

Rostra Precision Controls, Inc.

UltraCruise II

Installation & Owner's Manual



3 year / 36,000 mile Warranty

Made in the U.S.A.



THIS MANUAL, YOUR KIT AND YOU

This Cruise Control Kit is a microprocessor based Cruise Control. It is designed for ease of installation and can be used with most cars, light trucks and vans. Carefully follow the installation procedures in this manual for best results.

DO NOT INSTALL THIS SYSTEM ON A DIESEL POWERED VEHICLE WHICH HAS A MANUAL TRANSMISSION WITHOUT A DISENGAGEMENT SWITCH (250-4206) ON THE CLUTCH PEDAL ASSEMBLY

Your vehicle must have a VSS (Vehicle Speed Sensor) wire or an available signal generator for installation of this Cruise Control. Please consult vendor's Application Guide.

All through the instructions there are WARNINGS, CAUTIONS, AND NOTES that are meant to make it easier for you to put the Cruise Control on your vehicle and safer to use. We have gathered these tips from people across the country who have told us about their problems and how they worked them out. Even with all these reports from the field, we cannot cover every condition which you might encounter, there are just too many different vehicle makes and models. We do our best to tell you how to handle most vehicles, but we must Depend On Your Good Judgment for dealing with the rest.

Therefore, we believe you can understand why we strongly urge you to think carefully about what could happen to you, your passengers, and your vehicle if you use any tools, parts, fastening methods, routing or procedures which are not described in this manual.

There is NO drain on the battery if the control switch is left on. The Cruise Control needs no regular service.

WARNING:

Failure to follow the instruction manual could not only cause the Cruise Control to work improperly, but could cause the Cruise Control to function incorrectly, possibly causing damage to your vehicle and/or injury or death to both you and your passengers.

WARNING:

If you question the applications of the Cruise Control, please consult the applicable application guide. Only install on approved applications.

 **ROSTRA
PRECISION
CONTROLS, INC.**

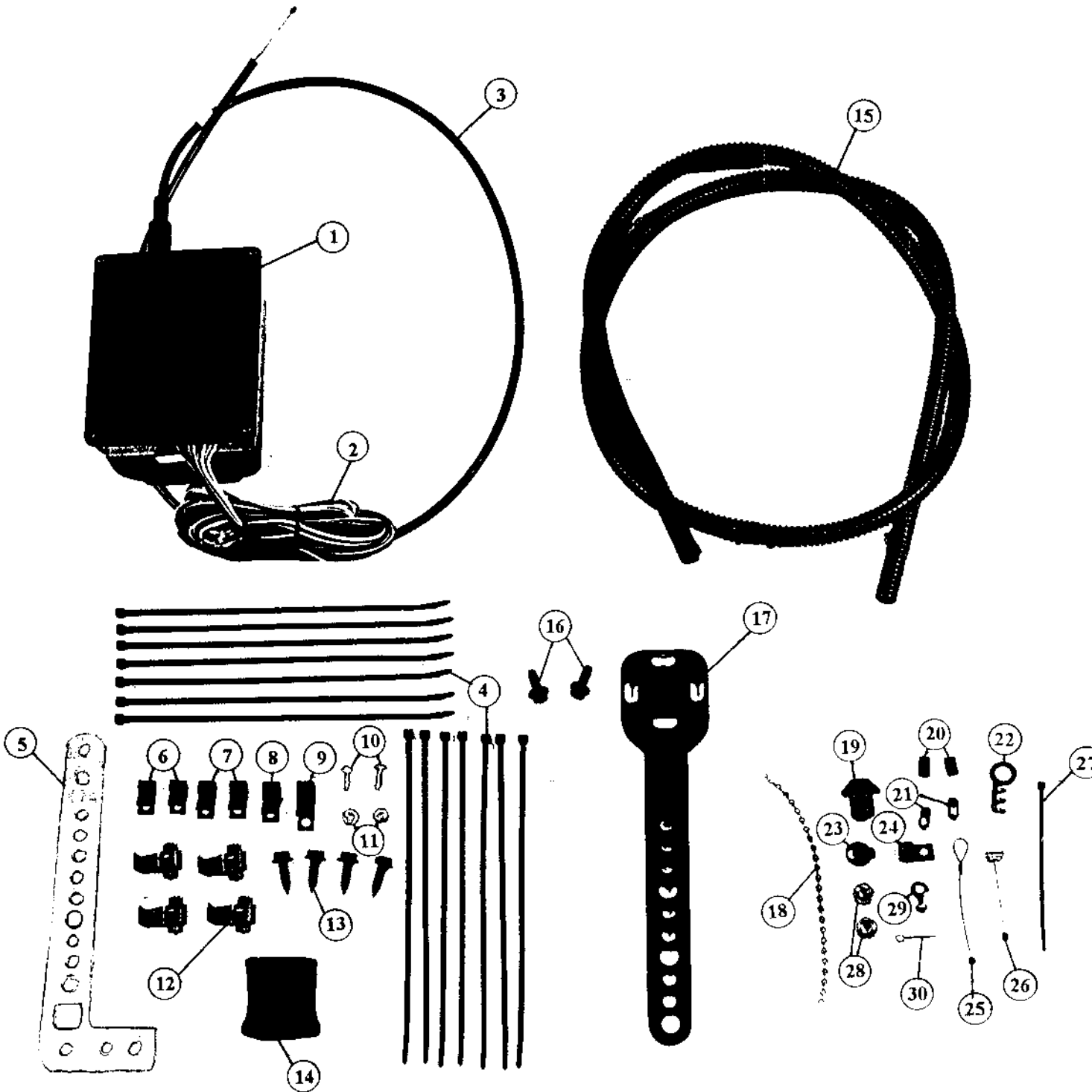
ROSTRA PRECISION CONTROLS, INC. 1995

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PARTS DIAGRAM



PARTS LIST

ITEM	PART#	DESCRIPTION	QTY.	ITEM	PART#	DESCRIPTION	QTY.
1	250-3699	Actuator Assembly	1	16	*	Actuator Screw	2
2	250-3695	Harness Assembly	1	17	250-3702	Actuator Bracket	1
3	250-3607	Cable Assembly	1	18	*	Bead Chain	1
4	*	7-1/2" Tie Strap	14	19	*	Snap-in Adapter	1
5	250-3700	Extension Bracket	1	20	*	Bead Chain Cover	2
6	*	Tube Clamp 1/4"	2	21	*	Bead Chain Connector	2
7	*	Tube Clamp 5/16"	2	22	*	Three Bead Connector	1
8	*	Tube Clamp 3/8"	1	23	*	GM Hat Clip	1
9	*	Tube Clamp 1/2"	1	24	*	Threaded Tube Clamp	1
10	*	Screw #10 - 32x1/2"	2	25	*	Loop Cable	1
11	*	Nut - #10 - 32	2	26	*	T-Bar Adapter	1
12	*	Self-stripping Connector	4	27	*	4" Tie Strap	1
13	*	Screw 1/4"-14x3/4"	4	28	*	Nut-1/4" - 20	2
14	*	Sealing Putty	1	29	*	Eyelet Connector	1
15	250-3425	Convuluted Tubing	1	30	*	Cotter Pin 1/16" x 5/8"	1

Disengagement Switch use 250-4206

***Order Small Parts Package 250-3708 and receive parts indicated.**

HELPFUL HINTS

1. Before Starting Installation:

Familiarize yourself with the **Installation Instructions** and Cruise Control's components.

2. Air Bag and Anti-Theft Radio:

- A. 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 re-entered when the negative battery cable is reinstalled.
- B. If vehicle is equipped with an AIR BAG, it is advisable to disconnect negative battery cable. However, remember that some vehicles retain power to the air bag system when battery is disconnected.

3. Removal of Negative Battery Cable:

Remove the negative battery cable before installing the **Cruise Control** components for safety precaution. (Figure A)

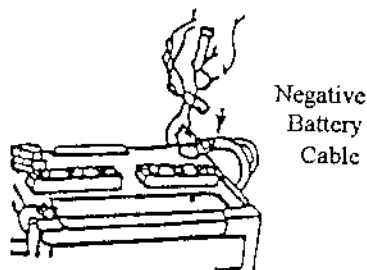


FIGURE A

4. Self Stripping Connector:

When installing Self Stripping Connector, follow these four steps: (Figure B)

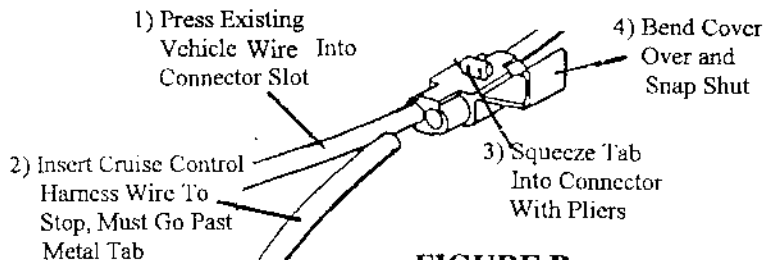


FIGURE B

5. Accessory Power:

When installing the special terminal into fuse panel of vehicle, See (Figure C).

WARNING: Failure to follow the instruction manual could not only cause the Cruise Control to work improperly, but could cause the throttle to hang up, possibly causing damage to your vehicle and injury to you and your passengers.

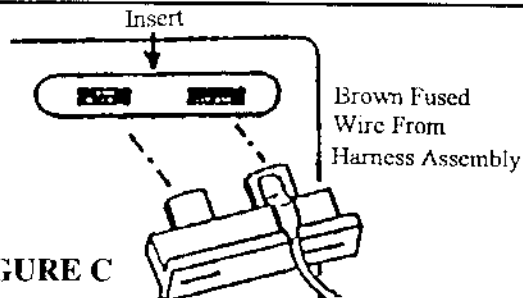


FIGURE C

SWITCH SETTINGS

The Actuator Assembly must be programmed for the vehicle on which it is installed. The TEN (10) programming switches must be set according to the chart below in order for the Cruise Control to operate properly.

NOTE 1: Both the Gray (VSS) and the Blue (TACH) wires must be connected. (If the Gray wire is not used, an auxiliary road speed source must be used.) See **Form #2482 Vehicle Technical Information Guide** (supplied in kit) for VSS and TACH wire information.

NOTE 2: If using an "OPEN CIRCUIT" control switch with the Cruise Control, SWITCH NUMBER 7 will have to be **OFF**. If unsure whether control switch is "OPEN CIRCUIT" or "CLOSED CIRCUIT", look at label of box in which the control switch was packaged.

NOTE 3: IF ANY OF THE 10 SWITCHES NEED TO BE CHANGED AFTER INSTALLATION OF THE CRUISE CONTROL, **CONTROL SWITCH AND THE VEHICLE IGNITION SWITCH MUST BE IN THE OFF POSITION. THIS IS TO ALLOW THE CRUISE CONTROL TO RESET.**

**PROGRAMMING
SWITCHES ARE FOUND
UNDER GROMMET ON TOP OF
ACTUATOR ASSEMBLY**

BLACK IS SWITCH

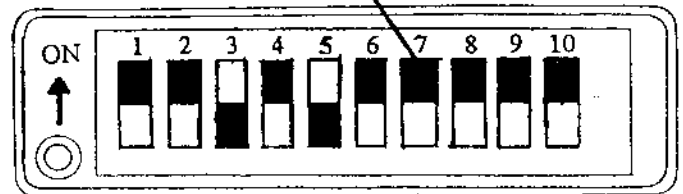


FIGURE 1

PROGRAMMING SWITCHES	FUNCTIONS			
GAIN (SENSITIVITY)	High	Medium (Normal)	Low	
SWITCH 1	ON	OFF	OFF	
SWITCH 2	ON	ON	OFF	
Note: If your Cruise Control surges or is too sensitive - set Gain to Low.				
Note: If your Cruise Control seems slow in controlling or responding to set speed - set Gain to High.				
PULSES PER MILE	2000	4000	5000	8000
SWITCH 3	ON	OFF	ON	OFF
SWITCH 4	ON	ON	OFF	OFF
ENGINE	3 & 4 Cylinder	5 & 6 Cylinder	8 Cylinder	
SWITCH 5	ON	OFF	OFF	
SWITCH 6	OFF	ON	OFF	
CONTROL SWITCH	OFF: Open Circuit Control Switch			
SWITCH 7	ON: Closed Circuit Control Switch			
NOTE: If unsure of Control Switch , see Control Switch test or label on box				
CENTERING	OFF: Low (Slow Pull-up) (Normal)			
SWITCH 8	ON: High (Fast Pull-up)			
NOTE: If your Cruise Control drops 1 mph or more when setting, then set Centering to High.				
TRANSMISSION	OFF: Manual Transmission			
SWITCH 9	ON: Automatic Transmission			
VSS SOURCE	OFF: Vehicles using Auxiliary VSS (Signal Generator or Magnets) and Ford Vehicles			
SWITCH 10	ON: Vehicle's Own VSS (ECM)			

INSTALLATION PROCEDURES

ACTUATOR ASSEMBLY MOUNTING

1. **NOTE: DO NOT MOUNT ACTUATOR ASSEMBLY IN THE FOLLOWING AREAS:**
 - a. Under the fender
 - b. Under the vehicle
 - c. Directly to the engine
 - d. With cable pointed down
 - e. Near sharp, hot or moving objects
 - f. Near ignition coil (No closer than 10")
 - g. In the passenger compartment (noise)
 - h. Where it will interfere with service checks
2. Install the **Extension Bracket** on the back of the **Actuator Assembly** with the two (2) **Bolts** provided. (**Figure 2**)

NOTE: DO NOT OVERTIGHTEN!
Damage to the Actuator Assembly will occur if bolts are overtightened.

3. When you have selected a possible location, set the **Actuator Assembly** unmounted in that area. The reason for leaving the **Actuator Assembly** unmounted is to make sure the **Harness Assembly** will reach the **Actuator Assembly** and the **Cable Assembly** will reach the throttle attaching point.
4. Once you have confirmed that the **Harness Assembly** and the **Cable Assembly** will reach their respective locations, mount the **Actuator Assembly** in the spot you have selected with Screws provided in the kit. (**Figure 3**)

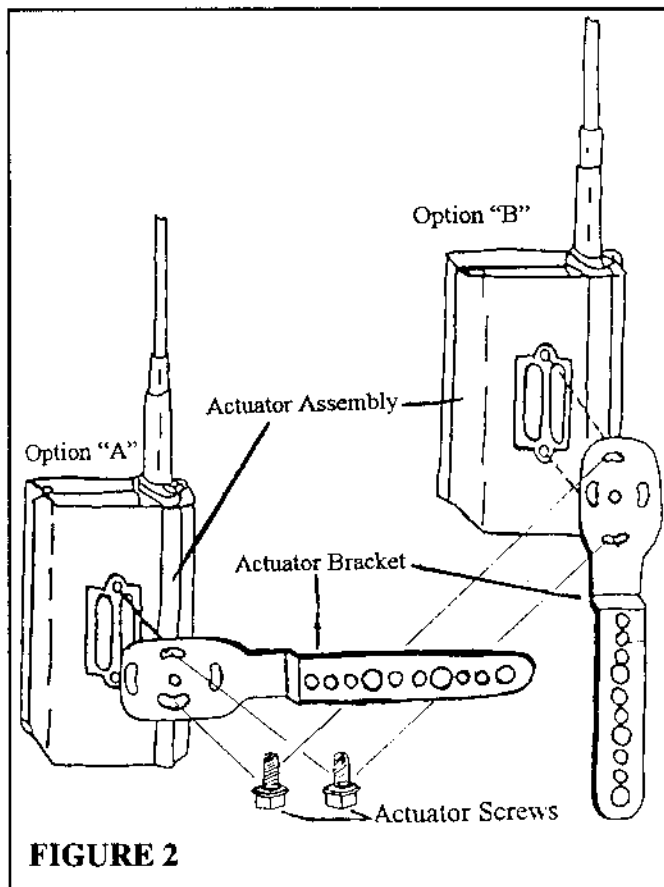


FIGURE 2

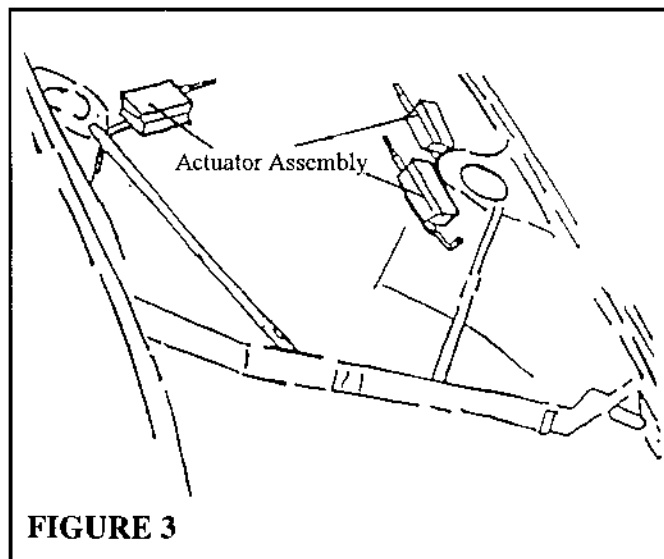


FIGURE 3

CAUTION:

Failure to follow the instruction manual could not only cause the Cruise Control to work improperly, but could cause the throttle to hang up, possibly causing damage to your vehicle and injury to you and your passengers.

INSTALLATION PROCEDURES

Measuring Throttle Travel

This is a very important step. Failure to determine Throttle Travel could cause damage to your vehicle and/or Cruise Control System.

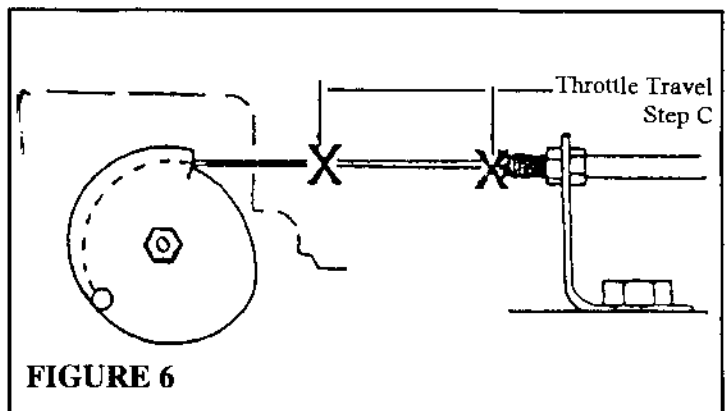
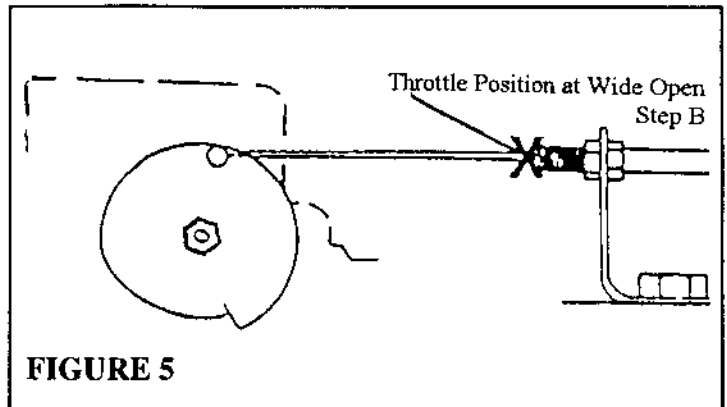
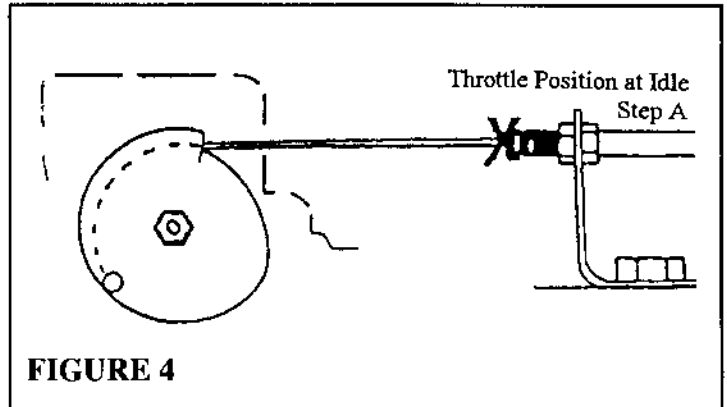
Measure only with engine OFF. The Actuator Assembly Cable moves 1-5/8" (41 millimeters).

To measure throttle travel, measure the distance from position "A" (Idle) to position "B" (Wide Open Throttle).

1. Make a mark on the throttle cable when the throttle is in the idle position. (Figure 4)
2. Depress accelerator pedal and make a mark on the throttle cable when the throttle is in the wide open position. (Figure 5)
3. Measure the distance between the two marks. (Figure 6) If distance is greater than 1-5/8" (41 millimeters), go to the next page. If it is less, go to Step D.
4. If the throttle travel is less than 1-5/8" (41 millimeters), you must use Bead Chain to provide slack. **NOTE: Slack is the distance the Cable Assembly moves before the throttle starts to move.** Each bead of the chain added will give you 1/8" (3 millimeters) of slack. (Example: If your throttle travels 1-1/2" (38 millimeters), you will need one (1) bead).

NOTE: To add beads you must use the **Bead Chain, Bead Chain Connector** and the **Bead Chain Cover**. Do not count the bead used with the **Bead Chain Connector**.

After determining your throttle travel, continue to the next section.



CAUTION:

Failure to follow the instruction manual could not only cause the Cruise Control to work improperly, but could cause the throttle to hang up, possibly causing damage to your vehicle and injury to you and your passengers.

INSTALLATION PROCEDURES

ATTACHING CABLE ASSEMBLY TO THROTTLE

This section will cover the proper ways to use the hardware available. Each section contains sample illustrations showing how the connector is used in an actual installation. It must be noted however, that you should have an understanding of how each attachment method works so that a proper installation is achieved.

There are five (5) different types of throttle connections.

- A. Pulley Assembly using Loop Cable
- B. Pulley Assembly using T-Bar Adapter
- C. Pedal Attachment
- D. Ford Throttle
- E. General Motors and Chrysler Throttle using Three Bead Connector

NOTE:

When using the Bead Chain Connector to connect the Bead Chain to the Cable Assembly you must always use the Bead Chain Cover. (Figure 7) Failure to use the Bead Chain Cover could possibly cause the Bead Chain or the Cable Assembly to hang in the Bead Chain Connector causing the throttle to be held in a partially open position. This condition could occur when the Cruise Control is not being used.

A. Pulley Assembly Using the LOOP CABLE

1. On some vehicles it may be necessary to remove the air cleaner so the throttle pulley segment is showing.
2. Set the pulley segment in an OPEN throttle position, and remove the throttle cable from the pulley.
3. Hold the **Loop Cable** between the holes in each side of the pulley. Slide the barrel at the end of the throttle cable through the slotted hole, then through the **Loop Cable** and into the second hole. (Figure 8)
4. Connect the **Loop Cable** to the **Cable Assembly** using the **Bead Chain Connector**.

NOTE: Use the **Bead Chain Cover**.

5. To secure the **Loop Cable** to the throttle cable, punch a small hole in the **Bead Chain Cover** and slide the **4" Tie Strap** through the hole and secure to the existing throttle cable. (Figure 9)

WARNING

If the Loop Cable is not secured to the existing throttle cable, it could come out of the pulley segment possibly causing the throttle to be held in a partially open position.

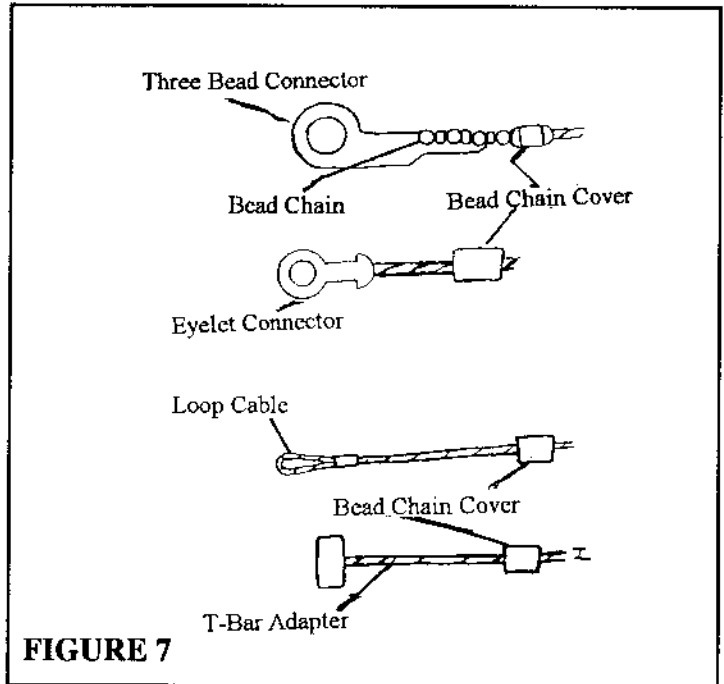


FIGURE 7

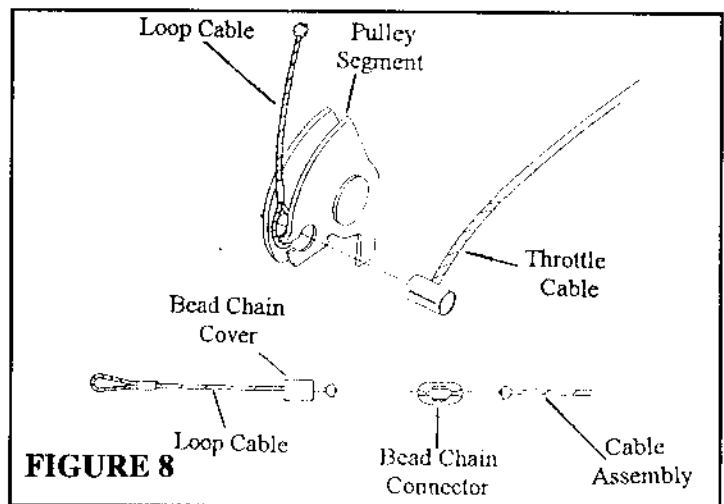


FIGURE 8

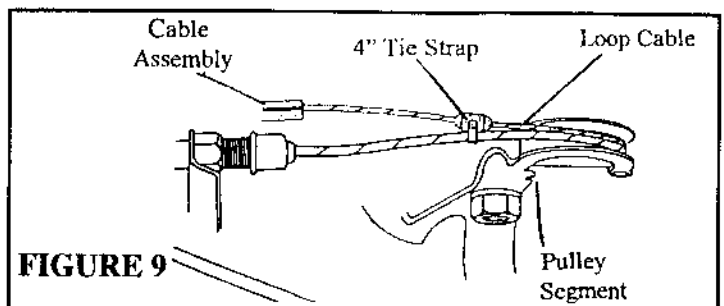


FIGURE 9

INSTALLATION PROCEDURES

ATTACHING CABLE ASSEMBLY TO THROTTLE (continued)

B. Pulley Assembly (Dual) Using T-BAR ADAPTER

1. Remove air cleaner to expose the dual pulley segments.
2. Find the blank anchor that is located above the throttle anchor. Follow the instructions in STEP B for Anchoring Cruise Cable -- page 15.
3. Attach a **Bead Chain Connector** onto the **Cable Assembly**. (Figure 10)
4. Attach the **T-Bar Adapter** to the top pulley segment. Slide the **Bead Chain Cover** onto the **T-Bar Adapter**.
5. Attach the **T-Bar Adapter** to the **Bead Chain Connector**. Make sure to slide the **Bead Chain Cover** over **Bead Chain Connector**. (Figure 11)

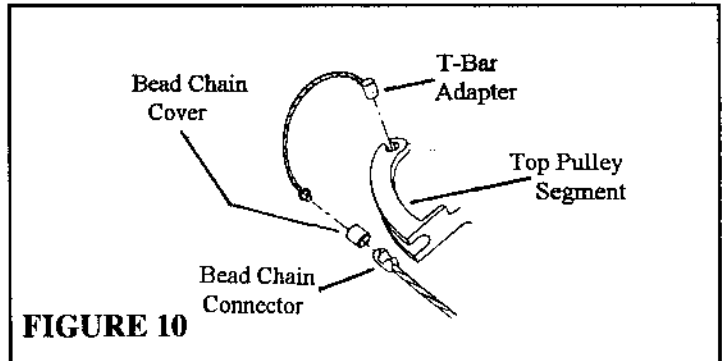


FIGURE 10

C. Pedal Attachment

1. Select a **Tube Clamp** that fits around the top of the accelerator pedal shaft. Make sure the tabs of the **Tube Clamp** point away from the bulkhead.
2. Attach the **Bead Chain** to the **Cable Assembly** with a **Bead Chain Connector**. Make sure to use a **Bead Chain Cover**.
3. After you determine the length of **Bead Chain** needed to attach to the accelerator pedal shaft, cut **Bead Chain** and attach to the **Eyelet Connector**. Make sure to use a **Bead Chain Cover**.
4. Put **Screw #10-32x1/2** through the holes in the **Tube Clamp**. Slide the **Eyelet Connector** over the **Screw**. Thread **Nut #10-32** onto the **Screw** and tighten. (Figure 12)

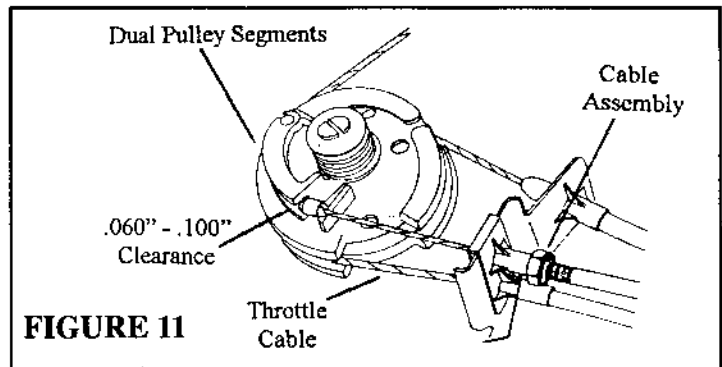


FIGURE 11

WARNING
Failure to follow the instruction manual could not only cause the Cruise Control to work improperly, but could cause the throttle to hang up, possibly causing damage to your vehicle and injury and/or death to you and your passengers.

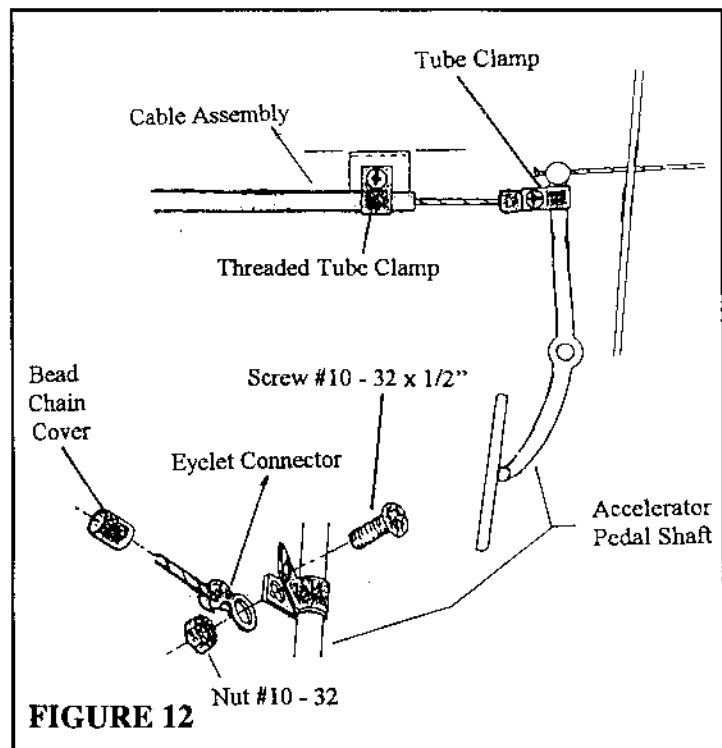


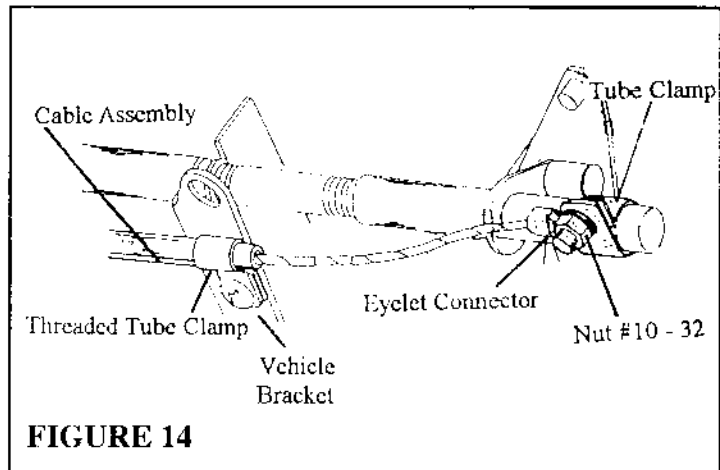
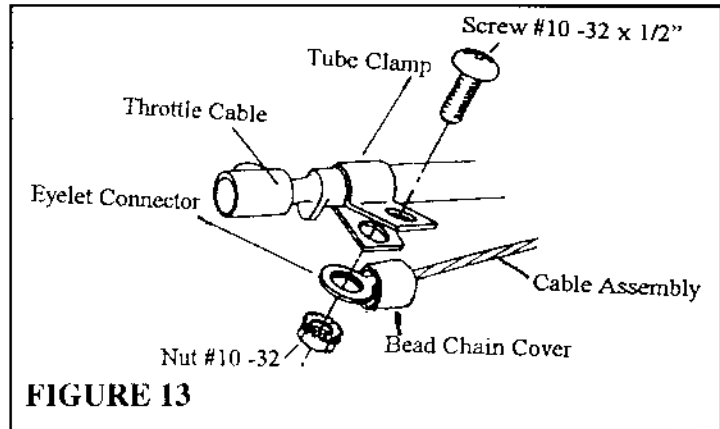
FIGURE 12

INSTALLATION PROCEDURES

ATTACHING CABLE ASSEMBLY TO THROTTLE (continued)

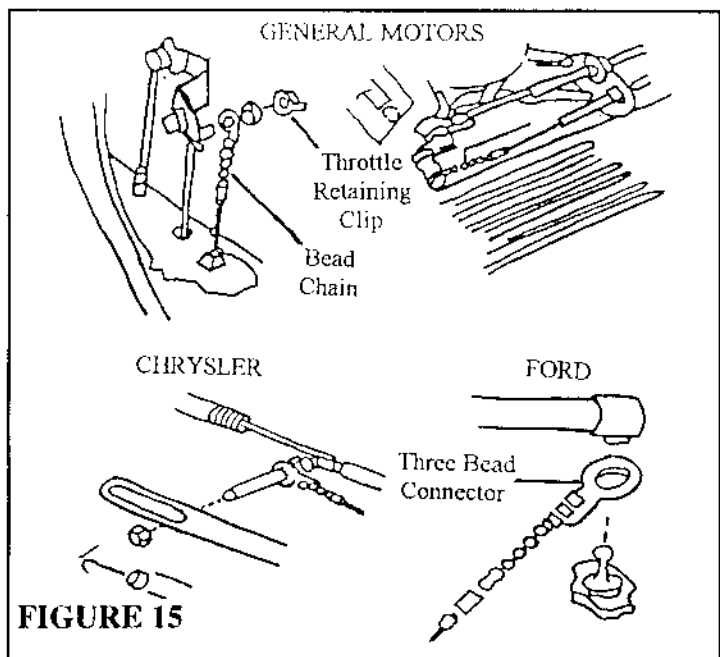
D. Ford Throttle

1. Select a **Tube Clamp** that fits the throttle cable. Make sure the tabs of the **Tube Clamp** point away from the carburetor or air throttle, this will prevent the throttle from hanging. (**Figure 13**)
2. Attach **Cable Assembly** to the **Eyelet Connector**. **NOTE:** Use the **Bead Chain Cover**.
3. Put **Screw #10-32 x 1/2** through the holes in the **Tube Clamp**. Slide the **Eyelet Connector** over the **Screw**. Thread **Nut #10-32** onto the **Screw** and tighten. (**Figure 13**)
4. **Figure 14** is an example of a Ford Throttle connection using the **Tube Clamp**.



E. General Motors and Chrysler Throttle Using THREE BEAD CONNECTOR

1. Most General Motors vehicles and many Chrysler vehicles can use the **Three Bead Connector** to attach the **Cable Assembly**. (**Figure 15**)



INSTALLATION PROCEDURES

ATTACHING CABLE ASSEMBLY TO THROTTLE (continued)

E. *General Motors and Chrysler Throttle* using **THREE BEAD CONNECTOR**

2. Attach the **Bead Chain** to the **Three Bead Connector**. Secure beads by folding the metal tabs. (Figure 16)
3. Remove clip or pin which retains throttle cable (and washer if provided) and install **Three Bead Connector** on the same side of throttle cable as the **Cable Assembly** will be anchored (this is necessary so that **Cable Assembly** and throttle cable will not cross).
4. The **Three Bead** may need to be bent so that it clears the throttle cable. (Figure 17) Also, the **4" Tie Strap** can be used to hold the **Three Bead Connector** to the sleeve of the throttle cable. (Figure 17)
5. When the **Three Bead Connector** is properly used, the following parts will be used: (Figure 18)

Three Bead Connector, Bead Chain Cover
Bead Chain Connector, and Bead Chain

NOTE:

After the **Cable Assembly** has been attached, manually move the throttle to assure the **Cable Assembly** does not hang up on any part of the vehicle.

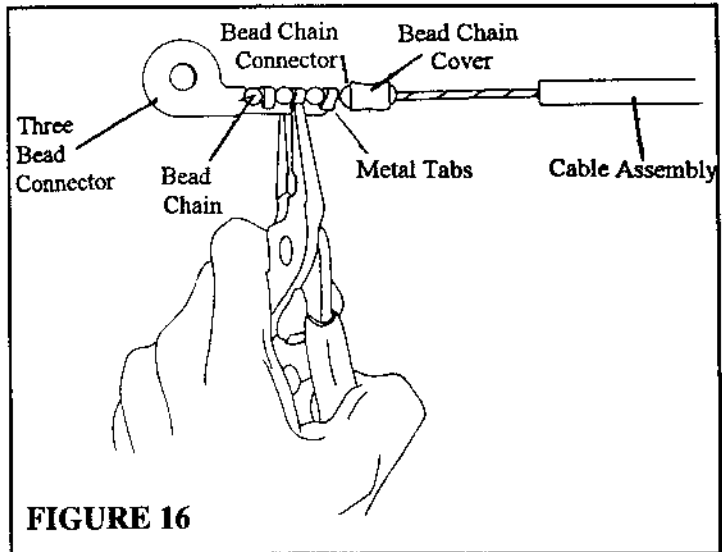


FIGURE 16

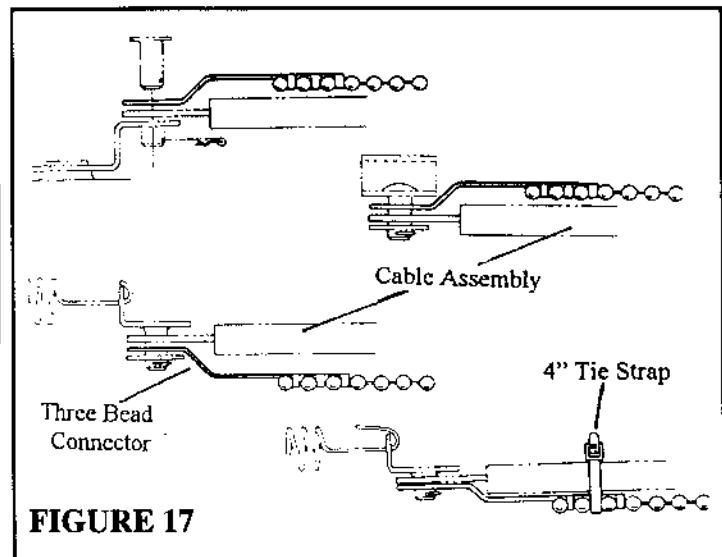


FIGURE 17

WARNING

Failure to follow the instruction manual could not only cause the Cruise Control to work improperly, but could cause the throttle to hang up, possibly causing damage to your vehicle and injury and/or death to you and your passengers.

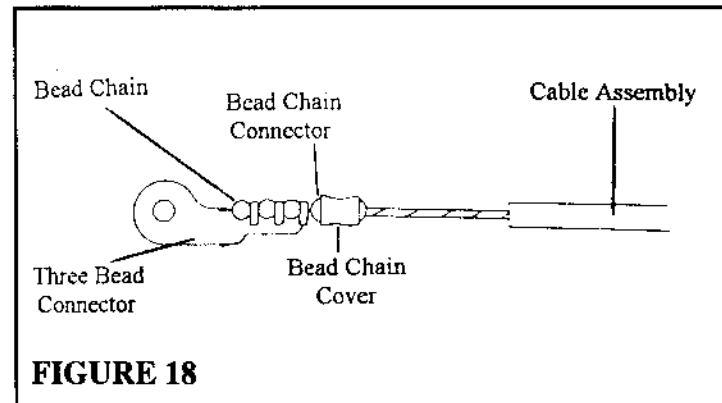


FIGURE 18

INSTALLATION PROCEDURES

Anchoring Cable Assembly

There are four (4) types of connectors used to anchor the Cable Assembly:

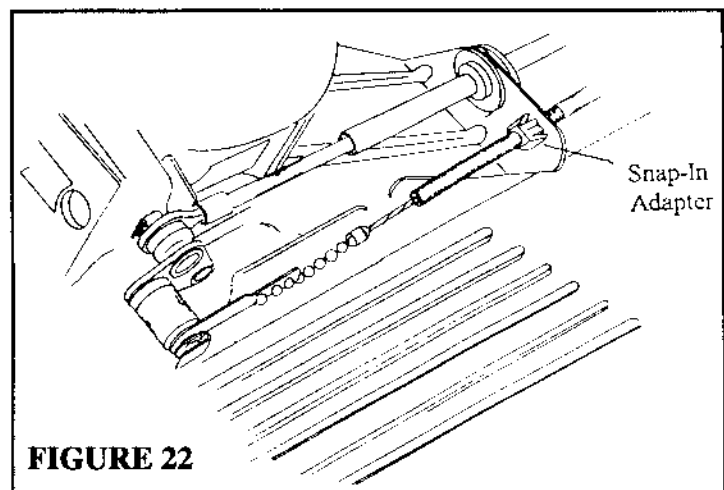
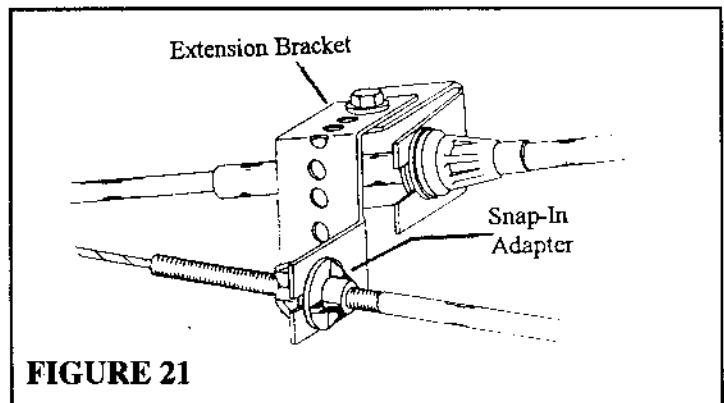
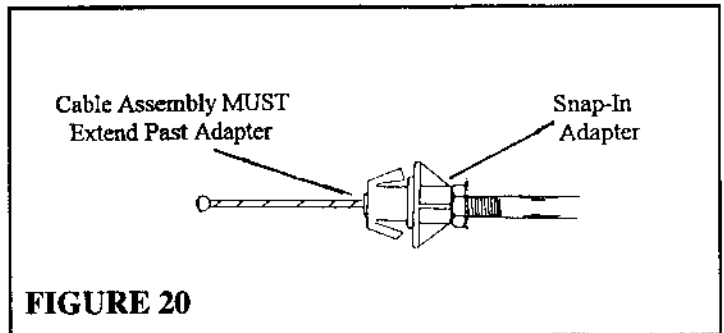
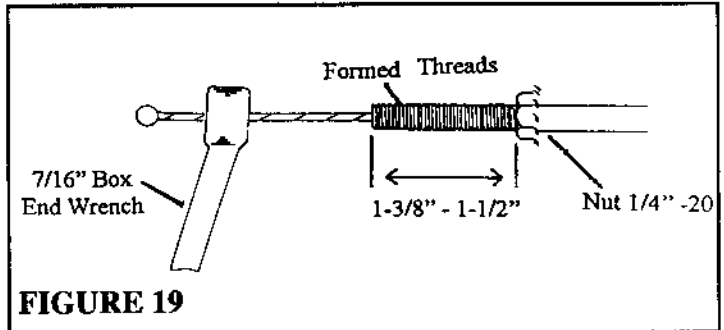
- A. Snap-In Adapter
- B. General Motors Blank Anchor
- C. Threaded Tube Clamp
- D. Tube Clamp

A. *Snap-In Adapter*

1. Before using the **Snap-In Adapter**, remove the **Adjustable Sleeve** from the **Cable Assembly**. To use the **Snap-In Adapter**, it will be necessary to form threads on the end of the **Cable Assembly**. This is easily accomplished by placing the **1/4"-20 Nut** on the end of the **Cable Assembly** with your fingers. Then use a **7/16"** box end wrench and turn clockwise until the desired amount of threads have been formed. (**Figure 19**)
2. After the threads have been formed, screw the **Snap-In Adapter** on to the **Cable Assembly**. (**Figure 20**)

NOTE: Cable Assembly must extend past the end of the **Snap-In Adapter** on all applications.

3. The **Snap-In Adapter** snaps into the square hole of the **Extension Bracket** (**Figure 21**) or snaps into an existing square hole on the vehicle--common on GM vehicles. (**Figure 22**)



INSTALLATION PROCEDURES

Anchoring Cable Assembly (Continued)

B. General Motors Blank Anchor

1. To locate the blank anchor on General Motors vehicles, it is necessary to remove the air cleaner. The blank anchor is located above the throttle anchor.
2. This anchor is hollow except at one end. Use a 1/4" bit and drill as shown in **Figure 23**.
3. Before using the 1/4"-20 Nut, remove the **Adjustable Sleeve** from the **Cable Assembly**. Then use the 1/4"-20 Nut to form threads on the end of the **Cable Assembly**. This is easily accomplished by first placing the 1/4"-20 Nut on the end of the **Cable Assembly** with your fingers and then use a 7/16" box end wrench and turn clockwise until the desired amount of threads have been formed. (**Figure 19, page 14**)
4. Insert the **Cable Assembly** through the blank anchor and thread the other 1/4"-20 Nut in place. (**Figure 24**)

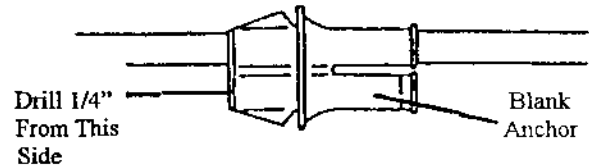


FIGURE 23

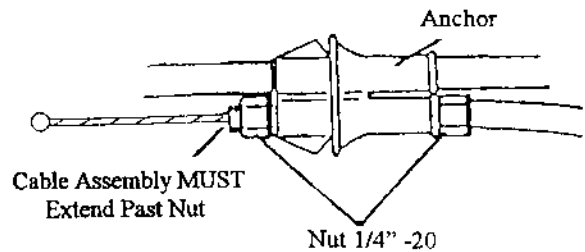


FIGURE 24

NOTE:

If you do not use the other 1/4"-20 Nut, install a **Tube Clamp** and the **Threaded Tube Clamp** 6" to 7" from the anchor point. (**Figure 25**) This will keep the **Cable Assembly** from backing out of the anchor.

5. The 1/4"-20 Nut can also be used if there is a pre-existing 1/4" hole in a bracket on the vehicle or if it is possible to drill a 1/4" hole in a bracket on the vehicle. (**Figure 26**)

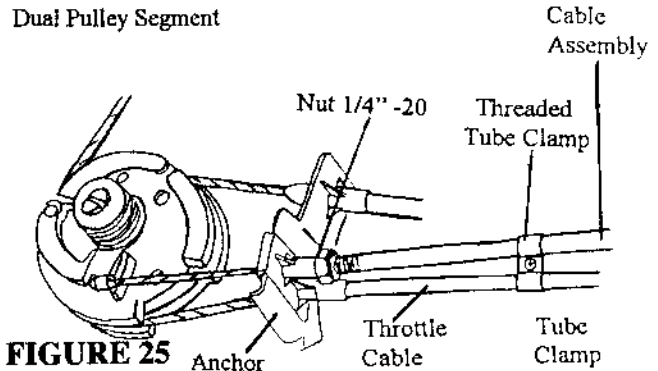


FIGURE 25

WARNING

Failure to follow the instruction manual could not only cause the Cruise Control to work improperly, but could cause the throttle to hang up, possibly causing damage to your vehicle and injury and/or death to you and your passengers.

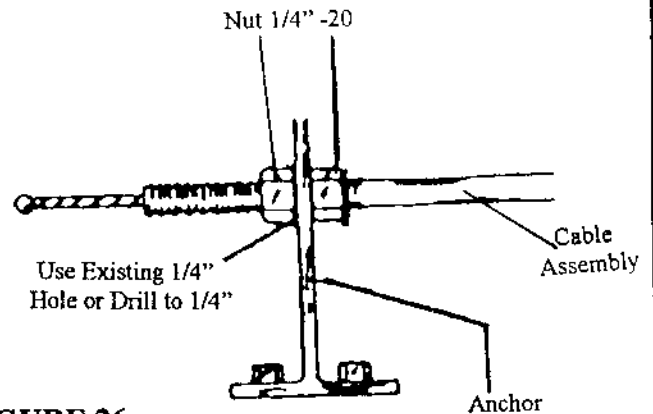


FIGURE 26

INSTALLATION PROCEDURES

Anchoring Cable Assembly (Continued)

CAUTION: When using the **Threaded Tube Clamp** on **Cable Assembly** the **Adjustable Sleeve** **MUST** be removed. When using a **Tube Clamp** on the **Cable Assembly** the **Adjustable Sleeve** **MUST** be used to prevent slippage or binding of cable.

C. Threaded Tube Clamp

1. Before using the **Threaded Tube Clamp** remove the **Adjustable Sleeve** from the **Cable Assembly**. To use **Threaded Tube Clamp**, it will be necessary to form threads on the end of the **Cable Assembly**. This is easily accomplished by first placing the **1/4"-20 Nut** on the end of the **Cable Assembly** with your fingers and then use a **7/16"** box end wrench and turn clockwise until the desired amount of threads have been formed. (Figure 19, page 14)
2. After the threads have been formed, screw the **Threaded Tube Clamp** onto the **Cable Assembly**. (Figure 27)
3. The **Threaded Tube Clamp** may be used to anchor the **Cable Assembly** to the existing throttle cable bracket. (Figure 28) In some cases there is an existing hole, in other cases you can drill a **3/16"** hole in the bracket.
4. The **Threaded Tube Clamp** may also be used to anchor the **Cruise Cable** using the **Extension Bracket**. (Figure 29)

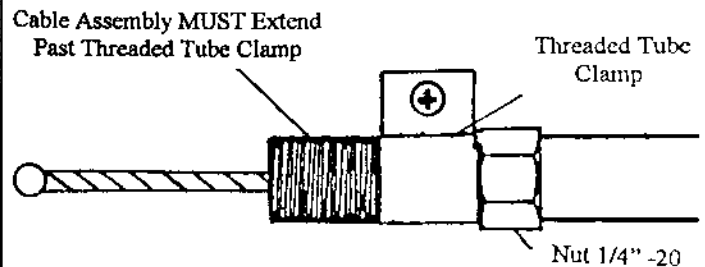


FIGURE 27

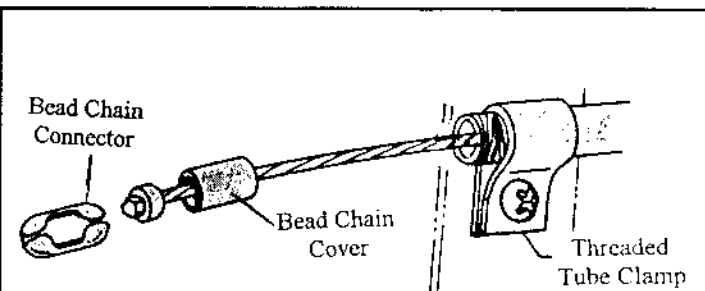


FIGURE 28

WARNING
Failure to follow the instruction manual could not only cause the Cruise Control to work improperly, but could cause the throttle to hang up, possibly causing damage to your vehicle and injury and/or death to you and your passengers.

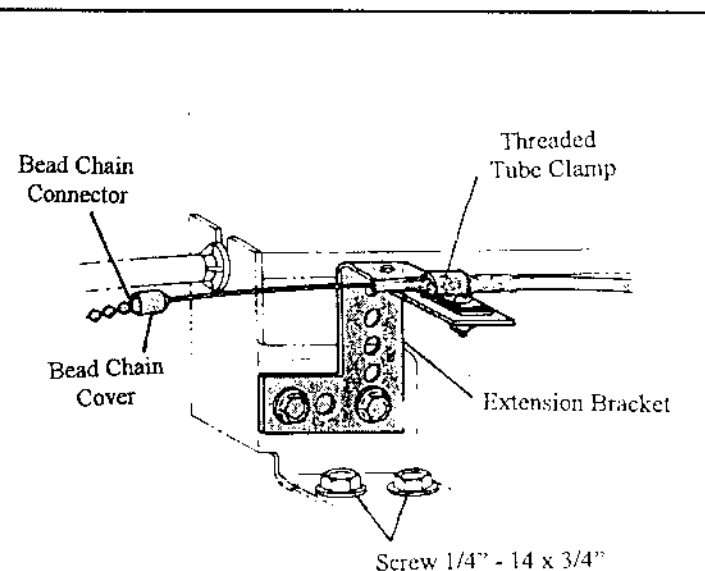


FIGURE 29

INSTALLATION PROCEDURES

Harness Assembly

1. Push Rubber Cover Grommet securely into place on the cover of the **Actuator Assembly**. (**Figure 30**)
2. Straighten the **Harness Assembly** and find the 4 pin mating connectors. Separate the 4 pin connectors. A small screw driver may be needed.
3. **Harness Assembly** needs a 3/4" hole to pass through bulkhead. You may find one nearby such as the speedometer cable hole or a small one you can file larger. If you find the right size hole in the right place, remove rubber grommet. If not, drill, saw, or punch a 3/4" hole in bulkhead. A hole a couple of inches to the left or slightly higher than the steering column is usually a good place. (**Figure 31**)

NOTE: Check inside before drilling, sawing, or filing so you don't damage anything.

4. From engine side, pass four pin connector and **VIOLET** wire through hole. If you did not hook up the **BLUE TACH** wire and **GRAY VSS** wire under the hood, pass them through to the inside also.
5. Reattach 4 pin mating connectors and make necessary wire connections. (See page 18)

Sealing Bulkhead

Seal hole in bulkhead with **Sealing Putty** as shown in **Figure 32**.

WARNING

Failure to follow the instruction manual could not only cause the Cruise Control to work improperly, but could cause the throttle to hang up, possibly causing damage to your vehicle and injury and/or death to you and your passengers.

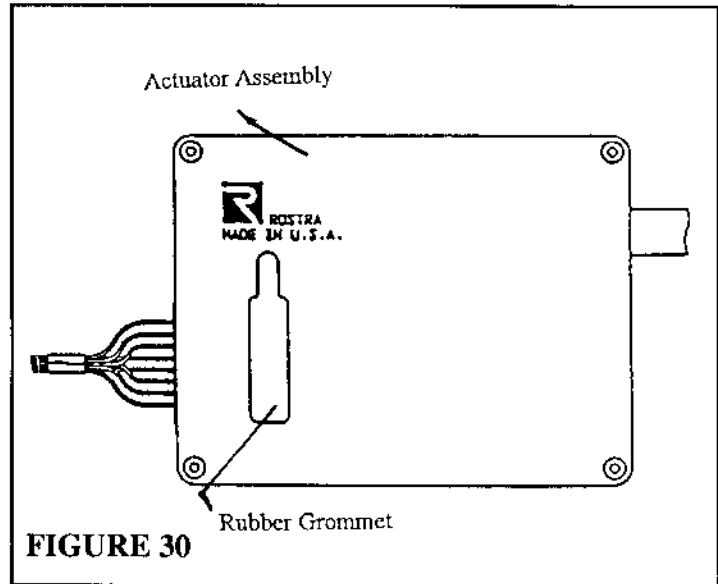


FIGURE 30

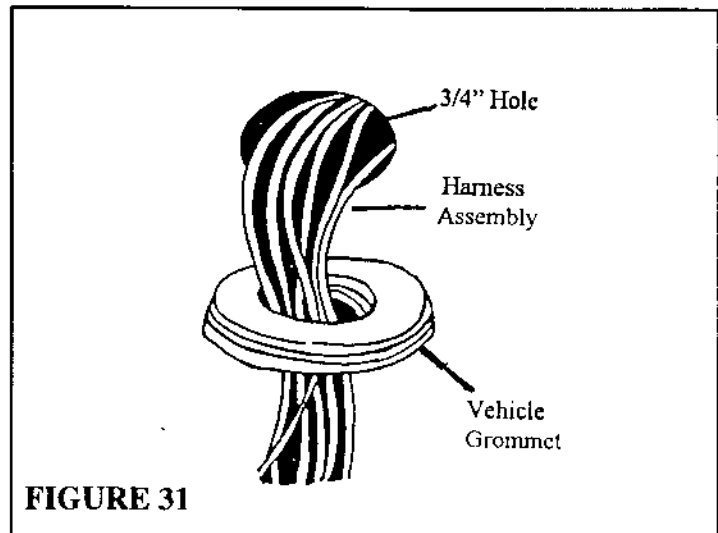


FIGURE 31

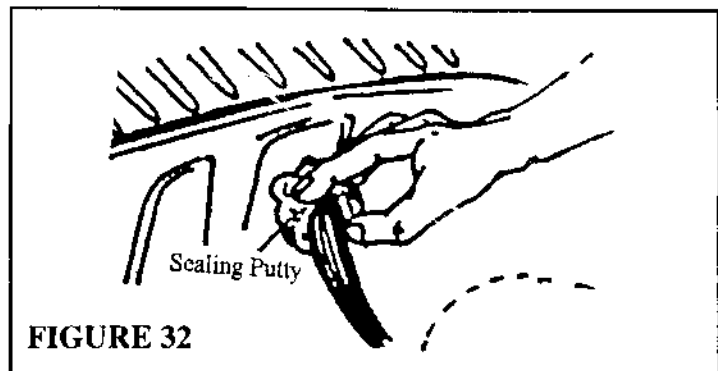


FIGURE 32

INSTALLATION PROCEDURES

Cruise Control Switch Installation

If your Cruise Control switch is the type which clamps on the turn signal lever, requires cutting the turn signal lever, or is mounted on the instrument panel, follow instructions packaged with it. If you have a switch which replaces the complete original equipment turn signal lever, remove the existing lever and install the Cruise Control switch and lever assembly as instructed in the vehicle shop service manual.

CAUTION:

If a two way radio is in the vehicle or is later installed, the Actuator Assembly should be located as far from the radio transmitter as practical (at least 3") and the Harness Assembly should be routed as far from the radio wires and coaxial cable as practical. The radio should be wired directly to a battery ground connection and the standing wave ratio of the antenna should be as low as possible.

WIRING ATTACHMENTS TO VEHICLE

To find a place to get electrical power you will need to "ground" one lead of your test light or volt-ohm meter. Find electrical ground by turning on the ignition switch and touching one lead to a hot fused terminal at fuse panel; touch other lead to unpainted metal part of vehicle. The metal you touch, if it makes continuity, is ground. Bracket for parking brake lever is usually a good ground. Turn ignition switch off.

NOTE: Some fuse panels are behind shields which must be removed first. On other vehicles the screw that mounts the panel must be removed to get to the fuses.

CAUTION:

Before making any wiring connections, be sure to disconnect your vehicle's negative battery cable to avoid electric shock and/or damage to the vehicle's electrical system.

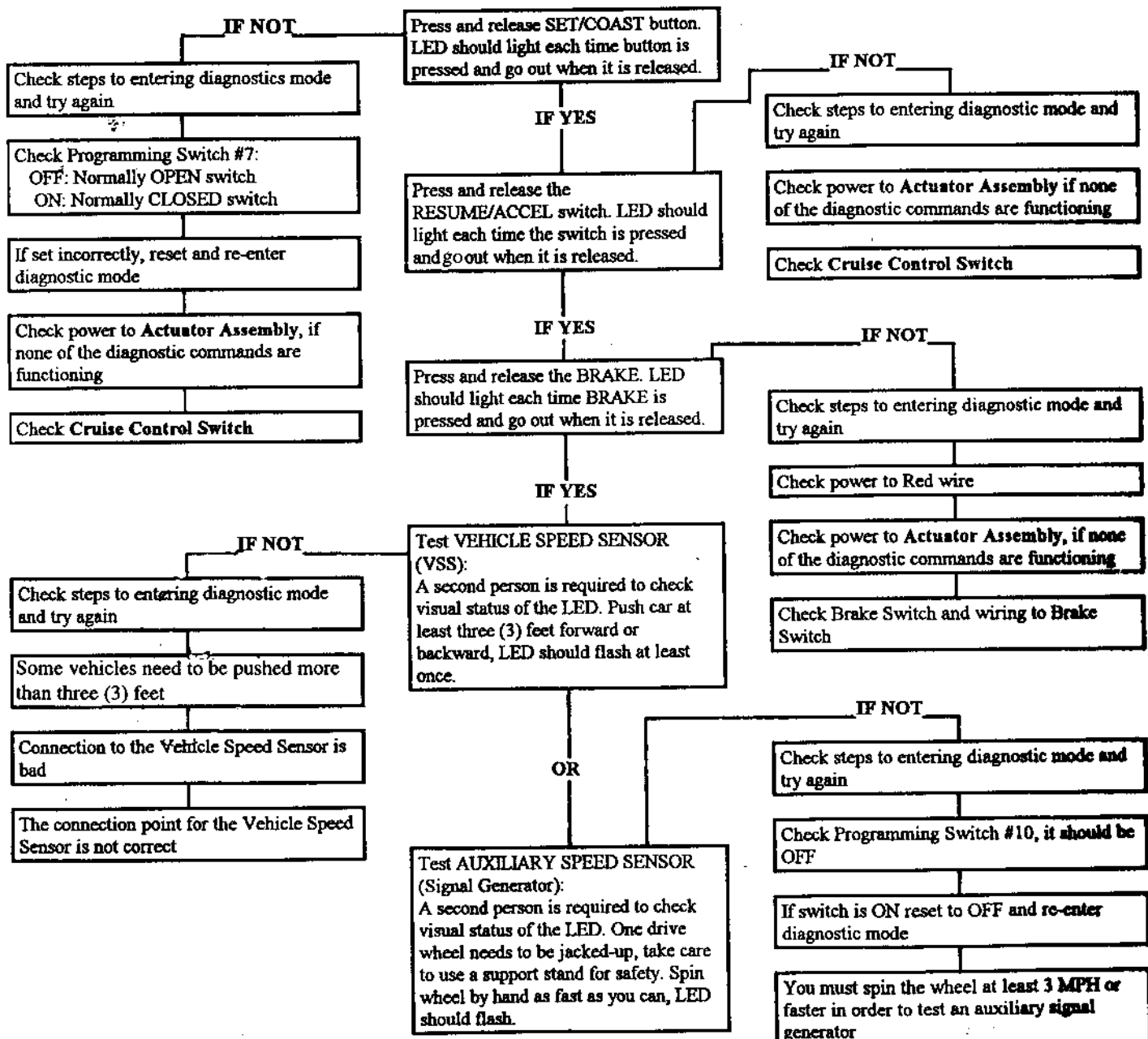
WIRE COLOR	FUNCTION	LOCATION
BLACK	GROUND	Vehicle ground point which is a clean unpainted metal surface NOTE: DO NOT USE THE ENGINE AS A GROUNDING POINT. DO NOT CONNECT TO THE EXTENSION BRACKET
BROWN	ACCESSORY POWER	Fuse panel: fuse that has +12 volts when key is ON and 0 volts when key is OFF or in the START (CRANK) position.
RED	CONSTANT POWER	Hot side of brake switch +12 volts
VIOLET	GROUND	Cold side of brake switch -0 resistance when brake is not pressed, +12 volts or open resistance when brake is pressed.
BLUE	TACHOMETER	See <i>Vehicle Technical Information Guide</i> (Form #2482) or consult Vehicle Shop Manual
GRAY	VEHICLE SPEED SENSOR	See <i>Vehicle Technical Information Guide</i> (Form #2482) or consult Vehicle Shop Manual

SELF DIAGNOSTICS PROCEDURES

Entering Diagnostics Mode:

1. Turn the **Cruise Control Switch** to the **OFF** position
2. Turn the ignition switch to the **OFF** position
3. Press and hold the **RESUME/ACCEL** slide switch while you turn the ignition switch to the **ON** position *without starting the engine*. Now release the **RESUME/ACCEL** slide switch. (If you are using a 250-3592, 250-3593, 250-3742 or 250-3743 **Cruise Control Switch**, turn the ignition switch to the **ON** position *without starting the engine*, hold **RESUME/ACCEL** button down while you turn the **Cruise Control Switch** to the **ON** position.)
4. The Diagnostics LED should be off at this time.

Testing the Cruise Control Switch, Brake Switch Wiring, and Vehicle Speed Sensor (VSS) Signal:



TESTING THE TACH SIGNAL

If all of the previous functions are correct, check the **TACH Signal**

1. Turn the **Cruise Control Switch** to the **OFF** position
2. Turn the ignition switch to the **OFF** position
3. Press and hold the **RESUME/ACCEL** slide switch while you turn the ignition switch to the **ON** position *and start the engine*. Now release the **RESUME/ACCEL** slide switch. (If you are using a 250-3592, 250-3593, 250-3742 or 250-3743 **Cruise Control Switch**, turn the ignition switch to the **ON** position *and start the engine*, hold the **RESUME/ACCEL** button down while you turn the **Cruise Control Switch** to the **ON** position.)
4. The Diagnostics LED should be flashing. Rev the engine, the LED should flash faster at higher RPM's.
 - Check steps to entering diagnostic mode and try again
 - Connection to TACH Signal source is bad
 - TACH Signal connection point is not correct

CONTROL SWITCH TESTS

You need to unplug the 8-pin connector from the Actuator Assembly for these tests.

To do the test:

1. Ground the test light lead and verify that the test light works by proving a known power source.
2. Follow the test chart below when testing a **closed circuit Cruise Control Switch**.

CLOSED CIRCUIT CONTROL SWITCH

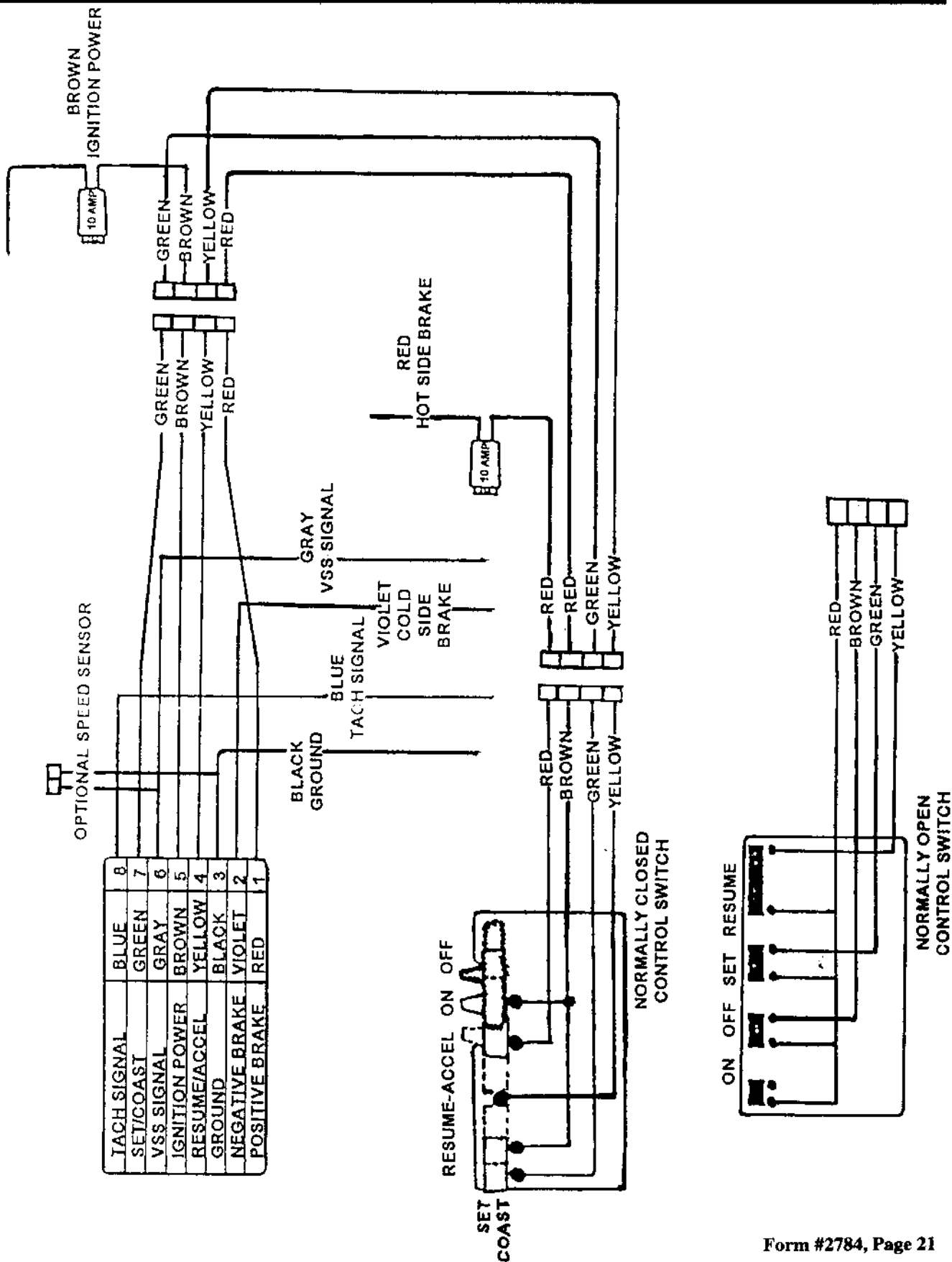
IGNITION SWITCH POSITIONS	CONTROL SWITCH POSITIONS	RED	DARK GREEN	YELLOW	BROWN
OFF	OFF	OFF	OFF	OFF	OFF
OFF	ON	ON	ON	OFF	OFF
OFF	ON press and hold SET/COAST	ON	OFF	ON	OFF
OFF	ON press and hold RESUME/ACCEL	ON	ON	ON	OFF
ON	ON	ON	ON	OFF	ON
CRANK or START	ON	ON	ON	OFF	OFF

3. Follow the test chart below when testing an **open circuit Cruise Control Switch**.

OPEN CIRCUIT CONTROL SWITCH

IGNITION SWITCH POSITIONS	CONTROL SWITCH POSITIONS	RED	DARK GREEN	YELLOW	BROWN
OFF	OFF	OFF	OFF	OFF	OFF
OFF	ON	ON	OFF	OFF	OFF
OFF	ON press and hold SET/COAST	ON	ON	OFF	OFF
OFF	ON press and hold RESUME/ACCEL	ON	OFF	ON	OFF
ON	ON	ON	OFF	OFF	ON
CRANK or START	ON	ON	OFF	OFF	OFF

WIRING DIAGRAM



TECHNICAL SERVICE

In the event that you need technical assistance with trouble shooting, please have the following information ready when calling our Technical Service Department 910-277-1828. This information is important for a proper and speedy diagnosis of the problems encountered.

Model Number of Cruise Control System printed on box and manufacturers code printed on the Actuator Assembly_____

Vehicle Make Model and Year:_____

Engine and Transmission:_____

**Ensure that the Brake Switch wiring connections are correct.
Red wire of Wiring Harness Assembly is connected to "HOT SIDE" (color):**_____

Violet wire of Wiring Harness Assembly is connected to "COLD SIDE" (color):_____

Ensure that the Brown wire is connected to an "ignition power source"_____

Speed Signal Source:

VSS (Vehicle Speed Signal): Gray wire connection point and wire color:

Alternative Speed Signal Source (Part #)_____

Tachometer Signal: Blue wire connection point and color_____

Actuator Assembly programming switch settings:

	1	2	3	4	5	6	7	8	9	10
ON										
OFF										

List the parts used for the throttle connection and cable anchoring. Refer to the Parts List and Parts Diagram on Pages 4-5.

OPERATING PROCEDURES

ROAD TESTING

Be sure to road test your Cruise Control after installation. If your Cruise Control was installed correctly, it should perform as indicated in this section. The **Cruise Control Switch** is used to operate the system

TEST DRIVE

Follow the operating instructions to test drive your new Cruise Control. Try all functions on your Cruise Control to be sure it is operating correctly.

ON/OFF: The first time you use the Cruise Control you should be on a straight, paved road away from heavy traffic. Slide the **ON/OFF** switch of the **Cruise Control Switch** to the **ON** position. Nothing will happen, this simply prepares the system for use.

Remember, each time you turn **OFF** the ignition switch, or slide the **Cruise Control Switch** to **OFF**, you de-energize the system.

To re-energize it, the ignition switch must be **ON** and the slide switch must be in the **ON** position. You can leave the **Cruise Control Switch ON** all the time without damaging the system.

SET SPEED: After turning the system **ON**, wait at least three seconds before trying to set your speed. To operate the system drive your car at a steady speed above 35 mph.

Press the **SET/COAST** button, and release it. Slowly remove your foot from the accelerator. Your speed is now in the **Actuator Assembly's** memory. Your driving speed should remain within 2-1/2 mph of your set speed.

If you want to increase your speed, press the accelerator pedal. When you release the pedal, you will return to your **SET SPEED**.

ACCEL: You may increase your **SET SPEED** by using the **RESUME/ACCEL** feature. Your vehicle will accelerate as you hold the slide switch to the **RESUME/ACCEL** position. When you release the slide switch you will have a new, higher **SET SPEED**.

TAP-UP: You can also increase you speed gradually, by quickly sliding and releasing the **RESUME/ACCEL** switch. Each time you slide and release the slide switch, your speed will increase approximately one mph.

COAST: To reduce your **SET SPEED**, press and hold the **SET/COAST** button. This erases the old **SET SPEED**, and allows your vehicle to coast. Just before reaching the speed you want, release the button. This will be your new **SET SPEED**, providing you are above 35 mph.

TAP-DOWN: You can also decrease your speed gradually, by quickly pressing and releasing the **SET/COAST** button. Each time you press and release the button your speed will decrease approximately one mph.

RESUME: When you use the brake to slow down or stop, the Cruise Control will remember your **SET SPEED**. To return to the **SET SPEED**, you need to be above 30 mph and drive to a speed within 15 mph of your **SET SPEED**. Slide the **RESUME/ACCEL** slide switch, then release it. Your vehicle will automatically accelerate to the **SET SPEED** and hold there.

When using the **RESUME** feature with a standard transmission, you must be in the correct gear for your **SET SPEED**.

After braking, the **RESUME** feature will NOT work if you:

-Move the slide switch to **OFF**

-Turn **OFF** the ignition

If this happens, you need to **SET SPEED** again.

DISENGAGE: You may **DISENGAGE** from your **SET SPEED** in two or three ways depending on the type of transmission (manual or automatic) you have in your car.

-Gently depress the brake pedal to activate the brake lights

-Turn the **Cruise Control Switch** to the **OFF** position

-For manual transmissions, depress the clutch (This **WILL** cause the engine to rev before disengaging)

THINGS YOU SHOULD KNOW ABOUT YOUR SPEED CONTROL

The performance of the Speed Control is dependent upon the amount of vacuum produced by the engine. The level of vacuum available from a gasoline-burning engine is determined by the condition of the engine, its size, and even by the type of emission control equipment it has. Even a small vacuum leak will reduce the system's performance, and driving at high altitudes will have a similar effect.

Under normal conditions with proper regulator adjustments, speed should be controlled within plus or minus 2-1/2 MPH. There may be situations, however, which make it seem as if the Speed Control is not capable of functioning that accurately. Such things as an extra heavy load, a very steep hill, or a severe headwind will call for the throttle to be opened much wider than normal. A wider throttle opening will cause the vacuum to drop almost to zero, and that drop is the thing which denies the system the very strength it needs to open the throttle.

The way to handle these temporary problem situations is to momentarily bring the vehicle up to speed with the accelerator pedal-then let the Speed control take over again. If the system does not perform as previously described, see the **Self-Diagnostics** section of this manual to determine the cause.

CAUTION: *Do not use Speed Control on slippery roads or in heavy traffic.*