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› Hobby King Turnigy TR-32 32CC Gas Engine User Manual

Hobby King 9477000001-0

Hobby King Turnigy TR-32 32CC Gas Engine User Manual

1. INTRODUCTION

Thank you for choosing the Hobby King Turnigy TR-32 32CC Gas Engine. This high-performance engine is designed for 25-35CC class 3D and Aerobatic RC airplanes, offering 3.8 horsepower and high torque. This manual provides essential information for the safe and efficient operation, setup, and maintenance of your engine. Please read it thoroughly before use.

2. SAFETY PRECAUTIONS

Always prioritize safety when operating gas engines. Failure to follow these instructions can result in serious injury or property damage.

- **Fuel Handling:** Gasoline is highly flammable. Store fuel in approved containers in a well-ventilated area away from ignition sources. Do not refuel near open flames or sparks.
- **Ventilation:** Operate the engine in a well-ventilated area to avoid inhaling exhaust fumes, which contain carbon monoxide.
- **Hot Surfaces:** The engine and muffler become extremely hot during operation and remain hot for some time after shutdown. Avoid contact to prevent burns.
- **Moving Parts:** Keep hands, face, and loose clothing away from the propeller and other moving parts when the engine is running or being started. A spinning propeller can cause severe injury.
- **Eye Protection:** Always wear appropriate eye protection when working with or operating the engine.
- **Adult Supervision:** This product is not a toy. Operation requires adult supervision and should only be handled by experienced individuals.
- **Secure Mounting:** Ensure the engine is securely mounted to the airframe before starting.

3. PACKAGE CONTENTS

Carefully unpack all components and verify that all items are present. If any items are missing or damaged, contact your retailer.



Image 3.1: The Turnigy TR-32 engine and its included components, such as the CDI ignition module, muffler, spark plug, and fuel line.

- Turnigy TR-32 32CC Gas Engine (Main Unit)
- CDI Electronic Ignition Module
- Compact Muffler
- Spark Plug (CM6 type)
- Fuel Line
- Mounting Hardware (bolts, washers, etc.)

4. SETUP

4.1 Engine Mounting



Image 4.1: Side view of the Turnigy TR-32 Gas Engine, showing the cylinder head and carburetor assembly.

1. Ensure your airframe is designed to accommodate a 25-35CC class engine.
2. Mount the engine securely to the firewall using appropriate engine mounts and hardware. Ensure all bolts are tightened to specification and use thread-locking compound if recommended by your airframe manufacturer.
3. Verify proper alignment of the engine with the airframe's thrust line.

4.2 Fuel System Connection

1. Connect the fuel line from your fuel tank to the carburetor's fuel inlet. Ensure all connections are secure and leak-free.
2. Prepare your fuel mixture: Use **2-stroke regular pump gas** mixed with high-quality 2-stroke oil.
 - For **break-in**: Use a **30:1 fuel-to-oil ratio**.
 - For **normal flying**: Use a **40:1 fuel-to-oil ratio**.
3. Always use fresh fuel. Stale fuel can cause starting difficulties and engine damage.

4.3 Ignition System Connection

1. Connect the CDI electronic ignition module to the spark plug.
2. Connect the ignition module to a suitable power source (e.g., a dedicated ignition battery or BEC from your receiver, as per your RC system's recommendations). Ensure the voltage is within the specified range for the CDI unit.
3. Route all wiring neatly and secure it to prevent interference with moving parts or vibration damage.

4.4 Propeller Installation



Image 4.2: Close-up view of the propeller mounting hub, showing the bolts for securing the propeller.

1. Select a propeller appropriate for your aircraft and flying style. Suggested propeller sizes for this engine are **18x8** or **18x10**.
2. Mount the propeller onto the engine's propeller hub, ensuring it is correctly oriented (leading edge forward).
3. Secure the propeller using the provided bolts and propeller washer. Tighten the bolts evenly and firmly.
4. Perform a balance check on the propeller before flight. An unbalanced propeller can cause excessive vibration and engine damage.

4.5 Muffler Installation

1. Attach the compact muffler to the engine's exhaust port using the supplied gasket and bolts.
2. Ensure the muffler is securely fastened to prevent leaks and vibration.

5. OPERATING INSTRUCTIONS

5.1 Pre-Start Checks

- Verify all connections (fuel, ignition, throttle linkage) are secure.
- Check fuel level and ensure the correct fuel mix is used.
- Inspect the propeller for damage and ensure it is securely attached.
- Ensure the aircraft is restrained safely before attempting to start the engine.

5.2 Starting Procedure

1. Open the throttle to approximately 1/4 to 1/3 open.
2. Engage the choke (if applicable to your carburetor setup).
3. Turn on the ignition system.
4. With a firm and rapid motion, flip the propeller counter-clockwise (when viewed from the front) until the engine 'pops' or attempts to start. Be extremely careful to avoid contact with the propeller.
5. Disengage the choke.
6. Flip the propeller again until the engine starts and runs smoothly.
7. Allow the engine to warm up for a minute or two at a low idle before increasing RPM.

5.3 Break-in Procedure

Proper break-in is crucial for engine longevity and performance.

- Use the **30:1 fuel-to-oil ratio** for the first few liters of fuel (typically 2-3 liters).
- Avoid prolonged full-throttle operation during break-in. Vary the RPMs, but do not run the engine at maximum RPM for extended periods.
- Allow the engine to cool down between runs.

5.4 Normal Operation

After break-in, switch to the **40:1 fuel-to-oil ratio** for normal flying. Monitor engine temperature, RPMs, and fuel consumption during flight.

5.5 Engine Shut-down

To stop the engine, either cut the fuel supply or turn off the ignition system. Never attempt to stop the engine by hand.

6. MAINTENANCE

Regular maintenance ensures reliable performance and extends the life of your engine.

- **Spark Plug:** Inspect the CM6 spark plug periodically. Clean or replace it if fouled or worn. Ensure the gap is set correctly according to engine specifications.
- **Fuel Filter:** Check and clean the in-tank fuel filter and any inline filters regularly. Replace if damaged.
- **Carburetor:** Periodically check carburetor settings. If the engine runs poorly, consult a qualified technician for carburetor adjustment.
- **General Cleaning:** Keep the engine clean from dirt, dust, and fuel residue. A clean engine dissipates heat more effectively.
- **Fasteners:** Check all engine mounting bolts and other fasteners for tightness before each flight. Vibration can loosen components.
- **Storage:** For long-term storage, drain all fuel from the tank and carburetor. Run the engine briefly to consume any

remaining fuel. Remove the spark plug and add a few drops of after-run oil into the cylinder, then rotate the crankshaft a few times to distribute the oil. Store the engine in a clean, dry place.

7. TROUBLESHOOTING

This section addresses common issues you might encounter with your engine.

Problem	Possible Cause	Solution
Engine won't start	No fuel, incorrect fuel mix, fouled spark plug, no spark, incorrect choke/throttle setting, air leak.	Check fuel level and mix. Inspect/replace spark plug. Verify ignition system is powered and connected. Adjust choke/throttle. Check fuel lines for leaks.
Engine runs rough/stalls	Incorrect carburetor settings, dirty fuel filter, air leak, old fuel, spark plug issue.	Adjust carburetor (high/low speed needles). Clean/replace fuel filter. Check for air leaks around carburetor/intake. Use fresh fuel. Inspect spark plug.
Loss of power	Incorrect propeller, engine overheating, carburetor settings, worn piston ring, exhaust blockage.	Ensure correct propeller size. Check cooling airflow. Adjust carburetor. Inspect engine internals if necessary (professional service recommended). Check muffler for obstructions.
Excessive vibration	Unbalanced propeller, loose engine mount, bent crankshaft.	Balance propeller. Tighten engine mounts. Inspect crankshaft for damage.

If you are unable to resolve an issue, consult with an experienced RC enthusiast or a professional engine technician.

8. SPECIFICATIONS

Feature	Specification
Displacement	32.24cc
Performance	3.8hp @ 7800rpm
Idle Speed	1800rpm
Suggested Propeller	18x8, 18x10
Spark Plug Type	CM6
Bore x Stroke	37 x 30mm
Weight (Engine Only)	910g
Weight (Ignition System)	100g
Weight (Muffler)	65g
Fuel Type	2C Regular Gas mixed with 2-stroke oil
Fuel Mix (Break-in)	30:1 (Fuel:Oil)
Fuel Mix (Normal Flying)	40:1 (Fuel:Oil)
Material	Billet Aluminum Case, Sand Cast Cylinder Heads

Feature	Specification
Model Number	9477000001-0
UPC	713141169863

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