



## Tillotson 225RS Engine Guide

### Installation to Chassis

When mounting to a Tillotson T4 chassis, using the supplied engine mount, no chassis modifications are needed. However, with other chassis brands there may be a need for an alternative sliding engine mount, which will allow the engine to be positioned more to the right, giving more space for the chain & chainguard.

### Carburettor

Unlike most 4-stroke karting engines and unique to this engine, is a Tillotson pump diaphragm carburettor. This is a performance carburettor designed to offer great throttle response and drivability amongst other benefits. The set-up of the carb is very simple and should require no on track tuning, the base settings are as follows:

**Low Speed Jet – 1 turn & 3/4 (+5mins in cold weather dry conditions)**

**High Speed Jet – 1 turn**

**Set the engine idle via the speed screw adjustment on the throttle lever**

### Starting the Engine

**Note: When Cold, the engine will always idle at higher RPM, when warm it will idle at a lower RPM. Due to this, it is always best to set the idle screw, when the engine is warm.**

However, with this style carburettor it can be more difficult to start than other 4-stroke karting engines. Starting is made simpler if you follow these steps & procedure:

**1: When building a kart from new** (no fuel in fuel line or in the carburettor)

At the start of the day and there is NO fuel in either the fuel line or carb, the best way to start the engine is;

**Stage 1;** Ignition OFF, with Air Filter REMOVED and hand covering the inlet of the carburettor, pull start cord until you feel fuel come through the carb, you'll feel it on your hand once it primes through.

**Stage 2;** Put Airbox ON, Ignition ON, 0% throttle, pull start cord 4 times, on 5<sup>th</sup> time use 10/20% throttle and engine should fire.

**2: When the engine is cold** (starting before an on-track session, fuel already primed to the carburettor)

Let's say you're just about to start a race or test session, the best way to start the engine is:

Ignition ON, 0% throttle, pull start cord 4 times, on 5<sup>th</sup> time use 10/20% throttle and engine should fire. To Note: when you pull the chord without any throttle it is priming fuel to the engine.

**3: When the engine is hot** (during a pitstop from an on-track session)

Let's say you just made a tyre pressure change and quickly want to go back on track, the best way to re-start the engine is:

Ignition ON, 100% Throttle, pull start cord, engine should fire with 3 pulls (normally first time).



### **Engine Break-in Procedure**

The T225RS engine requires 500ml of the Tillotson T4 Racing Oil by Xeramic. No other oil or brand is permitted which will void warranty for the engine which can be detected by the unique UV additive to the oil which will detect the use of an alternative oil or non-permitted additives.

1. During a new installation, fill from the front or rear oil filler, 500ml (or 17oz).  
Using the start procedure above, start the engine and run on the kart stand for 3 minutes, turn off and let the engine cool down.
2. Proceed to run for a 10minute practice session on track, beginning at medium engine speed before running at higher engine speeds towards the end of the 10minutes.
3. After the session is finished, put the kart back on the kart stand and while the engine is still hot drain the engine oil from the engine. There is a drain plug on the front of the engine, requiring a 10mm wrench. Please dispose of the old oil safely.
4. After the engine is empty, replace the drain plug (make sure the copper washer is still there) and re-fill the engine with 500ml of fresh oil.
5. Engine is now ready for competition.

### **Recommended Maintenance & Checks**

Oil Changes – Every 3 hours use or less.

Air Filter Cleaning – Every 10 hours or less.

Checking Throttle pedal reaches 100% - Before every day of use (check pedal stop on kart & carb)

Spark Plug inspection – Every 3 hours (check for heavy carbon deposit build up)

Check Valve Clearance – Every 5 hours of use (Clearance: 0.15mm to 0.17mm on both Valves)

Engine Rebuild time – Every 100+ hours of use

Carburettor Rebuilds – Diaphragms & gaskets replacement every 15 hours of use. Also, check throttle butterfly is not going over 100% throttle as the stop on the cable bracket can bend if the pedal stop is not set correct

Ignition Gap Setting – 0.75mm

### **Tips & Useful information**

Using the engine to its maximum potential, will require to use a gearing set-up that will make the engine hit the rev limiter and at some tracks quite early on the main straight. This is normal and completely safe for the engine, if cared for in the right way.

If you don't have a mechanic or friend helping you at the track, when starting the kart be careful that kart doesn't accelerate before you get in.

If there are issues starting, changing spark plug is a good first option to check/replace.

It is permitted to add some exhaust heat protective wrap to the exhaust.

The starter cord is a set length, be careful not to pull it past its length.

'Pump Fuel' from the station is permitted and advised.

Regular cleaning around the clutch is recommended to stop build-up of dirt which could cause clutch issues.

*For any more questions or advice, please see your local Tillotson dealer or [sales@tillotson.ie](mailto:sales@tillotson.ie)*



### Engine Specification

Feature:	Specification
Engine	Tillotson 225RS, 2 Valve, 4 Stroke, Single Cylinder
Bore x Stroke (mm)	72 x 55mm
Displacement (cc)	225cc
Lubrication	Xeramic Tillotson T4 Racing Oil, 500ml
Cooling System	Air
Carburettor	Tillotson HW-46A 20mm venturi
Compression Ratio	9:1
Ignition System	PVL Digital Ignition limited to 6,500rpm
Flywheel	Billet flywheel digital ignition type 31° Advance Timing
Connecting Rod	Billet Aluminium with Bearing inserts 88mm length
Camshaft	Max Lift Race Cam with built in Compression Release
Cylinder Head	2 Valve OHV
Horsepower	15HP Peak
Exhaust System	RLV Silencer

