

PACKARD EIGHT MODELS "300" AND PATRICIAN "400" 1953

WCFB FOUR BORE DOWN-DRAFT CARBURETER No. 985S

CARBURETER SPECIFICATIONS

For Packard 8 Cylinder Engine: 3 1/2 Inch Bore. 4 1/2 Inch Stroke

Dimensions: Flange size, 1 1/8 inch Four Bore 4 bolt type.

Primary venturi size: 1 1/32 inch I. D.

Main venturi size: 1-1/16 inch I. D.

Float Level: See adjustments.

Vents: Outside, none.

Inside, balance vent tube, in air horn, (secondary side) ahead of choke valve.

Gasoline Intake: Size No. 42 (.0935 inch) drill hole in needle seat.

Low Speed Jet Tube: Jet, size No. 67 (.032 inch) drill.

By-pass, size No. 53 (.0595 inch) drill.

Economizer, size No. .04527 inch diameter.

Idle bleed, size No. 51 (.067 inch) drill.

Idle Port: (Upper) Slot type, Primary, length .140 inch, width .030 inch.

Secondary: Length .103 inch, width .030 inch.

Idle Port Opening: Primary, .122 to .128 inch, secondary, .062 to .068 inch above upper edge of valve, with valve tightly closed.

Lower Port: Primary (for idle adjustment screw) Size No. 52 (.0635 inch) drill.

Secondary, none.

Set Idle Adjustment Screw: 1 to 2 turns open. For richer mixture turn screw out. Do not idle engine below 390 r.p.m.

Main Nozzle: Installed permanently, **DO NOT REMOVE.**

Anti-percolating jet (in nozzle well), Size No. 64 (.036 inch) drill.

Anti-percolating jet (in idle well), Size No. 71 (.026 inch) drill.

Metering Rod: Primary; Economy step .066 inch diameter. Power step, .052 inch diameter. (These rods designed with stabilizing flat on economy step).

Secondary, none.

Metering Rod Jet: Primary; Size .086 inch diameter (for metering rod). Secondary; Size .067 inch diameter (no metering rod).

Metering Rod Setting: See adjustments.

Accelerating Pump: Discharge jet (twin primary only, size No. 74 (.0225 inch) drill. Intake ball check seat, size .115 to .120 inch diameter. Discharge needle seat, size .070 inch diameter. Relief ball check, size No. 55 (.052 inch) drill. (Early Production Only.) Relief passage (vent) to fuel chamber, size No. 42 (.0935 inch) drill.

Pump Adjustment: See adjustments.

Choke: Carter Climatic Control, set one and one half notches rich. Butterfly type offset choke valve, primary side only. Choke heat suction hole, restriction in piston housing, size No. 44 (.086 inch) drill.

Vacuum Spark Port: Round type, .104 inch diameter. Top of port .052-.062 inch above valve, with valve tightly closed.

Motor Tune-Up—Be Accurate! Always Use Feeler Gauges!

CAUTION: Change worn or leaky flange gaskets. Tighten manifold bolts and test compression before adjusting carbureter.

Spark Plug Gap	Breaker Point Setting	Ignition Timing Breaker Points to Open:	Float Setting	Idle Adjustment Screw Setting
.028"	.015"	6° B.T.D.C.	5/32 Inch (Use Gauge T109-236)	1 to 2 Turns Open

NOTE: These cars equipped with hydraulic valve lifters.—No adjustment.

CARBURETER ADJUSTMENTS

FLOAT ADJUSTMENT: Two separate float adjustments must be made—lateral and vertical.

LATERAL ADJUSTMENT: With bowl cover assembly inverted, bowl cover gasket removed and float lip resting on seated needle, place float gauge directly under floats with notched portion of gauge fitted over edge of casting. Side of floats should just clear the vertical uprights of float gauge. Adjustment should be made by bending arms of floats.

VERTICAL ADJUSTMENT: With float gauge in same position, floats should just clear the horizontal portion of gauge. Vertical distance between top of float and machined surface of casting must be 5/32 inch (Gauge T109-236) for both primary and secondary floats. Adjust by bending float arms.

FLOAT DROP ADJUSTMENT: With bowl cover held in upright position, the distance between top of free end of floats and bowl cover should be 3/8 inch for both primary and secondary floats. Adjust by bending stop tabs on float brackets.

PUMP ADJUSTMENT: Install pump connector link in outer

hole (long stroke) of pump arm, with ends extending toward countershaft arm. Back out throttle lever set screw until throttle valves seat in bores of carbureter. Hold straight edge across top of dust cover boss at pump arm. The flat on top of pump arm should be parallel to straight edge. Adjust by bending throttle connector rod at lower angle. (Use tool T109-213.)

OPTIONAL ADJUSTMENT: With throttle valves seated in bores of carbureter, the distance from the top of the plunger shaft to the top of the dust cover boss should be 9/32 inch. Adjust as mentioned above.

METERING ROD ADJUSTMENT: Metering rod adjustment is important and must be made after completing the pump adjustment. No metering rod gauges are necessary. Procedure is as follows: 1. Back out throttle lever set screw to allow throttle valves to seat in bores of carbureter and loosen metering rod arm clamp screw. 2. With metering rods in place, press down on vacuumer link until metering rods

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bottom in carburetor body casting. 3. Holding rods in downward position and throttle valves seated, revolve metering rod arm until finger on arm contacts lip of vacuum link. Hold in place and carefully tighten clamp screw.

BOWL VAPOR VENT ADJUSTMENT: This adjustment should be made after completing pump and metering rod adjustments. Install dust cover and dust cover gasket. Back out throttle lever set screw to allow throttle valves to seat in bores of carburetor. There should be 3/32 inch (gauge T109-125) between lower edge of bowl vapor vent valve and dust cover. To adjust remove dust cover and bend vapor vent arm.

FAST IDLE ADJUSTMENT: (a) Loosen choke lever clamp screw on choke shaft. Insert .020" feeler gauge (T109-29) between lip of fast idle cam and boss of flange casting. Hold choke valve tightly closed and take slack out of linkage by pressing choke lever towards closed position—hold in place and tighten clamp screw. (b) With choke valve tightly closed, tighten fast idle adjusting screw until there is .020 inch (Gauge T109-29) opening between throttle valve and bore of carburetor (side opposite idle port). Be sure fast idle adjusting screw is on high step of cam while making this adjustment.

UNLOADER ADJUSTMENT: With throttle wide open there should be 9/32 inch (Gauge T109-126) clearance between upper edge of choke valve and inner wall of air horn. Adjust by bending unloader lip on throttle shaft lever (use bending tool T109-41).

SECONDARY THROTTLE LEVER ADJUSTMENT: Primary and secondary throttle valves should reach wide open position at the same time. To adjust: Bend throttle operating rod at upper angle. (Use bending tool T109-213.)

SECONDARY THROTTLE LOCK-OUT ADJUSTMENT:

This adjustment should be made after completing fast idle and secondary throttle lever adjustments. (a) With choke valve tightly closed, open primary throttle valves all the way. Tang on secondary throttle arm should engage in notch on lock-out lever preventing secondary throttle shaft movement. (b) Hold choke valve in wide open position. Open primary throttle valves all the way. Lock-out lever should fall free allowing secondary throttle valves to be opened before primary throttle valves are fully open. If necessary, bend tang on secondary throttle lever to provide clearance for proper operation of lock-out lever.

CHECKING AND ADJUSTING STARTER SWITCH: Connect a 6-volt battery and test lamp across switch terminal, so that lamp will light when switch makes contact. 1. Back off throttle stop screw, remove throttle connector rod and choke connector rod, rotate fast idle cam to slow idle position, and fully close the throttle valves. 2. While holding throttle valves fully closed, place a scale against choke unloader arm of throttle lever and make an index mark on carburetor body at the 1/2 inch division of scale. 3. With test lamp connected hold end of scale against unloader arm and slowly open throttle until test lamp lights. 4. If switch is correctly timed, the scale will then read between 1 1/2 inch and 1 3/4 inch at mark on carburetor body (1 inch to 1 3/4 inch travel of arm). 5. If necessary, make switch adjustment by reducing or increasing the total thickness of the brass shims. If switch timing was found to be too early, reduce the total thickness of the shims. If timing was too late, increase total thickness of shims. Two sizes of shims are available: 153-11 .018 inch — 153-12 .006 inch.

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WHEN SERVICING, USE GASKET ASSORTMENT No. 229

Part No.	PART NAME
1-996S	—Body flange assembly.....
1A-76	Flange gasket.....
2-92	Primary throttle valve.....(2)
2-156	—Secondary throttle valve.....(2)
3-802S	—Primary throttle shaft and lever assembly.....
3-812S	—Secondary throttle shaft and dog assembly.....
4A-130	Throttle shaft dog.....
6-846S	—Air horn assembly.....
6-850S	—Air horn and climatic control assembly.....
7-173	Choke valve.....
11-234S	—Low speed jet assembly.....(4)
11B-35	Rivet plug.....(7)
11B-41	Rivet plug.....(2)
11B-79	Rivet plug.....(8)
11B-129S	Pump discharge passage plug assembly.....
11B-134	Rivet plug.....(2)
11B-146	Level sight plug.....(2)
11B-223	Idle port and nozzle passage rivet plug.....(8)
11B-272	Rivet plug.....
14-383S	Choke lever and screw assembly.....
14-439S	Choke piston lever, link and shaft assembly.....
14-440	Cam trip lever.....
15-55S	Strainer nut assembly.....
17-70	Pump check needle.....
20-22	Needle seat gasket.....(2)
20-26	Relief valve gasket.....
20-35	Bowl strainer gasket.....
20-43	Piston and starter switch housing gasket.....(2)
21-143S	Float and lever assembly.....(2)
24-24	Float lever pin.....(2)
25-211S	Needle and seat assembly.....(2)
30-14	Bowl strainer.....
30-61	Switch strainer.....
30A-44	Idle adjustment screw (Sup. by 30A-58).....(2)
30A-58	—Idle adjustment screw.....(2)
39-11	Choke valve attaching screw.....(2)
47-14	Welsh plug.....
48-169S	Pump jet and housing assembly.....
49-182	Switch plunger.....
53A-333S	Pump operating lever and countershaft assembly.....
53A-333	Lockout arm.....
53A-344	Vent arm.....
53A-358	—Secondary operating lever.....
61-84	—Idle adjustment screw spring.....(2)
61-128	Connector rod spring.....
61-171	Pump spring (lower).....
61-238	Throttle flex spring (Sup. by 61-453).....
61-243S	Contact spring and washer assembly.....
61-291	Throttle lever adjusting screw spring.....
61-382	Metering rod spring.....
61-388	Switch return spring.....
61-453	—Throttle flex spring.....
61-454	Fast idle cam spring.....
61-467	Idle adjustment screw lock spring (Sup. by 61-84).....(2)
61-474	Bowl vent spring.....
61-483	—Secondary throttle return spring.....
61-485	—Vacuum piston spring.....
63-35	Spring retainer.....
63-57	Intake ball check retainer.....
63-58	Coil housing retainer.....(3)
64-141S	Pump plunger, rod, spring and retainer assembly.....
75-824	Metering rod (standard).....(2)
86-12	Flange stud lock washer.....(4)
86-37	Switch terminal lock washer.....(2)
101-10	Pump arm clamp screw.....
101-19	Choke lever clamp screw.....
101-33	Metering rod arm clamp screw.....

Part No.	PART NAME
101-74	Throttle shaft screw.....(2)
101-109	Switch terminal screw.....(2)
101-136	Coil housing attaching screw.....(3)
101-149S	Body flange attaching screw and washer assembly.....(4)
101-152	Air horn attaching screw and washer assembly.....
101-160S	Air horn attaching screw and washer assembly.....(8)
101-184S	Dust cover attaching screw and washer assembly.....(2)
101-277S	Vent arm attaching screw and washer assembly.....
101-278	Pump jet housing attaching screw.....
101-284	Piston housing attaching screw.....(3)
101-296	Fast idle adjustment screw.....
101-324	Fast idle cam screw.....
101-325S	Switch terminal cap attaching screw and washer assembly.....(2)
101-332	Throttle lever adjusting screw.....
101-335S	Air horn attaching screw and washer assembly.....(7)
101-337	Secondary throttle valve attaching screw.....(4)
101-348	—Primary throttle valve attaching screw.....(4)
101-352S	—Switch housing attaching screw and washer assembly.....(2)
105A-10	Choke lever nut.....
105A-11	Flange stud nut.....(4)
111-47S	Pump arm and screw assembly.....
111-60S	Metering rod arm and screw assembly.....
114-107	—Throttle shaft arm.....
115-189	Choke connector rod.....
115-197	Throttle connector rod.....
115-202	—Starter switch operating rod.....
115-208	Throttle operating rod.....
116-13	Pump intake check ball.....
116-19	Switch ball.....
117-28	Pump connector link.....
117-155	Vacuum piston link.....
118-98S	Dust cover assembly.....
120-165	Primary metering rod jet.....(2)
120-185	—Secondary metering jet.....(2)
121-78	Coil housing gasket.....
121-149	Pump jet housing gasket.....
121-208	Dust cover gasket.....
121-229	Air cleaner gasket.....
121-231	—Body flange gasket.....
121-232	—Air horn gasket.....
122-75S	Pump relief plug assembly (Sup. by 11B-129S).....
136-37	Throttle and starter switch operating rod washer.....(7)
136-84	Throttle shaft spring washer.....
136-159	Throttle shaft washer.....
136-172	—Throttle shaft washer.....
150-62	Choke piston pin.....
150-186S	Pin and valve cap assembly.....
150A-10	Pin spring.....(7)
153-11	Switch contact spring shim (.018).....(3)
153-12	Switch contact spring shim (.006).....(2)
160-91	Choke piston.....
160-110S	Vacuum piston and pin assembly.....
170-259S	Piston housing and plug assembly.....
170AC238S	Thermostatic coil and housing assembly.....
172-15	Cable clip.....
181-87	Switch guide block.....
181-192S	Fast idle cam assembly.....
184-64S	Terminal cap assembly.....
186-34	Choke baffle plate.....
192-21U	Carter starter switch unit.....
192-28S	—Carter starter switch complete.....

—Parts so marked are new and listed for the first time.

NOTE: Figures in parentheses indicate number of pieces used in one carburetor. Where no figure is shown, only one is used.