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### Gladiator 028000-5000

## Gladiator 12V Starter Instruction Manual

For Kubota Tractor Utility Models and Compatible Part Numbers

### 1. PRODUCT OVERVIEW

This manual provides essential information for the proper installation, operation, maintenance, and troubleshooting of your new Gladiator 12V Starter. Designed for durability and performance, this starter meets or exceeds OEM specifications for a range of Kubota Tractor Utility models.

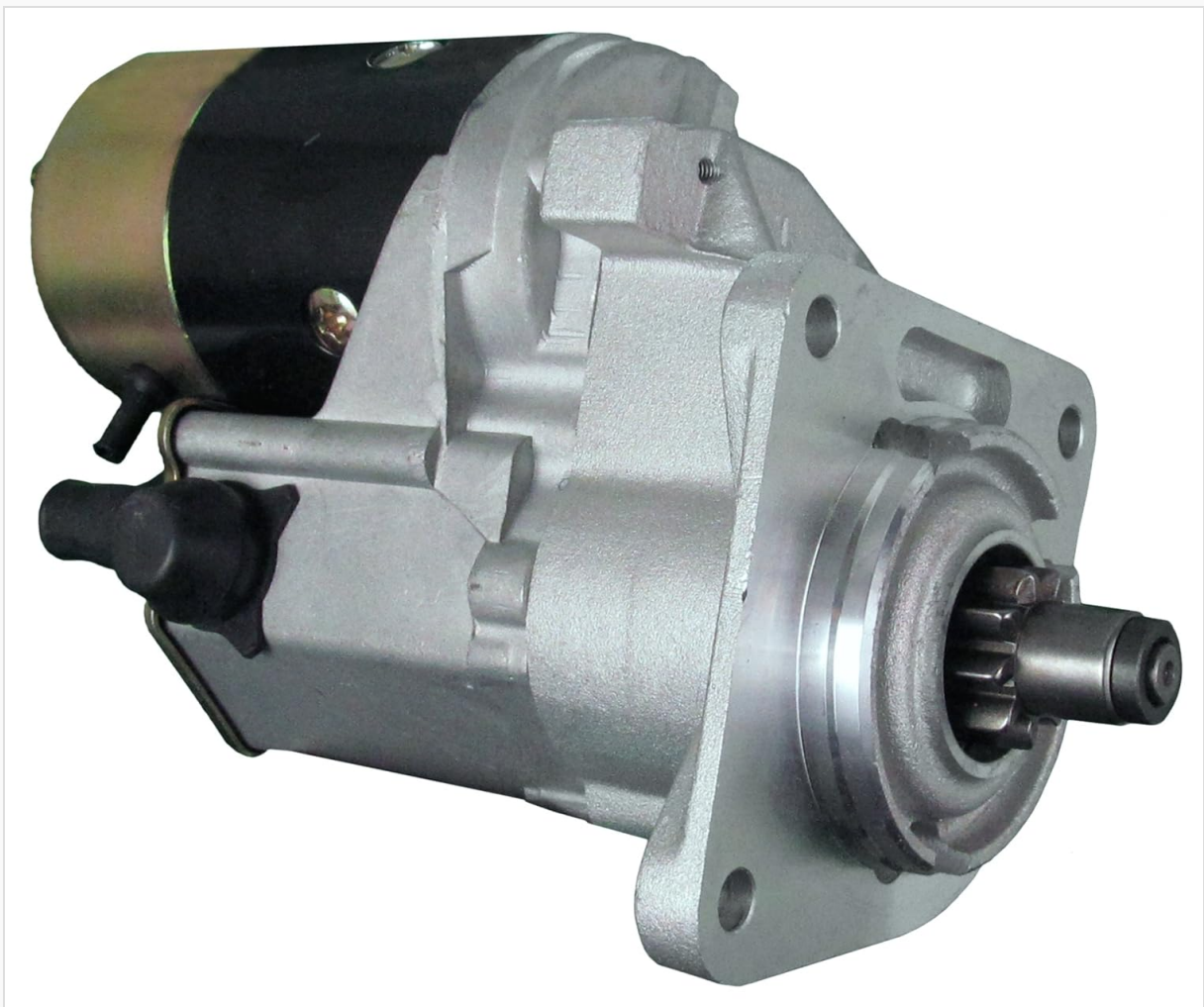


Figure 1: Side view of the Gladiator 12V Starter, showing the main housing and solenoid.

### 2. SAFETY INFORMATION

Always prioritize safety when working with electrical and mechanical components. Failure to follow these guidelines may result in injury or damage to equipment.

- Disconnect the battery's negative terminal before beginning any work on the electrical system.
- Wear appropriate personal protective equipment (PPE), including safety glasses and gloves.
- Ensure the vehicle is stable and properly supported before working underneath it.
- Avoid contact with hot engine components.
- If unsure about any step, consult a qualified mechanic.

### 3. COMPATIBILITY

This Gladiator 12V Starter is compatible with various Kubota Tractor Utility models and replaces several OEM part numbers. Please verify your specific model and part number before installation.

#### Compatible Kubota Tractor Utility Models:

- M5500DT, M5500F (Kubota D3000A)
- M5950DT, M5950DTC, M5950DTS, M5950F, M5950FC, M5950S (Kubota D3200)
- M6030DT, M6030DTL, M6030DTN, M6030DTNB, M6030F, M6030L (Kubota D32002A)
- M7030DT, M7030DTL, M7030DTNB, M7030F, M7030L, M7030N, M7030SU, M7030SUDT (Kubota V4000-3A1)
- M7500DT, M7500DTMS, M7500F, M7500L (Kubota V4000)
- M8030DT, M8030DTL, M8030DTM, M8030DTS, M8030F, M8030MDT, M8030MDTL, M8030MF, M8030ML (Kubota V4300-1A)

#### Replaces OEM Part Numbers:

- 028000-5000, 028000-5001, 028000-5003, 028000-5004
- 15451-63011, 15451-63013, 15451-63014, 15451-63015
- 91-29-5110

### 4. SETUP AND INSTALLATION

The following steps provide a general guide for replacing a starter. Specific procedures may vary by vehicle model. Refer to your vehicle's service manual for detailed instructions.

#### Required Tools:

- Socket/Wrench Set
- Battery Terminal Cleaner
- Wire Brush
- Jack and Jack Stands (if necessary)

#### Installation Steps:

1. **Prepare the Vehicle:** Ensure the vehicle is turned off and the parking brake is engaged. Disconnect the negative (-) battery cable first, then the positive (+) battery cable.
2. **Locate the Starter:** Identify the existing starter motor. It is typically mounted on the engine block, near the transmission bell housing.
3. **Disconnect Wiring:** Carefully disconnect all electrical connections from the old starter, including the main battery cable and the solenoid wire. Note their positions for reinstallation.
4. **Remove Mounting Bolts:** Loosen and remove the bolts securing the old starter to the engine block.

Support the starter as you remove the last bolt to prevent it from falling.

5. **Remove Old Starter:** Carefully maneuver and remove the old starter from its position.
6. **Prepare New Starter:** Compare the new Gladiator starter with the old one to ensure they match. Clean the mounting surface on the engine block.
7. **Install New Starter:** Position the new starter and secure it with the mounting bolts. Tighten bolts to the manufacturer's specified torque (refer to vehicle service manual).
8. **Reconnect Wiring:** Reconnect the electrical wires to the new starter. Ensure all connections are clean and secure.
9. **Reconnect Battery:** Reconnect the positive (+) battery cable first, then the negative (-) battery cable.
10. **Test Operation:** Attempt to start the vehicle to confirm proper operation of the new starter.



Figure 2: Front view of the starter, highlighting the drive gear (pinion) that engages with the engine's flywheel.





Figure 3: Rear view of the starter, showing the electrical terminals for battery and solenoid connections.

## 5. OPERATING THE STARTER

The starter motor is designed to crank the engine to initiate combustion. Its operation is integrated with your vehicle's ignition system.

- When the ignition key is turned to the 'START' position, electrical current flows to the starter solenoid.
- The solenoid engages the starter's pinion gear with the engine's flywheel and simultaneously sends power to the starter motor.
- The starter motor spins the flywheel, turning the crankshaft and initiating the engine's combustion cycle.

- Once the engine starts, release the ignition key. The solenoid disengages the pinion gear from the flywheel, and the starter motor stops.

Avoid prolonged cranking (more than 10-15 seconds) to prevent overheating the starter motor. Allow a brief cool-down period between starting attempts.

## 6. MAINTENANCE

Proper maintenance can extend the life of your starter and ensure reliable operation.

- **Battery Condition:** Ensure your vehicle's battery is fully charged and in good condition. A weak battery can put excessive strain on the starter.
- **Cable Connections:** Periodically inspect battery cables and starter connections for corrosion or looseness. Clean terminals with a wire brush and ensure they are securely fastened.
- **Engine Condition:** A well-maintained engine that starts easily reduces the workload on the starter. Address any engine issues that cause hard starting.
- **Avoid Over-Cranking:** As mentioned, limit cranking time to prevent overheating.

## 7. TROUBLESHOOTING

If you experience issues with your starter, consider the following common problems and solutions:

Symptom	Possible Cause	Solution
Starter clicks but engine does not crank	Weak or dead battery; Loose or corroded battery cables; Faulty starter solenoid	Charge/replace battery; Clean and tighten battery/starter connections; Test/replace solenoid or starter
Starter cranks slowly	Low battery charge; Excessive resistance in circuit; Engine issues (e.g., thick oil in cold weather)	Charge battery; Inspect and clean all electrical connections; Consult mechanic for engine issues
No sound or click when turning key	Completely dead battery; Faulty ignition switch; Open circuit to starter; Neutral safety switch issue	Check battery voltage; Inspect ignition switch and wiring; Check neutral safety switch
Starter spins but engine does not crank	Faulty starter drive (bendix) gear; Damaged flywheel teeth	Replace starter; Inspect and replace flywheel if damaged

If troubleshooting steps do not resolve the issue, it is recommended to consult a professional mechanic.

## 8. SPECIFICATIONS

Key technical specifications for the Gladiator 12V Starter:

- **Voltage:** 12 Volts
- **Material:** Copper (internal components)
- **Dimensions (L x W x H):** Approximately 11.8 x 5.5 x 7 inches
- **Item Weight:** Approximately 19 Pounds
- **Manufacturer:** Gladiator
- **Origin:** Assembled in the USA




9. WARRANTY AND SUPPORT

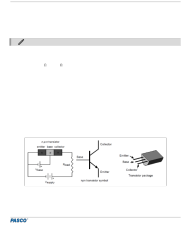


Your Gladiator 12V Starter comes with a commitment to quality and performance.

- **Warranty:** This product is backed by a one-year warranty from the date of purchase. This warranty covers defects in materials and workmanship under normal use.
- **Quality Assurance:** Our starters are designed to meet or exceed OEM specifications, ensuring reliable operation.
- **Support:** For technical assistance, warranty claims, or further inquiries, please contact Gladiator customer support through your original point of purchase.

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Related Documents - 028000-5000

	<p><a href="#">Cumberland Smart IR Sensor PNEG-1640 Installation and Operation Manual</a></p> <p>Installation and operation manual for the Cumberland Smart IR Sensor (Model PNEG-1640), detailing safety, application, installation, operation, delay time, run time, sensitivity, replacement parts, wiring diagrams, and warranty information.</p>
	<p><a href="#">Danfoss VLT® 5000 Series: Advanced Frequency Converters and Selection Guide</a></p> <p>Discover the Danfoss VLT® 5000 Series, a line of high-performance frequency converters for AC motor control. This guide details product selection, technical specifications, installation, and the innovative WCplus control system for optimal motor performance in industrial applications.</p>
	<p><a href="#">Itron 100G Series Gas ERT Module Installation Guide, Remote Mount</a></p> <p>This installation guide provides detailed, step-by-step instructions for the proper installation and mounting of the Itron 100G Series Gas ERT Module (Remote Mount) on various gas meters and instruments. It covers connection procedures, configuration, and safety guidelines for utility professionals.</p>

	<p><a href="#">Experiment 17: NPN Transistor as a Digital Switch - PASCO Lab Guide</a></p> <p>Detailed instructions for Experiment 17: The NPN Transistor as a Digital Switch, part of the PASCO AC/DC Electronics Laboratory (EM-8656). Learn about transistor operation, setup, data collection, and analysis using PASCO Capstone software.</p>
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	<p><a href="#">Miele Backofen: Gebrauchs- und Montageanweisung   Bedienung, Installation &amp; Pflege</a></p> <p>Umfassende Anleitung für Miele Backöfen (Modelle H 7xxx Serie). Erfahren Sie mehr über Bedienung, Installation, Sicherheitshinweise, Reinigung und Wartung für optimale Ergebnisse.</p>