



# Warning

This User's Manual contains safety information and instructions for your trailer.

You must read this manual before loading or towing your trailer.

You must follow all safety precautions and instructions.

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## 1. GENERAL SAFETY INFORMATION

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### 1.1. SAFETY ALERT SYMBOLS AND SIGNAL WORDS

An Owner's Manual that provides general trailer information cannot cover all of the specific details necessary for the proper combination of every trailer, tow vehicle and hitch. Therefore, you must read, understand and follow the instructions given by the tow vehicle and trailer hitch manufacturers, as well as the instructions in this manual.

Our trailers are built with components produced by various manufacturers. Some of these items have separate instruction manuals. Where this manual indicates that you should read another manual, and you do not have that manual, call **Econoline Trailers, Inc.** at **1-800-624-1866** for a free copy.

The safety information in this manual is denoted by the safety alert signal words:

The level of risk is indicated by the following signal words.

#### **Danger**

DANGER – Immediate hazards which WILL result in severe personal injury or death if the warning is ignored.

#### **Warning**

WARNING – Hazards or unsafe practices which COULD result in severe personal injury or death if the warning is ignored.

#### **Caution**

CAUTION – Hazards or unsafe practices which could result in minor or moderate injury if the warning is ignored.

#### **Notice**

NOTICE – Practices that could result in damage to the trailer or other property.

## General Safety Information

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### 1.2. **MAJOR HAZARDS**

Loss of control of the trailer or trailer/tow vehicle combination can result in death or serious injury. The most common causes for loss of control of the trailer are:

- Improper sizing the trailer for the tow vehicle, or vice versa.
- Excessive Speed: Driving too fast for the conditions.
- Failure to adjust driving behavior when towing a trailer.
- Overloading and/or improper weight distribution.
- Improper or mis-coupling of the trailer to the hitch.
- Improper braking and steering under sway conditions.
- Not maintaining proper tire pressure.
- Not keeping lug nuts tight.

#### 1.2.1. **IMPROPER SIZING OF THE TRAILER TO THE TOW VEHICLE.**

Trailers that weigh too much for the towing vehicle can cause stability problems, which can lead to death or serious injury. Furthermore, the additional strain put on the engine and drive-train may lead to serious tow vehicle maintenance problems. For these reasons the maximum towing capacity of your towing vehicle should not be exceeded. The towing capacity of your tow vehicle, in terms of maximum Gross Trailer Weight (GTW) and maximum Gross Combined Weight Rating (GCWR) can be found in the tow vehicles Owner's Manual.

### **Danger**

Use of a tow vehicle with a towing capacity less than the Gross Vehicle Weight Rating of the trailer can result in loss of control, and may lead to death or serious injury.

Be sure your hitch and tow vehicle are rated for the Gross Vehicle Weight Rating of your trailer.

#### 1.2.2. **DRIVING TOO FAST**

With ideal road conditions, the maximum recommended speed for safely towing a trailer is 60 mph. If you drive too fast, the trailer is more likely to sway, thus increasing the possibility for loss of control. Also your tires may overheat, thus increasing the possibility of a blowout.

### **Warning**

Driving too fast for conditions can result in loss of control and cause death or serious injury.

Decrease your speed when going downhill or as road, weather, and lighting conditions deteriorate.

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### **1.2.3. FAILURE TO ADJUST DRIVING BEHAVIOR WHEN TOWING A TRAILER**

When towing a trailer, you will have decreased acceleration, increased stopping distance, and increased turning radius (which means you must make wider turns to keep from hitting curbs, vehicles, and anything else that is on the inside corner). Furthermore the trailer will change the handling characteristics of your towing vehicle, making it more sensitive to steering inputs and more likely to be pushed around in windy conditions or when being passed by large vehicles. In addition, you will need a longer distance to pass, due to slower acceleration and increased length. With these caveats in mind:

- Be alert for slippery conditions. You are more likely to be affected by slippery road surfaces when driving a tow vehicle with a trailer, than driving a tow vehicle without a trailer.
- Anticipate the trailer “swaying.” Swaying can be caused by excessive steering, wind gusts, roadway edges, or by the trailer reaction to the pressure wave created by passing trucks and busses.
- When encountering trailer sway take your foot off the gas, and steer as little as possible in order to stay on the road. Use small “trim-like” steering adjustments. Do not attempt to steer out of the sway; you’ll only make it worse. Also do not apply the tow vehicle brakes to correct trailer swaying. On the other hand, application of the trailer brakes alone will tend to straighten out the combination, especially when going downhill.
- Check rearview mirrors frequently to observe the trailer and traffic.
- Use lower gear when driving down steep or long grades. Use the engine and transmission as a brake. Do not ride the brakes, as they can overheat and become ineffective.
- Be aware of your trailer height, especially when approaching bridges, roofed areas and around trees.

### **1.2.4. TRAILER NOT PROPERLY COUPLED TO THE HITCH**

It is critical that the trailer be securely coupled to the towing vehicle, and that the safety chains and emergency break-away brake cable are correctly attached. Uncoupling may result in death or serious injury to you and to others.

#### **Warning**

Proper selection and condition of the coupler and hitch are essential to safely towing your trailer. A loss of coupling may result in death or serious injury.

Be sure the maximum load rating of the hitch on the tow vehicle is equal to or greater than the maximum load rating of the coupler on the trailer.

Be sure the hitch ball size matches the coupler size.

Observe the hitch for wear, corrosion and cracks before coupling. Replace worn, corroded or cracked hitch components before coupling the trailer to the tow vehicle.

Be sure the hitch components are tight before coupling the trailer to the tow vehicle.

## General Safety Information

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### Warning

An improperly coupled trailer can result in death or serious injury.

Do not move the trailer until:

The coupler is secured and locked to hitch ball;

The safety chains are secured to the tow vehicle; and

The trailer jack(s) are fully retracted.

Do not tow the trailer on the road until:

Tires and wheels are checked;

The trailer brakes are checked;

The breakaway switch is connected to the tow vehicle;

The load is secured to the trailer; and

The trailer lights are connected and checked.

#### **1.2.5. PROPER USE OF SAFETY CHAINS**

If your trailer comes loose from the hitch for any reason, we have provided safety chains so that control of the trailer can still be maintained

### Warning

Improper rigging of the safety chains can result in loss of control of the trailer and tow vehicle, leading to death or serious injury, if the trailer uncouples from the tow vehicle.

Fasten chains to frame of tow vehicle. Do not fasten chains to any part of the hitch unless the hitch has holes or loops specifically for that purpose.

Cross chains underneath hitch and coupler with enough slack to permit turning and to hold tongue up, if the trailer comes loose.

#### **1.2.6. PROPER CONNECTION OF BREAKAWAY BRAKE**

If equipped with brakes your trailer will be equipped with a breakaway brake system that can apply the brakes on your trailer if your trailer comes loose from the hitch ball for any reason. The breakaway brake system, including battery, must be in good condition and properly rigged to be effective.



## General Safety Information

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### Warning

An ineffective or inoperative breakaway brake system can result in a runaway trailer, leading to death or serious injury, if the coupler or hitch fails.

The breakaway cable must be connected to the tow vehicle; and NOT to any part of the hitch.

Before towing the trailer, test the function of the breakaway brake system. If the breakaway brake system is not working, do not tow the trailer; have it serviced or repaired.

#### 1.2.7. MATCHING TRAILER AND HITCH

### Danger

Use of a hitch with a load rating less than the load rating of the trailer can result in loss of control and may lead to death or serious injury.

#### 1.2.8. WORN TIRES, LOOSE WHEELS AND LUG NUTS

Just as with your tow vehicle the trailer tires and wheels are important safety items. Therefore, it is essential to inspect the trailer tires before each tow.

If a tire has a bald spot, bulge, cut, cracks, or is showing any cords, replace the tire before towing. If a tire has uneven tread wear, take the trailer to a dealer service center for diagnosis. Uneven tread wear can be caused by tire imbalance, axle misalignment or incorrect inflation.

Tires with too little tread will not provide adequate frictional forces on wet roadways and can result in loss of control, leading to death or serious injury.

Improper tire pressure causes increased tire wear and may reduce trailer stability, which can result in a tire blowout or possible loss of control. Therefore, before each tow you must also check the tire pressure. Remember, the proper tire pressure is listed on the Certification / VIN label, normally mounted on front left side of the trailer, and should be checked when tires are cold. Allow 3 hours cool-down after driving as much as 1 mile at 40 mph before checking tire pressure.

### Warning

Improper tire pressure can result in a blowout and loss of control, which can lead to death or serious injury.

Be sure tires are inflated to pressure indicated on the Certification / VIN label before towing trailer.

## General Safety Information

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The tightness of the lug nuts is very important in keeping the wheels properly seated to the hub. Before each tow, check to make sure they are tight.

### Warning

Metal creep between the wheel rim and hub may cause lug nuts to loosen and could result in a wheel coming off, leading to death or serious injury.

Tighten lug nuts before each tow.

Use a torque wrench to tighten the lug nuts, using a crisscross star pattern. If you do not have a torque wrench, use a lug wrench (from your tow vehicle) and tighten the nuts as much as you can. At the first opportunity, have a service garage or trailer dealer tighten the lug nuts to the proper torque.

Lug nuts are also prone to loosen after first being assembled. When driving a new trailer (or after wheels have been remounted), check to make sure they are tight after the **first** 10, 25 and 50 miles of driving and before each tow thereafter.

Failure to perform this check can result in a wheel separating from the trailer and a crash, leading to death or serious injury.

### Warning

Lug nuts are prone to loosen after initial installation, which can lead to death or serious injury.

Check lug nuts for tightness on a new trailer or when wheel(s) have been remounted after the first 10, 25 and 50 miles of driving.

### Warning

Improper lug nut torque can cause a wheel separating from the trailer, leading to death or serious injury.

Be sure lug nuts are tight before each tow.

#### 1.2.9. **IMPROPER LOADING**

The total weight of the load you put in or on the trailer, plus the empty weight of the trailer itself, must not exceed the trailer's Gross Vehicle Weight Rating (GVWR). If you do not know the empty weight of the trailer plus the cargo weight, you must weigh the loaded trailer at a commercial scale. In addition, you must distribute the load in the trailer such that the load on any axle does not exceed the Gross Axle Weight Rating

## General Safety Information

(GAWR). If your trailer is equipped with a Tire & Loading Information Placard, mounted next to the Certification / VIN label, the cargo capacity weight stated on that placard is only a close estimate. The GVWR and GAWR's are listed on the Certification / VIN label mounted on the front left side of the trailer.

### Warning

An overloaded trailer can result in loss of control of the trailer, leading to death or serious injury.

Do not exceed the trailer Gross Vehicle Weight Rating (GVWR) or an axle Gross Axle Weight Rating (GAWR).

Do not load a trailer so that the weight on any tire exceeds its rating.

#### 1.2.10. UNSAFE LOAD DISTRIBUTION

Improper front / rear load distribution can lead to poor trailer sway stability or poor tow vehicle handling. Poor trailer sway stability results from tongue weights that are too low, and poor tow vehicle stability results from tongue weights that are too high. Refer to Chapter heading "Loading the Trailer" for more information.

In the table below, the second column shows the rule of thumb percentage of total weight of the trailer plus its cargo (Gross Trailer Weight, or "GTW") that should appear on the tongue of the trailer. For example, a trailer with a gooseneck hitch, with a loaded weight of 12,000 pounds, should have 20-25% of 12,000 pounds (2400-3000 lbs.) on the gooseneck. A dump trailer will have the proper weight distribution if the load is **evenly distributed** in the dump bed. For non-flowable (discrete) loads locate the load such as to provide the proper tongue weight.

After loading, be sure to check that none of the axles are overloaded.

Tongue Weight as a Percentage of Loaded Trailer Weight	
Type of Hitch	Percentage
Pintle Hitch (or Bumper Hitch)	10–15% for large trailers 6-10% for smaller utility
Gooseneck Hitch	20–25%
Fifth Wheel Hitch	

The numbers quoted above are for example purposes only and should be tailored to the specific trailer. For questions regarding the actual percent of tongue weight for the trailer, check with the manufacturer for specifics.

Uneven left / right load distribution can cause tire, wheel, axle or structural failure. Be sure your trailer is evenly loaded left / right. Towing stability also depends on keeping the center of gravity as low as possible.

## General Safety Information

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### Warning

Improper tongue weight (load distribution) can result in loss of control of the trailer, leading to death or serious injury.

Make certain that tongue weight is within the allowable range.

Be sure to:

Distribute the load front-to-rear to provide proper tongue weight (see chart).  
For dump trailers a flowable load should be evenly distributed throughout the bed.

Distribute the load evenly, right and left.

Keep the center of gravity low.

#### **1.2.11. SHIFTING CARGO**

Since the trailer “ride” can be bumpy and rough, you must secure your cargo so that it does not shift while the trailer is being towed.

### Warning

Shifting cargo can result in loss of control of the trailer, and can lead to death or serious injury.

Tie down all loads with proper sized fasteners, ropes, straps, etc.

#### **1.2.12. INOPERABLE BRAKES, LIGHTS OR MIRRORS**

Be sure that the electric brakes and all of the lights on your trailer are functioning properly before towing your trailer. Electric brakes and lights on a trailer are controlled via a connection to the tow vehicle, generally a multi-pin electrical connector. Check the trailer tail lights by turning on your tow vehicle headlights. Check the trailer brake lights by having someone step on the tow vehicle brake pedal while you look at trailer lights. Do the same thing to check the turn signal lights.

If your trailer has electric brakes, your tow vehicle will have an electric brake controller that sends power to the trailer brakes. Before towing the trailer on the road, you must operate the brake controller while trying to pull the trailer in order to confirm that the electric brakes operate. While towing the trailer at less than 5 mph, manually operate the electric brake controller in the tow vehicle cab. You should feel the operation of the trailer brakes.

## General Safety Information

### Warning

Improper electrical connection between the tow vehicle and the trailer will result in inoperable lights and electric brakes, and can lead to collision.

Before each tow:

Check that the taillights, brake lights and turn signals work

Check that the electric brakes work by operating the brake controller inside the tow vehicle

Standard mirrors usually do not provide adequate visibility for viewing traffic to the sides and rear a towed trailer. You must provide mirrors that allow you to safely observe approaching traffic.

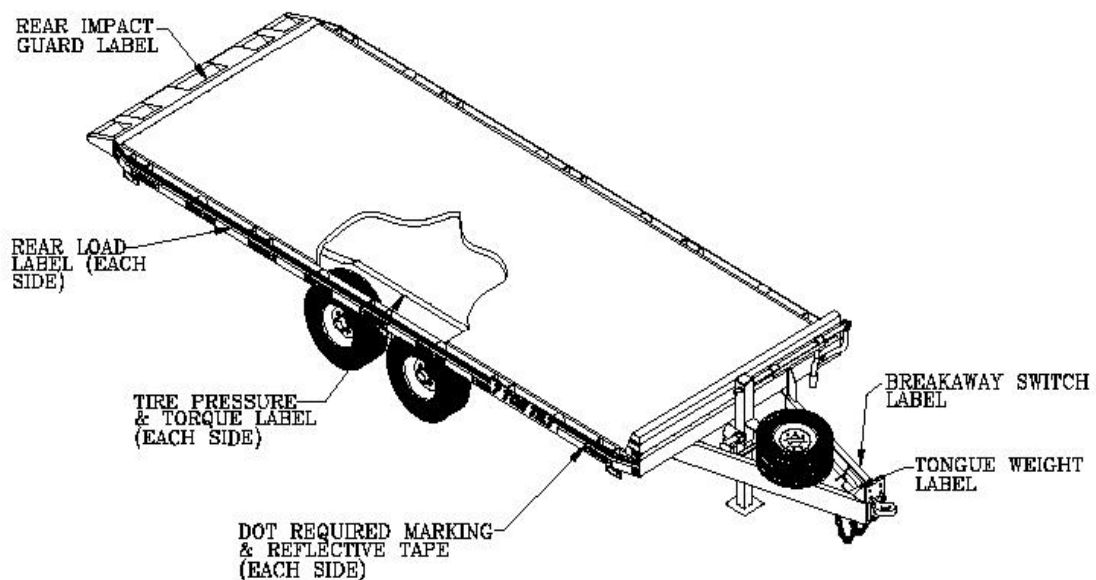
#### 1.2.13. HAZARDS FROM MODIFYING YOUR TRAILER

Essential safety items can be damaged by altering your trailer.

Before making any alteration to your trailer, contact your dealer or **Econline Trailers, Inc. Error! Reference source not found. at 1-800-624-1866** and describe the alteration you are contemplating. Alteration of the trailer structure or modification of mechanical, electrical or other systems on your trailer must be performed only by qualified technicians who are familiar with the system as installed on your trailer.

#### 1.2.14. SAFETY WARNING LABELS ON YOUR TRAILER

**Figure: 1-1 Warning Labels and Locations**



### Warning

To protect you and others against death or serious injury, all of the labels shown above must be on the trailer and must be legible.

If any of these labels are missing or cannot be read, call **Econoline Trailers, Inc. at 1-800-624-1866** for free replacement labels.

You will need to provide us with the number shown at the bottom of the label(s) in order for us to send the correct one(s).

#### **1.2.15. TRAILER TOWING GUIDE**

Driving a vehicle with a trailer in tow is vastly different from driving the same vehicle without a trailer in tow. Acceleration, maneuverability and braking are all diminished with a trailer in tow. It takes longer to get up to speed; you need more room to turn and pass, and more distance to stop when towing a trailer. You will need to spend time adjusting to the different feel and maneuverability of the tow vehicle with a loaded trailer. Because of the significant differences in all aspects of maneuverability when towing a trailer, the hazards and risks of injury are also much greater than when driving without a trailer. You are responsible for keeping your vehicle and trailer in control, and for all the damage that is caused if you lose control of your vehicle and trailer.

As you did when learning to drive an automobile, find an open area with little or no traffic for your first practice trailering. Of course, before you start towing the trailer, you must follow all of the instructions for inspection, testing, loading and coupling. Also, before you start towing, adjust the mirrors so you can see the trailer as well as the area to the rear of it.

Drive slowly at first, 5 mph or so, and turn the wheel to get the feel of how the tow vehicle and trailer combination responds. Next, make some right and left hand turns. Watch in your side mirrors to see how the trailer follows the tow vehicle. Turning with a trailer attached requires more room.

Stop the rig a few times from speeds no greater than 10 mph. If your trailer is equipped with brakes, try using different combinations of trailer/electric brake and tow vehicle brake. Note the effect that the trailer brakes have when they are the only brakes used. When properly adjusted, the trailer brakes will come on just before the tow vehicle brakes.

It will take practice to learn how to back up a tow vehicle with a trailer attached. Take it slow. Before backing up, get out of the tow vehicle and look behind the trailer to make sure that there are no obstacles. Some drivers place their hands at the bottom of the steering wheel, and while the tow vehicle is in reverse, “think” of the hands as being on the top of the wheel. When the hands move to the right (counter-clockwise, as you would do to turn the tow vehicle to the left when moving forward), the rear of the trailer moves to the right. Conversely, rotating the steering wheel clockwise with your hands at the bottom of the wheel will move the rear of the trailer to the left, while backing up. If you are towing a bumper hitch rig, be careful not to allow the trailer to turn too much, because it will hit the rear of the tow vehicle. To straighten the rig, either pull forward, or turn the steering wheel in the opposite direction.

## General Safety Information

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### **1.2.16. REPORTING SAFETY DEFECTS**

If you believe that your vehicle has a defect that could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying **Econoline Trailers, Inc.**

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or **Econoline Trailers, Inc.**

To contact NHTSA, you may either call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153), go to <http://www.safercar.gov>; or write to: Administrator, NHTSA, 1200 New Jersey Ave. SE., Washington, DC 20590. You can also obtain other information about motor vehicle safety from <http://www.safercar.gov>.

**Call 1-800-624-1866 to reach Econoline Trailers, Inc.**

## Tire Safety Information

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### 1.3. **SAFE TRAILER TOWING GUIDELINES**

- ⊗ Recheck the load tie downs to make sure the load will not shift during towing.
- ⊗ Before towing, check coupling, safety chain, safety brake, tires, wheels and lights.
- ⊗ Check the lug nuts or bolts for tightness.
- ⊗ Check coupler tightness after towing 50 miles.
- ⊗ Adjust the brake controller to engage the trailer brakes before the tow vehicle brakes. Follow the instructions given with the brake controller manufacturer's literature.
- ⊗ Use your mirrors to verify that you have room to change lanes or pull into traffic.
- ⊗ Use your turn signals well in advance.
- ⊗ Allow plenty of stopping space for your trailer and tow vehicle.
- ⊗ Do not drive so fast that the trailer begins to sway due to speed. Generally never drive faster than 60 m.p.h.
- ⊗ Allow plenty of room for passing. A rule of thumb is that the passing distance with a trailer is 4 times the passing distance without a trailer.
- ⊗ Shift your automatic transmission into a lower gear for city driving.
- ⊗ Use lower gears for climbing and descending grades.
- ⊗ Do not ride the brakes while descending grades; they may get so hot that they stop working. Then you will potentially have a runaway tow vehicle and trailer.
- ⊗ To conserve fuel, don't use full throttle to climb a hill. Instead, build speed on the approach.
- ⊗ Slow down for bumps in the road. Take your foot off the brake when crossing the bump.
- ⊗ Do not brake while in a curve unless absolutely necessary. Instead, slow down before you enter the curve.
- ⊗ Do not apply the tow vehicle brakes to correct extreme trailer swaying. Instead, lightly apply the trailer brakes with the hand controller.
- ⊗ Make regular stops, about once each hour. Confirm that:
  - ⊗ The coupler is secure to the hitch and is locked,
  - ⊗ Electrical connectors are made,
  - ⊗ There is appropriate slack in the safety chains,
  - ⊗ There is appropriate slack in the breakaway switch pullpin cable,
  - ⊗ The tires are not visibly low on pressure, and
  - ⊗ The cargo is secure and in good condition.



## 2. TIRE SAFETY INFORMATION

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This portion of the User's Manual contains tire safety information as required by 49 CFR 575.6.

Section 2.1 contains "Steps for Determining Correct Load Limit - Trailer".

Section 2.2 contains "Steps for Determining Correct Load Limit – Tow Vehicle".

Section 2.3 contains a Glossary of Tire Terminology, including "cold inflation pressure", "maximum inflation pressure", "recommended inflation pressure", and other non-technical terms.

Section 2.4 contains information from the NHTSA brochure entitled "Tire Safety – Everything Rides On It". This brochure describes the following items;

- Tire labeling, including a description and explanation of each marking on the tires, and information about the DOT Tire Identification Number (TIN).
- Recommended tire inflation pressure, including a description and explanation of:
  - A. Cold inflation pressure.
  - B. Vehicle Placard and location on the vehicle.
  - C. Adverse safety consequences of under inflation (including tire failure).
  - D. Measuring and adjusting air pressure for proper inflation.
- Tire Care, including maintenance and safety practices.
- Vehicle load limits, including a description and explanation of the following items:
  - A. Locating and understanding the load limit information, total load capacity, and cargo capacity.
  - B. Calculating total and cargo capacities with varying seating configurations including quantitative examples showing / illustrating how the vehicles cargo and luggage capacity decreases as combined number and size of occupants' increases. This item is also discussed in Section 3.
  - C. Determining compatibility of tire and vehicle load capabilities.
  - D. Adverse safety consequences of overloading on handling and stopping on tires.

### 2.1. STEPS FOR DETERMINING CORRECT LOAD LIMIT – TRAILER

#### 2.1.1. TRAILERS OVER 10,000 POUNDS GVWR (NOTE: THESE TRAILERS ARE NOT REQUIRED TO HAVE A TIRE INFORMATION PLACARD ON THE VEHICLE)

1. Determine the empty weight of your trailer by weighing the trailer using a public scale or other means. This step does not have to be repeated.
2. Locate the GVWR (Gross Vehicle Weight Rating) of the trailer on your trailer's VIN (Certification) label.
3. Subtract the empty weight of your trailer from the GVWR stated on the VIN label. That weight is the maximum available cargo capacity of the trailer and may not be safely exceeded.

### 2.2. STEPS FOR DETERMINING CORRECT LOAD LIMIT – TOW VEHICLE

1. Locate the statement, "The combined weight of occupants and cargo should never exceed XXX lbs.," on your vehicle's placard.
2. Determine the combined weight of the driver and passengers who will be riding in your vehicle.
3. Subtract the combined weight of the driver and passengers from XXX kilograms or XXX pounds.
4. The resulting figure equals the available amount of cargo and luggage capacity. For example, if the "XXX" amount equals 1400 lbs. and there will be five 150 lb. passengers in your vehicle, the amount of available cargo and luggage capacity is 650 lbs. (1400-750 (5 x 150) = 650 lbs.).
5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage capacity calculated in Step # 4.
6. If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult the tow vehicle's manual to determine how this weight transfer reduces the available cargo and luggage capacity of your vehicle.

### 2.3. GLOSSARY OF TIRE TERMINOLOGY

#### ***Accessory weight***

The combined weight (in excess of those standard items which may be replaced) of automatic transmission, power steering, power brakes, power windows, power seats, radio and heater, to the extent that these items are available as factory-installed equipment (whether installed or not).

#### ***Bead***

The part of the tire that is made of steel wires, wrapped or reinforced by ply cords and that is shaped to fit the rim.

#### ***Bead separation***

This is the breakdown of the bond between components in the bead.

#### ***Bias ply tire***

A pneumatic tire in which the ply cords that extend to the beads are laid at alternate angles substantially less than 90 degrees to the centerline of the tread.

#### ***Carcass***

The tire structure, except tread and sidewall rubber which, when inflated, bears the load.

#### ***Chunking***

The breaking away of pieces of the tread or sidewall.

#### ***Cold inflation pressure***

The pressure in the tire before you drive.

#### ***Cord***

The strands forming the plies in the tire.

#### ***Cord separation***

The parting of cords from adjacent rubber compounds.

#### ***Cracking***

Any parting within the tread, sidewall, or inner liner of the tire extending to cord material.

#### ***CT***

A pneumatic tire with an inverted flange tire and rim system in which the rim is designed with rim flanges pointed radially inward and the tire is designed to fit on the underside of the rim in a manner that encloses the rim flanges inside the air cavity of the tire.

#### ***Curb weight***

The weight of a motor vehicle with standard equipment including the maximum capacity of fuel, oil, and coolant, and, if so equipped, air conditioning and additional weight optional engine.

#### ***Extra load tire***

A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

#### ***Groove***

The space between two adjacent tread ribs.

#### ***Innerliner***

The layer(s) forming the inside surface of a tubeless tire that contains the inflating medium within the tire.

#### ***Innerliner separation***

The parting of the innerliner from cord material in the carcass.

## General Safety Information

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### ***Intended outboard sidewall***

The sidewall that contains a white-wall, bears white lettering or bears manufacturer, brand, and/or model name molding that is higher or deeper than the same molding on the other sidewall of the tire or the outward facing sidewall of an asymmetrical tire that has a particular side that must always face outward when mounted on a vehicle.

### ***Light truck (LT) tire***

A tire designated by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles.

### ***Load rating***

The maximum load that a tire is rated to carry for a given inflation pressure.

### ***Maximum load rating***

The load rating for a tire at the maximum permissible inflation pressure for that tire.

### ***Maximum permissible inflation pressure***

The maximum cold inflation pressure to which a tire may be inflated.

### ***Maximum loaded vehicle weight***

The sum of curb weight, accessory weight, vehicle capacity weight, and production options weight.

### ***Measuring rim***

The rim on which a tire is fitted for physical dimension requirements.

### ***Non-pneumatic rim***

A mechanical device which, when a non-pneumatic tire assembly incorporates a wheel, supports the tire, and attaches, either integrally or separably, to the wheel center member and upon which the tire is attached.

### ***Non-pneumatic spare tire assembly***

A non-pneumatic tire assembly intended for temporary use in place of one of the pneumatic tires and rims that are fitted to a passenger car in compliance with the requirements of this standard.

### ***Non-pneumatic tire***

A mechanical device which transmits, either directly or through a wheel or wheel center member, the vertical load and tractive forces from the roadway to the vehicle, generates the tractive forces that provide the directional control of the vehicle and does not rely on the containment of any gas or fluid for providing those functions.

### ***Non-pneumatic tire assembly***

A non-pneumatic tire, alone or in combination with a wheel or wheel center member, which can be mounted on a vehicle.

### ***Normal occupant weight***

This means 68 kilograms (150 lbs.) times the number of occupants specified in the second column of Table I of 49 CFR 571.110.

### ***Occupant distribution***

The distribution of occupants in a vehicle as specified in the third column of Table I of 49 CFR 571.110.

### ***Open splice***

Any parting at any junction of tread, sidewall, or innerliner that extends to cord material.

### ***Outer diameter***

The overall diameter of an inflated new tire.

### ***Overall width***

The linear distance between the exteriors of the sidewalls of an inflated tire, including elevations due to labeling, decorations, or protective bands or ribs.

## General Safety Information

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### **Ply**

A layer of rubber-coated parallel cords.

### **Ply separation**

A parting of rubber compound between adjacent plies.

### **Pneumatic tire**

A mechanical device made of rubber, chemicals, fabric and steel or other materials, that, when mounted on an automotive wheel, provides the traction and contains the gas or fluid that sustains the load.

### **Production options weight**

The combined weight of those installed regular production options weighing over 2.3 kilograms (5 lbs.) in excess of those standard items which they replace, not previously considered in curb weight or accessory weight, including heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.

### **Radial ply tire**

A pneumatic tire in which the ply cords that extend to the beads are laid at substantially 90 degrees to the centerline of the tread.

### **Recommended inflation pressure**

This is the inflation pressure provided by the vehicle manufacturer on the Tire Information label and on the Certification / VIN tag.

### **Reinforced tire**

A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

### **Rim**

A metal support for a tire or a tire and tube assembly upon which the tire beads are seated.

### **Rim diameter**

This means the nominal diameter of the bead seat.

### **Rim size designation**

This means the rim diameter and width.

### **Rim type designation**

This means the industry of manufacturer's designation for a rim by style or code.

### **Rim width**

This means the nominal distance between rim flanges.

### **Section width**

The linear distance between the exteriors of the sidewalls of an inflated tire, excluding elevations due to labeling, decoration, or protective bands.

### **Sidewall**

That portion of a tire between the tread and bead.

### **Sidewall separation**

The parting of the rubber compound from the cord material in the sidewall.

### **Special Trailer (ST) tire**

The "ST" is an indication the tire is for trailer use only.

### **Test rim**

The rim on which a tire is fitted for testing, and may be any rim listed as appropriate for use with that tire.

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### **Tread**

That portion of a tire that comes into contact with the road.

### **Tread rib**

A tread section running circumferentially around a tire.

### **Tread separation**

Pulling away of the tread from the tire carcass.

### **Treadwear indicators (TWI)**

The projections within the principal grooves designed to give a visual indication of the degrees of wear of the tread.

### **Vehicle capacity weight**

The rated cargo and luggage load plus 68 kilograms (150 lbs.) times the vehicle's designated seating capacity.

### **Vehicle maximum load on the tire**

The load on an individual tire that is determined by distributing to each axle its share of the maximum loaded vehicle weight and dividing by two.

### **Vehicle normal load on the tire**

The load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and normal occupant weight (distributed in accordance with Table I of CRF 49 571.110) and dividing by 2.

### **Weather side**

The surface area of the rim not covered by the inflated tire.

### **Wheel center member**

In the case of a non-pneumatic tire assembly incorporating a wheel, a mechanical device which attaches, either integrally or separably, to the non-pneumatic rim and provides the connection between the non-pneumatic rim and the vehicle; or, in the case of a non-pneumatic tire assembly not incorporating a wheel, a mechanical device which attaches, either integrally or separably, to the non-pneumatic tire and provides the connection between tire and the vehicle.

### **Wheel-holding fixture**

The fixture used to hold the wheel and tire assembly securely during testing.

## **2.4. TIRE SAFETY - EVERYTHING RIDES ON IT**

The National Traffic Safety Administration (NHTSA) has published a brochure (DOT HS 809 361) that discusses all aspects of Tire Safety, as required by CFR 575.6. This brochure is reproduced in part below. It can be obtained and downloaded from NHTSA, free of charge, from the following web site:

[http://www.nhtsa.dot.gov/cars/rules/TireSafety/ridesonit/tires\\_index.html](http://www.nhtsa.dot.gov/cars/rules/TireSafety/ridesonit/tires_index.html)

Studies of tire safety show that maintaining proper tire pressure, observing tire and vehicle load limits (not carrying more weight in your vehicle than your tires or vehicle can safely handle), avoiding road hazards, and inspecting tires for cuts, slashes, and other irregularities are the most important things you can do to avoid tire failure, such as tread separation or blowout and flat tires. These actions, along with other care and maintenance activities, can also:

- Improve vehicle handling
- Help protect you and others from avoidable breakdowns and accidents
- Improve fuel economy
- Increase the life of your tires.

## General Safety Information

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This booklet presents a comprehensive overview of tire safety, including information on the following topics:

- Basic tire maintenance
- Uniform Tire Quality Grading System
- Fundamental characteristics of tires
- Tire safety tips.

Use this information to make tire safety a regular part of your vehicle maintenance routine. Recognize that the time you spend is minimal compared with the inconvenience and safety consequences of a flat tire or other tire failure.

### **2.4.1. SAFETY FIRST—BASIC TIRE MAINTENANCE**

Properly maintained tires improve the steering, stopping, traction, and load-carrying capability of your vehicle. Underinflated tires and overloaded vehicles are a major cause of tire failure. Therefore, as mentioned above, to avoid flat tires and other types of tire failure, you should maintain proper tire pressure, observe tire and vehicle load limits, avoid road hazards, and regularly inspect your tires.

### **2.4.2. FINDING YOUR VEHICLE'S RECOMMENDED TIRE PRESSURE AND LOAD LIMITS**

Tire information placards and vehicle certification labels contain information on tires and load limits. These labels indicate the vehicle manufacturer's information including:

- Recommended tire size
- Recommended tire inflation pressure
- Vehicle capacity weight (VCW—the maximum occupant and cargo weight a vehicle is designed to carry)
- Front and rear gross axle weight ratings (GAWR—the maximum weight the axle systems are designed to carry).

Both placards and certification labels are permanently attached to the trailer near the left front.

### **2.4.3. UNDERSTANDING TIRE PRESSURE AND LOAD LIMITS**

Tire inflation pressure is the level of air in the tire that provides it with load-carrying capacity and affects the overall performance of the vehicle. The tire inflation pressure is a number that indicates the amount of air pressure—measured in pounds per square inch (psi)—a tire requires to be properly inflated. (You will also find this number on the vehicle information placard expressed in kilopascals (kPa), which is the metric measure used internationally.)

Manufacturers of passenger vehicles and light trucks determine this number based on the vehicle's design load limit, that is, the greatest amount of weight a vehicle can safely carry and the vehicle's tire size. The proper tire pressure for your vehicle is referred to as the "recommended cold inflation pressure." (As you will read below, it is difficult to obtain the recommended tire pressure if your tires are not cold.)

Because tires are designed to be used on more than one type of vehicle, tire manufacturers list the "maximum permissible inflation pressure" on the tire sidewall. This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

### **2.4.4. CHECKING TIRE PRESSURE**

It is important to check your vehicle's tire pressure at least once a month for the following reasons:

- Most tires may naturally lose air over time.
- Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb when parking.
- With radial tires, it is usually not possible to determine under inflation by visual inspection.

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For convenience, purchase a tire pressure gauge to keep in your vehicle. Gauges can be purchased at tire dealerships, auto supply stores, and other retail outlets.

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold. The term cold does not relate to the outside temperature. Rather, a cold tire is one that has not been driven on for at least three hours. When you drive, your tires get warmer, causing the air pressure within them to increase. Therefore, to get an accurate tire pressure reading, you must measure tire pressure when the tires are cold or compensate for the extra pressure in warm tires.

### **2.4.5. STEPS FOR MAINTAINING PROPER TIRE PRESSURE**

- Step 1: Locate the recommended tire pressure on the vehicle's tire information placard, certification label, or in the owner's manual.
- Step 2: Record the tire pressure of all tires.
- Step 3: If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get to the correct pressure.
- Step 4: If the tire pressure is too low, note the difference between the measured tire pressure and the correct tire pressure. These "missing" pounds of pressure are what you will need to add.
- Step 5: At a service station, add the missing pounds of air pressure to each tire that is underinflated.
- Step 6: Check all the tires to make sure they have the same air pressure (except in cases in which the front and rear tires are supposed to have different amounts of pressure).

If you have been driving your vehicle and think that a tire is underinflated, fill it to the recommended cold inflation pressure indicated on your vehicle's tire information placard or certification label. While your tire may still be slightly underinflated due to the extra pounds of pressure in the warm tire, it is safer to drive with air pressure that is slightly lower than the vehicle manufacturer's recommended cold inflation pressure than to drive with a significantly underinflated tire. Since this is a temporary fix, don't forget to recheck and adjust the tire's pressure when you can obtain a cold reading.

### **2.4.6. TIRE SIZE**

To maintain tire safety, purchase new tires that are the same size as the vehicle's original tires or another size recommended by the manufacturer. Look at the tire information placard, the owner's manual, or the sidewall of the tire you are replacing to find this information. If you have any doubt about the correct size to choose, consult with the tire dealer.

### **2.4.7. TIRE TREAD**

The tire tread provides the gripping action and traction that prevent your vehicle from slipping or sliding, especially when the road is wet or icy. In general, tires are not safe and should be replaced when the tread is worn down to 1/16 of an inch. Tires have built-in treadwear indicators that let you know when it is time to replace your tires. These indicators are raised sections spaced intermittently in the bottom of the tread grooves. When they appear "even" with the outside of the tread, it is time to replace your tires. Another method for checking tread depth is to place a penny in the tread with Lincoln's head upside down and facing you. If you can see the top of Lincoln's head, you are ready for new tires.

### **2.4.8. TIRE BALANCE AND WHEEL ALIGNMENT**

To avoid vibration or shaking of the vehicle when a tire rotates, the tire must be properly balanced. This balance is achieved by positioning weights on the wheel to counterbalance heavy spots on the wheel-and-tire assembly. A wheel alignment adjusts the angles of the wheels so that they are positioned correctly relative to





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### **Next number**

This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

### **Next number**

This two- or three-digit number is the tire's load index. It is a measurement of how much weight each tire can support. You may find this information in your owner's manual. If not, contact a local tire dealer. Note: You may not find this information on all tires because it is not required by law.

### **M+S**

The "M+S" or "M/S" indicates that the tire has some mud and snow capability. Most radial tires have these markings; hence, they have some mud and snow capability.

### **U.S. DOT Tire Identification Number**

This begins with the letters "DOT" and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was built. For example, the numbers 3197 means the 31st week of 1997. The other numbers are marketing codes used at the manufacturer's discretion. This information is used to contact consumers if a tire defect requires a recall.

### **Tire Ply Composition and Materials Used**

The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

### **Maximum Load Rating**

This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

### **Maximum Permissible Inflation Pressure**

This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

#### 2.4.10.2. UTQGS Information

### **Treadwear Number**

This number indicates the tire's wear rate. The higher the tread wear number is, the longer it should take for the tread to wear down. For example, a tire graded 400 should last twice as long as a tire graded 200.

### **Traction Letter**

This letter indicates a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA", "A", "B", and "C".

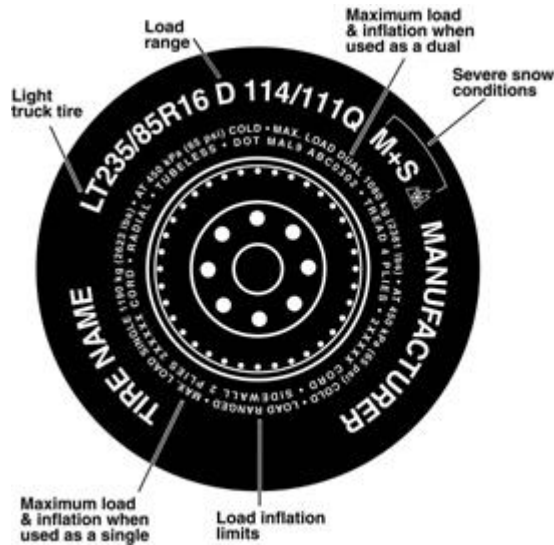
### **Temperature Letter**

This letter indicates a tire's resistance to heat. The temperature grade is for a tire that is inflated properly and not overloaded. Excessive speed, under inflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

#### 2.4.10.3. Additional Information on Light Truck Tires

Please refer to the following diagram.

# General Safety Information



Tires for light trucks have other markings besides those found on the sidewalls of passenger tires.

## LT

The "LT" indicates the tire is for light trucks or trailers.

## ST

An "ST" is an indication the tire is for trailer use only.

### Max. Load Dual kg (lbs) at kPa (psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a dual, that is, when four tires are put on each rear axle (a total of six or more tires on the vehicle).

### Max. Load Single kg (lbs) at kPa (psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a single.

### Load Range

This information identifies the tire's load-carrying capabilities and its inflation limits.

#### 2.4.11. TIRE SAFETY TIPS

#### **Preventing Tire Damage**

- Slow down if you have to go over a pothole or other object in the road.
- Do not run over curbs or other foreign objects in the roadway, and try not to strike the curb when parking.

#### Tire Safety Checklist

- Check tire pressure regularly (at least once a month), including the spare.
- Inspect tires for uneven wear patterns on the tread, cracks, foreign objects, or other signs of wear or trauma.
- Remove bits of glass and foreign objects wedged in the tread.
- Make sure your tire valves have valve caps.
- Check tire pressure before going on a long trip.
- Do not overload your vehicle. Check the Tire Information and Loading Placard or User's Manual for the maximum recommended load for the vehicle.

### 3. COUPLING TO THE TOW VEHICLE

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Follow all of the safety precautions and instructions in this manual to ensure safety of persons, cargo, and satisfactory life of the trailer.

#### 3.1. USE AN ADEQUATE TOW VEHICLE AND HITCH

If the vehicle or hitch is not properly selected and matched to the Gross Vehicle Weight Rating (GVWR) of your trailer, you can cause an accident that could lead to death or serious injury. If you already have a tow vehicle, know your vehicle tow rating, and Gross Combination Weight Rating (GCWR) and make certain the trailer's rated capacity is less than or equal to the tow vehicle's rated towing capacity. If you already have (or plan to buy) a trailer, make certain that the tow rating of the tow vehicle is equal to or greater than the GVWR of the trailer, and that the GCWR will be within limits.

#### **Danger**

Use of a hitch with a load rating less than the load rating of the trailer can result in loss of control and may lead to death or serious injury.

Use of a tow vehicle with a towing capacity less than the load rating of the trailer can result in loss of control, and may lead to death or serious injury.

Be sure your hitch and tow vehicle are rated for the Gross Vehicle Weight Rating of your trailer.

## Checking the Trailer Before & During Each Tow

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3.1.1.1. Certification / VIN tag contains the following critical safety information for the use of your trailer:

**MANUFACTURER:** Name of trailer manufacturer

**DATE OF MANUFACTURE:** Month and year the trailer was manufactured.

**GVWR:** The Gross Vehicle Weight Rating is the maximum allowable gross weight of the trailer and its contents. The gross weight of the trailer includes the weight of the trailer and all of the items within it (such as cargo, water, food and other supplies).

**GAWR:** The Gross Axle Weight Rating is the maximum gross weight that an axle can support. It is the lowest of axle, wheel, or tire rating. Sometimes the tire or wheel rating is lower than the axle manufacturers rating, and will then determine GAWR.

The sum total of the GAWR for all trailer axles may be less than the GVWR for the trailer, because some of the trailer load is carried by the tow vehicle, rather than by the trailer axle(s). The total weight of the cargo and trailer must not exceed the GVWR, and the load on an axle must not exceed its GAWR.

**TIRE SIZE:** The tire size recommended for your trailer and load range.

**PSIC:** The “pounds per square inch- cold” is the tire pressure (Kilopascals / Pounds per Square Inch) measured when Cold.

**CERTIFICATION STATEMENT:** “This trailer meets all the Federal Motor Vehicle Safety Standards in effect on the date of manufacture shown above”.

**VIN:** The Vehicle Identification Number.

**VEHICLE TYPE:** Generally the word “trailer” is used. However, after this you may put a Model #, or additional descriptor.

3.1.1.2. Definitions

**Tow Vehicle:** When equipping a new vehicle or an older vehicle to tow your trailer, ask the vehicle dealer for advice on how to outfit the towing vehicle. Discuss the following information and equipment with the vehicle dealer.

**Overall Carrying and Towing Capacity of Vehicle:** Vehicle manufacturers will provide you with the maximum towing capacities of their various models, as well as the GCWR. No amount of reinforcement will give a 100 horsepower, 2,500 pound truck the towing capacity that a 300 horsepower, 5,000 pound truck has.

**Towing Hitch:** The towing hitch attached to your tow vehicle must have a capacity equal to or greater than the load rating of the trailer you intend to tow. The hitch capacity must also be matched to the tow vehicle capacity.

**Suspension System:** A tow vehicle equipped with a factory installed “Towing Package” likely comes equipped with heavy duty springs, heavy duty tires and other suspension components which are able to serve the size and weight of the trailer that the vehicle is rated to tow. However, the addition of additional equipment may further improve the tow vehicle performance. These may include adjustable air shocks, helper springs, etc.

## Checking the Trailer Before & During Each Tow

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**Brake Controller:** The brake controller is part of the tow vehicle and is essential in the operation of the electric brakes on the trailer. If your trailer has electric brakes it requires a brake controller be installed at the driver's position. The brake controller is not the same as the safety breakaway brake system that is installed on the trailer.

**Side View Mirrors:** The size of the trailer that is being towed and your state law regulations determine the size of the mirrors. However, some states prohibit extended mirrors on a tow vehicle, except while a trailer is actually being towed. In this situation, detachable extended mirrors are necessary. Check with your dealer or the appropriate state agency for mirror requirements.

**Heavy Duty Flasher:** A Heavy Duty Flasher is an electrical component that may be required when your trailer turn signal lights are attached to the tow vehicle flasher circuit.

**Electrical Connector:** An Electrical Connector connects the light and brake systems on the trailer to the light and brake controls on the towing vehicle.

**Heavy Duty Engine Oil Cooling System:** The tow vehicle engine works harder when a trailer is being towed. Depending on the size of the trailer, you may need to install a separate engine oil cooler. Inadequate cooling may result in sudden engine failure. Ask the tow vehicle dealer if it is necessary to install a heavy duty cooling system.

**Automatic Transmission Oil Cooler:** The automatic transmission of a towing vehicle handles more power when a trailer is being towed. Inadequate cooling will shorten transmission life, and may result in sudden transmission failure. Ask the tow vehicle dealer if it is necessary to install a separate oil cooler for the automatic transmission.

**Fire Extinguisher:** It is sensible to have a fire extinguisher in the tow vehicle.

**Emergency Flares and Emergency Triangle Reflectors:** It is wise to carry these warning devices even if you are not towing a trailer. It is particularly important to have these when towing a trailer because the hazard flashers of your towing vehicle will not operate for as long a period of time when the battery is running both the trailer lights and tow vehicle lights.

### 3.2. COUPLING AND UNCOUPLING THE TRAILER

A secure coupling (or fastening) of the trailer to the tow vehicle is essential. A loss of coupling may result in death or serious injury. Therefore, you must understand and follow all of the instructions for coupling.

The following parts are involved in making a secure coupling between the trailer and tow vehicle:

**Coupling:** That part of the trailer connecting mechanism by which the connection is actually made to the trailer hitch. This does not include any structural member, extension of the trailer frame, or brake controller.

**Hitch:** That part of the connecting mechanism including the ball support platform and ball and those components that extend and are attached to the towing vehicle, including bumpers intended to serve as hitches.)

**Weight Distributing Hitch (or Equalizing Hitch):** A mechanical device that connects the trailer to the towing vehicle and by means of leverage applied on both the trailer and towing vehicle structures, when properly adjusted, distributes the imposed vertical load at the hitch and coupling connection between structures of the towing vehicle and trailer.

## Checking the Trailer Before & During Each Tow

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**Weight Carrying Hitch:** A mechanical and/or structural device that connects the trailer to the towing vehicle and that does not employ features designed to redistribute the load imposed at the hitch and carrying connection.

**Safety chains or cables:** Chains or cables permanently attached to the trailer such that if the coupler connection comes loose, the safety chains or cables can keep the trailer attached to the tow vehicle. With properly rigged safety chains or cables, it is possible to keep the tongue of the trailer from digging into the road pavement, even if the coupler-to-hitch connection comes apart. Some states do not allow safety cables, e.g. Pennsylvania; therefore it may be wise to check with the State Police to see if your state has any restrictions on the use of safety cables, if your trailer is so equipped.

**Trailer lighting (and braking) connector:** A device that connects electrical power from the tow vehicle to the trailer. Electricity is used to turn on brake lights, running lights, and turn signals as required. In addition, if your trailer has a separate braking system, the electrical connector will also supply power to the trailer brakes from the tow vehicle.

**Breakaway switch:** If the trailer becomes de-coupled from the towing vehicle, the breakaway switch lanyard, attached independently to the tow vehicle hitch, will pull a pin in the emergency electrical break-away switch on the trailer. The breakaway switch is activated by a separate battery supply in the trailer such as to energize the trailer brakes independently of the towing vehicle. It is important to check the state of charge of the emergency break-away battery before each trip. Simply pull the pin out of the switch by hand and then try to pull the trailer. If you feel a significant drag force the brakes are activated. Be sure to re-insert the pin in the break-away switch. Also be sure to allow enough slack in the break-away brake lanyard such that the switch will only activate (pin pulls out) if the coupler connection comes loose. For additional details refer to Section 0

**Jack:** A device on the trailer that is used to raise and lower the trailer tongue. On larger trailers the jack is sometimes called the "landing gear."

### Warning

An improperly coupled trailer can result in death or serious injury.

Do not move the trailer until:

The coupler is secured and locked to hitch;

The safety chains are secured to the tow vehicle; and

The trailer jack(s) are fully retracted.

Do not tow the trailer on the road until:

Tires and wheels are checked;

The trailer brakes are checked;

The breakaway switch is connected to the tow vehicle, and the break-away battery is checked.

The load is secured to the trailer; and

The trailer lights are connected and checked.

## Checking the Trailer Before & During Each Tow

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### 3.2.1. VARIOUS COUPLER DESIGNS

Trailers are produced with a variety of coupler devices. One of the sections below will pertain to your trailer.

- Pintle Ring Coupler (Lunette Eye coupler)
- Gooseneck Hitch Coupler
- Fifth Wheel Coupler

### 3.2.2. TRAILER WITH PINTLE-HITCH COUPLER

A pintle-ring coupler (also known as a “Lunette Eye” coupler) connects to a pintle hitch that is located on or under the rear bumper of tow vehicle. This system of coupling a trailer to a tow vehicle is sometimes referred to as “bumper pull.”

A pintle-ring trailer may be fitted with a tongue jack that can raise and lower the coupler. The tongue jack is mounted to the A-frame (front, or tongue) part of the trailer. By rotating the jack handle clockwise, the jack will extend and raise the tongue of the trailer.

Be sure the pintle-ring coupler is suitable for the size and weight of the trailer. The load rating of the coupler is listed on the trailer tongue. You must provide a hitch for your tow vehicle, where the load rating of the hitch is equal to or greater than that of your trailer. Also, if the hitch is too small, too large, is underrated, is loose or is worn, the trailer can come loose from the tow vehicle, and may cause death or serious injury.

**THE TOW VEHICLE AND HITCH MUST HAVE A RATED TOWING CAPACITY EQUAL TO OR GREATER THAN THE TRAILER GROSS VEHICLE WEIGHT RATING (GVWR).**

#### 3.2.2.1. Before coupling the trailer to the tow vehicle

Be sure the size and rating of the ball match the size and rating of the coupler. Ball and couplers are marked with their size and rating.

### 3.2.3. TRAILER WITH GOOSENECK-HITCH COUPLER

A gooseneck hitch is a hitch with a ball which connects to a trailer that has a gooseneck coupler on the towing vehicle.

A gooseneck trailer may be fitted with a tongue jack that can raise and lower the hitch. The tongue jack is mounted to the front, or tongue part of the trailer. By rotating the jack handle clockwise, the jack will extend and raise the tongue of the trailer.

Be sure gooseneck ball is suitable for the size and weight of the trailer. The load rating of the coupler is listed on the trailer tongue. You must provide a ball for your tow vehicle, where the load rating of the ball is equal to or greater than that of your trailer. Also, if the ball is too small, too large, is underrated, is loose or is worn, the trailer can come loose from the tow vehicle, and may cause death or serious injury.

## Checking the Trailer Before & During Each Tow

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### 3.3.2.1.1 Before hitching the trailer to the tow vehicle

Be sure the size and rating of ball match the size and rating of the coupler. Hitches and couplers are marked with their size and rating.

**THE TOW VEHICLE AND HITCH MUST HAVE A RATED TOWING CAPACITY EQUAL TO OR GREATER THAN THE TRAILER GROSS VEHICLE WEIGHT RATING (GVWR).**

### Warning

Coupler-to-ball mismatch can result in uncoupling, leading to death or serious injury.

Be sure the LOAD RATING of the ball is equal or greater than the load rating of the coupler.

Be sure the SIZE of the ball matches the size of the coupler.

Wipe the hitch clean and inspect it visually and by feel for flat spots, cracks and pits.

### Warning

A worn, cracked or corroded ball can fail while towing, and may result in death or serious injury.

Before coupling trailer, inspect the ball for wear, corrosion and cracks.

Replace worn or damaged ball.

Wipe the inside and outside of the coupler clean and inspect it visually for cracks and deformations; feel the inside of the coupler for worn spots and pits.

Be sure the ball is tight to the couple of the trailer. All coupler fasteners must be visibly solid against the trailer frame.

Raise the bottom surface of the coupler to be above the top of the ball. Prepare the coupler and hitch.

Lubricate the ball and the inside of the coupler with a thin layer of automotive bearing grease. If your trailer is equipped with a jack, raise the coupler above the ball height.

Open the coupler locking mechanism.

In the open position, the coupler is able to drop fully onto the ball.



## Checking the Trailer Before & During Each Tow

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Slowly back up the tow vehicle so that the ball is near or aligned under the coupler, if the trailer jack has raised the coupler.

Couple the trailer to the tow vehicle

Using the jack provided with your trailer, lower the trailer tongue until the coupler fully engages the ball. If the coupler does not line up with the hitch, adjust the position of the tow vehicle.

Engage the coupler locking mechanism. In the engaged position, the locking mechanism securely holds the coupler to the ball.

Be sure the coupler is all the way on the ball and the locking mechanism is engaged. A properly engaged locking mechanism will allow the coupler to raise the rear of the tow vehicle. Using the trailer jack, test to see that you can raise the rear of the tow vehicle by 1 inch, after the coupler is locked to the hitch

### Notice

Overloading can damage the tongue jack. Do not use the tongue jack to raise the tow vehicle more than 1 inch.

**If the coupler cannot be secured to the hitch ball, do not tow the trailer.** Call Econoline Trailers, Inc. at 1-800-624-1866 or your dealer for assistance.

Lower the trailer so that its entire tongue weight is held by the ball, and continue retracting the jack to its fully retracted position.

Rig the safety chains

Visually inspect the safety chains and hooks for wear or damage. Replace worn or damaged safety chains and hooks before towing.

Rig the safety chains so that they:

Cris-cross underneath the coupler so if the trailer uncouples, the safety chains can hold the tongue up above the road.

Use holes provided in the hitch system (but, do **not** attach them to an interchangeable part of the hitch assembly).

Attach "S" hooks up from underneath the hole (do not just drop into hole); and

Provide enough slack to permit tight turns, but not be close to the road surface to drag.

## Checking the Trailer Before & During Each Tow

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### Warning

Improper rigging of the safety chains can result in loss of control of the trailer and tow vehicle, leading to death or serious injury, if the trailer uncouples from the tow vehicle.

Do not fasten chains to any part of the hitch unless the hitch has holes or loops specifically for that purpose.

Cross chains underneath hitch and coupler with enough slack to permit turning and to hold tongue up, if the trailer comes loose.

#### Attach and test electric breakaway brake system

If the coupler or hitch fails, a properly connected and working breakaway brake system will apply electric brakes on the trailer. The safety chains will keep the tow vehicle attached and as the brakes are applied at the trailer's axles, the trailer/tow vehicle combination will come to a controlled stop.

The breakaway brake system includes a battery, a switch with a pull-pin, and a lanyard. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway brake manufacturer. If you do not have these instructions, call Econoline Trailers, Inc. at 1-800-624-1866 for a free copy.

The breakaway brake system may be fitted with a "charging" capability that draws power from the tow vehicle. If the electrical system on your tow vehicle does not provide power to the breakaway brake battery, you must periodically charge the battery to keep the breakaway brake system in working order.

Connect the pull-pin lanyard to the tow vehicle so that the pull-pin will be pulled out before all of the slack in the safety chains is taken up (see Breakaway Brake System figure). Do **not** connect the pull-pin cable to a safety chain or to the hitch ball or hitch ball assembly. This would keep the breakaway brake system from operating when it is needed.

To test the break-away brake battery, remove the pull-pin from the switch and attempt to pull the trailer forward. You should feel the trailer resisting being towed, but the wheels will not necessarily be locked. If the brakes do not function, do not tow the trailer until brakes, or battery, are repaired.

Immediately replace the pull-pin. The breakaway brake system battery discharges rapidly when the pull-pin is removed.

### Warning

An ineffective breakaway brake system can result in a runaway trailer, leading to death or serious injury, if the coupler or ball hitch fails.

Connect the breakaway cable to the tow vehicle; and NOT to the hitch, ball or support.

Before towing the trailer, test the function of the breakaway brake system. If the breakaway brake system is not working, do not tow the trailer. Have it serviced or repaired.

## Checking the Trailer Before & During Each Tow

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Do **not** tow the trailer with the breakaway brake system ON because the brakes will overheat which can result in permanent brake failure.

### Warning

Failure to replace the pull pin will prevent brakes from working, leading to loss of control, serious injury or death.

If you do not use your trailer for **three or more months**, or **during winter months**:

Store the battery indoors; and  
Charge the battery every three months.

Replace the breakaway brake battery according to the intervals specified by battery manufacturer.

Connect the electrical cables  
Connect the trailer lights to the tow vehicle's electrical system using the electrical connectors.

Check all lights for proper operation.

Clearance and Running Lights (Turn on tow vehicle headlights).

Brake Lights (Step on tow vehicle brake pedal).

Turn Signals (Operate tow vehicle directional signal lever).

Check electric brakes for proper operation using brake controller mounted in the cab.

If your trailer has electric brakes, your tow vehicle will have an electric brake controller that sends power to the trailer brakes. Before towing the trailer on the road, you must operate the brake controller while trying to pull the trailer in order to confirm that the electric brakes operate. While towing the trailer at less than 5 m.p.h., manually operate the electric brake controller in the tow vehicle cab. You should feel the operation of the trailer brakes.

### Warning

Improper electrical connection between the tow vehicle and the trailer will result in inoperable lights and electric brakes, and can lead to collision.

Before each tow:

Check that the taillights, brake lights and turn signals work

Check that the electric brakes work by operating the brake controller inside the tow vehicle

### Uncoupling the Gooseneck Trailer with Tongue Jack

Follow these steps to uncouple your gooseneck trailer from the tow vehicle:

Block trailer tires to prevent the trailer from rolling, before jacking the trailer up.

Disconnect the electrical connector.

Disconnect the breakaway brake switch lanyard.

Disconnect the safety chains from the tow vehicle.

Unlock the coupler and open it.

## Checking the Trailer Before & During Each Tow

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Before extending jack, make certain the ground surface below the jack pad will support the tongue load.

Rotate the jack handle (or crank) clockwise. This will slowly extend the jack and transfer the weight of the trailer tongue to the jack.

### 4. LOADING THE TRAILER

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Improper trailer loading causes many accidents and deaths. To safely load a trailer, you must consider:

- Overall load weight;
- Load weight distribution;
- Proper tongue weight; and
- Securing the load properly.

To determine that you have loaded the trailer within its rating, you must consider the *distribution* of weight, as well as the total weight of the trailer and its contents. The trailer axles carry most of the total weight of the trailer and its contents (Gross Vehicle Weight, or “GVW”). The remainder of the total weight is carried by the tow vehicle hitch. It is essential for safe towing that the trailer-tongue and tow vehicle hitch carry the proper amount of the loaded trailer weight, otherwise the trailer can develop an undesirable sway at towing speeds, or the rear of the towing vehicle can be overloaded. Read the “Tongue Weight” section below.

The load distribution must be such that no component part of the trailer is loaded beyond its rating. This means that you must consider the rating of the tires, wheels and axles. For tandem and triple axle trailers, you must make sure that the front-to-rear load distribution does not result in overloading any axle.

Towing stability also depends on keeping the center of gravity as low as possible. Load heavy items on the floor and over the axles. When loading additional items, be sure to maintain even side-to-side weight distribution and proper tongue weight. The total weight of the trailer and its contents must never exceed the total weight rating of the trailer (Gross Vehicle Weight Rating, or “GVWR”).

#### Warning

An overloaded trailer can result in loss of control of the trailer, leading to death or serious injury

Do not load a trailer so that the weight on any tire exceeds its rating.

Do not exceed the trailer Gross Vehicle Weight Rating (GVWR) or the Gross Axle Weight Rating (GAWR).

#### 4.1. TONGUE WEIGHT

It is critical to have a portion of the trailer load carried by the tow vehicle. That is, the trailer tongue must exert a downward force on the hitch. This is necessary for two reasons. First, the proper amount of tongue weight is necessary for the tow vehicle to be able to maintain control of the tow vehicle/trailer system. If, for example, the tongue exerts an upward pull on the hitch, instead of pushing down on it (because the trailer is overloaded behind its axle(s)), the rear wheel

## Checking the Trailer Before & During Each Tow

of the tow vehicle can lose traction or grip and cause loss of control. Also, even if there is some weight on the tongue, but not enough weight on the tongue, the trailer can become unstable at high speeds. Remember, the faster you go the more likely the trailer is to sway.

If, on the other hand, there is too much tongue weight, the tow vehicle is prone to jack-knife. Furthermore, the front wheels of the tow vehicle can be too lightly loaded and cause loss of steering control and traction, if the front wheels are driving.

In addition to tow vehicle control, tongue weight is necessary to insure that the trailer axle(s) do not exceed their Gross Axle Weight Rating (GAWR).

The table below has “rules of thumb” for proper tongue weight.

In the table below, the second column notes the rule of thumb percentage of total weight of the trailer plus its cargo (Gross Vehicle Weight, or “GVW”) that should appear on the tongue of the trailer. For example, a trailer with a gooseneck hitch, with a loaded weight of 12,000 pounds, should have 20-25% (of 12,000 pounds) on the tongue. That is, the example trailer would have 2,400 to 3,000 pounds on its tongue.

Tongue Weight as a Percentage of Loaded Trailer Weight	
Type of Hitch	Percentage
Pintle Hitch (or Bumper Hitch)	10–15% for large trailers
Gooseneck Hitch Fifth Wheel Hitch	20–25%

The numbers quoted above are for example purposes only and should be tailored to the specific trailer. For questions regarding the actual percent of tongue weight for the trailer, check with the manufacturer for specifics.

### Warning

Improper tongue weight (load distribution) can result in loss of control of the trailer, leading to death or serious injury.

Make certain that tongue weight is within the allowable range.

Be sure to:

Distribute the load front-to-rear to provide proper tongue weight (see chart).  
For dump trailers a flowable load should be evenly distributed throughout the bed.

Distribute the load evenly, right and left.

Keep the center of gravity low.

### Checking Tongue Weight

To check the tongue weight, the tow vehicle and trailer must be on level ground, as they will be when the trailer is being towed.

## Checking the Trailer Before & During Each Tow

For heavier trailers it is easier to go to a truck stop where there is a “certified” scale. Pull only the tow vehicle onto the scale and get the weight. This weight must be less than your tow vehicle’s GVWR. Pull the trailer onto the scale and decouple it from the tow vehicle, leaving just the trailer on the scale. Get a “ticket”, which lists the total trailer weight. Re-connect the trailer to your tow vehicle and drive the tow vehicle wheels off the scale, just leaving the trailer axles on the scale. Get a second “ticket”, which lists the trailer’s axle weight. Simple subtract the axle weight from the total weight to determine the hitch weight.

While you are at the scale, you should weigh the entire combination vehicle. This result should be less than the Gross Combined Weight Rating (GCWR) for your towing vehicle. Some scales allow you to get individual axle weights also. If this is possible, get the tow vehicles front and rear axle weights to make sure they are in the same proportion as the tow vehicle alone, and that the rear axle is not overloaded. This is the best way to check that a weight distribution (or load leveling) hitch is adjusted properly, i.e., you have the proper number of chain links attached to the snap-up brackets.

### 4.2. SECURING THE CARGO

Since the trailer “ride” can be bumpy and rough, you must secure your cargo so that it does not shift while the trailer is being towed.

#### Warning

Shifting cargo can result in loss of control of the trailer, and can lead to death or serious injury.

Tie down all loads with proper sized fasteners, ropes, straps, etc.

#### Warning



**USE CAUTION WHEN UTILIZING RATCHET BINDERS to secure your load. Over binding and/or ratcheting may cause damage to your trailer.**

Damage could include:

\*Damaged Side-rails \*Bending of Frame\*Breaking or Cracking Welds

\*Breaking Binding Chains/Ropes/Straps\*Damage to cargo

#### 4.2.1. DISTRIBUTING THE CARGO (OPEN TRAILER)

Couple the trailer to the tow vehicle before loading. This is essential for the bumper pull trailer because the tongue of a bumper pull trailer can rise during loading, before the cargo is properly distributed. To measure the tongue weight, you will have to uncouple the trailer after it is loaded.

## Checking the Trailer Before & During Each Tow

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Do not transport people, containers of hazardous substances, cans or containers of flammable substances, such as gasoline, kerosene, paint, etc. However, fuel in the tank of an off-road vehicle, or a car or motorcycle, etc. may be carried on your open trailer.

### 4.2.1.1. Preparing the Trailer for Loading

Before loading cargo onto the trailer:

- Inspect the deck of the trailer for corrosion or damage; and
- Inspect the hold down openings and/or “D”-rings. Hold down openings must be sturdy with no visible cracks or kinks. D-rings must be tight to the deck and must not be bent.

If the deck or any required hold-down is damaged (including rot, rust, corrosion, separation, or is improperly secured) **do not load the cargo!!**. Bring the trailer to your dealer or a competent repair service before using it to carry cargo.

### 4.2.1.2. Loading a Rigid-deck Trailer

Econoline Trailers open trailers have either a rigid-deck or a tilt deck, depending on the exact model. This subsection describes loading a rigid-deck trailer.

Before loading a rigid-deck trailer, couple the trailer to the tow vehicle and make sure the rigid-deck is level. Do not load or unload the trailer when the deck is not level.

Make sure the top of the ramp (or ramps) is secure to the trailer, and the bottom is resting on firm ground.

Load the cargo onto the trailer with approximately 60% of the cargo in the front half of the trailer.

Secure the cargo to the trailer using appropriate straps, chains and tensioning devices.

Since the trailer “ride” can be bumpy and rough, you must secure your cargo so that it does not shift while the trailer is being towed.

Return the ramp(s) to their stowed position(s), and secure them so that they will not move during transit.

### 4.2.1.3. Loading a Tilt-Bed Trailer

Some Econoline Trailers open trailers are equipped with a tilt deck instead of with ramps. The tilting feature allows for easier loading and unloading.

The tilt deck trailer is fitted with a spring-loaded latch pin that keeps the trailer bed in the closed “driving” position. After the trailer is loaded and the cargo is secured with hold downs, be sure the spring-loaded latch pin has locked the trailer bed into the closed “driving” position.

Couple the trailer securely to the tow vehicle before attempting to unlock the trailer bed and load the trailer.

Unlock the trailer bed and tilt it to the open “loading” position. Before loading or unloading the cargo, be certain the latch pin is retracted.



## Checking the Trailer Before & During Each Tow

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### Warning

Loading a tilt deck trailer before retracting the latch pin can bend or crack the latch pin or do severe damage to the tilt bed of the trailer, which can cause loss of cargo or loss of control of the trailer. Death or serious injury may result.

Before loading the trailer, retract the latch pin.

If the latch pin becomes damaged, **do not attempt to repair it**. Replace the latch pin before towing the load.

Load the cargo onto the trailer with approximately 60% of the cargo in the front half of the bed.

As the cargo is moved forward on the deck, the deck will tilt down slowly into the closed “driving” position.

Extend the latch pin into the latch plate located on the trailer bed to lock the trailer bed into the closed “driving” position. Ensure that the latch pin engages the hole in the latch plate on the trailer bed.

### Warning

An unlocked tilt deck can result in loss or cargo or loss of control of the trailer, which can result in death or serious injury.

Before towing the trailer:

Lock the trailer bed in the closed “driving” position.

Double-check that the latch engages the hole in the latch plate located in the trailer bed.

Secure the cargo onto the trailer using appropriate straps and tensioning devices. Since the trailer “ride” can be bumpy and rough, you must secure your cargo so that it does not shift while the trailer is being towed.

### Warning

Shifting cargo can result in loss of control of the trailer, and can lead to death or serious injury.

Tie down all loads with proper sized fasteners, ropes, straps, etc.

### 5. CHECKING THE TRAILER BEFORE AND DURING EACH TOW

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#### 5.1. **PRE-TOW CHECKLIST**

Before towing, double-check all of these items: See section 7.1, “Inspection, Service & Maintenance Summary Charts,” for more information.

- Tires, wheels and lug nuts (see the “Major Hazards” section starting on page 2 of this manual)
- Tire Pressure. Inflate tire on trailer and tow vehicle to the pressure stated on the VIN / Certification label.
- Coupler secured and locked (see the “Coupling and Uncoupling the Trailer” section starting on page 25 of this manual)
- Safety chains properly rigged to tow vehicle, not to hitch or ball (see the “Coupling to the Tow Vehicle” chapter starting at Page 23 of this manual)
- Test of lights: Tail, Stop, and Turn Lights
- Test trailer brakes.
- Safety breakaway switch cable fastened to tow vehicle, not to safety chains (see the “Coupling to the Tow Vehicle” chapter starting at Page 23 of this manual)
- Cargo properly loaded, balanced and tied down (see the “Loading the Trailer” chapter starting at page 33 of this manual)
- Tongue weight and weight distribution set-up.
- Flares and reflectors

#### 5.2. **MAKE REGULAR STOPS**

After each 50 miles, or one hour of towing, stop and check the following items:

- Coupler secured
- Safety chains are fastened and not dragging
- Cargo secured
- Cargo door latched and secured

### 6. BREAKING-IN A NEW TRAILER

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#### 6.1. RETIGHTEN LUG NUTS AT FIRST 10, 25 & 50 MILES

Wheel lugs can shift and settle quickly after being first assembled, and must be checked after the **first** 10, 25 and 50 miles of driving. Failure to perform this check may result in a wheel coming loose from the trailer, causing a crash leading to death or serious injury.

#### Warning

Lug nuts are prone to loosen after initial installation, which can lead to death or serious injury.

Check lug nuts for tightness on a new trailer or when wheel(s) have been remounted after the first 10, 25 and 50 miles of driving.

#### 6.2. ADJUST BRAKE SHOES AT FIRST 200 MILES

Brake shoes and drums experience a rapid initial wear. The brakes must be adjusted after the first 200 miles of use, and each 3,000 miles thereafter. Some axles are fitted with a mechanism that will automatically adjust the brake shoes when the trailer is “hard braked” from a rearward direction. Read your axle and brake manual to see if your brakes adjust automatically. If you do not have the axle and brake manual, call **Econoline Trailers, Inc. at (800) 624-1866** for a free copy.

A hard stop is used to:

- Confirm that the brakes work;
- Confirm that the trailer brakes are properly synchronized with the tow vehicle brakes using the brake controller in the tow vehicle
- Adjust the brake shoes as necessary.
- For surge brakes check the Master cylinder reservoir for fluid.

If your trailer is not fitted with automatically adjusting brakes, the brakes will need to be manually adjusted. If you do not have the axle and brake manual, call **Econoline Trailers, Inc. at (800) 624-1866** for a free copy.

#### 6.3. SYNCHRONIZING THE BRAKE SYSTEMS

Trailer brakes are designed to work in synchronization with the brakes on the tow vehicle. When the tow vehicle and trailer braking systems are synchronized, both braking systems contribute to slowing, and the tongue of the trailer will neither dive nor rise sharply.

## Breaking-In a New Trailer

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### Warning

If trailer and tow vehicle brakes do not work properly together, death or serious injury can occur.

Road test the brakes in a safe area at no more than 30 m.p.h. before each tow

To insure safe brake performance and synchronization, read and follow the axle/brake and the brake controller manufacturers' instructions. If you do not have these instructions, call **Econoline Trailers, Inc. at 1-800-624-1866** for a free copy.

#### TIRE PRESSURE





Check tire pressures on both the trailer and tow vehicle. Inflate to the maximum shown on the VIN / Certification Label.

## 7. INSPECTION, SERVICE & MAINTENANCE

### 7.1. INSPECTION, SERVICE & MAINTENANCE SUMMARY CHARTS

You must inspect, maintain and service your trailer regularly to insure safe and reliable operation. If you cannot or are unsure how to perform the items listed here, have your dealer do them. (Severe conditions, including excessive brake usage, extremely rough roads, etc. may require more frequent maintenance).

Note: In addition to this manual, also check the relevant component manufacturer's manual.

<b>Maintenance Schedule</b>						
Item	Function Required	Break-In Service	Weekly	3 Months or 3000 Miles	6 Months or 6000 Miles	12 Mos. or 12000 miles
<b>Brakes</b>	Test that they are functioning properly.	Before 1 <sup>st</sup> Trip	At Every Use			
<b>Lighting and Electrical components</b>	Test that they are functioning properly.	Before 1 <sup>st</sup> Trip	At Every Use			
<b>Breakaway System</b>	Check Battery Charge and switch operation	Before 1 <sup>st</sup> Trip	At Every Use			
<b>Hitch and Safety Chains</b>	Inspect for wear, operation and security.	Before 1 <sup>st</sup> Trip	At Every Use			
<b>Tire Inflation</b>	Check air pressure in all tires and insure they are Inflated to Manufacturer's Specification.	Before 1 <sup>st</sup> Trip	At Every Use			
<b>Wheel</b>	Inspect for damage, nicks, our of round	Every 50 Miles for First 200 Miles	Repeat Break-In Service whenever wheel is removed			
<b>Wheel Nuts</b>	Tighten to proper Torque specs	Every 50 Miles for First 200 Miles	Repeat Break-In Service whenever wheel is removed			
<b>Brake Controller</b>	Check for correct amperage & modulation.	Before 1 <sup>st</sup> Trip				
<b>Flooring</b>	Inspect for rot, cracking, and rust, and					

	corrosion, proper and secure attachment of flooring to frame.					
Springs and Suspension parts	Inspect for wear, loss of arch, bending or loosening of fasteners, cracks in welds.				★	
Tire Condition	Inspect for Cuts, cracks, wear, bulging, etc.			★		
Wheel Bearings	Repack bearings, inspect for damage or wear.				★	
Brake Linings/Pads	Inspect for excessive, unusual wear or contamination.				★	
<b>Maintenance Schedule Continued</b>						
Item	Function Required	Break-In Service	Weekly	3 Months or 3000 Miles	6 Months or 6000 Miles	12 Mos. or 12000 miles
Oil Seals	Check for leakage, Fill oil to manufacturer's specifications				★	
Equalizers	Grease and check for improper wear.			★		
Hitch	Regardless of hitch type, lubrication is required. Inspect for abnormal wear, lubricate.			★	★	
Hydraulic Cylinder (Tilt Bed Models)	Check oil level. Inspect hoses for leaks or wear.					
Trailer Wiring	Inspect wiring for bare spots, fray, etc.				★	
Mainframe	Visually inspect the trailer main frame and all welded points for cracks, distortion, excessive corrosion, or			★		

	<b>any other condition that might negatively affect the structural integrity of the trailer.</b>					
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## 8. SERVICE RECORD

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	Service Center	Work Order #
Date:		
Mileage:		

	Service Center	Work Order #
Date:		
Mileage:		

	Service Center	Work Order #
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## 9. WARRANTY INFORMATION AND CLAIM PROCEDURES

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**Econoline Trailers, Inc.** hereinafter referred to as “Manufacturer” warrants that each Econoline trailer operated by the original purchaser under normal use in the continental United States or Canada will be free from defects in material and workmanship for a period of one (1) year from the date of its original retail sale by an authorized Econoline Trailers, Inc. dealership. This warranty is subject to the requirements, exclusions and limitations stated below which will be strictly applied. If the trailer is rented or used for commercial hauling, this Limited Warranty is null and void.

### YOU MUST REGISTER YOUR TRAILERS WARRANTY

In order to validate this Limited Warranty, your Online Warranty Registration must be completed or the original copy of this form, signed by the dealer and the purchaser, must be postmarked and mailed to *Econoline Trailers, Inc. at 231 County Rd 33, Double Springs, Alabama 35553*, no later than ten (10) days following the purchase of your Econoline trailer. **IF THE SIGNED WARRANTY IS NOT POSTMARKED BY THE TENTH DAY AFTER THE PURCHASE OF THE TRAILER, ALL EXPRESS WARRANTIES CONTAINED IN THIS LIMITED WARRANTY IS NULL AND VOID.**

### EXCLUSION OF COMPONENTS WARRANTED BY OTHER MANUFACTURERS

Tires, axles, brake components, spring and suspension components, couplers, jacks, batteries, hydraulic pumps and cylinders purchased and installed by Econoline Trailers, Inc. are warranted by their manufacturers and are excluded from this Limited Warranty. Perishable components, such as wood decking material, are not covered by this warranty. All other components not manufactured by Econoline Trailers, Inc. are specifically excluded from this warranty.

### NORMAL USE, NO REPAIRS, MODIFICATIONS, OR ALTERATIONS

This warranty applies to defects in material and workmanship existing on the date of original retail sale by an authorized Econoline Trailers, Inc. dealership and therefore does not apply to damage or defects which result from: (a) normal wear and tear resulting from normal use or exposure to the elements; (b) neglect, lack of maintenance, accident or collision, abnormal operation, improper attachment to the towing vehicle, misuse or abuse of the product, improper installation not completed by Manufacturer, improper wheel nut torque, improper alignment; (c) alteration or use of accessories or parts not manufactured or approved explicitly by Manufacturer for use with the product; or (d) repairs and/or modifications of/to this product not previously approved in writing by the manufacturer and/or completed by a person(s) other than manufacturer or manufacturer approved entity.

### NORMAL WEAR ITEMS

Normal wear items, including but not limited to lights, bearings, brakes, brake linings, tires, and batteries, will not be replaced due to wear.

### TRANSPORTATION COST EXCLUDED

Reasonable access to the product must be provided for warranty service to be performed. This warranty does not apply to: (a) hauling, towing or storage charges; (b) telephone, living or rental expenses; (c) down time, inconvenience, loss of use, loss of income or consequential damages; and (d) removal, storage or disposal of any cargo necessary for access to the product.

### PRIOR WRITTEN CONSENT REQUIRED AND RETURN OF DEFECTIVE PARTS REQUIRED

No Reimbursement will be made to any dealer or owner for repairs made without prior written consent of Econoline Trailers, Inc. Any defective parts must be sent by prepaid freight to Econoline Trailers, Inc. in order to qualify for replacement or reimbursement under this Limited Warranty.

### TRANSFERABILITY

This warranty applies only to the original owner and is not transferable to any other parties. Econoline Trailers, Inc. does not assume responsibility for any warranties, promises or representations beyond those expressed in this written contract.

### LIMITATIONS

The Manufacturer’s obligations and undertakings in this warranty are limited to repairing or replacing part(s) that in the opinion of Econoline Trailers, Inc. shall be proven defective in materials and/or workmanship existing on the date of original retail sale by an authorized Econoline Trailers, Inc. dealership. In no event shall manufacturer be liable for any incidental and/or consequential cost or damages, including loss of use and any other damages of any type arising out of such defective parts and/or products. Warranties of merchantability and fitness are excluded from this warranty. Implied warranties are limited to the life of this warranty. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other legal rights which vary from state to state.

If you feel that a repair should be covered under this warranty, a claim should be made by delivering the product, unloaded, for inspection to our factory or to the original Econoline Trailers, Inc. dealership. **\*\*Complete warranty procedures are included at the end of this document.\*\***

The undersigned dealer, by signing this manufacturer's Limited Warranty, states that he/she has informed and explained to the purchaser all limited warranty and claim procedures and will perform all responsibilities of the dealer under this Limited Warranty.

IF THIS WARRANTY IS NOT SIGNED, POSTMARKED AND MAILED TO ECONOLINE TRAILERS, INC. OR YOUR ONLINE WARRANTY REGISTRATION IS NOT COMPLETED BY THE TENTH DAY AFTER THE PURCHASE OF THE TRAILER, ALL EXPRESS WARRANTIES SHALL BE NULL AND VOID.

Required procedures for filing a claim under this Limited Warranty are listed below.

By signing this manufacturer's Limited Warranty, THE PURCHASER ACKNOWLEDGES THAT HE OR SHE HAS READ THE ABOVE LIMITED WARRANTY AND AGREES THAT, SHOULD ANY WARRANTY CLAIMS BE MADE BY PURCHASER, PURCHASER WILL FOLLOW THE PROCEDURES AS SET FORTH IN THE BODY OF THIS LIMITED WARRANTY.

_____ _____ Dealer Signature Date	_____ _____ Purchaser Signature
_____ _____ Date	_____ _____ Purchaser (Print Name)
_____ _____ Model # of Econoline Trailer	_____ _____ Mailing Address
_____ _____ Vin # of Trailer	_____ _____ City                      State                      Zip                      Phone

**DEALER RESPONSIBILITIES**

Econoline Trailers Dealer is responsible for "dealer Prep" which includes but is not limited to checking all cosmetic features and installing the tires and wheels on the trailer. The dealer is also responsible for submitting to the manufacturer any claim you wish to make under the terms of this Limited Warranty.

**REQUIRED WARRANTY CLAIM PROCEDURE**

1. In order to validate your Limited Warranty, Your Online Warranty Registration must be completed or the original copy of this form, signed by the dealer and the purchaser, must be postmarked to Econoline Trailers Inc, no later than ten (10) days following the purchase of your Econoline trailer. IF THIS SIGNED WARRANTY IS NOT POSTMARKED BY THE TENTH DAY AFTER PURCHASE OF THIS TRAILER, ALL EXPRESS WARRANTIES SHALL BE NULL AND VOID.
2. Within five (5) days after discovering a problem with your Econoline trailer, return the trailer for inspection to your Econoline Trailers dealer where you bought the trailer.
3. If the dealer determines that the work to be performed may qualify for coverage under this Limited Warranty and you want to file a claim under this warranty, he or she must complete a Limited Warranty Claim form and submit it to Econoline Trailers, Inc by registered mail or fax together with all required information, prior to any work being done.
  - a. A representative of Econoline Trailers will gather the required information and a determination will be made to either warrant the repair work or decline the claim. NOTE: \* Additional information may be required to complete the warranty claim assessment including but not limited to photographs, recent repair bills, and state inspection documentation.
  - b. Once approved for repair under this warranty, Econoline Trailers, Inc. will provide a claim number along with a written authorization to the Econoline Trailer dealer or approved repair center to complete the work.  
*Please reflect the claim number on any invoices or correspondence submitted.*
  - c. All parts for repair will be provided by Econoline Trailers, Inc. unless otherwise authorized explicitly by Econoline Trailers, Inc. Any defective parts must be sent by prepaid freight to Econoline Trailers, Inc., in order to qualify for replacement or reimbursement under this Limited Warranty. ANY DEFECTIVE PARTS MUST BE RETURNED TO

ECONOLINE TRAILERS, INC. WITHIN 30 DAYS FROM THE DATE OF APPROVAL TO QUALIFY FOR REIMBURSEMENT.

- d. Econoline Trailers, Inc WILL NOT reimburse any claimant for any adjustment or repair of an Econoline trailer without prior WRITTEN AUTHORIZATION from Econoline Trailers, Inc.
  - e. Authorized repairs do not extend the term of this Limited Warranty.
4. If you return your trailer for repair to the factory located at: 231 County Rd 33, Double Springs, Alabama, 35553, we will warrant the repair or replacement parts for one year from the date of the repair or replacement. If authorized repairs must be done at a location other than the factory, Econoline Trailers, Inc. will not warrant such repair work or replacement parts.
  5. Econoline Trailers, Inc. reserves the right to not pay unreasonable cost for replacement or repair of defects in your Econoline trailer, and may, at its discretion, establish a reasonable reimbursement for any authorized work performed under the terms of this Limited Warranty.

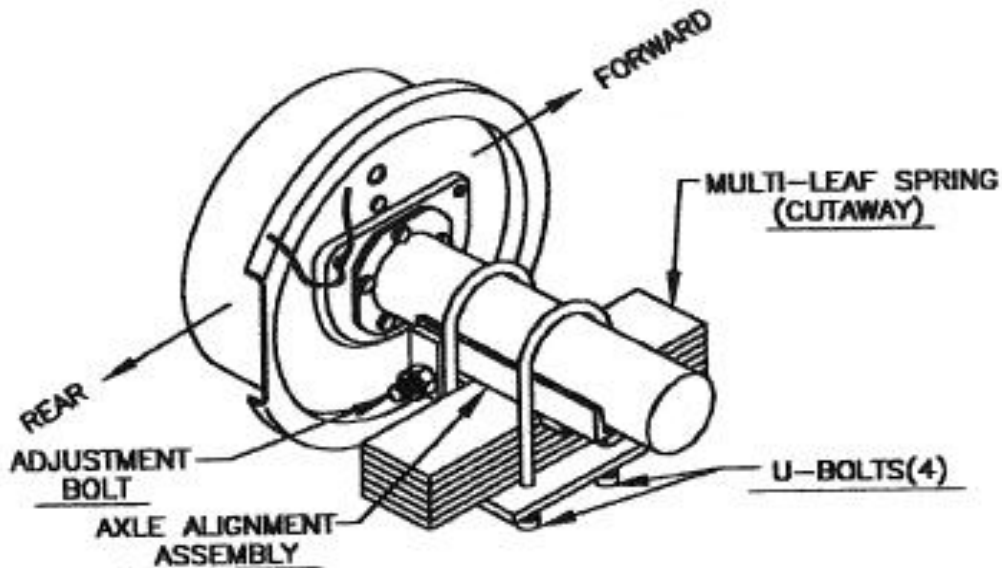


## 10. DIAGRAMS

### 10.1 AXLE ASSEMBLY

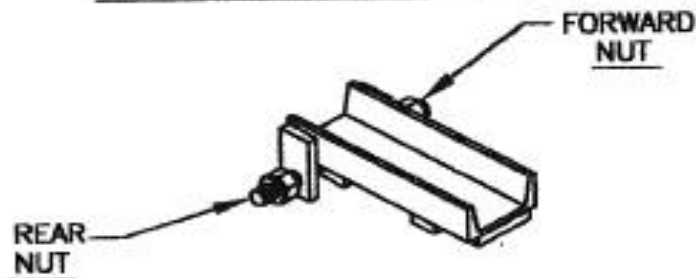
#### AXLE ALIGNMENT ASSEMBLY INSTRUCTIONS (MULTI-MAX TRAILERS)

5 & 6 ton mini max 10 ton multi-max 14 ton super max



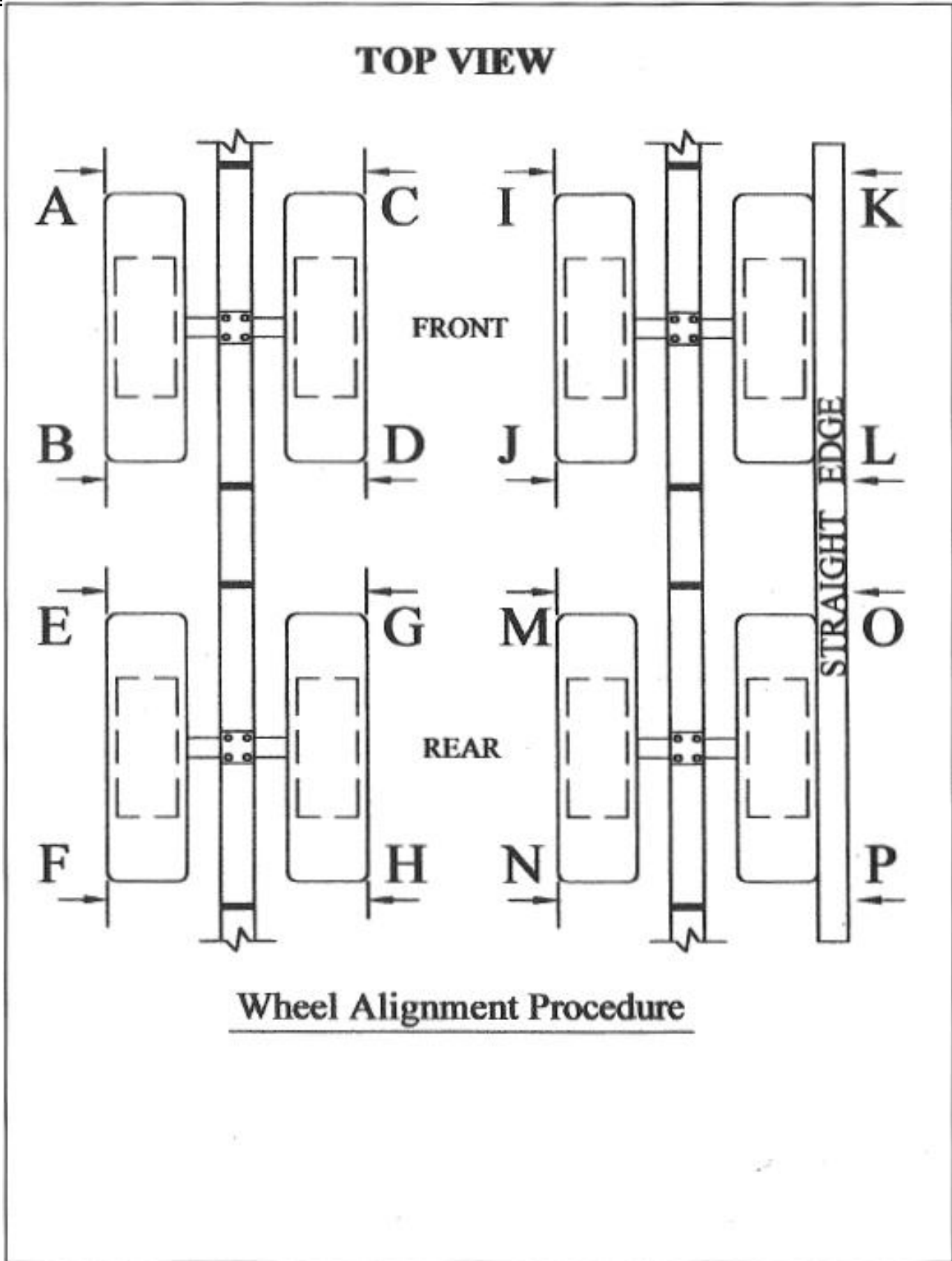
LOOSEN U-BOLT NUTS BEFORE ADJUSTING THE "AXLE ALIGNMENT ASSEMBLY".  
MAKE APPROXIMATE ADJUSTMENTS TO THE ADJUSTMENT BOLT BY FOLLOWING THE INSTRUCTIONS BELOW. TOW THE TRAILER STRAIGHT. APPROXIMATELY 8-10' FEET, STOP AND MAKE NECESSARY FINAL ADJUSTMENTS.  
TIGHTEN THE U-BOLT NUTS FIRMLY.

#### ADJUSTMENT INSTRUCTIONS



TURN NUTS CLOCKWISE TO TIGHTEN—COUNTERCLOCKWISE TO LOOSEN.  
THE LOOSENING OF THE REAR NUT AND TIGHTENING OF THE FORWARD NUT WILL TURN THE AXLE TOWARDS THE LEFT SIDE OF THE ROAD.  
LOOSENING THE FORWARD NUT AND TIGHTENING THE REAR NUT WILL TURN THE AXLE TOWARDS THE RIGHT SIDE OF THE ROAD.

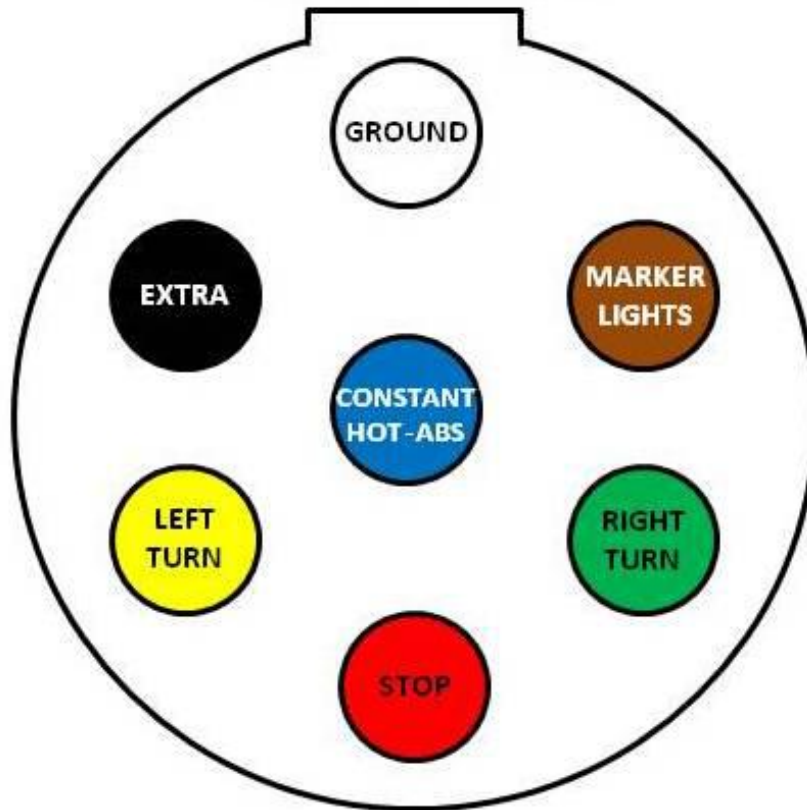
## 10.2 WHEEL ALIGNMENT





10.3 WIRING DIAGRAMS

## Air Plug Wiring Diagram for Air Trailers



AIR PLUG WIRE COLORS ARE THE SAME AS ABOVE PIN COLORS:

WHITE Wire to WHITE Pin

BROWN Wire to BROWN Pin

GREEN Wire to GREEN Pin

RED Wire to RED Pin

YELLOW Wire to YELLOW Pin

BLACK Wire to BLACK Pin

BLUE Wire to BLUE Pin

**7 WIRES at the FRONT HARNESS**

WHITE WIRE = Ground Wire

BROWN WIRE = Marker Lights

GREEN WIRE = Right Turn Signal

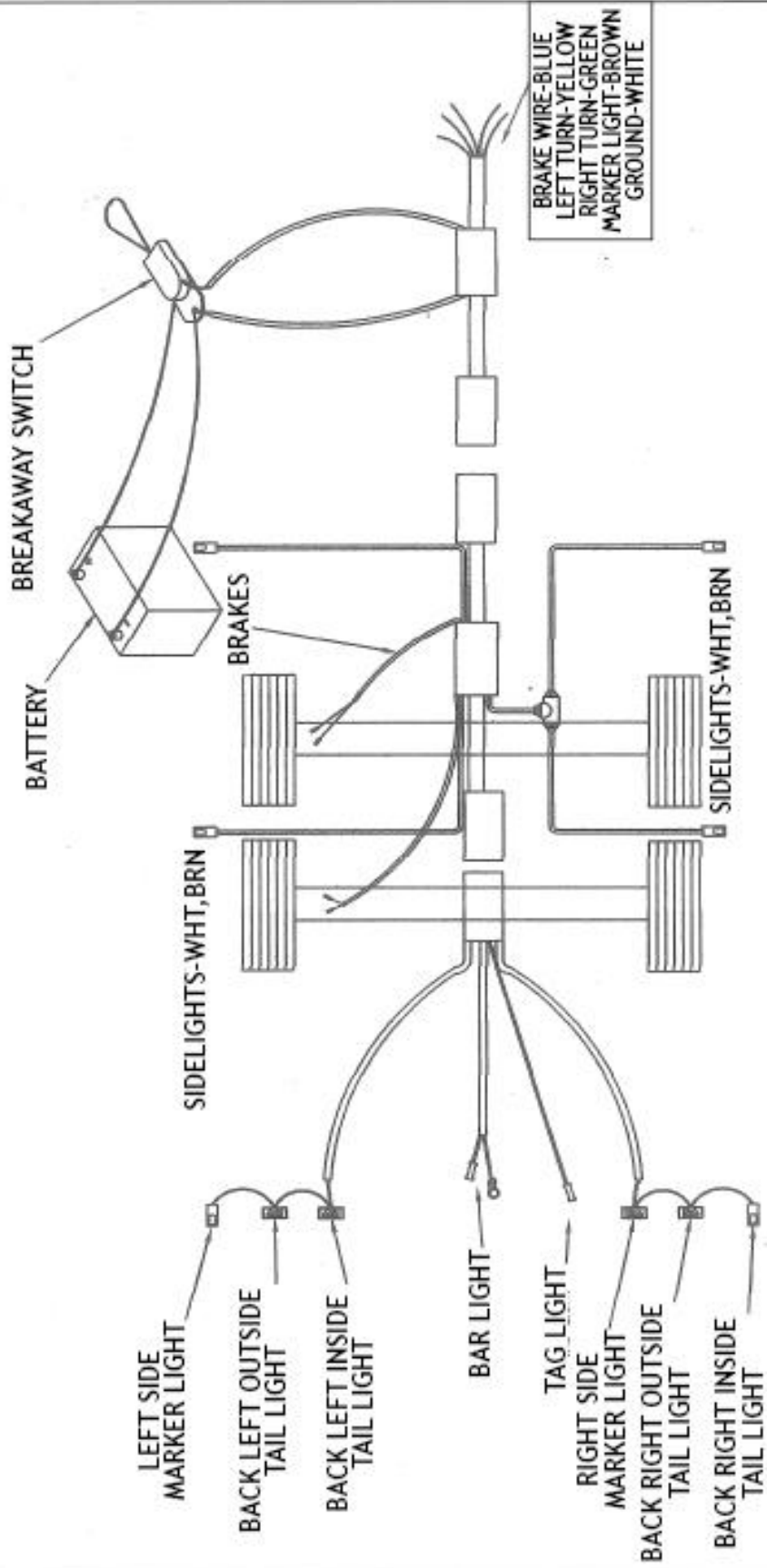
RED WIRE = Stop

YELLOW WIRE = Left Turn Signal

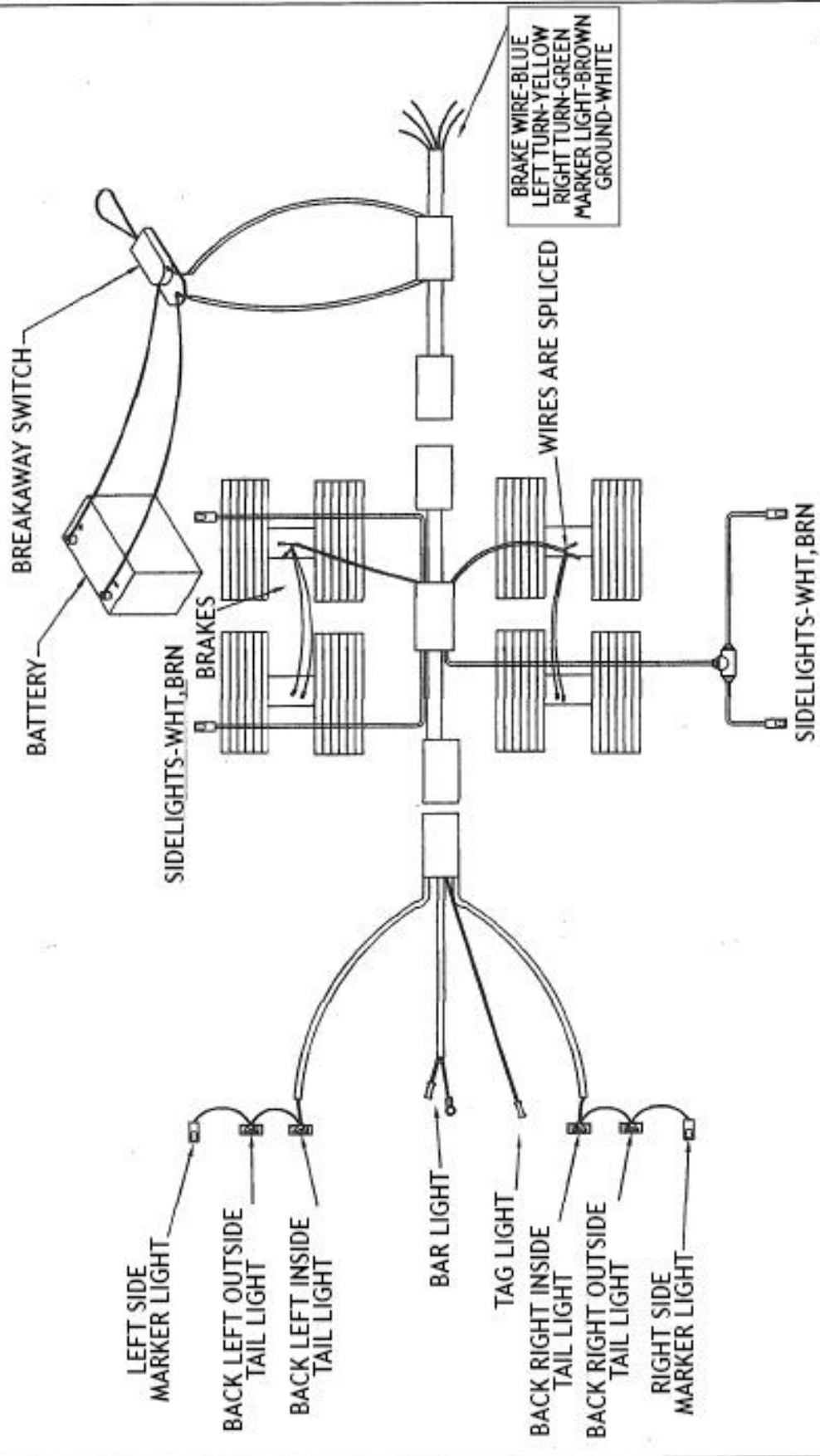
BLACK WIRE = Extra Hot Wire which can be used for something else

BLUE WIRE = Constant Hot for ABS

# FOR 6 & 9 TON TRAILERS



# FOR MULTI-MAX AND DUAL TANDEM ELECTRIC BRAKE TRAILERS



TRAILERS





# FOR TRI-AXLE ELECTRIC BRAKE TRAILERS

