



AGRICULTURAL

**ORTHMAN MANUFACTURING
INCORPORATED**

orthman.com

910 NT

**910 NARROW TRANSPORT
STACKING TOOLBAR**

OPERATOR'S MANUAL

STILL THE STRONGEST



INTRODUCTION

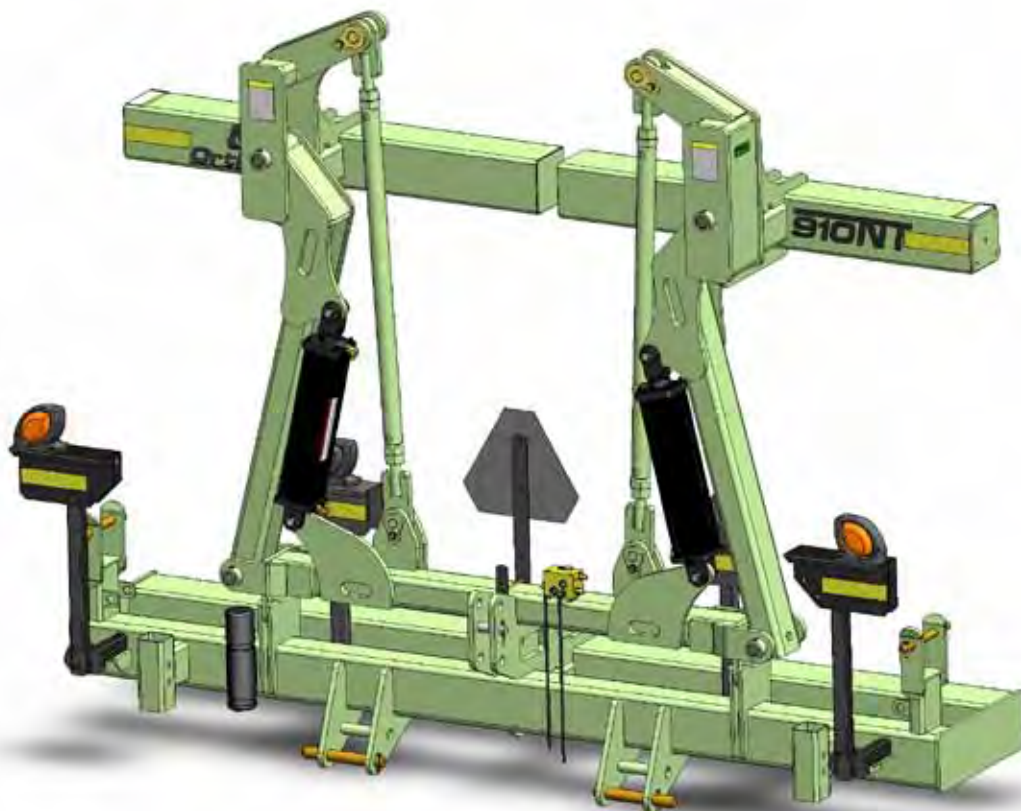
910 NT TOOLBAR

The Orthman 910NT stacking toolbar is the most compact 3-point mounted toolbar in the Orthman stacker bar line. It is the first stacking toolbar in the industry capable of handling planter row units at an 8 row 30" center to center spacing, while still transporting narrower than 10 feet in the stacked position. A category 3 welded hitch, wide line bored hinges, and heavy duty Orthman Design provide a toolbar capable of years of service in the field.

This manual is considered to be an integral component of the 910NT Series Toolbar and is designed to educate the owner and operators regarding safety, operation, maintenance, troubleshooting, and component identification.

All personnel involved in the operation of the 910NT Series Toolbar are responsible for reading and understanding the entire contents of this manual. This manual is designed to keep the operator safe and knowledgeable as well as prolong the life of the implement, minimize downtime, and maximize field efficiency. This manual should accompany the implement if it is ever to be sold.

We would like to thank you for placing your confidence in Orthman Mfg., Inc. Your 910 NT Series Toolbar is manufactured to meet the highest standards and is built with Orthman precision and strength to increase your agricultural operation's dependability and profitability.





INTRODUCTION

Farm Safety

Contrary to the popular image of fresh air and peaceful surroundings, a farm is not a hazard-free work setting. Every year, thousands of farm workers are injured and hundreds more die in farming accidents. According to the National Safety Council, agriculture is the most hazardous industry in the nation.

How You Can Improve Farm Safety

You can start by increasing your awareness of farming hazards and making a conscious effort to prepare for emergency situations including fires, vehicle accidents, electrical shocks from equipment and wires, and chemical exposures. Be especially alert to hazards that may affect children and the elderly. Minimize hazards by carefully selecting the products you buy to ensure that you provide good tools and equipment. Always use seat belts when operating tractors, and establish and maintain good housekeeping practices. Here are some other steps you can take to reduce illnesses and injuries on the farm:

- Read and follow instructions in equipment operator's manuals and on product labels.
- Inspect equipment routinely for problems that may cause accidents.
- Discuss safety hazards and emergency procedures with your workers.
- Install approved rollover protective structures, protective enclosures, or protective frames on tractors.
- Make sure that guards on farm equipment are replaced after maintenance.
- Review and follow instructions in material safety data sheets (MSDSs) and on labels that come with chemical products and communicate information on these hazards to your workers.

Health and Safety Hazards on Farms

Farm workers including farm families and migrant workers are exposed to hazards such as the following:

Danger	Potential Effect or Injury	Prevention
Chemicals/Pesticides	Skin and respiratory injury or death	MSDS and proper Personal Protective Equipment. Review Manufacturers data sheets
Cold	Illness, Frostbite or death	Dress properly for the day.
Dust	Respiratory injury or explosive combinations	Be aware of your surroundings and activity
Electricity	Shock, burns, fire, death	Use a qualified professional for wiring dangerous electrical devices. Never overload a circuit. Replace damaged electrical devices or cords. Electrical tape will not insulate you from injury.
Grain bins, Silos	Entrapment, Suffocation, Explosion from formation of dangerous gases and poisoning.	Make sure the bin is properly ventilated and maintained. Never walk the grain.
Hand tools	Injury including cuts abrasions, electrocution, strains, sprains and death	Make sure you hand tools are in good condition. Never leave a damaged tooling accessible for someone else to use.
Highway traffic	Collisions resulting in injury or death	Follow regulations, stay alert. Avoid alcohol and use of communication devices while driving
Lifting and lifting devices	Back injury, sprains, strains. Falling material resulting in being struck or crushed by heavy material	Use proper lifting technique. Get help when the load is too heavy. Inspect chains, straps or cables routinely to make sure they are in good condition.
Livestock handling	Serious injury or death resulting from being pinned struck or trampled.	Always make sure you have adequate room and an escape route
Machinery/Equipment	Cuts, abrasions, amputations, death.	Thoroughly read and understand your Owners Equipment Manual. Never operate the equipment without guards in place. Make sure the equipment can not be energized or otherwise put into operation while you are working on it.
Manure pits	Explosion from formation of dangerous gases. Suffocation. Poisoning	Proper maintenance.
Mud	Sprains, strains, entrapment and suffocation. Eye injury and skin irritation.	Proper Personal Protective Equipment. In some conditions a "Spotter" may be needed.
Noise	Hearing damage	Personal Protective Equipment.
Ponds	Drowning	Wear a life preserver and make sure help is readily available.
Slips/Trips/Falls	Sprains, strains, back and neck injury, bone breaks or death	Keep work area free from clutter and organized. If working on anything elevated make sure you have appropriate guarding and/or fall protection such as a harness and lanyard.
Sun/Heat	Sun burn, Heat Stroke, shock, death	Use common sense on excessively hot days, use sun screen, wear a hat and stay hydrated.
Toxic gases	Skin and respiratory injury or death. Explosion.	MSDS and proper Personal Protective Equipment. Review Manufacturers data sheets
Tractors	Cuts, abrasions, amputations, death.	Thoroughly read and understand your Owners Equipment Manual. Never operate the equipment without guards in place. Anti-roll over devices.
Wells	Electrocution, amputation, death	Avoid contact with water while working on an electrical device. Always be sure the equipment can/will not be energized during repair or maintenance. Make sure all guarding is in place.
Severe Weather	Electrocution, "struck by" injuries, death	Move to a safe place. Lightning, hail and tornadoes are unpredictable.

Orthman Manufacturing, Inc. does not limit the potential effects or injuries nor prevention measures to those listed above. They are provided solely as a guideline to making your farm life safer. Always consult your Owner/Operators Manual for specific tool and equipment safety requirements.



INTRODUCTION

High Risk Factors on Farms

The following factors may increase risk of injury or illness for farm workers:

- **Age** – Injury rates are highest among children age 15 and under and adults over 65.
- **Equipment and Machinery** – Most farm accidents and fatalities involve machinery. Proper machine guarding and doing equipment maintenance according to manufacturers' recommendations can help prevent accidents.
- **Protective Equipment** – Using protective equipment, such as seat belts on tractors, and personal protective equipment (such as safety gloves, coveralls, boots, hats, aprons, goggles, face shields) could significantly reduce farming injuries.
- Take precautions to prevent entrapment and suffocation caused by unstable surfaces of grain storage bins, silos, or hoppers. Never "walk the grain."
- Be aware that methane gas, carbon dioxide, ammonia, and hydrogen sulfide can form in unventilated grain silos and manure pits and can suffocate or poison workers or explode.
- Take advantage of safety equipment, such as bypass starter covers, power take-off master shields, and slow-moving vehicle emblems.
- **Medical Care** – Hospitals and emergency medical care are typically not readily accessible in rural areas near farms.

The Benefits of Improved Safety and Health Practices

Orthman Manufacturing Provides this document in the hope that everyone that has a job to do, does it SAFELY. Our goal and yours should be to end each day in the best possible health. Better safety and health practices reduce fatalities, injuries, and illnesses as well as associated costs such as workers' compensation insurance premiums, lost production, and medical expenses. A safer and more healthful workplace improves morale and productivity.



INTRODUCTION

WARRANTY

Orthman Mfg., Inc. warrants the whole goods products it manufactures to be free from defects in material or workmanship for a period of one (1) year from the date of sale of the product(s) to the original user. Products not manufactured, but supplied by Orthman Mfg., Inc. on Orthman products, are subject to, conform with, and are limited to the warranty of our suppliers.

Orthman Mfg., Inc. warrants the parts it manufactures to be free from defects in material or workmanship for a period of ninety (90) days from the date of delivery of the product(s) to the original user. Products not manufactured, but supplied by Orthman Mfg., Inc. on Orthman products, are subject to, conform with, and are limited to the warranty of our suppliers.

Warranty of Orthman whole goods and/or parts applies only to material and workmanship. Misuse, misapplication, neglect, alteration, accident, normal wear, or acts of God affecting Orthman products are not eligible for warranty.

Warranty of serial numbered goods will only be considered if the product has a completed Warranty Registration on file at Orthman. This Warranty Registration must be completed and returned to Orthman within thirty (30) days of the sale of the product(s) to the original user. *No serial numbered goods or related parts and/or labor will be warranted without a Warranty Registration on file.* Warranty issues falling within the first thirty days of a product's use will be handled at the discretion of Orthman. Warranty of parts will not require a Warranty Registration, but proof of date of delivery of the product to the original customer must be provided.

WARRANTY CLAIMS: A warranty claim and request to return defective product(s) must be presented to the Orthman Service Department by the selling dealer describing the defect in material or workmanship of an Orthman product(s) within ten (10) days of its discovery. This claim may be made via phone, e-mail, fax, or written request. Claims for warranty of serial numbered goods must include the Orthman product serial number and model number. Claims for warranty of parts will not require a product serial number or model number, but must be identified by an Orthman part number. Claims for warranty of whole goods or parts must also include proof of date of sale of the product to the original customer by an Orthman dealer.

The Orthman Service Department will proceed in making a preliminary decision as to the eligibility of the claim for warranty consideration. After the Orthman Service Department deems it necessary to proceed with warranty consideration, a Return Goods Authorization (RGA) will be completed by the Orthman Service Department in conjunction with the selling dealer. Upon completion of the RGA, the defective product(s) must be returned to Orthman to ensure warranty consideration. Defective product(s) must be returned to Orthman by either the selling dealer or the customer. Customer delivery of defective product(s) must be approved by Orthman and the selling dealer prior to delivery. The defective product(s) in question must be sent, freight prepaid, within sixty (60) days of the discovery of the product(s) failure and initial warranty claim. Replacement product(s) may be sent to the selling dealer, directly to the customer, or picked up at the Orthman facility. Replacement product(s), sent directly to the customer or picked up must be approved by Orthman and the selling dealer. At the discretion of the Orthman Service Department, replacement product(s) may be sent prior to, or after, the Orthman Service Department receives the defective product(s).

Any variation in the above procedure is at the sole discretion of the Orthman Service Department.

No products will be accepted at Orthman without all proper paperwork completed including Warranty Registration and RGA(s). Parts returned to Orthman without proper authorization will be returned to the sender at the sender's expense.

Orthman agrees to handle all warranty claims in a timely manner and will inform dealers of any revisions or modifications to the Orthman Warranty Policy. Eligible warranty claims will be processed by Orthman within sixty (60) days of receiving failed product(s) or a valid service or repair labor claim. Eligible warranty claims regarding returned product(s) or service and/or repair labor will be paid through a credit memo issued to the appropriate dealer's account as determined by the Orthman Service Department.

If a warranty claim is found to be ineligible for warranty coverage, the Orthman Service Department will be responsible to inform the dealer in order to determine the course of action to be taken. Orthman reserves the right to make changes in specification and design without notice and without incurring any obligations to owners of products previously sold.



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Lexington, Nebraska
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Orthman provides this manual without warranty of any kind, expressed or implied. This manual reflects the product at the time of publication. All information within is based upon current information on the publication date. Orthman assumes no responsibility for damages incurred due to the use of the illustrations, information, and specifications within this publication.

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SAFETY

SAFETY ALERT SYMBOL



The **SAFETY ALERT SYMBOL** warns of potential hazards to personal safety and that extra precautions must be taken. When you see this symbol, carefully read the message(s) that follow. Follow all recommended precautions and safe operating practices in this manual.

Hazard control and accident prevention are dependent upon the safety awareness and proper training of personnel involved in the operation of this implement.

BE AWARE OF SIGNAL WORDS

SIGNAL WORDS designate a degree or level of **HAZARD** seriousness.

These signal words include:



RED

DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury. Danger is limited to extreme situations, typically for machine components which for functional purposes, cannot be guarded.



ORANGE

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



YELLOW

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

SHUTDOWN AND STORAGE



AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.



USE BAR STANDS AND CYLINDER STOPS TO SUPPORT THE IMPLEMENT.

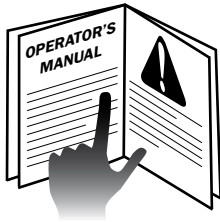
Store implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Store implement away from human activity.



SAFETY

FOR YOUR PROTECTION

CAUTION



READ AND UNDERSTAND THE ENTIRE CONTENT OF THIS MANUAL BEFORE OPERATING OR SERVICING IMPLEMENT. Read and understand all operator manuals for the machinery used in conjunction with the lift assist wheels.

- Carefully **READ ALL SAFETY DECALS** in this manual as well as on the implement. Keep implement clean so decals are easily visible. Keep all safety decals in good, clean, and legible condition. Immediately replace damaged and/or missing decals. Replacement decals are available from your Orthman dealer.
- Learn to operate the implement and all components properly. Do not let others operate implement without proper instruction. Unauthorized implement modifications may impair function and safety. If you do not understand any content in this manual or need assistance, contact your Orthman dealer.

(Orthman Manufacturing Inc. - 75765 Rd. 435 - Lexington, NE 68850 - (308) 324-4654)

EQUIPMENT SAFETY GUIDELINES

Operator safety is the primary concern when designing an Orthman implement. Orthman integrates as many safety features into the implement as possible. You can avoid many hazards and possible accidents by observing precautions in this safety section.

- Insist that yourself and personnel working with and around you follow all safety precautions. Be cautious when working with or around implement to avoid injury.



SAFETY

SAFE TRANSPORT

- Engage transport locking devices and cylinder stops prior to transport. Plan your route to avoid traffic. Yield to traffic in all situations.
- Various conditions will require reduced speed. Travel at speeds that allow for adequate control of stopping and steering.



AVOID ELECTROCUTION. Be aware of overhead power lines. Contact or close proximity to power lines can result in injury or death. Use extreme care when operating implement near power lines.

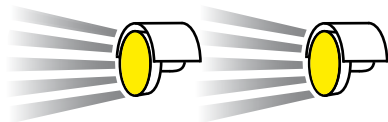
- Know implement transport height and gross weight. Avoid overhead obstructions not allowing your transport height. Do not use bridges rated below implement gross weight.
- Make sure a slow moving vehicle (SMV) placard is mounted to the implement and is easily visible to other motorists.



- Make allowances for implement size when transporting. Sudden braking can cause a towed load to swerve and/or rollover. Never use independent braking with implement in tow as loss of control and/or rollover can result. Reduce speed if towed implement is not equipped with brakes.
- Do not coast. Always keep tractor or towing device in gear to provide engine braking when traveling downhill.
- Comply with state and local laws governing implement transport.

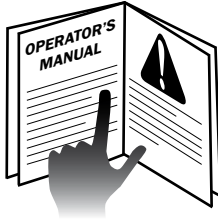
WARNING AND SAFETY LIGHTS

CAUTION



Oversized implements and slow moving vehicles create a hazard when transported on public roads.

- Make sure all warning, safety lights, and turning signals are working and clean. Use safety lighting when using public roads day and night. Replace missing or damaged lights immediately. Comply with state and local laws governing implement safety lighting.

**SAFETY****▲ SAFE OPERATION****CAUTION**

READ AND UNDERSTAND THE ENTIRE CONTENT OF THIS MANUAL BEFORE OPERATING OR SERVICING IMPLEMENT. Implement is to be operated by qualified personnel only. Never let children operate implement. A complete understanding of safety precautions, operation, and maintenance is mandatory before implement use.

DANGER

AVOID ELECTROCUTION. Be aware of overhead power lines. Contact or close proximity to power lines can result in injury or death. Use extreme care when operating implement near power lines.

- Know implement transport height and gross weight. Avoid overhead obstructions not allowing your transport height. Do not use bridges rated below your gross weight.

DANGER

AVOID ROLLOVER. Do not fold or unfold implement and avoid sharp turns when on a hillside, as shift of weight could cause rollover. Operate implement at a safe distance from terrain irregularities and other obstructions that could cause rollover.

WARNING

AVOID CRUSHING. Make sure all personnel are clear of implement at all times implement is in motion. Be aware of obstructions above, below, and around implement when in operation or transport. Injury or death can result from being struck by the implement.

▲ NO RIDERS**WARNING**

NEVER ALLOW RIDERS ON TRACTOR OR IMPLEMENT. Riders hinder operator visibility and can be thrown from the implement and/or be struck by foreign objects resulting in injury or death.

**SAFETY****▲ PRACTICE SAFE MAINTENANCE**

Proper maintenance is your responsibility. Maintenance neglect and/or poor maintenance practices can result in injury or death. Always use the proper tools to maintain implement.

AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.



USE BAR STANDS AND CYLINDER STOPS TO SUPPORT THE IMPLEMENT. Store implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Store implement away from human activity.



AVOID ENTANGLEMENT. Never lubricate or service implement in motion. Keep away from power driven parts when in motion. Disengage power sources prior to maintaining implement. Injury or death can result from contact with power driven parts when in motion.



AVOID CRUSHING. Do not stand between the tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.



Escaping pressurized hydraulic fluid can penetrate skin, resulting in injury or death. Relieve hydraulic system pressure before connecting or disconnecting tractor. Use cardboard or wood, **NOT BODY PARTS**, to check for suspected hydraulic leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, see a doctor immediately for proper treatment.

**SAFETY****⚠ PRACTICE SAFE MAINTENANCE**

- Never operate a combustion engine in an enclosed area. Make sure there is adequate ventilation. Exhaust fumes can cause asphyxiation.



- Service tires safely. Tire and rim separation can result in serious injury or death. Do not over inflate tires. Only mount or dismount tires if you possess the proper equipment, otherwise contact a trained professional. Always maintain correct tire pressure. Inspect tires and wheels daily. Do not operate tires with inadequate pressure, cuts, visible damage, or missing hardware.



- Be extremely careful working around unshielded sharp edges. Injury may result from contact with sharp edges.
- Keep all parts in good condition and properly installed. Replace damaged or missing parts immediately.
- Remove tools and unused parts prior to implement operation.

⚠ PREPARE FOR EMERGENCIES

- Be prepared for a fire. Keep a readily accessible fire extinguisher at all times.
- Keep a readily accessible stocked first aid kit and emergency phone numbers for your doctor, hospital, ambulance, and fire department.
- Wear protective clothing and equipment. Wear clothing appropriate for the situation. Protect your eyes, ears, hands, and feet with the use of protective goggles, ear plugs, gloves, boots, etc.



SAFETY

ANHYDROUS AMMONIA

LIQUID FERTILIZER



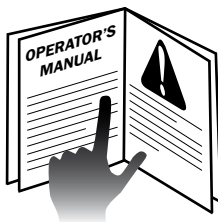
ANHYDROUS AMMONIA (NH₃) AND LIQUID FERTILIZER APPEARS HARMLESS. DIRECT EXPOSURE TO NH₃ OR LIQUID FERTILIZER IS EXTREMELY DANGEROUS AND CAN RESULT IN INJURY AND/OR DEATH.

- Keep a clean supply of water readily accessible in case of exposure to NH₃ or liquid fertilizer.
- Wear protective goggles and gloves when working with NH₃ or liquid fertilizer. Be sure all persons involved in the operation are properly trained concerning the dangers and precautions involved in the application of NH₃ or liquid fertilizer.
- If you choose to apply NH₃ or liquid fertilizer, it is advisable to consult documented information regarding safe handling and application of NH₃ or liquid fertilizer. Information is available from the following recognized sources:

1. American National Standards Institute - ANSI - www.ansi.org - (212) 642-4900
2. Material Safety Data Sheets - MSDS - www.msdsonline.com
3. National Safety Council - www.nsc.org/necas
4. The Fertilizer Institute - www.tfi.org
5. United States Department of Transportation - D.O.T. - www.dot.gov
6. Compressed Gas Association - www.cganet.com

SAFETY NEVER HURTS

CAUTION



READ AND UNDERSTAND THE ENTIRE CONTENT OF THIS MANUAL BEFORE OPERATING OR SERVICING IMPLEMENT.

- Understand all implement functions.
- Never stand between tractor and implement when connecting or disconnecting implement.
- Be aware of all surroundings before moving implement.
- Operate implement from operator's seat only.
- Never mount or dismount a moving tractor.
- Never leave engine running when implement is unattended.
- Keep away from power driven parts when in motion.
- Make sure all personnel are clear before lowering implement to the ground.



SAFETY

SAFETY DECALS

Safety decals promote awareness and knowledge concerning safe operation and maintenance of the implement.

DANGER

WARNING

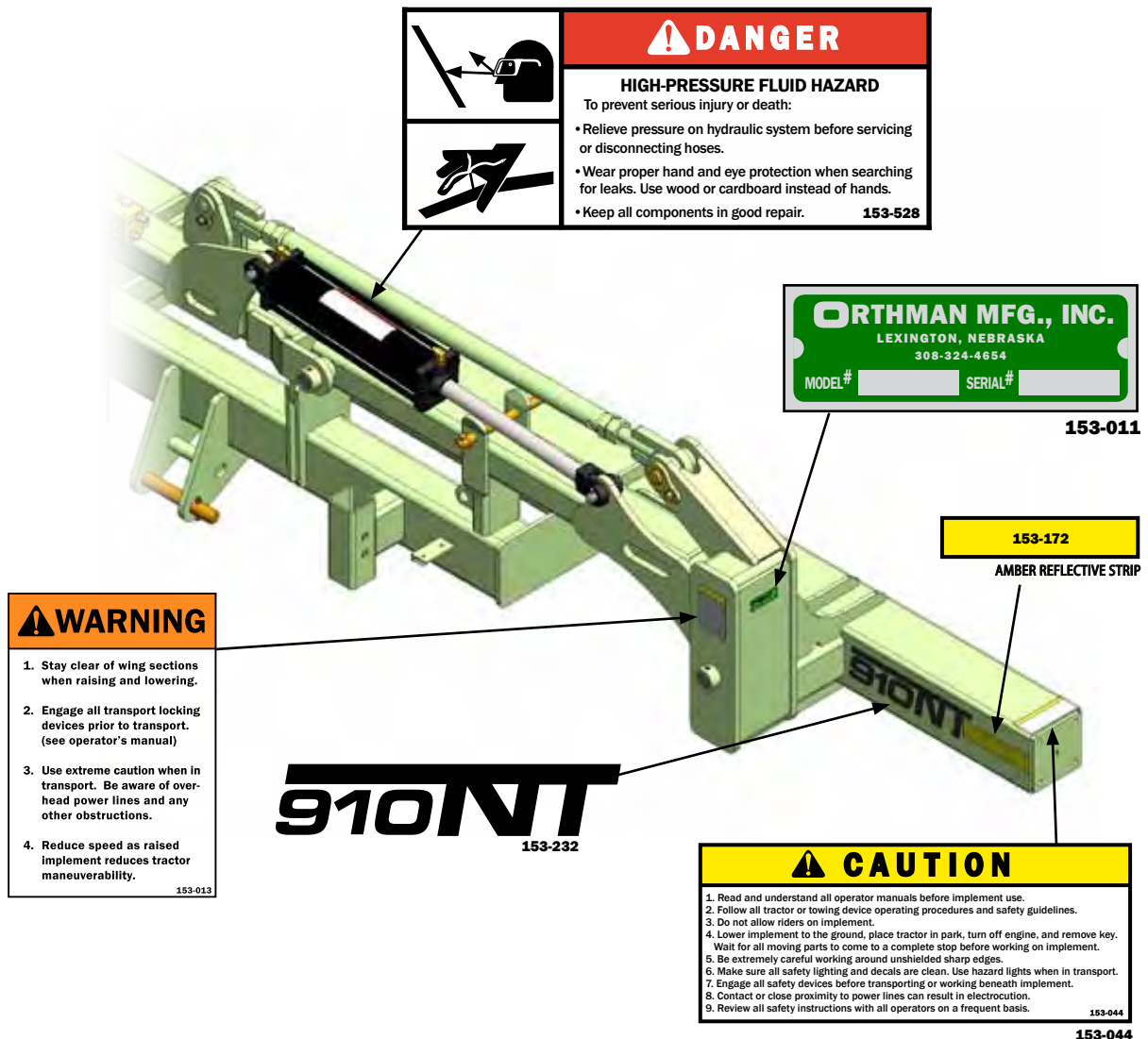
CAUTION

Carefully **READ ALL SAFETY DECALS** in this manual as well as on the implement. Keep implement clean so decals are easily visible. Keep all decals in good and legible condition. Immediately replace damaged and/or missing decals. Replacement decals are available from your Orthman dealer.

To install decals: Thoroughly clean area where decal is to be placed and attach decal void of bubbles. Refer to this safety information section for proper decal placement. Decal illustrations below pertain to the 910NT Stacker Bar.

SAFETY - ORTHMAN DECALS

The Orthman serial tag contains valuable information. The model and serial numbers provide Orthman dealers and the Orthman Service Department with the exact specifications of your implement if any warranty or service issues need to be addressed.



910NT



SAFETY

SAFETY DECALS

Safety decals promote awareness and knowledge concerning safe operation and maintenance of the implement.

DANGER

WARNING

CAUTION

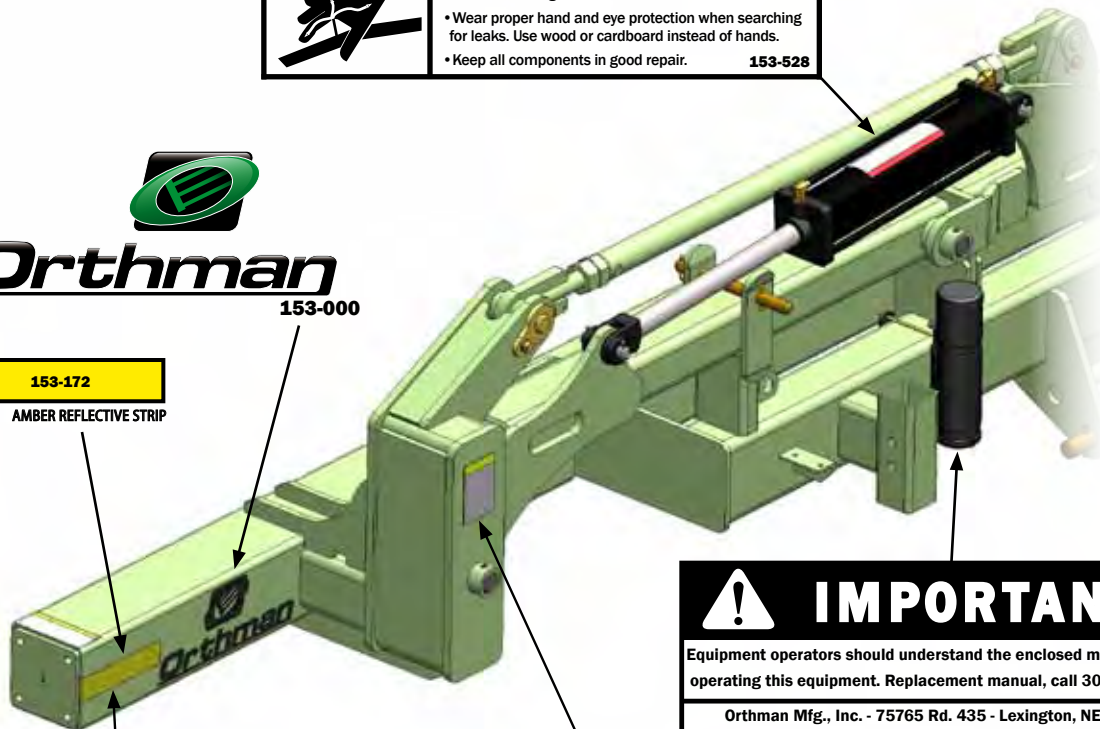
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	! DANGER
	<p style="text-align: center;">HIGH-PRESSURE FLUID HAZARD</p> <p>To prevent serious injury or death:</p> <ul style="list-style-type: none"> • Relieve pressure on hydraulic system before servicing or disconnecting hoses. • Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands. • Keep all components in good repair. 153-528



153-172
AMBER REFLECTIVE STRIP



! IMPORTANT
<p>Equipment operators should understand the enclosed manual before operating this equipment. Replacement manual, call 308-324-4654</p> <p>Orthman Mfg., Inc. - 75765 Rd. 435 - Lexington, NE 68850 <small>153-101</small></p>

(manual enclosure)

! CAUTION
<ol style="list-style-type: none"> 1. Read and understand all operator manuals before implement use. 2. Follow all tractor or towing device operating procedures and safety guidelines. 3. Do not allow riders on implement. 4. Lower implement to the ground, place tractor in park, turn off engine, and remove key. Wait for all moving parts to come to a complete stop before working on implement. 5. Be extremely careful working around unshielded sharp edges. 6. Make sure all safety lighting and decals are clean. Use hazard lights when in transport. 7. Engage all safety devices before transporting or working beneath implement. 8. Contact or close proximity to power lines can result in electrocution. 9. Review all safety instructions with all operators on a frequent basis. <p style="text-align: right;"><small>153-044</small></p>

153-044

! WARNING
<ol style="list-style-type: none"> 1. Stay clear of wing sections when raising and lowering. 2. Engage all transport locking devices prior to transport. (see operator's manual) 3. Use extreme caution when in transport. Be aware of overhead power lines and any other obstructions. 4. Reduce speed as raised implement reduces tractor maneuverability. <p style="text-align: right;"><small>153-013</small></p>

153-013



SAFETY

SAFETY DECALS

Safety decals promote awareness and knowledge concerning safe operation and maintenance of the implement.

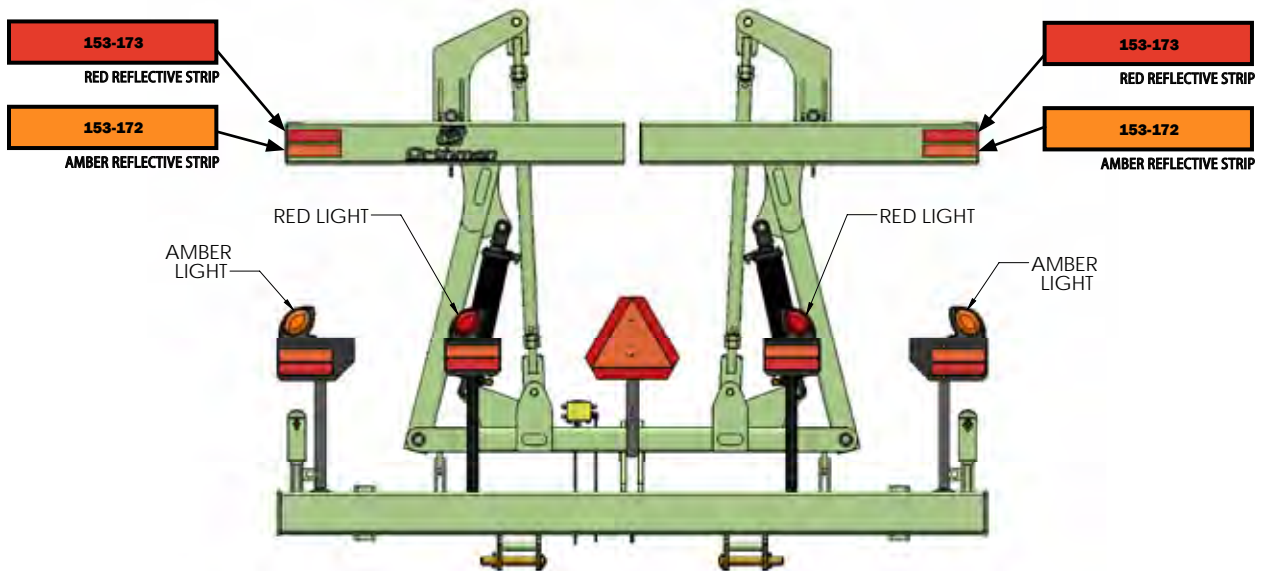
DANGER

WARNING

CAUTION

Carefully **READ ALL SAFETY DECALS** in this manual as well as on the implement. Keep implement clean so decals are easily visible. Keep all decals in good and legible condition. Immediately replace damaged and/or missing decals. Replacement decals are available from your Orthman dealer.

To install decals: Thoroughly clean area where decal is to be placed and attach decal void of bubbles. Refer to this safety information section for proper decal placement. Decal illustrations below pertain to the 910NT Stacker Bar.



AMBER LIGHTS ARE TWO SIDED, VISIBLE FROM FRONT AND REAR



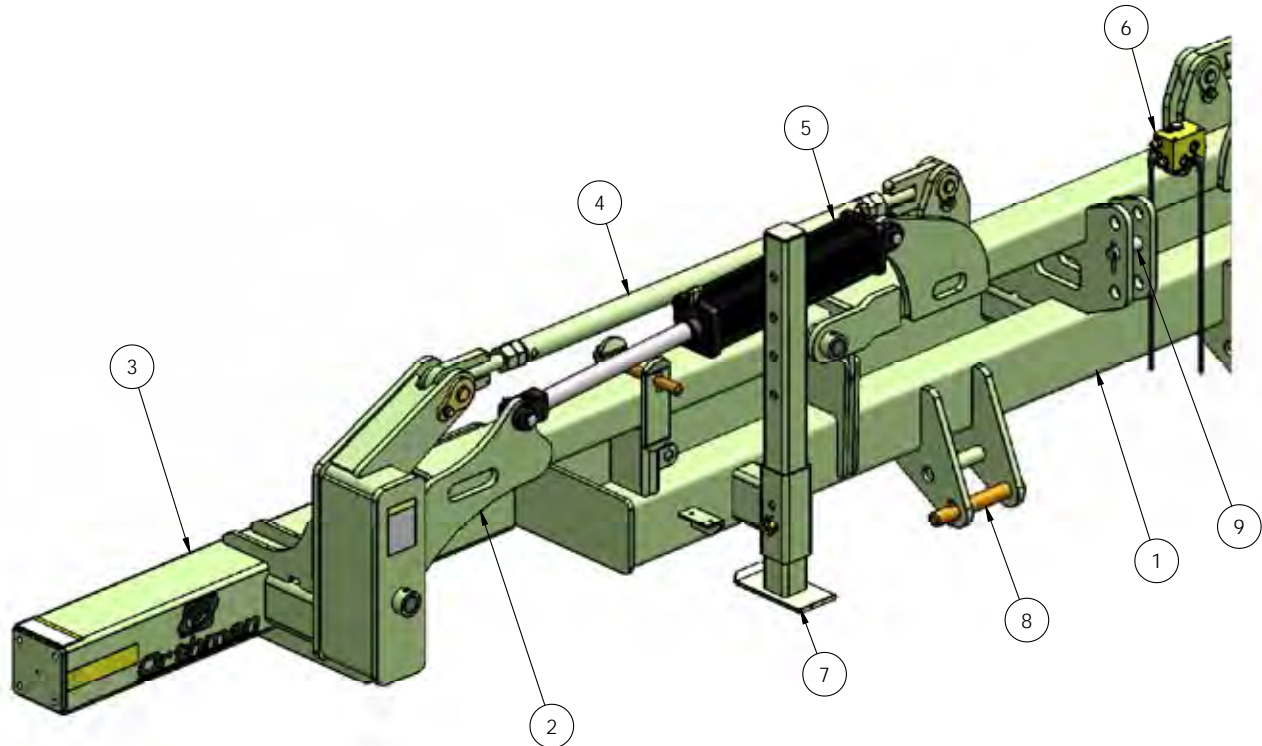
RED LIGHTS ARE ONE SIDED, MUST BE VISIBLE FROM THE REAR





PREPARATION AND SETUP

MAJOR COMPONENT IDENTIFICATION



1. Center Section
2. Swing Truss
3. Wing
4. Strut
5. Stack Cylinder
6. Front Control Manifold
7. Bar Stand
8. Lower Hitch Pins (2)
9. Third Link Hitch Pin)



PREPARATION AND SETUP

WARNING

1. Stay clear of stacking sections during raising and lowering.
2. Before transporting, insert pins in safety transport braces when wings are in upright position.
3. During transport, use extreme caution. Watch for low overhead objects and electrical wires. Drive carefully and slowly. Implement weight will make tractor less maneuverable.

DO NOT ATTEMPT TO FOLD TOOLBAR UNTIL YOU HAVE READ THE FOLLOWING PAGES.

PREPARING THE TOOLBAR

- Ensure all decals are in good, clean, and legible condition. Make sure each decal is correctly placed according to the safety section of this operator's manual. (pg.2-8)
- Make sure tractor hydraulic system is in working order. Orthman 910NT series toolbar hydraulic systems are designed for a 3000 psi system.
- Make sure that hydraulic tips and outlets are free of foreign material. Foreign material can ruin hydraulic components resulting in adverse toolbar operation.



CAUTION! It is not recommended to stack the toolbar without folding the outer wings.

CAUTION! Stacking one wing at a time causes center of gravity to shift resulting in rocking and unbalanced equipment. Use extreme caution when moving unbalanced equipment, the tractor and implement are more likely to tip.

- Attach hydraulic hoses to tractor according to cab preferences.
DO NOT FOLD TOOLBAR BEFORE REMOVING LOCKING PINS.



Before each use, check all hardware for wear and proper torque (pg. 6 - 4). Replace damaged or missing hardware with hardware of an identical grade to restore implement to original specifications.

CAUTION



IMPLEMENT TO TRACTOR CONNECTION

The 910NT Stacker Bar has a category 3W 3-point hitch. Contact the Orthman service department for details.



AVOID CRUSHING. Do not stand between tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.

AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.



USE BAR STANDS TO SUPPORT THE IMPLEMENT. Store implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Store implement away from human activity.



PREPARATION AND SETUP

STACKING PROCESS

WARNING

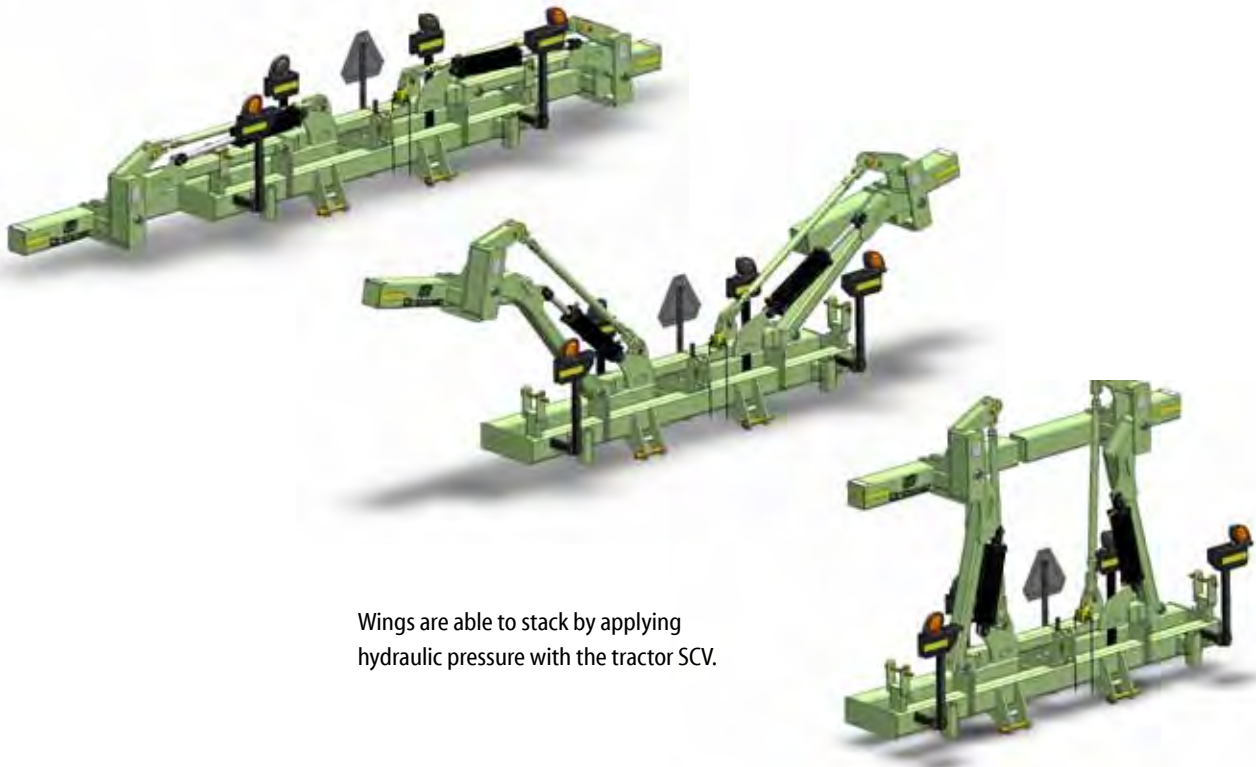
1. Stay clear of stacking sections during raising and lowering.
2. Before transporting, insert pins in safety transport braces when wings are in upright position.
3. During transport, use extreme caution. Watch for low overhead objects and electrical wires. Drive carefully and slowly. Implement weight will make tractor less maneuverable.

The 910NT Series Toolbar will be delivered in a rigid position as pictured below with locking pins in place.

Each locking pin must be removed and placed in the storage position prior to staking wings. Placing the locking pins in the storage position will allow the swing truss to travel upward.

← Locking Pin

← Storage Position



Wings are able to stack by applying hydraulic pressure with the tractor SCV.



PREPARATION AND SETUP

LEVELING THE WINGS

When row units are added to the bar, additional weight may cause the wings to no longer be level with the center section. The levelness of the wings should also be checked over the life of the toolbar to ensure proper performance.

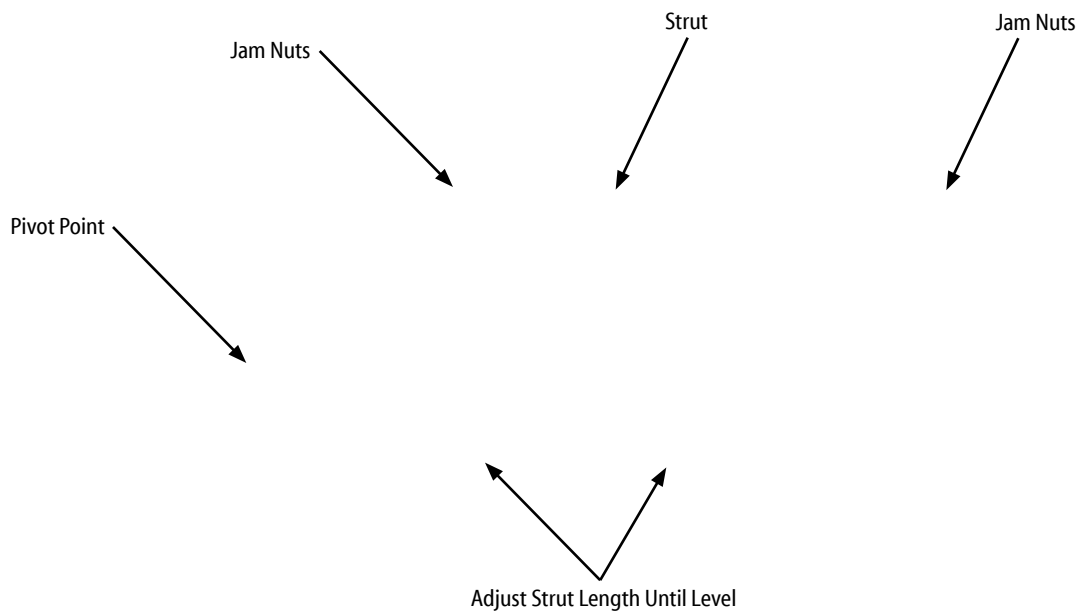
Tools:

- 2 1/4" wrench
- 2 3/8" wrench
- Level (s)

Park the toolbar on a level surface and check the levelness of the rear toolbar of the center section. This will be the reference point for leveling the wings. For the greatest accuracy the wing row units should have all attachments and be fully loaded during leveling.

Loosen the jam nuts on each end of the strut and turn the center portion of the strut to adjust the wings. The wings will pivot up and down about the hinge point between the wing and the swing truss.

Place the level on the top of the rear tube on the wing and adjust the strut until the levelness of the wing matches the reference taken from the center section. Repeat the procedure for both wings. When both wings have been leveled re-tighten the jam nuts on each end of the strut.



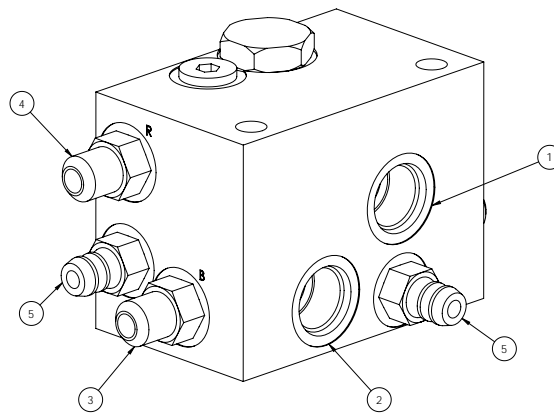
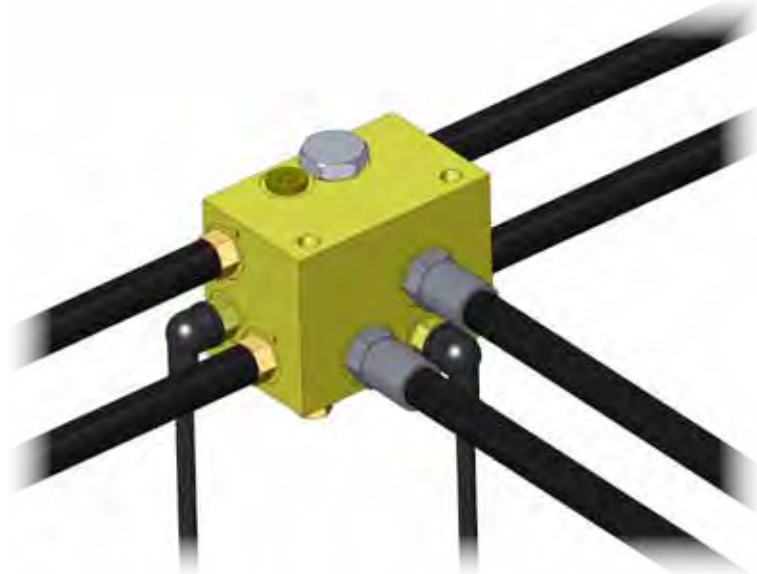


PREPARATION AND SETUP

PLUMBING THE TOOLBAR



⚠ CAUTION! Stacking one wing at a time causes center of gravity to shift resulting in rocking and unbalanced equipment. Use extreme caution when moving unbalanced equipment, the tractor and implement are more likely to tip.

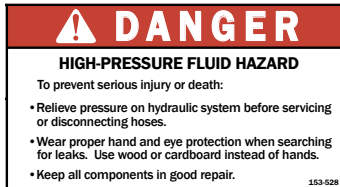


Manifold Connections

1. Fold: Fold Supply Hose from Tractor
2. Unfold: Unfold Supply Hose from Tractor
3. B: Stack Cylinder Base End (right and left)
4. R: Stack Cylinder Rod End (right and left)
5. Relief: Thermal Drip Hose Relief



TROUBLESHOOTING



TROUBLESHOOTING

⚠ AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

USE BAR STANDS TO SUPPORT THE IMPLEMENT. Park implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Remove buildup of grease, oil, or debris prior to adjusting rolling implement components.

PROBLEM:

Toolbar does not operate at the proper height.

SOLUTION:

Completely raise toolbar gauge wheels. Have an assistant pull the tractor and implement slowly forward in the field position. As the implement travels forward, manipulate tractor hitch height from the cab of the tractor until recommended operating height is achieved. Stop tractor and physically measure toolbar height. If toolbar is not to correct operation height repeat procedure.

Once correct toolbar height is established, lower toolbar gauge wheels to ground surface, if equipped, or set lower hitch stop on the tractor. These settings will provide a consistent toolbar height when in operation.

PROBLEM:

Toolbar does not operate parallel with the ground.

SOLUTION:

Presuming correct toolbar height has been achieved, lengthen (tip back) or shorten (tip forward) the tractor third link until toolbar is parallel with ground surface. Tractor hitch height may have to be manipulated in order to lengthen or shorten third link. Make sure the implement is in the field position when adjusting the toolbar to operate parallel with ground surface. Make adjustments to the tractor lower hitch stop, third link, and toolbar gauge wheels, if equipped, until the toolbar operates at the correct height and orientation.



TROUBLESHOOTING



⚠ DANGER
HIGH-PRESSURE FLUID HAZARD
To prevent serious injury or death:

- Relieve pressure on hydraulic system before servicing or disconnecting hoses.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

153-928



TROUBLESHOOTING

⚠ AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.

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PROBLEM:

Toolbar does not stack correctly.

SOLUTION:

1. Hydraulic tips installed incorrectly in tractor SCV.
2. Lock pins are installed in the lock position.
3. Wings are overloaded.
4. Tractor hydraulic pressure is insufficient.
5. Cylinder seals are bad.

PROBLEM:

Wings are not level or straight.

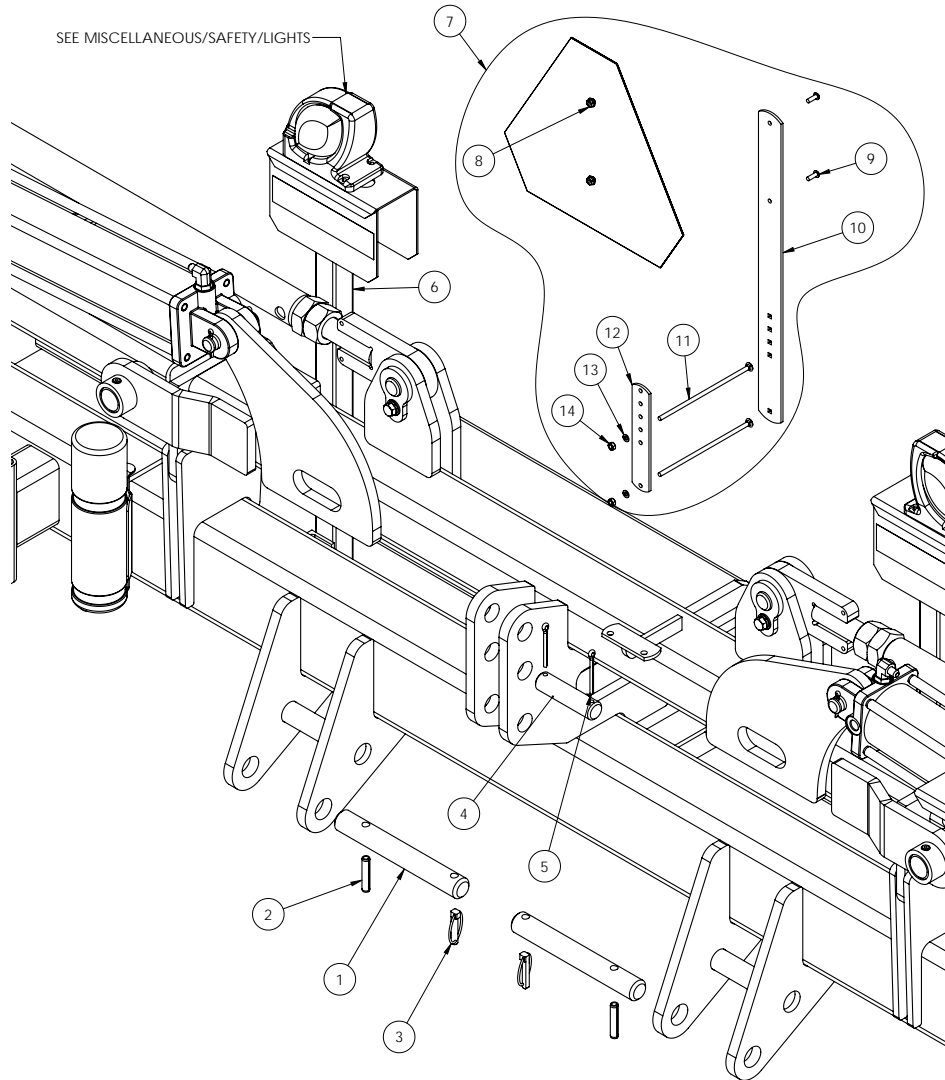
SOLUTION:

See the Leveling Wings section of this manual in the Preparation and Setup.



PARTS IDENTIFICATION

HITCH

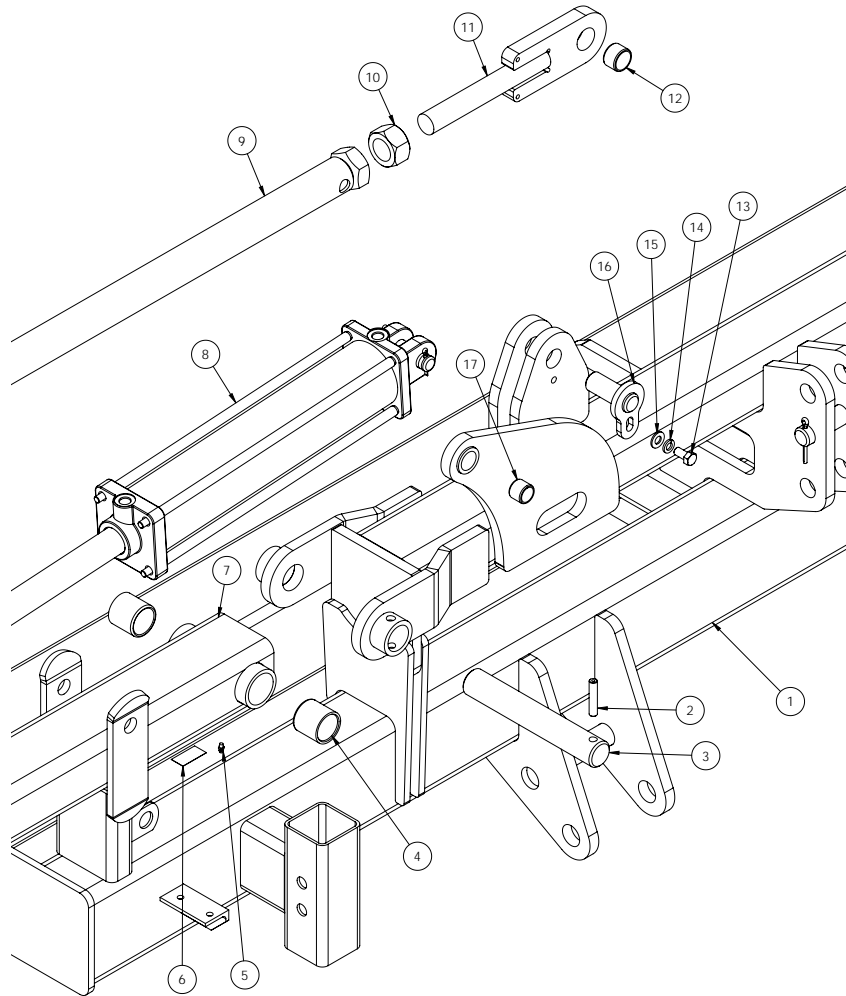


1.	302-592	LOWER HITCH PIN-CAT III	2	1 7/16" X 10 7/8"
2.	104-102	ROLL PIN	2	1/2" X 2 1/2"
3.	104-036	LYNCH PIN	2	7/16" X 2"
4.	302-591	TOP HITCH PIN-CAT III	1	1 1/4" X 4 7/8"
5.	104-022	COTTER PIN	2	1/4" X 2 1/2"
6.	351-965	LIGHT MOUNTING	2	Package
7.	635-413	SIGN	1	Slow Moving Vehicle, Includes #8-14
8.	102-085	LOCK NUT	2	1/4"
9.	106-077	ROUND HEAD SCREW	2	1/4"-20 X 3/4"
10.	385-183	BRACKET	1	Slow Moving Vehicle Bracket
11.	100-575	CARRIAGE BOLT	2	1/4"-20 X 8", Grade 2
12.	333-499	STRAP	1	Mount Strap
13.	108-027	LOCK WASHER	2	1/4"
14.	102-002	HEX NUT	2	1/4"-20, Grade 5



PARTS IDENTIFICATION

CENTER ASSEMBLY

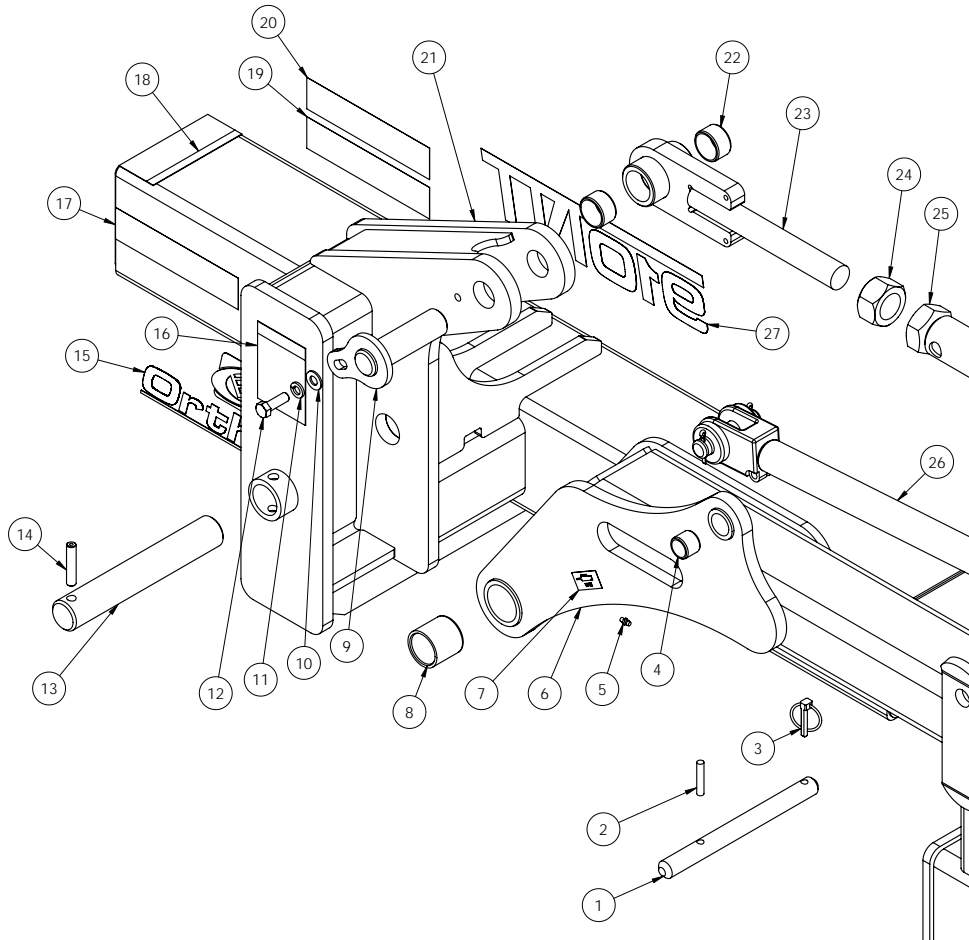


1.		Center Section		Call Orthman dealer for replacement.
2.	104-005	Roll Pin	1	1/2" x 2 1/2"
3.	351-958	Hinge Pin	1	1 3/4" x 11"
4.	134-005	Bushing	2	2.125"OD x 1.75"ID x 2"
5.	110-001	Grease Fitting	1	1/4"
6.	153-029	Decal	1	Grease Daily
7.	a	351-925	Right Swing Truss	1 Includes item #4
7.	b	351-926	Left Swing Truss	1 Includes item #4
8.	194-350	Cylinder	1	4" x 18"
9.	351-954	Tube	1	Turnbuckle linkage tube
10.	102-118	Hex Nut	1	1 1/2"
11.	351-951	Screw	1	Turnbuckle screw
12.	134-044	Bushing	2	1.50" OD x 1.25" ID
13.	100-114	Bolt	1	1/2" x 1", Grade 5
14.	108-020	Lock Washer	2	1/2"
15.	108-001	Flat Washer	2	1/2"
16.	351-961	Pin	1	Strut Pin
17.	134-034	Bushing	1	1.25" OD x 1.00" ID



PARTS IDENTIFICATION

WING HINGE ASSEMBLY



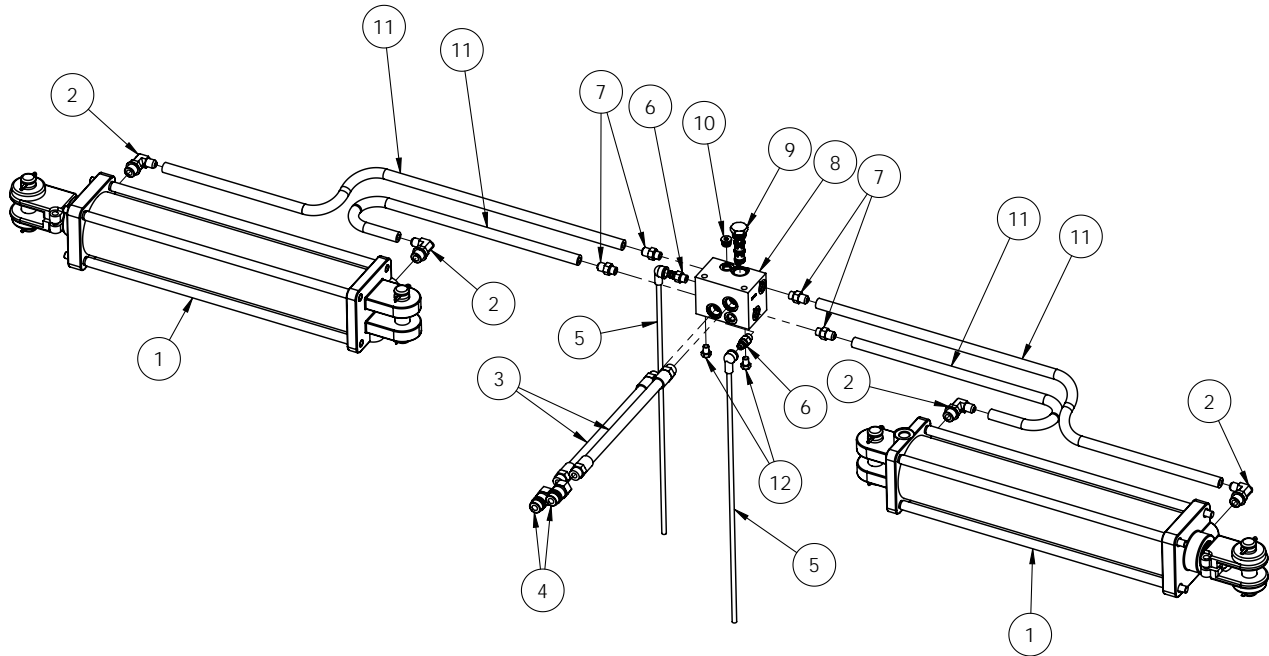
1.		301-082	Pin	1	Swing Truss Lock Down
2		104-103	Roll Pin	1	3/8" x 2"
2		104-065	Linch Pin	1	5/16" x 1 11/16"
4.		134-034	Bushing	1	1.25" OD x 1.00" ID
5.		110-001	Grease Fitting	1	1/4"
6.	a	351-925	Right Swing	1	Includes item # 4 & 8
6.	b	351-926	Left Swing	1	Includes item # 4 & 8
7.		153-029	Decal	1	Grease Daily
8.		134-005	Bushing	2	2.125" OD x 1.75" ID x 2"
9.		351-959	Pin	1	Strut Pin
10.		108-001	Flat Washer	1	1/2"
11.		108-020	Lock Washer	1	1/2"
12.		100-116	Bolt	1	1/2" x 1 1/2", Grade 5
13.		351-958	Hinge Pin	1	1 3/4" x 11"
14.		104-005	Roll Pin	1	1/2" x 2 1/2"

15.		153-000	Decal	1	Orthman Trademark
16.		153-013	Decal	1	Warning: Stay Clear When Folding
17.		153-172	Decal	1	Amber Retroreflective
18.		153-044	Decal	1	Important: No Riders
19.		153-171	Decal	1	Orange Fluorescent
20.		153-173	Decal	1	Red Retroreflective
21.			Wing		Call Orthman dealer for replacement
22.		134-017	Bushing	2	1.75" x 1.5" x 1"
23.		153-952	Screw	1	Turnbuckle Screw
24.		102-117	Hex Nut	1	1 1/2"
25.		351-954	Tube	1	Turnbuckle linkage tube
26.		194-350	Cylinder	1	4" x 18"
27.		153-232	Decal	1	910NT



PARTS IDENTIFICATION

HYDRAULIC HOSE LAYOUT

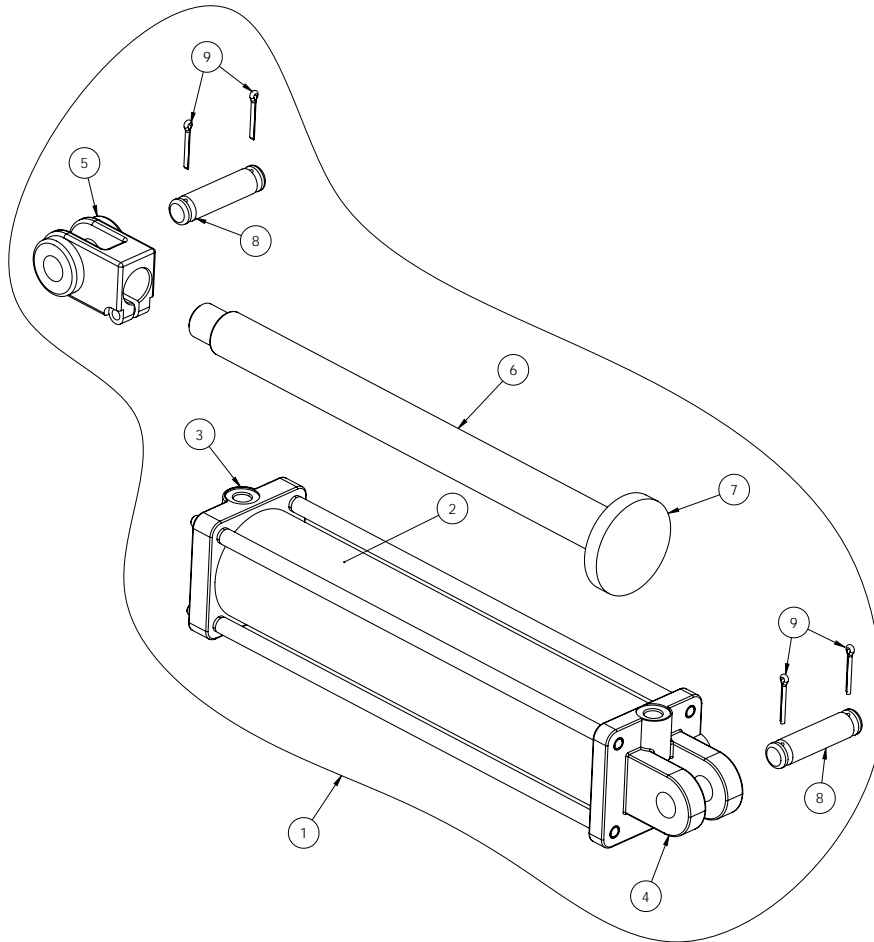


1.	194-350	Cylinder	2	4" X 18"
2.	198-064	Elbow	4	3/4" MB - 9/16" MJ
3.	336-070	Hose Assembly	2	3/8" x 60", 3/4" MB x 3/4" MB
4.	140-092	Tip	2	ISO, hydraulic
5.	301-286	Thermal Drip Hose	2	
6.	180-188	Thermal Relief	2	1/2" MB
7.	198-031	Adaptor	4	9/16"MB - 9/16" MJ
8.	180-250	Hydraulic Manifold	1	
9.	180-249	Flow Divider	1	
10.	198-165	Plug	1	1/2" ORB, Hollow Hex
11.	-	Hose Assembly	4	1/4" Hose 9/16" FJX x 9/16" FJX
12.	100-279	Bolt	2	3/8" x 5", Grade 5



PARTS IDENTIFICATION

CYLINDER BREAKDOWN

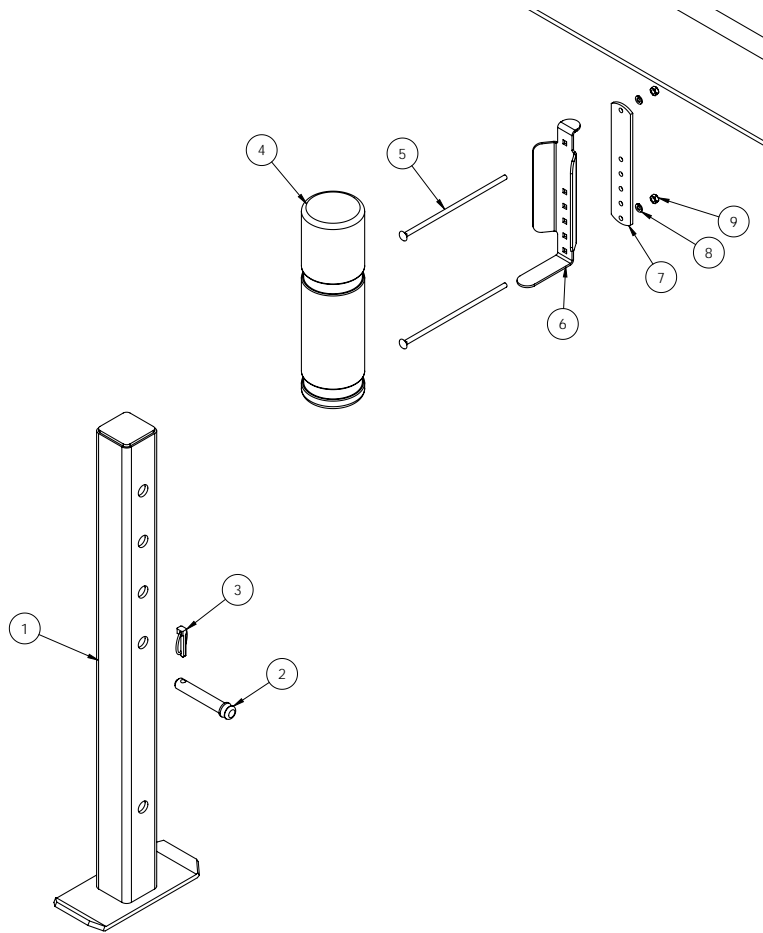


1	194-350	Cylinder	1	4" X 18"
1 a.	194-264	Seal Kit	1	
2	***	Barrel	1	
3	194-522	Head/Gland	1	
4	194-301	Base	1	
5	194-521	Clevis	1	
6	194-523	Rod	1	
7	194-298	Piston	1	
8	194-302	Cylinder Pin	2	
9	104-028	Cotter Pin	4	



PARTS IDENTIFICATION

ACCESSORIES

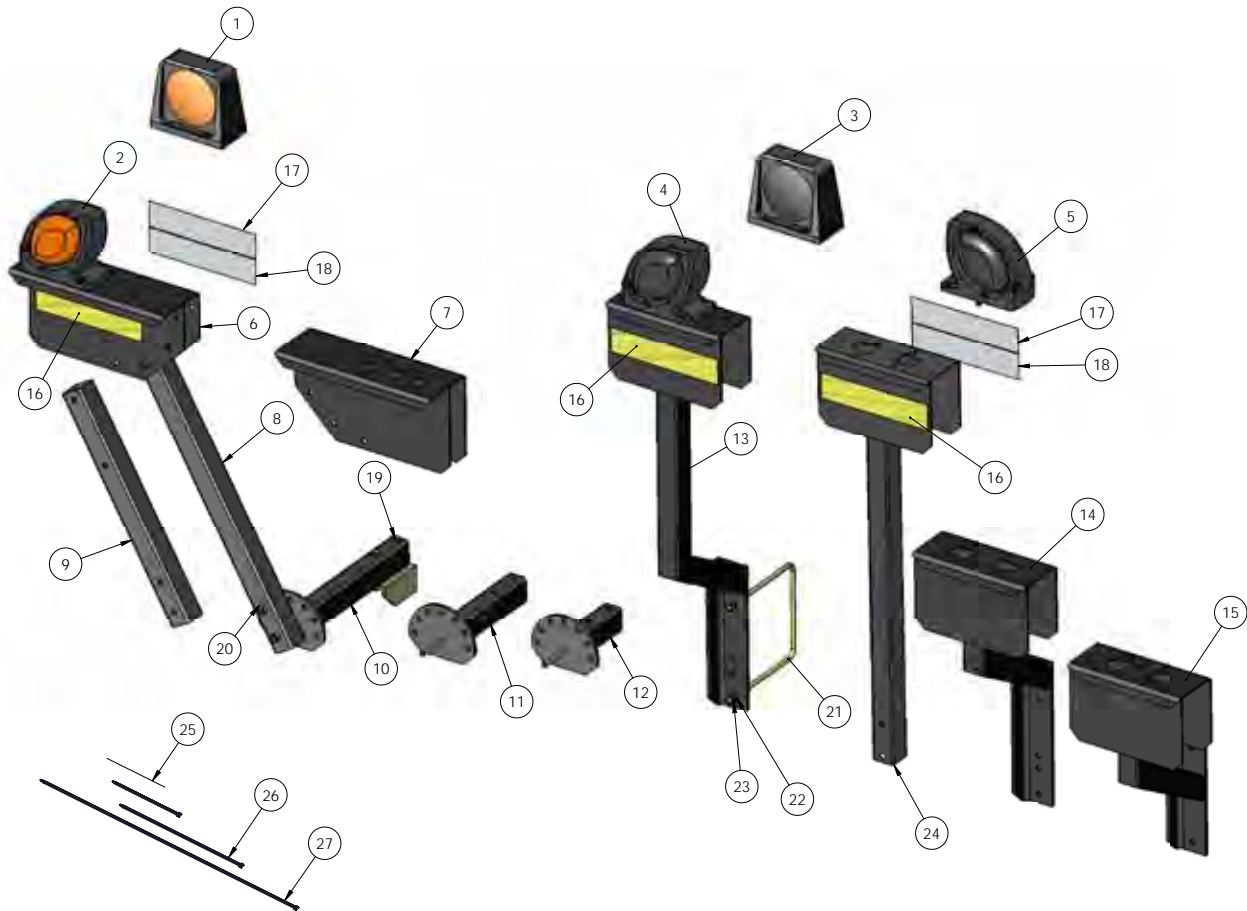


1	303-840	Bar Stand
2	303-846	Bar Stand Pin
3	104-065	Lynch Pin 5/16" X 1 11/16"
4	152-587	Manual Enclosure Tube
5	100-582	Carriage bolt 1/4"-20 X 6", Grade 2
6	385-587	Manual Mount Tube Bracket
7	333-499	Manual Mount Bracket Strap
8	108-027	Lock Washer 1/4"
9	102-002	Hex Nut 1/4" -20, Grade 5



PARTS IDENTIFICATION

SAFETY LIGHTS ASSEMBLY

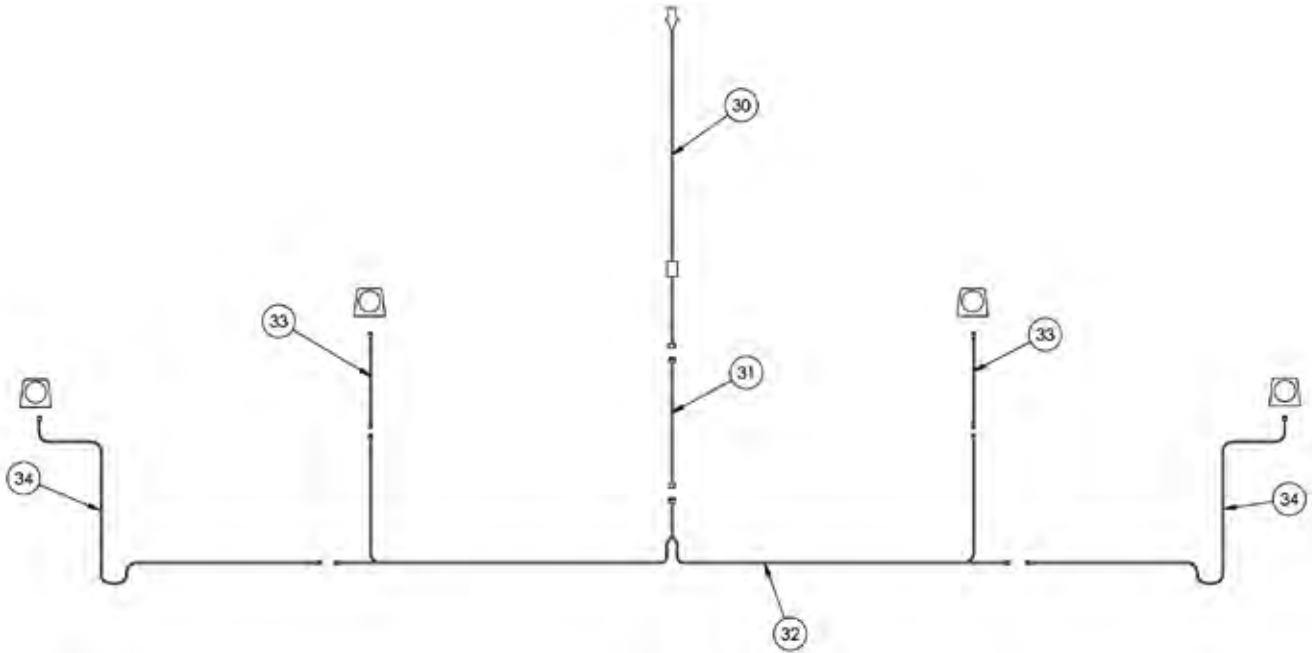


1	152-875 Light	1 Amber flashing light	16	153-172 Decal	1 Amber retroreflective (yellow) decal
2	152-950 Light	1 Amber flashing light	17	153-173 Decal	1 Red retroreflective decal
3	152-874 Light	1 Red tail light	18	153-171 Decal	1 Orange fluorescent decal
4	152-951 Light	1 Red tail light right	19	100-113 Hex Bolt	3/8" x 2 3/4", Grade 5
5	152-952 Light	1 Red tail light left	20	102-056 Lock Nut	3/8" Nylon lock nut
6	301-567 Bracket	1 Adjustable light bracket right	21 a	315-026 U-bolt	3/8" 7x7
7	301-568 Bracket	1 Adjustable light bracket left	21 b	315-025 U-bolt	3/8" 5x7
8	301-563 Arm	1 Adjustable light arm	22	108-018 Lock Washer	3/8"
9	301-035 Arm	1 Adjustable light arm	23	102-005 Hex Nut	3/8"
10	321-713 Mount	1 Adjustable light mount	24	351-965 Bracket	1 Center light bracket
11	301-562 Mount	1 Adjustable light mount	25	152-021 Cable tie	1 7" cable tie
12	301-037 Mount	1 Adjustable light mount	26	152-024 Cable tie	1 13" cable tie
13	301-574 Bracket	1 Center light bracket	27 a	153-023 Cable tie	1 28" cable tie
14	301-573 Bracket	1 Center light bracket	27 b	152-055 Cable tie	1 12" cable tie (not shown)
15	355-065 Bracket	1 Light bracket			



PARTS IDENTIFICATION

LIGHTS AND CABLES ASSEMBLY



Key	Part #	Description
30	154-629	Module Cable 84" (Wesbar Brand)
	154-682	Module Cable 192" (Wesbar Brand)
	154-829	Front Module Harness 84" (Cobo Brand)
	154-832	7 Pin Protective Boot (Cobo Brand) (not shown)
	154-834	Replacement Module (Cobo Brand) (not shown)
31	154-833	Front Harness Extension 10 foot
32	154-630	Wishbone Light Cable 74" (Wesbar Brand)
	154-830	Rear Wishbone Harness 74" (Cobo Brand)
33	154-655	Red Light Extension Cable 13 foot (Wesbar Brand)
	154-855	Red Light Extension Cable 13 foot (Cobo Brand)
34	154-631	Amber Light Extension Cable 13 foot (Wesbar Brand)
	154-831	Amber Light Extension Cable 13 foot (Cobo Brand)

**MAINTENANCE****⚠ PRACTICE SAFE MAINTENANCE**

Proper maintenance is your responsibility. Maintenance neglect and/or poor maintenance practices can result in injury or death. Always use the proper tools to maintain implement.

AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.



USE BAR STANDS AND CYLINDER STOPS TO SUPPORT THE IMPLEMENT. Store implement on a clean, dry, and level surface. An uneven surface could cause implement to shift or fall, resulting in injury or death, as well as implement damage. Securely support all implement components that must be raised. Store implement away from human activity.



AVOID ENTANGLEMENT. Never lubricate or service implement in motion. Keep away from power driven parts when in motion. Disengage power sources prior to maintaining implement. Injury or death can result from contact with power driven parts when in motion.



AVOID CRUSHING. Do not stand between the tractor and implement when connecting or disconnecting implement. Injury or death can result from being trapped between the tractor and implement.



Escaping pressurized hydraulic fluid can penetrate skin, resulting in injury or death. Relieve hydraulic system pressure before connecting or disconnecting tractor. Use cardboard or wood, **NOT BODY PARTS**, to check for suspected hydraulic leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, see a doctor immediately for proper treatment.



MAINTENANCE

PRACTICE SAFE MAINTENANCE



Never operate a combustion engine in an enclosed area. Make sure there is adequate ventilation. Exhaust fumes can cause asphyxiation.



Be extremely careful working around unshielded sharp edges. Injury may result from contact with sharp edges.

Keep all parts in good condition and properly installed. Replace damaged or missing parts immediately.

Remove tools and unused parts prior to implement operation.

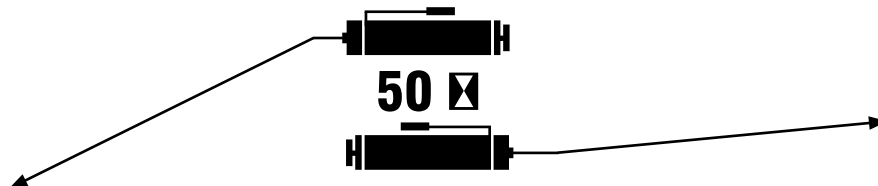


LUBRICATION

Grease all zerks per instruction on 910 NT toolbar.

- Swing Truss: 4 zerks

Use a high quality multi-purpose grease. Follow recommended hourly service interval illustrated below. Grease more frequently dependent upon frequency of folding.





MAINTENANCE

IMPLEMENT INSPECTION



When replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore implement to original specifications. Replace broken or worn parts immediately. Contact your Orthman dealer for replacement parts.

During break-in (40 hours) frequently (10 hours) check hardware for proper torque. (pg. 6-4)

Before each use, check hardware for wear and proper torque. (pg. 6-4) Replace damaged or missing hardware with hardware of an identical grade to restore implement to original specifications.



Do not allow debris to build up on any surface of the implement.

Replace all shields and guards. Be sure all tools, parts, and service equipment are removed prior to operating implement.

IMPLEMENT STORAGE

Clean and touch up paint seasonally to avoid corrosion and rust. Contact your Orthman dealer for touch up paint.

Inspect all safety and Orthman decals and replace if missing or damaged. Contact your Orthman dealer for replacement decals. (pg. 2-8)

Grease all zerks regardless of hourly interval prior to storage. (pg. 6-2)

Check all hardware according to torque specifications prior to storage. (pg. 6-4)



Replace all worn or damaged parts prior to storage.

Store inside if possible. Storing implement inside will prolong the life of the 910NT Stacker Bar components.



AVOID CRUSHING. Make sure all personnel are clear of the implement. Lower implement to the ground, place tractor in park, turn off engine, and remove key.



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**MAINTENANCE****TORQUE SPECIFICATIONS**

Recommended dry bolt torque

SAE GRADE 5

Bolt Size	ft. - lb.
3/8	32
7/16	52
1/2	80
9/16	115
5/8	160
3/4	280
7/8	455
1	680
1-1/8	850
1-1/4	1200

SAE GRADE 8

Bolt Size	ft. - lb.
3/8	36
7/16	59
1/2	88
9/16	130
5/8	175
3/4	315
7/8	510
1	760
1-1/8	1075
1-1/4	1500