



READ PRIOR TO STARTING MACHINE

Turbo Notes

Always check the control rod and that it is centered. It should not rub where it goes through the V-Band clamp. If the control rod rubs, it will cause the veins to hang up or stick causing a possibility of over-boost and engine damage.

BOOST ADJUSTMENT:

Turbo boost levels are as follows:

- green spring + 1 shim 6 psi
- blue spring + 1 shim 6.5 + psi
- blue spring + 2 shims 8.5 -9 psi
- blue spring + 3 shims 9-9.5 psi
- blue spring + 4 shims 9.5-10.5 psi
- orange spring + 1 shim 10.5 to 11 psi
- orange spring + 2 shims 11 to 12 psi
- orange spring + 3 shims 13 to 14 psi
- orange spring + 4 shims 14 to 15 psi
- brown spring + 1 shim 14+ psi

Important: When changing boost levels, do not lose the small washer under the diaphragm - this will cause erratic performance and broken e-clips.

NOTE: New springs typically read ½ to 1 psi higher for the first 100 miles until they settle.

Turbo Adjustments: Due to snow conditions, altitude, weight of rider, length of track/profile and the state of tune of the engine, **you may need to fine tune the adjustment of the variable veins on the controller.** The veins on the turbo are adjustable from 0 to 4 turns (0 turns start when you back off the **5/8"** jam nut on the controller and turning in the **1/2"** nipple until you just feel contact on the piston). The veins are factory preset at **2 turns or 12 flats** in for the best results (**most end up between 10 to 14 flats**). You should not have to move this adjustment more than a 1/4 turn in or out from the factory preset 2 turns. Refer to hmturbos.com tuning notes (video) on how to make this adjustment. **Adjust in the field for the best performance.** **This is a must do adjustment!!!**

NOTE: Moving **in** from 2 turns **opens** the veins, which **creates less backpressure**
Moving **out** from 2 turns **tightens** the veins, which **creates more backpressure**

CAUTION: For proper fueling, always be sure and adjust the fuel controller after adjusting the veins. Tighter veins can cause more backpressure and require more fuel to keep the oxygen sensor reading correctly.

TURBO TROUBLESHOOTING:

If you find that your jetting cannot be dialed in with the Dobeck box and you are having trouble with the running condition; the controller cap on the turbo can be removed and you can push on the end of the control rod to see if the veins are moving freely. If they are not moving freely consult HM TURBOS.

If you loose the lights on your fuel box, check to be sure that the air temp sensor on the clutch cover is not shorted. Replace with a new one before contacting HM TURBOS.

INTERCOOLER TROUBLESHOOTING:

Upon starting the machine be sure the toggle switch is facing forward and that the light is on in the boost gauge to verify there is power going to the water pump. Testing in the field the top of the core should be very cold. Repeat the tipping process as in step #43.

Loss of boost: If you loose boost or only get 1 to 3 psi the clip on the end of the control rod may have fallen off. If this is the case, take the cap off the controller carefully not to loose the open ended snap ring and reinstall it on the end of the control rod. Another possibility is the spring clamp on the boost line. Check it to make sure it has not come off.

Intake- Be sure to provide ample airflow with venting in the hood to prevent friction loss on the intake side of the turbo. We recommend as much surface area as possible as vents get covered with powder and can block air flow to the turbo and damage it. Some moderate snow ingestion will not hurt the turbo or engine performance, but watch for ice that can form under or in the hood. There is a safety screen on the cold air intake to prevent debris from entering the turbo, just ***be sure and not let ice form inside the fresh air intake from snow melt as it can damage the turbo impellers.***

Air / Fuel gauge needs to run at 12.4 to 1 ratio at wide-open throttle.

If the gauge exceeds 12.8 to 1 for sustained periods at wide-open throttle engine damage will occur and cause detonation or a lean popping effect. Running the gauge below 12.2 to 1 will cause a rich condition and can foul spark plugs and cause the engine to stutter.

Note-If the numbers on your Fuel control box are all the way up and your oxygen gauge keeps climbing you may have a bad stator (trigger coil), voltage regulator, coil or you may have broken reed petals. Consult your local dealer for Digital Wrench for trouble shooting. Be sure and check fuel pressure rate/rise first. (Verify static pressure and rising rate under boost) You may have a plugged fuel filter. Replace with Polaris p/n: 2520771.

Preventative Maintenance- Check the pull rope for wear from engine to first rope guide. It rubs on the hose and can cause a premature break. **Change your fuel filter every year or 1000 miles to prevent poor fuel flow.**

NOTE: The oxygen gauge will not be very accurate below 6000 rpm due to oxygen ingestion through the muffler at lower speeds. EGTs can be a useful tool for tuning at lower RPM's.

Typical air fuel readings at cruise can run in the 14 to 15 to 1 ratio range.

Be sure and check the plug readings and piston wash to confirm proper running.

Typical Running RPMs are 8200 to 8400 under a hard load and up to 8500 under track spin. Keep the max RPM's less than 8500 if possible.

The turbo will pull hard all the way down to 8150, but will make more power at 8350 to 8450. Keep the RPM's up so that it is easier on the belt life.

*EGT's can be added to aid in tuning below 6500 RPM's, if desired.

Typical readings are:

13 to 1 on the O2 are 1000 degrees

13.5 to 1 =1050 to 1075 degrees

14 to 1=1125 to 1150 degrees

These are just typical EGT numbers at cruise RPM's. Turbo temperatures run 100 to 200 degrees hotter than a naturally aspirated engine. RPM's also affect readings.

How do you check the oil level?

Check the oil level with the turbo pointing upward; remove the small brass plug. Then insert a 6-inch long zip-tie down the hole until it bottoms out on the floor of the turbo oil cavity. Remove the zip-tie as it is acting like an oil dipstick and measure the oil level. Be sure to loc-tite the brass plug when you re-install it. Clean threads with oil-free solvent and use red loc-tite, torque to @ 35 inch lbs. Normal oil level is 1 1/4 to 1 1/2-inch.

Normally you should check the oil every 2000 miles/1x yr.

Oil must be added if the oil is less than 1inch. **Before running your turbo kit, you must add the provided special oil or you will damage your turbo!**

If there is noticeable oil inside the power dome of the turbo, this is a normal condition due to the vent located on the power dome. BUT if oil is weeping down the outside of the turbo, check the o-ring you may have a leak.

**INSTALLED PROPERLY YOU SHOULD HAVE MANY FUN TROUBLE-FREE
MILES WITH THE HM TURBO Kit
BE SURE TO PAY ATTENTION TO AVALANCHE SAFETY.
TAKE AVALANCHE TRAINING COURSES AND BE AWARE OF
AVALANCHE CONDITIONS.**