



## READ PRIOR TO STARTING MACHINE

### FUEL BOX TUNING NOTES

Set fuel pressure and check for fuel leaks. Verify that the boost line, to the fuel control box, is not Cracked, Torn, Pinched or Routed Incorrectly; or engine damage will occur.

**\*\*Recommend testing your fuel control box on initial start up while burping the intercooler.**

Stock motor or low compression turbo head motor = 38 to 42 psi (start at 40 psi)

Low compression turbo head with lower port timing = 48 to 52 psi (start at 50 psi)

**\*If your engine surges at speeds below 15 mph the fuel psi is usually too low.**

Set base settings on fuel control box as follows upon starting:

**NOTE: The first four settings (Grn,Yel,Red,Grn/Blu) may need to be adjusted 1/2 to 1**

Light Color (RPM)	Base Setting	Controls	Target O2 reading
Green(4500-5500)	3	0 to ¼ throttle (Cruise fuel – Pilot Jet)	14.5 – 15.5
Yellow(5500-6500)	3	¼ o ½ throttle (Acceleration fuel – Needle Jet)	14.0 – 15.5
Red (6500+)	3	½ to WOT (Full throttle fuel – Main Jet)	14.0 – 15.0
Green/Blue	3	Boost fuel	12.4 – 12.5
Yellow/Blue	4/5	Acceleration RPM fuel	
Red/Blue	5	Full throttle RPM fuel	

**light up or down depending on elevation, temperature and O2 readings.** Be sure and turn the machine off and restart it again to recheck that the settings you have entered are calibrated correctly where you set them.

Remember: Consistency is the key, make sure to run the same fuel (ratio, brand, etc.) in your sled, the fuel box tuning changes as the fuel changes. Too much oil in the gas has adverse effect on the effectiveness of the fuel control box.

#### Tuning:

1. **Start the vehicle. If installed correctly the unit will begin its startup sequence where the LED's display a single green light scrolling back and forth for a couple of seconds. Slightly increase RPM's after the startup sequence and a single green light should be displayed on the very left LED. With an improper installation the light display will consist of a flashing green light to the left and a flashing red light to the right. If this occurs then the unit is not**

receiving a proper injector signal. Recheck the wire connections for any defects. (*The flashing green and flashing red lights is common for a proper installation during deceleration because the stock fuel map shuts off the fuel injectors during this process.*)

2. **At this point you are ready to adjust the unit to the base settings supplied with the unit. The first thing to do is ensure the proper code was supplied by checking the six programmable features are available. To begin the process, press the MODE button. To enter each successive mode, just press the MODE button again.**

**3. Description of each mode and light representation:**

**Mode 1 - Green - Cruise fuel adjustment**

- Similar to adjusting pilot jet and mixture screw on carburetor vehicles. Decreasing the light value will add a lower amount of fuel. Increasing light value will add more fuel.

**Mode 2 - Yellow - Acceleration fuel adjustment**

- Similar to raising or lowering the needle on carburetor vehicles. Decreasing the light value will add a lower amount of fuel. Increasing light value will add more fuel.

**Mode 3 - Red - Full Throttle fuel adjustment**

- Similar to adjusting the main jet on carburetor vehicles. Decreasing the light value will add a lower amount of fuel. Increasing light value will add more fuel.

**Mode 4 - Green/Blue – Fuel per pounds of Boost**

- **This is your main adjustment for your turbo and is 90% of your tuning. Use this setting to add fuel to get your sled running its desired A/F or EGT**

**Mode 5 - Yellow/Blue – Acceleration RPM switch**

- This function is the RPM switch point for the acceleration mode. This is for different turbos and different VES springs. Box is preset to normal level. *The Lower the number the Sooner acceleration fuel is added. Higher the number the later fuel is added.*

**Mode 6 - Red/Blue – Full Throttle RPM switch point adjustment**

- This function is the RPM switch point for when the full throttle fuel addition engages. Adjustment is necessary to mostly match different pipes or big bore kits which require different fueling needs. *Decreasing the light value will cause the full throttle fuel to engage at a lower RPM. Increasing the light value will increase the RPM it engages.*

**Tuning Tips:**

1. Use the Green to adjust your cruise circuit. If you see a rich idle you need to adjust your fuel pressure. Please contact HM Turbos for our current base fuel pressure setting.
2. The Yellow light will always be equal to or less than your green light.
3. Use the Green Blue setting to dial in your desired A/F mixture or EGT. Use this setting as much as possible and then use the red for fine tuning. This will allow your sled to move with elevation and temp better.

4. If your sled seems to come out of tune when changing in elevation or temp shut your snowmobile OFF and then restart it. This will allow the fuel control box to zero itself and recalibrate the boost sensor. Do this before adjusting the box.
5. When you flip your boost on the fly toggle it may be necessary to drop your grn/blu boost fuel a half a light to get you O2 back to 12.5 to 1 ratio. Check calibration every time you go up or down on boost.
6. If running **straight super unleaded** at the lower boost levels be sure and back up your O2 with piston wash readings. You might think you are lean on the O2 and it is actually running rich and dumping extra fuel in the pipe and burning it after the combustion chamber making the O2 read hotter than it actually is. ***Approach with caution and test.***
7. **Remember-** Turbos like to run rich **not** lean. Running lean will result in detonation and motor failure. Lean readings are 12.7 and higher at WOT. Rich readings are 12.2 and lower at WOT. Try and keep the oxygen sensor at 12.4 to 12.5 for best performance and durability.
8. **Important:** Always verify that the Grn/Blu lights come on the box when you go under boost so you know that the box is adding boost fuel to the engine under boost. If it does not, turn the machine off to reset control box. Verify again, if it fails to add fuel test at home with alternate boost source at an idle.(see testing procedure below)
9. If you notice a "stumble" when you are in and out of the throttle, you may need to adjust the yellow/blue up or down ½ a light to adjust when the acceleration mode kicks in. Make sure your O2 readings are correct before adjusting. Most adjustments will be down ½ a light, but again check your O2 readings when you hear the "stumble".

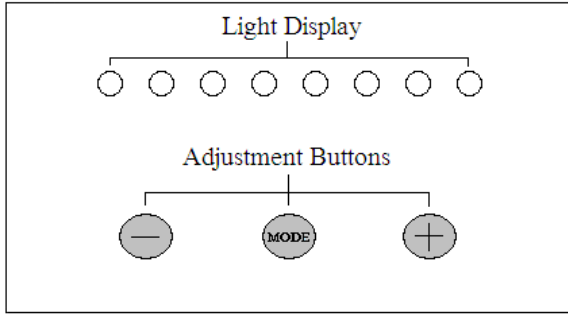
#### **\*\*Testing the Fuel Control Box\*\***

After you have confirmed that all connections are correct you can check the green blue mode or the fourth mode (boost fuel) by starting the machine(set the green/blue mode all the way up or full rich) and revving it up slightly so that the light on the box goes to a solid green. Then charge the boost line with air to 4 or 5 psi(do not go over 15 psi or damage will occur, use a regulator/guage) and you will hear the motor get fuel from the injectors and go rich(the O2 reading will go down). If you do not notice a stumble and the motor go rich call HM Turbos as the pressure transducer may be bad.

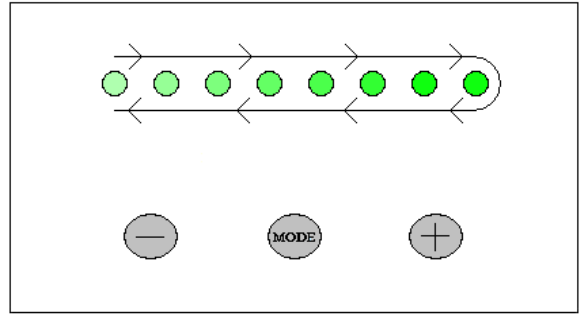
#### **\*\*Troubleshooting\*\***

If you are having difficulty tuning the machine, or the machine is running roughly, check all connections to the box including each wire (to make sure a wire has not been nicked or cut). You will also want to check that the box is switching between modes while you ride, if it doesn't, shut the engine down and check the wires or reset the box by shutting down.

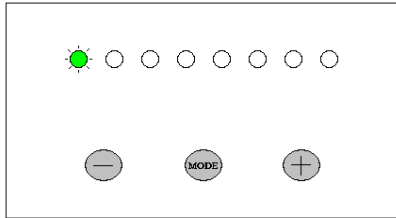
# Fuel Box Modes



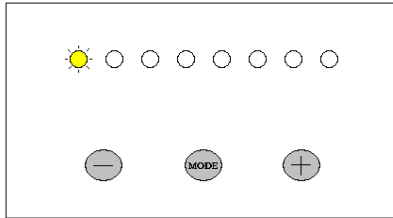
General Layout



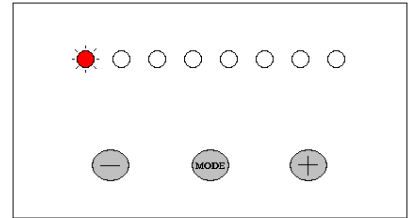
Startup



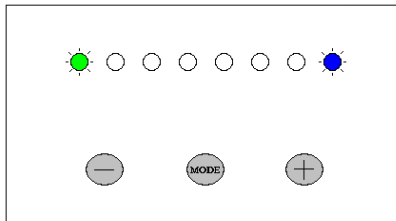
Green Mode



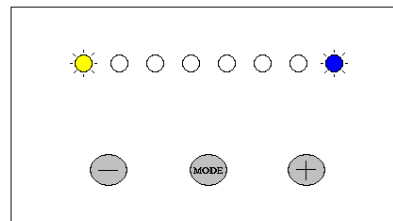
Yellow Mode



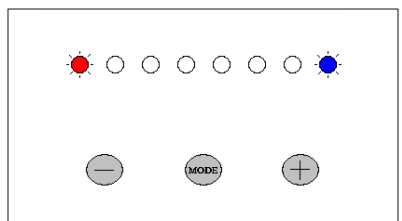
Red Mode



Green/Blue Mode



Yellow/Blue Mode



Red/Blue Mode