

Richmond 6903611

Richmond Gear 6903611 Gear Ford 9" Street 3.70" Instruction Manual

Model: 6903611

INTRODUCTION

This manual provides essential information for the proper installation, operation, and maintenance of your Richmond Gear 6903611 Ring and Pinion Set. This product is designed for Ford 9" differentials with a 3.70 gear ratio, intended for street applications. Adhering to these instructions will help ensure optimal performance and longevity of the gear set.

SAFETY INFORMATION

Always prioritize safety when working with automotive components. Improper installation or handling can lead to serious injury or damage to the vehicle. It is highly recommended that installation be performed by a qualified automotive technician.

- Wear appropriate personal protective equipment (PPE), including safety glasses and gloves.
- Ensure the vehicle is securely supported on jack stands or a lift before beginning any work.
- Disconnect the vehicle's battery to prevent accidental electrical discharge.
- Be aware of hot surfaces and sharp edges.
- Use the correct tools for each task.
- Dispose of old fluids and parts responsibly according to local regulations.

PRODUCT OVERVIEW

The Richmond Gear 6903611 is a high-quality ring and pinion gear set designed for Ford 9-inch rear differentials. This set includes a large ring gear and a smaller pinion gear, which together determine the final drive ratio of the vehicle's axle. The 3.70 ratio indicates that the pinion gear rotates 3.70 times for every one rotation of the ring gear, influencing the vehicle's acceleration and top speed characteristics.



Figure 1: Richmond Gear 6903611 Ring and Pinion Set. This image displays the Richmond Gear 6903611 ring and pinion set, consisting of a large ring gear and a smaller pinion gear. These components are designed to work together within a vehicle's differential to transmit power and adjust torque.

SETUP AND INSTALLATION

Installation of a ring and pinion set requires specialized tools, knowledge, and precision. Incorrect installation can lead to premature wear, noise, and catastrophic failure. It is strongly recommended that this procedure be performed by a professional with experience in differential assembly.

Key Installation Steps (Overview):

1. **Disassembly:** Remove the differential cover, drain fluid, remove axles, and carefully disassemble the existing differential components.
2. **Cleaning and Inspection:** Thoroughly clean the differential housing and inspect all components for wear or damage. Replace any worn bearings, seals, or shims.
3. **Pinion Depth Setting:** This is a critical step. Use a pinion depth setting tool or trial-and-error with shims to

achieve the correct pinion depth, which affects the gear mesh pattern.

- 4. **Pinion Bearing Preload:** Set the correct preload on the pinion bearings using a crush sleeve or shims and a torque wrench.
- 5. **Ring Gear Installation:** Mount the new ring gear onto the differential carrier. Ensure all bolts are torqued to manufacturer specifications.
- 6. **Carrier Installation and Backlash Adjustment:** Install the carrier assembly into the housing. Adjust the side shims to achieve the specified backlash (the amount of play between the ring and pinion gears) and carrier bearing preload.
- 7. **Gear Pattern Check:** Apply gear marking compound to the ring gear teeth and rotate the gears to check the contact pattern. Adjust pinion depth and backlash as necessary until an optimal pattern is achieved.
- 8. **Final Assembly:** Reinstall axles, differential cover with new gasket and sealant, and fill with the correct type and amount of differential fluid.
- 9. **Break-in Procedure:** Follow the manufacturer's recommended break-in procedure for new gears to ensure proper seating and prevent premature wear. This typically involves varying speeds and avoiding heavy loads for the initial mileage.

Refer to a comprehensive automotive service manual specific to your vehicle's Ford 9" differential for detailed torque specifications and precise procedures.

OPERATING CONSIDERATIONS

Once installed, the Richmond Gear 6903611 operates as a critical component of your vehicle's drivetrain, converting the rotational motion of the driveshaft into the rotational motion of the axles, while also providing torque multiplication. Proper break-in is crucial for the longevity of the gear set. Avoid aggressive acceleration, heavy towing, or sustained high speeds during the initial break-in period (typically 500 miles or as recommended by the gear manufacturer). Allow the differential to cool down after short drives during this period.

MAINTENANCE

Regular maintenance of your differential is essential to ensure the long-term performance and reliability of your Richmond Gear set.

- **Fluid Checks:** Periodically check the differential fluid level and condition. Refer to your vehicle's service manual for recommended fluid types and change intervals.
- **Fluid Changes:** Change differential fluid at recommended intervals, especially after the initial break-in period. Use high-quality gear oil with the correct viscosity and any necessary friction modifiers.
- **Leak Inspection:** Regularly inspect the differential housing for any signs of fluid leaks around the cover, pinion seal, or axle seals. Address leaks promptly.
- **Noise Monitoring:** Pay attention to any unusual noises (whining, clunking, grinding) coming from the differential, as these can indicate a problem.

TROUBLESHOOTING

If you experience issues with your differential after installing the new gear set, consider the following common problems and potential causes:

Symptom	Possible Cause	Resolution
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Symptom	Possible Cause	Resolution
Whining noise (especially on deceleration)	Incorrect pinion depth, insufficient backlash, worn bearings, improper break-in.	Re-check gear pattern and adjust pinion depth/backlash. Inspect and replace worn bearings. Ensure proper break-in.
Clunking or banging noise	Excessive backlash, loose bolts, worn U-joints, worn carrier bearings.	Adjust backlash. Check all fasteners for proper torque. Inspect U-joints and carrier bearings.
Grinding noise	Metal-to-metal contact, severe wear, lack of lubrication.	Immediately stop driving. Inspect gears for damage. Check fluid level and condition. Professional inspection required.
Fluid leaks	Damaged seals (pinion, axle), loose differential cover, cracked housing.	Identify source of leak and replace seals or re-seal cover. Inspect housing for damage.

If you are unable to diagnose or resolve an issue, consult with a certified automotive mechanic specializing in drivetrain components.

SPECIFICATIONS

The following specifications apply to the Richmond Gear 6903611 Ring and Pinion Set:

Attribute	Value
Manufacturer	Richmond Gear
Brand	Richmond
Item Weight	20 pounds
Product Dimensions	15.1 x 11.1 x 5.3 inches
Item Model Number	69-0361-1
Manufacturer Part Number	6903611
OEM Part Number	69-0361-1
ASIN	B000MIN778
Date First Available	January 8, 2007

WARRANTY AND SUPPORT

For specific warranty information regarding your Richmond Gear 6903611 Ring and Pinion Set, please refer to the documentation included with your purchase or visit the official Richmond Gear website. Warranty terms and conditions typically cover manufacturing defects.




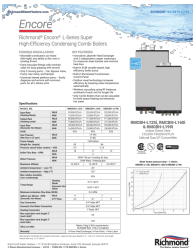
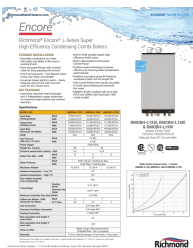
For technical support or assistance with installation and troubleshooting beyond the scope of this manual, it is

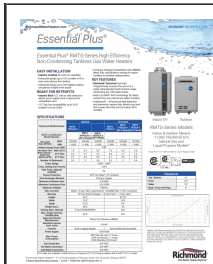
recommended to contact Richmond Gear directly or consult with a certified automotive professional.

Note: Amazon.com is a retailer and does not provide direct product support or warranty services for this item.

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Related Documents - 6903611

	<p>Richmond Performance Driveline & Axles Catalog</p> <p>Explore the comprehensive Richmond Performance Driveline & Axles Catalog, featuring a wide range of high-performance ring and pinion sets and manual transmissions for trucks, SUVs, and performance vehicles. Find detailed application guides, specifications, and installation instructions.</p>
	<p>Richmond Range Hood User Manual</p> <p>Comprehensive user manual for the Richmond range hood, covering installation, operation, maintenance, and safety guidelines.</p>
	<p>Richmond 72" White TV Console with Firebox and LED Lights</p> <p>Explore the Richmond 72" White TV Console, designed for easy assembly with its Unfold Assembly™ system. Features include a pre-installed firebox, customizable color-changing LED lights, ample storage with glass doors, and integrated wire management. This versatile console enhances any living space, game room, or bedroom.</p>
	<p>Richmond Encore L-Series High-Efficiency Condensing Combi Boilers RMCBH-L125i, L160i, L199i</p> <p>Explore the Richmond Encore L-Series Super High-Efficiency Condensing Combi Boilers (RMCBH-L125i, RMCBH-L160i, RMCBH-L199i). Features include Labyrinth Heat Exchanger, ECM pump, touchscreen control, and outdoor reset technology. Specifications, installation, and dimensions provided.</p>
	<p>Richmond Encore L-Series High-Efficiency Condensing Combi Boilers - Specifications and Features</p> <p>Detailed overview of the Richmond Encore L-Series Super High-Efficiency Condensing Combi Boilers, including flexible installation features, key features, comprehensive specifications, dimensions, venting, installation clearances, piping connections, and available accessories for models RMCBH-L125i, RMCBH-L160i, and RMCBH-L199i.</p>



[Richmond Essential Plus RMTG-Series High Efficiency Tankless Gas Water Heaters](#)

Discover the Richmond Essential Plus RMTG-Series, high-efficiency non-condensing tankless gas water heaters. Explore features, specifications, installation guidelines, and accessories for both indoor and outdoor models.