



Special Edition(SE)/Sports Edition(SX) Break-In Instructions

TRM-VX300SE

S/N 51021



Congratulations on your purchase of this TRM power modified Zenoah power plant!

This engine has been modified to provide power and smoothness over the stock engines performance. The end result is an engine that operates smoothly and has a much wider power band at the peak horsepower range.

This TRM engine has been designed to operate in the following RPM ranges:

TRM VX300 Special Edition	13,000-14,500 RPM, with 13,500-14,500 being the optimum performance rpm range
TRM VX300 Sports Edition	12,000-13,000 RPM, with 12,500 being the optimum performance rpm

Other gear ratios are also supported by this engines performance and have been tested with very satisfactory results. Much testing was done using the 7.13:1, 7.03:1, 6.89:1 and 6.76:1 ratio, models using these ratios performed very well.

The TRM engine will give literally hundreds of hours of trouble free service. In order for the engine to do this, proper running and break in procedures MUST be utilized. Proper needle settings, oil and oil ratio as well as properly filtered fuel must be used.

Needle Settings

The Zenoah G-260 usually comes with a Walbro Wt603 and G-270 engines are equipped with Walbro Wt990 series carburetors.

Low Speed Needle:

- 1 and 3/8 turns open from full closed. Never operate at less than 1 and 1/4 turns open. It may be necessary to open this needle initially more than 1 and 1/2 turns open to get the engine rich enough for break in operation.
- This needle is very sensitive and very small adjustments are required .
- **THESE ARE BREAK IN SETTINGS ONLY!**

High Speed Needle:

- 1 and 1/2 turns open from full closed. Never operate at less than 1 and 3/8 turns open. It may be necessary to open this needle initially more than 1 and 1/2 turns open to get the engine rich enough for break in operation.
- This needle is less sensitive than the low needle and slightly larger adjustments can be made.
- **THESE ARE BREAK IN SETTINGS ONLY!**

After the break in process in complete the setting may be leaner for proper running for peak power and smoothness.

- Always run both needles as rich as possible for satisfactory results. During break in, the needles may both need to be opened slightly each flight as the engine breaks in. Always error to the rich side on both needles as being slightly too rich will not damage the engine, being too lean can cause engine damage.

Fuel Requirements

- This engine is designed to be operated on low octane fuel. High-octane fuel is not recommended as it will not add any power and may in fact reduce the available power that engine can produce.
- Much testing has been done using "camper" fuels. These fuels are the same as what is burned in camp stoves and are marketed under the names Coleman and Ozark brand.
- This fuel burns much cleaner than gasoline, has virtually no odor, gives essentially the same power as gasoline and has a long shelf life due to not forming varnish "going bad" as stored gasoline will do.
- Needle settings are nearly identical to those used with gasoline fuel.

Oil Recommendations

- Any good quality two-cycle synthetic oil can be used. Follow the oil manufacturer's recommendations on mixing ratios.
- NEVER use or injector oil. These oils will damage the engine in short order!

Break- In Oil

- Fully synthetic oil can be used for break in purposes. However, due to the ring and cylinder hardness, these oils will take much longer to properly break in the engine. It is recommended to break in the engine using quality petroleum based or mineral based oil.
- Use the included break-in oil mixed at 32:1 ratio. This will be one bottle per gallon.
- The break in period on this oil will be for approximately one gallon.

Normal Operation Oil

The recommended oil for this engine is Amsoil Professional Saber 100:1 Pre Mix oil. Do not confuse this oil with Amsoil Outboard 100:1 oil!

Other good synthetic oils are:

- Klotz with Techniplate (two-cycle pre-mix (no castor!))
- Yamalube 2R
- Honda HP2 two-cycle pre-mix

In all of the above cases, use the manufacturer's recommendations for mix ratios. Using more oil can have undesirable results leading to deposits, lean running, plug fouling and sticking a ring in its groove.

Fuel Filter / Filtering

I recommend an inline filter between the tank and carb, even if a filtered clunk is used. Any partials that get into the carb can plug the internal filter causing the engine to become lean, which can damage it.

Muffler Choice

Several muffler types were tested on the TRM engine. Some mufflers will not support the RPM that this engine runs at due to backpressure. The Century series mufflers as well as the Hatori, RJX and Zimmerman mufflers work very well. The TRM Power Pipe muffler was designed to provide maximum performance with these engines

Air Filter

It is recommended that an air filter be used on this engine. The stock filter will work adequately. But the DDM, Century or Min Air filters works extremely well.

Break-In Procedures

Please take the time to follow these break-in procedures for the first few hours of operation. Failure to do so may result in engine damage from overheating and/or lean operation. The TRM engine is a very rugged engine and provides the best power and longevity when properly broken-in.

First Tank / Flight

- Set the high needle to at least 1 and ½ turns open from full closed and the low speed to at least 1 3/8. Create a low throttle curve for normal mode and avoid using idle-up for the first tank or so. The throttle curve will most likely be very low using a linear throttle set-up. Ex. 0, 18, 24, 60, 100. It is very important to keep the initial RPM low for the first tank or two.
- Start the engine and lift the model into a hover. Make sure that the engine RPM does not get high. If the engine races at all, land and reset the needles (both) to a more rich setting and possibly recheck the pitch curve for proper settings. The throttle curve can be adjusted up or down to accomplish the first hover. Remember! Keep the RPM down.
- Fly around a slow forward circuit or hover at slightly changing pitch settings. The idea is to add a very small amount of load to the engine at a time. Slow forward flight will aid in cooling the engine as well. Avoid "punching-out" with throttle or aerobatics during this time. After about 10 minutes of flight, land and allow the engine to cool for at least 45 minutes. The idea here is to "heat-cycle" the engine for the first few flights.
- Remember to allow the engine to cool fully (at least 45 minutes) before additional flight or engine running! Allow the engine to idle for a minute or two before shutting it down. This helps to cool the engine and keeps the engine from getting hot after shut down.
- With each additional flight, the engine may start to speed up slightly. If it does adjust the needles more open to keep the engine to the rich side.

"NOTE"

- Most Gear ratios (Ex. 6.43:1) will hover on the low needle depending on the head speed. The high needle will be used more for wide-open throttle on these gear ratios.
- Each additional flight, the engine will break in a little more. Part of proper break-in will be to add small amounts of load to the engine each flight progressively and then letting it cool fully (at least 45 minutes).
- During the first gallon of fuel the engine will show signs of breaking in. The engine will seem to pick up power with each additional flight, which may require additional needle richening. Do not worry about making maximum power at this point this will come soon enough. You will be rewarded with an engine that is properly broken-in that will be very responsive and enjoy a long life! Remember that more fuel means more power so don't lean the engine down for power!
- After the first gallon of fuel has been used, it is time to switch to the synthetic oil. The recommended oil and ratio are Amsoil Saber Professional 100:1 Pre-Mix at 40:1 ratio.
- Richen the needles a bit when switching to the fully synthetic oil fuel. The engine may run a bit rough while it gets used to the new fuel, don't worry!
- The next tank of fuel will again run smooth. This is the process of the engine "pickling" with the new oil and doing a small break-in adjustment.

Remember! Keep the needles on the rich side and keep adding load to the engine each flight. It is now time to try some aerobatics and listen to the engine for any complaints! If at any time you hear what sounds like a boom support rattling or a low buzzing sound, land and richen the needles immediately! This is detonation and the engine is getting hot.

You may also optimize the needle settings at this time, just not too lean!

If you encounter any problems running this engine or have questions on its proper operation and break-in, please call TRM for assistance. TRM power (407) 461-9225 trm@trmpower.com