9. CARBURETION OR FUEL INJECTION:

Inspect either the fuel injection unit or the carburetor(s). Vacuum lines and choke temperature line are included here.

The air cleaner, intake manifold and throttle linkage are inspected elsewhere.

9.1. CARBURETOR(S)

Six cylinder engines had three carburetors attached to the side of the engine block (side-draft). Each one mounts to a triangular insulator (dark unpainted bakelite) with the beveled edge facing the carburetor. Six cylinder engines had manual chokes.

Eight cylinder engines used either fuel injection, or one carburetor, or two carburetors mounted on the top of the block. Carbureted engines had automatic chokes, located high thru 1958, then low beginning 1959.

All carburetors are natural finish and have a triangular brass tag attached with a straight slot screw. It is located on the bowl (YH models) or the air horn (WCFB and AFB models). The AFB model may have a stamping on the throttle body in lieu of a tag.

The tag shows the Carter number, manufacturing date code, and production assembly line number. The date code was a one digit alpha for the month and a one digit numeric for the year. Example: C6 is March 1956. The assembly line number was a one digit numeric beneath the date code.

Original tags have one (usually two) inspection holes punched; reproduction tags have none.

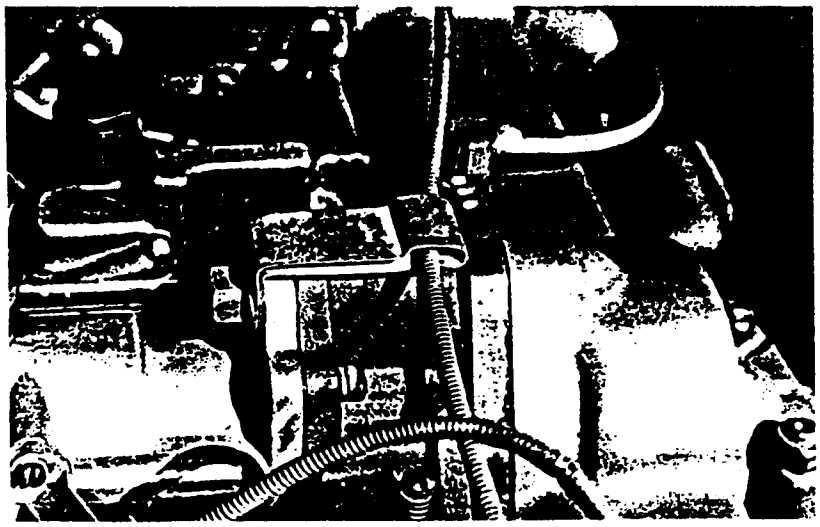
3-CARB	PART NO	CARTER MODEL		NOTE
1953	3706151	2066S	YH	6-cyl until about E53F001122
1953-55	3706989	2066SA	YH	6-cyl after about E53F001136

YH = side draft

2066S: had "1082" on the face of the flange.

2066SA: had a longer throttle shaft.

1954 had clips to route the choke cable above the center and rear carburetors. The rear clip stood up straight; the center clip was bent in an "L".



1954
CENTER CARBURETOR
CHOKE CABLE CLIP

2-CARB	PART NO	CARTER MODEL		NOTE	
1956	3720953	2362S	WCFB	same front & rear until AIM 2-27-56	(1)
1956-57	3730599	2419S	WCFB	front	
	3720953	2362S	WCFB	rear until AIM 12-11-56	
1957	3744002	2626S	WCFB	front regular cam	
	3744004	2627S	WCFB	rear regular cam after AIM 12-11-56	
1958-60	3744002	2626S	WCFB	front powerglide & 3-speed	(2)
	3744004	2627S	WCFB	rear powerglide & 3-speed	(2)
1957-60	3741089	2613S	WCFB	front hi-lift cam	(2)
	3741090	2614S	WCFB	rear hi-lift cam	(2)
1961	3785554	3182S	WCFB	front regular cam	
	3744004	2627S	WCFB	rear regular cam	
	3785552	3181S	WCFB	front hi-lift cam	
	3741090	2614S	WCFB	rear hi-lift cam	

WCFB = wrought cast four barrel

(1) The arrangement using the same carb front and rear has never appeared. Some GM records show it with two chokes while other records show a single choke.

(2) Info is from the GM Assy Manual; differs from Adams pg 272:
2626S & 2627S - all engines until AIM 12-6-57
2613S & 2614S - all engines after AIM 12-6-57 (about J58S101600)

2362S: has an additional air bleed screw on lower driver side.

2419S: has an additional air bleed screw on lower driver side.

2613S: ?

2614S: ?

2626S: the fuel lines join at a T-fitting beside the front carb.

2627S: the fuel lines join at a T-fitting beside the front carb.

3181S: ?

3182S: ?

1-CARB	PART NO	CARTER MODEL		NOTES
1955	3717687	2218S	WCFB	until about VIN -1356
1955-56	3724158	2351S	WCFB	1955 after about VIN -1483 1956 until AIM 5-28-56
1956-57	3733246	2366SA	WCFB	from AIM 5-28-56 to AIM 1-7-57
1957	3744925	2655S	WCFB	after AIM 1-7-57
1958	3746384	2668S 2669S	WCFB WCFB	
1959-60	3756676	2818S	WCFB	until AIM 10-19-59
1960-61	3779178	3059S	WCFB	after AIM 10-19-59
1962 sm carb	3788245 3788246	3190S 3191S	WCFB WCFB	early powerglide late powerglide & all manual
1962 lg carb	3797699	3269S 3310S	AFB AFB	all manual powerglide until AIM 12-6-61 powerglide after AIM 12-6-61

WCFB = wrought cast four barrel
AFB = aluminum four barrel

2218S: the flange face has # 1063; air horn has casting # 6-1020. There is a metal heat tube to the passenger exhaust manifold. The distributor vacuum line connected to the front corner of the carburetor base.

2351S: del ted the vacuum advance and the bellcrank.

2366SA: did not have an auxiliary air valve assembly. The choke cover was flat bakelite and the external threaded hot air protrusion was at the rear of the housing.

primary venturi = 1-1/16 inch cast between bores
secondary venturi = 15/16 inch cast between bores
air horn casting = 6-1098
main body casting = 0-953

2655S: had an auxiliary air valve assembly. The choke cover was bakelite with a threaded hot air nipple protrusion in the center. The protrusion at the rear of the housing was unthreaded and unused.

primary venturi	= 1 inch cast between bores
lever/weight length	= 1-31/32 inch
weight diameter	= 13/16 inch
weight thickness	= 1/4 inch early or 1/2 inch late
air horn casting no	= 6-1271
main body cast no	= 0-108 or possible 0-1108

2668S: ?

2669S: ?

2818S: ?

3059S: the driver-rear stud is hollow and supplies vacuum for the distributor and windshield washers. It also had an additional fitting near the passenger-rear-upper corner where an insulated pipe assy connected to the passenger exhaust manifold just above the flange.

3090S: ?

3191S: The driver-rear hollow stud was capped and the center-rear fitting was used for vacuum.

3269S: ?

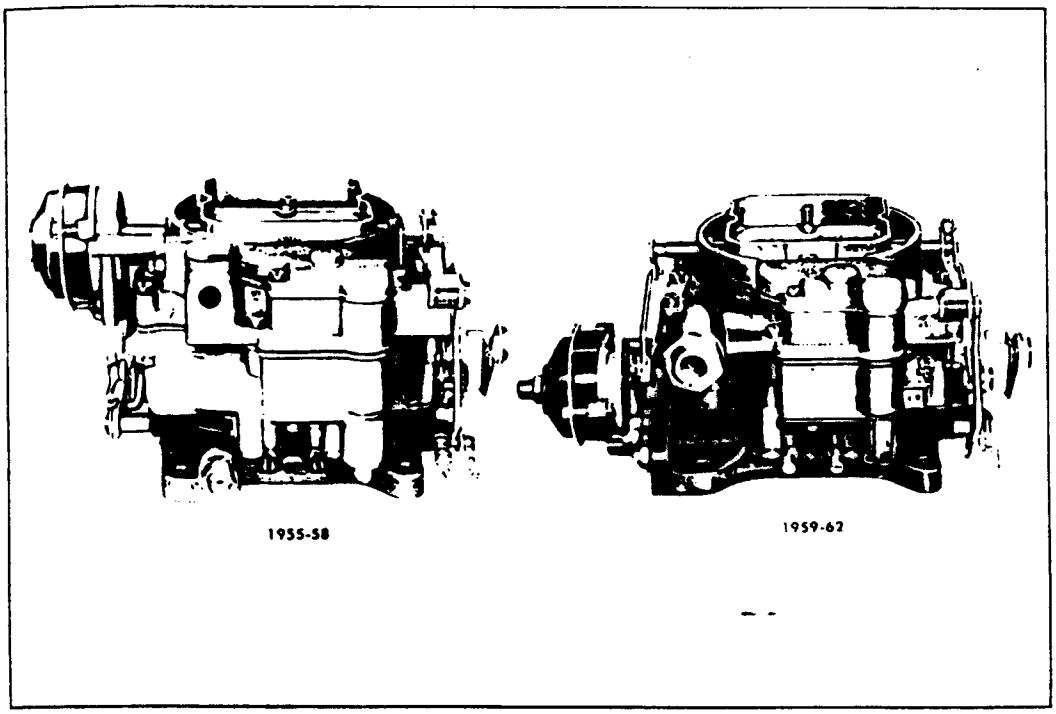
3310S: ?

9.1. Carburetor References:

Adams: 1953-55 pages 48, 50, 57-61,
1956-57 pages 123-7, 130, 166
1958-60 pages 230, 234, 236, 272-4
1961-62 pages 330, 333, 365-7, 372-3

NCRS Specifications 1953-72, page 72-73
NCRS Judging Manual 1953-55, pages 31
1956-57, page 32
1958-60, pages 19
1961-62, page 14

GM Assy Manual	1956-60	Sect 6	Sheet 3.00
		RPO 469	Sheet 1.00
	1961	Sect 6	Sheet 3.00
		RPO 468/469	Sheet 1.00
	1962	Sect 6	Sheet 2.00
		RPO 396/583	Sheet 1.00



9.2. FUEL INJECTION (FI)

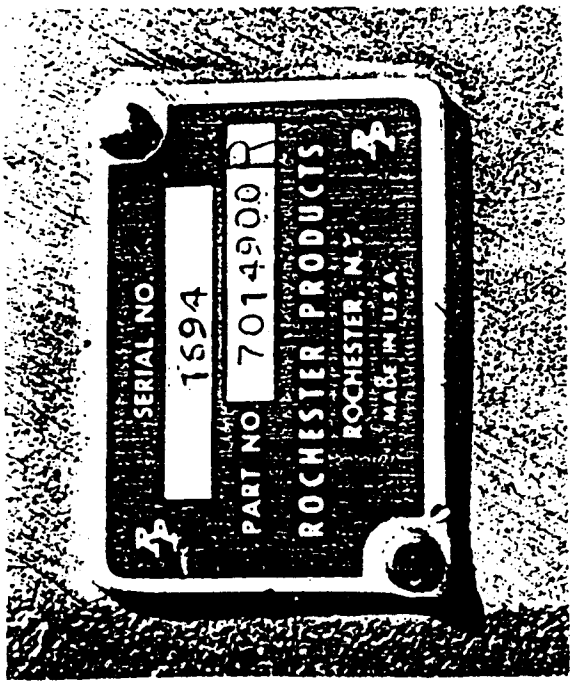
The FI unit includes the plenum chamber, the air meter (driver's side) and the fuel meter (passenger side). The intake manifold, air filter and adapter are inspected elsewhere.

Serial number correlation: there is no correlation between the serial numbers in the VIN, engine, FI, air meter, or fuel meter for two reasons. First, the factory made no attempt to match up sequential numbers during installation. Second, initially FI repairs were allowed only at the factory, requiring the dealer to swap out units. Some factory rebuilt units may have received different meters and overstamped numbers, then been reinstalled on later new production vehicles.

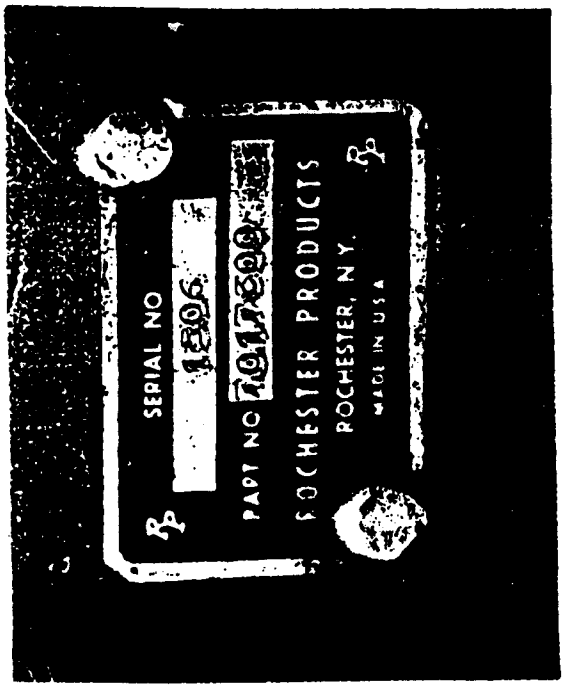
All FI units were by Rochester with identification numbers on the plenum chamber, front-driver side. About the first hundred 1957 units were hand-stamped with only a serial number, beginning 1001. All subsequent FI units have an identification tag riveted to the plenum chamber.

The rectangular ID tag showed the serial number, part number, and "ROCHESTER PRODUCTS" along with the company location and RP logo. It was made of aluminum with black paint. The serial number and part number were stamped into the metal.

PLENUM TAG - SMALL RIVETS



PLENUM TAG - LARGE RIVETS



The fuel meter has an aluminum triangular tag attached to the ten o'clock position on the enrichment diaphragm cover. (This tag is similar to the brass triangular tag used on carburetors.)

The triangular tag showed (need a description)

FUEL INJECTION
FUEL METER TAG (need a picture)

The fuel meter and air meter both have their part number and serial number stamped on the casting. Some part numbers may be missing the first four digits or have the last three digits overstamped.

The FI drive cable is connected to the distributor with a nut.
Very early 1957 used a thin hex nut.
Later 1957 used a thicker hex nut.
Early 1958 used a very thick hex nut.
Mid 1958 used a non hex nut.

YEAR	FI UNIT*	AIR	FUEL**	NOTES
57	7014360	7014361	7014362	until about E57S102900
	7014520	7014521	7014522	after about E57S102900
57-58	7014800	7014801	7014802	after about E57S105000
	7014800R	7014801	7014802	hi-lift cam (1)
	7014960	7014801	7014962	hi-lift cam after about E57S105600
58-59	7014900	7014901	7014902	regular cam
	7014900R	7014901	7014902	hi-lift cam
59-61	7017200	7014201	7017202	regular cam
	7017250	7017251	7017252	hi-lift cam
59-60	7017300	7014801	7014802	regular cam (2)
	7017300R	7014801	7014802	hi-lift cam (2)
60-61	7017310	7017201	7017202	regular cam
	7017320	7017251	7017252	hi-lift cam (3)
62	7017355	no mark	7017252	spec cam, very early
	7017360	no mark	7017252 or no mark	spec cam

* "R" indicates recalibration to 6-8% richer power stop setting for hi-lift cam.

** Underlined portion of numbers may be missing on some units.

(1) This is a reworked 7014520 unit.

(2) The 300 versions are reworked 800 units.
These units retained their 800 series air and fuel meters.

(3) Fuel meter tag has a "B" starting FI serial #1356.

1961 NOTE: Despite what the documentation says should be on the vehicles, an owner survey indicated the following:
all RPO 579 had 7017200 except one had 7017250;
no RPO 582 had 7017250

7014360: Began with 1957 production. The top fins on the plenum chamber were machine-cut, not cast. The inner side was smooth except for a small plate with two screws which covers an intended fitting mounting position.

The fuel meter top had a diaphragm with a tubing connection called the coasting diaphragm - it was plugged with an 1/8 inch pipe plug on late units. On its side was a built up area with a hole in its center: early units had a vent tube, late units had a shiny disc plug.

The fuel distribution tubing "spider" had two inlets, each with four outlets. These units were recalled by General Motors.

7014520: Began about E57S102900. The fins on the top of the plenum chamber were cast the full length. There is a piece of metal tubing between the front of the plenum chamber and the fuel enrichment diaphragm on the front of the fuel meter.

The fuel meter's outer surface is rough due to sand casting; there are no internal passages (show as vertical ribs on the exterior). The surface toward the plenum chamber retains the little plate with two screws. Beside it is a cast depression in the fuel meter (this depression was for 1957-58 Pontiac high pressure fuel pump).

The fuel distribution tubing "spider" had one inlet with eight outlets held in place by threaded fittings.

7014800: Began about E57S105000. The tee contains a restriction in the auxiliary idle vacuum signal end. Has an antipercolation valve.

7014960: Began about E57S105600 on all hi-lift cam engines; some were used in 1958. Has a single vacuum line from the air meter to the fuel meter. The second line on the "t" is connected to the cranking signal valve. The cranking signal valve is fitted into the upper-right-front corner of the intake manifold. The cranking signal valve eliminates the starting solenoid and microswitch on earlier models.

7014900: Began 1958 production on engines without hi-lift cam. Leftover units were used in 1959. Some late units were fitted with a siphon valve bolted on the fuel meter just above the fuel pump drive cable and connected with tubing. The restriction is no longer in the tee, but it is integral to the air meter casting.

Eliminates the need for by-pass fuel for starting (antipercolation valve replaced by a formed wire). A light coil spring is used between the spill plunger and the wire support to hold the spill plunger up in the maximum spill position when the engine is shut off. The spill plunger is matched to a removable sleeve.

7014900R: 1958 engines with hi-lift cam. It is identical to the base unit except it is calibrated 6-8 percent richer on the power stop. Leftover units were used in 1959. Late units received the same siphon valve as the 900 unit.

7017200: 1959 without hi-lift cam. Had an integral (cast in) siphon breaker protruding on the side of the fuel meter body closest to the intake manifold. The plenum chamber top was ribbed. Leftover units were used on 1960 and 1961 low hp engines (regular cam).

Used on 1961 engines with regular cam (RPO 579). Had a single vacuum line from plenum to distributor. A vacuum line from the left-rear side of the plenum may be present for the windshield washer system (small hose to the rear) or for the crankcase ventilation system (large hose runs up and over the plenum). If neither is present, the hole is plugged.

7017250: Used on 1959 with hi-lift cam. Had integral siphon breakers and a ribbed plenum chamber top. Used in 1961 with the special cam (RPO 582).

7017300 & 7017300R: Appeared in 1959. They were reworked 7014800 units and have oversized rivets and different shaped stamping on the ID plate. The air and fuel meters are numbered for the 800 unit. The air meter has a microswitch and the fuel meter has a starting solenoid. The top fitting of the fuel meter is an elbow instead of a tee.

7017310: 1960 with hydraulic lifters. It has a flat, unribbed plenum chamber top.

Used on 1961 engines with regular cam (RPO 579). Had a single vacuum line from plenum to distributor. A vacuum line from the left-rear side of the plenum may be present for the windshield washer system (small hose to the rear) or for the crankcase ventilation system (large hose runs up and over the plenum). If neither is present, the hole is plugged.

7017320: Used in 1960 with mechanical lifters and hi-lift cam. Starting with FI serial number 1356, the fuel meter tag has "B" to indicate resetting the wide-open throttle stop to 1-1/4 turns rich. Adams pg 374. Used in 1961 with the special cam (RPO 582).

7017355: Supposedly used in 1962 on all FI engines (the only FI offered had the special cam, RPO 582). None of these units have been found. Used the same fuel filter as 1959 and 60 (replaceable element) until 10-3-61 when it switched to the throw-away canister.

7017360: Used in 1962 on all engines (the only FI offered had the special cam RPO 582). This unit is identical to the 355 with the throw-away fuel filter canister.

The cold enrichment and diffuser cone assembly incorporates an almost conventional blade type choke valve. This eliminates the complex valving on past models. The electrically-heated thermostatic coil (mounted on the air meter inlet) positions the choke valve to provide necessary venturi signal boost for fuel enrichment.

The fuel meter was unchanged except the spill plunger was replaced by a poppet-type metering valve. The cranking signal valve was relocated to the cover of the power enrichment diaphragm (eliminates failure due to backfire). Vacuum for power enrichment is drawn directly from the injector intake manifold.

9.2. FUEL INJECTION REFERENCES:

Adams pages 176-83, 197, 277-85, 305, 374-9, 393-5

GM Assy Manual	1957	RPO 579	Sheet 1.00 thru 5.00
	1958-60	RPO 579	Sheet 1.00 thru 6.00
	1961	RPO 579/582	Sheet 1.00 thru 7.00
	1962	RPO 582	Sheet 1.00 thru 9.00

NCRS Specifications	1953-72	page 71
NCRS Judging Manual	1956-57	page 33-34
	1958-60	page 19-20
	1961-62	page 14-15