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2015

GUIDE TO TOWING



SELECTING A TOW VEHICLE

TOWING TIPS • HITCHING BASICS

TRAILER-BRAKE CONTROLLERS

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TRAILER LIFE

FOLLOW THE ROAD TO ADVENTURE

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CHOOSE WISELY

Keeping within manufacturer-assigned tow ratings is critical in making the appropriate model and option choices

There are many variables to consider when selecting the proper tow vehicle for your application. Among them are budget, brand and towing capacity — and it's important to examine them all carefully before making a purchase. Going through the effort to better understand each variable and to account for all of them up front will lead to a more pleasant trailering experience.

WEIGHT

The tow-ratings guide in this section lists the maximum tow ratings for vehicles with specific equipment, but many buyers interpret the vehicles' maximum tow ratings with far too much optimism. Always check the manufacturers' figures before making a purchase.

The following is an explanation of the terms you need to know, which, when combined with readings from a public scale and your own calculator, should help you determine the correct tow rating for the tow vehicle.

Gross Combination Weight Rating (GCWR):

The total allowable weight of the tow vehicle, the trailer, the cargo in each, hitch hardware, fluids and occupants.

Gross Vehicle Weight Rating (GVWR): The total allowable weight for the vehicle, including occupants, fluids, options, hitch hardware, cargo and trailer-hitch weight.

Gross Axle Weight Rating (GAWR): The total allowable weight on an individual axle. This includes the weight of the tires, wheels, brakes and the axle itself.



Maximum Tow Rating: The manufacturer's weight limit for towed loads. For conventional trailers, this normally includes a hitch-weight limit as well; for fifth-wheels, the pin weight is applied to the truck's GVWR and its rear-axle GAWR.

MATCHING UP THE TOW VEHICLE AND TRAILER

The GVWR and GAWR for all motor vehicles are listed on the data plate, which is typically affixed to the driver's door frame, fuel door, glove box, end of the dashboard or other easy-to-access location. Brochures and window stickers may be inaccurate; always look for the data plate. All trailers should have a weight sticker on the left front side wall. There should also be a sticker in an interior cabinet that lists the trailer's unloaded vehicle weight (UVW), GVWR, weight added by freshwater and LP-gas and the resulting cargo carrying capacity (CCC).

In many cases, especially on older trailers, optional equipment — such as air-conditioning units and AC generators — sneaks on board after weighing and may not be re-

flected on the sticker. (And don't forget the fuel-fill tanks that some SURVs offer for campsite refueling of motorcycles and ATVs.)

The Recreation Vehicle Industry Association (RVIA) weight label requirements are more inclusive of dealer-added options and make it much easier for buyers to have access to more accurate weight figures.

The GVWR figures are neither guidelines nor estimates; they are limits, and there are numerous valid reasons the manufacturer arrived at these figures. If you think the figures are "close enough" or have a fudge-factor percentage built in, think again. The warranty coverage for the vehicle, and your safety, may be at risk.

The only surefire way to find out what your trailer weighs is to load it as usual for a trip and weigh it at a public scale. There you can get the hitch weight, axle weight and total weight. Assuming that the axle weight is lower than the GAWR, the total is within the GVWR and the hitch weight is lower than the maximum given for your tow vehicle, you can then move on to tow-vehicle selection.

When purchasing a trailer, consult the weight sticker on the unit of your choice on a dealer's lot and refer to the UVW and CCC. Estimate how much cargo you will add, being mindful of the GVWR, and use that number while selecting a tow vehicle.

To a lesser extent, tow-vehicle weight is variable as well. Brochures and tow guides frequently list how much a tow vehicle weighs, but this number generally applies to the most basic model in that configuration, without any options. In some cases, distinctions are made by engine, transmission, drive system (2WD or 4WD/AWD) and, in other cases, by cab or bed styles. If the dealer does not have a vehicle equipped as you want that is available to weigh, or cannot provide option weights, you can form rough estimates — but exact figures are the only way to be certain.

Bigger engines add weight — diesels are up to 700 pounds heavier than the standard gas engine. Add up to 175 pounds for an optional transmission, about 400 pounds for 4WD and a bit less than 300 pounds for longer beds. Then add other options like luxury-trim levels, as all those electric motors add up. The towing package and hitch could add another 100 pounds, and larger wheels and tires can also have an effect.

FOR EXAMPLE

Here is an example of how to calculate the realistic towing capacity of a vehicle: Consider a fictional one-ton diesel longbed extended-cab pickup with 2WD and single rear wheels that is set up for towing. We'll arbitrarily assign it a GVWR of 9,900 pounds, a front GAWR of 5,000 pounds, a rear GAWR of 6,824 pounds, a GCWR of 23,000 pounds and a quoted maximum tow rating of 17,000 pounds.

As is often the case in single-rear-wheel trucks, the rear axle's GAWR on this truck is derived from each tire's maximum load of 3,412 pounds. Pickups such as this normally start at more than 6,000 pounds, and with a diesel, automatic and nice trim, figure that with a full tank of fuel and hitch, this unit weighs at least 7,000 pounds. If we add two "standard-size" people (154 pounds each), a few tools and some cargo, it weighs 7,500 pounds. That is split to 4,000 pounds on the front axle and 3,500 pounds on the rear axle.

The first thing you should have noticed is that the maximum tow rating cannot apply with the truck fully loaded because GCWR (23,000) minus GVWR (9,900) leaves 13,100 pounds — about 4,000 pounds less than quoted towing ability. After adding options and people to the example truck, and subtracting that value (7,500) from GCWR (23,000), the effective working tow rating of the truck becomes 15,500 pounds, about 1,500 pounds less than the truck's quoted maximum towing rating.

However, you have yet to check all the numbers and verify that a 15,500-pound trailer will work. If that trailer is a fifth-wheel and has 20 percent of its weight on the pin, that adds 3,100 pounds to the back of the truck. This would make the truck overweight — its 7,500-pound ready-to-roll weight plus the

3,100 pounds on the pin equals 10,600 pounds — with 700 pounds more than the truck's GVWR and just 224 pounds shy of the rear-axle limit of 6,824 pounds.

SUVs and other non-pickup tow rigs cannot escape scrutiny. The vehicle's loaded weight, with the anticipated load of passengers aboard, must be subtracted from the GCWR to determine the realistic tow rating.

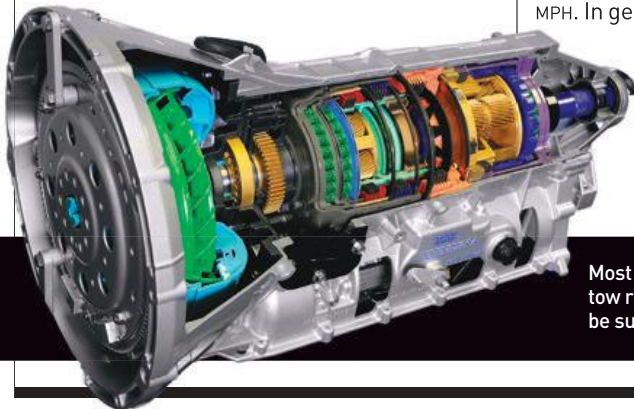
OTHER FACTORS

The tow-ratings chart in this publication lists vehicle-towing maximums segregated by engine, cab style, drive and single or dual rear wheels, as appropriate. In general, assume the maximum tow rating always requires a towing package — and special towing equipment (see "Towing Packages," beginning on page 38) — and the highest numerical axle ratio offered, and as the example shows, maximums can be confusing. You can do your own estimates by starting with the information given and keeping the following generalizations in mind:

Transmission: For the majority of vehicles, automatic transmissions offer the higher tow ratings when they vary by transmission. On heavy-duty (HD) models, the difference may be 1,000 pounds or less.

Axle Ratio: Lower gearing (the numerically higher ratios, e.g. 4.10:1 and 4.56:1, as opposed to 3.31:1 and 3.42:1) typically produces greater tow ratings because of greater torque multiplication. There is a wide variance in the axle ratio's effect on the tow rating, with some diesel-powered pickups varying only a few hundred pounds; on others, changing from a 3.73:1 to a 4.30:1 sometimes increases the tow rating by 3,500 pounds. In the past, some ratings have increased by a factor greater than three (from 2,000 to 7,100 pounds) simply by using a different axle ratio. Lower gearing will also make your vehicle accelerate quicker up to 50 to 55 MPH. In general, a one-step drop in axle ratio (4.10:1 to 3.73:1) on an HD pickup will drop the tow rating and the GCWR by a ton.

Lower gearing has an adverse effect on fuel economy, but it's



Most automatic transmissions offer increased tow ratings over their manual counterparts. To be sure, always check with the manufacturer.

usually not proportional to the gain in towing ability. Under the best circumstances, the difference between the highest and lowest gear ratios offered (say, 3.42:1 and 4.10:1) results in a 1.5-MPG decrease in non-towing, steady state-highway cruising. In most normal conditions, that change is less than 1 MPG, and if you tow a relatively heavy trailer a lot, there's no question that the lowest gearing is best.

Drive System: Vehicles that drive only two wheels, be they front or rear, generally have higher tow ratings (all other things being equal). Even though modern 4WD and AWD systems are quite efficient, a small amount of parasitic loss uses up energy. More importantly, 4WD systems add weight — easily up to 400 pounds on some HD pickups — and that weight frequently comes off the tow rating. Unless the GCWR and GVWR are higher, a 4WD version will probably tow a few hundred pounds less than its 2WD counterpart.

Towing Package: If you can order a towing package, do so. Not only is it usually required to get the top tow rating, but the contents rarely can be duplicated for the original cost — and it will add to resale value. You can plainly see the hitch receiver or electrical receptacle, but there are often other changes to the wiring system (including up-rated wire and fuses), alternator, battery, cooling system, power steering and lubricants. In some cases, integrated brake controllers and fifth-wheel hitches are also offered.

Single or Dual Rear Wheels: Most people assume that a dually pickup will have a higher tow rating than a single-rear-wheel unit, but this is not always so. In many cases the GCWR is limited by factors other than the number of rear wheels and does not change, and in those cases the weight of the wider axle, bigger brakes and two more tires and wheels is subtracted from the GCWR. The dually no doubt provides a more stable towing platform for the heavier trailers, although not always with the highest tow rating. A dually will have a higher GVWR because the dual-wheel rear axle might have a 10,000-pound GAWR, for example, compared to the single-rear-wheel truck's 6,824-pound GAWR. The GAWR is not always an exact calculation of the tire capacity times the number of tires. A dually equipped truck will be better for hauling a heavy slide-in truck camper and handling heavy fifth-wheel pin weights because of the weight concentrated on the rear



A towing package is only part of the picture; a weight-distributing hitch should be used to balance the load.

axle as compared to the conventional trailer's hitch weight.

Tires: Wheel sizes continue to grow commensurate with their popularity, with some tow vehicles offering 20-inch wheels as factory options. However, using a larger wheel and lower-profile tire means a smaller air cushion and lower tire sidewall, to the extent that tow ratings generally drop whenever the wheel size increases — and ride comfort can be compromised. Read the fine print on the packaging carefully.

RESEARCH

Before purchasing any vehicle for towing, ensure that the equipment required is available for your vehicle. You may find that the new-kid-on-the-block is a very capable tow vehicle, but no one makes a fifth-wheel hitch for it. (Ford remedied this quandary by including one on all 2011 and later Super Duty trucks; GM and Ram also offer a fifth-wheel saddle-ready option). Also beware of hitch-ball and receiver ratings, as some trucks are rated for heavier loads than any easily found hardware can handle and therefore may require special-order parts.

Before purchasing a vehicle, we suggest you acquire the manufacturer's comprehensive towing guide, available online or at dealerships. Be sure to read the fine print because in many cases the maximum rating may apply only to one particular version and be for a fifth-wheel trailer; many larger pickups may have their actual tow rating limited by the hitch and hardware. 🚚

2015 TRUCK ROUNDUP

New models and cutting-edge technologies offer consumers more — and better — choices than ever

Competition drives progress. Regardless of the business model, being the first, the best, the biggest, not only grants bragging rights, but also garners a loyal fan following that translates to steadily increasing profits. This is particularly true in the automotive market, and more specifically, the hotly contested light-truck segment.

Our ever-increasing hunger for more, whether that means horsepower, towing capacity, convenience, fuel economy or all of the above, is fueling a truck revolution unlike anything we've ever seen. Once a humble servant for hard-working farms and businesses, today's truck can match the comfort and amenities of most sedans, and outmatch them when it comes to overall versatility. And



2015 Chevrolet Silverado

PHOTO BY SCOTT HIRKO

where fuel economy used to be a primary concern when considering a truck for the family vehicle, many full-size pickups are knocking on 30 MPG.

The model year 2015 also marks the first year that all manufacturers are compliant with the Society of Automotive Engineers (SAE) standard J2807. First published in 2008 and revised in 2010, J2807 outlines the “performance requirements for determining tow vehicle gross combination weight rating and trailer weight rating.” The standard ensures that all manufacturers use the same test criteria to arrive at their ratings, ensuring consistency and accuracy throughout the industry. As a result, many of this year’s tow ratings may have changed significantly, either positively or negatively, depending on make and model of the vehicle in question.

This is undoubtedly one of the most exciting years for trucks in recent memory, with each of the big three offering all-new models or significant upgrades to existing products.

2015 Chevrolet Silverado 3500HD



CHEVROLET/GMC

Remember the small truck? It seemed like at one time every manufacturer had one, from four-cylinder mini trucks from Datsun, Toyota, Mitsubishi and Volkswagen to V-6- and V-8-powered midsize pickups from Chevy, Ford and Dodge. One by one they disappeared, leaving only the Nissan Frontier and Toyota Tacoma to uphold the small truck faith. But for 2015, GM has reintroduced the Chevy Colorado and its sibling, the GMC Canyon. Familiar in name only, these all-new midsize trucks share nothing with the previous generation.

The new Colorado/Canyon is available in a four-door extended cab with a 6-foot 2-inch bed or a crew cab with a 5-foot 2-inch bed, and a choice of a 200-HP DOHC 2.5-liter four-cylinder engine or a 3.6-liter V-6 with variable valve timing and direct injection that churns out 305 HP and 269 LB-FT of torque. The engines are mated to an Eaton six-speed manual or Hydra-Matic 6L50 six-speed automatic, depending on the model. The new powertrains deliver a segment-leading EPA-estimated highway fuel economy rating of 27 MPG for the four-cylinder and 26 MPG for the V-6 (2WD models), along with the highest available tow rating: 7,000 pounds with the V-6 engine and heavy-duty towing package. Model and trim levels include Work Truck (WT), LT and the off-road inspired Z71.

The new Colorado/Canyon promises to be quieter and more comfortable, and offers an array of technologies including available forward collision alert and lane departure warning, standard backup camera and driver conveniences such as MyLink with Text Messaging Alerts, Siri Eyes Free, OnStar with 4G LTE connectivity and a standard built-in Wi-Fi hot spot that includes a 3-gigabyte, three-month trial.

The Chevy Silverado and GMC Sierra 1500-series trucks continue relatively un-



changed, except these trucks can now tow up to 12,000 pounds, and models equipped with the 420-HP 6.2-liter V-8 come standard with the new Hydra-Matic 8L90 eight-speed automatic transmission. Developed by GM, this transmission is roughly the same size and weight as the 6L80 six-speed automatic but has a wider gear ratio spread and a lower first-gear-ratio that will “help drivers start off more comfortably with a heavy load or when trailering,” according to GM.

Leaving the HD towing capacity race to Ford and Ram this year, GM has instead focused on appearance and refinement for its robust Silverado/Sierra HD models. Maximum towing for the new HD models is 23,200 pounds. All-new cabs and interiors provide increased space and comfort, while revised exterior styling includes improved cooling airflow that reportedly enables the 6.0-liter gas and 6.6-liter Duramax diesel engines to better maintain full power even under heavy loads and high ambient temperature. Especially noteworthy for RVers is the integrated cruise control, auto-grade braking and diesel exhaust brake on the Duramax trucks, and standard StabiliTrak with Trailer Sway Control on all HD models.

The full-size Chevrolet Express and its GMC variant, the Savana, are now available only in three-quarter-ton (2500) models, but are still offered in cargo and passenger van versions with either gas or diesel engines.



2015 Ford Transit Van

FORD

There's a reason why the F-150 continues to be America's best-selling truck: Ford never waits for its competition to catch up before taking the next big strides in capability and comfort. The all-new 2015 models are the most ambitious yet, with controversial aluminum bodies that Ford says have shed an impressive 700 pounds from each model, regardless of model configuration or engine choice. That means the new truck can tow up to 1,100 more pounds (up to 12,200), haul up to 530 more pounds (up to 3,000) and is projected to deliver at least 5 percent and as much as 20 percent higher gas mileage than today's truck, depending on the model, according to Ford.

Four engines are available: A 3.5-liter V-6 making 283 HP, a 2.7-liter EcoBoost V-6 with fuel-saving Auto Start-Stop and 325 HP; the already popular 3.5-liter EcoBoost V-6 with 365 HP, and the lone V-8 offering, a 5.0-liter



2015 Ford F-150

NEW!

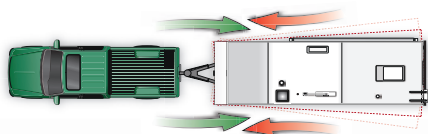


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HUSKY 
TOWING PRODUCTS



generating 385 HP. Several groundbreaking features will also make their debut in the 2015 models, including a 360-degree camera-view system to assist with parking, integrated loading ramps for motorcycles and ATVs, LED headlights/taillights, Trailer Hitch Assist rear-view camera system and a remote tailgate that can be locked or unlocked with the key fob. On sale by the time you read this, the F-150 will continue to offer a broad selection of trim levels including XL, XLT, Lariat, Platinum and King Ranch.

The Super Duty models are about capability above all, and for 2015 Ford is upping the ante with a second-generation 6.7-liter Power Stroke V-8 diesel that produces 440 HP and 860 LB-FT of torque, which amounts to gains of 40 and 60, respectively. Capability is up as well; the F-350 has a fifth-wheel tow rating of 26,700 pounds (up from 23,200), and the gross combination weight rating (GCWR) has increased 4,500 pounds, to 35,000. The F-450, meanwhile, can tow up to 31,200 pounds (a gain of 6,500 pounds) and has a GCWR of 40,000 pounds (a gain of 7,000 pounds). The new Power Stroke incorporates a unique "reverse flow" layout, whereby the exhaust ports are located inside the V and feed the larger turbo

positioned between the two banks. Besides more power, another benefit of the larger turbo is improved engine braking, which is manually controlled by a switch on the dashboard.

The long-standing E-Series van has finally ceased production, and in its place is the new full-size Transit. Available in T-150 and T-250 iterations in a variety of configurations (long, short and medium wheelbase; low, tall or high roof, etc.), the Transit can be ordered with either a 3.7-liter gas V-6, the popular 3.5-liter turbocharged EcoBoost V-6 or a five-cylinder, 3.2-liter diesel engine based on Ford's Duratorq global diesel engine architecture. All engines are paired with a six-speed automatic transmission. The new vans should deliver improved fuel economy over the outgoing E-Series, and will have tow ratings of up to 7,500 pounds.

The Ford Expedition and Lincoln Navigator are now powered exclusively by the 3.5-liter EcoBoost engine. Other updates include a six-speed SelectShift automatic transmission with manual mode, driver-selectable suspension (comfort, normal and sport modes) and electric power-assisted steering. The increased power bestows these full-size SUVs with a tow rating of up to 9,200 pounds.

2015 Ram Power Wagon



which come standard with the eight-speed automatic and pull down a respectable 25 MPG. The popular 5.7-liter Hemi V-8 carries on with 395 HP and 410 LB-FT of torque, along with fuel-saving stop-start and cylinder deactivation. Ram light-duty trucks are also available with a class-exclusive air-suspension system that not only improves the ride but features automatic load leveling and is even claimed to improve fuel economy at highway speeds through a lower ride height. In fact, with help from technologies like active aerodynamics (which, in this case, close shutters in the grille) Ram claims best in class aerodynamics with a drag coefficient of 0.360.

Ram's heavy-duty lineup took a shot straight across Ford's bow when it announced recently that its 3500-series truck is now rated to tow up to 30,000 pounds and can carry as much as 7,320 pounds. Heady stuff, but far from the whole story. Ram HD trucks are now offered with a base 383-HP 5.7-liter Hemi, an optional 410-HP 6.4-liter Hemi and, of course, the 6.7-liter High-Output Cummins, which produces 385 HP and 865 LB-FT of torque and can be matched with a manual or automatic transmission.

For those who find a heavy-duty's ride intolerable when driving solo (which is most of us), Ram 2500 now offers a segment-exclusive choice between a five-link coil or airbag rear-suspension system. Ram 3500 continues on with rear leaf springs but now offers a supplemental air-suspension system on both single- and dual-rear-wheel applications, which allows for softer leaf springs

RAM

By now, you should already know that the big news on the Ram light-duty front is the 3.0-liter EcoDiesel engine, which currently owns the top fuel economy spot at an EPA-estimated 28 MPG. It produces 240 HP and an impressive 420 LB-FT of torque, and is matched with a new eight-speed automatic transmission. Also newsworthy for those interested in light towing are the 3.6-liter V-6-equipped trucks,



For the first time, Ram 2500 trucks feature link coil rear suspension for improved ride quality, especially when driving solo. A rear air-suspension system, similar to that used on the Ram 1500, is also available.

and a more compliant ride. Ram 2500 and 3500 trucks also offer a factory-installed fifth-wheel prep package and dual alternator packages producing up to 440 AMPS.

The Ram Power Wagon also returns this year with the 6.4-liter Hemi engine, five-link coil rear suspension and a unique three-link front suspension that allows for additional axle articulation when traveling off-road. It also comes standard this year with Hill-Descent Control, which uses the anti-lock braking system to control the truck's speed on steep downhill terrain without the driver having to touch the brake pedal.

TOYOTA

Following a major redesign just last year, the full-size Toyota Tundra rolls into 2015 with V-8 power only and the availability of a new TRD Pro model with a special off-road suspension upgrade that raises the front of the truck 2 inches for a level ride height and extends wheel travel at all four corners. The package includes larger-diameter TRD-tuned Bilstein shock absorbers with hydraulic bump stops and piggyback external reservoirs. TRD Pro models also receive unique visual cues such as a blacked-out grille emblazoned with "TOYOTA," TRD

Pro bed-panel stamping, a front skid plate, matte-satin black badges, black headlight bezels and black TRD alloy wheels wearing Michelin off-road tires. A TRD dual-exhaust system completes the TRD Pro model, which is available in only three colors: Attitude Black, Super White or, our favorite, Inferno (pictured below).

Tundra's smaller sibling, the Tacoma, also benefits from its own TRD Pro package, with a 1.75-inch front-suspension lift, special-rate TRD springs and Bilstein shocks with remote reservoirs. Aesthetically speaking, Tacoma offers similar visual cues to the Tundra TRD Pro, including black 16-inch alloy wheels wrapped in BFGoodrich all-terrain rubber, a blacked-out grille, special TRD badging and the same three-color palette.

Purchasing a truck used to represent a trade-off between utility and comfort, practicality and fuel economy. But not anymore. Today's trucks can do it all — and although they still trail passenger cars in fuel-economy ratings, manufacturers are already proving they can achieve impressive numbers.

So what's next? More lightweight materials? Smaller diesels? Maybe even a hybrid pickup? We can't wait to see what the 2016 model year brings. 🚛

2015 Toyota TRD Pro Series Tundra



2015 TOW RATINGS

KEY TO CHARTS

a6=Automatic transmission, six speeds
a8=Automatic transmission, eight speeds
m6=Manual transmission, six speeds

p=Cooling or other accessory package required
t=Towing package required

Forward slash (/) denotes either/or.

Comma (,) indicates more than one footnote applies.

b=3.08:1
c=3.15:1
d=3.21:1
e=3.23:1
f=3.31:1
g=3.42:1
h=3.55:1
i=3.73:1

j=3.92:1
k=4.10:1
l=4.30:1
n=4.44:1
o=4.56:1
q=4.88:1
r=5.38:1

AWD=All-Wheel Drive
FWD=Front-Wheel Drive
RWD=Rear-Wheel Drive
CC=Crew Cab
KC=King Cab
DC=Double Cab
SB=Shortbed
Std Bed=Standard Bed
LB=Longbed
SWB=Short Wheelbase
MWB=Medium Wheelbase
LWB=Long Wheelbase
EL=Extra Length

LR=Low Roof
MR=Medium Roof
HR=High Roof
EHR=Extra High Roof
DRW=Dual Rear Wheels
SRW=Single Rear Wheels
CV=Cargo Van
PV=Passenger Van
TD=Turbo Diesel
TC=Turbocharged
SC=Supercharged
NA=Not Available or Not Applicable

VEHICLE ENGINE TOW LIMIT (lbs)

ACURA

MDX	3.5L V-6	3,500
MDX SH-AWD	3.5L V-6	3,500*

*Towing capacity can be increased to 5,000 lbs. with dealer-installed accessory.

AUDI

Q5	All	4,000
Q7	All	5,500*
Q7	All	6,600 (t)

*With dealer-installed hitch.

BMW

X3 28d	2.0L I-4 TD	3,500
X3 28i	2.0L I-4 TC	3,500
X3 35i	3.0L I-6 TC	6,000
X4 28i	2.0L I-4 TC	3,500
X4 35i	3.0L I-6 TC	6,000
X5 35d	3.0L I-6 TC	6,000
X5 35i	3.0L I-6 TD	6,000
X5 50i	4.4L V-8 TC	6,000
X6 35i	3.0L I-6 TC	6,000
X6 50i	4.4L V-8 TC	6,000

BUICK

Enclave FWD	3.6L V-6	2,000
Enclave FWD	3.6L V-6	4,500 (t)
Enclave AWD	3.6L V-6	2,000
Enclave AWD	3.6L V-6	4,500 (t)

CADILLAC

Escalade 2WD	6.2L V-8	8,300
Escalade AWD	6.2L V-8	8,100
Escalade ESV 2WD	6.2L V-8	8,100
Escalade ESV AWD	6.2L V-8	7,900
SRX FWD	3.6L V-6	3,500 (t)
SRX AWD	3.6L V-6	3,500 (t)

CHEVROLET/GMC

Equinox/Terrain FWD/AWD	3.6L V-6	3,500 (t)
Express/Savana 2500 SWB CV	4.8L V-8	7,400
Express/Savana 2500 SWB CV	6.0L V-8	10,000
Express/Savana 2500 SWB CV	6.6L V-8 TD	10,000
Express/Savana 2500 LWB CV	4.8L V-8	7,200
Express/Savana 2500 LWB CV	6.0L V-8	10,000
Express/Savana 2500 LWB CV	6.6L V-8 TD	10,000
Express/Savana 2500 SWB PV	6.0L V-8	6,700
Express/Savana 2500 SWB PV	6.0L V-8	9,800
Express/Savana 3500 SWB CV	4.8L V-8	7,400
Express/Savana 3500 SWB CV	6.0L V-8	10,000
Express/Savana 3500 SWB CV	6.6L V-8 TD	10,000
Express/Savana 3500 SWB PV	6.0L V-8	9,700
Express/Savana 3500 SWB PV	6.6L V-8 TD	10,000
Express/Savana 3500 LWB CV	4.8L V-8	7,100
Express/Savana 3500 LWB CV	6.0L V-8	10,000
Express/Savana 3500 LWB CV	6.6L V-8 TD	10,000
Express/Savana 3500 LWB PV	6.0L V-8	9,300
Express/Savana 3500 LWB PV	6.6L V-8 TD	9,700
Traverse/Acadia FWD	3.6L V-6	2,000

Traverse/Acadia FWD	3.6L V-6	5,200 (t)
Traverse/Acadia AWD	3.6L V-6	2,000
Traverse/Acadia AWD	3.6L V-6	5,200 (t)

COLORADO/CANYON

All models	2.5L I-4	3,500
All models	3.6L V-6	3,500
All models	3.6L V-6	7,000 (t)

SILVERADO/SIERRA 1500 REGULAR CAB

1500 Std Bed 2WD	4.3L V-6	6,100 (e)
1500 Std Bed 2WD	5.3L V-8	7,000 (b)
1500 Std Bed 2WD	5.3L V-8	9,000 (g)
1500 Std Bed 4WD	4.3L V-6	7,600 (g)
1500 Std Bed 4WD	5.3L V-8	6,700 (b)
1500 Std Bed 4WD	5.3L V-8	8,700 (g)
1500 LB 2WD	4.3L V-6	5,900 (e)
1500 LB 2WD	5.3L V-8	6,800 (b)
1500 LB 2WD	5.3L V-8	9,800 (g)
1500 LB 4WD	4.3L V-6	7,400 (g)
1500 LB 4WD	5.3L V-8	6,500 (b)
1500 LB 4WD	5.3L V-8	9,500 (g)

SILVERADO/SIERRA 1500 DOUBLE CAB

1500 2WD	4.3L V-6	5,600 (g)
1500 2WD	5.3L V-8	6,500 (b)
1500 2WD	5.3L V-8	9,500 (g)
1500 2WD	5.3L V-8	11,200 (i,t)
1500 2WD	6.2L V-8	9,500 (e)
1500 2WD	6.2L V-8	12,000 (g,t)
1500 4WD	4.3L V-6	7,200 (g)
1500 4WD	5.3L V-8	6,200 (b)
1500 4WD	5.3L V-8	9,200 (g)
1500 4WD	5.3L V-8	11,000 (i,t)
1500 4WD	6.2L V-8	9,200 (g)
1500 4WD	6.2L V-8	11,900 (g,t)

SILVERADO/SIERRA 1500 CREW CAB

1500 SB 2WD	4.3L V-6	5,600 (e)
1500 SB 2WD	5.3L V-8	6,400 (b)
1500 SB 2WD	5.3L V-8	9,400 (g)
1500 SB 2WD	5.3L V-8	11,000 (i,t)
1500 SB 2WD	6.2L V-8	9,400 (e)
1500 SB 2WD	6.2L V-8	11,900 (g,t)
1500 SB 4WD	4.3L V-6	7,100 (g)

1500 SB 4WD	5.3L V-8	6,200 (b)
1500 SB 4WD	5.3L V-8	9,200 (g)
1500 SB 4WD	5.3L V-8	10,900 (i,t)
1500 SB 4WD	6.2L V-8	9,200 (g)
1500 SB 4WD	6.2L V-8	11,800 (g,t)
1500 Std Bed 2WD	4.3L V-6	5,500 (e)
1500 Std Bed 2WD	5.3L V-8	6,400 (b)
1500 Std Bed 2WD	5.3L V-8	9,400 (g)
1500 Std Bed 2WD	5.3L V-8	11,000 (i,t)
1500 Std Bed 2WD	6.2L V-8	9,300 (e)
1500 Std Bed 2WD	6.2L V-8	11,900 (g,t)
1500 Std Bed 4WD	4.3L V-6	7,000 (g)
1500 Std Bed 4WD	5.3L V-8	6,100 (b)
1500 Std Bed 4WD	5.3L V-8	9,100 (g)
1500 Std Bed 4WD	5.3L V-8	10,800 (i,t)
1500 Std Bed 4WD	6.2L V-8	9,200 (e)
1500 Std Bed 4WD	6.2L V-8	11,700 (g,t)

SILVERADO/SIERRA 2500 REGULAR CAB

CONVENTIONAL/FIFTH-WHEEL TOWING

2500 LB 2WD	6.0L V-8	13,000/14,800 (k)
2500 LB 2WD	6.6L V-8 TD	13,000/17,900 (i)
2500 LB 4WD	6.0L V-8	13,000/14,500 (k)
2500 LB 4WD	6.6L V-8 TD	13,000/17,600 (i)

SILVERADO/SIERRA 2500 DOUBLE CAB

CONVENTIONAL/FIFTH-WHEEL TOWING

2500 Std Bed 2WD	6.0L V-8	13,000/14,500 (k)
2500 Std Bed 2WD	6.6L V-8 TD	13,000/17,600 (i)
2500 Std Bed 4WD	6.0L V-8	13,000/14,200 (k)
2500 Std Bed 4WD	6.6L V-8 TD	13,000/17,300 (i)
2500 LB 2WD	6.0L V-8	13,000/14,400 (k)
2500 LB 2WD	6.6L V-8 TD	13,000/17,500 (i)
2500 LB 4WD	6.0L V-8	13,000/14,100 (k)
2500 LB 4WD	6.6L V-8 TD	13,000/17,200 (i)

SILVERADO/SIERRA 2500 CREW CAB

CONVENTIONAL/FIFTH-WHEEL TOWING*

2500 Std Bed 2WD	6.0L V-8	9,800 (i)
2500 Std Bed 2WD	6.0L V-8	13,000/14,300 (k)
2500 Std Bed 2WD	6.6L V-8 TD	13,000/14,300 (i)
2500 Std Bed 4WD	6.0L V-8	9,500 (i)
2500 Std Bed 4WD	6.0L V-8	13,000/14,000 (k)
2500 Std Bed 4WD	6.6L V-8 TD	13,000/14,000 (i)

* Tow ratings for Sierra Denali HD models may vary slightly. See your dealer for details.

2015 TOW RATINGS

SILVERADO/SIERRA 3500 REGULAR CAB CONVENTIONAL/FIFTH-WHEEL TOWING

3500 SRW 2WD	6.0L V-8	13,000/14,600 (k)
3500 SRW 4WD	6.0L V-8	14,100/14,300 (k)
3500 SRW 4WD	6.6L V-8 TD	13,000/17,500 (i)
3500 DRW 2WD	6.0L V-8	14,200 (k)
3500 DRW 4WD	6.0L V-8	13,900 (k)
3500 DRW 4WD	6.6L V-8 TD	16,000/23,200 (i)

SILVERADO/SIERRA 3500 DOUBLE CAB CONVENTIONAL/FIFTH-WHEEL TOWING

3500 LB SRW 2WD	6.0L V-8	13,000/14,200 (k)
3500 LB SRW 2WD	6.6L V-8 TD	13,000/17,500 (i)
3500 LB SRW 4WD	6.0L V-8	13,000/13,900 (k)
3500 LB SRW 4WD	6.6L V-8 TD	13,000/17,200 (i)
3500 LB DRW 2WD	6.0L V-8	13,800 (k)
3500 LB DRW 2WD	6.6L V-8 TD	16,500/23,000 (i)
3500 LB DRW 4WD	6.0L V-8	13,500 (k)
3500 LB DRW 4WD	6.6L V-8 TD	18,000/22,800 (i)

SILVERADO/SIERRA 3500 CREW CAB CONVENTIONAL/FIFTH-WHEEL TOWING*

3500 Std Bed SRW 2WD	6.0L V-8	13,000/14,100 (k)
3500 Std Bed SRW 2WD	6.6L V-8 TD	13,000/17,400 (i)
3500 Std Bed SRW 4WD	6.0L V-8	13,000/13,900 (k)
3500 Std Bed SRW 4WD	6.6L V-8 TD	13,000/17,100 (i)
3500 LB SRW 2WD	6.0L V-8	13,000/14,000 (k)
3500 LB SRW 2WD	6.6L V-8 TD	13,000/17,300 (i)
3500 LB SRW 4WD	6.0L V-8	13,000/13,700 (k)
3500 LB SRW 4WD	6.6L V-8 TD	15,000/16,900 (i)
3500 LB DRW 2WD	6.0L V-8	13,700 (k)
3500 LB DRW 2WD	6.6L V-8 TD	16,500/22,900 (i)
3500 LB DRW 4WD	6.0L V-8	13,300 (k)
3500 LB DRW 4WD	6.6L V-8 TD	19,600/22,600 (i)

* Tow ratings for Sierra Denali HD models may vary slightly. See your dealer for details.

TAHOE, SUBURBAN, YUKON/YUKON XL, YUKON/YUKON XL DENALI 1500 SERIES

Tahoe/Yukon 2WD	5.3L V-8	6,600/6,500 (b)
Tahoe/Yukon 2WD	5.3L V-8	8,600/8,500 (g)
Tahoe/Yukon 4WD	5.3L V-8	6,400/6,300 (b)
Tahoe/Yukon 4WD	5.3L V-8	8,400/8,200 (g)
Suburban/Yukon XL 2WD	5.3L V-8	6,300 (b)
Suburban/Yukon XL 2WD	5.3L V-8	8,300 (g)
Suburban/Yukon XL 4WD	5.3L V-8	6,000 (b)
Suburban/Yukon XL 4WD	5.3L V-8	8,000 (g)

Yukon Denali 2WD	6.2L V-8	8,400
Yukon Denali AWD	6.2L V-8	8,100
Yukon XL Denali 2WD	6.2L V-8	8,100
Yukon XL Denali AWD	6.2L V-8	7,900

CHRYSLER

Dodge Grand Caravan	3.6L V-6	3,600 (t)
Dodge Journey FWD	3.6L V-6	2,500 (t)
Dodge Journey AWD	3.6L V-6	2,500 (t)
Chrysler Town & Country	3.6L V-6	3,600 (t)
Dodge Durango RWD	3.6L V-6	6,200
Dodge Durango RWD	5.7L V-8	7,400
Dodge Durango AWD	3.6L V-6	6,200
Dodge Durango AWD	5.7L V-8	7,200

FORD

EDGE, ESCAPE, EXPEDITION, EXPLORER, FLEX

Edge	3.5L V-6	3,500 (t)
Edge	3.7L V-6	2,000*
Escape	1.6L TC	2,000
Escape	2.0L TC	3,500 (t)
Expedition 2WD	3.5L V-6 TC	6,600
Expedition 2WD	3.5L V-6 TC	9,200 (t)
Expedition 4WD	3.5L V-6 TC	6,600
Expedition 4WD	3.5L V-6 TC	9,000 (t)
Expedition EL 2WD	3.5L V-6 TC	6,600
Expedition EL 2WD	3.5L V-6 TC	9,200 (t)
Expedition EL 4WD	3.5L V-6 TC	6,600
Expedition EL 4WD	3.5L V-6 TC	9,100 (t)
Explorer	2.0L TC	2,000
Explorer	3.5L V-6	2,000
Explorer	3.5L V-6	5,000 (t)
Flex	All	4,500 (t)

* Sport model.

F-150 REGULAR CAB

CONVENTIONAL/FIFTH-WHEEL TOWING

F-150 SB 2WD	3.5L V-6	5,100/5,000 (h)
F-150 SB 2WD	3.5L V-6	7,600/7,500 (i)
F-150 SB 2WD	2.7L V-6 TC	7,600/7,500 (f)
F-150 SB 2WD	2.7L V-6 TC	8,500/8,200 (i)
F-150 SB 2WD	5.0L V-8	8,400/8,300 (f)
F-150 SB 2WD	5.0L V-8	9,200/9,100 (h)
F-150 SB 4WD	3.5L V-6	7,500/7,400 (i)
F-150 SB 4WD	2.7L V-6 TC	7,600/7,400 (h)
F-150 SB 4WD	2.7L V-6 TC	8,400/7,600 (i)
F-150 SB 4WD	5.0L V-8	8,300/8,200 (f/i)
F-150 SB 4WD	5.0L V-8	9,700/9,300 (i)

F-150 LB 2WD	3.5L V-6	5,100/5,000 (h)
F-150 LB 2WD	3.5L V-6	7,600/7,500 (i)
F-150 LB 2WD	2.7L V-6 TC	7,600/7,500 (f)
F-150 LB 2WD	2.7L V-6 TC	8,500/8,400 (i)*
F-150 LB 2WD	5.0L V-8	9,100/9,000 (f)
F-150 LB 2WD	5.0L V-8	10,100/10,000 (h)
F-150 LB 2WD	5.0L V-8	11,100/11,000 (i)
F-150 LB 2WD	3.5L V-6 TC	10,700/10,600 (c)
F-150 LB 2WD	3.5L V-6 TC	12,200/12,100 (h)
F-150 LB 4WD	3.5L V-6	7,400/7,300 (i)
F-150 LB 4WD	2.7L V-6 TC	7,600/7,500 (h)
F-150 LB 4WD	2.7L V-6 TC	8,400/8,300 (i)*
F-150 LB 4WD	5.0L V-8	9,100/9,000 f/h
F-150 LB 4WD	5.0L V-8	11,100/11,000 (i)**
F-150 LB 4WD	3.5L V-6 TC	10,700/10,600 (f/h)
F-150 LB 4WD	3.5L V-6 TC	12,000/11,900 (h)

**F-150 SUPERCAB
CONVENTIONAL/FIFTH-WHEEL TOWING**

F-150 Std Bed 2WD	3.5L V-6	5,100/5,000 (h)
F-150 Std Bed 2WD	3.5L V-6	7,400/7,300 (i)
F-150 Std Bed 2WD	2.7L V-6 TC	7,600/7,500 (f)
F-150 Std Bed 2WD	2.7L V-6 TC	8,300/8,200 (i)*
F-150 Std Bed 2WD	5.0L V-8	9,200/9,100 (f)
F-150 Std Bed 2WD	5.0L V-8	10,200/10,100 (h)
F-150 Std Bed 2WD	3.5L V-6 TC	10,800/10,600 (c)
F-150 Std Bed 2WD	3.5L V-6 TC	12,100/10,600 (h)
F-150 Std Bed 4WD	3.5L V-6	7,200/7,100 (i)
F-150 Std Bed 4WD	2.7L V-6 TC	7,600/7,500 (h)
F-150 Std Bed 4WD	2.7L V-6 TC	8,200/8,000 (i)
F-150 Std Bed 4WD	5.0L V-8	9,100/9,000 (f)
F-150 Std Bed 4WD	5.0L V-8	9,200/9,100 (h)
F-150 Std Bed 4WD	5.0L V-8	11,000/10,800 (i)
F-150 Std Bed 4WD	3.5L V-6 TC	10,700/10,500 (f/h)
F-150 Std Bed 4WD	3.5L V-6 TC	11,800/10,500 (h)
F-150 Raptor 4WD	6.2L V-8	6,000
F-150 LB 2WD	2.7L V-6 TC	7,600/7,500 (f)
F-150 LB 2WD	2.7L V-6 TC	8,200/8,100 (i)*
F-150 LB 2WD	5.0L V-8	9,200/9,100 (f)
F-150 LB 2WD	5.0L V-8	10,200/10,100 (h)
F-150 LB 2WD	5.0L V-8	11,000/10,900 (i)
F-150 LB 2WD	3.5L V-6 TC	10,700/10,600 (c)
F-150 LB 2WD	3.5L V-6 TC	11,900/11,800 (h)
F-150 LB 4WD	5.0L V-8	9,000/8,900 (f)
F-150 LB 4WD	5.0L V-8	9,100/9,000 (h)
F-150 LB 4WD	5.0L V-8	10,900/10,700 (i)*
F-150 LB 4WD	3.5L V-6 TC	10,800/10,500 (f/h)
F-150 LB 4WD	3.5L V-6 TC	11,700/10,500 (h)
F-150 LB 4WD	3.5L V-6 TC	11,600 (i)

**F-150 SUPERCREW CAB
CONVENTIONAL/FIFTH-WHEEL TOWING**

F-150 SB 2WD	3.5L V-6	7,300/7,200 (i)
F-150 SB 2WD	2.7L V-6 TC	7,600/7,400 (f)
F-150 SB 2WD	2.7L V-6 TC	8,200/8,100 (i)
F-150 SB 2WD	5.0L V-8	9,100/9,000 (f)
F-150 SB 2WD	5.0L V-8	10,100/10,000 (h)
F-150 SB 2WD	3.5L V-6 TC	10,700/10,200 (c)
F-150 SB 2WD	3.5L V-6 TC	11,900(h)/NA
F-150 SB 4WD	3.5L V-6	7,100/7,000 (i)
F-150 SB 4WD	2.7L V-6 TC	7,600/7,300 (h)
F-150 SB 4WD	2.7L V-6 TC	8,100/7,900 (i)*
F-150 SB 4WD	5.0L V-8	9,000/8,900 (f)
F-150 SB 4WD	5.0L V-8	9,100/9,000 (h)
F-150 SB 4WD	5.0L V-8	10,900/10,300 (i)
F-150 SB 4WD	3.5L V-6 TC	10,700/9,900 (f/h)
F-150 SB 4WD	3.5L V-6 TC	11,500/9,900 (h)
F-150 Raptor	6.2L V-8	8,000
F-150 Std Bed 2WD	2.7L V-6 TC	7,600/7,500 (i)
F-150 Std Bed 2WD	2.7L V-6 TC	8,200/8,100 (h)*
F-150 Std Bed 2WD	5.0L V-8	9,100/9,000 (f)
F-150 Std Bed 2WD	5.0L V-8	10,100/10,000 (h)
F-150 Std Bed 2WD	5.0L V-8	10,900/10,800 (i)
F-150 Std Bed 2WD	3.5L V-6 TC	10,700/10,400 (c)
F-150 Std Bed 2WD	3.5L V-6 TC	11,900/11,700 (h)
F-150 Std Bed 4WD	5.0L V-8	8,900/8,800 (f)
F-150 Std Bed 4WD	5.0L V-8	9,100/9,000 (h)
F-150 Std Bed 4WD	5.0L V-8	10,800/10,600 (i)
F-150 Std Bed 4WD	3.5L V-6 TC	10,700/10,100 (f/h)
F-150 Std Bed 4WD	3.5L V-6 TC	11,700/11,400 (i)**

NOTE: F-150 ratings may change slightly depending on the wheel and tire package and other factors. See dealer for details.

** Requires mid-payload upgrade package.*

*** Requires heavy-duty payload package.*

F-250/F-350/F-450 SUPER DUTY, CONVENTIONAL TOWING

F-250/350 Reg Cab SRW 2WD	6.2L V-8	12,500 (All)
F-250/350 Reg Cab SRW 2WD	6.7L V-8 TD	12,500 (All)
F-250/350 Reg Cab SRW 4WD	6.2L V-8	12,400 (i)
F-250/350 Reg Cab SRW 4WD	6.2L V-8	12,500 (l)
F-250/350 Reg Cab SRW 4WD	6.7L V-8 TD	12,500 (All)
F-350 Reg Cab DRW 2WD	6.2L V-8	12,900 (i)
F-350 Reg Cab DRW 2WD	6.2L V-8	15,900 (l)
F-350 Reg Cab DRW 2WD	6.7L V-8 TD	19,000 (All)
F-350 Reg Cab DRW 4WD	6.2L V-8	12,400 (i)
F-350 Reg Cab DRW 4WD	6.2L V-8	15,400 (l)
F-350 Reg Cab DRW 4WD	6.7L V-8 TD	19,000 (All)
F-250/F350 SuperCab SRW 2WD	6.2L V-8	12,500 (All)

2015 TOW RATINGS

F-250/F350 SuperCab SRW 2WD	6.7L V-8 TD	14,000 (All)	F-350 SuperCab SRW 4WD	6.2L V-8	12,100 (i)
F-250 SuperCab SRW 4WD	6.2L V-8	12,200 (i)	F-350 SuperCab SRW 4WD	6.2L V-8	15,100 (l)
F-250 SuperCab SRW 4WD	6.2L V-8	12,500 (l)	F-350 SuperCab SRW 4WD	6.7L V-8 TD	15,900 (f/h)
F-250 SuperCab SRW 4WD	6.7L V-8 TD	14,000 (All)	F-350 SuperCab DRW 2WD	6.2L V-8	12,400 (i)
F-350 SuperCab SRW 4WD	6.2L V-8	12,200 (i)	F-350 SuperCab DRW 2WD	6.2L V-8	15,400 (l)
F-350 SuperCab SRW 4WD	6.2L V-8	12,500 (l)	F-350 SuperCab DRW 2WD	6.7L V-8 TD	24,000 (i)
F-350 SuperCab SRW 4WD	6.7L V-8 TD	14,000 (All)	F-350 SuperCab DRW 4WD	6.2L V-8	11,900 (i)
F-350 SuperCab DRW 2WD	6.2L V-8	12,500 (i)	F-350 SuperCab DRW 4WD	6.2L V-8	14,900 (l)
F-350 SuperCab DRW 2WD	6.2L V-8	15,500 (l)	F-350 SuperCab DRW 4WD	6.7L V-8 TD	23,600 (i)
F-350 SuperCab DRW 2WD	6.7L V-8 TD	19,000 (All)	F-250/F-350 CC SRW 2WD	6.2L V-8	12,200 (i)
F-350 SuperCab DRW 4WD	6.2L V-8	12,100 (i)	F-250/F-350 CC SRW 2WD	6.2L V-8	15,200 (l)
F-350 SuperCab DRW 4WD	6.2L V-8	15,100 (l)	F-250/F-350 CC SRW 2WD	6.7L V-8 TD	16,100 (f/h)
F-350 SuperCab DRW 4WD	6.7L V-8 TD	19,000 (All)	F-250 CC SRW 4WD	6.2L V-8	11,900 (i)
F-250/350 CC SRW 2WD	6.2L V-8	12,400 (i)	F-250 CC SRW 4WD	6.2L V-8	14,900 (l)
F-250/350 CC SRW 2WD	6.2L V-8	12,500 (l)	F-250 CC SRW 4WD	6.7L V-8 TD	15,100 (f/h)
F-250/350 CC SRW 2WD	6.7L V-8 TD	14,000 (All)	F-350 CC SRW 4WD	6.2L V-8	11,800 (i)
F-250 CC SRW 4WD	6.2L V-8	12,000 (i)	F-350 CC SRW 4WD	6.2L V-8	14,800 (l)
F-250 CC SRW 4WD	6.2L V-8	12,500 (l)	F-350 CC SRW 4WD	6.7L V-8 TD	15,700 (f/h)
F-250 CC SRW 4WD	6.7L V-8 TD	14,000 (All)	F-350 CC DRW 2WD	6.2L V-8	12,100 (i)
F-350 CC SRW 4WD	6.2L V-8	12,100 (i)	F-350 CC DRW 2WD	6.2L V-8	15,100 (l)
F-350 CC SRW 4WD	6.2L V-8	12,500 (l)	F-350 CC DRW 2WD	6.7L V-8 TD	23,800 (i)
F-350 CC SRW 4WD	6.7L V-8 TD	14,000 (All)	F-350 CC DRW 4WD	6.2L V-8	11,700 (i)
F-350 CC DRW 2WD	6.2L V-8	12,200 (i)	F-350 CC DRW 4WD	6.2L V-8	14,700 (l)
F-350 CC DRW 2WD	6.2L V-8	15,200 (l)	F-350 CC DRW 4WD	6.7L V-8 TD	23,000 (i)
F-350 CC DRW 2WD	6.7L V-8 TD	19,500 (All)	F-350 CC DRW 4WD	6.7L V-8 TD	26,500 (i)
F-350 CC DRW 4WD	6.2L V-8	11,800 (i)	F-450 CC DRW 4WD	6.7L V-8 TD	26,500 (l)
F-350 CC DRW 4WD	6.2L V-8	14,800 (l)			
F-350 CC DRW 4WD	6.7L V-8 TD	19,000 (All)			
F-450 DRW 4WD	6.7L V-8 TD	19,000 (All)			

TRANSIT VAN T-150/T-250/T-350

T-150/250 MWB LR	3.7L V-6	5,300 (i)	T-150/250 MWB LR	3.7L V-6	6,600 (k)
T-150/250 MWB LR	3.7L V-6	6,600 (k)	T-150/250 MWB LR	3.5L V-6 TC	5,600 (f)
T-150/250 MWB LR	3.5L V-6 TC	5,600 (f)	T-150/250 MWB LR	3.5L V-6 TC	7,000 (i)
T-150/250 MWB LR	3.5L V-6 TC	7,000 (i)	T-150/250 MWB LR	3.2L I-5 TD	4,700 (f)
T-150/250 MWB LR	3.2L I-5 TD	4,700 (f)	T-150/250 MWB LR	3.2L I-5 TD	7,500 (i)
T-150/250 MWB LR	3.2L I-5 TD	7,500 (i)	T-150/250 MWB MR	3.7L V-6	5,200 (i)
T-150/250 MWB MR	3.7L V-6	5,200 (i)	T-150/250 MWB MR	3.7L V-6	6,600 (k)
T-150/250 MWB MR	3.7L V-6	6,600 (k)	T-150/250 MWB MR	3.5L V-6 TC	5,600 (f)
T-150/250 MWB MR	3.5L V-6 TC	5,600 (f)	T-150/250 MWB MR	3.5L V-6 TC	7,000 (i)
T-150/250 MWB MR	3.5L V-6 TC	7,000 (i)	T-150/250 MWB MR	3.2L I-5 TD	4,600 (f)
T-150/250 MWB MR	3.2L I-5 TD	4,600 (f)	T-150/250 MWB MR	3.2L I-5 TD	7,500 (i)
T-150/250 MWB MR	3.2L I-5 TD	7,500 (i)	T-150/250 LWB LR	3.7L V-6	5,200 (i)
T-150/250 LWB LR	3.7L V-6	5,200 (i)	T-150/250 LWB LR	3.7L V-6	6,500 (k)
T-150/250 LWB LR	3.7L V-6	6,500 (k)	T-150/250 LWB LR	3.5L V-6 TC	5,500 (f)
T-150/250 LWB LR	3.5L V-6 TC	5,500 (f)	T-150/250 LWB LR	3.5L V-6 TC	6,900 (i)
T-150/250 LWB LR	3.5L V-6 TC	6,900 (i)	T-150/250 LWB LR	3.2L I-5 TD	4,600 (f)
T-150/250 LWB LR	3.2L I-5 TD	4,600 (f)	T-150/250 LWB LR	3.2L I-5 TD	7,500 (i)
T-150/250 LWB LR	3.2L I-5 TD	7,500 (i)	T-150/250 LWB MR	3.7L V-6	5,100 (i)
T-150/250 LWB MR	3.7L V-6	5,100 (i)	T-150/250 LWB MR	3.7L V-6	6,400 (k)
T-150/250 LWB MR	3.7L V-6	6,400 (k)	T-150/250 LWB MR	3.5L V-6 TC	5,400 (f)
T-150/250 LWB MR	3.5L V-6 TC	5,400 (f)	T-150/250 LWB MR	3.5L V-6 TC	6,800 (i)
T-150/250 LWB MR	3.5L V-6 TC	6,800 (i)			

F-250/F-350/F-450 SUPER DUTY, FIFTH-WHEEL TOWING

F-250/350 Reg Cab SRW 2WD	6.2L V-8	12,700 (i)
F-250/350 Reg Cab SRW 2WD	6.2L V-8	15,700 (l)
F-250/350 Reg Cab SRW 2WD	6.7L V-8 TD	16,600 (f/h)
F-250/350 Reg Cab SRW 4WD	6.2L V-8	12,300 (i)
F-250/350 Reg Cab SRW 4WD	6.2L V-8	15,300 (l)
F-250/350 Reg Cab SRW 4WD	6.7L V-8 TD	16,200 (f/h)
F-350 Reg Cab DRW 2WD	6.2L V-8	12,800 (i)
F-350 Reg Cab DRW 2WD	6.2L V-8	15,800 (l)
F-350 Reg Cab DRW 2WD	6.7L V-8 TD	24,500 (i)
F-350 Reg Cab DRW 4WD	6.2L V-8	12,300 (i)
F-350 Reg Cab DRW 4WD	6.2L V-8	15,300 (l)
F-350 Reg Cab DRW 4WD	6.7L V-8 TD	24,100 (i)
F-250/F-350 SuperCab SRW 2WD	6.2L V-8	12,500 (i)
F-250/F-350 SuperCab SRW 2WD	6.2L V-8	15,500 (l)
F-250/F-350 SuperCab SRW 2WD	6.7L V-8 TD	16,300 (f/h)
F-250 SuperCab SRW 4WD	6.2L V-8	12,100 (i)
F-250 SuperCab SRW 4WD	6.2L V-8	15,100 (l)
F-250 SuperCab SRW 4WD	6.7L V-8 TD	15,900 (f/h)

T-150/250 LWB MR	3.2L I-5 TD	4,600 (f)
T-150/250 LWB MR	3.2L I-5 TD	7,500 (i)
T-250 LWB HR	3.7L V-6	5,000 (i)
T-250 LWB HR	3.7L V-6	6,300 (k)
T-250 LWB HR	3.5L V-6 TC	5,300 (f)
T-250 LWB HR	3.5L V-6 TC	6,700 (i)
T-250 LWB HR	3.2L I-5 TD	4,400 (f)
T-250 LWB HR	3.2L I-5 TD	7,300 (i)
T-350 LWB LR	3.7L V-6	5,200 (i)
T-350 LWB LR	3.7L V-6	6,500 (k)
T-350 LWB LR	3.5L V-6 TC	5,500 (f)
T-350 LWB LR	3.5L V-6 TC	6,900 (i)
T-350 LWB MR	3.7L V-6	5,100 (i)
T-350 LWB MR	3.7L V-6	6,400 (k)
T-350 LWB MR	3.5L V-6 TC	5,400 (f)
T-350 LWB MR	3.5L V-6 TC	6,800 (i)
T-350 LWB HR	3.7L V-6	5,000 (i)
T-350 LWB HR	3.7L V-6	6,300 (k)
T-350 LWB HR	3.5L V-6 TC	5,300 (f)
T-350 LWB HR	3.5L V-6 TC	6,700 (i)
T-250 LWB EL HR	3.7L V-6	4,800 (i)
T-250 LWB EL HR	3.7L V-6	6,100 (k)
T-250 LWB EL HR	3.5L V-6 TC	5,100 (f)
T-250 LWB EL HR	3.5L V-6 TC	6,500 (i)
T-250 LWB EL HR	3.2L I-5 TD	4,200 (f)
T-250 LWB EL HR	3.2L I-5 TD	7,100 (i)
T-350 LWB EL HR	3.7L V-6	4,800 (i)
T-350 LWB EL HR	3.7L V-6	6,100 (k)
T-350 LWB EL HR	3.5L V-6 TC	5,100 (f)
T-350 LWB EL HR	3.5L V-6 TC	6,500 (i)
T-350 LWB EL HR	3.5L V-6 TC	6,700 (i)
T-350 LWB EL HR	3.2L I-5 TD	4,000 (f)
T-350 LWB EL HR	3.2L I-5 TD	6,900 (i)

TRANSIT WAGON T-150/T-350

T-150 MWB LR	3.7L V-6	4,700 (i)
T-150 MWB LR	3.7L V-6	5,100 (k)
T-150 MWB LR	3.5L V-6 TC	5,000 (f/i)
T-150 MWB MR	3.7L V-6	4,600 (i)
T-150 MWB MR	3.7L V-6	5,000 (k)
T-150 MWB MR	3.5L V-6 TC	5,000 (f/i)
T-350 LWB LR	3.7L V-6	4,200 (i)
T-350 LWB LR	3.7L V-6	4,600 (k)
T-350 LWB LR	3.5L V-6 TC	4,600 (f/i)
T-350 LWB LR	3.2L I-5 TD	3,700 (f)
T-350 LWB LR	3.2L I-5 TD	4,300 (i)
T-350 LWB MR	3.7L V-6	4,100 (i)
T-350 LWB MR	3.7L V-6	4,500 (k)
T-350 LWB MR	3.5L V-6 TC	4,500 (f,i)
T-350 LWB MR	3.2L I-5 TD	3,600 (f)

T-350 LWB MR	3.2L I-5 TD	4,200 (i)
T-350 LWB HR	3.7L V-6	4,000 (i)
T-350 LWB HR	3.7L V-6	4,400 (k)
T-350 LWB HR	3.5L V-6 TC	4,400 (f,i)
T-350 LWB HR	3.2L I-5 TD	3,500 (f)
T-350 LWB HR	3.2L I-5 TD	4,300 (i)
T-350 LWB EL EHR	3.5L V-6 TC	3,800 (f,i)
T-350 LWB EL EHR	3.2L I-5 TD	2,900 (f)
T-350 LWB EL EHR	3.2L I-5 TD	3,500 (i)

HONDA

Odyssey	3.5L V-6	3,500
Pilot 2WD	3.5L V-6	2,000
Pilot 4WD	3.5L V-6	4,500
Ridgeline	3.5L V-6	5,000

HYUNDAI

Santa Fe	2.4L I-4	2,000
Santa Fe	2.0L TC	3,500
Santa Fe	3.3L V-6	5,000
Tucson	All	2,000

INFINITI

QX50	3.7L V-6	2,000
QX60	3.5L V-6	5,000
QX70	3.7L V-6	2,000
QX70	5.0L V-8	3,500
QX80	5.6L V-8	8,500

JEEP

Cherokee	2.4L I-4	2,000
Cherokee	3.2L V-6	4,500 (t)
Grand Cherokee 2WD	3.6L V-6	7,400
Grand Cherokee 4WD	3.6L V-6	7,200
Grand Cherokee 2WD	5.7L V-8	7,400
Grand Cherokee 4WD	5.7L V-8	7,200
Grand Cherokee 2WD	3.0L V-6 TD	7,400
Grand Cherokee 4WD	3.0L V-6 TD	7,200
Renegade	2.4L TC	2,000
Wrangler (All)	3.6L V-6	2,000

KIA

Sorento	3.5L V-6	3,500
Sportage	All	2,000

LAND ROVER

Discovery Sport	2.0L I-4 TC	3,500
Land Rover LR2	2.0L I-4 TC	3,500
Land Rover LR4	3.0L V-6 SC	7,716

2015 TOW RATINGS

Range Rover	3.0L V-6 SC	7,716
Range Rover Sport	3.0L V-6 SC	7,716

LEXUS

GX 470	4.6L V-8	6,500
LX 570	5.7L V-8	7,000
NX 200t	2.0L TC	2,000
RX 350	3.5L V-6	3,500
RX 450h AWD Hybrid	3.5L V-6	3,500

LINCOLN

MKT	3.7L V-6	2,000
MKT	3.5L V-6 TC	4,500
MKX	3.7L V-6	3,500
Navigator 2WD	3.5L V-6 TC	6,200
Navigator 2WD	3.5L V-6 TC	9,000 (t)
Navigator 4WD	3.5L V-6 TC	6,200
Navigator 4WD	3.5L V-6 TC	8,600 (t)
Navigator L 2WD	3.5L V-6 TC	6,200
Navigator L 2WD	3.5L V-6 TC	8,500 (t)
Navigator L 4WD	3.5L V-6 TC	6,200
Navigator L 4WD	3.5L V-6 TC	8,300 (t)

MAZDA

CX5	2.0L	2,000
CX9 (All)	3.7L V-6	3,500

MERCEDES-BENZ

G550	5.5L V-8	7,716
G63 AMG	5.5L V-8 TC	7,716
GL (All)	All	7,500
GLK250 BlueTec	2.5L I-4 TD	3,500
GLK350	3.5L V-6	3,500
ML250 BlueTec	2.1L TD	6,600
ML350	3.5L V-6	6,600
ML400	3.0L V-6 TC	7,200
ML63 AMG	5.5L V-8 TC	7,200

MITSUBISHI

Outlander 2WD/4WD	3.0L V-6	3,500
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NISSAN

Armada 2WD	5.6L V-8	8,200
Armada 4WD	5.6L V-8	9,000
Frontier CC 2WD	4.0L V-6	6,300
Frontier CC 4WD	4.0L V-6	6,100
Frontier KC 2WD	4.0L V-6	6,300
Frontier KC 4WD	4.0L V-6	6,100
Murano	3.5L V-6	3,500
Pathfinder	3.5L V-6	5,000

Quest	3.5L V-6	3,500
Titan KC 2WD SB S	5.6L V-8	7,400
Titan KC 4WD SB S	5.6L V-8	7,400
Titan KC 2WD SB SV	5.6L V-8	9,500
Titan KC 4WD SB SV	5.6L V-8	9,400
Titan KC 4WD SB PRO 4X	5.6L V-8	9,300
Titan CC 2WD S	5.6L V-8	7,400
Titan CC 4WD S	5.6L V-8	7,300
Titan CC 2WD SV	5.6L V-8	9,400
Titan CC 4WD SV	5.6L V-8	9,300
Titan CC 4WD PRO 4X	5.6L V-8	9,300
Titan CC 4WD SL	5.6L V-8	9,200
Titan CC 4WD SL	5.6L V-8	9,100
Titan CC 2WD LB	5.6L V-8	9,300
Titan CC 4WD LB	5.6L V-8	9,100
Xterra	4.0L V-6	5,000

PORSCHE

Cayenne	All	7,716
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RAM

1500 REGULAR CAB

1500 SB 2WD	3.6L V-6	4,960 (a8,d)
1500 SB 2WD	3.6L V-6	7,310 (a8,h)
1500 SB 2WD	5.7L V-8	7,160 (a6,d)
1500 SB 2WD	5.7L V-8	9,140 (a6,j)
1500 SB 2WD	5.7L V-8	8,630 (a8,d)
1500 SB 2WD	5.7L V-8	9,180 (a8,j)
1500 SB 4WD	3.6L V-6	4,770 (a8,d)
1500 SB 4WD	3.6L V-6	7,060 (a8,h)
1500 SB 4WD	5.7L V-8	9,050 (a6,h)
1500 SB 4WD	5.7L V-8	8,970 (a6,j)
1500 SB 4WD	5.7L V-8	8,420 (a8,d)
1500 SB 4WD	5.7L V-8	8,970 (a8,j)
1500 LB 2WD	3.6L V-6	4,790 (a8,d)
1500 LB 2WD	3.6L V-6	7,280 (a8,h)
1500 LB 2WD	5.7L V-8	7,050 (a6,d)
1500 LB 2WD	5.7L V-8	9,100 (a6,h)
1500 LB 2WD	5.7L V-8	10,650 (a6,j)
1500 LB 2WD	5.7L V-8	8,490 (a8,d)
1500 LB 2WD	5.7L V-8	10,640 (a8,j)
1500 LB 2WD	3.0L V-6 TD	8,240 (a8,h)
1500 LB 2WD	3.0L V-6 TD	9,200 (a8,j)
1500 LB 4WD	3.6L V-6	4,610 (a8,d)
1500 LB 4WD	3.6L V-6	7,110 (a8,h)
1500 LB 4WD	5.7L V-8	8,800 (a6,h)
1500 LB 4WD	5.7L V-8	10,430 (a6,j)
1500 LB 4WD	5.7L V-8	8,300 (a8,d)
1500 LB 4WD	5.7L V-8	10,450 (a8,j)

1500 LB 4WD	3.0L V-6 TD	8,030 (a8,h)
1500 LB 4WD	3.0L V-6 TD	9,030 (a8,j)

1500 CREW CAB

1500 SB 2WD	3.6L V-6	4,490 (a8,d)
1500 SB 2WD	3.6L V-6	7,480 (a8,h)
1500 SB 2WD	5.7L V-8	6,770 (a6,d)
1500 SB 2WD	5.7L V-8	8,820 (a6,h)
1500 SB 2WD	5.7L V-8	10,370 (a6,i)
1500 SB 2WD	5.7L V-8	8,170 (a8,d)
1500 SB 2WD	5.7L V-8	10,320 (a8,j)
1500 SB 2WD	3.0L V-6 TD	7,840 (a8,h)
1500 SB 2WD	3.0L V-6 TD	8,840 (a8,j)
1500 SB 4WD	3.6L V-6	4,190 (a8,d)
1500 SB 4WD	3.6L V-6	7,180 (a8,h)
1500 SB 4WD	5.7L V-8	8,610 (a6,h)
1500 SB 4WD	5.7L V-8	10,160 (a6,i)
1500 SB 4WD	5.7L V-8	8,000 (a8,d)
1500 SB 4WD	5.7L V-8	10,150 (a8,j)
1500 SB 4WD	3.0L V-6 TD	7,660 (a8,h)
1500 SB 4WD	3.0L V-6 TD	8,560 (a8,j)
1500 Std Bed 2WD	5.7L V-8	6,740 (a6,d)
1500 Std Bed 2WD	5.7L V-8	8,790 (a6,h)
1500 Std Bed 2WD	5.7L V-8	10,340 (a6,i)
1500 Std Bed 2WD	5.7L V-8	8,070 (a8,d)
1500 Std Bed 2WD	5.7L V-8	10,220 (a8,j)
1500 Std Bed 2WD	3.0L V-6 TD	7,880 (a8,h)
1500 Std Bed 2WD	3.0L V-6 TD	8,880 (a8,h)
1500 Std Bed 4WD	5.7L V-8	8,550 (a6,h)
1500 Std Bed 4WD	5.7L V-8	10,100 (a6,j)
1500 Std Bed 4WD	5.7L V-8	7,800 (a8,d)
1500 Std Bed 4WD	5.7L V-8	9,850 (a8,j)
1500 Std Bed 4WD	3.0L V-6 TD	7,590 (a8,h)
1500 Std Bed 4WD	3.0L V-6 TD	8,390 (a8,j)

1500 QUAD CAB

1500 2WD	3.6L V-6	4,620 (a8,d)
1500 2WD	3.6L V-6	7,600 (a8,h)
1500 2WD	5.7L V-8	6,790 (a6,d)
1500 2WD	5.7L V-8	8,840 (a6,h)
1500 2WD	5.7L V-8	10,390 (a6,i)
1500 2WD	5.7L V-8	8,210 (a8,d)
1500 2WD	5.7L V-8	10,360 (a8,j)
1500 2WD	3.0L V-6 TD	7,950 (a8,h)
1500 2WD	3.0L V-6 TD	8,950 (a8,j)
1500 4WD	3.6L V-6	4,450 (a8,d)
1500 4WD	3.6L V-6	7,440 (a8,h)

1500 4WD	5.7L V-8	8,670 (a6,h)
1500 4WD	5.7L V-8	10,220 (a6,j)
1500 4WD	5.7L V-8	8,060 (a8,d)
1500 4WD	5.7L V-8	10,210 (a8,j)
1500 4WD	3.0L V-6 TD	7,690 (a8,h)
1500 4WD	3.0L V-6 TD	8,690 (a8,j)

2500 REGULAR CAB

2500 LB 2WD	5.7L V-8	11,870 (a6,i)
2500 LB 2WD	5.7L V-8	13,870 (a6,k)
2500 LB 2WD	6.4L V-8	13,300 (a6,i)
2500 LB 2WD	6.4L V-8	16,300 (a6,k)
2500 LB 2WD	6.7L I-6 TD	16,900 (m6,g)
2500 LB 2WD	6.7L I-6 TD	17,970 (a6,g)
2500 LB 4WD	5.7L V-8	11,500 (a6,i)
2500 LB 4WD	5.7L V-8	13,500 (a6,k)
2500 LB 4WD	6.4L V-8	12,930 (a6,i)
2500 LB 4WD	6.4L V-8	15,930 (a6,k)
2500 LB 4WD	6.7L I-6 TD	16,440 (m6,g)
2500 LB 4WD	6.7L I-6 TD	17,520 (a6,g)

2500 CREW CAB

2500 SB 2WD	5.7L V-8	11,510 (a6,i)
2500 SB 2WD	5.7L V-8	13,510 (a6,k)
2500 SB 2WD	6.4L V-8	12,940 (a6,i)
2500 SB 2WD	6.4L V-8	15,940 (a6,k)
2500 SB 2WD	6.7L I-6 TD	16,450 (m6,g)
2500 SB 2WD	6.7L I-6 TD	17,510 (a6,g)
2500 SB 4WD	5.7L V-8	11,200 (a6,i)
2500 SB 4WD	5.7L V-8	13,200 (a6,k)
2500 SB 4WD	6.4L V-8	12,610 (a6,i)
2500 SB 4WD	6.4L V-8	15,610 (a6,k)
2500 SB 4WD	6.7L I-6 TD	16,120 (m6,g)
2500 SB 4WD	6.7L I-6 TD	17,180 (a6,g)
2500 LB 2WD	5.7L V-8	11,360 (a6,i)
2500 LB 2WD	5.7L V-8	13,360 (a6,k)
2500 LB 2WD	6.4L V-8	12,810 (a6,i)
2500 LB 2WD	6.4L V-8	15,810 (a6,k)
2500 LB 2WD	6.7L I-6 TD	16,290 (m6,g)
2500 LB 2WD	6.7L I-6 TD	17,360 (a6,g)
2500 LB 4WD	5.7L V-8	11,020 (a6,i)
2500 LB 4WD	5.7L V-8	13,010 (a6,k)
2500 LB 4WD	6.4L V-8	12,440 (a6,i)
2500 LB 4WD	6.4L V-8	15,440 (a6,k)
2500 LB 4WD	6.7L I-6 TD	15,940 (m6,g)
2500 LB 4WD	6.7L I-6 TD	17,020 (a6,g)

2015 TOW RATINGS

2500 MEGA CAB

2500 2WD	5.7L V-8	11,040 (a6,i)
2500 2WD	5.7L V-8	13,040 (a6,k)
2500 2WD	6.4L V-8	12,480 (a6,i)
2500 2WD	6.4L V-8	15,480 (a6,k)
2500 2WD	6.7L I-6 TD	16,100 (m6,g)
2500 2WD	6.7L I-6 TD	17,170 (a6,g)
2500 4WD	5.7L V-8	10,770 (a6,i)
2500 4WD	5.7L V-8	12,770 (a6,k)
2500 4WD	6.4L V-8	12,230 (a6,i)
2500 4WD	6.4L V-8	15,230 (a6,k)
2500 4WD	6.7L I-6 TD	14,520 (m6,g)
2500 4WD	6.7L I-6 TD	15,190 (a6,g)

3500 REGULAR CAB

3500 LB SRW 2WD	5.7L V-8	11,910 (a6,i)
3500 LB SRW 2WD	5.7L V-8	13,910 (a6,k)
3500 LB SRW 2WD	6.4L V-8	13,370 (a6,i)
3500 LB SRW 2WD	6.4L V-8	16,370 (a6,k)
3500 LB SRW 2WD	6.7L I-6 TD	16,870 (m6,g)
3500 LB SRW 2WD	6.7L I-6 TD	17,910 (a6,g)
3500 LB SRW 2WD	6.7L I-6 TD	17,770 (a6,g)*
3500 LB SRW 4WD	5.7L V-8	11,560 (a6,i)
3500 LB SRW 4WD	5.7L V-8	13,560 (a6,k)
3500 LB SRW 4WD	6.4L V-8	12,970 (a6,i)
3500 LB SRW 4WD	6.4L V-8	15,970 (a6,k)
3500 LB SRW 4WD	6.7L I-6 TD	16,520 (m6,g)
3500 LB SRW 4WD	6.7L I-6 TD	17,560 (a6,g)
3500 LB SRW 4WD	6.7L I-6 TD	17,420 (a6,g)*
3500 LB DRW 2WD	6.4L V-8	13,020 (a6,i)
3500 LB DRW 2WD	6.4L V-8	16,520 (a6,k)
3500 LB DRW 2WD	6.7L I-6 TD	16,510 (m6,g)
3500 LB DRW 2WD	6.7L I-6 TD	18,510 (m6,i)
3500 LB DRW 2WD	6.7L I-6 TD	17,550 (a6,g)
3500 LB DRW 2WD	6.7L I-6 TD	19,550 (a6,i)
3500 LB DRW 2WD	6.7L I-6 TD	22,550 (a6,k)
3500 LB DRW 2WD	6.7L I-6 TD	21,410 (a6,g)*
3500 LB DRW 2WD	6.7L I-6 TD	24,410 (a6,i)*
3500 LB DRW 2WD	6.7L I-6 TD	30,000 (a6,k)*
3500 LB DRW 4WD	6.4L V-8	12,460 (a6,i)
3500 LB DRW 4WD	6.4L V-8	16,140 (a6,k)
3500 LB DRW 4WD	6.7L I-6 TD	16,130 (m6,g)
3500 LB DRW 4WD	6.7L I-6 TD	18,130 (m6,i)
3500 LB DRW 4WD	6.7L I-6 TD	17,180 (a6,g)
3500 LB DRW 4WD	6.7L I-6 TD	19,180 (a6,i)
3500 LB DRW 4WD	6.7L I-6 TD	22,180 (a6,k)
3500 LB DRW 4WD	6.7L I-6 TD	21,030 (a6,g)*

3500 LB DRW 4WD	6.7L I-6 TD	24,030 (a6,i)*
3500 LB DRW 4WD	6.7L I-6 TD	29,530 (a6,k)*

3500 CREW CAB

3500 SB SRW 2WD	5.7L V-8	11,520 (a6,i)
3500 SB SRW 2WD	5.7L V-8	13,520 (a6,k)
3500 SB SRW 2WD	6.4L V-8	12,970 (a6,i)
3500 SB SRW 2WD	6.4L V-8	15,970 (a6,k)
3500 SB SRW 2WD	6.7L I-6 TD	16,450 (m6,g)
3500 SB SRW 2WD	6.7L I-6 TD	17,490 (a6,g)
3500 SB SRW 2WD	6.7L I-6 TD	17,350 (a6,g)*
3500 SB SRW 4WD	5.7L V-8	11,200 (a6,i)
3500 SB SRW 4WD	5.7L V-8	13,200 (a6,k)
3500 SB SRW 4WD	6.4L V-8	12,640 (a6,i)
3500 SB SRW 4WD	6.4L V-8	15,640 (a6,k)
3500 SB SRW 4WD	6.7L I-6 TD	16,160 (m6,g)
3500 SB SRW 4WD	6.7L I-6 TD	17,200 (a6,g)
3500 SB SRW 4WD	6.7L I-6 TD	17,050 (a6,g)*
3500 LB SRW 2WD	5.7L V-8	11,410 (a6,i)
3500 LB SRW 2WD	5.7L V-8	13,410 (a6,k)
3500 LB SRW 2WD	6.4L V-8	12,830 (a6,i)
3500 LB SRW 2WD	6.4L V-8	15,830 (a6,k)
3500 LB SRW 2WD	6.7L I-6 TD	16,320 (m6,g)
3500 LB SRW 2WD	6.7L I-6 TD	17,360 (a6,g)
3500 LB SRW 2WD	6.7L I-6 TD	17,210 (a6,g)*
3500 LB SRW 4WD	5.7L V-8	11,020 (a6,i)
3500 LB SRW 4WD	5.7L V-8	13,020 (a6,k)
3500 LB SRW 4WD	6.4L V-8	12,470 (a6,i)
3500 LB SRW 4WD	6.4L V-8	15,470 (a6,k)
3500 LB SRW 4WD	6.7L I-6 TD	15,960 (m6,g)
3500 LB SRW 4WD	6.7L I-6 TD	17,010 (a6,g)
3500 LB SRW 4WD	6.7L I-6 TD	16,860 (a6,g)*
3500 LB DRW 2WD	6.4L V-8	12,450 (a6,i)
3500 LB DRW 2WD	6.4L V-8	15,950 (a6,k)
3500 LB DRW 2WD	6.7L I-6 TD	15,960 (m6,g)
3500 LB DRW 2WD	6.7L I-6 TD	17,960 (m6,i)
3500 LB DRW 2WD	6.7L I-6 TD	17,000 (a6,g)
3500 LB DRW 2WD	6.7L I-6 TD	19,000 (a6,i)
3500 LB DRW 2WD	6.7L I-6 TD	22,000 (a6,k)
3500 LB DRW 2WD	6.7L I-6 TD	20,860 (a6,g)*
3500 LB DRW 2WD	6.7L I-6 TD	23,860 (a6,i)*
3500 LB DRW 2WD	6.7L I-6 TD	29,360 (a6,k)*
3500 LB DRW 4WD	6.4L V-8	12,100 (a6,i)
3500 LB DRW 4WD	6.4L V-8	15,600 (a6,k)
3500 LB DRW 4WD	6.7L I-6 TD	15,610 (m6,g)
3500 LB DRW 4WD	6.7L I-6 TD	17,610 (m6,i)
3500 LB DRW 4WD	6.7L I-6 TD	16,660 (a6,g)
3500 LB DRW 4WD	6.7L I-6 TD	18,660 (a6,i)
3500 LB DRW 4WD	6.7L I-6 TD	21,660 (a6,k)

3500 CC LB DRW 4WD	6.7L I-6 TD	20,510 (a6,g)*
3500 LB DRW 4WD	6.7L I-6 TD	23,510 (a6,i)*
3500 LB DRW 4WD	6.7L I-6 TD	29,010 (a6,k)*

3500 MEGA CAB

3500 SRW 2WD	5.7L V-8	11,270 (a6,i)
3500 SRW 2WD	5.7L V-8	13,270 (a6,k)
3500 SRW 2WD	6.4L V-8	12,710 (a6,i)
3500 SRW 2WD	6.4L V-8	15,710 (a6,k)
3500 SRW 2WD	6.7L I-6 TD	16,120 (m6,g)
3500 SRW 2WD	6.7L I-6 TD	17,160 (a6,g)
3500 SRW 2WD	6.7L I-6 TD	17,020 (a6,g)*
3500 SRW 4WD	5.7L V-8	10,990 (a6,i)
3500 SRW 4WD	5.7L V-8	12,990 (a6,k)
3500 SRW 4WD	6.4L V-8	12,400 (a6,i)
3500 SRW 4WD	6.4L V-8	15,400 (a6,k)
3500 SRW 4WD	6.7L I-6 TD	15,760 (m6,g)
3500 SRW 4WD	6.7L I-6 TD	16,800 (a6,g)
3500 SRW 4WD	6.7L I-6 TD	16,660 (a6,g)
3500 DRW 2WD	6.4L V-8	12,210 (a6,i)
3500 DRW 2WD	6.4L V-8	15,710 (a6,k)
3500 DRW 2WD	6.7L I-6 TD	15,720 (m6,g)
3500 DRW 2WD	6.7L I-6 TD	17,720 (m6,i)
3500 DRW 2WD	6.7L I-6 TD	16,770 (a6,g)
3500 DRW 2WD	6.7L I-6 TD	18,770 (a6,i)
3500 DRW 2WD	6.7L I-6 TD	21,770 (a6,k)
3500 DRW 2WD	6.7L I-6 TD	20,620 (a6,g)*
3500 DRW 2WD	6.7L I-6 TD	23,620 (a6,i)*
3500 DRW 2WD	6.7L I-6 TD	29,120 (a6,k)*
3500 DRW 4WD	6.4L V-8	12,020 (a6,i)
3500 DRW 4WD	6.4L V-8	15,520 (a6,k)
3500 DRW 4WD	6.7L I-6 TD	15,420 (m6,g)
3500 DRW 4WD	6.7L I-6 TD	17,420 (m6,i)
3500 DRW 4WD	6.7L I-6 TD	16,460 (a6,g)
3500 DRW 4WD	6.7L I-6 TD	18,460 (a6,i)
3500 DRW 4WD	6.7L I-6 TD	21,460 (a6,k)
3500 DRW 4WD	6.7L I-6 TD	20,320 (a6,g)*
3500 DRW 4WD	6.7L I-6 TD	23,320 (a6,i)*
3500 DRW 4WD	6.7L I-6 TD	28,820 (a6,k)*

* HO Cummins, HD 6-speed automatic.

SUBARU

Outback	2.5L 4-Cyl	2,700
Outback	3.6L 6-Cyl	3,000

TOYOTA

4Runner (All)	4.0L V-6	4,700
Highlander	3.5L V-6	2,000
Highlander	3.5L V-6	5,000 (t)

Highlander Hybrid	3.5L V-6	3,500
Land Cruiser	5.7L V-8	8,200
Sienna	3.5L V-6	3,500 (t)
Sequoia 2WD SR5	5.7L V-8	7,400
Sequoia 4WD SR5	5.7L V-8	7,100
Sequoia 2WD Ltd	5.7L V-8	7,400
Sequoia 4WD Ltd	5.7L V-8	7,100
Sequoia 2WD Platinum	5.7L V-8	7,200
Sequoia 4WD Platinum	5.7L V-8	7,000
Tacoma Reg Cab	2.7L I-4	3,500
Tacoma Access Cab	2.7L I-4	3,500
Tacoma Access Cab 2WD/4WD	4.0L V-6	3,500
Tacoma Access Cab 2WD/4WD	4.0L V-6	6,500 (t)
Tacoma DC 2WD/4WD	2.7L I-4	3,400
Tacoma DC PreRunner	2.7L I-4	3,500
Tacoma DC 2WD/4WD	4.0L V-6	3,500
Tacoma DC 2WD/4WD SB	4.0L V-6	6,500 (t)
Tacoma DC 2WD/4WD LB	4.0L V-6	6,400 (t)
Tundra Reg Cab LB 2WD	5.7L V-8	8,500
Tundra Reg Cab LB 2WD	5.7L V-8	10,500 (t)
Tundra Reg Cab LB 4WD	5.7L V-8	8,200
Tundra Reg Cab LB 4WD	5.7L V-8	10,200 (t)
Tundra DC Std Bed 2WD	4.6L V-8	6,800
Tundra DC Std Bed 2WD	5.7L V-8	8,200
Tundra DC Std Bed 2WD	5.7L V-8	10,300 (t)
Tundra DC Std Bed 4WD	4.6L V-8	6,500
Tundra DC Std Bed 4WD	5.7L V-8	7,800
Tundra DC Std Bed 4WD	5.7L V-8	10,000 (t)
Tundra DC LB 2WD	5.7L V-8	8,100
Tundra DC LB 2WD	5.7L V-8	10,100 (t)
Tundra DC LB 4WD	5.7L V-8	9,800
Tundra CrewMax 2WD	4.6L V-8	6,600
Tundra CrewMax 2WD	5.7L V-8	8,100
Tundra CrewMax 2WD	5.7L V-8	10,100 (t)
Tundra CrewMax 4WD	4.6L V-8	6,300
Tundra CrewMax 4WD	5.7L V-8	7,800
Tundra CrewMax 4WD	5.7L V-8	9,800 (t)

NOTE: Toyota Tundra tow ratings vary depending on trim level and equipment selected. See your dealer for details.

VOLKSWAGEN

Tiguan	2.0L I-4 TC	2,200
Touareg	All	7,716

VOLVO

S60	All	3,300
S80	All	3,500
XC60	All	3,300
XC70	All	3,500
XC90	All	NA at press time



THE BASICS OF HITCHING

Selecting and maintaining the proper hardware for your tow vehicle and trailer

The process of buying a new travel trailer or fifth-wheel can be intimidating. Negotiating a price, arranging financing and settling on a fair trade-in value for your old rig are only the beginning. Then you need to choose insurance, floorplans, décor schemes, optional equipment and...the list goes on. However, one of the most important choices may be considered an afterthought: choosing the proper trailer hitch.

Fortunately, selecting the right hitch isn't difficult, nor is its installation — after locating a competent shop, that is. Maintaining proper adjustment of the hitch on an ongoing basis is important, and it has a large bearing on the safety and ease of trailer towing.

Trailers are available in two different designs: a travel trailer that's coupled to the rear of the tow vehicle by a conventional hitch ball, and a fifth-wheel trailer that utilizes a fifth-wheel (or gooseneck) hitch mounted in

the truck bed, centered over the rear axle. The hitching methods are as different as the trailers and require specific knowledge by the installer and trailer owner.

CONVENTIONAL HITCHES

All hitches are rated by their respective manufacturers to safely handle up to a specific gross vehicle weight rating (GVWR), which is the weight of the trailer with full water and LP-gas cylinders and all supplies aboard. Several weight classes exist for hitches designed for towing conventional travel trailers.

Weight-carrying hitches are intended for lighter trailers because the entire trailer's hitch weight is carried on the ball and transferred to the rear axle of the tow vehicle, whereas weight-distributing hitches are designed to distribute the trailer's hitch weight to all axles of the tow vehicle and trailer, making larger, heavier trailers with consider-

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ably higher hitch weights towable without destabilizing the tow vehicle.

A travel trailer with ideal weight distribution will have a minimum hitch weight of about 12 percent of the gross weight, and the maximum can range upward to about 15 percent, provided it does not violate the rating of the hitch.

Except for the lightest folding trailers, hitches rated Class II and higher are used for recreational towing, and they use a receiver bolted to the tow vehicle's frame. The hitch receiver — which may have box dimensions of 1¼ inches square, 2 inches square or 2½ inches square, with the larger boxes for higher load ratings — accepts a slide-in ball mount (or draw bar), which is secured with a pin.

Besides serving as the trailer/receiver attachment point, the ball mount also is used in varying heights (known as “drop”) to couple the trailer in a level fashion (frame parallel to the road surface), which is desirable for best stability and trailer-brake performance. Some ball mounts are fixed, while others are adjustable.

Ball mounts used for weight-carrying hitches are quite different from those used for weight distributing. The need for weight-distributing hitches varies with tow-vehicle type and trailer weight. A trailer with 350 pounds of hitch weight may present no challenge for a stiffly sprung long-wheelbase HD pickup, while

it may destabilize a softly sprung compact SUV. In general, a weight-distributing hitch will improve stability in most situations because weight resting on a hitch ball (when a weight-carrying hitch is used) loads the rear axle excessively by placing all of the hitch weight on that axle in addition to weight that is transferred from the front axle to the rear in a seesaw lever action.

Because many receivers are usable in either weight-carrying or weight-distributing configurations, depending on the ball mount, the receiver manufacturer may list both ratings.

Weight-distributing hitches should be used in many weight situations of Class II and in most situations of Class III and above. Unlike their weight-carrying counterparts, these hitches typically use a much heavier ball mount (that's height-adjustable), plus a pair of spring bars that provide the leverage needed to distribute weight fore and aft.

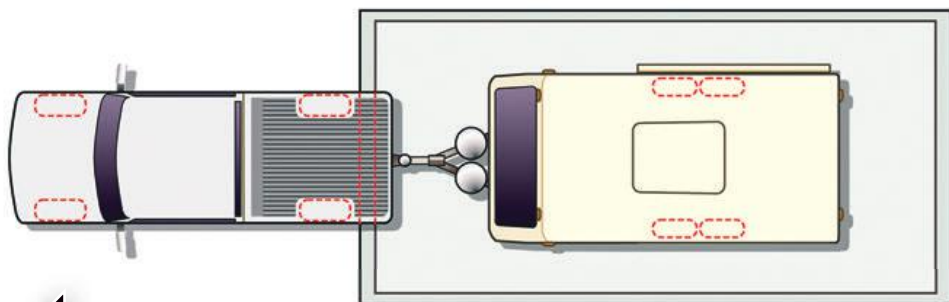
HITCH ADJUSTMENT

After having a weight-distributing hitch of proper weight rating installed, owners may take the fine-tuning for granted. This can be a costly error because an improperly adjusted weight-distributing hitch can contribute to trailer sway, which is a very undesirable, and unsafe, handling trait.

The keys to happy towing are proper hitch-ball height and proper tension on the spring

Hitching up used to be a two-person operation, but many of today's trucks are available with a backup camera display that can help you hitch up on your own. If you tow a trailer frequently, this is one option that is worth the cost.





To determine weight, first get a reading on axle weight, then unhitch the trailer for a total weight reading (with the tow vehicle's wheels off the scale), and then subtract the two.

bars. When all aspects are correct, the tow vehicle and the trailer are at the proper ride height, which in most cases is level. One exception will be described later. Proper hitch adjustment helps prevent rear-axle overloading and improves braking and steering response.

Evaluating the proper adjustment of a weight-distributing hitch is relatively simple: The tow vehicle should maintain roughly the same attitude before hitching that it does after hitching, measured at reference points at the front and rear bumpers or wheel wells. If it is level before hitching, it should be level afterward, although slightly lower due to the addition of hitch weight. A level attitude means the adequate load has been placed on the spring bars to distribute portions of the hitch weight equally to the front and rear axles. If the rear of the tow vehicle sags after hitching, then the spring-bar loading isn't adequate.

The exception to level attitude: If the tow vehicle is a stiffly sprung pickup and the rear of the truck is higher than the front, that attitude should be maintained after hitching. Such trucks will often carry heavy loads without the need for weight-distributing hitches and without

sagging. But care must be exercised here. Although the truck may not look like it's sagging visually, the hitch weight carried by the rear axle may still create an unstable situation.

If the trailer is not level after the spring bars have been adjusted to create the proper tow-vehicle attitude, then the ball height should be corrected.

Trailer sway can be a problem if trailer balance or hitch adjustment are not correct, as the trailer exerts steering leverage on the tow vehicle because it is connected to the tow vehicle 3 or 4 feet behind the rear axle. With correct hitching, trailer balance may be a problem if the hitch weight is less than 10 percent of gross weight. It should be more than 10 percent (we recommend a minimum of 12 percent) for best stability.

Even with a well-balanced trailer and a properly adjusted hitch, use of a sway-control device is highly recommended. Sway-control devices are designed to damp rotation of the coupler on the hitch ball. They improve the handling characteristics of the trailer/tow vehicle combination, whether the hitch method is weight-carrying or weight-distributing.

USING A WEIGHT-CARRYING HITCH

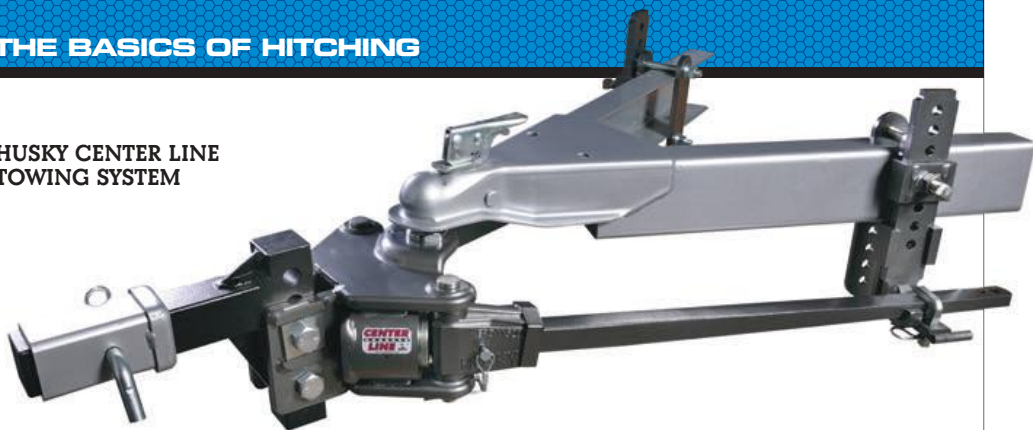


USING A WEIGHT-DISTRIBUTING HITCH



A weight-distributing hitch distributes weight to all axles of the tow vehicle and the trailer.

**HUSKY CENTER LINE
TOWING SYSTEM**



EQUAL-I-ZER SWAY-CONTROL HITCH



HENSLEY ARROW



REESE SIDEWINDER



B&W COMPANION FIFTH-WHEEL HITCH

Sway-control devices are available in two different configurations, the most popular of which is one that employs a steel bar, attached to the ball mount, that is encased in a rail or tube attached to a small ball on the trailer A-frame. Inside the rail or tube is friction material that is clamped against the steel bar. Any pivoting of the trailer coupler on the bar causes the bar to slide within the rail, creating drag and damping sway. On larger trailers, it's often possible to use a pair of friction-type units for additional sway control.

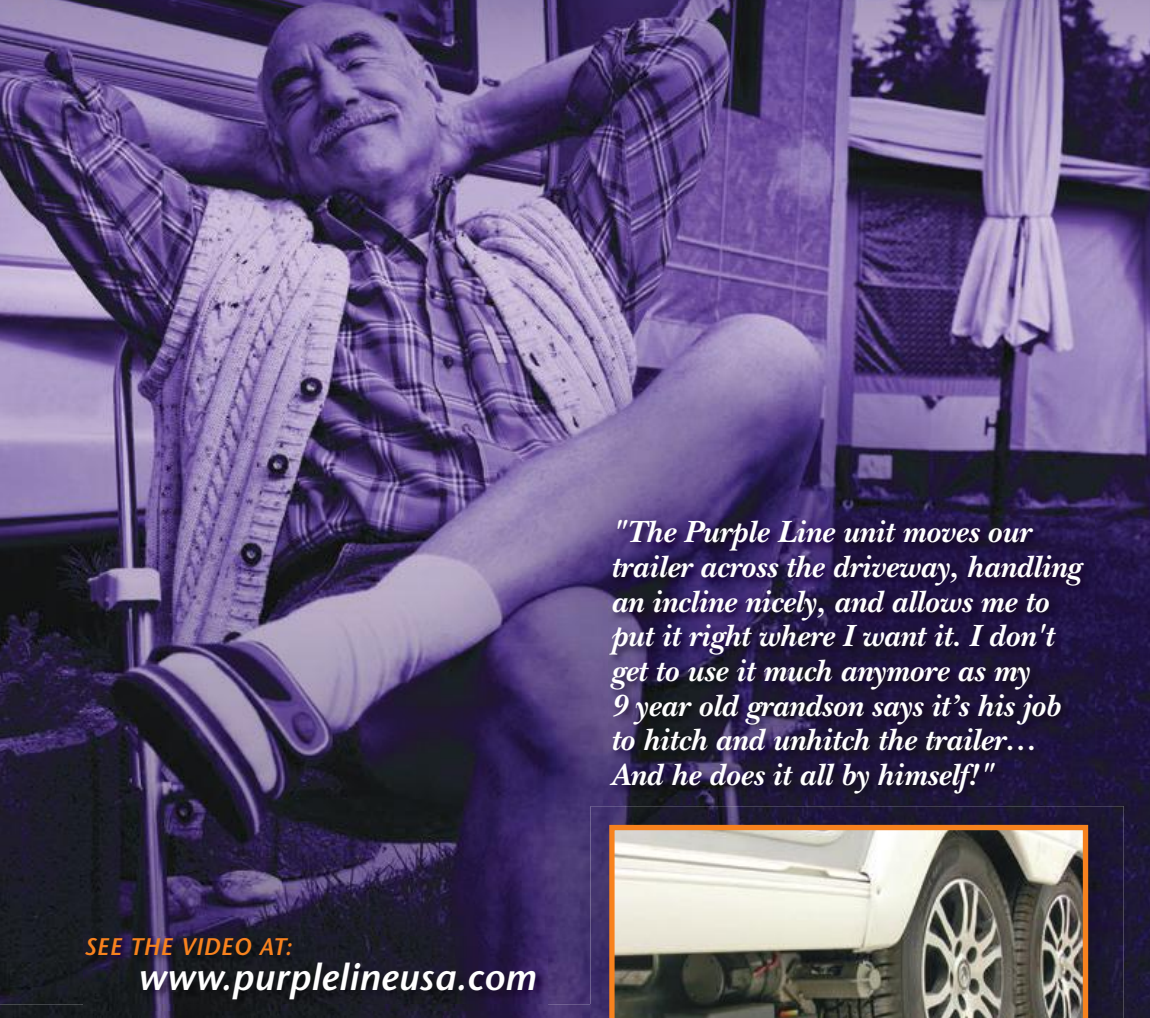
One popular hitch, the Equal-i-zer, includes a friction feature in the hitch design whereby the tips of the spring bars create friction on the trailer-frame brackets. Cam-type sway units work by modifying the operation of the spring bars on a weight-distributing hitch. As the trailer turns, a cam increases the tension on one of the bars, creating a force that tends to pull the trailer back into a straight line. The harder the trailer turns, the stronger this self-centering force becomes. Since this scheme relies on spring-bar tension, it's generally most effective on trailers with relatively high hitch weights (e.g., trailers requiring considerable spring-bar tension).

The Hensley Arrow and PullRite hitch systems offer different approaches to controlling sway. The Hensley unit prevents sway through use of trapezoidal hitch linkages that make the tow vehicle and trailer act as a single unit, with no pivoting of the coupler on the ball unless the tow vehicle turns. Thus, during typical highway travel, the tow vehicle and trailer are connected as non-articulated vehicles and tend to function as a single unit. Even so, there is no restriction on the tow vehicle's capability for turns.

The PullRite, in effect, moves the hitch-pivot point to a location immediately aft of the tow vehicle's rear axle, dramatically reducing the leverage the trailer can exert on the tow vehicle.

REMOTE CONTROL

Trailer Positioning



"The Purple Line unit moves our trailer across the driveway, handling an incline nicely, and allows me to put it right where I want it. I don't get to use it much anymore as my 9 year old grandson says it's his job to hitch and unhitch the trailer... And he does it all by himself!"

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- ✓ Maneuver Around Driveway



FIFTH-WHEEL HITCHES

Fifth-wheel towing is a different story altogether. The trailer's kingpin serves as the pivot point for the fifth-wheel hitch, which is centered slightly ahead or over the truck's rear axle. The trailer's kingpin slides into the hitch saddle, where it is secured by latching jaws or some other mechanism. This saddle is attached to a support base, which transfers the towing forces to the truck frame.

The design prevents the trailer from having any steering effect on the tow vehicle and is what gives fifth-wheel trailers such good road manners. Wind gusts and road irregularities have little or no effect on tow-vehicle stability.

Most hitches are secured to the bed with a pair of mounting rails, while other underbed systems leave the truck bed flat after the hitch is removed.

Until a few years ago, fifth-wheel hitches had been strictly aftermarket add-ons. But Ford, GM and Ram upped the ante with the availability of a factory-installed fifth-wheel hitch, providing clean installation and a factory warranty. These factory hitches are installed using specially designed pins that lock the rails into the bed. The trailer's electrical connection has been mounted into the side of the bed for added convenience.

Most removable aftermarket systems use permanently mounted rails with pins to secure the hitch saddle. The underbed style of the fifth-wheel-hitch mount is completely different in that the entire hitch mechanism is removed by simply pulling a lever in the wheel well. PullRite also uses an underbed system with removable connection pins. Some systems, such as the B&W Turnover Ball and Companion, allow the hitch saddle and support base to be removed separately, making it easier on the back when lifting the hardware.

Many fifth-wheel hitches are mounted so that they tilt fore and aft; however, having only the fore-and-aft pivot restricts side-to-side movement.

Some hitches have heads that pivot in multiple directions, allowing the pinbox to move in any direction with respect to the pickup, while still maintaining a tight mechanical connection. This also makes it easier to hitch or unhitch the trailer on uneven ground.

Another strategy for improving trailer-truck flexibility involves the use of air springs as part of the hitch design. Typically, the

hitch is suspended on multiple bladder-type air bags, which support most of the trailer's kingpin weight. Aside from providing considerable articulation, these bags are also capable of smoothing out much of the road shock and vibration that would otherwise be transmitted from the trailer to the tow vehicle. Adjustments to the system can be accomplished by varying the amount of air pressure in the bags.

Other suspension-type hitches use a hinged pivot arm and a single airbag setup or a rubber spring in shear to provide truck-to-trailer impact damping while the hitch-saddle mechanism provides the side and fore/aft head tilting.

Shortbed pickups are now more popular than ever, particularly among extended-cab models. However, a shortbed often causes complications when using the truck for towing a fifth-wheel because the proper hitch-mounting location is far enough forward to cause trailer-to-cab collisions during sharp turns. Installing an extended pinbox provides a workable solution with smaller trailers with modest pin weights; however, owners should first check with the pinbox manufacturer before adding any extension.

One solution is a conventional hitch that can be manually unlocked and moved aft on a special set of rails before making tight turns. Pull-Rite and Demco offer hitches that perform this motion automatically, returning to the forward-towing position after the turn is completed. Rearward travel can be as much as 22 inches for some models, which is generally adequate for accommodating 102-inch-wide trailers. Turns as tight as 90 degrees are even possible.

Another system, the Reese Sidewinder, uses a special pin box that automatically handles clearance problems.

Maximum weight ratings for fifth-wheel hitches typically range up to 30,000 pounds gross weight, with as much as 25 percent of that on the hitch (most fifth-wheels have 20 percent hitch weight or less). You might also consider a hitch that will not only handle the weight of your current trailer but also any larger trailer you may purchase in the future, although a higher-rated hitch will cost more and be slightly heavier.

Whether towing a conventional trailer or a fifth-wheel, the use of a properly rated hitch, adjusted correctly, will aid in creating a safer and more manageable towing experience. 🚛

TRAILER-BRAKE CONTROLLERS

Technological advances help smooth out the process and improve safety and reliability

Electric-brake systems have been employed for several decades on most trailers that have any significant weight. Each trailer with electric brakes, in turn, also requires that the tow vehicle be fitted with a brake controller.

For years, brake-controller choices have been extensive — all aftermarket and all electric. Ford changed the game in 2005 with the first trailer-brake-control (TBC) system included as a factory-installed integral part of the tow vehicle's design, and GM and Ram have long since followed suit. The TBC system synchronizes vehicle and trailer brakes for seamless braking, even under heavy load, to provide added driving control and confidence.

Until the advent of anti-lock brake systems (ABS), most brake controllers were tapped directly into the hydraulic lines of the tow vehicle's onboard hydraulic-braking system. They were often described as hydraulic/electric brake controllers, as they converted hydraulic pressure in the tow vehicle's brake system to an electric signal used to activate the trailer's brakes directly proportional to hydraulic pressure in the vehicle's braking system. A significant factor in the elimination of this system was the advent of ABS because the tow vehicle manufacturers cautioned against tapping into the hydraulic system.

INTEGRATED AND AFTERMARKET

As Ford was first to offer a factory-installed

brake controller in the tow vehicle, let's look at its system. Ford's integrated controller



electronically tracks hydraulic pressure inside the vehicle's master cylinder and uses the pressure, along with vehicle speed, to modulate the amount of current produced for trailer brakes. Thus, the system accurately follows tow-vehicle braking with more at high pedal pressure and less at low, even to the point of using ABS. If the wheels of the tow vehicle are slipping, ABS goes into action for the tow vehicle as well as the trailer.

The Ford system doesn't give the trailer the same functions and characteristics of true ABS, but when the truck's ABS is activated, the trailer-brake application is reduced to avoid wheel lockup, just as with true ABS. A dash monitor indicates the level of trailer braking, and a manual override is provided so the trailer brakes can be applied independently of tow-vehicle brakes. TBC-equipped Ford Super Duty trucks also enjoy an added element of safety; if the trailer is swaying, the TBC will actually apply the trailer brakes to help stabilize the trailer.

While the Ford brake control uses brake-pressure sensing, the GM and Ram integrated controllers use inertia-type sensing to regulate



trailer-brake action. None of the systems can be retrofitted to earlier truck models, and aftermarket controllers still must be used for most other vehicles, so the demand for those aftermarket controllers remains quite large. Accordingly, it's helpful to understand what's out there and how to make a good choice.

TIMER-BASED VERSUS PROPORTIONAL

In essence, all electronic brake controllers fall into two general categories: timer-based brake controllers and inertia-based proportional brake controllers. All brake controllers generate an output signal to a trailer-brake system when a user first touches the tow vehicle's brake pedal or activates the brake controller's manual control, if so equipped. What happens next varies greatly, depending on whether you're using a timer-based or proportional brake controller.

While most manufacturers identify their proportional brake controllers as such, you usually won't see the words "timer-based" in the literature for a nonproportional brake controller. Instead, marketers will sometimes advertise timer-based controllers as having the advantage of requiring no leveling, but even that idea is confusing. Several proportional brake controllers do not require leveling. Timer-based controllers are also touted as being microprocessor-operated, but all brake controllers contain a processor of some kind. Even the most sophisticated timer-based microprocessor doesn't determine how hard you are braking but how long you've been braking. A good rule of thumb is that if it doesn't say the word "proportional" somewhere in the literature, it's

probably a timer-based brake controller.

A timer-based brake controller has a timer that generates an output signal for your RV's brakes that increases with the amount of time you keep your foot on the brake pedal. It doesn't know whether the driver is braking gently on a gradual downhill grade or if you're in a panic stop. The rate of increase in output (the slope of the voltage ramp) has no bearing on pedal effort but can usually be adjusted for braking aggressiveness.

An inertia-based proportional controller generates an output that is, as the name suggests, directly proportional to your braking needs. Most proportional brake controllers measure the tow vehicle's rate of deceleration by means of a pendulum. The quicker you slow, the farther the pendulum is displaced, via inertia, from its at-rest position. This creates an electric signal to your trailer's brakes that is proportional to the deceleration rate.

Tekonsha and its sister companies use a series of LEDs and photoelectric detectors in their proportional controllers to determine the position of the displaced pendulum, and therefore determine the deceleration rate. Hayes Lemmerz uses the Hall effect, a physics principle involving moving magnets, to determine the pendulum's position.

All pendulum controllers have some potential for inaccuracies, as the pendulum can tilt slightly forward or backward on steep grades. Most such controllers employ a damping device to stabilize the sensor against vibrations, and the damper helps reduce the effect of the fore-or-aft-tilt problem.

The pendulum's position is adjusted through the level-control knob, which allows the pendulum to be oriented to a true vertical resting position to compensate for the angle of the brake-controller body (the "leveling" referred to in some timer-based-controller advertising). The level adjustment also allows the driver to pitch the pendulum slightly forward



◀ TUSON DIRELINK

▶ HENSLEY TRUCONTROL SILVER II

or aft of its normal resting position to set up the trailer so that its braking is either aggressive or delayed.

Most drivers prefer some braking effect from the trailer's brakes on the initial touch of the brake pedal and adjust the brake controller accordingly to provide this so-called threshold voltage. This adjustment produces some output (typically 2 volts), without the initial time period having passed or deceleration having occurred in the two electric brake-controller types. This time period, or deceleration event, is normally needed to activate the timer-based controller or the proportional pendulum-based controller, respectively.

With dozens of different models of brake controllers on the market, many RVers may find the selection of the right controller difficult without some form of guidance. While budgetary considerations may force a user into one category of controller, this is a critical system where pinching pennies may not be advisable.

When faced with the need for a panic stop, most drivers want a controller that will respond in proportion to braking needs at that moment. Keep in mind that a timer-based controller can't respond in this manner, as its output is fixed for a certain timed duration.

Among more recent developments, solid-state accelerometers are being used to measure braking force. Tekonsha has embraced this technology in its Prodigy P2 brake control. Hayes uses an accelerometer in its G2 Brake Boss, as does Hensley Manufacturing in its high-tech TruControl trailer brake control. Tuson offers the DirecLink, which is a true network-based unit. The DirecLink receives its data from the OBDII diagnostic port and provides proportional control of trailer brakes.

Some brake controllers aren't compatible with disc-brake systems on trailers; in such cases, the installation of a controller module — such as the Carlisle HydraStar — is necessary on the trailer to ensure functional braking.

AFTERMARKET INSTALLATION

Critical to every successful brake-controller installation is the proper tow-vehicle wiring. While you should carefully follow the manufacturer's recommendations, there are certain common elements to almost every controller.

A reliable power source is a priority, which may include a vehicle's built-in circuitry for an aftermarket brake controller. The main power line should be at least a 10 AWG wire from a circuit breaker at the fuse box, or the battery, to the brake controller's power-input connection (follow specific instructions for your controller). The circuit should continue from the controller, without any splices, and terminate at the seven-pin connector found at the rear of the tow vehicle. Most manufacturers advise against grounding the controller to the vehicle's firewall but recommend routing a 10 AWG (or larger) separate ground wire directly to the battery; the controller may not function properly if the ground connection is not made directly to the battery terminal.

The other connection is made to the brake-light circuit, downstream of the brake-light switch mounted to the brake-pedal assembly, so the controller senses when the brakes have been activated. Later-model vehicles with towing packages have brake-control wiring bundled under the dash with a plug-in connector attached. A pigtail with the mating part of the connector is supplied with the vehicle and is ready for connection to the brake-control wiring. This setup avoids most of the complexity and possible mistakes with locating the correct wiring among that maze under the dash.

Today's RVer has many choices in brake controllers from many manufacturers. It's important to carefully select the controller that is right for your needs and capable of handling the weight and number of axles on your trailer.

Be sure to follow the manufacturer's written instructions about every aspect of the brake controller's installation, operation, adjustment and maintenance for optimum performance. 🚚



▲ TEKONSHA PRIMUS IQ

▲ HOPKINS AGILITY

▲ HAYES G2 BRAKE BOSS

TOWING PACKAGES

What's included on these must-have tow-vehicle options?

There are many bells and whistles available when choosing a new tow vehicle, but there's one option that is an absolute necessity: the towing package.

Plenty of advantages are involved in choosing factory-installed towing hardware. First, you have full warranty coverage on the equipment. Also, it was designed by the best engineering minds at a major auto manufacturer, which is reassuring when considering the hardware is tying your tow vehicle and trailer safely together. Plus, you'll probably save money over the cost of aftermarket hardware. And perhaps best of all, use of the factory options means being ready for the road is a turnkey operation that calls for few or no trips to specialty shops after leaving the dealership.

In many cases, you don't have a choice. If the vehicle is to be rated for its highest towing capacity, the towing-package option is mandatory to give the tow vehicle its optimum performance potential. For less-strenuous duty, the towing package is optional.

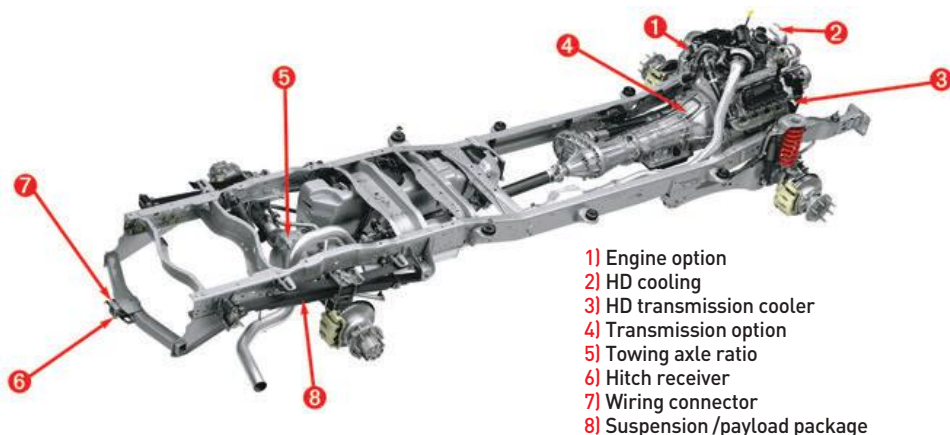
Check with the dealer to determine the content of the towing-package option. Here are

some of the items you will likely encounter.

Axle Ratio: Most packages include a lower (numerically higher) axle ratio; for example, a 3.73:1 or 4.10:1 instead of the 3.55:1 that comes with the stock vehicle. A lower ratio results in greater torque multiplication at the rear wheels, which means more power for towing. It also means the engine turns somewhat faster for a given road speed and thus gets slightly decreased mileage, but that's the tradeoff for improved towing performance.

Hitch Receiver: If the tow vehicle already has a receiver, all you need to select is the proper ball mount and the associated hardware, such as a weight-distributing hitch. The receiver will be properly matched to the tow vehicle's trailer-towing rating, so you shouldn't worry about any hitch-overloading situations — as long as you pay attention to the numbers. You'll also avoid interference problems with the exhaust pipe(s), the fuel tank and the spare tire. Chevy, Ford and Ram trucks can be ordered with a factory-installed fifth-wheel hitch.

Wiring Package: The wiring package is a group of color-coded pigtails near the back





TOWING-PACKAGE COMPONENTS

Overall packages vary by model, but here are some components that may be included:

Hitch receiver
(or fifth-wheel hitch)

4- and/or 7-pin connector

Larger alternator

Larger battery

Larger radiator

Additional electric fan(s)

Transmission-oil cooler

Engine-oil cooler

Rear antisway bar

Extendable side-view
mirrors

Vehicle Dynamic Control

Integrated brake controller

Brake controller prewire

Synthetic lubricants

Lower axle ratio

Re-valved shock absorbers



Chevrolet's towing mirrors easily extend for optimum trailer visibility — superior to add-on mirrors.

bumper that is ready for installation of the trailer-plug receptacle. It can be as complete as a plug or two installed out back, or a prewired pigtail for brake-control installation under the dash and full integration with the tow vehicle's electrical system.

Alternator: It takes extra charging current to keep a trailer's battery(ies) charged in addition to handling the electrical-power needs of the tow vehicle. The battery may also be larger.

Heavy-Duty Suspension: The trailer and its hitch weight add load on the tow-vehicle suspen-

sion, so the normal reaction among dealership sales staff and buyers is to order the optional heavy-duty (HD) suspension, particularly when fifth-wheel towing is involved. In fact, when the trailer is a conventional travel trailer, it's often best not to order a heavy-spring option if there is a choice (if the towing package does not include HD suspension) for trucks rated 8,600 pounds and higher because a stiff ride and the tendency of the rear springs to do some or most of the work of the load-distributing hitch can be the result. A stiff ride is a very common complaint among owners



of three-quarter and one-ton pickups not towing fifth-wheels.

A possible alternative to not ordering an HD suspension, even for fifth-wheel towing — except in very high pin-weight situations — is opting instead to install auxiliary springs or air bags after delivery to support the pin weight (if necessary). This allows a more civilized ride on standard rear springs when not towing. It's necessary to compare the standard and optional rear-axle-weight ratings relative to the anticipated trailer pin weight. It's easy to upgrade rear suspensions after a truck is built but nearly impossible to soften the ride of an oversprung truck without replacing the suspension. SUVs have enough of their body weight on the rear axle, so that's generally not an issue.

Brake Control: Ford, Ram and GM pickups all have factory-installed fully integrated trailer brake controls optionally available. This option is a no-brainer. If available, select it, as it's a terrific piece of equipment from the factory. Otherwise, towing packages usually include a

trailer-wiring harness with a circuit for an aftermarket brake-control unit, a very worthwhile component of the package (see "Trailer Brake Controllers" on page 35).

Stability Control: More manufacturers are now offering electronic stability control. In addition, Chevy, Ford, Ram and Toyota Tundra trucks can be equipped with an electronic stability control that helps control trailer sway.

Mirrors: Towing packages offer mirrors designed to be extended outward while towing trailers. Some mirrors even collapse electronically.

Extra Cooling: The largest possible radiator, a larger transmission-oil cooler and often a power-steering-fluid cooler are essential parts of the usual HD cooling component of a towing package, and we advise that no tow vehicle should be ordered without them.

These components will not only help the tow vehicle avoid overheating any vital functional parts, but they will also lead to longer, trouble-free component service life. 🚚





TOWING TIPS

Plenty of practice and defensive driving skills lead to a safe and enjoyable RV experience

Trailer towing isn't exactly rocket science, but it does represent a step up in complexity from driving a solo vehicle. Towing requires new awareness of combined vehicle length, trailer width, braking distance, turning characteristics and several other important factors that

must be considered while on the road.

Most of us drive trucks, SUVs or passenger cars daily and tow an RV only occasionally while vacationing. Thus, it's always necessary to make a mental transition and try to keep the size and handling characteristics of the larger truck and trailer combo in mind.



Allowing solo-vehicle habits to take over may result in a tendency to make turns too tightly, to run over curbs, to hit stationary objects such as overhanging tree limbs or to follow too closely.

PAY ATTENTION

The first towing precautions are those that precede towing — matching the tow vehicle and trailer correctly, adhering to weight limits and making sure hitch selection and adjustment are correct, as described elsewhere in this guide. It's also important to refresh defensive driving skills. From there, the real fun begins.

The combined length of the tow vehicle and the trailer, as well as the combined weight, must be in the front of your mind, right from

the start. Maintaining extended following distances is one of the most important towing-related driving habits, which may be difficult to adhere to initially.

Even though trailer brakes may be functional, braking distances almost always are extended. It's also important to make lane changes carefully and slowly, and to allow extended distances for passing. High-quality, properly adjusted towing mirrors with large reflective areas are also essential. Some manufacturers have factory-installed extendable towing mirrors available, and most work well these days. If you need aftermarket portable mirrors, solidly mounted units like those from McKesh are a good idea.

Speedy traffic seems more tolerant of

slower 18-wheelers than of slower RVs, which makes courtesy an important safety factor for RV owners because an irate driver trying to pass can pose a serious safety threat. Frequent monitoring of rearview mirrors is necessary while towing; when a vehicle is tailgating and trying to pass, RVers should help by driving slightly to the right to give the other driver a better view of the road ahead, even if a passing opportunity does not exist at the time. RVers should use turnouts whenever possible and avoid following another vehicle so closely that a vehicle overtaking from the rear cannot return to the proper lane.

BRAKING

While tow-vehicle and trailer brakes are adequate for most situations, care is necessary to avoid overheating, which can lead to brake fade. If brake fade occurs, it will likely be on steep downgrades. Brake fade happens when friction raises the temperature of brake pads and linings to extremely high levels, resulting

in a temporary loss of braking.

The only known cure is prevention, such as downshifting to a gear that is low enough to retard speed sufficiently that brakes need not be used more than occasionally. This way, enough braking performance is reserved to make an emergency stop, should it become necessary.

When braking on a grade is necessary, apply the brakes with moderate pressure and release the pedal intermittently to allow the brakes to cool.

The action of electric trailer brakes should be apparent to the driver and sufficient to handle the trailer's weight. The controller should be adjusted so that maximum braking action does not cause trailer-wheel lockup. Improper controller adjustment is a major cause of inadequate braking, so it's wise to study the manufacturer's instructions. Travel-trailer instability (commonly known as fishtailing) should not occur in a well-balanced, well-hitched combination, but if it does, independent actuation of trailer brakes usually will bring the trailer back into line. GM,



STEP BY STEP

Hitching Travel Trailers and Fifth-Wheels

by Bill Gehr

TRAVEL TRAILERS

- 1 Chock the trailer tires.
- 2 Insert ball mount into tow vehicle's hitch receiver and secure it with the proper hitch pin (or locking hitch pin).
- 3 Inspect and lube the hitch ball and ends of weight-distributing bars, if necessary/applicable.
- 4 Raise the trailer coupler high enough to clear the hitch ball.
- 5 Back the tow vehicle to the trailer's A-frame with the aid of a helper (or rearview camera system) and stop when the hitch ball is directly under the trailer's
- 6 Lower the trailer's coupler onto the hitch ball, secure the coupler latch and use a pin to lock in place.
- 7 Using the A-frame jack, raise the front of the trailer and rear of the tow vehicle several inches. This will allow the spring bars to be installed without excessive tension.
- 8 Install the spring bars into the correct position. Use a lifting tube to cinch the spring bars and do not release pressure on the bar until the
- 9 Lower the A-frame until the jack foot is off the ground. If the trailer is not level, the spring bars may need to be adjusted. If this is not possible, the ball mount may need adjusting.
- 10 Hook up the safety chains by crisscrossing below the ball mount and high enough to prevent them from dragging on the pavement. Attach the break-away switch cable.
- 11 If equipped, install the sway control.
- 12 Insert the seven-way electrical cord that supplies power

Ram and Ford all offer factory-installed, fully integrated brake controls on full-size pickups, and these units all work very nicely and are valuable safety components.

When towing with a diesel, an aftermarket exhaust brake can be extremely beneficial, and many newer diesel trucks now offer fully integrated exhaust-brake control.

TRAILER MANEUVERING

All trailers require more space for turns, and travel trailers follow the tow-vehicle track more closely than do fifth-wheels, which track farther to the inside of a turn.

There is need for continual awareness, which should eventually become second nature after a modest amount of on-the-road experience.

Fifth-wheel trailers are different to back up than conventional trailers and require more practice for someone accustomed to backing a conventional trailer. A well-used technique involves placing one's hand at the bottom of the steering wheel and moving it in the same direction the trailer is intended to go. It's more

effective with travel trailers than with fifth-wheels, which often require more turning of the steering wheel.

Handheld two-way radios can allow an assistant to more effectively relay backing instructions to the driver. In addition, backup cameras help ease the difficulty of hitching up when a helper isn't available.

Before each trip, it's essential to check the tires to ensure that inflation pressures match those molded on tire sidewalls (cold), or that they are appropriate for your load (consult the tire and vehicle load/inflation tables). Also, be sure to inspect all vehicle fluids, per standard maintenance procedure during heavy-duty vehicle use cycles, and make sure trailer-wheel lug nuts are tightened to factory specifications.

Trailerering is a great way to explore new horizons and to check out the wonderful camping destinations that are available to owners of recreational trailers. Always keep in mind that defensive driving will pay off in safe travel. 🚚

to the trailer's taillights, brake lights and brakes.

13 Check operation of the taillights, brake lights and turn signals. Be sure the entry step has been put in the travel position.

14 Check trailer and tow-vehicle tire pressure and adjust if necessary. Inspect tires for unusual wear or damage.

15 Torque trailer wheel lug nuts to manufacturer's specifications.

16 Remove wheel chocks and slowly move forward while manually testing the trailer brakes for proper operation.

FIFTH-WHEELS

1 Chock the fifth-wheel tires.

2 Lower the truck tailgate.

3 Open the jaws on the fifth-wheel hitch and level the top plate. Inspect the hitch and make sure it is lubricated according to the manufacturer's specifications.

4 Enlist a helper to raise the front of the fifth-wheel until the kingpin is approximately 1 inch below the top of the hitch plate.

5 Slowly, back into the kingpin until the hitch jaws lock securely into place.

6 With the aid of a flashlight, check to make sure that the jaws of the fifth-wheel hitch are closed in the proper position and locked around the kingpin.

7 Plug in the seven-way elec-

trical cord and the breakaway switch cable.

8 Check operation of the taillights, brake lights and turn signals. Be sure that the entry step has been put in the travel position.

9 Securely close the truck tailgate and lock, if necessary.

10 Inspect the fifth-wheel and tow-vehicle tires for proper inflation and wear/damage.

11 Torque wheel lug nuts to manufacturer's specifications.

12 Raise the landing jacks approximately 1 to 2 inches off the ground. Remove the wheel chocks and slowly move forward while manually testing the trailer brake function. If the hitch is secure, fully retract the landing jacks.



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