

**Roadranger®**



**EAT•N**

**Roadranger Warranty Manual**

# Warranty Manual

---

**TCWY0600**

**July 2009**

# General Information

---

## What is the Roadranger Warranty Coverage for My Component?

Knowing and understanding Roadranger warranty is the responsibility of the vehicle owner. It is also the responsibility of the selling dealer to identify the Roadranger products in the vehicle and inform the purchaser of the warranty for those products, based on the vehicle vocation at the time of sale.

The combined use of the Roadranger Warranty Manual TCWY0600 and the Roadranger Warranty Guide TCWY0900 expresses Eaton and Dana component time and mileage warranty coverages for the Roadranger products. Roadranger warranty training is also available to assist dealers in understanding and identifying vocation coverage and warranty parameters. See your Roadranger Representative for details.

## TCWY0900, Roadranger Warranty Guide

Roadranger component warranty is identified using the Roadranger Warranty Guide TCWY0900. The Warranty Guide explains Roadranger vocation definitions, component time and mileage limits per vocation, aftermarket component / part warranties, and extended purchase warranty options.

How do I define my vocation coverage?

1. Review all the "Vocational Definitions" listed and select the one that most accurately describes the use and configuration of the vehicle.
2. Ensure your vehicle vocation is listed in the "Typical Vehicle Types" under the selected Vocational Definition.
3. Once the vocation is defined refer to the "Product Time and Mileage Coverage Per Vocation" section.
4. Identify the component in question using the product model number for the time and mileage coverage.
5. Refer to and understand any notes that pertain to a specific coverage (i.e. lube requirements).
6. If you cannot determine coverage, contact your Roadranger Representative or call the Roadranger Call Center at the time of sale at 1-800-826-HELP (4357).

## TCWY0600, Roadranger Warranty Manual

**Note: Printed copies of this document are not controlled.** Please refer to the electronic copy on Roadranger.com for the most up-to-date information.

The Roadranger Warranty Manual TCWY0600 documents the specifics of Roadranger product warranty. This manual includes:

- Product Warranty Statements for Eaton Truck Business Group and Commercial Vehicle Product Group of Dana Holding Corporation
- Warranty terminology
- Warranty programs
- Claim procedures and claim information
- Important information regarding claim approval
- Component repair or replacement guidelines
- Labor hour guidelines (SRTs)
- Limits, exclusions, and requirements
- Other important resources

## Product Warranty Statements

Eaton Product Warranty Statement .....	1
Dana Spicer Axle and Brake Warranty Statement .....	4

## Warranty Terminology

Warranty Terminology .....	7
OEM Warranty.....	7

## Warranty Programs

Standard Warranty Information.....	8
Extended Warranty Information .....	8
Extended Warranty Coverage .....	9

## Claim Procedures and Claim Information

Warranty Claim Procedures (Eaton / Dana) .....	10
Standard, Basic, Aftermarket Parts and OEM Warranties .....	10
Roadranger Extended Warranties .....	11
Part Return Requirements (Eaton / Dana) .....	13
Warranty Claim and Part Return Procedures Bendix™ .....	14

## Important Information Regarding Claim Approval

Item 1. Verifiable defect: This is the most important part of any warranty claim! Warranty is intended to cover verifiable defects in material or workmanship. If no defect can be shown, there is no reason to file a claim. The manufacturer did nothing wrong. ....	15
Item 2. Identifying root cause and responsibility for the failure: Once a defect or condition has been verified, identify the source of the failure. ....	16
Item 3. Dealing with wear items and normal maintenance. ....	16
Item 4. Over-repairs: Make every repair a quality repair but use good judgment in deciding when to replace or repair the failed component. ....	16
Item 5. Elective repairs: Initiating a product campaign or recall without authorization from the supplier, creates a risk of not being paid for your claims. ....	17
Item 6. Claim overcharges, undefined, and unidentifiable charges: Some charges are placed on warranty claims which do not apply to the failure or might not be covered under a supplier’s warranty. ....	17
Item 7. Standard warranty versus extended warranties: What are the differences in the coverages? .....	18
Item 8. Component and vehicle information: Manufacturers need to know when and where failure activity is occurring in their products. ....	18
Item 9. Coverage expiration time: When does warranty expire? .....	19
Summary .....	19

# Table of Contents

---

## Component Repair or Replacement Guidelines

Repair or Replacement Guidelines for Eaton / Dana Warrantable Failures.....	20
Eaton Non-warrantable Failure Transmission Replacement Requirements .....	21
Dana Spicer Non-warrantable Axle and Brake Replacement Requirements .....	22

## Labor Hour Guidelines

Important Information About Labor Hour Guidelines .....	23
Rear Drive Axles .....	24
Steering Axles .....	27
Drive Axle Brakes .....	29
Steering Axle Brakes .....	31
Trailer Axle Brakes .....	32
Anti-Lock Braking System .....	33
Air Disc Brakes .....	34
Clutches .....	35
Driveshafts .....	36
Tire Inflation and Monitor Systems (TIMS) .....	37
Tire Pressure Control Systems .....	38
AutoShift, UltraShift, FR, RT, and T-Series Transmissions - Air System and Mechanical .....	39
Lightning Series Transmissions .....	43
FS-Series Transmissions (FO-xxxx-ASX/ASW Main Box) .....	46
CEEMAT Transmissions .....	48
UltraShift / AutoShift Transmissions (RT Series) - Electrical System .....	51
UltraShift / AutoShift Transmissions (6-Speed DM and ASW) - Electrical System .....	54
Auxiliary Transmissions .....	57
VORAD Collision Warning System .....	58

## Limits and Exclusions

Important Information About Warranty Exclusions .....	59
Limits and Exclusions to Eaton / Dana Warranties .....	60

## Change Control Log

Change Control Log .....	63
--------------------------	----

## Eaton Product Warranty Statement

### Warranty

Subject to the conditions stated herein, Eaton Corporation (“Eaton”) warrants to purchasers thereof that the parts, components and assemblies sold by its Truck Business Group as original equipment or service parts, (individually and collectively referred to hereafter as the “Product”) will, when properly assembled and installed on vehicles approved for such purpose, be free from defects in material and workmanship under normal use and proper maintenance for the applicable warranty period as described in the Warranty Period section of this statement. This warranty is transferable (by the original retail purchaser) to one subsequent owner of the vehicle in which the Product was installed as original equipment. Eaton assumes no responsibility, in the absence of its written approval, for the selection of Product for specific applications and makes no general representation whatever in respect of any such selection.

### Remedy

If any Product supplied hereunder fails to comply with this warranty, Eaton agrees to reimburse for the repair or replacement or, at its sole option, furnish a replacement product for the defective Product.

Eaton’s obligation to satisfy a warranty claim as contemplated herein is subject to the following conditions: (a) all such claims must be submitted to Eaton no later than ninety (90) days from the date of the failure occurrence and shall be supported by satisfactory evidence in respect of the conditions stated herein; (b) if requested by Eaton, the Product involved shall be returned, freight collect, to Eaton’s Warranty Return Center for examination; and (c) Eaton’s examination of the Product must disclose to its satisfaction that none of the Warranty Exclusions described herein are applicable, and that said Product was defective when originally delivered to Purchaser. In all cases, Eaton shall make the final determination and interpretation as to the warrant-ability of the Product.

Products repaired or replaced under warranty are covered hereunder by the remaining portion of the original warranty period.

### Warranty Exclusions

Eaton’s warranty shall not extend to any Product that has been subjected to the following: (a) accident, damage, negligence, abuse or misuse; (b) improper installation or maintenance; (c) abnormal operating conditions; (d) alteration or modification; (e) a purpose or application in any way different from that for which it was designed; (f) damage by casualty or shipment; or (g) re-rating the engine to exceed torque capacity of the transmission. Normal wear is not warrantable.

### Limitations on Reimbursement

Eaton’s warranty, covers reimbursement for (a) parts and labor for repaired Product or (b) the cost of the Product for replaced Product, whichever is less. Eaton’s warranty for service parts covers reimbursement for parts only. Rates for parts and labor are subject to predetermined limitations established by Eaton.

Without limiting the generality of the foregoing, the following is a list of costs, charges and expenses not reimbursable under Eaton’s warranty:

- Towing expense
- Meal or lodging expense
- Travel time or transportation expense
- Downtime expense

Other exclusions are listed in "Limits and Exclusions" section of this manual (Roadranger Warranty Manual TCWY0600). In all cases, Eaton shall make the final determination as to the appropriate reimbursement for the respective claim.

# Eaton Corporation, Truck Business Group

---

## Warranty Period

Product Warranty Periods are stated in Roadranger Warranty Guide TCWY0900.

- a. Warranty coverage for Product furnished as original equipment commences on the vehicle in-service date.
- b. Warranty coverage for Product furnished as service parts commences on the date of retail sale.

**Note:** See additional service/aftermarket parts warranty information in TCWY0900.

## Claims Procedure

Warranty claims should be submitted to the original equipment truck manufacturer through an authorized dealer or, at the option of the truck manufacturer, directly to Eaton during the extended warranty period. Refer to the "Warranty Repair and Claim Procedures" section for the guidelines to submit direct warranty claims to Eaton.

Product returned to Eaton under this warranty shall become the property of Eaton.

Eaton reserves the right to reject a warranty claim for any or all of the following reasons:

- Original claim was filed after ninety (90) days from the date of failure
- Failure occurred beyond coverage parameters
- Claim information is insufficient
- Product inspected does not substantiate claim or indicate a failure
- Product requested was not returned for inspection within 30 days from date of request

## Warranty Disclaimer

EATON'S EXPRESS WARRANTY AND PURCHASER'S REMEDIES THEREUNDER ARE EXCLUSIVE AND GIVEN IN PLACE OF (a) ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, WHETHER WRITTEN OR ORAL, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, OR IMPLIED WARRANTY ARISING FROM PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE, AND (b) ALL OTHER OBLIGATIONS, LIABILITIES, RIGHTS, CLAIMS OR REMEDIES, INCLUDING ANY RIGHT IN CONTRACT, TORT, EXTRA-CONTRACTUALLY, STRICT LIABILITY OR ANY RIGHT ARISING FROM EATON'S NEGLIGENCE, ACTUAL OR IMPUTED.

## Limitation of Liability

EATON'S OBLIGATIONS AND PURCHASER'S REMEDIES UNDER EATON'S EXPRESS WARRANTY ARE LIMITED TO EATON'S CHOICE OF REPAIR OR REPLACEMENT AND EXCLUDE LIABILITY FOR INCIDENTAL, SPECIAL, CONSEQUENTIAL OR ANY OTHER DAMAGES, INCLUDING, WITHOUT LIMITATION, REPLACEMENT COSTS, ECONOMIC LOSS, LOST REVENUE, LOST PROFITS, OR LOSS OF USE OR DAMAGE TO OTHER PROPERTY.

## Effective Date

This warranty shall become effective 10/1/01, and applies only to Product sold for use in the United States and Canada. This warranty supersedes all past warranties expressed by Eaton's Truck Business Group for Products, and may not be changed, altered or modified in any way except in writing by Eaton.

## Service Support

Your service and support channel is the Roadranger Field Marketing network at 1-800-826-HELP (4357).

## **Governing Law**

This warranty shall be governed, interpreted and construed by, and in accordance with, the laws of the State of Ohio.

## **English Language**

It is the express wish of the parties that this document and all documents related to it be written in English.

Les parties aux presentes ont expressement exige que ce document soit redige en langue anglaise ainsi que tous documents y afferent.

## **International and Export Warranty Coverage for Eaton Transmission Products**

Products and components operated outside the United States and Canada are warranted for 1 year/ 150,000 kilometers, whichever occurs first. Parts and/or labor are covered, subject to predetermined guidelines. Service/aftermarket parts are warranted for 1 year/Unlimited kilometers from the date of retail sale. Parts only are covered, subject to predetermined guidelines. Labor is not covered.

All warranty requirements, limitations and exclusions, as established by Eaton Corporation Truck Business Group, shall apply to this warranty coverage. Revised November 1, 2004.

# Dana Commercial Vehicle Product Group (OE)

---

## Dana Spicer Axle and Brake Warranty Statement

### Warranty

Subject to the conditions stated herein, Dana Commercial Vehicle Product Group of Dana Holding Corporation ("Dana") warrants to purchasers of its Spicer<sup>®</sup> axle and brake parts, components and assemblies ("Products") sold as original equipment ("OE") production or service parts that the Products shall be free from defects in material and workmanship and shall conform to Dana's published specifications under normal use and proper maintenance for the warranty periods described in the "Warranty Periods" section below. This warranty extends to Dana's OE production and service parts customers and their retail customers, and is transferable by the original retail purchaser to one subsequent owner of the vehicle in which the Product was installed as original equipment.

Product parts and components manufactured by others (such as, wheel seals, slack adjusters and tie rods) are warranted solely by their manufacturers and not by Dana.

Dana assumes no responsibility for the selection of any Product for a specific application absent its written approval of such application, and makes no general representations whatever in respect of any such selection.

### Remedy

If any Product fails to comply with this warranty during the applicable warranty period, Dana shall reimburse the cost of repair or of a replacement Product as provided below. All repaired and replacement Products shall be warranted hereunder for the unexpired portion of the original warranty period.

For Products sold as OE production parts, Dana shall reimburse (a) the cost of parts and labor (subject to pre-established prices and rates) to repair the Product or (b) the cost of the replacement Product, whichever is less. For Products sold as OE service parts, Dana shall reimburse (a) the cost of parts only (subject to pre-established prices) to repair the Product or (b) the cost of the replacement Product, whichever is less.

The following are not reimbursable under Dana's warranty: (a) towing expenses, (b) meal and lodging expenses, (c) travel time or transportation expenses, and (d) downtime expenses.

Other exclusions are also listed in the Roadranger<sup>®</sup> Warranty Guide TCWY0900. In all cases Dana shall make the final determination as to the appropriate reimbursement for any warranty claim.

### Warranty Exclusions

Dana's warranty does not cover normal wear and tear or extend to any Product that has been (a) used in any application contrary to Dana's written recommendations; (b) improperly installed or maintained; (c) altered or modified; (d) damaged by casualty or due to accident, negligence, abuse, or misuse in shipping or use; (e) subjected to abnormal operating conditions; or (f) used with any lubricant not approved by Dana. Noise alone is not warrantable under Dana warranty. The noise exclusion does not apply if there is an actual failed component.

### Warranty Periods

The Product warranty periods are stated in the Roadranger Warranty Guide TCWY0900. Warranty coverage for Products furnished for OE production commences on the vehicle in-service date. Warranty coverage for Products furnished as OE service parts commences on the date of retail sale.

If a non-warrantable failure occurs within the standard/extended warranty coverage period, and the customer purchases a new carrier exchange to complete the repair, warranty coverage shall be two years, unlimited mileage, from the date of the new carrier purchase.

# Dana Commerical Vehicle Product Group (OE)

---

If a non-warrantable failure occurs within the standard/extended warranty coverage period, and the customer purchases original replacement parts to complete the repair, warranty coverage shall be one year from date of purchase and unlimited mileage on the replacement parts only. Non-warrantable failures due to abuse or neglect (i.e. overloading, shock load, spin-out, failure to maintain) will void the component warranty.

## Claims Procedure

Warranty claims may be made to the OE manufacturer through an authorized dealer or, at the option of the manufacturer, directly to Dana. All direct warranty claims shall be made in writing to: Dana Holding Corporation Commercial Vehicle Product Group, Attention: Warranty Department, P.O. Box 4097, Kalamazoo, MI 49003-4097.

Dana's obligation to review any warranty claim is subject to the following conditions:

- a. The claim must be submitted as provided above no later than 90 days from the date of the failure and must include the following information: claim number, repair order number, in-service date of vehicle, failure date, mileage at time of failure, explanation of the failure and the repair, identification of the failed Product (including model and serial number), labor hours to complete repair, labor cost, cost of replacement parts, and total amount of claim;
- b. If requested by Dana, the Product shall be returned, freight collect, to Dana's Warranty Return Center, 6938 Elm Valley Drive, Kalamazoo, MI 49009 for examination. All returned Products shall become Dana's property.

Dana shall determine that none of the above warranty exclusions apply and that the Product was defective when originally delivered to the purchaser. Dana's determination of warranty coverage shall be final in all cases.

Dana reserves the right to reject a warranty claim for any or all of the following reasons:

- a. Original claim was filed after ninety (90) days from the date of failure
- b. Failure occurred beyond applicable warranty period
- c. Claim information is insufficient
- d. Product was not returned for inspection as requested
- e. Product inspection does not substantiate claim or indicate a failure

## Warranty Disclaimer

DANA'S WARRANTY HEREIN IS EXCLUSIVE AND GIVEN IN PLACE OF (a) ALL OTHER WARRANTIES FOR THE PRODUCTS, EXPRESS, IMPLIED OR STATUTORY, WHETHER WRITTEN OR ORAL, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE OR IMPLIED WARRANTIES ARISING FROM PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE, AND (b) ALL OTHER OBLIGATIONS, LIABILITIES, RIGHTS, CLAIMS OR REMEDIES RESPECTING THE PRODUCTS, INCLUDING, BUT NOT LIMITED TO, ANY RIGHTS IN CONTRACT, TORT, OR STRICT LIABILITY AND ANY RIGHT ARISING FROM DANA'S NEGLIGENCE, ACTUAL OR IMPUTED.

## Limitation of Liability

DANA'S OBLIGATIONS AND PURCHASER'S REMEDIES HEREIN ARE LIMITED TO THE REIMBURSEMENTS DESCRIBED ABOVE AND DANA SHALL NOT BE LIABLE FOR ANY INCIDENTAL, SPECIAL, CONSEQUENTIAL AND OTHER DAMAGES, INCLUDING, BUT NOT LIMITED TO, ECONOMIC LOSS, LOST REVENUE, LOST PROFITS, OR LOSS OF USE OR DAMAGE TO OTHER PROPERTY.

## Effective Date

This warranty shall become effective and apply to Products sold on or after January 1, 1998, and applies only to Products sold for use in the United States or Canada. This warranty may not be changed, altered or modified in any way except in writing by Dana's authorized representative.

## Service Support

Your service and support channel is the Roadranger Field Marketing network at 1-800-826-HELP (4357).

# Dana Commercial Vehicle Product Group (OE)

---

## **Governing Law**

This warranty shall be governed, interpreted and construed by and in accordance with, the laws of the State of Ohio and all proceedings to interpret or enforce this warranty shall be brought exclusively in a state or federal court in Ohio with jurisdiction.

## Warranty Terminology

**Warranty:** A statement of support offered by a manufacturer to promote customer confidence in a product. This support is generally provided in the form of reimbursement for repairs performed to correct qualified failures associated with defects in material and / or workmanship. A warranty is not necessarily an implication of a product's anticipated life expectancy or level of performance.

**Guarantee:** A statement of support offered by a manufacturer to promote customer confidence in a product. This support is generally provided in the form of reimbursement for qualified service procedures regardless of origin or source of failure cause. This support is limited only to the terms of the written guarantee and is not necessarily associated with failures due to defects in material or workmanship.

**Standard Warranty:** A manufacturer's published warranty available to anyone who purchases the product. The base warranty coverage, offered to all purchasers of a product. Sometimes called the "OEM warranty period".

**Extended Warranty:** A warranty which extends the parameters of the standard coverage (time, mileage, hours). Normally, the same failure criteria applies, but some limitations may be placed on which parts or services are covered. A fee or surcharge may be required in some cases.

**Original Warranty:** The total warranty coverage for which a product is eligible. A combination of the Standard and Extended Warranty periods.

**Policy / Goodwill:** Goodwill support provided in cases where the manufacturer has no liability for service procedures performed to correct a failure / condition to a product. In these situations, no entitlement to reimbursement exists for the customer. Other support (i.e., parts for training, show exhibits, etc.) given to customer in appreciation for business enhancing activities. A negotiated settlement.

## OEM Warranty

### 1. OEM Warranty

- a. The OEM provides parts and labor coverage to cover the cost of certain expenses incurred for warrantable repairs to Eaton / Dana components. The failures must be the result of verified and actual defects in material and / or workmanship and have occurred within the time and mileage limitations of the warranty coverage. Some expenses, even though related to the repair, are excluded from the coverage and are not recoverable under the terms of the Roadranger warranties.
- b. All OEM warranty repairs must be performed by the corresponding nameplate dealer only. Exceptions must have the approval of the nameplate OEM.

### 2. Administration of OEM Warranty Claims

- a. Repairing dealer will be responsible for following OEM policies and procedures in administering warranty claims.
- b. Filing for OEM warranty is the responsibility of the repairing dealer and OEM. Warrantability decisions are the responsibility of the truck OEM.
- c. Always refer to the OEM's Warranty Policies and Procedures manual for specific information and guidelines.
- d. Claims for repairs made as exceptions to item 1b. above must be submitted as sublet repairs through the nameplate OEM.

# Warranty Programs

---

## Standard Warranty Information

- a. Warranty coverages are stated in terms of time, mileage, kilometers or hours and expire whichever is reached first.
- b. Warranty coverage for original equipment components commences from the date the vehicle is first placed in service. Warranty coverage for service parts commences from the date of retail sale.
- c. If Eaton or Dana pays for, or supplies, any part or component within the original warranty coverage period (standard or extended), that part or component will be warranted for the unexpired portion of the original warranty period, excluding policy or goodwill participation. Original warranty coverage parameters supersede any service / replacement part, REMAN™, or exchange unit warranty when such part is installed in a warrantable repair.

**Note:** Some exclusions apply to these warranties. If you have a question regarding a possible exclusion, please contact the Roadranger Call Center at 1-800-826-HELP (4357).

## Extended Warranty Information

- a. Some OEM's are currently pre-registering vehicles by providing information at the time of build. Therefore, effective 1/1/96 registration is no longer required for the **free** warranty categories. Registration of vehicles is only required for optional purchased ("pay-for"), Roadranger Extended Warranties.
- b. Roadranger extended warranty coverage begins at the expiration of the OEM standard warranty.
- c. Failures due to defects in materials and/or workmanship are covered.
- d. All warranty exclusions apply.
- e. Proof of lube changes at the prescribed intervals is required if the failure is determined to be lube related.
- f. Refer to the Warranty Guide TCWY-0900 for the specific warranty requirements and details of each program.

**Note:** For specific claim filing instructions, refer to the "Warranty Repair and Claim Procedures" section.

## Extended Warranty Coverage

### Roadranger Extended Warranties; 5/500; 5/750

#### Warranty Coverage

- a. Roadranger Extended Warranties cover components in vehicles operating in a variety of vocations. (See Warranty Guide TCWY0900 for specific product coverages and options.)
- b. Coverage begins on the original in-service date of the vehicle.
- c. There is 100% parts and labor coverage on warrantable failures per established warranty guidelines.
- d. The warranty covers defects in materials and / or workmanship only.
- e. Secondary damage is not covered. See "Limits and Exclusions for Eaton / Dana Warranties."
- f. The use of Roadranger approved synthetic lubricant is required for extended warranties. The customer is responsible for providing proof of synthetic lube usage and for documenting that lube changes were performed at the prescribed intervals and / or the time of the warranty transfer, if applicable.
- g. Please refer to "Warranty Claim Procedures" for information on claim processing.
- h. Guidelines for transferring warranty coverage to a new owner:
  - Roadranger warranties are fully transferable and do not need to be registered by a subsequent owner if the vehicle vocation has not changed from the original vocation. For purchased warranties, no additional fees are required.
  - Purchased warranties are only transferable within the same vocation. Changing vocations voids warranty.
  - If the vocation is changed on a vehicle, the vocation with the least amount of coverage determines the warranty.
  - Component lubrication maintenance records must be available in order to transfer free or purchased extended warranties. If these records are not available, components must be refilled with a Roadranger approved lubricant.
  - Re-rating engine torque above the approved torque capacity of the component (axle or transmission) voids the warranty.
  - Purchased warranties are available on some products. To verify coverage, call the Roadranger Call Center at 1-800-826-HELP (4357) or see [www.Roadranger.com](http://www.Roadranger.com).
  - Complete vocational warranty coverage information is available on the [www.Roadranger.com](http://www.Roadranger.com) website under the "Vocational Guidelines" icon.

# Claim Procedures (Eaton / Dana)

---

## Warranty Claim Procedures (Eaton / Dana)

### Standard, Basic, Aftermarket Parts and OEM Warranties

#### Claim Procedures

- a. Standard Warranty Coverage is available on all Eaton / Dana products in approved applications.
- b. Claims Administration / Processing is handled through the OEM, per your OEM warranty procedures.
- c. Refer to Standard Warranties - Base Coverages Section, in the Warranty Guide TCWY-0900. Also, please refer to stated warranty coverages for your specific OEM.
- d. Claims submitted must be for verifiable defects in material or workmanship.
- e. Claims must be submitted within ninety (90) days from the date on which the failure occurred.
- f. Claims submitted, which have been approved or authorized by a Roadranger field service / sales representative, must reference the corresponding claim number (Example: ETN123456 or DAN123456.) Referencing the representatives' name is not sufficient to ensure claim payment.
- g. Provide the following information on or with the OEM claim:
  1. Complete 17-digit VIN
  2. Date in service
  3. Model and serial number of failed component
  4. Itemized Eaton / Dana part numbers and prices
  5. Description of complaint, failure, fault code(s), dealer test results, cause, correction (repair)
  6. Date of failure and mileage at time of failure
  7. Hourly shop labor OEM approved warranty rate and number of labor hours requested
  8. OEM published labor code and hours

**Note:** It is recommended "Important Information Regarding Claim Approval" be read, and understood, by all personnel at your location who are involved in any part of the warranty process.

- h. If the truck has the same nameplate as the repairing dealer, file the claim through the OEM. This applies to all repair facilities, including those on Roadranger Real Time Warranty.

If the truck has a different nameplate than the repairing dealer, before beginning work on the vehicle, obtain permission to perform a sublet repair through OEM of nameplate truck by contacting either selling dealership or local OEM dealer. Claim to be filed as sublet repair through truck nameplate OEM. If permission is not obtained, dealer cannot perform OEM warranty repair.

- i. See "Part Return Requirements" for part return details.

#### Note:

All clutch core charges (per APSL0419) resulting from warranty returns to Eaton for a failure analysis should be charged out on the claim. For those claims that are accepted for warranty and the cores are retained by Eaton, the core charge will be reimbursed by Eaton on the approved claim.

All transmission and transmission electronic core charges (per APSL0419) resulting from warranty returns to Eaton for a failure analysis, for warranty and the cores are retained by Eaton, the core charge will be reimbursed by Eaton to the appropriate OEM for the dealer.

## Roadranger Extended Warranties

### Claim Procedures

- a. Prior to starting a repair, the repairing dealer must verify the vehicle is covered under an extended warranty by referring to the Roadranger Warranty Guide TCWY-0900 and/or the purchased warranty guidelines. For clarification and pay-for registration confirmation number contact the Roadranger Call Center at 1-800-826-HELP (4357).
  1. The repairing dealer provides the 17-digit VIN and customer name. Component model and serial number may also be requested.
  2. Eaton / Dana verifies vehicle registration and extended warranty coverage and provides registration confirmation number to the repairing dealer.
- b. For failures which are determined to be lube related, the customer is responsible for furnishing the following information to the repairing dealer:
  1. Proof of synthetic lube usage.
  2. Proof the synthetic lube was changed at the prescribed intervals.

**NOTE:** For further details about lube related failures, refer to "Limits and Exclusions to Eaton / Dana Warranties" of this manual.

- c. If the failure is warrantable, the repairing dealer completes the repair and files a claim using one of the following options:

**Option 1:** If the OEM has decided to process Eaton / Dana Extended Warranty claims, the claim should be submitted through the OEM. Some OEM's have adopted this approach. Please check with the OEM to confirm they are using this method.

**Option 2:** If the OEM has decided not to administer Eaton / Dana Extended Warranties, please contact either your Roadranger Representative or the Roadranger Call Center at 1-800-826-HELP (4357) for claim filing instructions, or refer to the "Claim Procedures" section at [www.Roadranger.com](http://www.Roadranger.com) under the "Warranty" tab.

**Option 3:** In some isolated cases, the dealer may decide to bill the customer for the entire repair, including parts and labor. The dealer should still file the claim to the OEM for warranty reimbursement according to Option 1 above or direct to Eaton/Dana under Option 2.
- d. For claims submitted directly to Eaton / Dana, a standard OEM / dealer repair order must accompany the claim. In all cases the following information must be provided:
  1. Roadranger Extended Warranty registration confirmation number (only in the case of paid for extended warranties)
  2. Date and mileage at time of failure
  3. Description of the complaint, failure, fault codes, dealer test results, cause, correction (repair)
  4. In-service date
  5. Vehicle 17-digit VIN
  6. Component model and serial number
  7. Itemized replaced parts list to include Eaton / Dana part numbers and prices
  8. Total labor hours expended to complete the repair (reference OEM and Eaton / Dana Labor Hour Guidelines). List published OEM codes and times, if known.

See "Important Information About Labor Hour Guidelines."
  9. Hourly shop warranty rate (OEM approved warranty rate)
  10. Total cost of the repair / total amount of the claim
  11. Identify the party (name and mailing address) who should receive reimbursement for the claim
  12. Date of retail sale for service/replacement parts, replacement components, and REMAN™ transmission claims.
  13. Vehicle vocation

# Claim Procedures (Eaton / Dana)

- e. Failed parts must be retained by the customer, dealer, or repairing facility for 60 days after the date the claim is submitted to Eaton / Dana, subject to possible inspection. When a complete unit (transmission or axle) is replaced under warranty, **The failed unit must always be returned to the Warranty Return Center for inspection.**
- f. The decision as to the warrantability of the failure will be made by Eaton / Dana based upon the following:
  1. Review of the warranty claim
  2. Proof of synthetic lube usage
  3. Return and examination of failed parts, if required (see "Part Return Requirements" on page 13)

**NOTE:** You may be required to return failed parts to Eaton / Dana. You will be advised to return them to the appropriate Warranty Return Center shipped freight collect using shipping methods suggested by Eaton / Dana:

\*For complete Eaton shipping instructions see Service Bulletin TMIB0129.

United States Warranty Returns			Canadian Warranty Returns
Eaton Clutch Division	Eaton Warranty Transmission	Axle / Brake Parts / Units	Transmission and Axle / Brake Parts / Clutch Units
Attn: Warranty Department	Eaton Warranty #0061W	Dana Holding Corporation	Eaton Corporation
201 Brandon Street	13100 East Michigan Ave.	Commercial Vehicle Product Group	Warranty Return Center
Auburn, IN 46706	Galesburg, MI 49053	6938 Elm Valley Dr.	2160 Williams Pkwy.
See TMIB0129 for details.	See TMIB0129 for details.	Kalamazoo, MI 49009	Brampton, Ontario, Canada L6S 5X7

- g. Eaton / Dana will determine the amount of the settlement based on the review of the warranty claim and failed parts, if required. Certain deductions may be made from the amount claimed if standard OEM and Eaton / Dana labor hour guidelines are not met. See "Important Information About Labor Hour Guidelines."

**Note:**

All clutch core charges (per APSL0419) resulting from warranty returns to Eaton for a failure analysis should be charged out on the claim. For those claims that are accepted for warranty and the cores are retained by Eaton, the core charge will be reimbursed by Eaton on the approved claim.

All transmission and transmission electronic core charges (per APSL0419) resulting from warranty returns to Eaton for a failure analysis, for warranty and the cores are retained by Eaton, the core charge will be reimbursed by Eaton to the appropriate OEM for the dealer.

# Component and Part Return Requirements (Eaton / Dana)

---

## Part Return Requirements

Be sure the parts are properly identified.

- a. Clearly print the claim number, Eaton authorization number, or repair order (RO) number on the bill of lading. All parts associated with the claim must be returned for warranty consideration.
- b. If parts for more than one claim are shipped on the same pallet, list all claim numbers on the bill of lading or provide a detailed packing list. This will ensure proof of shipment for a specific claim if the parts are lost.
- c. When shipping parts for several different claims together, do not mix the parts in the same container, box, etc. This could cause confusion in performing a failure analysis, a delay in claim processing, and possible rejection of the claim.
- d. Always include a copy of the claim or repair order (direct pay) in, or attached to, the container holding the parts for that particular claim. **Protect the copies from grease, oil, etc.**
- e. Package the parts carefully to avoid shipping damage which could distort or mask the true cause of the failure.
- f. All fluid, oils, and lubricants are to be drained from the parts or components prior to return. Penalties (or fees) may result for failure to comply.
- g. Dealer to identify parts disposition, return or scrap, for rejected claims with each claim by a parts disposition tag. The tag is to identify the following at a minimum:
  1. Dealer code
  2. Claim number
  3. Repair order number (for direct pay only)
  4. Repair date
  5. Primary failed part number
  6. Eaton authorization number (only if provided by RTW or Roadranger field representative; not required for OE claims)
  7. Parts disposition for rejected claims ("Scrap" or "Return to Dealer")
- h. Return all parts collect, per Eaton / Dana approved carrier and to the correct designated location. Failure to return parts collect may result in no freight reimbursement. Failure to return requested parts to designated Eaton / Dana location may result in rejection of the claim. Eaton return shipping information available in TMIB0129.
- i. Component being returned for warranty must match serial number on warranty claim or repair order (RO).
- j. Parts lost from broken boxes, damaged shipping containers, negligence in packaging, or returned without proper claim identification, may result in no reimbursement for the parts not received and shall be the responsibility of the dealer.
- k. Corrosion or rust that prevents proper inspection, or prevents identification of the primary failure, may result in a rejected claim.
- l. When a complete unit (transmission) is replaced under warranty, the failed unit must always be returned to the Warranty Return Center for inspection.
- m. All rejected, non-warrantable and non-Eaton parts will be scrapped unless the dealer includes return notice on the parts disposition tag as required in section "g" above. All such parts will be returned at dealer's expense.

# Claim and Part Return Procedures (Bendix)

---

## **Bendix™ Claim Processing**

- Effective April 1, 2009, regardless of when product was purchased, warranty is now handled by Bendix CVS LLC.
- Bendix does not offer a part exchange program.
- All claims must be sent to Bendix for warranty consideration.
- If the claim involves a suspected part failure, the part must be returned to Bendix for warranty evaluation.

## **OEM and Aftermarket Claims**

- The customer or repair facility is to file claims via the OEM procedures.
- Claim filing and part return will follow the OEM process established for Bendix.
- Only customers that have an account with Bendix can file a claim.
- Dealers or Bendix distributors will follow their existing warranty process already in use for other Bendix products.
- Even when assistance is provided by Roadranger® to resolve an issue, the warranty claim must still be directed to Bendix.
- Registered users can view claim status online via the following web site: <https://www.bendix.biz>
- User will need to use their existing mybendix.com username and password. If not registered, please call 1-800-247-2725 (option 6) to establish a username and password.
- If you have any questions, please e-mail [support@bendix.com](mailto:support@bendix.com)

## Important Information Regarding Claim Approval

The following information is provided to help you understand some very important facts about warranty claim processing. Please read it carefully.

Many claims are reduced or rejected because some or all of these requirements are not met. An improperly filed claim sometimes creates false expectations regarding payment approval. This can lead to confused and unhappy customers. Not to mention, the extra work it causes and the financial impact it has for the repairing facility.

In the following paragraphs, the term "supplier" will be used to indicate a manufacturer or supplier. The term "dealer" could be an OEM dealership or other repair facility.

The following is a list of some key items regarding warrantable failures and other conditions which can determine if a claim is to be paid. Examples of claim processing situations are given to clarify each point. These situations actually occur daily and result in reduced or rejected claims.

**Item 1. Verifiable defect: This is the most important part of any warranty claim! Warranty is intended to cover verifiable defects in material or workmanship. If no defect can be shown, there is no reason to file a claim. The manufacturer did nothing wrong.**

*The inability to verify a failure is the primary reason for most claims rejections.*

There are many cases in which parts are returned for inspection and no failure can be found nor is there any indication or marking of what the repairing mechanic determined to be the cause of the failure. If the warranty analyst cannot verify any defect, the claim will be rejected. This happens quite often with claims for noise complaints.

**Example:** A claim is filed for a noisy drive axle. The mechanic noticed some slight discoloration on one of the bearing races and determine this was the cause of the failure. The mechanic did not mark the part to show the area of the race which he thought failed.

The supplier's warranty analyst reviews the bearing race and, based on this expertise, finds no failure. He sees the discolored area of the race but recognizes it as normal wear and rejects the claim.

If the suspect area of the bearing race had been marked, the analyst might have been able to identify the condition which was considered a defect by the mechanic. If there was nothing wrong with the marked area, the analyst could initiate a request for training to help prevent similar claims from being filed in the future.

Manufacturers do extensive testing to determine the durability of their products. This testing is done both in the lab and on the road. In this process, conditions are deliberately induced to cause a variety of failure modes. The visual results of these failure modes are documented for future failure analysis. Additionally, the effects of other conditions, such as normal wear and contaminated lube, are recorded and studied.

The information learned from this testing is put into service and failure analysis manuals for use by field personnel and repair facilities. The information in these manuals helps people involved in the warranty process to make good decisions regarding defects.

# Claim Approval

---

## **Item 2. Identifying root cause and responsibility for the failure: Once a defect or condition has been verified, identify the source of the failure.**

***Understanding the failure or condition and what caused it, will determine who is responsible for payment of the repair.***

The part which failed is not always a "defective" part; nor, is it necessarily the "causal" part. The failure might be the result of a driveline problem, driver error, or an improper prior repair. In any case, recognizing the cause of the failure determines to whom the repair should be charged.

**Example:** An Eaton transmission experiences a synchronizer failure. One of the synchronizer pins is broken from driveline vibration. The mechanic discovers driveline angles are incorrect. Even though it was an Eaton part which failed, it was not the cause of the failure. In this case, the responsibility might be the customer's or perhaps another repair facility which did some recent work on the vehicle and improperly set the driveline angles.

Always work the failure analysis to a conclusion. Just because the failed part is found, does not mean the search is over. The root cause, or why the failure occurred, must be identified to establish whether a claim should be filed.

## **Item 3. Dealing with wear items and normal maintenance.**

***Through normal use, components will eventually wear out. Do not mistake worn out parts for warrantable failures.***

Truck components have many moving parts. Some, such as gears, move internally. Other parts wear against each other, such as brake linings and brake drums. As this interaction occurs, it causes wear. It is a normal process in the life of a component.

***Normal wear is not a defect and is not warrantable unless specifically stated. The amount of normal wear can vary greatly depending on vehicle application and the habits of the driver.***

**Example:** A vehicle is being repaired for a warrantable failure to the drive axle. The vehicle has 290,000 miles on it. While doing the required rebuild, wear on the gears is noticed. Since the mechanic has already disassembled the carrier, he recommends the worn gears be replaced due to the mileage. Even though the labor would be covered under the warrantable repair, the gears are being replaced at the customer's option. They did not fail. In this case, the customer is responsible for the cost of the gears which have not failed.

**Remember, warranty only covers verifiable defects in material or workmanship.**

## **Item 4. Over-repairs: Make every repair a quality repair but use good judgment in deciding when to replace or repair the failed component.**

***The unnecessary replacement of reusable parts and the swing of full components for minor failures are the two primary reasons for most claim reductions.***

**Example:** A customer brings his truck in for a transmission shifting complaint. Upon inspection, the mechanic finds a gear with a chipped tooth and a broken mainshaft washer. All other parts are reusable and show only normal wear. The shop is extremely busy that day and to disassemble and reassemble the transmission would take several hours. There is a new transmission in the parts room which, if used, would save a lot of time. The repair is made using the new transmission. A warranty claim is filed for the cost of the new transmission, allowable mark-up and labor, for a total of \$5,400.00.

Upon receipt of the claim and failed material, the supplier's warranty analyst determines the only required repair was the replacement of the gear, the washer, and the labor. The remaining parts were all reusable. He approves the claim for a total of \$1,300.00 which is the amount allowed for this type of repair within the warranty limitations. This reduces the claim by \$3,100.00.

***Warranty pays only for the most economical method to correct a failure, repair or replace, whichever is less. Warranty claim approval amounts are determined by these limitations.***

In some situations, manufacturers might sell kits containing groups of parts which are designed to renew a component. Remember, not all of these parts are necessarily warrantable, even though some parts from the kit might have been used to complete the repair. Only failed parts are covered.

## **Item 5. Elective repairs: Initiating a product campaign or recall without authorization from the supplier, creates a risk of not being paid for your claims.**

***Many claims are rejected because the repair was labeled a so-called "known problem" but the parts showed no evidence of a warrantable failure.***

**Example:** A customer owns a fleet of thirty trucks which are all used in similar applications. The dealer noticed five of the vehicles have experienced failures to the same part. With good intentions to save the customer from unnecessary down time, the dealer decides to replace this questionable part on every truck in the fleet. The dealer files warranty claims for all the repairs and forwards the parts to the supplier.

Upon inspection, the supplier's warranty analyst finds no failure to twenty five of the parts and rejects those claims accordingly. Another situation which occurs is the parts have failed, but upon inspection, the failures are found to be caused by the customer. Now the dealer has the unpleasant task of presenting a possibly large invoice to the customer. An invoice the customer may have expected to be covered by warranty.

The correct method of handling a situation like this, is to contact both the OEM and the Roadranger representative for your area, before starting any activity to repair trucks which you suspect might have future failures.

Warranty claims are reviewed one at a time, each on its own merit, based on verifiable failures.

***If a repair facility does not have Eaton, Dana, or the OEM's written authorization to make repairs on vehicles which have not failed, it runs the risk of not getting paid for those repairs.***

A word of caution! Avoid making repairs or filing claims based on rumors a supplier has a "known problem". That problem might be confined to a very limited amount of vehicles or component models. Before starting a repair solely based on this kind of information, contact the supplier to get all the facts.

Likewise, retrofit repairs, to enhance or update a component to the latest technology are not warrantable unless approved in writing by Eaton, Dana, or the OEM. Warranty coverages are based on the technological knowledge at the time a component is designed. It would be unrealistic to expect older products to achieve performance standards which have been elevated by the latest technological advancements.

## **Item 6. Claim overcharges, undefined, and unidentifiable charges: Some charges are placed on warranty claims which do not apply to the failure or might not be covered under a supplier's warranty.**

***A supplier reviewing a warranty claim must understand all charges being invoiced. Furthermore, the supplier must be able to verify each charge is related to the repair of his product.***

A supplier reviews a warranty claim in much the same manner as a person reviews a repair bill when getting a car out of the shop. If the car owner saw an unexplained charge, it would surely be questioned. Especially, if it had not been approved or discussed at the time the repair was estimated. A supplier reviews a claim to verify all charges are accurate and allowable under the warranty coverage.

**Example:** A supplier's warranty analyst is reviewing a claim. The claim shows a miscellaneous charge for \$55.00 but there is no explanation of the charge. The work order shows repairs to other systems on the truck and the warranty analyst is not sure if the charge is against his product. Since it is not clear, the \$55.00 is deducted. Further review of the claim shows an automatic shop supply charge of \$20.00. The analyst knows this type of charge is not covered under the warranty and deducts it. Finally, he notices a part price which is very high and determines the \$50.00 overcharge is due to the higher part mark-up than allowed by the warranty. The \$50.00 is also deducted from the claim making the total reduction \$125.00.

***In order to prevent a similar situation from occurring, claims filed should only contain charges allowed by the warranty coverage. If the repairing facility chooses to charge amounts beyond warranty limitations, the difference should be billed to the customer or absorbed by the dealer.***

# Claim Approval

---

Suppliers' warranties offer various coverages. Likewise, they differ on how much will be paid on a warranty claim. Some pay for parts and labor, some pay parts only. Others have restrictions on the allowable part price mark-up or pay no mark-up at all. There might be occasions when some special circumstances apply to a repair. These cases are reviewed by the supplier on an individual basis.

***To avoid a claim being reduced or rejected, be sure to understand the limitations of the supplier's warranty coverage and only file for those items which are eligible.***

Remember, like the retail customer, a supplier paying the bill for a warranty claim, is entitled to know all the facts about the invoice.

## **Item 7. Standard warranty versus extended warranties: What are the differences in the coverages?**

***Though the terms of warranty coverage might be longer in time, miles or kilometers, the limitations on reimbursement for extended warranty claims are typically the same as standard warranty coverage.***

Over the past few years, extended warranty coverages have become very popular. This is largely due to higher customer expectations and improved product performance through advanced technology.

Most of these extended warranties simply expand the time and mileage parameters to some greater limit. Some specify only certain parts are covered or limit coverages on maintenance items such as seals and gaskets. However, no additional allowances are made for parts pricing, parts mark-up, or labor. These remain consistent with the allowances used in standard warranty. In addition, all exclusions apply (shockload, lack of lube, etc.).

**Example:** A truck with 250,000 miles on it, is at the dealer. It has experienced a catastrophic failure to the rear-rear drive axle. The entire carrier must be replaced. A warranty claim is filed for the cost of the part including the allowed mark-up and 3.0 labor hours.

Another truck with 475,000 miles on it, is at the dealer. This truck is older but is covered under an extended warranty. It has the same model drive axle as the first truck and has also experienced a catastrophic failure to the rear-rear. The same repair is required. The claim for this failure should be almost identical for the claim for the truck with 250,000 miles on it. Because it is a warrantable failure, all limitations on parts cost, mark-up, labor, and miscellaneous apply.

The supplier's warranty analyst will review both claims based on the type of failure and the allowable parts and labor to complete the repair.

## **Item 8. Component and vehicle information: Manufacturers need to know when and where failure activity is occurring in their products.**

***The requirement to provide component model and serial number exists because this information is vital to a supplier's ability to correct product problems.***

A supplier is certainly not happy when a product fails. It is a costly inconvenience to the customer and an expense to the supplier. Always trying to improve products by correcting failures and increasing durability, suppliers must gather as much information as possible. This information helps identify, not only which parts are failing but which time frame the component was built. This data can link failures to engineering changes or problems with materials used in manufacturing.

Obviously, the faster the magnitude of a problem can be determined, the more quickly corrective action can focus on solving it.

***The component model and serial number information is some of the most important data on a warranty claim. By providing it, the dealer makes a valuable contribution to corrective action and ultimately helps his customer save down time and money.***

## Item 9. Coverage expiration time: When does warranty expire?

*Warranty coverage is based on a calendar year.*

**Example 1:** A component is covered by a five year warranty with an in-service date of March 8, 2004. A product failure must occur on or before March 7, 2009, to be submitted on a warranty claim.

**Example 2:** A service part has a retail sale date of April 15, 2004. A product failure must occur on or before April 14, 2005, to be submitted on a warranty claim.

## Summary

The preceding information is provided to explain the steps required for proper claims filing. Though this information specifically applies to the Eaton / Dana warranty system, other manufacturers and suppliers use similar programs. Eaton and Dana hope the information will benefit your other claims processing needs.

Remember: For the most timely processing and to maximize reimbursement of a claim, following these important steps:

- Verify the failure or condition was caused by a defect in material or workmanship.
- Identify the root cause of the failure.
- Understand all the terms and conditions of a supplier's warranty coverage; what is covered and what is not covered.
- Avoid over-repairs. Use the most economical method to correct the failure. File only for the repairs allowed under the warranty coverage.
- Provide all required information. This includes information on the vehicle, component models and serial numbers, correction of the failure, and invoices. Explain all charges. Be sure they are not only relative to the repair, but are covered under the warranty.
- If returning failed material to the supplier, be sure to include all parts replaced in the repair, not just some of them. Identify the parts by including a copy of the claim. If the failure seems questionable, mark the area suspected as the cause of the failure.
- Do not initiate a campaign without the prior written approval of the OEM and Eaton or Dana.

# Repair or Replacement Guidelines

---

## Repair or Replacement Guidelines for Eaton / Dana Warrantable Failures

Warranty sometimes requires decisions regarding the most economical method to complete a repair. Should the component be repaired? Is the warrantable damage so extensive, the component must be replaced?

Additionally, if replacement of the entire component is being considered, which level of component is the most logical to use? Does a REMAN transmission fulfill the need? Depending on the failure, is the Service Unit Exchange Transmission or an Exchange Carrier the proper choice?

Reimbursement for warranty claims is based on the cost to repair versus the cost to replace, whichever is less. Because of this, certain guidelines have been established to help a repairing facility decide which repair choice is best.

In the case of drive axle repairs, the options are usually more evident. If the total bench time repair labor cost, plus the cost of parts, exceeds that of an Exchange Carrier, the obvious choice is to use an Exchange Carrier.

The example shown below, uses a drive axle Exchange Carrier to illustrate the formula for deciding whether to repair or replace. However, this formula also applies to transmissions.

Example:

REPAIR		REPLACE	
Total Parts	\$1,625.00	Exchange Carrier	\$2,100.00
Bench Time	750.00	Bench Time	NONE
R & R Labor	165.00	R & R Labor	165.00
Total	<u>\$2,540.00</u>	Total	<u>\$2,265.00</u>

Obviously, in this example, the proper choice would be to replace the component because the total is \$275.00 less to do so.

Though transmissions follow the same general formula as drive axles, the availability of the REMAN product line, creates the need to consider vehicle mileage as part of the equation.

The following guidelines determine when to use a **REMAN** transmission (US) or Eaton **Rebuilt** transmission (Canada) and when a **Service Unit Exchange** transmission is the correct component for the repair.

- \* Components which fail within the OEM warranty period and have accumulated 100,000 miles or less should be replaced by a Service Unit Exchange transmission providing the cost to repair exceeds the cost to replace. (See "Example" above.)
- \* Components which fail within the OEM warranty period and have accumulated over 100,000 miles should be replaced by a REMAN transmission providing the cost to repair exceeds the cost to replace. (See "Example" above.)
- \* Components which fail beyond the standard OEM coverage but are covered under an extended warranty, should be replaced by a REMAN transmission providing the cost to repair exceeds the cost to replace. (See "Example" above.)

**NOTE:** As a reminder, do not use new production transmissions for warranty repairs. Use only genuine REMAN (US) or Rebuilt transmissions (Canada) or Service Unit Exchange Transmissions per these replacement guidelines. See "Eaton Non-warrantable Failure Transmission Replacement Requirements" on page 20.

Warranty claims are paid according to these Repair or Replacement Guidelines. Please read them carefully. If you have any questions regarding them, contact the Roadranger Regional Service Office at 1-800-826-HELP (4357).

To continue warranty coverage, the purchased component model must be the same as the failed component model, unless substitution is authorized by Eaton.

## Eaton Non-warrantable Failure Transmission Replacement Requirements

To continue the Original, Standard or Extended Eaton Warranty where a non-warrantable failure occurs, the transmission must be replaced to continue the transmission warranty that is in effect for a particular transmission. The text and matrix listed below are intended as a guide in repairing or replacing the transmission to maintain the transmissions current warranty participation by Eaton. To continue warranty coverage, the purchased component model must be the same as the failed component model, unless substitution is authorized by Eaton.

If a non-warrantable failure occurs within the **Standard** warranty coverage period, and the customer purchases a new Eaton Exchange Transmission or new Service Clutch to complete the repair; warranty coverage shall be the remainder of the **original** warranty period, or the coverage period of the new Exchange Transmission or new Service Clutch, whichever is greater.

If a non-warrantable failure occurs within the **Extended** warranty coverage period, and the customer purchases a genuine New Exchange Transmission or an Eaton Remanufactured transmission to complete the repair; warranty coverage shall be the remainder of the **original** warranty period, or the defined coverage period of the purchased replacement transmission, whichever is greater.

If a non-warrantable failure occurs during the **Original** warranty coverage period (**Standard or Extended**) and the customer purchases genuine Eaton service/aftermarket parts to complete the repair; the warranty coverage period of the service/aftermarket parts shall be one year from the date of installation. Remaining parts and subcomponents, which were not replaced at the time of the non-warrantable repair, shall maintain the coverage of the **original** warranty period.

- If a Vehicle has Extended warranty and a non-warrantable failure occurs within the Standard warranty period, the newly purchased New Service or Remanufactured clutch that is used to complete the repair is covered for the remainder of the Extended warranty period, or the defined coverage period of the purchased replacement clutch, whichever is greater.

## Transmission / Clutch Replacement Requirements Matrix for Non-Warrantable Failures

If your warranty coverage is within the following time frame:	And a non-warrantable failure occurs:	You must purchase the following Eaton component to retain your original warranty coverage:
1-year / Unlimited Mileage or 1-year / 100,000 Mileage	Within the 1st year	New Unit Exchange, New Service Unit, or Genuine REMAN
2-year / Unlimited Mileage or 2-year / 200,000 Mileage	Within the 1st year	New Unit Exchange or New Service Unit
	Within the 2nd year	New Unit Exchange, New Service Unit, or Genuine REMAN
3-year / Unlimited Mileage or 3-year / 150,000 Mileage or 3-year / 300,000 Mileage or 3-year / 350,000 Mileage	Up to and including 2nd year	New Unit Exchange or New Service Unit
	Within the 3rd year	New Unit Exchange, New Service Unit, or Genuine REMAN
4-year or More / Any Mileage Standard or Extended Protection Plan Warranty)	Up to and including 3rd year	New Unit Exchange or New Service Unit
	Within the 4th year or greater	New Unit Exchange, New Service Unit, or Genuine REMAN

# Replacement Requirements

---

## **Dana Non-warrantable Axle and Brake Replacement Requirements**

If a non-warrantable failure occurs within the standard/extended warranty coverage period, and the customer purchases a new carrier exchange to complete the repair, warranty coverage shall be two years, unlimited mileage, from the date of the new carrier purchase.

If a non-warrantable failure occurs within the standard/extended warranty coverage period, and the customer purchases original replacement parts to complete the repair, warranty coverage shall be one year from date of purchase and unlimited mileage on the replacement parts only. Non-warrantable failures due to abuse or neglect (i.e. overloading, shock load, spin-out, failure to maintain) will void the component warranty.

## Important Information About Labor Hour Guidelines

This section contains a schedule of labor hours allowed for performing warrantable repairs. The hours listed are the maximum amounts which will be paid on a warranty claim according to the latest update of this publication. To ensure a better understanding of its content, please have all personnel involved in warranty, read the section thoroughly.

In general, these labor times are for the repair of a major component after it has been removed from the vehicle (bench time). However, some repair times (i.e. seals, synchronizers, air systems parts, etc.) are based on the repair being performed with the component remaining in the vehicle.

Because component removal times vary among different vehicle makes and models, refer to the labor repair times provided by the specific manufacturer of the vehicle being repaired.

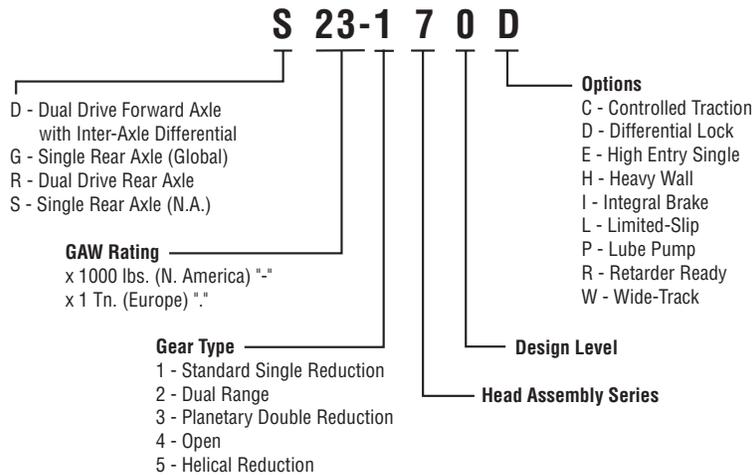
As stated above, this labor schedule has been revised. The revisions are a result of new product models being introduced or improvements in existing models. Some hours increased while others decreased. Additionally, operations which, in the past, have been somewhat vague or mixed with other repairs, are now separated and more specific.

Before making these changes, the repair times were studied carefully. Every attempt has been made to ensure the times are accurate and realistic.

If you find a repair time which seems incorrect, consult the appropriate service manual to be sure the most efficient repair method is being used. If this does not help, please contact your nearest Roadranger Regional Service Office at 1-800-826-HELP (4357).

# Rear Drive Axles

## Rear Drive Axles



R & R = Remove and Replace

## In-Chassis Repairs

**Note:** Labor times listed for in-chassis repairs apply when the part listed is the causal part and is done as a stand-alone operation. These times are not to be added to other labor operations. For example: The time to R & R a pinion seal is not to be added to the differential carrier overhaul time. The seal replacement is already included in the overhaul labor operation.

Repair	Standard Hours
Air Shift Assembly - R & R Add: Overhaul of air shift assembly	0.6 1.2
Electric Shift Unit - R & R Add: Overhaul of electric shift unit	0.8 1.2
Housing Breather Vent / Tube - R & R	0.2
Interaxle Differential (Power Divider) - R & R (No parts replaced)	0.8
Interaxle Differential (Power Divider) - Rebuild (Includes: Replacement of helical gears, spider, thrust washers, side pinions, add and refill with lube.) (Excludes: R & R of the Interaxle Differential Assembly) <b>NOTE:</b> It is not necessary to remove the differential carrier to service the inter-axle differential assembly.	5.0
Input Shaft Bearing - R & R (Includes: R & R u-joint, yoke, seal, bearing, steam clean, clean seal surface, and add lube)	2.5
Lube Pump - R & R	2.0
Output Shaft Bearing - R & R (Includes: R & R u-joint, yoke, seal, bearing, steam clean, clean seal surface, and add lube)	2.0

Repair	Standard Hours
Rear Cover (Forward Carrier) - R & R (Includes: R & R u-joint, yoke and cover, steam clean, clean gasket surface, and add lube)	1.5
Seal, Carrier (Input, Output, Pinion) - R & R (Includes: R & R u-joint, yoke and cover, steam clean, clean seal surface, and add lube)	1.5
Seal, Wheel - Eaton Outrunner (one) - R & R (Includes: R & R wheel end equipment, seal, clean seal surface, adjust bearings, and add lube)	1.3

## Complete Axle R & R

Repair	Standard Hours
Differential Carrier Assembly - R & R Single Drive Front of Tandem Rear of Tandem (Includes: R & R differential carrier from housing, steam clean, drain and refill lube) (Excludes: Replacement or adjustment of any parts)	3.0 3.5 3.0
Axle Housing (one) - R & R (Includes: R & R axle assembly from chassis, R & R carrier from housing, transfer of all parts and bracketry not furnished with new housing, adjust service brakes and skid control sensor)	11.0

## Bench Service (Component Removed from Chassis)

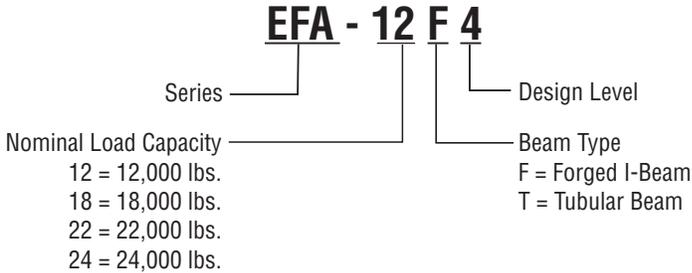
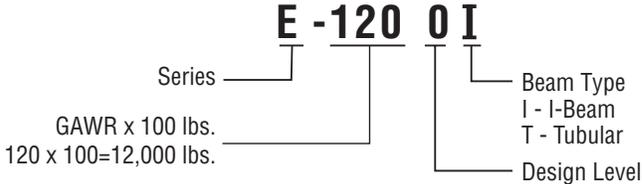
Repair	Standard Hours
Control Traction Differential - Overhaul <b>NOTE:</b> This repair operation is not warrantable for failures which occur after 3 years / 300,00 miles (480,000 km). (Includes: Steam clean, disassembly, inspection, replacement of parts as needed, adjustments and refill with lube) (Excludes: R & R of the differential carrier)	7.0
Differential Carrier Assembly - Overhaul Single Drive Front of Tandem Rear of Tandem (Includes: Disassembly, parts inspection, perform required replacement and adjustment of all parts, gear set, and bearing replacement and set up) (Excludes: R & R of Carrier)	7.0 10.0 7.0

# Rear Drive Axles

---

Repair	Standard Hours
Output Shaft Side Gear Bearing - R & R D404 Models D402 Models	1.5 1.0
Pinion Bearings - R & R See "Differential Carrier Assembly - Overhaul" above	

## Steering Axles



R & R = Remove and Replace

## In-Chassis Repairs

Repair	Standard Hours
Ackerman Arm (one) - R & R (Includes: Disconnect tie rod)	0.5
Add: Set Toe-in	0.3
Cross Tube (Center Link) - R & R (Includes: R & R of both tie rod ends)	0.7
Add: Set Toe-in	0.3
Steering Arm - R & R (Includes: Drag link R & R)	0.7
Add: Reset Toe-in	0.3
Steering Arm Ball Stud (one) - R & R (Includes: Drag link R & R)	0.5
Steering Knuckle or Spindle (one) - R & R (Includes: R & R wheel, brake assembly, hub, knuckle pin, thrust bearing, shim(s); Lubricate and adjust wheel bearings)	2.5
Add: Set Toe-in	0.3
Add: Knuckle pin bushing overhaul	1.0
Tie Rod / Tie Rod End (one) - R & R (Includes: R & R of one tie rod end)	0.5
Add: Set Toe-in	0.3

Labor Hour Guidelines

# Steering Axles

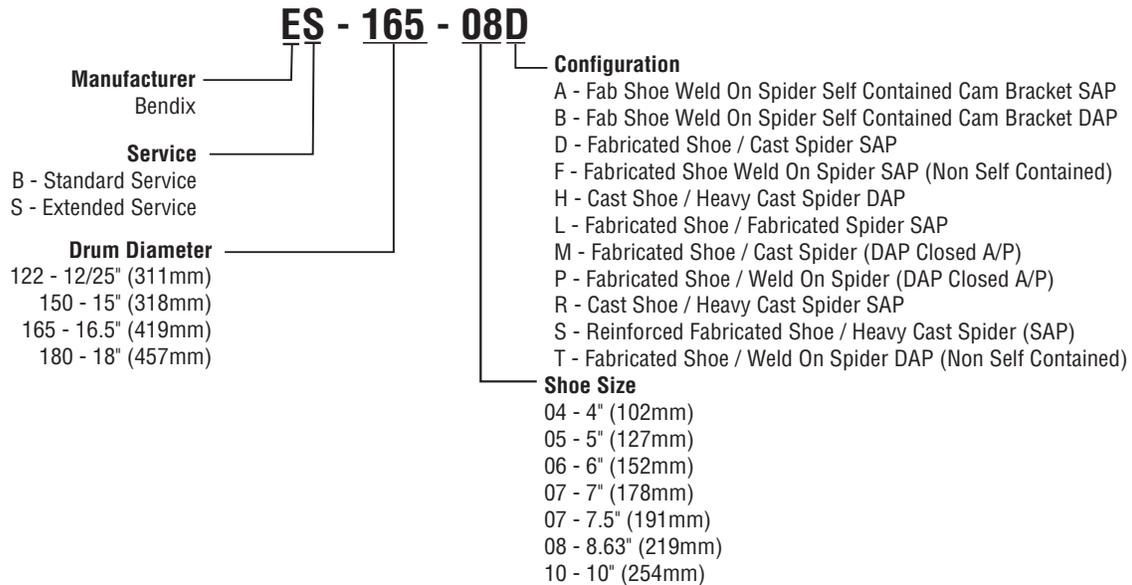
---

Repair	Standard Hours
Wheel Alignment - (When Required)	
Check Toe-in and Caster (does not include adjustment)	0.3
Adjust Toe-in	0.3
Adjust Caster	0.5
Adjust Camber (factory set; adjustment not allowed)	N/A
<b>NOTE:</b> Wheel alignments, toe-in, and caster adjustments are only reimbursed when required to complete a warrantable repair.	

## Complete Steering Axle R & R

Repair	Standard Hours
Axle "I" Beam - R & R (Includes: R & R entire axle assembly, transfer all parts to new "I" beam, lubricate all steering joints, R & R and adjust all brake components and wheel end equipment.) (Excludes: Wheel alignment)	6.1
Wheel Alignment - (When Required)	
Check Toe-in and Caster (does not include adjustment)	0.3
Adjust Toe-in	0.3
Adjust Caster	0.5
Adjust Camber (factory set; adjustment not allowed)	N/A
<b>NOTE:</b> Wheel alignments, toe-in, and caster adjustments are only reimbursed when required to complete a warrantable repair.	

## Drive Axle Brakes



R & R = Remove and Replace

Includes Standard and Extended Service Brakes

## In-Chassis Repairs

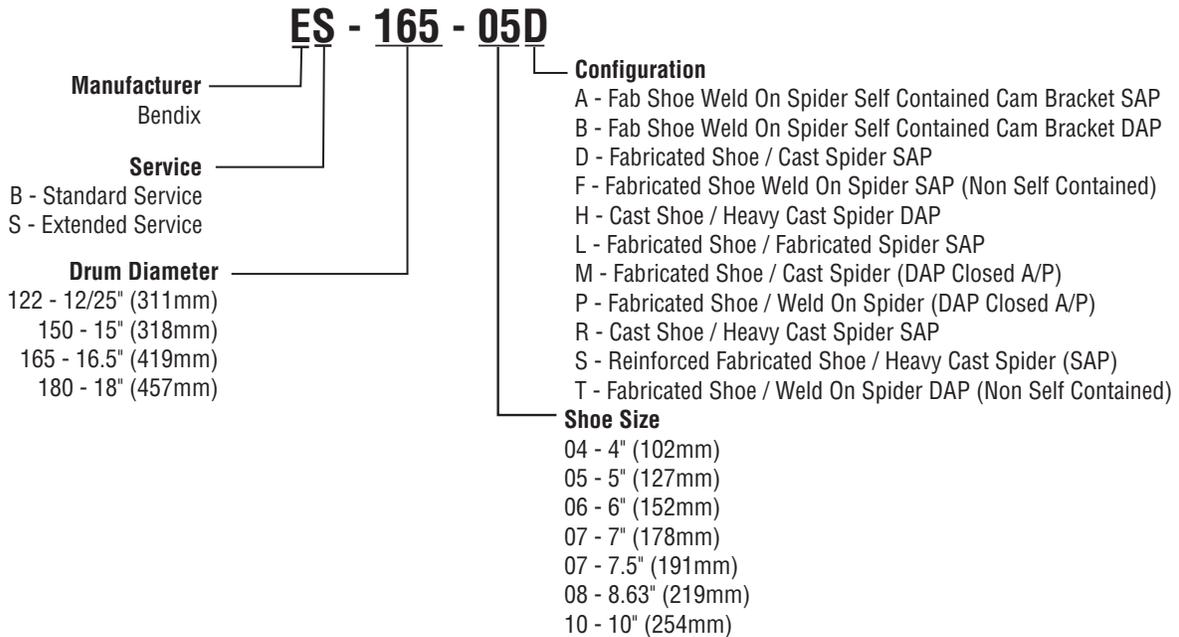
Repair	Standard Hours
Brake Air Chamber (one) - R & R	0.3
Brake Assembly (one wheel) - R & R (Includes: R & R wheel, drum, hub, axle shaft, and adjust brake)	2.0
Brake Camshaft (one) - R & R (Includes: R & R wheel, drum, hub, axle shaft, and adjust brakes) Add: R & R camshaft chamber bracket Add: R & R camshaft bushings and seals <b>NOTE:</b> It is not necessary to remove the shoes and linings to R & R the camshaft or the camshaft bracket.	1.0 0.3 0.3
Brake Shoes & Linings (one wheel) - R & R Outboard mounted hub Spoke wheel (Includes: R & R wheel, drum, hub, axle shaft, and adjust brakes) Add: Reline of two shoes	1.5 1.7 0.5
Brake Slack Adjuster (one) - R & R Manual Automatic	0.2 0.3
Hub, Drum, and Wheel Assembly	0.7
Hub Studs, Wheel, and Drive - R & R	2.0
Hub Studs (with hub removed)	1.0

# Drive Axle Brakes

---

Repair	Standard Hours
Hub Assembly (one) - R & R (Includes: Wheel and drum R & R)	1.2
Inboard Drum	0.3
Outboard Mounted Drum	1.0
Wheel Cup and Cones - R & R (Includes: Wheel hub and drum assembly R & R)	1.3

## Steering Axle Brakes



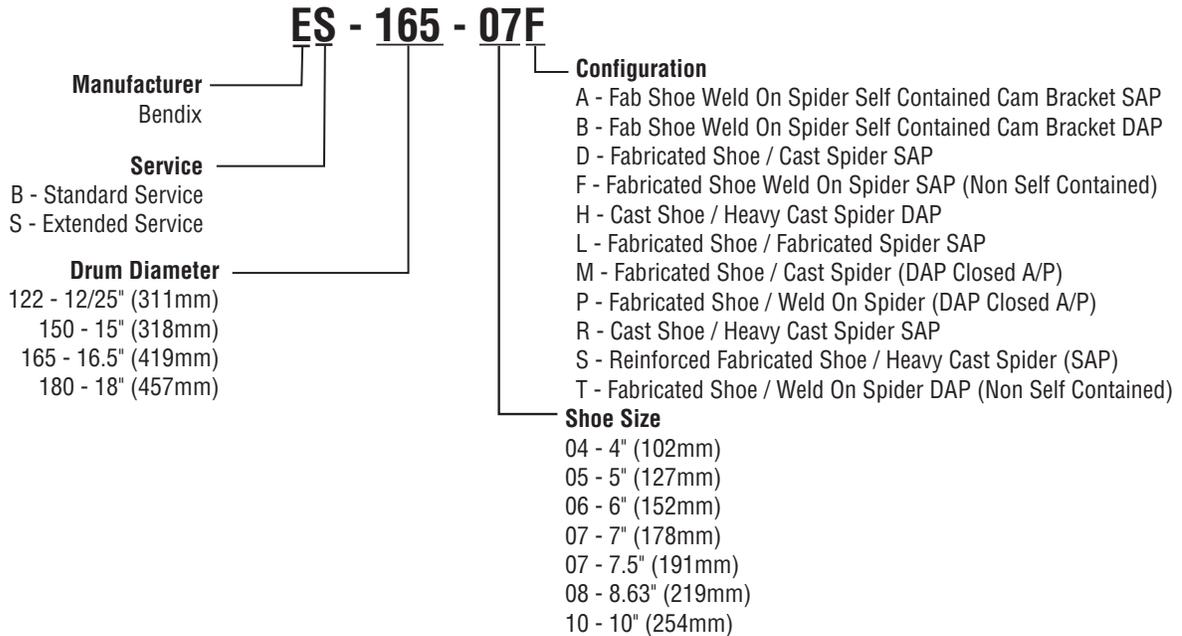
R & R = Remove and Replace  
Includes Standard and Extended Service Brakes

## In-Chassis Repairs

Repair	Standard Hours
Brake Air Chamber (one) - R & R	0.3
Brake Assembly (one wheel) - R & R (Includes: R & R wheel, drum, hub, and adjust brake)	1.2
Brake Camshaft (one) - R & R (Includes: R & R wheel, drum, hub, slack adjuster, and adjust brakes) Add: R & R camshaft chamber bracket Add: R & R camshaft bushings and seals <b>NOTE:</b> It is not necessary to remove the shoes and linings to R & R the camshaft or the camshaft bracket.	1.0 0.3 0.3
Brake Dust Shield (one) - R & R	0.2
Brake Shoes & Linings (one wheel) - R & R Outboard mounted hub Spoke wheel (Includes: R & R wheel, drum, hub, and adjust brakes) Add: Reline of two shoes	1.3 1.5 0.5
Brake Slack Adjuster (one) - R & R Manual Automatic	0.2 0.3
Hub cap (one) - R & R	0.2

# Trailer Axle Brakes

## Trailer Axle Brakes



R & R = Remove and Replace

Includes Standard and Extended Service Brakes

## In-Chassis Repairs

Repair	Standard Hours
Brake Air Chamber (one) - R & R	0.3
Brake Assembly (one) - Adjust	0.2
Brake Camshaft (one) - R & R (Includes: R & R wheel, drum, hub, and adjust brakes)	1.0
Add: R & R camshaft chamber bracket	0.3
Add: R & R camshaft bushings and seals	0.3
<b>NOTE:</b> It is not necessary to remove the shoes and linings to R & R the camshaft or the camshaft bracket.	
Brake Dust Shield (one) - R & R	0.2
Brake Shoes & Linings (one wheel) - R & R	
Outboard mounted hub	1.2
Spoke wheel	1.5
(Includes: R & R wheel, drum, hub, and adjust brakes)	
Add: Reline of two shoes	0.5
Slack Adjuster (one) - R & R	
Manual	0.2
Automatic	0.3

## Anti-lock Braking Systems

R & R = Remove and Replace

### In-Chassis Repairs

Repair	Standard Hours
Air Modulator Valve (one) - R & R	0.4
Automatic Traction Control Valve (ATC) - R & R	0.4
Cable Assembly (Feed Thru) - R & R	0.6
Diagnostic Time (Includes: Troubleshooting system problem and verification of correction after repair is completed)	1.0
Electronic Control Unit (ECU) - R & R	0.4
Hub Cap Assembly - R & R	
Steering Axle	0.4
Trailer Axle	0.4
Speed Sensor - R & R	
Steering Axle	0.4
Trailer Axle	0.4
Speed Sensor (Wheel End of Drive Axle) - R & R	
Inboard Mounted Drums	1.1
Outboard Mounted Drums	0.8

### Bench Service (Component Removed from Chassis)

**Note:** The following times do not include R & R of the differential carrier from the chassis. For carrier R & R times please refer to the "Complete Axle R & R" guidelines in the "Drive Axle" section.

Repair	Standard Hours
Bearing Adjuster (Differential) - R & R	
Forward Carrier (D)	0.5
Rear Carrier (R)	0.5
Harness Connector (Drive Axle) - R & R	
Forward Carrier (D)	0.5
Rear Carrier (R)	0.5
Rotor Assembly (With Sensor) - R & R	
Forward Carrier (D)	0.5
Rear Carrier (R)	0.5
Speed Sensor (Drive Axle) - R & R	
Forward Carrier (D)	0.5
Rear Carrier (R)	0.5

# Air Disc Brakes

---

## Air Disc Brakes

R & R = Remove and Replace

### Bench Service (Component Removed from Chassis)

**Note:** The following service procedures are performed with the component previously removed from the chassis.

Repair	Standard Hours
Air Chamber - R & R	0.3
Brake Pads - R & R (Includes: Wheel removal, back off and adjust brake, replace pads, and function test)	0.5
Caliper - R & R (Includes: Wheel removal, back off and adjust brake, replace pads, air chamber, removing caliper bolts, and replace radial seals for shaft adjustment)	0.75
Disc (Rotor) - R & R (Includes: Wheel removal, back off and adjust brake, replace pads, air chamber, removing caliper bolts, hub cap removal, drain and fill hub cap, hub and rotor removal, fasteners, adjust ABS sensor, and replace seal)	1.8
Torque Arm (Includes: Wheel removal, back off and adjust brake, replace pads, air chamber, removing caliper bolts, hub cap removal, drain and fill hub cap, reinstall hub and rotor, remove torque arm, adjust ABS sensor, and replace seal)	1.8
Torque Arm and Disc (Rotor) (Includes: Wheel removal, back off and adjust brake, replace pads, air chamber, removing caliper bolts, hub cap removal, drain and fill hub cap, reinstall hub and rotor, fasteners, remove torque arm, adjust ABS sensor, and replace seal)	2.0

## Clutches

See nameplate OEM for Warranty Standard Repair Times (SRTs).

# Driveshafts

---

## **Driveshafts**

See nameplate OEM for Warranty Standard Repair Times (SRTs).

# Tire Inflation and Monitor System (TIMS)

## Tire Inflation and Monitor System (TIMS)

R & R = Remove and Replace

### Bench Service (Component Removed from Chassis)

**Note:** The following service procedures are performed with the component previously removed from the chassis.

Repair	Standard Hours
Diagnostic Time	0.5
Electronic Control Unit (ECU) - R & R (Includes: Disconnect trailer power, disconnect and unbolt ECU, connect and bolt new ECU, manual measurement of tire pressure, check adequate air supply, connect trailer power, and program target pressure)	0.2
Hubcap - R & R (Includes: Disconnect trailer power, disconnect tire hoses, fitting removal, marking hubcap, removal of jam nut and fasteners, hubcap drain, gasket removal, bulk head adapter removal, gasket installation, o-ring lube, adapter and jam nut installation, hubcap alignment, tire hose and fitting installation, connect trailer power, and testing connections for air leaks)	0.2
Inner or Outer Tire Hose - R & R (Includes: Disconnect trailer power, disconnect tire hoses, new hose installation, connect trailer power, and testing connections for air leaks)	0.1
Maintenance Controller Assembly - R & R (Includes: Air tank draining, disconnect connectors, disconnect and mark air hoses, bolt replacement, air fitting installation on new manifold, reconnect connectors, reconnect air hoses, air system recharge, manual measurement of tire pressure, programming of target pressure, and testing connections for air leaks)	0.3
Maintenance Manifold Assembly - R & R (Includes: Air tank draining, disconnect connectors, disconnect and mark air hoses, bolt replacement, air fitting and transducer installation on new manifold, manifold attachment to bracket, reconnect connectors, reconnect air hoses, air system recharge, vehicle power up, verify light operation, and testing connections for air leaks)	0.2
Spindle Plug and Inner Tire Hose - R & R (Includes: Tire hose and fitting removal, marking hubcap, removal of jam nut and fasteners, hubcap drain, rotary seal removal, spindle plug replacement, reinstall hose, reinstall seal, crimp hose, seal test, gasket installation, adapter and jam nut installation, tire hose and fitting installation, lube refill, and pressure and vent hose check)	0.3
Transducer - R & R (Includes: Disconnect trailer power, drain supply tank, disconnect transducer, sealant application, install transducer, check adequate air supply, connect trailer power, and verify light operation)	0.1
Wiring Harness - R & R (Includes: Disconnect connectors, unbolt from bracket, install connectors, reattach to bracket, and secure harness)	0.5

# Tire Pressure Control Systems

---

## Tire Pressure Control Systems (TPCS)

R & R = Remove and Replace

**Note:** These guidelines reflect R & R times only. Components for this product are not serviceable or rebuildable.

### In-Chassis Repairs

Repair	Standard Hours
Diagnostic Time (Includes: Troubleshooting system problem and verification of correction after repair is completed)	1.0
Drive Seal - R & R Time applies to air or oil seal, either or both replaced. (Includes: R & R wheel hub, axle shaft, and adjust brakes)	2.5
Electronic Control Unit (ECU) - R & R	0.5
Hub Cap / Rotary Seal (non-drive axle) - R & R Add: R & R of hose assembly, if required	0.5 0.3
Inlet Tube - R & R	2.3
Operator Control Panel (OCP) - R & R	0.3
Pneumatic Control Unit (PCU) - R & R	0.5
Pressure Switch - R & R	0.3
Speed Sensor - R & R	0.3
Tire Hose (Control) - R & R	0.3
Tire Hose (Inner) - R & R	0.3
Tire Hose (Outer) - R & R	0.3
Tire Hose (Steering Axle) - R & R	0.3
Wheel Valve - R & R	0.5
Wiring Harness - R & R	2.5

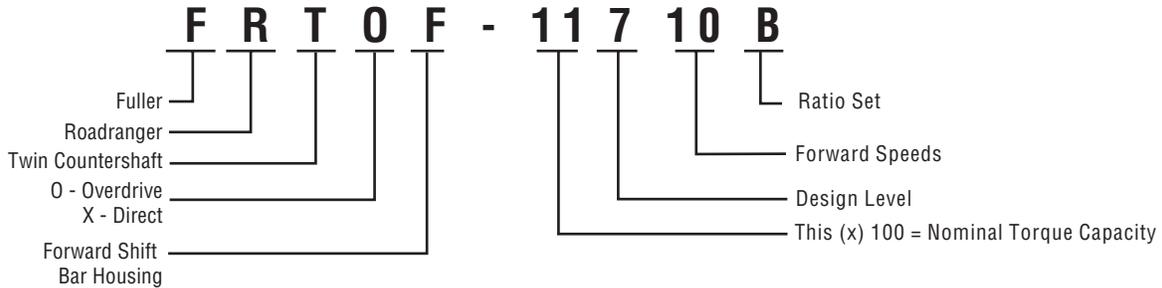
### Bench Service (Component Removed from Chassis)

**Note:** The following service procedures are performed with the component previously removed from the chassis.

Repair	Standard Hours
Lamp (Operator Control Panel) - R & R	0.3
Pressure Transducer (PCU) - R & R	0.3

# AutoShift, UltraShift, FR, RT, and T-Series - Air System and Mechanical

## AutoShift, UltraShift, FR, RT, and T-Series Transmissions - Air System and Mechanical



R & R = Remove and Replace

### In-Chassis Repairs

**Note:** Labor times listed in the "In-Chassis Repairs" section apply when the part listed is the causal part and is done as a stand-alone operation. These times are not to be added to other labor operations.

Example: The time to R & R a synchronizer is not to be added to the complete transmission overhaul time. The synchronizer replacement is already included in the overhaul labor operation.

Repair	Standard Hours
Air Fitting - R & R	0.2
Air Hose - R & R	0.2
Air Module - R & R (RT-xx2xx models only)	0.4
Auxiliary Section - R & R	3.5
Endplay Settings - Adjust (Auxiliary countershafts with tapered bearings)	0.4
Filter Regulator - R & R	0.3
Gasket - R & R (Any miscellaneous gasket)	0.3
Hydraulic Clutch Actuator Adapter Assy / Release Fork Assy - R & R	0.5
Hydraulic Clutch Actuator Grease Tubes - R & R (Add: Hydraulic Clutch Actuator - R & R)	0.3
Insert Valve - R & R	0.3
Master Valve / Shift Knob - R & R	0.4
Oil Cooler Pump - R & R Externally mounted, auxiliary countershaft or PTO mounted	0.5
Oil Cooler Pump - R & R Internally mounted (RT-xx2xx models only) (Includes Auxiliary Section R & R)	3.8

Labor Hour Guidelines

# AutoShift, UltraShift, FR, RT, and T-Series - Air System and Mechanical

Repair	Standard Hours
FR Series Internal Cooler - R & R	1.5
Output Seal - R & R (Includes: Cleaning)	1.0
Output Speed Sensor - R & R (When installed by Eaton)	0.3
Range Actuator Valve - R & R (RTL0-xx610 models)	0.4
Range Cylinder - R & R (RT-xx5xx, RT-xx6xx, RT-xx7xx models)	0.6
Range Cylinder - R & R (RT-xx2xx models) (Includes Shift Bar Housing R & R)	2.4
Shift Bar Housing - R & R (Includes: Shift Lever Assembly R & R)	2.0
Shift Bar Housing Detent Springs - R & R	0.4
Shift Lever or Remote Shift Control - R & R	0.4
Slave Valve - R & R	0.8
Splitter Cylinder - R & R (RT-xx5xx, RT-xx6xx, RT-xx7xx models)	0.6
Synchronizer - R & R (Includes: Auxiliary Section R & R, Auxiliary Drive Gear R & R, and all steps necessary to complete the repair with the transmission in the chassis.)	5.5

## Complete Transmission R & R

**Note:** Refer to OEM chassis guidelines for the labor to remove and replace the complete component. If no guideline is available, use the following labor times.

Includes R & R for shift lever, transmission mounts, driveline, PTOs, brackets, hoses, and wires. Drain and refill with lube.

Repair	Standard Hours
Transmission - R & R	5.0
PTO - R & R (if required) Transmission mounted	1.0
Transmission - R & R Clutch housing frame mounts / nodal mounts	6.5

## Bench Service (Component Removed from Chassis)

The following procedures are performed with the component previously removed from the chassis. All procedures include disassembly, cleaning, and reassembly.

Two gear set auxiliary = 7, 8, 9, or 10-speed.

# AutoShift, UltraShift, FR, RT, and T-Series - Air System and Mechanical

Three gear set auxiliary = 8LL, RTLO-10, 11, 13, 15, 18-speed.

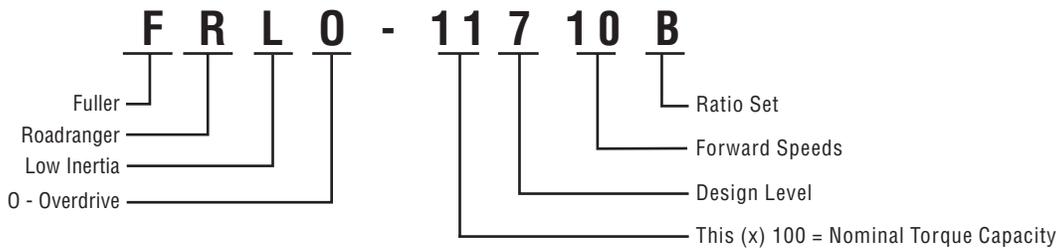
Repair	Standard Hours
Auxiliary Section Synchronizer (Range) - R & R (Includes: Auxiliary Drive Gear R & R)	2.0
Auxiliary Section (Back Box) - Overhaul Two gear set auxiliary section Three gear set auxiliary section (Includes: Auxiliary Section R & R, both types)	2.5 3.5
Clutch Housing - R & R	0.5
Complete Transmission - Overhaul (T-Series)	8.0
Complete Transmission - Overhaul Two gear set auxiliary section Three gear set auxiliary section (Includes: Overhaul of main case, auxiliary section) (Does Not Include: Overhaul of shift bar housing)	8.0 9.0
Gasket - R & R (Any miscellaneous gasket)	0.2
Input Shaft - R & R (Includes: Clutch housing R & R)	0.8
Main Case (Front Box) - Overhaul (Includes: R & R auxiliary section and shift bar housing; overhaul of mainshaft and countershafts)	5.5
Mainshaft (Front Box) - Overhaul (Includes: R & R auxiliary section, input shaft, mainshaft, and shift bar housing)	4.0
Oil Cooler Pump (External) - Overhaul	0.5
Oil Pump (Internal) - R & R (All models except RT-xx2xx) (Includes main case disassembly)	4.0
Oil Pump (Internal) - R & R (Model RT-xx2xx only) (Includes Auxiliary Section R & R)	1.2
Shift Bar Housing - Overhaul (All models except RT-xx2xx) (Includes shift bar housing R & R)	1.0
Shift Bar Housing - Overhaul (Model RT-xx2xx only) (Includes Shift Bar Housing R & R and overhaul of range cylinder)	1.3
Shift Lever or Remote Shift Control - Overhaul	0.3
Slave Valve - Overhaul	0.4

# AutoShift, UltraShift, FR, RT, and T-Series - Air System and Mechanical

---

Repair	Standard Hours
Synchronizer (Range) - R & R (Includes: Auxiliary Section R & R and Auxiliary Drive Gear R & R)	2.0

## Lightning Series Transmissions



R & R = Remove and Replace

## Electrical and System Diagnostics

Labor guidelines include Vehicle Electrical Test, parts removal for diagnostics, and test time.

**Diagnose ACTIVE fault codes only. Diagnosis time for IN-ACTIVE fault codes is not warrantable.** Dealers should always contact the Roadranger Call Center Automated Line or Automated RTW for warranty consideration regarding all in-active fault codes and symptom driven complaints.

Repair	Standard Hours
Air System and Electrical System Diagnostics	1.0

## In-Chassis Repairs

**Note:** Labor times listed in the "In-Chassis Repairs" section apply when the part listed is the causal part and is done as a stand-alone operation. These times are not to be added to other labor operations.

Example: The time to R & R a synchronizer is not to be added to the complete transmission overhaul time. The synchronizer replacement is already included in the overhaul labor operation.

Repair	Standard Hours
Air Fitting - R & R	0.3
Filter Regulator - R & R	0.3
ECU - R & R	0.4
Master Valve / Shift Knob - R & R	0.3
Neutral / Reverse Switch	0.3
Oil Cooler Fittings - R & R	0.6
Output Seal	1.0
Output Speed Sensor - R & R	0.5
PTO - R & R (if required)	1.0
PTO / Countershaft Bearing Cover Sealant	0.4

# Lightning Series Transmissions

---

Repair	Standard Hours
Range / Splitter Piston Rebuild	0.6
Solenoid Valve Assembly	0.4
Shift Bar Position Sensor	0.4
Shift Lever or Remote Shift Control - R & R	0.4

## Complete Transmission R & R

**Note:** Refer to OEM chassis guidelines for the labor to remove and replace the complete component. If no guideline is available, use the following labor times.

Includes R & R for shift lever, transmission mounts, driveline, brackets, hoses, and wires. Drain and refill with lube.

Repair	Standard Hours
PTO - R & R (if required) Transmission mounted	1.0
Transmission - R & R	5.0
Transmission - R & R Clutch housing frame mounts / nodal mounts	6.5

## Bench Service (Component Removed from Chassis)

The following procedures are performed with the component previously removed from the chassis. All procedures include disassembly, cleaning, and reassembly. Removal of internal components requires the transmission to be mounted with the input shaft in the upward position. (See service manual for proper mounting techniques and tools.)

Repair	Standard Hours
Auxiliary Section - Overhaul Includes: R&R Mainshaft and Front Countershafts, Range/Splitter Piston Rebuild and Range Synchronizer Replacement and Endplay Setting	3.1
Clutch Housing - R & R Includes: Endplay setting	1.0
Complete Transmission - Overhaul Includes: Replace All Bearings, Seals, Range/Splitter Piston Rebuild, and Endplay Setting	5.6
ECU - R & R	0.5
Endplay Setting <b>NOTE:</b> Not to be added to overhaul and individual component times	0.3
Front Section - Overhaul Includes: Bearings, Seals, Mainshaft Rebuild, and Endplay Setting	2.5

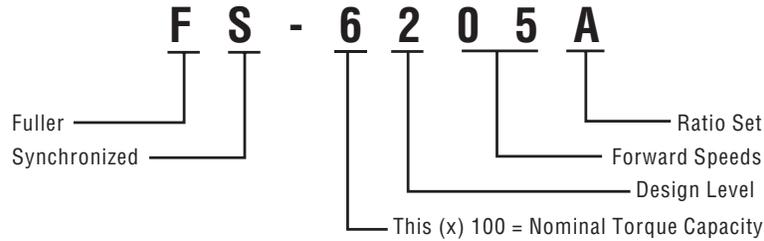
# Lightning Series Transmissions

---

Repair	Standard Hours
Input Shaft - R & R (Includes: Endplay Setting)	0.7
Input Shaft Seal - R & R (Includes: Endplay Setting)	0.8
Oil Cooler - R & R (Includes: Clutch Housing R & R and Endplay)	1.2
Oil Pump - R & R (Includes: Reset Endplay)	1.0
Range Position Sensor / Solenoid Valve Assembly - R & R (Includes: ECU R & R)	0.3
Synchronizer (Range) - R & R (Includes: Front Section R & R and Endplay Setting)	1.8
Shift Rail Rebuild / Replace (Includes: Clutch Housing R & R and Endplay Setting)	1.3
Shift Tower or Remote Shift Control - Overhaul	0.3

# FS-Series Transmissions (FO-xxxx-ASX/ASW Main Box)

## FS-Series Transmissions (FO-xxxx-ASX/ASW Main Box)



R & R = Remove and Replace

### In-Chassis Repairs

**Note:** Labor times listed in the "In-Chassis Repairs" section apply when the part listed is the causal part and is done as a stand-alone operation. These times are not to be added to other labor operations.

Example: The time to R & R a synchronizer is not to be added to the complete transmission overhaul time. The synchronizer replacement is already included in the overhaul labor operation.

Repair	Standard Hours
Detent Spring - R & R (external access)	0.3
Output Seal - R & R	1.0
Shift Bar Housing - R & R (Includes: Shift Lever / Control R & R) Add: Detent Spring R & R - external access	2.0
Shift Bar Housing - Overhaul	1.0
Shift Lever or Remote Shift Control - R & R (Excludes: ASW and ASX Models)	0.4

### Complete Transmission R & R

**Note:** Refer to OEM chassis guidelines for the labor to remove and replace the complete component. If no guideline is available, use the following labor times.

Includes R & R for shift lever, transmission mounts, driveline, PTOs, brackets, hoses, and wires. Drain and refill with lube.

Repair	Standard Hours
PTO - R & R	1.0
Transmission - R & R Without clutch housing With clutch housing Add: PTO R & R (if required) (Transmission mounted)	2.5 3.0
Transmission - R & R (ASW models)	3.6

# FS-Series Transmissions (FO-xxxxo-ASX/ASW Main Box)

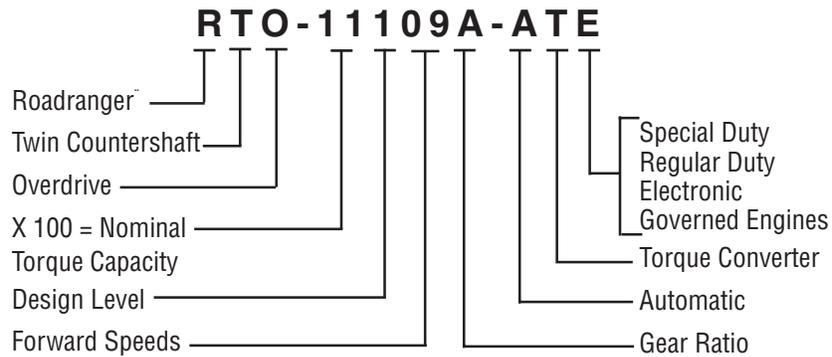
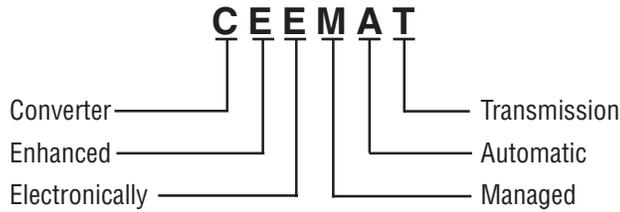
## Bench Service (Component Removed from Chassis)

The following procedures are performed with the component previously removed from the chassis. All procedures include disassembly, cleaning, and reassembly.

Repair	Standard Hours
Bearing Cover and Seal (Front) - R & R (Includes: Clutch Housing R & R, if required) (Excludes: ASW Models)	0.5
Bearing Cover and Seal (Front) - R & R (Excludes: ASW Models)	1.0
Clutch Housing - R & R (Excludes: ASW Models)	0.3
Input Shaft - R & R (Includes: Clutch housing R & R and Front Bearing Cover R & R) (Excludes: ASW Models)	1.0
Mainshaft - Overhaul (Includes: R & R shift bar housing, front bearing cover, rear bearing cover, synchronizer, mainshaft, and all other parts of the mainshaft assembly)	3.0
Transmission (Complete) - Overhaul (Includes: R & R shift bar housing, front bearing cover, and rear bearing cover. Complete R & R of mainshaft and countershaft assemblies. Disassembly, reassembly, and replacement of all necessary parts.)	5.0
Torsional Coupler - R & R (ASW models only)	0.4

# CEEMAT Transmissions

## CEEMAT Transmissions



R & R = Remove and Replace

**Note:** Labor guidelines include oil drain and refill, cleaning, and road testing except where noted or not applicable. For repairs to the mechanical portions of the main case and auxiliary sections, refer to procedures listed under “AutoShift, UltraShift, FR, RT, and T-Series Transmissions - Air System and Mechanical” on page 38.

## In-Chassis Repairs

Repair	Standard Hours
Autoshifter - R & R (Includes: R & R Electronic Control Unit [ECU])	1.5
Autoshifter Harness - R & R (Includes: R & R ECU)	1.5
Auxiliary (Back Box) - R & R (Includes: R & R power synchronizer)	2.7
Diagnostic Time (Time varies depending on extent of repair required)	2.0 - 4.0
Electronic Control Unit (ECU) - R & R	1.0
Electronic Shift Lever - R & R	0.4
Engine Speed Sensor - R & R	0.4
Filter Bypass Valve - R & R (Includes: R & R of hydraulic valve to gain access to filter)	1.2
High Pressure Relief Valve - R & R	0.6

Repair	Standard Hours
Hydraulic Valve - R & R	1.0
Inertia Brake - R & R	0.7
Input Speed Sensor - R & R	1.1
Output Speed Sensor - R & R	1.1
Position Sensor (one) - R & R Remove each additional sensor from ECU (Includes: R & R ECU)	1.3 0.1
Power Synchronizer - R & R	0.9
Range Valve - R & R	0.8
Shift Bar Housing - R & R (Some vehicles might require removal of the transmission to gain access to the shift bar housing. If this is the case, refer to the applicable OEM guidelines for R & R time or use the standard times provided in this section.)	2.2
Torque Converter Harness - R & R	0.8

## Complete Transmission R & R

**Note:** Refer to OEM chassis guidelines for the labor to remove and replace the complete component. If no guideline is available, use the following labor times.

Includes R & R for shift lever, transmission mounts, driveline, PTOs, brackets, hoses, and wires. Drain and refill with lube.

Repair	Standard Hours
Transmission - R & R	15.5

# CEEMAT Transmissions

---

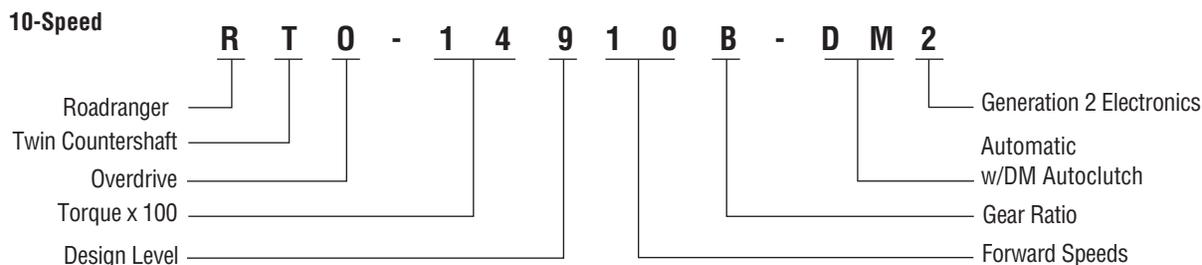
## Bench Service (Component Removed from Chassis)

The following procedures are performed with the component previously removed from the chassis.

Repair	Standard Hours
Autoshifter - Rebuild (Includes: Position Sensor R & R)	1.0
Hydraulic Valve - Rebuild	1.0
Inertia Brake - Rebuild	0.5
Oil Pump - R & R	2.0
Position Sensor - R & R (Includes: R & R Autoshifter and ECU with transmission out of chassis)	1.3
Position Sensor - R & R (Autoshifter already removed and on bench)	0.1
Power Synchronizer - Rebuild	0.6
Torque Converter - R & R	1.5
Torque Converter - Rebuild (Converter already removed and on bench)	2.0

# UltraShift / AutoShift Transmissions - Electrical System

## UltraShift / AutoShift Transmissions (RT Series) - Electrical System



R & R = Remove and Replace

**Note:** For repairs to the mechanical portions of the main case and auxiliary sections, refer to procedures listed under “AutoShift, UltraShift, FR, RT, and T-Series Transmissions - Air System and Mechanical” on page 38.

## Electrical and System Diagnostics

Labor guidelines include component diagnostics, parts removal for diagnostics, and test time.

**Diagnose ACTIVE fault codes only. Diagnosis time for IN-ACTIVE fault codes is not warrantable.** Dealers should always contact the Roadranger Call Center Automated Line or Automated RTW for warranty consideration regarding all in-active fault codes and symptom driven complaints.

Repair	Standard Hours
Air System and Electrical System Diagnostics	1.0

## In-Chassis Repairs

Repair	Standard Hours
Air Pressure Regulator - R & R	0.6
Diagnostic / Troubleshooting Time	1.0
Driver Command Console - R & R	0.3
Electric XY Shifter - R & R	0.5
Electronic Range Valve - R & R	0.6
Gear Display - R & R	0.4
Inertia Brake - R & R	1.0
Speed Sensor - R & R (All)	0.6
Pneumatic Range Cover - R & R	0.9
Power Connect Relay - R & R	0.3
Power Interface Module - R & R	0.7
Push Button Control - R & R	0.3

# UltraShift / AutoShift Transmissions - Electrical System

---

Repair	Standard Hours
Reverse Switch - R & R	0.6
System Manager - R & R	0.4
Transmission Controller - R & R	0.7
Transmission Harness - R & R	1.2
Tower Harness - R & R	0.4

## Complete Transmission R & R

**Note:** Refer to OEM chassis guidelines for the labor to remove and replace the complete component. If no guideline is available, use the following labor times.

Includes R & R for shift lever, transmission mounts, driveline, PTOs, brackets, hoses, and wires. Drain and refill with lube.

### Interconnection Table

Repair	Standard Hours
Transmission - R & R	5.0
PTO - R & R Transmission mounted (if required)	1.0
Transmission - R & R (Clutch housing frame mounts / nodal mounts)	6.5

# UltraShift / AutoShift Transmissions - Electrical System

## Labor Hour Guidelines by Active Fault Code

Interconnection Table

Active Fault Code	Gen I (hours)	Gen II (hours)
EPT	.25	.5
Power-up	.1	.1
11	.1	.1
12	.1	.1
13	.2	--
14	.2	.3
15	.2	--
16	.5	.5
17	.2	.2
26	N/A	.5
27	N/A	.1
28	N/A	.5
31	N/A	.3
32	--	.2
33	.1	.1
35	.5	.5
41	.5	.5

Active Fault Code	Gen I (hours)	Gen II (hours)
42	.5	.5
43	.3	.3
44	.3	.3
46	.3	.3
51	1.8	1.8 (w/pulling xy)
52	1.8	1.8 (w/pulling xy)
53	.3	--
56	.3	.3
57	.3	.3
58	.3	.3
61	.3	.3
63	.3	.3
65	.3	.3
71	1.8	1.8 (w/pulling xy)
72	1.8	1.8 (w/pulling xy)
73	1.8	1.8 (w/pulling xy)
83	.3	.3

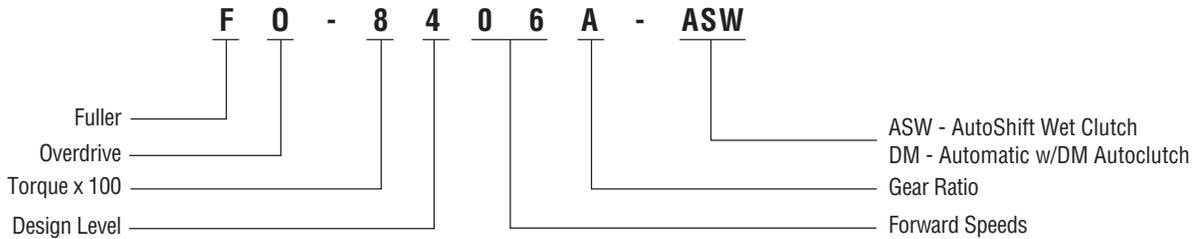
## Labor Hour Guidelines by Test

Interconnection Table

Test	Gen I (hours)	Gen II (hours)
Front Box Control Test	.5	.5
Gear Display Power Test	.4	.4
Electric Shifter Test	.5	.5
Start Enable Relay Test	.4	.4
Starting Gear Engagement Test	.4	.4
J-1939 Test	.5	.5
Auxiliary Box Test	.5	.5

# UltraShift / AutoShift Transmissions - Electrical Systems

## UltraShift / AutoShift Transmissions (Gen II 6-Speed DM and ASW) - Electrical Systems



R & R = Remove and Replace

## Electrical and System Diagnostics

Labor guidelines include Vehicle Electrical Test, parts removal for diagnostics, and test time.

**Diagnose ACTIVE fault codes only. Diagnosis time for IN-ACTIVE fault codes is not warrantable.** Dealers should always contact the Roadranger Call Center Automated Line or Automated RTW for warranty consideration regarding all in-active fault codes and symptom driven complaints.

Repair	Standard Hours
Air System and Electrical System Diagnostics	1.0

## In-Chassis Repairs

**Note:** Any hydraulic or internal transmission repair will be serviced as a complete unit at this time.

Repair	Standard Hours
Diagnostic Time	1.0
Electric XY Shifter - R & R	0.5
Gear Display - R & R	0.4
Inertia Brake - R & R	1.0
Oil Filters	1.3
Oil Pan Gasket	1.0
Output Seal - R & R	1.0
Power Connect Relay - R & R	0.3
Shift Bar Housing - R & R (Includes: Shift Lever / Control R & R) Add: Detent Spring R & R - external access	2.0
Speed Sensor - R & R (All)	0.6
Transmission Controller - R & R	0.7
Transmission Harness - R & R	1.2

# UltraShift / AutoShift Transmissions - Electrical Systems

## Complete Transmission R & R

**Note:** Refer to OEM chassis guidelines for the labor to remove and replace the complete component. If no guideline is available, use the following labor times.

Includes R & R for shift lever, transmission mounts, driveline, PTOs, brackets, hoses, and wires. Drain and refill with lube.

Repair	Standard Hours
PTO - R & R	1.0
Transmission - R & R	3.6

## Bench Service (Component Removed from Chassis)

The following procedures are performed with the component previously removed from the chassis. All procedures include disassembly, cleaning, and reassembly.

Repair	Standard Hours
Mainshaft - Overhaul (Includes: R & R shift bar housing, front bearing cover, rear bearing cover, synchronizer, mainshaft, and all other parts of the mainshaft assembly)	3.0
Transmission (Complete) - Overhaul (Includes: R & R shift bar housing, front bearing cover, and rear bearing cover. Complete R & R of mainshaft and countershaft assemblies. Disassembly, reassembly, and replacement of all necessary parts.)	5.0
Torsional Coupler - R & R	0.4

# UltraShift / AutoShift Transmissions - Electrical Systems

## Labor Hour Guidelines by Active Fault Code

Interconnection Table

Active Fault Code	Gen I (hours)	Gen II (hours)
EPT	.25	.5
Power-up	.1	.1
11	.1	.1
12	.1	.1
13	.2	--
14	.2	.3
15	.2	--
16	.5	.5
17	.2	.2
26	N/A	.5
27	N/A	.1
28	N/A	.5
31	N/A	.3
32	--	.2
33	.1	.1
35	.5	.5
41	.5	.5

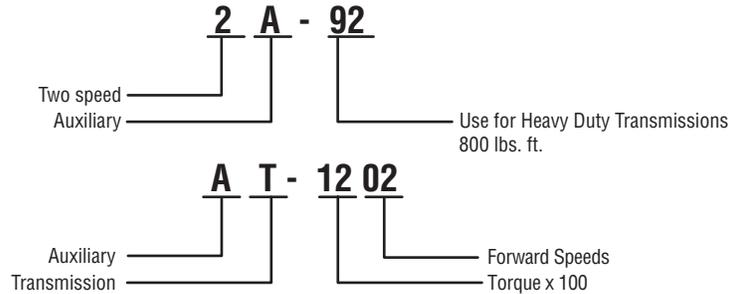
Active Fault Code	Gen I (hours)	Gen II (hours)
42	.5	.5
43	.3	.3
44	.3	.3
46	.3	.3
51	1.8	1.8 (w/pulling xy)
52	1.8	1.8 (w/pulling xy)
53	.3	--
56	.3	.3
57	.3	.3
58	.3	.3
61	.3	.3
63	.3	.3
65	.3	.3
71	1.8	1.8 (w/pulling xy)
72	1.8	1.8 (w/pulling xy)
73	1.8	1.8 (w/pulling xy)
83	.3	.3

## Labor Hour Guidelines by Test

Interconnection Table

Test	Gen I (hours)	Gen II (hours)
Front Box Control Test	.5	.5
Gear Display Power Test	.4	.4
Electric Shifter Test	.5	.5
Start Enable Relay Test	.4	.4
Starting Gear Engagement Test	.4	.4
J-1939 Test	.5	.5
Auxiliary Box Test	.5	.5

## Auxiliary Transmissions



R & R = Remove and Replace

## In-Chassis Repairs

Repair	Standard Hours
Gasket - R & R	0.3
Input Seal - R & R	1.0
Output Seal - R & R	1.0

## Complete Transmission R & R

**Note:** Refer to OEM chassis guidelines for the labor to remove and replace the complete component. If no guideline is available, use the following labor times.

Repair	Standard Hours
Auxiliary Transmission - R & R	3.0

## Bench Service (Component Removed from Chassis)

The following procedures are performed with the component previously removed from the chassis.

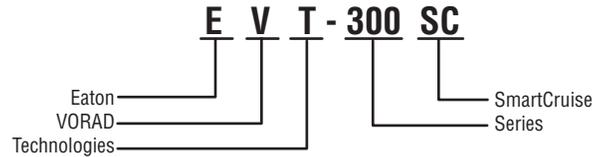
Repair	Standard Hours
Auxiliary Transmission AT-1202 - Overhaul	6.0
Auxiliary Transmission 2A-92 - Overhaul	3.0

Labor Hour Guidelines

# VORAD

---

## VORAD Collision Warning System



R & R = Remove and Replace

## In-Chassis Repairs

Repair	Standard Hours
Antenna - R & R (Includes: Antenna alignment)	1.2
Antenna - Alignment (Includes: Alignment only, antenna not removed from the chassis)	0.7
Antenna Cable - R & R Add: Removal of antenna to access cable, if required	1.3 0.6
Diagnostic Time	1.0
Harness - R & R (Eaton supplied)	2.4
Side Sensor - R & R	0.5
Side Sensor Display - R & R	0.2
Side Sensor Extension Harness - R & R Add: Fairing removal, if required	0.7 0.2

## Bench Service (Component Removed from Chassis)

Repair	Standard Hours
Harness - Repair (Time varies depending on extent of repair required)	0.1 - 1.0

## Important Information About Warranty Exclusions

This section contains listings of various items which are not reimbursable under Eaton's / Dana's warranties. Some exclusions are based on failure mode (i.e. shockload), other are expenses which, due to their nature, are difficult to control or verify (i.e. downtime, meals, towing).

Many claims are received with unexplained charges or miscellaneous expenses which warranty does not cover. (See "Important Information Regarding Claim Approval" on page 14.) These types of charges are typically not reimbursed by suppliers because they are not clearly defined or verifiable. Some are considered overhead charges which are included in the shop labor rate.

We recommend your warranty personnel reference the "Limits and Exclusions to Eaton / Dana Warranties" on page 59 when preparing claims. By doing so, it could reduce the number of unexpected claim reductions and chargebacks.

If there is a question as to whether an item is excluded from warranty, please contact the nearest Roadranger Regional Service Office at 1-800-826-HELP (4357).

# Limits and Exclusions

---

## Limits and Exclusions to Eaton / Dana Warranties

Coverage is **not provided** for the following failures or expenses:

### General Limits and Exclusions

- a. Failures resulting from abuse (i.e. shockload or spin out), neglect, or accidents.
- b. Failures due to lack of prescribed maintenance.
- c. Failures due to excessive vibration from engine, clutch, or drivelines. Failures due to improper driveline angles.
- d. Failures caused by the driver, such as; clutch snubbing, fork wear, and twisted or broken shafts.
- e. Towing.
- f. Downtime, lodging, meals, and travel time or transportation.
- g. Troubleshooting / Diagnostics - except where allowed as indicated in the "Important Information About Labor Hour Guidelines" on page 22.
- h. Secondary, progressive, or consequential damage.
- i. Freight for parts shipments.
- j. Non-genuine replacement parts void the component warranty when used to make a repair.
- k. Component damage due to failure of other chassis components.
- l. Parts and labor markup in excess of OEM / Eaton / Dana approved guidelines.
- m. Undefined or unidentifiable miscellaneous charges.
- n. Failures due to product mis-application or Eaton / Dana unapproved application.
- o. Failures due to unapproved alterations or modifications to the vehicle or the Eaton / Dana component.
- p. Taxes of any kind except where mandated by law.
- q. Failures caused by improper installation or improper prior repair.
- r. Failures caused by excessive operating temperature.
- s. Failures resulting from non-Roadranger approved lubricants.
- t. Daily rentals.
- u. Loss of revenue.
- v. Miscellaneous shop supplies and/or fees.
- w. Corrosion and rust.
- x. Re-rating the engine to exceed torque capacity of Eaton / Dana component void the warranty.
- y. Wear is not warrantable.
- z. Part premium charges or freight for direct ship parts.
- aa. Noise complaints when noise is the only complaint, no failed component found.

## Specific Limits and Exclusions

### **Transmission**

1. Low lube burnups.
2. Failures resulting from ancillary equipment such as PTOs, yokes, speedometer equipment, and clutch release parts.
3. Non-Eaton coolers and resultant damage.
4. Slipout, jumpout, or hard shifting due to shift linkage mis-adjustment or wear.
5. Noise (when the transmission is not the cause).
6. Vibration.
7. Coverage for failures to external oil coolers, oil cooler fittings, oil cooler lines and hoses or other ancillary oil cooler parts, clutch actuators, and clutch actuator grease tubes is limited to 3 years / 300,000 miles (480,000 kilometers).
8. Leaking or damaged output shaft seal when the yoke is not installed by Eaton.
9. Failures caused by rust and corrosion.

### **Clutches**

1. Improper clutch adjustment or installation.
2. Clutch wear on friction facings and mating surfaces of the clutch pressure plate and the engine fly wheel.
3. Normal periodic clutch adjustments.
4. Pilot bearings, non-Eaton forks, non-Eaton clutch brake, and non-Eaton linkages.

### **Drive Axles**

1. Seals, beyond 3 years / 350,000 miles (560,000 kilometers). (Pinion, input shaft, and output shaft seals.)
2. Failures due to shockload or spin-out. See Drive Axle Failure Analysis AXSM-0020 for more information.
3. Low lube burnouts.
4. Wheel end equipment and wheel seals (if not installed by Dana).
5. Yokes not installed by Dana.
6. U-joints.
7. Axle housing failures due to suspension bracketry weldments and / or mounting not provided by Dana.
8. Failures of axle shafts used with no-spin differentials.
9. No-spin differential coverage is limited to 1 year / 100,000 miles (160,000 kilometers).
10. Noise and vibration.
11. Routine preventative maintenance.
12. Failures caused by water ingestion or other contamination resulting from the use of non-genuine Dana Axle Housing Breathers which have been altered.
13. Failures caused by rust and corrosion
14. Failure to use Dana approved breather on Drive Axles voids seal and leak warranty.
15. Use of Non-Dana yoke(s) on Dana Drive Axles voids seal and pinion bearing warranty.

### **Brakes**

1. Noise and vibrations.
2. Lining wear, bushings, springs, camshaft seals and rollers.

### **Steer Axles**

1. King pin / bushing wear beyond 3 years / 350,000 miles (560,000 kilometers). See Warranty Matrix.
2. Tie rods / tie rod ends beyond 1 year / 125,000 miles (excluding Line Haul Vocation).  
Beyond 3 years / 350,000 miles (Line Haul Vocation).
3. Tires.
4. Front end alignments / adjustments (when not a part of a warrantable repair).
5. Failures caused by rust and corrosion

# Limits and Exclusions

---

## **Tire Pressure Control System**

1. Tires.
2. Failures or malfunctions due to inadequate air system quality or contamination.
3. Failures due to dirt, snow, or ice build-up.
4. Failures caused by rust and corrosion.

## **Outrunner Wheel Seals**

1. Failures due to contamination.
2. Improper installation (cocked, crushed, excessive end play).
3. Insufficient lubrication.
4. Misdiagnosis, incomplete claim information.
5. Use of non-vented hub / axle.
6. Brake lining.

### **IMPORTANT NOTICE:**

**THE USE OF ANY LUBRICANT NOT APPROVED BY EATON / DANA FOR USE IN ITS COMPONENTS, IS SUFFICIENT REASON TO DENY A WARRANTY CLAIM AND / OR VOID ALL FUTURE WARRANTY.**

**FOR SPECIFIC LUBRICATION REQUIREMENTS AND INFORMATION, PLEASE REFER TO THE ROADRANGER LUBRICATION MANUAL - TCMT0021.**

## Change Control Log

Last Revised Date	Description of Clarifications and Updates
July 2009	Change Eaton Truck Components Division to Eaton Truck Business Group throughout Change Dana Commercial Vehicle Systems Division to Dana Commercial Vehicle Product Group throughout Add Warranty Claim and Part Return Procedures for Bendix Add Note at bottom of page 10 Update transmission return shipping address Add clutch return shipping information Update Replacement Requirement Matrix for Non-Warrantable Failures Minor changes to Eaton / Dana Limits and Exclusions to Warranties
Mar 2007	Hendrickson USA, L.L.C. purchased the trailer axle and trailer suspension manufacturing business from Dana Corporation on January 8, 2007. All information pertaining to the trailer axle and trailer suspension manufacturing business was removed from this publication. Please contact Hendrickson USA, L.L.C. with all questions.

# Change Control Log

Last Revised Date	Description of Clarifications and Updates
Dec 2005	<p>General Information:</p> <ul style="list-style-type: none"> <li>• Added: Title: Roadranger Warranty Guide</li> <li>• Title: Roadranger Warranty Manual</li> <li>• Subtitle: Other Resources (see TCWY0900) moved from the back of the book to the front of the book.</li> </ul> <p>Update Table of Contents with correct titles</p> <p>Warranty Programs: Corrected page numbers in text.</p> <p>Claim Procedures: Corrected subtitle to: Standard, Basic, Aftermarket Parts and OEM Warranties. Corrected page numbers in text.</p> <p>Component and Part Return Requirements: Changed requirement "m" to read: All rejected, non-warrantable and non-Eaton parts will be scrapped, unless the dealer includes return notice on the parts disposition tag as required in section "g" above. All such parts will be returned at dealer's expense.</p> <p>Repair or Replacement Guidelines: Corrected page number in text, center and separate trans repair vs. replace.</p> <p>Labor Guidelines: Change "effective January 1, 996," to, "published date of January 1, 1996."</p> <p>Trailer Axles: Replaced with new axle nomenclature.</p> <p>Drive Axle Brakes: Replaced with new drive axle brake nomenclature.</p> <p>Steer Axle Brakes: Replaced with new steering axle brake nomenclature.</p> <p>Trailer Axle Brakes: Replaced with new trailer axle brake nomenclature.</p> <p>Trailer Air Ride Suspension: Replaced with new air ride suspension nomenclature.</p> <p>Title: Tire Maintenance Systems replaced with Tire Inflation and Monitor System (TIMS)</p> <p>AutoShift, UltraShift, FR, RT, and T-Series-Air System and Mechanical: Added In chassis SRT: FR series internal cooler - R+R 1.5</p>

# Change Control Log

Last Revised Date	Description of Clarifications and Updates
Nov 2004	<p>Warranty Claim Procedures</p> <ul style="list-style-type: none"> <li>• Added the "Warranty Claim Procedure" in its entirety documenting the current claim process.</li> <li>• Added the "Part Return Requirement" from established procedures.</li> </ul> <p>Important Information Regarding Claim Approval</p> <ul style="list-style-type: none"> <li>• This section was previously named "Claim Procedures."</li> <li>• Item 9 has been added to clarify the "Coverage expiration time: When does warranty expire?" example.</li> </ul> <p>Component Repair or Replacement Guidelines</p> <ul style="list-style-type: none"> <li>• Added "Eaton Non-Warrantable Failure Transmission Replacement Requirements" page. The verbiage is from the Roadranger Warranty Guide (TCWY-0900) "Service / Aftermarket Parts - Eaton Transmission Products" page and the matrix is an interpretation of the verbiage.</li> <li>• Added Dana Non-Warrantable Axle and Brake Replacement Requirements stated previously in the Dana Product Warranty Statements.</li> </ul> <p>Labor Hour Guidelines</p> <ul style="list-style-type: none"> <li>• Added SRT's for the following components: <ul style="list-style-type: none"> <li>• Rear Drive Axles</li> <li>• Steering Axles</li> <li>• Trailer Axles</li> <li>• Drive Axle Brakes</li> <li>• Steering Axle Brakes</li> <li>• Trailer Axle Brakes</li> <li>• ABS Brakes</li> <li>• Air Disc Brakes</li> <li>• Clutches</li> <li>• Driveshafts</li> <li>• Suspension</li> <li>• Tire Maintenance Systems</li> <li>• Tire Pressure Control Systems</li> <li>• AutoShift, UltraShift, FR, RT, and T-Series Transmissions - Air System and Mechanical</li> <li>• Lightning Series Transmissions</li> <li>• FS-Series Transmissions (FO-xxxx-ASX/ASW Main Box)</li> <li>• UltraShift/AutoShift Transmissions (RT Series) - Electrical System</li> <li>• UltraShift/AutoShift Transmissions (6-Speed DM and ASW) - Electrical System</li> </ul> </li> </ul>

Change Control Log

# Change Control Log

---

<b>Last Revised Date</b>	<b>Description of Clarifications and Updates</b>
Nov 2004 (continued)	Limits and Exclusions - Added the following exclusions: <ul style="list-style-type: none"><li>• General Exclusions "q" through "z."</li><li>• Specific Limit and Exclusions<ul style="list-style-type: none"><li>• Transmission numbers "8 &amp; 9"</li><li>• Clutch number "4"</li><li>• Drive Axles number "13"</li><li>• Steer Axles number "5"</li><li>• Outrunner wheel Seals number "6"</li></ul></li></ul>

**This page intentionally left blank.**

Copyright Eaton Corporation and Dana Limited, 2009. Eaton and Dana hereby grant their customers, vendors, or distributors permission to freely copy, reproduce and/or distribute this document in printed format. It may be copied only in its entirety without any changes or modifications. THIS INFORMATION IS NOT INTENDED FOR SALE OR RESALE, AND THIS NOTICE MUST REMAIN ON ALL COPIES.



National Institute for  
**AUTOMOTIVE  
SERVICE  
EXCELLENCE**

# Roadranger®



For spec'ing or service assistance, call 1-800-826-HELP (4357) or visit our web site at:  
[www.roadranger.com](http://www.roadranger.com). In Mexico, call 001-800-826-4357.

Roadranger: Eaton, Dana and other trusted partners providing the best products and services in the industry, ensuring more time on the road.