

Electronic Speed Control

Shop Service Manual

FOR SYSTEMS USING

Yellow Regulator	3-R
Blue Regulator	4-R
Grey Regulator	7-R
Purple Regulator	8-R
Orange Regulator	10-R

PRECISION CONTROLS



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General Description

3-R and 4-R

The Electronic Speed Control system is designed to maintain a set speed by using a vacuum operated Servo Unit. The Speed Control system consists of five major components: The **SERVO**, mounted in the engine compartment and is controlled by the electronic regulator. Manifold vacuum provides the force for diaphragm motion. The **ROAD SPEED PICK-UP**, mounted under the vehicle near the drive shaft or axle shaft to generate an electrical impulse. The **ELECTRONIC REGULATOR**, is mounted under the dash and contains the electronic circuits; the **DISENGAGEMENT SWITCH**, located under the dash disengages the system by two methods and both are activated when the brake pedal (automatic or manual transmission) or clutch pedal (manual transmission) is depressed; the **CONTROL SWITCH**, mounted on the steering column or dash panel and used to operate the system.

7-R, 8-R and 10-R

The Electronic Speed Control system is designed to maintain a set speed by using a vacuum operated servo unit. The Speed Control system consists of five major components: The **Servo**, mounted in the engine compartment and is controlled by the electronic regulator. Manifold vacuum provides the force for diaphragm motion. The **Road Speed** pick-up on the 8-R system is mounted under the vehicle near the drive shaft or axle shaft to generate an electrical impulse. The **Road Speed** pick-up on the 7-R system is mounted to the speedometer cable, and generates an electronic impulse to the electronic regulator. The **Engine Speed** pick-up on the 10-R system mounts to a spark plug wire and generates a signal to the electronic regulator. The **Electronic Regulator** is mounted under the dash and contains the electronic circuits. The **Disengagement Switch** (Dump Valve) is mounted near the servo and disengages all vacuum from the servo when the brake is depressed. The **Control Switch** is normally mounted on the turn signal lever and is used to operate the system.

NOTE:

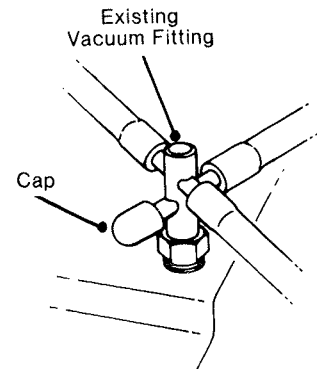
**THIS BOOK TO BE USED IN CONJUNCTION
WITH OWNERS MANUAL**

Vacuum Check

Vacuum

- 1 Vacuum must come from the intake manifold - a fitting that has a hose nipple not being used.
- 2 An existing tee in a manifold vacuum line or a vacuum tee can be used.

NOTE: The Speed Control will not work if you choose a hose with "ported" vacuum. Ported vacuum comes from above the carburetor throttle plate and operates the distributor spark advance and the EGR valve. To check, run engine at idle, disconnect hose and put finger over opening. Choose source which has good suction at idle.



See Owner's Manual for vacuum line installation

WARNING

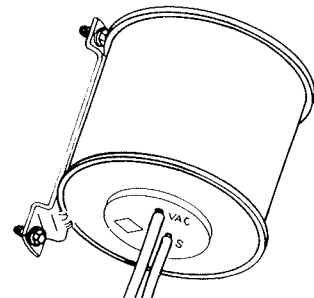
If no other source is available, engine vacuum can be obtained from the large hose to the vacuum brake booster - BUT - teeing into this hose is a safety-related action. All connections in or to this hose should be glued or have hose clamps.

Chrysler vehicles with power brakes usually have a 1/4" vacuum fitting on the booster check valve. Many imports have the check valve in the large hose. If you tee into this line, you MUST do so between the check valve and the manifold connection.

For Low Vacuum Applications

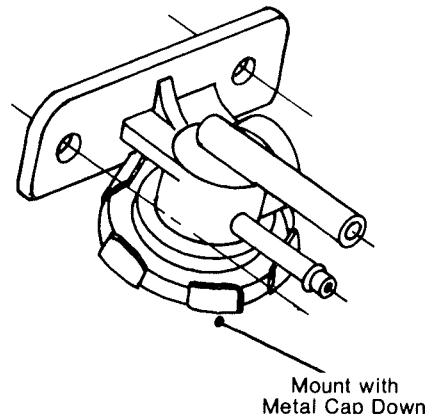
Vacuum Tank

- 1 Pulling an extra heavy load, climbing a steep hill, or bucking a strong headwind and experiencing a more than normal loss of speed - since the Speed Control is vacuum operated, some vehicles cannot supply enough vacuum for proper operation. It is recommended a vacuum tank, No. 250-6019, be used to correct this occasional problem.
- 2 In a vehicle powered by a turbocharged engine, there is a need for a vacuum tank. Under normal driving conditions, the intake manifold provides negative (vacuum) pressure. Under wide open throttle (kickdown), the intake manifold changes from negative to positive pressure.



Vacuum Regulator

A vacuum regulator must be used on gasoline and diesel-powered vehicles equipped with a vacuum pump. The vacuum regulator device lowers the constant high vacuum output of the vacuum pump and allows the Servo of the Speed Control to work in a positive manner.



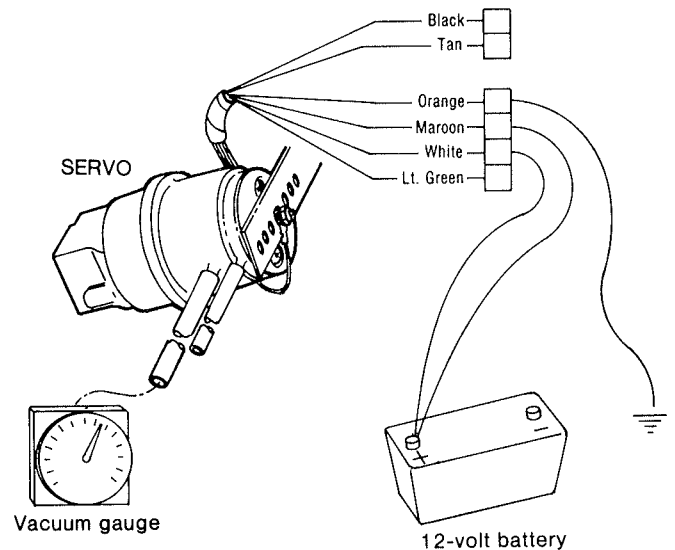
Servo Vacuum Check

To make this check (with servo on the vehicle), the servo harness must be disconnected from the main wiring harness.

1. Disconnect servo at the throttle lever.

NOTE: Attach a spring to, or hang a weight on the ball at the end of the servo cable so it will have no slack. Slack could cause the cable to slip out of the internal pulley's groove.

2. Put vehicle shift lever in neutral and set parking brake; or with automatic transmission, put lever in PARK. Start engine and run at hot idle.
3. Attach one jumper wire to chassis ground, and other end to Orange wire terminal.
4. Attach another jumper wire to positive (+) terminal of a 12-volt battery, and the other end to White wire terminal.
5. Attach one more jumper wire to positive (+) terminal of a 12-volt battery and other end to Maroon wire terminal.
6. Repeat steps 3, 4 and 5 several times to be sure valve is able to open against vacuum pull when voltage is applied and close off vacuum when voltage is removed.
7. If valve performs as required, turn ignition switch off. Remove test equipment, re-connect servo to throttle. Re-attach vacuum hose and connect servo harness to main harness. If servo does not perform as described, replace servo.



IMPORTANT:

The installer should instruct the owner to refer to his Owner's Manual if a two-way radio is later installed in the vehicle.

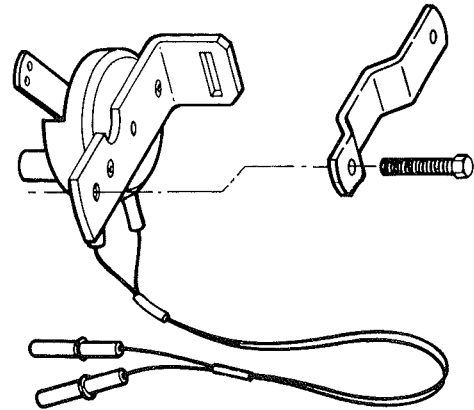
If there is already a two-way radio in the vehicle, certain steps should be taken to prevent it from interfering with the Speedostat Speed Control:

1. Locate the regulator as far from the transceiver as practical (at least 3 inches).
2. Route the Speedostat wiring harnesses as far from the radio's power and ground wires and coaxial cable as practical.
3. Wire the radio directly to the battery.
4. Adjust the standing wave ratio of the antenna as low as possible.

Disengagement Switch and Vacuum 3-R & 4-R

Valve Check

1. **Valve Check**
 - (a) Take vacuum hose from switch, plug hose end (must not leak), drive vehicle.
 - (b) Check all hoses for leaks.
2. **Switch Won't Disengage**
 - (a) Check for obstructions (carpet, floor mats, etc.).
 - (b) Check position of switch on clutch or brake lever.
 - (c) Bead chain too tight.
3. **Intermittent Operation**
 - (a) Check hose and switch for leaks (vacuum check).

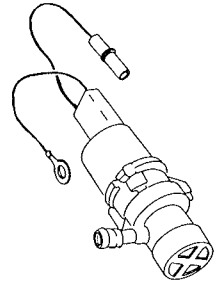


Disengagement Switch

Dump Valve Check 7-R, 8-R & 10-R

Electrical Check - Check continually between term. #8 (pink) and #1 (lt. green). If circuit is open, check ground of light green wire at dump valve and connection of pink wire. If connections ok and circuit open, replace dump valve.

Leak Check - Disconnect pink wire from main wiring harness and apply 12V to dump valve wire. Unplug large hose from servo, suck on hose and seal end with tongue. If vacuum cannot be held, replace dump valve.



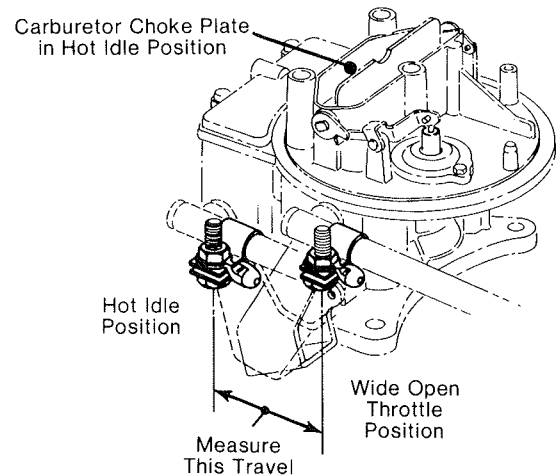
Servo/Throttle Setting

Servo Cable Adjustment

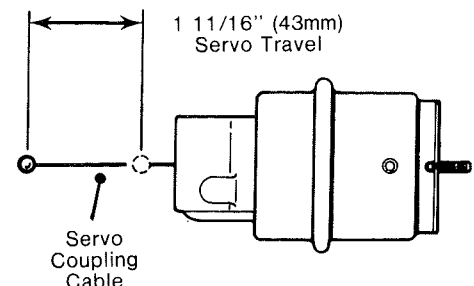
1. Servo's full travel is 1 11/16". Travel of lever or pulley segment or carburetor at point of connection must be more than 1 11/16" or slack must be added to chain link (carburetor travel **must** be more than servo travel) of lever or pulley reaches its stop before servo does. Servo is powerful enough to break its cable or strip off a bead. To set proper adjustment, measure straight line travel of lever or pulley segment at point of attachment.

NOTE: If your vehicle has a carburetor which has a choke plate (shown in figure above), travel must be measured between "hot idle" position and "wide open throttle" position. Linkage adjusted to "cold idle" position will not let throttle close when engine warms up.

To set a cold carburetor for "hot idle", open throttle with one hand, hold choke plate vertical with other hand. Release throttle, then release choke plate. **EACH TIME YOU MEASURE TRAVEL YOU MUST RESET "HOT IDLE" BECAUSE OPENING THE THROTTLE LETS CHOKE PLATE RETURN TO COLD IDLE.**



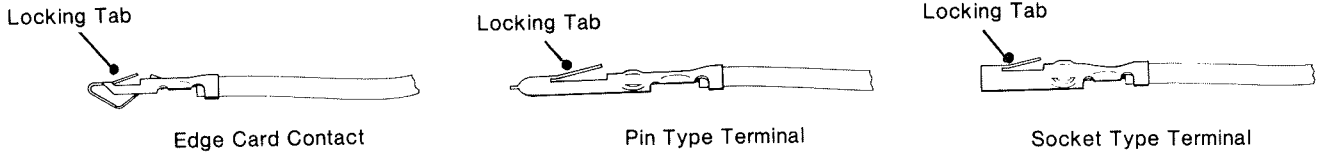
Carburetor Travel Must Be More Than Servo Travel. Move Bead Chain Attachment Point-OR-Add More Slack in Bead Chain If Necessary.



Terminal Releasing Instructions

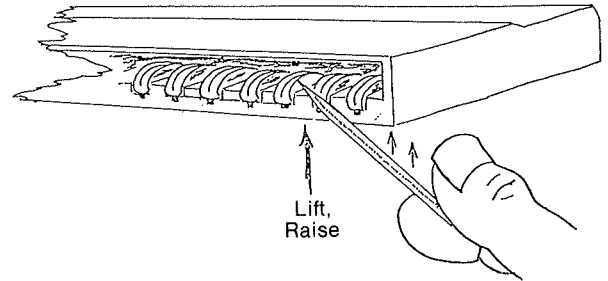
There are three types of terminals and each has a locking tab to hold it in its connector body. To remove the terminal, depress the locking tab, then pull on the wire. Use a narrow thin blade or a terminal releasing tool, and insert it into the open end of the connector in such a way that the locking tab is pressed against the terminal.

Before putting any terminal back into a connector body, pry the locking tab out of the angle shown. Do not over-bend. Copper alloys will harden and break if flexed too much or too often.



Terminal Straightening Instructions

Looking into the end of the connector housing, check that all terminal locking tabs are in the up position. If not, use a small wire (paper clip that is straightened or a straight pin). Insert from front and put wire under terminal locking tab and pull in upward fashion until tabs are even. This will make for a better connection when connector body is put in regulator.



Resistance Measurement

These tests should be made with an ohmmeter having an accuracy of least $\pm 2\%$.

Test Conditions:

1. Disconnect 14-pin connector of main wiring harness from Speed Control regulator. See removal instructions on page opposite. Regulator is located under instrument panel.
2. Remove fuse from fuse holder in red power wire of Speed Control main wiring harness.
3. Turn vehicle ignition switch to OFF position.
4. Connect ohmmeter leads to the connector terminals as shown below.

Circuit Tested	OHM Meter From	Leads To	Correct Resistance	If Circuit Checks Open or Shorted
Position feedback rheostat in servo	Terminal 2 (black)	Terminal 11 (tan)	180 to 600 ohms	Servo needs to be replaced. (It has a bad rheostat, broken wire or broken terminal on rheostat lead.)
Road Speed pick-up coil	Terminal 2 (black)	Terminal 3 (blue)	41 to 51 ohms	A new road speed pick-up coil assembly is needed
Servo Charge valve coil	Terminal 12 (orange)	Terminal 4 (maroon)	38 to 48 ohms	A new servo is needed
Servo Vent valve coil	Terminal 12 (orange)	Terminal 6 (white)	38 to 48 ohms	A new servo is needed.
Spark Sensor	Terminal 2	Terminal 9	Continuity check	If open check light blue wire and gray wire for breaks or broken sensor
Dump Valve	Ground	Terminal 8	Continuity check	Check pink wire to dump valve and green ground at dump valve or open circuit through valve

NOTE: If a grounded wire or bare wire is found in any of the checks, tape up wire with electrician's vinyl plastic tape or an equivalent substitute.

If terminal wire is broken, repair wire and solder it.

Voltage and Resistance Check

Correct Power Source

12-VOLT CONSTANT SOURCE

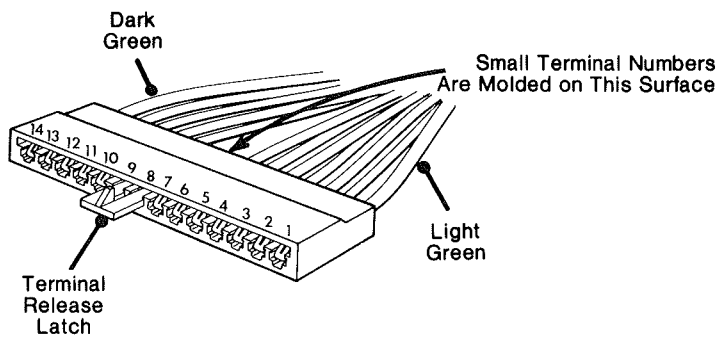
- Power for the Speed Control must come from a "switched" source. "Switched" means one controlled by the ignition switch. Touch one test light lead to ground (find electrical ground by turning on the ignition switch and touching one lead to a fused terminal at fuse panel; touch other lead to unpainted metal part of vehicle. (The metal you touch to make test light come on is ground). Touch other lead to terminal of a wire coming out of accessory section on fuse panel. Turn ignition ON, Test Light should come on. If it does not, try other wires until you find one which lets you turn Test Light ON and OFF with ignition switch.

NOTE: Certain wires from the ignition switch should not be used, such as wires to turn signals, hazard flashers or windshield wipers.

Wire Color Check

Before making continuity or voltage tests, the 14 pin connector at the regulator should be checked to be sure the right color wire goes to each terminal.

When this check is completed, check all other connections to see that the color match-up of the wires is as shown.



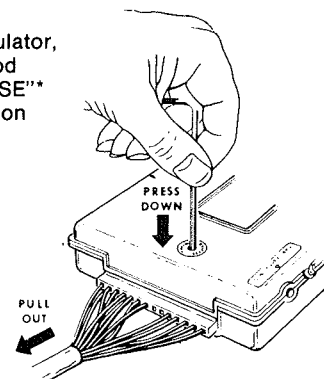
Terminal No.	Wire Color	Function
14	Dark Green	Speed Set
13	Violet	Disengagement Switch
12	Orange	Valve Common (Path to Ground through Regulator Circuit)
11	Tan	Position Feedback
10	Yellow	Resume
9 3R/4R	No Terminal	
9 7R/8R/10R	Light Blue	Spark Sensor
8 3R/4R	No Terminal	
8 7R/8R/10R	Pink	Dump Valve
7	Brown	Ignition Power
6	White	Vent Valve
5 Brown	Brown	Ignition Power
4	Maroon	Charge Valve
3	Blue	Speed Signal
2	Black	Ground
1	Light Green	Ground

If certain wires at the regulator connector are crossed (terminal positions in the connector reversed), and while they are crossed, the system is energized, damage to the regulator MAY result and replacement of the regulator will be necessary. If in doubt, relocate the wires to their correct positions and try it.

Connector can be removed from regulator as shown.

To remove harness from regulator, insert small screwdriver or rod through "TERMINAL RELEASE" hole and press while pulling on wiring harness connector.

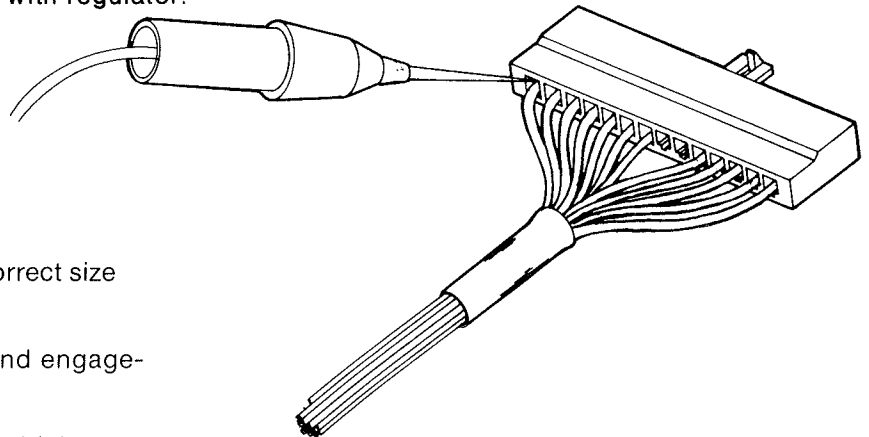
*No TERMINAL RELEASE in 7R/8R/10R.



Voltage Measurement

The following test may be made with any appropriate voltage measuring device (12 v. test lamp, voltmeter, volt-ohmmeter). Do not make tests at open end of connector; terminals could be bent and would not make contact with regulator.

1. Disconnect 14-pin connector of main wiring harness from Speed Control regulator. (See wire color check for connector removal).
2. Check wiring harness fuse for correct size (5 amp. max.).
3. Check vehicle ignition switch and engagement switch.
4. Minus (-) lead of volt tester to vehicle chassis ground and plus (+) lead to terminal of each wire.



3-R, 7-R, 8-R and 10-R System

Wire Color	Terminal No.	First Test Engagement Switch OFF Vehicle Ignition Switch ON	Second Test Engagement Switch ON Vehicle Ignition Switch ON
Light Green	1	0 volts	0 volts
Black	2	0 volts	0 volts
Blue	3	0 volts	0 volts
Maroon	4	0 volts	0 volts
Brown 3R (Red 7R/8R/10R)	5	0 volts	12 volts
White	6	0 volts	0 volts
Brown 3R	7	0 volts	12 volts
Brown 7R, 8R & 10R	7	12 volts	12 volts
No Terminal 3R	8	0 volts	0 volts
Pink 7R, 8R & 10R	8	0 volts	0 volts
No Terminal 3R	9	0 volts	0 volts
Light Blue 7R, 8R & 10R	9	0 volts	0 volts
Yellow	10	0 volts	0 volts (12 volts when "RESUME/ACCEL" Switch is operated or "SET/COAST" button is depressed).
Tan	11	0 volts	0 volts
Orange	12	0 volts	0 volts
Violet	13	0 volts	0 volts
Dark Green	14	0 volts	12 volts (0 volts when "SET/COAST" button is depressed).

4-R System

Light Green	1	0 volts	0 volts
Black	2	0 volts	0 volts
Blue	3	0 volts	0 volts
Maroon	4	0 volts	0 volts
Brown	5	0 volts	12 volts
White	6	0 volts	0 volts
Brown	7	0 volts	12 volts
	8	0 volts	0 volts
	9	0 volts	0 volts
Yellow	10	0 volts	0 volts (12 volts when "RESUME/ACCEL" Switch is operated).
Tan	11	0 volts	0 volts
Orange	12	0 volts	0 volts
Violet	13	0 volts	0 volts
Dark Green	14	0 volts	0 volts (12 volts when "SET/COAST" button is depressed).

Continuity Check

These tests may be made with any appropriate continuity tester (battery and lamp, volt-ohmmeter, etc.)

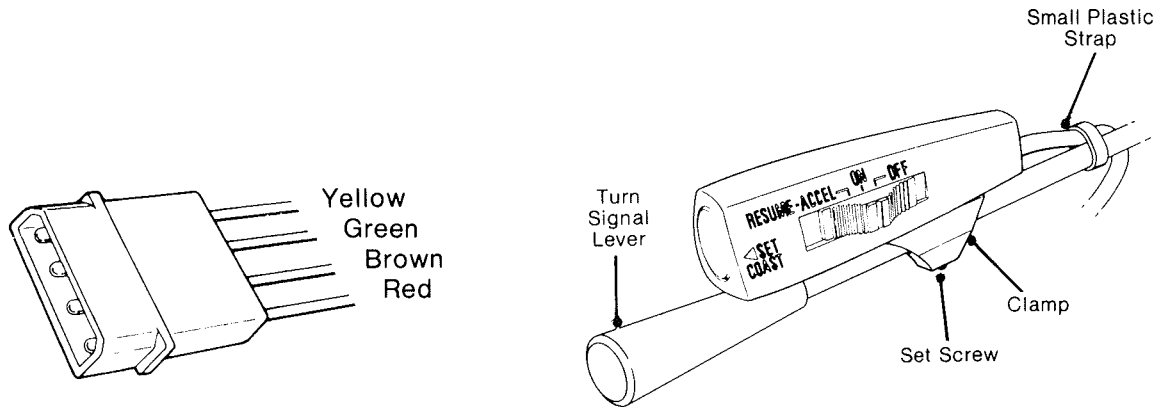
Test Conditions

1. Main harness connector should be unplugged from regulator.
2. Remove fuse from fuse holder in main harness.
3. Turn vehicle ignition switch to OFF.
4. Control switch slide button in OFF position.
5. Minus (-) lead of continuity tester attached to vehicle engine or chassis ground; plus (+) lead in firm contact with terminals of the regulator connector in the following sequence:

Test Terminal	Results	Remedy
Terminal No. 1 (Light Green)	Circuit closed	None, system ok.
	Circuit open	Eyelet terminal on servo's green wire must be grounded. If attached to servo stud, servo bracket must be mounted on a ground metal surface. If circuit is still open, check continuity of light green wire from servo connector to 14-pin connector at regulator. Look for broken wire, loose terminal, or terminal that pushes out of connector when plugged in.
Terminal No. 2 (Black)	Circuit open	None, system ok.
	Circuit closed	Check black wire, tan wire, gray wire and blue wire for exposed conductor touching grounded portion of vehicle.
Terminal No. 3 (Blue) 3-R & 4-R (Grey) 7-R, 8-R & 10-R	Circuit open	None, system ok.
	Circuit closed	Make same checks as on circuit closed. Terminal No. 2
Terminal No. 4 (Maroon)	Circuit open	None, system ok.
	Circuit closed	Insure there is no exposed conductor on the maroon, white or orange wires touching grounded portion of vehicle. Perform Steps 2 and 3 of Service Check of Electronic Speed Control Servo to see if servo is grounded internally.
Terminal No. 5 (Brown 3R) (Red 7R, 8R, 10R)	Circuit open	None, system ok.
	Circuit closed	Insure that brown and green wires of Control Switch Wiring Harness, and dark green wire and brown wire of Main Wiring Harness are not shorted to ground.
Terminal No. 6 (White)	Circuit open	None, system ok.
	Circuit closed	Same check procedures as listed for Terminal No. 4, circuit closed.
Terminal No. 7 (Brown)	Circuit open	None, system ok.
	Circuit closed	Same check procedure as listed for Terminal 5, circuit closed.
Terminal No. 8 3-R & 4-R Terminal No. 8 (Pink) 7-R, 8-R & 10-R	No Terminal	
	Circuit closed Circuit open	None, system ok. Insure that pink wire is not broken, check green ground wire at dump valve.
Terminal No. 9 3-R & 4-R Terminal No. 9 (Lt. Blue) 7-R, 8-R & 10-R	No Terminal	
	Circuit open Circuit closed	None, system ok. Insure that blue wire of spark sensor is not shorted to ground.
Terminal No. 10 (Yellow)	Circuit open	None, system ok.
	Circuit closed	Insure that yellow wire of Main Wiring Harness and yellow wire of Control Switch Harness have not been shorted to ground.
Terminal No. 11 (Tan)	Circuit open	None, system ok.
	Circuit closed	Check black wire, tan wire, gray wire, and blue wire for exposed conductor touching grounded portion of vehicle.
Terminal No. 12 (Orange)	Circuit open	None, system ok.
	Circuit closed	Same check procedures as listed for Terminal No. 4, circuit closed.
Terminal No. 13 (Violet)	Circuit closed (open when brake pedal is depressed) Circuit open 3-R & 4-R	None, system ok.
	Circuit open 7-R, 8-R & 10-R	Start with violet wire at regulator connector and check for breaks and poor connections as you trace the following circuit. First, to the connection with the disengagement switch; then check to see that the switch leads are firmly attached to the switch body and the switch is properly adjusted follow the brown lead to the connection with the deceleration switch, insure the switch is properly mounted (18° above horizontal); continue on to the connection with the green wire of the Main Harness; then check the green wire on both sides of the servo connection; see that the green servo wire with eyelet terminal is firmly attached to vehicle ground; and finally, inspect the connection of the light green wire at Terminal No. 1 of the 14-pin regulator connector. Insure that violet wire is properly attached to the cold side of the brake switch, or repair open in brake lamp circuit to ground.
Terminal No. 14 (Dark Green)	Circuit open	None, system ok.
	Circuit closed	Same check procedure as listed for Terminal No. 5, circuit closed.

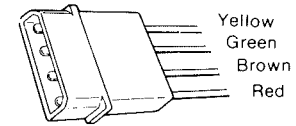
Control Switch Resistance Measurement 3R - 7R - 8R - 10R

1. These tests should be made with an ohmmeter having an accuracy of at least $\pm 2\%$.
2. Zero ohmmeter before making measurement.
3. Plus (+) lead of ohmmeter to red wire. Minus (-) lead of ohmmeter to brown wire. Slide switch to "ON" position. Minus (-) meter should show zero ohms. Should not show more than 1/2 ohm of resistance. If higher than 1/2 ohm, replace control switch.
4. Minus (-) lead of ohmmeter to green wire. Slide switch to "ON" position. Minus (-) meter should show zero ohms, should not shown more than 1/2 ohm of resistance. If higher than 1/2 ohm, replace control switch.
5. Push SET/COAST button in and hold. Minus (-) circuit should open completely. If it does not, replace control switch.
6. Minus (-) lead of ohmmeter to yellow wire. Slide switch "ON" position. Minus (-) slide switch held to "RESUME/ACCEL" position. Minus (-) meter should show zero ohms. Should not show more than 1/2 ohm of resistance. If higher than 1/2 ohm, replace control switch. Release slide switch and circuit should open.



Control Switch Check - 4-R - Trouble Shooting Guide

Use a 12 Volt Test Light and Jumper Wire To Perform These Checks.
Disconnect switch at flat, 4-wire harness connector. Attach jumper wire from 12 volt power to red wire terminal of Control Switch Connector.



TEST CONDITIONS	WIRE COLOR	SWITCH O.K.	REPLACE SWITCH
Slide switch to OFF, ground one test light lead, touch other test lead in turn, to terminal of:	Brown Wire Green Wire Yellow Wire	Light OFF Light OFF Light OFF	Light ON Light ON Light ON
Slide switch to ON, ground one test light lead, touch other test lead in turn, to terminal of:	Brown Wire Green Wire Yellow Wire	Light ON Light OFF Light OFF	Light OFF Light ON Light ON
Slide switch ON, press and hold "SET/COAST" button. Ground one test light lead, touch other test lead, in turn, to terminal of:	Brown Wire Green Wire Yellow Wire	Light ON Light ON Light OFF	Light OFF Light OFF Light ON
Slide switch ON, press and hold "RESUME/ACCEL" button. Ground one test light lead, touch other test lead, in turn, to terminal of:	Brown Wire Green Wire Yellow Wire	Light ON Light OFF Light ON	Light OFF Light ON Light OFF

SWITCH OPERATION DATA

	SLIDE SWITCH			SLIDE SWITCH ON
	OFF	ON	RESUME/ACCEL	Push Button Depressed
Red/Brown	Open	Closed	Closed	Closed
Red/Green	Open	Closed	Closed	Open
Red/Yellow	Open	Open	Closed	Closed

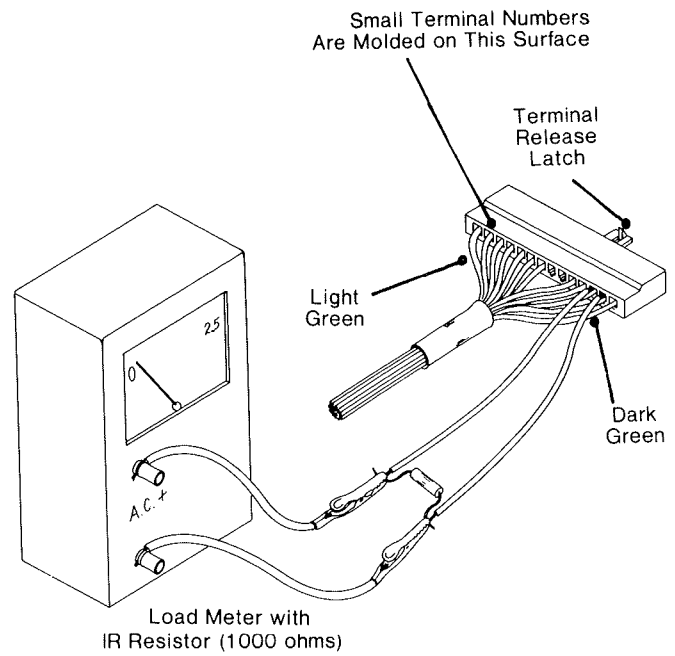
NOTE: See Owners Manual for Trouble Shooting Guide

Pick-Up Coil Output Check

1. Use a voltmeter with 2.5 volt scale, A.C. voltage.
2. Remove Regulator from 14-pin connector of wiring harness.
3. Connect voltmeter to terminals 2 and 3 of wiring harness.
4. Start vehicle and drive to 30 mph.

This becomes a two-person operation.

The Regulator can use a minimum of .05 volts at 30 mph. You will see some increase in voltage as speed increases. If voltage output is present, speed sensor or coil is okay. If voltage **is not** present, check sensor or coil for continuity. If no continuity, replace sensor or coil.



Poor Electrical Connection Check

(Wiggle & Flex Method)

The 1-R Tester can also perform another function which will verify that the terminals of 14-pin connector of wiring harness will have good continuity when plugged onto Regulator.

This becomes a two-person operation.

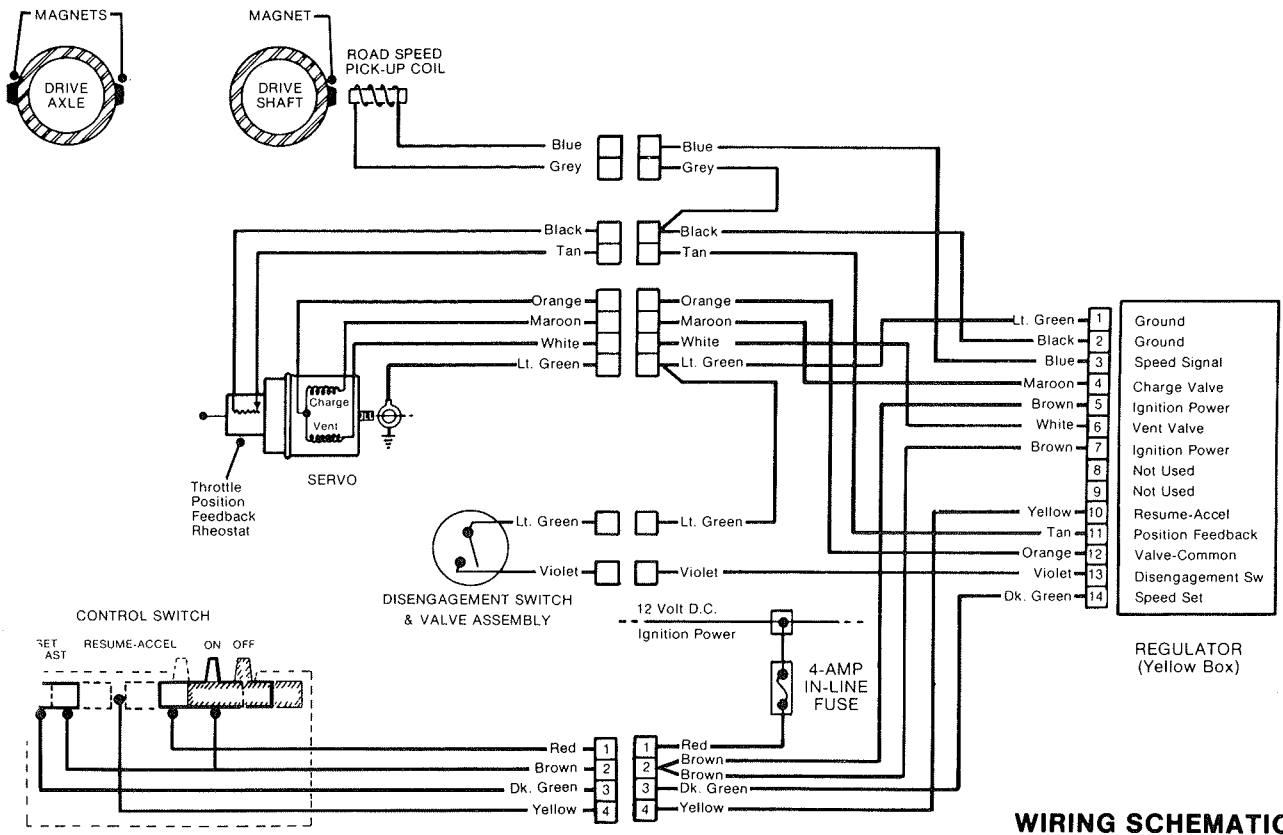
With the 1-R Tester plugged into the 14-pin connector of the Wiring Harness.

- 1) Turn ignition switch to "ON".
- 2) Move Control Slide Switch to "ON" position.
- 3) Have second person hold slide switch to "RESUME/ACCEL" position. All lights will be on.
- 4) While holding (Step 3), hold wiring harness connector in one hand and 1-R Tester in the other hand, wiggle and flex to see that all lights stay on.

If lights come and go, terminal or terminals in connector body are not making good contact. Terminals can be removed from connector and the spring members of the terminal bent upward. Insert terminals back into connector body (you can obtain a new wiring harness, but a quick repair may put vehicle back in service).

Yellow Regulator

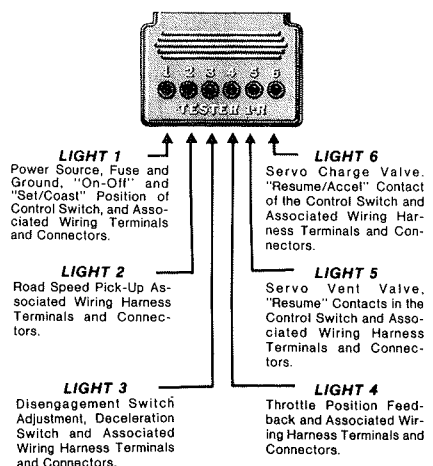
3-R System



WIRING SCHEMATIC

Tester Procedure

THIS PROCEDURE FOR TESTING SYSTEM WITH YELLOW BOX REGULATOR SPEED CONTROL SYSTEM TESTER EACH LIGHT CHECKS THE FOLLOWING



3-R	
Test No. and Condition	Correct Response
1. Correct Power Source Ignition Switch "Off" Control Switch "On"	ALL LIGHTS-OFF
2. System's Electrical Continuity: Ignition Switch "On" Control Switch "On"	LIGHTS ON 1,2,3,4 OFF 5&6
3. Servo Valve Continuity: Ignition Switch "On" Control Switch "On" Push and Hold Set Speed Button	LIGHTS ON 2,3,4,5&6 OFF 1
4. Disengagement And Deceleration Switch Continuity: Ignition Switch "On" Control Switch "On" Push On-Off Switch to "Resume"	LIGHTS ON 1,2&4 OFF 3,5,6 Release Brake Pedal and Light 3 Will Go "On"
5. "Resume/Accel Position of Control Switch" Ignition Switch "On" Control Switch "On" Push On-Off Switch to "Resume"	ALL LIGHTS-ON Light 4 Will Dim. If Throttle Does Not Open, Check Servo Cable Connectors at Servo and Carburetor. Check Disengagement Switch, Vacuum and Vacuum Hoses, and Wiring Connections.

IMPORTANT
To Activate Servo Release "Resume/Accel" And With Vehicle in Neutral or Park Start Engine. Push "On-Off" Switch to Resume/Accel and Release Immediately When Servo Starts to Pull on Throttle Linkage.

3-R Trouble Shooting for Incorrect Response

ANY LIGHT ON DURING TEST NO. 1
Red Wire Connected Directly to Constant Power

These Are Checks To Make For Incorrect Lights In Tests 2 Thru 5

LIGHT 1 - OFF
Check Red, Brown, and Green Wires At Control Switch Connector, And 14 (Dark Green Wire) At Regulator Connector For Good Connections.

LIGHT 2 - OFF
Check Road Speed Pick-Up Coil Continuity; Blue and Gray Wire Connections; 2, 3, 5, and 7 Terminals (Black, Blue, Brown, and Brown Wires) At Regulator Connector.

LIGHT 3 - OFF
Check Disengagement Switch Adjustment; Deceleration Switch Angle (See Owner's Manual); All Brown, Violet, and Light Green Wire Connections.

LIGHT 4 - OFF
Check Terminals 2 and 11 (Black and Tan Wires) At Regulator Connector; Continuity Of Throttle Position Feedback Rheostat Of Servo (See Circuit Diagram).

LIGHT 5 - OFF
Bad Connection at Terminal 6 (White Wire) or Terminal 12 (Orange Wire); Bad Servo.

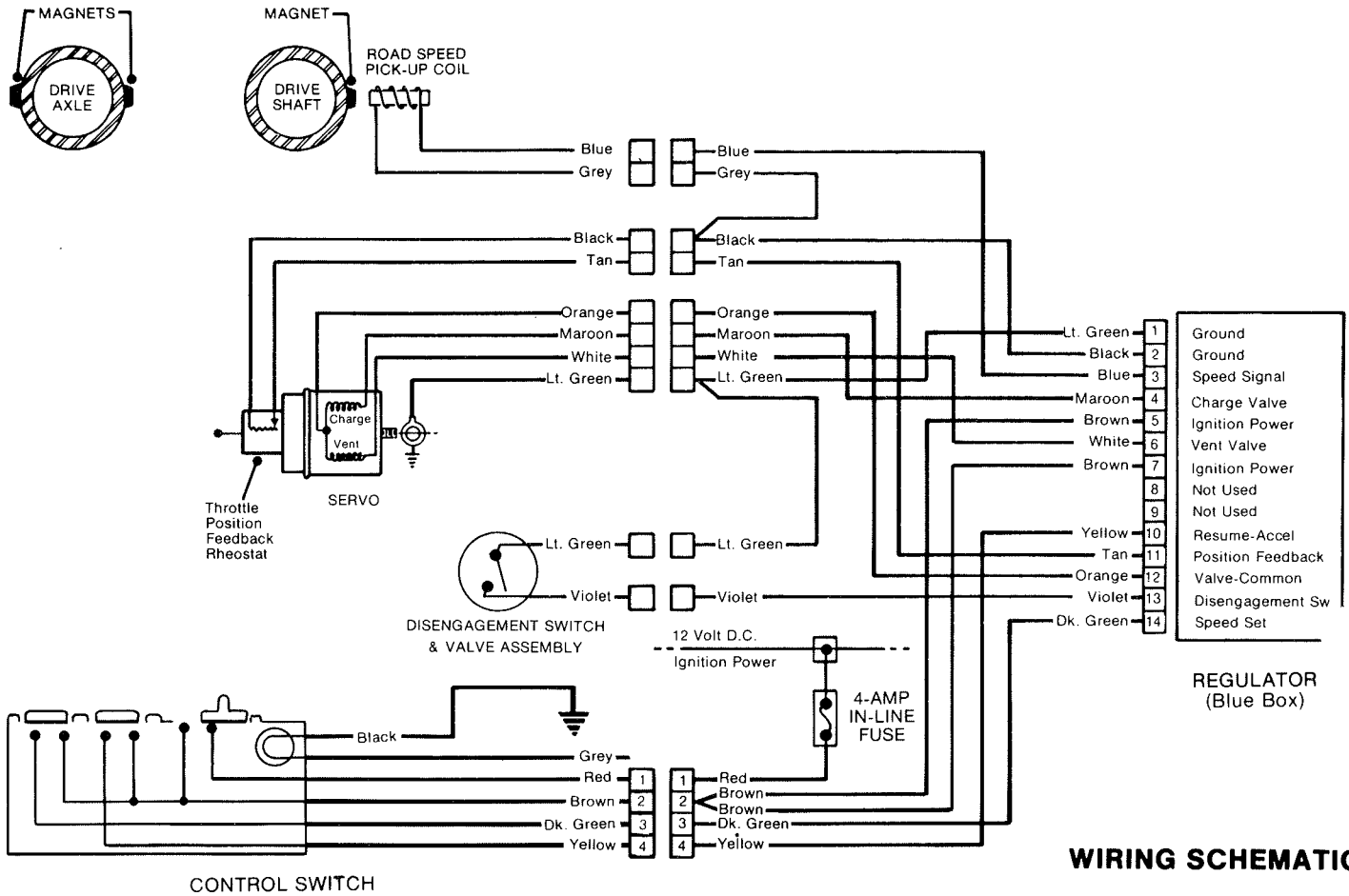
LIGHT 6 - OFF
Bad Connection at Terminal 4 (Maroon Wire) or Terminal 12 (Orange Wire); Bad Servo.

ALL LIGHTS - OFF
After Pushing "Set Speed" or "Resume" (Test 3 or 5); Blown Fuse, Red or White Wires Shorted, Bad Servo.

Refer to Owner's Manual Or Shop Service Manual For Additional Information

Blue Regulator

4-R System



WIRING SCHEMATIC

Tester Procedure

THIS PROCEDURE FOR TESTING SYSTEM WITH BLUE BOX REGULATOR SPEED CONTROL SYSTEM TESTER EACH LIGHT CHECKS THE FOLLOWING



- LIGHT 1**
Power Source, Fuse and Ground, "On-Off" and "Set/Coast" Position of Control Switch, and Associated Wiring Terminals and Connectors.
- LIGHT 2**
Road Speed Pick-Up and Associated Wiring Harness Terminals and Connectors.
- LIGHT 3**
Disengagement Switch Adjustment and Associated Wiring Harness Terminals and Connectors.
- LIGHT 4**
Throttle Position Feedback and Associated Wiring Harness Terminals and Connectors.
- LIGHT 5**
Servo Vent Valve, "Resume" Contacts in the Control Switch and Associated Wiring Harness Terminals and Connectors.
- LIGHT 6**
Servo Charge Valve, "Resume/Accel" Contact of the Control Switch and Associated Wiring Harness Terminals and Connectors.

4-R

Test No. and Condition	Correct Response
1. Correct Power Source Ignition Switch "OFF" Control Switch "ON"	ALL LIGHTS - OFF
2. System's Electrical Continuity Ignition Switch "ON" Control Switch "ON"	LIGHTS ON 2,3&4 OFF 1,5&6
3. Servo Valve Continuity: Ignition Switch "ON" Control Switch "ON" Push and Hold Set/Coast Button	LIGHTS ON 1,2,3&4 OFF 5&6
4. Disengagement Switch Continuity: Ignition Switch "ON" Control Switch "ON" Push and Hold Brake Pedal	LIGHTS ON 2&4 OFF 1,3,5&6 Release Brake Pedal and Light 3 Will Go "On".
5. Resume/Accel Position of Control Switch Ignition Switch "ON" Control Switch "ON" Push and Hold Resume/Accel Button	LIGHTS ON 2,3,4,5&6 OFF 1 Light 4 Will Dim. If Throttle Does Not Open, check Servo Cable Connections at Servo and Carburetor. Check Disengagement Switch, Vacuum, and Vacuum Hoses and Wiring Connections.

IMPORTANT
To Activate Servo Release "Resume/Accel" Button and With Vehicle in Neutral or Park, Start Engine. Push Resume/Accel Button and Release Immediately When Servo Starts to Pull on Throttle Linkage.

4-R

Trouble Shooting for Incorrect Response

ANY LIGHT ON DURING TEST NO. 1
Red Wire Connected Directly to Constant Power

These Are Checks To Make For Incorrect Lights in Test 2 Thru 5

LIGHT 1 - OFF
Check Red, Brown, and Green Wires at Control Switch Connector, and 14 (Dark Green Wire) at Regulator Connector for Good Connections.

LIGHT 2 - OFF
Check Road Speed Pick-Up Coil Continuity; Blue and Gray Wire Connections; 2,3,5 & 7 Terminals (Black, Blue, Brown and Brown Wires) at Regulator Connector.

LIGHT 3 - OFF
Check Disengagement Switch Adjustment; All Brown, Violet, and Light Green Wire Connections.

LIGHT 4 - OFF
Check Terminals 2 and 11 (Black and Tan Wires) at Regulator Connector; Continuity of Throttle Position Feedback Rheostat at Servo (See Circuit Diagram).

LIGHT 5 - OFF
Bad Connection at Terminal 6 (White Wire) or Terminal 12 (Orange Wire); Bad Servo.

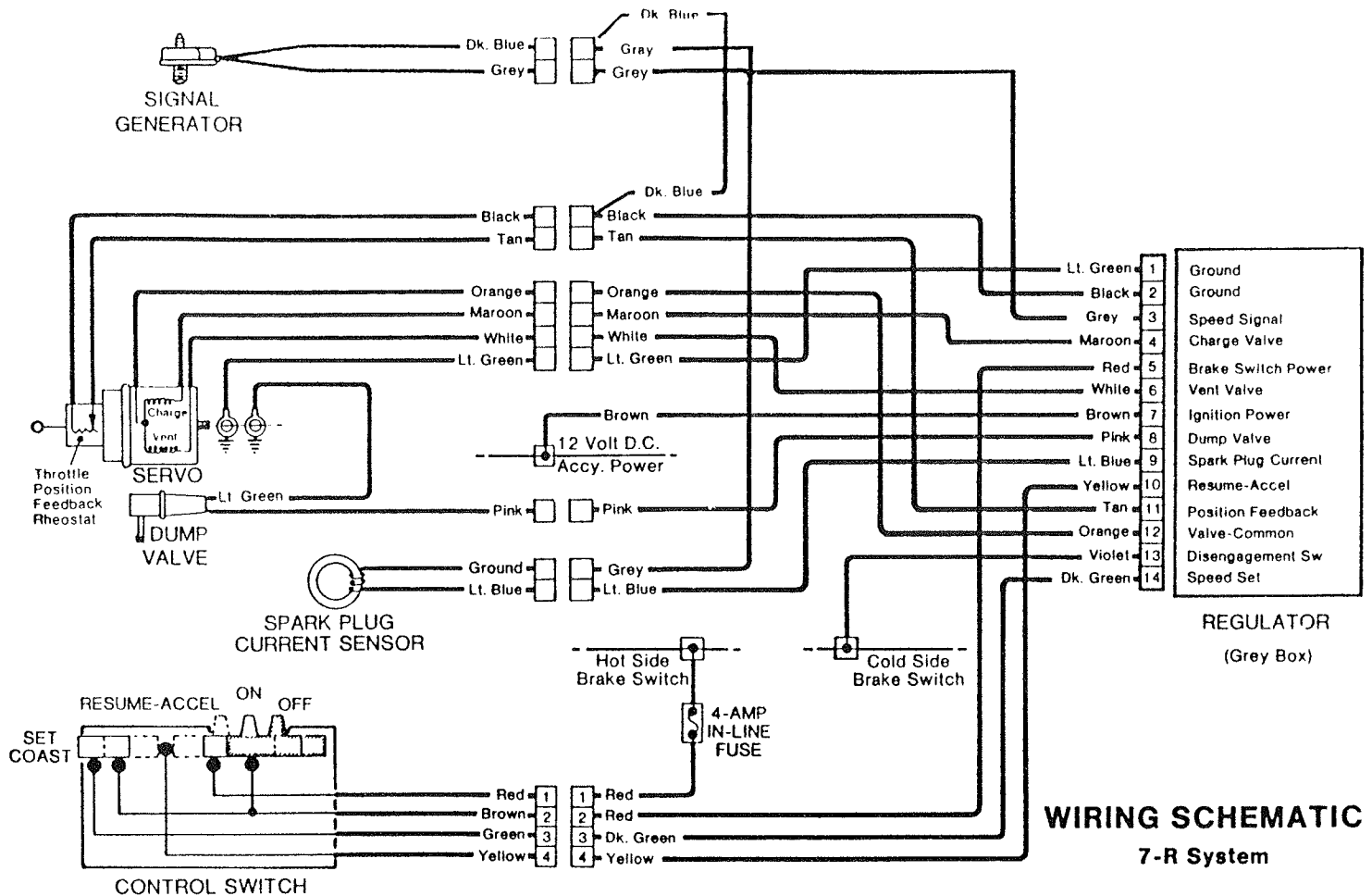
LIGHT 6 - OFF
Bad Connection at Terminal 4 (Maroon Wire) at Terminal 12 (Orange Wire); Bad Servo.

ALL LIGHTS - OFF
After Pushing "Set/Coast" or "Resume/Accel" (Test 3 or 5); Blown Fuse; Red or White Wires Shorted; Bad Servo.

Refer to Owner's Manual or Shop Service Manual for Additional Information.

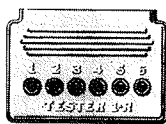
Grey Regulator

7-R System



WIRING SCHEMATIC
7-R System

EACH LIGHT CHECKS THE FOLLOWING



- LIGHT 1**
Power Source, Fuse and Ground, "ON/OFF" and "SET/COAST" Position of Control Switch.
- LIGHT 2**
Speed Sensor, Associated Wiring Harness Terminals and Connectors.
- LIGHT 3**
Brake Light Switch Adjustment and Associated Wiring Harness Terminals and Connectors.
- LIGHT 4**
Throttle Position Feedback and Associated Wiring Harness Terminals and Connectors.
- LIGHT 5**
Servo Vent Valve, "Resume" Contacts in the Control Switch and Associated Wiring Harness Terminals and Connectors.
- LIGHT 6**
Servo Charge Valve, "Resume" Contacts of the Control Switch and Associated Wiring Harness Terminals and Connectors.

7-R

NOTE: There will be a 250-3122 number on back to identify revision made to Test 7-R, 8-R & 10-R Systems as well as previous systems.

7-R

Test No. and Condition	Correct Response
1. Correct Power Source - First: Ignition Switch "OFF" Control Switch "OFF"	ALL LIGHTS - OFF
2. Correct Power Source - Second: Ignition Switch "OFF" Control Switch "ON"	LIGHTS ON 1 & 2 OFF 3, 4, 5 & 6
3. System's Electrical Continuity: Ignition Switch "ON" Control Switch "ON"	LIGHTS ON 1, 2, 3 & 4 OFF 5 & 6
4. Servo Valve Continuity: Ignition Switch "ON" Control Switch "ON" Push and Hold SET/COAST Button IMPORTANT If Engine is Running, Servo will pull Throttle to Full Open.	LIGHTS ON 2, 3, 4, 5 & 6 OFF 1 Light 4 will Dim when Servo pulls to Full Throttle if Engine is Running.
5. Disengagement (Brake Light Switch) Check: Ignition Switch "ON" Control Switch "ON" Push and Hold Brake Pedal	LIGHTS ON 1, 2 & 4 OFF 3, 5 & 6 Release Brake Pedal and Light 3 will go "ON"
6. "Resume" Position of Control Switch: Ignition Switch "ON" Control Switch "ON" Side and Hold ON/OFF Switch to RESUME/ACCEL IMPORTANT If Engine is Running, Servo will pull Throttle to Full Open.	ALL LIGHTS - ON Light 4 will Dim when Servo pulls to Full Throttle.

7-R

Trouble Shooting For Incorrect Response ANY LIGHT ON DURING TEST NO. 1

Brown Wire (No. 7 Reg. Terminal) connected directly to Constant Power Source; Bad Control Switch

THESE ARE CHECKS TO MAKE FOR INCORRECT LIGHTS IN TESTS 2 THRU 6

LIGHT 1 - OFF

Check Fuse in Red Wire, Check Red, Brown and Green Wires at Control Switch Connector, and 14 (Dark Green Wire) at Regulator Connector for Good Conditions.

LIGHT 2 - OFF

Check Speed Sensor Continuity; Speed Sensor Termination to Gray & Dk. Blue Wire; 2, 3, 5 & 7 Terminals (Black, Dk. Blue, Red and Brown Wires) at Regulator Connector.

LIGHT 3 - OFF

Check Brake Light Switch Adjustment; All Brown, Red, Violet and Lt. Green Wire Connections.

LIGHT 4 - OFF

Check Brake Light Switch 2 and 11 (Black and Tan Wires) at Regulator Connector; Continuity of Throttle Position Feedback Rheostat of Servo.

LIGHT 5 - OFF

Bad Connection at Terminal 6 (White Wire) or Terminal 12 (Orange Wire); Bad Servo.

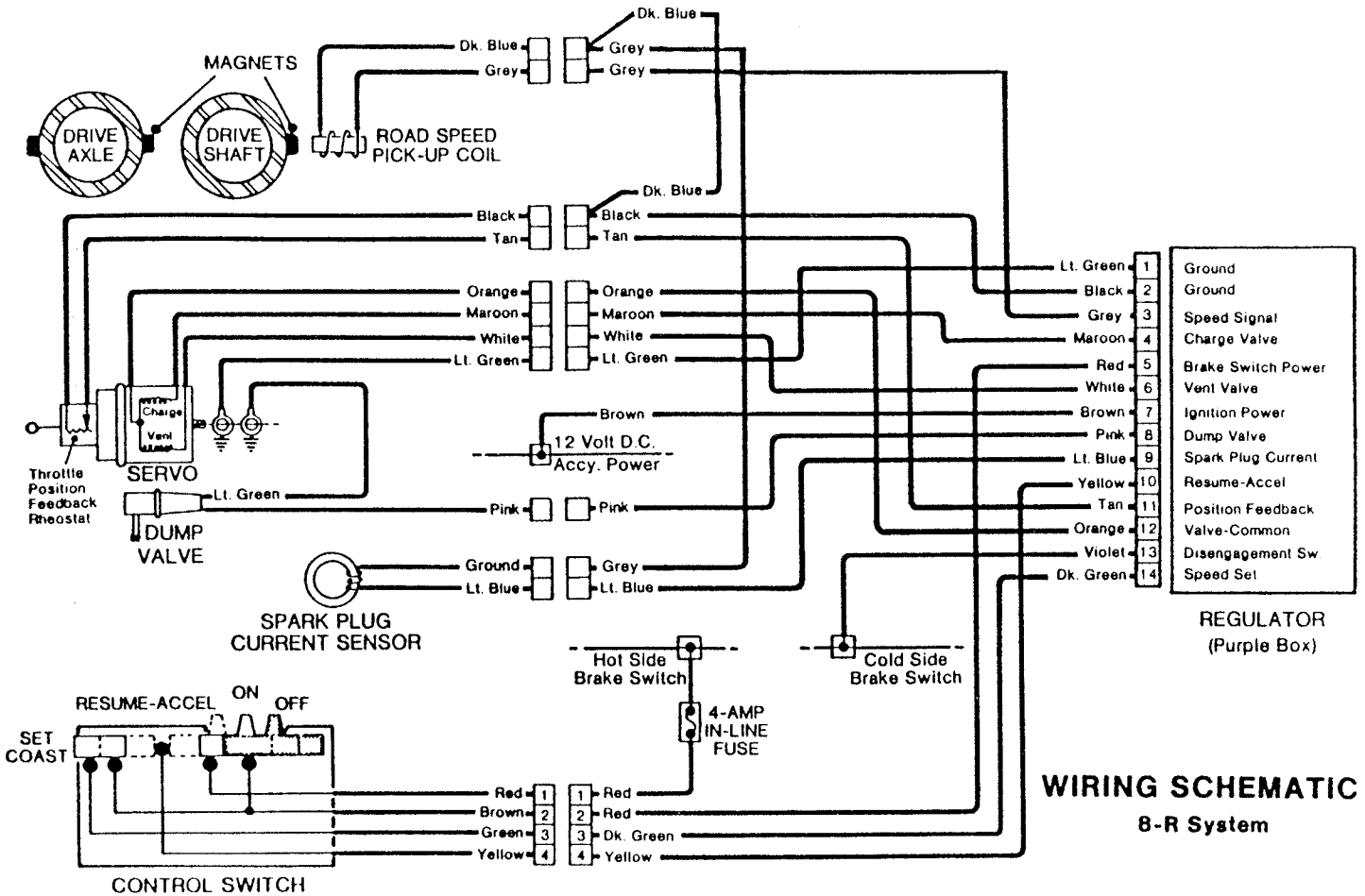
LIGHT 6 - OFF

Bad Connection at Terminal 4 (Maroon Wire) or Terminal 12 (Orange Wire); Bad Servo.

ALL LIGHTS - OFF

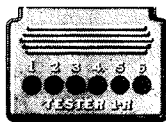
After pushing "SET/COAST" or "RESUME/ACCEL" (Test 4 or 6); Blown Fuse; Maroon, Red, Brown or White Wires Shorted; Bad Servo.

Purple Regulator



WIRING SCHEMATIC
8-R System

EACH LIGHT CHECKS THE FOLLOWING



- LIGHT 1**
Power Source, Fuse and Ground, "ON/OFF" and "SET/COAST" Position of Control Switch.
- LIGHT 2**
Speed Sensor, Associated Wiring Harness Terminals and Connectors.
- LIGHT 3**
Brake Light Switch Adjustment and Associated Wiring Harness Terminals and Connectors.
- LIGHT 4**
Throttle Position Feedback and Associated Wiring Harness Terminals and Connectors.
- LIGHT 5**
Servo Vent Valve. "Resume" Contacts the Control Switch and Associated Wiring Harness Terminals and Connectors.
- LIGHT 6**
Servo Charge Valve. "Resume" Contacts of the Control Switch and Associated Wiring Harness Terminals and Connectors.

8-R

NOTE: There will be a 250-3122 number on back to identify revision made to Test 7-R, 8-R & 10-R. Systems as well as previous systems.

8-R

Test No. and Condition	Correct Response
1. Correct Power Source - First: Ignition Switch "OFF" Control Switch "OFF"	ALL LIGHTS - OFF
2. Correct Power Source - Second: Ignition Switch "OFF" Control Switch "ON"	LIGHTS ON 1 & 2 OFF 3, 4, 5 & 6
3. System's Electrical Continuity: Ignition Switch "ON" Control Switch "ON"	LIGHTS ON 1, 2, 3 & 4 OFF 5 & 6
4. Servo Valve Continuity: Ignition Switch "ON" Control Switch "ON" Push and Hold SET/COAST Button IMPORTANT If Engine is Running, Servo will pull Throttle to Full Open	LIGHTS ON 2, 3, 4, 5 & 6 OFF 1 Light 4 will Dim when Servo pulls to Full Throttle if Engine is Running.
5. Disengagement (Brake Light Switch) Check Ignition Switch "ON" Control Switch "ON" Push and Hold Brake Pedal	LIGHTS ON 1, 2 & 4 OFF 3, 5 & 6 Release Brake Pedal and Light 3 will go "ON"
6. "Resume" Position of Control Switch: Ignition Switch "ON" Control Switch "ON" Slide and Hold ON/OFF Switch to RESUME/ACCEL IMPORTANT If Engine is Running, Servo will pull Throttle to Full Open.	ALL LIGHTS - ON Light 4 will Dim when Servo pulls us to Full Throttle.

8-R

Trouble Shooting for Incorrect Response ANY LIGHT ON DURING TEST NO. 1

Brown Wire (No. 7 Reg. Terminal) Connected Directly to Constant Power Source; Bad Control Switch.

THESE ARE CHECKS TO MAKE FOR INCORRECT LIGHTS IN TESTS 2 THRU 6

LIGHT 1 - OFF

Check Fuse in Red Wire, Check Red, Brown and Green Wires at Control Switch Connector; and 14 (Dark Green Wire at Regulator Connector for Good Connections.)

LIGHT 2 - OFF

Check Speed Sensor Continuity; Speed Sensor Termination to Grey and Dk. Blue Wire; 2, 3, 5 & 7 Terminals (Black, Dk. Blue, Red and Brown Wires) at Regulator Connector.

LIGHT 3 - OFF

Check Brake Light Switch Adjustment; All Brown, Red, Violet and Light Green Wire Connections.

LIGHT 4 - OFF

Check Terminals 2 and 11 (Black and Tan Wires) at Regulator Connector; Continuity of Throttle Position Feedback Rheostat of Servo.

LIGHT 5 - OFF

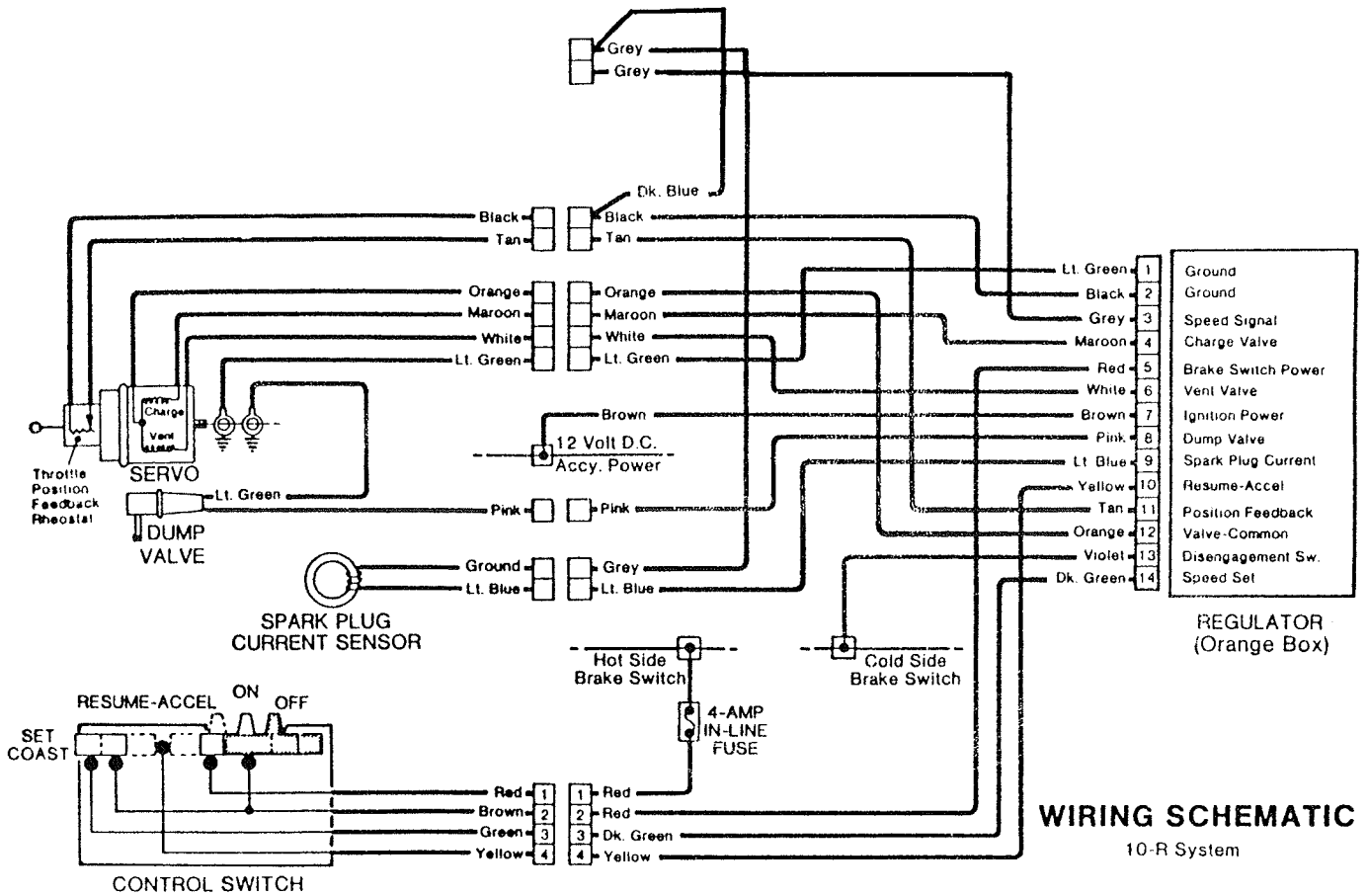
Bad Connection at Terminal 6 (White Wire) or Terminal 12 (Orange Wire); Bad Servo.

LIGHT 6 - OFF

Bad Connection at Terminal 4 (Maroon Wire) or Terminal 12 (Orange Wire); Bad Servo.

ALL LIGHTS - OFF

After pushing "SET/COAST" or "RESUME/ACCEL" (Test 4 or 6): Blown Fuse; Maroon, Red, Brown or White Wires Shorted; Bad Servo.



WIRING SCHEMATIC
10-R System

EACH LIGHT CHECKS THE FOLLOWING



- LIGHT 1**
Power Source, Fuse and Ground, "ON/OFF" and "SET/COAST" Position of Control Switch
- LIGHT 2**
OFF - Omit
Not used for 10-R
- LIGHT 3**
Brake Light Switch Adjustment and Associated Wiring Harness Terminals and Connectors.
- LIGHT 4**
Throttle Position Feedback and Associated Wiring Harness Terminals and Connectors.
- LIGHT 5**
Servo Vent Valve, "Resume" Contacts of the Control Switch and Associated Wiring Harness Terminals and Connectors.
- LIGHT 6**
Servo Charge Valve, "Resume" Contacts of the Control Switch and Associated Wiring Harness Terminals and Connectors.

10-R

NOTE: There will be a 250-3122 number on back to identify revision made to Test 7-R, 8-R & 10-R Systems as well as previous systems.

10-R

Test No. and Condition	Correct Response
1. Correct Power Source - First: Ignition Switch "OFF" Control Switch "OFF"	ALL LIGHTS - OFF
2. Correct Power Source - Second: Ignition Switch "OFF" Control Switch "ON"	LIGHTS ON 1 OFF 2, 3, 4, 5 & 6
3. System's Electrical Continuity: Ignition Switch "ON" Control Switch "ON"	LIGHTS ON 1, 3 & 4 OFF 2, 5 & 6
4. Servo Valve Continuity: Ignition Switch "ON" Control Switch "ON" Push and Hold SET/COAST Button IMPORTANT If Engine is Running, Servo will pull Throttle to Full Open	LIGHTS ON 3, 4, 5 & 6 OFF 1 & 2 Light 4 will Dim when Servo pulls to Full Throttle if Engine is Running.
5. Disengagement (Brake Light Switch) Check Ignition Switch "ON" Control Switch "ON" Push and Hold Brake Pedal	LIGHTS ON 1 & 4 OFF 2, 3, 5 & 6 Release Brake Pedal and Light 3 will go "ON"
6. "Resume" Position of Control Switch: Ignition Switch "ON" Control Switch "ON" Slide and Hold ON/OFF Switch to RESUME/ACCEL IMPORTANT If Engine is Running, Servo will pull Throttle to Full Open.	LIGHTS ON 1, 3, 4, 5 & 6 OFF 2 Light 4 will Dim when Servo pulls to Full Throttle.

10-R

Trouble Shooting For Incorrect Response ANY LIGHT ON DURING TEST NO. 1

Brown Wire (No. 7 Reg. Terminal) Connected directly to Constant Power Source; Bad Control Switch

THESE ARE CHECKS TO MAKE FOR INCORRECT LIGHTS IN TESTS 2 THRU 5

LIGHT 1 - OFF
Check Fuse in Red Wire, Check Red, Brown and Green Wires at Control Switch Connector, and 14 (Dark Green Wire) at Regulator Connector for Good Connections.

LIGHT 2 - OFF
Omit

LIGHT 3 - OFF
Check Brake Light Switch Adjustment; All Brown, Red, Violet and Light Green Wire Connections.

LIGHT 4 - OFF
Check Terminals 2 and 11 (Black and Tan Wires) at Regulator Connector; Continuity of Throttle Position Feedback Rheostat of Servo.

LIGHT 5 - OFF
Bad Connection at Terminal 6 (White Wire) or Terminal 12 (Orange Wire); Bad Servo.

LIGHT 6 - OFF
Bad Connection at Terminal 4 (Maroon Wire) or Terminal 12 (Orange Wire); Bad Servo.

ALL LIGHTS - OFF
After pushing "SET/COAST" or "RESUME/ACCEL" (Test 3 or 5); Blown Fuse; Maroon, Red, Brown or White Wires Shorted; Bad Servo.