




# Jeep<sup>®</sup>

## 2002 TOWING

### KEY TOWING TERMS

The following are important trailering terms which have been organized so you can see where they apply — to the tow vehicle , to the trailer , as well as to the combination of the tow vehicle and trailer when they are connected .



#### Tow Vehicle

These terms apply to the tow vehicle:

- CW
- PL
- GVW
- GVWR
- GAW
- GAWR



#### Trailer

These terms apply to the trailer:

- GTW
- GTWR
- TW
- GAW
- GAWR



#### Combination of Tow Vehicle and Trailer

These terms apply to the tow vehicle and the trailer when they are connected:

- GCW
- GCWR

#### Curb Weight (CW)

- The weight of an empty vehicle (without cargo, passengers or driver) including fuel, coolant, oil, and all standard or optional equipment

#### Payload (PL)

- The amount of weight that will be carried by a vehicle including the driver, passengers, cargo, tongue weight, options (factory-, dealer- or customer-installed) and the weight of any body modifications

#### Gross Vehicle Weight (GVW)

- Total weight of a vehicle with cargo, driver and passengers, fuel, water, equipment, etc.
- Not to exceed the vehicle's gross vehicle weight rating (GVWR)

#### Gross Vehicle Weight Rating (GVWR)

- Maximum allowable gross vehicle weight

#### Gross Axle Weight (GAW)

- The load-carrying capacity of a single axle system as measured at the tire/ground interfaces
- Includes weight of the vehicle plus any load that must be supported by the axle including payload and tongue or king pin weight

#### Gross Axle Weight Rating

#### (GAWR)

- Maximum allowable weight that can be safely placed on a given axle assembly
- The load on each axle system should not exceed GAWR specified on safety certification label, nor should total on both axle systems exceed GVWR

#### Gross Trailer Weight (GTW)

- The weight of a trailer plus all the cargo inside
- Measured by placing a fully loaded trailer on a scale

#### Gross Trailer Weight Rating (GTWR)

- Maximum allowable weight of a trailer plus cargo

#### Tongue Weight (TW)

- The weight a conventional trailer puts on the back of a vehicle
- The downward force exerted on the hitch ball by the trailer coupler
- In most cases, it should not be less than 10 percent or more than 15 percent of the trailer load

#### Gross Combination Weight (GCW)

- Total weight of a fully equipped vehicle and trailer with cargo, driver, passengers, fuel, water, equipment, etc.

#### Gross Combination Weight Rating (GCWR)

- Maximum allowable gross combination weight

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### SPECIAL EQUIPMENT

#### SPECIAL EQUIPMENT

Generally speaking, a Jeep<sup>®</sup> vehicle that pulls a trailer weighing 2,000 pounds or less doesn't need any special equipment. (The exception is Wrangler models equipped with both the 2.5L Power Tech I-4 and the three-speed automatic transmission, which can tow a maximum of 1,000 pounds.) But above that level, you should recommend the optional Trailer Tow Group for Liberty or the Trailer Tow Prep Group for Grand Cherokee to make sure everything is safe and functional.

#### Here are four areas that need consideration:

**Cooling** — Maximum engine cooling is required for hauling trailers over 2,000 pounds. This consists of a larger radiator for the engine. An auxiliary transmission oil cooler\* is also recommended for automatic transmission vehicles that pull trailers weighing 2,000 pounds or above.

**Electrical** — Trailer lamps and electrical accessories place a heavy demand on tow vehicles' electrical systems. Therefore, high-capacity batteries, alternators and turn-signal flashers are recommended.

**Brakes** — All trailers over 1,000 pounds should have their own brakes. If a customer orders the optional Trailer Tow Group with Liberty, or a Trailer Tow Prep Group with Grand Cherokee, a four-pin adapter is provided for a trailer's electrical brake controller.

**Control** — When towing a trailer, control between vehicle and trailer is vital, and weight-distributing hitches maintain vehicle balance the best. Heavy-duty shock absorbers and stabilizer bars also help minimize vehicle pitch and sway.

#### TRAILER TOW EQUIPMENT

Liberty and Grand Cherokee are available from the factory with special equipment required for trailer towing:

#### Liberty's Trailer Tow Group<sup>†</sup> includes:

- Class III hitch receiver
- A seven-pin-to-four-pin adapter
- Heavy-duty engine cooling with auxiliary transmission oil cooler
- A seven-pin connector wiring harness

#### Grand Cherokee's Trailer Tow Prep Group includes:

- 3.73:1 rear axle ratio
- Mechanical cooling fan
- Trailer tow wiring harness
- Requires 4.0L Power Tech I-6

#### Grand Cherokee's Trailer Tow Group Class III adds:

- Frame-mounted load equalizing receiver hitch
- A seven-pin-to-four-pin adapter
- Requires 4.0L Power Tech I-6

#### Grand Cherokee's Trailer Tow Group Class IV adds:

- Frame-mounted load equalizing receiver hitch
- A seven-pin-to-four-pin adapter
- Power steering fluid cooler
- Requires 4.7L Power Tech V8

\* Not required on Grand Cherokee.

<sup>†</sup> Trailer Tow Group requires 3.7L Power Tech V6, automatic transmission and air conditioning.

**Note:** Wrangler requires a receiver-style hitch available as a Mopar Accessory.

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### SPECIFYING THE PROPER VEHICLE

One of the factors contributing to the growth in today's market is the increased use of light trucks and sport-utility vehicles for both work and play. People want to go places and haul things they can't haul with an ordinary car, so they've turned to the trailer-tow vehicle to satisfy their needs.

There are all kinds of trailers on the market today, ranging from small-utility trailers to small homes on wheels. Although Jeep® vehicles cannot tow every type of trailer, most people can find a Jeep vehicle that suits their towing needs. Additionally, Mopar offers a great selection of accessories designed to assist buyers with their towing needs.

An uninformed buyer may believe that a Jeep vehicle can tow any trailer. But this is not the case. There are numerous factors that must be taken into consideration when recommending a Jeep vehicle for trailer-towing. Otherwise, the buyer may find his/her vehicle struggling to get up a hill with a trailer being pulled by an inadequate drivetrain; or losing control of the vehicle because of improper weight distribution; or even breaking down because of overloading. Whatever the case, **YOU** are the one ingredient that can help buyers make the right decision about purchasing trailer-tow vehicles.

#### DETERMINING TRAILER WEIGHT

Depending on a vehicle's size and drivetrain, there is a maximum trailer weight that a vehicle can pull. Therefore, it's necessary for your customer to provide the loaded weight of the trailer that will be hitched to his or her Jeep vehicle. In most cases, the trailer manufacturer will supply the gross trailer weight rating, also known as GTWR.

When specifying a trailer-tow vehicle, you need to begin the job-rating process by figuring out the total loaded weight of a trailer. Guessing won't do, because there's a possibility you may underestimate the total weight, which could cause numerous problems. The safest method is to use the GTWR even if the customer currently does not tow at the fully loaded capacity. If the trailer is ever fully loaded in the future, the vehicle will be capable of hauling the load.

#### TONGUE WEIGHT AND PAYLOAD

Trailer tongue weight (TW) is described as the downward force exerted on the tow vehicle's hitch ball by the trailer tongue coupler. In most cases, the trailer tongue weight on a drawbar should not be less than 10 percent of the trailer load or more than 15 percent.

Placing too much weight on a trailer hitch can damage suspension and driveline components of the vehicle, while too little weight can cause the rear end of the tow vehicle to lift — thereby reducing rear-wheel traction, which can cause trailer sway or jackknifing. Special care should be taken to ensure the trailer load weight is distributed correctly. Proper weight distribution affects tongue weight and trailer handling.

#### DETERMINING LOAD CAPACITY

First, determine the curb weight (CW) of the vehicle. Then add the payload (PL) of the vehicle to its curb weight. This will give you the gross vehicle weight (GVW). Here's what the formula looks like:

$$CW + PL = GVW$$

Now compare the vehicle's GVW to its GVWR. If the GVW is less than the GVWR, the vehicle can properly support the desired payload. However, if the GVW is more than the GVWR, the vehicle is overloaded and a different package or model must be specified.

#### COMBINING VEHICLE AND TRAILER WEIGHTS

When job-rating a vehicle, you will need to know the gross vehicle weight (GVW) of the tow vehicle (without the trailer tongue weight), as well as the loaded gross weight of the trailer (GTW). Their combined weight is called the gross combination weight (GCW). Here's the formula:

$$GVW + GTW = GCW$$

Just like the maximum weight rating of a trailer, there is a maximum combined weight rating given to vehicles designed to pull a trailer. This measurement is called the gross combination weight rating (GCWR), and it's used to establish a vehicle's safe towing limit.

When job-rating a vehicle that will be hauling a trailer, you will have to determine the GCW of the two units, and then compare it with the GCWR of the vehicle. Doing this is easy:

1. Determine the GVW of the vehicle (without tongue weight).
2. Add this to the GTW to determine the GCW of the vehicle and trailer.
3. Make sure the GCW doesn't exceed the GCWR of the vehicle.

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### AXLE RATIOS

#### WHAT IS AN AXLE RATIO?

An axle ratio is the ratio between the driveshaft rpm and the axle shaft rpm. The axle ratio is critical in the operation of the transmission/driveshaft/axle system that transmits engine torque to the driving wheels and lets the engine develop sufficient rpm to run efficiently. The axle ratio is determined by the size of the ring (axle) and pinion (driveshaft) gears inside the differential. With a ratio of 4.00:1, the pinion gear on the driveshaft makes four rotations for each rotation of the larger differential ring gear on the axle driving shaft. An ideal axle ratio allows the engine to operate in its optimum power range, typically between peak torque and peak horsepower. The optimum range is different for each engine. See the chart below for Jeep<sup>®</sup> Power Tech engines' horsepower and torque ratings.

How will the vehicle be used? How much will it haul or tow? Will it be used on steep grades, on flat highways or both? How important is fuel economy, acceleration and engine noise? These are questions you should ask a prospect when determining the proper axle ratio for that particular prospect's needs. Choosing the proper axle ratio for a Jeep vehicle does not pose the same challenges as selecting axle ratios for a pickup truck, since ratios are limited on Jeep vehicles.

A low numerical axle ratio, such as 3.07:1, is called a "fast" ratio, because the road speed is relatively fast for any given engine speed. The characteristics of a low numerical ratio are:

- lower engine rpm/noise
- slower acceleration
- less pulling power
- faster top road speed
- higher fuel economy
- less engine fan cooling

A high numerical axle ratio, such as 4.11:1/4.10:1, is called a "slow" ratio, because the road speed is relatively slow for any given engine speed. The characteristics of this ratio are:

- higher engine rpm/noise
- faster acceleration
- more pulling power
- slower top road speed
- lower fuel economy
- more engine fan cooling

**Note:** The previous descriptions assume a single engine is used and the axle ratio is the **ONLY** variable.

#### JEEP VEHICLE AXLE RATIO AVAILABILITY

Vehicle	Axle Ratio	Engine	Transmission	Other Equipment	
Grand Cherokee	3.55:1	4.0L Power Tech I-6	—	—	
	3.73:1	4.0L Power Tech I-6	—	Trailer Tow Prep Group/ Trailer Tow Group Class III	
		4.7L Power Tech V8	—	—	
		—	—	Vari-Lok™ progressive locking axles	
Liberty	3.73:1	3.7L Power Tech V6	—	—	
	4.10:1	2.4L Power Tech I-4	—	—	
Wrangler	4.11:1	2.5L Power Tech I-4	5-speed manual	SE	
	3.73:1	2.5L Power Tech I-4	3-speed automatic	SE	
		—	—	5-speed manual	30" Tire and Wheel Group
		—	—	—	Dana 44-3 rear axle
		—	—	—	Trac-Lok <b>and</b> ABS
	3.07:1	4.0L Power Tech I-6	—	—	

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### TYPES OF TRAILERS

#### PERFORMANCE REQUIREMENTS

When a trailer is hitched to a vehicle, the wind and rolling resistance of the equipment is increased. Therefore, it's necessary to make sure the tow vehicle has a power train to overcome the condition.

Usually, wind and rolling resistance is not critical on equipment hauling a trailer weighing less than 2,000 pounds. So you can select a vehicle with a standard power train. But with a trailer that weighs 2,000 pounds or more, you'll more than likely have to select an optional drivetrain. Remember, even with an optional power train, Wrangler's **maximum** towing capacity is 2,000 pounds.

#### Bigger Means More Attention

It's smart to remember: The bigger the trailer, the more consideration needs to be given to the tow vehicle's suspension, engine and transmissions.

##### The 1-2-5-10 of trailers

**1 = 1,000:** Trailers over 1,000 pounds should have their own brakes

**2 = 2,000:** Trailers over 2,000 pounds require maximum engine cooling and auxiliary automatic transmission cooler on tow vehicle

**5 = 5,000/500:** Conventional trailers over 5,000 pounds, or tongue weight over 500 pounds, require a weight-distributing hitch

**10 = 10,000:** Trailers over 10,000 pounds must be gooseneck or fifth wheel (not applicable to Jeep vehicles)

#### SECRETS TO TOWING

The secret to recommending the right vehicle and equipment for hauling a trailer is to recognize all the demands placed on the tow vehicle. These conditions include trailer weight, combination weight, power requirements and cooling requirements.

When selecting a trailer hitch for towing, it's vital that your customer selects a hitch that will do the job safely and effectively. There are three steps in selecting the proper hitch:

**First** — Determine the loaded trailer weight and tongue weight (TW) of the trailer.

**Second** — Job-rate the vehicle to find the correct hitch.

**Third** — Choose the right hitch, as well as any additional accessories that may be required, such as hitch balls, ball mounts, drawbars, trailer wiring, safety chains, transmission coolers, locks, trailer brake controls, ball and receiver tube covers, tow bars or sway controls.

#### WEIGHT CLASSIFICATIONS

Whether it's a small two-wheel utility trailer or a midsize boat trailer, Jeep<sup>®</sup> Brand offers a vehicle that will fit most of your customers' towing needs.

The key to selecting a tow vehicle is really determined by the total weight of the trailer that's towed. Towing weight is broken down into four classifications — Class I, Class II, Class III and Class IV. These four classifications of trailers are established by the Society of Automotive Engineers (SAE).

##### Class I — Light-Duty

- 2,000-pound maximum
- Folding camping trailers and trailers for small boats, motorcycles and snowmobiles
- Most Jeep vehicles can handle this weight easily
- Load-carrying (non-equalizing) hitch

##### Class II — Medium-Duty

- 3,500-pound maximum
- Single-axle, small to medium length (up to 18 ft) trailers
- Liberty and Grand Cherokee models can be equipped to tow these trailers

##### Class III — Heavy-Duty

- 5,000-pound maximum
- Dual-axle or large single-axle trailers
- Properly equipped Liberty and Grand Cherokee models can tow them

##### Class IV — Extra-Heavy-Duty

- 10,000-pound maximum
- Largest travel and fifth-wheel trailers made for recreation
- Weight-distributing hitch is required
- Grand Cherokee models equipped with the 4.7L Power Tech V8 engine can tow up to 6,500 pounds

All Jeep vehicles (except 2.5L/3-speed automatic Wrangler models) are engineered to pull Class I trailers without adding any extra equipment or making any equipment alterations. Extra equipment is required for heavier applications.

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### TRAILER HITCHES

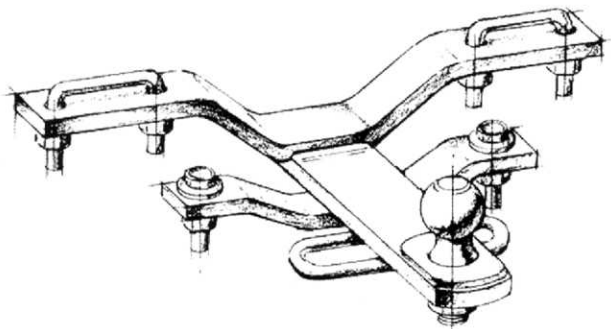
#### WEIGHT-CARRYING HITCH

A weight-carrying hitch supports the trailer tongue weight, just as if it were luggage located at a hitch ball or some other connecting point of the vehicle. These kinds of hitches are the most popular on the market today and they're commonly used to tow small- and medium-size trailers.

It is usually custom built for specific models of tow vehicles and is rated by Loaded Trailer Weight and Tongue Weight capacities. In general, weight-carrying hitches are used for lightweight (Class I) trailers up to 2,000 pounds and 200 pounds Tongue Weight and medium-duty (Class II) trailers up to 3,500 pounds and 300 pounds Tongue Weight when towed by pickups, vans and sport-utility vehicles.

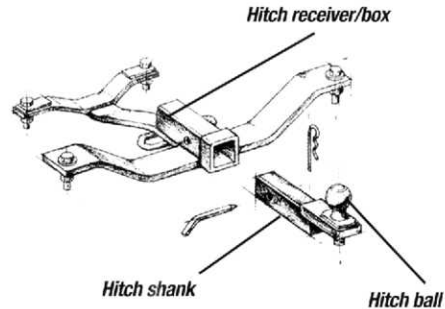
There are two styles of weight-carrying hitches:

- **Fixed Drawbar** — In which the ball platform is permanently welded to the hitch
- **Removable Drawbar** — In which the ball platform is removable. The ball platform is removable from the hitch receiver by taking out a heavy steel pin. This hitch is commonly referred to as a *utility ball mount* for Class III hookups and a *drawbar* for Class I and II hookups



*Weight-carrying fixed drawbar hitch*

#### Components of a Removable Drawbar Hitch:



- Hitch receiver or hitch box
  - Square opening in the hitch receiver that receives the shank of the hitch ball mount
- Hitch shank
  - Holds the hitch ball mount
  - Retained in the receiver with a heavy steel pin
- Hitch box cover
  - Protects the hitch box or receiver from the elements when the shank is removed

The hitch ball fits into the socket of the coupler on the tongue of a trailer. It provides the means by which the trailer pivots during cornering.

It is extremely important that the ball diameter correctly matches the coupler.

- A hitch ball that's too small may cause the coupler to bounce loose
- A hitch ball that's too large may not allow proper trailer attachment

Common ball diameter sizes:

- 1½" Light-Duty
- 2" Medium-Duty
- 2½" Heavy-Duty

The hitch ball attachment must also be compatible with the shank hole size and thickness of the mounting point on the tow vehicle.

Common shank diameters:

- ¾" • 1" • 1¼" • 1½"

Common shank lengths:

- 1½" • 2" • 2½"

The ball material and shank diameter determine the tow rating of the ball.

- Two-inch ball may be rated from 3,500 pounds to 9,000 pounds trailer weight

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### TRAILER HITCHES

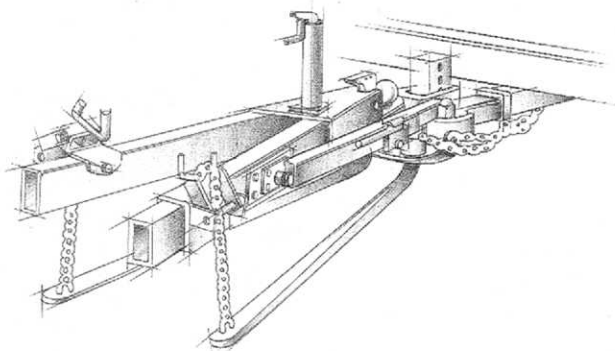
#### WEIGHT-DISTRIBUTING HITCH

Rather than merely supporting the tongue weight of a trailer, a weight-distributing hitch, also called a load-equalizing hitch, applies leverage between the tow vehicle and the trailer. As a result, this hitch distributes tongue weight to all the wheels of the tow vehicle and trailer.

A weight-distributing hitch allows you to tow trailers with greater tongue weights — typically in Class III and IV categories — up to 10,000 pounds. These kinds of hitches offer a more level ride, which reduces the stress on the rear of the vehicle and provides greater steering and braking control.

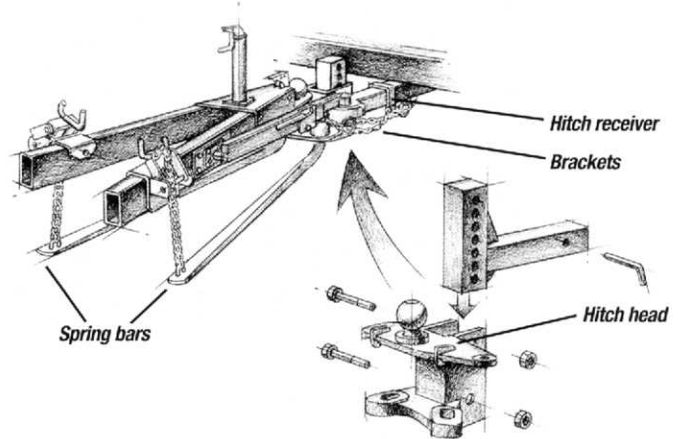
It's important for you to remember that air springs, air shocks and overload springs are not substitutes for the weight-distributing hitch because they cannot redistribute a load's weight to other axles.

A weight-distributing system includes a receiver attached to the tow vehicle, plus a removable hitch head and spring bar assembly that fits into the receiver opening and hookup brackets that connect the spring bars to the trailer frame.



*Weight-distributing hitch*

#### Components of a Weight-Distributing Hitch:



- Hitch head (with ball)
  - Adjustable ball mount
  - Portion of a weight-distributing hitch between the tow vehicle and trailer
  - Shank, hitch ball and spring bars attached
- Hitch receiver
  - Two-inch square opening in the hitch platform that receives the shank of the hitch ball mount
  - Two inches is the most common for Class III and above
  - Shank retained in the receiver with a heavy steel pin
- Spring bars
  - 2 (one for each side), also called equalizing bars
  - Distribute weight to other areas of the tow vehicle and trailer
  - Constructed of spring steel
  - Have chains connected at the trailer end which attach to snap-up brackets on the trailer tongue
  - The length of the chains actually distributes the tongue weight as the chains are raised to put tension on the spring bars
  - Each bar then acts as a spring to maintain a constant pressure on the hitch
  - Spring bars have different tensions built into them
  - So if a customer wants to tow a 2,000-, 4,000- or 6,000-pound trailer, be sure the customer has matching spring bars to handle the job
- Brackets
  - Hook up the spring bars to the trailer frame
  - Adjust the spring bars to meet specific towing requirements

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### SAFE TOWING TIPS

Trailer towing is a special driving experience that places extra demands on a person's driving skills. We have included a few basic tips that would be smart to pass on to your customers. This will help ensure both their safety and the safety of their vehicle. Remind customers that the Owner's Manual contains comprehensive and helpful towing tips as well.

#### WEIGHT DISTRIBUTION AND SWAY CONTROL

- Always avoid overloading a trailer. And never exceed the rating of the lowest-rated component of your towing system
- Proper trailer loading can help prevent dangerous instability and swaying. Therefore, place heavy items on the floor in front of the trailer axle so that the load is heavier in the front (60 percent front versus 40 percent rear). And always balance a load side to side, securing it to prevent shifting
- For most trailers, tongue weight should be 10 to 15 percent of the loaded trailer weight. Too low a percentage of tongue weight will cause excessive sway

#### ACCELERATION AND BRAKING

- The additional weight of a trailer will affect a vehicle's acceleration and braking. Always allow extra time and distance for passing and changing lanes
- Only pass on level terrain where there is plenty of clearance to complete the maneuver. For better acceleration, downshift when passing or climbing a hill. Allow more distance for stopping than you normally would without a trailer
- Use trailer brakes to correct trailer sway. And downshift when braking on downgrades

#### RIDE AND HANDLING

- Avoid any sudden moves that will create side force on the trailer
- Allow more room to the inside on turns, because the trailer wheels will be closer to the inside path of the turn than the tow vehicle wheels
- If you must pass or change lanes, signal well in advance and move gradually into the next lane
- After passing, allow extra room for the trailer before moving back over

#### TIRE PRESSURE

- Under-inflated tires get very hot and can lead to tire failures and possible loss of vehicle control. Over-inflated tires, on the other hand, can cause uneven tire wear
- Tires should be checked often to make sure they conform to cold inflation pressures recommended on the Safety Compliance Certification Label for original equipment tires to ensure consistent performance and handling

#### PARKING

- Avoid parking a vehicle with a trailer on a grade
- If circumstances require this type of parking, wheel blocks or chocks must be placed under the trailer's tires after securing the tow vehicle with the parking brake

#### COOLING SYSTEM

- To reduce potential for engine and transmission overheating, take the following actions:
  - City traffic — When stopped, put transmission in Neutral and increase engine idle speed
  - Highway driving — Reduce speed
  - Air conditioning — Turn off temporarily
- To reduce the potential for automatic transmission overheating, turn the Overdrive off (not applicable to Wrangler; shift into third gear on Liberty) when driving in hilly areas to prevent excessive shifts and provide better engine braking





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### SAFE TOWING TIPS

#### BEFORE YOUR CUSTOMER HITS THE ROAD ...

Before setting out on a trip, practice turning, stopping and backing the trailer in an area away from heavy traffic. Practice these backing-up procedures:

- Place your hand on the steering wheel at the six o'clock position
- To move the rear end of the trailer to the left, turn wheel left
- To move the rear end of the trailer to the right, turn the wheel right
- In difficult situations such as launching and retrieving a boat, use 4WD low range (if available) for extra traction

Every time your customer hitches up, it's a good idea to run through this basic checklist:

- The hitch.** Is the hitch ball tight? Is the hitch coupler locked? Are the trailer safety chains securely hooked to the tow vehicle?
- Tires.** Check the trailer tires to make sure they're properly inflated. Recommended pressures are indicated on the tire sidewalls. Also be sure the tow vehicle's tires are properly inflated. If it's a heavy trailer, try adding extra pressure to the tow vehicle's rear tires.
- Wheel bearings.** Like daybreak, we take trailer wheel bearings for granted, but a total failure will cause the wheel to stop turning and can cause an accident. Check the bearings at least once a year, before you head out on your first excursion. Get one side of the trailer up on a jack, grab a wheel with both hands, and see if there's any play in the bearing. Then turn the wheel, listen and use your fingers to detect any scratchiness in the rotation.
- Trailer lamps.** Are they all working? Turn signals? Side marker lamps? Brake lamps? Clearance lamps?
- Secure the load.** Make sure your trailer's load is tied down so it can't move. If you're using tie-down straps (the kind with winch-type cinches are best), be sure to retighten after a few miles. They'll stretch a bit with use, particularly when they're new.



- Trailer brakes.** If there's a hydraulic fluid reservoir, is it topped off? Are the brakes working?

All states require that trailer lamps be operational during towing. Trailers should never be occupied by passengers while being towed.

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### RECREATIONAL TOWING

Unlike many of their competitors, Jeep<sup>®</sup> vehicles have a Neutral position on their transfer cases that allow them to be towed easily and without any mechanical modifications. This makes Jeep vehicles very appealing to customers shopping for a vehicle to tow behind a recreational vehicle.

#### HOW TO TOW WRANGLER

To prepare Wrangler for towing, follow the steps below:

**NOTE:** It is important to follow these steps to be certain that the transfer case is fully in N (Neutral) and that the axle is completely disengaged before towing Wrangler to prevent damage to internal parts.

1. Shift transfer case to 2H (two-wheel-drive high) and check that the 4WD lamp goes out.
2. Drive vehicle 10 feet rearward and then 10 feet forward to make sure that axle is disengaged.
3. Shift transmission into N (Neutral).
4. Turn off the engine with the ignition key in the unlocked OFF position.
5. Shift the transfer case lever from 2H (two-wheel-drive high) to N (Neutral) position.
6. Shift manual transmission into gear or automatic transmission into P (Park).
7. Apply parking brake.

**NOTE:** With the transfer case in the N (Neutral) position, the vehicle could roll unexpectedly. The parking brake should always be applied before the tow bar is attached.

8. Attach the vehicle to the tow vehicle with tow bar.
9. Release parking brake.

#### HOW TO TOW LIBERTY AND GRAND CHEROKEE

To prepare Liberty and Grand Cherokee for towing, follow the steps below:

**NOTE:** It is necessary to follow these steps to be certain that the transfer case is fully in N (Neutral) before towing Liberty to prevent damage to internal parts.

1. Depress brake pedal.
2. Shift transmission into N (Neutral).
3. Shift transfer case lever into N (Neutral).
4. Start engine.
5. Shift automatic transmission into D (Drive) or manual transmission (Liberty) into any forward gear.

6. Release brake pedal and ensure that there is no vehicle movement.
7. Turn off the engine off with the ignition key in the unlocked OFF position.
8. Shift automatic transmission into P (Park) or ensure manual transmission (Liberty) is in any forward gear.
9. Apply parking brake.

**NOTE:** With the transfer case in the N (Neutral) position, the vehicle could roll unexpectedly. The parking brake should always be applied before the tow bar is attached.

10. Attach vehicle to the tow vehicle with tow bar.
11. Release parking brake.

**NOTE:** Transmission damage may occur if the automatic transmission is shifted into P (Park) with the transfer case in N (Neutral) and the engine running. With the transfer case in N (Neutral), ensure that the engine is off prior to shifting the transmission into P (Park) (refer to steps 7-8 above).

**NOTE:** Internal damage to the transfer case will occur if a front or rear wheel lift is used to tow Grand Cherokee. It is important to follow the correct steps and to be certain that the transfer case is fully in N (Neutral) and that the axle is completely disengaged before towing in order to prevent damage to internal parts.

#### Preparing Vehicle for Normal Usage

To prepare your vehicle for normal usage, follow the steps below:

1. Shift transmission into N (Neutral).
2. Shift transfer case lever to desired position.
3. Shift automatic transmission into D (Drive) or manual transmission (Liberty) into any forward gear.

**NOTE:** When shifting out of transfer case N (Neutral) on automatic transmission-equipped vehicles, turning the engine off may be required to avoid gear clash.

#### 2WD Grand Cherokee

In recreational towing, remove the rear driveshaft and place a cover plug on the rear of the transmission to retain fluid. Place the shift selector in P (Park). Before driving, replace the rear driveshaft and check the automatic transmission for proper fluid level.

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### F R E Q U E N T L Y   A S K E D   Q U E S T I O N S

Customers interested in using their vehicle for towing usually have many questions about the towing vehicle or trailer. Below is a list of answers to questions you are likely to hear.

#### **I've never towed a trailer before — how do I go about it?**

- Establish a step-by-step procedure for checking your equipment whenever you tow
  - Trailer hitch and safety chains for proper connection
  - Electrical connections for trailer wiring and brakes
  - Operation of separate trailer brake system before moving into traffic
  - Tire condition and tire pressure on tow vehicle and trailer
  - All fluid and coolant levels as well as hose connections and tightness of all belts
  - Mirrors for any necessary adjustments
  - Lamps on vehicle and trailer, including running lamps, turn signals, brake lamps and flashers
- Prior to setting out on a trip, practice turning, stopping and backing the trailer in an area away from heavy traffic
- Practice these backing-up procedures:
  - Place your hand on the steering wheel at the six o'clock position
  - To move the trailer to the left, turn the wheel left
  - To move the trailer to the right, turn the wheel right

#### **Is there a break-in period for my new vehicle before I can start towing?**

- Before using your new vehicle for towing, drive it a minimum of 500 miles
- For the first 500 miles you are towing a trailer, do not exceed 50 mph

#### **How is tire pressure affected by towing?**

- Underinflated tires get very hot and can lead to tire failures and possible loss of vehicle control
- Overinflated tires, on the other hand, can cause uneven tire wear
- Tires should be checked often to make sure they conform to cold inflation pressures recommended on the Safety Compliance Certification Label for Original Equipment tires to ensure consistent performance handling

#### **Do I need brakes for my trailer?**

- All but the smallest trailers require trailer brakes
  - Trailers over 1,000 pounds should have their own brakes
  - Electric brakes or surge brakes are the most commonly used
  - Some electric brakes can be adjusted or applied independently from inside the tow vehicle, with the use of an electronic brake control unit
  - Hydraulic surge brake units utilize the push of the trailer against the braking tow vehicle to actuate the trailer brakes
  - Both electric and surge brakes are usually equipped with a breakaway device that will apply the brakes if the trailer becomes disconnected from the tow vehicle

#### **What's the best way to distribute a trailer load?**

- Be sure to load the trailer more heavily toward the front
  - Load 60 percent of the cargo weight in the front half of the trailer
  - This places between 10 to 15 percent of the loaded trailer weight on the tow vehicle hitch
- Side-to-side weight distribution should be split evenly (50/50) between the left and right side of the trailer
- Don't overload the trailer
- Additional trailer weight will affect a vehicle's acceleration and braking

#### **Is it OK to park a trailer on a steep hill?**

- Avoid parking a vehicle with a trailer on a grade
- However, if circumstances require this type of parking, follow this procedure:
  - Secure the tow vehicle with the parking brake
  - Place wheel chocks or wedges under the trailer's tires

#### **What ride and handling factors do I need to consider when towing a trailer?**

- Avoid any sudden moves that will create side force on the trailer
- When turning, allow more room to the inside of the turn, because the trailer wheels will be closer to the inside path of the turn than the tow vehicle wheels
- If you must pass or change lanes, signal well in advance and move gradually into the next lane
- After passing, allow extra room for the trailer before moving back over

#### **What acceleration and braking factors do I need to consider when towing a trailer?**

- Additional trailer weight will affect a vehicle's acceleration and braking
- Always allow extra time and distance for passing and changing lanes
- Only pass on level terrain where there is plenty of clearance to complete the maneuver
- For better acceleration, downshift when passing or climbing a hill
- Allow more distance for stopping than you normally would without the trailer
  - Downshift when braking on downgrades
  - Trailers over 1,000 pounds should have their own brakes

# Jeep<sup>®</sup>

## 2002 TOWING

### F R E Q U E N T L Y   A S K E D   Q U E S T I O N S

#### **How will my maintenance requirements be affected by towing?**

- More frequent scheduled maintenance is required of any vehicle used in continuous towing situations
- Engine oil, transmission fluid, transfer case fluid and engine coolant should be changed more often
- All filters should be checked on a regular basis
- Brake drums and rotors, brake pads and linings, and front axle U-joints and yokes should be inspected and/or serviced more frequently. These components should also be thoroughly cleaned if the vehicle was operated in sand, mud or water, to avoid possible excessive wear to brakes
- Refer to the tow vehicle's Owner's Manual for additional information

#### **What legal considerations should I be aware of when towing?**

- All states require that trailer lamps be operational during towing
- Towing mirrors on both sides are usually required by law
- Trailers should never be occupied by passengers while being towed
- Obey all state and federal motor vehicle laws