

**CARTER CARBURETOR**

SEPTEMBER, 1960  
Revised August, 1962

**1960-63 "V8"  
BUICK**

AFB FOUR-BORE DOWN-DRAFT CLIMATIC CONTROL CARBURETORS Nos. 2981S-2982S-  
3088S-3089S-3297S-3503S-SA-3578S

YEAR AND MODEL	ENGINE DISPL.	ORIGINAL CARB. NO.	SERVICE CARB. NO.	RE-CARB KIT NO.	ZIP KIT NO.	GASKET SET NO.
1960 4400	364	2981S	2982S	5008N	902-62	323A
4600, 4700, 4800	401	2982S	2982S	5009N	902-62	323A
1961 4400	364	3089S	3088S	5042N	902-125	358
4600, 4700, 4800	401	3088S	3088S	5041N	902-125	358
1962 4400, 4600, 4800	401	3297S-SA	3297SA	5057N	902-125	358
1963 4400, 4800	401	3503S-SA	3503SA		902-185	495
4600, 4700 A/T	425	3578S	3578S		902-185	495

**CARBURETOR SPECIFICATIONS**

For Buick 8 Cylinders, Vacuum at Idle 15 to 16 Inches

**LOW SPEED CIRCUIT:** (Primary Side Only).  
**Jet;** (2981S - 2982S .0465 inch), (3088S - 3297S-SA .033 inch), (3503S-A .035 inch), (3578S .031 inch).  
**By-Pass;** (2981S - 2982S .0531 inch), (3088S - 3297S-SA - (3503S-SA .051 inch), (3578S .0452 inch).  
**Economizer;** (2981S - 2982S .038 inch), (3088S - 3297S-SA .042 inch), (3503S-SA - 3578S .043 inch).  
**Bleed;** (All except 3578S .0531 inch) (3578S .0465 inch).  
**Idle Port;** (All except 3578S .200 inch x .030 inch), (3578S .185 inch x .030 inch).

**IDLE R.P.M.:** 475 to 525 Auto. Trans. in neutral. 575 with air conditioning off.

**ACCELERATING PUMP:** Pump jet; (twin .028 inch).

**CHOKE CLIMATIC CONTROL:** (All except 2981S - 2982S set at index), (2981S - 2982S 2 points rich).

**VACUUM SPARK PORT:** (.040 inch x .130 inch).

**MOTOR TUNE-UP - BE ACCURATE**

Spark Plug Gap .033"	Breaker Point Setting .015"	Ignition Timing Breaker Points to Open: 12° B.T.D.C. At Vibration Damper	Float Setting See Adjustments	Idle Adjustment Screw Setting ¼ to 1¼ Turns Open
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# CARBURETOR ADJUSTMENTS

Adjustments Illustrated on Service Procedure Form 3701

**FLOAT ALIGNMENT:** Side of floats parallel to edge of casting. Minimum clearance between lever and air horn lugs without binding. To adjust, bend float lever.

**FLOAT LEVEL:** 7/32 inch (Gauge T109-106) with solid seat, 3/16 inch (Gauge T109-28) with resilient seat plus or minus 1/64 inch between top of floats (at outer end) and air horn gasket. To adjust, bend float lever.

**FLOAT DROP:** 23/32 inch plus or minus 1/16 inch between top of floats (at outer end) and air horn gasket. To adjust, bend stop tabs on float brackets.

**PUMP:** 7/16 inch (all except 2981S - 2982S) 1/2 inch (2981S - 2982S) from the top of the bowl cover to the top of the plunger shaft, with throttle connector rod in center hole of pump arm with throttle valves tightly closed. To adjust, bend throttle connector rod.

**CHOKE PISTON LINKAGE ADJUSTMENT:** (1) Bend a .026 inch wire gauge (tool T109-189) at a 90° angle approximately 1/8 inch from its end. (2) Open the choke valve and insert the wire gauge so that the bent portion is between the top of the slot in the choke piston cylinder and the bottom of the slot in the piston. Hold the wire gauge in position and close the choke valve by pressing on the piston lever in the choke housing until resistance is felt. There should now be 3/32 inch (Gauge T109-125) between the top of the choke valve and the air horn. (3) To adjust, bend choke connector rod.

**FAST IDLE LINKAGE ADJUSTMENT:** With choke valve closed index mark on cam should align with adjusting screw. To adjust, bend fast idle connector rod.

**NOTE:** It may be necessary to bend stop lug on fast idle cam.

**FAST IDLE THROTTLE VALVE CLEARANCE:** (2981S - 2982S) .020 inch (3088S - 3089S - 3297S - 3503S-SA - 3578S) .030 inch (Gauge T109-29) between lower edge of valve and bore with adjusting screw on index mark of cam.

**FAST IDLE ON CAR:** 650 R.P.M. hot engine with fast idle screw at end of bottom step of cam.

**UNLOADER:** 7/32 inch (Gauge T109-106) between upper edge of choke valve and inner wall of air horn with throttle valves wide open. To adjust, bend unloader lip on throttle lever.

**SECONDARY THROTTLE LEVER ADJUSTMENT:** (1) Block choke valve wide open. (2) With 23/64 inch between lower edge of primary valve and bore (opposite idle port) secondary valves should just start to open. To adjust, bend throttle operating rod. **NOTE:** Secondary throttle valves will be a few degrees from wide open when primary valves are wide open. Upper edge of secondary valve should just contact auxiliary valve when auxiliary valve is wide open. If necessary, bend stop lug on secondary lever to prevent secondary valves from going past wide open. (3) With primary and secondary throttle valves tightly closed, there should be .010 to .030 inch (Gauge T109-29) between positive closing shoes on primary and secondary throttle lever. To adjust, bend shoe on secondary lever.

**SECONDARY THROTTLE LOCK-OUT ADJUSTMENT:** Crack throttle valves and manually open and close the choke valve. Tang on secondary throttle lever should freely engage in notch of lockout dog. To adjust, bend tang on secondary throttle lever.

**CAR STARTER SWITCH ADJUSTMENT:** (2981S - 2982S). Should contact between 19/64 inch and 9/16 inch travel to top edge of throttle lever stop lug and idle speed screw. (Idle speed screw just touching stop lug with valve seating.) To adjust, add or remove shims from switch.

## PARTS LIST

Part No.	PART NAME	Part No.	PART NAME
1A-119	Flange gasket	11B-391	Passage plug (2981S-2982S)
2-196	Secondary throttle valve (2)	11B-406	Passage plug (2)
2-211	Primary throttle valve (2)	11B-407	Fuel passage plug (all except 2981S-2982S)
3-1074S	Secondary throttle shaft and lever assembly (all except 2981S-2982S)	14-568S	Choke lever and shaft assembly
3-1140S	Secondary throttle shaft and lever assembly (2981S-2982S)	14-605S	Choke lever and shaft assembly (2981S-2982S)
3-1216S	Primary throttle shaft and lever assembly (2981S-2982S)	14-609S	Choke piston lever and link assembly
3-1317S	Primary throttle shaft and lever assembly (all except 2981S-2982S)	14-612S	Choke shaft and lever assembly (piston housing)
3-1277S	Auxiliary throttle shaft, valve and weight assembly	14-619	Choke shaft lever
4A-164	Primary throttle shaft dog (2981S-2982S)	14-620	Cam trip lever
4A-175	Primary throttle shaft dog (all except 2981S-2982S)	15-58S	Fuel inlet fitting assembly (3088S-3089S-3297S-SA)
4A-180S	Primary throttle shaft dog and screw assembly (2981S-2982S)	16-123	Step-up rod (.0695" x .060") (2981S)
6-1411S	Air horn assembly (2981S-2982S)	16-124	Step-up rod (.069" x .0635") (2982S)
6-1503S	Air horn assembly (3088S-3089S)	16-127	Step-up rod (.070" x .06475") 1 size lean (2982S)
6-1580S	Air horn assembly (3297S-SA)	16-129	Step-up rod (.0705" x .0615") 1 size lean (2981S)
7-23S	Choke valve	16-131U	Step-up rod, package (2) 16-128, (2) 61-400 and (2) 120-177 2 sizes lean (2982S)
11B-3S	Rivet plug	16-132U	Step-up rod, package (2) 16-130, (2) 61-400 and (2) 120-222 2 sizes lean (2981S)
11B-79	Rivet plug (5)	16-167	Step-up rod .0695" x .063" (3088S-3297S)
11B-134	Passage plug (Use 11B-406)	16-168	Step-up rod .0695" x .0605" (3089S)
11B-378	Pipe plug (3297S-SA)	16-187U	Step-up rod, package (2) 16-189, (2) 61-400 and (2) 120-194 1 size lean (3088S-3297S-SA)
11B-38S	Fuel passage plug (Use 11B-407)	16-188U	Step-up rod, package (2) 16-190, (2) 61-400 and (2) 120-194 1 size lean (3089S)
11B-38S	Fuel passage plug (2981S-2982S) (Use 11B-407 3088S-3089S)	16-219	Step-up rod (.0685" x .063") (3503S-SA)
11B-389	Idle port rivet plug (2)	16-232	Step-up rod (.07075" x .064") (3578S)
11B-390	Passage plug (all except 2981S-2982S) (2)		

Part No.	PART NAME
17-51	Pump discharge check needle
20-43	Piston housing gasket
20-126	Needle seat gasket (2)
20-127	Fuel inlet fitting gasket
21-179S	Float and lever assembly (2)
24-29	Float lever pin (2)
25-407S	Needle and seat assembly (.111") (Brass Seat) (2981S-2982S) (2)
25-438S	Needle and seat assembly (.1015") (Brass Seat) (All except 2981S-2982S) (2)
25-483S	Needle and seat assembly (Resilient Seat) (2)
30A-75	Idle adjustment screw (3503S-SA-3578S) (2)
30A-80	Idle adjustment screw (all except 3503S-SA-3578S) (2)
39-11	Choke valve attaching screw (2)
47-30	Piston housing welsh plug
47-33	Primary venturi welsh plug (All except 2981S-2982S) (2)
47-34	Spark port welsh plug
47-36	Secondary venturi welsh plug (2)
48-264S	Pump jet and housing assembly
49-128	Switch plunger (2981S-2982S)
53A-412	Lockout dog
53A-430	Secondary throttle operating lever
58-151S	Secondary venturi assembly (choke side) (2981S-2982S)
58-152S	Secondary venturi assembly (pump side) (2981S-2982S)
58-347S	Secondary venturi assembly (choke side) (3088S-3089S-3297S-SA)
58-348S	Secondary venturi assembly (pump side) (3088S-3089S-3297S-SA)
58-467S	Primary venturi assembly (choke side) (2981S-2982S)
58-468S	Primary venturi assembly (pump side) (2981S-2982S)
58-536S	Primary venturi assembly (choke side) (3088S-3089S-3297S-SA)
58-537S	Primary venturi assembly (pump side) (3088S-3089S-3297S-SA)
61-58	Fast idle adjusting screw spring (all except 2981S-2982S)
61-84	Idle adjustment screw spring (2)
61-171	Pump spring (lower)
61-243S	Contact spring and washer assembly (2981S-2982S)
61-259	Vacuum piston spring (2)
61-291	Throttle lever adjusting screw spring
61-388	Switch return spring (2981S-2982S)
61-483	Secondary throttle return spring
61-585	Step-up rod retaining spring (2)
61-623	Throttle flex spring
61-624	Fast idle cam spring
61-641	Primary throttle shaft dog spring (2981S-2982S)
63-58	Coil housing retainer (3)
64-209S	Pump plunger, rod and spring assembly (2981S-2982S)
64-217S	Pump plunger, rod and spring assembly
65-43	Step-up piston cover plate (2)
101-65	Choke shaft lever attaching screw (2)
101-74	Throttle shaft lever attaching screw (2)
101-136	Coil housing attaching screw (3)
101-152S	Air horn attaching screw and washer assembly
101-184S	Pump jet housing attaching screw and washer assembly (2)
101-323	Fast idle cam attaching screw
101-325S	Switch attaching screw and washer assembly (2981S-2982S) (2)
101-362S	Air horn attaching screw and washer assembly (8)
101-379S	Secondary and primary venturi attaching screw and washer assembly (8)
101-407	Fast idle adjustment screw (2981S-2982S)
101-419	Secondary throttle valve attaching screw (4)
101-420	Primary throttle valve attaching screw (4)
101-421	Pump arm attaching screw
101-431S	Air horn attaching screw and washer assembly
101-435S	Step-up piston cover plate attaching screw and washer assembly (2)
101-436	Piston housing attaching screw (3)
101-452	Throttle lever adjusting screw
101-453S	Thermostatic valve attaching screw and washer assembly (2)

Part No.	PART NAME
101-484	Fast idle adjustment screw (all except 2981S-2982S)
103-14	Lead shot (.180")
103-16	Lead shot (.200")
111-75	Pump arm (2981S-2982S)
111-76	Pump arm (all except 2981S-2982S)
114-139	Primary throttle shaft arm (inner) (2981S-2982S)
114-143	Primary throttle shaft arm (outer) (2981S-2982S)
114-146	Primary throttle shaft arm outer (all except 2981S-2982S)
114-147	Primary throttle shaft arm (inner) (all except 2981S-2982S)
115-285	Choke connector rod
115-309	Throttle operating rod (2981S-2982S)
115-314	Fast idle connector rod
115-317	Throttle operating rod (all except 2981S-2982S)
115-322	Throttle connector rod (2981S-2982S)
115-323	Throttle connector rod (3088S-3089S-3297S-SA)
115-372	Throttle connector rod (3503S-SA-3578S)
116-19	Switch ball (2981S-2982S)
117-82	Pump connector link (2981S-2982S)
117-190	Pump connector link (all except 2981S-2982S)
120-158	Secondary metering jet (.082") (3088S-3297S-SA-3503S-SA) (2)
120-159	Secondary metering jet (.089") (3578S)
120-166	Primary metering jet (.0935") (2981S-2982S) (2)
120-175	Secondary metering jet (.073") (2981S) (2)
120-194	Secondary metering jet (.0785") (2982S) (2)
120-243	Primary metering jet (Use 120-166) (2981S-2982S) (2)
120-256	Primary metering jet (.092") (all except 2981S-2982S) (2)
120-257	Secondary metering jet (.0846") (3089S) (2)
121-78	Coil housing gasket
121-287	Pump jet housing gasket
121-288	Primary venturi cluster gasket (2981S-2982S) (2)
121-292	Air horn gasket
121-293	Secondary venturi cluster gasket (all except 3503S-SA-3578S) (2)
121-302	Primary venturi cluster gasket (3088S-3089S-3297S-SA) (2)
121-314	Thermostatic valve gasket
121-511	Secondary venturi cluster gasket (3503S-SA-3578S) (2)
122-108S	Pump intake ball check assembly
136-159	Primary throttle shaft washer
136-160	Secondary throttle shaft washer
136-174	Throttle lever adjusting screw washer
136-219	Choke piston lever retaining washer
150-190	Choke piston pin
150A-10	Pin spring (6)
153-11	Switch contact spring shim (.018") (2981S-2982S)
153-12	Switch contact spring shim (.006") (2981S-2982S)
156-116S	Fuel inlet fitting assembly (2981S-2982S)
160-128	Choke piston (3503S-SA-3578S)
160-134	Choke piston (all except 3503S-SA-3578S)
160-207	Step-up piston (2)
169-48S	Thermostatic valve assembly
170-658S	Piston housing and plug assembly (2981S-2982S)
170-678S	Piston housing and plug assembly (3088S-3089S-3297S-SA)
170-785S	Piston housing and plug assembly (3503S-SA-3578S)
170AC-478S	Thermostatic coil and housing assembly (all except 2981S-2982S)
170AD-478S	Thermostatic coil and housing assembly (2981S-2982S)
172-22	Throttle connector rod retainer (all except 3503S-SA-3578S)
172-31	Cable clip (2981S-2982S)
181-87	Switch guide block (2981S-2982S)
181-287S	Fast idle cam assembly (2981S-2982S)
181-293S	Fast idle cam assembly (all except 2981S-2982S)
184-86S	Switch terminal cap assembly (2981S-2982S)
186-61	Flange baffle plate (all except 2981S-2982S-3089S)
186-64	Choke baffle plate (all except 3503S-SA-3578S)
186-67S	Choke baffle plate assembly (3503S-SA-3578S)
186-70	Fuel bowl baffle (2)
186-85	Flange baffle plate (2981S-2982S-3089S)
192-38U	Car starter switch unit (2981S-2982S)

NOTE: Figures in parentheses indicate number of pieces used in one carburetor. Where no figure is shown, only one is used.  
NOTE: Parts not listed above are not available for servicing these carburetors.