MFG P/N 9120428 Patent Numbers: 7,000,599 & 7,124,742

Zodiac® Top Fuel Injection Controller Instructions



Thank you for choosing the Zodiac Top Fuel Injection Controller. The Zodiac "Tfi" Controller is usable only for the following fuel injected Harley-Davidson's

➢ 2014 HD Touring Models

This product is a great fit for stock bikes with exhaust and intake mods.

This is an Electronic Jet Kit. Like jet kits in the past, the more you modify, the more responsibility you take in getting your fuel curve right. Going to www.zodiac.nl will help you obtain better high horsepower tuning.

INSTALLATION PREP

- Install Time: 60 minutes
- Required Tools for: Disconnecting the negative terminal of the battery
  Removing your seat
  Loosening and propping up the fuel tank

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INSTALLATION

1. **Before installing the Zodiac Tfi you must first disconnect the negative lead from the battery.**

2. **Determine a location for the Zodiac Tfi unit. Suggested locations are as follows:**
   TOURING – see figure 1 - Under seat, inside small frame opening

3. **Make sure your motorcycle is cold, locate and disconnect the fuel line under the left hand side of the fuel tank using the quick disconnect feature on the fuel fitting (DO NOT UNSCREW THE FITTING). Remove the rear fuel tank mounting bolt and slowly lift up the fuel tank (make sure the fuel tank does not come in contact with steering area). You will need something to hold the fuel tank up (block of wood or a towel) from the frame to gain access to the injectors.**

4. **Underneath the fuel tank you will locate the fuel injectors (TOURING figure 4).**

5. **Disconnect the factory fuel injector connector from the fuel injector. Connect the Zodiac Tfi fuel injector harness inline with the factory fuel injector connector and the factory fuel injector.**
   Reference following figures: (TOURING- figures 5,6,7) (Tfi connector will look different than stock but will fit)
   IMPORTANT: The TFI injector harness with the white/yellow wires must go to the front cylinder. The TFI injector harness with the green/gray wires must go to the rear cylinder.

6. **The factory O2 connectors are located under a side cover on the right side of the bike back by the seat. Plug the supplied O2 harnesses in line with each connector. See Figure 3**

7. **Replace the fuel tank (make sure all mounting bolts are in place and fuel connections are correct).**

8. **Connect the Zodiac Tfi ground lead to the negative terminal of the battery along with the factory ground lead.**

9. **Cable tie the Zodiac Tfi harness and ground lead to the main wiring harness. Reinstall the air box floor, crankcase breathers, velocity stacks, O-rings, air filter assembly and air box lid. Make sure you reconnect the IAT sensor.**

10. **Mount (tuck) the Zodiac Tfi behind the Maxi-fuse located behind the louvered right hand frame cover (at the steering head)**

11. **After connecting the box, check all the wire connections to ensure proper connection. To do this just pull on the connections to make sure they are *properly locked in*.**

12. **Be sure to check the wire harnesses are not in direct contact with any sharp edges, exhaust and/or other objects, which could result in long term wear or damage.**

13. **Start the bike up and in approximately seven seconds the LED's inside the Zodiac Tfi will energize and be visible. With a proper installation, the Zodiac Tfi will have a continuous LED sequence where the LED's come on from left to right and then back again. Then it will stop scrolling the LED's and go to a steady or slow flashing green LED to the far left (depending on programming). With an improper installation the LED display will consist of a flashing green and a flashing red LED. This occurs when the Gen 3 is not receiving a proper injector signal. Recheck the wire connections for any defects. *(The flashing green and flashing red LED's is "common" for a proper installation during deceleration because the stock fuel map shuts off the fuel injectors "on most models" during this process.)***

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To program the Zodiac Tfi, the bike must be running in order to supply power to the box. If at anytime you stay in an adjusting mode for longer than 4 seconds without pressing any buttons, the Zodiac Tfi will exit adjusting mode and will return to the ready state. To save settings at a particular mode press the MODE button which goes to the next adjustable mode or wait for the Zodiac Tfi to exit back to the ready state. The settings are adjusted by pressing the plus and minus buttons located on the right and left side respectively of the mode button. When entering each mode for the first time, remember a light is flashing on the left side, which signifies a value of 0 for that particular mode if the unit isn't preset from the factory. To start adjusting press the plus button once and notice that the light which was flashing is now flashing at a faster rate. This signifies an increase of 0.5 for the mode value. Press the plus button again and the light to the right of the last flashing light will now begin flashing. This represents a value of 1 for the mode. Now if you press the plus button again you will notice the next light to the right begins flashing. You should now have two flashing lights and the current value is 1.5 for the mode. This process continues for all the lights across the light display until you reach the right most light. When the value is 7.5 you will have the second from the right light flashing in the color of the mode and the right most light will be flashing blue. Pressing the plus button will make the value 8 which is the max value and the right most light will flash a combination of the two colors. The range of values for each mode is 0 to 8. To see a visual display of adjusting values go online to www.zodiac.nl

1. **At this point you are ready to adjust the Zodiac Tfi to the base settings supplied with the unit. The first thing to do is ensure that the proper code was supplied by checking that the six programmable features are available. To begin this process press the MODE button and to enter each successive mode, just press the MODE button again. The unit comes with pre programmed settings these settings should match the recommended starting settings located on a following page.**
    a. **The first mode represents an additional amount of fuel added during light load steady throttle cruise. A flashing green LED should appear somewhere on the display.**
    b. **The second mode represents an additional amount of fuel added during acceleration. A flashing yellow LED should appear somewhere on the display.**
    c. **The third mode represents an additional amount of fuel added during full throttle conditions. A flashing red LED should appear somewhere on the display.**
    d. **The fourth mode represents an adjustment to determine if fueling from the green mode occurs at idle. A flashing green LED should appear somewhere on the display along with a flashing blue LED on the very right side.**
    e. **The fifth mode represents an adjustment for when the yellow fuel comes in. A flashing yellow LED should appear somewhere on the display along with a solid blue LED on the right.**
    f. **The sixth mode represents an adjustment for when the red fuel comes in. A flashing red LED should appear somewhere on the display along with a solid blue LED on the right.**

2. **If each mode is present then the proper code exists and you are ready for making manual adjustments. If you failed to enter a mode, try going through the sequence again and be sure to only press the MODE button once quickly in between each step.**

3. **You are now ready to manually program each mode. Consult the base settings supplied with the unit or you can look up the most up-to-date settings by going to our website www.zodiac.nl**

4. **Your Zodiac Tfi should now be properly programmed and you are now ready to tune your bike.**

Always make sure your bike is at normal operating temperature when making tuning adjustments.

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Tuning for mode 1 – Fuel addition during steady throttle cruise/idle.

This adjustment deals with adding fuel during all steady throttle/idle conditions. The lowest light setting (0) represents the factory fuel addition level and the highest light setting (8) represents the maximum amount of TFI fuel added to the factory level.

Tuning for mode 2 – Fuel addition during acceleration

Tuning for this mode depends greatly upon your individual bike and can vary widely from the base setting. After market high flow exhaust systems and high flow air filters "MAY" cause you to tune differently from the base settings. This combination could have a setting difference as great as three yellow lights. Note that this adjustment is only for hard acceleration. The lowest light setting (0) represents the factory fuel addition level and the highest light setting (8) represents the maximum amount of TFI fuel added to the factory level.

Tuning for mode 3 – Fuel addition during full throttle

This adjustment deals with adding fuel for primarily 4000 RPM and up to red line. For example, running to red line in 1st, shifting, running to red line in 2nd, shifting, and continuing this all the way through the gear range, you would have been engaging the red light all the time. Again this mode could vary widely from the base settings depending on the set up of your bike and could have a difference as great as three red lights or more. The lowest light setting (0) represents the factory fuel addition level and the highest light setting (8) represents the maximum amount of TFI fuel added to the factory level.

Tuning for mode 4 – Represents an adjustment to determine if GREEN fueling occurs at idle.

This adjustment corresponds directly to RPM. The lowest light setting (0) represents 500 RPM and GREEN fuel will occur at idle. The highest light setting (8) represents 1400 RPM.

Tuning for mode 5 – Represents an adjustment for when the YELLOW fuel engages

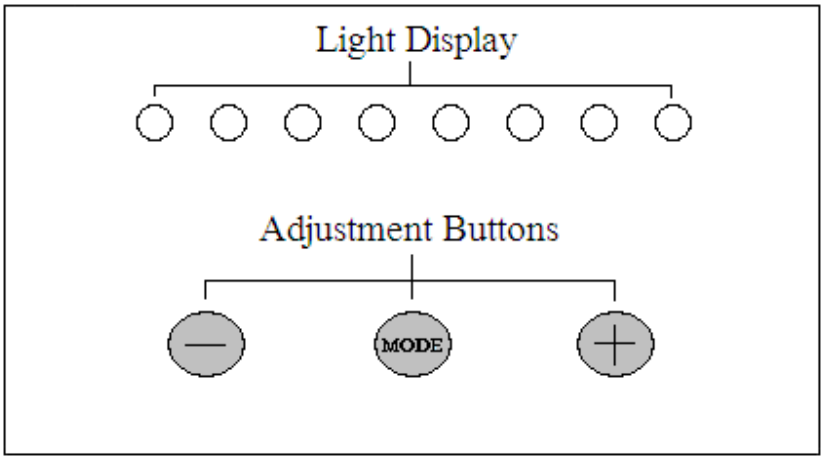
This mode "MAY" vary from the base settings depending on the set up of your bike. The lowest light setting (0) represents the lightest load to switch on the yellow fuel and the highest light setting (8) represents the heaviest load to switch on the yellow fuel.

Tuning for mode 6 – Represents an adjustment for when the RED fuel engages

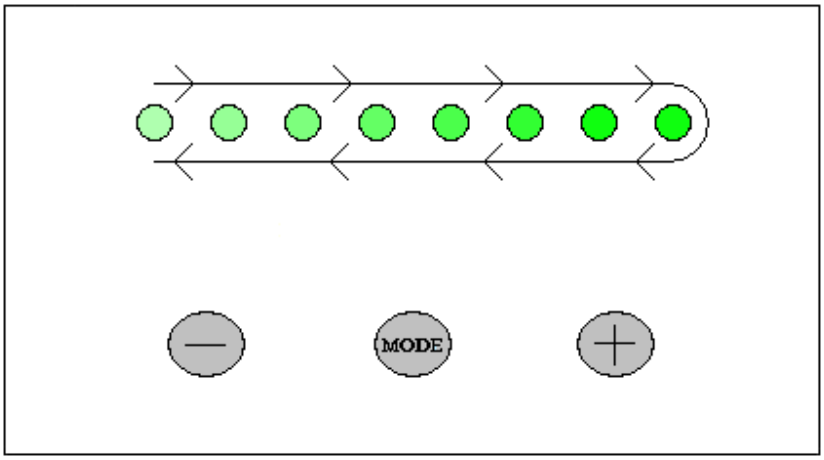
The base setting for this mode will rarely have to be changed. The red light should be engaged during the full throttle period. For example, running to red line in 1st, shifting, running to red line in 2nd, shifting, and continuing this all the way through the gear range, the red light should be engaged the whole time. If you do not see the red light the whole time then you need to lower this setting to make the red light turn on sooner.

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General Layout



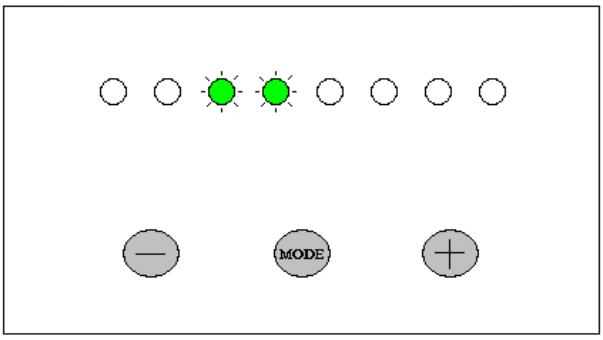
Start-Up Light Sequence



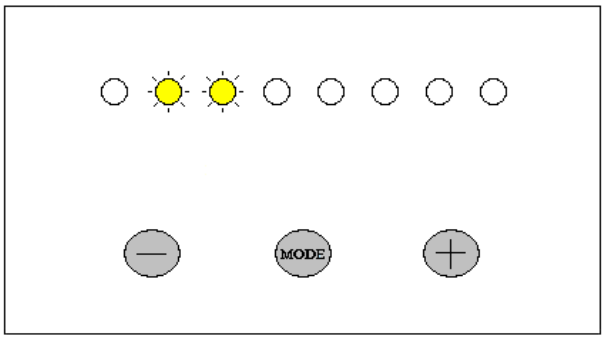
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Base Settings

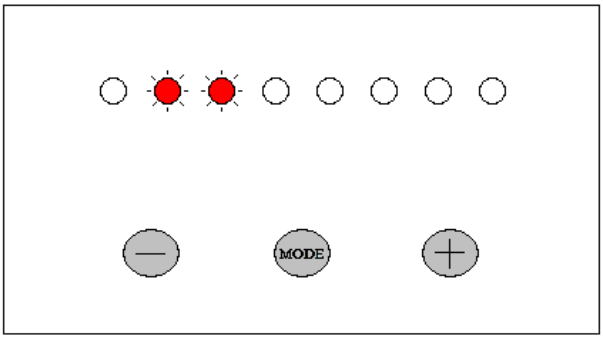
Mode 1 – Green – 3.5



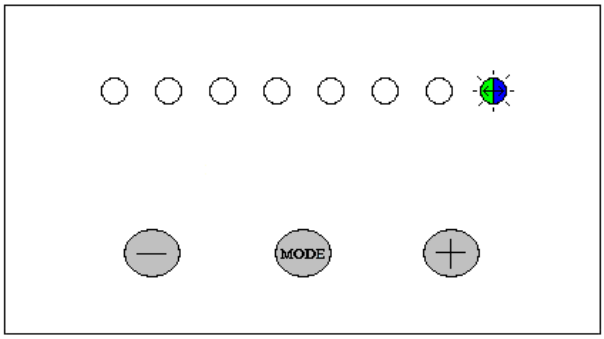
Mode 2 – Yellow – 2.5



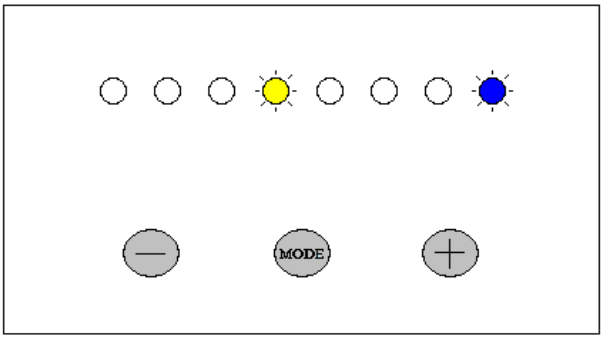
Mode 3 – Red – 2.5



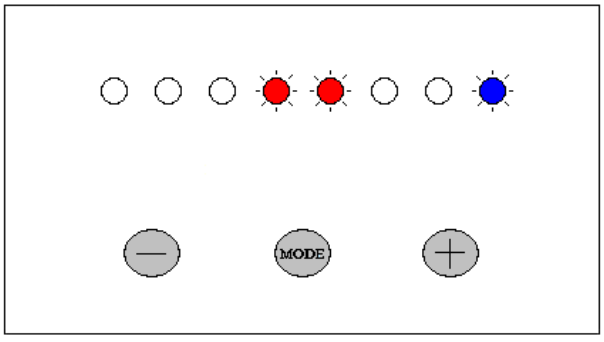
Mode 4 – Green/Blue - 8



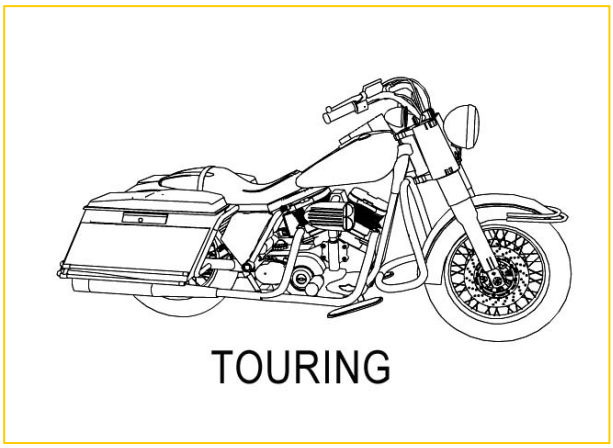
Mode 5 – Yellow/Blue - 4



Mode 6- Red/Blue – 4.5



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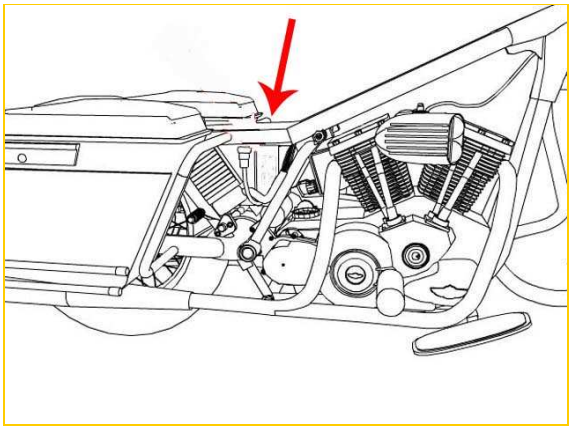


Fig 1

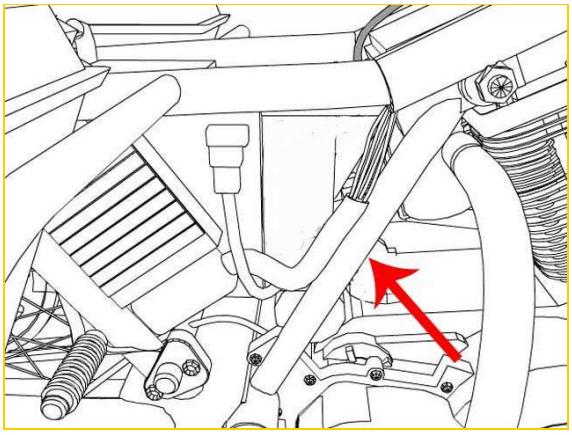


Fig 2



Fig 3

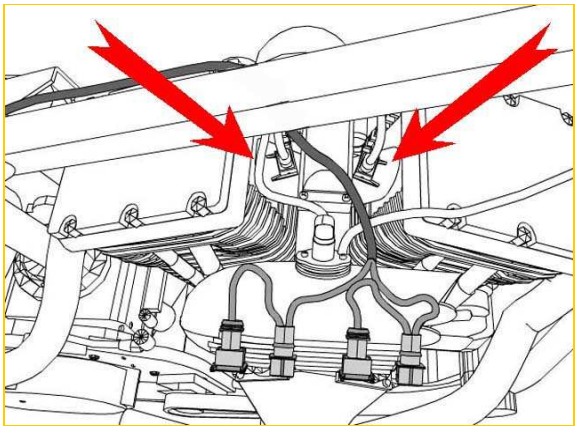


Fig 4

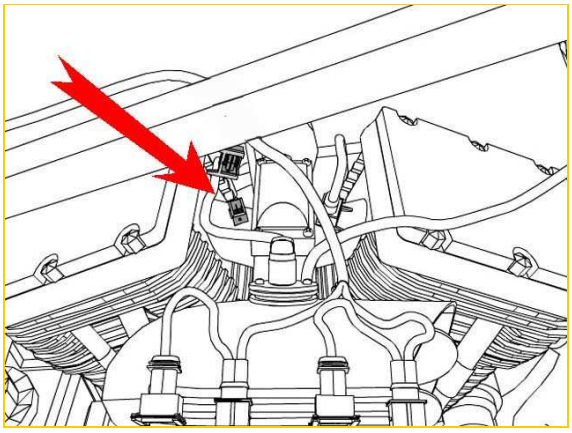


Fig 5

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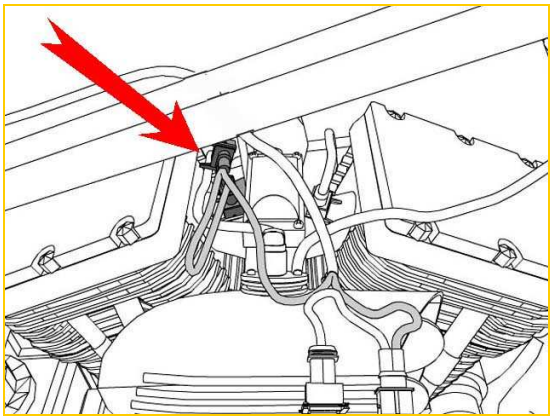


Fig 6

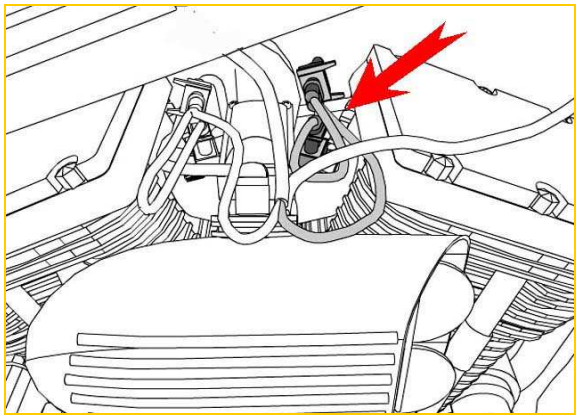


Fig 7

1 – Year Unlimited Mileage Warranty

Zodiac warrants that this product carries a warranty for 1 year from date of purchase against original defects in materials and workmanship. Should this product fail to perform for either of the above reasons, Zodiac will repair or replace it with an equivalent product at no charge, except for postage, to the original retail purchaser.

*** * Important * * Important * ***

To obtain the benefits of this warranty, the retail purchaser must send the product with proof of purchase and postage prepaid to:

Zodiac International B.V.
Industrieweg 44,
3641 RM Mijdrecht,
The Netherlands

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