

ENGINE FUEL AND EXHAUST

GENERAL DESCRIPTION

Both the Rochester and Carter carburetors used on 1955 series Cadillac cars are similar in design and operation to those used on 1954 series cars. Changes have been made to improve idle stability, hot starting characteristics and engine breathing during full throttle operation. These minor design changes, which have been incorporated into both carburetors, do not, for the most part, affect disassembly or adjustment procedures except as explained under Service Information in this section of the manual.

Air for idling is now introduced into the intake manifold through passages in the carburetor which by-pass the throttle valves as shown in Fig. 12-1. Air enters the by-pass passages above the throttle valves, in both the Rochester and Carter carburetors, and is directed into the intake manifold through two passages; one metered and one with an adjustable orifice. With this arrangement, the idle speed may be regulated by adjusting the idle by-pass air screw in the throttle body. This eliminates the effect of gum build-up in the throttle bore on idle stability as the throttle valves are completely closed during idle.

On engines equipped with two four-barrel carburetors, the metered by-pass air passage in the throttle body is omitted and all air for idling passes through the adjustable orifice.

On the Eldorado engine, two four-barrel carburetors, with a special intake manifold, are used to obtain a higher engine horsepower (270). The passages in the special intake manifold are arranged so that a primary throttle bore and the diagonally opposite secondary bore on each carburetor supply two cylinders. This provides ideal engine breathing for all performance requirements.

Hot starting characteristics have been improved by the use of vapor vent passages above the throttle valves. With this design, the fuel vapors that are formed when the engine is shut off are dissipated into the atmosphere.

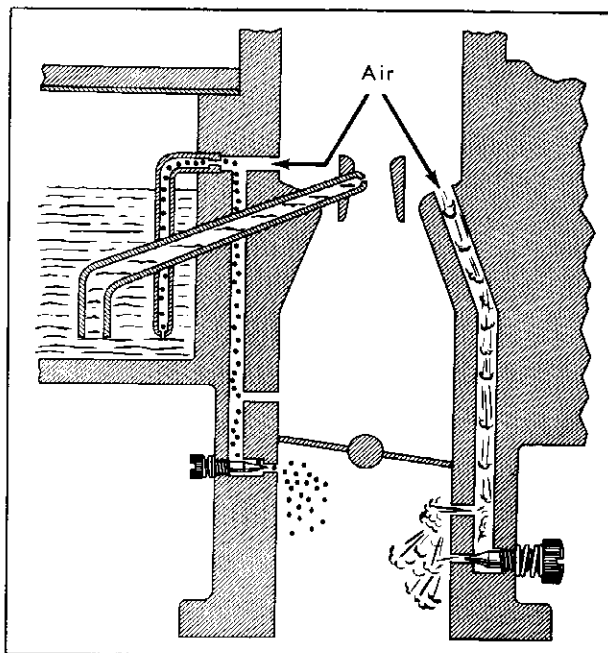


Fig. 12-1 Idle Air By-Pass (Schematic)

The secondary throttle bores, on both Rochester and Carter carburetors, are 1/8" larger in diameter than the primary throttle bores to provide improved engine breathing at full throttle operation. This change was not incorporated into the new carburetors until after approximately 3000, 1955 Cadillac cars had been produced.

SERVICE INFORMATION

(1) Accelerator Pump Adjustment

Rochester Carburetor—

With throttle valves fully closed, the distance from the air horn surface to the bottom edge of the pump plunger rod, as shown in Fig. 12-18 of the 1954 Shop Manual, should be 63/64" on the standard carburetor and 1-1/16" on the front and rear carburetors on the Eldorado engine.

Carter Carburetor—

Pump stroke adjustment specifications for the Carter carburetor remain the same as in 1954.

(2) Idle Speed Adjustment

a. Rochester and Carter Carburetors (Standard Engine)

1. Adjust the idle speed as explained in Section 12, Note 4 of the 1954 Shop Manual, using the idle air by-pass screw on the throttle body to regulate idle speed.

b. Rochester Carburetors (Eldorado Engine)

1. Remove carburetor air cleaner, disconnect throttle return spring and the manual control rod

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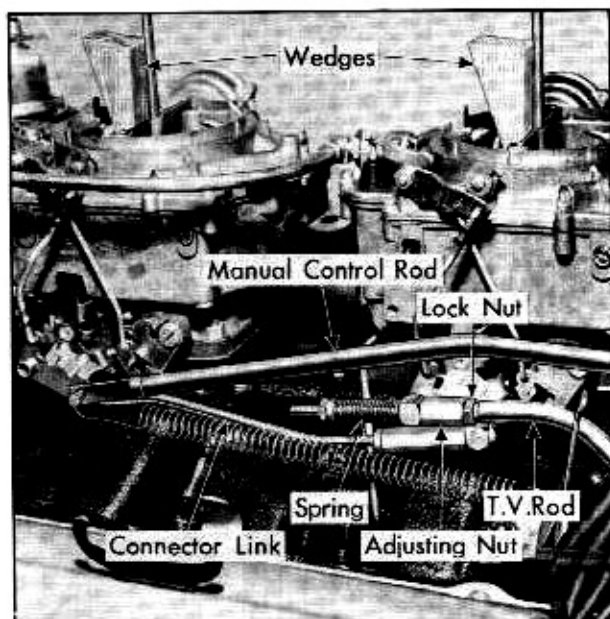


Fig. 12-2 Dual Carburetor Linkage

from end of the connector link, and loosen the throttle connector link jam nut. Refer to Fig. 12-2.

2. Hold or wedge both choke valves fully open and, with the throttle valves on both carburetors tightly closed, adjust the connector link so that the front end of the link fits freely in its hole in the front carburetor throttle lever. Tighten jam nut.

3. Place manual control rod over end of connector link and connect throttle return spring.

4. Back each idle mixture screw two turns off its seat and back each idle by-pass air screw three turns off its seat. Refer to Fig. 12-3.

5. Install carburetor air cleaner, connect tachometer, set hand brake securely, place selector lever in "Dr." and start engine.

6. When operating temperature is reached, turn the idle by-pass air screws on each carburetor equal amounts to obtain an engine speed of 475-485 RPM.

7. Turn right hand idle mixture screw on rear

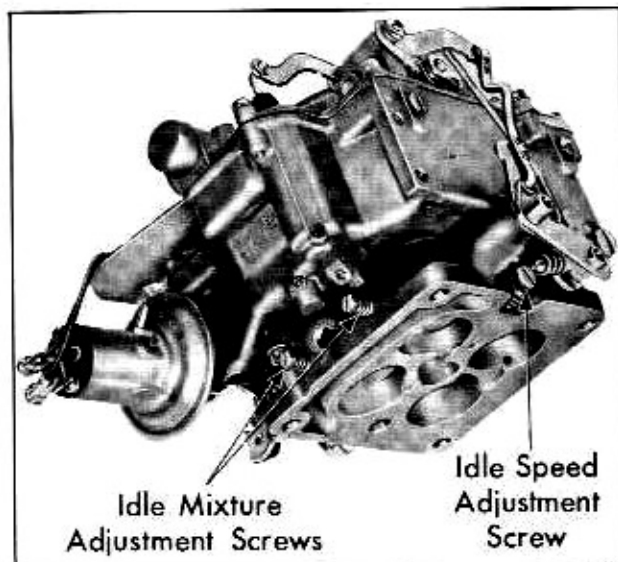


Fig. 12-3 Adjustment Screws

carburetor to its lean limit, then enrich $3/8$ turn. Repeat this adjustment on both front carburetor mixture screws next, and then the left mixture screw on the rear carburetor.

8. Adjust each idle by-pass air screw equal amounts to reduce speed to 465 RPM.

9. Readjust mixture screws equal amounts, in the sequence followed in Step 7 above, to obtain the highest engine RPM possible. This should be 475 to 485 RPM.

NOTE: If the specified RPM is not reached by adjusting the mixture screws as noted above, it will be necessary to readjust the idle air screw on each carburetor and then readjust the mixture screws until the specified RPM is obtained and the idle is smooth.

10. Adjust fast idle speed to 2000 RPM with screw on highest step of cam. Shut off engine and remove tachometer.

NOTE: Turn on Air Conditioner, on cars so equipped, when performing above adjustment, to assure idle stability when Air Conditioner is in operation.

SPECIFICATIONS

FUEL PUMP

NOTE: Testing to be done with entire car at room temperatures.

Fuel pressure at idle speed	4 to 5-1/4 p.s.i.
Fuel discharge per stroke at cranking speed	22 cc. minimum
Fuel discharge in 11 strokes at cranking speed	1/2 pint minimum
Push rod stroke245" to .250"
Push rod length	7.1425" to 7.1475"
Push rod diameter4355" to .4360"

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SPECIFICATIONS

Carburetor	Rochester		Carter	
	7006655	7007970	1462566	1463426
	7006656	7007971	1462567	1463427
Throttle Bore				
Primary	1-5/16"	1-5/16"	1-5/16"	1-5/16"
Secondary	1-5/16"	1-7/16"	1-5/16"	1-7/16"
Main Venturi				
Primary	1"	1"	1-1/16"	1-1/16"
Secondary	1-1/16"	1-3/16"	1-1/16"	1-3/16"
Small Venturi				
Primary	1/4"	1/4"	11/32"	11/32"
Secondary	1/4"	1/4"	11/32"	11/32"
Low Speed Jets				
Idle Needle Orifice . . . . .	.040"	.040"	.0595"	.0595"
Primary . . . . .	.030"	.030"	.028"	0.028"
Secondary . . . . .	.026"	.026"	.028"	0.028"
Main Metering Jets				
Primary . . . . .	.049"	0.49"	0.0935"	0.0935"
Secondary . . . . .	.064"	0.073"	.067"	0.082"
Power Valve Restriction . . . . .	.038"	0.038"		
Metering Rods				
Economy Step . . . . .			.0715	0.0715
Power Step . . . . .			.053	.053
Float Setting	(Gasket to bottom of floats)		(Casting to top of floats)	
Primary	1-19/32"	1-19/32"	1/8"	1/8"
Secondary	1-19/32"	1-19/32"	3/16"	3/16"
Choke Setting	Index	Index	Index	Index
Accelerator Pump				
Capacity - 10 Strokes	15 cc. min.	15 cc. min.	15 cc. min.	15 cc. min.
Idle By-Pass				
Fixed Orifice	0.110	0.110	.059	.059
Idle Mixture Screws				
(Turns Open)	1-1/2 to 2-1/2	1-1/2 to 2-1/2	3/4 to 1-1/2	3/4 to 1-1/2
Idle By-Pass Air Screw				
(Turns Open)	2 to 3	2 to 3	1/2 to 2	1/2 to 2
Idle Speed-Standard				
	400 RPM in drive		400 RPM in drive	
-Air Conditioned	With Air Conditioning "ON", Set Idle Speed at 400 RPM in Drive and Adjust Idle Speed-up Control to 900 RPM in Neutral.			

ELDORADO CARBURETOR -	Rochester - Std. 7007240 -- Front 7007942 -- Rear	Rochester - A.C. 7007440 -- Front 7007241 -- Rear
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Throttle Bore Primary 1-5/16" Secondary 1-7/16" Main Venturi Primary 1" Secondary 1-3/16" Small Venturi Primary 1/4" Secondary 1/4" Low Speed Jets Idle Needle Orifice040" Primary 0.030" Secondary 0.026" Choke Setting Index	Main Metering Jets Primary049" Secondary065" Power Valve Restriction025" Float Setting (Gasket to bottom of floats) Primary 1-19/32" Secondary 1-19/32" Accelerator Pump Capacity - 10 Strokes 15 cc. minimum Idle By-Pass Fixed Orifice None Idle By-Pass Air Screw (Turns Open) 2-1/2 to 3-1/2 Idle Speed - Standard 475 to 490 RPM in drive
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ENGINE FUEL AND EXHAUST

TORQUE TIGHTNESS

Location	Size	Ft. Lbs. Min.	Ft. Lbs. Max.
Carburetor to intake manifold	5/16-24	15	20
Fuel tank strap nuts	5/16-24	2	3
Fuel tank drain plug	5/8-18	25	30
Fuel pump to oil filler housing	3/8-16	25	30
Muffler clamps - front	3/8-24	25	30
Muffler clamps - rear	3/8-24	25	30
Muffler support to frame - 75 and 86	5/16-18	4	8
Resonator clamps	3/8-24	25	30
Resonator support to frame	5/16-12	10	15
Exhaust pipe to manifold - right	5/16-24	15	20
Exhaust pipe to manifold - left	3/8-24	30	35

SPECIAL TOOLS

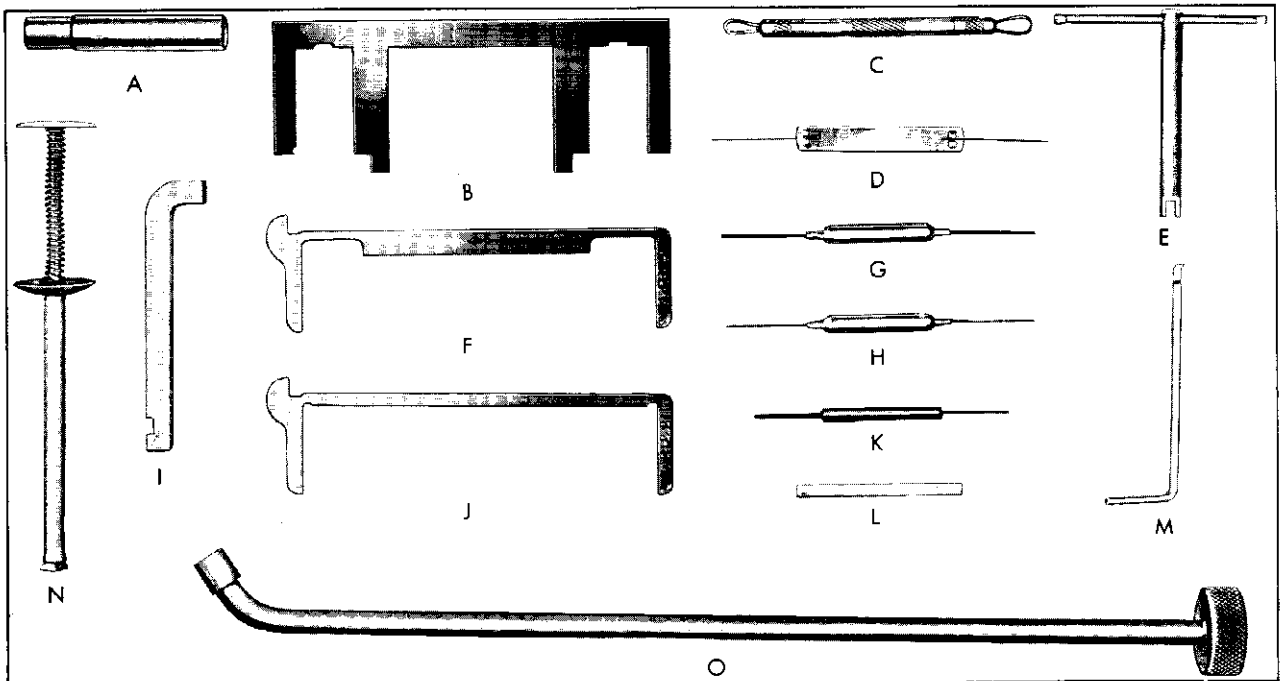


Fig. 12-4 Special Tools

A	J-2110	Ball Retaining Ring Installer
B	J-5683	Float Level Gage, Rochester
C	J-1136	Wire Gage (.020", .030", .040")
D	KMO-657	Wire Gage (.015", .018")
E	J-5197	Bending Tool
F	J-5437	Primary Float Level Gage, Carter, 1/8"
G	J-5660	Wire Gage (.040", .054")
H	KMO-658	Wire Gage (.023", .026")
I	J-1137	Bending Tool
J	J-5458	Secondary Float Level Gage, Carter, 3/16"
K	J-5195	Wire 2Gage (.028", .063")
L	J-818-3	Float and Unloader Gage, 3/16"
M	J-1306	Ball Retaining Ring Remover
N	KMO-65-4	Screw Holder
O	J-6044	Idle Adjusting Screwdriver

ROCHESTER CARBURETOR CIRCUITS

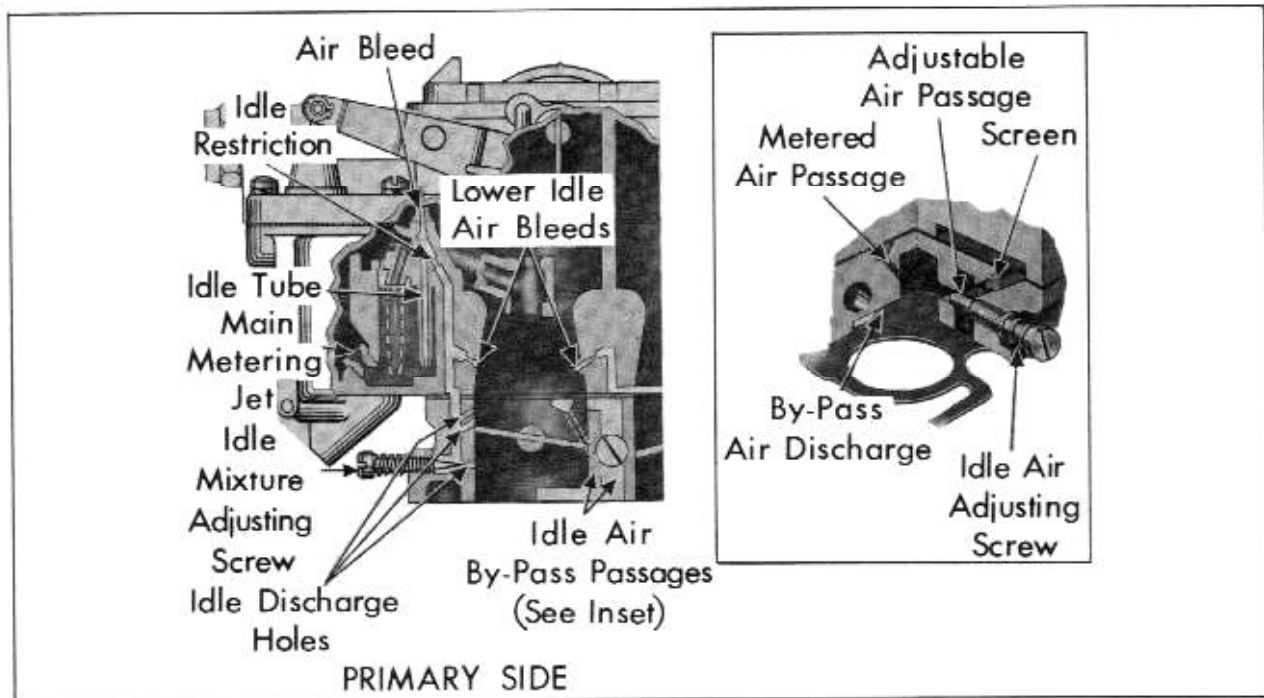


Fig. 10-3 Rochester Idle Circuit

The adjustable idle system is provided in the primary side of the carburetor. The secondary valves are tightly closed at this time and this section of the carburetor does not function at low speeds. The primary idle fuel is drawn from the float bowl through the main metering jets in the main well in the bottom of the primary bowl. It is then drawn up through the calibrated idle tube restrictions and idle tubes. Air joins this fuel at the calibrated air bleed in the primary cluster and the mixture passes through a calibrated restriction and then through the float bowl idle passage. Additional air is bled into the mixture through the lower idle air bleeds in the bowl and upper idle discharge hole in the throttle body. Air for idling is introduced into the intake manifold through passages which by-pass the throttle valves. Two passages are used in the idle air by-pass, a metered passage and an adjustable passage. Idle speed is regulated by adjusting the air by-pass screw in the throttle body. The effects of gum build-up on the throttle bore on idle stability is eliminated, as the throttle valves remain tightly closed during idle. Fig. 10-3.

As the throttle valves are opened slightly to an off idle position, the top idle discharge holes above the throttle valves are exposed to manifold vacuum and stop functioning as additional idle air bleeds. Fuel is discharged from these holes to meet the increased demands of the engine. The two lower idle discharge holes then carry the fuel requirements over until greater throttle opening causes

the part throttle circuits to function as explained in the next paragraphs. The secondary side of the carburetor does not function during idle.

Part Throttle Circuit

As the throttle valves are opened to a greater degree and more air is drawn through the carburetor, it is necessary to provide a means other than the idle systems for supplying additional fuel to meet the engine requirements. Refer to Fig. 10-4.

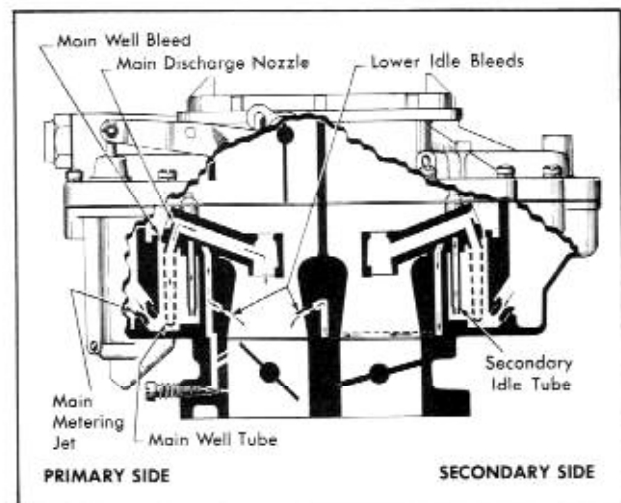


Fig. 10-4 Rochester Part Throttle Circuit