T225RS User Manual

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WARNING

READ AND FOLLOW ALL SAFETY RULES AND INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE THIS MACHINE.

FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY.

For Warranty Matters, contact your local dealer or **sales@tillotson.ie**

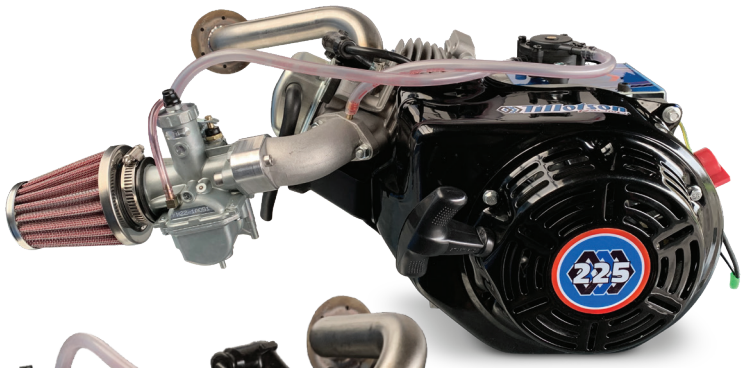
Engine Safety Precautions

IMPORTANT SAFETY INFORMATION

Most accidents with engines can be prevented if you follow all instructions in this manual. Some of the most common hazards are discussed below, along with the best way to protect yourself and others.

OWNER RESPONSIBILITIES

- The engines are designed to give safe and dependable service if operated according to instructions. Read and understand this owner's manual before operating the engine. Failure to do so could result in personal injury or equipment damage.
- Know how to stop the engine and understand the operation of all controls.
- Never permit anyone to operate the engine without proper instructions.
- Keep children and pets far away from the area of operation.
- Never modify or change the engine in any way.

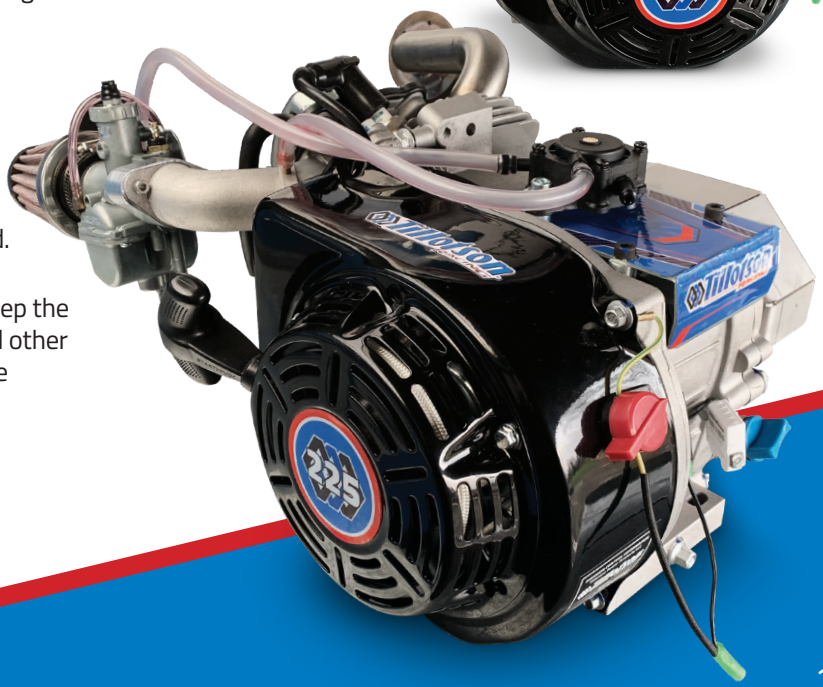


RE-FUEL WITH CARE

Petrol is extremely flammable, and gasoline vapor can explode. Refuel outdoors in a well-ventilated area with the engine stopped. Never smoke near fuel and keep other flames and sparks away. Always store petrol in an approved container. If any fuel is spilled, make sure the area is dry before starting the engine.

HOT EXHAUST

- The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the exhaust at this time. It is highly recommended to fit the heat shield wrap to as protection from the hot exhaust manifold.
- To prevent fire hazards and to provide adequate ventilation for stationary equipment applications, keep the engine at least 1metre away from building walls and other equipment during operation. Do not place flammable objects close to the engine.



CARBON MONOXIDE HAZARD

Exhaust gas contains poisonous carbon monoxide. Avoid inhalation of exhaust gas. Never run the engine in a closed garage or confined area.

Product Specification

Feature	Specification
Engine	Tillotson 225RS, 2 Valve, 4 Stroke, Single Cylinder
Fuel Type	Unleaded Petrol
Bore x Stroke (mm)	72 x 55mm
Displacement (cc)	225cc
Required Oil Capacity Min	500mL
Recommended Oil Type	Tillotson T4 Racing Oil
Cooling System	Air
Carburettor	Tillotson FM22-1A
Compression Ratio	9:1
Ignition System	PVL Digital Ignition limited to 6,500rpm
Flywheel	Billet flywheel digital ignition type 31° Advance
Camshaft	Max Lift Race Cam with built in Compression Release
Cylinder Head	2 Valve OHV
Horsepower	15HP Peak

Recommended Torque Values

Description	Socket Size	Torque (Nm)
Cylinder Head	12mm	37Nm
Flywheel	21mm	70Nm
Rocker Arm Support	12mm	24Nm
Valve Locking Nut	10mm	10Nm
Spark Plug	21mm	24Nm
Crankcase Side Cover	10mm	33Nm
Blower Housing	8mm	10Nm
Carburettor to Manifold	10mm	10Nm
Connecting Rod	10mm	19Nm
Exhaust to Engine	13mm	28Nm
Intake Manifold to Engine	10mm	10Nm
Oil Drain Plug	10mm	22Nm
Valve Cover	8mm	7Nm

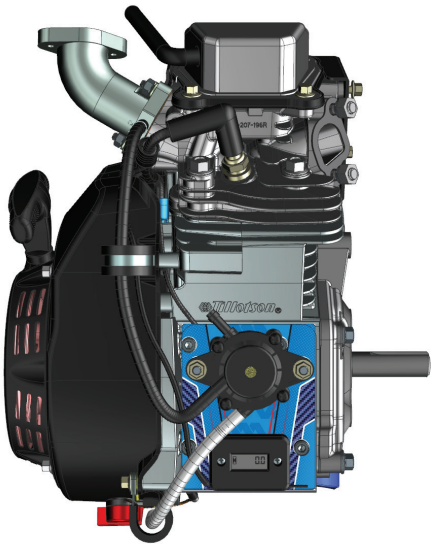
Product Recommendations

Description	Recommendation
Replace Engine Oil	Every 3hours of operation
Ignition Coil – Flywheel Gap	0.75-0.9mm (Every 10hours)
Valve Clearance Gap	0.15mm (After first hour of running new engine / Every 5hours following this)
Clutch Wear	Monitor Clutch Plate nuts coming loose / keep clutch clean from oil and chain grease / monitor tension of clutch springs to maintain optimum performance
Crankcase Side Cover Torque	Re-Torque the side cover bolts between events to 33Nm
Cylinder Head Torque	Re-Torque the cylinder head bolts between events to 37Nm
Maintain Valve Clearance	Required to monitor after 8hrs of running / or every 6 days.
Clean Air Filter with Compressed Air	Required to clean after every 4 days of use or after every day used in rain. Replace annually.
Clean Spark Plug / Replace	Every 10hours of operation / or replace annually
Fuel Pump Revision	Every 12months
Fuel Pipe	Every 6months
Preferred Fuel Type	Regular Pump Fuel

YouTube Note: Check the Tillotson Racing Youtube Page for Video Link to 'T225RS Engine Maintenance':
https://youtu.be/Fc36XblpR4k

Assembly Guidelines

- Assemble the auxiliary engine components – Intake Manifold, FM22-1A Carburettor, Air Filter, Exhaust, Clutch, Clutch guard
- It is recommended that the exhaust heat wrap is mounted to the exhaust manifold to protect from heat build-up
- Ensure the Fuel Pump connections are correct as per photo:
- Mount the 45cm Fuel Pipe supplied from the fuel pump outlet to the carburettor inlet connector
- Fill the engine with T4 Engine Oil 500ml (17oz)*



Note: Black Fuel Line represents the Pulse Connection from the fuel pump to the intake manifold connector.

Note: For a Video Link showing all of the above steps mentioned please visit the Tillotson Racing Youtube Page: **https://youtube.com/channel/UCZgldHZI8EBj93WnvcKFRHA**

***VERY IMPORTANT: If the engine is run on less oil than recommended it will overheat the engine components and performance / reliability will be reduced for the remainder of the engine life.**

Installation to Chassis

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

Starting the Engine

When starting the engine from new or when empty of fuel

1. It is necessary to blow the fuel to fill the carb bowl from the overflow pipe on the tank. Make sure to blow for no less than 15seconds as the bowl requires a large volume of fuel before the engine will start.
2. Lift the Choke to the raised position which means the choke is now 'ON' and ensure the engine ignition switch is in the 'ON' position also.
3. Using some small throttle opening (10-30%) pull the starter chord until the engine fires and reset the Choke so it is in the 'Off' position.
4. Once the engine is running it may be necessary to adjust the idle speed screw on the side of the carburetor. Recommended engine idle is 1,800 - 2,000rpm.

Engine Break-in Procedure

Note: DO NOT REV THE ENGINE HARD WITH NO LOAD FROM NEW.

1. Insert 500ml of T4 Oil (17oz).
2. For the first 10 minutes, drive moderately at varying speeds up to 5,000rpm (half throttle). It is important to vary the RPM for proper camshaft, piston rings and moving component bed in.
3. Stop and allow the engine to cool, check that there are no fuel or oil leaks.
4. For the second 10 minutes, build up to max 6,500rpm by the end of the session.
5. Once you have completed the running-in procedure it is recommended to change the oil. This is to remove any metal particles which could arrive from the new components in the engine. Drain the oil when hot so it can easily transport any particles.
6. After the engine is empty, replace the drain plug (make sure the aluminium washer is still there) and re-fill the engine with 500ml of fresh oil. The engine is now ready for competition.

SAFETY REFERENCES

The safety alert symbol is used to identify safety information about hazards that can result in personal injury. A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard.

DANGER indicates a hazard which, if not avoided, **will result in death or serious injury.**

WARNING indicates a hazard which, if not avoided, **could result in death or serious injury.**

CAUTION indicates a hazard which, if not avoided, **might result in minor or moderate injury.**

CAUTION, when used without the alert symbol, indicates a situation that **could result in damage to the engine**

SYMBOLS ASSOCIATED WITH THIS ENGINE

This manual contains safety information to make you aware of the hazards and risks associated with engines, and how to avoid them. Because we do not necessarily know what equipment this engine will power, it is important that you read and understand these instructions and the instructions for the equipment this engine powers.

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

CAUTION

This engine is shipped from us without oil. If you start the engine without oil, the engine will be damaged beyond repair and will not be covered under warranty.