Servicing
STROMBERG CARBURETORS
AUTOMOTIVE TYPES AA, SF, AND BXV
USED ON U.S. GOVERNMENT VEHICLES
BENDIX PRODUCTS DIVISION
OF BENDIX AVIATION CORPORATION
SOUTH BEND INDIANA
# STROMBERG CARBURETORS
Manufactured by
BENDIX PRODUCTS DIVISION, SOUTH BEND, INDIANA
for use on
GOVERNMENT VEHICLES

<table>
<thead>
<tr>
<th>Bendix Part Number</th>
<th>Ordinance Number</th>
<th>Customer's Part Number</th>
<th>Part Description</th>
<th>Model of Vehicle</th>
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<tr>
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<td></td>
<td>81 MM Motor Carrier</td>
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</table>
SERVICING
STROMBERG CARBURETORS

(Automotive Types: AA, SF and BXV)
Servicing
Stromberg Carburetors

PRINCIPLES OF OPERATION:

The basic principles of carburetion as applied to Stromberg Carburetors, incorporate in one unit a combination of scientific design and mechanical simplicity. During a period of more than twenty-five years, Stromberg has introduced and pioneered numerous unique features in carburetion, many of which are incorporated in modern units of today.

All Stromberg Carburetors, regardless of the size or model, are quite similar in general construction; therefore, for ease of understanding, the principles of operation of a Stromberg Carburetor are divided into five stages or systems; float system; idle system; main metering system; power system and accelerating system. The following illustrations show the operation of the five systems.

**FLOAT SYSTEM**

The fuel enters the carburetor at the gasoline inlet flowing through the float needle valve and seat into the float chamber where it is maintained at a definite level by the float. (The illustration above also shows the first step of operation of the Idle System.)

A float chamber can be vented by either an external vent or an internal vent.

The internal vent is in the air horn, and because of its position, the air pressure on the gasoline in the float chamber is balanced with the pressure in the air horn. The result is, the mixture remains correct for power and economy regardless of the fact that dirt gradually accumulates in the air cleaner and increases the resistance to air flow.

The internal type vent is used in the carburetors covered in this book.

**IDLE SYSTEM**

At closed throttle or slow engine speeds the fuel is delivered through the Idle System. The fuel is taken from the base of the main discharge jet, flowing into the bottom of the idle tube where it is metered. From the tube it flows through a connecting channel where air from the idle air bleed is mixed with it so that a mixture of air and fuel passes down the channel and is discharged from the idle discharge holes. The idle needle valve controls the quantity of fuel that is discharged from the primary hole thereby affecting the mixture ratio.
The Main Metering System controls the flow of fuel during the intermediate or part throttle position. The fuel flows from the float chamber into the main metering jet and then into the base of the main discharge jet. Air is bled through the high speed bleeder into the main discharge jet so that a mixture of air and fuel is discharged from the main discharge jet into the carburetor barrel.

The main discharge jet is designed so that if any vapor bubbles are formed in the hot gasoline, the vapors follow the outside channel around the main discharge jet, instead of passing through the jet tube. These vapor bubbles collect and condense in the dome-shaped high speed bleeder and thereby eliminate parcellating troubles.

For maximum power or high speed operation, a richer mixture is required than that necessary for normal throttle opening. A vacuum controlled piston automatically operates the power by-pass jet in accordance with the throttle opening. With the throttle closed, a high manifold vacuum is present and the vacuum piston assembly is moved to its "up" position against the tension of the spring. When the throttle is opened to a point where additional fuel is required for satisfactory operation, the manifold vacuum decreases sufficiently so that the spring on the piston assembly moves the piston down and thereby opens the power by-pass jet to feed additional fuel into the Main Metering System.
AA SERIES AERO TYPE

These illustrations show the AAV Type, namely, AAV-1, AAV-2, AAV-10 and AAV-25.

Types AA-1, AA-2, etc., have the same general construction with the exception that the accelerating pump and power system are combined.

COMPONENTS

1. Throttle Valve: Controls the quantity of mixture of fuel and air that is admitted into the intake manifold and thereby governs the speed of the engine.

2. Choke Valve: Restricts the air supply to enrich the mixture for starting and warm-up. (Gives automatic or manual control.)

IDLE SYSTEM

3. Idle Tube: Meters the fuel used for the idle range.

4. Idle Air Bleed: Meters the air that is freed into the idle system.

5. Secondary Idle Air Bleed: Blends additional air into the idle system.

6. Idle Exhauster Hoses: Replaces the fuel that is freed during the idle range.

7. Idle Needle Valve: Controls the quantity of fuel that is discharged from the primary idle hole at closed throttle position, also the mixture of fuel and air and fuel and controls the quantity that is discharged into the air stream.

8. Main Mixture Jet: Meters all of the fuel that is used in the range of normal speed.

9. Main Exhaust Jet: Meters the fuel and air and fuel and controls the quantity that is discharged into the air stream.

10. High Speed Bleeder: Meters the air that is freed into the main discharge system.

11. Venturi: Increases the air velocity in the carburetor.

FLOAT SYSTEM

12. Float Needle Valve and Seat: Controls the fuel that is admitted into the float chamber.

13. Float: Maintains the level in the float chamber at a definite level.

14. Float Chamber Vents (Internal Type): Vents chamber to atmosphere.

15. Float Chamber Vents (External Type): Vents chamber to atmosphere.

POWER SYSTEM

16. Vacuum Operated: Is controlled by the intake manifold vacuum and automatically operates the power bypass jet, in accordance with the speed or load of the engine.

17. Power By-Pass Jet: Meters the fuel that is required for high-speed running or pulling under load, in addition to fuel enriched by the metering jet.

ACCELERATING SYSTEM

18. Accelerating Pump: Delivers additional fuel, momentarily, while accelerating to provide smooth, rapid acceleration.

19. Outlet Check Valve: Checks air from entering pump channel.

20. Pump Bleed Hoses: Replaces the fuel from the pump into the air stream, in case vaporizes in the fuel.

AUTOMATIC CHOKE CONTROL


22. Automatic Choke Plate: Opens choke valve at initial start of engine.

23. Thermostat: Controls the opening and closing of the choke valve in accordance with operating temperature.

24. Hot Air Inlet Connection: Hot air from intake manifold to thermostatic cover and provides heat for the thermostat.

25. Thermostat Cover and Adjustment: Adjust the tension of the thermostat.

Page 5
CONTROLS
1. Throttle Valve. Controls the quantity of mixture of fuel and air that is admitted into the intake manifold, and thereby governs the speed of the engine.
2. Choke Valve. Restricts the air supply to enrich the mixture for starting and during the warming period. (Either automatic or manual controlled).

IDLE SYSTEM
3. Idler Tube. Routes the fuel used for the idle range.
3a. Idler Recalibrator. Where used, it meters the fuel instead of the idle tube.
4. Idle Air Bled. Routes the air that is bled into the idle system.
5. Idler Discharge Hole. Discharges the fuel that is used during the idle range.
6. Idle Needle Valve. Controls the quantity of fuel that is discharged from the primary side hole at closed throttle position, also the mixture ratio.

MAIN METERING SYSTEM
7. Main Metering Jet. Meter or all of the fuel that is used in the range of normal speed operation.
8. Main Discharge Jet. Mixes the air and fuel and controls the quantity that is discharged into the air stream.
9. High Speed Blower. Mixes the air that is bled into the main discharge system.
10. Venturi. Increases the air velocity in the carburetor.

FLOAT SYSTEM
11. Float Needle Valve and Seat. Controls the fuel that is admitted into the float chamber.
12. Float. Maintains the fuel in the float chamber at a definite level.
13. Float Chamber Vent. (Internal Type) Vents chamber to atmosphere.

ACCELERATING SYSTEM
15. Accelerating Pump. Delivers additional fuel, momentarily, while accelerating to provide smooth, rapid acceleration.
17. Pump Discharge Nozzle. Discharges the fuel from the pump into the air stream in some cases also delivers the fuel.

POWER SYSTEM
18. Vacuum Piston. Is controlled by the intake manifold vacuum and automatically controls the vacuum on load of the engine.
19. Power By-Pass Jet. Moses the fuel that is required for high-speed running or pulling under load, in addition to fuel delivered by the metering jet.

AUTOMATIC CHOKE CONTROL
22. Thermostat. Controls the opening and closing of the choke valve in accordance with operating temperature.
23. Electric Element or Heat Unit. Supplies heat for the thermostat.
24. Thermostat Cover and Adjustment. Adjusts the tension of the thermostat.

BXV SERIES
This illustration shows the BXV-2B, BXVW-3, and BKOV-25 with Electric Automatic Choke Control. The BXOV-25 has similar construction with Hot Air Type Choke Control. The BXV-2, BKOV-2 and BKOV-3 have similar construction without Automatic Choke Control.
BENCH OVERHAUL PROCEDURE

GENERAL:

The following is adapted from standard procedure, developed in the Bendix factory, for rebuilding Stromberg Carburetors. The exact sequence of steps in disassembly and reassembly will vary somewhat for various Stromberg types and models. These individual variations, however, will be apparent to the repairman as he works with the particular model carburetor to be overhauled; in the meantime, the information and illustrations given will serve as a useful general guide for field service operations.

REPAIR KITS

Based on long experience in carburetor service work, it is recommended that certain parts should always be discarded and replaced with new parts after a carburetor has been disassembled for major overhaul. These parts are either subject to wear which it is difficult to detect by inspection, or there are other sound technical reasons for not taking a chance on spoiling an otherwise good job by reassembling an old part of questionable condition. Stromberg Repair Parts Kits are designed to furnish in one package a complete set of genuine Stromberg parts to replace those parts which invariably should be discarded.

In the following disassembly procedure, parts to be so replaced are marked "Scrap"; corresponding replacement parts will be found in the Stromberg Repair Parts Kit.

In addition, it may be necessary to replace other parts which inspection shows to be damaged or worn. Tests and inspections to determine which other parts should be replaced are indicated. These inspection operations should receive special attention.

Form 10-268D gives a listing of kits arranged alphabetically by car makes. This will serve to locate the kit number required for repairing the carburetor at hand.

Form 10-531 is a numerically arranged list of repair kits which includes parts lists showing the contents of each kit. Form 10-531 may be used to make up kits from stock if the factory packaged kit is not available.

CLEANING

Regardless of the number of new parts that are used in rebuilding a carburetor, the job in the end will not be satisfactory unless all metal parts are thoroughly cleaned. Because of the nature of carburetor parts, with numerous small passages subject to fouling with tenacious carbon and gum deposits, ordinary cleaning processes are entirely inadequate. The correct procedure is to use a cleaning bath in which metal parts can be immersed and "soaked" for sufficient time after disassembly to thoroughly clean all surfaces and channels.*

Before immersing in the cleaning bath, all lead ball plugs and taper drive plugs should be removed so that the cleaner can penetrate and wash through the channels, thus removing all foreign material. Removal of all carbon from the inside of the throttle barrel is particularly important; this is more thoroughly explained under operation 20 page 8.

CODE NUMBER

A code or assembly number is stamped on the the top of the float chamber cover of each Stromberg Carburetor. Note this number carefully and also the make and model vehicle from which the carburetor was removed. This information is necessary to look up important data and parts specifications.

CATALOGS & SERVICE MANUAL

Complete parts and other service information are included in the Stromberg Parts Catalog and Service Manual. This and other Stromberg catalogs are available through Stromberg dealers or may be obtained direct from the Bendix factory.

STROMBERG TOOLS

Certain special tools are necessary to service Stromberg Carburetors. These are identified by tool numbers in the following text; also tool numbers are indicated in the Stromberg Manual for each carburetor.

Complete kits of tools are available in two assortments: the Master set for stations specializing in carburetor work; the Junior set for car dealers and smaller service stations.

*Bandix Cleaner has been developed especially for cleaning carburetors, and is recommended for this purpose.
# Stromberg Check Chart

## For Servicing Stromberg Carburetors

The Stromberg Check Chart is a general guide for servicing Stromberg Carburetors. It is intended to be used as a ready reference by the technician. Some parts are difficult to check or at least it is difficult to be sure they are in working order. Therefore, we recommend replacement of new parts rather than being forced to buy new parts that might otherwise be good. With this chart, the mechanic should refer to the catalog sheet on the carburetor, and the carburetor should be disassembled and thoroughly cleaned in a good parts cleaner such as Desco Cleaner, followed by blow out thoroughly with air, using an air nozzle that will direct the air into the various channels, and proceed to check all items indicated in the Check Chart column headed by the complaint which brought the customer in.

## Complaint and Part to Check

<table>
<thead>
<tr>
<th>Gas Mixture</th>
<th>Top-Low</th>
<th>Richness Reg.</th>
<th>Idling</th>
<th>Throttle</th>
<th>General Term</th>
<th>What to Look For</th>
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<td>□</td>
<td>□</td>
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<td>Correct type; correct size;</td>
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<tr>
<td></td>
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<td>Damaged; worn.</td>
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<td>□</td>
<td>□</td>
<td>Damaged tip; bad top shoulder seat; bad seat with metering jet;</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Side holes enlarged; side holes crushed or closed;</td>
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<tr>
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<td>High Speed Bleed over size or closed.</td>
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<td>Correct size; bad seating shoulder;</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td>Clean</td>
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<tr>
<td>IDLE AIR BLEED</td>
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<td>□</td>
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<td>□</td>
<td>Free of carbon; correct size.</td>
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<tr>
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<td>Free of Carbon; throttle valve fit and relation to idle holes;</td>
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<td>Worn throttle shaft.</td>
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<td>Damaged taper.</td>
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<td>Correct size.</td>
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<tr>
<td>PUMP PISTON</td>
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<td>□</td>
<td>□</td>
<td>Good leather; leather too soft; leather too hard; leather loose on assembly; Pump relief OK; Good Follow-up spring.</td>
</tr>
<tr>
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<td>□</td>
<td>Clean; correct size.</td>
</tr>
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<td></td>
<td>Clean channels; check pump capacity.</td>
</tr>
<tr>
<td>POWER SH-T</td>
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<td>□</td>
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<td></td>
<td></td>
<td></td>
<td>Correct size; clean channels.</td>
</tr>
<tr>
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<td>□</td>
<td>□</td>
<td>Worn; damaged spring; stuck in either up or down position.</td>
</tr>
<tr>
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<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>Open too early; open too late;</td>
</tr>
<tr>
<td>STANDING (IF MECHANICAL)</td>
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<td>□</td>
<td>□</td>
<td>Bad seat; bad release.</td>
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<td>FUEL LEVEL</td>
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<td>□</td>
<td>High; low; limits 1/4&quot;.</td>
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<td>FLOAT NIPPLE VALVE AND SEAT</td>
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<td>Dirt; turns;</td>
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<tr>
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<td>Fuel pump pressure.</td>
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<tr>
<td>PUMP AND THROTTLE LINKAGE</td>
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<td>Worn; throttle travel OK.</td>
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<td>□</td>
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<td>□</td>
<td>□</td>
<td>Pump not in proper position.</td>
</tr>
</tbody>
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Check intake manifold for leaks. Check heat control valve; replace thermostatic spring if questionable.
Stromberg AA type carburetor. The AA carburetor is of the dual-barrel, downdraft type. The float chamber encircles the two barrels, and is provided with two floats, maintaining correct fuel level with relation to the metering systems.

**DISASSEMBLY**

1. Remove the gasoline connection and strainer. Disconnect the choke and pump rods. Remove pump fulcrum screw (the slot around the screw head indicates a left hand thread). Remove cover screws. Remove air horn assembly with float attached.

2. Remove accelerating pump piston. SCRAP.

3. Remove the float fulcrum pin and the float. Shake the float to be sure it has not become "loaded" with gasoline as the result of a leak. Remove needle valve seat (use tool T-201-40). Scrap float needle valve and seat. Scrap air horn gasket.

4. Remove vacuum piston (use tool T-24733). Note: If carburetor is equipped with automatic choke, follow operations under "Automatic Choke Control, page 11, before proceeding.

5. Remove choke valve and stem from air horn. Be careful not to bend or damage the valve; a bent valve will prevent full closing when reassembled and cause hard starting. Be sure there are no burrs around the edge of the valve.

6. Remove main discharge jet plugs (use tool T-19090), and remove main metering jets (use tool T-24924). The old metering jets should be discarded and replaced by new parts from the repair parts kit.
7. Remove main discharge jets by screwing tool T-24967 (R.H. thread) into base of jet. Pull jets from body. The threads formed in the main discharge jet by the tool will not affect the metering characteristics of the jet.

8. Remove idle tubes. The idle tube metering orifice is very small and in order to be sure it is of the correct size, new parts are to be substituted from the repair parts kit.

10. With large screwdriver, remove power by-pass jet and gasket. Scrap both parts. In AA carburetors using two by-pass jets, the jet with the longer stem valve is for the power system, and the shorter stem valve is for the accelerating system.

11. Remove body screws and disassemble main body from the throttle valve body. Scrap gasket.

12. Remove pump inlet check valve plug. Remove strainer and inlet check valve. Scrap both parts.

9. Remove pump discharge nozzle screw, nozzle and gaskets. Place hand on top of main body and invert body to catch ball check valve. Scrap gaskets.

13. Remove all lead ball plugs. (use tool T-25052) and taper drive plugs from main body and throttle body. Be careful not to damage the plug seats in the body.

15. Mark the throttle valves and barrels so that each valve can be put back in the same barrel from which it was removed. Do this by using a scriber, lightly scratching one line on one valve and on one barrel, and by scratching two lines on the other valve and other barrel. Also mark each throttle valve so it can be reassembled in the shaft in the original position. Make a scriber mark on each valve along both edges of the shaft. These lines will allow positioning the valves accurately when they are again assembled.

After carefully marking the parts, remove the valves and throttle shaft.

**INSPECTION**

16. All metal parts that are to be used again should be thoroughly cleaned and each part should be carefully inspected for wear as follows.

17. Throttle Shaft. Inspect for wear on bearing surfaces. Check pump rod holes for wear and also to see that throttle lever is not loose on stem. Replace assembly if necessary.

18. Throttle Valves. See that the throttle valves are not bent and do not have burrs or sharp edges.

19. Main Discharge Jets. Inspect tips of jets to make certain they are not damaged, and that the wall is not distorted to deform the holes.

20. Throttle Valve Body. Be sure that the idle discharge holes and the barrels of the throttle valve body are clean of all carbon deposits. A comparatively small amount of carbon in the barrel may have the effect of decreasing the bore sufficiently to prevent the throttle valve resting at the correct angle when closed. This can have serious effects on performance because the distance from the throttle valve when closed, to the edge of the idle discharge hole must be kept within close limits to the specified dimension. In most cases the tolerance is .004 in.

Check the size of the upper idle discharge hole by removing the plug in the body and inserting the shank of the correct size drill into the idle discharge hole. This has the further advantage of removing any foreign matter that may be obstructing the hole. The discharge hole for the idle needle valve should be checked in the same manner.

The correct size drills to use are specified in the Stromberg Parts and Service Manual under the specifications for the particular carburetor model and application in question. Check wear of throttle shaft bearing. There should not be more than about .003" play, otherwise air leaks will interfere with performance.

21. Vacuum Piston. Make certain that the surface of the piston is thoroughly clean. Do not use any abrasive material for polishing the piston surface. Inspect for wear or damage. Replace if necessary.

22. Choke Shaft. Inspect for wear on bearing surfaces, and for looseness of the levers on the stem.

23. Main Body. Make certain the main body is thoroughly clean and that all passages are free of foreign material. Check high speed and idle air bleeders for correct sizes, using a drill shank as a gauge similarly to operation 20.

24. Air Horn. Make certain that the vacuum cylinder is thoroughly clean. Check wear of choke shaft bearing surfaces.

**REASSEMBLY**

In the reassembly of the carburetor, use all of the parts of the Repair Parts Kit and any additional parts that the above inspection operations showed to be unfit for further use.

1. Assemble throttle stem and valve, leaving the screws loose at first. Assemble each valve in the same barrel from which it was removed according to the markings previously made. Also, line the valves up carefully with the scriber marks which were made along the edges of the shaft. With valves held in closed position, hold the throttle body to the light and check the amount of clearance between the valve and the body. If the clearance is excessive at any particular section of the valve, shift the valve in the shaft until it fits the barrel with the least amount of light showing around the edge. Fasten screws securely.

2. Assemble new idle needle valves and springs. Seat needle valves lightly with fingers, then turn out one full turn off seat. Do not use screw-driver or otherwise force a needle valve upon its seat; this will result in scoring the valve and ruining it for further use.
3. Assemble lead ball plugs in main body; use ball set tool.

7. Remove the pin and place tubular section in the main body, then use the reverse end of the pin to slide strainer into place. Assemble plug.

4. Assemble new pump inlet check valve.

8. Assemble main body and throttle body.

5. Assemble strainer as follows, using tool No. T-25097: Place the strainer over the rounded end of the pin.

9. Assemble main discharge jets (use tool T-24957). Be sure the main discharge jets are positioned so that the flat surface of the jet is parallel with the direction of air flow. See illustration above.

   Use new lead gasket if one was originally supplied; some models do not have a lead gasket on seat of main discharge jets.

   Assemble new main metering jets (use tool T-24924); assemble main jet plugs.

6. Insert the strainer into the tubular section of the tool.

10. Assemble new power by-pass jet and gasket.
11. Assemble the pump outlet ball check valve, the nozzle gasket, the nozzle, the gasket and nozzle screw.

12. Assemble choke shaft and choke valve, being certain that valve fits as evenly as possible around entire edge, similarly to operation 1. It is important to have the choke valve fit accurately otherwise hard starting may result.

13. With tool T-24733, assemble the vacuum power piston. Hold the tool flat against the gasket surface to avoid damage to the piston or to the tool. No lubricant of any type should be used on the piston or in the cylinder in the air horn. Piston must operate freely without any lubrication.


15. Attach new float needle valve and clip, to float lever.

Float Setting and Fuel Level

In order to obtain the most efficient operation of a carburetor, it is necessary that the fuel level be maintained at the correct height in the float chamber. The correct level corresponds to the bottom of the threads of the inspection hole which is located on the side of the float chamber. The preliminary step to obtain the correct level is to adjust the floats. If this operation is done accurately, it will be found in practically all cases to produce the proper fuel level. If not, it will be necessary to deviate slightly from the specified dimensions.

Place new gasket on air horn and assemble float to float hanger. In assembling float fulcrum pin, make certain float lever does not bind in float hanger due to distortion of the legs. It is necessary that the float needle valve be "up" of travel from closed position, and if any adjustment is necessary, it can be done by bending the float lever stop to give the desired travel.

Float setting gauge T-24971 is used to set the distance between the floats and also for adjusting the height of the floats. Hold the air horn in inverted position and place the gauge on top of gasket so that locating buttons on the gauge fit in the holes in the air horn and so that the gauge rests solid and flat on the gasket.

The float should be adjusted so that the sides just touch the upright guides of the gauge; this must be a light fit, without clearance and without excessive drag on the gauge uprights.
SERVICING STROMBERG CARBURETORS

The height of the floats should be adjusted so the floats are the correct distance from the tops of the vertical guides on the gauge. The distance is measured between the top and inside edge of float (not the seam) and the tops of the upright guides. The dimension is given in the specification page covering the particular unit.

After checking fuel level, assemble pump rod and choke rod; adjusting choke rod in accordance with the data given in the specification page in the Stromberg Manual.

AUTOMATIC CHOKE CONTROL

DISASSEMBLY

1. Remove cover screws and lockwashers. When removing the cover, be careful to avoid damaging the cover screen.

   If the screen is damaged, such as having a creased edge, it will not fit accurately against the flange; this will cause an air leak and will affect operation of the choke. A damaged screen should be replaced with a new part.

2. With tool T-25047, remove locknut. Also remove lockwasher and serrated washer.

3. Remove thermostat housing screws and take housing off of airhorn.

4. Remove piston from housing.

5. Remove lead ball plugs.

   Allow all parts to soak in the cleaner bath to remove all foreign material. It is particularly necessary for the piston and the cylinder wall to be thoroughly clean. Do not use any abrasive material.

   If screen requires replacing due to the edge being cramped or irregular, proceed as follows: the position of the thermostat hook should be marked on the cover; open swedge of cover hub and remove thermostat and screen. Remove any burrs there may be on the hub; assemble screen and thermostat in its proper position and prick punch end of the hub.

16. If any change in the float position is necessary, it can be made by bending the center section of the float lever with a pair of pliers.

17. Assemble pump piston into air horn. Assemble air horn assembly onto main body, making certain that pump piston does not have any creases or curved edges when it is placed into the cylinder. Attach cover bolts/screws.

18. With gasoline in the float chamber under specified pressure, check the fuel level through the inspection hole. If the fuel level is not exactly even with the bottom of the threads, remove the air horn assembly and make the necessary change in the position of the floats.
ASSEMBLY

1. Assemble lead ball plugs in housing.

2. Place vacuum piston in cylinder with slot on piston assembled DOWN. THIS IS IMPORTANT. DO NOT USE LUBRICANT OF ANY KIND ON THIS PISTON OR IN THE CYLINDER.

3. With the housing gasket in place, assemble the housing onto the air horn; at the same time place piston lever on choke stem. Assemble housing screws, making certain choke shaft does not bind.

4. Assemble serrated washer with the serrations matching those on the lever. Assemble lockwasher and locknut; at this time turn the nut up by hand only.

5. Place adjusting tool T-25046 on choke housing with small hole fitting over the pin of the choke lever. There are two indicator lines on the face of the tool. The tool should be positioned so that the projection on top of the housing is in the center of the indicator lines. Assemble two screws and lug-washers to hold the tool in place.

6. Place gauge or drill, size as specified in the choke specifications, between the choke valve and the air horn. Tighten locknut lightly with tool T-25047.

7. Remove gauge and tool T-25046. Hold choke valve closed with middle finger and tighten locknut securely. Recheck choke valve opening to be certain the setting has not been changed. Do not try to change the position of the piston lever without first loosening the serrated washer and locknut.

8. Make certain that the choke shaft operates freely and that the choke valve will drop freely of its own weight.

   Assemble thermostat cover onto housing with thermostat hook in "down" position. Rotate cover in direction of arrow until arrowhead punch mark is located in line with projection on top of housing. Assemble lug-washers and screws.

NOTES
OVERHAULING STROMBERG SF SERIES

The Stromberg SF Series in addition to being used on trucks and buses is also used on industrial and heavy-duty type engines. It has a combination accelerating and power system which is controlled by the manifold vacuum. Depending on the type of installation, the power system is sometimes omitted from the unit. The following procedure is set up with the power system incorporated; if the unit which is being serviced does not have the power system, disregard the material covering this feature.

1. Remove gasoline connections. Remove body screws.

2. Separate throttle valve body assembly from main body.

3. Remove idle tube cork washer from recess in gasket surface of throttle valve body. Remove float fulcrum pin, float and needle valve. With tool T-20140 remove float needle valve seat, float hanger and gaskets. Do not try to use an open end wrench to remove the float needle seat; such a tool is likely to distort the float hanger legs and cause the float fulcrum pin to bind.

Check the float lever bushing and float fulcrum pin for wear and replace if needed. Scrub gasket also float needle valve and seat. Shake the float to be sure it has not become "floated" with gasoline as the result of a leak.

4. Remove idle needle valve and spring. Inspect idle needle valve for wear. With a scriber, mark lines on the valve along both edges of the shaft. These lines will help to position the valve accurately when it is again assembled. Remove throttle lever and stop, also throttle valve screws and lock washers so that the shaft and valve can be removed from body.
3. Remove strainer plug, gasket and strainer. Be careful not to damage the strainer; if this occurs a new part must be substituted. Remove taper drive plugs and screw plugs from throttle valve body.

8. With tool T-2013A remove power by pass jet. Scrap jet.

Note: This is the only Stromberg carburetor which does not use a gasket under the by pass jet.

6. Remove flat brass washer from idle tube. Remove venturi, main body gasket and pump assembly. With a pair of heavy pliers, unscrew idle tube from main body.

9. With tool T-2972A remove pump inlet choke valve. Be careful not to damage the strainer which is a part of the inlet choke valve assembly.

7. Remove main metering jet and gasket.

Remove main discharge jet plug and gasket located at bottom of main body. This permits removal of main discharge jet and small venturi assembly from top of body.

The high speed bleeder should be removed from the main jet assembly so that all parts can be cleaned thoroughly.

10. Remove float chamber vent tube by taking out set screw located on side of air horn. Remove choke lever and choke tube holder, also choke valve screws and valve.

NOTE: If choke lever is riveted to choke stem, it is necessary to remove the valve before taking off the external choke parts.
INSPECTION

All metal parts that are to be used again should be thoroughly cleaned and each part carefully inspected.

Throttle Shaft: Inspect for wear on bearing surfaces and make certain shaft is not bent.

Throttle Valve: See that the throttle valve is not bent and does not have burrs or sharp edges.

Throttle Valve Body: Be sure that the idle discharge holes and the barrel of the throttle valve body are clean of all carbon deposits. A comparatively small amount of carbon in the barrel may have the effect of decreasing the bore sufficiently to prevent the throttle valve resting at the correct angle when closed. This can have serious effect on performance, because the distance from the throttle valve, when closed, to the edge of the idle discharge hole must be kept to the specified dimensions within close limits.

Check the size of the idle discharge holes by inserting the shank of the correct size drills into the holes. This has the further purpose of removing any foreign matter that may be obstructing the hole.

The correct size drills to use are specified in the Stromberg Parts and Service Manual under the specifications for the particular carburetor model and application in question.

Use of bushing remover to pull throttle shaft bushing from the throttle body.

If inspection shows that the throttle shaft bushings require replacing proceed as follows:

Screw bushing remover tool T-20182 securely into one bushing; then by exerting pressure onto the guide end of tool, remove old bushing. Do likewise with opposite end.

Install new bushings and ream with line reamer to the following sizes: SF-1, reamer .2825"; SF-2 and SF-3, reamer .3145"; SF-4 and SF-5, reamer .3775".

Vacuum Piston Assembly—Make certain that the surface of the piston is thoroughly clean. Do not use any abrasive material for polishing the piston surface. Inspect for wear or damage. Replace if necessary.

Choke Shaft—Inspect for wear on bearing surfaces, and for looseness of the lever on the shaft.

Main Body—Make certain the main body is thoroughly clean and that all passages are free of foreign material. Check high speed and idle air bleeders for correct sizes using a drill shank as a gauge in a similar manner as previously described.

REASSEMBLY

1. Assemble throttle stem and valve, leaving the screws loose at first. Line the valve up carefully with the scriber marks which were made along the edges of the shaft. With the valve held in closed position, hold the throttle body to the light and check the amount of clearance between the valve and the body. If the clearance is excessive at any particular section of the valve, shift the valve in the shaft until it suits the barrel with the least amount of light showing around the edge. Tighten screws securely.

2. Place strainer screen in position and assemble gasket and strainer plug securely.

3. Assemble throttle lever and stop, also idle needle valve and spring. Seat the needle valve lightly with fingers and then turn out one full turn off seat. Do not use screwdriver or otherwise force a needle valve upon its seat as this will result in scoring the valve and ruining it for further use.
4. Place cork washer in recess. Assemble float needle valve seat as follows: Place gasket on casting then the float hanger and the other gasket on top of float hanger, with tool T-20140 assemble float needle valve seat securely; place needle valve in seat and assemble float and fulcrum pin.

5. Float Setting and Fuel Level. In order to obtain the most efficient operation from a carburetor, it is necessary that the fuel level be maintained at the correct height in the float chamber. The correct fuel level in the float chamber of the SF-2 carburetor is 9/16" from the top of the main body. To obtain this level, place the throttle valve body in an inverted position as illustrated so that the float will keep the needle valve closed. While in this position the top of the float should measure 14 5/8" from the gasket surface of the throttle valve body. This is best measured by using a depth gauge. If necessary to change the position of the float, use a pair of long nosed pliers; bend the lever in the curved section where it meets the float.

Note: Specifications: The preceding dimensions cover only the SF-2 unit; refer to Stromberg Manual for data on other models.

It is good practice to check fuel level at this time before the throttle body is assembled upon the main body. This can be done by providing a flat-topped vessel, resting the throttle body assembly upon the top of the vessel. Connect a gas line to the fitting in the throttle body and allow gasoline under normal pressure to flow into the vessel until it is shut off by the action of the float. Measure the distance from the throttle body gasket surface to the gasoline level. Be sure the vessel is perfectly level and that the top edges are smooth and flat.

Assemble tapered drive plugs or screw type plugs in throttle valve body.

6. Assemble choke valve and shaft; also tube holder and lever, making certain that shaft operates freely in body, and that the valve seats around entire edge when in closed position. Assemble float chamber vent tube so that the end of the tube is flush with the edge of the air horn.

7. If unit is equipped with choke return spring, assemble parts as illustrated. Tighten set screw securely.

8. Assemble pump inlet check valve. To do this, first place the part in the end of the tool, T-23/88; then tilt the carburetor body into a convenient position for assembling the part. Be careful not to damage the strainer or to cross the threads.
9. Assemble power by-pass jet using tool T-20138. Note that there is no gasket used under the power by-pass jet in this type carburetor.

10. Assemble main metering jet and gasket securely. Assemble high speed bleeder into main jet assembly. Place gasket on upper section of main discharge jet and place assembly in the main body. Assemble main jet plug and gasket securely.

11. Assemble idle tube securely in main body. Place large venturi in main body and assemble main body gasket over venturi and idle tube. Place brass washer over idle tube. Assemble pump piston into main body making certain that there are no creases or curled edges on piston leather.

12. Assemble throttle valve body assembly into main body and fasten body screws evenly and securely, being careful not to damage the main body gasket. Install gas connections.
OVERHAULING STROMBERG BXV SERIES

The Stromberg BXV series is a single barrel downdraft carburetor used on passenger cars and light trucks.

DISASSEMBLY

1. Remove choke fast idle rod. Remove cover screws and air horn assembly.

2. Remove vacuum piston (use tool T-2417).

   NOTE: If carburetor is equipped with automatic choke, follow operations under "Automatic Choke Control" on page 11 before proceeding.

3. Remove choke stem nut, lockwasher, lever, choke valve screws and valve. Remove choke stem together with lever and spring.

4. Remove pump link cotter pin and link. Remove pump rod cotter pin. Remove pump rod, cover gasket, pump spring and pump piston. Scrap gasket, cotter pins.

5. Remove the pump bypass jet and gasket. Scrap both parts. Use a screwdriver that is large enough to fit snugly into the slot in the head of the jet.
6. Remove the power bypass jet similar to 5. Scrap.


8. Remove float valve and seat. Scrap.
   Insert small screwdriver between float chamber clip
   and body and with a twisting motion, remove clip.
   After inserting screwdriver, place hand over float
   chamber to prevent clip from striking the face.

9. Showing float parts disassembled.

10. Remove main discharge jet plug (use tool T-19098),
    and remove main metering jet (use tool T-24924).
    Scrap metering jet.

11. Remove main discharge jet by screwing tool T-24907
    (R.H. Thread) into boss of jet. Pull jet from body. The
    threads formed in the jet by the tool will not affect
    the metering characteristics of the jet.

12. Remove pump inlet check valve plug and inlet check
    valve. Scrap check valve.
    Remove body screws and disassemble main body
    from throttle body. Scrap gaskets.
13. Remove idle needle valve. Scrap. With a scriber, make lines on the valves along both edges of the shaft. These lines will allow positioning the valve accurately when it is again assembled. After marking, remove throttle stem nut, pump lever, throttle valve and stem.

14. Remove all lead ball plugs (use tool T-28052), taper drive plugs and screw plugs from main body and throttle body. Be careful not to damage the seats in the main body.

**INSPECTION**

15. All metal parts that are to be used again should be thoroughly cleaned and each part should be inspected for wear as follows:

16. Throttle Shaft. Inspect for wear on bearing surfaces, also to see that throttle stop is not loose on stem. Replace assembly if necessary.

17. Throttle Valve. Make certain that the throttle valve is not bent and does not have any burrs or sharp edges.

18. Main Discharge Jet. Inspect tip of jet to make certain it is not damaged, and that the wall is not distorted to deform the holes.

19. Throttle Valve Body. Be sure that the idle discharge holes and the barrel of the throttle valve body are clean of all carbon deposits. A comparatively small amount of carbon in the barrel may have the effect of decreasing the bore sufficiently to prevent the throttle valve resting at the correct angle when closed. This can have serious effects on performance because the distance from the throttle valve, when closed, to the edge of the idle discharge hole must be kept within close limits to the specified dimension. In most cases the tolerance is + or - .004".

Check the size of the upper idle discharge hole from the top of the body, by inserting the shank of the correct size drill into the idle discharge hole. This has further advantage of removing any foreign matter that may be obstructing the hole. The discharge hole for the idle needle valve should be checked in the same manner.

The correct size drills to use are specified in the Stromberg Parts and Service Manual under the specifications for the particular carburetor model and application in question.

Check wear of throttle shaft bearing. There should not be more than about .003" play, otherwise air leaks will disrupt performance.

20. Vacuum Piston. Make certain that the surface of the piston is thoroughly clean. Do not use any abrasive material for polishing the piston surface. Inspect for wear or damage. Replace if necessary.

21. Choke Shaft. Inspect for wear on bearing surfaces and for looseness of the lever on the stem.

22. Main Body. Make certain the main body is thoroughly clean and that all passages are free of foreign material. Check high speed and idle bleeders, also pump discharge nozzle for correct sizes, using drill shank as a gauge similarly to operation 18.

23. Air Horn. Make certain that the vacuum cylinder is thoroughly clean. Check wear of choke shaft bearing surfaces.

**REASSEMBLY**

In the re-assembly of the carburetor, use all of the parts of the Repair Parts Kit and any additional parts that the above inspection operations showed to be unfit for further use.

1. Assemble throttle stem and valve, leaving the screws loose at first. Line the valve up carefully with the scriber marks which were made along the edges of the shaft. With the valve held in closed position, hold the throttle body to the light and check the amount of clearance between the valve and the body. If the clearance is excessive at any particular section of the valve, shift the valve in the shaft until it fits the barrel with the least amount of light showing around the edge. Fasten screws securely.

Assemble new idle needle valve and spring. Seat needle valve lightly with fingers, then turn out one half turn off seat. Do not use screwdriver or otherwise force a needle valve upon its seat; this will result in scoring the valve and ruining it for further use.
2. Assemble lead ball plugs and taper drive plugs in main body. Use ball set tool.

3. Assemble main body and spacer onto throttle valve body using new gaskets.
   Assemble main discharge jet (use tool T-24967). Be sure the jet is positioned so that the flat surface of the jet is parallel with the direction of air flow. See illustration above.

4. Assemble new main metering jet (Tool T-24024). Assemble main jet plug, tightly. The shoulder of the plug is tapered and fits into a tapered seat; this eliminates the need of a gasket.

5. Assemble pump inlet check valve and plug.

6. Assemble idle tube. Use a screwdriver with blade small enough to avoid damaging the countersink in the main body. Too large a screwdriver will make a burr on the gasket surface.

7. With large screwdriver assemble pump by-pass jet and gasket. The pump by-pass jet is distinguished from the power by-pass jet by the fact that the valve stem does not extend into the slot on the pump by-pass jet.
8. Assemble power by-pass jet and gasket. In the power by-pass jet the stem extends above the top of the jet.


10. Place float needle valve in float seat. Assemble float fulcrum pin into float lever and place both parts into main body as illustrated. Place U-shaped spring clip in body with ends of clip in grooves and top section resting against projection on the side of the body. Use a large heavy screw driver to snap spring clip into place. Place screw driver on top of clip, holding screw driver in vertical position and resting the blade on the side of the body. Exert a downward pressure on clip so that it snaps into position under the projection on side of body.

11. Note: If fuel level is to be checked with the carburetor on the manifold, operation 12 should be first completed. The fuel level should be set at 3/4" below the top surface of main body at 3-lbs. pressure. If a test stand is available, the fuel level can be checked under pressure and any necessary changes made before installing the carburetor. To change fuel level use tool T-24733 and bend float lever to obtain the 3/4" level.

If the fuel level is to be checked with the carburetor on the manifold, make certain that the fuel pump pressure is normal. Allow the engine to run at idle speed and check the level by raising the gasket and measuring down from the top surface of the body. Hold the scale away from the side walls so that a correct reading is obtained.

12. Assemble pump piston into body making certain there are no scratches on edge of socket. Place spring on piston rod. Place gasket on body and assemble pump rod. Assemble pump link in rod and lever with groove in pump link assembled in lever. Place hair-pin cotter in groove as shown in illustration.

13. Place choke return spring and lever on shaft as illustrated and assemble shaft into air horn. Assemble choke valve so that the least amount of light is showing around edge of valve when in closed position. Assemble fast idle rod lever lockwasher and nut.
14. With tool T-24733 assemble vacuum piston. Do not use any type of lubrication on vacuum piston or in cylinder. Hold tool flat against gasket surface to avoid damage to part or tool.

15. Assemble air horn on main body. Connect fast idle rod and make certain that linkage moves freely.

NOTES