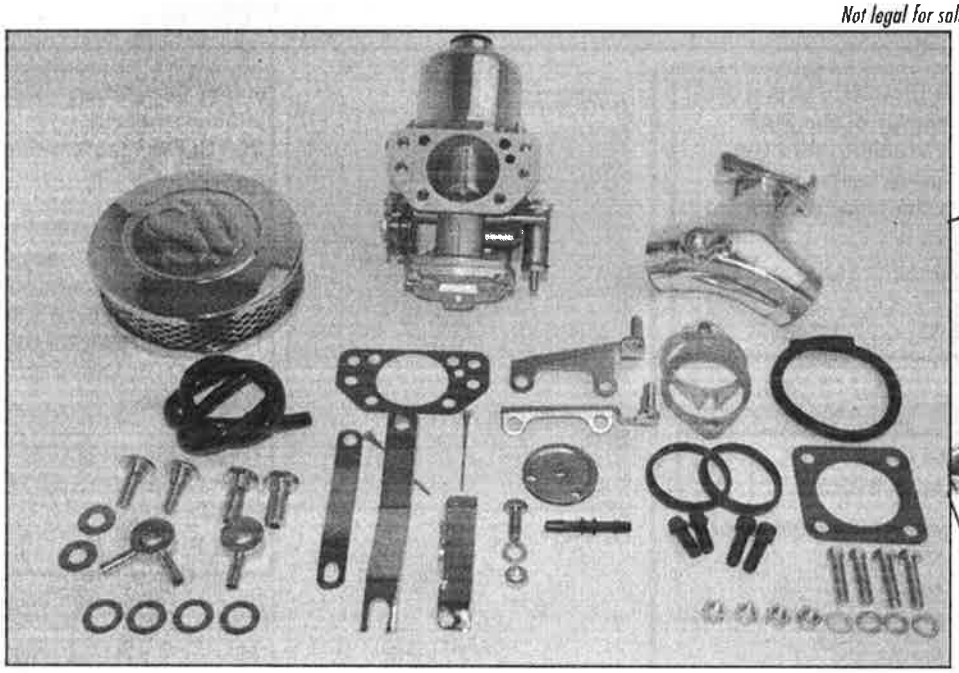
SU CARBURETOR

INSTALLATION INSTRUCTIONS for:
SHOVEL & IRON XL
EVO BIG TWIN
& TWIN CAM MODELS

Not legal for sale or use in California or on any pollution controlled motor vehicles.





SU Eliminator Carburetor Kits deliver amazing performance & fuel economy !
We are confident that, once installed, your kit will bring you many miles of great service.

Please take a few moments & read this manual carefully as it will provide you with the proper procedure for installing the kit as well as guide & advise you through the tuning process.

Every SU Carburetor is hand-built, then modified for your application, to factory specifications prior to re-assembly & shipping to you. All carburetors are jetted for stock applications unless otherwise noted or ordered for a special application. Great care has been taken to assure that you're getting a kit worthy of fitment on your motorcycle !

PLEASE NOTE: THE PICTURES AND INSTRUCTIONS IN THESE MANUAL ARE FOR MULTIPLE APPLICATIONS ANDD MAY NOT PERTAIN TO YOUR SPECIFIC MODEL.

Note: In some Evo Big Twin applications, relocation of the V.O.E.S. switch may be necessary to clear MAP sensor boss.
Note: This manual has an exploded view of the carburetor, complete with breakdown of all component pieces for easy identification & ordering, if necessary.

Note: All fuel inlets are 5/16" for adequate flow. For performance engines we suggest a high-flow Golan petcock & fuel filter. The carburetor should be cleaned on a yearly basis depending on the amount of use. Develop the habit of turning off the fuel valve when the engine is not running.

Note: Do not put oil in the dampener. Once a month remove the dome cap & lightly spray WD-40 inside on the piston shaft. If the carb is run in extremely dusty conditions we suggest cleaning the foam air filter element once a month. For best results use warm, soapy water for this task.

8205 Secura Way Santa Fe Springs, CA 90670 Tel: 562-321-1989 www.americanprimemfginc.com

BEFORE BEGINNING THE INSTALLATION:

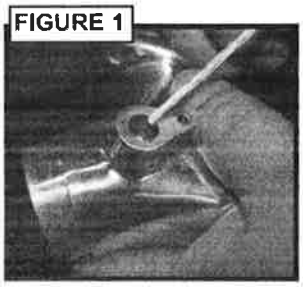
Disconnect the BATTERY.

Drain & then remove GAS Tank per O.E. manual.
This step requires that there be no heat source or sparks in the vicinity.

Remove CARBURETOR & INTAKE MANIFOLD per O.E. manual.

TWIN CAM ENGINES: Reuse MAP SENSOR / SEAL & SCREW from O.E. intake manifold.

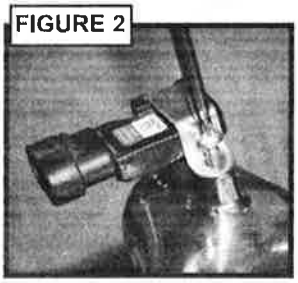
FIGURE 1



For TWIN CAM ENGINES drill a 3/16" hole thru the center of the MAP SENSOR boss breaking thru the manifold wall (only perform this operation with the manifold off the bike).

NOTE: Remove all burrs & aluminum chips.
(SEE FIGURE 1)

FIGURE 2



On TWIN CAMS install MAP SENSOR / SEAL & SCREW.

NOTE: Replace MAP SESOR SEAL if torn or cracked.

(SEE FIGURE 2)

FIGURE 3

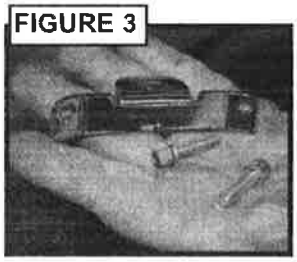
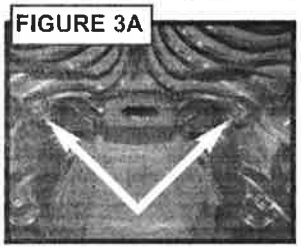


FIGURE 3A



On TWIN CAM ENGINES install support bracket on tappet blocks.

Mount this bracket on the inside rear tappet block screws.

(SEE FIGURE 3 & 3A)

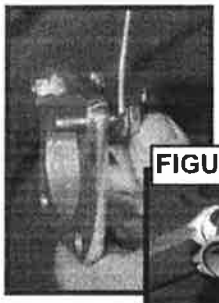


FIGURE 4



Install 2 each 5/16-18 x 1-1/4" hex head bolts with 2 each 5/16" lockwashers and leveling bracket on the bottom right bolt of the manifold.

Install 2 each 5/16-18 nuts and leave loose at this time.

(SEE FIGURE 4)

FIGURE 5



Install flanges and seals on the intake manifold.
NOTE: Flanges are marked front & rear.

Install intake manifold with 2 each 5/16-18 x 1" socket head cap screws on cam cover side and 2 each 5/16-18 x 3/4" 12 point screws on the primary side. NOTE: Leave screws loose at this time.

TWIN CAM ENGINES: Reinstall MAP SENSOR ELECTRICAL PLUG.

(SEE FIGURE 5)

FIGURE 6



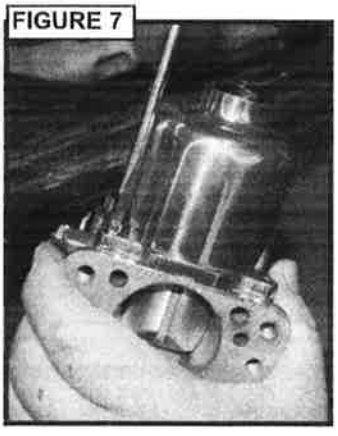
TWIN CAM ENGINES: Install carburetor leveling bracket to support bracket with 1 each 5/16-18 x 3/4" hex head bolt with 5/16" flatwasher thru leveling bracket and support bracket with 5/16" lockwasher and 5/16-18 nut on back side of support bracket.

EVO ENGINES: The leveling bracket bolts to the case bolt between the cylinders.

NOTE: Leave screws loose at this time.

(SEE FIGURE 6)

FIGURE 7

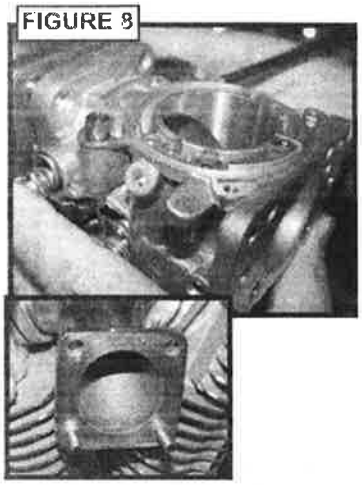


Remove dome and piston from the carburetor.

NOTE: Be extra careful to not drop any foreign matter into the carburetor body with the dome off.

(SEE FIGURE 7)

FIGURE 8



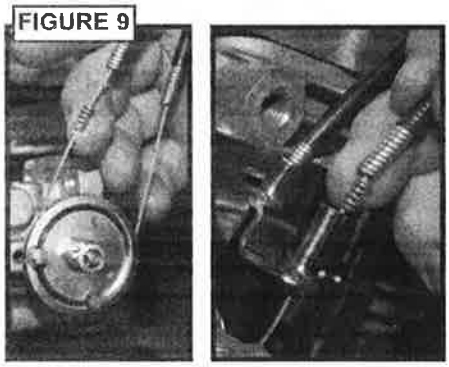
Remove 2 each 5/16-18 nuts from the intake manifold that you previously installed (see Figure 4). Now install 2 each 5/16-18 x 1-1/4" hex head bolts (small head) thru the top intake manifold holes.

Install the supplied carburetor gasket.

Install the carburetor onto the intake manifold with 2 each 5/16-18 nuts on the bottom two bolts.

(SEE FIGURE 8)

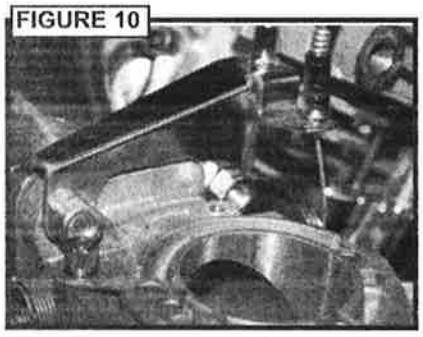
FIGURE 9



Install the throttle cables onto the carburetor dual rotor & bracket.

(SEE FIGURE 9)

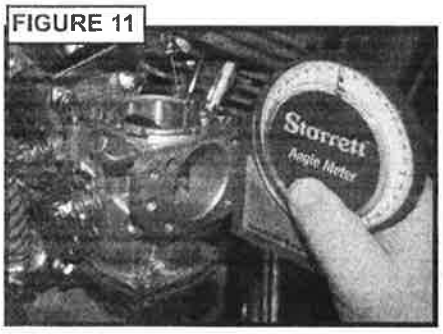
FIGURE 10



Install throttle cable bracket on the carburetor(top) side using 2 each 5/16-18 x 1-1/4" hex head bolts with 2 each 5/16-18 nuts.
(SEE FIGURE 10)

Tighten the four carb to intake manifold bolts.

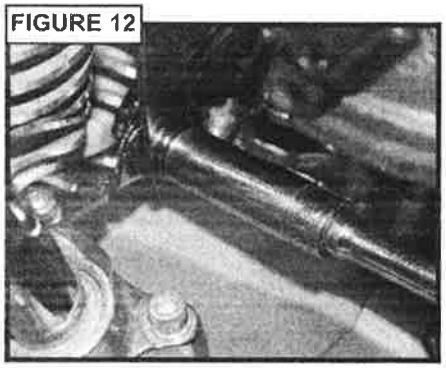
FIGURE 11



Level the carburetor and tighten the intake manifold flange screws.

(SEE FIGURE 11)

FIGURE 12



Tighten the carburetor leveling bracket.

(SEE FIGURE 12)

FIGURE 13

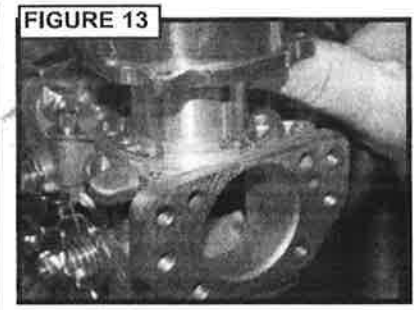
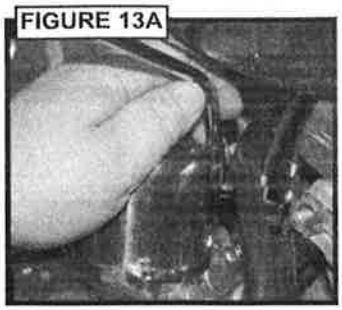
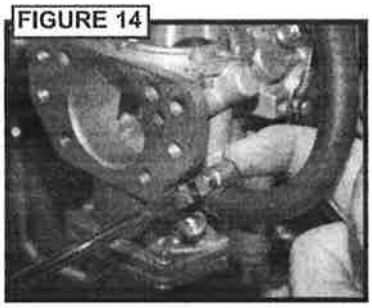


FIGURE 13A



Reinstall the carburetor dome & piston. Tighten the 3 screws.
(SEE FIGURE 13 & 13A)

FIGURE 14



Install the fuel line and tighen.

NOTE: Route the fuel line away from the heads or any other heat source.

(SEE FIGURE 14)

Adjust the throttle cables per the O.E. manual.

FIGURE 15

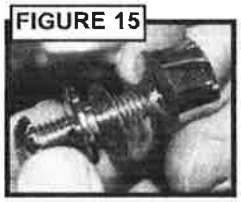


FIGURE 15A



Install the top end breather fittings. The dual outlet is for the rear head, the single outlet is for front head.

TWIN CAM ENGINES: 3/8-16 banjo bolt with 1/2" seal washer on the outside and 3/8" seal washer on the engine side.

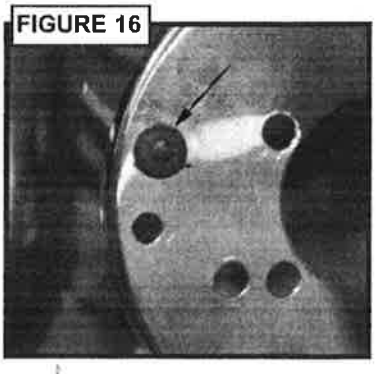
EVO ENGINES: 1984-1992 uses 3/8-16 banjo bolt.
1993-up uses 1/2-13 banjo bolt.

NOTE: Leave banjo bolts loose at this time.
(SEE FIGURE 15)

Cut black breather hose and install it onto the top end breathers. Now tighten the banjo bolts.
(SEE FIGURE 15A)

NOTE: Route breather hose so there are NO KINKS in the hose.

FIGURE 16



Install the rubber grommet into the air cleaner backing plate.

(SEE FIGURE 16)

FIGURE 17

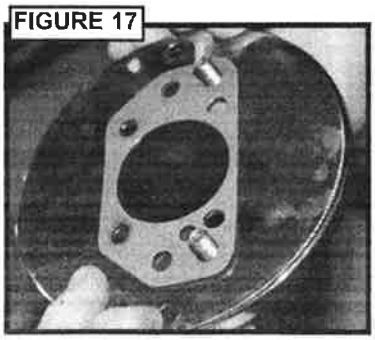


FIGURE 17A



Install the air cleaner backing plate onto the carburetor with the gasket and 4 each 5/16-18 x 1/2" hex head screws with 4 each 5/16" star washers and tighten.

NOTE: Use one drop of red threadlocker on each bolt !

(SEE FIGURE 17 & 17A)

FIGURE 18

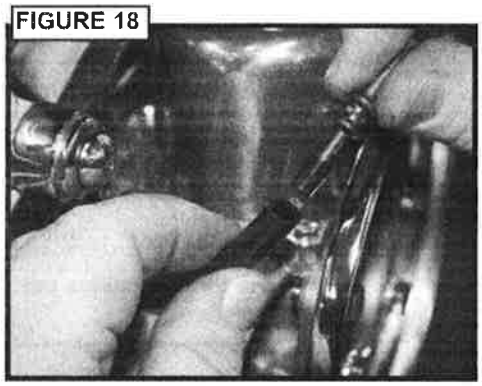


FIGURE 18A

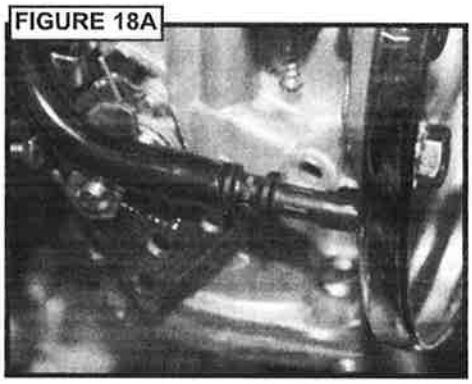
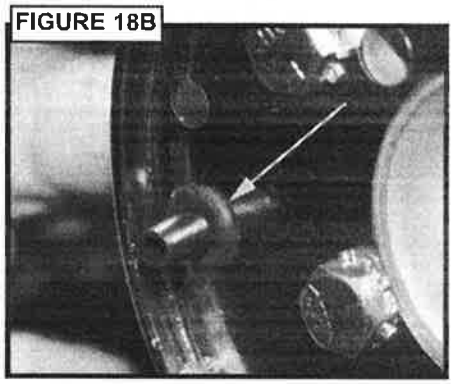


FIGURE 18B



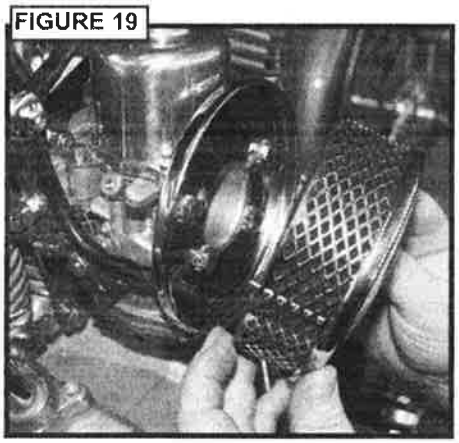
Install the remaining black breather hose onto the black hose connector and push the hose connector thru the rubber grommet in the air cleaner backing plate.

Cut the black breather hose and install it onto the top end breather.

NOTE: Make sure that there are NO KINKS in the top end breather hose.

(SEE FIGURE 18, 18A & 18B)

FIGURE 19



Install air cleaner and tighten

(SEE FIGURE 19)

Reinstall & fill the fuel tank per O.E. manual.
NOTE: On bikes with vacuum operated fuel valves there is a vacuum port on the bottom of the intake manifold which can also be used on EVO Engines with V.O.E.S.

NOTE: If vacuum port is not used it must be sealed-off to prevent air leaks.

Check over all your work to make sure nothing was overlooked.

Reconnect the battery, start & warm engine. Then adjust carburetor per tuning manual.

ADDITIONAL INSTALLATION INSTRUCTIONS for EARLY MODEL BIG TWINS & SPORTSTERS

"O" Ring Manifolds / Panhead Shovelhead and Sportster to 1984

Install the manifold in the usual manner. Slip the "O" rings over the manifold flanges. Position the manifold to the heads. Slip one "O" ring off the manifold flange and install the clamp lightly. Use the same procedure on the other side just snuggling up the clamp. The manifold will have to be leveled when the carburetor body is installed so do not tighten the clamps securely at this time.The standard leveling bracket is mounted from the center case bolt of the engine to the bottom right manifold hole. The brackets will be different from kit to kit, most will mount as described above. In some cases two brackets will be supplied, one for the center case bolt, the other to mount to a threaded hole in the head or both heads. Looking at the brackets will show how they should mount. We manufacture over 20 different manifolds and 15 different brackets for SU carburetor kits.

"Rubber" Band Type Manifolds / Shovelhead 1979-1984 & Sportsters 1979-1985

As outlined above, the procedure is the same with one exception. Supplied with each kit is a pair of fiberglass "O" rings. The purpose of using these rings on a rubber band manifold is to make the manifold ends longer and smooth. Apply glue to the rings then place them over the machined ends of the spicket on the manifold. After they are dry, lightly sand them as they are smooth and are the same O.D. size as the manifold. This will stop any air leaks. Install the manifold as outlined above.

Throttle Cable Connections

All early Knucklehead, Panhead, Sportster and some Shovelhead engines use one PULL-type cable only. For all early kits we supply the following parts:

1) Lever with brass cable holder attached on the LEFT side of the carburetor shaft.

2) A stamped bracket that mounts on the outside top flange of the carburetor body using the two top bolts that secure the manifold to the carburetor body. On the bracket there is a cable holder that will accept a stock Harley cable. You will have to cut the end to slip the cable into the brass cable holder to secure and adjust the cable. There is a locking screw on the cable holder. Adjustments can be made at the threaded portion of the cable or at the cable holder on the throttle shaft. This is the standard installation for all SINGLE CABLE operated throttles.

Throttle Cable Connectors -Push-Pull

1981-up Shovelhead and Evolution models:

All "Eliminator II " SU carburetors have a double ended throttle shaft. There are two reasons for this. First, the pull is more equally divided using two springs. Second, in 1980 Push-Pull throttles became the law for all street machines. We have developed a push-pull rotor and stamped cable holder with bracket for all who use a push-pull throttle. The rotor is secured to the right side of the carburetor body on the throttle shaft. Be sure to install the small brass spacer on the shaft before installing the rotor.The push-pull bracket is mounted with the cable holders toward the right side of the carburetor directly above the rotor. The cable holder will mount on the inside top flange of the carburetor body using the two top bolts to secure. Install the cables in the normal manner making adjustments at the cable. Be sure that the throttle opens all the way and closes tightly. If properly adjusted it should return freely.

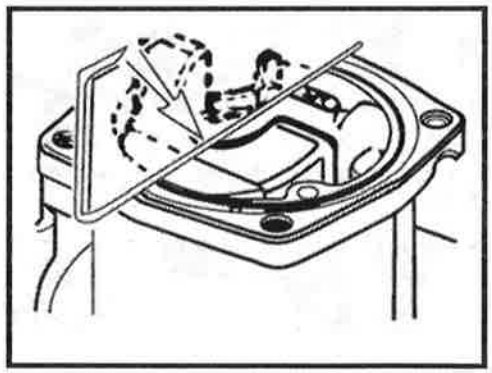
SETTING THE FLOAT LEVEL

(if necessary)

The float level is carefully checked before shipping. Transporting could alter the setting. To check the float level it will be necessary to remove the carburetor from the motorcycle.

Remove the four screws holding the bottom plate. Turn the carburetor upside down and lay a flat rule across the bottom as shown in picture. The rule should just clear the center of the float.

If adjustment is required carefully bend the brass tang on the float.



COLD STARTING & TUNING INSTRUCTION

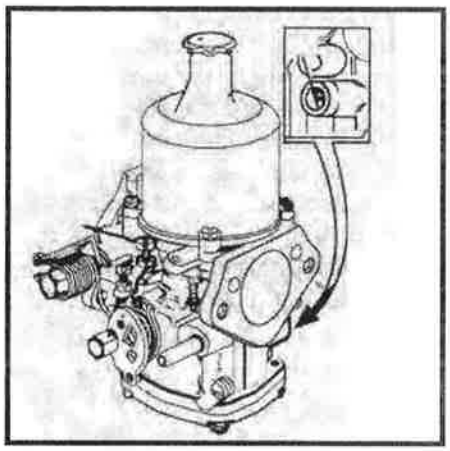
(ALL SU ELIMINATOR CARBURETORS)

Turn the fuel on allowing a reasonable time for the fuel bowl to fill. NOTE: if any fuel runs from the hollow shaft on the end of the tickler pump, shut fuel off (if this occurs the needle is stuck in the open position and must be corrected -see setting the fuel level). Assuming no fuel is running from the overflow, place a finger from your left hand on the piston lift pin located on the left side of the carburetor body near the center top. Push up and hold this pin while pumping the tickler a half dozen times.This procedure will induce fuel into the venturi by pressurizing the fuel bowl and forcing fuel through the mainjet into the venturi. By lifting the piston you allow no obstruction to the fuel flow. Release the lifting pin and set the choke to the on position by rotating the choke lever clockwise until it locks into a pre-cut groove on the cam. Use of the choke is optional. In warm weather it may not be necessary. With the choke on, press the button or kick the engine to life. Allow a few minutes for a warm up period noting the increase of RPM as the engine warms.
It is a good idea to cut off the choke as soon as possible as it may load your engine if left on for over a few minutes. To automatically turn off the choke simply twist the throttle grip. It will release the cam lever.

All tuning should be done on a warm engine. Ride the motorcycle until it reaches normal operating temperature. If the engine seems strong and pulls well throughout the RPM range it is probably tuned very close. If there is a question we suggest running the motorcycle at a sustained speed of 55 MPH for a few miles. Pull in the clutch, turn off the key and brake to a stop. At this time a plug reading can be obtained from either cylinder which will indicate a rich or lean condition.

All carburetors are shipped with a standard needle and spring unless ordered for a specific purpose. The standard needle can be changed to a richer or leaner as two extra needles are sent with each carburetor kit.

The mainjet adjustment (see diagram) on the bottom right side of the carburetor adjusts the main jet up or down on the tapered needle installed. All carburetors are shipped with the mainjet in the neutral position which allows an adjustment of two full turns either way for mixture strength.



Turning the adjustment screw clockwise or to the right will richen the mixture. Turning the adjustment screw counter-clockwise will lean the mixture.The adjustment on the mainjet affects the position of the mainjet down onto a smaller taper needle which allows more area for fuel to flow, hence a richer mixture.

The normal or standard position is preset at the factory.The way to find neutral is to remove the dome and piston andvisually look at the position of the mainjet in relation to the mainjet holder which is the part the mainjet moves inside.The correct position for neutral is when the mainjet is 1/16 " below the bottom edge of the main jet holder. Then you will have 2 turns either way to correct any mixture problem you may have. For altitude we suggest using the leanest needle supplied with the kit. Any altitude above 3000 ft. will benefit from a leaner needle.

A motor that has ported heads may very well require a leaner needle as the efficiency of the engine increases with such modifications. There are no set rules for tuning as no two engines will ever run exactly the same. We will make some recommendations based on many years of experience plus feedback from customers on tuning tips.They may vary and not apply to your particular requirements, so use them as as guide only.

SPECIFICATIONS & SPECIAL NOTES

Stock Applications: Shovelhead, Sportsters, Evolution Models
Supplied with kit as standard: .100 Mainjet - Red Spring 4-1/2 oz. - BBT needle.

Stock 900cc Sportster: use BBD needle, 4-1/2 oz.spring, .100 mainjet.

Modified Shovelhead and Evolution engines w/headwork, cams, etc: use BBT needle, .100 Mainjet , silver spring 8oz., (BBX alternative needle).

For STROKED engines the mainjet should be changed to Part #RE-1453A(.1015) or RE-1453B(.1024)

All needles for both Eliminator I &II are supplied with collar attached to shank for use as spring-loaded needles.
Needles: LEANEST to RICHEST- BBD, BBT, BBX, BCJ, BBZ, BBT standard.

Spare jetting includes a richer needle (BBX) and a leaner needle (BBD) or substitutes.

The mainjet is adjusted for starting purposes when shipped. If it ever becomes necessary during tuning procedures to turn the mainjet adjustment screw more than two full turns either way, a different tapered needle should be installed and the mainjet set to the neutral position for further tuning.

The tapered needle is fixed inside the piston. NEVER loosen the set-screw and raise or lower the needle. The needle guide which holds the needle should be flush with the bottom of the piston.

Standard installed needle and seats are designed for gravity flow. For racing purposes or large stroker engines we suggest using our fuel bowl spacer, Part No. RE-680-S. This part will double the float bowl capacity.

Our PRIMER PUMP (Pat.No.4,228,110) is a pressure system. The pump is a press fit inside the body and SHOULD NOT BE REMOVED. The brass nut can be removed to clean the inside or change the viton cup.

If FUEL should drip or flow from the tickler pump, shut off the fuel immediately. The bottom cover will have to be removed to visually check the needle and seat or the float level. It is possible dirt will cause the needle to stick inside the seat. It can be removed for cleaning or lightly blown out with an air hose.

The float level should be checked and adjusted as shown in SETTING THE FLOAT LEVEL illustration.

Piston springs are a tuning asset. Stock carburetors have the weakest spring installed (4-1/2 oz.).
By changing springs we can accommodate a slight mixture change. A stronger spring will richen the mixture over the entire RPM range.

NEVER use any oil inside the dampner. Oil will slow the rise of the piston causing an overly rich mixture. Every 30 days unscrew the dome cap and lightly spray around the piston shaft with WD-40. The piston must float freely at all times to accomplish the constant velocity principle of allowing the engine to determine its position.

Stroker size manifolds for popular stroker kits. If you require a stroker manifold please ask when placing carburetor orders.

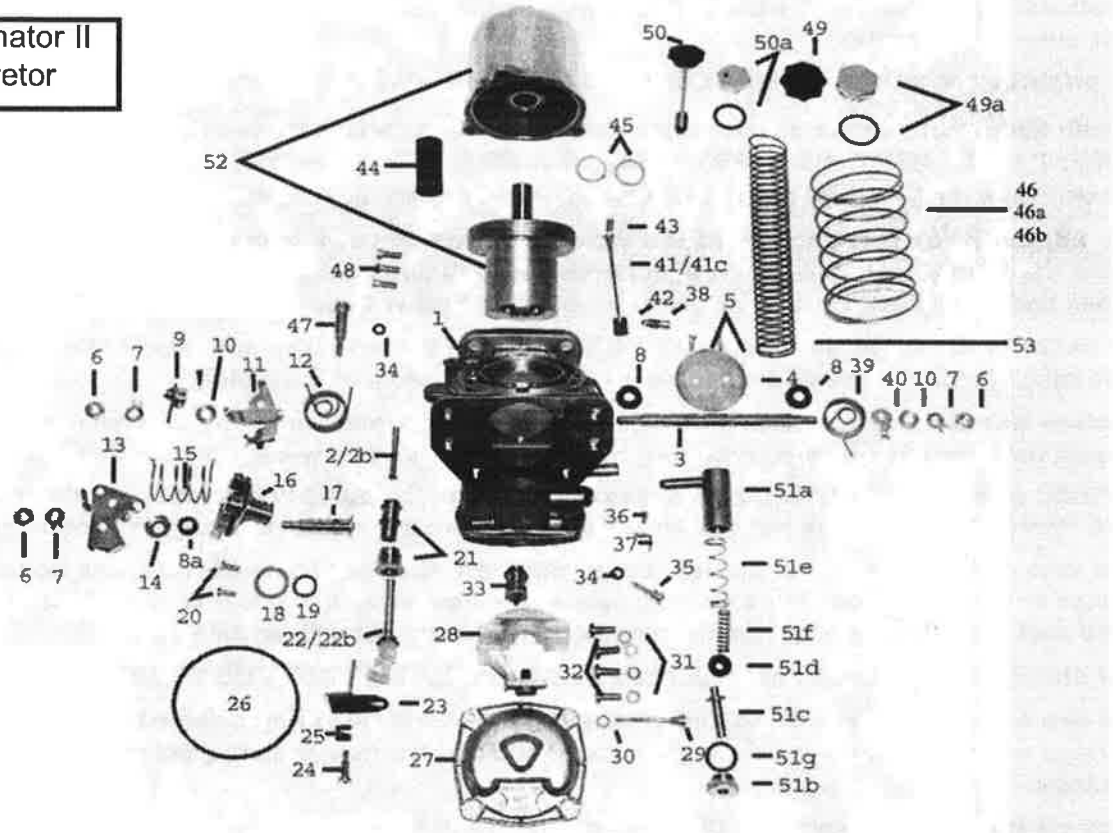
SU NEEDLE GUIDE

NOTE: The numbers under each needle is the profile dimension of that needle.
Dimensions are taken every 1/8 " from the top shoulder.

LEANER				RICHER
BBD	BBT	BBX	BCJ	BCJ
.099	.099	.099	.0995	.098
.095	.096	.095	.0967	.0954
.092	.0932	.0932	.0939	.0924
.090	.0903	.0905	.0909	.0892
.088	.0877	.0875	.0881	.0862
.0862	.0850	.0852	.0848	.0819
.0844	.0827	.0829	.0781	.0780
.0825	.0807	.0806	.0740	.0751
.0818	.0792	.0782	.0703	.0713
.0808	.0778	.0755	.0671	.0673
.0798	.0765	.0730	.0650	.0653
.0788	.0753	.0702	.0630	.0629
.0778	.0740	.0675	.0610	.0605
.0768	.0725	.0650	.0590	.0580
.0758	.0713	.0624	.0570	.0560
.0748	.0700	.0598	.0560	.0540
	(Standard)			

SU CARBURETOR

SU Eliminator II Carburetor



"ELIMINATOR II" PARTS LISTING

1	carb body	1042-0517
2	piston lift pin	1042-0059
2A	piston lift spring	1042-0030
2B	circ-clip	1042-0055
3	throttle spindle	1042-0543
4	throttle disc	1042-0040
5	throttle disc screws	1042-0031
6	nut spindle	1042-0027
7	tab washer	1042-0043
8	shaft spindle seal	1042-0544
8A	choke spindle seal	1042-0044
9	throttle lever w/cbl holder	1042-0572
10	spacer bushing	1042-0549
11	idle stop lever	1042-0065
12	throttle return spring	1042-0532
13	choke cam lever	1042-0541
14	choke body cap	1042-0056
15	choke spring	1042-0062
16	choke body	1042-0545
17	choke spindle	1042-0528
18	choke body gasket	1042-0053
19	choke body O-ring	1042-0052
20	choke body screws	1042-0054
21	jet bearing	1042-0583
22	main jet .100	1042-0070
22A	main jet .1015	1109-0020
22B	main jet .1024	1042-0071
23	bi-metallic lever	1042-0512
24	bi-metallic screw	1042-0046
25	spring	1042-0045
26	float lid o-ring seal	1042-0048
27	float lid	1042-0518
28	float	1042-0547
29	float spindle screw	1042-0524
30	crush washer	1042-0035
31	float lid washers	1042-0033
32	float lid screws	1042-0049
33	needle & seat	1109-0007
34	o-ring (adj screw)	1042-0047
35	main jet adj screw	1042-0558
36	piston guide screw	1042-0581
37	piston guide	1042-0032
38	jet needle screw ret	1042-0058
39	throttle return spring	1042-0536
40	spring retainer	1042-0520
41	jet needle BBX	1109-0002
41-A	jet needle BBT	1109-0024
41-B	jet needle BBD	1109-0004
41-C	jet needle BCJ	1109-0022
42	jet needle guide	1109-0006
43	jet needle spring	1042-0042
44	piston sleeve w/brngs	1042-0523
45	piston sleeve retainer	1042-0039
46	piston return spring (4 oz)	1042-0060
46-A	piston return spring (8 oz)	1042-0061
46-B	piston return spring (12 oz)	1042-0535
47	idle speed screw	1042-0575
48	dome screw	1042-0538
49	plastic dome cap	1042-0548
49-A	chrome dome cap	1042-0565
50	dome cap/plastic 1996-up	1042-0036
50-A	dome cap/chrome 1996-up	1042-0037
50-AA-KIT	pull/ pull brkt/bshng(73-89)	1042-0013
50-B-KIT	pull/ pull brkt/rotor w/o bushing (1990-up)	1042-0201
50-C	throttle cable holder(pre-90)	1042-0203
51	tickler pump complete	1042-0515
51-A	tickler pump body	1042-0574
51-B	tickler nut	1042-0506
51-C	tickler stem	1042-0508
51-D	Viton cup	1042-0500
51-E	large tickler spring	1042-0510
51-F	small tickler spring	1042-0501
51-G	tickler gasket	1042-0503
52	piston & dome	1042-0530
53	pstn rtrn spring(4 oz) pre-96	1042-0566
53-A	pstn rtrn spring(8 oz) pre-96	1042-0567
53-B	pstn rtrn spring (12 oz) pre-1996	1042-0568

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