

Main Jet Size: How to Get it Right

By Webslinger

With info from Mikuni and the 650 CC&D website

Mikuni HSR-series carburetors are remarkably versatile instruments. The standard tuning seldom needs more than small adjustments to accommodate a wide range of engine set-ups. One of the more common required changes is the main jet size.

Aftermarket exhausts have a wide range of flow volumes and the best main jet size is closely associated with exhaust flow. Thus, it is often necessary to replace the standard main jet with a different size to accommodate the wide range of exhaust designs on the market. However, it is easy to get the main jet right for a particular exhaust system using one of the techniques described on this page.



Exhaust	Rak jets	GAK jets	HC jets	Bak jets	Tak jets
Stock	110	Not rec	Not rec	Not rec	Not rec
2nd Baffle drilled	112.5	Not rec	Not rec	Not rec	Not rec
3rd Baffle drilled	112.5 – 115	120 -125	125-127.5	120 – 125	120 – 125
Gutted	115 – 120	125 – 127.5	127.5 -130	125 -127.5	125-127.5
HK	117.5 – 120	125 – 127.5	127.5 -130	125 -127.5	125-127.5
V&H Cruisers	117.5 – 120	122.5 -127.5	125 – 127.5	122.5 – 127.5	122.5 – 127.5
Cobras	115 - 120	122.5 -127.5	125 – 127.5	122.5 – 127.5	122.5 – 127.5
Jardines	115 – 120	122.5 -127.5	125 – 127.5	122.5 – 127.5	122.5 – 127.5
Roadhouse	112.5 – 115	120 -125	Not rec	120 – 125	120 – 125

Keep in mind that the main jet does not affect mixtures until approximately 3/4 throttle. Below that throttle setting, specifically between 1/4 and 3/4 throttle, air/fuel mixtures are controlled by the jet needle and needle jet.

It is relatively easy to get the main jet correct. Follow either of the techniques described below. All are satisfactory but the Roll-Off procedure is more accurate.

NOTE: The following tuning techniques might result in excessive (illegal) speed and increased risk from the speed and the necessary distraction of doing the test. We recommend that the testing be done on a closed course (track) or on a dynamometer, if one is available.

ROLL-OFF:

The Roll-Off technique is a quick accurate test method. First, one gets the engine warm on the way to a safe roadway. If there is room, use fourth gear as this allows more time to assess the result.

Now, get the engine rpm high enough that it is on the cam and in its power band. This may need to be as high as 4000 rpm with some cam choices. Apply full throttle. Let the engine accelerate for a couple of seconds until it has settled in and is pulling hard. Quickly roll the throttle off to about the 7/8ths position. When you do this, the mixture richens slightly for a second or so.

- If the engine gains power as you roll the throttle off, then the main jet is too small and you need to fit a larger one.
- If the engine staggers slightly or has a hard hesitation, then the main jet is too large and you need to fit a smaller one.

Rev limiter : points 1st 30-32 mph, 2nd 50-52 mph, 3rd 70-72mph, 4th 90mph. Wide open throttle to the prescribed limit points at which time one of the cylinders will shut down – *(it will sound like it's gonna blow up... don't worry – it won't)*. Hit the first limit point when the engine all of a sudden starts to run really poorly then shift to the next point. If you hit the rev limits at the right speeds or better This is a good indication that the bike is jetted correctly.

Choke Test: If there is a particular speed and gear operating zone, where you experience a drivability problem (example; surge, miss, hesitation) the choke test can easily be performed. While duplicating the drivability problem, pull the choke knob out to the second notch. This will richen the carb circuit you are operating in. If the problem improves or disappears, that particular carb circuit is lean. If the problem gets worse, then the carb circuit is already too rich. (Do not do the choke test by leaving the choke on for an extended ride.)

If you're not having problems and just want to know if it's rich or lean – do the test at approx 50mph. If the engine improves that particular carb circuit is lean- go up a jet size. If the engine gets worse, then the carb circuit is already too rich- go down a size

In all situations the PMS should be set to 2.5 turns for stock – and 3.5 turns for everything else

Carb sync will be a large factor in all test – so it's best to sync before you test....