

TERRAIN KING™

Engineering Practical Solutions™

OPERATOR'S MANUAL

KSM60

**SIDE MOUNT
ROTARY & FLAIL
MOWERS**



Safety Video



www.algqr.com/kbv

This Operator's Manual is an integral part of the safe operation of this machine and must be maintained with the unit at all times. **READ, UNDERSTAND, and FOLLOW** the Safety and Operation Instructions contained in this manual before operating the equipment.

Important Operating and Safety Instructions are found in the Mower Safety Video that can be instantly accessed on the internet at: www.algqr.com/kbv C01-Cvr Kubota

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Terrain King Web Page



www.algqr.com/kwe

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¡ATENCIÓN!
LEA EL INSTRUCTIVO



Si No Lee Ingles, Pida
Ayuda a Alguien
Que Se Lo Lea Para Que le
Traduzca Las
Medidas de Seguridad

**MEMBER OF THE
ALAMO GROUP**
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⚠ PELIGRO	⚠ DANGER
<p>Si no puede leer inglés: antes de poner en funcionamiento este equipo, solicite que alguien le traduzca los mensajes de seguridad o vaya al sitio web para consultar los mensajes de seguridad y las etiquetas ya traducidos.</p>	<p>Si vous ne pouvez pas lire l'anglais : avant d'utiliser l'équipement, demandez à une personne de vous traduire les messages de sécurité ou allez sur le site Internet pour voir la traduction des autocollants et des messages de sécurité.</p>
<p>El Manual del Operador Seguridad vídeo</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">   </div> </div> <p> www.algqr.com/kbs www.algqr.com/avs </p>	<p>Manuel de l'Opérateur</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">  </div> </div> <p> www.algqr.com/kbf </p>

⚠ PERIGO	⚠ GEFAHR
<p>Caso você não leia inglês: antes de operar o equipamento, peça para alguém traduzir as mensagens de segurança ou visite a web e obtenha tais mensagens ou os decalques traduzidos.</p>	<p>Falls Sie nicht Englisch sprechen: Bevor Sie die Geräte in Betrieb nehmen, bitten Sie eine Englisch sprechende Person darum, Ihnen die Sicherheitsmeldung zu übersetzen, oder besuchen Sie die Website; dort finden Sie übersetzte Aufkleber und Sicherheitsmeldungen.</p> <p style="text-align: right;">D843_3</p>
<p>Manual do Operador</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">  </div> </div> <p> www.algqr.com/kbp </p>	<p>Benutzerhandbuch</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">  </div> </div> <p> www.algqr.com/kbg </p>



➤ **BE SAFE!**

➤ **BE ALERT!**

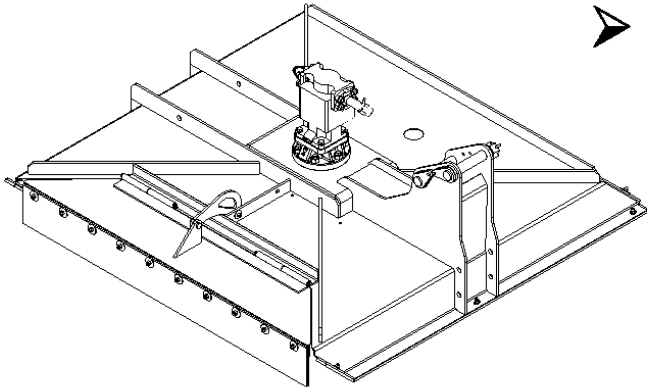
➤ **BE ALIVE!**

➤ **BE TRAINED**
before operating
the Mower!

Safety Video



www.algqr.com/kbv



Safety Training Makes the Difference

In order to reduce accidents and enhance the safe operation of mowers, *Terrain King*, in cooperation with other industry manufacturers has developed the AEM/FEMA Industrial and Agricultural Mower Safety Practices video and guide book.

The video will familiarize and instruct mower-tractor operators in safe practices when using industrial and agricultural mowing equipment. It is important that Every Mower Operator be educated in the operation of their mowing equipment and be able to recognize the potential hazards that can occur while operating a mower. This video, along with the mower operator's manual and the warning messages on the mower, will significantly assist in this important education.

Your Authorized *Terrain King* Dealer may have shown this video and presented you a DVD Video when you purchased your mower. If you or any mower operator have not seen this video, Watch the Video, Read this Operator's Manual, and Complete the Video Guidebook before operating your new mower. If you do not understand any of the instructions included in the video or operator's manual or if you have any questions concerning safety of operation, contact your supervisor, dealer or *Terrain King*.

If you would like a VHS video tape of the video, please email AEMVideo@alamo-group.com or Fax AEM VHS Video at (830) 372-9529 or mail in a completed copy of the form on the back of this page to AEM VHS Video 1502 E Walnut Street, Seguin, TX 78155. and request the VHS video version. Please include your name, mailing address, mower model and serial number.

Every operator should be trained for each piece of equipment (Tractor and Mower), Understand the intended use, and the potential hazards before operating the equipment.

The information and material listed above along with this Operator's Manual can assist you in meeting the OSHA requirement for Operator annual training.

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 or implement 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.

**Terrain King Division is willing to provide
one (1) AEM Mower Safety Practices Video**

Please Send Me: ☐ VHS Format – AEM/FEMA Mower Operator Safety Video

☐ DVD Format – AEM/FEMA Mower Operator Safety Video

☐ Mower Operator's Manual

☐ AEM Mower Operator's Safety Manual

Requester Name _____ Phone: _____

Requester Address: _____

City _____

State _____

Zip Code _____

Mower Model: _____ Serial Number: _____

Date Purchased: _____ Dealer Salesperson: _____

Dealership Name: _____ Dealership Location: _____

Mail to:

AEM Video Services

1502 E. Walnut Street

Seguin, TX 78155

Or Fax to:

(830) 372-9529

Or Email to:

AEMVideo@alamo-group.com

To the Owner/Operator/Dealer

This Operator's Manual is an integral part of the safe operation of this machine and must be maintained with the implement at all times. A Manual canister is provided on the implement where this manual can be properly stored. If you lose or damage this manual a free replacement manual can be obtained from an authorized *Terrain King* dealer or by downloading the manual from the *Terrain King* website www.terrainingking.com

BEFORE YOU START!! READ, UNDERSTAND, and FOLLOW the information provided in this manual, the AEM Mower Safety manual and the tractor operator's manual carefully to learn how to operate and service your machine properly. Failure to do so could result in personal injury to you and bystanders. All implements with moving parts are potentially hazardous. Every effort has been made to ensure that the machine is safe but operators must avoid engaging in unsafe practices and follow the written instructions provided. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

SAFETY FIRST. Completely read and understand the safety section of this manual before operating this equipment. Do not allow anyone to operate this equipment who has not fully read and understood this manual. Contact your Dealer to explain any instructions that you do not fully understand.

The care you give your *Terrain King* Implement will greatly determine your satisfaction with its performance and its service life. Carefully read and follow the instructions in this manual to provide you with a thorough understanding of your new implement and its intended use and service requirements.

All references made in this manual to right, left, front, rear, top or bottom are as viewed facing the direction of forward travel with the implement properly attached to the tractor.

Replacement Parts information is located in a separate Parts Manual. *Terrain King* mowers use balanced and matched system components for blade carriers, blades, cuttershafts, knives, knife hangers, rollers, drivetrain components, and bearings. These parts are made and tested to *Terrain King* specifications. Non-genuine "will fit" parts do not consistently meet these specifications. The use of "will fit" parts may reduce mower performance, void warranties, and present a safety hazard. Use genuine *Terrain King* mower parts for economy and safety.

For future reference, record your *Terrain King* product model number and serial number.

Dealer		Telephone		Model Number	
Owner		Purchase Date:		Serial Number	



DEALER to CUSTOMER Pre-Delivery/ Operation Instructions

Dealer should inform the Purchaser of this product of Warranty terms, provisions, and procedures that are applicable. Dealer should inform Purchaser to review the contents of the Operator's Manual including safety equipment, safe operation and maintenance, to review the Safety Signs on the implement (and tractor if possible) and of Purchaser's responsibility to train his/her operators of safe operation procedures.

- **IMPLEMENTS:** I have explained that Deflectors, Chain Guards, or Solid Skirts must be installed and maintained in good repair.
- **DRIVELINES:** I have made certain that all driveline, gearbox, and other shields are in good repair and fastened securely in place to prevent injuries from entanglement or thrown objects.
- **HYDRAULIC MACHINES:** I have explained the necessity of using clean hydraulic oil, changing filters as instructed, stopping leaks, damage caused by operating with over-heated oil, caring for hoses, using hoses of proper rating, maintaining the specified operating pressure and the potential hazard of oils penetrating the skin.
- **FOLDING-TYPE IMPLEMENTS:** I have explained that it is not possible to guard against thrown objects when the head is lifted off ground and that operator is responsible to watch out for persons in the area. I have explained that the lifted mower head or boom can contact overhead obstructions with damage to cables and telephone lines and possible injury. I have explained that the extended head or boom or retracted boom can contact power lines resulting in electrocution, injury or death and that operator is responsible for keeping clear of such hazards.

PRE-DELIVERY SERVICE CHECK AND ADJUST OR LUBRICATE AS REQUIRED See Operator's Manual for Details

Inspection Performed - Warranty and Safety Procedures Explained - Installation Complete

LUBRICATION & HYDRAULICS

- ☐ Gearbox (Oil Levels)
- ☐ Hydraulic Oil Level (External Tank)
- ☐ Tractor Hydraulic Oil Level
- ☐ Hydraulic Hoses (Not Kinked Tighten Connections)
- ☐ Front Pump Drive (Assembly Is Tight And Shaft Properly Aligned)

MOWER

- ☐ Mower Cutting Height And Level Adjusted
- ☐ Cutting Shaft Bearings Lubricated
- ☐ All Hardware Properly Torqued

ATTACHMENTS & INSTALLATION

- ☐ Deflectors Front And Rear
- ☐ Correct Blade Rotation Direction

MOWER TO TRACTOR CONNECTIONS

- ☐ A-Frame Pivot & Links
- ☐ Axle Height (Adjusted)
- ☐ Cutting Height (Adjust)
- ☐ Mount Kit-Pre-Operation Check Complete
- ☐ Mower Wing (Adjust Level With The Center)
- ☐ Mower Wing (Check For Proper Raising Operation)
- ☐ Mounting Hardware Properly Torqued

SAFETY ITEMS

- ☐ Protective Shields (Operation And Installation)
- ☐ Driveline Clutch (Torque Limiter) (Adjust And Run In)
- ☐ Safety Decals (Installed)
- ☐ Operator's Manual (Supplied)
- ☐ Tractor PTO Shield (Installed)
- ☐ S.M.V. Emblem (Installed If Needed)
- ☐ ADMA Driveline Safety Manual Supplied
- ☐ AEM Mower Safety Manual (Supplied in Canister)
- ☐ AEM Mower Safety Video has been shown to Purchaser

TABLE OF CONTENTS

SAFETY SECTION	1-1
GENERAL SAFETY INSTRUCTIONS AND PRACTICES	1-2
Operator Safety	1-3
CRUSHING HAZARDS	1-4
CONNECTING OR DISCONNECTING IMPLEMENT SAFETY	1-5
THROWN OBJECTS HAZARDS	1-6
THROWN OBJECTS HAZARDS (Continued)	1-7
RUN OVER HAZARDS	1-8
PTO ENTANGLEMENT HAZARDS	1-9
MOWER BLADE CONTACT HAZARDS	1-10
HIGH PRESSURE OIL LEAK HAZARD	1-11
ELECTRICAL & FIRE HAZARDS	1-12
TRANSPORTING HAZARDS	1-13
HAZARDS WITH MAINTENANCE OF IMPLEMENT	1-14
PARTS INFORMATION	1-15
Decal Location	1-15
Decal Description	1-20
FEDERAL LAWS AND REGULATIONS	1-30
 INTRODUCTION SECTION	 2-1
Specifications	2-4
 OPERATION SECTION	 3-1
OPERATOR REQUIREMENTS	3-3
TRACTOR REQUIREMENTS	3-4
ROPS and Seat Belt	3-4
Tractor Safety Devices	3-4
Tractor Horsepower	3-4
Front End Weight	3-5
GETTING ON AND OFF THE TRACTOR	3-5
Boarding the Tractor	3-5
Dismounting the Tractor	3-6
STARTING THE TRACTOR	3-7
SETTING THE MOWER	3-8
PRE-OPERATION INSPECTION AND SERVICE	3-9
Tractor Pre-Operation Inspection/Service	3-10
Mower Pre-Operation Inspection/Service	3-10
Cutting Component Inspection	3-14
Blade Bolt Inspection	3-16
Flail Blades Inspection	3-17
Blade Pins and D-Ring Inspection	3-18
DRIVING THE TRACTOR AND IMPLEMENT	3-21
Basic Troubleshooting Guide for First Start-up	3-21
Starting the Tractor	3-22
Brake	3-23
OPERATING THE CONTROL VALVES	3-24
Operating The Control Valves - Side Mount / Breakaway	3-25
Driving the Tractor and Cutter	3-27
Crossing Ditches and Steep Inclines	3-27

OPERATING THE TRACTOR AND IMPLEMENT	3-28
Foreign Debris Hazards	3-29
Bystanders/Passersby Precautions	3-29
PTO RPM and Ground Speed	3-30
Operating the Mower	3-31
Right of Way (Highway) Mowing	3-32
Shutting Down the Implement	3-33
DISCONNECTING THE MOWER FROM THE TRACTOR	3-33
MOWER STORAGE	3-34
TRANSPORTING THE TRACTOR AND IMPLEMENT	3-35
Transporting on Public Roadways	3-36
Hauling the Tractor and Implement	3-37
TROUBLESHOOTING GUIDE	3-39

MAINTENANCE SECTION 4-1

PARTS INFORMATION	4-3
Lubrication Information	4-3
Mower Heads	4-3
Hydraulic Fluid	4-5
Proper Oil Level	4-6
Blades	4-6
HARDWARE	4-7
Cylinder Rod Maintenance	4-7
Hydraulic Component Maintenance Schedule	4-8
LEXAN Sheet Cleaning Recommendations	4-8
Cleaning Procedure for Small Areas - Manual	4-8
Cleaning Procedure for Large Areas - Automated	4-9
Other Important Instructions for All Lexan Sheets:	4-9
Additional Important Considerations for Multiwall, Corrugated and Sign Sheet	4-9
Graffiti removal from Lexan* Margard* sheet	4-9
Proper Torque for Fasteners	4-9
SPINDLE SERVICE PROCEDURE 34802960553B and 34802960553C	4-11
CLEANING	4-12
INSPECTION	4-12
ROLLER BEARING REPLACEMENT	4-13
General Information on Flail Mower Vibration	4-14

SAFETY SECTION

Safety Section 1-1

SAFETY

GENERAL SAFETY INSTRUCTIONS AND PRACTICES

A careful operator is the best operator. Safety is of primary importance to the manufacturer and should be to the owner/operator. Most accidents can be avoided by being aware of your equipment, your surroundings, and observing certain precautions. The first section of this manual includes a list of Safety Messages that, if followed, will help protect the operator and bystanders from injury or death. Read and understand these Safety Messages before assembling, operating or servicing this Implement. This equipment should only be operated by those persons who have read the manual, who are responsible and trained, and who know how to do so responsibly.



The Safety Alert Symbol combined with a Signal Word, as seen below, is used throughout this manual and on decals which are attached to the equipment. The Safety Alert Symbol means: "ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!" The Symbol and Signal Word are intended to warn the owner/operator of impending hazards and the degree of possible injury faced when operating this equipment.

Practice all usual and customary safe working precautions and above all---remember safety is up to YOU. Only YOU can prevent death or serious injury from unsafe practices.



Indicates a hazardous situation that, if not avoided, WILL result in DEATH OR VERY SERIOUS INJURY.



Indicates a hazardous situation that, if not avoided, COULD result in DEATH OR SERIOUS INJURY.



Indicates a hazardous situation that, if not avoided, MAY result in MINOR OR MODERATE INJURY.







Indicates information considered important, but not hazard-related (e.g. messages relating to property damage).

NOTE: Identifies points of particular interest for more efficient and convenient operation or repair.

READ, UNDERSTAND, and FOLLOW the following Safety Messages. Death or serious injury may occur unless care is taken to follow the warnings and instructions stated in this Manual and in the Safety Messages on the implement. Always follow the instruction in this manual and use good common sense to avoid hazards.



Pictographs are used throughout this manual to help bring your visual attention to safety issues.

SAFETY HAZARD	SAFETY AVOIDANCE	SAFETY PREVENTION
<p>Pictograph surrounded by a triangle indicates a Safety Hazard that must be avoided.</p> <p>Example:</p>  <p>Equipment contacting overhead electrical lines</p>	<p>Pictograph in a circle with blue or black background, by itself or inside a box, indicates an avoidance procedure or action that should be followed to prevent injuries.</p> <p>Example:</p>  <p>Wear safety footwear.</p>  <p>Always shut off engine and remove key before working on equipment.</p>	<p>A circle with a slash through it indicates an action that is prohibited.</p> <p>Example:</p>  <p>No Smoking</p>

NOTE: If you want a translation of this safety section in one of the following Languages, please contact: Translations at 1502 E. Walnut Street Seguin, TX 78155; Fax: (830) 372-9529; Safety Section Translations are available in Spanish, Portuguese, French, German, Russian. PN GS-01

SAFETY

Operator Safety

				
Read and understand Operator's Manual	Always wear Safety Glasses with side shields marked to comply with ANSI Z87	Wear Hard Hat Safety Shoes	Never use Drugs or Alcohol when operating equipment	Wear Safety Vest when operating on or near roads

WARNING

TO AVOID DEATH OR SERIOUS INJURY DO THE FOLLOWING:

- **READ, UNDERSTAND** and **FOLLOW** Operator's Manual instructions, Warnings and Safety Messages.
- **WEAR SAFETY GLASSES** with side shields (marked with ANSI Z87), safety shoes, hard hat, hearing protection and gloves when operating or repairing equipment
- **WEAR** appropriate breathing respirator when operating in dusty conditions to avoid respiratory diseases.
- **DO NOT WEAR** loose clothing or jewelry to avoid rotating parts entanglement injury.
- **DO NOT USE DRUGS** or **ALCOHOL** before or while operating equipment.
- **DO NOT ALLOW** anyone to operate equipment under the influence of drug or alcohol.
- **CONSULT** medical professional for medication impairment side effects.
- **STAY CLEAR** of hot surfaces such as Mufflers, hydraulic pumps, valves and tanks.
- **STAY ALERT**, prolonged operation can cause fatigue, **STOP** and **REST**.

GENERAL OPERATING SAFETY

VISIBILITY CONDITIONS WHEN MOWING:

- **OPERATE IN DAYLIGHT** or with lights that gives at least 100 yards clear visibility.
- **BE ABLE TO SEE** and identify passersby, steep slopes, ditches, drop-offs, overhead obstructions, power lines, debris and foreign objects.
- Avoid backing up while mowing, vision may be limited, severe damage or injury can occur.
- **DO NOT** run tractor in enclosed building without adequate exhaust ventilation.

GROUND SPEED WHEN MOWING:

- **NORMAL SPEED** range is between 1 to 2 mph (1-3 kph).
- **ADJUST MOWING SPEED** for terrain conditions and grass type, density and cut height.
- **REDUCE MOWING SPEED** when near steep slopes, ditches, drop-offs, overhead obstructions, power lines and to avoid debris and foreign objects.

TRACTOR and MOWER

- **DO NOT** operate the tractor or mower unless the equipment is maintained and operating properly.
- **DISCONTINUE OPERATION** if tractor or mower electrical and hydraulic controls do no function properly.
- **DISCONTINUE OPERATION** of the tractor if the braking or steering systems do not function properly.
- **DO NOT** operate the tractor or mower if there are any hydraulic leaks.

INSECT INFESTATION

- **DO NOT** operate in areas where bees or insects may attack unless you **WEAR PROTECTIVE CLOTHING** or use enclosed tractor cab.

PTO SPEED:


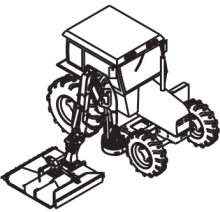



- **DO NOT EXCEED IMPLEMENT RATED PTO SPEED**
- **AVOID** exceeding rated PTO speeds that may result in broken drivelines or blade failures.

SAFETY SIGNS:

- **REPLACE** missing, damaged or unreadable safety signs immediately. **PN OSBM-01**

SAFETY

CRUSHING HAZARDS

				
Crushing injury from roll over	Use Cab Tractor With Boom Mowers	Always wear seatbelt	Pinch Point Hazard Keep Hands and body parts clear of pinch points	Crushing injury from boom or mower head falling



TO AVOID DEATH OR SERIOUS INJURY FROM FALLING OFF TRACTOR, EQUIPMENT RUN OVER, ROLLOVER AND CRUSHING BY FALLING WING OR IMPLEMENT:

- **USE ROPS** and **SEAT BELT** equipped tractors for mowing operations.
- **KEEP ROPS** locked in up position.
- **ALWAYS BUCKLE UP** seat belt when operating tractor and equipment.
- **ONLY OPERATE** tractor and equipment while seated in tractor seat.

WHEN RAISING BOOM MOWER:

- Raise or lower **ONLY WHILE SEATED** in tractor seat with seat belt buckled.
- **KEEP BYSTANDERS CLEAR** of area **TO AVOID** crushing.
- **KEEP** sufficient clearance around implement and wings **TO AVOID** contacting buildings or overhead power lines.

LIFTED Equipment can fall from mechanical or hydraulic failure or inadvertent Control Lever movement.



TO AVOID EQUIPMENT FALLING while working near or under lifted boom, components and Mower Head:

- **SECURELY SUPPORT** or block up raised equipment, wings and components.
- **BLOCK UP** and securely support equipment before putting hands, feet or body under raised equipment or lifted components.
- **KEEP BYSTANDERS CLEAR** of raised boom or mower head until securely blocked up.

WHEN PARKING Implement and Tractor:

- **LOWER** Mower Head to the ground or **BLOCK** lifted parts before leaving equipment.
- **NEVER** leave implement unattended in a raised position.

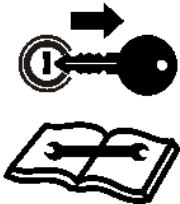


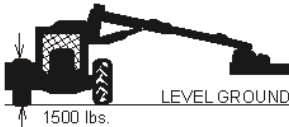


TO AVOID CHILDREN FALLING OFF OR BEING CRUSHED BY EQUIPMENT:

- **NEVER ALLOW** children to play on or around Tractor or Implement.
- **DO NOT** operate without operator CAB or OVERHEAD protection. Falling limbs and debris can cause injuries. **PN CHBM-01**

SAFETY

CONNECTING OR DISCONNECTING IMPLEMENT SAFETY

			
Stop Tractor Remove Key Read Manual	Crushing Hazard Do Not get under boom when connecting mower head to boom	Stability Hazard Ensure 20% of tractor weight is on front wheels	Stability Hazard Ensure 1500lbs down force on left tire with boom extended



TO AVOID DEATH OR SERIOUS INJURY FROM BEING CRUSHED BY TRACTOR OR IMPLEMENT:

WHEN connecting mower head to the boom:

- **KEEP BYSTANDERS AWAY** from tractor and mower.
- Ensure there is enough room to lift and swing the boom without hitting objects

BEFORE connecting and disconnecting the mower head or boom:

- **STOP TRACTOR ENGINE**, place transmission into park, engage parking brake and remove key.

WHEN connecting and disconnecting the mower head or boom:

- **DO NOT** crawl or walk under raised mower head or boom. (*Refer to Instructions in Operation Section*)

WHEN CONNECTING IMPLEMENT DRIVELINE: (If equipped)

TO AVOID implement driveline coming loose during operation:

- **LUBRICATE** yoke spring locking collar to ensure it freely slides on PTO shaft.
- **SECURELY** seat yoke locking balls in PTO shaft groove.
- **PUSH** and **PULL DRIVELINE** on both the tractor and implement **PTO SHAFTS** to ensure it is **SECURELY ATTACHED**.

TO AVOID broken driveline during operations:

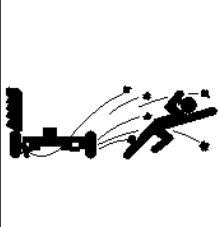

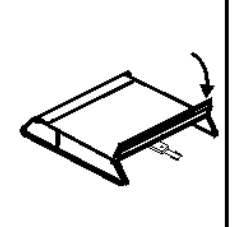

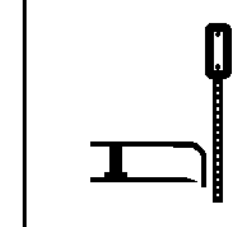
- **CHECK** driveline for proper length between PTO shaft and implement gearbox shaft. (*Refer to Instructions in Operation Section*)
- Drivelines too short can pull apart or disengage.
- Drivelines too long can bottom out.
- Bottoming driveline telescoping assembly will stop sliding and become solid.
- Driveline bottoming can push through support bearings and break off PTO shaft.

CONTACT DEALER if implement driveline does not match Tractor PTO shaft:

- **DO NOT USE PTO ADAPTER.**
Using a PTO adapter can cause:
 - Excessive vibration, thrown objects, blade and implement failures by doubling operating speed.
 - Increased working length exposing unshielded driveline areas and entanglement hazards. **PN CDBM-01**

SAFETY

THROWN OBJECTS HAZARDS

				
Mower Thrown Objects Hazard	Raised Mower Thrown Objects	Keep mower door closed when traffic comes within 300 feet	Inspect Area remove foreign objects	Do not let blades contact solid objects



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

TO AVOID DEATH OR SERIOUS INJURY TO OPERATOR OR BYSTANDERS FROM THROWN OBJECTS:

- KEEP bystanders 300 feet away

STOP MOWING IF PASSERSBY ARE WITHIN 300 FEET UNLESS:

- **ALL THROWN OBJECT SHIELDING** including, Front and Rear Rubber Deflectors, Guarding, Steel Guards, Bands, Side Skirts and Skid Shoes in place and in good condition when mowing.
- Mower is close and parallel to ground without exposing blades.
- **MOWING AREA** has been inspected and foreign materials and debris have been removed.
- **DO NOT** shred or mow loose or previously cut material if BYSTANDERS are within 300 feet.
- **PASSERSBY** are inside enclosed vehicle.

INSPECT AREA FOR POTENTIAL THROWN OBJECTS BEFORE MOWING:

- **REMOVE** debris, rocks, wire, cable, metal objects and other foreign material from area. Wire, cable, rope, chains and metal objects can be thrown or swing outside deck with great velocity. **DO NOT** allow the mower blades to contact decaying animal carcasses or other hazardous materials. The mower blades could throw hazardous and biologic material out from under mower exposing the operator and bystanders to health risks. Always wear required OSHA approved Personal Protective Equipment (PPE) when cleaning or removing potentially hazardous material from equipment.
 1. **MARK** objects that cannot be removed.
 2. **AVOID** these objects when mowing.

HIGH GRASS and WEED AREA INSPECTION:

- **INSPECT** for and **REMOVE** any hidden large debris.
- **MOW** at Intermediate height.
- **INSPECT** and remove remaining debris.
- **MOW** at final height.

MOWER THROWN OBJECT SHIELDING:

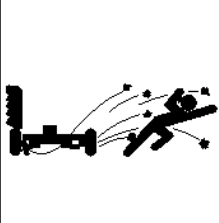

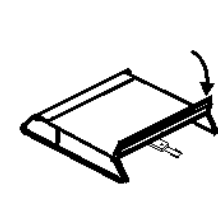

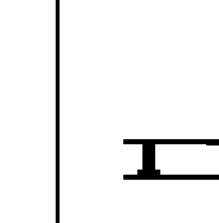
- **KEEP** all thrown object shielding including, Front and Rear Rubber Deflectors, Guarding, Steel Guards, Bands, Side Skirts and Skid Shoes in place and in good condition when mowing.
- **DO NOT OPERATE** with any thrown object shielding missing, damaged or removed.

RIGHT OF WAY (Highway) MOWING

- Stop mowing if any bystander comes within 300 feet of the mower.
- No shielding is 100% effective in preventing thrown objects. To Reduce Possibility of Injury:
 1. **MAINTAIN MOWER SHIELDING**, side skirts, skid shoes, and blades in good operational condition,
 2. **RAISE CUTTING HEIGHT** to **6 INCHES** minimum,
 3. **INSPECT AREA** thoroughly before mowing to **REMOVE** potential **THROWN OBJECT HAZARDS**.
 4. **NEVER ALLOW BLADES to CONTACT SOLID OBJECTS** like wire, rocks, post, curbs, guardrails, or ground while mowing. *PN TOBM-01*

SAFETY

THROWN OBJECTS HAZARDS (Continued)



				
Mower Thrown Objects Hazard	Raised Mower Thrown Objects	Keep mower door closed when traffic comes within 300 feet	Inspect Area remove foreign objects	Do not let blades contact solid objects

MOWER OPERATION:

- **DO NOT** exceed mower's rated Cutting Capacity or cut non-vegetative material.
- **USE ENCLOSED TRACTOR CABS** when two or more mowers are operating in mowing area.
- Do Not mow in areas where bees or insects may attack unless you **WEAR PROTECTIVE CLOTHING** or use enclosed tractor cab.
- **ADJUST** mower head close and parallel to ground without exposing blades.
- **ADJUST** cutting **HEIGHT** to **AVOID BLADE CONTACT** with solid objects like wire, rocks, posts, curbs, guard rails and fixed obstructions.
- **CLOSE** Mower door and stop operating if bystanders come within 300 feet of the mower.
- Keep mower door closed when cutting close to the ground.
- Open door only to cut large brush or tree limbs. Close door immediately after cutting limb.
- **DO NOT** push mower head down onto material to cut it, use the front tips of the mower blades to cut into the material.
- **DO NOT** operate mower when mower is in transport position.
- **STOP MOWING** immediately if blades strike heavy objects, fixed structures, metal guard rails and concrete structures:
 1. **BLADES CAN FAIL** from impact and objects can be thrown with great velocity.
 2. **INSPECT** and **REPLACE** any damaged blades.
 3. **CHECK** blade carrier and **REPLACE** if damaged.
- **DO NOT** mow in standing water **TO AVOID** possible **BLADE FAILURE**.
- **AVOID MOWING** in reverse:
 1. **STOP PTO** and back up mower.
 2. **LOWER** mower, engage **PTO** and mow forward.
- **DISENGAGE** mower head and wait until **BLADES** stop rotating before raising mower to transport position.
- **DO NOT ENGAGE PTO** with mower in transport position.
- **STOP** mowing when **EXCESSIVE VIBRATION** occurs:
 1. **STOP PTO** and tractor **ENGINE**.
 2. **INSPECT** mower for vibration source.
 3. **REPLACE** any damaged parts and bent or damaged **BLADES**. *PN TOBM-02*

SAFETY

RUN OVER HAZARDS

		
Operator run over hazard	Rider fall off run over hazard	Bystander run over hazard



TO AVOID DEATH OR SERIOUS INJURY FROM FALLING OFF TRACTOR OR EQUIPMENT RUN OVER:


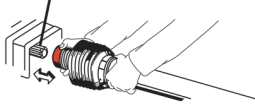
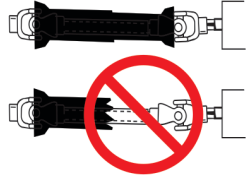
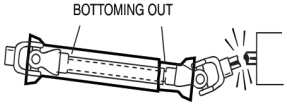
- **USE ROPS** and **SEAT BELT** equipped tractors for mowing operations.
- **KEEP ROPS** locked in **UP** position.
- **ONLY** start tractor while seated in tractor seat.
- **ALWAYS BUCKLE UP** seat belt when operating tractor and equipment.
- **ONLY OPERATE** tractor and equipment while seated in tractor seat.
- **NEVER ALLOW RIDERS** on tractor or implement.
- When not mowing stow Boom and Mower head in transport location before moving.

WHEN MOUNTING AND DISMOUNTING TRACTOR:

- **ONLY** mount or dismount when tractor and moving parts are stopped.
- **STOP ENGINE AND PTO**, engage parking brake, lower implement, allow all moving parts to stop and remove key before dismounting from tractor. *PN ROBM-01*

SAFETY

PTO ENTANGLEMENT HAZARDS

			
Entanglement hazard Do Not approach or touch a rotating PTO driveshaft	Make sure PTO shaft is securely attached Do Not Use PTO Adapter	DO NOT Operate if PTO shields are damaged or missing	Make sure PTO shafts are proper length



KEEP AWAY FROM ROTATING DRIVELINES AND ELEMENTS TO AVOID DEATH OR SERIOUS INJURY:

STAY AWAY and **KEEP** hands, feet and body **AWAY** from rotating blades, drivelines and parts until all moving elements have stopped.

- **STOP, LOOK** and **LISTEN** before approaching the mower to make sure all rotating motion has stopped.
- **ROTATING COMPONENTS CONTINUE** to **ROTATE** after the PTO is shut off.

PTO SHIELDING:

TO AVOID DEATH OR SERIOUS INJURY FROM ENTANGLEMENT WHEN OPERATING IMPLEMENT:

- **KEEP PTO** shields, integral driveline shields and input shields installed
- **DO NOT OPERATE** mower without shields and guards in place or missing
- **REPAIR OR REPLACE** guards and shields if damaged, broken or missing
- **ALWAYS REPLACE GUARDS** that have been removed for service or maintenance.
- Do Not use PTO or PTO guard as a step.

TO AVOID broken driveline during operations:

- **CHECK** driveline for proper length between PTO shaft and implement gearbox shaft. *(Refer to Instructions in Operation Section)*
- Drivelines too short can pull apart or disengage.
- Drivelines too long can bottom out.
Bottoming driveline telescoping assembly will stop sliding and become solid.
- Driveline bottoming can push through support bearings and break off PTO shaft
- **AVOID** sharp turns or lifting mower to heights that cause driveline "knocking".
- Lubricate driveshaft-telescoping components weekly.




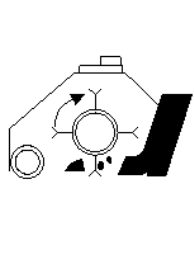
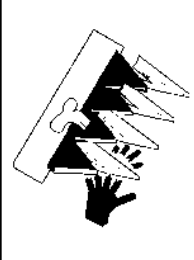
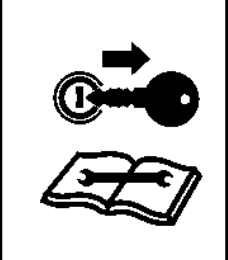
CONTACT DEALER if implement driveline does not match Tractor PTO shaft:

- **DO NOT USE PTO ADAPTER.**
Using a PTO adapter can cause excessive vibration, thrown objects, blade and implement failures by doubling operating speed. Increased working length exposes unshielded driveline areas. **PN PE01**

SAFETY

SAFETY

MOWER BLADE CONTACT HAZARDS

					
Do not put fingers underneath mower	Do not put hands underneath Flail Mower	Do not put foot underneath mower	Do not put foot underneath Flail Mower	Shearing Hazard from Sickle blades	Stop Tractor Remove Key Read Manual

DANGER

KEEP AWAY FROM ROTATING BLADES TO AVOID DEATH OR SERIOUS INJURY FROM BLADE CONTACT:

- **STAY AWAY** and **KEEP HANDS, FEET** and **BODY AWAY** from rotating blades, drivelines and parts until all moving elements have stopped.
- **DO NOT** put hands or feet under mower decks
- **STOP** rotating **BLADES**, disengage mower switch and PTO and wait for blade to stop rotating before raising mower head.
- DO NOT approach Sickle Bar head until Tractor Engine has been shut off.
- **STOP LOOK** and **LISTEN** before approaching the mower to make sure all rotating motion has stopped. *PN MBBM-01*

SAFETY

HIGH PRESSURE OIL LEAK HAZARD

			
High pressure oil penetrating skin	High pressure oil eroding skin	Using cardboard to check for oil leaks	Tank contents under pressure. Allow oil to cool for at least 5 minutes before slowly removing cap



DANGER

TO AVOID DEATH OR SERIOUS INJURY FROM HIGH PRESSURE HYDRAULIC OIL LEAKS PENETRATING SKIN:

- **DO NOT OPERATE** equipment with oil or fuel leaks.
- **KEEP** all hydraulic hoses, lines and connections in **GOOD CONDITION** and **TIGHT** before applying system pressure.
- **RELIEVE HYDRAULIC PRESSURE** before disconnecting lines or working on the system.
- **REMOVE** and replace hose if you suspect it leaks. Have dealer test it for leaks.

HIGH PRESSURE FLUID LEAKS CAN BE INVISIBLE.

WHEN CHECKING FOR HYDRAULIC LEAKS AND WORKING AROUND HYDRAULIC SYSTEMS:

- **ALWAYS WEAR** safety glasses with side shields (marked with ANSI Z87) and impenetrable gloves.
- **USE** paper or cardboard to search for leaks.
- **DO NOT USE** hands or body parts to search for leak.
- **KEEP** hands and body **AWAY** from pin holes and nozzles ejecting hydraulic fluid.
- Hydraulic fluid may cause gangrene if not surgically removed immediately by a doctor familiar with this form of injury.

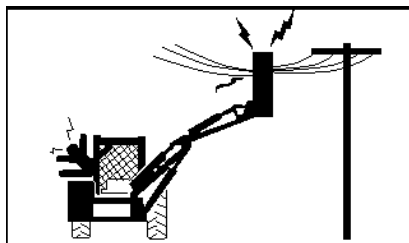
Use caution when removing Hydraulic Tank cap.

- Tank contents may be under pressure.
- Allow oil to cool before removing cap.
- Relieve oil pressure before removing cap slowly.
- Stay away from hot oil that may spray from tank.

PN HPBM-01

SAFETY

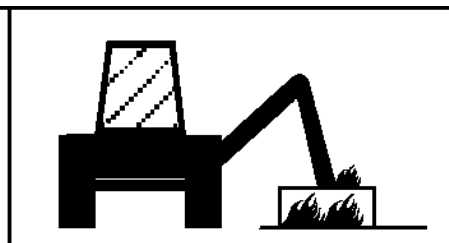
ELECTRICAL & FIRE HAZARDS



Mower head or Boom contacting overhead electrical lines



Strike and explosion Hazard
Blades Contacting Utility or Gas Lines



Fire Hazard Do Not operate near fires. Keep debris away from hydraulic pumps and valves



DANGER

TO AVOID DEATH OR SERIOUS INJURY FROM ELECTRICAL CONTACT WHEN WORKING AROUND ELECTRICAL POWER LINES, GAS LINES AND UTILITY LINES:

- **INSPECT** mowing area for overhead or underground electrical power lines, obstructions, gas lines, cables and Utility, Municipal, or other type structure.
- **KEEP** all raised wings at a 10 feet or greater distance from all power lines and overhead obstructions.
- **DO NOT** allow mower to contact with any Utility, Municipal, or type of structures and obstructions.
- **CALL 811** and 1-800-258-0808 for identify buried utility lines.

FIRE PREVENTION GUIDELINES while Operating, Servicing, and Repairing Mower and Tractor to reduce equipment and grass fire Risk:

- **EQUIP** Tractor with a **FIRE EXTINGUISHER**
- **DO NOT OPERATE** mower on a tractor equipped with under frame exhaust
- **DO NOT SMOKE** or have open flame near Mower or Tractor
- **DO NOT DRIVE** into burning debris or freshly burnt area
- **AVOID FIRE IGNITION** by not allowing mower blade to contact solid objects like metal or rock.
- **DO NOT** operate if oil is leaking. Repair oil leak and remove all accumulated oil before operating.
- **CLEAR** any grass clippings or debris buildup around mower hydraulic pumps, valves or tanks.
- **SHUT OFF ENGINE** while refueling. *PN EFBM-01*

SAFETY

SAFETY

TRANSPORTING HAZARDS

		
Use SMV signs and Flashing Lights	Loss of Control Stopping Hazard	Loss of Control Speeding Hazard



TO AVOID DEATH OR SERIOUS INJURY WHEN TOWING OR TRANSPORTING EQUIPMENT:

- **KEEP** transport speed **BELOW** 20 mph to maintain control of equipment.
- **REDUCE SPEED** on inclines, turns and in poor towing conditions.
- **DO NOT TOW** with trucks or other vehicles.
- **USE** only properly sized and equipped tractor for towing equipment.
- **FOLLOW** all local traffic regulations.

TRACTOR REQUIREMENTS FOR TOWING OR TRANSPORTING IMPLEMENTS:

- **ONLY TRANSPORT** with tractor with **ROPS** in the raised position.
- **USE** properly sized and equipped tractor that exceeds implement weight by at least 20%.
- **KEEP** 20% of tractor weight on front wheels to maintain safe steering.

BEFORE TRANSPORTING OR TOWING IMPLEMENT:

TRACTOR INSPECTION:

- **CHECK** steering and braking for proper operation and in good condition.
- **CHECK SMV** sign, reflectors and warning lights for proper operation and visibility behind unit.
- **CHECK** that your driving vision is not impaired by tractor, cab, or implement while seated in tractor seat.
- **ADJUST** your operating position, mirrors, and implement transport for clear vision for traveling and traffic conditions.

PREPARE IMPLEMENT FOR TRANSPORTING OR TOWING:

- Store Boom and Mower in transport positions and engage transport locks if equipped.

DETERMINE STOPPING CHARACTERISTICS OF TRACTOR AND IMPLEMENT FOR TRANSPORTING OR TOWING:

BRAKING TESTS:

- Stopping distance with implement attached may increase
- Observe **STOPPING** distances increases with increased speeds.
- **DETERMINE** the maximum safe transport speed that does not exceed 20 mph.
- Reduce travel speed on wet or icy roads, stopping distances increase.

DETERMINE MAXIMUM TURNING SPEED BEFORE OPERATING ON ROADS OR UNEVEN GROUND:

- **TEST** equipment by slowly increasing speed in turns to determine if it can be operated at higher speeds.
- **USE REDUCED** turning speeds on sharp turns to avoid equipment turning over.



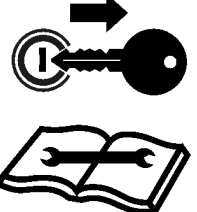

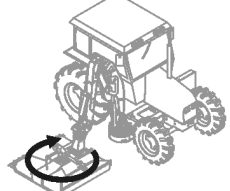
WHEN TOWING OR TRANSPORTING EQUIPMENT:

- Always **WEAR SEAT BELT** when operating or transporting mower.
- **USE** low speeds to avoid overturn with raised wings.
- **USE** low speeds and gradual steering on curves, hills, rough or uneven surfaces, and on wet roads.
- **TURN ON** tractor **FLASHING WARNING LIGHTS**.
- **ALLOW** clearance for implement swing while turning.

KEEP raised boom mower 10 feet or greater distance from all power lines and overhead obstructions. *PN THBM-01*

SAFETY

HAZARDS WITH MAINTENANCE OF IMPLEMENT

				
Periodically inspect all moving parts, lubricate drivelines, and tighten all fasteners	Lower mower head to ground or block up before servicing	Stop engine remove key before conducting maintenance	Set mower head securely on the ground before servicing blades	Thrown Objects Hazard Ensure blades rotate clockwise viewed from above mower head

WARNING

AVOID DEATH OR SERIOUS INJURY FROM COMPONENT FAILURE BY KEEPING IMPLEMENT IN GOOD OPERATING CONDITION BY PERFORMING PROPER SERVICE, REPAIRS AND MAINTENANCE.

BEFORE PERFORMING SERVICE, REPAIRS AND MAINTENANCE ON THE IMPLEMENT:

- **STOP ENGINE AND PTO**, engage parking brake, lower implement, allow all moving parts to stop and remove key before dismounting from tractor.
- **PLACE** implement on ground or securely block up raised equipment. Use large blocks on soft or wet soil.
- **PUSH** and **PULL** Remote Hydraulic Cylinder lever to relieve hydraulic pressure.
- **DISCONNECT Pump solenoid valve or PTO driveline connection before servicing mower head.**
- **WEAR SAFETY GLASSES with side shields (marked with ANSI Z87), PROTECTIVE GLOVES** and follow **SAFETY PROCEDURES** when performing service, repairs and maintenance on the implement:
- Always **WEAR** protective **GLOVES** when handling blades, knives, cutting edges or worn component with sharp edges.
- Always **WEAR GLOVES** and **SAFETY GLASSES with side shields (marked with ANSI Z87)** when servicing hot components.
- **AVOID CONTACT** with hot hydraulic oil tanks, pumps, motors, valves and hose connection surfaces.
- **SECURELY** support or **BLOCK UP** raised implement, framework and lifted components before working underneath equipment.
- **FOLLOW INSTRUCTIONS** in maintenance section when replacing hydraulic cylinders to prevent component falling.
- **STOP** any implement movements and **SHUT-OFF TRACTOR** engine before doing any work procedures.
- **USE** ladder or raised stands to reach high equipment areas inaccessible from ground.
- **ENSURE** good footing by standing on solid flat surfaces when getting on implement to perform work.
- **FOLLOW** manufacturer's instructions in handling oils, solvents, cleansers, and other chemical agents.
- **DO NOT** change any factory-set hydraulic calibrations to avoid component or equipment failures.
- **DO NOT** modify or alter implement, functions or components.
- **DO NOT WELD** or repair rotating mower components. These may cause vibrations and component failures being thrown from mower.

PERFORM SERVICE, REPAIRS, LUBRICATION AND MAINTENANCE OUTLINED IN IMPLEMENT MAINTENANCE SECTION:

- **INSPECT** for loose fasteners, worn or broken parts, leaky or loose fittings, missing or broken cotter keys and washers on pins, and all moving parts for wear.
- **REPLACE** any worn or broken parts with authorized service parts.
- Inspect mower blade spindle to ensure bearing pre-load. If loose, repair before operating.
- **LUBRICATE** unit as specified by lubrication schedule
- **NEVER** lubricate, adjust or remove material while it is running or in motion.
- **TORQUE** all bolts and nuts as specified.

BLADE INSPECTION:

- Inspect blade carrier and blades daily.
- Check blade and blade carrier **BOLT TORQUE** daily. Loose bolts can cause blade or blade bolt failures.
- **REPLACE**, bent, damage, cracked and broken blades immediately with new blades.
- **AVOID** blade failures and thrown broken blades. **DO NOT** straighten, weld, or weld hardfacing blades.

SAFETY SHIELDS, GUARDS AND SAFETY DEVICES INSPECTION:

- **KEEP** all Deflectors, Guarding, Steel Guards, Gearbox Shields, and PTO integral shields, Bands, Side Skirts and Skid Shoes in place and in good condition.
- **REPLACE** any missing, broken or worn safety shields, guards and safety devices.



WARNING

Cancer and Reproductive Harm www.P65Warnings.ca.gov **PN HMBM-01**

SAFETY

PARTS INFORMATION

PARTS INFORMATION

Alamo Industrial mowers use balanced and matched system components for blade carriers, blades, cuttershafts, knives, knife hangers, rollers, drivetrain components, and bearings. These parts are made and tested to Alamo Industrial specifications. Non-genuine "will fit" parts do not consistently meet these specifications. The use of "will fit" parts may reduce mower performance, void mower warranties, and present a safety hazard. Use genuine Alamo Industrial mower parts for economy and safety. (SPAM-1)

SEE YOUR ALAMO DEALER

Operator's & Parts Manuals



www.algqr.com/apm

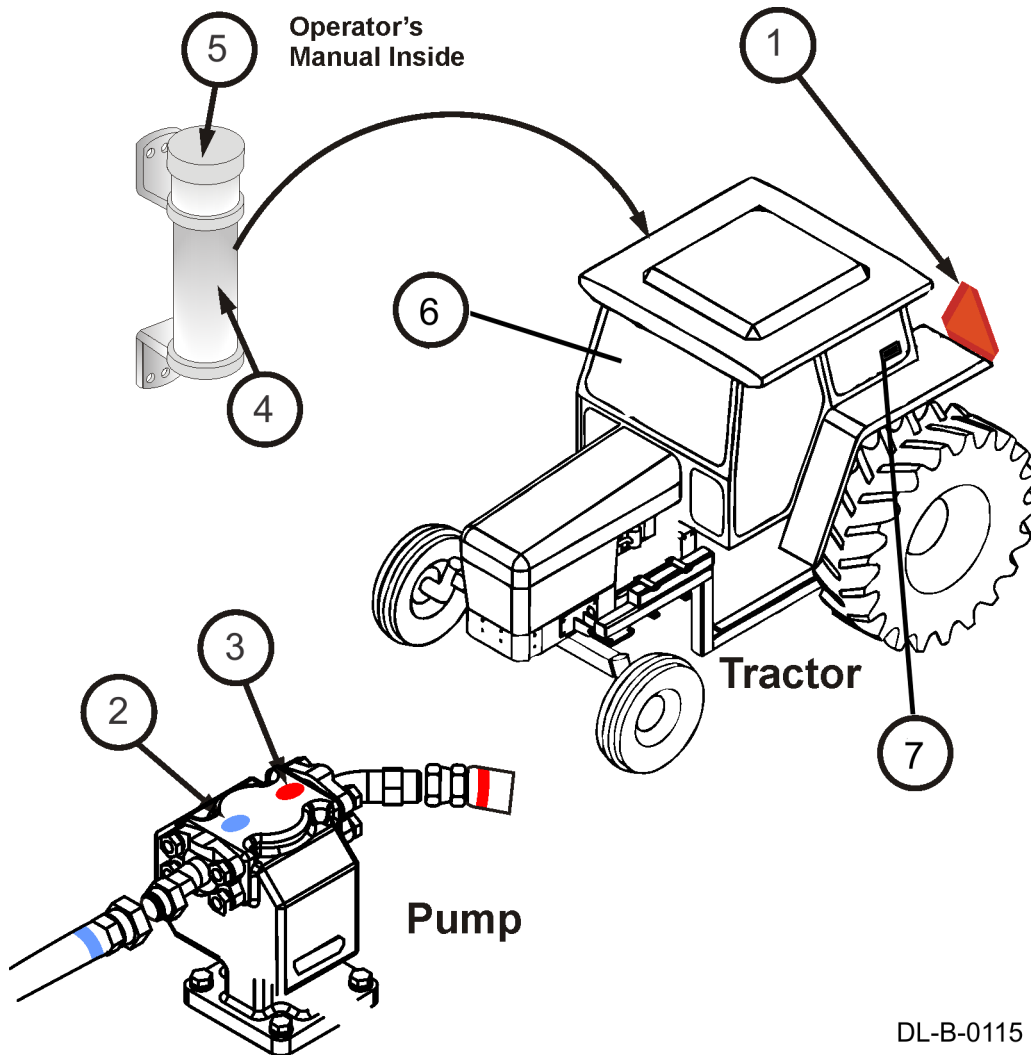
Decal Location

NOTE: Terrain King supplies safety decals on this product to promote safe operation. Damage to the decals may occur while in shipping, use, or reconditioning. Terrain King cares about the safety of its customers, operators, and bystanders, and will replace the safety decals on this product in the field, free of charge (Some shipping and handling charges may apply). Contact your Terrain King dealer to order replacement decals.

SAFETY

SAFETY

TRACTOR / PUMP / CANISTER



DL-B-0115

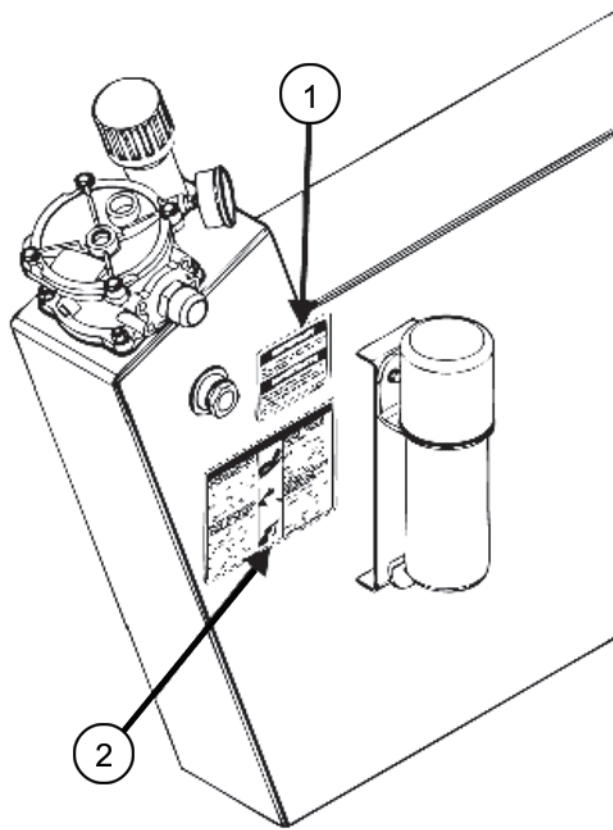
ITEM	PART NO.	QTY.	TYPE	DESCRIPTION
1.	30003200347	(1)	REFLECT	SMV
2.	D644	1	INSTRUCT	Blue Dot Decal
3.	D645	1	INSTRUCT	Red Dot Decal
4.	30000776031	1	-----	Manual Canister
5.	37002993570C	1	-----	Operator's Manual
6.	D770	1	BOOKLET	Boom Mower Safety Booklet (Not Shown)
7.	D876	1	WARNING	Crushing Hazard - Tire Ballast

(-) Furnished by the tractor manufacturer

SAFETY

SAFETY

UNDER-FENDER TANK

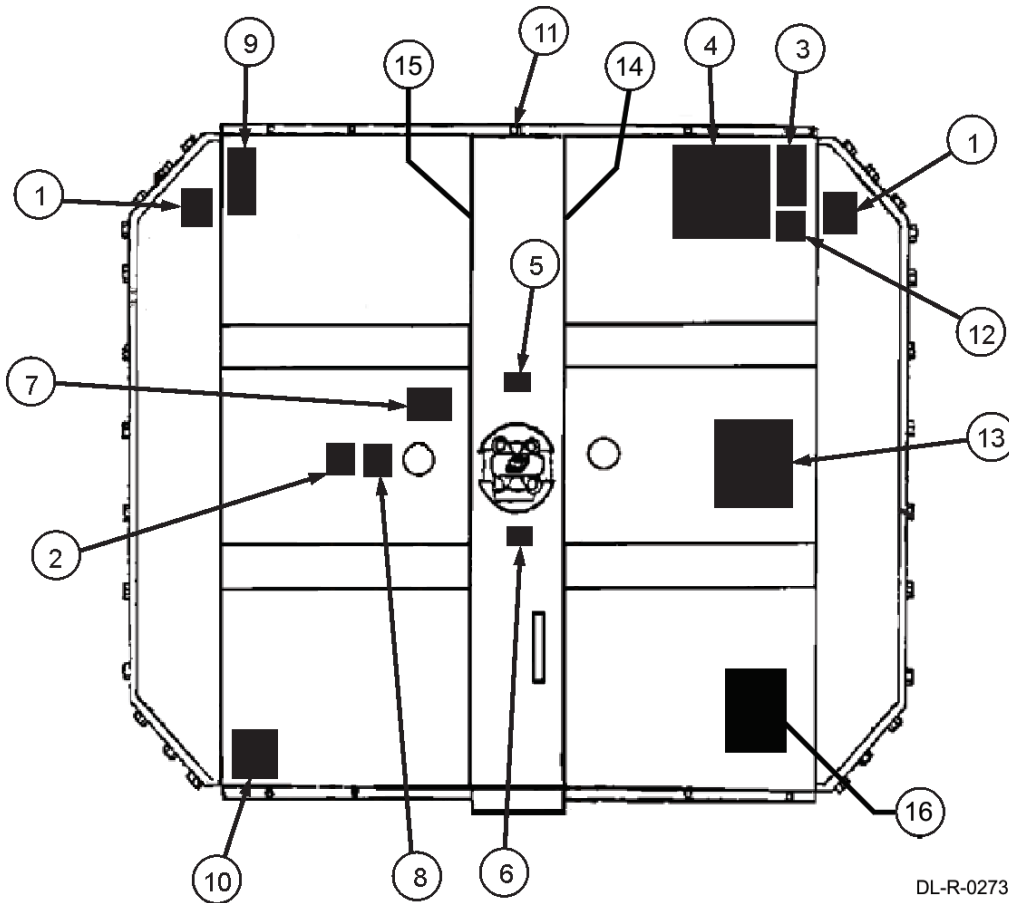


DL-R-0274

ITEM	PART NO.	QTY.	TYPE	DESCRIPTION
1.	D877	1	IMPORTANT	Service with Universal Hyd Oil
2.	D617	1	WARNING	Hydraulic Oil Leaks

SAFETY

ROTARY HEAD



DL-R-0273

ITEM	PART NO.	QTY.	LEVEL	DESCRIPTION
1.	D626	2	WARNING	Thrown Object Hazard
2.	D637	1	WARNING	Disconnect Hydraulic Solenoids
3.	D667	1	INSTRUCT	Lubrication Chart
4.	D843	1	DANGER	Multi-Hazard
5.	D621	1	IMPORTANT	Lube Spindle every 40 hours
6.	D652	1	DANGER	Crushing Hazard Wing Falling
7.	D619	1	WARNING	Blade Rotation
8.	D620	1	WARNING	Replace Blades in Pairs
9.	D678	1	WARNING	Use Genuine Part
10.	D565	1	DANGER	Crushing Hazard Wing Falling
11.	30002993773	1	NAME	KSM60
12.	D671	1	INSTRUCT	Lubrication Chart Frame
13.	30002993793	1	LOGO	Terrain King
14.	2738332	1	REFLECTOR	Red Oblong Reflector
15.	2738333	1	REFLECTOR	Yellow Oblong Reflector
16.	D618	1	WARNING	Multi Hazard - Fire

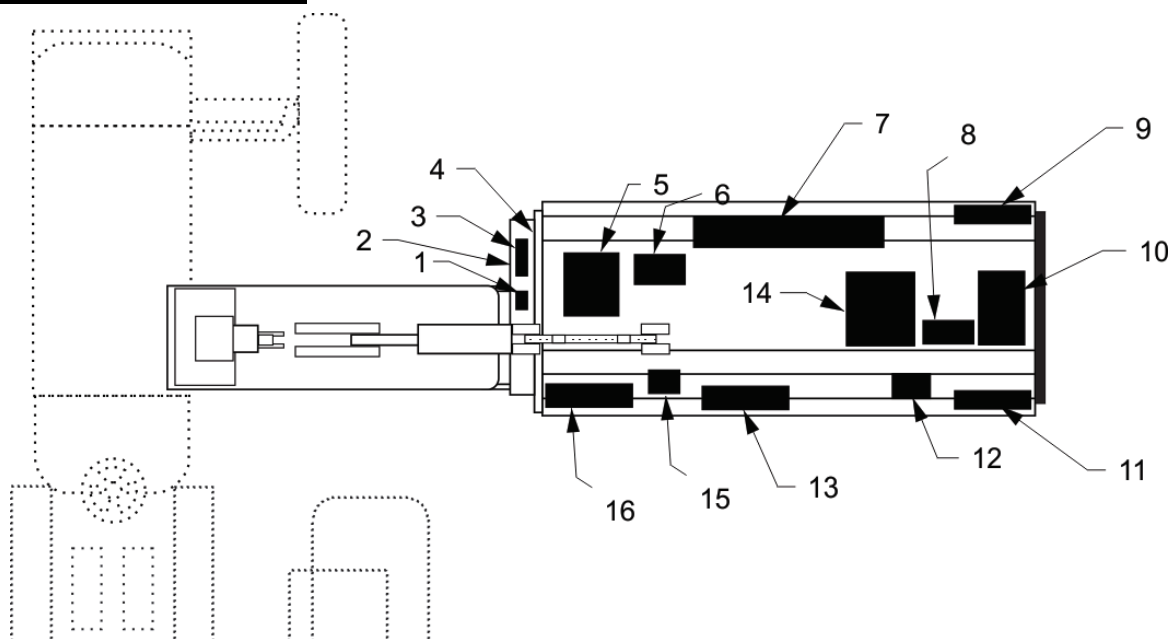
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Safety Section 1-18

SAFETY

SAFETY

SIDE MOUNT FLAIL HEAD






ITEM	PART NO.	QTY.	TYPE	DESCRIPTION
1.	D726	1	INSTRUCT	Grease Fitting
2.	D646	1	WARNING	Shields & Guards
3.	D641	1	WARNING	Belt Shield
4.	NFS	1	Serial Plate	Side Flail Serial Plate
5.	D617	1	WARNING	Hose Burst
6.	D678	1	WARNING	Use Genuine Parts
7.	30002994881	1	LOGO	KSM60F
	30002994883	1	LOGO	KSM74F
	30002994885	1	LOGO	KSM88F
8.	D870	1	INSTRUCT	Lube Chart
9.	1458392	1	REFLECT	Red Reflector
10.	D618	1	WARNING	Multi Hazard- Fire
11.	1458393	1	REFLECT	Yellow Reflector
12.	002023	1	INSTRUCT	Flail Height
13.	D626	1	WARNING	Thrown Object Hazard
14.	D841	1	DANGER	Multi Hazard
15.	000108	1	INSTRUCT	Flail Operation Instructions
16.	D842	1	DANGER	Multi-Language

SAFETY

SAFETY

Decal Description

⚠ WARNING



TO AVOID DEATH OR SERIOUS INJURY FROM HIGH PRESSURE HYDRAULIC OIL LEAKS PENETRATING SKIN:


- DO NOT OPERATE equipment with oil or fuel leaks.
- KEEP all hydraulic hoses, lines and connections in good condition and tight before applying system pressure.
- Relieve hydraulic pressure before disconnecting lines or working on the system.
- REMOVE and replace hose if you suspect it leaks. Have dealer test it for leaks.

HIGH PRESSURE FLUID LEAKS CAN BE INVISIBLE. WHEN CHECKING FOR HYDRAULIC LEAKS AND WORKING AROUND HYDRAULIC SYSTEMS:

- DO NOT use hands to check for leaks.
- ALWAYS WEAR safety glasses with side shields (marked with ANSI Z87) and impenetrable gloves.
- USE paper or cardboard to search for leaks.
- KEEP hands and body AWAY from pin holes and nozzles ejecting hydraulic fluid.
- Hydraulic fluid may cause gangrene if not surgically removed immediately by a doctor familiar with this form of injury.

D617

⚠ WARNING



CRUSHING HAZARD
could cause serious injury:

- Tire is extremely heavy.
- Use proper lifting & handling equipment when dismounting tire
- Refill tire with appropriate ballast for stability.
- Check torque on all wheel lugs.

D876

SAFETY

⚠ DANGER


THROWN OBJECT HAZARD

TO AVOID DEATH OR SERIOUS INJURY:
DO NOT OPERATE if Thrown Object Shielding is damaged or missing.

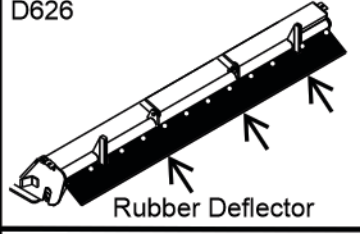
- Maintain Rubber Deflectors in good condition.
- Inspect Rubber Deflectors frequently.

MAINTAIN Thrown Object Shielding

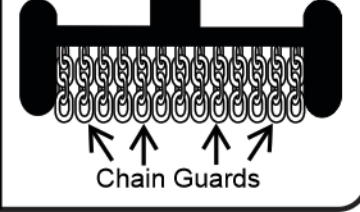
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D626



Rubber Deflector

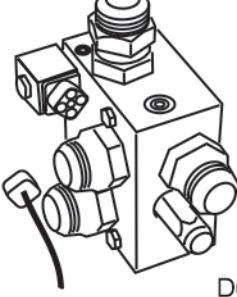
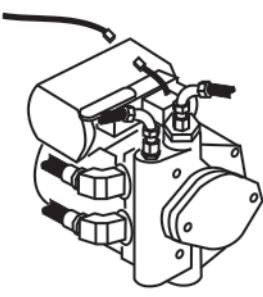


Chain Guards

⚠ WARNING

TO AVOID DEATH OR SERIOUS INJURY FROM INADVERTENT MOWER HEAD START UP:

- Disconnect the hydraulic solenoid BEFORE servicing the tractor or mower.



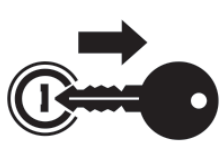



D637

SAFETY

SAFETY

⚠ DANGER

Run Over Hazard - Death or Injury

TO AVOID DEATH OR SERIOUS INJURY:

- ALWAYS BUCKLE UP seat belt.
- ONLY START Tractor while seated in the operator's seat.
- STOP ENGINE and PTO, engage parking brake, lower implement, allow all moving parts to stop and remove key before dismounting from tractor.
- KNOW HOW to stop tractor and equipment quickly for an emergency.
- DO NOT MOUNT or DISMOUNT Tractor in motion.
- NEVER ALLOW riders on tractor or implement.
- NEVER ALLOW children to operate or ride on tractor or implement.
- KEEP BYSTANDERS CLEAR of area before moving tractor or implement.
- KEEP ALERT and AVOID hitting stumps, holes, ruts, and uneven terrain
- AVOID tree limbs, brush and other overhanging objects that can strike and throw the operator from seat.

D843_1

⚠ DANGER






www.algqr.com/kbe

TO AVOID DEATH OR SERIOUS INJURY:

- READ AND UNDERSTAND the provided Operator's Manuals, safety signs and information decals for tractor and implement before operating equipment.
- CONTACT DEALER immediately if you do not have manuals.
- CONTACT DEALER to explain any instructions not fully understood.
- ALWAYS WEAR safety glasses with side shields (marked to comply with ANSI Z87).
- WEAR hard hat, safety shoes and gloves for protection when operating equipment.

D843_2

SAFETY

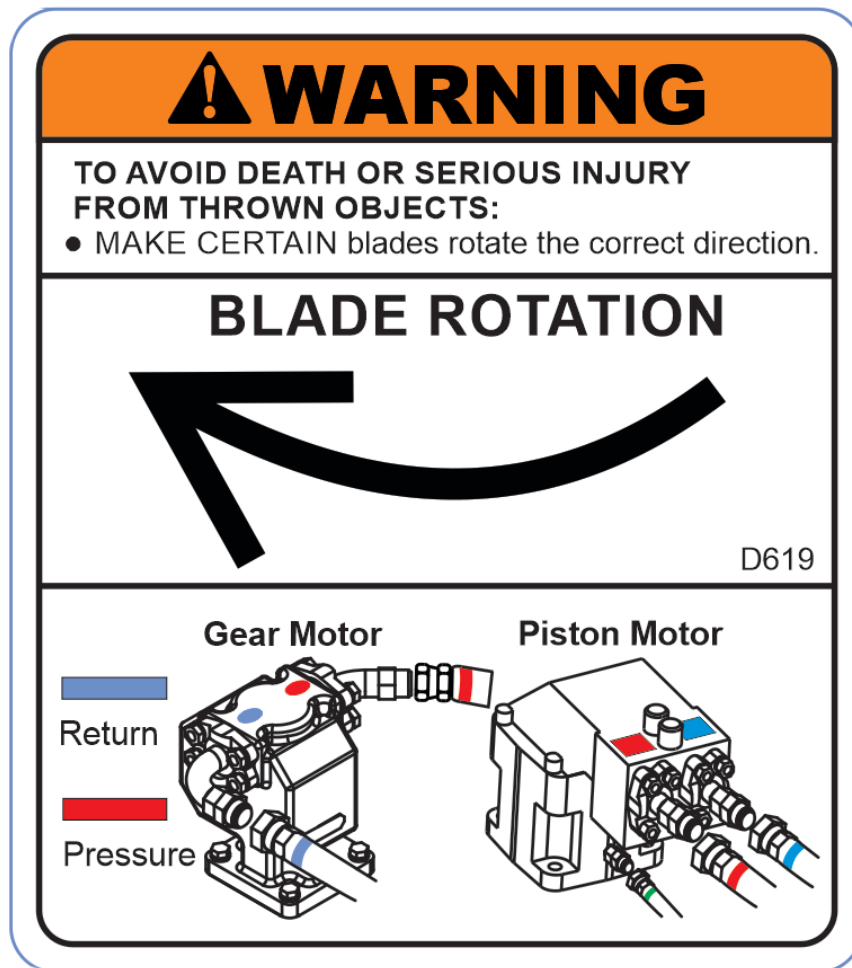
SAFETY

 PELIGRO	 DANGER
<p>Si no puede leer inglés: antes de poner en funcionamiento este equipo, solicite que alguien le traduzca los mensajes de seguridad o vaya al sitio web para consultar los mensajes de seguridad y las etiquetas ya traducidos.</p>	<p>Si vous ne pouvez pas lire l'anglais : avant d'utiliser l'équipement, demandez à une personne de vous traduire les messages de sécurité ou allez sur le site Internet pour voir la traduction des autocollants et des messages de sécurité.</p>
<p>El Manual del Operador Seguridad vídeo</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">   </div> </div> <p> www.algqr.com/kbs www.algqr.com/avs </p>	<p>Manuel de l'Opérateur</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">  </div> </div> <p> www.algqr.com/kbf </p>

 PERIGO	 GEFAHR
<p>Caso você não leia inglês: antes de operar o equipamento, peça para alguém traduzir as mensagens de segurança ou visite a web e obtenha tais mensagens ou os decalques traduzidos.</p>	<p>Falls Sie nicht Englisch sprechen: Bevor Sie die Geräte in Betrieb nehmen, bitten Sie eine Englisch sprechende Person darum, Ihnen die Sicherheitsmeldung zu übersetzen, oder besuchen Sie die Website; dort finden Sie übersetzte Aufkleber und Sicherheitsmeldungen.</p> <p style="text-align: right;">D843_3</p>
<p>Manual do Operador</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">  </div> </div> <p> www.algqr.com/kbp </p>	<p>Benutzerhandbuch</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">  </div> </div> <p> D843 www.algqr.com/kbg </p>

SAFETY

SAFETY

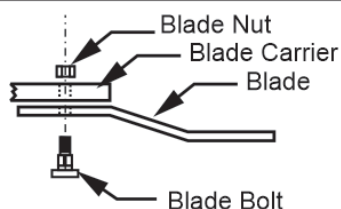


SAFETY

WARNING

TO AVOID DEATH OR SERIOUS INJURY FROM BLADE ATTACHMENT FAILURE:

- Torque blade bolt to 400 ft lbs.
- ALWAYS replace blades in pairs.
- ALWAYS replace blades with new bolts and nuts.



D620

DANGER

Crushing Hazard - Death or Injury

TO AVOID DEATH OR SERIOUS INJURY:

- STAND CLEAR when removing transport latch, lowering or raising wings.
- CLEAR AREA of bystanders before lowering implement wings.
- IMPLEMENT CAN FALL from hydraulic failure or accidental operation of controls.
- BLOCK UP and securely support equipment before putting hands, feet or body under raised equipment or lifted components.
- SECURELY ENGAGE transport latch before transportation or working under wing.
- FILL CYLINDERS with oil before attempting to lower implement wings.
- DO NOT OPERATE in transport position or with wings off ground.



D565

SAFETY

SAFETY

WARNING

**Non-genuine parts can fail catastrophically.
TO AVOID DEATH OR SERIOUS INJURY:**

- ONLY use genuine TERRAIN KING replacement parts.
- Non-genuine parts can fail creating hazardous conditions for operator and bystanders.



Contact local dealer or TERRAIN KING about repair parts at:

1502 E. Walnut, Seguin, TX 78155.

Customer Service: 800-882-5756.

Email: boom@terrainingking.com

www.algqr.com/kpm

WARNING

Cancer and Reproductive Harm

www.P65Warnings.ca.gov

IMPORTANT

**BE AWARE
BE ALERT
BE ALIVE** **BE TRAINED
Before Operating this Mower**



To prevent serious injury to yourself and/or bystanders, be trained in Safe Mowing Practices. Alamo Group Companies as well as AEM and FEMA provide training material that is critical for your Safety and the Safety of others when operating this equipment. Make these Safety Procedures an important part of every workday. Read and understand the Operator's Manual.

www.algqr.com/kbv

Do not let untrained individuals operate this equipment. Contact your Dealer, AEM (www.aem.org), FEMA (314-878-2304, www.FarmEquip.org), or Alamo Group (www.Alamo-Group.com) for information on training material or courses that provide training in Safer Operating Practices for Mowers.

D678

SAFETY


⚠ WARNING

PINCH POINT HAZARD

TO AVOID SERIOUS INJURY:

- DO NOT OPERATE with Belt Shield removed.

D641



⚠ DANGER



D646

**GUARD MISSING
DO NOT OPERATE**

⚠ WARNING





TO AVOID DEATH OR SERIOUS INJURY DURING TRANSPORTATION:

- ALWAYS BUCKLE UP seat belt.
- PLACE boom securely in Transport Rest and turn off master switch.
- CHECK SMV sign, reflectors and warning lights for visibility behind unit.
- TURN ON tractor flashing warning lights.

TO AVOID LOSS OF TRANSPORTATION CONTROL:

- DO NOT travel at speeds over 20 mph.
- REDUCE SPEED on inclines, in turn and in poor weather conditions.

D618_1

⚠ WARNING




TO AVOID DEATH OR SERIOUS INJURY DURING OPERATION:

- DO NOT lift implement while on steep slopes.
- KEEP AWAY from soft ditch banks and holes.
- ALWAYS MAINTAIN 1500 pounds of contact between wheels and surface. Widen wheel tread or add weight if needed. (see Operator's Manual)
- ALWAYS MAINTAIN 20% of tractor weight on front wheels.
- DO NOT start or accelerate suddenly.
- KEEP mower AT LEAST 10 FEET AWAY from electric lines and pipe lines.

D618_2




⚠ WARNING

TO AVOID EQUIPMENT AND GRASS FIRES:


- CLEAR AWAY grass or debris from hydraulic lines, circuits and decks.

TO AVOID FIRE IGNITION:

- DO NOT ALLOW BLADES TO CONTACT rocks, metal or solid objects.
- DO NOT ALLOW OIL TO SPRAY on hot equipment or components.

D618




D618_3



SAFETY

SAFETY

⚠ DANGER



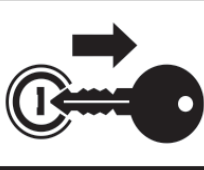

D841_1

THROWN OBJECTS HAZARD

Mower can throw objects up to 300 feet. TO AVOID DEATH OR SERIOUS INJURY to operator or bystanders:

- STOP mowing if pedestrians or bystanders come within 300 feet.
- DO NOT OPERATE with thrown object shielding removed.
- KEEP thrown object shielding in place and in good condition during operation. Thrown Objects shielding is subject to wear.
- REPAIR OR REPLACE shielding if damaged, broken or missing. See Operator's Manual for all Shields and Guards.
- INSPECT area for potential mower thrown object hazards before mowing.
- Remove and AVOID objects such as wire, cable, metal objects and all other foreign material.
- DO NOT ALLOW blades to contact solid objects like wire, rocks, posts, curbs or guard rails.
- DO NOT OPERATE in transport position or with wings off ground.

⚠ DANGER

Run Over Hazard - Death or Injury




TO AVOID SERIOUS INJURY OR DEATH:

- ALWAYS BUCKLE UP seat belt.
- ONLY START Tractor while seated in the operator's seat.
- STOP ENGINE and PTO, engage parking brake, lower implement, allow all moving parts to stop and remove key before dismounting from tractor.
- KNOW HOW to stop tractor and equipment quickly for an emergency.
- DO NOT MOUNT or DISMOUNT Tractor in motion.
- NEVER ALLOW riders on tractor or implement.
- NEVER ALLOW children to operate or ride on tractor or implement.
- KEEP BYSTANDERS CLEAR of area before moving tractor or implement.
- KEEP ALERT and AVOID hitting stumps, holes, ruts, and uneven terrain.
- AVOID tree limbs, brush and other overhanging objects that can strike and throw the operator from seat.

D841_4

SAFETY

SAFETY

 DANGER		
ENTANGLEMENT HAZARD		
<p>TO AVOID DEATH OR SERIOUS INJURY:</p> <ul style="list-style-type: none"> • DO NOT operate without guards in place and in good condition. PTO and gearbox guarding are SUBJECT TO WEAR. • STAY AWAY and KEEP hands, feet and body AWAY from rotating blades, drivelines and parts that continue to move after power shut-off. WAIT until all moving elements have stopped. • ALWAYS REPLACE GUARDS that have been removed for service or maintenance. • STOP, LOOK and LISTEN for rotating motion before approaching implement. • DO NOT STEP ON drivelines or guards. 		<p>Tractor PTO Guard (Cubierta del PTO)</p> <p>Implement PTO Guard (Cubierta del PTO)</p> <p>Shields (Cubiertas)</p> 
<p>D841_2</p>		
 DANGER		
Crushing Hazard - Death or Injury		
<p>TO AVOID DEATH OR SERIOUS INJURY:</p> <ul style="list-style-type: none"> • USE tractor equipped with Rollover Protective Structure ("ROPS") including roll bar and seat belt. Keep roll bar in raised position. • STAND CLEAR when removing transport latch, lowering or raising wings. • CLEAR AREA of bystanders before lowering implement wings. • IMPLEMENT CAN FALL from hydraulic failure or accidental operation of controls. • BLOCK UP and securely support equipment before putting hands, feet or body under raised equipment or lifted components. 		
<p>D841_3</p>		
 DANGER		
	 <p>www.algqr.com/kfe</p>	
<p>TO AVOID DEATH OR SERIOUS INJURY:</p> <ul style="list-style-type: none"> • READ AND UNDERSTAND the provided Operator's Manuals, safety signs and information decals for tractor and implement before operating equipment. • CONTACT DEALER immediately if you do not have manuals. • CONTACT DEALER to explain any instructions not fully understood. • ALWAYS WEAR safety glasses with side shields (marked to comply with ANSI Z87). • WEAR hard hat, safety shoes and gloves for protection when operating equipment. 		
<p>D841</p>		<p>D841_5</p>

SAFETY

FEDERAL LAWS AND REGULATIONS

This section is intended to explain in broad terms the concept and effect of federal laws and regulations concerning employer and employee equipment operators. This section is not intended as a legal interpretation of the law and should not be considered as such.

Employer-Employee Operator Regulations

U.S. Public Law 91-596 (The Williams-Steiger Occupational 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. 5 (a) Each employer-

- (1) shall furnish to each of his 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 his 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 own actions and conduct.

OSHA Training Requirements

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.

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 the equipment.

Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine.

Employer Responsibilities:

To ensure employee safety during Tractor and Implement operation, it is the employer's responsibility to:

1. Train the employee in the proper and safe operation of the Tractor and Implement.
2. Require that the employee read and fully understand the Tractor and Implement Operator's manual.
3. Permit only qualified and properly trained employees to operate the Tractor and Implement.
4. Maintain the Tractor and Implement in a safe operational condition and maintain all shields and guards on the equipment.
5. Ensure the Tractor is equipped with a functional ROPS and seat belt and require that the employee operator securely fasten the safety belt and operate with the ROPS in the raised position at all times.
6. Forbid the employee operator to carry additional riders on the Tractor or Implement.
7. Provide the required tools to maintain the Tractor and Implement in a good safe working condition and provide the necessary support devices to secure the equipment safely while performing repairs and service.
8. Require that the employee operator stop operation if bystanders or passersby come within 300 feet.

Child Labor Under 16 Years of Age

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.)

INTRODUCTION SECTION

Introduction Section 2-1

INTRODUCTION

INTRODUCTION

We are pleased to have you as a Terrain King customer. Your Side Mount Rotary Mower has been carefully designed with care and built with quality materials by skilled workers to give maximum service with minimum down time. This manual is provided to give you the necessary operating and maintenance instructions for keeping your rotary cutter in top operating condition. Careful use and timely service saves extensive repairs and costly downtime losses. Please read this manual thoroughly. Understand what each control is for and how to use it.

The Assembly Section instructs the owner/operator in the correct assembly of the Mower using standard and optional equipment. The Parts Listing section is designed to familiarize the owner/operator with replaceable parts on the Mower. This section provides exploded assembly drawings of each mower component illustrating each piece and the corresponding part number.

Safety is of primary importance to the owner/operator and to the manufacturer. The first section of this manual includes a list of Safety Messages, that, if followed, will help protect the operator and bystanders from injury or death. Many of the Safety Messages will be repeated throughout the manual. The owner/operator/dealer should know these Safety Messages before assembly and be aware of the hazards of operating this mower during assembly, use, and maintenance. The Safety Alert Symbol combined with a Signal Word, as seen below, is intended to warn the owner/operator of impending hazards and the degree of possible injury faced when operating this machine.



Indicates an imminently hazardous situation that, if not avoided, WILL result in DEATH OR VERY SERIOUS INJURY.



Indicates an imminently hazardous situation that, if not avoided, COULD result in DEATH OR SERIOUS INJURY.



Indicates an imminently hazardous situation that, if not avoided, MAY result in MINOR INJURY.

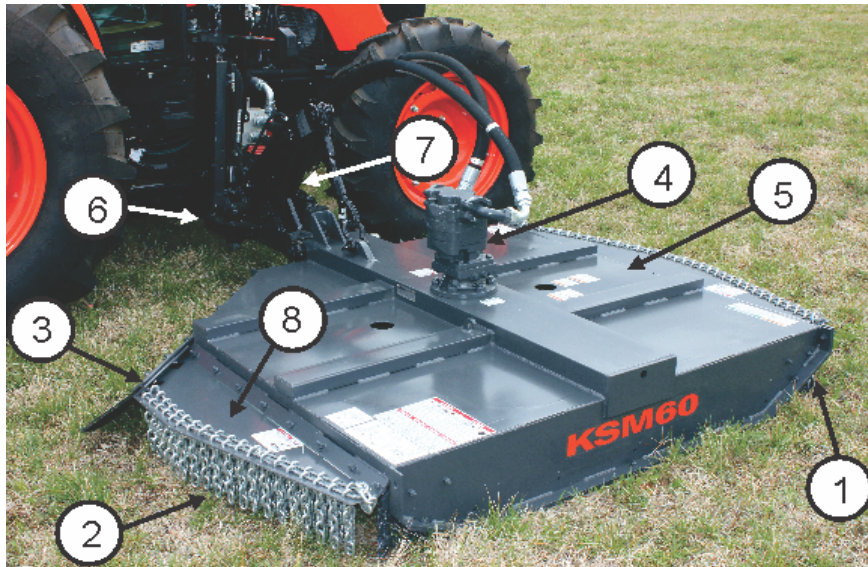


Identifies special instructions or procedures that, if not strictly observed, could result in damage to, or destruction of the machine, attachments or the environment.

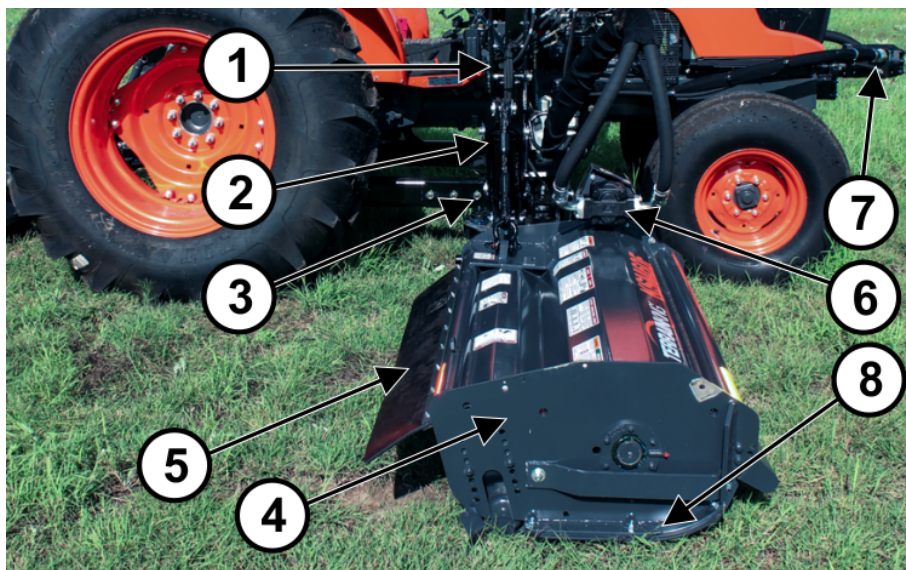
NOTE: *Identifies points of particular interest for more efficient and convenient operation or repair.*

INTRODUCTION

INTRODUCTION



- 1 Skid Shoe
- 2 Chain Guard
- 3 Rubber Deflector
- 4 Motor
- 5 Mower Deck
- 6 Frame Assembly
- 7 Arm Cylinder
- 8 Rotary Head Door



1. Boom Arm
2. Arm Cylinders
3. Frame
4. Flail Head
5. Rubber Deflector
6. Motor
7. Hydraulic Pump
8. Skid Shoes

The KSM60 is designed for heavy-duty cutting in limited access areas such as highway, park and rural roadsides, overhead growth, ditches, levees and other such grass and limb control uses in generally hard-to-reach areas. Your KSM60 can be equipped with a variety of cutting heads designed for specific cutting needs.

Literature Page



www.algqr.com/kle

DIRECTION

Throughout this Manual front and rear, left and right are determined by the normal direction of travel, the same as driving an automobile.

INTRODUCTION

Specifications

CUTTING HEAD:

The updraft blades shall be made of 1/2" x 4" steel and the blade carrier shall be a 1-1/4" x 6" steel bar. The deck material shall be made of 10-gauge steel on the top and the side skirts shall be 3/8" thick. The deck frame shall be made of 4" x 10" channel steel.

SKID SHOES:

The skid shoes shall be full-length area replaceable.

DEFLECTORS:

The KSM60 rotary mower shall have front and rear chain guards.

MOUNTING FRAME:

The unit shall be mid-mounted between the front and rear wheels of the tractor. The main frame shall be mounted to the tractor framework and braced to the rear axle housing.

HYDRAULIC RESERVOIR:

The unit shall have a minimum of 53-gallon hydraulic reservoir tank.

HYDRAULIC FILTER:

The suction line filter shall be 100 mesh. The main in-tank filter shall be a 10-micron, 75 gallon per minute full flow with restriction gauge.

MOWER LIFT ASSEMBLY:

The frame shall have channel steel inserted. Cylinders: Lift, 3-1/2" x 9" x 1-1/2"; Tilt, 3-1/2" x 6-3/6" x 1-1/2". The mower shall be capable for mowing from 90 degrees up to 45 degrees down. (Specifically excluding a cable and pulley combination lift assembly). The unit shall be capable of raising 17" vertically and lowering to 6" below grade.

OPTIONAL MOWER LIFT ARM:

Manufacturer shall offer an optional lift arm with 30° break-away capability.

The break-away system shall include a 3-1/2" bore x 6-1/4" stroke cylinder with a 1,300 PSI relief pressure.

An alternate cutting head shall feature a 45° x 18-3/4" chamfered rear corner to prevent rear tire interference.

HYDRAULICS:

The hydraulic pump shall be steel gear type.

The pump shall be rated at 74 HP and flow 51 GPM at 2400 RPM.

The pumps maximum rated operating pressure shall be 3000 PSI.

Valve (to mower head): There shall be a two-position electric solenoid control with direct acting relief valve, 1-1/4" porting and 2500 PSI.

The drive shaft assembly shall be rated at a minimum of 184 ft/lbs torque (rear PTO pump drives available).

The suction line shall be 1-1/2" diameter.

The motor circuit hoses shall be 1-1/4" diameter.

The valve for raising and lower the mower shall be a 2-spool, open center, tapered positive metering type with adjustable main relief valve.

WEIGHTS AND DIMS:

Total weight with mounting kits is 2,492 lbs.

INTRODUCTION

Attention Owner/Operator

BEFORE OPERATING THIS MACHINE:

1. Carefully read the Operator's Manual, completely understand the Safety Messages and instructions, and know how to operate correctly both the tractor and implement.
2. Fill out the Warranty Card in full. Be sure to answer all questions, including the Serial Number of the implement. Mail within 30 days of delivery date of this implement.

NOTE: Warranties are honored only if completed "Owner Registration and Warranty" forms are received by Terrain King within thirty days of delivery of the implement.

3. Record the Model and Serial Numbers on the Warranty page at the front of the Operator's Manual. Keep this as part of the permanent maintenance file for the implement.

**WARNING**

Non-genuine parts can fail catastrophically. TO AVOID DEATH OR SERIOUS INJURY:

- ONLY use genuine TERRAIN KING replacement parts.
- Non-genuine parts can fail creating hazardous conditions for operator and bystanders.

Contact local dealer or TERRAIN KING about repair parts at: www.algqr.com/kpm
1502 E. Walnut, Seguin, TX 78155.
Customer Service: 800-882-5756.
Email: boom@terraining.com

**WARNING**

Cancer and Reproductive Harm
www.P65Warnings.ca.gov

IMPORTANT

BE AWARE BE ALERT BE ALIVE	BE TRAINED Before Operating this Mower
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To prevent serious injury to yourself and/or bystanders, be trained in Safe Mowing Practices. Alamo Group Companies as well as AEM and FEMA provide training material that is critical for your Safety and the Safety of others when operating this equipment. Make these Safety Procedures an important part of every workday. Read and understand the Operator's Manual.

Do not let untrained individuals operate this equipment. Contact your Dealer, AEM (www.aem.org), FEMA (314-878-2304, www.FarmEquip.org), or Alamo Group (www.Alamo-Group.com) for information on training material or courses that provide training in Safer Operating Practices for Mowers.

D678

INTRODUCTION

TERRAIN KING LIMITED WARRANTY

1. LIMITED WARRANTIES

- 1.01. Terrain King warrants for one year from the purchase date to the original non-commercial, governmental, or municipal purchaser ("Purchaser") and warrants for six months to the original commercial or industrial purchaser ("Purchaser") that the goods purchased are free from defects in material or workmanship.
- 1.02. Manufacturer will replace for the Purchaser any part or parts found, upon examination at one of its factories, to be defective under normal use and service due to defects in material or workmanship.
- 1.03. This limited warranty does not apply to any part of the goods which has been subjected to improper or abnormal use, negligence, alteration, modification, or accident, damaged due to lack of maintenance or use of wrong fuel, oil, or lubricants, or which has served its normal life. This limited warranty does not apply to any part of any internal combustion engine, or expendable items such as blades, shields, guards, or pneumatic tires except as specifically found in your Operator's Manual.
- 1.04. Except as provided herein, no employee, agent, Dealer, or other person is authorized to give any warranties of any nature on behalf of Manufacturer.

2. REMEDIES AND PROCEDURES.

- 2.01. This limited warranty is not effective unless the Purchaser returns the Registration and Warranty Form to Manufacturer within 30 days of purchase.
- 2.02. Purchaser claims must be made in writing to the Authorized Dealer ("Dealer") from whom Purchaser purchased the goods or an approved Authorized Dealer ("Dealer") within 30 days after Purchaser learns of the facts on which the claim is based.
- 2.03. Purchaser is responsible for returning the goods in question to the Dealer.
- 2.04. If after examining the goods and/or parts in question, Manufacturer finds them to be defective under normal use and service due to defects in material or workmanship, Manufacturer will:
 - (a) Repair or replace the defective goods or part(s) or
 - (b) Reimburse Purchaser for the cost of the part(s) and reasonable labor charges (as determined by Manufacturer) if Purchaser paid for the repair and/or replacement prior to the final determination of applicability of the warranty by Manufacturer.

The choice of remedy shall belong to Manufacturer.

- 2.05. Purchaser is responsible for any labor charges exceeding a reasonable amount as determined by Manufacturer and for returning the goods to the Dealer, whether or not the claim is approved. Purchaser is responsible for the transportation cost for the goods or part(s) from the Purchaser to the Dealer.

3. LIMITATION OF LIABILITY.

- 3.01. MANUFACTURER DISCLAIMS ANY EXPRESS (EXCEPT AS SET FORTH HEREIN) AND IMPLIED WARRANTIES WITH RESPECT TO THE GOODS INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
- 3.02. MANUFACTURER MAKES NO WARRANTY AS TO THE DESIGN, CAPABILITY, CAPACITY, OR SUITABILITY FOR USE OF THE GOODS.
- 3.03. EXCEPT AS PROVIDED HEREIN, MANUFACTURER SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO PURCHASER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS, OR DAMAGE CAUSED OR ALLEGED TO BE CAUSED DIRECTLY OR INDIRECTLY BY THE GOODS INCLUDING, BUT NOT LIMITED TO, ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES RESULTING FROM THE USE OR OPERATION OF THE GOODS OR ANY BREACH OF THIS WARRANTY. NOTWITHSTANDING THE ABOVE LIMITATIONS AND WARRANTIES, MANUFACTURER'S LIABILITY HEREUNDER FOR DAMAGES INCURRED BY PURCHASER OR OTHERS SHALL NOT EXCEED THE PRICE OF THE GOODS.
- 3.04. NO ACTION ARISING OUT OF ANY CLAIMED BREACH OF THIS WARRANTY OR TRANSACTIONS UNDER THIS WARRANTY MAY BE BROUGHT MORE THAN TWO (2) YEARS AFTER THE CAUSE OF ACTION HAS OCCURRED.

4. MISCELLANEOUS.

- 4.01. Proper Venue for any lawsuits arising from or related to this limited warranty shall be only in Guadalupe County, Texas.
- 4.02. Manufacturer may waive compliance with any of the terms of this limited warranty, but no waiver of any terms shall be deemed to be a waiver of any other term.
- 4.03. If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein.
- 4.04. Applicable law may provide rights and benefits to purchaser in addition to those provided herein.

KEEP FOR YOUR RECORDS

ATTENTION: Purchaser should fill in the blanks below for his reference when buying repair parts and/or for proper machine identification when applying for warranty.

Terrain King Implement Model _____ Serial Number _____

Date Purchased _____ Dealer _____

ATTENTION:

READ YOUR OPERATOR'S MANUAL

TERRAIN KING

1502 E. Walnut St.
Seguin, Texas 78155-5202
800-882-5756



OPERATION SECTION

Operation Section 3-1

OPERATION

OPERATION

TERRAIN KING KSM60 MOWERS OPERATING INSTRUCTIONS

Terrain King KSM60 mowers are manufactured with quality material by skilled workers. These mowers are designed to cut grass, weeds, small brush and other vegetative material up to 2-1/2" diameter in areas such as pastures, industrial areas and roadsides. The mower is equipped with protective deflectors and/or chain guards to prevent objects being thrown from the mower by the blades. However, no shielding is 100% effective. All shields, guards, deflectors and chains equipped on the unit must be maintained on the mower in good operational condition.

It is the operator's responsibility to be knowledgeable of all potential operating hazards and to take every reasonable precaution to ensure oneself, others, animals, and property are not injured or damaged by the boom unit, tractor or a thrown object. Do not operate the boom and attached head if bystanders, passersby, pets or livestock are within 300 feet of the unit.

- **ALL THROWN OBJECT SHIELDING** including, *Front and Rear Deflectors and Skid Shoes are in place and in good condition when mowing.*
- *Mower is adjusted to be close and parallel to ground without exposing blades.*
- **MOWING AREA** has been inspected and foreign materials and debris have been removed.
- **PASSERSBY** are inside enclosed vehicle.

This section of the Operator's Manual is designed to familiarize, instruct, and educate operators to the safe and proper use of the boom and attached head. Pictures contained in this section are intended to be used as a visual aid to assist in explaining the operation of a KSM60 and are not specific to a KSM60. Some pictures may show shields removed to enhance visual clarity. NEVER operate the boom unit without all safety equipment in place and in good operational condition. The operator must be familiar with the boom unit and tractor operation and all safety practices before beginning operation. Proper operation, as detailed in this manual, will help ensure years of safe and satisfactory use of the KSM60.

READ AND UNDERSTAND THE ENTIRE OPERATING INSTRUCTIONS AND SAFETY SECTION OF THIS MANUAL AND THE TRACTOR MANUAL BEFORE ATTEMPTING TO USE THE TRACTOR AND IMPLEMENT. If you do not understand any of the instructions, contact your nearest authorized dealer for a full explanation. Pay close attention to all safety signs and safety messages contained in this manual and those affixed to the implement and tractor. OPS-U- 0001

READ, UNDERSTAND, and FOLLOW the following Safety Messages. Serious injury or death may occur unless care is taken to follow the warnings and instructions stated in the Safety Messages. Always use good common sense to avoid hazards. (SG-2)



Si no lee ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad. (SG-3)

¡ LEA EL INSTRUCTIVO!



OPERATION

1. OPERATOR REQUIREMENTS

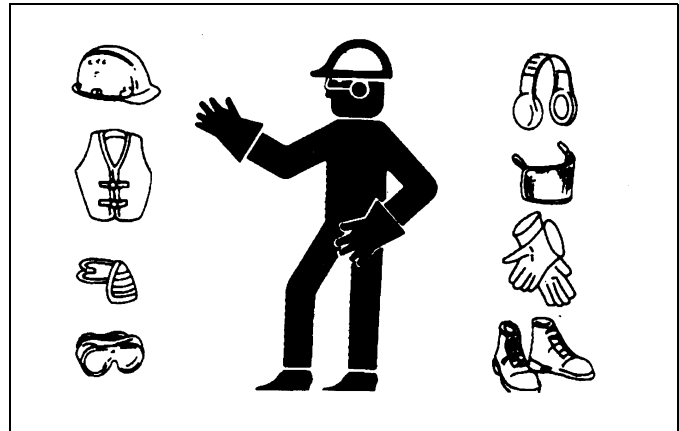
Safe operation of the unit is the responsibility of a qualified operator. A qualified operator has read and understands the implement and tractor Operator's Manuals and is experienced in implement and tractor operation and all associated safety practices. In addition to the safety messages contained in this manual, safety signs are affixed to the implement and tractor. If any part of the operation and safe use of this equipment is not completely understood, consult an authorized dealer for a complete explanation.

If the operator cannot read the manuals for themselves or does not completely understand the operation of the equipment, it is the responsibility of the supervisor to read and explain the manuals, safety practices, and operating instructions to the operator.

Safe operation of equipment requires that the operator wear approved Personal Protective Equipment (PPE) for the job conditions when attaching, operating, servicing, and repairing the equipment. PPE is designed to provide operator protection and includes the following safety wear:

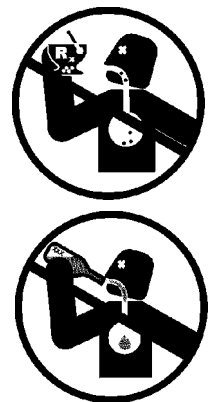
PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Always Wear Safety Glasses with Side Shields (marked with ANSI Z87)
- Hard Hat
- Steel Toe Safety Footwear
- Gloves
- Hearing Protection
- Close Fitting Clothing
- Respirator or Filter Mask (depends on operating conditions) OPS-U- 0002



DANGER

DO NOT use drugs or alcohol immediately before or while operating the Tractor and Implement. Drugs and alcohol will affect an operator's alertness and coordination and therefore affect the operator's ability to operate the equipment safely. Before operating the Tractor or Implement, an operator on prescription or over-the-counter medication must consult a medical professional regarding any side effects of the medication that would hinder their ability to operate the Equipment safely. NEVER knowingly allow anyone to operate this equipment when their alertness or coordination is impaired. Serious injury or death to the operator or others could result if the operator is under the influence of drugs or alcohol. (SG-27)



OPERATION

2.TRACTOR REQUIREMENTS

In addition to tractor horsepower and size required to operate the boom unit, the tractor must also be properly equipped to provide operator protection, to alert approaching vehicle drivers of the tractor's presence, and to ensure tractor stability when mowing with the boom fully extended.

Tractor Requirements and Capabilities

- Certified Roll-Over Protective Structure (ROPS) or ROPS cab and seat belt.
- Operator Protection Tractor must be equipped with protective structure such as operator cage or lexan window to protect operator from thrown object and falling objects
- Tractor Safety Devices Slow Moving Vehicle (SMV) emblem, lighting,
- Tractor Ballast As required to maintain at least 1500 lbs. on left rear tire

2.1 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. *OPS-U- 0003*



Operate this Equipment only with a Tractor equipped with an approved roll-over-protective system (ROPS). Always wear seat belts. Serious injury or even death could result from falling off the tractor, particularly during a turnover when the operator could be pinned under the ROPS. (SG-7)



2.2 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 which are clearly visible from the rear of the unit. Lights and a SMV emblem must be equipped directly on implements 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. *OPS-U- 0004*

2.3 Tractor Horsepower

The power required to operate a mower is determined by the tractor PTO horsepower. For most mowing conditions, the mower requires a tractor with at least 60 HP. Operating the mower with a tractor that does not have adequate power may damage the tractor engine. Exceeding 60 HP may cause mower damage by overpowering the unit in heavy cutting conditions.

OPERATION

2.4 Front End Weight

A minimum of 20% total tractor weight must be maintained on the tractor front end at all times. Front end weight is critical to maintain steering control and to prevent the tractor from rearing up while driving. If the front end is too light, add weight until a minimum of 20% total weight is reached on the front tires. Front weights and weight carriers can be purchased through an authorized tractor dealership. OPS-U- 0005

3. GETTING ON AND OFF THE TRACTOR

Before getting onto the tractor, the operator must read and completely understand the implement and tractor operator manuals. If any part of either manual is not completely understood, consult an authorized dealer for a complete explanation. OPS-U- 0007



WARNING

Do not mount or dismount the Tractor while the tractor is moving. Mount the Tractor only when the Tractor and all moving parts are completely stopped. (SG-12)



3.1 Boarding the Tractor

Use both hands and equipped handrails and steps for support when boarding the tractor. Never use control levers for support when mounting the tractor. Seat yourself in the operator's seat and secure the seat belt around you.

Never allow passengers to ride on the tractor or attached equipment. Riders can easily fall off and be seriously injured or killed from falling off and being ran over. It is the operator's responsibility to forbid all extra riders at all times. OPS-U- 0008



DANGER

Never allow children to operate, ride on, or come close to the Tractor or Implement. Usually, 16-17 year-old children who are mature and responsible can operate the implement with adult supervision, if they have read and understand the Operator's Manuals, been trained in proper operation of the tractor and Implement, and are physically large enough to reach and operate the controls easily. (SG-11)



DANGER

Never allow children or other persons to ride on the Tractor or Implement. Falling off can result in serious injury or death. (SG-10)



OPERATION



Do not mount or dismount the Tractor while the tractor is moving. Mount the Tractor only when the Tractor and all moving parts are completely stopped. (SG-12)



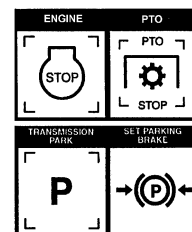
3.2 Dismounting the Tractor

Before dismounting the tractor, idle the tractor engine down, disengage the head and retract the boom arm to the transport position. Park the tractor on a level surface, place the transmission in neutral and set the parking brake. Shut down the tractor engine, remove the key, and wait for all motion to come to a complete stop before exiting the operator's seat. NEVER leave the seat until the tractor, its engine, and mower head movement have come to a complete stop.

Use hand rails and extra steps when exiting the tractor. Be careful of your step and use extra caution when mud, ice, snow, and other matter has accumulated on the steps and handrails. Never rush or jump off the tractor. OPS-B- 0002



BEFORE leaving the tractor seat, lower the implement, set the parking brake and/or set the tractor transmission in parking gear, disengage the PTO, stop the engine, remove the key, and wait for all moving parts to stop. Place the tractor shift lever into a low range or parking gear to prevent the tractor from rolling. Never dismount a Tractor that is moving or while the engine is running. Operate the Tractor controls from the tractor seat only. (SG-9)



OPERATION

OPERATION

4. STARTING THE TRACTOR

The operator must have a complete understanding of the placement, function, and operational use of all tractor controls before starting the tractor. Review the tractor operator's manual and consult an authorized dealer for tractor operation instructions if needed.

Essential Tractor Controls:

- Locate the ignition key/switch
- Locate the engine shut off control
- Locate the hydraulic control levers
- Locate the light control lever
- Locate the brake pedals and clutch
- Locate the PTO control
- Locate the 3 point hitch control lever
- Locate the boom operating controls (joystick or valve bank)

Before starting the tractor ensure the following:

- Conduct all pre-start operation inspection and service according to the tractor operator's manual.
- Make sure all guards, shields, and other safety devices are securely in place.
- The parking brake is on.
- The tractor transmission levers are in park or neutral.
- The boom operating controls are in the neutral and off position.
- The PTO control lever is disengaged.
- The hydraulic remote control levers are in the neutral position.

Refer to the tractor owner's manual for tractor starting procedures. Only start the tractor while seated and belted in the tractor operator's seat. Never bypass the ignition switch by short circuiting the starter solenoid. After the tractor engine is running, avoid accidental contact with the tractor transmission to prevent sudden and unexpected tractor movement. *OPS-B- 0003*



Never run the Tractor engine in a closed building or without adequate ventilation. The exhaust fumes can be hazardous to your health. (SG-23)

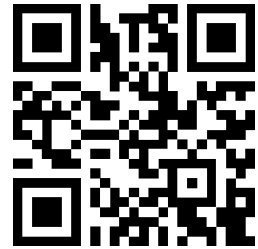


Start tractor only when properly seated in the Tractor seat. Starting a tractor in gear can result in injury or death. Read the Tractor operators manual for proper starting instructions. (SG-13)



OPERATION

IMPORTANT: Scan this QR Code with your smart phone to link to the PAMI Safe Implement Hitching Manual for more information on correctly connecting agricultural tractors to implements. Or type in your internet browser the following web address: www.algqr.com/hme Ops-0008-MISC



OPERATION

5. SETTING THE MOWER

Properly setting the cutting height is essential for efficient and safe operation. A properly set mower will make a more uniform cut, distribute clippings more evenly, require minimal tractor work, and follow the contour of uneven terrain. **NOTE:** Avoid very low cutting heights, striking the ground with the blades gives the most damaging shock loads and will cause damage to the mower and drive. Blades contacting the ground may cause objects to be thrown out from under the mower deck. Always avoid operating the mower at a height which causes the blades to contact the ground. OPS-U- 0010

MEASUREMENT OF HEAD PITCH

1. Cut mower off and allow blades to stop rotating.
2. Move machine to a flat level area such as a concrete slab.
3. Lower mower head to within several inches off the ground, but do not rest head on ground.
4. Stop engine.
5. Position blades toward front and rear. Measure the distance from the bottom of the blade tips to the ground, with the blades hanging (at rest). Use two people to measure. Normal drift of the cylinders will cause inaccurate measurement if the front and rear not measured at the same time. DO NOT ALLOW ANOTHER PERSON TO OPERATE THE CONTROLS WHILE MEASUREMENTS ARE BEING TAKEN.
6. Bent blades, bars, pans or loose bolts will make measurement useless.

ALIGNMENT

Head alignment is defined as the relationship of the centerline of the mower to the centerline of the tractor. The desired alignment is that the centerlines of the tractor mower are parallel to each other.

Misalignment contributes to “streaking” due to the skid shoe laying a wide strip of grass flat. This flattened grass is sometimes not picked up by the mower on subsequent passes. Misalignment also contributes to excessive power consumption because the side skirts tend to “doze” material against the side of the mower, adding drag to the tractor.

Alignment problems can easily be seen by standing in front or rear of the machine. Align the front and rear of the machine. Align the front and rear edges of the rear tire and compare to the side skirt of the mower (mower head resting on the ground).

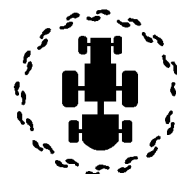
OPERATION

6. PRE-OPERATION INSPECTION AND SERVICE

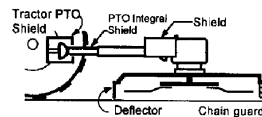
Before each use, a pre-operation inspection and service of the implement and tractor must be performed. This includes routine maintenance and scheduled lubrication, inspecting that all safety devices are equipped and functional, and performing needed repairs. DO NOT operate the unit if the pre-operation inspection reveals any condition affecting safe operation. Perform repairs and replacement of damaged and missing parts as soon as noticed. By performing a thorough pre-operation inspection and service, valuable down time and repair cost can be avoided. OPS-U-0029



Periodically inspect all moving parts for wear and replace when necessary with authorized service parts. Look for loose fasteners, worn or broken parts, and leaky or loose fittings. Make sure all pins have cotter pins and washers. Serious injury may occur from not maintaining this machine in good working order. (SG-21)



All Safety Shields, Guards and Safety devices including (but not limited to) - the Deflectors, Chain Guards, Steel Guards, Gearbox Shields, PTO integral shields, and Retractable Door Shields should be used and maintained in good working condition. All safety devices should be inspected carefully at least daily for missing or broken components. Missing, broken, or worn items must be replaced at once to reduce the possibility of injury or death from thrown objects, entanglement, or blade contact. (SGM-3)



OPERATION

OPERATION

6.1 Tractor Pre-Operation Inspection/Service

Refer to the tractor operator's manual to ensure a complete pre-operation inspection and scheduled service is performed according to the manufacturers recommendations. The following are some of the items that require daily service and inspection:

- Tire condition/air pressure
- Wheel lug bolts
- Steering linkage
- PTO shield
- SMV sign is clean and visible
- Tractor's lights are clean and functional
- Tractor Seat belt is in good condition
- Tractor ROPS is in good condition
- ROPS is in the raised position
- No tractor oil leaks
- Radiator free of debris
- Engine oil level and condition
- Engine coolant level and condition
- Power brake fluid level
- Power steering fluid level
- Fuel condition and level
- Sufficient lubrication at all lube points
- Air filter condition *OPS-U-0030*

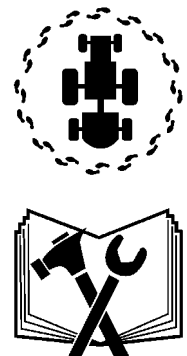


6.2 Mower Pre-Operation Inspection/Service

Before each mower use, a complete inspection and service is required to ensure the mower is in a good and safe working condition. Damaged and/or broken parts should be repaired and/or replaced immediately. To ensure the mower is ready for operation, conduct the following. *OPS-R-0007*

⚠ WARNING

Periodically inspect all moving parts for wear and replace when necessary with authorized service parts. Look for loose fasteners, worn or broken parts, and leaky or loose fittings. Make sure all pins have cotter pins and washers. Serious injury may occur from not maintaining this machine in good working order. (SG-21)



OPERATION

The operator's manual and safety signs affixed on the unit contain important instructions on the safe and proper use of the equipment. Maintain these important safety features on the implement in good condition to ensure the information is available to the operator at all times.

- Ensure the manual canister is secured to the equipment with the operator's manual inside.
- Ensure all safety signs are in place and legible. Replace missing, damaged, and illegible decals. OPS-U- 0011



NOTE: The mower Operator's Manual and affixed Decals contain important instructions on the safe and proper use of the mower. Maintain these important safety features on the mower in good condition to ensure the information is available to the operator at all times.

Ensure deflectors and/or chainguards are in position and not damaged. Replace worn, broken, and missing pieces.



OPERATION

OPERATION

FRAME ASSEMBLY

- Inspect condition of mounting frame weldment.
- Inspect condition of Turret Frame Assembly.
- Ensure all bolts and screws are in position and are properly torqued.
- Ensure all pins are in place and fastened with screws.
- Ensure frame is properly mounted to tractor and hardware is properly installed and tightened. OPS-B- 0021_L



WARNING

Relieve hydraulic pressure prior to doing any maintenance or repair work on the Implement. Place the Mower Head on the ground or securely supported on blocks or stands, disengage the PTO, and turn off the engine. Push and pull the control Levers or Joystick several times to relieve pressure prior to starting any maintenance or repair work. (SBM-6)

WARNING

Never leave the mower unattended while the head is in the raised position. The mower could fall causing serious injury to anyone who might inadvertently be under the mower. (SBM-4)



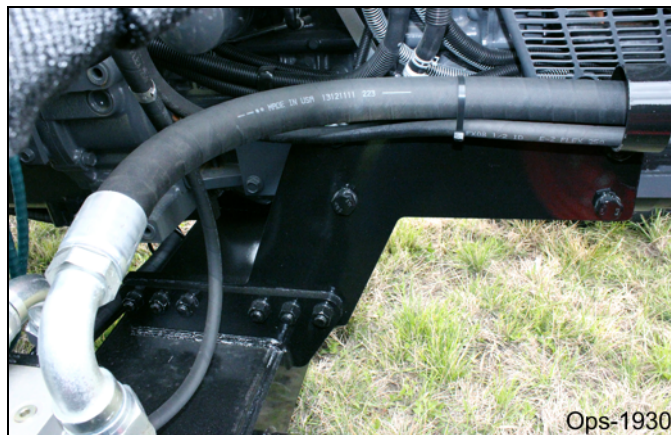
WARNING

Never attempt to lubricate, adjust, or remove material from the Implement while it is in motion or while tractor engine is running. (SG-20)

HYDRAULIC LINE INSPECTION

- Check for hydraulic leaks along hoses, cylinders and fittings. **IMPORTANT:** DO NOT use your hands to check for oil leaks. Use a piece of heavy paper or cardboard to check for hydraulic oil leaks.
- Inspect the condition of the valve weldment.
- Ensure fitting is properly connected
- Inspect condition of nylon bushings.

OPS-B- 0075



OPERATION

WARNING

Do not operate this Equipment with hydraulic oil or fuel leaking. Oil and fuel are explosive and their presence could present a hazard. Do not check for leaks with your hand! High-pressure oil streams from breaks in the line could penetrate the skin and cause tissue damage including gangrene. To check for a hose leak, SHUT the unit ENGINE OFF and remove all hydraulic pressure. Wear oil impenetrable gloves, safety glasses and use cardboard to check for evidence of oil leaks. If you suspect a leak, REMOVE the HOSE and have it tested at a Dealer. If oil does penetrate the skin, have the injury treated immediately by a physician knowledgeable and skilled in this procedure. (SG-15)



HYDRAULIC PUMP/OIL RESERVOIR

- Check oil reservoir level and oil condition. (Add specific type oil if low)
- Change hydraulic oil filter and hydraulic oil according to maintenance schedule.
- Ensure there are no oil leaks and fitting are properly connected
- Inspect overall condition of hydraulic pump.
- Inspect pump drive shaft.



Check the fluid level in the Hydraulic Tank on the Tractor, and add oil if required. As the air has been forced out of the Cylinders and Hoses, it goes into the Hydraulic Tank and reduces the volume of oil. Maintain the oil level within the sight gauge located on the side of the reservoir. Never fill the tank above the sight gauge to allow for the expansion of the oil. The tank maintains pressure after the mower has been run. Stand off to one side when removing the breather cap element to prevent possible injury. To relieve pressure remove the breather cap element and depress the spring loaded pressure valve to release any excess air.

OPS-B- 0024_N

WARNING

Attention: Oil Filler Cap is also the Pressure Relief Cap.

Remove cap slowly to relieve pressure before removing cap completely. Stay clear to prevent being scalded with hot oil that may spray out of the tank that is still pressurized and may cause serious injury to eyes, face, and exposed skin. (Ops-0001-MISC)

WARNING

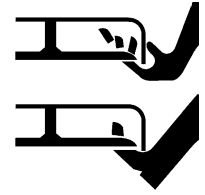
Avoid contact with hot surfaces including hydraulic oil tanks, pumps, motors, valves and hose connections. Relieve hydraulic pressure before performing maintenance or repairs. Use gloves and eye protection when servicing hot components. Contact with a hot surface or fluid can cause serious injury from burns or scalding. (SG-34)

OPERATION

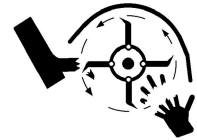
OPERATION



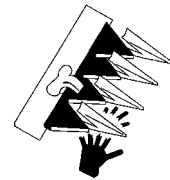
Do not put hands or feet under mower decks. Blade Contact can result in serious injury or even death. Stay away until all motion has stopped and the decks are securely blocked up. (SGM-09)



Do not put hands or feet under mower decks. Blade Contact can result in serious injury or even death. Stay away until all motion has stopped and the decks are securely blocked up. (SFL-2)



Do not put hands or feet near the cutter bar. Blade contact can result in serious injury. Stay away until all motion has stopped and the mower is securely blocked up. (SSM-1)



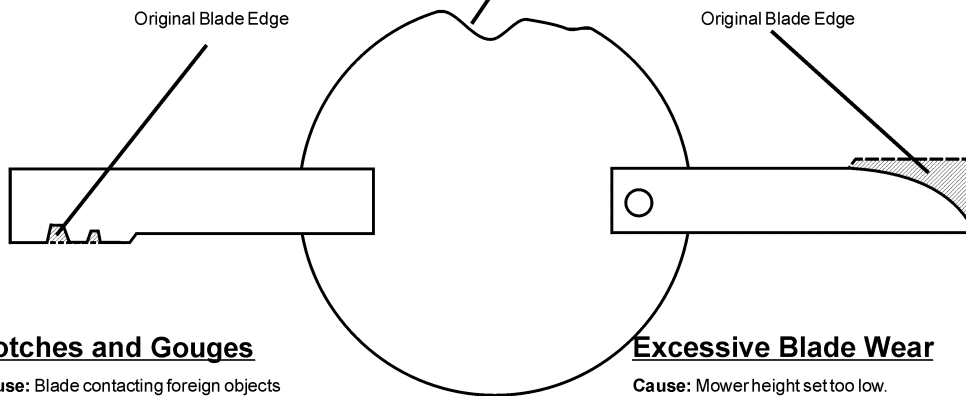
6.3 Cutting Component Inspection

Inspect blade pan and blade assembly for the following:

Damaged Pan

Cause: Blade Pan contacts an immovable object while mower was in motion.

Remedy: Inspect the area before mowing to determine where the immovable objects are located and place visible hazard markers to identify the areas. Avoid mowing in the area where immovable foreign objects exist.



Notches and Gouges

Cause: Blade contacting foreign objects

Remedy: Inspect the area to be mowed and remove foreign objects that could cause damage to the blades

Excessive Blade Wear

Cause: Mower height set too low. Blade used past intended life.

Remedy: Replace blades more often. Adjust mower height for mowing Conditions to eliminate blade-to-ground contact

Op-22

OPS-U-0031

KSM60 03/20

Operation Section 3-14

OPERATION

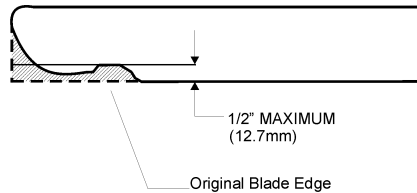


DANGER

Inspect the Blades daily for abnormal wear. REPLACE BOTH BLADES on that carrier IMMEDIATELY if either blade has:

- Become bent or deformed from it's original shape or
- Any cracks are visible, or
- Deep gouges in the blade's surface are present, or
- Gouges or chipped areas in the cutting edge are larger than 1/2" (12.7mm), or
- The material on the leading edge has been worn away by more than 1/2" (12.7mm)"

Failure to replace abnormally worn blades may lead to catastrophic failure of the blades and ejection of the broken part with tremendous force which may cause serious bodily injury or death. OPS-U-0032



NOTE:

Replace Blades in pairs after no more than 1/2" (12.7mm) wear
Op-23

OPERATION

OPERATION

6.4 Blade Bolt Inspection

Inspect Blade Bolt Head daily for wear as followed:

Excessive Blade Bolt Wear

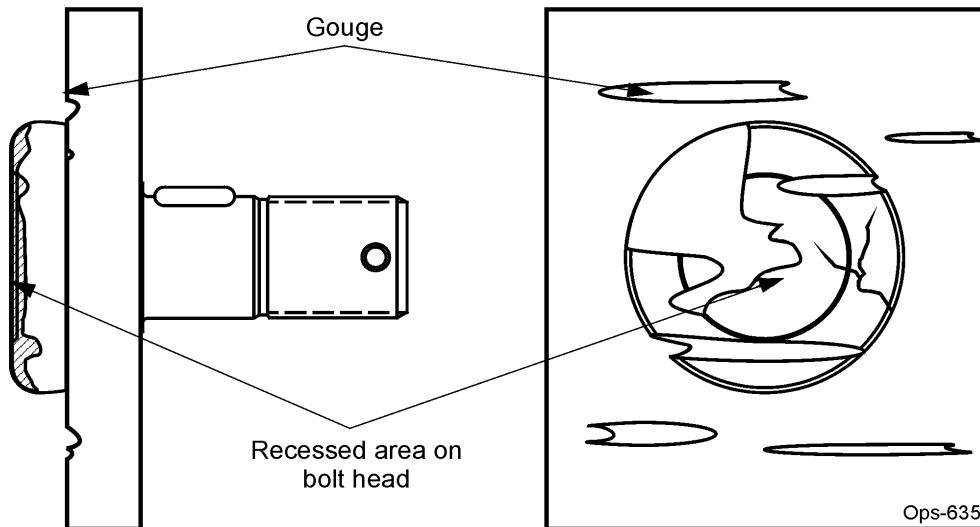
Cause: Blade Bolt contacts a foreign or solid object while Blade is in motion.

Remedy: Inspect the area before mowing to determine where the foreign objects are located and place visible hazard markers to identify the areas where immovable foreign objects exist, and avoid hitting the objects.

Notches and Gouges

Cause: Blade Bolt contacting foreign objects.

Remedy: Inspect area to be mowed and remove foreign objects that could cause damage to the blade bolt.



Inspect the Blade Bolt Heads daily for abnormal wear. REPLACE BOTH BLADE BOLTS on the Blades IMMEDIATELY if either blade bolts has:

- Visible cracks or
- If the recessed area on blade bolt is worn off or
- If Blade Bolt has gouges or chipped areas.

Failure to replace abnormally worn blade bolts may lead to catastrophic failure of the blades and ejection of the broken part which may cause serious bodily injury or death.

Always replace Blade Bolts with new bolts whenever replacing the Blades. OPS-U-0037

OPERATION

6.5 Flail Blades Inspection



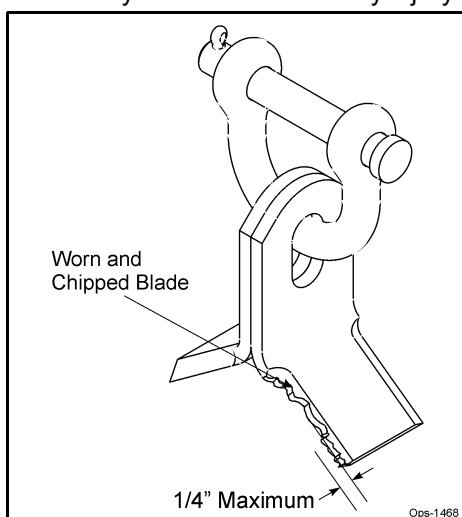
DANGER

Inspect the Blades daily for abnormal wear. REPLACE ALL BLADES on the carrier IMMEDIATELY if any blades have:

- Become bent or deformed from its original shape, or
- Wear inside the blade bolt hole, or
- Any cracks are visible, or
- Deep gouges in the blade's surface are present, or
- Gouges or chipped areas in the cutting edge are larger than 1/4"(8mm), or
- The material on the leading edge has been worn away by more than 1/4"(8mm)

DO NOT straighten, sharpen, weld or hard-face blades

Failure to replace worn or damaged blades may lead to catastrophic failure of the blades and ejection of the broken part with tremendous force which may cause serious bodily injury or death.



Always replace blades in sets

- Blades that are damaged may indicate severe service or abuse. If one blade is worn or damaged other blades on the same shaft will have been subjected to the same severe service or abuse.
- The Flail rotor turns at speeds exceeding 2000 RPM and is dynamically balanced at the factory. Differences in blade weight between used blades with loss of material from gouges or wear as compared to new blades can cause severe vibration and damage to the Flail rotor. Always replace blades as complete sets.

Important

Use only genuine Alamo Industrial replacement blades and fasteners. Other blades and fasteners may not meet the Alamo Industrial requirements and could fail during operation resulting in part being thrown out from under the mower.



CAUTION

Never attempt to sharpen blades. OPS-U-0044

OPERATION

6.6 Blade Pins and D-Ring Inspection

Inspect Blade Pins and D-Rings daily for wear or damage as follows:

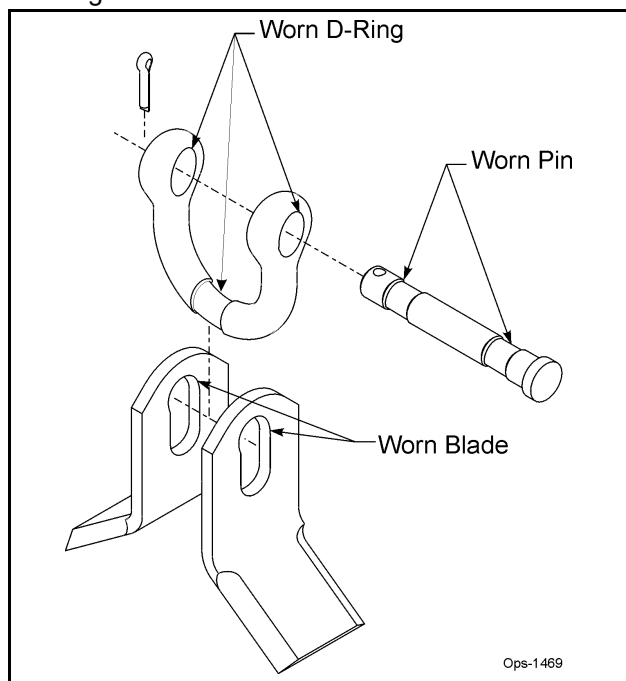


Inspect the Blade pins and D-Rings daily for abnormal wear. Make sure the cotter pins are in place and properly spread. REPLACE BLADE Pins and D-Rings IMMEDIATELY if they have:

- Visible cracks or
- If a Pin or D-Ring has visible worn areas, or
- If a Pin or D-Ring has gouges or chipped areas

Failure to replace abnormally worn pins or D-Rings may lead to catastrophic failure and ejection of the broken part which may cause serious bodily injury or death.

Always replace the pins and D-Rings whenever excessive wear is noticed.



Important

If the cotter pins are broken by contact with other flail blades, remove the pin and reverse the direction the pin is inserted through the D-Ring so that the cotter pin is on the opposite side of the D-Ring. This will prevent the next set of blades from swinging back and hitting the cotter pin. OPS-U-0045

OPERATION

Tractor PRE-OPERATION Inspection



Mower ID# _____ Make _____

Date: _____ Shift _____



Before conducting the inspection, make sure the tractor engine is off, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the mower is resting on the ground or securely blocked up and all hydraulic pressure has been relieved.

Item	Condition at Start of Shift	Specific Comments if not O.K.
The flashing lights function properly		
The SMV Sign is clean and visible		
The tires are in good condition with proper pressure		
The wheel lug bolts are tight & rim/clamp hardware is tight		
The tractor brakes are in good condition & parking brake		
The steering linkage is in good condition		
There are no visible oil leaks		
The hydraulic controls function properly		
The ROPS or ROPS Cab is in good condition		
The seatbelt is in place and in good condition		
The 3-point hitch is in good condition		
The drawbar pins are securely in place		
The PTO master shield is in place		
The engine oil level is full		
The brake fluid level is full		
The power steering fluid level is full		
The fuel level is adequate		
The engine coolant fluid level is full		
The radiator (Cab & A/C) & screens are free of debris		
The air filter is in good condition		
Kubota M6-101, M6-111 & M6S-111 Tire Pressure Ratings: Front: 30 PSI / Rear: 24 PSI		
Kubota M6-131 & M6-141 Tire Pressure Ratings: Front: 24PSI / Rear: 29 PSI		
Operation Switch installed and working		

Operator's Signature: _____

DO NOT OPERATE an UNSAFE TRACTOR or MOWER

This Inspection Form may be freely duplicated for extra copies.

OPERATION

OPERATION

Side Mount Rotary Mower PRE-OPERATION Inspection



Mower ID#: _____
 Make: _____
 Date: _____
 Shift: _____

IMPORTANT:
 Scan this QR Code
 for an electronic
 copy of this
 inspection sheet.

Inspection Sheet



www.algqr.com/bmi



Before conducting the inspection, make sure the tractor engine is off, all rotation has stopped and the tractor is in park with the parking brake engaged. Make sure the mower is resting on the ground or securely blocked up and all hydraulic pressure has been relieved.

Item	Condition at Start of Shift	Specific Comments if not O.K.
The Operator's Manual is in the canister on the mower		
All safety decals are in place and legible		
The Mounting frame bolts are in place and tight		
The Boom connection bolts & pins are tight		
There are no cracks in boom, dipper arm or frame		
The Hydraulic Cylinders pins are tight		
The Hydraulic Pump hose connections are tight		
The Hydraulic Valve hose connections are tight		
The Hydraulic Valve controls function properly		
There are no leaking or damaged hoses		
The Hydraulic Oil level is full		
There is no evidence of Hydraulic leaks		
The Blades are not chipped, cracked or bent		
The Blade bolts are tight		
The Deflectors are in place and in good condition		
The Mower shields are in place and in good condition		
The Skid shoes are in good condition & tight		
There are no cracks or holes in mower deck		
The Hyd. motor mounting bolts are tight		
The mower head spindle housing is tight and lubricated		

Operator's Signature: _____

DO NOT OPERATE an UNSAFE TRACTOR or MOWER

OPERATION

7. DRIVING THE TRACTOR AND IMPLEMENT

Safe tractor transport requires the operator possess a thorough knowledge of the model being operated and precautions to take while driving with an attached implement. Ensure the tractor has the capacity to handle the weight of the implement and the tractor operating controls are set for safe transport. To ensure safety while driving the tractor with an attached implement, review the following. *OPS-U- 0012*

7.1 Basic Troubleshooting Guide for First Start-up

- A. Electrical solenoid valve does not work - check wiring, possible faulty switch, possible faulty solenoid.
- B. Pump is making noise - check for obstruction in suction hose and tank suction assembly, check alignment of pump driveshaft.
- C. Cylinders will not raise - hoses from cylinder incorrectly connected to valve bank, pump not supplying oil.
- D. Cylinder raises slowly - hoses from cylinder incorrectly connected to valve bank, work port reliefs on valve bank set too low - replace as required.

Filter reads in red - viscosity of oil too high - wait until oil heats up before checking filter gauge. If gauge reads in red even after unit is hot, then filter must be replaced.



Never run the Tractor engine in a closed building or without adequate ventilation. The exhaust fumes can be hazardous to your health. (SG-23)

OPERATION



Transport only at speeds where you can maintain control of the equipment. Serious accidents and injuries can result from operating this equipment at high speeds. Understand the Tractor and Implement and how it handles before transporting on streets and highways. Make sure the Tractor steering and brakes are in good condition and operate properly.



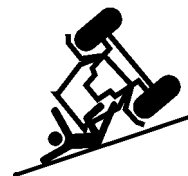
Before transporting the Tractor and Implement, determine the proper transport speeds for you and the equipment. Make sure you abide by the following rules:

Test the tractor at a slow speed and increase the speed slowly. Apply the Brakes smoothly to determine the stopping characteristics of the Tractor and Implement. As you increase the speed of the Tractor the stopping distance increases. Determine the maximum transport speed not to exceed 20 mph (30 kph) for transporting this equipment.

Test the equipment at a slow speed in turns. Increase the speed through the turn only after you determine that the equipment can be operated at a higher speed. Use extreme care and reduce your speed when turning sharply to prevent the tractor and implement from turning over. Determine the maximum turning speed for you and this equipment before operating on roads or uneven ground.

Only transport the Tractor and Implement at the speeds which allow you to properly control the equipment.

Be aware of the operating conditions. Do not operate the Tractor with weak or faulty brakes or worn tires. When operating down a hill or on wet or rain slick roads, the braking distance increases: use extreme care and reduce your speed. When operating in traffic always use the Tractor's flashing warning lights and reduce your speed. Be aware of traffic around you and watch out for the other guy. (SG-19)



OPERATION

7.2 Starting the Tractor

The procedure to start the tractor is model specific. Refer to the tractor operator's manual for starting procedures for your particular tractor. Consult an authorized dealer if the starting procedure is unclear. Ensure the 3-point control lever is in the lowered position and the PTO is disengaged before starting the tractor. OPS-U-0033_KB



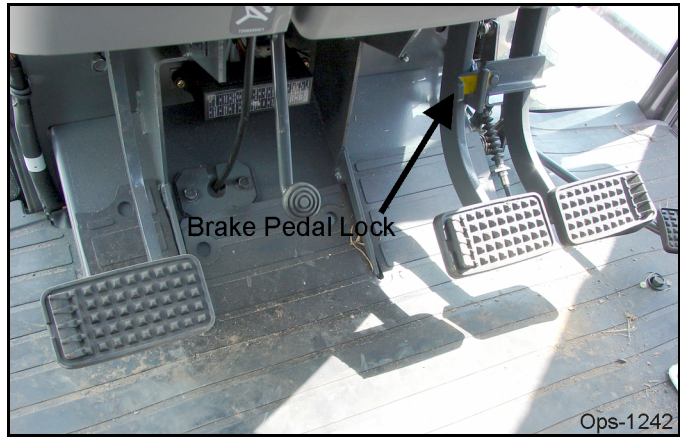
Ops-1214

OPERATION

7.3 Brake

Make sure the tractor brakes are in good operating condition. Before operating the tractor on the road or before applying the parking brake, be sure to interlock the right and left pedals as illustrated on image.

Use individual brakes to assist in making sharp turns at slow speeds (Field Operation Only). Disengage the brake pedal lock and depress only one brake pedal. Be sure brake pedals have equal adjustment when using locked together. OPS-U- 0013_TK



OPERATION

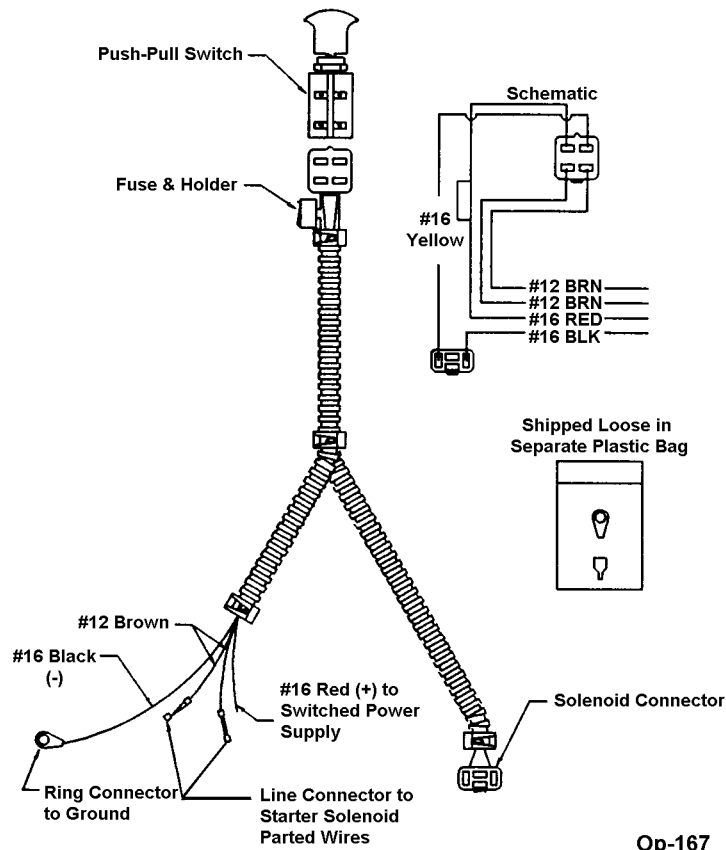
8. OPERATING THE CONTROL VALVES

ON-OFF Switch (Mower Valve) - To operate the mower, pull the switch while the tractor is running. The push-pull operator will remain in the ON position PULLED or the OFF position PUSHED until the operator desires to start or stop the mower. Always start the cutterhead with the tractor at idle.



CAUTION

The operator should not leave his seat with this valve engaged or with the tractor engine running. Allow approximately 60 seconds for the blades to come to rest after turning the switch off before dismounting.



OPS-B- 0030_C

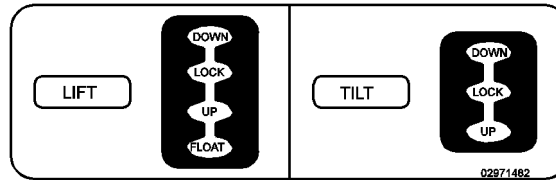


DANGER

Operate the Tractor and/or Implement controls only while properly seated in the Tractor seat with the seat belt securely fastened around you. Inadvertent movement of the Tractor or Implement may cause serious injury or death. (SG-29)

POSITION CONTROL VALVE - The Valve is located to the right of the operator at a convenient height. The Valve operation plate is located above the Solenoid Valve "on-off" switch.

OPERATION



KSM60 MOWER VALVE OPERATION PLATE

8.1 Operating The Control Valves - Side Mount / Breakaway

MOWER LIFT

The handle nearest the center of the tractor, actuates the Lift Cylinder.

Pulling the valve handle back, towards the operator, causes the lift cylinder to raise the Extension Arm

If the handle is released, the valve will automatically return to center and the Extension Arm will be locked in place.

Pushing the valve handle forward, away from the operator, causes the lift cylinder to lower the Extension Arm.

Pulling the handle all the way back until it locks places the mower lift function in float, allowing the unit to rise and fall with the terrain.

BREAKAWAY (OPTIONAL)

Push the lift valve handle forward away from the operator to reset the breakaway cylinder allowing head to swing back to mowing position.



Make certain that the head is clear of bystanders and obstructions to prevent injury, electrocution and possible machine damage. Avoid sudden starting and stopping.

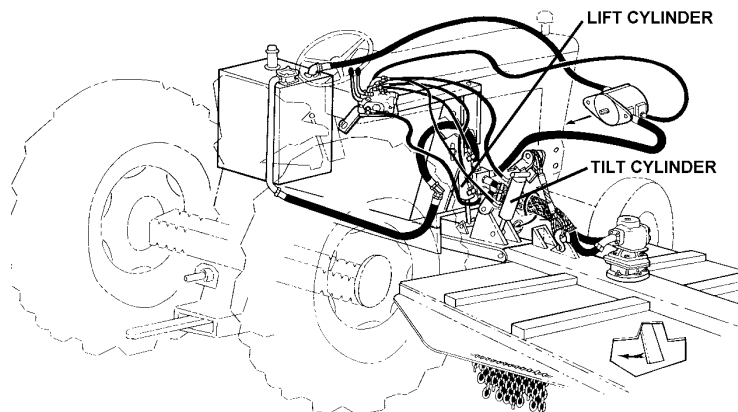
MOWER TILT

The handle furthest to the center of the tractor, actuates the Tilt Cylinder.

Pulling the valve handle back, toward the operator, causes the Tilt Cylinder to raise the Mower Head.

If the handle is released, the valve will automatically return to center and the head will be locked in place.

Pushing the valve handle forward, away from the operator, causes the Tilt Cylinder to lower the KSM60 Mower Head.



Op-206

OPERATION

DANGER

Never operate the Tractor or Implement until you have read and completely understand this Manual, the Tractor Operator's Manual, and each of the Safety Messages found in the Manual or on the Tractor and Implement. Learn how to stop the tractor engine suddenly in an emergency. Never allow inexperienced or untrained personnel to operate the Tractor or Implement without supervision. Make sure the operator has fully read and understood the manuals prior to operation. (SG-4)

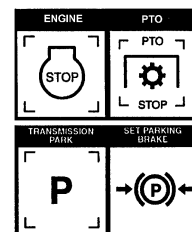


WARNING

Always maintain the safety signs in good readable condition. If the safety signs are missing, damaged, or unreadable, obtain and install replacement safety signs immediately. (SG-5)

DANGER

BEFORE leaving the tractor seat, lower the implement, set the parking brake and/or set the tractor transmission in parking gear, disengage the PTO, stop the engine, remove the key, and wait for all moving parts to stop. Place the tractor shift lever into a low range or parking gear to prevent the tractor from rolling. Never dismount a Tractor that is moving or while the engine is running. Operate the Tractor controls from the tractor seat only. (SG-9)



DANGER

Start tractor only when properly seated in the Tractor seat. Starting a tractor in gear can result in injury or death. Read the Tractor operators manual for proper starting instructions. (SG-13)



OPERATION

8.2 Driving the Tractor and Cutter

Start off driving at a slow speed and gradually increase your speed while maintaining complete control of the tractor and mower. Moving slowly at first will also prevent the tractor from rearing up and loss of steering control. The tractor should never be operated at speeds that cannot be safely handled or which will prevent the operator from stopping quickly during an emergency. If the power steering or engine ceases operating, stop the tractor immediately as the tractor will be difficult to control.

Drive the tractor with the 3-Point lift arms in the raised position and lock the control lever in the transport detent position to prevent damage to the mower driveline and tongue when turning.

Perform turns with the tractor and mower at slow speeds to determine how the tractor with an attached mower handles a turn. Determine the safe speed to maintain proper control of the tractor when making turns. When turning with a towed implement, the overall working length of the unit is increased. Allow additional clearance for the mower when turning.

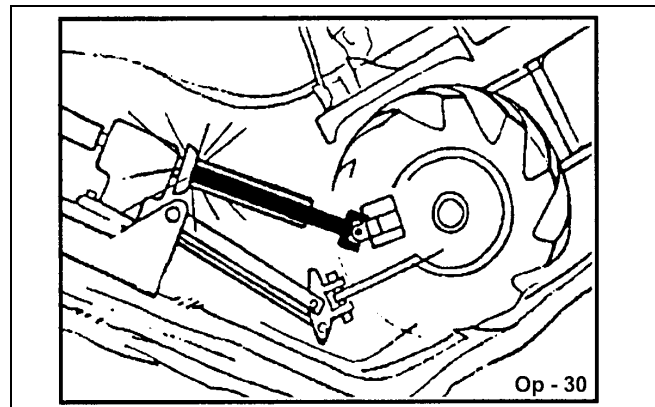
To avoid overturns, drive the tractor with care and at safe speeds, especially when operating over rough ground, crossing ditches or slopes, and turning corners. Tractor wheel tread spacing should be increased when working on inclines or rough ground to reduce the possibility of tipping.



Use extreme caution when operating on steep slopes. Keep the tractor in a low gear when going downhill. DO NOT coast or free-wheel downhill. OPS-R-0018_TK

8.3 Crossing Ditches and Steep Inclines

When crossing ditches with steep banks or going up sharp inclines, it is possible that the main driveline inner profile will penetrate into the outer housing to its maximum depth until the assembly becomes solid (driveline is at its extreme shortest length). This type of abusive operation can cause serious damage to the tractor and mower drive by pushing the PTO into the tractor and through the support bearings or downward onto the PTO shaft, breaking it off.



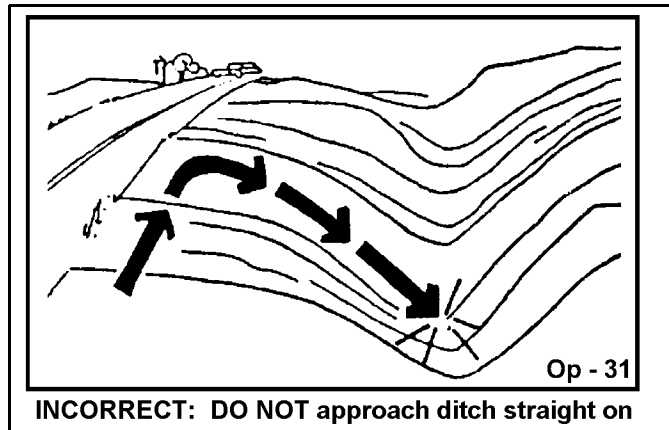
Damage resulting from over-collapse of the driveline's inner profile and its outer housing may allow the driveline to come loose from the Tractor which could cause bodily injury to the operator or bystanders and/or extensive damage to the Tractor or Implement. OPS-R-0020

OPERATION

OPERATION

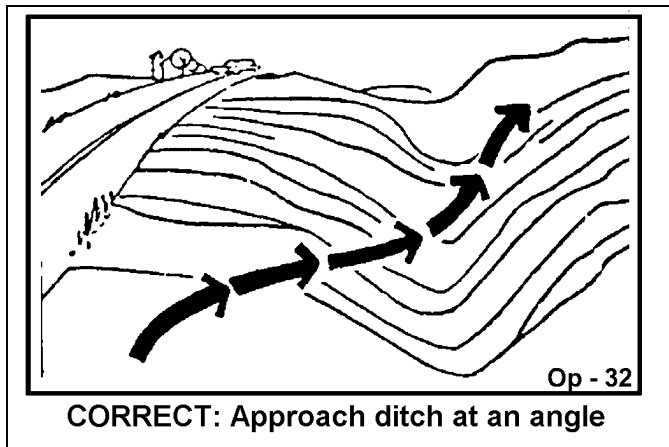
When confronted with an incline or ditch, do not approach from an angle which is perpendicular or straight on as damaged to over collapse of the driveline may occur.

When crossing such terrain, the implement should be fully lowered for a lower center of gravity and added stability. OPS-R-0021



Inclines and ditches should be approached along a line which is at an angle as shown. This type of path will reduce the possibility of over-collapse of the driveline and resulting damage. If the gradient is so steep that such an approach increases the possibility of a tractor roll-over, select an alternate crossing path.

When operating the tractor and mower across slopes and inclines, through ditches, and other uneven terrain conditions, it is important to maintain sufficient deck to ground clearance. Blade contact with the ground may cause soil, rocks and other debris to be thrown out from under the mower resulting in possible injury and/or property damage. Ground contact also produces a severe shock load on the mower drive and to the mower blades resulting in possible damage and premature wear. OPS-R-0022



9. OPERATING THE TRACTOR AND IMPLEMENT

THE OPERATOR MUST COMPLETELY UNDERSTAND HOW TO OPERATE THE TRACTOR AND IMPLEMENT AND ALL CONTROLS BEFORE ATTEMPTING TO OPERATE. The operator must read and understand the Safety and Operation Sections of the implement and tractor operator's manuals. These manuals must be read and explained to any operator who cannot read. Never allow someone to operate the implement and tractor without complete operating instructions.

Before starting any operation, the operator must become familiar with the area to be worked in and any obstacles and hazards contained within to ensure safety to the operator, bystanders, and equipment. Special attention should be paid to foreign debris, rough terrain, steep slopes, and passersby and animals in the area. OPS-U- 0015

OPERATION

⚠️ WARNING

Many varied objects, such as wire, cable, rope, or chains, can become entangled in the operating parts of the mower head. These items could then swing outside the housing at greater velocities than the blades. Such a situation is extremely hazardous and could result in serious injury or even death. Inspect the cutting area for such objects before mowing. Remove any like object from the site. Never allow the cutting blades to contact such items.

(SGM-06)

9.1 Foreign Debris Hazards

Before mowing, inspect the area to make sure there are no foreign objects that the mower blades could hit or become entangled with. Remove all foreign objects and debris. If objects are too big to remove, mark them clearly and be sure to prevent the mower blades from contacting them.

If you hit a solid object or foreign debris, stop the mower and tractor at once. Immediately idle the engine speed and disengage the PTO. Wait for all mower rotating motion to stop, then raise the mower and move the tractor and implement off the object. Inspect the area and remove, or mark the location of the debris. Inspect the condition of the mower and make any needed repairs immediately. Make sure the blades are not damaged and the carrier is balanced before resuming operation.

Always wear your seat belt securely fastened and only operate the tractor and mower with the ROPS in the raised position. If the tractor or mower hits a tree stump, rock, or bump, a sudden movement could throw you off of the seat and under the tractor and/or mower. The seat belt is your best protection from falling off the tractor and the ROPS provides protection from being crushed during a tractor roll-over. OPS-R-0023_TK



Remove Foreign Material



Raise Mower over solid objects

9.2 Bystanders/Passersby Precautions

If a bystander comes within 300 feet of the tractor while the mower is being operated, stop the tractor at once, idle the engine and disengage the PTO. Do not engage the PTO again until all bystanders are well past the 300 foot distance. OPS-R-0024

OPERATION

DANGER

Rotary Mowers are capable under adverse conditions of throwing objects for great distances (300 ft (100 m) or more) and causing serious injury or death. Follow safety messages carefully.



STOP MOWING IF PASSERSBY ARE WITHIN 300 Feet (100 m) UNLESS:

- Front and Rear Deflectors, Chain Guards, or Bands are installed and in good, workable condition;
- Mower sections or Wings are running close to and parallel to the ground without exposed Blades;
- Passersby are outside the existing thrown-object zone;
- All areas have been thoroughly inspected and all foreign material such as rocks, cans, glass, and general debris has been removed.

NOTE: *Where there are grass and weeds high enough to hide debris that could be struck by the blades, the area should be: inspected and large debris removed, mowed at an intermediate height, inspected, closely with any remaining debris being removed, and mowed again at desired final height. (This will also reduce power required to mow, reduce wear and tear on the Mower drivetrain, spread cut material better, reduce streaking, and make the final cut more uniform).* (SRM-01)

9.3 PTO RPM and Ground Speed

Ground speed for mowing will depend upon the height, type, and density of vegetation to be cut. Recommended speed for efficient mower performance is between 2 and 5 mph(3-8 kph). Operate the mower at its full rated PTO speed to maintain blade speed for a clean cut. Refer to the tractor operator's manual or the tractor instrument panel for the engine speed and gear to provide the required PTO and desired ground speed. Make sure that the mower is operating at its full rated speed before entering the vegetation to be cut. If it becomes necessary to temporarily regulate engine speed, increase or decrease the throttle gradually.

Ground speed is achieved by transmission gear selection and not by the engine operating speed. The operator may be required to experiment with several gear range combinations to determine the best gear and range which provides the most ideal performance from the mower and most efficient tractor operation. As the severity of cutting conditions increase, the ground speed should be decreased by selecting a lower gear to maintain the proper operating PTO speed. OPS-R-0025

WARNING

Mow at the speed that you can safely operate and control the tractor and mower. The correct mowing speed depends on terrain condition and grass type, density, and height of cut. Normal ground speed range is from 2-5 mph (3-8 kph). Use slow mowing speeds when operating on or near steep slopes, ditches, drop-offs, overhead obstructions, power lines, or when debris and foreign objects are to be avoided. (SGM-07)

OPERATION

9.4 Operating the Mower

Only operate the mower from the tractor operator's seat with the seat belt securely fastened. The tractor must be equipped with a ROPS in the raised position or a ROPS or ROPS factory cab.

The mower is designed to cut vegetation up to 2" in diameter. Sharp blades will produce a cleaner cut and require less power. Travel at a speed that allows the mower sufficient time to cut through the vegetation and maintain the PTO operating speed to prevent overloading the mower and tractor. Choose a driving pattern that provides the maximum pass length and minimizes turning.

Under certain conditions, tractor tires may roll some grasses down preventing them from being cut at the same height as the surrounding area. When this occurs, reduce the tractor ground speed while maintaining the operating speed of the mower. A slower ground speed will permit grasses to at least partially rebound and be cut. Taking a partial cut and/or reversing the direction of travel may also help produce a cleaner cut.

Avoid mowing in the reverse direction when possible. In situations where the mower must be backed to access areas to be cut, make sure there are no persons or other foreign debris behind the mower before maneuvering in reverse.



Do not mow with two machines in the same area except with Cab tractors with the windows closed. (SGM-11)



Mow only in conditions where you have clear visibility in daylight or with adequate artificial lighting. Never mow in darkness or foggy conditions where you cannot clearly see at least 300 feet (90 m) in front and to the sides of the tractor and mower. 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 mowing. (SGM-1)



Avoid mowing in reverse direction when possible. Check to make sure there are no persons behind the mower and use extreme care when maneuvering in reverse. Mow only at a slow ground speed where you can safely operate and control the tractor and mower. Never mow an area that you have not inspected and removed debris or foreign material. (SGM-08)



Follow these guidelines to reduce the risk of equipment and grass fires while operating, servicing, and repairing the Mower and Tractor:



- Equip the Tractor with a fire extinguisher in an accessible location.
- Do Not operate the Mower on a Tractor with an underframe exhaust.
- Do Not smoke or have an open flame near the Mower and Tractor.
- Do Not drive into burning debris or freshly burnt areas.
- Ensure slip clutches are properly adjusted to prevent excessive slippage and plate heating.
- Never allow clippings or debris to collect near drivelines, slip clutches, and gearboxes. Periodically shut down the Tractor and Mower and clean clippings and collected debris from the mower deck. (SGM-12)

OPERATION

OPERATION

9.5 Right of Way (Highway) 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 mower.
- No shielding is 100% effective in preventing thrown objects. To Reduce Possibility of Injury:
 1. **MAINTAIN MOWER SHIELDING** in good operational condition,
 2. **DAILY INSPECT** the condition of the Thrown Object Guards, mower Side Skirts, and skid shoes: Replace or repair worn or damaged guards.
 3. **DAILY INSPECT** the condition of the Blades and Blade Bolts. Replace any cracked, worn, bent or damage blades. Always replace blade bolts and nuts when replacing blades. Make sure the blade bolts are properly tightened.
 4. **RAISE CUTTING HEIGHT** to **6 INCHES** minimum.
 5. **INSPECT AREA** thoroughly before mowing to **REMOVE** potential **THROWN OBJECT HAZARDS**.
 6. **NEVER ALLOW BLADES** to **CONTACT SOLID OBJECTS** like wire, rocks, posts, curbs, guardrails, or ground while mowing.



DANGER

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

TO AVOID SERIOUS INJURY OR DEATH TO OPERATOR OR BYSTANDERS FROM THROWN OBJECTS:

INSPECT AREA FOR POTENTIAL THROWN OBJECTS BEFORE MOWING:

- **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 deck with great velocity:

1. **MARK** objects that cannot be removed.
2. **AVOID** these objects when mowing.

STOP MOWING IF PASSERSBY IS WITHIN 300 FEET UNLESS:

- 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.
- Mower sections or wings are adjusted to be close and parallel to ground without exposing blades.
- **MOWING AREA** has been inspected and foreign materials and debris have been removed.
- **PASSERSBY** are inside enclosed vehicle. *OPS-U-0040*

OPERATION

OPERATION

9.6 Shutting Down the Implement

To shut down attached mower head, first bring the tractor to a complete stop. Decrease engine RPM to idle then disengage cutterhead. The mower head will come to a complete stop within a suitable amount of time. Do not engage or disengage the cutterheads at a high RPM unless there is an emergency situation.

Park the tractor on a level surface, place the transmission in park or neutral and apply the parking brake, lower the attached implement to the ground, shut down the engine, remove the key, and wait for all motion to come to a complete stop before exiting the tractor. OPS-U- 0016_TK



10. DISCONNECTING THE MOWER FROM THE TRACTOR

Before disconnecting the mower, the PTO must be disengaged and blade rotation at a complete stop. Move the mower to a level storage location and lower the center section and both wings to the ground. If the mower will be stored with the wings in the raised position, install both wing transport lock braces. If the mower is not resting securely on the ground, block the mower up securely before attempting to disconnect it from the tractor.

Use extreme care to keep feet and hands from under the mower and clear of any pinch points. OPS-R-0030



Never work under the Implement, the framework, or any lifted component unless the Implement is securely supported or blocked up to prevent sudden or inadvertent falling which could cause serious injury or even death. (SG-14)



OPERATION

11. MOWER STORAGE

It is recommended that the mower be stored with the center section and both wings fully lowered to ground level. If the mower is stored with the wings in the raised position, select a level area and install wing transport braces to prevent the wings from falling BEFORE disconnecting the mower hitch from the tractor.

Properly preparing and storing the mower at the end of the season is critical to maintaining its appearance and to help ensure years of dependable service. The following are suggested storage procedures:

- Thoroughly clean all debris off the mower to prevent damage from rotting grass and standing water.
- Lubricate all mower grease points and fill gearbox oil levels as detailed in the maintenance section.
- Tighten all bolts and pins to the recommended torque.
- Check the mower for worn and damaged parts. Perform repairs and make replacements immediately so that the mower will be ready for use at the start of the next season.
- Store the mower in a clean, dry place with the mower housing resting securely on blocks or at ground level.
- Keep the driveline yoke from sitting in water, dirt and other contaminants.
- Use spray touch-up enamel where necessary to prevent rust and maintain the appearance of the mower.



Ops-1935

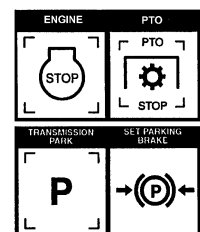
It is critical that driveline clutches slip when an obstacle or heavy load is encountered to avoid mower and/or tractor damage. If the mower sits outside for an extended period of time or is exposed to rain and/or humid air, the clutch lining plates must be inspected to ensure they are not frozen together from rust or corrosion. If the mower has been exposed to such conditions, at the start of each mowing season, and any time it is suspected that the slip clutch plates may be frozen together, readjust the slip clutch as detailed in Seasonal Clutch Maintenance of the maintenance section in this manual. OPS-R-0032_TK

DANGER

Never allow children to play on or around Tractor or Implement. Children can slip or fall off the Equipment and be injured or killed. Inadvertent contact with controls can cause the Implement to shift or fall crushing themselves or others. (SG-25)

DANGER

BEFORE leaving the tractor seat, lower the implement, set the parking brake and/or set the tractor transmission in parking gear, disengage the PTO, stop the engine, remove the key, and wait for all moving parts to stop. Place the tractor shift lever into a low range or parking gear to prevent the tractor from rolling. Never dismount a Tractor that is moving or while the engine is running. Operate the Tractor controls from the tractor seat only. (SG-9)



OPERATION

12. TRANSPORTING THE TRACTOR AND IMPLEMENT

Inherent hazards of operating the tractor and implement and the possibility of accidents are not left behind when you finish working in an area. Therefore, the operator must employ good judgement and safe operation practices when transporting the tractor and implement between locations. By using good judgement and following safe transport procedures, the possibility of accidents while moving between locations can be substantially minimized. OPS-U- 0017



Never allow children or other persons to ride on the Tractor or Implement. Falling off can result in serious injury or death. (SG-10)

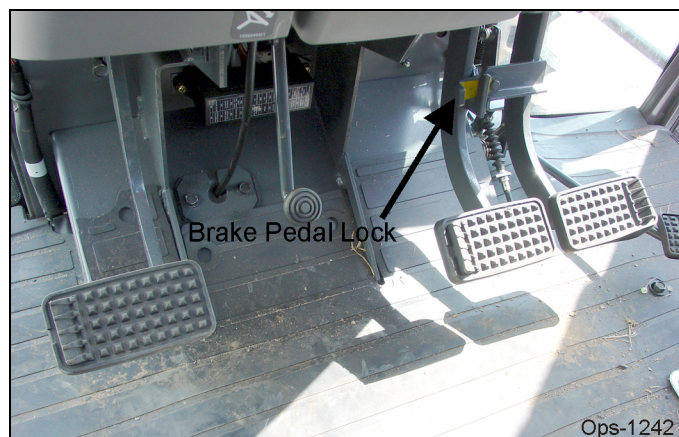


OPERATION

Before transporting the tractor and mower, idle the tractor engine, disengage the PTO, push the stop button to disengage the wings and wait for all mower moving parts to come to a complete stop. Raise the mower sections and ensure transport locks are engaged.



Before transporting the tractor on a public roadway or boarding a trailer for transport, the tractor brake pedals should be locked together. Locking the pedals ensures that both wheels brake simultaneously while stopping, especially when making an emergency stop. OPS-U- 0018_TK



OPERATION

OPERATION

12.1 Transporting on Public Roadways

Extreme caution should be used when transporting the tractor and implement on public roadways. The tractor must be equipped with all required safety warning features including a SMV emblem and flashing warning lights to alert drivers of the tractor's presence. Remember that roadways are primarily designed for automotive drivers and most drivers will not be looking out for you, therefore, you must look out for them. Check your side view mirrors frequently and remember that vehicles will approach quickly because of the tractor's slower speed. Be extremely cautious when the piece of equipment that you are towing is wider than the tractor tire width and/or extends beyond your lane of the road.

The SMV (Slow-Moving Vehicle) emblem is universal symbol used to alert drivers of the presence of equipment traveling on roadways at a slow speed. SMV signs are a triangular bright orange with reflective red trim for both easy day and night visibility. Make sure the SMV sign is clean and visible from the rear of the unit before transporting the tractor and implement on a public roadway. Replace the SMV emblem if faded, damaged, or no longer reflective. OPS-U- 0020



Make sure that all tractor flashing warning lights, headlights, and brake/tail lights are functioning properly before proceeding onto public roads. While newer model tractors have plenty of lighting to provide warning signals and operating lighting, most older models are only equipped with operating lights. Consult an authorized tractor dealer for lighting kits and modifications available to upgrade the lighting on older tractor models. OPS-U- 0021_TK



When operating on public roads, have consideration for other road users. Pull to the side of the road occasionally to allow all following traffic to pass. Do not exceed the legal speed limit set in your country for agricultural tractors. Always stay alert when transporting the tractor and implement on public roads. Use caution and reduce speed if other vehicles or pedestrians are in the area.



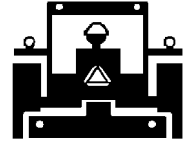
Never allow children or other persons to ride on the Tractor or Implement.
Falling off can result in serious injury or death. (SG-10)



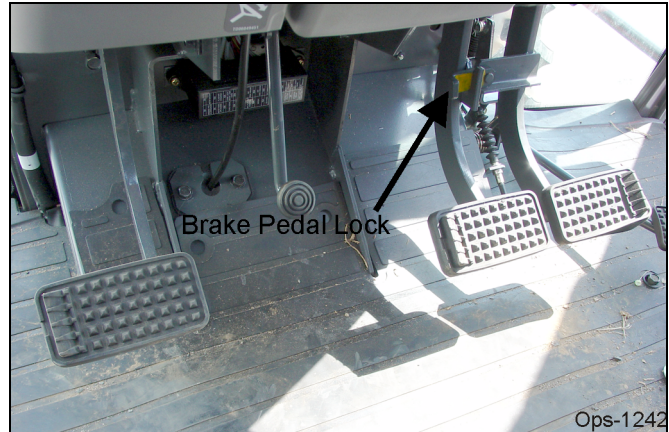
OPERATION



Make certain that the “Slow Moving Vehicle” (SMV) sign is installed in such a way as to be clearly visible and legible. When transporting the Equipment use the Tractor flashing warning lights and follow all local traffic regulations. (SG-6)



Reduce speed before turning or applying the brakes. Ensure that both brake pedals are locked together when operating on public roads. OPS-U- 0023_TK



OPERATION

12.2 Hauling the Tractor and Implement

Before transporting a loaded tractor and implement, measure the height and width dimensions and gross weight of the complete loaded unit. Ensure that the load will be in compliance with the legal limits set for the areas that will be traveled through.

Use adequately sized and rated trailers and equipment to transport the tractor and implement. Consult an authorized dealer to determine the proper equipment required. Using adequately sized chains, heavy duty straps, cables and/or binders, securely tie down both the front and rear of the tractor utilizing the proper tie down locations as specified by DOT and trucking or local regulations. OPS-U- 0025 TK



OPERATION

OPERATION

Arrange the chains so that when tightened, the chains are pulling downward and against themselves. Carefully tighten the securing chains or other fasteners using boomers or binders to apply maximum tension. Use extreme care when attaching and removing the securing devices as the extreme tension involved when released has the potential to inflict serious injury.

While hauling the tractor and implement, make occasional stops to check that the tractor and implement have not moved or shifted and that the securing chains have maintained tension. If during transport a hard braking, sharp turning, or swerving action was performed, stop at the next safe location to inspect the security of the load.



NOTE: Always transport per your State and Federal law regulations for tie down requirements.
OPS-U- 0026_TK

OPERATION

13.TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy
Cylinder Excessive Drift	May be normal Operation Cylinder Piston Seals Bypass Damaged or Defective Work Port Relief Valves Oil Contamination	Check Allowable Drift rates in Service Manual Test to confirm and repair or replace Check Relief Pressures. Repair or replace as required May be root cause of any internal Leakage. Test oil and replace as required.
Cylinder Leaks at Fittings	Related to Issues described in Previous section: Boom moves under its own power Loose Fittings	Review the previous section Check for cracks and retighten
Cylinder Leaks at Rod	Wrong Fittings Installed Damaged or defective fitting (cracked) Fitting Port cracked Faulty Seals on Cylinder Gland Damaged Cylinder Rods Cylinder Rods Bent	Replace with Correct fittings due to over tightening, replace hose or fitting Repair or replace Cylinder or port Disassemble and Replace Clean or Replace the Rod as required. Determine Cause of Overload. Replace the Rod
Cylinder Moves Wrong Way (Not the function that was actuated)	Incorrect Hose Routing Wire Harness improperly installed Operator Perception of Correct Operation is incorrect	Check Hose Diagram in the Service Manual and route the hoses correctly Confirm incorrect placement and re-attach the harness connectors as needed Consult the Operator's Manual for Correct operation and communicate with the Operator.
Cylinder Moves intermittent (all functions)	Cylinder Control Pump Failure (All functions affected) Load Sense Signal Not reaching the pump. Low Or Improper Oil in Hydraulic system Contamination of Oil causing restricted flow in the valve. No voltage to Joystick Controller Faulty Joystick Controller	Test pump to confirm. Rebuild or replace as required. Check valve Pilot pressure and load sense Check valves. Replace or fill as required. Replace oil, and clean components. Check Fuses, wires etc and repair as required. Test then replace or repair as required.

OPERATION

OPERATION

Problem Cylinder Movement Spongy or Jerky

Possible Cause

Air in oil

Remedy

Identify the source of the Air. Replace Oil if Required, or cycle the cylinder several times to purge the oil.

Wrong Oil Used

Check Specifications for proper oil, and replace

Oil is cold

System must be warmed to at least 40degrees F for proper operation

Faulty Pump or Pump drive

Check or test then replace or repair as required.

Workport reliefs set too low

Test relief pressure and replace with proper Work Port relief valve

Cylinder Moves Some Functions (But Not All)

Faulty Joystick Controller

Test the joystick and repair or replace as required

Oil Level too low

Fill the hydraulic tank as required.

Faulty Solenoid Valve

Test and repair or replace as required

Contamination in valve

Flush system and clean the valve as required.

Bad Control Module

Replace the module

Incorrect Work Port Relief installed

Check for proper hose routing in the Service manual and correctly install

Work Port relief failure

Test work port relief pressure and replace if required

Cylinder Failure

Test Cylinder, repair or replace as needed

One way Flow restrictor Installed in wrong port, or backwards

Check proper installation in Service Manual
One way flow restrictors are required on most gravity aided functions and both directions of the swing functions

Pump worn out

Test to confirm, repair or replace as required

Air in oil

Locate the source of the air and repair. Flush and fill oil as required

Engine RPM too slow

2000 RPM is the rated speed as indicated on the tachometer

Cylinder Rod Bent

Operator Abuse

Operator training, Travel speed too fast, or impact with solid objects while mowing

Misalignment of Cylinder Lugs (bent boom)

Operator training, Excessive loading of boom components

Work Port Relief improper Interference with another component

Check for proper setting. Replace as needed
Operator training or components interfering with boom movement

OPERATION

OPERATION

Problem	Possible Cause	Remedy
Cylinder Rod Came Out of Cylinder	Piston Nut backed off of the Rod	Improper retaining of nut, replace or rebuild as required
	Relief Valve setting Too High	Test relief valve and adjust or replace as required
	Operator abuse	Overloading cylinder in the extend position
Deck Cracks	Severe Use or Abuse	Excessive ground speed, Overload or impact with solid objects
	Vibration	Blades or blade bar bent, or blade missing
	Poor or missing welds	Manufacturing defect
	Mowing over sand or rocks	Operator training
Deck Worn On Underside (Cutting Head Only)	Abusive operation, mowing heavy debris	Operator training
	Normal operational wear	Normal wear over time can result in cracks or damage. Check deflectors and guards. Replace as required.
Hydraulic System Noise (Squeal)	Restrictions to oil flow in the system	Identified by concentration of heat, due to Line restriction bent hoses or contamination.
	Relief Valve Malfunction	Relief setting too low, will result in generation of heat, Adjust or replace as needed.
	Cavitation	Induction of air into the system due to leakage
	Wrong Oil Used	Flush and refill as required
	Excessive Engine RPM	Engine RPM should not exceed 2000 speed as indicated on the tractor tachometer.
Hydraulic System Overheating	Restriction in Hydraulic System	Identified by a concentration of heat due to crimped hydraulic line, relief valve failure or contamination.
	Relief Valve Set too low	Test and adjust or replace as required
	Internal Leakage due to wear	Test pump and motor. Replace or repair as required
	Excessive Pump or Motor Wear	Test pump and motor. Replace or repair as required
	Wrong Oil	Flush and refill as required with proper oil
	Abusive Operation (Heavy Material or debris)	Operator training
Boom Breaks Back Too Easily	Cutting head "Plowing" in Ground	Operator Error, Operator Training
	Operator Traveling Too Fast	Operator Error, Operator Training

OPERATION

OPERATION

Problem

**Motor Inoperative
(Won't Run)**

Possible Cause

Low Oil level or No Oil

Improper Oil Used

Solenoid valve Failure or
O-ring Failure at the
Solenoid Valve

No voltage to Solenoid
Valve

Incorrect Wiring at
Solenoid valve

Spindle Locked up

Remedy

Fill or replace as required

flush and replace the oil

Remove the solenoid valve and inspect.

Replace as required

Check harness connections, fuses and wires

Wrong plug installed (Maverick and Machete).
Timbercat harness plug used in place of Other
mower plug. Reconnect with proper plug

Check by spinning blades. See Section on
spindle failures

Motor Overheating

Oil Level Too Low

Incorrect Oil Used

Air in Oil

Engine RPM too high

Excessive ground speed
for mowing conditions

Excessive ground contact
with blades

Internal leakage in pump
or motor

Relief valve malfunction

Restrictions in the system

Fill or replace as required

Flush and fill as required

Locate the source and repair. Flush and fill the
oil as required

Tractor must be operated at the 540PTO speed
as indicated on the tachometer

Operator abuse

Operator abuse

Test to confirm. Repair or replace as required

Test relief valve setting. Adjust or replace as
required

Identified by concentration of heat, due to Line
restriction bent hoses or contamination.

Motor Shaft Seal Leaking

Excessive Back Pressure
on return side of the
motor.

Incorrect oil used

Shaft Seal worn

Failed Seal Retainer

Defective Motor Flange
casting

Due to bent fittings or crimped hoses. Inspect
the system and repair as required

Replace with correct oil.. Flush and fill

Due to heat from the spindle or failure of
spindle components. Check spindle section

Manufacturing defect. Consult customer
service for proper repair or replacement

Manufacturing defect. Consult customer
service for proper repair or replacement

OPERATION

OPERATION

Problem

**Motor Runs Too Slow
(or Slows Down Under
Load)**

**Motor Stops (Stops
under Load)**

Possible Cause

Engine RPM too slow

Pump Drive Damaged
Logic Valve O-ring Failure
(Gear Systems)

Damaged O-ring on
Solenoid Valve

Pump Worn or Defective
Motor Damaged or
defective

Incorrect Oil in System

Air in the oil

Excessive Ground Speed
for Mowing Conditions

Excessive Internal
Leakage in pump/motor
Low Relief Valve Setting

Restrictions in the system

**Pump Seizure (Pump
Locks Up)**

**Pump Wear (Rapid
Excessive Wear)**

Lack of Oil

Inadequate or lack of pump
Prime during initial start up.

Improper assembly

Contamination

Defective Pump

Remedy

Tractor must be operated at the 540PTO speed
as indicated on the tachometer

Check drive shaft attachment to the tractor
Remove logic valves and inspect seals.
Replace as required

Remove solenoid valve. Replace seals as
required.

Test to confirm, Repair or replace as required
Confirm Pump is Working correctly, Check that
spindle is not locking up, Replace or repair the
motor as required

Flush and fill with proper oil per the
specifications

Locate the source of the air intake and fix.
Flush and fill the oil as required

Operator Abuse

Confirm with pressure/flow test and replace or
repair as required

Check the Setting using a pressure/flow meter
with a restrictor valve. Adjust or replace as
needed

Identified by a concentration of heat due to
crimped hydraulic line, relief valve failure or
contamination.

Repair or replace the pump or motor. Fill the
oil to the correct level and check for leaks

Pumps must be properly primed prior to initial
startup. Consult the Technical Service manual
or contact Customer Service for proper
procedures

Pump may have been reassembled incorrectly
by the dealer following a prior failure. Rebuild
or replace

Contaminants in the system will damage the
components. Repair or replace the affected
components, then flush and refill with clean oil.
Inspect the tank for debris.

Confirm defect with customer service and
replace

OPERATION

OPERATION

Problem

Spindle Leaking At Motor

Possible Cause

Due to Motor Seal Failure (hydraulic Oil leak)

Motor Loose or bolts missing

Gasket torn due to movement of motor on spindle flange
Excessive Backpressure in Spindle

Remedy

See section on motor seal failure and repair as needed

Bolts should be checked every 8 hrs. Loss of torque will result in seal failure and leakage

See above

Spindle Leaking Around Bottom Seal

Seal Damaged due to Debris

Bearings Loose

Remove the Spindle vent plug and check for clogs or contamination.

Replace as required. Check for damaged or missing seal guard

Disassemble the Spindle and inspect the bearings for damage. Re-assemble and properly pre-load the bearings based on the technical service manual.

Spindle Leaking At Relief Vent

Seal blown out due to excessive back pressure

Relief fitting installed in the fill hole (wrong hole)

Remove the Spindle vent plug and check for clogs or contamination.

Install the vent in the top most hole or even with the top of the top bearing race. The lower hole is the fill hole and should have a grease zerk or plug installed.

Spindle Overheating

Spindle Overfilled

Low Grease Level in the spindle

Excessive Bearing Pre-load

Overfilling will result in the lubricating oil being expelled from the vent.

Fill lubricant until it can be seen in the top most (vent plug) hole.

Disassemble the spindle and inspect the bearings for wear. Re-assemble following the bearing pre-load specifications in the Technical Service Manual.

Blade bar bolts are too long

Installing the incorrect bolts (too long) for the blade carrier will allow the bolts to contact the lower bearing and will lock up the spindle. Install the correct bolts.

Spindle Shaft Loose or Falls Out

Bearing Pre-load adjusting nut and/or lock nut failure

Bearing cups or cones not installed properly

Severe upper bearing failure.

Locking washers are provided to retain the pre-load lock nut in place. Improper installation of the washer and locking mechanism will allow the lock nuts to back off. Re-assemble following the recommended procedures

Disassemble and check for wear. Follow reassembly procedures indicated in the Technical Service Manual

Usually due to lack of lube. Replace the bearing(s) and make sure the spindle is properly filled. Also check for leakage and repair as needed.

OPERATION

OPERATION

Problem

**Spindle Locks Up
(Seizes and Won't Turn)**

Possible Cause

Loss of lubrication in spindle
Excessive bearing pre-load

Remedy

Indicated by catastrophic failure of the upper bearing. See the previous section
Disassemble the spindle and inspect the bearings for wear. Re-assemble following the bearing pre-load specifications in the Technical Service Manual.

Blade bar bolts too long

Installing the incorrect bolts (too long) for the blade carrier will allow the bolts to contact the lower bearing and will lock up the spindle. Install the correct bolts.

Interference due to bent seal protector

Inspect the seal guard ring (welded to the blade carrier or bar) Replace or repair as needed.

Starter on Tractor Won't Crank

Wire harness incorrectly installed

Check harness attachment to the ignition switch and to the battery. Also, check for proper ground.

Tractor Battery Dead or Low (Continuous Power Draining)

On/Off switch malfunction

Inspect to ensure power to switch is interrupted when the switch is in the off position

Short to ground in wire harness

Inspect for damage or heat stress to the harness. Check for shorted wires or melted insulation. Check proper connection to the ignition switch and battery.

Battery failure

Test the battery and replace per the tractor manufacturers recommendation

Tractor issues

Follow tractor manufacturer recommendations for troubleshooting electrical problems with the tractor.

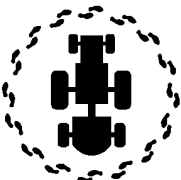
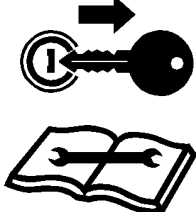
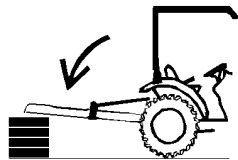
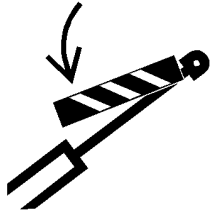

MAINTENANCE SECTION

Maintenance Section 4-1

MAINTENANCE

MAINTENANCE

HAZARDS WITH MAINTENANCE OF IMPLEMENT

				
Periodically inspect all moving parts, lubricate drivelines, and tighten all fasteners	Stop engine remove key before conducting maintenance	Block up implement before servicing Use large blocks on soft or wet soil	Engage cylinder transport locks	Inspect Blades for damage or cracks



AVOID DEATH OR SERIOUS INJURY FROM COMPONENT FAILURE BY KEEPING IMPLEMENT IN GOOD OPERATING CONDITION IN PERFORMING PROPER SERVICE, REPAIRS AND MAINTENANCE.

BEFORE PERFORMING SERVICE, REPAIRS AND MAINTENANCE ON THE IMPLEMENT:

SECURE EQUIPMENT FOR SERVICE

BLOCK OUT POTENTIAL ENERGY HAZARDS; Rotating Parts, Raised Components, Hydraulic Pressure.

- **STOP ENGINE**, engage parking brake and allow all moving parts to stop and remove key before dismounting from tractor seat.
- **PLACE** implement on ground or securely block up raised equipment. Use large blocks on soft or wet soil.
- **PUSH** and **PULL** Remote Hydraulic Cylinder lever to relieve hydraulic pressure.
- **DISCONNECT IMPLEMENT driveline** from tractor PTO Shaft.

WEAR SAFETY GLASSES with side shields (marked with ANSI Z87), **PROTECTIVE GLOVES** and follow **SAFETY PROCEDURES** when performing service, repairs and maintenance on the implement:

- Always **WEAR** protective **GLOVES** when handling chemicals or worn component with sharp edges.
- Always **WEAR GLOVES** and **SAFETY GLASSES** with side shields (marked with ANSI Z87) when servicing components
- **AVOID CONTACT** with hot hydraulic oil tanks, pumps, motors, valves and hose connection surfaces.
- **SECURELY** support or **BLOCK UP** raised implement, framework and lifted components before working underneath equipment.
- **STOP** any implement movements and **SHUT-OFF TRACTOR** engine before doing any work procedures.
- **USE** ladder or raised stands to reach high equipment areas inaccessible from ground.
- **ENSURE** good footing by standing on solid flat surfaces when getting on implement to perform work.
- **FOLLOW** manufacturer's instructions in handling oils, solvents, cleansers, and other chemical agents.
- **DO NOT** change any factory-set hydraulic calibrations to avoid component or equipment failures.
- **DO NOT** modify or alter implement, functions or components.
- **DO NOT WELD** or repair rotating mower components. These may cause vibrations and component failures being thrown from mower.

PERFORM SERVICE, REPAIRS, LUBRICATION AND MAINTENANCE OUTLINED IN IMPLEMENT MAINTENANCE SECTION:

- **INSPECT** for loose fasteners, worn or broken parts, leaky or loose fittings, missing or broken cotter keys and washers on pins, and all moving parts for wear.
- **REPLACE** any worn or broken parts with authorized service parts.
- **LUBRICATE** unit as specified by lubrication schedule
- **NEVER** lubricate, adjust or remove material while it is running or in motion.
- **TORQUE** all bolts and nuts as specified.

BLADE INSPECTION:

- **REPLACE** bent, damage, cracked or broken blades immediately with new blades.
- **AVOID** blade failures and thrown broken blades. **DO NOT** straighten, weld, or weld hard-facing blades.

SAFETY SHIELDS, GUARDS AND SAFETY DEVICES INSPECTION:

- **KEEP** all Deflectors, Chain Guards, Steel Guards, Gearbox Shields, and PTO integral shields, Bands, Side Skirts and Skid Shoes in place and in good condition.
- **REPLACE** any missing, broken or worn safety shields, guards and safety devices.



WARNING

Cancer and Reproductive Harm www.P65Warnings.ca.gov/nt **PN HM01**

MAINTENANCE

PARTS INFORMATION

PARTS INFORMATION

Terrain King mowers use balanced and matched system components for blade carriers, blades, cuttershafts, knives, knife hangers, rollers, drivetrain components, and bearings. These parts are made and tested to Terrain King specifications. Non-genuine "will fit" parts do not consistently meet these specifications. The use of "will fit" parts may reduce mower performance, void mower warranties, and present a safety hazard. Use genuine Terrain King mower parts for economy and safety. (SPTK-1)

SEE YOUR TERRAIN KING DEALER

Lubrication Information

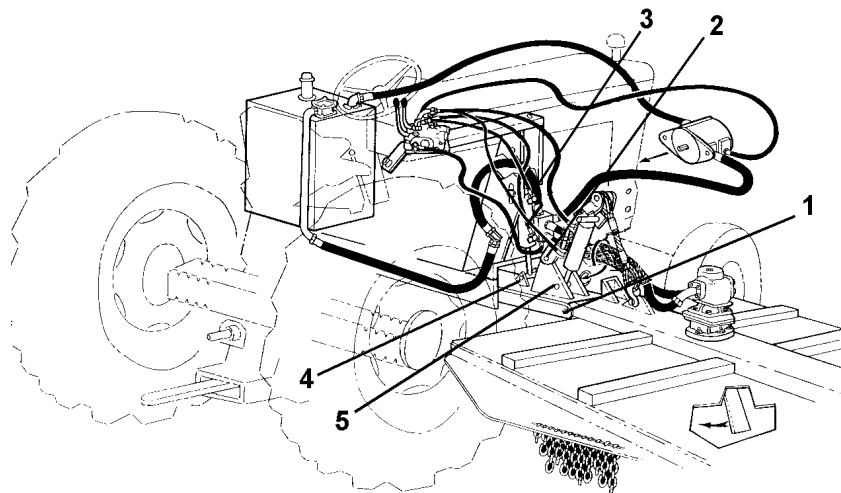
Before operating your KSM60 take the time to inspect and repair any damage to the machine or tractor. Only a minimum of time and effort is required to regularly maintain this machine to provide long life and trouble free operation.

Do not let excess grease collect on or around parts, particularly when operating in sandy areas. The accompanying illustration shows lubrication points. The chart gives the frequency of lubrication in hours, based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication.

Mower Heads

The KSM60 must be serviced daily to achieve the best operation and longest life. Two pumps of a good quality grease from a hand grease gun in all grease fittings should be sufficient.

NOTE: Lubricate flail roller bearing until lubricant can be seen coming out between roller and bearing housing.

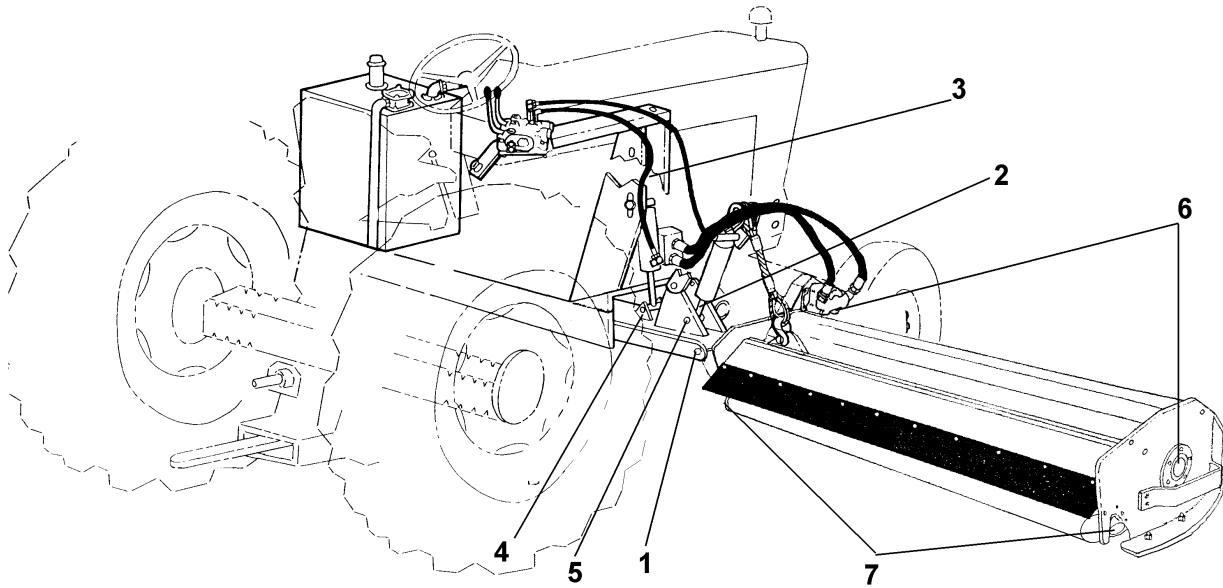


Op-209

ITEM	DESCRIPTION	FREQUENCY
1.	Extension Arm Pin	8 hours
2.	Linkage Arm Pin	8 hours
3.	Lift Cylinder Base	8 hours
4.	Lift Cylinder Pin	8 hours
5.	Tilt Cylinder Pin	8 hours

MAINTENANCE

MAINTENANCE



Op-211

ITEM	DESCRIPTION	FREQUENCY
1.	Extension Arm Pin	8 hours
2.	Linkage Arm Pin	8 hours
3.	Lift Cylinder Base	8 hours
4.	Lift Cylinder Pin	8 hours
5.	Tilt Cylinder Pin	8 hours
6.	Rotor Shaft Bearing	8 hours
7.	Rear Roller Bearing	8 hours

MAINTENANCE

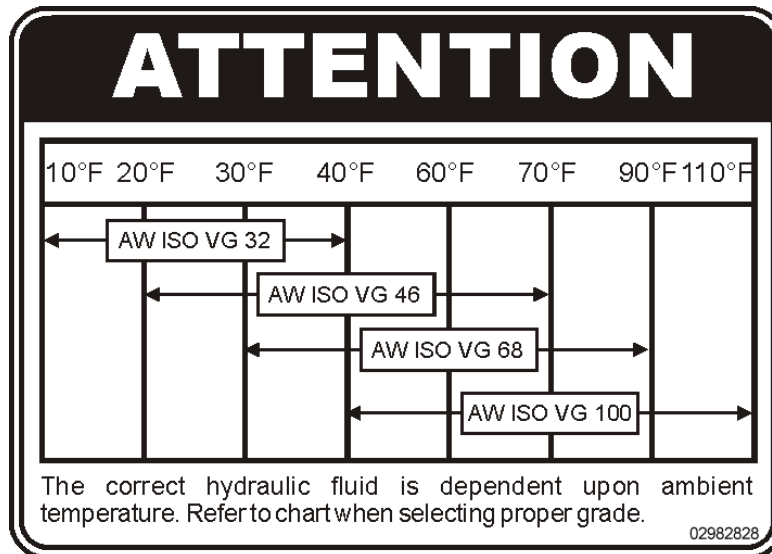
Hydraulic Fluid

Maintaining the proper hydraulic oil level and oil cleanliness is very important for continued trouble-free operation of the mower. The fluid level should be checked daily before the mower is put into service. A visual inspection of the hydraulic connections, hose guards and shielding should occur daily as well. The hydraulic fluid can lose its ability to lubricate in a number of different ways, most commonly contamination and overheating. Both scenarios can lead to catastrophic failure of the hydraulic components and costly repairs. Terrain King offers fluids, filters, and oil analysis capabilities to help you maintain your hydraulic powered machine. Please be sure to follow the oil & filter change procedure that is outlined for your mower.

There are two types of hydraulic oil used by the factory, reference the chart below, Mobil DTE 16m and Chevron 1000 THF. Also, note the ISO cleanliness requirement for your mower

The above are prescribed intervals, but frequency may change based on use. It is important to monitor the filter clogging indicator.

There are many comparable oils that are equivalent to what is used by the factory. An ISO class oil with a viscosity that matches your operating conditions is recommended. For further information please consult the oil manufacturer for proper specifications.

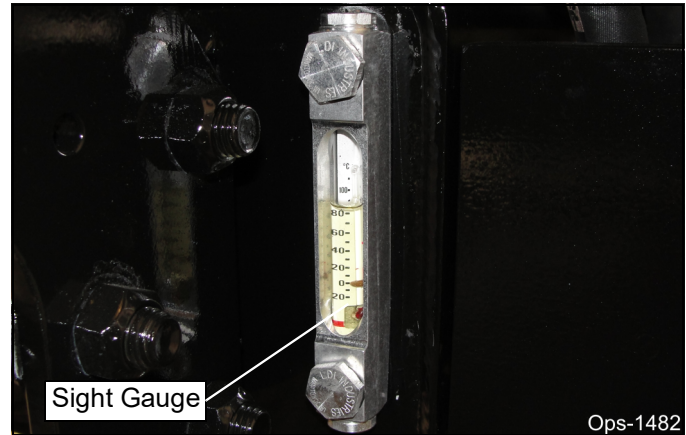


MAINTENANCE

MAINTENANCE

Proper Oil Level

Maintain the oil level within the sight gauge located on the reservoir. When oil is cold, the level should be three-quarters up the sight gauge. Never fill the tank above that sight gauge level. A space is maintained above the sight gauge to allow for the expansion of the oil. Oil is added through the filler tube, if your tank does not have a filler tube then fill through the return filter located on the tank. Thoroughly clean the cap area around the filter to prevent oil from contamination. Remove the cap and add the proper viscosity grade of FILTERED oil to achieve the proper level. Never assume any oil is clean, including new.



Oil Level Low

Low oil level in the reservoir is caused by leakage or improper filling. If leaking, locate the area of the leak and repair the leak at once. Loss of fluid can cause severe & catastrophic damage to the hydraulic components.

NOTE: After initial start up, the mower may require more oil to bring the oil level back to the proper level. This is normal. Air trapped in the hydraulic components was displaced by the oil, causing the oil level to go down in the tank. Oil must be added to reach the proper level or cavitation could result.

Blades

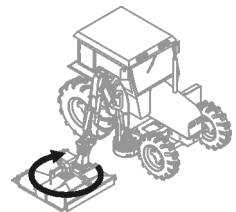
Check the Blades for cracks and wear and Blade Bolts for tightness, daily. Blades should be replaced when they are worn excessively, bent, deformed, or out of balance.

CAUTION

Blades should always be replaced in pairs. Blades of different weights can cause serious imbalance and damage to the machine and personnel. When replacing blades, take care to replace the blade bolts, nuts, and washers.

Important

Make sure the mower blades are turning clockwise when looking down from the top of the mower. Follow the color coding on the hydraulic hoses and fittings to make sure the motor and hydraulics hoses are assembled properly. Connect the red hose connection only to red fitting. Connect the blue hose connection only to the blue fitting. The blade rotation on the leading edge of the mower should discharge the cut material away from the tractor and operator.

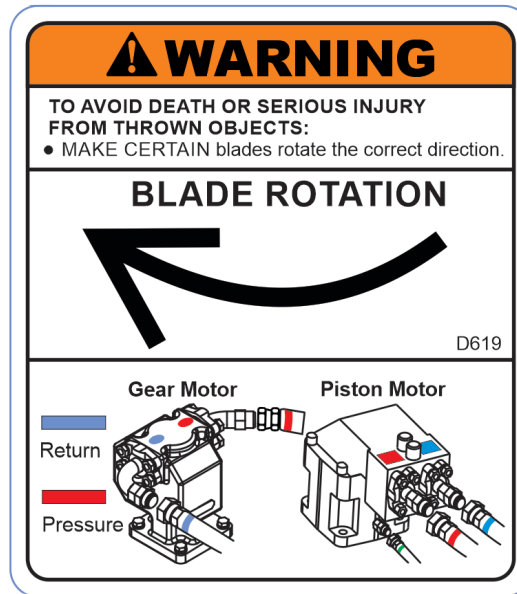


WARNING

If the leading edge of the mower blades are rotating backwards they can discharge material toward the operator. If this occurs discontinue mowing immediately and reverse the direction of the motor rotation by correctly installing the motor pressure and return hoses. Contact your dealer or Terrain King for specific information on the hose routing.



MAINTENANCE



HARDWARE

Most nuts and bolts will stay tight and therefore need only periodic checking. However, the following nuts and bolts are extremely important and should receive special attention:

Spindle Housing Bolts: Tighten to 400 Ft./Lbs. Torque

Blade Bolts: Tighten to 250 Ft./Lbs. Torque

Blade Bar Bolts: Tighten to 400 Ft./Lbs. Torque



Be certain to clamp or securely support the Spindle Housing and sub-assemblies to prevent injuries to hands and feet due to inadvertent dropping or falling over.



Always wear safety glasses and gloves to prevent eye and hand injury when chiseling or hammering on metal components. Hardened metal will chip un-expected.



An assembled spindle housing is quite heavy. Use a hoist or get help to handle them safely. Lift carefully and properly using your legs to lift - NOT YOUR BACK.

Cylinder Rod Maintenance

It is important to visually inspect the hydraulic cylinder rods daily before use. It is highly recommended that while the machine is stored or getting very little use that a protectant is applied to the hydraulic cylinder rods to prevent degradation. If the machine receives more frequent use, be sure to fully cycle each cylinder function so that the cylinder rod is coated by the systems hydraulic fluid. Depending on your operating environment it may be necessary, under normal operating conditions, to apply a protective lubricant to the cylinder rods for protection against rust and pitting. Hydraulic fluid may provide a suitable amount of protection, but remember any protectant can attract dust and debris so attention must be given to the cylinder rods daily. Also remember that any other protectant must be compatible with hydraulic fluid. Terrain King is not responsible for rust or pitting of the cylinder rod due to weather exposure or impacts from normal operation or mounting. If hydraulic cylinders and or the cylinder rods are damaged as a result of the rods rusting or pitting, the hydraulic cylinders and rods will not be covered under warranty by Terrain King.

MAINTENANCE

MAINTENANCE

Hydraulic Component Maintenance Schedule

	Hours of Operation												
Component	Installation	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	
Pump Drive Shaft Check and Lubricate	x	x	x	x	x	x	x	x	x	x	x	x	
Pump Mounting Bolt torque check (Inspect Daily)	x	x	x	x	x	x	x	x	x	x	x	x	
Charge Pump Filter	Installation	x			x				x				
Pressure Filter to the Control Valve	Installation	x			x				x				
Return Canister Filter Element	Installation	x			x				x				
Hydraulic Oil Change	Installation	x							x				
Hydraulic Oil Particle Count Testing	x	x			x				x				
Hydraulic Tank Breather Filter	Installation	Inspect							Replace				
Hydraulic Tank Suction Screen	Installation	Inspect							Inspect				
Hydraulic Hose Inspection/Replacement	Installation	Inspect	Inspect	Inspect	Inspect	Inspect	Inspect	Inspect	Inspect	Inspect	Inspect	Inspect	
Cooling Fan Clean and Inspect	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	
Check Hydraulic Fluid Level (Inspect Daily)	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	
Mower Blades Replace (INSPECT DAILY)		x	x	x	x	x	x	x	x	x	x	x	
Blade Bolts Replace (INSPECT DAILY)		x	x	x	x	x	x	x	x	x	x	x	
Blade Bar Assembly Replace	Installation					x					x		
Spindle Lube Replacement (INSPECT DAILY)	x					x					x		
Spindle Bearing Pre-load Inspection	x	x	x	x	x	x	x	x	x	x	x	x	
Mower Debris Guard Inspect/Replace	x	x	x	x	x	x	x	x	x	x	x	x	
Pivot Point Lubrication	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	Daily	
King Pin Bearing Replacement	Installation								x				
Pivot Pin Bearing replacement (Steel)	Installation								x				
Pivot Pin Bearing Replacement (Fiber)	Installation					x					x		
Inspect Operation And Safety Decals Replace when faded, torn or missing.	x	x	x	x	x	x	x	x	x	x	x	x	
Repeat the Maintenance Schedule based on the hours indicated for the life of the machine													

LEXAN Sheet Cleaning Recommendations

These cleaning recommendations apply to all Lexan polycarbonate sheet products, including, but not limited to, Lexan solid sheet and signs, Lexan coated Margard* sheet and Lexan multiwall sheet.

Periodic cleaning using correct procedures can help to prolong service life. For cleaning, it is recommended that the following instructions be adhered to:

Cleaning Procedure for Small Areas - Manual

1. Gently wash sheet with a solution of mild soap and lukewarm water, using a soft, grid-free cloth or sponge to loosen any dirt or grime.
2. Fresh paint splashes, grease and smeared glazing compounds can be removed easily before drying by rubbing lightly with a soft cloth using petroleum ether (BP65), hexane or heptane. Afterwards, wash the sheet using mild soap and lukewarm water.
3. Scratches and minor abrasions can be minimized by using a mild automobile polish. We suggest that a test be made on a small area of Lexan sheet with the polish selected and that the polish manufacturer's instructions be followed, prior to using the polish on the entire sheet.
4. Finally, thoroughly rinse with clean water to remove any cleaner residue and dry the surface with a soft cloth to prevent water spotting.

MAINTENANCE

Cleaning Procedure for Large Areas - Automated

1. Clean the surface using a high-pressure water cleaner (max. 100bar or 1,450psi) and/or a steam cleaner. We suggest that a test be made on a small area, prior to cleaning the entire sheet
2. Use of additives to the water and/or steam should be avoided.

Other Important Instructions for All Lexan Sheets:

- Never use abrasive or highly alkaline cleaner on Lexan polycarbonate materials.
- Never use aromatic or halogenated solvents like toluene, benzene, gasoline, acetone or carbon tetrachloride on Lexan polycarbonate materials.
- Use of incompatible cleaning materials with Lexan sheet can cause structural and/or surface damage.
- Contact with harsh solvents such as methyl ethyl ketone (MEK) or hydrochloric acid can result in surface degradation and possible crazing of Lexan sheet.
- Never scrub with brushes, steel wool or other abrasive materials.
- Never use squeegees, razor blades or other sharp instruments to remove deposits or spots.
- Do not clean Lexan polycarbonate in direct sunlight or at high temperatures as this can lead to staining.
- For all mentioned chemicals consult the manufacturer's material safety data sheet (MSDS) for proper safety precautions.

Additional Important Considerations for Multiwall, Corrugated and Sign Sheet

- Cleaners and solvents generally recommended for use on polycarbonate are not necessarily compatible with the UV-protected surfaces of Lexan multiwall, corrugated and sign polycarbonate materials.
- Do not use alcohols on the UV-protected surfaces of Lexan sheet.
- Never clean the Drippard surface of Lexan multiwall and corrugated sheets

Graffiti removal from Lexan* Margard* sheet

- Use butyl cellosolve with a clean, soft cloth to remove paints, marking pen inks and lipstick. Afterwards, wash the sheet using mild soap and lukewarm water, then rinse with clean water to remove residue and dry with a soft cloth.
- Masking tape and adhesive tape work well for lifting off old, weathered paints.
- To remove labels stickers, the use of kerosene or petroleum ether (BP65) is generally effective. If the solvent does not penetrate the sticker material, apply heat using a hair dryer to soften the adhesive and promote removal. Afterwards the cleaning procedure for small areas as outlined above

Proper Torque for Fasteners

The chart lists the correct tightening torque for fasteners. When bolts are to be tightened or replaced, refer to this chart to determine the grade of bolts and the proper torque except when specific torque values are assigned in manual text.

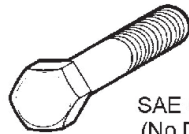
RECOMMENDED TORQUE IN FOOT POUNDS UNLESS OTHERWISE STATED IN THE MANUAL *

NOTE: These values apply to fasteners as received from supplier, dry or when lubricated with normal engine oil. They do not apply if special graphited or molydisulphide greases or other extreme pressure lubricants are used. This applies to both UNF fine and UNC coarse threads.

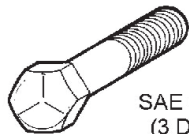
MAINTENANCE

TORQUE SPECIFICATIONS - DRY TORQUE

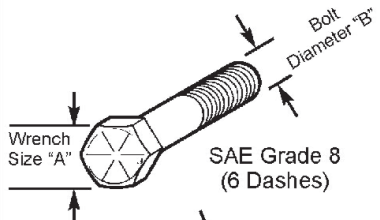
AMERICAN Bolt Head Markings



SAE Grade 2
(No Dashes)



SAE Grade 5
(3 Dashes)



SAE Grade 8
(6 Dashes)

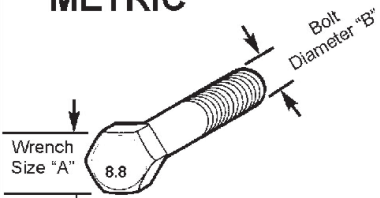


All Capscrews
SAE Grade 8

Proper torque for American fasteners.
Recommended Torque in Foot Pounds (Newton Meters).*

WRENCH SIZE (IN.) "A"	BOLT DIAMETER (IN.) "B" AND THREAD SIZE	SAE GRADE 2	SAE GRADE 5	SAE GRADE 8
7/16	1/4 - 20 UNC	6 (7)	8 (11)	12 (16)
7/16	1/4 - 28 UNF	6 (8)	10 (13)	14 (18)
1/2	5/16 - 18 UNC	11 (15)	17 (23)	25 (33)
1/2	5/16 - 24 UNF	13 (17)	19 (26)	27 (37)
9/16	3/8 - 16 UNC	20 (27)	31 (42)	44 (60)
9/16	3/8 - 24 UNF	23 (31)	35 (47)	49 (66)
5/8	7/16 - 14 UNC	32 (43)	49 (66)	70 (95)
5/8	7/16 - 20 UNF	36 (49)	55 (75)	78 (106)
3/4	1/2 - 13 UNC	49 (66)	76 (103)	106 (144)
3/4	1/2 - 20 UNF	55 (75)	85 (115)	120 (163)
7/8	9/16 - 12 UNC	70 (95)	109 (148)	153 (207)
7/8	9/16 - 18 UNF	79 (107)	122 (165)	172 (233)
15/16	5/8 - 11 UNC	97 (131)	150 (203)	212 (287)
15/16	5/8 - 18 UNF	110 (149)	170 (230)	240 (325)
1-1/8	3/4 - 10 UNC	144 (195)	266 (360)	376 (509)
1-1/8	3/4 - 16 UNF	192 (260)	297 (402)	420 (569)
1-5/16	7/8 - 9 UNC	166 (225)	430 (583)	606 (821)
1-5/16	7/8 - 14 UNF	184 (249)	474 (642)	668 (905)
1-1/2	1 - 8 UNC	250 (339)	644 (873)	909 (1232)
1-1/2	1 - 12 UNF	274 (371)	705 (955)	995 (1348)
1-1/2	1 - 14 UNF	280 (379)	721 (977)	1019 (1381)
1-11/16	1-1/8 - 7 UNC	354 (480)	795 (1077)	1288 (1745)
1-11/16	1-1/8 - 12 UNF	397 (538)	890 (1206)	1444 (1957)
1-7/8	1-1/4 - 7 UNC	500 (678)	1120 (1518)	1817 (2462)
1-7/8	1-1/4 - 12 UNF	553 (749)	1241 (1682)	2013 (2728)
2-1/16	1-3/8 - 6 UNC	655 (887)	1470 (1992)	2382 (3228)
2-1/16	1-3/8 - 12 UNF	746 (1011)	1672 (2266)	2712 (3675)
2-1/4	1-1/2 - 6 UNC	870 (1179)	1950 (2642)	3161 (4283)
2-1/4	1-1/2 - 12 UNF	979 (1327)	2194 (2973)	3557 (4820)

METRIC



Numbers appearing on bolt heads
indicate ASTM class.

*Use 75% of the specified torque value for plated fasteners. Use 85% of the specified torque values for lubricated fasteners.

Proper torque for Metric fasteners.
Recommended torque in Foot Pounds (Newton Meters).*

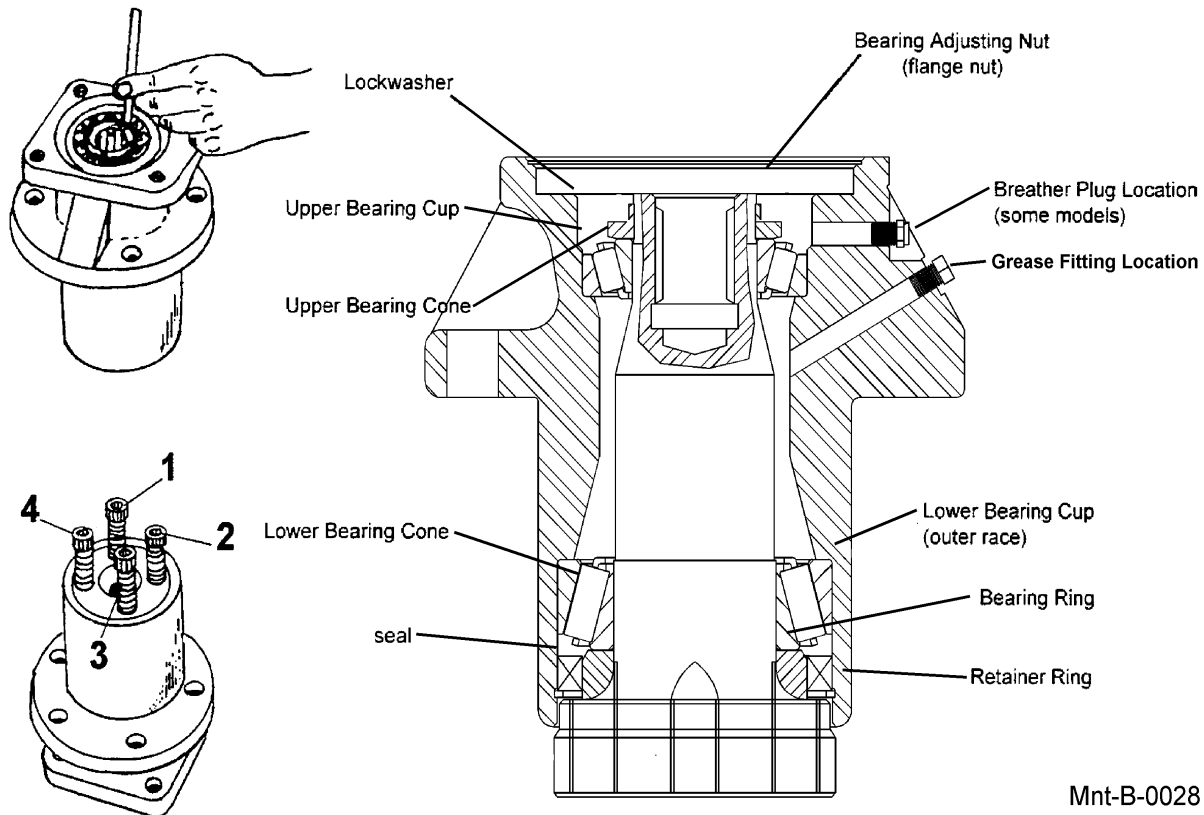
WRENCH SIZE (mm) "A"	BOLT DIA. (mm) "B"	ASTM 4.6	ASTM 8.8	ASTM 9.8	ASTM 10.9
8	5	1.8 (2.4)		5.1 (6.9)	6.5 (8.8)
10	6	3 (4)		8.7 (12)	11.1 (15)
13	8	7.3 (10)		21.1 (29)	27 (37)
16	10	14.5 (20)		42 (57)	53 (72)
18	12	25 (34)	74 (100)	73 (99)	93 (126)
21	14	40 (54)	118 (160)	116 (157)	148 (201)
24	16	62 (84)	167 (226)	181 (245)	230 (312)
30	20	122 (165)	325 (440)		449 (608)
33	22		443 (600)		611 (828)
36	24	211 (286)	563 (763)		778 (1054)
41	27		821 (1112)		1138 (1542)
46	30	418 (566)	1119 (1516)		1547 (2096)

Mnt-B-0005

MAINTENANCE

SPINDLE SERVICE PROCEDURE 34802960553B and 34802960553C

1. Remove blade bar or pan.
2. Remove hydraulic motor.
3. Remove spindle assembly from mower deck.
4. Drain remaining lubricant from housing.



Mnt-B-0028

5. Using a 3/16" cape chisel, bend out the staking indentations on each side of the bearing adjusting nut. To do this, place the chisel in the groove and parallel to the shaft. Drive the chisel downward until the indentation is free of the shaft and threads (see Figure Mnt-B-0028).
6. Using the same chisel, straighten the tang on the lockwasher (if equipped with a lockwasher). NOTE: The lockwasher will not be installed during assembly if the spindle uses the staked adjusting nut.
7. Remove bearing adjusting nut and lockwasher (if equipped). Discard these parts. They are not reusable. Install a new adjusting nut when assembling.
8. Screw the original blade bar bolts into the flange of the spindle shaft until they contact the bearing ring (see Figure Mnt-B-0028).
9. In a clockwise pattern, rotate each bolt 1/4 turn (see Figure 3). Continue turning the bolts 1/4 turn at a time (maximum of 3 turns), until the special shanked bolts (P/N 30002964353) will thread into the spindle.
10. Remove the original bolts and replace them with the shanked bolts. Screw the shanked bolts in until they contact the bearing ring.
11. In a clockwise pattern, rotate the bolts 1/4 turn at a time until the spindle is free from the housing.
12. Remove the seal retaining ring from the housing using a flat screwdriver or similar tool.
13. Remove the seal and bearing.
14. A punch or similar tool can be used to remove the bearing cups from the housing if the cups are not to be re-used.

MAINTENANCE

MAINTENANCE

CLEANING

1. Clean housing and all related parts thoroughly and dry.
2. Protect parts from contamination.

INSPECTION

Bearings and cups: Inspect rollers, races, and cages for nicks, pitting, discoloration, and signs of excessive or unusual wear. Replace any worn or damaged parts.

Spindle shafts: Inspect the threads, internal splines, and bearing journals for damage or wear. Replace if damaged or worn.

Bearing ring: Inspect the ring for wear in the area of seal contact. Replace if a wear groove exists.

Housing: Inspect the bearing cup bores, ring grooves, etc. for wear or damage. Repair or replace if any damage is found.

Tools needed:

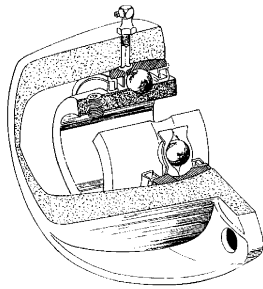
- | | |
|---|-----------------------|
| -Hand tools | -Hydraulic press |
| -Inch pound torque wrench | -Seal Installers |
| -Bearing drivers (do not use punches to install bearings) | -Adjusting nut socket |
| -2-3/4" ID x 8" long, 16 Ga. tubing | |

Note: *This procedure should not be attempted in the field due to the need for tools normally only found in the shop.*

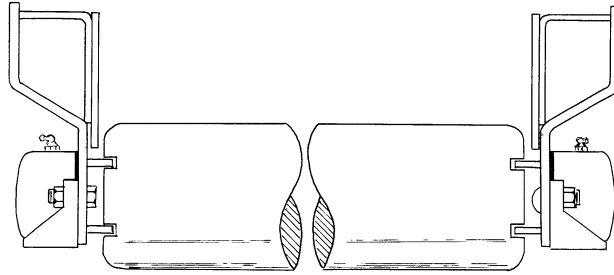
1. Place upper bearing cones in bearing oven.
2. Seat bearing cups (outer races) in housing using a press and proper installation tools in good condition. CUPS MUST BE FULLY SEATED. If bearing cup cocks in bore and seizes, do not continue to assemble spindle.
3. Lubricate lower bearing cone with LPS.
4. Coat the outside of the seal with silicone and install the lower bearing, seal, and retaining ring into the housing, using the correct seal installer.
5. Place a light film of silicon or permatex on the inside diameter of the bearing ring and seat the ring on the spindle shaft, using the proper tool and press.
6. Lightly lubricate the lip of the seal.
7. Using the 2-3/4" tubing to prevent the cup and cone from contacting each other, press the spindle shaft through the lower bearing and seal. Make sure the bearing is seated against the bearing ring.
8. Place Locktite on threads of the bearing adjusting nut (flange nut).
9. Using gloves, install the heated upper bearing cone on the shaft immediately and push it all the way against the cup. Lubricate the bearing with LPS.
10. Install the bearing adjusting nut. Tighten the nut until the spindle shaft can not be turned. Loosen the nut 1/4 turn. Place a soft, clean cloth over the top of the spindle assembly. Place an aluminum block over the end of the spindle shaft and strike the block with a hammer to loosen the bearing.
11. Remove the cloth, being careful not to allow any contamination into the spindle. Tighten the nut until a rolling torque of 16-21 inch-pounds is reached. (If the seal was not lubricated, add 10 inch-pounds).
12. Stake the nut with a blunt, round nosed punch. Do not tear the nut.
13. Install the grease fitting into the hole in the center of the housing (between the bearings) and fill the housing with EP#2 grease (P/N 30000900000), stopping when the lubricant covers the upper bearing (approximately 11 oz.).
14. Install the breather plug in the top hole.
15. Install spindle in mower deck and assemble in reverse order. Torque the blade bar or pan bolts to 400 ft-lbs. Torque motor to spindle bolts to 85 ft-lbs. Torque spindle to deck bolts at 175 ft-lbs.

MAINTENANCE

ROLLER BEARING REPLACEMENT



DETAIL OF ROLLER BEARING



Mnt-B-0029



Securely support mower while removing and installing roller assembly.

If installing a roller with pre assembled bearing and bracket assemblies, remove the old roller, proceed to step 11.

1. Remove roller and both bearing and bracket assemblies from mower. Lift the mower only high enough to remove the roller assembly.
2. Slide bearing and bracket assemblies off each end of roller. If replacing with new bearing and bracket assemblies, proceed to step 9.
3. Remove roller bearing and housing assembly attaching hardware. Remove assembly from bracket. Inspect seal between assembly and bracket for brittleness, cracks, wear and tear. Replace if necessary. If replacing with new roller bearing and housing assemblies, proceed to step 8.
4. Remove grease fitting from the top of bearing housing.
5. Remove bearing from housing by rotating Bearing 90° sideways and line up with notches in Bearing Housing then pull out.
6. Install new bearing into housing. Bearing must be installed with grease hole in bearing aligned with grease fitting hole in housing.
7. Reinstall grease fitting to housing. Grease Fitting must have locking pin installed which inserts into grease hole in bearing when installed. If Grease Fitting does not have a pin, order a new grease fitting. Grease fitting must be tight and seated in grease hole in bearing to prevent bearing from rotating in housing.
8. Attach roller bearing and housing assembly to bracket with seal between housing and bracket.
9. Slide bearing and bracket assemblies on each end of roller.
10. Check bearing for proper installation in housing by gently rocking bearing and bracket assembly in end of roller. Play should be slight to none at all.
11. Install roller and bearing and bracket assemblies on mower.
12. Lubricate roller bearing until lubricant can be seen coming out between roller and bearing housing.

MAINTENANCE

MAINTENANCE

General Information on Flail Mower Vibration

FLAIL MOWERS INFORMATION BULLETIN NO. 5

EXCESSIVE VIBRATION

Vibration is a **MONSTER** and if allowed to continue unchecked, can cause the complete break-up of a machine in a very short time.

A properly operated Flail Mower will produce very little vibration. If vibration does occur, the mower should be stopped and the trouble corrected, as warranty does not cover failures resulting from continued operation after something happens to cause the mower to vibrate excessively.

Vibration is caused by a rotating part which is out of balance. This could be the cutter shaft or, on those models having a universal slip joint assembly drive shaft, from the drive shaft.

If the two extreme ends of the drive shaft, (the yoke spline which fit on the tractor power take off shaft and on the mower gear box driven shaft), are not parallel, vibration will be evident.

This is because of the mechanics of a universal drive wherein the rotational speed thru a universal joint is not uniform. If the ends of a universal drive shaft are parallel, the uneven rotation effect is cancelled out and the machine being driven will be driven at a uniform rate of speed. However, if the ends are not parallel, the uneven rotation effect may be multiplied, resulting in a speeding up and slowing down of the entire mower system (gear box, extension shaft, pulleys, belt, and cutter shaft) each revolution. This effect can be readily noticed if the mower, while running, is raised to an extreme height on the tractor lift.

For smoothest operation, the tilt of the mower should be adjusted (on a 3-point hitch, by adjusting the length of the top link between the tractor and the mower) so that the ends of the drive shaft are parallel when the mower is down in operating position. Raising the mower, while running, to extreme heights on the lift should be avoided.

To check where the vibration is originating, first be sure the ends of the universal drive shaft are parallel. Then, if vibration is still present, remove the drive belt and run the mower. If vibration is still present, it most likely is coming from and caused by a bent drive shaft. If so, the shaft should be replaced or straightened. If the vibration is gone - the drive portion of the mower is running smoothly - then the vibration is probably coming from the cutter shaft (it could be a pulley out of balance or a faulty belt with a varying cross section, but this is not likely).

The cutter shaft will run out of balance if:

1. Wire, rope, string, rags, etc., around the cutter shaft, are holding the knives in a folded back position. Remove such foreign objects and be sure all knives are free to swing to the extended position.
2. Knives are missing or broken. Replace missing or broken knives.
3. Knife hanger lugs are broken off shaft. This condition usually results from continued operation in contact with large hard objects where the knife hanger lugs themselves are hitting the hard objects. Lugs should be replaced using arc welding equipment so as not to direct too much heat in one area of the shaft.
4. Cutter shaft ball bearings are worn enough to have radial "play" in them. Replace ball bearing and other worn parts to eliminate "play".
5. Shaft is bent. The shafts are straight within a couple of thousandths of an inch when they are made. It is possible that they will become bent in use, such as if the shaft is hooked on a stump while the tractor is moving forward at a good speed.
6. Shafts are operated at improper speed. Rotating shafts have what is known as a natural period of vibration. The same is true of the cutter shafts on the Flail Mowers.

The actual speed at which the harmonic will occur will vary with each mower and each installation. To avoid this harmonic vibration when operating the mower, it may be necessary to adjust the engine speed of the tractor up or down.

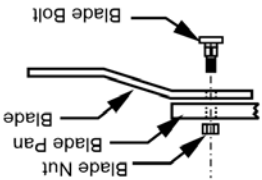
Some units have a harmonic vibration which occurs below the nominal operating speed. On these units, it will be noticed that there is always a little vibration at a particular RPM as the mower is being sped up to operating speed. This occurs as the shaft passes through its normal harmonic vibration point. As long as the mower is opened at the proper speed, then harmonic vibration will not be an issue.

WARNING		CRUSHING HAZARD could cause serious injury:		<ul style="list-style-type: none">• Tire is extremely heavy - 1500 lbs.• Use proper lifting & handling equipment when dismounting tire• Refill tire with appropriate ballast for stability.• Check torque on all wheel lugs.
ADVERTENCIA		RIESGO DE APLASTAMIENTO puede cuasar lesion seria:		<ul style="list-style-type: none">• Neumático es extremadamente pesado - 1500 lbs.• Utilice equipo de elevación y manipulación adecuado al desmontar el neumático• Rellene el neumático con el balastro adecuado para la estabilidad.• Verifique la torsion de todas las tuercas de los neumáticos.

⚠️ ADVERTENCIA Partes que no son auténticas pueden fallar catastróficamente. PARA EVITAR MUERTE O LESION GRAVE: • Use SOLAMENTE las partes de reemplazo auténticas de ALAMO INDUSTRIAL. • Partes que no son auténticas pueden fallar y causar condiciones peligrosas para el operador y personas presentes. Contacte a su distribuidor local o ALAMO INDUSTRIAL sobre partes de reparo a: 1502 E. Walnut, Seguin, TX 78155. Servicio al Cliente: 800-882-5762. Correo Electrónico: support@alamo-industrial.com	⚠️ ADVERTENCIA Non-genuine parts can fail catastrophically. TO AVOID SERIOUS INJURY OR DEATH: • ONLY use genuine ALAMO INDUSTRIAL replacement parts. • Non-genuine parts can fail creating hazardous conditions for operator and bystanders. Contact local dealer or ALAMO INDUSTRIAL about repair parts at: 1502 E. Walnut, Seguin, TX 78155. Customer Service: 800-882-5762. Email: support@alamo-industrial.com
IMPORTANTE ESTE CONSCIENTE SEA ENTRENADO ESTE ALERTO Antes de Funcionar ESTE VIVO Cortacésped Para prevenir lesiones graves a usted y/o personas presentes, sea entrenado en la Práctica de Segar Seguro. Compañías de Alamo Group, Alamo Industrial, Bush Hog, M&W, Rhino, Schulte y Tiger así como AEM y FEMA proporcionan material para entrenar que es esencial para su seguridad y la seguridad de otros al operar este equipo. Haga estos procedimientos de seguridad una parte importante de su día de trabajo. Lea y entienda el Manual de Operadores. No permita que personas sin entrenamiento funcionen este equipo. Contacte a su distribuidor, AEM (www.aem.org), FEMA (314-878-2304, www.FarmEquipment.org), or Alamo Group (www.Alamo-Group.com) para la información sobre el material de entrenamiento o cursos que ofrecen el entrenamiento de Prácticas de Operación para Cortadoras.	IMPORTANT BE AWARE BE ALERT Before Operating BE ALIVE this Mower To prevent serious injury to yourself and/or bystanders, be trained in Safe Mowing Practices. Alamo Group Companies, Alamo Industrial, Bush Hog, M&W, Rhino, Schulte, Tiger and Terrain King as well as AEM and FEMA provide training material that is critical for your Safety and the Safety of others when operating this equipment. Make these Safety Procedures an important part of every workday. Read and understand the Operator's Manual. Do not let untrained individuals operate this equipment. Contact your Dealer, AEM (www.aem.org), FEMA (314-878-2304, www.FarmEquipment.org), or Alamo Group (www.Alamo-Group.com) for information on training material or courses that provide training in Safer Operating Practices for Mowers.
ADVERTENCIA Cáncer y Daño Reproductivo www.P65Warnings.ca.gov	WARNING Cancer and Reproductive Harm www.P65Warnings.ca.gov

D678 SP


⚠ DANGER		Crushing Hazard - Death or Injury	
⚠ PELIGRO		Riesgo de Aplastamiento Muerte o Lesión	
<p>TO AVOID DEATH OR SERIOUS INJURY:</p> <ul style="list-style-type: none">• STAND CLEAR when removing transport latch, lowering or raising wings.• CLEAR AREA of bystanders before lowering implement wings.• IMPLEMENT CAN FALL from hydraulic failure or accidental operation of controls.• BLOCK UP and securely support equipment before putting hands, feet or body under raised equipment or lifted components.• SECURELY ENGAGE transport latch before transportation or working under wing.• FILL CYLINDERS with oil before attempting to lower implement wings.• DO NOT OPERATE in transport position or with wings off ground.		  <p>PARA EVITAR MUERTE O LESION GRAVE:</p> <ul style="list-style-type: none">• MANTENGASE LEJOS al quitar el cierre de transporte, bajando y devanando las alas.• DESOCUPE EL AREA de personas presentes antes de bajar las alas del implemento.• EL IMPLEMENTO PUEDE CAER del fracaso hidráulico o por operación accidental de controles.• BLOQUEE y soporte con seguridad antes de poner manos, pies o cuerpo debajo del equipo de componentes levantados.• CON SEGURIDAD ACTIVE el cierre de transporte antes de la transportación o trabajar debajo de las alas.• LLENE LOS CILINDROS con aceite antes de intentar de bajar las alas del implemento.• NO OPERE en posición de transporte o con las alas devanadas del la tierra. <p>D565 SP</p>	

⚠ WARNING		⚠ ADVERTENCIA	
<p>TO AVOID DEATH OR SERIOUS INJURY FROM BLADE ATTACHMENT FAILURE:</p> <ul style="list-style-type: none">• Torque blade bolt to 400 ft lbs.• ALWAYS replace blades in pairs.• ALWAYS replace blades with new bolts and nuts.		 <p>D620 SP</p>	
<p>PARA EVITAR MUERTE O LESION GRAVE POR EL FALLO DEL ACOPLAMIENTO DE LAS CUCHILLAS:</p> <ul style="list-style-type: none">• Siempre reemplace las cuchillas en pares.• Apriete los tornillos a torsión de 400 p/lbs.• SIEMPRE reemplace las cuchillas con tornillos y tuercas nuevas.			

▲ DANGER

Crushing Hazard

Transport Latch
RAISE AND SECURELY LOCK Wing
Transport Latch before transporting mower
on roadways or working under wing.



▲ PELIGRO

Riesgo de Aplastamiento


Cierre de Transporte
D652
LEVANTE Y DE FORMA SEGURA
ATRANQUE el cierre de ala de transporte
antes de transportar el cortacésped en
carretera o trabajando abajo de la ala.

▲ WARNING

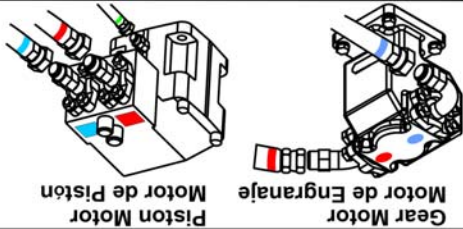
**TO AVOID DEATH AND
SERIOUS INJURY FROM
THROWN OBJECTS:
● MAKE CERTAIN blades
rotate the correct direction.**



▲ ADVERTENCIA

**PARA EVITAR MUERTE O
LESION GRAVE POR OBJETOS
LANZADOS:
● ASEGURE que las cuchillas giren
en la dirección correcta.**

BLADE ROTATION


ROTACIÓN DE CUCHILLAS



Return
Retorno

Pressure
Presión


  <p>Manual do Operador www.algqr.com/kbp</p>	  <p>Benutzerhandbuch www.algqr.com/kgb</p>
<p>Caso você não leia inglês: antes de operar o equipamento, peça para alguém traduzir as mensagens de segurança ou visite a web e obtenha tais mensagens ou os decalques traduzidos.</p>	<p>Falls Sie nicht Englisch sprechen: Bevor Sie die Geräte in Betrieb nehmen, bitten Sie eine Englisch sprechende Person darum, Ihnen die Sicherheitsmeldung zu übersetzen, oder besuchen Sie die Webseite; dort finden Sie übersetzte Aufkleber und Sicherheitsmeldungen. D843_3</p>
PERIGO	GEFAHR

  <p>El Manual del Operador Seguridad vídeo www.algqr.com/kbs</p>	  <p>Manuel de l'Opérateur www.algqr.com/kbf</p>
<p>Si no puede leer inglés: antes de poner en funcionamiento este equipo, solicite que alguien le traduzca los mensajes de seguridad o vaya al sitio web para consultar los mensajes de seguridad y las etiquetas ya traducidos.</p>	<p>Si vous ne pouvez pas lire l'anglais : avant d'utiliser l'équipement, demandez à une personne de vous traduire les messages de sécurité ou allez sur le site Internet pour voir la traduction des autocollants et des messages de sécurité.</p>
PELIGRO	DANGER



PELIGRO

PARA EVITAR MUERTE O LESION GRAVE:

- LEA Y ENTIENDA el Manual de Operador proporcionado, signos de seguridad y calcomanías informativas para el tractor y implemento antes de operar el equipo.
- CONTACTE AL DISTRIBUIDOR inmediatamente si no tiene los manuales.
- CONTACTE AL DISTRIBUIDOR para que le explique cualquier instrucciones que no entienda completamente.
- SIEMPRE USE lentes de seguridad con protectores laterales (marcados para cumplir con ANSI Z87).
- USE un casco, zapatos de seguridad y guantes para su protección cuando esta operando el equipo.



DANGER

TO AVOID DEATH OR SERIOUS INJURY:

- READ AND UNDERSTAND the provided Operator's Manuals, safety signs and information decals for tractor and implement before operating equipment.
- CONTACT DEALER immediately if you do not have manuals.
- CONTACT DEALER to explain any instructions not fully understood.
- ALWAYS WEAR safety glasses with side shields (marked with ANSI Z87).
- WEAR hard hat, safety shoes and gloves for protection when operating equipment.

D843 SP 2

Run Over Hazard - Death or Injury

TO AVOID DEATH OR SERIOUS INJURY:

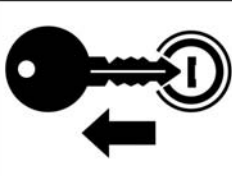
- ALWAYS BUCKLE UP seat belt
 - ONLY START Tractor while seated in the operator's seat.
 - STOP ENGINE and PTO, engage parking brake, lower implement, allow all moving parts to stop and remove key before dismounting from tractor.
 - KNOW HOW to stop tractor and equipment quickly for an emergency.
 - DO NOT MOUNT or DISMOUNT Tractor in motion.
 - NEVER ALLOW riders on tractor or implement.
 - NEVER ALLOW children to operate or ride on tractor or implement.
 - KEEP BYSTANDERS CLEAR of area before moving tractor or implement.
 - KEEP ALERT and AVOID hitting stumps, holes, ruts, and uneven terrain.
 - AVOID tree limbs, brush and other overhanging objects that can strike and throw the operator from seat.
- D843 SP 1

D843 SP 1


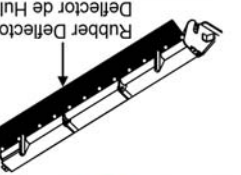
Riesgo de Atropello Muerte o Lesión

PARA EVITAR MUERTE O LESION GRAVE:

- SIEMPRE ABROCHE el cinturón de seguridad.
- SOLO ENCIENDA el tractor mientras que esta sentado en el asiento del operador.
- PARE EL MOTOR y Toma De Fuerza (Barro Gítoria), aplique el freno de mano, baje el implemento, y deje que todas las partes movi
paren completamente, y quite la llave antes de desmontar el tractor.
- ENTIENDA COMO parar el tractor y equipo rápidamente en caso de una emergencia.
- NO MONTE o DESMONTE el tractor en movimiento.
- NUNCA PERMITA pasajeros en el tractor o implemento.
- NUNCA PERMITA que niños operen o se monten en el tractor o implemento.
- MANTENGA LAS PERSONAS PRESENTES LEJOS de la area antes de mover el tractor o implemento.
- MANTENGASE ALERTO y EVITE golpes en troncos, agujeros, pozos o terreno en desnivel.
- EVITE las ramas de árbol, maleza y algun otros objetos que sobresalen que puedan golpear y tumbar al operador del asiento.



⚠ PELIGRO

⚠ DANGER		⚠ PELIGRO	
THROWN OBJECT HAZARD		RIESGO DE OBJETOS LANZADOS	
TO AVOID DEATH OR SERIOUS INJURY: DO NOT OPERATE if Thrown Object Shielding is damaged or missing. • Maintain Rubber Deflectors in good condition. • Inspect Rubber Deflectors frequently. ↑ ↑ HERE MAINTAIN Thrown Object Shielding		PARA EVITAR MUERTE O LESION GRAVE: NO OPERE si la Cubierta de Objetos Lanzados esta dañada o falta. • Mantenga Los Deflectores de Hule en buenas condiciones. • Inspeccione Los Deflectores de Hule con frecuencia. ↑ ↑ AQUI Mantenga Cubierta de Objetos Lanzados	
			
Rubber Deflector		Deflector de Hule	
Chain Guards		Guardas de Cadena	

⚠ WARNING		⚠ ADVERTENCIA	
TO AVOID DEATH OR SERIOUS INJURY FROM INADVERTENT MOWER HEAD START UP: • Disconnect the hydraulic solenoid BEFORE servicing the tractor or mower.			
PARA EVITAR MUERTE O LESION GRAVE AL COMIENZO INVOLUNTARIO DE LA CABEZA CORTADORA: • Desconecte el solenoide hidráulico ANTES DEL servicio al tractor o el cortacésped.			

<p>⚠️ ADVERTENCIA</p> <p>PARA EVITAR MUERTE O LESION GRAVE POR LA PENETRACION A LA PIEL POR ALTA PRESION DE ACEITE HIDRAULICO:</p> <ul style="list-style-type: none"> • NO OPERE el equipo con fugas de aceite o combustible. • MANTENGA todas las mangueras hidráulicas, líneas y conexiones en buenas condiciones y apretadas antes de aplicar presión al sistema. • Relieve la presión hidráulica antes de desconectar las líneas o trabajar en le sistema. • QUITTE y reemplace la manguera si sospecha que hay fuga. <p>FUGAS DE ALTA PRESION PUEDEN SER INVISIBLE. AL VERIFICAR POR FUGAS HIDRAULICAS Y TRABAJANDO ALREDEDOR DE SISTEMAS HIDRAULICOS:</p> <ul style="list-style-type: none"> • NO use las manos para verificar si hay agujeros. • SIEMPRE USE lentes de seguridad y guantes impermeables. • USE papel o un cartón para buscar agujeros. • NO USE las manos o partes del cuerpo para buscar agujeros. • MANTENGA manos y cuerpo LEJOS de agujeros de afilir y boquillas que expulsan el líquido hidráulicos. 	<p>TO AVOID DEATH OR SERIOUS INJURY FROM HIGH PRESSURE HYDRAULIC OIL LEAKS PENETRATING SKIN:</p> <ul style="list-style-type: none"> • DO NOT OPERATE equipment with oil or fuel leaks. • KEEP all hydraulic hoses, lines and connections in good condition and tight before applying system pressure. • Relieve hydraulic pressure before disconnecting lines or working on the system. • REMOVE and replace hose if you suspect it leaks. Have dealer test it for leaks. <p>HIGH PRESSURE FLUID LEAKS CAN BE INVISIBLE. WHEN CHECKING FOR AROUND HYDRAULIC SYSTEMS:</p> <ul style="list-style-type: none"> • DO NOT use hands to check for leaks. • ALWAYS WEAR safety glasses with side shields (marked with ANSI Z87) and impermeable gloves. • USE paper or cardboard to search for leaks. • KEEP hands and body AWAY from pin holes and nozzles ejecting hydraulic fluid. • Hydraulic fluid may cause gangrene if not surgically removed immediately by a doctor familiar with this form of injury.
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SEGURIDAD

Manuales de Partes y Operador



www.alqtr.com/kpm


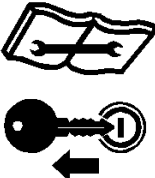
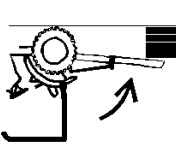

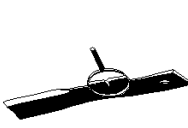
NOTA: Si necesita un manual completamente en español por favor de ponerse en contacto a: *Translations, dirección 1502 E. Walnut Street Seguin, TX 78155; Fax: (830) 372-9529*

SEGURIDAD

KSM60 03/20

Sección de Seguridad 1-15

RIESGOS CON EL MANTENIMIENTO DEL IMPLEMENTO

	Inspeccione periódicamente todas las partes móviles, lubrique las líneas de conducción y ajuste todas las sujeciones.
	Apague el motor. Quite la llave antes de realizar tareas de mantenimiento.
	Bloquee el implemento antes de repararlo. Utilice bloques sueltos blandos sobre suelo blando o húmedo.
	Coloque las trabas de transporte cilíndricas.
	Inspeccione las cuchillas para detectar fisuras o daños.

ADVERTENCIA
MANTENGA LOS IMPLEMENTOS EN BUENAS CONDICIONES DE FUNCIONAMIENTO, A TRAVÉS DE UN SERVICIO, REPARACIÓN O MANTENIMIENTO APROPIADO.

ANTES DE REALIZAR TAREAS DE SERVICIO, REPARACIÓN Y MANTENIMIENTO DEL IMPLEMENTO:

- **ASEGURE EL EQUIPO PARA EL SERVICIO**
- **APAGUE EL MOTOR Y EL PTO**, coloque el freno de mano, descienda el implemento, espere a que se detengan todas las partes móviles y quite la llave antes de bajar del tractor.
- **COLOQUE** el implemento sobre el suelo o trabe de manera segura los equipos elevados. Utilice bloques grandes sobre suelo blando o húmedo.
- **CIERRE FIRMEMENTE Y TRABE** las alas del implemento levantado.
- **TRABE LA LENGUA DEL IMPLEMENTO** con bloques grandes y el gato de remolque. NO gatee o trabaje debajo del implemento solo sostenido por el gato de remolque.
- **EMPÚJE Y JALE** la palanca del Cilindro Hidráulico Remoto para liberar la presión hidráulica.
- **DESCONECTE** las mangueras hidráulicas de implemento del tractor.
- **DESCONECTE** la línea de conducción del **IMPLEMENTO** del **EJE DE PTO** del tractor.
- **USE GAFAS DE SEGURIDAD** (con protecciones laterales marcadas para cumplir con ANSI Z87) **Y GUANTES PROTECTORES** y siga todos los **PROCEDIMIENTOS DE SEGURIDAD** al realizar tareas de servicio, reparación y mantenimiento sobre el implemento:
- Siempre **USE GUANTES** protectores al manipular las hojas, cuchillas, bordes filosos o un componente desgastado con bordes filosos.
- Siempre **USE GUANTES Y GAFAS DE SEGURIDAD** (con protecciones laterales marcadas para cumplir con ANSI Z87) al reparar componentes en caliente
- **EVITE EL CONTACTO** con tanques de aceite hidráulico, bombas, motores, válvulas y superficies de conexión de mangueras calientes.
- **SUJETE FIRMEMENTE o TRABE EN POSICIÓN ELEVADA** todos los implementos, bastidores y componentes elevados antes de trabajar sobre los equipos que se encuentran debajo.
- **DETENGA** el movimiento de todos los implementos y **APAGUE EL MOTOR DEL TRACTOR** antes de realizar ninguna tarea.
- **USE** una escalera o gradala para alcanzar áreas altas del equipo a las que no se pueda acceder desde la tierra.
- **ASEGURESE** de estar bien apoyado sobre superficies sólidas planas al subirse al implemento para realizar tareas.
- **SIGA** las instrucciones del fabricante sobre cómo manipular los lubricantes, solventes, limpiadores y otros agentes químicos.
- **NO** cambie ninguna calibración hidráulica de fábrica para evitar fallas de los componentes o equipos.
- **NO** modifique o altere el implemento, las funciones o componentes.
- **NO SUELDE** o repare los componentes de la cortadora. Esto puede causar vibraciones y fallas de los componentes que se desprendan de la cortadora. PN HM01 SP

INFORMACIÓN DE PARTES

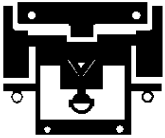


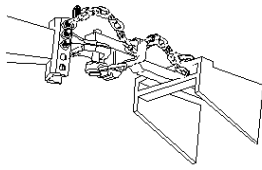

INFORMACIÓN DE PARTES

Las cortadoras Terrain King usan balancías y componentes de sistema seleccionado para los portadores de cuchillas, cuchillas, eje de cortar, navaja, suspensiones de navajas, los rodillos, los componentes de línea motriz, y cojinetes. Estas partes son echas y probadas a la especificaciones de Terrain King. Partes que no son auténticas no regularmente llegan con estas especificaciones. El uso de partes que no son auténticas puede reducir el funcionamiento de la cortadora, anular garantías, y presentar un peligro de seguridad. Use partes de cortadora auténticas de Terrain King por economía y seguridad. (SPTK-1-SP)

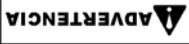
CONTACTE A SU DISTRIBUIDOR TERRAIN KING

SEGURIDAD

RIESGOS EN TRANSPORTE

	Use señales de SMV (vehículo de movimiento lento) y balizas
	Peligro de pérdida de control
	Peligro de velocidad excesiva por pérdida de control
	Use la cadena de remolque de seguridad – Tractor a implemento
	Coloque las trabas de transporte

PARA EVITAR LESIONES GRAVES O LA MUERTE AL REMOLCAR O TRANSPORTAR EQUIPOS:

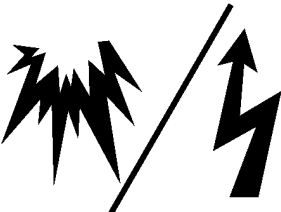
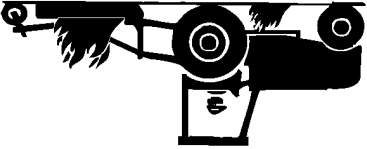


- **MANTENGA** la velocidad de transporte **POR DEBAJO DE 20** millas por hora para mantener el control del equipo.
- **REDUZCA LA VELOCIDAD** en terreno inclinado, en las curvas y en condiciones de remolque desfavorables.
- **NO REMOLQUE** camiones u otros vehículos
- **USE** un tractor de tamaño adecuado y equipado en función del equipo de remolque.
- **SIGA** todas las reglamentaciones de tránsito locales.
- **REQUISITOS DEL TRACTOR PARA REMOLCAR O TRANSPORTAR IMPLEMENTOS:**
 - **SÓLO TRANSPORTE** en el tractor con el mecanismo **ROPS** (antivuelco) en posición elevada.
 - **USE** un tractor de tamaño adecuado y equipado, que supere el peso del implemento en al menos un 20% **MANTENGA EL 20%** del peso del tractor en las ruedas frontales para mantener la dirección en forma segura.
- **ANTES DE TRANSPORTAR O REMOLCAR EL IMPLEMENTO:**

- **INSPECCIÓN DEL TRACTOR:**
 - **VERIFIQUE** la dirección y los frenos para asegurarse el correcto funcionamiento y las condiciones adecuadas.
 - **VERIFIQUE LLEVAR EL AVISO DE SMV**, los reflectores y las luces de advertencia para la adecuada operación y visibilidad detrás de la unidad.
 - **VERIFIQUE** que no haya impedimentos a la visión mientras conduce, en el tractor, la cabina o el implemento, sentado en el asiento del tractor.
 - **AJUSTE** su posición de conducción, los espejos y el transporte del implemento para tener una visión clara para condiciones de conducción y tránsito.
- **PREPARE EL IMPLEMENTO PARA EL TRANSPORTE O EL REMOLQUE:**
 - **DESAPLIQUE EL PTO**
 - **ELEVE LA CORTADORA**
 - **QUITTE** todo material cortado que se acumule en la plataforma de la cortadora.
- **CORTADORA AL REMOLQUE-INSTALE TRABAS DE TRANSPORTE Y CADENA DE SEGURIDAD:**
 - **INSTALE** los paradores o pernos de transporte en el cilindro de eje central.
 - **AJUSTE LA CADENA DE SEGURIDAD** del implemento al tractor.
- **DETERMINAR LAS CARACTERÍSTICAS DE DETENCIÓN DEL TRACTOR Y EL IMPLEMENTO PARA EL TRANSPORTE O REMOLQUE:**

- **PRUEBAS DE FRENADO:**
 - **FRENE** a velocidades en aumento.
 - **Observe** las distancias de **DETECCIÓN** con el aumento de velocidad.
 - **DETERMINE** la velocidad de transporte máxima segura que no supere las 20 millas por hora
- **DETERMINE LA VELOCIDAD DE GIRO MÁXIMA ANTES DE OPERAR EN CARRETERAS O TERRENO IRREGULAR:**
 - **PONGA A PRUEBA** el equipo aumentando lentamente la velocidad en las curvas para determinar si se puede operar a mayor velocidad.
 - **USE MENORES** velocidades de giro en las curvas pronunciadas para evitar el vuelco.
- **AL REMOLCAR O TRANSPORTAR EL EQUIPO:**
 - **USE EL CINTURÓN DE SEGURIDAD** al operar o transportar la cortadora.
 - **USE** bajas velocidades para evitar el vuelco con el implemento elevado.
 - **USE** bajas velocidades y dirección gradual en las curvas, colinas, o en superficies irregulares o poco uniformes, y en carreteras mojadas.
- **ENCIENDA LAS BALIZAS DE ADVERTENCIA** del tractor.
- **TENGA EN CUENTA** el espacio necesario para el vaivén del implemento en las curvas. *PN TH02 SP*

RIESGOS ELÉCTRICOS Y DE FUEGO

	<p>Riesgo de choque y explosión</p> <p>Contacto de paletas con líneas de servicios o gas</p>
	<p>No opere cerca de fuego.</p> <p>Mantenga limpia la plataforma de la cortadora</p>

PELIGRO PARA EVITAR LESIONES GRAVES O LA MUERTE POR CONTACTO ELÉCTRICO AL TRABAJAR CERCA DE CABLES ELÉCTRICOS, LÍNEAS DE GAS Y DE SERVICIOS:

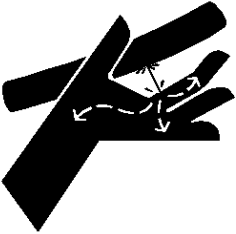

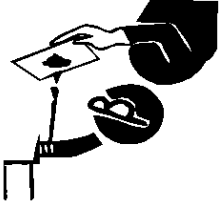
- **INSPECCIONE** el área de corte para que no interfiera con cables de alimentación eléctricos subterráneos, obstrucciones, líneas de gas, cables y servicios, estructuras municipales o de otro tipo.
- **MANTENGA** todas las alas elevadas a 3 metros (10 pies) o una mayor distancia de todos los cables de alimentación y obstrucciones elevadas.
- **NO** ponga en contacto la cortadora con ninguna estructura u obstrucción de servicios o municipales.
- **LAME** AL 811 y al 1-800-258-0808 para identificar cables de servicios subterráneos.

PAUTAS DE PREVENCIÓN DE INCENDIOS durante la operación, reparación y servicio de la cortadora y el tractor, a fin de reducir el riesgo de incendio del equipo y de la vegetación:

- El tractor debe estar **EQUIPADO CON MATAFUEGOS**
- **NO OPERE** la cortadora sobre un tractor equipado con escape debajo del bastidor
- **NO FUME** ni acerque fuego directo a la cortadora o el tractor
- **NO CONDUZCA** sobre residuos encendidos o en áreas recientemente quemadas
- **EVITE LA FORMACIÓN DE CHISPAS** al no permitir que la hoja de la cortadora entre en contacto con objetos sólidos como metal o roca.
- **AJUSTE LOS EMBRAQUES DESLIZANTES** para evitar el deslizamiento excesivo y el calentamiento de la placa del embrague.
- **LIMPIE** todo resto de hierba o residuo acumulado alrededor de las líneas de conducción de la cortadora, los embragues deslizantes y cajas de cambios.
- **APAGUE EL MOTOR** al cargar combustible. *PN EF02 SP*

SEGURIDAD

RIESGO DE FILTRACION DE ACEITE HIDRÁULICO DE ALTA PRESIÓN

		
Penetración de aceite de alta presión en la piel	Erosión de la piel por el aceite de alta presión	Usar cartón para detectar filtraciones de aceite

▲ PELIGRO
PARA EVITAR LESIONES GRAVES O LA MUERTE POR PENETRACIÓN DE FILTRACIONES DE ACEITE HIDRÁULICO DE ALTA PRESIÓN:



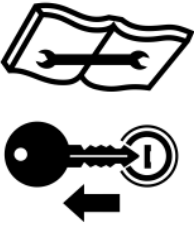
- **MANTENGA** todas las mangueras hidráulicas, líneas y conexiones en **BUEN ESTADO** y **AJUSTADAS** antes de aplicar presión al sistema.
- **LIBERE LA PRESIÓN HIDRÁULICA** antes de desconectar las líneas o trabajar en el sistema.
- **QUIT**E y reemplace la manguera si sospecha que tiene filtraciones. Solicite al distribuidor que verifique si hay filtraciones.

LAS FILTRACIONES DE LÍQUIDO DE ALTA PRESIÓN PUEDEN NO SER VISIBLES.
AL VERIFICAR FILTRACIONES HIDRÁULICAS Y TRABAJAR CERCA DE LOS SISTEMAS HIDRÁULICOS:

- **SIEMPRE USE** gafas de seguridad y guantes impermeables.
- **USE** papel o cartón para verificar si hay filtraciones.
- **NO USE** las manos o partes del cuerpo para detectar filtraciones.
- **MANTENGA** las manos y el cuerpo **LEJOS** de los orificios de clavijas y boquillas de eyección de fluido hidráulico. El fluido hidráulico puede causar gangrena si no es extirpado quirúrgicamente de inmediato por un médico especializado en este tipo de lesiones. *PN HP01 SP*

SEGURIDAD

RIESGO DEL CONTACTO A LAS CUCHILLAS DE CORTADORA


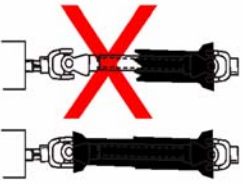
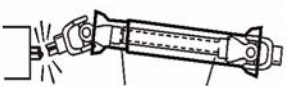
	No ponga los dedos debajo de la cortadora
	No ponga el pie debajo de la cortadora
	Detenga el tractor. Quite la llave. Lea el Manual

⚠ PELIGRO MANTÉNGASE LEJOS DE LAS CUCHILLAS GIRATORIAS PARA EVITAR LESIONES GRAVES O LA MUERTE POR CONTACTO CON LA CUCHILLA:

- **MANTÉNGASE LEJOS y NO ACERQUE LAS MANOS, LOS PIES y EL CUERPO** a las cuchillas giratorias, líneas de conducción y partes hasta que todos los elementos móviles se hayan detenido.
- **NO** ponga las manos o los pies debajo de las plataformas de la cortadora
- **DETENGA** las **CUCHILLAS** giratorias antes de elevar la plataforma de la cortadora o las alas
- **DETENGA** la cortadora, **EXAMÍNELA y PRESTE ATENCIÓN A LOS SONIDOS** antes de acercarse a la cortadora para asegurarse de que se haya detenido todo el movimiento giratorio.
- Si se produce un bloqueo de material en las áreas de entrada y descarga de la cortadora, **APAGUE EL MOTOR DEL TRACTOR**, desenganche la toma de fuerza y espere a que todo movimiento de rotación se detenga. Coloque el tractor en posición de estacionamiento, ponga el freno de estacionamiento y retire la llave antes de abandonar el asiento del operador. Despejar la obstrucción antes de proceder con la siega. Asegúrese de mantener los pies y las manos alejadas de las cuchillas de la cortadora. Si se eleva las alas del cortacésped o segadoras para acceder a la obstrucción, enganche las trabas de cierre y bloquee con seguridad la cortadora antes de colocar cualquier parte del cuerpo por debajo de la segadora.

PN MB01 SP

RIESGO DE ENREDO POR EL PTO

	Peligro de enredo No se acerque o toque ningún eje de transmisión de PTO giratorio
	Asegúrese de que el eje de PTO esté firmemente sujetado. No use un adaptador de PTO
	No opere la máquina si las cubiertas de PTO están dañadas o faltantes
	Asegúrese de que los ejes de PTO sean del largo adecuado

MANTÉNGASE ALEJADO DE LAS LÍNEAS DE CONDUCCIÓN Y OTROS ELEMENTOS GIRATORIOS PARA EVITAR LESIONES GRAVES O LA MUERTE:

MANTÉNGASE LEJOS Y NO ACERQUE las manos, los pies y el cuerpo a las cuchillas giratorias, líneas de conducción y partes hasta que todos los elementos móviles se hayan detenido.

- **DETENGA** la cortadora, **EXAMÍNELA Y PRESTE ATENCIÓN A LOS SONIDOS** antes de acercarse a la cortadora para asegurarse de que se haya detenido todo el movimiento giratorio.
- **LOS ELEMENTOS GIRATORIOS SIGUEN ROTANDO** una vez apagada la PTO.

PROTECCIÓN DE LA PTO:

PARA EVITAR LESIONES GRAVES O LA MUERTE POR ENREDO AL OPERAR EL IMPLEMENTO:

- **MANTENGA** instalados los protectores, las cubiertas integrales de las líneas de conducción y las cubiertas de entrada
- **NO OPERE** la cortadora si los protectores o cubiertas no están bien colocados o faltan.
- **REEMPLACE O REPARÉLOS** si faltan, están dañados o rotos
- **SIEMPRE REEMPLACE LOS PROTECTORES** que se han quitado para tareas de reparación o mantenimiento.

PARA EVITAR que la línea de conducción se rompa durante las operaciones:

- **VERIFIQUE** que la línea de conducción tenga el largo adecuado entre el eje de PTO y el eje de la caja de cambios del implemento.
- Las líneas de conducción demasiado cortas se pueden soltar o romper.
- Las líneas de conducción demasiado largas pueden tocar el suelo.
- Un ensamble telescópico de la línea de conducción que toque el suelo no se deslizará y se solidificará.
- Si la línea de conducción toca el suelo, puede atravesar los cojinetes de soporte y romper el eje de PTO.
- **EVITE** hacer curvas pronunciadas o elevar la cortadora a alturas que puedan hacer caer la línea de conducción.
- Lubrique los componentes telescópicos del eje de transmisión en forma semanal.

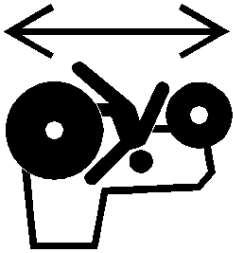
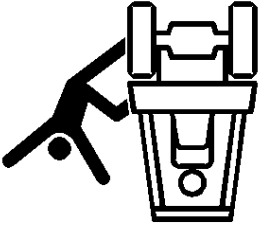

COMUNIQUESE CON EL DISTRIBUIDOR si la línea de conducción del implemento no coincide con el eje de PTO del tractor:

- **NO UTILICE UN ADAPTADOR DE PTO.**

El uso de un adaptador de PTO puede causar vibración excesiva, caída de objetos, fallas de las cuchillas y el implemento como consecuencia de la duplicación de la velocidad operativa. El aumento de la longitud de trabajo puede exponer áreas desprotegidas de la línea de conducción. *PN PE01 SP*

SEGURIDAD

RIESGO DE ATROPELLO


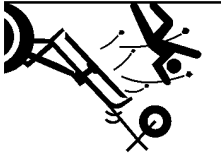

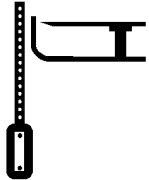
		
Riesgo de atropello del operador	Riesgo de atropello por caída del operador	Riesgo de atropello por caída del operador

⚠ PELIGRO PARA EVITAR LESIONES GRAVES O LA MUERTE POR CAÍDA DEL TRACTOR O ATROPELLO DEL EQUIPO:

- USE tractores equipados con SISTEMA ANTIVUELCO (ROPS) y CINTURONES DE SEGURIDAD para las operaciones de corte.
 - MANTENGA EL SISTEMA ROPS trabado en posición vertical.
 - SÓLO ENCIENDA el tractor sentado en el asiento del tractor.
 - SIEMPRE ABROCHESE el cinturón de seguridad al operar el tractor y los equipos.
 - SÓLO OPERE el tractor y el equipo sentado en el asiento del tractor.
 - NUNCA LLEVE A OTRAS PERSONAS en el tractor o implemento.
- AL SUBIR Y BAJAR DEL TRACTOR:**
- SÓLO suba o baje del tractor cuando éste y sus partes móviles estén detenidos.
 - APAGUE EL MOTOR Y LA TDF, coloque el freno de mano, descienda del implemento, espere a que se detengan todas las partes móviles y quite la llave antes de bajarse del tractor. *PN R001 SP*

SEGURIDAD



RIESGO DE OBJETOS LANZADOS Continuada

			
Peligro de objetos lanzados por la cortadora	Objetos lanzados desde cortadora elevada	Inspeccione el área. Quite los objetos extraños	No permita que las cuchillas entren en contacto con objetos sólidos

- OPERACIÓN DE LA CORTADORA:**
- **NO** exceda la capacidad de corte nominal de la cortadora, ni corte elementos que no sean vegetación.
 - **USE CABINAS DE TRACTOR CERRADAS** cuando haya dos o más cortadoras operando en un mismo sector..
 - **AJUSTE** las secciones de la cortadora o la ala cercana y paralela al suelo sin exponer las cuchillas
 - **AJUSTE LA ALTURA** de corte para **EVITAR EL CONTACTO DE LAS CUCHILLAS** con objetos sólidos, como alambres, piedras, postes, cuerdones, guardarrailes y obstrucciones fijas.
 - **NO** opere la cortadora con la(s) ala(s) elevada(s) o en posición de transporte.
 - **DETENGA LA CORTADORA** de inmediato si las cuchillas entran en contacto con objetos pesados, estructuras fijas, guardarrailes de metal y estructuras de cemento:
 - 1. **LAS CUCHILLAS PUEDEN FALLAR** con el impacto y los objetos pueden ser arrojados a gran velocidad.
 - 2. **INSPECCIONE y REEMPLACE** las cuchillas dañadas.
 - 3. **VERIFIQUE** el equilibrio del porta cuchillas y **REEMPLÁCELO** si está dañado.
 - **NO** opere la cortadora en agua **PARA EVITAR** una posible **FALLA DE LAS CUCHILLAS**.
 - **EVITE OPERAR LA CORTADORA** en reversa:
 - 1. **DETENGA EL PTO** y retroceda la cortadora.
 - 2. **DESCIENDA** la cortadora, encienda el **PTO** y corte hacia adelante.
 - **DETENGA EL PTO** y las **CUCHILLAS** al elevar el implemento o la cortadora a posición de transporte.
 - **NO** encienda el **PTO** con la cortadora en posición de transporte.
 - **DETENGA** la cortadora cuando se produzca **VIBRACIÓN EXCESIVA**:
 - 1. **DETENGA EL PTO Y EL MOTOR** del tractor.
 - 2. **INSPECCIONE** la cortadora para detectar la fuente de la vibración
 - 3. **REEMPLACE** toda parte dañada o las **CUCHILLAS** dobladas o dañadas. *PN T002-X-SP*

SEGURIDAD

RIESGO DE OBJETOS LANZADOS

			
Peligro de objetos lanzados por la cortadora	Objetos lanzados desde cortadora elevada	Inspeccione el área. Quite los objetos extraños	No permita que las cuchillas entren en contacto con objetos sólidos

▲ PELIGRO LAS CORTADORAS GIRATORIAS PUEDEN ARROJAR OBJETOS A 90 METROS (300 PIES) O MÁS EN CONDICIONES ADVERSAS.

PARA EVITAR LESIONES GRAVES O LA MUERTE AL OPERADOR O TRANSEÚNTES COMO CONSECUENCIA DE OBJETOS ARROJADOS:

- MANTENGA a los transeúntes a 100 metros de distancia (300 pies)
- NO OPERE LA CORTADORA SI HAY PERSONAS A MENOS DE 100 METROS(300 PIES), SALVO QUE:
 - Todos los **PROTECTORES CONTRA OBJETOS ARROJADOS** estén colocados y en buen funcionamiento al operar la cortadora, entre los que se incluyen los deflectores frontales y traseros, los protectores de cadena, las bandas, los faldones laterales y las zapatas antideslizantes.
 - Las partes de la cortadora o la aia estén ajustadas cerca y paralelas al suelo, sin exponer las cuchillas.
 - Se ha inspeccionado el **ÁREA DE CORTE** y se han quitado todos los materiales extraños y residuos.
- **LOS TRANSEÚNTES** estén en el interior de un vehículo cerrado.

PUEDAN SER LANZADOS:

- **QUITE** residuos, piedras, cables, alambres, objetos metálicos y cualquier otro objetos extraños del área.
- Los alambres, cables, sogas, cadenas y objetos metálicos pueden ser arrojados o salir desprendidos de la plataforma a gran velocidad:

1. **MARQUE** los objetos que no se puedan quitar.
 2. **EVITE** estos objetos cuando use la cortadora.
- INSPECCIÓN DEL ÁREA PARA DETECTAR HIERBA ALTA Y MALEZAS:**
- **INSPECCION Y QUITE** cualquier residuo oculto de gran tamaño.
 - **PASE LA CORTADORA** a una altura intermedia
 - **INSPECCION** y quite el residuo restante
 - **PASE LA CORTADORA** a la altura final

PROTECCIÓN CONTRA OBJETOS ARROJADOS DE LA CORTADORA:

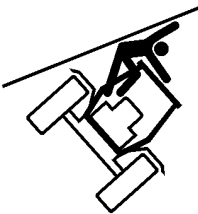

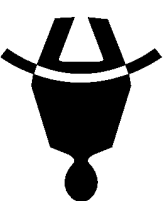
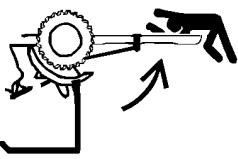
- **MANTENGA** todos los protectores contra objetos arrojados en su lugar y en buen funcionamiento al operar la cortadora, entre los que se incluyen los deflectores frontales y traseros, los protectores de cadena, las bandas, los faldones laterales y las zapatas antideslizantes.
- **NO OPERE LA CORTADORA** si falta algún protector contra objetos arrojados, o si éstos están dañados.

DERECHO DE PASO (autopista) CON LA CORTADORA

- **UTILICE PROTECTORES DE CADENA DOBLES** para autopistas, derecho de paso, parques o cortes en cinturón verde donde pueda haber viviendas, vehículos o ganado dentro de los 100 metros (300 pies) de la cortadora.
- Ninguna protección ofrece una eficacia del 100% en la prevención de objetos arrojados. Para reducir la posibilidad de que se produzcan lesiones:

1. **MANTENGA LOS PROTECTORES DE LA CORTADORA**, los faldones laterales, la zapatas antideslizantes y las cuchillas en buen estado de funcionamiento,
2. **ELEVE LA ALTURA DE CORTE a 15 CM (6 PULGADAS)** como mínimo,
3. **INSPECCION EL ÁREA** con cuidado antes de pasar la cortadora para **ELIMINAR** el posible riesgo de **OBJETOS ARROJADOS**,
4. **NUNCA PERMITA QUE LAS CUCHILLAS EN MOVIMIENTO ENTREN EN CONTACTO CON OBJETOS SÓLIDOS** como alambres, piedras, postes, cordones, guardarrailles o el suelo. *PN 1002 SP*

RIESGO DE APLASTAMIENTO

			
Lesión aplastante por vuelco	Trabe el sistema ROPS (antivuelco) en la posición vertical	Siempre utilice cinturón de seguridad	Lesión aplastante por caída de implemento

PELIGRO PARA EVITAR UNA LESIÓN GRAVE O LA MUERTE POR CAÍDA DEL TRACTOR, O EL APLASTAMIENTO, VUELCO Y APLASTAMIENTO DE UN EQUIPO POR LA CAÍDA DE UNA ALA O UN IMPLEMENTO:

- USE tractores equipados con SISTEMA ANTIVUELCO (ROPS) y CINTURONES DE SEGURIDAD para las operaciones de corte.
- MANTENGA EL SISTEMA ROPS trabado en posición vertical.
- SIEMPRE ABROCHESE el cinturón de seguridad al operar el tractor y los equipos.
- SÓLO OPERE el tractor y el equipo sentado en el asiento del tractor.
- AL ELEVAR O DESCENDER EL IMPLEMENTO:

- Eleve o descienda SÓLO CUANDO ESTÉ SENTADO en el asiento del tractor, con el cinturón de seguridad ajustado.
- Eleve o descienda SÓLO cuando la lengüeta del implemento esté firmemente ajustada a la barra de tracción del tractor.
- PARA EVITAR el vuelco del implemento.
- MANTENGA A LOS TRANSEÚNTES FUERA del área de operación PARA EVITAR accidentes por aplastamiento.
- Los equipos ELEVADOS se pueden caer por fallas mecánicas o hidráulicas o por un movimiento inesperado de la palanca de control.



PARA EVITAR LA CAÍDA DEL EQUIPO al trabajar cerca o debajo de los componentes o implementos elevados por un enganche de tractor de 3 puntos:

- SUJETE CON FIRMEZA o bloquee en posición vertical todos los equipos, alas y componentes elevados.
- BLOQUEE EN POSICIÓN VERTICAL y sujete con firmeza el equipo antes de poner las manos, los pies o el cuerpo debajo de los equipos o componentes elevados.
- AL ESTACIONAR el implemento y el tractor:

- DESCienda el implemento, TRABE o BLOQUEE las partes elevadas antes de alejarse del equipo.
- NUNCA deje un implemento sin atención en posición elevada.



PARA EVITAR LA CAÍDA O EL APLASTAMIENTO DE NIÑOS POR EL EQUIPO:

- NUNCA DEJE que los niños jueguen sobre el tractor o los implementos, ni en sus alrededores.

AL DESENGANCHAR EL IMPLEMENTO:

- DESCienda el implemento, TRABE o BLOQUEE las partes elevadas antes de alejarse del equipo.
- USE el gato de la lengüeta para controlar el movimiento de la lengüeta del implemento
- USE el GATO de la lengüeta para elevar lengüetas de implementos pesados.
- EVITE recargar el gato para evitar falla al gato y una lesión al operador. *PN CH02 SP*

SEGURIDAD

SEGURIDAD DE CONECTAR O DESCONECTAR IMPLEMENTO

	Detenga el tractor Quite la llave Lea el Manual
	Lesión opresiva entre tractor e implemento
	Asegúrese de que el eje de TDF esté firmemente ajustado al tractor
	Asegúrese de que el eje de TDF sea del largo adecuado

▲ PELIGRO PARA EVITAR LESIONES GRAVES O LA MUERTE POR APLASTAMIENTO POR EL TRACTOR O IMPLEMENTO:

- **AL DAR MARCHA ATRÁS** el tractor hacia el enganche del implemento:
- **NO PERMITA QUE HAYA PERSONAS** entre el tractor y el implemento
- **ANTES de conectar y desconectar el enganche del implemento:**
 - **APAGUE EL MOTOR DEL TRACTOR**, coloque la palanca en "estacionar", ponga el freno de mano y saque la llave.
- **Al conectar y desconectar el enganche del implemento:**
 - **NO** se agache o camine debajo de la cortadora o la ala en posición elevada.
 - **USE el GATO** con lengüeta para elevar lengüetas de implementos pesados a fin de controlar el movimiento de la lengüeta del implemento.
 - **EVITE** recargar el gato para evitar una falla de éste y una lesión al operador.

AL CONECTAR LA LÍNEA DE CONDUCCIÓN DEL IMPLEMENTO:

- PARA EVITAR que la línea de conducción del implemento se suelte durante la operación:**
- **LUBRIQUE** el anillo de cierre del resorte del yugo para asegurarse de que se deslice libremente sobre el eje de **PTO**
 - **ASEGURE** las bolas de cierre del yugo en la muesca del eje de **PTO**.
 - **PRESIONE Y JALE DE LA LÍNEA DE CONDUCCIÓN del EJE DE TOMA DE FUERZA(PTO)** del tractor y del implemento para asegurarse de que estén **FIRMEMENTE SUJETADOS**

PARA EVITAR que la línea de conducción se rompa durante las operaciones:

- **VERIFIQUE** que la línea de conducción tenga el largo adecuado entre el eje de **PTO** y el eje de la caja de cambios del implemento.
- Las líneas de conducción demasiado cortas se pueden soltar o romper.
- Las líneas de conducción demasiado largas pueden tocar el suelo.
- Un ensamble telescópico de la línea de conducción que toque el suelo no se deslizará y se solidificará.
- Si la línea de conducción toca el suelo, puede atravesar los cojinetes de soporte y romper el eje de **PTO**.






COMUNIQUESE CON EL DISTRIBUIDOR si la línea de conducción del implemento no coincide con el eje de TDF del tractor:

- **NO UTILICE UN ADAPTADOR DE PTO.**
- El uso de un adaptador de **PTO** puede ocasionar:
 - Vibración excesiva, caída de objetos, fallas de la hoja y el implemento como consecuencia de la duplicación de la velocidad operativa.
 - Mayor extensión de trabajo, lo que deja expuestas áreas desprotegidas de la línea de conducción e implica el riesgo de enredo con otros objetos.

NO conecte la cortadora a un tractor con la TDF directamente conectada a la transmisión del tractor. PN CD02 SP

SEGURIDAD

SEGURIDAD DEL OPERADOR

	Lea con atención el Manual del Operador
	Siempre use gafas de seguridad
	Use casco y protector
	Nunca consuma drogas o alcohol mientras opera el equipo
	Utilice chaleco de seguridad al operar en o cercas de carreteras

PARA EVITAR LESIONES GRAVES O LA MUERTE, SIGA LAS SIGUIENTES INSTRUCCIONES:



- **LEA, COMPRENDA Y SIGA** las instrucciones del Manual del Operador, al igual que las Advertencias y Mensajes de Seguridad.
- **USE GAFAS DE SEGURIDAD**, calzado protector, casco, protección auditiva y guantes al operar o reparar el equipo.
- **USE** un aparato de respiración apropiado al operar en condiciones polvorientas a fin de evitar contraer enfermedades respiratorias.
- **NO USE** prendas sueltas o joyas que se puedan enredar con las partes giratorias y causar una lesión.
- **NO CONSUMA DROGAS o ALCOHOL** antes o durante la operación del equipo.
- **NO PERMITA** que nadie opere el equipo bajo los efectos negativos de las drogas o el alcohol.
- **CONSULTE** a un médico para conocer los efectos desfavorables de la medicación sobre los sentidos.
- **MANTÉNGASE ALERTA**, la operación prolongada puede causar fatiga. **HAGA UNA PAUSA y DESCANSE**.

SEGURIDAD DE OPERACIÓN GENERAL

CONDICIONES DE VISIBILIDAD AL USAR LA CORTADORA:

- **OPERE LA CORTADORA CON LUZ SOLAR** o con luz que aporte una visibilidad nítida de más de 90 metros (100 yardas).
- **DEBE PODER VISUALIZAR e** identificar transeúntes, terrenos empinados, pozos, desniveles, obstrucciones elevadas, cables de alimentación, residuos y objetos extraños.

VELOCIDAD RESPECTO AL SUELO AL USAR LA CORTADORA:

- El rango de **VELOCIDAD NORMAL** es de entre 2 y 5 millas por hora.
- **AJUSTE LA VELOCIDAD DE CORTE** según las condiciones del terreno y el tipo de césped, la densidad y la altura del corte.
- **REDUZCA LA VELOCIDAD DE CORTE** al acercarse a inclinaciones empinadas, pozos, desniveles, obstrucciones elevadas, cables de alimentación y para evitar residuos y objetos extraños.

INFESTACIÓN CON INSECTOS

- No opere en áreas susceptibles al ataque de abejas o insectos, salvo que **USE PRENDAS PROTECTORAS** o una cabina de tractor cerrada.

VELOCIDAD DE PTO:

- **NO EXCEDA LA VELOCIDAD DE PTO NOMINAL DEL IMPLEMENTO**

- **EVITE** superar las velocidades nominales de PTO, porque puede causar roturas en la línea de conducción o fallas de las cuchillas.

SEÑALES DE SEGURIDAD:

- **REEMPLACE** cualquier señal de seguridad faltante, dañada o ilegible. *PN 0501 SP*

SEGURIDAD

INSTRUCCIONES DE SEGURIDAD Y PRÁCTICAS GENERALES

El mejor operador es un operador cuidadoso. La seguridad es de importancia fundamental para el fabricante, y también debería serlo para el propietario u operador. La mayoría de los accidentes se pueden evitar prestando suma atención al equipo, al ambiente circundante, y tomando algunas precauciones. La primera sección de este manual incluye una lista de Mensajes de Seguridad que deben observarse para contribuir a la protección del operador y otras personas frente a lesiones o la muerte. Lea con atención estos Mensajes de Seguridad antes de ensamblar, operar o reparar este implemento. Este equipo sólo debe ser operado por personas que hayan leído el manual, responsables y calificadas, que sepan cómo hacerlo de manera responsable.



El Símbolo de Alerta de Seguridad se utiliza en combinación con una Señal Verbal, tal como la que se muestra a continuación, en todo este manual y en los autoadhesivos adheridos a los equipos. El Símbolo de Alerta de Seguridad significa:

“¡ATENCIÓN! ¡MANTÉNGASE ALERTA! ¡SU SEGURIDAD ESTÁ EN JUEGO!” El Símbolo y la Señal Verbal tienen el objetivo de advertir al propietario/operador sobre un riesgo inminente y el grado de lesión que se puede producir al operar este equipo.

Adopte todas las medidas habituales para trabajar en forma segura y, sobre todo, recuerde que la seguridad depende de USTED. Sólo USTED puede impedir una lesión grave o la muerte a causa de prácticas no seguras.

Indica una situación peligrosa inminente que, de no ser evitada, **OCASIONARÁ LA MUERTE O UNA LESIÓN MUY GRAVE.**

Indica una situación peligrosa inminente que, de no ser evitada, **PODRÍA OCASIONAR LA MUERTE O UNA LESIÓN MUY GRAVE.**

Indica una situación peligrosa inminente que, de no ser evitada, **PODRÍA OCASIONAR UNA LESIÓN MENOR.**

Indica información considerada importante, pero no relacionada con riesgos (por ejemplo, mensajes relacionados con daños a la propiedad).

	PELIGRO
	ADVERTENCIA
	PRECAUCIÓN
	AVISO

NOTA: Identifica aspectos de particular interés para lograr una operación o reparación más eficiente y conveniente.

LEA CON ATENCIÓN Y RESPETE los siguientes Mensajes de Seguridad. Si no se siguen cuidadosamente las advertencias e instrucciones indicadas en este Manual y en los Mensajes de Seguridad del implemento, se pueden producir lesiones graves o la muerte. Siempre siga las instrucciones de este manual y use el sentido común para evitar situaciones peligrosas.



Los pictogramas se utilizan a lo largo de este manual para ayudar a que su atención visual se centre en los problemas de seguridad.

PELIGRO DE SEGURIDAD El pictograma rodeado por un triángulo indica un peligro de seguridad que debe evitarse. EJEMPLO: Equipo en contacto con líneas eléctricas aéreas	PROCEDIMIENTO DE EVITACIÓN El pictograma por sí mismo o dentro de una caja indica un procedimiento de evitación que se debe seguir para evitar lesiones. EJEMPLO: Apague siempre el motor y retire la llave antes de trabajar en el equipo.	PREVENCIÓN DE SEGURIDAD Un círculo con una barra indica una acción que está prohibida. EJEMPLO: No FUMAR
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NOTA: Si desea obtener una traducción de esta sección de seguridad en alguno de los siguientes idiomas, comuníquese con: Translations, a la dirección 1502 E. Walnut Street Seguin, TX 78155; Fax: (830) 372-9529; La Sección de Seguridad está disponible en español, portugués, francés, alemán, ruso. PN 6501 SP

SECCIÓN DE SEGURIDAD

Instrucciones de operaciones antes de la entrega del DISTRIBUIDOR al CLIENTE

El distribuidor deberá informar al comprador de este producto las condiciones, disposiciones y procedimientos de garantía aplicables; informar la responsabilidad del comprador de capacitar a sus operadores para la operación segura; revisar el contenido del Manual del Operador, incluido el equipo de seguridad, la operación segura y el mantenimiento; y revisar las Señales de Seguridad que se encuentran en el implemento (y en el tractor, de ser posible).

IMPLEMENTOS: He explicado que los deflectores, protectores de cadena o faldones sólidos se deben mantener en buenas condiciones de reparación y se deben instalar, excepto en zonas donde personas, vehículos, ganado u otros bienes no corran peligro por objetos arrojados, y en los casos en que dichos equipos de seguridad impedirían un desempeño razonable de la cortadora en su tarea asignada.

LÍNEAS DE CONDUCCIÓN: Me he asegurado de que todos los protectores de líneas de conducción, de caja de engranajes y otros están en buenas condiciones de reparación y firmemente sujetos para prevenir lesiones por enredo u objetos arrojados.

MÁQUINAS HIDRÁULICAS: He explicado la necesidad de usar aceite hidráulico limpio, cambiar los filtros según las instrucciones, detener filtraciones, prevenir daños por operar con aceite demastado caliente, cuidar las mangueras, usar mangueras del tipo correcto, mantener la presión operativa especificada y prevenir el posible riesgo de que el aceite penetre en la piel.

IMPLEMENTOS PLEGABLES: He explicado que no es posible proteger contra objetos arrojados cuando el cabezal está elevado del suelo y que el operador es responsable de verificar que no existan personas en las inmediaciones. He explicado que el brazo o cabezal de cortadora elevado puede entrar en contacto con obstrucciones elevadas y dañar cables y líneas telefónicas, y posiblemente causar lesiones. He explicado que el brazo o cabezal extendido, o el brazo retraído, puede entrar en contacto con cables de alimentación y causar lesiones o la muerte por electrocución, y que el operador es responsable de evitar dichos riesgos.

**SERVICIO ANTES DE LA ENTREGA
VERIFIQUE Y AJUSTE O LUBRIQUE SEGÚN SEA NECESARIO**

Consulte los detalles en el Manual del Operador
Inspección realizada – Garantía y procedimientos de seguridad explicados – Instalación realizada

LUBRICACIÓN E HIDRÁULICA

ELEMENTOS DE SEGURIDAD

- ☐ Caja de engranajes (niveles de aceite)
- ☐ Nivel de aceite hidráulico (tanque externo)
- ☐ Nivel de aceite hidráulico del tractor
- ☐ Mangueras hidráulicas (no retorcidas y ajustadas)
- ☐ Propulsor de bomba frontal (conjunto ajustado y eje bien alineado)
- ☐ Cortadora
- ☐ Nivel y altura de corte de la cortadora ajustados
- ☐ Cojinetes del eje de corte lubricados
- ☐ Todas las piezas metálicas bien ajustadas

ACCESORIOS E INSTALACIÓN

- ☐ Deflectores frontales y traseros
- ☐ Sentido de giro de las hojas correcto
- CONEXIONES DE CORTADORA A TRACTOR**
- ☐ Pivote y conexiones de bastidor en A
- ☐ Altura de eje (ajustar)
- ☐ Altura de corte (ajustar)
- ☐ Verificación de pre-operación de kit de montaje
- ☐ Aleta de cortadora (ajustar nivel con el centro)
- ☐ Aleta de cortadora (verificar operación de elevación correcta)
- ☐ Piezas metálicas de montaje bien ajustadas

- ☐ Manual de Seguridad de Cortadora AEM (entregado en porta manual)
- ☐ Se mostró el Video de Seguridad de Cortadora AEM al comprador

- ☐ Manual de Seguridad de Línea de Conducción ADMA (entregado)
- ☐ Cadena de remolque de seguridad (instalada)
- ☐ Gato con lengüeta (instalación y operación)
- ☐ Emblema S.M.V. (instalado de ser necesario)
- ☐ Protector de TDF del tractor (instalado)
- ☐ Manual del Operador (entregado)
- ☐ Autoadhesivos de seguridad (colocados)
- ☐ (ajustar y poner en marcha)
- ☐ Embrague de línea de conducción (limitador de ajuste)
- ☐ Protectores (operación e instalación)

Terrain King está dispuesto a suministrar un (1) Video de Prácticas de Seguridad para Cortadoras AEM

Por favor enviar:

- ☐ Video de Seguridad para el Operador de Cortadoras AEM/FEMA – formato VHS
- ☐ Video de Seguridad para el Operador de Cortadoras AEM/FEMA – formato DVD
- ☐ Manual del Operador de la Cortadora
- ☐ Manual de Seguridad del Operador de la Cortadora AEM

Nombre del solicitante: _____
Teléfono: _____

Dirección del solicitante: _____

Ciudad _____

Estado _____

Código postal _____

Modelo de cortadora: _____

Fecha de compra: _____

Vendedor del distribuidor: _____

Dirección del distribuidor: _____

Enviar por correo a:

AEM Video Services

1502 E. Walnut Street

Seguin, TX 78155

O enviar por fax a:

(830) 372-9529

O enviar por correo electrónico a:

AEMVideo@alamo-group.com

A fin de reducir la tasa de accidentes y mejorar la operación segura de las cortadoras, Terrain King se ha asociado con otros fabricantes de la industria para desarrollar el video y la guía de Prácticas de Seguridad para Cortadoras Industriales y Agrícolas AEM/FEMA.

El video explica a los operadores de tractores y cortadoras las prácticas seguras que deben adoptar cuando utilizan cortadoras industriales y agrícolas. Es importante que todos los operadores de cortadoras aprendan cómo operar sus equipos de corte y puedan reconocer los posibles peligros que pueden surgir al operar una cortadora. Este video, en conjunto con el manual del operador de la cortadora y los mensajes de advertencia que se encuentran en la cortadora, serán muy útiles para complementar este aprendizaje tan importante.

Es posible que su distribuidor autorizado de *Terrain King* le haya mostrado este video y le haya entregado una copia en DVD cuando adquirió su cortadora. Si usted o algún operador de cortadora no vio el video: mire el video, lea este Manual del Operador, y complete la Guía del Video antes de operar su cortadora nueva. Si no comprende alguna de las instrucciones del video o del manual del operador, o si tiene alguna pregunta acerca de la operación segura, comuníquese con su supervisor, con el distribuidor o con Terrain King.

Si desea recibir una copia del video en VHS, envíe un mensaje de correo electrónico a AEMVideo@alamo-group.com o un fax al (830) 372-9529, o envíe por correo una copia rellena del formulario que se encuentra al dorso de esta página a AEM VHS Video 1502 E Walnut Street, Seguin, TX 78155, y solicite la versión en VHS. Indique su nombre, dirección postal, modelo de cortadora y número de serie.

Cada uno de los operadores debe recibir capacitación para cada equipo (tractor y cortadora), comprender el uso previsto, y comprender los posibles peligros antes de operar el equipo.

La información y material mencionado en la información anterior junto con el Manual de Operador puede asistir en cumplir con los requisitos de OSHA para el entrenamiento anual del Operador.

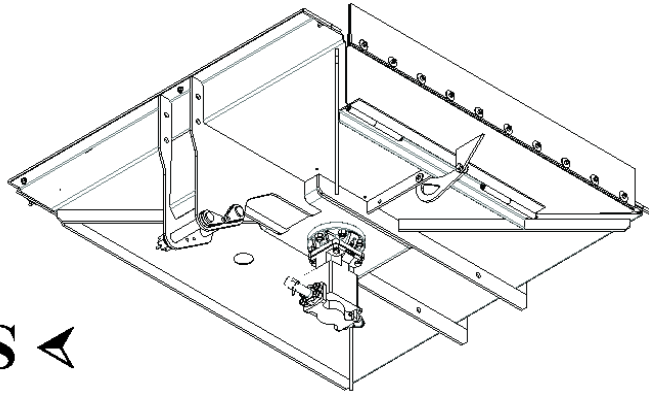
REQUISITOS DE ENTRENAMIENTO DEL OSHA

Los siguientes requisitos de entrenamiento se an toma del Título 29, código de la pieza de regulaciones federales 1928.57 (a) (6), www.osha.gov

Instrucciones del operador. A la hora de la asignación inicial y por lo menos anualmente después de eso, el empleador mandará a cada empleado quien opera un tractor agrícola o implemento en las prácticas de operación segura y el mantenimiento de el equipo con el cual el empleado este, o estará implicado y de cualquier otras prácticas dictados por el ambiente laboral.

TERRAIN KING
Engineering Practical Solutions™

Entrenamiento de Seguridad Hace la Diferencia



➤ Sea Seguro

➤ Sea Alerto

➤ Sea Vivo

➤ Sea Entrenado

antes de funcionar
el cortacésped

www.algqr.com/kvs



Video de Seguridad

Al propietario/operador/distribuidor

Este Manual del Operador es una parte esencial de la operación segura de esta máquina y se debe mantener con la unidad siempre. El implemento incluye un porta manual donde se puede guardar el manual de manera adecuada. Si el manual se extravía o se daña, puede solicitar otra copia sin cargo a un distribuidor autorizado de *Terrain King* o descargarlo del sitio web de *Terrain King* (www.terrainking.com).

ANTES DE COMENZAR LEA, COMPRENDA Y SIGA la información incluida en este manual, el Manual de Seguridad de la Cortadora AEM y el manual del operador del tractor para conocer cómo operar la máquina y realizar tareas de servicio correctamente. De lo contrario, podría sufrir lesiones u ocasionar lesiones a terceros. Todos los implementos con partes móviles son potencialmente peligrosos. Cada esfuerzo ha sido hecho para asegurar que la máquina esté segura, pero los operadores deben evitar entrar en prácticas peligrosas y seguir las instrucciones escritas que son proporcionadas. El fabricante ha diseñado este implemento para ser usado con todos sus equipos de seguridad correctamente sujetados para minimizar la probabilidad de accidentes.

LA SEGURIDAD PRIMERO. Lea con atención la totalidad de la sección de seguridad de este manual antes de operar el equipo. No permita que nadie opere el equipo sin haber leído y comprendido la totalidad de este manual. Comuníquese con el distribuidor si necesita explicación sobre alguna instrucción que no haya comprendido del todo.

Los cuidados que brinde a su implemento *Terrain King* determinarán en gran medida su satisfacción con el desempeño y la vida útil del equipo. Lea con atención y siga las instrucciones de este manual para comprender cabalmente su nuevo implemento, su uso previsto, y sus requisitos de servicio.

Todas las referencias que se hacen en este manual a derecha, izquierda, frontal, trasero, arriba y abajo corresponden a la perspectiva en el sentido del desplazamiento hacia delante con el implemento correctamente sujetado al tractor.

La información sobre repuestos se encuentra por separado en el Manual de Partes. Las cortadoras *Terrain King* utilizan componentes del sistema equilibrados y coincidentes para porta cuchillas, cuchillas, ejes de corte, hojas, ganchos para hojas, rodillos, componentes de los engranajes, y colijetes. Estas partes se fabrican y se prueban según las especificaciones de *Terrain King*. Las partes compatibles no genuinas no siempre cumplen con estas especificaciones. El uso de partes no genuinas puede perjudicar el desempeño de la cortadora, anular la garantía y presentar un riesgo para la seguridad. Use partes genuinas *Terrain King* para ahorrar dinero y maximizar la seguridad.

Para referencia futura, registre el número de modelo y el número de serie de *Terrain King* que ha adquirido.

Dueño		Fecha de compra:		Número de serie	
Distribuidor		Teléfono		Número de Modelo	



MANUAL DE OPERADOR

KSM60

**Cortadora/
Trituradora Giratoria
Y Desgranadora**



Video de Seguridad



www.algqr.com/kvs

Este Manual del Operador es una parte esencial de la operación segura de esta máquina y se debe mantener con la unidad siempre. LEA, ENTIENDA, Y SIGA las Instrucciones de Seguridad y Operación contenidas en este manual antes de operar el equipo.

Importantes instrucciones de operación y las instrucciones de seguridad se encuentran en el video Cortacésped Sobre Seguridad que se puede acceder instantáneamente en el internet en: www.algqr.com/kvs

C01-Cvr Kubota_SP

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Terrain King

1502 E. Walnut St.

Seguin, Texas 78155-5202

800-882-5756



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