IRONCRAFT™

2400
ROTARY CUTTERS

USE AND MAINTENANCE GUIDE

LIFT-TYPE	PULL-TYPE
2408	2408P
2410	2410P

USO E MANUTENZIONE
GEBRAUCH UND WARTUNG
EMPLOI ET ENTRETIEN
EMPLEO Y MANTENIMIENTO

2400RCMAN2024V12

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

April 2024

CONTENTS

REGISTER THIS PRODUCT

WWW.IRONCRAFTUSA.COM/WARRANTY/REGISTER-WARRANTY

PURCHASE DATE

DEALER NAME

ADDRESS

PHONE NUMBER

The model number and serial number decals are located to the left of the gearbox.

MODEL

SERIAL

"WHY WOULD I WANT TO REGISTER MY MACHINE?"

HERE'S THE LOWDOWN. YOU NEED TO REGISTER YOUR NEW PRODUCT WITHIN 30 DAYS OF DELIVERY. WITHOUT REGISTRATION, YOUR WARRANTY CLAIMS WILL NOT BE HONORED.

Registering your machine means you get the full benefits of the warranty terms we offer.

Scan this QR code to our warranty page and select the "REGISTER" tab for an easy-peasy process. You'll be glad you did.

THANK YOU

Dear Owner:

Congratulations on your choice of an IronCraft attachment. This equipment has been designed and manufactured to meet the needs of discerning users.

Many features incorporated into this attachment are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the attachment safely and how to set it to provide maximum efficiency.

All users must read and understand this manual before operating this machine. Upon reading this manual, all users should sign the “Safety Acknowledgement Form” at the end of this manual. Store this manual in the document canister attached to this machine.

Please record your model and dealer information on the "Register this Product" page. You will be asked to provide this information when ordering parts or requesting service. If you need more information on this product, contact your local dealer or visit www.ironcraftusa.com.

By following the operating instructions in conjunction with a good maintenance program, your IronCraft attachment will provide many years of trouble-free service.

Sincerely,

IRONCRAFT™

The IronCraft Team

INTRODUCTION

1.1 DESCRIPTION AND INTENDED USE

The rotary cutter is designed for heavy duty applications such as weeds, grass, and brush up to 3" diameter. The cutter uses dual spindles with two free-swinging blades each, which reduce the shock of impact when a stationary object is contacted. A slip clutch and dual shock couplers protect the gearboxes and driveline from damage. Standard equipment includes driveline shields and clutch shields. Front and rear chain discharge shields are optional.

1.2 SAFE OPERATION

Safe, efficient, and trouble-free operation of your attachment requires that you, and anyone else who will be using or maintaining the unit, read and understand the information contained within the Owner's Manual. Use this manual for frequent reference and to pass on to new operators or owners.

WARNING
READ AND UNDERSTAND MANUAL.

TO PREVENT PERSONAL INJURY OR EVEN DEATH

Read and understand all of the instructions in this manual and other related OEM equipment manuals! The rotary cutter, if not used and maintained properly, can be dangerous to users unfamiliar with its operation. Do not allow operating, maintaining, adjusting, or cleaning of this rotary cutter until the user has read this manual and has developed a thorough understanding of the safety precautions and functions of the unit.

This rotary cutter is designed for the specific purpose of cutting grass, weeds, and brush. DO NOT modify or use this rotary cutter for any application other than that for which it was designed.

Rotary cutters maintained or operated improperly or by untrained personnel can be dangerous; exposing the user and/or bystanders to possible serious injury or death.

WARNING
SAFETY SHIELDS

Some of the illustrations in this manual may show the equipment with safety shields removed for clarity. Never operate the attachment unless all safety shields are in place.

CUTTING OR ENTANGLEMENT HAZARD

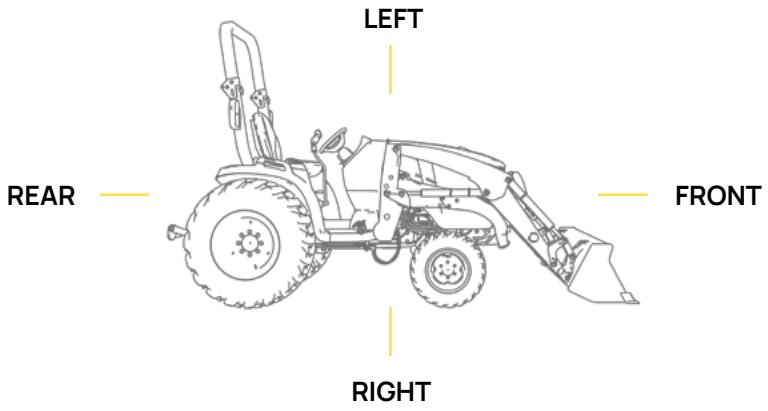
Operating the attachment without the safety shields could result in physical injury or death. Make sure all shields are properly installed before operating the rotary cutter. This equipment should never be operated with any safety shielding removed.

1.3 INTENDED USAGE

Do not use this rotary cutter for any other purpose than its intended use of cutting grass, weeds, and brush.

1.4 OPERATOR ORIENTATION

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



1.5 PRODUCT IMPROVEMENTS

Our company maintains an ongoing program of product improvement, we reserve the right to make improvements in design or changes in specifications without incurring any obligation to install them on units previously sold.

1.6 DISPOSAL OF EQUIPMENT

The cutter has been designed for the specific purpose of cutting grass, weeds, and brush. When this unit is no longer capable of doing its designed purpose, it should be dismantled and scrapped. Do not use any materials or components from this unit for any other purpose.

1.7 OWNER/OPERATOR MANUAL STORAGE

Always store the Owner/Operator manual and other operating materials in the document storage tube,

STORE THIS MANUAL IN THE DOCUMENT CANISTER ATTACHED TO THIS MACHINE.

SAFETY INFORMATION

2.1 GENERAL SAFETY

Safety of the operator and bystanders is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling the equipment.

Most work-related accidents are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. As you assemble, operate, or maintain the rotary cutter (unit), you must be alert to potential hazards. You should also have the necessary training, skills, and tools to perform any assembly or maintenance procedures.

Improper operation and maintenance of this unit could result in a dangerous situation that could cause injury or death.

If you have any questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer or:

IronCraft Attachments
7 Rocky Mt Rd, Athens, Tennessee 37303
Phone: (423) 405-5150 Fax: (423) 405-5904

The manual is also available for download at: www.ironcraftusa.com.

IronCraft cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the unit are, therefore, not all-inclusive. If a method of assembly, operation, or maintenance not specifically recommended by us is used, you must satisfy yourself that it is safe for you and for others. You should also ensure that the unit will not be damaged or be made unsafe by the methods that you choose. The information, specifications, and illustrations in this manual are based on the information that was available at the time this material was written and can change at any time without notice.

WARNING

Do not assemble, operate, or maintain the unit until you read and understand the information contained in this manual.

Safety precautions and warnings are provided in this manual and on the unit. If these hazard warnings are not heeded, bodily injury or death could occur to you or to other persons.

2.2 SAFETY SYMBOLS

This manual and decals on this machine use safety symbols, pictograms and color coded signal words to alert you to potential hazards that may cause death or severe injury if a safety instruction is ignored. Become familiar with the following symbols.

SAFETY ALERT SYMBOL - **THIS SYMBOL IS USED TO ALERT YOU TO POTENTIAL PERSONAL INJURY HAZARDS. OBEY ALL SAFETY MESSAGES THAT FOLLOW THIS SYMBOL TO AVOID POSSIBLE INJURY OR DEATH.**

HAZARD CLASSIFICATIONS

Hazards are identified by the Safety Alert Symbol and followed by the signal word **"DANGER", "WARNING",** or **"CAUTION".**

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which,if not avoided, may result in minor or moderate injury.

NOTICE

Indicates a situation which may cause damage to equipment or property. Messages are not related to personal injury.

SAFETY INSTRUCTIONS

Indicates specific safety-related instructions or procedures.

Note: Contains additional information important to a procedure.

2.3 SAFETY ICON NOMENCLATURE

Pictorial icons signal a type of hazard and warn of personal protection issues, prohibited actions, and hazard avoidance.

PERSONAL PROTECTION / IMPORTANT INFORMATION		
 Read the manual	 Inspect equipment	 Use proper support
 Maintenance procedure	 OEM parts only	 Use proper tools
 Damaged hazard label	 Protective shoes	 Visibility
 Eye protection	 Remove key	 Rollover protection
 Fire extinguisher	 Set parking brake	 Wear seat belt
 First aid kit	 Stop engine	 Weight rating
 Hand protection	 Think safety	 Clear vision
 Head protection	 Transmission in park	 Chemical flushing kit
 Hearing protection	 Use two people when lifting heavy objects	

PROHIBITED ACTIONS		
 Do not alter or modify	 No alcohol	 No young children
 Do not leave out tools	 No drugs	 No riders
 Do not weld	 No smoking	

HAZARD AVOIDANCE		
 Crush hazard	 Explosive force hazard	 Rollover protection
 Crush hazard (chock wheels)	 Fall hazard	 Safety alert symbol
 Crush hazard (foot)	 Falling hazard	 Safety shields
 Crush hazard	 Fire hazard	 Sharp object hazard
 Cutter blade contact hazard (hand)	 High-pressure fluid hazard	 Slipping injury
 Cutter blade contact hazard (foot)	 Hose damage	 Stay clear
 Cutting hazard	 Lifting hazard	 Tripping injury
 Defective or broken part	 Pinch point hazard	 Zero pressure
 Entanglement hazard	 Pressure hazard	
 Explosive separation hazard	 Projectile hazard	

2.4 GENERAL SAFETY INSTRUCTION

The owner/operator is responsible for the safe use and maintenance of the rotary cutter. Make sure anyone who is operating, maintaining, or working around the rotary cutter is familiar with the operating and maintenance procedures and related safety information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be used while using the rotary cutter.

In addition to the design features of the rotary cutter, including safety signs, accident prevention is dependent upon the awareness, concern, prudence, and proper training of the people involved in the operation, maintenance, and storage of the rotary cutter.

These general safety instructions apply to the overall use and maintenance of the rotary cutter. In addition to this safety section, refer also to safety messages and instructions in each of the appropriate sections of this manual. More specific instructions on safety are found in the operation, transporting, maintenance, and storage sections of this manual. Refer to these sections before performing any of these tasks.

WARNING

Failure to comply with the following safety instructions could result in serious injury and possibly even death if they are not understood and followed.

PROVIDE USER WITH LITERATURE

Rotary cutter owners must provide operator instructions to anyone using the rotary cutter before use, and at least annually thereafter. Refer to “OSHA Training Requirements” in Safety Information. The rotary cutter, if not used and maintained properly, can be dangerous to users unfamiliar with its operation. Do not allow operating, maintaining, adjusting, or cleaning of this rotary cutter until the user has read this manual and has developed a thorough understanding of the safety precautions and functions of the unit.

WARNING

This rotary cutter is designed for the specific purpose of cutting grass, weeds, and light brush. DO NOT modify or use this rotary cutter for any application other than that for which it was designed.

Rotary cutters maintained or operated improperly, or by untrained personnel, can be dangerous; exposing the user and/or bystanders to possible serious injury or death.

WARNING

Failure to comply with the following safety instructions could result in serious injury and possibly even death if they are not understood and followed.

STAY CLEAR

Clear the area of people, especially small children, before using the rotary cutter. Under no circumstances should young children be allowed to work with or around the rotary cutter.


IMPAIRED USER HAZARD

Do not attempt to assemble, operate, or maintain this rotary cutter under the influence of drugs or alcohol. Consult your doctor before using this rotary cutter while taking prescription medications.


CRUSH HAZARD

Do not allow anyone to ride on the tractor or the rotary cutter. Falling or crushing hazards can result in severe injuries or death.


FALLING HAZARD

Do not allow riders on the hitch, tractor, or rotary cutter at any time. Falling can result in severe injuries or death.


NO UNAUTHORIZED MODIFICATIONS

Do not modify the rotary cutter or safety devices. Do not weld on the unit. Unauthorized modifications may impair its function and safety. Personal injury or death can result from unauthorized modifications.

If the rotary cutter has been altered in any way from the original design, IronCraft does not accept any liability for injury or warranty.

DAMAGED PARTS HAZARD

Do not use the rotary cutter if any parts are damaged. If the rotary cutter has a defect, immediately stop using it and remedy the problem before continuing.

THROWN OBJECTS HAZARD

The rotary cutter can throw objects up to 300 feet. To avoid serious injury or death: Keep all thrown object shielding in place. Inspect area for potential thrown objects before cutting. Do not operate the rotary cutter with the deck raised.

SAFETY SHIELDS

Some illustrations in this manual show the equipment with safety shields removed to provide a better view. This equipment should never be operated with any necessary safety shielding removed.

IMPROPER USE HAZARD

Do not use the cutter to lift or carry objects, tow other equipment, pull fence posts, stumps, or other objects, or for any other purpose than its intended use of cutting grass, weeds, and brush. Using the cutter for unintended purposes can cause serious bodily injury or death.

CAUTION

The following safety instructions are provided to help prevent potential injury. Not following these instructions may lead to injury.

PERSONAL PROTECTION EQUIPMENT

When using this rotary cutter, wear appropriate personal protective equipment. This list may include, but is not limited to:

- Protective shoes with slip-resistant soles
- Protective goggles, glasses, or a face shield
- Protective clothing and gloves
- Safety vest (when operating near roads)
- Hearing protection

CRUSH HAZARD

The tractor should be equipped with a Roll Over Protective Structure (ROPS) and a seat belt. A crushing hazard can occur if the driver is ejected from the seat while the tractor is in motion. Fasten the seat belt whenever the tractor is moving.

EAR PROTECTION

Wear suitable ear protection during prolonged exposure to excessive noise.

HEARING LOSS

Prolonged Exposure To Loud Noise May Cause Permanent Hearing Loss!

Working environments with noise-producing equipment can cause partial to permanent hearing loss. We recommend using hearing protection any time noise levels exceed 80 decibels (dB). Noise levels over 85 dB, on a long-term basis, can cause severe hearing loss. Noise levels over 90 dB over a period of time can cause permanent and even total hearing loss.

Hearing loss from loud noise is cumulative over a lifetime without hope of natural recovery.

SAFETY INSTRUCTIONS

The following safety instructions are provided to help prevent injury or limit equipment damage.

SAFETY SIGNS

Replace any missing or hard-to-read safety signs or instructional labels. Use care when washing or cleaning the rotary cutter.

Replacement safety sign locations and part numbers are provided in this manual and are available from an authorized dealer parts department or the factory.

FIRST AID KIT

Have a first aid kit available for use should the need arise and know how to use it.

FIRE EXTINGUISHER

Have a fire extinguisher available for use should the need arise and know how to use it.

THINK SAFETY!

Work SAFELY!

2.5 TRAINING

Anyone who will be using and/or maintaining the rotary cutter must read, clearly understand, and follow ALL safety, operation, and maintenance information presented in this manual, other related OEM manuals, and the safety signs.

If you do not understand any information in this manual, see your dealer or contact IronCraft before proceeding. Do not use or allow anyone else to use this rotary cutter until all information has been reviewed. Annually review this manual before the season start-up.

Make periodic reviews of SAFETY and OPERATION of the rotary cutter a standard practice. An untrained operator is not qualified to use this rotary cutter.

2.6 OSHA TRAINING REQUIREMENTS

The following training requirements have been taken from Title 29, Code of Federal Regulations Part 1928.57(a)(6). www.osha.gov.

Operator Instructions: At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee who operates an agricultural tractor and implements in the safe operating practices and servicing of equipment with which they are or will be involved, and of any other practices dictated by the work environment.

2.7 FEDERAL LAWS & REGULATIONS

IMPORTANT FEDERAL LAWS AND REGULATIONS CONCERNING EMPLOYERS, EMPLOYEES, AND OPERATORS

This section is intended to explain in broad terms the concept and effect of the following federal laws and regulations. It is not intended as a legal interpretation of the laws and should not be considered as such.

U.S. PUBLIC LAW 91-596 (The Williams-Steiger Occupational Safety and Health Act of 1970) OSHA

This Act Seeks:

" ... to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources... "

DUTIES

Sec. S(a) Each Employer -

(1) shall furnish to each of its employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to its employees.

(2) shall comply with occupational safety and health standards promulgated under this Act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his or her own actions and conduct.

OSHA Regulations

Current OSHA regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved." These will include (but are not limited to) instructions to:

Keep all guards in place when the machine is in operation;

Permit no riders on equipment;

Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning, or unclogging the equipment, except where the machine must be running to be properly serviced or maintained, in which case the employer shall instruct employees as to all steps and procedures which are necessary to safely service or maintain equipment.

Make sure no one is within 300 feet of machinery before starting the engine, engaging power, or operating the machine.

EMPLOYEE TRACTOR OPERATING INSTRUCTIONS:

1. Securely fasten your seat belt if the tractor has a ROPS.
2. Where possible, avoid operating the tractor near ditches, embankments, and holes.
3. Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
4. Stay off slopes too steep for safe operation.
5. Watch where you are going, especially at row ends, on roads, and around trees.
6. Do not permit others to ride.
7. Operate the tractor smoothly - no jerky turns, starts, or stops.
8. Hitch only to the drawbar and hitch points recommended by tractor manufacturers.
9. When tractor is stopped, set brakes securely and use park lock if available.

Child Labor Under 16 Years Old

Some regulations specify that no one under the age of 16 may operate power machinery. It is your responsibility to know what these regulations are in your own area or situation. (Refer to U.S. Dept. of Labor, Employment Standard Administration, Wage & Home Division, Child Labor Bulletin # 102).

2.8 SIGN-OFF FORM

IronCraft adheres to the general Safety Standards established by the Farm Equipment Manufacturers Association (FEMA) and the American National Standards Institute (ANSI). It is crucial for anyone who will be using and maintaining the rotary cutter to thoroughly read and understand all safety, operation, and maintenance information provided in the manual.

It is essential not to use the rotary cutter or permit others to use it until all the information has been reviewed. It is recommended to review the manual annually before starting the season and to make periodic reviews of safety and operation a standard practice. An operator who has not received proper training is not qualified to use the rotary cutter.

Following these guidelines and ensuring that all operators are adequately trained will contribute to the safe and effective use of the rotary cutter.

This sign-off sheet is provided for your records to show that all personnel who will be working with the equipment have read and understand the information in this Operation and Parts Manual and have been instructed in the operation of the equipment.

SIGN-OFF FORM		
DATE	USER'S SIGNATURE	OWNER'S SIGNATURE

2.9 OPERATION

Refer to “User Safety Training” in Operations for safety recommendations related to using the rotary cutter. All applicable safety recommendations in other sections should also be followed.

2.10 TRANSPORTING

Refer to “Transporting Safety (Road)” in Transporting for safety recommendations related to transporting the rotary cutter. All applicable safety recommendations in other sections should also be followed.

2.11 STORAGE

Refer to “Storage Safety” in Storage for safety recommendations related to storing the rotary cutter. All applicable safety recommendations in other sections should also be followed.

2.12 MAINTENANCE

Refer to “Maintenance Safety” in Service and Maintenance for safety recommendations related to maintaining the rotary cutter. All applicable safety recommendations in other sections should also be followed.

SAFETY SIGNS AND INSTRUCTIONAL LABELS

3.1 GENERAL INFORMATION

The types of safety signs (hazard labels) and instructional labels, along with their locations on the equipment, are shown in the following illustrations. Good safety practices require that you familiarize yourself with the various safety signs, the type of warning, and the area or particular operation related to that area that requires your SAFETY AWARENESS.

THINK SAFETY! WORK SAFELY!

Pay close attention to the safety signs and instructional labels attached to the tractor and the rotary cutter. Duplicate safety signs, which are attached to the rotary cutter, can also be found in this section. If the rotary cutter is missing a label or one is unreadable, replace the label before using the rotary cutter.

SAFETY INSTRUCTIONS

SAFETY SIGNS AND INSTRUCTIONAL LABELS

1. Keep safety signs or instructional labels clean and legible at all times. Use a clean, damp cloth to clean safety decals.
2. Replace any missing or hard-to-read safety signs or instructional labels.
3. Use care when washing or cleaning the equipment not to remove or damage the labels. When using a pressure washer to clean the rotary cutter, avoid spraying too close to decals; high-pressure water can enter through very small scratches or under edges of decals causing them to peel or come off.
4. Locations for the labels and replacement part numbers are shown in this section.
5. Replacement parts must have replacement labels attached during installation and/or before the rotary cutter is used.
6. Labels are available from your authorized dealer or from IronCraft at no charge.

The following safety instructions are provided to help prevent injury or limit equipment damage.

3.2 HOW TO INSTALL REPLACEMENT SAFETY SIGNS

1. Clean and dry the installation area.

Note: Do not install the signs if the temperature is below 50°F.

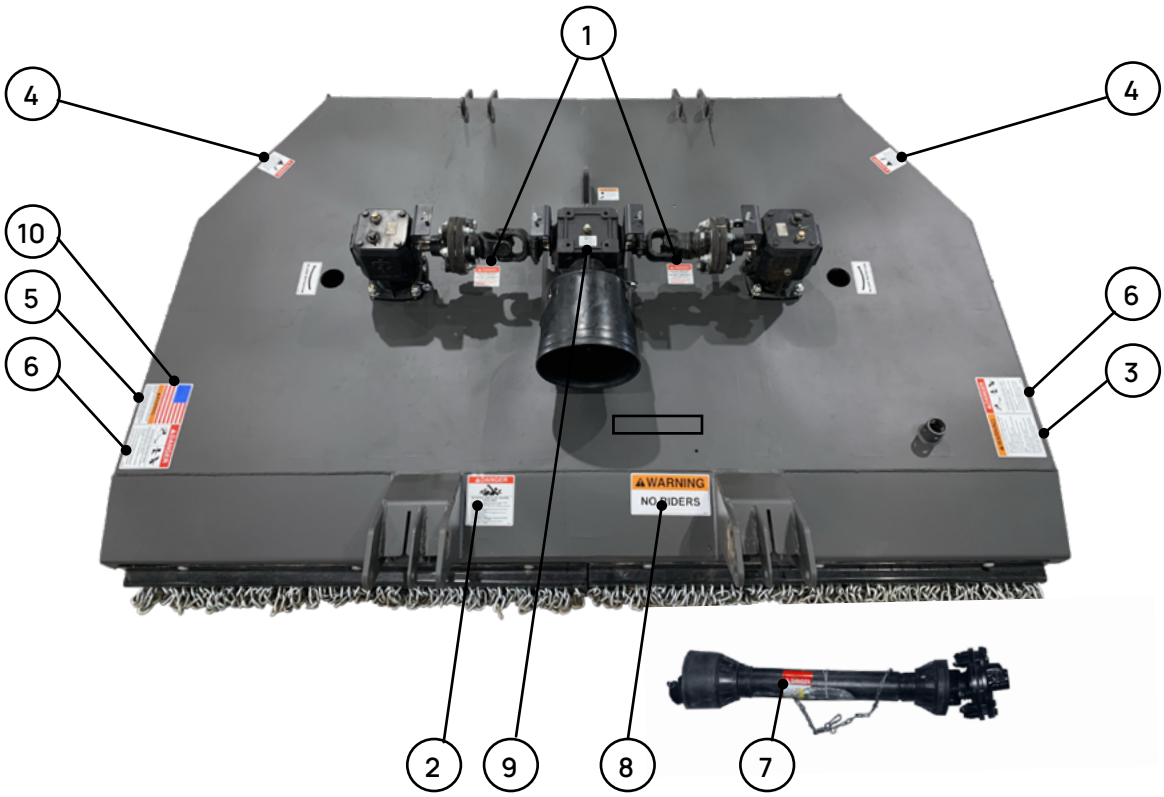
2. Determine the exact position before you remove the backing paper.

3. Remove the backing paper.

4. Align the sign over the specified area and carefully press the sign to the part/frame.

Note: Small air pockets can be pierced with a pin and smoothed out using remaining backing paper.

3.3 SAFETY SIGN LOCATIONS



REF	TYPE	DESCRIPTION	QTY.
1	DANGER	Guard Missing, Do Not Operate	2
2	DANGER	Driveline Hazard	1
3	WARNING	Multi-Hazard	1
4	DANGER	Thrown Object Hazard	2
5	WARNING	Safety Shields	1
6	DANGER	Rotating Blades Hazard	2
7	DANGER	Rotating Driveline, Keep Away, Outer Shield Tube	1
8	WARNING	No Riders	1
9	SERIAL	Serial No.	1
10	INSTRUCTIONAL	Made In the USA	1

CUTTER DECK SAFETY SIGNS

The safety decals affixed to this machine are to keep you safe. DO NOT ignore these decals. Read and understand each decal's safety message. Follow these Safety Decal Instructions:

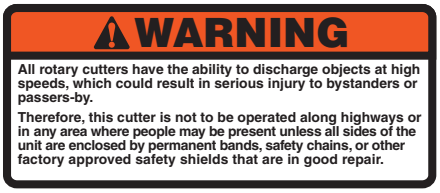
1.

2.

3.

4.

5.

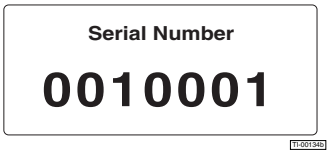


6.

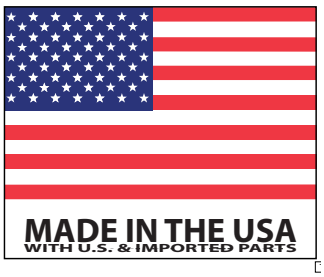
7.

8.

9.



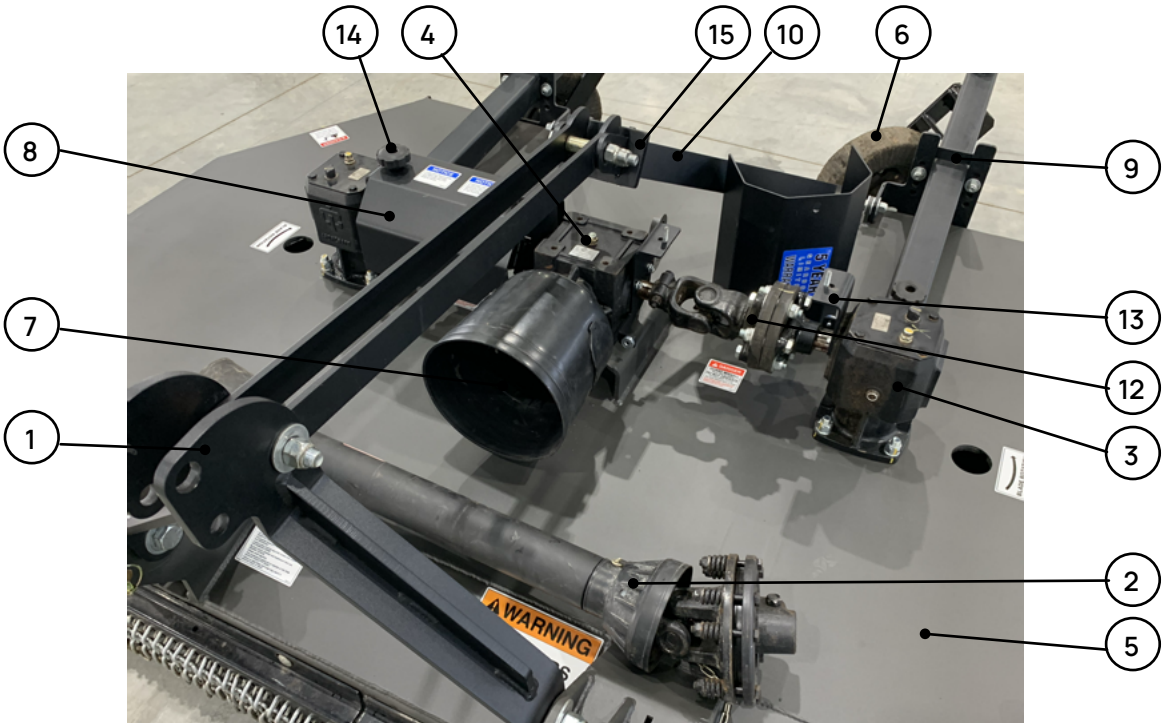
10.



(Signs portrayed for reference, not to scale)

NOMENCLATURE

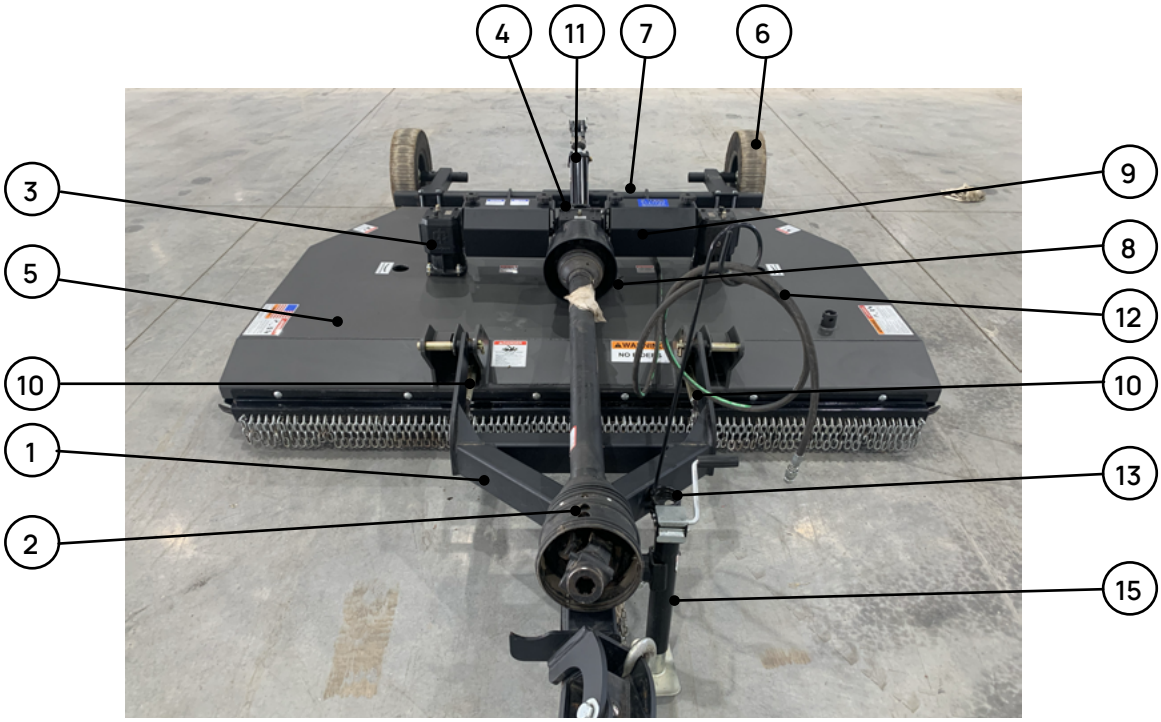
Lift Type



REF	DESCRIPTION	QTY.
1	Aframe	1
2	Driveline	1
3	Gearbox	2
4	Center Tee Gearbox	1
5	Cutter Deck	1
6	Tailwheel	2
7	Driveline Shield	1
8	Gearbox Shield	2
9	Tailwheel Adjusting Bracket	2
10	Back Braces	1
11	Document Stoarge Tube	1
12	Rubber Cross Shaft	2
13	Gearbox Shield Mount	4
14	Threaded Knob	4
15	Back Brace Adjusting Plate	1

NOMENCLATURE

Pull Type



REF	DESCRIPTION	QTY.
1	Hitch	1
2	Driveline	1
3	Gearbox	2
4	Center Tee Gearbox	1
5	Cutter Deck	1
6	Tailwheel	2
7	Tailwheel Frame	1
8	Driveline Shield	1
9	Gearbox Shields	2
10	Leveling Rods	2
11	Raise/Lower Hydraulic Cylinder	1
12	Hydraulic Hoses	1
13	Hydraulic Hose Rack	1
14	Document Storage Tube	1
15	Jack	1

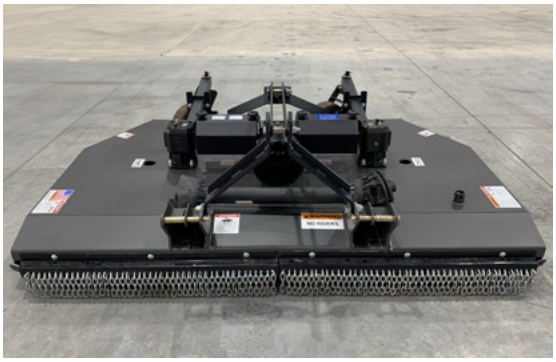
ASSEMBLY
Lift Type

6.1 TOOLS REQUIRED

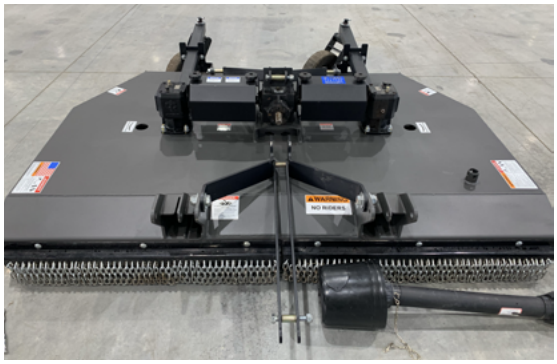
TOOLS REQUIRED
Wrenches, 1/2", 5/8", 3/4", 1-1/8", 1-3/8"
Ratchet with extension and 3/4" socket

6.2 ASSEMBLY PROCEDURE

1. Verify that all parts shown are included. If any parts are missing, contact your dealer.

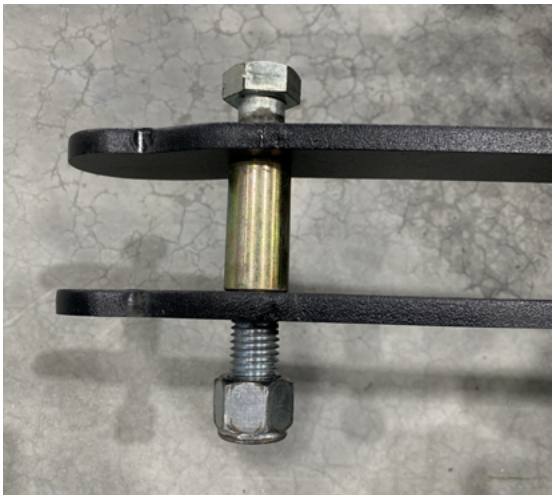


2. Cut the wires holding the driveline parts to the A-frame. Set the driveline aside for now.



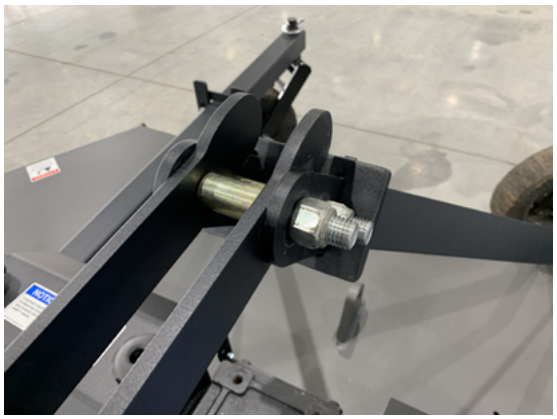
3. Remove the driveline shield from its shipping location on the driveline.

4. Stand the A-frame up and remove the ¾-10 x 5" bolt, locknut and spacer on the break link

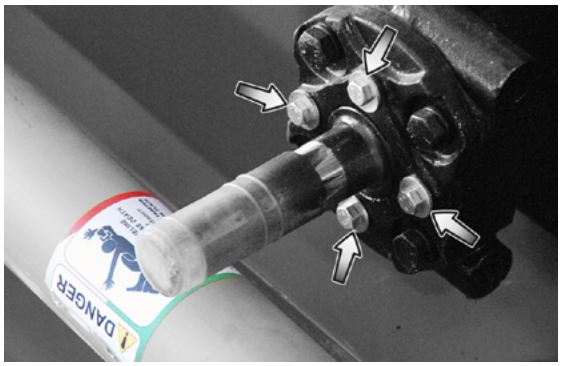


5. Position the back braces on the outside of the break link and reinstall the bolt and spacer. Be sure the spacer is in place.

6. Tighten the bolt sufficiently to eliminate side play, but still allow the break link to function.



7. Remove the four 5/16-18 x 1/2" bolts and washers from the front of the gearbox.



8. Position the driveline shield on the front of the gearbox and reinstall the four 5/16-18 x ½" bolts and washers.

9. Separate the two halves of the driveline.

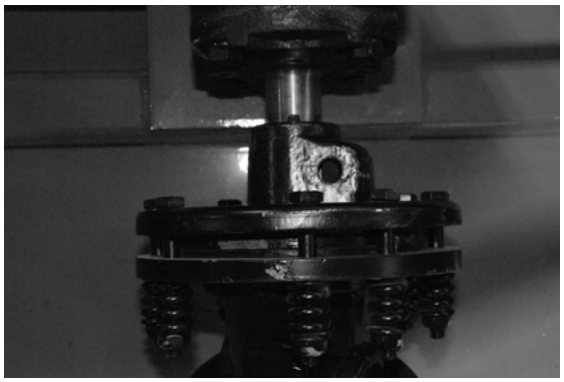
WARNING

CRUSH HAZARD

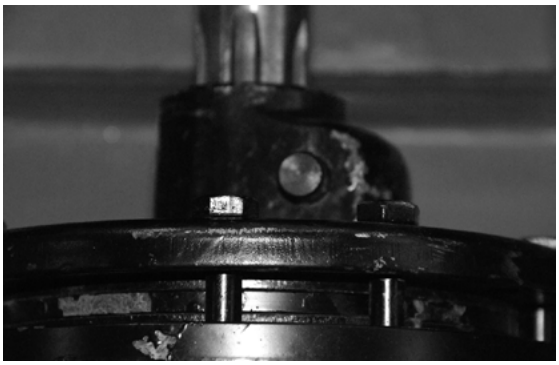
If the retaining bolt is not present, the driveline may separate from the gearbox, causing serious injury or death. Do not omit the retaining bolt. Tighten the locknut securely.

10. Remove the retaining bolt from the slip clutch.

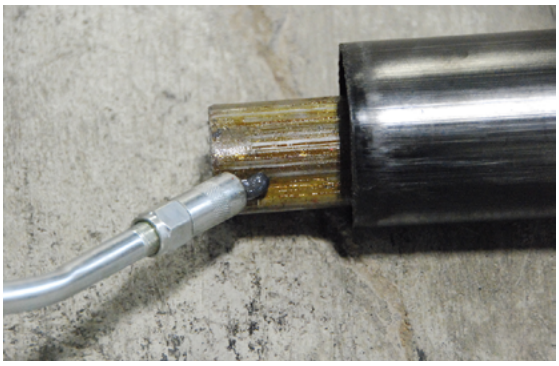
11. Line up the spline grooves and slide the slip clutch onto the gearbox input shaft until the retaining bolt hole aligns with the groove in the shaft.



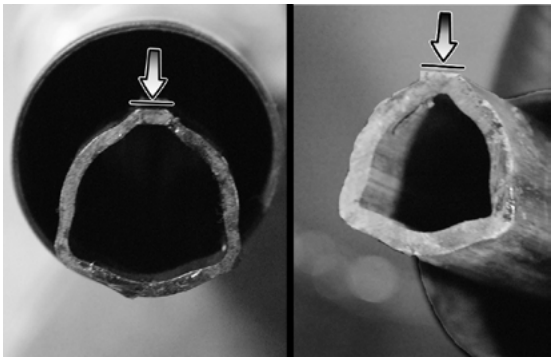
12. Install the retaining bolt and tighten the locknut.



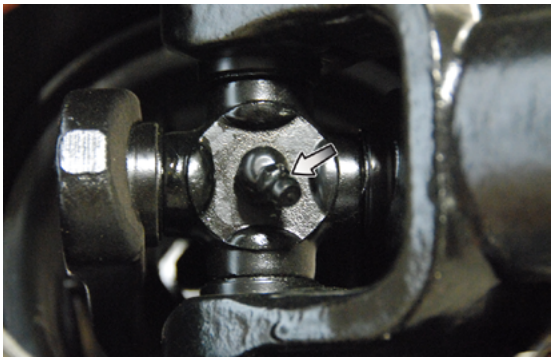
13. Apply a bead of grease around the end of the inner drive shaft.



14. Slide the front driveline half over the rear half. Align the square rib on the mating halves to engage.

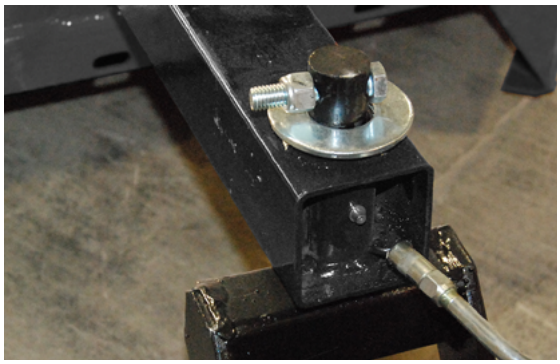


15. Apply grease to the zerk on the U-joint cross.

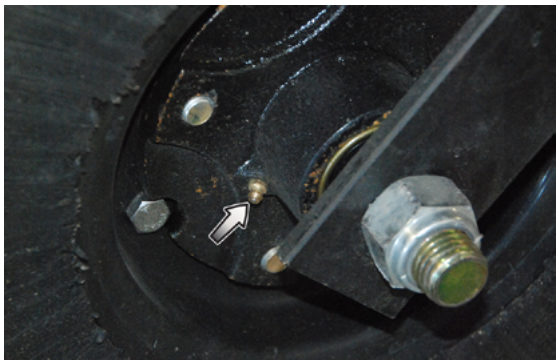


16. Attach the chain on the outer driveline shield to the rotary cutter.

17. Apply grease to the zerk on the tailwheel forks.



18. Apply grease to the zerk on the tailwheel hubs.



6.3 INSTALLATION AND REMOVAL OF DRIVELINE TO TRACTOR PTO

WARNING

ENTANGLEMENT HAZARD

To avoid serious injury or death from driveline contact:

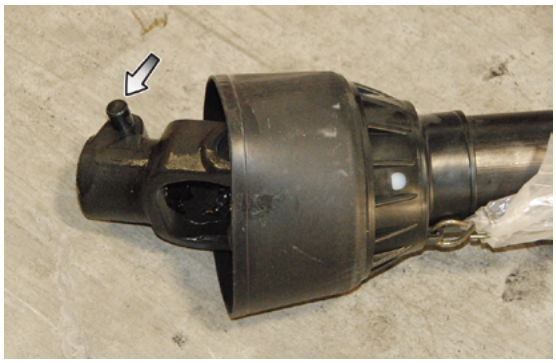
Shut off tractor PTO and disengage before dismounting.

Do not operate PTO if shields are missing or damaged. Keep hands, feet, and body away from rotating parts.

TO INSTALL THE DRIVELINE:

1. Turn the tractor off, set the parking brake, and remove the key.

2. Depress the locking pin on the tractor end of the driveline.



3. Push the driveline onto the tractor PTO shaft until the locking pin engages.

TO REMOVE THE DRIVELINE:

Before operating the rotary cutter, make sure the driveline will not bottom out or become disengaged. Bottoming out occurs when the inner shaft penetrates the outer housing until the assembly can shorten no more. Bottoming out can cause serious damage to the tractor PTO by pushing the PTO into the tractor and through the support bearings or downward onto the PTO shaft, breaking it off. A broken driveline can cause personal injury.

1. Attach the rotary cutter to the tractor 3-point hitch. Do not attach the driveline. Keep the driveline out of the way of moving parts.

2. Raise and lower the rotary cutter to determine the maximum and minimum distance between the tractor PTO shaft and the gearbox input shaft. If the distance is too large, the driveline will be too short for proper engagement. If the distance is too small, the driveline may bottom out in operation and damage the rotary cutter or tractor.

There must be at least six inches of engagement at the rotary cutter's lowest possible point of operation, and the driveline must not bottom out when raised to the maximum height possible. If the driveline is too short, please call your authorized dealer for a longer driveline. If the driveline is too long, follow the instructions for shortening the driveline.

6.4 SHORTENING THE DRIVELINE

1. Move rotary cutter up and down to get the shortest possible distance between tractor PTO shaft and gearbox input shaft. Shut down tractor PTO shaft and gearbox input shaft. Shut down tractor leaving rotary cutter in position of shortest distance. Securely block rotary cutter in position.
2. Separate driveline into two halves and connect them to the tractor PTO and gearbox.
3. Place driveline halves parallel to one another to determine how much to shorten the driveline.
4. Each section should end approximately 3" short of reaching the universal joint shield on the opposite section. If too long, measure 3" back from the universal joint shield and mark on the opposite section.
5. Repeat Step 4 for the other half of the drive.
6. Raise and lower rotary cutter to determine position with greatest distance between PTO shaft and gearbox input shaft. Shut down tractor leaving rotary cutter in position of greatest distance. Securely block rotary cutter in position.
7. Hold driveline sections parallel to each other and check for minimum 6" overlap. If driveline has been marked for cutting, overlap will be the distance between two marks. If driveline has less than minimum overlap, do not use. Contact your Authorized dealer dealer.
8. Clamp a driveline section in a well padded vice to prevent damage to the shield. Cut off the shield where marked. Using the cut off section of the shield as a guide, cut the shaft the same amount. Repeat for the other driveline section.
9. File and clean the cut ends of both drive halves. Remove all chips and filings.

Note: If the driveline is the correct length, omit the following Steps 8 - 9 and proceed to Step 10.

---

10. Apply multi-purpose grease around the inner driveline section. Slide drive halves over each other several times to distribute the grease. Install driveline on tractor and rotary cutter. Make certain driveline shielding is in place and in good condition.
11. Set the tractor lift control stop to a position that will prevent the driveline from contacting the front edge of the rotary cutter deck when the rotary cutter is raised fully.

NOTICE

Do not use the rotary cutter if proper driveline engagement cannot be obtained through these methods. Contact your IronCraft dealer.

ASSEMBLY
Pull Type

6.5 TOOLS REQUIRED

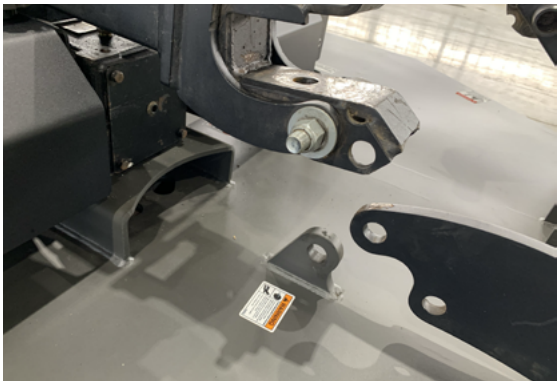
TOOLS REQUIRED
Wrenches, 1/2", 5/8", 3/4", 1-1/8", 1-3/8", 1-1/2"
Ratchet with extension and sockets as above
3/8" Allen wrench

6.6 ASSEMBLY PROCEDURE

1. Verify that all parts shown are included. If any parts are missing, contact your dealer.

2. Cut the wires holding the driveline, hitch, and hydraulic hoses to the deck. Set the driveline and hoses aside for now.

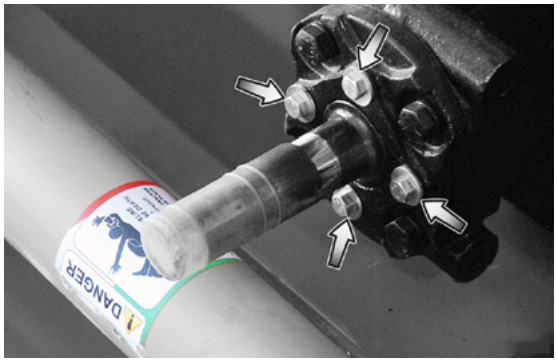
3. Remove the tie-downs holding the Hitch and the Center Tailwheel Frame to the Cutter Deck.



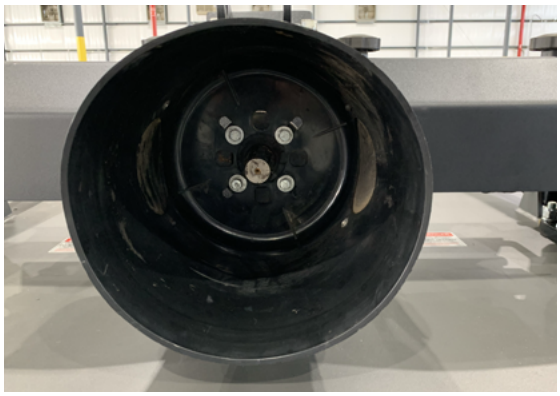
4. Remove the jack from its storage location on the deck, rotate the hitch forward, and install the jack on the hitch.

5. Remove the driveline shield from its shipping location on the driveline

6. Remove the four 5/16-18 x 1/2" bolts and washers from the front of the gearbox.



7. Position the driveline shield on the front of the gearbox and reinstall the four 5/16-18 x ½" bolts and washers.



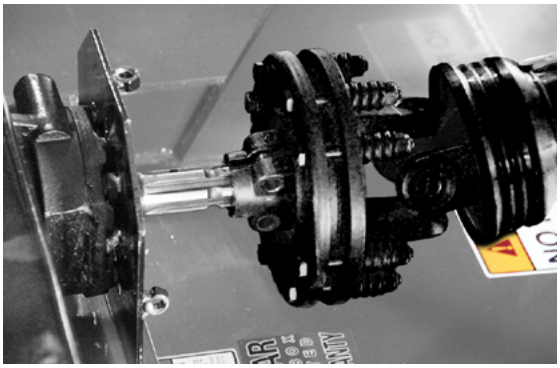
8. Separate the two halves of the driveline.

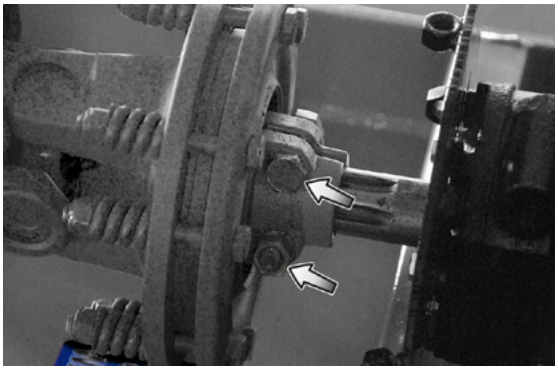
9. Remove the two retaining bolts from the slip clutch.

NOTICE

The slip clutch bolts are offset as shown to allow socket clearance to the retaining bolts.

10. Line up the spline grooves and slide the slip clutch onto the gearbox input shaft until the retaining bolt holes align with the groove in the shaft. Install the bolts, and tighten the nuts securely.



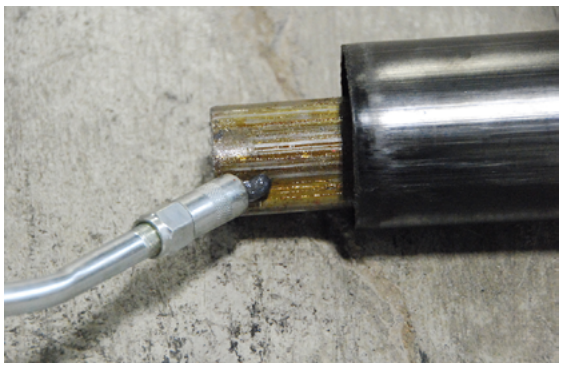


WARNING

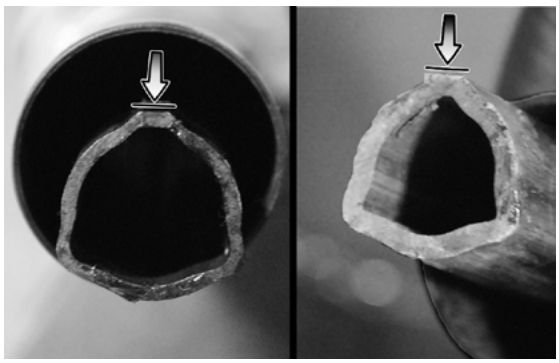
CRUSH HAZARD

If the retaining bolt is not present, the driveline may separate from the gearbox, causing serious injury or death. Do not omit the retaining bolt. Tighten the locknut securely.

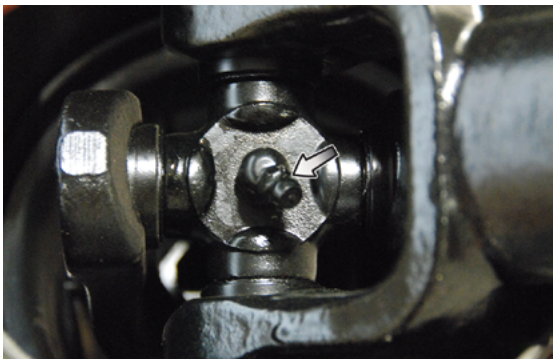
11. Apply a bead of grease around the end of the inner drive shaft.



12. Slide the front driveline half over the rear half. Align the square rib on the mating halves to engage.



13. Apply grease to the zerks on all three of the U-joint crosses.



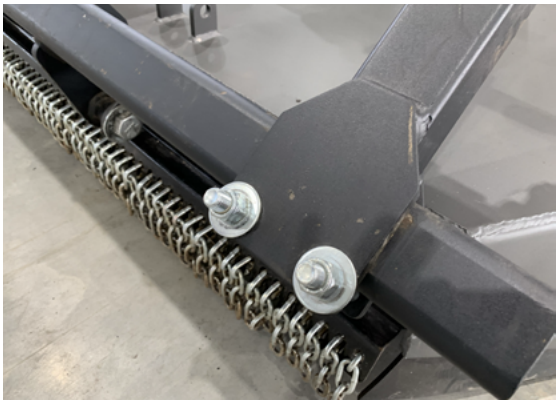
14. Attach the chain on the outer driveline shield to the rotary cutter.

15. Remove the leveling rods from the deck and set them aside for now.

16. Using a 3/8" Allen wrench, remove the plugs from the ports on the hydraulic cylinder.

17. Apply grease to the zerk on the tailwheel hubs.

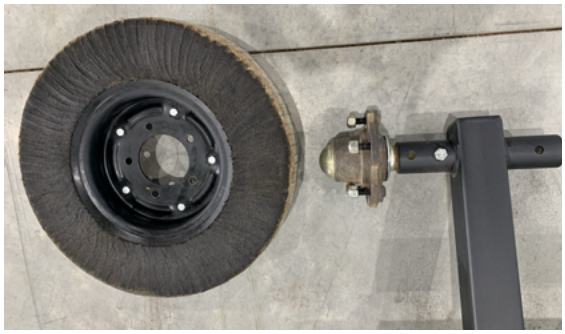
18. Loosen and Remove two bolts on the rear of the Tailwheel support



19. Slide the tailwheel support off the tailwheel frame and remove the tailwheel from its shipping location.

20. Reinstall the tailwheel support oriented to the rear and with the axle outboard. It is recommended to install the bolts with the nuts on top to make it easier to monitor the security of the bolts.

21. Remove the lug nuts from the hub and attach the tailwheel. Orient the lug nuts with the taper towards the wheel and tighten in a crisscross pattern.



24. Attach the leveling rods.

a. Slide rods through the inner rod channels, located between the hitch ears of the Cutter Deck. the adjuster nut should be oriented toward the front of the cutter.

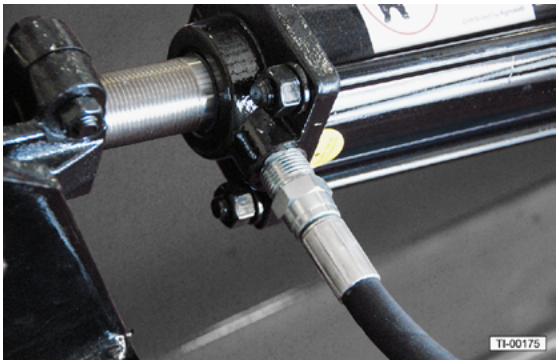
b. Pin the rear of the rods to the upper mounting hole of the Center Tailwheel Frame.

24. continued...

    c. Loosen the jam nut on the front of the rods and turn the adjuster nut until the rod end aligns with the rear hole on the Hitch.

    d. Pin the font of the rods to the rear hole on the Hitch.

25. Attach both hydraulic hoses to the cylinder. There is a swivel fitting on the cylinder end of each hose.



26. Remove the hydraulic hose rack from its shipping location and reinstall it in a vertical position. Route the hoses through the rack.

6.7 INSTALLATION AND REMOVAL OF DRIVELINE TO TRACTOR PTO

WARNING

ENTANGLEMENT HAZARD

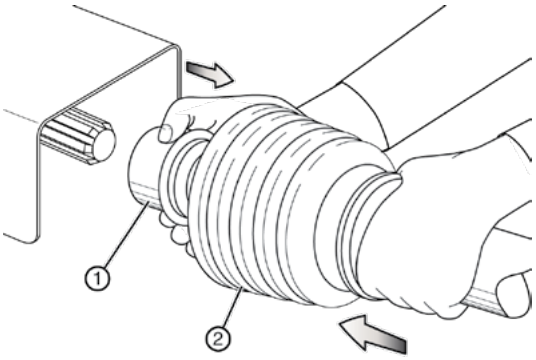
To avoid serious injury or death from driveline contact:

Shut off tractor PTO and disengage before dismounting.

Do not operate PTO if shields are missing or damaged. Keep hands, feet, and body away from rotating parts.

TO INSTALL THE DRIVELINE:

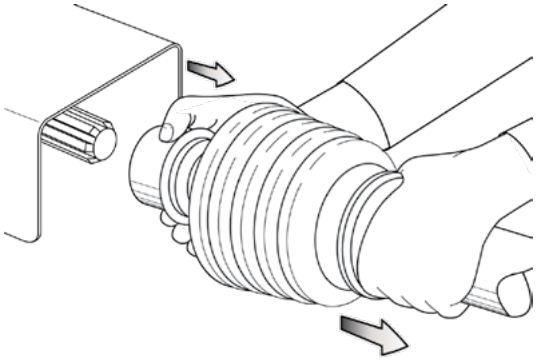
1. Turn the tractor off, set the parking brake, and remove the key.
2. Pull back on collar (1) on the tractor end of the driveline.
3. Push the driveline onto the tractor PTO shaft until the collar snaps forward.



4. Pull back on driveline guard (2) to check that the driveline is latched. Do not pull back on the collar, as this will release the driveline.
5. Attach the safety chain on the driveline guard to the tractor.

TO REMOVE THE DRIVELINE:

1. Detach the safety chain from the tractor.
2. Pull back on the collar on the tractor end of the driveline.



3. Slide the driveline off the tractor PTO shaft.

6.8 CHECKING THE DRIVELINE LENGTH

Before operating the rotary cutter, make sure the driveline will not bottom out or become disengaged. Bottoming out occurs when the inner shaft penetrates the outer housing until the assembly can shorten no more. Bottoming out can cause serious damage to the tractor PTO by pushing the PTO into the tractor and through the support bearings or downward onto the PTO shaft, breaking it off. A broken driveline can cause personal injury.

1. Attach the rotary cutter to the tractor. Do not attach the driveline. Keep the driveline out of the way of moving parts.
2. Raise and lower the rotary cutter to determine the maximum and minimum distance between the tractor PTO shaft and the gearbox input shaft. If the distance is too large, the driveline will be too short for proper engagement. If the distance is too small, the driveline may bottom out in operation and damage the rotary cutter or tractor.

There must be at least six inches of engagement at the rotary cutter's lowest possible point of operation, and the driveline must not bottom out when raised to the maximum height possible. If the driveline is too short, please call your IronCraft dealer for a longer driveline. If the driveline is too long, follow the instructions for shortening the driveline.

6.9 SHORTENING THE DRIVELINE

1. Move rotary cutter up and down to get the shortest possible distance between tractor PTO shaft and gearbox input shaft. Shut down tractor PTO shaft and gearbox input shaft. Shut down tractor leaving rotary cutter in position of shortest distance. Securely block rotary cutter in position.

2. Separate driveline into two halves and connect them to the tractor PTO and gearbox.

3. Place driveline halves parallel to one another to determine how much to shorten the driveline.

4. Each section should end approximately 3" short of reaching the universal joint shield on the opposite section. If too long, measure 3" back from the universal joint shield and mark on the opposite section.

5. Repeat Step 4 for the other half of the drive.

6. Raise and lower rotary cutter to determine position with greatest distance between PTO shaft and gearbox input shaft. Shut down tractor leaving rotary cutter in position of greatest distance. Securely block rotary cutter in position.

7. Hold driveline sections parallel to each other and check for minimum 6" overlap. If driveline has been marked for cutting, overlap will be the distance between two marks. If driveline has less than minimum overlap, do not use. Contact your Authorized dealer dealer.

Note: If the driveline is the correct length, omit the following Steps 8 - 9 and proceed to Step 10.

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8. Clamp a driveline section in a well padded vice to prevent damage to the shield. Cut off the shield where marked. Using the cut off section of the shield as a guide, cut the shaft the same amount. Repeat for the other driveline section.

9. File and clean the cut ends of both drive halves. Remove all chips and filings.

10. Apply multi-purpose grease around the inner driveline section. Slide drive halves over each other several times to distribute the grease. Install driveline on tractor and rotary cutter. Make certain driveline shielding is in place and in good condition.

NOTICE

Do not use the rotary cutter if proper driveline engagement cannot be obtained through these methods. Contact your IronCraft dealer.

Set the tractor lift control stop to a position that will prevent the driveline from contacting the front edge of the rotary cutter deck when the rotary cutter is raised fully.

OPERATION
Lift Type

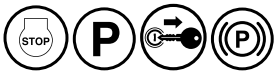
7.1 USER SAFETY TRAINING

Refer to “General Safety” for user Safety Training Requirements.

WARNING

ROLL AWAY HAZARD

Before leaving the tractor seat, make sure the engine is stopped, the transmission is placed in park, the key is removed, and the parking brake is set.



The weight of the tractor, plus the rotary cutter if it rolls onto a person, could cause serious crushing injury or death.

CRUSH HAZARD

The tractor should be equipped with a Roll Over Protective Structure (ROPS) and a seat belt. A crushing hazard could occur if the driver is ejected from the seat while the tractor is in motion. Fasten the seat belt whenever the tractor is moving.

The rotary cutter is top heavy when the wings are raised. To avoid injury or death from rollover, use caution when transporting over uneven surfaces and slow down for turns.

CRUSH HAZARD

Hydraulic or mechanical failure can allow a wing to drop suddenly without warning. Do not allow anyone to walk under or stand near a raised wing when the wing locks are removed.

THROWN OBJECT HAZARD

Cutters can throw objects up to 300 feet. To avoid serious injury or death: 1) Keep all thrown object shielding in place. 2) Inspect area for potential thrown objects before cutting. 3) Do not operate rotary cutter with the deck raised. For non-agricultural use, OSHA, ASAE, SAE, and ANSI standards require the use of chain shields or other protective guards at all times. Do not remove the chain shields.

STAY CLEAR

Clear the work area of all un-necessary people and obstructions to prevent personal injury. Other protective guards at all times.

CUTTER BLADE CONTACT HAZARD (HAND)

To avoid serious injury or death, keep away from rotating blades. Do not put hands under cutter deck.

CUTTER BLADE CONTACT HAZARD (FOOT)

To avoid serious injury or death, keep away from rotating blades. Do not put feet under rotary cutter deck.

ENTANGLEMENT HAZARD

Operating the rotary cutter without the driveline shields could result in physical injury or death from entanglement. Make sure all shields are properly installed before operating the rotary cutter. This equipment should never be operated with any safety shielding removed.

SAFETY INSTRUCTIONS

The following safety instructions are provided to help prevent injury or limit equipment damage.

TRAIN UNFAMILIAR USERS

It is the rotary cutter owner's responsibility to make sure any person using the rotary cutter, especially if it is loaned or rented, has been thoroughly trained on its proper and safe use.

Review instructions annually with existing users.

Be certain only physically-able persons will use the rotary cutter.

Users who have not read and understood all operating and safety instructions are not qualified to use the rotary cutter.

Untrained users expose themselves and bystanders to possible serious injury or death.

If the elderly are assisting with the work, their physical limitations need to be recognized and accommodated.

Never allow children to operate equipment.

SAFETY INSTRUCTIONS

FIRE HAZARD

Clippings are flammable. To reduce the risk of fire:

1. Do not operate near fires.
2. Keep rotary cutter deck clear of clippings and debris.

FIRE EXTINGUISHER

Carry a fire extinguisher on the tractor at all times.

7.2 LIFT TYPE TRACTOR REQUIREMENTS

WARNING

Always refer to the tractor owner's manual to ensure compatibility and maximum safety.

The tractor used to operate the cutter must have the power to lift, pull, and operate the Power Take Off (PTO) at the cutter's rated speed while traveling at a ground speed between 2 and 5 MPH.

The tractor must be matched to the weight of the rotary cutter. A minimum of 20% of the combined tractor and equipment weight should be on the front wheels. This will ensure adequate stability during transport and operation.

Operating the cutter with a tractor that does not meet the following requirements may cause tractor or cutter damage and be a potential danger to the operator and passersby.

Always review the "controls" section of the tractor operator's manual to be familiar with the location, settings, and function of the tractor controls. Be familiar with all controls before using this equipment.

TRACTOR EQUIPMENT AND CAPABILITIES

REQUIREMENTS
Approved Roll-Over Protective Structure (ROPS) or ROPS cab and seat belt.
Tractor Safety Devices; Slow Moving Vehicle (SMV) emblem, lighting, PTO master shield
3-Point Hitch, CAT II/QH (Lift type)
Front End Weight as needed to maintain 20% weight on front axle.
To reduce the risk of grass fires, do not operate the cutter on a tractor with an underframe exhaust.

TRACTOR SAFETY DEVICES

If transporting or operating the tractor and implement near a public roadway, the tractor must be equipped with proper warning lighting and a Slow Moving Vehicle (SMV) emblem that are clearly visible from the rear of the unit. Lights and a SMV emblem must be attached directly to the implement if the visibility of the tractor warning signals are obscured.

Maintain all manufacturer equipped safety shields and guards. Always replace shields and guards that were removed for access to connect, service, or repair the tractor or implement. Never operate the tractor PTO with the PTO master shield missing or in the raised position.

ROPS AND SEAT BELT

The tractor must be equipped with a Roll Over Protective Structure (ROPS) (tractor cab or roll bar) and seat belt to protect the operator from falling off the tractor, especially during a roll-over where the driver could be crushed and killed. Only operate the tractor with the ROPS in the raised position and seat belt fastened.

Tractor models not equipped with a ROPS and seat belt should have these life saving features installed by an authorized dealer.

WARNING

ROLLOVER HAZARD

To avoid serious injury or death from falling off tractor, equipment runover, rollover, or crushing:

1. Use ROPS equipped tractor.
2. Keep ROPS locked in the UP position.
3. Only operate the equipment when seated in the tractor seat.
4. Always fasten seat belt when operating the tractor and rotary cutter.

3-POINT HITCH

These rotary cutters are designed to be mounted on a tractor CAT I & II for the 2408 and then CAT II for the 2410, 3-Point, or Quick Hitch.

Refer to the tractor operator's manual for the category of the tractor being used. If the hitch does not conform to ASABE CAT II dimensions, the rotary cutter may not fit or raise properly. Consult an authorized dealer for possible modification procedures to mount non-conforming hitches. Depending on the hitch category, certain size pins are used to attach the rotary cutter to the tractor. CAT II hitches require 1-1/8" lower and 1" upper diameter hitch pins.

TRACTOR HORSEPOWER

The power required to operate the cutter is determined by the tractor PTO horsepower. Operating the cutter with a tractor that does not have adequate power may damage the tractor engine. Exceeding recommended HP may cause rotary cutter damage by overpowering the unit in heavy cutting conditions.

MODEL	DESCRIPTION	RECOMMENDED MIN HP	LIFTING CAPACITY (MIN.)
2408	Lift Type	42	1250
2410	Lift Type	52	1480

POWER TAKE-OFF (PTO)

This rotary cutter is designed to operate at a PTO speed of 540 RPM or 1000RPM. Most tractors operate at either 540 or a combination of 540 and 1000 RPM PTO speeds. The operating speed of the rotary cutter and tractor can be determined by the number of splines on the driveline yoke and PTO output shaft. Those operating at 540 RPM will have a 6-pline shaft, and those operating at 1000 RPM will have a 20-plin shaft or 21-spline shaft.

Refer to the tractor owner's manual for instructions to change PTO speeds on models that operate at more than one speed.

If operating an older model tractor where the tractor's transmission and PTO utilize one master clutch, an over-running clutch must be used between the PTO output shaft and the driveline of the rotary cutter. An authorized tractor dealer can provide the over-running clutch and its installation, if needed.

DO NOT use a PTO adapter to attach a non-matching implement driveline to a tractor PTO. Use of an adapter can double the operating speed of the implement, resulting in excessive vibration, thrown objects, and blade and implement failure. Adapter use will also change the working length of the driveline exposing unshielded driveline areas. Serious bodily injury and/or equipment failure can result from using a PTO adapter. Consult an authorized dealer for assistance if the implement driveline does not match the Tractor PTO.

7.3 ATTACHING TO TRACTOR

Use caution when connecting the rotary cutter to the tractor. The rotary cutter should be securely resting at ground level or setting on blocks. Keep hands and feet from under the deck and clear of pinch points between the tractor drawbar and rotary cutter hitch.

WARNING

CRUSH HAZARD

Crush hazard between hitch and implement. Do not allow anyone to stand between the hitch and implement during hook-up operations. Never operate the hydraulic 3-point lift controls while someone is directly behind the tractor.

1. Shorten or remove the tractor drawbar to avoid interference when raising and lowering the rotary cutter.
2. Board the tractor and start the engine. Position the tractor with the 3-point lift arms positioned at the same height and to the outside of the rotary cutter hitch pins.

NOTICE

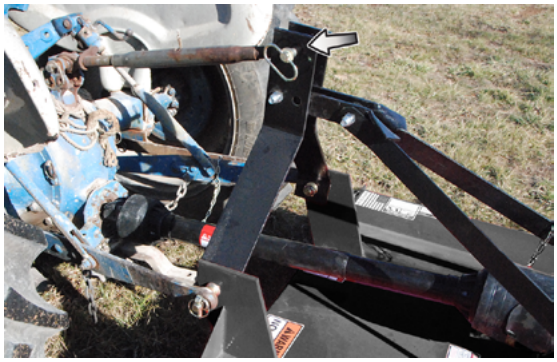
Set the 3-point lift control to “Position Control” so that the lift arms maintain a constant height when attaching the rotary cutter. See the tractor Operator’s Manual for correct settings when attaching 3-point equipment.

3. Turn off the tractor engine and dismount.
4. One lift arm at a time, insert hitch pin through the lift arm holes and install retaining pin.
5. Walk around to the opposite side and repeat the procedure for the remaining lift arm and hitch pin.
6. Extend or retract 3-point top link to align its end hole with the holes of the rotary cutter’s top link. Insert the top link hitch pin and insert the retaining pin into the hitch pin.
7. Adjust any lower link check chains, guide blocks, or sway blocks to prevent the rotary cutter from swaying side-to-side and possible contact with the tractor rear tires.
8. Depress the locking pin on the tractor end of the driveline.
9. Push the driveline onto the tractor PTO shaft until the locking pin engages.

7.4 DETACHING FROM TRACTOR

1. Move the rotary cutter to a level storage location and lower it to the ground or onto blocks. Park the tractor, place the transmission in park or neutral, and apply the parking brake. Shut down the engine, remove the key, and wait for all motion to come to a complete stop before exiting the tractor. Before disconnecting the rotary cutter, the PTO must be disengaged and blade rotation at a complete stop.
2. Make sure the rotary cutter is resting securely on the ground or blocks before attempting to disconnect it from the tractor. Use extreme care to keep feet and hands from under the rotary cutter and clear of any pinch points caused by the tractor hitch arms and rotary cutter hitch pins.

3. Extend the tractor 3-point hitch top link to remove tension on the top link hitch pin. When the pin is loose and easy to rotate, remove the pin from the rotary cutter.



4. Disconnect the lift arms and remove the rotary cutter driveline from the tractor PTO shaft. Lay the driveline down carefully to avoid damaging the driveline or its shield. Do not let the driveline fall into mud or dirt, which can contaminate the bearing and shorten the life of the driveline.

7.5 SETTING THE ROTARY CUTTER

Properly setting the cutting height is essential for efficient and safe operation. A properly set rotary cutter will make a more uniform cut, distribute clippings more evenly, require minimal tractor work, and follow the contour of uneven terrain.

NOTICE

Avoid very low cutting heights. Striking the ground with the blades causes damaging shock loads and will cause damage to the rotary cutter and drive. Blades contacting the ground may cause objects to be thrown out from under the cutter deck. Always avoid operating the rotary cutter at a height which causes the blades to contact the ground.

SETTING THE CUTTING HEIGHT

The rotary cutter should be operated at the highest position which will give desired cutting results. This will help prevent the blades from striking the ground, increasing blade life, and reducing stress on the rotary cutter and tractor.

1. Park the tractor and rotary cutter on level ground.
2. Using the 3-point hitch control lever, position the front of the rotary cutter with the side skids 1" lower than the desired cut height. For example, for a 3" cut, position the skids 2" from the ground. Set the 3-point control lever stop at this position to maintain this height when raising and lowering the cutter.
3. Shut off the tractor and remove the key.
4. Adjust the rotary cutter deck pitch by extending or retracting the 3-point top link.

- To increase fuel efficiency and lower horsepower requirements for rotary cutter operation, the rotary cutter should be operated with the deck approximately 3/4" lower in the front than the rear. Operating the rotary cutter at this pitch will allow the rotary cutter to cut the grass only once and requires less work from the tractor.
- To increase mulching of the grass or crop material during rotary cutter operation, the rotary cutter should be operated with the deck approximately 3/4" higher in the front than the rear. Operating the rotary cutter at this pitch will allow the rotary cutter to cut the grass twice and can result in a more even cut and improved distribution of the cut material.

5. Level the rotary cutter side-to-side by manipulating one lower lift arm length. On most tractors, at least one of the lift arms is designed to allow for manipulation of its length. Shortening or extending the lift arm will allow for deck leveling from side-to-side.
6. Securely block up the rotary cutter at this height.
7. Remove the tailwheel adjustment bolts and allow both tailwheels to rest at ground level. Align the nearest set of holes in the tailwheel adjustment and reinstall the support bolts.
8. Extend the tractor's top 3-point link so that when lifting the rotary cutter, the front of the deck will raise 2 to 2½" before the tailwheels leave the ground. This will allow the rotary cutter to follow the contour of uneven terrain.

7.6 TIRE AND WHEEL

Laminated sectional tires are designed for conditions where puncture proof performance is required and the rotary cutter will not be transported for long distances on roadways. Transport speed for laminated tires should not exceed 15 MPH. Excessive speed can cause damage to the machine and tire sections.

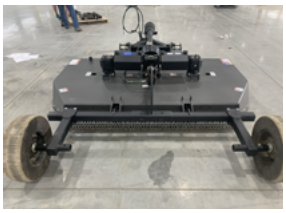
7.7 INITIAL SETUP CHECKLIST

(prior to using for the first time)

Efficient and safe operation of the rotary cutter requires that every user read and understand the operational instructions and all related safety instructions outlined in this manual.

This Initial Setup Checklist is provided for the user/owner. It is important for both personal safety and to maintain the mechanical condition of the rotary cutter that this checklist is followed.

START HERE



01

SAFETY SIGNS

Verify all safety signs are in place and legible. Refer to section "3.3 Safety Sign Locations" in the Safety Signs and Instruction Labels section of the manual.

ROTARY CUTTER IS PROPERLY MOUNTED

Make sure the rotary cutter is properly mounted to the 3-point hitch. Refer to "7.3 Attaching to Tractor" in the Operation section of the manual.

02

03

DRIVELINE

Make sure the driveline is attached to the tractor PTO. Refer to "6.3 Attaching to Tractor" in the Assembly section of the manual.

HARDWARE

Make sure all hardware is properly installed and tightened. Refer to "9.15 Bolt Torque" in the Service and Maintenance section of the manual.

04

05

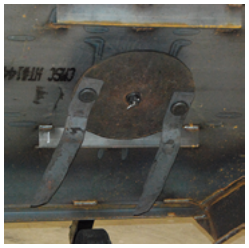
BLADES

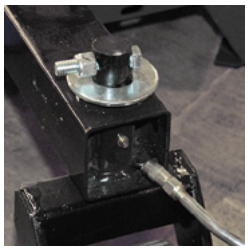
Check that blades are sharp and undamaged. Refer to "9.8 Blade Servicing" in the Service and Maintenance section of the manual.

BLADE CARRIER

06

Make sure the blade carrier nuts and bolts are tight and the cotter pins installed. Refer to "9.9 Blade Carrier Removal" in the Service and Maintenance section of the manual.





ZERKS

07

Lubricate all grease zerks. Refer to "9.2 Greasing" in the Service and Maintenance section of the manual.

DRIVELINE SLIP JOINT

08

Lubricate the driveline slip joint. Refer to "9.3 Driveline Lubrication" in the Service and Maintenance section of the manual.

SAFETY SHIELDS

09

Make sure all safety shields and guards are properly installed. Refer to "6.2 Assembly Procedure" in the Assembly section of the manual.

GEARBOX OIL LEVEL

10

Check the gearbox oil level. Refer to "9.7 Gearbox Lubrication" in the Service and Maintenance section of the manual.

TAILWHEELS

11

Check the tailwheels for damage. Make sure the tailwheel support bolts are tight.

CUTTER HEIGHT

12

Check the cutting height. Adjust if needed. Refer to 7".5 Setting the Cutting Height" in the Operation section of the manual.

7.8 MACHINE BREAK-IN

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

MAINTENANCE TASK	CHECK AFTER OPERATING FOR	
	30 MIN	10 HOUR
Check torque on all fasteners.	✔	
Lubricate all grease fittings.	✔	
Go to the normal servicing and maintenance schedule, as defined in the Maintenance Section.		✔

7.9 PRE-OPERATION CHECKLIST

Efficient and safe operation of the rotary cutter requires that every user read and understand the operational instructions and all related safety instructions outlined in this manual.

This checklist is provided for the user/owner. It is important for both personal safety and to maintain the mechanical condition of the rotary cutter that this checklist is followed.

Before each use of the rotary cutter, the following areas should be checked.

CHECKLIST BEFORE EACH USE	
✔	TASK
	Make sure the rotary cutter is positively attached to the tractor 3-point hitch. Refer to “7.3 Attaching to Tractor” in Operation.
	Use only an appropriately-sized tractor to pull the rotary cutter. Refer to “7.2 Tractor Requirements” in Operation.
	Make sure the driveline is securely attached to the tractor PTO. Refer to “7.3 Attaching to Tractor” in Operation.
	Make sure all safety shields and guards are properly installed.
	Check the blade bolts and blade pan nut. Re-torque hardware as needed. Refer to “9.8 Blade Servicing” and “9.15 Bolt Torque Requirements“ in Service and Maintenance.
	Check the condition of the blades. Refer to “9.8 Blade Servicing” in Service and Maintenance.
	Check the cutting height. Adjust if needed. Refer to “7.5 Setting the Cutting Height” in Operation.
	Inspect the overall rotary cutter for potential problems or damage. Do not use the rotary cutter if it needs repairs of any type.
	Make sure the driveline U-joints, and slip joints are greased. Refer to “9.3 Driveline Lubrication” in Service and Maintenance.

7.10 OPERATION CHECKLIST

Although the rotary cutter is easy to use, each operator should review this section to familiarize themselves with the detailed safety and operating procedures. When using this machine, follow this procedure:

START HERE

01 **CLEAR THE AREA**
of bystanders, especially small children.

CLEAR THE AREA TO BE CUT 02
of stones, branches, debris, and any hard objects that may be thrown.

03 **MARK THE LOCATION**
of objects that cannot be removed.

PRE-OPERATION CHECKLIST 04
Review and follow the Pre-Operation Checklist.

05 **ENGAGE THE PTO**
at low engine RPM, then raise PTO speed to 540 RPM.

BEGIN TO CUT AT A SLOW SPEED, 06
then increase to a speed that gives a clean cut without lugging the engine. Do not operate above 5 MPH.

07 **NEVER**
allow blades to contact solid objects like rocks, posts, wire, curbs, guardrails, or the ground while mowing.

AVOID OPERATING THE ROTARY CUTTER IN REVERSE DIRECTION 08
when possible. Check to make sure there are no persons behind the rotary cutter, and use extreme care when maneuvering in reverse.

7.11 OPERATING SAFETY

WARNING

CRUSH HAZARD

The tractor should be equipped with a Roll Over Protective Structure (ROPS) and a seat belt. A crushing hazard can occur if the driver is ejected from the seat while the tractor is in motion. Fasten the seat belt whenever the tractor is moving.

THROWN OBJECT HAZARD

Cutters can throw objects up to 300 feet. To avoid serious injury or death:

1. Keep all thrown object shielding in place.
2. Inspect area for potential thrown objects before cutting.
3. Do not operate rotary cutter with the deck raised.

THROWN OBJECT HAZARD

For non-agricultural use, OSHA, ASAE, SAE, and ANSI standards require the use of chain guards or other protective guards at all times.

STAY CLEAR

Clear the work area of all unnecessary people and obstructions to prevent personal injury.

CUTTER BLADE CONTACT HAZARD (HAND)

To avoid serious injury or death, keep away from rotating blades. Do not put hands under cutter deck.

CUTTER BLADE CONTACT HAZARD (FOOT)

To avoid serious injury or death, keep away from rotating blades. Do not put feet under rotary cutter deck.

SAFETY INSTRUCTIONS

FIRE HAZARD

Clippings are flammable. To reduce the risk of fire:

1. Do not operate near fires.
2. Keep rotary cutter deck clear of clippings and debris.

FIRE EXTINGUISHER

Carry a fire extinguisher on the tractor at all times.

NEVER OPERATE
the rotary cutter in an area that you have not inspected and removed debris or foreign material.

OPERATE
the rotary cutter only in conditions where you have clear visibility in daylight or with adequate artificial lighting. Never operate the rotary cutter in darkness or foggy conditions where you cannot clearly see at least 300 feet in front and to the sides of the tractor and rotary cutter. Make sure that you can clearly see and identify passersby, steep slopes, ditches, drop-offs, overhead obstructions, power lines, debris, and foreign objects. If you are unable to clearly see these type of items, discontinue operating the cutter.

DO NOT OPERATE
the rotary cutter, or drive the tractor into material that is burning, or areas that recently burnt and may contain hot spots. Burning material, sparks, and coals could be thrown from the rotary cutter to areas of vegetation that might ignite. Tire damage can occur when driving over hot material. Oil and grease on the tractor and rotary cutter could ignite, resulting in equipment destruction. Carry a fire extinguisher on the tractor at all times to extinguish possible fires encountered. Do not operate the rotary cutter on a tractor with an underframe exhaust.

WHEN YOU GET TO THE END
of a pass,slightly raise the rotary cutter (2-4") before turning. Never raise the rotary cutter entirely while the blades are turning. If the rotary cutter must be raised higher than 12" from ground level, disengage the tractor PTO and wait for all blade rotation to come to a complete stop before proceeding to raise the rotary cutter.

LARGE, DENSE, OR WET VEGETATION
may need to be cut in two or more passes to achieve a uniform cut. In such conditions, raise the cutting height to 12" or more on the first pass. Then lower the rotary cutter to the desired height and mow the vegetation a second time. If possible, select a cutting direction that is at a 90 degree angle to the first pass to reduce streaking for a more uniform cut.

STAY ALERT
and watch for trees, low hanging limbs, power lines, and other overhead obstacles and solid ground objects while you are operating. Use care to avoid hitting these items.

Avoid cutting in reverse Instead, disengage the PTO, wait for the blades to stop, and raise the deck. Back up into the area to be cut. Lower the deck, engage the PTO, and cut forward.

7.12 CHAIN SHIELDING

Installing full chain shielding is recommended on all rotary cutters.

Full chain shielding must be installed when operating in populated areas or other areas where thrown objects could injure people or damage property.

If the rotary cutter is not equipped with full chain shielding, operation must be stopped when anyone comes within 300 feet.

The shielding is designed to reduce the risk of thrown objects. The rotary cutter deck and protective devices cannot prevent all objects from escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet.

Inspect chain shielding each day of operation and replace any broken or missing chains, as required.

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7.13 RIGHT OF WAY (ROADWAY) MOWING

Use double chain guards for highway, right-of-way, parks, greenbelt mowing, or all other mowing where human dwellings, vehicles, or livestock could be within 300 feet of the cutter.

NO SHIELDING IS 100% EFFECTIVE IN PREVENTING THROWN OBJECTS. TO REDUCE THE POSSIBILITY OF INJURY:

1. Maintain rotary cutter shielding in good operational condition.

2. Inspect the condition of the thrown object guards, cutter side skirts, and skid shoes daily: Replace or repair worn or damaged guards.

3. Inspect the condition of the blades and blade bolts daily. Replace any cracked, worn, bent or damaged blades. Always replace blade bolts and lockwashers when replacing blades. Make sure the blade bolts are properly tightened.

4. Raise cutting height to 6" minimum.

5. Never allow blades to contact solid objects like rocks, posts, wire, curbs, guardrails, or the ground while mowing.

ROTARY CUTTERS CAN THROW OBJECTS 300 FEET OR MORE UNDER ADVERSE CONDITIONS.

To avoid serious injury or death from thrown objects, inspect the area thoroughly for potential thrown objects and remove them before cutting.

Remove debris, rocks, wire, cable, metal objects, and other foreign material from area.

Wire, cable, rope, chains, and metal objects can be thrown or swung outside the deck with great velocity.

Mark the location of objects that cannot be removed.

STOP MOWING IF PASSERSBY ARE WITHIN 300 FEET UNLESS:

1. All thrown object shielding including front and rear deflectors, chain guards, steel guards, bands, side skirts, and skid shoes are in place and in good condition when mowing.

2. Mower sections or wings are adjusted to be close and parallel to ground without exposing blades.

3. Mowing area has been inspected and foreign materials and debris have been removed.

4. Passersby are inside an enclosed vehicle.

OPERATION
Pull Type

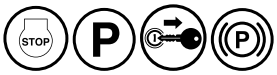
7.14 USER SAFETY TRAINING

Refer to “General Safety” for user Safety Training Requirements.

WARNING

ROLL AWAY HAZARD

Before leaving the tractor seat, make sure the engine is stopped, the transmission is placed in park, the key is removed, and the parking brake is set.



The weight of the tractor, plus the rotary cutter if it rolls onto a person, could cause serious crushing injury or death.

CRUSH HAZARD

The tractor should be equipped with a Roll Over Protective Structure (ROPS) and a seat belt. A crushing hazard could occur if the driver is ejected from the seat while the tractor is in motion. Fasten the seat belt whenever the tractor is moving.

The rotary cutter is top heavy when the wings are raised. To avoid injury or death from rollover, use caution when transporting over uneven surfaces and slow down for turns.

CRUSH HAZARD

Hydraulic or mechanical failure can allow a wing to drop suddenly without warning. Do not allow anyone to walk under or stand near a raised wing when the wing locks are removed.

THROWN OBJECT HAZARD

Cutters can throw objects up to 300 feet. To avoid serious injury or death: 1) Keep all thrown object shielding in place. 2) Inspect area for potential thrown objects before cutting. 3) Do not operate rotary cutter with the deck raised. For non-agricultural use, OSHA, ASAE, SAE, and ANSI standards require the use of chain shields or other protective guards at all times. Do not remove the chain shields.

STAY CLEAR

Clear the work area of all un-necessary people and obstructions to prevent personal injury. Other protective guards at all times.

CUTTER BLADE CONTACT HAZARD (HAND)

To avoid serious injury or death, keep away from rotating blades. Do not put hands under cutter deck.

CUTTER BLADE CONTACT HAZARD (FOOT)

To avoid serious injury or death, keep away from rotating blades. Do not put feet under rotary cutter deck.

ENTANGLEMENT HAZARD

Operating the rotary cutter without the driveline shields could result in physical injury or death from entanglement. Make sure all shields are properly installed before operating the rotary cutter. This equipment should never be operated with any safety shielding removed.

SAFETY INSTRUCTIONS

The following safety instructions are provided to help prevent injury or limit equipment damage.

TRAIN UNFAMILIAR USERS

It is the rotary cutter owner's responsibility to make sure any person using the rotary cutter, especially if it is loaned or rented, has been thoroughly trained on its proper and safe use.

Review instructions annually with existing users.

Be certain only physically-able persons will use the rotary cutter.

Users who have not read and understood all operating and safety instructions are not qualified to use the rotary cutter.

Untrained users expose themselves and bystanders to possible serious injury or death.

If the elderly are assisting with the work, their physical limitations need to be recognized and accommodated.

Never allow children to operate equipment.

SAFETY INSTRUCTIONS

FIRE HAZARD

Clippings are flammable. To reduce the risk of fire:

1. Do not operate near fires.
2. Keep rotary cutter deck clear of clippings and debris.

FIRE EXTINGUISHER

Carry a fire extinguisher on the tractor at all times.

Pull Type

7.15 PULL TYPE TRACTOR REQUIREMENTS

WARNING

Always refer to the tractor owner's manual to ensure compatibility and maximum safety.

The tractor used to operate the cutter must have the power to lift, pull, and operate the Power Take Off (PTO) at the cutter's rated speed while traveling at a ground speed between 2 and 5 MPH.

The tractor must be matched to the weight of the rotary cutter. A minimum of 20% of the combined tractor and equipment weight should be on the front wheels. This will ensure adequate stability during transport and operation.

Operating the cutter with a tractor that does not meet the following requirements may cause tractor or cutter damage and be a potential danger to the operator and passersby.

Always review the "controls" section of the tractor operator's manual to be familiar with the location, settings, and function of the tractor controls. Be familiar with all controls before using this equipment.

TRACTOR EQUIPMENT AND CAPABILITIES

REQUIREMENTS
Approved Roll-Over Protective Structure (ROPS) or ROPS cab and seat belt.
Tractor Safety Devices; Slow Moving Vehicle (SMV) emblem, lighting, PTO master shield
3-Point Hitch, CAT II/QH (Lift type)
Front End Weight as needed to maintain 20% weight on front axle.
To reduce the risk of grass fires, do not operate the cutter on a tractor with an underframe exhaust.

TRACTOR SAFETY DEVICES

If transporting or operating the tractor and implement near a public roadway, the tractor must be equipped with proper warning lighting and a Slow Moving Vehicle (SMV) emblem that are clearly visible from the rear of the unit. Lights and a SMV emblem must be attached directly to the implement if the visibility of the tractor warning signals are obscured.

Maintain all manufacturer equipped safety shields and guards. Always replace shields and guards that were removed for access to connect, service, or repair the tractor or implement. Never operate the tractor PTO with the PTO master shield missing or in the raised position.

ROPS AND SEAT BELT

WARNING

ROLLOVER HAZARD

To avoid serious injury or death from falling off tractor, equipmen runover, rollover, or crushing:

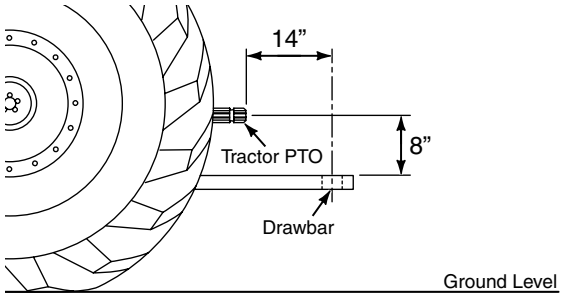
1. Use ROPS equipped tractor.
2. Keep ROPS locked in the UP position.
3. Only operate the equipment when seated in the tractor seat.
4. Always fasten seat belt when operating the tractor and rotary cutter.

The tractor must be equipped with a Roll Over Protective Structure (ROPS) (tractor cab or roll bar) and seat belt to protect the operator from falling off the tractor, especially during a roll-over where the driver could be crushed and killed. Only operate the tractor with the ROPS in the raised position and seat belt fastened.

Tractor models not equipped with a ROPS and seat belt should have these life saving features installed by an authorized dealer.

DRAWBAR (PULL TYPE)

The distance between the drawbar hitch pin hole and the end of tractor PTO shaft must be 14". The distance from the top of the drawbar to the PTO shaft must be 8". PTO damage may occur if these dimensions vary more than 1".



TRACTOR HORSEPOWER

The power required to operate the cutter is determined by the tractor PTO horsepower. Operating the cutter with a tractor that does not have adequate power may damage the tractor engine. Exceeding recommended HP may cause rotary cutter damage by overpowering the unit in heavy cutting conditions.

MODEL	DESCRIPTION	RECOMMENDED MIN HP
2408P	Pull Type	42
2410P	Pull Type	52

POWER TAKE-OFF (PTO)

This rotary cutter is designed to operate at a PTO speed of 540 RPM or 1000 RPM. Most tractors operate at either 540 or a combination of 540 and 1000 RPM PTO speeds. The operating speed of the rotary cutter and tractor can be determined by the number of splines on the driveline yoke and PTO output shaft. Those operating at 540 RPM will have a 6-pline shaft, and those operating at 1000 RPM will have a 20-plin shaft or 21-spline shaft.

Refer to the tractor owner's manual for instructions to change PTO speeds on models that operate at more than one speed.

If operating an older model tractor where the tractor's transmission and PTO utilize one master clutch, an over-running clutch must be used between the PTO output shaft and the driveline of the rotary cutter. An authorized tractor dealer can provide the over-running clutch and its installation, if needed.

DO NOT use a PTO adapter to attach a non-matching implement driveline to a tractor PTO. Use of an adapter can double the operating speed of the implement, resulting in excessive vibration, thrown objects, and blade and implement failure. Adapter use will also change the working length of the driveline exposing unshielded driveline areas. Serious bodily injury and/or equipment failure can result from using a PTO adapter. Consult an authorized dealer for assistance if the implement driveline does not match the Tractor PTO.

7.16 ATTACHING TO TRACTOR

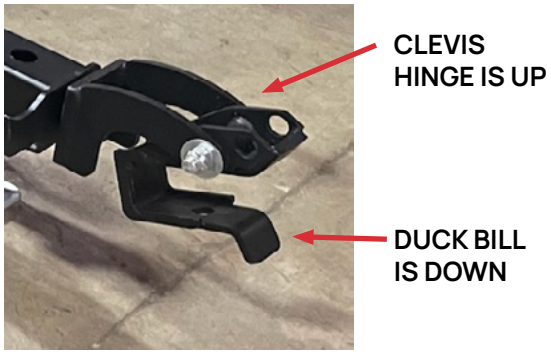
Use caution when connecting the rotary cutter to the tractor. The rotary cutter should be securely resting at ground level or setting on blocks. Keep hands and feet from under the deck and clear of pinch points between the tractor drawbar and rotary cutter hitch.

WARNING

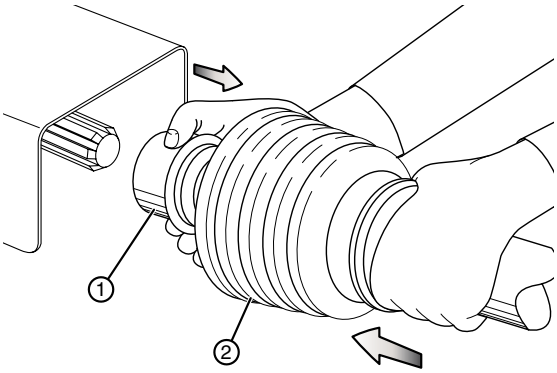
CRUSH HAZARD

Crush hazard between hitch and implement. Do not allow anyone to stand between the hitch and implement during hook-up operations.

1. Use the jack to adjust the hitch to the height of the tractor drawbar.
2. Board the tractor and start the engine. Back the tractor up to the cutter hitch until the holes in the drawbar and clevis are aligned.
3. Turn off the tractor engine and dismount.
4. Insert a 3/4" or larger high strength drawbar pin through the clevis and drawbar holes and install retaining pin. Do not use a home made or shop made pin.
5. See diagram for correct hitch clevis orientation



6. Retract the jack, remove the locking pin, move the jack to its storage location on the cutter deck, and secure it with the locking pin.
7. Pull back on collar (1) on the tractor end of the driveline.
8. Push the driveline onto the tractor PTO shaft until the collar snaps forward.
9. Pull back on driveline guard (2) to check that the driveline is latched. Do not pull back on the collar, as this will release the driveline.



10. Attach the safety chain on the driveline guard to the tractor.
11. Inspect the hydraulic hoses to ensure they are in good condition and clean the fittings. Route the hydraulic hoses through the hose rack and attach to the tractor's hydraulic ports. Make sure the hoses are adequately supported so they cannot come in contact with other parts or the ground.
12. Make sure the driveline has adequate clearance through the full range of cutter height adjustment. Adjust tractor drawbar height and/or length if there is interference. See "Tractor Requirements, Drawbar section" in Operation for correct drawbar dimensions.
13. Raise and lower the deck several times to purge any trapped air from the hydraulic cylinder.

7.17 DETACHING FROM TRACTOR

1. Move the rotary cutter to a level storage location and lower it to the ground or onto blocks. Park the tractor, place the transmission in park or neutral, and apply the parking brake. Shut down the engine, remove the key, and wait for all motion to come to a complete stop before exiting the tractor. Before disconnecting the rotary cutter, the PTO must be disengaged and blade rotation at a complete stop.
2. Make sure the rotary cutter is resting securely on the ground or blocks, and the wheels are chocked before attempting to disconnect it from the tractor. Use extreme care to keep feet and hands from under the rotary cutter and clear of any pinch points caused by the tractor drawbar and rotary cutter hitch.
3. Remove the jack from cutter deck and secure it to the hitch by fully inserting the locking pin through the jack and the hitch bracket.
4. Disconnect the hydraulic hoses from the tractor. Store the hoses on the cutter deck.

CAUTION

EXPLOSIVE SEPARATION HAZARD

Be sure all hydraulic pressure is relieved before disconnecting hydraulic line or fittings between the Rotary Cutter and the tractor hydraulic system.

---

5. Disconnect the driveline safety chain and hitch safety chains.
6. Pull back on the collar on the tractor end of the driveline and disconnect the driveline from the tractor PTO shaft.
7. Use the jack to raise the cutter hitch to the height needed to disconnect the clevis from the drawbar.
8. Remove the hitch pin.

7.18 SETTING THE ROTARY CUTTER

Properly setting the rotary cutter is essential for efficient and safe operation. A properly set rotary cutter will make a more uniform cut, distribute clippings more evenly, require minimal tractor work, and follow the contour of uneven terrain. The two adjustments to make before cutting are:

- Leveling front to back
- Cutting height

NOTICE

Avoid very low cutting heights. Striking the ground with the blades causes damaging shock loads and will cause damage to the rotary cutter and drive. Blades contacting the ground may cause objects to be thrown out from under the cutter deck. Always avoid operating the rotary cutter at a height which causes the blades to contact the ground.

LEVELING FRONT TO BACK

1. Locate the tractor and cutter on a flat, level surface and use the hydraulics to adjust the cutter height until the front of the skid shoes are 2 to 3 inches off the ground.

2. Loosen the jam nuts on both leveling rods and rotate the adjuster nuts equally with the use of an adjustable wrench until the back of the cutter deck is approximately 3/4" higher than the front. Lengthening the leveling rods raises the back of the cutter.

a. Operating the rotary cutter at this pitch will allow the rotary cutter to cut the grass only once and requires less work from the tractor.

b. To increase mulching of the grass or crop material during rotary cutter operation, the rotary cutter should be operated with the deck approximately 3/4" higher in the front than the rear. Operating the rotary cutter at this pitch will allow the rotary cutter to cut the grass twice and can result in a more even cut and improved distribution of the cut material.

3. Make sure that the right and left leveling rods are equally tight and then tighten the jam nuts.

SETTING THE CUTTING HEIGHT

1. The rotary cutter should be operated at the highest position which will give desired cutting results. This will help prevent the blades from striking the ground, increasing blade life, and reducing stress on the rotary cutter and tractor.

2. Park the tractor and rotary cutter on level ground.

3. Using the tractor hydraulic cylinder control lever, position the front of the rotary cutter with the side skids 1" lower than the desired cut height. For example, for a 3" cut, position the skids 2" from the ground. Set the control lever stop at this position to maintain this height when raising and lowering the cutter.

7.19 TIRE AND WHEEL

Laminated sectional tires are designed for conditions where puncture proof performance is required and the rotary cutter will not be transported for long distances on roadways. Transport speed for laminated tires should not exceed 15 MPH. Excessive speed can cause damage to the machine and tire sections.

7.20 INITIAL SETUP CHECKLIST

(prior to using for the first time)

Efficient and safe operation of the rotary cutter requires that every user read and understand the operational instructions and all related safety instructions outlined in this manual.

This Initial Setup Checklist is provided for the user/owner. It is important for both personal safety and to maintain the mechanical condition of the rotary cutter that this checklist is followed.

Pull Type

START HERE

01

SAFETY SIGNS

Verify all safety signs are in place and legible. Refer to "3.3 Safety Sign Locations" in the Safety Signs and Instruction Labels section of the manual.

ROTARY CUTTER IS PROPERLY ATTACHED

Make sure the rotary cutter is properly attached to the drawbar. Refer to "7.16 Attaching to Tractor" in the Operation section of the manual.

02

03

DRIVELINE

Make sure the driveline is attached to the tractor PTO, and safety chains are installed. Refer to "6.7 Installation and Removal of Driveline to Tractor PTO" in the Assembly section of the manual.

HARDWARE

Make sure all hardware is properly installed and tightened. Refer to "9.15 Bolt Torque" in the Service and Maintenance section of the manual.

04

05

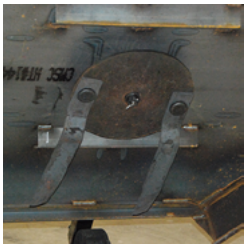
BLADES

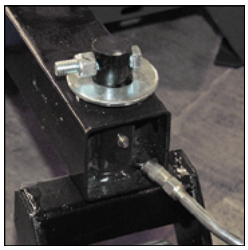
Check that blades are sharp and undamaged. Refer to 9.8 "Blade Servicing" in the Service and Maintenance section of the manual. Check blade hardware for looseness and tighten as necessary.

BLADE CARRIER

06

Make sure the blade carrier nuts and bolts are tight and the cotter pins installed. Refer to 9.9 “Blade Carrier Removal” in the Service and Maintenance section of the manual.





ZERKS

07

Lubricate all grease zerks. Refer to “9.5 Greasing” in the Service and Maintenance section of the manual.

DRIVELINE SLIP JOINT

08

Lubricate the driveline slip joint. Refer to “9.6 Greasing” in the Service and Maintenance section of the manual.

SAFETY SHIELDS

09

Make sure all safety shields and guards are properly installed. Refer to “6.6 Assembly Procedure” in the Assembly section of the manual.

GEARBOX OIL LEVEL

10

Check the gearbox oil level. Refer to 9.7 “Gearbox Lubrication” in the Service and Maintenance section of the manual.

TAILWHEELS

11

Check the tailwheels for damage. Make sure the tailwheel support bolts are tight.

CUTTER HEIGHT

12

Check the cutting height. Adjust if needed. Refer to “7.18 Setting the Cutting Height" in the Operation section of the manual.

7.21 MACHINE BREAK-IN

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

MAINTENANCE TASK	CHECK AFTER OPERATING FOR	
	30 MIN	10 HOUR
Re-torque hardware as needed.	✔	
Lubricate all grease fittings. Check oil level in gearboxes.	✔	
Go to the normal servicing and maintenance schedule, as defined in the Maintenance Section.		✔

7.22 PRE-OPERATION CHECKLIST

Before each use of the rotary cutter, the following areas should be checked.

CHECKLIST BEFORE EACH USE	
✔	TASK
	Make sure the rotary cutter is positively attached to the tractor drawbar. Refer to "7.16 Attaching to Tractor" in Operation.
	Make sure the hydraulic hoses are undamaged, are secured on the hose rack, and cannot contact the tractor when turning, or drag on the ground.
	Use only an appropriately-sized tractor to pull the rotary cutter. Refer to "7.15 Tractor Requirements" in Operation.
	Make sure the driveline is attached to the tractor PTO. Refer to "6.7 Installation and Removal of Driveline to Tractor PTO" in Assembly.
	Make sure all safety shields and guards are properly installed.
	Check the blade bolts and blade pan nut. Re-torque hardware as needed. Refer to "9.8 Blade Servicing" and "9.15 Bolt Torque Requirements" in Service and Maintenance.
	Check the condition of the blades. Refer to "9.8 Blade Servicing" in Service and Maintenance.
	Check the cutting height. Adjust if needed. Refer to "7.18 Setting the Cutting Height" in Operation.
	Inspect the overall rotary cutter for potential problems or damage. Do not use the rotary cutter if it needs repairs of any type.
	Make sure the driveline U-joints, and slip joints are greased. Refer to "9.6 Driveline Lubrication" in Service and Maintenance.
	Checking gear oil levels in gearboxes.
	Check all hardware for looseness and retighten as necessary.

7.23 OPERATION CHECKLIST

Although the rotary cutter is easy to use, each operator should review this section to familiarize themselves with the detailed safety and operating procedures. When using this machine, follow this procedure:

START HERE

01 **CLEAR THE AREA**
of bystanders, especially small children.

CLEAR THE AREA TO BE CUT 02
of stones, branches, debris, and any hard objects that may be thrown.

03 **MARK THE LOCATION**
of objects that cannot be removed.

PRE-OPERATION CHECKLIST 04
Review and follow the Pre-Operation Checklist.

05 **ENGAGE THE PTO**
at low engine RPM, then raise PTO speed to 540 RPM.

BEGIN TO CUT AT A SLOW SPEED, 06
then increase to a speed that gives a clean cut without lugging the engine. Do not operate above 5 MPH.

07 **NEVER**
allow blades to contact solid objects like rocks, posts, wire, curbs, guardrails, or the ground while mowing.

AVOID OPERATING THE ROTARY CUTTER IN REVERSE DIRECTION 08
when possible. Check to make sure there are no persons behind the rotary cutter, and use extreme care when maneuvering in reverse.

7.24 OPERATING SAFETY

WARNING

CRUSH HAZARD

The tractor should be equipped with a Roll Over Protective Structure (ROPS) and a seat belt. A crushing hazard can occur if the driver is ejected from the seat while the tractor is in motion. Fasten the seat belt whenever the tractor is moving.

THROWN OBJECT HAZARD

Cutters can throw objects up to 300 feet. To avoid serious injury or death:

1. Keep all thrown object shielding in place.
2. Inspect area for potential thrown objects before cutting.
3. Do not operate rotary cutter with the deck raised.

THROWN OBJECT HAZARD

For non-agricultural use, OSHA, ASAE, SAE, and ANSI standards require the use of chain guards or other protective guards at all times.

STAY CLEAR

Clear the work area of all unnecessary people and obstructions to prevent personal injury.

CUTTER BLADE CONTACT HAZARD (HAND)

To avoid serious injury or death, keep away from rotating blades. Do not put hands under cutter deck.

CUTTER BLADE CONTACT HAZARD (FOOT)

To avoid serious injury or death, keep away from rotating blades. Do not put feet under rotary cutter deck.

SAFETY INSTRUCTIONS

FIRE HAZARD

Clippings are flammable. To reduce the risk of fire:

1. Do not operate near fires.
2. Keep rotary cutter deck clear of clippings and debris.

FIRE EXTINGUISHER

Carry a fire extinguisher on the tractor at all times.

NEVER OPERATE
the rotary cutter in an area that you have not inspected and removed debris or foreign material.

OPERATE
the rotary cutter only in conditions where you have clear visibility in daylight or with adequate artificial lighting. Never operate the rotary cutter in darkness or foggy conditions where you cannot clearly see at least 300 feet in front and to the sides of the tractor and rotary cutter. Make sure that you can clearly see and identify passersby, steep slopes, ditches, drop-offs, overhead obstructions, power lines, debris, and foreign objects. If you are unable to clearly see these type of items, discontinue operating the cutter.

DO NOT OPERATE
the rotary cutter, or drive the tractor into material that is burning, or areas that recently burnt and may contain hot spots. Burning material, sparks, and coals could be thrown from the rotary cutter to areas of vegetation that might ignite. Tire damage can occur when driving over hot material. Oil and grease on the tractor and rotary cutter could ignite, resulting in equipment destruction. Carry a fire extinguisher on the tractor at all times to extinguish possible fires encountered. Do not operate the rotary cutter on a tractor with an underframe exhaust.

WHEN YOU GET TO THE END
of a pass,slightly raise the rotary cutter (2-4") before turning. Never raise the rotary cutter entirely while the blades are turning. If the rotary cutter must be raised higher than 12" from ground level, disengage the tractor PTO and wait for all blade rotation to come to a complete stop before proceeding to raise the rotary cutter.

DO NOT OPERATE
a pull-type cutter at an angle exceeding 25 degrees up or down or at any angle that will force the driveline to bind and/or hit the tractor drawbar.

LARGE, DENSE, OR WET VEGETATION
may need to be cut in two or more passes to achieve a uniform cut. In such conditions, raise the cutting height to 12" or more on the first pass. Then lower the rotary cutter to the desired height and mow the vegetation a second time. If possible, select a cutting direction that is at a 90 degree angle to the first pass to reduce streaking for a more uniform cut.

STAY ALERT
and watch for trees, low hanging limbs, power lines, and other overhead obstacles and solid ground objects while you are operating. Use care to avoid hitting these items.

Avoid cutting in reverse. Instead, disengage the PTO, wait for the blades to stop, and raise the deck. Back up into the area to be cut. Lower the deck, engage the PTO, and cut forward. Do not back the rotary cutter into solid objects. The joint where the hitch attaches to the deck will pivot upward, allowing the front edge of the deck to contact the driveline.

WHEN TURNING
the angle between the tractor and rotary cutter must not exceed 80°. This extreme angle is intended for intermittent use only. Plan your cutting to minimize extreme turning angles. Sharp turns can cause premature failure of the joints and put pressure on the tractor PTO shaft, and could cause extensive mechanical damage to the rotary cutter and tractor.

ALWAYS
cross steep ditches and banks at a diagonal. Never cross straight across and never back into a steep ditch or bank. Cutting over ditches and backing up hills can “Bottom Out” the driveline. Bottoming out is when the driveline shaft has shortened to the point it is pressing against the gearbox and tractor PTO shafts. Once a driveline has bottomed out, it can not be shortened anymore without causing serious damage to the tractor PTO components, cutter gearbox and driveline.

7.25 CHAIN SHIELDING

Installing full chain shielding is recommended on all rotary cutters. Refer to “Chain Shielding” in Parts.

The shielding is designed to reduce the risk of thrown objects. The rotary cutter deck and protective devices cannot prevent all objects from escaping the blade enclosure in every mowing condition. It is possible for objects to ricochet and escape, traveling as much as 300 feet.

1. Full chain shielding must be installed when operating in populated areas or other areas where thrown objects could injure people or damage property.
2. If the rotary cutter is not equipped with full chain shielding, operation must be stopped when anyone comes within 300 feet.
3. Inspect chain shielding each day of operation and replace any broken or missing chains, as required.

7.26 RIGHT OF WAY (ROADWAY) MOWING

Use double chain guards for highway, right-of-way, parks, greenbelt mowing, or all other mowing where human dwellings, vehicles, or livestock could be within 300 feet of the cutter.

NO SHIELDING IS 100% EFFECTIVE IN PREVENTING THROWN OBJECTS. TO REDUCE THE POSSIBILITY OF INJURY:

1. Maintain rotary cutter shielding in good operational condition.
2. Inspect the condition of the thrown object guards, cutter side skirts, and skid shoes daily: Replace or repair worn or damaged guards.
3. Inspect the condition of the blades and blade bolts daily. Replace any cracked, worn, bent or damaged blades. Always replace blade bolts and lock washers when replacing blades. Make sure the blade bolts are properly tightened.
4. Raise cutting height to 6" minimum.
5. Never allow blades to contact solid objects like rocks, posts, wire, curbs, guardrails, or the ground while mowing.

ROTARY CUTTERS CAN THROW OBJECTS 300 FEET OR MORE UNDER ADVERSE CONDITIONS.

1. To avoid serious injury or death from thrown objects, inspect the area thoroughly for potential thrown objects and remove them before cutting.
2. Remove debris, rocks, wire, cable, metal objects, and other foreign material from area.
3. Wire, cable, rope, chains, and metal objects can be thrown or swung outside the deck with great velocity.
4. Mark the location of objects that cannot be removed.

STOP MOWING IF PASSERSBY ARE WITHIN 300 FEET UNLESS:

1. All thrown object shielding including front and rear deflectors, chain guards, steel guards, bands, side skirts, and skid shoes are in place and in good condition when mowing.
2. Mower sections or wings are adjusted to be close and parallel to ground without exposing blades.
3. Mowing area has been inspected and foreign materials and debris have been removed.
4. Passersby are inside an enclosed vehicle.

TRANSPORTING

7.1 TRANSPORTING SAFETY (ROAD)

WARNING

Failure to understand and follow these safety instructions could result in serious injury and possibly even death.

TRACTOR OWNER/ OPERATOR MANUAL

Always refer to the tractor owner's manual to determine its compatibility and maximum safety.

OPERATING THE TRACTOR

Before attaching the rotary cutter to the tractor, be familiar with its controls and how to stop it quickly in the event of an emergency. Read and understand this manual and the one provided with your tractor before transporting the rotary cutter.

FALL AND CRUSH HAZARD

Do not allow riders on the rotary cutter or tractor.

MAXIMUM TRANSPORTING SPEED

Do not exceed 15 MPH (PULL) or 20MH (LIFT) when transporting the rotary cutter. Slow down for corners and rough terrain.

VISIBILITY

Clean reflectors, SMV or SIS sign, and tractor tail lights before towing. Make sure all the lights and reflectors required by highway and transport authorities are in place and can be seen clearly by all overtaking and oncoming traffic.

REGULATIONS

Make sure all local, state, and federal regulations regarding the transport of equipment on public roads and highways are met. Check with the local authorities regarding transporting the rotary cutter on public roads. Obey all applicable laws and regulations.

ROLLOVER PROTECTION

The tractor should be equipped with a Roll Over Protective Structure (ROPS) and a seat belt.

The cutter is top heavy when the wings are folded. Use caution when transporting over uneven surfaces and slow down for turns.

NOTICE

Laminated sectional tires are designed for conditions where puncture-proof performance is required and the rotary cutter will not be transported for long distances on roadways. Transport speed for laminated tires should not exceed 15 MPH. Excessive speed can cause damage to the machine and tire sections.

SAFETY INSTRUCTIONS

The following safety instructions are provided to help prevent injury or limit equipment damage.

DRIVE SAFELY
Be a safe and courteous driver. Anticipate what other drivers will do and drive accordingly.

ALLOW EXTRA DISTANCE
Apply brakes early. Leave extra distance between your vehicle and the one(s) ahead to provide adequate stopping space. Extra distance will be required to stop the vehicle.

CLEAR VISION
Remove all objects from the area that would prevent clear vision of the complete work area or would present an obstacle when moving the rotary cutter.

HITCH ATTACHMENT
Be sure the rotary cutter is securely attached to the tractor and in good operating condition before using.

WORKING TAILLIGHTS
Make sure lights on the tractor are working properly.

ADDITIONAL LIGHTING
For rotary cutters without lights, install additional lights on the rear of the tractor to safeguard against rear-end collisions. Daybreak and dusk are particularly dangerous and rear pilot vehicles are recommended. Rotary cutters without lights should be transported on public roads only during daylight hours.

HAZARD FLASHERS
Use hazard flashers on the tractor when transporting unless prohibited by law.

RIGHT-OF-WAY
When travelling below the posted speed limit, keep to the right and yield the right-of-way to allow faster traffic to pass.

1. Before transporting, make sure the PTO is disengaged and all blade movement has stopped.
2. Do not travel faster than 20 mph when transporting. Only transport using a tractor. Always slow down for rough terrain and when cornering.

STORAGE

8.1 STORAGE SAFETY

At the end of the season, the rotary cutter should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary downtime at the beginning of the next season.

CAUTION

PERSONAL INJURY HAZARD
Store the rotary cutter in an area away from human activity. To prevent the possibility of serious injury, do not permit children to play on or around the stored rotary cutter.

CRUSH HAZARD
Always set the rotary cutter on safety stands or on blocks for storage.

NOTICE

To prevent damage to the rotary cutter, store it in a dry, level area.

8.2 PLACING LIFT TYPE IN STORAGE

1. Remove all entangled vegetation.
2. Thoroughly wash the rotary cutter with a pressure washer or water hose to remove all clippings, dirt, mud, or debris.
3. Select an area that is dry, level, and free of debris (inside a building is ideal). Move the rotary cutter to its storage area.
4. Raise the rotary cutter with the 3-point hitch and place blocks under the side skirts. Lower the rotary cutter onto the blocks.
5. Disconnect the cutter drive line and secure it up off the ground.
6. Disconnect the rotary cutter from the 3-point hitch and drive the tractor away from the rotary cutter. Do not leave the tractor attached to the rotary cutter.
7. Lubricate all grease points. Make sure all grease cavities have been filled with grease to remove any water residue from washing.
8. Touch up all paint nicks and scratches to prevent rusting.

8.3 REMOVING LIFT TYPE FROM STORAGE

When removing the rotary cutter from storage, follow this procedure:

1. Attach the rotary cutter to the tractor 3-point hitch.
2. Raise the rotary cutter up off the blocks.
3. Before placing the rotary cutter back into service, replace any worn or defective parts and perform the Pre-Operation Checklist.
4. Before placing the rotary cutter back into service, replace any worn or defective parts and perform the Pre-Operation Checklist. Checking slip clutch for seizure after prolonged storage, as there can always be the risk of clutch seizure after storage of extended periods of time and slipclutch will need to be check for proper slippage by loosening spring tension bolts a 1/2 turn and running cutter for a few seconds cutting brush to make clutch slip and once slippage has occured retighten the tension bolt nuts back the 1/2 turn to the original factory setting.

8.4 PLACING PULL TYPE IN STORAGE

1. Remove all entangled vegetation. Thoroughly wash the rotary cutter with a pressure washer or water hose to remove all clippings, dirt, mud, or debris.
2. Select an area that is dry, level, and free of debris (inside a building is ideal). Move the rotary cutter to its storage area.
3. Raise the rotary cutter with the tractor hydraulics and place blocks under the side skirts. Lower the rotary cutter onto the blocks.
4. Remove the jack from the cutter deck and secure it to the hitch by fully inserting the locking pin through the jack and the hitch bracket.
5. Disconnect the hydraulic hoses from the tractor. Store the hoses on the cutter deck.
6. Disconnect the driveline safety chain and hitch safety chains.
7. Disconnect the cutter drive line and secure it up off the ground.
8. Use the jack to raise the cutter hitch to the height needed to disconnect the clevis from the drawbar.
9. Remove the hitch pin and drive the tractor away from the rotary cutter. Do not leave the tractor attached to the rotary cutter.
10. Lubricate all grease points. Make sure all grease cavities have been filled with grease to remove any water residue from washing.
11. Touch up all paint nicks and scratches to prevent rusting.

8.5 REMOVING PULL TYPE FROM STORAGE

When removing the rotary cutter from storage, follow this procedure:

1. Attach the rotary cutter to the tractor drawbar.
2. Retract the jack, remove the locking pin, move the jack to its storage location on the cutter deck, and secure it with the locking pin.
3. Attach the hydraulic hoses to the tractor's hydraulic system. Make sure the hoses are adequately supported so they cannot come in contact with other parts or the ground.
4. Raise the rotary cutter up off the blocks.
5. Before placing the rotary cutter back into service, replace any worn or defective parts and perform the Pre-Operation Checklist. Checking slip clutch for seizure after prolonged storage, as there can always be the risk of clutch seizure after storage of extended periods of time and slipclutch will need to be check for proper slippage by loosening spring tension bolts a 1/2 turn and running cutter for a few seconds cutting brush to make clutch slip and once slippage has occured retighten the tension bolt nuts back the 1/2 turn to the original factory setting.

SERVICE AND MAINTENANCE

Lift Type

9.1 MAINTENANCE SAFETY

At the end of the season, the rotary cutter should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary downtime at the beginning of the next season.

WARNING

Failure to understand and follow these safety instructions could result in serious injury and possibly even death.

PERSONAL PROTECTION EQUIPMENT

Wear close fitting and belted clothing to avoid getting caught in moving parts. Wear personal protection equipment (PPE), which may include hard hat, safety glasses, safety shoes, gloves, etc., appropriate for the work site and working conditions.

DISCONNECT DRIVELINE

To prevent injury due to possible unexpected movement, disconnect the driveline from the tractor PTO before performing any maintenance procedure.

DAMAGED PARTS HAZARD

Do not use the rotary cutter if any parts are damaged. If the rotary cutter is believed to have a defect which could cause it to work improperly, immediately stop using it and remedy the problem before continuing.

SAFETY SHIELDS AND DEVICES

When completing a maintenance or service function, make sure all safety shields and devices are installed before placing the rotary cutter in service.

NO UNAUTHORIZED MODIFICATIONS

Do not modify the rotary cutter or safety devices. Do not weld on the unit. Unauthorized modifications may impair its function and safety and will void the warranty.

If the rotary cutter has been altered in any way from the original design, the manufacturer does not accept any liability for injury or warranty.

CRUSH HAZARD

Always set the rotary cutter on safety stands or on the ground and chock the wheels when performing maintenance.

GOOD WORKING CONDITION

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts.

REPLACEMENT PARTS

If replacement parts are necessary, genuine factory replacement parts must be used to restore the unit to its original specifications.

Unapproved parts could create a safety hazard. The manufacturer will not accept responsibility for damages as a result of the use of unapproved parts.

SAFETY INSTRUCTIONS

The following safety instructions are provided to help prevent injury or limit equipment damage.

SAFETY EQUIPMENT

A fire extinguisher and first aid kit should be readily accessible while performing maintenance on this equipment.

CLEAN WORK AREA

Do not leave tools lying around the work area. Follow good shop practices. Keep the service area clean and dry. Be sure electrical outlets and tools are properly grounded. Use adequate light.

USE THE RIGHT TOOLS

Use the correct tools, jacks, hoists, or other tools that have the capacity for the job.

PROPER SUPPORT

Use certified safety stands rated to support the load when working beneath the rotary cutter or performing repairs, service, or maintenance.

Before working underneath the rotary cutter, place it on a minimum of four jack stands, with a load rating of at least 1000 lbs. each.

Do not position the jack stands under wheels, axles, or wheel supports, as they may rotate and cause the rotary cutter to fall.

Make sure the jack stands are stable and the rotary cutter deck is approximately level. Test the stability of the rotary cutter before working underneath.

If the rotary cutter is attached to the tractor, set the brakes, remove the key, chock the tractor wheels, and block the rotary cutter before working underneath.

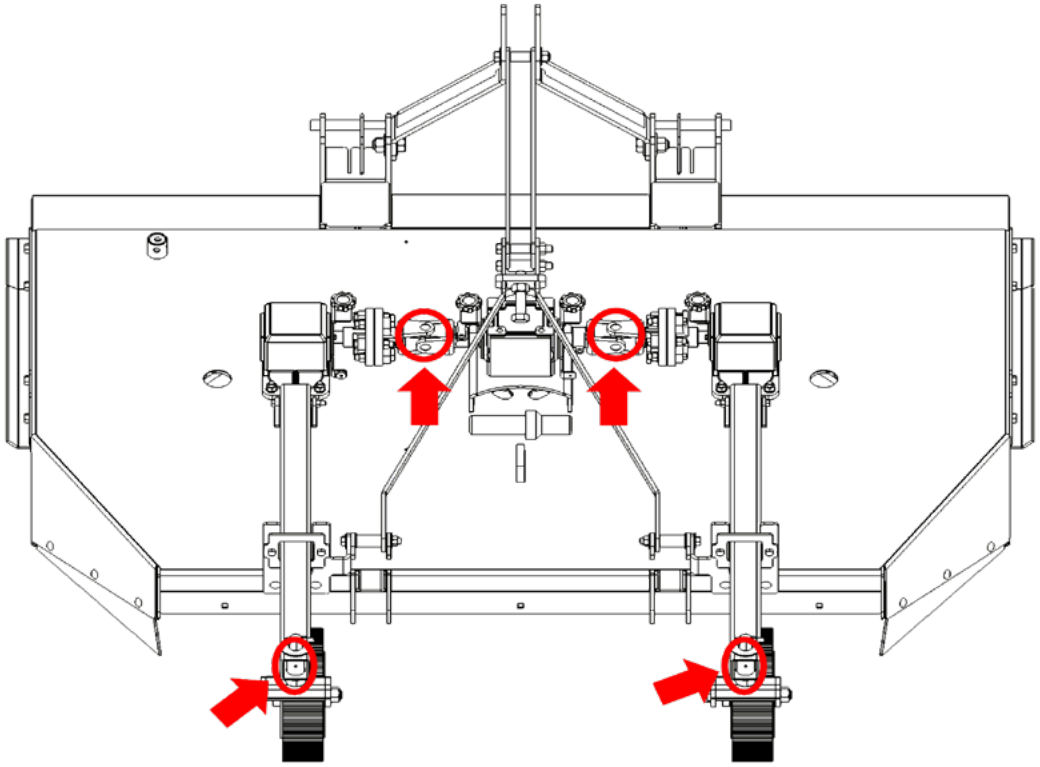
Tighten the lower 3-point arm anti-sway mechanism to prevent side-to-side movement.

9.2 GREASING

See the diagram for the location of all grease zerks.

Grease all zerks according to the schedule in “Service Record” in Service and Maintenance. Use an SAE multipurpose high-temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium base grease.

1. Always use a handheld grease gun for all greasing.
2. Wipe grease zerks with a clean cloth before greasing to avoid injecting dirt and grit.
3. Apply grease until new grease can be seen coming out of the joint.
4. Do not let excess grease collect on or around parts, particularly when operating in sandy areas.



5. Replace and repair broken grease zerks immediately.
6. If any grease zerk will not take grease, remove and clean it thoroughly. Also clean the lubricant passageway. Replace the zerk if necessary.

9.3 DRIVELINE LUBRICATION

Lubricate the driveline U-joints and slip joint every eight operating hours.

1. Lower the rotary cutter to the ground, disconnect the driveline from the tractor PTO shaft, and slide the halves apart but do not disconnect from each other.
2. Apply a bead of grease completely around male half where it meets female half. Slide drive halves over each other several times to distribute grease.
3. Rotate the driveline safety shield until the holes in the shield match up with the grease zerks in the U-joints.
4. Apply grease to the U-joint grease zerk.
5. Repeat for the U-joint at the rear of the driveline.
6. Apply grease to the U-joint on both of the shock couplers.

SERVICE AND MAINTENANCE
Pull Type

9.4 MAINTENANCE SAFETY

At the end of the season, the rotary cutter should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary downtime at the beginning of the next season.

WARNING

Failure to understand and follow these safety instructions could result in serious injury and possibly even death.

PERSONAL PROTECTION EQUIPMENT

Wear close fitting and belted clothing to avoid getting caught in moving parts. Wear personal protection equipment (PPE), which may include hard hat, safety glasses, safety shoes, gloves, etc., appropriate for the work site and working conditions.

DISCONNECT DRIVELINE

To prevent injury due to possible unexpected movement, disconnect the driveline from the tractor PTO before performing any maintenance procedure.

DAMAGED PARTS HAZARD

Do not use the rotary cutter if any parts are damaged. If the rotary cutter is believed to have a defect which could cause it to work improperly, immediately stop using it and remedy the problem before continuing.

SAFETY SHIELDS AND DEVICES

When completing a maintenance or service function, make sure all safety shields and devices are installed before placing the rotary cutter in service.

NO UNAUTHORIZED MODIFICATIONS

Do not modify the rotary cutter or safety devices. Do not weld on the unit. Unauthorized modifications may impair its function and safety and will void the warranty.

If the rotary cutter has been altered in any way from the original design, the manufacturer does not accept any liability for injury or warranty.

CRUSH HAZARD

Always set the rotary cutter on safety stands or on the ground and chock the wheels when performing maintenance.

GOOD WORKING CONDITION

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts.

REPLACEMENT PARTS

If replacement parts are necessary, genuine factory replacement parts must be used to restore the unit to its original specifications.

Unapproved parts could create a safety hazard. The manufacturer will not accept responsibility for damages as a result of the use of unapproved parts.

WARNING

Failure to understand and follow these safety instructions could result in serious injury and possibly even death.

SAFETY SHIELDS AND DEVICES

When completing a maintenance or service function, make sure all safety shields and devices are installed before placing the rotary cutter in service.

TRAPPED AIR HAZARD

When installing, replacing, or repairing hydraulic system cylinders or parts, make sure that the entire system is charged and free of air before resuming operations. Failure to bleed the system of all air can result in improper machine operation, causing severe injury.

ZERO PRESSURE

Relieve pressure from the hydraulic system before servicing or disconnecting from the tractor.

HIGH-PRESSURE FLUID HAZARD

Keep all hydraulic lines, fittings, and couplers tightly secured and free of leaks.

EXPLOSIVE SEPARATION

Replace any worn, cut, abraded, flattened, or crimped hoses.Hazard

HIGH-PRESSURE HAZARD

Do not make any temporary repairs to the hydraulic lines, fittings, or hoses using tape, clamps, or cement. The hydraulic system operates under extremely high pressure and temporary repairs may fail suddenly and create a hazardous/dangerous situation.

HIGH PRESSURE FLUID HAZARD

DO NOT use your bare hand to check for potential leaks. Always use a board or cardboard when checking for a leak.

Escaping hydraulic fluid under pressure, even a pinhole size leak, can penetrate body tissue, causing serious injury and possible death. If fluid is injected into your skin, it must be treated immediately by a doctor familiar with this type of injury.

SAFETY INSTRUCTIONS

The following safety instructions are provided to help prevent injury or limit equipment damage.

SAFETY EQUIPMENT

A fire extinguisher and first aid kit should be readily accessible while performing maintenance on this equipment.

CLEAN WORK AREA

Do not leave tools lying around the work area. Follow good shop practices. Keep the service area clean and dry. Be sure electrical outlets and tools are properly grounded. Use adequate light.

USE THE RIGHT TOOLS

Use the correct tools, jacks, hoists, or other tools that have the capacity for the job.

PROPER SUPPORT

Use certified safety stands rated to support the load when working beneath the rotary cutter or performing repairs, service, or maintenance.

Before working underneath the rotary cutter, place it on a minimum of four jack stands, with a load rating of at least 1000 lbs. each.

Do not position the jack stands under wheels, axles, or wheel supports, as they may rotate and cause the rotary cutter to fall.

Make sure the jack stands are stable and the rotary cutter deck is approximately level. Test the stability of the rotary cutter before working underneath.

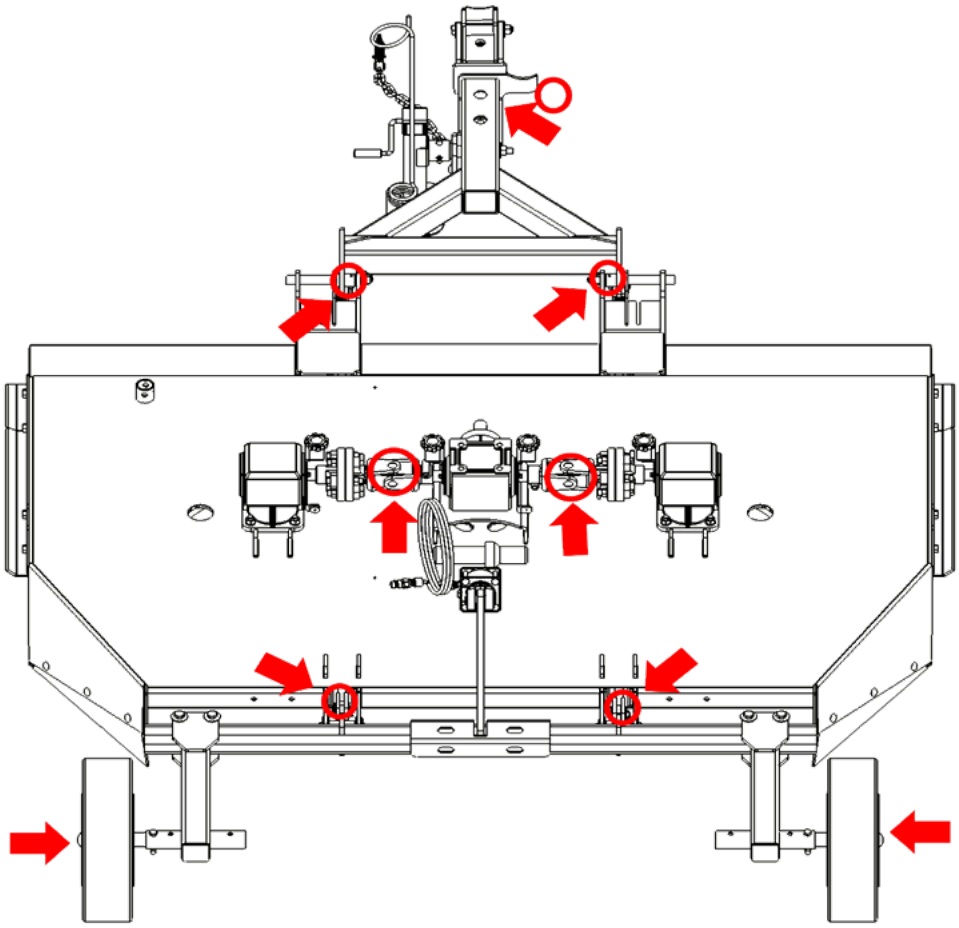
If the rotary cutter is attached to the tractor, set the brakes, remove the key, chock the tractor wheels, and block the rotary cutter before working underneath.

9.5 GREASING

See the diagram for the location of all grease zerks.

Grease all zerks according to the schedule in “Service Record” in Service and Maintenance. Use an SAE multipurpose high-temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium base grease.

1. Always use a handheld grease gun for all greasing.
2. Wipe grease zerks with a clean cloth before greasing to avoid injecting dirt and grit.
3. Apply grease until new grease can be seen coming out of the joint.
4. Do not let excess grease collect on or around parts, particularly when operating in sandy areas.



5. Replace and repair broken grease zerks immediately.
6. If any grease zerk will not take grease, remove and clean it thoroughly. Also clean the lubricant passageway. Replace the zerk if necessary.

9.6 DRIVELINE LUBRICATION

Lubricate the driveline U-joints and slip joint every eight operating hours.

1. Lower the rotary cutter to the ground, disconnect the driveline from the tractor PTO shaft, and slide the halves apart but do not disconnect from each other.
2. Apply a bead of grease completely around male half where it meets female half. Slide drive halves over each other several times to distribute grease.
3. Rotate the driveline safety shield until the holes in the shield match up with the grease zerks in the U-joints.
4. Apply grease to the U-joint grease zerk.
5. Repeat for the U-joint at the rear of the driveline.
6. Apply grease to the U-joint on both of the shock couplers.

9.7 GEARBOX LUBRICATION

If required, oil should be added until it comes to the proper level. **Recommended lubricant is SAE 140 Gearoil**. If there is evidence of leakage, the oil level should be checked.

NOTICE
Make sure the rotary cutter is level when checking the gearbox oil.

NOTICE
Overfilling the gearbox can cause pressure buildup and seal leakage.

9.8 BLADE SERVICING

Inspect blades before each use to determine that they are properly installed and in good condition. If any blade is bent, excessively nicked, worn, or has any other damage, replace both blades. Small nicks can be ground out when sharpening.

Manually wiggle the blade carrier to check for any looseness. Recheck torque every fifty hours. Retighten any loose parts.

BLADE REMOVAL

To remove the blades for sharpening or replacement, remove the nut and lockwasher from the blade bolt through the inspection hole in the deck of the mower near the gearbox.

BLADE INSTALLATION

When installing blades, be sure to check the blade bolt pivot diameter for wear. Replace the bolt if worn more than 1/4 inch at any point. Tighten nut to 600 ft. lbs.

Always use a new lockwasher and nut when replacing the blade bolt.

Make sure blades are installed with the cutting edge in the direction of rotation. The left spindle rotates counterclockwise as viewed from above the deck. The right spindle rotates clockwise as viewed from above the deck.

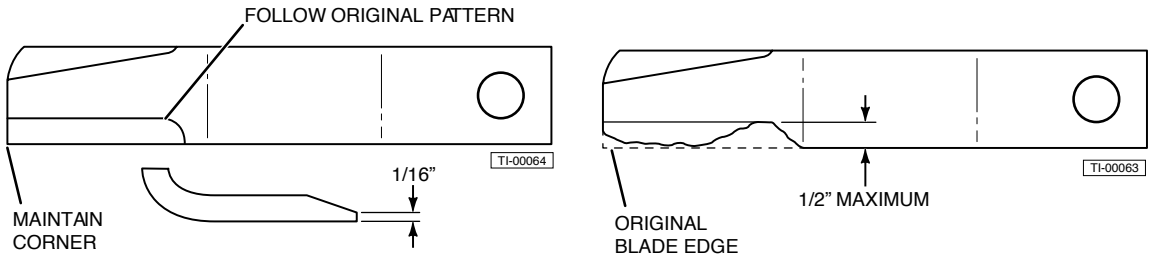
BLADE SHARPENING

CAUTION

SHARP OBJECT HAZARD

The grinder may catch on the blade during sharpening, propelling it forcefully. To prevent the possibility of serious injury, make sure blades are secured against movement while sharpening.

When sharpening blades, always sharpen both blades at the same time and grind the same amount on each blade to maintain balance. Unbalanced blades will cause excessive vibration, which can damage gearbox bearings. Vibration may also cause structural cracks to the rotary cutter. Follow the original sharpening pattern. Do not sharpen blades to a razor edge, leave a 1/16" blunt edge. Do not sharpen the back side of the blade. Do not heat and pound out the edge.



Replace the blades when worn more than 1/2" from the original edge. Always replace blades in pairs.

9.9 BLADE CARRIER REMOVAL

1. Remove the cotter pin and loosen the castle nut on the gearbox shaft. Do not remove the nut until the blade carrier is loosened.

2. Use a suitable two jaw gear puller to pull the carrier off the tapered gearbox shaft.

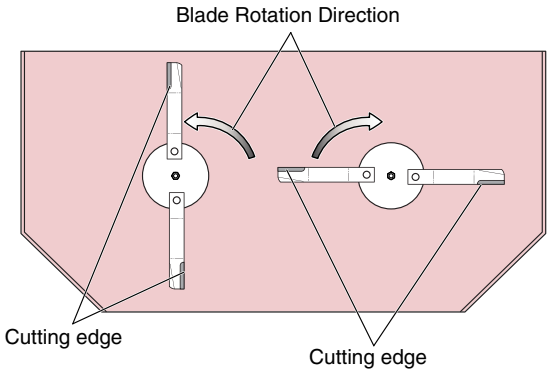
3. If a gear puller is not available, insert a bar through the blade bolt access the hole with the end against the blade carrier. Strike the opposite end of the bar sharply. Rotate the blade carrier 180 degrees and repeat until the carrier breaks loose.

4. Remove the castle nut and the blade carrier.

9.10 BLADE CARRIER INSTALLATION

1. Clean the splines on both the blade carrier and the output shaft.

2. Position the carrier on the gearbox output shaft with the blade bolts located at 90° to the other blade carrier and install the castle nut. Tighten the nut to a minimum 450 ft. lbs.



NOTICE

The blade carriers on dual spindle rotary cutters must be "timed" to prevent blade interference. Make sure to install the blade carrier with the blade bolts located at 90° to the other blade carrier.

WARNING

PROJECTILE HAZARD

Blade interference can cause blade failure and possible serious injury or death from thrown blades. Make sure to install each blade carrier with the blade bolts located at 90° to the other blade carrier.

3. Strike the carrier near the hub several times with a heavy hammer to seat the hub. Use care not to strike the nut or the end of the shaft.

4. Retighten the nut to 700 ft. lbs.

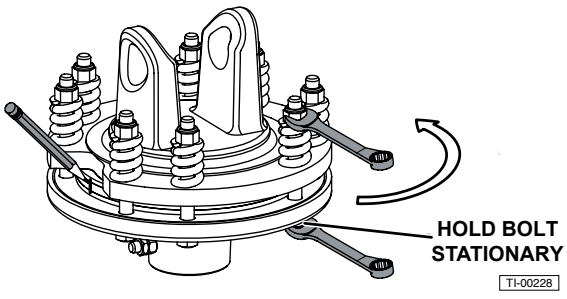
5. Install the cotter pin and spread the tangs.

9.11 SLIP CLUTCH OPERATIONAL CHECK

The slip clutch serves as overall protection for the tractor, driveline, and gearboxes. Even though new clutch assemblies are "run-in" and checked for torque prior to shipment, re-adjustment may be advisable if the clutch has been exposed to weather for an extended period of time. The clutch facing and plates should be inspected for rust and/or corrosion. After the rotary cutter has been stored for thirty days or more, perform the following check:

1. Make a trial run in the heaviest operating conditions expected. If the clutch slips noticeably, tighten the eight adjusting bolts no more than 1/2 turn between trial runs until the clutch slippage is reduced.

2. Scribe a mark across the clutch facing. When subjected to shock loads, a separation of the marks will assure that the clutch setting is correct.



Note: Check each clutch periodically during the first hour of operation for excessive heat build-up due to unexpected slippage.

If the clutch is being rebuilt (new facing and/or plates), it is necessary to "run-in" these parts prior to final adjustment. The plates should be thoroughly cleaned and free of foreign material, as well as being checked for warping with a straight edge. Warped plates cannot be adjusted properly and will not hold. To accomplish the "run-in" after assembly, follow this procedure:

1. Tighten all the adjusting bolts evenly until the clutch cannot be slipped by hand.
2. With the blade carrier locked in a stationary position, operate with the PTO at idling speed (approx. 100 RPM), until evidence of heating is noted. **Do not allow the clutch to overheat**.
3. Discontinue operation and **allow the clutch to cool completely.**
4. After the clutch has cooled, tighten all the adjusting bolts evenly and proceed with the regular clutch adjusting procedures as described above.

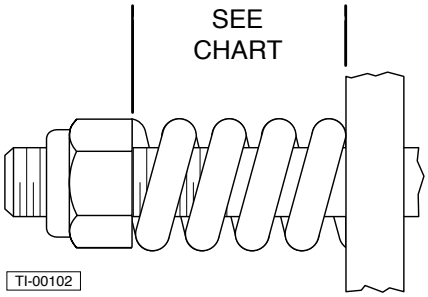
NOTICE

Incorrect slip clutch torque settings may cause damage to the cutter and/or tractor. Be sure to retighten the nuts to their original position.

9.12 SLIP CLUTCH ADJUSTMENT

The slip clutches are factory preset to the correct torque for protecting the implement and tractor. Periodic adjustment is recommended. Should adjustment be needed, follow this procedure:

1. Check to be sure all spring lengths are the same. Initial spring length is shown in the chart.
2. If necessary, adjust the nut on any spring that is unequal. Adjust all eight spring retaining nuts 1/3 of a turn (two flats on a nut) and check clutch slippage.
3. If further adjustment is necessary, adjust in 1/3 turn increments. Adjust only to provide sufficient torque to prevent slippage under normal conditions. Occasional slippage is normal for drivetrain protection. If satisfactory results cannot be obtained, consult your authorized dealer.



CLUTCH SPRING LENGTH CHART	
EG / COMERV	BONDIOLI & PAVESI.
1.27" (32.2mm)	1.15" (29.3mm)
1.28" (32.4mm)	1.12" (28.5mm)

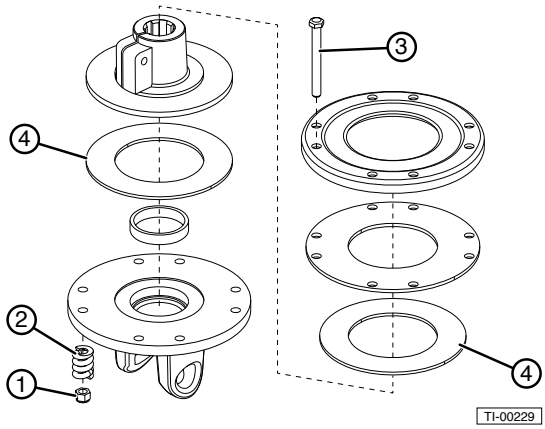
NOTICE

Do not overtighten and cause the spring to become solid, as this will cause shaft failure.

9.13 SLIP CLUTCH DISASSEMBLY/ASSEMBLY

If the clutch did not slip during the operational check, it will need to be disassembled to separate the clutch plates from the friction discs.

1. Measure and record the compressed (assembled) spring length. This dimension will be needed for reassembly.
2. Remove spring retainer nuts (1), springs (2), and bolts (3).
3. Separate each friction disc (4) from the clutch plate next to it. Keep the parts in order, so that they can be reassembled in the same order.
4. Clean and inspect all parts. If the clutch has been slipped to the point of "smoking", the friction discs should be replaced.



5. Reassemble each friction disc (4) next to the same clutch plate it was removed from. Make certain all bushings are replaced in the same location they were removed from. Install bolts (3) through the end plates and intermediate plates as shown. Place springs (2) over each bolt and secure with nuts (1).
6. Tighten each nut until the original spring length is attained. If the original length was not recorded, use the spring length from the chart in "Slip Clutch Adjustment" In Service and Maintenance.

9.14 SLIP CLUTCH RUN-IN PROCEDURE

If a clutch is being rebuilt (new facing and/or plates), it is necessary to "run-in" these parts prior to final adjustment. The plates should be thoroughly cleaned and free of foreign material, as well as being checked for warping with a straight edge. Warped plates cannot be adjusted properly and will not hold. To accomplish the "run-in" after assembly, follow this procedure:

1. Tighten all the adjusting bolts evenly until the clutch cannot be slipped by hand.
2. With the blade carrier locked in a stationary position, operate with the PTO at idling speed (approximately 100 RPM), until evidence of heating is noted. **Do not allow the clutch to overheat.**
3. Discontinue operation and **allow the clutch to cool completely.**
4. After the clutch has cooled, tighten all the adjusting bolts evenly and proceed with the regular clutch adjusting procedures.

9.15 BOLT TORQUE REQUIREMENTS

It is extremely important to apply and maintain proper torque on all bolts. Use a torque wrench to ensure the proper amount of torque is being applied to the fastener.

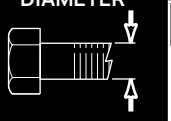
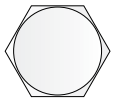
Start all bolts or nuts by hand to prevent cross-threading.

Torque figures indicated in the charts are used for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

When using locking elements, increase torque values by 5%.

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

STANDARD TORQUE VALUES

BOLT DIAMETER 	ENGLISH BOLT TORQUE SPECIFICATIONS*					
	GRADE 2		GRADE 5		GRADE 8	
		NO MARKING		3 RADIAL LINES		6 RADIAL LINES
						
	FT LBS.	N·m	FT LBS.	N·m	FT LBS.	N·m
1/4"	6	8	9	12	12	17
5/16"	10	13	19	25	27	36
3/8"	20	27	33	45	45	63
7/16"	30	41	53	72	75	100
1/2"	45	61	80	110	115	155
9/16"	60	95	115	155	165	220
5/8"	95	128	158	215	220	305
3/4"	165	225	290	390	398	540
7/8"	170	230	420	570	650	880
1"	225	345	630	850	970	1320

WARNING

EQUIPMENT FAILURE

The torque value for bolts and capscrews are identified by their head markings. Replacing higher "Grade" bolts (Grade 5) with lower Grade bolts will lead to equipment failure and can result in injury or death. Always use replacement bolts with the same Grade markings as the removed bolt.

9.16 WELDING REPAIRS

NOTICE

Before performing any type of welding repair to the rotary cutter, contact Authorized dealer for approval. Repair welding must be done with care and with procedures that may be beyond the capabilities of the ordinary welder.

WARNING

PROJECTILE HAZARD

Do not attempt to weld on the blades. They are hardened and will crack or otherwise be damaged, causing failure and possible serious injury or death from thrown blades.

WARNING

PERSONAL INJURY HAZARD

Repairs or modifications to the rotary cutter can result in serious injury or death should these repairs fail.

NOTICE

Anyone performing a welding repair should be certified in accordance to the American Welding Society (AWS) standards.

9.17 SERVICE RECORD

This attachment will provide years of dependable service if routine maintenance procedures are performed. The maintenance tasks listed below are based on normal operating conditions. More frequent maintenance may be necessary with intense use or when operating in adverse environmental conditions.

MAINTENANCE TASK	EVERY 8 HOURS	EVERY 50 HOURS	YEARLY
Make sure blade bolts are tightened to proper torque. Refer to "Blade Installation" in Service and maintenance.	✔		
Make sure all retainer clips and cotter pins are in place.	✔		
Inspect the cutting blades for wear and damage. Refer to "Blade Sharpening" in Service and maintenance.	✔		
Grease the driveline CV joints, U-joints, and slip joints. Refer to "Driveline Lubrication" in (Lift Type or Pull Type) Service and maintenance .	✔		
Check blade carrier nut torque. Refer to "Blade Installation" in Service and maintenance.		✔	
Grease all lubrication points. Refer to "Greasing" in Service and maintenance.		✔	✔
Make sure all fasteners are properly tightened.			✔
Check cutter deck, gearboxes, and driveline for damage.			✔
Inspect the cutting blades for wear and damage. Refer to "Blade Sharpening" in Service and maintenance.			✔
Make sure the 3-point hitch pins and retainer clips are in good condition. Do not use homemade or shop-made pins.			✔
Make sure the slip clutches are functioning properly. Refer to "Slip Clutch Operational Check" in Service and maintenance.			✔
Inspect the hitch A-frame and braces for wear and damage.			✔
Wash the rotary cutter.			✔

MAINTENANCE LOG

Document all maintenance and service activities performed on this attachment using the maintenance log included at the end of this manual.

NOTICE

Improper maintenance or modifications to the design or performance of this machine will void the warranty.

TROUBLESHOOTING

PROBLEM	CAUSE	RESOLUTION
Uneven cut.	Excessive ground speed.	Reduce ground speed.
	Blades worn, dull, or bent.	Replace blades.
	Mower not level side-to-side.	Adjust. Refer to “Attaching to Tractor” (Lift type or Pull type) in Operation.
	Improper height adjustment.	Adjust rotary cutter height. Refer to “Setting the Rotary Cutter” (Lift type or Pull type) in Operation.
	Low tractor tire pressure on one side.	Adjust tire pressure. (Refer to OEM manual).
	Turning too fast.	Reduce ground speed when turning.
	Tractor tires push grass down.	Adjust your tractor wheel spacing. (Refer to OEM manual).
	Damaged cutter pan.	Repair or replace as necessary.
Uncut material.	Excessive ground speed.	Reduce ground speed.
	RPM too low.	Maintain 540 RPM PTO speed.
Windrowing.	Material heavy and lush.	Raise the front of rotary cutter relative to the rear. Refer to Refer to “Setting the Rotary Cutter” (Lift type or Pull type) in Operation.
	Excessive ground speed.	Reduce ground speed.
	Conditions too wet.	Wait for conditions to dry. Reduce ground speed.
Grass cut lower in center of swath than at edge.	Height of rotary cutter lower at rear or front.	Adjust rotary cutter height and attitude so that rear and front are within 1/2" of same height.
Streaking conditions in swath.	Blades dull.	Sharpen or replace blades.
	Blades unable to cut that part of grass pressed by path of tractor tires.	Slow ground speed of tractor but maintain rated PTO RPM speed. Cutting lower will help.
	Conditions too wet.	Allow grass to dry before mowing.
Rotary cutter will not cut all the time. (Slip clutch drive only)	Slip clutch slipping.	Adjust slip clutch. Refer to “Slip Clutch Adjustment” in Service and Maintenance.
	Burnt or damaged clutch facing.	Rework clutch or replace according to OEM manual.

PROBLEM	CAUSE	RESOLUTION
Material discharges from cutter unevenly, bunches of material along swath	Material too high and too much material.	Reduce ground speed but maintain rated tractor PTO RPM or make two passes over material.
		Raise rotary cutter for the first pass and lower to desired height for the second and cut at 90° to first pass.
		Raise rear of rotary cutter high enough to permit material to discharge but not so high as to cause conditions listed above.
	Grass wet.	Allow grass to dry before mowing. Slow ground speed of tractor but keep engine running at full PTO RPM. Cutting lower will help.
	Rear of rotary cutter too low, trapping material under cutter.	Adjust rotary cutter height and attitude.
Blade bolts working loose.	Bolts not tightened.	Tighten bolts. Refer to “Blade Servicing” in Service and Maintenance.
	Bolt hole elongated or oversized.	Replace blade carrier Refer to “Blade Carrier Removal” in Service and Maintenance.
	Lockwasher broken.	Replace lockwasher. Refer to “Blade Servicing” in Service and Maintenance.
Gearbox noisy.	Low lubricant level.	Add grease. Refer to “Gearbox Lubrication” in Service and Maintenance.
	Rough gears.	Run in or replace gearbox.
	Worn bearing.	Replace bearing.
Gearbox overheating	Low on lubricant.	Fill to level plug.
	Improper type of lubricant.	Replace with proper lubricant. Refer to "Gearbox Lubrication" in Service and Maintenance.
	Excessive trash build-up around gearbox.	Remove trash.
Gearbox leaking.	Damaged oil seal.	Replace seal.
	Bent shaft.	Replace gearbox.
	Oil seal not sealing in the housing.	Replace seal.
	Oil level too high.	Drain to proper level.
	Gasket damaged.	Replace gasket.
	Bolts loose.	Tighten bolts.

PROBLEM	CAUSE	RESOLUTION
Excessive vibration.	Blades are not free to swing.	Check bushing and blade movement.
	Blades are out of balance.	Check blades for damage or replace blades. Refer to “Blade Servicing” in Service and Maintenance.
Unusual noise.	Loose blade bolts or worn bushings.	Tighten bolts, check bushings for wear and change as needed. Refer to “Blade Servicing” in Service and Maintenance.
	Bent blade carrier, blades.	Replace blade carrier. Refer to “Blade Carrier Removal” in Service and Maintenance.
	Deck bent, causing blades to contact deck.	Replace deck or have dealer straighten and repair deck.
Driveline will not telescope.	Improper lubrication.	Grease driveline. Refer to “Driveline Lubrication” in Service and Maintenance.
	Driveline twisted.	Replace driveline. Caution operator not to strike ground with blades. Adjust slip clutch to ensure it is working properly.
	Driveline bent.	Driveline too long. Replace and shorten to proper length. Refer to “Shortening the Driveline” (Lift type or Pull type) in Assembly.
	Shields damaged.	Replace shields.
Driveline U-joint failing.	Lack of lubrication	Grease U-joint zerks every 8 hours. Refer to Driveline Lubrication" in Service and Maintenance.
Driveline twisted.	Over torqued.	Replace driveline. Caution operator not to strike ground with blades. Adjust slip clutch to ensure it is working properly.
Slip clutches slip under light load	Slip clutch is not properly adjusted.	Adjust slip clutch. Refer to "Slip Clutch Adjustment" in Service and Maintenance.
	Clutch plates are worn out.	Replace the clutch plates.
	Debris is caught between the clutch plates.	Remove debris.

SPECIFICATIONS

MODEL	2408	2408P	2410	2410P
DESCRIPTION	Lift type	Pull Type	Lift type	Pull type
HORSEPOWER REQUIRED (MIN.)	42		52	
HITCH	CAT I or II	Pull Type with Dual Leveling Rods	CAT I or II	Pull Type with Dual Leveling Rods
CUTTING WIDTH	96"		120"	
CUTTING HEIGHT	2" to 10"			
TRANSPORT WIDTH	98"		122"	
WEIGHT	1250 lbs	1575 lbs	1480 lbs	1705 lbs
CUTTING CAPACITY	3"			
DECK THICKNESS	10 Gauge		7 Gauge	
SIDE BANDS	8" Channel			
SKID SHOES	Replaceable			
PTO DRIVESHAFT	Series 5 with Slip Clutch			
CENTER DRIVESHAFT	Shock Coupler Protected			
STUMP JUMPER	5/8" Plate			
GEARBOX	125 HP			
OUTBOARD GEARBOXES	100 HP			
WHEELS	Laminated			
HUB	Bearing			
QUICK HITCH COMPATIBLE	Yes, CAT II	–	Yes, CAT II	–
GEARBOX WARRANTY	5 Year Limited			

Specifications subject to change without notice.

PARTS

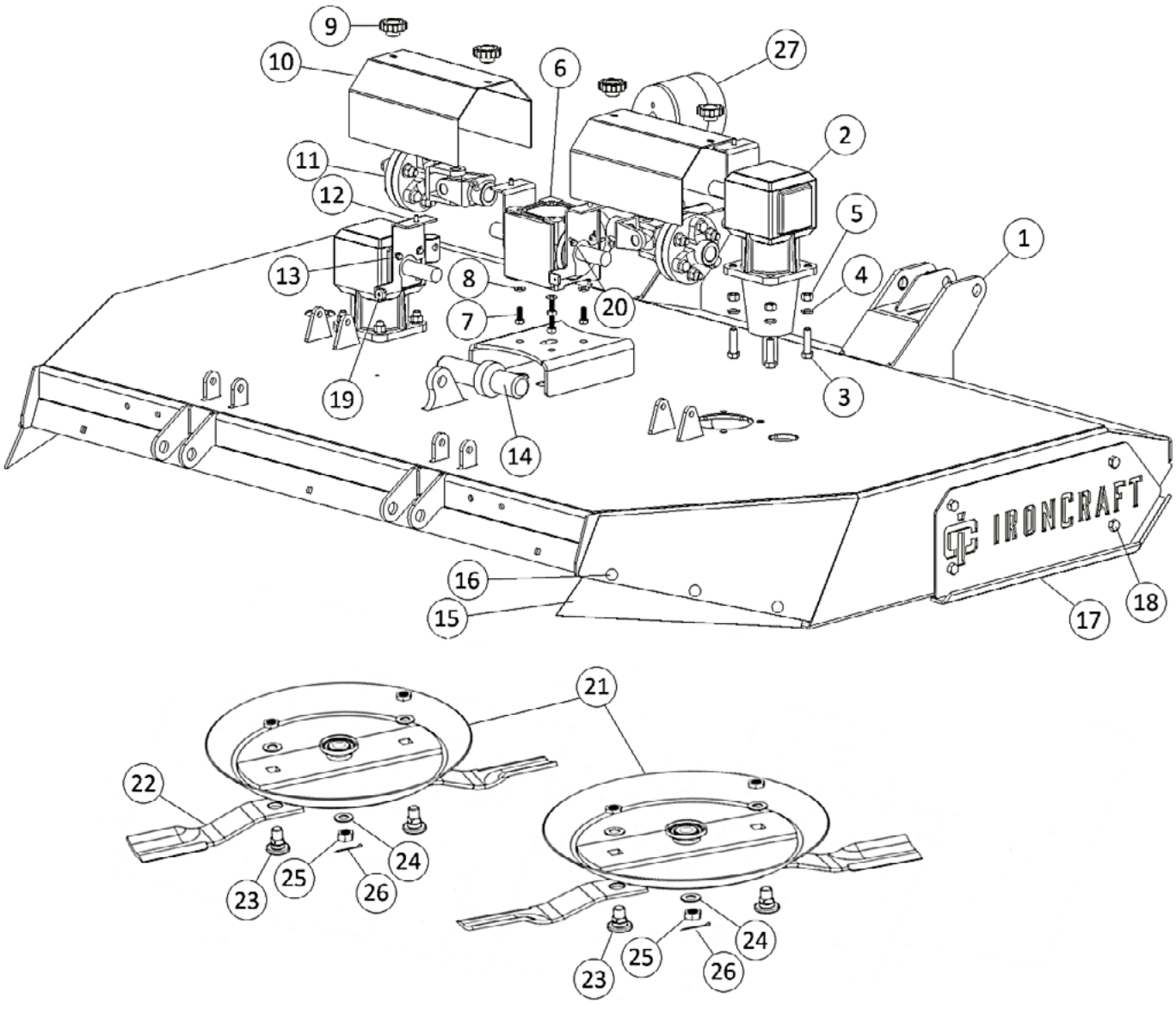
Replacement parts are available from your authorized Dealer Parts Department or from IronCraft.

The following pages contain a list of serviceable parts for the Rotary Cutter.

For hassle free service and to ensure you receive the correct parts for your implement, please provide your dealer with the following information:

MODEL	
SERIAL NUMBER	
GPM REQUIREMENTS	
DATE OF OWNERS MANUAL (BOTTOM LEFT CORNER OF COVER PAGE)	
PARTS DIAGRAM PAGE NUMBER	
PART DESCRIPTION	
REFERENCE NUMBER	
QUANTITY DESIRED	
SHIP TO INFORMATION	
BILL TO/PAYMENT INFORMATION	

12.1 DECK COMPONENTS

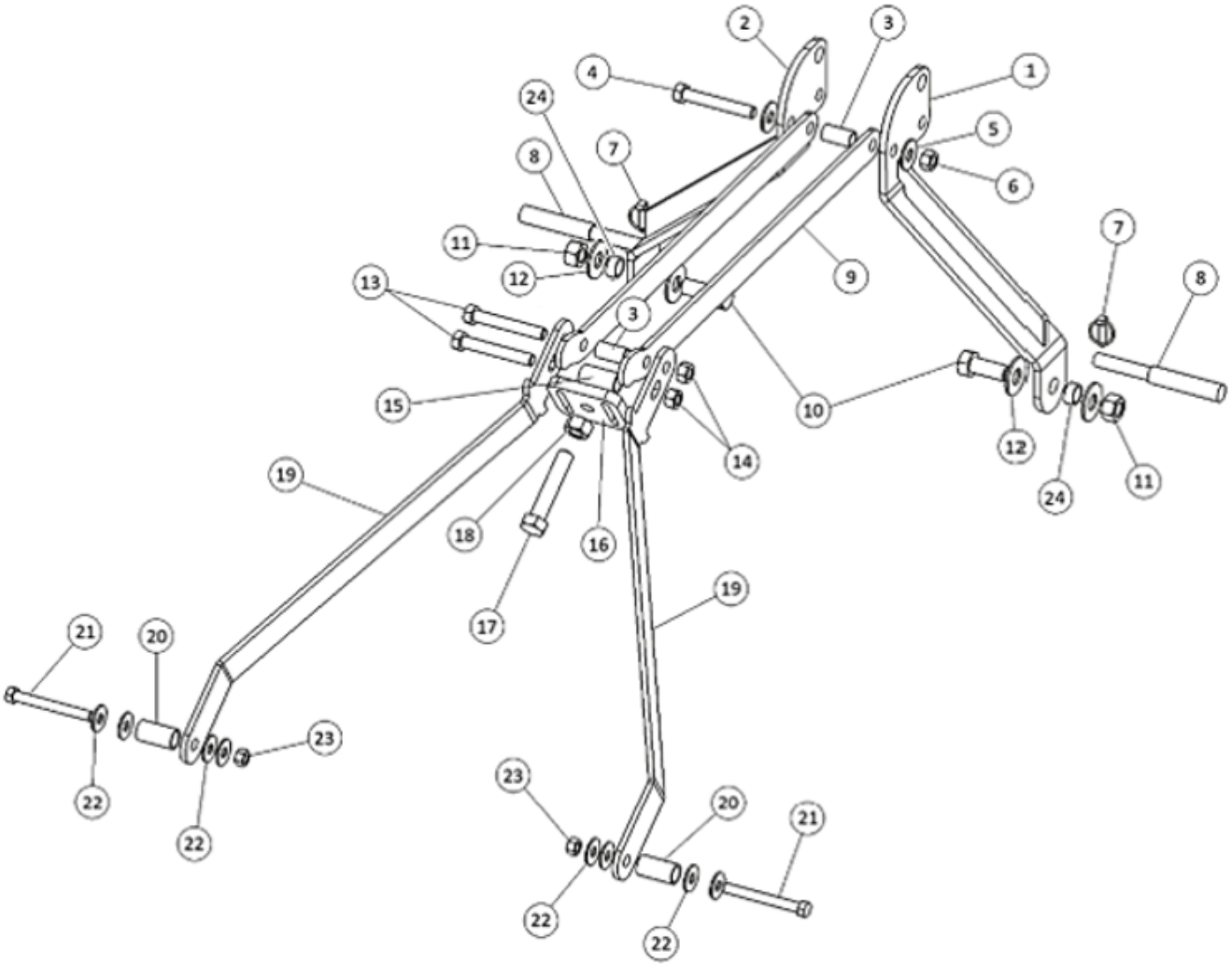


12.1 DECK COMPONENTS			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	240000-GR	8-ft DECK WELDMENT (2408)	1
	240006-GR	10-ft DECK WELDMENT (2410)	1
2	191304	8-ft OUTBOARD GEARBOX (2408)	2
	191304	10-ft OUTBOARD GEARBOX (2410)	2
3	80010251	BOLT 5/8'' x 2-1/2'' Gr. 5	8
4	81010006	FLATWASHER 5/8''	8
5	82010006	LOCKNUT 5/8'' Gr. 5	8
6	2480000	8-ft CENTER TEE GEARBOX (2408)	1
	180000	10-ft CENTER TEE GEARBOX (2410)	1
7	80100001	BOLT M12 x 1.75 x 30 (2408)	2
	80010336	BOLT 5/8'' x 1-1/4'' Gr. 5 (2410)	2
8	81020011	LOCKWASHER 7/16'' (2408)	2
	81020014	LOCKWASHER 5/8'' (2410)	2
9	2480006	THREADED KNOB 3/8'' x 9/16''	4
10	2410042	8-ft GEARBOX CROSS SHAFT SHIELD (2408) (Specify Color)	2
	2410044	10-ft GEARBOX CROSS SHAFT SHIELD (2410) (Specify Color)	2
11	2480003	8-ft CROSS SHAFT – SHOCK COUPLER (2408)	2
	180003	10-ft CROSS SHAFT – SHOCK COUPLER (2410)	2
12	240008-BK	GEARBOX SHIELD MOUNT	4
13	80100000	BOLT M8 x 1.25 X 16 (2408) for Shield Mount	4
	80100002	FLATWASHER M8 (2408) for Shield Mount	4
14	110034	DOCUMENT HOLDER W/SCREWS	1
15	2480005	REAR RUBBER GUARD	2
16	80040197	CARRIAGE BOLT 1/2'' x 1-1/2'' Gr. 5	6
	81010004	FLATWASHER 1/2''	6
	82010004	LOCKNUT 1/2'' Gr. 5	6
17	200021	RH – WING SKID (Shown) - (Specify Color)	1
	200018	LH – WING SKID (Specify Color)	1
18	80010336	BOLT 5/8'' x 1-1/4'' Gr. 5	8
	81010006	FLATWASHER 5/8''	8
	82010006	LOCKNUT 5/8'' Gr. 5	8
19	83070000	MAGNET KIT	4

12.1 DECK COMPONENTS			
ITEM	PART NUMBER	DESCRIPTION	QTY.
20	80100000	BOLT M8 x 1.25 X 16 (2408) for Shield Mount	4
	80100002	FLATWASHER M8 (2408) for Shield Mount	4
	80010123	BOLT 3/8'' x 3/4'' Gr. 5 (2410) for Shield Mount	4
	81010002	FALTWASHER 3/8'' (2410) for Shield Mount	4
21	200046-BK	BLADE CARRIER	2
22	2480001	8-ft RH – (CW) BLADE (Sold as pair) - 2408	1
	2480002	8-ft LH – (CCW) BLADE (Sold as pair) - 2408	1
	LW-3515	10-ft RH – (CW) BLADE (Sold as pair) - 2410	1
	RC-3515	10-ft LH (CCW) BLADE (Sold as pair) - 2410	1
23	351526	BLADE BOLT KIT W/NUT & LOCKWASHER (Sold as pair)	2
24	191340	FLATWASHER 25 x 44 x 4	2
25	191341	CASTLE NUT M24 x 2	2
26	191342	COTTER PIN 5 x 50	2
27	150076	GEARBOX SHIELD (Plastic)	1

12.2 HITCH COMPONENTS

3-Point Lift Type models

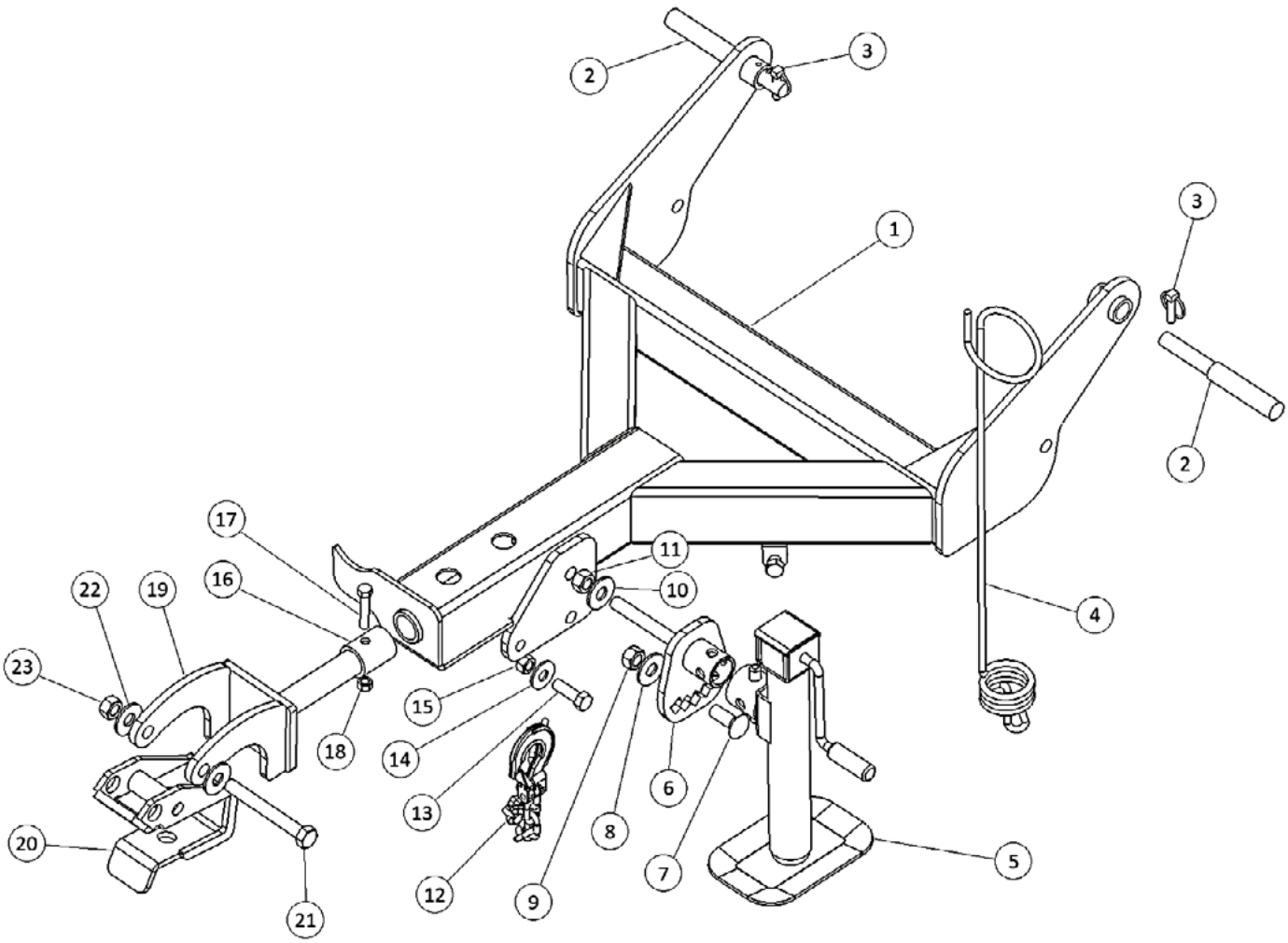


12.1 HITCH COMPONENTS – LIFT TYPE			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	240009	RH – A-FRAME BRACKET (Specify Color)	1
2	240010	LH – A-FRAME BRACKET (Specify Color)	1
3	110030-BK	2'' SPACER	2
4	80010431	BOLT 3/4'' x 5'' Gr. 5	1
5	81010007	FLATWASHER 3/4''	2
6	82010007	LOCKNUT 3/4''	1
7	310032	LYNCH PIN 3/8''	2
8	450006	LIFT PIN CAT-I / CAT-II (Step Type)	2
9	2410029-BK	A-FRAME KNUCKLE	2
10	80010528	BOLT 1''-8 x 2-1/2'' Gr. 5	2
11	82010009	LOCKNUT 1''-8	2
12	81010009	FLATWASHER 1''	4
13	80010431	BOLT 3/4'' x 5'' Gr. 5	2
14	82010007	LOCKNUT 3/4''	2
15	4450000-BK	2-1/2'' SPACER	1
16	2410049-BK	BACK BRACE ADJUSTER PLATE	1
17	80010545	BOLT 1''-8 x 4-1/2'' Gr. 5	1
18	82080009	JAM NUT 1''-8	1
19	2410028	BACK BRACE (Specify Color)	2
20	4450000-BK	2-1/2'' SPACER	2
21	80010374	BOLT 5/8''-11 x 5-1/2'' Gr. 5	2
22	81010006	FLATWASHER 5/8''	8
23	82010006	LOCKNUT 5/8''-11	2
24	83060000	TENSION BUSHING	2

12.3 HITCH COMPONENTS

Pull Type Models

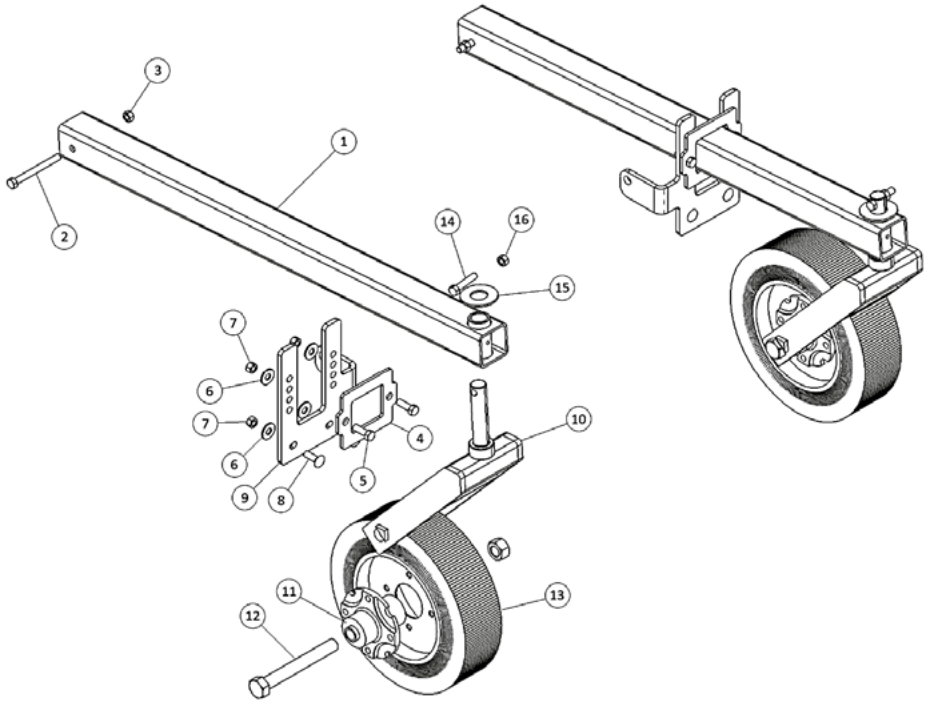
Pull Type



12.2 HITCH COMPONENTS - PULL TYPE			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	240001-BK	PULL TYPE – HITCH WELDMENT	1
2	450006	STEP PIN CAT-I / CAT-II	2
3	310032	LYNCH PIN 3/8''	2
4	191209	SPRING HOSE HOLDER	1
5	180024	JACK STAND	1
6	300027-BK	JACK LUG – WELDMENT	1
7	80040197	CARRIAGE BOLT 1/2'' x 1-1/2'' Gr. 5	1
8	81010004	FLATWASHER 1/2''	1
9	82010004	LOCKNUT 1/2'' Gr. 5	1
10	81010007	FLATWASHER 3/4''	1
11	82010007	LOCKNUT 3/4'' Gr. 5	1
12	191526	SAFETY CHAIN	1
13	80010350	BOLT 5/8'' x 2-1/2'' Gr. 5	1
14	81010006	FLATWASHER 5/8''	1
15	82010006	LOCKNUT 5/8'' Gr. 5	1
16	2050005	SWIVEL LOCK SLEEVE	1
17	80010251	BOLT 1/2'' x 2-1/2'' Gr. 5	1
18	82010004	LOCKNUT 1/2'' Gr. 5	1
19	200020-BK	RECEIVING HITCH – WELDMENT (Comes with Lock Sleeve)	1
20	200016-BK	CLEVIS HITCH – WELDMENT	1
21	80010439	BOLT 3/4'' x 6'' Gr. 5	1
22	81010007	FLATWASHER 3/4''	2
23	82010007	LOCKNUT 3/4'' Gr. 5	1

12.5 TAILWHEEL COMPONENTS

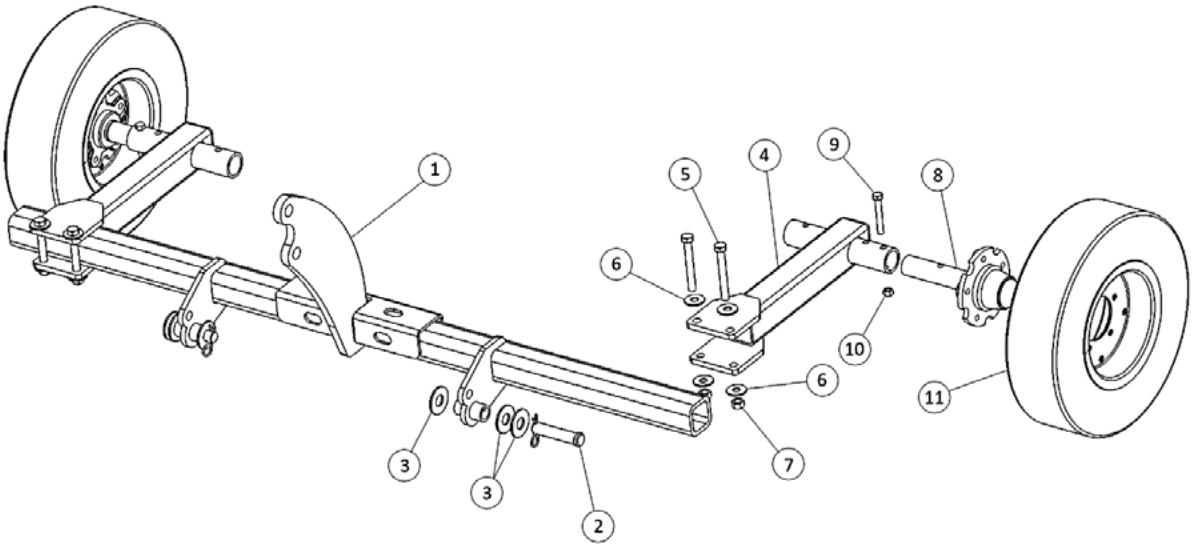
Lift Type Models



12.5 TAILWHEEL COMPONENTS – LIFT TYPE MODELS			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	240005	TAILWHEEL TUBE – WELDMENT (Specify Color)	2
2	80010269	BOLT 1/2''-13 x 4-3/4'' Gr. 5	2
3	82010004	LOCKNUT 1/2''-13 Gr. 5	2
4	2410032-BK	TAILWHEEL ADJUSTMENT BRACKET	2
5	80010239	BOLT 1/2''-13 x 1-1/2'' Gr. 5	4
6	81010004	FLATWASHER 1/2''	8
7	82010004	LOCKNUT 1/2''-13 Gr. 5	8
8	80030197	CARRIAGE BOLT 1/2''-13 x 1-1/2''	4
9	2410031-BK	LH – TAILWHEEL MOUNTING BRACKET (Shown)	1
	2410030-BK	RH – TAILWHEEL MOUNTING BRACKET	1
10	970018-BK	TAILWHEEL FORK	2
11	150031	H.D TAILWHEEL HUB W/BRGS	2
12	110020	AXLE BOLT W/LOCKNUT 1'' x 8''	2
13	110022	LAMINATED TAILWHEEL 4'' x 8'' – 15''	2
14	80010247	BOLT 1/2''-13 x 2'' Gr. 5	2
15	81010011	FLATWASHER 1-1/4''	2
16	82010004	LOCKNUT 1/2''-13 Gr. 5	2

12.6 TAILWHEEL COMPONENTS

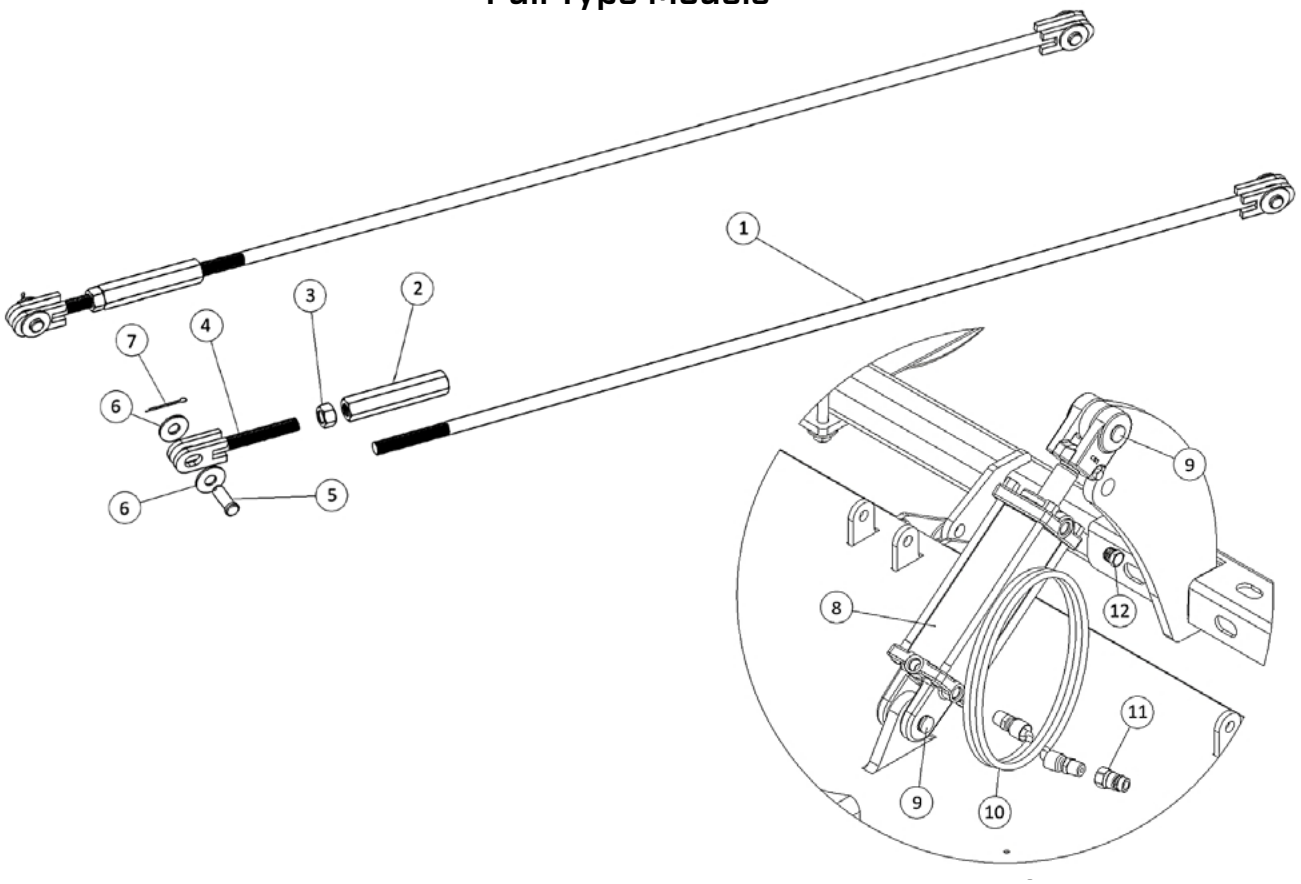
Pull Type Models



12.6 TAILWHEEL COMPONENTS – PULL TYPE MODELS			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	240003-BK	8-ft CENTER WHEEL LIFT – WELDMENT (2408)	1
	240007-BK	10-ft CENTER WHEEL LIFT – WELDMENT (2410)	1
2	83030009	PIN 1'' x 4-1/2''	2
	170024	HAIRPIN	2
3	81010009	FLATWASHER 1''	6
4	240004-BK	WHEEL ARM	2
5	80010374	BOLT 5/8''-11 x 5-1/2'' Gr. 5	4
6	81010006	FLATWASHER 5/8''	8
7	82010006	LOCKNUT 5/8'' Gr. 5	4
8	351522	HUB & SPINDLE ASSY	2
9	80010366	BOLT 1/2''-11 x 3-1/2'' Gr. 5	2
10	82010004	LOCKNUT 1/2'' Gr. 5	2
11	180040	20'' LAMINATED TAILWHEEL	2

12.7 LEVELING & HYDRAULIC COMPONENTS

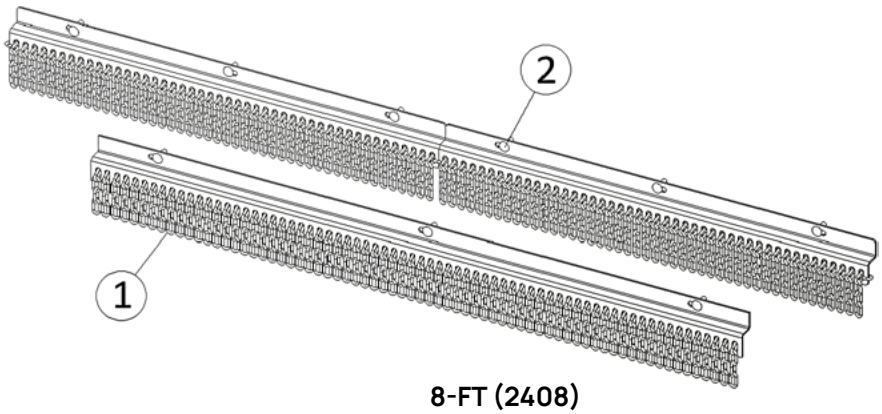
Pull Type Models



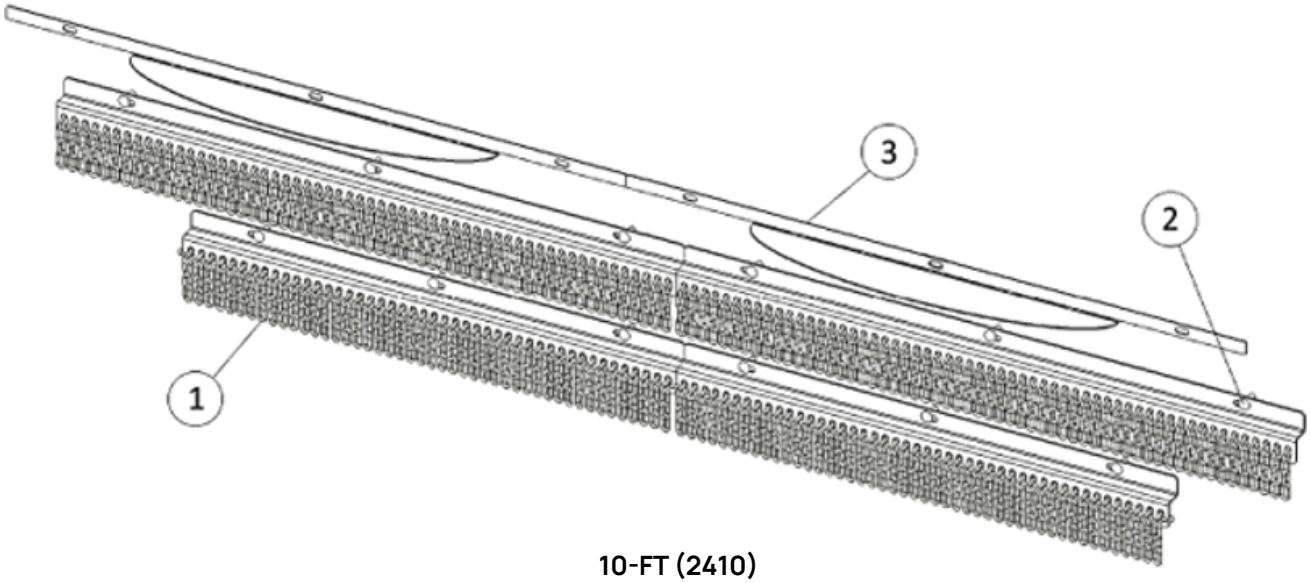
12.7 LEVELING & HYDRAULIC COMPONENTS – PULL TYPE MODELS			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	240002-BK	LONG - LEVELING ROD 62-1/2''	2
2	191229	LEVELING ROD ADJUSTER	2
3	351508	JAM NUT 7/8''	2
4	200023	SHORT - LEVELING ROD 7-5/8''	2
5	351509	CLEVIS PIN KIT - W/WASHERS/COTTER PIN	4
6	81000015	SAE FLATWASHER 3/4''	8
7	351514	COTTER PIN 1/8'' x 2''	4
8	180030	3'' x 8'' ASAE HYDRAULIC CYLINDER W/PINS	1
9	191529	CYLINDER PIN W/R-CLIP	2
10	180032	HYDRAULIC HOSE 168''	1
11	920098	MALE - AG QUICK DISCONNECT COUPLER	1
12	191281	BREATHER PLUG 8-NPTM	1

12.8 CHAIN GUARDS

8-ft (2408 models) & 10-ft (2410 models)



8-FT (2408)

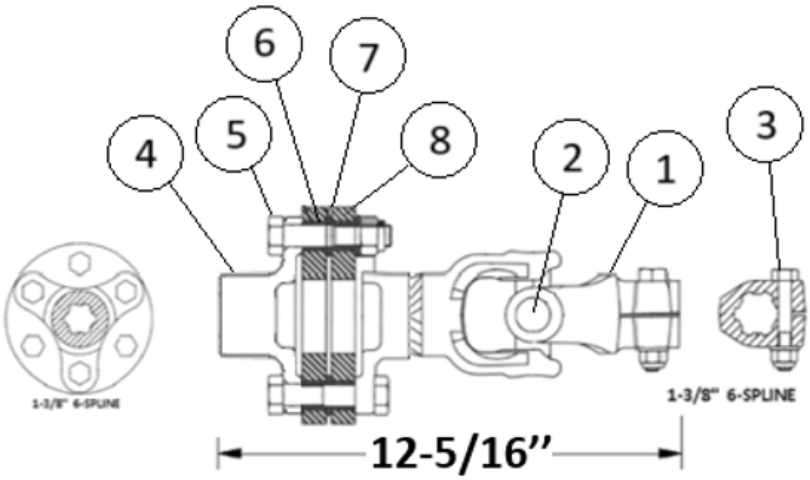


10-FT (2410)

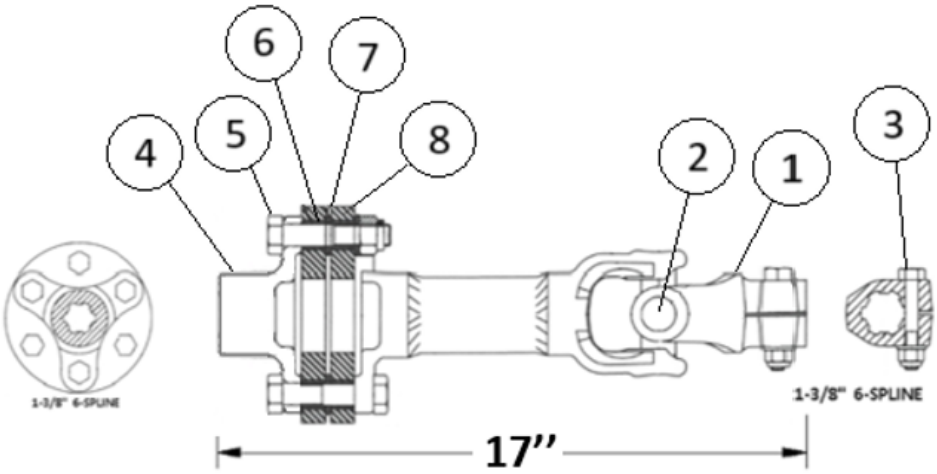
12.8 CHAIN GUARDS – 8-FT (2408 MODELS) & 10-FT (2410 MODELS)			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	CG-2408	(8-ft Front & Rear) CHAIN GUARD KIT (Specify Color) - 2408	1
	CG-2410	(10-ft Front & Rear) CHAIN GUARD KIT (Specify Color) - 2410	1
2	351519	CARRIAGE BOLT KIT (5-Pack)	A/R
3	2410045	10-ft SAFETY GUARD (Specify Color) - 2410	2

A/R = As Required

12.9 CROSS SHAFT COMPONENTS



2480003 (8-FT) CONNECTOR SHAFT

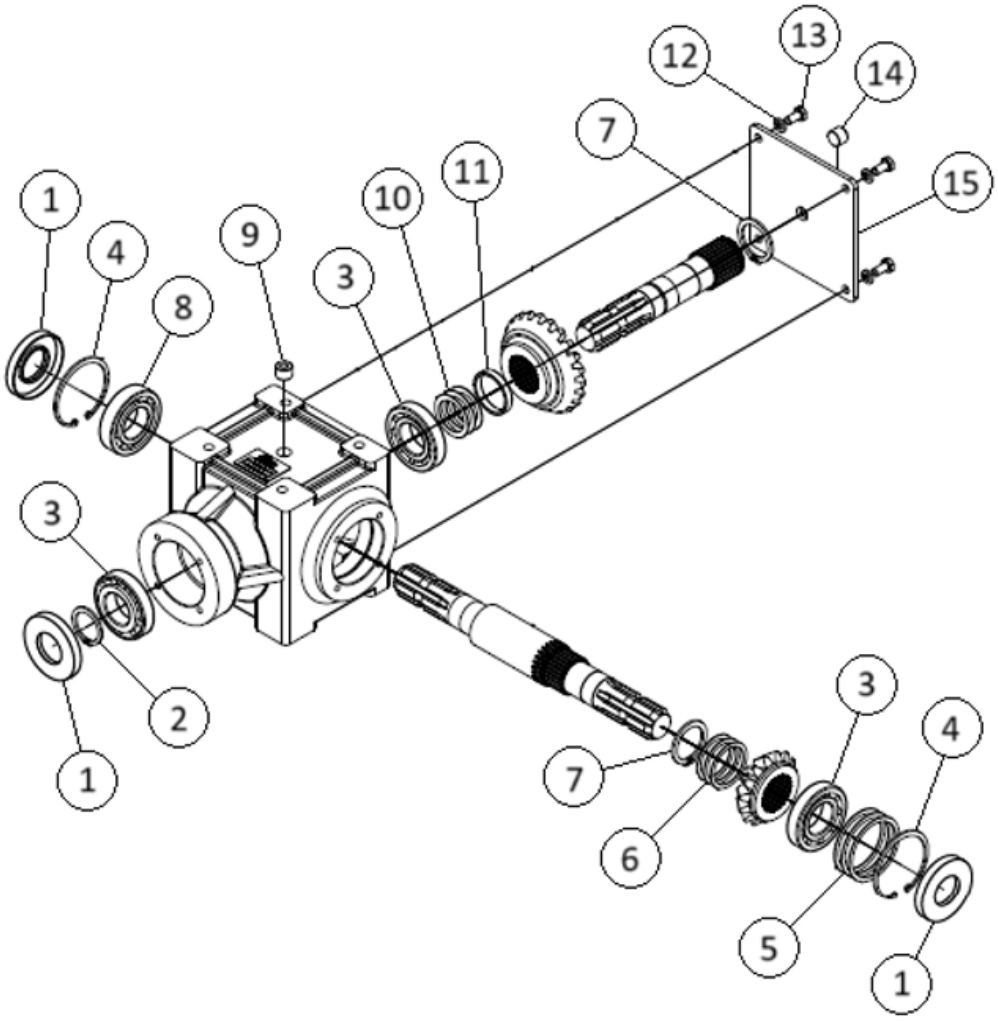


1880003 (10-FT) CONNECTOR SHAFT

12.9 CROSS SHAFT COMPONENTS			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	552132	CLAMP STYLE YOKE 1-3/8'' 6-SPLINE	1
2	552130	CROSS KIT 30.2 x 80	1
3	552134	LOCK BOLT W/NUT M12 x 1.75 x 70	1
4	552133	SPIDER 1-3/8'' 6-SPLINE	1
5	552140	HH BOLT M16 x 80	6
6	552137	SPACER	6
7	552138	SHIM WASHER M16	6
8	552131	RUBBER SHOCK PAD	2
2480003		8-ft COMPLETE CROSS SHAFT	
180003		10-ft COMPLETE CROSS SHAFT (2410)	

12.11 T – GEARBOX COMPONENTS

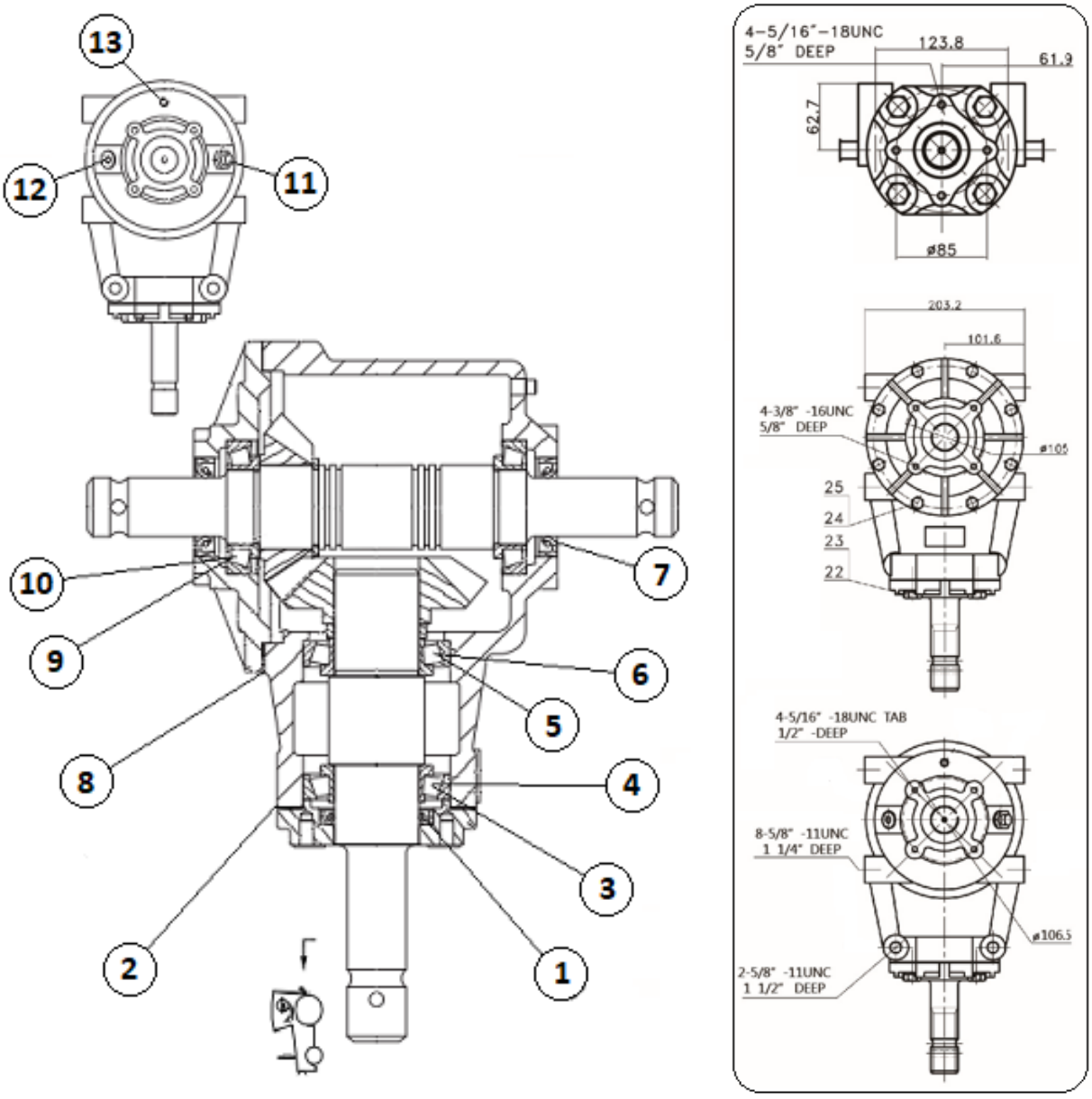
8-ft (2408 models)



12.11 T – GEARBOX COMPONENTS – 8-FT (2408 MODELS)			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	2480100	OIL SEAL	3
2	2480101	EXTERNALRETAINING RING	1
3	2480102	TAPERED BEARING	3
4	2480103	INTERNAL RETAINING RING	2
5	2480104	SHIM 0.25	1
	2480105	SHIM 0.5	1
	2480106	SHIM 1.0	1
6	2480107	SHIM 0.25	1
	2480108	SHIM 0.5	1
	2480109	SHIM 1.0	1
7	2480110	EXTERNAL RETAINING RING	2
8	2480111	BALL BEARING	1
9	2480112	PRESSURE RELIEF PLUG	1
10	2480113	SHIM 0.25	1
	2480114	SHIM 0.5	1
	2480115	SHIM 1.0	1
11	2480116	SPACER	1
12	2480117	LOCKWASHER	4
13	2480118	HH CAP SCREW	4
14	2480119	PIPE PLUG	2
15	2480120	INSPECTION COVER	1
2480000		COMPLETE CENTER T-GEARBOX (1:1.46 Ratio) 01-730	

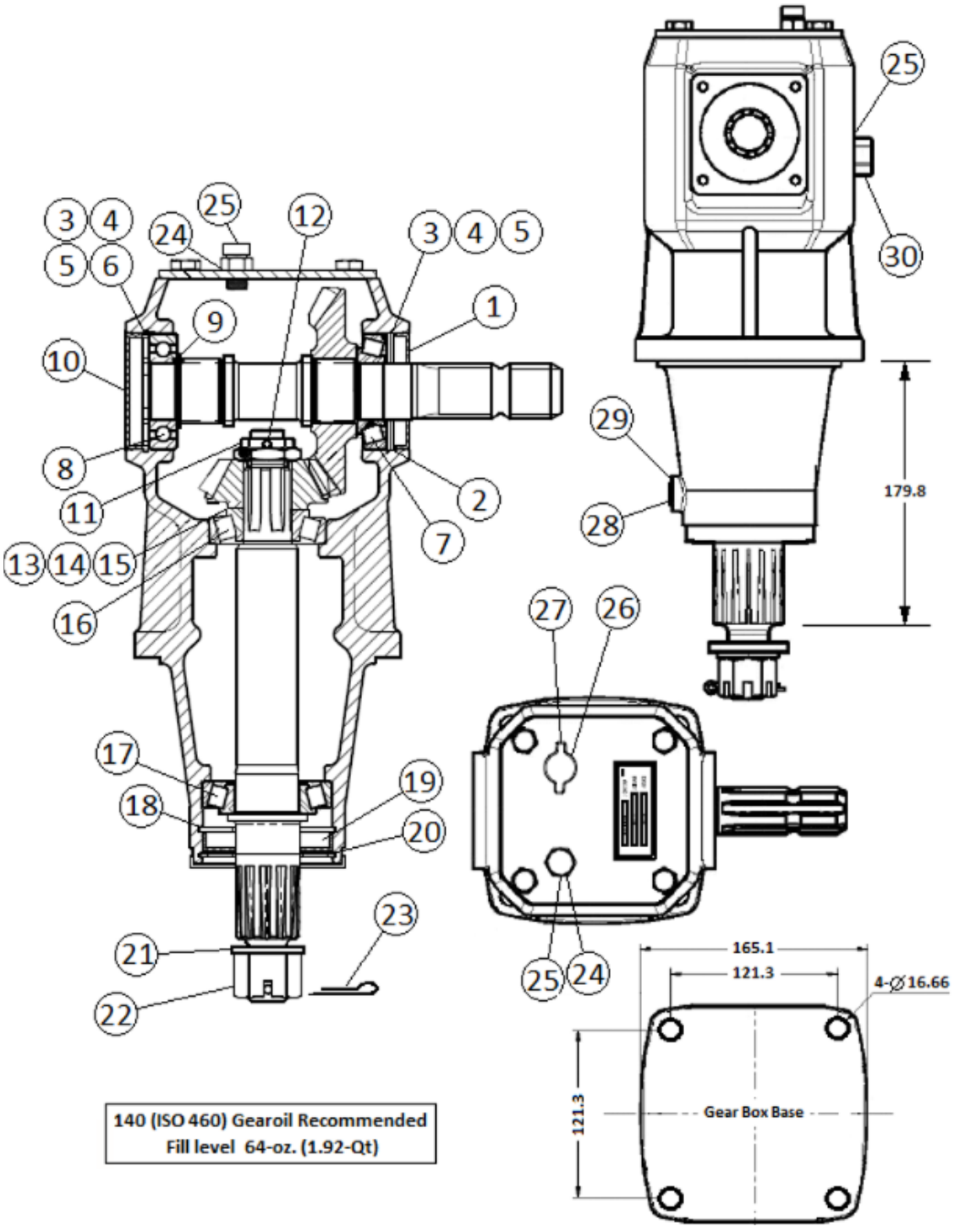
12.12 RW61T – T GEARBOX COMPONENTS

10-ft (2410 models)



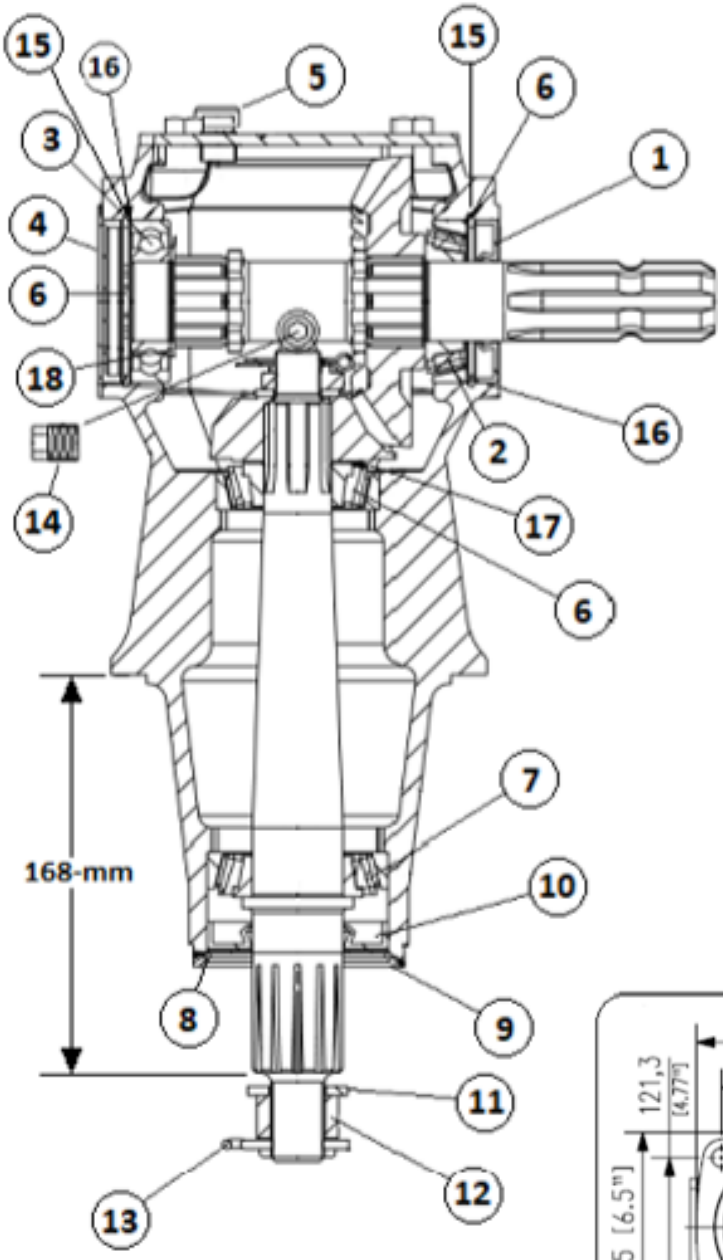
12.12 RW61T – T GEARBOX COMPONENTS – 10-FT (2410 MODELS)			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	551029	INPUT OIL SEAL 50 x 68 x 10	1
2	551028	INPUT GASKET KIT	1
3	551026	FRONT - INPUT CONE BEARING 368	1
4	551027	FRONT - INPUT BEARING CUP 362	1
5	551024	REAR - INPUT CONE BEARING 368A	1
6	551025	REAR - INPUT BEARING CUP 362A	1
7	551020	OUTPUT OIL SEAL 35 x 60 x 12	2
8	551021	OUTPUT GASKET KIT	1
9	551022	OUTPUT CONE BEARING LM603049	2
10	551023	OUTPUT BEARING CUP LM603014	2
11	110008	PRESSURE RELIEF PLUG	1
12	551053	DRAIN PLUG (Allen Head)	1
13	110009	PIPE PLUG (Square Head) OIL LEVEL CHECK	1
180000		COMPLETE CENTER T-GEARBOX (1:1 / 1:1.21 / 1:1.46 Ratio)	

12.13 GTM – OUTBOARD GEARBOX COMPONENTS

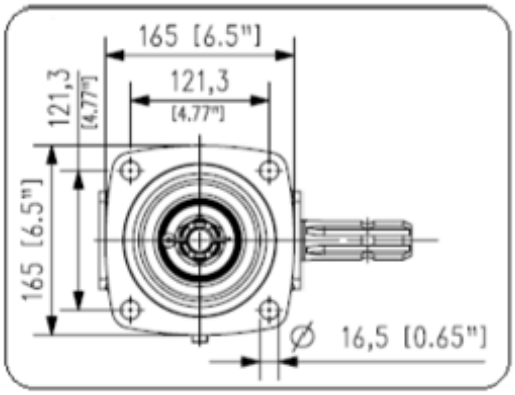


12.13 GTM – OUTBOARD GEARBOX COMPONENTS			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	191320	DOUBLE LIP SEAL 35 x 72 x 10	1
2	191321	SNAP RING 72 x 2.5	2
3	191322	ADJ. WASHER 62 x 71.8 x 0.1	2
4	191323	ADJ. WASHER 62 x 71.8 x 0.3	2
5	191324	ADJ. WASHER 62 x 71.8 x 0.5	2
6	191325	ADJ. WASHER 62 x 71.8 x 1	1
7	191326	TAPERED ROLLER BEARING 30207	1
8	191327	BALL BEARING 6207	1
9	191328	FLATWASHER 35.2 x 45 x 2	1
10	191329	SOLID OIL SEAL PLUG 72 x 10	1
11	191330	CASTLE NUT M20 x 1.5	1
12	191331	COTTER PIN 4 x 40	1
13	191332	ADJ. WASHER 30.3 x 42 x 0.1	2
14	191333	ADJ. WASHER 30.3 x 42 x 0.3	1
15	191334	ADJ. WASHER 30.3 x 42 x 0.5	1
16	191335	TAPERED ROLLER BEARING 30306	1
17	191336	TAPERED ROLLER BEARING 30208	1
18	191337	SNAP RING 80 x 2.5	2
19	191338	DOUBLE LIP SEAL 40 x 80 x 12	1
20	191339	WASHER 40.1 x 79.9 x 1	1
21	191340	FLATWASHER 25 x 44 x 4	1
22	191341	CASTLE NUT M24 x 2	1
23	191342	COTTER PIN 5 x 50	1
24	191343	VENT PLUG M16 x 1.5	1
25	191344	WASHER FOR PLUG 16.2 x 19.9 x 1.5	2
26	191345	SEALED WASHER – OIL LEVELER	1
27	191346	OIL LEVELER EZ40 M16 x 1.5	1
28	191347	SOLID PLUG 9/16''-18UNF	1
29	191348	O-RING 11.2 x 2	1
30	191349	OIL PLUG M16 x 1.5	1
191304		OUTBOARD GEARBOX (RG40-A)	

12.14 COMER – OUTBOARD GEARBOX COMPONENTS



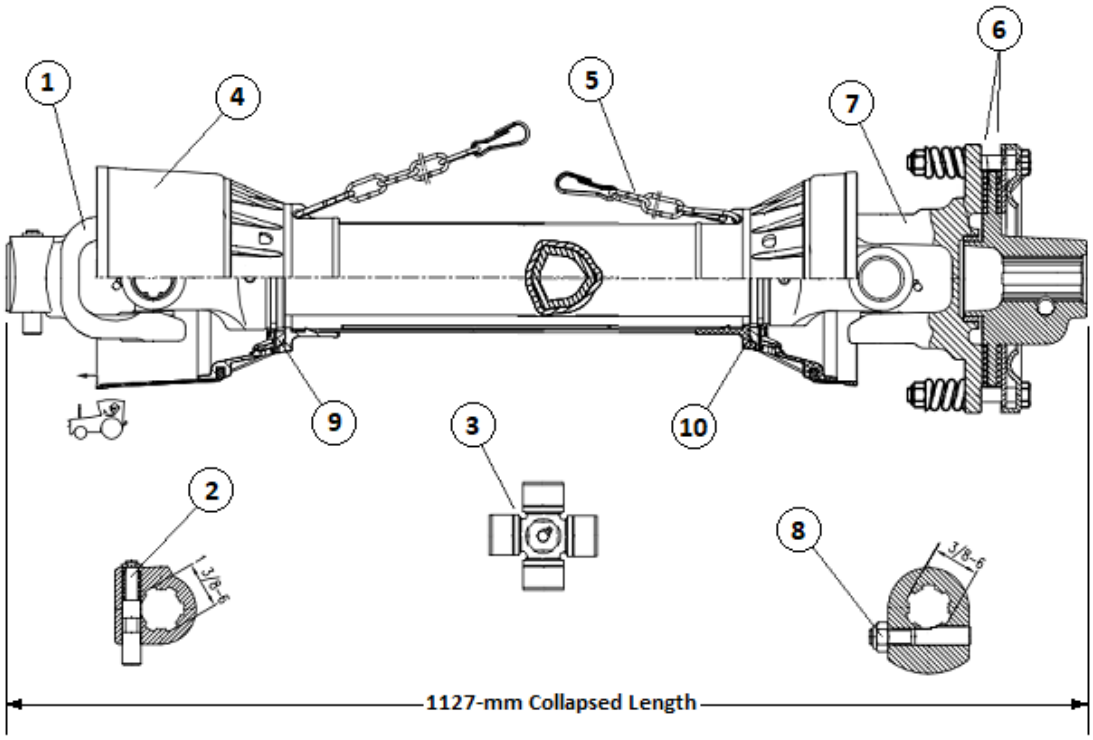
140 (ISO 460) Gearoil Recommended
Fill level 86-oz. (2.58-Qt)



COMER – OUTBOARD GEARBOX COMPONENTS			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	191320	INPUT OIL SEAL 35 x 72 x 10	1
2	191326	FRONT INPUT BEARING 30207	1
3	191327	REAR INPUT BEARING 6207	1
4	551083	OIL CAP 72 x 10	1
5	551084	BREATHER PLUG 3/8''	1
6	191335	TOP OUTPUT BEARING 30306	1
7	191336	BOTTOM OUTPUT BEARING 30208	1
8	551087	PROTECTIVE FLATWASHER	1
9	551088	SNAP RING 81 x 82.8 x 2	1
10	191338	OUTPUT OIL SEAL 40 x 80 x 12	1
11	191340	FLATWASHER 25 x 44 x 4	1
12	191341	CASTLE NUT M24 x 2	1
13	191342	COTTER PIN M5 x 50	1
14	EF1062	OIL PLUG 3/8''	1
15	551094	SNAP RING 72 x 75 x 2.5	2
16	551096	SHIM KIT 60.3 x 71.7	2
17	551095	SHIM KIT 30.3 x 44	1
18	551097	SHIM KIT 35.3 x 48 x 2	1
191204		Outboard Gearbox – COMER 9.250.802.00	

12.15 RW111-725 (SERIES-5) DRIVELINE COMPONENTS

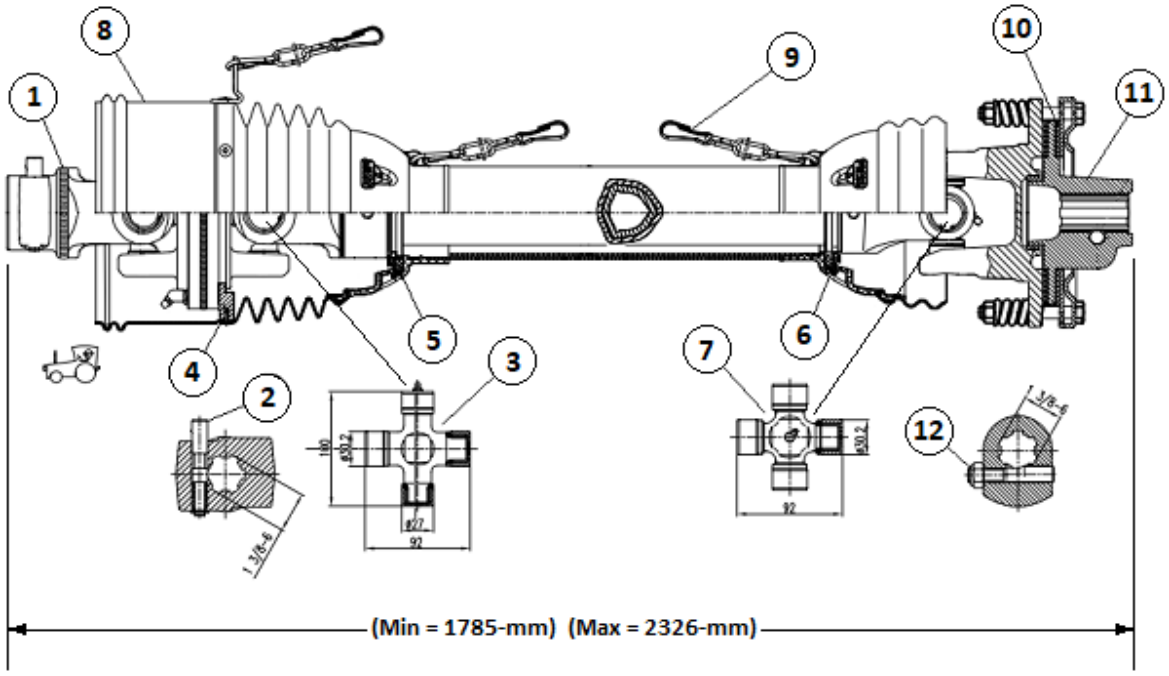
Lift Type models



12.14 RW111-725 (SERIES-5) DRIVELINE COMPONENTS – LIFT TYPE MODELS			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	552040	TRACTOR YOKE W/PUSH PIN 1-3/8'' 6-SPLINE (540-RPM)	1
2	552041	PUSH PIN KIT	1
3	552048	CROSS KIT 30.25 x 80	2
4	552042	COMPLETE SAFETY SHIELD	1
5	552005	SAFETY CHAIN	2
6	552025	CLUTCH LINING (2-Pack)	1
7	552044	COMPLETE SLIPCLUTCH	1
8	552033	ECCENTRIC PIN W/NUT	1
9	552028	OUTER PLASTIC SHIELD BEARING	1
10	552029	INNER PLASTIC SHIELD BEARING	1
160010		DRIVELINE WITH 1-3/8'' 6-SPLINE TRACTOR YOKE	

12.16 DRIVELINE COMPONENTS

Pull Type models



12.15 DRIVELINE COMPONENTS – PULL TYPE MODELS			
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	552050	TRACTOR YOKE W/PUSH PIN 1-3/8'' 6-SPLINE	1
2	552051	PUSH PIN KIT	1
3	552052	CROSS KIT 30.2/92 x 27/100	2
4	552053	FIXED RING FOR C.V. SHIELD	1
5	552028	OUTER PLASTIC SHIELD BEARING	1
6	552029	INNER PLASTIC SHIELD BEARING	1
7	552056	CROSS KIT 30.2 x 92	1
8	552057	COMPLETE SAFETY SHIELD	1
9	552005	SAFETY CHAIN	3
10	552025	CLUTCH LINING (2-Pack)	1
11	552059	COMPLETE SLIPCLUTCH	1
12	552033	ECCENTRIC PIN W/NUT	1
180041		COMPLETE C.V. DRIVELINE W/SLIPCLUTCH (540-RPM)	

WARRANTY INFORMATION

For up to date warranty information visit our website www.ironcraftusa.com/warranty

LIMITED WARRANTY

Ironcraft products are warranted to be free from defects in workmanship or materials for a period of 12 months from the initial sale, lease or rental date.

WARRANTY EXCLUSIONS

This warranty does not cover normal wear items, including but not limited to: bearings, hoses, ground engaging parts such as teeth, blades, cutting edges, pilot bits, auger teeth and broom bristles. This warranty does not cover maintenance, service or adjustments. This warranty does not cover damage due to misuse, negligence, accidents, improper maintenance or modifications of this product. This warranty is void if any components have been disassembled, i.e., pumps, gear boxes or motors. Specially modified attachments built by IronCraft X-treme Attachments to meet your customers' needs shall not be warranted by Construction Implement Depot, Inc. This warranty does not cover replacement parts not supplied by IronCraft, Inc.

WARRANTY STATEMENT

Our obligation under this Limited Warranty shall be solely limited to repairing or replacing any part (see non-covered items above) free of charge that, according to our judgment, show evidence of a defect in quality of workmanship or materials for the stated 12 month warranty period. All defective parts must be routed directly to IronCraft with freight or delivery charges to be prepaid. This limited warranty shall not be interpreted to render IronCraft liable for any injury or damage to persons, businesses or property of any kind nor expenses or losses incurred for labor, supplies, substitute machinery rental or for any other reason. Repair or replacement parts are subject to the supply conditions at the time of repair or replacements, which may directly affect our ability to obtain material and/or replacement parts. IronCraft reserves the right to make improvements in design or changes in specifications at any time without incurring any obligations to owners of previously purchased products. No one but IronCraft is allowed to alter, modify or enlarge this warranty nor the exclusions, limitations and reservation at any time.

WARRANTY SERVICE PROCEDURE

RGA (Returning Goods Authorization) Policy:

If repairs are required, IronCraft must obtain an RGA number from the manufacturer of the defective part and proof of purchase. RGA and services are rendered by IronCraft only. Any responsibility of shipping costs on any item returned for repair is at the discretion of IronCraft.

All returned parts must have:

1. A legible RGA number written on the outside of the package.

2. A Service Request Form.

3. The defective part.

RGA numbers are only valid for 30 days from the date of issue. All shipped replacement parts will require a PO number from the original IronCraft Customer. If the defective part is rendered non-warranty, the PO number will be invoiced for the replacement. Should you have any problems with your attachment, please follow the following procedures to obtain service.

Call the Warranty Department at (336) 859-2002 ext 215. You will need to provide the model and serial number of the defective item(s), a description of the problem and have photographs available.

Upon a warranted issue, visit www.ironcraftusa.com, click on the warranty tab, and fill in the warranty information. IronCraft will retain an RGA number from the manufacturer of the defective part. If all the information above is fulfilled the manufacturer will issue an RGA number.

Obtain a PO number from the original IronCraft customer. PO numbers will be invoiced in the event the defective part(s) is un-warranted

IronCraft will ship a replacement part with a Service Request Form and RGA #. There will be a call tag with the Manufacturer's address and instructions for returning the defective part.

Once the defective part is warranted by the manufacturer, IronCraft will be issued a credit and the PO number will be void.

In the event the manufacturer renders that the attachment be returned to IronCraft for repair, IronCraft will make arrangements for pickup and return. Repairs will be performed by IronCraft qualified technicians. Non-warranted issues will be discussed and repairs will be performed upon agreement of the owner, and payment for parts and labor will be issued.

SAFETY ACKNOWLEDGEMENT FORM

ATTN ALL OPERATORS: Write your name, signature and date in the boxes below to acknowledge that you have read and fully understand the safety instructions presented in this manual, and have been trained on how to safely operate this attachment.

OPERATOR NAME	SIGNATURE	DATE

MAINTENANCE LOG

Use this log sheet to document all routine maintenance and repair services performed on this machine.

DESCRIPTION OF MAINTENANCE	SERVICED BY	DATE

IRONCRAFT™

(P) 423-405-5150
(F) 423-405-5904

WWW.IRONCRAFTUSA.COM

FARM EQUIPMENT MANUFACTURERS ASSOCIATION
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