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› Complete Tractor Alternator Conversion Kit for Ford 8N, 2N, 9N Tractors (1939-1951) - Installation and Operation Manual

## Complete Tractor 400-14142

# Complete Tractor Alternator Conversion Kit

For Ford 8N, 2N, 9N Tractors (1939-1951)

Installation and Operation Manual

## 1. INTRODUCTION

This manual provides essential information for the safe and correct installation, operation, and maintenance of your Complete Tractor Alternator Conversion Kit. This kit is designed to replace the original generator system on early Ford tractor models 8N, 2N, and 9N, converting them to a more modern 12-volt alternator charging system. Please read all instructions carefully before beginning installation.

**Important: Verify that this kit is compatible with your specific tractor model and year (1939-1951 Ford 8N, 2N, 9N) before proceeding with installation.**

## 2. SAFETY INFORMATION

Always prioritize safety when working with electrical systems and heavy machinery. Failure to follow these safety guidelines may result in serious injury or damage to equipment.

- **Disconnect Battery:** Always disconnect the tractor's battery before performing any electrical work to prevent accidental shorts or electrical shock.
- **Eye Protection:** Wear appropriate eye protection (safety glasses or goggles) to shield against debris.
- **Proper Tools:** Use only the correct tools for each task.
- **Ventilation:** Ensure adequate ventilation when working with batteries, as they can emit explosive gases.
- **Professional Assistance:** If you are unsure about any step or lack mechanical/electrical experience, seek assistance from a qualified technician.
- **Cleanliness:** Keep the work area clean and free of clutter.

## 3. PACKAGE CONTENTS

Carefully unpack the kit and verify that all components are present and undamaged. If any parts are missing or damaged, contact your supplier immediately.

- Alternator Unit (12V, 63 Amp)
- Mounting Brackets and Hardware
- Pulley

- Wiring Harness
- Voltage Regulator (Internal to Alternator)
- Drive Belt



Figure 3.1: Overview of the Alternator Conversion Kit components.

This image displays the complete kit, including the alternator, wiring harness, drive belt, pulley, and various mounting brackets and fasteners required for installation.

## 4. INSTALLATION (SETUP)

The following steps outline the general procedure for installing the alternator conversion kit. Specific tractor configurations may require minor adjustments. It is recommended to consult a tractor-specific service manual for detailed wiring diagrams and component locations if needed.

### 4.1. Preparation

1. Park the tractor on a level surface and engage the parking brake.
2. Disconnect the negative (-) battery cable first, then the positive (+) cable.

3. Carefully remove the existing generator, voltage regulator, and associated wiring. Note the routing of the old belt.

## 4.2. Alternator Mounting

1. Attach the new pulley to the alternator shaft. Ensure it is securely fastened.
2. Mount the alternator using the provided brackets and hardware. Some tractor models may require minor modifications or alternative bracket positioning due to existing components (e.g., governor control lever). Ensure the alternator is securely positioned and aligned with the engine's crankshaft pulley.
3. Install the new drive belt. Adjust the alternator's position to achieve proper belt tension. The belt should have approximately 1/2 inch of deflection when pressed firmly at its longest span.



Figure 4.1: Alternator with pulley attached, ready for installation.

This image shows the alternator unit with the drive pulley already mounted, illustrating how it should appear before being installed on the tractor.

## 4.3. Wiring Connections

The provided wiring harness simplifies the conversion. The alternator typically has three terminals: B+ (output), IGN (ignition/excitation), and GND (ground). Refer to the specific wiring diagram included with your kit for precise connections, as variations exist.

- **B+ (Output):** Connect the main output wire from the alternator to the positive (+) terminal of the battery, often via the starter solenoid or an ammeter. This wire carries the charging current.
- **IGN (Ignition/Excitation):** Connect this terminal to a switched 12V ignition source. This provides the initial excitation voltage to start the alternator charging. A resistor or diode may be required in this line depending on the alternator type to prevent engine run-on when the ignition is turned off.
- **GND (Ground):** Ensure the alternator body is properly grounded to the tractor chassis. A dedicated ground wire may be included in the harness.
- **Battery Reconnection:** Once all wiring is secure and double-checked, reconnect the positive (+) battery cable first, then the negative (-) cable.

**Note: Some users have reported that the provided wiring diagrams may require additional clarification. If you encounter difficulties, consult a professional or refer to online resources specific to Ford tractor 12V conversions.**

## 5. OPERATION

After successful installation, the alternator will automatically begin charging the battery once the engine is started. The internal voltage regulator maintains the correct charging voltage.

1. Start the tractor engine.
2. Observe the ammeter or voltmeter (if installed). The ammeter should show a charge, and the voltmeter should read approximately 13.8-14.5 volts.
3. Allow the engine to run for a few minutes to confirm stable charging.

## 6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your alternator system.

- **Belt Tension:** Periodically check the drive belt tension. A loose belt can cause slippage and reduce charging efficiency, while an overly tight belt can damage bearings.
- **Wiring Connections:** Inspect all electrical connections for corrosion or looseness. Clean and tighten as necessary.
- **Alternator Cleanliness:** Keep the alternator free of excessive dirt, oil, and debris to ensure proper cooling.
- **Battery Condition:** Ensure your battery is in good condition and properly maintained, as a faulty battery can overwork the alternator.

## 7. TROUBLESHOOTING

If you experience issues with your alternator conversion kit, refer to the following common problems and solutions:

| Problem                            | Possible Cause                                                                                                                                                             | Solution                                                                                                                                                                                                                                             |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No Charge / Low Charge             | Loose or broken drive belt<br>Loose or corroded wiring connections<br>Faulty ignition/excitation wire connection<br>Blown fuse in charging circuit<br>Defective alternator | Check and adjust belt tension or replace belt.<br>Inspect and clean all connections, tighten securely.<br>Verify 12V at the IGN terminal when ignition is on.<br>Check and replace any blown fuses.<br>Test alternator output; replace if necessary. |
| Battery Overcharging               | Defective internal voltage regulator                                                                                                                                       | Test charging voltage; replace alternator if voltage exceeds 14.8V consistently.                                                                                                                                                                     |
| Engine Run-On (after ignition off) | No diode or resistor in the IGN wire, allowing feedback to ignition system.                                                                                                | Install a diode or resistor in the IGN wire as per specific alternator requirements.                                                                                                                                                                 |

## 8. SPECIFICATIONS

| Feature              | Detail                   |
|----------------------|--------------------------|
| Unit Type            | Alternator               |
| Voltage              | 12 Volts                 |
| Amperage             | 63 Amps                  |
| Rotation             | Clockwise (CW)           |
| Pulley Class         | V1                       |
| Regulator Type       | Internal Regulator (IR)  |
| Fan Type             | External Fan (EF)        |
| Model Number         | 400-14142                |
| Part Number          | AKT0001                  |
| Dimensions (Product) | 20.32 x 20.32 x 20.32 cm |
| Weight (Product)     | 7.26 kg                  |



Figure 8.1: Detailed view of the alternator unit.

This image provides a closer look at the alternator, highlighting its construction and features.

## 9. WARRANTY INFORMATION

This Complete Tractor Alternator Conversion Kit comes with **aone-year warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use. It does not cover damage resulting from improper installation, misuse, neglect, accident, or unauthorized modification. Please retain your proof of purchase for warranty claims.

## 10. CUSTOMER SUPPORT

If you have any questions regarding the installation, operation, or troubleshooting of your Complete Tractor Alternator Conversion Kit, please contact your retailer or the manufacturer's customer support. For technical assistance, please be prepared to provide your product model number (400-14142) and details of your tractor model.

**Contact Information:**

**Website:** [www.completetractor.com](http://www.completetractor.com) (Example link, replace with actual if available)

**Email:** [support@completetractor.com](mailto:support@completetractor.com) (Example email, replace with actual if available)

**Phone:** 1-800-XXX-XXXX (Example number, replace with actual if available)

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