

# Detroit Dt12 Transmission Service Manual

7

## 7.6 Main Shaft Speed Sensor - A and B Components

### 7.6.1 Removal of the Main Shaft Speed Sensor - A and B Components

Remove as follows:

Special Tools

Special tools are required for this procedure.



1. Park the vehicle on a level surface, shut down the engine, and set the parking brake. Chock the tires.

#### WARNING

##### PERSONAL INJURY

To avoid injury from hot surfaces, wear protective gloves, or allow engine to cool before removing any component.

2. Disconnect the batteries at the negative post. Disconnect the batteries for the auxiliary HVAC, if equipped.
  3. Drain the transmission oil.
  4. Remove the transmission. Refer to the removal procedure.
- Note : Be ready to catch the oil pump.
5. Remove capscrews that attach

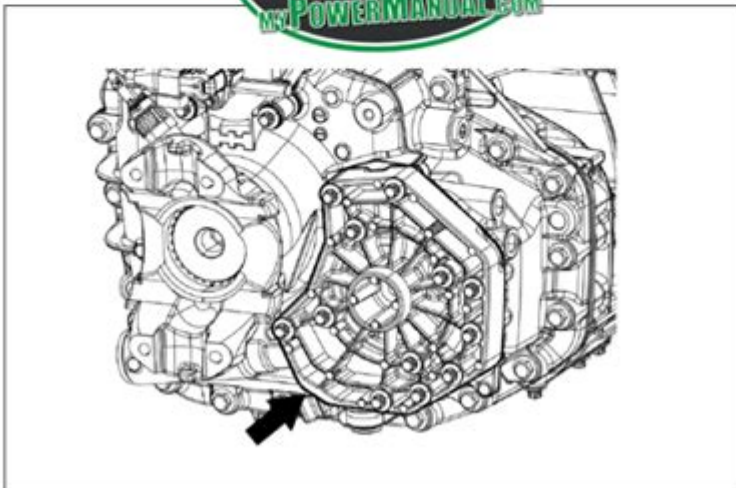


Fig 7.1, Oil Pump Cover.

Detroit DT12 transmission service manual is an essential resource for technicians and vehicle owners who operate or service vehicles equipped with the Detroit DT12 automated transmission. This advanced transmission system is known for its efficiency, reliability, and performance, making it a popular choice in many heavy-duty trucks. Understanding how to properly maintain and service the DT12 transmission is crucial for ensuring its longevity and optimal performance. This article will explore the key features of the DT12 transmission, the importance of a service manual, and detailed steps for performing various maintenance tasks.

## Overview of the Detroit DT12 Transmission

The Detroit DT12 is an advanced automated manual transmission designed

specifically for heavy-duty trucks. It features a unique combination of sophisticated technology and user-friendly operation, making it a preferred choice for fleet operators and truck drivers alike.

## **Key Features of the DT12 Transmission**

1. **Automated Manual Transmission (AMT):** The DT12 uses an automated manual transmission system that provides the benefits of both manual and automatic transmissions. It allows for seamless shifting without the need for driver intervention, improving overall driving comfort and fuel efficiency.
2. **Fuel Efficiency:** The DT12 transmission is designed to enhance fuel economy through optimized shift points and efficient gear ratios. This contributes to cost savings for fleets by reducing fuel consumption.
3. **Durability and Reliability:** The transmission is built to withstand the rigors of heavy-duty applications. It features robust components and advanced engineering that ensures durability and long service life.
4. **Intelligent Shifting:** The DT12 utilizes advanced algorithms to determine the best shift points based on load, terrain, and driving conditions. This intelligent shifting system enhances performance and accelerates the driving experience.
5. **User-Friendly Interface:** The transmission is equipped with an intuitive dashboard display that provides essential information to the driver, including gear selection, transmission temperature, and maintenance alerts.

## **The Importance of a Service Manual**

A Detroit DT12 transmission service manual is an invaluable tool for anyone looking to maintain or repair this complex transmission system. The manual provides detailed information on the following:

- **Maintenance Guidelines:** Step-by-step instructions for routine maintenance tasks, ensuring the transmission operates efficiently.
- **Troubleshooting:** Comprehensive troubleshooting procedures for diagnosing and resolving common issues.
- **Parts Identification:** Diagrams and part numbers facilitate easy identification and ordering of replacement components.
- **Service Procedures:** Detailed instructions for disassembly, assembly, and adjustments specific to the DT12 transmission.

## **Key Sections of the Service Manual**

1. **Maintenance Schedule:** This section outlines recommended service intervals for fluid changes, filter replacements, and inspections. Following this schedule is crucial for maintaining transmission health.
2. **Fluid Specifications:** The manual specifies the types of transmission fluid compatible with the DT12, including viscosity grades and quality standards. Using the correct fluid is essential for optimal performance.

3. **Diagnostic Codes:** The service manual includes a list of diagnostic trouble codes (DTCs) that may be displayed by the transmission control module. Understanding these codes helps technicians quickly identify issues.
4. **Repair Procedures:** This section provides detailed, step-by-step instructions for common repairs, including clutch replacement and electrical system diagnostics.

## **Performing Basic Maintenance on the DT12 Transmission**

Regular maintenance is key to extending the life of the Detroit DT12 transmission. Below are some essential maintenance tasks outlined in the service manual.

### **Fluid and Filter Change**

Changing the transmission fluid and filter is one of the most critical maintenance tasks. Here's how to perform this service:

1. **Gather Supplies:**
  - New transmission fluid (as specified in the manual)
  - Replacement filter
  - Clean drain pan
  - Funnel
  - Socket set
  - Torque wrench
2. **Drain the Fluid:**
  - Ensure the vehicle is on a level surface and the engine is off.
  - Locate the transmission drain plug and remove it using the socket set.
  - Allow the fluid to fully drain into the pan.
3. **Replace the Filter:**
  - Locate the transmission filter.
  - Remove the old filter and discard it.
  - Install the new filter, ensuring it is securely fastened according to the torque specifications in the manual.
4. **Refill with New Fluid:**
  - Replace the drain plug and tighten it to the specified torque.
  - Using a funnel, refill the transmission with the recommended amount of new fluid.
5. **Check Fluid Level:**
  - Start the engine and allow it to idle for a few minutes.
  - Check the fluid level using the dipstick and add fluid as necessary.

### **Checking the Transmission Control Module (TCM)**

The Transmission Control Module (TCM) is crucial for the operation of the DT12 transmission. Regularly checking the TCM can prevent unexpected

failures.

1. Diagnostic Tool: Use a compatible diagnostic tool to connect to the TCM.
2. Read Codes: Check for any logged trouble codes.
3. Monitor Parameters: Review live data such as gear selection and fluid temperature.
4. Clear Codes: If repairs have been made, clear the codes and monitor the system for any reoccurrence.

## **Troubleshooting Common Issues**

Despite its reliability, the Detroit DT12 transmission can experience issues. Here are some common problems and their troubleshooting steps:

### **Shifting Issues**

- Symptoms: Delayed or harsh shifts.
- Troubleshooting Steps:
  1. Check transmission fluid level and condition.
  2. Inspect for any DTCs related to the TCM.
  3. Ensure the throttle position sensor is functioning correctly.

### **Overheating**

- Symptoms: Transmission temperature warning light illuminated.
- Troubleshooting Steps:
  1. Inspect the transmission cooler for blockages.
  2. Check fluid levels and condition.
  3. Ensure proper operation of the cooling fan.

### **No Engagement or Slip**

- Symptoms: The transmission does not engage or slips out of gear.
- Troubleshooting Steps:
  1. Check for low fluid levels.
  2. Inspect the clutch and its actuation system.
  3. Verify the TCM's functionality.

## **Conclusion**

The Detroit DT12 transmission service manual is an essential resource for anyone responsible for maintaining or repairing the DT12 transmission. By following the guidelines and procedures outlined in the manual, technicians can ensure the transmission operates at peak performance, thereby extending its life and reliability. Regular maintenance, prompt troubleshooting, and staying informed about the latest updates and best practices will contribute to the overall efficiency of heavy-duty vehicles equipped with this advanced transmission system. Whether you are a professional technician or a dedicated

vehicle owner, investing time in understanding and utilizing the DT12 service manual will pay dividends in performance and service longevity.

## **Frequently Asked Questions**

### **What is the purpose of the Detroit DT12 transmission service manual?**

The purpose of the Detroit DT12 transmission service manual is to provide detailed information on the maintenance, troubleshooting, and repair procedures for the DT12 transmission system, ensuring optimal performance and longevity.

### **Where can I find the Detroit DT12 transmission service manual?**

The Detroit DT12 transmission service manual can typically be found on the official Detroit Diesel website, through authorized dealerships, or in service literature databases that cater to heavy-duty truck maintenance.

### **What are the key maintenance tasks outlined in the DT12 transmission service manual?**

Key maintenance tasks include regular fluid checks and changes, filter replacements, software updates, and inspection of components such as the clutch and transmission mounts to ensure proper operation.

### **How often should the DT12 transmission be serviced according to the manual?**

The DT12 transmission should be serviced according to the manufacturer's guidelines, which typically recommend service intervals based on mileage or hours of operation, generally ranging from 30,000 to 50,000 miles.

### **What troubleshooting steps are included in the DT12 transmission service manual?**

The troubleshooting section includes steps for diagnosing issues such as slipping gears, abnormal noises, and warning light activations, along with flowcharts to guide users through the problem-solving process.

### **Can I perform DT12 transmission service myself or should I seek professional help?**

While some basic maintenance tasks can be performed by experienced individuals, it is often recommended to seek professional help for more complex repairs and service tasks to ensure proper handling and adherence to safety standards.

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