



DUO LIFT[®]

QUALITY PRODUCTS SINCE 1943



LOWBOY WAGON MODELS

OPERATOR'S MANUAL AND PARTS BOOK

LB1 SERIES

LB1
LB1XL
LB1XLB

LB2 SERIES

LB2
LB2XL
LB2XLB

LBT SERIES

LB1T
LB1TXL
LB1TXLB



Read and understand the manual. This manual provides information and procedures to safely operate and maintain the equipment.

(800) 243-2583
WWW.DUOLIFT.COM

DUO LIFT MANUFACTURING TRAILERS

WARRANTY REGISTRATION FORM & INSPECTION REPORT

WARRANTY REGISTRATION

This form must be filled out by the dealer and signed by both the dealer and the customer at the time of delivery.

**** NOTE: Without this Warranty Registration Form on file with Duo Lift Manufacturing;
WARRANTY WILL BE DENIED**

Customer's Name _____	Dealer Name _____
Address _____	Address _____
City, State, Code _____	City, State, Code _____
Phone Number (____) _____	
Trailer Model _____	Check One:
Serial Number _____	Farm Use <input type="checkbox"/>
Delivery Date _____	Commercial Use <input type="checkbox"/>

DEALER INSPECTION REPORT

____ Wheel Bolts Tightened
____ Check Tire Pressures
____ Fastener Tight
____ Lubricate

SAFETY

____ All Decals Installed
____ Reflectors, Lights and SMV Clean
____ Review Operating and Safety Instructions
____ Review Entire Owners Manual

I have thoroughly instructed the buyer on the above described equipment which included the review of this Operator Manual content, equipment care, adjustments, safe operation and applicable warranty policy.

Date _____ Dealer's Rep. Signature _____

The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation, this manuals content and applicable warranty policy.

Date _____ Owner's Signature _____

Customer Copy

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The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation, this manuals content and applicable warranty policy.

Date _____ Owner's Signature _____

Merchant Copy

**DUO LIFT®**

Warranty

This is to certify that we warrant to the original purchaser equipment manufactured by Duo Lift Manufacturing Company, Inc., identified and recorded by serial number, to be free of defects in material and workmanship under normal use and service to replace, free of cost, to the original purchaser any part or parts of said equipment that in our judgement shows evidence of such defects; and provide further that the said part or parts shall be returned to the factory, freight prepaid, within five years of shipping date. Manufacturer agrees to replace or repair during this period of no charge any defective part or parts returned to the factory, and deemed defective by authorized factory inspection. Should it become impractical to return said parts to the factory, the manufacturer shall not be liable for any labor costs, or any other costs encountered, in repairing or replacing any part or parts involved, but will be obligated to supply only the necessary repair and/or replacement items.

Duo Lift Manufacturing Company, Inc., as the manufacturer shall not be liable for any other damage, whether direct or consequential.

No representative or other person is authorized or permitted to make any other warranty or assume for his company any liability not strictly in accordance with the foregoing. This limited warranty is in lieu of all warranties expressed or implied and of all other obligations on the part of the factory.

This limited warranty shall not apply to any item which shall have been operated in a manner not recommended by the Company nor which shall have been repaired, altered, neglected or used in any way which in the Company's opinion adversely affects its performance and results.

This limited warranty shall not apply to any equipment which has been tampered with in any way or which has been subject to misuse, neglect or accident, or which has the serial number altered, defaced, or removed.

This limited warranty does not apply to exterior finishes, tire, bearings, springs, jacks, couplers or any such items not directly manufactured by Duo Lift Manufacturing Company, Inc., except to the extent of their individual manufacturer's guarantee.

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1 INTRODUCTION

Congratulations on your choice of a Duo Lift Low Boy Wagon to complement your fertilizer operation. This equipment has been designed and manufactured to meet the needs of a discerning fertilizer industry for efficient moving of fertilizer.

Safe, efficient and trouble-free operation of your Low Boy Wagon requires that you and anyone else who will be using or maintaining the Low Boy Wagon, read and understand the Safety, Operation, Maintenance and Troubleshooting information contained within this Operator's Manual.

- **Contact the following agencies before handling or plumbing anhydrous ammonia:**
 - **American National Standards Institute, Inc. (ANSI)** 1819 L StreetNW, Washington, DC 20036 (202) 293-8020
 - **Compressed Gas Association, Inc. (CGA)** 4221 Walney Road, 5th Floor, Chantilly, VA 20151 (703) 788-2700
 - **State or Province Regulatory Enforcement Agency** with Jurisdiction Over: ANHYDROUS AMMONIA, FERTILIZERS AND OTHER CHEMICALS BEING USED
 - **The Fertilizer Institute** 820 First St. NE Washington, DC 20002-4839 (202) 962-0490
 - **ANSI/ASABE S620 American Society of Agricultural and Biological Engineers** Safety for Anhydrous Ammonia Application Equipment (269) 932-7015
- Regulations and standards for the safe handling of anhydrous ammonia may change from time to time due to the advancement of technology and equipment. Review all current regulations and standards annually to always be informed of the most recent information possible.





This manual covers the complete line of Duo Lift Low Boy Wagon Models. Differences are covered and explained where appropriate. Use the Table of Contents as a guide to locate required information.

Store this manual in the handy waterproof container attached to the gooseneck portion of the wagon for frequent reference and to pass on to new operators or owners. Call your Duo Lift dealer or distributor if you need assistance, information or additional copies of the manuals.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are as seen from the driver's seat and facing in the direction of travel.



This manual accompanies your Duo Lift Low Boy Wagon at time of purchase and is placed in a waterproof container attached to the gooseneck portion of the wagon.

Upon reading this manual, replace it in the storage container so it is readily available to the current operator. Additional copies are available from your Duo Lift distributor or dealer at no cost.

2 SAFETY

SAFETY ALERT SYMBOL

This Safety Alert symbol means
ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!



The Safety Alert symbol identifies important safety messages on the Duo Lift Low Boy Wagon and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided

SIGNAL WORDS:

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guide-lines:

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for Wagon components which, for functional purposes, cannot be guarded.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have any questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or Duo Lift Manufacturing Inc., Physical Address: 2810 38 Street, Columbus, Nebraska 69601, phone 402-564-8023 or fax 402-564-5385. Website: www.duolift.com

SAFETY

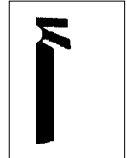
YOU are responsible for the SAFE operation and \ maintenance of your Duo Lift Low Boy Wagon. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Low Boy Wagon be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating the Low Boy Wagon.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Low Boy Wagon owners must give operating instructions to operators or employees before allowing them to operate the Wagon, and at least annually thereafter.
- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Most accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the Wagon. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Think SAFETY! Work SAFELY!

2.1 GENERAL SAFETY

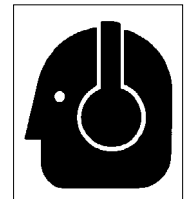
1. Read and understand the Operator's Manual and all safety signs before operating, maintaining or adjusting the Low Boy Wagon.
2. Have a first-aid kit available for use should the need arise and know how to use it.
3. Have a fire extinguisher available for use should the need arise and know how to use it.
4. Wear appropriate protective gear. This list includes but is not limited to:



- A hard hat
- Protective shoes with slip resistant soles
- Protective glasses or goggles
- Heavy gloves
- Wet weather gear
- Hearing protection
- Respirator or filter mask

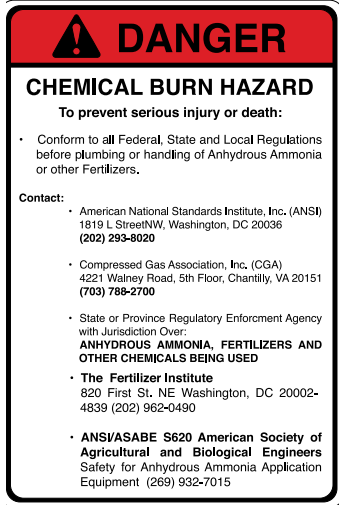


5. Install and secure all guards before starting.
6. Do not allow riders.
7. Wear suitable ear protection for prolonged exposure to excessive noise.
8. Place all controls in OFF or neutral, stop engine or motor, remove ignition key and wait for all moving parts to stop before servicing or adjusting, repairing.
9. Clear the area of people, especially small children, before starting the unit.
10. Only trained, competent personnel shall operate the Low Boy Wagon. An untrained operator is not qualified to operate this Wagon.
11. Review safety related items annually with all personnel who will operating or maintaining the Low Boy Wagon.



2.2 PLUMBING SAFETY

1. To prevent serious injury or death, conform to all Federal, State and Local Regulations before the plumbing or handling of Anhydrous Ammonia or other fertilizers.




2. There are several different designs of Fertilizer applicators / toolbars. Always use proper equipment and fittings when designing your anhydrous ammonia delivery system. When assembling / connecting the anhydrous ammonia delivery system to the applicator / toolbar, make sure the entire system is designed and plumbed properly to conform to Federal, State and local regulations. Use appropriate length of transfer hose to fit your system.

CONFORM TO ALL FEDERAL, STATE AND LOCAL REGULATIONS BEFORE THE PLUMBING OR HANDLING OF ANHYDROUS AMMONIA OR OTHER FERTILIZERS.

Refer to the following:

- **American National Standards Institute, Inc. (ANSI)**
1819 L Street NW, Washington, DC 20036 (202) 293-8020
- **Compressed Gas Association, Inc. (CGA)** 4221 Walney Road, 5th Floor, Chantilly, VA 20151 (703) 788-2700
- **State or Province Regulatory Enforcement Agency** with Jurisdiction Over: ANHYDROUS AMMONIA, FERTILIZERS AND OTHER CHEMICALS BEING USED
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2.3 SAFETY TRAINING

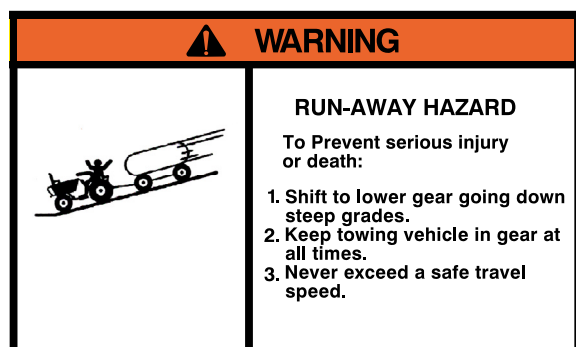
1. Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.
2. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment.
3. It has been said, "The best safety feature is an informed, careful operator." We ask you to be that kind of an operator.  It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Accidents can be avoided.

4. **Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tow vehicle, before assembly or operating, to acquaint yourself with the Wagons. If this Wagon is used by any person other than yourself, or is loaned or rented, it is the Wagon owner's responsibility to make certain that the operator, prior to operating:**
 - a. **Reads and understands the operator's manuals.**
 - b. **Is instructed in safe and proper use.**

5. Know your controls and how to stop engine, motor and Wagon quickly in an emergency. Read this manual and the one provided with your auxiliary equipment.
6. Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will operate the Wagon. A person who has not read and understood all operating and safety instructions is not qualified to operate the Wagon. An untrained operator exposes himself and bystanders to possible serious injury or death. If the elderly are assisting with work, their physical limitations need to be recognized and accommodated.

2.4 OPERATING SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or servicing.
2. Read and follow the chemical manufacturers' instructions on the handling, storage and disposal of chemicals before starting.
3. Agricultural chemicals are among the most toxic substances known to man. Minute quantities can contaminate clothing, Wagon, the workplace and the environment. Follow the chemical manufacturers' instructions exactly.
4. Do not breathe, touch or ingest chemicals. Always wear protective clothing and follow safe handling procedures.
5. Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or maintaining.
6. Do not allow riders on the Low Boy Wagon or towing unit.
7. Install and properly secure all guards and shields before operating.
8. Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.
9. Keep hands, feet, hair and clothing away from all moving parts.
10. Clear the area of bystanders, especially small children, before moving.
11. Securely attach to towing unit. Use a proper pin with a mechanical retainer and attach the safety chains. On the gooseneck model, be sure the jaws around the ball are closed and locked with a retainer. Attach safety chains.
12. Ensure that the SMV and all reflectors and lights required by the local transport authorities are in place and are clean and visible by overtaking or oncoming traffic.
13. Do not exceed 20 mph (33kph). Slowdown for corners and rough terrain.
14. Shift towing unit to a lower gear before going down steep down-grades to use engine as retarding force. Keep towing vehicle in gear at all times.
15. Maintain proper brake setting at all times if so equipped.
16. Do not drink and drive.
17. Review safety instructions with all users annually.
18. Support the Low Boy Wagon with blocks or safety stands when changing tires or working beneath it.
19. Follow good shop practices:
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.



2.5 PREPARATION

1. Never operate the tow unit and Wagon until you have read and completely understand this manual, the tow unit Operator's Manual, and each of the Safety Messages found on the safety signs on the tow unit and Wagon.

2. Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not allow long hair, loose fitting clothing or jewelry to be around equipment.



3. PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!

Power Units with or without equipment attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db.



Noise over 85db on a long-term basis can cause severe hearing loss. Noise over 90db adjacent to the Operator over a long-term basis may cause permanent, total hearing loss. **NOTE:** Hearing loss from loud noise (from tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.

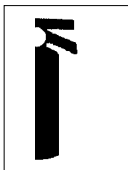
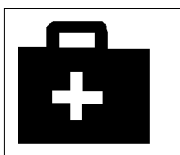
4. If towing with a tractor it must be equipped with an approved Roll-Over-Protective-Structure (ROPS). Always wear a seatbelt. Serious injury or even death could result from falling off the tractor - particularly during a turnover when the operator could be pinned under the ROPS or in the tractor.
5. Clear working area of stones, branches or hidden obstacles that might be hooked or snagged, causing injury or damage.
6. Be sure Wagon is properly attached, adjusted and in good operating condition.
7. Ensure that all safety shielding and safety signs are properly installed and in good condition.

2.6 TRANSPORT SAFETY

1. Read and understand ALL the information in the Operator's Manual regarding procedures and SAFETY when operating the Low Boy Wagon in the field and/or on the road.
2. Check with local authorities regarding Low Boy Wagon transport on public roads. Obey all applicable laws and regulations.
3. Always travel at a safe speed. Use caution when making corners or meeting traffic.
4. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic when towing with a tractor.
5. Be sure that the Low Boy Wagon is hitched positively to the towing vehicle. Always use a retainer through the pin and a safety chain between the Low Boy Wagon and the tow vehicle.
6. Keep to the right and yield the right-of-way to allow faster traffic to pass. Drive on the road shoulder, if permitted by law.
7. Do not exceed 20 mph (32 km/h). Reduce speed on rough roads and surfaces.
8. Always use hazard warning flashers on machine when transporting with a tractor unless prohibited by law.

2.7 MAINTENANCE SAFETY

1. Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
2. Follow good shop practices.
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.
3. Place all controls in neutral, stop engine, set park brake, remove ignition key, and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
4. Place stand or blocks under the frame before working beneath the Wagon or when changing tires.
5. Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance work.
6. Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications.
7. A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.
8. Before applying pressure to a chemical system, make sure all components are tight and that steel lines, hoses, fittings and couplings are in good condition.
9. Keep hands, feet, hair and clothing away from all moving parts and/or rotating parts.
10. Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments or filling.



11. Wear safety goggles, neoprene gloves and protective clothing when working on the plumbing system filled with active chemicals.
12. Wash Wagon to remove all chemical residue before working on unit. Wear appropriate protective gear at all times.
13. Protect yourself from chemical contamination.
14. Relieve pressure from hydraulic circuit before servicing or disconnecting from tractor.
15. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.

2.8 SAFETY SIGNS

1. Keep safety signs clean and legible at all times.
2. Replace safety signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety signs are available from your Distributor or the factory.

How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 50°F (10°C).
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

2.9 TIRE SAFETY

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.
2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
3. Have a qualified tire dealer or repair service perform required tire maintenance.
4. When replacing worn tires, make sure they meet the original tire specifications. Never undersize.
5. Follow the tire mounting instructions in section 8.4 page 37. Do not deviate from the recommended procedure to minimize the chance for an accident.

2.9.1 TIRE MOUNTING INSTRUCTIONS (FOR 22.5 TIRE/WHEEL ASSEMBLIES)

1. Before a tire is removed from the rim, the valve insert must be unscrewed and removed to ensure remaining pressure is released completely.
2. Tire mounting:
 - a. Always coat the tire beads and the rim with a permitted tire fitting lubricant before mounting. Silicone, petroleum or solvent based lubricants must not be used for this purpose.
 - b. While the tire is being inflated, the rim must remain firmly secured on the mounting machine.
 - c. If the tire is mounted on a machine that does not have a positive lock-down device to hold the rim, inflation should be done in a safety cage or other restraining device.
 - d. Never put flammable substances in tire/rim assemblies at any time. Never put any flammable substance into a tire/rim assembly and attempt to ignite to seat the beads. This practice is extremely unsafe and may also cause undetected damage to the tire or rim that could result in failure of the tire in service.

- e. Only when the tire beads are seated correctly on the rim shoulder may the pressure be increased to support the best bead seating and optimized fit on the rim flanges. However, this “seating pressure” should never exceed 400 kpa (4.0 bar)/58 psi.
- f. Once the tire is mounted correctly, adjust the pressure to the operating pressure of 65 psi.



2.10 STORAGE SAFETY

1. Store unit in an area away from human activity.
2. Do not permit children to play on or around the stored Low Boy Wagon.
3. Place planks under the jack and tires for support if required.



2.11 SIGN-OFF FORM

Duo Lift Manufacturing Inc. follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Low Boy Wagon must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to operate this Wagon.

A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in the Operator's Manual and have been instructed in the operation of the equipment.

SIGN-OFF FORM

[illegible]


3 SAFETY SIGN LOCATIONS

The types of safety signs and locations on the equipment are shown in the illustrations that follow. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- Think SAFETY! Work SAFELY!



A

⚠ WARNING	⚠ CAUTION	⚠ WARNING	IMPORTANT	⚠ WARNING													
<p>DO NOT EXCEED 20 MPH (33kph)</p> <p>SLOW DOWN FOR CORNERS AND ROUGH TERRAIN.</p>	<p>1. Read Operator's Manual before starting.</p> <p>2. Read chemical manufacturer's WARNINGS, instruction and procedures before starting and follow them exactly.</p> <p>3. Wear protective clothing appropriate for the chemical being used.</p> <p>4. Stop towing unit, set park brake and remove ignition key before servicing, repairing or adjusting.</p> <p>5. Place safety stands or blocks under frame before working on tire or running gear.</p> <p>6. Install the lights and reflectors required by local highway authorities before transporting.</p> <p>7. Securely attach to towing unit. Use a hardened pin with a mechanical retainer and attach the safety chains.</p>	<p>8. Securely tie down load before moving trailer.</p> <p>9. Maintain wheel bolts to specified torque.</p> <p>10. Do not exceed 20 mph (33kph). Slow down for corners and rough terrain.</p> <p>11. Shift towing unit to a lower gear before going down steep down grades to use engine as retarding force.</p> <p>12. Maintain proper brake setting at all times if so equipped.</p> <p>13. Do not drink and drive.</p> <p>14. Review safety instructions annually.</p>	<p></p> <p>RUN-AWAY HAZARD</p> <p>To Prevent serious injury or death:</p> <p>1. Shift to lower gear going down steep grades.</p> <p>2. Keep towing vehicle in gear at all times.</p> <p>3. Never exceed a safe travel speed.</p>	<p>Check wheel bolts daily. Tighten to specified torque.</p> <table><tr><th>size</th><th>ft. lbs.</th><th>(n.m.)</th></tr><tr><td>1/2 inch</td><td>80</td><td>110</td></tr><tr><td>9/16 inch</td><td>115</td><td>155</td></tr><tr><td>5/8 inch</td><td>220</td><td>305</td></tr></table> <p>Grease wheel bearings per manual</p>	size	ft. lbs.	(n.m.)	1/2 inch	80	110	9/16 inch	115	155	5/8 inch	220	305	<p>Agricultural chemicals can be dangerous. Improper selection of use can seriously injure persons, animals, plants, soil or other property. BE SAFE. Select the right chemical for the job. Handle it with care. Follow the instructions on the container label and instructions from the equipment manufacturer.</p>
size	ft. lbs.	(n.m.)															
1/2 inch	80	110															
9/16 inch	115	155															
5/8 inch	220	305															

REMEMBER - If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

4 OPERATION



OPERATING SAFETY

- Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or servicing. Review safety instructions with all users annually.
- Read and follow the chemical manufacturers' instructions on the handling, storage and disposal of chemicals before starting.
- Agricultural chemicals are among the most toxic substances known to man. Minute quantities can contaminate clothing, machinery, the workplace and the environment. Follow the chemical manufacturers' instructions exactly.
- Do not breathe, touch or ingest chemicals. Always wear protective clothing and follow safe handling procedures.
- Place all controls in neutral, stop engine, set park brake, remove ignition key before servicing, adjusting, repairing or maintaining.
- Do not allow riders on the Wagon or towing unit.
- Install and properly secure all guards and shields before operating.
- Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.
- Keep hands, feet, hair and clothing away from all moving parts.
- Clear the area of bystanders, especially small children, before moving.
- Securely attach to towing unit. Use a hardened pin with a mechanical retainer.
- Attach the safety chain by crossing the chains under the tongue and attaching securely to the draw-bar cage or bumper frame.
- Ensure that the SMV and all reflectors and lights required by the local transport authorities are in place and are clean and visible by overtaking or oncoming traffic.
- Do not exceed 20 mph (33 kph). Slowdown for corners and rough terrain.
- Shift towing unit to a lower gear before going down steep downgrades to use engine as retarding force. Keep towing vehicle in gear at all times.
- Maintain proper brake setting at all times if so equipped.
- Do not attempt to operate this equipment under the influence of drugs and/or alcohol.
- Support the Wagon with blocks or safety stands when changing tires or working beneath it.
- Follow good shop practices:
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.
- Turn on required flashing warning lights whenever traveling on a road or highway, except where such use is prohibited by law.

4.1 TO THE NEW OPERATOR OR OWNER

The Duo Lift Low Boy Wagon is designed for the mounting of fertilizer or chemical containers to it. It efficiently carries containers and chemical on the road or in the field.

Owner's Responsibility:

It is the responsibility of the owner or operator to read this manual and train all other operators before they start working with the Low Boy Wagon. Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to operate the Wagon.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel

involved in the operation, transport, maintenance and storage of equipment. It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the Wagon.

Many features incorporated into this Wagon are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the Wagon safely and how to set it to provide maximum efficiency. By following the operating instructions in conjunction with a good maintenance program, your Low Boy Wagon will provide many years of trouble-free service.

4.2 BREAK-IN

Although there are no operational restrictions on the Wagon when used for the first time, it is recommended that the following mechanical items be checked:

A. After traveling for 1/2 hour or going 5 miles (8 km):

1. Tighten wheel bolts to their specified torque levels. Refer to Section 8.2.
2. Check all nuts, bolts and other fasteners. Tighten to their specified torque level.
3. Check tire pressure. Bring to specified level.
4. Check the container mounting hardware. Tighten to the specified torque.
5. Check hubs for proper tightness. The spindle castle nuts are set at the factory but may need additional adjustment to ensure the bearings are seated properly.
6. Refer to trouble shooting section for any abnormal occurrences.
7. Check the container and tank crossmember. Be sure all components are in good condition. Tighten fasteners to specified torque, refer to 8.2.

B. After operating for 5 and 20 hours or 50 and 200 miles (80 and 320 km):

1. Repeat items 1 through 7 of Section A.
2. Then go to the regular service schedule as outlined in the Maintenance Section.

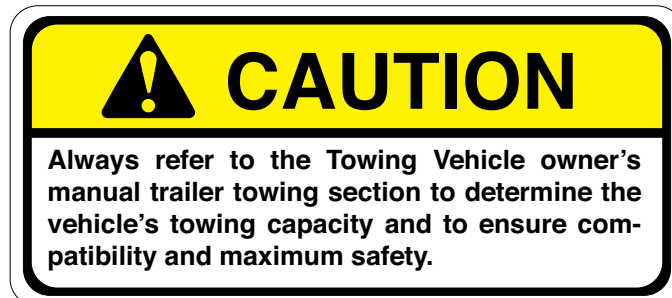
C. Repeat the torquing of wheel bolts after 5, 50 and 200 miles (8, 80 and 320 km) or whenever a wheel is removed and installed on the Wagon.

4.3 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Wagon requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both the personal safety and maintaining the good mechanical condition of the Wagon that this checklist is followed.

Before operating the Wagon and each time thereafter, the following areas should be checked off:

1. Lubricate the Wagon per the schedule outlined in Section 5 Service and Maintenance.
2. Use only a towing vehicle of adequate power and weight to pull the Wagon.
3. Securely attach to towing unit. Use a hardened pin with a mechanical retainer.
4. Attach the safety chains by crossing the chains under the tongue and attaching securely to the drawbar cage or bumper frame.
5. Check the tire pressure. Bring to specified level.
6. Check the wheel bolts. Tighten to their specified torque.
7. Check the container and tank crossmember. Be sure all components are in good condition. Tighten fasteners to specified torque, refer to 8.2.
8. Check the container and accessory equipment. Be sure that all components are in good condition and working properly.
9. Be sure that all lights, reflectors and SMV emblem required by the local highway authorities are installed, clean and in good working order.
10. Refer to: 2.2 PLUMBING SAFETY.



4.4 EQUIPMENT MATCHING

To insure the safe and reliable operation of the Low Boy Wagon, it is necessary that the Low Boy Wagon and bulk material container be matched and function as a complete unit.

Use the following list as a guide in selecting the container and towing vehicle to use with the unit:

1. Towing Vehicle:

a. Tractor:

The tractor used to tow the Wagon should be matched to the weight of the Wagon, the container and the chemical when the container is fully loaded. The wagon, the container and the chemical can not weigh more than 1.5 times the weight of the towing vehicle. This will insure adequate stability during transport and sufficient traction in hilly terrain or soft field conditions.

b. Truck:

Consult Owner Manual of towing vehicle to determine proper towing vehicle size and capacity.

2. Weight Capacity:

Each model is designed to carry a specified load. To insure that no components are overloaded, do not exceed the design specifications. To determine the total load, always combine the container and chemical weight. Refer to Table 1 to determine the load capacity for each model.

3. Container Attachment:

Attachment systems can be custom designed to match the container that will be used. Check with your dealer or distributor for an attachment system best suited for your application. Check the mounting hardware daily to insure that they stay tight. Follow fastener torque specification provided in 8.2.

4. Lighting and Marking:

It is the responsibility of the customer to know the lighting and marking requirements of the local highway authorities and to install and maintain the equipment to provide compliance with the regulations.

5. Drawbar Pin:

Use only a proper pin that has provisions to mechanically hold it in position.

6. Brakes (Optional):

If the Wagon is equipped with brakes, the customer must mount the appropriate controls at the operator's station. Refer to the instructions provided from the brake manufacturer.

Model	LBS.
LB1	23,000
LB1XL	23,000
LB1XLB	23,000
LB2	23,000
LB2XL	23,000
LB2XLB	23,000
LB1T	23,000
LB1TXL	23,000
LB1TXLB	23,000

Table 1: Load Capacity (G.V.W.R.)

4.5 ATTACHING/UNHOOKING

1. Clear the area of bystanders, especially small children.
2. Make sure there is enough room and clearance to safely back up to the unit.
3. Slowly back up to the Wagon while aligning with the hitch.



4. Raise the tongue, align the holes and install the pin.

IMPORTANT

Use only a proper 1 inch hitch pin with provisions for a mechanical retainer.



FIG. 1 ALIGNING

5. Securely attach to towing unit. Use a proper pin with a mechanical retainer.

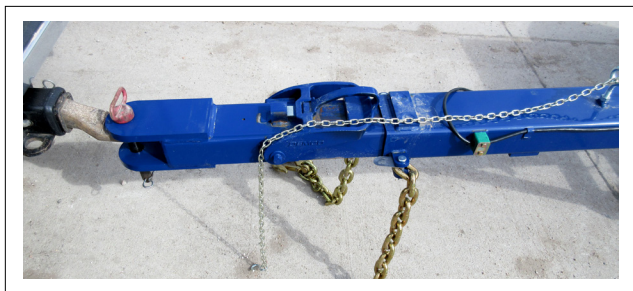


FIG. 2 PIN / RETAINER

6. Attach the safety chain by crossing the chains under the tongue and attaching securely to the draw-bar cage or bumper frame.



FIG. 2 PIN / RETAINER

7. If equipped with brakes, attach the brake emergency engage chain to the tow vehicle. If the Wagon should unhook from the tow unit, the chain will engage the brakes and stop the wagon if equipped with optional hydraulic brakes.



Brake Lock Out



Attached

FIG. 4 BRAKE EMERGENCY CHAIN

8. **If equipped with extra lights:**

Extend the plug and wiring harness over the hitch point and plug into the electrical outlet on the towing vehicle. Be sure the wiring harness does not drag on the ground and there is enough slack for turning.



FIG. 5 WIRING HARNESS



9. **Optional Brake Disengage:**

An optional hitch is available that locks out the brake and prevents it from engaging if the wagon is towed over a rough surface (in many fields). The brakes on the wagon are designed with exacting tolerances to perform as intended. When they encounter extreme vibration (rough ground), they momentarily wear the brake pads. To minimize this effect, this optional hitch is designed to lock out the brakes when transporting in the field. It is the responsibility of the operator to disengage the brakes when transporting in the field and engage them for road transport.

To lock out the brake:

- Lift the T Bar handle.
- Rotate 90° to place it in its disengaged ledge.
- When returning to the highway, lift slightly, rotate back 90° and rest the lock on the hitch.



FIG. 6 OPTIONAL BRAKE DISENGAGE

10. If equipped with chemical lines:

- a. Be sure all fittings and ends are clean before connecting.
- b. Connect and secure the lines. Follow equipment manufacturers' attachment instructions. (See Section 2.2)
- c. Use appropriate length transfer hose to fit your system. Do not allow hose to drag on the ground or be pinched while operating. If hose is not the proper length, replace it.

11. Remove blocks or chocks from the wheels.

12. Very carefully conduct a dry run turning test to ensure the entire system is compatible and safe for operation and pinching or pulling will not occur.

13. There are several different designs of Fertilizer applicators/toolbars. Always use proper equipment and fittings when designing your anhydrous ammonia delivery system. When assembling I connecting the anhydrous ammonia delivery system to the applicator/toolbar make sure the entire system is designed and plumbed properly to conform to Federal, State and local regulations. Use appropriate length of transfer hose to fit your system.

Refer to the following:

- **American National Standards Institute, Inc.**
(ANSI) 1819 L StreetNW, Washington, DC 20036
(202) 293-8020
- **Compressed Gas Association, Inc. (CGA)** 4221
Walney Road, 5th Floor, Chantilly, VA 20151 (703)
788-2700
- **State or Province Regulatory Enforcement Agency** with Jurisdiction Over: ANHYDROUS AMMONIA, FERTILIZERS AND OTHER CHEMICALS BEING USED
- **The Fertilizer Institute** 820 First St. NE
Washington, DC 20002- 4839 (202) 962-0490
- **ANSI/ASABE S620 American Society of Agricultural and Biological Engineers** Safety for Anhydrous Ammonia Application Equipment (269) 932-7015



WARNING

- Read chemical manufacturers' WARNINGS, instructions and procedures before starting and follow them exactly.
- Have a first-aid kit available for use should the need arise and know how to use it.
- Have a fire extinguisher available for use should the need arise and know how to use it.
- Wear appropriate protective gear. This list includes but is not limited to:
 - Protective chemical goggles
 - Respirator or filter mask
 - Neoprene gloves
 - Water repellent clothing
 - Rubber boots
 - Supply of fresh water as required by Safety Standard Regulations
- Turn on required flashing warning lights whenever traveling on roads or highways, except where such use is prohibited by law.
- Do not allow riders,
- Wear suitable ear protection for prolonged exposure to excessive noise.
- Place all controls in neutral, stop engine, set park brakes, remove ignition key before servicing, adjusting, repairing or maintaining.
- Clear the area of people, especially small children, before moving the unit.
- Review safety related items with all personnel who will be operating or maintaining the Wagon.



DANGER

CHEMICAL BURN HAZARD

To prevent serious injury or death:

- Conform to all Federal, State and Local Regulations before plumbing or handling of Anhydrous Ammonia or other Fertilizers.

Contact:

- American National Standards Institute, Inc. (ANSI)
1819 L StreetNW, Washington, DC 20036
(202) 293-8020
- Compressed Gas Association, Inc. (CGA)
4221 Walney Road, 5th Floor, Chantilly, VA 20151
(703) 788-2700
- State or Province Regulatory Enforcement Agency with Jurisdiction Over:
ANHYDROUS AMMONIA, FERTILIZERS AND OTHER CHEMICALS BEING USED
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- **ANSI/ASABE S620 American Society of Agricultural and Biological Engineers** Safety for Anhydrous Ammonia Application Equipment (269) 932-7015

4.6 FIELD OPERATION



OPERATING SAFETY

- Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting or servicing. Review safety instructions with all users annually.
- Read and follow the chemical manufacturers' instructions on the handling, storage and disposal of chemicals before starting.
- Agricultural chemicals are among the most toxic substances known to man. Minute quantities can contaminate clothing, machinery, the workplace and the environment. Follow the chemical manufacturers' instructions exactly.
- Do not breathe, touch or ingest chemicals. Always wear protective clothing and follow safe handling procedures.
- Place all controls in neutral, stop engine, set park brake, remove ignition key before servicing, adjusting, repairing or maintaining.
- Do not allow riders on the Wagon or towing unit.
- Install and properly secure all guards and shields before operating.
- Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.
- Keep hands, feet, hair and clothing away from all moving parts.
- Clear the area of bystanders, especially small children, before moving.
- Securely attach to towing unit. Use a hardened pin with a mechanical retainer.
- Attach the safety chain by crossing the chains under the tongue and attaching securely to the drawbar cage or bumper frame.
- Ensure that the SMV and all reflectors and lights required by the local transport authorities are in place and are clean and visible by overtaking or oncoming traffic.
- Do not exceed 20 mph (33 kph). Slowdown for corners and rough terrain.
- Shift towing unit to a lower gear before going down steep downgrades to use engine as retarding force. Keep towing vehicle in gear at all times.
- Maintain proper brake setting at all times if so equipped.
- Do not attempt to operate this equipment under the influence of drugs and/or alcohol.
- Support the Wagon with blocks or safety stands when changing tires or working beneath it.
- Follow good shop practices:
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.
- Turn on required flashing warning lights whenever traveling on a road or highway, except where such use is prohibited by law.
- Attachment systems can be custom designed to match the container that will be used. Check with your dealer or distributor for an attachment system best suited for your application. Check the mounting hardware daily to insure that it is kept tight. Follow fastener torque specification provided in 8.2.

Duo Lift Wagons are designed to efficiently move the product and container on the road or in the field. However, the operator has the responsibility of being familiar with all operating and safety procedures for the Wagon, the container and its chemical accessories. Each operator should review this manual at the start of the season and as often as required to be familiar with the unit.

WHEN USING, FOLLOW THIS PROCEDURE:

1. Review and follow the Pre-Operation Checklist.
2. Read and follow the chemical manufacturers' WARNINGS, instructions and procedures on specific chemical being used.
3. Attach the Wagon to the towing vehicle (See Section 4.5).
4. Review Section 4.7 before transporting.
5. All anhydrous ammonia tanks are required to be equipped with a fresh water supply tank. This tank is to be full of fresh water at all times, even if the ammonia tank is empty.
6. Do not allow riders on the towing vehicle, the tongue or the container at any time.
7. Provide extra clearance for the Wagon when turning. The Wagon will turn through a shorter turning radius than the towing vehicle.

8. Attachment systems can be custom designed to match the container that will be used. Check with your dealer or distributor for an attachment system best suited for your application. Check the mounting hardware daily to insure that it is kept tight. Follow fastener torque specification provided in 8.2.
9. Do not turn up the hill when traveling across a steep slope in the field. The pivoting of the front bolster affects the stability of the Wagon. If turns are required on a steep slope, it is better to turn down the hill rather than up.
10. If your Wagon is equipped with brakes, periodically check the adjustment and condition of the working components. They must be maintained in good working order to function effectively when needed.
11. Check the tightness of the wheel bolts on a regular basis. It is important that the bolts be kept tight. Once the Wagon is moved a few miles with loose bolts, the holes can become elongated. From that time on, the bolts seldom stay tight. The best way to correct this problem is to replace the rim. Prevent this costly repair by keeping the bolts tight.

NOTE

Over tightening the wheel bolts will deflect the inner bevel of the wheel. This will damage the wheel and cause the bolts to continually loosen.

12. Cross Frame Supports:

The wagon is designed to transport a wide variety of tanks for the customer. Each cross frame support is designed to be anchored in place on the frame with bolts. In this way, they can be moved to the required position and secured with their anchor bolts. Additional cross frame supports are available if required. Tank crossmembers are not optional, put them in the proper place.



FIG. 7 CROSS FRAME SUPPORTS (TYPICAL)

13. Options:

a. Step:

A bolt-on step is available that allows the operator to access the optional platform. Secure with its mounting bolts at the desired location along the frame.

b. Platform:

An optional bolt-on platform is available to provide a means for personnel to walk across the frame and inspect the other components. Although the platform can be mounted at any position along the frame, it is generally mounted at the front.



FIG. 8 STEP/PLATFORM

c. Brake Disengage Hitch:

An optional hitch is available that can be used to disengage the brakes when transporting in rough field conditions. The brakes must ALWAYS be available to be engaged when transporting on a road.



FIG. 9 BRAKE LOCK OUT

d. **Tank Leg Band**

Tank Leg Band: An optional wide tank leg band is available to anchor cylindrical tanks to the frame. Check frequently when new and tighten hardware if required to keep fasteners at their specified torque.



Wagon



Leg Band

FIG. 10 TANK LEG BAND



TRANSPORT SAFETY

- Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.
- Make sure the SMV (Slow Moving Vehicle) emblem and all lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
- Do not allow anyone to ride on the Wagon or towing vehicle during transport.
- Do not exceed 20 mph (33 kph). Reduce speed on rough roads and surfaces.
- Securely attach to towing unit. Use a hardened pin with a mechanical retainer.
- Attach the safety chain by crossing the chains under the tongue and attaching securely to the drawbar cage or bumper frame.
- Turn on required flashing warning lights whenever traveling on a road or highway, except where such use is prohibited by law.

4.7 TRANSPORTING

When transporting the Wagon, review and follow these instructions:

1. It is the responsibility of the customer to know the lighting and marking requirements of the local highway authorities. Install an SMV, reflectors and extra lights as required to comply with the regulations.
2. Clean the reflectors and check that the lights are in good working order before starting.
3. Securely attach to towing unit. Use a hardened pin with a mechanical retainer.
4. Attach the safety chain by crossing the chains under the tongue and attaching securely to the drawbar cage or bumper frame.
5. Attach the brake safety chain to the towing vehicle if equipped with the optional brake package.
6. If transporting during times of limited visibility or dusk, install extra lights or use pilot vehicles.
7. Do not allow riders on the tongue, the Wagon or the towing vehicle.
8. Never exceed a safe travel speed. Slow down for corners and rough road conditions.
9. Always shift to a lower gear when going down hills to use the engine as a retarding force.
10. Always keep drivetrain engaged when transporting. Do not depress clutch or take out of gear and coast down hills. Maintain control of vehicle.
11. Attachment systems can be custom designed to match the container that will be used. Check with your dealer or distributor for an attachment system best suited for your application. Check the mounting hardware daily to insure that it is kept tight. Follow fastener torque specification provided in 8.2.
12. Do not exceed 20 mph (33 kph). Reduce speed on rough roads and surfaces.
13. Consult owners manual of towing vehicle to determine proper towing vehicle size (capacity).
14. Be a safe and courteous driver. Anticipate what other drivers will do and drive accordingly.
15. Apply the brakes carefully to prevent jackknifing.



FIG. 11 WAGON (TYPICAL)

16. Apply brakes early. Extra distance will be required to stop the vehicle.
17. Leave extra distance between the car ahead of you to provide stopping space.



18. When towing with a tractor, never travel faster than 20 mph (33 kph). The ratio of tractor weight to the Wagon and container weight play an important role in defining acceptable travel speed. Table 2 summarizes the weight ratio to travel speed. Use it as a guide to determine a safe travel speed.
19. When the towing vehicle is other than a Farm Tractor always refer to the towing vehicle owners manual for towing capacity.
20. Swing wide when making corners as the Wagon will not follow in the tracks of the towing vehicle.
21. Do not attempt to operate this equipment under the influence of drugs and/or alcohol.

Table 2: Speed vs. Weight Ratio

Road Speed	Weight of fully equipped or loaded implement(s) relative to weight of towing vehicle
Up to 33 km/h (20 mph)	1 to 1 or less
Up to 16 km/h (10 mph)	2 to 1 or less
Do not tow	More than 2 to 1

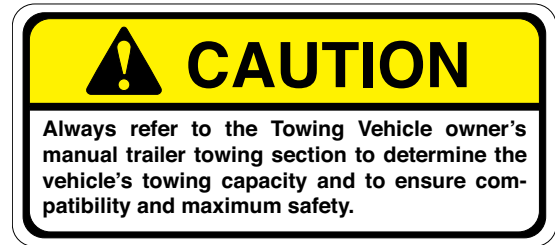


FIG. 12 TRANSPORTING

4.8 STORAGE



STORAGE SAFETY

- Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored Wagon.
- Store the unit in a dry, level area . Support the jack base with planks if required.

At the end of the season, the Wagon should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary down time at the beginning of the next season. Follow this procedure:

To insure a long, trouble free life, this procedure should be followed when preparing the unit for storage:

1. Clear the area of bystanders, especially small children.
2. Thoroughly wash the unit with a pressure washer or water hose to remove all dirt, mud, debris or residue.
3. Lubricate all grease fittings and bearings. Make sure all grease cavities have been filled with grease to remove any water residue from washing.
4. Inspect the Wagon, the container and any accessories mounted on it for any worn, damaged or failed components. Repair or replace as required.
5. Touch up all paint nicks and scratches to prevent rusting.
6. Move the Wagon to its storage area.
7. Select an area that is dry, level and free of debris. Inside a building is ideal.
8. Unhook from the tow vehicle (see Section 4.5).
9. Place chocks in front of and behind tires.
10. Store in an area away from human activity.
11. Do not allow children to play around the stored unit.



FIG. 13 STORED (TYPICAL)

5 SERVICE AND MAINTENANCE



MAINTENANCE SAFETY

- Review the Operator's Manual and all safety items before working with, maintaining or operating the Wagon.
- Support the Wagon with blocks or safety stands when changing tires or working beneath the Wagon.
- Follow good shop practices:
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.
- Use only tools, jacks and hoists of sufficient capacity for the job.
- Make sure all guards are in place and properly secured when maintenance work is completed.
- Keep hands, feet, hair and clothing away from moving or rotating parts.
- Clear the area of bystanders, especially small children, when carrying out any maintenance or repairs or making any adjustments.
- Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.

5.1.2 GREASING

Use the Maintenance Checklist provide to keep a record of all scheduled maintenance.

1. Use only a hand-held grease gun for all greasing.
2. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.
4. If a fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.
5. To re-pack bearings refer to "Specifications for Lubricating and Assembling Hubs for Far Implements" on page 28.

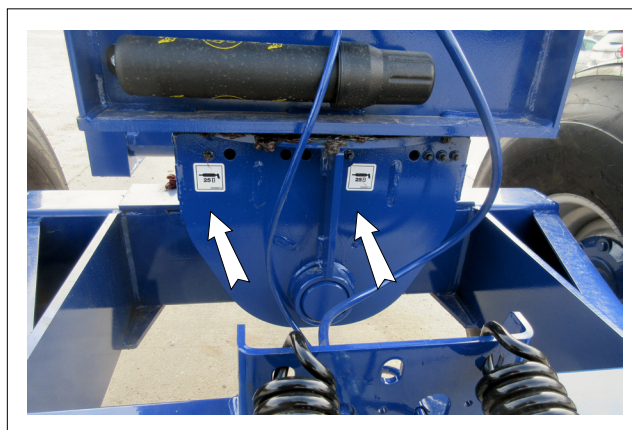


FIG. 14 5TH WHEEL PIVOT

5.1 SERVICE

5.1.1 FLUIDS AND LUBRICANTS

1. **Grease:**
Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multi-purpose lithium base grease.
2. **Storing Lubricants:**
Your Wagon can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, dirt, moisture and other contaminants.

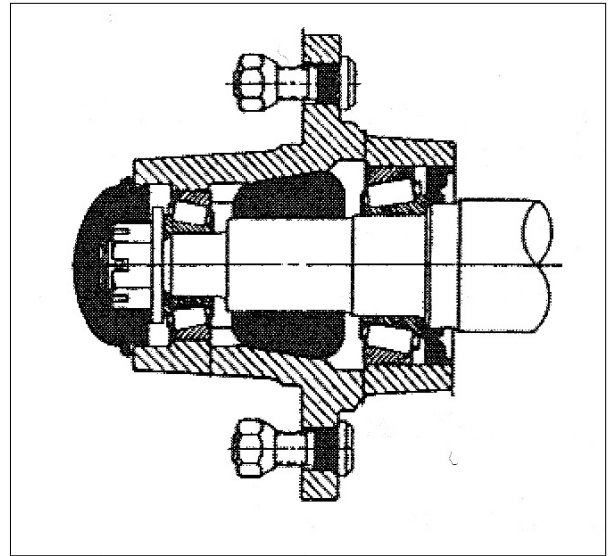
5.1.3 SPECIFICATIONS FOR LUBRICATING AND ASSEMBLING HUBS FOR FARM

Type of Grease: Lithium Complex Grease
Containing Molybdenum Disulfide

Examples: Mobilgrease
XHP 222 Special

Hub and Spindle Assembly Procedure:

- Inspect hub/cup assembly to assure cups are seated against shoulders in the tub.
- Wash bearings and completely flush between rollers using proper solvents.
- Use a bearing packer to insure correct placement of grease inside the bearings .
- Grease the inner cone and place it into the cup. **MAKE SURE IT IS STRAIGHT.**
- Install a new original factory grease seal using a plug to place pressure evenly around the seal. **SUPPORT THE SEAL SO YOU DON'T BEND THE CASE DURING INSTALLATION.**
- Pump grease into the hub cavity as indicated above. **DO NOT OVERFILL** because too much grease can cause the seal to fail or the dust cap to pop loose after assembly.
- Use grease to lubricate the seal lip.
- Place the spindle into the hub. Rotate the hub while installing to the spindle so the seal doesn't roll under. As the spindle goes into the inner cone, try to feel that the cone is not cocked and is properly seated on the spindle bearing journal.
- Grease the outer cone and place it over the spindle and into the cup.
- Assemble the washer and nut to the spindle. You may use an air wrench to bring the nut down to the cone, but the washer **MUST NOT CONTACT THE CONE** under power. A torque wrench must be used to make 1st contact to a torque reading of 15 ft. lbs. **ROTATE THE HUB WHILE TIGHTENING THE NUT.**
- Back off the nut until it just becomes loose.



Shading indicates the Recommended Amount of Grease

- While rotating the hub, retighten the nut to finger tight. line up the cotter pin hole in the spindle with the slot in the nut.
- Insert cotter pin and bend it. Fill hub cap with grease and install.

5.1.4 SERVICING INTERVALS

The period recommended is based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication or oil changes.

Weekly or 40 Hours

1. Lubricate 5th wheel pivot and rocker pin assembly using grease bank located as shown in Fig. 15.

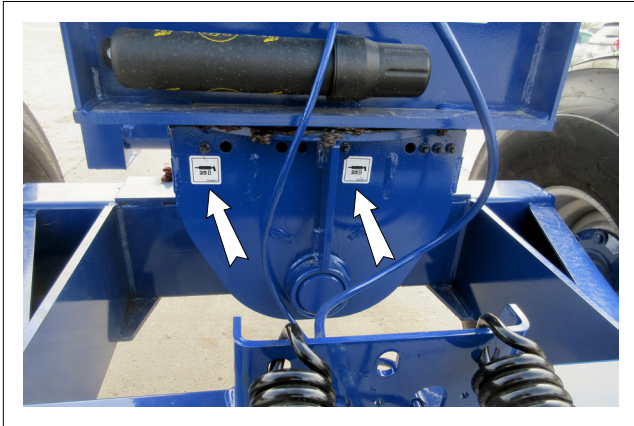


FIG. 15 5TH WHEEL PIVOT

Bi-Annually

1. Repack wheel bearings (Refer to Section 5.1.3).



FIG. 16 WHEEL HUBS (TYPICAL)

6 TROUBLE SHOOTING

The Duo Lift Wagon is designed to efficiently transport bulk material and its container to and in the field.

In the following Trouble Shooting section, we have listed many of the problems, causes and solutions that can help you to solve the problems that you might encounter.

If you encounter a problem that is difficult to solve, even after having read through this trouble shooting section, please call your local Duo Lift distributor or dealer. Before you call, please have the serial number of the Wagon and this Operator's Manual and the serial number of your Wagon at hand.

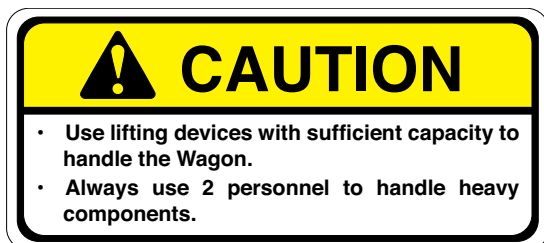
PROBLEM	CAUSE	SOLUTION
Wagon sways on road.	5th wheel worn.	Replace.
	Dry 5th wheel assembly.	Lubricate.
	Tire pressure too low.	Inflate to proper pressure.
	Uneven tire pressure.	Inflate all tires to the same pressure.
	Traveling too fast.	Slow down to 20 mph (33 kph).
	Bent axle or spindle.	Replace.
	Loose wheel bolts.	Tighten to specified torque.
Wagon pulls to one side.	Loosen or worn wheel bearings.	Tighten or replace.
	Uneven tire pressure.	Inflate to proper pressure.
	One brake is dragging.	Adjust brakes. Replace shoes if worn.
Tire wobbles.	Travelling too fast.	Slow down to 20 mph (33 kph).
	Pulling vehicle too light.	See Table 1 and change vehicles.
	Brake not working.	See brake manual for adjustment or replacement.
Bad tire wear.	Bent wheel.	Replace or repair.
	Loose wheel bolts.	Tighten to specified torque.
	Loose or worn wheel bearings.	Tighten or replace.
	Loose spindle nut.	Tighten or replace.
Excessive bearing wear.	Lack of lubrication.	Lubricate.
	Spindle nut is too tight or too loose.	Torque appropriately and insert cotter key (see Section 5.1.3)
	Bent spindle.	Replace.
	Dirt inside hub.	Replace seal and inspect dust cap.
	Moisture inside hub.	Use lithium based grease.
Trouble stopping.	Travelling too fast.	Slow down to 20 mph (33 kph).
	Pulling vehicle too light.	See Table 1 and change vehicles.
	Brake not working.	See brake manual for adjustment or replacement.

PROBLEM	CAUSE	SOLUTION
Bad tire wear.	Axle bent or out of line.	Replace or repair.
	Bent spindle.	Replace.
	Bent wheel.	Repair or replace.
	Tire pressure too low.	Inflate to proper pressure.
	Uneven tire pressure.	Inflate all tires to proper pressure.
	Travelling too fast.	Slow down to 20 mph (33 kph).
	Bad road conditions.	Slow down to 20 mph (33 kph).
Loss of grease in hub.	Bad seal.	Replace seal with new factory original seal.
	Spindle nut is too tight causing grease to heat.	Back off spindle nut 1 slot at a time until hub does not heat. Be sure to install cotter pin.
Grease leaks around seal.	Spindle nut is too tight causing bearings to heat up grease.	Back off spindle nut 1 slot at a time until hub does not heat. Be sure to install cotter pin.
	Bad seal.	Replace seal with new factory original seal.
	Wrong size seal.	Replace seal with new factory original seal. Refer to hub parts page in owner's manual for correct size and part number.
Hubs are breaking.	Tire size is too large for hub.	Be sure to match tires and wheels with the hubs. Too large of tire diameter may cause excessive side pressure on the hub and premature failure .
	Improper wheel offset.	Wheel offset is matched to the hub at the factory. After market wheels must also match the hub.
Hub is heating.	Spindle nut is too tight causing bearings to heat.	Back off spindle nut 1 slot at a time until hub does not heat. Be sure to install cotter pin.

7 SHIPPING AND ASSEMBLY

If the Wagon is shipped by truck, some assembly may be required before it can be used.

1. Clear the area of bystanders, especially small children.
2. Remove the tie down straps or chains **ONLY** from the portion of the load to be unloaded.
3. Use a forklift or hoist to unload and move the Wagon.



4. Raise the Wagon slightly and remove the tie down straps and dunnage.
5. Raise slightly above the base and back up slowly until the Wagon clears the truck.
6. Lower until the unit is just above the ground and move to storage or assembly area.
7. Attach tongue and secure.
8. Raise the frame and mount the wheels. Tighten wheel bolts to their specified torque.

NOTE

All wheel bolts are Grade 5. Refer to Section 8.2.



FIG. 17 LOADED TRUCK



Tongue

Tires

FIG. 18 ASSEMBLY

9. Mounting Tanks:

Special care and preparation must be taken to reduce the chance of problems during operation.

- a. Position the wagon in an area where all mobile pieces of equipment can maneuver to install tank.
- b. Measure the tank and wagon to be sure all the crossmember, tank and tie down dimensions are known. Measure to be sure.
- c. Loosen the crossmember fasteners and move the crossmember to their appropriate positions.
- d. Use an appropriately sized lifting unit to safely raise and move the tank into position.
- e. Lower tank into position on the frame and secure tank with grade 8 bolts and nuts.
- f. Tighten fasteners to their specified torque (Refer to 8.2).
- g. Tighten frame crossmember bolts to their specified torque (Refer to 8.2).
- h. Check fastener torque at 1,5 and 10 hours of operation to verify that they are at their specified torque.



FIG. 19 TANK INSTALLED

8 SPECIFICATIONS

8.1 MECHANICAL

MODEL	LB1 Series LB1* LB1XL LB1XLB	LB2 Series LB2* LB2XL LB2XLB	LBT Series LB1T* LB1TXL LB1TXLB
G.V.W.R:	23,000 IBS.	23,000 IBS.	23,000 IBS.
KING PIN:	2" SAE SEMI	2" SAE SEMI	2" SAE SEMI
HUBS:	8-BOLT	8-BOLT	8-BOLT
SPINDLE:	2.5"	2.5"	2.5"
WHEELS:	22.5 X 11.75 X 8-8	22.5 X 11.75 X 8-8	22.5 X 11.75 X 8-8

- Options:**
- 2 or 4 wheel electric or hydraulic brakes.
 - Adjustable tread width.
 - Various ground clearance.
 - Various tire sizes.
 - Desired wheel base.
 - Tires:
 - 11L x 15 8-ply, inflate to recommended PSI, printed on tire
 - 12.5L x 15 8-ply, inflate to recommended PSI, printed on tire
 - 12.5L x 15 10-ply, inflate to recommended PSI, printed on tire
 - 14L x 16.1 8-ply, inflate to recommended PSI, printed on tire
 - 16.5L x 16.10-ply, inflate to recommended PSI, printed on tire
 - 16.5L x 16.1, 14-ply, inflate to recommended PSI, printed on tire
 - 21.5L x 16.1 10 or 14 ply, inflate to recommended PSI, printed on tire
 - 385/65-22.5 Super Single Truck Tire, inflate to a maximum of 65 PSI
 - 425/65-22.5 Super Single Truck Tire, inflate to a maximum of 65 PSI
 - 445/65-22.5 Super Single Truck Tire, inflate to a maximum of 65 PSI
 - 445/50-22.5 Super Single Truck Tire, inflate to a maximum of 65 PSI
 - 11:00x22.5 Super Single Truck Tire, inflate to a maximum of 65 PSI
- NOTE: ALL 22.5 WHEELS HAVE A MAXIMUM PSI OF 65**
- Wheels:
 - 16.1 x 11
 - 16.1 x 14
 - 16.1 x 16
 - 16.1 x 18
 - 22.5 x 8.25, rim capacity 65 PSI
 - 22.5 x 11.75, rim capacity 65 PSI
 - 22.5 x 13, rim capacity 65 PSI
 - 22.5 x 13.5, rim capacity 65 PSI
 - 22.5 x 14, rim capacity 65 PSI

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

8.2 BOLT TORQUE

CHECKING BOLT TORQUE

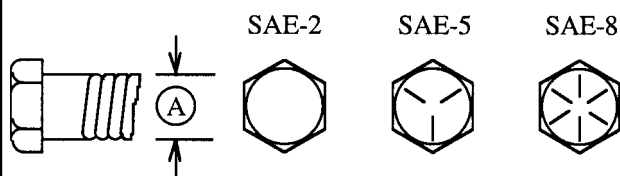
The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

ENGLISH TORQUE SPECIFICATIONS

Bolt Diameter "A"	SAE 2		SAE 5		SAE 8	
	N.m	(lb-ft)	N.m	(lb-ft)	N.m	(lb-ft)
1/4"	8	(6)	12	(9)	17	(12)
5/16"	13	(10)	25	(19)	36	(27)
3/8"	27	(20)	45	(33)	63	(45)
7/16"	41	(30)	72	(53)	100	(75)
1/2"	61	(45)	110	(80)	155	(115)
9/16"	95	(70)	155	(115)	220	(165)
5/8"	128	(95)	215	(160)	305	(220)
3/4"	225	(165)	390	(290)	540	(400)
7/8"	230	(170)	570	(420)	880	(650)
1"	345	(225)	850	(630)	1320	(970)

NOTE

Some connections are designed to pivot. Do not use these tables for torque specs in those situations.



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

* Torque value for bolts and capscrews are identified by their head markings.

8.3 TORQUE REQUIREMENTS

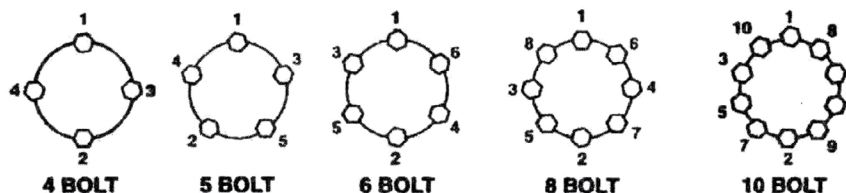
It is extremely important to apply and maintain proper wheel mounting torque on your Wagon axle. Torque is a measure of the amount of tightening applied to a fastener (nut or bolt) and is expressed as length times force. For example, a force of 90 pounds applied at the end of a wrench one foot long will yield 90 lbs./ ft of torque. Torque wrenches are the best method to assure the proper amount of torque is being applied to a fastener.

NOTE

Wheel nuts or bolts must be applied and maintained at the proper torque levels to prevent loose wheels, broken studs, and possible dangerous separation of wheels from your axle.

Be sure to use only the fasteners matched to the cone angle of your wheel (usually 60" or 90"). The proper procedure for attaching your wheels is as follows:

1. Start all bolts or nuts by hand to prevent cross threading.
2. Tighten bolts or nuts in the following sequence.
3. The tightening of the fasteners should be done in stages. Following the recommended sequence, tighten fasteners per wheel torque requirements diagram:



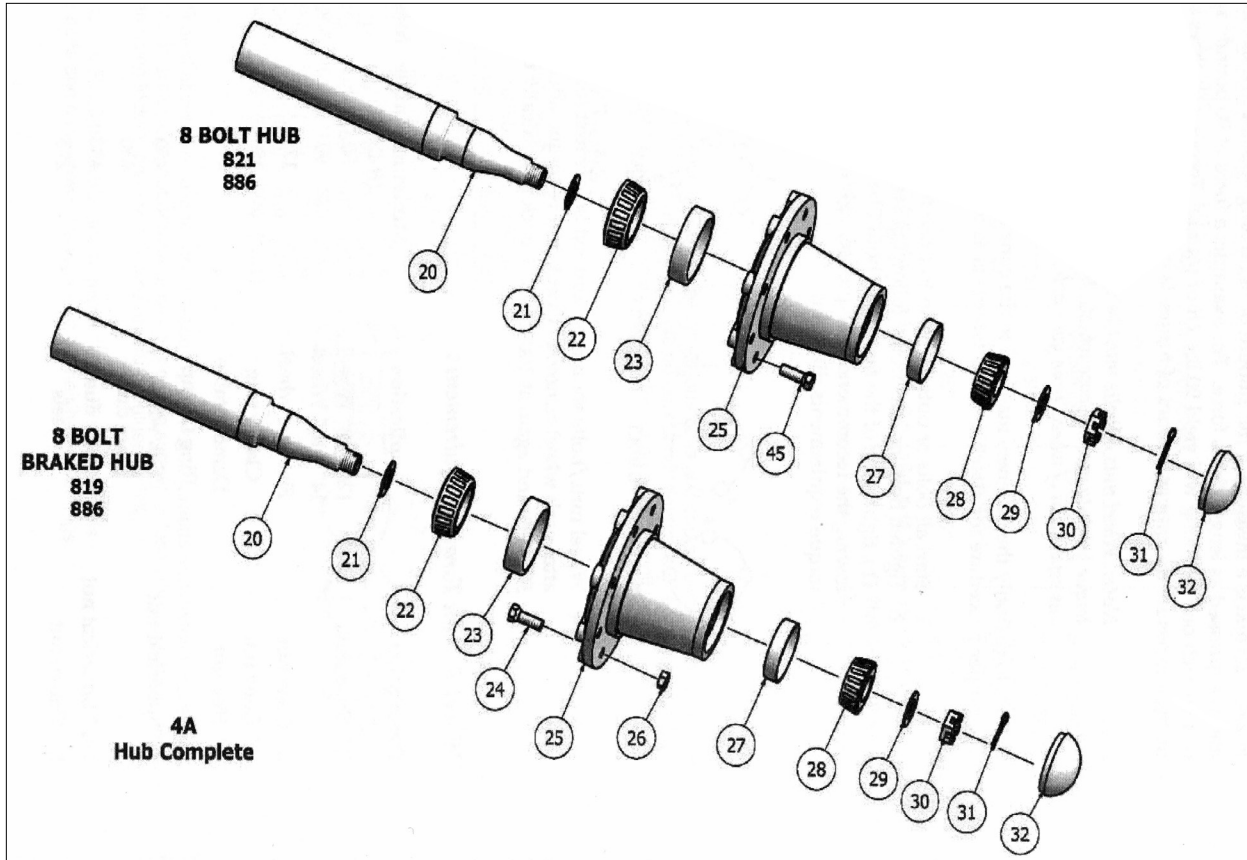
4. Wheel nuts/bolts should be torqued before first road use and after each wheel removal. Check and re-torque after the first 50 miles and again at 100 miles. Check periodically thereafter.

Wheel & Rim Torque Requirements

Description	Application	Minimum Torque (ft-lbs)	Maximum Torque (ft-lbs)
1/2" Cone nut	12" - 13" Wheel	50	65
	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	Sgl. wheel	450	500
	Inner dual	450	500
1-1/8" Spherical nut	Outer dual	450	500
3/8" Flange nut	Wheels	275	325

9 PARTS BOOK

9.1 EXPLODED VIEW - HUB



9.2 HUB AND SPINDLE PARTS LISTING

Hubs & Spindles 8-Bolt Ag

821 Hub:

8-Bolt on 8" Bolt Circle, 5,790 Lbs. Capacity Each

KEY	PART NO.	DESCRIPTION
4A	HB000047	821 Hub, Complete with All Parts, Wheel Studs Installed
4A	HB000206	821 Hub, Complete with All Parts, Wheel Studs Loose
25	HB000067	821 Hub with Cups Only
22	HB000077	Inner Bearing (3780)
28	HB000138	Outer Bearing (2790)
23	HB000076	Inner Cup (3720)
27	HB000170	Outer Cup (2720)
21	HB000051	Seal, 2.5" ID x 3.756" OD (CR25091)
32	HB000171	Dust Cap, 3.153" OD (P502001)
45	HB000195	Wheel Bolt, 9/16"-18 UNF x 1-1/2" (P101305)
**	800508	Spindle, 2.50" Dia. x 18" Long with Castle Nut, Washer, and Cotter Pin (821-1144)
20	SL000011	Spindle Only
**	800511	Spindle, 3.0" Dia. x 18" Long with Castle Nut, Washer, and Cotter Pin
20	SL000012	Spindle Only
30	SL000016	Castle Nut
29	SL000019	Washer
31	SL000014	Cotter Pin

819B Braked Hub: (821 Braked Version)

8-Bolt on 8" Bolt Circle, 5,790 Lbs. Capacity Each

KEY	PART NO.	DESCRIPTION
4A	HB000009	819 Hub, Complete with All Parts, Wheel Studs Installed
4A	HB000008	819 Hub, Complete with All Parts, Wheel Studs Loose
25	HB000211	819 Hub with Cups Only
22	HB000077	Inner Bearing (3780)
28	HB000138	Outer Bearing (2790)
23	HB000076	Inner Cup (3720)
27	HB000170	Outer Cup (2720)
21	HB000051	Seal, 2.5" ID x 3.756" OD (CR25091)
32	HB-000171	Dust Cap, 3.153" OD (P502001)
24	HB000017	Wheel Stud Bolt, Drive-In, 9/16"-18 UNF x 2-1/8" (P151403)
26	HB000018	Wheel Nut, 9/16"-18 UNF x 1" (P201604)
**	800509	Spindle, 2.50" Dia. x 18" Long with Castle Nut, Washer, Cotter Pin, and Brake Flange (S819-1144)
20	800542	Spindle with Brake Flange Only
**	800511	Spindle, 3.0" Dia. x 18" Long with Castle Nut, Washer, Cotter Pin, and Brake Flange (S819-1144)
20	800543	Spindle with Brake Flange Only
30	SL000016	Castle Nut
29	SL000019	Washer
31	SL000014	Cotter Pin

9.2 HUB AND SPINDLE PARTS LISTING

Hubs & Spindles 8-Bolt Ag

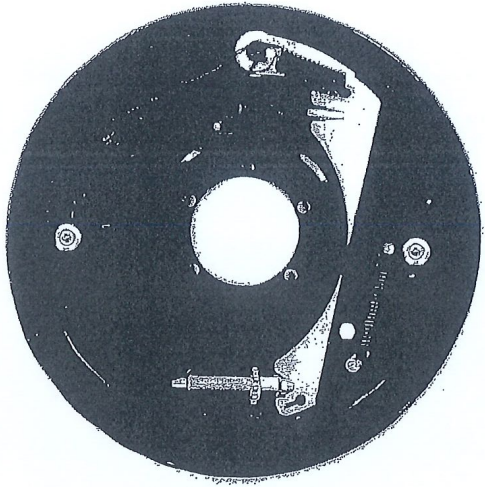
LB-2900

886B Braked and Non-Braked Hub:

8-Bolt on 8" Bolt Circle, 8,000 Lbs. Capacity Each

KEY	PART NO.	DESCRIPTION
4A	HB000011	886 Hub, Complete with all Parts, Wheel Studs Installed
4A	HB000010	886 Hub, Complete with all Parts, Wheel Studs Loose
22	HB000128	Inner Bearing (387AS)
28	HB000129	Outer Bearing (2793)
23	HB000140	Inner Cup (382A)
27	HB000170	Outer Cup (2720)
21	HB000078	Seal (P602201)
32	HB000171	Dust Cap, 3.153" OD (P502001)
24	HB000121	Wheel Stud Bolt, Drive-In, 5/8"-18 UNF x 2 1/2" (P151403)
26	HB000132	Wheel Nut, 5/8"-18 UNF (P201601)
**	800539	Spindle, 3.25" Dia. x 18" Long with Castle Nut, Washer, and Cotter Pin
**	800512	Spindle, 3.25" Dia. x 18" Long with Castle Nut, Washer, Cotter Pin, and Brake Flange (S886-1144)
20	800538	Spindle with Braked Flange Only
**	SL000013	Spindle Only
30	SL000016	Castle Nut
29	SL000019	Washer
31	SL000014	Cotter Pin
**	BR000010	Brake Flange

9.3. OPTIONS



**RIGHT HAND HYDRAULIC SURGE BRAKE
CLUSTER**

13" FREE BACKING

PO BR000008

PO BR000452

**LEFT HAND HYDRAULIC SURGE BRAKE
CLUSTER**

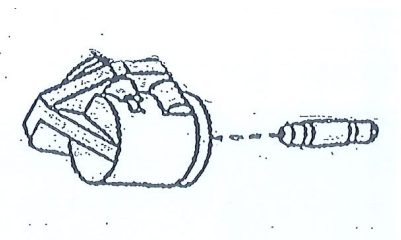
PO BR000004

SINGLE AXLE BRAKE LINE KIT

PO BR000532

TANDEM AXLE BRAKE LINE KIT

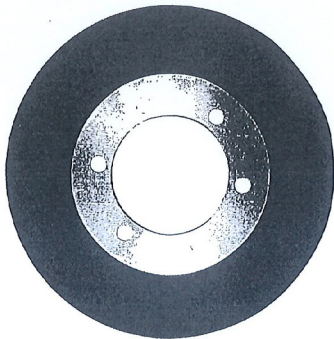
PO BR000531



WHEEL CYLINDER KITS

RIGHT HAND KIT PO BR000452

LEFT HAND KIT PO BR000451



HYDRAULIC BRAKE DRUM

13"

PO BR000007

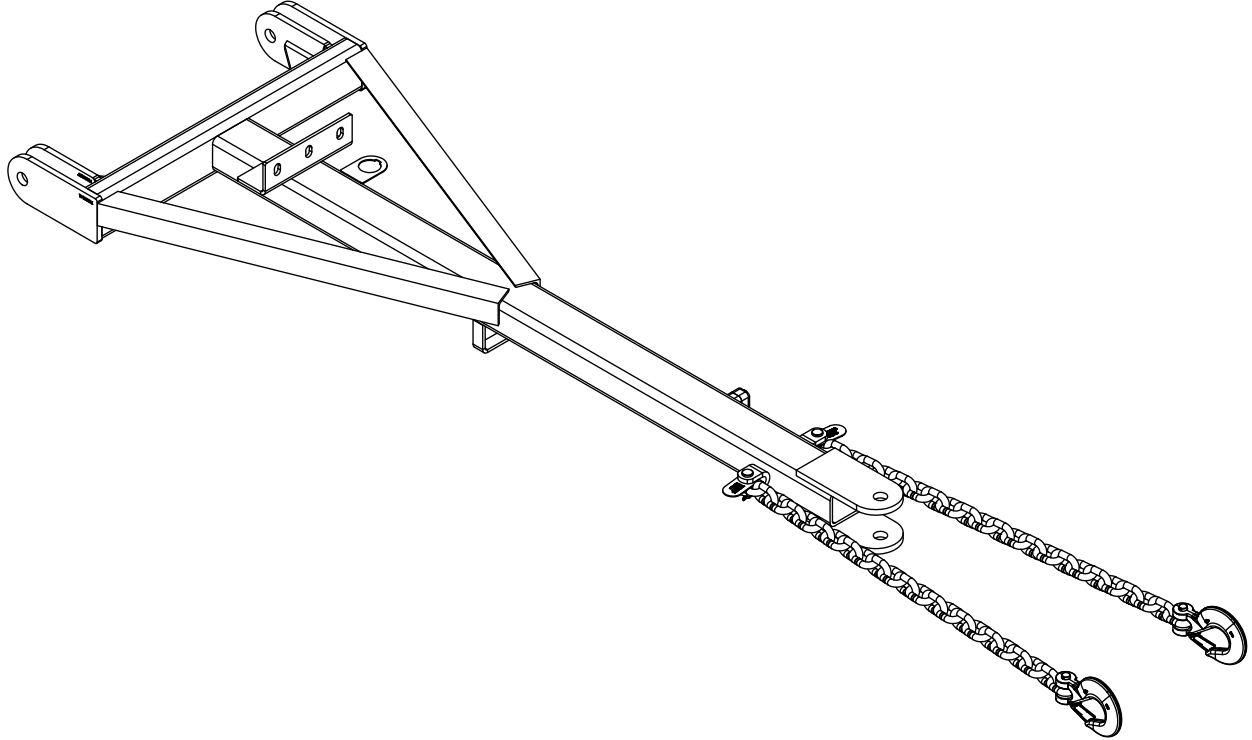


MANUAL CANISTER

12"L X 2 1/2" O.D.

PO: DE000060

9.4 STANDARD HEAVY DUTY TONGUE KIT PARTS LIST



 OWNERS MANUAL		DESCRIPTION	
		STANDARD HEAVY DUTY TONGUE KIT	
REVISION	A	PART NUMBER	800040

29 MASTER CYLINDER KIT
PO ET00052

9 TONGUE LATCH SPRING
PO ET000008

23 LATCH PIN ASSEMBLY
PO ET000010

22 TONGUE LOCK HANDLE
PO ET000011

25 TONGUE INSERT
ET000009

9.4.1 BRAKED HEAVY DUTY EXTENSION TONGUE PARTS LIST

BRAKED
PO 800435

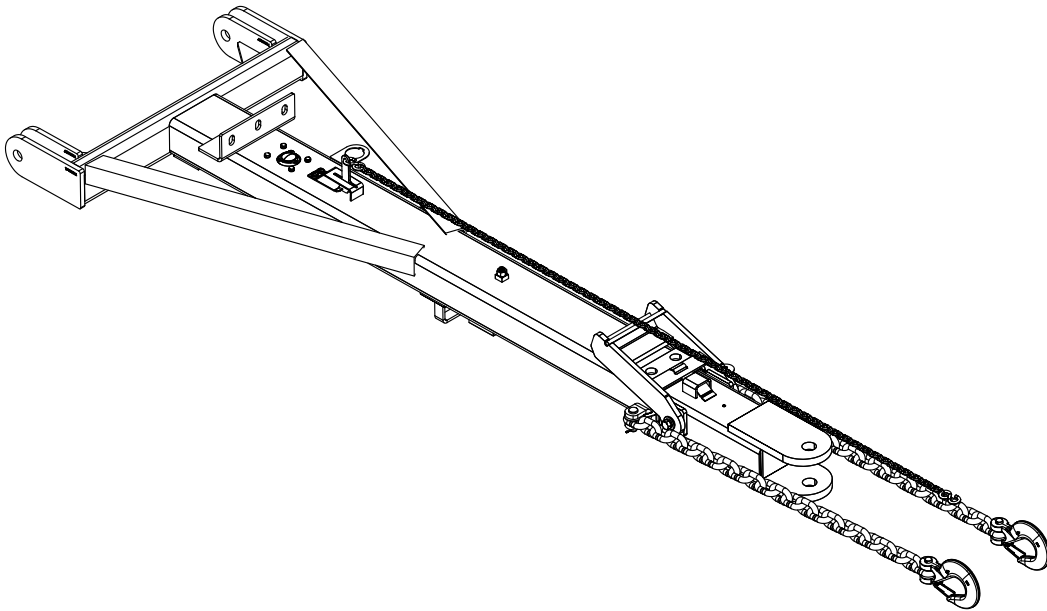
29 MASTER
CYLINDER KIT
PO ET00052

9 TONGUE LATCH
SPRING
PO ET000008

23 LATCH PIN AS-
SEMBLY
PO ET000010

22 TONGUE LOCK
HANDLE
PO ET000011

25 TONGUE INSERT
ET000009



 OWNERS MANUAL	DESCRIPTION HEAVY DUTY EXTENSION TONGUE (BRAKED) KIT	
	REVISION A	PART NUMBER 800435

9.4.2 NON-BRAKED HEAVY DUTY EXTENSION TONGUE PARTS LIST

NON-BRAKED
PO 800436

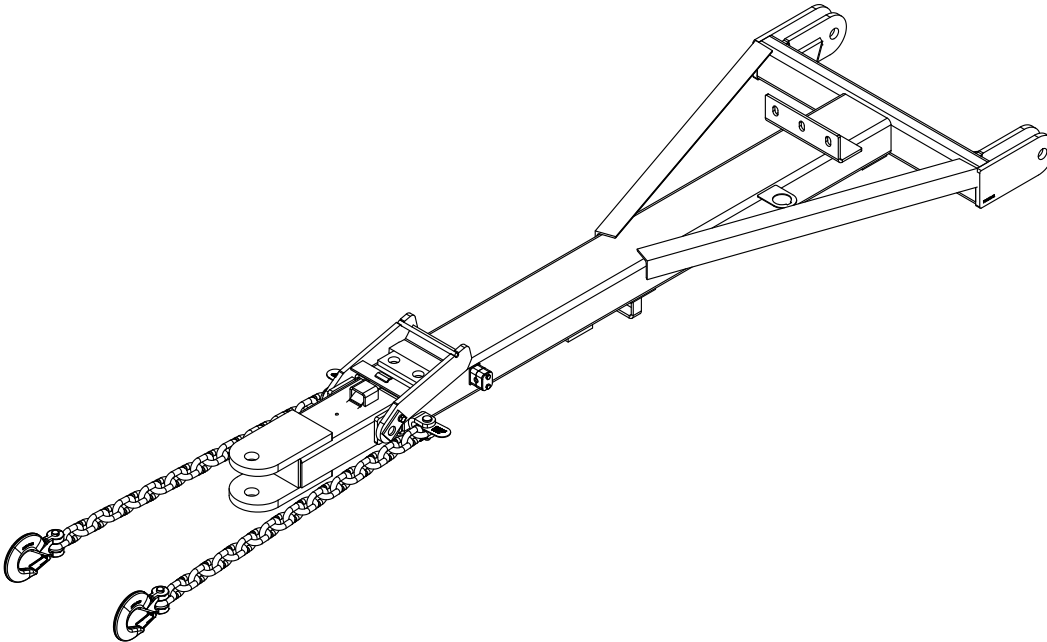
29 MASTER
CYLINDER KIT
PO ET00052

9 TONGUE LATCH
SPRING
PO ET000008

23 LATCH PIN AS-
SEMBLY
PO ET000010

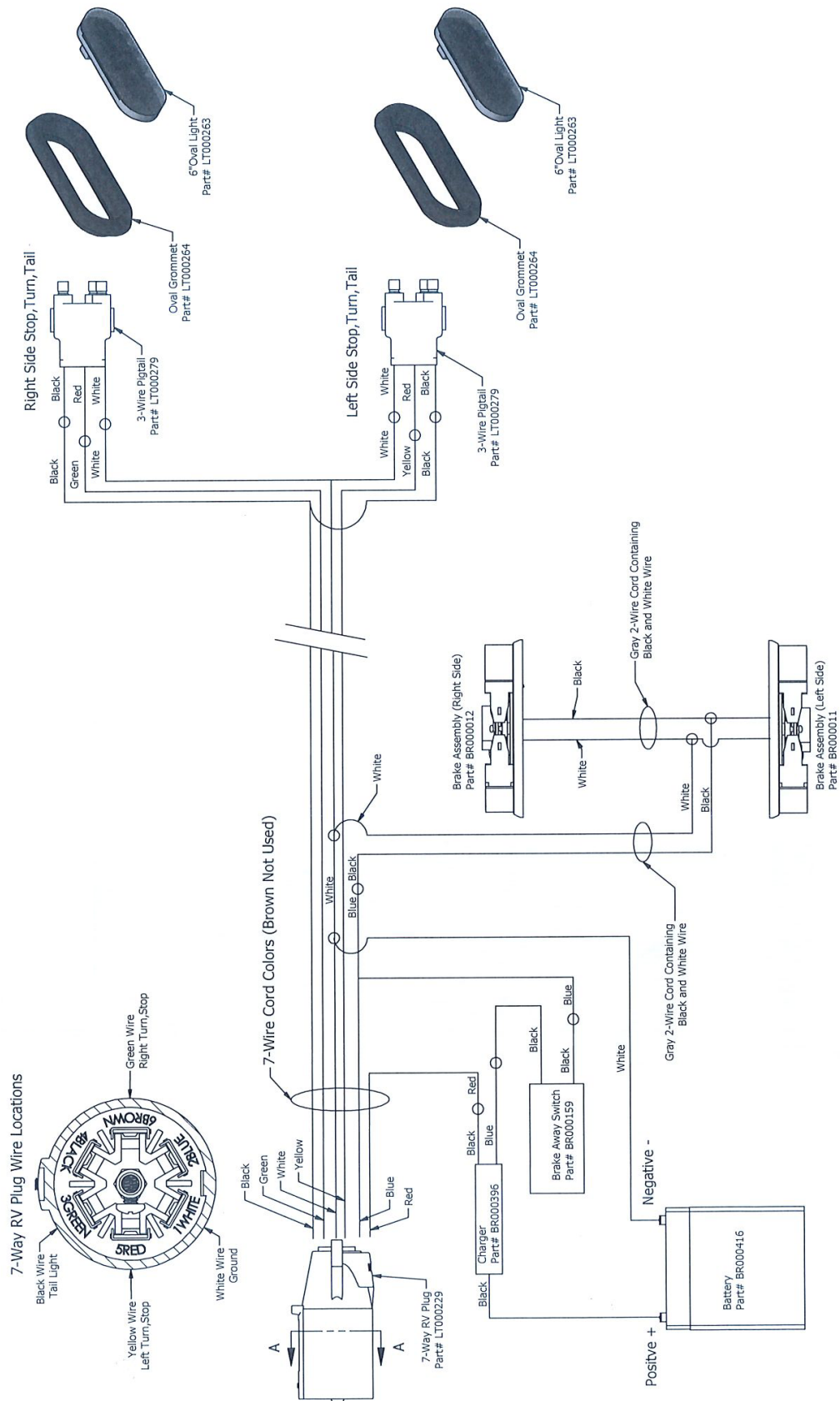
22 TONGUE LOCK
HANDLE
PO ET000011

25 TONGUE INSERT
ET000009

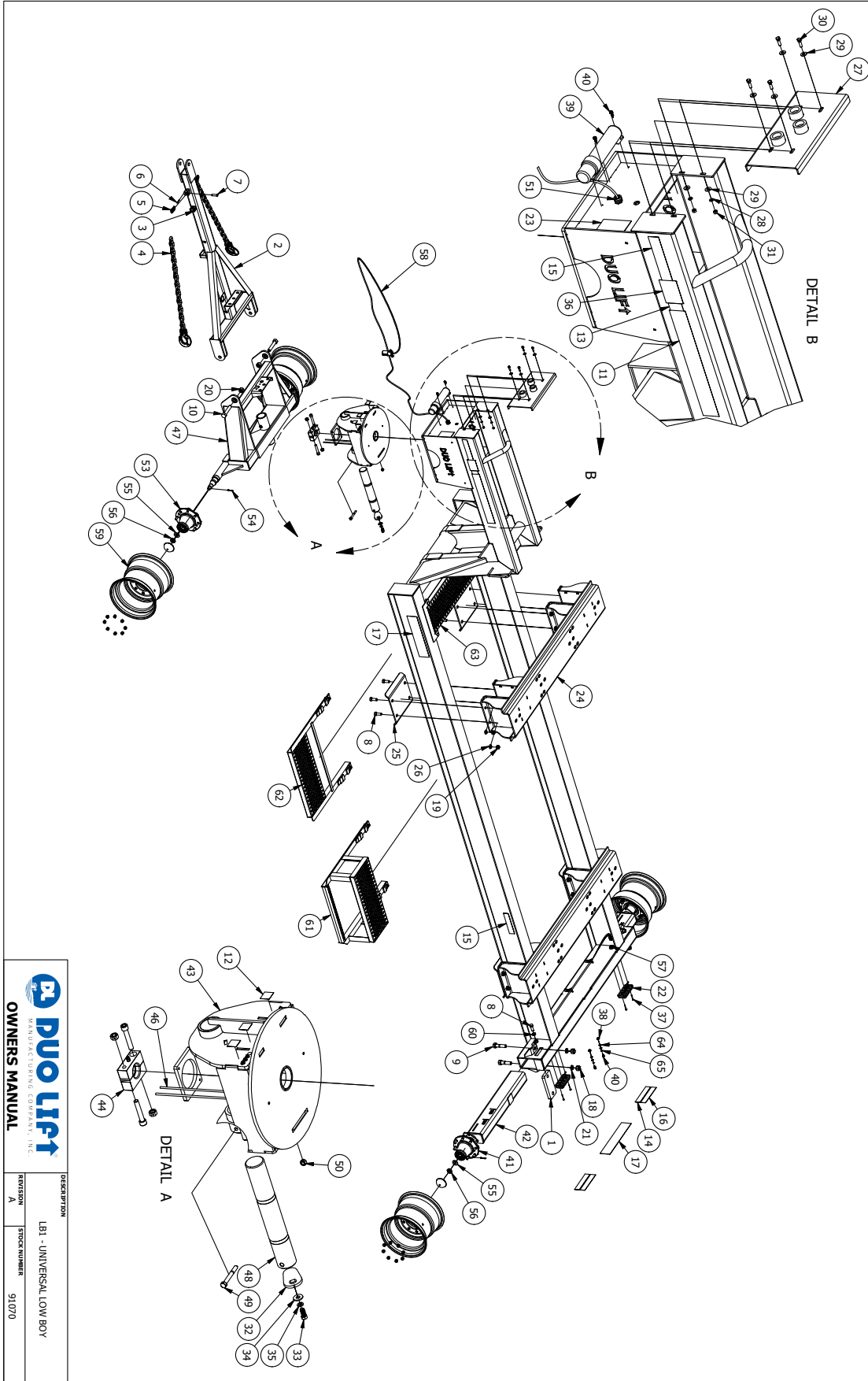


 OWNERS MANUAL	DESCRIPTION HEAVY DUTY EXTENSION TONGUE (NON-BRAKED) KIT	
	REVISION A	PART NUMBER 800436

9.5 WIRE SCHEMATIC FOR LOW BOYS WITH LIGHTS AND BRAKES



9.6 LB1 UNIVERSAL LOW BOY PARTS LIST

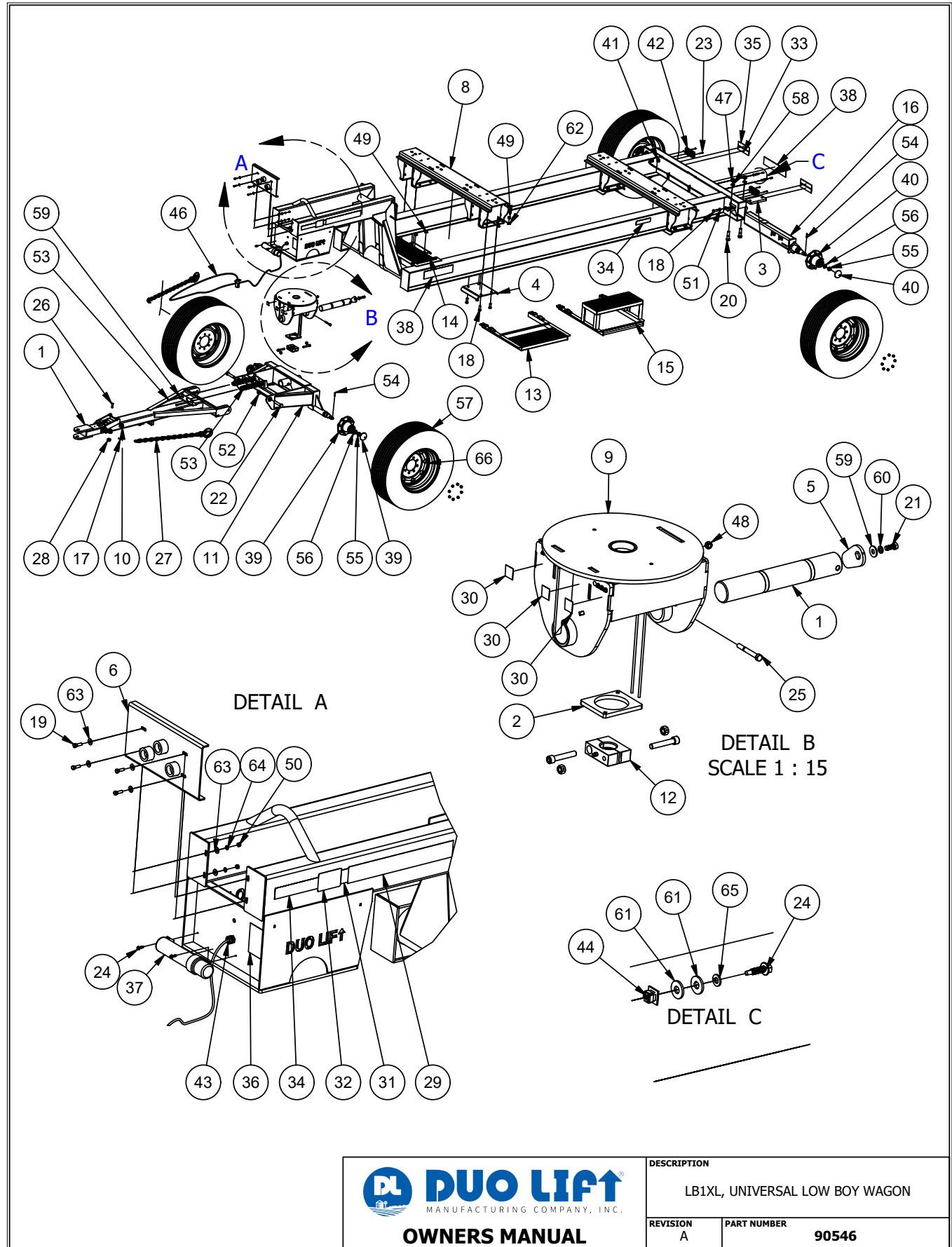


DUO LIFT [®] MANUFACTURING COMPANY, INC. OWNERS MANUAL		
DESCRIPTION	REVISION	STOCK NUMBER
LB1 - UNIVERSAL LOW BOY	A	91070

9.6 LB1 UNIVERSAL LOW BOY PARTS LIST

OWNERS MANUAL PARTS LIST			
ITEM	STOCK NUMBER	QTY	DESCRIPTION
1	70002614	2	LB1 TIE PLATE
2	800040	1	TONGUE HEAVY DUTY STND
3	MI000285	1	CLAMP, 1/4, WELD PLATE
4	CH000029	2	SAFETY CHAIN, 1/2 X 40, GR 70
5	CH000030	2	SAFETY CHAIN, ID TAG, 25,000 LBS.
6	BT000027	2	COTTER PIN, 1/8 X 1-1/4
7	BT0000306	2	PIN, 9/16 X 2, ZP, CLEVIS
8	BT000031	18	BOLT, 3/4-10 X 2, ZP, GR 5
9	BT000076	4	BOLT, 1-8 X 4, YZ, GR 8
10	BT000185	2	BOLT, 1-8 X 5, YZ, GR 8
11	DE000010	1	DECAL DANGER/WARN/CAUT SS-104
12	DE000012	3	DECAL GREASE W-103-M
13	DE000025	1	DECAL FARM EQUIPMENT MFG ASSOCIATION 1.5" X 2.5"
14	DE000045	2	DECAL, AG CONSP TAPE, RED, 9 X 2
15	DE000046	4	DECAL, YELLOW REFLECTIVE TAPE, 9 X 2
16	DE000047	2	DECAL, AG CONSP TAPE, ORANGE, 9 X 2
17	DE000057	3	DUO-LIFT MFG 4" X 18" DECAL
18	NT000001	4	NUT, 1"-8, ZP, GR 5
19	NT000012	16	NUT, 3/4-10, ZP, GR A
20	NT000065	2	NUT, 1"-8, YZ, GR 8, LOCK, NYLON
21	WA000001	4	WASHER, 1", ZP, EXTERNAL TOOTH, LOCK
22	LT000359	2	LIGHT, RED LED STOP\TURN\TAIL LAMP,
23	DE000050	1	DECAL, DANGER CHEMICAL BURN HAZZARD, LB-104
24	78000852	2	UNIVERSAL ADJ TANK MOUNT HAT CHANNEL WELDMENT
25	70005626	4	LB1 CROSS MEMBER CLAMP PLATE
26	WA000006	16	WASHER, 3/4, ZP, EXTERNAL TOOTH, LOCK
27	78000148	1	LOW BOY BULKHEAD W/ 1-1/4 PIPE COUPLINGS
28	WA000009	4	WASHER, 3/8, ZP, LOCK
29	WA000008	8	WASHER, 3/8, ZP, FLAT
30	BT000037	4	BOLT, 3/8-16 X 1-1/4, ZP, GR 5
31	NT000015	4	NUT, 3/8-16, ZP, GR5
32	70008990	1	ROCKER BOX PIN RETAINING FLAG
33	BT000105	1	BOLT, 1/2-13 X 1-1/4, ZP, GR 5
34	WA000003	1	WASHER, 1/2, ZP, FLAT
35	WA000004	1	WASHER, 1/2, ZP, SPLIT, LOCK
36	DE000018	1	DECAL, DESIGNED & MFG BY DUO LIFT, SILVER, 3.25 x 4.75
37	BT000219	4	SCREW, 12-24 X 2, HEX SELF TAP, #5
38	LT000395	2	RETAINER, LICENSE PLATE, 1/4" (#14), PLASTIC
39	DE000053	1	MANUAL CANISTER, SMALL
40	BT000223	4	SCREW, 1/4"-14 X 1" HEX SELF TAP
41	HB000010	1	HUB, 886, COMPLETE (SEE PAGE 36)
42	801819	1	LB1, LB1XL, LB1XLB 4X6 STRUT LESS HUB
43	800434	1	ROCKER BOX LB2200/2900/N200 THRU N2900 W/GREASE BANK
44	800536	1	KINGPIN LOCK ASSY
45	70001595	1	PLATE KING PIN, ROCKER BOX
46	HY000187	7 FT	GREASE LINE
47	800442	1	LB 2200 Front Axle
48	70000287	1	ROCKER BOX PIN
49	BT000234	1	BOLT, 1/2-13 X4, YZ, GR 8
50	NT000004	1	NUT, 1/2"-13, ZP, GR A, REVERSE LOCK
51	LT000387	1	CORD LOCK, .375-.437 X 1/2 NPT
52	LT000410	1	CONDUIT LOCK NUT
53	HB000008	2	HUB, 819, COMPLETE (SEE PAGE 36)
54	SL000014	2	PIN, 3/16 X 1-1/2, ZP, COTTER
55	SL000019	2	WASHER, 1", BLACK OXIDE, FLAT
56	SL000016	2	NUT, 1-14, PLAIN, SLOTTED
57	LT000335	2	CONDUIT, 2 SCREW CLAMP
58	LT000415-LB1	1	LIGHT HARNESS
59	WH000015	4	WHEEL, 16.1 X W14CH, 8 HOLE, 8" B.C., 6.005" P.H., 1.50" OUTSET
60	NT000058	2	NUT, 3/4-10, ZP, GR 5, JAM
61	801322	1	PLATFORM SIDE STEP BOLT ON LB 1
62	800636	1	LOW BOY SIDE PLATFORM, BOLT ON, 15" WIDE X 36" LONG WITH EXPANDED METAL
63	800781	1	LOWBOY BOLT ON CATWALK
64	WA000005	4	WASHER, 1/4", ZP, USS FLAT
65	WA000014	2	WASHER LOCK, 1/4", ZP, MEDIUM SPLIT

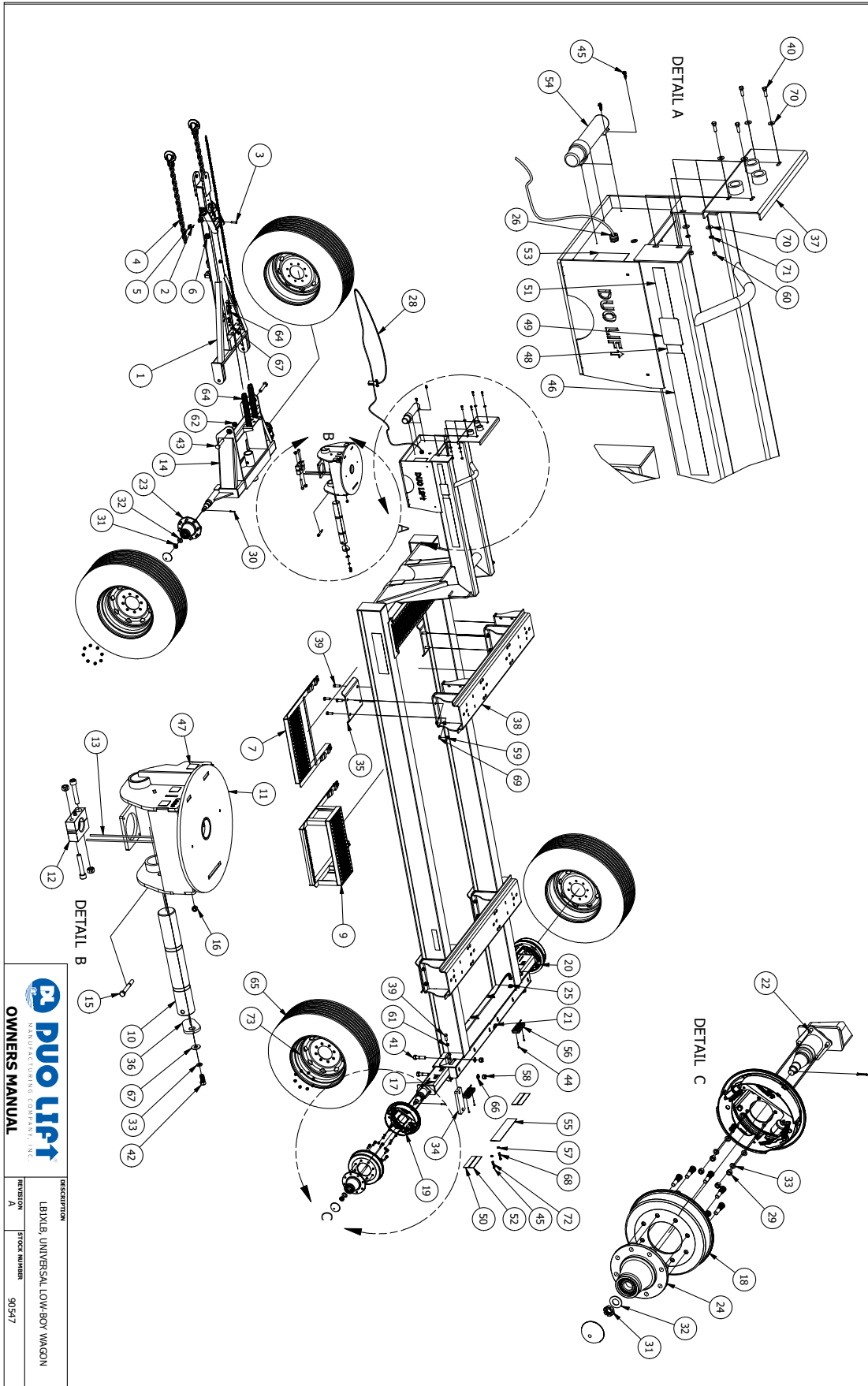
9.7 LB1XL UNIVERSAL LOW BOY PARTS



9.7 LB1XL UNIVERSAL LOW BOY PARTS

PARTS LIST			
ITEM	PART NUMBER	OWNERS MANUAL DESCRIPTION	QTY
1	70000287	ROCKER BOX PIN	1
2	70001595	PLATE KING PIN, ROCKER BOX	1
3	70002614	LB1 AXLE TIE PLATE	2
4	70005626	CLAMP PLATE	4
5	70008990	ROCKER BOX PIN RETAINING FLAG	1
6	78000148	LOW BOY BULKHEAD WELDMENT	1
7	78000633	LOWBOY UNIVERSAL FRAME WELDMENT	1
8	78000852	UNIVERSAL ADJ TANK MOUNT HAT CHANNEL WELDMENT	2
9	800434	ROCKER BOX W/GREASE BANK	1
10	800436	HD TONGUE EXT, NON-BRAKED	1
11	800442	LB FRONT AXLE ASSEMBLY	1
12	800536	KINGPIN LOCK ASSY	1
13	800636	LOW BOY SIDE PLATFORM KIT, BOLT ON	1
14	800781	LOWBOY BOLT ON CATWALK KIT	1
15	801322	PLATFORM SIDE STEP KIT, BOLT ON	1
16	801819	LB1, LB1XL, LB1XLB STRUT LESS HUB	2
17	BT000027	COTTER PIN, 1/8 X 1-1/4	2
18	BT000031	BOLT, 3/4-10 X 2, ZP, GR 5	18
19	BT000037	BOLT, 3/8-16 X 1-1/4, ZP, GR 5	4
20	BT000076	BOLT, 1-8 X 4, YZP, GR8	4
21	BT000105	BOLT, 1/2-13 X 1-1/4, ZP, GR 5	1
22	BT000185	BOLT, 1-8 X 5, YZ, GR 8	2
23	BT000219	SCREW, 12-24 X 2, HEX SELF TAP, #5	4
24	BT000223	SCREW, 1/4"-14 X 1" HEX SELF TAP	4
25	BT000234	BOLT, 1/2-13 X4, YZ, GR 8	1
26	BT000306	CLEVIS PIN	2
27	CH000029	SAFETY CHAIN	2
28	CH000030	SAFETY CHAIN ID TAG	2
29	DE000010	DECAL DANGER/WARN/CAUT SS-104	1
30	DE000012	DECAL, GREASE	3
31	DE000025	DECAL FARM EQUIPMENT MFG ASSOCIATION	1
32	DE000026	DECAL, DUO LIFT SMALL SILVER	1
33	DE000045	DECAL, RED CONSPICUITY TAPE, 9 X 2	2
34	DE000046	DECAL, YELLOW CONSPICUITY TAPE, 9 X 2	4
35	DE000047	DECAL, ORANGE CONSPICUITY TAPE, 9 X 2	2
36	DE000050	DECAL, DANGER CHEMICAL BURN HAZZARD	1
37	DE000053	MANUAL CANISTER, SMALL	1
38	DE000057	DECAL, DUO-LIFT MFG	3
39	HB000008	HUB, 819, COMPLETE	2
40	HB000010	HUB, 886, COMPLETE	2
41	LT000335	CONDUIT, 2 SCREW CLAMP	2
42	LT000359	LIGHT, RED LED STOP/TURN/TAI LAMP	2
43	LT000387	CORD LOCK	1
44	LT000395	LICENSE PLATE RETAINER	2
45	LT000410	CONDUIT LOCK NUT	1
46	LT000415-LB1	LIGHT HARNESS	1
47	NT000001	NUT, 1"-8, ZP, GR 5	4
48	NT000004	NUT, 1/2"-13, ZP, GR A, REVERSE LOCK	1
49	NT000012	NUT, 3/4"-10, ZP, GR A	16
50	NT000015	NUT, 3/8-16, ZP, GR5	4
51	NT000058	NUT, 3/4-10, ZP, GR 5, JAM	2
52	NT000065	NUT, 1"-8, YZ, GR 8, LOCK, NYLON	2
53	SG000043	2" EXTENSION SPRING ASSEMBLY	2
54	SL000014	COTTER PIN, 3/16 X 1 1/2	4
55	SL000016	SLOTTED NUT, 1-14	4
56	SL000019	FLAT WASHER, 1"	4
57	UT000020	385/65R 22.5 SUPER SINGLE TIRE	4
58	WA000001	WASHER, 1", ZP, EXTERNAL TOOTH, LOCK	4
59	WA000003	WASHER, 1/2, ZP, FLAT	3
60	WA000004	WASHER, 1/2, ZP, SPLIT, LOCK	1
61	WA000005	WASHER, 1/4", ZP, FLAT	4
62	WA000006	WASHER, 3/4", ZP, EXTERNAL TOOTH, LOCK	16
63	WA000008	WASHER, 3/8", ZP, FLAT	8
64	WA000009	WASHER, 3/8", ZP, LOCK	4
65	WA000014	WASHER LOCK, 1/4", ZP, MEDIUM SPLIT	2
66	WH000071	WHEEL, 11.75 x 22.5, 8 BOLT, 8" BC, 6" PILOT, SILVER	4

9.8 LB1XLB UNIVERSAL LOW BOY PARTS

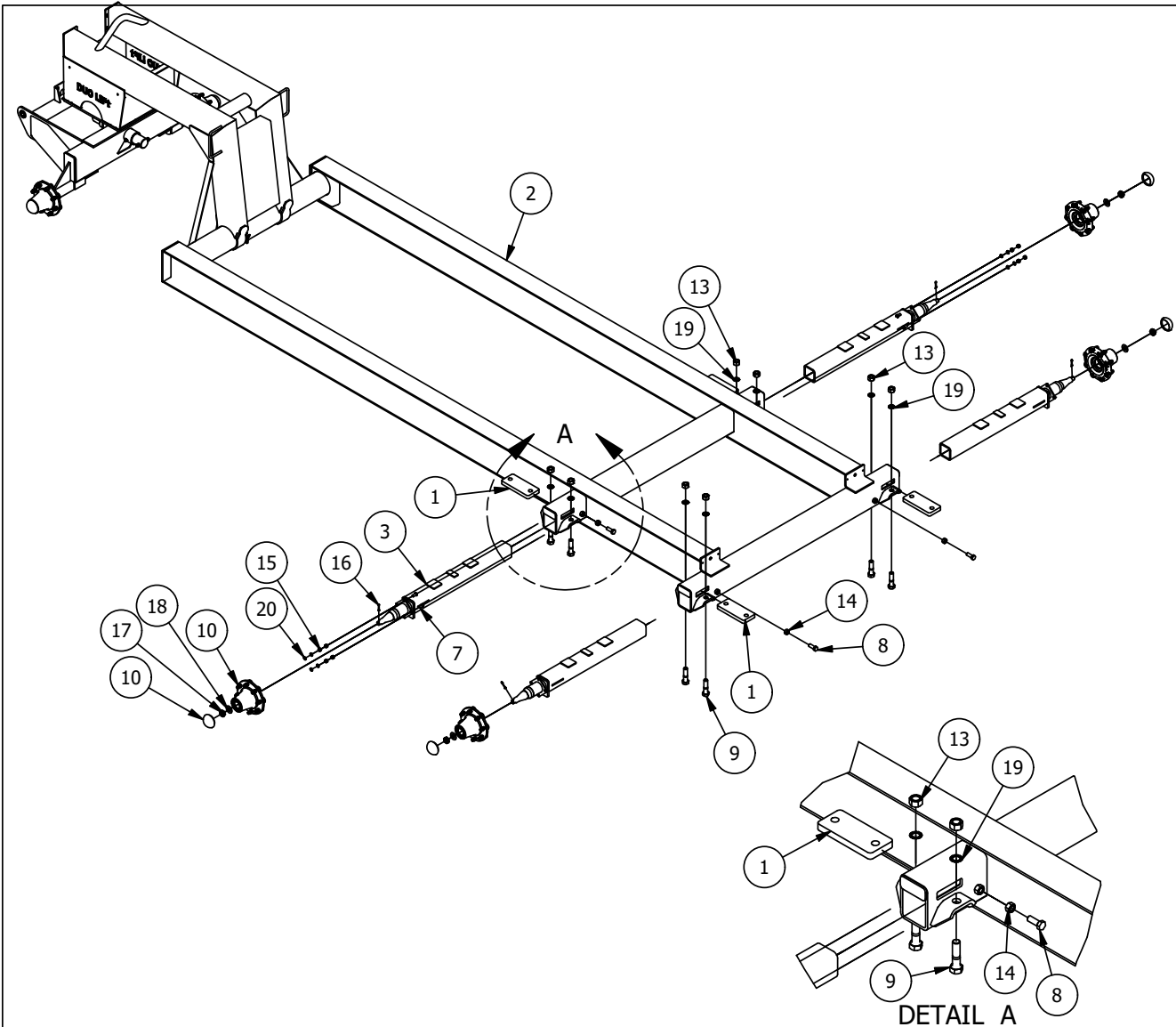





9.8 LB1XLB UNIVERSAL LOW BOY PARTS

OWNERS MANUAL PARTS LIST			
ITEM	STOCK NUMBER	QTY	DESCRIPTION
1	800435	1	TONGUE EXT DEMCO BRAKED
2	BT000027	2	COTTER PIN, 1/8 X 1-1/4
3	BT000306	2	PIN, 9/16 X 2, ZP, CLEVIS
4	CH000029	2	SAFETY CHAIN, 1/2 X 40, GR 70
5	CH000030	2	SAFETY CHAIN, ID TAG, 25,000 LBS.
6	MI000285	1	CLAMP, 1/4, WELD PLATE
7	800636	1	LOW BOY SIDE PLATFORM, BOLT ON, 15" WIDE X 36" LONG WITH EXPANDED METAL
8	800781	1	LOWBOY BOLT ON CATWALK
9	801322	1	PLATFORM SIDE STEP BOLT ON LB 1
10	70000287	1	ROCKER BOX PIN
11	800434	1	ROCKER BOX LB2200/2900/N200 THRU N2900 W/GREASE BANK
12	800536	1	KINGPIN LOCK ASSY
13	HY000187	7 FT	GREASE LINE
14	800442	1	LB 2200 Front Axle
15	BT000234	1	BOLT, 1/2-13 X4, YZ, GR 8
16	NT000004	1	NUT, 1/2"-13, ZP, GR A, REVERSE LOCK
17	801819	2	LB1, LB1XL, LB1XLB 4X6 STRUT LESS HUB
18	BR000007	2	DEMCO, 13" BRAKE DRUM, 8 HOLE, 8" B.C., 5.75" P.H.
19	BR000008	1	DEMCO, 13" HYDRAULIC BRAKE CLUSTER LEFT
20	BR000009	1	DEMCO, 13" HYDRAULIC BRAKE CLUSTER RIGHT
21	BR000530	1	BRAKE LINE KIT
22	BT000017	8	BOLT, 1/2-20 X 1, YZP, GR8
23	HB000008	2	HUB, 819, COMPLETE (SEE PAGE 36)
24	HB000010	2	HUB, 886, COMPLETE (SEE PAGE 36)
25	LT000335	2	CONDUIT, 2 SCREW CLAMP
26	LT000387	1	CORD LOCK, .375-.437 X 1/2 NPT
27	LT000410	1	CONDUIT LOCK NUT
28	LT000415-LB1	1	LIGHT HARNESS
29	NT000028	8	NUT, 1/2-20, ZP, GRADE A
30	SL000014	4	PIN, 3/16 X 1-1/2, ZP, COTTER
31	SL000016	4	NUT, 1-14, PLAIN, SLOTTED
32	SL000019	4	WASHER, 1", BLACK OXIDE, FLAT
33	WA000004	9	WASHER, 1/2, ZP, SPLIT, LOCK
34	70002614	2	LB1 TIE PLATE
35	70005626	4	LB1 CROSS MEMBER CLAMP PLATE
36	70008990	1	ROCKER BOX PIN RETAINING FLAG
37	78000148	1	LOW BOY BULKHEAD W/ 1-1/4 PIPE COUPLINGS
38	78000852	2	UNIVERSAL ADJ TANK MOUNT HAT CHANNEL WELDMENT
39	BT000031	18	BOLT, 3/4-10 X 2, ZP, GR 5
40	BT000037	4	BOLT, 3/8-16 X 1-1/4, ZP, GR 5
41	BT000076	4	BOLT, 1-8 X 4, YZ, GR 8
42	BT000105	1	BOLT, 1/2-13 X 1-1/4, ZP, GR 5
43	BT000185	2	BOLT, 1-8 X 5, YZ, GR 8
44	BT000219	4	SCREW, 12-24 X 2, HEX SELF TAP, #5
45	BT000223	4	SCREW, 1/4"-14 X 1" HEX SELF TAP
46	DE000010	1	DECAL DANGER/WARN/CAUT SS-104
47	DE000012	3	DECAL GREASE W-103-M
48	DE000025	1	DECAL FARM EQUIPMENT MFG ASSOCIATION 1.5" X 2.5"
49	DE000026	1	DECAL DE&MAN BY DL 2.25"X4.75" DUO LIFT SMALL SILVER DECAL
50	DE000045	2	DECAL, AG CONSP TAPE, RED, 9 X 2
51	DE000046	4	DECAL, YELLOW REFLECTIVE TAPE, 9 X 2
52	DE000047	2	DECAL, AG CONSP TAPE, ORANGE, 9 X 2
53	DE000050	1	DECAL, DANGER CHEMICAL BURN HAZZARD, LB-104
54	DE000053	1	MANUAL CANISTER, SMALL
55	DE000057	3	DUO-LIFT MFG 4" X 18" DECAL
56	LT000359	2	LIGHT, RED LED STOP/TURN/TAIL LAMP,
57	LT000395	2	RETAINER, LICENSE PLATE, 1/4" (#14), PLASTIC
58	NT000001	4	NUT, 1"-8, ZP, GR 5
59	NT000012	16	NUT, 3/4-10, ZP, GR A
60	NT000015	4	NUT, 3/8-16, ZP, GR5
61	NT000058	2	NUT, 3/4-10, ZP, GR 5, JAM
62	NT000065	2	NUT, 1"-8, YZ, GR 8, LOCK, NYLON
63	SG000043	2	2" EXTENSION SPRING W/ 1/2-13 NUT INSERT, AND 1/2-13 X 6" FULL THREAD GRADE 8 PLATED BOLTS
64	BT000288	2	1/2"-13 X 6" SAE J429 GRADE 8 YELLOW ZINC FINISH, FULLY THREADED
65	UT000020	4	385/65R 22.5 USED SUPER SINGLE TIRE
66	WA000001	4	WASHER, 1", ZP, EXTERNAL TOOTH, LOCK
67	WA000003	3	WASHER, 1/2, ZP, FLAT
68	WA000005	4	WASHER, 1/4", ZP, USS FLAT
69	WA000006	16	WASHER, 3/4, ZP, EXTERNAL TOOTH, LOCK
70	WA000008	8	WASHER, 3/8, ZP, FLAT
71	WA000009	4	WASHER, 3/8, ZP, LOCK
72	WA000014	2	WASHER LOCK, 1/4", ZP, MEDIUM SPLIT
73	WH000071	4	FIRA INDUSTRIALE, 11.75 x 22.5, 8 BOLT, 8" BC, 6" PILOT, SILVER

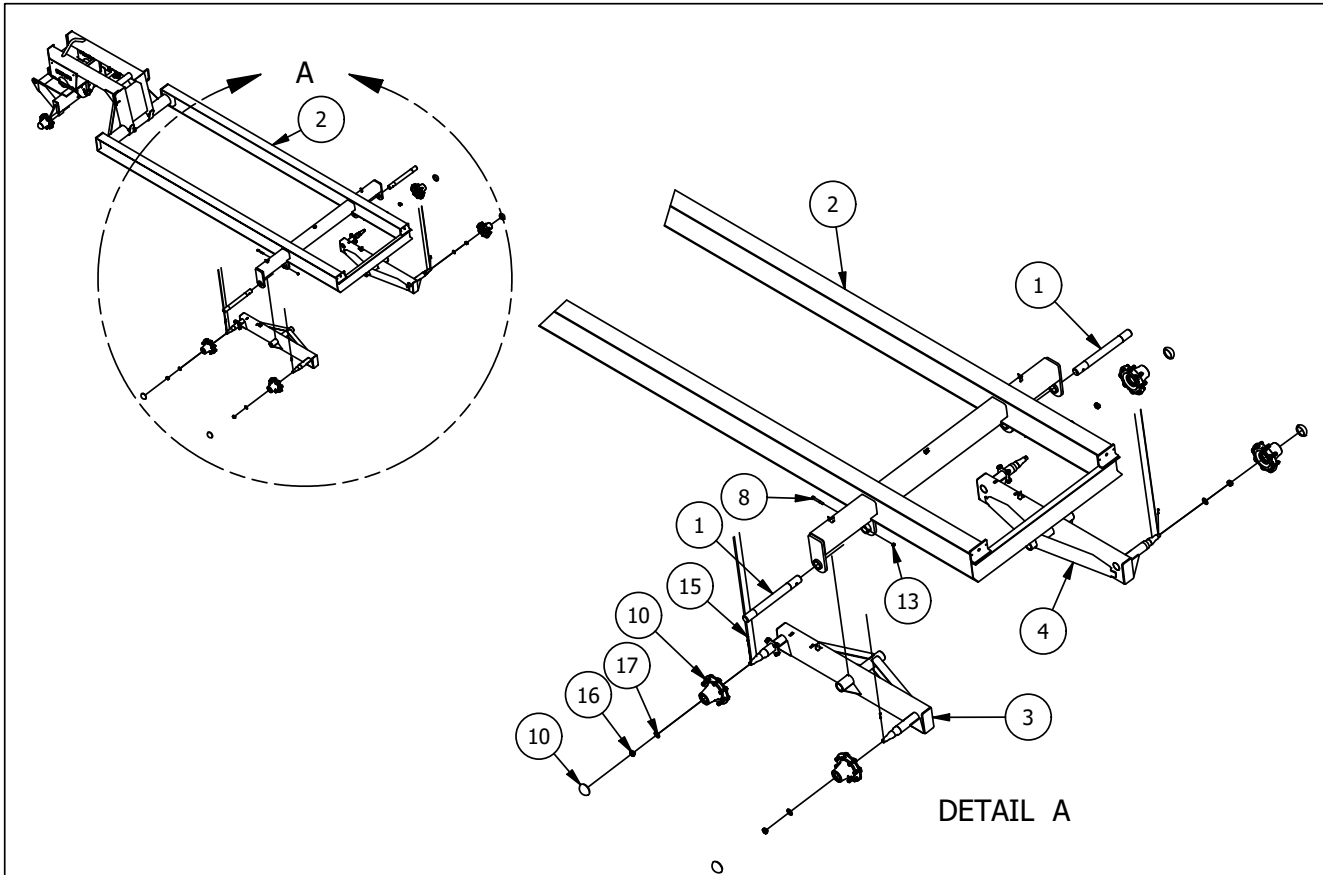
9.9 LB1TB LOW BOY PARTS LIST




10	HB000010	HUB, 886, COMPLETE	6	20	WA000004	WASHER, 1/2, ZP, SPLIT, LOCK	8
9	BT000076	BOLT, 1-8 X 4, YZP, GR8	8	19	WA000001	WASHER, 1", ZP, EXTERNAL TOOTH, LOCK	8
8	BT000031	BOLT, 3/4-10 X 2, ZP, GR 5	4	18	SL000019	FLAT WASHER, 1"	6
7	BT000017	BOLT, 1/2"-20 X 1, YZP, GR8	8	17	SL000016	SLOTTED NUT, 1-14	6
6	BR000009	13" HYDRAULIC BRAKE CLUSTER RIGHT	1	16	SL000014	COTTER PIN, 3/16 X 1 1/2	6
5	BR000008	13" HYDRAULIC BRAKE CLUSTER LEFT	1	15	NT000028	NUT, 1/2"-20, GR A, ZP	8
4	BR000007	13" BRAKE DRUM, 8 HOLE, 8" B.C., 5.75" P.H.	2	14	NT000012	NUT, 3/4"-10, ZP, GR A	4
3	801831	LB1TB STRUT	4	13	NT000001	NUT, 1"-8, ZP, GR 5	8
2	78001350	LB1T FRAME	1	12	LT000410	CONDUIT LOCK NUT	1
1	70002614	LB1 AXLE TIE PLATE	4	11	LT000387	CORD LOCK	1

ITEM	PART NUMBER	OWNERS MANUAL DESCRIPTION	QTY	ITEM	PART NUMBER	OWNERS MANUAL DESCRIPTION	QTY
PARTS LIST				PARTS LIST			
 OWNERS MANUAL				DESCRIPTION			
				LB1TB			
				REVISION	PART NUMBER		
				A	801830		

9.10 LB2XLB LOW BOY PARTS LIST



18	WA000004	WASHER, 1/2, ZP, SPLIT, LOCK	8
17	SL000019	FLAT WASHER, 1"	6
16	SL000016	SLOTTED NUT, 1-14	6
15	SL000014	COTTER PIN, 3/16 X 1 1/2	6
14	NT000028	NUT, 1/2"-20, GR A, ZP	8
13	NT000004	NUT, 1/2"-13, ZP, GR A, REVERSE LOCK	2
12	LT000410	CONDUIT LOCK NUT	1
11	LT000387	CORD LOCK	1
10	HB000008	HUB, 819, COMPLETE	6
9	BT000017	BOLT, 1/2"-20 X 1, YZP, GR8	8
8	BT000011	BOLT, 1/2"-13 X 4", ZP, GR 5, HEX	2
7	BR000009	13" HYDRAULIC BRAKE CLUSTER RIGHT	1
6	BR000008	13" HYDRAULIC BRAKE CLUSTER LEFT	1
5	BR000007	13" BRAKE DRUM, 8 HOLE, 8" B.C., 5.75" P.H.	2
4	801791	LB2 WALKING BEAM ROCKER ARM 821/819 SPINDLE RH	1
3	801790	LB2 WALKING BEAM ROCKER ARM 821/819 SPINDLE LH	1
2	78001315	LB2-108 FRAME ASSEMBLY	1
1	70004695	WALKING BEAM AXLE PIN	2

ITEM	PART NUMBER	OWNERS MANUAL DESCRIPTION	QTY
PARTS LIST			
 OWNERS MANUAL		DESCRIPTION	
		LB2XLB-108 PREASSEMBLY	
		REVISION A	PART NUMBER 801792

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