

FELLING[®] **TRAILERS**

Owner's Manual **6,100 lb. to 60 ton Load Capacities**



- **Deck-Over • Tilt Deck Deck-Over Hyd. Air Tilt)**
- **Rigid Neck Semi • Hydraulic Detach Gooseneck**

Dear Customer,

Thank you for purchasing a Felling Trailer.

You are now part of an ever growing group of Felling Trailers' owners across North America and internationally that have made the "Felling Style" their own. At Felling Trailers, Quality, Craftsmanship & Pride are central in everything we do, and we want you to know that you can count on us.

Felling Trailers manufactures a large range of trailers, from small Utility to large Hydraulic Detachable Gooseneck trailers, be it a standard model or highly customized, we know your satisfaction is essential. Felling Trailers knows that the most important thing about your trailer is the cargo that it is carrying. That is why the features of all Felling trailers are designed and engineered with you and your cargo in mind.

We take tremendous Pride in the trailers we build and it shows in everything that we do. From our innovative designs, to our world class parts & service department, we stand behind everything that we do to ensure ultimate customer satisfaction. Please know that Felling Trailers' dedicated dealer network and employees are here for you. Let Felling Trailers know how we can be of service now and in the future.

Thanks again and best wishes!



*Brenda Jennissen, CEO
Felling Trailers, Inc.
Quality, Craftsmanship and Pride.*

Felling Trailers Owner's Manual

Table of Contents

Introduction & Safety Instructions.....	3-4
REPORTING SAFETY DEFECTS.....	4
Driver's Pre-Tip Inspection.....	5
Coupling & Uncoupling Your Trailer.....	6-10
Uncoupling Deck Over Trailers.....	8
Coupling Gooseneck Trailers.....	9
Uncoupling Gooseneck Trailers.....	10
Trailer Brake System - Testing.....	10-11
Tilt Trailer Operation.....	
Deck-Over Hydraulic Tilts.....	12-13
Deck-Over Air Tilts.....	14-15
Pressurized Hydraulic System Maintenance.....	15
Rigid Neck Semi Trailer Supplement.....	16-22
X-FORCE Hydraulic Detachable Gooseneck Supplement.....	23-30
Loading/Unloading Equipment.....	31
Maintenance.....	32-38
Tire Safety Information.....	39-45
Wheel & Rim Torque Requirements.....	45
Wiring Chart.....	46
Parts Supplement.....	47-52
Warranty Information.....	53-55
Frequently Asked Questions.....	55-56
Hot Dip Galvanized Finish Care.....	56

Introduction

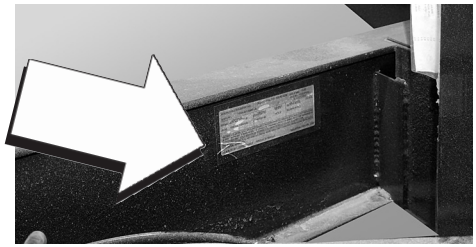
The owner packet must be made available for use by all operators. Review all the information before operating the equipment.

Write your trailer model number and serial number on the lines provided. (Typically located on the inside of the tongue of the trailer.)

Give these numbers to your service representative when you need parts or information on your trailer.

Model Number: _____

Serial Number: _____



Safety Instructions

Safety

Read this manual completely, it provides instructions for the operation and care of your Felling Trailer. The instructions in this manual must be followed to ensure the safety of persons, your cargo and satisfactory life of the trailer. Safety precautions to protect against injury or property damage must be followed at all times. An Owner's Manual that provides general trailer information cannot cover all the specific details necessary for the proper combination of trailer, tow vehicle and hitch. Therefore, you must read, understand and follow instructions given by the tow vehicle, trailer hitch manufacturers, as well as the instructions in this manual. Our trailers are built with components produced by various manufacturers. Some of these items have separate instruction manuals. Be sure to read other manuals provided with this trailer. All equipment has a limit. Make sure you understand the load requirements, brakes, steering, stability, and load characteristics before you start to operate.

The safety information given in this manual does not replace safety codes, insurance needs, federal, state and local laws. Make sure your vehicle has the correct equipment required by local laws and regulations.

WARNING

This User's Manual contains safety information and instructions for your trailer. You must read this manual before loading or towing your trailer. You must follow all safety precautions and instructions.

Safety alert symbol , This symbol means ATTENTION! BECOME ALERT! The level of risk is indicated by the following signal words:

DANGER

DANGER - Immediate hazards which will result in serious injury or death if not avoided.

WARNING

WARNING - Potentially hazardous situation which could result in serious injury or death if not avoided.

CAUTION

CAUTION - Potentially hazardous situation which may result in minor/moderate injury if not avoided.

NOTICE

NOTICE - Alert against unsafe practices that could result in damage to the trailer or other property.

Safety Rules

- Work safely while you load, unload and are on the road. Keep in mind that the most common causes of accidents when transporting equipment over the road are due to operator error and/or failure to correctly secure equipment to the trailer. Everyone connected with transporting equipment should be aware of the potential hazards of loading or unloading equipment, and towing a trailer.
- Never exceed a trailers capacity. Always comply with local and state highway standards and inspect the condition of the truck and trailer when operating. We recommend that all trailers have a daily walk-around inspection.
- DO NOT exceed maximum "tongue" load.
- Maximum towing speed is 60 mph.
- Be sure your tow vehicle and towing apparatus have the capacity to tow your trailer.
- Make sure the load size and how it is placed on the trailer is correct. Know the location of the center of gravity of the equipment being hauled and of the trailer to specify safe positioning of the load. Also, follow proper loading, tie-down, transporting, and unloading procedures. This all helps keep transporting equipment a safe operation.
- ALWAYS use safety chains.
- NO RIDERS - A frequent cause of personal injury or death is from persons falling off and being run over. Do not permit others to ride or be on the trailer when the vehicle is in motion.
- Be aware of all pinch points on the trailer and keep clear.
- Keep bolts tight at all times. Always replace worn or broken parts immediately after they are discovered. Do not use the trailer if any parts are not functioning properly.
- Do not replace parts with other than genuine factory parts. Doing so could decrease the effectiveness of the safety features or the operation of the trailer. Always keep safety and informational decals clean and visible. Replace decals that are damaged, lost, or unreadable.

Safety Rules (continued)

- Before transporting, be sure the jack and any loading ramps are secure and not touching the ground.
- If equipped, moving the tow vehicle while the body and hoist are in the air could cause a roll-over resulting in injury or death.
- If equipped, support trailer box with safety prop before working under box. Failure to do so may cause serious injury or death.
- Air Brakes only (Semi Trailers and Deck-Over Trailers) If the ABS indicator lamp comes on and stays on when you apply the brakes to a moving vehicle, the trailer ABS is not working properly. The ABS must be serviced as soon as possible upon completion of your trip to ensure full anti-lock braking capability. The service brakes will still function properly if the ABS light is on.

REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect which 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 Felling Trailers, Inc.

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

To contact NHTSA you may either call the Vehicle Safety Hotline toll-free at **1-888-327-4236 (TTY: 1-800-424-9153)**, or go to **<http://www.safercar.gov>**; or write to:

**U.S. Department of Transportation
NHTSA
1200 New Jersey Avenue S. E.
Washington, DC 20590**

You can also obtain other information about motor vehicle safety from the Vehicle Safety Hotline or online at **<http://www.safercar.gov>**.

Upon request we will furnish any additional or more detailed maintenance and operational instructions including any non-standard make of equipment that was specified and installed.



Contact Information: Felling Trailers, Inc.
1525 Main St. South
Sauk Centre, MN 56378
Ph: 1-800-245-2809
Fax: (320) 352-5230
email: trailers@felling.com

Driver's Pre-Trip Inspection

Air/Electrical Connections

- Check that trailer air connectors are sealed and in good condition.
- Make sure glad hands are locked in place, free of damage or air leaks.
- Make sure the trailer electrical plug is firmly seated and locked in place.

Lights/Reflectors

- Check that all external lights and reflective equipment are clean and functional.
- Light and reflector checks include:
 - Clearance lights (red on rear, amber elsewhere)
 - Headlights (High and low beams)
 - Tail lights
 - Turn signals
 - 4-way flashers
 - Brake Lights
 - Red reflectors (on rear) and amber reflectors (elsewhere)

Landing Gear

- Check that the landing gear is fully raised, has no missing parts, crank handle is secure and the support frame is not damaged.

Suspension

- Look for missing, shifted, cracked or broken leaf springs.
- If vehicle is equipped with torsion bars, torque arms or other types of suspension components, check that they are not damaged and are mounted securely.
- Air ride suspension should be checked for damage and leaks.
- Look for cracked or broken spring hangers, missing or damaged bushing and broken, loose or missing U-bolts or other axle mounting parts.
- The mounts should be checked at each point where they are secured to the vehicle frame and axle(s).

Slack Adjusters & Shock Absorbers

- See that shock absorbers are secure and that there are no leaks.
- Look for broken, loose or missing parts.
- The angle between the push rod and adjuster arm should be a little over 90 degrees when the brakes are released and not less than 90 degrees when the brakes are applied.
- When pulled by hand, with the brakes release, the brake rod should not move more than one inch.

Brake Chambers/Brake Hoses/Lines

- See that the brake chambers and brake hoses are not leaking, cracked or dented and are mounted securely.

Drum Brake

- Check for cracks, dents or holes. Also check for loose or missing bolts.

- Brake lining (where visible) should not be worn dangerously thin.

Wheels/Rims

- Check for damaged or bent wheels/rims.

Tires

- The following items MUST be inspected on every tire:
 - Tread Depth: Check for a minimum tread depth (4/32 on steering axle tires, 2/32 on all other tires).
 - Tire Condition: Check that tread is evenly worn and look for cuts or other damage to tread or sidewalls. Valve caps and stems should no be missing, broken or damaged.
 - Tire Inflation: Check for proper inflation by using a tire gauge, or by striking tires with a mallet or similar device.

Hub Oil Seals/Axle Seals

- See that hub oil/grease seals and axle seals are not leaking and if wheel has a sight glass, that oil level is adequate.

Lug Nuts

- Check that all lug nuts are present, free of cracks and distortions and show no signs of looseness such as rust trails or shiny threads.
- Make sure all nut holes are not cracked or distorted.

Spacers

- If equipped, check that spacers are not bent, damaged or rusted through.
- Spacers should be evenly centered, with the dual wheels and tires evenly separated.

Frame

- Look for cracks, broken welds, holes or other damage to the frame and crossmembers.

Splash Guards

- Check that splash guards/mud flaps are not damaged and are mounted securely.

Pull Trailer Drawbars

- Check dolly tongue for cracks.
- Check safety cable.
- Check pintle hook/ball coupler to insure it's locked.
- Check air and electrical connections.

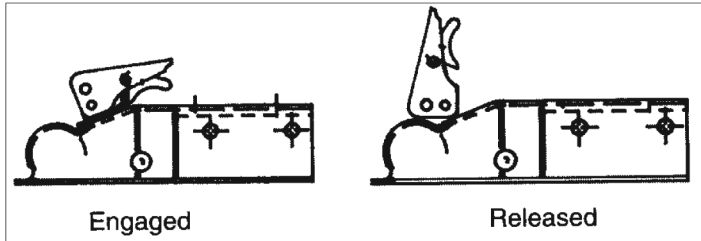
Coupling & Uncoupling The Trailer

Coupling the Trailer to Your Vehicle - Standard Hitch

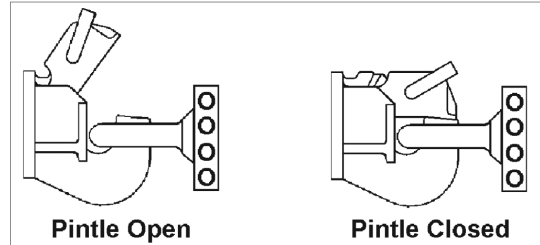
1.) Attach the trailer to the tow vehicle and secure coupler latch.

IMPORTANT: Tongue load is the amount of downward force on the coupler when loaded. Capacity is the total amount of towing weight.

IMPORTANT: You should always load your trailer with positive tongue load.



Adjustable Ball Coupler (Shown Above)



Pintle & Lunette Eye (Shown Above)

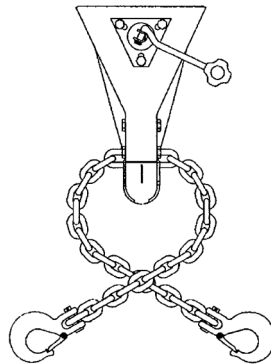
⚠ WARNING

- Do not exceed maximum "tongue" load. Tongue load does not increase the capacity of the trailer.
- Never operate your trailer with an upward force on the tongue.

⚠ CAUTION

If front of trailer is too low, has low tire pressure, a loose agri-hitch, or is loaded heavy in the rear, it can cause swaying.

2.) Secure the trailer chains to the vehicle.
(Chains should be crossed, in an X pattern.)



⚠ WARNING

ALWAYS use safety chains. Chains should be crossed, in an X pattern as required by law. Incorrect rigging of the safety chains can result in loss of control of the trailer, leading to serious injury or death, if the trailer uncouples from the tow vehicle.

Chains must:

- Fasten to the frame of tow vehicle, not to hitch or ball.
- Cross underneath hitch and coupler with minimum slack to permit turning and hold tongue up, if the trailer comes loose.

IMPORTANT: On a pull type trailer the hitch height is very important. The trailer bed is to run level or slightly higher in the front. If the hitch height is too high it will put excessive weight on the rear axle. If the hitch is too low it will cause the trailer to sway.

⚠ NOTICE

Hitch styles vary depending on the trailer. Be sure your vehicle hitch is compatible with the one on the trailer. Trailer couplers are designed to be connected.

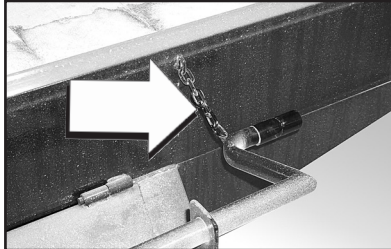
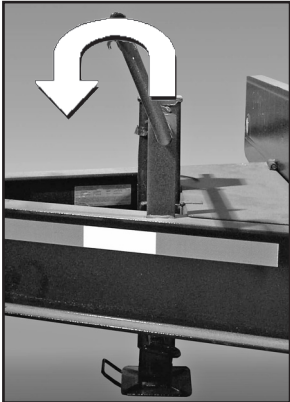
- No hammering should ever be required.
- Couplers should also be lubricated with light oil.

- 3.) Attach the Breakaway Switch to the tow vehicle. In the event that the trailer would become disconnected, a breakaway switch comes pre-installed on your electric brake trailer. If disconnected, it will apply brakes on the trailer. The cable needs to be fastened to the tow vehicles frame securely when transporting. Be certain the cable has no strain or restrictions, and will not be restricted in case of trailer breakaway.

⚠ WARNING

Connect the breakaway lanyard to the tow vehicle. NOT to safety chain and NOT to the hitch, ball or support.

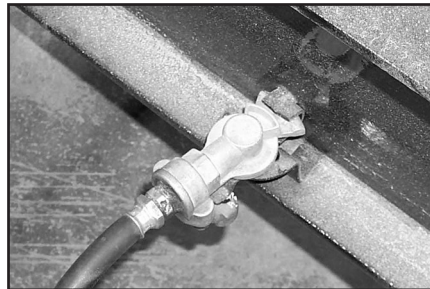
- 4.) Raise the jack all the way up by turning in a counter clockwise motion. After the jack stops, DO NOT TORQUE, this could damage the interior components of the jack and reduce capacity and safety of the jack.



⚠ CAUTION

Never operate the jack when the lift capacity is exceeded. Lift capacity is the amount of weight the jack is rated to lift. The static load is the amount the jack is rated to hold when not in operation.

- 5.) If equipped, attach each of the air brake connectors on the trailer to the vehicle.



- 6.) Connect the electrical connector on the trailer to the vehicle.



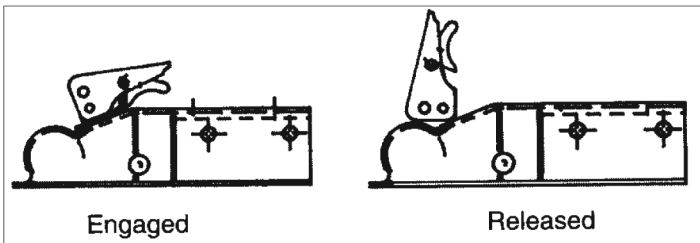
⚠ WARNING

Be sure to properly inspect the trailer after it has been installed to a vehicle before operating on a roadway. Reference "Inspection" on page 5.

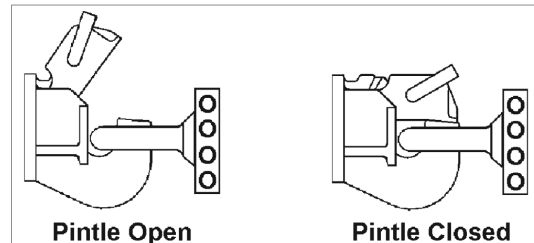
Uncoupling the Trailer (Deck-Over)

Standard Hitch

- 1.) Park the trailer on level ground and block the tires to prevent rolling.
- 2.) Place a board between the ground and the jack. Set the jack down on the board by pulling out on the quick release lever and making sure it is securely locked.
- 3.) Remove the chains from the tow vehicle. Remove Breakaway lanyard from tow vehicle.
- 4.) Unplug the electrical connection and place on the trailer. Do not let it hang to the ground.
- 5.) If equipped, remove the air brake couplers and secure into place on the trailer. Do not let them hang on the ground.
NOTE: Soil contamination is the most common cause of air brake valve failure.
- 6.) Disconnect the coupler/hitch.

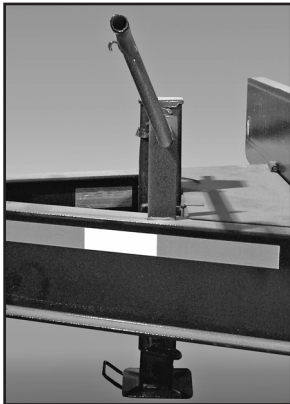


Adjustable Ball Coupler (Shown Above)



Pintle & Lunette Eye (Shown Above)

- 7.) Turn the handle on the jack to raise the tongue of the trailer off of the tow vehicle. Do not crank up too hard at end of travel.



CAUTION

Once jack is all the way up or down "DO NOT TORQUE" this could damage the interior components of the jack and reduce the capacity and safety of the jack.

- 8.) Check that all trailer parts are not connected and are clear of the tow vehicle.
- 9.) Perform any necessary maintenance, cleaning or repairs before storing.

Coupling the Trailer to Your Vehicle - Gooseneck

The gooseneck coupler installs onto a gooseneck ball that is pre-installed on the bed of the tow vehicle.

The gooseneck ball installed on the tow vehicle must be properly rated for size and weight of the trailer. Check load ratings for size and weight of your trailer, the gooseneck ball on the tow vehicle must meet or exceed the trailers ratings.

WARNING

If the gooseneck ball on the tow vehicle does not meet or exceed the gooseneck coupler on the trailer in load rating and size the trailer could become uncoupled from the tow vehicle and injury or death could occur.

CAUTION

Lower the tailgate on the tow vehicle before installing the trailer to prevent damage to the gooseneck coupler and the tow vehicle.



1.) Back the tow vehicle up to the trailer and line up the gooseneck coupler to the gooseneck ball.



2.) Raise the jack so the gooseneck coupler drops down and attaches to the gooseneck ball.

WARNING

ALWAYS use safety chains. Chains should be secured to Safety Chain Receivers on tow vehicle as required by law. Incorrect rigging of the safety chains can result in loss of control of the trailer, leading to serious injury or death, if the trailer uncouples from the tow vehicle.

- 3.) Close the lock plate on the gooseneck ball coupler and install the locking pin.
- 4.) Test if the trailer is secure by raising the jack up 1 inch. The tow vehicle bed should raise with the jack.

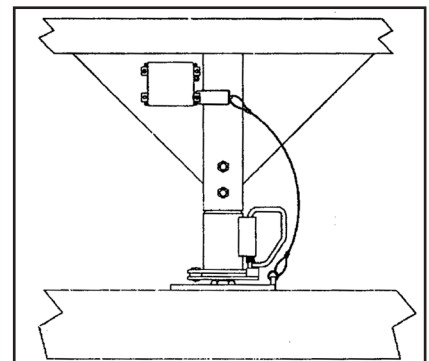
5.) Secure the trailer chains and breakaway switch to the tow vehicle.

WARNING

Connect the breakaway lanyard to the tow vehicle. NOT to safety chain and NOT to the hitch, ball or support.

NOTE: Close the tow vehicles tailgate before operating on the roadway.

- 6.) Raise the jack and the drop leg supports.
- 7.) If equipped, attach each of the air brake connectors on the trailer to the tow vehicle.
- 8.) Connect the electrical connector on the trailer to the tow vehicle.

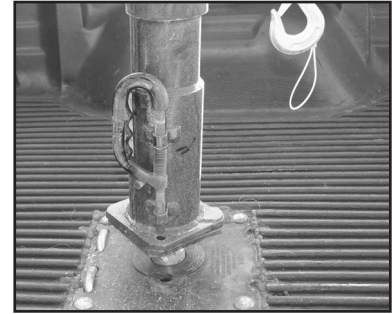


WARNING

Be sure to properly inspect the trailer after it has been installed to a vehicle before operating on a roadway. Reference "Inspection" on page 5.

Uncoupling the Trailer (Gooseneck Coupler)

- 1.) Park the trailer on level ground and block the tires to prevent rolling.
- 2.) Remove the safety chains from the tow vehicle.
- 3.) Unplug the electrical connection and place on the trailer. Do not let it hang to the ground.
- 4.) Disconnect the breakaway switch cable.
- 5.) If equipped, remove the air brake couplers and secure into place on the trailer.
Do not let them hang on the ground.
NOTE: Soil contamination is the most common cause of air brake valve failure.
- 6.) Move the gooseneck coupler to the open position.
- 7.) Drop the leg supports and the jack.
- 8.) Turn the handle on the jack clockwise to raise the gooseneck coupler off the gooseneck ball on the tow vehicle.
Do not crank to hard at the end of travel.
- 9.) Make sure all drop legs are secure and touching the ground.



CAUTION

Once jack is all the way up or down “DO NOT TORQUE” this could damage the interior components of the jack and reduce the capacity and safety of the jack.

- 11.) Check that all trailer parts are not connected and are clear of the tow vehicle.
- 12.) Perform any necessary maintenance, cleaning or repairs before storing.

CAUTION

Lower the tailgate on the tow vehicle before installing the trailer to prevent damage to the gooseneck coupler and the tow vehicle.



Trailer Brake System - Testing

Test Electric Brakes

If your trailer has electric brakes, your tow vehicle will have an electric brake controller that sends power to the trailer brakes. Before towing the trailer on the road, you must operate the brake controller while trying to pull the trailer in order to confirm that the electric brakes operate.

While towing the trailer at less than 5 mph, manually operate the electric brake controller in the tow vehicle. You should feel the operation of the trailer brakes. If the trailer brakes are not functioning, the brake system **MUST** be evaluated to determine the cause of the problem and corrective action **MUST** be taken before the trailer is used. Take the unit to your dealer or a qualified brake specialist.

Use this procedure each time you tow the trailer to check brake system operation.

Test Electric Breakaway System

The breakaway brake system includes a battery, a switch with a pull pin and lanyard, and a breakaway brake controller. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway brake manufacturer. If you do not have these instructions, contact your dealer for assistance.

Most trailers are setup to charge the battery from the tow vehicle. If the electrical system on your tow vehicle does not provide power to the battery, you must periodically charge the battery with a commercial battery charger to keep the battery charged.

Do not tow trailer if the battery requires recharging. A discharged brake battery will not activate the brakes if the trailer uncouples from the tow vehicle. The battery must be fully charged before towing trailer.

CAUTION

Extreme cold weather can degrade battery performance and cause brakes to not operate properly.

Check battery charge level before towing.

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

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

WARNING

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

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

Connect breakaway lanyard to the tow vehicle, NOT to the safety chain, ball, pintle, hitch, or support.

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

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

- Store the battery indoors; and
- Charge the battery every three months. Replace the breakaway brake battery according to the intervals specified by battery manufacturer.

Test Surge Brakes (If Equipped)

Hydraulic surge actuator systems provide automatic and smooth trailer braking without special application by the tow vehicle driver. While this is extremely convenient it can sometimes be difficult to determine if the surge setup is functioning properly. The following steps provide a quick field-test to confirm that the trailer brake system is operational.

WARNING

The field-test procedure indicates only if the trailer brake system is functional, but DOES NOT provide information on how efficiently it will operate.

Regular inspection, maintenance, and adjustment of all brake system components (including the surge actuator, tubing, hoses, brake clusters, drums, and associated hardware/support structure) are still required to ensure maximum brake performance and smooth, even brake operation.

Move the trailer to flat, level ground, pulling FORWARD several feet before parking. This forward motion will ensure trailers equipped with free-backing brakes are in their normal operating mode. Disconnect the trailer from the tow vehicle and jack up the trailer's tongue until it is horizontal. Hook the trailer's safety chains (NOT the actuator's breakaway cable) together to form a loop, which is centered below the actuator's coupler. Place wheel chock blocks two feet behind the trailer to prevent a runaway trailer.

Place a sturdy board, such as a 2 inch by 4 inch piece of lumber, into the chain loop below the coupler. The board should be 4 feet or longer so it will extend several feet above the actuator. Keep the end of the board a few inches off the ground, and position it to press against the front end of the actuator's coupler. Press the board towards the rear of the trailer.

Keep pressing the top of the board to stroke the actuator and its internal master cylinder. If the trailer brake system is operational, the brakes will apply and keep the trailer from rolling away from you. Properly adjusted uni-servo or duo-servo type brakes will prevent you from moving the trailer back more than a few inches. Free-backing type brakes will initially provide rolling resistance, but continued force on the board will switch them into free-backing mode, and you'll be able to move the trailer backwards.

If you have uni-servo or duo-servo brakes, and stroking the actuator (as described above) causes the trailer to roll away from you freely or with only minimal resistance, the brakes are NOT applying properly. If you have free-backing brakes and stroking the actuator (as described above) causes the trailer to roll away without initial resistance, then the brakes are NOT applying properly. The brake system MUST be evaluated to determine the cause of the problem and corrective action MUST be taken before the trailer is used. Use this procedure each time you tow your trailer to check your surge brake system operation.

Test Surge Breakaway System

Before towing, check that the breakaway lever and lanyard are properly positioned. If the breakaway lever and lanyard are not located correctly due to either the lanyard being pulled during use or by accident, it MUST be reset prior to the trailer being moved. See the Surge Brake Actuator manual for the correct resetting and testing procedure.

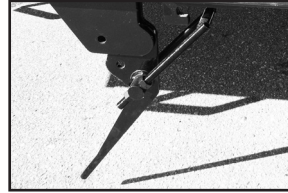
Test Air Brake System

The trailer's ABS light (located on the side of the trailer) indicates the status of the ABS system. If the light comes ON and stays ON when you apply the brakes to a moving vehicle, there is an ABS malfunction. It is normal for the lamp to come ON and go OFF to perform a bulb check, but it should not stay ON when the vehicle is moving above 4 mph. It is important not to ignore this light. When a fault exists in the ABS system, standard braking returns to the affected wheel, and the ABS still controls other monitored wheels. This lets you complete the trip. You should not ignore the light and should have the vehicle serviced as soon as possible after the light comes ON and stays ON.



Deck-Over Tilt Trailer Operation

Deck-Over Hydraulic Tilt Trailer Operation (Electric Brake System)



Bed Latch



Flow Control Valve

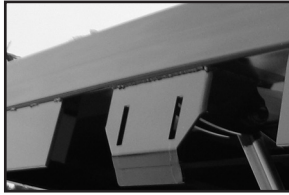
- 1.) Park the truck and trailer as straight and level as possible.
Set park brakes and chock trailer wheels.
- 2.) Unlock the manual tilt deck lock(s) (One lock on non-stationary deck trailers, two on stationary deck trailers).
FAILURE TO RELEASE ALL DECK LOCKS BEFORE LOADING OR UNLOADING EQUIPMENT WILL RESULT IN TRAILER DAMAGE.
- 3.) On an empty trailer you will need to walk on the trailer bed to the rear of the trailer to tilt the bed.
- 4.) If the bed tilts to slowly or quickly, adjust the Flow Control Valve on the side of the bed.
To increase the tilt rate turn counter clock wise. To decrease the tilt rate turn clockwise. Too rapid of a tilt rate can decrease safety and lead to trailer damage.
- 5.) Load your equipment onto the bed. As your equipment moves on the tilt bed it will gradually tilt into the transport position.
- 6.) Lock the manual deck lock(s.)
- 7.) Secure the equipment to the trailer.



WARNING

Operators **MUST** Release Tilt Lock prior to loading/unloading. Failure to do so will result in damage to your trailer and/or equipment.

Deck-Over Hydraulic Tilt Trailer Operation (Air Brake System - Manual Tilt)



Deck Lock System (only on trailers equipped w/air brakes)

- 1.) Park the truck and trailer as straight and level as possible. Set park brakes and chock trailer wheels.
- 2.) Move tilt lock switch to the unlock position. This will open the deck air lock unlocking the tilt deck. (FAILURE TO RELEASE DECK LOCK BEFORE LOADING OR UNLOADING EQUIPMENT WILL RESULT IN TRAILER DAMAGE.)



Tilt Lock

⚠ WARNING

Operators MUST Release Tilt Lock prior to loading/unloading. Failure to do so will result in damage to trailer and/or equipment.

- 3.) On FT-40-2 T and FT-50-3 T (for trailers equipped with Air Bag Assist feature) move deck tilt switch to inflate to tilt bed.



Flow Control Valve

⚠ WARNING

Deck Tilt (Air Bag Assist) Switch Must be Switched to Deflate After loading the trailer. Failure to do so May result in damage to Air Bag Assist System.

- 4.) On trailers not equipped with Air Bag Assist feature, you will need to walk on the bed to the rear of the trailer to tilt the bed.



Air Bag Assist

⚠ WARNING

Too rapid of a tilt rate can decrease safety and lead to trailer/equipment damage.

- 5.) If the bed tilts to slowly or quickly, adjust the Flow Control Valve on the side of the bed. To increase the tilt rate turn counter clock wise. To decrease the tilt rate turn clockwise. To rapid of a tilt rate can decrease safety and lead to trailer damage.
- 6.) Load your equipment onto the bed. As your equipment moves on the tilt bed it will gradually tilt into the transport position.
- 7.) Move tilt lock switch to the lock position. On FT-40-2 T and FT-50-3 T move the deck tilt switch to the deflate position.
- 8.) Secure the equipment to the trailer.

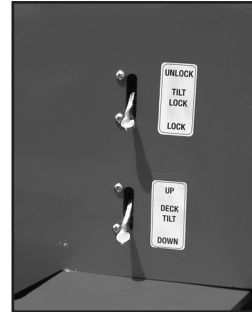


Deck-Over Air Tilt Trailer Operation (Air Brake System)

Loading procedures for the Felling Air Tilt



- 1.) Park truck and trailer straight on a firm level spot and apply truck's parking brake and chock trailer wheels. Do not apply trailer parking brakes to retain air pressure in trailer supply line.
- 2.) Check that the area around the trailer is clear of personnel and obstructions.
- 3.) If equipped with ramps remove ramp hold up bars from ramps. Stay clear of area behind ramps.
- 4.) Switch ramp valve to down position (located at rear of trailer). Ramps will slowly lower into position.
- 5.) Switch deck lock valve from lock to unlock position (located on the front of the trailer).



Deck Tilt Switch & Tilt Lock Switch



Air Ramp Switch (if equipped)

WARNING

Operators MUST Release Tilt Lock prior to loading/unloading. Failure to do so will result in damage to trailer and/or equipment.

NOTICE

Loading Multiple Pieces of Equipment Air bag will hold up to 7,000 lbs., 48" from the front of the bulkhead before the pressure relief is set-off.

WARNING



Operator And Others Stand Clear Of Ramps When Lowering And Raising. Failure To Do So Could Lead To Serious Injury Or Death. Stand At The Side Of The Trailer When In Use.

- 6.) Switch deck tilt switch to up. This will inflate deck tilt bags and slowly raise the deck for loading.
- 7.) Load equipment by driving up the center of the deck. Set brakes and turn off equipment. Secure 1st piece of equipment if loading a second. Load second piece of equipment at this time if needed.
- 8.) Switch deck tilt switch to down. Stay clear of deck and hitch area.
- 9.) Switch deck lock valve to lock position.
- 10.) Switch ramp valve to up position. Ramps will slowly raise into position.
- 11.) Replace ramp hold up bars on ramps.
- 12.) Properly secure load.

NOTICE

Load Must be centered on deck to ensure level loading surface.

WARNING



PINCH AREA
Keep clear during operation.

Unloading Trailer

- 1) Park truck and trailer straight on a firm level spot and apply truck's parking brake and chock trailer wheels. Do not apply trailer parking brakes to retain air pressure in trailer supply line.
- 2) Check that the area around the trailer is clear of personnel and obstructions.
- 3) If equipped with ramps remove ramp hold up bars from ramps. Stay clear of area behind ramps.
- 4) Switch ramp valve to down position. Ramps will slowly lower into position.
- 5) Check that the parking brake is set on the equipment that is being hauled, remove load securement.

Unloading Trailer (Continued)

- 6) Switch deck lock valve from lock to unlock position.
- 7) Switch deck tilt switch to up. This will slowly raise the deck for unloading. Depending on load distribution the deck may not fully raise until you proceed to step 8. To prevent damage to trailer deck lock must be disengaged and deck tilt bags must be inflated prior to unloading.
- 8) Begin to slowly unload first piece of equipment. The deck should tilt well before the equipment is close to the end of the beavertail. If it does not tilt, move equipment forward and check that deck lock is releasing. Unload second piece of equipment.
- 9) Switch deck tilt switch to down. Stay clear of deck and hitch area.
- 10) Switch deck lock valve to lock position.
- 11) Switch ramp valve to up position. Ramps will slowly raise into position.
- 12) Replace ramp hold up bars on ramps.

Pressurized Hydraulic System Maintenance (If Equipped)

Pressurized Tank



Pressurized Tank on Deck-Over Tilts PSI Pressure Gauge

The pressurized tank keeps the hydraulic fluid equal around the cylinder(s) to keep the deck from slamming up/down. Tank pressure should be kept between 15 - 20 P.S.I. The maximum P.S.I. (pounds per square inch) should be no more than 50 P.S.I. The pressure gauge is usually located on the right of the tank.

By pressurizing the hydraulic oil, any voids or air pockets in the system can be eliminated. The pressure has little effect on the tilting of the deck. Avoiding air pockets in the system allows you to lock the tilt bed in the tilted position without the tilt bed drifting upward or downward.

Changing Fluid

It is recommended to change fluid every two years. Depending on climate the fluid may get moisture in it. If this happens the fluid will have a milky white look to it. Change the fluid prior to the two year schedule if this occurs to prevent damage and/or corrosion.

1. To change the fluid remove the plug on the base of the tank and disconnect hoses from the cylinder(s) and allow them to drain.
2. Once the tank, hoses and cylinder have drained reconnect hoses to the cylinder(s) and replace the plug on the tank.
3. Fill the tank with Dextron ATF (automatic transmission fluid)
 - Deck-Over Tilt - 12 quarts (3 gallons) Dextron ATF

Bleeding Tank & Lines

The Pressurized Hydraulic System is a self-bleeding system. As the bed lowers and raises it works the air out of the lines. It is suggested to walk the tilt deck down and up 3-4 times to bleed the lines sufficiently.

Grease Zerks

All grease zerks on your trailer should be greased once a year or every 12,000 miles with multipurpose grease. It is recommended to grease a trailer if it has been in storage for any period of time.

Grease zerks on a Deck-Over Tilt trailers are located:

- Top and Base of the hydraulic cushion cylinder(s).
- Hinge Pin (pivot point) - this zerk is located in between the two tires on the mainframe of the trailer. There is one grease zerk on each side of the trailer.
- Axles - two grease zerks on each axle.
- Jack(s) - dependent on options chosen there will be one to two grease zerks located on the jack.

Felling Trailers Owner's Manual

Rigid Neck Semi Trailers Supplement

Table of Contents

Coupling & Uncoupling17-19

Hydraulic Tail & Upper Deck Ramp.....19-20

Suspension Pressure Gauge.....20

Suspension Air Dump Valve.....20

Tire Information20

Ramps (Hydraulic, Air, Fold Up).....20-21

Securing Loaded Materials21

Over Width Lights.....21

Winch21

Rear Lift Axle21

Maintenance.....22

Installation and Operation

Knowing how to couple and uncouple correctly is basic to the safe operation of combination vehicles. General coupling and uncoupling steps are listed below. There are differences between rigs, so learn the details of coupling and uncoupling the trucks you will operate.

Coupling and Uncoupling

Coupling Tractor Semi - Trailers

1.) Inspect Fifth Wheel

- Check for damaged/missing parts.
- Check to see that mounting to tractor is secure, no cracks in frame, etc.
- Be sure that the fifth wheel plate is greased as required. Failure to keep the fifth wheel plate lubricated could cause steering problems due to friction between the tractor and the trailer.
- Check if the fifth wheel is in proper position for coupling:
 - Wheel tilted down towards rear of tractor
 - Jaws open
 - Safety unlocking handle in the automatic lock position
- If you have a sliding fifth wheel, make sure it's properly locked
- Make sure the trailer King Pin is not bent or broken

2.) Inspect Area and Chock Wheels

- Make sure area around the vehicle is clear
- Be sure trailer spring brakes are on

3.) Position Tractor

- Put tractor directly in front of the trailer.
(Never back under the trailer at an angle, this may push the trailer sideways and damage the landing gear).
- Check position, using outside mirrors, look down both sides of the trailer.
- Back slowly, back until fifth wheel just touches the trailer.

4.) Secure Tractor

- Put on parking brake.
- Put transmission in neutral.

5.) Check Trailer Height

- The trailer should be low enough that it is raised slightly by the tractor when the tractor is backed under it. Raise or lower the trailer as needed. (If trailer is too low, tractor may strike and damage nose of trailer; if trailer is too high, it may not couple correctly).
- Check that the King Pin and fifth wheel are aligned.

6.) Connect Air Lines to Trailer

- Check glad hand seals and connect tractor supply (emergency) air line to trailer (emergency) glad hand.
- Check glad hand seals and connect tractor control (service) air line to trailer control (service) glad hand.
- Make sure air lines are safely supported where they won't be crushed or caught while tractor is backing under the trailer.

7.) Supply Air to Trailer

- From cab, push in "air supply" knob or move tractor protection valve control from the "emergency" to the "normal" position to supply air to the trailer brake system.
- Wait until the air pressure is normal.
- Check brake system for crossed air lines.
 - Shut engine off so you can hear the brakes.
 - Apply and release trailer brakes, listen for sound of trailer brakes being applied and released. You should hear the brakes move when applied and air escape when the brakes are released.
 - Check air brake system pressure gauge for signs of major air loss.
- When you are sure the trailer brakes are working, start engine.
- Make sure air pressure is up to normal.

8.) Lock Trailer Brakes

- Pull out the "air supply" knob, or move the tractor protection valve control from "normal" to "emergency."

9.) Back Under Trailer

- Use lowest reverse gear.
- Back tractor slowly under trailer to avoid hitting the King Pin too hard.
- Stop when the King Pin is locked into the fifth wheel.

10.) Check Connection for Security

- Raise trailer landing gear slightly off ground.
- Pull tractor gently forward while the trailer brakes are still locked onto the tractor.

11.) Secure Vehicle

- Put transmission in neutral.
- Put parking brakes on.
- Shut off engine and take key out of ignition so that tractor can not be moved while you are under it.

12.) Inspect Coupling (use a flashlight if necessary)

- Make sure there is no space between upper and lower fifth wheel. If there is space, something is wrong (King Pin may be on top of closed fifth wheel jaws; trailer would come loose very easily).
- Go under trailer and look into the back of the fifth wheel. Make sure the fifth wheel jaws have closed around the shank of the King Pin.
- Check that the locking lever is in the “lock” position.
- Check that the safety catch is in position over locking lever. (On some fifth wheels the catch must be put in place by hand).
- If the coupling isn't right, don't drive the coupled unit; fix before use.

13.) Connect the Electrical Cord and Check Air Lines

- Plug the electrical cord into the trailer and fasten the safety catch.
- Check both air lines and electrical lines for signs of damage.
- Make sure air and electrical lines will not hit any moving parts of vehicle.

14.) Raise Front Trailer Supports (Landing Gear)

- Use low gear range (if equipped) to begin raising the landing gear. Once free of weight, switch to the high gear range.
- Raise the landing gear all the way up and secure the crank handle safely.
- When full weight of trailer is resting on tractor:
 - Check for enough clearance between rear of tractor frame and landing gear. (When tractor turns sharply it must not hit landing gear.)
 - Check that there is enough clearance between the top of the tractor tires and the nose of the trailer.

WARNING

If your trailer is too low in the front, has low tire pressure or is loaded heavy in the rear, it can cause swaying.

Uncoupling Tractor Semi - Trailers

Following these steps will help the user to uncouple safely.

1.) Position Rig

- Make sure the surface of the parking area can support the weight of the trailer.
- Have tractor lined up with the trailer. (Pulling out at an angle can damage the landing gear).

2.) Ease Pressure on Locking Jaws

- Shut off trailer air supply to lock trailer brakes.
- Ease pressure on fifth wheel locking jaws by backing up gently (this helps release the fifth wheel locking lever.)
- Put parking brakes on while the tractor is pushing against the King Pin. This will hold the rig with pressure off the locking jaws.

3.) If the trailer is empty, lower the landing gear until it makes firm contact with the ground, turn crank in low gear a few extra turns; this will lift some weight off the tractor. (Do not lift the trailer off the fifth wheel.) This will:

- Make it easier to unlatch the fifth wheel.
- Make it easier to couple for the next use.

4.) Disconnect Air Lines and Electrical Cables

- Disconnect air lines from trailer. Connect air line glad hands to dummy couplers at the back of cab, or couple them together.
- Hang electrical cable with plug down to prevent moisture from entering it.

- Make sure lines are supported so they won't be damaged while driving the tractor.

5.) Unlock Fifth Wheel

- Raise release handle lock.
- Pull the release handle to "open" position.
- Keep legs and feet clear of the rear tractor wheels to avoid serious injury in case the vehicle moves.

6.) Pull Tractor Partially Clear of Trailer

- Pull tractor forward until fifth wheel comes out from under the trailer.
- Stop with the tractor frame under the trailer (prevents trailer from falling to the ground if landing gear should collapse or sink).

7.) Secure Tractor

- Apply parking brake.
- Place transmission in neutral.

8.) Inspect Trailer Supports

- Make sure ground is supporting trailer.
- Make sure landing gear is not damaged.

9.) Pull Tractor Clear of Trailer

- Release parking brake.
- Check the area and drive tractor clear.

Hydraulic Tail Operating Instructions (If Equipped)



Image 1



Image 2

The controls for the Hydraulic Tail and Hydraulic Upper Deck Ramp (if equipped) are located on the neck of the trailer. See Image 1.

Controls for Air Bag Suspension and Pressure Gauge are located in front of the first axle. See Image 2.

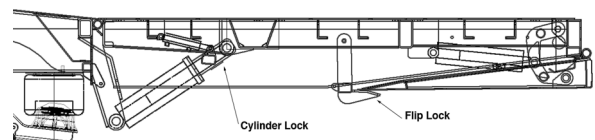
Instructions For Ground Loading (Controls Located on the Neck, Driver's Side, of the Trailer)

- 1.) Dump air from suspension.
- 2.) Fully raise Main Tail by pulling out the main tail valve handle.
- 3.) Rotate Flip Tail by pulling out flip tail valve Handle.
- 4.) Lower Main Tail by pushing in on the main tail valve handle.
- 5.) Carefully load and unload equipment.



Returning Hydraulic Tail To Travel Position (Controls Located On The Neck, Driver's Side, of the Trailer)

- 1.) Fully raise Main Tail by pulling out on the main tail valve handle.
- 2.) Rotate Flip Tail under by pushing in flip tail valve handle.
Flip Tail must be fully retracted to engage locking mechanism.
- 3.) Carefully lower Main Tail by pushing in on the main tail valve handle until cylinder lock is engaged.
- 4.) Check that cylinder and flip tail locks are engaged.
- 5.) Air up suspension.

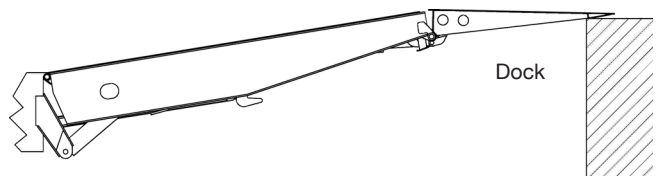


Hydraulic Tail is rated to lift and carry 20,000 lbs. (9,071 kg) four (4) feet behind main hinge.

Instructions For Dock Loading (Controls Located On The Neck of the Trailer & In Front Of 1st Axle)

Load Rating Maximum 10,000 lbs. (4,540kg)

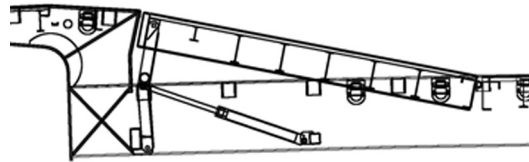
- 1.) Dump air from suspension.
- 2.) Fully raise Main Tail by pulling out the main tail valve handle.
- 3.) Rotate Flip Tail by pushing in flip tail valve handle.
- 4.) Lower Main Tail until Flip Tail is supported by the dock.
- 5.) Carefully load and unload equipment.
- 6.) Return tail to travel position.



Hydraulic Upper Deck Ramp Operating Instructions (if equipped)

(Controls Located On The Neck of the Trailer)

- 1.) Fully raise deck ramp by pulling out the deck ramp valve handle. When the ramp is fully raised the locking bar will automatically be engaged.
- 2.) Load and or unload equipment.
- 3.) Lower deck ramp by pushing in the deck ramp valve handle. The deck ramp lock bar will automatically disengage.



Suspension Pressure Gauge

An air bag pressure is provided to determine the amount of weight on each axle. The numbers provided below are provided as estimated weights and should never be considered as completely accurate.

- 20 PSI = approximately 6,200 lbs.
- 40 PSI = approximately 10,800 lbs.
- 60 PSI = approximately 15,400 lbs.
- 80 PSI = approximately 20,000 lbs.



Suspension Air Dump Valve

Manual Suspension Dump Valve is located at the side of the trailer. (See Image Above)

- To dump air bag suspension flip the valve to “Dump”.
- To recharge air bag suspension flip the valve to “Fill”.

⚠ WARNING

Air Bag Suspension **Must** be inflated before trailer is in motion. Moving the trailer with the Air Bag Suspension deflated will result in damage to the suspension and the trailer.

Tire Information

Highway Service Dimensional Data

Tire Size	Load Range	Load Rating Single	Load Rating Dual
215/75R17.5 Radial	H 16-ply rated	4805@125 PSI	4540@125 PSI
235/75R17.5 Radial	H 16-ply rated	6005@125 PSI	5675@125 PSI
255/70R22.5 Radial	H-16-ply rated	5510@115 PSI	5070@115 PSI

Tire Information

Axle Size	Drum & Shoe Size	Std. Tire Size
25,000# Air	12-1/4" 7-1/2"	17.5"
25,000# Air	16-1/2" x 7-1/2"	22.5"

Ramps (Fold-Up, Hydraulic Ramps, Air Ramps)

If equipped, the loading ramps are located on the rear of the trailer. The ramps pivot to the ground and can be moved from side to side (not applicable with Hyd. or Air ramps) to fit the width of the equipment you are loading. The ramps should be returned to the upright position before transporting.

Each model has a different method for holding the ramps in an upright/transport position. With Upright ramps, remove the locking mechanism to lower the ramp and after ramp is in the raised position reattach locking mechanism. Upright ramps maybe run by hydraulics or air. On Fold- Up, the ramps have spring-assist and when in transport position will rest upon the beavertail.



Controlled Flow Air Ramp Operation

Lower Ramps • Remove cotter key from ramp arm support to release ramp arm support, from ramp on curbside. Walk a safe distance away from ramps and repeat on the roadside. Once ramp securements are removed, open Air Ramp control box, located on the roadside of the beavertail. Flip Air Ramp switch to “down” position for ramps to lower. Be sure to stand clear of ramps as they to prevent injury.

Raise Ramps • Open Air Ramp control box, located on the roadside of the beavertail. Flip Air Ramp switch to “up” position for ramps to raise. Be sure to stand clear of ramps as they raise to prevent injury. Once ramps are full raised to transport position use ramp arm supports to secure ramps in place by attaching ramps as they lower to prevent injury.



Securing Loaded Materials

Equipment tie downs are located on the trailer. Equipment should be fastened securely to the trailer before transporting. See equipment manufacturer and/or Department of Transportation (D.O.T.) for recommendations on proper tie down procedures.

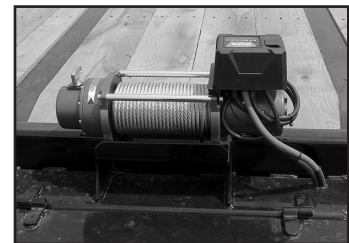
Over-Width Lights (if equipped)

- To extend Over-width lights, loosen tensioner on the inside of the trailer frame.
- Pull firmly on light fixture and it will extend.
- Secure tensioner on the inside of the trailer frame.
- When lights are not in use, loosen tensioner, retract lights and tighten tensioner to hold the lights tight to the trailer body.



Hydraulic Winch (if equipped)

- See Operator’s Manual for Usage Guidelines and Maintenance.



Rear Lift Axle

The rear lift axle should only be when the trailer is unloaded. This kit reduces wear when transporting the trailer without a load.

At the rear of the trailer, located the Lift/Lower Axle valve.



Follow instructions per decal:
 To lift the rear axle - Pull the knob out.
 To lower the rear axle - Push the knob.

⚠ DANGER

Prior To Any Maintenance Being Performed The Hydraulic Tail Or Upper Hydraulic Deck Ramp MUST Be Secured In The Upright Position. Failure To Do So Will Result In Severe Injury Or Death.

⚠ CAUTION

Lower Axle

In

Lift Axle

Out

Lift Axle, Only When Trailer Is Unloaded

HD057010

MAINTENANCE

Hydraulic Tail/Upper Hydraulic Deck Ramp

- Secure the Hydraulic Tail or Upper Hydraulic Deck Ramp in upright position, so that it will not fall while maintenance is being performed.

Grease Zerks

All grease zerks on your trailer should be greased once a year or every 12,000 miles with multipurpose grease. It is recommended to grease a trailer if it has been in storage for any period of time.

Grease zerks are located:

- Top and Base of the hydraulic cushion cylinder(s).
- Hinge Pin (pivot point) - this zerk is located in between the two tires on the mainframe of the trailer. There is one grease zerk on each side of the trailer.
- Axles - two grease zerks on each axle.
- Jack(s) - dependent on options chosen there will be one to two grease zerks located on the jack.

For additional maintenance of your trailer see the main Owner's Manual page 18.

Weight & Balance - You are responsible for not being overloaded.

Definitions you should know:

Gross vehicle weight (GVW): The total weight of a single vehicle plus its load.

Gross combination weight (GCW): The total weight of a powered unit plus trailer(s) plus the cargo.

Gross vehicle weight rating (GVWR): The maximum GVW specified by the manufacturer for a single vehicle plus its load.

Gross combination weight rating (GCWR): The maximum GCW specified by the manufacturer for a specific combination of vehicles plus its load.

Axle weight: The weight transmitted to the ground by one axle or one set of axles.

Tire load: The maximum safe weight a tire can carry at a specified pressure. This rating is stated on the side of each trailer.

Legal Weight Limits

- You must keep weights within legal limits. States have maximums for GVW's, GCW's and axle weights. Often, maximum axle weights are set by a bridge formula.
- Overloading can have negative effects on steering, braking and speed control. Overloaded trucks have to go very slow on upgrades and may gain too much speed on downgrades. Stopping distance increases, and Brakes may fail due to over use.
- During unfavorable weather conditions or in mountains, it may not be safe to operate at legal maximum weights. Take these factors into account before driving.
- The GAWR and tire information shown on the vehicle identification plate was applicable at the time that the trailer was manufactured. If the tires or other components of the running gear have been changed or altered since the trailer was manufactured, the GAWR may have changed.

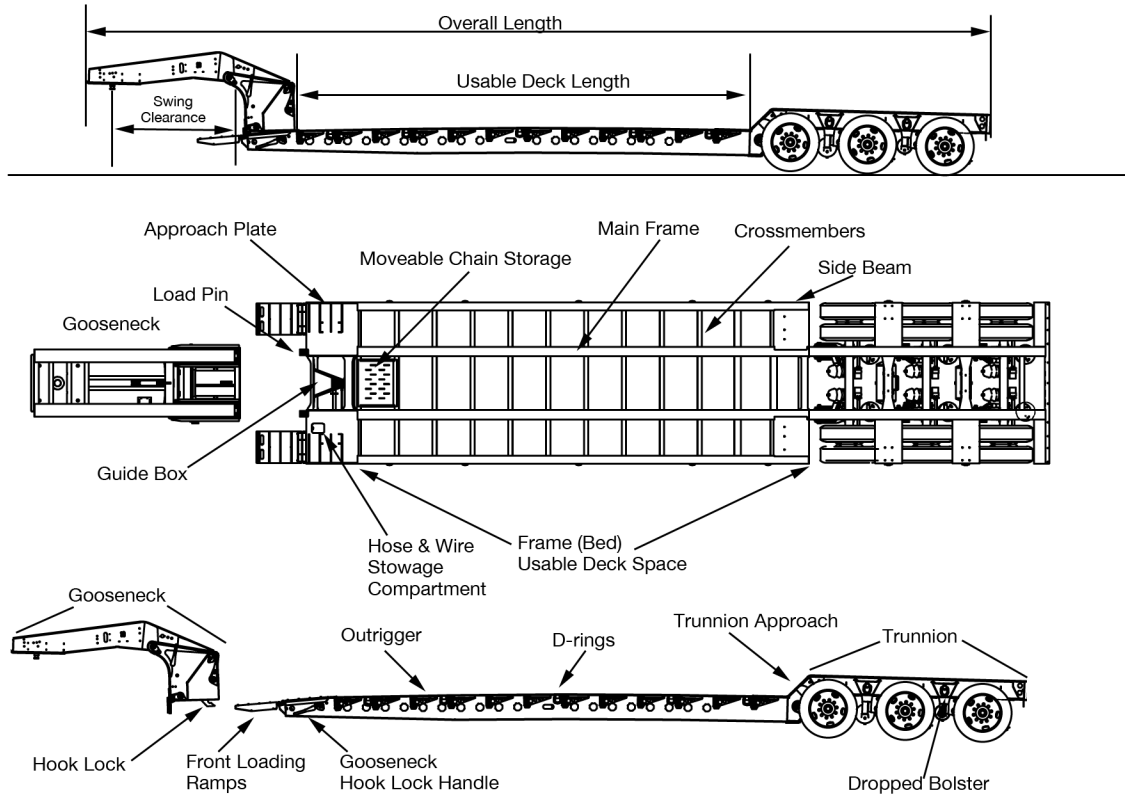
Felling Trailers Owner's Manual

Hydraulic Detachable Gooseneck Trailer Supplement

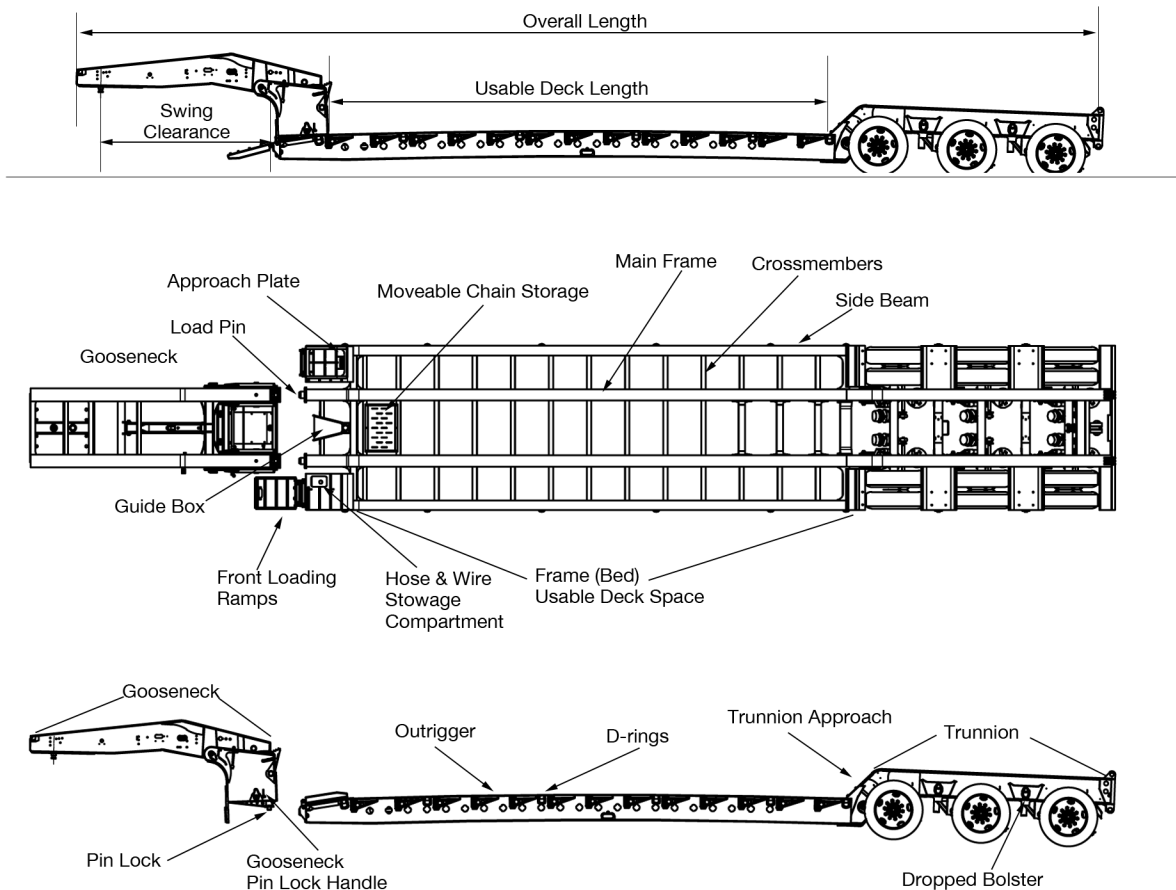
Table of Contents

Trailer Terminology	24-25
Introduction	26
Detaching Trailer	27
Attaching Gooseneck To Trailer	28-29
Air Lift/Lower Kits.....	29
Recommended Outrigger Loading	30

X-FORCE HDG TRAILER - HOOK LOCK SYSTEM TERMINOLOGY - FRAME & TRUNNION

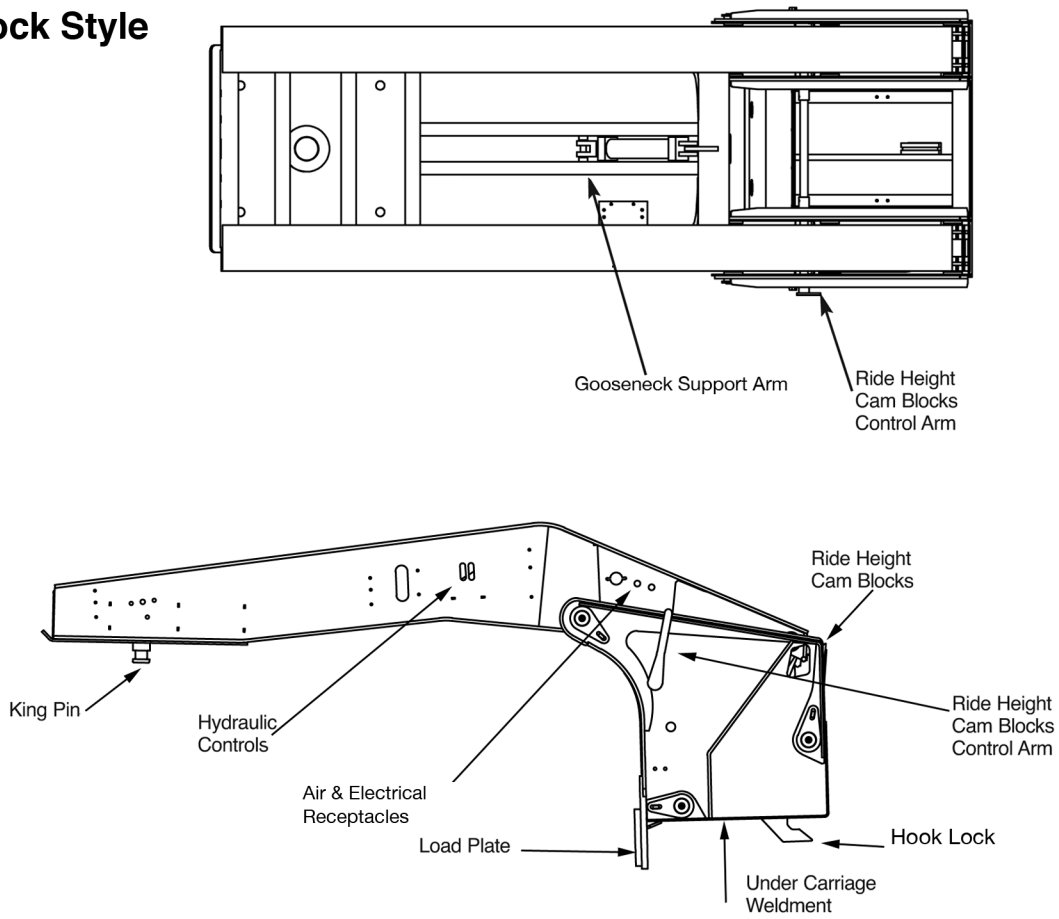


X-FORCE HDG TRAILER - PIN LOCK SYSTEM TERMINOLOGY - FRAME & TRUNNION

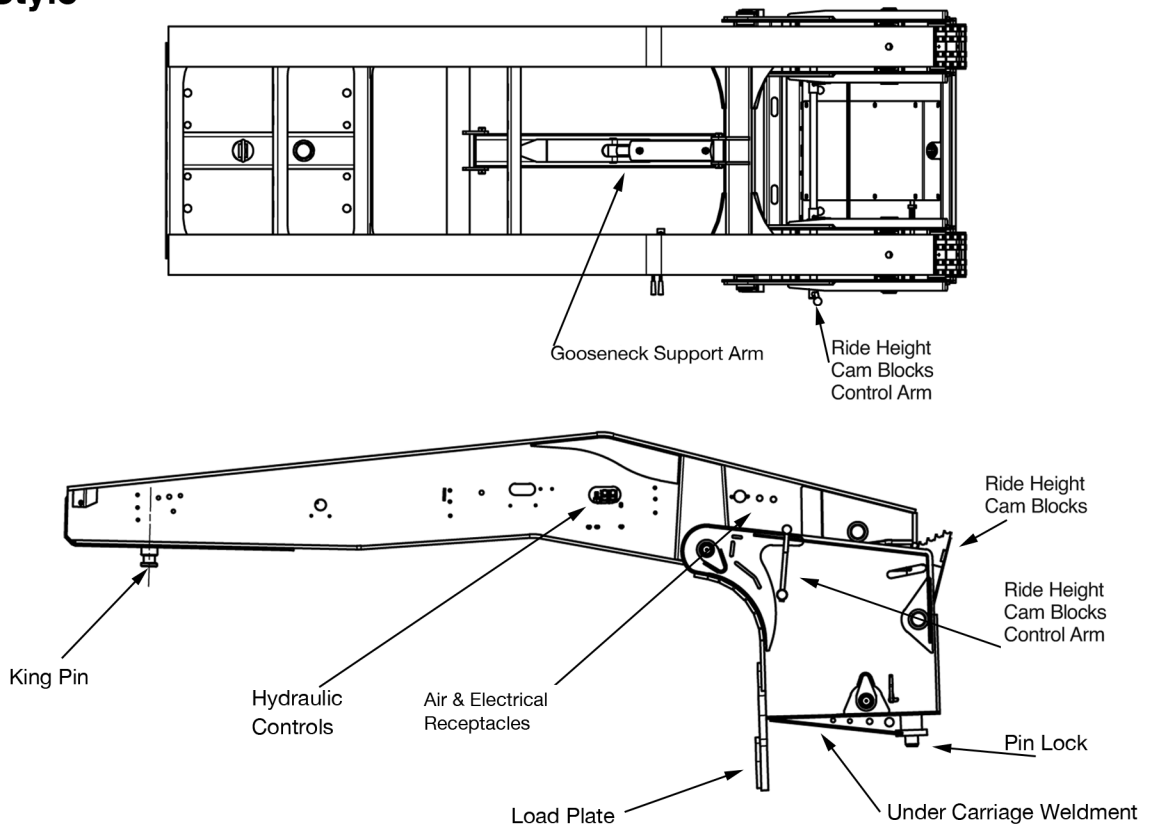


X-FORCE HDG TRAILER TERMINOLOGY - GOOSENECK

Hook Lock Style



Pin Lock Style



Introduction - Hydraulic Detachable Gooseneck

These instructions are designed to make you familiar with the operation of our product. It is not intended for the purpose of training or to replace common knowledge in operating a hydraulic detachable gooseneck trailer. Make sure you read these instructions completely before using the Felling X-Force Hydraulic Detachable Gooseneck trailer.

Operation Instructions

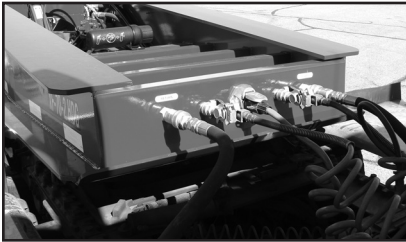
- 1.) These decals are placed in key areas on the trailer and point out instructions and important safety factors in those areas. Failure to understand these instructions could cause serious injury.

⚠ NOTICE

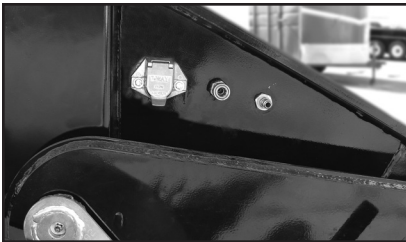
IMPORTANT! Read and understand all safety decals and the operating decal prior to using the trailer!

- 2.) The X-FORCE Series hydraulic detachable gooseneck trailer features a king pin hitch system for use with tractor truck fifth-wheels. Make sure the truck fifth-wheel is in the proper location so that the gooseneck can be properly detached and reattached to the trailer bed.
- 3.) Park truck and trailer in a straight line and on as level ground as possible.

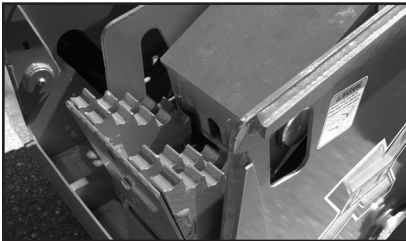
Detach Trailer



- 4.) Engage hydraulic system. Start the hydraulic system so that oil is flowing to the gooseneck. If your trailer has a pony motor option, start the pony motor according to the instructions on the pony motor decal.



- 5.) Disconnect air and electrical lines from the gooseneck to the trailer deck, roll up and put them in their storage area. Storage area located at the front of the trailer deck near the front ramp.

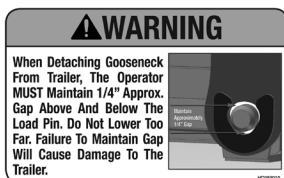


- 6.) Using the hydraulic control levers, (located on the driver's side of the neck), raise gooseneck until load blocks can be rotated back.

⚠ WARNING

Stand Clear When Lowering The Gooseneck To The Ground. Failure To Do So May Result In Severe Injury.

- 7.) Using the hydraulic control levers, (located on the driver's side of the neck), lower the gooseneck to the ground. Continue lowering gooseneck until there is approximately 1/4" gap below the bottom of the load pin and load plate.



Pin Lock System



Hook Lock System



Hook Lock System



Pin Lock System

Detach Trailer

- 8.) Lower the gooseneck support arm to the truck frame using the front hydraulic control lever. Lower it only to touch the frame enough to support the gooseneck.

WARNING

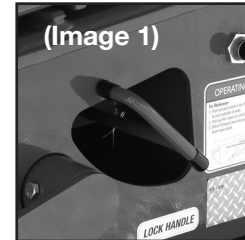
Stand Clear Of Load Block Position Arm When Operating Air Release.
Failure To Do So May Result In Severe Injury.



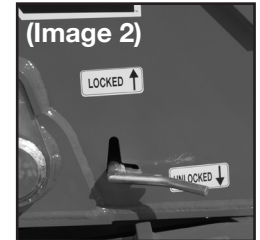
- 9.) **Hook Lock Style** - (Image 1) Located on the deck of the trailer. Pull Safety Lock Pin Handle out and rotate to rest on web.

Pin Lock Style - (Image 2) Located on the trailer neck. Pull Safety Lock Pin Handle out and rotate to rest on web.

Hook Lock System

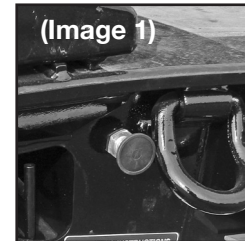


Pin Lock System



- 10.) **Hook Lock Style** - (Image 1) Located on the deck of the trailer. Pull latch release Air Valve out to rotate and unlock latch.

Pin Lock Style - (Image 2) Located on the trailer neck. Pull out Gooseneck Lock Pin Release to unlock latch.



- 11.) Slowly drive forward and adjust the support arm accordingly so the gooseneck load plates clear the ground by 1" to 1.5", but do not drag on the ground.



- 12.) Flip down the front ramps and carefully load or unload the equipment.





OPERATING INSTRUCTIONS

<p>To Release:</p> <ol style="list-style-type: none"> 1. Pull Lock Pin Handle out and rotate to rest on web (between the stops.) 2. Pull out Gooseneck Lock Pin Release to unlock latch. 3. Drive Forward and disengage neck from main deck. 	<p>To Re-Engage:</p> <ol style="list-style-type: none"> 1. Push Gooseneck Lock Pin Release in to drop the pin. 2. Attach neck to main deck. 3. Rotate Lock Pin Handle off web, pin should retract in 5/8" to lock position.
--	---

HD050210

Pin Lock System

GOOSENECK LOCK PIN RELEASE

Locked	Unlocked
	
In	Out

Pin Lock System

HD050210

OPERATING INSTRUCTIONS

<p>To Release:</p> <ol style="list-style-type: none"> 1. Pull out and rotate Lock Pin handle to rest outside of web. 2. Pull out Air Valve to unlock latch. 3. Drive Forward and disengage neck from main deck. 	<p>To Re-engage:</p> <ol style="list-style-type: none"> 1. Push in Air Valve to allow spring to rotate latch block. 2. Attach neck to main deck. 3. Rotate Lock Pin handle to retract 3" into lock position.
---	--

HD050210

Hook Lock System

Attaching Gooseneck To Trailer

- 1.) Adjust the gooseneck support arm so that the load plate is approximately 1-1/2" above the ground. Do this by lifting or lowering the gooseneck with the gooseneck lifting arm hydraulics control (located on the driver's side of the neck.)

WARNING

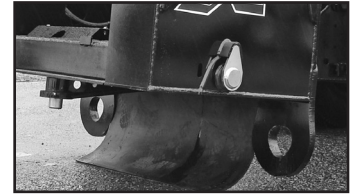
Safety Lock Pin Handle **MUST** Remain In The Unlocked Position (Out.) Failure To Do So May Result In Severe Injury.

- 2.) **Hook Lock Style** - (Image 1) Located on the deck of the trailer.
Push latch Air Valve in to reset latch.

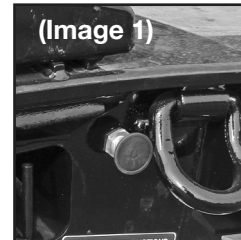
Pin Lock Style - (Image 2) Located on the trailer neck.
Push Gooseneck Lock Pin Release in to drop the pin to lock latch.



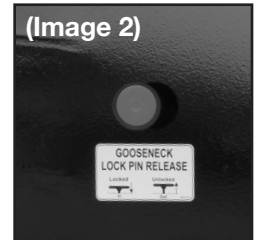
Hook Lock System



Pin Lock System



(Image 1)



(Image 2)

- 3.) Back up the truck slowly until lock latches. The undercarriage will self-align with the trailer (if not, pull ahead and adjust accordingly). On Hook Lock System, the Spring loaded Latch Position Arm will rotate up and back down to the locked position when locked.



Hook Lock System Above



Pin Lock System on Left

WARNING

Do Not Allow Debris Between Load Plate And Front Of Trailer.

- 4.) **Hook Lock Style** - Rotate Safety Lock Pin off web (located on the front driver's side of the deck). Pin should retract 3" to lock position.

Pin Lock Style - Rotate Lock Pin Handle off web (located on the lower driver's side of the neck.) Pin should retract 5/8" to lock position.



Hook Lock System



Unlocked

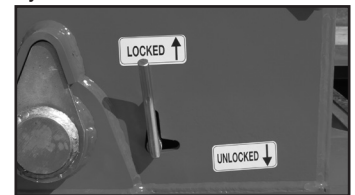


Locked

Pin Lock System



Unlocked



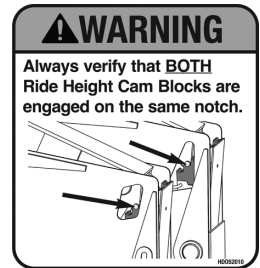
Locked

- 5.) Raise the gooseneck support arm.



Attaching Gooseneck To Trailer

- 6.) Raise the gooseneck and trailer until the Ride Height Cam Blocks can be rotated forward and positioned to the desired ride height position.



- 7.) Lower the gooseneck and trailer to transport position.

IMPORTANT: Visually check to make sure the Ride Height Cam Blocks are on the same notch.

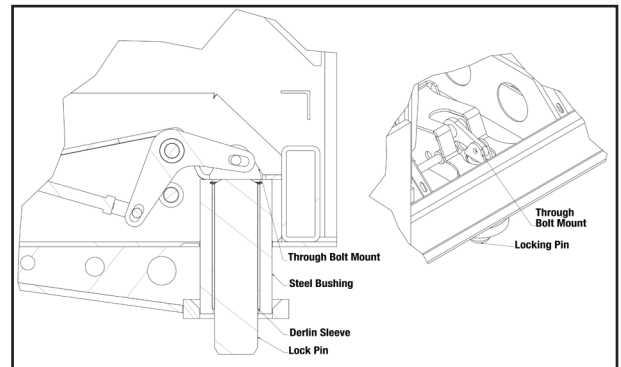


- 8.) Connect the air and electrical lines.



Pin Maintenance - Pin Lock System

- 1) Do not lubricate the lock pin. Lubricating the lock pin attracts dust and dirt which may cause it to bind up inside the plastic bushing. On our design we use a plastic bushing inside the steel bushing, eliminating the need for lubrication.
- 2) Do not strike the through bolt mount's on the top side of the lock pin, doing this causes the material to deform, interfering with the range of motion, which may cause it to bind up.



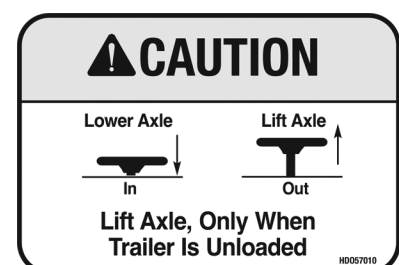
Rear Lift Axle The rear lift axle should only be when the trailer is unloaded. This kit reduces wear when transporting the trailer without a load.

At the rear of the trailer, located the Lift/Lower Axle valve.



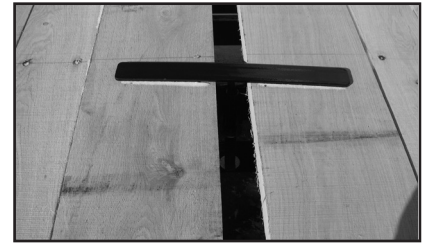
Follow instructions per decal:

- To lift the rear axle - Pull the knob out.
- To lower the rear axle - Push the knob.



Outrigger Boards With Hold-Downs

With this option, an operator can store the outrigger boards in the open areas of the deck. The hold-downs are spring loaded. Follow the instruction decal.



Recommended Outrigger Loading

Proper Loading Technique

Because outriggers (swinging side brackets or extension brackets) are often used to extend the usable width of the deck by approximately 12" on each side, the proper loading technique is very important.

Recommended Practice

The center line of the Vehicle's tires, tracks, or grousers must be "in-line" or "in-board" of the outside edge of the deck.

WARNING

Outrigger brackets are designed for use only with 2" thick boards. Use of thicker boards may result in outrigger failure, subsequent damage to equipment and/or serious injury or death.

WARNING

Load must be secured according to D.O.T. standards.

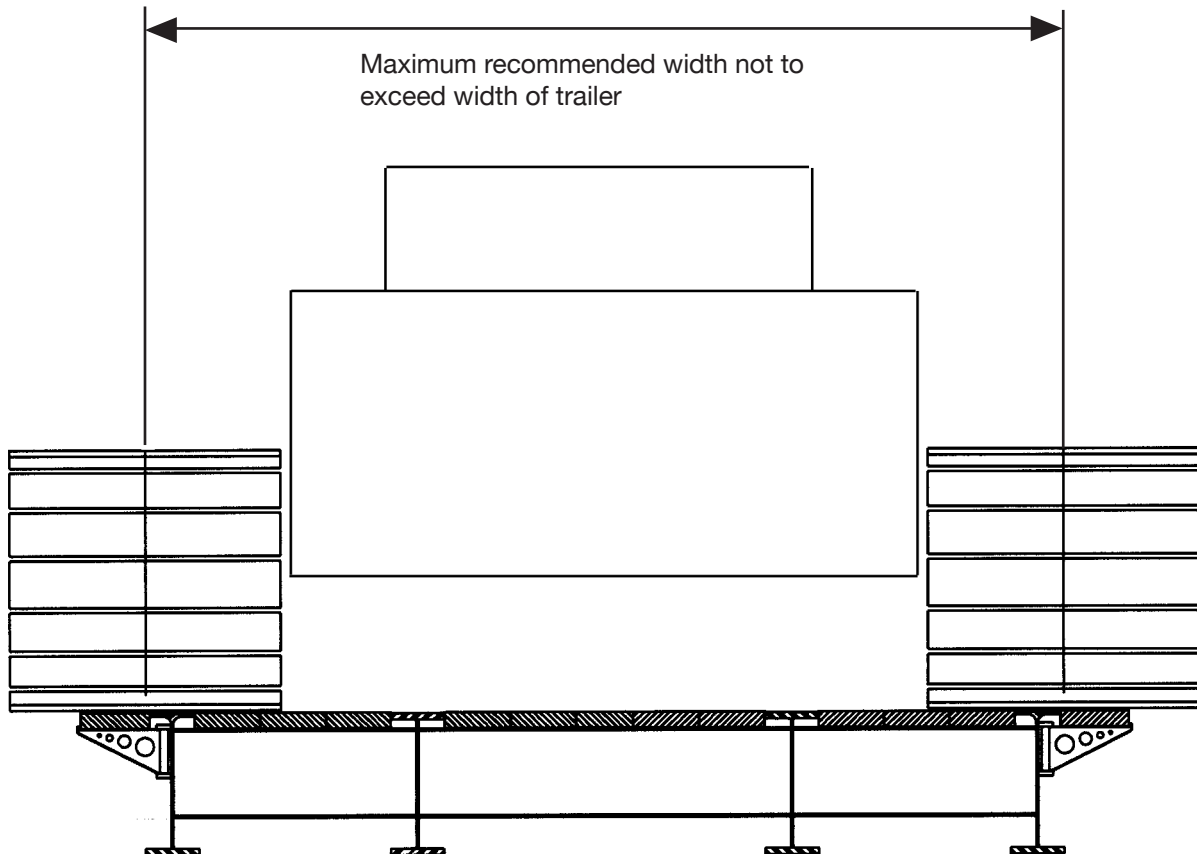
(Follow DOT Federal Motor Carrier Safety Regulations §392.9, §393.100 and §393.102.)

ATTENTION

MUST USE OUTRIGGER BOARDS WHENEVER OUTRIGGERS ARE EXTENDED FOR USE.

WARNING

NO SIDE LOADING



Loading Equipment on a Trailer

The total weight of the load you put on the trailer, plus the empty weight of the trailer itself, must not exceed the trailer's Gross Vehicle Weight Rating (GVWR).

If you do not know the empty weight of the trailer plus the cargo weight, you must weigh the loaded trailer at a commercial scale. In addition, you must distribute the load in the trailer such that the load on any axle does not exceed the Gross Axle Weight Rating (GAWR).

If your trailer is equipped with a Tire & Loading Information Placard, mounted next to the Certification / VIN label, the cargo capacity weight stated on that placard is only a close estimate. The GVWR and GAWR are listed on the Certification / VIN label normally located on the inside of the trailer tongue.

WARNING

An overloaded trailer can result in failure or loss of control of the trailer, leading to death or serious injury. Never load a trailer so that the weight on any tire exceeds its rating. Never exceed the trailer Gross Vehicle Weight Rating (GVWR) or axle Gross Axle Weight Rating (GAWR).

Loading and Unloading

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.
- Securing the load properly.

To determine that you have loaded the trailer within its rating, you must consider the distribution of weight, as well as the total weight of the trailer and its contents. The trailer axles carry most of the total weight of the trailer and its contents (Gross Vehicle Weight, or "GVW"). The remainder of the total weight is carried by the tow vehicle hitch.

It is essential for safe towing that the trailer tongue and tow vehicle hitch carry the proper amount of the loaded trailer weight, otherwise the trailer can develop an undesirable sway at towing speeds, or the rear of the towing vehicle can be overloaded. The load distribution must be such that no component part of the trailer is loaded beyond its rating. 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").

Do not transport people, containers of hazardous substances, or flammable liquids. The exception is fuel in the tank of vehicles or equipment being hauled.

Preparing Trailer For Loading

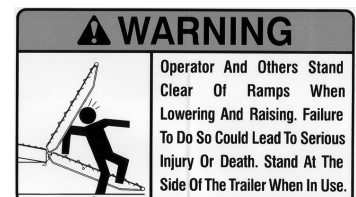
1. Inspect the floor of the trailer.
2. Inspect the tie down rings and track system for damage, looseness or signs of bending before loading the trailer.
3. Park the tow vehicle and trailer on a firm and level surface.
4. Clear the area around the trailer.

Loading a Rigid Deck Trailer

1. Couple the trailer to the tow vehicle.
2. Lower rear stabilizers (if equipped) or place blocking under rear of trailer so the weight of the cargo does not raise the front of the trailer during loading.
3. Remove ramps from storage position and secure to rear of trailer. Adjust ramp position to align with equipment tires or tracks.
4. Load the cargo on trailer with approximately **60% of the cargo in the front half of the trailer.**
5. Secure the load to the trailer using appropriate straps, chains and tensioning devices.
Refer to www.fmcsa.dot.gov for regulations regarding cargo securement rules.
6. Remove ramps and place in storage position.
7. Secure ramps to trailer.
8. Raise rear stabilizers (if equipped) or remove blocking under rear of trailer.

Securing Cargo

Refer to www.fmcsa.dot.gov for regulations regarding cargo securement rules.

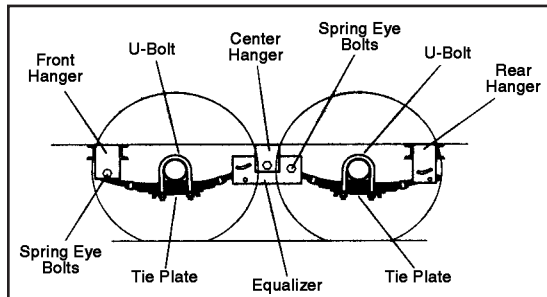


Maintenance

Preventative Maintenance

Regular preventative maintenance items outlined in this section may be repeated and reinforced to extend the life of your trailer. Check your packet for additional maintenance items on your trailer.

- **Wash the Trailer** - Washing your trailer will help assure the external moving parts will continue to work as designed without causing issues. Wash as needed with a power washer and a detergent solution. (NOTE: If equipped with a power unit, i.e. Generator, avoid making contact to this area with the pressure washer.)
- **Gooseneck Hitch** - Before each tow, the gooseneck coupler and the gooseneck ball need a thin layer of automotive grease to reduce wear and insure proper operation. Replace any parts immediately if they show wear, corrosion or if the parts are not in proper working order. If the gooseneck coupler or ball need to be replaced, be sure to replace it with the correct load rating.
- **Wheel Bolts** - Check the torque after the first 50 miles and again at 100 miles. Then at a minimum of every one thousand miles make sure they are tight. It is extremely important to apply and maintain the proper wheel mounting torque on your trailer axle. If you are replacing a wheel it is important that the wheels, tires, and axle are properly matched. Be sure to match the wheel to the axle hub. Make sure the wheels have enough load carrying capacity and pressure rating to match the maximum load of the tire and trailer. Care should be taken to match any replacement wheel with the same offset wheel as originally equipped. Failure to match offset can result in reducing the load carrying capacity of your axle and cause bearing stress.
- **Tire Pressure** - Check tire pressure regularly. See the section "Tire Information" for the correct tire pressure for your trailer.
- **Suspension** - All components (springs, hangers, bolts, etc.) of the suspension should be visually inspected every 6,000 miles for signs of wear. Worn items should be replaced or fixed immediately. See your packet information for more details on inspecting and replacing suspension components.



- **Daily Inspection** - Conduct a walk-around inspection daily, fix any problems you find immediately.

- **Brakes** - Inspect and adjust the brakes every 10,000 to 15,000 miles. (Be sure to adjust all brake wheels.) See your packet information for more details on inspecting and replacing brake components.
- **Wheel Bearings** - Pack the wheel bearings once a year or every 12,000 miles whichever comes first using regular wheel bearing grease. On oil bath hub seals use 80-90W gear lube.
- **Jack** - Grease jack when needed with multipurpose grease. Always grease after taking the trailer out of storage.



Lifting and Supporting the Trailer

When maintenance or repairs are being made to the trailer it should be properly supported. Use properly rated jack stands to support the trailer.

FELLING TRAILERS

MAINTENANCE SCHEDULE - ELECTRIC BRAKE TRAILERS

ITEM	FUNCTION REQUIRED	WEEKLY	EVERY 3 MONTHS / 3,000 MILES	6 MONTHS / 12,000 MILES	12 MONTHS / 25,000 MILES
WHEEL TORQUE	Check at 50 miles		●		
BRAKE	Test that they are operational	At Every Use			
BRAKE ADJUSTMENT	Adjust to proper operating clearance		●		●
BRAKE MAGNETS	Inspect for wear and current draw			●	
BRAKE LININGS	Inspect for wear or contamination				●
BRAKE CONTROLLER	Check for correct amperage & modulation			●	
BRAKE CYLINDERS	Check for leaks, sticking				●
BRAKE LINES	Inspect for cracks, leaks, kinks				●
TRAILER BRAKE WIRING	Inspect wiring for bare spots, fray, etc.				●
BREAKAWAY SYSTEM	Check battery charge and switch operation	At Every Use			
HUB/DRUM	Inspect for abdominal wear or scoring				●
WHEEL BEARING & CUPS	Inspect for corrosion or wear. Clean & repack				●
SEALS	Inspect for leakage, Replace if removed				●
SPRINGS	Inspect for wear, loss of arch				●
SUSPENSION PARTS	Inspect for bending, loose fasteners, wear			●	
HANGERS	Inspect welds				●
WHEELS NUTS AND BOLTS	Tighten to specified torque values		●		
WHEELS	Inspect for cracks, dents or distortion			●	
TIRE INFLATION PRESSURE	Inflate tires to mfg.'s specifications	●			●
TIRE CONDITION	Inspect for cuts, wear, bulging, etc.		●		

FELLING TRAILERS

MAINTENANCE SCHEDULE - AIR BRAKE TRAILERS

ITEM	FUNCTION REQUIRED	WEEKLY	EVERY 3 MONTHS / 3,000 MILES	6 MONTHS / 12,000 MILES	12 MONTHS / 25,000 MILES
WHEEL TORQUE	Check at 50 miles		●		
BRAKE AIR SYSTEM	Test that they are operational		●		
BRAKE ADJ & WEAR	Inspect, tighten & adjust	●	●		
SLACK ADJUSTERS	Inspect, tighten & adjust	●		●	●
LIGHTS	Inspect and test that they are operational	●			
WIRING & CONNECTIONS	Inspect	●			
FASTENERS	Inspect and tighten	●			
KING PIN & PLATE	Inspect, Clean & Lubricate	●			
RELAY VALVES	Inspect & Clean				●
CAMSHAFT ASSEMBLY	Inspect & Lubricate	●			●
HUB OIL	Inspect, lubricate & when needed replace	●			●
WHEEL BEARINGS & CUP	Inspect for corrosion or wear, Clean & repack	●		●	
AIR RIDE SUSPENSION	Inspect, Tighten/adj. torque as needed		●		●
UNDERCARRIAGE ROLLERS	Lubricate	●	●		
HYDRAULIC OIL	Inspect & replace as needed	●			●
HYDRAULIC FILTER	Replace	●		●	
HOSES	Inspect & replace as needed	●	●		●
WINCH GEAR CASE	Inspect	●	●		
TIRE INFLATION & WEAR	Inflate tires to mfg.'s specifications	●	●		●
WHEEL LUG NUTS	Tighten to specified torque values	●	●		
SUSPENSION ALIGNMENT	Inspect for bending, loose fasteners & wear	●	●		

Maintenance Procedures

7700/9700 4-Spring Suspension

Warning

We strongly emphasize that each of the maintenance procedures that we will discuss have a significant safety purpose. Failure to maintain proper torque values on each of the suspension components can result in a failure of suspension components. Further, use of any visibly worn component can result in a failure. Any of these failures can result in loss of vehicle control and personal injury or death. Safety is the number one concern at Hutchens Industries. We urge you to follow the maintenance procedures set out in our video and in these written instructions.


The first maintenance check should be performed after an initial break-in period of about 1,000 miles. A visual inspection of all suspension components and attachment welds should be performed to reveal any obvious problems, such as cracks or unexpected wear.

During this “walk-around” it is essential to also check the torque on all suspension fasteners. In the course of the initial “shake down” period in which the components of the suspension “seat-in,” as much as 25% of the original clamp load on the bolted joints can be lost. After the parts of the suspension have worked together for a very short period of time, re-torquing the bolts is necessary to ensure that undue movement – which results in excessive suspension wear – does not occur.

During the first maintenance check, the trailer’s axle alignment should be examined and adjusted to comply with the Truck Trailer Manufacturers Association (TTMA) Recommended Practice #71-10. Alignment should also be checked following any maintenance or repair procedure performed on the suspension. Visual inspections and re-torquing are maintenance procedures that are performed every four months throughout the life of the trailer.

Begin each inspection with a review of the Hutchens torque decal (shown below) for the appropriate torque values for each suspension fastener. The oiled torque values in the first column are for new fasteners with lubricated threads. When you are installing new components, we recommend you lubricate the threads and use the torque values in this column. For maintenance checks on fasteners that have been in service, use the higher torque values in the dry thread column. It is important that you check all bolts and nuts to ensure that the recommended torque values are being maintained.

You cannot rely on your visual inspection to detect loose fasteners. **USE A TORQUE WRENCH!**

 **WARNING**


SAFETY ALERT! (1) FOLLOW ALL TORQUE REQUIREMENTS. (2) DO NOT USE ANY COMPONENT WITH VISIBLY WORN OR DAMAGED THREADS. FAILURE TO FOLLOW THESE SAFETY ALERTS CAN LEAD TO LOSS OF VEHICLE CONTROL, PROPERTY DAMAGE, SERIOUS PERSONAL INJURY OR DEATH.

**Hutchens Suspension Torque Requirements
9600-9700 Series (Decal Part Number 16086-01 Rev. J)**

After an initial break in period, approximately 1000 miles, and at least every 4 months periodically thereafter, ALL bolts and nuts should be checked to insure that recommended torque values are being maintained.

Oil torque values listed are for new fasteners with lubricated threads. It is recommended that new installations be performed with oiled fasteners. For dry threads which have been in service, use the higher torque values which are noted below.

	OILED	DRY
1 1/8-7 (9600/9700 Rocker Bolt).....	590 lb-ft	790 lb-ft
1-14 or 1-8 (9700 Radius Rod Bolt).....	540 lb-ft	720 lb-ft
7/8-14 (Axle U-Bolts & 9600 Radius Rod Bolt).....	350 lb-ft	470 lb-ft
3/4-16 (Axle U-Bolts).....	310 lb-ft	420 lb-ft
5/8-18 (Radius Rod Clamp Bolt).....	130 lb-ft	170 lb-ft
5/8-18 (Spring Retainer Bolt).....	35 lb-ft	50 lb-ft

 Hutchens Industries, Inc., P.O. Box 1427, Springfield, Missouri 65801-1427 Toll Free 1 (800) 654-8824

Hutchens Torque Decal Part No. 16086-01

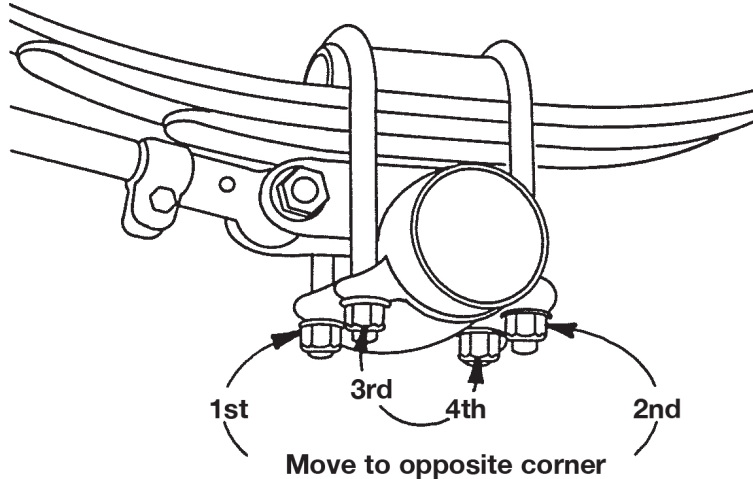
This decal should be installed on the side of the trailer in a visible location. Decals can be obtained free of charge by contacting Hutchens Industries, Inc.

Now let's look closely at the maintenance requirements for each of the suspension's main component groups.

Axle Clamp Group and Springs

1. Check the torque on the U-bolt nuts by alternately tightening opposing corners of the clamp assembly. **See Figure 1.**
 - a. When using 7/8" – 14 U-bolts, the nuts should be torqued to a **dry** level of 470 lb-ft.
 - b. When using 3/4" – 16 U-bolts, the nuts should be torqued to a **dry** level of 420 lb-ft.

Fig. 1

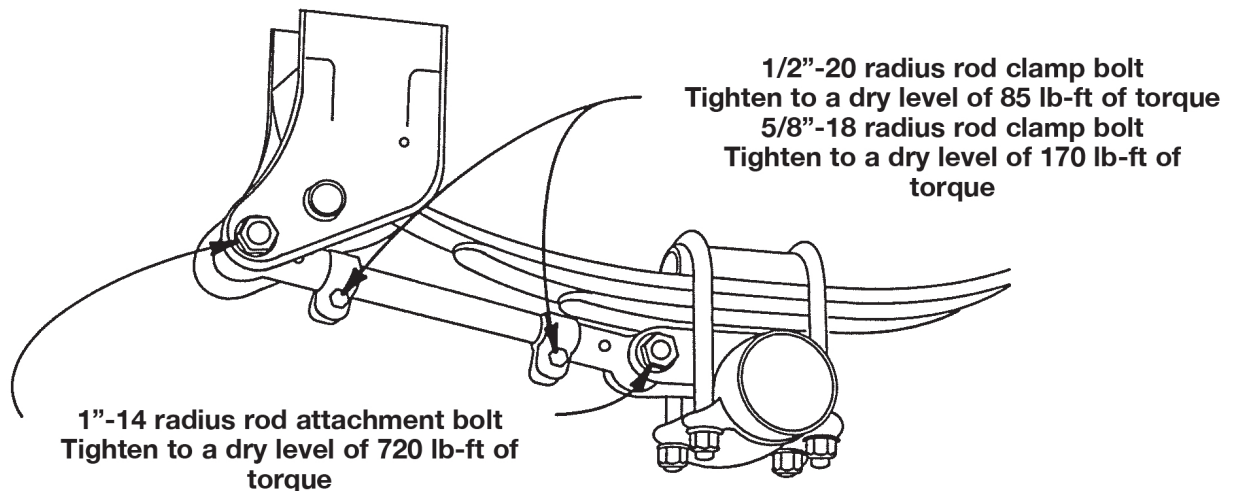


Always carefully inspect the spring and axle clamp components for any signs of wear or cracks, and replace if visible wear or cracks are present.

Radius Rods

- 2a. The 1" – 14 radius rod attachment bolts at the hangers and spring seats should be tightened to a **dry** level of 720 lb-ft of torque on both the adjustable and non-adjustable radius rods. **See Figure 2.**

Fig. 2



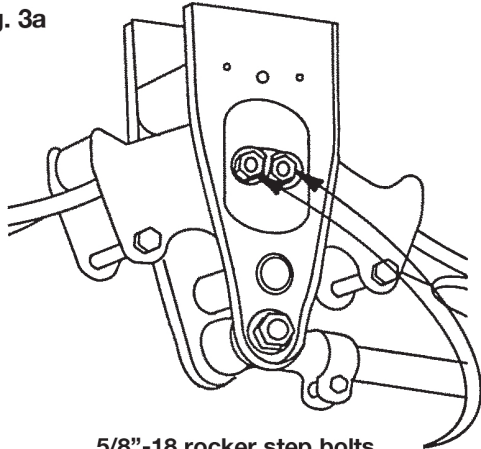
Loose operation of this bolt can result in wear requiring that new components be installed to avoid structural damage. During your visual inspection, if you observe any visible wear or loosening in the bushing, it is imperative that you immediately replace the radius rod bushing and bolt. Failure to replace these components will result in damage to the hanger, spring seat, and/or radius rod.

- 2b. Next check the 1/2" – 20 radius rod clamp bolt, which should be tightened to a **dry** level of 85 lb-ft of torque. The 5/8" – 18 radius rod clamp bolt should be tightened to a **dry** level of 170 lb-ft of torque. **See Figure 2.** If the clamp bolt has not been properly maintained, then wear between the radius rod screw and the eye end may be observed. If so, then the entire radius rod must be replaced. **Simply retightening or replacing the clamp bolt will not correct the problem.**

Rocker Bushings

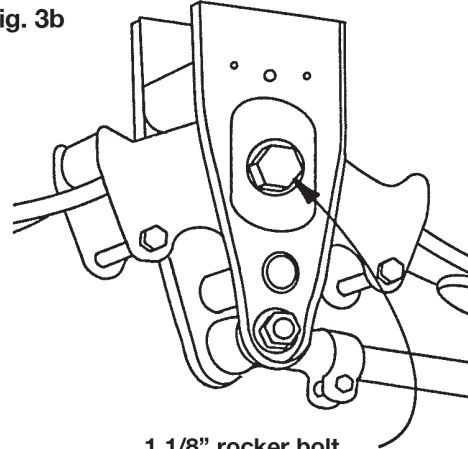
3. The recommended torque values for the rocker bushing clamp bolts are different for each model.
- If you are working on the 7700 model suspension, the 5/8" – 18 rocker step bolts should be tightened to a **dry** level of 170 lb-ft of torque. **See Figure 3a.**
 - If you are working on the 9700 model suspension, the single 1 1/8" – 7 rocker bolt should be tightened to a **dry** level of 790 lb-ft of torque. **See Figure 3b.**

Fig. 3a



5/8"-18 rocker step bolts
Tighten to a dry level of 170 lb-ft of torque

Fig. 3b



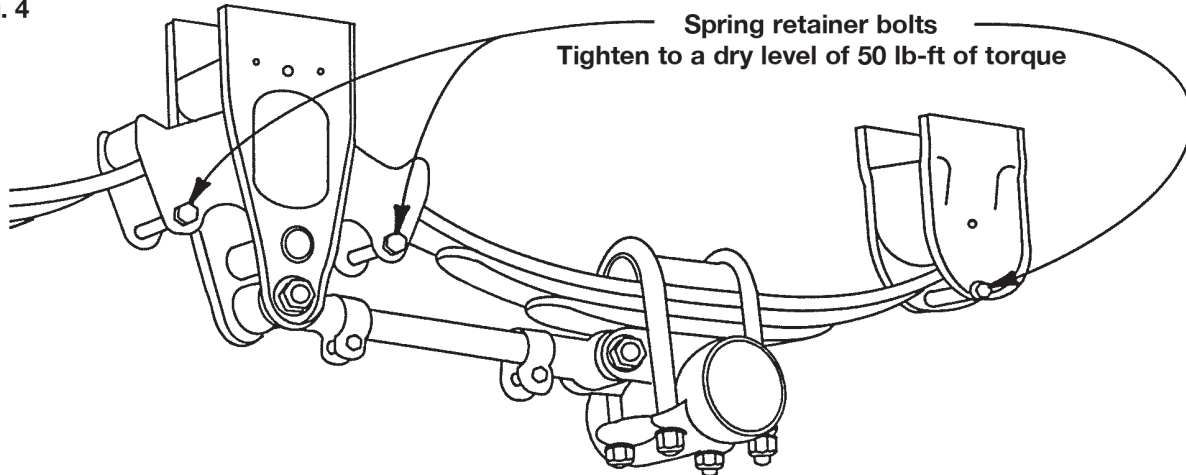
1 1/8" rocker bolt
Tighten to a dry level of 790 lb-ft of torque

During your check, if the bolts are loose a detailed inspection of the rocker is important to ensure that no structural damage has occurred. One way this can be done is by raising the trailer until the trailer weight is taken off the springs. If the rocker is displaced or if the joint is loose, then the rocker should be removed and the rocker and/or rocker bushing be replaced. Again, visually inspect the condition of all rocker/rocker hanger assembly components and replace if visible wear is present.

Hangers

4. Check all of the spring retainer bolts found in the rockers and rear hangers. A **dry** value of 50 lb-ft of torque should be maintained on all of these bolts. **See Figure 4.**

Fig. 4



Loose fasteners that are allowed to operate for any period of time will result in irreversible suspension damage and possible loss of vehicle control. **Retightening a worn fastener will not correct a situation created by loose operation!**

FELLING TRAILERS

Highway Service Dimensional Data

Tire Size	Load Range	Load Rating Single	Load Rating Dual
ST225/75R15 RADIAL	D 6-ply rated	2150 @ 65 PSI	1875 @ 65 PSI
ST235/80R16 RADIAL	E 10-ply rated	3520 @ 80 PSI	3080 @ 80 PSI
215/75R17.5 RADIAL	H 16-ply rated	4805 @ 123 PSI	4540 @ 123 PSI
235/75R17.5 RADIAL	J 18-ply rated	6005 @ 127 PSI	5675 @ 127 PSI
255/70R22.5	H 16-ply rated	5510 @ 115 PSI	5070 @ 115 PSI
275/70R22.5	H 16-ply rated	6610 @ 125 PSI	6175 @ 125 PSI
295/70R22.5	H 16-ply rated	6610 @ 120 PSI	6005 @ 105 PSI
11R22.5	G 14-ply rated	6610 @ 120 PSI	6005 @ 120 PSI

Axle Size

Drum & Shoe Size

Std. tire Size

6,000#	12" x 2"	15" - 16"
7,000#	12" x 2"	16"
7,200#	12-1/4" x 2-1/2"	16"
8,000#	12-1/4" x 3-3/8"	16"
9,000#	12-1/4" x 3-3/8"	16"
10,000# Electric	12-1/4" x 3-3/8"	16"
10,000# Air	12-1/4" x 4"	16"
12,000# Electric	12-1/4" x 5"	16"
12,000# Air	12-1/4" x 5"	16"
15,000# Electric	12-1/4" x 5"	17.5"
15,000# Air	12-1/4" x 5"	17.5"
25,000# Air	12-1/4" x 7-1/2"	17.5"
25,000# Air	16-1/2" x 7-1/2"	22.5"-24.5"

1. TIRE SAFETY INFORMATION (Effective September 1st, 2005)

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

Section 1.1

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

Section 2.1

contains "Steps for Determining Correct Load Limit - Tow Vehicle".

Section 2.2

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

Section 2.3 contains information from the NHTSA brochure entitled "Tire Safety - Everything Rides On It".

This brochure, as well as the preceding subsections, describes the following items;

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

1.1. 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 Felling 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 carry. 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 with living quarters installed, 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 Placard. This value should never exceed the maximum cold inflation pressure stamped on the tire.



TIRE AND LOADING INFORMATION
24010118

The weight of cargo should never exceed 907 kg. or 2000 lbs.

TIRE	SIZE	COLD TIRE PRESSURE	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
FRONT	20.5x8.0-10(E)	621kPA or 90PSI	
REAR			
SPARE			

1.1.1. Trailers 10,000 Pound GVWR or Less

Tire and Loading Information Placard - Figure 1-1

- 1.) Locate the statement, "The weight of cargo should never exceed XXX kg or XXX lbs.," on your vehicle's placard. See figure 1-1.
- 2.) This figure equals the available amount of cargo and luggage load capacity.
- 3.) 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 placard refers to the Tire Information Placard attached adjacent to or near the trailer's VIN (Certification) label at the left front of the trailer.

2. Trailers over 10,000 Pounds GVWR
(NOTE: These Trailers Are Not Required to Have a Tire Information Placard on the Vehicle)

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

2.1. Steps for Determining Correct Load Limit- Tow Vehicle

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

2.2. Glossary of Tire Terminology

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

The breakdown of the bond between components in the bead.

Bias ply tire

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

Carcass

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

Chunking

The breaking away of pieces of the tread or sidewall.

Cold inflation pressure

The pressure in the tire before you drive.

Cord

The strands forming the plies in the tire.

Cord separation

The parting of cords from adjacent rubber compounds.

Cracking

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

CT

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

Curb weight

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

Extra load tire

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

Groove

The space between two adjacent tread ribs.

Gross Axle Weight Rating

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

The maximum weight of the fully loaded trailer, as published on the Certification / VIN label. 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.

Light truck (LT) tire

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

Load rating

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

Maximum load rating

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

Maximum permissible inflation pressure

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

Maximum loaded vehicle weight

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

Measuring rim

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

Pin Weight

The downward force applied to the 5th wheel or gooseneck ball, by the trailer kingpin or gooseneck coupler.

Non-pneumatic rim

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

Non-pneumatic spare tire assembly

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

Non-pneumatic tire

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

Non-pneumatic tire assembly

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

Normal occupant weight

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

Occupant distribution

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

Open splice

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

Outer diameter

The overall diameter of an inflated new tire.

Overall width

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

Ply

A layer of rubber-coated parallel cords.

Ply separation

A parting of rubber compound between adjacent plies.

Pneumatic tire

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

Production options weight

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

Radial ply tire

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

Recommended inflation pressure

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

Reinforced tire

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

Rim

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

Rim diameter

The nominal diameter of the bead seat.

Rim size designation

The rim diameter and width.

Rim type designation

The industry of manufacturer's designation for a rim by style or code.

Rim width

The nominal distance between rim flanges.

Section width

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

Sidewall

That portion of a tire between the tread and bead.

Sidewall separation

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

Special Trailer (ST) tire

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

Test rim

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

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 degree of wear of the tread.

Vehicle capacity weight

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

Vehicle maximum load on the tire

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

Vehicle normal load on the tire

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

Weather side

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

Wheel center member

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

Wheel-holding fixture

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

2.3 Tire Safety - Everything Rides On It

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

http://www.nhtsa.dot.gov/cars/rules/TireSafety/ridesonit/tires_index.html

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.

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

- Basic tire maintenance
- Uniform Tire Quality Grading System

- Fundamental characteristics of tires
- Tire safety tips.

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

3. Safety First - Basic 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.

4. 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.

5. 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 highest amount of air pressure that should ever be put in the tire under normal driving conditions.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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 counter balance 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.

11. Tire Repair

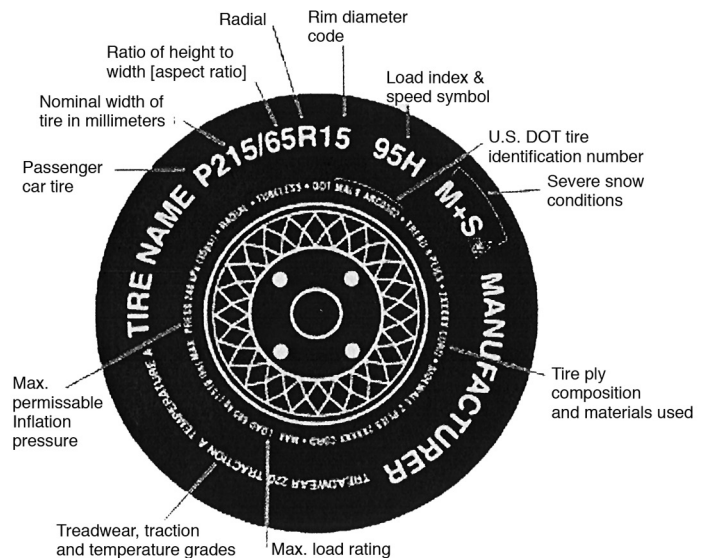
The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the sidewall should not be repaired. Tires must be removed from the rim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

12. 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.

12.1.1.1. Information on Passenger Vehicle Tires

Please refer to the diagram below.



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 below. 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

* For tires with a maximum speed capability over 149 mph, tire manufacturers sometimes use the letters ZR. For those with a maximum speed capability over 186 mph, tire manufacturers always use the letters ZR.

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.

12.1.1.2. 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

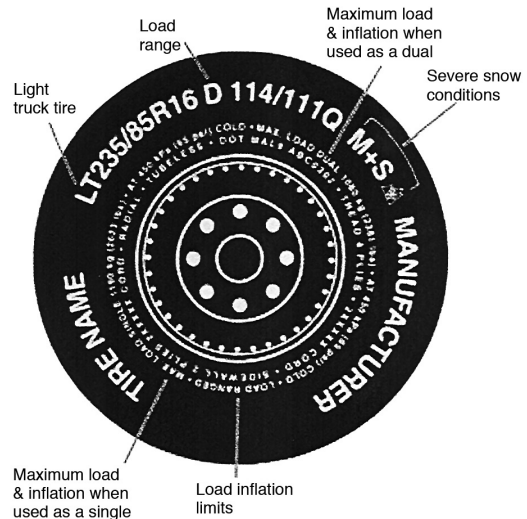
This letter indicates a tire’s ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as “AA”, “A”, “B”, and “C”.

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”.

12.1.1.3. Additional Information on Light Truck Tires

Please refer to the following diagram



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.

13. Tire Safety Tips**Preventing Tire Damage**

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

Tire Safety Checklist

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

Wheel and Rim Torque Requirements

Description	Application	Min. Torque (ft-lbs.)	Max. Torque (ft-lbs.)
1/2" Cone Nut	12" - 13" Wheel	50	65
1/2" Cone Nut	14" - 16" Wheel	90	120
5/8" Cone Nut	Flat Disc Wheel	175	225
5/8" Cone Nut	Clamp Ring	190	210
3/4" Hex Nut	Demountable Ring Clamp	210	260
3/4" Spherical Nut	Single Wheel	450	500
3/4" Spherical Nut	Inner Dual	450	500
1-1/8" Spherical Nut	Outer Dual	450	500
5/8" Solid Flange Nut	Dual Wheels	225	275
3/4" Solid Flange Nut	Dual Wheels	275	325
5/8" Swivel Flange Nut	Dual Wheels	175	225
3/4" Swivel Flange Nut	Dual Wheels	225	375

Aluminum Wheel Torque

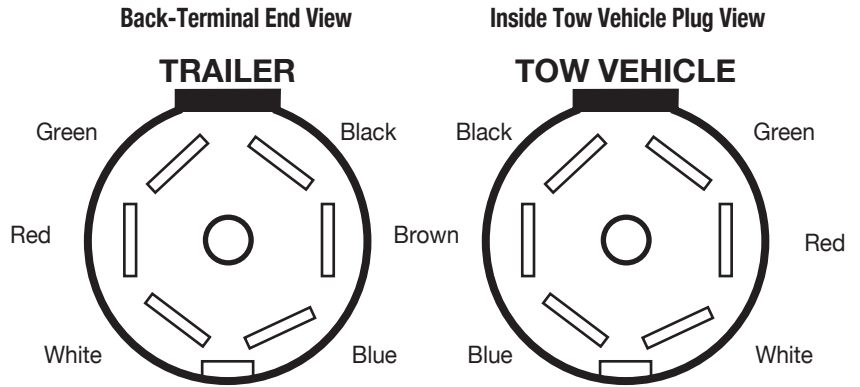
Description	Application	Min. Torque (ft-lbs.)	Max. Torque (ft-lbs.)
3/4 - 1 - 1/8 stud	17.5" Wheels	450	500
15/16 - 1 - 15/16 stud	22.5" Wheels	750	900

FELLING TRAILERS

WIRING DIAGRAMS

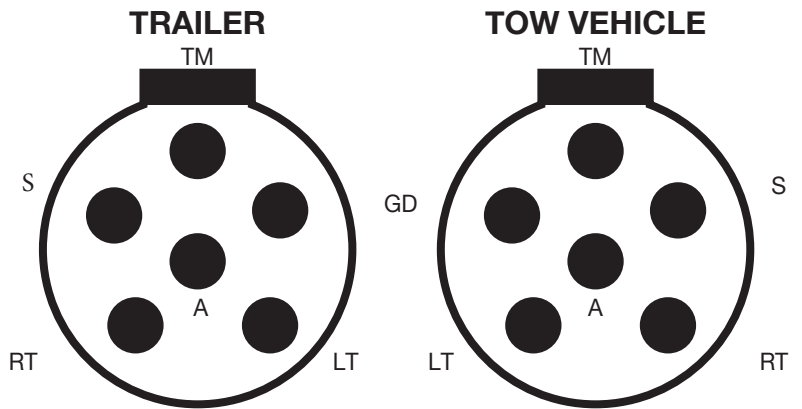
7 RV

Plug Says	Trailer Wired	Function
White	White	Common Ground
Center Pole	Red	Back-up Lights
Green	Brown	Tail Markers
Blue	Blue	Electric Brake
Brown	Green	RT Turn/Stop
Red	Yellow	LT Turn/Stop
Black	Black	Battery Charger



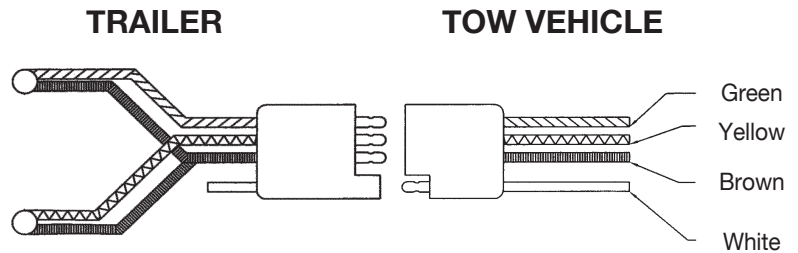
6 Round

Plug Says	Trailer Wired	Function
Yellow (LT)	Yellow (LT)	Left Turn/Stop
Green (RT)	Green (RT)	Right Turn/Stop
Blue (S)	Blue (S)	Electric Brake
White (GD)	White (GD)	Ground
Brown (TM)	Brown (TM)	Tail/Marker
Black (A)	Black (A)	Auxillary



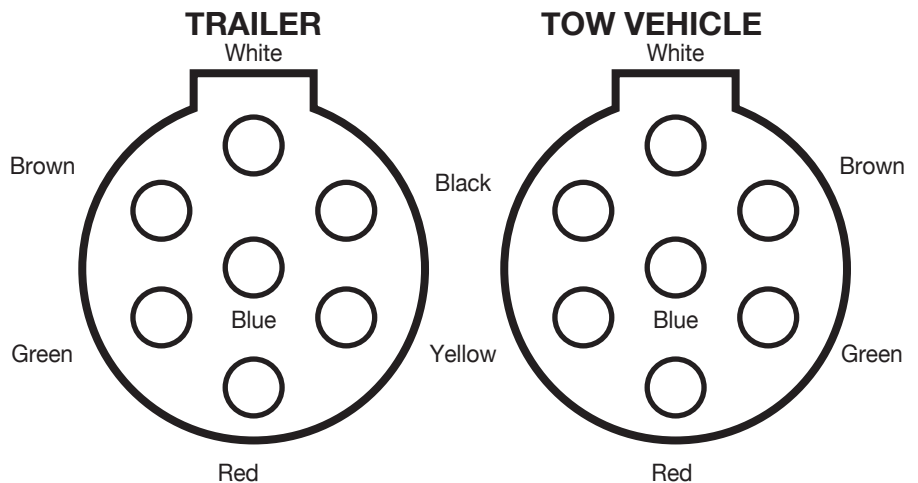
4 Flat

Plug Says	Trailer Wired	Function
White	Ground	
Brown	Tail Marker	
Yellow	Left Turn/Stop	
Green	Right Turn/Stop	



7 Semi

Plug Says	Trailer Wired	Function
Yellow	Yellow	Left Turn
Green	Green	Right Turn
Brown	Brown	Tail/Marker
White	White	Common Ground
Red	Red	Stop
Black	Black	ID & Marker
Blue	Blue	ABS/Elec. Brakes



Back-Terminal End View

Inside Tow Vehicle Plug View

Felling Trailers Parts Manual

Deck-Over & Semi Supplement

Table of Contents

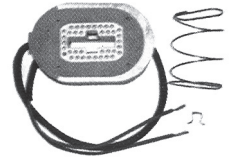
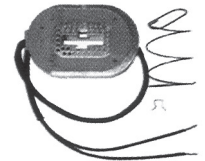
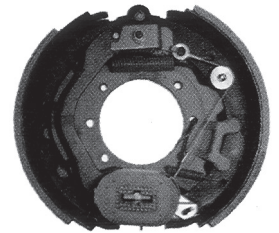
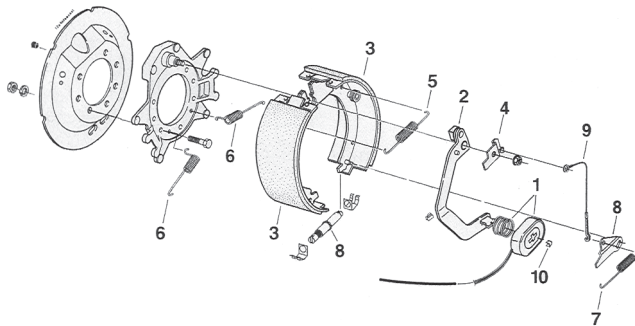
Deck-Over/Semi Trailers.....

- Electric/Hydraulic Brake47-51
- Air Brake52

Felling Trailers Parts Department • 1-866-335-5464 • www.store.felling.com

Parts Information For Deck-Over Trailers

DEXTER 12-1/4" X 5" ELECTRIC, 12K & 15K ELECTRIC BRAKE



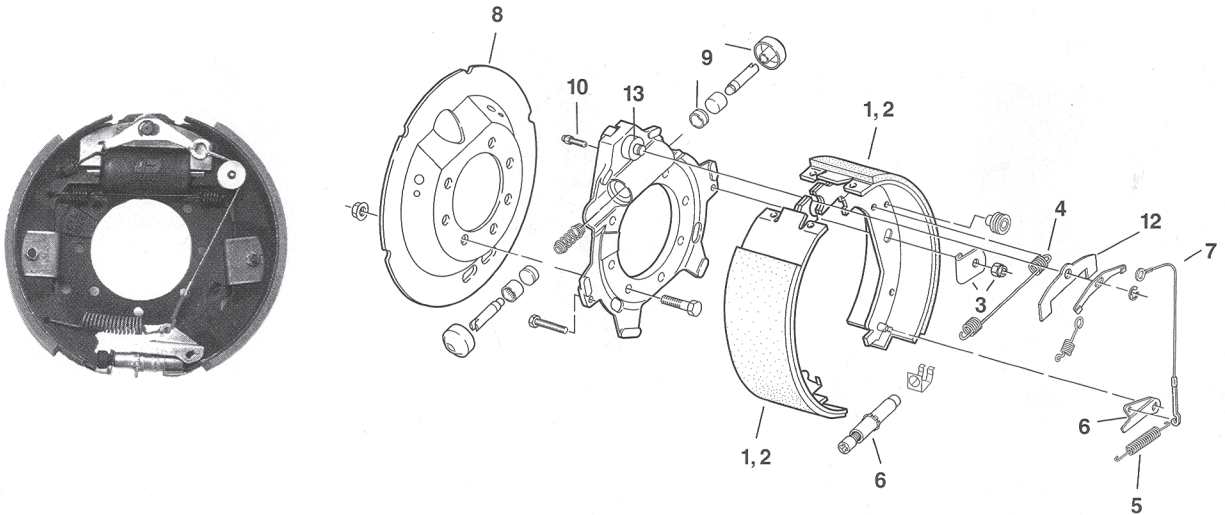
Electric Brake Assemblies Cast Backing Plate

Part No.	Description
23-442	LEFT BRAKE, 7 BOLT, 12K (BLACK WIRE) SHOWN IN PHOTO
23-443	RIGHT BRAKE, 7 BOLT, 12K (BLACK WIRE)
23-446	LEFT BRAKE, 7 BOLT, 15K (BLUE WIRE)
23-447	RIGHT BRAKE, 7 BOLT, 15K (BLUE WIRE)

Replacement Parts

Part No.	Description	Item
BP01-306	SHOE AND LINING (ONE WHEEL), LEFT HAND	1
BP01-311	SHOE AND LINING (ONE WHEEL), RIGHT HAND	1
47-123-36	SHOE HOLD DOWN KIT	2
47-123-35	SHOE RETURN SPRING	N/S
BP04-365	ADJUSTER SPRING, OLD STYLE	3
BP04-375	ADJUSTER, LEVER AND SPRING, LEFT HAND, OLD STYLE	N/S
71-455-1	ADJUSTER, LEVER AND SPRING, RIGHT HAND, OLD STYLE	4
71-455-2	ADJUSTER KIT FOR FORWARD SELF-ADJUST BRAKES LH	N/S
BP07-190	ADJUSTER KIT FOR FORWARD SELF-ADJUST BRAKES RH	5
BP07-195	ADJUSTER CABLE AND RETAINER, BEFORE 1987-1996 (14" LONG)	6
BP08-155	BRAKE DUST SHIELD, 7 BOLT (1-PIECE) METAL	7
BP10-136	WHEEL CYLINDER REBUILD KIT (1.250" BORE)	8
BP10-146	BLEEDER SCREW (QTY 4)	N/S
BP13-022	CYLINDER PUSH ROD	9
BP19-005	PISTON STOP BAR, AFTER 1987	10

DEXTER 12-1/4" X 5" DUO-SERVO HYDRAULIC, 12K & 15K HYDRAULIC BRAKE



DEXTER 12 1/4" X 5" DUO-SERVO HYDRAULIC BRAKE ASSEMBLIES

- CAPACITY: 12,000 & 15,000 LBS. PER PAIR
- REDESIGNED WITH FORWARD ADJUST FEATURE IN 1997

Part No.	Description
----------	-------------

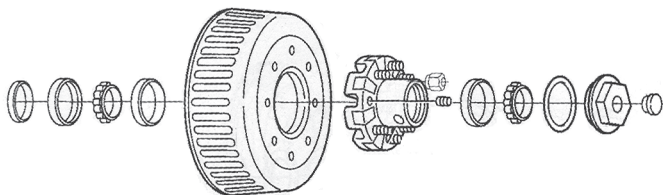
23-408	LEFT BRAKE, 12K (SHOWN IN PHOTO)
23-409	RIGHT BRAKE, 12K
23-406	LEFT BRAKE, 15K
23-407	RIGHT BRAKE, 15K



Replacement Parts

Part No.	Description	Item
BP04-380	SHOE AND LINING (ONE WHEEL), LEFT HAND	1
BP04-390	SHOE AND LINING (ONE WHEEL), RIGHT HAND	2
BP06-235	SHOE HOLD DOWN KIT	3
BP07-240	SHOE RETURN SPRING	4
BP08-150	ADJUSTER SPRING	5
BP10-135	ADJUSTER, LEVER AND SPRING, LEFT HAND	6
BP-10-145	ADJUSTER, LEVER AND SPRING, RIGHT HAND	6
BP10-150	ADJUSTER KIT FOR FORWARD SELF-ADJUST BRAKES LH	6,7
BP10-160	ADJUSTER KIT FOR FORWARD SELF-ADJUST BRAKES RH	6,7
BP13-033	ADJUSTER CABLE AND RETAINER, BEFORE 1987-1996 (14" LONG)	7
BP15-190	BRAKE DUST SHIELD, 7 BOLT (1-PIECE) METAL	8
BP16-050	WHEEL CYLINDER REBUILD KIT, 12K (1.250" BORE)	9
K71-082-00	WHEEL CYLINDER REBUILD KIT, 12K (1.375" BORE)	9
BP18-011	BLEEDER SCREW (QTY 4)	10
54-33	CYLINDER PUSH ROD	11
34-62	PISTON STOP BAR, AFTER 1987	12

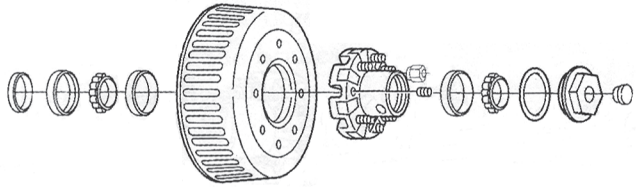
8 BOLT, 6.5" BOLT CIRCLE, 10K GENERAL DUTY HUB GROUPS



Replacement Parts

Part No.	Description
8-214-5UC1	COMPLETE HUB ASSEMBLY (BRAKE DRUM & MTG BOLTS NOT INCL.)
8-214-5	HUB DRUM
9-27-1	BRAKE DRUM ONLY, NON-ABS
9-27-3	BRAKE DRUM ONLY, WITH ABS EXCITER RING
7-103	DRUM MOUNTING BOLT
3955	INNER BEARING
387A	OUTER BEARING
394A	INNER FACE
382A	OUTER FACE
10-56	UNITIZED OIL SEAL, (4.50" O.D., 3.1215" I.D.)
RG04-270	OIL CAP KIT (21-36 CAP, 10-50 O-RING, 46-32 PLUG)
7-115	DRIVE-IN STUD, 5/8" DIAMETER
33-52-1	WHEEL RETAINING RING
6-109	5/8" CONE WHEEL NUT

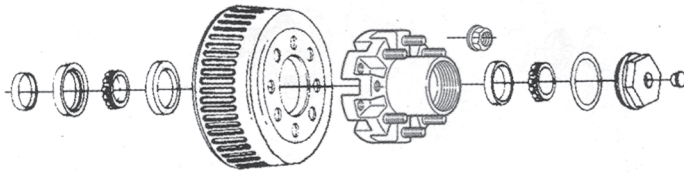
8 BOLT, 6.5" BOLT CIRCLE, 12K HUB GROUP



Replacement Parts

Part No.	Description
8-214-8UC1	COMPLETE HUB ASSEMBLY (16" & 16.5" DIAMETER WHEELS.)
8-214-8	HUB ONLY (16" & 16.5" DIAMETER WHEELS)
8-216-5UC1	COMPLETE HUB ASSEMBLY (14.5" DIAMETER WHEELS)
8-216-5	HUB ONLY (14.5" DIAMETER WHEELS)
9-28-1	BRAKE DRUM ONLY, NON-ABS
9-28-5	BRAKE DRUM ONLY, W/ABS EXCITER RING
7-103	DRUM MOUNTING BOLT
3984	INNER BEARING
28682	OUTER BEARING
3920	INNER FACE
28622	OUTER FACE
10-56	UNITIZED OIL SEAL, (4.50" O.D., 3.1215" I.D.)
RG041-270	OIL CAP KIT (21-36 CAP, 10-50 O-RING, 46-32 PLUG)
7-115	DRIVE-IN STUD, 5/8" DIAMETER
33-52-1	WHEEL RETAINING RING
6-109	5/8" CONE WHEEL NUT

8 BOLT, 275 MM BOLT CIRCLE (DUAL WHEEL), 15K HUB GROUP

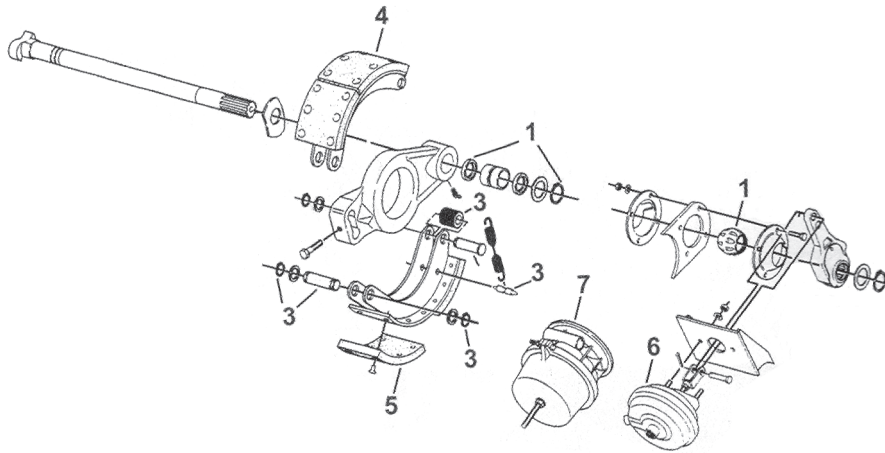


- OIL BATH HUB, 3984 INNER/28682 OUTER BEARING
- CAPACITY OF 7,500 LBS. PER EACH
- FITS DEXTER 15K AXLES, RH & LH SIDE
- DRUM SIZE: 12 1/4" X 5"
- DRUM AVAILABLE WITH ABS EXCITER RING INSTALLED
- STD STUD LENGTH, FOR USE W/STEEL WHEELS
- LONG STUD LENGTH (ALUMINUM WHEELS) AVAILABLE

Replacement Parts

Part No.	Description
8-401-5UC1	COMPLETE HUB ASSEMBLY (BRAKE DRUM NOT INCLUDED)
8-401-5	HUB ONLY
9-28-1	BRAKE DRUM ONLY, NON-ABS
9-28-5	BRAKE DRUM ONLY, WITH ABS EXCITER RING
7-103	DRUM MOUNTING BOLT
3984	INNER BEARING
28682	OUTER BEARING
3920	INNER RACE
28622	OUTER RACE
10-56	UNITIZED OIL SEAL, (4.50" O.D., 3.125" I.D.)
RG04-270	OIL CAP KIT (21-26 CAP, 10-50 O-RING, 46-32 PLUG)
7-194	DRIVE-IN STUD, STD LENGTH, 22 MM X 1.5, 3.94" LONG
6-118	WHEEL NUT, SWIVEL-FLANGE, 22 MM, 1-5/16" OD HEX

MISCELLANEOUS AIR BRAKE REPLACEMENT PARTS FOR DEXTER AIR BRAKES



Replacement Parts		
Part No.	Description	Item
BP020-090	CAMSHAFT REPAIR KIT FOR 12 1/4" DEXTER AIR BRAKES, INCLUDES WASHERS, SEALS & BUSHINGS	1
BP20-120	BRAKE SHOE REPAIR KIT FOR 12 1/4" DEXTER AIR BRAKES, INCLUDES ROLLERS, ANCHOR PINS, ETC. (OLD STYLE)	2
K71-136	BRAKE SHOW REPAIR KIT FOR 16 1/2" Q-STYLE DEXTER AIR BRAKES, INCLUDES ROLLERS, ANCHOR PINS, ETC.	3
BP20-135	BRAKE SHOW REPAIR KIT W/ROLLERS, ANCHOR PINS, FOR DEXTER 12 1/4" PQ SHOES	4
BP22-010	SHOE W/LINING (2 PER WHEEL REQUIRED) FOR 12 1/4" X 4" (OLD STYLE)	5
BP22-015	SHOW W/LINING (2 PER WHEEL REQUIRED) FOR 12 1/4" X 4" DEXTER AIR BRAKE "PQ-STYLE"	6
BP22-020	SHOW W/LINING (2 PER WHEEL REQUIRED) FOR 12 1/4" X 5" (OLD STYLE)	6
BP22-025	SHOE W/LINING (2 PER WHEEL REQUIRED) FOR 12 1/4" X 5" DEXTER AIR BRAKE "PQ STYLE"	6,7
BP22-035	SHOW W/LINING (2 PER WHEEL REQUIRED) FOR 12 1/4" X 7 1/2" DEXTER AIR BRAKE "PQ STYLE"	6,7
34-59-1	AIR CHAMBER, TYPE 24, FOR 12 1/4" X 7 1/2" AIR BRAKE	7
34-57-1	AIR CHAMBER, TYPE 30, FOR 12 1/4" OR 1	8
34-261-7	WHEEL CYLINDER REBUILD KIT, 12K (1.250" BORE)	9



FELLING TRAILERS

LIFETIME LIMITED WARRANTY POLICY*

⚠ Warranty Registration Required Prior To Warranty Authorization

NOTICE: Warranty registration can be completed online at www.felling.com/partserver/warranty/ or by returning warranty registration card via mail. Federal regulations require motor vehicle manufacturers to maintain a record of the original owners of their equipment. **FELLING** Trailers, Inc.'s warranty registration completes this guideline. Please make every effort to complete registration promptly, to ensure proper documentation is on file for the purchased trailer.

Failure to complete warranty registration will void Lifetime warranty, a limited one-year warranty will start from the date of shipment to the original dealer and will extend to 12-months after that date. Limited Lifetime Warranty will then be three (3) years from the date of manufacture.

Effective Date: 03/01/2017

FELLING Trailers, Inc., **Lifetime Limited Warranty** is good on all new trailers built on or after the effective date.

WARRANTY: **FELLING** Trailers, Inc. warrants your trailer will be free from defects in materials and workmanship, to the original purchaser. The trailer warranted hereunder must be operated by the purchaser in accordance with the practice approved by **FELLING** Trailers, Inc., with loads not exceeding the manufacturer's rated capacities and subject to all terms and conditions of this limited warranty. **NOTE:** Warranty start date will be the sooner of one (1) year from manufacture date or the beginning of in service purchase date, whichever comes first. A copy of this signed warranty must be returned to **FELLING** Trailers, Inc. at the address listed within 10 days of the date of purchase or all warranties will be pro-rated. Warranty Registration can be completed online at www.felling.com/partserver/warranty/ or can be mailed to: **FELLING** Trailers, Inc. Warranty Department, 1525 Main Street South Sauk Centre, MN 56378. Fax information to: (320)352-5230. Email information to: warranty@felling.com.

NOTE:

ALL WARRANTY WORK MUST BE PRE-AUTHORIZED BY FELLING TRAILERS, INC. WARRANTY MANAGER. Failure to do so will result in no warranty payment of any kind. Labor amounts will be determined from the flat rate shop manual, not to exceed \$75.00 per hour. Contact the Warranty Manager to verify your labor rate.

FELLING Trailers, Inc.'s sole obligation under this warranty shall be limited to repairing or replacing, at its option, in accordance with the schedule below. Any defective part of the warranted trailer, which shall be returned to **FELLING** Trailers, Inc.'s factory location or authorized service facilities within the applicable Lifetime Limited Warranty time frame, twelve (12) years (tag trailers 50,000 lb. capacity and down), six (6) years (king pin trailers 50,000 lbs. and larger) from the date of delivery to the original trailer purchaser, and which **FELLING** Trailers, Inc.'s examination shall disclose to its satisfaction to have been defective; provided, that the purchaser notifies the Warranty Department immediately upon identification of defect, and such a defective trailer is returned by the purchaser to a location authorized by the Warranty Department of **FELLING** Trailers, Inc. with transportation and freight charges prepaid.

The customer may be required to deliver defective trailer to **FELLING** Trailers, Inc. if the trailer was destroyed as a result of defect covered in this warranty and the **FELLING** Trailers, Inc. Warranty Department is reasonably satisfied that the trailer was defective at the time of the sale.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OF MATERIAL, WORKMANSHIP, DESIGN, APPLICATION, OR OTHERWISE WITH RESPECT TO ANY EQUIPMENT, WHETHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND OF ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF FELLING TRAILERS, INC. THIS FELLING TRAILERS, INC. WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, WHICH VARY FROM STATE TO STATE.

LIFETIME LIMITED MAIN FRAME WARRANTY*:

FELLING Trailers, Inc. warrants the trailer main frame (frame, crossmembers, gussets, beavertail, and tongue / gooseneck) for the Lifetime* of the trailer to the original licensed owner to be free of defects in material and workmanship. LIFETIME Warranty Definition: twelve (12) years on tag trailers 50,000 lb. capacity and down, six (6) years king pin trailers 50,000 lbs. and larger. This LIFETIME Warranty does not cover components supplied by manufacturers (see below).

REPAIR: FELLING Trailers, Inc. shall warrant the MAIN FRAME of the trailer under the following schedule:
LIFETIME*: twelve (12) years on tag trailers 50,000 lb. capacity and down.

12 mo. - 100%	12.1 mo. - 36 mo. - 70%
36.1 mo. - 72 mo. - 50%	72.1 mo. - 144 mo. - 25%

LIFETIME*: six (6) years king pin trailers 50,000 lbs. and larger.

12 mo. - 100%	12.1 mo. - 36 mo. - 70%	36.1 mo. - 72 mo. - 50%
---------------	-------------------------	-------------------------

Components manufactured by **FELLING** Trailers, Inc. (other than Main Frame) and Components supplied by other manufacturers shall be warranted under the following schedule:

I. FELLING Trailers, Inc. Manufactured Components	12 Months	100%
	Over 12 Months	0%
II. Components supplied by other manufacturers such as: Axles, Suspension, Wheels, Rims, Hubs, Hydraulic Valve Body, Air Lines, Springs, Air Bags, Leveling Valves, Bearings, Brake Valves, Oil Seals, Brake Drums, Shock Absorbers, Electrical, Cylinders, Hydraulic Hoses & Connections, and Landing Gear.	12 Months	100%
	Over 12 Months - see component supplier warranties. Can be found online at www.felling.com/ partserver/warranty/	
III. Tires	Warranty claims must be made directly to tire manufacturer.	
IV. Paint Warranty. Does not cover Wear, Misuse, Rock Chips, Deterioration and/or Damage from Road Elements, Improper Wash Solvents, Salt, Sand and/or Weather Conditions. Any Damage Caused by or Attributed to any act of God whatsoever is not covered by Manufacturer's Warranty.	36 Months	100%
	Over 36 Months	0%
V. Wood Products (if any)	0%	

Your maintenance schedule shall be followed as dictated according to the appropriate manufacturer, to keep the warranty in force. The maintenance schedule is in your trailer packet.

Any modification, alteration or repair to any product manufactured by **FELLING** Trailers, Inc. without their prior knowledge and consent, will void manufacturer's warranty.

This warranty does not expand, enlarge upon or alter in any way, the warranties provided by the original manufacturers and suppliers of component parts and accessories. All other warranties, if any, extended by the makers and suppliers of component parts, accessories, or other goods included in the manufacture of **FELLING** Trailers, Inc.'s product will be assigned, if contractually permitted to the purchaser. This warranty excludes such parts or accessories which are not defective but may wear out and have to be replaced during the warranty period, including, but not limited to normal wear items, light bulbs, paint, brake lining, brake drums, decking and the like. (Tire Warranties are expressly excluded from **FELLING** Trailers, Inc. warranty herein.) Purchaser is expected to pay for all repairs or replacement costs including any applicable freight in connection with this agreement, including sales and other taxes immediately upon completion of work performed. The warranty claim will be reviewed by **FELLING** Trailers, Inc. or the applicable vendor. If found to be covered by the said warranty and within the specified warranty time frame the customer would receive reimbursement of all or partial fees previously paid not including freight charges.

WARRANTY POLICY CONTINUED

LIMITED OF LIABILITY: **FELLING** Trailers, Inc. shall not be liable to purchaser for any incidental or consequential damages suffered by purchaser, including, but not limited to, any commercially reasonable charges, expenses or commissions incurred in connection with effecting cover or any other reasonable expense incident to the delay or other breach of warranty by **FELLING** Trailers, Inc., any loss of or damage to any cargo loaded or shipped in or on our trailer, loss of anticipated profits, transportation expenses due to repair, non-operation or increased expense of operation costs of purchased or replaced equipment, claim of customers, cost of money, any loss of use of capital or revenue, or for any special damage of loss of any nature arising at any time or from any cause whatsoever. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above may not apply to you.

LIMITATION OF REMEDY: In the event of **FELLING** Trailers, Inc. failure to repair the trailer subject to the warranty contained herein, the purchaser's sole and exclusive remedy against **FELLING** Trailers, Inc. shall be for the repair or replacement of any defective part or parts of the trailer subject to work or repair within the time period and manner set forth herein. This exclusive remedy shall not be deemed to have failed of its essential purpose so long as **FELLING** Trailers, Inc. is willing and able to repair or replace defective parts in the prescribed manner.

This warranty is not transferable by the original purchaser. **FELLING** Trailers, Inc. reserves the right to modify or improve its products covered by this warranty.

Frequently Asked Questions

Bearings - How often should I grease the bearings?

Along with bearing adjustment, proper lubrication is essential to the current function and reliability of your trailer axle. Bearings should be lubricated every 12 months or 12,000 miles. Oil bath axles should be checked each trip through sight glass.

Bearings - What is the proper bearing adjustment procedure and recommended grease (9K-15K)?

Please review the axle service manual for instructions and specifications relating to bearing adjustment and lubrication.

WARNING

It is important to NOT mix different types of grease thickeners. The grease that the axles use has a lithium complex thickener. Mixing the grease with a barium, calcium, clay, or polyurea soap based thickener agent will cause adverse affects. This may include causing the two greases to harden, separate, become acidic, or pose other hazards and damage to the bearings.

Brakes - How do I measure brake current or amperage?

7" brakes draw about 2.5 amps per brake and all other brake magnets draw about 3 amps per brake. The total system amperage is calculated by multiplying this number by the number of brakes/magnets connected to the brake system. To measure the brake current, the engine of the towing vehicle should be running. Disconnect the wire at each point that you wish to measure the current draw and put the ammeter in series with this line. Make sure your ammeter has sufficient capacity and note polarity to prevent damaging your ammeter.

NOTE: If a resistor is used in the brake system, it must be set to zero or bypassed completely to obtain the maximum amperage reading. The amount of current draw will depend on what point you are measuring. If the ammeter is at the plug, you will get the total current draw from all magnets. If the ammeter is connected at one of the magnets, you will measure the current draw through that magnet only.

Brakes - How do I measure brake voltage?

System voltage is measured at the magnets by connecting a voltmeter to the magnet lead wires at any brake. This may be accomplished by using a pin probe inserted through the insulation of the wires dropping down from the chassis or by cutting the wires. Voltage in the system should begin at 0 volts and, as the controller bar is slowly actuated, should gradually increase to about 12 volts.

Brakes - How often should I adjust my brakes?

It is recommended that manual adjust brakes should be adjusted. 1) After the first 200 miles of operation when the brake shoes and drums have "seated" 2) At 3,000 mile intervals 3) or as use or performance requires.

Brakes - My brake linings are cracked, do I have to replace them?

Usually, light cracking of the surface of a brake lining can be expected under normal use. This is not cause for replacement. However, if the lining is deeply cracked to the shoe surface or is missing chunks, your brake lining will require replacement.

Brakes - Which magnet wire is the positive, they are both the same color?

The magnet is not a polarized component. Use one wire to connect to power from the brake controller and use the other to attach to ground. It is recommended that a common ground be ran from the trailer plug to the magnets. Do not ground each brake individually to the trailer frame or structure. Also note that the brakes should be wired in parallel, not in series. The wire color is used to identify the component since so many magnets physically look the same on the outside, however they are different strengths for the different capacity brakes.

Brakes - Why can't I lock and slide my electric brakes?

On an unloaded trailer, you may be able to lock up your brakes if your electric brake controller is supplying full amperage to the brakes. When loaded to capacity, you may not be able to lock up your brakes as electric brakes are designed to slow the trailer at a controlled rate, and not designed to lock up the wheels on a fully loaded trailer. Our brakes are designed to meet all applicable safety standards. All of our brakes will perform better after numerous burnish stops to seat the brake lining into the drums.

Brakes - Why do I have to adjust my brakes?

Brakes must be adjusted to compensate for the lining and drum wear that occurs during the use of the braking system. Some brakes require manual adjustment to move the lining closer to the drum. Refer to brake adjustment in the support material that came with your trailer.

Brakes - Why do my brakes and hubs get so hot?

Braking systems use friction to slow the vehicle and the energy used to slow the trailer is converted to heat. Our brakes are designed to operate up to extremely high temperatures during hard braking applications. This heat is noticeable on the hub and drums and is to be expected on a properly functioning brake. If a brake is malfunctioning and running excessively hot, this can be noticed by smoking brakes or the paint burning off the brake drum.

Miscellaneous - How do you calculate hitch weights?

The hitch weight for conventional, bumper type hitches should be 10% to 15% of the gross weight of the vehicle. The remaining 85% to 90% of the load will be carried on the running gear. The hitch weight for 5th wheel and gooseneck type trailers should be 15% to 20% of the gross weight of the vehicle. The remaining 80% to 85% of the load will be carried on the running gear.

Wheels and Tires - Can I use wheels with greater offsets?

Wheel offset is the distance from the mounting surface to the centerline of the tire. Our axles bearing sets are designed for wheel with 0 to 1/2" inset. Exceeding this offset will shorten bearing life and may lead to dangerous bearing failure.

Wheels and Tires - Why do I need to re-torque my trailer wheels when I don't do that on my truck?

Trailer wheels carry substantially more weight than tow vehicle wheels of the same size and see more disc flexing due to side loading stresses. It is necessary to re-torque them several times until the wheel nut torque stabilizes. This is especially true for new wheels that need to have the paint worn away at the hub mounting face and under the wheel nuts.

 WARNING

Be very careful to use only recommended wheel fastening torque amount as specified for that wheel fastener. It is possible to permanently damage a wheel that has been over torqued and may cause the loss of that wheel from the trailer.

Hot Dipped Galvanized Trailer - How to clean the appearance of rust stains from a galvanized surface?

Discoloration of a Galvanized surface can occur when there is contact with raw steel that releases stored oxides that can produce a red rust colored stain. The best way to clean this stain is with a wire brush and lightly remove the stained area.

Another cause is contact with wet materials, if wetness has been there for awhile it is best to clean the rough surface with a nylon bristled brush and a 50/50 blend of vinegar and water. This will get rid of the attributes of the staining, rinse well with clean water and allowing to air dry.



FELLING[®]
TRAILERS

Quality ~ Craftsmanship ~ Pride ~ Since 1974

Felling Trailers, Inc. is an ISO 9001:2015 Certified Company

Manufactured and Distributed by:
Felling Trailers, Inc.

1525 Main Street South • Sauk Centre, MN 56378
1-800-245-2809 • (320) 352-5230 Fax
www.felling.com • trailers@felling.com