1975 TOOLBAR
Pre-Delivery Instructions

Part #125-087-01-EN-PDI

ORTHMAN

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Chapter 1

Introduction

To the Dealer

This instruction contains important information for unloading of custom integral planters. Read instructions carefully before attempting to unload. While the custom integral planter is considered a factory assembled product, some components may have been removed from the machine to prevent damage during shipping, or to allow for consolidated shipments. Make sure all components are properly installed.

Inspect the implement thoroughly after assembly to be certain it is functioning properly before delivering it to the customer. The following checklist is a reminder of points to cover. Check off each item as it is found satisfactory or after proper adjustment is made.

Pre-Delivery Checklist	
	All hardware is properly tightened.
	Lubrication of grease fittings has been completed.
	All decals are properly located and readable.
	All implement tools and options are installed and set.
	Check overall condition of implement.
	Make sure operator's manual is included.
Date set up:	
Signature:	

Delivery

At the time the machine is delivered, the following checklist is a reminder of information which should be conveyed directly to the customer. Check off each item as it is fully explained to customer.

Delivery Checklist	
	Introduce the machine to the customer. Give the customer the operator's manual and encourage them to read it.
	Make the customer aware of all the safety precautions that must be exercised when using and transporting the machine.
	Make customer aware of the different tooling options available.
	The machine does not come set to run in the field from the factory. To help set the machine for optimal performance, see "Operation and Field Settings" (Operator's Manual). Explain all operating adjustments.
	Explain to the customer that the life expectancy of this machine depends on regular maintenance as directed in the operator's manual.
	Tell the customer to use the proper tools for service and inform them of Orthman parts availability.
	Review recommended procedures for attaching and detaching planter from tractor.
	Inform the customer of safety precautions that must be observed when transporting.
	When the machine is transported on a road or highway at night or during the day, accessory lights and devices should be used for adequate warning to operators of other vehicles. In this regard, tell customer to check local governmental regulations.
	Write machine model number and serial number in the spaces provided below.
	To the best of my knowledge, this machine has been delivered ready for field use and the customer has been fully informed as to proper operation and care.
Date delivered:	Model number:
Signature:	Serial number:

NOTE: *After signing, copy this page. Keep signed delivery checklist in machine file at the dealership.*

Dealer's Record

Owner's name:		
Address:		
City:	State:	Zip code:
Date sold:		
Model number:		
Serial number:		

After Sale Checklist

The following is a suggested list of items to be checked at an agreed upon inspection with the dealer and customer during the first operating season.

After Sale Checklist	
	Check with the customer as to the performance of the machine. Make sure the proper operating adjustments are understood.
	If possible, operate the machine and make sure it is functioning properly.
	Go over entire machine for loose or missing hardware.
	Check for other broken or damaged parts.
	Inspect safety signs and other decals; they should be intact, legible, and understood.
	Ask the customer if the recommended periodic lubrication has been performed.
	Review the operator's manual with the customer and stress the importance of safety precautions and proper lubrication.
	Acquaint the customer with any special attachment which will help do a better job.
Date delivered:	Model number:
Signature:	Serial number:

NOTE: *After follow-up inspection and signing, copy this page. Keep signed after sale checklist in machine file at the dealership.*

Warranty

Orthman Manufacturing, Inc. ("OMI") warrants each new whole good product to be free from defects in manufactured components and workmanship. This warranty is applicable only for the normal service life expectancy of the product or components, not to exceed twenty-four (24) consecutive months from date of purchase of the new OMI product to the original purchaser.

Purchased components installed by OMI (blades, bearings, controls, hoses, wheels, coulters, cylinders, fittings, points, etc.) shall be warranted by their respective manufacturer for a period of twelve (12) consecutive months from date of purchase of the new OMI product to the original purchaser.

A completed online Warranty Registration for the original purchaser must have been received by OMI to activate warranty coverage. Non receipt of warranty registration may void OMI warranty coverage. OMI warranty is non-transferable.

Genuine OMI replacement parts and components will be warranted for ninety (90) days from date of purchase or the remainder of the original equipment warranty period; whichever is greater.

All warranty work is to be performed by an authorized OMI dealer at the repairing dealer's location unless otherwise approved by Orthman Manufacturing, Inc. – Lexington, Nebraska.

Under no circumstances shall warranty cover any merchandise or component thereof, which, in the opinion of OMI, has been subjected to misuse, unauthorized modifications or alteration, accident, collision with obstruction/ground, or if repairs have been made with parts other than those approved by OMI. If the seal on the cylinder is broke (cylinder opened), it will void all warranty for cylinder.

OMI warranty policies do not cover travel expenses, after hours field/service time, overnight expenses, or expenses not related to that of regular shop labor rates or parts replaced during actual warranty repair. OMI reserves the right to adjust warranty labor credits so as not to exceed believed normal repair times as directed by warranty governing laws.

OMI obligation under this warranty shall be limited to repairing or replacing, free of charge to the purchaser, any part, in our judgment, showing evidence of such defect, provided further that such part shall be returned within thirty (30) days from the date of repair to OMI through the dealer or distributor from whom the product was purchased or repaired; transportation charges prepaid.

This warranty shall not be interpreted to render OMI liable for injury or damages of any kind or nature to person or property. This warranty does not extend to the loss of crops, loss of delay in harvesting/planting, or any expense or loss incurred for labor, substitute machinery, rental, or any subsequent reasons thereof.

Except as set forth above, OMI shall have no obligation or liability of any kind on account of its equipment and shall not be liable for special or consequential damages. OMI makes no other warranty, expressed or implied, and, specifically, OMI disclaims any implied warranty or merchantability or fitness for a particular purpose. Some sates or provinces do not permit limitations or exclusions of implied warranties or incidental or consequential damages, so the limitations or exclusion in this warranty may not apply.

This warranty is subject to any existing conditions of supply, which may directly affect OMI ability to obtain materials or manufacture replacement parts.

OMI reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation to owners of units previously sold.

No one person is authorized to alter, modify or enlarge this warranty nor the exclusions, limitations and reservations. For more information, please visit OMI website www.orthman.com.

Information subject to change without notice.

Provided warranty policy information supersedes all previous warranty considerations.

Orthman Manufacturing, Inc. – Lexington, NE

Rev. Date - 8/1/2021

Chapter 2

Safety Information

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.

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 performing 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 (PPE) (safety gloves, coveralls, boots, hats, aprons, goggles, and 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.

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	Review material safety data sheets (MSDSs) and manufacturers' data sheets, and use proper personal protective equipment (PPE).
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, or 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 or 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, or death	Make sure hand tools are in good condition. Never leave a damaged tool accessible for someone else to use.
Highway traffic	Collisions resulting in injury or death	Follow regulations and stay alert. Avoid alcohol use and the use of communication devices while driving.
Lifting/ Lifting devices	Back injury, sprains, or 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 all lifting 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, or death	Thoroughly read and understand your Owners Equipment Manual (OEM). Never operate the equipment without guards in place. Make sure the equipment can not be energized or otherwise put into operation during repair or maintenance.
Manure pits	Suffocation or poisoning Explosion from formation of dangerous gases and poisoning	Keep proper maintenance.
Mud	Sprains, strains, entrapment, or suffocation. Eye injury and skin irritation.	Use proper PPE. In some conditions a "spotter" may be needed.
Noise	Hearing damage	Use proper PPE.
Ponds	Drowning	Put on 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, or death	Use common sense on excessively hot days. Use sun screen, put on a hat, and stay hydrated.
Toxic gases	Skin and respiratory injury or death Explosion	Review MSDSs and manufacturers' data sheets, and use proper PPE.
Tractors	Cuts, abrasions, amputations, or death	Thoroughly read and understand your OEM. Never operate the equipment without guards in place or anti-roll over devices.
Wells	Electrocution, amputation, or death	Avoid contact with water while working on an electrical device. Make sure the equipment can not be energized or otherwise put into operation during repair or maintenance. Make sure all guarding is in place.
Severe weather	Electrocution, "struck by" injuries, or death	Move to a safe place. Lightening, 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.

Deliver Safely

The best method for delivering tractors, self-propelled equipment, and most implements or attachments is on a flatbed truck or trailer. Secure loads with tie-down chains, straps, and binders.

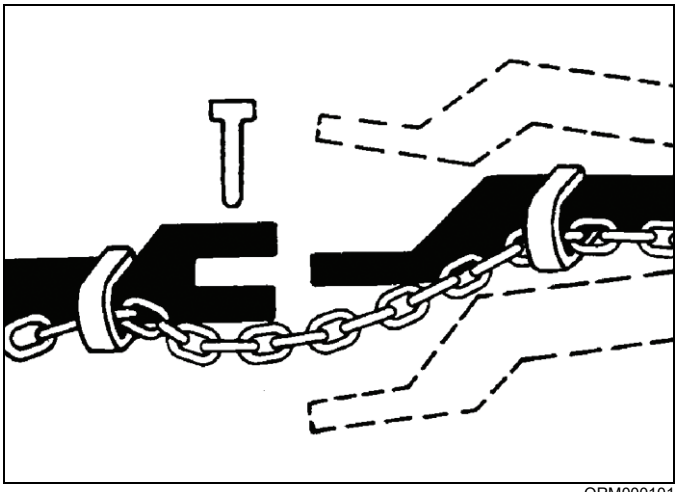

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Figure 2-1

- Be aware of height and width restrictions to avoid collision with overpasses, bridge abutments, or other road users.
- Check with local authorities regarding oversized load transport restrictions and requirements.
- When towing, remember that towed loads can swerve, upset, or cause loss of control when towed with an oversized towing unit.
- Never tow an implement behind a truck or other motor vehicle. The ability to maintain control and brake the implement and vehicle mass is compromised. The ability to properly attach the implement hitch and safety chain to the motor vehicle may be marginal. With most motor vehicles it is not possible to properly operate the warning, tail, and turn signal lights on the implement, and in most cases, the implement tires are not rated for highway speeds.
- Only tow drawn implements with a properly sized and weighted tractor equipped with a stationary drawbar. (See tractor operator's manual for ballast requirements.)

Integral and semi-integral implements should be attached to a tractor with a three-point hitch as specified in the implement operator's manual. The tractor should have the proper size rear tires and the sway blocks should be in the down position. Do not transport unless the tractor front end is ballasted to the weight levels specified in the tractor operator's manual for the correct implement code.

Before transporting, attach an appropriate safety tow chain between the implement and tractor. Stopping distance increases with speed and weight of towed loads, and when transporting on slopes.

Observe these recommended maximum road speeds or local speed limits that may be lower:

- If towed equipment does not have brakes, do not transport at speeds above 20 mph (32 km/h) and do not tow loads that weigh more than 1.5 times the weight of the tractor.
- If the towed equipment has brakes, do not transport at speeds above 25 mph (40 km/h) and do not tow loads more than 4.5 times the weight of the tractor. Use additional caution and reduce speed when towing under adverse surface conditions, turning, and on inclines.

Attach the implement lighting harness to the tractor and make sure that the warning and taillights on both the tractor and implement are on and functioning properly. Make sure that the slow moving vehicle (SMV) sign and other markings on the implement are clean and visible.

Unload Safely

⚠CAUTION

Avoid personal injury and implement damage. Follow these precautions when unloading the implement:

- Use a fork lift that meets or exceeds lifting capacity.
- Be sure that all lifting equipment is in good working order. Replace damaged or worn equipment immediately.
- Keep bystanders away from unloading area and never allow riders on forklift.
- Be sure the implement is supported by appropriate lifting equipment before removing truck securement.
- Operate forklift from the drivers seat only.

Perform Pre-Delivery Service Safely

Read and understand the safety information section before operating or servicing the implement. Understand the pre-delivery procedure before doing the work.

During the assembly, test, and adjustment procedures, it may be necessary to operate the tractor, power take-off (PTO), and hydraulic systems. Stay clear of machine elements when folding, unfolding, raising, or lowering of wings, implement frame, wheel modules, and marker arms and during operation of fans and hydraulic motors.

Practice good communication with other service technicians. Be aware of their actions and alert them to potential hazards.

Never lubricate, service, or adjust machine while it is running. Keep hands, feet, and clothing away from power driven and hydraulically operated parts. If it is necessary to inspect the machine while it is in operation, be alert to moving parts in the immediate area.

Safety Alert Symbol

This 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:

⚠DANGER

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.

⚠WARNING

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.

⚠CAUTION

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

DANGER

Avoid crushing. Failure to follow this information will result in death or serious injury. Make sure all personnel are clear of the implement before lowering.

Lower the implement to the ground, place the tractor in park, turn off the engine, and remove the key.

DANGER

Avoid crushing. Failure to follow this information will result in death or serious injury. Use bar stands and cylinder stops to support the implement.

Store the implement on a clean, dry, and level surface. An uneven surface could cause the 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 the implement away from human activity.

For Your Protection

CAUTION

Read and understand the entire contents of this manual before operating or servicing the implement.

Read and understand all operator manuals for the machinery used in conjunction with the 1975 Toolbar.

Carefully read all safety decals in this manual as well as on the implement. Keep the 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 the 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.

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 the implement to avoid injury.

Safe Transport

Use the following guidelines for 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.

DANGER

Avoid electrocution. Failure to follow this information will result in death or serious injury. Be aware of overhead power lines.

- Use extreme care when operating the implement near power lines. Contact or close proximity to power lines can result in injury or death.
- Know the transport height and gross weight of the implement. Avoid overhead obstructions not allowing your transport height. Do not use bridges rated below the gross weight of the implement.
- Make sure a slow moving vehicle (SMV) placard is mounted to the implement and is easily visible to other motorists. See “Slow Moving Vehicle (SMV)” on page 2-9.
- Make allowances for implement size when transporting. Sudden braking can cause a towed load to swerve and/or rollover. Never use independent braking with the implement in tow as loss of control and/or rollover can result. Reduce speed if the towed implement is not equipped with brakes.
- Do not coast. Always keep the tractor or towing device in gear to provide engine braking when traveling downhill.
- Comply with state and local laws governing implement transport.

Safe Operation

⚠CAUTION

Read and understand the entire contents of this manual before operating or servicing the implement.

The implement is to be operated by qualified personnel only. Never let children operate the implement. A complete understanding of safety precautions, operation, and maintenance is mandatory before implement use.

⚠ DANGER

Avoid electrocution. Failure to follow this information will result in death or serious injury. Be aware of overhead power lines.

Use extreme care when operating the implement near power lines. Contact or close proximity to power lines can result in injury or death.

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

⚠ DANGER

Avoid rollover. Failure to follow this information will result in death or serious injury. Do not fold or unfold the implement when on a hillside and avoid sharp turns, as shift of weight could cause rollover.

Operate the implement at a safe distance from terrain irregularities and other obstructions that could cause rollover.

⚠WARNING

Avoid being struck by the implement. Failure to follow this information could result in death or serious injury. Make sure all personnel are clear of the implement at all times when the implement is in motion.

Be aware of obstructions above, below, and around the implement when in operation or transport.

Warning and Safety Lights

Oversized implements and slow moving vehicles create a hazard when transported on public roads. Use safety lighting when traveling on public roads day and night.

Make sure all warning lights, safety lights, and turning signals are working and clean. Replace missing or damaged lights immediately. Comply with state and local laws governing implement safety lighting.

Rear View of Toolbar

See Figure 2-2.

NOTES:

- *Two-sided amber lights (2) must be visible from the front and rear of the implement.*
- *Amber light assemblies (1) must be within 16 in (40.6 cm) of maximum width (6) of the implement.*
- *Red light assemblies (7) are one-sided and must be visible from the rear of the implement.*
- *Red light assemblies are centered on the center section between a minimum 48 in (122 cm) and maximum 120 in (305 cm).*

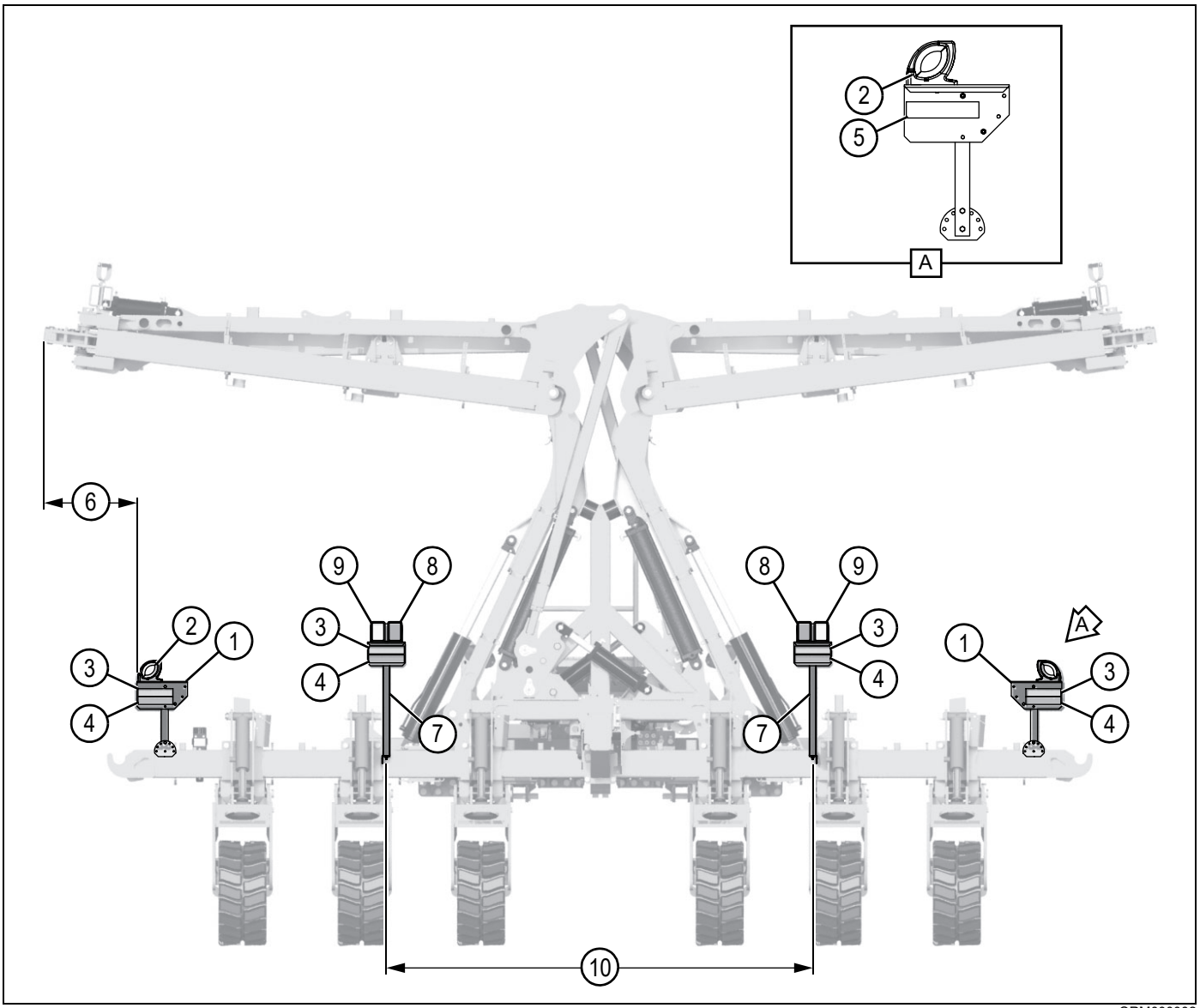

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Figure 2-2

1) Amber light assembly (2 used)
2) Two-sided amber light (2 used)
3) Orange flourescent non-reflective decal (4 used)
4) Red retroreflective decal (4 used)
5) Amber retroreflective decal (2 used)
6) Maximum width
7) Red/amber light assembly (2 used)
8) Red light (2 used)
9) Amber light (2 used)
10) Centered width

Slow Moving Vehicle (SMV)

The slow moving vehicle (SMV) placard (1) is mounted to the implement to alert other motorists that the machine is traveling below posted speed limits. The SMV placard is highly reflective and must be mounted to the implement where it is easily visible to other motorists when the implement is in motion.

Also mounted with the SMV is the speed identification symbol (SIS) (2). The SIS displays the vehicle's max speed in miles per hour (mph) or kilometers per hour (kph).

The SMV and SIS bracket (3) is mounted to the center arm (5) with two bolts (4).

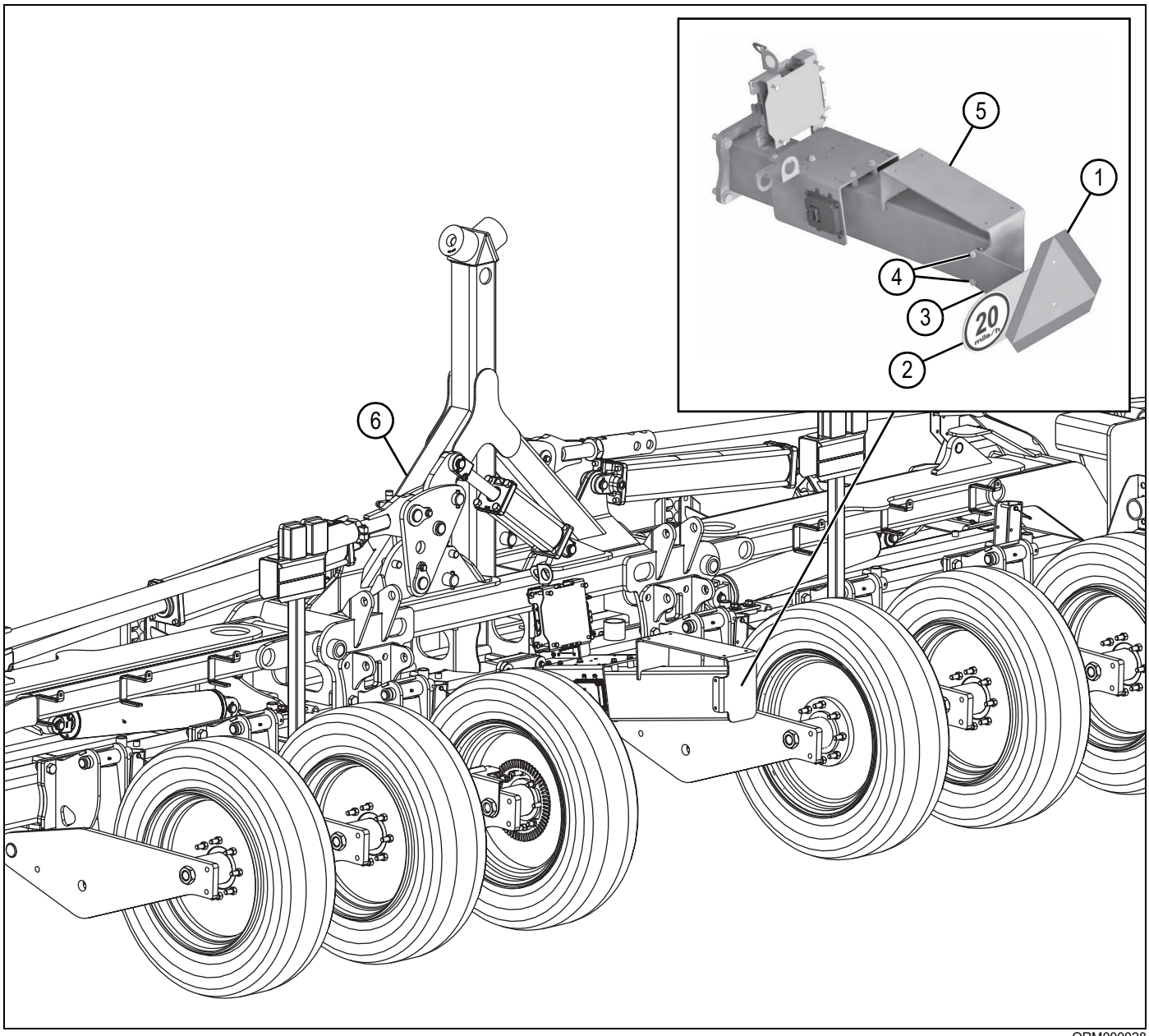

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Figure 2-3

1) Slow moving vehicle (SMV) placard
2) Speed identification symbol (SIS)
3) Bracket
4) Bolt (2 used)
5) Center arm
6) Center section

No Riders

WARNING

Never allow riders on the tractor or implement. Failure to follow this information could result in death or serious injury.

Riders hinder operator visibility and can be thrown from the implement and/or be struck by foreign objects resulting in injury or death.

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 the implement.

DANGER

Avoid crushing. Failure to follow this information will result in death or serious injury. Make sure all personnel are clear of the implement before lowering.

Lower the implement to the ground, place the tractor in park, turn off the engine, and remove the key.

DANGER

Avoid crushing. Failure to follow this information will result in death or serious injury. Use bar stands and cylinder stops to support the implement.

Store the implement on a clean, dry, level surface. An uneven surface could cause the 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 the implement away from human activity.

DANGER

Avoid entanglement. Failure to follow this information will result in death or serious injury. Never lubricate or service the implement when in motion.

Keep away from power driven parts when in motion. Disengage power sources prior to maintaining the implement. Injury or death can result from contact with power driven parts when in motion.

DANGER

Avoid crushing. Failure to follow this information will result in death or serious injury. Do not stand between the tractor and implement when connecting or disconnecting the implement.

Always place the tractor in park and turn off the engine before connecting or disconnecting the implement. Injury or death can result from being trapped between the tractor and implement.

DANGER

Avoid high-pressure fluid hazards. Failure to follow this information will result in death or serious injury. Relieve hydraulic pressure before servicing or disconnecting hoses.

Escaping pressurized hydraulic fluid can penetrate the skin, resulting in injury or death. Relieve hydraulic system pressure before connecting or disconnecting the tractor.

Never use hands to check for hydraulic leaks. Use cardboard or wood. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. If an accident occurs, see a doctor immediately for proper treatment.

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.

CAUTION

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.

Anhydrous Ammonia (NH3) and Liquid Fertilizer

⚠ DANGER

Avoid direct exposure to anhydrous ammonia (NH3) and liquid fertilizer. Failure to follow this information will result in death or serious injury.

Use extreme care when working with anhydrous ammonia (NH3) and liquid fertilizer.

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:

- American National Standards Institute (ANSI): www.ansi.org - (212) 642-4900
- Material Safety Data Sheets (MSDS): www.msdsonline.com
- National Safety Council: www.nsc.org/necas
- The Fertilizer Institute: www.tfi.org
- United States Department of Transportation (USDOT): www.dot.gov
- Compressed Gas Association: www.cganet.com

Safety Never Hurts

⚠ CAUTION

Read and understand the entire contents of this manual before operating or servicing the implement.

Use the following safety practices:

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

Orthman Serial Number Plate

The Orthman serial number plate contains valuable information. The model number (1) and serial number (2) 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.

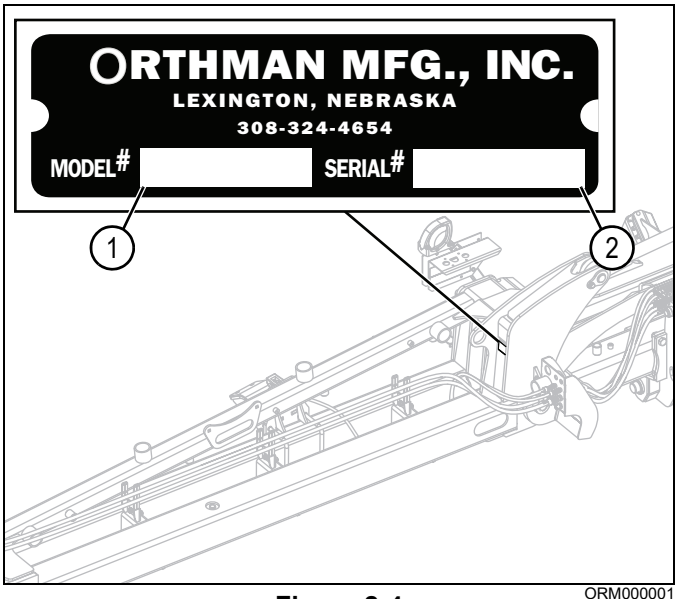

Figure 2-4

1) Model number
2) Serial number

Safety Decals

Safety decals promote awareness and knowledge concerning safe operation and maintenance of the implement. Carefully read all safety decals in this manual as well as on the implement.

Keep the implement clean so decals are easily visible. Keep all decals in good and legible condition. Immediately replace damaged and/or missing decals.

NOTE: *Replacement decals are available from your Orthman dealer. When replacing decals, thoroughly clean the area where the decal is to be placed and attach the decal void of bubbles.*

Orthman Center Decals

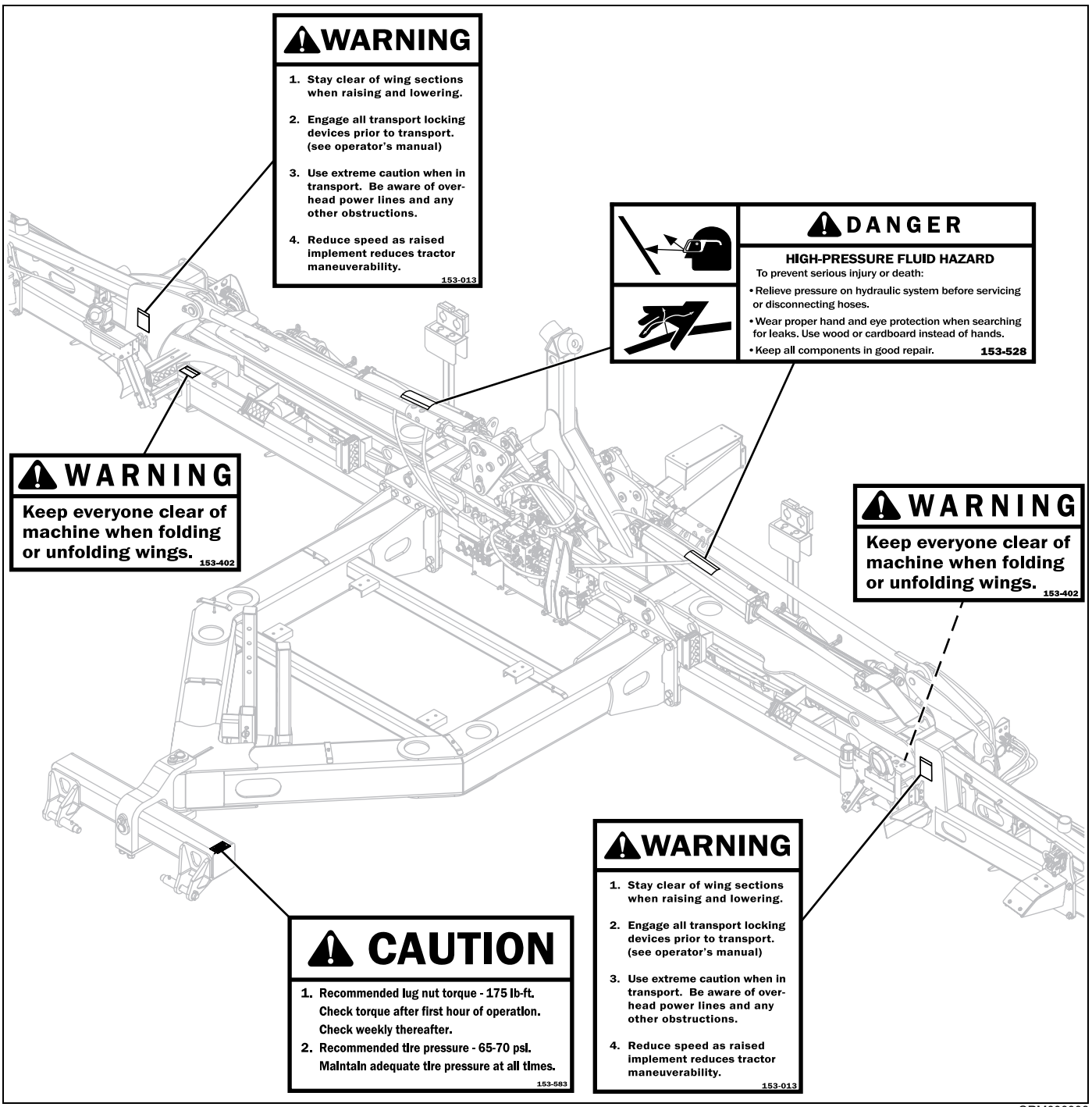

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Figure 2-5

Orthman Wing Decals

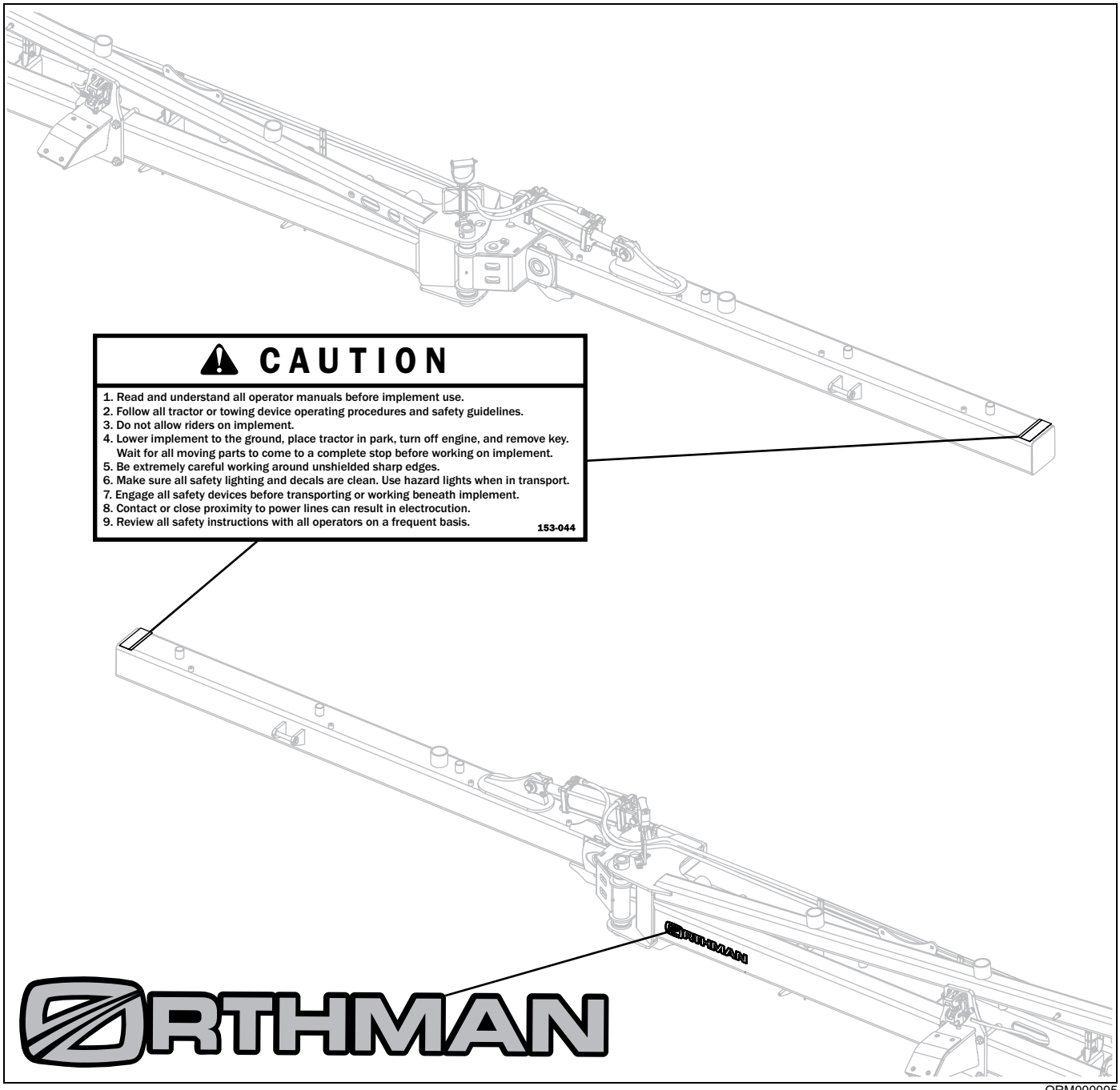

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Figure 2-6

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Chapter 3

Torque Specifications

Standard Fasteners

Unified bolt and screw torque values:

Bolt or Screw Size (inches)	SAE Grade 1				SAE Grade 2				SAE Grade 5, 5.1, or 5.2				SAE Grade 8 or 8.2			
	Lubricated		Dry		Lubricated		Dry		Lubricated		Dry		Lubricated		Dry	
	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													N•m	lb-ft	N•m	lb-ft
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									N•m	lb-ft	N•m	lb-ft				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			N•m	lb-ft	N•m	lb-ft	N•m	lb-ft								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	N•m	lb-ft														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	308	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts, or wheel nuts, unless different instructions are given for the specific application.

Grade 2 applies to hex cap screws (not hex bolts) up to 6 in (152 mm) long. Grade 1 applies to hex cap screws over 6 in (152 mm) long, and for all other types of bolts and screws of any length.

"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in and larger fasteners with JDM F13C zinc flake coating.

"Dry" means plain or zinc plated without any lubrication, or 1/4 to 3/4 in fasteners with JDM F13B zinc flake coating.

Metric Fasteners

Metric bolt and screw torque value:

Bolt or Screw Size (mm)	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated		Dry		Lubricated		Dry		Lubricated		Dry		Lubricated		Dry	
	N•m	**lb-in**	**N•m**	**lb-in**	**N•m**	**lb-in**	**N•m**	**lb-in**	**N•m**	**lb-in**	**N•m**	**lb-in**	**N•m**	**lb-in**	**N•m**	**lb-in**
M6	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	195	172
									N•m	**lb-ft**	**N•m**	**lb-ft**	**N•m**	**lb-ft**	**N•m**	**lb-ft**
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
			N•m	**lb-ft**	**N•m**	**lb-ft**	**N•m**	**lb-ft**								
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
	N•m	**lb-ft**														
M12	40	29.5	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	46	80	59	120	88	150	110	175	130	220	165	205	150	260	190
M16	100	74	125	92	190	140	240	175	275	200	350	255	320	235	400	300
M18	135	100	170	125	265	195	330	245	375	275	475	350	440	325	560	410
M20	190	140	245	180	375	275	475	350	530	390	675	500	625	460	790	580
M22	265	195	330	245	510	375	650	480	725	535	920	680	580	625	1080	800
M24	330	245	425	315	650	480	820	600	920	680	1150	850	1080	800	1350	1000
M27	490	360	625	460	950	700	1200	885	1350	1000	1700	1250	1580	1160	2000	1475
M30	660	490	850	625	1290	950	1630	1200	1850	1350	2300	1700	2140	1580	2700	2000
M33	900	665	1150	850	1750	1300	2200	1625	2500	1850	3150	2325	2900	2150	3700	2730
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2770	4750	3500

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts, or wheel nuts, unless different instructions are given for the specific application.

"Lubricated" means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C zinc flake coating.

"Dry" means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B zinc flake coating.

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Chapter 4

Unloading

Unload Safely

CAUTION

Avoid personal injury and implement damage. Follow these precautions when unloading the implement:

- Use a fork lift that meets or exceeds lifting capacity.
- Be sure that all lifting equipment is in good working order. Replace damaged or worn equipment immediately.
- Keep bystanders away from unloading area and never allow riders on forklift.
- Be sure the implement is supported by appropriate lifting equipment before removing truck securement.
- Operate forklift from the drivers seat only.

Unloading Implement

NOTE: *The implement will need to be partially assembled before the toolbar can be unloaded from the trailer.*

DANGER

Avoid crushing. Failure to follow this information could result in death or serious injury. Use an appropriate lifting device to lift and remove tongue assembly from the trailer.

1. Use an appropriate lifting device to remove the tongue assembly from the trailer.

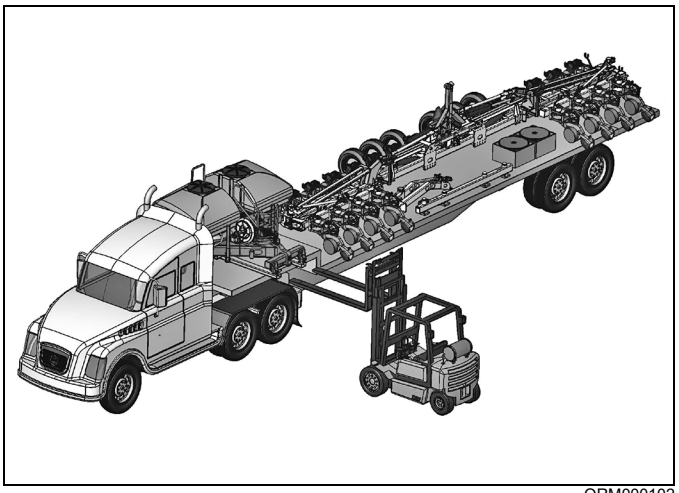

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Figure 4-1

2. Position the truck trailer perpendicular to a loading ramp to allow connection of the tongue assembly to the toolbar.

NOTE: *The tongue assembly will need to be attached to the toolbar to enable removal of the implement from the trailer.*

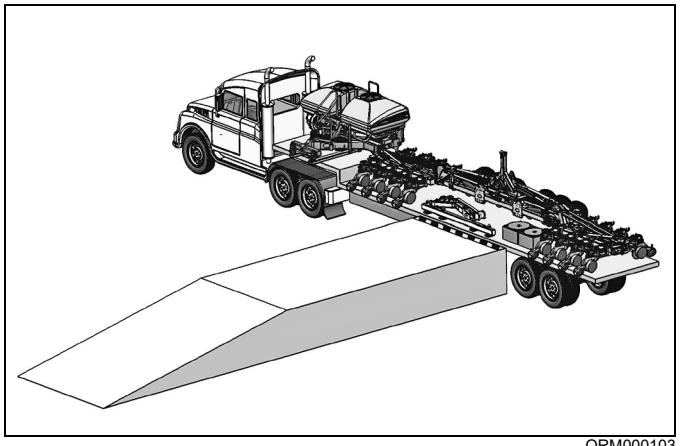

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Figure 4-2

DANGER

Avoid crushing. Failure to follow this information could result in death or serious injury. Take proper precautions when transporting or moving load.

3. Place the tongue assembly into position on the loading ramp. The connection plates on the tongue assembly should line up with the connection plates on the center section of the toolbar.

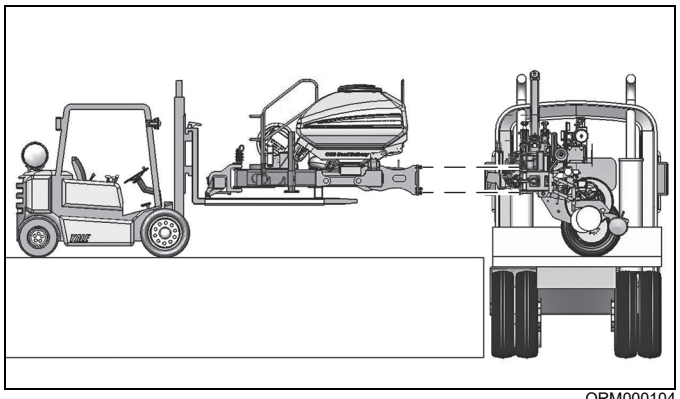

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Figure 4-3

⚠CAUTION

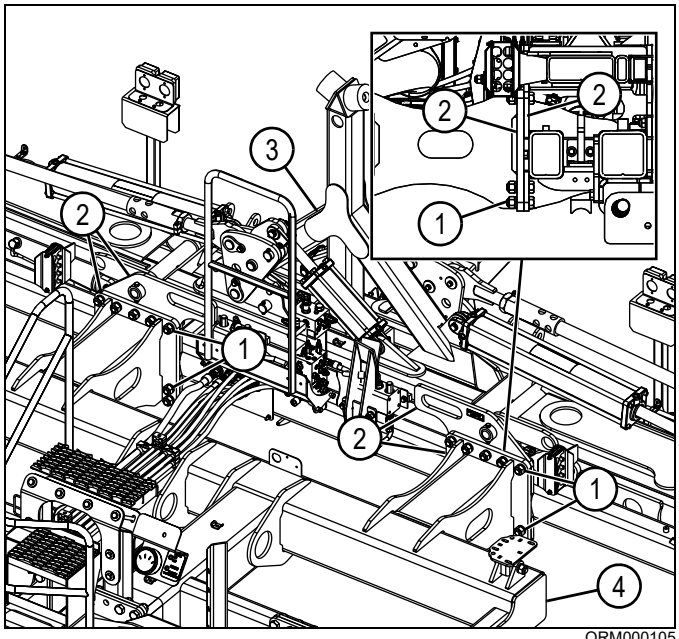
Avoid improper alignment of tongue assembly and toolbar. Failure to follow this information could result in misleading torque specs and a gap between the plates. Ensure the connection plates of the tongue assembly and toolbar are mating properly.

4. Attach the tongue (4) using the hardware provided in the center section (3). Do not tighten hardware until all fasteners (1) have been inserted. Leave hardware loose to aid in alignment. Once all bolts have been inserted, the hardware can be tightened to specification.

Specification

Fastener Torque	960 lb-ft (1300 N•m)

NOTE: *To ease installation, install bolts from toolbar side into the tongue assembly.*



ORM000105

Figure 4-4

1) Fastener (30 used)
2) Connection plate (4 used)
3) Center section
4) Tongue

⚠DANGER

Avoid crushing. Failure to follow this information could result in death or serious injury. Use bar stands to support the implement.

5. Lower bar stands (5).
6. Remove shipping stand (6).

NOTE: *Obtain return merchandise authorization (RMA) from Orthman service department to return shipping stand to Orthman.*

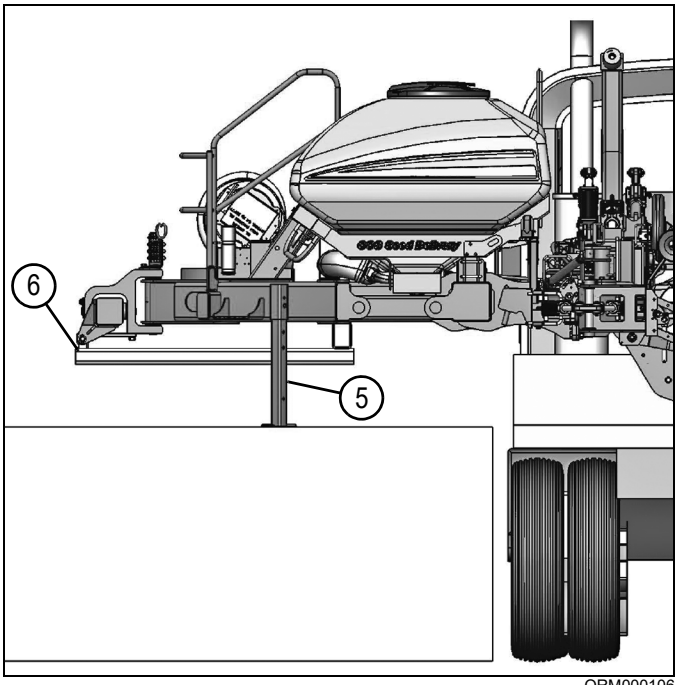


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Figure 4-5

5) Bar stand (2 used)
6) Shipping stand

7. Connect four hoses (7–10) from the hydraulic bulkhead (12) to the fold control manifold (11) for implement operation. The manifold parts are stamped with their function.

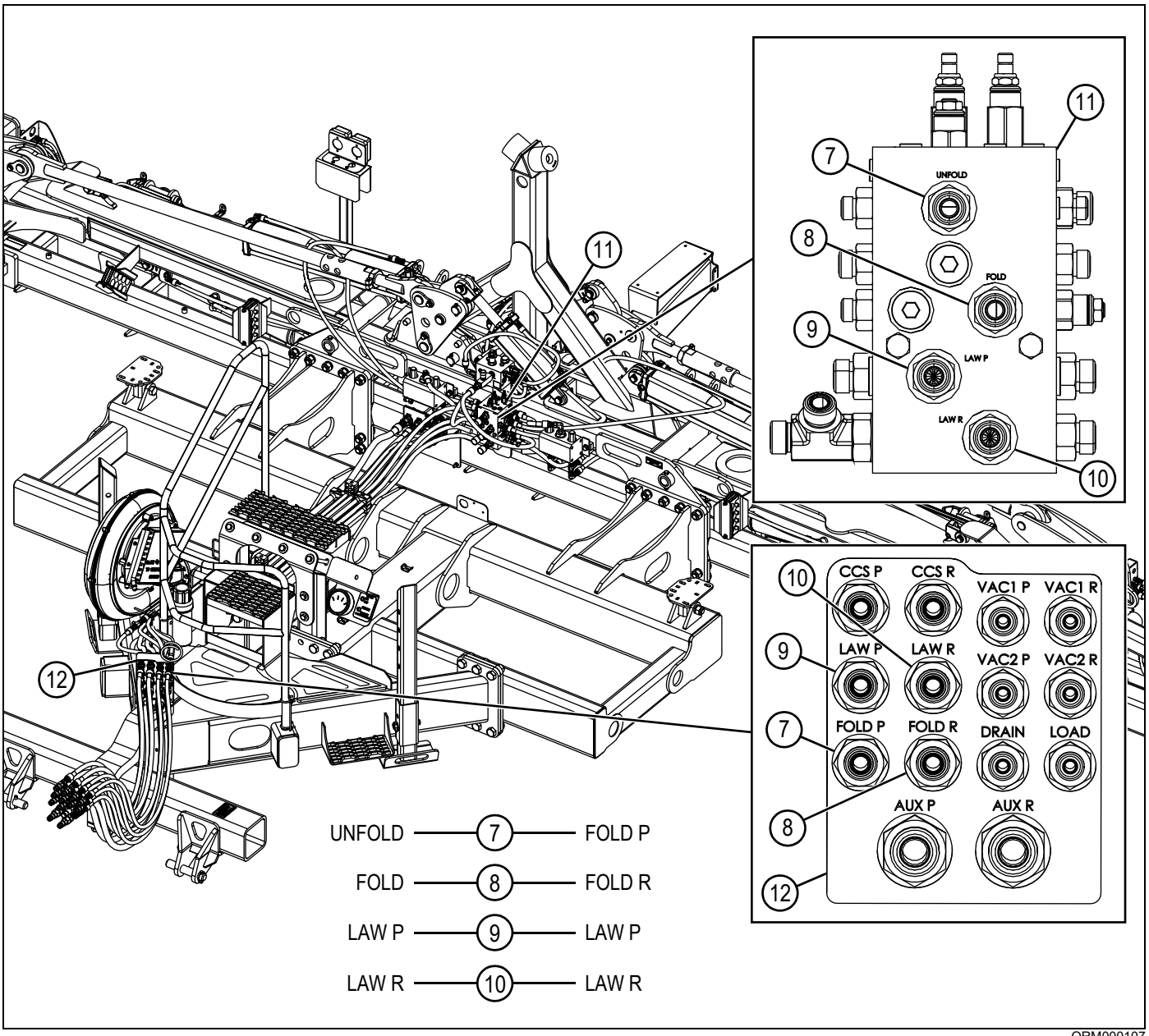
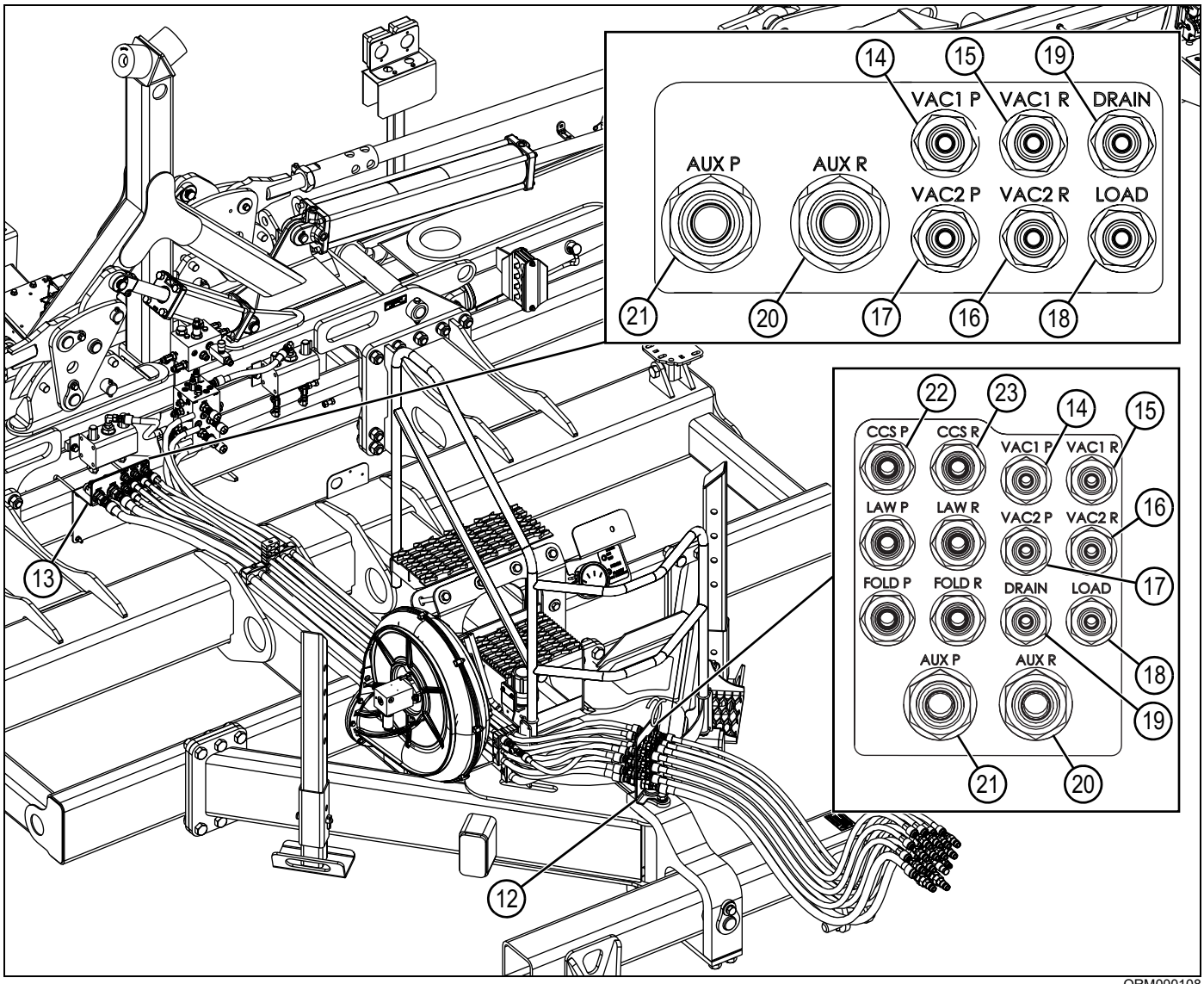


Figure 4-6

7) Unfold supply hose (UNFOLD/FOLD P)
8) Fold supply hose (FOLD/FOLD R)
9) Lift assist wheel supply hose (LAW P)
10) Lift assist wheel return hose (LAW R)
11) Fold control manifold
12) Hydraulic bulkhead

8. Connect hoses (14–21) from the hydraulic bulkhead (12) to the center section hydraulic bulkhead (13). The hoses on the tongue come from the factory labeled accordingly.



ORM000108

Figure 4-7

12) Hydraulic bulkhead
13) Center section hydraulic bulkhead
14) Vacuum blower 1 pressure hose (VAC1 P)
15) Vacuum blower 1 return hose (VAC1 R)
16) Vacuum blower 2 return hose (VAC2 R)
17) Vacuum blower 2 pressure hose (VAC2 P)
18) Load sense (LOAD)
19) Central commodity system (CCS) blower/vacuum blower drain hose (DRAIN)
20) Auxiliary return hose (AUX R)
21) Auxiliary pressure hose (AUX P)
22) CCS pressure hose (CCS P)
23) CCS return hose (CCS R)

DANGER

Avoid crushing. Failure to follow this information will result in death or serious injury. Do not stand between the tractor and implement when connecting or disconnecting the implement.

9. Connect implement hitch to tractor. See “Implement-to-Tractor Connection” (Operator’s Manual).

CAUTION

Use caution when raising and lowering the machine. The lift cylinders may have air in the system that can cause cavitation. It can also cause the cylinder not to lift or to fall to the ground during lifting.

10. Raise the toolbar and bar stands, and pull the implement off of the loading ramp.
11. Park implement on a clean, level surface; strong enough to support the weight of the machine.
12. Place the tractor in park, turn off the engine, and remove the key.
13. Connect all electrical harnesses from the tongue assembly to the harnesses on the toolbar. Tie up/route harnesses accordingly to avoid wear/pinch points and prevent harness damage during planter function. See Figure 4-8 on page 4-7.
    a. Connect tongue harness (24) 7-pin connector (marked Center Backbone) (25) to backbone center harness (26) 7-pin connector (marked Tongue Harness) (27).
    b. Connect tongue harness (24) 18-pin connector (marked Center Backbone) (28) to backbone center harness 18-pin connector (marked Tongue Harness) (29).
    c. Connect central commodity system (CCS) cradle harness (30) 29-pin connector (marked Cradle Harness) (31) to backbone center harness (26) 29-pin connector (marked CCS Cradle) (32).
    d. Connect tongue harness (24) 18-pin connector (marked CAN Tractor) (33) to CAN harness (34) 18-pin connector (marked CAN Draft Tube) (35).
    e. Connect tongue harness (24) 9-pin connector (marked Tractor Contact) (36) to light harness (37) 9-pin connector (marked Lights) (38).
14. Connect toolbar electrical connectors to tractor connection points. Tie up/route harnesses accordingly to avoid wear/pinch points and prevent harness damage during planter function. See Figure 4-8 on page 4-7.
    a. Connect CAN harness (34) 9-pin connector (marked CAN Tractor) (39) to tractor connection point.
    b. Connect light harness (37) 7-pin connector (marked Tractor) (40) to tractor connection point.
    c. Connect power-take-off (PTO) center harness (41) 7-pin connector (marked Alt Harness) (42) to tractor alternator.
15. Connect seed tube hoses. Hoses are labeled 1–24 accordingly.

Electrical Harness Layout

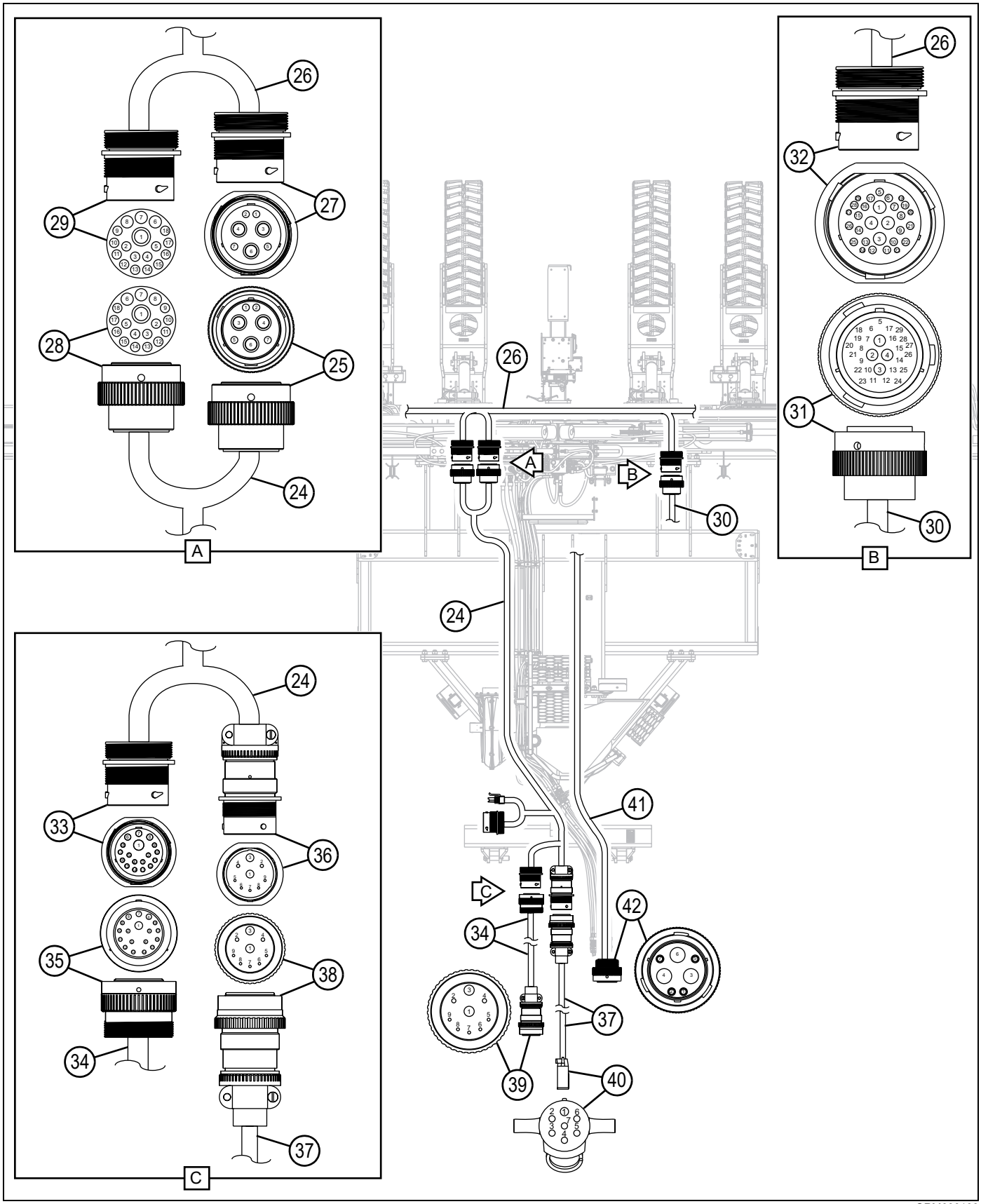


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Figure 4-8

Electrical Harness Layout Legend

24) Tongue harness
25) 7-Pin connector (marked Center Backbone)
26) Backbone center harness
27) 7-Pin connector (marked Tongue Harness)
28) 18-Pin connector (marked Center Backbone)
29) 18-Pin connector (marked Tongue Harness)
30) Central commodity system (CCS) cradle harness
31) 29-Pin connector (marked Cradle Harness)
32) 29-Pin connector (marked CCS Cradle)
33) 18-Pin connector (marked CAN Tractor)
34) CAN harness
35) 18-Pin connector (marked CAN Draft Tube)
36) 9-Pin connector (marked Tractor Contact)
37) Light harness
38) 9-Pin connector (marked Lights)
39) 9-Pin connector (marked CAN Tractor)
40) 7-Pin connector (marked Tractor)
41) Power-take-off (PTO) center harness
42) 7-Pin connector (marked Alt Harness)

Delivery Inspection

Before releasing the carrier, perform the following checklist after unloading the implement.

Delivery Inspection Checklist	
	Check the delivery against the packing slip.
	Check for overages, shortages, and /or damages. Record all incidents on the freight bill immediately.
	Product destined for subsequent stops must be secured in a manner that will allow proper transportation and unloading.
Date unloaded:	
Signature:	

Clean Implement

⚠CAUTION

Avoid corrosion. Wash implement to remove corrosive materials. Failure to follow this information may cause implement damage.

After unloading the implement, wash and rinse the machine. Road transport during winter months may expose equipment to corrosive materials. After transporting machines on treated roads, thoroughly wash and rinse implement as soon as possible to avoid corrosion.

⚠CAUTION

Avoid damage to indicator gauges. Do not spray indicator gauges with high-pressure water.

If washing implement with high-pressure water, be aware of delicate parts such as gauges and decals. Do not spray gauges and decals with high-pressure water. If gauges or decals become damaged, replace parts immediately before delivering machine to the customer.

Index

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South Africa Ag Products: (+27) 12-940-2155

For repair parts or service contact your certified Orthman dealer.

Orthman.com

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