

Dinghy Prep for Towing

Braking, tow bars and the wiring connection must be properly handled

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The research has been done, the financing arranged, the papers signed ... and that brand-new dinghy vehicle is now sitting in your driveway. You've shopped carefully to pick a model that's designated by its manufacturer to be safely towable, you've checked the vehicle's weight to confirm that it's within your motorhome's safe towing capabilities and you've ordered it with the proper factory options to make it towable with all wheels rolling.

Now what?

As any seasoned motorhome owner will tell you, there are a lot of steps involved in getting a new vehicle to the point where it can be towed safely. Sadly,



PLUG RECEPTACLES ADDED TO DINGHY AND MOTORHOME ALLOW EASY HOOKUP OF ELECTRICAL CONNECTOR FOR TAILLIGHTS, TURN FUNCTIONS AND SUPPLEMENTAL BRAKING SYSTEM.

no automaker offers a plug-and-play solution that makes its products 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 Braking

Adequate dinghy braking is an im-



CONTROLLERS FOR DINGHY BRAKE SYSTEMS DIFFER; THIS ONE USES ELECTRONIC SIGNALS.

portant consideration because motorhome manufacturers tend to push the weight of their products right to the edge of the chassis manufacturer's ratings, and the addition of several tons of extra rolling weight can be enough to put the combined vehicle pair's braking performance

into unsafe territory.

Furthermore, some chassis manufacturers specify that towed loads in excess of 1,500 pounds should have independent brakes

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and safety breakaway systems.

Although a diverse range of dinghy braking-systems is marketed, all aim to perform essentially the same task: to apply the dinghy's brakes in tandem with those on the motorhome.

The approach used by U.S. Gear with its Unified Tow Brake is to use electronic signals generated in the motorhome to activate the dinghy vehicle brakes. The motorhome components of the system measures deceleration and sends a signal to a power unit connected to the dinghy vehicle brake pedal. As the electronic signal varies with motorhome deceleration, the amount of brake-pedal pull varies in concert, for variable braking.

The system includes a vacuum pump in the dinghy vehicle that maintains full power-brake performance. An actuation lever on the

control unit in the motorhome allows the motorhome driver to apply brakes manually if desired.

Other products include one that utilizes a self-contained power pack that temporarily attaches the dinghy's brake pedal. This package usually contains an air compressor, air cylinder and control circuitry. Most models

provide motive power for the cylinder usually supplied either by the motorhome's existing air compressor (if air brakes are present) or an add-on electric compressor. A signal from the motorhome's brake lights is often used to control operation of the cylinder, although inertia-sensing control boxes are sometimes used instead. One vari-

ates, the dinghy forces the drawbar to move forward, and the dinghy's inertia is used to operate a flexible cable connected to the brake pedal or to move a master brake cylinder that pressurizes the dinghy's brake lines.

Self-contained systems generally have a significant edge in ease of installation, but there's also something

to be said for having an unobtrusive, permanently-installed system that never requires setup or disassembly. After all, most brand-new dinghies will need to be fitted with a tow bar



AN RV UNDERSKIRT WILL KEEP TOWING APPARATUS CLEAN — AND IT ALSO HELPS PROTECT THE FRONT OF THE TOWED VEHICLE FROM ROAD DEBRIS.

have a built-in inertia sensor in the dinghy that automatically applies the brakes without any direct signals from the motorhome; in some cases, a radio link or control wire is used to receive braking signals from the motorhome.

Other systems use a removable air cylinder to push the pedal, with

ation of this scheme uses an electric linear actuator in lieu of an air cylinder, thereby dispensing with the need for a compressed air supply.

Finally, a few systems use the movement in a special hitch drawbar as the motive power to operate the dinghy brakes. As the motorhome deceler-

ates, the dinghy forces the drawbar to move forward, and the dinghy's inertia is used to operate a flexible cable connected to the brake pedal or to move a master brake cylinder that pressurizes the dinghy's brake lines.

The Motorhome/Dinghy Link

An essential ingredient in safe dinghy

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AS AN ALTERNATIVE, YOU CAN INSTALL AN EXTRA PAIR OF LAMPS ON YOUR TOW VEHICLE INDEPENDENT OF ITS ELECTRICAL SYSTEM.



towing involves a solid, properly designed-and-installed mechanical linkage between the motorhome and towed vehicle. Since towbars and motorhome-hitch receivers both tend to be robust, tried-and-true designs, the most critical variable in this link is the towbar baseplate. Different brands, models and years of dinghy vehicles require different baseplates and installation procedures, so proper selection and installation are essential.

Installing a baseplate typically entails very specific procedures. For example, fitting Blue Ox baseplates on three popular dinghy models, the Saturn VUE, Honda CR-V and Suzuki Grand Vitara, requires different steps.

Installing a baseplate (Part No. BX3317) on the VUE is relatively simple, requiring only some minor drilling,

as well as temporary removal of the headlights. Due to the vehicle's shape, the baseplate's two attachment points are located at a non-standard distance from each other, requiring the installation of an adapter to fit the tow bar.

To install a baseplate (Part No. BX2232) on the CR-V, the bumper covering (fascia) must be temporarily removed. Some minor drilling is required and the bumper, covering and/or grille may also require some trimming.

Installing the Grand Vitara's baseplate (Part No. BX3516) is a bit more involved, requiring temporary removal

of the bumper covering, headlights and easily accessible front fascia panels as well as some minor drilling (see page 32). Like the



ONE-WAY DIODES PREVENT ELECTRICAL FEEDBACK.

VUE, the vehicle's design also mandates the use of an adapter to fit the tow bar.

On some vehicles, the baseplate installation process can be more intricate. For example, the air dam may need to be trimmed or the factory-installed belly pan may require either trimming or permanent removal. Fortunately, these requirements are described in the manufacturer's fitment charts — hopefully eliminating any unpleasant surprises at installation time. Today's

baseplates do a good job blending into the exterior lines of the dinghy vehicle.

Dinghy Wiring

One of the most important aspects of dinghy prep involves connecting the wiring between the two vehicles. Tail, brake and turn signals on the back of the dinghy are required in all 50 states and all Canadian provinces, so this isn't a step that you can overlook. (Neither side clearance or backup lights are required, and are rarely used.)

The most common source of dinghy wiring confusion revolves around differences in the way the turn-signal lights are wired on various cars and motorhomes. Some models are wired to supply

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turn-signal power to the same bulbs that are used for the brakelights (commonly referred to as a 4-wire system), while others use separate amber bulbs for the rear turn signals (a 5-wire system). Note that 4- and 5-wire systems are used on both motorhomes and cars, so any one of four different solutions

plied to the rear bulbs. Since no electricity can flow backwards through a diode, it also prevents power from the motorhome from being inadvertently introduced to any other circuits in the automobile.

Many late-model vehicles are equipped with on-board diagnostics that continuously check for proper opera-

tion. A bulb is then connected directly to the motorhome, eliminating any connections to the vehicle's existing wiring harness. Naturally, this modification isn't for the squeamish, since it usually involves drilling a large hole in the tail lamp reflector. Fortunately, special snap-in sockets are available that make this job

mobiles equipped with amber turn signals, the new socket is typically installed behind the red brake lamp lens instead.

In situations where modifications to the dinghy's original wiring either aren't desirable or practical, a set of removable towing lights often provides a workable solution.



THE KARGARD SHIELD, FROM BLUE OX, ATTACHES TO THE TOW BAR AND ADDS YET ANOTHER LEVEL OF DINGHY PROTECTION TO GUARD AGAINST POTENTIAL DAMAGE FROM ROAD DEBRIS.

may be needed for any particular application. Adapters are readily available to electronically match the wiring systems of the dinghy and motorhome.

The traditional method of wiring up a dinghy vehicle involves the use of steering diodes. These diodes function as one-way gates to the flow of electricity, allowing power from either the motorhome or vehicle to be sup-

plied to the 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 burnt-out bulbs.

For this reason, it is becoming more common to modify each of the vehicle's tail-lamp assemblies to accept a separate bulb. This

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 either red or amber in color, but only permit the brakelights to be red. Thus, on auto-

Most of these products are affixed with magnets, although some models can be equipped with suction cups or hook-and-loop fasteners (ideal for use on plastic or fiberglass surfaces). A cable is then snaked across the vehicle to the connector at the motorhome hitch receiver.

In some cases, the cable is semi-permanently routed inside or underneath the vehicle,

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ADDING LARGE RUBBER FLAPS AT THE REAR OF A MOTORHOME WILL MINIMIZE TOWED-VEHICLE DAMAGE FROM DEBRIS, DIRT AND GRIME KICKED UP BY COACH TIRES.

allowing the lights to be quickly removed and stowed inside the trunk. Several companies offer wireless removable towing lights, thereby eliminating the need for this cable altogether.

Although many motorhomes come with a factory-installed 4- or 5-pin connector, there are situations where a different connector is necessary. Some dinghies equipped with an automatic transmission must 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 upping the con-

ductor-pin count.

Ideally, the industry-standard connection scheme should be observed when installing this new connector, so that it can also be used when towing boats, ATVs, horse trailers, etc.

Unfortunately, since there is no industry-wide standard 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 4-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 is particularly important to use top-quality connectors or splices. In order to prevent any chance of corrosion, all connections should be waterproof. Heat-shrink tubing works very well for this purpose, as does self-vulcanizing plastic tape.

Dinghy Peculiarities

Some manufacturers have very specific restrictions on how to prevent damage to the transmission or transaxle. For example, Suzuki recommends starting and revving the

dinghy engine every 200 miles to recirculate transmission oil. Obviously, the owner should observe these rules scrupulously. When in doubt about the restrictions for your particular vehicle, read the owner's manual. Note that overfilling the transmission prior to towing is not an effective way of circumventing these precautions, since the problem isn't caused by lack of sufficient oil but rather by lack of oil circulation.

Another vehicle-specific consideration is that towing some dinghies with the ignition switch in a position that allows the steering column to remain unlocked also leaves power applied to various electrical circuits. Over the course of a full day of towing, this can lead to significant battery drain. While the best strategy for dealing with this problem varies considerably by model, most fixes involve temporarily unplugging one or more fuses from the vehicle's fusebox prior to towing.

Naturally, this imposes the additional need for remembering to replace these fuses prior to driving the vehicle. A more convenient (albeit involved) arrangement is to connect the offending cir-

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cuit through an owner-added switch, allowing these circuits to be made tow-ready by the mere flip of a switch.

Some older dinghy vehicles (pre-1997) are equipped with a mechanical speedometer/odometer combination that accumulates mileage while the vehicle is being towed. There's no way to alleviate this — Remco once offered an electric speedometer disconnect, but it was phased out as newer vehicles stopped requiring such alteration — but the resale value of



ONCE THE PROPER BASEPLATE IS INSTALLED, THIS CLEAN-LOOKING SETUP IS ALL THAT REMAINS WHEN THE TOWED VEHICLE ISN'T HOOKED UP; COOLING DOESN'T SUFFER.

a vehicle this old is unlikely to be affected much by the extra towing mileage.

A Few Towing Tips

Breaking camp tends to be a distracting time, with many chores to per-

form. Since forgetting to perform any of several dinghy towing preparation tasks — disengaging the parking brake, shifting the transmission and/or transfer case into neutral, unlocking the steering column, installing the dinghy braking system, etc. —

could lead to significant damage, the use of a checklist is strongly recommended.

Finally, while towing, it's important to occasionally pull over and stop to visually inspect the condition of the dinghy, tow bar, safety chains and dinghy lights.

Even with a good backup monitor system and/or mirrors, it's not always possible to spot problems from the driver's seat, so the loss of five minutes of driving time is certainly a small price to pay for a safe, uneventful trip. ■

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