



TRAILER
OWNER'S MANUAL

Revision #3 (02/01/08)

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www.multiquip.com



THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.



CALIFORNIA — Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

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 MQ Power at 1-800-628-4641.

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 MQ Power.

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.safecar.gov>; or write to:

Administrator
NHTSA
1200 New Jersey Avenue S.E.
Washington, DC 20590

You can also obtain information about motor vehicle safety from <http://www.safecar.gov>.

DISCLAIMER STATEMENT

MQ Power publishes the technical information in this manual as an aid to its customers and to the public. The information included in this manual is based on sound engineering principles, research, extensive field experience, and technical judgments. This mater is subject to change in light of developments in technology and field experience. Use or adoption of the information contained in this manual is voluntary. MQ Power disclaims any warranties or guaranties, express or implied, in connection with the information in this manual. Further, in our attempt to provide complete and comprehensive safety information on a wide variety of trailers and trailer components, some of the information may or may not apply to your particular trailer. Should there be any question regarding your trailer's components, construction or availability, please contact your dealer or MQ Power.

IMPORTANT

Please read the supplied Owners Manual for operation and safety requirements. Serious injury and/or property damage can result if the instructions and warnings are not followed. Additional copies of the Owners Manual can be obtained from your dealer or by contacting:



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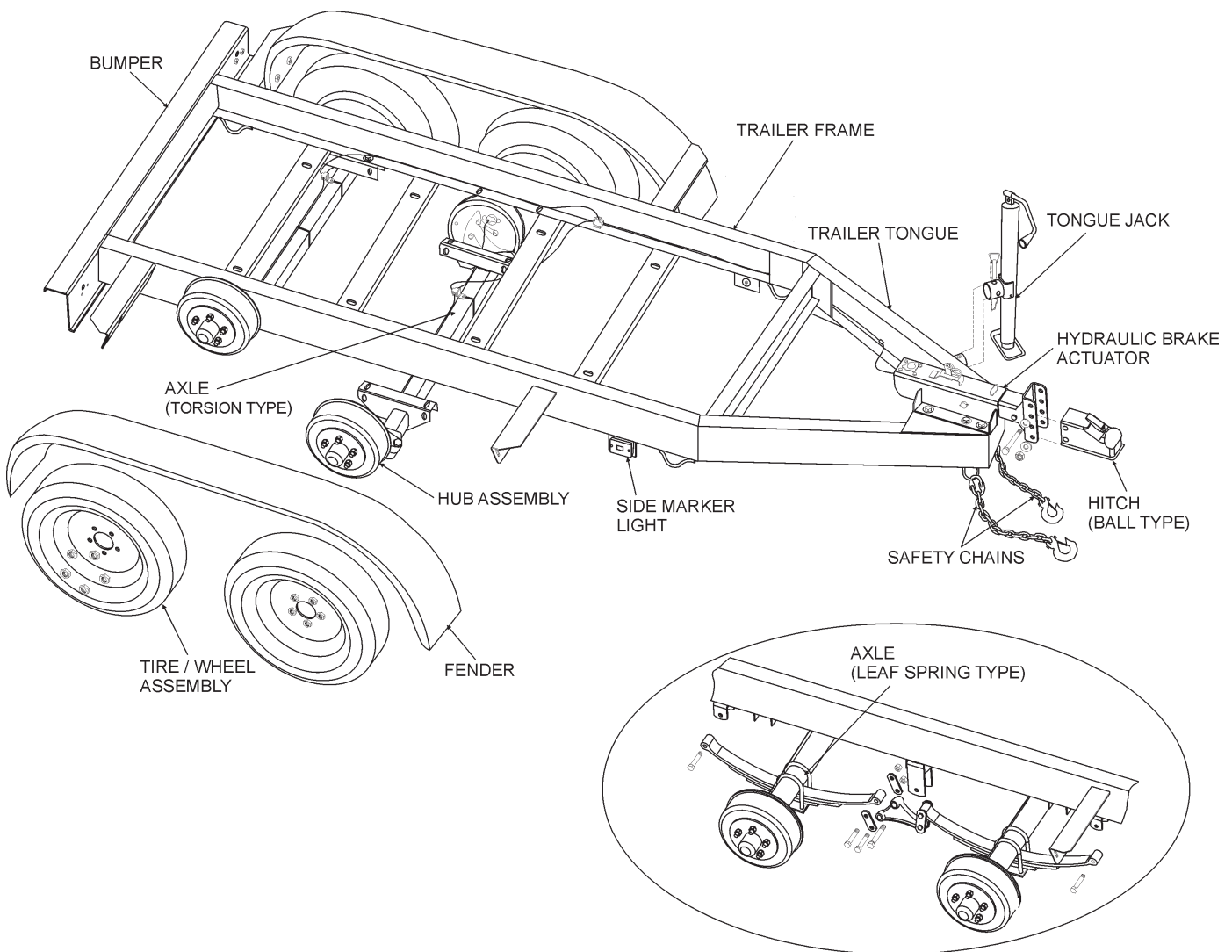
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TRAILER COMPONENT IDENTIFICATION

The illustration below represents typical trailer components. Although there are many variations, styles and configurations of these components, i.e. frame types, number of axles, integrated fuel tanks, hydraulic or electric brake actuators, jacks and hub sizes, the basic function of these components is the same on most trailers. As an aid to the user, MQ POWER has attempted to identify a variety of trailer components in this manual, some of which are not typically found on trailers that are manufactured by MQ POWER. To assure proper use and safety, ALWAYS refer to the component manufacturer's operation manual before use.



EQUIPMENT SAFETY GUIDELINES


IMPORTANT

This trailer owner's manual has been developed to provide complete instructions for the safe and efficient operation of **MQ Power** trailers.

For complete safety and operational instructions for any generator that may be mounted on this trailer, please refer to the generator's operation and parts manual.

Failure to read, understand and follow the Safety Messages and Operating Instructions could result in serious injury to yourself and others.

SAFETY ALERT SYMBOLS AND SIGNAL WORDS

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

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

DANGER

You **WILL** be **KILLED** or **SERIOUSLY INJURED** if you **DO NOT** follow these directions.

WARNING

You **CAN** be **KILLED** or **SERIOUSLY INJURED** if you **DO NOT** follow these directions.

CAUTION

You **CAN** be **INJURED** if you **DO NOT** follow these directions.

NOTICE

NOTICE - Practices that could result in damages to the trailer or other property.


WARNING

The following safety guidelines should always be used when operating a portable generator that may be trailer mounted.

These guidelines **DO NOT** cover all of the specific details necessary for safe operation of the generator.

Failure to follow these safety guidelines may lead to serious injury or even death.

GENERAL SAFETY

- **DO NOT** operate or service this equipment before reading this entire manual. 
- This equipment is to be operated by trained and qualified personnel over the age of 18 yrs old.
- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.



- **NEVER** operate this equipment when not feeling well due to fatigue, illness or taking medicine.
- **NEVER** operate this equipment under the influence of drugs or alcohol.



- **NEVER** use accessories or attachments, which are not recommended by **MQ Power** for this equipment. Damage to the equipment and/or injury to user may result.
- Manufacturer does not assume responsibility for any accident due to equipment modifications.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Always check the machine for loosened threads or bolts before starting.

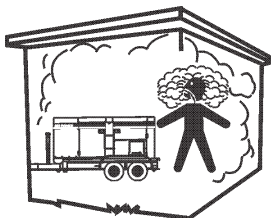
EQUIPMENT SAFETY GUIDELINES

! WARNING - BURN HAZARDS



Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operations. **NEVER** operate the engine with heat shields or heat guards removed.

- The engine of this generator requires an adequate free flow of cooling air. Never operate the generator in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause serious damage to the generator or engine and may cause injury to people. The generator engine gives off DEADLY carbon monoxide gas.



! CAUTION - VENTILATION

Always refuel in a well-ventilated area, away from sparks and open flames.

- Always use extreme caution when working with **flammable** liquids. When refueling, **stop the engine** and allow it to cool. **DO NOT smoke** around or near the machine. Fire or explosion could result from fuel vapors, or if fuel is spilled on a hot engine.



- **NEVER** operate the generator in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe *bodily harm or even death*.
- Topping-off to filler port is dangerous, as it tends to spill fuel.

! DANGER - ELECTROCUTION HAZARD

NEVER touch output terminals during operation. This is extremely dangerous. Always stop the machine when contact with the output terminals.



! WARNING - ELECTROCUTION HAZARD

Backfeed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is opened.

Never use damaged or worn cables when connecting power tools or equipment to the generator. Make sure power connecting cables are securely connected to the generator's output terminals, insufficient tightening of the terminal connections may cause damage to the generator and electrical shock.



! WARNING - BURN HAZARDS

DO NOT touch or open any of the below mentioned components while the generator is running. Always allow sufficient time for the engine and generator to cool before performing maintenance.

Fluid Plugs

1. Radiator Cap - Removing the radiator cap while the engine is hot will result in high pressurized, boiling water to force out of the radiator, causing severe scalding to any persons in the general area of the generator.
2. Coolant Drain Plug - Removing the coolant drain plug while the engine is hot will result in hot coolant to force out of the coolant drain plug, therefore causing severe scalding to any persons in the general area of the generator.
3. Engine Oil Drain Plug - Removing the engine oil drain plug while the engine is hot will result in hot oil to force out of the oil drain plug, therefore causing severe scalding to any persons in the general area of the generator.



- **ALWAYS** make sure that electrical circuits are properly **grounded** per the **National Electrical Code** (NEC) and local codes before operating generator. Severe **injury** or **death!** by electrocution can result from operating an ungrounded generator.
- **ALWAYS** be sure the operator is familiar with proper safety precautions and operations techniques before using generator.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children.

EQUIPMENT SAFETY GUIDELINES

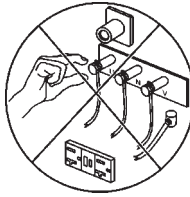
DANGER - ELECTROCUTION HAZARDS

NEVER use damaged or worn cables when connecting equipment to the generator. Make sure power connecting cables are securely connected to the generator's output terminals, insufficient tightening of the terminal connections may cause damage to the generator and electrical shock.

NEVER grab or touch a live power cord with wet hands, the possibility exists of electrical shock, electrocution, and even **death!**



NEVER touch output terminals during operation. **ALWAYS** stop the machine and place the circuit breaker in the "OFF" position when contact with the output terminals is required. There exists the possibility of **electrocution, electrical shock or burn, which can cause severe bodily harm or even death!**



Backfeed to a utility system can cause **electrocution** and or property damage. **DO NOT** connect to any building's electrical system except through an approved device or after building main switch is opened. **ALWAYS** have a licensed electrician perform the installation.

WARNING - GROUNDING

ALWAYS make sure the generator is properly **grounded** per the **National Electrical Code (NEC)** and local codes before operating generator. Severe **injury** or **DEATH!** by electrocution can result from operating an ungrounded generator.

Transporting

- Always shutdown engine before transporting.
- Tighten fuel tank cap securely.
- Drain fuel when transporting generator over long distances or rough terrain.
- Always tie-down the generator during transportation by securing the generator.
- **MQ Power** trailers meet or exceed all local and state safety transportation regulations as mandated by the National Highway Traffic Safety Administration (NHTSA) If the generator is mounted on a trailer other than one manufactured by **MQ Power**, make sure the trailer complies with all local and state safety transportation regulations.

Loading and Unloading (Crane)

- Before lifting, make sure the generator's lifting hook is secure and that there is no apparent damage to the generator itself (loose screws, nuts and bolts). If any part is loose or damaged, please take corrective action before lifting. Always drain fuel prior to lifting.
- Make sure crane or lifting device has been properly secured to the hook of guard frame on generator.
- **NEVER** lift the machine while the engine is running.
- Use adequate lifting cable (wire or strap) of sufficient strength.
- When lifting the generator, always use the balanced center-point suspension hook and lift straight upwards.
- **NEVER** allow any person or animal to stand underneath the machine while lifting.
- When loading the generator on a truck, be sure to use the front and back frame bars as a means to secure the generator during transport.

Maintenance Safety

- **NEVER** lubricate components or attempt service on a running machine.
- Always allow the machine a proper amount of time to cool before servicing.
- Keep the machinery in proper running condition.
- Fix damage to the machine immediately and always replace broken parts.
- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, coolant, fuel, and fuel filters.
- **DO NOT** use plastic containers to dispose of hazardous waste.
- **DO NOT** pour waste, oil, coolant or fuel directly onto the ground, down a drain or into any water source.

Emergencies

- Always know the location of the nearest **fire extinguisher** and **first aid kit**. Know the location of the nearest telephone. Also know the phone numbers of the nearest **ambulance**, **doctor** and **fire department**.

EQUIPMENT SAFETY GUIDELINES

BATTERY SAFETY AND MAINTENANCE

Use the following guidelines when handling a battery.

Always maintain battery fluid level between the specified marks. Battery life will be shortened, if the fluid level is not properly maintained. Add only distilled water when replenishment is necessary.

CAUTION - BATTERY FLUID

Never over fill the battery with water above the upper limit.

The battery contains acids that can cause injury to the eyes and skin. To avoid eye irritation, always wear safety glasses. Use well insulated gloves when picking up the battery.

Check to see whether the battery cables are loose. Poor contact may result in poor starting or malfunctions. **Always** keep the terminals firmly tightened. Coat the terminals with an approved battery terminal treatment compound. Replace battery with only recommended type battery.

The battery is sufficiently charged if the specific gravity of the battery fluid is 1.28 (at 68° F). If the specific gravity should fall to 1.245 or lower, it indicates that the battery is dead and needs to be recharged or replaced.

Battery Cable Installation

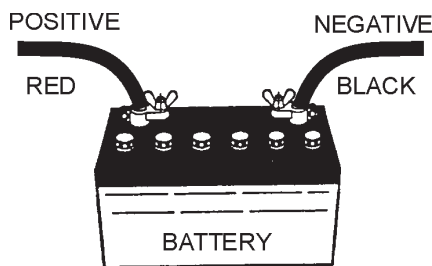
Always be sure the battery cables are properly connected to the battery terminals as shown below. The **RED** cable is connected to the positive terminal of the battery, and the **BLACK** cable is connected to the negative terminal of the battery.

CAUTION - BATTERY CONNECTION

ALWAYS disconnect the negative terminal **FIRST** and reconnect negative terminal **LAST**. If the battery cable is connected incorrectly, electrical damage to the generator will occur and it may also create other malfunctions. Pay close attention to the polarity of the battery when making the connections.

When connecting battery do the following:

- **NEVER** connect the battery cables to the battery terminals when the ignition switch is in either the Pre-Heat, RUN, or START position. **ALWAYS** make sure that the ignition switch is in the STOP position when connecting the battery.
- Place a small amount of battery terminal treatment compound around both battery terminals. This will ensure a good connection and will help prevent corrosion around the battery terminals.



Battery Connections

1. **DO NOT** drop the battery. There is the possibility of risk that the battery may explode.
2. **DO NOT** expose the battery to open flames, sparks, cigarettes etc. The battery contains combustible gases and liquids. If these gases and liquids come in contact with a flame or spark, an explosion could occur.
3. Always keep the battery charged. If the battery is not charged a buildup of combustible gas will occur.
4. Always keep battery charging and booster cables in good working condition. Repair or replace all worn cables.
5. Always recharge the battery in an open air environment, to avoid risk of a dangerous concentration of combustible gases.
6. In case the battery liquid (dilute sulfuric acid) comes in contact with clothing or skin, rinse skin or clothing immediately with plenty of water.
7. In case the battery liquid (dilute sulfuric acid) comes in contact with your eyes, rinse eyes immediately with plenty of water, then contact the nearest doctor or hospital, and seek medical attention.
8. Always disconnect the battery before performing service on the generator.

EQUIPMENT SAFETY GUIDELINES

FILLING THE FUEL SYSTEM

Some models of **MQ Power** trailers are built with an integral fuel tank which serves as part of the fuel system for an on-board diesel engine generator. If so equipped, the user **must** read and understand the following instructions before attempting to fill the fuel system.

! DANGER - EXPLOSIVE FUEL

Diesel fuel is extremely flammable, and its vapors can cause an explosion if ignited. **DO NOT** start the engine near spilled fuel or combustible fluids. **DO NOT** fill the fuel tank while the engine is running or hot. **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system. If fuel spillage occurs, wipe up the spilled fuel completely to prevent fire hazards. **NEVER** smoke around or near the generator. Store fuel in approved containers, in well-ventilated areas and away from sparks and flames. **NEVER** use fuel as a cleaning agent.



ALWAYS fill the fuel tank with clean and fresh **#2 diesel fuel**. **DO NOT** fill the fuel tanks beyond their capacities.

Pay attention to the fuel tank capacity when replenishing fuel. The fuel tank cap must be closed tightly after filling. Handle fuel in a safety container. If the container does not have a spout, use a funnel. Wipe up any spilled fuel immediately.

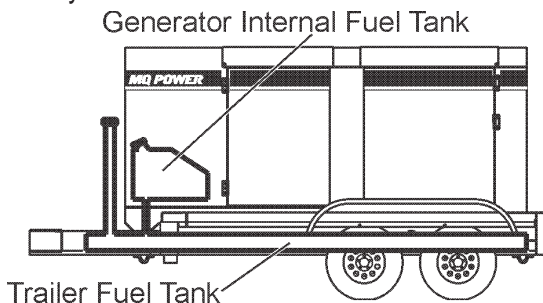


Figure 1. Double Fuel Tank System

! DANGER - LETHAL EXHAUST GASES

Diesel fuel and its vapors are dangerous to your health and the surrounding environment. Avoid skin contact and/or inhaling fumes.

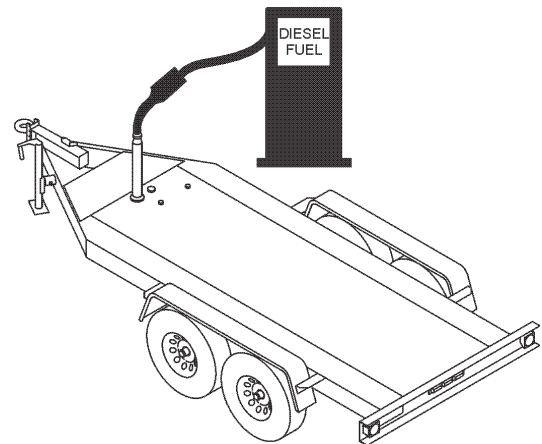


Figure 2. Trailer with Integral Fuel Tank

Refueling Procedure:

! WARNING - BEFORE REFUELING

ONLY properly trained personnel who have read and understood this section should refill the double fuel tank system.

1. **Level Tanks** – make sure fuel cells are level with the ground. **ALWAYS** place trailer on firm level ground before refueling. Failure to do so will cause fuel to spill from the tank before reaching full capacity. See Figure 3 below.

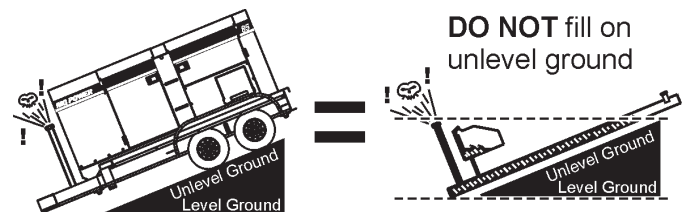


Figure 3. Only Fill on Level Ground

2. **Trailer Fuel Tank First** – The trailer fuel tank is the primary fuel tank and holds a larger capacity of fuel. The fuel in the trailer will be filtered and sent to the engine. **ALWAYS** fill trailer fuel tank first before filling secondary internal tank (Figure 4).

EQUIPMENT SAFETY GUIDELINES

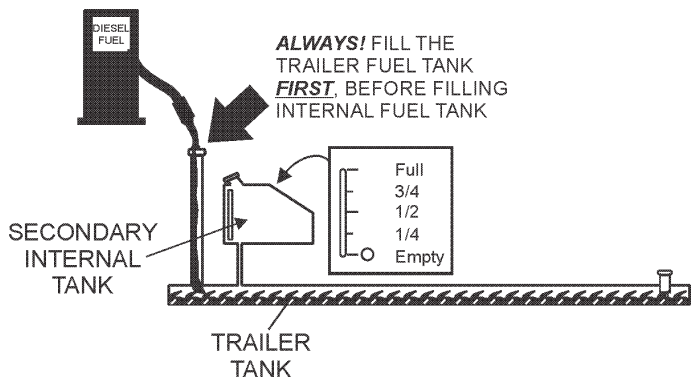


Figure 4. Fuel Tank Filling Order

4. Once the trailer tank is full, the **secondary internal tank** can be filled (See Figure 6). Notice how the trailer filler tube level rises when the internal tank is filled.

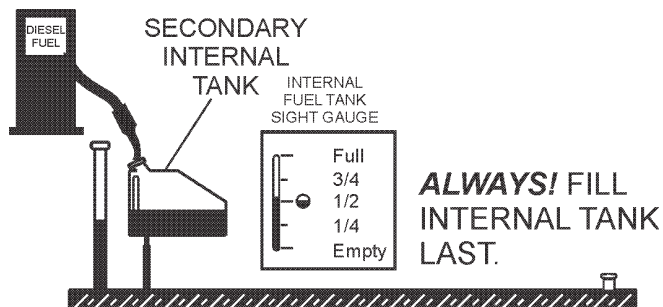


Figure 6. Filling Secondary Internal Fuel Tank

NOTICE

USE ONLY #2 diesel fuel when refueling.

Fuel from the secondary inner tank will eventually drain into the primary trailer tank.

3. **NEVER overfill trailer fuel tank** – It is important to read the trailer fuel gauge when filling trailer fuel tank. **DO NOT** wait for fuel to rise in filler neck. See Figure 5.

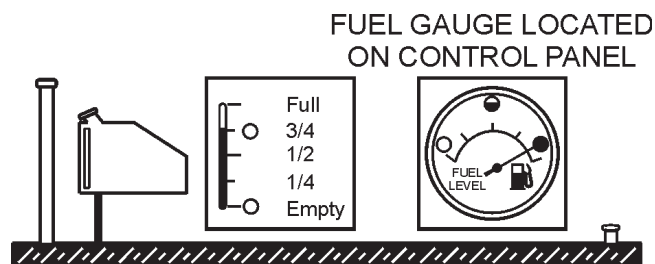


Figure 5. Full Trailer Tank

5. Figure 7 below reflects a full fuel system.

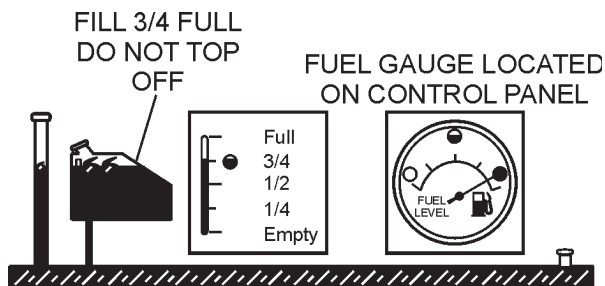


Figure 7. Full Fuel System

6. Fuel from the engine return line will drain into the secondary internal fuel tank. This fuel will eventually drain into the primary trailer tank in order to return to the engine.

It is recommended to only fill the internal secondary tank to 3/4 full in order to allow for fuel return, fuel expansion, and to avoid spillage. See Figure 8 for fuel expansion.

CAUTION - OVER FUELING

DO NOT OVER-FILL fuel system. Leave room for fuel expansion. Fuel expands when heated.

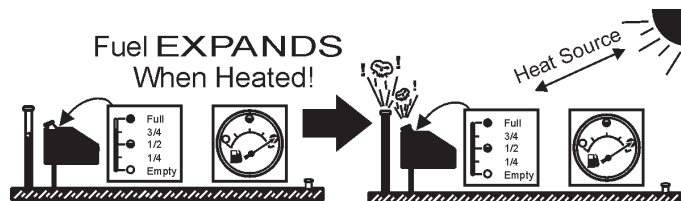


Figure 8. Fuel Expansion

TRAILER SAFETY INFORMATION

TRAILER SAFETY INFORMATION

Safety precautions should be followed at all times when operating this equipment. Failure to read, understand and follow the Operating Instructions could result in injury to yourself and others. 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:

- Driving too fast for the conditions (maximum speed when towing a trailer is 60 m.p.h.);
- Overloading the trailer or loading the trailer unevenly;
- Trailer improperly coupled to the hitch;
- Inadequate tow vehicle or towing hitch;
- No braking on trailer;
- Not maintaining proper tire pressure;
- Not keeping lug nuts tight; and
- Not properly maintaining the trailer structure.

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.

TRAILER COMPONENTS

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 **MQ Power** at **1-800-628-4641** for a free copy.

MAJOR HAZARDS

DRIVING TOO FAST

Even under ideal road and weather conditions, never drive faster than what is safe. Remember, if you drive too fast, the trailer tires will overheat and possibly blowout. As your speed increases, you are more likely to suddenly lose control. Check for local trailer-tow speed limits in your area.

WARNING

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

Decrease your speed as road, weather and lighting conditions deteriorate.

FAILURE TO ADJUST HANDLING WHILE 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). In addition, you will need a longer distance to pass, due to slower acceleration and increased length.

- 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 is the trailer reaction to the air pressure wave caused by passing trucks and busses. Continued pulling of the trailer provides a stabilizing force to correct swaying. Do not apply the brakes to correct trailer swaying.
- 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 roofed areas and around trees.

TRAILER SAFETY INFORMATION

TRAILER NOT PROPERLY COUPLED TO HITCH

It is critical that the trailer be securely coupled to the hitch, and that the safety chains are correctly attached. Uncoupling may result in death or serious injury.

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 hitch load rating is equal to or greater than the load rating of the coupler
- Be sure the hitch 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.

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
- 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
- The trailer lights are connected and checked

INCORRECT USE OF SAFETY CHAINS

MQ Power trailers are equipped with safety chains so control of the trailer can still be maintained even if the trailer comes loose from the hitch. It is important to always connect the safety chains and for maximum effectiveness, ensure they are properly rigged.

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

INCORRECT USE OF BREAKAWAY BRAKE

MQ Power trailers are equipped with a breakaway brake system that can apply the brakes on your trailer, if for any reason your trailer comes loose from the hitch. You will have a separate set of instructions for the breakaway brake system. The safety chains and breakaway brake system must be in good condition and properly rigged to be effective.

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.

TRAILER SAFETY INFORMATION

MISMATCH OF 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.

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 (GVWR) of your trailer.

UNSAFE TIRES, LUG NUTS OR WHEELS

Trailer tires and wheels are more likely to fail than car tires and wheels because they carry a heavier load. Therefore, it is essential to inspect the trailer tires before each tow.

If a tire has a bald spot, bulge, cuts, is showing any cords, or is cracked, 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 tracking on wet roadways and can result in loss of control, leading to death or serious injury.

Improper tire pressure causes an unstable trailer and can result in a tire blowout and loss of control. Therefore, before each tow you must also check the tire pressure. Tire pressure must be checked when tires are cold. Allow 3 hours cool-down after driving as much as 1 mile at 40 m.p.h. before checking tire pressure. NOTE: Trailer tires will be inflated to higher pressures than passenger vehicle tires.

Please refer to the Tire Safety chapter of this manual beginning on page 54.

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 side wall before towing trailer.

Since trailer wheels and lug nuts (or bolts) are subjected to greater side loads than automobile wheels, they are more prone to loosen. Before each tow, check to make sure they are tight.

WARNING

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

Tighten lug nuts before each tow.

The proper tightness (torque) for lug nuts is listed on page 60 of this manual. Use a torque wrench to tighten the lug nuts. 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. Then 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 parting 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 parting from the trailer, leading to death or serious injury.

Be sure lug nuts are tight before each tow.

TRAILER SAFETY INFORMATION

OVERLOAD

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, you must weigh it at a commercial scale. In addition, you must distribute the load in the trailer such that the load on any tire or axle does not exceed the tire load rating or the Gross Axle Weight Rating (GAWR).

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 an axle Gross Axle Weight Rating (GAWR).

UNSAFE LOAD DISTRIBUTION

Uneven load distribution can cause tire, wheel, axle or structural failure. Be sure your trailer is properly loaded.

A proper weight distribution is equal, right to left; and creates a tongue weight that is in the proper range for stable trailer handling. For tandem and triple axle trailers, it is necessary to know or check that no axle is overloaded.

In Table 1 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 Ball Hitch or Bumper Hitch, with a loaded weight of 10,000 pounds, should have approximately 10-15% of 10,000 pounds on the tongue. That is, the example trailer would have 1,000 to 1,500 pounds on its tongue.

TABLE 1. TONGUE WEIGHT AS A PERCENTAGE OF LOADED TRAILER WEIGHT

TYPE OF HITCH	PERCENTAGE
BALL HITCH (OR BUMPER HITCH)	10% - 15%
PINTLE EYE HITCH	10% - 15%
GOOSENECK HITCH	20% - 25%
FIFTH WHEEL HITCH	

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 Table 1)
- Distribute the load evenly, right and left, to avoid tire overload
- Keep the center of gravity low

Towing stability also depends on keeping the center of gravity as low as possible. Load heavy items on the floor, and over the axles, but do not exceed the axle load rating (GAWR). When loading additional items, be sure to maintain even side-to-side weight distribution and proper tongue weight. Please refer to the Loading the Trailer section of this manual for additional loading information.

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.

Secure all loads with proper sized fasteners, ropes, straps, bolts, etc.

Always secure any door latches after closing. Place a linchpin in the catch to prevent the door latch from opening.

INAPPROPRIATE CARGO

MQ Power trailers are designed for transporting specific cargo. We recommend you carry only that cargo on the trailer. A utility trailer must not be used to carry certain items, such as people, containers of hazardous substances or containers of flammable substances.

TRAILER SAFETY INFORMATION

WARNING

Do not transport people on the trailer. The transport of people puts their lives at risk and may be illegal.

WARNING

Do not transport flammable, explosive, poisonous or other dangerous materials in your trailer.

Exceptions:

- Fuel in the tanks of vehicles that are being towed
- Fuel stored in the tank of an on-board generator

INOPERABLE BRAKES, LIGHTS OR MIRRORS

Be sure that the brakes and all of the lights on your trailer are functioning properly before towing your trailer. Check the trailer taillights 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. (See Trailer Wiring Diagram on page 53.)

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.

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.

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

HAZARDS FROM MODIFYING YOUR TRAILER

Essential safety items can be damaged by altering your trailer. Simply drilling a hole to secure an attaching bolt can damage an electrical circuit, or other feature of the trailer.

Before making any alteration to your trailer, contact your dealer or **MQ Power** at **1-800-628-4641** and describe the alteration you are contemplating. Alteration of the trailer structure or modification of mechanical, electrical, plumbing, heating or other systems on your trailer must be performed only by qualified technicians who are familiar with the system as installed on your trailer.

HAZARDS FROM ACCESSORIES

The “Accessories” section of this manual contains some information about certain optional accessories that may be on your trailer. Read and follow all of these instructions before operating the accessories.

Generators

If your trailer is equipped with a gasoline or diesel generator, you must have and follow the generator manufacturer's instructions.

Carbon Monoxide is an odorless gas that can cause death. Be certain exhaust from a running generator does not accumulate in or around your trailer, by situations such as:

- Being drawn in by fans or ventilators operated in a trailer
- Prevailing winds
- Being trapped between your trailer and other trailers, vehicles or buildings
- Being trapped between your trailer and, or in a snow bank, or other nearby objects

WARNING

Operating gasoline and diesel generators can lead to death or serious injury by:

- Carbon Monoxide
- Fire and Explosion
- Electrocutation

Do not refuel a running generator or refuel near ignition sources.

TRAILER SAFETY INFORMATION

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 us.

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 us.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 366-0123 in the Washington D.C. area) or write to: NHTSA, U.S. Department of Transportation, Washington, DC 20590. You can also obtain other information about motor vehicle safety from the Hotline.

Call **1-800-628-4641** to reach **MQ Power**.

SAFETY WARNING LABELS ON YOUR TRAILER

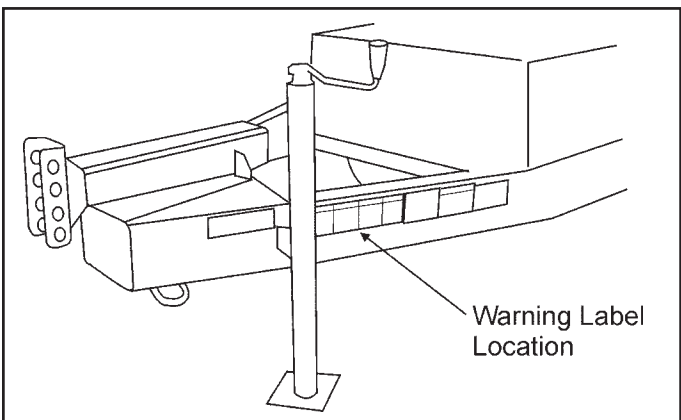


Figure 9. Warning Labels and Locations

WARNING

To protect you and others against death or serious injury, warning labels as those shown in Fig. 9 must be on the trailer and must be legible.

If any of these labels are missing or cannot be read, call **MQ Power at 1-800-628-4641** 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).

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 m.p.h. 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 m.p.h. 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 (counterclockwise, 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.

Trailer Towing Guidelines

- Recheck the load tiedowns 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. Your dealer can assist you by making this adjustment.
- 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.
- 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.
- 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 and power through the curve. This way, the towing vehicle remains in charge.
- Do not apply the brakes to correct extreme trailer swaying. Continued pulling of the trailer, and even slight acceleration, will provide a stabilizing force.
- 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
 - the cargo is secure and in good condition.

COUPLING TO THE TOW VEHICLE

COUPLING TO THE TOW VEHICLE

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

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 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 that of the trailer.

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.

TRAILER INFORMATION

Figure 10 below is a sample of the **MQ Power** Vehicle Identification Number (VIN) Tag which is located on the left front of the trailer (see Figure 11).

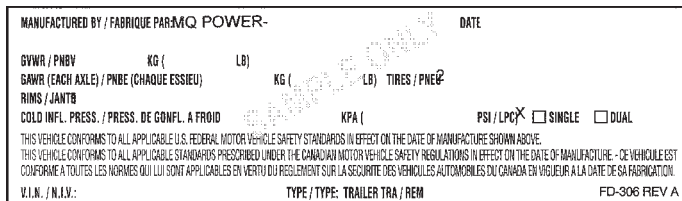


Figure 10. MQ Power Vin Tag

The trailer VIN tag contains the following critical safety information for the use of your trailer.

GAWR: The maximum gross weight that an axle can support. It is the lowest of axle, wheel, or tire rating. Usually, the tire or wheel rating is lower than the axle rating, and determines GAWR.

GVWR: 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). GVWR is sometimes referred to as GTWR (Gross Trailer Weight Rating), or MGTW (Maximum Gross Trailer Weight). GVWR, GTWR and MGTW are all the same rating.

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 to be 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.

PSIC: The tire pressure (Pounds per Square Inch) measured when Cold.

VIN: The Vehicle Identification Number.

EMPTY WEIGHT: Some information that comes with the trailer (such as the Manufacturer's Statement of Origin) is not a reliable source for "empty" or "net" weight. The shipping documents list average or standard weights and your trailer may be equipped with options. To determine the "empty" or "net" weight of your trailer, weigh it on an axle scale. To find the weight of the trailer using an axle scale, you must know the axle weights of your tow vehicle **without** the trailer coupled. Some of the trailer weight will be transferred from the trailer to the tow vehicle axles, and an axle scale weighs all axles, including the tow vehicle axles.

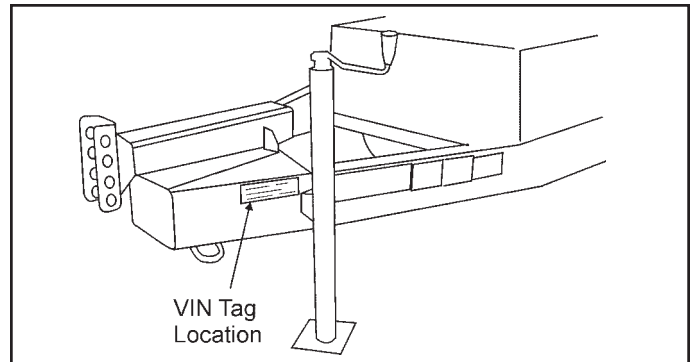


Figure 11. VIN Tag Location

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 capacities of their various models. 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. Your vehicle dealer can provide and install the proper hitch on your tow vehicle.

Suspension System

Sway bars, shock absorbers, heavy duty springs, heavy duty tires and other suspension components must be able to sufficiently serve the size and weight of the trailer that is going to be towed.

Brake Controller

For trailers equipped with electric brakes, the electric brake controller is part of the tow vehicle and is essential in the operation of the electric brakes on the trailer. The brake controller is not the same as the safety breakaway brake system that may be equipped 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

MQ Power recommends maintaining access to a fire extinguisher at all times.

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.

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:

Coupler

A device on the tongue of the trailer that connects to the hitch device on the tow vehicle.

Hitch

A device on the tow vehicle that supports the weight of the trailer tongue and pulls the trailer. The coupler attaches to the hitch device.

COUPLING TO THE TOW VEHICLE

Safety Chains

If the coupler connection comes loose, the safety chains can keep the trailer attached to the tow vehicle. With properly rigged safety chains, 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.

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 brakes from the tow vehicle.

Breakaway System

If the trailer coupler connection comes loose, the breakaway system can actuate emergency electric or hydraulic brakes depending on the type of actuator on the trailer. The breakaway cable must be rigged to the tow vehicle with appropriate slack that will activate the system if the coupler connection comes loose.

Jack

A device on the trailer that is used to raise and lower the coupler. The jack is sometimes called the “landing gear” or the “tongue jack”.

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
- 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
- The trailer lights are connected and checked.

Coupler Designs

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

- Ball Hitch Coupler
- Pintle Eye Coupler
- Gooseneck Coupler
- Fifth-Wheel

TRAILER WITH BALL HITCH COUPLER

A ball hitch coupler (Figure 12) connects to a ball 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 ball hitch 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.

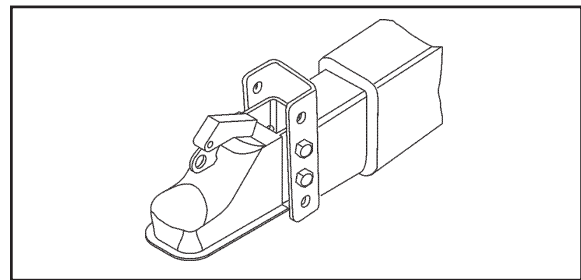


Figure 12. Ball Hitch Coupler on an Adjustable Channel

When so equipped, **MQ Power** has utilized a Ball Hitch coupler that is suitable for the size and weight of the trailer. The load rating of the coupler and the necessary ball size are listed on the trailer tongue. You must provide a hitch and ball for your tow vehicle where the load rating of the hitch and ball is equal to or greater than that of your trailer. Also, the ball size must be the same as the coupler size. If the hitch 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.

THE TOW VEHICLE, HITCH AND BALL MUST HAVE A RATED TOWING CAPACITY EQUAL TO OR GREATER THAN THE TRAILER Gross Vehicle Weight Rating (GVWR). IT IS ESSENTIAL THAT THE HITCH BALL BE OF THE SAME SIZE AS THE COUPLER.

The ball size and load rating (capacity) are marked on the ball; hitch capacity is marked on the hitch.

COUPLING TO THE TOW VEHICLE

BEFORE COUPLING THE TRAILER TO THE TOW VEHICLE

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

! WARNING

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

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

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

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

! WARNING

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

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

Replace worn or damaged hitch ball.

- Rock the ball to make sure it is tight to the hitch, and visually check that the hitch ball nut is solid against the lock washer and hitch frame.
- 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 coupler is tight to the tongue of the trailer. All coupler fasteners must be visibly solid against the trailer frame.

! WARNING

A loose hitchball nut can result in uncoupling, leading to death or serious injury.

Be sure the hitch ball is tight to the hitch before coupling the trailer.

- Raise the bottom surface of the coupler to be above the top of the hitch ball. Use the tongue jack to support the trailer tongue. Wood or concrete blocks may also be used.

PREPARE THE COUPLER AND HITCH

- Lubricate the hitch ball and the inside of the coupler with a thin layer of automotive bearing grease. Raise the coupler above the ball height using the tongue jack provide with your trailer.
- Open the coupler locking mechanism. Ball couplers have a locking mechanism with an internal moving piece and an outside handle.
 - In the open position, the coupler is able to drop fully onto the hitch ball.
 - See the coupler instructions for details of placing the coupler in the “open” position.
- Slowly back up the tow vehicle so that the hitch ball is near or aligned under the coupler if the trailer jack has raised the coupler.

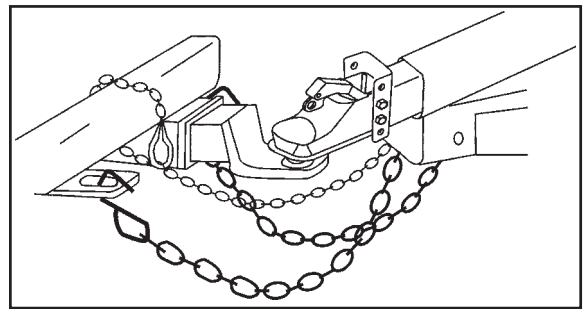


Figure 13. Ball Hitch Coupling Mechanism

COUPLE THE TRAILER TO THE TOW VEHICLE

If your trailer does not have a jack, you will have to lift the coupler and place it over the ball.

- If you have a jack, lower the trailer until the coupler fully engages the hitch ball. If the coupler does not line up with the hitch ball, 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 hitch ball.
- Insert a pin or lock through the hole in the locking mechanism.
- Be sure the coupler is all the way on the hitch 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.

COUPLING TO THE TOW VEHICLE

! 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 **MQ Power** at 1-800-628-4641 or your dealer for assistance.

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

RIG THE SAFETY CHAINS

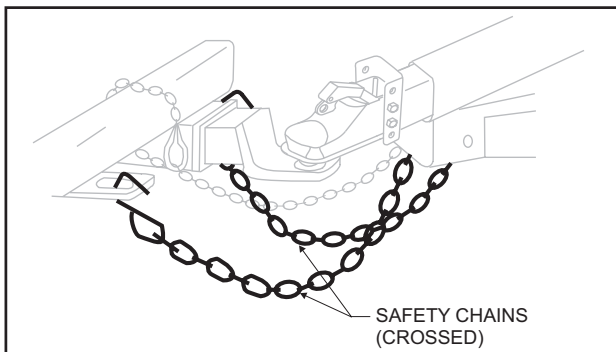


Figure 14. Safety Chain Arrangement for a Bumper Pull Trailer

- 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:
 - cross underneath the coupler (see Figure 14).
 - loop around a frame member of the tow vehicle or to holes provided in the hitch system (but, **do not** attach them to an interchangeable part of the hitch assembly).
 - have enough slack to permit tight turns, but not be close to the road surface, so if the trailer uncouples, the safety chains can hold the tongue up above the road.

! 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.

ATTACH AND TEST BREAKAWAY BRAKE SYSTEM

If the coupler or hitch fails, a properly connected and working breakaway brake system will apply the hydraulic and/or 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.

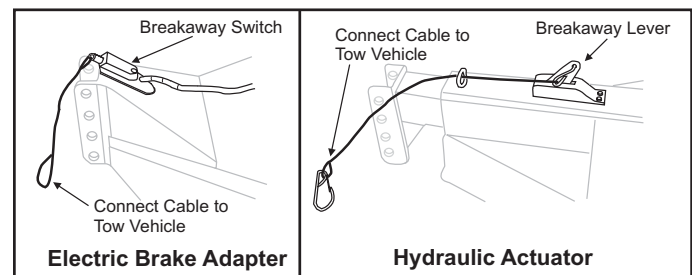


Figure 15. Breakaway Brake Systems

For hydraulic brake equipped trailers, the breakaway brake system includes a brake cable connected to the tow vehicle on one end and to the emergency brake lever located on the hydraulic actuator on the other end. Read and follow the instructions here as well as the instructions that have been prepared by the hydraulic actuator manufacturer. If you do not have these instructions, call **MQ Power** at 1-800-628-4641 for a free copy.

For electric brake equipped trailers, the breakaway brake system includes a DC power source, a switch with a pull pin, and a breakaway brake controller. You must periodically charge the battery to keep the breakaway brake system in working order. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway brake controller manufacturer. If you do not have these instructions, call **MQ Power** at 1-800-628-4641 for a free copy.

COUPLING TO THE TOW VEHICLE

- Connect the pull pin cable 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 Figure 15). Do **not** connect the pullpin 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.
- Remove the pullpin from the switch and test tow the trailer, at less than 5 m.p.h. 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 are repaired.
- Immediately replace the pullpin. The breakaway brake system battery discharges rapidly when the pullpin 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.

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 pullpin 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, you must charge the generator battery every month.

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

CONNECT THE ELECTRICAL CABLES

Connect the trailer lights to the tow vehicle's electrical system using the electrical connectors. Refer to Wiring Diagram on page 53.

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).
- Backup Lights (Put tow vehicle gear shift into reverse).

Check electric brakes for proper operation.

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 brakes work by operating the brake controller inside the tow vehicle

COUPLING TO THE TOW VEHICLE

UNCOUPLING THE BALL HITCH TRAILER WITH TONGUE JACK

Follow these steps to uncouple your ball hitch 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 cable. Promptly replace the pullpin in the switchbox.
- Disconnect the safety chains from the tow vehicle.
- Unlock the coupler and open it.
- 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.

TRAILERS WITH PINTLE EYE HITCH COUPLING

A pintle eye coupler (Figure 16) connects to a pintle-hook 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 a “lunette eye, tow ring or G.I. hitch.”

A pintle hitch 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.

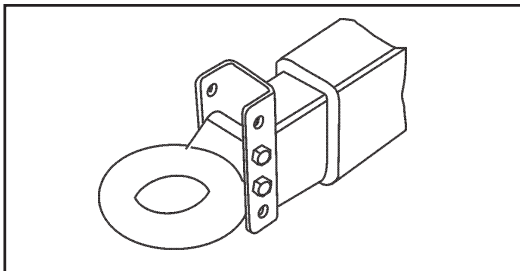


Figure 16. Pintle Eye Hitch Coupler on an Adjustable Channel

We have utilized a pintle coupler that is suitable for the size and weight of the trailer. The load rating of the coupler and the necessary pintle hitch size are listed on the trailer tongue. You must provide a pintle hitch and pintle coupler for your tow vehicle, where the load rating of the pintle hitch and pintle coupler is equal to or greater than that of your trailer. Also, the pintle hitch size must be the same as the pintle coupler size. If the hitch is too small, too large, is under-rated, is loose or is worn, the trailer can come loose from the tow vehicle, and may cause death or serious injury.

THE TOW VEHICLE, PINTLE HITCH AND PINTLE COUPLER MUST HAVE A RATED TOWING CAPACITY EQUAL TO OR GREATER THAN THE TRAILER Gross Vehicle Weight Rating (GVWR).

IT IS ESSENTIAL THAT THE PINTLE HITCH BE OF THE SAME SIZE AS THE PINTLE COUPLER.

The coupler size and load rating (capacity) are marked on the coupler; hitch capacity is marked on the hitch.

BEFORE COUPLING THE TRAILER TO THE TOW VEHICLE

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

! WARNING

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

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

Be sure the **SIZE** of the hitch matches the size of the coupler.

! WARNING

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

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

Replace worn or damaged hitch.

COUPLING TO THE TOW VEHICLE

- Rock the pintle coupler to make sure it is secured to the pintle hitch and is properly locked.
- Wipe the inside and outside of the pintle coupler clean and inspect it visually for cracks and deformations; feel the inside of the coupler for worn spots and pits.
- Be sure the coupler is tight to the tongue of the trailer. All coupler fasteners must be visibly solid against the trailer frame.

WARNING

A pintle hitch not properly fastened can result in uncoupling, leading to death or serious injury.

Be sure the pintle-hook is tight to the hitch before coupling the trailer.

- Raise the bottom surface of the pintle coupler to be above the top of the pintle hitch. Use the jack to support the trailer tongue. Wood or concrete blocks may also be used.

PREPARE THE COUPLER AND HITCH

- Open the pintle hook locking mechanism. These couplers have a locking mechanism with an outside handle.
 - In the open position, the pintle coupler is able to drop fully onto the pintle hitch.
 - See the coupler instructions for details of placing the coupler in the “open” position.
- Slowly back up the tow vehicle so that the hitch ball is near or aligned under the coupler, if the trailer jack has raised the coupler.

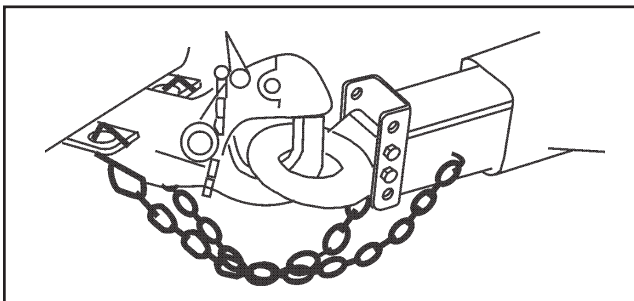


Figure 17. Pintle Hitch Coupler Mechanism

COUPLE THE TRAILER TO THE TOW VEHICLE

If your trailer does not have a jack, you will have to lift the coupler and place it over the hitch.

- If you have a jack, lower the trailer until the coupler fully engages the hitch. 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 hitch.
- Insert a pin or lock through the hole in the locking mechanism.
- Be sure the coupler is all the way on the hitch 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 **MQ Power** at **1-800-628-4641** or your dealer for assistance.

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

COUPLING TO THE TOW VEHICLE

RIG THE SAFETY CHAINS

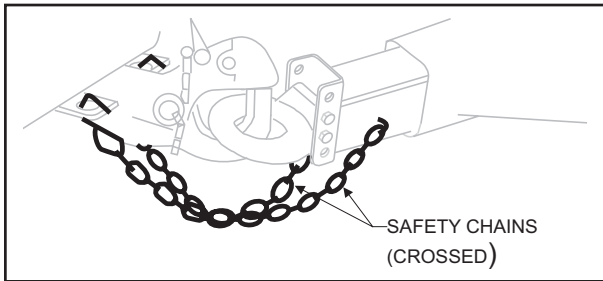


Figure 18. Safety Chain Arrangement for a Pintle Eye Hitch

- 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:
 - cross underneath the coupler (see Figure 18)
 - loop around a frame member of the tow vehicle or to holes provided in the hitch system (but, do **not** attach them to an interchangeable part of the hitch assembly) and,
 - have enough slack to permit tight turns, but not be close to the road surface, so if the trailer uncouples, the safety chains can hold the tongue up above the road.

! 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.

ATTACH AND TEST BREAKAWAY BRAKE SYSTEM

If the coupler or hitch fails, a properly connected and working breakaway brake system will apply the hydraulic and/or 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.

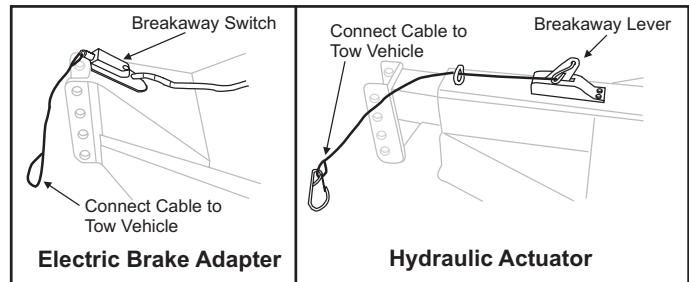


Figure 19. Breakaway Brake Systems

For hydraulic brake equipped trailers, the breakaway brake system includes a brake cable connected to the tow vehicle on one end and to the emergency brake lever located on the hydraulic actuator on the other end. Read and follow the instructions here as well as the instructions that have been prepared by the hydraulic actuator manufacturer. If you do not have these instructions, call **MQ Power at 1-800-628-4641** for a free copy.

- Connect the emergency brake cable to the tow vehicle so the emergency brake lever will engage in the event the trailer becomes uncoupled from the tow vehicle. Do not connect the brake cable to a safety chain or to the hitch coupler or hitch assembly. This could keep the breakaway brake system from operating when it is needed.
- Test the brakes by pulling the emergency brake lever forward until it locks into its second notch position (approximately straight up). Attempt to rotate the wheels in a forward direction. If any wheels rotate, the brakes must be adjusted. If the brakes do not function, do not tow the trailer until the brakes are repaired.
- Do not attempt to tow the trailer with the emergency breakaway brake system "ON".
- Be constantly aware of your systems braking quality; make periodic checks as described in your owner's manual. Consult a certified brake specialist to make necessary adjustments or repairs. Failure to do so could result in loss of trailer braking.

COUPLING TO THE TOW VEHICLE

For electric brake equipped trailers, the breakaway brake system includes a DC power source, a switch with a pull pin, and a breakaway brake controller. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway brake controller manufacturer. If you do not have these instructions, call **MQ Power** at **1-800-628-4641** for a free copy.

The breakaway brake system may be fitted with a charging facility 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 generator battery to keep the breakaway brake system in working order.

- Connect the pull pin cable 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 Figure 19). Do **not** connect the pull pin cable to a safety chain or to the hitch or hitch assembly. This would keep the breakaway brake system from operating when it is needed.
- Remove the pull pin from the switch and test tow the trailer, at less than 5 m.p.h. 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 are repaired.

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

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

WARNING

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

Connect the breakaway cable to the tow vehicle; and NOT to 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.

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, be sure to charge the generator battery every month.

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).
 - Backup Lights (Put tow vehicle gear shift into reverse).

Check electric brakes for proper operation.

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

COUPLING TO THE TOW VEHICLE

UNCOUPLING THE PINTLE HITCH TRAILER WITH TONGUE JACK

Follow these steps to uncouple your ball hitch 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 cable. Promptly replace the pull pin in the switchbox.
- Disconnect the safety chains from the tow vehicle.
- Unlock the pintle-hook and open it.
- 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.

TRAILER WITH SWIVEL TYPE TONGUE JACK

Swivel type tongue jacks are attached to the trailer frame one to two feet behind the trailers coupler. Once the coupler and hitch are secured, the jack can be swiveled parallel to the trailer frame away from the roadway. This is achieved by disengaging the pull pin located on the shaft that attaches the jack to the trailer frame. Replace the pin once the jack is in the desired position.

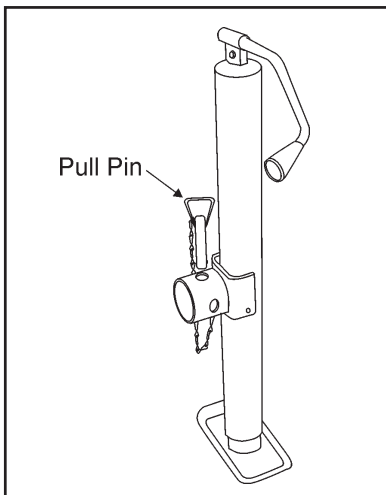


Figure 20. Swivel Tongue Jack

! WARNING

NEVER position any part of your body underneath a trailer being supported by the tongue jack. Serious injury or death could occur if the jack should fail to support the load. NEVER exceed maximum rated capacity

! WARNING

Before using the swivel jack, make certain the pull pin is fully inserted through both sides of the inner tube and the trailer mount.

When operating the jack or coupling tow vehicle to trailer, always secure the wheels of the trailer and tow vehicle to prevent rolling.

TRAILER WITH GOOSENECK COUPLER AND DROP-LEG JACK

A gooseneck coupler on the trailer connects to a gooseneck ball that you must have installed in the bed of the tow vehicle. This system of coupling a trailer to a tow vehicle permits the tow vehicle to turn to sharper angles than are permitted by a bumper hitch system. A gooseneck coupler consists of a tube in an inverted "U" shape and a gooseneck ball receiver.

If so equipped, we have utilized a Gooseneck ball receiver that is suitable for the size and weight of the trailer. The load rating of the coupler and the necessary ball size are listed on the gooseneck.

You must provide a gooseneck ball and support structure that is marked with a rating that meets or exceeds the GVW Rating of your trailer **and** matches the size of the gooseneck ball receiver. If the gooseneck ball is too small, is underrated, is loose or is worn, the trailer can come loose from the tow vehicle, and may lead to death or serious injury.

THE TOW VEHICLE, SUPPORT STRUCTURE AND GOOSENECK BALL MUST HAVE A RATED TOWING CAPACITY EQUAL TO OR GREATER THAN THE TRAILER Gross Vehicle Weight Rating (GVWR).

IT IS ESSENTIAL THAT THE GOOSENECK BALL BE OF THE SAME SIZE AS THE GOOSENECK BALL RECEIVER.

The gooseneck ball size and load rating (capacity) are marked on the ball; hitch capacity is marked on the hitch.

COUPLING TO THE TOW VEHICLE

WARNING

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

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

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

The height of the ball receiver on the trailer must be adjusted to match the height of the gooseneck ball on your tow vehicle, so that:

- there is clearance between the bottom of the trailer and the sides of the tow vehicle bed; and
- the trailer is level and allows equal weight distribution on tandem axles.

Figure 21 shows the gooseneck coupler. The gooseneck height adjustment bolts, which have a “cup” that makes a gripping impression into the gooseneck tube, must be tight so that the trailer does not drop to a lower position. Do not over-tighten because the tube can be deformed. After tightening the bolts, tighten the jam nuts on the bolts.

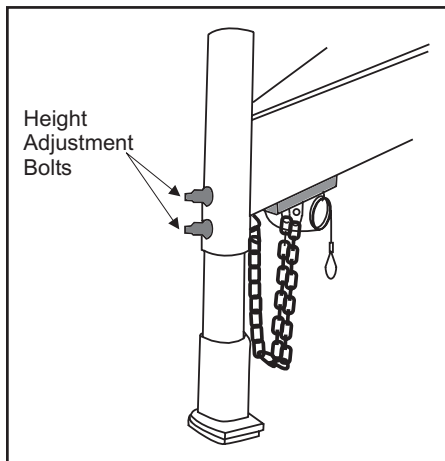


Figure 21. Gooseneck Coupler

WARNING

Improper gooseneck height adjustment can result in overloaded tires, blowout and loss of control, leading to death or serious injury.

Adjust the gooseneck receiver so that the loaded trailer is level.

A trailer having a gooseneck hitch will have one or two drop leg jacks for raising and lowering the gooseneck ball receiver. Because we use several drop leg jack mechanisms, the general instructions below may vary slightly from the jack manufacturer's instructions. If the trailer jack on your trailer does not resemble the jack shown in Figure 22, follow the jack instructions provided by the jack manufacturer. If you do not have these instructions, call **MQ Power** at **1-800-628-4641** for a free copy.

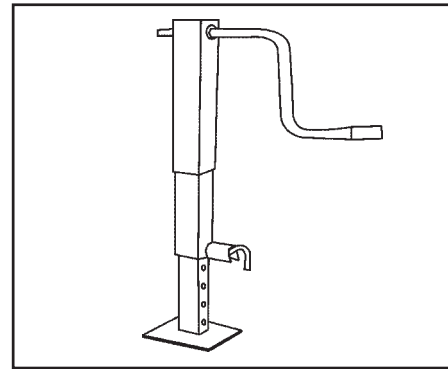


Figure 22. Drop - leg jack

Before attempting to tow the trailer:

- Be sure the size and rating of the gooseneck ball match the size and rating of the receiver. Gooseneck balls and receivers are marked with their size and ratings.
- Wipe the gooseneck ball clean and inspect it visually and by feel for flat spots, cracks and pits.

WARNING

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

Before coupling the trailer, inspect the gooseneck ball for wear, corrosion and cracks; and replace worn or damaged gooseneck ball.

COUPLING TO THE TOW VEHICLE

WARNING

A loose gooseneck ball can result in uncoupling, leading to death or serious injury.

Be sure the gooseneck ball nut is tight before coupling the trailer.

- Rock the ball to make sure it is tight to the ball support, and visually check that the gooseneck ball nut is solid against the lock washer and ball support frame.
- Wipe the inside and outside of the receiver clean and inspect it visually for cracks; and feel the inside of the receiver for worn spots and pits. If any of these conditions exist, have the receiver replaced before coupling the trailer.
- Lubricate the inside of the gooseneck ball receiver with automotive bearing grease.
- Be sure the receiver is tight to the trailer. All receiver fasteners must be visibly solid against the trailer frame.
- Release the jack handle or crank from its holder.
- Make certain the ground beneath the jack foot is firm enough to support the tongue weight.
- Rotate the handle/crank clockwise to raise the bottom surface of the gooseneck to be above the top of the gooseneck ball.

PREPARE THE BALL RECEIVER AND GOOSENECK BALL

- Release the lock plate on the gooseneck ball receiver. With the spring-loaded lock plate locking pin in the OPEN position, rotate the lock plate to a position that allows the gooseneck ball to enter the receiver.
- Slowly back up the tow vehicle so that the gooseneck ball is aligned under the gooseneck ball receiver.

WARNING

If the trailer drops during coupling, death or serious injury may result.

There must be no one under the trailer or coupler before or during the coupling operation.

COUPLE THE TRAILER TO THE TOW VEHICLE

- Rotate the jack handle counter-clockwise. This will retract the jack causing the gooseneck ball receiver to drop down so it can fully engage the gooseneck ball and transfer the weight of the trailer tongue to the towing vehicle hitch. If the receiver does not line up with the ball, raise the receiver again and adjust the position of the tow vehicle. Then lower the receiver over the ball. When the drop leg base is no longer resting on the ground, the towing vehicle hitch is holding all of the weight of the trailer tongue.
- Close the lock plate on the gooseneck ball receiver.
- Move the spring-loaded lock plate locking pin to the CLOSED position. Be sure the locking pin is holding the lock plate.
- Be sure the receiver is all the way on the gooseneck ball and the lock plate 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.

NOTICE

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

If the gooseneck ball cannot be secured to the receiver, do not tow the trailer. Call **MQ Power** at **1-800-628-4641** or your dealer for assistance.

- After testing to see that the receiver is properly secured and locked to the ball, retract the jack to its fully retracted position.
- Return the drop legs to their upper positions. The drop legs are held in the lowered position with a plunger pin. Rotating the plunger pin while pulling it outward will cause it to come out of engagement with the drop leg and the leg will rapidly rise (see Figure 23 on page 33).

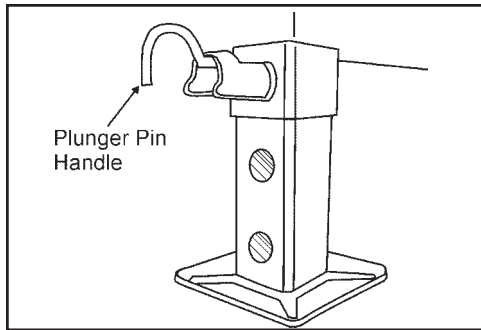


Figure 23. Drop Leg Mechanism

CAUTION

The drop legs are heavily spring loaded in the lowered position. They will rapidly return to the upper position when released and can inflict serious bruises, scrapes or pinching.

Keep your feet, shins and hands well clear of the drop legs and drop leg bases when releasing the drop legs.

Always wear shoes or boots while performing this operation

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 attach to the “safety chain receivers” on the hitch. If you are not certain of the hitch provisions for receiving safety chains, contact the hitch manufacturer or installer. Do NOT attach the safety chains to the gooseneck ball or its support.
- Rig the safety chains so they have sufficient slack to permit turning, but not too much slack. The safety chains must keep the gooseneck on the tow vehicle bed if the trailer uncouples.

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 safety chain receivers on the hitch, not to ball.
- Have sufficient slack to permit turning and to keep gooseneck on bed of trailer, if the trailer comes loose.

ATTACH AND TEST THE 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 pullpin, and a breakaway brake controller. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway brake controller manufacturer. If you do not have these instructions, call **MQ Power at 1-800-628-4641** for a free copy.

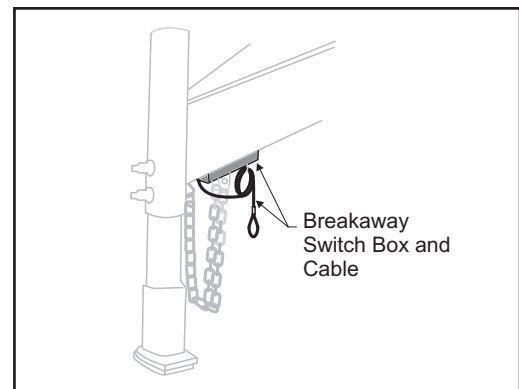


Figure 24. Gooseneck Coupler Breakaway System

The breakaway brake system may be fitted with a charging facility 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 on the trailer to keep the breakaway brake system in working order.

- Visually inspect the breakaway brake system for broken parts.
- Connect the pullpin cable to the tow vehicle so that the pullpin will be pulled out before all of the slack in the safety chains is taken up. Do not connect the pullpin cable to a safety chain or a safety chain receiver or to the gooseneck ball or its support. This would keep the breakaway brake system from operating when it is needed. Contact the hitch manufacturer or installer if you are not certain of the hitch provisions for breakaway brake connection.

COUPLING TO THE TOW VEHICLE

- Remove the pullpin from the switch and test tow the trailer at less than 5 m.p.h. You should feel the trailer resisting being towed, but the wheels will not necessarily be locked.
- Immediately replace the pullpin. The breakaway brake system battery discharges rapidly when the pullpin is removed.

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.

Connect the breakaway cable to the tow vehicle; and **NOT** to the safety chain, safety chain receiver, gooseneck ball or gooseneck ball support.

Test the function of the breakaway brake system before towing the trailer. Do not tow the trailer if the breakaway brake system is not working; have it serviced or repaired.

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 pullpin 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, you must charge the battery in the generator every month.

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).
 - Backup Lights (Put tow vehicle gear shift into reverse).
- Check electric brakes for proper operation.

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 DROP-LEG JACK

Follow these steps to uncouple your gooseneck hitch 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 cable. Promptly replace the pin in the switchbox.
- Disconnect the safety chains from the tow vehicle.
- Move the spring-loaded gooseneck receiver lock plate locking pin to the OPEN position.
- Rotate the lock plate to a position that permits the goose neck ball to exit the receiver.
- Before releasing dropleg jack, make certain ground surface below jack base will support the trailer tongue load.
- Rotate the drop leg plunger pin handle so that the plunger pin is released from the drop leg (see Figure 23).

COUPLING TO THE TOW VEHICLE

- Push down on the drop leg base with your foot to place a drop leg to the desired lowered position.
- Rotate the plunger pin handle so that the plunger pin is attempting to engage the drop leg.
- Slowly raise your foot, permitting the drop leg to raise. The plunger pin will engage a hole in the drop leg.

NOTICE

The drop legs are heavily spring loaded in the lowered position. They will rapidly return to the upper position when released and can inflict serious bruises, scrapes or pinching.

Keep your feet, shins and hands well clear of the drop legs and drop leg bases when releasing the drop legs.

Always wear shoes or boots while performing this operation

- Be sure the plunger pin is fully engaged. Push it in by hand if necessary. The bent part of the plunger pin handle must be touching the plunger pin housing.
- If your trailer has two drop leg jacks, lower them both to the same level, following the above instructions.

NOTICE

If the drop legs are not set at the same level, one of the drop leg jacks can be overloaded and can be damaged.

- Release the handle (or crank) from its holder and engage it with the jack shaft (see Figure 22 on page 31).
- Rotate the handle (or crank) from its hold and engage it with the jack shaft.
- Rotate the handle (or crank) clockwise to slowly extend the jack and transfer the weight of the trailer tongue to the jack.
- On two speed jacks, pushing the handle shaft toward the gearbox can perform rapid extension. This shifts the gearbox into a high speed mode.
- When the drop leg base contacts the ground, shift the gearbox into low speed mode by pulling out on the handle shaft until it locks into low gear.

NOTICE

Do not use high speed to lift the trailer, the drop leg jack mechanism can be damaged.

High speed is used only to rapidly move the drop leg base into contact with the ground.

Continue to extend the jack(s), making sure that the ground is providing stable and level support for the trailer.

After the jack(s) are extended and the gooseneck ball receiver is well clear of the gooseneck ball, to permit driving the tow vehicle away, disengage the handle from its shaft and return to its holder.

TRAILER WITH FIFTH-WHEEL COUPLER AND DROP-LEG JACK

A fifth wheel coupler on the trailer (Figure 25) connects to a kingpin that you must have installed in the bed of the tow vehicle. This system of coupling a trailer to a tow vehicle has a greater tongue weight capacity than a ball hitch or gooseneck coupling.

A fifth wheel coupler includes a flat load-bearing plate with a slot, and a mechanism inside the slot that “grips” the kingpin (see Figure 26 on page 36).

We have utilized a fifth wheel coupler that is suitable for the size and weight of the trailer. You must provide a kingpin and kingpin plate that match the fifth wheel, and that is rated for the Gross Vehicle Weight Rating (GVWR) of your trailer.

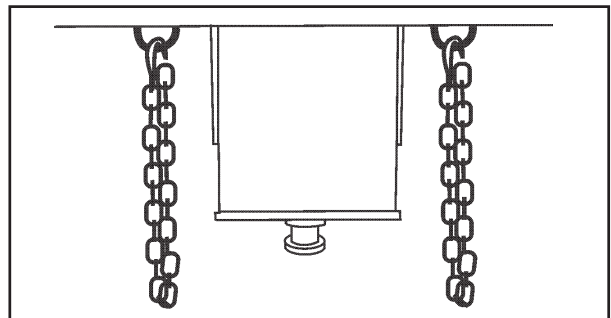


Figure 25. Fifth Wheel Coupler

COUPLING TO THE TOW VEHICLE

BEFORE ATTEMPTING TO TOW THE TRAILER

- Be sure the size and rating of the fifth wheel and kingpin match.
- Wipe the kingpin clean and inspect it visually and by feel for flat spots, cracks and pits. Check the condition of the kingpin mounting in the bed of the tow vehicle.

! WARNING

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

Before coupling the trailer, inspect the kingpin and kingpin plate for wear, bending, cracks or corrosion; and replace worn or damaged kingpin.

- Be sure the fifth wheel mechanism operates freely.
- Lubricate the fifth wheel plate surface with a light coat of Lithium-base, waterproof grease.
- Be sure the fifth wheel and kingpin fasteners are tight and any welds are solid.

! WARNING

A loose fifth wheel or kingpin can result in uncoupling, leading to death or serious injury.

Be sure the fifth wheel and kingpin are tight before coupling the trailer.

- Be sure the brake line, electrical line, and any other lines are clear of the coupling area.
- Be sure the locks are open.
- If the tow vehicle is equipped with a tailgate, lower it.
- Block the trailer wheels, front and rear.
- Make certain that trailer fifth wheel plate is slightly above the kingpin plate on the tow vehicle.
- Back tow vehicle up close to the trailer, centering the kingpin in the slot of the fifth wheel.

STOP before engaging the coupling.

! WARNING

If the trailer drops during coupling, death or serious injury may result.

There must be no one under the trailer or coupler before or during the coupling operation.

- Adjust the height of the trailer, using the jack, so that the fifth wheel plate just touches the kingpin plate.
- Slowly back up the tow vehicle, keeping the kingpin centered in the slot of the fifth wheel. Continue backing up until the fifth wheel locks firmly on the kingpin.
- Visually check to confirm that the fifth wheel locks are properly locked onto the kingpin.

Attempt to pull forward as an initial test of the closing of the fifth wheel locks.

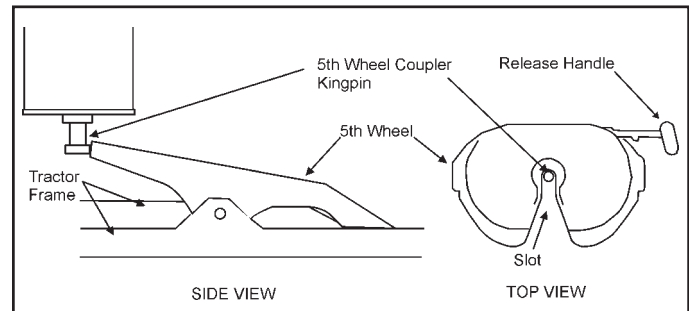


Figure 26. Fifth Wheel Coupler Operation

! WARNING

An improperly coupled fifth wheel can come loose, resulting in death or serious injury.

Do not tow the trailer until all of the visual checks have been performed:

- Adjustment nut against fifth wheel.
- Secondary lock behind yoke.
- Fifth wheel against kingpin plate.

Do not tow the trailer until all of the visual checks have been performed:

- Adjustment nut against fifth wheel.
- Secondary lock behind yoke.
- Fifth wheel against kingpin plate.

COUPLING TO THE TOW VEHICLE

RAISE THE DROP LEG JACK

A trailer having a fifth wheel coupler will be outfitted with one or two drop leg jacks for raising and lowering the fifth wheel coupler. Because we use several drop leg jack mechanisms, the general instructions below may vary slightly from the jack manufacturer's instructions. If the trailer jack on your trailer does not resemble the jack shown in Figure 22 on page 31 or Figure 23 on page 33, follow the jack instructions provided by the jack manufacturer. If you do not have these instructions, call **MQ Power** at **1-800-628-4641** for a free copy.

- Rotate the jack handle counter-clockwise. This will slowly retract the jack and transfer the weight of the trailer tongue to the towing vehicle. When the drop leg base is no longer resting on the ground, the towing vehicle hitch is holding all of the weight of the trailer tongue. Continue retracting the jack to its fully retracted position.
- Return the drop legs to their upper positions. The drop legs are held in the lowered position with a plunger pin. Rotating the plunger pin while pulling it outward about $\frac{3}{4}$ inch will cause it to come out of the engagement with the drop leg and the leg will rapidly raise (see Figure 23 on page 33).
- Raise the Tailgate
- Pick up the trailer wheel blocks.

WARNING

The drop legs are heavily spring loaded in the lowered position. They will rapidly return to the upper position when released and can inflict serious bruises, scrapes or pinching.

Keep your feet, shins and hands well clear of the drop legs and drop leg bases when releasing the drop legs.

Always wear shoes or boots while performing this operation

ATTACH AND TEST THE BREAKAWAY BRAKE SYSTEM

If the coupler fails, a properly connected and working breakaway brake system will apply electric brakes on the trailer.

The breakaway brake system includes a battery, a switch with a pullpin, and a breakaway brake controller. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway brake controller manufacturer. If you do not have these instructions, call **MQ Power** at **1-800-628-4641** for a free copy.

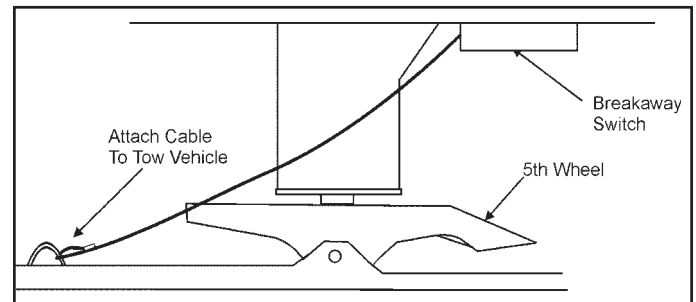


Figure 27. 5th Wheel Coupler Breakaway System

The breakaway brake system may be fitted with a charging facility 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.

- Visually inspect the breakaway brake system for broken parts.
- Connect the pullpin cable to the tow vehicle (see Figure 27). Do not connect to kingpin or its support.
- Remove the pullpin from the switch and test tow the trailer at less than 5 m.p.h. You should feel the trailer resisting being towed, but the wheels will not necessarily be locked.

Immediately replace the pullpin. The breakaway brake system battery discharges rapidly when the pullpin is removed.

COUPLING TO THE TOW VEHICLE

WARNING

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

Connect the breakaway cable to the tow vehicle, and NOT to the kingpin or its 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.

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

WARNING

Failure to replace the pullpin 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, you should charge the generator battery every month.

Replace the breakaway brake battery at intervals recommended by the 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).
 - Backup Light (Put tow vehicle gear shift into reverse).
- Check brakes for proper operation: 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. See the Wiring Diagram on page 53.

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 FIFTH-WHEEL TRAILER WITH DROP-LEG JACK

Follow these steps to uncouple your fifth wheel hitch trailer from your 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 cable. Promptly replace the pin in the switch.
- If the tow vehicle has a tailgate, lower it.
- Make certain that ground surface below jack base will support trailer tongue load.
- Rotate the drop leg plunger pin handle so that the plunger pin is released from the drop leg.

Push down on the drop leg base with your foot to place a drop leg to the desired lowered position.

NOTICE

The drop legs are heavily spring loaded in the lowered position. They will rapidly return to the upper position when released and can inflict serious bruises, scrapes or pinching.


Keep your feet, shins and hands well clear of the drop legs and drop leg bases when releasing the drop legs.

Always wear shoes or boots while performing this operation

COUPLING TO THE TOW VEHICLE


- Rotate the plunger pin handle so that the plunger pin is attempting to engage the drop leg.
- Slowly raise your foot, permitting the drop leg to raise. The plunger pin will engage a hole in the drop leg.
- Be sure the plunger pin is fully engaged. Push it in by hand if necessary. The bent part of the plunger pin handle must be touching the plunger pin housing.

If your trailer has two drop leg jacks, lower them both to the same level, following the above instructions.

	NOTICE
If the drop legs are not set at the same level, one of the drop leg jacks can be overloaded and can be damaged.	

- Release the handle (or crank) from its holder and engage it with the jack shaft.
- Rotate the handle (or crank) clockwise to slowly extend the jack and transfer the weight of the trailer tongue to the jack.
- On two speed jacks, pushing the handle shaft toward the gearbox can perform rapid extension. This shifts the gearbox into a high speed mode.

When the drop leg base contacts the ground, shift the gearbox into low speed mode by pulling out on the handle shaft until it locks into low gear.

	NOTICE
Do not use high speed to lift the trailer, the drop leg jack mechanism can be damaged. High speed is used only to rapidly move the drop leg base into contact with the ground.	

- Continue to extend the jack(s), making sure that the ground is providing stable and level support for the trailer.
- Turn the crank two or three turns to take some of the weight of the coupling. Do not raise the fifth wheel off the kingpin plate.

After the jack(s) are extended enough to permit driving the tow vehicle away, disengage the jack handle from its shaft and return it to its holder. **DO NOT** drive the tow vehicle yet.

- Open the fifth wheel locks by:
 - pulling the release handle, or
 - using a separate pipe release handle to engage the solid stud on the secondary lock
- Slowly drive the tow vehicle away from the trailer.
- Raise the tow vehicle tailgate.

LOADING THE TRAILER

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 suddenly sway wildly at towing speed. Read the following “Tongue Weight” section.

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 an axle Gross Axle Weight Rating (GAWR).

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 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 suddenly become unstable at high speeds.

If, on the other hand, there is too much tongue weight, the front wheels of the tow vehicle can be too lightly loaded and cause loss of steering control and traction, as well, 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).

Table 1 on page 16 shows “rules of thumb” for determining proper tongue weight.

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 on previous page)
- Distribute the load evenly, right and left, to avoid tire overload
- 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. If you know the weight on your tow vehicle axles when you are not towing a trailer, trailer tongue weight can be determined with the use of a truck axle scale.

The recommended method of checking tongue weight is to use an accessory called a “tongue weight scale.” If a tongue weight scale is not available from your dealer, call **MQ Power** at **1-800-628-4641** for assistance. The tongue weight can also be checked at a public scale.

SECURING THE CARGO

Since the trailer “ride” can be bumpy and rough, you must check your cargo so that it does not shift while the trailer is being towed. All generator assemblies should be securely bolted to the trailer frame. Make sure service doors on the generator housing assembly are latched and locked, to prevent them from blowing open during transit. Avoid stacking or storing loose items on the trailer. Store any unsecured items in the tow vehicle.



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.

PRE-TOW CHECKLIST

Before towing, double-check all of these items:

- Tires, wheels and lug nuts (see the “Major Hazards” section starting on page 13).
- Coupler secured and locked (see the “Coupling and Uncoupling the Trailer” section starting on page 21).
- Safety chains properly rigged to tow vehicle, not to hitch or ball (see the “Coupling to the Tow Vehicle” chapter starting at Page 20).
- Test of lights: Tail, Stop, Turn and Backup
- Safety breakaway switch cable fastened to tow vehicle, not to safety chains (see the “Coupling to the Tow Vehicle” chapter starting at Page 20).
- Cargo properly loaded, balanced and tied down
- Tongue weight
- Doors latched and secured
- Fire extinguisher
- Flares and reflectors

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
- Doors latched and secured

BREAKING IN A NEW TRAILER

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.

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 forward 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 **MQ Power** at **1-800-628-4641**.

A hard stop is used to:

- confirm that the brakes work
- confirm that the trailer brakes are properly synchronized with the tow vehicle brakes; and for many braking systems
- automatically adjust the brake shoes

If your trailer is not fitted with automatically adjusting brakes, the brakes will need to be manually adjusted. Refer to "Manually Adjusting Brake Shoes, beginning on page 48 of this manual for instructions.

SYNCHRONIZING THE BRAKE SYSTEMS (ELECTRIC BRAKES)

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. Common causes of improper brake synchronization are:

- Different trailer loads
- Adverse weather and road conditions
- Uneven current flow from tow vehicles electric system
- Improper trailer brake adjustment

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 obtain proper brake synchronization, drive your tow vehicle 15 to 20 mph and make a few sudden stops on a clean, gravel free paved road. Adjust your brake controller so that you trailer brakes are at a point of impending lock-up but not fully locked. Follow you brake controller's instructions for proper procedures for controller adjustment. Proper brake synchronization is achieved when there is no jerking or pushing from the trailer.

All brakes should work in harmony. If you are experiencing a wheel lock-up adjust all the brakes to work the same. Example: Adjust all other brakes up to have multiple wheel lock-up, then turn down your brake controller to achieve impending brake lock-up. **DO NOT OVER ADJUST THE BRAKES.** This may cause premature shoe wear. Depending on your brakes, tire assemblies and trailer load not all trailer brakes may achieve lock-up. Brake lock-up constitutes longer stopping distances and poor trailer control, therefore it must be avoided.

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 **MQ Power** at **1-800-628-4641** for a free copy.

ACCESSORIES

This chapter provides some basic information for the safe operation of several accessories. For many accessories, such as generators, the manufacturer of the accessory has also provided instructions. **You must read and follow these instructions before using the accessory.** If you are uncertain whether you have all of the instructions, call **MQ Power** at **1-800-628-4641** before operating the accessory. The following accessories are described in this section:

- Diesel and Gasoline (or LP) Generators
- Vending or Accessory Doors
- Electric-powered Landing Gear

Many accessories introduce the risk of fire. If you have an accessory on your trailer, make sure you have a fire extinguisher charged and ready before operating the accessory. Check the fire extinguisher at least once a month. If the fire extinguisher is discharged even partially, it must be recharged. Follow the fire extinguisher manufacturer's instructions for recharging the extinguisher after use.

DIESEL & GASOLINE FUELED ELECTRIC GENERATORS

If your trailer is equipped with a generator, you must read and follow the generator manufacturer's instructions. Carbon monoxide gas is present in the exhaust of all gasoline and diesel engines. (See page 11 of this manual).

Carbon Monoxide is an odorless gas that can cause death. Be certain exhaust from any running engine or burning fuels can not accumulate in areas where people or animals are likely to be present. Conditions that can redirect exhaust fumes are, for example:

- Being drawn in by fans or ventilators
- Prevailing wind
- Being trapped between adjacent trailers, vehicles or buildings
- Being trapped between or in a snow bank or other materials that can redirect fumes.

WARNING

Operating gasoline and diesel generators can lead to death or serious injury by:

- Carbon Monoxide
- Fire and Explosion
- Electrocutation

Do not refuel a running generator or refuel near ignition sources (see pages 11 and 12 of this manual).

Before starting the generator, check fuels and oil levels. Read the generator instruction manual. If you do not have the generator instruction manual, call **MQ Power** at **1-800-628-4641** for a free copy.

Never exceed the capacity of the generator.

Before turning off the generator, remove the electrical load and let the engine to run for two or three minutes to cool the generator.

VENDING & ACCESSORY DOORS

A vending or accessory door opens vertically and has a hinge along its top edge. These heavy doors are sometimes equipped with spring-assisted lifting, usually with a device known as a "gas strut". The gas strut lifting device is not designed to hold a vending door up. You must use the provided solid "prop rods" to hold a vending door in the open position.

WARNING

Gas springs lose their lifting capability with age and cold weather; and can cause the door to fall, resulting in injury. Always hold the door open until the prop rods are in place.

Always use prop rods to hold vending or accessory doors open.

Be prepared to hold the weight of the door when removing the prop rod.

INSPECTION SERVICE & MAINTENANCE

INSPECTION SERVICE & MAINTENANCE

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

TABLE 2. INSPECTION AND SERVICE BEFORE EACH USE

ITEM	INSPECTION/SERVICE	MANUAL PAGE REFERENCE
Breakaway Brakes		
Hydraulic	Check fluid level	24, 28, 33, 37, 48, 61, 62
Electric	Check operation	
Breakaway Battery	Fully charged, connections clean	49
Brakes, all types	Check operation	48, 49, 50, 61, 62
Shoes and Drums	Adjust	48, 49
Coupler and Hitch Ball	Check for cracks, pits and flats. Replace w/ball & coupler having trailer GVW rating. Grease Check locking device & replace when worn.	23 thru 25
Pintle Eye Hitch	Check for cracks, pits and flats. Replace w/hitch & coupler having trailer GVW rating. Grease Check locking device & replace when worn.	25 thru 30
Gooseneck Ball	Check for cracks, pits and flats. Replace w/ball & coupler having trailer GVW rating. Grease Check locking device & replace when worn.	30 thru 33
Fifth Wheel & Kingpin	Check for cracks, pits and flats. Replace w/hitch & coupler having trailer GVW rating. Grease Check locking device & replace when worn.	35 thru 39
Safety Chain(s) & Hooks	Check for wear and damage	24, 27, 33
Tires	Check tire pressure when cold. Inflate as needed	"Tire Safety" Chapter beginning on 54
Wheels - Lug Nuts (Bolts) & Hub	Check for tightness Tighten. For new and remounted wheels, check torque after first 10, 25 & 50 miles of driving and after any impact	60

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INSPECTION SERVICE & MAINTENANCE

TABLE 3. INSPECTION AND SERVICE EACH 6 MONTHS OR 6,000 MILES

ITEM	INSPECTION/SERVICE	MANUAL PAGE REFERENCE
Tires	Rotate @ 5,000 miles Inspect tread and sidewalls thoroughly Replace tire when treads are worn, when sidewall has a bulge, or sidewall is worn	"Tire Safety" Chapter beginning on 54
Brakes, electric		
Magnets	Check wear and current draw	49, 50
Controller (in tow vehicle)	Check power output (amperage) and modulation	17, 21, 49 See Controller Mfr's Manual

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TABLE 4. INSPECTION AND SERVICE EACH YEAR OR 12,000 MILES

ITEM	INSPECTION/SERVICE	MANUAL PAGE REFERENCE
Actuator		
Hydraulic	Check fluid levels Check for loose or damaged fasteners	51
Electric Brake Adapter	Check for loose or damaged fasteners	51
Brakes, all types		
Shoes and drums	Check for scoring and wear Replace per manufacturer's specifications	48, 49, 50, 61, 62
Jack, Drop-leg	Grease gears at top	31 thru 35, 37 thru 39 See Jack Mfr's Manual
Structure		
Frame members	Inspect all frame members. bolts & rivets. Repair or replace damaged, worn or broken parts	46
Welds	Inspect all welds. Repair as needed	46
Wheels		
Sealed Bearings (Hubs)	Check and confirm free running. Replace if not (sealed bearings are not serviceable)	59
Unsealed Bearings (Hubs)	Disassemble/ inspect/ assemble and repack. Replace promptly if immersed in water	59
Rims	Inspect for cracks & dents. Replace as needed	59
Structure	Check for wear and damage	
Axle attachment bolts	Check by dealer	46

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INSPECTION SERVICE & MAINTENANCE

AXLE BOLTS, FRAME, SUSPENSION & STRUCTURE

To perform many of the inspection and maintenance activities, you must jack up the trailer using jacks and jack stands.

When jacking and using jack stands, place them so as to clear wiring, brake lines, and suspension parts (i.e., springs, torsion bars). Place jacks and jack stands inside of the perimeter strip on the supporting structure to which the axles are attached.

WARNING

Never crawl under your trailer unless it is on firm and level ground and resting on properly placed and secured jack stands.

Trailer Structure

Because the trailer receives the most abuse, it will most likely corrode before any other part of the structure. Using a power washer and a detergent solution, thoroughly wash the trailer to remove road grime, bugs, salt or mud. Be sure to take time to check all electrical connections including lights and the brakes, if your trailer is equipped with an electric brake system. Inspect the trailer license plate and make sure it is clean and legible.

Welds

All welds can crack or fail when subjected to heavy loads or movement of cargo that was not properly tied to prevent movement. Any time that you know or suspect that the trailer has been subjected to heavy loads or movement of cargo, immediately inspect the welds and fasteners for damage. Broken or damaged welds can cause injury or severe damage to your trailer and contents. Inspect all of the welds for cracks or failure at least twice a year.

WARNING

Improper weld repair will lead to early failure of the trailer structure and can cause serious injury or death.

Do not repair cracked or broken welds unless you have the skills and equipment to make a proper repair. If not, have the welds repaired by your dealer.

Fasteners

Various fastener types may be used on your trailer. Fasteners provide certain advantages over welded connections in some cases, however, it is important to periodically inspect all of the fasteners to insure proper maintenance of the trailer.

WARNING

Damaged, loose or missing fasteners will weaken the trailers structure and can cause serious injury and damage to the trailer and contents.

Tighten loose fasteners to their proper torque setting.



Tightening Loose Fasteners

When tightening loose fasteners, it is important that they be tightened to their proper torque setting (See Table 5 below). Under tightening may cause them to loosen or disengage during use of the trailer. Over tightening may damage the fasteners and their components causing them to fail or break.

NOTICE

NEVER use an pneumatic air gun to tighten fasteners. Always use a properly calibrated torque wrench.

TABLE 5. FASTENER TYPES AND STRENGTH GRADES FOR MQ POWER TRAILERS

STRENGTH GRADE MARKINGS		
DEFINITION	6 Radial Lines SAE Grade 8 ASTM A-354BD	Lawson TRU-TORQ®
MATERIAL	Medium Carbon Alloy Steel Quenched & Tempered	Special Analysis Alloy Steel Quenched & Tempered
PROOF LOAD STRENGTH PSI	120,000 psi min.	150,000 psi min.
SINGLE SHEAR STRENGTH PSI	97,000 psi	117,000 psi
ULTIMATE TENSILE STRENGTH PSI	150,000 psi min.	180,000 psi min. 190,000 psi avg.
TORQUE REQUIREMENTS	130 (ft lbs.)	140 (ft lbs.)
FASTENER SIZE		
COUPLER	5/8" - 11	N/A
w/Nylon Insert Locknut	5/8" - 11	N/A
TORSION AXLE	N/A	5/8" - 18
w/Grade C All Metal Locknut	N/A	5/8" - 18
HYDRAULIC ACTUATOR & ELECTRIC BRAKE ADAPTER	N/A	5/8" - 18
w/Grade C All Metal Locknut	N/A	5/8" - 18

TRU-TORQ® is a registered trademark of Lawson Products Inc.

N/A = Not Applicable

Replacing Fasteners

Should any of the fasteners become damaged, lost or corroded, it is important to replace them with fasteners of the same size and strength grade (or better) as the originals. Be sure that the fastener components (capscrew, washer and nut) are all of the same strength grade. If you have a question on which fasteners to use on your trailer, contact your dealer or **MQ Power at 1-800-628-4641**

SUSPENSION MAINTENANCE

Leaf Suspension

The leaf suspension springs and associated components (Figure 28) should be visually inspected every 6,000 miles for signs of road damage, excessive wear, elongation of bolt holes, and loosening of fasteners. Replace all damaged suspension parts immediately. Torqued suspension components as detailed in Table 6.

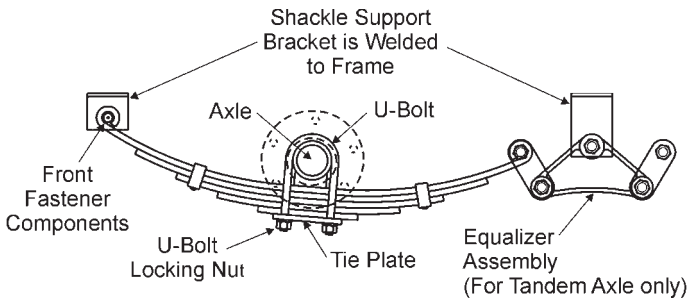


Figure 28. Leaf Suspension Components

Torsion Suspension

With Torsion systems, the suspension takes place inside the square tube which is filled with highly resilient rubber. The mounting bracket of the Torsion assembly is bolted directly to the trailer frame. (See Figure 29 below). Except for periodic inspection of the bracket's fasteners to the vehicle frame, no other suspension maintenance is required on the axles.

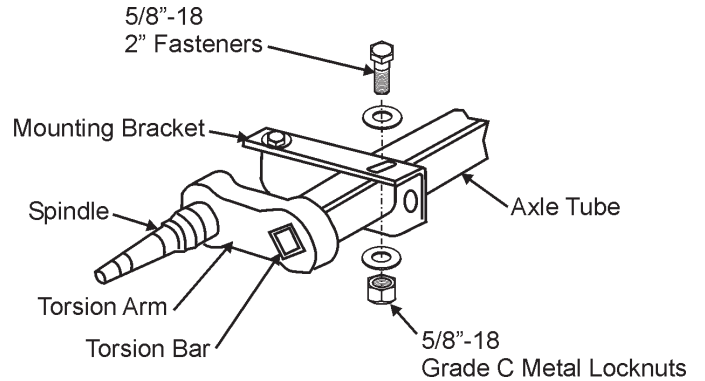


Figure 29. Torsion Suspension Components

⚠ WARNING

Worn or broken suspension parts can cause loss of control and injury may result.

Have trailer professionally inspected annually and after any impact.

Table 6. Suspension Torque Requirements

Item	Torque (Ft.-Lbs.)
3/8" U-BOLT	MIN-30 MAX-35
7/16" U-BOLT	MIN-45 MAX-60
1/2" U-BOLT	MIN-45 MAX-60
Equalizer Bolts	Snug fit only. Parts must rotate freely. Locking nuts are provided to retain nut-bolt assembly.
Shoulder Type Shackle Bolt	

TRAILER BRAKES

Properly functioning brake shoes and drums are essential to ensure safety. The brakes should be inspected the first 200 miles of operation. This will allow the brake shoes and drums to seat properly. After the first 200 mile interval, inspect the brakes every 3,000 miles. If driving over rough terrain, inspect the brakes more frequently.

MANUALLY ADJUSTING THE BRAKES

Most axles are fitted with a brake mechanism that will adjust the brakes during a hard stop. However, some braking systems are not automatically adjusted by hard stopping. These brakes require manual adjustment. The following steps apply to adjust most manually adjustable brakes.

1. Jack up the trailer and secure it on adequate capacity jack stands.
2. Be sure the wheel and brake drum rotate freely.
3. Remove the adjusting-hole cover from the adjusting slot on the bottom of the brake backing plate.
4. With a screwdriver or standard adjusting tool, rotate the starwheel of the adjuster assembly to expand the brake shoes. Adjust the brake shoes out until the pressure of the linings against the drum makes the wheel very difficult to turn. Note: Your trailer maybe equipped with drop spindle axles. See axle manual for your axle type. You will need a modified adjusting tool for adjusting the brakes in these axles. With drop spindle axles, a modified adjusting tool with about an 80 degree angle should be used.
5. Rotate the starwheel in the opposite direction until the wheel turns freely with a slight drag.
6. Replace the adjusting-hole cover.
7. Repeat the above procedure on all brakes.
8. Lower the trailer to the ground.

HYDRAULIC BRAKES

If your trailer has hydraulically-operated brakes, they function the same way the hydraulic brakes do on your tow vehicle. The hydraulic braking system must be inspected at least as often as the brakes on the tow vehicle, but no less than once per year. This inspection includes an assessment of the condition and proper operation of the wheel cylinders, brake shoes, brake drums and hubs.

You must check the fluid level in the master cylinder reservoir at least every three months. If you tow your trailer an average of 1,000 miles per month in a hot and dry environment, you must check the brake fluid level once a month. The brake fluid reservoir is located on the tongue of the trailer or near the gooseneck (see Figure 33 on page 51). Always fill with clean, uncontaminated DOT 3 brake fluid.

Figure 30 below displays the major hydraulic/air/surge brake components that will require inspection and maintenance. Please inspect these components as required using steps 1 through 6 as referenced in the "Manually Adjusting The Brakes" section on this page. See Table 8 Hydraulic Brake Troubleshooting on page 50.

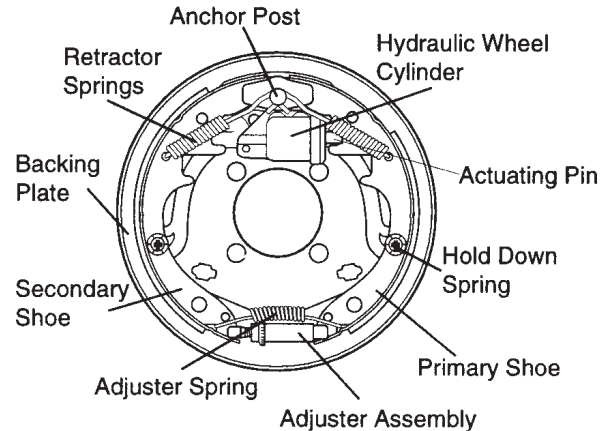


Figure 30. Hydraulic Brake Components

AIR-OVER-HYDRAULIC BRAKE SYSTEM

An air-over-hydraulic brake system combines the use of compressed air and hydraulic pressure for brake operation by using a power cylinder that contains an air cylinder and a hydraulic cylinder in tandem. The air is used to either actuate the hydraulic brakes, or boost the hydraulic brake pressure. The rest of the mechanism is the same as that of hydraulic brakes.

ELECTRIC BRAKES

Electrically actuated brakes (Figure 31) are similar to hydraulic brakes. The basic difference is that hydraulic brakes are actuated by an electromagnet. Listed below are some of the advantages that electric brakes have over hydraulic brakes:

- Brake system can be manually adjusted to provide the corrected braking capability for varying road and load conditions.
- Brake system can be modulated to provide more or less braking force, thus easing the brake load on the towing vehicle.
- Brake system has very little lag time between the time the vehicle's brakes are actuated and the trailer's brakes are actuated.
- Brake system can provide an independent emergency brake system.

Remember in order to properly synchronize the tow vehicle's braking to the trailer's braking, can only be accomplished by road testing. Brake lockup, grabbiness or harshness is due to lack of synchronization between the tow vehicle and the trailer being towed or under-adjusted brakes.

Before any brake synchronizations adjustments can be made, the trailer brakes should be burnished-in by applying the brakes 20-30 times with approximately a 20 m.p.h. decrease in speed, e.g. 40 m.p.h. to 20 m.p.h. Allow ample time for brakes to cool between application. This allows the brake shoes to slightly be seated into the brake drum surface.

Figure 31 displays the major electric brake components that will require inspection and maintenance. Please inspect these components as required. See Table 7 Electric Brake Troubleshooting on page 50.

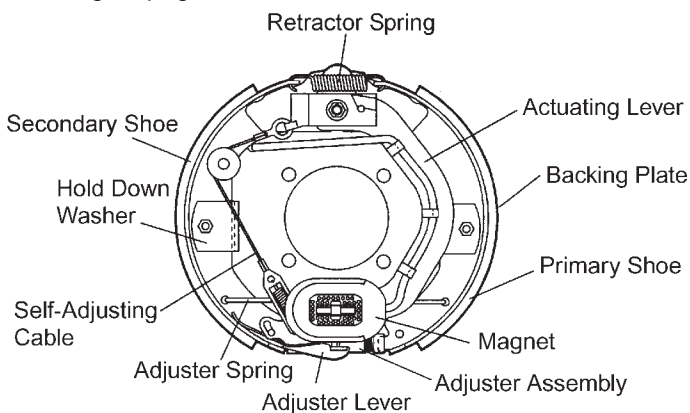


Figure 31. Electrical Brake Components

ELECTRICAL-OPERATED HYDRAULIC

Electric/hydraulic braking systems which are mounted on the trailer, use a small electrically-driven pump to generate hydraulic pressure, which operates the brake cylinders. Like electrical brakes, an electric/hydraulic braking system is operated by an electrical signal from the tow vehicle.

BREAKAWAY BRAKE

Breakaway Battery

This battery supplies the power to operate the trailer brakes if the trailer uncouples from the tow vehicle. Be sure to check, maintain and replace the battery according to the battery manufacturer's instructions.

Breakaway Switch

This switch causes the breakaway battery to operate the electric brakes if the trailer uncouples from the tow vehicle. The pull cable for the pull pin is connected to the tow vehicle, and the switch is connected to the trailer. To check for proper functioning of the switch, battery and brakes, you must pull the pin from the switch and confirm that the brakes apply to each wheel. You can do this by trying to pull the trailer with the tow vehicle, after pulling the pin. The trailer brakes may not lock, but you will notice that a greater force is needed to pull the trailer.

WARNING

If electric breakaway brakes do not operate when trailer is uncoupled from the tow vehicle, death or serious injury can occur.

Check emergency breakaway brake system **BEFORE** each tow.

TOW VEHICLE OPERATED ELECTRIC BRAKES

The electric brakes that operate in conjunction with the tow vehicle brakes must be "synchronized" so that braking is properly distributed to the tow vehicle brakes and the trailer brakes. For proper operation and synchronization, read and follow the axle/brake and the brake controller manufacturers' instructions. If you do not have these instructions, call **MQ Power** at **1-800-628-4641** for a free copy. To make certain an electrically-operated braking system will function properly, you must have your dealer inspect the magnets at least once a year, or each 12,000 miles. See the brake manual for wear and current inspection instructions.

Table 7. Electric Brake Troubleshooting

Symptom	Possible Cause	Solution
No Brakes or Intermittent Brakes	Any open circuits or broken wires?	Find and correct.
	Any short circuits?	Find and correct.
	Faulty controller?	Test and correct.
	Any loose connections?	Find and repair.
	Ground wire secure?	Find and secure.
Weak Brakes or Brakes Pull to One Side	Grease or oil on magnets or linings?	Clean or replace.
	Connections corroded?	Clean and correct cause of corrosion.
	Brake drums scored or grooved?	Machine or replace.
	Brakes synchronized?	Correct.
Locking Brakes	Brake components loose, bent or broken?	Replace components.
	Brake drums out-of-round?	Replace.
Noisy Brakes	System lubricated?	Lubricate.
	Brake components correct?	Replace and correct.
Dragging Brakes	Bearings of the wheel adjusted?	Adjust.

Table 8. Hydraulic Brake Troubleshooting

Symptom	Possible Cause	Solution
No Brakes	Brake line broken or kinked?	Repair or replace.
Weak Brakes or Brakes Pull to One Side	Brake lining glazed?	Reburnish or replace.
	Trailer overloaded?	Correct weight.
	Brake drums scored or grooved?	Machine or replace.
	Tire pressure correct?	Inflate all tires equally.
	Tires unmatched on the same axle?	Match tires.
Locking Brakes	Brake components loose, bent or broken?	Replace components.
	Brake drums out-of-round?	Replace.
Noisy Brakes	System lubricated?	Lubricate.
	Brake components correct?	Replace and correct.
Dragging Brakes	Brake lining thickness correct or in right wrong position?	Install new shoes and linings.
	Enough brake fluid or correct fluid?	Replace rubber parts fill with Dot 4 fluid.

ACTUATOR MAINTENANCE

The actuator is the mechanism that activates the trailer's brake system and is also where the coupler is attached (See "Trailer Connection to Tow Vehicle" section on page 52 and Figure 32 below). Maintenance of the actuator depends on the type that is used on your trailer.

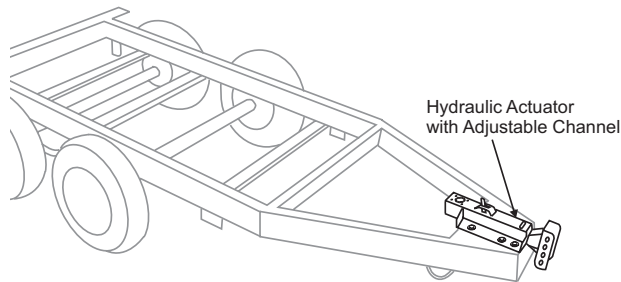


Figure 32. Trailer Actuator

Periodically check the actuator mounting fasteners for damage or loosening. Inspect the actuator for worn or damaged parts. As you are towing your trailer, be aware of any changes in braking quality. This could be an early warning of brake or actuator malfunction and requires immediate attention. Consult a certified brake specialist to make necessary adjustment or repairs.

Hydraulic Actuator

A hydraulic actuator changes fluid power into mechanical power. Therefore, the fluid level must be checked frequently to assure that the brakes function properly. Refer to the "Hydraulic Brakes" section on page 48.

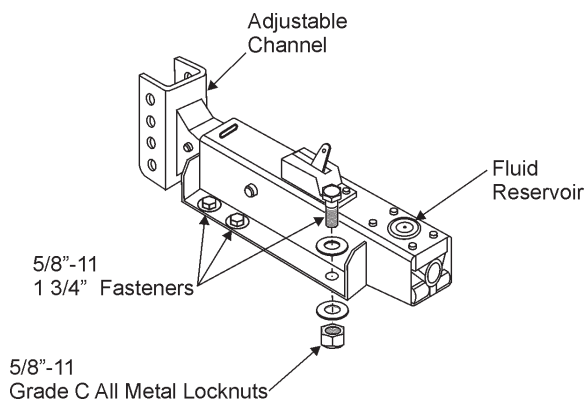


Figure 33. Hydraulic Actuator

! WARNING

Failure to maintain proper fuel level in the actuator may result in loss of braking action which could cause severe property damage, injury or death.

Electric Brake Adapter

If your trailer is equipped with electric brakes, an electric brake adapter serves as the mounting platform for the adjustable channel and coupler. There are no moving parts on the adapter. Except for periodic visual inspection of the fasteners, channel and channel bolts, no other maintenance is required.

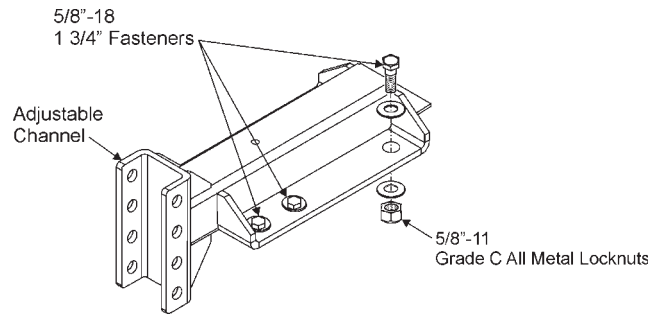


Figure 34. Electric Actuator

Adjustable Channel

Your trailer may be equipped with an adjustable channel that allows the coupler to be raised or lowered to a desired height. Periodically check the channel bolts for damage or loosening.

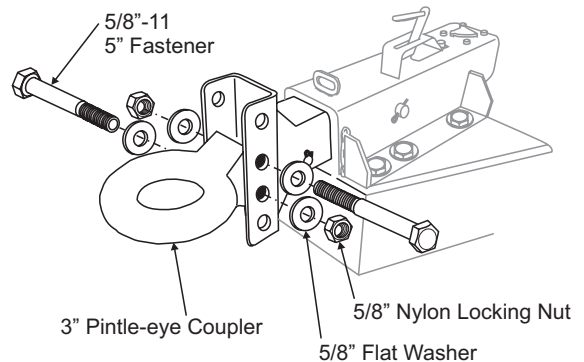


Figure 35. Adjustable Channel With Pintle Eye Coupler

! WARNING

An improperly fastened coupler can cause the trailer to disengage resulting in property damage, serious injury or death.

Be sure the fasteners are tight before towing the trailer.

TRAILER CONNECTION TO TOW VEHICLE

Ball Hitch Coupling

The coupler on the trailer connects to the ball attached to the hitch on the tow vehicle. The coupler, ball and hitch transfer the towing forces between the tow vehicle and the trailer. Before each tow, coat the ball with a thin layer of automotive bearing grease to reduce wear and ensure proper operation; and check the locking device that secures the coupler to the ball for proper operation.

If you see or feel evidence of wear, such as flat spots, deformations, pitting or corrosion, on the ball or coupler, immediately have your dealer inspect them to determine the proper action to prevent possible failure of the ball and coupler system. All bent or broken coupler parts must be replaced before towing the trailer.

The coupler handle lever must be able to rotate freely and automatically snap into the latched position. Oil the pivot points, sliding surfaces, and spring ends with SAE 30W motor oil. Keep the ball pocket and latch mechanism clean. Dirt or contamination can prevent proper operation of the latching mechanism. See the coupler manufacturer's manual for other inspection and maintenance activities. If you do not have this manual, call **MQ Power** at **1-800-628-4641** for a free copy.

NOTICE

When replacing a ball, the load rating must match or exceed the GVWR of the trailer.

Pintle Coupler and Pintle Hook

The coupler on the trailer connects to the hook assembly attached to the hitch on the tow vehicle. The coupler, hook and hitch transfer the towing forces between the tow vehicle and the trailer. Before each tow, check the locking device that secures the coupler to the pintle hook assembly.

See the coupler manufacturer's manual for other inspection and maintenance activities. If you do not have this manual, call **MQ Power** at **1-800-628-4641** for a free copy.

The pintle hook lever must be able to operate freely and automatically snap into place into the latched position. Lightly oil the pivot points and sliding surfaces with SAE30W motor oil to prevent rust and help ensure proper operation of the latching mechanism.

If you see or feel evidence of wear, such as flat spots, deformations, pitting or corrosion, on the pintle hook or coupler, immediately have your dealer inspect them to determine the proper action to prevent possible failure of the ball and coupler system. All bent or broken coupler parts must be replaced before towing the trailer.

Gooseneck

The gooseneck receiver on the trailer connects to a hitch-mounted ball on the towing vehicle. The receiver, ball and hitch transfer the towing forces between the tow vehicle and the trailer. Before each tow, coat the ball with a thin layer of automotive bearing grease to reduce wear and ensure proper operation; and check the locking device that secures the receiver to the ball for proper operation. See the gooseneck ball receiver manufacturer's manual for other inspection and maintenance activities. If you do not have a manual for the receiver, call **MQ Power** at **1-800-628-4641** for a free copy.

If you see or can feel evidence of wear, such as flat spots, pitting or corrosion, on the ball or receiver, immediately have your dealer inspect them to determine the proper action to prevent possible failure of the ball and receiver system.

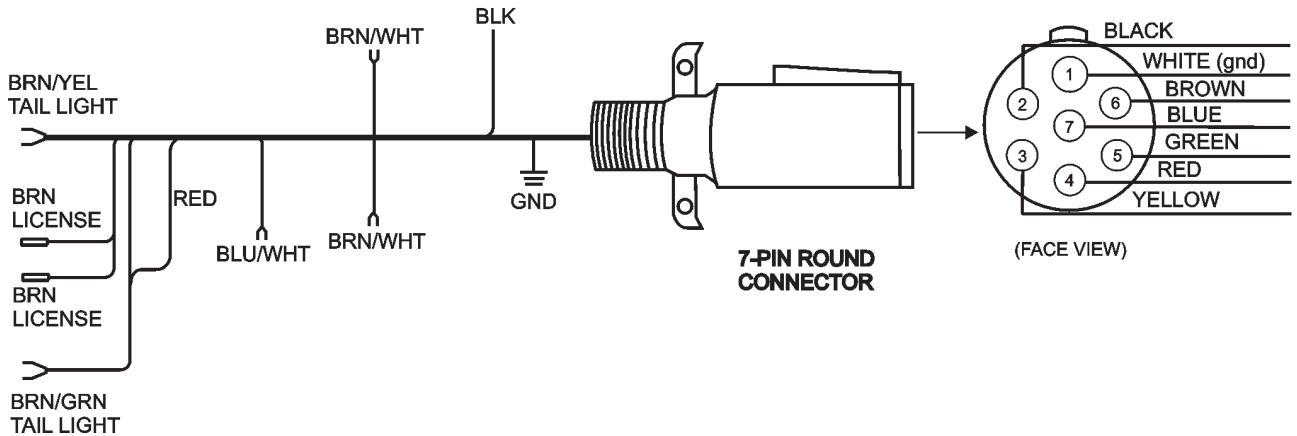
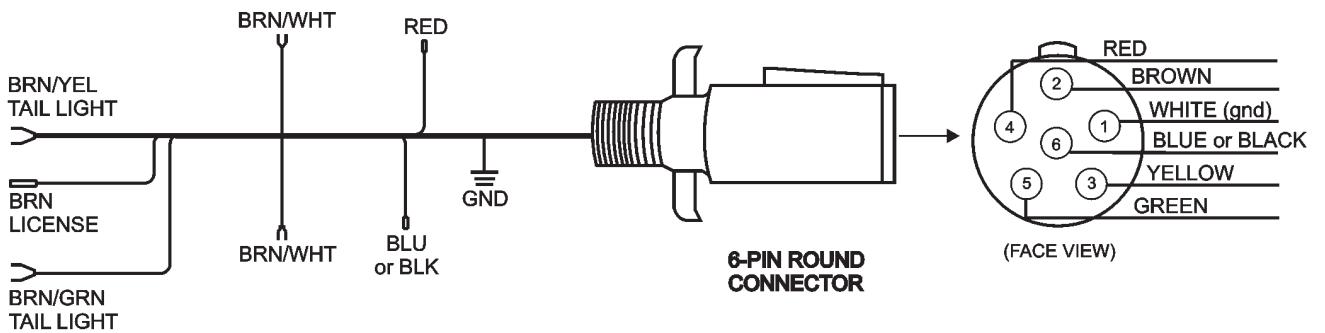
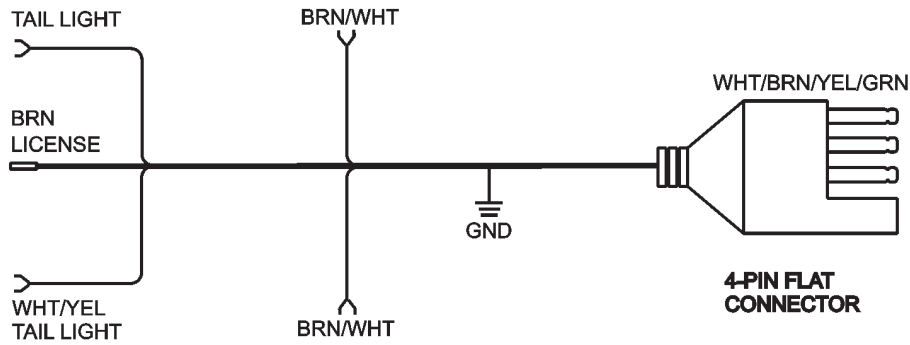
When replacing a ball, the load rating must match or exceed the GVWR of the trailer.

Fifth Wheel Kingpin

Before each tow, inspect the fifth wheel and kingpin for wear, and coat the contact surface of the fifth wheel plate with water-resistant Lithium-base grease. If you see evidence of wear on the fifth wheel or kingpin, immediately have your dealer inspect them to determine the proper action to prevent failure of the fifth wheel and kingpin system. See the manual prepared by the manufacturer of the fifth wheel and kingpin for other inspection and maintenance activities. If you do not have this manual, call **MQ Power** at **1-800-628-4641** for a free copy.

Landing Leg or Jack

If a grease fitting is present, you must use a grease gun to lubricate the jack mechanism. Grease the gears in the top of hand-cranked jacks once a year, by removing the top of the jack and pumping or hand packing grease into the gears.



Trailer to Tow Vehicle Wiring Diagram

Lights and Signals

Before each tow, check the trailer taillights, stoplights, turn signals and any clearance lights for proper operation. Replace any broken or burned-out lamps as necessary. Check the wire harness for cuts, fraying or other damage. If it needs replacing, contact your dealer or **MQ Power** at **1-800-628-4641**

⚠ WARNING
 Improper operating taillights, stoplights and turn signals can cause collisions.
 Check all lights before each tow.

TIRE SAFETY

STEPS FOR DETERMINING CORRECT LOAD LIMIT - TRAILER

Determining the load limits of a trailer includes more than understanding the load limits of the tires alone. On all trailers there is a Federal certification/VIN label that is located on the forward half of the left (road) side of the unit. This certification/VIN label will indicate the trailer's Gross Vehicle Weight Rating (GVWR). This is the most weight the fully loaded trailer can weigh. It will also provide the Gross Axle Weight Rating (GAWR). This is the most a particular axle can weigh. If there are multiple axles, the GAWR of each axle will be provided.

If your trailer has a GVWR of 10,000 pounds or less, there is a vehicle placard located in the same location as the certification label described above. This placard provides tire and loading information. In addition, this placard will show a statement regarding maximum cargo capacity. Cargo can be added to the trailer up to the maximum weight specified on the placard. The combined weight of the cargo is provided as a single number. In any case, remember: the total weight of a fully loaded trailer can not exceed the stated GVWR.

For trailers so equipped, the weight of water and propane also need to be considered. The weight of fully filled propane containers is considered part of the weight of the trailer before it is loaded with cargo, and is not considered part of the disposable cargo load. Water however, is a disposable cargo weight and is treated as such. If there is a fresh water storage tank of 100 gallons, this tank when filled would weigh about 800 pounds. If more cargo is being transported, water can be off-loaded to keep the total amount of cargo added to the vehicle within the limits of the GVWR so as not to overload the vehicle. Understanding this flexibility will allow you, the owner, to make choices that fit your travel needs. When loading your cargo, be sure it is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as reasonable. Too many items on one side may overload a tire. The best way to know the actual weight of the vehicle is to weigh it at a public scale. Talk to your dealer to discuss the weighing methods needed to capture the various weights related to the trailer. This would include the weight empty or unloaded, weights per axle, wheel, hitch or king-pin, and total weight.

Excessive loads and/or underinflation cause tire overloading and, as a result, abnormal tire flexing occurs. This situation can generate an excessive amount of heat within the tire. Excessive heat may lead to tire failure. It is the air pressure that enables a tire to support the load, so proper inflation is critical. The proper air pressure may be found on the certification/VIN label and/or on the Tire and Loading Information placard. This value should never exceed the maximum cold inflation pressure stamped on the tire.

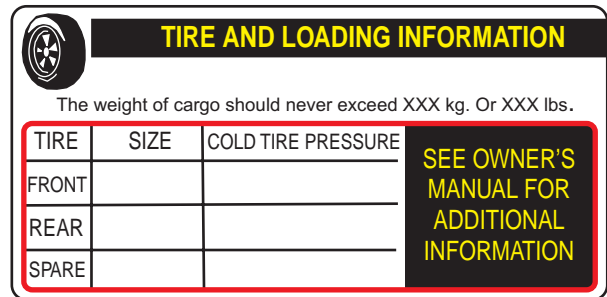


Figure 36. Tire and Loading Information Placard

Step 1. Locate the statement, "The weight of cargo should never exceed XXX kg or XXX lbs.," on your vehicle's Tire and Loading Information placard (Figure 30). This figure equals the available amount of cargo and luggage load capacity.

Step 2. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity.

The trailer's Tire Information Placard is attached adjacent to or near the trailer's VIN (Certification) label at the left front of the trailer (see Figure 10 on page 20).

TRAILERS OVER 10,000 POUNDS GVWR (Note: These trailers are not required to have a tire information placard on the vehicle).

Step 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.

Step 2. Locate the GVWR (Gross Vehicle Weight Rating) of the trailer on your trailer's VIN (Certification) label.

Step 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.

STEPS FOR DETERMINING CORRECT LOAD LIMIT – TOW VEHICLE

Step 1. Locate the statement, “The combined weight of occupants and cargo should never exceed XXX lbs.,” on your vehicle’s placard.

Step 2. Determine the combined weight of the driver and passengers who will be riding in your vehicle.

Step 3. Subtract the combined weight of the driver and passengers from XXX kilograms or XXX pounds.

Step 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.).

Step 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.

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.

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

Use the following 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.

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.

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.

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.

TIRE FUNDAMENTALS

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

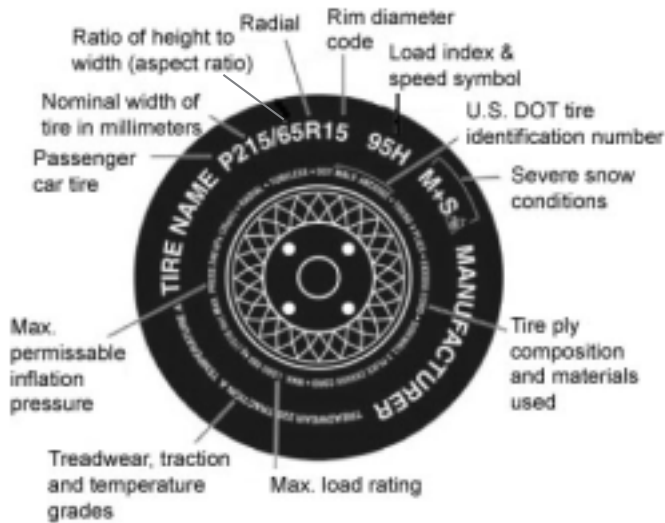


Figure 37. Standard Tire Sidewall Information

P: The “P” indicates the tire is for passenger vehicles.

Next number: This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

Next number: This two-digit number, known as the aspect ratio, gives the tire’s ratio of height to width. Numbers of 70 or lower indicate a short sidewall for improved steering response and better overall handling on dry pavement.

R: The “R” stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years.

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.

Speed Rating: The speed rating denotes the speed at which a tire is designed to be driven for extended periods of time. The ratings range from 99 miles per hour (mph) to 186 mph. These ratings are listed in Table 9. Note: You may not find this information on all tires because it is not required by law.

Letter Rating	Speed Rating
Q	99 mph
R	106 mph
S	112 mph
T	118 mph
U	124 mph
H	130 mph
V	149 mph
W	168* mph
Y	186* mph

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.

UNIFORM TIRE QUALITY GRADING STANDARDS (UTQGS) INFORMATION

Treadwear Number: This number indicates the tire's wear rate. The higher the treadwear 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, underinflation 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".

Additional Information on Light Truck Tires

Please refer to Figure 38 below.

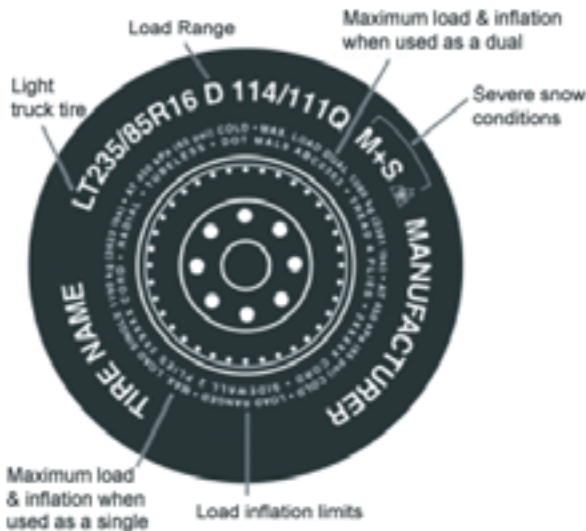


Figure 38. UTQGS Information

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.

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. Also refer to pages 54 and 55 for "Steps for Determining Correct Load Limits".

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 underinflation by visual inspection

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.

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.

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.

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. See Table 10 on page 59.

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 the vehicle's frame. This adjustment maximizes the life of your tires. These adjustments require special equipment and should be performed by a qualified technician.

TIRE REPAIR







The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the sidewall should not be repaired. Tires must be removed from the rim to be properly inspected before being plugged and patched.

Replacing Worn or Damaged Tires

Replace the tire before towing the trailer if the tire treads have less than 1/16 inch depth or the telltale bands are visible. Check inflation pressure weekly during use to insure the maximum tire life and tread wear. A bubble, cut or bulge in a side wall can result in a tire blowout. Inspect both side walls of each tire for any bubble, cut or bulge; and replace a damaged tire before towing the trailer.

Table 10 below will help pinpoint the causes and solutions of tire wear problems.

Table 10. Tire Wear Troubleshooting

WEAR PATTERN	CAUSE	SOLUTION
 Center Wear	Over Inflation.	Adjust pressure to particular load per tire manufacturer.
 Edge Wear	Under Inflation.	Adjust pressure to particular load per tire manufacturer.
 Side Wear	Loss of camber or overloading.	Make sure load does not exceed axle rating. Align wheels.
 Toe Wear	Incorrect toe-in.	Align wheels.
 Cupping	Out-of-balance.	Check bearing adjustment and balance tires.
 Flat Spots	Wheel lockup & tire skidding.	Avoid sudden stops when possible and adjust brakes.

WARNING

Worn, damaged or under-inflated tires can cause loss of control, resulting in damage, serious injury and possibly death. Inspect tires before each tow.

WARNING

ALWAYS wear safety glasses when removing or installing force fitted parts. Failure to comply may result in serious injury.

WARNING

DO NOT attempt to repair or modify a wheel. DO NOT install in inner tube to correct a leak through the rim. If the rim is cracked, the air pressure in the inner tube may cause pieces of the rim to explode (break off) with great force and cause serious eye or bodily injury.

Wheel Rims

If the trailer has been struck, or impacted, on or near the wheels, or if the trailer has struck a curb, inspect the rims for damage (i.e. being out of round); and replace any damaged wheel. Inspect the wheels for damage every year, even if no obvious impact has occurred.

Wheels, Bearings and Lug Nuts

A loose, worn or damaged wheel bearing is the most common cause of brakes that grab.

To check your bearings, jack trailer and check wheels for side-to-side looseness. If the wheels are loose, or spin with a wobble, the bearings must be serviced or replaced.

Most trailer axles are built with sealed bearings that are not serviceable. Sealed bearings must be replaced as complete units.

Unsealed Bearings (Hubs)

If your trailer has unsealed axle bearings, they must be inspected and lubricated once a year or 12,000 miles to insure safe operation of your trailer.

If a trailer wheel bearing is immersed in water, it must be replaced.

If your trailers has not been used for an extended amount of time, have the bearings inspected and packed more frequently, at least every six months and prior to use.

Follow the steps below to disassemble and service the UNSEALED wheel bearings.

- After removing the grease cap, cotter pin, spindle nut and spindle washer, remove the hub and drum to inspect the bearings for wear and damage.
- Replace bearings that have flat spots on rollers, broken roller cages, rust or pitting. Always replace bearings and cups in sets. The inner and outer bearings are to be replaced at the same time.

- Replace seals that have nicks, tears or wear.
- Lubricate the bearings with a high quality EP-2 automotive wheel bearing grease.

Every time the wheel hub is removed and the bearings are reassembled, follow the steps below to check the wheel bearings for free running and adjust.

- Turn the hub slowly, by hand, while tightening the spindle nut, until you can no longer turn the hub by hand.
- Loosen the spindle nut just until you are able to turn it (the spindle nut) by hand. Do not turn the hub while the spindle nut is loose.
- Put a new cotter pin through the spindle nut and axle.
- Check the adjustments. Both the hub and the spindle nut should be able to move freely (the spindle nut motion will be limited by the cotter pin).

LUG NUT TORQUE REQUIREMENTS

It is extremely important to apply and maintain proper wheel mounting torque on the trailer. Be sure to use only the fasteners matched to the cone angle of the wheel. Proper procedure for attachment of the wheels is as follows:

1. Start all wheel lug nuts by hand.
2. Torque all lug nuts in sequence (see Figure 39). DO NOT torque the wheel lug nuts all the way down. Tighten each lug nut in 3 separate passes as defined by Table 11.
3. Check to see if the lug nuts are tight after the first 10, 25 and 50 miles of driving and before each tow thereafter.

Over-tightening will result in breaking the studs or permanently deforming the mounting stud holes in the wheels.

NOTICE

NEVER use an pneumatic air gun to tighten wheel lug nuts.

WARNING

Lug nuts are prone to loosen after initial installation, which can lead to death or serious injury. Check all wheel lug nuts periodically.

WARNING

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

Tighten lug nuts before each tow.

Table 11. Tire Torque Requirements

Wheel Size	First Pass FT-LBS	Second Pass FT-LBS	Third Pass FT-LBS
12"	20-25	35-40	50-65
13"	20-25	35-40	50-65
14"	20-25	50-60	90-120
15"	20-25	50-60	90-120
16"	20-25	50-60	90-120
17.5"	25-50	90-120	180-200

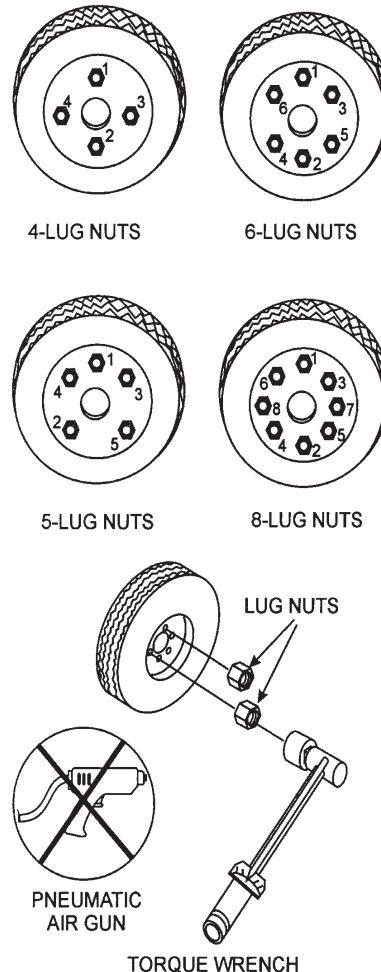


Figure 39. Wheel Lug Nuts Tightening Sequence

STORAGE PREPARATION

If the trailer is to be stored for an extended period of time or over the winter, it is important the trailer is prepared properly.

1. Remove the emergency breakaway battery and store inside, out of the weather (if applicable). Charge the battery at least every 90 days.
2. Jack up the trailer and place jack stands under the trailer frame so the weight will be off the tires. Do not jack up or place jack stands on the axle tube or on the equalizers.
3. Lubricate mechanical moving parts such as the hitch and suspension parts that are exposed to weather.



NOTICE

Do not put grease or oil on brake lining or magnet face.

INSPECTION AFTER PROLONG STORAGE

Before removing trailer from the jack stands:

1. Remove all wheels and hubs or brake drums. Note which spindle and brake that the drum was removed from so that it can be reinstalled in the same location.
2. Inspect suspension for wear.
3. Check tightness of hanger bolt, shackle bolt, and U-bolt nuts with proper torque values (see Table 6 on page 47).
4. Check brake linings, brake drums and armature faces for excessive wear or scoring (if applicable).
5. Check brake magnets with an ohmmeter. The magnets should check 3.2 ohms (for electric brakes only). If shorted or worn excessively, replace.
6. Lubricate all brake moving parts using a high temperature brake lubricant.
7. Remove any rust from braking surface and armature surface of drums with fine emery paper or crocus cloth. Protect bearing from contamination while cleaning.
8. Inspect oil or grease seals for wear or nicks. Replace if necessary.
9. Lubricate hub bearings.
10. Reinstall hubs and adjust bearings.
11. Mount and tighten wheels. See Table 11 on page 60 for tire torque requirements and Figure 39 on page 60 for tightening sequence.

GLOSSARY OF TERMS

AXLE - Indicates the maximum weight the axle can support in pounds, and the diameter of the axle expressed in inches. Please note that some trailers have a double axle. This will be shown as 2-6000 lbs., meaning two axles with a total weight capacity of 6000 pounds.

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.

BRAKING SYSTEM - System employed in stopping the trailer. Typical braking systems are electric, surge, hydraulic, hydraulic-surge and air-over-hydraulic.

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

CFR - Code of Federal Regulations

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.

COUPLER - Type of hitch used on the trailer for towing.

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.

ELECTRICAL - Electrical connectors (looms) are provided with the trailer so the brake lights and turn signals can be connected to the towing vehicle. See the Wiring Diagram on page 52 for proper wiring connections.

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

FRAME LENGTH - This measurement is from the ball hitch to the rear bumper (reflector).

FRAME WIDTH - This measurement is from fender to fender.

FUEL CELL - Provides an adequate amount of fuel for the equipment in use. Fuel cells must be empty when transporting equipment.

GROOVE - The space between two adjacent tread ribs.

GROSS AXLE WEIGHT RATING (GAWR) - The maximum weight that any axle can support, as published on the Certification / VIN label on the front left side of the trailer. Actual weight determined by weighing each axle on a public scale, with the trailer attached to the towing vehicle.

GROSS VEHICLE WEIGHT RATING (GVWR) - The maximum number of pounds the trailer can carry, including the fuel cell (empty). Actual weight determined by weighing trailer on a public scale, without being attached to the towing vehicle.

HITCH WEIGHT - The downward force exerted on the hitch ball by the trailer coupler.

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.

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.

JACK STAND - Trailer support device with maximum pound requirement from the tongue of the trailer.

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

LUG NUTS - Used to secure the wheel to the wheel hub. Always use a torque wrench to tighten down the lug nuts. See Table 11 and Figure 39 on page 60 for lug nut tightening and sequence.

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.

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.

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.

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

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.

SUSPENSION - Protects the trailer chassis from shocks transmitted through the wheels. Types of suspension used are leaf, Q-flex, and air ride.

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.

TIRE PLY - The tire ply (layers) number is rated in letters; 2-ply,4-ply,6-ply, etc.

TIRE RIM - Tires mounted on a tire rim. The tire rim must match the size of the tire.

TIRE SIZE - Indicates the diameter of the tire in inches (10,12,14, etc.), and the width in millimeters (175,185,205, etc.). The tire diameter must match the diameter of the tire rim.

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 HUB - The wheel hub is connected to the trailer's axle.

OWNER'S MANUAL

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL
NUMBER *ON-HAND* WHEN CALLING

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Carson, CA 90746 Fax (800) 537-3927
Contact: mq@multiquip.com

Mayco Parts

800-306-2926 Fax: 800-672-7877
310-537-3700 Fax: 310-637-3284

Service Department

800-421-1244 Fax: 310-537-4259
310-537-3700

MQ Parts Department

800-427-1244 Fax: 800-672-7877
310-537-3700 Fax: 310-637-3284

Warranty Department

800-421-1244, Ext. 279 Fax: 310-537-1173
310-537-3700, Ext. 279

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