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› Proform 141-697 Reinforced Differential Cover Installation and Maintenance Manual

ProForm 141-697

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1. INTRODUCTION

This manual provides detailed instructions for the proper installation, operation, and maintenance of your Proform 141-697 Reinforced Differential Cover. This cover is designed to strengthen the rear housing case, particularly in high-torque applications, by stiffening the main cap area to reduce housing flex, thereby increasing gear life and decreasing ring deflection. Please read this manual thoroughly before beginning installation to ensure safe and correct procedures.

2. SAFETY INFORMATION

Always prioritize safety when working on vehicles. Failure to follow safety precautions can result in personal injury or damage to the vehicle.

- Ensure the vehicle is securely supported on jack stands or a lift before working underneath. Never rely solely on a jack.
- Wear appropriate personal protective equipment (PPE), including safety glasses and gloves.
- Allow the differential to cool before servicing to prevent burns from hot fluid.
- Dispose of old differential fluid responsibly according to local regulations.
- Keep all tools and work areas clean and organized.

3. WHAT'S IN THE BOX

Verify that all components are present before beginning installation.

- 1x Proform 141-697 Reinforced Differential Cover
- Main Cap Bolts
- Magnetic Drain Plug
- Mounting Hardware (washers, nuts if applicable)

Note: A differential cover gasket is typically not included and must be purchased separately or a suitable RTV sealant used for installation.

4. INSTALLATION INSTRUCTIONS

This section outlines the steps for installing the Proform 141-697 Differential Cover. Professional installation is recommended if you are unfamiliar with automotive repair procedures.

4.1. Required Tools and Materials (Not Included)

- Socket wrench set
- Torque wrench
- Drain pan
- Scraper or wire brush
- Brake cleaner or degreaser
- Differential cover gasket or RTV sealant (e.g., Permatex Ultra Black)
- New differential fluid (refer to vehicle manufacturer specifications for type and quantity)
- Fluid pump or syringe for refilling

4.2. Step-by-Step Installation

1. **Prepare Vehicle:** Park the vehicle on a level surface and engage the parking brake. Safely lift the rear of the vehicle and support it with jack stands.
2. **Drain Old Fluid:** Place a drain pan beneath the differential. Loosen and remove the lower differential cover bolts first, then carefully loosen the remaining bolts. Allow the old differential fluid to drain completely.
3. **Remove Old Cover:** Once the fluid has drained, remove all remaining bolts and carefully detach the old differential cover.
4. **Clean Mounting Surface:** Thoroughly clean the differential housing's mounting surface. Use a scraper or wire brush to remove all traces of old gasket material or sealant. Ensure the surface is smooth, dry, and free of oil or debris. Use brake cleaner or degreaser if necessary.
5. **Prepare New Cover:** Clean the mounting surface of the new Proform differential cover. If using a gasket, place it onto the cover. If using RTV sealant, apply a continuous, even bead of sealant around the bolt holes on the cover's mounting surface. Allow the sealant to skin over slightly according to the manufacturer's instructions (typically 10-15 minutes).
6. **Install New Cover:** Carefully position the new Proform differential cover onto the differential housing. Insert the main cap bolts and other mounting hardware.
7. **Tighten Bolts:** Hand-tighten all bolts first. Then, using a torque wrench, tighten the bolts in a crisscross pattern to **25 ft/lbs (34 Nm)**. This ensures even pressure and prevents warping.
8. **Refill Differential Fluid:** Locate the fill plug on the new differential cover. Remove the fill plug. Using a fluid pump or syringe, slowly add the specified type and quantity of new differential fluid until it reaches the bottom edge of the fill hole.
9. **Secure Fill Plug:** Reinstall and tighten the fill plug.
10. **Final Check:** Lower the vehicle. Inspect the differential cover for any leaks. Drive the vehicle for a short period and re-check for leaks.



Figure 1: Proform 141-697 Reinforced Differential Cover. This image shows the black crinkle powder-coated aluminum differential cover with the Chevrolet bowtie logo, main cap bolts, and magnetic drain plug visible. The cover features a reinforced design for enhanced durability.

5. OPERATION AND MAINTENANCE

5.1. Initial Operation

After installation, monitor the differential for any signs of leaks, especially during the first few drives. The magnetic drain plug will collect metallic particles, which is normal during the break-in period of new gears or after fluid changes.

5.2. Routine Maintenance

- **Fluid Level Check:** Periodically check the differential fluid level by removing the fill plug. The fluid should be at the bottom edge of the fill hole. Top off if necessary with the correct fluid type.
- **Fluid Change Interval:** Refer to your vehicle manufacturer's recommendations for differential fluid change intervals.

When changing fluid, the magnetic drain plug should be cleaned of any accumulated metallic particles.

- **Inspection:** Regularly inspect the differential cover for any signs of damage, corrosion, or leaks. Ensure all mounting bolts remain properly torqued.

6. TROUBLESHOOTING

Problem	Possible Cause	Solution
Fluid Leak from Cover	Improperly cleaned mounting surface Insufficient or incorrect sealant/gasket Bolts not torqued correctly or unevenly Damaged cover or housing surface	Re-clean surfaces thoroughly and reapply sealant/gasket. Ensure correct sealant/gasket is used and applied properly. Re-torque bolts to 25 ft/lbs in a crisscross pattern. Inspect cover and housing for damage; replace if necessary.
Paint/Coating Chipping	Over-tightening bolts Impact damage Improper surface preparation during manufacturing (less common)	Ensure bolts are torqued to specification (25 ft/lbs). Avoid impacts to the cover. Cosmetic issue, does not typically affect function unless severe.

7. SPECIFICATIONS

Feature	Detail
Model Number	141-697
Brand	ProForm
Material	Reinforced Lightweight Aluminum
Finish	Black Crinkle Powder Coat
Application	GM 12-Bolt Differentials
Included Features	Main Cap Bolts, Magnetic Drain Plug
Item Weight	7.4 pounds (approx. 3.36 kg)
Product Dimensions	12 x 12 x 4 inches (approx. 30.5 x 30.5 x 10.2 cm)
Torque Specification	25 ft/lbs (34 Nm) for mounting bolts

8. WARRANTY AND SUPPORT

For specific warranty information regarding your Proform Differential Cover, please refer to the documentation included with your purchase or visit the official ProForm website. For technical support or inquiries, contact ProForm customer service directly.

ProForm Website: [Visit the ProForm Store on Amazon](#)

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