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AHL AA-111-011

AHL Magnetic Flywheel Rotor Generator Instruction Manual

Model: AA-111-011

1. Introduction

This manual provides essential information regarding the AHL Magnetic Flywheel Rotor Generator, Model AA-111-011. It covers product overview, compatibility, installation considerations, general maintenance, troubleshooting, and technical specifications. This component is designed as a replacement part for specific Polaris UTV and ATV models.

2. Product Overview

The AHL Magnetic Flywheel Rotor Generator is a critical component in the electrical system of compatible Polaris vehicles. It is responsible for generating electrical power to charge the battery and operate various electrical systems while the engine is running. This unit is manufactured from high-quality materials to ensure reliable performance and durability.



Figure 1: Top-down view of the AHL Magnetic Flywheel Rotor Generator, showing the central hub and outer gear teeth.

This replacement part corresponds to OEM Part Numbers:**3085558, 3086819, 3086983, 3087166, FF97**.

3. Compatibility

This magnetic flywheel rotor generator is compatible with a wide range of Polaris UTV and ATV models. Please verify your vehicle's OEM part number and ensure it matches one of the listed numbers (3085558, 3086819, 3086983, 3087166, FF97) for proper fitment. Note that some 2003 and 2004 models used two different types of flywheels; this unit replaces those with 'FF97' stamped on the back.



Figure 2: Angled view of the flywheel, highlighting the external gear teeth for engine engagement.

Compatible Polaris Models:

- **ATP 500 4X4** (2004)
- **ATV PRO 500 4X4 PPS** (2002)
- **BIG BOSS 500 6X6** (1998, 1999)
- **BIG BOSS 500 6X6 INTL** (1999-2002)
- **LUH 6X6 PPS** (2002)
- **Magnum 500** (1999-2002)
- **Magnum 500 2X4 HDS** (2002)
- **Magnum 500 4X4 HDS** (2000, 2003)
- **Magnum 500 4X4 HDS II** (2000)
- **Magnum 500 EB** (2000)
- **Magnum 500 HDS** (2001)
- **Magnum 500 RMK** (2002)
- **Magnum 500 VL HDS** (2002)

- **Norwegian BIG BOSS 500 6X6** (1998)
- **PTV 4X4 SERIES 10**
- **PTV 6X6 SERIES 10**
- **Ranger 400/500 SERIES 11**
- **Ranger 500** (1999)
- **Ranger 500 6X6 SERIES 10**
- **Ranger 500 SERIES 10**
- **Scrambler 500** (1997-2003)
- **Scrambler 500 2X4** (2001, 2002)
- **Scrambler 500 4X4** (2001-2003)
- **Scrambler 500 4X4 FREEDOM** (2002)
- **Series 10/11 Ranger**
- **Sportsman 400** (2003-2004)
- **Sportsman 500** (1998-2000, 2004)
- **Sportsman 500 6X6** (2000-2003)
- **Sportsman 500 ALL OPTIONS** (2002)
- **Sportsman 500 DUSE** (2001)
- **Sportsman 500 DUSE HO** (2001)
- **Sportsman 500 HO** (2001, 2003)
- **Sportsman 500 RSE** (1999, 2000)
- **Sportsman 500 RSE HO** (2001)
- **Swedish Big Boss 500 6X6** (1998)
- **Swedish Sportsman 500** (1998)
- **UTV 2X4 SERIES 10**
- **UTV 2X4/4X4/6X6 SERIES 11**
- **UTV 4X4 SERIES 10**
- **Worker 500** (1999-2001)

4. Installation (Setup)

Installation of a magnetic flywheel rotor generator requires specialized tools and technical knowledge. It involves working with engine components and electrical systems. **It is strongly recommended that installation be performed by a qualified professional mechanic.** Improper installation can lead to vehicle damage, electrical system failure, or personal injury.



Figure 3: Bottom view of the flywheel, illustrating the internal magnet assembly and mounting bolt holes.

General steps for installation typically include:

1. Disconnecting the vehicle's battery.
2. Removing the stator cover and any associated components to access the existing flywheel.
3. Using a specialized flywheel puller tool to safely remove the old flywheel.
4. Inspecting the crankshaft and keyway for any damage.
5. Carefully installing the new AHL Magnetic Flywheel Rotor Generator, ensuring proper alignment with the keyway.
6. Torquing the flywheel retaining bolt to the manufacturer's specifications.
7. Reinstalling the stator cover and other removed components.
8. Reconnecting the battery and testing the charging system.

Warning: Do not attempt installation without the necessary tools, experience, and service manual for your specific vehicle model.

5. Operation

The magnetic flywheel rotor generator operates automatically as part of your vehicle's engine system. Once installed, it works in conjunction with the stator to produce alternating current (AC) electricity. This AC current is then converted to direct current (DC) by the voltage regulator/rectifier, which charges the battery and powers the vehicle's electrical accessories. No direct user operation is required for this component.

6. Maintenance

The AHL Magnetic Flywheel Rotor Generator is designed for long-term reliability with minimal maintenance. However, periodic inspection during routine engine servicing can help identify potential issues early.



Figure 4: Side profile of the flywheel, showing its overall dimensions and construction.

Maintenance considerations include:

- **Visual Inspection:** During engine disassembly or related repairs, visually inspect the flywheel for any signs of physical damage, cracks, excessive wear on the gear teeth, or discoloration from overheating.
- **Magnet Integrity:** Ensure all magnets are securely in place and show no signs of cracking or detachment.
- **Cleanliness:** Keep the area around the flywheel and stator free from debris, oil, or coolant, which can interfere with proper operation or cause damage.
- **Professional Check:** If any abnormalities are observed, consult a professional mechanic for further diagnosis and service.

7. Troubleshooting

Issues related to the flywheel rotor generator typically manifest as problems with the vehicle's charging system or engine starting. If you experience any of the following symptoms, it may indicate a problem with the generator or related components:

- Battery not charging, leading to a dead battery.
- Dim headlights or other electrical components.
- Engine misfires or erratic performance (less common, but possible if flywheel timing marks are damaged).
- Unusual noises from the engine's stator cover area.

Recommended Action: Due to the complexity of diagnosing electrical and engine components, it is highly recommended to have your vehicle inspected by a qualified mechanic. They can perform specific tests on the charging system, including stator output and flywheel integrity, to accurately identify the root cause of the problem.

8. Specifications

Specification	Detail
Manufacturer	AHL
Brand	AHL
Item Weight	5.95 pounds
Manufacturer Part Number	AA-111-011
OEM Part Numbers	3085558, 3086819, 3086983, 3087166, FF97
ASIN	B0BYJ6Q4K2
Date First Available	March 15, 2023

9. Warranty and Support

For any questions regarding this product, including compatibility, installation, or performance, please contact AHL customer support. While specific warranty details are not provided in this manual, AHL is committed to customer satisfaction. Please retain your purchase receipt for any warranty claims.

Contact information for support can typically be found on the seller's platform or AHL's official website.

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