




## Fertilizer Spreader

Pro-Force™ Pull-Type Undercarriage  
Models 1450, 1850, 2250, & 2650

Serial Number B40330100 & Higher

Part No. 414345

### Foreword

 This symbol identifies important safety messages. When you see it, read the message that follows and be alert to the possibility of personal injury.

Remember, safety instructions stated in this manual are for your protection. Read them carefully and follow them closely when working around or using this machine.

Read and study this manual completely before attempting to operate this implement. Take this manual to the field for handy reference when operating, adjusting, or servicing your machine. It can be stored in the supplied tube located on the implement.

When referenced, “Right-Hand” (RH) and “Left-Hand” (LH) side of the machine are determined by standing behind the machine and facing in the direction of travel.



## Product Information

When ordering parts or when requesting further information or assistance, always give the following information:

- Machine name
- Model
- Serial number

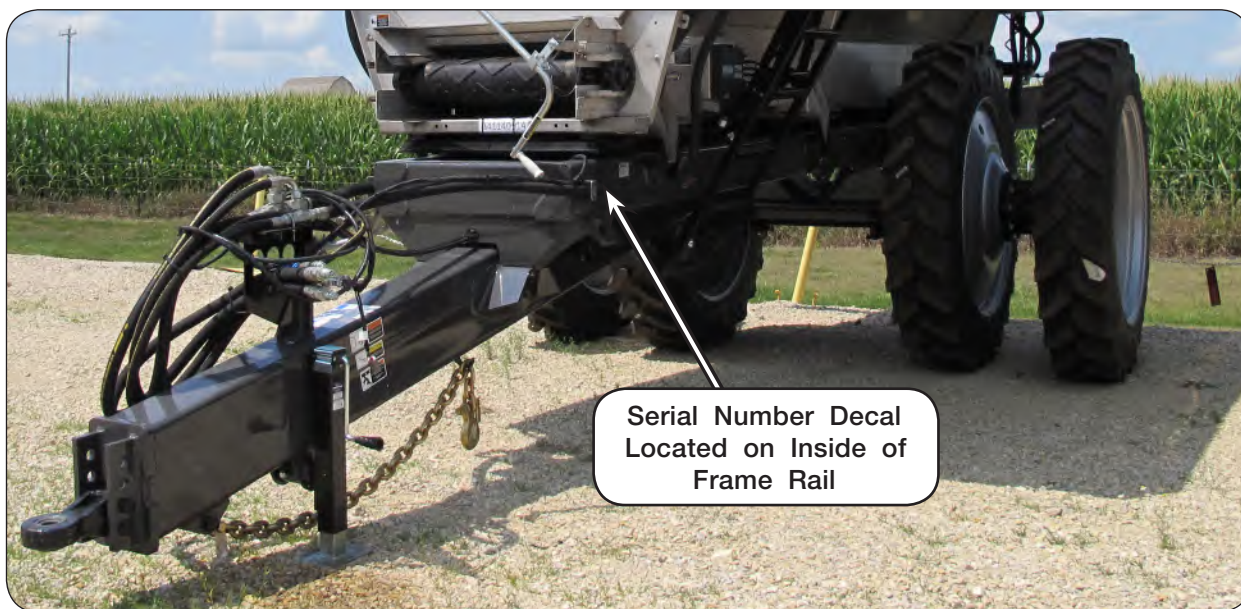
All products manufactured by Unverferth Mfg. Co., Inc. are warranted to be free from material and workmanship defects for one full year from time of consumer delivery. Your local dealer will gladly assist you with any warranty questions.

Please fill out and retain this portion for your records.

Purchase Date \_\_\_\_\_ Model \_\_\_\_\_ Serial Number \_\_\_\_\_

Dealer \_\_\_\_\_ City \_\_\_\_\_

Dealer Contact \_\_\_\_\_ Phone \_\_\_\_\_



### IMPORTANT

- *The information, specifications, and illustrations in the manual are based on information available at the time it was written. Due to continuing improvements in the design and manufacture of Unverferth products, all specifications and information contained herein are subject to change without notice.*

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FOR SCALE INFORMATION, PLEASE REFER TO YOUR SCALE MANUAL.  
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# **Section I Safety**

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## General Hazard Information

No accident-prevention program can be successful without the wholehearted cooperation of the person who is directly responsible for the operation of the equipment.

A large number of accidents can be prevented only by the operator anticipating the result before the accident is caused and doing something about it. No power-driven equipment, whether it be transportation or processing, whether it be on the highway, in the field, or in the industrial plant, can be safer than the person who is at the controls. If accidents are to be prevented--and they can be prevented--it will be done by the operators who accept the full measure of their responsibility.

It is true that the designer, the manufacturer, and the safety engineer can help; and they will help, but their combined efforts can be wiped out by a single careless act of the operator.

It is said that, "the best kind of a safety device is a careful operator." We, at Unverferth Mfg. Co., Inc. ask that you be that kind of operator.



**REMEMBER:  
THINK SAFETY  
A CAREFUL OPERATOR IS THE  
BEST INSURANCE AGAINST AN  
ACCIDENT!**

### SIGNAL WORDS



**INDICATES AN EXTREMELY HAZARDOUS SITUATION OR ACTION THAT WILL RESULT IN SERIOUS INJURY OR DEATH.**



**INDICATES A HAZARDOUS SITUATION OR ACTION THAT COULD RESULT IN SERIOUS INJURY OR DEATH.**



**INDICATES AN UNSAFE SITUATION OR ACTION THAT MAY RESULT IN PERSONAL INJURY.**



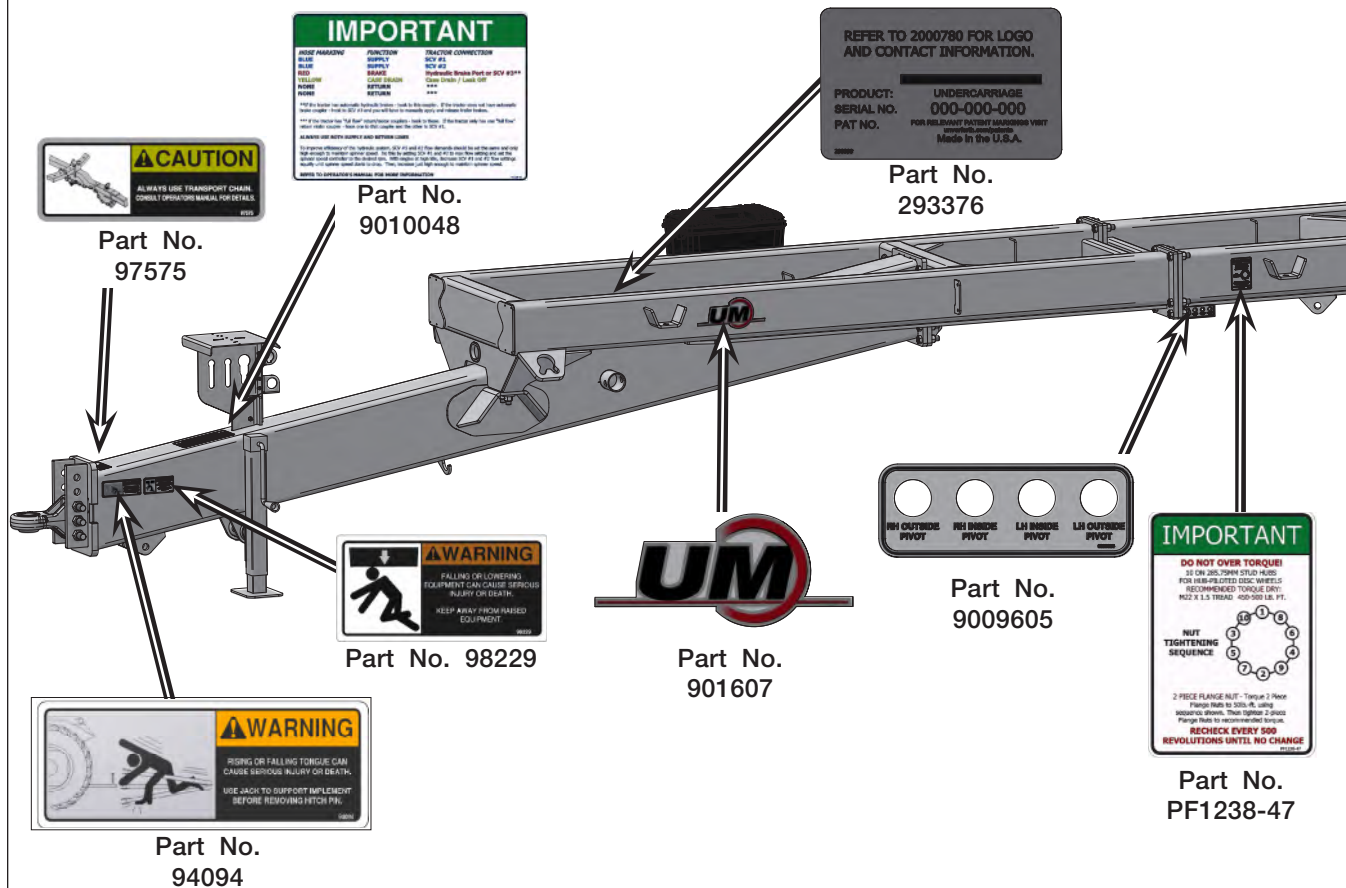
*Is used for instruction on operating, adjusting, or servicing a machine.*



Safety Decals

**⚠ WARNING**

- REPLACE LOST, DAMAGED, PAINTED, OR UNREADABLE DECALS IMMEDIATELY. IF PARTS THAT HAVE DECALS ARE REPLACED, ALSO MAKE SURE TO INSTALL NEW DECALS. THESE DECALS INFORM AND REMIND THE OPERATOR WITH OPERATIONAL INFORMATION AND SAFETY MESSAGES.



## Following Safety Instructions

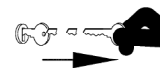
- Read and understand this operator's manual before operating.



- All machinery should be operated only by trained and authorized personnel.

- To prevent machine damage, use only attachments and service parts approved by the manufacturer.

- Always shut tractor engine off and remove key before servicing.



- Avoid personal attire such as loose fitting clothing, shoestrings, drawstrings, pants cuffs, long hair, etc., that may become entangled in moving parts.

- Do not allow anyone to ride on the implement. Make sure everyone is clear before operating machine or towing vehicle.



- Never attempt to operate implement unless you are in driver's seat.



## Before Operating

- This machine is only intended to be used with corresponding Pro-Force dry spreader. Any other use is prohibited and may pose safety risks to operators and others.

- Do not stand between towing vehicle and implement during hitching.

- Always make certain everyone and everything is clear of the machine before beginning operation.

- Ensure that all applicable safety decals are installed and legible.

- When working around the implement, be careful not to be cut by sharp edges.


- Secure drawbar pin with safety latch and lock tractor drawbar in fixed position.

- Add sufficient ballast to tractor to maintain steering and braking control at all times. Do not exceed tractor's lift capacity or ballast capacity.

- Ensure that the towing vehicle drawbar has sufficient strength to support the draft and vertical tongue load of a fully-loaded dry spreader.

- Braking system must be purged of air before operating to prevent serious injury or death. See Maintenance section for proper procedure.

### Before Servicing

- Avoid working under an implement; however, if it becomes absolutely unavoidable, make sure the implement is safely blocked. 
- When working around the implement, be careful not to be cut by sharp edges.
- Secure drawbar pin with safety lock and lock tractor drawbar in fixed position.
- Explosive separation of a tire and rim can cause serious injury or death. Only properly trained personnel should attempt to service a tire and wheel assembly.

### During Operation

- Comply with all laws and product label directions governing safe product application.
- Regulate speed to field conditions. Maintain complete control at all times.
- Never service or lubricate equipment when in operation.
- Use extreme care when operating close to ditches, waterways, fences, or on hillsides.
- Do not leave towing vehicle unattended with engine running.


### Before Transporting

- Secure transport chain to towing vehicle before transporting. **DO NOT** transport without chain.
- Make sure the attached hopper's lights are operational and SMV emblem and SIS decals are visible to approaching traffic.
- Hydraulic brakes are optional for pull-type units equipped with an undercarriage. Ensure tractor is properly ballasted to safely control and stop the undercarriage and spreader.
- Check brakes for proper function, if equipped.
- Unit uses tractor-oil supplied brakes. Verify tractor hydraulic oil level before transporting.

### During Transport

- Comply with all laws governing highway safety when moving machinery.
- Use transport lights as required by all laws to adequately warn operators of other vehicles.
- Use good judgment when transporting equipment on highways. Regulate speed to road conditions and maintain complete control.
- Maximum speed of pull-type dry spreader with wheels or tracks should never exceed 20 m.p.h. Do not exceed 10 m.p.h. during off-highway travel.
- Slow down before making sharp turns to avoid tipping. Drive slowly over rough ground and side slopes.
- It is probable that this implement is taller, wider and longer than the towing vehicle. Become aware of and avoid all obstacles and hazards in the travel path of the equipment, such as power lines, ditches, etc.

### Pressurized Oil

- Relieve pressure before disconnecting hydraulic lines from tractor, loosening any hydraulic fittings or servicing hydraulic system. See hydraulic power unit manual for procedure to relieve pressure.
- High-pressure fluids can penetrate the skin and cause serious injury or death. Use a piece of cardboard or wood to detect leaks of hydraulic fluid under pressure. Seek medical treatment immediately if injured by high-pressure fluids. 
- Hydraulic system must be purged of air before operating to prevent serious injury or death.
- Do not bend or strike high-pressure lines. Do not install bent or damaged tubes or hoses.
- Repair all oil leaks. Leaks can cause fires, personal injury, and environmental damage.
- Route hoses and lines carefully to prevent premature failure due to kinking and rubbing against other parts. Make sure that all clamps, guards and shields are installed correctly.
- Check hydraulic hoses and tubes carefully. Replace components as necessary if any of the following conditions are found:
  - End fittings damaged, displaced, or leaking.
  - Outer covering chafed/cut or wire reinforcing exposed.
  - Outer covering ballooning locally.
  - Evidence of kinking or crushing of the flexible part of a hose.

### Fertilizer and Chemical Hazards

- Always wear personal protective equipment when working with or near fertilizers and/or chemicals. This equipment includes, but is not limited to: protective eye wear, gloves, shoes, socks, long-sleeved shirt, and long pants. Additional protection may be required for many types of fertilizers and/or chemicals.
- Seek and receive fertilizer and/or chemical product training prior to using agricultural fertilizers and/or chemicals.
- Read and understand the entire label of every fertilizer and/or chemical being applied with this dry spreader.
- Wash hands before eating, drinking, chewing gum, or using the toilet.
- Remove clothing immediately if fertilizers and/or chemicals penetrate clothing and contact skin. Wash thoroughly and put on clean clothing.
- Dispose of unused fertilizer and/or chemical in accordance with fertilizer and/or chemical label directions and local/national regulations.

## Preparing for Emergencies

- Keep a first aid kit and properly rated fire extinguisher nearby.



- Keep emergency numbers for fire, rescue, and poison control personnel near the phone.



## Wearing Protective Equipment

- Wear clothing and personal protective equipment appropriate for the job.



- Wear steel-toed shoes when operating.



- Wear hearing protection when exposed to loud noises.



- Do not wear additional hearing impairing devices such as radio headphones, etc.



# Section II

# Set Up

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### Pre-Delivery Checklist

- Power wash any road salt off this unit to help prevent corrosion.
- Torque wheel nuts and check tire pressure as specified in MAINTENANCE section.
- All grease fittings have been lubricated.
- Complete sideboard and tarp set up. (If applicable).
- Inflate tires to specified air pressure. (if applicable).
- Verify Track has been aligned and is properly conditioned. (If applicable).
- Check SMV decal and SIS decals are in place, clean and visible.
- Verify all safety decals are correctly located and legible. Replace if damaged.
- Verify all reflective decals are correctly located.
- Verify all work and transport lights are working properly.
- Transport chains are properly installed and hardware is torqued to specification. See “Transport Chain Connection” in OPERATION section.
- Check hydraulic components for leaks.
- Check all plumbing components for leaks.
- Ensure optional hydraulic brakes are bled and function properly. (If applicable).
- Paint all parts scratched during shipment and dealer set up.

### Dealer Set Up

#### **WARNING**

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

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- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR’S MANUAL FOR PROPER PROCEDURES.**

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- **HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.**

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- **UNHITCHING A LOADED UNIT CAN CAUSE SERIOUS INJURY OR DEATH DUE TO THE TONGUE RISING OR FALLING. ALWAYS HAVE A LOADED UNIT ATTACHED TO A TRACTOR. THE JACK IS INTENDED TO SUPPORT AN EMPTY UNIT ONLY.**

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## Dealer Set Up (continued)

### **WARNING**

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**

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- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**

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- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

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- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. BE SURE ALL LIFTING DEVICES AND SUPPORTS ARE RATED FOR THE LOADS BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 5,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**

## Single Wheel & Tire Installation

### **WARNING**

- **RAISE AND SUPPORT ONLY ONE SIDE AT ANY GIVEN TIME IN THE FOLLOWING PROCEDURE.**
- 
1. Park the unit on a firm, level surface. Block undercarriage tires to keep the machine from moving. Set the tractor's parking brake. Shut-off engine and remove ignition key.
  2. Use a safe lifting device and supports rated at a minimum of 15,000 lbs. during the wheel and tire attachment. Place supports under the axle near the axle clamps.
  3. Use a minimum 2,000 lbs. safe lifting device to support the wheel and tire during install.
  4. Attach the rim to the hub using original M22 x 2.5P x 70 capscrews (97038) and 7/8" flat washers (97041). Tighten wheel nuts to appropriate requirements and recheck as outlined in the MAINTENANCE section of this manual.
  5. Raise unit, remove lifting device and lower spreader to the ground.

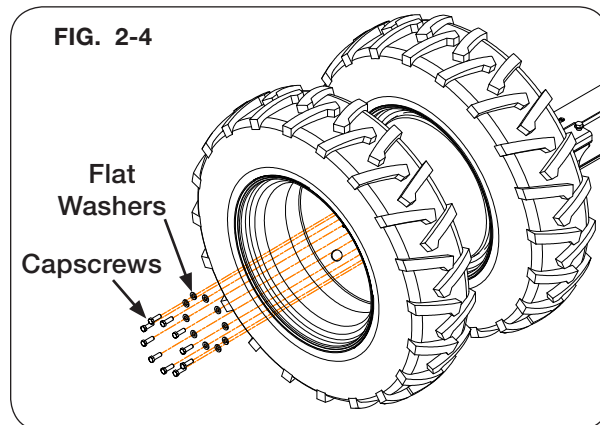


FIG. 2-1

## Dealer Set Up (continued)

### Dual Wheel Installation

1. Park the unit on a firm, level surface. Block undercarriage tires to keep the machine from moving. Set the tractor's parking brake. Shut-off engine and remove ignition key.
  2. Use a safe lifting device and supports rated at a minimum of 15,000 lbs. during the wheel and tire attachment. Place supports under the axle near the axle clamps.
  3. Use a minimum 2,000 lbs. safe lifting device to support the wheel and tire during install.
  4. Insert two guide pins (19293) into the drilled holes on the hub. (FIG. 2-2).
  5. Align and install inner wheel and hub extension over the guide pins (FIG. 2-3).
  6. Attach the hub extension and the inner wheel to the hub using ten 7/8" flat washers and ten M22 x 2.5P x 65 capscrews. Torque hardware to specification listed in the Maintenance section.
  7. Insert two guide pins to the outside of the hub extension.
  8. Secure the outer wheel to the hub extension with ten 7/8" flat washers and ten M22 x 2.5P x 100 capscrews. (FIG. 2-4)
- NOTE:** Refer to the "MAINTENANCE" section for proper torque requirements.
9. Raise unit with a safe lifting device rated for at least 5,000lbs, remove supports and lower to the ground.
  10. Repeat steps 2 through 9 for opposite side.



## Adjustable Axle Setting

### Wheel Spacing Combinations

#### **WARNING**

- USE EXCEPTIONAL CARE WHEN OPERATING SPREADER EQUIPPED WITH SINGLE TIRES AND SET AT NARROW WHEEL SPACING. THE POSSIBILITY OF TIPPING OVER DURING TURNS OR TRAVEL ON ROUGH ROADS IS INCREASED UNDER THESE CONDITIONS.

#### **IMPORTANT**

- Always ensure axles are spaced equally.

The axle spacing is adjustable between minimum and maximum settings. Through a combination of wheel offset, axle adjustment, and hub spacers, a wide variety of dual wheel spacings is possible. Refer to the chart for a summary of the available wheel spacings for each tire and wheel combination.

TIRE / WHEEL	WHEEL OFFSET	MIN. SPACING (inches)	MAX. SPACING (inches)
IF 900/65R32	Inside	76	102
IF 900/65R32	Outside	94	120
480/80R46 Duals (30" Rows)	-	120 Outer Dual	148 Outer Dual
VF 480/80R46 Duals (30" Rows)	-	120 Outer Dual	148 Outer Dual
VF 380/90R46 Duals (30" Rows)	-	120 Outer Dual	148 Outer Dual
VF 380/90R46 Duals (22" Rows)	-	106 Outer Dual	132 Outer Dual
VF 320/105R54 Duals (36" Rows)	-	128 Outer Dual	154 Outer Dual
VF 320/105R54 Duals (38" Rows)	-	132 Outer Dual	154 Outer Dual

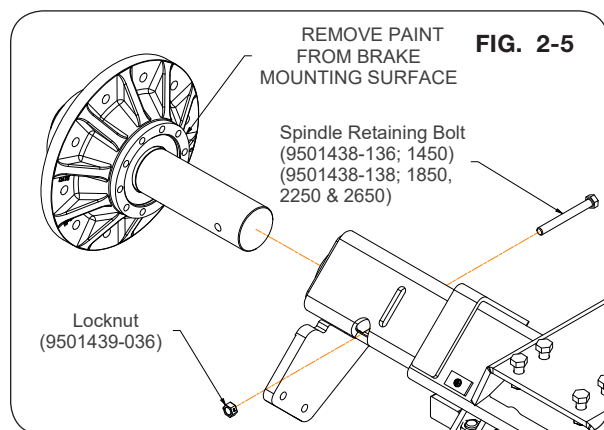
## Disc Brake Set Up (Optional)

### Disc Brake Installation

#### **⚠ WARNING**

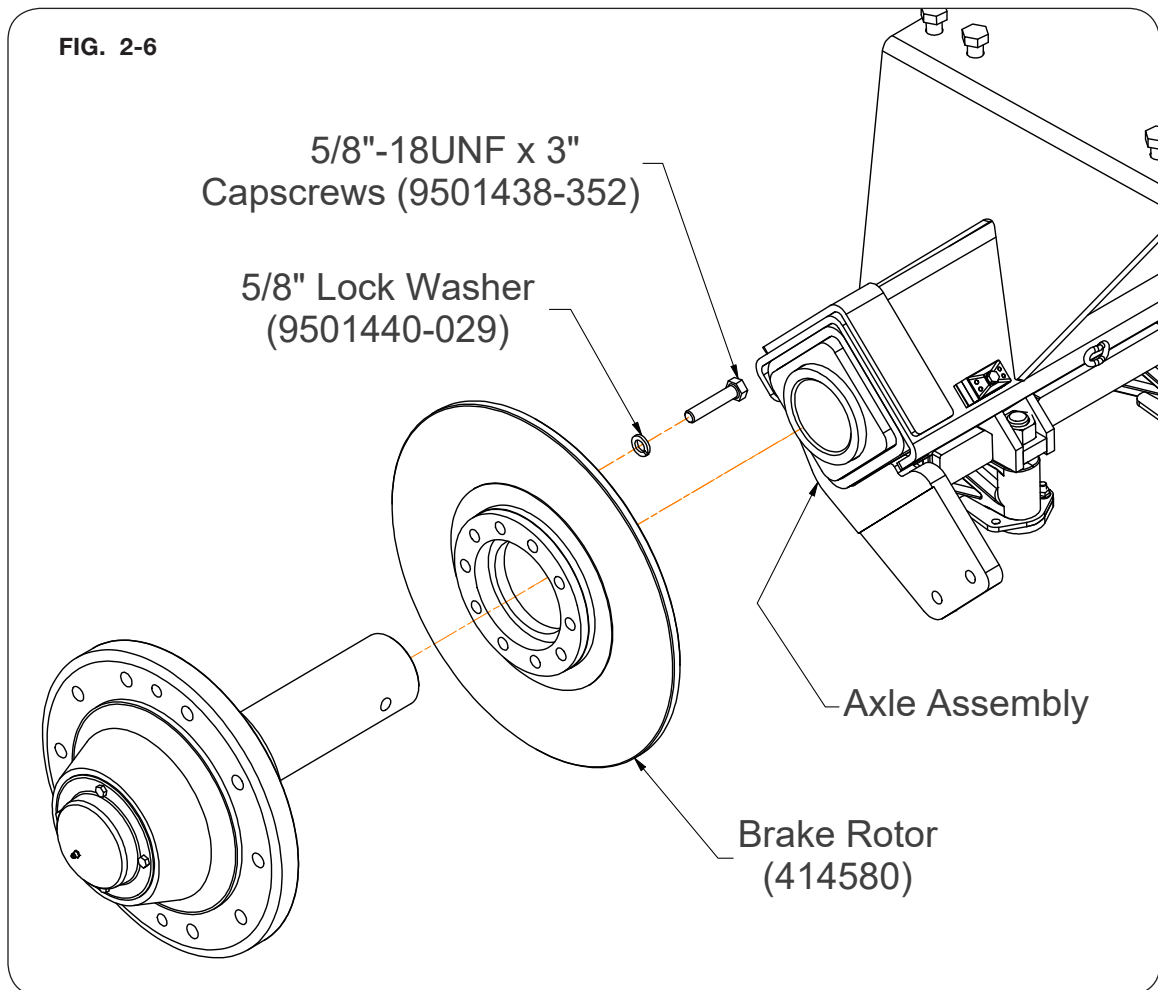
- KEEP HANDS CLEAR OF PINCH POINT AREAS.
- TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.
- RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.
- HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.
- HYDRAULIC SYSTEM MUST BE PURGED OF AIR BEFORE OPERATING TO PREVENT SERIOUS INJURY OR DEATH.
- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.
- FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. BE SURE ALL LIFTING DEVICES AND SUPPORTS ARE RATED FOR THE LOADS BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 15,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.

1. Park the unit on a firm, level surface. Block the tires to keep the machine from moving. Set the tractor's parking brake. Relieve hydraulic pressure from the hydraulic hoses, see hydraulic power unit manual for proper procedure. Shut-off the engine and remove the ignition key.
2. Using a safe lifting device rated for 15,000 lbs., lift one side of the unit at a time.
3. Using a safe lifting device rated for 2,000 lbs., remove hardware and tires. Keep hardware.
4. Using a safe lifting device rated for 250 lbs., unscrew the spindle retaining bolt (9501438-136; for 1450) (9501438-138; for 1850, 2250, 2650) and locknut (9501439-036), and remove the hub and spindle assembly (414842CEG). Keep hardware. (FIG. 2-5)
5. Remove the paint from the brake rotor mounting face on the back of the hub. (FIG. 2-5)



### Disc Brake Set Up (Optional) (continued)

6. Mount the brake rotor (414580) to the hub using twenty 5/8"-18UNF x 3" capscrews (9501438-352) and twenty 5/8" lock washer (9501440-029) (FIG. 2-6)
7. Torque 5/8" rotor hardware as listed in "Maintenance" chart.
8. Using a safe lifting device rated for 250 lbs., slide the hub and spindle into the axle assembly and reattach hardware from step 4.



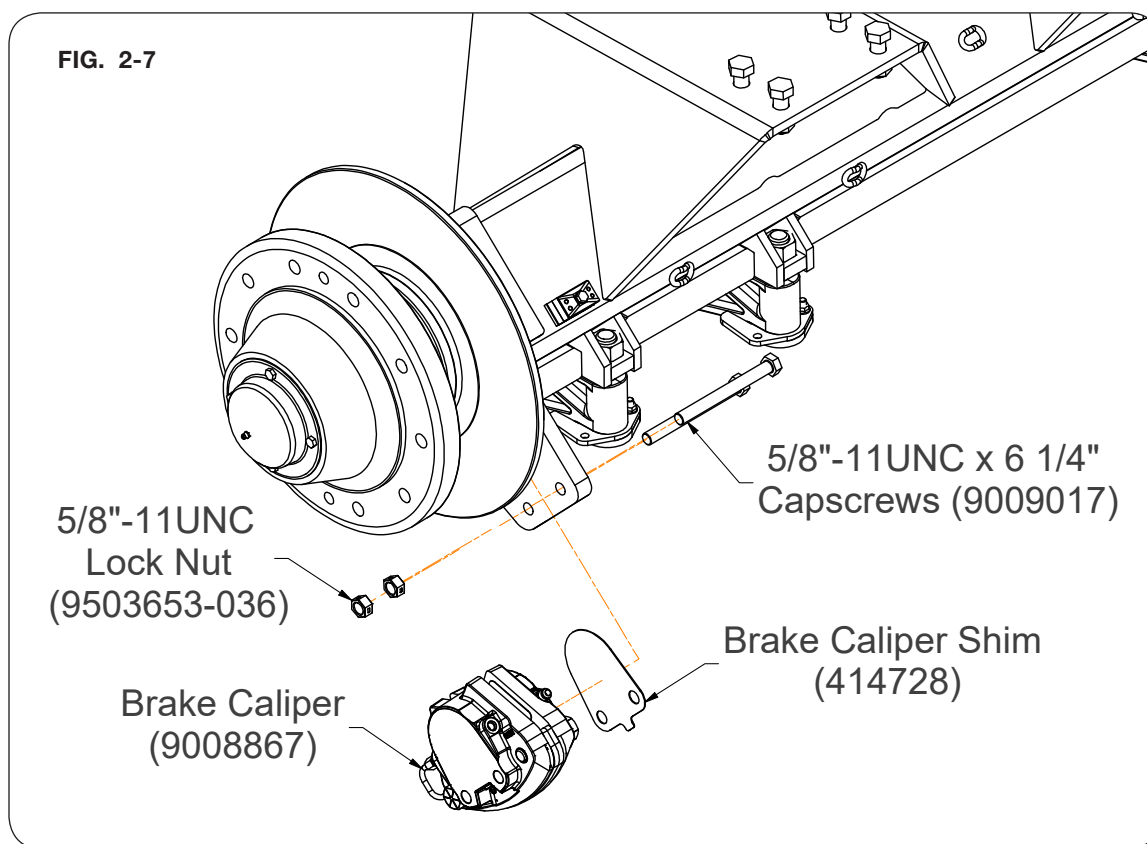
## Disc Brake Set Up (Optional) (continued)

**NOTE:** Brake caliper (9008867) must be installed with the cross tube connecting the two halves of the caliper on the bottom side of the axle assembly shown in FIG. 2-7.

9. Separate the pads in the caliper and slide over the rotor in the location shown in FIG. 2-7.
10. Use brake caliper shims (414728) between the axle mount and caliper to ensure the caliper is centered on the rotor. (FIG. 2-7)

**NOTE:** Brake caliper must be within 1/8" of being centered with the rotor by adding or removing shims.

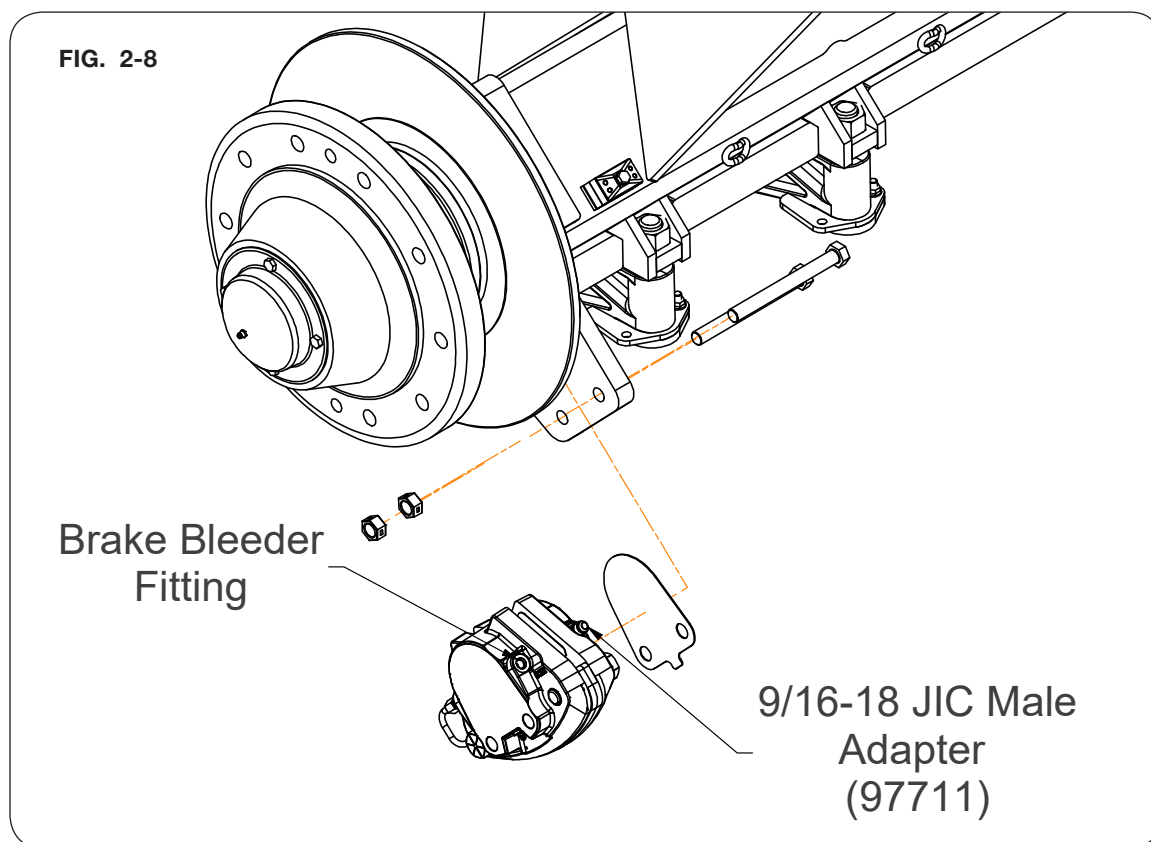
11. Begin by assembling one shim and loosely secure the caliper with one 5/8"-11UNC x 6 1/4" capscrew (9009017) and one 5/8"-11UNC lock nut (9503653-036) to hold in position to check caliper alignment with the rotor. (FIG. 2-7)
12. Torque 5/8" caliper hardware as listed in "Maintenance" chart.



### Disc Brake Set Up (Optional) (continued)

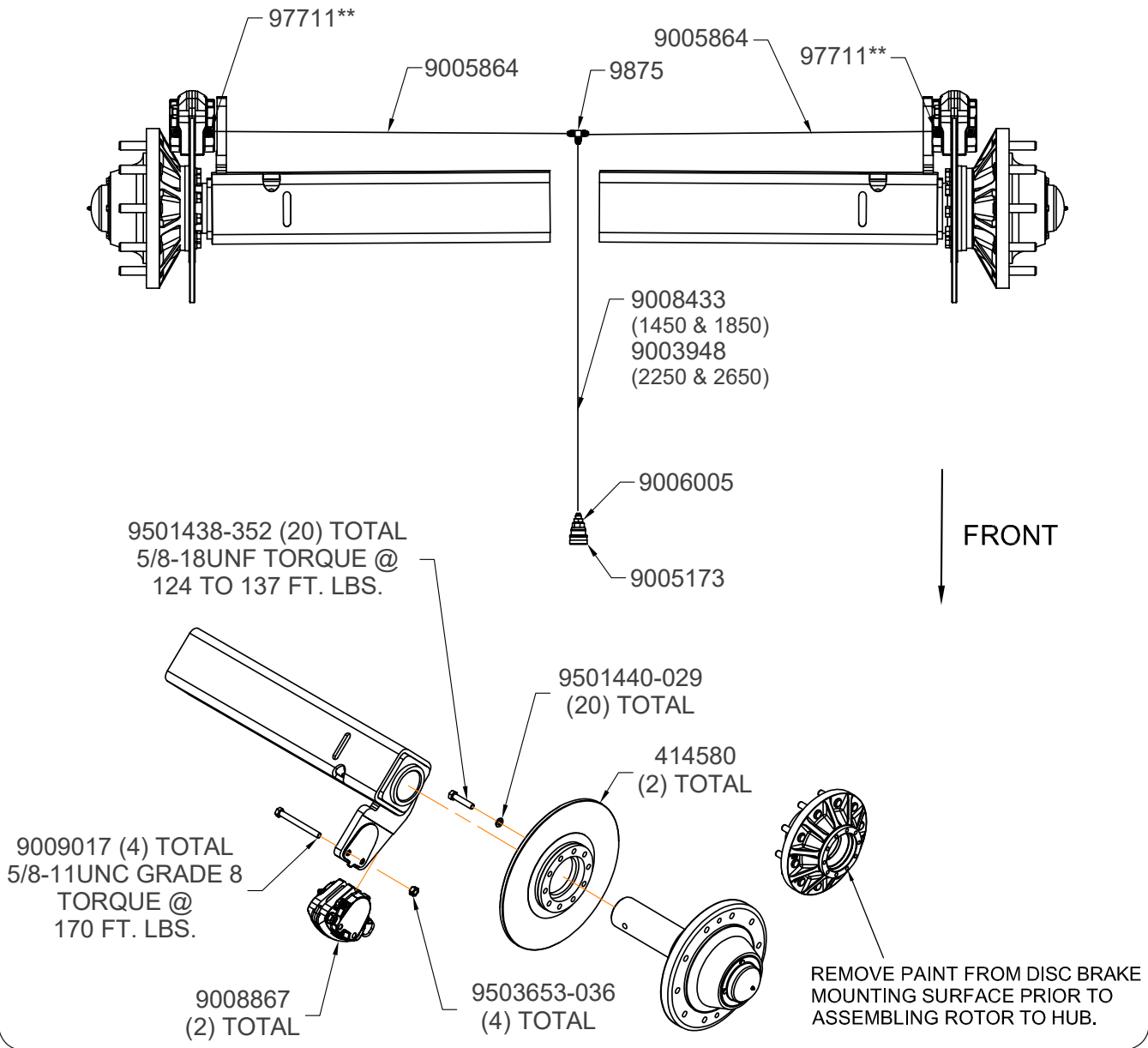
13. Install adapter (97711) to the brake caliper. (FIG. 2-8)
14. Attach one 1/4" x 66" hydraulic hose (9005864) to adapter.
15. Route excess hose for each side through hose clamp (9003816). Attach hoses (9005864) to tee (9875) at the center of the unit.
16. Connect 1/4" x 372" hose (9003948; for 22'-26' units) or 1/4" x 310" hose (9008433; for 14'-18' units) and route with the case drain hose to the front of the unit.
17. Assemble brake quick release coupler (9005173), adapter (9006005) and hose wrap (PF1207-R16) to the front end of the hose.
18. Using a safe lifting device rated for 2,000 lbs., reassemble tires using hardware from step 3 and torque the wheel nuts.
19. Lower wheels and tires and repeat steps 2 through 15 for other side.
20. To purge the brakes, follow the instructions given in "Purging Procedure For Braking System" in the "Maintenance" section of this manual.

**NOTE:** Refer to next page for overview image of disc brake set up.



# Pro-Force Pull-Type Undercarriage — Set Up

## Disc Brake Set Up (Optional) (continued)



\*\*LOCATE/REPLACE TOWARDS TOP OF EACH CALIPER.



### Electrical Hook-Up

Always verify correct electrical function before using this spreader.

Compliance with all lighting and marking laws is the responsibility of the operator at the time of travel.

See federal regulation 49 CFR 562; available at [www.govinfo.gov](http://www.govinfo.gov) for US federal law requirements.

See your Unverferth dealer for additional brackets, reflectors, or lights to meet your requirements.

The main harness has a 7-pin (round) plug conforming to SAE standards that connects to tractor. If your tractor does not have the mating socket connector, contact your tractor dealer.

**Notes**

# Section III

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FOR SCALE INFORMATION, PLEASE REFER TO YOUR SCALE MANUAL.

## Preparing Pull-Type Undercarriage

Perform the service checks as outlined below. Repair or replace any damaged or worn parts before operating.

### Hardware

Check for loose hardware, and tighten as needed. Check again after the first half-day of operation.

### Hitch

Check hitch and hitch retention hardware for damage and wear.

### Hydraulic System

#### **WARNING**

- **RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

Check all hoses and cylinders for signs of leakage. Hoses should not be kinked, twisted or rubbing against sharp edges. Re-route or repair hoses as necessary. Refer to SAFETY section for additional information on safe repair and inspection of hydraulic components.

#### TRACTOR HYDRAULIC REQUIREMENTS:

Tractor hydraulics max pressure is 2900 psi.

#### HYDRAULIC PUMP REQUIREMENTS:

40 - 45 gpm @ 3500 psi. If more than 45 gpm is used, it must be done with a "load sensing" variable displacement pump.

#### **IMPORTANT**

- *Warranty is void if this requirement is not followed.*

## Preparing Pull-Type Undercarriage

### Tires/Wheels

Check tire pressures and maintain at recommended values listed in the MAINTENANCE section.

### CAUTION

- **IMPROPERLY TORQUED WHEEL NUTS/BOLTS CAN CAUSE A LOSS OF IMPLEMENT CONTROL AND MACHINE DAMAGE. WHEEL NUTS/BOLTS MUST BE CHECKED REGULARLY. SEE TORQUE PAGE IN THE “MAINTENANCE” SECTION FOR PROPER WHEEL NUT/BOLT SPECIFICATIONS. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

### IMPORTANT

- *Installing wheels without the proper inset could result in hub or spindle failure. This will cause substantial damage to the spreader and is not covered by warranty. Inset/offset will vary depending on tire size. Consult dealer for proper inset/offset.*

For questions regarding new tire warranty, please contact your local original equipment tire dealer. Used tires carry no warranty. Tire manufacturers' phone numbers and web sites are listed in the “MAINTENANCE” section for your convenience.

## Hitching to Tractor

### Drawbar Connection

#### **WARNING**

- **CRUSHING CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT STAND BETWEEN TOWING VEHICLE AND IMPLEMENT WHEN HITCHING. ALWAYS ENGAGE PARKING BRAKE AND STOP ENGINE BEFORE INSERTING HITCH PINS OR SECURING LATCHES.**

This pull-type mounted dry spreader is intended to be hitched to a tractor drawbar. Do not attempt to hitch to any other location on the tractor other than the drawbar.

The pull-type mounted dry spreader is equipped with a single-tang hitch with a 2" replaceable ball (9503978) which requires a 2" diameter drawbar pin. 1 1/2" adapter bushing (9009655) can be used to go from a 2" drawbar pin to an 1 1/2" drawbar Pin.

**NOTE:** The use of a smaller diameter hitch pin will result in additional clearance between the hitch and pin. This additional clearance may cause accelerated pin wear, tractor and dry spreader hitch wear, along with more pronounced jolting from the dry spreader during transport operation.

The holes in the hitch and vertical holes in the tongue allow for adjustment so the dry spreader box sits level.

**NOTE:** Verify and/or adjust the unit hitch height before coupling to the tractor. The hitch is adjusted by unbolting the hitch and reinstalling in a different set of holes provided.

**NOTE:** Drawbar must be locked in the center position.

After inserting drawbar pin, secure drawbar pin with a locking device to help prevent uncoupling during use.

FIG. 3-1

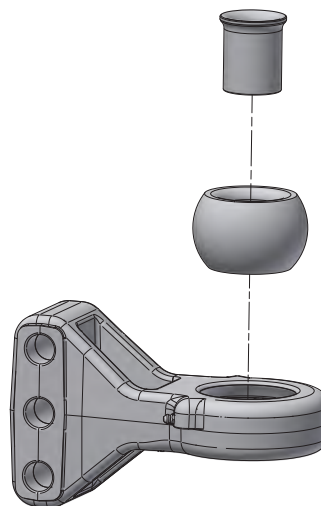


FIG. 3-2



**Hitching to Tractor** (continued)

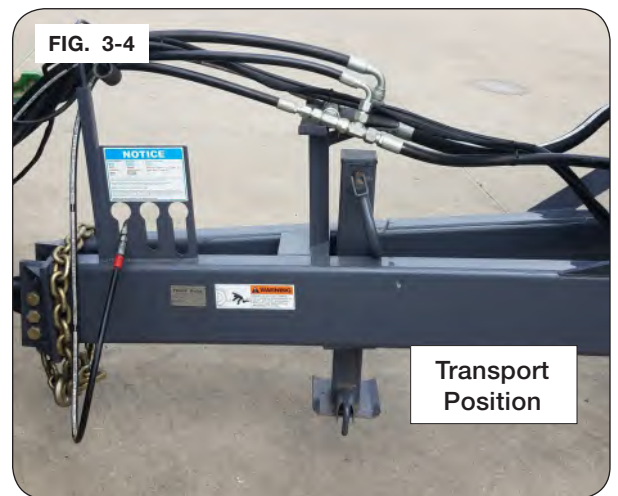
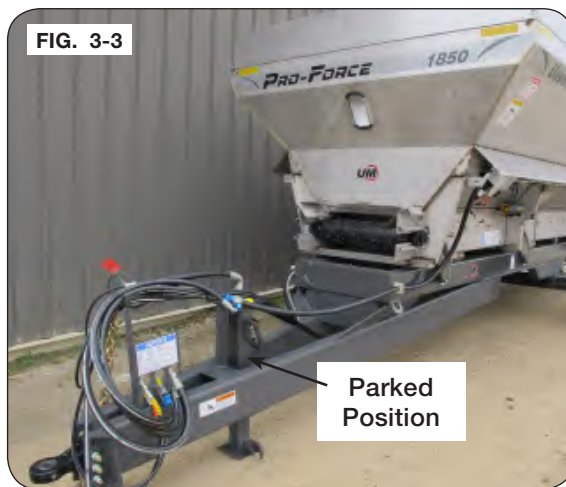
**Jack Usage**

**⚠ WARNING**

- UNHITCHING A LOADED DRY SPREADER CAN CAUSE SERIOUS INJURY OR DEATH DUE TO THE TONGUE RISING OR FALLING. ALWAYS HAVE A LOADED DRY SPREADER ATTACHED TO A TRACTOR. THE JACK IS INTENDED TO SUPPORT AN EMPTY DRY SPREADER ONLY.

**IMPORTANT**

- Fully raise and retract jack leg when dry spreader is hitched to tractor.



### Hitching to Tractor (continued)

#### Transport Chain Connection



### CAUTION

- ALWAYS USE TRANSPORT CHAIN WHEN TRANSPORTING IMPLEMENTS. FAILURE TO USE A TRANSPORT CHAIN COULD CAUSE PERSONAL INJURY IF DRY SPREADER BECOMES DISENGAGED.

Tractor must be equipped with an intermediate transport chain support. Always use intermediate support when connecting dry spreader directly to a tractor. DO NOT use the intermediate chain support as the chain attaching point.

The chain is rated at a maximum 61,000 lbs. for towing the dry spreader on public roads. Use only ASABE approved chains. Allow no more slack in chain than necessary to permit turning.

### IMPORTANT

- *Replace transport chain if any link or end fitting is broken, stretched, or damaged. DO NOT WELD TRANSPORT CHAIN.*



## Hitching to Tractor (continued)

### Hydraulic Connections

#### IMPORTANT

- When coupling hydraulic hoses to ports on the tractor, be sure that the coupler ends are clean of dust, dirt and debris. Failure to do so could contaminate hydraulic system resulting in excessive wear and possible failure.
- Return line has unique quick coupler (PF1202-8434) that will weep oil to protect hydraulic components. This weeping is normal and does not indicate issues with the hydraulic system.

Clean hydraulic hose couplers before connecting to the tractor. For convenience, it is recommended to connect the supply circuit hoses to tractor SCV implement coupler #1 and #2, brake circuit hoses to hydraulic brake port (if equipped), and attach case drain circuit to the case drain / leak off coupler.

This unit is equipped with color bands attached to the hydraulic hoses. This will help in identifying the hose function and correct hook up.

This unit utilizes two (2) SCV circuits for hydraulic supply.

**NOTE:** Tractor hydraulic requirements are 38 GPM.

Blue: Supply

Red: Hydraulic Brake

Yellow: Case Drain

None: Return (attached to SCV return port with Blue supply lines)

After initial set-up or replacement of any hydraulic component on the dry spreader, air must be removed from the dry spreader's hydraulic system. See "Maintenance" section for "Purging Hydraulic System."

Route hoses away from areas that may cause abrasion or kinking of hoses during operation.

Before disconnecting hoses from the tractor, relieve pressure in the system. See the tractor's Operator's Manual for the proper procedure. Shut off engine and apply parking brake before disconnecting hoses. Install couplers into storage slots provided.



### Hitching to Tractor (continued)

#### Electrical Connections

This dry spreader is equipped with a seven-pin SAE connector plug which will connect with the receptacle found on most newer tractors. If your tractor does not have this type of receptacle, an SAE J-560 seven-point socket can be purchased from your Unverferth dealer (Part number 92824). (FIG. 3-6)

The wiring diagram for this dry spreader, shown in the MAINTENANCE section, complies with ASABE Standards. Always verify correct electrical function before using this implement.

Compliance with all lighting and marking laws is the responsibility of the operator at the time of travel.

See federal regulation 49 CFR 562; available at [www.govinfo.gov](http://www.govinfo.gov) for US federal law requirements.

See your Unverferth dealer for additional brackets, reflectors, or lights to meet your requirements.

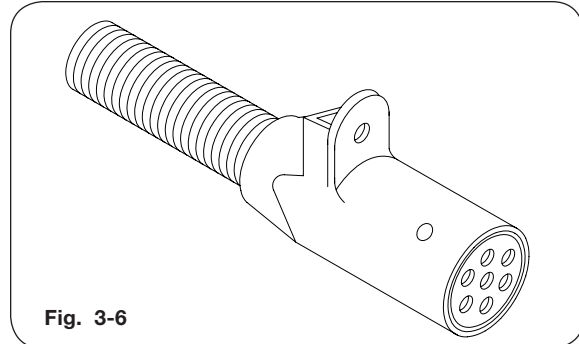


Fig. 3-6

## Transporting

### **WARNING**

- **USE EXCEPTIONAL CARE WHEN OPERATING SPREADER EQUIPPED WITH SINGLE TIRES AND SET AT NARROW WHEEL SPACING. THE POSSIBILITY OF TIPPING OVER DURING TURNS OR TRAVEL ON ROUGH ROADS IS INCREASED UNDER THESE CONDITIONS.**

### **IMPORTANT**

- *Hydraulic brakes are optional for pull-type dry spreaders.*

See towing vehicle manual for towing. Regulate speed to road conditions. Maximum transport speed of dry spreader should never exceed 20 m.p.h. as indicated on the machine. Do not exceed 10 m.p.h. during off-highway travel.

Secure drawbar pin with a locking device and lock tractor drawbar in centered position.

Secure transport chain to tractor before transporting. Use good judgment when transporting equipment on highways. Regulate speed to road conditions and maintain complete control.

It is probable that this implement is taller, wider, and longer than the towing tractor. Become aware of and avoid all obstacles and hazards in the travel path of the equipment, such as power lines, ditches, etc.

Slow down before making sharp turns to avoid tipping. Drive slowly over rough ground and side slopes.

## Ladder Operation

### Storage to Working Position

#### **WARNING**

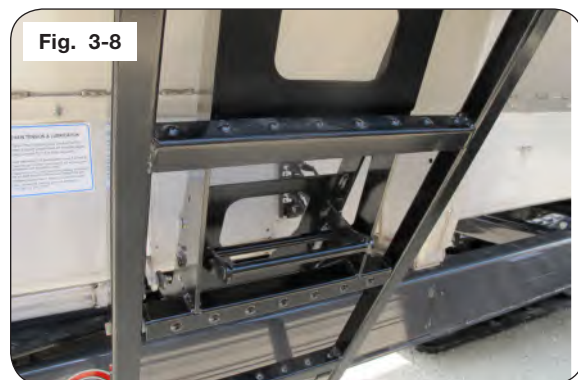
- **FALLING OR LOWERING EQUIPMENT CAN CAUSE SERIOUS INJURY OR DEATH. KEEP EVERYONE AWAY FROM EQUIPMENT WHEN SUSPENDED, RAISING, OR LOWERING.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **DO NOT ALLOW ANYONE TO RIDE ON THE LADDER. MAKE SURE EVERYONE IS CLEAR BEFORE OPERATING MACHINE OR TOWING VEHICLE.**
- **TO PREVENT PERSONAL INJURY OR DEATH WHILE SERVICING, ALWAYS ENSURE THAT THERE ARE PEOPLE WHO REMAIN OUTSIDE THE CART TO ASSIST THE PERSON WORKING INSIDE, AND THAT ALL SAFE WORKPLACE PRACTICES ARE FOLLOWED. THERE ARE RESTRICTED MOBILITY AND LIMITED EXIT PATHS WHEN WORKING INSIDE THE IMPLEMENT.**
- **NEVER ENTER A CART CONTAINING GRAIN. FLOWING GRAIN TRAPS AND SUFFOCATES VICTIMS IN SECONDS.**

**NOTE:** Ensure ladder and steps are free from snow/debris before changing ladder positions and before climbing.

**NOTE:** The ladder must be locked in the storage position when not in use. (Fig. 3-7)

1. Standing in front of the ladder, place hands on the outside of ladder tubes. If applicable, place hands on outside ladder handles.
2. Push ladder towards hopper bin.
3. Keep one hand on the outside ladder rail tube and with opposite hand, lift hinge retaining rod to unseat from the ladder retaining rod. (Fig. 3-8)

**NOTE:** The ladder is now free to pivot.



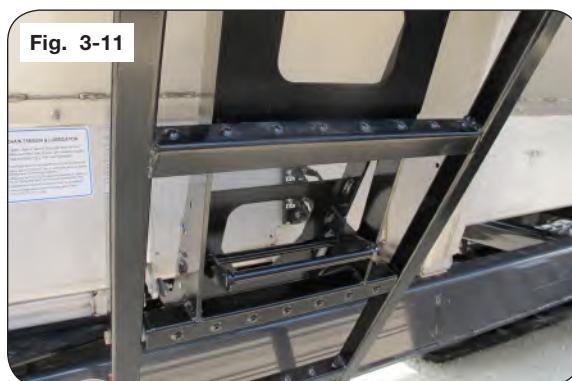
### Ladder Operation (Continued)

4. Slowly swing ladder outward until ladder retaining rod passes the hinge hook.
5. Remove hand from hinge retaining rod and place onto outside ladder rail tube.
6. Continue to swing ladder until hinge is fully extended and locks into the working position. (Fig. 3-9)



### Working to Storage Position

1. Standing in front of the ladder, place hands on the outside ladder rail tubes. If applicable, place hands on outside ladder handles.
2. Keep one hand on outside ladder rail tube or handle and with opposite hand, reach between the ladder rungs and grab the ladder hinge hole. (Fig. 3-10)
3. Slowly lift ladder hinge until the ladder starts folding.
4. Remove hand from ladder hinge hole and place onto outside ladder rail tube.
5. Slowly push ladder towards hopper bin until the hinge locks onto the ladder retaining rod. (Fig. 3-11)



# **Section IV**

# **Maintenance**

- Pull-Type Undercarriage Maintenance ..... 4-2
  - Lubrication ..... 4-3
  - Seasonal Storage..... 4-5
  - Purging Hydraulic System ..... 4-6
- Wheel, Hub and Spindle Disassembly and Assembly ..... 4-7
- Purging Procedure For Braking System ..... 4-9
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  - Tire Pressure ..... 4-12
  - Tire Warranty ..... 4-12
- Complete Torque Chart ..... 4-13
- Hydraulic Fittings ..... 4-18

FOR SCALE INFORMATION, PLEASE REFER TO YOUR SCALE MANUAL.  
FOR TRACK INFORMATION, PLEASE REFER TO YOUR TRACK MANUAL.  
FOR MULTI-BIN INFORMATION, PLEASE REFER TO YOUR MULTI-BIN MANUAL.

**Pull-Type Undercarriage Maintenance**

**⚠ WARNING**

- TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.
- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.
- KEEP HANDS CLEAR OF PINCH POINT AREAS.
- ALWAYS WEAR PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING WITH OR NEAR CHEMICALS. THIS EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO: PROTECTIVE EYE WEAR, GLOVES, SHOES, SOCKS, LONG-SLEEVED SHIRT, AND LONG PANTS. ADDITIONAL PROTECTION MAY BE REQUIRED FOR MANY TYPES OF CHEMICALS.
- AVOID BREATHING CHEMICALS AND FUMES.
- WASH HANDS BEFORE EATING, DRINKING, CHEWING GUM, OR USING TOILET.
- NEW HYDRAULIC SYSTEMS OR SYSTEMS THAT HAVE BEEN MAINTAINED MUST BE PURGED OF AIR BEFORE OPERATING OR MOVING MACHINE TO PREVENT SERIOUS INJURY OR DEATH.

**⚠ CAUTION**

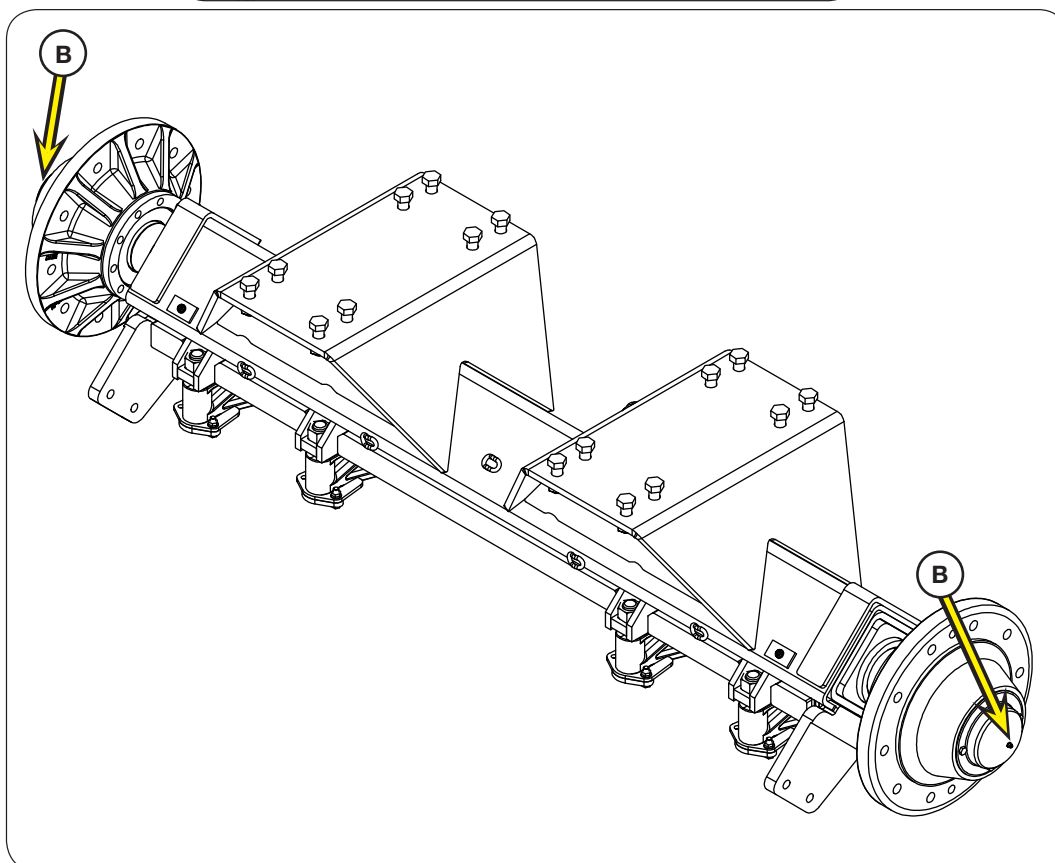
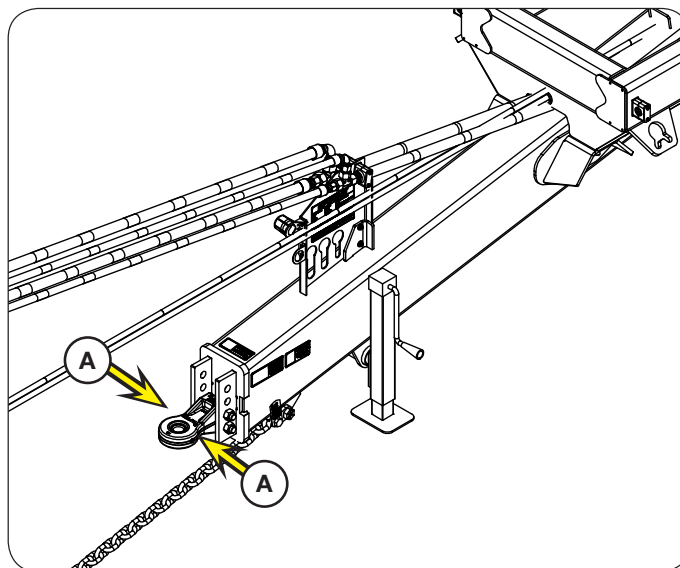
- SHARP EDGES ON DRY SPREADER CAN CAUSE SERIOUS INJURY. BE CAREFUL WHEN WORKING AROUND DRY SPREADER.

## Pull-Type Undercarriage Maintenance (continued)

### Lubrication

To keep your dry spreader in top operating condition and to assure its proper performance and reliability for a long period of time, periodic inspection and lubrication is a must. Make sure to use NLGI-2 high quality EP grease.

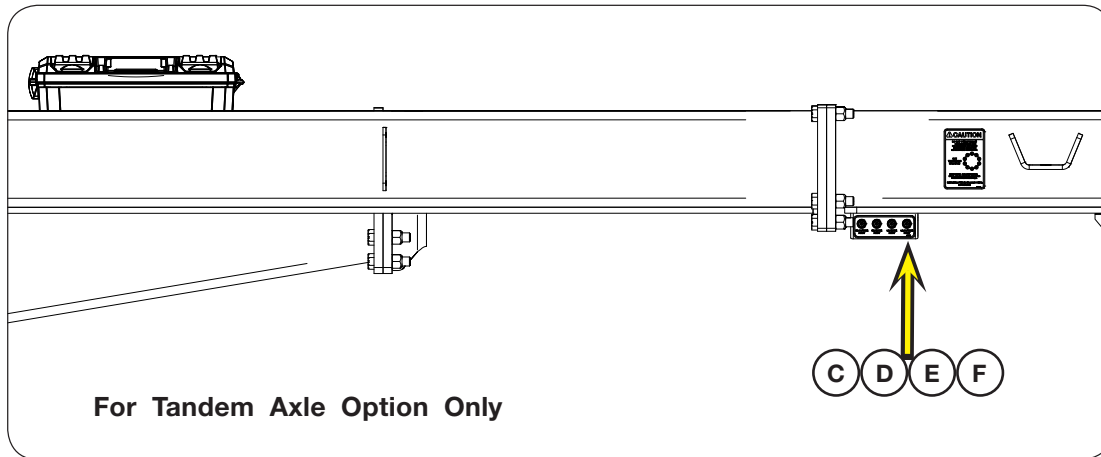
The lubrication locations and recommended schedule are as follows:



(Continued on next page)



## Pull-Type Undercarriage Maintenance (continued)



ITEM	DESCRIPTION	POINT	LUBRICANT	QTY.	HOURS
A	Bull Pull Hitch	2	NLGI No. 2	2 Shots	Weekly
B	Hubs	2	NLGI No. 2	Repack	2 Years
C	RH Outside Axle Pivot	1	NLGI No. 2	2 Shots	Daily
D	RH Inside Axle Pivot	1	NLGI No. 2	2 Shots	Daily
E	LH Inside Axle Pivot	1	NLGI No. 2	2 Shots	Daily
F	LH Outside Axle Pivot	1	NLGI No. 2	2 Shots	Daily
G	Track Lubrication (Refer to track manual.)	-	-	-	-

**NOTE:** Completely lubricate all locations at the end of the season.

### Pull-Type Undercarriage Maintenance (continued)

#### Seasonal Storage

Immediately after season is finished, completely wash machine to remove corrosive fertilizer/chemicals inside and out before storing. When using pressure washers, maintain an adequate distance to avoid blasting water into bearings, hydraulic seals or electrical connections.

- After washing empty machine, spray an oil/diesel mixture inside hopper to avoid corrosion.
- Repaint all areas where paint has been removed to keep rust from developing.
- Inspect machine for parts that may need to be replaced so they may be ordered in the off season.
- Lubricate machine at all points outlined in the Lubrication section.
- Inspect for damage or worn parts, replace before next season.
- Replace all worn, torn or faded decals and reflectors.
- If unit is equipped with scale indicator or other electric controllers, store these indoors in a dry location.
- Place ladder in storage position.
- Store the spreader inside, away from animals.
- Keep tarp closed, if equipped.
- Check hydraulic hoses for weather cracks and replace accordingly.
- After any period of unused time, unit should be operated to check function of hydraulic system.

### Pull-Type Undercarriage Maintenance (continued)

#### Purging Hydraulic System

#### **WARNING**

- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.
- RELIEVE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURES.
- HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.

1. Purge air from system as follows:

- A. Turn on two SCVs for the BLUE supply lines with engine at low idle. Allow 1 minute for oil to fill the spreader hydraulic system.
- B. Turn on the spinner and conveyor. Check that all hydraulic valves have opened.
- C. Start hydraulic system and run for 1 minute or until hydraulic motor starts turning.
- D. Check oil reservoir in hydraulic power source and re-fill as needed.
- E. Check for hydraulic leaks using cardboard or wood. Tighten connections according to directions in Torque Specifications in MAINTENANCE section.
- F. De-pressurize hydraulic system.

## Wheel, Hub and Spindle Disassembly and Assembly

### **WARNING**

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. BE SURE ALL LIFTING DEVICES AND SUPPORTS ARE RATED FOR THE LOADS BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 15,000 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.**
- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**

### **CAUTION**

- **IMPROPERLY TORQUED WHEEL NUTS/BOLTS CAN CAUSE A LOSS OF IMPLEMENT CONTROL AND MACHINE DAMAGE. TORQUE WHEEL NUTS/BOLTS TO VALUES IN TABLE. CHECK TORQUE BEFORE USE, AFTER ONE HOUR OF UNLOADED USE OR AFTER FIRST LOAD, AND EACH LOAD UNTIL WHEEL NUTS/BOLTS MAINTAIN TORQUE VALUE. CHECK TORQUE EVERY 10 HOURS OF USE THERE-AFTER. AFTER EACH WHEEL REMOVAL START TORQUE PROCESS FROM BEGINNING. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.**

1. Hitch undercarriage to tractor. Park the empty undercarriage on a firm, level surface. Block the tires to keep the machine from moving. Set the tractor's parking brake, shut off engine and remove key from tractor.



2. With undercarriage and attached dry spreader empty, use a safe lifting device rated at 15,000 lbs. to support the weight of your undercarriage and dry spreader. Place the safe lifting device under the axle closest to the tire.
3. Use a minimum of 2,000 lbs. safe lifting device to support the wheel and tire during removal.

### **WARNING**

- **ON UNITS WITH DUAL WHEELS, INNER WHEEL AND TIRE MAY FALL FROM HUB CAUSING SERIOUS INJURY OR DEATH. ALWAYS SUPPORT INNER WHEEL WHEN REMOVING OUTER WHEEL AND/OR THE WHEEL EXTENSION.**
4. If only changing wheel and tire, skip to Step 8; otherwise continue with Step 4.

Remove the hardware retaining the hubcap. Next, remove the hubcap, gasket, capscrew, castle nut, and spindle washer. Remove hub with bearings from old spindle using a 200 lbs. lifting device.

### Wheel, Hub and Spindle Disassembly and Assembly (continued)

5. Inspect the spindle and replace if necessary. If spindle does not need to be replaced, skip to Step 6; otherwise continue with Step 5.

Remove the bolt and lock nut that retain the spindle to the axle. Using a safe lifting device rated for 150 lbs., replace the old spindle with a new spindle. Coat axle contact length of spindle shaft with anti-seize lubricant prior to installation. Reuse bolt and lock nut to retain spindle to axle. Tighten as outlined in Maintenance Section.

6. Remove seal and inspect bearings, spindle washer, castle nut and cotter pin. Replace if necessary. Pack both bearings with approved grease and reinstall inner bearing. Install new seal in hub with garter spring facing the hub by tapping on flat plate that completely covers seal while driving it square to hub. Install until flush with back face of hub. Using a 200 lb rated lifting device, install hub assembly onto spindle. Install outer bearing, spindle washer and castle nut.

#### **IMPORTANT**

- *Do not use an impact wrench!*
7. Slowly tighten castle nut while spinning the hub until drag causes the hub to stop freely spinning. Turn castle nut counterclockwise until the hole in the spindle aligns with the next notch in castle nut. Hub should spin smoothly with little drag and no end play. If play exists, tighten to next notch of castle nut. If drag exists, then back castle nut to next notch of castle nut. Spin and check again. Install bolt and nut. Clean face for hub cap gasket and install gasket, grease filled hub cap and retain hubcap with hardware removed. Tighten hubcap hardware in alternating pattern.
  8. Attach the wheel(s) and tire(s) to the hub using the same rated safe lifting device for removal. Tighten wheel nuts to appropriate requirements and recheck as outlined in the Wheel and Tire section of this manual.
  9. Using a lifting device rated for 12,000 lbs. lbs, raise the dry spreader, remove the support and lower the dry spreader.

## Purging Procedure For Braking System

### **WARNING**

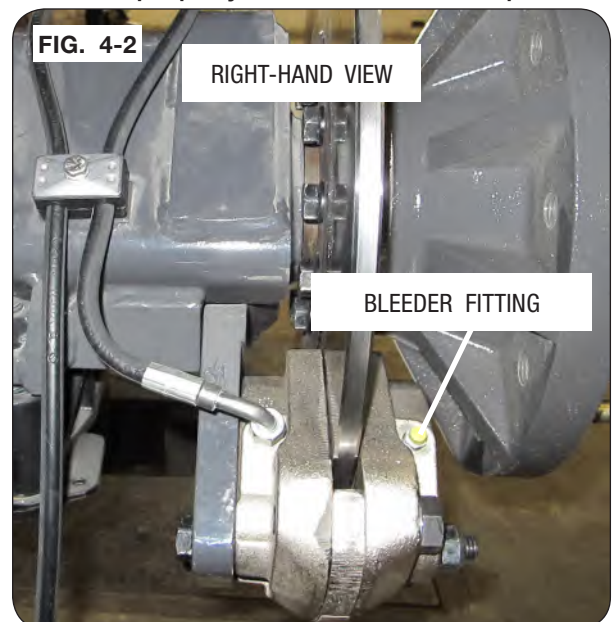
- RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.
- HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.
- EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING IMPLEMENT.

**NOTE:** Use ONLY quality hydraulic oil. If pressure purging equipment is available, follow manufacturer's instructions in purging the brake system.

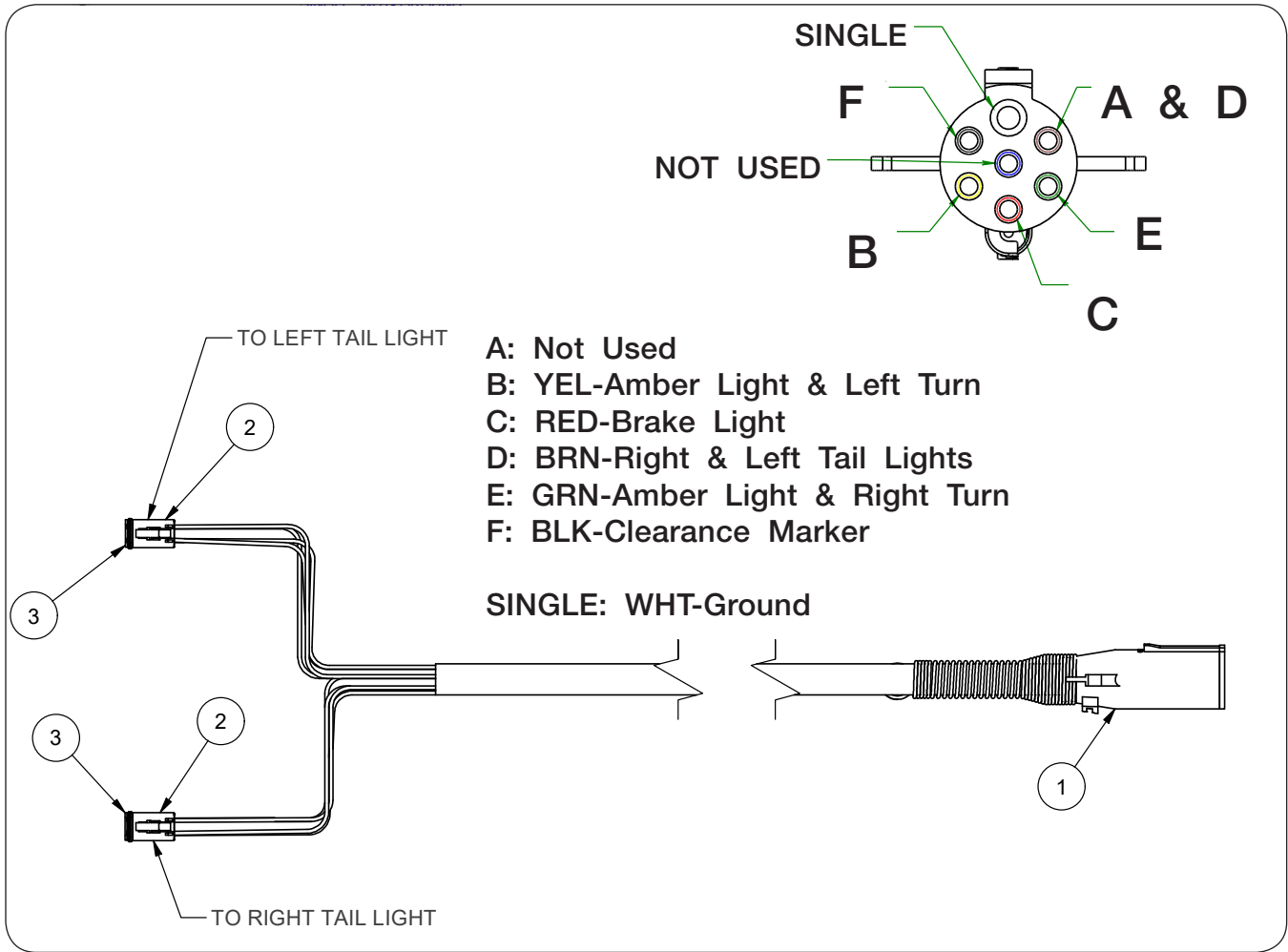
**NOTE:** System is intended for tractors with hydraulic trailer brakes. If your tractor does not have hydraulic trailer brakes, contact your dealer for support.

Connector should comply with ISO:5676 standards. Brake hydraulic hose is designated with red color band. See tractor's operators manual for connection location.

1. Block wheels to prevent movement. Set the tractor parking brake, but leave tractor engine on throughout the procedure. Attach hydraulic brake coupler on the undercarriage to the implement brake port at the rear of the tractor.
2. Apply and hold pressure to brake pedal.
3. Attach a hose to the bleeder fitting to drain hydraulic fluid/air. Loosen the bleeder fitting, at the top of the brake caliper and allow air bubbles to escape. Close bleeder fitting when oil flow is free of bubble interruptions and flowing steady. If necessary, pump the brake pedal to build circuit pressure. See Fig. 4-1 & Fig. 4-2.
4. Repeat steps 2 and 3 to the next brake caliper in the brake circuit. Repeat until all brakes are bled.
5. Perform a final tightness check of all caliper bleeder fittings before beginning spreader operation. Check that both brakes actuate and release properly with tractor brake pedal.



**Schematic — Electrical — Tail Light Extension Cable  
1450 & 1850 (PF1223-754) / 2250 & 2650 (PF1223-75426)**



**Wheels and Tires**

**Wheel Nut Torque Requirements**

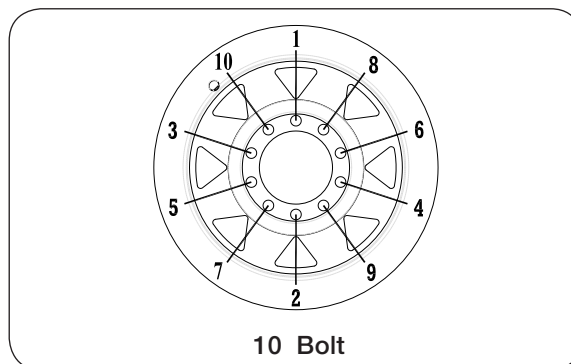
**⚠ CAUTION**

- IMPROPERLY TORQUED WHEEL NUTS/BOLTS CAN CAUSE A LOSS OF IMPLEMENT CONTROL AND MACHINE DAMAGE. TORQUE WHEEL NUTS/BOLTS TO VALUES IN TABLE. CHECK TORQUE BEFORE USE, AFTER ONE HOUR OF UNLOADED USE OR AFTER FIRST LOAD, AND EACH LOAD UNTIL WHEEL NUTS/BOLTS MAINTAIN TORQUE VALUE. CHECK TORQUE EVERY 10 HOURS OF USE THEREAFTER. AFTER EACH WHEEL REMOVAL START TORQUE PROCESS FROM BEGINNING. WARRANTY DOES NOT COVER FAILURES CAUSED BY IMPROPERLY TORQUED WHEEL NUTS/BOLTS.

Failure to check torque before first load may damage wheel nut/bolt seats. Once seats are damaged, it will become impossible to keep nuts/bolts tight. Tighten nuts/bolts to applicable torque value shown in table. Start all nuts/bolts by hand to prevent cross threading. Torque nuts/bolts in the recommended sequence as shown in Diagram 1.

**NOTE:** Do not use anti-seize on wheel hardware.

WHEEL HARDWARE	
SIZE	FOOT-POUNDS
Axle (M22 x 2.5 10 Bolt)	500 Ft.-Lbs.



10 Bolt  
DIAGRAM 1



**Wheels and Tires (continued)**

**Tire Pressure**

The following is to be used as a general guide for tire inflation and figures can vary depending on specific brand of tire used. It is important that tires are inspected after unit is loaded. The tire should stand up with no side-wall buckling or distress as tire rolls. Record the pressure needed to support the full load and maintain this pressure to achieve proper tire life. Do not exceed maximum recommended tire pressure. After beads are seated on the rim, deflate to 5-10 PSI, then reinflate to the tire's recommended PSI when mounting.

**Tire Pressure for Unverferth Dry Spreaders**

Tire Make	Tire Size	Load Index/ Ply Rating	Max PSI
Firestone	VF380/90R46 R-1	173B	64
	480/80R46 R-1	158AB	35
	VF480/80R46 R-1W	169B	35
	IF900/65R32 CFO R-3	191B	46
Mitas	VF320/105R54	169D	58
	710/50R26.5 HF-2	170D	58
	750/60R30.5 HF-2	181D	58

\* Based on a field load of 40,000 lbs. on the axle. Base machine weight, 18 tons of material minus tongue weight. Do not transport fully loaded on the road.

**Tire Warranty**

For questions regarding new tire warranty, please contact your local original equipment tire dealer. Used tires carry no warranty. Following are phone numbers and Websites for your convenience:

**Firestone**                      [www.firestoneag.com](http://www.firestoneag.com)  
Phone 800-847-3364

**Titan**                              [www.titan-intl.com](http://www.titan-intl.com)  
or Phone 800-USA-BEAR  
**Goodyear**                      Fax 515-265-9301

**Trelleborg**                      [www.trelleborg.com](http://www.trelleborg.com)  
Phone 866-633-8473

**Continental/Mitas**              [www.mitas-tires.com](http://www.mitas-tires.com)  
Phone 704-542-3422  
Fax 704-542-3474

**Complete Torque Chart**

**Capscrews - Grade 5**

**NOTE:**

- Grade 5 capscrews can be identified by three radial dashes on the head.



SIZE	FOOT POUNDS	NEWTON METERS
1/4-20 1/4-28	8-10 9-11	11-13 12-15
5/16-18 5/16-24	15-17 17-19	20-23 23-26
3/8-16 3/8-24	25-28 28-31	34-38 38-42
7/16-14 7/16-20	40-45 45-50	54-61 61-68
1/2-13 1/2-20	62-68 68-75	84-92 92-102
9/16-12 9/16-18	90-98 100-110	122-133 134-148
5/8-11 5/8-18	120-135 124-137	162-183 168-186
3/4-10 3/4-16	200-220 210-230	270-300 285-310
7/8-9 7/8-14	330-350 360-380	425-475 460-515
1-8 1-14	500-525 540-560	675-710 730-760
1 1/8-7 1 1/8-12	600-635 665-700	815-860 920-950
1 1/4-7 1 1/4-12	850-895 940-990	1150-1215 1275-1340
1 3/8-6 1 3/8-12	1125-1175 1280-1335	1525-1590 1735-1810
1 1/2-6 1 1/2-12	1500-1560 1685-1755	2035-2115 2285-2380

**IMPORTANT**

- Follow these torque recommendations except when specified in text.

## Complete Torque Chart (continued)

### Cap screws - Grade 8

**NOTE:**

- Grade 8 cap screws can be identified by six radial dashes on the head.
- For wheel torque requirements, refer to Wheels and Tires.



SIZE	FOOT POUNDS	NEWTON METERS
5/16-18	20-22	27-30
5/16-24	21-23	28-31
3/8-16	35-39	47-53
3/8-24	36-41	49-55
7/16-14	54-58	73-78
7/16-20	55-60	75-80
1/2-13	82-88	110-120
1/2-20	94-99	125-135
9/16-12	127-134	170-180
9/16-18	147-155	199-210
5/8-11	160-170	215-230
5/8-18	165-175	225-235
3/4-10	280-295	380-400
3/4-16	330-365	445-495
7/8-9	410-430	555-580
7/8-14	420-440	570-595
1-8	630-650	850-880
1-14	680-700	920-950
1 1/8-7	900-930	1220-1260
1 1/8-12	930-950	1260-1290
1 1/4-7	1250-1300	1695-1760
1 1/4-12	1280-1320	1735-1790

### IMPORTANT

- Follow these torque recommendations except when specified in text.

**Complete Torque Chart (continued)**

**Capscrews - Grade 9 EcoGuard Fine Thread**

**NOTE:**

- Grade 8 capscrews can be identified by six radial dashes on the head.
- For wheel torque requirements, refer to Wheels and Tires.



SIZE	FOOT POUNDS	NEWTON METERS
3/8-24	33-38	44-51
7/16-20	54-59	73-79
1/2-20	86-91	116-123
9/16-18	125-130	170-176
5/8-18	178-183	241-248
3/4-16	315-320	427-433
7/8-14	504-509	683-690
1-14	772-777	1046-1053
1 1/4-12	1528-1533	2071-2078
1 3/8-12	2061-2066	2794-2801
1 1/2-12	2705-2710	3667-3674

**IMPORTANT**

- *Follow these torque recommendations except when specified in text.*

**Complete Torque Chart (continued)**

**Metric Capscrews - Class 10.9**

**NOTE:**

- For wheel torque requirements, refer to Wheels and Tires.



SIZE	FOOT POUNDS	NEWTON METERS
M5 X 0.8	6.5	8.8
M6 X 1	11.1	15.0
M7 X 1	18.6	25.2
M8 X 1.25	26.9	36.5
M10 X 1.5	53.3	72.2
M12 X 1.75	92.9	126
M14 X 2	148	200
M16 X 2	231	313
M18 X 2.5	317	430
M20 X 2.5	450	610
M22 x 1.5	475	644
M22 X 2.5	612	830
M24 X 3	778	1055
M27 X 3	1138	1543
M30 X 3.5	1546	2095
M33 X 3.5	2103	2851
M36 X 4	2701	3662
M39 X 4	3495	4739
M42 X 4.5	4324	5862

**IMPORTANT**

- *Follow these torque recommendations except when specified in text.*

**Complete Torque Chart (continued)**

**Stainless Steel Capscrews - ASTM F593**

**IMPORTANT**

- Stainless steel fasteners tend to gall, especially with long run downs, prevailing torque fasteners, impact drivers, and lack of lubrication. It is highly encouraged to use a lubricant such as graphite-based anti-seize or molybdenum disulfide based anti-seize or other commercially available anti-galling compounds and assemble with a slow and continuously applied torque to avoid galling.

SIZE	INCH POUNDS	NEWTON METERS
1/4-20	62	7
1/4-28	71	8
5/16-18	128	15
5/16-24	142	16

SIZE	FOOT POUNDS	NEWTON METERS
3/8-16	19	26
3/8-24	21	29
7/16-14	30	41
7/16-20	34	46
1/2-13	46	63
1/2-20	52	71
9/16-12	67	91
9/16-18	74	100
5/8-11	92	125
5/8-18	104	141
3/4-10	113	153
3/4-16	126	171
7/8-9	182	247
7/8-14	201	273
1-8	273	370
1-14	306	415
1 1/4-7	545	739
1 1/4-12	604	819
1 3/8-6	715	970
1 3/8-12	813	1102
1 1/2-6	949	1287
1 1/2-12	1067	1447

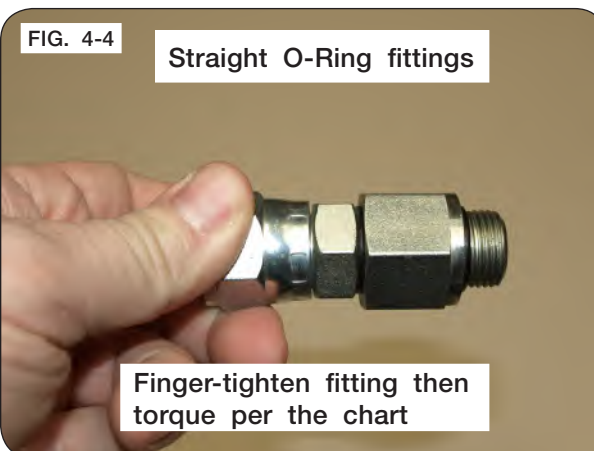
**Hydraulic Fittings - Torque and Installation**

**Tightening O-Ring Fittings**

1. Inspect components for damage or contamination. Do not connect any other type of fitting to an O-ring fitting.
2. For adjustable fittings, insure the jam nut and washer are fully backed up.
3. Lubricate the O-ring and threads on the fitting.
4. Turn the fitting into the port until it is finger tight.
5. For adjustable fittings, set in the desired position.
6. Using a wrench, torque the fitting to the value in the below table. For adjustable fittings the jam nut will be tightened.

Note: Never use a power tool to install a fitting.

Dash Size	Thread Size	Straight Stud Torque (Ft-Lbs)	Adjustable Stud Torque (Ft-Lbs)
-5	1/2-20	14-19	10-14
-6	9/16-18	18-24	12-16
-8	3/4-16	27-43	20-30
-10	7/8-14	36-48	30-36
-12	1-1/16-12	65-75	44-54
-14	1-3/16-12	75-99	53-70
-16	1-5/16-12	85-123	59-80
-20	1-5/8"-12	115-161	75-100
-24	1-7/8"-12	125-170	105-125

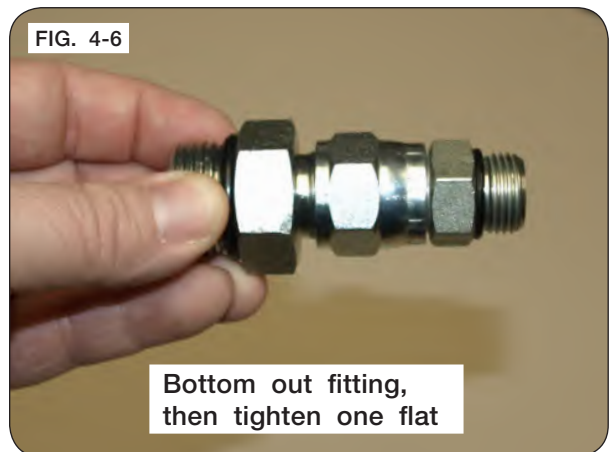


## Hydraulic Fittings - Torque and Installation

### Tightening JIC Fittings

1. Inspect all components for damage or contamination. Do not connect any other type of fitting to a JIC fitting.
2. Lubricate the threads.
3. Turn the fitting into the port until it bottoms out.
4. Use one wrench on the fixed hex on the hose to prevent twisting and a second on the swivel. Tighten the fitting another 60 degrees (or one flat)

Note: Never use a power tool to install a fitting





## **Section V Parts**

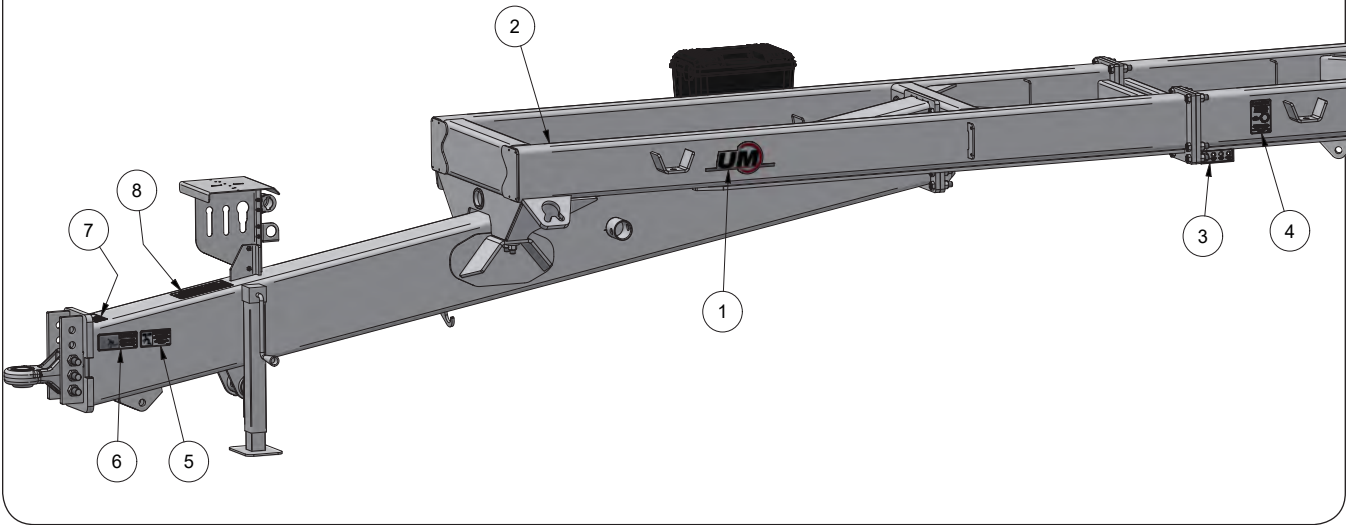
**Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.**

Undercarriage Decals .....	5-2
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FOR SCALE INFORMATION, PLEASE REFER TO YOUR SCALE MANUAL.  
FOR AUTO GREASE INFORMATION, PLEASE REFER TO YOUR AUTO GREASE MANUAL.  
FOR TRACK INFORMATION, PLEASE REFER TO YOUR TRACK MANUAL.

## Undercarriage Decal Locations

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	901607	Decal, UM Oval	2	
2	293376	Decal, Serial Number	1	
3	9009605	Decal, Grease Bank	1	
4	9009719	Decal, Caution Wheel Bolt Torque	1	
5	98229	Decal, Warning Lowering Equipment	1	
6	94094	Decal, Warning Rising or Falling Tongue	1	
7	97575	Decal, Caution Transport Chain	1	
8	9010048	Decal, Important Hose Marking	1	For SN B45470100 and Above (Models 1850-2650)
	90100374			For SN B45480100 and Above (Model 1450)

**Notes**

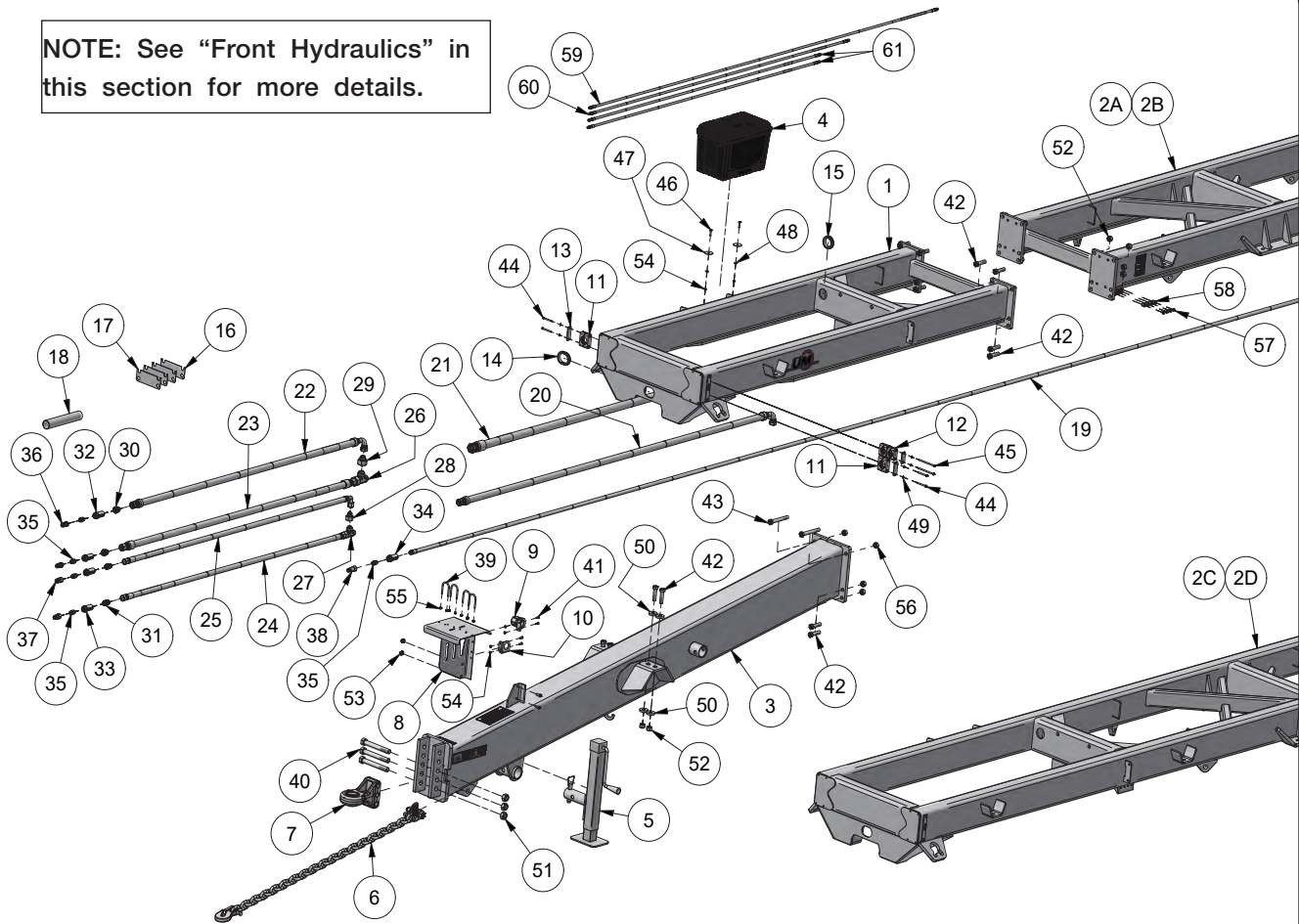
Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

# Pro-Force Pull-Type Undercarriage — Parts

## Hitch Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

NOTE: See “Front Hydraulics” in this section for more details.



ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	414640CEG	22' & 26' Front Undercarriage Weldment =CE Gray=	1	
2A	414641CEG	22' Rear Undercarriage Weldment =CE Gray=	1	
2B	414642CEG	26' Rear Undercarriage Weldment =CE Gray=	1	
2C	414560CEG	14' Undercarriage Weldment =CE Gray=	1	
2D	414561CEG	18' Undercarriage Weldment =CE Gray=	1	
3	414649CEG	Rigid Tongue Weldment =CE Gray=	1	
4	9005850	Storage Box	1	
5	9004156	Jack, 5,000 lb. Lift	1	
6	PF1238-19	Transport Chain 61,000 lb.	1	
7	JAP3228	Hitch, Cat 4, 3 Hole Mount	1	
8	415245	Hose Holder Weldment	1	
9	9001968	Connector Holder	1	
10	281837B	Plate, Holder =Black=	1	
11	9008884	Single Hose Clamp 1.90 Dia.	2	
12	9009026	Single Hose Clamp 1.50 Dia.	1	
13	414702	Hose Clamp Plate	3	
14	9004485	Grommet	1	
15	9500833 98487	Grommet	2	For S/N's B45310100 and Above For S/N's B45310099 and Below
16	415001	Stainless Steel Shim, .030"	2	
17	415000	Stainless Steel Shim, .015"	2	
18	9009630	2" Shrink Wrap, Black	5	

# Pro-Force Pull-Type Undercarriage — Parts

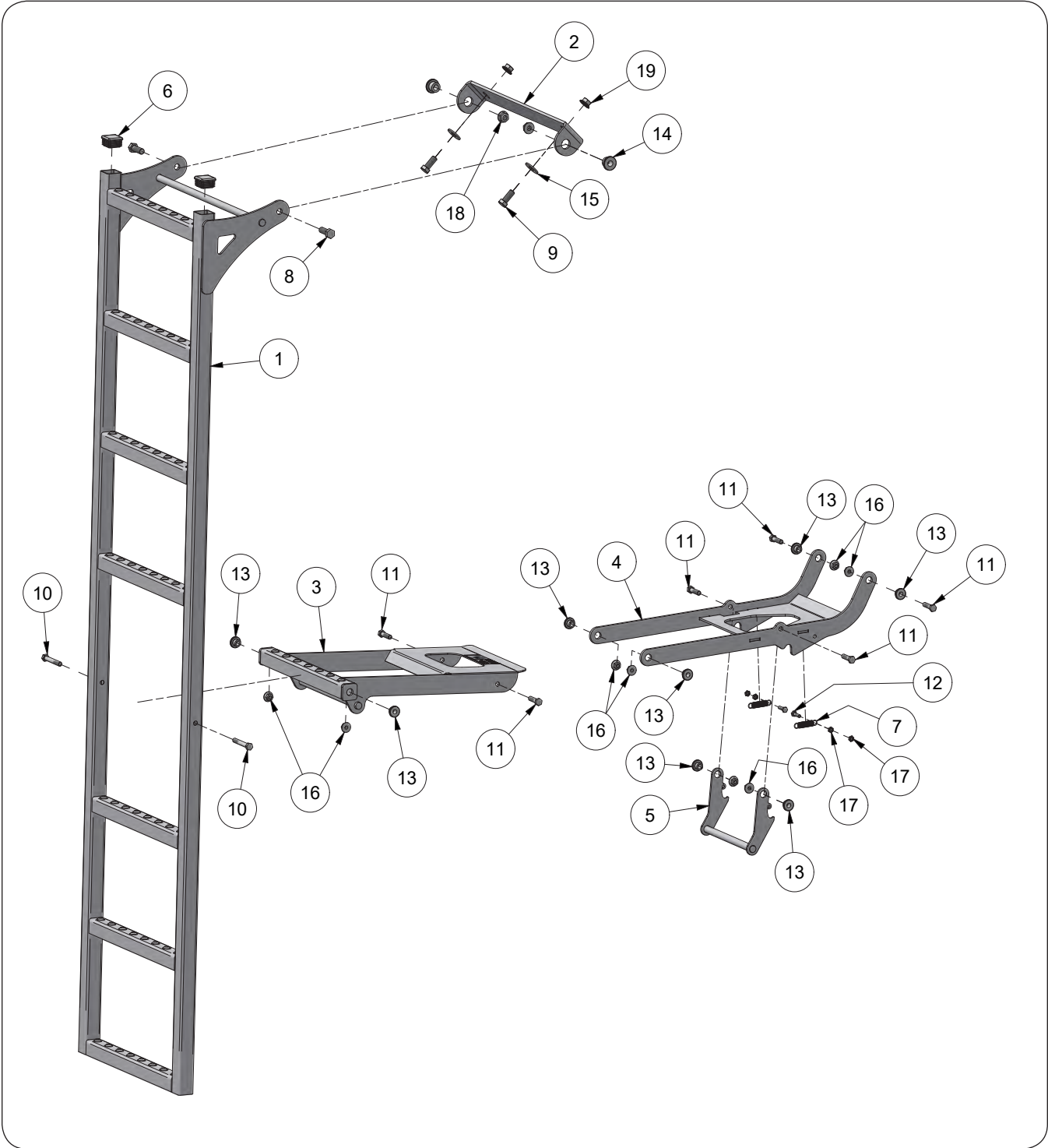
## Hitch Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
19	9008982	Hydraulic Hose, 1/2" x 432" 3,000 PSI SAE	1	
20	PF1207-733	Hydraulic Hose, 1" x 102" 3,000 PSI SAE	1	
21	PF1207-732	Hydraulic Hose, 1 1/4" x 108" 3,000 PSI SAE	1	
22	9008872	Hydraulic Hose, 1" x 84" 3,000 PSI SAE	1	
23	9008873	Hydraulic Hose, 1" x 84" 3,000 PSI SAE	1	
24	9009309	Hydraulic Hose, 3/4" x 80" 3,000 PSI SAE	1	
25	9009308	Hydraulic Hose, 3/4" x 82" 3,000 PSI SAE	1	
26	PF1202-2604	Tee Fitting, 1 5/8"-12 JIC Male	1	
27	900252	Tee Fitting, 1 5/16"-12 JIC Male	1	
28	PF1202-1035	Reducer, 1 5/16"-12 JIC Male to 1 1/16"-12 JIC Male	2	
29	PF1202-10350	Reducer, 1 5/8"-12 JIC Female to 1 5/16"-12 JIC Male	2	
30	PF1202-1100	Adapter, 1 5/16"-12 JIC Male to 3/4"-16 O-Ring Male	2	
31	103347	Adapter, 1 1/16-12 JIC Male to 3/4"-16 O-Ring Male	2	
32	9009761	Aluminum Hose Grip, Orange (+)	1	
	9009762	Aluminum Hose Grip, Orange (-)	1	
33	9009751	Aluminum Hose Grip, Green (+)	1	
	9009752	Aluminum Hose Grip, Green (-)	1	
34	9009760	Aluminum Hose Grip, Yellow	1	
35	98508	Adapter, O-Ring 3/4"-16 Male to O-Ring 3/4"-16 Male	2	
36	PF1202-8434	Quick Connect Fitting, 3/4"-16 O-Ring Male	1	
37	91383	Male Coupler Tip, 3/4"-16 O-Ring Female	2	
38	9006048	Male Coupler Tip, 3/4"-16 Male Flat Face	2	
39	PF1200-260	U-Bolt 1/4"-20UNC x 2"	4	
40	9503634-199	Capscrew 1"-8UNC x 8" Grade 8	3	
41	9501438-003	Capscrew 1/4"-20UNC x 3/4" Grade 5	4	
42	9503634-1358	Capscrew 3/4"-16UNF x 3" Grade 8	20	For SN B40850100 through B41140106 (Models 2250 and 2650)
			8	For SN B40850100 through B41140106 (Models 1450 and 1850)
	9503634-149	Capscrew 3/4"-10UNC x 3" Grade 8	20	For SN B40850099 and Lower (Models 2250 and 2650)
			8	For SN B40850099 and Lower (Models 1450 and 1850)
43	9503634-157	Capscrew 3/4"-10UNC x 6" Grade 8	2	
44	9501438-012	Capscrew 1/4"-20UNC x 2 3/4" Grade 5	4	
45	9501438-019	Capscrew 1/4"-20UNC x 5" Grade 5	2	
46	9501438-006	Capscrew 1/4"-20UNC x 1 1/4" Grade 5	2	
47	94763	Fender Washer 2" OD	2	
48	9501606-059	Flat Washer 1/4" USS	2	
49	9501440-017	Lock Washer 1/4"	6	
50	9009010	Flat Washer 13/16"	4	
51	9503653-039	Lock Nut 1"-8UNC Grade 8	3	
52	9503653-008	Lock Nut 3/4"-16UNF Grade 8	20	For SN B40850100 through B41140106 (Models 2250 and 2650)
			8	For SN B40850100 through B41140106 (Models 1450 and 1850)
	9503653-037	Lock Nut 3/4"-10UNC Grade 8	22	For SN B40850099 and Lower (Models 2250 and 2650)
			10	For SN B40850099 and Lower (Models 1450 and 1850)
53	9501605-009	Flange Nut 3/8"-16UNC Grade 5	2	
54	9501439-030	Locknut 1/4"-20UNC Grade 5	4	
55	9398-007	Elastic Lock Nut 1/4"-20UNC	8	
56	9503653-008	Lock Nut 3/4"-16UNF Grade 8	6	
57	9007654	Grease Zerk	4	
58	9003949	Pipe Coupling 1/8" NPT Female	4	
59	9008967	Grease Hose 3/16" x 126"	1	
60	9009493	Grease Hose 3/16" x 94"	1	
61	9008186	Grease Hose 3/16" x 84"	2	

Ladder Assembly

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



## Ladder Assembly

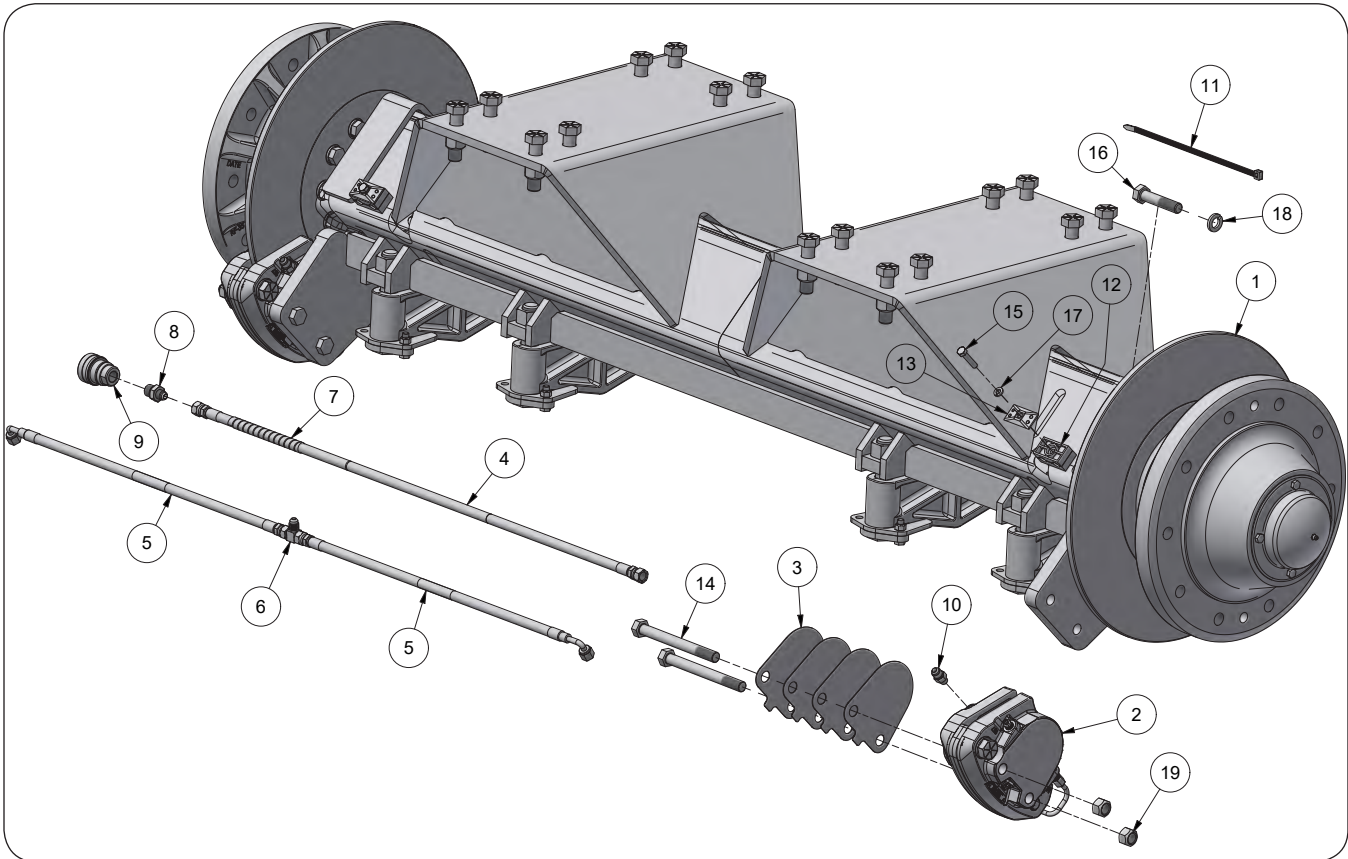
Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
	414879B	Ladder Assembly =Black=	1	Includes Items 1-19
1	414598B	Ladder Weldment =Black=	1	
2	414595	Ladder Bracket	1	
3	414603B	Ladder Step Weldment =Black=	1	
4	414605B	Ladder Link Weldment =Black=	1	
5	289289B	Latch Weldment =Black=	1	
6	9001645	Plug 1 1/2" Square	4	
7	99860	Extension Spring	2	
8	9390-101	Capscrew 1/2"-13UNC x 1 1/2" Grade 5	2	
9	900900-100	Capscrew 1/2"-13UNC x 1 1/4" Stainless Steel	2	
10	9390-062	Capscrew 3/8"-16UNC x 2 3/4" Grade 5	2	
11	9390-057	Capscrew 3/8"-16UNC x 1 1/2" Grade 5	4	
12	9390-005	Capscrew 1/4"-20UNC x 1" Grade 5	2	
13	2003029	Nylon Bushing .625D x .406D x .380 Flange	8	
14	2003030	Nylon Bushing .875D x .531D x .563 Flange	2	
15	900902-044	Flat Washer 1/2" USS Stainless Steel	2	
16	9008159	Locknut 3/8"-16UNC	8	
17	9395-002	Hex Jam Nut 1/4"-20UNC Grade 5	4	
18	9003397	Lock Nut 1/2"-13UNC	2	
19	9005691	Flange Nut 1/2"-13UNC	2	

# Pro-Force Pull-Type Undercarriage — Parts

## Brake Assembly (Optional)

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.





## Pro-Force Pull-Type Undercarriage — Parts

### Brake Assembly (Optional)

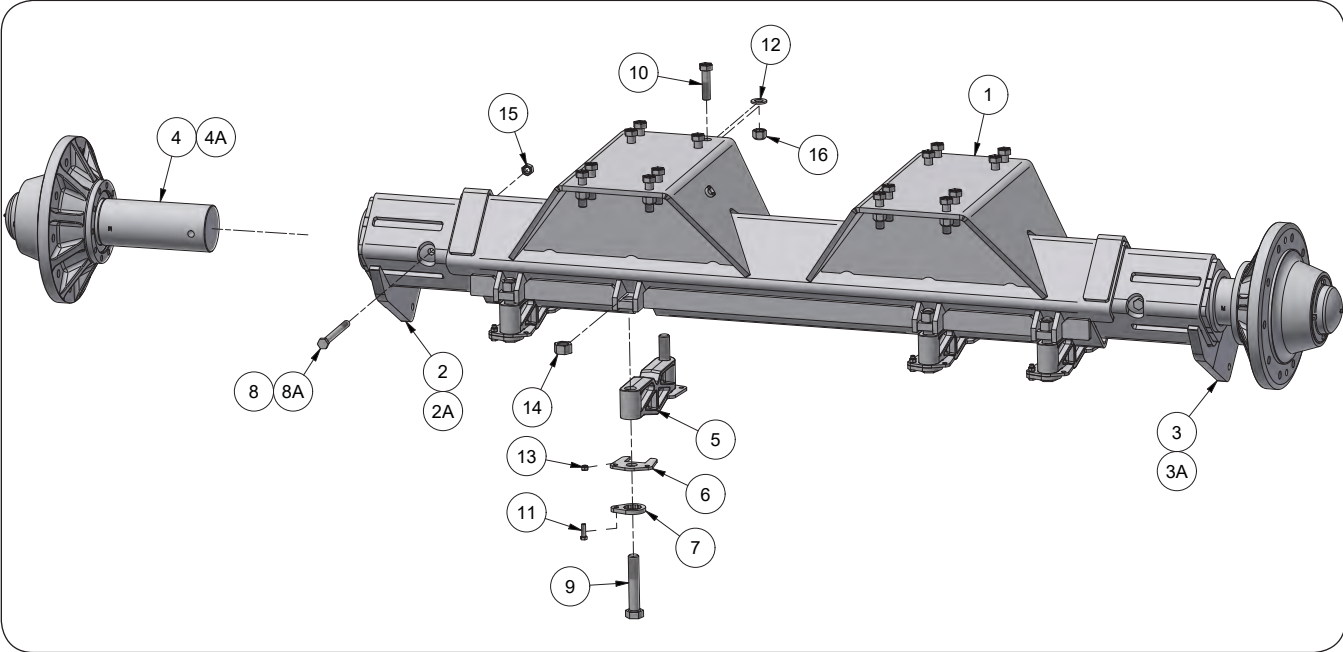
Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
	414727	Pro-Force Brake Kit	1	For 1450 and 1850 Units
	414726			For 2250 and 2650 Units
1	414580	Brake Rotor	2	
2	9008867	Brake Caliper	2	
2A	9010039	Brake Pad Replacment Kit	2	
2B	9010040	Brake Caliper Seal Kit	1	Per Caliper
3	414728	Brake Caliper Shim	4	Per Caliper
4	9008433	Hyd. Hose 1/4" x 310" 9/16-18 JICF Swivel	1	For 1450 and 1850 Units
	9003948	Hyd. Hose 1/4" x 372" 9/16-18 JICF Swivel		For 2250 and 2650 Units
5	9004309	Hyd. Hose 1/4" x 72" 9/16-18 JICF Swivel	2	
6	9875	Tee Fitting 9/16"-18 JIC Male	1	
7	PF1207-R16	Spiral Hose Wrap	1/2 FT	Specify in Feet
8	9006005	Adapter 9/16-18 JIC MALE	1	
9	9005173	Quick Release Coupler	1	
10	97711	Adapter, 9/16-18 JIC MALE x 7/16-20 O-R MALE	2	
11	9003735	Cable Tie	24	
12	9003816	Double Hose Clamp	2	
13	9003814	Top Plate	2	
14	9009017	Capscrew 5/8"-11UNC x 6 1/4" Grade 8	4	
15	9501438-032	Capscrew 5/16"-18UNC x 1 1/2" Grade 5	2	
16	9501438-352	Capscrew 5/8"-18UNF x 3" Grade 5	20	Torque to 137 Ft. Lbs.
17	9501441-019	Lock Washer 5/16"	2	
18	9501440-029	Lock Washer 5/8"	20	
19	9503653-036	Lock Nut 5/8"-11UNC Grade 8	4	Torque to 170 Ft. Lbs.

# Pro-Force Pull-Type Undercarriage — Parts

## Adjustable Axle Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

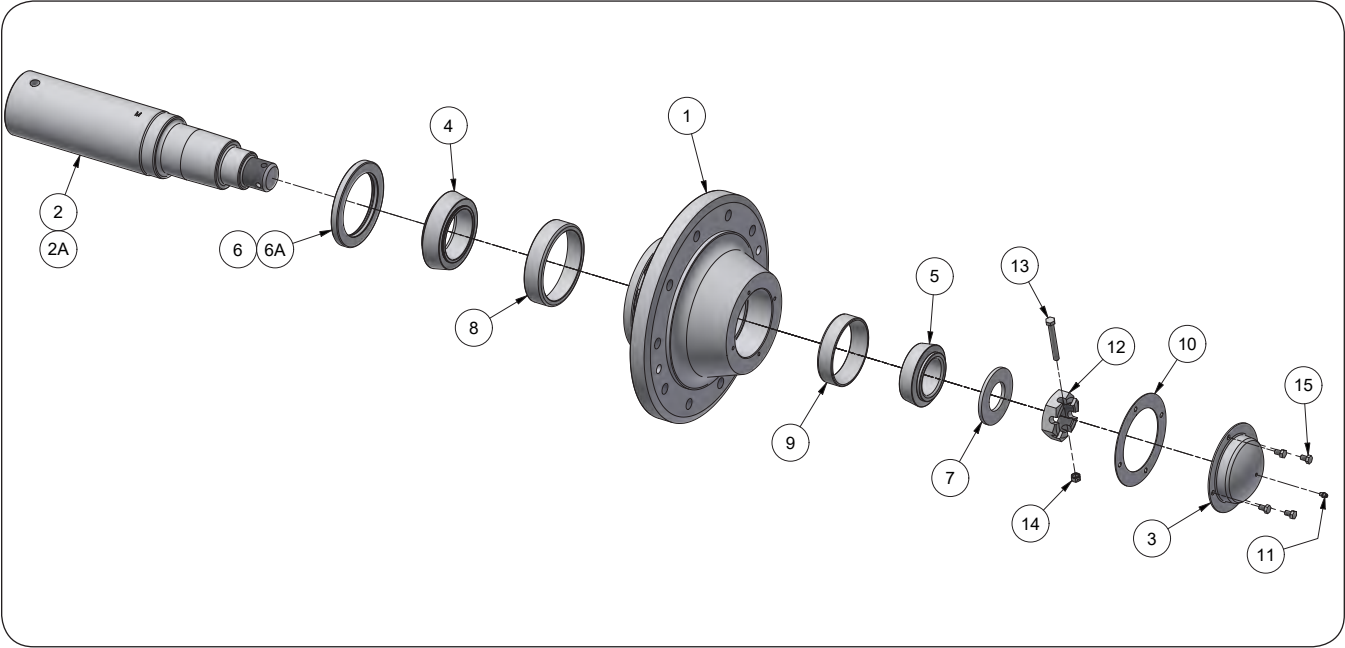


ITEM	PART NO.	DESCRIPTION	QTY	NOTES
	414454CEG	Pro-Force Adjustable Axle Assembly	1	For 1450 Units
	414234CEG			For 1850, 2250, 2650 Units
1	414450CEG	Main Axle Weldment =CE Grey=	1	
2	414455CEG	Axle Extension Weldment LH =CE Grey=	1	For 1450 Units
2A	414235CEG			For 1850, 2250, 2650 Units
3	414608CEG	Axle Extension Weldment RH =CE Grey=	1	For 1450 Units
3A	414236CEG			For 1850, 2250, 2650 Units
4	414842CEG	Hub and Spindle Assembly =CE Grey=	2	For 1450 Units
4A	414242CEG			For 1850, 2250, 2650 Units
5	404785B	Axle Clamp =Black=	4	
6	413569B	Retainer Plate =Black=	8	
7	413570B	Retainer Plate =Black=	8	
8	9501438-136	Capscrew 5/8"-11UNC x 6" Grade 5	2	For 1450 Units
8A	9501438-138	Capscrew 5/8"-11UNC x 7" Grade 5		For 1850, 2250, 2650 Units
9	9501438-194	Capscrew 1"-8UNC x 5 1/2" Grade 5	8	
10	9503634-149	Capscrew 3/4"-10UNC x 3" Grade 8	16	For SN B4085099 & Lower and B41141017 and Higher
	9503634-1358	Capscrew 3/4"-16UNF x 3" Grade 8		For SN B40850100 - B41140106
11	9501438-056	Capscrew 3/8"-16UNC x 1 1/4" Grade 5	8	
12	9503636-104	Flat Washer 3/4"	16	
13	9501439-032	Locknut 3/8"-16UNC	8	
14	9503637-020	Hex Nut 1"-8UNC Grade 5	8	
15	9501439-036	Locknut 5/8"-11UNC	2	
16	9503653-037	Locknut 3/4"-10UNC Grade 8	16	For SN B4085099 & Lower and B41141017 and Higher
	9503653-008	Locknut 3/4"-16UNF Grade 8		For SN B40850100 - B41140106

# Pro-Force Pull-Type Undercarriage — Parts

## Adjustable Axle Hub Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

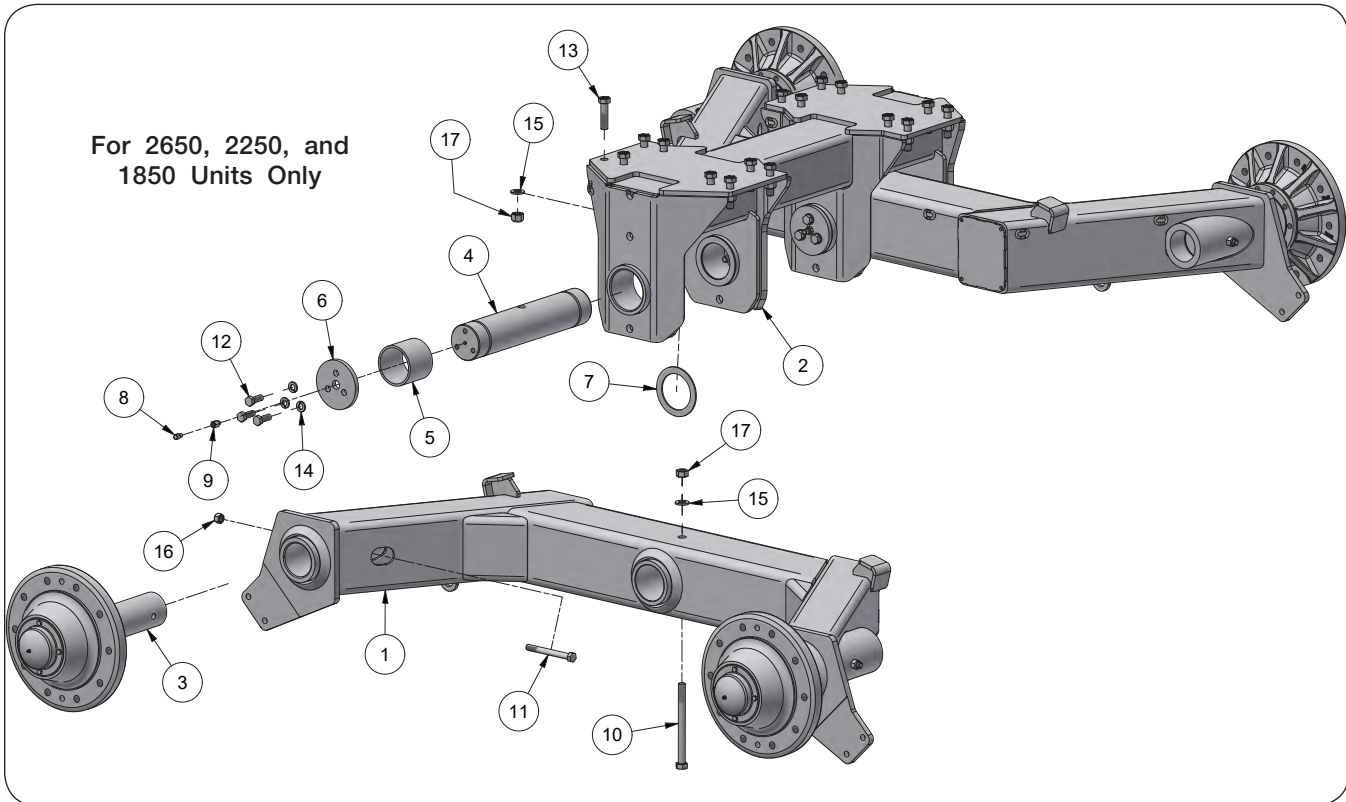


ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	414844	Hub Assembly	1	Includes Items 8 and 9
2	250601	Axle Spindle	1	3 3/4" Spindle
2A	280240		1	4 1/2" Spindle
3	286171	Hub Cap	1	
4	92545	Bearing Cone	1	
5	92464	Bearing Cone	1	
6	92455	Shaft Seal 4.375 Dia.	1	
6A	92565	Shaft Seal 3.688 Dia.	1	
7	92472	Spindle Washer	1	
8	92476	Bearing Cup	1	
9	92462	Bearing Cup	1	
10	284230	Hub Cap Gasket	1	
11	91160	Grease Zerk	1	
12	92470	Castle Nut 2"-12UNF Grade 5	1	
13	9390-064	Capscrew 3/8"-16UNC x 3 1/4" Grade 5	1	
14	902875	Locknut 3/8"-16UNC	1	
15	9390-026	Capscrew 5/16"-18UNC x 1/2" Grade 5	4	

# Pro-Force Pull-Type Undercarriage — Parts

## Walking Tandem Axle Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

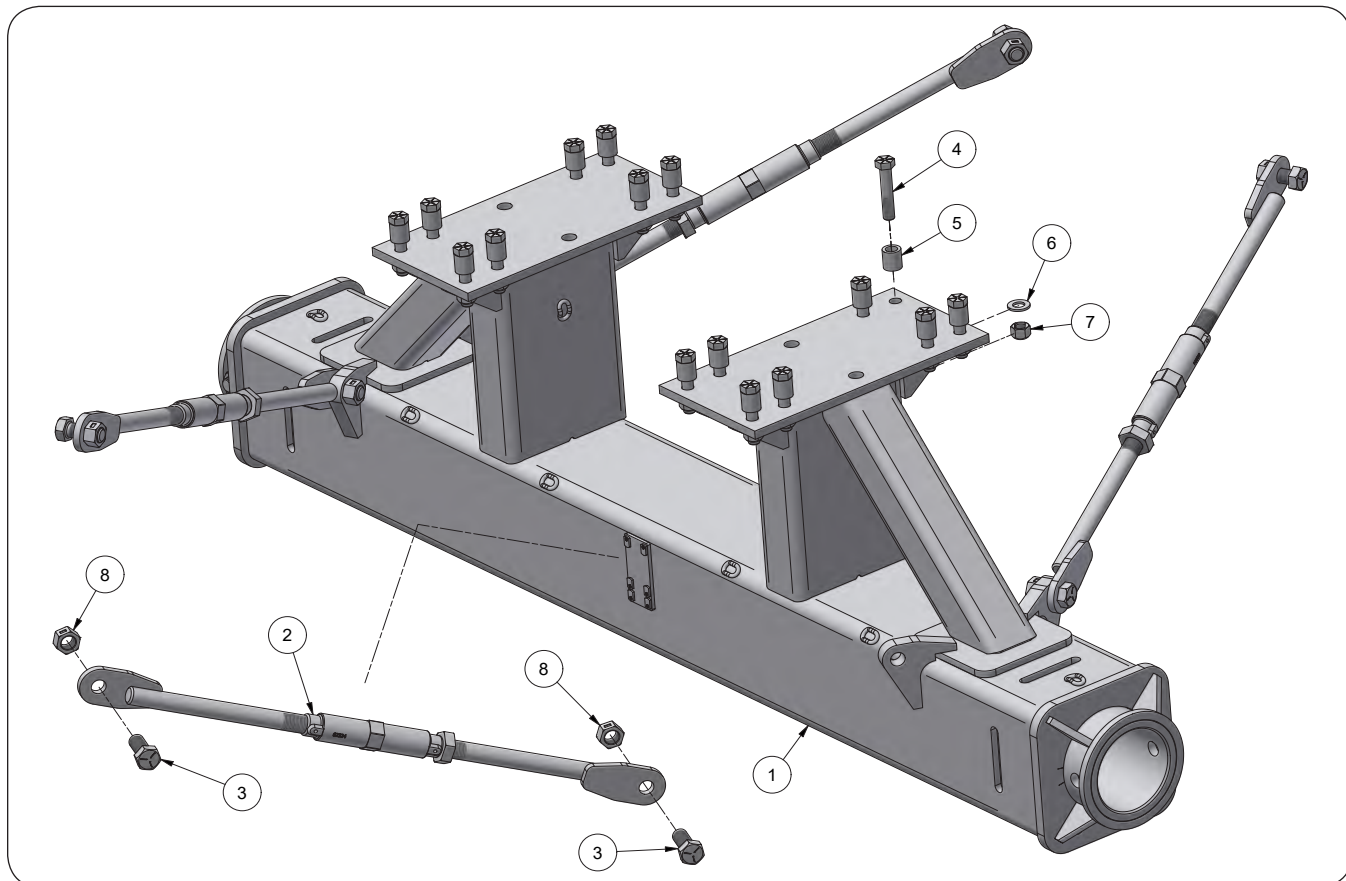


ITEM	PART NO.	DESCRIPTION	QTY	NOTES
1	415952CEG	Tandem Axle Weldment =CE Gray=	2	
2	415951CEG	Tandem Axle Weldment =CE Gray=	1	
3	414842	Hub and Spindle Assembly	4	
4	416049	Tandem Axle Pivot Pin	2	
5	9009588	Bushing 4.5055" Dia. x 3.75"	4	
6	416059	Cover Plate	4	
7	416061	Washer	4	
8	9006785	Adapter 90 Degree 1/8" NPT	2	
9	9006816	Adapter 1/8" NPT	2	
10	9501438-449	Capscrew 3/4"-10UNC x 9" Grade 5	2	
11	9501438-136	Capscrew 5/8"-11UNC x 6" Grade 5	4	
12	9501438-123	Capscrew 5/8"-11UNC x 1 3/4" Grade 5	12	
13	9503634-1358	Capscrew 3/4"-16UNF x 3" Grade 5	16	
14	9501440-030	Lock Washer 5/8"	12	
15	9503636-104	Flat Washer 3/4" SAE	2	
16	9501439-036	Lock Nut 5/8"-11UNC Grade 5	4	
17	9501443-037	Lock Nut 3/4"-10UNC	2	

# Pro-Force Pull-Type Undercarriage — Parts

## Track Axle Bundle Components

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

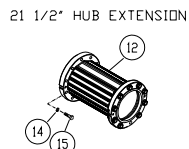
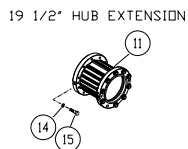
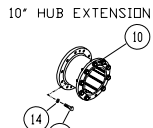
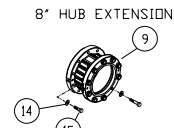


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
	415016CEG	Track Axle Bundle	1	Includes All Items For 1850, 2250, 2650 Units 36" x 112" Tracks For S/N B42940099 and Below
	415860CEG			Includes All Items For 1850, 2250, 2650 Units 42" x 131" Tracks
1	415006CEG	Track Axle Weldment =CE Gray=	1	For S/N B42940099 and Below
	415861CEG	Track Axle Weldment =CE Gray=		For S/N B42940100 and Above
2	415033CEG	Axle Brace Assembly =CE Gray=	2	For S/N B42940099 and Below
			4	For S/N B42940100 and Above
3	9501438-185	Capscrew, 1"-8UNC x 2 1/2" Grade 5	4	For S/N B42940099 and Below
			8	For S/N B42940100 and Above
4	9503634-149	Capscrew 3/4"-10UNC x 3" Grade 8	16	For SN B4085099 & Lower And B41140107 and Above
	9503634-1358	Capscrew 3/4"-16UNF x 4" Grade 8		For SN B40850100 Thru B41140106
5	PF1238-195	Bushing 1 1/4" Dia. x 1 1/2"	16	
6	9503636-104	Flat Washer 3/4" SAE Grade 8	16	
7	9503653-037	Top Lock Nut 3/4"-10UNC	16	SN B4085099 & Lower And B41140107 and Above
	9503653-008	Top Lock Nut 3/14"-16UNF Grade 8		For SN B40850100 Thru B41140106
8	9501443-039	Lock Nut 1"-8UNC Grade 5	4	For S/N B42940099 and Below
			8	For S/N B42940100 and Above

## Dual Wheels & Tires

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

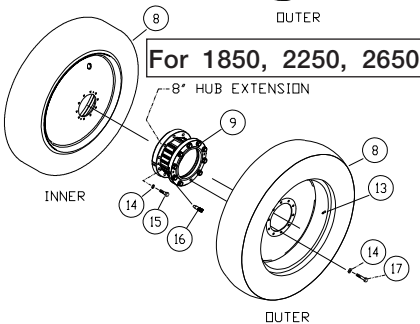
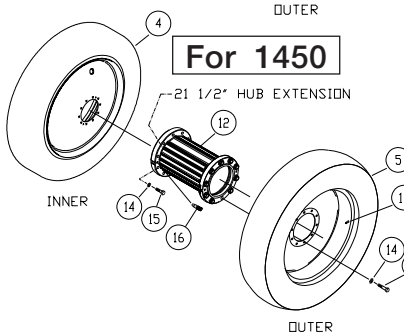
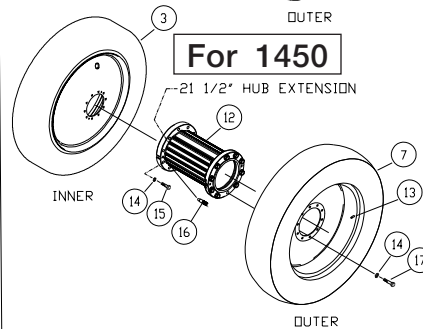
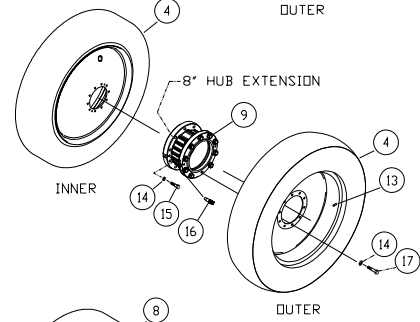
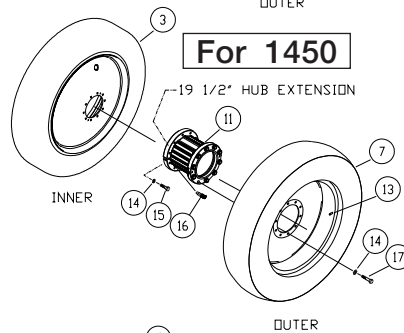
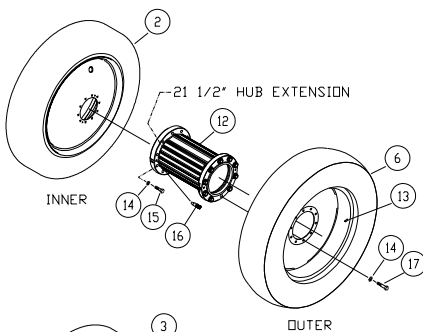
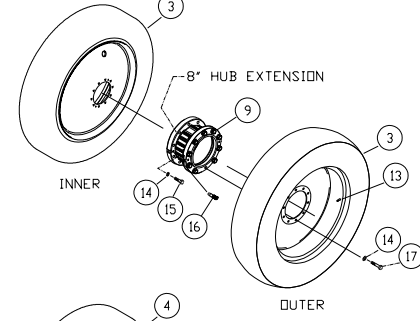
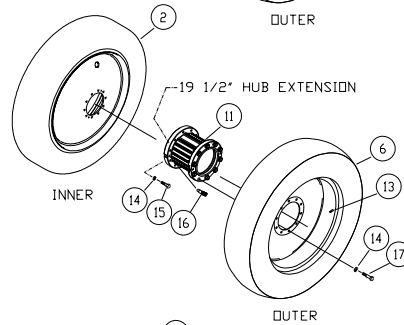
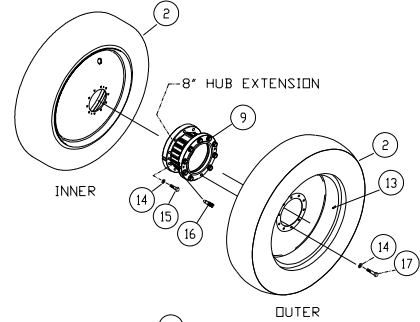
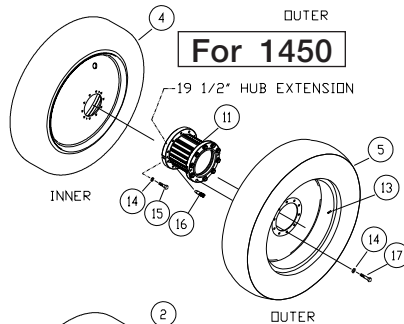
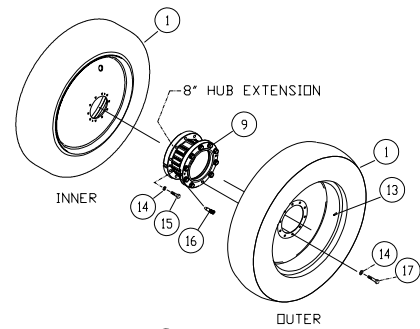
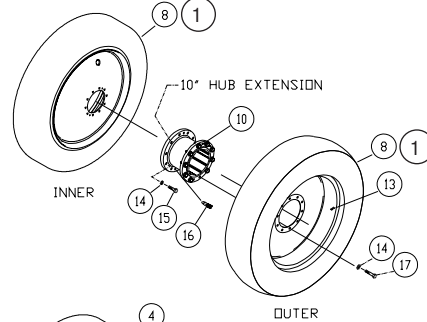
### EXTENSIONS



These wheels only fit units with SN B40330100 & Higher. Prior models use a different bolt pattern.

### #8 For 1850, 2250, 2650

### DUALS



# Pro-Force Pull-Type Undercarriage — Parts

## Dual Wheels & Tires

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

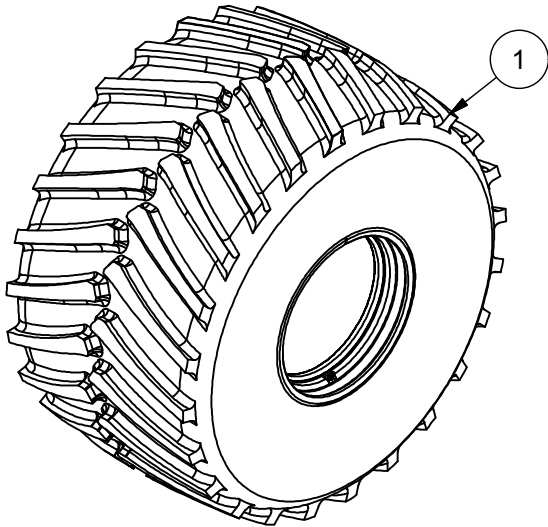
ITEM	PART NO.	DESCRIPTION	NOTES
1	111314SM	Wheel & Tire Assembly =Silver Mist=	TL VF320/105R54MT (169D Load Index)
	111313SM	Wheel Only =Silver Mist=	10 x 54 10-Bolt
2	111307SM	Wheel & Tire Assembly =Silver Mist=	TL 480/80R46F (158A8 Load Index)
	111304SM	Wheel Only =Silver Mist=	16 x 46 10-Bolt
3	111308SM	Wheel & Tire Assembly =Silver Mist=	TL VF480/80R46F (169B Load Index)
	111304SM	Wheel Only =Silver Mist=	16 x 46 10-Bolt
4	111306SM	Wheel & Tire Assembly =Silver Mist=	TL VF380/90R46F (173D Load Index)
	14337SM	Wheel Only =Silver Mist=	13 x 46 10-Bolt
5	111332SM	Wheel & Tire Assembly =Silver Mist=	TL VF380/90R46F (173D Load Index) 13 x 46 10-Bolt
6	111330SM	Wheel & Tire Assembly =Silver Mist=	TL 480/80R46F (158A8 Load Index) 16 x 46 10-Bolt
7	111331SM	Wheel & Tire Assembly =Silver Mist=	TL VF480/80R46F (169B Load Index) 16 x 46 10-Bolt
8	111343SM	Wheel & Tire Assembly =Silver Mist=	TL VF380/90R46F (173D Load Index)
	111339SM	Wheel Only =Silver Mist=	13 x 46 10-Bolt

ITEM	PART NO.	DESCRIPTION	QTY.	NOTES
<b>Extensions (2 Per Unit)</b>				
9	16986B	Hub Extension 8" Kit =Black=	1	Used With VF320/105R54MT, 480/80R46F, VF480/80R46F, VF380/90R46F (22", 30", 36" Rows) Includes Hub & Hardware
10	18382B	Hub Extension 10" Kit =Black=	1	Used With VF320/105R54MT VF380/90R46F (24" and 38" Rows) Includes Hub & Hardware
11	18875B	Hub Extension 19 1/2" Kit =Black=	1	Used With VF380/90R46F, 480/80R46F, VF480/80R46F (36" Rows) Includes Hub & Hardware
12	17081B	Hub Extension 21 1/2" Kit =Black=	1	Used With VF380/90R46F, 480/80R46F, VF480/80R46F (38" Rows) Includes Hub & Hardware
<b>Hardware</b>				
13	93300	Valve Stem	2	
14	97041	Flat Washer, 7/8	20	
15	97039	Capscrew, M22 x 2.5P x 100 C10.9	20	
16	19293	Guide Pin 5/8" Dia. (3.125 Lg.)	4	
17	95657	Capscrew, M22 x 2.5P x 65 C10.9	20	Full Threaded
18	PF1230-986	INDICATOR, LOOSE NUT STANDARD 33MM	40	

# Pro-Force Pull-Type Undercarriage — Parts

## Single Wheels & Tires

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

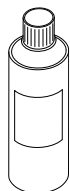


### TIRES

For questions regarding new tire warranty, please contact your local original equipment tire dealer. Used tires carry no warranty.

ITEM	DESCRIPTION	PART NUMBER	QTY.	NOTES
1	Wheel & Tire Assembly	111305SM/9500946	2	30 x 32 / TLIF900/65R32F R-3 (191B Load Index)
		111689SM/9501883	4	24 x 30.5 / TL750/60R30.5 (2650 and 2250 Walking Tandem)
		111687SM/950456	4	24 x 26.5 / TL710/50R26.5 (1850 Walking Tandem)
	Valve Stem	93300	2	
	Wheel Only	111305SM	2	30 x 32
		19592SM	2	24 x 30.5
111683SM		2	24 x 26.5	
2	Capscrew, M22 x 2.5P x 70 C10.9	97038	20	Not Shown
3	Flat Washer, 7/8	97041	20	Quantity 40 for Tandem Wheel Options

## Touch-Up Paint

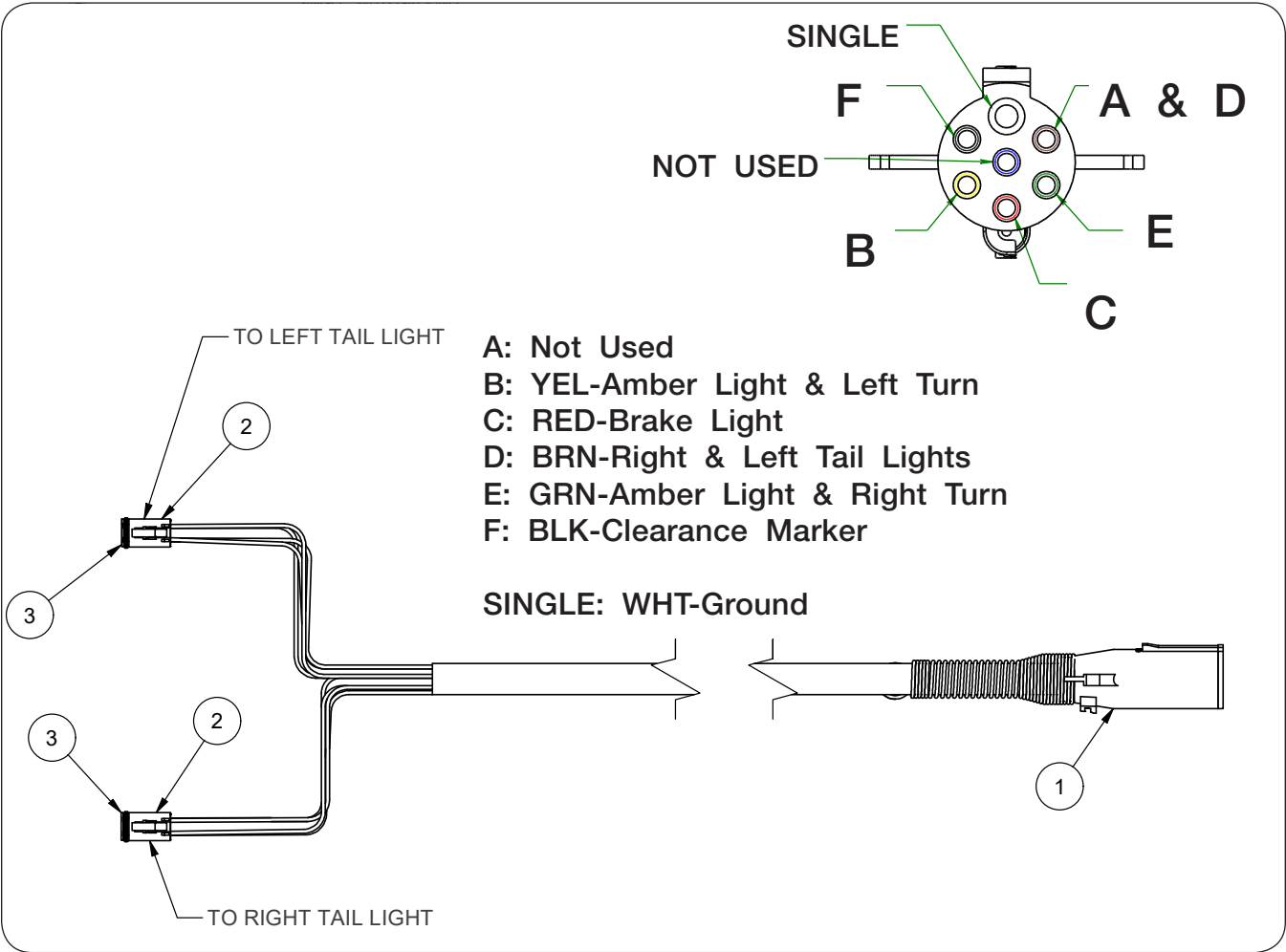


PAINT	SPRAY
Gray	9008955
Primer, Gray	9500082
Black	97013
Silver Mist	97012



**Undercarriage Tail Light Cable Assembly**

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

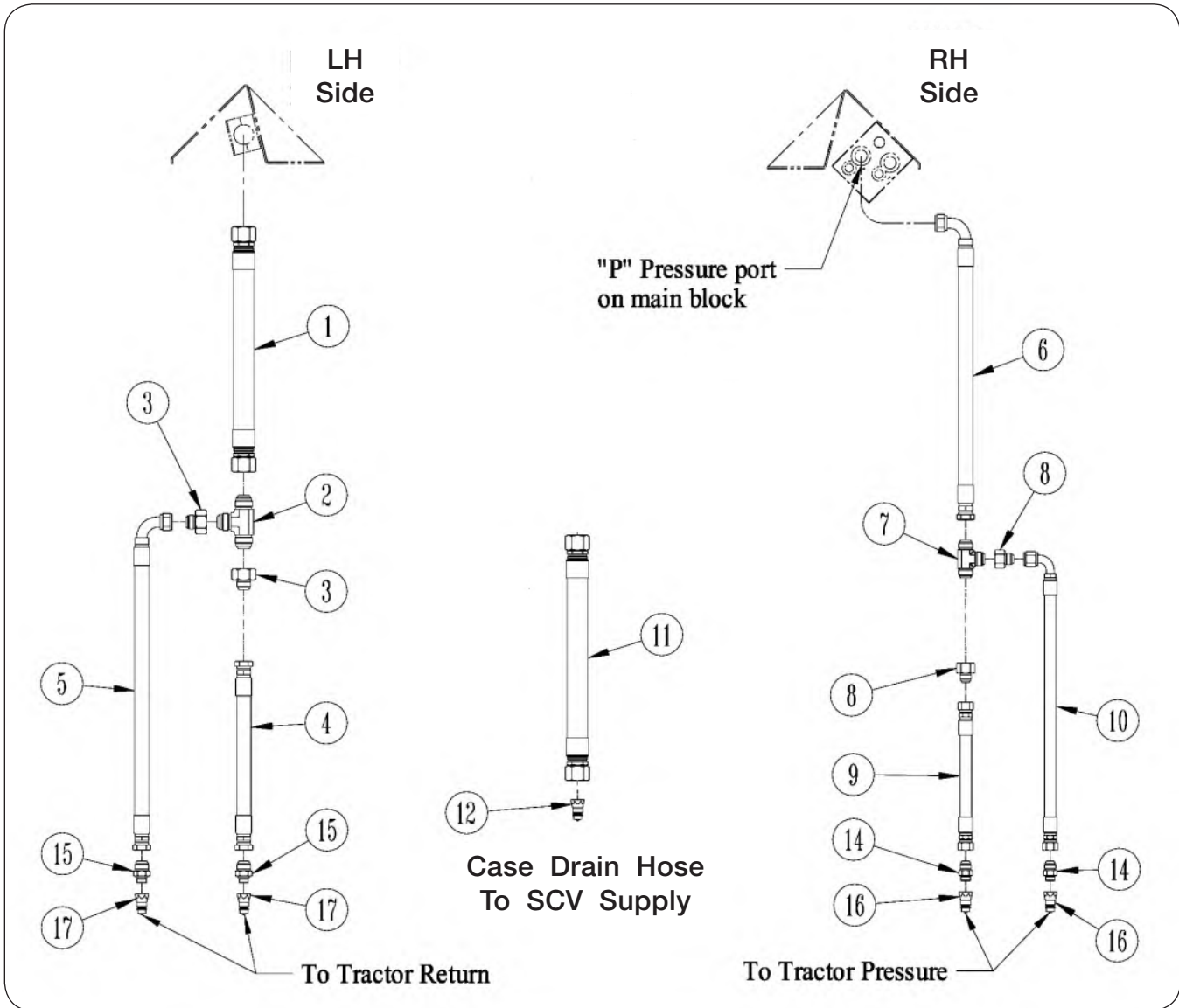


ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
	PF1223-754	Undercarriage TAIL LIGHT EXTENSION CABLE	1	For 1450 and 1850 Includes All Items
	PF1223-75426	Undercarriage Tail Light Harness	1	For 2250 and 2650 Includes All Items
1	92450	7 Pin Single Grip Plug with Spring Guard	1	
2	98910	Deutsch 4 Socket Plug	2	
3	98914	Wedge Lock 4 Socket	2	

# Pro-Force Pull-Type Undercarriage — Parts

## Front Hydraulics

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.



## Pro-Force Pull-Type Undercarriage — Parts

### Front Hydraulics

Please visit [www.unverferth.com/parts/](http://www.unverferth.com/parts/) for the most current parts listing.

ITEM	PART NUMBER	DESCRIPTION	QTY	NOTES
1	PF1207-732	HYD HOSE 1 1/4" x 102" 1 5/8 JICF X 1 5/8 JICF	1	
2	PF1202-2604	Adapter, JIC UNION TEE 20-20-20	1	
3	PF1202-10350	Adapter, JIC Reducer / Expander 20-16	2	
4	9008873	HOSE 1 x 84 (1 5/16-12 FS JIC)	1	
5	9008872	HOSE 1 x 84 (1 5/16-12 FJIC x 1 5/16 FSJIC 90DEG)	1	
6	PF1207-733	Hydraulic Hose 1" x 102" SAE16 FJ90 & FJ STRAIGHT	1	
7	900252	UNION TEE 1 1/16-12 MJIC x 1 1/16-12 MJIC x 1 1/16-12 MJIC	1	
8	PF1202-1035	Adapter, JIC Reducer / Expander 16-12	2	
9	PF1207-735	Hydraulic Hose 3/4" x 74" SAE12 FJ Straight	1	
10	PF1207-734	Hydraulic Hose 3/4" x 76" SAE12 FJ90 & FJ STRAIGHT	1	
11	9008989	HOSE, HYD. 1/2" X 480" 3/4-16 FJIC x 3/4-16 O-Ring	1	2650 Units
	9008982	HOSE, HYD. 1/2" X 432" 3/4-16 FJIC x 3/4-16 O-Ring		2250 Units
	9008988	HOSE, HYD. 1/2" X 394" 3/4-16 FJIC x 3/4-16 O-Ring		1850 Units
	9003027	HOSE, HYD. 1/2" X 343 1/2" 3/4-16 FJIC x 3/4-16 O-R		1450 Units
12	9006048	QUICK CONNECTOR- FLUSH FACE, 3/4-16 O-RING	1	
14	9003615	ADAPTER 1 1/16-12 JIC MALE	2	
15	PF1202-1100	Adapter, MJIC To O-Ring 16-08	2	
16	95477	PIONEER MALE TIP 8010-16 SAE 7/8-14 FEMALE OR	2	
17	PF1202-8434	QUICK COUPLER, HYD. RETURN PLUG SIZE SAE	2	



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