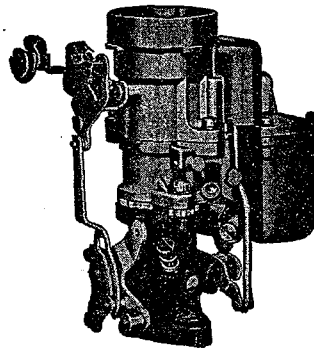


For quick reference, file this page under "Universal Carburetors" in your manual, although this is not a Universal carburetor.

MODEL "MB" 4x4



Casting No. 407 on face of flange.

U. S. ARMY TRUCK

W-O DOWN-DRAFT CARBURETERS 539S-698S

CARBURETER SPECIFICATIONS

For MB 4x4 Government Truck: $3\frac{1}{8}$ Inch Bore; $4\frac{3}{8}$ Inch Stroke

Dimensions: Flange size, 1 inch S. A. E.
 Primary venturi, $1\frac{1}{32}$ inch I. D.
 Main venturi, 1.0 inch I. D.

Float Setting: Distance from float (at free end) to float chamber cover to be $\frac{3}{8}$ inch with free weight of float on needle and spring.

Vents: Outside, No. 10 drill size.

Gasoline Intake: Square vertical (spring loaded) needle. No. 53 drill size in needle seat.

Low Speed Jet Tube: Jet size (539S), No. 71 drill, (698S) No. 69 drill. Idle well jet, No. 61 drill.
 By-pass in body, .059 to .060 inch diameter.
 Economizer in body, .0425-.0435 inch diameter.
 Idle bleed, size No. 52 drill.

Idle Port: Length, .140 inch. Width, .030 inch.

Idle Port Opening: .086 to .090 inch above upper edge of valve with valve closed tight.

Idle Screw Seat: No. 46 drill.

Set Idle Adjustment Screw: 1 to 2 turns open. For richer mixture, turn screw out. Do not attempt to idle engine below 8 miles per hour.

Main Nozzle: (Flush type) in primary venturi, angle 30° .
 Discharge jet size, .096 inch diameter.

Metering Rod: Economy step, .060 inch, tapers to .048 inch diameter. Power step .047 inch diameter. Length 3-23/64 inches.

Metering Rod Jet: Size, .070 inch diameter.

Metering Rod Setting: Use gauge, part No. T109-26 (2.718 inches).

Accelerating Pump: High pressure delayed action type (spring operated plunger).

Discharge jet size, No. 73 drill.

Relief passage to outside, size No. 42 drill.

Intake ball check size, No. 40 drill.

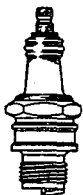
Discharge disk check size, No. 40 drill.

Pump Adjustment: $\frac{17}{64}$ inch plunger travel at full throttle position. Use gauge T109-117S.

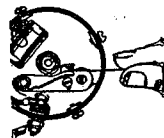
Choke Manual—Offset, butterfly type with poppet valve. Inter-connected to open throttle valve to fast idle position when choke is used.

Motor Tune-Up—Be Accurate!

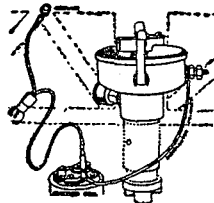
CAUTION: Change worn or leaky flange gaskets. Tighten manifold bolts and test compression before adjusting carburetor.



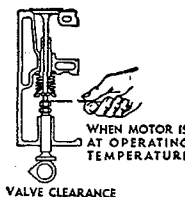
Spark Plug
Gap
.030"



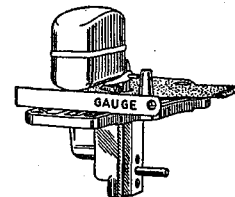
Set
Breaker Points
.020"



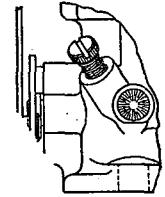
Use Timing Light
Breaker Points to
Open at
IGN Mark on flywheel



Set Valves
(Cold)
Intake .016"
Exhaust .016"



Float Setting
(Measure from machined
surface of casting)
 $\frac{3}{8}$ "



Idle Adjustment
Screw Setting
1 to 2
Turns Open

SERVICE INSTRUCTIONS

TO DISASSEMBLE

Remove carbureter from motor. Use Carter Tool Kit.

1. Remove choke link pin spring, choke connector link and spring.
2. Remove air horn assembly, with all parts attached.
3. Remove idle well plug assembly.
4. Remove idle well jet.
5. Remove throttle shaft arm and screw assembly and throttle connector rod.
6. Remove bowl cover with all parts attached.
7. Remove pump spring from pump cylinder in body.
8. Remove low speed jet plug assembly.
9. Remove low speed jet.
10. Remove idle adjusting screw and spring.
11. Remove metering rod jet assembly.
12. Remove nozzle passage plug assembly.

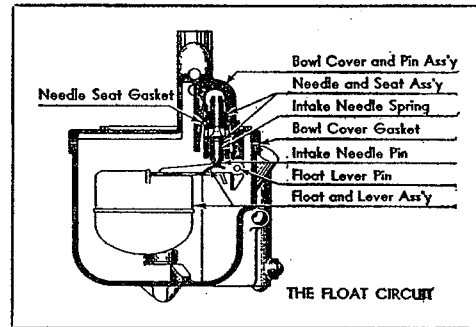


Fig. 2

D. Group all pump circuit parts. (Fig. 4.)

E. Group all choke system parts.

Examine each part in each group and replace those parts that shows signs of wear or damage. Clean all parts in gasoline and blow off with compressed air. If any carbon is in the bore of the flange, remove it by scraping or with sandpaper (do not use emery cloth). Install all parts tight.

TO REASSEMBLE

Assemble parts in group "A"

26. Install needle seat in bowl cover. Install bowl cover gasket. Then put pin and spring into needle and install in seat; then install float and lever assembly.
27. Set float level. Turn gasket around so gauge can be placed on machined surface of casting. Correct setting is $\frac{3}{8}$ ". (Use tool T109-80). Do not depress float lip against spring in needle, but let float rest of its own weight. Gauge should then be placed between free end of float and machined surface of bowl cover. Float should be set so it barely touches gauge. Adjustment is obtained by bending the lip on float which contacts pin in needle. Do not bend on front of float in adjusting, as damage will result.

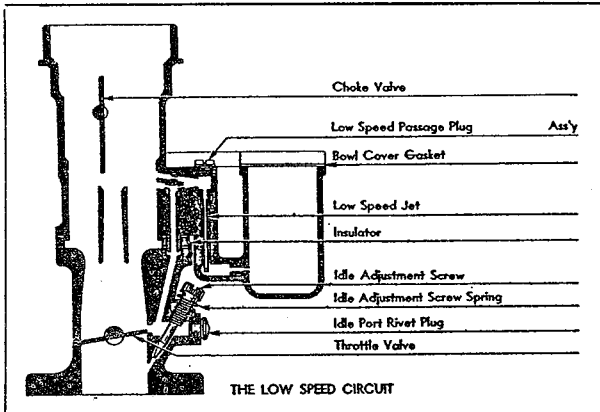


Fig. 1

13. Remove nozzle retainer plug.
14. Remove nozzle and nozzle gasket, using tool T109-178.
15. Remove body flange attaching screws and then remove flange from body.
16. Remove strainer passage plug assembly and strainer.
17. Remove intake ball check assembly.
18. Remove discharge disk check assembly.
19. Remove pump jet passage plug assembly.
20. Remove pump jet.
21. Remove throttle valve screws, throttle valve and throttle shaft and lever assembly.
22. Remove idle port rivet plug.
23. Remove choke tube bracket assembly.
24. Remove choke valve screws, choke valve and choke shaft and lever assembly.
25. Disassemble all parts from bowl cover.

Clean all castings thoroughly inside and out with a small brush and clean gasoline, or suitable solvent cleaner. Then blow all passages out with compressed air.

Group all parts as follows:

A. Group all parts controlling the gasoline level. (Fig. 2.)

B. Group all low speed circuit parts. (Fig. 1.)

C. Group all high speed circuit parts. (Fig. 3.)

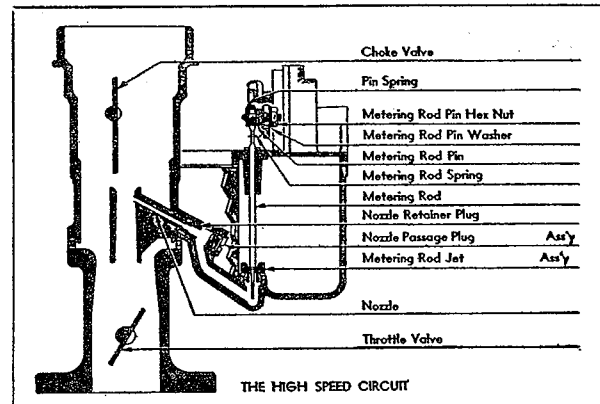
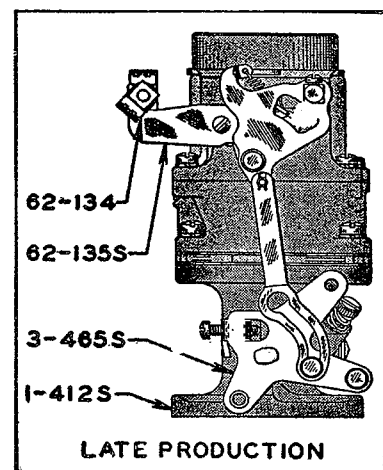
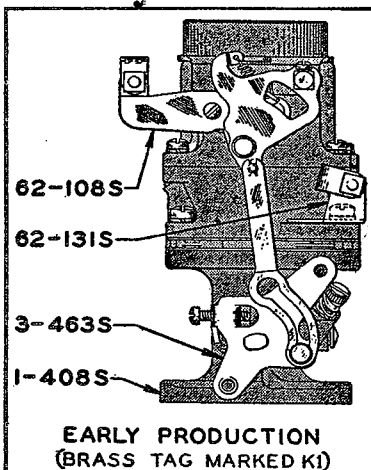


Fig. 3

The first 4,000 539S carbureters, identified by "K1" on brass inspection tag, used parts marked ①. After the first 4,000 carbureters, parts marked ② were used.

Parts marked ② are not interchangeable with parts marked ①. Early carbureters marked "K1" can be brought up to latest specifications by installing 3-466U for servicing only the throttle shaft and lever assembly, or 1-413U for servicing body flange assembly. Necessary parts and instructions are included in unit packages.

When servicing later carbureters, order only parts needed for job. (See Parts List on page 4.)



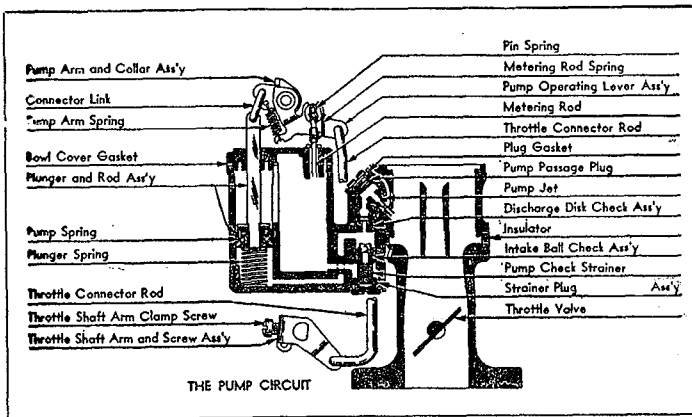


Fig. 4

Assemble parts in group "D"

28. Install pump jet and pump jet plug assembly.
29. Install discharge-disk check assembly.
30. Install intake ball check assembly.
31. Install pump check strainer and strainer plug assembly.
32. Install pump spring.
33. Install pump plunger and rod assembly.

Assemble parts in group "B"

34. Install throttle shaft and lever assembly, back out throttle lever adjusting screw, then install throttle valve and throttle valve screw (be sure trade-mark on valve is toward the idle port side of carburetor when viewed from manifold side). With valve screws loose, tap throttle valve lightly to centralize it in bore of carburetor. Hold valve in place with fingers and securely tighten screws. (New screws are recommended.)
35. Install idle adjustment screw and idle adjustment screw spring.
36. Install idle port rivet plug.
37. Install insulator and new gaskets, then install body on flange, tightening screws evenly and securely.
38. Install low speed jet. Work jet well into seat by moving back and forth, then install low speed jet plug assembly.
39. Install idle well jet and idle well jet plug assembly.

Assemble parts in group "C"

40. Install metering rod jet assembly.
41. Install bowl cover as assembled, tightening screws down evenly and securely.
42. Install pump arm and collar and pump-operating lever assembly and spring on pin in bowl cover.
43. Install pump connector link (ends away from bore and pin spring at top).
44. Install throttle shaft arm and screw assembly on throttle shaft.
45. Install throttle connector rod in throttle shaft arm, using spring and retainer at lower end and pin spring at top end.
46. **Pump Adjustment:** Back out throttle lever set screw. With throttle valve seated, pump should travel 17/64" from closed to wide open throttle. Adjustment can be made by bending throttle connector rod at lower angle with tool T109-41. Pump travel can be measured by using universal pump stroke gauge T109-1175 by placing base of gauge on raised portion of bowl cover so that projecting base of pump gauge rests on top of pump shaft (See Fig. 6). Hold gauge vertical. The difference between the number shown by index mark on gauge, at wide open and closed throttle positions, should be 17.
47. **Metering Rod Adjustment:** With shoulder on metering rod seated in metering rod jet, metering rod pin must be adjusted to lightly contact top of metering rod eyelet with .015" to .018" opening between edge of throttle valve and bore of carburetor (side opposite idle port). Use gauge T109-44.
- 47A. **Optional Adjustment:** (See Fig. 5.) Correct setting of metering rod is important and must be made after pump adjustment. Install metering pin and spring assembly, washer and nut loosely on pump operating lever. Insert gauge (tool T109-26) in

place of metering rod, seating tapered end in metering rod jet. Hold gauge vertical to insure seating. With throttle valve seated, push metering rod pin downward until pin rests on shoulder of notch in gauge and tighten nut (tool T109-76). Remove gauge, and install metering rod, disc and pin spring. Connect metering rod spring (end of spring through hole in metering rod).

48. After adjustment, metering rod seats in metering rod jet when throttle is adjusted for normal curb idle. Metering rod spring must exert slight downward pressure of metering rod on meter-

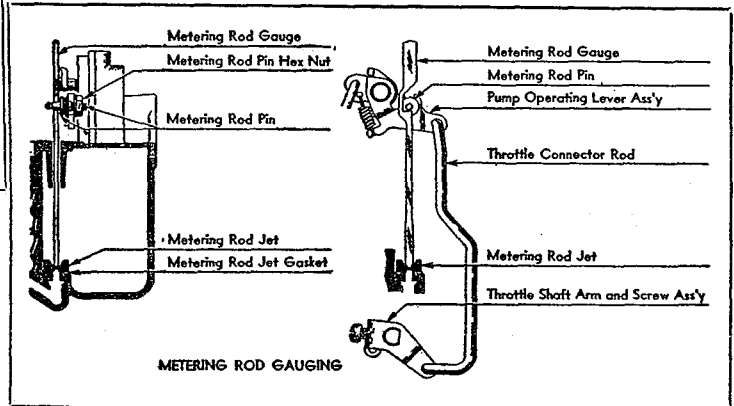


Fig. 5

ing rod pin when off jet. Bend lower end of spring downward where necessary.

49. Install nozzle and nozzle gasket, using tool No. T109-55. Be sure that flat side of nozzle faces up.
50. Install nozzle retainer plug and nozzle plug assembly.

Assemble parts in group "E"

51. Install air horn on body.
52. Install choke shaft and lever assembly and choke pull back spring.
53. Install choke valve, choke valve screw, centralizing the valve in air horn, then tighten valve screws.
54. Install choke operating lever assembly and hook pull back spring in place.
55. Install choke connector link, connector link spring and pin spring.

OTHER CARBURETER ADJUSTMENTS

If carbureter loads up after considerable service float level should be checked. Wear on lip of float lever will raise float level. Float level may be reset by bending lip of float lever down to raise float level or bending lever up to lower float level. Only a very slight bend is needed.

If motor stalls while idling, reset throttle adjusting screw and idle adjustment screw to specifications. If these adjustments do not correct the trouble (1) Remove idle well plug and gasket assembly, allowing gasoline from the bowl to flush out idle well jet. Remove idle well jet and blow out with compressed air. (2) Remove low speed jet and clean thoroughly with compressed air. Examine and see that jet seats gasoline tight at shoulder. If not, replace with a new jet of identical specifications. (3) Examine bore of carbureter around throttle valve for carbon accumulation.

A clogged pump jet should be removed and cleaned with compressed air, which, in many cases, will remove the dirt or lint. However, it is usually advisable to replace the pump jet, as its cost is nominal. All jets and checks must be seated gasoline tight.

Poor acceleration may be due to damaged or worn plunger leather in accelerating pump, loose plunger, corrosion or sediment in pump cylinder or bent pump arm (parts which may be replaced at small cost).

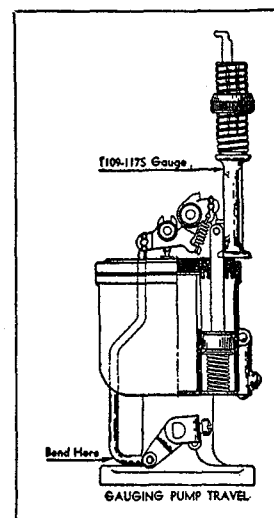
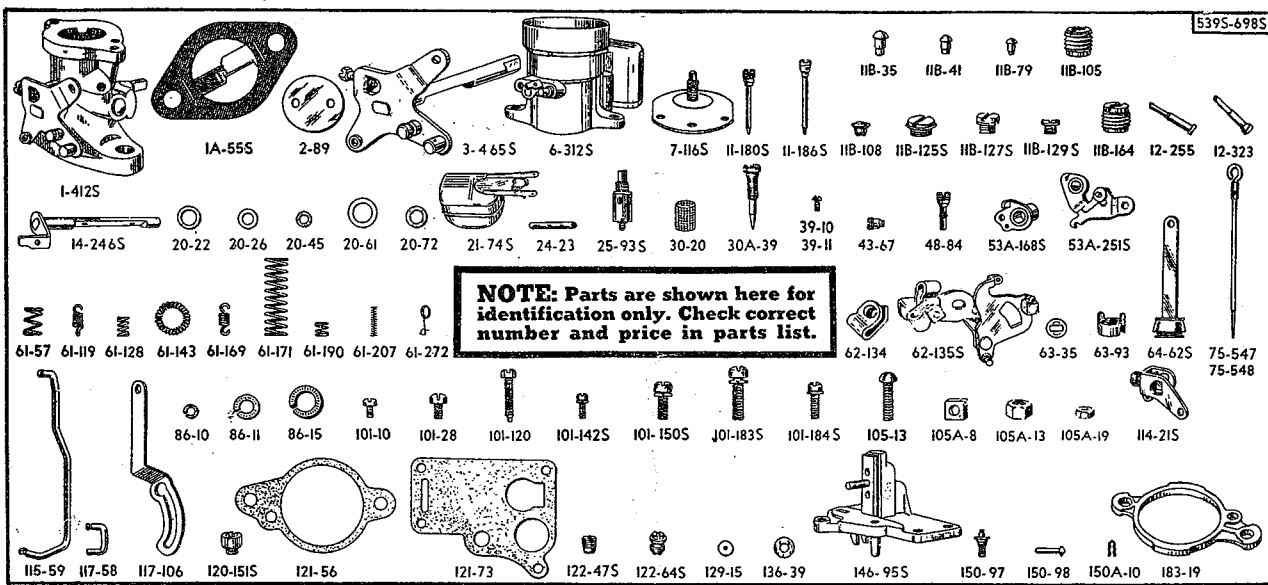


Fig. 6



U. S. Army Truck Carbureters 539S-698S

WHEN SERVICING, USE GASKET ASSORTMENT No. 175A; REPAIR PACKAGE No. 1319B

PART NAMES IN CAPITAL LETTERS, LISTED BELOW, INDICATE CONTENTS OF REPAIR PACKAGE

Part No.	PART NAME
1-408S	① Body flange assembly (early production) (539S) (Sup. by 1-413U).....
1-412S	② Body flange assembly.....
1-413U	Body flange assembly, metering rod and tube clamp unit (for servicing early production) (539S).....
1A-55S	FLANGE GASKET AND DIFFUSER ASSEMBLY.....
2-89	Throttle valve.....
3-463S	① Throttle shaft and lever assembly (early production) (539S).....
3-465S	② Throttle shaft and lever assembly.....
3-466U	Throttle shaft assembly, metering rod and tube clamp unit (for servicing early production), (539S).....
6-312S	Air horn assembly.....
7-116S	Choke valve assembly.....
11-180S	Low speed jet assembly (539S) (Sup. by 11-186S).....
11-186S	LOW SPEED JET ASSEMBLY.....
11B-35	RIVET PLUG.....
11B-41	Rivet plug.....
11B-79	RIVET PLUG..... (5)
11B-105	Nozzle retainer plug (539S).....
11B-108	IDLE PORT RIVET PLUG.....
11B-125S	STRAINER PLUG ASSEMBLY.....
11B-127S	NOZZLE AND PUMP PASSAGE PLUG ASSEMBLY..... (2)
11B-129S	LOW SPEED JET AND IDLE PASSAGE PLUG ASSEMBLY..... (2)
11B-164	NOZZLE RETAINER PLUG (698S).....
12-255	NOZZLE (539S).....
12-323	NOZZLE (698S).....
14-246S	Choke control lever and shaft assembly.....
20-22	Needle seat and plug gasket..... (3)
20-26	Metering rod jet and plug gasket..... (3)
20-45	NOZZLE GASKET (698S).....
20-61	Strainer plug gasket.....
20-72	NOZZLE GASKET (539S).....
21-74S	Float and lever assembly.....
24-23	Float lever pin.....
25-93S	NEEDLE, SPRING AND SEAT ASSEMBLY.....
30-20	PUMP CHECK STRAINER.....
30A-39	Idle adjustment screw.....
39-10	CHOKE VALVE ATTACHING SCREW..... (2)
39-11	THROTTLE VALVE ATTACHING SCREW..... (2)
43-67	IDLE WELL JET.....
48-84	PUMP JET.....
53A-168S	Pump arm and collar assembly.....
53A-251S	Pump operating lever assembly.....
61-57	Idle adjustment screw spring.....
61-119	CHOKE PULL BACK SPRING.....
61-128	Connector rod spring (Use with 115-59).....
61-143	Plunger spring.....
61-169	PUMP ARM SPRING.....
61-171	PUMP SPRING.....
61-190	CONNECTOR LINK SPRING.....
61-207	Intake needle spring.....
61-272	METERING ROD SPRING.....

Part No.	PART NAME
62-108S	① Choke tube bracket assembly (early production) (539S).....
62-131S	① Tube clamp assembly (early production) (539S).....
62-134	② Tube clamp.....
62-135S	② Choke tube bracket assembly.....
63-35	Spring retainer (Use with 115-59) (539S).....
63-93	Spring retainer (Use with 115-59) (698S).....
64-62S	PLUNGER AND ROD ASSEMBLY (Identify by shaft No. 49-121).....
75-547	METERING ROD—STANDARD—.060" to .048"—.047".....
75-548	Metering rod—1 size lean—.06075"—.0485".....
86-10	Bowl cover lock washer (Use with 101-82)..... (4)
86-11	Body flange lock washer (Use with 101-122)..... (2)
86-15	Flange stud lock washer..... (2)
101-10	Wire clamp screw.....
101-28	Throttle shaft arm clamp screw.....
101-82	Bowl cover attaching screw (Sup. by 101-184S).....
101-120	Throttle lever adjustment screw.....
101-121	Throttle lever adjustment screw (Sup. by 101-120).....
101-122	Body flange attaching screw (Sup. by 101-183S).....
101-142S	Choke tube bracket screw and washer assembly.....
101-150S	AIR HORN SCREW AND WASHER ASSEMBLY..... (2)
101-183S	BODY FLANGE ATTACHING SCREW AND WASHER ASSEMBLY..... (2)
101-184S	BOWL COVER ATTACHING SCREW AND WASHER ASSEMBLY..... (4)
105-11	① Tube clamp screw (early production) (539S)..... (2)
105-13	Tube clamp screw.....
105A-8	Tube clamp nut (late production 1; early 2).....
105A-13	Flange nut..... (2)
105A-19	METERING ROD PIN HEX NUT.....
114-21S	THROTTLE SHAFT ARM AND SCREW ASSEMBLY.....
115-59	Throttle connector rod (Sup. by 115-142).....
115-142	THROTTLE CONNECTOR ROD.....
117-58	CONNECTOR LINK.....
117-106	Choke link.....
120-151S	METERING ROD JET ASSEMBLY.....
121-56	BODY FLANGE GASKET..... (2)
121-73	BOWL COVER GASKET.....
122-47S	DISCHARGE DISK CHECK PLUG ASSEMBLY.....
122-64S	INTAKE BALL CHECK PLUG ASSEMBLY.....
129-15	METERING ROD DISK.....
136-39	METERING ROD PIN WASHER.....
146-95S	Bowl cover and pin assembly.....
150-97	METERING ROD PIN.....
150-98	Intake needle pin.....
150A-10	PIN SPRING..... (4)
172-21	THROTTLE CONNECTOR ROD RETAINER (Use with 115-142).....
183-19	Insulator.....

① and ② See instructions and illustrations at bottom of page 2.

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