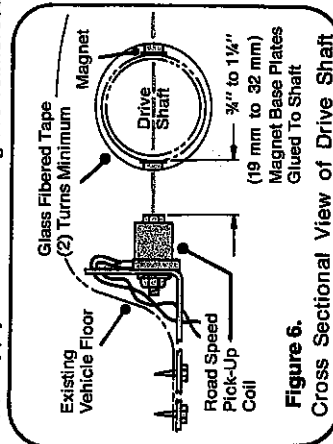
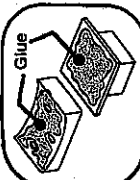
**Figure 5. Wire Tie**

**4. Installation of magnets on drive shaft**

**Caution**—Remove your wrist watch while working with the magnets.

**Note:** The pick-up coil senses the magnetic field about the magnets as the drive shaft rotates.

- (a) Place a small portion of the glue, provided in the kit on to the base of the two magnets let dry for a few minutes while marking a center line.
  - Magnets - Two Styles**
- (b) Mark the centerline of the pick-up coil on the drive shaft by placing a pencil against the shaft and rotating the shaft by hand. (the drive shaft should be cleaned in this area)
- (c) Place magnets on the centerline that you have drawn on the shaft directly opposite each other (Fig. 6).
- (d) Apply all of the fiberglass reinforced

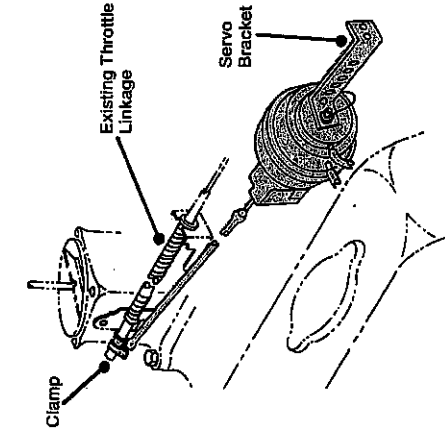


**Figure 6.**

Cross Sectional View of Drive Shaft

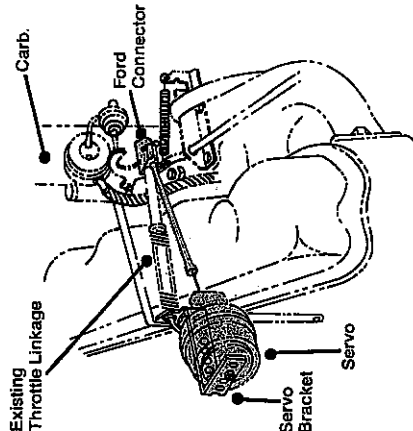
**Appendix A: servo mounting and carburetor linkage—cont.**

**Figure A-7. Ford V-6 Engine, View From Left Rear.**



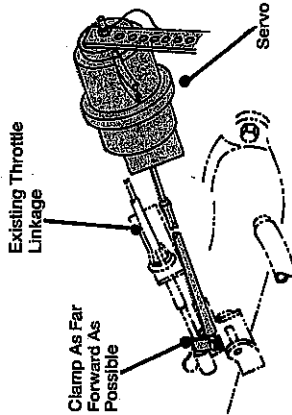
**Note**—Servo Bracket Mounted On Existing Throttle Bracket. Cross Pull Set Up On Throttle Linkage.

**Figure A-8. Ford In-Line 6 Cylinder Engine**



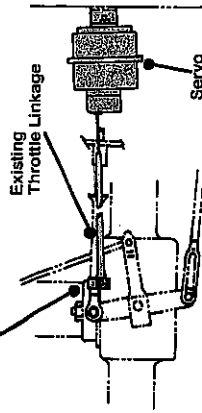
**Note**—View From Rear Of Engine. Servo Bracket Mounted On Existing Throttle Bracket. Cross Pull Set Up On Throttle Linkage.

**Figure A-9. Chevrolet Vega 4 Cylinder Engine**



**Note**—View From Left Side Of Engine. Servo Bracket Mounted On Firewall.

**Figure A-10. Chevrolet In-Line 6 Cylinder Engine.**



**Note**—View From Left Side Of Engine. Servo Bracket Mounted On Firewall.

**Note**—View From Left Rear Of Engine. Servo Bracket Mounted On Firewall.

## Appendix A: Servo mounting and carburetor linkage—cont.

Figure A-4. G.M. or American Motors Installation

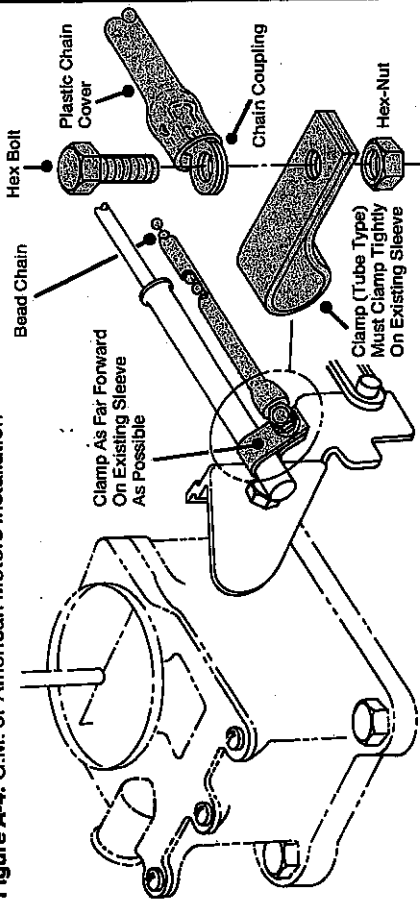


Figure A-5. Ford Products Carburetor Installation

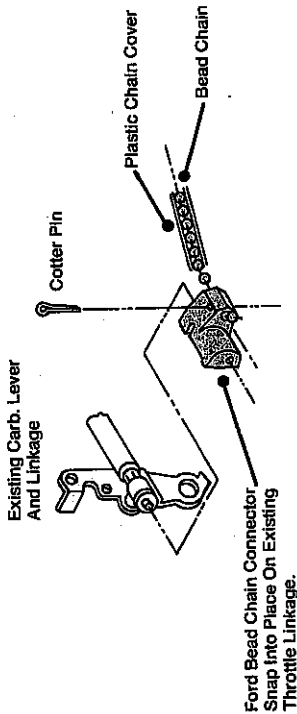
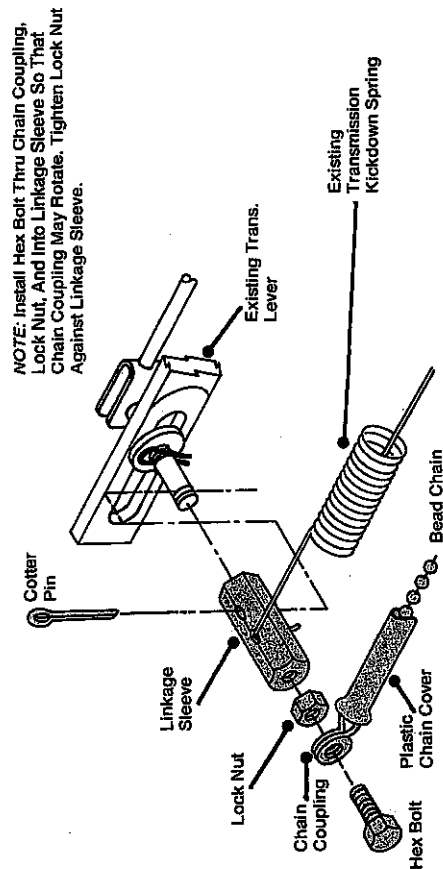


Figure A-6. Chrysler Products V-8 Carburetor Installation



### 4. Installation of magnets on drive shaft. (cont.)

tape (Fig. 6), two wraps minimum, over the magnets (Fig. 6), wrapping it in the direction opposite drive shaft rotation.

**Note:** Rotate drive shaft by hand and watch the direction of rotation of the rear wheels. When wheels are rotating so vehicle would be moving forward, install tape as instructed.

(e) Apply glue remaining in glue package to the screw threads and stamped nut holding pick-up coil (acts as a locking method). Also spread some glue over the joint where the tape wrap ends. This helps secure tape in place.

(f) The vehicle may now be lowered to the ground or floor.

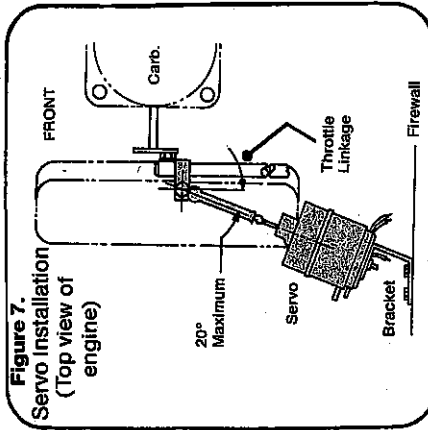
### 5. Servo installation

If a cable adaptor package is purchased with this Speed Control Kit, follow instructions in adaptor package for servo cable installation.

(a) Open the hood and remove the air cleaner.

(b) The servo may be mounted in any one of several locations using the **thicker** bracket supplied in the kit. For instance, it may be mounted to the firewall, the rear of the left cylinder head, or on an intake manifold bolt.

(c) The location of the servo center line should be as nearly in line with the carburetor linkage as possible. It must be within 20 degrees maximum, any direction (Fig. 7).



**Note:** Appendix A illustrates a number of different methods of bending and fitting the

(d) bracket to mount the servo. If the servo is to be mounted on the firewall, use the bracket as a template and mark the hole locations. Then, drill or punch two  $\frac{1}{16}$ " holes and mount the servo bracket using two  $\frac{1}{4}$ " self-tapping screws provided.

**Caution—Be careful, do not drill into wires or a vital part on the opposite side of the firewall, check before drilling.**

(e) If the servo bracket is to be mounted on the rear of the left cylinder head, bend the bracket to fit and install it on the engine with either the  $\frac{3}{8}$ " x  $\frac{1}{2}$ " bolt or the  $\frac{7}{16}$ " x  $\frac{1}{2}$ " bolt provided. If the  $\frac{7}{16}$ " x  $\frac{1}{2}$ " bolt is used it will be necessary to file or drill out the bracket mounting hole. Be sure to install the two correct size external tooth lock washers (1, Fig. 8).

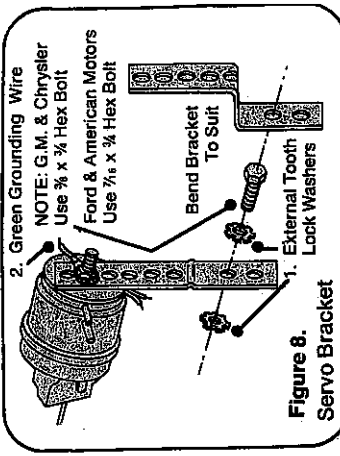


Figure 8. Servo Bracket

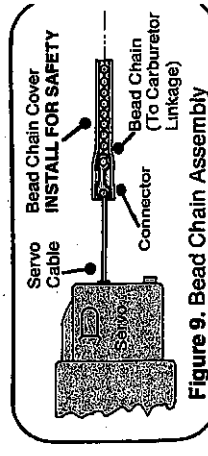


Figure 9. Bead Chain Assembly

(f) Attach one end of bead chain to ball of servo cable with connector provided. Spread connector slightly to aid assembly (Fig. 9).

(g) Insert the servo mounting stud through proper hole in the mounting bracket, stall the green grounding wire on the stud (2, Fig. 8), and secure with the nut and serrated washer assembly provided

(h) Locate servo vacuum connections for ease of connecting vacuum lines later. **Note:** Servo green wire **must** be grounded. If servo bracket is mounted on a plastic or other non-metallic surface it will be necessary to add a jumper wire to vehicle's ground (engine or metal framework).

### 5. Servo installation (cont.)

- (l) Assemble the suitable bead chain coupling to your carburetor linkage. See Appendix A for various hook up methods on different vehicles. Select the one that applies to your vehicle and proceed by attaching the bead chain coupling to your carburetor linkage. Make sure the carburetor linkage is in the "hot" idle position. The idle speed adjusting screw should not be resting on the fast idle cam and the choke plate should be in a vertical position.

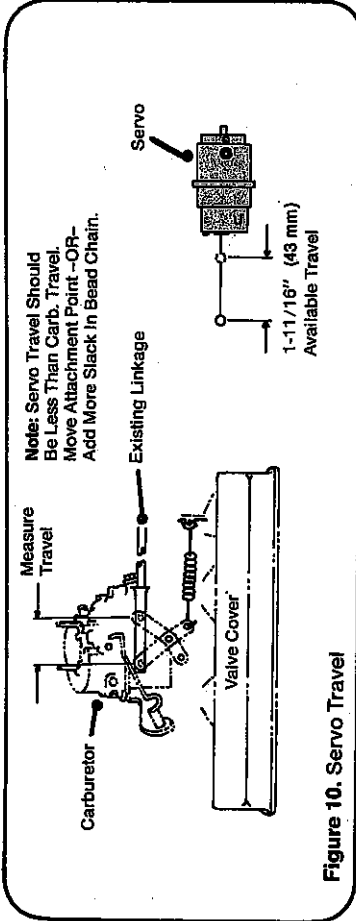


Figure 10. Servo Travel

- (k) The servo's full travel is  $1\frac{1}{16}$ ". Check the full travel (thru kick-down) of your carburetor linkage (Fig. 10). If your carburetor attaching point has more than  $1\frac{1}{16}$ " travel, pull the chain snug and in line with the just installed coupling, slack off one ball and cut the remaining chain off. If your carburetor attaching point has less than  $1\frac{1}{16}$ " travel, pull the chain snug and in line with the just installed coupling, slack off enough so that when the servo has traveled a full  $1\frac{1}{16}$ ", the carburetor will not quite reach its full travel, cut the remaining chain off.

- (l) Cut a length of plastic bead chain cover, sufficient in length to cover the entire bead chain and connectors, but leave the servo cable uncovered (Fig. 9).
- (m) Slide the cover over the chain at the carburetor end and attach bead chain to the carburetor linkage coupling.

**Caution**—It is necessary to install this cover on the bead chain to eliminate the possibility of the chain catching on any parts, thus holding the throttle open.

- (n) Operate the throttle through its full travel and check to see that the chain does not interfere with or hang up on any existing engine parts. Relocate any vacuum lines or wiring that may cause problems.

### 6. Vacuum line installation

- (a) Locate  $\frac{1}{4}$ " or larger intake manifold vacuum source. Do not use ported vacuum, such as distributor or E.G.R. hoses. Do not cut into brake booster vacuum hose.
- (b) Cut selected vacuum hose and insert a correct size tee. All tees have the same size center outlet— $\frac{1}{4}$ ".

## Appendix A: Servo mounting and carburetor linkage

Figure A-1. V-8 and V-6 Engines

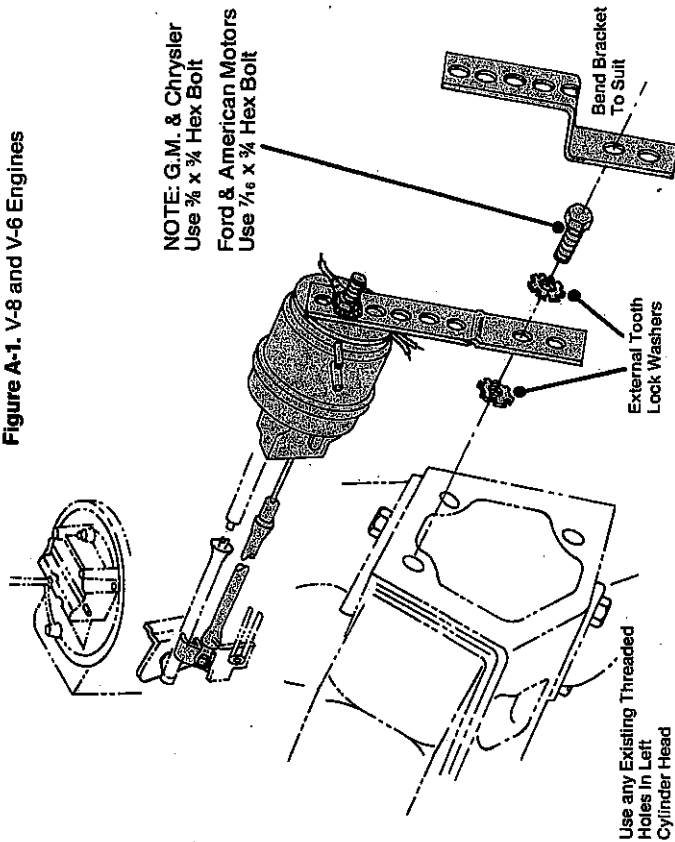


Figure A-2.

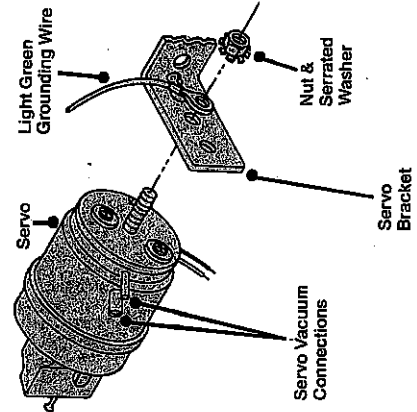
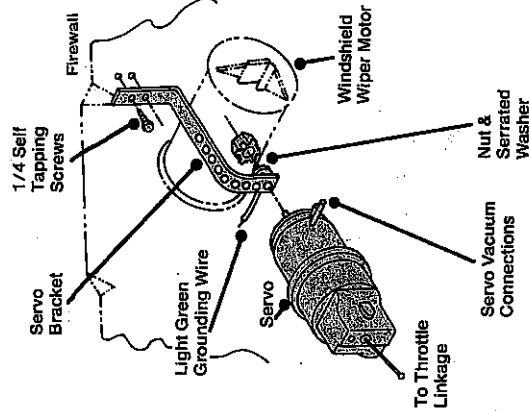


Figure A-3.



**CHECK BEFORE DRILLING**



#### 14. Road test (cont.)

may turn the "SENSITIVITY ADJ" counterclockwise to reduce the sensitivity.

**Note:** Frequent changes in setting (alternating between coast and accelerate) may be caused by the sensitivity being adjusted too high.

The lower setting will provide a smoother throttle action, probably save a little more fuel, and also can result in greater variations in speed while cruising. The owner of a low-powered or heavily loaded vehicle may prefer a higher sensitivity setting. A high-powered or lightly loaded vehicle may benefit from a lower setting.

(2) The sensitivity adjustment influences the centering adjustment, so after making the sensitivity adjustment you should re-adjust the centering.

(3) After the adjustments have been made, use all the features of the system--Set Speed, Retard, Resume, Accelerate--and turn to "OFF". If everything checks satisfactorily, you are done with the road test. If it does not, see the Trouble Shooting Guide--Appendix B for help.

#### 15. Electronic regulator installation

Put regulator under dash, out of way, fasten with screws or wire ties. Tie all other wiring up and out of the way. The installation is now complete.

(h) If you are using an existing hole with a grommet, remove the grommet and insert the servo wiring harness, 9/32 vacuum hose, and blue and gray wires from pick-up coil through the hole in the firewall.

Cut grommet from center to outside and cut out some of the center of the grommet, if necessary to clear hose and wiring. Place the grommet around hose and wiring and insert grommet into the hole in the firewall. If you drill or saw a 1" hole in firewall, feed the servo and pick-up coil wiring and the large vacuum hose through the hole in the firewall into the driver's compartment. Cut the grommet supplied in kit from center to outside, place around hose and wiring, and insert into hole in firewall.

#### 7. Deceleration switch installation

**Note:** This is a safety shut off switch that operates automatically (in addition to the regular disengagement switch) when your brakes are applied.

(a) Attach switch to a vertical surface close to the hole that you are using in the firewall. The switch itself **must** be pointed toward the front of the vehicle (Fig. 11).

(b) Using the bracket as a template, mark and drill or punch two 5/32" holes.

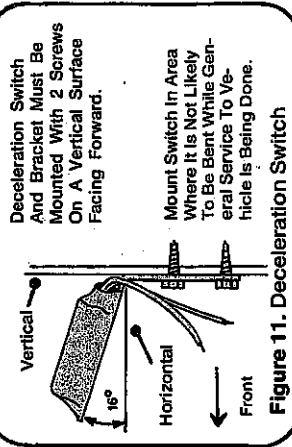


Figure 11. Deceleration Switch

**Caution**--Be careful, do not drill into wires or a vital part on the opposite side of the firewall, check before drilling.

(c) Mount the switch using the two #10 self-tapping screws included, and route the wires through the grommet in the firewall into the passenger compartment.

#### WARNING

As a safety precaution, tie down all of the parts that you have installed and replace the air cleaner, checking for interference between it and the servo bead chain.

#### 8. Engagement switch

(a) Position the engagement switch on the turn signal lever with the set speed button end approximately 3/4" from the end of the turn signal lever and secure it by tightening the clamp set screw (Fig. 12).

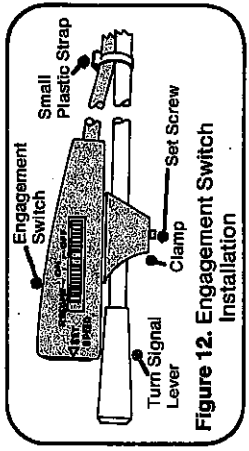


Figure 12. Engagement Switch Installation

**Note:** Some vehicles have larger diameter turn signal levers, so a larger clamp is provided in the kit for them. Just remove the set screw from the smaller one and install it in the larger.

(b) Secure the wire to the lever with the small white plastic strap included in the kit.

(c) Route the wire down the outside of the steering column.

**Caution**--Do not attach wire to any moving parts.

#### 9. Disengagement switch installation

**NOTE:** On some applications the clutch, and/or brake pedal may not return to its normal position after installation of the disengagement switch. If this is undesirable, a spring may be attached to back-side of instrument panel and to brake or clutch pedal lever.

This installation will differ, depending, on whether the vehicle is equipped with an automatic transmission or a standard transmission. If your vehicle is equipped with an automatic transmission, follow step 9-a. If you have a standard transmission, begin with step 9-b, disregarding 9-a.

(a) **Automatic transmission** The disengagement switch is mounted on the brake pedal arm approximately 4" above the top of the pedal to prevent contact with the driver's foot. It can be mounted either on the right side of the pedal arm with the switch lever down, or on the left side of the arm with the switch lever up - depending on which side is most convenient (Fig. 13). Figure 15 shows various clamp positions which can be used to fit various arm thicknesses.

- (1) Remove 8-32 screw and the clamp attached to the switch. Position switch on brake arm (4" min. above pedal) and attach clamp with screw.

## NOTE

Place this SPEED CONTROL owners manual in the glove compartment for future reference if the need arises. If you are **not** the vehicle owner, place the "Instructions To Owner" card on the turn signal lever. If you **are** the owner, review the Operating Instructions carefully and prepare to enjoy many miles of economical, convenient, and non-tiring driving.

### 13. How the system works from the driver's seat.

**Caution**—The use of your SPEED CONTROL is not recommended on icy or wet roads or in congested traffic. Get to know your SPEED CONTROL and what it can do for you!

**Note:** The adjustments on the regulator—sensitivity, centering, and low speed—are set nearly correct at the factory but the vehicle should be road tested and fine adjustments made if necessary.

### 14. Road test

#### WARNING

To insure driving safety, a passenger should accompany the operator to make required adjustments. A small screwdriver is required.

- Low speed switch adjustment
- Move the slide switch to the "RESUME" position and hold it at that position.

- Start the vehicle and accelerate slowly, noting the speed at which the gas pedal pulled away from your foot. This is the low speed switch setting. It should be within the range of 27-33 mph. If it is not, adjust the low speed switch setting—"Low Speed Sw. Adj."—on the regulator.

**Note:** If engagement occurs at a speed lower than 27 mph, the upper control limits of the system will be reduced.

- Looking into the hole, using a small screwdriver, turn it clockwise to increase the low speed switch setting or counterclockwise to decrease it.

- Centering adjustment. This check should be made on a level road.
  - Move the slide switch to the "ON" position.
  - Drive the vehicle at approximately 40 mph and push the "SET SPEED" button and the system should engage, and the set speed should be within  $\pm 2$  mph. If it is not, adjust the "CENTERING ADJ." using a small screwdriver.
  - Looking into the hole, turn it slightly clockwise if the vehicle speed decreased or counterclockwise if the speed increased.

- The sensitivity of the regulator can be adjusted to the owner's preference. The regulator as received, is set in its most sensitive position. Using a small screwdriver, looking into the hole, you

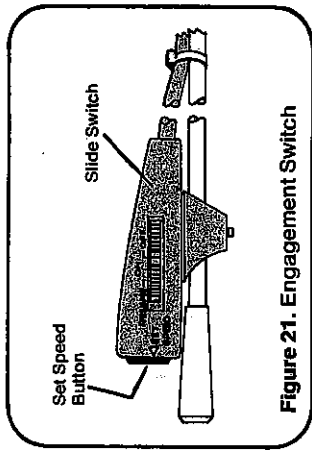


Figure 21. Engagement Switch

- To Use SPEED CONTROL—Move slide switch from "OFF" to "ON".

- To Engage—Drive at a speed of approximately 30 miles per hour or above and push "SET SPEED" (button in the end of switch) and release. Remove foot from gas pedal. Speed will be maintained automatically.

- To Dis-Engage—Apply brake, OR—move slide switch "OFF".

- Coast—Hold "SET SPEED" button in. Vehicle will slow down. Release to set lower speed (must be approximately 30 miles per hour or above).

- The slide switch operates in two additional ways:

- To "ACCELER" (increase speed)—Move slide switch to "RESUME" and hold. Speed will increase. Upon release, vehicle will slow, SPEED CONTROL will take over at your previous set speed.

**Note:** If a higher set speed is desired, push the "SET SPEED" button as slide switch is released.

- To "RESUME" Speed—After a brake application with SPEED CONTROL engaged, you may return to your previous set speed by moving slide switch to "RESUME" momentarily and releasing (must be approximately 30 miles per hour or above).

**Note:** Resume may result in fast acceleration. Fast acceleration may be avoided by using gas pedal.

- Speed may be increased at any time with normal pressure on the gas pedal. When pressure is removed, you will return to your previous set speed.

- Your SPEED CONTROL is disengaged by lightly depressing the brake or clutch pedal or by sliding the switch to "OFF" position.

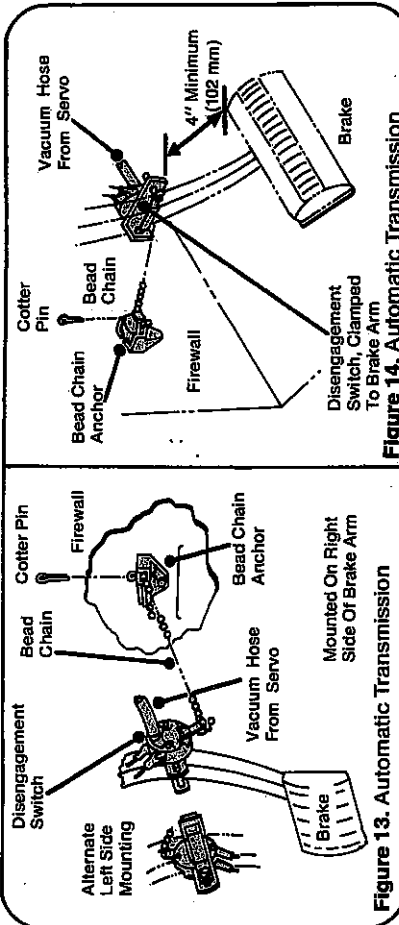


Figure 13. Automatic Transmission

Figure 14. Automatic Transmission

free movement and attach it to the disengagement switch.

- Standard transmission
  - The disengagement switch is best mounted on the brake pedal arm, or if necessary, on the clutch arm, using the clamp and No. 8-32 screw attached to the switch. It can be mounted on the right with the switch lever down, or on the left with the switch lever up. Also the clamp can be installed in several different directions to fit various arm thicknesses. (Fig. 15).
  - Position switch a minimum of four inches above the top of the pedal to prevent contact with the driver's foot.
  - Fasten the bead chain to the pedal directly opposite the disengagement switch mounted on the other pedal lever, using the clamp, bracket bead chain coupling, and a #8-32 screw provided (Figs. 16 & 17).

#### 9. Disengagement switch (cont.)

- Find location on firewall for bead chain anchor which will clear brake pedal when it is depressed and is approximately level with the switch lever (Figs. 13 & 14).
- Use the anchor as a template, mark hole location, and drill or punch a  $\frac{1}{16}$ " hole.

**Caution**—Be careful, do not drill into wires or a vital part on the opposite side of the firewall, check before drilling.

- Attach with a  $\frac{1}{4}$ " self-tapping screw.
- Attach one end of the bead chain to the actuating lever on the disengagement switch by slipping a cotter pin over the link between the last and next to last beads on the chain (Figs. 13 & 15).
- Slip the cotter pin through one of the holes in the actuating lever and spread the cotter pin to lock it in place.
- Feed the other end of the bead chain through the bead chain anchor on the firewall.
- Pull the chain until the disengagement switch actuating lever is fully forward, hold the chain tight, insert a cotter pin into the one hole in the anchor which best lines up with the space between the beads. Let four or five balls extend from anchor, cut off remaining chain, and bend cotter pin.
- The bead chain should not prevent the brake pedal from returning to its normal free position. If it does not return, lengthen chain and recheck pedal position.
- Cut the  $\frac{3}{2}$ " hose from the servo to length, allowing some slack for

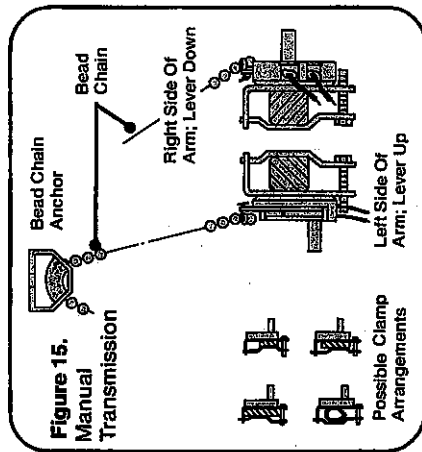


Figure 15. Manual Transmission

### Trouble shooting guide • Engagement Switch

Disconnect switch at flat, 4 wire, harness connector. Attach jumper wire from 12-volt power to red wire of engagement switch.



Figure 20

| CONDITION   | RESULTS   | REMEDY                    |
|---|-----------|---------------------------|
| Slide switch to OFF, ground one test light lead, touch other test lead in turn, to terminal of:                             |           |                           |
| Brown wire  | Light OFF | Light ON, replace switch  |
| Green wire  | Light OFF | Light ON, replace switch  |
| Yellow wire   | Light OFF | Light ON, replace switch  |
| Slide switch to ON, ground one test light lead, touch other test lead in turn, to terminal of:                              |           |                           |
| Brown wire  | Light ON  | Light OFF, replace switch |
| Green wire  | Light ON  | Light OFF, replace switch |
| Yellow wire   | Light OFF | Light ON, replace switch  |
| Slide switch ON, hold "SET SPEED" button in. Ground one test light lead, touch other test lead, in turn, to terminal of:    |           |                           |
| Brown wire  | Light ON  | Light OFF, replace switch |
| Green wire  | Light OFF | Light ON, replace switch  |
| Yellow wire   | Light ON  | Light OFF, replace switch |
| Slide switch ON, hold slide switch to "RESUME". Ground one test light lead, touch other test lead, in turn, to terminal of: |           |                           |
| Brown wire  | Light ON  | Light OFF, replace switch |
| Green wire  | Light ON  | Light OFF, replace switch |
| Yellow wire   | Light ON  | Light OFF, replace switch |

## 12. Getting ready for the road test.

### WARNING

The vehicle should now be road tested to determine whether or not the system is operating correctly. For safety's sake have someone go with you to make the adjustments.

- Set the parking brake and start engine.
- Move the Speed Control slide switch to "ON" position.
- Depress the "SET SPEED" button and hold it for approximately two seconds, then release the button. The system

- should not engage. If it does, (indicated by the engine racing), immediately turn off the ignition switch and refer to the Trouble Shooting Guide (Appendix B).
- To make sure you have vacuum to the system, start the engine and disconnect the vacuum hose at the small fitting on the servo. Engine vacuum must be present at the open end of this hose. By placing your thumb over the end of it, you can verify that a vacuum exists.

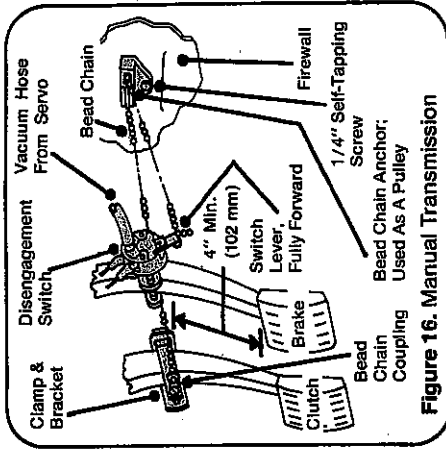


Figure 16. Manual Transmission

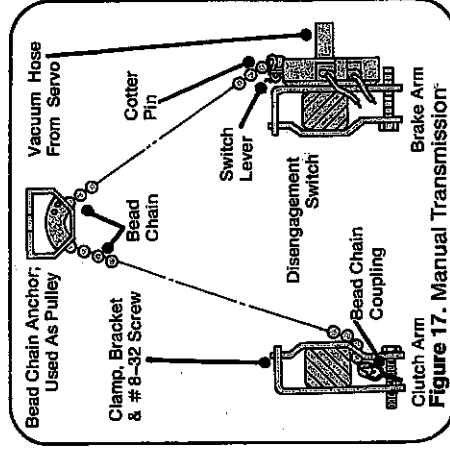


Figure 17. Manual Transmission

- Push the switch lever full forward toward the firewall and hold the bead chain tight and even with the two holes in the lever.
  - Select the link between the beads which best lines up with one of the two holes in the switch lever.
  - Open one of the cotter pins supplied in the kit wide enough to pass over the link between the two beads selected. Close the cotter pin and insert it through the hole selected in the lever. The bead chain should not prevent the brake pedal or clutch pedal from returning to their normal free positions. Spread cotter pin to lock it in place.
  - Cut off three or four balls beyond the cotter pin.
  - Cut the  $\frac{3}{32}$ " hose from the servo to length, allowing some slack for free movement, and attach it to the disengagement switch.
- 10. The Main Wiring Harness**
- Locate a 12-volt power source at the fuse block which is "hot" when the key is on and "cold" when the key is off. Use your 12-volt test light to verify this and mark the location.
  - Open the hood and disconnect the battery ground cable.
  - Attach the red wire from the main wiring harness to the power source you have located, using the blue self-stripping connector.
  - Locate the blue and gray wire connector from the road speed pickup coil and plug it into the blue and gray wire connector of the main harness.
  - Connect the green wire from the deceleration switch to the light green wire of the main harness.
  - Connect the brown wire from the deceleration switch to the brown wire from the disengagement switch.
  - The violet wire from the disengagement switch should be connected to the violet wire from the main harness.
  - Plug the two-pin connector and the four-pin connector from the servo into the two mating connectors of the main harness.
  - Connect the flat four-wire connector from the engagement switch on the turn signal lever to the flat four-wire connector of the main harness.
  - Reconnect the battery ground cable.

- Attach the bead chain anchor to the firewall approximately in the center between the clutch and brake pedal levers and vertically in line with the switch lever on the disengagement switch as nearly as possible.
- Mark, then drill or punch a  $\frac{3}{16}$ " hole and attach the anchor with a  $\frac{1}{4}$ " self-tapping screw.

**Caution—Be careful, do not drill into wires or a vital part on the opposite side of the firewall, check before drilling.**

- Connect one end of the bead chain to the bead chain coupling on the clutch or brake pedal.
- Feed the other end through the bead chain anchor on the firewall.

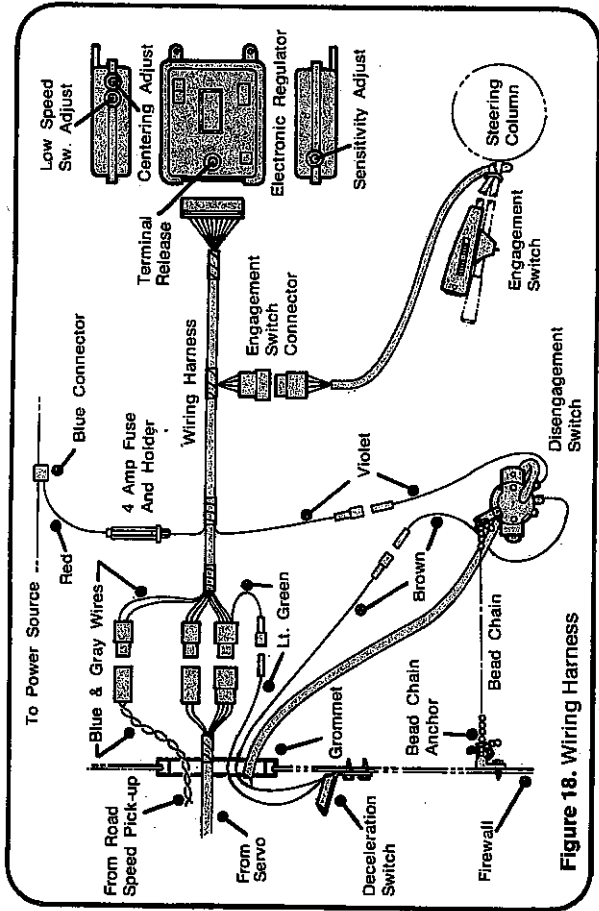


Figure 18. Wiring Harness

**11. Electrical Check Procedure**

(a) The only major component which has not been connected is the regulator. But before we can install it, we must check out the electrical system using the following Electrical Check Procedure.

(b) After you have finished Electrical Check, plug the wiring harness connector into the regulator, and let it hang down for the time being so adjustments can be made if necessary.

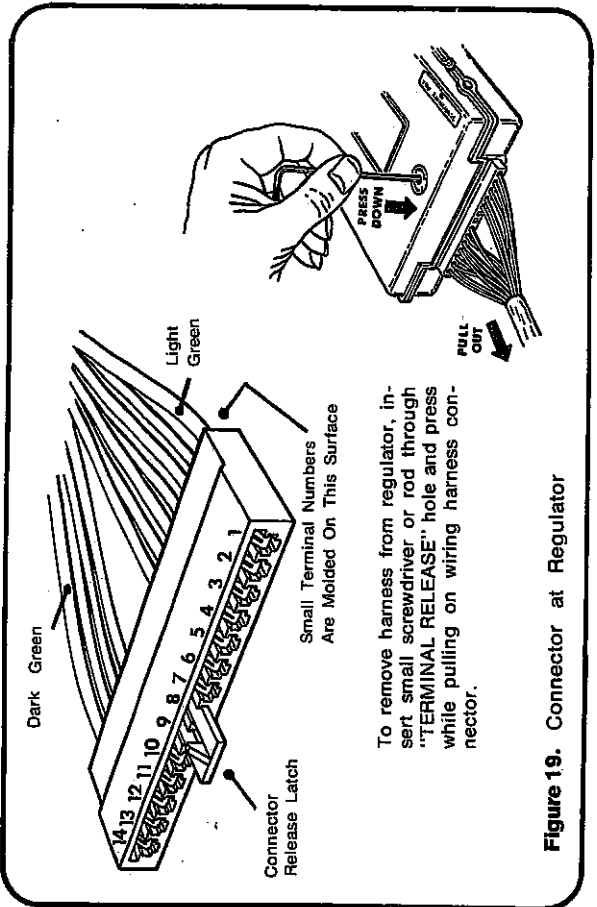


Figure 19. Connector at Regulator

**NOTE:** Before starting electrical check, it would be well to see that the right color wires are attached to the proper terminals on the 14-pin connector, and that colors match up across all other connectors as shown in Figure B-1 at end of Trouble Shooting Guide.

**ELECTRICAL CHECK PROCEDURE**

Use a 12 volt Test Light To Perform These Checks

| CONDITION  | RESULTS  | REMEDY  |
|--|--|---|
| Ignition switch "OFF". Engagement slide switch "ON". Ground one lead of test-light, touch other lead to each terminal of connector individually.   | Light OFF, all terminals<br>Test light ON at terminals 5, 7 and 14.        | None, system O.K.<br>Red wire connected to wrong power source. Us a "switched" power source at fuse block; Test light "ON" when ignition switch is "ON" and light "OFF" when ignition switch is "OFF".    |
| Ignition switch "ON". Engagement slide switch "ON". Ground one lead of test-light, touch other lead to each terminal individually.   | Test light ON at terminals 5, 7 and 14 only.<br>No light ON any terminal.  | None, system O.K.<br>Replace fuse, if blown. Connect red wire to ignition switched power source. Check connection of light green wires or grounding terminal (green wire) at servo. Ground servo bracket. |
| Ignition switch "ON". Engagement slide switch "ON", push and hold "Set Speed" button. Ground one lead of test-light, touch other lead to terminal 14.  | Test light OFF at terminal 14.<br>Test light ON at terminal 14.            | None, system O.K.<br>See Trouble Shooting Guide - Engagement Switch   |
| Ignition switch "ON". Engagement slide switch "ON", push and hold slide switch to "Resume" position. Ground one lead of test-light, touch other lead to terminal 10 and 14 of connector, individually. | Test light ON at terminal 10 and 14.<br>No light at terminal 10 and/or 14. | None, system O.K.<br>See Trouble Shooting Guide - Engagement Switch   |
| Ignition switch "ON". Engagement slide switch "ON", place one test-light lead on terminal No. 5 and the other lead on terminal No. 13.   | Test light ON; push brake and test light goes OFF.<br>Test light OFF.      | None, system O.K.<br>Adjust disengagement switch lever travel to get test light ON; OFF when brake or clutch pedal is pushed.   |