LOFTNESS

Draper Windrower Shredder

20' Model

Owner's Manual and Parts Book
(Originating w / Serial Number 59-163)

Model Number: _____
Serial Number: _____
Date of Purchase: _____

N32670

09.12.14


LOFTNESS

LOFTNESS SPECIALIZED EQUIPMENT, INC.
WARRANTY POLICY

The warranty policy begins upon delivery of the unit to the original customer.

All Loftness products have a one (1) year warranty policy.

If any Loftness product is used as rental equipment, the warranty period extends for only 30 days from the delivery date to the original customer.

Loftness Specialized Equipment, hereinafter referred to as LOFTNESS, a manufacturer of quality machinery since 1956, warrants new LOFTNESS machinery and/or attachments at the time of delivery to the original purchaser, to be free from defects in material and workmanship when properly set up and operated in accordance with the recommendations set forth in the LOFTNESS Operator's Manual.

LOFTNESS' liability for any defect with respect to accepted goods shall be limited to repairing the goods at an authorized dealer or other LOFTNESS designated location, or replacing them as LOFTNESS shall elect. The above shall be in accordance with LOFTNESS warranty adjustment policies. This warranty shall not apply to any machine or attachment which shall have been repaired or altered outside the LOFTNESS factory or authorized LOFTNESS dealership or in any way so as in LOFTNESS' judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident, nor to any machine or attachment which shall not have been operated in accordance with LOFTNESS' printed instructions or beyond the company recommended machine rated capacity.

WARRANTY REQUIREMENTS

Warranty registration form must be filled out and returned to Loftness Specialized Equipment to validate all future warranty claims.

LIMITATIONS OF WARRANTY

All Products - LOFTNESS products are designed to provide years of dependable service when proper use and maintenance is adhered to. The potential for misuse in many applications exists, therefore a limited warranty is provided as follows:

All Shredders, Axes, Cutters & Mowers – Rotor Balance: Critical rotor balance can be affected by conditions beyond LOFTNESS' control, such as the operation of a shredder beyond the Company's rated capacity, improper knife replacement, missing knives, striking foreign objects, lack of lubrication, etc. Any failure resulting from running in as "out-of-balance" condition, such as, but not limited to bearing and or drive-line failure, metal fatigue, cracks, etc. will be considered abuse and will not be covered under warranty. LOFTNESS may elect to have an area representative evaluate the condition of the machine before warranty is considered.

To receive a warranty claim, a return authorization from LOFTNESS must be obtained. The failed part may then be returned in an untampered status. This warranty does not include freight or delivery charges incurred when returning machinery for servicing. Dealer mileage, service calls and pick-up/delivery charges are the customer's responsibility.

EXCLUSIONS OF WARRANTY

Except as otherwise expressly stated herein, LOFTNESS makes no representation or warranty of any kind, expressed or implied, and makes no warranty of merchantability in respect to its machinery and/or attachments and makes no warranty that its machinery and/or attachments are fit for any particular purpose. LOFTNESS shall not be liable for incidental or consequential damages for any breach of warranty, including but not limited to inconvenience, rental or replacement equipment, loss of profits or other commercial loss. Upon purchase the buyer assumes all liability, all personal injury and property damage resulting from the handling, possession or use of the goods by the buyer.

No agent, employee, or representative of LOFTNESS has any authority to bind LOFTNESS to any affirmation, representation or warranty concerning its machinery and/or attachments except as specifically set forth herein.

April 2009


LOFTNESS

LOFTNESS
SPECIALIZED EQUIPMENT. UNLIMITED INNOVATION.

650 South Main Street
Hector, MN 55342 USA
loftness.com 320-848-6266
US & Canada 800-828-7624

International: 320-848-6266 Fax: 320-848-6269 Parts Fax: 320-848-6055 E-mail: info@loftness.com Web Address: www.loftness.com

WARRANTY REGISTRATION

Dealer No.: _____

Dealer Name: _____ Dealer Phone: _____

Shipping Address: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Invoice No.: _____ Part No.: _____

Model No.: _____ Serial No.: _____

PLEASE PRINT

FOLLOWING INFORMATION MUST BE FILLED IN COMPLETELY FOR WARRANTY:

Customer:
Last Name: _____ First _____ Middle Initial _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

County: _____ Warranty (Delivered) Date

Phone: _____ Month _____ Day _____ Year _____

DEALER

The machine was properly set up, adjusted and inspected before delivery. The following items were explained to the purchaser.

* How to operate machine properly as shown in the owner's manual.
* The importance of safety precaution, safety equipment and preventative maintenance.
* Loftness Warranty for this machine.

X _____
Dealer's Signature

_____
Date

PURCHASER

I have received and reviewed the operator's manual for the above machine and understand the proper and safe operation as well as the applicable warranty outlined therein.

A customer's manual is included with each machine.

The unit was delivered to me in satisfactory condition.

X _____
Purchaser's Signature

_____
Date

Customer Copy

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Hector, MN 55342 USA
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Purchaser's Signature

_____
Date

Loftness Copy

Warranty

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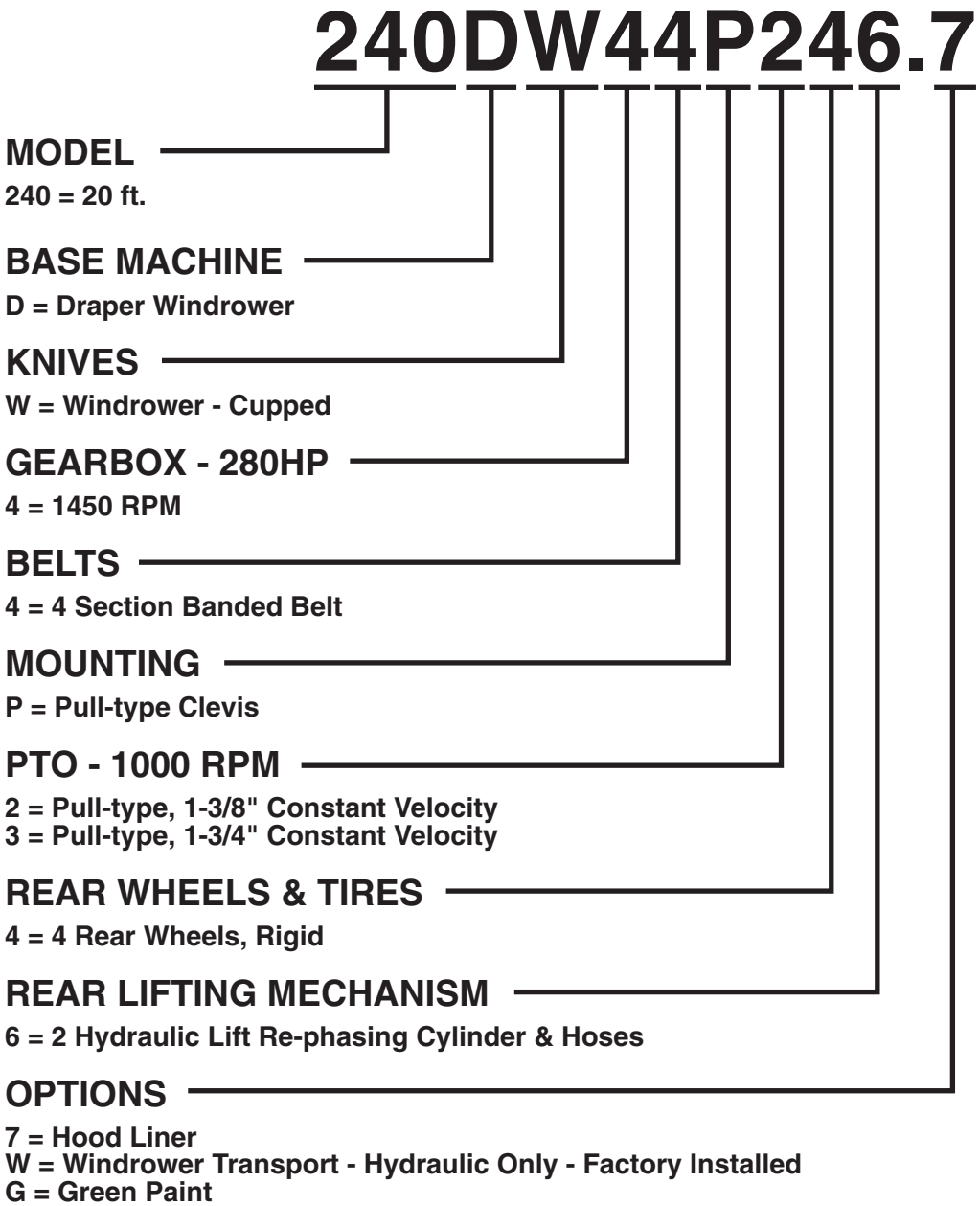
LOFTNESS

Ordering Code

Draper Windrower Shredder (Example)

The ordering code will consist of one letter (base machine), one letter (knives type), one number (gearbox rpm), one number (belt style), one letter (mounting type), one number (PTO type), one number (rear wheel setup), one number (lifting mechanism), and one to three numbers/letters (options). An example for a Draper Windrower Shredder of this type would be as shown below.




LOFTNESS

Owner Information

Thank you for your decision to purchase a draper windrower shredder from Loftness. To ensure maximum performance of your machine, it is mandatory that you thoroughly study the owner's manual and follow its recommendations. Proper operation and maintenance are essential to prevent injury or damage and to maximize machine life.

Operate and maintain this machine in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and/or laws, and in compliance with on-product labeling and these instructions.

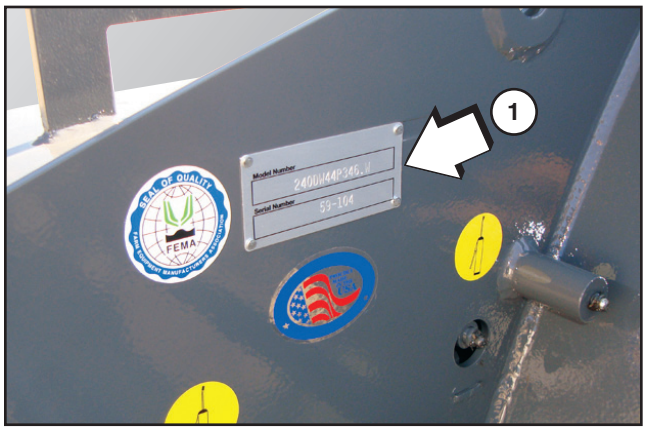
Make sure that all personnel have read this owner's manual and thoroughly understand safe and correct operating, set-up, installation and maintenance procedures.

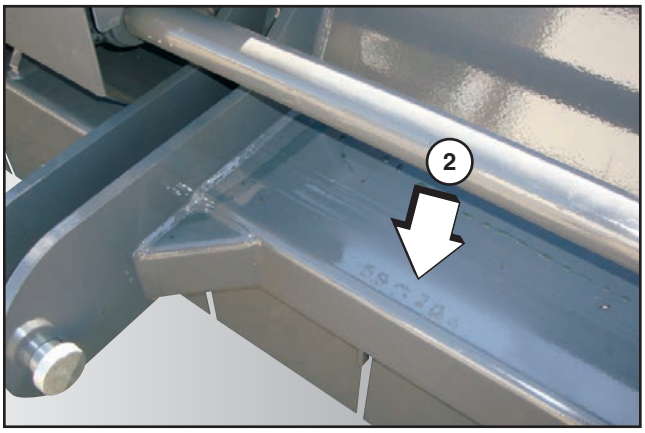
Continuous improvement and advancement of Loftness products may result in changes to your equipment that may not be reflected in this publication. Loftness reserves the right to make product improvements to the machine at any time. Although great care has been taken to ensure the accuracy of this publication, Loftness does not assume any liability for errors or omissions.

Warranty Policy

Be sure to read and understand the Warranty Policy at the beginning of this manual. It is also important that you fill out the Warranty Registration form(s) completely with your dealer so as not to void the warranty.

Serial Number Location





The arrows indicate the location of the serial number tag (1), and the location of the serial number stamped into the frame (2).

Always use your model and serial number when requesting information or when ordering parts.

Manual Storage

Keep the owner's manual and the entire documentation packet in the storage compartment (1) provided on your draper windrower shredder. The owner's manual must be available for all operators.

Draper Windrower Shredder Features

- 20' Cutting Width
- Pull-type Hitch
- 30 in. Side Discharge
- 1-3/8 in. or 1-3/4 in. 1000 RPM PTO
- 1,450 RPM Rotor
- 4-1/2 in. Wide Cupped Knives - Hardened
- High-speed 33 in. Draper
- Flow Deflectors
- Adjustable Angle Crop Rear Door
- Tunnel Access Doors
- 4-Groove Banded Belts
- Spring-loaded Push-type Idler System
- Adjustable Wheel Spacing

Draper Windrower Shredder Options

- Transport System (Street Side and Curb Side Transport Wheels Hydraulically Positioned)
- Hood Liner

Safety First

Safety Alert Symbol

This message alert symbol identifies important safety messages on the machine and in the owner's manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

In the owner's manual and on decals used on the machine the words **DANGER, WARNING, CAUTION, IMPORTANT, and NOTE** are used to indicate the following:

DANGER: This word warns of immediate hazards which, if not avoided, will result in severe personal injury or death. The color associated with Danger is RED.

WARNING: This word refers to a potentially hazardous situation which, if not avoided, could result in severe personal injury or death. The color associated with Warning is ORANGE.

CAUTION: This word refers to a potentially hazardous or unsafe situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

IMPORTANT: Highlights information that must be heeded.

NOTE: A reminder of other related information that needs to be considered.

If Safety Decals on this machine are ISO two panel pictorial, decals are defined as follows:

- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW.
- Prohibition symbols such as and if used, are RED.

Be certain all machine operators are aware of the dangers indicated by safety decals applied to the machine, and be certain they follow all safety decal instructions. Contact Loftness for safety decal replacement.

Loftness cannot anticipate every possible circumstance that may involve a potential hazard. The warnings in this owner's manual are not all inclusive.

Owner's Responsibility

Due to the potential danger of flying debris, it is the owner's responsibility and is "**ABSOLUTELY MANDATORY** that **IMPACT-RESISTANT SHIELDING**" be installed on the machine to protect the operator.

It is **ABSOLUTELY MANDATORY** that all personnel read and follow all safety precautions before operating the machine and attachment.

Make sure that all personnel have read this owner's manual, and thoroughly understand safe and correct installation, operation, and maintenance procedures.

Operate and maintain this machine in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and/or laws; and in compliance with on-product labeling and this owner's manual instructions.

Make sure that all personnel know how to stop the machine and attachment by disengaging all controls. See "Mandatory Shut-Down Procedure" on page 5.

Make sure the attachment is installed on the machine correctly before being placed in service. At regular intervals thereafter, the attachment should be serviced in accordance with procedures outlined in this owner's manual.

Mandatory Shut-Down Procedure

- Stop the machine and attachment on a level surface and lower the attachment to the ground.
- Move throttle to idle position.
- Disengage all power to the attachment.
- Shut off engine and remove the key.

Wait until the rotor has stopped completely before inspecting the attachment.

Safety Rules

These are general safety considerations. Additional precautions may be necessary to operate your machine in a safe manner. Be certain you are operating your machine in accordance with all safety codes, OSHA rules and regulations, insurance requirements and local, state, and federal laws.

- Never allow children to operate equipment. Never allow adults to operate equipment without proper instructions.
- Keep the area of operation clear of all unauthorized persons.
- Remove from area of operation all foreign objects such as sticks, wire, rocks, etc., that might become tangled in rotors, causing damage to the draper windrower or be thrown from the draper windrower striking other objects.
- Never attempt to make any adjustments while the engine is running or the key is in the “ON” position of the tractor. Before leaving the operator’s position, disengage power to the draper windrower and remove ignition key.
- Disengage PTO, clutch and hydraulic valve and shift tractor into neutral or park before starting engine.

Safety Instructions for Operation and Maintenance

The following safety warnings are used here and on the draper windrower. Become familiar with them before operating this machine.

CAUTION:

- Do not start, operate, or work on this machine until you have carefully read and thoroughly understand the contents of the operator’s manual.
- Failure to follow safety, operating, and maintenance instructions could result in death or serious injury to the operator or bystanders, poor operation, or costly breakdown.
- Unless instructed by decal or operator’s manual, stop engine before leaving operator’s position and wait for all movement to stop before attempting to adjust, lubricate, unclog or inspect. Exercise mandatory shut-down procedure. After the service has been performed, be sure to restore all guards, shields and covers to their original position.
- Always observe all safety rules shown on decals. Replace any damaged decals immediately. If the unit is repainted, be sure to replace all decals which apply to the machine.
- Become familiar with and know how to use all the safety devices and controls on the draper windrower before attempting to operate the unit. Know how to stop the unit before starting it.
- Before working under any hydraulically controlled implement, be sure to securely block implement in position.
- Keep children and spectators off and away from the machine while it is in operation.
- Never operate the draper windrower with a 540 RPM tractor.
- Never use a steel hammer when connecting or disconnecting a PTO shaft.

CAUTION:

- Repeated impact of the knives with frozen ground or hard objects can cause excessive wear and damage to tractor or draper windrower. Be sure to maintain recommended ground clearance as specified in this manual.
- Should excessive vibration occur, disengage the tractor PTO immediately and shut off tractor. Do not continue to operate the machine until the problem has been determined and corrected.
- Be sure the rotor has stopped completely before checking the knives.

WARNING:

- Keep all guards, shields and decals in place.
- Always repair or replace any front flipper shields that are damaged or missing.

Safety Instructions for Operation and Maintenance (Cont'd)

- Be sure PTO outer guard turns freely before operating machine.

WARNING:

- Keep hands, feet and clothing away from moving components.
- Do not wear loose or baggy clothing around rotating machinery. Machine must be clear of people, tools, and other objects before engaging PTO.
- Engage the PTO slowly at idle speed to prevent unnecessary stress to drive-line.
- Read and observe all warnings on the machine before attempting to operate the draper windrower. Do not attempt to operate this machine unless all factory-installed safety devices are in place.
- Never attempt to lubricate the draper windrower with the engine running. Always be sure to exercise the mandatory shut-down procedure.
- Be extremely careful not to bottom out or extend PTO shaft too far, damage to tractor or draper windrower could occur. Be careful to avoid lifting draper windrower too high, which results in excessive PTO shaft wear if machine is operated during turning maneuver. DO NOT USE PTO ADAPTERS OF ANY KIND.
- Do not operate the draper windrower without the universal joints locked to the tractor and gearbox shafts.
- Operating the draper windrower at less than rated RPM will reduce drum speed and cause improper cutting. In difficult conditions, reduce tractor speed by down-shifting gears while maintaining rated engine RPM. Severely difficult conditions may require a delay until conditions improve.
- Do not operate the draper windrower above the rated RPM.

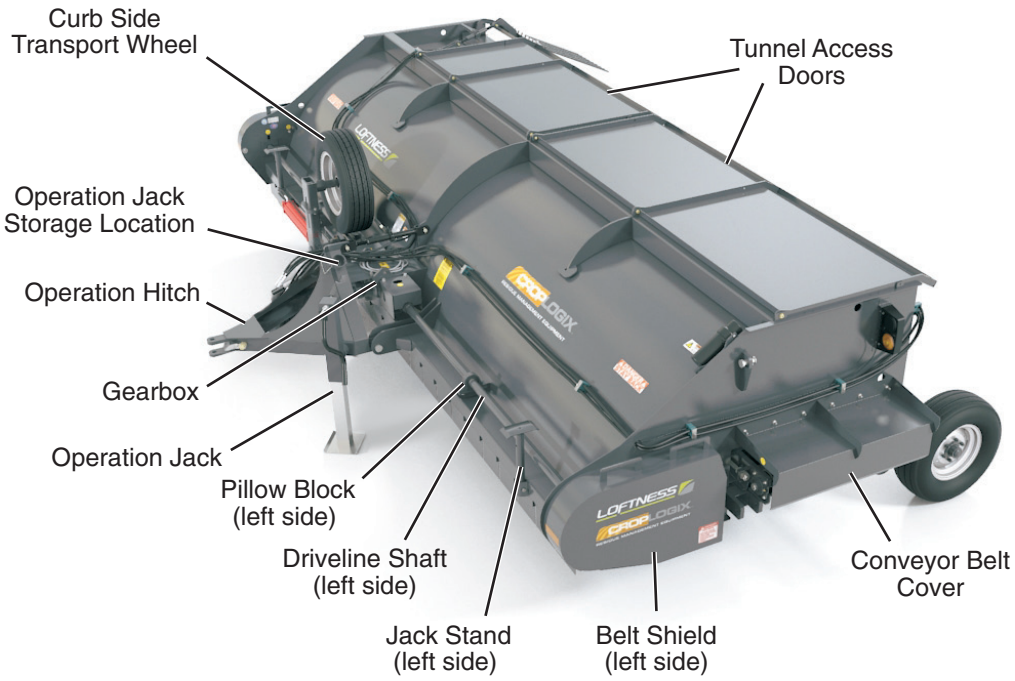
DANGER:

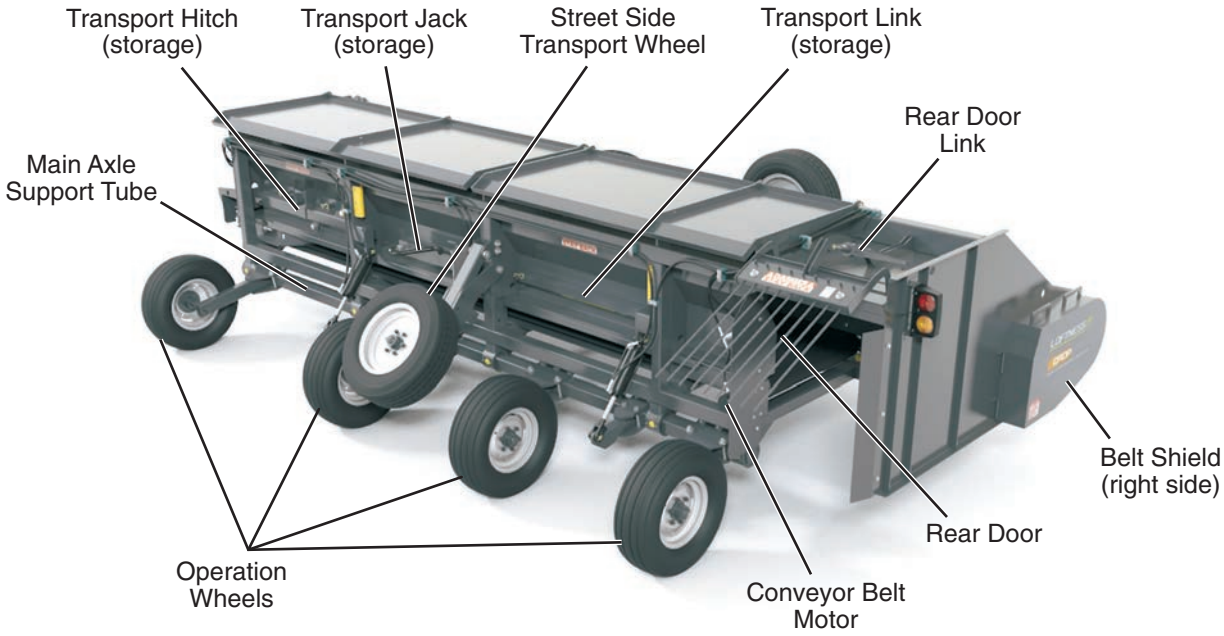
- Escaping fluid under pressure can be invisible and can penetrate the skin. Do not use hands to search for leaks!
- Hydraulic lines or other components can be hot after operation! “DO NOT TOUCH”!
- Keep hands and feet out! Do not step on or over the machine while it is in operation!
- Rotating drive-line. Personal injury or death can result from entanglement.

Hydraulic Safety

- The hydraulic system is under high pressure. Make sure all lines and fittings are tight and in good condition. These fluids escaping under high pressure can have sufficient force to penetrate skin and cause serious injury.
- Never check for leaks by using any part of your body to feel for escaping fluid.

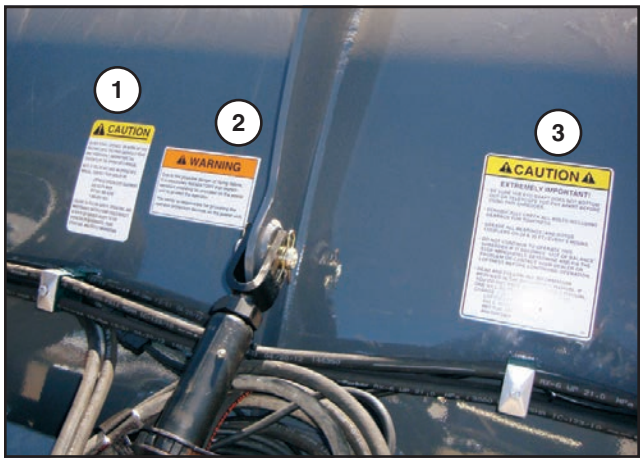
Draper Windrower Shredder Identification





Safety Decal Locations

Check and replace any worn, torn, hard to read or missing safety decals on your machine.



1

CAUTION

DO NOT START, OPERATE, OR WORK ON THIS MACHINE UNTIL YOU HAVE CAREFULLY READ AND THOROUGHLY UNDERSTAND THE CONTENTS OF THE OPERATOR'S MANUAL.

NOTE: IF YOU DO NOT HAVE AN OPERATOR'S MANUAL, CONTACT YOUR DEALER OR

LOFTNESS SPECIALIZED EQUIPMENT
650 SOUTH MAIN
HECTOR, MN 55342
1-800-828-7624

FAILURE TO FOLLOW SAFETY, OPERATING, AND MAINTENANCE INSTRUCTIONS COULD RESULT IN DEATH OR SERIOUS INJURY TO THE OPERATOR OR BYSTANDERS, POOR OPERATION, AND COSTLY BREAKDOWN.

Part No. 4256

2

WARNING

Due to the possible danger of flying debris, it is absolutely MANDATORY that impact-resistant shielding be provided on the power unit to protect the operator.

The owner is responsible for providing the operator protection devices on the power unit.

Part No. N17013

3

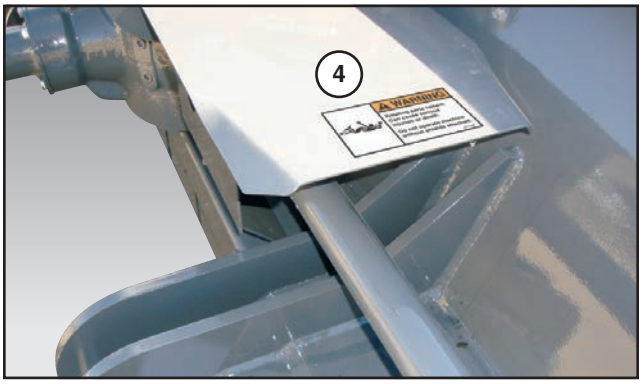
CAUTION

EXTREMELY IMPORTANT!

- BE SURE THE PTO SHAFT DOES NOT BOTTOM OUT OR TELESCOPE TOO FAR APART BEFORE USING THIS SHREDDER.
- PERIODICALLY CHECK ALL BOLTS INCLUDING GEARBOX FOR TIGHTNESS.
- GREASE ALL BEARINGS (AND ROTOR COUPLERS ON 24 & 30 FT.) EVERY 8 HOURS.
- DO NOT CONTINUE TO OPERATE THIS SHREDDER IF IT BECOMES "OUT OF BALANCE." STOP IMMEDIATELY, DETERMINE AND FIX THE PROBLEM OR CONTACT YOUR DEALER OR LOFTNESS BEFORE CONTINUING OPERATION.
- READ AND FOLLOW ALL INFORMATION PROVIDED IN THE OPERATOR'S MANUAL. IF YOU DO NOT HAVE AN OPERATOR'S MANUAL, ONE WILL BE PROVIDED TO YOU AT NO CHARGE. CALL OR WRITE TO:
  LOFTNESS SPECIALIZED FARM EQUIPMENT
  S. HIGHWAY 4 - BOX 337
  HECTOR, MN 55342-0337
  320-848-6273

4335

Part No. 4335



4

WARNING

Rotating parts hazard. Can cause serious injuries or death.

Do not operate machine without shields attached.

PN 4189

Part No. 4189

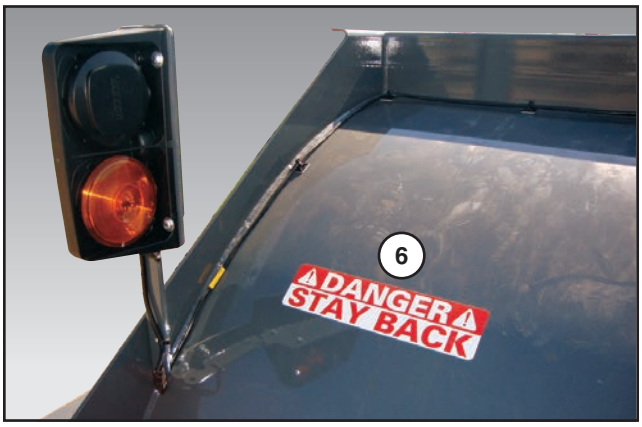
Safety Decal Locations (Cont'd)

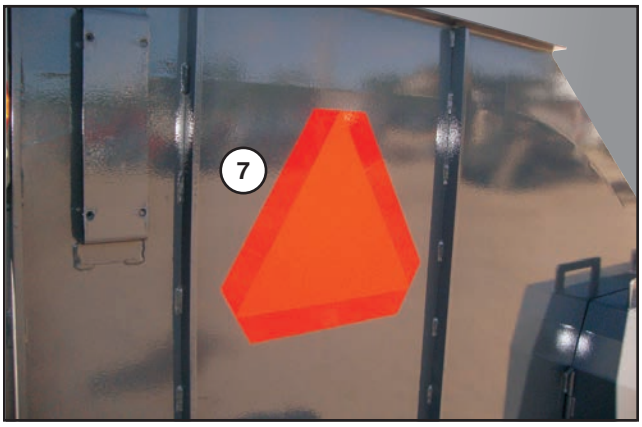
5

Part No. N22763

6

Part No. 4334





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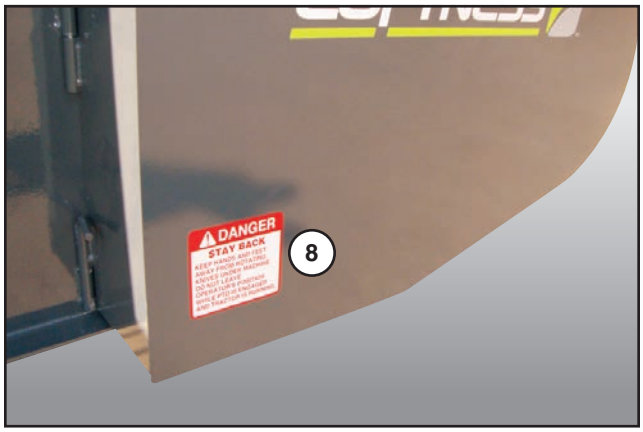
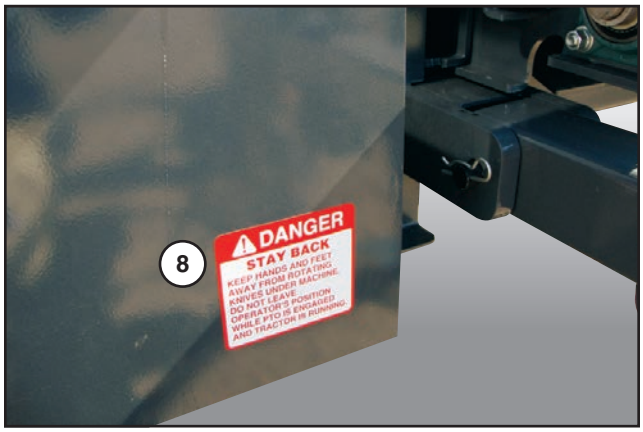
Part No. N18549

Safety Decal Locations (Cont'd)





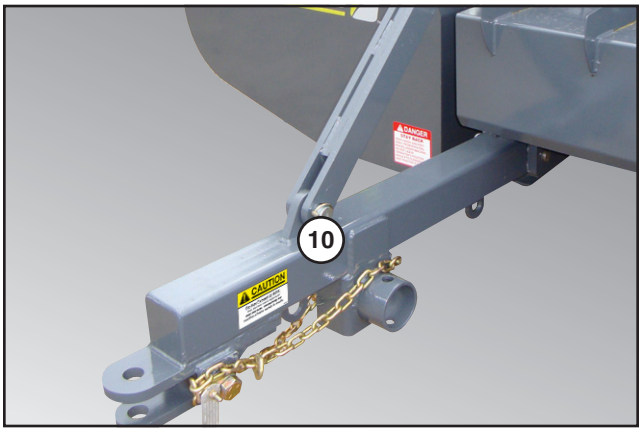
9

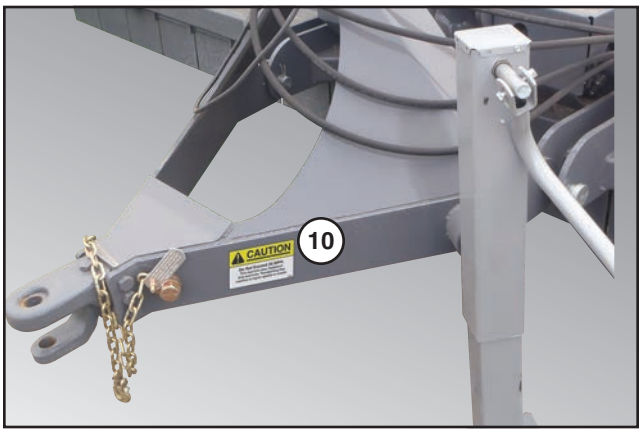
Part No. N23507

8

Part No. 4135

Safety Decal Locations (Cont'd)





(10)

CAUTION

Do Not Exceed 20 MPH.
This machine uses implement tires and hubs. Transporting this machine at higher speeds is unsafe.

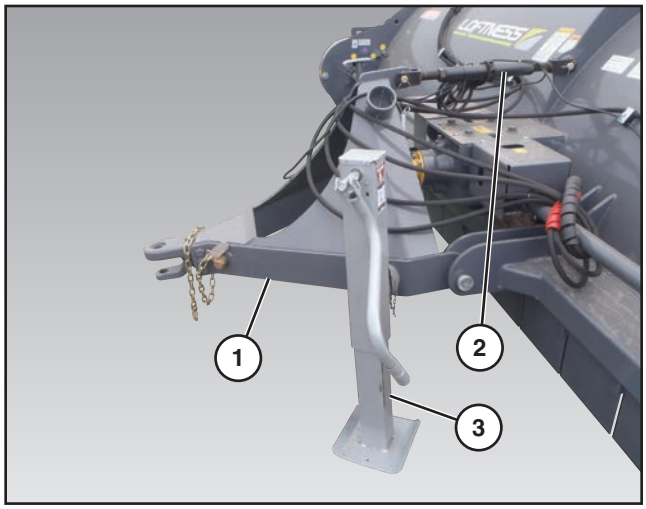
N23931

Part No. N23931

Equipment Set-up

The draper windrower is shipped partially assembled for shipping width. There are four tire assemblies, one hydraulic motor, one chain coupler, one chain coupler sprocket, two hydraulic cylinders, and, if equipped with the transport option, one transport wheel assembly with a hydraulic cylinder.

Operation Hitch Installation

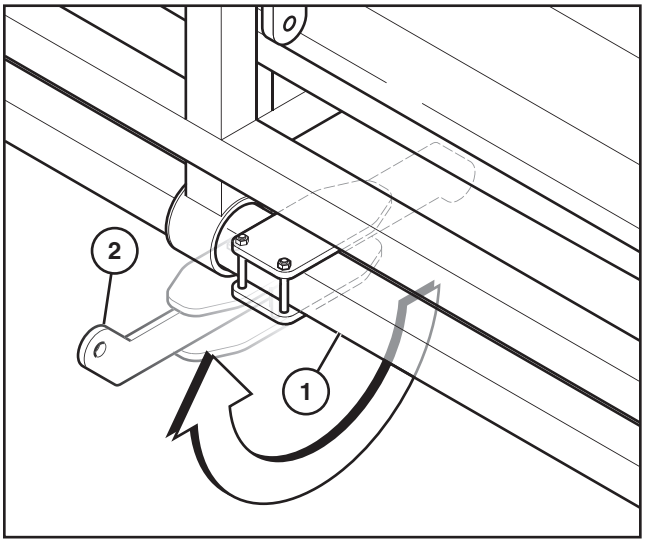


Install the operation hitch assembly (1), insert pins and secure with Lynch pins.

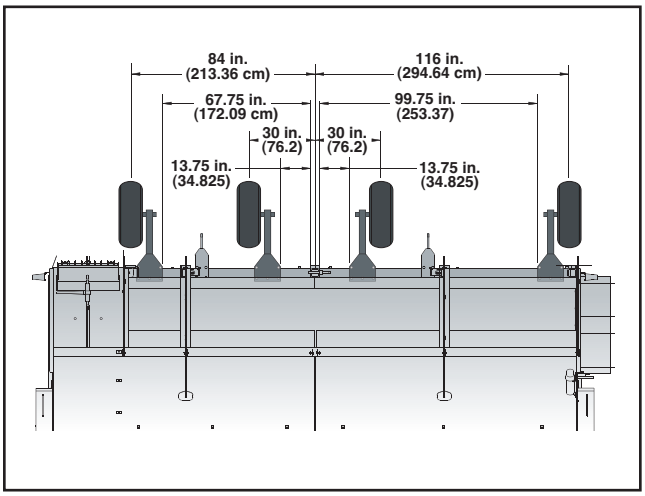
Connect the ratchet jack (2) from the frame to the hitch, insert pins and secure with clips.

Position the operation jack (3) in the jacking location.

Rear Operation Wheel Installation and Spacing

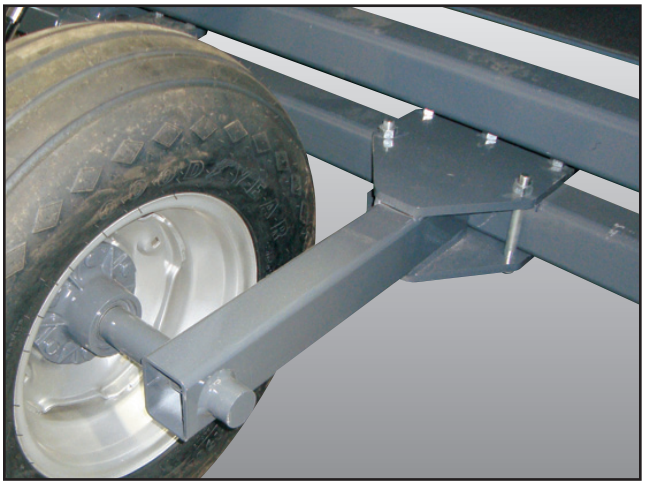


The main axle support tube (1) has been turned inside the machine to allow for shipping. This will need to be turned so the cylinder mounting ears (2) are turned outward.



Follow the figure above for wheel orientation and reference for wheel assembly locations.

Rear Operation Wheel Installation and Spacing (Cont'd)



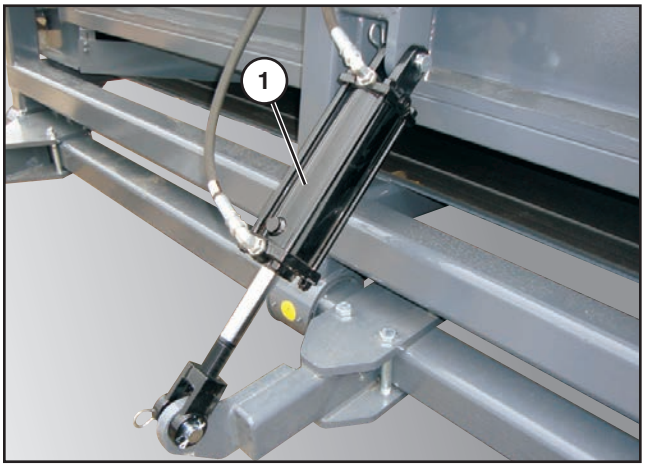
Install the four wheels to the main axle tube using the bolts that are supplied on the arm weldments.

Wheels should be placed to operate between the rows. The wheels closest to the material chute will need to be mounted as close as possible to the opening but will not line up exactly on the crop row center. It will be offset to the inside.

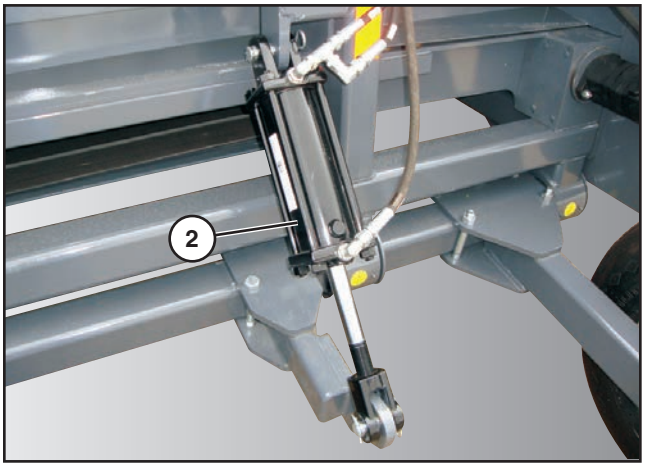
To obtain the best results from the draper windrower, wheel spacing should conform to crop row spacing. To adjust wheel spacing, raise draper windrower and install blocks under draper windrower end plates. Raise rear wheels with hydraulic cylinders. Loosen wheel strut clamping bolts and adjust wheels to desired spacing.

NOTE: *The center plate of the draper windrower should ride in center between crop rows.*

Rear Operation Wheel Hydraulic Cylinder Installation



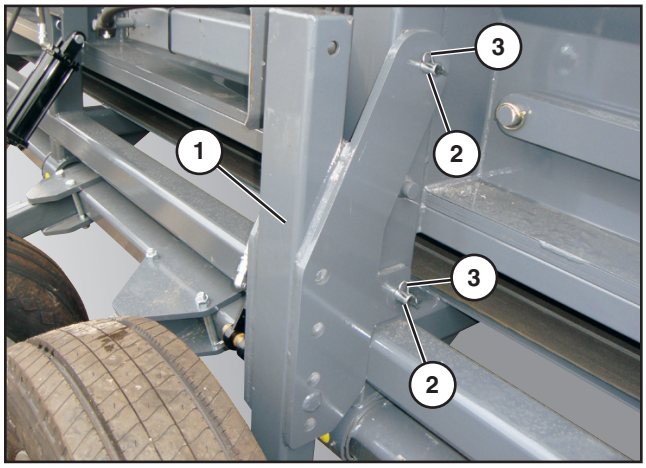
Connect the left side operation wheel lift cylinder (1) to the ear weldments on the frame as shown, securing with retaining pins and cotter pins.



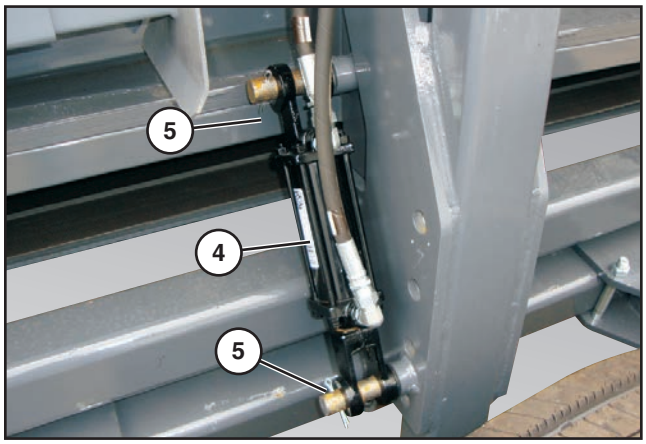
Connect the right side operation wheel lift cylinder (2) to the ear weldments on the frame as shown, securing with retaining pins and cotter pins.

IMPORTANT: *The rear operation wheel lift cylinders are rephasing cylinders and should never be interchanged.*

Street Side Transport Wheel Installation

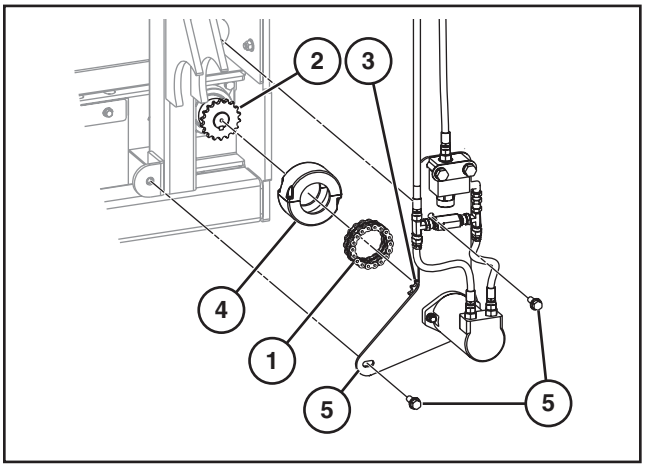


If the transport option is included, mount street side transport wheel assembly (1) to the machine, securing with pins (2) and retaining clips (3).



Slide the lift cylinder (4) onto the shafts welded to the transport wheel assembly and to the draper windrower frame as shown, securing with cotter pins (5).

Hydraulic Motor Installation



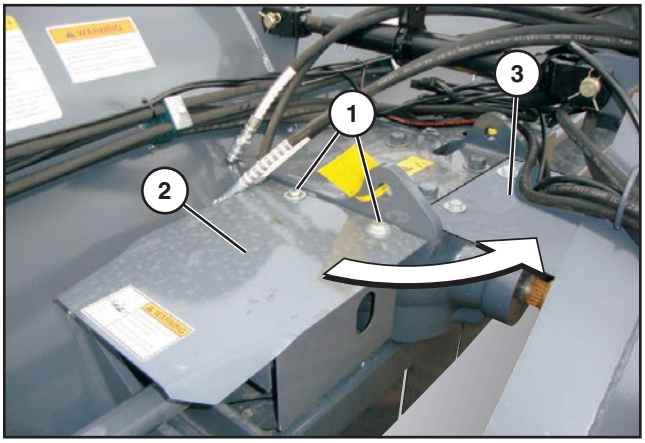
Install chain (1) onto couplers (2 & 3). Install chain cover housing (4).

NOTE: *Add approximately 10 pumps of grease to the chain cover housing at this time.*

Secure plate with attached hydraulic motor (5) using supplied bolts (6).

NOTE: *To make installation of the motor easier, remove cover plate (7) on the other side of the weldment as well for better access to set screws on the motor that need to be tightened after motor is installed on the coupler. Reattach cover plate when finished installing the motor.*

PTO Shield



Remove the two bolts and washers (1), remove the PTO Shield (2) and reattach in the new position as shown (3).

Re-install bolts.

PTO Set-up

When connecting the PTO to both the draper windrower and tractor, it is the owner's/operator's responsibility to insure that the PTO length is correct and will not bottom out or become disengaged.

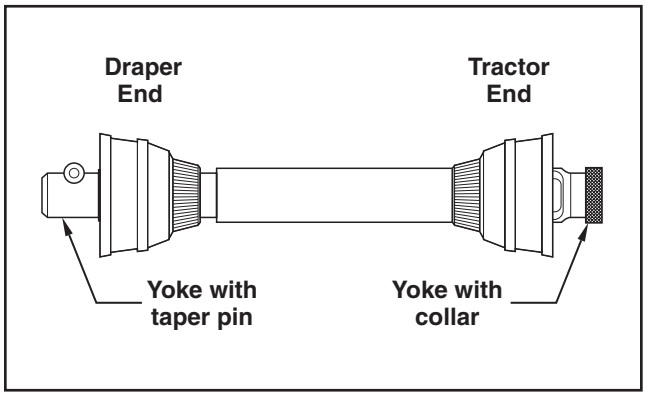
The PTO provided with each Loftness draper windrower will work on most tractors without modification.

Variations in the PTO and hitch geometry on some tractors may make it necessary to adjust the length of the PTO.

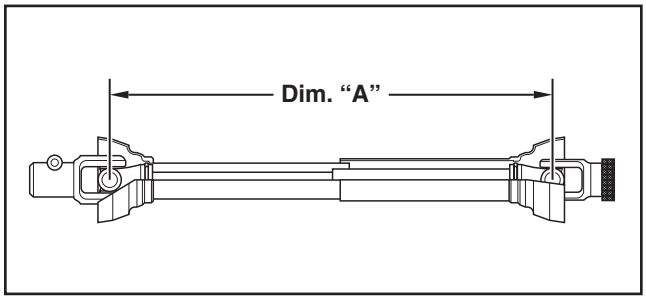
Check PTO length (6" overlap min.). Lubricate CV before initial start-up and before connecting to tractor to allow movement of tractor yoke in all directions to help distribute grease through out the moving parts. Lubricate after every 8 hours of use. Tighten PTO clamp bolts (torque to 150 ft. lbs.), then recheck after 10 minutes of operation and again after 1 hour of operation.

PTO Sizing

The following diagrams assist in sizing the PTO as outlined in "PTO Set-up" on page 16.

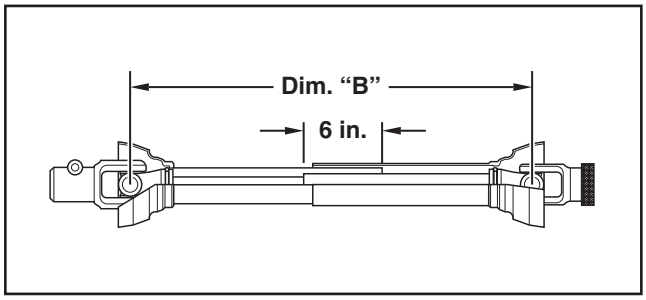


IMPORTANT: *Before operating draper windrower, check to make sure the PTO will not bottom out or become disengaged.*



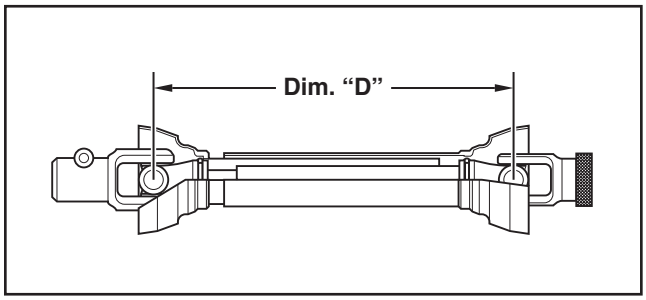
Extend the PTO until it is fully extended, but not completely separated. This will determine dimension "A".

PTO Sizing (Cont'd)



Subtract 5" from dimension “A” to determine dimension “B”. This will be your maximum operating length.

IMPORTANT: *Never operate equipment with the PTO extended further than dimension “B”.*



Push PTO halves together, as far as possible, to determine dimension “C”. Add 1" to this dimension for dimension “D” which will be the minimum operating length.

IMPORTANT: *Never operate equipment with PTO collapsed to less than dimension “D”.*

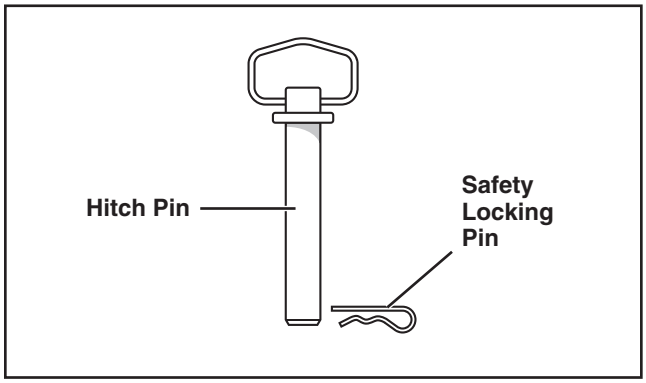

LOFTNESS

Getting Started

Pre-Start Checklist

- Grease the machine. See “Grease Point Location” on page 32 for grease point locations.
- Adjust air in tires to recommended pressure.
- Check oil level in gearbox (maintain level to the lower check plug hole on side of gearbox case).
- Drive Belt tension – if belt needs adjustment, refer to “Belt Tension” on page 19 for instructions.
- Check all bolts, nuts and set screws for tightness.
- Review operator’s manual.

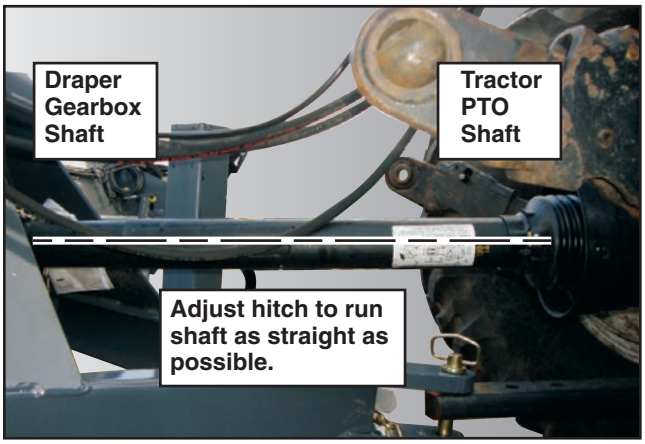
Attaching the Draper Windrower for Operation



IMPORTANT: *Use a safety-locking pin when connecting hitch pins.*

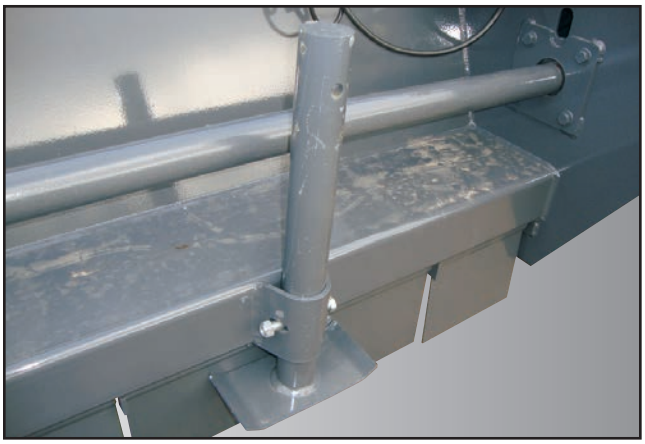
⚠	**DANGER:** *Failure to install a safety locking pin could result in loss of hitch pin, causing the draper windrower to become disconnected from the tractor during operation, or in transport, which could cause serious injury, or death, to those near by.*

The draper windrower can be attached to any tractor with a PTO that conforms to ASAE-SAE standards, see “PTO Set-up” on page 16 for PTO specifications and set-up. Do not use a draper windrower built for 1000 RPM with a 540 RPM tractor or serious damage to the draper windrower could occur.



Connect hitch to draw bar. Adjust hitch to permit PTO shaft to run as straight as possible.

Jack Stands



IMPORTANT: *During operation and transport, the jack stands should be locked in their highest position.*

Belt Tension

Check the rotor drive belts to ensure they have 1/2" maximum deflection at the midpoint between the pulleys. If adjustments need to be made, see “Belt Adjustment” on page 36 for instructions.

IMPORTANT: *To avoid damage or excessive wear, always engage or disengage PTO with engine at idle speed.*

Operating Speed

Various shredding conditions require different ground speeds. Under most conditions, the tractor can be driven between 3 and 7 MPH by using lower rpm's and shifting to a higher gear to maintain the needed ground speed without causing undue wear on the draper windrower.

Maintaining Rotor Balance

The rotors of the draper windrower are factory balanced and must remain in balance during the life of the machine. Should any knives on the machine need replacing, be sure to also replace the knives directly opposite to avoid vibration and maintain the rotor balance. See "Knife Replacement" on page 39 for instructions on replacing the knives.

If a knife is not available, take the opposite one off until two new knife sets can be replaced.

⚠	**CAUTION:** *Should excessive vibration occur, disengage the tractor PTO immediately and shut off the tractor. Do not continue operation until the problem has been determined and corrected.*

⚠	**CAUTION:** *Be sure the rotors have stopped completely before checking the knives.*

The knives will pivot on the D-ring or on knife mounting bolt to avoid damage when striking stones or other obstructions. They will swing back to clear obstacles, and they will return to working position automatically.

⚠	**CAUTION:** *Repeated impact to the knives from frozen ground or other hard objects can cause excessive wear and damage to tractor or draper windrower. Repeated impact to hard objects can cause the metal ring constraining knives to rotor to fail and release the knife from the rotor. Be sure to maintain recommended ground clearance as specified in this manual.*

Cutting Height Adjustment

The recommended minimum cutting height is 5-6". Continually cutting below this height increases the likelihood that ground scalping could occur. Frequent scalping greatly reduces draper windrower component lifetimes. Loftness considers this pattern to be misuse, and subsequently will not be covered under warranty.

The cutting height is adjusted and controlled with the rear hydraulic cylinders. Customer may need to supply cylinder stops to aid in obtaining the recommended cutting height. Maintaining the proper cutting height will provide a uniform crop shredding. It is also easier to begin the new round by eliminating the need to adjust the cutting height every time. The most important advantage is that it eliminates repositioning.

Another important consideration is the PTO shaft angle. For the longest PTO shaft life and minimum vibration, the tractor PTO shaft and the stub shaft on the draper windrower need to be parallel after adjustment into the operating position. It might be necessary to remove the PTO shaft from the draper windrower when adjusting the cutting height for a better viewpoint to get the shaft angles similar. See "Attaching the Draper Windrower for Operation" on page 19, and "PTO Set-up" on page 16 for more information on installing and adjusting the PTO shaft.

Turning

IMPORTANT: *The constant velocity PTO shaft can be turned with PTO engaged.*

IMPORTANT: *To avoid damage or excessive wear, always engage or disengage PTO with engine at idle speed.*

⚠	**CAUTION:** *Be extremely careful not to bottom out or extend PTO shaft too far, damage to tractor or draper windrower could occur. Be careful to avoid lifting draper windrower too high, which results in excessive PTO shaft wear if machine is operated during turning maneuver. Do NOT use PTO adapters of any kind.*

Rear Door Angle Adjustment

Adjustments can be made to control the windrow as it comes out of the machine. Moving the link raises or lowers the fingers on the rear door to control the material.

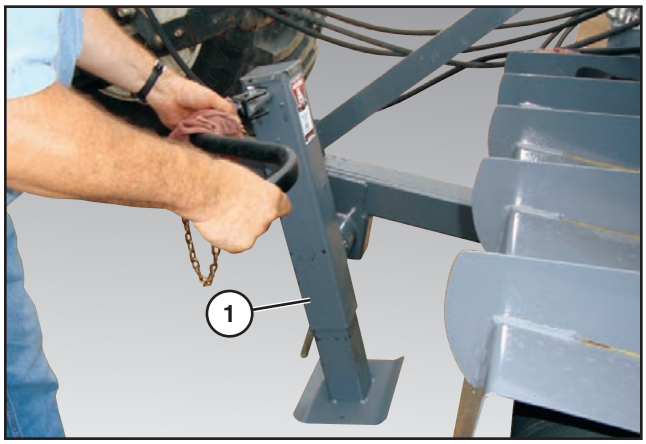
Raise the fingers for wet, heavy material.

Lower the fingers for dry, light material.

⚠	**CAUTION:** *Make sure fingers on rear door are lowered and do not extend beyond the operation wheels when transporting.*

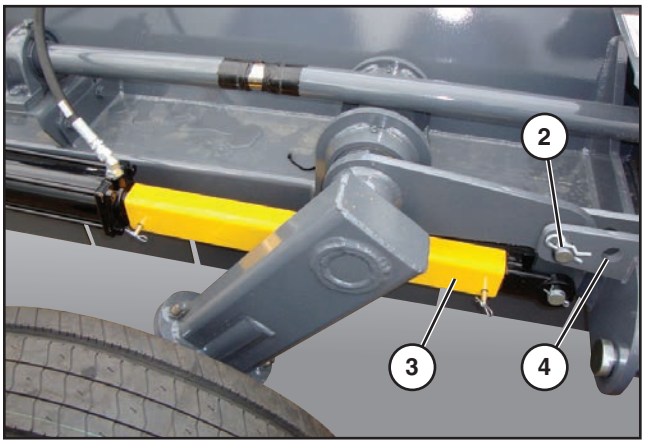
Transport to Operation Configuration Procedure

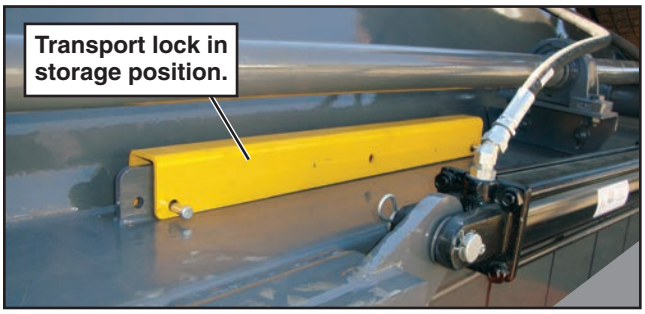
If equipped with the transport option, follow this section for proper instructions to safely convert the draper windrower from a transport configuration to an operation configuration.



Remove the transport jack from its storage position on the back of the draper windrower.

Install the transport jack (1) to the transport hitch and secure with pin. Raise enough to loosen the drawbar pin on the hitch. **DO NOT** remove the drawbar pin at this time.



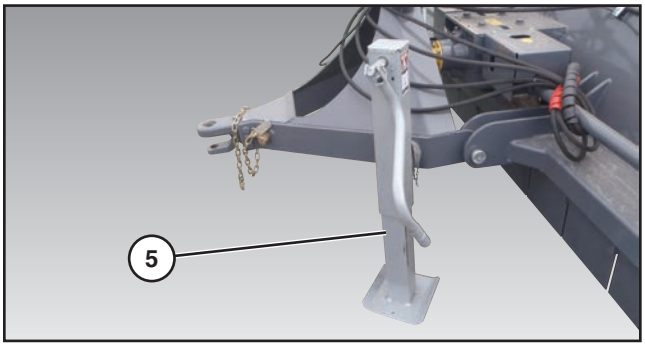


At curb side transport wheel, remove pin (2) from transport position.

Remove the yellow cylinder stop (3) from the curb side transport wheel cylinder and secure it in its storage position.

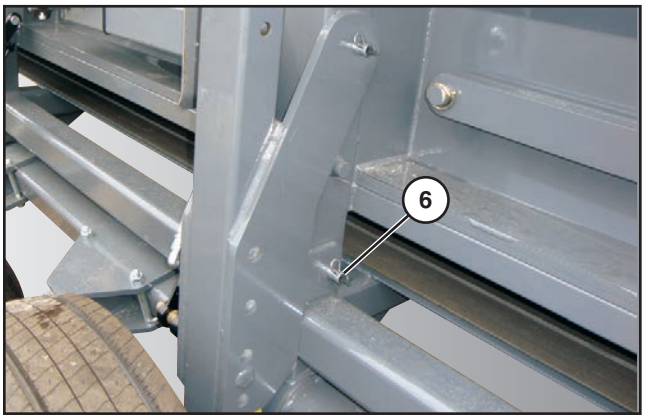
Move pin (2) to adjacent hole (4), securing with the locking pin.

Transport to Operation Configuration Procedure (Cont'd)

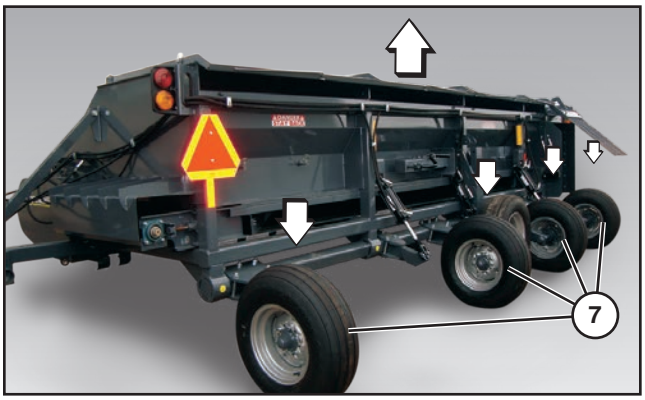


Remove the operation jack from its storage position on the operation hitch.

Install the operation jack (5) to the hitch and secure with pin. Lower the jack until it comes in contact with the ground.



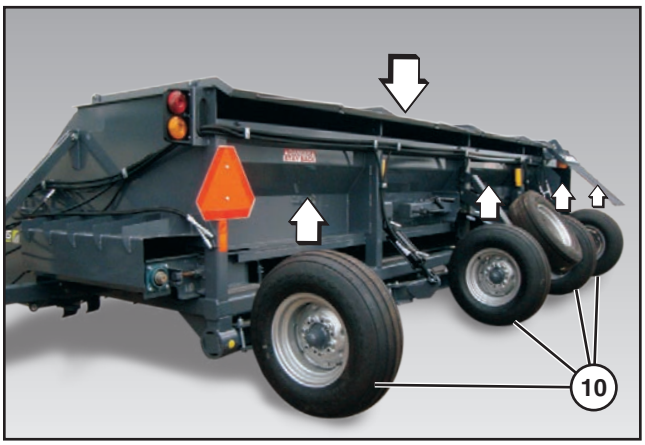
Remove the transport pin (6) on the street side transport wheel assembly.



Using the tractor hydraulic system, lower the rear operation wheels (7) to get the draper windrower to its highest position. At this time the hydraulic cylinders will be fully extended.

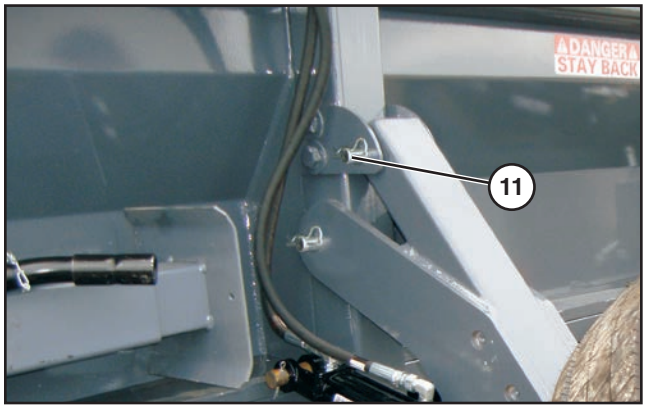
Using the tractor hydraulic system, raise the curb side transport wheel assembly (8).

Using the tractor hydraulic system, raise the street side transport wheel assembly (9).

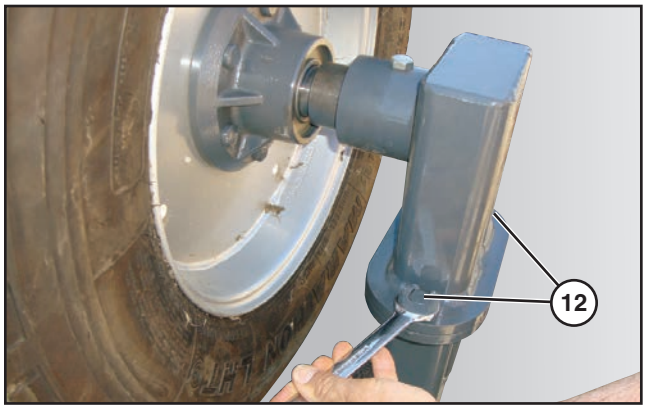


Using the tractor hydraulic system, raise the four rear operation wheels (10) to bring the draper windrower to its lowest position. The hydraulic lift cylinders will be retracted.

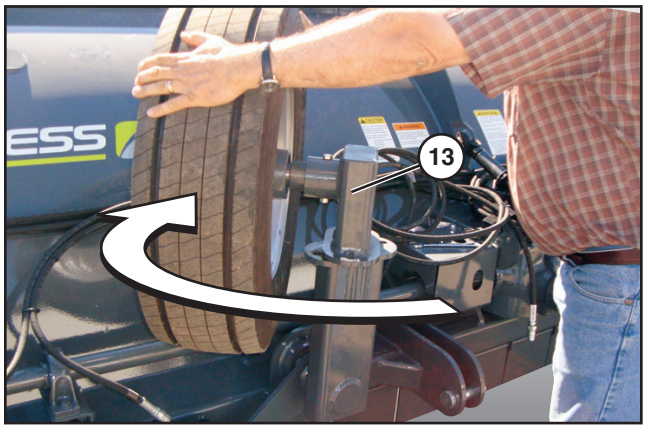
Transport to Operation Configuration Procedure (Cont'd)



Install the transport pin (11) on the street side transport wheel assembly.



Using a 1-1/8" wrench, remove the two bolts (12) on the transport wheel assembly.



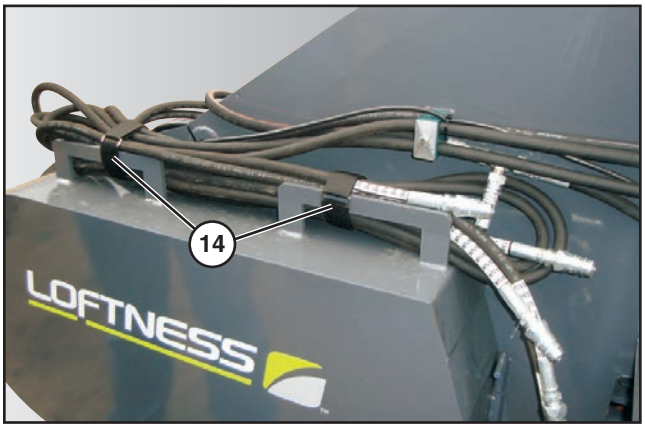
Pivot the transport wheel assembly (13) 180° so the hub is facing toward the draper windrower.

Re-install the two bolts (12).

Turn tractor off and disconnect all hydraulic couplers from the draper windrower to the tractor.

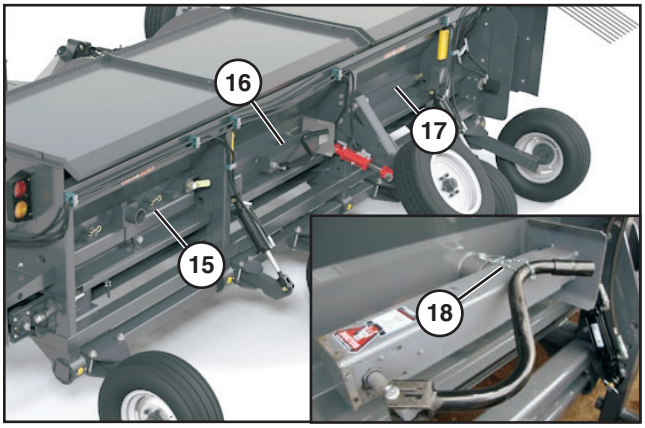
⚠	**DANGER:** *Failure to turn the tractor off before disconnecting the hydraulic lines could result in serious injury or death.*

Disconnect the electrical wiring harness.



Secure the hydraulic hoses to the belt shield using supplied hold-down straps (14).

Remove the hitch-pin on the transport hitch.



Return the transport hitch (15), transport jack (16) and link (17) to their storage positions, holding in place with the securing pins.

IMPORTANT: *The securing pin for the transport jack is equipped with a safety chain (18). Ensure the chain is wrapped around the transport jack handle when in storage position to secure it while the draper windrower is moving.*

Transport to Operation Configuration Procedure (Cont'd)

Start tractor, move, and connect to the operation hitch. Install drawbar pin and **secure with safety locking pin.** Attach the safety chain.

Turn the tractor off and connect the hydraulic hoses to the tractor hydraulic system.

⚠	**DANGER:** *Failure to turn the tractor off before connecting the hydraulic lines could result in serious injury or death.*

NOTE: *Hydraulic hoses are labeled to indicate which coupler to connect to on the tractor's hydraulic system.*

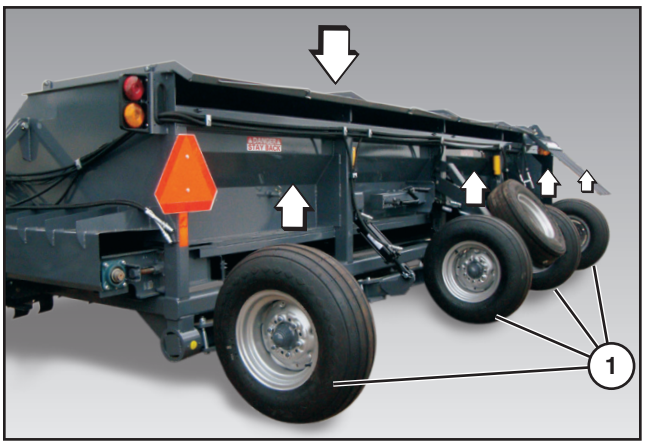
Connect the electrical wiring harness.

Connect the driveshaft. See “PTO Set-up” on page 16 for reference when installing the driveshaft.

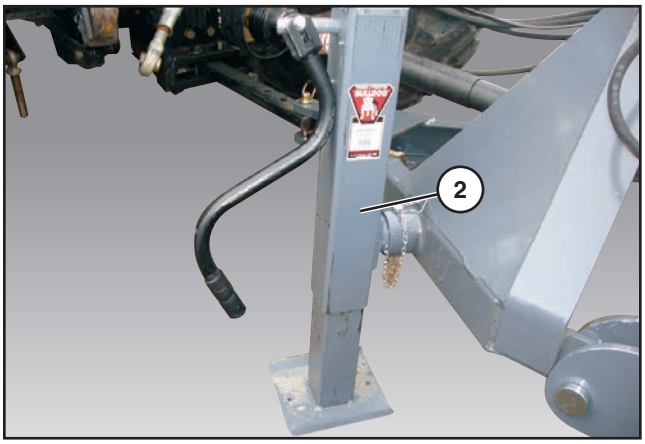
Return the operation jack to its storage position located on the operation hitch. Hold in place with securing pin.

Operation to Transport Configuration Procedure

If equipped with the transport option, follow this section for proper instructions to safely convert the draper windrower from an operation configuration to a transport configuration.



Using the hydraulic system, raise the rear operation wheels (1) to lower the machine to its lowest position. At this point the lift cylinders are fully retracted.



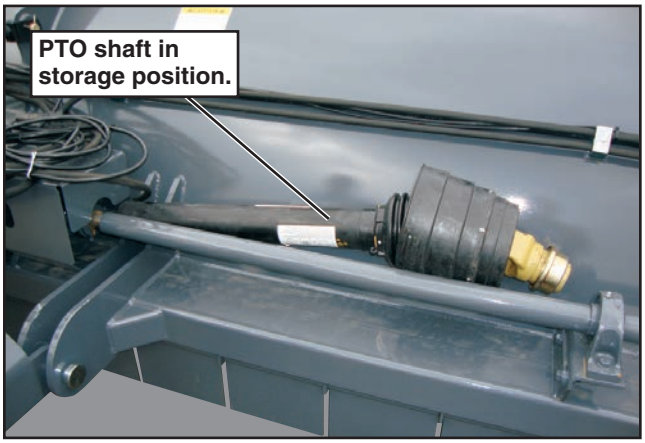
Remove the operation jack (2) from its storage position on the operation hitch assembly and install into place. Secure with pin.

Lower the operation jack to the point where it is supporting the weight of the draper windrower and the drawbar pin is free.

Turn the tractor off and disconnect all hydraulic couplers and the electrical wiring harness.

⚠	**DANGER:** *Failure to turn the tractor off before disconnecting the hydraulic lines could result in serious injury or death.*

Remove the drawbar pin.



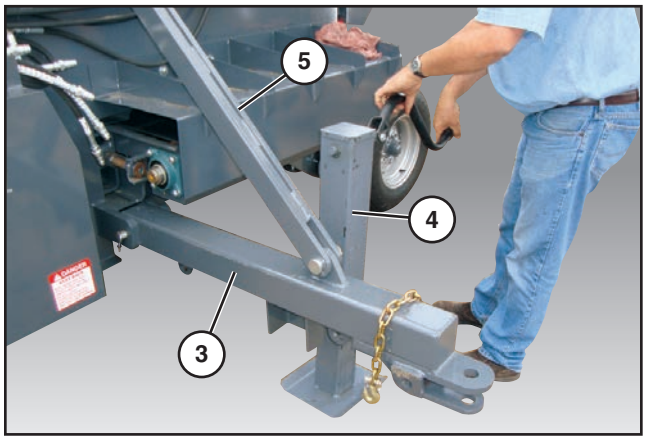
Disconnect the PTO shaft and store behind the left side line shaft on the draper windrower during transport.

⚠	**DANGER:** *Failure to turn the tractor off before disconnecting the hydraulic lines could result in serious injury or death.*

Operation to Transport Configuration Procedure (Cont'd)

Start the tractor and pull away from the draper windrower.

Remove the transport hitch (3) and transport jack (4), and link (5) from their storage positions on the rear of the machine.



Install transport hitch (3), jack (4), and link (5) as shown onto the transport hitch mount, securing with retaining pins.

Raise the jack to connect the tractor to the transport hitch with the drawbar pin.

Install drawbar pin and **secure with safety locking pin.** Attach the safety chain.

⚠	**DANGER:** *Failure to install a safety locking pin could result in loss of hitch pin, causing the draper windrower to become disconnected from the tractor during transport, which could cause serious injury, or death, to those near by.*

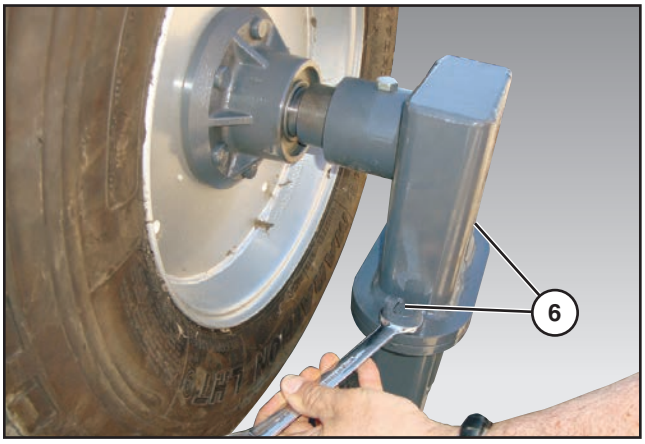
Remove the transport jack and return to its storage position.

Turn the tractor off and connect the hydraulic hoses to the tractor hydraulic system.

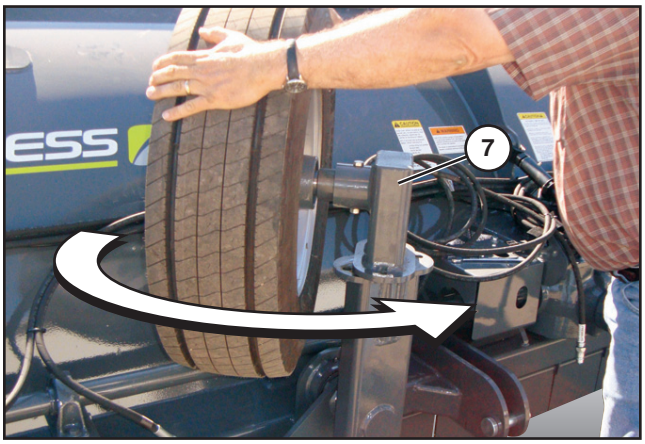
⚠	**DANGER:** *Failure to turn the tractor off before connecting the hydraulic lines could result in serious injury or death.*

NOTE: *Hydraulic hoses are labeled to indicate which coupler to connect to on the tractor's hydraulic system.*

Connect the electrical wiring harness.



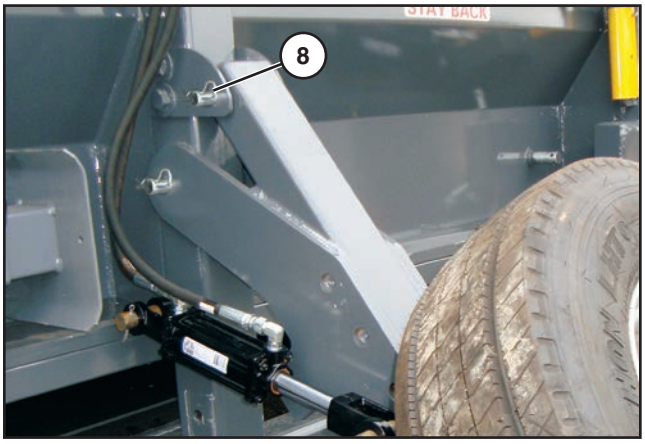
Using a 1-1/8" wrench remove the two bolts (6) on the curb side transport wheel assembly.



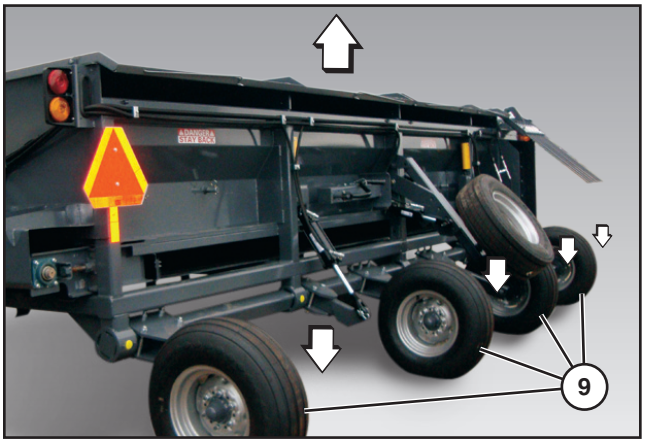
Pivot the curb side transport wheel assembly (7) 180° so the hub is facing away from the draper windrower.

Re-install the bolts to secure the wheel in its new position.

Operation to Transport Configuration Procedure (Cont'd)

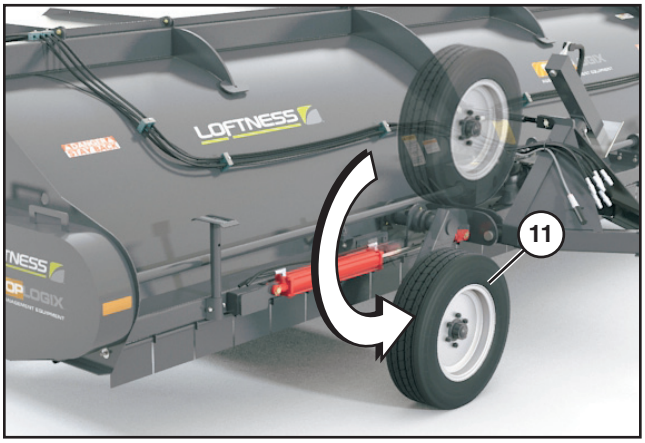


Remove the locking pin (8) on the street side transport wheel assembly



Using the tractor hydraulic system, lower the four rear operation wheels (9) to bring the draper windrower to its highest position. The hydraulic lift cylinders will be fully extended.

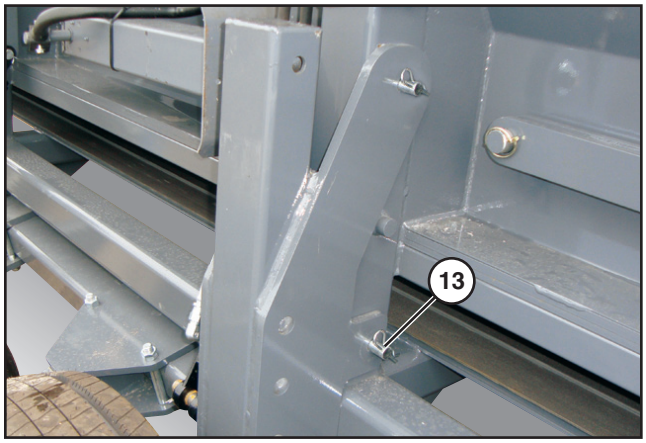
Using the tractor hydraulic system, lower the street side transport wheel assembly (10).



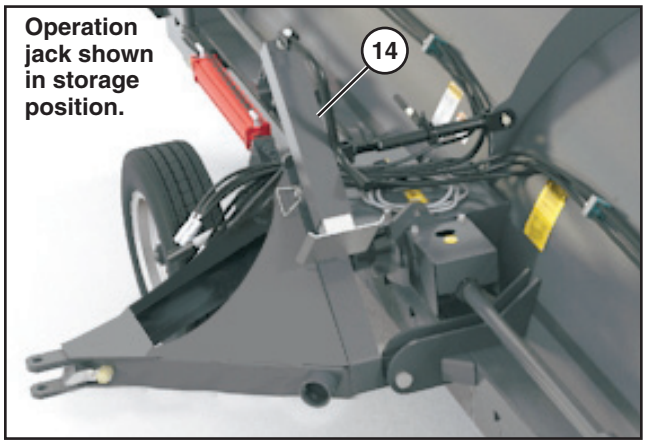
Using the tractor hydraulic system, lower the curb side transport wheel assembly (11).

Using the tractor hydraulic system, raise the four rear operation wheels (12) to their highest position. The hydraulic cylinders will be fully retracted.

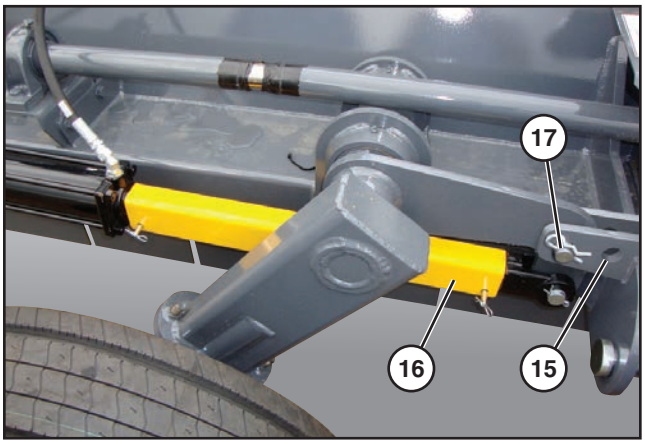
Operation to Transport Configuration Procedure (Cont'd)



Insert the locking pin (13) into the street side transport wheel assembly.

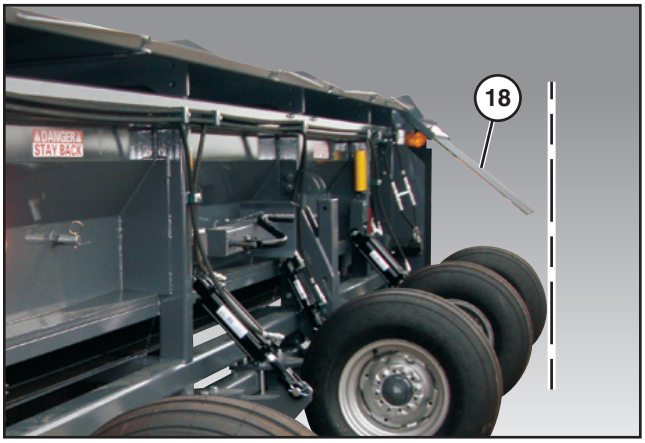


Return the operation jack (14) to its storage position located on the operation hitch. Hold in place with securing pin.



Remove pin from hole (15), then install yellow cylinder stop (16) over the cylinder rod for the curb side transport wheel assembly, securing with pins and retaining clips.

Place pin from hole (15) into transport position (17) as shown, securing with the locking pin.



⚠	**CAUTION:** *Make sure fingers on rear door (18) do not extend out past the operations wheels during transport.*

⚠	**CAUTION:** *Verify warning lights are properly operating before transporting the draper windrower on public roads. Make sure "Slow Moving Vehicle" decal is visible.*

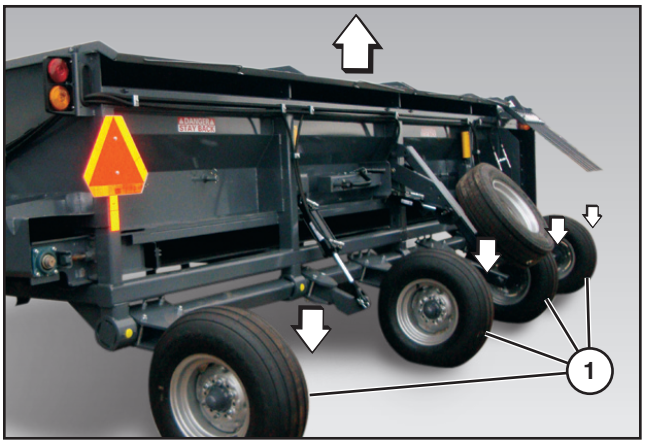
⚠	**CAUTION:** *Verify all jacks have been returned to their storage positions and the jack stands are raised and locked in their highest position before transport.*

Transporting

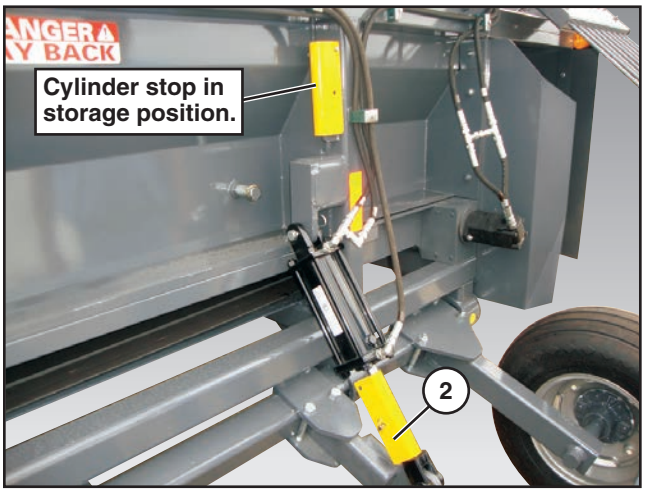
Whenever transporting on public roads, verify taillights are operating correctly.

⚠	**CAUTION:** *Do not exceed 20 mph when transporting the draper windrower.*

Transporting Draper Windrower in the Operation Configuration



When transporting the draper windrower short distances in its operation configuration, rear operation wheels (1) must be lowered so the draper windrower is at its highest position.



Remove each yellow cylinder stops from its storage position above the lift cylinder. Install a cylinder lock (2) to each of the rear operation wheel assembly cylinders. Secure with pin and retaining clip.

NOTE: *Only right side shown cylinder shown.*

IMPORTANT: *Failure to install the cylinder locks when transporting the draper windrower in the operation configuration could result in major damage to the cylinder and the draper windrower.*

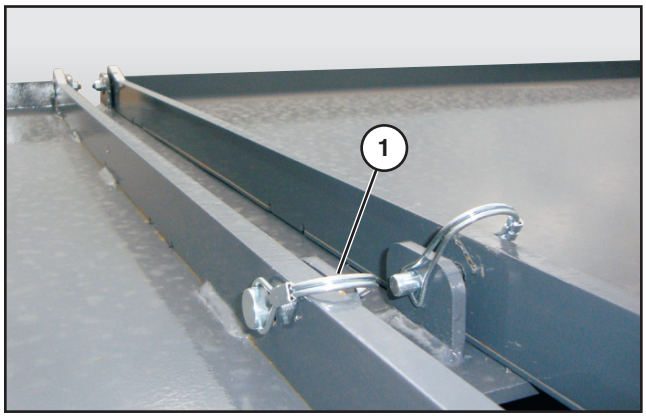
⚠	**CAUTION:** *Verify warning lights are properly operating before transporting the draper windrower on public roads. Make sure "Slow Moving Vehicle" decal is visible.*

⚠	**CAUTION:** *Verify all jacks have been returned to their storage positions and the jack stands are raised and locked in their highest position before transport.*

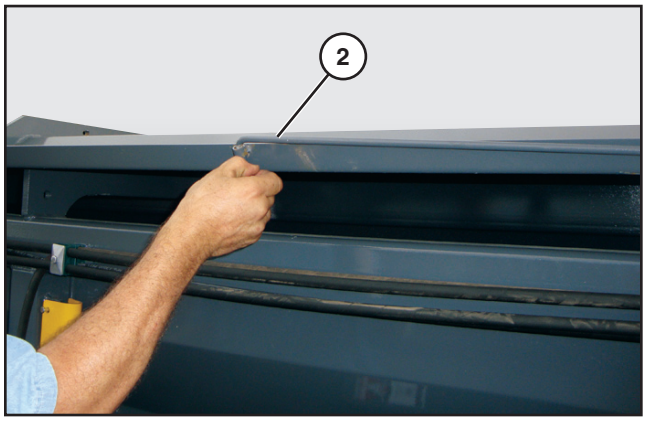
Tunnel Access Doors

There are two access doors on top of the machine that can be opened to remove any material that may become clogged in the machine, or to perform any maintenance.

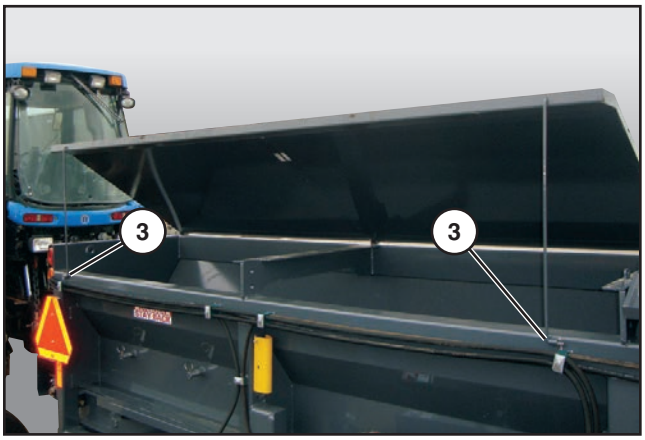
⚠	**DANGER:** *Always turn the tractor off when working inside the draper windrower.*



Remove the locking pins (1) that are securing door to draper windrower frame. There is a locking pin on the ends of each door.



Remove retaining pin at the end of both supporting rods (2) for each door.



Lift door to open and insert the end of each supporting rod into the tubes welded to the frame (3).

Secure with the retaining pins.

⚠	**CAUTION:** *The access doors are very heavy. Use two people to lift door open.*


LOFTNESS

General Maintenance

To ensure efficient operation, you should inspect, lubricate, and make necessary adjustments and repairs at regular intervals. Parts that are starting to show wear should be ordered ahead of time, before a costly breakdown occurs and you have to wait for replacement parts. Keep good maintenance records, and adequately clean your draper windrower after each use.

Maintenance of any type on equipment is dangerous when the machine is running.

⚠	**DANGER:** *Always shut-down all equipment prior to cleaning, adjusting, lubricating or performing service of any kind. Review and become familiar with the "Mandatory Shut-Down Procedure" before attempting any service work.*

When reassembling components, always use new lock nuts and a thread-locking compound to insure against vibration loosening. Use an anti-seize compound on all bearing/shaft contacts.

Maintenance Schedule

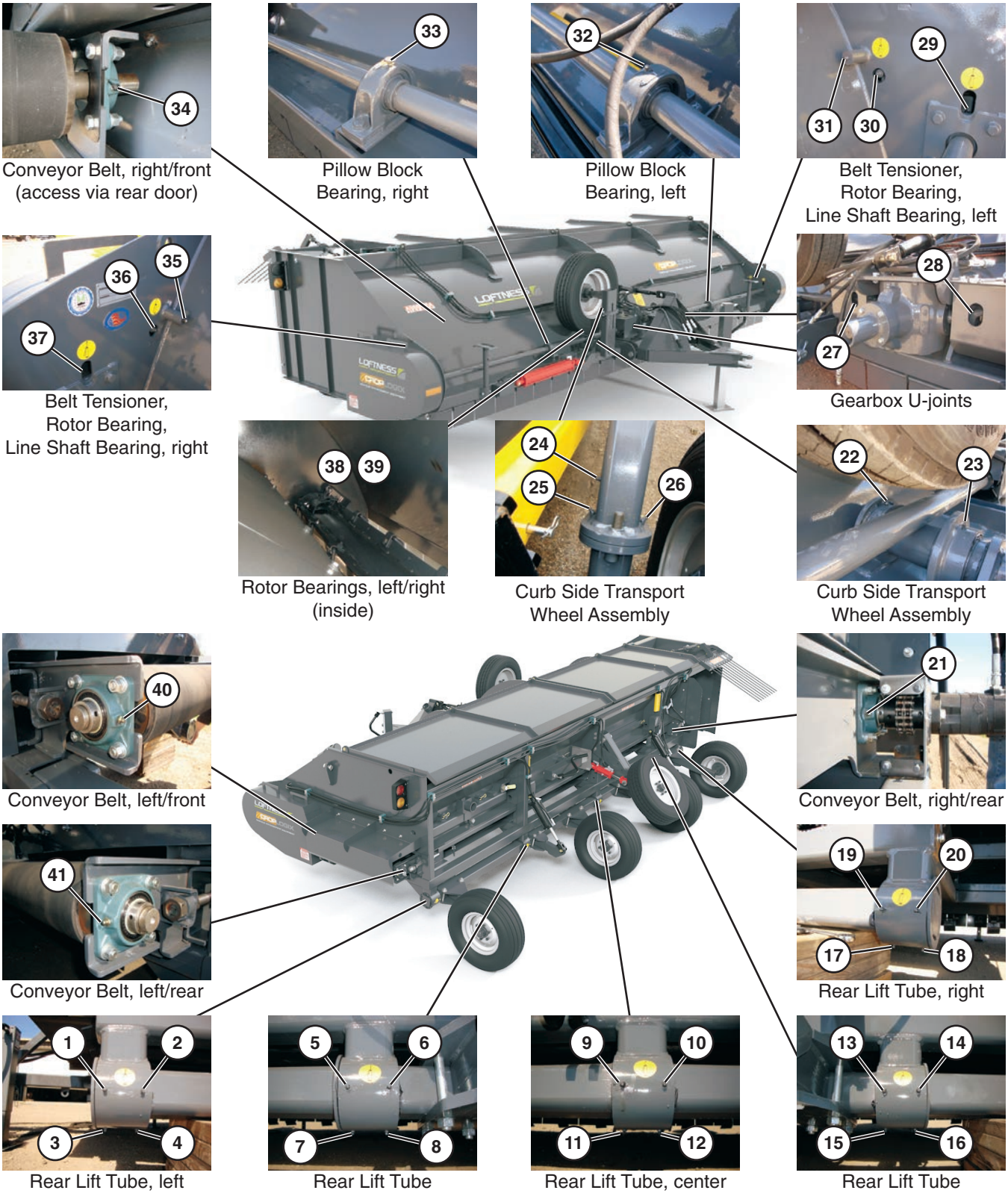
HOURS	SERVICE POINTS	SERVICE REQUIRED					
		CHECK	CLEAN	CHANGE	GREASE	ADJUST	OIL
Every 8	Machine		X				
	Loose Bolts					X	
	Hoses and Wiring	X					
	Oil Leaks	X					
	Rotor Bearings				X		
	Knives	X					
	Belt Tensioner				X		
	PTO CV Shaft	X			X		
	Draper Belt Tension and Tracking	X					
Every 25	Telescoping PTO Tube	X			X		
	Line Shaft U-Joints	X			X		
	Line Shaft Bearings	X			X		
Every 50	PTO Overrunning Clutch	X			X		
	Wheel Lift Tubes	X			X		
	Drive Belt Tension	X					
	Drive Belt	X					
	Safety Labels	X					
Every 100	Wheel Bearings	X			X		
	Gearbox (w/oil change)	X					X

Lubrication

Proper lubrication is important. Too little lubricant will cause premature failure of a bearing. Too much lubrication usually causes high operating temperature and early failure of seals. Follow all lubrication instructions and schedules included in this section.

The operation and component lifetimes of this machine are very dependent on regular and proper lubrication. The frequency of lubrication recommended is based on normal conditions. Severe or unusual conditions may determine actual service requirements.

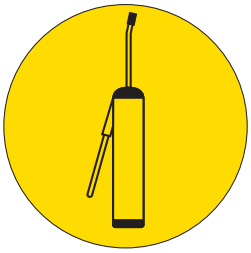
Grease Point Location



Grease Points Location (Cont'd)

Use a #2 general purpose lithium based grease unless noted otherwise.

NOTE: *Replace any broken or missing grease fittings. Be sure to clean fittings before greasing.*



NOTE: *Grease points on the machine are indicated on the machine by the decal shown above.*

⚠	**WARNING:** *Do not lubricate parts while the machine is running.*

Numbers below after "Location" correspond to grease point locations on opposite page.

See "Draper Windrower Shredder Identification" on page 8 for component location and identification.

- **Rear Wheel Lift Tube Grease Fittings**

  Location: (1 - 20) - Four fittings in each of the five rear lift tubes.

  Interval: Every 50 hours of operation.

- **Conveyor Belt Grease Fittings**

  Location: (21, 34, 40, 41) - Located on the ends of the conveyor belt, both front and back sides.

  NOTE: *Remove cover by chain coupler to access grease fitting.*

  Interval: Every 8 hours of operation.

- **Gearbox U-joint Grease Fittings**

  Location: (27, 28) - Located on the U-joints on each side of the gearbox. Access via holes on top or side of gearbox/line shaft shields.

  Interval: Every 25 hours of operation.

- **Curb Side Transport Wheel Grease Fittings**

  Location: (22, 23, 24, 25, 26) - Two fittings located on the axle for the curb side transport wheel assembly, and three fittings located on the wheel assembly at the pivot point.

  Interval: Every 50 hours of operation.

- **Rotor Bearing Grease Fittings**

  Location: (30, 36, 38, 39) - Located on the left and right ends of the draper windrower, behind the belt shields. Lubricate the fitting through the opening in the frame.
  There are also two fittings on the rotor bearings located between the two rotors. Access the fittings from underneath the draper windrower near operation hitch.

  NOTE: *Rotor bearings cannot be damaged by overgreasing. Grease fittings until a small amount of grease is purged from the bearing.*

  Interval: Every 8 hours of operation.

- **Belt Tensioner Grease Fittings**

  Location: (31, 35) - Located on the left and right ends of the draper windrower, behind the belt shields. Fitting located on end of protruding shaft.

  NOTE: *Remove the belt cover when lubricating the fitting. Visually inspect the idler pulley components while lubricating. Do Not over lubricate the idler tensioner shaft.*

  NOTE: *Over lubricating may be transferred to the belt, causing the belt to slip, resulting in loss of rotor RPM speed and loss of power to the rotor*

  Interval: Every 8 hours of operation.

- **Line Shaft Grease Fittings**

  Location: (29, 37) - Located on the left and right ends of the draper windrower, behind the belt shields. Lubricate the fitting through the opening in the frame.

  Interval: Every 8 hours of operation.

- **Pillow Block Grease Fittings**

  Location: (32, 33) - Located on line shaft between the gearbox and the end plates.

  Interval: Every 25 hours of operation.

Grease Points Location (Cont'd)

• **Standard PTO CV Shaft Grease Fittings**

Location: (not shown) - Three U-joints and two additional fittings located under the bell housing.

Interval: Every 8 hours of operation.

• **Telescoping PTO Tube Grease Fittings**

Location: (not shown) - One located by lining up the hole in the PTO guard with grease zerk.

Interval: Every 25 hours of operation.

• **PTO Overrunning Clutch Grease Fittings**

Location: (not shown) - Fitting located near U-joint yoke.

Interval: Every 50 hours of operation.

Other Lubrications Points

• **Wheel Bearings**

Location: (not shown) - All 6 wheel bearings.

NOTE: *Grease and re-pack.*

Interval: Every 100 hours of operation.

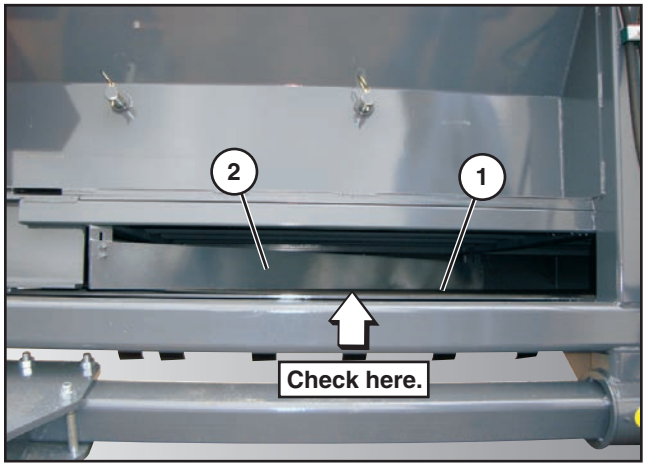
• **Gearbox Oil**

Location: (not shown) - Behind operation hitch assembly.

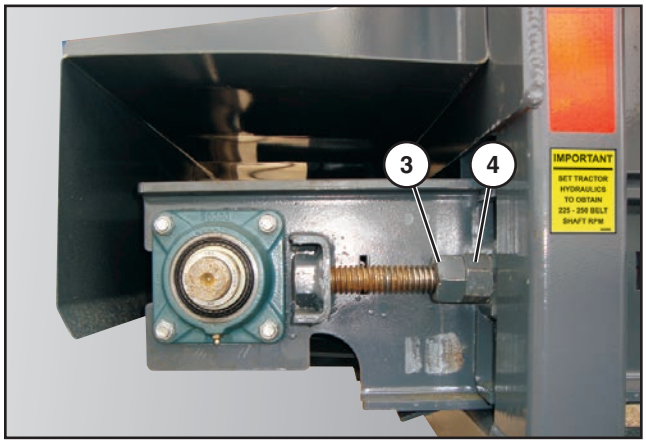
NOTE: *Change oil with #90 wt. Maintain oil level up to the lower plug hole located on side of the gearbox case.*

Interval: Every 100 hours of operation.

Conveyor Belt Adjustment



The conveyor belt (1) should operate without being over-tight. The belt should travel as close to the middle of the conveyor scraper (2) as possible.



To adjust the conveyor belt, turn the tractor off.

⚠	**DANGER:** *Failure to turn the tractor off before adjusting the conveyor belt could result in serious injury or death.*

Loosen the nut (3) on the threaded shaft.

Rotate nut (4) on the threaded shaft to either tighten or loosen belt.

Repeat on opposite side of the belt, adjusting both sides evenly.

⚠	**DANGER:** *Keep hands, feet, and clothing clear of belts and pulleys while tractor is running.*

Start tractor and slowly turn the belt to check for tracking.

If belt is not tracking, adjust one side only to make belt track in the center, following the same procedure above.

Setting the Conveyor Belt Speed

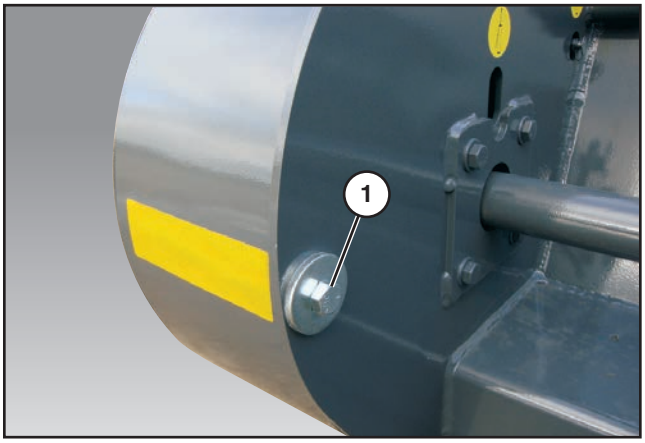
NOTE: *The mechanical tachometer shown above is not supplied with the draper windrower.*

Use a tachometer to measure the belt RPM.

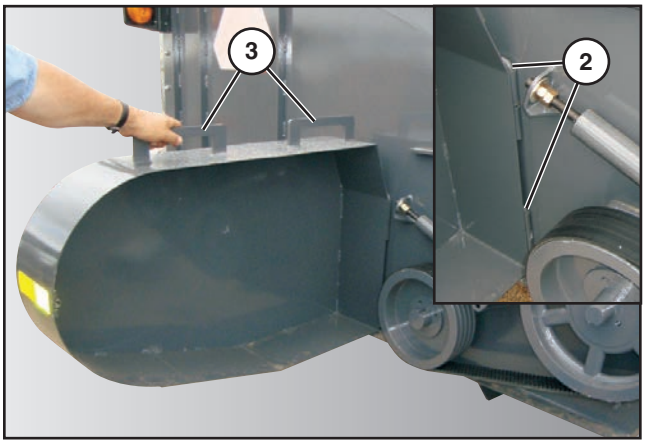
The conveyor belt should operate from a speed of 200 feet/minute to 400 feet/minute. This adjustment is done by using the tractor controls to control the amount of oil flowing per minute. The belt speed should be set at the lowest setting to move material to the discharge end. This will extend belt life.

NOTE: *200 RPM will equal 300 feet/minute.*

Belt Shields



To open the belt shields, remove bolt (1) and washer securing the belt shield to the frame.



Swing belt shield open, pivoting on hinge pins (2). This will expose the belt drive components.

NOTE: *To completely detach the belt shield from the draper windrower, remove the two hinge pins (2) and lift off of the machine using the handles (3).*

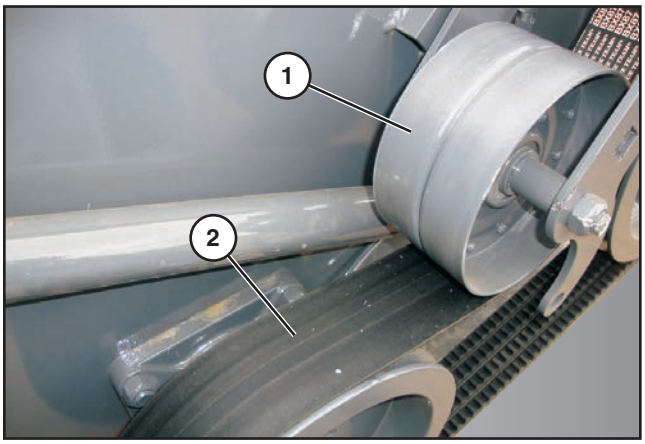
Belt Adjustment

NOTE: *Refer to "4-Band Drive" on page 44 for parts breakdown and assembly of belt drive components.*

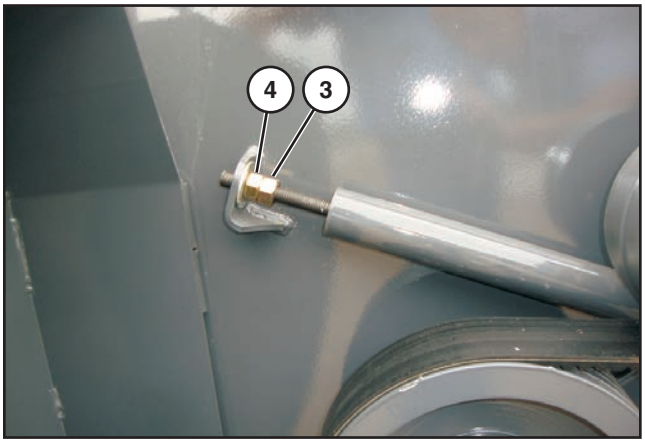
Turn off all power to the draper windrower.

⚠	**DANGER:** *Failure to turn off power to the draper windrower before adjusting the belt drive could result in serious injury or death.*

Remove belt shield. See "Belt Shields" on page 36 for instructions on removing the belt shields.



Check belt idler (1) position to insure it is centered on the belt (2).



Loosen the jam nut (3).

Turn the hex nut (4) next to the adjustment bracket clockwise until the washer on the spring base is recessed into the tightener tube. Tighten jam nut (3) to lock.

Rotate the pulleys manually in the direction of normal machine rotation to check alignment of idler on the belt. Adjust if necessary.

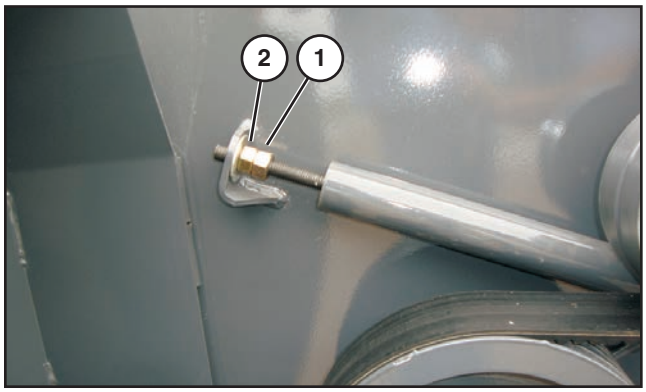
Belt Replacement

NOTE: *Refer to "4-Band Drive" on page 44 for parts breakdown and assembly of belt drive components.*

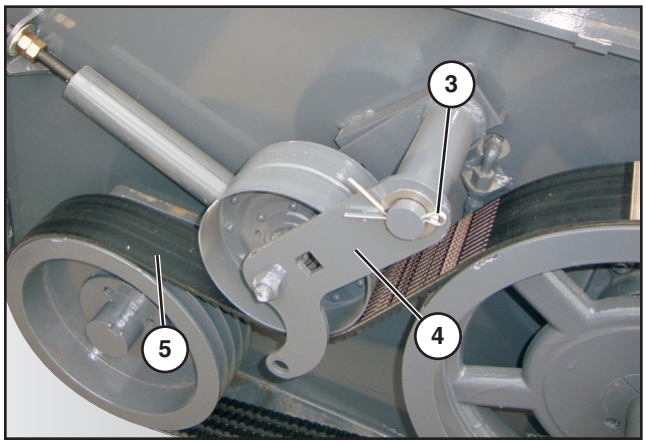
Turn off all power to the draper windrower.

⚠	**DANGER:** *Failure to turn off power to the draper windrower before replacing the belt could result in serious injury or death.*

Remove belt shield. See "Belt Shields" on page 36 for instructions on removing the belt shields.



Loosen jam nuts (1 & 2) on the belt tightener which will release the tension from the belt.



Remove the pin (3) connecting the idler arm (4) on the tightener bracket to the belt tightener, then remove the belt (5).

Replace with new belt.

Reinsert idler arm and pin. Tighten jam nuts.

Sheave and Pulley Removal

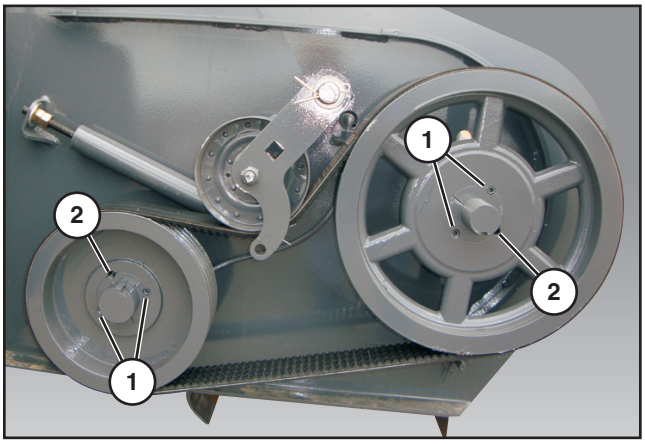
NOTE: *Refer to "4-Band Drive" on page 44 for parts breakdown and assembly of belt drive components.*

Turn off all power to the draper windrower.

⚠	**DANGER:** *Failure to turn off power to the draper windrower before removing the pulleys could result in serious injury or death.*

Remove belt shield. See "Belt Shields" on page 36 for instructions on removing the belt shields.

Remove the idler arm and drive belt, following the instructions in "Belt Replacement" on page 37.



Remove the taper lock bushing set screws (1).

Insert set screw into threaded hole (2).

Tighten screw until bushing grip is released. If excessively tight, lightly hammer face of pulley using drift or sleeve.

IMPORTANT: *Never hit pulley directly with hammer.*

⚠	**CAUTION:** *Excessive or uneven pressure on set screws may damage the bushing, making removal difficult or possibly damaging the sheave.*

⚠	**CAUTION:** *Excessive screw torque may cause damage to the bushing or sheave. Recommended torque is 430 in/lbs.*

Pulley Assembly

Clean shaft, bore of bushing, outside of bushing and hub bore of all oil, paint and dirt. File away any burrs

Insert bushing in hub. Match the hole pattern, not threaded holes (each complete hole will be threaded on one side only).

Apply a thread-locking compound to setscrews and thread into the two opposing holes.

Position assembly on shaft and alternately torque set screws to 35 ft. lbs.

To increase gripping force, hammer face of bushing using drift or sleeve.

IMPORTANT: *Never hit bushing directly with hammer.*

Re-torque screws after hammering.

Recheck screw torque after initial run-in, and periodically thereafter. If loose, hammer face of bushing and re-torque screws again and recheck screw torque.

Check alignment of the pulleys. Repeat pulley removal and assembly procedures if necessary.

Install belt. See “Belt Replacement” on page 37 for reference.

Rotor Removal

This service section is written as if the draper windrower is upside down. If procedure is done with machine in operating position, movable jacks will be needed to support and move the rotors. The first rotor removed must be the last rotor installed. The center bearing with the bolts started through it, must be on the last rotor removed (first rotor installed).

NOTE: *Refer to “Rotors” on page 50 for parts breakdown and assembly of rotor components.*

Turn off all power to the draper windrower.

⚠	**DANGER:** *Failure to turn off power to the draper windrower before removing the rotors could result in serious injury or death.*

1. Apply an appropriate supporting mechanism to both rotors. (Chains and hoist)

2. Loosen the set screws on bearing lock collars.

3. Loosen and remove the outer bearing from the shaft of the first rotor to be removed.

4. Remove the four nuts from the bolts holding the two center bearings to the center plate. (The rotor on the side of the removed nuts is the first to be removed from the machine).

5. Slide the rotor outward away from center plate. (This step might require the removal of the stripper bolts located on the outside balancing ring. Make note of which hole the stripper bolts are removed from and replace in the same holes to insure proper balance.

6. Slide the four inner bearing bolts outward until the center bearing on the first rotor is free. Be careful not to slide them too far out or the second rotor might fall free prematurely.

7. Remove rotor from the machine by lifting inner end of rotor first to clear center plate and then sliding outer shaft in through end plate.

8. To remove inner rotor bearing, loosen and remove flat head cap screw, star washer and retaining washer. Slide bearing off shaft. Remove collar.

Repeat steps 3 through 8 for the opposite rotor.

Rotor Assembly

1. Slide bearing spacer on shorter shaft of the rotor. (Shaft with 1/2 in. [1.27 cm] tapped hole in center).

2. Install roll pin into end of shaft.

3. Insert the four bolts through the bearing housing and then slide it completely on the shaft.

4. Apply thread-locking compound to flat head screw. Slide through washers and install into threaded hole in shaft. Torque to 75 ft lbs.

NOTE: *To determine left and right rotor, install so that the bolt head on the knife U-clamp faces the front of the machine.*

5. Insert four outer bearing bolts into end plate with the heads of the bolts inside the rotor cavity (nuts will be inside belt housing).

6. Install rotor by inserting the outer end (long shaft) into the bearing hole of the end plate.

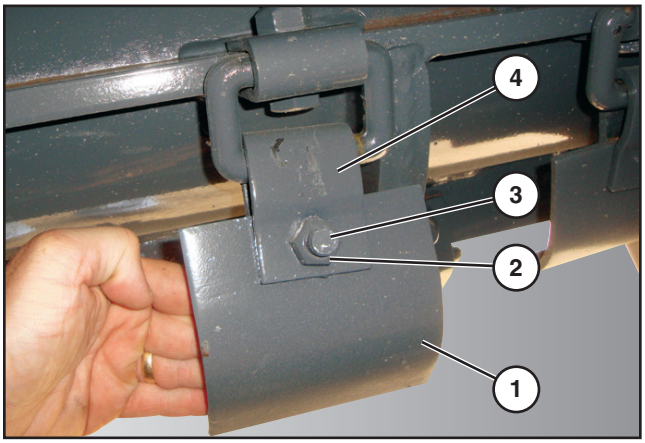
Rotor Assembly (Cont'd)

7. Align the four bearing bolts with the center plate holes and insert the bolts so that they protrude about 1/4 in. (.635 cm) through opposite side of plate. To allow for easier future greasing, point the grease fitting toward the rear of the machine.
8. Repeat steps 1-5 (without the four bolts through the bearing) on the second rotor.
9. Align the holes in bearing and push center bolts completely through both bearings and center plate. Install new locking nuts but do not torque.
10. Install outer bearings onto shafts (grease fitting to point up when machine is in operating position) and tighten new lock nuts to 170 ft. lbs.
11. While supporting the rotor at the center plate, tighten the bearing bolts to 170 ft lbs.
12. Apply a thread locking compound and tighten the set screws.
13. Replace stripper bolts directly across from each other to maintain proper rotor balance.

Knife Replacement

Turn off all power to the draper windrower.

⚠	**DANGER:** *Failure to turn off power to the draper windrower before replacing knives could result in serious injury or death.*



To replace a knife (1), remove lock nut (2) and bolt (3). Remove knife from u-bar (4).

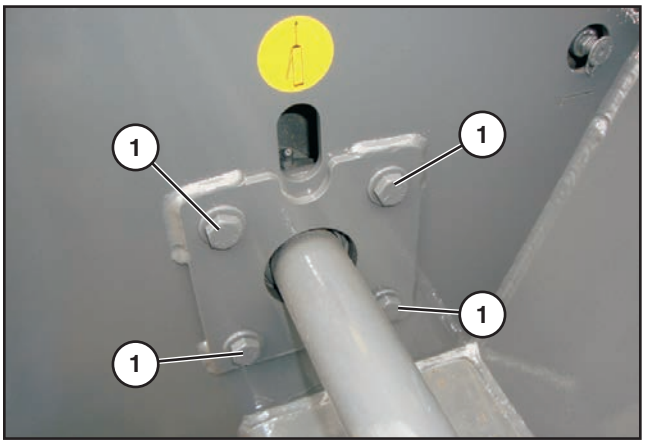
IMPORTANT: *The rotors of the draper windrower are factory balanced and must remain in balance during the life of the machine. Should any knives on the machine need replacing, be sure to also replace the knives directly opposite to avoid vibration and maintain the rotor balance. If a knife is not available, take the opposite one off until two new knife sets can be replaced.*

Gearbox Repair

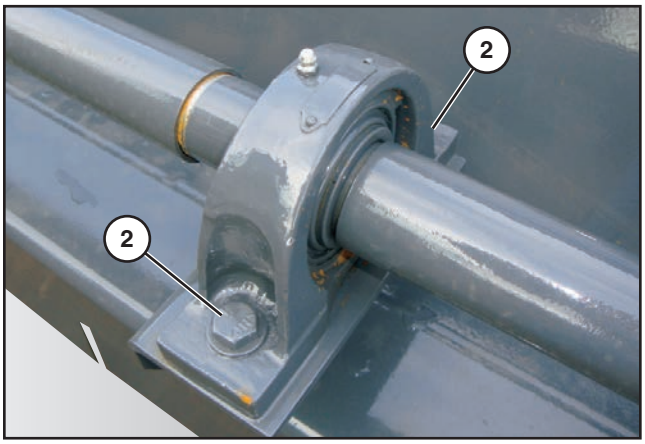
Repairs to the gearbox by the customer will be limited to the replacing of the cross or pinion shaft seals. See “Gearbox, 1450 RPM Bondioli (N13950)” on page 54 for parts breakdown. These seals can be removed and replaced by using a screwdriver or similar instrument without opening the gearbox. If the machine is still under warranty, do not attempt to repair the gearbox as unauthorized repairs will void the warranty. All warranty repairs should be done through your Authorized Loftness Dealer. Contact your dealer or the Loftness factory for specific details concerning the gearbox warranty.

Gearbox Removal

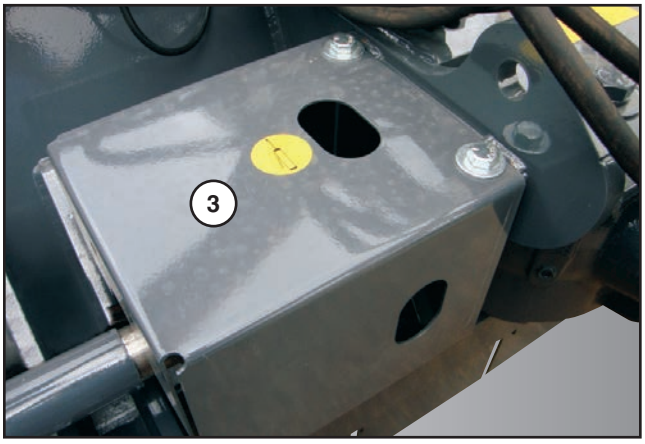
Remove the drive belt. Follow instructions in “Belt Replacement” on page 37 up until the point where the drive belt is removed.



Remove the bolts (1) with washers securing the line-shaft bearing located behind the large pulley.



Remove the bolts (2) securing the pillow block bearing supporting the line-shaft.



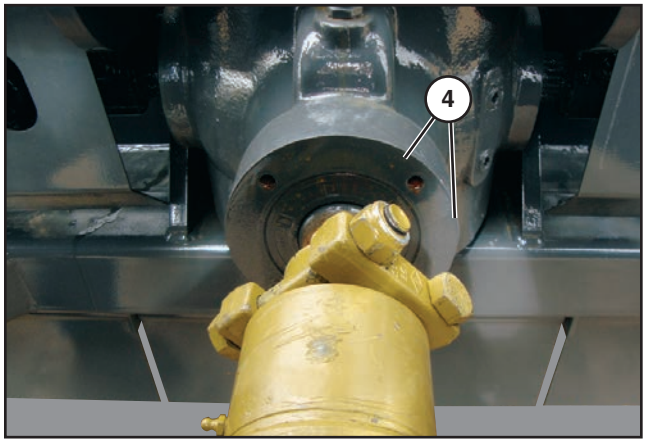
Remove driveline shield (3).

Loosen and remove the clamp bolts securing the U-joint to the gearbox shaft.

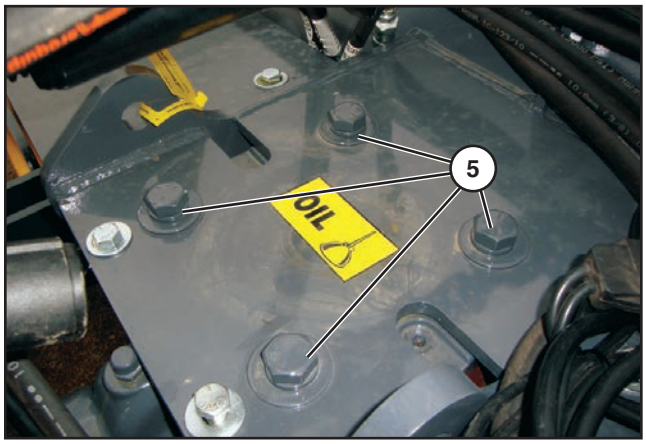
Slide the line-shaft outward until the U-joint is free of the shaft.

Repeat steps to remove opposite side line-shaft.

Gearbox Removal (Cont'd)



Remove PTO shaft by loosening and removing the clamp bolts (4). Then slide it off the shaft.



Remove the four bolts (5) with lock washers and washers securing the gearbox to the frame.

Storage

End of the Season

- Clean entire draper windrower thoroughly.
- Paint all parts that are worn.
- Lubricate all parts of the machine
- Block up the frame of the draper windrower, DO NOT deflate the tires.
- Store draper windrower in a dry area.
- Review your operator's manual.
- Loosen draper windrower belt.

Beginning of the Season

- Review your operator's manual.
- Check air pressure in the tires.
- Drain and refill gearbox to proper level. Gearbox should be filled to the lower plug.
- Lubricate all parts of the machine.
- Tighten all loose bolts, nuts and set screws.
- Tighten draper windrower belt.
- Check and replace all worn knives.
- Should any knives need replacing, remember to replace the worn knives and those directly across from the those being replaced to avoid rotor imbalance and subsequent vibration.

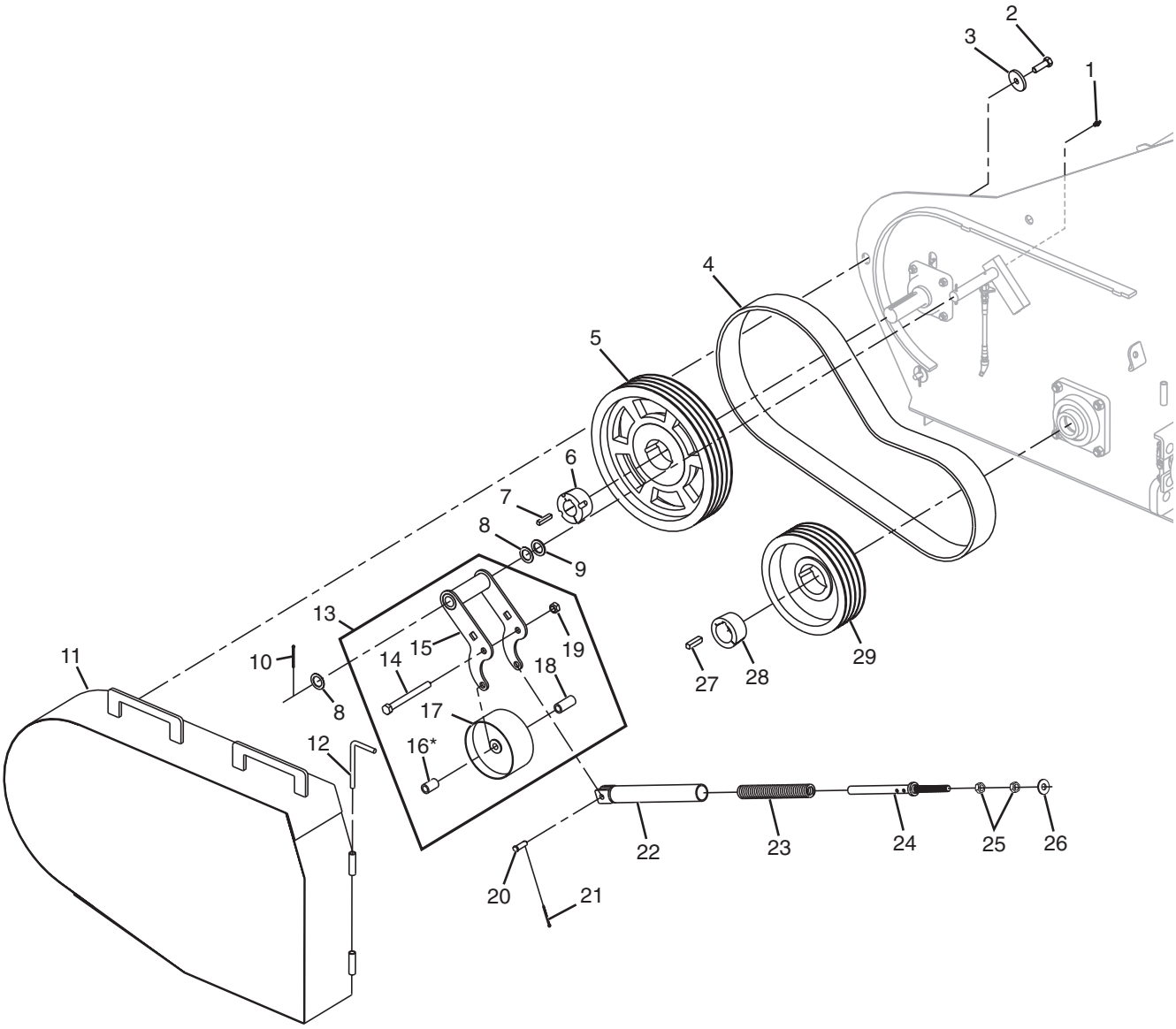
Troubleshooting

To assist with maintenance and repair, the following list of common problems and corrections is provided.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Excessive Vibration	Broken or missing knives.	Replace broken/missing knives plus the worn knives on the opposite side of the rotor to maintain a balanced rotor.
	Mud and/or debris wrapped around the drum or knives.	Clean & remove all debris/mud.
	Bearing malfunction.	Check rotor & drive-line bearings, replace faulty bearings.
	Rotor damage.	Inspect rotor for physical damage. If damaged, remove and return to factory for proper repair.
Rotor Does Not Turn	Knife has become wedged.	Dislodge wedged knife between the end plate and the balancing ring.
	Gearbox malfunction.	Disconnect PTO and manually rotate the gearbox, if unable to rotate, remove gearbox and contact dealer for servicing.

PARTS IDENTIFICATION

4-Band Drive



NOTE: Quantities shown are for both the right and left sides of the draper windrower.

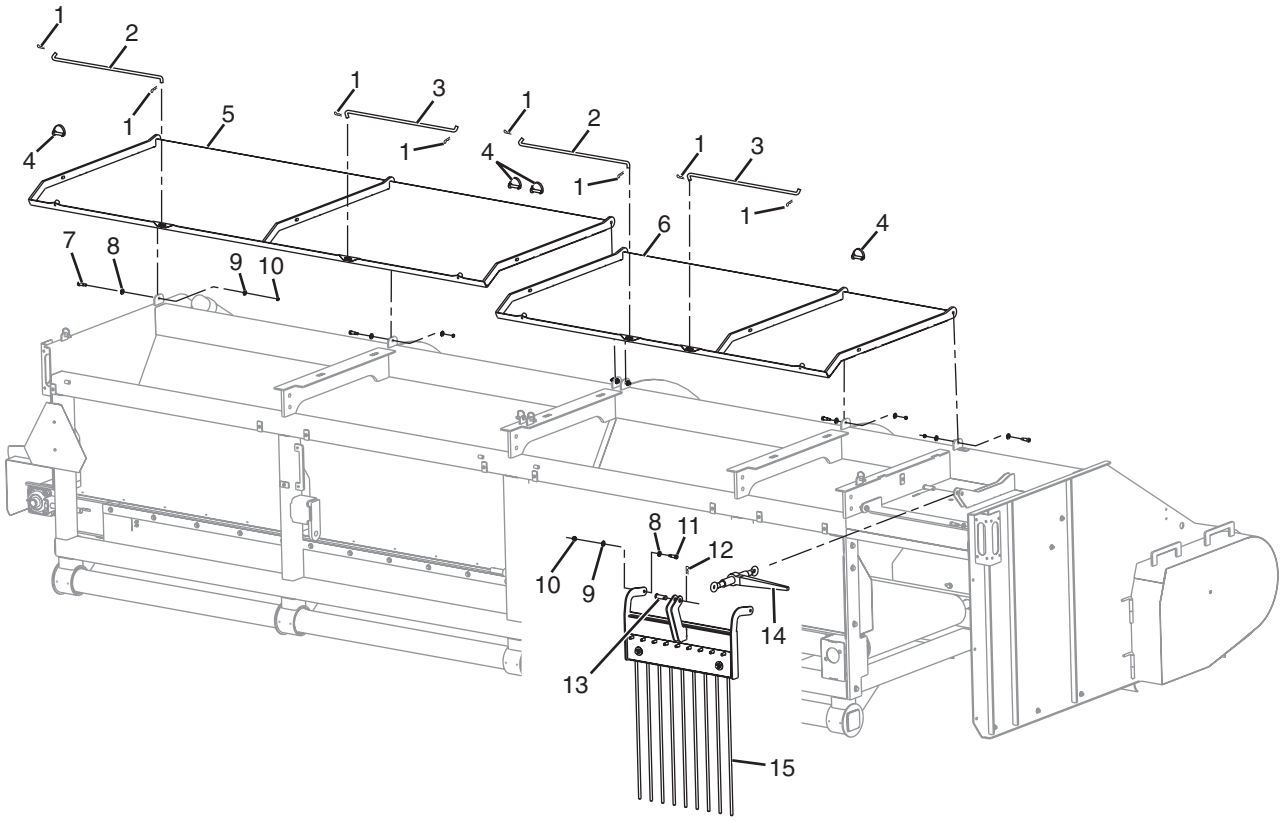
Left side shown.

***Item 16 (spacer) is always on the outside of the pulley, towards the belt shield.**

4-Band Drive

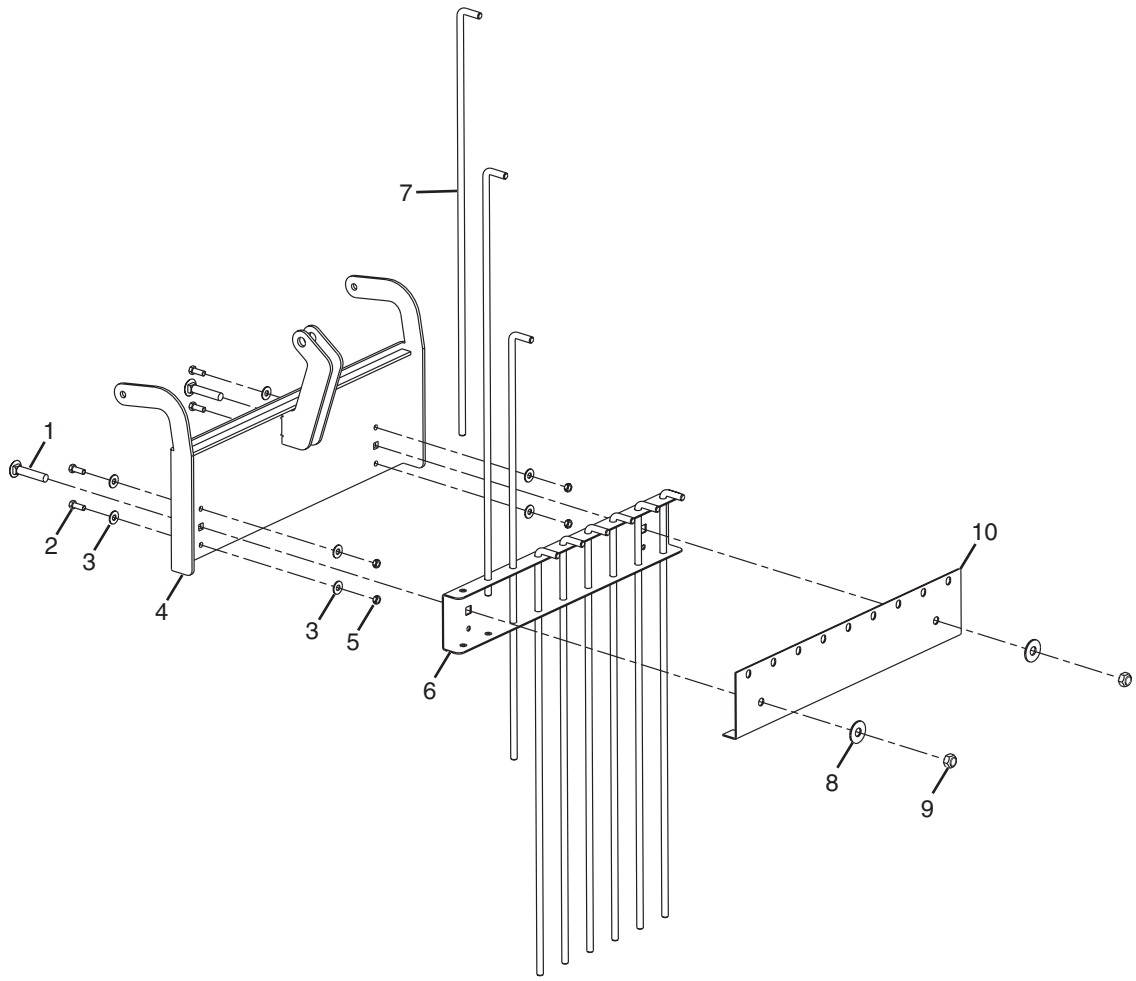
#	QTY.	PART #	DESCRIPTION
1	2	4105	GREASE-ZERK, 1/4" SCREW-IN
2	2	4013	BOLT, 1/2" X 1-1/2" GRADE 5
3	2	4074	WASHER, 2" OD X 1/2" ID X 1/4"
4	2	N10507	BELT, 4B X 87" BOND. SHRD.
5	2	8140	PULLEY, 4B X 16" TAPERLOCK
6	2	8127	BUSHING, 1-3/4 KW TAPERLOCK
7	4	7121-02	KEY, 3/8" X 1-3/4"
8	4	4491	WASHER, 1-1/8" ID X 1-3/4" OD X 18 GA
9	2	4470	WASHER, 1-1/8" ID X 1-3/4" OD X 10 GA
10	2	4329	PIN, COTTER 7/32" X 2-1/2"
11	1	N32870	SHIELD, WINDROW DRAPER LEFT (Shown)
	1	N32880	SHIELD, WINDROW DRAPER RIGHT
12	4	N23287	PIN, WIND SHRD FLAT BELT SHIELD
13	1	N18090	TIGHTENER, BELT RIGHT 4B
	1	N18056	TIGHTENER, BELT LEFT 4B (Shown)
14	2	4457	BOLT, 5/8" X 6-1/2" GRADE 5
15	2	N18057	BRACKET, BELT TIGHTENER
16	2	N18088	PIPE, BELT TIGHTENER SPACER (SHORT)
17	2	N10508	PULLEY, IDLER 6-1/2" O.D. w/5/8" BORE
18	2	N18089	PIPE, BELT TIGHTENER SPACER (LONG)
19	2	4055	NUT, LOCK 5/8"
20	2	4392	PIN, 1/2" X 1-1/2"
21	2	4089	CLIP, HAIRPIN .093" X 1-5/8"
22	2	N18517	TUBE, BELT TIGHTENER
23	2	N32514	SPRING, BELT TIGHTENER
24	2	7525	ROD, BELT TIGHTENER
25	4	4438	NUT, STANDARD 5/8" GRADE 8
26	2	4069	WASHER, FLAT 5/8"
27	2	N27290	KEY, 1/2" X 1-3/4" EXTRA HARD
28	2	8165	BUSHING, 2-3/16" TPL.DOD.117715
29	2	8139	SHEAVE, 4B X 11" TAPERLOCK

Covers and Rear Door



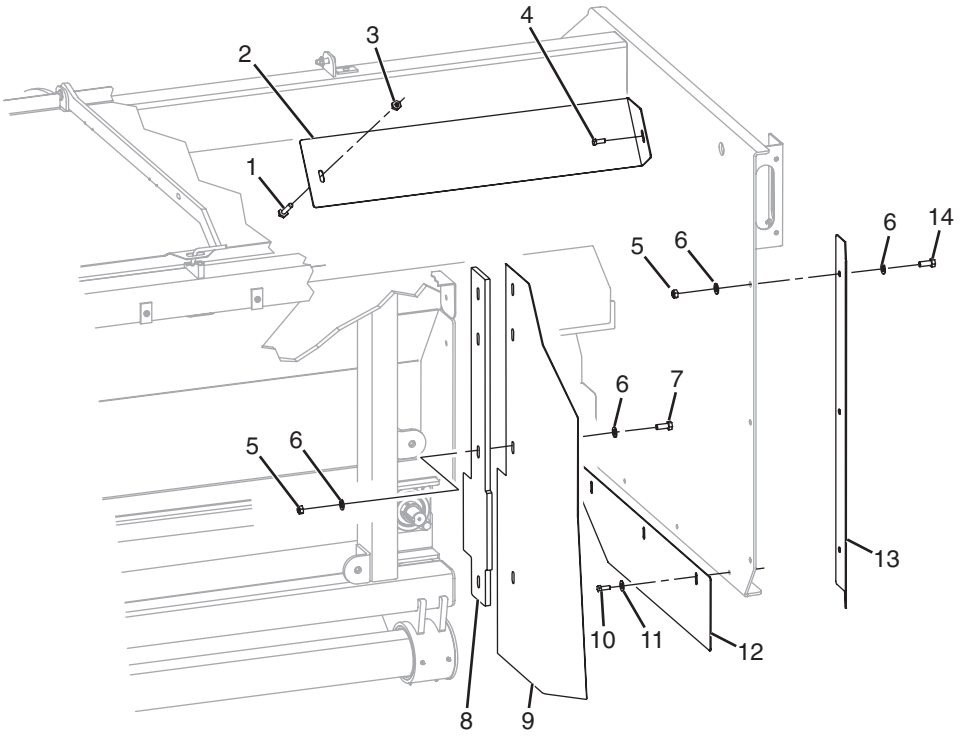
#	QTY.	PART #	DESCRIPTION
1	8	4089	CLIP, HAIRPIN .093 X 1-5/8"
2	2	N32655	ROD, PROP LEFT SWING
3	2	N32654	ROD, PROP RIGHT SWING
4	4	N27991	PIN, 3/8" X 1-3/8" RETAINER
5	1	N32913	HOOD, CARRIAGE ASM L
6	1	N32914	HOOD, CARRIAGE ASM R
7	6	N36690	BOLT, SHOULDER 1/2" X 3/4"
8	8	4068	WASHER, 1/2" SAE FLAT
9	8	4064	WASHER, FLAT 3/8"
10	8	4052	NUT, LOCK 3/8"
11	2	N29742	BOLT, SHOULDER 1/2" X 1"
12	2	4092	PIN COTTER 5/32" X 2"
13	2	4358	PIN, 3/4" X 2"
14	1	N25939	BINDER, RATCHET 5400 LB LOAD
15	1	N32465	DOOR, DRAPER REAR ROD

Rear Door (N32465)



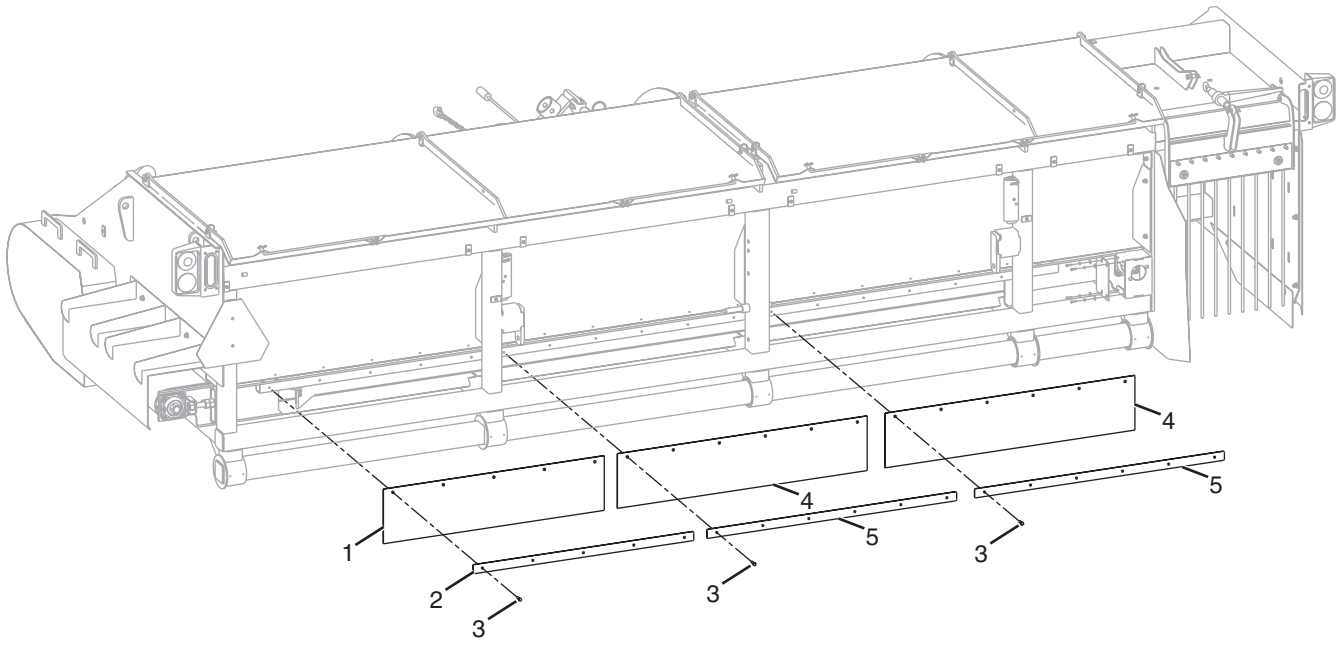
#	QTY.	PART #	DESCRIPTION
1	2	N32023	BOLT, CARRIAGE 5/8" X 2"
2	4	4195	BOLT, 3/8" X 1" GRADE 5
3	8	4064	WASHER, FLAT 3/8"
4	1	N32967	GATE, DRAPER WELDMENT
5	4	4052	NUT, LOCK 3/8"
6	1	N32467	MOUNT, DRAPER REAR DOOR ROD
7	9	N19502	PIN, WIND SHRD TAIL
8	2	4069	WASHER, FLAT 5/8"
9	2	4055	NUT, LOCK 5/8" TOP
10	1	N32468	CAP, DRAPER REAR DOOR ROD

Deflectors and Guards, Rear Door



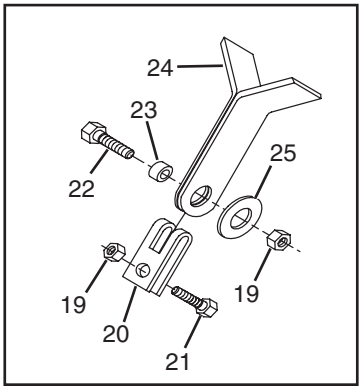
#	QTY.	PART #	DESCRIPTION
1	1	4034	BOLT, CARRIAGE 3/8" X 1"
2	1	N36639	PLATE, DEFLECTOR SHORT
3	1	4979	NUT, LOCK 3/8" SER FLANGE
4	2	N26743	BOLT, 3/8" X 1" SER FLG
5	6	4054	NUT, LOCK 1/2" TOP
6	13	4068	WASHER, 1/2" SAE FLAT
7	4	4014	BOLT, 1/2" X 1-3/4" GRADE 5
8	2	N32446	PLATE, END SIDE
9	1	N32778	GUARD, FORM ATTACHMENT
10	3	4195	BOLT, 3/8" X 1" GRADE 5
11	3	4064	WASHER, FLAT 3/8"
12	1	N32779	GUARD, BOTTOM ATTACHMENT
13	1	N32472	BAR, ANGLE DEFLECTOR
14	3	4012	BOLT, 1/2" X 1-1/4" GRADE 5

Skirting

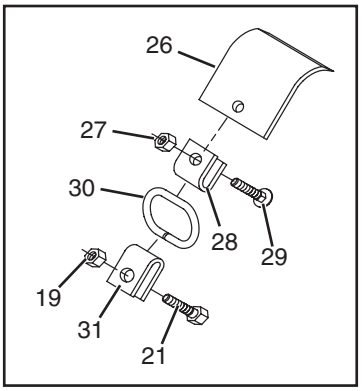


#	QTY.	PART #	DESCRIPTION
1	1	N32853	SKIRTING, 49.1875" CONV 20 DRAPER
2	1	N32855	STRIP, 49" SKIRT MOUNT
3	17	N36497	BOLT, 3/8" X 3/4" SER FLG
4	2	N32854	SKIRTING, 55.625" CONV 20 DRAPER
5	2	N32856	STRIP, 55.625" SKIRT MOUNT

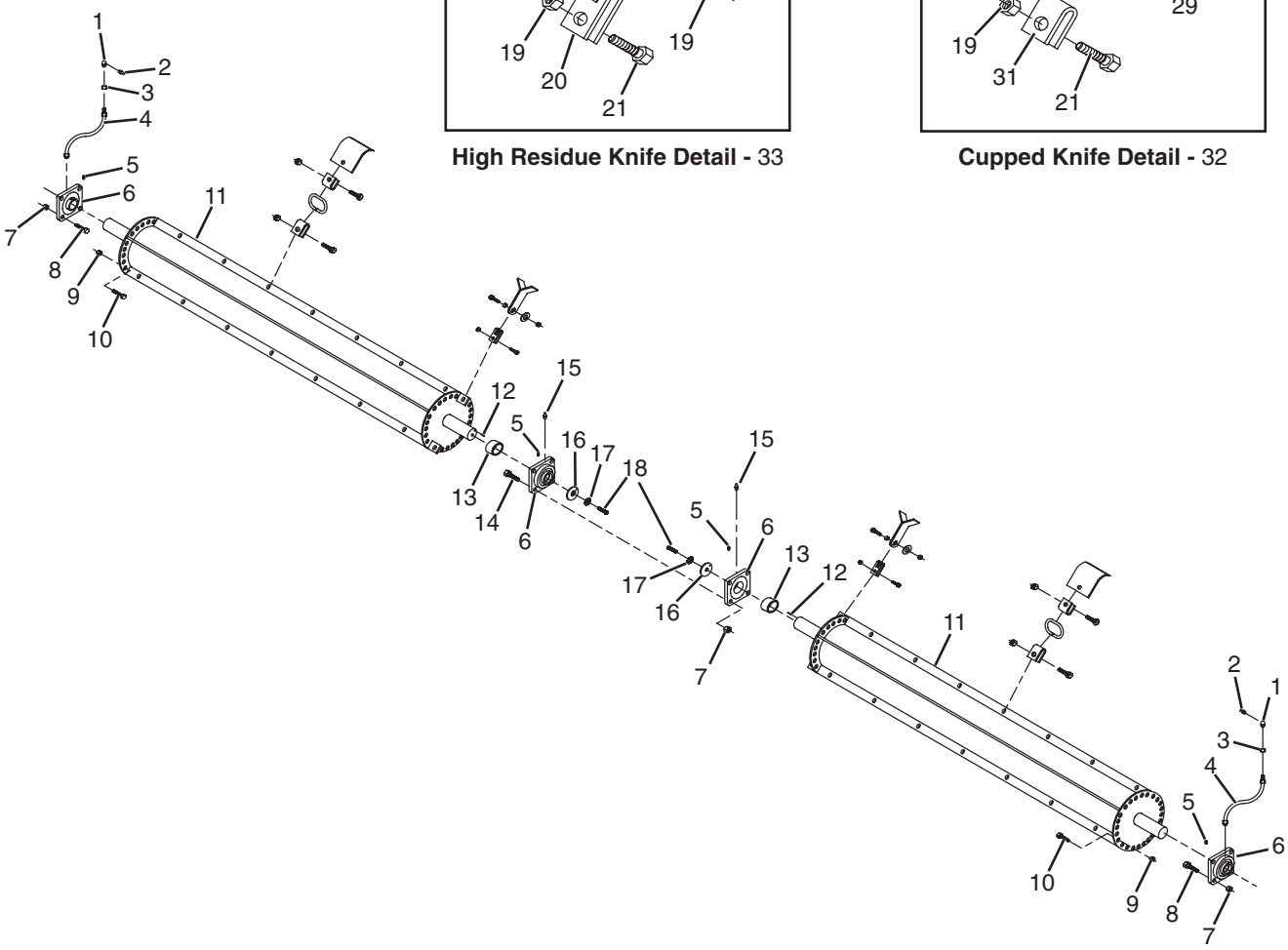
Rotors



High Residue Knife Detail - 33



Cupped Knife Detail - 32



To order a complete right side rotor with knives (Items 11, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31) use part number N32837.

To order a complete left side rotor with knives (Items 11, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31) use part number N32843.

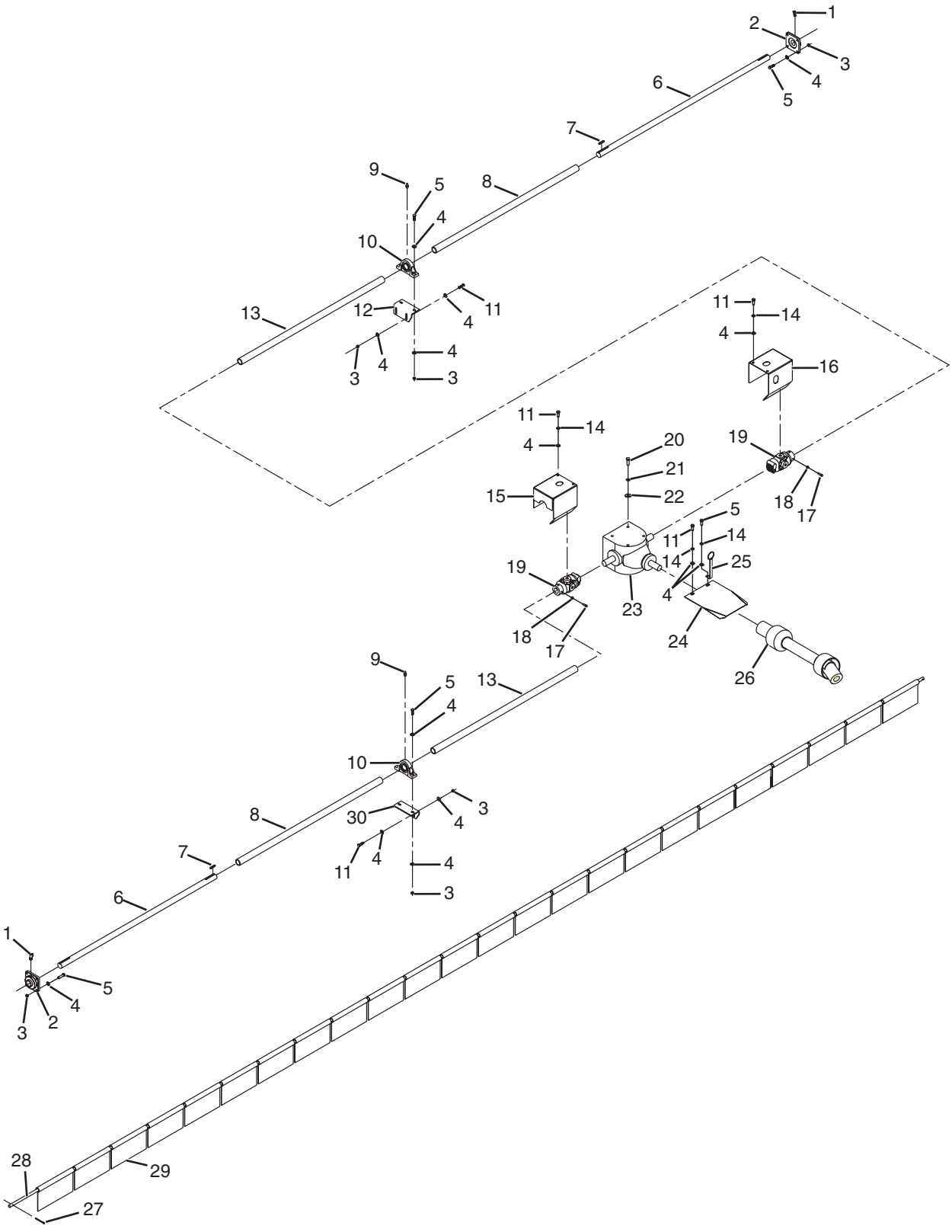
NOTE: See page 89 in Appendix for rotor knife pattern.

Rotors

NOTE: Quantities shown below for Items 19 through 33 are for one rotor.

#	QTY.	PART #	DESCRIPTION
1	2	4472	ELBOW, 1/8" 90 DEG.STREET
2	2	N17007	GREASEZERK, 1/8" NPT
3	2	4304-10	BULKHEAD, FITTING-GREASE HOSE
4	2	4304	HOSE, 15" GREASE W/FITTINGS
5	8	4261	SCREW, 5/16" UNF X 3/8" SET
6	4	N16969	BEARING, 2-3/16" 4-BOLT FLG SEALMASTER
7	12	4057	NUT, 5/8" FINE THREAD TOP LOCK
8	8	4042	BOLT, 5/8" X 2"FINE THRD.GR.8
9	2	4054	NUT, LOCK 1/2" TOP
10	2	4295	BOLT, 1/2" X 2" GR 5 FULL THREAD
11	2	N32838	ROTOR, 20' W/O KNIVES
12	2	4085	PIN, ROLL 3/16" X 3/4"
13	2	N18075	SPACER, SHRD ROTOR 2-3/16" BRNG
14	4	4047	BOLT, 5/8" X 3-1/4" GRD 8 FINE
15	2	4105	GREASE-ZERK, 1/4" SCREW-IN
16	2	4075	WASHER, 2-5/8" OD BEARING RETAINING
17	2	4076	WASHER, 1/2" EXT CNTSK LOCK
18	2	4468	SCREW, 1/2"-20UNF X 1-1/4" FN TD FL HD CAP
19	25	4055	NUT, 5/8" LOCK
20	2	8034	U-BAR, SLOTTED
21	30	4043	BOLT, 5/8" X 2" GR 8
22	2	4045	BOLT, 5/8" X 2-3/4" GR 8
23	2	9073	BUSHING, KNIFE
24	4	8136	KNIFE, 70° HIGH RESIDUE
25	2	4488	WASHER, .894" I.D. X 1.750" O.D.
26	28	8022	KNIFE, HARD-SURFACED CUPPED
27	28	4054	NUT, LOCK 1/2" TOP
28	28	8035	CLIP, CUPPED KNIFE
29	28	4039	BOLT, CARRIAGE 1/2" X 1-1/2" GR5
30	28	N24282	SQUARE-RING, CUPPED KNIFE
31	28	8033	U-BAR, KNIFE
32	28	8022-10	KIT, CUPPED KNIFE COMPLETE ASSEMBLY
33	2	8136-10	SET, 70° HIGH RESIDUE KNIFE

Drive Lines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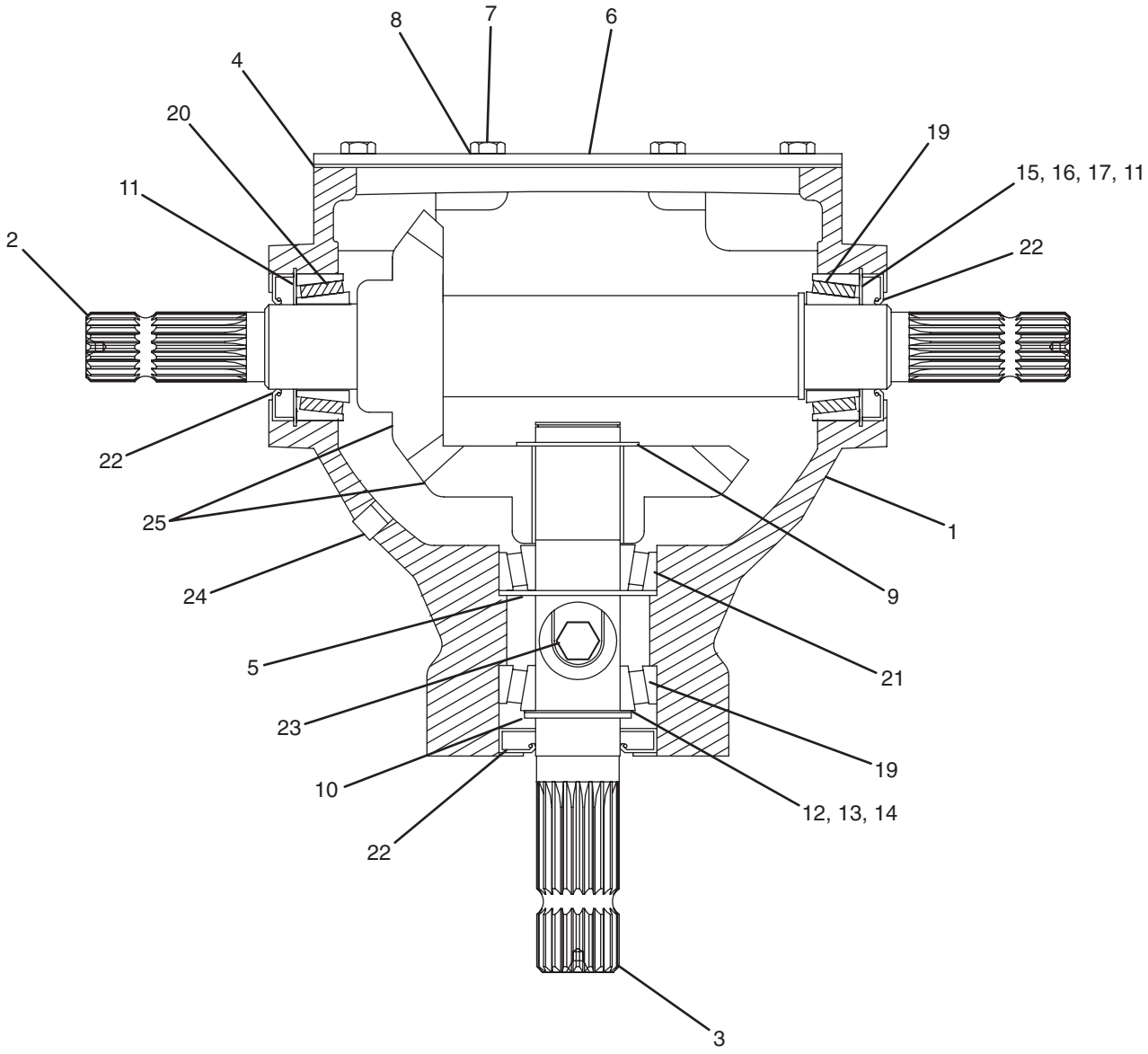
Drive Lines

#	QTY.	PART #	DESCRIPTION
1	2	4106	GREASEZERK,45 DEG SCW-IN 1/8NPT
2	2	N16970	BEARING, 1-3/4" SEALMASTER 4-BOLT FLANGE
3	16	4054	NUT, LOCK 1/2" TOP
4	30	4068	WASHER, 1/2" SAE FLAT
5	13	4014	BOLT, 1/2" X 1-3/4" GRADE 5
6	2	9094	SHAFT, SHRD DRIVELINE 112-1/2"
7	2	7121-03	KEY, 3/8" X 2"
8	2	N13023	SHIELD, SHRD 20' DRVLN OTR PVC
9	2	4105	GREASE-ZERK, 1/4" SCREW-IN
10	2	N16971	BEARING, 1-3/4 (SEALMASTER) PLWBK
11	9	4012	BOLT, 1/2" X 1-1/4" GRADE 5
12	1	9098	MOUNT, SHRD. DRVLN. BEARING LEFT
13	2	N13022	SHIELD, SHRD DRVLN INNER PVC
14	6	4155	WASHER, LOCK 1/2"
15	1	N11987	SHIELD, UNV SHRD BONDIOLI DRIVELINE RIGHT
16	1	N11988	SHIELD, UNV SHRD BONDIOLI DRIVELINE LEFT
17	4	4082	SCREW, SQ HEAD SET 3/8" X 1-1/4"
18	4	4061	NUT, 3/8" JAM
19	2	N12440	U-JOINT, 1-3/4" RB X 1-3/4"-20SPL
20	4	4517	BOLT, 3/4" X 2" GR 5
21	4	4287	WASHER, LOCK 3/4"
22	4	4071	WASHER, FLAT 3/4"
23	1	N13950	GEARBOX, 1450RPM 1:1 BONDIOLI
24	1	9110	SHIELD, SHRD PTO 12" X 16"
25	1	N13652	HOLDER, HOSE
26	1	8176	PTO, PT (1-3/4"-20 SPLINED W/OVERRUNNING CLUTCH)
	1	8175	PTO, PT (1-3/8"-21 SPLINED W/OVERRUNNING CLUTCH)
27	1	4092	PIN COTTER 5/32" X 2"
28	1	N36458	ROD, FLIPPER SHWD 20'
29	24	N18774	FLIPPER, SHREDDER 9-1/2" X 8-1/2"
30	1	9127	MOUNT,SHRD.DRVLN.BEARING RIGHT

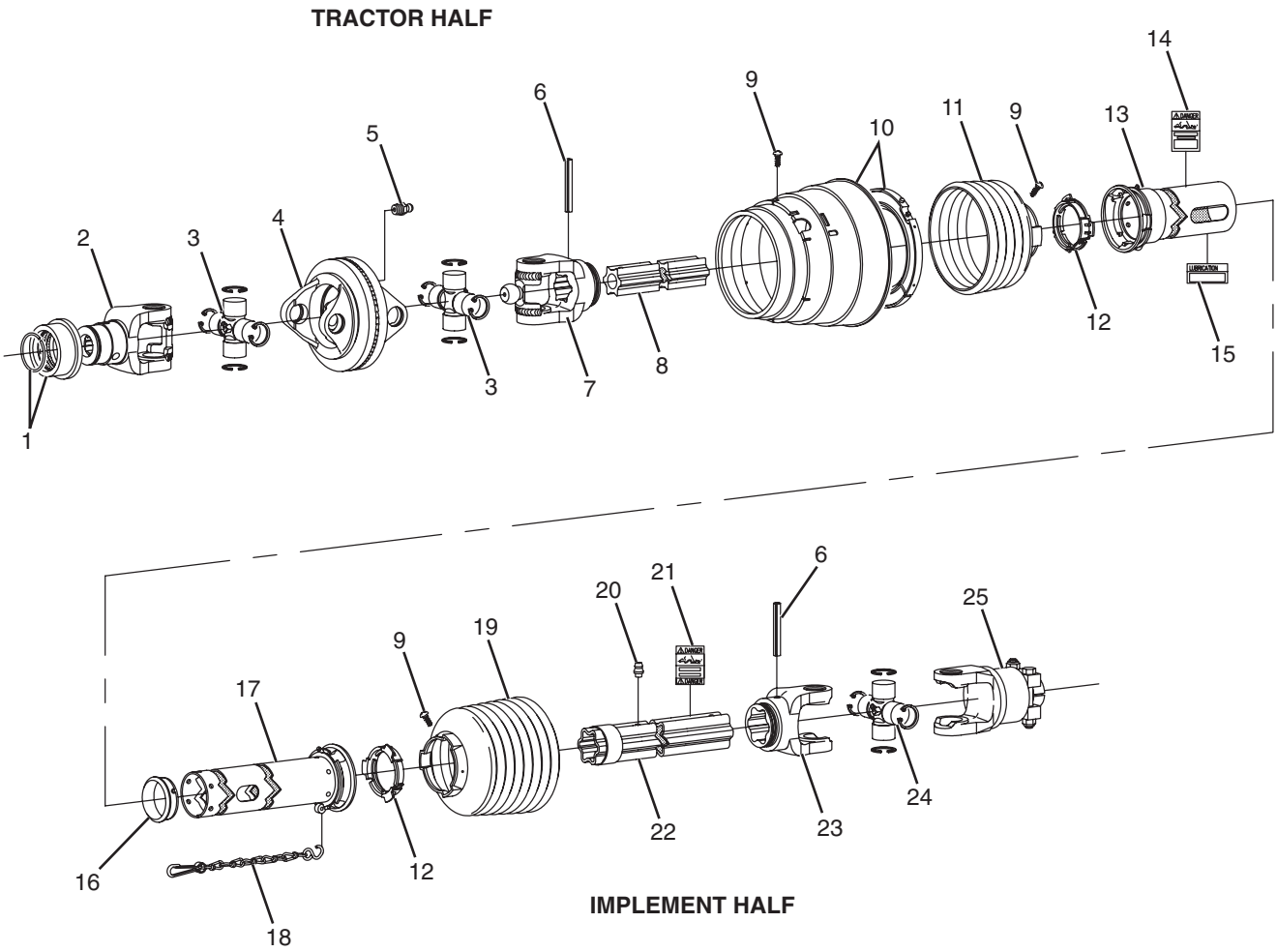
Gearbox, 1450 RPM Bondioli (N13950)



Gearbox, 1450 RPM Bondioli (N13950)

#	QTY.	PART #	DESCRIPTION
1	1	N14122	HOUSING, GEARBOX
2	1	8170-02	SHAFT, THROUGH
3	1	N14121	SHAFT, PINION
4	1	8170-04	GASKET, COVER
5	1	N14120	SPACER, PINION SHAFT
6	1	8170-06	COVER, HOUSING
7	8	8170-07	SCREW, COVER
8	8	8170-08	WASHER, COVER SCREW
9	1	8170-09	CIRCLIP, PINION SHAFT
10	1	8170-10	SNAP-RING, PINION SHAFT
11	2	8170-11	SNAP-RING, THROUGH SHAFT
12	1	8170-12	RING, PINION SHAFT
13	1	8170-13	RING, PINION SHAFT
14	1	8170-14	RING, PINION SHAFT
15	2	8170-15	RING, THROUGH SHAFT
16	2	8170-16	RING, THROUGH SHAFT
17	2	8170-17	RING, THROUGH SHAFT
18	2	8170-18	RING, THROUGH SHAFT
19	2	8170-19	BEARING, TAPERED ROLLER
20	1	8170-20	BEARING, THROUGH SHAFT
21	1	8170-21	BEARING, PINION SHAFT
22	3	8170-22	SEAL OIL
23	1	8001-18	PLUG, OIL VENT
24	5	8001-19	PLUG, OIL
25	1	N14119	GEAR, BEVEL 1:1 (SET)

PTO, 1-3/8" Walterscheid w/Overrunning Clutch (8175)



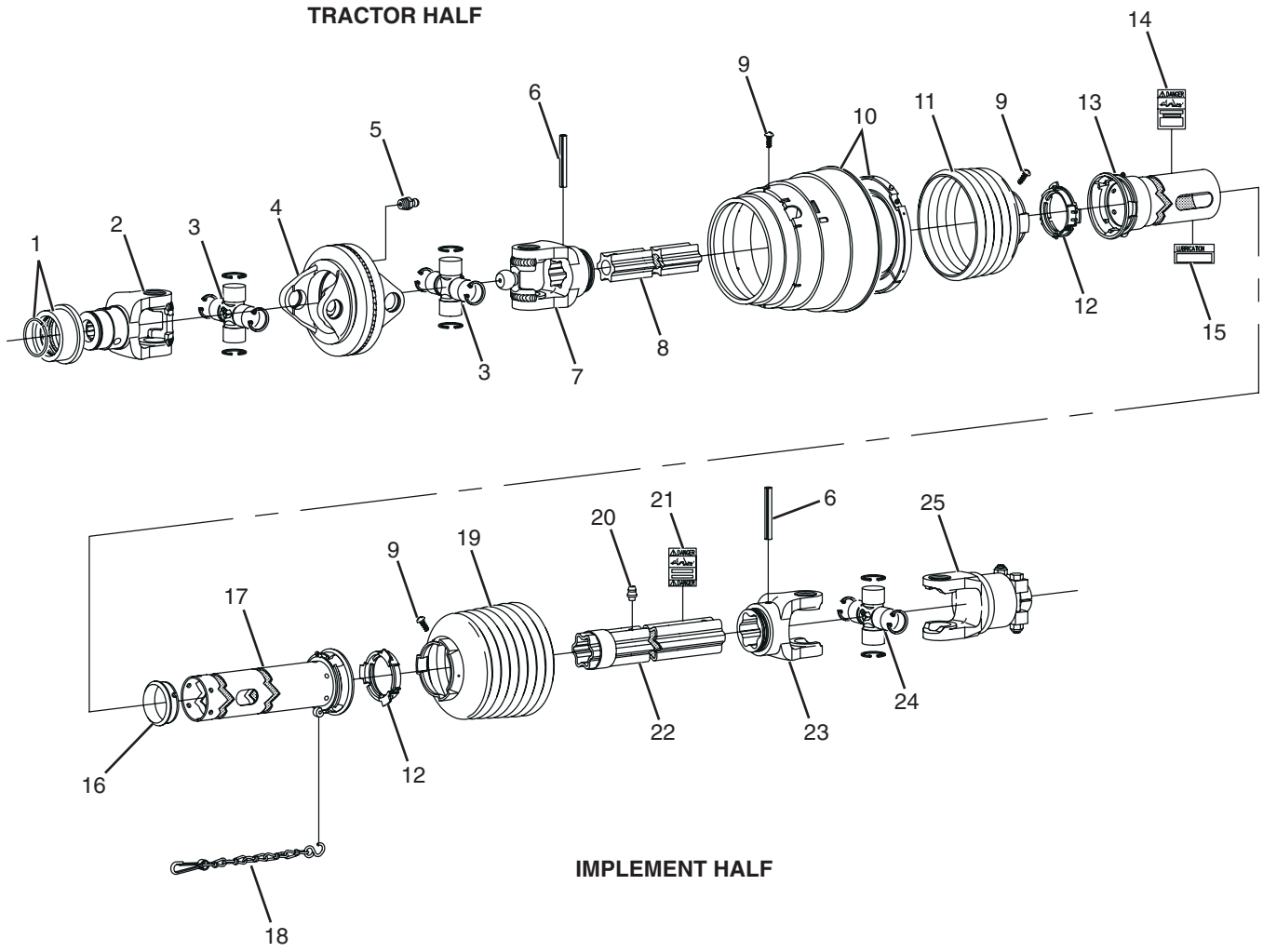
To order a complete tractor half of the PTO, use part number N10332.

To order a complete implement half of the PTO, use part number N10333.

PTO, 1-3/8" Walterscheid w/Overrunning Clutch (8175)

#	QTY.	PART #	DESCRIPTION
1	1	N10360	KIT; PTO SNAP RING (INCLUDED W/N10337)
2	1	N10337	YOKE, PTO 1-3/8"-21 SPLINE AS
3	2	N10341	KIT, PTO CROSS & BEARING
4	1	N10338	YOKE, PTO DOUBLE
5	1	N10339	ZERK, PTO GREASE (INCLUDED W/N10338)
6	2	N10342	PIN, PTO SPRING (10MM X 90MM)
7	1	N10340	YOKE, PTO INBOARD (S4)
8	1	N10343	SHAFT, PTO PROFILE (S4GA)
9	8	N11750	SCREW, PTO RIBBED SHIELD (W/N10351, NI0352 & N10367)
10	1	N10351	BEARING, PTO CV CONE
11	1	N10352	SHIELD, PTO CONE 4-RIB
12	2	N10348	RING, PTO BEARING (SC25)
13	1	N10349	GUARD, PTO SHAFT OUTER
14	1	N10357	DECAL, PTO SHAFT GUARD (INCLUDED W/N10349)
15	1	N10862	DECAL, PTO LUBRICATION
16	1	N10355	BEARING, PTO TUBE GUARD SUPPORT
17	1	N10350	GUARD, PTO TUBE INNER
18	1	N10356	CHAIN, PTO SAFETY
19	1	N10367	SHIELD, PTO CONE 7-RIB
20	1	N10359	ZERK, PTO GREASE (INCLUDED W/N10861)
21	1	N11761	DECAL, PTO TUBE GUARD (INCLUDED W/N10861)
22	1	NI0861	TUBE, PTO PROFILE W/SLEEVE
23	1	N10345	YOKE, PTO INBOARD (S5)
24	1	N10347	KIT, PTO CROSS & BEARING
25	1	8192	CLUTCH, PTO OVERRUNNING

PTO, 1-3/4" Walterscheid w/Overrunning Clutch (8176)



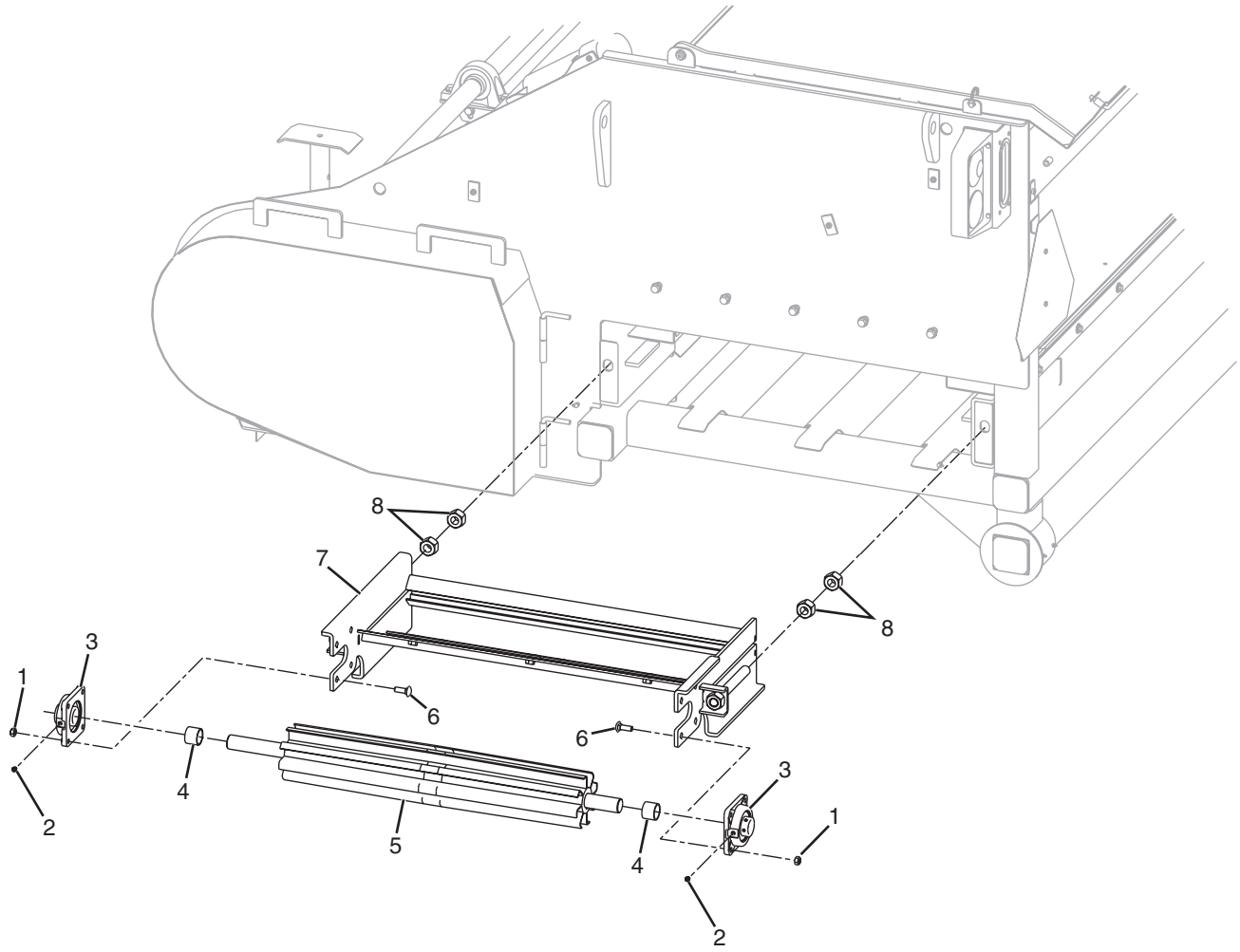
To order a complete tractor half of the PTO, use part number N10334.

To order a complete implement half of the PTO, use part number N10333.

PTO, 1-3/4" Walterscheid w/Overrunning Clutch (8176)

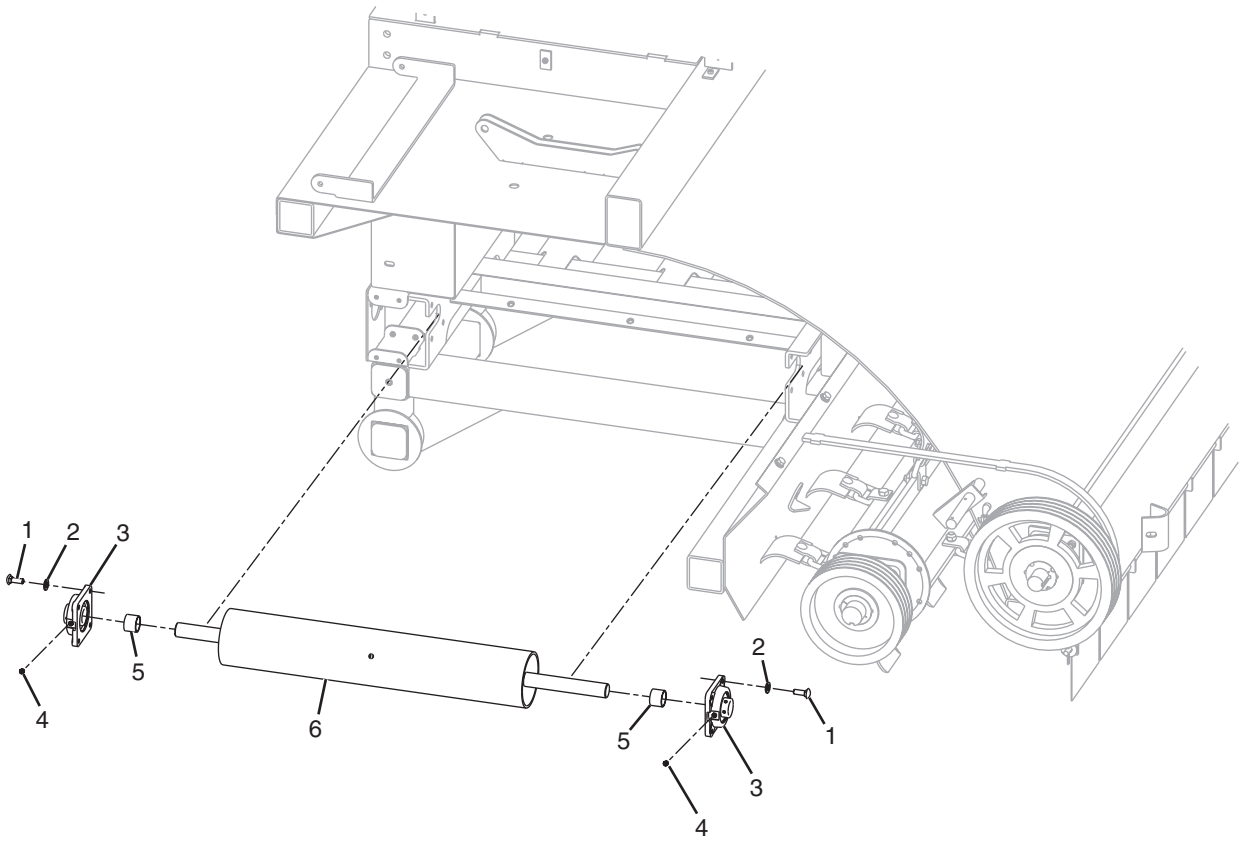
#	QTY.	PART #	DESCRIPTION
1	1	N10362	KIT, PTO SNAP RING (INCLUDED W/N10361)
2	1	N10338	YOKE, PTO 1-3/4"-20 SPLINE AS
3	2	N10341	KIT, PTO CROSS & BEARING
4	1	N10338	YOKE, PTO DOUBLE
5	1	N10339	ZERK, PTO GREASE (INCLUDED W/N10338)
6	2	N10342	PIN, PTO SPRING (10MM X 90MM)
7	1	N10340	YOKE, PTO INBOARD (S4)
8	1	N10343	SHAFT, PTO PROFILE (S4GA)
9	8	N11750	SCREW, PTO RIBBED SHIELD (W/N10351 & N10367)
10	1	N10351	BEARING, PTO CV CONE
11	1	N10352	SHIELD, PTO CONE 4-RIB
12	2	N10348	RING, PTO BEARING (SC25)
13	1	N10349	GUARD, PTO SHAFT OUTER
14	1	N10357	DECAL, PTO SHAFT GUARD
15	1	N10862	DECAL, PTO LUBRICATION
16	1	N10355	BEARING, PTO TUBE GUARD SUPPORT
17	1	N10350	GUARD, PTO TUBE INNER
18	1	N10356	CHAIN, PTO SAFETY
19	1	N10367	SHIELD, PTO CONE 7-RIB
20	1	N10359	ZERK, PTO GREASE
21	1	N11761	DECAL, PTO TUBE GUARD
22	1	Nl0861	TUBE, PTO PROFILE W/SLEEVE
23	1	N10345	YOKE, PTO INBOARD (S5)
24	1	N10347	KIT, PTO CROSS & BEARING
25	1	8192	CLUTCH, PTO OVERRUNNING

Takeup, Draper Tailstock



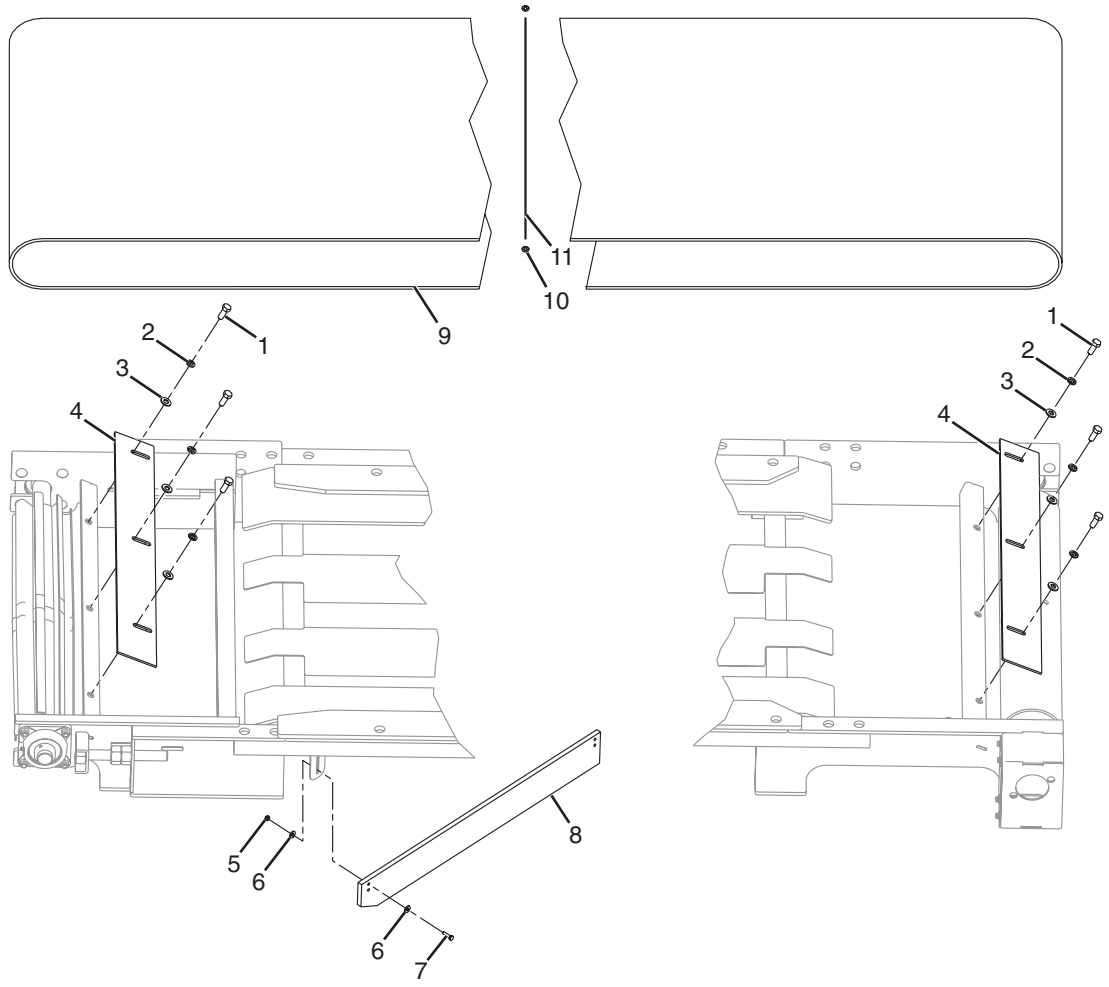
#	QTY.	PART #	DESCRIPTION
1	8	4054	NUT, LOCK 1/2" TOP
2	2	N25062	GREASE ZERK, 90 DEG 1/8” NPT
3	2	N30229	BEARING, 1-1/2" DODGE 4-BLT FLG
4	2	N36510	BUSHING, IDLER .781"
5	1	N36610	PULLEY, DRAPER TAILSTOCK OS
6	8	4039	BOLT, CARRIAGE 1/2" X 1-1/2"
7	1	N36627	TAKEUP, DRAPER TAILSTOCK 2
8	4	N28130	NUT, 1" ACME

Drum, Draper Belt Drive



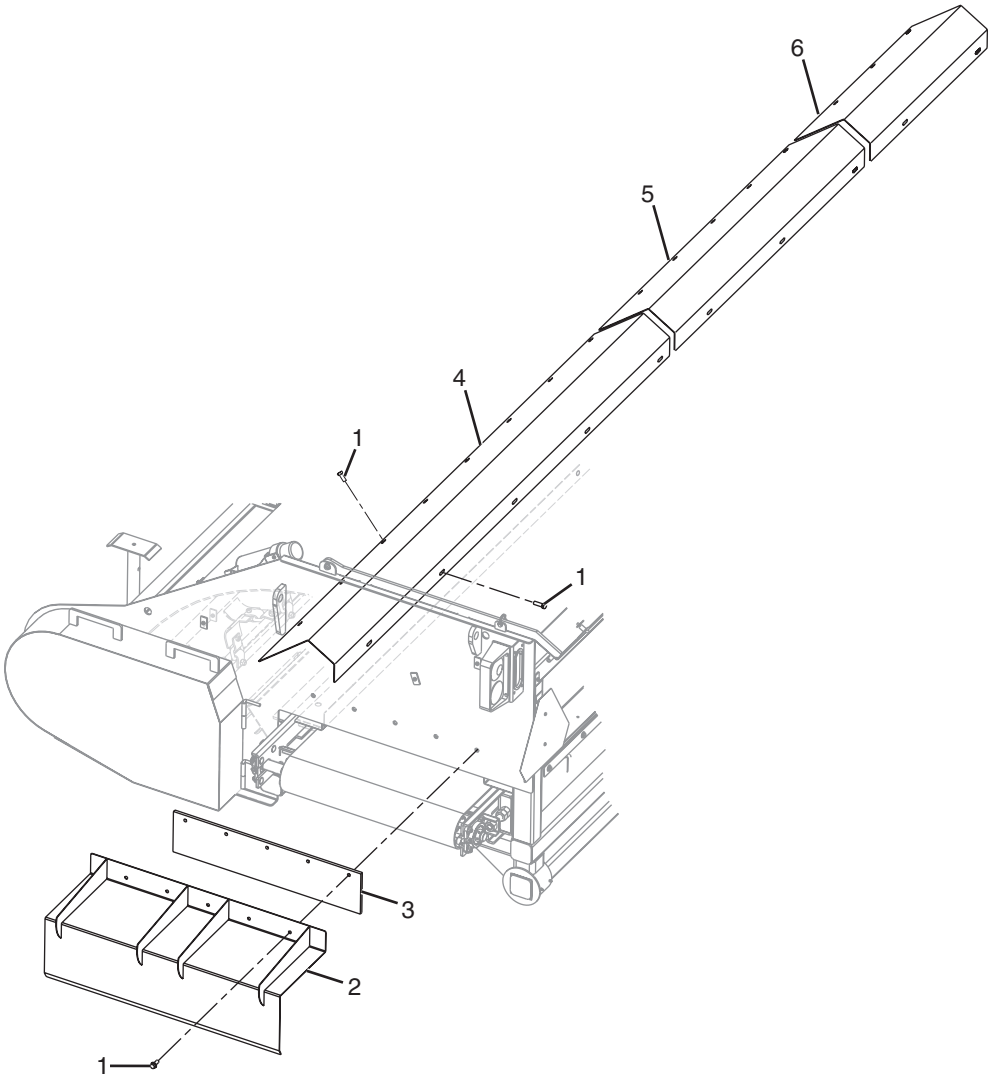
#	QTY.	PART #	DESCRIPTION
1	8	4013	BOLT, 1/2" X 1-1/2" GR 5
2	8	N16472	WASHER, NORD-LOCK 1/2"
3	2	N30229	BEARING, 1-1/2" DODGE 4-BLT FLG
4	2	4105	GREASE-ZERK, 1/4" SCREW-IN
5	2	N36501	BUSHING, DRIVE .594"
6	1	N36613	DRUM, SHWD BELT DRIVE CROWNED

Conveyor Scrapers and Belt



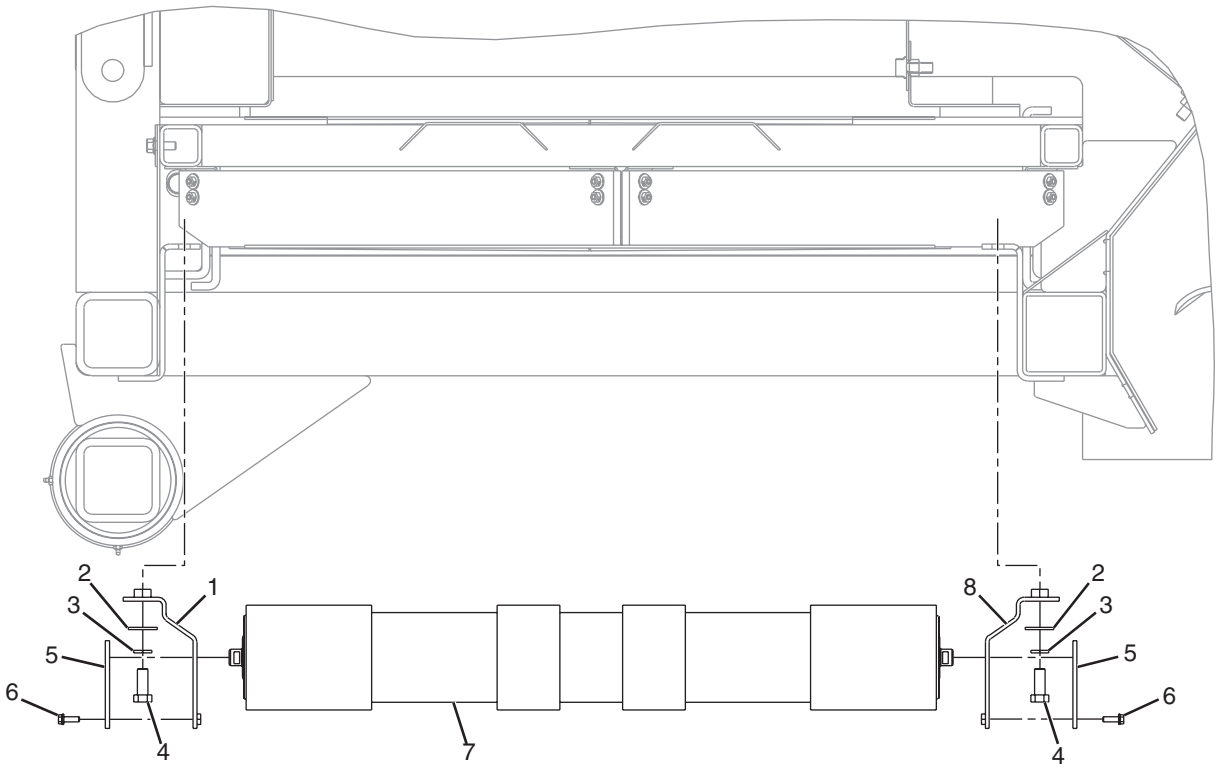
#	QTY.	PART #	DESCRIPTION
1	6	4012	BOLT, 1/2" X 1-1/4" GRADE 5
2	6	4155	WASHER, LOCK 1/2"
3	6	4068	WASHER, 1/2" SAE FLAT
4	2	N36641	PLATE, CROWNED SCRAPER
5	8	4050	NUT, 1/4" LOCK
6	16	4460	WASHER, FLAT 1/4"
7	8	4000	BOLT, 1/4" X 1" GRADE 5
8	2	N36631	SCRAPER, CONVEYOR SHORT
9	1	N32909	BELT, CONVEYOR 33" X 443"
10	2	N35112	WASHER, SHWD CON BELT CRIMPED
11	1	N35111	CABLE, SHWD CONVEYOR BELT

Conveyor Belt Cover and Internal Covers



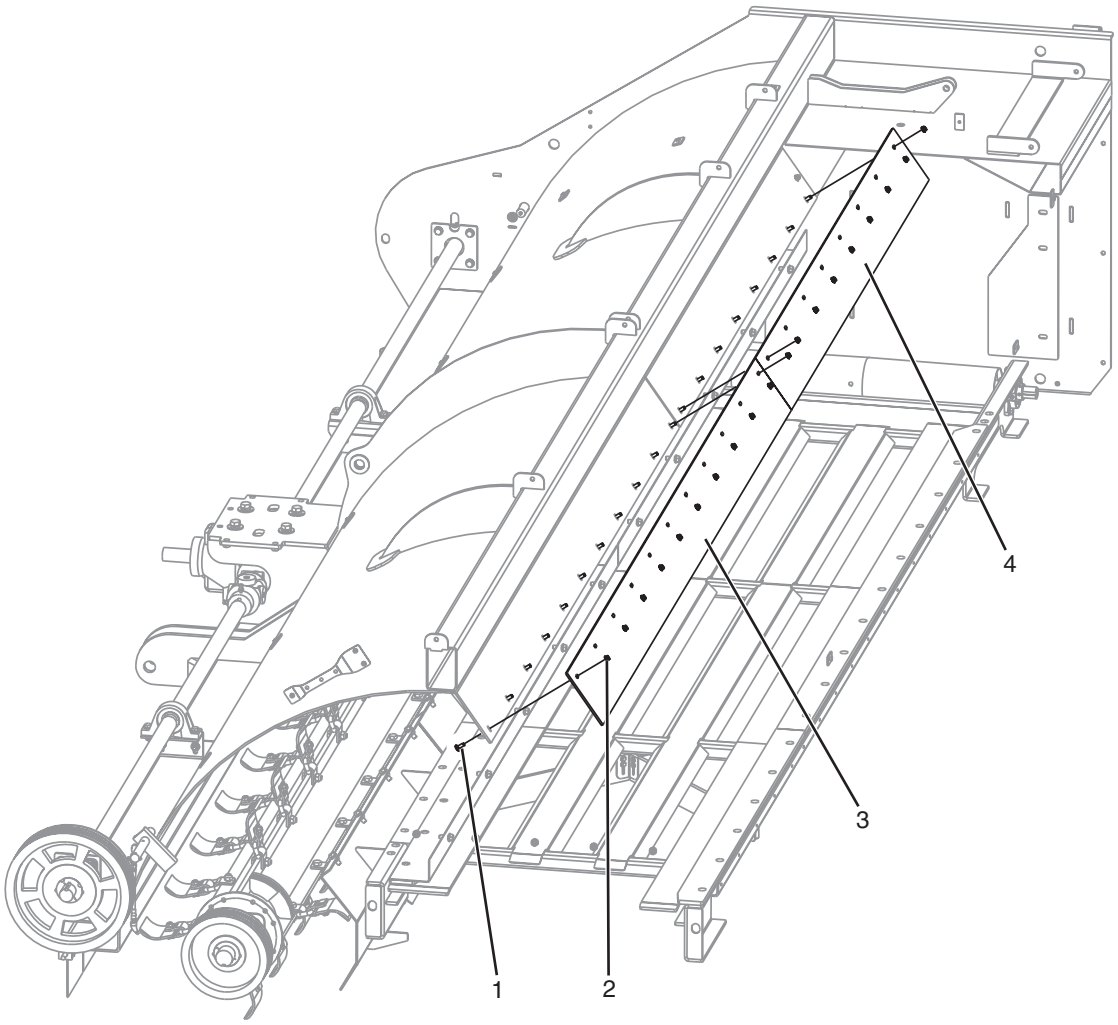
#	QTY.	PART #	DESCRIPTION
1	31	N18360	BOLT, 1/2" X 1-1/4" SERATED FLANGE
2	1	N32832	GUARD, CONV ASM
3	1	N32565	SKIRTING, CONV SHWD
4	1	N32910	COVER, INTERNAL 119"
5	1	N32911	COVER, INTERNAL 69"
6	1	N32912	COVER, INTERNAL 50"

Return Roller



#	QTY.	PART #	DESCRIPTION
1	1	N36638	BRACKET, SHWD RETURN ROLL MT B
2	4	4486	WASHER, 1/2" FLAT
3	4	4155	WASHER, LOCK 1/2"
4	4	4012	BOLT, 1/2" X 1-1/4" GRADE 5
5	2	N36678	PLATE, SHWD ROLLER HOLDER
6	4	4573	1/4" X 3/4" SER FLANGE
7	1	N36640	ROLLER, C5 30" RETURN URETHANE
8	1	N36677	BRACKET, SHWED RETURN ROLL MT F

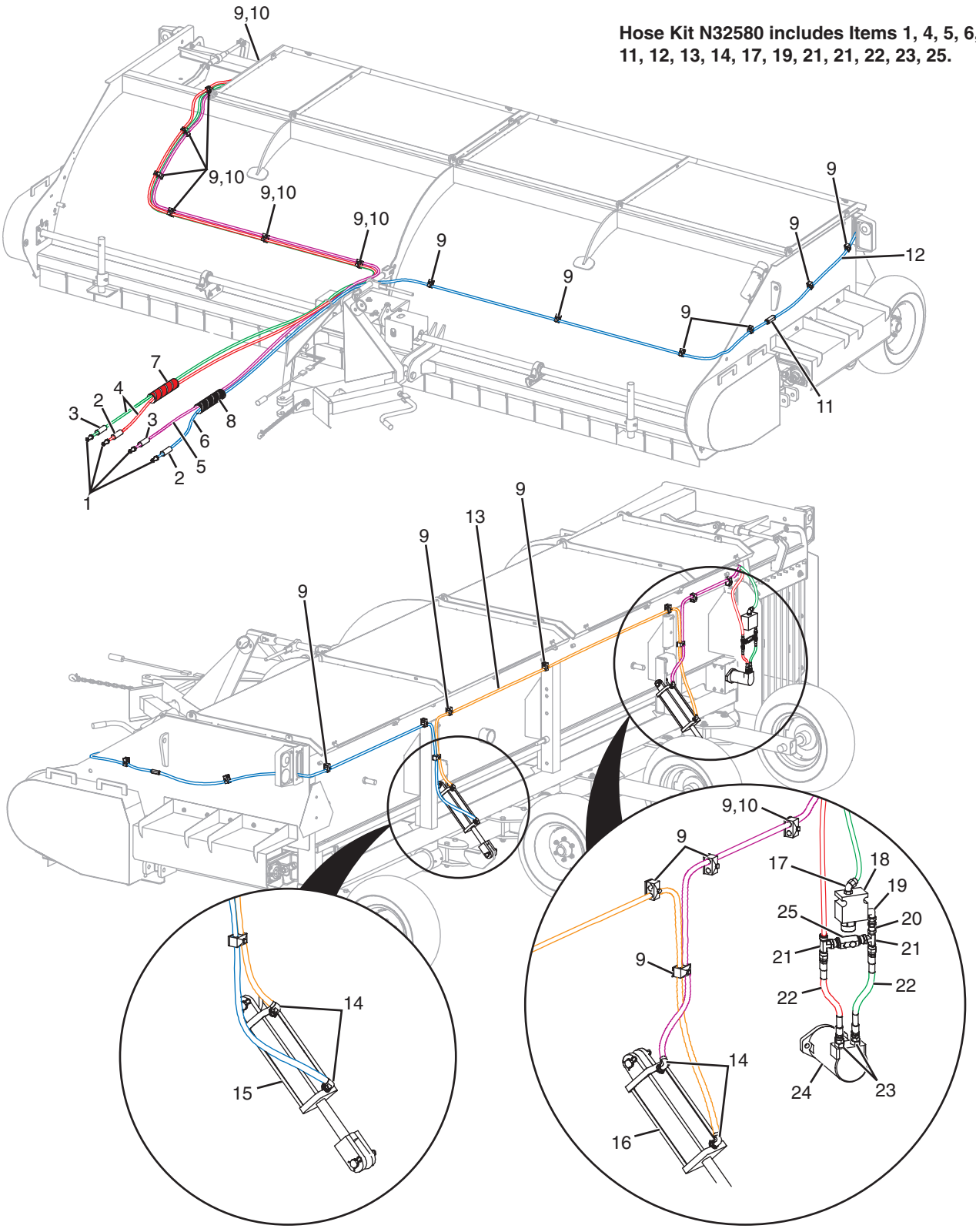
Baffles



#	QTY.	PART #	DESCRIPTION
1	19	4034	BOLT, CARRIAGE 3/8" X 1"
2	19	4979	NUT, LOCK 3/8" SER FLANGE
3	1	N36616	BAFFLE, EXTEND BOLT-IN LG 20'
4	1	N36617	BAFFLE, EXTEND BOLT-IN SH 20'

Hydraulics, Main

Hose Kit N32580 includes Items 1, 4, 5, 6, 11, 12, 13, 14, 17, 19, 21, 21, 22, 23, 25.



Hydraulics, Main

#	QTY.	PART #	DESCRIPTION
*1	4	N11825	COUPLER, 1/2" MALE PIONEER
**2	2	N24823	DECAL, TANK
**3	2	N24822	DECAL, PRESSURE
*4	2	N32573	HOSE, 3/8 X 300 -8FJ1C-8MP
*5	1	N32574	HOSE, 3/8" X 330" 8FJ1C-8MP
*6	1	N32575	HOSE, 3/8" X 240" 8FJ-8MP
7	1	N32884	COVERING, HOSE - RED
8	1	N32882	COVERING, HOSE - BLACK
9	29	N21365	CLAMP, 3/8" HYD HOSE DOUBLE
10	7	N28436	BOLT, 5/16" X 2-1/4" GR5
*11	1	N28749	UNION, -8MJIC
*12	1	N32576	HOSE, 3/8" X 156" 8FJ1C-8FJ1C
*13	1	N25196	HOSE, 3/8" X 168" -8FJX -8FJX
*14	4	N11952	ELBOW, 90 DEG - 8MJIC - 8MOR
15	1	8042	CYLINDER, 3" X 8" REPHASING
16	1	8043	CYLINDER, 3-1/4" X 8" REPHASNG
*17	1	N26332	ELBOW, 45 DEG - 8MJIC - 12MOR
18	1	N36628	VALVE, FLOW CONTROL, 14 GPM
*19	1	N26333	ELBOW, 90 DEG - 8MJIC - 12MOR
*20	1	N30040	ADAPTER, 8FJC - 8 FJC
*21	2	N28895	TEE, -8MJIC -8MJIC -8FJIC
*22	2	N25197	HOSE, 3/8" X 12" -8FJIC -8FJIC
*23	2	N12444	ADAPTER, 8MJIC - 10MOR
24	1	N29849	MOTOR, CHAR-LYNN 11.9 CID
*25	1	N32536	VALVE, CHECK -8MJ/8MJ/5 PSI

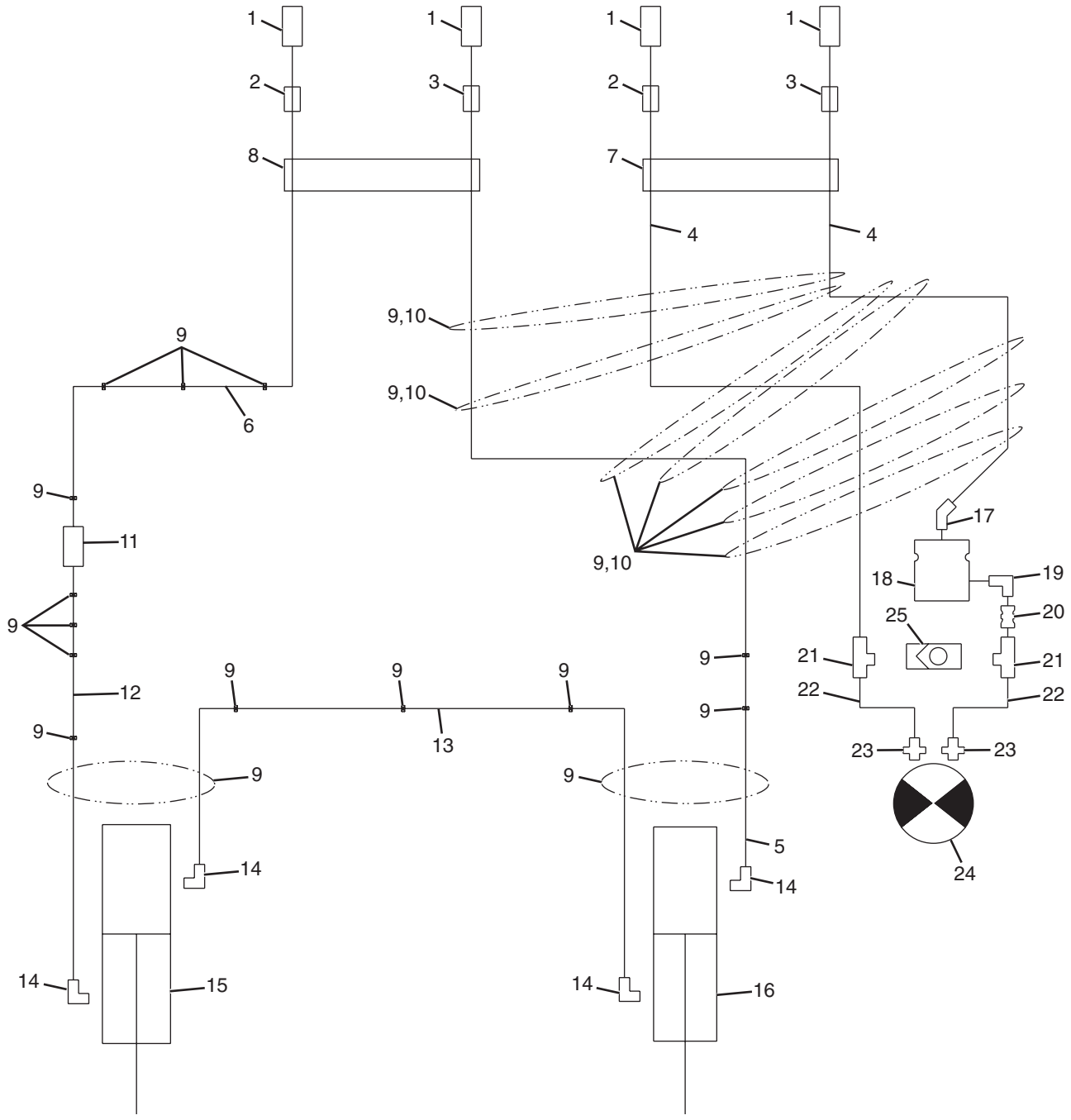
*** Included in Hose Kit N32580.**

**** Included in Decal Kit N32592.**

See page 68 and page 69 for schematic of Main Hydraulics.

NOTE: When clamps are doubled up at mounting location, discard the 5/16" X 1-3/8" bolt that comes with kit N21365, and replace with 5/16" X 2-1/4" bolt (Item 8, part number N28436).

Schematic, Main Hydraulics



Hose Kit N32580 includes Items 1, 4, 5, 6, 11, 12, 13, 14, 17, 19, 20, 21, 22, 23, 25.

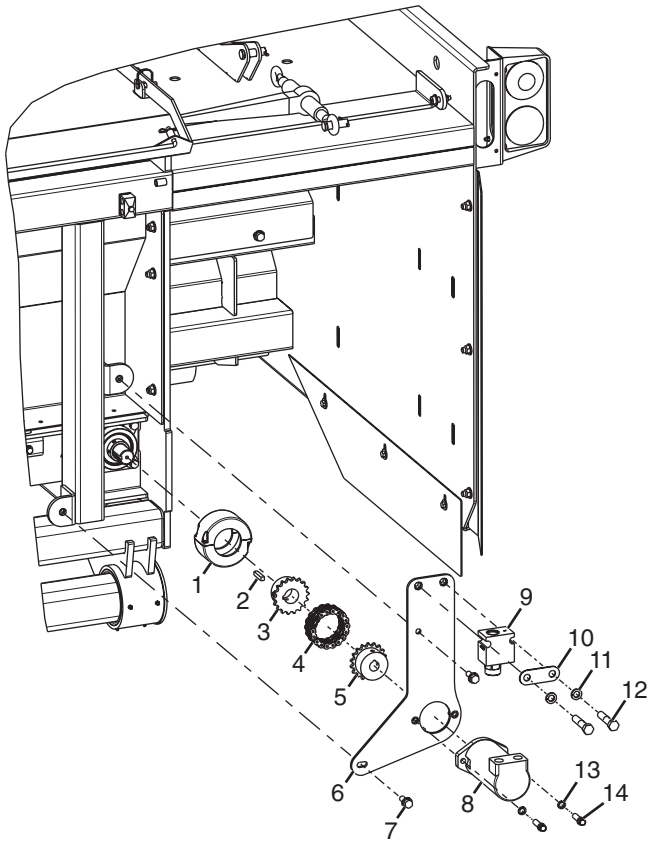
Schematic, Main Hydraulics

#	QTY.	PART #	DESCRIPTION
*1	4	N11825	COUPLER, 1/2" MALE PIONEER
**2	2	N24823	DECAL, TANK
**3	2	N24822	DECAL, PRESSURE
*4	2	N32573	HOSE, 3/8 X 300 -8FJ1C-8MP
*5	1	N32574	HOSE, 3/8" X 330" 8FJ1C-8MP
*6	1	N32575	HOSE, 3/8" X 240" 8FJ-8MP
7	1	N32884	COVERING, HOSE - RED
8	1	N32882	COVERING, HOSE - BLACK
9	29	N21365	CLAMP, 3/8" HYD HOSE DOUBLE
10	7	N28436	BOLT, 5/16" X 2-1/4" GR5
*11	1	N28749	UNION, -8MJIC
*12	1	N32576	HOSE, 3/8" X 156" 8FJ1C-8FJ1C
*13	1	N25196	HOSE, 3/8" X 168" -8FJX -8FJX
*14	4	N11952	ELBOW, 90 DEG - 8MJIC - 8MOR
15	1	8042	CYLINDER, 3" X 8" REPHASING
16	1	8043	CYLINDER, 3-1/4" X 8" REPHASNG
*17	1	N26332	ELBOW, 45 DEG - 8MJIC - 12MOR
18	1	N36628	VALVE, FLOW CONTROL, 14 GPM
*19	1	N26333	ELBOW, 90 DEG - 8MJIC - 12MOR
*20	1	N30040	ADAPTER, 8FJC - 8 FJC
*21	2	N28895	TEE, -8MJIC -8MJIC -8FJIC
*22	2	N25197	HOSE, 3/8" X 12" -8FJIC -8FJIC
*23	2	N12444	ADAPTER, 8MJIC - 10MOR
24	1	N29849	MOTOR, CHAR-LYNN 11.9 CID
*25	1	N32536	VALVE, CHECK -8MJ/8MJ/5 PSI

*** Included in Hose Kit N32580.**

**** Included in Decal Kit N32592.**

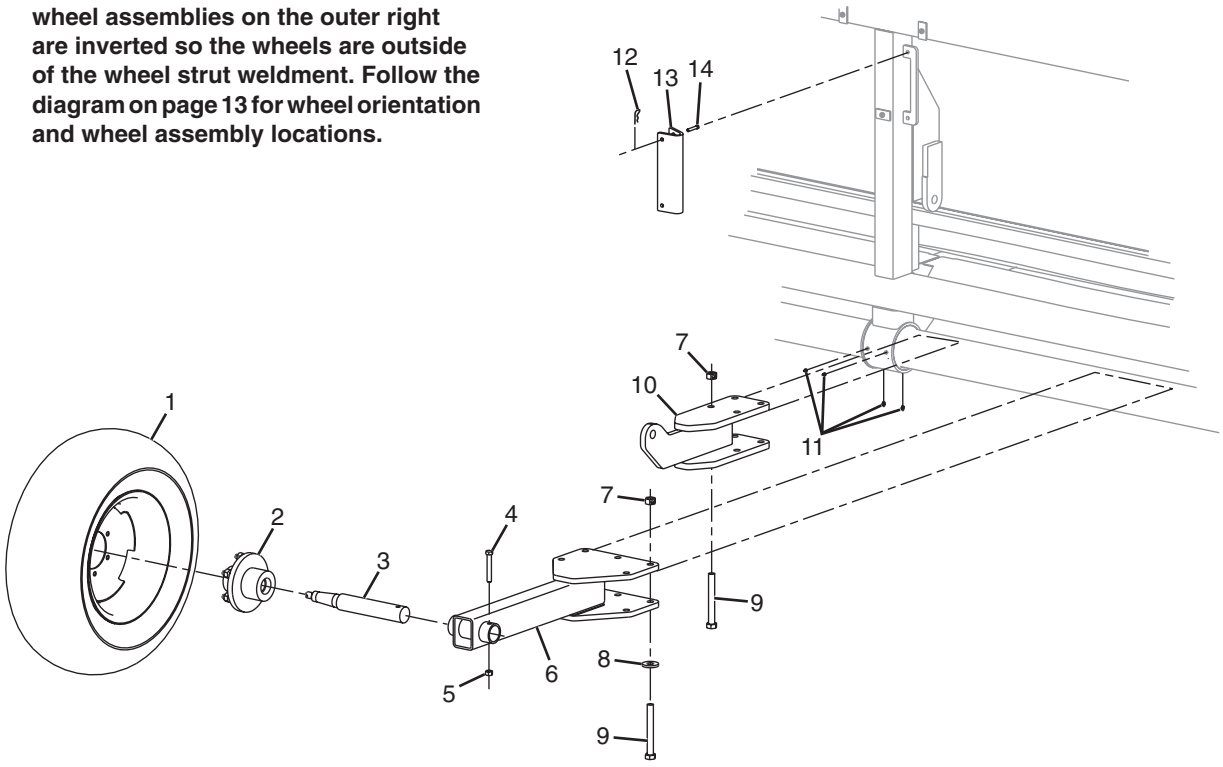
Conveyor Motor



#	QTY.	PART #	DESCRIPTION
1	1	N36502	HOUSING, 50 CHAIN CPL COVER
2	1	7121-02	KEY, 3/8" X 1-3/4"
3	1	N32136	COUPLER, SPROCKET 1.5" BORE 50 C
4	1	N32138	CHAIN, COUPLER #50 - 11 LINKS
5	1	N32137	COUPLER, SPROCKET 1" BORE 50 C
6	1	N32992	PLATE, TQ WELDMENT
7	2	N18360	BOLT, 1/2" X 1-1/4" SER FLG
8	1	N29849	MOTOR, CHAR-LYNN 11.9 CID
9	1	N36628	VALVE, FLOW CONTROL,14 GPM
10	1	N36795	PLATE, SHWD VALVE RETAINER
11	2	4228	WASHER, LOCK 5/16"
12	2	4004	BOLT, 5/16" X 3" GR 5
13	2	N16472	WASHER, NORD-LOCK 1/2"
14	2	N28502	BOLT, 1/2 X 1-1/2 12 PT GRD8

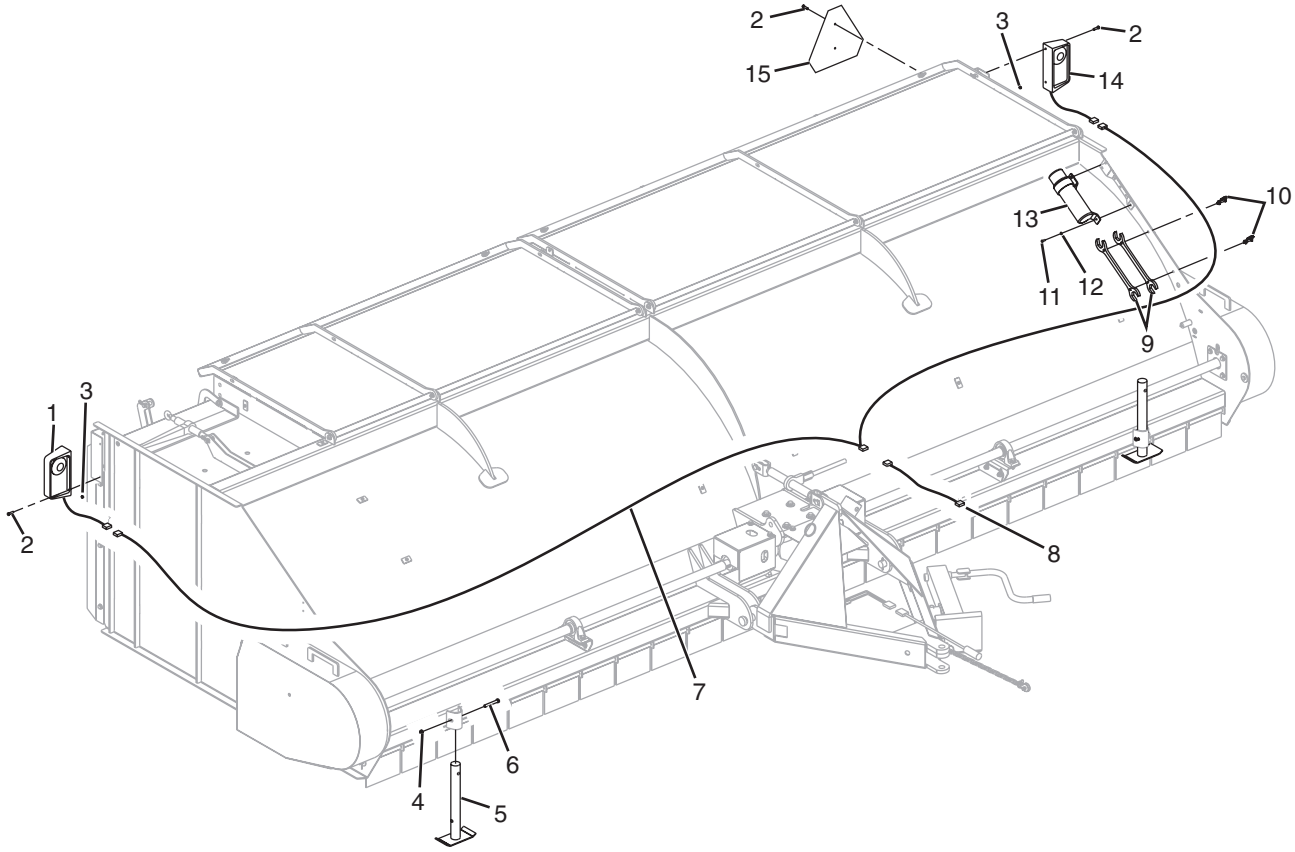
Rear Wheel Assembly

NOTE: The two wheel assemblies on the outer left are oriented as shown. The two wheel assemblies on the outer right are inverted so the wheels are outside of the wheel strut weldment. Follow the diagram on page 13 for wheel orientation and wheel assembly locations.



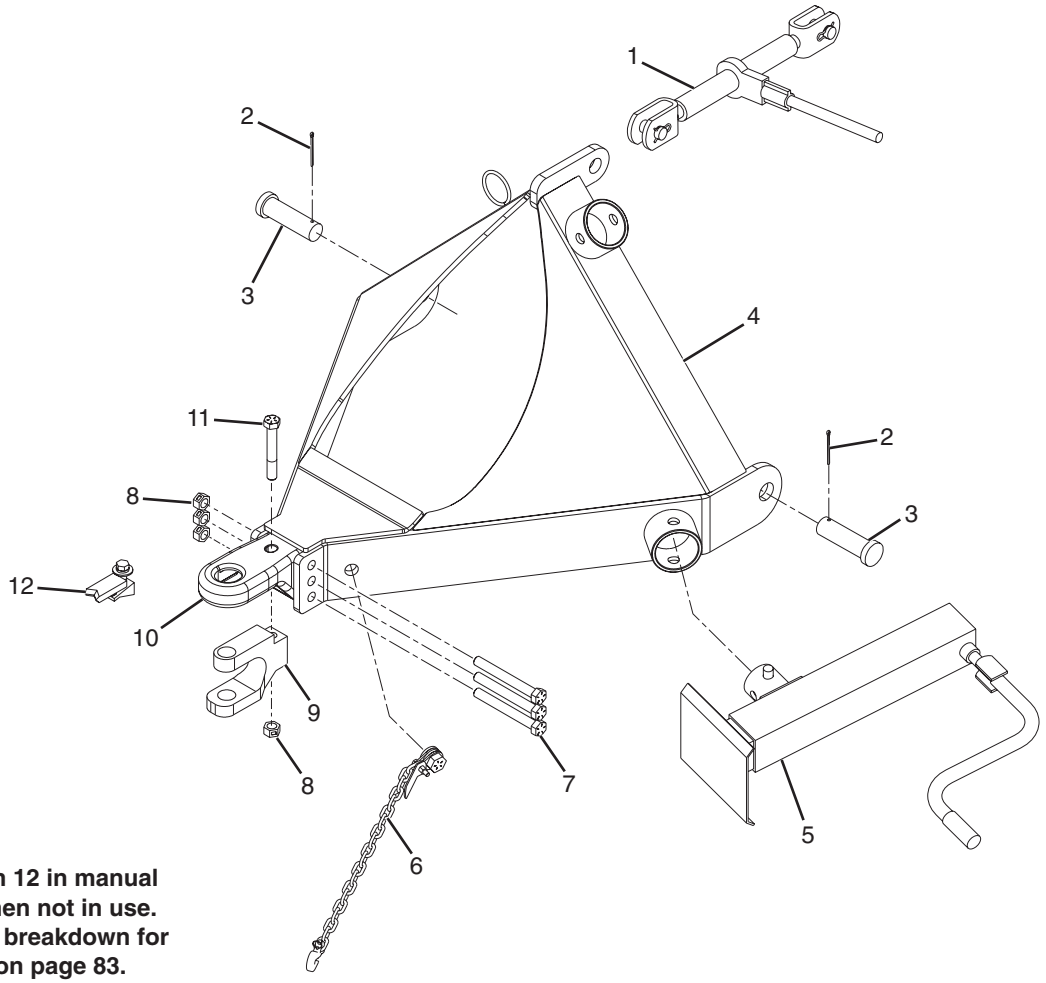
#	QTY.	PART #	DESCRIPTION
1	4	N22459	WHEEL, 11L-15 HIWAY D RATING
2	4	N23778	HUB, 6 BOLT 6" PAT W/STUDS
3	4	N36727	SPINDLE, SHWD BOLT-IN
4	4	4467	BOLT, 1/2" X 3-1/4" GRADE 5
5	4	4054	NUT, LOCK 1/2" TOP
6	4	N32479	WLDMT, WHEEL STRUT; SHWD
7	28	4056	NUT LOCK 3/4
8	20	4071	WASHER, 3/4" FLAT
9	28	4458	BOLT, 3/4" X 6-1/2" GR. 5
10	2	N35036	ARM, LIFT WELDMENT
11	20	4105	GREASE-ZERK, 1/4" SCREW-IN
12	2	4089	CLIP, HAIRPIN .093 X 1-5/8"
13	2	N19768	CYLINDER STOP 9" - UNIVERSAL
14	2	4093	PIN, 3/8" X 3" (2.75" USEABLE)

Lights, Manual Holder, Jack Stands



#	QTY.	PART #	DESCRIPTION
1	1	N16290	LIGHT, RIGHT
2	10	4000	BOLT, 1/4" X 1" GRADE 5
3	8	4050	NUT, LOCK 1/4"
4	2	4054	NUT, LOCK 1/2" TOP
5	2	N32552	JACK, STORAGE STAND (SHREDDER)
6	2	4154	BOLT, 1/2" X 3-1/2" GRADE 5
7	1	N16288	HARNESS, 25' REAR WISHBONE
8	1	N16287	HARNESS, 30' BRAIDED TONGUE
9	2	N29884	WRENCH, 1-5/8" LASER CUT
10	2	N27991	PIN, 3/8" X 1-3/8" RETAINER
11	2	4340	BOLT, 1/4" X 3/4" GRADE 5
12	2	4231	WASHER, LOCK 1/4"
13	1	N19600	HOLDER, 01-315A STND. MANUAL
14	1	N16289	LIGHT, LEFT
15	1	N18549	DECAL, (SLOW MOVING SIGN)

Hitch



Store Item 12 in manual holder when not in use. See parts breakdown for this item on page 83.

#	QTY.	PART #	DESCRIPTION
1	1	8048	BODY, RATCHET JACK
2	2	4355	PIN, COTTER 3/16" X 2-1/2"
3	2	N13095	PIN, HITCH 1-1/2" X 4"
4	1	N36635	HITCH, SHWD PULL-TYPE
5	1	N13732	JACK, PULL-TYPE HITCH
6	1	N24248	CHAIN, SAFETY W/MOUNT HARDWARE
7	3	N16351	BOLT, 3/4" 6-1/2" FINE THREAD GRADE 8
8	4	4056	NUT, LOCK 3/4
9	1	N37463	CLEVIS, CAT 2 BOLT-ON HITCH
10	1	N32970	HITCH, BOLT-ON, CAT 3
11	1	4577	BOLT, 3/4" X 5" FN TH GR 8
12	1	N37609	KIT, GBU10 HITCH CONV

Machine Decals and Signs

NOTE: *All safety related decals are also shown in the Safety Instructions Section along with their location on the machine. See "Safety Decal Locations" on page 9.*

Check and replace any worn, torn, hard to read or missing decals on your machine.

NOTE: *To order a complete Standard Draper Windrower Shredder Decal Kit use part number N32592.*

To order a complete Draper Windrower Shredder with Transport Decal Kit use part number N36794.

Part No. N17013

⚠ WARNING

Due to the possible danger of flying debris, it is absolutely MANDATORY that impact-resistant shielding be provided on the power unit to protect the operator.

The owner is responsible for providing the operator protection devices on the power unit.

Part No. 4256

⚠ CAUTION

DO NOT START, OPERATE, OR WORK ON THIS MACHINE UNTIL YOU HAVE CAREFULLY READ AND THOROUGHLY UNDERSTAND THE CONTENTS OF THE OPERATOR'S MANUAL.

NOTE: IF YOU DO NOT HAVE AN OPERATOR'S MANUAL, CONTACT YOUR DEALER OR

LOFTNESS SPECIALIZED EQUIPMENT
650 SOUTH MAIN
HECTOR, MN 55342
1-800-828-7624

FAILURE TO FOLLOW SAFETY, OPERATING, AND MAINTENANCE INSTRUCTIONS COULD RESULT IN DEATH OR SERIOUS INJURY TO THE OPERATOR OR BYSTANDERS, POOR OPERATION, AND COSTLY BREAKDOWN.

Part No. 4334

⚠ DANGER ⚠
STAY BACK

Part No. 4189

Part No. N22763

Part No. 4135

⚠ DANGER
STAY BACK
KEEP HANDS AND FEET AWAY FROM ROTATING KNIVES UNDER MACHINE. DO NOT LEAVE OPERATOR'S POSITION WHILE PTO IS ENGAGED AND TRACTOR IS RUNNING.

Part No. 4335

⚠ CAUTION ⚠

EXTREMELY IMPORTANT!

- BE SURE THE PTO SHAFT DOES NOT BOTTOM OUT OR TELESCOPE TOO FAR APART BEFORE USING THIS SHREDDER.
- PERIODICALLY CHECK ALL BOLTS INCLUDING GEARBOX FOR TIGHTNESS.
- GREASE ALL BEARINGS (AND ROTOR COUPLERS ON 24 & 30 FT.) EVERY 8 HOURS.
- DO NOT CONTINUE TO OPERATE THIS SHREDDER IF IT BECOMES "OUT OF BALANCE." STOP IMMEDIATELY, DETERMINE AND FIX THE PROBLEM OR CONTACT YOUR DEALER OR LOFTNESS BEFORE CONTINUING OPERATION.
- READ AND FOLLOW ALL INFORMATION PROVIDED IN THE OPERATOR'S MANUAL. IF YOU DO NOT HAVE AN OPERATOR'S MANUAL, ONE WILL BE PROVIDED TO YOU AT NO CHARGE. CALL OR WRITE TO:
  LOFTNESS SPECIALIZED FARM EQUIPMENT
  S. HIGHWAY 4 - BOX 337
  HECTOR, MN 55342-0337
  320-848-6273

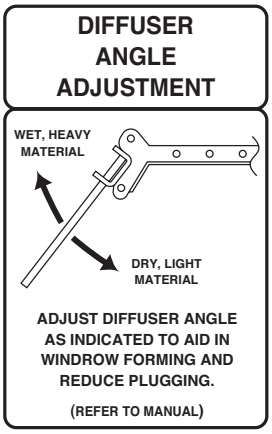
4335

Machine Decals and Signs (Cont'd)

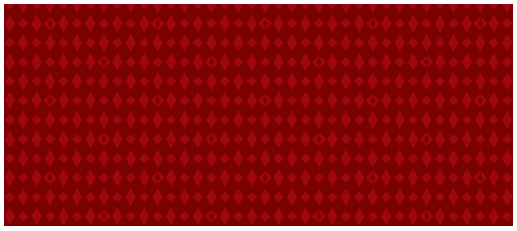
Part No. N23931

Part No. N23507

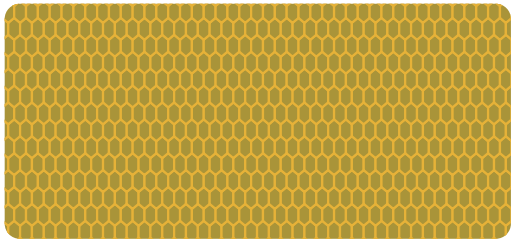
Part No. N19782



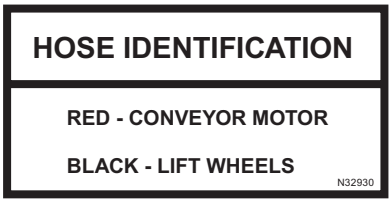
Part No. 4141



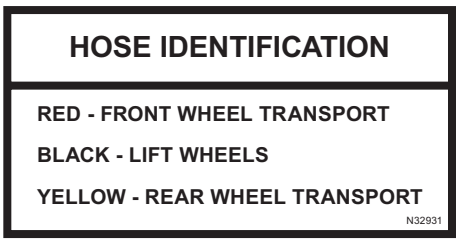
Part No. 4140



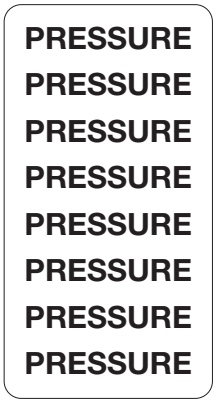
Part No. N32930



Part No. N32931



Part No. N24822

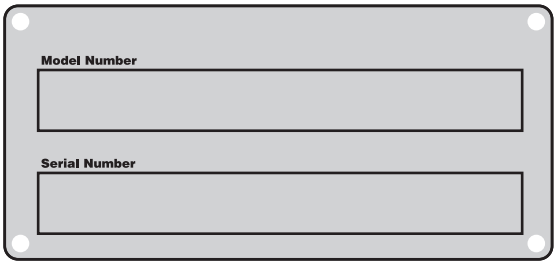


Part No. N24823

Part No. N32851

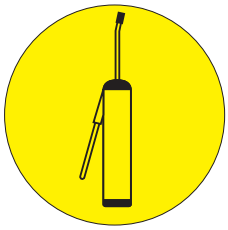
Machine Decals and Signs (Cont'd)

Part No. N13721



Part No. 4136

Part No. 4137



Part No. N26973

LOFTNESS™

Part No. N26972

LOFTNESS™

Part No. N32275

LOFTNESS™
CROPLOGIX™
RESIDUE MANAGEMENT EQUIPMENT

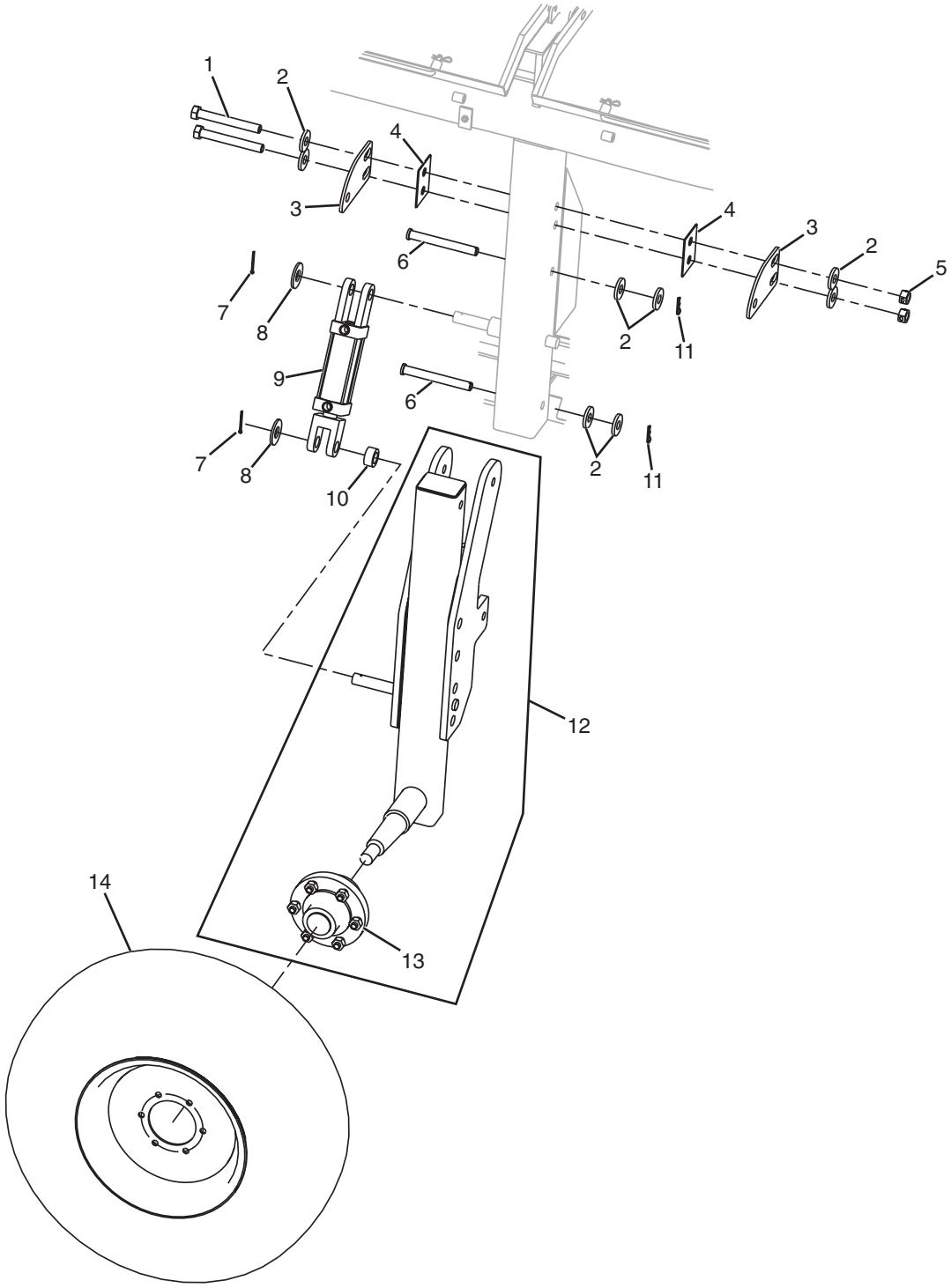
Part No. N33104

Part No. N13517

Part No. 4138

DRAPER WINDROWER SHREDDER OPTIONS

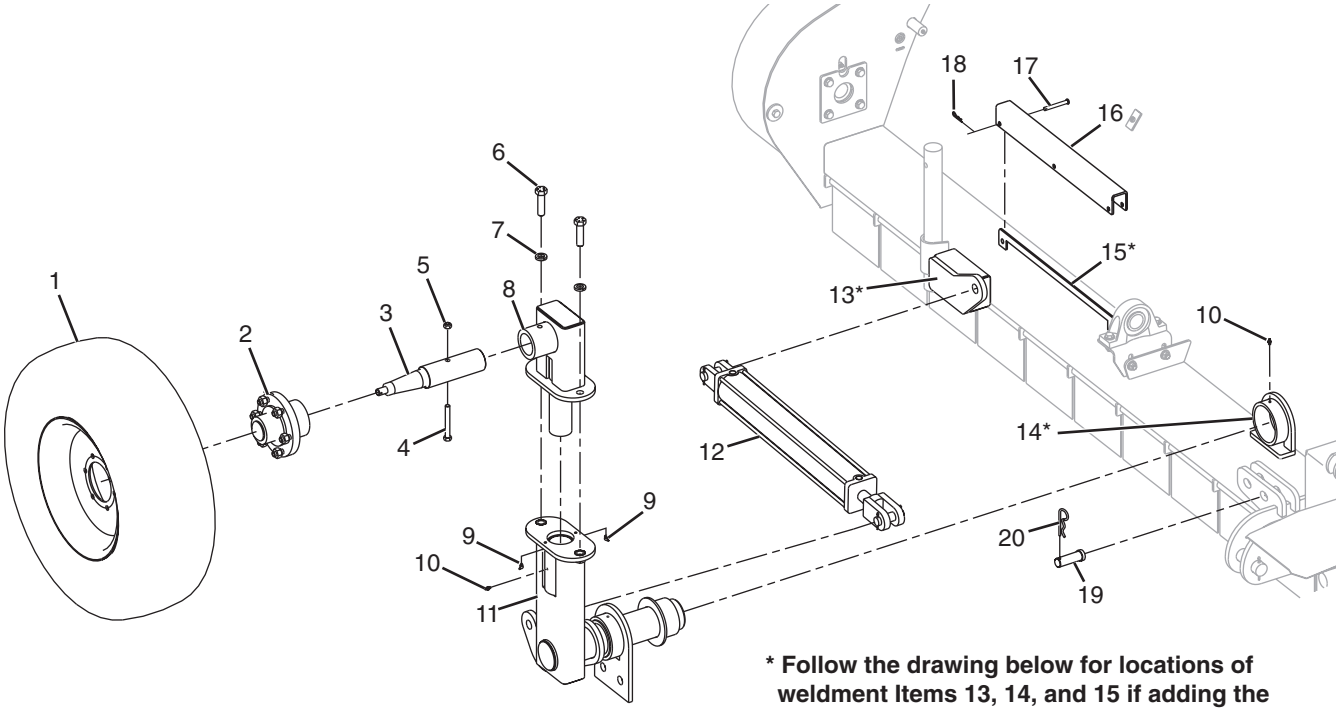
Street Side Transport Wheel Assembly



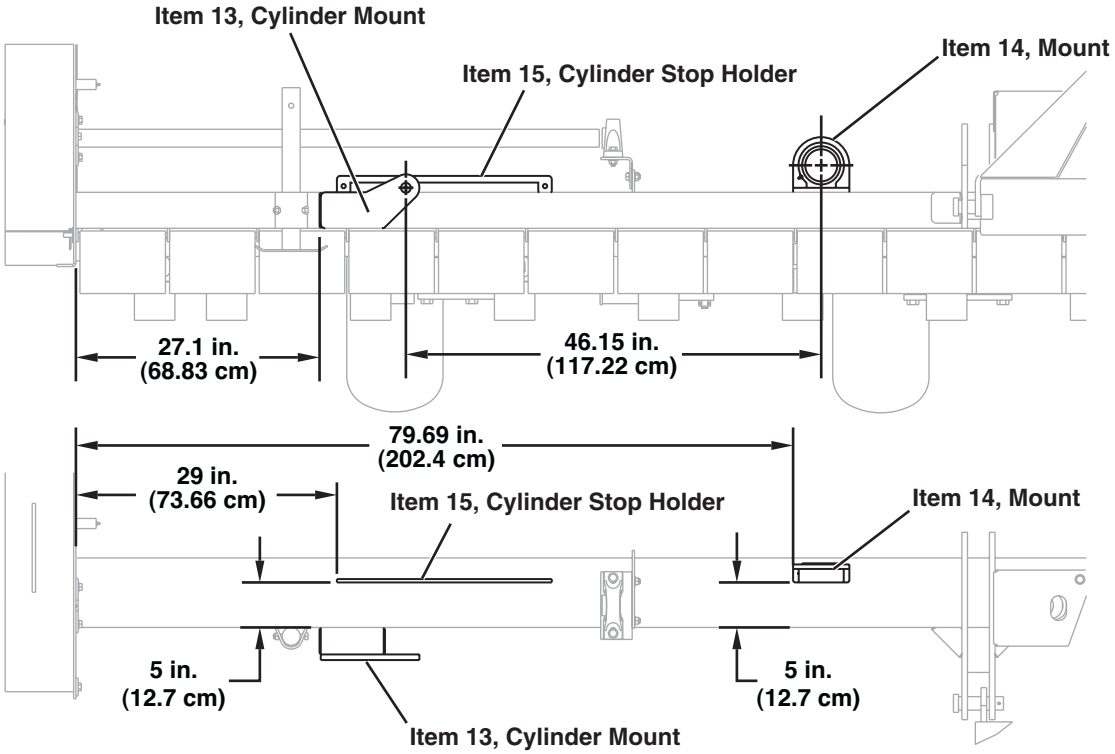
Street Side Transport Wheel Assembly

#	QTY.	PART #	DESCRIPTION
1	2	4029	BOLT, 3/4" X 6" GRADE 5
2	8	4479	WASHER, 2" OD X 3/4" ID X 1/4" TK
3	2	N32529	TAB, WHEEL LOCK
4	2	N32527	PLATE, OFFSET TAB
5	2	4056	NUT LOCK 3/4
6	2	N27614	PIN, 3/4" X 6-1/4"
7	2	4092	PIN COTTER 5/32" X 2"
8	2	N18676	WASHER, 1
9	1	N32530	CYLINDER, HYDRAULIC 2" X 6"
10	1	N32535	SPACER, WHEEL LIFT
11	2	4089	CLIP, HAIRPIN .093 X 1-5/8"
12	1	N32504	WHEEL, TRANS ASST BACK
13	1	N29054	HUB, 6 BOLT 6" PAT W/STUDS
14	2	N29267	WHEEL, 245 / 70R17.5 - 6000 LB

Curb Side Transport Wheel Assembly



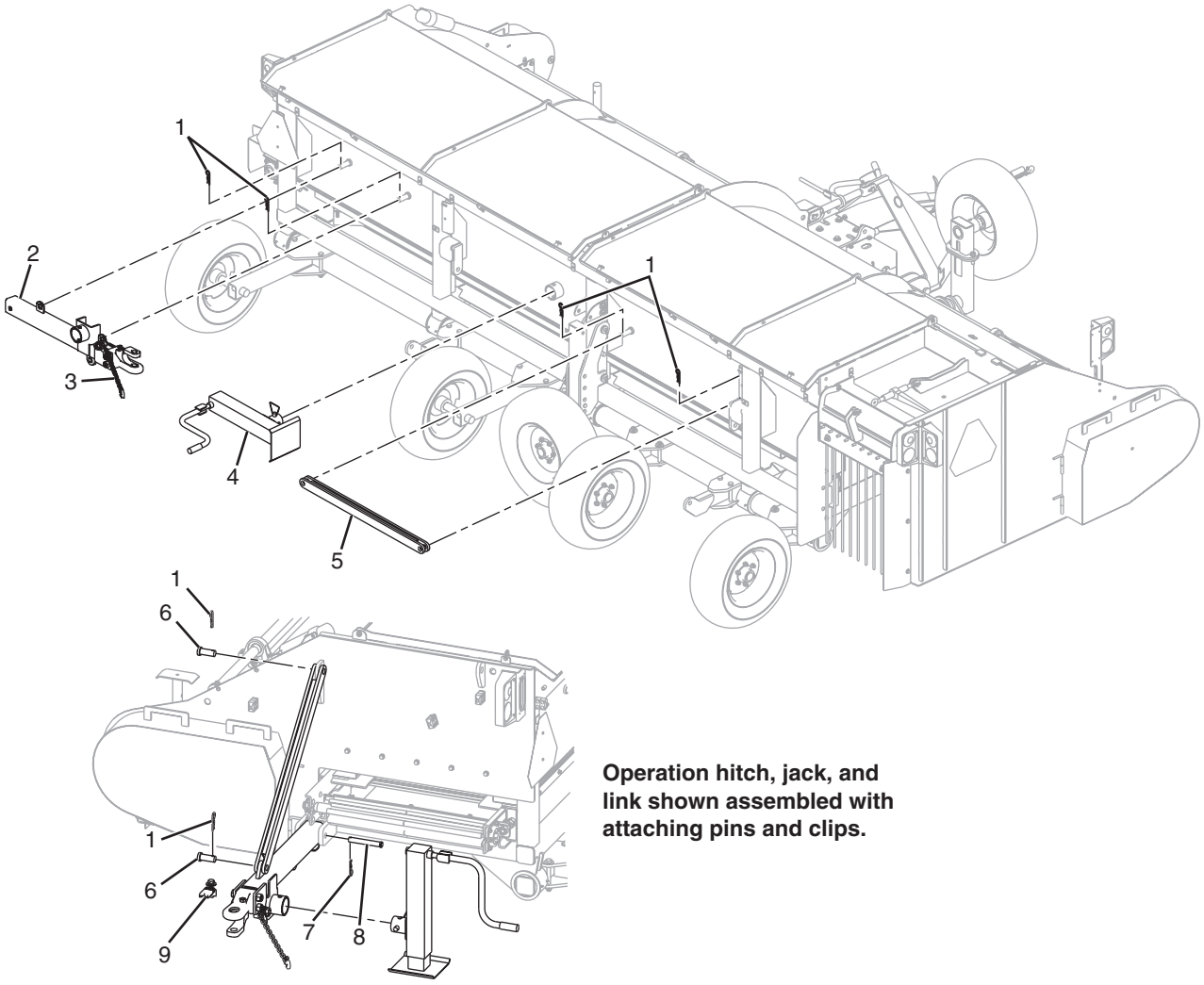
*** Follow the drawing below for locations of weldment Items 13, 14, and 15 if adding the Transport option at a later time.**



Curb Side Transport Wheel Assembly

#	QTY.	PART #	DESCRIPTION
1	2	N29267	WHEEL, 245 / 70R17.5 - 6000 LB
2	1	N29054	HUB, 6 BOLT 6" PAT W/STUDS
3	1	N32555	SPINDLE, SHWD TRANSPORT
4	1	4357	BOLT, 1/2" X 4" GRADE 5
5	1	4054	NUT, LOCK 1/2" TOP
6	2	N16510	BOLT, 3/4" X 2-3/4" FINE THREAD GRADE 8
7	2	4287	WASHER, 3/4" LOCK
8	1	N32550	SWIVEL, WHEEL MOUNT
9	2	4106	GREASEZERK,45 DEG SCW-IN 1/8NPT
10	2	4105	GREASE-ZERK, 1/4" SCREW-IN
11	1	N36685	WELDMENT, SHWD TRANS AXLE ASM
12	1	N24091	CYLINDER, 3" X 24 " 3000 PSI
13	1	N32669	MOUNT, CYL
14	1	N36688	MOUNT, SHWD TRANSPORT AXLE
15	1	N32559	HOLDER, CYLINDER STOPS
16	1	N32558	CYLINDER STOP 25" SHWD
17	2	4093	PIN, 3/8" X 3" (2.75" USEABLE
18	2	4089	CLIP, HAIRPIN .093 X 1-5/8"
19	1	4315	PIN, 1" X 2-45/64"
20	1	4389	CLIP, HAIRPIN 3/16" X 3"

Transport Jack, Hitch, and Link



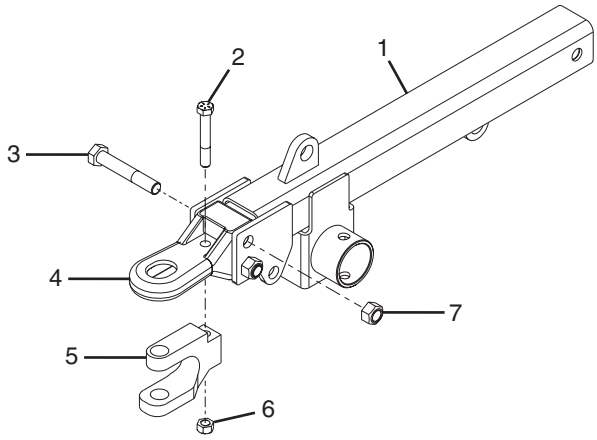
Operation hitch, jack, and link shown assembled with attaching pins and clips.

Store Item 9 in manual holder when not in use.

See parts breakdown for Item 2 and Item 9 on following page.

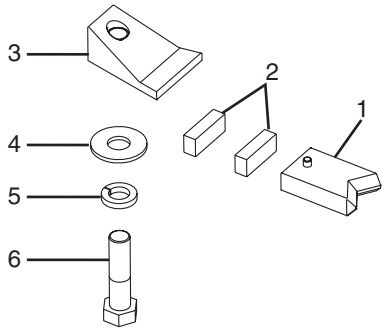
#	QTY.	PART #	DESCRIPTION
1	2	4394	CLIP, HAIRPIN 1/4" X 3-1/2"
2	1	N36796	HITCH, SHWD TRANS PERFECT 20'
3	1	N24248	CHAIN, SAFETY W / MOUNT HARDWARE
4	1	N13732	JACK, PULL-TYPE HITCH
5	1	N32503	BAR, HITCH COMPLETE UPPER LINK
6	2	4290	PIN, 1-1/4 X 2-1/2 MOUNTED HITCH
7	1	4389	CLIP, HAIRPIN 3/16" X 3"
8	1	N11601	PIN, 1" X 6-45/64" UNPLATED
9	1	N37609	KIT, GBU10 HITCH CONV

Transport Hitch (N36796)



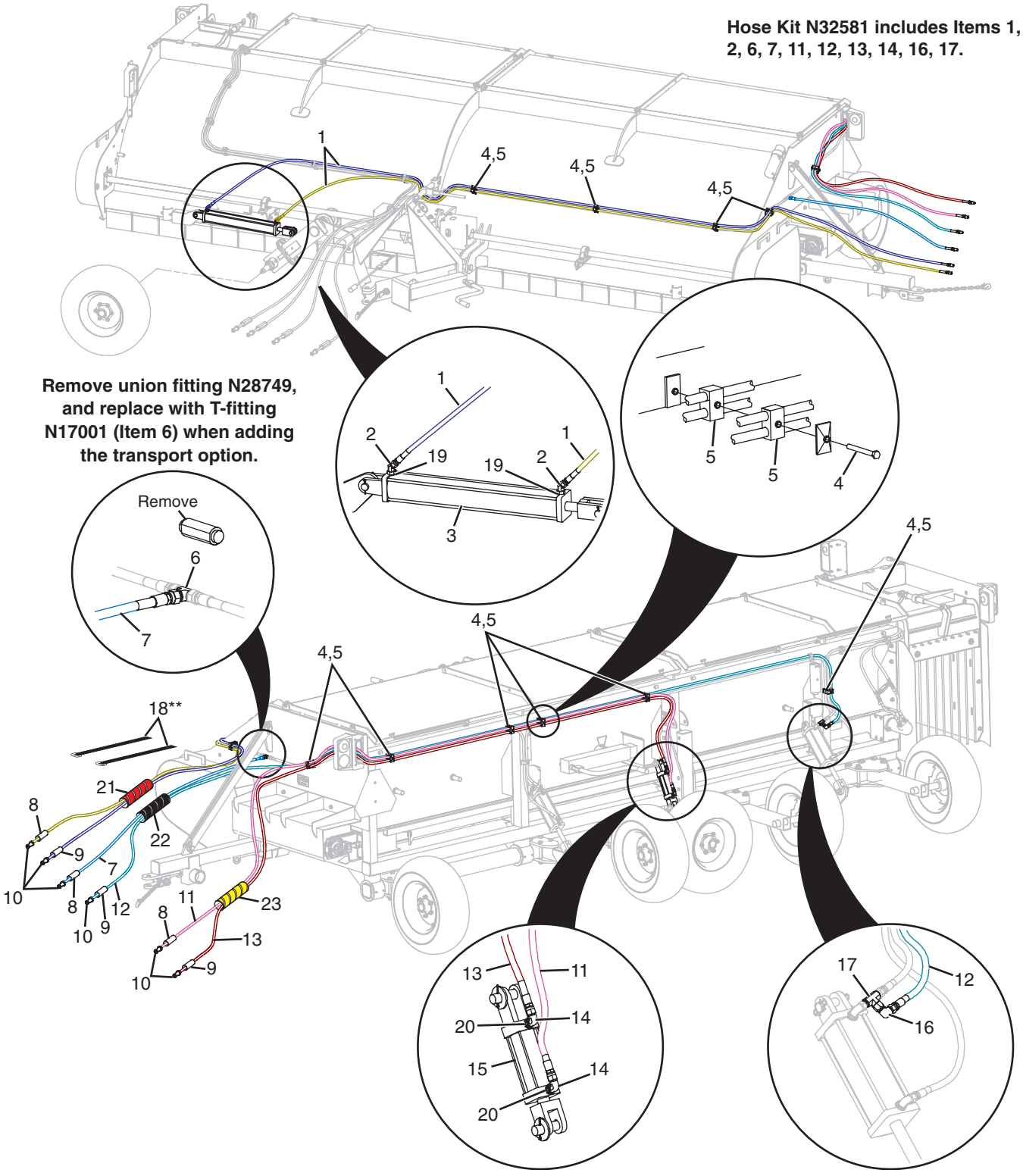
#	QTY.	PART #	DESCRIPTION
1	1	N36752	TONGUE, SIDE MOUNT 20’ DRAPER
2	1	4577	BOLT, 3/4” X 5” FN TH GR8
3	2	N28583	BOLT, 1 X 6” FN TH GR 8
4	1	N37474	BASE, CAT 2 BOLT-ON REC HITCH
5	1	N37463	CLEVIS, CAT 2 BOLT-ON HITCH
6	1	N16352	NUT, LOCK 3/4” GRADE 8 FINE
7	2	N16700	NUT, 1“ -14 GR. 8 FINE THREAD TAPLOCK

Hitch Conversion Kit (N37609)



#	QTY.	PART #	DESCRIPTION
1	1	N37475	BLOCK, CAT 2 BOLT-ON REC V
2	2	N37477	CUSHION, CAT 2 BOLT-ON REC
3	1	N37476	PLATE, CAT 2 BOLT-ON REC TOP
4	1	4071	WASHER, 3/4" FLAT
5	1	4287	WASHER, 3/4" LOCK
6	1	4352	BOLT, 3/4" X 3" GRADE 5

Hydraulics, Transport Option



**Two straps (Item 18, N28978) are used to secure hoses to handles on left side belt shield when not in use.

Hydraulics, Transport Option

#	QTY.	PART #	DESCRIPTION
*1	2	N32573	HOSE, 3/8 X 300 -8FJ1C-8MP
*2	2	N24667	ELBOW, 45 DEG - 8MJIC - 8MOR
3	1	N24091	CYLINDER, 3" X 24 " 3000 PSI
4	7	N28436	BOLT, 5/16" X 2-1/4" GR5
5	12	N21365	CLAMP, 3/8" HYD HOSE DOUBLE
*6	1	N17001	TEE, 8MJIC-8MJIC-8MJIC
*7	1	N31443	HOSE, 3/8" HYD 72" -8FJIC -8MP
**8	3	N24823	DECAL, TANK
**9	3	N24822	DECAL, PRESSURE
10	6	N11825	COUPLER, 1/2" MALE PIONEER
*11	1	N32578	HOSE, 3/8" X 283" 8FJ1C-8MP
*12	1	N32579	HOSE, 3/8" X 324" 8FJ1C-8MP
*13	1	N32577	HOSE, 3/8" X 276" 8FJ1C-8MP
*14	2	N17003	ELBOW, 90 DEG - 8MJIC - 6MOR
15	1	N32530	CYLINDER, HYDRAULIC 2" X 4"
*16	1	N24827	ELBOW, 90 DEG - 8FJIC - 8MJIC
*17	1	N20549	TEE, 8MJIC-8FJIC-8MJIC SWL
18	2	N28978	STRAP, CINCH 1.5 X 10 HD
19	2	N27929	ORIFICE, .040 SCRW-IN PLT - 08
20	2	N25581	ORIFICE, .040 SCRW-IN PLT - 06
21	1	N32884	COVERING, HOSE - RED
22	1	N32882	COVERING, HOSE - BLACK
23	1	N32883	COVERING, HOSE - YELLOW

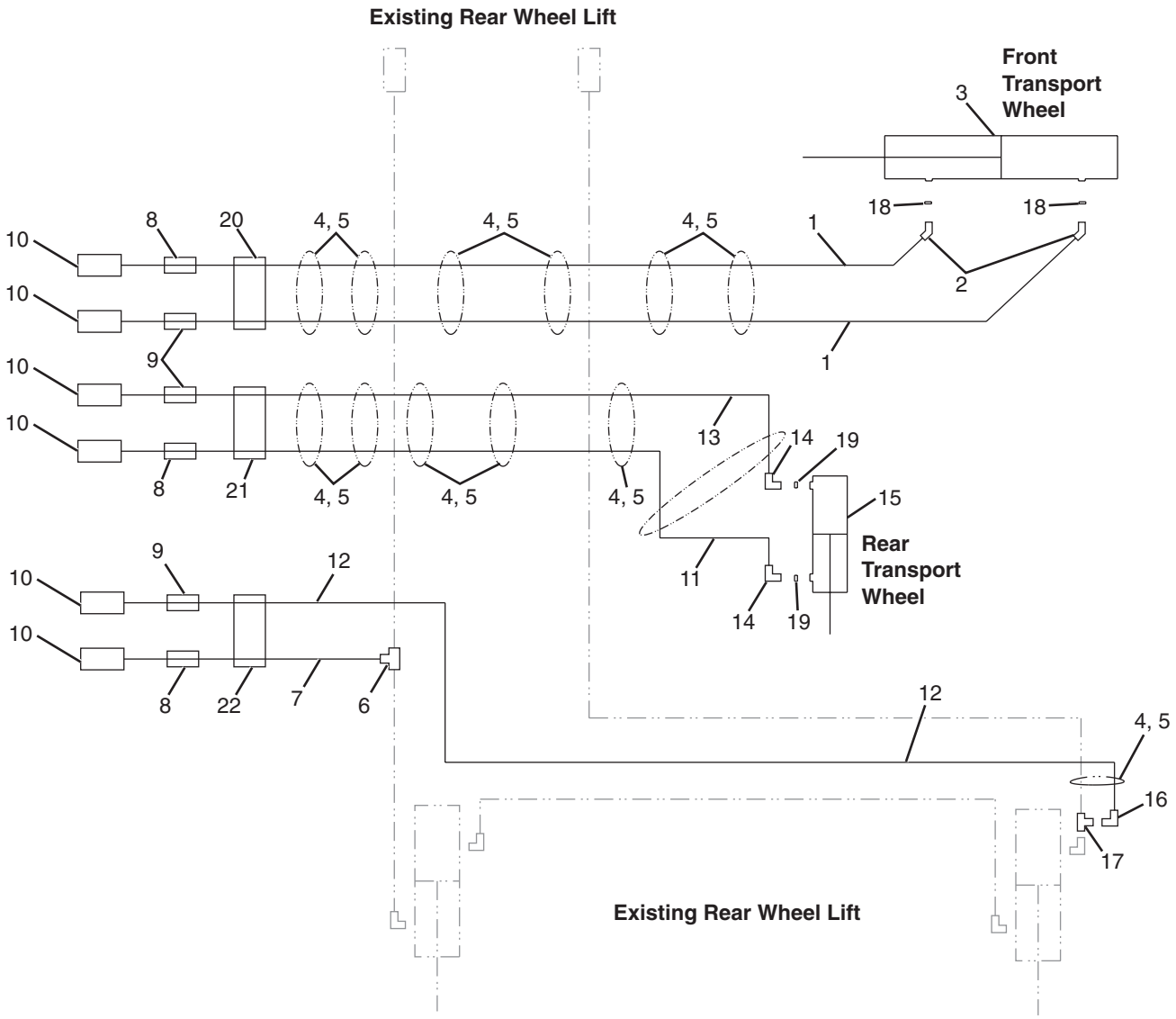
*** Included in Hose Kit N32581.**

**** Included in Decal Kit N36794.**

See page 86 and page 87 for schematic of Transport Option Hydraulics.

NOTE: When clamps are doubled up at mounting location, discard the 5/16" X 1-3/8" bolt that comes with kit N21365, and replace with 5/16" X 2-1/4" bolt (Item 4, part number N28436).

Schematic, Transport Hydraulics



NOTE: Part number N28978 (strap) is used to mount hoses to machine.

Hose Kit N32581 includes Items 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17.

*** Remove union fitting N28749, and replace with T-fitting N17001 (Item 14) when adding the transport option.**

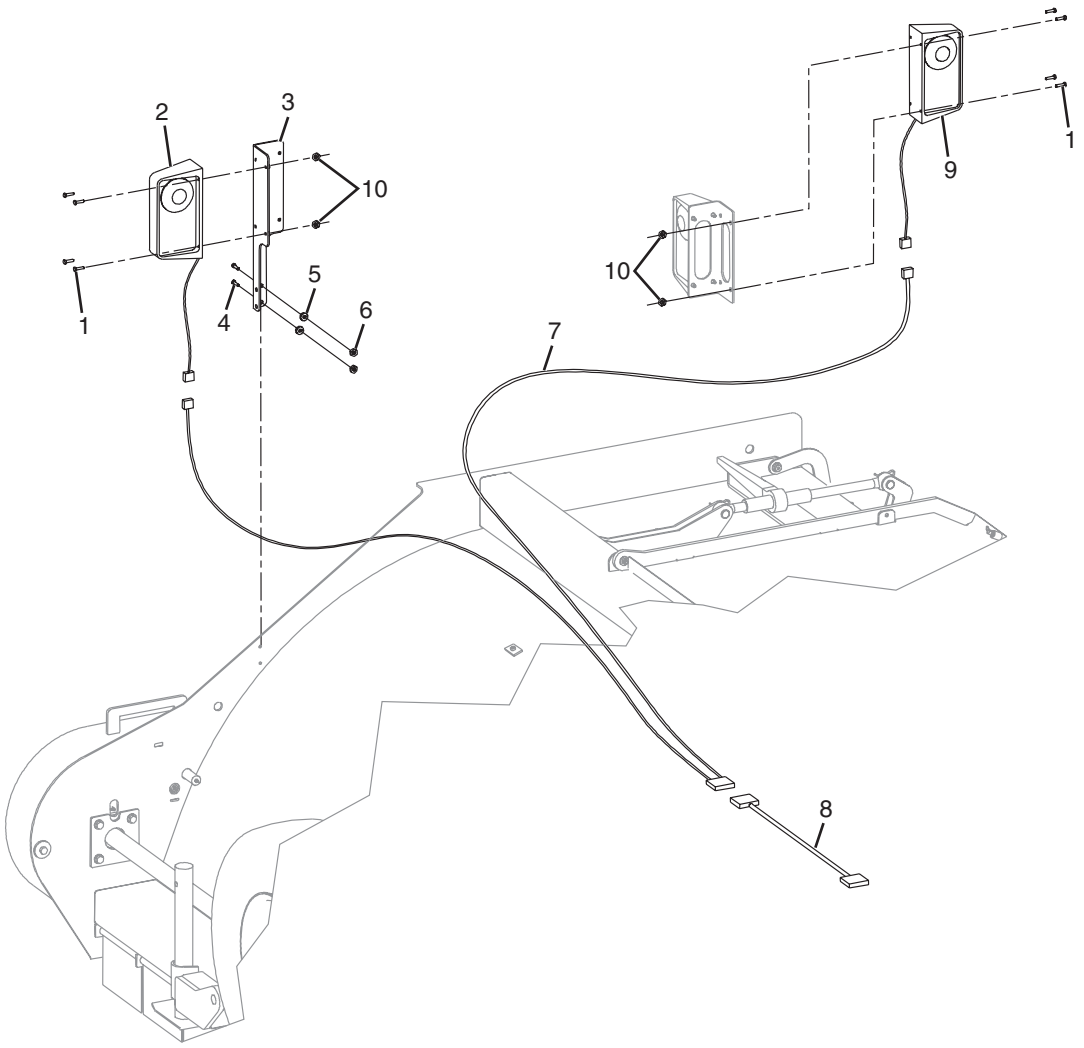
Schematic, Transport Hydraulics

#	QTY.	PART #	DESCRIPTION
*1	2	N32573	HOSE, 3/8 X 300 -8FJ1C-8MP
*2	2	N24667	ELBOW, 45 DEG - 8MJIC - 8MOR
3	1	N24091	CYLINDER, 3" X 24 " 3000 PSI
4	12	4204	BOLT, 5/16" X 2-1/2" GR 5
5	12	N21365	CLAMP, 3/8" HYD HOSE DOUBLE
*6	1	N17001	TEE, 8MJIC-8MJIC-8MJIC
*7	1	N31443	HOSE, 3/8" HYD 72" -8FJIC -8MP
**8	3	N24823	DECAL, TANK
**9	3	N24822	DECAL, PRESSURE
*10	6	N11825	COUPLER, 1/2" MALE PIONEER
*11	1	N32578	HOSE, 3/8" X 283" 8FJ1C-8MP
*12	1	N32579	HOSE, 3/8" X 324" 8FJ1C-8MP
*13	1	N32577	HOSE, 3/8" X 276" 8FJ1C-8MP
*14	2	N17003	ELBOW, 90 DEG - 8MJIC - 6MOR
15	1	N32530	CYLINDER, HYDRAULIC 2" X 4"
*16	1	N24827	ELBOW, 90 DEG - 8FJIC - 8MJIC
*17	1	N20549	TEE, 8MJIC-8FJIC-8MJIC SWL
18	2	N27929	ORIFICE, .040 SCRW-IN PLT - 08
19	2	N25581	ORIFICE, .040 SCRW-IN PLT - 06
20	1	N32884	COVERING, HOSE - RED
21	1	N32883	COVERING, HOSE - YELLOW
22	1	N32882	COVERING, HOSE - BLACK

*** Included in Hose Kit N32581.**

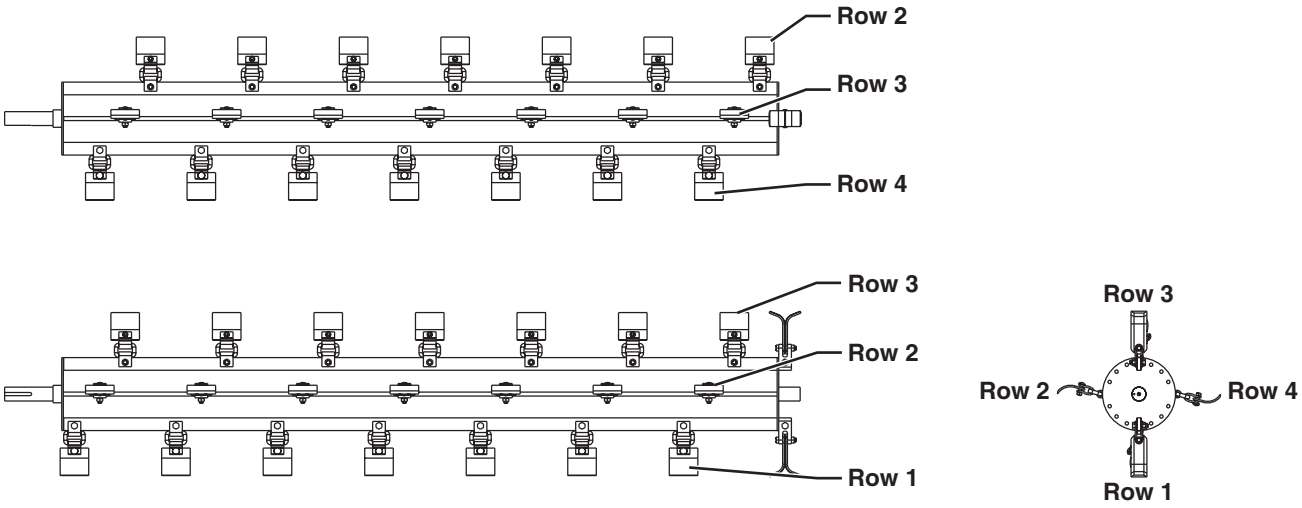
**** Included in Decal Kit N36794.**

Transport Lights

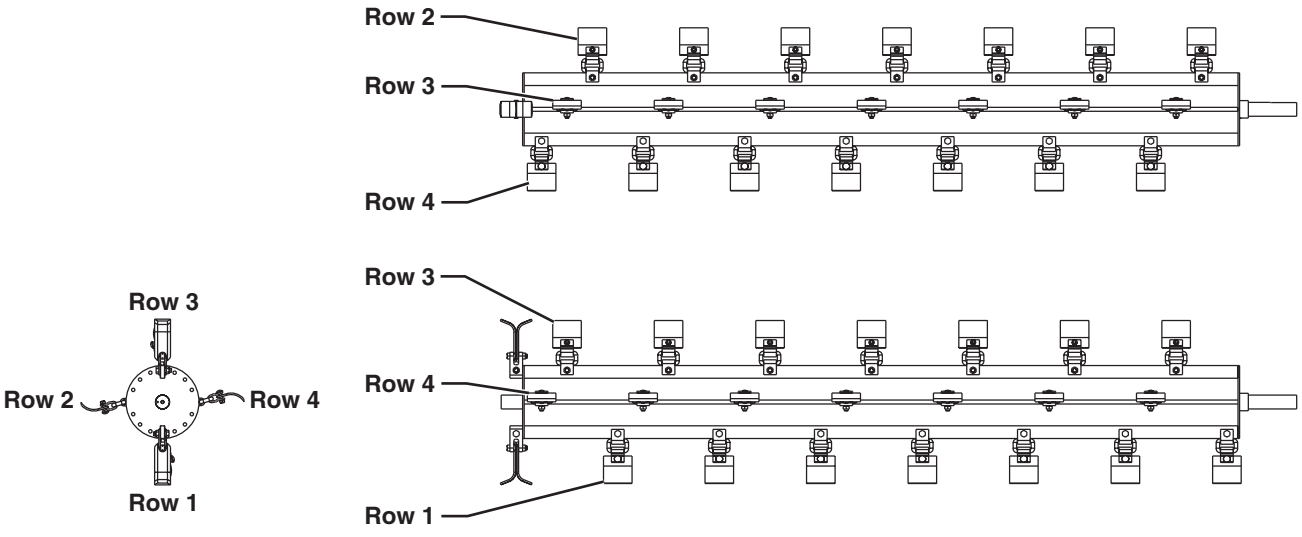


#	QTY.	PART #	DESCRIPTION
1	8	4000	BOLT, 1/4" X 1" GRADE 5
2	1	N16290	LIGHT, RIGHT
3	1	N16182	MOUNT, LIGHT
4	2	4195	BOLT, 3/8" X 1" GRADE 5
5	2	4065	WASHER, LOCK 3/8”
6	2	4233	NUT, STANDARD 3/8”
7	1	N16288	HARNESS, 25' REAR WISHBONE
8	1	N16287	HARNESS, 30' BRAIDED TOUNGE
9	1	N16289	LIGHT, LEFT
10	8	4050	NUT, LOCK 1/4"

Rotor Knife Pattern



LH Rotor (N32843) Knife Pattern



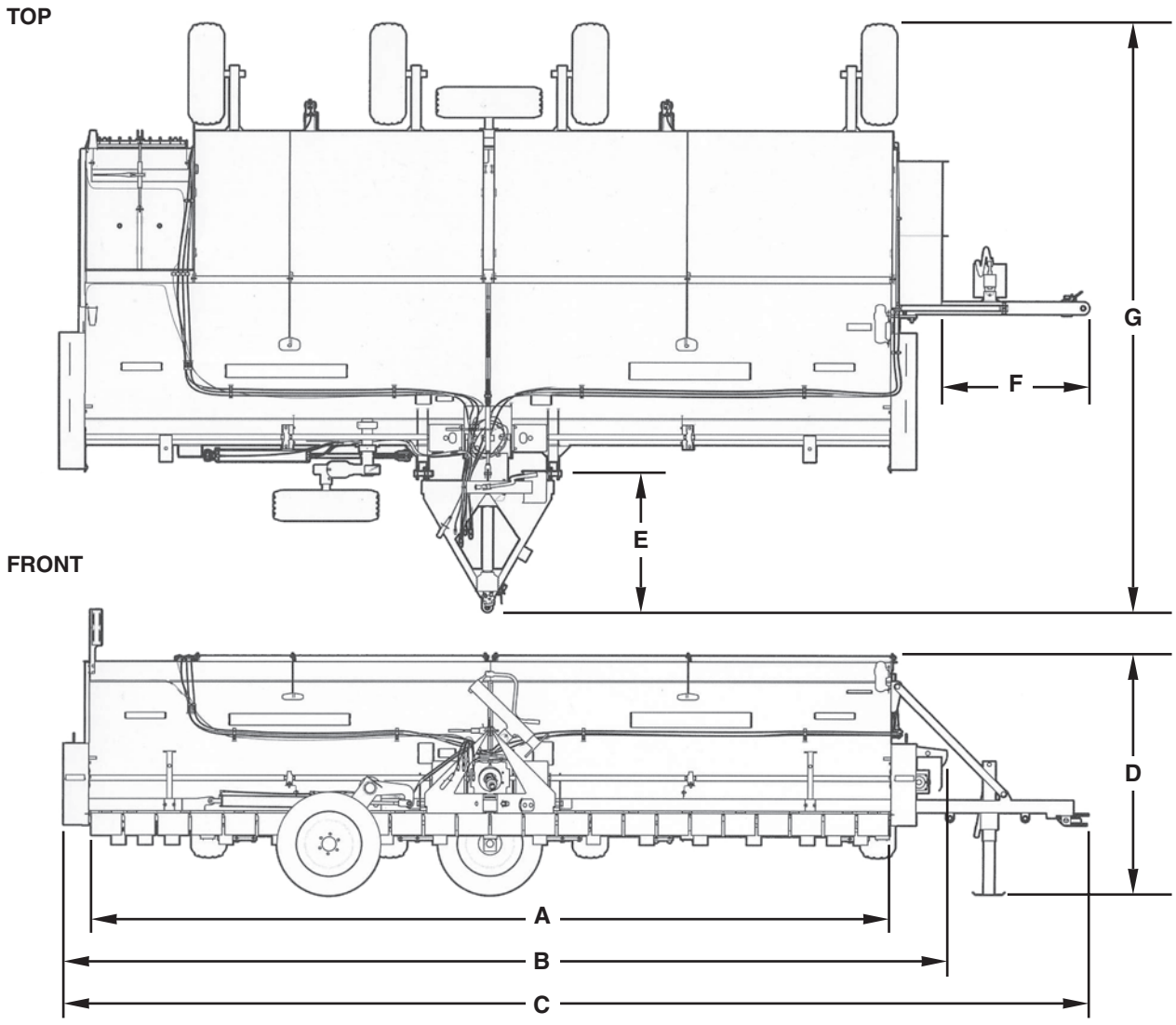
RH Rotor (N32837) Knife Pattern

Appendix

Specifications

DESCRIPTION	Draper Windrower Shredder
Cutting Width	240 in. (609.6 cm)
Knives	64 Cupped and 4 High Residue
Weight	approx. 11,500 lbs. (5,216.31 kg)
Field Tongue Weight	4,000 lbs. (1,814.36 kg)
Rotor	1450 RPM Computer Balanced
	7 1/2 in. (19.05 cm) Tube Diameter
	2 3/16 in. (5.55 cm) Shaft Diameter
Draper Belt	33 in. (83.82 cm) Wide, 218 in. (553.72 cm) Long, Hydraulic Driven
Drive	1,000 RPM PTO
	Bondioli 280 HP

Dimensions



Unit shown with transport option components.

DESCRIPTION	Draper Windrower Shredder
Cutting Width (A)	240 in. (609.6 cm)
Overall Width (B)	264 in. (670.56 cm)
Total Transport Length (C)	307 in. (779.78 cm)
Standard Height (D)	72 in. (182.88 cm)
Pull-type Hitch Length (E)	41.5 in. (105.41 cm)
Transport Hitch Length (F)	56 in. (142.24 cm)
Total Depth (G)	175 in. (444.5 cm)

Appendix

Torque Specifications

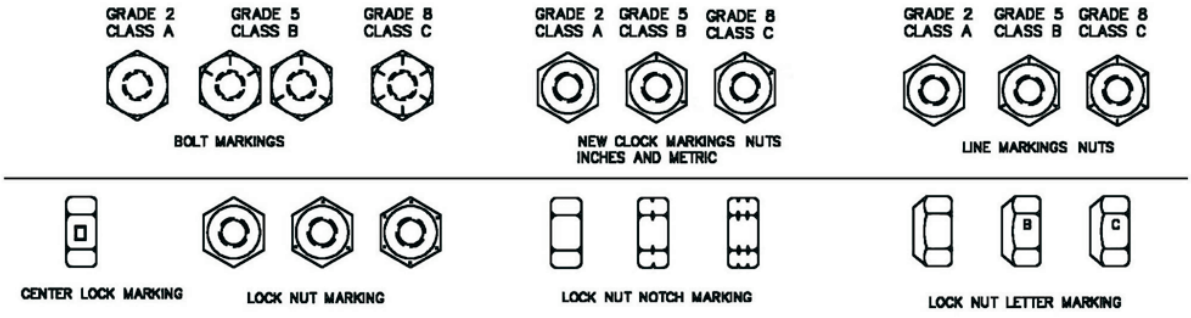
Inches Hardware and Lock Nuts

TORQUE CHARTS

Minimum Hardware Tightening Torques

Normal Assembly Applications
(Standard Hardware and Lock Nuts)

SAE Gr. 2	SAE Grade 5		SAE Grade 8		LOCK NUTS			
Nominal Size	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Grade W / Gr. 5 Bolt**	**Grade W / Gr. 8 Bolt**
1/4	55 in.-lb. (6.2 N•m)	72 in.-lb. (8.1 N•m)	86 in.-lb. (9.7 N•m)	112 in.-lb. (12.6 N•m)	121 in.-lb. (13.6 N•m)	157 in.-lb. (17.7 N•m)	61 in.-lb. (6.9 N•m)	86 in.-lb. (9.8 N•m)
5/16	115 in.-lb. (13 N•m)	149 in.-lb. (17 N•m)	178 in.-lb. (20 N•m)	229 in.-lb. (26 N•m)	250 in.-lb. (28 N•m)	324 in.-lb. (37 N•m)	125 in.-lb. (14 N•m)	176 in.-lb. (20 N•m)
3/8	17 ft.-lb. (23 N•m)	22 ft.-lb. (30 N•m)	26 ft.-lb. (35 N•m)	34 ft.-lb. (46 N•m)	37 ft.-lb. (50 N•m)	48 ft.-lb. (65 N•m)	19 ft.-lb. (26 N•m)	26 ft.-lb. (35 N•m)
7/16	27 ft.-lb. (37 N•m)	35 ft.-lb. (47 N•m)	42 ft.-lb. (57 N•m)	54 ft.-lb. (73 N•m)	59 ft.-lb. (80 N•m)	77 ft.-lb. (104 N•m)	30 ft.-lb. (41 N•m)	42 ft.-lb. (57 N•m)
1/2	42 ft.-lb. (57 N•m)	54 ft.-lb. (73 N•m)	64 ft.-lb. (87 N•m)	83 ft.-lb. (113 N•m)	91 ft.-lb. (123 N•m)	117 ft.-lb. (159 N•m)	45 ft.-lb. (61 N•m)	64 ft.-lb. (88 N•m)
9/16	60 ft.-lb. (81 N•m)	77 ft.-lb. (104 N•m)	92 ft.-lb. (125 N•m)	120 ft.-lb. (163 N•m)	130 ft.-lb. (176) N•m	169 ft.-lb. (229 N•m)	65 ft.-lb. (88 N•m)	92 ft.-lb. (125 N•m)
5/8	83 ft.-lb. (112 N•m)	107 ft.-lb. (145 N•m)	128 ft.-lb. (174 N•m)	165 ft.-lb. (224 N•m)	180 ft.-lb. (244) N•m	233 ft.-lb. (316 N•m)	90 ft.-lb. (122 N•m)	127 ft.-lb. (172 N•m)
3/4	146 ft.-lb. (198 N•m)	189 ft.-lb. (256 N•m)	226 ft.-lb. (306 N•m)	293 ft.-lb. (397 N•m)	319 ft.-lb. (432 N•m)	413 ft.-lb. (560 N•m)	160 ft.-lb. (217 N•m)	226 ft.-lb. (306 N•m)
7/8	142 ft.-lb. (193 N•m)	183 ft.-lb. (248 N•m)	365 ft.-lb. (495 N•m)	473 ft.-lb. (641 N•m)	515 ft.-lb. (698 N•m)	667 ft.-lb. (904 N•m)	258 ft.-lb. (350 N•m)	364 ft.-lb. (494 N•m)
1	213 ft.-lb. (289 N•m)	275 ft.-lb. (373 N•m)	547 ft.-lb. (742 N•m)	708 ft.-lb. (960 N•m)	773 ft.-lb. (1048 N•m)	1000 ft.-lb. (1356 N•m)	386 ft.-lb. (523 N•m)	545 ft.-lb. (739 N•m)



Torque Specifications (Cont'd)

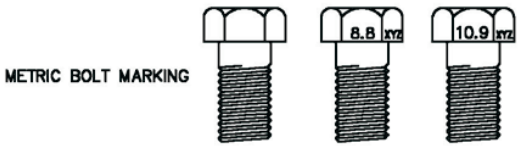
Metric Hardware and Lock Nuts

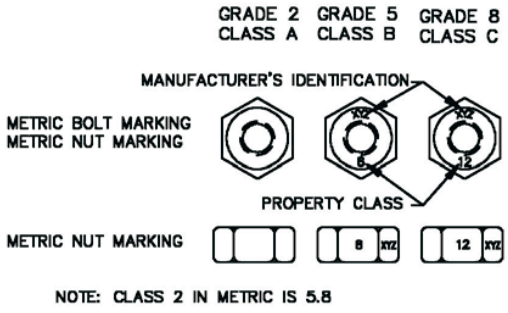
TORQUE CHARTS

Minimum Hardware Tightening Torques

Normal Assembly Applications
(Metric Hardware and Lock Nuts)

	Class 5,8		Class 8,8		Class 10,9		Lock nuts
Nominal Size	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Class 8 W / CL. 8,8 Bolt**
M4	1.7 N•m (15 in.-lb.)	2.2 N•m (19 in.-lb.)	2.6 N•m (23 in.-lb.)	3.4 N•m (30 in.-lb.)	3.7 N•m (33 in.-lb.)	4.8 N•m (42 in.-lb.)	1.8 N•m (16 in.-lb.)
M6	5.8 N•m (51 in.-lb.)	7.6 N•m (67 in.-lb.)	8.9 N•m (79 in.-lb.)	12 N•m (102 in.-lb.)	13 N•m (115 in.-lb.)	17 N•m (150 in.-lb.)	6.3 N•m (56 in.-lb.)
M8	14 N•m (124 in.-lb.)	18 N•m (159 in.-lb.)	22 N•m (195 in.-lb.)	28 N•m (248 in.-lb.)	31 N•m (274 in.-lb.)	40 N•m (354 in.-lb.)	15 N•m (133 in.-lb.)
M10	28 N•m (21 ft.-lb.)	36 N•m (27 ft.-lb.)	43 N•m (32 ft.-lb.)	56 N•m (41 ft.-lb.)	61 N•m (45 ft.-lb.)	79 N•m (58 ft.-lb.)	30 N•m (22 ft.-lb.)
M12	49 N•m (36 ft.-lb.)	63 N•m (46 ft.-lb.)	75 N•m (55 ft.-lb.)	97 N•m (72 ft.-lb.)	107 N•m (79 ft.-lb.)	138 N•m (102 ft.-lb.)	53 N•m (39 ft.-lb.)
M16	121 N•m (89 ft.-lb.)	158 N•m (117 ft.-lb.)	186 N•m (137 ft.-lb.)	240 N•m (177 ft.-lb.)	266 N•m (196 ft.-lb.)	344 N•m (254 ft.-lb.)	131N•m (97 ft.-lb.)
M20	237 N•m (175 ft.-lb.)	307 N•m (226 ft.-lb.)	375 N•m (277 ft.-lb.)	485 N•m (358 ft.-lb.)	519 N•m (383 ft.-lb.)	671 N•m (495 ft.-lb.)	265 N•m (195 ft.-lb.)
M24	411 N•m (303 ft.-lb.)	531 N•m (392 ft.-lb.)	648 N•m (478 ft.-lb.)	839 N•m (619 ft.-lb.)	897 N•m (662 ft.-lb.)	1160 N•m (855 ft.-lb.)	458 N•m (338 ft.-lb.)





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