

Motorcycle Air/Fuel Mixture Adjustments

The following explains how to check and properly adjust a motorcycle's air/fuel mixture.

Pre-adjustment Check List

- Before making any fuel system adjustments, check all tune-up related adjustments.
- Idle RPM should be set at the factory specified speed.
- The engine must be at full operating temperature.
- Properly secure the motorcycle to a lift.

CARBURETOR ADJUSTMENT PROCEDURE

Idle Adjustment Procedure

- At idle, adjust the idle mixture screw(s) until CO in the exhaust pipe is between 2-4%.
- If CO cannot be set above 2%, increase the slow/pilot jet(s) one size.
- If CO cannot be set below 4%, decrease the slow/pilot jet(s) one size.
- With CO between 2-4%, using a tachometer, adjust the idle mixture screw(s) until idle RPM reaches a maximum (around 3.0% CO).
- Adjust the idle speed screw so idle RPM is at the factory specs.
- Record the CO level at idle RPM.

Cruise Check

- While in neutral, accelerate to mid range (1/3 of maximum RPM) and hold for 20-30 seconds until CO stabilizes.
- At this RPM, CO should be 1/4 to 1/2 of the CO at idle.
- If CO is less than 1/4 of the idle results, the engine is too lean. Install a larger slow/pilot jet(s) or raise the needle(s) one step.
- If CO is more than 1/2 of the idle CO, the engine is too rich. Install a smaller slow/pilot jet(s) or lower the needle(s) one step.

FUEL INJECTION ADJUSTMENT PROCEDURE

Many fuel injected bikes have an idle adjustment which should be set between 1-3% CO. After market fuel injection modules are available for bikes which have no adjustments. These units typically have adjustments for idle, mid, and high RPM ranges. Again, CO levels should be between 1-3% for each of these ranges.

These CO levels are **general** limits where most engines operate well. The best source of these levels is the factory specifications for each particular engine, fuel system and exhaust combination. Always refer to the OEM's specifications for CO exhaust emissions.

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