

allison automatic transmission fault codes

Allison automatic transmission fault codes are essential diagnostic tools for identifying issues within the transmission system of a vehicle. The Allison Transmission Company has been a leader in the field of automatic transmissions, particularly for heavy-duty vehicles. Understanding these fault codes is crucial for mechanics, fleet operators, and vehicle owners to ensure the longevity and performance of their vehicles. This article delves into the nature of Allison automatic transmission fault codes, their significance, common codes, troubleshooting methods, and maintenance tips.

Understanding Allison Automatic Transmissions

Allison Transmissions are renowned for their durability and efficiency in various applications, including buses, trucks, and off-highway vehicles. These transmissions utilize advanced technology to provide seamless gear shifts, improved fuel efficiency, and enhanced vehicle performance. However, like any mechanical system, they are not immune to faults and failures.

How Transmission Fault Codes Work

Fault codes are generated by the transmission control module (TCM) when it detects abnormal conditions or malfunctions within the transmission system. These codes are stored in the vehicle's onboard diagnostics (OBD) system and can be retrieved using diagnostic tools, such as a scan tool or code reader. Each code corresponds to a specific issue, allowing technicians to pinpoint the problem quickly.

Common Allison Transmission Fault Codes

Allison automatic transmission fault codes can be categorized into several types, depending on the nature of the issue. Below are some common codes and their meanings:

1. Electronic Control Codes

- P0700: Transmission Control System Malfunction
- P0710: Transmission Fluid Temperature Sensor Range/Performance Problem
- P0711: Transmission Fluid Temperature Sensor Circuit Range/Performance Problem
- P0720: Output Speed Sensor Circuit Malfunction

2. Pressure Codes

- P0730: Incorrect Gear Ratio

- P0731: Gear Ratio Error (1st Gear)
- P0732: Gear Ratio Error (2nd Gear)
- P0733: Gear Ratio Error (3rd Gear)

3. Sensor Codes

- P0841: Transmission Fluid Pressure Sensor/Switch A Circuit Range/Performance Problem
- P0842: Transmission Fluid Pressure Sensor/Switch B Circuit Range/Performance Problem
- P0843: Transmission Fluid Pressure Sensor/Switch C Circuit Range/Performance Problem

4. Internal Transmission Codes

- P0868: Transmission Fluid Pressure Low
- P0869: Transmission Fluid Pressure High
- P0871: Transmission Fluid Pressure Sensor Circuit Low

Interpreting Allison Fault Codes

Interpreting fault codes requires understanding the specific transmission model and its unique coding system. Each code can have multiple implications based on the context, such as the vehicle's operating conditions or prior maintenance history.

Reading Fault Codes

To read fault codes from an Allison automatic transmission, follow these steps:

1. Connect a Diagnostic Tool: Use an OBD-II scanner or Allison-specific diagnostic tool to connect to the vehicle's diagnostic port.
2. Retrieve Codes: Navigate through the menu options to retrieve stored fault codes.
3. Document Codes: Write down all codes for further analysis.
4. Clear Codes: Clear the codes after diagnostics, but only after addressing the underlying issues.

Understanding Code Severity

Not all fault codes indicate immediate failure; some may signal minor issues that can be monitored. However, critical codes, such as those indicating low fluid pressure or incorrect gear ratios, require immediate attention to avoid severe damage to the transmission.

Troubleshooting Allison Transmission Fault Codes

Once the fault codes are retrieved, troubleshooting the issues is the next step. Here are some general troubleshooting steps:

1. Check Fluid Levels

- Ensure the transmission fluid is at the correct level. Low fluid levels can cause overheating and erratic shifting.
- Inspect the fluid quality for signs of contamination or burning.

2. Inspect Electrical Connections

- Check wiring and connectors leading to the TCM and sensors.
- Look for signs of wear, corrosion, or loose connections that could disrupt the signal.

3. Test Sensors

- Use a multimeter to test the functionality of sensors, such as speed and pressure sensors.
- Replace any faulty sensors as needed.

4. Examine the Transmission Filter

- A clogged filter can restrict fluid flow and lead to performance issues.
- Replace the transmission filter if it appears dirty or clogged.

5. Conduct a Pressure Test

- If pressure-related codes are present, perform a hydraulic pressure test to determine if the pump is functioning correctly.

Maintenance Tips for Allison Transmissions

Preventive maintenance is key to avoiding faults in Allison automatic transmissions. Here are some essential tips to keep in mind:

1. Regular Fluid Changes

- Change the transmission fluid and filter according to the manufacturer's recommended schedule. This helps prevent overheating and wear.

2. Monitor Performance

- Pay attention to changes in shifting behavior, such as slipping or harsh shifts, which may indicate underlying issues.

3. Address Leaks Promptly

- Check for fluid leaks around the transmission and repair any issues immediately to prevent fluid loss.

4. Use Quality Parts

- When replacing components, use OEM parts or high-quality alternatives to ensure compatibility and reliability.

Conclusion

Understanding and interpreting Allison automatic transmission fault codes is vital for maintaining the performance and longevity of heavy-duty vehicles. By familiarizing yourself with common codes, troubleshooting techniques, and maintenance practices, you can minimize downtime and repair costs associated with transmission failures. Regular checks and preventive measures will ensure that your Allison transmission operates smoothly and efficiently, helping you get the most out of your investment.

Frequently Asked Questions

What are Allison automatic transmission fault codes?

Allison automatic transmission fault codes are diagnostic trouble codes (DTCs) that indicate specific malfunctions or issues within the transmission system. These codes help technicians diagnose problems effectively.

How can I retrieve Allison automatic transmission fault codes?

You can retrieve Allison automatic transmission fault codes using a diagnostic scanner or a service tool compatible with Allison transmissions. Connect the tool to the vehicle's diagnostic port and follow the manufacturer's instructions.

What do common Allison automatic transmission fault codes mean?

Common Allison fault codes include 1-1, indicating a fault in the transmission control module, and 4-3, which may signify a problem with the transmission fluid temperature sensor. Each code corresponds to specific issues that require attention.

Can I clear Allison automatic transmission fault codes myself?

Yes, you can clear Allison automatic transmission fault codes using a compatible diagnostic scanner. However, it is advisable to address the underlying issues before clearing the codes to prevent reoccurrence.

What should I do if my Allison transmission shows a fault code?

If your Allison transmission shows a fault code, it's important to diagnose the issue promptly. Consult the vehicle's service manual for the specific code, and consider seeking professional assistance if you're unsure how to proceed.

Are there any preventative measures to avoid Allison transmission fault codes?

To avoid Allison transmission fault codes, perform regular maintenance such as checking and changing the transmission fluid, ensuring proper fluid levels, and keeping the transmission system clean. Regular inspections can also help identify potential issues early.

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