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Cardone 5D-9011L

Cardone A1 5D-9011L Remanufactured Diesel Exhaust Fluid Heater Instruction Manual

Model: 5D-9011L | Brand: Cardone

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1. Product Overview

The Cardone A1 5D-9011L Remanufactured Diesel Exhaust Fluid (DEF) Heater is an essential component for diesel vehicles operating in cold temperatures. All DEF systems require heating elements to prevent DEF fluid from freezing at temperatures below 12 degrees Fahrenheit (approximately -11 degrees Celsius). This DEF Heating Pot is designed to quickly return frozen DEF to liquid form, ensuring proper flow through the vehicle's lines and pump unit. It is a remanufactured Original Equipment (OE) part, guaranteeing a precise vehicle fit and reliable performance.



Figure 1.1: Overview of the Cardone A1 5D-9011L Remanufactured Diesel Exhaust Fluid Heater. This image displays the complete unit, including the main housing, top cap with electrical connections, and wiring harness.

2. Key Features

- **OE Fitment:** As a remanufactured Original Equipment part, this unit guarantees a perfect vehicle fit, ensuring compatibility and ease of installation.
- **Performance Tested:** Each unit is real-world tested for functionality and performance to meet or exceed original specifications.
- **Quiet Operation:** Engineered for quiet operation, minimizing noise during vehicle use.
- **Direct Plug-and-Play:** Features a direct plug-and-play design, including all necessary installation hardware for a complete replacement.
- **Environmentally Friendly:** The remanufacturing process is earth-friendly, significantly reducing the energy and raw material needed compared to manufacturing a new part.

3. Package Contents

Upon opening the package, verify that all components are present and undamaged. The package for the Cardone A1 5D-9011L Remanufactured Diesel Exhaust Fluid Heater typically includes:

- 1 x DEF Heater Canister
- 1 x Breather Tube
- 1 x Seal
- O-rings (various sizes as required for installation)



Figure 3.1: Top view of the DEF Heater showing the electrical connections and mounting points. This perspective highlights the integrated wiring harness and the precise fitment of the top cap.

4. Installation Instructions

Installation of the Cardone A1 5D-9011L DEF Heater should be performed by a qualified automotive technician. Always refer to your vehicle's specific service manual for detailed removal and installation procedures. The following steps provide a general overview:

1. **Safety First:** Ensure the vehicle is turned off, cooled down, and properly secured. Disconnect the battery to prevent electrical hazards.
2. **Locate Old Unit:** Identify the existing Diesel Exhaust Fluid heater assembly in your vehicle.
3. **Drain DEF:** If necessary, safely drain the DEF tank according to vehicle manufacturer guidelines.
4. **Disconnect:** Carefully disconnect all electrical connectors and fluid lines attached to the old DEF heater.
5. **Remove Old Unit:** Unmount and remove the old DEF heater. Be prepared for any residual DEF fluid.
6. **Prepare New Unit:** Inspect the new Cardone remanufactured DEF heater. Ensure all included gaskets and O-rings are correctly seated on the new unit.
7. **Install New Unit:** Position the new DEF heater into place and secure it using the appropriate fasteners.
8. **Reconnect:** Reconnect all fluid lines and electrical connectors. Ensure connections are secure and free of leaks.
9. **Refill DEF:** Refill the DEF tank with the appropriate type and amount of Diesel Exhaust Fluid.

10. **Test System:** Reconnect the battery. Start the vehicle and check for proper operation of the DEF system and heater. Monitor for any warning lights or error codes.



Figure 4.1: Side view of the DEF Heater, highlighting the integrated electrical connectors. These connectors are designed for a direct plug-and-play installation, simplifying the replacement process.

5. Operating Principles

The Diesel Exhaust Fluid (DEF) heater operates automatically based on ambient temperature and vehicle system requirements. When the temperature drops below approximately 12 degrees Fahrenheit (-11 degrees Celsius), the vehicle's engine control unit (ECU) activates the DEF heater. The heater then warms the DEF fluid within the tank and lines, preventing it from freezing and ensuring it remains in a liquid state for proper injection into the exhaust system. This process is crucial for the Selective Catalytic Reduction (SCR) system to function effectively, reducing nitrogen oxide (NOx) emissions.



Figure 5.1: Bottom view of the DEF Heater, revealing the integrated filter. This filter helps maintain the purity of the DEF fluid as it is drawn into the heating element.

6. Maintenance

The Cardone A1 5D-9011L DEF Heater is designed for long-term reliability and typically requires no routine maintenance beyond ensuring the DEF system is kept clean and free of contaminants. However, periodic inspection is recommended:

- **Visual Inspection:** During routine vehicle service, visually inspect the DEF heater and its connections for any signs of damage, corrosion, or leaks.
- **DEF Quality:** Always use high-quality, certified Diesel Exhaust Fluid to prevent crystallization and contamination within the DEF system, which can impact heater performance.
- **System Checks:** Ensure your vehicle's DEF system is regularly checked by a qualified technician as part of your vehicle's scheduled maintenance.

7. Troubleshooting

If your diesel vehicle experiences issues related to the DEF system, particularly in cold weather, the DEF heater may be a contributing factor. Common symptoms of a failing DEF heating element include:

- **Vehicle in Limp Mode:** The vehicle's engine control unit (ECU) may reduce engine power or limit speed (limp mode) if the DEF system is not functioning correctly due to frozen DEF.
- **Reduced Engine Power:** Similar to limp mode, a non-functional DEF system can lead to a noticeable decrease in engine performance.
- **Diagnostic Trouble Codes (DTCs):** The check engine light or specific DEF system warning lights may illuminate, accompanied by diagnostic trouble codes related to DEF heater circuit malfunctions or DEF quality issues.
- **DEF Freezing:** In cold temperatures, if the DEF fluid consistently freezes in the tank or lines, it indicates the heater

is not operating as intended.

If you encounter these symptoms, it is recommended to have the vehicle diagnosed by a professional technician. A failed DEF heating element is a common culprit for these issues.

8. Product Specifications

Attribute	Detail
Manufacturer	A1 Cardone
Brand	Cardone
Model Number	5D-9011L
Manufacturer Part Number	2N322
OEM Part Numbers	561198970, 561198970A
Item Weight	2.1 pounds (approx. 0.95 kg)
Product Dimensions	12 x 8 x 8 inches (approx. 30.5 x 20.3 x 20.3 cm)
ASIN	B07CKL8Q6M
First Available Date	April 23, 2018

9. The Remanufacturing Process

This Cardone DEF Heater is a remanufactured product. Remanufacturing is a sustainable process where used parts are restored to like-new or better-than-new condition. This process involves complete disassembly, cleaning, inspection, replacement of worn components, reassembly, and testing. Choosing a remanufactured part contributes significantly to environmental conservation.

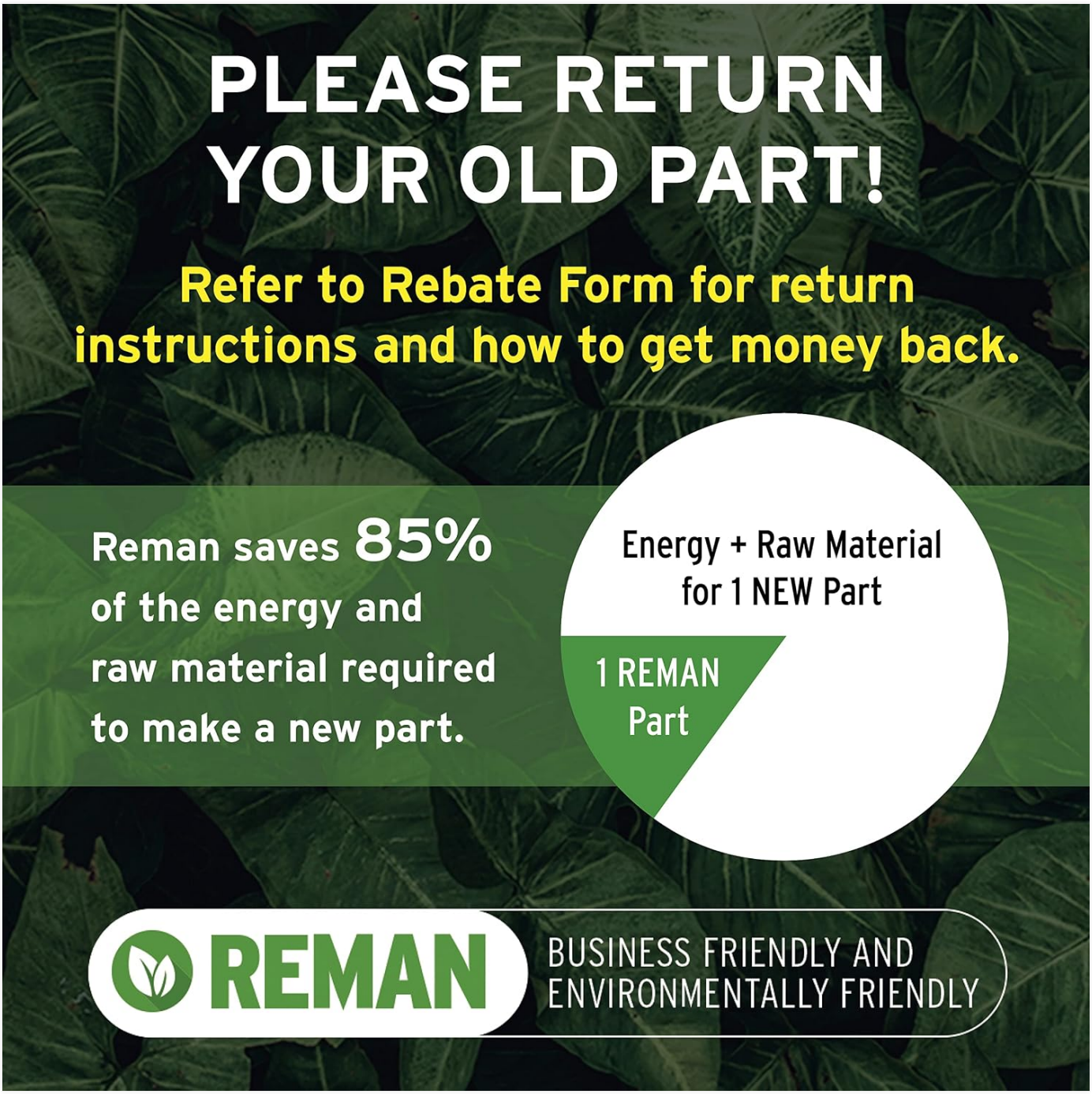


Figure 9.1: Infographic illustrating the environmental benefits of remanufacturing. Remanufacturing saves approximately 85% of the energy and raw material required to produce a new part, making it a business-friendly and environmentally friendly choice.

10. Warranty and Support

For specific warranty information regarding your Cardone A1 5D-9011L Remanufactured Diesel Exhaust Fluid Heater, please refer to the documentation included with your purchase or visit the official Cardone website. Cardone stands behind the quality and performance of its remanufactured products.

If you require technical assistance, have questions about installation, or need to report an issue, please contact Cardone customer support through their official channels. Always provide your product model number (5D-9011L) and any relevant vehicle information when seeking support.

Cardone Official Website: www.cardone.com

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