

powerglide transmission handbook how to rebuild or modify chevrolets powerglide for all applications

Powerglide Transmission Handbook: How to Rebuild or Modify Chevrolet's Powerglide for All Applications

The Chevrolet Powerglide transmission has been a staple in the automotive industry since its introduction in the late 1950s. Its lightweight design, simplicity, and durability have made it a favorite among car enthusiasts and racers alike. Over the years, many enthusiasts have sought to rebuild or modify this classic transmission to improve performance, enhance reliability, or adapt it for specific applications. This article serves as a comprehensive guide for those interested in the intricacies of rebuilding or modifying the Powerglide transmission for various uses, whether for street performance, drag racing, or other applications.

Understanding the Powerglide Transmission

The Powerglide is a two-speed automatic transmission that was engineered for efficiency and ease of use. Key features include:

- Two-Speed Operation: The Powerglide features a low gear for starting and a high gear for cruising, providing a smooth driving experience.
- Torque Converter: It utilizes a torque converter that improves efficiency and provides better acceleration from a standstill.
- Lightweight Design: Compared to other transmissions of its time, the Powerglide is lighter, making it popular in performance applications.

Understanding these features is critical for anyone looking to rebuild or modify their Powerglide transmission.

Tools and Equipment Needed

Before diving into the rebuilding or modifying process, it's essential to gather the necessary tools and equipment. Here's a comprehensive list:

1. Basic Hand Tools:

- Socket set
- Wrenches
- Screwdrivers
- Pliers

2. Specialized Tools:

- Torque wrench

- Transmission jack
- Clutch spring compressor
- Transmission fluid pump

3. Cleaning Supplies:

- Parts cleaner
- Brushes
- Rags

4. Replacement Parts:

- Gaskets and seals
- Clutches and bands
- Torque converter
- Filter

5. Manuals and Guides:

- Powerglide service manual
- Rebuild kits

Rebuilding the Powerglide Transmission

Rebuilding a Powerglide transmission requires a systematic approach to ensure proper function and longevity. Below is a step-by-step guide on how to rebuild the transmission effectively.

Step 1: Remove the Transmission

- Disconnect the battery.
- Remove the driveshaft and any linkage connected to the transmission.
- Unbolt the transmission from the engine and lower it using a transmission jack.

Step 2: Disassemble the Transmission

1. Remove the bell housing.
2. Take off the valve body, carefully noting the positions of all bolts and components.
3. Extract the clutch packs and bands. Pay close attention to the order of disassembly.

Step 3: Inspect Components

- Check the condition of the clutch packs for wear or damage.
- Inspect the gears and shafts for any signs of wear.
- Look for cracks or damage in the case.

Step 4: Clean All Parts

Use a parts cleaner to thoroughly clean all components. Ensure all old gasket material and debris are removed to prevent future leaks.

Step 5: Replace Worn or Damaged Parts

- Replace clutch packs and bands with high-performance versions if desired.
- Install new seals and gaskets to ensure a proper seal.

Step 6: Reassemble the Transmission

1. Reassemble the clutch packs in the correct order.
2. Reattach the valve body, ensuring all electrical connections are properly secured.
3. Reinstall the bell housing.

Step 7: Install the Transmission Back into the Vehicle

- Carefully lift the transmission back into position using the transmission jack.
- Secure all bolts and reconnect the driveshaft and linkage.
- Reconnect the battery.

Modifying the Powerglide for Performance

For those looking to enhance the performance of their Powerglide transmission, several modifications can be made. Below are popular modifications to consider:

High-Performance Clutch Packs

- Upgrade to high-performance clutches that can handle increased torque and power.
- Consider using carbon or Kevlar materials for improved heat resistance.

Shift Kits

- Install a shift kit to improve shift firmness and response time.
- This modification can greatly enhance acceleration and overall performance.

Torque Converter Upgrade

- Upgrade to a higher stall torque converter for better acceleration from a standstill.
- Consider the engine's power band when selecting a converter.

Cooling System Improvements

- Install an aftermarket transmission cooler to maintain optimal operating temperatures, especially in high-performance applications.
- Ensure the cooler is properly mounted and plumbed.

Adjustable Valve Body

- Consider upgrading to an adjustable valve body for enhanced tuning capabilities.
- This modification allows for custom shift points and firmness.

Common Issues and Troubleshooting

Even after a rebuild or modification, it's possible to encounter issues with the Powerglide transmission. Here are some common problems and their solutions:

- Slipping Transmission: Check for low fluid levels or worn clutches. A rebuild may be necessary if these issues persist.
- Delayed Engagement: Inspect the valve body for proper operation. A clogged filter can also cause this issue.
- Overheating: Ensure the transmission cooler is functioning correctly, and check fluid levels regularly.

Conclusion

Rebuilding or modifying a Chevrolet Powerglide transmission can significantly enhance a vehicle's performance and reliability. Whether you're a seasoned mechanic or a novice enthusiast, following the steps outlined in this guide will help you navigate the process successfully. Armed with the right tools, knowledge, and parts, your Powerglide can be transformed into a robust transmission capable of handling the demands of any application. Embrace the challenge and enjoy the benefits of your hard work, whether on the street or the track.

Frequently Asked Questions

What is the primary purpose of the Powerglide transmission handbook?

The Powerglide transmission handbook serves as a comprehensive guide for rebuilding and modifying Chevrolet's Powerglide transmission, providing detailed instructions and tips for both novice and experienced mechanics.

What are the key components covered in the Powerglide transmission rebuild process?

The handbook covers essential components such as the valve body, pump, clutch packs, and servo systems, including step-by-step instructions for disassembly, inspection, and reassembly.

Can the Powerglide transmission be modified for high-performance applications?

Yes, the handbook includes specific modifications that can enhance the performance of the Powerglide transmission, such as upgrading clutch materials, adjusting valve body configurations, and improving fluid flow.

What tools are recommended for rebuilding a Powerglide transmission?

Recommended tools include basic hand tools like wrenches and screwdrivers, as well as specialized tools like a pressure gauge, transmission jack, and a torque wrench to ensure proper assembly and adjustment.

Are there common issues that the handbook addresses regarding Powerglide transmissions?

Yes, the handbook addresses common issues such as slipping, overheating, and failure to engage, providing troubleshooting tips and solutions to rectify these problems.

Is there a section in the handbook dedicated to troubleshooting?

Absolutely, the handbook features a dedicated troubleshooting section that outlines various symptoms and their potential causes, along with recommended diagnostic steps.

How does the handbook approach modifications for different Chevrolet applications?

The handbook outlines various modification strategies tailored to different Chevrolet models, ensuring that users can adapt the Powerglide transmission for specific performance needs and vehicle setups.

What type of maintenance tips does the handbook provide for Powerglide transmissions?

The handbook includes maintenance tips such as regular fluid changes, filter replacements, and inspection schedules to prolong the lifespan and performance of the transmission.

Is the Powerglide transmission handbook suitable for beginners?

Yes, the handbook is designed to be user-friendly, with clear instructions and illustrations that make it accessible for beginners while still containing advanced information for experienced builders.

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