

Eaton Cummins Automated Transmission Technologies Warranty Manual ECWY3000 EN-US

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Product Warranty Statement

Product Warranty Statement

Warranty

Subject to the conditions stated herein, Eaton Cummins Automated Transmission Technologies (Eaton Cummins) warrants to purchasers thereof that the parts, components and assemblies sold 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 Cummins 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 Cummins agrees to repair or, at its sole option, furnish a replacement product for the defective Product.

Eaton Cummins obligation to satisfy a warranty claim as contemplated herein is subject to the following conditions: (a) all such claims must be submitted to Eaton Cummins no later than ninety (90) days (unless otherwise mentioned in specific Long Term Agreements known as LTA's) 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 Cummins the Product involved shall be returned, freight collect, to Eaton Cummins Warranty Return Center for examination; and (c) Eaton Cummins 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 Cummins shall make the final determination and interpretation as to the warrantability of the Product. Products repaired or replaced under warranty are covered hereunder by the remaining portion of the original warranty period.

Warranty Exclusions

Eaton Cummins 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 Cummins warranty covers (a) parts and labor for repaired Product or (b) the cost of the replaced Product, whichever is less. Eaton Cummins warranty for service parts covers parts for repairs only outside the Original Equipment Manufacturer (OEM) dealer channel. Service parts and labor will be reimbursed for warranty repairs performed within the United States and Canada, through the Original Equipment Manufacturer or Eaton Cummins approved channel. Rates for parts and labor are subject to predetermined limitations established by Eaton Cummins.

Eaton's warranty policy for transmission parts reimbursement during the OEM warranty period will follow the guidelines of the current OEM and Eaton Warranty Long Term Agreement (LTA).

Eaton Cummins warranty policy for transmission parts reimbursement that fall outside the OEM warranty period, but within Eaton Cummins standard or Extended Warranty (i.e. Direct Pay Claims) will reimburse the repair facility at a maximum of 52% of the Eaton Cummins published list price. Refer to the Eaton Cummins Aftermarket price list provided to the OEM and Aftermarket Distributors.

Reference Item 7 within the Claim Processing section of this manual for a reimbursement example.

Product Warranty Statement

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

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

Other exclusions are listed in the "Limits and Exclusions" section of this manual for additional exclusions. In all cases, Eaton Cummins shall make the final determination as to the appropriate reimbursement for the respective claim.

Warranty Period

Product Warranty Periods are stated within the coverage section of this Manual.

- 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 within the coverage section of this manual.

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 Cummins during the extended warranty period. Refer to the "Warranty Repair and Claim Procedures" section for the guidelines to submit direct warranty claims to Eaton Cummins.

Product returned to Eaton Cummins under this warranty shall become the property of Eaton Cummins. In addition to the Limits and Exclusions published in this manual, Eaton Cummins 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 CUMMINS AUTOMATED TRANSMISSION TECHNOLOGIES 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 CUMMINS AUTOMATED TRANSMISSION TECHNOLOGIES NEGLIGENCE, ACTUAL OR IMPUTED.

Product Warranty Statement

Limitation of Liability

EATON CUMMINS AUTOMATED TRANSMISSION TECHNOLOGIES OBLIGATIONS AND PURCHASER'S REMEDIES UNDER EATON CUMMINS EXPRESS WARRANTY ARE LIMITED TO EATON CUMMINS 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 August 1, 2017, and applies only to Product sold for use in the United States and Canada. This warranty supersedes all past warranties expressed by Eaton Cummins or Product identified within this manual that was previously offered by Eaton Cummins Automated Transmission Technologies, and may not be changed, altered or modified in any way except in writing by Eaton Cummins.

Note: For coverages of Product offerings sold for use outside the United States and Canada, refer to the International and Export Warranty Coverage section of this Product Warranty Statement.

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 Indiana.

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

Products and components sold for use and 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 Cummins, shall apply to this warranty coverage as of August 1, 2017.

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. 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 apply, 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: 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 to negotiate settlement.

OEM Warranty

1. OEM Warranty

- a. The OEM provides coverage for the parts and labor cost of certain expenses incurred for warrantable repairs to Eaton Cummins 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 Eaton Cummins warranties.
- b. All OEM warranty repairs must be performed by the corresponding nameplate dealer or Cummins Distributor. Exceptions must have the approval of the nameplate OEM.

2. Administration of OEM Warranty Claims

- a. Repairing dealer / distributor 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.
- e. Cummins Distributors will submit a direct file claims to the Eaton Cummins Automated Transmission Technologies.

Warranty Terminology

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 Cummins 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, remanufactured transmission, or exchange unit warranty when such part is installed in a warrantable repair.

Note: Some exclusions apply to these warranties. Refer to the Limits and Exclusions section of this document.

Extended Warranty Information

- a. Some OEM's are currently pre-registering vehicles by providing information at the time of build. Registration is not required for the free warranty categories where the component meets the application guidelines approval and vocational warranty definitions. Registration of vehicles is only required for optional purchased ("pay-for"), Extended Warranties.
- b. Eaton Cummins 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 limits and 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 Eaton Cummins Extended Warranty offerings for the specific warranty requirements and details of each program.

Note: For specific claim filing instructions, refer to the "Standard and Aftermarket Warranty Claim Procedures" and "Extended Warranty Claim Procedures" sections.

Extended Warranty Coverage

Warranty Coverage

- a. Eaton Cummins Extended Warranties cover components in vehicles operating in a variety of vocations. (Refer to the Coverage section of this manual for specific product coverages and options.)
- b. Coverage begins on the original in-service date of the vehicle.
- c. The warranty covers defects in materials and / or workmanship only.
- d. Secondary damage is not covered. See “Limits and Exclusions for Eaton Cummins Warranties.”
- e. The use of PS-386 or PS-278 synthetic lubricant is required for Extended Warranties per the transmission model requirements. 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.
- f. Refer to “Warranty Claim Procedures” for information on claim processing.
- g. Guidelines for transferring warranty coverage to a new owner:
 - Eaton Cummins 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.
 - 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 an Eaton Cummins approved lubricant.
 - Re-rating engine torque above the approved torque capacity of the component (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.

Claim Procedures

Standard and Aftermarket Warranty Claim Procedures

Note: It is recommended “Claim Processing” be read, and understood, by all personnel at your location who are involved in any part of the warranty process.

- a. Verify your Eaton Cummins products have application approval and meet the Standard Warranty Coverage.
Note: Refer to the stated warranty coverages for your specific OEM. Additional Eaton Cummins standard component coverage is communicated with the Coverages Section, in this Manual.
- b. Claims Administration / Processing are handled through the OEM, per your OEM warranty procedures or additional channels as approved by Eaton Cummins.
- c. Claims submitted must be for verifiable defects in material or workmanship.
- d. Claims must be submitted within ninety (90) days from the date on which the failure occurred.
- e. Claims submitted, which have been approved or authorized by a Roadranger field service / sales representative, must reference the corresponding claim number (Example: ECT123456 or VGT123456) Referencing the representatives' name is not sufficient to ensure claim payment.
- f. Provide the following information with the claim:
 1. Complete 17-digit Vehicle Identification Number (VIN)
 2. Date in service
 3. Model and serial number of failed component
 4. Itemized Eaton Cummins or Eaton Corporation Aftermarket 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
 9. Software Updates - All claims for software update must include the customer complaint, current software level, new software level and any campaign / recall number.
- g. 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 that use the optional Roadranger Real Time Warranty.
- h. 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 for the failure is 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.

Transmission Unit or Electronics Part with Core Value

Transmission units and parts used in a warranty repair with an assigned Eaton Cummins or Eaton Corporation core value must request the core value on the warranty claim for reimbursement. For core credit to be reimbursed on the warranty claim, all parts with core value must be received at the Warranty Return Center:

- “OEM / Distributor Warranty claims must include the core value on the OEM / Distributor warranty claim for core value reimbursement.
- “Direct pay claims by Eaton Cummins (Standard Warranty, Extended Warranty or Extended Protection Plan) must include the core value on the repair facilities (dealer) repair order (invoice), identifying the core value and also the OEM (Distributor) from which the unit / part with core value was purchased, for reimbursement. Core credit eligibility will be administrated with the OEM / Distributor of the claim or repair facility OEM.

All core values must follow the Eaton Cummins Aftermarket or Eaton Corporation Aftermarket guidelines

Extended Warranty Claim Procedures

- a. Prior to starting a repair, Eaton Cummins recommends that the repairing dealer verify that the transmission has warranty coverage by referring to the coverage section of this manual and / or the purchased warranty verification. 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 Cummins verifies vehicle registration and Extended Warranty coverage.
- 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 Cummins 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 Cummins 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 Cummins Extended Warranties, please submit your claims for direct payment (OEM Authorized Repair Facilities ONLY) by referring to the Eaton Cummins "Claim Procedures" section at 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 Cummins under Option 2.

Claim Procedures

d. For claims submitted directly to Eaton Cummins, a standard OEM / dealer repair order must accompany the claim. In all cases the following information must be provided:

1. Eaton Cummins 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. 17-digit Vehicle Identification Number
6. Component model and serial number
7. Itemized replaced parts list to include Eaton Cummins or Eaton Corporation Aftermarket part numbers and prices
8. Total labor hours expended to complete the repair (reference OEM and Eaton Cummins Labor Hour Guidelines). List published OEM codes and times, if known.

Note: Refer to 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 remanufactured transmission claims.
13. Vehicle vocation

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 Cummins, subject to possible inspection. When a complete unit (transmission) 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 Cummins based upon the following:

1. Review of the warranty claim
2. Identification of a verifiable failure
3. Proof of synthetic lube usage
4. Return and examination of failed parts, if required (see "Part Return Requirements" within this manual)

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

g. For complete Eaton Cummins shipping instructions see Eaton Service Bulletin TMIB0129 available on Roadranger.com.

<i>United States Returns</i>	<i>Canada Warranty Returns</i>
Eaton Warranty EFLN #2050W 13100 East Michigan Avenue Galesburg, MI 49053	Eaton Warranty EFLN #0260A 2160 Williams Parkway Brampton, Ontario Canada L6S 5X7

Eaton Cummins 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 Cummins labor hour guidelines are not met. Refer to "Labor Hour Guidelines."

Transmission Unit or Electronics Part with Core Value

Transmission units and parts used in a warranty repair with an assigned Eaton Cummins or Eaton Corporation core value must request the core value on the warranty claim for the reimbursement. For the core credit to be reimbursed on the warranty claim, all parts with core value must be received at the Warranty Return Center.

- “OEM / Distributor Warranty claims must include the core value on the OEM / Distributor warranty claim for core value reimbursement.
- “Direct pay claims by Eaton Cummins (Standard Warranty, Extended Warranty or Extended Protection Plan) must include the core value on the repair facilities (dealer) repair order (invoice), identifying the core value and also the OEM (Distributor) from which the unit / part with core value was purchased, for reimbursement. Core credit eligibility will be administrated with the OEM / Distributor of the claim or repair facility OEM.

All core values must follow the Eaton Cummins Aftermarket or Eaton Corporation Aftermarket guidelines.

Component and Part Return Requirements

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 / component 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, at a minimum, the following:
 1. Dealer code
 2. Claim number
 3. Repair order number (for direct pay only)
 4. Repair date
 5. Primary failed part number
 6. Eaton Cummins claim authorization number (only if provided by RTW or Roadranger field representative; not required for OEM claims)
- h. Parts disposition for rejected claims ("Scrap" or "Return to Dealer")
- i. Return all parts collect, per Eaton Cummins 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 Cummins Return Center locations may result in rejection of the claim. Refer to Service Bulletin TMIB0129 Transmission, Hybrid Components, and Clutch Warranty Returns Shipping Instructions, posted on Roadranger.com, for Eaton Cummins return shipping information.
- j. Component being returned for warranty must match serial number on warranty claim or repair order (RO).
- k. 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.
- l. Corrosion or rust that prevents proper inspection, or prevents identification of the primary failure, may result in a rejected claim.
- m. When a complete unit (transmission) is replaced under warranty or policy, the failed unit must always be returned to the Warranty Return Center for inspection.
- n. All rejected non-warrantable, non-Eaton parts and non-Eaton Cummins 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.

Warranty Claim Processing

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 claim 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: 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. This information helps people involved in the warranty process to make good decisions regarding defects.

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 failure is not always a "defective" nor "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 Cummins 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 Cummins 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.

Claim Processing

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. 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.

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 main shaft 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 for a total of \$5,400 is filed for the cost of the new transmission, and allowable mark-up and labor.

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, the amount allowed for this type of repair within the warranty limitations. This reduces the claim by \$4,100.

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 Cummins 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.

Note: 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 Cummins 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 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 is deducted. Further review of the claim shows an automatic shop supply charge of \$20. 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 overcharge is due to the higher part mark-up than allowed by the warranty. The \$50 is also deducted from the claim making the total reduction \$125.

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.

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.

Extended Warranty coverages have become very popular. This is largely due to higher customer expectations and improved product performance through advanced technology.

Most 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 (shock load, lack of lube, etc.).

Claim Processing

Eaton Cummins Reimbursement Policy for Transmission Unit and Transmission Parts - Direct Pay to Dealer / Distributor / repair facility:

Eaton Cummins warranty policy for parts reimbursement that fall outside the OEM warranty period but within Eaton Cummins Standard and Extended Warranty (i.e. Direct Pay Claims) will reimburse the OEM dealer / Distributor / repair facility at a maximum of 52% of the Eaton Cummins published aftermarket list price (Procision and Endurant) and 52% of the Eaton published aftermarket list price (UltraShift Plus).

Example: Eaton Cummins / Eaton List Price = \$100
Direct Pay claim Reimbursement is 52% of the Eaton Cummins published list price
Maximum unit / part reimbursement - \$52 (52% of list)

Refer to the Eaton Cummins aftermarket price list provided to the OEM and Distributors.

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 root cause of a problem can be determined, the more quickly corrective action can be taken.

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 a 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 Cummins warranty system, other manufacturers and suppliers use similar programs. Eaton Cummins hopes the information will benefit your other claims processing needs.

For the timeliest processing and to maximize reimbursement of a claim, follow 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 Cummins.

Repair or Replacement Guidelines

Repair or Replacement Guidelines for Eaton Cummins 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 an Eaton Cummins Remanufactured transmission fulfill the need? Depending on the failure, is the Service Unit Exchange Transmission 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 transmission repairs, the options are usually more evident. If the total bench time repair labor cost, plus the cost of the parts (plus markup if OEM claim), is less than that of an Eaton Cummins Remanufactured transmission, the obvious choice is to repair the transmission.

The example shown below uses an Eaton Cummins Remanufactured transmission to illustrate the formula for deciding whether to repair or replace.

Example:

REPAIR		REPLACE	
*Total Parts	\$3,115	*Replacement Transmission	\$5,335
Bench Time	\$880	Bench Time	NONE
R & R Labor	\$605	R & R Labor	\$605
Total	<u>\$4,600</u>	Total	<u>\$5,940</u>

*Total Parts and Replacement Transmission includes OEM markup for OEM submitted claims.

Obviously, in this example, the proper choice would be to repair the transmission because the total is \$1,340 less to do so.

Another consideration to the example above is the availability of the Eaton Cummins Remanufactured product line; it can create the need to consider vehicle mileage as part of the equation.

The following guidelines determine when to use an Eaton Cummins Remanufactured replacement transmission and when a New 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 an Eaton Cummins Remanufactured replacement transmission providing the cost to repair exceeds the cost to replace and meets Eaton Cummins Warranty requirements. (See "Example" above.)

* Components which fail beyond the standard OEM coverage, but are covered under an Extended Warranty, should be replaced by an Eaton Cummins Remanufactured replacement 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 Eaton Cummins Remanufactured replacement transmission or a New Service Unit Exchange Transmissions per these replacement guidelines. Refer to "Eaton Cummins Non-warrantable Failure Transmission Replacement Requirements".

Repair or Replacement Guidelines

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

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

Labor Hour Guidelines

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, electric components, 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.

This labor schedule has been revised as a result of new product models being introduced or improvements in existing models. Before making these changes, the repair times were studied carefully. Some hours increased while others decreased. Additionally, operations which were vague or mixed with other repairs are now separated and more specific.

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. For additional support, please contact the Roadranger Call Center at 1-800-826-HELP (4357).

UltraShift *PLUS*, Fuller Advantage Automated, SmartAdvantage, and AutoShift-18 Transmission Product Families - Air System, Electrical and Mechanical Repairs

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
Auxiliary Section - R & R	3.5
Countershaft Speed Sensor R&R (Located in the Rear of the shift bar housing)	0.5
Driver Command Console - R & R	0.3
Electric Clutch Actuator	0.7
Electric XY Shifter - R & R	0.5
Electronic Range Valve - R & R	0.6
Endplay Settings - Adjust (Auxiliary countershafts with tapered bearings)	0.4
Filter Regulator - R & R	0.6
Gasket - R & R (Any miscellaneous gasket)	0.3
Gear Display - R & R	0.4
Hydraulic Clutch Actuator Adapter Assy / Release Fork Assy - R & R	0.5
Hydraulic Clutch Actuator Grease Tubes - R & R (With Hydraulic Clutch Actuator - R & R)	0.8
Inertia Brake - R & R	1.0
Input Speed Sensor R&R (Located in the front of the shift bar housing)	0.5
Insert Valve - R & R	0.3
Output Seal - R & R (Includes: Cleaning)	1.0
Output Speed Sensor - R & R (When installed by Eaton)	0.3
Pneumatic Range Cover - R & R	1.0
Power Connect Relay - R & R	0.3
Power Interface Module - R & R	0.7
Push Button Control - R & R	0.3

Product Repair and Replacement

Repair	Standard Hours
Range Solenoid Valve R&R	0.6
Reverse Switch - R & R	0.6
Shift Bar Housing - R & R (Includes: XY Shifter Assembly R & R)	2.0
Splitter Solenoid Valve R&R	0.6
System Manager - R & R	0.4
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
Tower Harness - R & R	0.4
Transmission Controller (ECU) - R & R	0.7
Transmission Harness - R & R	1.2
XY Shifter Assembly R&R	0.5

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 (Clutch housing frame mounted)	5.0
Transmission - R & R (Clutch housing nodal mount)	6.5
PTO - R & R (if required) Transmission mounted	1.0

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
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

Product Repair and Replacement

Repair	Standard Hours
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 main shaft and countershafts)	5.5
Main Shaft (Front Box) - Overhaul (Includes: R & R auxiliary section, input shaft, main shaft, and shift bar housing)	4.0
Oil Pump (Internal) - R & R (Includes main case disassembly)	4.0
Shift Bar Housing - Overhaul (Includes shift bar housing R & R)	1.0

Product Repair and Replacement

AutoShift-PV Transmission Product Family - Electrical and Mechanical Repairs

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.

Repair	Standard Hours
Gasket - R & R (Any miscellaneous gasket)	0.3
Output Seal - R & R (Includes: Cleaning)	1.0
Output Speed Sensor - R & R (When installed by Eaton)	0.3
Shift Bar Housing - R & R (Includes: XY Shifter Assembly R & R)	2.0
XY Shifter Assembly R&R	0.5
Input Speed Sensor R&R (Located in the front of the shift bar housing)	0.5
Countershaft Speed Sensor R&R (Located in the Rear of the shift bar housing)	0.5
Electric Clutch Actuator	0.7

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	3.5
PTO - R & R (if required) Transmission mounted	1.0

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)	0.5
Bearing Cover and Seal (Front) - R & R	1.0
Clutch Housing - R & R	0.3

Product Repair and Replacement

Repair	Standard Hours
Input Shaft - R & R (Includes: Clutch housing R & R and Front Bearing Cover R & R)	1.0
Main shaft - Overhaul (Includes: R & R shift bar housing, front bearing cover, rear bearing cover, main shaft, and all other parts of the main shaft assembly)	3.0
Transmission (Complete) - Overhaul (Includes: R & R shift bar housing, front bearing cover, and rear bearing cover. Complete R & R of main shaft and countershaft assemblies. Disassembly, reassembly, and replacement of all necessary parts.)	5.0

Product Repair and Replacement

Endurant Transmission Product Family - Electrical and Mechanical Repairs

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.

Repair	Standard Hours
Software Download / Update	0.5
Transmission Control Module (TCM) R&R	0.8
Fluid Pressure Sensor (FPS) R&R	0.5
Linear Clutch Actuator (LCA) R&R	0.5
Output Shaft Speed Sensor R&R	0.5
Output Shaft Yoke R&R	1.0
Output Shaft Seal and Bearing Cover (with yoke R&R)	1.5
Rail, Clutch and Grade Recalibration after Repair	0.5
PTO Cover R&R (includes drain and fill)	0.5

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.

Remove and Replace (R&R)	Standard Hours
Transmission - R & R (Clutch housing frame mounted)	6.0
Transmission - R & R (Clutch housing nodal mount)	7.5
PTO (4 bolt or 8 bolt) - R & R (if required) Transmission Mounted	1.0
PTO Rear Mounted R&R Transmission Mounted	0.4

Product Repair and Replacement

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
Complete Transmission Overhaul (Includes drain and fill)	7.5
Transmission Control Module (TCM) R&R	0.3
Linear Clutch Actuator (LCA) R&R (Does not include Mechatronic Transmission Module (MTM))	0.3
Fluid Pressure Sensor (FPS) R&R	0.2
Output Shaft Speed Sensor R&R	0.2
Install Clutch Release Yoke R&R	0.1
Install Clutch Release Bearing R&R	0.1
Input shaft Cover Assembly R&R (Release bearing and yoke)	0.7
Input shaft Wear Sleeve (no pilot bearing R&R included)	0.5
Mechatronic Transmission Module (MTM) R&R (w/ transmission removed)	2.0
Transmission MTM, TCM, Input shaft R&R, External Speed Sensor Harness, Inertia Brake, Pump and Main Case Overhaul (Includes Rear Housing R&R)	4.5
Transmission MTM, external speed sensor harness and Rear Planetary Rear Housing	3.0
Transmission Oil Pump R&R (includes rear housing R&R)	2.0
Inertia Brake R&R (Including release bearing, yoke and inertia brake)	1.5

Diagnostics (Endurant Transmission Family)

Diagnostics	Standard Hours
Diagnostic / Troubleshooting Time <ul style="list-style-type: none"> Verify Driver Complaint / Test Drive Computer Hookup - Service Ranger and Internet (Internet Access Required) Retrieve and Inventory (Internet Access Required) Service Activity Report (will be required by Call Center) Retrieval of Active and Inactive Fault Codes Diagnose 1 Active fault code 	1.0
Obtain the Service Activity Report with Internet Connection w/o 1 hour diagnostics (Internet Access Required)	0.3
Fluid Pressure Diagnostics (includes pressure sensor R&R)	1.0
Install 74 Way Connector Break Out Box and data recording	0.5
Install 3 Way Eaton Diagnostics Adapter and record data	0.2
Air Pressure System Diagnostics (transmission)	0.7

Product Repair and Replacement

Diagnostics	Standard Hours
Air Visual System Inspection (need procedure - OEM??)	0.5
Verify Repair Road Test	0.5

Active Fault Procedure Diagnostic Times (Endurant Transmission Family)

Times listed include the 1 hour Diagnostic / Troubleshooting Time. The installation of the 74-Way Connector Break Out Box and Data Recording and Installation of the 3-Way Eaton Diagnostics Adapter and Record Data is included within the repair times if required.

Note: Times identified for Active Fault Codes are verified by SAR.

Fault Code Isolation Procedures	Hours	Fault Code Isolation Procedures	Hours
Fault Code 100: Battery Voltage 1	1.5	Fault Code 370: Countershaft Speed	1.8
Fault Code 105: Battery Voltage 2	1.5	Fault Code 375: Output Speed	1.8
Fault Code 110: Ignition Voltage	1.5	Fault Code 385: Grade	1.0
Fault Code 115: Primary Data Link (J1939A)	2.0	Fault Code 390: Transmission Control Module Temperature	1.0
Fault Code 116: Secondary Data Link (J1939 B)	2.0	Fault Code 511: Clutch Engage Solenoid 1 (C4) - Coarse Vent	1.8
Fault Code 120: Start Enable Relay	2.0	Fault Code 512: Clutch Engage Solenoid 2 (C3) - Fine Vent	1.8
Fault Code 135: Primary Shift Device (J1939)	2.0	Fault Code 513: Clutch Release Solenoid 1 (C5) - Coarse Fill	1.8
Fault Code 145: Secondary Shift Device (PWM)	2.0	Fault Code 514: Clutch Release Solenoid 2 (C6) - Fine Fill	1.8
Fault Code 155: Park Brake Switch (OEM Supplied)	1.2	Fault Code 570 Inertia Brake Solenoid (A5)	1.7
Fault Code 160: Service Brake Switch (OEM Supplied)	1.2	Fault Code 596: Rail B Fore Solenoid (A5)	1.7
Fault Code 161: Service Brake Switch (OEM Supplied)	1.2	Fault Code 597: Rail B Aft Solenoid (A1)	1.7
Fault Code 162: Brake Secondary Pressure (OEM Supplied)	1.2	Fault Code 616: Rail C Fore Solenoid (C1)	1.7
Fault Code 163: Demand Brake Application Pressure (OEM Supplied)	1.2	Fault Code 617: Rail C Aft Solenoid (B1)	1.7
Fault Code 165: Primary Accelerator Pedal Position (OEM Supplied)	1.2	Fault Code 636: Rail D Fore Solenoid (C2)	1.7
Fault Code 166: Secondary Accelerator Pedal Position (OEM Supplied)	1.2	Fault Code 637: Rail D Aft Solenoid (B3)	1.7
Fault Code 170: Front Axle Speed	1.2	Fault Code 646: Rail E Fore Solenoid (A6)	1.7

Product Repair and Replacement

Fault Code Isolation Procedures	Hours	Fault Code Isolation Procedures	Hours
Fault Code 171: Engine Speed (OEM Supplied)	1.2	Fault Code 647: Rail E Aft Solenoid (A4)	1.7
Fault Code 172: Secondary Engine Speed (OEM Supplied)	1.2	Fault Code 700: Clutch Operation	1.3
Fault Code 174: Engine Default Torque Limit	1.2	Fault Code 701: Clutch Engagement Status	1.0
Fault Code 175: Engine Requested Torque	1.2	Fault Code 702: Driveline Engagement	1.0
Fault Code 180: Engine Configuration Message	1.2	Fault Code 705: Transmission Clutch Actuator	1.0
Fault Code 185: Driver Demand Torque	1.0	Fault Code 715: Transmission Current Gear	1.0
Fault Code 186: Engine Default Idle Torque Limit	1.0	Fault Code 717: Transmission Requested Gear	1.0
Fault Code 187: Idle Governor Fuel Inhibit	1.0	Fault Code 740: Rail B Operation	1.8
Fault Code 199: Direction Mismatch	1.0	Fault Code 760: Rail C Operation	1.8
Fault Code 200: Transmission Operation 1	1.0	Fault Code 775: Rail D Operation	1.8
Fault Code 205: Transmission Operation 2	1.0	Fault Code 780: Rail E Operation	1.8
Fault Code 206: TCM Program Memory	1.0	Fault Code 786: Rail B Calibration	1.8
Fault Code 210: Transmission Oil Pressure (Fluid Pressure Sensor)	2.0	Fault Code 787: Rail C Calibration	1.8
Fault Code 215: Transmission Air Supply Pressure Sensor	2.0	Fault Code 788: Rail D Calibration	1.8
Fault Code 250 Linear Clutch Actuator (LCA) Position Sensor	2.0	Fault Code 789: Rail E Calibration	1.8
Fault Code 275: Rail B Position	2.0	Fault Code 815: Clutch Temperature	1.0
Fault Code 295: Rail C Position	1.2	Fault Code 900: PTO 1 Request	1.7
Fault Code 315: Rail D Position	1.2	Fault Code 910: PTO 1 Engage	1.7
Fault Code 320: Rail E Position	1.2	Fault Code 920: PTO 1 Confirm	1.7
Fault Code 345: Engine (over) Speed	1.2	Fault Code 970: Neutral Output	1.7
Fault Code 350: Input Speed	1.8	Fault Code 975: Reverse Output	1.7

Symptom Isolation Procedure Diagnostic Times (Endurant Transmission Family)

Symptom isolation Procedure	Hours	Symptom isolation Procedure	Hours
Start Enable Relay Contact Test	2.0	Transmission Shift Compliant	2.0
Brake Switch Functionality Test	1.8	J1939 Vehicle Data Link Test	2.0

Product Repair and Replacement

Procision Transmission Product Family - Electrical and Mechanical Repairs

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.

Repair	Standard Hours
Software Download / Update	0.5
Transmission Control Module (TCM)	0.3
Output Shaft Speed Sensor R&R	0.1
Output shaft Yoke	1.0
74-Way Connector Retainer	0.7
Output Yoke	1.0
Output Seal (includes Output Yoke R&R)	1.5
PTO Cover	0.3
Transmission Range Sensor (TRS)	0.5
Cartridge Filter	0.3
Sump Pan and Sump Pan Filter *Note 1	0.5
Triple Pressure Sensor (Includes Sump Pan and Sump Pan Filter R&R) *Note 1	0.8
Cooler Temperature Sensor (Includes Sump Pan and Sump Pan Filter R&R)	0.8
ACM/Transmission Harness Assy (Includes TCM, Sump Pan, and Sump Pan Filter R&R) *Note 1	2.0
Transmission Harness (Includes ACM/Transmission Harness Assy, TCM, Sump Pan and Sump Pan Filter R&R)	2.5
Engine Speed Sensor (Includes ACM/Transmission Harness Assy, TCM, Sump Pan, and Sump Pan Filter R&R)	3.5
Rail D Position Sensor (Includes ACM/Transmission Harness Assy, TCM, Sump Pan, and Sump Pan Filter R&R) *Note 1	2.3
ACM Solenoid Replacement (Includes ACM/Transmission Harness Assy, TCM, Sump Pan, and Sump Pan Filter R&R) *Note 1	2.3

Product Repair and Replacement

Repair	Standard Hours
Rear Housing Cover Assy (Includes Output Seal, Output Yoke, and TRS R&R) *Note 1	2.5
Rear Housing Assy Repair (Includes 6th/4th gear and bearing assemblies, Rail C synchronizer assy, inner bearing races, rear spray bar, Rear Cover Assy R&R, Output Seal and Yoke R&R, and TRS R&R) *Note 1	4.0
3 Rail Position Sensor R&R (Includes the Rear Housing Dis-Assy/Assy, Rear Cover Assy R&R, Output Seal and Yoke R&R, and TRS R&R) *Note 1	4.3
90-Degree Connector (Includes Rear Housing Dis-Assy/Assy, Sump Pan, and Sump Pan Filter and TRS R&R)	5.3
Oil Drain and Fill (Includes Oil Drain Plug with O-ring R&R)	0.2
Note 1: If oil is required to be drained and filled to perform the repair, the oil drain and fill will be included in the above repair times.	

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.

Remove and Replace (R&R)	Standard Hours
Transmission - R & R	3.5
PTO - R & R (if required) Transmission mounted	1.0

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
Transmission Overhaul	8.0
Rear Housing Assy Repair (Includes 6th & 4th gear assembly, Rail C synchronizer assy, inner bearing races, rear spray bar, Rear Cover Assy R&R, Output Seal and Yoke R&R, and TRS R&R) *Note 1	4.0
Pump, Clutch Cooling Module, Primary or Secondary Input Shaft Assembly Replacement	4.5
Interface Manifold, Shift Rail D Magnet	5.0
Upper or Lower Shaft Repair (Includes pressing of the gears on the shafts)	5.5

Product Repair and Replacement

Repair	Standard Hours
Dual Clutch Replacement (Includes Clutch Support Manifold, Cartridge Filter, Sump Pan Filter R&R)	1.0
Input Shaft Seal Replacement	0.5
Damper	0.3
Note 1: If oil is required to be drained and filled to perform the repair, the oil drain and fill will be included in the above repair times.	

Diagnostics (Precision Transmission Family)

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

Diagnostics	Standard Hours
Diagnostic / Troubleshooting Time <ul style="list-style-type: none"> • Verify Driver Complaint / Test Drive • Computer Hookup - Service Ranger and Internet (Internet Access Required) • Retrieve and Inventory (Internet Access Required) Service Activity Report (will be required by Call Center) • Retrieval of Active and Inactive Fault Codes • Diagnose 1 Active Fault Code 	1.0
Obtain the Service Activity Report with Internet Connection w/o 1 hour diagnostics (Internet Access Required)	0.3
Verify Repair Road Test	0.5
Fluid Pressure Diagnostics	1.0
Hydraulic Diagnostic Manifold Test (ACM R&R, bolt on fixture, and test)	3.0
Pressure tests (hook up pressure sensors)	1.0

Active Fault Procedure Diagnostic Times (Precision Transmission Family)

Times listed include the 1 hour Diagnostic / Troubleshooting Time.

Note: Times identified for Active Fault Codes are verified by SAR.

Fault Code Isolation Procedures	Hours	Fault Code Isolation Procedures	Hours
Fault Code 100: Battery Voltage 1	1.5	Fault Code 400: Sump Oil Temperature	2.0
Fault Code 105: Battery Voltage 2	1.5	Fault Code 420: Cooler Oil Temperature	2.0
Fault Code 110: Ignition Voltage	1.5	Fault Code 500: Line Pressure Solenoid (LPS)	2.0
Fault Code 115: J1939A Data Link	2.0	Fault Code 510: Pressure Control Primary Solenoid (Clutch)	2.0
Fault Code 116: Secondary Data Link (J1939 B)	2.0	Fault Code 520: Pressure Control Secondary Solenoid (Clutch)	2.0

Product Repair and Replacement

Fault Code Isolation Procedures	Hours	Fault Code Isolation Procedures	Hours
Fault Code 120: Start Enable Relay	2.0	Fault Code 535: Clutch Cooling Primary Solenoid	2.0
Fault Code 130: Proprietary Network Link (PNL)	2.0	Fault Code 545: Clutch Cooling Secondary Solenoid	2.0
Fault Code 135: Push Button Controller (PNL - Primary)	2.0	Fault Code 555: Shift Pressure Solenoid 1	2.0
Fault Code 135: Shift Lever (TRS1) - Primary	2.0	Fault Code 565: Shift Pressure Solenoid 2	2.0
Fault Code 145: Push Button Controller (PWM) - Secondary	2.0	Fault Code 575: Rail A Valve Solenoid	3.0
Fault Code 145: Shift Lever (TRS2) - Secondary	2.0	Fault Code 595: Rail B Valve Solenoid	3.0
Fault Code 155: Park Brake Switch Message (OEM Supplied)	1.2	Fault Code 615: Rail C Valve Solenoid	3.0
Fault Code 160: Service Brake Switch Message (OEM Supplied)	1.2	Fault Code 635: Rail D Valve Solenoid	3.0
Fault Code 165: Accelerator Pedal Position Message (OEM Supplied)	1.2	Fault Code 700: Primary Clutch Operation	1.2
Fault Code 166: Accelerator Interlock Switch Message (OEM Supplied)	1.2	Fault Code 710: Secondary Clutch Operation	1.2
Fault Code 170: Front Axle Speed Message (OEM Supplied)	1.2	Fault Code 720: Rail A Primary Operation	3.0
Fault Code 175: Engine Requested Torque.	1.2	Fault Code 740: Rail B Operation	3.0
Fault Code 176: Engine Idle Shutdown	1.2	Fault Code 760: Rail C Operation	3.0
Fault Code 180: Engine Configuration Message (OEM Supplied)	1.2	Fault Code 775: Rail D Operation	3.0
Fault Code 185: Driver Demanded Torque Message (OEM Supplied)	1.2	Fault Code 790: Rail A Secondary Operation	3.0
Fault Code 195: Engine Protection Mode	1.2	Fault Code 800: Rail A Secondary Calibration	3.0
Fault Code 199: Direction Mismatch	1.0	Fault Code 805: Clutch Disable Valve	3.0
Fault Code 200: TCM Operation 1	1.0	Fault Code 810: Gear Engagement	1.2
Fault Code 205: TCM Operation 2.	1.0	Fault Code 815: Primary Clutch Temperature	1.0
Fault Code 210: Line Pressure	3.0	Fault Code 820: Secondary Clutch Temperature	1.0
Fault Code 225: Primary Clutch Pressure	3.0	Fault Code 900: PTO 1 Request	1.7
Fault Code 240: Secondary Clutch Pressure	3.0	Fault Code 905: PTO 2 Request	1.7
Fault Code 255: Rail A Primary Position	3.0	Fault Code 910: PTO 1 Engage	1.7
Fault Code 275: Rail B Position	3.0	Fault Code 915: PTO 2 Engage	1.7
Fault Code 295: Rail C Position	3.0	Fault Code 920: PTO 1 Confirm	1.7
Fault Code 315: Rail D Position	3.0	Fault Code 925: PTO 2 Confirm	1.7

Product Repair and Replacement

Fault Code Isolation Procedures	Hours	Fault Code Isolation Procedures	Hours
Fault Code 330: Rail A Secondary Position	3.0	Fault Code 950: Neutral Input 1	1.7
Fault Code 345 Engine Speed	2.7	Fault Code 960: Neutral Input 2	1.7
Fault Code 355 Primary Input Speed	1.5	Fault Code 970: Range Output	1.7
Fault Code 365 Secondary Input Speed	1.5	Fault Code 975: Reverse Output	1.7
Fault Code 375: Output Speed	1.5	Fault Code 980: Alternate Shift Schedule	1.0
Fault Code 385: Grade	1.0		

Symptom Isolation Procedure Diagnostic Times (Endurant Transmission Family)

Times listed include the 1 hour Diagnostic / Troubleshooting Time.

Note: *Times identified for Active Fault Codes are verified by SAR.*

Symptom isolation Procedure	Hours	Symptom isolation Procedure	Hours
Start Enable Relay Contact Test	2.0	Transmission Shift Compliant Test	2.0
Brake Switch Functionality Test	1.8	J1939 Data Link Test	2.0

Limits and Exclusions

This section contains listings of various items which are not reimbursable under Eaton's warranties. Some exclusions are based on failure mode (i.e. shock load), others 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 "Claim Processing" section.) 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.

Eaton Cummins recommends your warranty personnel reference the "Limits and Exclusions to Eaton Cummins Warranties" when performing repairs and 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).

General Limits and Exclusions

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

- a. Failures resulting from abuse (i.e. shock load), 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; 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" and the "Labor Hour Guidelines".
- 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 Cummins approved guidelines.
- m. Undefined or unidentifiable miscellaneous charges.
- n. Failures due to product misapplication or Eaton Cummins unapproved application.
- o. Failures due to unapproved alterations or modifications to the vehicle or the Eaton Cummins 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 or Eaton Cummins approved lubricants.
- t. Daily rentals.
- u. Loss of revenue.

Warranty Limits and Exclusions

- v. Miscellaneous shop supplies and/or fees.
- w. Corrosion and rust.
- x. Re-rating the engine to exceed torque capacity of Eaton Cummins component voids 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. Endurant product family are warranting low lube burnup failures when the Lube Burnup Protection is enabled and indicated by the low lubricant protection fault light alert and / or reduction in operations. This protection is enabled by software and a lube pressure sensor which detects a reduction in lube pressure from the internal lube pump. Eaton Cummins Automated Transmission Technologies will warranty a low lubricant condition of the transmission causing a “burnup” in cases except:
 - The low lube burnup protection is disabled or is faulty where the owner / operator did not perform repairs;
 - Low Lube Burnup Protection was neglected by the owner / operator and did not take precautionary measures to stop operating the vehicle.
 - A Roadranger Service Ranger Service Activity Report is required to verify all Low Lube Burnup failures.
 - Verification of grade, speed, time operating after the fault was activated is required
 - Verification of operational performance is required.
 - “Burnup” is a condition of the transmission where excessive heat causes deformities and structural changes (metallic or various physical characteristics) of the gears, shafts, synchronizers, bearings and other transmission parts.
2. Transmission system communication of clutch prognostics is an indicator of clutch wear life and does not indicate a failure due to defect in material and workmanship. No coverage will be considered due to clutch prognostics.
3. Failures resulting from ancillary equipment such as PTOs, yokes, speedometer equipment, controls and clutch release parts that are not sourced from the Eaton Cummins.
4. Noise (when the transmission is not the cause and verified).
5. Vibration (when not verified).
6. Leaking or damaged output shaft seal when the yoke is not installed by Eaton Cummins.
7. Failures caused by rust and corrosion.
8. Failures to electronics due to environmental corrosive fumes or vapors.

IMPORTANT NOTICE:

THE USE OF ANY LUBRICANT THAT IS NOT APPROVED BY EATON CUMMINS AUTOMATED TRANSMISSION TECHNOLOGIES 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.

Vocational Self-Service Coverage Guide

Introduction

The administration of warranty by Eaton Cummins for Standard and Extended Warranty coverage is extensive. This guide provides the method of matching your transmission model to the Eaton Cummins Vocational group that identifies the transmission coverage. This Vocational group contains the vocation definitions, component time and mileage limits per vocation, aftermarket component / part warranties, and references location of the Extended Protection Plan purchase options.

How to use this vocational coverages to determine your warranty coverage on your component:

How do I define my vocation coverage?

1. Review all the "Vocational Definitions" listed and select the one that most accurately describes the use (Vocational Definition) and configuration (Typical Vehicle Types) 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.
Note: If the transmission model is not included within the Vocational chart, no warranty coverage is available for the Transmission within that specific Vocation.
5. Refer to and understand any notes (requirements) 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 or repair at 1-800-826-HELP (4357).

Effective Date

Warranties listed in this guide are effective for vehicles placed in service after the first day for the month / year of this publication month / year revision.

Don't Be Confused - Help is Available

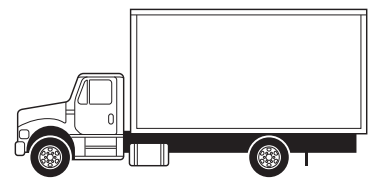
We realize there are many different warranties available. Manufacturers and suppliers have established coverages to suit their specific products. Remembering all these guidelines, can be very difficult.

If, at any time, you have questions regarding Eaton Cummins warranty coverages or model eligibility, contact the Roadranger Call Center at 1-800-826-HELP (4357). A customer service coordinator will be glad to assist you in getting the answers you need.

For warranty limits, exclusions, and requirements see the "Limits and Exclusions" section of this manual. Additional limits, exclusions, and requirements for the Extended Protection Plan are available within this guide and expressed within each of the specific offering details.

See the Change Log at the end of this guide for detailed updates.

Pick Up and Delivery



Pick Up and Delivery

Vocational Description:

- Pick up and delivery service consists of the movement of freight typically within a 100 mile radius in cities and/or suburban areas.
- Operation on road surfaces of concrete, asphalt and maintained gravel.
- Three (3) to thirty (30) miles between starts/stops (typical).
- Annual mileage less than 50,000 miles (80,000 Km).
- 100% load going / 40% load return (typical).
- 40% load going / 100% load return.

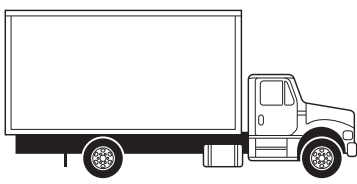
Typical Vehicle Types

Beverage Truck	Municipal Truck	Stake Truck	Step Van
Flatbed Truck	City Delivery	Tanker	Grain Hauler
Moving Van	Refrigerated Truck	Wrecker	(grain hopper/bottom dump trailers)

Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines

(For U.S. and Canada Only)

Product	Model	Warranty Coverage
Transmissions	Procision (Note 2, 3)	3 years / Unlimited Mileage
	Endurant 11-Speed Automated (Direct drive) (Includes clutch release yoke) (Note 1)	5 years / 750,000 Miles (1,200,000 km)
	Endurant 12-Speed Automated (Includes clutch release yoke)(Overdrive) C-Ratio (Note 1)	5 years / 750,000 Miles (1,200,000 km)
	UltraShift <i>PLUS</i> VCS, VMS, VXP, MHP, MXP Excludes Clutch & LCIB (Note 1, 3)	3 years / Unlimited Mileage
	UltraShift <i>PLUS</i> LAS, VAS. Excludes Clutch and LCIB (Note 1, 3)	5 years / 750,000 Miles (1,200,000 km)
	Fuller Advantage Automated EA3 Excludes Clutch and LCIB (Note 1, 3)	5 years / 750,000 Miles (1,200,000 km)
Clutch Release Bearing	Clutch release bearing for Endurant and PACCAR Automated	3 years / 350,000 Miles (560,000 km)
Electronic Clutch Actuator	Electronic Clutch Actuator	Same as Transmission Coverage
Oil-to-Water Heat Exchangers	All Models (Note 1)	3 years / Unlimited Mileage

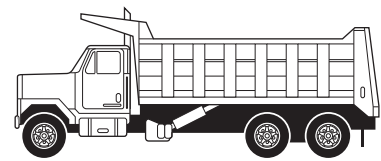


Pick Up and Delivery

Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions and transmissions with Purchased Extended Protection Plans and Oil-to-Water Heat Exchangers must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021). All transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 2: Procision transmissions require the use of PS-278 approved lubricants (Refer to Lubrication Manual, TCMT0021). Procision transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 3: Refer to "Extended Protection Plan Matrix" section on www.roadranger.com.



Construction

Vocational Description:

- Movement of material to and from a job site.
- Vehicles used in transfer / relocation on a maximum grade of 8%, typically greater than 10 miles per trip.
- 90% of loaded operation on road surfaces of concrete, asphalt, gravel, crushed rock or hard packed dirt and up to 10% of loaded operation into sandy or muddy job sites.
- Vehicles operating less than 90%, refer to Specialized Applications “Off-Highway” coverages.

Typical Vehicle Types

Asphalt Truck	Dump Truck	Roll-off	Tank Truck	Concrete Pumper	Mixer
Block Truck	Flatbed Truck	Snowplow	Utility Truck	Landscape Truck	

Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines

(For U.S. and Canada Only)

Product	Model	Warranty Coverage
Transmissions	Procision (Note 2, 3)	3 years / Unlimited Mileage
	UltraShift <i>PLUS</i> VCS, VMS, VXP, MHP, MXP Excludes Clutch & LCIB (Note 1, 3)	3 years / Unlimited Mileage
	Fuller Advantage Automated, Smart Advantage 10-C Excludes Clutch and LCIB (Note 1, 3)	3 years / Unlimited Mileage
Electronic Clutch Actuator	Electronic Clutch Actuator	Same as Transmission Coverage
Oil-to-Water Heat Exchangers	All Models (Note 1)	3 years / Unlimited Mileage

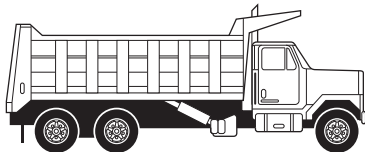
Typical Vehicle Types

Roll-off	Tanker Truck	Landscape Truck
Block Truck	Flatbed Truck	Utility Truck

Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines

(For U.S. and Canada Only)

Product	Model	Warranty Coverage
Transmissions	Endurant 12-Speed Automated (Over-drive) C-Ratio (Includes clutch release yoke) (Note 1, 4)	3 years / 300,000 Miles (480,000 km)
	Procision (Note 2, 3)	3 years / Unlimited Mileage
Clutch Release Bearing	Clutch release bearing for Endurant and PACCAR Automated	2 years / 200,000 Miles (320,000 km)



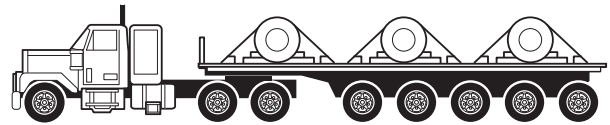
Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions, transmissions with Purchased Extended Protection Plans and transmission with Oil-to-Water Heat Exchangers must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021.) All transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 2: Procision transmissions require the use of PS-278 approved lubricants (Refer to Lubrication Manual, TCMT0021). Procision transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 3: Refer to "Extended Protection Plan Matrix" section on www.roadranger.com.

Note 4: Excluding straight truck with dump body.

Heavy Haul



Heavy Haul

- Movement of heavy equipment or materials at legal maximums or special permit loadings, typically with GCW at or above 140,000 lbs.
- Operation on road surfaces of concrete, asphalt and maintained gravel.
- High horsepower engines and auxiliary gear boxes might be used.
- Vehicles may be equipped with two retarders.
- 100% load going and empty return.

Typical Vehicle Types

Equipment Hauling

Lowboy

Steel Hauling

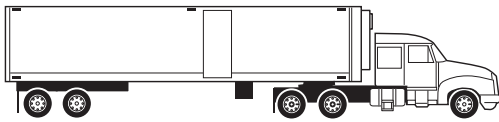
Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines

(For U.S. and Canada Only)

Product	Model	Warranty Coverage
Transmissions	UltraShift <i>PLUS</i> VXP, MHP, MXP Excludes Clutch & LCIB (Note 1, 2)	2 years / Unlimited Mileage
	Fuller Advantage Automated, SmartAdvantage 10-C Excludes Clutch and LCIB (Note 1, 2)	2 years / Unlimited Mileage
Electronic Clutch Actuator	Electronic Clutch Actuator	Same as Transmission Coverage
Oil-to-Water Heat Exchangers	All Models (Note 1)	2 years / Unlimited Mileage

Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions, transmissions with Purchased Extended Protection Plans and transmission with Oil-to-Water Heat Exchangers must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021.) All transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 2: Refer to “Extended Protection Plan Matrix” on www.roadranger.com



Linehaul

Vocational Description:

- Linehaul is moving different types of freight in high mileage operation [over 50,000 miles (80,000 km) / year].
- Operation on road surfaces of good to excellent concrete or asphalt.
- 80% of distances are more than 30 miles between starting and stopping with remaining 20% being within 30 miles between starting and stopping.
- Typical vehicle configurations are 4X2, 6X2, and 6X4 tractor / trailer combinations and straight trucks.

Typical Vehicle Types

Auto Hauler	Flatbed Trailer	Livestock Hauler	Tanker
Bulk Hauler	General Freight	Moving Van	Triples
Doubles	Grain Hauler (grain hopper/bottom dump trailers)	Refrigerated Freight	Regional Hauler

Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines (For U.S. and Canada Only)

Product	Model	Warranty Coverage
Transmissions	Procion (Notes 2, 3)	3 years / Unlimited Mileage
	Endurant 11-Speed Automated (Includes clutch release yoke) (Direct drive) (Notes 1, 3)	5 years / 750,000 Miles (1,200,000 km)
	Endurant 12-Speed Automated (Over-drive) C-Ratio (Includes clutch release yoke) (Notes 1)	5 years / 750,000 Miles (1,200,000 km)
	AutoShift-18 (AS) (Note 1, 3)	3 years / 300,000 Miles (480,000 km)
	Fuller Advantage Automated, SmartAdvantage 10-C Excludes Clutch and LCIB ((Note 1, 3)	5 years / 750,000 Miles (1,200,000 km)
	UltraShift <i>PLUS</i> MHP, MXP Excludes Clutch & LCIB (Note 1, 3)	5 years / 500,000 Miles (800,000 km)
	UltraShift <i>PLUS</i> VCS, VMS, VXP Excludes Clutch & LCIB (Note 1, 3)	3 years / 300,000 Miles (480,000 km)
Clutch Release Bearing	Clutch release bearing for Endurant and PACCAR Automated	3 years / 350,000 Miles (560,000 km)
Electronic Clutch Actuator	Electronic Clutch Actuator	Same as Transmission Coverage
Oil-to-Water Heat Exchangers	All Models (Note 1)	3 years / Unlimited Mileage

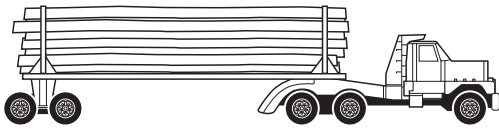
Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions, transmissions with Purchased Extended Protection Plans and transmission with Oil-to-Water Heat Exchangers must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021.) All transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Linehaul



Note 2: Precision transmissions require the use of PS-278 approved lubricants (Refer to Lubrication Manual, TCMT0021). Precision transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 3: Refer to "Extended Protection Plan Matrix" section on www.roadranger.com.



Logging

- Movement of logs, chips, and pulp between logging sites and / or mills.
- High horsepower engines and multiple retarders are typically used in this vocation.
- 3 to 30 miles between starts and stops (typical).
- 90% of loaded operation on road surfaces of concrete, asphalt, maintained gravel, crushed rock or hard packed dirt and up to 10% of loaded operation into sandy or muddy job sites.
- Vehicles operating less than 90%, refer to Specialized Applications “Off-Highway” coverages.
- 100% load going and empty return.

Typical Vehicle Types

Tractors with Pole Trailers Tractor / Trailer Excluding Log Skidders
 Log Hauler

Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines (For U.S. and Canada Only)

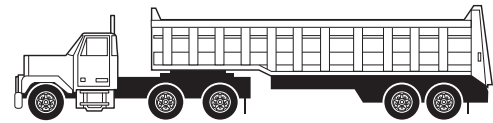
Product	Model	Warranty Coverage
Transmissions	UltraShift <i>PLUS</i> VCS, VMS, VXP, LAS, MHP, MXP Excludes Clutch & LCIB (Note 1, 2)	2 years / Unlimited Mileage
	Fuller Advantage Automated EA3 Excludes Clutch and LCIB (Note 1, 2)	2 years / Unlimited Mileage
Electronic Clutch Actuator	Electronic Clutch Actuator	Same as Transmission Coverage
Oil-to-Water Heat Exchangers	All Models (Note 1)	2 years / Unlimited Mileage

Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions, transmissions with Purchased Extended Protection Plans and transmission with Oil-to-Water Heat Exchangers must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021.) All transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 2: Refer to “Extended Protection Plan Matrix” on www.roadranger.com



Mining



Mining

- Movement of rock, ore, gravel, and minerals between mine sites and delivery sites.
- High horsepower engines are typically used in this vocation.
- 3 to 30 miles between starts and stops (typical).
- 90% operation on-highway and up to 10% into sandy or muddy job site. Vehicles operating less than 90%, refer to Specialized Applications “Off-highway” coverages.
- Vehicles operating less than 90%, refer to Specialized Applications “Off-Highway” coverages.
- 100% load going and empty return.

Typical Vehicle Types

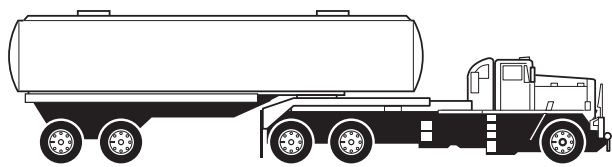
Bottom Dump Trailer Semi-End Dump
 Hopper Trailer Combinations Transfer Dump

Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines (For U.S. and Canada Only)

Product	Model	Warranty Coverage
Transmissions	UltraShift <i>PLUS</i> VCS, VMS, VXP, LAS, MHP, MXP Excludes Clutch & LCIB (Note 1, 2)	2 years / Unlimited Mileage
	Fuller Advantage Automated, SmartAdvantage 10C Excludes Clutch and LCIB (Note 1, 2)	2 years / Unlimited Mileage
Electronic Clutch Actuator	Electronic Clutch Actuator	Same as Transmission Coverage
Oil-to-Water Heat Exchangers	All Models (Note 1)	2 years / Unlimited Mileage

Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions, transmissions with Purchased Extended Protection Plans and transmission with Oil-to-Water Heat Exchangers must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021.) All transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 2: Refer to “Extended Protection Plan Matrix” on www.roadranger.com



Oil Field

- Movement of production related products, supplies, and tools between job sites.
- Movement of processing equipment and laboratories on job sites.
- Low mileage operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock or hard packed dirt.

Typical Vehicle Types

Cementing Vehicle Drill Rig Geophysical Exploration Winch Truck
 Demolition Fracturing Truck Tanker

Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines (For U.S. and Canada Only)

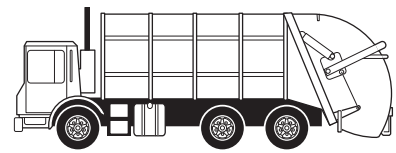
Product	Model	Warranty Coverage
Transmissions	UltraShift <i>PLUS</i> VCS, VMS, VXP, LAS, MHP, MXP Excludes Clutch & LCIB (Note 1, 2)	2 years / Unlimited Mileage
	Fuller Advantage Automated, SmartAdvantage 10C Excludes Clutch and LCIB (Note 1, 2)	2 years / Unlimited Mileage
Electronic Clutch Actuator	Electronic Clutch Actuator	Same as Transmission Coverage
Oil-to-Water Heat Exchangers	All Models (Note 1)	2 years / Unlimited Mileage

Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions, transmissions with Purchased Extended Protection Plans and transmission with Oil-to-Water Heat Exchangers must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021.) All transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 2: Refer to “Extended Protection Plan Matrix” on www.roadranger.com



Refuse



Refuse

Vocational Description:

- Vehicles used for residential refuse / recycle pickup, typically a high number of stops per mile.
- Vehicles operated in commercial / industrial pickup, typically a low number of stops per mile.
- Vehicles used in transfer / relocation, typically greater than 10 miles per trip.
- 90% of loaded operation on road surfaces of concrete, asphalt, or maintained gravel and up to 10% of loaded operation into landfill, transfer or recycling sites.
- Vehicles operating less than 90%, refer to Specialized Applications “Off-Highway” coverages.

Typical Vehicle Types

Front / Rear / Side Loader Sewer / Septic / Waste Transfer Vehicle
 Residential / Commercial Pickup Scrap Truck

Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines (For U.S. and Canada Only)

Product	Model	Warranty Coverage
Transmissions	UltraShift <i>PLUS</i> VCS, VMS, VXP, LAS , MHP, MXP Excludes Clutch & LCIB (Note 1, 3)	2 years / Unlimited Mileage
	Fuller Advantage Automated, SmartAdvantage 10C Excludes Clutch and LCIB (Note 1, 3)	2 years / Unlimited Mileage
Electronic Clutch Actuator	Electronic Clutch Actuator	Same as Transmission Coverage
Oil-to-Water Heat Exchangers	All Models (Note 1)	2 years / Unlimited Mileage

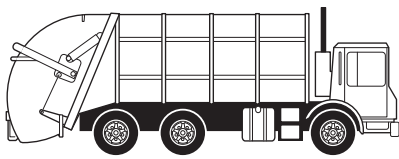
Typical Vehicle Types

Sewer / Septic / Waste Transfer Vehicle
 Commercial Pickup Scrap Truck

Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines (For U.S. and Canada Only)

Product	Model	Warranty Coverage
Transmissions	Endurant 12-Speed Automated (Over-drive) C-Ratio (Includes clutch release yoke) (Note: 1)	3 years / 300,000 Miles (480,000 km)
Clutch Release Bearing	Clutch release bearing for Endurant and PACCAR Automated	2 years / 200,000 Miles (320,000 km)

Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions, transmissions with Purchased Extended Protection Plans and transmission with Oil-to-Water Heat Exchangers must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021.) All transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.



Refuse

Note 2: Precision transmissions require the use of PS-278 approved lubricants (Refer to Lubrication Manual, TCMT0021). Precision transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 3: Refer to "Extended Protection Plan Matrix" section on www.roadranger.com.

Specialized Applications

Specialized Applications

School Bus

- Transporting students to and from school and /or school related events.
- Operation on road surfaces made of concrete, asphalt, maintained gravel, crushed rock, hard packed dirt, or other similar surfaces.

Typical Vehicle Types

Front Engine Commercial Chassis	Rear Engine Integral Coach
Front Engine Integral Coach	Rear Engine Commercial Chassis

Yard Tractor

- Moving and spotting trailers and containers around freight terminals, port facilities, and warehouses (short distances).
- Operation on well maintained concrete, asphalt, or gravel surfaces at yards, terminals, or docks.

Typical Vehicle Types

Load-On/ Load-Off	Roll-On/Roll-Off	Stevedoring Tractor	Yard Jockey
Port Tractor	Rail Yard Spotter	Trailer Spotter	

Rescue Vehicle

- Specialized vehicles for rapid acceleration to crash sites away from hydrant hookups.
- Airport rescue is the most common.
- Low mileage operation.

Typical Vehicle Types

Airport Rescue Fire (ARF)	Emergency Service
Crash Fire (CFR)	Rapid Intervention Vehicle (RIV)

Recreation Vehicle

- A privately owned recreational vehicle.
- Truck chassis based
- Bus chassis based

Typical Vehicle Types

Recreational Vehicles	Motor Homes Class A
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Fire Service

- Pumpers, tankers, or aerial ladders used in fighting structural fires.
- Low mileage operation.

Typical Vehicle Types

Ambulance	Aerial Platform	Tanker Truck
Aerial Ladder Truck	Pumper	

Transit Coach

- Transporting people and sometimes light freight between cities and/or suburban areas.
- Transporting people in and around city or suburban areas.

Heavy Haul Military

- Vehicles often operate under extreme conditions of load, weight, road conditions and grade

Typical Vehicle Types

Equipment Hauling

Off-Highway

- Operation exceeding 10% of the time on unimproved surfaces such as loose dirt, mud, and sand.

Industrial Equipment

- Non-vehicle applications such as generator sets, winches, and cranes.

InterCity Bus

- Transporting people and sometimes light freight between cities and/or suburban areas.
- Transporting people in and around city or suburban areas.

Typical Vehicle Types

Airport Shuttle	Trolley
City Bus	Shuttle Bus

Specialized Applications

Agriculture

Vocational Description:

- Vehicles used in the agriculture industry. Use typically involves transportation of agricultural & dairy products to/from/on/around farm sites
- Includes operation off of improved surfaces while on the farm.

Typical Vehicle Types

Milk Tankers for Farm Pickup	Feed Trucks (No feedlot, spreader or open field operations)	Grain Silage, and Hay Haulers (No feedlot, spreader or open field operations)
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Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines (For U.S. and Canada Only)

Product	School Bus	Yard Tractor	Rescue Vehicle	Fire Service	Transit Coach	Off Highway	Industrial Equipment	Recreational Vehicle	InterCity Bus	Agriculture	Heavy Haul Military
Procision (Note 2, 3)	5 year / Unlimited Miles	N/A	N/A	N/A	N/A	N/A	N/A	3 year / Unlimited Miles	3 year / Unlimited Miles	N/A	N/A
Endurant	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3 year / 300,000 Miles (560,000 km)	N/A
Electronic Clutch Actuator (Note 1)	N/A	N/A	Same as Transmission	Same as Transmission	Same as Transmission	Same as Transmission	N/A	Same as Transmission	Same as Transmission	Same as Transmission	Same as Transmission
Endurant Clutch Release Bearing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2 year / 200,000 Mile (320,000 km)	N/A
UltraShift PLUS LST, LHP AutoShift (Note 1, 3)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5 years/ Unlimited Miles	N/A	N/A	N/A
Transmission UltraShift PLUS Models (Note 1, 3)	N/A	N/A	VCS, VMS, VXP, LAS, MHP 3 year / Unlimited Miles	VCS, VMS, VXP, LAS, MHP 3 year / Unlimited Miles	LAS, LSE, MXP, MHP, VCS, VMS, VXP 3 year / Unlimited Miles	VCS, VMS, VXP, LAS, MHP 2 year / Unlimited Miles	N/A	MXP, LAS, LSE, VCS, VMS, VXP 3 years/ Unlimited Miles ***** MHP 5 years/ Unlimited Miles	N/A	VCS, VMS, VXP, LAS, MHP 2 year / Unlimited Miles	FO-22E318A-VXP 1 year Manufacturing Defects Only
Oil-to-Water Heat Exchangers (Note 1)	N/A	N/A	3 year / Unlimited Miles	3 year / Unlimited Miles	3 year / Unlimited Miles	2 year / Unlimited Miles	N/A	3 year / Unlimited Miles	N/A	2 year / Unlimited Miles	1 year / Unlimited Miles

Specialized Applications

Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions, transmissions with Purchased Extended Protection Plans and transmission with Oil-to-Water Heat Exchangers must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021.) All transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty. All UltraShift PLUS model coverage excludes the clutch and LCIB.

Note 2: Precision transmissions require the use of PS-278 approved lubricants (Refer to Lubrication Manual, TCMT0021). Precision transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 3: Refer to "Extended Protection Plan Matrix" section on www.roadranger.com.

International Coverage

International Coverage

International Description:

- Service of the vehicle meeting the types and applications that were approved by Eaton Cummins Automated Transmission Technologies Application Approvals guidelines.

Typical Vehicle Types

All vehicle types and applications that meet Eaton Cummins Automated Transmission Technologies Application Approvals guidelines and approvals.

Warranty Coverage for Vehicles Meeting Vocation Definitions and Application Guidelines

(For U.S. and Canada Only)

Product	Model	Warranty Coverage
Transmissions	Procision (Note 2)	1 year / 150,000 Kilometers
	Endurant 11-Speed Automated (Direct drive) (Includes clutch release yoke) (Note 1)	1 year / 150,000 Kilometers
	Endurant 12-Speed Automated (Over-drive) C-Ratio (Includes clutch release yoke) (Notes 1)	1 year / 150,000 Kilometers
	UltraShift <i>PLUS</i> VCS, VMS, VXP, MHP, MXP Excludes Clutch & LCIB (Note 1, 3)	1 year / 150,000 Kilometers
	UltraShift <i>PLUS</i> LAS, VAS. Excludes Clutch and LCIB (Note 1, 3)	1 year / 150,000 Kilometers
	Fuller Advantage Automated, Smart Advantage 10-C Excludes Clutch and LCIB (Note 1)	1 year / 150,000 Kilometers
Clutch Release Bearing	Clutch release bearing for Endurant and PACCAR Automated (Note 1)	1 year / 150,000 Kilometers
Electronic Clutch Actuator	Electronic Clutch Actuator (Note 1)	Same as Transmission Coverage
Oil-to-Water Heat Exchangers	All Models (Note 1)	1 year / 150,000 Kilometers

Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions, transmissions with Purchased Extended Protection Plans and transmission with Oil-to-Water Heat Exchangers must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021.) All transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated and serviced with the approved applications and country. Those that do not will void their warranty. Warranty coverage is limited to and claims will not exceed the standard OEM warranty coverage for a given country.

Note 2: Procision transmissions require the use of PS-278 approved lubricants (Refer to Lubrication Manual, TCMT0021). Procision transmission models must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated and serviced with the approved applications and country. Those that do not will void their warranty. Warranty coverage is limited to and claims will not exceed the standard OEM warranty coverage for a given country.

Service / Aftermarket Parts Warranty Coverage

Eaton Service / Aftermarket Parts Warranty Coverage - U.S. and Canada Only

The following warranty coverages apply for all genuine Eaton Cummins service/aftermarket parts, subcomponents, and complete components (subject to the exceptions, notes, and definitions stated therein):

Product Supplied	Warranty Term	Exceptions
Service / Aftermarket Parts (Note 1)	12 months / Unlimited Mileage (km)	Parts and Labor*
New Procision Transmissions (Note 2)	36 months / Unlimited Mileage (km)	Excludes Output Shaft Seals & Parts and Labor*
New Endurant Exchange Transmissions (Note 1)	36 months / Unlimited Mileage (km)	Excludes Output Shaft Seals & Parts and Labor*

Note 1: All transmission models require the use of a Roadranger approved lubricant. ALL HD Automated transmissions, transmissions with Purchased Extended Protection Plans, excluding Procision, must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification (Refer to Lubrication Manual, TCMT0021.) All transmission models must meet Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Note 2: Procision transmissions require the use of PS-278 approved lubricants. All transmission models must meet Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

* Parts and Labor will be reimbursed for warranty repairs performed through OEM or Eaton Cummins approved channel.

Exceptions

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

If a non-warrantable failure occurs within the Extended Warranty coverage period, and the customer purchases a genuine New Exchange Transmission or an Eaton Cummins 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 period (Standard or Extended) and the customer purchases genuine Eaton Cummins 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.

See the “Repair or Replacement Guidelines” section for replacement matrix.

Service / Aftermarket Parts Warranty Coverage

Definitions

Standard Warranty - The base warranty coverage, offered to all purchasers of a product. It is sometimes called, "the OEM warranty period."

Extended Warranty - Additional coverage, which becomes effective when the Standard warranty period ends. Usually, there are other requirements for eligibility and, in some cases; a service charge must be paid to purchase the coverage.

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

Notes

- Warranty coverages for genuine Eaton Cummins service / aftermarket parts, subcomponents, and complete components commence on the date of retail sale.
- Warranty coverages, stated herein, apply only to genuine Eaton Cummins service / aftermarket parts, subcomponents, and complete components, which are purchased by the customer at normal retail prices.
- Warranty coverages, stated herein, do not apply to genuine Eaton Cummins service / aftermarket parts, or subcomponents for which Eaton Cummins has contributed, to any extent, to the purchase and/or installation by full or partial reimbursement in the form of check, coupon, or no charge parts to the customer as a goodwill or policy transaction. Such service/aftermarket parts shall be covered for a period of ninety (90) days from the date of installation. Remanufactured transmission and New Exchange transmissions provided as the result of a good will or policy transaction are warranted for 12 months from the installation date.
- To continue warranty coverage, the purchased component model must be the same as the failed component model, unless substitution is authorized by Eaton Cummins.
- All other Eaton Cummins warranty exclusions and limitations apply to the coverages stated herein and within the "Limits and Exclusions" section. Special Aftermarket programs and products not listed in this manual have warranty parameters and requirements specified individually per released documentation.
- New / Remanufactured / Part Product warranty starts the date of RETAIL Sale when used in Glider Kits and vehicle refurbishing. IF a product is transferred to a Glider Kit or a vehicle / chassis other than the original vehicle / chassis, the warranty of the transferred product is VOID.

Extended Protection Plan Requirements, Limitations, and Exclusions

Eaton Cummins Extended Protection Plans, offerings, cost, and additional information are available on Roadranger.com. Limits and Exclusions as identified in the “Limits and Exclusions” of this manual apply to the Extended Protection Plan in addition to the details communicated in the below details and the details published on Roadranger.com for the Extended Protection Plans.

- Application for purchased warranty must be made within one (1) year of the in-service date of the vehicle.
- A vehicle or component may not be registered if it has exceeded:
 - Transmission - the time of the Eaton Cummins published standard warranty.
- Extended warranty is only available for the eligible models listed or referenced herein.
- Warranty applies only to transmissions installed in vehicles as original equipment.
- A Roadranger approved synthetic lubricant must be used. Lubricant must be changed per Roadranger prescribed maintenance schedules (Reference Roadranger publication TCMT0021). Lube change records might be requested for verification purposes.
- Transmission oil temperatures must be maintained per Roadranger publication TCMT0021.
- Warranty applies exclusively to vehicles licensed and operating in the United States of America or Canada.
- Warranty is transferable to only one subsequent vehicle owner. Warranty is only transferable within the same vehicle vocation. Changing vehicle vocations voids the warranty coverage.
- Re-rating engine torque above the approved torque capacity of the component voids the warranty coverage. Dealer/ Purchaser shall be responsible for verifying the engine torque does not exceed the torque capacity of the drivetrain.
- Warranty covers parts and labor per Eaton Cummins established guidelines.
- Oil to water heat exchangers are not covered under the Roadranger Extended Protection Plans.
- Reference other sections of this manual for time and mileage examples and warranty information, requirements, limits, and exclusions.

For complete information on requirements, limitations or exclusions available warranty coverages, warranty claim filing procedures, and authorized repair times, reference the Warranty Manual (TCWY0600) and the Warranty Guide (TCWY0900) both available on Roadranger.com or contact the Roadranger Call Center at 1-800-826-HELP (4357).

For complete information on requirements, limitations or exclusions available warranty coverages, warranty claim filing procedures, and authorized repair times, reference the sections of this warranty manual and Extended Purchase Plan details available on Roadranger.com or contact the Roadranger Call Center at 1-800-826-HELP (4357).

Please refer to www.roadranger.com for a complete list of Extended Protection Plan options.

Note: Automated Heavy-Duty transmissions and transmissions with Purchased Extended Protection Plans must use Roadranger Synthetic Lubricant meeting Eaton PS-386 specification & Procion transmissions require the use of PS-278 approved lubricants. (Refer to Lubrication Manual, TCMT0021.) All transmission must meet and have Eaton Cummins Engineering Application Approval prior to sale to qualify for any warranty coverage, and then be operated in the approved applications. Those that do not will void their warranty.

Lubrication Specifications

Lubricant Specifications

Transmission Lubricants

Eaton Cummins recommends the Use of Roadranger Lubricants for Extended Drain. Transmission Product Families must meet the Lubrication Specification to qualify for Eaton Cummins Automated Transmission Technologies' Warranty Coverage.

Lubrication References:

- Transmission lubricant documents with specifications are available on Roadranger.com.
 - Eaton Lubrication Manual TCMT0021
 - Eaton Lubrication Suppliers TCMT0020

Transmission Oil Filters

- Transmission filters should be changed during regular lube intervals.
- Inspection of the external transmission filter should be conducted during preventative maintenance checks for damage or corrosion. Replace as necessary.

Automated Heavy-Duty Transmission Product Families

Product Family	Synthetic or Mineral	Lubricant Specification	SAE Viscosity Grade	Change Interval for Linehaul	Change Interval for Vocational / Bus
AutoShift UltraShift <i>Plus</i> Fuller Advantage SmartAdvantage Endurant	Synthetic	PS-386	N/A	500,000 miles [800,000 Km] or 5 years	180,000 miles [288,000 Km] or 3 years (mobile applications) 2,000 hours or 5 years (stationary applications)
Endurant	Synthetic	PS-386	N/A	750,000 miles [1,200,000 Km] or 5 years	N/A

Procision Transmission Product Family

Product Family	Synthetic or Mineral	Lubricant Specification	SAE Viscosity Grade	Change Interval for Linehaul	Change Interval for Vocational
Procision	Synthetic	PS-278	N/A	150,000 miles [250,000 Km] or 10 years	150,000 miles [250,000 Km] or 10 years

Change Control Log

Last Revised Date	Description of Clarifications and Updates
December 2019	Added Endurant Transmission vocations/applications and Endurant Clutch Warranty Updated clutch bearing
June 2019	Updated Pickup and Delivery section.
February 2019	Published the Eaton Cummins Automated Transmission Technologies Warranty Manual.

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