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► [Electrical Systems: 84-88 G-Body Cruise Control Systems Diagnosis.](#)

1984-87 CUSTOM CRUISE III SYSTEM DESCRIPTION:



This system consists of a mode control assembly, (*switch*), electronic controller (module), Vehicle Speed Sensor (VSS) buffer amplifier, servo unit, and release switches and valves. The servo unit maintains vehicle speed (throttle position) by trapping vacuum in its diaphragm chamber at servo positions determined by the control module.

The module monitors mode control switch position, signals from the VSS buffer amplifier, servo position and release switch operation, then operates vacuum valves within the servo unit to control servo operation and vehicle speed. The module also contains a speed limiting function which prevents system operation at speeds below approximately 25 m.p.h.. The mode control assembly,



consists of a 3 position slide-type switch and a set/coast switch button. To operate the system, the slide switch must be in on position and vehicle speed must be above 25 m.p.h.. The system is engaged at the desired speed by fully depressing, then releasing the set/coast button. Cruise speed can be increased from set position by accelerating vehicle to desired speed, then pressing and releasing button. In order to decrease speed, the set/coast button is held in the fully depressed position (disengaging system), then released when the desired speed is reached. The system can be disengaged at any time by depressing the brake or clutch pedal, or by moving the slide switch to off position.

If the system is disengaged by depressing the brake or clutch pedal, the last set speed will be retained in the module memory until the slide switch or ignition switch is moved to off position. Momentarily moving the slide switch to the resume/accel. position will cause the vehicle to accelerate to the last set speed and maintain that speed. If the slide switch is held in the resume/accel. position, the vehicle will continue to accelerate until the switch is released. When the switch is released, the speed that the vehicle accelerated to becomes the new set speed. The slide switch also allows a ``tap-up'' function to increase cruise set speed in 1 m.p.h. increments. With the cruise control engaged and operating, ``tapping-up'' is done by pressing the slide switch to the resume position, then quickly releasing it. This procedure can be repeated 10 times before the system must be reset to a new speed in the conventional manner.

Servo Unit Operation



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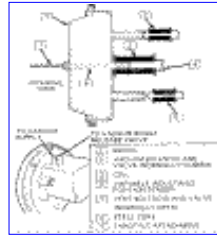
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The *servo*,



consists of a vacuum operated diaphragm, a normally open solenoid valve to vent the diaphragm, a normally closed solenoid valve connecting the diaphragm chamber to the vacuum source, and a variable inductance position sensor that provides the module with servo position data. The servo operates the throttle in response to control module commands as follows: When the system is engaged and operating at a steady rate of speed, both solenoid valves are closed. Vacuum is trapped in the diaphragm chamber exerting a constant force on the diaphragm and the throttle position remains fixed.

When the vehicle is losing speed due to increased load, or when the operator seeks to increase speed through the control switch assembly, the module energizes the vacuum valve solenoid. This increases the force exerted on the diaphragm, which in turn increases the throttle opening. When vehicle speed increases above the pre-set cruise speed, or when the operator seeks to decrease speed through the control switch assembly, the module de-energizes the diaphragm vent valve solenoid. This opens the valve, decreases force on the diaphragm, and allows the throttle return spring to decrease the throttle opening.

During normal operation, the module will pulse the operation of the vent or vacuum valves, as needed, to maintain the set cruise speed. The average duration of each pulse is 10 milliseconds. If vehicle speed drops 5 m.p.h. below set cruise speed, the module will hold the vacuum valve in the completely open (energized) position. If vehicle speed exceeds set cruise speed by 3 m.p.h. or more, then module will hold the vent valve in the open (de-energized) position. The module will hold the valves open until the vehicle speed matches the set cruise speed. The diaphragm vent valve will also remain in the fully open position if the brake or clutch pedal is depressed, the ignition is switched off, or if an open circuit exists in the system feed circuit or in the servo position sensor.

SYSTEM DIAGNOSIS AND ADJUSTMENT:

Brake Release Switches

The brake electric and vacuum release switches are both mounted on the brake pedal support bracket and are self-adjusting. If either switch is replaced, pull brake pedal rearward against stop until audible clicks are no longer heard. Release brake pedal, then repeat operation. Release switches are now adjusted.

Switch Test:



1. Disconnect mode control electrical connector from main harness connector at base of steering column.
2. Test continuity between switch connector terminals using an ohmmeter.
3. If continuity is not as shown, switch is defective.
4. Check continuity between each switch connector terminal and ground. If meter indicates continuity, check for pinched switch harness in steering column mast jacket.

● [Side View Mirror](#)

Last post by [CustomCamino83](#) in [General BS Topics](#) on Sep 02, 2004 at 15:03:49

● [what to save from '79 elky?](#)

Last post by [CustomCamino83](#) in [General BS Topics](#) on Sep 02, 2004 at 15:00:36

● [Looking for 4 speed console for 73-77](#)

Last post by [tesmith66](#) in [Garage Sales](#) on Sep 02, 2004 at 13:37:14

● [10.7 MPG normal?](#)

Last post by [a73elkyss](#) in [Performance Modifications](#) on Sep 02, 2004 at 13:32:41

● [5th Gen. Voltage drops when hitting the brakes.](#)

Last post by [cube](#) in [Electrical Systems](#) on Sep 02, 2004 at 13:24:15

● [Hello everyone! Newbie here.](#)

Last post by [tesmith66](#) in [Messages for new forum members](#) on Sep 02, 2004 at 13:06:40

● [Car Shows?](#)

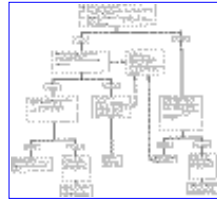
Last post by [a73elkyss](#) in [Region 3 \(DE,NJ,PA\)](#) on Sep 02, 2004 at 12:13:06

● [Full rear quarters on a 64?](#)

Switch On/Off/Resume/Accel Test:



Switch Release Test:



Switch Set/Coast Test:



Servo Test:



Test 1



Test 2

Servo Linkage Adjustment:

Last post by [Cam Sweet](#) in [Body Restoration](#) on Sep 02, 2004 at 11:18:58

● [Engine Rebuild Questions;;;here i go!!](#)

Last post by [82 meeno](#) in [Engine Topics](#) on Sep 02, 2004 at 11:01:38

● [El Camino in Video Games!](#)

Last post by [6thKenny](#) in [General BS Topics](#) on Sep 02, 2004 at 09:40:37

● [Where to learn about differentials?](#)

Last post by [RedElky](#) in [General BS Topics](#) on Sep 02, 2004 at 09:37:02

● [Region 2 - Lions Club Car show. Sept. 12](#)

Last post by [a73elkyss](#) in [Region 2 \(CT,MA,ME,NH,RI,VT\)](#) on Sep 02, 2004 at 09:15:45

● [Fall Swap Meets](#)

Last post by [a73elkyss](#) in [Region 2 \(CT,MA,ME,NH,RI,VT\)](#) on Sep 02, 2004 at 09:11:56

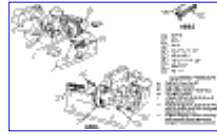
● [new to forum - 1987 Choo Choo SS in CT](#)

Last post by [a73elkyss](#) in [Messages for new forum members](#) on Sep 02, 2004 at 09:03:17

● [newbie looking for window help](#)



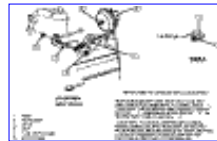
229cid



231cid



267cid

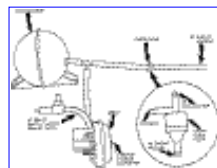
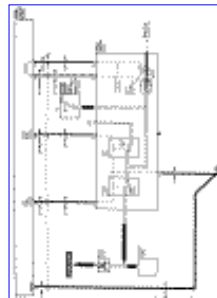


305cid



350cid Diesel

Vacuum Diagrams:



Wiring Diagrams:

Last post by [DeckDude](#) in [Body Restoration](#) on Sep 02, 2004 at 08:57:12

[85 custom elky engine](#)

Last post by [7d8ss](#) in [Engine Topics](#) on Sep 02, 2004 at 08:34:37

[what do u elcamino owner's think of air horns](#)

Last post by [stormspotter82](#) in [General BS Topics](#) on Sep 02, 2004 at 07:38:41

[Weatherstrip](#)

Last post by [85elcamino](#) in [Body Restoration](#) on Sep 02, 2004 at 06:58:12

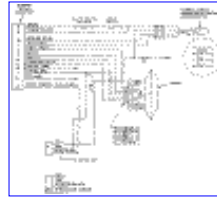
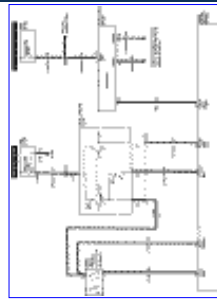
[how much diff fluid ?](#)

Last post by [WarPony](#) in [Transmission & Drive line](#) on Sep 02, 2004 at 06:31:15

[hello to all](#)

Last post by [Tommy](#) in [Messages for new forum members](#) on Sep 02, 2004 at 06:01:57

[[El Camino Central](#)]



Conclusion:

After twenty plus years of diagnosing and repairing these systems, I have found the cruise switch to be the most common failure. Next in order of failure rates would be brake switch and/or adjustment, servo cable adjustment, vacuum system problems, (missing or broken lines, leaking reservoir etc.) Then V.S.S, servo, module, and wiring.

For easy switch replacement procedures see this article at [elcaminocentral.com](http://elcaminocentral.com/article-98-thread-1-1.html): <http://elcaminocentral.com/article-98-thread-1-1.html>

For OEM style replacement switches, drop me a line: acauth1@swbell.net

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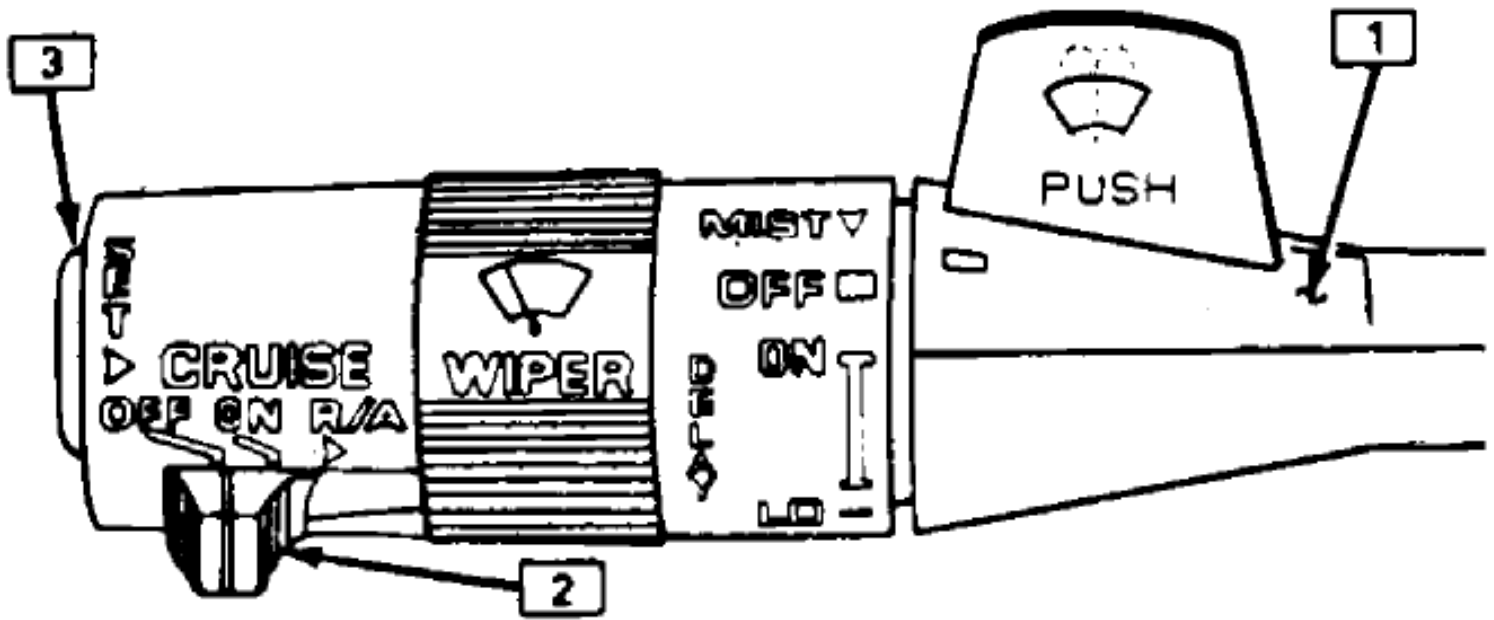
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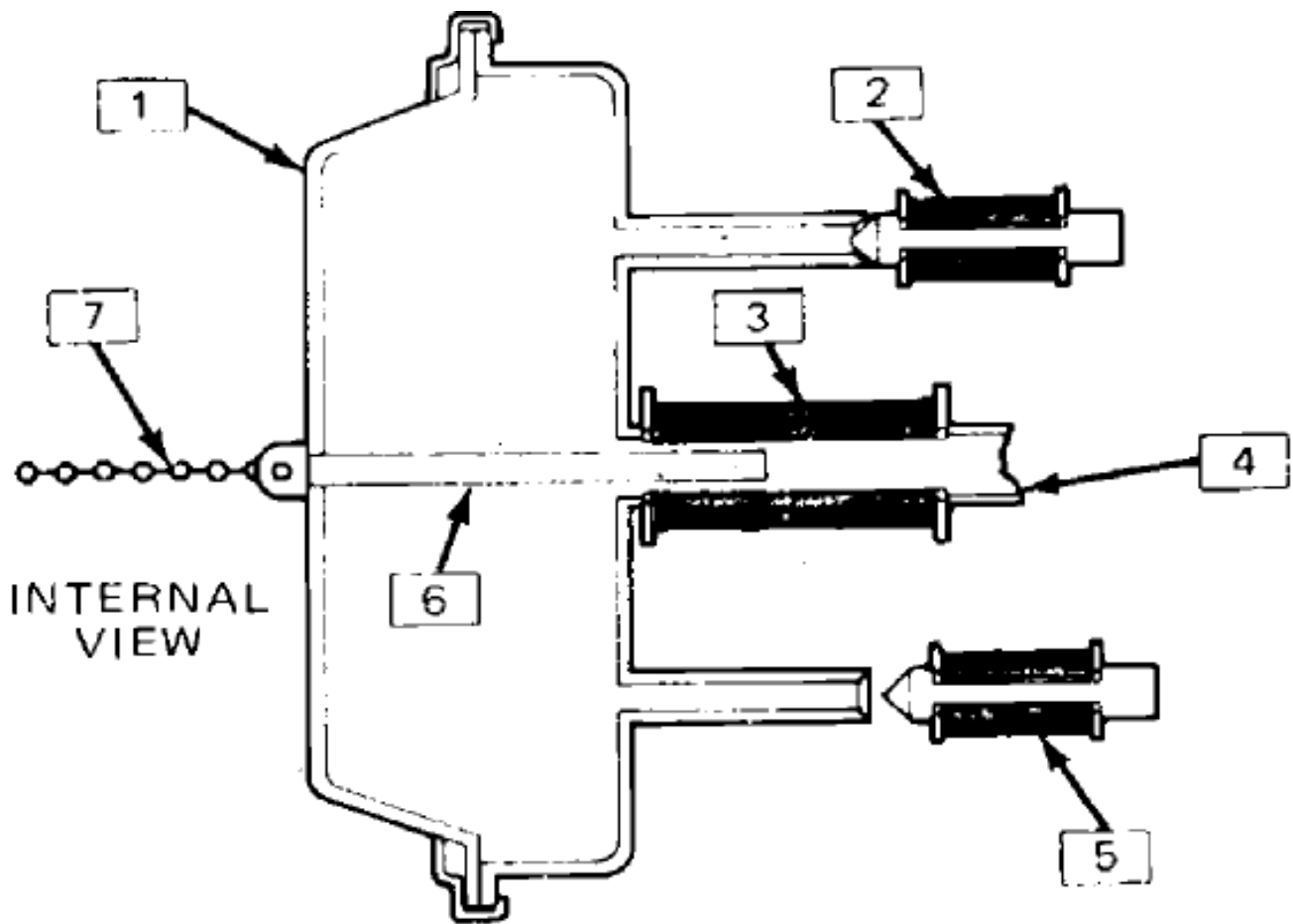
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1 DIRECTIONAL SIGNAL LEVER

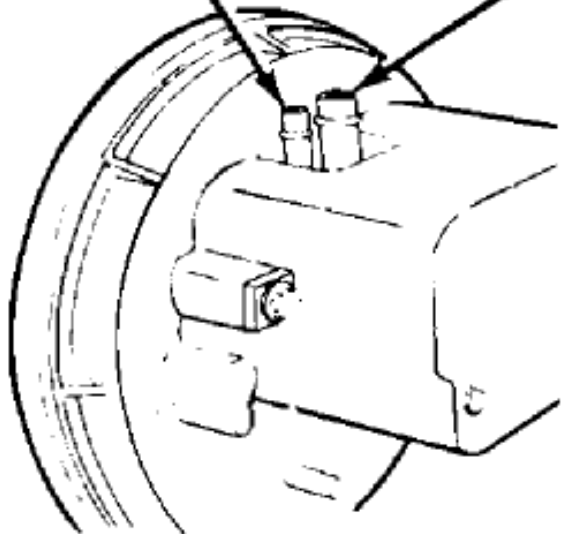
2 OFF/ON/RESUME/ACCEL SWITCH

3 SET/COAST SWITCH

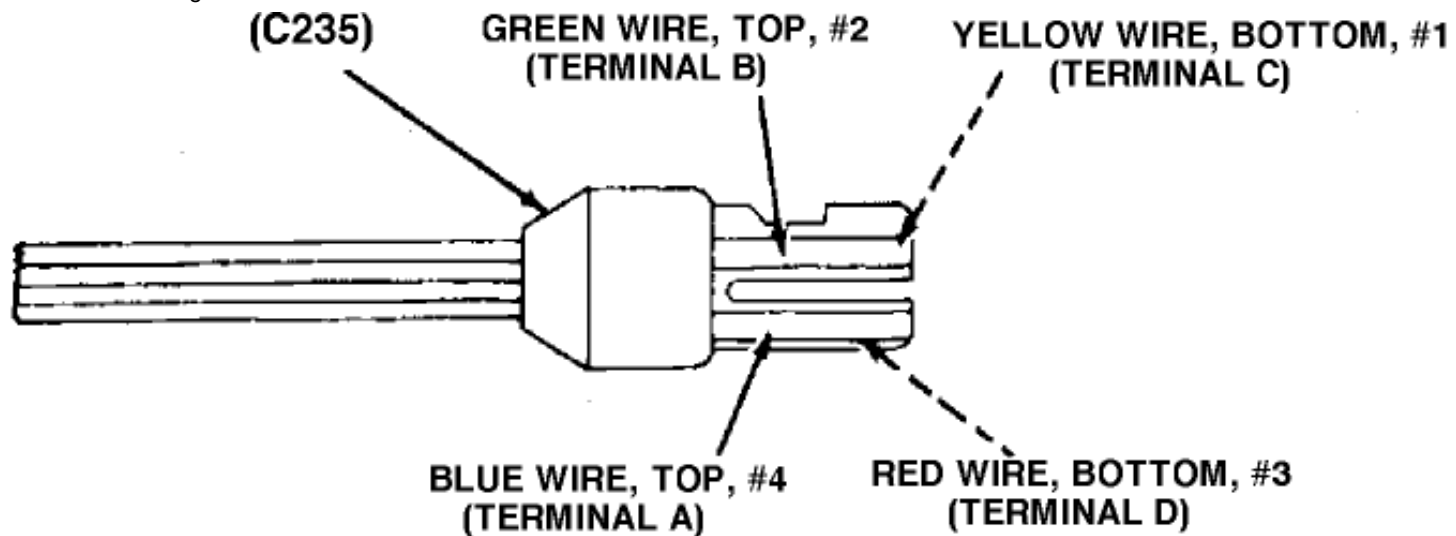


TO VACUUM SUPPLY

TO VACUUM BRAKE RELEASE VALVE

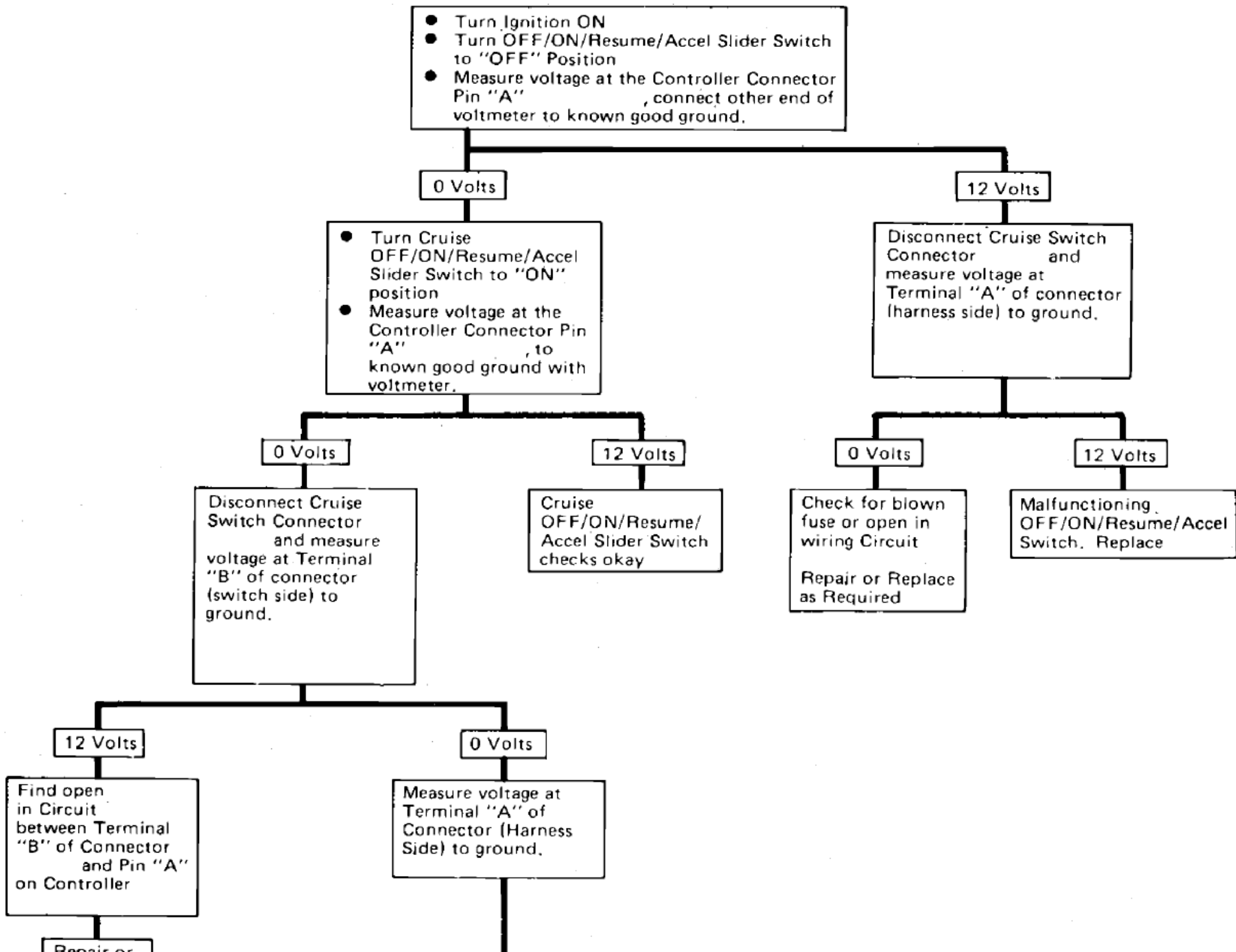


- | | |
|---|---|
| 1 | SERVO |
| 2 | VACUUM SOLENOID AND VALVE (NORMALLY CLOSED) |
| 3 | COIL |
| 4 | VARIABLE INDUCTANCE POSITION SENSOR |
| 5 | VENT SOLENOID AND VALVE (NORMALLY OPEN) |
| 6 | STEEL CORE |
| 7 | THROTTLE ATTACHMENT |

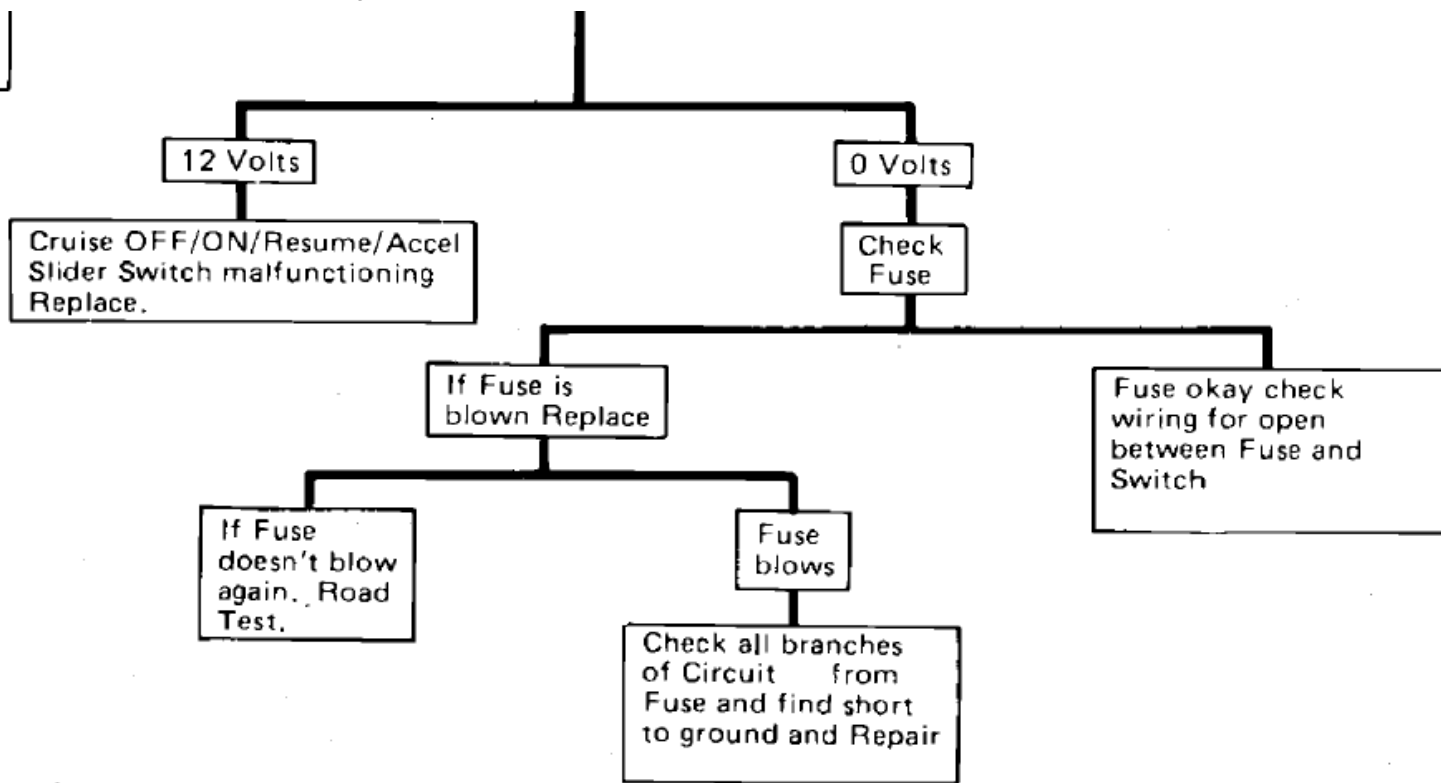


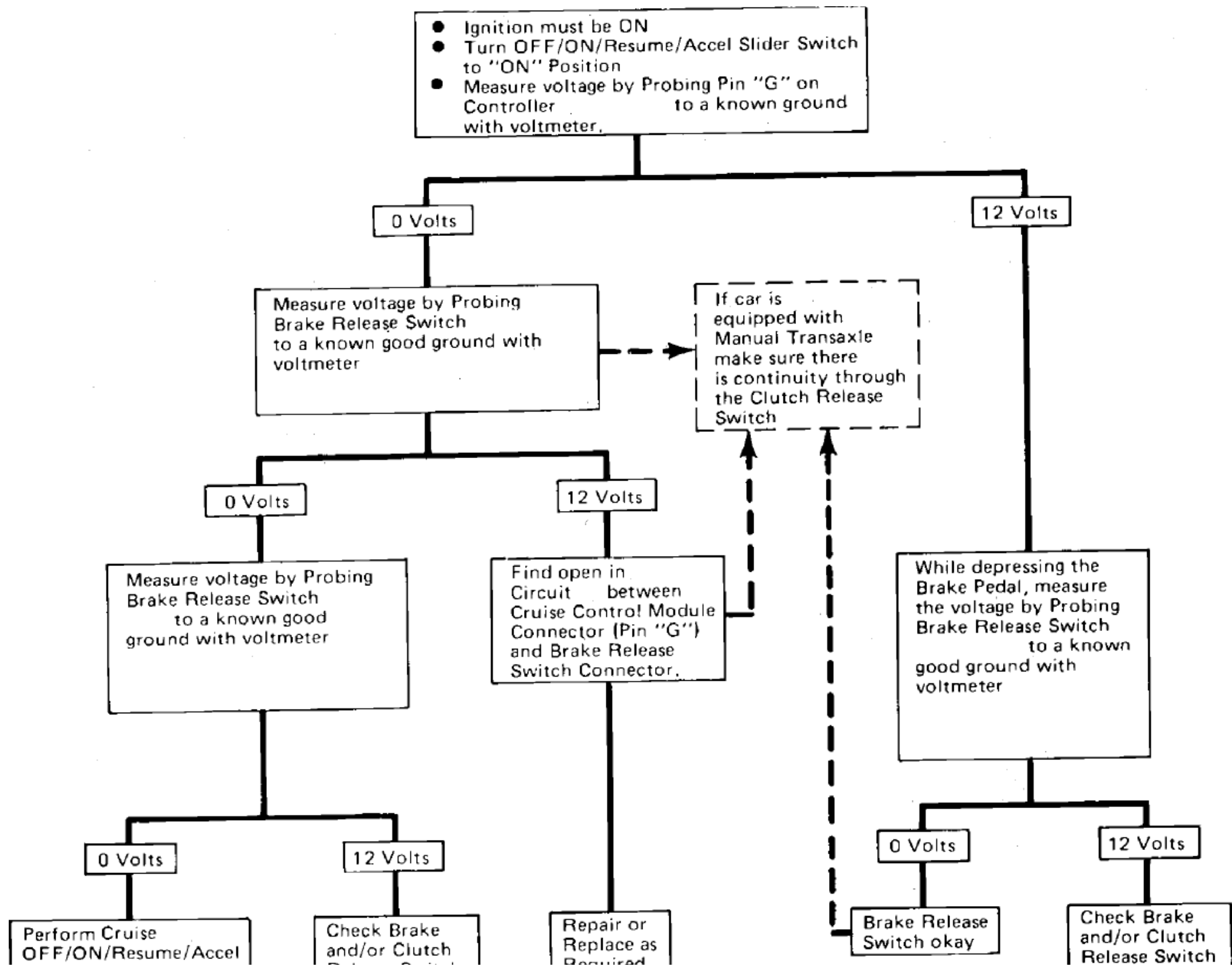
C - CONTINUITY
O - NO CONTINUITY

| SET/COAST (S/C) SW | POSITION SLIDER | 1-2 | 1-3 | 1-4 | 2-3 | 2-4 | 3-4 |
|-----------------------|--------------------|-----|-----|-----|-----|-----|-----|
| NORMAL | OFF | O | O | O | O | O | O |
| NORMAL | ON | O | O | O | O | C | O |
| NORMAL | R/A | C | O | C | O | C | O |
| DEPRESSED | OFF | O | O | O | C | O | O |
| DEPRESSED | ON | O | O | O | C | C | C |
| DEPRESSED | R/A | C | C | C | C | C | C |



Repair or
Replace as
Required





Switch Test following chart.

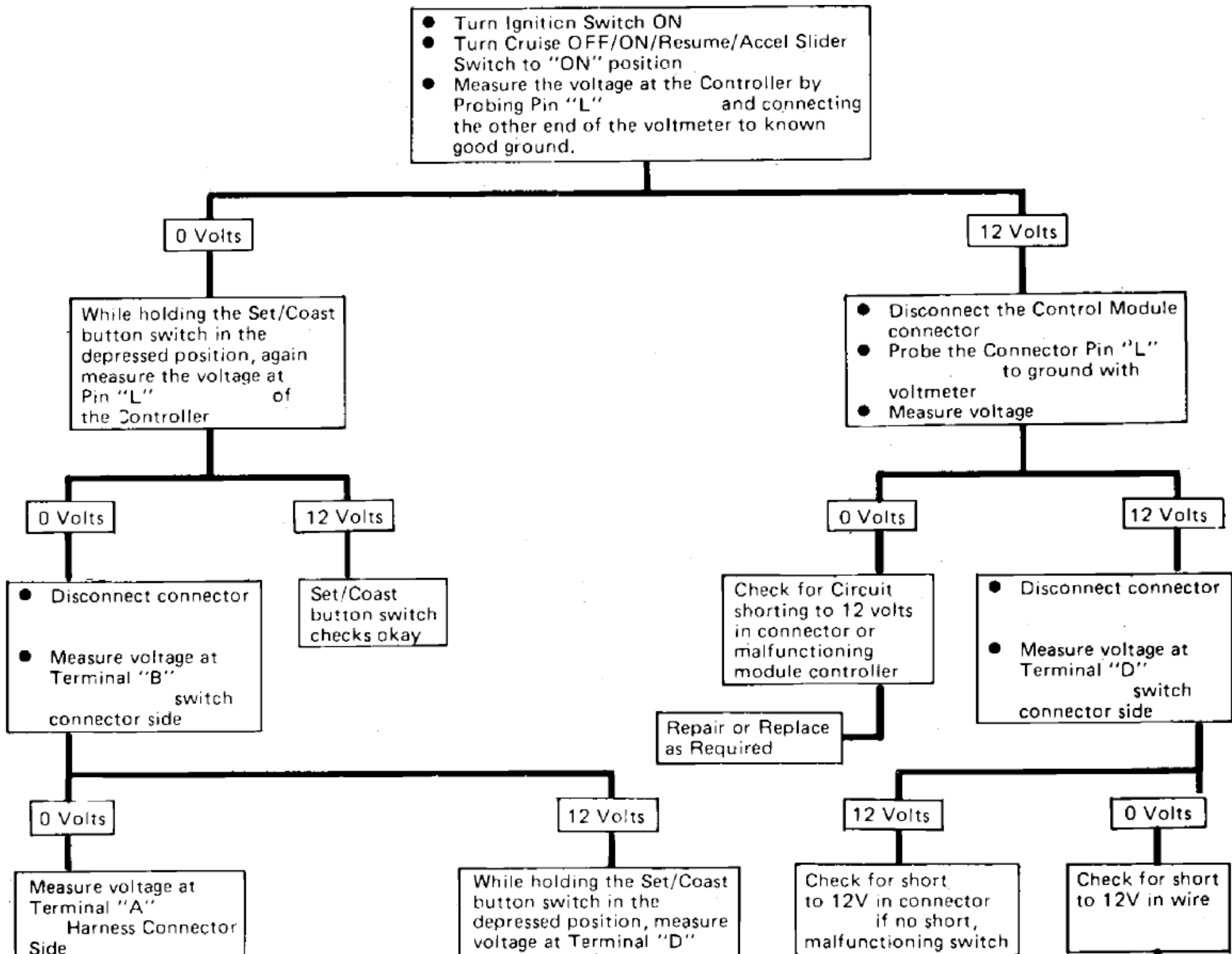
Release Switch for adjustment

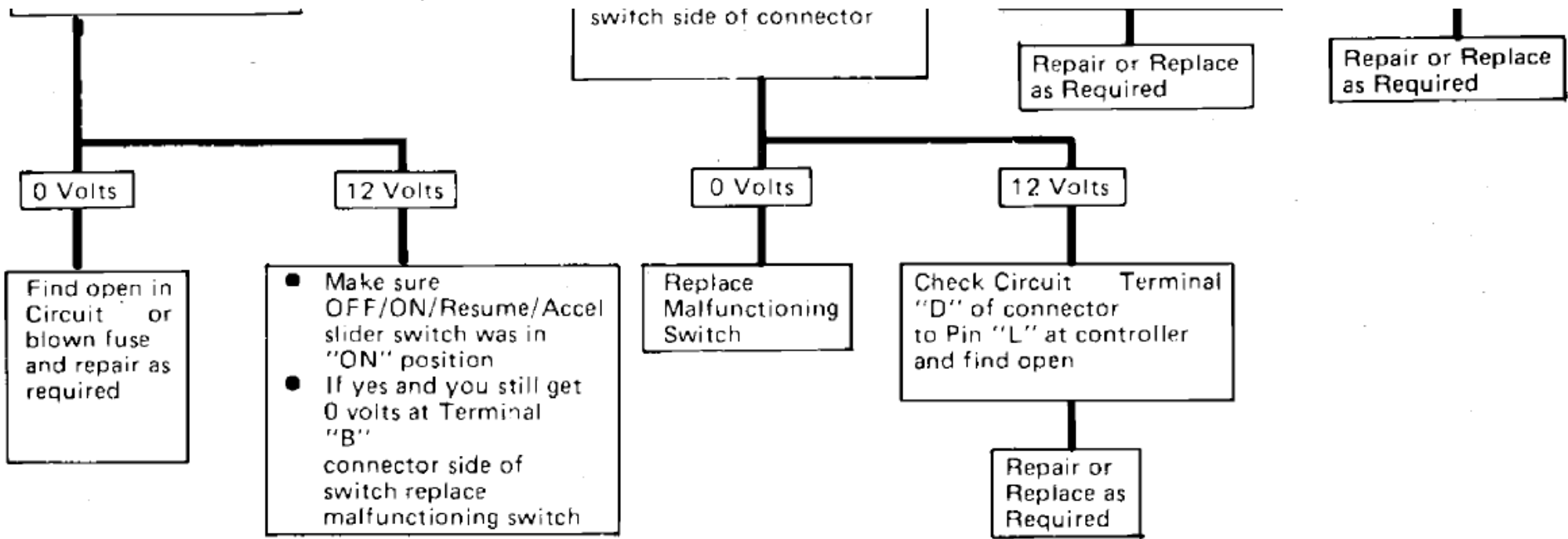
required

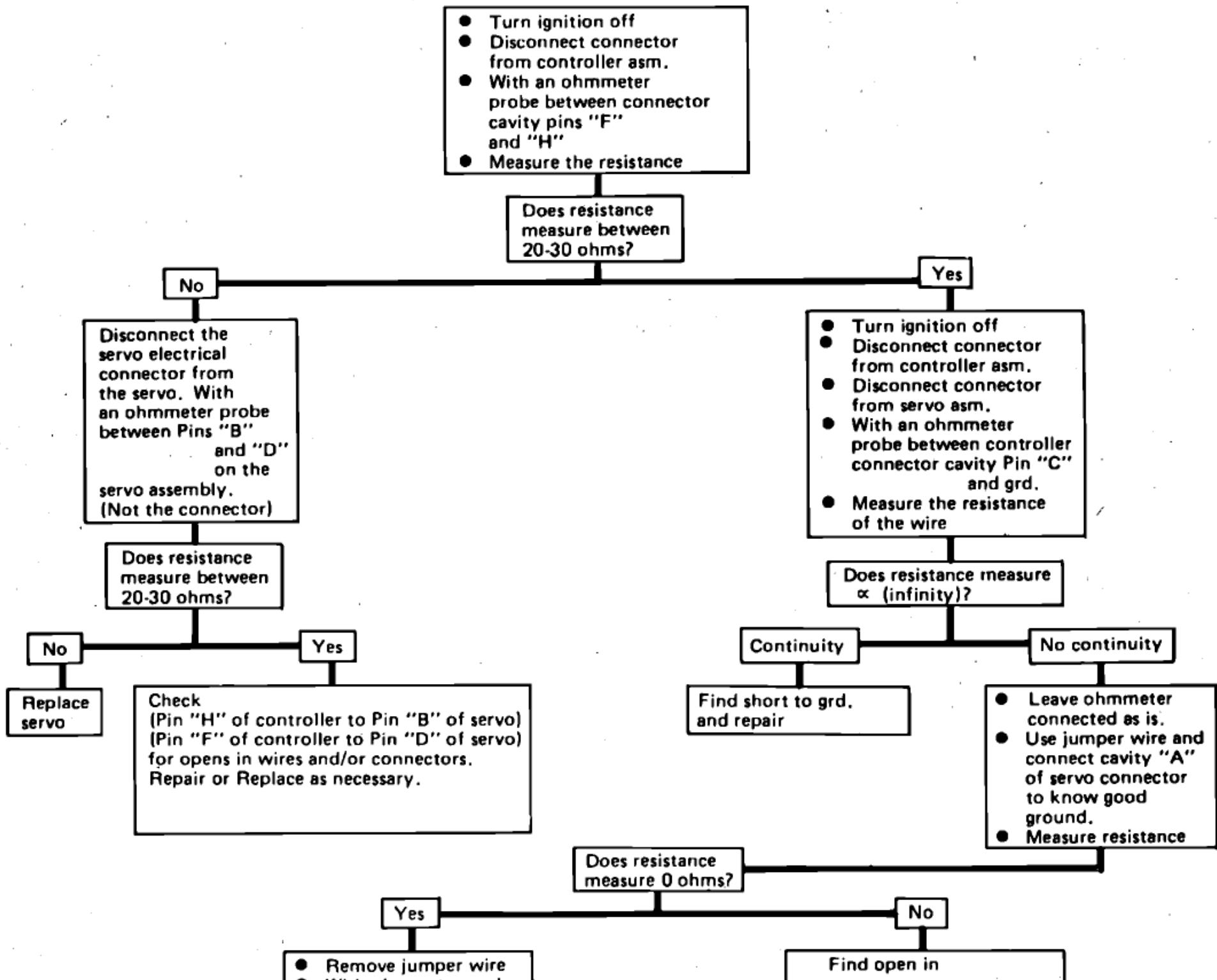
for adjustment

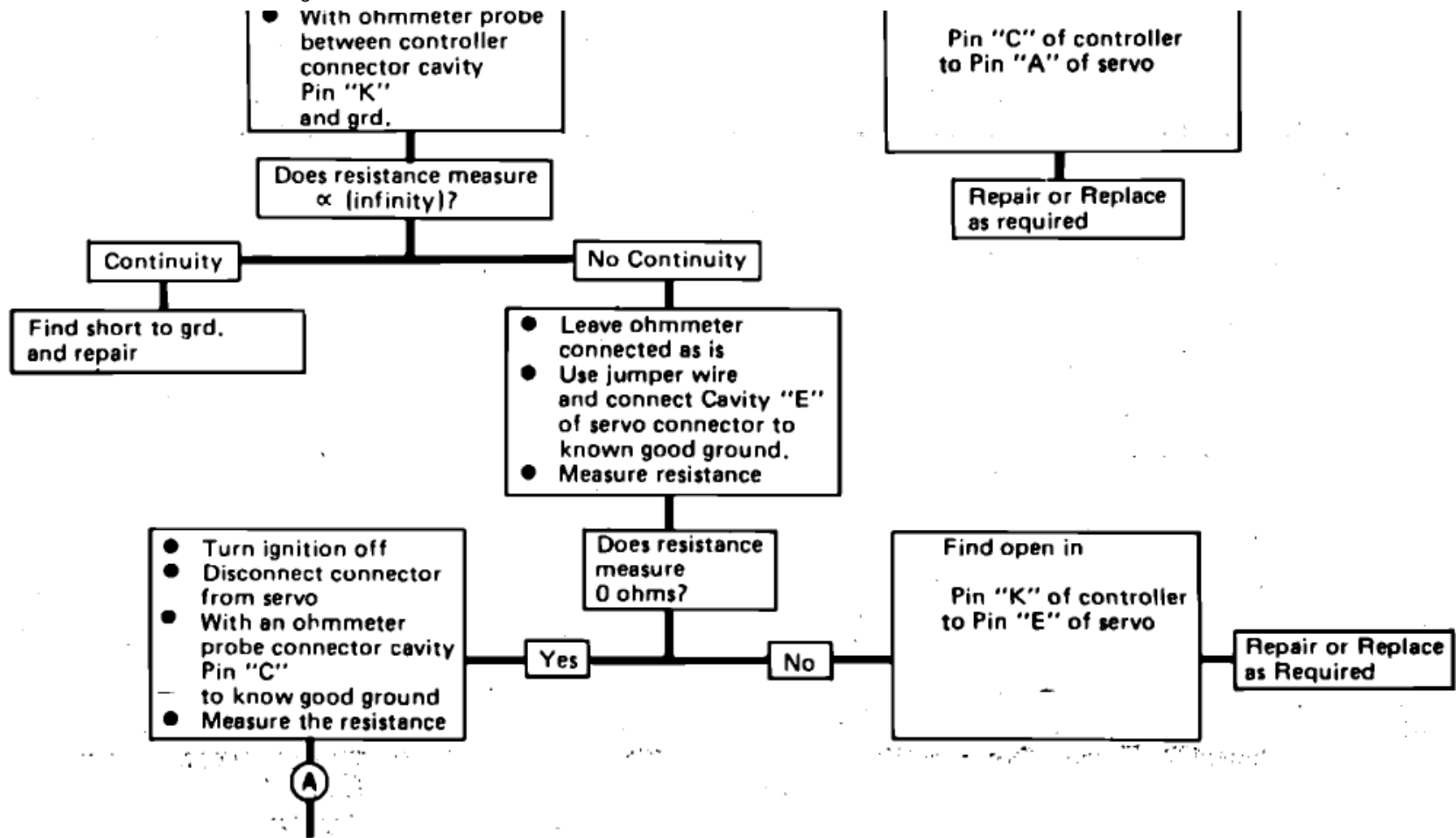
Adjust or Replace malfunctioning Release Switch(s)

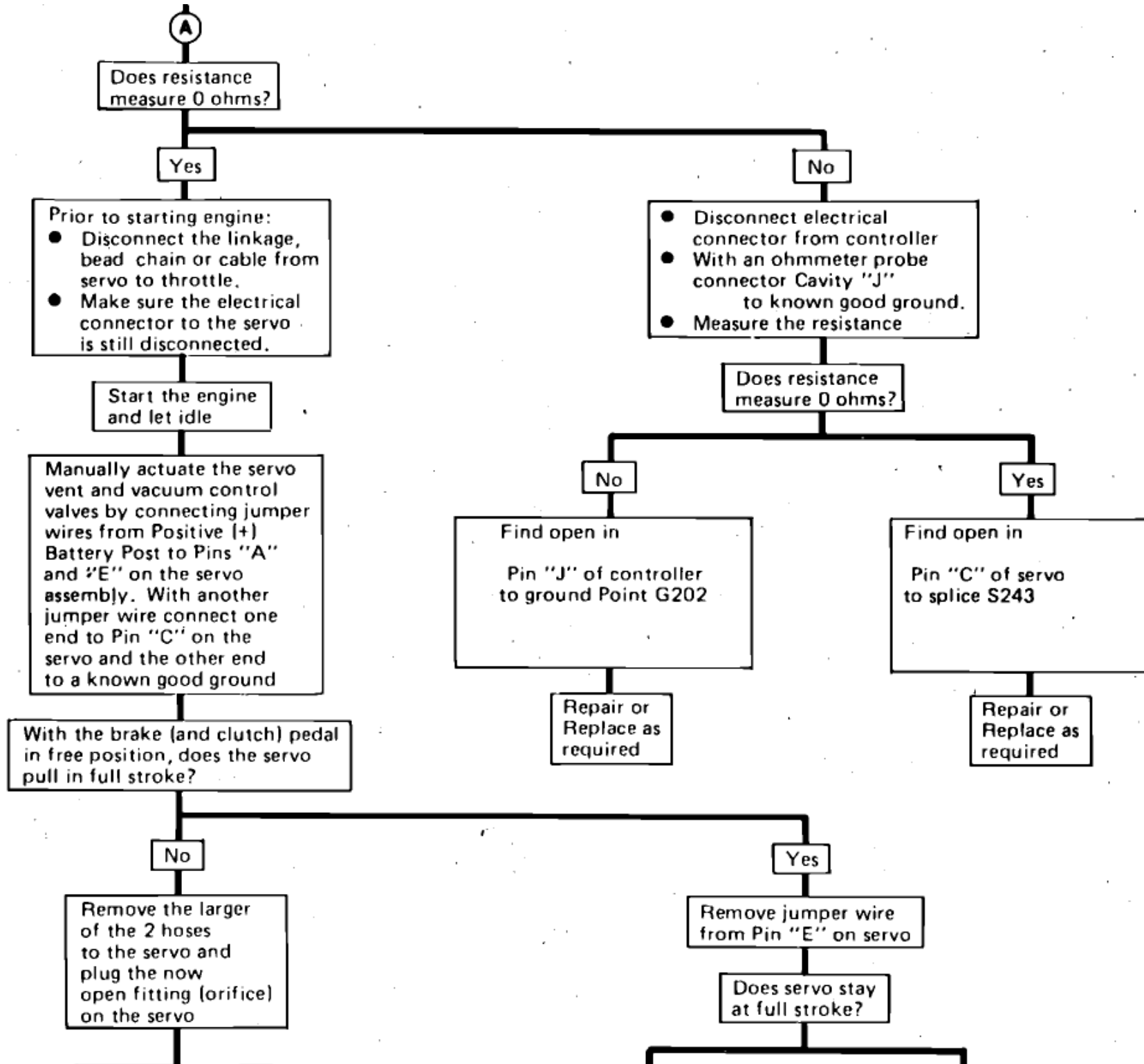
Adjust or Replace malfunctioning Release Switch(s)

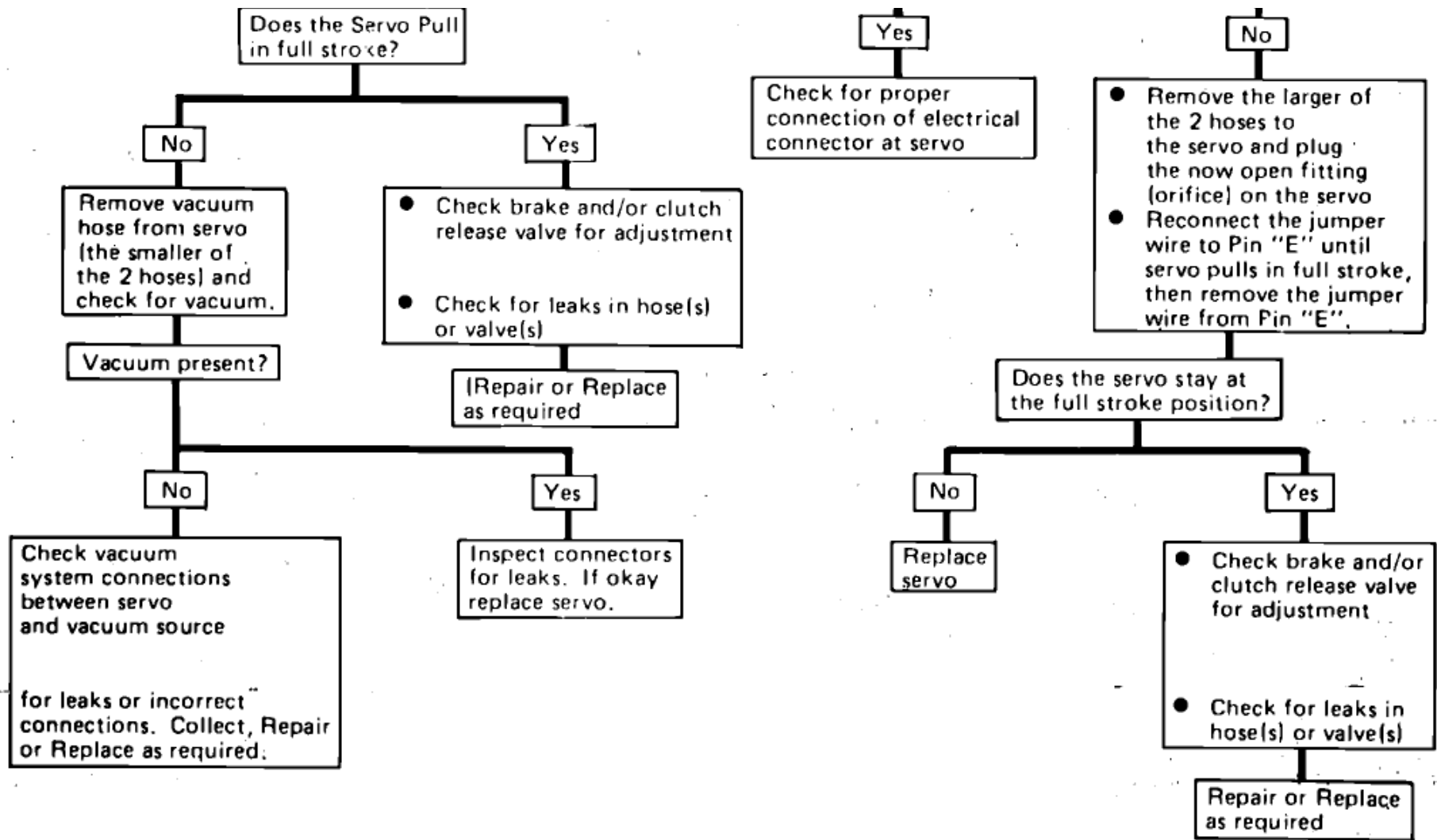


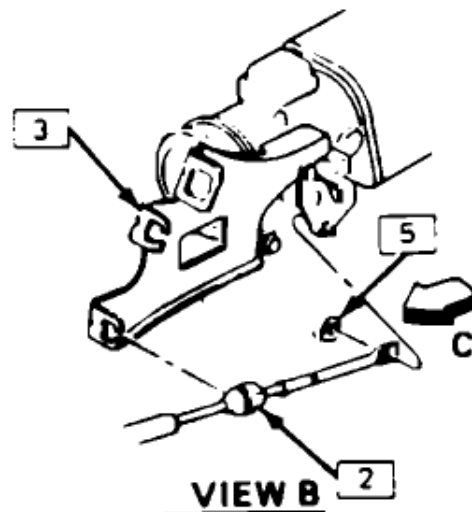
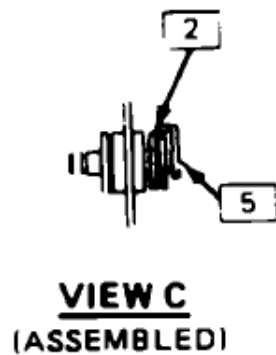
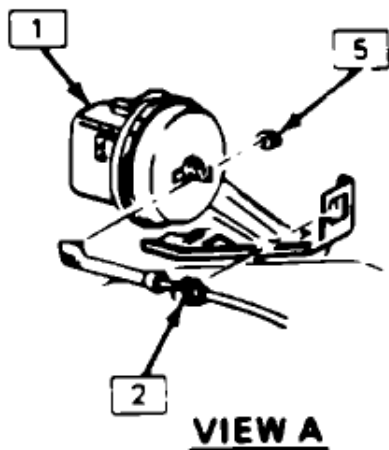
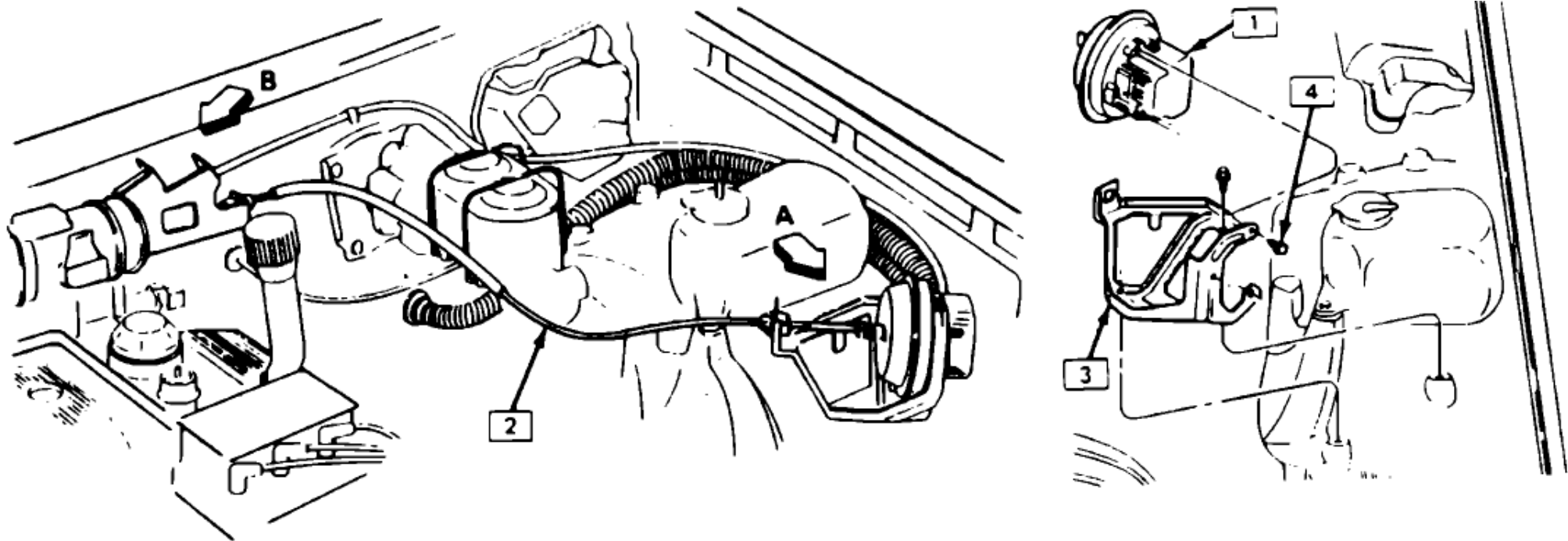








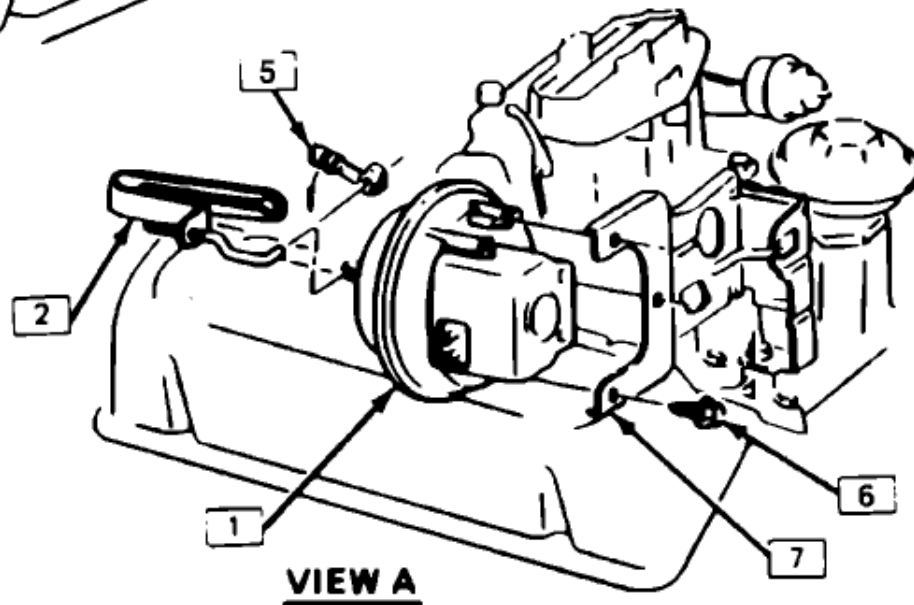
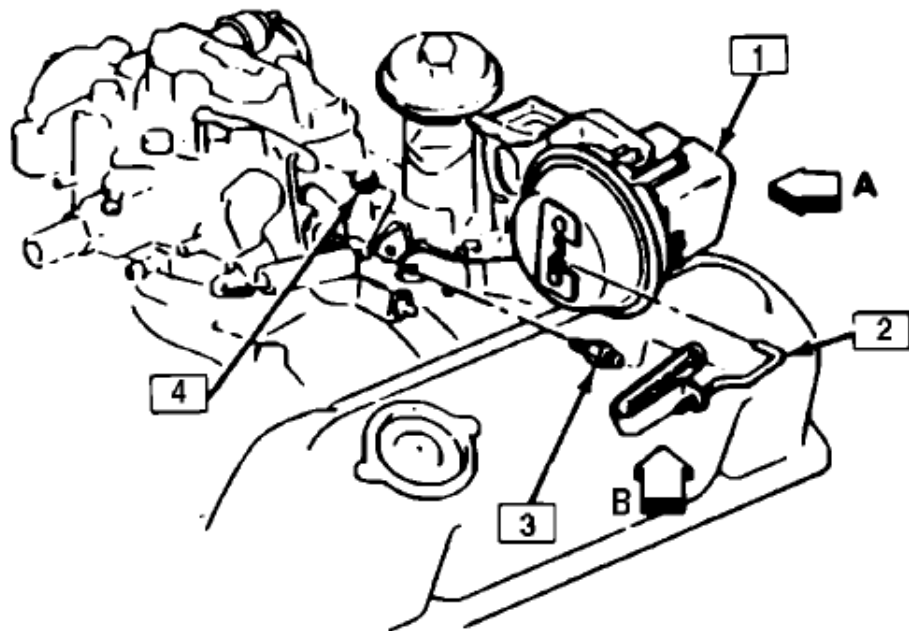




- 1 SERVO
- 2 CABLE
- 3 BRACKET
- 4 1.6 N·m (1 LB. FT.)
- 5 RETAINER

ADJUSTMENT PROCEDURE

With cable connected to throttle lever and the other end of cable sleeve snapped into bracket, select hole in servo blade based on minimum cable slack.

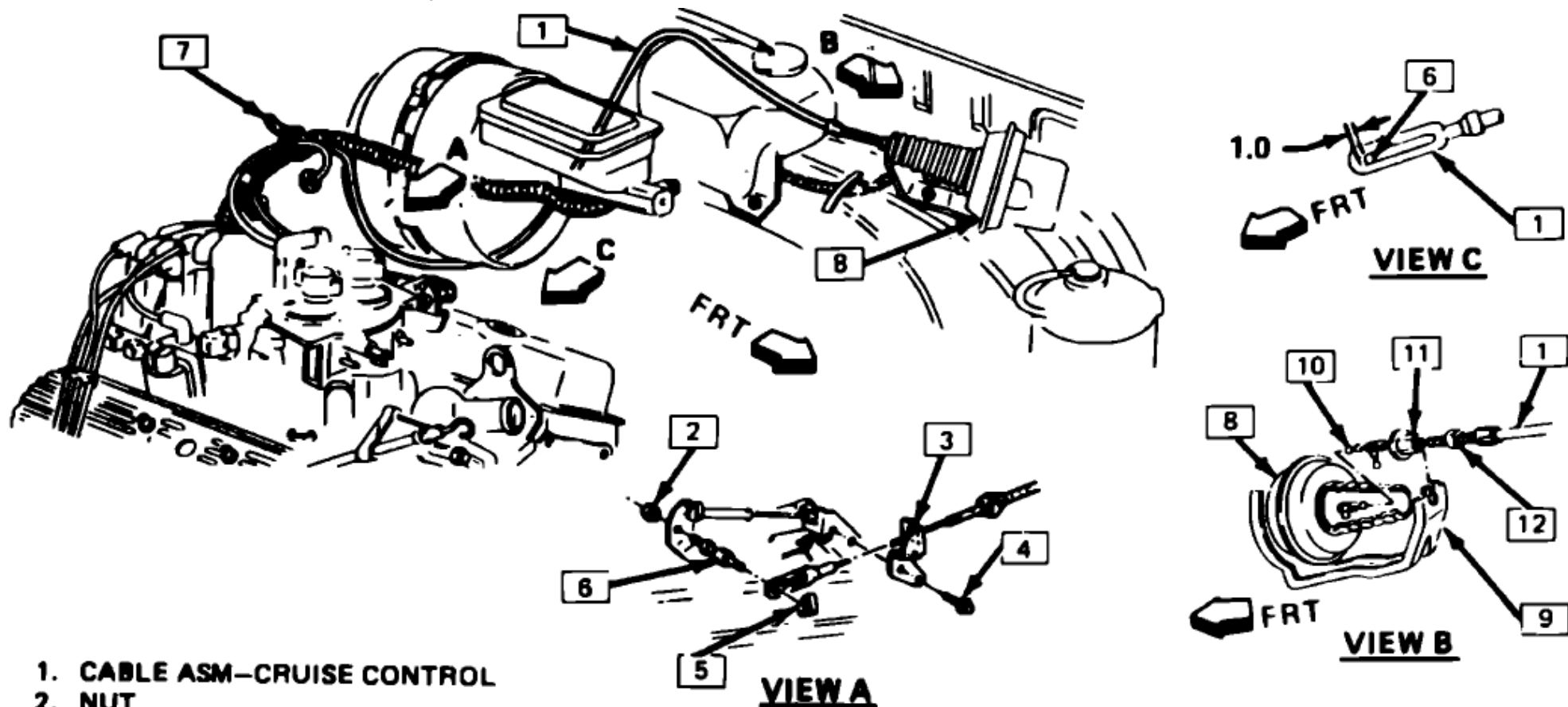


VIEW B

- 1 SERVO
- 2 ROD
- 3 STUD
- 4 4 N·m (3 FT. LB.)
- 5 RETAINER
- 6 1.6 N·m (1 FT. LB.)
- 7 BRACKET
- 8 0.5-1.0

ADJUSTMENT PROCEDURE

- Ignition must be off.
- Fast idle cam off.
- Idle speed motor retracted.
- Throttle closed.
- 1 Install rod on throttle stud at large end of slot.
- 2 Adjust length so stud is at end of slot (View-B) and rod is aligned with hole in servo.
- 3 Install retainer, insert rod-end of rod through holes and snap retainer in place (See View-A).

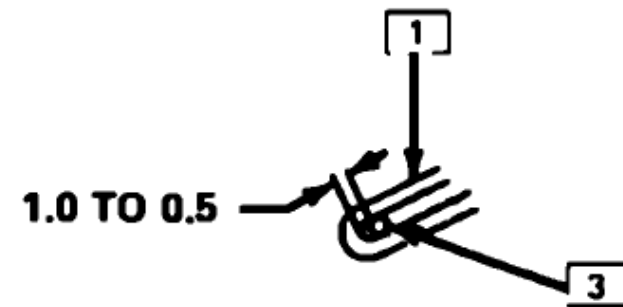
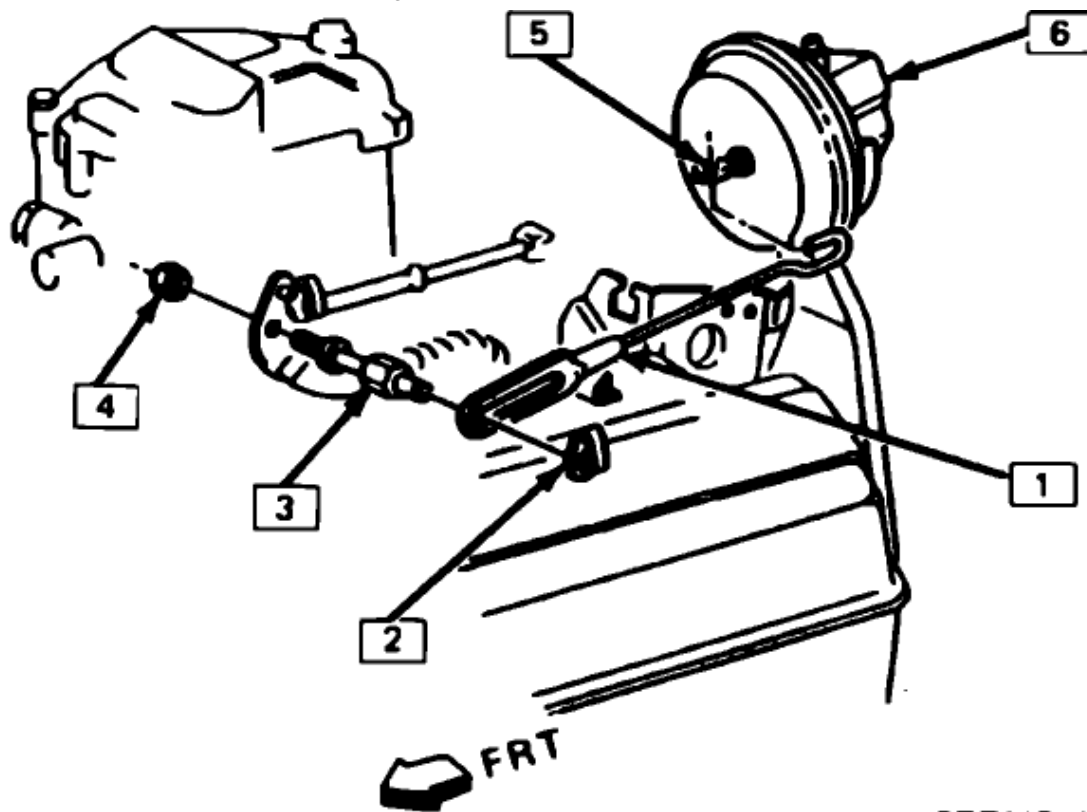


- 1. CABLE ASM—CRUISE CONTROL
- 2. NUT
- 3. BRACKET
- 4. BOLT/SCREW
- 5. RETAINER
- 6. STUD
- 7. STRAP
- 8. SERVO
- 9. SERVO BRACKET
- 10. SERVO CHAIN
- 11. ADJ. NUT
- 12. JAM NUT 5.0 N·m

CABLE ADJUSTMENT

WITH CABLE ASM INSTALLED TO CABLE BRACKET AND THROTTLE BODY INJECTOR, INSTALL CABLE ASM TO SERVO BRACKET. USING THIRD BALL ONLY, INSTALL SERVO CHAIN TO CABLE.

WITH THROTTLE COMPLETELY CLOSED (IGNITION OFF & FAST IDLE CAM OFF) TURN ADJUSTING NUT UNTIL CLEARANCE BETWEEN LEVER STUD AND END OF CABLE SLOT EQUALS 1.0 (IF NECESSARY, USE SECOND OR FOURTH CHAIN BALL TO OBTAIN CLEARANCE.) TIGHTEN JAM NUT TO SPECIFIED TORQUE.



VIEW A

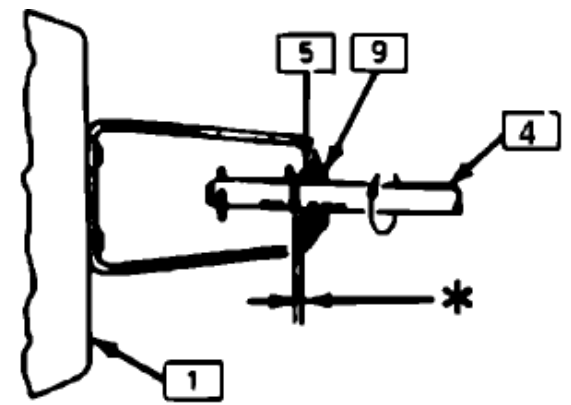
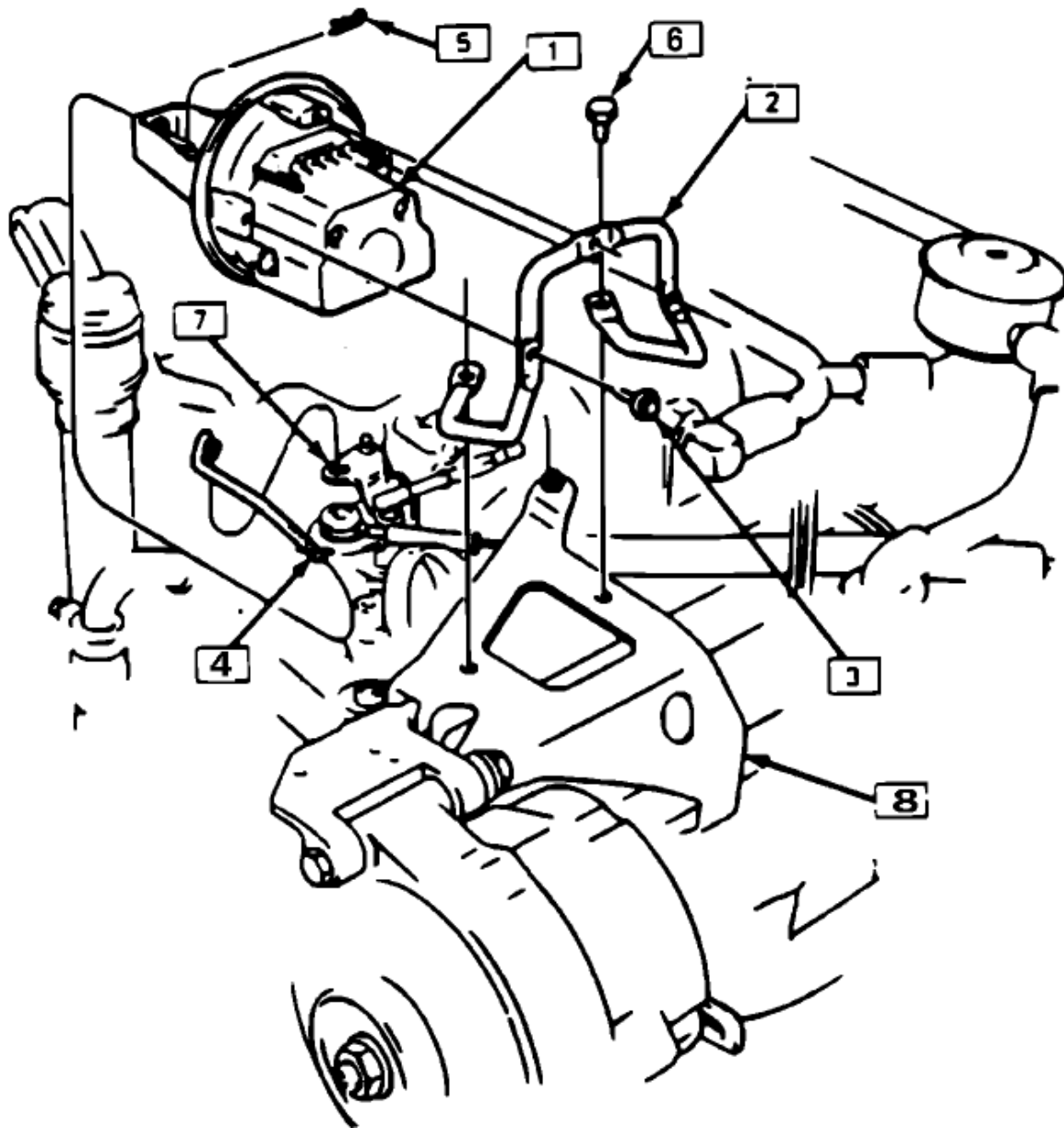
**LG4 SHOWN
L69 TYPICAL**

SERVO ASM TO CARBURETOR ADJUSTMENT

WITH IGNITION OFF AND FAST IDLE CAM OFF AND THROTTLE COMPLETELY CLOSED, HOOK 1 THROUGH TAB ON SERVO ASM. ADJUST LENGTH SO THAT 1 ASSEMBLES OVER END OF 3 AS SHOWN (SEE VIEW A). INSTALL 2

CAUTION: FLEXIBLE COMPONENTS (HOSES, WIRES, CONDUITS, ETC) MUST NOT BE ROUTED WITHIN 50.0 OF MOVING PARTS OF ACCELERATOR. LINKAGE FORWARD OF SERVO ASM UNLESS ROUTING IS POSITIVELY CONTROLLED.

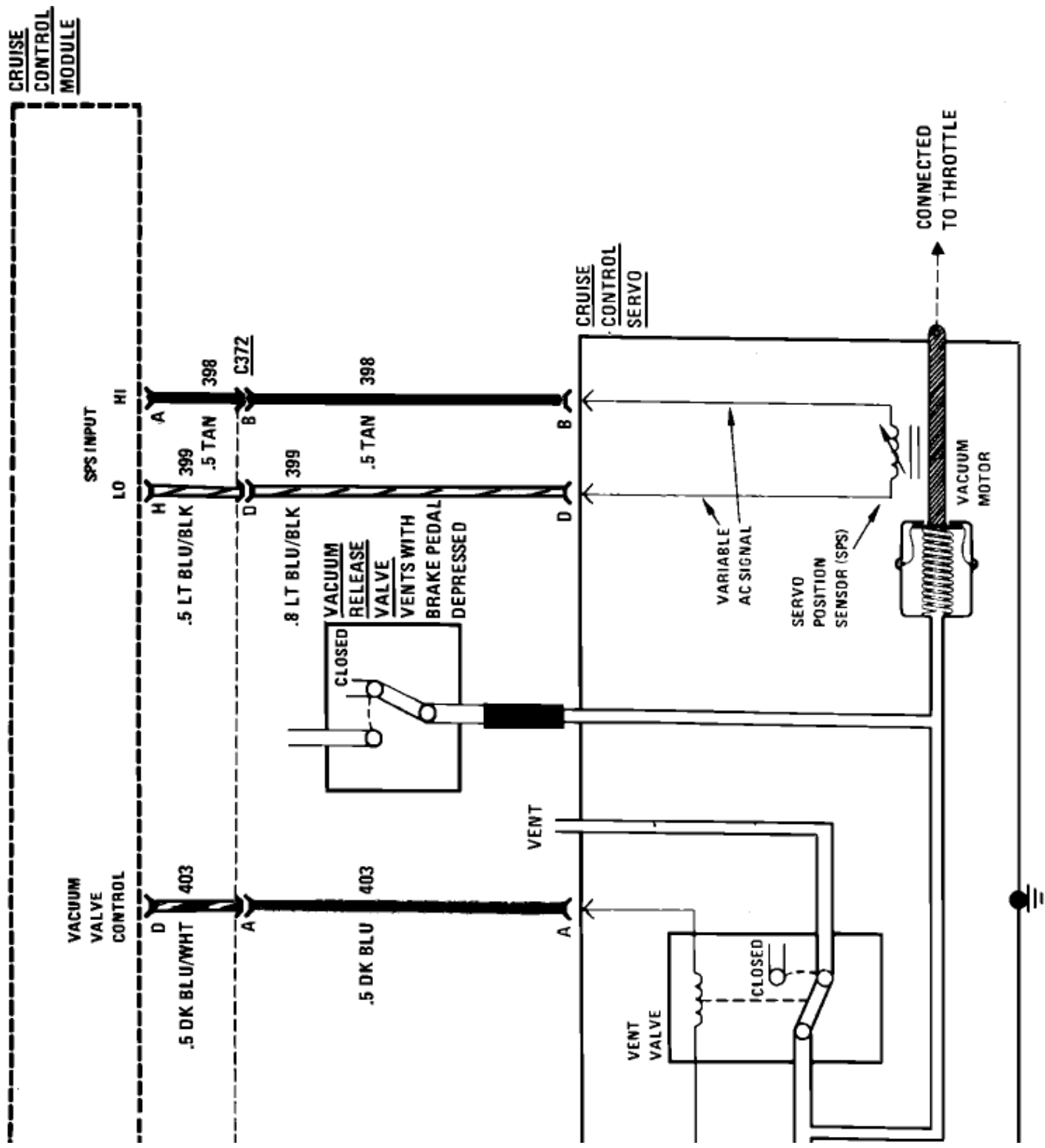
- 1. ROD
- 2. RETAINER
- 3. STUD
- 4. NUT
- 5. TAB. SERVO ASM
- 6. SERVO ASM

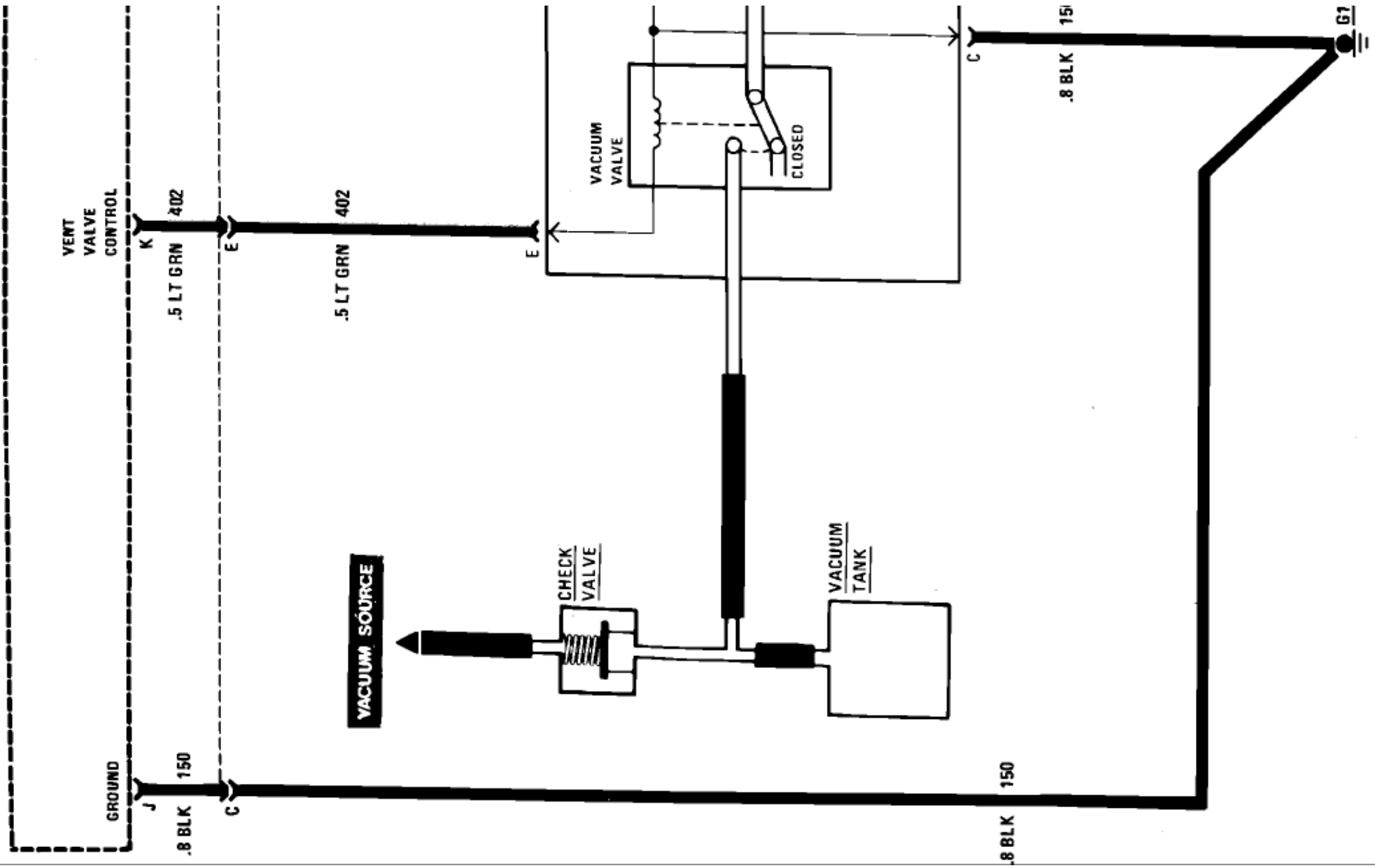


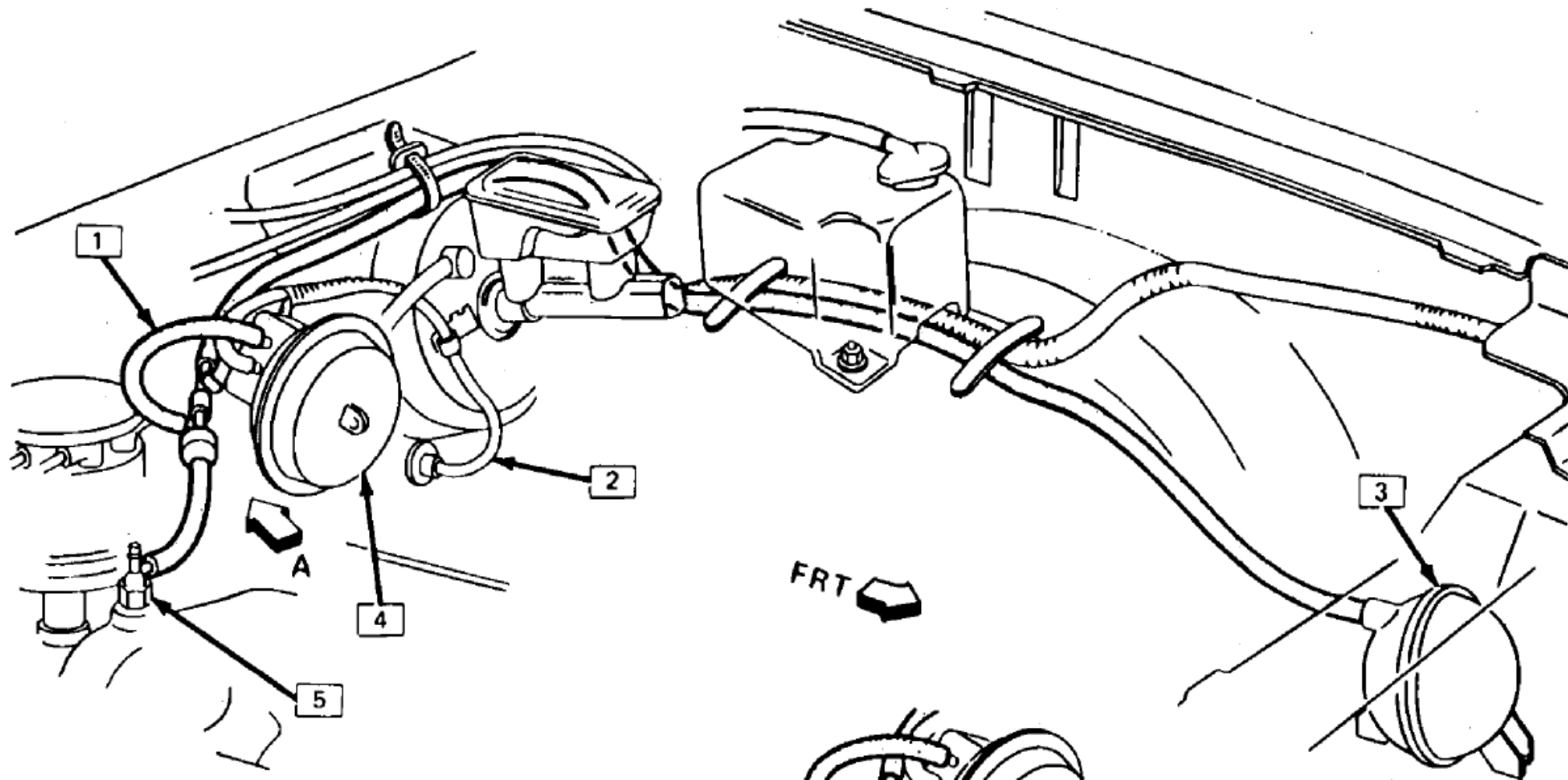
- 1 SERVO
- 2 BRACKET
- 3 1.6 N·m (1 LB. FT.)
- 4 ROD
- 5 RETAINER
- 6 21 N·m (15 LB. FT.)
- 7 INJECTION PUMP BELLCRANK
- 8 GENERATOR BRACE
- 9 SERVO BUSHING

*** ADJUSTMENT PROCEDURE**

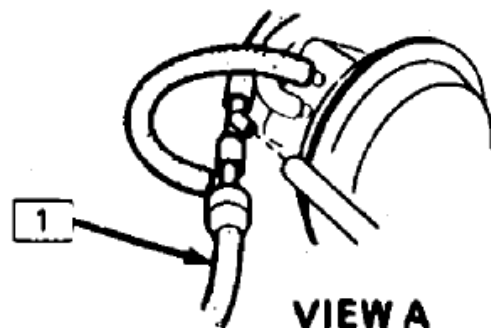
After idle set adjust length to minimum slack with pump on slow idle screw.



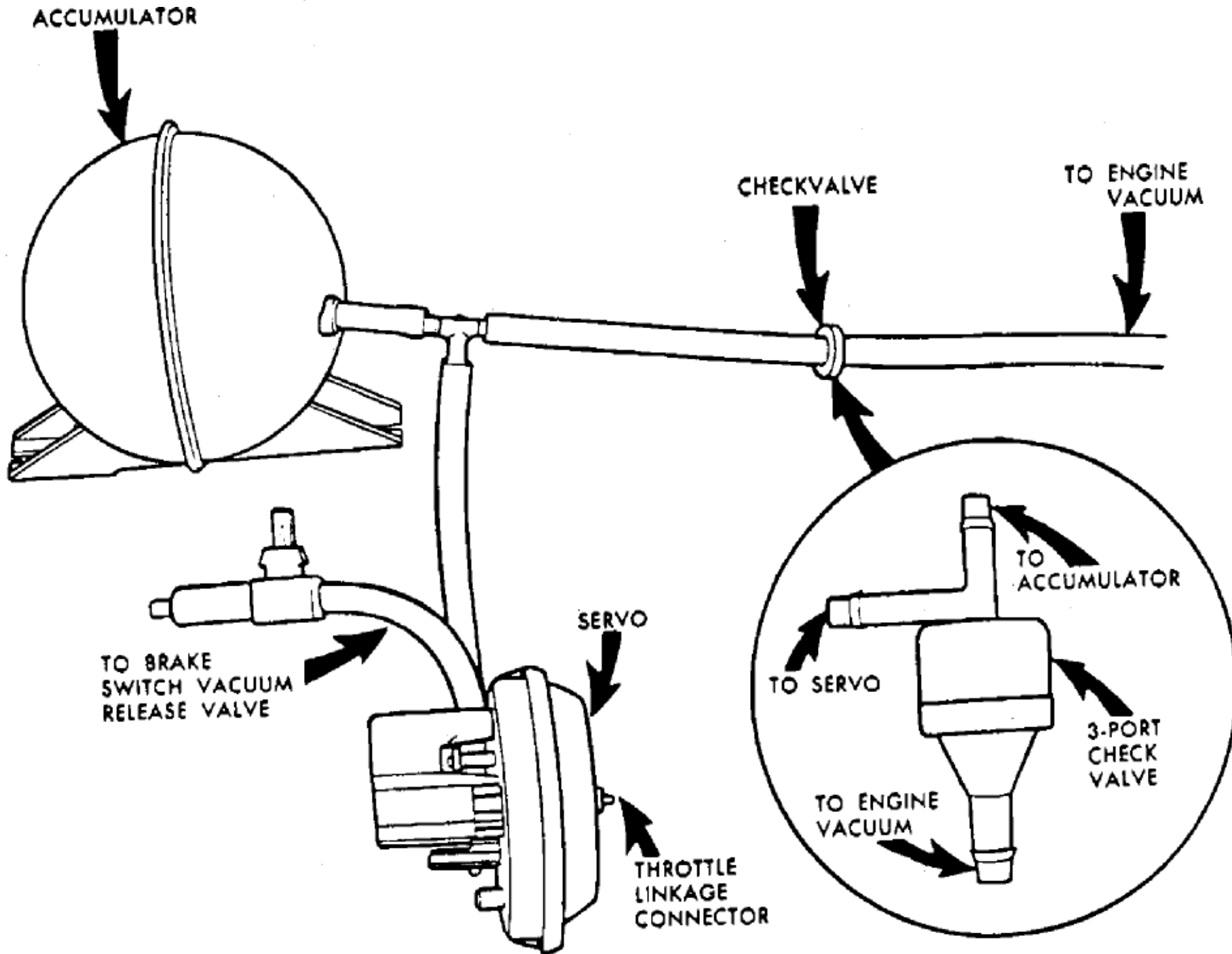




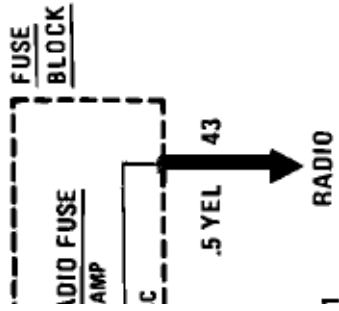
- 1. HOSE ASM
- 2. CRUISE CONTROL HARNESS
- 3. VACUUM TANK
- 4. SERVO
- 5. VACUUM FITTING



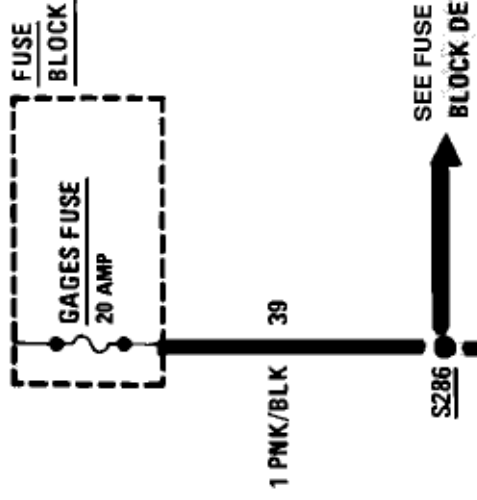
VIEW A
& C60



IN ACCY OR RUN



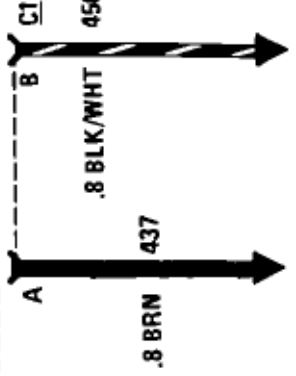
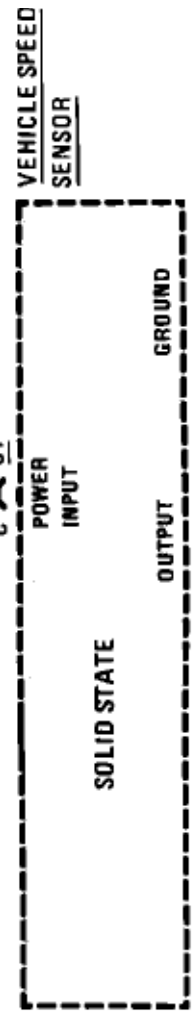
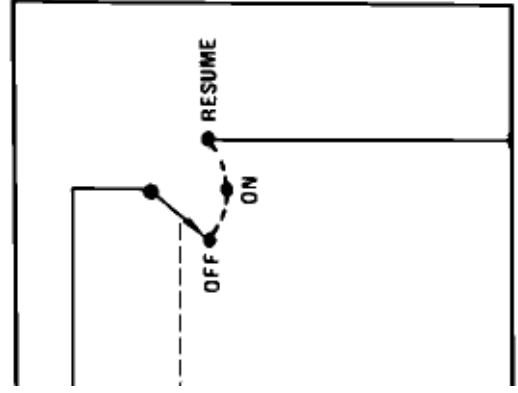
HOT IN RUN. BULB TEST OR START



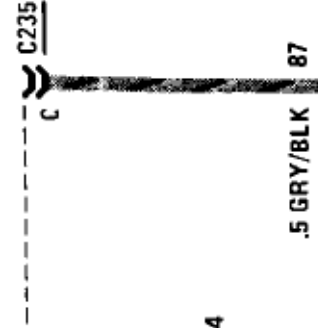
35

SEE FUSE BLOCK DETAILS

MULTI-FUNCTION LEVER



YEL



4

.5 YEL 400



