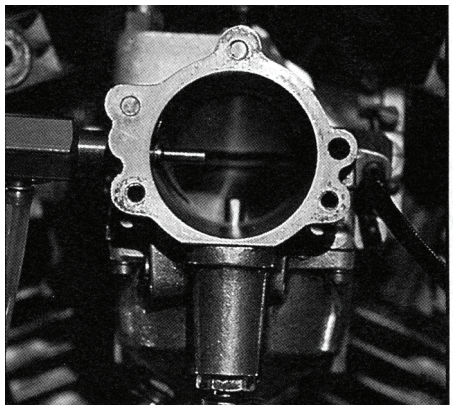
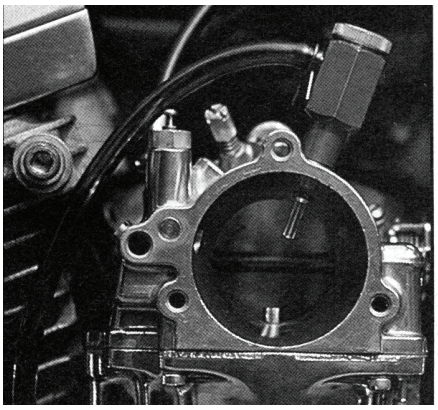
Put Some Boom In Your OKO & SS Shorty

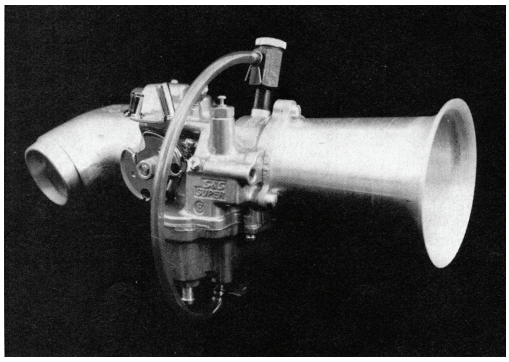
OKO & S.S. Shorty has excellent street manners, produces plenty of horsepower and is easy to tune with the Hyper Jet kit.



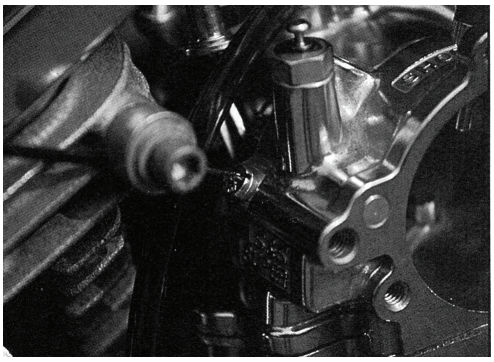


(Above) The mounts at 9 o'clock on Super B(L) and at 1 o'clock (R) on the Shorty.

"The Hyper Jet"



The VT No. 35-1800 & 35-1719 Jet's performance matches its powerful looks.



Standard Mikunl main Jet serves as adjustable air bleed.

While the performance of the OKO Shorty & S&S are excellent by any standards, with few relatively simple modifications can improve its throttle response and high-RPM capability, especially in maximum performance applications.

To meet the needs of hot rodded V-twin engines with increased fuel and air flow demands, there are three changes for the Shorty OKO: Installation of a Hyperjet, an adjustable air bleed and air filter.

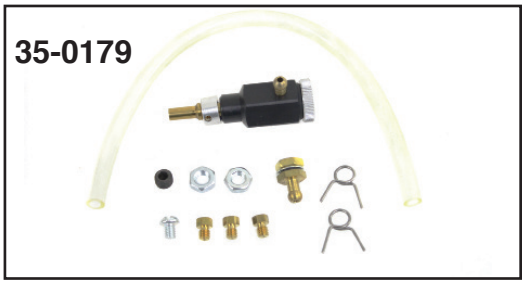
Jets

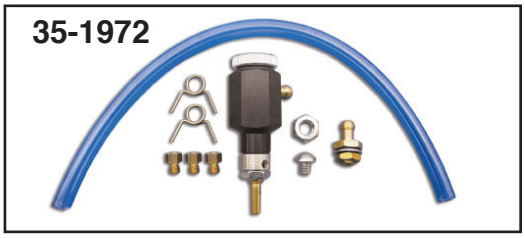
The jets is a self-correcting adjust able fuel circuit. It consists of four components: the jet body, its jet, an air correction spacer, and a fuel delivery tube. To appreciate the jet's usefulness, you'll need to understand the unmodified OKO carb's fuel supply system.

In these carburetors, two jetted circuits share primary responsibility for meeting the engine's fuel demands. The first circuit, controlled by the intermediate jet, supplies fuel up to about 3500 RPM, depending upon throttle plate position. After that point the high speed or main jet circuit take over. Tuning problems sometimes arise, especially with modified engine, because neither circuit can operate entirely independent of the other.

To take advantage of the improved breathing capability of a hot rodded engine an ambitious tuner will usually install large jets in both the intermediate and high speed circuits. This practice insures that the engine has adequate fuel available for good throttle response and low end power as well as a strong top end charge. The problem with such an arrangement is that when both circuits are active, they may supply more fuel than the engine can digest. As a result, a hesitation or stumble may occur at some point in the engines's powerband.

Known universal as the "flat spot" such a stumble can usually be gotten rid of the by replacing either circuit's jet with smaller one. Unfortunately this solution is stopgap at best because it inhibits performance. Why? Simply because it take fuel to make horsepower. Restrict available fuel and you lose horsepower- that's where the jet come into play.





The Hyper-Jet is a jetable, externally mounted third fuel circuit that improves the performance of OKO and S&S shorty carb. Unmodified, these carbs typically have a lower speed (intermediate circuit that supplies fuel from idle to approximately 2500 rpm, at which point the main jet circuit becomes active, driver fuel to the engine. These two circuits must supply fuel for the rest of the rpm range. The remaining rpm range is too wide (typically 2500-65000 rpm) for only 2 circuits to handle efficiently. In a performance application, the tuner generally encounters problems jetting a carb to give good, crisp mid-range response and still have strong top-end power. Usually, a compromise is the result. Back the main jet down, carburetion in the mid-range is good but top-end is lacking. Increase the main, top-end improves but no the mid-range is rich.

The jet is attached to the outside of the carburetor's body with it's fuel delivery tube projecting into the carb's venturi. As RPMs build and the engine draws an increasing volume of air through the venturi, the jet syphons fuel from the carburetor's float bowl. It then joins the main jet in supplying fuel to the engine on demand, usually beginning at around 4500 RPM, and again depending upon throttle plate position. Because of the supplemental fuel offered by jet, the size of the main jet can be decreased with no subsequent reduction in available fuel supply of horse-power. And in my experience, a jet makes more power at high RPMs than does a big main jet alone.

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Air Bleed

The Hyperjet and downsized main jet should help aggressive tuner scope with many of the carburetion problems encountered in the never ending search for horsepower. Even so, that oft-talked about flat spot may persist because of overlap between the intermediate and high speed circuits.

Circuit overlap, the transitional phase where both fuel supply circuits are active, is controlled by a small internal passage known as the air bleed. OKO selected an air bleed orifice size of .042 in. because in most instances it provides a good balance between the two systems. When a tuner alters the carbs fuel supply curve by installing a jet and tuning for max power, however, the intermediate and main jet circuits may need more separation. This can be accomplished by enlarging the air bleed.

To help find the optimal air bleed size for different application, plug the orifice in the Shorty's float cavity. They then provide an adjustable air bleed by drilling and tapping the carb's body to accept a standard Mikuni main jet. These jets are available in a variety of sizes, and it's usually a simple, albeit time -consuming matter to experiment until one is found that delivers a smooth transition between the intermediate and main jet circuits.

Tuning

The object of installing a jet and adjustable air bleed on an OKO Shorty is to increase the carb's "tuneability." Instead of having two jets to experiment with, as in tended by OKO, the carburetors modified have four: the intermediate jet, air bleed, main jet, and jet. The additional adjustments don't require a great deal more expertise on the part of the tuner, but they do call for substantially more time, patience, and experimentation.

Before starting, I'll pass along this tip from "When fuel is added to one circuit, it must be removed from another." That said, let's run through the recommended tuning procedure.

The following jet sizes are listed as starting points for modified Harleys only. Final settings vary significantly because of differing altitudes and engine components.

	80" Evo	**1200X**L
Intermediate jet	.032-.037	.032-.037
Main jet	.078 and up	.072-.082
Airbleed	135-165 (.055-.066)	same
Hyper Jet	100-125	100-135

Sifton	**Thunder**	**Brass**	**Type**
35-1719	**35-0179**	**35-1788**	Shorty
35-1800	**35-1972**		CV

1. Using the sizes listed above as reference points, install jets in the modified Shorty's four sites.
2. Turn the accelerator pump off, start the engine, and bring it up to its operating temperature. *Remember that carburetion requirements change with engine temperature; an engine must be thoroughly warmed before the carburetor can be accurately tuned!*
3. Select an intermediate jet that provides good throttle response without fouling spark plugs or causing exhaust smoke.
4. Adjust the idle mixture to obtain highest RPMs, turn it out 1/8-1/4 turn, and then reset the idle speed as needed. An unmodified Shorty usually requires that the idle mixture screw be turned out approximately 1 1/2 turns; with a large intermediate jet, as little as 1/2 turn may do the trick. Note: The Shorty's idle mixture screw should be reset whenever any jet is changed.
5. Tune the air bleed by experimenting with different jet sizes until any stumble or hesitation that occurs at the intermediate-main jet transition point disappears. If your engine seems to fall flat at the transition point, you may need to install a larger intermediate or mainjet.
6. Try a variety of main jets to obtain good mid-range and top-end power.
7. Using the same technique employed in step 5, tune the jet to achieve maxi mum top-end power.
8. Reactivate the accelerate or pump as needed. I might add that my modified carburetor is plenty responsive without the pump, so I've left it turned off.

The tuning goal should be to produce a clean, smooth delivery of power throughout the RPM range. With four jets to contend with, in addition to the idle mixture, tuning this carburetor can be very time consuming. I recommend that you start with an air bleed large enough to provide a distinct separation between intermediate and main jet circuits: that will help you determine the effect of the various jetting changes you've made. It is suggested that you take notes as you go along to avoid needless repetition.

WARNING: The Hyper/Thunder Jet is a high performance product developed for off road and competition use only. Additionally, installation requires the services of a skilled machinist.