

ZENITH 62 AND 162-SERIES CARBURETORS

DESCRIPTION AND OPERATION

DESCRIPTION

The 62 and 162-Series carburetors are of the single barrel updraft design with double venturi, twin floats and semi-concentric fuel bowl which permits operation at extreme angles without flooding or starving the engine. These carburetors are of the "balanced" and "sealed" type in that all air for idle operation, well venting and fuel bowl ventilation must enter through the air cleaner. Some models include a back suction economizer system to provide lean mixture ratios for part throttle operation and still provide the richer mixture ratios needed for wide open throttle and full power operation. The 162-Series uses an "isolated" idle system wherein the fuel for idle is taken well. The fuel system is made up of the threaded fuel inlet, fuel valve (needle and seat), float

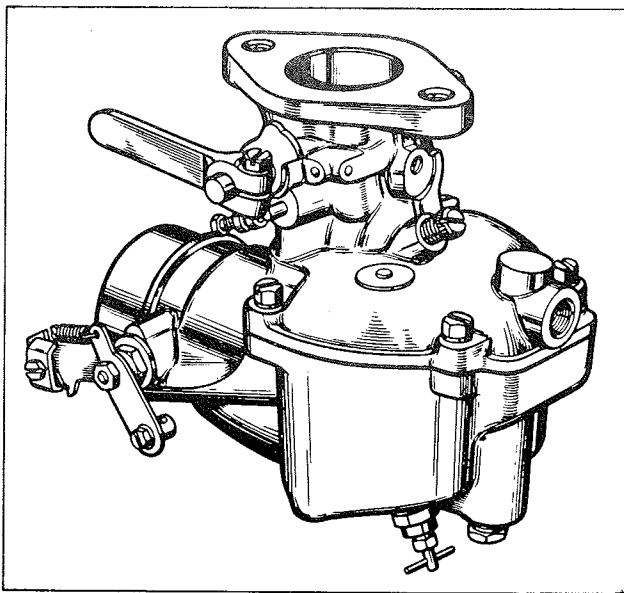


Fig. 1 External View

assembly and fuel chamber. The idle system is made up of an idle discharge port, idle air passage, idle adjusting needle, idle jet and fuel passage. The high speed system consists of a primary and secondary venturi, main jet, well vent and main discharge jet. Some models include a main jet adjustment. The economizer system consists of a "milled" slot in the throttle shaft (which acts as a valve), a vacuum passage between the throttle bore and the slot in the throttle shaft and a vacuum passage from the slot in the throttle shaft to the economizer jet which controls the suction applied on the

fuel bowl. The choke system is of the semi-automatic type and includes a choke plate with built-in poppet valve, choke shaft and external choke lever.

MODEL IDENTIFICATION

Type -- Updraft

Styles -- 62A and 162A - Throttle and Choke Shafts are parallel.

"J" - Back Suction Economizer.

"M2" - Marine carburetor with cast iron castings and brass fittings, plugs etc.

"X" - Flange next size larger than standard.

SIZE DESIGNATION

Size	Nominal Size	Throttle Bore Diameter	S.A.E. Standard Flange Size
9	1-1/8"	1-19/64"	1"
X9	1-1/8"	1-19/64"	1-1/4"
10	1-1/4"	1-13/32"	1-1/4"
X10	1-1/4"	1-13/32"	1-1/2"
12	1-1/2"	1-21/32"	1-1/2"

OPERATION

FUEL SUPPLY SYSTEM - Fuel under pressure is supplied to the threaded fuel inlet and passes through the fuel valve (needle and seat) into the float chamber. The floats in the float chamber, automatically regulate the opening through the fuel valve (needle and seat) to maintain the proper level of fuel in the fuel bowl equal to the demand of the engine according to its speed and load.

IDLE SYSTEM - Fuel for idle operation is taken from a lower or "isolated" section of the well after passing through the main jet (7). The idle fuel passage (F) connected to this well is restricted by a small drilled hole near the bottom of the passage. The fuel from the lower well travels up this channel and through the idle jet (9) calibration to be mixed with air originating from around the sides (2) of the main venturi and flowing through the air inlet port (G). The amount of air admitted through the air inlet port for idle operation is controlled by the idle adjusting needle (10). The idle system functions only at Idle and Low Speeds, or when the throttle

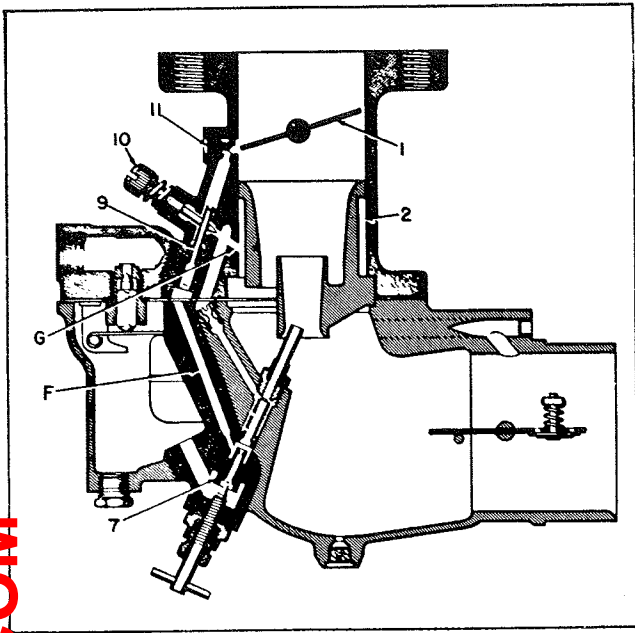


Fig. 2 Idle System

plate (1) is almost closed and there is a very strong suction at the edge of the throttle plate to draw the mixture of fuel and air from the idle jet and idle adjusting needle to be discharged into the air stream through the Priming Plug (10). Turning the idle adjusting needle IN (clockwise) increases the suction on the idle jet for a richer mixture. Turning the needle OUT (counter-clockwise) increases the amount of air admitted and thereby reduces the suction on the idle jet resulting in a leaner mixture.

HIGH SPEED SYSTEM - Fuel from the fuel bowl is drawn through the fuel jet (6) and is mixed with air admitted through the air intake channel (G) and well vent (8) to the lower section of the discharge jet (5). This mixture is then discharged into the air stream at the point of greatest suction in the secondary venturi (4) by the discharge jet (5). From here the fuel-air mixture passes through the main venturi where it is mixed with additional air before being discharged into the engine.

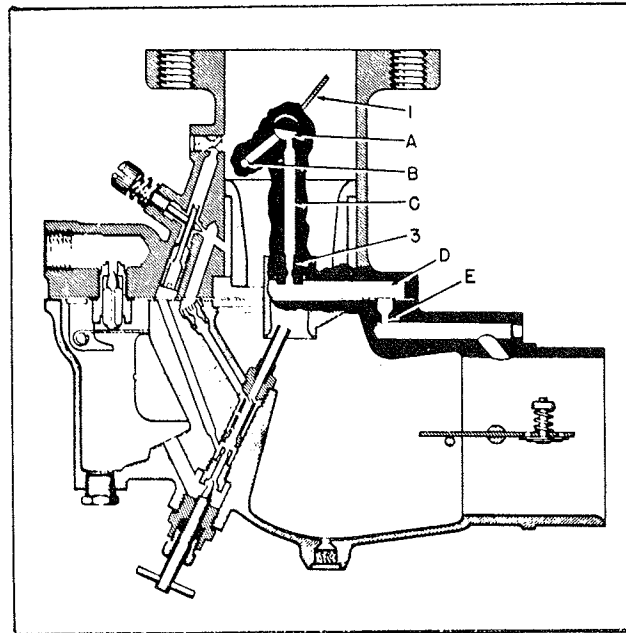


Fig. 4 Economizer System

ECONOMIZER SYSTEM - At idle speeds, channel (B) is below the throttle plate (1) and no suction is transmitted to the fuel bowl. This permits the full flow of fuel through the idle system. At approximately 1/4 open throttle, channel (B) is above the throttle plate and a strong suction is transmitted to the fuel bowl through channels (C) and (D) to hold back the fuel in the fuel bowl which results in a lean mixture during part throttle range of operation. The size of the Economizer Jet (3) controls the suction applied to the fuel bowl. A restriction (E) in the air intake passage for bowl ventilation prevents the bowl ventilation from over ruling the suction channels (B) and (C). At wide open throttle this suction is cut off, due to the rotation of the slot (A) in the throttle shaft, to permit the full flow of fuel necessary for full power.

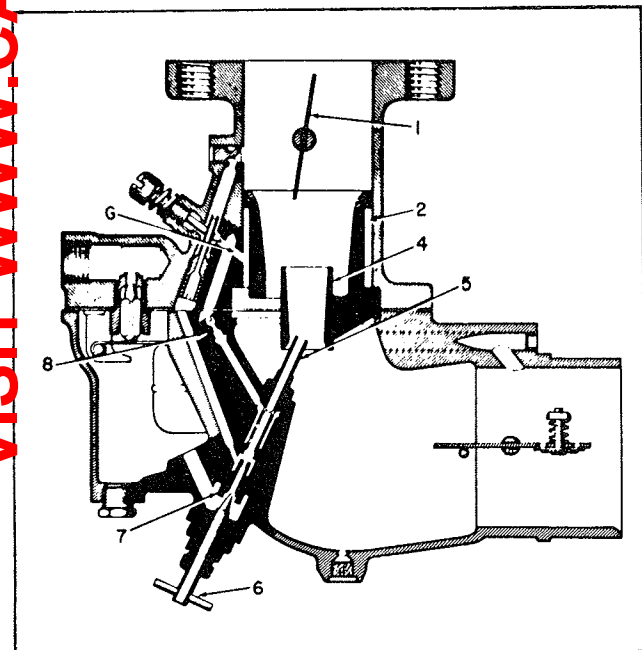


Fig. 3 High Speed System

CHOKE SYSTEM - Closing the choke plate when starting a cold engine restricts the air entering the carburetor through the air cleaner and creates an increase in suction at the jets. This increase in suction causes more fuel to be drawn

into the engine and provides a richer mixture necessary for starting a cold engine. As soon as the engine starts a poppet valve in the choke plate automatically opens and admits sufficient air to avoid over-choking and flooding of the engine. As the engine warms up to normal operating temperature, the choke must be gradually returned to the open position.

SERVICE PROCEDURE

IDENTIFY CARBURETOR - See page 2 for illustration and procedure to follow.

DISASSEMBLY

REMOVAL OF THROTTLE BODY ASSEMBLY

1. Remove four throttle body to bowl assembly screws (1) and lockwashers (2), using a screwdriver.
2. Raise throttle body slightly and separate bowl to body gasket (15) from bowl body assembly, then lift off throttle body carefully to avoid damage to the floats.

DISASSEMBLY OF THROTTLE BODY

1. Press against end of float axle (13) at slotted side of hinge bracket to force axle through hinge bracket, using a small screwdriver. Then remove float axle completely with fingers from opposite side and remove float assembly (14) and fuel valve needle (part of 12).
2. Remove bowl to body gasket from machined surface of throttle body (48), then remove venturii (16).

NOTE: Some 62AJ-Series carburetors have venturii held in place by screw (8) and lock-washer (7).

3. Remove fuel valve seat (12) and fiber washer (11), using C161-85 wrench.
4. Remove economizer jet (46) and fiber washer (47), using small screwdriver. (Used only with 62-J and 162-J Series carburetors).
5. Remove idle jet (45) from machined surface of throttle body, using small screwdriver.
6. Remove idle adjusting needle (6) and friction spring (5) from side of throttle body.
7. Back out throttle stop screw (52) flush with end of lever (55), close throttle valve and

mark throttle body and lever as a guide to correct assembly of parts.

8. File off riveted end of throttle plate screws (57) flush with throttle shaft. Use care not to damage throttle plate or throttle bore.
9. Remove throttle plate screws, throttle plate (58) and throttle shaft and lever assembly (51).
10. To remove throttle shaft packing (3) and retainer (49), screw fine thread taper tap into packing retainer until firmly seated in retainer. Use tap 1/16" larger than I.D. of retainer. Insert long punch or rod through opposite shaft hole and drive out retainer and packing with tap. Repeat operation at opposite shaft hole.

NOTE: Do not remove throttle plate, throttle shaft and lever assembly, throttle packings and retainers from throttle body unless shaft is bent or unless other component parts of assembly are damaged.

11. Remove fuel inlet fitting (10) with screen (if used) and gasket (9).

DISASSEMBLY OF FUEL BOWL

1. Remove main jet adjustment assembly (35) and fiber washer (34) from bottom of fuel bowl, using 1/2" wrench.

NOTE: Some models have a 1/2" plug in place of adjustable main jet.

2. Remove fuel bowl drain plug (32) from bottom of fuel bowl, using C161-10 wrench.
3. Remove main jet (33) and fiber washer (31) from threaded passage near bottom of fuel bowl, using C161-1 wrench.
4. Remove main discharge jet (17) and fiber washer (18) from center of fuel bowl casting, using C161-9 wrench.
5. Remove well vent jet (19) from machined surface of fuel bowl, using a small screwdriver.
6. Mark choke bracket (21), choke lever (25) and air intake body section as a guide to correct assembly.
7. Remove choke lever spring (22), close choke and remove choke plate screws (44) and

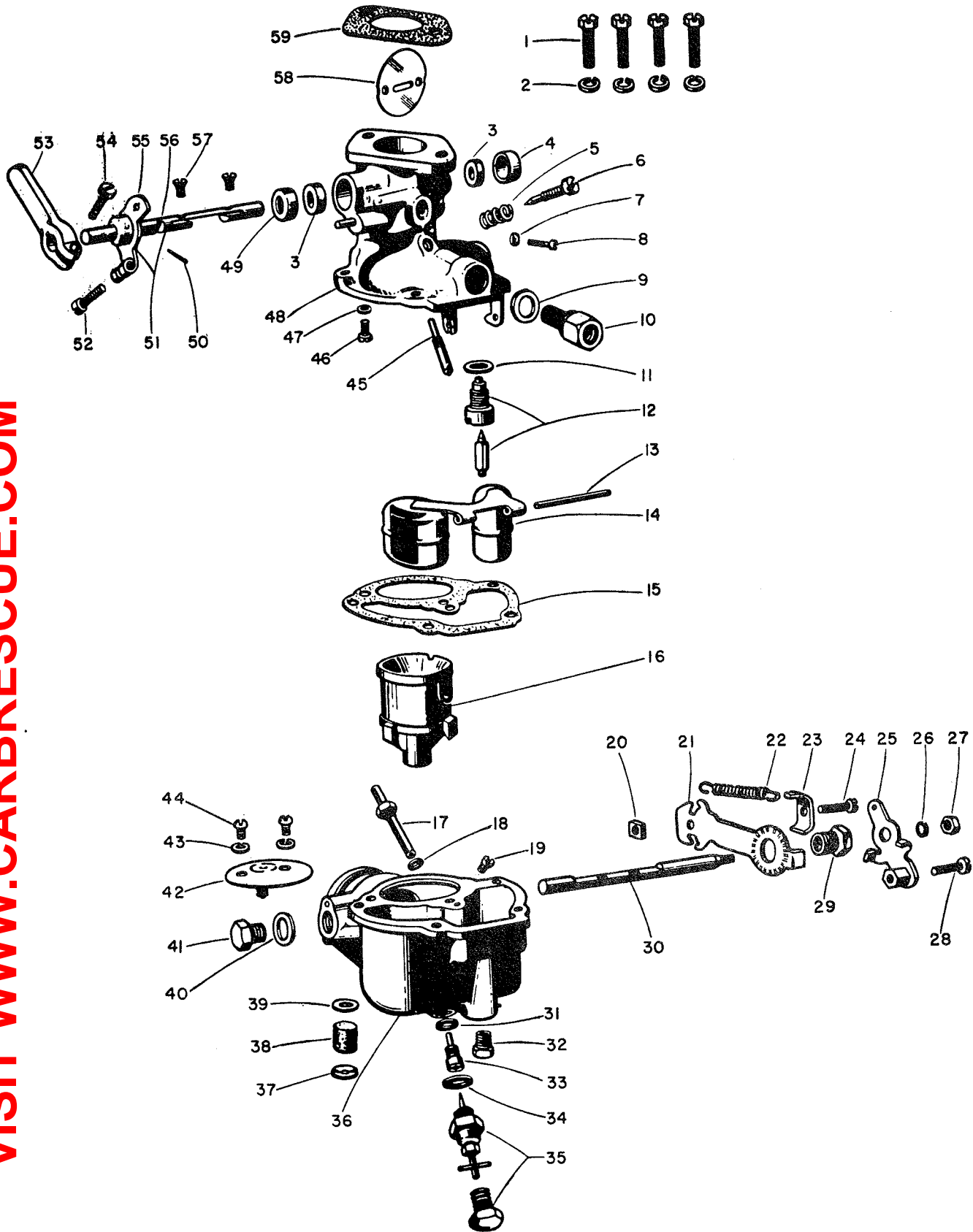


Fig. 5 Exploded View

lockwashers (43); then remove choke plate (42), noting position of poppet spring in air intake.

8. Remove choke shaft nut (27) and lockwasher (26), using C161-25 wrench; then remove choke lever (25).
9. Remove bracket assembly screw (29), using 1/2" open end wrench and then remove choke bracket.
10. Remove choke shaft hole plug (41) and fiber washer (40), using 1/2" open end wrench.

CLEANING

Thoroughly clean all metal parts in Bendix Metalclene or Speedclene and rinse in solvent. Blow out all passages and channels in the castings with compressed air. Reverse the air flow through each passage to insure the removal of all dirt particles. NEVER USE A WIRE OR DRILL TO CLEAN OUT THE JETS.

INSPECTION

Inspect all parts and replace any that are damaged or worn. Always use a Zenith Repair Kit. For correct Repair Kit, refer to Zenith Parts Catalog Specification Page.

RE-ASSEMBLY

FUEL BOWL AND AIR INTAKE ASSEMBLY

1. Carefully guide choke shaft (30) through packings and retainers into position in air intake section.
2. Insert choke plate (42) in cut-out of choke shaft, making certain choke plate poppet valve is in same position as when it was disassembled, then assemble choke plate screws (44) and lockwashers (43), using small screwdriver.
3. Install choke shaft hole plug (41) with fiber washer (40) and tighten with 1/2" open end wrench.
4. Place choke shaft bracket (21) on assembly screw (29) and attach bracket to air intake in same position as when removed and then tighten screw with 1/2" open end wrench.
5. Assemble choke lever (25) on choke shaft in same position as when removed, then

assemble lockwasher (26) and nut (27). Tighten nut, using C161-25 wrench.

6. Attach choke lever spring (22) to choke lever and to choke bracket.
7. Place fiber washer (18) over threads of main discharge jet (17) and install jet in bowl assembly and firmly tighten, using C161-25 wrench.
8. Install well vent jet (19) in bowl assembly and tighten, using small screwdriver.
9. Place fiber washer (31) on main jet (33) and install main jet in threaded hole near bottom of bowl assembly, using C161-1 wrench.
10. Install main jet adjustment (35) or hex plug with fiber washer (33) whichever is included.

NOTE: When main jet adjustment is used, back out idle needle several turns before tightening fitting.

THROTTLE BODY ASSEMBLY

1. Install throttle shaft packing (3) in open side of packing retainer (49) and place assembly on C161-72-3 bushing driver with packing facing small end of tool.
2. Insert small end of tool in throttle shaft hole, start retainer into counter-bore of throttle body (48) and lightly drive retainer into body flush with machined surface.
3. Install throttle shaft and lever assembly (51) in throttle body and rotate throttle shaft to wide open position.
4. Insert throttle plate (58) and rotate to closed position. Hold plate with fingers and start throttle plate screws (57) and partially tighten screws with small screwdriver. Center throttle plate in throttle bore and then tighten screws.

NOTE: Make certain beveled edges of throttle plate fit the throttle bore when the throttle plate is closed.

5. Install throttle shaft hole plug (4).
6. On 62-J and 162-J Series carburetors, install washer (47) on economizer jet (46) and assemble jet in throttle body.

7. Install idle adjusting needle (6) and friction spring (5) in threaded passage at side of throttle body. Turn needle IN lightly against seat and then back needle OUT (counter-clockwise) 1-1/4 turns as a preliminary adjustment.
8. Install idle jet (45) in counter-bored passage and tighten, using small screwdriver.
9. Install fuel inlet fitting (10) and screen (if used) in threaded hole at side of throttle body, using C161-10 wrench to tighten fitting.
10. Invert throttle body and install fuel valve seat (12) and fiber washer (11), using C161-85 wrench.
11. Place new throttle body to fuel bowl gasket (15) on machined surface of fuel bowl cover and install fuel valve needle in seat.
12. Place float assembly (14) in position with float lever bushing in line with holes in hinge bracket and assemble float axle (13) through bushing and in hole of bracket at side opposite slotted hole. Press float axle into slotted hole of bracket, using handle of screwdriver to center axle.

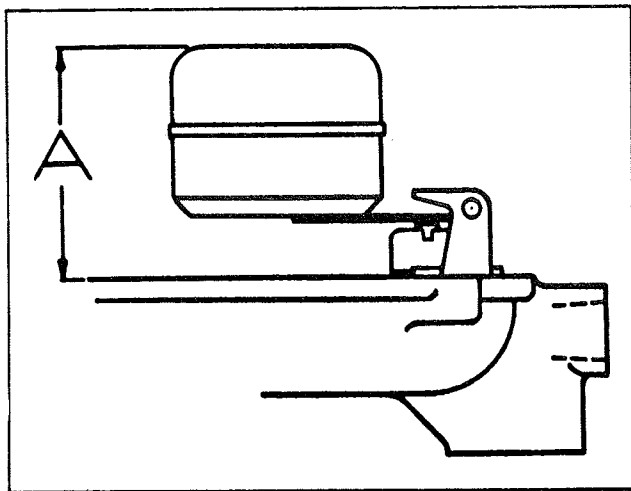


Fig. 6. Float Setting

13. To insure correct fuel level in the float chamber, check distance "A" from top of floats to machined surface of cover (no gasket) with throttle body inverted, see Fig. 6. This dimension should be

1-39/64". To increase or decrease distance between float bodies and machined surface, use long nose pliers and bend lever close to float body.

NOTE: Do not bend, twist or apply pressure on the float bodies. The float bodies when viewed from the free end of the float bodies must be centered and at right angles to the machined surface and must move freely on the float axle.

14. Insert large opening end of venturii (16) into throttle body bore. On those models where venturii are held in position by a screw, assemble screw (8) and lock-washer (7).

ASSEMBLY OF FUEL BOWL TO THROTTLE BODY

1. Place fuel bowl assembly on throttle body assembly and align holes in bowl flange with holes in gasket and cover.
2. Install four assembly screws (1) and lock-washers (2). Tighten screws evenly and securely.
3. Hold throttle lever in closed position and turn throttle stop screw (52) IN until it just contacts stop pin on throttle body, then turn screw IN 1-1/2 additional turns as a preliminary setting.

Assembly is Now Completed

SPECIAL TOOLS REQUIRED

C161-1	Main Jet Wrench
C161-9	Main Discharge Wrench
C161-72-3	Bushing Driver
C161-85	Fuel Valve seat Wrench

General Hand Tools

1/2" Open End Wrench
 1/4" Blade Screw Driver
 1/8" Blade Screw Driver
 Long Nose Pliers
 6" Depth Gauge
 1/4" Round File
 Light Hammer
 Long rod or Punch