TM KART

KZ-R3

041-EZ-02

OWNER'S MANUAL

CONTENTS

FUEL AND OIL REQUIREMENTS

Use **98 RON unleaded gasoline** (minimum **95 RON**) mixed with **2-stroke engine oil** at a ratio of **4% (1:24)**.

- TM KART Recommends **VROOAM LUBRICANTS castor blend 2t racing engine oil**.

GEARBOX LUBRIFICATION

Fill the engine crankcase with **300 ml of gearbox oil** during the initial assembly and approximately **250 ml** during subsequent oil changes.

Figure 1 shows the location of the **gearbox oil filler plug** (red arrow) and the **oil level sight glass** (blue arrow).

It is recommended to replace the gearbox oil every **4 hours of operation**.

- TM KART Recommends **VROOAM LUBRICANTS TF825**

Figure 1: Location of the oil filler plug and the level sight glass

GEARBOX LUBRIFICATION

To drain the used gearbox oil, remove the drain plug shown in figure 2.

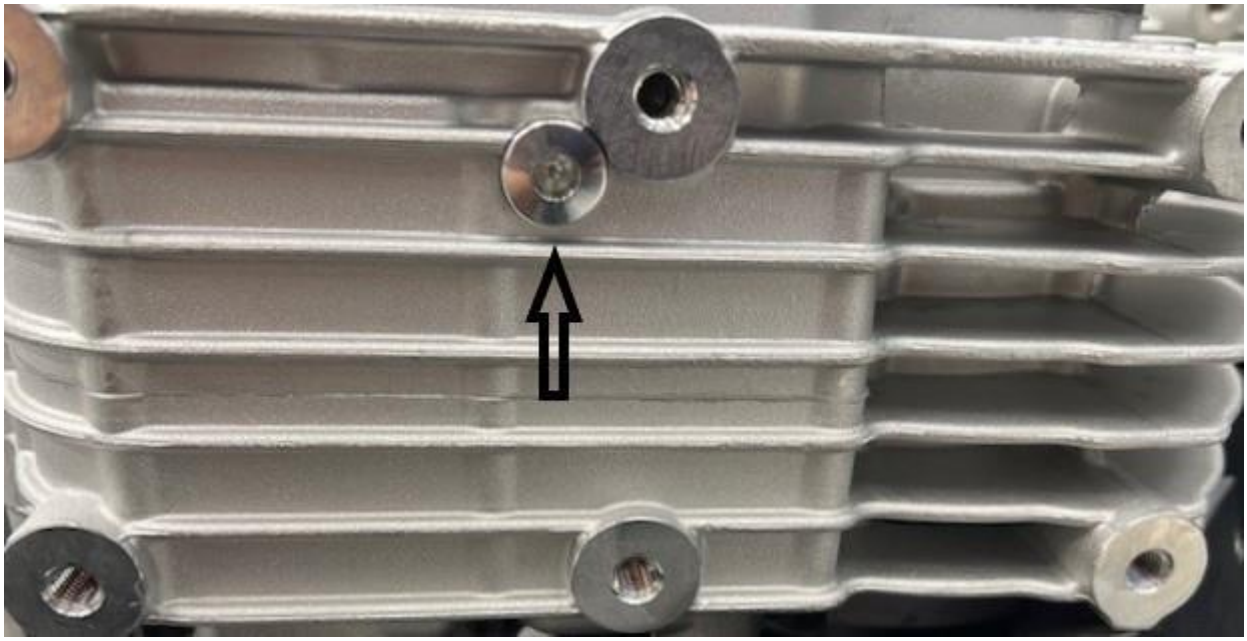

Figure 2: Gear oil drain plug.

Note: Access to the drain plug requires removal of the engine mounting plate.

Before reassembly, thoroughly clean the drain plug and the mating surface on the engine crankcase.

Inspect the condition of the sealing washer/gasket and replace it if any signs of wear or damage are found.

PISTON-TO-CYLINDER CLEARANCE

A **diametral piston-to-cylinder clearance of 0.08 mm** is recommended to ensure proper operation of the cylinder assembly and maximum engine reliability.

SQUISH CLEARANCE

After piston replacement or a complete engine overhaul, the squish clearance must be checked.

Adjustment is carried out by selecting cylinder base gaskets of different thicknesses, in order to achieve the specified value.

TM KART recommends a squish clearance of **0.95 mm**.

After any maintenance operation involving disassembly of the cylinder assembly, ensure that the measured value complies with the specified tolerance range.

ENGINE TIMING SETTING

For engines equipped with **PVL ignition systems**, set the ignition timing to **1.60 mm** before top dead centre (BTDC).

For engines equipped with **Selettra ignition systems**, set the ignition timing to **1.85 mm** before top dead centre (BTDC).

PISTON RING END GAP

A **piston ring end gap of 0.40 mm** is recommended.

Measurement must be performed with the ring installed and compressed inside the cylinder, using a feeler gauge.

At each piston replacement, the piston ring must also be replaced.

After installing the new ring, check the end gap as shown in the figure (red arrow) and ensure that the measured value complies with the specified limits.

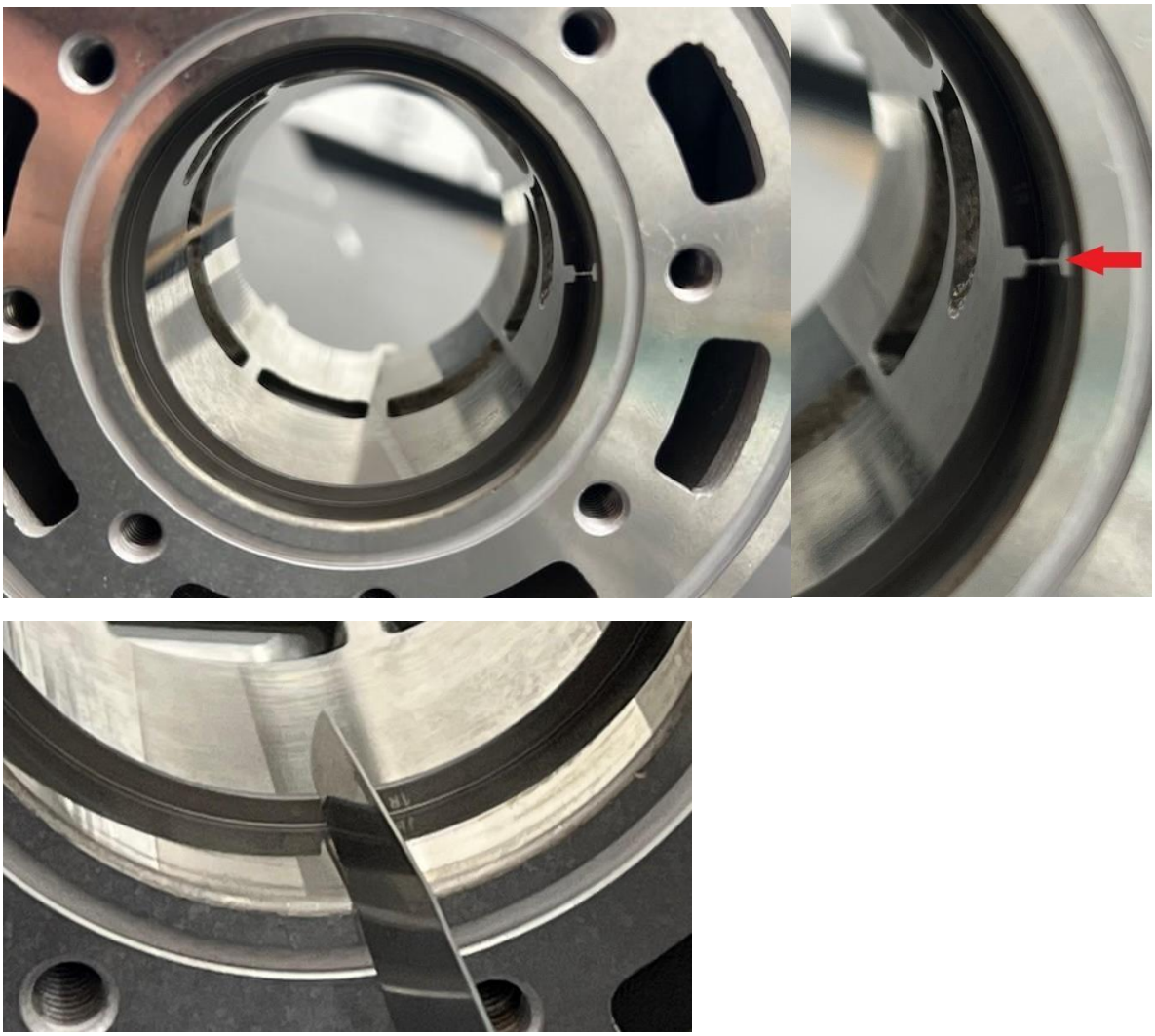

Figure 3: Ring end gap measurement.

RECOMMENDED MAINTENANCE INTERVALS

Refer to the tables below for the recommended intervals for the replacement of main mechanical parts.

Part	Maintenance Interval
Piston	3 hours
Piston Needle Cage	6 hours
Rod	12 hours
Crankshaft Pin and Connecting Rod Bearing Cage	12 hours
Rod Bearings	12 hours

- To preserve engine integrity and extend the service life of mechanical components, avoid over-revving conditions.
Engine speeds exceeding the recommended limits may cause accelerated wear or failure of critical components.

RECOMMENDED MAINTENANCE INTERVALS

Program	Part	Action
Before Use	Chain	Check tension and lube
	Sprocket	Check allignment with rear axle
	Exhaust	Check the condition and ensure correct fastening
During use	Chain	Check for wear and lube
	Exhaust	Check for wear
	Engine	Clean the external surfaces of the engine

Program	Part	Action
Every 3-4 hours	Engine	Clean components
	Piston	Check for wear, replace if necessary
	Oil Change (4h)	Gear oil change (4h)
Every 12 hours	Crankshaft Assembly (Connecting Rod, Crank Pin, Needle Cage) and Bearings	Check for wear, replace if necessary
	Engine	Complete overhaul, check for wear

- The service life estimates and replacement intervals provided have been determined based on average engine usage conditions.

The actual service life of components may vary depending on operating conditions, driving style, maintenance practices, and the level of use, whether recreational or competitive.

BREAK-IN PROCEDURE

New or Fully Rebuilt Engine

For new engines or engines that have undergone a complete overhaul, follow the running-in procedure below:

1. Warm up the engine on the stand for approximately **5 minutes**.
2. Complete **2 laps** at moderate speed, gradually bringing the coolant temperature to **50 °C**.
3. Perform a track running-in period of **30 minutes**, avoiding sustained high engine speeds.
4. At the end of the running-in phase, progressively increase engine load and performance until normal operating conditions are reached.

Piston Replacement Only

In case of piston replacement only, follow the procedure below:

1. Warm up the engine on the stand for approximately **5 minutes**.
2. Complete **2 laps** at moderate speed, gradually bringing the coolant temperature to **50 °C**.
3. Perform a track running-in period of **5 minutes.**
4. Afterwards, progressively increase engine load and performance until normal operating conditions are reached.

Warning: During the running-in procedure, avoid sudden acceleration, excessive engine speeds, and over-revving conditions in order to ensure proper bedding-in of mechanical components and maximum engine reliability.

TECHNICAL SPECS

Crankshaft

Crankshaft axial play must be maintained within **0.20 mm – 0.30 mm**.

Spark Plug

Recommended spark plug: **BRISK L08S SILVER R**.

Cooling System Operating Temperature

To ensure optimum performance and maximum engine reliability, the coolant operating temperature should be maintained between **48 °C and 55 °C**.

Part	Thread	Torque Spec
Spark plug	M14x1.25	20 Nm
Head Bolts	M6	10Nm
Cylinder Nuts	M8	18Nm
Case Bolts	M6	12Nm
Rotor Nuts	M10x1	20 Nm
Clutch Drum Nut	M14x1	30 Nm
Clutch Spring Nuts	M6	12Nm

GENERAL WARNINGS

- Use only **genuine TM KART SRL spare parts**. The use of components not compliant with TM KART SRL technical specifications may compromise engine operation and cause damage to its components.

- During any assembly or overhaul operation, always replace **gaskets**, **seals, O-rings, and all sealing elements** with new components.

- After assembly, carefully verify that all components have been correctly installed and that the engine complies with the specified assembly requirements.

- The service life estimates and replacement intervals provided in this manual are based on average operating conditions. The actual component life may vary depending on usage conditions, performance demands, and whether the engine is used for **recreational or competitive purposes**.

- This engine is designed and manufactured **exclusively for racing/competition use**. Therefore, it is not covered by any warranty. TM KART SRL declines all civil and criminal liability arising from improper use of the engine or from use not in accordance with its intended purpose.

For any clarification, technical information, or support, please contact directly **TM KART SRL**.

TECHNICAL SUPPORT AND CONTACS

For technical inquiries, service support, original spare parts, and after-sales assistance, please contact:

TM KART SRL

Tel.: (+39) 0721 1835118

E-mail: info@tmkart.it

Sito web: https://www.tmkart.it/

Owner's Manual
Version: 1.2
Release Date: 2026

Our work, your speed