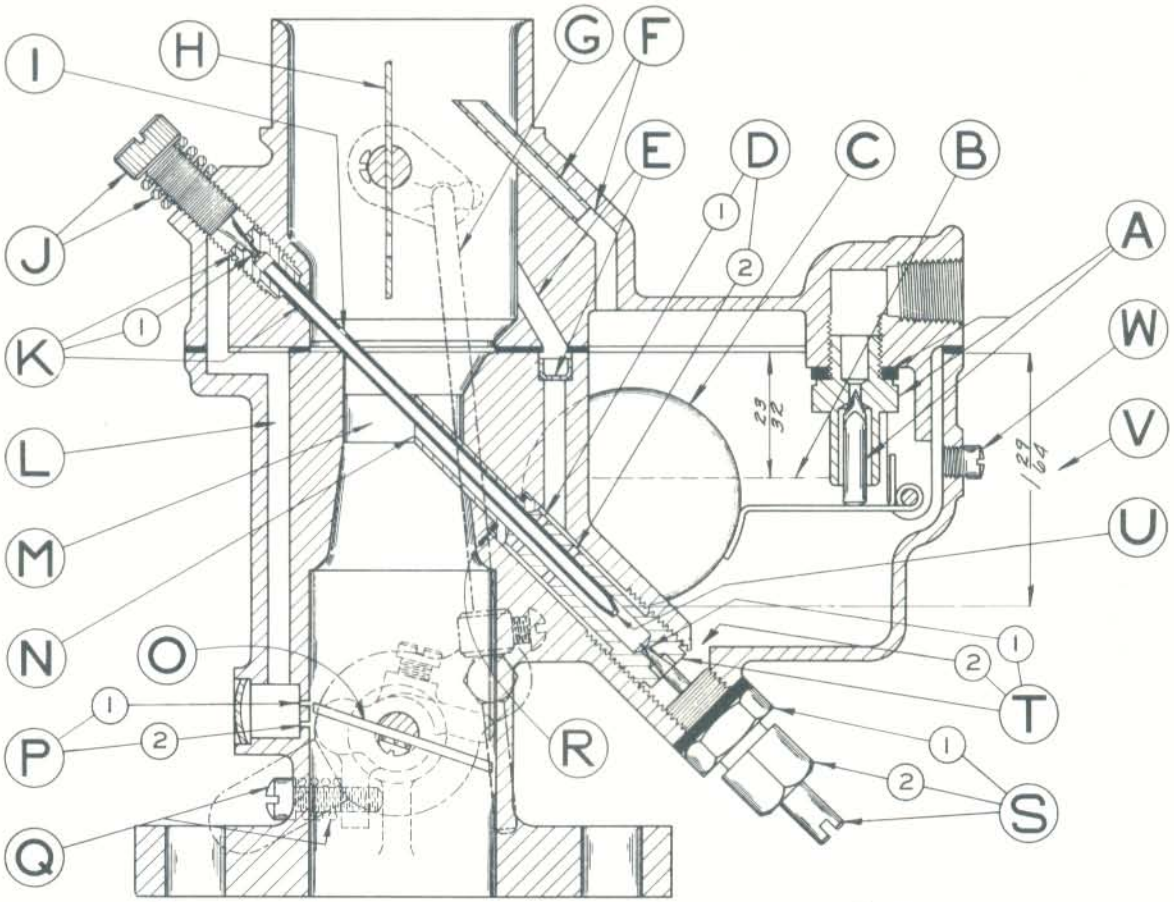
MODEL
DY - 9C CARBURETOR

(Specification - Service Data & Parts List)



Ref. No.	Name
4	*Inlet Needle, Seat & Gasket*
B	*Fuel Level*
C	*Float*
D	*Main Nozzle Air Bleed Holes (D-1 Upper Holes - #58 Drill Size) (D-2 Lower Holes - #60 Drill Size)*
E	*Main Nozzle Air Bleed Channel & Restriction*
F	*Internal Float Bowl Vent Tube & Channel*
G	*Fast Idle Control Mechanism*
H	*Choke Shutter*
I	*Idle Tube Air Bleed Hole - #65 Drill Size*
J	*Idle Adjustment Screw & Spring*
K	*Idle Tube (K-1 Idle Tube Metering Orifice - #60 Drill Size)*
L	*Idle Fuel Supply Channel*

Ref. No.	Name
M	*Venturi*
N	*Main Nozzle Outlet Tube*
O	*Throttle Shutter*
P	*Idle Fuel Discharge Ports (P-1 Upper Port #60 Drill Size) (P-2 Lower Port #70 Drill Size)*
Q	*Idle Speed Regulating Screw & Spring*
R	*Main Nozzle Outlet Tube Gasket*
S	*Main Adjustment Screw (S-1 Main Adjustment Screw Gland) (S-2 Main Adjustment Screw Packing Nut)*
T	*Main Nozzle (T-1 Main Nozzle Adjustment Orifice #56 Drill Size) (T-2 Main Nozzle Fuel Supply Channel)*
U	*Idle Tube Restriction #73 Drill Size*
V	*Float Level*
W	*Fuel Level Inspection Plug Screw*

This Tillotson plain tube type downdraft carburetor has been especially designed and calibrated for the Crosley engine. Occasionally, gum residues from fuels will deposit on such carburetor parts as the needle valve assembly and the various jets and openings. If gum forms on the needle valve and seat and prevents the valve from seating, leakage will result when the engine is running. Gum formation in the jets or orifices restrict the flow of fuel, causing erratic engine operation, decreased power, overheating and burnt valves.

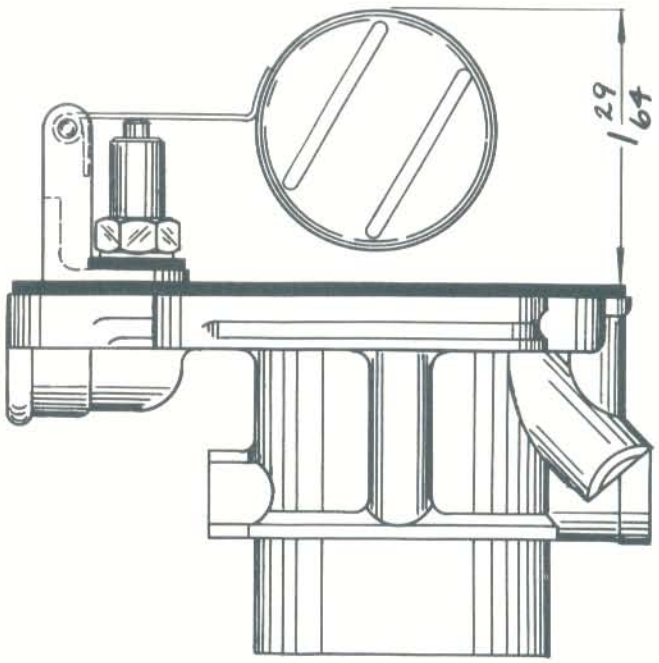
HOW IT OPERATES

INLET NEEDLE & SEAT: A constant fuel level in the bowl and all channels of the carburetor is maintained by Inlet Needle and Seat Assembly (A) and Float (C).

IDLE AND SLOW SPEED: Fuel reaching its proper level in the carburetor passes from channel (T-2) through restriction or Main Nozzle Adjustment Orifice (T-1) and up into Idle Tube (K) through its restriction (U). High manifold vacuum, or suction, at Throttle Shutter (O) draws this fuel on up through Idle Tube (K) where it is mixed with air at Idle Tube Air Bleed Hole (I), continues upward past Idle Adjustment Screw (J), then down through Idle Fuel Supply Channel (L) and thus into air stream at Idle Fuel Discharge Ports (P) where it mixes with additional air passing the slightly opened Throttle Shutter (O).

CRUISING AND HIGH SPEED, or when engine is pulling a load, Throttle Shutter (O) has been further opened, thereby reducing suction and minimizing the fuel discharge at Idle Fuel Discharge Ports (P) and greatly increasing air flow to a high velocity through Venturi (M). This air draws fuel from Main Nozzle Outlet Tube (N) as supplied from bowl through Channel (T-2) and Main Nozzle Adjustment Orifice (T-1). As engine speed or load increases, air is automatically bled into Main Nozzle through channel and Restriction (E) and Main Nozzle Air Bleed Holes (D), rendering proper proportion of fuel in relation to adjustment to be metered at that speed range.

FAST IDLE CONTROL OPERATION AND ADJUSTMENT: Fast Idle Control Mechanism (G) operates in conjunction with manual choke control. When carburetor Choke Shutter (H) is closed, before starting cold engine, throttle is automatically partially opened or set for fast idle performance to prevent cold engine stalling condition. As engine becomes warm and choke is again opened, the throttle return spring will close Throttle to proper normal idle speed setting of 700 RPM. - Only one adjustment or setting is necessary and easily made as follows: Back Idle Speed Regulating Screw (Q) located on Throttle Stop Lever, entirely off body stop boss. Then while holding Choke Shutter (H) in wide open position and Throttle Shutter (O) tightly closed reposition, if necessary, the small Fast Idle Rod Collar directly on top of Throttle Lever Swivel Connector and tighten securely to Fast Idle Rod at that point. Now return Idle Speed Regulating Screw (Q) to its normal warm engine idling speed setting of 700 RPM.



FLOAT LEVEL: To correctly set Float Level (V), remove Upper Body Assembly containing complete float mechanism. Turn upside down and with float lever resting on the Inlet Needle, carefully bend EACH lever arm, if necessary, to give a distance of one and twenty-nine sixty-fourths (1-29/64ths) inches from face of Air Horn Gasket to the then top of raised seam encircling each float. The measurements must be maintained with both floats to obtain proper performance. As a guide, the Fuel Level (B) will be found, after carburetor assembly, just below lowest portion of Fuel Level Inspection Hole (W). When inspection indicates level continues to rise beyond setting point, remove Inlet

Needle and Seat, clean their seating surfaces with a soft clean cloth. Place Inlet Needle in its Seat and tap very lightly, turning Inlet Needle with thumb and forefinger several times to reseat. Reinstall, and if proper level is not maintained, install a new Inlet Needle, Seat and Gasket (A). DO NOT CHANGE GASOLINE LEVEL FROM MANUFACTURERS SPECIFICATIONS.

ADJUSTMENT INSTRUCTIONS

Separate manual carburetor adjustments are provided. Main Adjustment Screw (S) controlling power range mixture and Idle Adjustment Screw (J) governing idle mixture at closed throttle and Idle Speed Regulating Screw (Q) controlling required idling speed.

INITIAL ADJUSTMENT: Completely close Idle Adjustment Screw (J) by turning in (clockwise) until seated (without forcing) then turn back in opposite direction one and one-quarter turn. Proceed in like manner with Main Adjustment Screw (S) except open two and three-quarter (2-3/4) turns after first being closed. Now choke and start engine in usual manner and run until thoroughly warm.

POWER RANGE ADJUSTMENT: With engine running at a constant speed of approximately one-half (1/2) open throttle position, slowly turn Main Adjustment Screw (S) inward (clockwise) until motor begins to lose speed, then slowly turn back in opposite direction (at 1/8th turn steps) until maximum speed and power is obtained. Final setting should be approximately two or two and one-eighth (2 or 2-1/8) turns open under warm weather conditions; with slightly further opening (richer mixture) required for cold weather performance.

IDLE MIXTURE ADJUSTMENT: This adjustment should only be made AFTER the above mentioned power range adjustment has been completed. Close throttle and allow engine to idle at slightly faster than normal idling speed requirements by turning Idle Speed Regulating Screw (Q), located on throttle stop lever, inward. Next, slowly turn Idle Adjustment Screw (J) inward (clockwise) until motor begins to lose speed and miss or flutter, then turn back in opposite direction (usually about 1/8th of a turn) until engine functions smoothly and steadily. Now slowly back out Idle Speed Regulating Screw (Q) until normal idling speed (must not be less than 700 RPM or 7 to 8 MPH road speed) is obtained. Final Idle Adjustment Screw (J) setting should be approximately one full turn open.

FINAL ADJUSTMENT: Alternately open and close throttle a few times for adjustment test. If acceleration hesitancy or stalling at idle speed occurs, entire adjustment procedure, outlined above, should be repeated. Regardless of altitude or climatic conditions a proper carburetor adjustment can be made by following the above rules - which eliminates jet changes.

- - - - - - - - - -

ECONOMY - PERFORMANCE: To eliminate carburetor complaints of all natures, regular maintenance or tune-up service performed by expert service men equipped with modern testing apparatus is essential. Spark plugs, complete distributor mechanism, ignition timing, valve setting, compression and carburetor are all important factors controlling good engine performance and fuel economy. These factors should be checked and serviced to manufacturers specifications in the above sequency to ob-

tain results. To correctly service the carburetor, check the adjustments, float level, inlet needle and other factors outlined on this page. Carburetor fuel and air channels, including their restriction orifices, must be free of water, dirt and grit and when cleaning use compressed air -- never a wire or drill in cleaning its small holes, but a wooden toothpick if necessary. All plug screws and nozzles must be tight. All gaskets must be in their proper place and we recommend never to use an old one but new Tillotson gasket as specified on your parts list. Choke Shutter (H) must be in full open position when choke button is pushed all the way in. Constant internal air pressure is maintained in the carburetor by Internal Bowl Vent Channel (F).

STALLING OF ENGINE: Tighten Throttle Stop Lever Retaining Screw; reset Idle Speed Regulating Screw (Q) per above mentioned instructions; check and correct, if necessary, Float Level (V); inspect Idle Adjustment Screw (J) - its adjustment point must not be ringed or grooved; remove Idle Fuel Supply Channel Welch Plug and inspect Idle Fuel Discharge Ports (P) that may be partially plugged by dirt.

TO DISASSEMBLE

1. Remove Idle Adjustment Screw & Spring.

2. Using a small screw driver with 3/16" wide, 1/32" flat tip, straight smooth edged blade only, CAREFULLY remove Idle Tube. If it appears to be stuck, sharply strike screw driver downward to break loose or place a couple of drops of penetrating oil therein. (Do Not use angular edged or sharp tipped screw driver blade which may destroy threads in Air Horn casting wall or badly mutilate slot in Idle Tube head.)

3. Remove six Air Horn Retaining Screws and Lockwashers which will then permit careful lifting of complete Air Horn Assembly, with all parts attached, from lower body (if stuck, tap edge of Air Horn upward with handle of screw driver to loosen) and place same on bench or table in upside down position so not to damage float mechanism.

4. Remove Float Lever Pin, Float, then Inlet Needle, Seat and Gasket and Air Horn Gasket. Balance of parts as still attached to Air Horn need not be removed unless for replacement purpose due to being worn, damaged or lost. If necessary, easy removal or installation of Fast Idle Rod Cotter Clips can be made by first removing complete Rod and Lever Assembly from Choke Shaft.

5. With lower body assembly placed on bench in inverted position, remove complete Main Adjustment Screw, Packing Nut, Gland and Gasket in its assembly form. Now, with clean compressed air, thoroughly clean out casting threads at that point so as to remove all particles of foreign matter that may have become lodged therein and around Main Nozzle. The Main Nozzle can then be CAREFULLY and properly removed only with screw driver having 1/4" wide, 1/32" flat tip, straight smooth edged blade. Do Not use angular edged or sharp tipped blade which may destroy casting threads or mutilate slot in Main Nozzle.

6. Main Nozzle Outlet Tube does not require removal unless broken or damaged. If so, also be certain old Outlet Tube Gasket is removed from casting, then replace with new Outlet Tube and Gasket. Both inner end of casting well and base of tube are constructed with three corresponding flat sides in order that Outlet Tube can be properly and tightly press fitted therein with its quilled tip in exact perpendicular position.

7. With proper size screw driver and long nosed pliers, remove Throttle Shutter Screws, Shutter and then slide out complete Throttle Shaft and Lever Assembly intact.

8. Remove Idle Channel Welch Plug with Prick punch. Be careful not to drive punch completely thru Welch Plug and into body casting underneath, thereby damaging idle delivery, or discharge holes.

INSPECTION OR CHECKING

1. First clean both Air Horn and Body, Lower Half castings inside and out with clean gasoline and small brush.

2. Check Idle Tube passage threads in Air Horn. If appear to be damaged, accurately use standard 1/4-32 bottoming tap to rethread then clean out thoroughly.

3. Carefully wash and blow out Idle Tube. If its screw driver slot is mutilated replace with new Idle Tube.

4. Inspect Float for dents or leakage, also Float Lever Pin and casting float hanger bearings for excessive wear that may require replacement.

5. Inspect Inlet Needle & Seat Assembly. If Inlet Needle shows groove on seating surface replace with complete packaged assembly. Use new Inlet Seat Gasket in either event.

6. Check flat surface of body flange (where attached to manifold) and remove any part of old Flange Gasket that may be adhered thereto. If flange is found to be slightly warped (due to excessive manifold heat) carefully file down evenly with clean flat mill file. Then clean casting of all filings.

7. Inspect Main Nozzle passage threads in lower body and if require rethreading use standard 3/8-24 bottoming tap, then clean out thoroughly.

8. Wash and blow out Main Nozzle. If its screw driver slot is found mutilated replace with new Nozzle.

9. Clean complete Idle Supply Channel with compressed air, inspect, at that point both lower discharge hole (toward flange) #70 Drill size opening and upper discharge hole (toward bottom of fuel bowl) #60 Drill size opening, to be certain they are fully open.

10. Inspect Throttle Shaft and Bearings for possible wear.

TO REASSEMBLE

1. Insert Throttle Shaft & Lever Assembly, then back out Idle Speed Regulating Screw (on Throttle Stop Lever) completely of casting stop boss. Install Throttle Shutter, which is of off center type, and can only be installed with short end downward and toward idle discharge holes when throttle shaft is held in closed throttle position. However, as edge of each end of shutter is beveled in opposite direction (for accurate fit against wall of casting bore

closed throttle) be certain edge is beveled downward toward left while viewing same from throttle lever end of shaft.

Center shutter by tapping lightly while holding shaft securely in closed position and before thoroughly tightening shutter screws.

With shutter fully closed, the Upper Idle Discharge Hole (toward bottom of fuel bowl) should be 100% open for correct idle performance.

2. Install new Idle Channel Welch Plug which is to be spread into tight position by striking sharply with 5/16" or 3/8" flat bottom punch, or rod hammer.

3. Be sure main nozzle passage is clean, then carefully and tightly install Main Nozzle.

4. Install Main Adjustment Screw, Gland, Packing & Nut Assembly. (Use new Packing and Gland Gasket.)

5. With Air Horn in inverted position, install new Air Horn Gasket.

6. Install Inlet Needle & Seat Assembly. (Always use new Inlet Seat Gasket.)

7. Install Float and Float Lever Pin. Set Float Level to specifications as outlined under FLOAT LEVEL.

8. Now carefully install complete Air Horn Assembly to Body, Lower Half Assembly, first inserting Fast Idle Rod through Throttle Lever Swivel. Be sure Air Horn Gasket is in correct alignment, then insert and tighten Air Horn Retaining Screws.

9. Now slowly insert Idle Tube down thru its Air Horn Casting passage and into quilled opening of Main Nozzle Outlet Tube. Then complete its installation and carefully tighten down into position with proper size screw driver blade. (Replace with new Idle Tube if its screw driver slot is found to be mutilated.)

10. Install Idle Adjustment Screw & Spring. (If Idle Adjustment Screw seating surface is badly grooved replace with new one.)

11. Finally check Fast Idle Control Rod Assembly. While holding Choke Shutter fully open and Throttle Shutter tightly closed (with Idle Speed Regulating Screw, on Throttle Stop Lever, still backed out entirely off lower body casting stop boss) the small collar on Fast Idle Rod should be approximately 1/64th above Throttle Lever Swivel and securely tightened into place on rod at that position. This will then permit proper cracking of throttle, or fast idle setting, when Choke Shutter is fully closed.

12. Carburetor should now be completely assembled and ready for installation on motor, then correctly adjusted according to specifications as outlined. Final engine idle speed setting should not be less than 700 RPM or 7 to 8 MPH road speed.

FINAL SERVICE HINTS

Do Not blow compressed air into carburetor bore or channels when not disassembled as damage to float will result.

Always use complete new gasket set when servicing a Tillotson carburetor.

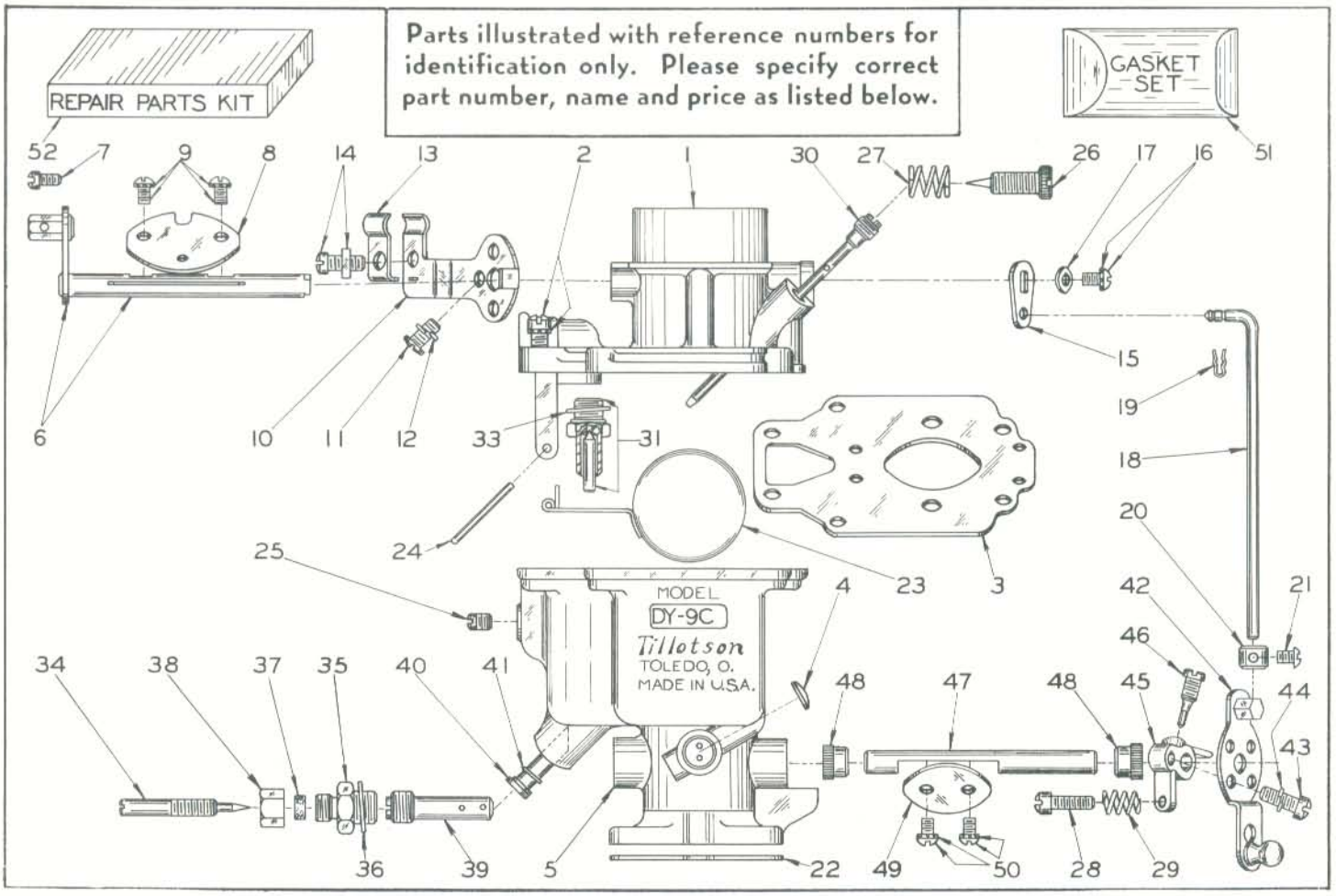
When servicing an excessively worn or used unit, it is recommended a complete carburetor Repair Parts Kit be obtained and all parts therein be installed to guarantee accurate work and performance.

If incorrect idle performance occurs after above mentioned carburetor servicing, carefully check elsewhere for possible manifold or windshield wiper hose line vacuum leaks. Also accurately check settings of breaker points and spark plug gaps.

PARTS LIST

CARBURETOR MODEL: DY-9C

YEARS BUILT: 1948-49-50-51 (Replaces DY-9B)



Ref. No.	No. Req.		Part No.	Part Name
1	1		07809	Air Horn
2	6		08420	Air Horn Retaining Screw & Lockwasher
3	1		06409	Air Horn Gasket
4	1	*	02531	Body Channel Welch Plug
5	1		08547	Body (Includes Shaft & Shutter)
6	1		08334	Choke Shaft and Lever
7	1	*	058	Choke Wire Retaining Screw
8	1		07437	Choke Shutter
9	2		08317	Choke Shutter Screw and Lockwasher
10	1		05404	Choke Wire Bracket
11	2		01974	Choke Wire Bracket Retaining Screw
12	2		0992	Choke Wire Bracket Retaining Screw Lockwasher
13	1		03028	Choke Wire Clamp
14	1		0799	Choke Wire Clamp Bolt and Nut
15	1		08542	Fast Idle Lever
16	1	*	08317	Fast Idle Lever Screw & Lockwasher
17	1		07844	Fast Idle Lever Screw Washer
18	1		08543	Fast Idle Rod
19	2	*	05425	Fast Idle Rod Cotter Clip
20	1		08540	Fast Idle Rod Collar
21	1	*	0120	Fast Idle Rod Collar Screw
22	1		0278	Flange Gasket
23	1		06436	Float
24	1	*	06233	Float Lever Pin
25	1	*	03311	Float Bowl Inspection Screw
26	1	*	06336	Idle Adjustment Screw
27	1	*	0737	Idle Adjustment Screw Spring
28	1	*	05095	Idle Speed Regulating Screw
29	1	*	0788	Idle Speed Regulating Screw Spring
30	1	*	07009	Idle Tube
31	1	*	06287	Inlet Needle, Seat & Gasket
33	1		0676	Inlet Seat Gasket
34	1	*	04185	Main Adjustment Screw
35	1		02656	Main Adjustment Screw Gland
36	1		0225	Main Adjustment Screw Gland Gasket
37	1		0705	Main Adjustment Screw Packing
38	1		0703	Main Adjustment Screw Packing Nut
39	1	*	07973	Main Nozzle
40	1		06406	Main Nozzle Outlet Tube
41	1		06407	Main Nozzle Outlet Tube Gasket
42	1		08546	Throttle Lever
43	1		0240	Throttle Lever Retaining Screw
44	1		0992	Throttle Lever Retaining Screw Lockwasher
45	1		06355	Throttle Stop Lever
46	1	*	051	Throttle Stop Lever Retaining Screw
47	1	*	06363	Throttle Shaft
48	2		02661	Throttle Shaft Bushing
49	1		06232	Throttle Shutter
50	2	*	08317	Throttle Shutter Screw & Lockwasher
51		*	07144	Gasket & Packing Set
52			08613	REPAIR PARTS KIT

(*) Indicates contents of REPAIR PARTS KIT.

Revised 2/25/54

PRINTED IN U. S. A.

TILLOTSON MANUFACTURING CO.
PARTS AND SERVICE DIVISION
TOLEDO 12, OHIO, U. S. A.

(Reprint May, 1959)