Modification for Race -- ZX750E

The DFI control unit for all ZX750E models, with the exception of US model, has race version specification (program) in its microcomputer so that the customer who desire to tune his DFI system for race use can modify it.

1.Modification for Race Use

(1) Remove the vinyl taping around the wiring harness which branches from the DFI system wiring harness and leads to the air temperature sensor.

(2) Find out the brown lead and blue/red lead. Both ends of these leads are connected.

(3) Disconnect the brown lead and blue/lead to change the internal program in the DFI microcomputer from normal use to race use.

(4) Retape the leads together with the air temperature sensor wiring harness for insulation.

2 Operation of Race Use Program

(1) The program stored in the microcomputer is changed from normal use to race use. The race use program gives suitable fuel mixture for the machine with a air funnel (see later for air funnel). Under the control of the race use program, DFI system gives:-

(a)normal mixture when idling

(b)richer mixture when high engine rpm or wide throttle opening.

(2) Moreover, fuel mixture can be adjusted to obtain leaner or richer mixture allover the engine rpm range and throttle opening range. This is done by connecting a resister between the brown lead and the blue/red lead which were disconnected. (See later for detailed explanation.)

(3) Fuel injection is not stopped when the boost pressure exceeds the preset maximum which is determined for normal use.

(4) Fuel injection is not stopped when engine braking.

(5) The code 33 is continuously eliminated from the trouble code inspection hole in the DFI control unit to show the DFI system operates under control of race use program. But code 33 does not mean trouble in the DFI system, so naturally the DFI warning light in the instrument panel does not flash. If any trouble occurs in the DFI system, the trouble code(s) will be emitted as normal use and the DFI warning light will flash.

3. Adjustment of Race Program

(1) By inserting a suitable resister between the brown lead and the blue/red lead, the fuel mixture can be adjusted. The resistance of adjustment resister should be chosen within the range from 1.2 kilo-ohms to 5.2 kilo-ohms. The fuel mixture varies from 20% leaner to 20% richer than standard race setting according to changing the resistance from 1.2 kilo-ohms to 5.2 kilo-ohms. The mixture does not become leaner or richer beyond 20% even if the resistance is changed to more than 5.2 kilo-ohms or less than 1.2 kilo-ohms. This relationship is formulized as follows:-

$$K = \frac{5R}{4(R+5)} + 0.56$$

where R: Resistance in kilo-ohms
(R is between 1.2 and 5.2)
K: Factor

(2) Adjustment by changing the resister varies fuel mixture constantly allover engine operating range of all engine speed and all throttle opening. This brings overly-rich or overly-lean mixture at idling, even if the mixture for heavily load range is suitable. This dilemma is solved by adjusting the throttle sensor position. Adjust the throttle sensor position to obtain the best idling. This changes the mixture setting around idling range only. Idling mixture becomes richer by turning the throttle sensor clockwisely viewed from right side.

(3) A variable resister is convenient for adjustment. Note that the DFI system recognizes this resistance only after the ignition switch is turned on and before the stater switch is pushed on. This means that after the engine is started, the setting is not changed by varying the resistance. Always stop the engine for the system to recognize the resistance change. Be careful not to fall off the adjustment resister during riding to avoid changing the setting unknowingly.

4.Installation of Air Funnel

(1) An air funnel can be installed on the ZX750E to take the advantage of dynamic pressure effect during high speed riding.

(2) The air funnel leads directly air to the turbocharger compressor without passing the air filter and long intake pipe. This eliminates the pressure loss of the intake air which occurs before it enters the compressor.

(3) Air Funnel Installation Procedure:

(a) Remove the under cowling.

(b) Remove the intake pipe which connect the air filter housing and the compressor.

(c) Install the air funnel facing its intake opening foreward so that the air intake opening in the under cowling meets with the air funnel opening.

(d) Install the under cowling.

5.Others

(1) It is an effective method to remove the buffle plates in the mufflers. This raises the efficiency of the turbocharger.

(2) If the air funnel is not to be installed and usual modifications only, for example, polishing intake and exhaust ports or muffler modification, etc. are to be done, the DFI system can be changed and adjusted in the same manner as just explained above.

(3) When riding with the air funnel, discharge the engine blowby gas to air by leading blowby gas through the rubber tube from the breather cover.

(4) Use of race gasoline (RON 100 octane) is highly recommended when the DFI system is operated undercontrol of the race program. Although the most optimum setting varies with the degree of muffler modification, road condition, or whether, etc., Starting the test from 4 kilo-ohms (11.5% richer mixture) is recommended. Gradually change the resister toward leaner mixture within a range that detonation does not occur.

Figure: Air Funnel Installation

