Roadranger®

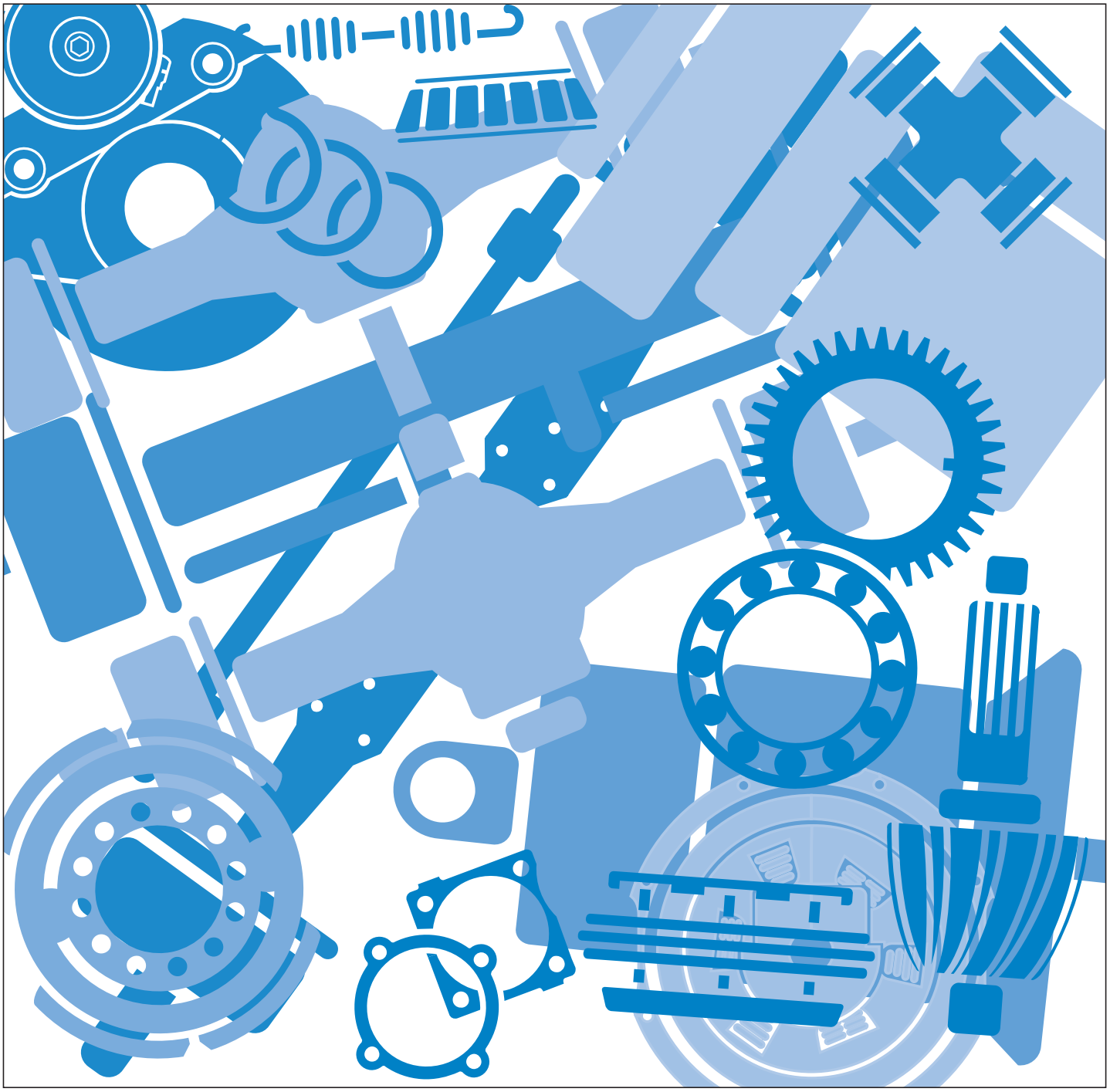
Eaton® Fuller® Automated Transmissions

AutoSelect™
AutoShift™

DANA | EATON

One Great Drivetrain from Two Great Companies

Service Manual TRSM-0050 May 2004



For the most current information, visit the Roadranger web site at www.roadranger.com

Warnings and Cautions

WARNING: Follow the specified procedures in the indicated order to avoid personal injury

CAUTION: Follow the specified procedures in the indicated order to avoid equipment malfunction or damage.

Note: Additional relevant information not covered in the service procedure.

WARNING: Before starting a vehicle:
- Sit in the driver's seat
- Place shift lever in neutral
- Set the parking brake

WARNING: Before working on a vehicle or leaving the cab with engine running:
- Place shift lever in neutral
- Set the parking brake
- Block the wheels

WARNING: When parking the vehicle or leaving the cab:
- Place shift lever in neutral
- Set the parking brake

CAUTION: Do not release the parking brake or attempt to select a gear until the air pressure is at the correct level.

CAUTION: To avoid damage to the transmission during towing:
- Place shift lever in neutral
- Lift the drive wheels off of the ground or disconnect the driveline

CAUTION: Do not operate vehicle if alternator lamp is lit or if gauges indicate low voltage.

Introduction

Service Procedures

Purpose

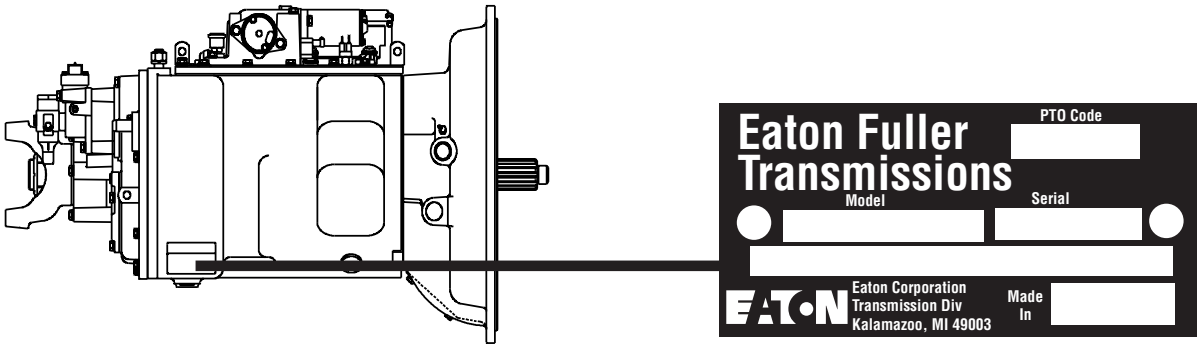
This manual is designed to provide detailed information necessary to service and repair the Automation of Eaton® Fuller® transmissions listed on the front.

How to Use This Manual

The service procedures in this manual are for transmission automation components only. To locate the information you need, simply locate the procedure in the table of contents, turn to the page specified, and follow the procedure.

To service the mechanical portion of the transmission system, refer to the model specific transmission service manual.

Identification Tag



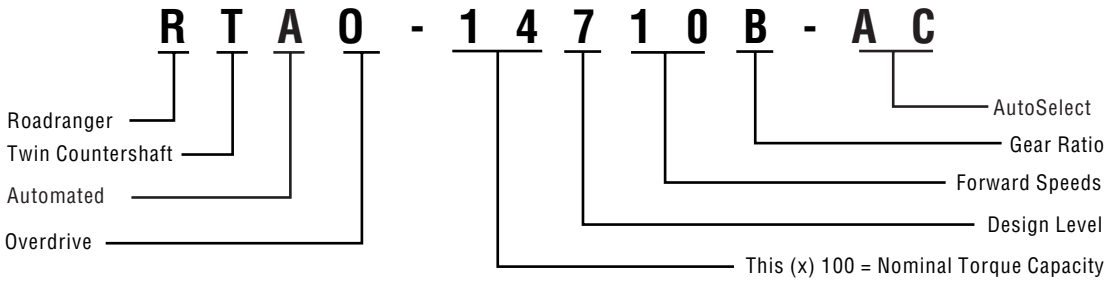
All Eaton® Fuller® Transmissions are identified by the model and serial number. This information is stamped on the transmission identification tag and affixed to the case.

DO NOT REMOVE OR DESTROY THE TRANSMISSION IDENTIFICATION TAG.

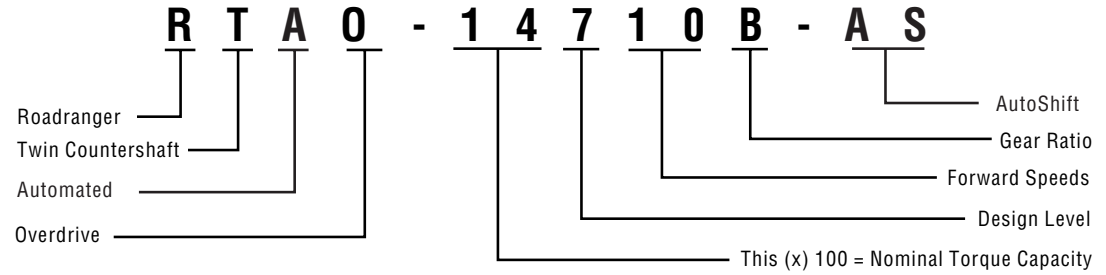
Have reference numbers handy when ordering replacement parts or requesting service repairs.

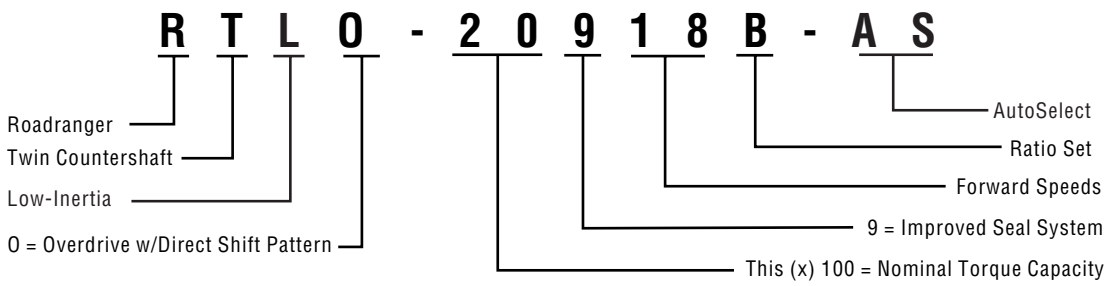
Model Designations

AutoSelect Nomenclature



AutoShift Nomenclature





Lubrication Information

Recommended Lubricants

Where transmissions are concerned, lubrication is possibly the most important part of keeping a vehicle operating.

Lubricants which meet the Eaton (PS-164) specification are required in AutoSelect/AutoShift transmissions. Lubricants must be approved by Eaton Corporation to qualify for the 5/750,000 warranty. For a list of Eaton® Roadranger® approved lubricants, order item number TCMT-0021.

Type	Grade (SAE)	Ambient Temperature	Drain Interval	Note
Eaton® Roadranger® CD-50 E500 (PS-164)	50	All	250,000* (400,000)/1000 Hrs	Approved for Oil Coolers
*The first lube change may be extended to 500,000 miles (800,000 km) when a new transmission has been factory filled with a lube that is Eaton approved for 500,000 miles (800,000 km) (E-500, PS-164).				

Maintenance/Lubricant Change Intervals

Transmission inspections and lubricant changes depend on the type of lubricant used and whether the vehicle is used On- or Off-Highway.

On-Highway Lubricant - Vehicles operated on paved roads, interstate highways, and turnpikes are designated as on-highway vehicles. Lubricant change and inspection intervals are the most generous for on-highway vehicles using synthetic lubricants.

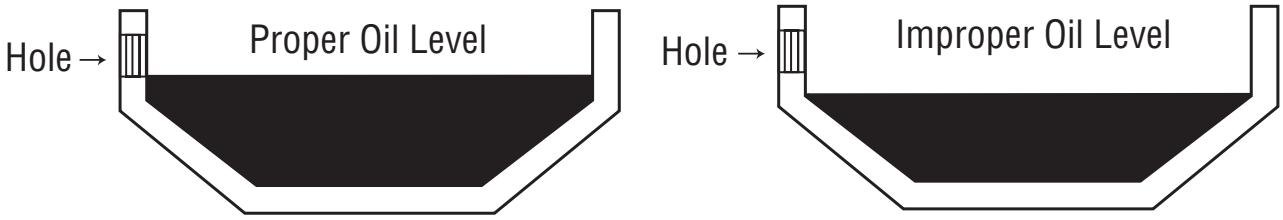
Off-Highway Lubricant - When operating vehicles with AutoSelect/AutoShift transmissions in off-highway applications such as coal trucks or mining vehicles, it is more important to use time rather than mileage to keep the transmission within its proper preventive maintenance schedule. Off-highway applications are divided into two categories, severe and normal. 'Severe off-highway' is the designation used when there is excessive dust and dirt. 'Normal off-highway' is for applications where dust and dirt are minimal.

PM Interval - The PM interval in off-highway vehicles with AutoSelect or AutoShift transmissions is every 40 hours.

Lubricant Change Interval - The lubricant must be changed in AutoSelect/AutoShift transmissions in off-highway vehicles every 500 hours in severe applications, and every 1000 hours for vehicles in normal applications.

Type	Grade (SAE)	Ambient Temperature	Drain Interval	Note
Eaton® Roadranger® CD-50 E500 cm (PS-164)	50	All	250,000* (400,000)/1000 Hrs	Approved for Oil Coolers
*The first lube change may be extended to 500,000 miles (800,000 km) when a new transmission has been factory filled with a lube that is Eaton approved for 500,000 miles (800,000 km) (E-500, PS-164).				

Oil Level



When checking the transmission lubricant there are two important points to know: where to check the lubricant and what the proper lubricant level is. Always be cautious when checking the transmission lubricant as it may be hot.

- Checking Location - Check the lubricant at the lubricant fill plug located on the left side of the main transmission case.
- Proper Lubricant Level - The lubricant is at the proper level when it is even with the bottom of the fill hole. When you remove the plug to check the lubricant level, lubricant should actually seep out. Do not use your finger to feel for the lubricant. Even if you can touch the lubricant, it may not be at the proper level. In a transmission one inch of lubricant level equals about one gallon of lubricant.

Recommended Lubricant

Eaton requires the use of Eaton approved lubes meeting the E-500 performance requirements (PS-164) for these transmissions. A current list of approved lubes is available from Eaton Roadranger Field Marketing, call 1-800-826-4357. Failure to use a required lube may affect AutoSelect/AutoShift performance and warranty coverage.

Buy from a reputable dealer

For a complete list of approved and reputable dealers, write to:

Eaton Corporation
Truck Components Operations
Global Marketing Services
P.O. Box 4013
Kalamazoo, MI 49003
http://truck.eaton.com/na/service_products/lubricant_requirements/

Preventive Maintenance Overview

To keep a vehicle running properly, it is important to perform preventive maintenance on the vehicle components. This insures the vehicle and its subassemblies will operate properly throughout their useful life. To cover preventive maintenance completely, you must review the following subjects in detail.

- Inspecting the Transmission
- Changing the Fluid
- Vehicle System Effects

Transmission Inspections

When performing preventive maintenance (PM) inspections, several items must be checked. It is important to perform every step to ensure the transmission meets its life expectancy. Proper PM consists of the following steps:

- Check the transmission oil level
- Inspect under the vehicle for loose/missing bolts
- Check the transmission for air leaks
- Check the transmission for lubricant leaks

Loose or Missing Bolts

While you are under the vehicle checking the lubricant, make a quick check for loose or missing bolts. Check all bolts on the back box, PTO covers, shift bar housing, clutch housing and transmission controller. Replace any missing or broken bolt with the proper bolt as called out in the illustrated parts listing. Follow the procedure defined in the manual transmission service manual when tightening any bolts.

Air Leaks

While you are under the vehicle, check for air leaks as well. The two steps when checking for an air leak are inspection and repair.

- **Audible Inspection for Leaks** - To find air leaks, make sure the vehicle air system has at least 90 PSI air pressure. Then, listen for leaks, making sure a vehicle leak is not mistaken for a transmission air leak.
- **Refer to Troubleshooting Procedures for Repair** - Once you find an air leak, use the troubleshooting guide to isolate the air leak to the faulty component.

Lubricant Leaks

Oil leak repair is very important. An lubricant leak could cause a catastrophic transmission failure. Check for leaks first at the gasket surfaces, the rear seal, and the transmission cooler.

Visual Check for Leaks at Gaskets

A visual check at each gasket to ensure that no leak is present. Typically a moist spot is acceptable; however drips or larger wet areas are not. Check for leaks at the rear housing, PTO, shift bar housing, shift tower, and clutch housing gasket surfaces. It is also Important to ensure that the leak is indeed coming from the transmission. Make sure the lubricant is not being blown back from the engine or another vehicle component.