

CARTER DOWNDRAFT CARBURETOR

1934 Terraplane
All Models

Technical Information

Carter W-1 Downdraft Carburetors 1934 Terraplane Challenger, Model KS

NOTE: Terraplane Models. Carburetor fitted with Anti-Percolator and Throttle Cracker. See these sections below for adjustments.

TYPE: - Plain tube downdraft type with throttle operated accelerating pump and economizing device (metering rod). Main nozzle is located at an angle in the upper or primary venturi with a secondary and a main venturi directly below this point in the mixing chamber. Fuel for main nozzle is metered by metering jet and metering rod. Accelerating pump discharges through a pump jet against the wall of the secondary venturi. Idle adjustment and accelerating pump setting are the only points requiring attention.

IDLE ADJUSTMENT: - Needle valve type controlling fuel mixture. Engine must be thoroughly warmed up before adjustment is made. With engine warm and running, close throttle, adjust throttle stop screw if necessary to keep engine from stalling (do not set lower than 300 R.P.M. or approximately 5-6 M.P.H.). Turn idling adjusting screw in or clockwise until engine begins to miss (mixture too lean), then turn screw slowly out or counter-clockwise until engine fires smoothly. Idling screw controls fuel mixture and should be turned in to secure leaner mixture or out for richer mixture. See tune up data for each model on car model page. Approximate settings as follows:

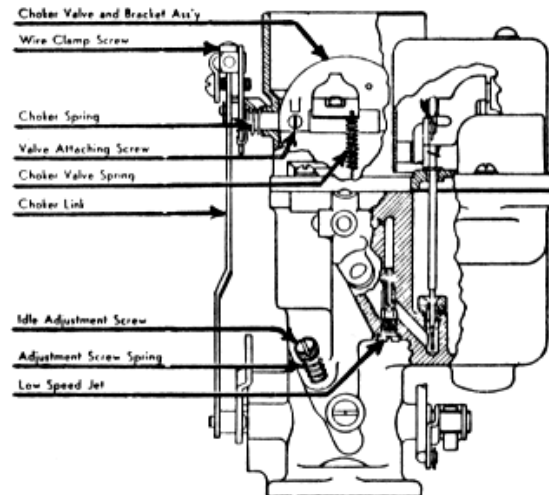
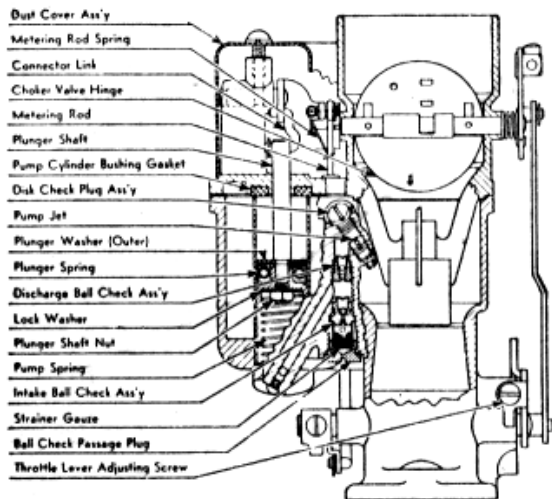
Car Model	Idle Screw Setting (Turn Open)	Idling Speed RPM @ MPH
Terraplane (all)	3/8-1	350 @ 7 MPH

METERING ROD (ECONOMIZER) : - Fuel is metered by a two or three step metering rod being raised in the metering jet as the throttle is opened, allowing an increased fuel flow through the jet. No adjustment is

provided but metering rods can be changed to secure leaner-than-standard fuel mixtures to compensate for special fuel or operating conditions, such as high altitudes. To change metering rod, take off dust cover, take off pin spring, turn rod one-quarter turn to left to disengage pump arm, lift rod out, being careful not to lose disc on rod. Insert new rod (with disc in place), holding rod vertically so that lower end of rod will enter jet in float chamber. Turn rod one-quarter turn to engage pin on pump arm (throttle must be closed).

NOTE: - Metering rod setting should be checked whenever carburetor is serviced or when rods are changed. This will require a special gauge (see table below for correct gauge for each carburetor model). To check rod setting, remove dust cover, disengage upper end of throttle connector rod, back off throttle lever adjusting screw so that throttle closes tight, remove metering rod (see above), insert gauge in place of rod so that beveled end is seated in metering rod jet and gauge is held in vertical position. See that metering rod pin rests on top of gauge with throttle closed and upper end of connecting rod centering freely in the hole in the pump arm. If setting is not correct, bend lower end of throttle connector rod so upper end centers freely in hole. Replace metering rod and dust cover (lubricate pump shaft - see Accelerating Pump Section). Readjust throttle stop-screw for correct idling speed.

Car Model	Carburetor Model No.	Gauge Part	Length
Terraplane	295-S	T-109-20	2.795"



ACCELERATING PUMP: - Low pressure type positively actuated by throttle lever. Fuel drawn into pump chamber through intake ball check valve and strainer on upstroke of plunger and discharged through outlet disc check valve to pump jet in carburetor wall on downstroke of plunger when throttle opened.

Adjustment - Pump arm on countershaft under dust cover on top of float bowl cover provided with three holes for engagement of pump plunger connecting link. Inner hole provides minimum stroke, outer hole medium stroke, and upper hole maximum stroke. See tune up data on car model page for recommended setting and seasonal changes.

NOTE - Pump countershaft should be lubricated at 5000 mile intervals by removing dust cover screw at top of carburetor and filling screw hole with good grade of graphite grease before replacing screw.

PERFORMANCE: - Should be satisfactory if Idle Setting and Accelerating Pump setting are correct. See Carter Jet Specification Table and tune up data on car model pages for any recommended changes.

ANTI-PERCOLATOR:-This device consists of a vent above the main jet well controlled by a cap linked to the accelerating pump rod so that the vent is opened with the throttle closed to prevent any 'percolating' discharge of fuel through the main jet with the carburetor hot. The setting of the Anti-percolating device should be checked as follows:

Adjustment - Anti-percolating cap must be off seat when throttle closed in idling position. Adjust by bending anti-percolating cap arm slightly to permit pump arm to depress bracket. Cap must be seated when throttle opened slightly beyond idling position. Check by opening throttle .030" (insert drill rod between throttle edge and carburetor wall on side

opposite port), adjust rocker arm so that clearance between rocker arm lip and pump arm is .005-.015" (with metering rod setting correct).

FLOAT LEVEL: - To check float level, take off float bowl cover, remove gasket, invert cover, measure distance from gasket seat (machined surface) on cover to nearest point on float (top when not inverted) at a point opposite the needle valve. Float level can be reset by bending lip of float lever. Correct float level setting should be 3/8" on all models.

CHOKE: - Choke valves on these models are in most instances fitted with a pressure relief device of the split-valve or poppet-valve type.

Models 295-S - Poppet type relief valve mounted on choke valve. Poppet valve is spring-controlled and opens to prevent over-choking when engine begins to fire.

Throttle Connector - 295-S. - Choke and throttle valves interconnected on these models so that throttle valve is opened slightly when carburetor is choked for starting, providing a 'fast idle' for as long as the choke valve is in use. Throttle returns to closed position when choke valve is opened. Correct throttle openings with choke valve closed are shown in table below:

Car Model	Carburetor	Throttle Opening
Terraplane	295-S	.036-.040"

TROUBLE SHOOTING: - Poor Idling Performance - If correct adjustment cannot be secured, engine stalls, or low speed performance is unsatisfactory, remove low speed idle tube, clean with compressed air, see that tube is tight in casting at top and bottom. Remove idle adjusting screw and clean idle passage with air.

Acceleration Unsatisfactory - Check pump setting, examine pump for damaged or worn plunger leather, bent pump arm or loose plunger, corrosion or sediment in pump cylinder. Use loading tool when replacing plunger in pump cylinder to avoid damage to plunger leather. If increased resistance felt on throttle lever, remove pump jet and clean with compressed air. Examine ball check valves and see that they are free and seat gasoline tight.

Carburetor 'Loads Up - If carburetor has been in use for some time, check float level and adjust if necessary.

SERVICING: - To Disassemble Carburetor - Take out screw and remove pump arm dust cover, disconnect choke and throttle interconnecting link (when used), take off pin spring on metering rod, lift out rod and disc (disc is loose on rod). Take off pin locks on throttle connector link and pump connector link, disengage links and remove. Take out float bowl cover screws, lift off cover being careful not to

damage float chamber gasket. Pull out pump plunger, remove plunger spring from pump cylinder. Remove idle adjusting screw and spring, nozzle plug and main nozzle, pump jet plug and pump jet being careful not to lose jet gasket, idle passage plug, low speed jet tube assembly, metering rod jet assembly, and other jets and plugs. Take out float lever pin, lift out float and lever assembly being careful not to drop float needle valve.

Servicing - Wash all parts and body castings in gasoline, blow out all passages in castings and jets with dry air. Replace all worn and damaged parts.

Reassembling Carburetor - Reverse disassembly directions above. Use new gaskets where necessary. Soak new metering rod jet gasket and needle seat gaskets in warm water for 15 minutes before installing. See that all jets and plugs tightened securely.

Adjusting - Check metering rod setting and float level. Adjust carburetor, when installed on engine, as directed in tune-up data on each car model page.

W- 1 WITH CLIMATIC CONTROL
(DOWNDRAFT TYPE)

281-S – 1934 Terraplane Standard Model K, Deluxe Model KU

NOTE: - All models fitted with Carter Climatic Control (automatic choke), Fast Idle, Unloader and Choke Valve Lock, and Anti-Percolator. See complete article in Carburetion Equipment Section for data on Climatic control. Fast Idle and Unloader. Anti-Percolator adjustment given below.

TYPE: - Plain tube downdraft type similar in design to other W1 models except for Climatic Control and Fast Idle which are mounted on carburetor.

IDLE ADJUSTMENT: - Needle valve type controlling fuel mixture. Adjusting screws should be turned in for leaner mixture or out for richer mixture. Do not adjust until engine warmed up so that choke valve wide open and idling at hot or slow idling speed with fast idle bar raised to clear throttle stopscrew. Adjust throttle stopscrew so that idling speed is approximately 350 R.P.M., turn idling screw in until engine begins to miss, then turn screw out slowly until engine fires evenly. Readjust throttle stopscrew if necessary. See tune up instructions on car model pages.

ACCELERATING PUMP: - Low pressure type positively actuated by throttle lever. Fuel drawn into pump cylinder through intake check valve and strainer on upstroke of plunger and discharged through outlet disc check valve to pump jet in carburetor wall on down-stroke of plunger when throttle opened.

Adjustment - Pump arm on countershaft under dust cover at top of cylinder provided with three holes for engagement of pump plunger connecting link. Inner hole provides minimum stroke, outer hole medium stroke and upper hole maximum stroke. See tune-up data on car model pages for recommended settings and seasonal changes.

NOTE - Pump countershaft should be lubricated at 5000 mile intervals by removing dust cover screw at top of carburetor and filling screw hole with good grade of graphite grease before replacing screw.

PERFORMANCE: - Should be satisfactory if idle setting and accelerating pump setting correct.

METERING ROD (ECONOMIZER): - All fuel for main nozzle metered by three-step metering rod linked to pump arm so that rod is raised permitting increased fuel flow through metering jet as throttle is opened. No adjustment provided but metering jet may be changed to secure leaner-than-standard fuel mixtures to compensate for special fuel or high altitude operation. Metering rod

setting should be checked whenever metering rods are removed.

To Remove Metering Rod - Take out dust cover screw, lift off dust cover, take off pin spring, turn metering rod one-quarter turn to left to disengage it from arm, lift rod out being careful not to lose disc on rod.

To Check Metering Rod - See that choke valve opened and fast-idle block raised to clear throttle stopscrew, back off stopscrew so that throttle closes tightly. Disconnect throttle connector at pump arm. Use special gauge (see table below for type for each model), insert gauge in place of metering rod so that beveled end seats in metering rod jet and gauge is held vertically. Rotate pump arm so that metering rod pin rests lightly in lower end of notch in gauge, bend lower end of throttle connector so that upper end centers freely in hole in pump arm. Remove gauge and re-connect throttle connector.

To Install Metering Rod - Insert rod (with disc in place) vertically so that lower end enters metering rod jet, turn rod one-quarter turn to engage pin on pump arm, replace pin spring. See that rod hangs freely, replace dust cover and cover screw.

ANTI-PERCOLATOR: - Consists of a vent above the main jet well controlled by cap linked to the accelerating pump rod so that the vent is opened with the throttle closed to prevent any percolating discharge of fuel through the main jet with the carburetor hot. The cap must close when the throttle is opened.

FLOAT LEVEL: - To check float level, take off float bowl cover, remove gasket, invert cover, measure distance from gasket seat to nearest point on float (top when not inverted and at free end). Float level can be corrected by bending lip of float lever. Settings should be as follows:

Car Model	Carburetor Model	Float Setting
Terraplane all models	281-S	3/8"

Adjustment - Hold fast idle cam in slow idle position, turn throttle stopscrew so that it is locked against first step of cam with throttle valve closed tight, use special tool No. T109-41, bend offset portion of fast idle link so that clearance between inside wall of air horn and lower tip of choke valve is exactly 5/8".

CHOKE: - All choke valves are offset type. See article in Carburetor Equipment Section for complete data on automatic choke (Climatic Control).

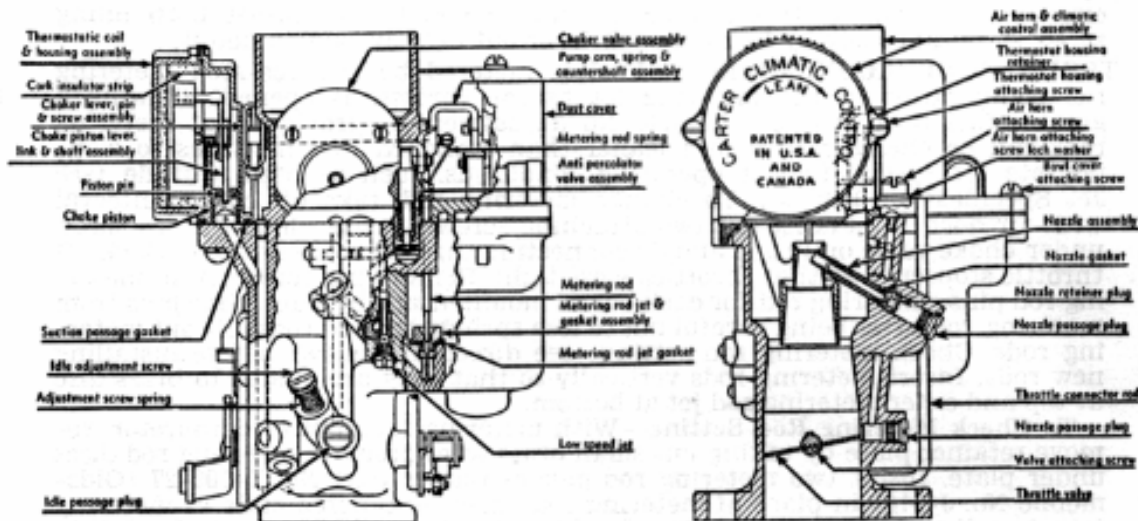
Unloader: - Consists of lip on fast idle block (1936), or cam on throttle lever (1937) which opens choke valve when throttle valve is opened wide.

Choke Valve Lock: - Prevents choke valve from closing when throttle valve is wide open. See article in Carburetion Equipment Section on Carter Climatic Control for adjustment directions.

TROUBLE SHOOTING: - Same as for other Carter models (see previous article).

SERVICING: - Disassembly. Remove dust cover, remove fast idle cam attaching screw and fast idle cam or take out two screws and remove fast idle drop-bar, remove nozzle plug, retainer plug, nozzle and gasket (do not take nozzle assemblies apart). Remove air horn attaching screws and lockwashers

(two above, one below), lift off air horn and Climatic Control assembly. Remove pin spring and connector link at top of accelerating pump stem, remove pin spring, unhook metering rod spring, take out metering rod and disc (do not lose disc which is free on metering rod). Remove spring retainers and connector rod springs, remove throttle connector. Remove bowl cover retaining screws and lockwashers, lift off bowl cover, lift off cover gasket. Remove pump arm and countershaft on cover by revolving one-half turn. Remove float and lever assembly, pin and pump cylinder bushing gasket, needle and seat from bowl cover. Remove



pump plunger and rod assembly and pump spring (remove nut on stem to disassemble pump plunger). Remove metering rod jet and gasket assembly. Use special 13/32" socket wrench No. 15451 to remove Anti-Percolator valve plug assembly. Remove pump jet passage plug, gasket, and pump jet, loosen screw and remove throttle shaft arm, remove low speed jet, ball check passage plug, strainer, and intake and outlet ball check plug assemblies, throttle valve screws, valves, throttle shaft assembly, idle port plug, and idle adjustment screw. Do not lose copper washers used on low speed jet, ball check assemblies.

Servicing. Wash all parts in gasoline (do not immerse cork gaskets). Replace worn parts (replace metering rod

and metering jet as an assembly). Blow out all passages in castings. Use all new gaskets when re-assembling.

Assembly. Reverse disassembly directions above. See that all jets and plugs tightened securely. When replacing throttle valves, install valve with trademark up, insert screws loosely, back off stopscrew so that valve closes tightly, tap valve lightly to centralize it in bore before tightening screws. Use loading tool to install pump plunger and lubricate plunger leather with castor oil. Check float level and metering rod setting as directed above and adjust carburetor when replaced on car.