

Instruction Sheet 51-1006

Revised 5-10-02

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Because every industry has a leader

Installation and Jetting Instructions for S&S Super B Series Carburetor

SAFE INSTALLATION AND OPERATION RULES:

Before installing your new S&S Super carburetor it is your responsibility to read and follow the installation and maintenance procedures in these instructions and follow the basic rules below for your personal safety.

- Gasoline is extremely flammable and explosive under certain conditions and toxic when breathed. Do not smoke. Perform installation in a well ventilated area away from open flames or sparks.
- If motorcycle has been running, wait until engine and exhaust pipes have cooled down to avoid getting burned before performing any installation steps.
- Before performing any installation steps disconnect battery to eliminate potential sparks and inadvertent engagement of starter while working on electrical components.
- Read instructions thoroughly and carefully so all procedures are completely understood before performing any installation steps. Contact S&S with any questions you may have if any steps are unclear or any abnormalities occur during installation or operation of motorcycle with S&S carb on it.
- Consult an appropriate authorized H-D service manual for correct disassembly and reassembly procedures for any parts that need to be removed to facilitate installation.
- Use good judgement when performing installation and operating motorcycle. Good judgement begins with a clear head. Don't let alcohol, drugs or fatigue impair your judgement. Start installation when you are fresh.
- Be sure all federal, state and local laws are obeyed with the installation.
- For optimum performance and safety and to minimize potential damage to carb or other components, use all mounting hardware that is provided and follow all installation instructions.
- To prevent possible engine flooding and overspill of gasoline on surrounding area which is a fire hazard, make sure float settings are correct and carburetor needle and seat assembly works freely and shuts off supply of gasoline after installation is completed. Always shut off fuel petcock when engine is not running.
- Be sure all fuel lines, supply and overflow, are routed correctly and fuel line clamps are in place and tightened. Lines must not contact exhaust pipes or other extremely hot surfaces where they could melt or leak and catch fire.
- Before starting engine and riding motorcycle, be sure throttle opens and closes smoothly. Turn handlebars to left and test throttle. Then, turn bars to right and test throttle. To avoid possible loss of control of motorcycle and potential personal injury to yourself or others due to throttle sticking in open position, throttle must work smoothly and return to a fully closed position when hand is removed from throttle grip.
- Motorcycle exhaust fumes are toxic and poisonous and must not be breathed. Run motorcycle in a well ventilated area where fumes can dissipate.

IMPORTANT NOTICE:

Statements in this instruction sheet preceded by the following words are of special significance:

WARNING

Means there is the possibility of injury to yourself or others.

CAUTION

Means there is the possibility of damage to the carburetor or motorcycle.

NOTE

Other information of particular importance has been placed in italic type.

S&S recommends you take special notice of these items.

WARRANTY:

All S&S parts are guaranteed to the original purchaser to be free of manufacturing defects in materials and workmanship for a period of twelve (12) months from the date of purchase. Merchandise that fails to conform to these conditions will be repaired or replaced at S&S's option if the parts are returned to us by the purchaser within the 12 month warranty period or within 10 days thereafter.

In the event warranty service is required, the original purchaser must call or write S&S immediately with the problem. Some problems can be rectified by a telephone call and need no further course of action.

A part that is suspect of being defective must not be replaced by a Dealer without prior authorization from S&S. If it is deemed necessary for S&S to make an evaluation to determine whether the part was defective, a return authorization number must be obtained from S&S. The parts must be packaged properly so as to not cause further damage and be returned prepaid to S&S with a copy of the original invoice of purchase and a detailed letter outlining the nature of the problem, how the part was used and the circumstances at the time of failure. If after an evaluation has been made by S&S and the part was found to be defective, repair, replacement or refund will be granted.

ADDITIONAL WARRANTY PROVISIONS:

- (1) S&S shall have no obligation in the event an S&S part is modified by any other person or organization.
- (2) S&S shall have no obligation if an S&S part becomes defective in whole or in part as a result of improper installation, improper maintenance, improper use, abnormal operation, or any other misuse or mistreatment of the S&S part.
- (3) S&S shall not be liable for any consequential or incidental damages resulting from the failure of an S&S part, the breach of any warranties, the failure to deliver, delay in delivery, delivery in non-conforming condition, or for any other breach of contract or duty between S&S and a customer.
- (4) S&S parts are designed exclusively for use in Harley-Davidson motorcycles. S&S shall have no warranty or liability obligation if an S&S part is used in any other application.

IMPORTANT NOTE:

Please read these instructions carefully before attempting to install or tune your carburetor. Answers to nearly all your questions and problems can be found in this way. If you still have a problem, you may call for technical help at (608) 627-TECH (8324).

Introduction

S&S Super B carburetor is designed exclusively for Harley-Davidson Big Twin and Sportster engines. It is a butterfly type carb with a fully adjustable idle mixture screw and changeable mid range and high speed jets. This carburetor does not have an accelerator pump nor a conventional choke, but utilizes a mixture enrichment device for starting. The Super B has a 1 $\frac{1}{8}$ " (47.6mm) throat at the butterfly and a 1 $\frac{1}{16}$ " (39.6mm) venturi and is identified by an "B" cast into the throttle return spring side of the carb body below the cast in wording "S&S SUPER". The Super B is recommended for use on any displacement Big Twin or Sportster.

DISCLAIMER:

S&S parts are designed for high performance, off road, racing applications and are intended for the very experienced rider only. The installation of S&S parts may void or adversely effect your factory warranty. In addition such installation and use may violate certain federal, state, and local laws rules and ordinances as well as other laws when used on motor vehicles used on public highways, especially in states where pollution laws may apply. Always check federal, state, and local laws before modifying your motorcycle. It is the sole and exclusive responsibility of the user to determine the suitability of the product for his or her use, and the user shall assume all legal, personal injury risk and liability and all other obligations, duties, and risks associated therewith.

Chrome Plating the Carburetor

NOTE - S&S does not recommend chrome plating the Super B carburetor. Proper preparation to achieve a good chrome finish requires polishing using buffing compounds. These materials invariably plug air and/or fuel passageways and feed holes regardless of the precautions taken.

CAUTION - Plugged passageways and feed holes and the polishing and chrome plating processes can alter operating tolerances machined into the parts in critical areas. Additionally, pieces of chrome may break off and plug a passageway which could potentially affect the fuel mixture resulting in damage to the engine. S&S voids any warranty if the carb body and/ or bowl is polished, chrome plated or altered in any way.

Kit Contents

Each complete carb kit includes:

- One S&S Super B gas carburetor
- One S&S teardrop air cleaner assembly
- One manifold
- Mounting hardware
- Fuel line and clamps
- Two extra main jets
- One extra intermediate jet
- Voes tubing (when applicable)
- Installation and jetting instructions

Throttle Requirements

NOTE - S&S Super B carburetor requires the use of a two cable, pull open - pull closed throttle assembly. Any chassis including 1980 and earlier stock H-D models equipped with a single cable throttle mechanism requires conversion to a two cable, pull open - pull closed type.

WARNING - Single, braided wire cable throttle mechanism can not mechanically close throttle. If throttle inadvertently sticks in open position, loss of control of motorcycle and personal injury to you or others may result.

S&S offers an optional two cable throttle assembly designed to convert most any chassis not equipped with a two cable system. This kit is available with 48" long cables and can be ordered separately. See the description below.

Stock models from 1981 to present have a two cable throttle and should not require conversion. The stock cables on these chassis can be used but must be modified.

Optional S&S Two Cable Throttle Conversion Kit - for chassis not equipped with two cable throttle - Part #19-0229 - Includes complete throttle assembly with grips for both bars and two 48" (cable housing length) cable assemblies. Fits 1" O.D. handlebars and can be used on most chassis requiring up to 48" long cables. Special bushings are available for use with older $\frac{7}{8}$ " O.D. handle bars, Part #19-0235.

Carb Installation

Read instructions thoroughly before starting work to familiarize yourself with installation procedure.

NOTE - Installation of S&S Super B carb kits on some models is easier with gas tanks removed. Some owners may elect to perform installation without removing gas tanks. This option has been left to discretion of individual. If one elects to remove tanks or must disassemble any other stock parts, S&S recommends owners consult appropriate H-D service manual for their model motorcycle for reference.

1. Remove Old Carburetor**WARNINGS**

● **Gasoline is extremely flammable and explosive under certain conditions and toxic when breathed. Do not smoke. Perform installation in a well ventilated area away from open flames or sparks.**

● **If motorcycle has been running, wait until engine and exhaust pipes have cooled down to avoid getting burned before performing any installation steps.**

- A. Disconnect battery and shut off fuel petcock.

WARNING - Unwarranted sparks and inadvertent engagement of starter from working on electrical components can cause personal injury.

- B. Remove existing air cleaner assembly, carburetor, manifold, choke cable and any carburetor mounting hardware.

2. Check Idle Speed and Mixture Settings

- A. Check idle mixture screw setting.
Turn screw (**See Picture 1**) clockwise closing it counting number of turns to fully closed position setting should be 1 ½ turns. Closing adjusting screw with excessive force may cause irreversible damage to screw threads in carburetor body.

CAUTION - Closing idle mixture screw too tightly may cause irreversible damage to needle and seating area in carburetor body.

- B. Check engine idle speed adjusting screw setting. Turn screw (**See Picture 1**) counterclockwise until it no longer contacts carb body. Next, turn it clockwise until it just recontacts body. Then, continue turning additional ½ turn clockwise, slightly opening throttle plate, part #11-2055.

3. Prepare Air Cleaner Backplate

- A. Knuckles/Pans 1955 to 1965 - Thread plugs, part #50-8331, into holes "A" and "B" in air cleaner backplate. **See Figure A.**
- B. Shovels 1966 to 1979 and Iron Head (IH) XLs 1957 to 1979 - Press plugs, part #50-8313, into holes "D" in air cleaner backplate. **See Figure A.**
- C. Shovels 1980 to 1984 and IH XLs 1980 to 1985 - Screw crankcase breather vent elbow fitting, part #50-8110, into hole "A" in air cleaner backplate in Figure A. On 1983 and 1984 Shovels thread plug, part #50-8331, into hole "B".

- D. FL V²s 1984 to 1992 - Thread plug, part #50-8331, into hole "B" in air cleaner backplate. Screw crankcase breather vent elbow fitting, part #50-8110, into hole "A". **See Figure A.**
- E. XL V²s 1986 to 1990 - Thread plug, part #50-8331, into hole "A" in air cleaner backplate. Screw crankcase breather vent elbow fitting, part #50-8110, into hole "B". **See Picture 1**

4. Install New Manifold

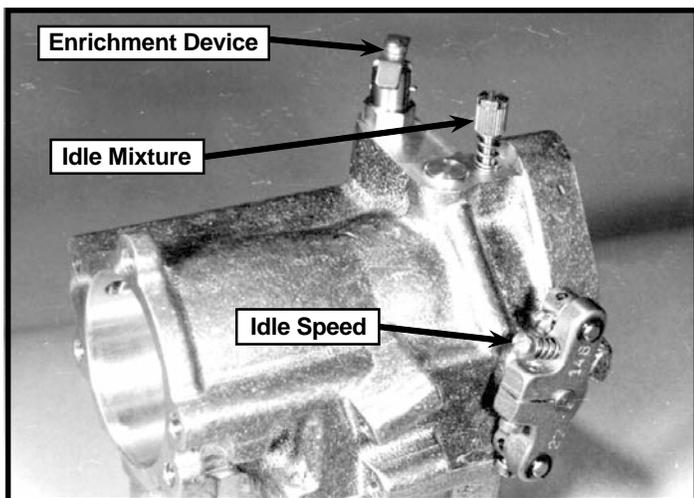
NOTE - Whenever applicable, all carburetor mounting brackets and hardware supplied in kit must be installed and used to secure carburetor and air cleaner assembly or air horn (if used) rigidly to engine.

CAUTIONS

- An improperly mounted carburetor could come loose from engine resulting in air leaks, poor performance, and damage to carburetor or other components.
- Incorrect combinations of mounting hardware may cause some mounting bolts to bottom out in holes or inadvertently contact other parts possibly causing damage to one or more engine and/or carburetor components.

WARNING - If motorcycle were to fall over or sustain damage in a collision or rider fall down, an improperly mounted carburetor could break free causing an unwarranted release of gasoline to flood surrounding area creating a fire hazard and potential personal injury to you or others.

- A. Clean intake ports on cylinder heads to insure proper manifold to head seal.
- B. Install intake manifold provided. Point vacuum advance fitting upward if it is equipped with one. Do not tighten manifold clamps or flange bolts.
- C. **Pans** - Loosen center crankcase stud nut between tappet blocks and bolt bracket, part #16-0096, in place to connect bottom carb manifold mounting hole to crankcases.



Picture 1

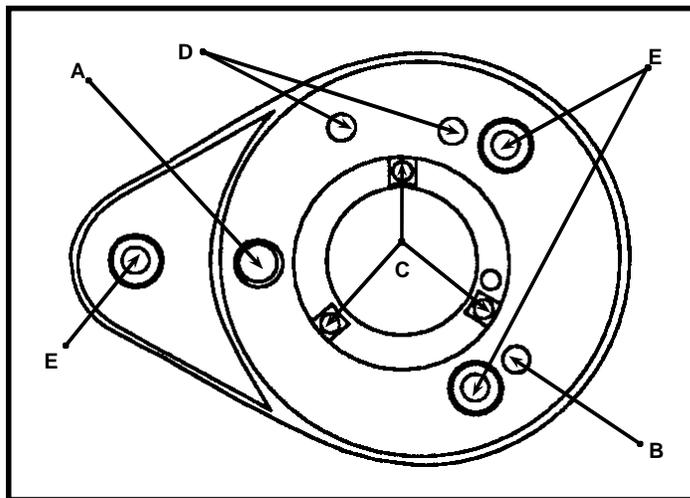


Figure A

- D. **Shovels 1966 to 1982** - Bolt bracket, part #17-0092, to rear of front rocker cover using $\frac{3}{16}$ -18 x $\frac{3}{8}$ " bolt, $\frac{3}{16}$ " flatwasher and $\frac{3}{16}$ " lockwasher provided in kit. Do not tighten. End of bracket with sharp bend goes toward rocker cover.
- E. **Shovels 1983 to 1984** - Loosen center crankcase stud nut between tappet blocks and bolt bracket, part #16-0471, in place to connect bottom carb manifold mounting hole to crankcases.
- F. **IH XLs** - Bolt bracket, part #17-0093, to front tappet block using $\frac{3}{16}$ -18 x $1\frac{1}{4}$ " bolt, $\frac{3}{16}$ " flatwasher and $\frac{3}{16}$ " lockwasher provided in kit. Do not tighten. End of bracket with sharp bend goes toward tappet block.
- G. Bolt carb to intake manifold. Pan and 1983-'84 Shovel mounting bolts measure 1" and $1\frac{1}{4}$ " long - $1\frac{1}{4}$ " bolt goes in bottom hole. Snug mounting bolts. Do not final tighten.

CAUTION - If incorrect length mounting screws are used in carburetor mounting holes, screws may bottom in mounting hole or contact carb bowl causing damage to carb body and/or carb bowl.

- H. **All engines except Pans and Shovels 1983 to 1984** - Install air cleaner backplate using three $\frac{1}{4}$ -20 x $\frac{3}{4}$ " screw/washer assemblies.
- I. **1966 to 1982 Shovels and all IH Sportsters** - Bolt bracket to air cleaner backplate through hole "B". See Figure A. Use $\frac{1}{4}$ " flatwasher and locknut provided and snug all mounting bracket bolts.
- J. **FL V²s 1984 to 1992 and XL V²s 1986 to 1990** - Bolt bracket, part #17-0312, to air cleaner backplate through holes "D" using two $\frac{1}{4}$ -28 x $\frac{7}{8}$ " bolts, two $\frac{1}{4}$ -28 nuts and $\frac{1}{4}$ " flatwashers provided. Fill gap between bracket and cylinder heads using shims provided in S&S shim kit, part #17-0314. Hold backplate, bracket and shims in place with $\frac{3}{16}$ -18 x 1" mounting bolts and $\frac{3}{16}$ " flat and lock washers. Snug all nuts and bolts. Do not final tighten.
- K. Final tighten manifold mounting clamps and/or mounting flange bolts.
- L. Remove air cleaner backplate from carburetor.

5. Install Carb

- A. Determine length of throttle cables required and shorten if necessary. If outer cables are shortened, inner cables must be shortened also. Be sure to determine proper length and resolder last $1\frac{1}{2}$ " of inner cable before cutting. This will insure cable strands do not separate. If cable lengths are correct and are equipped with ball or barrel fittings, last $1\frac{1}{2}$ " of inner cables must be soldered before ends are cut off. Apply light coat of lubrication to inner cables before reassembling.

NOTE - Consult H-D service manual for proper throttle disassembly and reassembly procedures.

- B. Thread opening side throttle cable through upper throttle cable housing boss and throttle cable clamp on throttle arm.

- C. Repeat step B for closing side throttle cable. Cable with larger diameter outer housing is used to close throttle and should be positioned in lower boss on carburetor body.
- D. Adjust throttle cable adjusters to remove excessive freeplay and test throttle to be sure it opens and closes freely. Turn handlebars to extreme left and open and close throttle, then turn bars to extreme right and check throttle. If throttle binds, loosen cable freeplay adjusters to put more freeplay in cables.

NOTE - Throttle must not bind and must snap shut to fully closed position when released.

WARNING - If throttle does not return to fully closed position when released, it may inadvertently stick open possibly causing loss of control of motorcycle and personal injury to you or others.

- E. Bolt carb to intake manifold using two $\frac{3}{8}$ -16 x 1" socket cap screws provided in kit. Knuckle/Pan and 1983-'84 Shovel kits come with one 1" screw and one $1\frac{1}{4}$ " screw. The $1\frac{1}{4}$ " screw must go in bottom hole and is longer to compensate for thickness of mounting bracket, part #16-0096 or #16-0471.

CAUTION - If incorrect length mounting screws are used in carburetor mounting holes, screws may bottom in mounting hole or contact carb bowl causing damage to carb body and/or carb bowl.

- F. Recheck throttle to be sure it opens and closes freely. See step D.

NOTE - Throttle must not bind and must snap shut to fully closed position when released.

WARNING - If throttle does not return to fully closed position when released, it may inadvertently stick open possibly causing loss of control of motorcycle and personal injury to you or others.

- G. Apply thin coating of oil to fuel inlet fitting and slip end of fuel line with 90° bend on fitting. Clamp in place. Slip stock H-D protective fuel line covering over fuel line if equipped and position where contact with other engine parts might take place. On early models equipped with bottom manifold screw wire fuel line support guide, use guide whenever possible. Connect fuel line to gas tank petcock using clamp provided.

WARNING - Fuel line must be clamped securely and not contact any hot surfaces such as exhaust pipes where it could melt and catch fire.

6. Install Air Cleaner Backplate

- A. Mount air cleaner backplate on carb using three $\frac{1}{4}$ -20 x $\frac{3}{4}$ " screw/washer assemblies through holes "C". See Figure A.
- B. **1966 to 1982 Shovels and IH Sportsters** - Bolt bracket

to air cleaner backplate through hole "B". See Figure A. Use ¼" bolt, flatwasher and locknut provided and snug all mounting bracket bolts. Final tighten all mounting bracket bolts.

- C. **FL V²s 1984 to 1992 and XL V²s 1986 to 1990** - Bolt air cleaner backplate bracket to cylinder heads with ⅝"-18" bolts, flatwashers and lock washers. Fill gap between cylinder heads and mounting bracket with shims as previously determined in manifold installation step.
- D. **Shovels and Sportsters 1980 to 1985 and all V²s** - Connect crankcase breather hose to air cleaner backplate hose fitting.

7. Reassemble Anything That Was Disassembled for Installation and Final Check Installation

- A. Check carb to manifold mounting bolts.
- B. Check carb to air cleaner backplate mounting screws.
- C. Check carb mounting bracket to head or to tappet block mounting bolts and air cleaner backplate to heads mounting bolts.
- D. Check fuel line connections and routing.
- E. Check vacuum operated advance ignition connections if applicable.
- F. Check crankcase to air cleaner backplate vent hose connections if applicable.
- G. Test throttle to be sure it opens and closes freely. Turn handlebars to extreme left and open and close throttle, then turn bars to extreme right and check throttle.

NOTE - Throttle must not bind and must snap shut to fully closed position when released.

WARNING - If throttle does not return to fully closed position when released, it may inadvertently stick open possibly causing loss of control of motorcycle and personal injury to you or others.

- H. Reassemble anything that was disassembled for installation. Consult your H-D service manual for installation of parts not covered in these instructions.

8. Bolt on Air Cleaner Cover

- A. Check fuel needle and seat assembly to be sure it works properly. Fill gas tank with just enough fuel to test system. Lean motorcycle over towards carburetor side, turn on fuel petcock and wait 20 seconds. If gas runs out end of carb, turn off petcock and check needle and seat.

NOTE - Fuel needle and seat assembly must completely shut off fuel supply entering bowl. Fuel inlet fitting to bowl sealing area and/or fuel line connections must not leak.

CAUTION - Unwarranted gasoline leaking by inlet needle may flood engine causing damage to components.

WARNING - Unwarranted gasoline leaks , at fuel line connections and/or past inlet needle may flood engine and overflow on surrounding area creating fire hazard.

- B. If needle and seat assembly works properly, install element and air cleaner cover using three ¼-20 x 1" mounting screws.
- C. Fill gas tank.

Carb Operation

This carburetor does not have conventional choke. Instead, a mixture enrichment device, part #11-2084, is used for starting. This device utilizes separate air and fuel pickup passageways. This device is engaged by raising the lever on top left side of carburetor and turning it slightly (**See Picture 1**).

Enrichment Device NOTES:

- *Enrichment pickup tube located directly below fast idle plunger is pressed into carburetor body and must not be removed.*

CAUTION - Removal of enrichment/fast idle pickup tube from carburetor body may alter hole size in carb body and cause irreversible damage to carburetor.

- *Enrichment device may be removed for cleaning purposes, but must not be disassembled any further.*

Cold Starts

1. Open fuel petcock.

NOTE - When motorcycle is not running, fuel shutoff valve should always be turned off to prevent possible leakage should needle and seat not work properly.

CAUTION - Unwarranted gasoline leaking by inlet needle may flood engine causing damage to components.

WARNING - Unwarranted gasoline leaking past inlet needle may flood engine and overflow on surrounding area creating fire hazard.

2. Pull enrichment device handle part #11-0084, to raised position (**See Picture 1**).
3. With throttle closed, kick engine through three times. Electric start models go to step #4 and engage electric starter. For colder weather, 50° and below, or for engines with long duration cams, it may be necessary to prime engine several additional kicks. Low compression and/or cams with long duration and extreme overlap may reduce cranking compression to where intake vacuum is low. Low vacuum reduces draw through enrichment device making it difficult to get a sufficient prime. If this appears to be the case, close butterfly completely by turning engine rpm adjustment screw on throttle arm, part #11-2148, one turn. This will force all intake vacuum to draw through enrichment device during priming. After initial startup, turn rpm screw to original idle position.

NOTE - If throttle is opened during priming, enrichment device will not provide a rich enough starting mixture.

4. Turn on ignition.
5. With throttle closed or slightly cracked, kick engine through. If engine fails to start immediately, slowly crack throttle (just enough to barely open butterfly) and continue to kick or engage starter until engine fires.
6. After engine starts, leave enrichment device on until engine has warmed sufficiently. If necessary, jockey throttle slightly to keep engine running. Motorcycle may now be ridden.

Hot Starts

1. Open fuel petcock.

NOTE - When motorcycle is not running, fuel shutoff valve should always be turned off to prevent possible leakage should needle and seat not work properly.

CAUTION - Unwarranted gasoline leaking by inlet needle may flood engine causing damage to components.

WARNING - Unwarranted gasoline leaking past inlet needle may flood engine and overflow on surrounding area creating fire hazard.

2. Turn on ignition.
3. With throttle closed, kick engine through or engage electric starter.
4. If engine fails to start immediately, open throttle slightly and continue to kick or engage starter until engine fires.

Troubleshooting Tips - engine will not start:

1. Fuel supply empty.
2. Weak or no spark - discharged battery or faulty magneto.

NOTE - We do not recommend use of magnetos as magneto in poor condition and/or improperly serviced can adversely affect starting conditions.

3. Plug gap too wide - we use .022 to .025 plug gap on point type ignition engines.
4. Improper ignition timing.
5. Tight tappet adjustment.
6. Improper idle mixture and/or engine rpm setting. See "Adjusting Carburetor - Idle Circuit".
7. Enrichment device well feed hole in bowl plugged. Clear hole with forced air.

CAUTION - Do not use wire or drill to clear hole. If size is altered, starting system will be changed resulting in irreversible damage to carburetor bowl.

WARNING - Compressed air and particles dislodged using compressed air are harmful to eyes and body. Wear protective goggles when using compressed air and always direct air stream away from body parts such as hands and eyes and other people near you.

backfires in carb, this usually indicates lean condition, and engine must be reprimed. If there is no response after three kicks or if engine pops in exhaust pipes, it usually means mixture is too rich. Leave switch on and slowly open throttle ¼ turn with each successive kick until engine fires.

Adjusting Carburetor Idle Circuit

Idle mixture screw, part #11-2354, regulates air/fuel mixture at idle speeds. Throttle stop/engine rpm adjustment screw is located on throttle arm, part #11-2148 (**See Picture 1**). S&S adjusts both screws during assembly to settings that should work for initial start-up after installation.

1. Start engine and run until slightly warm (approximately 1 to 2 minutes).
2. Initially adjust engine rpm to idle at approximately 950-1000 rpm.
3. Turn idle mixture screw, part #11-2354, clockwise, leaning mixture, until engine starts to die. Next, turn screw counterclockwise, richening mixture, until engine starts to die. When screw is positioned about halfway between these points, or about ¼ to ½ turn out from lean side of adjustment range, it is set correctly.

CAUTION - Closing idle mixture screw too tightly may cause irreversible damage to needle and seating area in carburetor body.

4. Readjust engine rpm to idle at approximately 950-1000 rpm.
5. After engine and oil have reached normal operating temperature, repeat steps 3 and 4.

NOTE - Whenever intermediate jet change is made, idle mixture screw must be readjusted.

Troubleshooting Tips - engine will not idle:

1. Improper idle mixture and/or engine rpm setting.
2. Intake manifold air leak.
3. Sticky timing automatic advance mechanism or other ignition problem.
4. Foreign material in air and/or gas passageway in carb causing flow restriction to idle/intermediate circuit. Clear holes with forced air.

CAUTION - Do not use wires or drills to clear holes. If sizes are altered, air/fuel ratios of idle and intermediate systems will be changed resulting in poor performance and irreversible damage to carburetor body and intermediate jet.

WARNING - Compressed air and particles dislodged using compressed air are harmful to eyes and body. Wear protective goggles when using compressed air and always direct air stream away from body parts such as hands and eyes and other people near you.

8. Improper diagnosis of rich or lean mixture condition. If engine

- Enrichment device plunger not sealed causing excessively rich mixture. Be sure device is fully disengaged (in down position) allowing plunger to bottom out and seal passageway. CURE: Lift and release plunger several times, letting it "snap" to closed position to fully seat and seal against carb body.

Intermediate System

Intermediate range is used most often under normal riding conditions and begins right off idle and operates up to approximately 3000-3500 rpm or 50 to 60 mph depending on gearing. Therefore, close attention must be paid to jetting intermediate range to achieve optimum performance and best gas mileage. Intermediate jet, part #11-7100, is reached by removing float bowl assembly (See Picture 2). Actual size of intermediate jet installed in carburetor is indicated on tag attached to carb and/or on printed label on carburetor packing box. Keep this information handy for future reference.

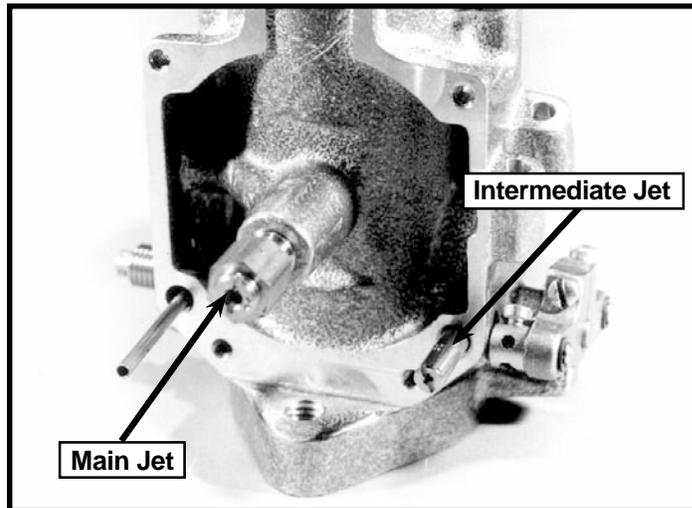
- Road test bike, being sure to ride it far enough to bring engine and oil to normal operating temperature.
- Re-check idle mixture adjustments to be sure settings are correct with fully hot engine.
- Check throttling characteristics by slowly rolling throttle on after maintaining steady speed. This should be done at several rpm levels or speeds of 30,40, and 50 mph. If "popping" or "spitting" (backfiring) occurs in air cleaner, this indicates lean condition and intermediate jet must be changed to next larger size (size is stamped on end or side of jet).
- Change jet accordingly and repeat road test. Smallest intermediate jet that eliminates this condition should provide best gas mileage.

NOTES on Intermediate Jetting:

- See "Notes on Intermediate and High Speed Jetting" at end of "High Speed Circuit or Main Jet" section of these instructions.
- Whenever intermediate jet change is made, idle mixture screw must be readjusted.
- Gas mileage and throttling characteristics may also be determined by personal riding habits. Snapping throttle open in lower rpm ranges is inefficient and uneconomical because intermediate system is bypassed. When intermediate system is bypassed engine momentarily goes lean (from lack of fuel from intermediate) then rich (from excessive fuel from main). In effect, engine uses more fuel than it should. Engine will respond better and be more efficient if throttle is rolled on and intermediate has time to properly engage.

High Speed Circuit or Main Jet

S&S SUPER B JETTING CHART			
Engine Displacement	Stock CH Strokers	Stock Big Twin Mild Strokers	Strokers 84" or Larger
Idle Mixture Screw Setting	1¼ to 1¼ turns	1¼ to 1¼ turns	1¼ to 1¼ turns
Intermediate Jet	.265 to .032	.0295 to .033	.031 to .036
Main Jet	.062 to .070	.068 to .076	.072 or Larger



Picture 2

High speed circuit begins around 3000-3500 rpm or 55-60 mph and operates to maximum attainable speed. Main jet, part #11-7200, is reached by removing bowl plug, part #11-2090.

NOTE - S&S has special main jet tool, part #53-0452, which is handy for changing main jets.

Size of metering hole in main jet in thousandths of an inch is stamped on end of jet. Size of main jet installed in new carburetor from S&S is indicated on tag attached to carb and/or on printed label on carburetor packing box. Keep this information handy for future reference.

Main jet size is best determined by testing at drag strip, because maximum miles per hour and rpm are best indicators of actual horsepower engine is developing. S&S recommends that high speed jetting be done at drag strip.

Dragstrip Procedure

- Warm up engine enough to begin testing.
- Make run noting engine rpm and final speed.
- Increase or richen main jet size .004 larger and make second run. Again, note rpm and final speed.
- Continue procedure until mph falls off.
- Decrease or lean main jet size by .002 to gain best (maximum) rpm and mph. When making runs, do not strive for ET's but for consistent miles per hour.

Street Procedure

S&S uses what we call "RPMing" method to determine correct main jet size. Hard acceleration is evaluated up to the rpm where horsepower peaks and begins to taper off and gear shift occurs. Main jet that makes engine accelerate strongest or rpm through gears quickest is correct.

- Warm engine to operating temperature.
- Accelerate rapidly through gears noting how quickly and smoothly engine reaches rpm level where pull of engine begins to fade and gear shift occurs.
- If engine backfires in carburetor and sputters or "breaks up" and/or dies during acceleration, increase or richen main jet

size .004 larger and road test again. Note engine smoothness and how easily engine reaches rpm level where gear shift occurs.

4. If engine runs flat and sluggish or "blubbers" or will not take throttle, decrease or lean main jet size .004 smaller and road test again. Note engine smoothness and how easily engine reaches rpm level where gear shift occurs.
5. Continue changing main jets until one is selected that makes engine accelerate or rpm through gears most quickly and smoothly. Our experience has taught us that a jet about .006 smaller (leaner) than correct one will make engine "break up" and quit. A jet about .006 larger (richer) will make engine "blubber" and miss.

Troubleshooting Tips for Intermediate & High Speeds - Engine will not run at steady speed or rpm:

1. Restriction in fuel supply system - gas tank vent plugged, gas petcock too small (Stock H-D petcock is usually adequate, but might require running on "reserve" to provide adequate supply for big inch engines. Alternative - switch to Pingel brand high flow petcock.), needle and seat not working properly. See "General Information".
2. Faulty ignition system - fouled plugs, worn points, defective coil or solid state module, improper ignition timing.
3. Incorrect intermediate and/or high speed jetting. See "Adjusting Carb - Intermediate System" and "High Speed Circuit or Main Jet".
4. Foreign material in air and/or gas passageway in carb causing flow restriction. Clear holes with forced air.

CAUTION - Do not use wires or drills to clear holes. If sizes are altered, air/fuel ratios of idle and intermediate systems will be changed resulting in poor performance and irreversible damage to carburetor body and intermediate jet.

WARNING - Compressed air and particles dislodged using compressed air are harmful to eyes and body. Wear protective goggles when using compressed air and always direct air stream away from body parts such as hands and eyes and other people near you.

5. No air cleaner used or air cleaner used is brand other than S&S. Some air cleaner designs restrict air flow so that carb cannot draw air freely as needed. Also, other air cleaners

may obstruct bowl vent hole on inlet end of carb and change bowl air pressure.

NOTE - Bowl vent hole passageway leads to cavity above fuel in bowl and is designed to equalize bowl pressure and atmospheric pressure. If high or low bowl pressure relative to atmospheric pressure develops, engine may run erratically.

6. Air horn used without shrouding bowl vent on end of carburetor body.

NOTE - Bowl vent should be shrouded to insure uniform atmospheric air pressure between cavity above fuel level in bowl and area outside carburetor body. If high or low bowl pressure relative to atmospheric pressure develops, engine may run erratically.

7. Valve train defect - bad valves, sticky valves, bad or broken springs, improper clearances for high lift cam or, defective camshaft with improper valve timing.
8. Too much gear - not enough horsepower to pull gearing.
9. See "Notes on Intermediate and High Speed Jetting" below.

Notes on Intermediate and High Speed Jetting:

● *Carburetor jetting and spark plug color - While spark plug color may be used to help determine carburetor jetting, S&S recommends that our instructions be used as primary jetting guide and that plug color indications be used only as secondary aid. We have found that different brands of gasoline, gasoline additives, engine heat (due to ignition timing), and type of plugs and heat range used distort plug color drastically making plug reading difficult for average tuner. Also, new plugs usually require road test of 10 miles or more to properly develop color which means that quarter mile tests may not be long enough and hence, not always a good indication of carb jetting. It is best to use proven spark plug combinations and to consult spark plug manufacturer if you have questions. If one desires to become more proficient at plug reading, Champion Racing Division has a very informative booklet which may be helpful. For details, write:*

Champion Spark Plug Co.
PO Box 910
Toledo, OH 43601

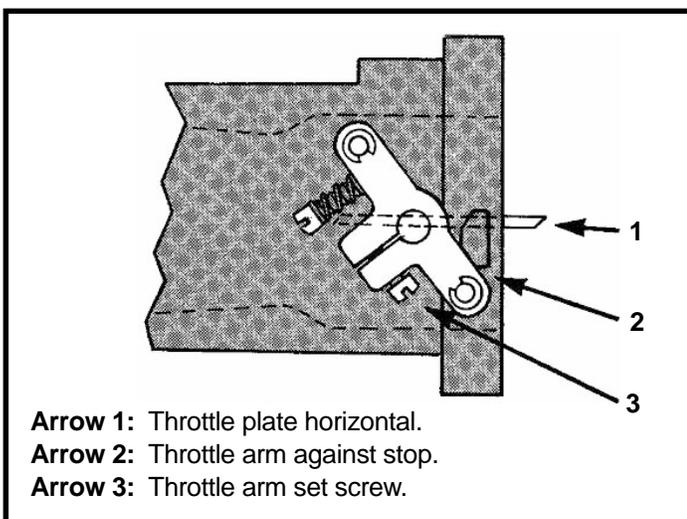


Figure B

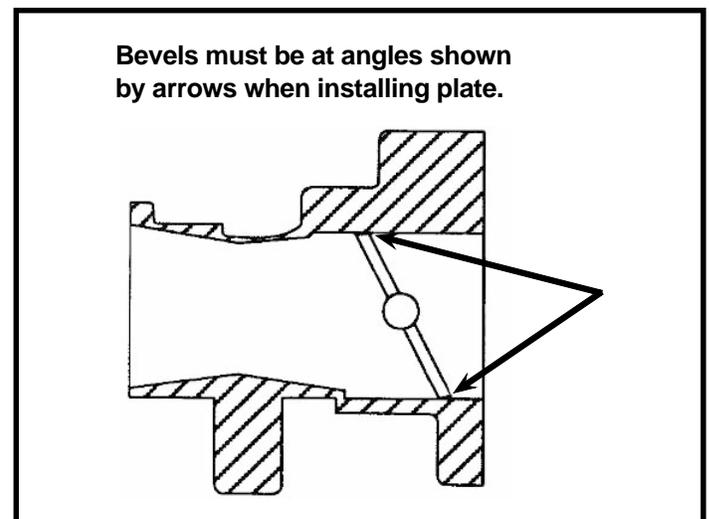


Figure C

- If bike is used exclusively on drag strip where engine temperatures vary, slightly richer jets may be necessary to gain best performance. Larger jets or richer mixtures will enable one to run colder engine which is sometimes desirable. This is best determined by experimentation with particular engine to be used.

- Cams and exhaust systems can make some engines difficult to carburetor. We have found that certain cams and exhaust systems will cause poor performance at a specific rpm, and attempts to carburetor to correct this condition usually destroys carburetor over the balance of the range. A combination of cam overlap, reversion, and back pressure, or even lack of back pressure can cause mixture dilution at certain engine rpms. This dilution will cause engine roughness or misfiring when engine is held in this range.

- Drag pipes - For Knucklehead, Panhead, Shovelhead, and Ironhead Sportster engines, 1 $\frac{1}{8}$ " O.D. drag pipes with straight cutoff end 28" to 30" long will work well with almost any camshaft and/or other performance modification. 2" O.D. drag pipes are not recommended for any applications except very large competition engines. The use of drag pipes is not recommended for Evolution motors in street applications.

- Muffled systems: A very good, economical street exhaust system for V² and earlier engines as well, consists of the stock head pipes with the cross-over tube and a set of low restriction mufflers. This system will typically produce 10 hp more than drag pipes in the midrange. This makes an ideal system for the street since the midrange is where the vast majority of normal driving occurs.

NOTES - General Information

- Carburetor body has seven drilled passages that are permanently sealed with drive plugs. Do not attempt to remove these plugs as irreversible damage to carburetor may result.

- If throttle arm, part #11-2148, is removed from throttle shaft, it must be reinstalled in wide open position with throttle plate, part #11-2055, at 90° to the fully closed position. **See Figure B.**

- Throttle plate, part #11-2055, should be checked annually for signs of wear. Replace if necessary. If carb body needs repair, use S&S repair kit, part #11-2903, #11-2914 or #11-2909. If throttle plate is removed, be sure to reinstall it correctly. **See Figure C.** Edges of plate must fit flat against carb throat.

- To insure proper seal in needle and seat assembly, float hinge, needle lift and needle must work freely and must not bind. If problem is suspected, remove bowl and check float movement. If obvious misalignment, binding or sticking occurs, remove and straighten and reinstall to attain free movement. Reset float level and double check for free movement. Float must not contact bowl gasket.

- Normal float setting is $\frac{1}{32}$ " and should be measured at end of float opposite needle and seat assembly. To check this measurement, turn bowl upside down and measure from bowl gasket surface up to float.

- On rubber mounted engines, set float where it just misses bowl gasket, part #11-2086, when fuel inlet needle is fully closed and spring in needle is compressed. **See Figure D.** To check, remove bowl and raise float until needle is in closed position and spring in top of needle is compressed. Highest part of float should be slightly (approximately $\frac{1}{32}$ ") below bowl gasket surface. Float must not contact bowl gasket.

- When motorcycle is not running, fuel shutoff valve should always be turned off to prevent possible leakage should needle and seat not work properly.

- If an air horn is desired for drag racing, use S&S part #17-0042. Be sure to shroud bowl vent.

- If you feel you have marginal fuel delivery through your stock petcock, S&S recommends you try Pingel petcock, part #6211C (requires nut #2001C), which fits most Big Twins or Pingel #5211C (also requires nut #33-2001) which fits most Sportsters. Tests conducted at S&S have shown Pingel petcocks to provide more than adequate fuel supply. If you require an in line fuel filter, use Pingel #L1BLK1BLK40G, if room permits (filter is 3" long and anodized black), or #S1P1P4OG, if room doesn't permit (filter is 1 $\frac{1}{2}$ " long and polished aluminum). Pingel's address is:

Pingel Enterprise, Inc.

2076 C 11th Ave.

Adams, WI 53910

Phone: 608-339-7999 Fax: 608-339-9164

As a convenience to our customers S&S stocks these Pingel parts.

S&S part #19-0453 - Pingel petcock #5211C for Big Twins

S&S part #19-0454 - Pingel petcock #31-6011 for Sportsters

S&S part #19-0455 - Pingel nut #33-2001

S&S part #19-0457 - Small Pingel filter #S1P1P4OG

IMPORTANT NOTE:

We at S&S feel we have designed and manufactured a quality carburetor and will stand behind this product. If you have questions or problems refer to the instruction sheet. Answers to nearly all your questions can be found in the instructions. If you still have a problem, you may call for technical help at (608) 627-TECH (8324).

S&S also has a complete carburetor repair and/or rebuilding service where you can get quality work at a fair price. If you are not properly equipped to take this carburetor apart and repair it and do not have a qualified local repair shop available, we recommend you call for a return authorization number and send it to us with a detailed note outlining any problems you may have and any repairs you want performed so it can be serviced correctly.

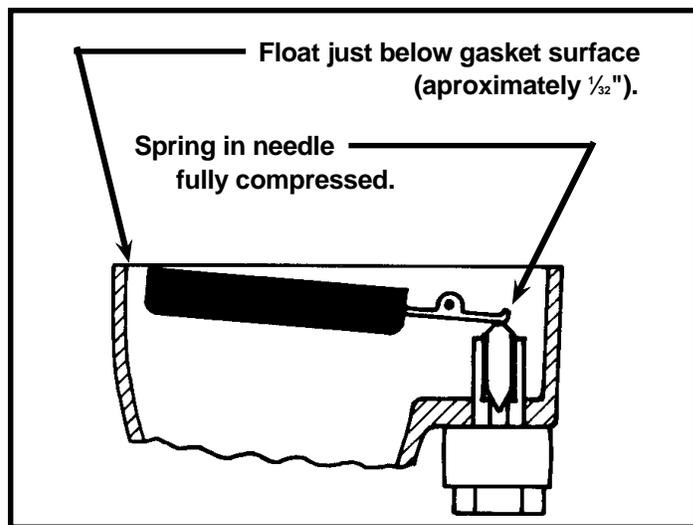
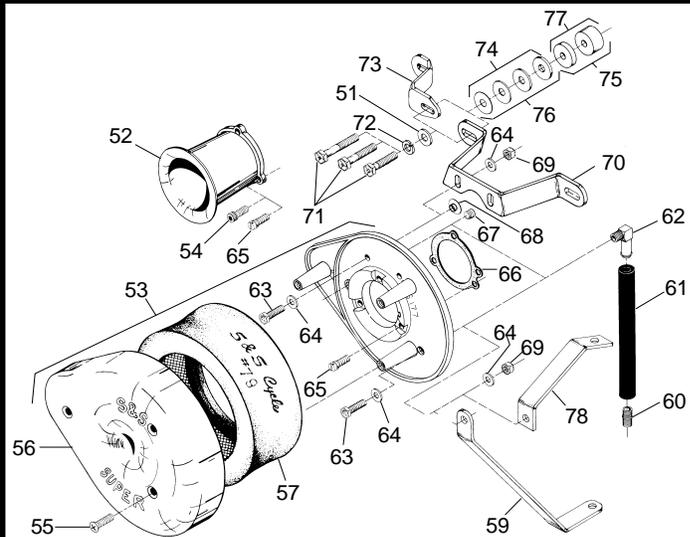
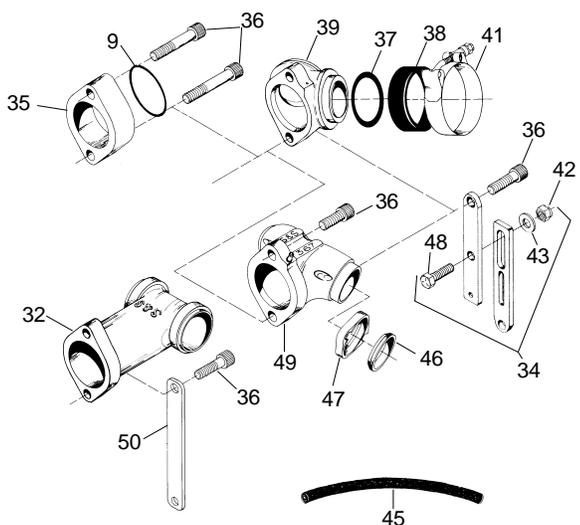
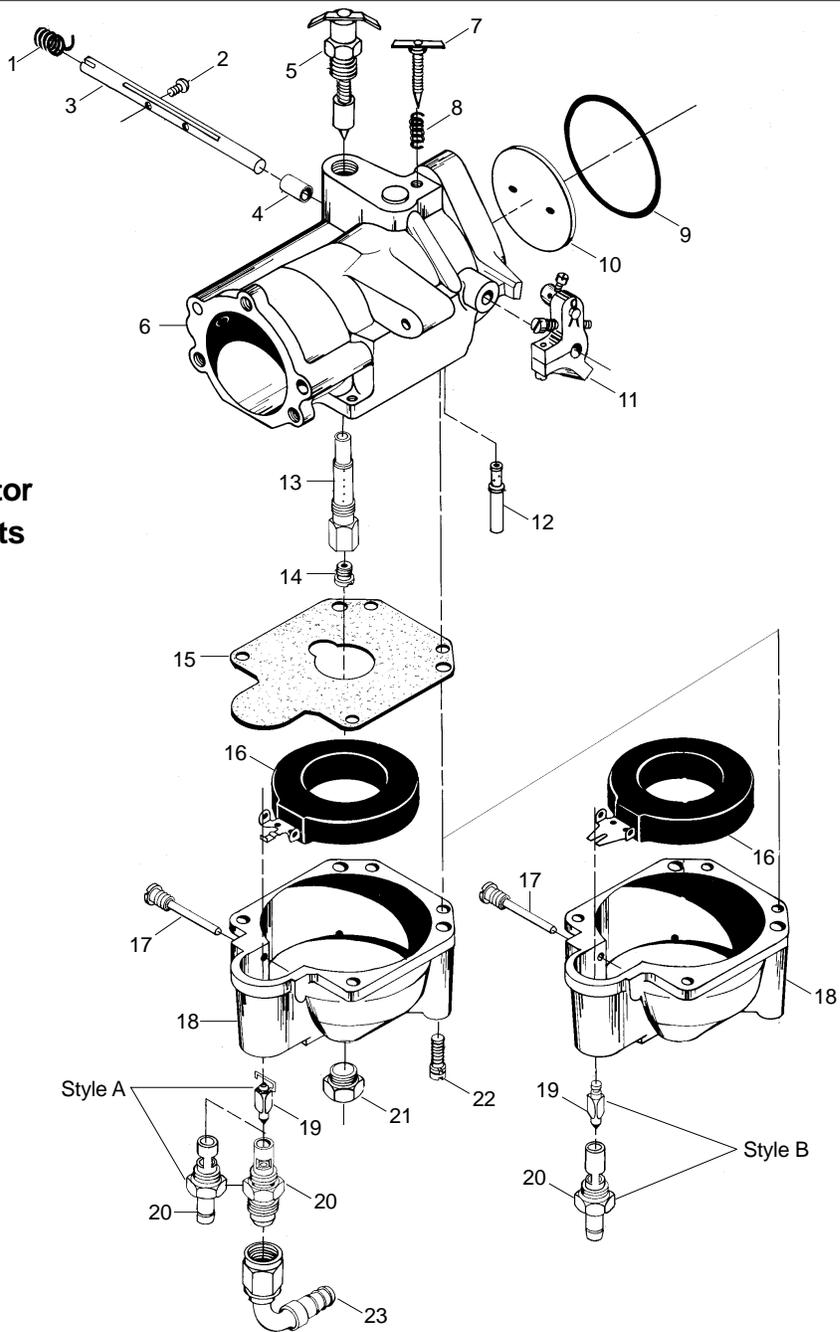


Figure D

1. Throttle return spring	11-2082	46. Manifold o-ring - V ²	16-0236
2. Throttle plate screw (10 Pack)	50-0064	47. Manifold flange, all V ² s	
3. Throttle shaft - includes (2) #50-0029	11-2083	Front	16-0232
4. Throttle shaft bushing - for repair only	11-2134	Rear	16-0233
5. Enrichment device	11-2084	48. Support bracket screw, 5/16-18x1" (10 Pack)	50-0155
6. Carb body	11-2081	49. Manifold - V ²	
7. Idle mixture screw	11-2354	1 7/8", for XL V ² s, stock cylinder length	16-1600
8. Idle mixture screw spring	11-2052	1 7/8", for FL V ² s, stock cylinder length	16-1608
9. Oring - 1 1/8" (10 Pack)	50-8101	50. Support bracket - Panhead	16-0096
10. Throttle plate - 1 1/8"	11-2055	51. Flatwasher, 3/8", special (10 Pack)	50-7075
11. Throttle arm assembly - two cable type	11-2148	52. Air horn - includes (3) #50-0071	17-0042
12. Intermediate jet - state size. See jet section.		53. Air cleaner assembly - for all engines. (Does not include mounting brackets.)	17-0099
13. Main discharge tube	11-2085	54. Air horn screw (10 Pack)	50-0195
14. Main jet - state size. See jet section.		55. Air cleaner cover screw (10 Pack)	50-0094
15. Bowl gasket	11-2086	56. Air cleaner cover	17-0078
16. Float		57. Air cleaner element	17-0079
Style C	11-2187	58. Air cleaner backing plate	17-0080
Style B	N/A	59. Air cleaner support bracket - 1957-'85 XL	17-0093
17. Float retaining pin	11-2069	60. Vent hose connector nipple	50-8111
18. Bowl		61. Vent hose - 3/8" ID x 6"	17-0113
Style C	11-2188	62. 90° elbow fitting	50-8110
Style B	N/A	63. Support bracket bolt - 1/4-28 x 7/8" (10 Pack)	50-0193
19. Needle		64. Flatwasher, 1/4" (10 Pack)	50-7074
Style C	11-2195	65. Air cleaner backplate screw (10 Pack)	50-0096
Style B	11-2095	66. Air cleaner gasket	17-0196
20. Seat		67. Allen head plug, 1/8"-27	50-8331
Styles B & C	11-2065	68. Mounting hole plug (10 Pack)	50-8322
Style C, - threaded seat, not available. See #80.		69. Support bracket locknut - 1/4-28 x 7/8" (10 Pack)	50-5015
21. Bowl plug	11-2090	70. Air cleaner support bracket 1984 - '91 V ² FL & 1986 - '90 V ² XL	17-0312
22. Bowl screw (10 Pack)	50-0063	71. Support bracket screw	
23. Gas inlet fitting , 90° - not available. See #80.		5/16-18 x 1 3/4" (10 Pack)	50-0234
32. Knuckle/Panhead manifold		5/16-18 x 1 1/2" (10 Pack)	50-0196
1 7/8", for o-ring style heads	16-1100	5/16-18 x 1 1/4" (10 Pack)	50-0148
35. 1" spacer - 1 7/8"	16-0057	72. Lockwasher - 5/16" (10 Pack)	50-7077
36. Manifold screw		73. Support bracket - V ² (10 Pack)	50-7075
1" (10 Pack)	50-0186	74. Shim	
1 1/4" (10 Pack)	50-0177	5/16" x .020" (10 Pack)	50-7107
2" (5 Pack)	50-0185	5/16" x .030" (10 Pack)	50-7070
2 1/4" (5 Pack)	50-0180	5/16" x .040" (10 Pack)	50-7068
37. Oring - for oring manifold	16-0237	5/16" x .100" (5Pack)	50-7062
38. Band- for rubberband manifold	16-0238	5/16" x .125" (5 Pack)	50-7066
39. Manifold - Shovel & IH XL		75. Shim	
1 7/8", O-ring style, stock length	16-1200	5/16" x .250" (5 Pack)	50-7067
1 7/8", Rubberband style, stock length	16-1300	5/16" x .550" (5 Pack)	50-7065
1 7/8", Rubberband style w/ VOES ignition, stock length	16-1400	76. Shim kit - includes (2) #50-7038, #50-7039, #50-7040, #50-7041 & (4) #50-7042	17-0314
41. Manifold clamp		77. Shim kit - includes (2) #50-7043 & (2) #50-7045 ...	17-0313
O-ring style	16-0230	78. Air cleaner support bracket - '66-'82 FL	17-0092
Rubberband style	16-0231	80. Fuel line w/90° bend - use with #11-2065, N/A	19-0475
42. Lock nut, 5/16-18 (10 Pack)	50-5050		
43. Flat washer, 5/16-x 1/16 (10 Pack)	50-7069		
44. Adjustable support bracket	16-0471		

**Super B Carburetor
Replacement Parts**





Because every industry has a leader