ON-HIGHWAY TRANSMISSION NEWS

SPECIAL EDITION

REDUCING FUEL COSTS
How to Choose the Right Transmission

SOLVING DRIVER CHALLENGES
Fleets Use Automated Transmissions to Increase Efficiencies

AUTOMATION
Get the Low-Down on the Latest in Gear Technology

www.Roadranger.com
Dear Valued Readers,

The trucking industry is full of challenges. Linehaul fleets are looking for ways to save fuel, reduce maintenance costs, improve safety, and attract and retain drivers. In the following pages, you’ll see how Eaton products have helped fleets with these challenges.

As the leader in heavy-duty transmissions, we have the pleasure of working with fleets like yours to deliver the best transmission and clutch product solutions to fit your needs. Our portfolio is as diverse as your fleet with choices that give you the power to equip your trucks with transmissions and clutches that sacrifice nothing. Whether you want the best in manual transmissions for your most experienced drivers or the newest automated options to standardize fuel economy across the board and reduce driver stress, we’ve got you covered like no one else.

Inside, you will learn about the evolution of our automated transmissions, understand how an automated transmission can improve both driver satisfaction and your bottom line, and you will see comparisons to other transmissions in the linehaul market. You’ll read about both a large- and medium-sized fleet and how they were able to improve their operation by partnering with Eaton.

But mostly you’ll read about how simple it is to work with us. That’s because we pride ourselves not just as a leading heavy-duty transmission manufacturer but as a partner to the industry that is working to help you achieve another successful day on the road.

All the best,

David L. Karnes
Vice President of Sales
North America Truck
Eaton®

“Our portfolio is as diverse as your fleet with choices that give you the power to equip your trucks with transmissions and clutches that sacrifice nothing.”
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UltraShift® PLUS LSE Is Up for the Challenge

Successful companies typically have a lengthy list of competitors biting at their heels. Dan Einwechter, founder of the Challenger Group of Companies, knows this pressure. While attending Wilfrid Laurier University in Waterloo, Ontario some 40 years ago, he started Challenger, which today operates approximately 1,500 heavy-duty trucks throughout North America and employs more than 1,800 people.

With corporate headquarters in Cambridge, Ontario, the company includes an array of divisions, from short- and long-distance hauling to temperature-controlled shipments, waste haulage and other services.

“A buddy of mine once told me that anyone with a paper route is my competition,” Einwechter says. To help ensure his customer offerings are plenty deep, Einwechter employs a business philosophy that centers on always adhering to what he describes as a three-part matrix: “If we take care of our people, who take care of our customers, we will profit.”

The vast majority of those people (about 1,500) are Challenger drivers.

“We treat our drivers with respect and dignity and give them work assignments that they are proud to do,” Einwechter adds.

The company makes sure that drivers are provided with the best trucks available. Einwechter runs a variety of nameplates, including Freightliner, Volvo, Kenworth, Peterbilt and Navistar. A recent delivery of 10 new Navistar International tractors are equipped with Eaton’s UltraShift PLUS LSE (Linehaul Small-step Efficiency) automated transmissions.

Solution

Introduced in 2013, the new family of UltraShift PLUS transmissions was designed to maximize fuel efficiency in linehaul applications. Jointly developed with Navistar, the new 16-speed direct-drive automated mechanical transmissions are designed with a small, 17% step between gears to optimize time in a diesel engine’s most efficient RPM zone (the “sweet spot”) and help reduce fuel consumption. Eaton testing has shown fuel economy improvements of 2-4% compared to an UltraShift PLUS LAS 10-speed transmission.

All UltraShift PLUS transmissions use an electronic clutch actuator to provide faster shifting and smoother engagement. The clutch is fully engaged at idle, giving the driver ultimate control in challenging situations.

The new UltraShift PLUS LSE transmission has 16 forward gears and two reverse gears, and an overall ratio of 14.40. The standard warranty is 5-year/750,000 miles for the transmission and 3-year/350,000 miles for the clutch. Additional UltraShift PLUS features include:

• Fully automated two-pedal design (no clutch pedal);
• Safety features including auto neutral and intelligent Hill Start Aid, which prevents roll-back and roll-forward while launching on grades using foundation wheel brakes;
• Automatic, manual and low modes offering drivers full control, and;
• Creep mode allowing the vehicle to be driven at a constant speed (an optional feature that can be enabled if desired).

Result

“Our drivers very much like the new Eaton transmissions,” Einwechter says. “They are saying things like ‘wow I really like those.’ That’s because they feel less fatigued when driving in traffic, they can keep both hands on the steering wheel, and they can control the vehicle better because they do not have to focus on shifting.”

Einwechter also believes the automated transmissions make for an overall safer vehicle. “Largely because of the safety factor, I have been a proponent for a long time,” he says, adding that he has been spec’ing the automated transmissions since they debuted in 2009 and now has close to 500 in feet. He’s also been doing some arithmetic to ensure the transmissions are giving him the best possible fuel consumption.

“I would say that for a bad driver, the transmissions definitely show improvements,” Einwechter says. “For the average driver, we are seeing smaller improvements, while the really good drivers are matching the transmissions in terms of fuel consumption. So for a fleet of our magnitude, we definitely come out a winner.”

See more success stories at www.Roadranger.com/SuccessStories
Any road you want. Because one-size-fits-all won't. And your spec is the only one that matters. When tight budgets and tough jobs are the norm. And there’s no room to settle. When nothing short of a 100-year legacy delivers what you need. Gain a competitive edge with a custom solution. And an advantage that’s uniquely yours. All backed by the solutions, support and expertise of the Roadranger® network. Drive with choice. Drive on. Find your Eaton® edge at roadranger.com.
Central Trucking Inc., (CTI) is a family-owned and operated refrigerated carrier that services a variety of shippers from points in the East and Midwest to the West Coast. In business since 1974, the company was founded by Keith K. Roberts. Today his two sons, Mark and Keith Roberts II, run the place. Their fleet consists of roughly 225 newer model Kenworth T660 tractors. Some 450 people are employed at the company’s four facilities, including headquarters in Columbus, IN, and satellite terminals in Springfield, MO, Amarillo, TX, and Kingman, AZ. A typical trip for the fleet consists of taking dry commodities out west and fruits and vegetables from California, Arizona and Nevada on the return trip back east.

**Challenge**

Maintaining quality drivers is an important key to success at CTI. Recruiting and training new drivers is a large expense, so hanging on to the good ones can effectively reduce some of that cost. “That’s especially true in today’s economic environment where rates are not quite where we would like to see them, like they were before the recession,” says Mark Roberts.

Those rates are especially trying for CTI’s dry loads heading west, which represents a route favored by competitors, including some of the country’s largest carriers with fleets in excess of 10,000 vehicles.

“Because we’re a refrigerated fleet and most of our competition are not, we have a much easier time of heading back east with our produce,” Roberts says, adding that whether it’s east, west, north or south, fuel efficiency is another important key to profitability.

**Solution**

Hanging on to his good drivers and generating the best possible fuel consumption has been a whole lot easier for Roberts since he began specifying Eaton® automated transmissions on new truck orders.

CTI now has 148 trucks with Eaton UltraShift® PLUS Linehaul Active Shifting (LAS) automated transmissions. Much more fuel efficient than a torque converter automatic transmission, the UltraShift PLUS LAS model is built upon Eaton’s popular Fuller 10-speed manual transmission. That has been the most popular transmission specification in commercial trucking in North America.

The automated version uses an electronic clutch actuator to provide faster shifting, smoother engagements, and an ideal combination of fuel efficiency and performance. At idle it...
also fully engages the clutch giving the driver ultimate control in parking lots, loading docks and other tight spaces.

Available in overdrive or direct drive, the transmissions may be paired with the highest torque rated engines available today with capacities ranging from 1,450 lb.-ft. through 1,850 lb.-ft. “Automatic,” “Manual” and “Low” modes give drivers full control of vehicle operation.

Safety features include auto neutral and Hill Start Aid, which prevents roll-back and roll-forward while launching on grades. “Back in 2009, we were one of the original fleets to try UltraShift PLUS transmissions,” Roberts says. “CTI has stayed with them ever since.”

Result
That commitment is now giving Roberts miles-per-gallon fuel efficiency gains as high as one-half percent when compared to his trucks with manual transmissions. “We did a side-by-side comparison using 12 trucks with a stick shift and 12 trucks with UltraShift PLUS,” he adds. “One-half percent is very significant when you take into account the number of miles we cover over the course of a year.”

What’s even more significant is the way his drivers have taken to the automated transmissions — but not before some initial reluctance from his veteran vehicle operators.

“Early on we had some of our more experienced operators asking dispatch to make sure they were given manual transmissions. They did not want the automated ones,” says Roberts. “We eventually had to kind of force them to drive the new transmissions as we continued to add them to our fleet.

“Now when the guys call in I hear they are saying things like ‘that better be an automated transmission. I don’t want a stick’”. He attributes that to the convenience of a two-pedal transmission that eliminates the need for shifting and operating a clutch.

“When they get done with their run, they feel much more rested at the end of the day than they did with a stick,” he adds. “They do not feel as worn out.”

Those fuel-friendly and driver-friendly features have convinced Roberts that Eaton automation will continue to be his transmission of choice well into the future. “We’re nearing the end of another new truck buying cycle and we will have our whole fleet outfitted with UltraShift PLUS when the order is complete,” Roberts says. “At that point, I believe everybody will be much happier.”

“We did a side-by-side comparison using 12 trucks with a stick shift and 12 trucks with UltraShift PLUS. One-half percent [fuel efficiency gain] is very significant when you take into account the number of miles we cover over the course of a year.”

(Left to right) Mark and Keith Roberts, who run Central Trucking Inc., use automated transmissions to help recruit and maintain quality drivers.
A Transmission Evolution

Eaton’s automated transmission offering has evolved from the AutoShift® to UltraShift® to now the UltraShift PLUS and the automated Fuller Advantage™ Series, which demonstrates the latest and greatest in automated transmission technology.

The AutoShift transmission was one of the first automated transmission from Eaton®, launching in the ’90s. Since then, three more transmissions have hit production lines, starting with the Eaton UltraShift — made primarily for linehaul applications — and then in 2009, the UltraShift PLUS. While the first two are still in existence (AutoShift is now only available in Australia, Mexico and South Africa), UltraShift PLUS offers fleets an extensive portfolio, giving fleets flexibility in specifying the transmission they need.

And now, in its latest addition, Eaton has launched the Fuller Advantage Series automated transmission. This 10-speed transmission has a maximum GCW at launch of 80,000 pounds with future expansion to 110,000 pounds. The transmission features small-step technology, which enables down-speeding in overdrive and more efficiency in direct drive. The Fuller Advantage automated transmission is available with certain engines, which you can read more about on pages 8-9 in this magazine.

The UltraShift PLUS series is integrated into every major OE in North America; it’s just a matter of matching the application to the right transmission — from linehaul and heavy haul to vocational, transit and severe-duty needs. Adding to the portfolio, all Eaton automated transmissions can be serviced by any truck dealer in North America, making it even easier for fleets to adopt.

The Differences

Electronic Clutch Actuator: The Electronic Clutch Actuator (ECA) in Eaton’s newest automated transmissions actively shifts based on load, grade and throttle power. With the ECA, this load-based feature allows the clutch to actively open and close during a shift or remain connected to the flywheel. Complete shifts are smooth and quick, allowing for enhanced low-speed maneuverability, particularly in the reverse gears.

Hill Start Aid: An exclusive feature on all UltraShift PLUS and Fuller Advantage automated transmissions, Hill Start Aid helps prevent roll-back on steep grades. This reduces risk and simplifies operation for all drivers, regardless of experience.

Smart Gear Selection and Skip Shifting: To further lessen wear and tear, smart gear selection and skip shifting constantly monitor load, grade and throttle power to select the proper start, acceleration and cruising gear.

Enhanced Engine Braking: All at the flip of a switch, enhanced engine braking provides maximum engine braking to improve downhill performance.

Software Integration: The UltraShift PLUS and Fuller Advantage automated offer improved software that is integrated and adjusted with the engine to provide ideal fuel efficiency and performance.

Eaton’s Automated Transmission Comparison

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<th>Fuller Advantage™ Automated</th>
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See the entire transmission portfolio at www.Roadranger.com/transmissions
GRAB THE GEARS

The Eaton® Fuller Advantage™ manual transmission. Built for your job. Your spec. And your competitive edge. When your drivers choose the pedal as an extension of their years on the road. When Precision Lubrication knocks out power-robbing oil churn. And you lower preventative maintenance while improving fuel economy by up to 1.9%. It’s control you can feel and efficiency you can’t deny. And it’s all backed by the solutions, support and expertise of the Roadranger® network. Drive your choice. Drive on. Find your Eaton® edge at roadranger.com.
Powertrains

SmartAdvantage™: Cummins ISX15 combined with Eaton Fuller Advantage™ automated transmission

The Navistar N13 combined with the Eaton Fuller Advantage™ automated transmission

The PACCAR MX-13 combined with the Eaton Fuller Advantage™ automated transmission
Integrated Powertrains: Meeting Today’s Demanding Standards

Regardless of your truck brand preference, Eaton® is your powertrain partner.

Eaton collaborates with leading truck and engine manufacturers to develop powertrains that meet fleet operators’ needs and demanding standards, including:

- Performance when you need it
- Improved fuel efficiency
- Comfortable drivability
- Everyday reliability and durability
- Safety for driver and surroundings

Through these relationships, Eaton is able to offer fleets optimized powertrains regardless of which truck brands operate in your fleet.

**Eaton Fuller Advantage™ Automated Transmission**

It’s the newest in automation, built by the industry’s most iconic transmission manufacturer, the Eaton Fuller Advantage Series 10-speed automated transmission, which marries the benefits of a direct drive transmission with those offered in an overdrive configuration. Small-step technology (a 26% step between 9th and 10th gear) allows down-speeding in overdrive and efficiency in direct drive that keeps the engine in the “sweet spot” when paired with rear axle ratios in the 2.64 to 3.08 range (depending on tire size and desired cruise speed).

The new Fuller Advantage Series utilizes a new Precision Lubrication system that cuts oil churn-related parasitic losses to improve powertrain efficiency. With less heat being generated, the Fuller Advantage transmissions do not require a cooler, and corresponding lines and fittings. The result is less preventive maintenance required while engine fans cycle less, further reducing horsepower demand. The strategic use of aluminum parts, combined with the elimination of the oil cooler and lines, shave off up to 82 pounds from the system.

The innovative design improvements mean that owners and operators will enjoy the long-term benefits of reduced maintenance costs with every mile. Only 16 pints of oil is required — about one-third less than what’s needed in traditional transmission designs - saving fleet owners money every time a transmission fluid change is required. A new oil level sight glass allows for routine oil checks to be performed at a fraction of the time previously required.

**Cummins®**

Cummins and Eaton have joined together to deliver fully-integrated powertrains with unprecedented performance and fuel economy. The SmartAdvantage Powertrain takes the efficiency of the Cummins ISX15 and ISX12 engines with SmartTorque2 (ST2), and combines them with the smooth-shifting Eaton Fuller Advantage automated transmission for 3-6% better fuel economy¹ for the ISX15 and 2-4% fuel economy improvement for the ISX12. The engines and transmissions share critical data, determining the torque required to deliver the power level drivers need. Error-free, guess-proof shifting makes every driver in your fleet as efficient as your best driver — so you save more money on every haul.

Learn more at www.smartadvantagepowertrain.com

**International®**

Get up to 5% better fuel economy² with the Navistar N13 and Fuller Advantage automated powertrain that is now available in ProStar® linehaul and regional haul tractors. Built for your job and to your spec, the optimized engine and transmission communications, intelligent shifting and downspeeding allows the engine to operate at lower revolutions per minute (RPM) and use less fuel without sacrificing performance. Gear Selection Logic knows the correct starting gear and when to skip shift to maximize fuel efficiency and keep drivers focused on where it should be: the job.

Visit www.internationaltrucks.com or see your local International dealer for more information.

**Peterbilt**

Available in the APEX package, Peterbilt and Eaton have collaborated to create a fully integrated powertrain that delivers superior performance and provides a 4% improvement in fuel economy³. The PACCAR MX-13 engine and Eaton Fuller Advantage automated transmission share critical data, including engine torque and operating gear. Precise engine and transmission communications are combined with proprietary control logic to further enhance down-speeding in both overdrive and direct drive, which maximizes fuel economy. This powertrain simplifies operation for both new and experienced drivers, with smooth, automated shifting that makes driving easier.

Visit www.peterbilt.com or contact your Peterbilt dealer for more information on the MX-13 APEX package.

1 Compared to a 2013 ISX15 with an UltraShift PLUS LAS transmission.
3 Compared to a 2013 T680 MX-13 with an UltraShift PLUS LAS transmission.
4 Compared to a 2013 Model 579 MX-13 and UltraShift PLUS transmission.
If a fleet were to chart the miles per gallon (MPG) of its drivers using a line graph, with the number of drivers along the side axis and MPG along the bottom, it would likely appear as a bell curve, with the majority of drivers falling somewhere in between the best and worst performers and the most fuel-efficient drivers — the minority — appearing on the far right.

There may be some 6 MPG drivers on the far left of the chart and some 8 MPG drivers on the right. But in most cases, the majority of drivers will fall somewhere in between, representing the hump of the bell curve.

Unfortunately, those highly sought 8 MPG drivers are often the minority, and it’s estimated the fuel consumption variance between a 6 MPG driver and an 8 MPG driver is as much as $20,000 per year.

Looking at it another way, if the 6 MPG driver is burning through $20,000 more fuel in a year than the 8 MPG driver, a fleet — assuming a 5% profit margin — may have to generate $400,000 in additional revenue to make up the difference. So:

$20,000 fuel cost / 5% profit margin = $400,000 additional revenue

With that in mind, there’s little wonder why more fleets are looking to Eaton automated manual transmissions to help them improve their fleet-wide fuel economy.

For example, the Eaton UltraShift PLUS series comes in 47 models.
for linehaul and vocational use, and each offers maximum power capacity, superior acceleration and low-speed maneuverability. With new Electric Clutch Actuation enabling intelligent shift selection, drivers can make better decisions when they’re in a tough spot.

Two Hands on the Wheel

There are many advantages to running automated transmissions; the potential fuel mileage improvement is just one of them. Another is less training time required to teach progressive shifting, so those resources can be allocated toward teaching equally important skills such as defensive driving.

With the help of automated shifting, new hires can become comfortable with the equipment more quickly and can immediately begin producing fuel economy that’s on par with a fleet’s most seasoned drivers.

Taking shifting out of the hands of the driver provides safety benefits as well. Drivers can focus on their surroundings and keep two hands on the steering wheel at all times. Driving an automated transmission-equipped truck also reduces wear and tear on a driver’s knee and elbow joints. In stop-and-go traffic, not having to depress the clutch pedal hundreds of times can result in a fresher driver at the end of a shift.

A Changing Driver Pool

Of course, there remain many experienced drivers who are adept at shifting gears and relish the challenge. And some of these drivers may even be able to match the fuel economy performance of the UltraShift PLUS. These drivers, however, are becoming the minority and are becoming more difficult to find all the time.

They’re being replaced with a younger generation of drivers who, in many cases, didn’t grow up driving a manual transmission car, let alone double-clutching their way through as many as 18 gears. Some fleets have discovered automation is the only way this new generation of driver can quickly equal the efficiency of their more seasoned peers.

“If you’re talking about a 30-year-old, the likelihood they’ve driven a manual transmission passenger car goes down,” says Molly Doyle, automation and vocational sales manager with Eaton. It has been widely said that, as a general rule, the fuel economy variance between any given fleet’s best- and worst-performing drivers is as great as 30%. The simplest way to bring parity to the ranks — to shatter the bell curve — is to equip trucks with UltraShift PLUS or the Fuller Advantage Series automated transmission. In fact, Eaton often advises fleets looking to test automated transmissions to put the first units in the hands of their worst-performing drivers and watch as their fuel economy improves.

The improvement is most pronounced in applications that require frequent shifting, such as city driving or regional haul applications.

Luxury of Choice

It is important to keep in mind that automation isn’t for everyone. There are still many drivers who view shifting as an art form, and wouldn’t have it any other way. A masterful shifter rarely needs to consult the tachometer, instead relying on the sound of the engine to convey rpm. They have a set of eyes (score one for the humans!), which, despite all the technological wizardry built into an automated transmission’s electronic control unit, is impossible to replicate and gives these drivers the ability to better judge the profile of the road ahead.

These drivers may represent a thinning segment of the professional driver population, but the good news is, they still have the option of selecting a manual transmission such as the proven 8LL, FR-Series or the new Fuller Advantage Series.

As Doyle says, fleet customers and owner-operators will always enjoy the luxury of choice Eaton provides. “Our reliability numbers are really good on the automated side and we’re really proud of the work we’ve done from a quality standpoint,” she said. “I think we have a good value proposition for both our manual and automated customers.”

<table>
<thead>
<tr>
<th>Driver A</th>
<th>Driver B</th>
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<tr>
<td>Miles Per Gallon</td>
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<td>Fuel Savings</td>
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Powerful Partnerships: How Roadrangers Spec the Right Transmission

An on-highway Roadranger® expert, who works directly with fleets of all shapes and sizes, breaks down how Roadrangers work with customers to tailor the right transmission specs for their fleets. With more product solutions than any of its competitors, Eaton® knows the importance of getting every feature and capability tuned just right.

**BACKED BY**

**Roadranger SUPPORT**

**Q:** How do you size up a fleet’s situation, i.e., the demands on the fleet or its drivers?

**Darrel Newton, Roadranger Linehaul Expert:** We really have to start by looking at what the application is for each fleet. Each one has different criteria of what they need. You’ve got to look at the fleet, what are they doing, what are they hauling, and where.

You also have to look at what their current product is, the legacy product, whether it’s a manual or automated. We also have to figure out what is the fleet’s priority: fuel economy or performance? So you have to really understand which way they want to go. Then we can design a package, and your shift and engine calibrations. For example, we work with the engine manufacturers and dealers to make sure we’re matching up the engine correctly and that they have the right ratios to optimize performance and fuel economy.

For fleets covering the whole U.S., you’ve got to put a package together that will pretty much cover any terrain, especially with the fleets that like to have one spec for everything. But that does affect performance and fuel economy, which is something we have to make sure they understand.

Additionally, some fleets use their truck in multiple operating conditions, such as linehaul and LTL. In these cases, the spec must provide enough flexibility to provide the best operating product for a broader operating range. There is no cookie cutter way of doing things in this business. You may be able to take the same product from one fleet and put it in a different fleet, but have different shift calibrations and different ratios and RPMs in order to meet the other fleet’s needs.

But at the same time, you can’t take one product and put it in a linehaul fleet and expect it to work in an oil field. It just isn’t going to work.

**Q:** How are certain needs addressed through specifications, such as manual or automated, or selecting options like Hill Start Aid?

**Newton:** First, I look at their driver pool. What is their turnover? The reality is that driver pools are changing and today the name of the game is driver satisfaction. Fleets are digging deep to provide trainers and to try to grab all the drivers they can.

But a lot of newer drivers just typically don’t understand how to drive the traditional products. So if a fleet is really looking to get better fuel economy, then an automated transmission may make perfect sense for them because with an automated, we can better control the shift points. One of my customers using automated transmissions even made the comment to me recently that one-tenth of 1% fuel savings still equals $20 million a year. So if you can gain fuel economy benefits off of going from a manual to an automated, that’s just a benefit to them and a benefit to us.

Plus, we’ve got so many options, whether it’s a side-mounted or bottom-mounted PTO, or thru-shaft, we can tailor that to the customer’s needs. Then we can look at what options they would prefer like Hill Start Aid or if they need creep mode.

And helping fleets figure out all those features and specs is what the Roadranger network was built for. Eaton’s Roadranger network is the largest sales, service and aftermarket network — more than 200 experienced consultants and trainers — strategically located across North America providing fleets with support, solutions and expertise throughout the entire lifecycle of the truck.

**Q:** How would certain specs be discussed based on costs?

**Newton:** We look at their trade cycles. Is the fleet going to keep that truck for 5 years, 700,000 miles, or is he going to trade it in earlier at 3-4 years? You look at the warranty packages to match what the trade cycle is to help optimize the cost.

**Q:** Knowing that fleets look to gain a competitive edge, how does that lead you to product recommendations?

**Newton:** An example would be a less-than-truckload (LTL) fleet compared to a steel hauler. For the LTL fleet, their common load may be only 60,000 pounds, whereas you get into the flatbed fleet hauling steel, they’re going to be looking at saving weight any way they can. They need to get the truck as light as possible so they can haul more payload.

But every fleet has a different idea of “competitive edge.” For some it’s their drivetrain, for some it’s routing, but for most it’s about being on time. So it’s really about reliability and making sure fleets have a reliable product to do the job.

And that’s why we’re careful about spec’ing based on the application, and why we work with the dealers to make sure they’re also spec’ing the trucks to match what the customer’s needs are. The fleets I work with look to me not just as a transmission provider but as a solution.

Learn more about how the Roadranger network can assist your fleet at www.Roadranger.com/expert
Eaton® Competitive Advantages

There are 47 models in the UltraShift® PLUS lineup. In case that’s not enough said, here’s a snapshot of a few key advantages over its competitors.

### Eaton® Competitive Advantages

#### UltraShift PLUS Vs. I-Shift/mDrive
- Available with all OEM chassis except Mack
- No “hours in service” limitations on warranty
- Standard Low Mode
- Standard Hill Start Assist
- Standard Manual Mode for driver control
- Uses 6 fewer pints of transmission gear oil than I-Shift
- Broad serviceability and parts availability
- Backed by the Roadranger® Network
- Broad PTO compatibility

#### UltraShift PLUS Vs. DT12
- Available with all OEM chassis except Mack
- Standard Manual Mode for driver control
- Higher GCW
- Uses 4.8 fewer pints of transmission lubricant than DT12
- Broad serviceability and parts availability
- Backed by the Roadranger Network
- Longer service interval
- Broad PTO compatibility

#### UltraShift PLUS Vs. Allison TC-10
- Available with all OEM chassis except Mack
- Standard Manual Mode for driver control
- Higher GCW
- Uses 80 fewer pints of transmission lubricant than TC-10
- Serviced at any OEM dealer
- Lighter weight
- Broad serviceability and parts availability
- Broad PTO compatibility
- Backed by the Roadranger Network

### UltraShift PLUS Competitive Comparison

<table>
<thead>
<tr>
<th>Features</th>
<th>UltraShift PLUS LAS OD</th>
<th>UltraShift PLUS LAS DD</th>
<th>UltraShift PLUS LSE</th>
<th>Volvo I-Shift DD (D11, D13) / mDrive</th>
<th>Detroit Diesel DT12 DD</th>
<th>Allison TC-10</th>
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</thead>
<tbody>
<tr>
<td>Serviceable at any OEM Dealer</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td></td>
<td>■</td>
<td></td>
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<tr>
<td>Extensive aftermarket parts availability</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td></td>
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<tr>
<td>OEM Chassis Availability</td>
<td>All OEMs except Mack</td>
<td>All OEMs except Mack</td>
<td>Navistar only</td>
<td>Volvo only</td>
<td>Freightliner only</td>
<td>Navistar only</td>
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<tr>
<td>Active Shifting</td>
<td>■</td>
<td>■</td>
<td>■</td>
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<tr>
<td>Programmable Creep Mode</td>
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<tr>
<td>Hill Start Assist</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>Optional</td>
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<tr>
<td>Small-step Technology (gear ratios)</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
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<tr>
<td>Engine Overspeed Protection</td>
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<td>■</td>
<td>■</td>
<td>■</td>
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<tr>
<td>Enhanced Engine Braking</td>
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<td>■</td>
<td>■</td>
<td>■</td>
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<td>Grade Sensor</td>
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<td>■</td>
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<tr>
<td>Manual Mode</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td></td>
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<tr>
<td>PTO Provisions</td>
<td>6 bolt / 8 bolt / Thru Shaft</td>
<td>6 bolt / 8 bolt / Thru Shaft</td>
<td>6 bolt / 8 bolt / Thru Shaft</td>
<td>Rear European Thru Shaft</td>
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<td>Rear (optional)</td>
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<td>Oil Capacity (pints)</td>
<td>26</td>
<td>26</td>
<td>28</td>
<td>32</td>
<td>30.8</td>
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<tr>
<td>Oil-level Sight Glass for Quicker Preventive Maintenance</td>
<td>■</td>
<td>■</td>
<td>■</td>
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<td>Service Interval (miles)</td>
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<td>500k</td>
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<td>GCWV (lbs.)</td>
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<td>110,000</td>
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<tr>
<td>Transmission Warranty (linehaul)</td>
<td>5 yrs/750K</td>
<td>5 yrs/750K</td>
<td>5 yrs/750K</td>
<td>5 yrs/750K / 15k hours</td>
<td>5 yrs/750K</td>
<td>5 yrs/750K</td>
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<tr>
<td>Clutch Warranty (linehaul)</td>
<td>3 yrs/350K</td>
<td>3 yrs/350K</td>
<td>3 yrs/350K</td>
<td>3 yrs/300K / 7k hours</td>
<td>3 yrs/350K</td>
<td>N/A</td>
</tr>
</tbody>
</table>

See the entire transmission lineup at www.Roadranger.com/transmissions
EATON FACTORY REMAN

The next best thing to a new transmission.

Every Eaton Factory Reman is built with more new parts than an ordinary rebuild. Every standard unit includes a new clutch housing and all units are performance tested to ensure the same quality as a brand new transmission. It offers a best-in-class nationwide fully transferable 2-year/unlimited warranty, 14 locations nationwide for same- or next-day delivery for truck-down situations and is backed by Roadranger® Support.

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GENUINE PARTS & REBUILD KITS

If you’re looking for a cost-effective way to keep an Eaton® truck all Eaton, Genuine Eaton Overhaul Kits, Rebuild Kits and Bulk Parts offer a variety of options at every level. Buy Eaton Rebuild Kits for:

- Unmatched quality, value and peace of mind
- Latest engineering design updates
- 100% Eaton content, backed by Roadranger® Support

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FLEX REMAN TRANSMISSION

More Uptime. Fewer Part Numbers.

With the FLEX Reman, 10 part numbers cover 80% of the market need. It features a best-in-class fully transferable 2-year/unlimited mile warranty.

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ROADRANGER® EXTENDED PROTECTION PLANS

A Roadranger Extended Protection Plan eliminates worry over expensive, unplanned repairs.

BACKED BY ROADRANGER® SUPPORT

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ROADRANGER® NETWORK:

- Supporting all makes, models and configurations of commercial vehicles.
- Over 4,000 service and aftermarket partners throughout North America.
- Roadranger real-time warranty provides timely response to warranty claims.

THE ROADRANGER® NETWORK:

- Supporting all makes, models and configurations of commercial vehicles.
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NOW AVAILABLE IN ALL COMMERCIAL VEHICLE APPLICATIONS

Eaton Reman Transmission

Eaton Advantage Series™ Clutch

Roadranger-Approved Lubricant

= 3-Year/Unlimited-Mile Transmission Warranty*

*Applying to applications only in the U.S. & Canada. Please refer to the Roadranger Warranty Guide (TCWY0900) for the latest warranty time and mileage offerings.

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Learn about the best aftermarket solutions for your fleet. Topics include: Transmissions, Clutches, Extended Protection Plans and more. All tailored to your unique need.

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SOLO ADVANTAGE™ SELF-ADJUSTING CLUTCH

The Solo Advantage Self-Adjusting Clutch features exclusive technology that keeps the clutch in constant adjustment. It also features spring-loaded cams that adjust for proper clearance with every disengagement. If your truck has hydraulic linkage, Solo is the only way to go.

If you replace a truck with hydraulic linkage with anything other than a Solo Advantage, it is difficult for the driver to detect the need for adjustment. A clutch operating out of adjustment creates excess heat and friction, which diminish clutch life. If unaddressed, this results in damage to the clutch and hydraulic release system components.

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EATON'S FULL PORTFOLIO OF CLUTCHES—TIRED TO MEET A RANGE OF NEEDS FOR PERFORMANCE, PROTECTION AND VALUE.

Best: Easy Pedal Advantage® Manual Adjusting Clutch

Better: EverTough™ by Eaton

Good: Solo and Easy Pedal Remans and ValueClutch™

Industry-leading vibration dampening along with Eaton proprietary friction material to protect the driveline and extend service life. Advantage Series release bearing extends lube interval to 50k in linehaul applications.

The reliability of a new clutch at the price point you need. Features aftermarket specific facings, a visible wear indicator and a 25,000-mile lube interval for linehaul applications.

Solo and Easy Pedal Remans are built to Genuine OE specs but priced for savings. The ValueClutch line is everything you expect from a new clutch at about the same price as a non-genuine clutch.

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