BROUGHT TO YOU BY THE EDITORS OF TRUCK NEWS, TRUCK WEST AND MOTORTRUCK FLEET EXECUTIVE

SPEC SMART

A guide to help you grow your operation with the right new or used truck

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INTRODUCTION

Welcome to **SPEC SMART**, our guide to spec'ing new and used trucks. Our annual Equipment Buying Trends Research shows that Canadian carriers and owner/operators are growing increasingly optimistic about their business future as freight volumes rise and economic indicators look positive. For the first time since the recession, our research is showing genuine interest among both carriers and O/Os in replacing their older vehicles and perhaps adding to their capacity. This multi-media guide, written by the editors of Transportation Media, is meant to help you make the most of your new and used truck purchasing decisions.

Lou Smyrlis
Publisher & Editorial Director
Transportation Media

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Spec'ing for the long haul

BY HARRY RUDOLFS

What to look for when purchasing your next highway truck

Fuel efficiency and driver comfort are the two major variables when spec'ing highway trucks. So automated transmissions would seem to be a winner on both counts. When set up properly they can save fuel dollars and they're hard to break and abuse. Some new drivers wouldn't know what a clutch is, and most veteran drivers have come around to be accepting of this technology. But opinions among fleet owners are still divided on the subject.

"I've just sold twenty trucks, ten of them were automatics and the other ten were ten speeds," says Alain Jeanson, leasing manager for International Rive Nord of Montreal, Que. "My take is that pretty soon all of those sales will be automatics. New drivers are more comfortable with automatics and they are getting much cheaper to buy and service in the long run."

Andre Ruest, sales manager of Camions Volvo Montreal thinks the move to automated transmissions is even more dramatic. He estimates that 85% of the highway trucks he sells are fitted with Volvo's I-Shift transmission. "We used to sell a lot of 13 speeds, but owner/operators and fleet managers have to manage fuel economy, and the I-Shift dictates to the engine how the truck should be driven."

However, Jean-Francois Page, general manager of Transport Herve Lemieux, has only recently resumed purchasing automatics. "We just bought 12 trucks with automatic transmissions," he said. "We had stopped buying them in 2008-09 because of some reliability problems. But we see a slight increase in fuel economy and the newer automatic transmissions are easier on the driver and the mechanic."

Page has two types of spec's for his highway trucks. "On the heavy side, we haul everything to 130,000 GVW," he says. "And we buy a lot of trucks, maybe 30-50 per year, so what we're looking for is equipment that can do more than one application. For heavy loads highway we're looking for something close to 500 horsepower and 1750-1850 lb/ft of torque. For the regular haul we use trucks with 425 hp and 1550-1650 lb/ft."

"Most heavy highway operators prefer a 15-litre engine," according to Mike Donnelly, director of sales for Harper Truck Centres Inc. He thinks that the Detroit DD15 engine paired with DT12 automated 12 speed transmission is a good fit for long haul work. Depending on the need, the motor can be set from 455 to 505 horsepower, and 1,550 to 1,750 ft/lb of torque, respectively.

Long Combination Vehicles (LCVs) or double 53-foot trailers, are becoming a more popular option among carriers and shippers alike. A customer might order one or two LCV-capable tractors out of every dozen or so purchased, just in case they acquire a permit or some LCV work in the near future. But the tractors have special requirements. "LCV tractors have to have at least 450 horsepower engines, a 19 CFP compressor, anti sail – anti spray mud flaps and stability control systems," says Donnelly.

"Apart from the higher horse power, a customer spec'ing an LCV unit may want to consider a 13-speed transmission," he adds. "Because LCVs operate from April to November at a highway speed of 90 kph, in winter, the same vehicle will be working with a single trailer setup with a top end of 105 kph. A 13-speed will help the driver keep the engine at optimum RPMs to ensure the best fuel economy."

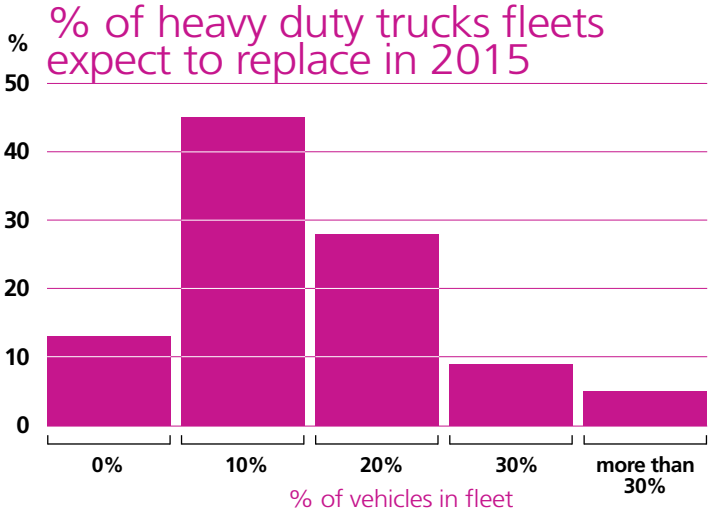
Jeanson of International provides some other power options. "We have our N13 with urea that replaces the Maxx Force 13. It puts out 500 hp at 1700 lbs of torque," he says. "And if you want something with more power, the Cummins ISX 550 hp supplies 1850 lb/ft toque. It depends on what you're doing. If you're running western Canada you might want a little more torque and horsepower, but you might not need that much if you're running the eastern US and the Atlantic provinces."

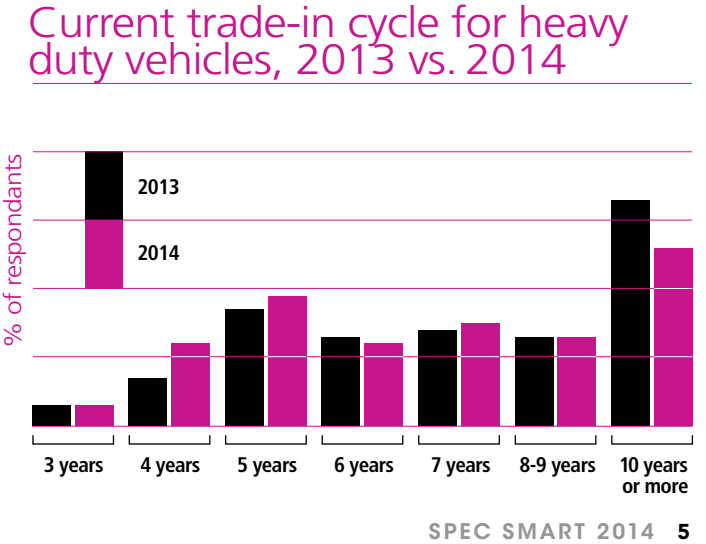
The trend in engines continues towards lower horsepower, lower RPMs and higher torque. Ruest suggests Volvo accomplishes this with their D13 motor set between 425 to 455 horsepower. But as RPMs have declined, rear end ratios have had to become more aggressive. For instance, to run 65 mph at 1,406 RPM, a rear end ratio of 3.25 is optimum. Even more startling is Volvo's XE package which churns at a much lower sweet spot, and requires 2.64 rear ends to run 65 mph at 1,142 RPMs.

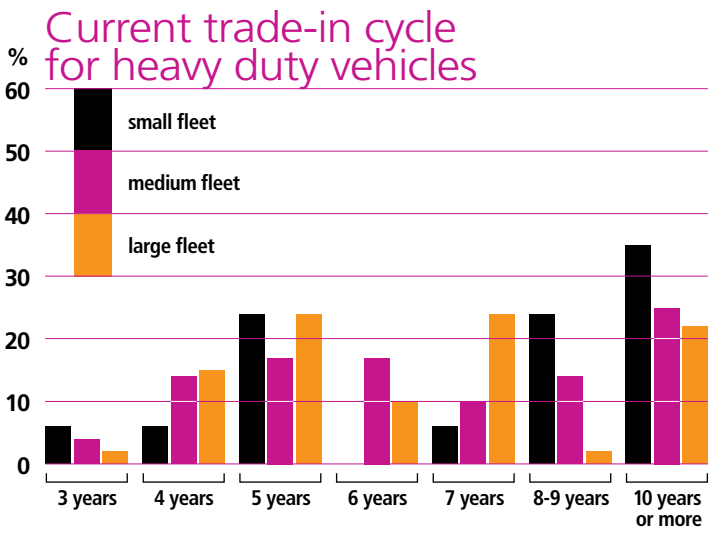
For Page of Transport Herve Lemieux, getting the rear end ratio right is a matter of trial and error. "If we're not sure what to buy we'll do some testing ourselves. For example if we buy ten trucks with the Detroit DD15, we might get three with 3.55 rear end, three with 3.73 and the rest with 3.90. When we find out which is the best for fuel economy and our applications, we'll change the rear ends on the other trucks."

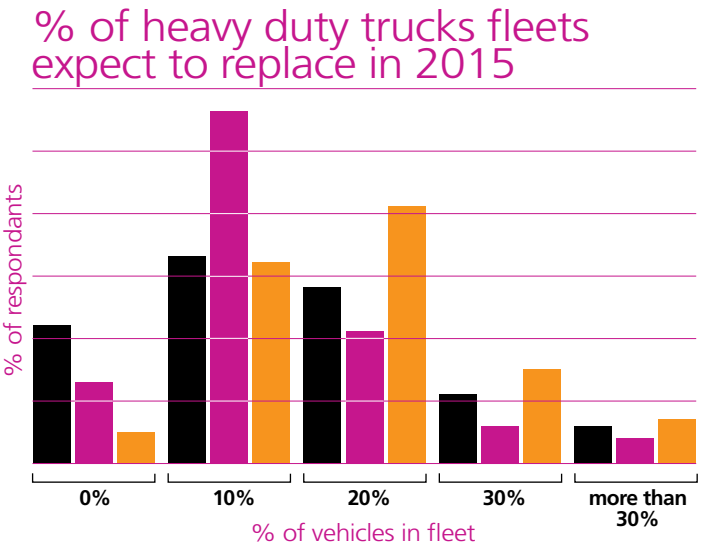
All of Lemieux's new tractors are fitted with a 5 minute anti-idling shut down, engine speed set at 102 kph, a programmed delay on the engine brake, and a single axle lock-up (Page doesn't want his drivers inadvertently operating the vehicle with both drive axles locked up). APUs and electric-powered AC systems are ordered with each new vehicle and factory-installed.

Driver comfort is huge with this carrier and Page orders full condo sleeper cabs for his highway driv-









ers. "We always order a big sleeper because this is the driver's home for 5 or 6 days per week. He steps into the truck on Monday morning and doesn't get out of it until Friday night or Saturday morning. It's also important for the driver to have some personal space where they live. All our sleepers have refrigerators, microwaves and most have televisions."

Page's company might be the exception when it comes to full size sleeper cabs. Team operations typically have to have a double bunk, but Alain Jeanson thinks there will be a trend towards smaller sleepers and shorter wheelbases. "One measurement that then becomes important is from the middle of the front axle to the back of the cab. Some carriers are looking to save weight and ordering smaller sleeper cabs, 56 inches instead of 73 inches, and that makes the turning radius sharper, too. Most importantly they want to keep the gap between the tractor and trailer to a minimum."

Ruest of Volvo sees the smaller cabs and shorter wheelbases as problematic at times. "Let's say you're going with a 213" wheelbase and a 670 model Volvo cab, instead of the 780 version, which is 12 inches longer. You're going to have to plan where to squeeze in the APU, the battery-powered overnight air conditioner, and what size of fuel tanks – perhaps go with a 175 litre tank instead of a 250."

Regardless of where on the frame you put your accessories, Ruest thinks that smaller fuel tanks are a good idea. "Diesel weighs 7.3 lbs per gallon and if you can cut back by 50 gallons that saves 365 lbs you're carrying around. And you'll still have a range of 1,000 miles. If you're running Montreal to California you want to bring back as much payload as you can."

Another weight-saving idea is to run the exhaust horizontally under the tractor rather than using a traditional stack. Ruest estimates that eliminating the bracket and fittings alone will save another 175 lbs. It also frees up several valuable inches of space behind the cab. "Truck engines are running extremely clean, and since there's no more black smoke, there's no problem with running the exhaust underneath," he says.

Most of Ruest's customers are interested in the full aerodynamic package which includes an aerodynamic bumper skirt, adjustable trim tabs on the overhead faring, extended cab sides, and wraparound cab farings with removable panels that allow easy access for maintenance purposes.

"The days of running at 80 mph are over," says Ruest. "To make money in this business you're going to have to pay attention to fuel economy." To be sure, fuel saving strategies are common in the industry. Class 8 trucks in Ontario and Quebec are limited to 105 kph, but some carriers have gone further and set their power units lower at 98 kph. In some cases, they've swapped 15 litre engines for 13- or 14-litre models to save fuel.

But driver retention remains an abiding concern. Automated transmissions will save wear on drivers' knees, elbows and shoulders, and air ride seats will probably be equally good for the lumbar and vertebrae. It's unlikely you would step into a truck these days that doesn't have a good stereo, AC and an air ride seat with lots of buttons and levers. The fact that some carriers spec' for a top of the line Bose seat, a $6,000 option, speaks to the investment they're willing to make in their equipment and drivers. **SS**

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GET BEHIND THE

PETE 579 EPIQ DELIVERS EPIC FUEL SAVINGS

Peterbilt's most fuel-efficient highway tractor has gotten even more efficient with the introduction of the new EPIQ package. The new offering combines chassis fairings and other aerodynamic enhancements with an optimized APEX powertrain, a tire pressure monitoring system and driver coaching system.

The 579 EPIQ is powered by the Paccar MX-13 engine, mated to the Eaton UltraShift Plus automated manual transmission.

But it's not just the fuel efficiency we loved about this truck. It featured excellent visibility due to a lower beltline, taller windshield and repositioned mirrors. Meanwhile, triple-sealed doors and fewer pass-through holes in the cab reduce road noise.

A discrete sleeper design gives owners the flexibility to convert the 579 into a day cab to broaden its resale appeal.

The sleeper cab is homey, with well-placed and abundant storage and a smartly deigned wardrobe that's tall enough to hang clothes and still have room at the bottom for footwear.

Click here to read the full story

VOLVO'S SMOOTH-CRUISING HEAVY-HAULER

With its VNX, Volvo set out to bring the comforts of its on-highway VN series to the heavy-haul segment. Mission accomplished. The VNX drives smoother than a heavy-haul tractor should and made easy work of a 125,000-lb load of trash on our drive through southern Ontario.

The VNX is powered by Volvo's D16 engine with up to 600 hp and the I-Shift automated manual transmission comes standard.

A manual transmission is optional but the I-Shift is fully capable of handling heavy payloads. The VNX is targeted at applications that will be on-highway about 95% of the time but will need to venture off-road on occasion.

Certain attributes from Volvo's VHD series of vocational trucks have been carried over, including the 10-inch ride height and heavy-haul bumper. But it drives more like a highway tractor than a vocational truck and brings an unexpected level of comfort and ease of operation to the heavy-haul segment.

Click here to read the full story

WHEEL

Read our latest test drives from executive editor James Menzies

KENWORTH TOUTS FUEL-ECONOMY ADVANTAGE IN T680 ADVANTAGE SERIES

A set of fuel-saving specifications has been added to Kenworth's already efficient T680 to make it even more so. The T680 Advantage features full chassis fairings, the Paccar MX engine, the Eaton Fuller Advantage Series automated manual transmission, efficient axles and low rolling resistance tires. To make it an Advantage, customers must also choose one of several other fuel-saving features, which could include anything from wide-base single tires to Kenworth's Smart Wheel.

We like the Smart Wheel because it places commonly used controls at the driver's fingertips. How can this save fuel? Kenworth believes it promotes the use of cruise control, which can contribute to further fuel savings.

The T680 Advantage provides fuel savings of 5-6% compared to your typical 680. However, it takes into account the specification of a 6x2 drive axle, which is currently prohibited in Canada, so we'll have to settle for fuel savings more in the range of 2-4%.

Still, the T680 is a well-designed truck that's extremely comfortable to drive. Drivers can be proud to drive it because of its styling and creature comforts while fleet owners can be equally proud because it says to customers that they've done everything possible to reduce their fuel costs.

Click here to read the full story

A MADE-FOR-CANADA POWERTRAIN FROM CUMMINS AND EATON

When you hear the manufacturers of loose engines and transmissions preaching the benefits of integration, you know the message is taking hold with fleets.

Cummins and Eaton have been working more closely together than ever before in order to deliver the benefits of vertical integration previously only available from the truck OEMs and their own engine and transmission products.

We drove an International ProStar that's been deployed with Challenger Motor Freight to check out one example of this heightened level of engineering collaboration. It's an ISX15 mated to a 16-speed Eaton UltraShift Plus transmission. We really appreciated the performance of this duo. The small steps between gears in the transmission provided quick, precise shifting.

This is a made-for-Canada combination, capable of hauling 80,000-lb payloads right up to 110,000 lbs. Canadian fleets require this versatility to handle domestic and cross-border loads.

This is a team truck that runs Cambridge-Vancouver and with more than 300,000 kms having passed under its tires in just one year, we were surprised to find it drove as though it were fresh off the assembly line.

Click here to read the full story

GET BEHIND

A NEW STAR SHINES BRIGHT

Western Star is back in the game with a new highway tractor designed to be edgy and fuel-efficient at the same time. The 5700XE will bring an edge to aero when it debuts in 2015.

The Daimler-owned brand is synonymous with the heavy-haul and vocational segments but it has lost a step in the on-highway business, where even the most traditionally minded customers need a fuel-efficient truck. The 5700XE offers fuel economy without compromise. It has retained the distinctive styling Western Star is known for and design engineers insist the truck will be able to hold its own in fuel economy when compared to the industry's leading aero models.

The 5700XE screams luxury inside and out. It will be offered exclusively with an all-Detroit powertrain, though Eaton manual transmissions will be offered alongside the hugely popular Detroit DT-12 automated manual.

When this truck is released, there'll be a race to be among the first to place them into service. Fleets operating this truck will stand out from the pack and drivers will be lining up to get in one. We spent two hours with this truck in the Nevada desert and left convinced that if it's priced right and fuel economy expectations are met, the 5700XE will launch Western Star into relevance in the on-highway truck market.

Click here to read the full story

COULD A DUAL FUEL SYSTEM BE YOUR TICKET INTO ALTERNATIVE FUELS?

So you've heard about the benefits of inexpensive natural gas but you've been scared off by the hefty price tags associated with these vehicles? Well, you may want to consider a dual fuel solution, which can be retrofit on any Class 8 tractor and provides net fuel savings of 20-25% for the more palatable cost of about $16,000 installed.

Too good to be true? We sent our on-highway editor Harry Rudolfs to test the system deployed by Universal Truck Rental and Alternative Fuels Alternative Solutions. Harry found the 2007 International with an 11-litre Cummins ISM engine performed just like any other diesel - and that's a good thing.

The truck was deployed with W.S. Bell Cartage and its everyday driver weighed in with his opinion on the system. A dual fuel system such as this one could be your cheap ticket into the growing alternative fuels space.

Click here to read the full story

THE WHEEL

PETERBILT'S NEW VOCATIONAL TRUCK

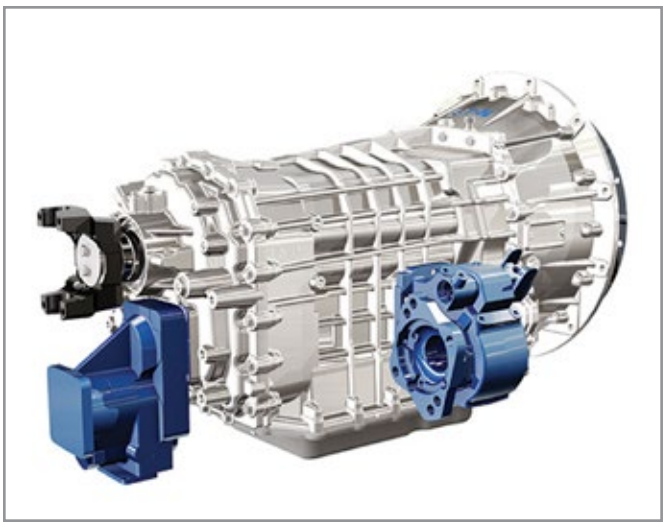
At the same time it was developing the on-highway Model 579, Peterbilt set out to bring a new vocational truck into the family. The Model 567 will eventually replace the 365/367 but is currently only available in a set-back axle configuration.

The truck shares a cab with its on-highway brother but it has been built to handle punishing vocational environments. Hemrods provide stronger connections than traditional huckbolts. One of its most obvious vocational attributes are the pod-style exterior headlights which stand apart from the fender for easier bulb replacements and repairs.

A deer strike bar is hidden behind the grille to limit damage when wildlife strikes occur. The mirrors are mounted on the door, providing better visibility but also the ability to open the door before backing to get a more complete look down the side of the truck.

The truck drove well on bumpy roads even while empty. We didn't get thrown around as much as we were prepared to. A quiet cab with automotive-inspired styling provides a comfortable workspace for the driver. A pullout tray gives the operator a functional desk that then tucks away tidily when not in use. The 567 is a great truck that spoils the driver and brings unexpected luxury to the construction site.

Click here to read the full story



ARE TWO CLUTCHES BETTER THAN ONE? SOMETIMES, THEY ARE.

Eaton is bringing to market North America's first dual clutch transmission for medium-duty truck applications. This is a major product breakthrough. A dual clutch transmission, as the name implies, employs two clutches and actuators. When the vehicle is in operation the second clutch pre-selects the next required gear so that shifting can be done seamlessly without the torque interruption normally experienced with manual or automated manual transmissions.

Meanwhile, the new Procision retains the relative simplicity of an automated manual design and eliminates some of the inefficiencies inherent in torque converter-style automatic transmissions.

Eaton expects customers will see fuel savings of 8-10% compared to a torque converter automatic. But it's the handling and safety attributes that really caught our attention when testing the Procision at Eaton's Marshall, Michigan proving grounds. **SS**

Click here to read the full story

GET USED TO IT

Why buying used may be the best option when adding to your operation

BY SONIA STRAFACE

When buying a truck there are a lot of questions that can flood one's brain and sometimes the answers aren't exactly clear. What brand of truck do I want? What kind of protection plans are offered with this one? What kind of fuel mileage am I looking to get and will this truck give me that? Which truck will be the best for my operation?

Sometimes truck shopping can be overwhelming, but the first question you should ask yourself before spending a good chunk of change on a rig (or rigs) is should I buy new or used?

The argument for buying used isn't hard to defend: most often trucks are well maintained if you go to the right dealer and buying used can save you money in the long run if you look out for the right things.

Recently, *Transportation Media* caught up with a few esteemed used truck salespeople and asked them why buying used may be the best option.

According to Vik Gupta, the general manager of Arrow Truck Sales in Mississauga, Ont., most people buy used when are they new to the industry or have a smaller fleet to work with.

"It's always a good idea to take a baby step," he said. "Before we run, we need to walk. So trying something (as a new person to the trucking industry) with used trucks with an extended warranty, will at least give you a good feeling, and you can see if they can make money in this industry. After that, then you can buy new if you want."

Gupta said a quality used truck usually goes for anywhere between $40,000-$60,000 whereas a new truck can run you anywhere from $130,000 and above. So saving money will ultimately be the best bet for smaller fleets or newer fleets who may not be exactly flush with cash when starting out.

That said, Gupta stressed the importance of doing your homework before going out to buy a truck. He said people shopping around should be aware of shady dealerships that can take advantage of new buyers.

"As a buyer, you should go to a reputed dealer," he said. "And visit dealerships that have been around for a long time. People should also look out for the proper reconditioning of the trucks as well, because many dealerships can take advantage of you."

You should look to make sure the dealer

has the trucks full history of service records, said Harvey Butcher of Tallman Truck Centre in Oshawa, Ont.

"We have all the maintenance records for our used trucks since day one so the customer knows the truck they're about to buy has been well maintained since the beginning," he said.

You should also pay attention to the number of clicks the rig has, said Butcher.

"In a perfect world, you'd buy a used truck with low kilometres," he said. "But that doesn't always happen. In that case, people should buy a truck that has been very well maintained even it has a lot of kilometres on it."

Gupta agreed with Butcher about mileage being the number one concern for used truck buyers, but added that with all the new technology and advancements in today's trucks, most are looking for a rig with modern spec's and transmissions. It's important to keep that in mind while shopping too – good used truck sales centres should have lots of spec's to keep your options open.

"Low mileage is the first preference," he said. "But now, people are looking at the spec's in the truck too. Many of our customers are looking for automated transmissions. We see a lot of customers coming in and looking for iShift transmissions and they are very educated now because they believe the performance of this transmission is really good."

A good tip for buying used from Butcher is for customers to get behind the wheel and test drive the truck before taking out the cheque book. He said at Tallman, employees and salespeople are sure to let customers test drive the vehicles first and ask any and all questions before the sale is made.

"We like to make sure that when they leave they are 100% certain that this is the truck they want," he said.

Keep warranty plans in mind as well when shopping. Some truck dealerships may even offer extended warranties and other bonus incentives,.

"We have extended warranty plans on both the engine and transmission," said Gupta who added that recently Arrow Truck Sales included roadside assistance to their packages.

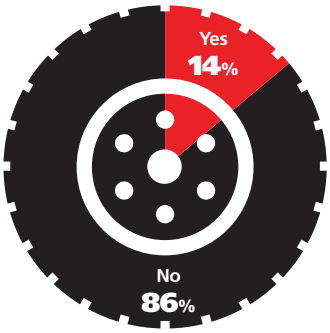
"We offer our customers roadside assistance, not just for a year, but for the full term of the truck which they finance," he said. "It's not mandatory for the trucks that you buy here at Arrow either. Customers can still buy roadside assistance here for trucks they didn't buy at Arrow." **SS**

A USEful option

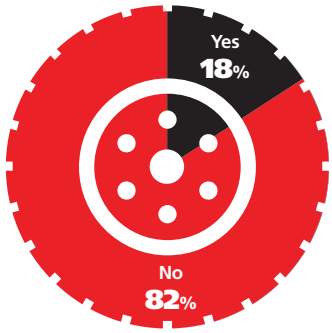
What Canadian fleets look for when purchasing used trucks

With new truck prices much higher than they were during the previous economic growth spurt, buying used is an option many Canadian fleets consider. Our annual Transportation Buying Trends Survey reveals more than two thirds of fleets have purchased used trucks in the past, and almost one fifth are looking to repeat that strategy next year. Read on to find out what they will be looking for in a used truck purchase.

PLANS TO PURCHASE USED TRUCKS



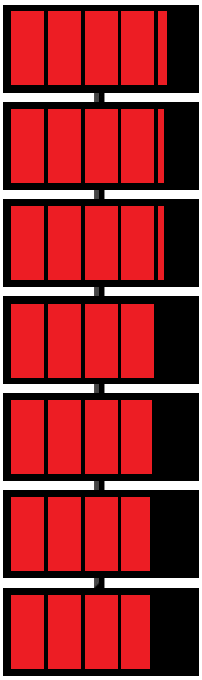
Remainder of 2014



In 2015

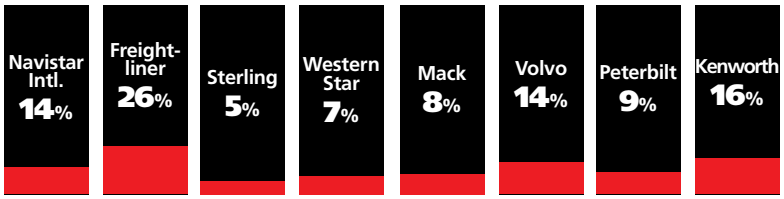
PURCHASED A USED TRUCK BEFORE

MOST IMPORTANT FACTORS IN USED TRUCK SELECTION
(ranked on a scale of 1 to 5 with 5 being the most important)

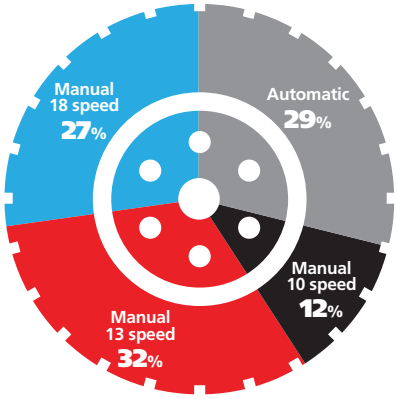


- Age of truck/mileage **4.36**
- GVW/payload capacity **4.19**
- Availability of parts **4.21**
- History of truck **4.02**
- Type of Transmission **3.94**
- Horsepower **3.88**
- Availability of preferred engine brand **3.89**

BRANDS CURRENTLY IN FLEET



TYPE OF TRANSMISSION PREFERRED



How downspeeding can destroy your driveline

The Dana Spicer AdvanTek 40

Downspeeding is great for fuel economy, but it can wreak havoc on an underspec'd driveline

The trend towards downsped powertrains is unlikely to abate, since a 1% fuel economy gain can be achieved for every 100 rpm slower the engine runs. Several powertrain offerings have come out in recent years that downspeed 200 rpm, providing a 2% fuel savings, which can amount to about $2,200 per truck annually based on US fuel pricing.

But those savings can quickly vanish if your truck is stuck on the side of the road with a mangled driveline.

This is a legitimate concern, according to Mike Schwanzl, senior manager, field sales with Dana. Schwanzle outlined these issues to *Transportation Media* during a one-on-one briefing at the recent American Trucking Associations Management Conference & Exhibition.

Downsped powertrains "need faster axle ratios to deliver the same horsepower to the driveline," Schwanzl explained. "This brings with it the challenges of more torque in the drivetrain. As axle ratios go down numerically, the driveline torque increases."

Dana claims a downsped engine at cruise speed increases torque in the driveline by 57%. Fortifying the driveline is the only way to protect it against the resulting long-term torque stresses.

Dana has introduced the new Spicer Advantek 40 tandem axle specifically to address this new challenge. It has the industry's fastest axle ratios of 2.26:1, to handle the higher axle input torques resulting from lower engine rpms at cruise speeds.

The Advantek 40 is a more robust tandem axle than previous designs, and also weighs about 20 lbs less. It is coupled with the SPL 350 driveshaft and SPL inter-axle shaft to collectively provide a "fortified" driveline capable of handling the increased torque generated by downsped powertrains, Schwanzl explained. While the Advantek reduces weight by 20 lbs, the SPL 350 driveshaft actually adds 50, for a net loss of 30 lbs. However, Schwanzl pointed out the SPL 350 and SPL 250 have 40% greater torque carrying capability and twice the bearing life over competitive designs. He also noted a lighter-weight steer axle is in the works to gain back some of the weight added by the SPL 350's heavier-duty u-joint.

Dana claims these are the only driveshafts and inter-axle driveshafts in the market today that can provide a million mile life expectancy in a downsped powertrain environment.

However, beefing up the driveline isn't the only thing a fleet can do to reduce the risk of damage. Schwanzl suggested fleets also torque-limit the engine through a software recalibration. This will minimize the risk of overloading the driveline in lower gears.

"We advocate a combined approach," he said.

With fleets and OEMs pursuing even greater fuel economy, Schwanzl said the trend towards slower-running engines and the higher torque loads they create is here to stay.

"We are hearing the OEMs want to move down towards 900 rpm cruise speeds, so torques will continue to rise," he said. "We need to anticipate that and engineer solutions now to accommodate more torque in the driveline."

In the meantime, since the concept of downspeeding is still relatively new, fleets need to ensure they're spec'ing their drivelines appropriately. Schwanzl said Dana saw a spike in equipment failures over the winter – especially in low-speed maneuvers – because customers paired downsped powertrains with traditional drivelines.

Some fleets now stuck with an incompatible system have gone so far as to retrofit their driveline components.

"We have retrofitted a couple of fleets but that's expensive to do – it's really not practical," Schwanzl said.

Dana has published a white paper that explores this issue in more detail. It can be found here.

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