

CARBURETOR ADJUSTMENT PROCEDURES

260

AUTOMATIC AND MANUAL

1974

CONTENTS

SECTION IV

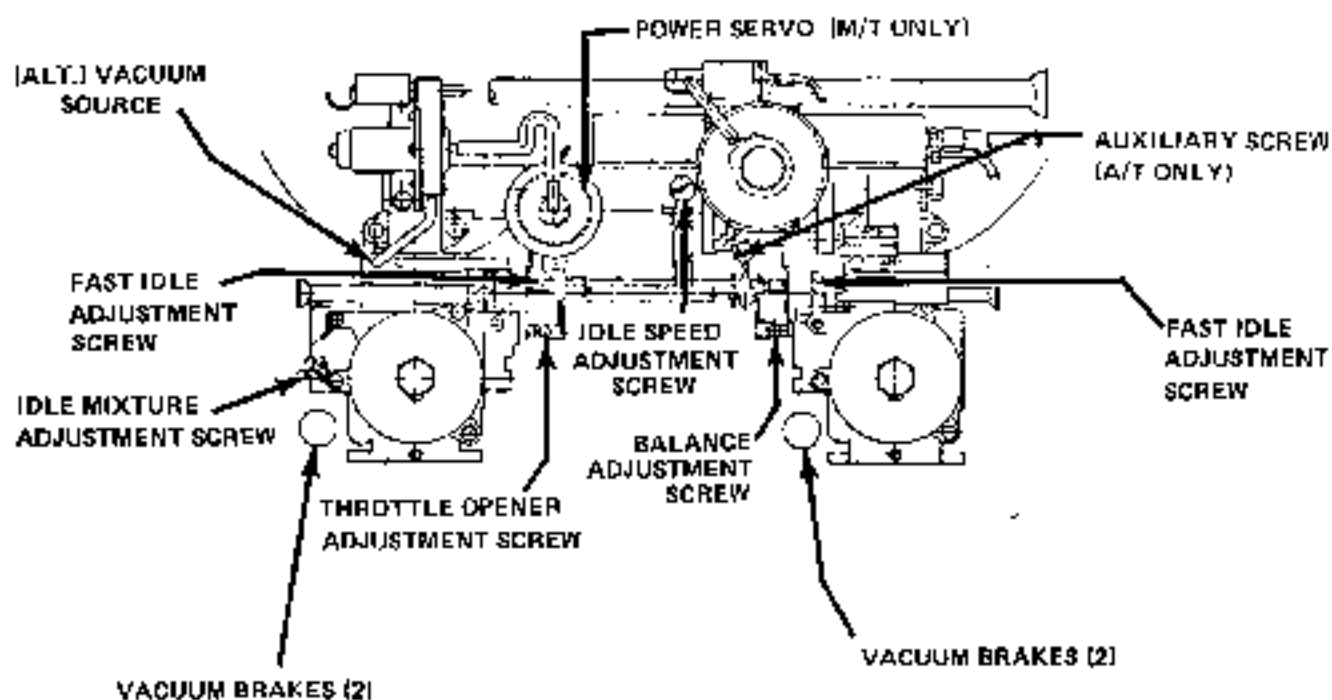
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INTRODUCTION

Carburetor Adjustment Procedures

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Before attempting any adjustments to this system, first familiarize yourself with the function, location and use of each adjustment screw and/or point. Next, follow the pre-adjustment steps, and the actual adjustment procedures exactly.





PRE-ADJUSTMENT PREPARATION

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1. Place shift selector into Neutral and set the parking brake. Next, apply full choke.
 - A. Check the choke adjustment found on page 4.
 - B. Check the vacuum brake clearance.
2. Connect a tachometer to the engine, and start engine.
 - A. At this time, note the RPM and whether the fast idle system is in use (first three minutes). If it is necessary to adjust the fast idle RPM, refer to page 101.
3. Allow engine to run until the normal operating temperature is reached.
4. Stop engine, and continue with the carburetor adjustment procedure, following the sequence and instructions given.

TOOLS

1. Screwdriver Long
2. Tachometer
3. Flow Meter
4. Vacuum Hose
5. Pliers
6. CO and HC Analyzer
7. Vacuum Gauge
8. Drill .065 inches



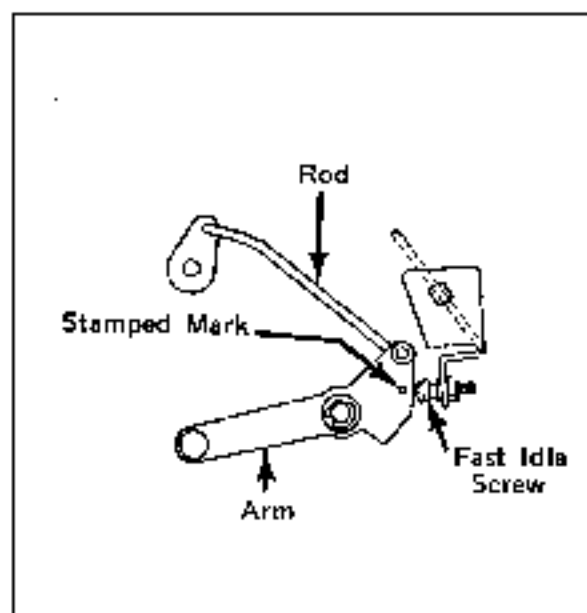
CHOKE ADJUSTMENT

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1. As stated under Preparation, apply the choke to the "fully on" position.
2. Check the fast idle screw. It should be centered with the stamped "0" on the choke actuating arm.
3. If it is not in alignment, adjust the cable (at the carburetor actuating arm) until the correct adjustment is reached.
4. With the choke arm in the correct position, check the choke plate. It should be fully closed. If it is not, bend the choke plate rod until the choke plate is in the correct position.

CHOKE ADJUSTMENT

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INFORMATION

ROD:	Determines choke plate position.
ARM:	Determines the amount the rod moves, and also acts as the fast idle cam.
STAMPED MARK:	Indicates the correct position of the fast idle screw when the choke is fully applied.
FAST IDLE SCREW:	Determines engine RPM when the choke is applied.



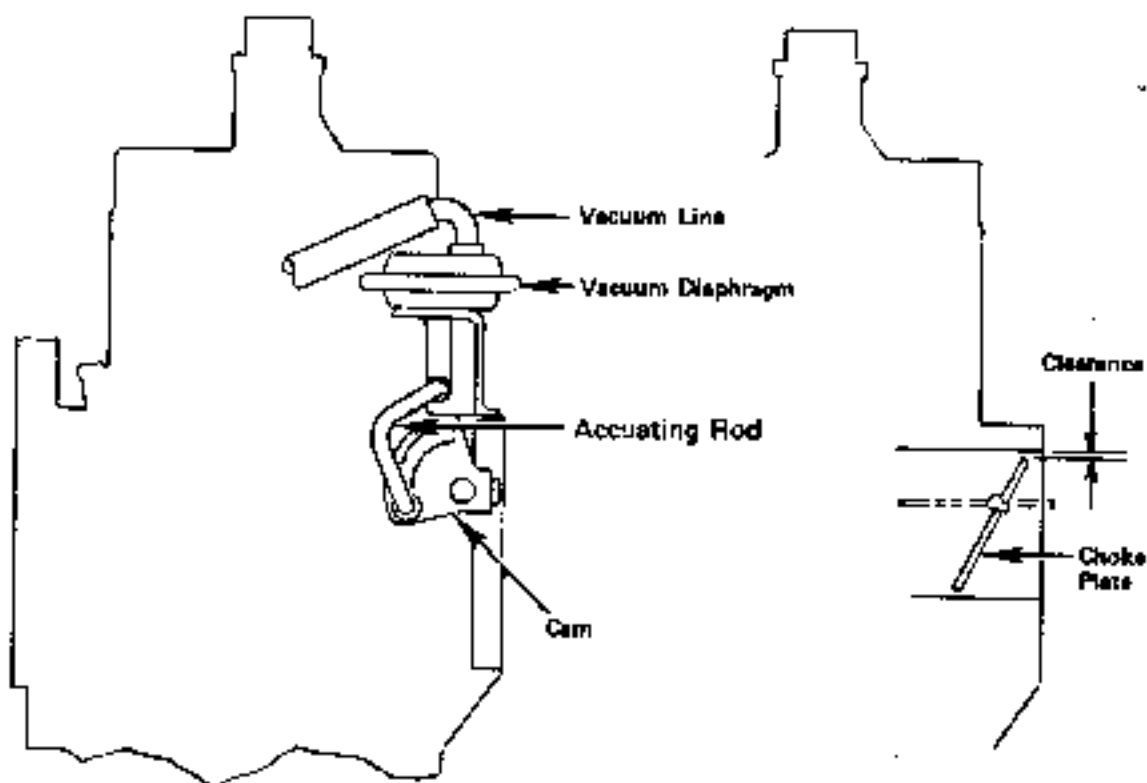
VACUUM BRAKE ADJUSTMENT

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1. Apply the choke (fully on).
2. Remove the air cleaner and apply a vacuum to the vacuum brake, or hold the vacuum brake rod all the way up.
3. Measure the clearance between the top of the choke plate and the venturi. The clearance should be .065.
4. If the clearance is incorrect, bend the vacuum brake rod to obtain the correct clearance.
5. Recheck adjustment and re-install the air cleaner cover.

VACUUM BRAKE ADJUSTMENT

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Adjust vacuum brake with vacuum applied to the diaphragm.



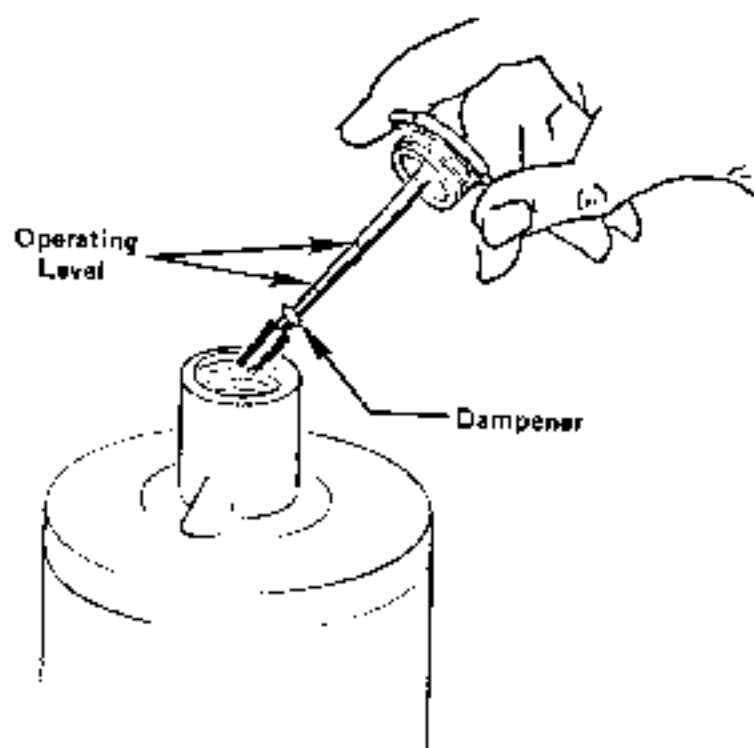
OIL CHECK

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1. Remove the air cleaner, making sure to disconnect the vacuum line between the vacuum motor and the temperature sensor.
2. Remove the oil damper caps (one at a time) and check the oil level. The oil level should be in between the operating level marks on the damper rod.
 - A. If the oil level is low, add MS 20 weight or MS 10-30 weight oil.
3. Before replacing the damper caps, check the front and rear pistons for binding by raising and lowering the suction pistons.
4. Replace the damper caps.

OIL CHECK

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Check the damper oil level and oil type.

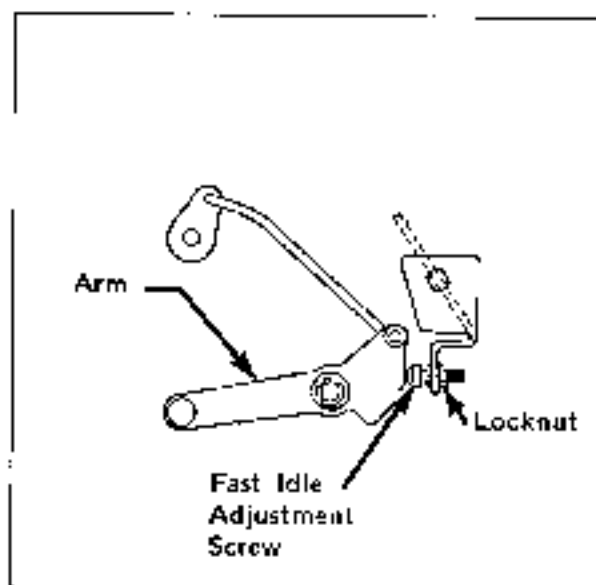
FAST IDLE ADJUSTMENT

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1. First follow the instructions as given in the Pre-Adjustment Preparation.
2. After completing the choke and vacuum brake adjustment, and during the first three minutes of engine operation with the choke fully applied, check the engine RPM. It should be 1800-2400 RPM.
3. If adjustment is necessary, use a flow meter and the fast idle adjustment screw as follows:
 - A. Using the fast idle screw on the front carburetor, adjust this screw until the correct RPM is obtained.
 - B. Check the air flow reading on the front carburetor (use a flow meter, only a few seconds at a time).
 - C. Move the flow meter to the rear carburetor and check the reading.
 - D. Match both readings using the rear or front fast idle adjustment screw. The fast idle RPM should be correct and the air flow through both carburetors should be even.

FAST IDLE ADJUSTMENT

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INFORMATION

- | | |
|------------------------------------|---|
| ARM: | Determines the position of the fast idle cam. |
| FAST IDLE ADJUSTMENT SCREW: | Determines the throttle plate position (RPM) when the choke is applied. |
| LOCKNUT: | Used to secure the fast idle adjustment screw. |



IDLE SPEED ADJUSTMENT

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1. After completing the last idle adjustment, back off the auxiliary screw (AT), the balance adjustment screw and throttle opener screw (MT). Check as the linkage; there should be sufficient slack so that both carburetors work independently.
2. With a tachometer and a timing light connected, start the engine.
3. Using the idle speed adjustment screw, adjust until the engine RPM obtained is 750 RPM.

NOTE: Clockwise decreases idle speed
 Counterclockwise increases idle speed

4. Momentarily raise engine RPM (to stabilize intake manifold vacuum) then release the throttle. (Engine RPM should come back to the correct idle speed.)
5. (Automatic transmission only.) Place the shift selector into Drive. Check the engine RPM, it should be 600 RPM in Drive. Readjust idle speed if necessary.
6. Check the timing at the correct idle speed.

Automatic Transmission — 600 in Drive
Manual Transmission — 750 in Neutral

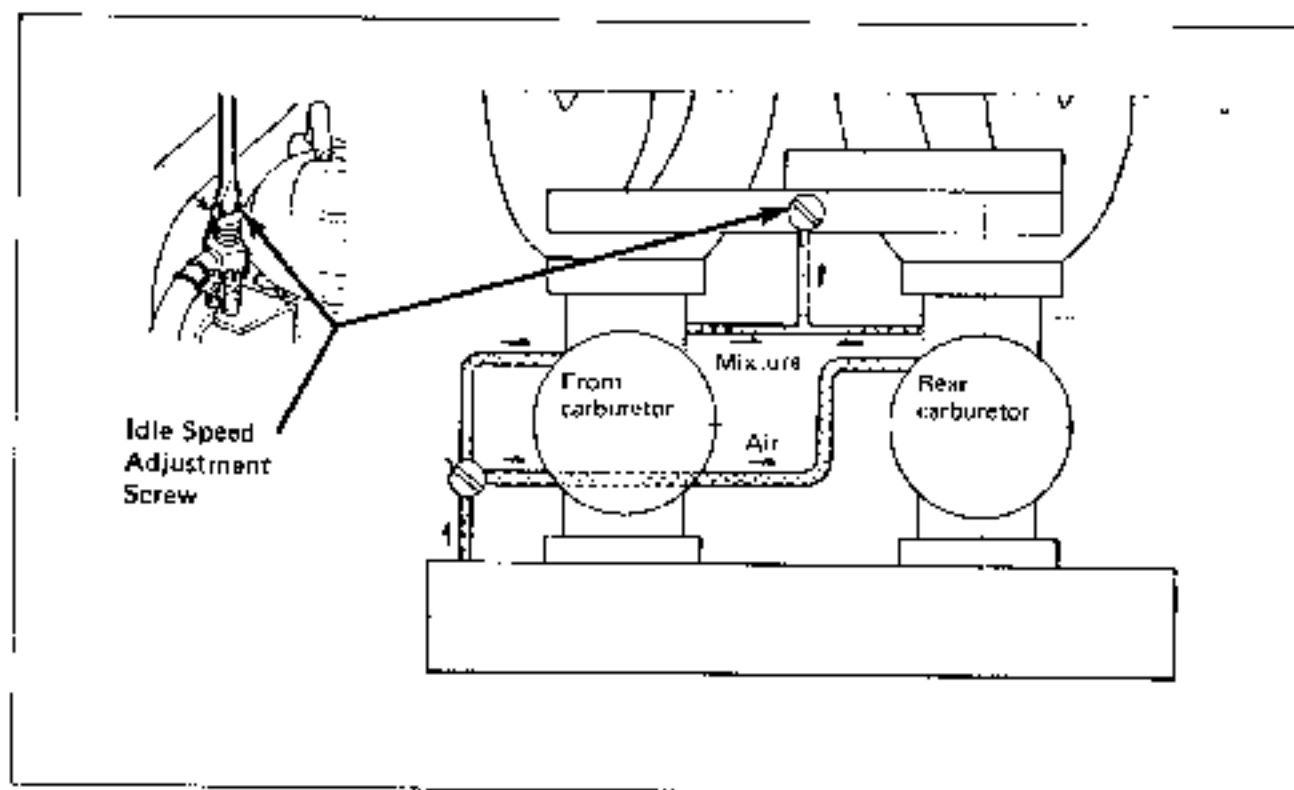
7. Adjust ignition timing to obtain the following:

Automatic Transmission
(on retarded pick up) — 8° BTCD/600 RPM in Drive
(on advance pick up) — 5° BTCD/600 RPM in Drive
Manual Transmission — 8° BTCD/750 RPM in Neutral

8. If ignition timing was re-set, be sure to recheck idle speed, and readjust as necessary.
9. (Automatic transmission only.) Place the shift selector into Neutral.

IDLE SPEED ADJUSTMENT

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INFORMATION

IDLE SPEED ADJUSTMENT SCREW: Determines the idle speed by increasing or decreasing the idle air/fuel mixture to the intake manifold.



BALANCE ADJUSTMENT

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1. After completing the idle speed and timing adjustment, the next step is to correctly adjust the balance between the front and rear carburetors.

MANUAL TRANSMISSION

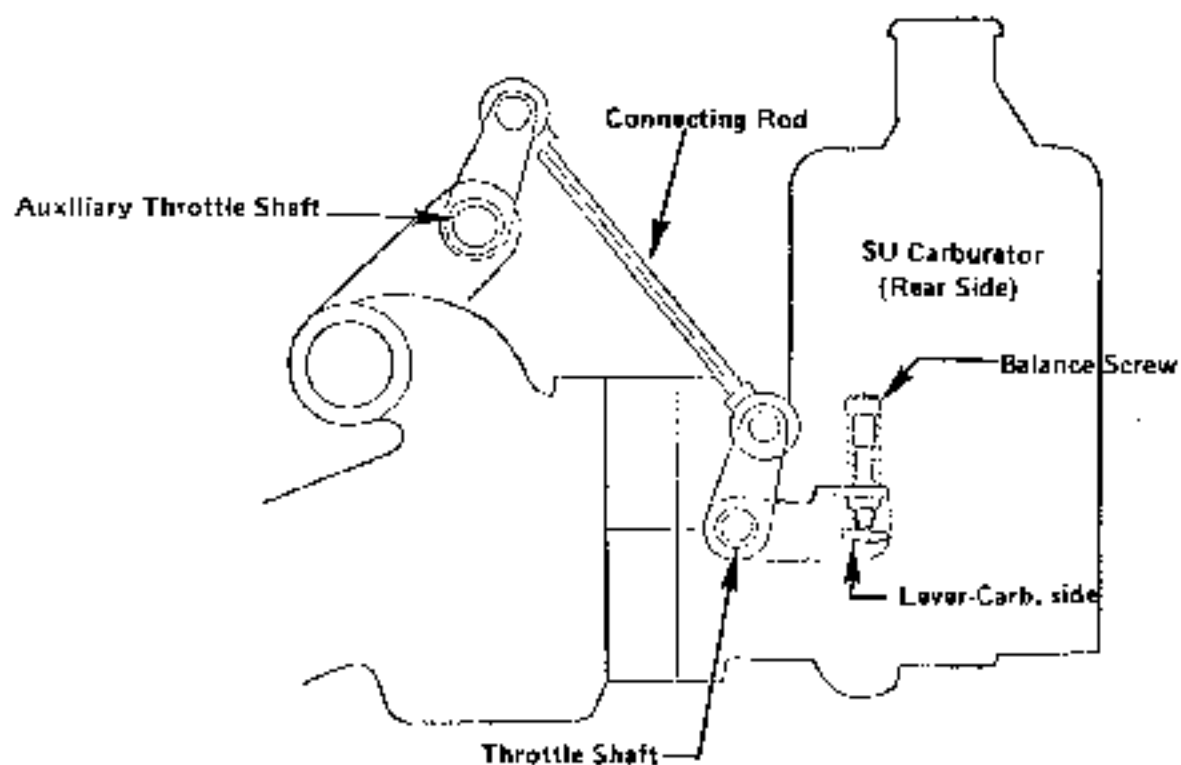
2. Remove the power servo to the vacuum control valve, vacuum line.
3. Remove the vacuum control valve to the intake manifold vacuum line and use a piece of vacuum line to connect the servo to the intake manifold port.
4. Using the throttle opener screw, raise the engine speed to 1400 RPM.

AUTOMATIC TRANSMISSION

5. Use the auxiliary screw and raise engine RPM to 1400.
6. Apply a flow meter to the front side of the air horn. Align the float to a mark on the glass tube scale.
NOTE: Only use the flow meter a few seconds at a time to avoid hindering the intake air.
7. Observe the flow meter reading on the front carburetor. Now, move the flow meter to the rear carburetor.
8. Using the balance adjustment screw, adjust until the rear carburetor matches the front carburetor flow reading. This operation may take several checks, but it must be correct.
9. Reconnect the sensor to vacuum meter vacuum line, and install the air cleaner.

CARBURETOR BALANCE ADJUSTMENT

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INFORMATION

BALANCE SCREW: Synchronizes the linkage between the front and rear carburetors.

After setting the RPM to 1400 with the auxiliary screw (automatic), or throttle opener screw (manual), use the balance screw to adjust the rear carburetor flow reading to match the front carburetor reading.

IDLE MIXTURE ADJUSTMENT

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1. Upon completion of the balance adjustment, use the throttle opener screw (manual) or the auxiliary screw (automatic) to adjust engine speed as follows:
 - A. Raise engine speed to 3000 RPM.
 - B. Lower engine speed to 1700 RPM.
 - C. From 1700 RPM, slowly lower engine speed to 1400 RPM.
2. Disconnect the air system check valve inlet hose and cap the check valve.
3. Using a "CO-HC" Analyzer, adjust the "CO" percentage to specifications by turning the idle mixture adjusting screw as follows:

<u>Adjustment</u>	<u>CO Percentage</u>
Clockwise to richen the mixture.	Manual 1.0 to 1.6%
Counter-clockwise to lean the mixture.	Automatic .6 to 1.2%

NOTE: Do not remove or change the position of the idle limiter cap.

MANUAL TRANSMISSION

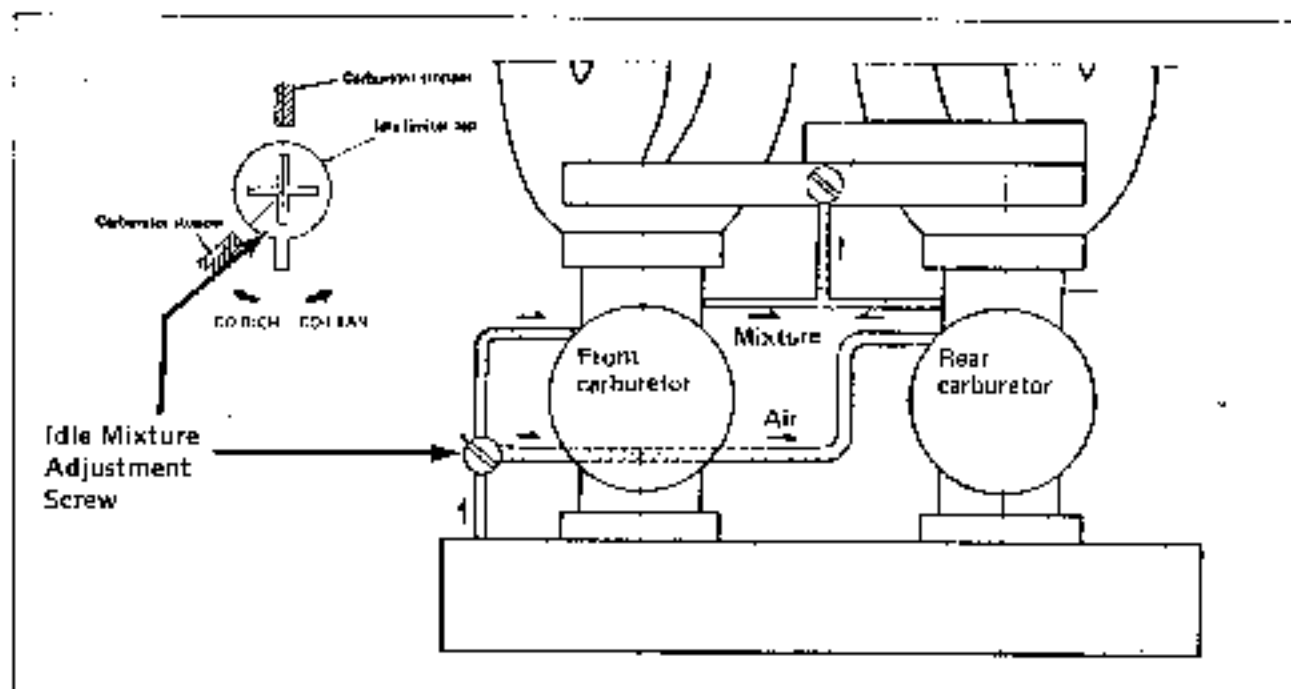
4. After obtaining the correct "CO" percentage, check the servo RPM. It should be 1400 RPM.
5. Remove the "jumper" vacuum line between the intake manifold and servo. Reconnect the power servo and vacuum control valve vacuum lines.

AUTOMATIC TRANSMISSION

6. After obtaining the correct "CO" percentage, back off the auxiliary screw until there is a large clearance between the screw and linkage.
7. Un-plug and re-connect the check valve inlet hose to the check valve.
8. Measure the "CO" percentage against the correct idle speed. It must be below 2.7%.

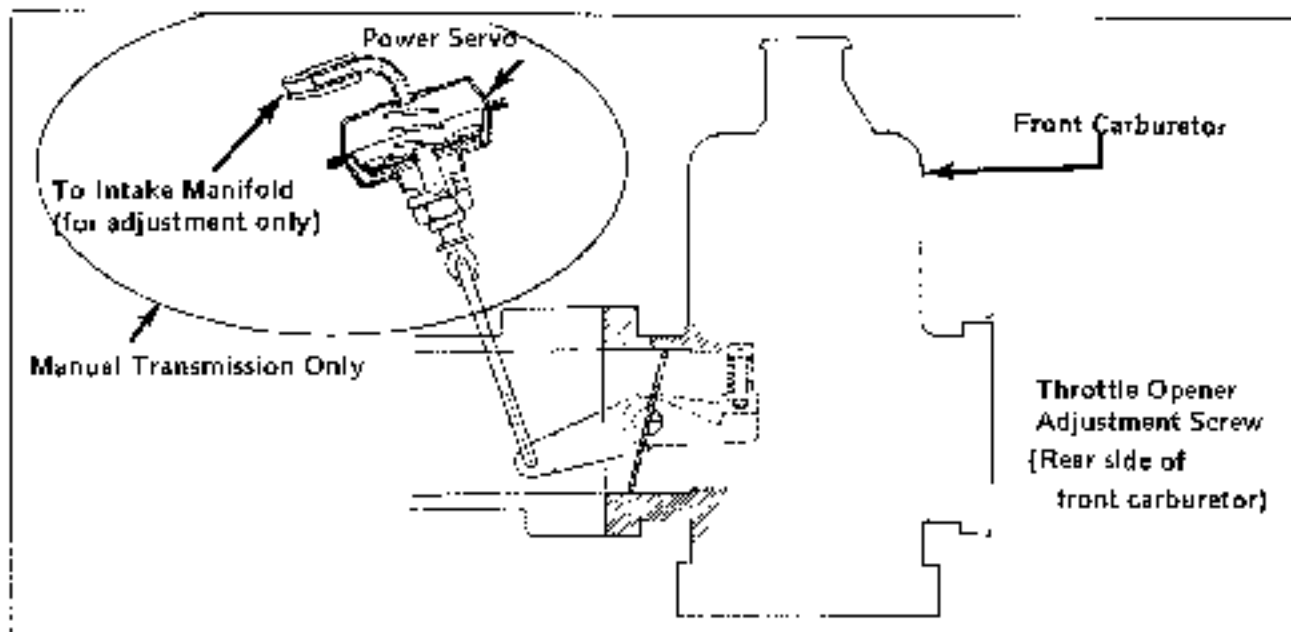
IDLE MIXTURE ADJUSTMENT

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INFORMATION

IDLE MIXTURE ADJUSTMENT SCREW: Controls the fuel mixture mixing with air.



INFORMATION

POWER SERVO: Opens the throttle plates via throttle linkage.

THROTTLE OPENER ADJUSTMENT SCREW: Determines the amount of throttle plate opening.

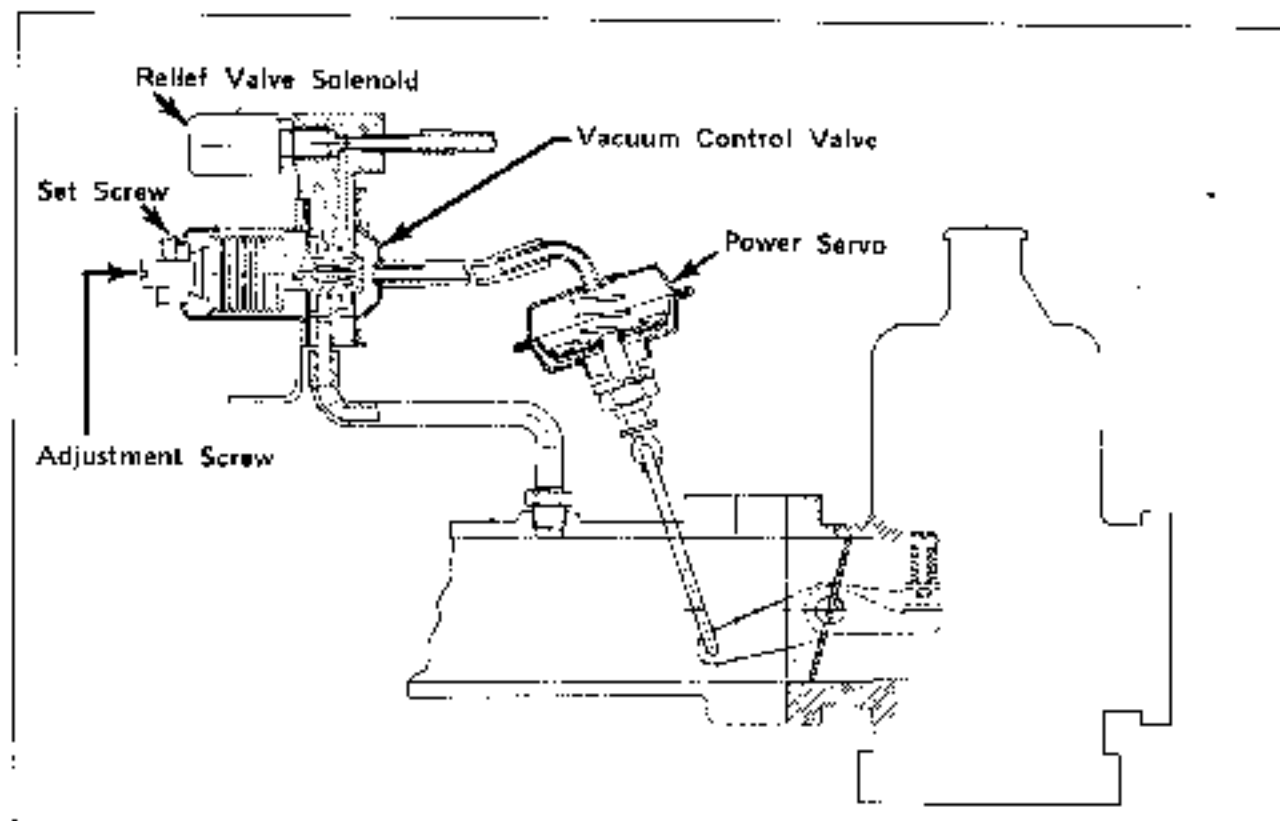
VACUUM CONTROL VALVE ADJUSTMENT

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1. After completing all carburetor adjustment procedures, connect a vacuum gauge to the intake manifold and disconnect the relief solenoid hot wire. Raise engine speed to 3500 RPM and hold for 5 seconds.
2. Release throttle and note both the time and vacuum during the operation of the vacuum control valve from 3000 to 1000 RPM. The reading should be as follows:
 - A. Vacuum: Manual Transmission 18 - 18½ HG
 - B. Time: Manual Transmission 4 seconds
3. If adjustment is necessary, back off the set screw and adjust the vacuum control valve screw as follows:
 - A. Vacuum: Clockwise to decrease
Counter-clockwise to increase
 - B. Time: Clockwise to increase
Counter-clockwise to decrease
4. After completion of adjustment, tighten set screw and re-check.
5. Re-connect the relief valve solenoid hot wire.

VACUUM CONTROL VALVE ADJUSTMENT (MANUAL TRANSMISSION)

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INFORMATION

- RELIEF VALVE SOLENOID:** Causes the vacuum control valve and power servo to become inoperative either below 13 mph, or in "Neutral" or "Park" (Automatic).
- VACUUM CONTROL VALVE:** Controls operation of the power servo (adjustable).
- POWER SERVO:** With a vacuum applied, the servo opens the throttle plate, via throttle linkage.
- ADJUSTMENT SCREW:** Controls the time and vacuum to the power servo.
- SET SCREW:** Locks the adjustment screw.

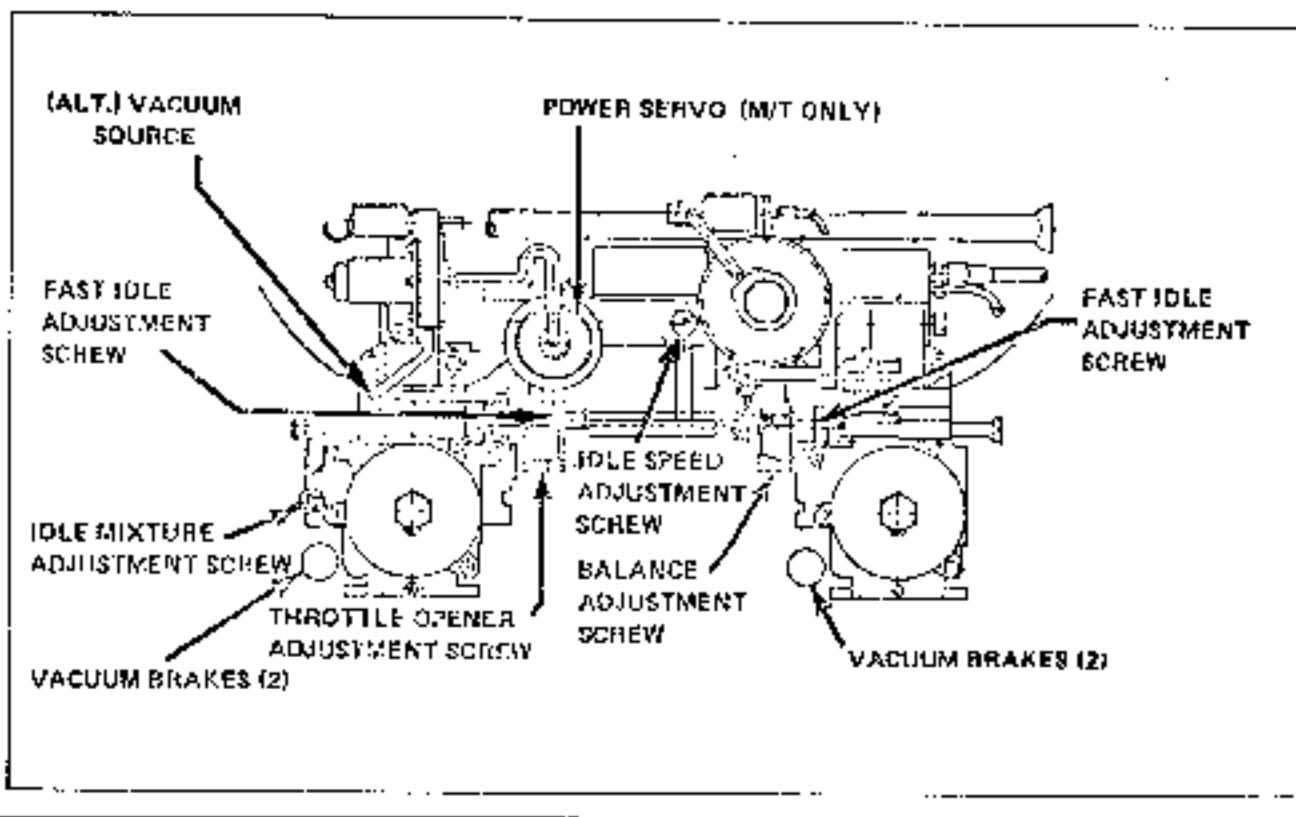
CARBURETOR ADJUSTMENT SEQUENCE

(MANUAL ONLY)

(on car)

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1. Check Choke Adjustment
2. Check Vacuum Brake Clearance
3. Check Damper Oil Level
4. Check Fast Idle RPM
5. Adjust Idle Speed (warm)
6. Adjust Power Servo RPM (under vacuum)
7. Adjust Carburetor Balance (at 1400 RPM)
8. Adjust Idle Mixture (CO percentage)
9. Adjust Vacuum Control Valve (Emission Control Manual)
10. Check CO with Air Pump connected

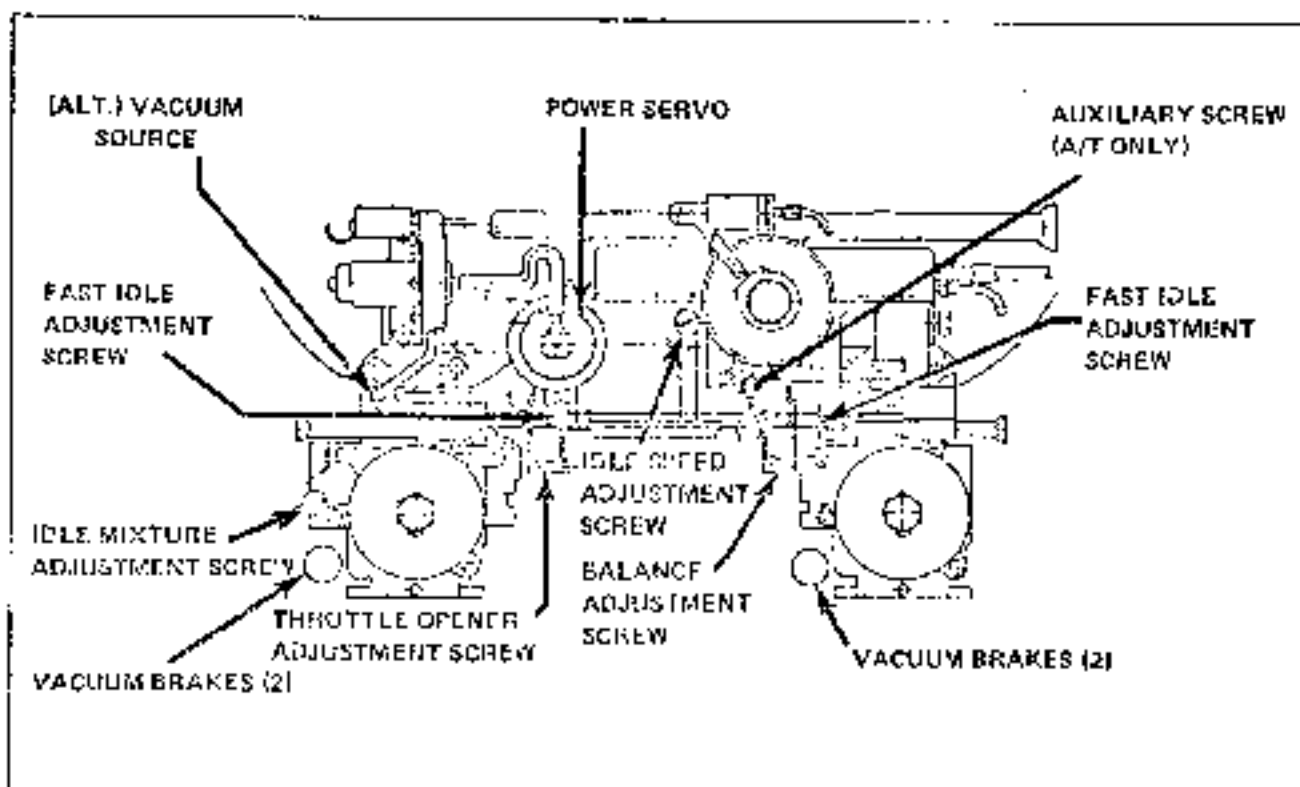


CARBURETOR ADJUSTMENT SEQUENCE (AUTOMATIC ONLY)

(on car)

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1. Check Choke Adjustment
2. Check Vacuum Brake Clearance
3. Check Dorman Oil Level
4. Check Pas. Idle RPM
5. Adjust Idle Speed (warm)
6. Adjust Auxiliary Screw
7. Adjust Carburetor Balance (at 1400 RPM)
8. Adjust Idle Mixture (CO percentage)
9. Check CO with Air Pump corrected



CARBURETOR ADJUSTMENT SPECIFICATIONS

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Item	Note	Setting
Choke	Use Cable Adjustment	Closed
Vacuum Brake	Vacuum Applied	.865
Fast Idle	Choke Applied	1800 to 2400 RPM
Damper	Oil Level	Between Operating Range Marks
Idle Speed	Standard (RPM) Automatic (RPM)	750 in Neutral 600 in Drive
Balance	Identical Flow Rates	1400 RPM
Power Servo	Apply Vacuum	1400 RPM
Final Mixture (Pump Disconnected)	Standard (N) Automatic (D)	CO 1-1.0% CO 1.6-1.2%
Final Mixture (Pump Connected)	Standard (N) Automatic (D)	CO 2.7% or less HC 300 PPM or less CO 2.7% or less HC 300 PPM or less
Vacuum Control Valve (M/I Only)	3000 to 1000 RPM	Time: 4 seconds Vacuum: 18 - 19% hg

CARBURETOR ADJUSTMENT MALFUNCTIONS

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Symptoms	Possible Causes	Possible Remedies
Hard Starting (Engine Cold)	(A) Improper starting procedure. (B) Choke cable binding. (C) Incorrect choke adjustment.	(A) Use correct starting procedure. (B) Replace or straighten cable. (C) Adjust choke.
Stalling (Engine Cold)	(A) Fast idle adjustment incorrect. (B) Incorrect choke adjustment. (C) Incorrect vacuum brake adjustment.	(A) Adjust fast-idle. (B) Adjust choke. (C) Adjust vacuum brake.
Poor Acceleration (Engine Cold)	(A) Incorrect choke adjustment. (B) Fast-idle adjustment incorrect. (C) Incorrect dampener oil weight or level. (D) EGR valve operation. (E) ATC malfunction.	(A) Adjust choke. (B) Adjust fast-idle. (C) Check oil. (D) Check sensor and relief valve circuit. (E) Check ATC system.
Poor Acceleration (Engine Hot)	(A) Incorrect balance adjustment. (B) Incorrect dampener oil weight or level. (C) ATC malfunction.	(A) Correct balance adjustment. (B) Check oil. (C) Check ATC system.
Overrunning (On Deceleration)	(A) Incorrect Power Servo setting.	(A) Adjust Power Servo RPM.
Backfire	(A) A-B valve. (B) Relief solenoid malfunction.	(A) Check complete AIS system. (B) Check relief valve circuit.

TEST 260 (continued)

6. When adjusting the power servo to obtain the correct RPM, the
 - a. balance adjustment screw is used.
 - b. throttle adjustment screws are used.
 - c. auxiliary screw is set to obtain 1200 RPM.
 - d. throttle opener screw is utilized.
7. Upon completion of the carburetor adjustment, check the CO percentage. The correct percentage for automatics is
 - a. 4 - 1.2 percent CO with the pump disconnected from check valve.
 - b. 3 percent at idle.
 - c. 6 percent with the pump connected.
 - d. 300 PPM HIC at idle.
8. A final check of both HIC and CO should be made with
 - a. the air pump disconnected.
 - b. the air pump connected.
 - c. the pistons up.
 - d. the air cleaner off.
9. To obtain a correct carburetor adjustment, a(n)
 - a. watch is needed.
 - b. scope must be used.
 - c. air pump flow gauge must be used.
 - d. flow meter must be used.
10. If the valves are not adjusted correctly
 - a. a carburetor adjustment cannot be performed correctly.
 - b. the power servo will not actuate the carburetor linkage.
 - c. the engine will backfire.
 - d. none of the above will occur.

UNIT TEST ANSWER SHEET

Circle the correct answer:

- | | | | | |
|-----|----|----|----|----|
| 1. | a. | b. | c. | d. |
| 2. | a. | b. | c. | d. |
| 3. | a. | b. | c. | d. |
| 4. | a. | b. | c. | d. |
| 5. | a. | b. | c. | d. |
| 6. | a. | b. | c. | d. |
| 7. | a. | b. | c. | d. |
| 8. | a. | b. | c. | d. |
| 9. | a. | b. | c. | d. |
| 10. | a. | b. | c. | d. |

Score: _____

Technician