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Briggs & Stratton 31R977-0054

Briggs & Stratton Vertical Engine User Manual

Model: #31R977-0054

Introduction

This manual provides essential information for the installation, operation, and maintenance of your Briggs & Stratton Vertical 17.5 HP 500cc INTEK Engine, model #31R977-0054. This engine is designed to provide dependable power for various equipment needs, commonly serving as a replacement engine for riding mowers. Please read this manual thoroughly before attempting any installation or operation to ensure safe and efficient use.

Safety Information

Always prioritize safety when working with internal combustion engines. Failure to follow safety instructions can result in serious injury or death.

- Read and understand all instructions before operating the engine.
- Ensure the work area is well-ventilated to prevent carbon monoxide poisoning.
- Keep hands, feet, and clothing away from moving parts.
- Allow the engine to cool completely before performing maintenance or refueling.
- Store fuel in approved containers and in a well-ventilated area away from ignition sources.
- Wear appropriate personal protective equipment (PPE), including safety glasses and gloves.
- Do not run the engine in an enclosed area.

Setup and Installation

This engine is a common replacement for riding mowers. Proper installation is crucial for performance and safety. It is recommended that installation be performed by a qualified technician if you are not familiar with engine replacement procedures.

Engine Overview

Below are images providing different views of the Briggs & Stratton Vertical Engine, highlighting key components and features.



Figure 1: Front view of the Briggs & Stratton 17.5 HP INTEK Engine, showing the air filter cover and control knobs.



Figure 2: Side view of the engine, displaying the warning label regarding hot surfaces and enclosed areas.



Figure 3: Another side view of the engine, showing the emission control information label.



Figure 4: View of the engine highlighting the oil filter and fuel line connections.



Figure 5: Close-up view of the engine's 1" x 3-5/32" shaft with a 1/4" keyway, tapped 7/16".

Pre-Installation Checks

- Verify engine specifications match your equipment requirements.
- Ensure all necessary mounting hardware and wiring connectors are available.
- Check the engine for any shipping damage.

Mounting

The engine features a 1" x 3-5/32" shaft, tapped 7/16" with a 1/4" keyway, designed for easy integration into compatible equipment. The mounting holes are typically self-tapping for existing bolts from your previous engine.

Wiring

This engine is equipped with a 9 amp charging system and electric start only. Connect the engine's wiring harness to your equipment's electrical system according to the equipment manufacturer's instructions. Pay close attention to connections for the electric starter, magneto, and charging system.

Fuel and Oil

- **Fuel:** Connect the fuel line to the engine's fuel pump. Use fresh, clean, unleaded gasoline with an octane rating of 87 or higher.
- **Oil:** This engine includes an oil filter. Fill the crankcase with the recommended type and amount of engine oil before initial startup. Refer to the engine's dipstick for proper oil level.

Operating Instructions

Pre-Start Checklist

- Check engine oil level.
- Ensure fuel tank is adequately filled.
- Verify all connections (electrical, fuel, mounting) are secure.
- Clear the area around the equipment of any obstructions.

Starting the Engine (Electric Start)

1. Ensure the equipment's safety interlocks are engaged (e.g., brake set, PTO disengaged).
2. Set the throttle control to the "Fast" or "Choke" position as required for cold starting.
3. Turn the ignition key to the "Start" position. Release the key once the engine starts.
4. Allow the engine to warm up for a few minutes before engaging any loads.

Stopping the Engine

1. Reduce engine speed to idle.
2. Turn the ignition key to the "Off" position.

Maintenance

Regular maintenance is essential for the longevity and optimal performance of your Briggs & Stratton engine. This engine features a premium Dual Clean air filtration system, an oil filter, and maintenance-free Magnetron electronic ignition.

Maintenance Schedule

Service Item	Frequency
Check Engine Oil Level	Before each use
Clean Air Filter	Every 25 hours or annually (more often in dusty conditions)
Change Engine Oil	First 5 hours, then every 50 hours or annually
Replace Oil Filter	Every 50 hours or annually
Inspect Spark Plug	Annually
Inspect Fuel Filter/Line	Annually

Air Filter Maintenance

The Dual Clean air filtration system helps extend engine life. Regularly inspect and clean the air filter elements. Replace them if they are damaged or excessively dirty.

Oil and Oil Filter Replacement

Change the engine oil and replace the oil filter at the recommended intervals. Use only Briggs & Stratton approved oil and genuine replacement parts.

Troubleshooting

This section provides solutions to common operational issues. For problems not listed here, or if issues persist, contact a qualified service technician.

Problem	Possible Cause	Solution
Engine will not start	No fuel; Stale fuel; Clogged fuel filter; Faulty spark plug; Dead battery (for electric start); Safety interlock not engaged.	Add fresh fuel; Drain and refill with fresh fuel; Replace fuel filter; Inspect/replace spark plug; Charge/replace battery; Ensure all safety interlocks are correctly engaged.
Engine runs rough	Dirty air filter; Stale fuel; Incorrect carburetor adjustment; Fouled spark plug.	Clean/replace air filter; Drain and refill with fresh fuel; Consult service manual for carburetor adjustment; Clean/replace spark plug.
Loss of power	Dirty air filter; Low oil level; Overheating.	Clean/replace air filter; Check and add oil; Allow engine to cool, check for obstructions around cooling fins.

Specifications

Feature	Detail
Model Number	#31R977-0054
Engine Type	Vertical, Single Cylinder, INTEK
Horsepower	17.5 HP
Displacement	500cc
Starting System	Electric Start Only
Charging System	9 Amp
Air Filtration	Premium Dual Clean
Ignition System	Maintenance-free Magnetron Electronic Ignition
Cylinder Sleeve	Dura-Bore Cast Iron
Shaft Dimensions	1" x 3-5/32", tapped 7/16" with 1/4" keyway
Product Dimensions	19 x 4 x 4 inches
Item Weight	0.01 ounces

Warranty Information

This Briggs & Stratton engine comes with a manufacturer limited warranty:

- **Consumer Use:** 2 years
- **Commercial Use:** 1 year

Please retain your proof of purchase for warranty claims. For full warranty terms and conditions, refer to the documentation included with your engine or visit the official Briggs & Stratton website.

Support and Contact

For technical assistance, parts, or service, please contact Briggs & Stratton customer support or visit their official website. Always provide your engine model and serial number when seeking support.
You can find more information and support resources at theBriggs & Stratton Store on Amazon.

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