2018 DINGHY GUIDE TO DINGHY TO WILLIAM

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motorhome may mean different things to different people, but one thing we can all agree on is that it is the ultimate symbol of RVing freedom. With a motorhome, you can explore the countryside in true comfort, always just a few steps away from a hot shower and your own bed. But, when visiting popular tourist attractions or navigating narrow and congested roadways, you've probably found that bigger is not always better. That's where towing a dinghy behind your motorhome becomes advantageous. And although vehicle manufacturers have yet to engineer a plug-and-play setup directly from the factory, it's never been easier to equip a dinghy and motorhome for road duty. To that end, the 2018 Guide to Dinghy Towing provides a selection of informative articles and a listing of new vehicles designed to enhance the motorhome lifestyle.

As highlighted in "Before You Tow" (page 6), connecting a motorhome and a dinghy vehicle has evolved into a smooth operation. Self-aligning tow bars make hooking up a breeze, and some models are even designed to have the cables and wires routed through the hollow arms for an easy, tangle-free installation. And manufacturers continue to offer accessories to help keep it that way. For example, an RV underskirt, fitted beneath the towing equipment, will safeguard the dinghy vehicle and hardware from debris. And for more ironclad protection, nearly indestructible rock guards are available that quickly attach to the tow bar and shield the dinghy from road debris.

Another (and even more important) device

that aids in safe dinghy towing is a supplemental braking system. Portable systems can be installed in minutes, and permanent installations remain unobtrusive. Dinghy brakes are mandatory in most states and Canadian provinces; besides, when extra weight is added, there must be a way to slow the mass down without overtaxing the brakes on the motorhome.

Today's motorhomes can accommodate a lot of dinghy weight. While many new chassis have tow ratings of at least 4,000 pounds, certain luxury coaches today have gross combination weight ratings (GCWR) of 60,000 pounds or more — with up to 25 percent (15,000 pounds) of that available for towing.

Of course, the stars of our annual guide are the dinghy vehicles. "2018 Dinghy Listings" (beginning on page 16) presents vehicles that have been manufacturer-approved for four-wheels-down towing. The listings include many of the newest vehicles — from luxurious to economical. For all-terrain enjoyment, there are plenty of 4WD vehicles to choose from. While some vehicles are easy to tow, others require that very specific procedures be followed before and during towing to prevent damage. We've included expanded information on the manufacturer guidelines required for flat towing, though you'll still need to check the owner's manual for more detailed procedures.

As motorhomes continue to grow in size and available amenities, life on the road can lead to more freedom than ever. A dinghy vehicle only adds to that enjoyment. M

This guide addresses only 2018 vehicles. Guides for earlier model years are available at www.motorhome.com.



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BEFORE YOU TOW

SELECTING THE PROPER EQUIPMENT IS THE KEY TO SUCCESSFUL DINGHY TOWING

wning one of today's larger motor-homes has made towing a dinghy vehicle more of a necessity than ever. The recent trend to bigger rigs has indeed led to more creature comforts and amenities, but these larger floorplans are not without their draw-backs. Even rigs with a 60-degree wheel cut will encounter some difficulty negotiating narrow roads in smaller towns during sight-seeing tours, and that's not even mentioning attempting to park a larger motorhome at a local shopping center.

A dinghy vehicle simplifies such tasks, and

eliminates the need to completely break camp when it's time to venture away from the campground. Additionally, the dinghy can stow gear securely when motorhome storage is filled (within weight restrictions), and can provide the added benefit of having an extra set of wheels in the event of an emergency. But there is a tradeoff; towing a dinghy will affect the acceleration, fuel economy and braking of any motorhome, to some degree. However, proper selection of a dinghy vehicle and towing equipment will enable you to enjoy the safety and convenience of auxiliary transportation.



FLAT TOWING

The first step in selecting a dinghy vehicle is to make sure it is approved by its manufacturer for flat towing (listings begin on page 16). While many nonapproved passenger cars or light trucks can be used as a dinghy — provided the appropriate towing accessory (such as a transmission lube pump) is used for that specific model as an aftermarket modification, or towing on a dolly or trailer is planned — the listed approved vehicles have been certified for fourwheels-down towing without affecting their warranties. Manufacturers do reserve the right to make engineering changes, so buyers



should always first confirm flat-towability by consulting the vehicle's owner's manual before purchase.

When selecting a dinghy, note the maximum towing limit of the motorhome and then determine which vehicles fall within that limit. Towing limits aren't the only factor to consider, but they help to eliminate many choices based on weight alone. The weight rating of the motorhome's hitch receiver is another concern, although most are adequate, and receivers can often be upgraded. Keep in mind, however, that an upgraded hitch receiver cannot increase the specified weight limit set by the chassis manufacturer.

Most flat-towed dinghies track so well that many motorhome drivers don't even know they are there. Front-wheel-drive (FWD) vehicles with manual transmissions and compact 4WD vehicles are among the easiest and most economical to tow. Plus, they tend to rank among the lightest vehicles.

[A] Dominator aluminum tow bar from Demco has a rating up to 7,500 pounds. Easy trigger release and self-supporting arms provide convenient connection to baseplate.

[B] Roadmaster's Nighthawk is the first tow bar with LED lights embedded into the arms for easier visibility. Rated for 8,000 pounds, it features a nonbinding mechanism that limits effort needed to disconnect, regardless of terrain.

[C] The Aventa LX from Blue Ox uses a ball-in-socket design that allows the arms to swivel 360 degrees for quick hookup. The tow bar is rated to tow vehicles up to 10,000 pounds.



Some auto manufacturers also produce FWD vehicles equipped with automatic transmissions that are flat-towable. They are popular because they're easier to drive, and the setup for towing is usually just as simple as a manual transmission.

But some vehicles do require special procedures, such as starting the engine every 200 miles to circulate transmission fluid. Note that this cannot be circumvented by overfilling the transmission before towing because the problem isn't caused by lack of sufficient fluid, but rather by a lack of oil circulation. Such practices, although inconvenient, are designed to prevent drivetrain damage and must be incorporated into the towing routine.

Another vehicle-specific consideration is that towing some dinghies requires the ignition switch to be in a position that allows the steering column to remain unlocked and power to be applied to various electrical circuits. Over the course of a full day of towing, this can lead to significant battery discharge. While strategies for dealing with this vary by model, most fixes involve temporarily pull-

2018 GUIDE TO DINGHY TOWING SPONSORS

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ing one or more fuses while towing. Another alternative is to connect the offending circuit through an owner-added switch or by installing Roadmaster's FuseMaster switch, allowing these circuits to be made tow-ready quickly and conveniently. A charge line from the motorhome can often be a viable alternative.

Inset: While driving the dinghy, this type of tow bar remains on the motorhome. Below: Once the tow bar is pinned in the hitch receiver, ensure the electric connections and safety cables are secure.



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BEFORE YOU TOW





SOLID CONNECTION

ne essential element of safe dinghy towing involves a solid, properly designed and installed mechanical linkage between the motorhome and the towed vehicle. Hitch receivers, tow bars and baseplates must all be in good working order, rated for the weight of the dinghy vehicle and designed for the specific application.

HITCH RECEIVERS

Check the rating of the hitch receiver to ensure that it is suited for the heaviest load you intend to tow. If a receiver is already installed on your coach, the weight limits and class should be visible on it.

However, the ride height of a motorhome rarely matches with that of the chosen dinghy, often necessitating the use of a drop receiver to allow the tow bar to ride level. These are available in 2- to 10-inch variations. Receivers should be bolted (not welded) in place, using the receiver manufacturer's hardware kit, and installed per their instructions.

TOW BARS

Tow bars are available in two basic styles: A-frame or self-aligning. A-frame tow bars (offered in solid and folding configurations) are the most economical, and are designed to fit a limited number of baseplates (the mounting brackets affixed to the dinghy) or specific applications; however, the folding design will fit a wider range than the solid design. These types of tow bars are strong, but heavy, and require storage space when not in use. Hitching is easier with a helper to guide alignment.

Self-aligning tow bars are available in two styles: dinghy-mounted and coach-mounted. Coach-mounted units are the most desirable. as there is less chance of damage when not in use — and hitching can be a one-person

ON THE ROAD

- · Observe the speed limit for towing in each state or province you traverse.
- Maintain an adequate stopping distance from the vehicle in front of you. A minimum five-second interval is recommended.
- · Avoid towing in snowy or icy conditions.
- Pay attention to traffic merging onto the freeway, and be prepared to take evasive action whenever necessary.
- Plan ahead most flat-towed dinghies can't be backed more than a few feet, so it's necessary to focus on easy ingress and egress. Most tow-bar manufacturers will

- not warrant damage caused by backing. And, dollies tend to jackknife quickly. It's better to disconnect the dinghy and drive to a safe place to reconnect.
- · Avoid making tight turns, as doing so puts a lot of pressure on tow bars.
- Towing in deep sand or gravel may cause the dinghy's front wheels to turn to one side. If this happens, you must manually re-center them before continuing.
- · Walk around the motorhome and dinghy to inspect all connections, check tire pressure (or employ a TPMS) and look for signs of trouble every time you stop.





[1] Baseplate installation doesn't require welding or specialized tools, but can be rather involved. If you have any reservations, hire a professional. [2] To hook up a telescoping tow bar, the dinghy vehicle only needs to be near the center and midlength of the bar. [3] Connecting tow-bar arms to the baseplate requires the use of pins and clips. Next, secure the safety cables and plug in the electrical umbilical cord. [4] Once the pins are in, the motorhome is driven ahead slowly (or the dingly is backed up) to lock the arms in place.

operation. Highly adaptable, self-aligning tow bars fit a wide range of vehicles by attaching to model-specific baseplates: Class III (5,000-pound) or Class IV (10,000-pound) models are available. Contact the tow-bar manufacturers for baseplate applications.

BASEPLATES

The baseplate is perhaps the most critical variable. While tow bars and hitch receivers are intended for mass fitment, dinghy vehicles require the use of a specific baseplate based on brand, model and year, making the proper installation procedure and hardware selection essential.

Installing a baseplate on some vehicles requires the bumper covering (fascia) to be temporarily removed. Some minor drilling may be required and the bumper covering and/or grille may also require trimming.

On some vehicles, the baseplate-installation process can be even more intricate. For example, the air dam may need to be trimmed, or the factory-installed belly pan may require trimming or permanent removal. Such procedures are described in the manufacturer's fitment charts — hopefully eliminating any unpleasant surprises at installation time. Today's baseplates do a good job of blending into the exterior lines of the dinghy vehicle.

All 50 states require properly rated safety chains or cables to keep the dinghy from separating from the coach if the tow bar or ball fails. Safety chains or cables must be connected securely to the dinghy and

crossed under the tow bar, then secured to the hitch receiver. They should be long enough to allow full turning without binding, but should not drag when slack.

CHECKLIST

- Make sure the equipment is rated for the dinghy's weight, and that the combo doesn't exceed the motorhome's gross combination weight rating (GCWR).
- Confirm the hitch height is correct.
- ✓ Make sure all hitch bolts, tow-bar and baseplate fasteners are securely tightened.
- Confirm all hitch and wiring connections are engaged and secure, all safety chains or cables are attached and that all locking pins are properly installed.
- ✓ Connect the auxiliary brake system and the breakaway device.
- ✓ Check motorhome and dinghy for proper function of taillights, brakelights and turn signals.
- Check tire pressure on motorhome and dinghy (including the spare tires).
- ✓ Make sure the dinghy is set up for towing: steering unlocked; emergency brake off; gear selector in the position specified by manufacturer; ignition in proper position; lube-pump switch, driveshaft coupler, 4WD transfer case and hubs (if applicable) in proper position.
- ✓ Ensure the appropriate fuses are pulled or the battery disconnected, if applicable.



Chould you already own (or choose to purchase) a vehicle that is not flat-towable, there are modification kits available. Many passenger vehicles can safely serve as dinghies using retrofit products that are on the market.

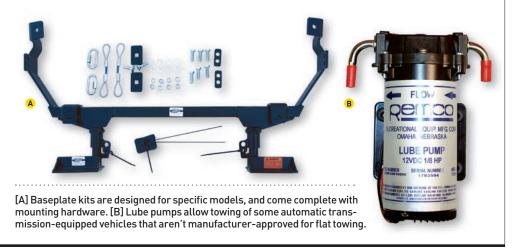
For rear-wheel-drive (RWD) and some four-wheel-drive applications, couplers from Superior Driveline Drive Shaft Coupling (DSC; www.remcodsc.com) enable the driveshaft to be easily disconnected from the transmission or differential using a cable or lever mounted near the driver's seat. These kits start at about \$600 and can be installed in about three hours.

A transmission-lube pump sold by Remco Industries (www.remcotowing.com) can be mounted and plumbed into some automatic transmissions to keep fluid circulating while the vehicle is being towed. Keep in mind that modifications to the vehicle may affect the warranty.

Tow dollies also offer an alternative to flat towing, although they take up space in camp. Dolly weight must be figured in with the total weight of the dinghy.

Trailers track better than dollies, but they take up even more space in camp. Also, the weight of the trailer drastically cuts into the total weight that can be towed behind a motorhome, thereby making this method a distant third choice.

There are other accessories for dinghy towing. Some, like dinghy braking devices (see "Towing Safely," page 30), should be considered mandatory, while others — such as rock guards and RV underskirts — can be considered conveniences. These components, along with dinghy wiring and lighting, are addressed in "Dinghy Towing Preparation" (page 27). M



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DINGHY TOWING 2018

IF YOU LIKE ADVENTURE, THIS YEAR'S CROP OF MANUFACTURER-APPROVED DINGHY-TOWABLE VEHICLES OFFERS SOMETHING FOR EVERYONE

Adventure. It's what happens when you shake off society's norms, throw a little shake off society's norms, throw a little caution to the wind and open your mind to new possibilities. As an RVer, you probably already know that — but it applies to your towed vehicle, too. Gone are the days when subcompact cars with manual transmissions were the only choice; today there are much bolder statements to make. And while the number of new dinghy-towable vehicles seems to shrink each year, some manufacturers still recognize a motorhome owner's need to take a vehicle with them on their travels, and approve certain models for four-down towing. That's an important consideration, as not all vehicles are approved — either because drivetrain (transmission or other components) damage will occur or because the manufacturer hasn't conducted its own testing to determine if dinghy towing is possible. Either way, dinghy towing a vehicle that is not approved can have the same consequence: a voided warranty. That's why it's important to always reference the vehicle's owner's manual and look up "recreational towing" in the index — sometimes also listed as "flat" towing. Thankfully, most owner's manuals are available online for free: simply Google the model followed by "owner's manual." If a vehicle isn't approved for dinghy towing by the manufacturer, can't be towed at least 55 mph and/or has a distance limit of less than 200 miles before some maintenance procedure is required (starting/running the engine, etc.) then it doesn't make our list.

That doesn't necessarily mean an unlisted

vehicle can't be towed — there are products such as driveshaft disconnects, lubrication pumps, etc., that make dinghy towing possible but, again, it might be at the risk of voiding the manufacturer's warranty, so buyer beware.

Finally, make sure the aftermarket offers the equipment you'll need for the vehicle you're considering. You might find that a baseplate or other application-specific hardware isn't available yet, which could put off your travel plans for an indefinite period of time. It's also a good idea to ask what is involved with the installation of the baseplate; some require minimal (if any) modifications, while others may require the whole front fascia to be removed and/or modified.

With all that in mind, here are some of the newest vehicle choices for 2018.

FIAT CHRYSLER AUTOMOBILES

Throughout the years, the venerable Jeep Wrangler has been through many changes — but thankfully for those with a wanderlust for roads less traveled, it has remained towable for as long as anyone can remember. For 2018, Jeep Wrangler JK is all new, featuring high-strength aluminum doors, hinges, hood and fenders — plus two engine options: a first-ever 2.0-liter turbocharged inline four-cylinder and the standby 3.6liter Pentastar V-6. And, in what Jeep reports is in response to overwhelming demand, a 3.0-liter EcoDiesel V-6 will be on the options list next year. All engines can be had with either a new eightspeed automatic or a six-speed manual. The rest of the drivetrain promises to be robust as well a Command-Trac 4x4 system routes power

JEEP WRANGLER JK

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to solid Dana front/rear axles with a 3.45:1 ratio on most models, while the hardcore Rubicon version gets a Rock-Trac 4x4 system, an electronic front sway-bar disconnect, Dana 44 axles front and rear with Tru-Lok locking differentials, 4.10:1 gearing and 33-inch tires, standard.

Part of the fun of Jeep ownership is dropping the top and letting nature in, and this year Jeep offers dozens of different door, top and windshield combinations. A four-bolt mounting design allows the windshield to fold down easily, and a new half-door design will be available in 2019, according to Jeep. Also new is the Sky One-Touch Power Top, which lets the driver drop the soft top with the push of a button (coming second quarter 2018). Wrangler Sahara and Rubicon models offer a body-color hard top option, and all models can be ordered with a three-piece hardtop.

While the Wrangler has always been capable, it's never laid claim to being high-tech, but that changes with the 2018 model. An available 7- or 8.4-inch Apple CarPlay/Android Auto-compatible touchscreen (the largest and most advanced ever offered on Wrangler) sits atop the center stack and comes loaded with the fourth-generation Uconnect system for quicker start-up time and better resolution. Two USB ports, front and rear, connect to the media center, and there are also multiple 12-volt DC accessory outlets and an available 120-volt AC receptacle.

GM

In last year's dinghy guide, we detailed all we knew about the upcoming 2018 Chevrolet Equinox, but it was too early to find out if it was towable. Well, we're happy to announce that it is — in two- and all-wheel-drive configurations. The new Equinox offers an all-turbocharged four-cylinder engine lineup: a base 1.5-liter, an available 2.0-liter, and for the first time ever, an optional 1.6-liter diesel. The 1.5-liter and the diesel are matched with a six-speed automatic transmission, while the 2.0-liter gets GM's new nine-speed auto box. Owing in part to a weight reduction of approximately 400 pounds, ac-





cording to GM, the base model achieves 26 mpg city/32 highway, while the diesel model delivers 28/39 mpg. An all-new interior features technologies such as 7- or 8-inch MyLink infotainment systems (depending on model) compatible with Apple CarPlay and Android Auto, plus available OnStar 4G LTE Wi-Fi hotspot and Bluetooth connectivity. Available in L, LS, LT and Premier grades, buyers are offered a wide array of other available features, such as high-intensity discharge (HID) lamps, hands-free power lift gate and heated leather seats. An impressive host of standard safety features includes front, side and head-curtain air bags; StabilTrak stability control, OnStar and Rear Vision Camera.

There are trucks, there are 4WD trucks, and then there's the Chevy Colorado ZR2. Designed from the outset to handle the unexpected, the ZR2 rides 2 inches taller than a standard Colorado 4x4 and has a front/rear track that's 31/2 inches wider. Model-specific gear includes class-exclusive front and rear electronic locking differentials, a segment-first off-road application of Multimatic Dynamic Suspensions Spool Valve (DSSV) shock absorbers, functional rock sliders and modified front bumpers (with integrated skid plate) for a better approach angle off road. Exclusive 17-by-8-inch aluminum wheels with 31-inch Goodyear Wrangler Duratrac offroad tires and a more aggressive grille and hood (with a black insert) complete the hardcore look. The ZR2 is powered by a 308-hp 3.6-liter gas V-6 or a 186-hp 2.8-liter turbodiesel inline four.

FORD/LINCOLN

Admittedly, not many motorhome owners tow full-size SUVs, but the all-new Expedition and Navigator stand ready for service. As with the F-150 and Super Duty pickups, the sleek new bodies are made from aluminum, but ride on a high-strength steel frame. In fact, these full-size SUVs are on the same platform as the F-Series pickup, but with design changes to accommodate SUV proportions and styling, according to Ford. As with its truck cousins, the weight saved (Ford claims 300 pounds on the Expedition) was reinvested in other areas to make the vehicles better equipped and more capable. Two wheel-

DINGHY TOWING 2018

base options are available: Expedition/Expedition Max; Navigator/Navigator L. Expedition trim levels include XLT, Limited and Platinum, and a new FX4 Off-Road Package available for XLT includes upgraded shocks, a heavy-duty radiator, 18-inch Magnetic-painted cast-aluminum wheels, an electronic limited-slip differential and underbody skid plates. The Navigator, meanwhile, is offered in Premier, Select, Reserve and Black Label trim levels. The only engine available in either Expedition or Navigator is the venerable 3.5-liter EcoBoost V-6, however, and power output varies depending on the model. For example, the base Expedition gets 375 hp, while the Platinum trim is boosted to 400 hp and the Navigator generates 450 hp. The engine features direct and port fuel injection as well as start/stop technology and is backed by a 10-speed automatic transmission.

HYUNDAI

If you're looking for something smaller and more manageable, Hyundai has two new offerings for 2018. The Accent, Hyundai's least expensive model, now gets a much more upscale exterior design as well as a sophisticated interior featuring a standard 5-inch TFT LCD display. An available 7-inch display features Apple CarPlay and Android Auto smartphone connectivity, and standard features include a rearview camera with dynamic guidelines, air conditioning, power windows/locks, Bluetooth hands-free phone system, USB/auxiliary input jacks and more. The Elantra GT is all-new for 2018 as well, and is a welcome departure from the previous model in a number of ways. First, just look at it. The European styling is a welcome departure from Hyundai's previous effort, and the stance is lower and wider. A new chassis, which is 22 percent stiffer and 61 pounds lighter than before, promises better structural rigidity and more confident handling. And it's roomy, too, with 55.1 cubic feet of volume with rear seats folded (25 cubic feet when they're up). Two models are available: the base GT with a 162-hp 2.0-liter four cylinder, or the racier GT Sport with its 201-hp 1.6-liter turbocharged engine. Both models are towable with a manual transmission.

2018 DINGHY LISTINGS

MAKE/ MODEL	BASE CURB WEIGHT LBS.	SPEED/ DISTANCE LIMITS	TOWABLE W/ MANUAL TRANS.	TOWABLE W/ AUTO TRANS.	MILEAGE CITY/ HWY.	APPROX. RETAIL PRICE RANGE	SPECIAL PROCEDURES (SEE OWNER'S MANUAL FOR DETAILED INSTRUCTIONS)
BUICK Envision FWD/AWD	3,755	None	N/A	Yes	22/29-21/27	\$38,610-\$45,955	To prevent battery drain, remove fuses 29 and 32 (Body Control Module) from instrument panel fuse block. Reinstall fuses at destination.
CADILLAC							
Escalade 4WD (all)	5,520	None	N/A	Yes	17/21	\$78,290-\$97,390	Only flat tow 4WD vehicles with a two-speed transfer case that have a Neutral position and a 4WD Low setting. Negative battery cable must be be disconnected. See owner's manual.
OHEVDOLET							
CHEVROLET Colorado 4WD	4,167	None	No	Yes	20/26	\$29,840-\$44,855	Only flat tow 4WD vehicles with a two-speed transfer case that have a Neutral position and a 4WD Low setting. Negative battery cable must be disconnected. Keep ignition in ACC to prevent steering column from locking. See owner's manual.
Cruze	2,835	65 мрн/None	Yes	No	27/40	\$17,850-\$22,115	Shift transmission to Neutral. Turn ignition to ACC. To prevent battery drain, remove fuses F15, F23, F26 and F27 from instrument panel fuse block. Reinstall fuses at destination.
Equinox	3,327	65 мрн/None	N/A	Yes	26/32	\$24,575-\$38,225	Front-wheel-drive (1.5L gas FWD/ 1.6L diesel) and AWD (1.6L diesel only) vehicles can be towed. Shift transmission to Neutral. Ignition to ACC. Turn off accessories. Run vehicle at the beginning of each day and at each fuel stop for about 5 minutes. See owner's manual.



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DINGHY TOWING 2018

MAKE/ MODEL	BASE CURB WEIGHT LBS.	SPEED/ DISTANCE LIMITS	TOWABLE W/ MANUAL TRANS.	TOWABLE W/ AUTO TRANS.	MILEAGE CITY/ HWY.	APPROX. RETAIL PRICE RANGE	SPECIAL PROCEDURES (SEE OWNER'S MANUAL FOR DETAILED INSTRUCTIONS)
Malibu	3,086	65 мрн/None	N/A	Yes*	27/36	\$22,555-\$24,000	*Only 1.5L models without Active Shutters can be towed. To prevent battery drain, remove fuses F10 and F41 from instrument panel fuse block. Reinstall fuses at destination.
Silverado 1500 4WD	4,948	None	N/A	Yes	16/22	\$33,520-\$58,865	Only flat tow 4WD vehicles with a two-speed transfer case that have a Neutral position and a 4WD Low setting. Disconnect the negative battery cable. Keep ignition in ACC to prevent steering column from locking. See owner's manual.
Silverado 2500 HD 4WD	6,065	None	N/A	Yes	N/A	\$38,410-\$69,045	Only flat tow 4WD vehicles with a two-speed transfer case that have a Neutral position and a 4WD Low setting. Disconnect the negative battery cable. Keep ignition in ACC to prevent steering column from locking. See owner's manual.
Silverado 3500 HD 4WD	6,314	None	N/A	Yes	N/A	\$39,905-\$69,655	Only flat tow 4WD vehicles with a two-speed transfer case that have a Neutral position and a 4WD Low setting. Disconnect the negative battery cable. Keep ignition in ACC to prevent steering column from locking. See owner's manual.
Sonic	2,720	65 MPH/None	Yes	Yes	28/37	\$16,170-\$22,170	Run vehicle at the beginning of each day and at each fuel stop for about 5 minutes. To prevent battery drain, remove DLIS fuse.
Spark	2,246	70 MPH/None	Yes	No	30/38	\$13,050-\$17,250	Shift transmission to Neutral. Turn ignition to ACC.
Suburban 4WD	5,631	None	N/A	Yes	15/22	\$54,210-\$69,135	Only 4WD vehicles with a two-speed transfer case that have a Neutral and a 4WD Low setting. Disconnect negative battery cable. Keep ignition in ACC to prevent steering column from locking. See owner's manual.
Tahoe 4WD	5,631	None	N/A	Yes	16/22	\$52,005-\$66,930	Only 4WD vehicles with a two-speed transfer case and that have a Neutral and a 4WD Low setting. Disconnect the negative battery cable. Keep ignition in ACC to prevent steering column from locking. See owner's manual.
DODGE							
Durango AWD	4,814	None	N/A	Yes	18/25	\$32,595-\$48,740	AWD models with two-speed transfer case only. Transmission in Park; shift transfer case into Neutral (see owner's manual).
FIAT							
500 500 Abarth	2,366 2,512	None None	Yes Yes	No No	31/38 28/33	\$16,995-\$18,495 \$22,575-\$26,695	Transmission must be in Neutral. Transmission must be in Neutral.
	2,012	HOHE	163	110	20/00	ΨΕΕ,ΟΙΟ ΨΕΟ,Ο33	nanomiosion must be in realial.
FORD C-MAX Hybrid	3,640	70 MPH/None	N/A	Yes	42/38	\$24,120-\$27,175	Place transmission in Park, start vehicle and allow engine to run for 1 minute at the beginning of each day. Place transmission in Neutral and ignition in OFF position.
Edge 3.5L/2.7L EcoBoost FWD/AWD	3,912- 4,095	65 MPH/None	N/A	Yes	21/29-20/27	\$29,220-\$40,675	Six-speed automatic transmission only. Start engine and allow to run for 5 minutes at the beginning of each day and every 6 hours thereafter. With engine running and your foot on the brake, shift into Drive, then into Reverse before shifting back into Neutral. Disconnect negative cable from the battery. Start engine within 15 minutes of reconnecting battery cable.

MAKE/ MODEL	BASE CURB WEIGHT LBS.	SPEED/ DISTANCE LIMITS	TOWABLE W/ MANUAL TRANS.	TOWABLE W/ AUTO TRANS.	MILEAGE CITY/ HWY.	APPROX. RETAIL PRICE RANGE	SPECIAL PROCEDURES (SEE OWNER'S MANUAL FOR DETAILED INSTRUCTIONS)
Expedition/ Expedition MAX 4WD	5,692/ 5,793	None	N/A	Yes	17/22-16/21	\$51,695-\$79,240	Only flat tow a 4X4 LOW- equipped 4WD vehicle by placing transfer case in Neutral and engaging four-wheel-down towing feature. See owner's manual.
Explorer 3.5L Duratec FWD/AWD	4,458	65 MPH/None	N/A	Yes	17/24-16/22	\$31,990-\$53,435	Start engine and allow to run for 5 minutes at the beginning of each day and every 6 hours thereafter. With engine running and your foot on the brake, shift into Drive and then into Reverse before shifting back into Neutral. Disconnect the negative cable from the battery. Start engine within 15 minutes of reconnecting battery cable.
Explorer 3.5L EcoBoost 4WD	4,458	65 MPH/None	N/A	Yes	16/22	\$45,950-\$53,940	Start engine and allow to run for 5 minutes at the beginning of each day and every 6 hours thereafter. With engine running and your foot on the brake, shift into Drive and then into Reverse before shifting back into Neutral. Disconnect the negative cable from the battery. Start engine within 15 minutes of reconnecting battery cable.
F-150 4WD	4,069	None	N/A	Yes	18/23	\$32,025-\$58,480	Only flat tow a 4WD vehicle by placing transfer case in Neutral and engaging four-wheel-down towing feature. Put ignition in ON position, but don't start engine. If vehicle has ignition key, turn key to ON. If vehicle has intelligent access, press engine START/STOP button once without pressing brake pedal. Press and hold brake pedal. Press and hold brake pedal. Rotate 4WD switch to 2H, then shift transmission into Neutral. Rotate four-wheel-drive switch from 2H to 4L and back to 2H five times within 7 seconds. Leave transmission in N and turn ignition as far as it can toward OFF position. If vehicle has ignition key, leave in ignition. If vehicle has intelligent access, press engine START/STOP button once without pressing brake pedal. See owner's manual.
F-250/F-350/ F-450/Super Duty 4WD	6,106	None	N/A	Yes	N/A	\$35,330-\$77,325	For 4WD vehicles equipped with Electronic-shift transfer case, place transmission in Neutral and engage four-wheel-down towing feature. Put ignition in ON position, but don't start engine. If vehicle has ignition key, turn key to ON. If vehicle has intelligent access, press engine START/STOP button once without pressing brake pedal. Press and hold brake pedal. Rotate 4WD switch to 2H, then shift transmission to Neutral. Rotate 4WD switch from 2H to 4L and back to 2H five times within 7 seconds. Leave transmission in N and turn ignition as far as it can toward OFF position. If vehicle has ignition key, leave in ignition. If vehicle has intelligent access, press engine START/STOP button once without pressing brake pedal. For manual shift transfer case vehicles, transmission in Neutral, manual transfer case shifted into Neutral, front hub locks in FREE position.

DINGHY TOWING 2018

MAKE/ MODEL	BASE CURB WEIGHT LBS.	SPEED/ DISTANCE LIMITS	TOWABLE W/MANUAL TRANS.	TOWABLE W/ AUTO TRANS.	MILEAGE CITY/ HWY.	APPROX. RETAIL PRICE RANGE	SPECIAL PROCEDURES (SEE OWNER'S MANUAL FOR DETAILED INSTRUCTIONS)
Fiesta (all except ST)	2,537	70 мрн/None	Yes	Yes	27/35	\$14,990-\$19,980	For automatic transmission: Release parking brake. Switch ignition to ON (II) position. Place vehicle in Neutral. Switch off ignition and release brake pedal. Disconnect negative battery cable. After towing, start the engine within 15 minutes of reconnecting the battery cable. For manual transmission: Release parking brake and place in Neutral.
Flex (all models)	4,439	65 MPH/None	N/A	Yes	16/23	\$30,195-\$44,095	Release parking brake. Place vehicle in Neutral. Switch off ignition. Disconnect negative battery cable. After towing, start engine within 15 minutes of reconnecting battery cable. Start engine and allow to run for 5 minutes at the beginning of each day and every 6 hours thereafter. With engine running and your foot on the brake, shift into Drive and then into Reverse before shifting back into Neutral.
Focus 2.0L (except ST)	2,928	70 MPH/None	Yes	Yes	25/34	\$17,860-\$24,175	For automatic transmission: Release parking brake. Place vehicle in Neutral (ignition must be ON before shifting into N) — see owner's manual. Switch off ignition and release brake pedal. Disconnect negative battery cable. After towing, start engine within 15 minutes of reconnecting the battery cable. For manual transmission: Release parking brake and place in Neutral.
Fusion 2.7L EcoBoost	3,472	65 MPH/None	N/A	Yes	17/26	\$33,750	Release parking brake. Place vehicle in Stay-in-Neutral mode. Start engine and allow it to run for a few minutes at the beginning of each day, and every 6 hours or fewer. With engine running and your foot on the brake, shift into Drive and then into Reverse before shifting back into Neutral. Before continuing to tow, re-enable Stay-in-Neutral mode.
Fusion Hybrid	3,668	70 MPH/None	N/A	Yes	43/41	\$26,245-\$37,275	Release parking brake. Place vehicle in Stay-in-Neutral mode. Start engine and allow it to run for a few minutes at the beginning of each day, and every 6 hours or sooner. With engine running and your foot on the brake, shift into Drive and then into Reverse before shifting back into Neutral. Before continuing to tow, re-enable Stay-in-Neutral mode.
Fusion Hybrid Energi	3,986	70 мрн/None	N/A	Yes	104/91 (mpge)	\$31,305-\$39,305	Release parking brake. Place vehicle in Stay-in-Neutral mode. Start engine and allow it to run for a few minutes at the beginning of each day, and every 6 hours or sooner. With the engine running and your foot on the brake, shift into Drive and then into Reverse before shifting back into Neutral. Before continuing to tow, re-enable Stay-in-Neutral mode.
Taurus 3.5L/3.5L EcoBoost	3,964	65 MPH/None	N/A	Yes	18/27	\$27,595-\$42,770	Start engine and allow to run for 5 minutes at beginning of each day and every 6 hours thereafter.
GMC Acadia/Acadia Denali (3.6L V-6)	3,956	65 MPH/None	N/A	Yes	18/25	\$33,090-\$47,995	Engine should be run at the beginning of each day and at each fuel stop for about 5 minutes. Remove shift lever boot by pulling up on the rear of the trim plate. Use small screwdriver or tool to press and hold manual release button on the rear right. Put in Neutral. Be sure transmission fluid is at the proper level before towing. See owner's manual.

11-6 (- 3

portable braking system for flat towing a car





INSTANT FEEDBACK

Receive brilliantly fast feedback with RVibrake3's new innovation Brake Lock Detection. Proper setup every time for incredible peace of mind.

This is no ordinary brake!

DINGHY TOWING 2018

MAKE/ MODEL	BASE CURB WEIGHT LBS.	SPEED/ DISTANCE LIMITS	TOWABLE W/ MANUAL TRANS.	TOWABLE W/ AUTO TRANS.	MILEAGE CITY/ HWY.	APPROX. RETAIL PRICE RANGE	SPECIAL PROCEDURES (SEE OWNER'S MANUAL FOR DETAILED INSTRUCTIONS)
Canyon/Canyon Denali 4WD	3,922	None	Yes	Yes	19/26	\$30,045-\$47,995	Only flat tow 4WD vehicles that have a Neutral and a 4WD Low setting. Apply parking brake and start engine. Shift transfer case to Neutral. Check that vehicle is in N by shifting transmission to Reverse and then to Drive. Shift transmission into Drive. Turn engine off. Shift transmission into Park. Wait at least 10 seconds, then restart engine. Shift transmission to D, then turn engine off again. Disconnect negative battery cable at the battery and secure nut and bolt. Cover negative battery post with nonconductive material to prevent contact with negative battery terminal. Shift transmission to P. Move steering wheel to make sure steering column is unlocked. With foot on the brake pedal, release parking brake. Keep ignition key in the vehicle in ACC to prevent steering column from locking. See owner's manual.
Sierra/Sierra Denali 1500 4WD	4,948	None	N/A	Yes	16/22	\$32,635-\$57,245	Only flat tow 4WD vehicles that have a Neutral and a 4WD Low setting. Apply parking brake and start engine. Shift transfer case to Neutral. Check that vehicle is in N by shifting transmission to Reverse and then to Drive. Shift transmission into D. Turn engine off. Shift into Park. Wait at least 10 seconds, then restart engine. Shift transmission to D, then turn engine off again. Disconnect negative battery cable at the battery and secure nut and bolt. Cover negative battery post with nonconductive material to prevent contact with negative battery terminal. Shift transmission to P. Move steering wheel to make sure steering column is unlocked. With foot on the brake pedal, release parking brake. Keep ignition key in the vehicle in ACC to prevent steering column from locking. See owner's manual.
Sierra/Sierra Denali 2500 HD 4WD	6,065	None	N/A	Yes	N/A	\$35,940-\$66,390	Only flat tow 4WD vehicles that have a Neutral and a 4WD Low setting. Apply parking brake and start engine. Shift transfer case to Neutral. Check that vehicle is in N by shifting transmission to Reverse and then to Drive. Shift transmission into Drive. Turn engine off. Shift transmission into Park. Wait at least 10 seconds, then restart engine. Shift transmission to D, then turn engine off again. Disconnect negative battery cable at the battery and secure nut and bolt. Cover negative battery post with a nonconductive material to prevent contact with negative battery terminal. Shift transmission to P. Move steering wheel to make sure steering column is unlocked. With foot on the brake pedal, release parking brake. Keep ignition key in the vehicle in ACC to prevent steering column from locking. See owner's manual.

MAKE/ MODEL	BASE CURB WEIGHT LBS.	SPEED/ DISTANCE LIMITS	TOWABLE W/ MANUAL TRANS.	TOWABLE W/AUTO TRANS.	MILEAGE CITY/ HWY.	APPROX. RETAIL PRICE RANGE	SPECIAL PROCEDURES (SEE OWNER'S MANUAL FOR DETAILED INSTRUCTIONS)
Sierra/Sierra Denali 3500 HD 4WD	6,314	None	N/A	Yes	N/A	\$37,435-\$65,825	Only flat tow 4WD vehicles that have a Neutral and a 4WD Low setting. Apply parking brake and start engine. Shift transfer case to Neutral. Check that vehicle is in N by shifting transmission to Reverse and then to Drive. Shift transmission into Drive. Turn engine off. Shift into Park. Wait at least 10 seconds, then restart engine. Shift into Drive, then turn engine off again. Disconnect negative battery cable at the battery and secure nut and bolt. Cover negative battery post with nonconductive material to prevent contact with negative battery terminal. Shift transmission to Park. Move steering wheel to make sure steering column is unlocked. With foot on the brake pedal, release parking brake. Keep ignition key in the vehicle in ACC to prevent steering column from locking. See owner's manual.
Yukon/Yukon Denali, Yukon XL/ Yukon XL Denali 4WD	5,626	None	N/A	Yes	16/22	\$50,825-\$68,260	Only flat tow 4WD vehicles that have a Neutral and a 4WD Low setting. Apply parking brake and start engine. Shift transfer case to Neutral. Check that vehicle is in N by shifting transmission to Reverse and then to Drive. Shift transmission into Drive. Turn engine off. Shift into Park. Wait at least 10 seconds, then restart engine. Shift into Drive, then turn engine off again. Disconnect negative battery cable at the battery and secure nut and bolt. Cover negative battery post with nonconductive material to prevent contact with negative battery terminal. Shift transmission to Park. Move steering wheel to make sure steering column is unlocked. With foot on the brake pedal, release parking brake. Keep ignition key in ACC to prevent steering column from locking. See owner's manual.
HONDA HR-V	2,888	65 MPH/None	Yes	No	25/33	\$19,670-\$23,020	Shift to Neutral. Release parking brake. Turn ignition switch to ACC. Make sure steering wheel doesn't lock. Turn off all electric devices. Do not use any accessory power sockets. Repeat procedure every 8 hours of towing. Remove 20A accessory power socket fuse and 7.5A ACC fuses as well as 10A backup fuse. See owner's manual.
HYUNDAI							
Accent SE	2,502	None	Yes	No	28/37	\$14,995	None
Elantra GT	2,901	None	Yes	No	23/31	\$19,350-\$23,250	None
Elantra SE	2,767	None	Yes	No	26/36	\$16,950	None
Elantra Sport	3,042	None	Yes	No	22/30	\$21,800	None
JEEP							
Cherokee 4WD	4,028	None	N/A	Yes	21/27	\$25,990-\$33,935	Only 4WD models with two-speed Power Transfer Unit may be towed. The Power Transfer Unit must be shifted into Neutral and transmission must be in Park. See authorized Mopar dealer for flattow wiring kit. It's recommended to charge battery during towing.

DINGHY TOWING 2018

MAKE/ MODEL	BASE CURB WEIGHT LBS.	SPEED/ DISTANCE LIMITS	TOWABLE W/ MANUAL TRANS.	TOWABLE W/ AUTO TRANS.	MILEAGE CITY/ HWY.	APPROX. RETAIL PRICE RANGE	SPECIAL PROCEDURES (SEE OWNER'S MANUAL FOR DETAILED INSTRUCTIONS)
Grand Cherokee	4,513	None	N/A	Yes	18/25	\$39,540-\$53,340	Only 4WD vehicles equipped with Quadra-Trac II and Quadra-Drive II systems are towable. Transfer case must be shifted into Neutral and transmission must be in Park. See owner's manual for details.
Wrangler JK/ Wrangler JK Unlimited	4,010	None	Yes	Yes	18/23	\$23,995-\$39,145	Automatic transmission in Park. Manual transmission in gear (NOT in Neutral). Transfer case in Neutral. See owner's manual.
KIA							
Forte LX	2,811	None	Yes	No	25/34	\$16,700	Manual Transmission Only
Rio LX	2,648	None	Yes	No	29/37	\$13,900	Manual Transmission Only
Soul Base	2,884	None	Yes	No	24/30	\$16,200	Manual Transmission Only
LINCOLN MKT 3.5L EcoBoost or 3.7L Duratec	4,702	65 MPH/None	N/A	Yes	16/24	\$43,530-\$49,025	Run engine for 5 minutes at the beginning of each day and every 6 hours thereafter. With engine running and your foot on the brake, shift into Drive and then Reverse before shifting back into Neutral. Disconnect the negative battery cable. Start engine within 15 minutes of reconnecting battery cable. See owner's manual.
МКХ	4,158	70 MPH/None	N/A	Yes	17/25	\$38,260-\$58,725	Release parking brake. Place vehicle in Stay-in-Neutral mode. Run engine for a few minutes at the beginning of each day, and every 6 hours or sooner. With engine running and your foot on the brake, shift into Drive and then Reverse before shifting back into Neutral Before continuing to tow, re-enable Stay-in-Neutral mode.
MKZ 3.0L	3,739	65 MPH/None	N/A	Yes	17/26	\$42,760-\$53,470	Only vehicles equipped with the 3.OL engine are flat towable. Release parking brake. Place vehicle in Stay-in-Neutral mode. Run engine for a few minutes at the beginning of each day, and every 6 hours or sooner. With engine running and your foot on the brake, shift into Drive and then into Reverse before shifting back into Neutral. Before continuing to tow, re-enable Stay-in-Neutral mode. If vehicle has a steering wheel lock, make sure ignition is in ACC or ON position when towing.
MKZ Hybrid	3,871	70 MPH/None	N/A	Yes	41/38	\$35,445-\$40,010	Run engine for 1 minute at the beginning of each day and every 6 hours thereafter. With engine running and your foot on the brake, shift into Drive and then into Reverse then shift back into Neutral. Select Neutral Tow mode. See owner's manual.
Navigator 4X4	5,855	None	N/A	Yes	16/21	\$74,710-\$96,905	Requires optional Heavy-Duty Trailer Tow Package with two-speed transfer case. Put in Neutral tow by placing transfer case in Neutral and engaging four-wheel-down-towing feature. Confirm vehicle is in Normal Mode. Place in Stay-in-Neutral Mode. Switch vehicle off — press engine START/ STOP button. Place in ACC mode by pressing start button once without pressing brake pedal. Press and hold brake pedal. Enable Neutral Tow from information display menu. Press and hold OK button until it shows "NEUTRAL TOW ENABLED LEAVE TRANSMISSION IN NEUTRAL." Press engine START/STOP button once without pressing brake pedal. See owner's manual.



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Baseplates

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No pins or clips.

No reaching under the vehicle.

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- Bolts securely to the chassis
- Spreads towing forces equally
- Weight placed on the suspension is kept to a minimum

DINGHY TOWING 2018

	BASE CURB WEIGHT LBS.	SPEED/ DISTANCE LIMITS	TOWABLE W/ MANUAL TRANS.	TOWABLE W/ AUTO TRANS.	MILEAGE CITY/ HWY.	APPROX. RETAIL PRICE RANGE	SPECIAL PROCEDURES (SEE OWNER'S MANUAL FOR DETAILED INSTRUCTIONS)
NISSAN 370Z Coupe	3,333	70 MPH/ 500 miles	Yes	No	18/26	\$29,990	After towing 500 miles, start and idle engine with transmission in Neutral for 2 minutes.
370Z Roadster	3,508	70 мрн/ 500 miles	Yes	No	17/24	\$48,100	After towing 500 miles, start and idle engine with transmission in Neutral for 2 minutes.
Frontier S, SV, Pro-4X, CC/KC	4,700	60 MPH/ 500 miles	Yes	No	16/21-19/23	\$18,990-\$32,740	Manual transmission in Neutral. For 4WD vehicles, flat tow with transfer case in 2 HI position. After towing 500 miles, start and idle engine with transmission in Neutral for 2 minutes.
Sentra NISMO	3,022	None/500 miles	Yes	No	25/31	\$25,790	Manual transmission in Neutral. After towing 500 miles, start and idle engine with transmission in Neutral for 2 minutes.
Sentra S, SR Turbo	2,866- 2,874	None/500 miles	Yes	No	27/35-29/37	\$16,990-\$19,655	Manual transmission in Neutral. After towing 500 miles, start and idle engine with transmission in Neutral for 2 minutes.
Versa Sedan S	2,404	None/500 miles	Yes	No	27/36	\$12,110	Manual transmission in Neutral. After towing 500 miles, start and idle engine with transmission in Neutral for 2 minutes.
RAM							
1500 4WD	4,718- 5,709	None	N/A	Yes	15/21-16/23	\$32,590-\$54,690	Both the manual shift and electronic shift transfer cases must be shifted into Neutral for recreational towing. Automatic transmissions must be shifted into Park. Manual transmissions must be placed in gear (NOT in Neutral). See owner's manual.
2500 4WD	6,321- 7,231	None	Yes	Yes	N/A	\$35,345-\$59,195	Both the manual shift and electronic shift transfer cases must be shifted into Neutral for recreational towing. Automatic transmissions must be shifted into Park. Manual transmissions must be placed in gear (NOT in Neutral). See owner's manual.
3500 4WD	6,371- 7,217	None	Yes	Yes	N/A	\$36,445-\$60,295	Both the manual shift and electronic shift transfer cases must be shifted into Neutral for recreational towing. Automatic transmissions must be in Park. Manual transmissions must be in gear (NOT Neutral). See owner's manual.
TOYOTA							
Corolla iM	2,943	None	Yes	No	27/35	\$18,850	Shift to Neutral. Turn engine switch to ACC (without smart key system) or ACCESSORY mode (with smart key system). Ensure audio system and other powered devices are turned off. Release parking brake. After towing, start engine and idle for at least 3 minutes.
Corolla SE 6MT	2,860	None	Yes	No	27/35	\$21,715	Shift to Neutral. Turn engine switch to ACC (without smart key system) or ACCESSORY mode (with smart key system). Ensure audio system and other powered devices are turned off. Release parking brake. After towing, start engine and idle for at least 3 minutes.
Yaris Hatchback 3-door/5-door/iA	2,315- 2,385	None	Yes	No	30/36-30/39	\$15,635-\$18,260	Shift to Neutral. Turn engine switch to ACC. Turn off audio system and other powered devices. Release parking brake. After towing, start engine and idle for at least 3 minutes.



SAFE TOWING REQUIRES PROPER EQUIPMENT AND INSTALLATION

ow that you've made a decision and purchased a vehicle that has been manufacturer-approved for flat towing, what's next before hitting the road?

As any seasoned motorhome owner will tell you, there are a number of steps involved in getting a new vehicle to the point where it can be towed safely. As we've already discussed, automakers do not provide plug-and-play solutions that make their vehicles ready for safe dinghy

towing right from the factory. Thus, it's up to you (and perhaps a knowledgeable towing-equipment dealer) to get the job done right.

DINGHY WIRING

One of the most important aspects of dinghy prep involves connecting the wiring between the two vehicles. Tail- and brake lights and turn signals on the rear of the dinghy are required in all 50 states and Canadian provinces, so this isn't a



DINGHY TOWING PREPARATION



Accessory kits with diodes, such as this one from Demco, include everything needed for a safe connection, such as wiring kits, pins, locks, receptacles and a cover to protect the tow bar from the elements. Kits are also available with bulbs and wiring when diodes are not used.

step that can be overlooked.

The most common source of dinghy-wiring confusion centers on differences in the way the turn-signal lights are wired on various cars and motorhomes. Some models are wired to supply turn-signal power to the same bulbs that are used for the brakelights (commonly referred to as a 3-wire system), while others use separate amber bulbs for the rear turn signals (a 5-wire system). Note that 3- and 4-wire systems are used on both motorhomes and cars, so any one of four solutions may be needed for any particular application. Converters are readily available to electronically match the wiring systems of the dinghy and motorhome.

The traditional method of wiring a dinghy vehicle involves the use of steering diodes, which function as one-way gates to flow electricity, allowing power from either the motorhome or dinghy to be supplied to the rear bulbs. Because no electricity can backflow through a diode, it also prevents power from the motorhome from being inadvertently introduced to any other circuits in the dinghy vehicle.

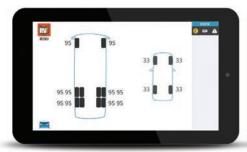
Many late-model vehicles are equipped with onboard diagnostics that continuously check for proper operation of turn-signal and brakelight bulbs. Unfortunately, the introduction of aftermarket steering diodes into the vehicle's wiring can fool this diagnostic function, typically causing it to give false warnings about burned-out bulbs.

For this reason, it's common to modify each of the vehicle's tail-lamp assemblies to accept a separate bulb. These bulbs are then connected directly to the motorhome, eliminating any connections to the dinghy vehicle's wiring system. This modification usually involves drilling a large hole in the tail-lamp reflector. Fortunately, special snap-in sockets are available that make this job somewhat easier. Since the new socket takes up considerable space behind the lamp assembly, care must be taken in selecting a location for the new hole that avoids socket interference with any other objects behind it.

Note that most states allow the turn signals to be red or amber in color, but only permit the brakelights to be red. Thus, on automobiles equipped with amber turn signals, the new socket is typically installed behind the red brakelight lens.

In situations where modifications to the dinghy's original wiring aren't desirable or practical, removable towing lights often provides a workable solution. Most of these products are affixed with magnets, although some models can be equipped with suction cups (ideal for use on plastic or fiberglass surfaces). A cable is then snaked across the vehicle to the connector at the motorhome hitch receiver.

The RVibrake3 supplemental braking system features tire-pressure monitors using optional sensors threaded on the Schrader valves. Pressure values and alerts are viewed via the Tire Patrol app built into the 7-inch tablet monitor. The monitor can also be scrolled to show dinghy braking actuation.





The Blue 0x KarGard shield attaches to the tow bar and adds another level of dinghy protection against potential damage from road debris.



In some cases, the cable is semipermanently routed inside or underneath the vehicle, allowing the lights to be quickly removed and stowed inside the trunk. Several companies offer wireless, removable towing lights, thereby eliminating the need for a cable.

Although many motorhomes come with a factory-installed 4- or 5-pin connector, there are situations where a different connector is necessary. Some unapproved dinghies equipped with an automatic transmission must also be equipped with an electric lube pump, which requires a connector pin for 12-volt DC power (and, ideally, a separate connector pin for ground, in order to avoid drawing excessive current through the existing one). Also, some auxiliary braking systems require connections to the motorhome, further increasing the need for a higher connector-pin count. In fact, many motorhome manufacturers now provide a standard seven-way receptacle.

Ideally, the industry-standard connection

scheme should be observed when installing a new connector, so that it can also be used when towing boats, ATVs, horse trailers, etc.

Unfortunately, since no industrywide standard exists for wire color codes used in automobiles, another hurdle in dinghy wiring involves identifying the proper wires for the stop-, turn- and tail lamps (as well as a suitable ground connection). If you've had the foresight to purchase a service manual for your particular vehicle, this can sometimes be accomplished by visual inspection of the wire harness. More often than not, it involves connecting a test light to each suspected wire in order to match it with the corresponding bulb. Note that on four-wire systems, the same wire may be "hot" when either the brake or one of the turn signals is operated.

When splicing diodes or other connections into the vehicle's wiring harness, it's important to use top-quality connectors or soldered splices. In order to prevent any chance of corrosion, all connections should be waterproof. Heatshrink tubing works very well for this purpose, as does self-vulcanizing plastic tape.



TOWING SAFELY

A DINGHY BRAKING SYSTEM ISN'T JUST A GOOD IDEA — IN MOST PLACES, IT'S THE LAW!

The ability to flat-tow a vehicle behind a motorhome is a great convenience. Most owners select a dinghy vehicle that is light-weight, but even the lightest of vehicles can reduce the braking capability of a motorhome when towing, especially during emergency stops. To compensate for the extra weight, an auxiliary braking system for a dinghy vehicle is essential; understanding how a braking system works will make it easier to select the right system for your needs.

THE PHYSICS OF DINGHY TOWING

Towing a dinghy is a lot like towing a trailer, with some notable exceptions. First, it is connected to the motorhome via an articulating armature rather than a fixed frame connec-

tion. Also, it is being towed with all four wheels on the ground, which means the front wheels must be able to steer as the vehicle is being towed. Unless there is a method for activating the dinghy's brakes during a stop, the motorhome must provide the stopping power for not only its mass, but for the mass of the dinghy as well. Additionally, in the event of a hitch or tow bar failure — causing the car to break away — provisions within the braking device will help bring the dinghy to a stop.

THE LAWS OF TOWING

In most states, anything towed behind another motor vehicle must have brakes. Some states have varying weight restrictions, which dictate that vehicles and trailers over a certain weight



must have brakes, or the combination must stop within a specified distance. Considering that RVers often travel from state to state, it basically becomes a legal requirement to have dinghy brakes at all times.

DINGHY BRAKING SYSTEMS

There are many braking systems on the market, and choosing which one is best for you will take some research. Dinghy braking systems fall into two main categories: built-in and portable. Built-in systems generally consist of hidden components. They connect to the motorhome's brake system, either through a direct tap into the air brakes or via a compressor module on a gas motorhome. Portable units are installed on the dinghy vehicle's driver's seat floor and clamp to the brake pedal. The ability to move the hardware easily to another dinghy vehicle makes this type of system very popular. Most dinghy brake systems have a breakaway switch and cable. Installation varies on the system, and the hidden (or direct) systems are typically the most complicated to install. Following are the top auxiliary braking



BLUE OX

Blue Ox's all-electric Patriot II is a portable, self-calibrating unit that installs on the driver's seat floor and attaches to the brake pedal. Once the wiring is installed, simply position the Patriot II, plug it in, attach the pedal clamp and turn it on. The 15-pound, self-contained unit provides inertia-based braking when the motorhome's brakes are applied. The unit comes with a two-way RF in-cab controller with extended range and a breakaway switch. As an option, a seat stiffener is available, which gives the device a firmer surface to push against for more positive braking. The Patriot II is compatible with hybrid



TOWING SAFELY

or other vehicles with continuous power-assist brakes. Control and adjustment of the system, along with error codes should there be a problem with the system, can all be accessed via the RF controller, MSRP: \$1,495

Blue 0x | 800-228-9289, www.blueox.com



DEMCO/SMI

AIR FORCE ONE

A permanently installed supplemental braking system needs to protect the air supply of the towing vehicle, according to SMI. The Air Force One system accomplishes this using a series of check valves and a small air tank mounted under the motorhome. The dinghy side of the system consists of a control unit that is mounted under the hood, an air actuator that attaches to the brake pedal arm and a cable that is anchored to the firewall. Installation involves installing the actuator with anchor, the main unit housing the vacuum pump and reserve air tank for the breakaway system, an LED brake activation light and the motorhome connection on the front grille. The cable and wire are routed through the firewall to the main unit and to the battery. The LED brake activation light is mounted anywhere it can be seen from the motorhome's backup camera, usually on the rearview mirror of the towed car. Alternatively, the company offers a 900-MHz wireless monitor (MSRP \$249.95), which can be installed in place of the LED: a transmitter and the wireless receiver mounts on the motorhome dash and plugs into a 12-volt DC receptacle. On the motorhome side of the system, valves are spliced into the brake system's air lines, the motorhome air assembly unit with air tank installed underneath the rig and an air line goes to the rear bumper area of the motorhome and is attached to an air fitting that will supply the dinghy. Expect installation time from 5-8 hours depending on the vehicle. The Air Force One requires no setup for towing, aside from connecting the air line when hooking up the dinghy to the motorhome. MSRP: \$1,249.95



STAY-IN-PLAY DUO

Similar to the Air Force One, the Stay-In-Play Duo uses a small actuator attached to the brake pedal arm, and a main unit mounted under the hood. The system provides inertia-based dinghy braking, activated by the inertia of the vehicle and the brakelight signal from the motorhome. The main unit creates air pressure for braking, as well as vacuum to power the dinghy brakes. The kit comes with everything needed to install the system. Installation includes the main unit that is mounted under the hood, a control unit for mounting under the dash (where it can be reached for adjustment and for powering-on the system), the brake pedal actuator and the LED brake activation indicator light, which is mounted in view of the motorhome's backup camera. Alternately, the LED can be replaced by the optional wireless remote (MSRP \$249.95). Overall installation should take around 4 hours, depending on the vehicle. MSRP: \$1,099.95

DFITA FORCE

The Delta Force is the first and only dualsignal portable braking system on the market, according to Demco. Dual-signal capability





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TOWING SAFELY

requires two inputs for activation; braking proportion is provided by an inertia switch and the brakelight signal from the motorhome. This is said to substantially reduce the number of false brake activations. The Delta Force is a compact unit, with an intuitive control panel on the top with five vehicle profile selections. A boost button will increase the selected profile by 15 percent should the user need extra braking. The actuator is attached to the main unit with a ball and socket, allowing it to be folded against the housing for storage. Most portable units press against the driver's seat, which can cause inconsistent braking, according to Demco. The Delta Force is attached to the firewall via a tether and clip. When not in use, the tether tucks under a floor mat. Installation of the system requires tapping into the brakelight harness from the motorhome connection, installing a breakaway switch and the tether and mount under the dashboard. The system comes with a wireless CoachLink unit, which monitors brake activity and has visual and audible alarms in the event of a malfunction or breakaway. The Delta Force and the CoachLink units are powered via a 12-volt DC receptacle. MSRP: \$1,195

Demco/SMI | 800-543-3626, www.demco-products.com

HOPKINS

BRAKEBUDDY CLASSIC II

The newly redesigned BrakeBuddy Classic II is a compact, fully self-contained system. Other than the breakaway and alert system, there is no other permanent installation required.

Initial installation takes 15-30 minutes, and setup time runs 3-5 minutes, according to the company. The 11-pound Classic II is a fully automatic system that performs self-testing and adjustment at the push of a button. Installation is pretty basic with the Classic II. Once the breakaway is installed, the unit's bracket is unfolded and placed on the driver's floor up against the seat, and the Quick-Connect clevis is attached to the brake pedal. The housing is connected to power using a Quick-Connect Easy Pull connector, and the Auto-Start button is pressed, beginning the self-test sequence, and relieving the vacuum from the towed vehicle's brake booster. The Classic II works on all vehicles, including hybrids, according to the company, and includes a dinghy battery charger. An included alert system gives the motorhome driver instant notification of a braking event and an audible warning of a dinghy vehicle breakaway. MSRP: \$1,149

BRAKEBUDDY SELECT II

The all-new BrakeBuddy Select II functions like the Classic II with a couple of technological additions. First, it features dual braking mode, either proportional or full braking. Second, an interactive wireless remote allows on-the-fly control of the Select II and selection of the braking level from inside the motorhome. The Select II provides full and proportional braking; when it's in full braking mode, it provides full stopping power at the dinghy and mimics the braking rate of the motorhome when in the proportional mode. This allows the driver to select the optimal braking level for the driving conditions.





Installation of the Select II is basically the same as the Classic II, and the unit works on all vehicles, including hybrids, according to the company — and includes a dinghy battery charger. The new Select II is also smaller and lighter than its predecessor, making it easier to store and set up. MSRP: \$1,499

BRAKEBUDDY STEALTH

The BrakeBuddy Stealth is a permanently installed system that offers additional features for those who also tow a trailer or are looking for as simple a dinghy vehicle hookup as possible.

Consisting of a main control box the size of a large loaf of bread, the unit can be installed somewhere in the cargo area or trunk, with a cable and wiring that runs up to the front of the dinghy vehicle. A pulley is installed on the firewall, which routes a cable to a bracket attached to the brake pedal. A breakaway switch and a low-profile connector are mounted on the front of the dinghy. In the motorhome, a brake control is mounted under the driver's side of the dashboard. The Stealth controller



"TO COMPENSATE FOR THE EXTRA WEIGHT, AN AUXILIARY BRAKING SYSTEM ON ANY DINGHY SETUP IS ESSENTIAL; UNDERSTANDING HOW A BRAKING SYSTEM WORKS WILL MAKE IT EASIER TO SELECT THE RIGHT SYSTEM FOR YOUR NEEDS."



will allow sensitivity adjustments as well as manual activation of the dinghy brake system. Additionally, with the push of a button, the remote functions as a trailer-brake controller, allowing a trailer with electric brakes to be towed by the motorhome without installing additional components. Installation of the Stealth takes 3-4 hours depending on the vehicle, according to the company. Once the installation is done, connecting the dinghy to the motorhome is as easy as connecting the tow bar, the breakaway cable and the electrical cable. MSRP: \$1,099 BrakeBuddy, Hopkins Manufacturing Corp. 800-470-2287, www.brakebuddy.com

ROADMASTER INC.

BRAKEMASTER

The BrakeMaster is a proportional system that connects directly to the motorhome's air or hydraulic braking system, mimicking the brake force applied by the motorhome. In a motorhome with air brakes, the system uses a valve installed into the brake system to divert air back to the towed car. An air hose is con-



nected between the motorhome and dinghy. The hose runs through a small air reservoir installed under the hood, then runs to a brake actuator installed on the driver's seat floor, which then clamps to the brake pedal. The removable actuator has a quick-disconnect air line. A breakaway system is included.

The BrakeMaster can also be installed in motorhomes with hydraulic brakes, but the system is more expensive and requires additional hardware. A proportioning valve is installed in the motorhome's hydraulic brake system, and an air compressor and air tank are installed in a basement compartment. The hydraulic pressure in the proportioning valve opens the air valve, providing air to the dinghy brakes in correlation to the amount of pressure on the motorhome's service brakes. The dinghy side of the system follows the procedures for the air-brake-powered BrakeMaster. Installation of the system can be pretty complex, especially the hydraulic brake version, so plan on at least 4-6 hours. Connecting the dinghy to the motorhome once the system is installed is fairly straightforward. An air line (included) is attached to the air port on the motorhome and the front of the car. The actuator is then installed in the car once the brake vacuum has been bled off by depressing the brake pedal a few times. An LED wired to the brakelight or brake switch of the towed car illuminates on the dash of the motorhome when the brakes in the dinghy are applied. MSRP for motorhomes with air or air-over-hydraulic brakes (Brake-Master 9160): \$800; MSRP for hydraulic brakes (BrakeMaster 9060): \$1,235

EVEN BRAKE 9400

For those who prefer a portable system, Roadmaster's Even Brake 9400 provides proportional braking, matching the braking force of the motorhome. The unit features terrainsensing logic, which detects grades and rough terrain and adjusts dinghy braking accordingly. The Even Brake is powered by an internal air compressor, using the air reserve to activate the brake actuator.

The initial installation is simple, taking less than an hour, and setup of the unit for towing takes just a couple of minutes. The system includes a wireless system monitor with LCD screen that provides continuous braking information. It also has a power save function, which will report on a low battery condition in



the dinghy vehicle. If the dinghy car's battery drops below the threshold, the system will go into sleep mode, reserving enough power for emergency braking. MSRP: \$1,535

ROADMASTER 9700

The 9700 is an affordable dinghy brake alternative that applies preset-pressure braking to the dinghy when the motorhome's brakes are applied, or can be set to activate only in the event of a breakaway. The system works on most vehicles with power brakes, and has three braking pressure presets, activating in concert with the motorhome's brakelights. Initial installation takes less than an hour, and setup for driving takes a couple of minutes. It automatically protects the towed vehicle's brakes by releasing brake pressure after an extended period of braking, reactivating the

For the budget-conscious buyer, the Roadmaster 9700 is a basic system that applies a predetermined brake pressure whenever the motorhome brakelights are activated.

next time the motorhome's brakes are applied. MSRP: \$1,200

INVISIBRAKE 8700

The InvisiBrake is a fully automatic, permanently installed device that provides progressive braking when the brakelights in the towed vehicle are activated. The main unit is quite small, and can usually be installed under the driver's seat. Unlike most other systems that work on a dead brake pedal, InvisiBrake powers the dinghy vehicle's braking system, allowing for the full braking capabilities. Dead batteries





Permanently installed in the dinghy, Roadmaster's InvisiBrake is easy to connect each time the dinghy is towed, with no storage of a portable system required. The InvisiBrake also trickle charges the dinghy's battery.

are also not an issue with this system, as it will trickle-charge the battery while towing. And, according to Roadmaster, the system is compatible with any vehicle with vacuum-powered brakes, hybrids and vehicles with full-time power braking systems. The InvisiBrake also includes a two-stage motorhome monitor, which gives a visual and audible alarm in the event of a breakaway, and a visual reference of braking activity in the dinghy. The installation of the system is somewhat complex. given its hidden and hands-free nature. The main unit installs under the seat, and an air cylinder — which is about the size of a large cigar — is mounted nearby with a cable that runs under the carpet and through a pulley to a bracket on the brake pedal. There are two wiring harnesses to install, and a vacuum line (for vehicles with vacuum-power-assisted brakes), which is routed under the hood and spliced into the power booster's vacuum line. Expect a 5-6hour installation time for this system, depending on the vehicle. MSRP: \$1,100

Roadmaster | 800-669-9690, www.roadmasterinc.com

RV INNOVATIONS

RVIBRAKE3

The small footprint of the 10-pound RVibrake3 allows easy transport and storage when not in use. The proportional RVibrake3 uses audible voice prompts to guide the user through proper setup and to verify that the setup, which takes only 30 seconds, is correct. In addition to the voice prompts, the system comes with the company's Command Center Tablet and hub. A tablet with a 7-inch screen mounted in the motorhome cockpit communicates with the brake via Wi-Fi through an included hub, which also provides information for leveling the motorhome. The tablet communicates in real time indicating when the unit is braking, the setup is correct and if the breakaway switch is activated. All the setup parameters are accessible through the tablet, as are system support and RV checklist apps.

RVibrake3 comes with everything needed to get going. Some vehicles may require additional hardware for installation, which is included at no additional cost. Accessories like 12-volt DC extension cords, battery disconnects and a case, are available. MSRP: \$1,195

RV Innovations | 800-965-8527, www.rvibrake.com M



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