

# **ALAMO** INDUSTRIAL **HYDRO 60 & 72** ROTARY MOWERS

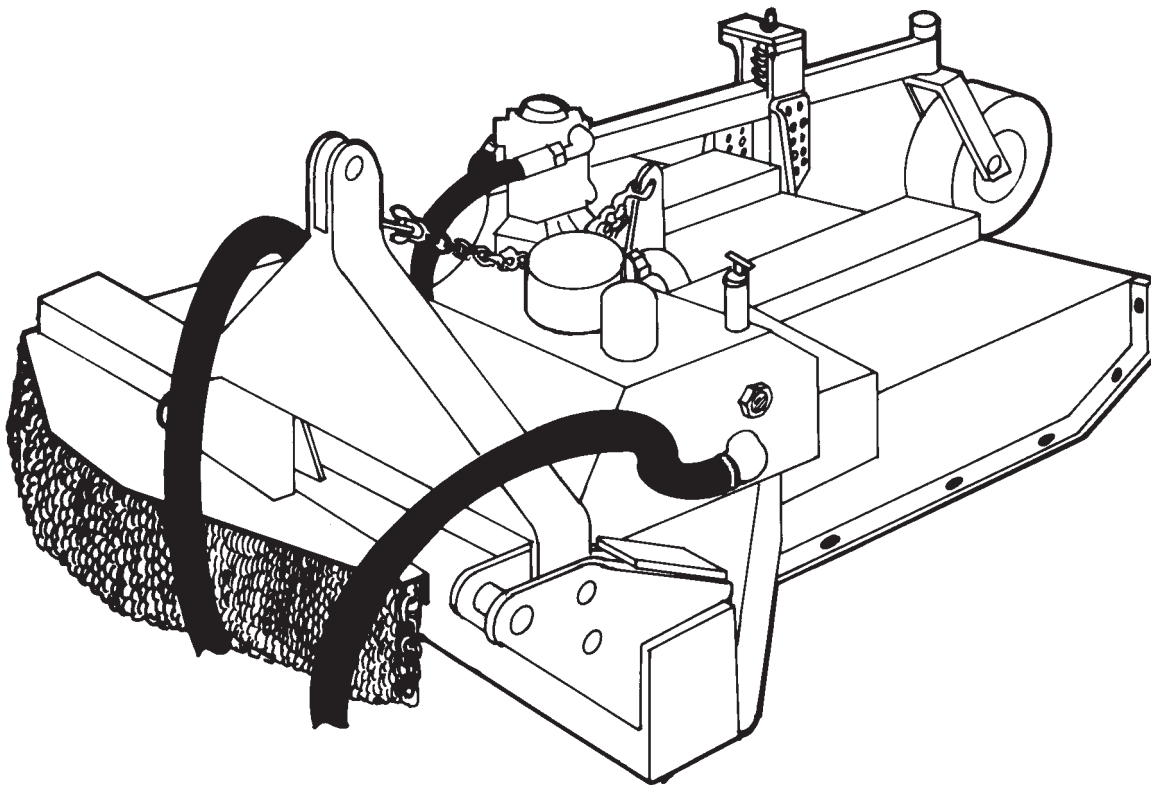
Published 04/03

Part No. 02965002C

## **OPERATOR'S MANUAL**



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.



**ALAMO INDUSTRIAL**

1502 E. Walnut  
Seguin, Texas 78155  
830-372-3551

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# TO THE OWNER/OPERATOR/DEALER

All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safe-minded operator who recognizes the potential hazards and follows reasonable safety practices. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

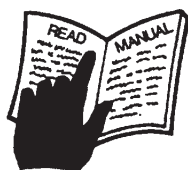
**BEFORE YOU START!!** Read the safety messages on the implement and shown in your manual.  
Observe the rules of safety and common sense!



# DANGER

**FAILING TO FOLLOW SAFETY MESSAGES AND OPERATING INSTRUCTIONS CAN CAUSE SERIOUS BODILY INJURY OR EVEN DEATH TO OPERATOR AND OTHERS IN THE AREA.**

1.



2. NO RIDERS. NO CHILDREN OPERATORS.



3. USE SAFETY SHOES, HARD HAT, SAFETY GLASSES, SEAT BELTS, ROPS & OPS



4. BLOCK UP SECURELY BEFORE WORKING UNDER.



1. Study and understand Operator's Manuals, Safety Decals, and Instructional Decals for tractor and implement to prevent misuse, abuse, and accidents. Practice before operating in a confined area or near passersby.

- Learn how to stop engine suddenly in an emergency. Be alert for passersby and especially children

2. Allow no children on or near folding mower or tractor. Allow no riders on tractor or implement. Falling off may cause serious injury or death from being run over by tractor or mower or contact with rotating blades.

3. Operate only with tractor having Roll-Over Protective Structure (ROPS) and with seat belt securely fastened to prevent injury and possible death from falling off or tractor overturn.

- Personal Protective Equipment such as Hard Hat, Safety Glasses, Safety Shoes, & Ear Plugs are recommended.

4. Block up or support raised machine and all lifted components securely before putting hands or feet under or working underneath any lifted component to prevent crushing injury or death from sudden dropping or inadvertent operation of controls. Make certain area is clear before lowering or folding

5. Before transporting, put Lift Lever in detent or full-lift position. Install Transport Safety Devices securely on folding mowers. Put Booms securely in Transport Rest.

- Folding and Boom Mowers have raised center of gravity. Slow down when turning and on hillsides.

6. Make certain that SMV sign, warning lights, and reflectors are clearly visible. Follow local traffic codes.

7. Never operate with Cutting Head or Folding Section raised if passersby, bystanders, or traffic are in the area to reduce possibility of injury or death from objects thrown by Blades under Guards or mower structure.

8. Before dismounting, secure implement in transport position or lower to ground.

- Put tractor in park or set brake, disengage PTO, stop engine, remove key, and wait until noise of rotation has ceased to prevent crushing by entanglement in rotating parts which could cause injury or death.

- Never mount or dismount a moving vehicle. Crushing from runover may cause serious injury or death.

5. TRANSPORT SAFELY, LOCK UP.



6. USE SMV, LIGHTS, & REFLECTORS.



7. DO NOT OPERATE WITH CUTTER OR WING RAISED.



8. DO NOT MOUNT OR DISMOUNT WHILE MOVING.



02987827

## WARRANTY INFORMATION:

Read and understand the complete Warranty Statement found in this Manual. Fill out the Warranty Registration Form in full and return it within 30 Days. Make certain the Serial Number of the Machine is recorded on the Warranty Card and on the Warranty Form that you retain. The use of "will-fit" parts will void your warranty and can cause catastrophic failure with possible injury or death.

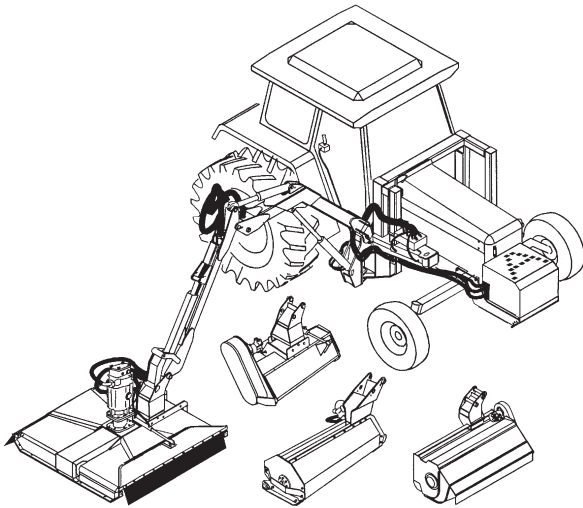


➤ **BE SAFE!**

➤ **BE ALERT!**

➤ **BE ALIVE!**

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



## *Safety Training Makes the Difference*

In order to reduce accidents and enhance the safe operation of mowers, *Alamo Industrial*, 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 *Alamo Industrial* 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 *Alamo Industrial*.

If you would like a VHS video tape of the video, please email [AEMVideo@alamo-group.com](mailto: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.

Alamo Industrial 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

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# **SAFETY SECTION**



# SAFETY

A safe and 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 safely and 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 serious injury or death from unsafe practices.**

## CAUTION!

The lowest level of Safety Message; warns of possible injury. Decals located on the Equipment with this Signal Word are Black and Yellow.



## WARNING!

Serious injury or possible death! Decals are Black and Orange.



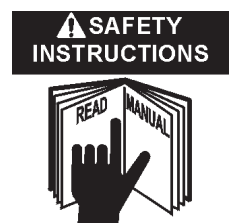
## DANGER!

Imminent death/critical injury. Decals are Red and White. (SG-1)



**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)



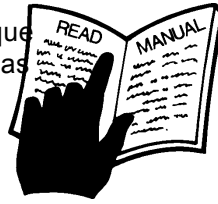
# SAFETY

SAFETY

## PELIGRO!



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

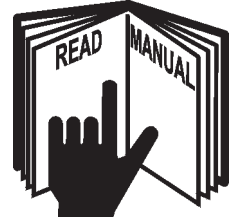


**¡ LEA EL INSTRUCTIVO!**

## 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 too operate the Tractor and Implement without supervision. Make sure the operator has fully read and understood the manuals prior to operation. (SG-4)



## WARNING!



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

## WARNING!



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)



## WARNING!



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)



## WARNING!

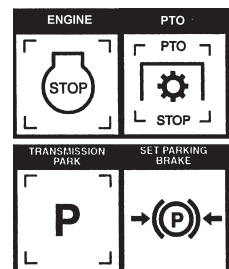


Do not modify or alter this Implement. Do not permit anyone to modify or alter this Implement, any of its components or any Implement function. (SG-8)

## DANGER!



BEFORE leaving the tractor seat, always engage the 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!



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



# SAFETY

## SAFETY

### DANGER!



Never allow children to operate or ride on the Tractor or Implement. (SG-11)



### WARNING!



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



### 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)



### DANGER!



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)



### DANGER!



Do not operate this Equipment with hydraulic oil leaking. Oil is expensive and its presence could present a hazard. Do not check for leaks with your hand! Use a piece of heavy paper or cardboard. High-pressure oil streams from breaks in the line could penetrate the skin and cause tissue damage including gangrene. If oil does penetrate the skin, have the injury treated immediately by a physician knowledgeable and skilled in this procedure. (SG-15)



### WARNING!



The operator and all support personnel should wear hard hats, safety shoes, safety glasses, and proper hearing protection at all times for protection from injury including injury from items thrown by the equipment. (SG-16)



# SAFETY

## SAFETY

### CAUTION!



**PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!** Tractors with or without an Implement attached can often be noisy enough to cause permanent hearing loss. We recommend that you always wear hearing protection if the noise in the Operator's position exceeds 80db. Noise over 85db over an extended period of time will cause severe hearing loss. Noise over 90db adjacent to the Operator over an extended period of time will cause permanent or total hearing loss. *Note:* Hearing loss from loud noise [from tractors, chain saws, radios, and other such sources close to the ear] is cumulative over a lifetime without hope of natural recovery. (SG-17)



### WARNING!



Transport only at safe speeds. Serious accidents and injuries can result from operating this equipment at unsafe 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 safe transport speeds for you and the equipment. Make sure you abide by the following rules:

1. 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 safe transport speed for you and this Equipment.
2. Test the equipment at a slow speed in turns. Increase the speed through the turn only after you determine that it is safe to operate 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 safe turning speed for you and this equipment before operating on roads or uneven ground.
3. Only transport the Tractor and Implement at the speeds that you have determined are safe and which allow you to properly control the equipment.

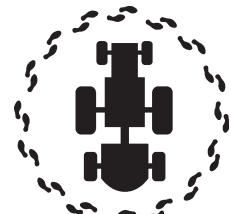


Be aware of the operating conditions. Do not operate the Tractor with weak or faulty brakes. When operating down a hill or on wet or rain slick roads, the braking distance increases: use extreme care and reduce your speed. When operating in traffic always use the Tractor's flashing warning lights and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

### 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)



### WARNING!



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



# SAFETY

## SAFETY

### WARNING!



Always read carefully and comply fully with the manufacturers instructions when handling oil, solvents, cleansers, and any other chemical agent. (SG-22)



### DANGER!



Never run the tractor engine in a closed building or without adequate ventilation. The exhaust fumes can be hazardous to your health.

(SG-23)

### DANGER!



KEEP AWAY FROM ROTATING ELEMENTS to prevent entanglement and possible serious injury or death.

(SG-24)



### 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. Children can cause the Implement to shift or fall crushing themselves or others. (SG-25)

### WARNING!



Do not exceed the rated PTO speed for the Implement. Excessive PTO speeds can cause Implement driveline or blade failures resulting in serious injury or death. (SG-26)

### DANGER!



**NEVER 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)



### 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)

### WARNING!



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 100 yards 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 this type of items discontinue mowing. (SGM-1)

### WARNING!



Mow at the speed that you can safely operate and control the tractor and mower. Safe mowing speed depends on terrain condition and grass type, density, and height of cut. Normal ground speed range is from 0 to 5 mph. 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-7)



# SAFETY

## DANGER!



There are obvious and hidden potential hazards in the operation of this Mower. REMEMBER! This machine is often operated in heavy brush and in heavy weeds. The Blades of this Mower can throw objects if shields are not properly installed and maintained. Serious injury or even death may occur unless care is taken to insure the safety of the operator, bystanders, or passersby in the area. Do not operate this machine with anyone in the immediate area. Stop mowing if anyone is within 100 yards of mower. (SGM-2)



SAFETY

## DANGER!



The rotating parts of this machine have been designed and tested for rugged use. However, the blades could fail upon impact with heavy, solid objects such as metal guard rails and concrete structures. Such impact could cause the broken objects to be thrown outward at very high velocities. To reduce the possibility of property damage, serious injury, or even death, never allow the cutting blades to contact such obstacles. (SGM-4)

## WARNING!



Extreme care should be taken when operating near loose objects such as gravel, rocks, wire, and other debris. Inspect the area before mowing. Foreign objects should be removed from the site to prevent machine damage and/or bodily injury or even death. Any objects that cannot be removed must be clearly marked and carefully avoided by the operator. Stop mowing immediately if blades strike a foreign object. Repair all damage and make certain rotor or blade carrier is balanced before resuming mowing. (SGM-5)



## 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-6)

## WARNING!



Avoid mowing in reverse direction when possible. Check to make sure there are no persons behind the mower and use extreme care when mowing 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-8)

## WARNING!



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-9)



## DANGER!



Replace bent or broken blade with new blades. NEVER ATTEMPT TO STRAIGHTEN OR WELD ON BLADES SINCE THIS WILL LIKELY CRACK OR OTHERWISE DAMAGE THE BLADE WITH SUBSEQUENT FAILURE AND POSSIBLE SERIOUS INJURY FROM THROWN BLADES. (SGM-10)

## WARNING!



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

# SAFETY

## SAFETY

### DANGER!



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



### STOP MOWING IF PASSERSBY ARE WITHIN 100 YARDS 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;
- Passerby 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, eliminate streaking, and make the final cut more uniform.) (SRM-1)

### DANGER!



Use extreme caution when raising the Mower head. Stop the Blades from turning when the Mower Head is raised and passersby are within 100 yards. Raising the Mower head exposes the Cutting Blades which creates a potentially serious hazard and can cause serious injury by objects thrown from the Blades or by contact with the Blades. (SBM-2)

### WARNING!



The rotating parts of this machine continue to rotate even after the Tractor has been turned off. The operator should remain in his seat for 60 seconds after the brake has been set, the PTO disengaged, the tractor turned off, and all evidence of rotation has ceased. (SBM-5)

**“Wait a minute...Save a life!”**

### WARNING!



Never leave Tractor and Implement unattended while the implement is in the lifted position. Accidental operation of lifting lever or a hydraulic failure may cause sudden drop of unit with injury or death by crushing. To properly park the implement when disconnecting it from the tractor, lower the stand and put the retaining pin securely in place, or put a secure support under the A-Frame. Lower the implement carefully to the ground. Do not put hands or feet under lifted components. (SPT-1)

### WARNING!



Be particularly careful when transporting the Implement with the Tractor. Turn curves or go up hills only at a low speed and using a gradual steering angle. Rear mounted implements move the center of gravity to the rear and remove weight from the front wheels. Make certain, by adding front ballast, that at least 20% of the tractor's weight is on the front wheels to prevent rearing up, loss of steering control or Tractor tip-over. Slow down on rough or uneven surfaces to prevent loss of steering control which could result in property damage or possible injury. Do not transport unless 3-Point lift lever is fully raised and in the latched transport position. Dropping implement in transport can cause serious damage to the tractor and/or Implement and possibly cause the operator or others to be injured or killed. (S3PT-2)

# SAFETY

SAFETY

## DANGER!



There are obvious and hidden potential hazards in the operation of this Implement as in all power-driven or pulled equipment. **REMEMBER!** This machine is often operated in rough terrain conditions that include tall grass, weeds, gullies, holes, slopes, hidden obstructions and the like. Serious injury or even death may occur unless care is taken to assure the safety of the operator and bystanders in the area. Do not operate this machine with anyone in the immediate area. (S3PT-7)

## WARNING!



Relieve hydraulic pressure prior to doing any maintenance or repair work on the Implement. Place the Implement on the ground or securely blocked up, disengage the PTO, and turn off the tractor engine. Push and pull the Remote Cylinder lever in and out several times prior to starting any maintenance or repair work. (S3PT-9)



## DANGER!



This Implement is wider than the Tractor. Be careful when operating or transporting this equipment to prevent the Implement from running into or striking sign posts, guard rails, concrete abutments or other solid objects. Such an impact could cause the Implement and Tractor to pivot violently resulting in loss of steering control, serious injury, or even death. Never allow the Implement to contact obstacles. (S3PT-12)

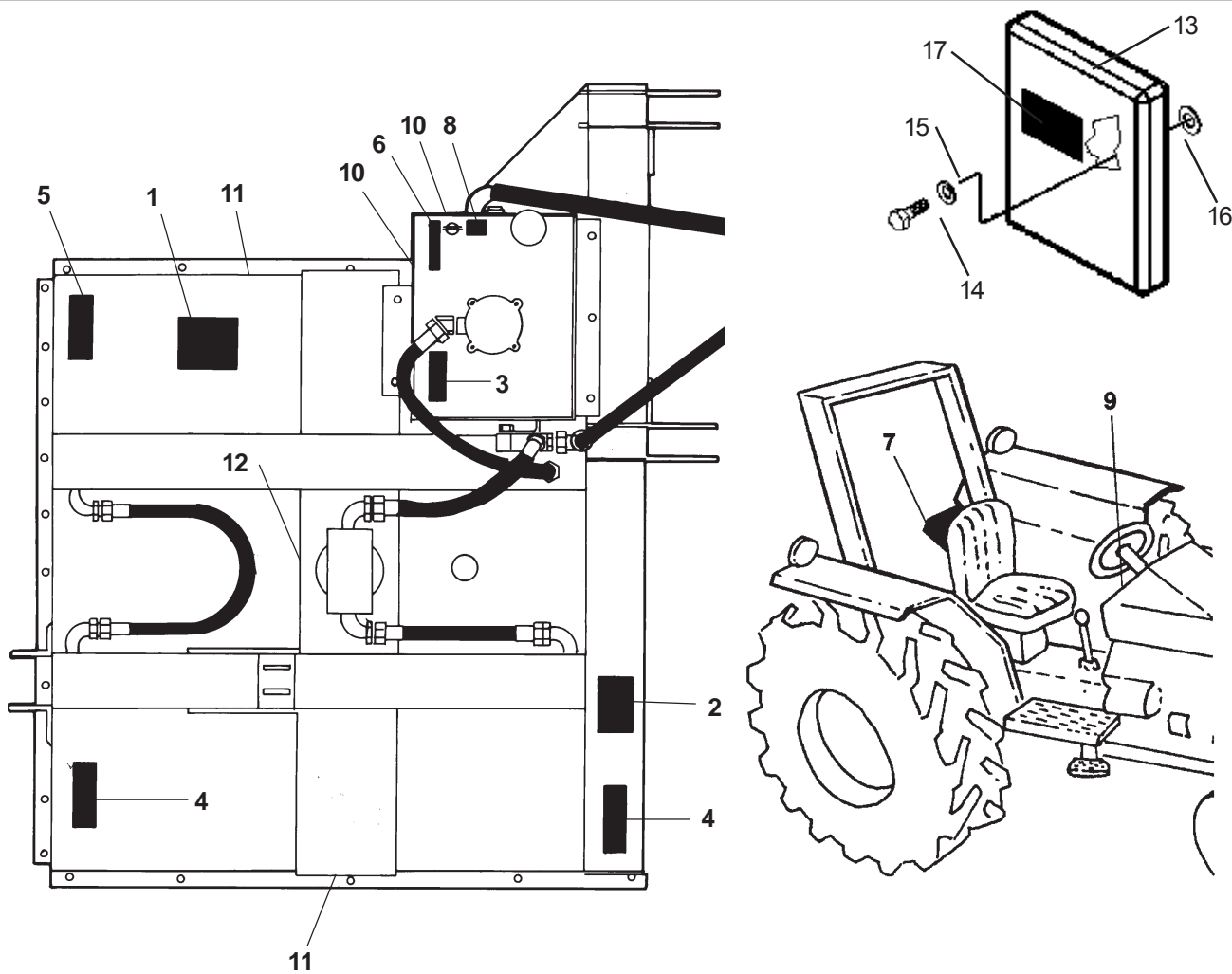
In addition to the design and configuration of this Implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the Tractor and Equipment Manuals. Pay close attention to the Safety Signs affixed to the Tractor and Equipment. (SG-18)

## 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

## SAFETY



ITEM	PART NO.	QTY	TYPE	DESCRIPTION
1	00749117	1	DANGER	Multi-Hazard
2	00756007	1	WARNING	Use/Repair Shields/Guards
3	00756059	1	DANGER	Oil Penetration
4	00756485	2	DANGER	Cutting Blades/Thrown Obj.
5	02925100	1	IMPORTANT	Use Genuine Parts
6	02971123	1	WARNING	Pressurized Tank
7	03200347	*	WARNING	SMV Sign
8	02966307	1	INSTRUC	Use Universal Tractor Hydraulic Oil
9	02965093	1	INSTRUC	Do Not Overspeed engine
10	001650	2	LOGO	Alamo Logo (7.25 x 7.5)
11	00757139	2	LOGO	Alamo Product (5 x 19)
12	nfs	1	SER PLT	Hydro60 Serial Plate
13	02977385	1	-----	Canister, Operators Manual
14	10058000	4	-----	Bolt
15	00017000	4	-----	Lockwasher
16	00024100	4	-----	Flatwasher
17	02977417	1	INSTRUCT	Decal - Oper. Man. Inside
18	02965002C	1	-----	Operators Manual
19	02977046	1	-----	EMI Manual

\* Provided by tractor manufacturer

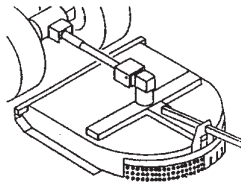
# SAFETY

PART NO. 00749117 Not Shown (See inside front cover of manual.)

## WARNING

WHENEVER THIS MACHINE IS OPERATED IN ANY AREA WHERE THROWN OBJECTS COULD INJURE PERSONS OR PROPERTY, **SAFETY SHIELDING** MUST BE INSTALLED AND IN GOOD REPAIR TO REDUCE THE POSSIBILITY OF INJURY FROM THROWN OBJECTS.

**CHAIN GUARDS, SOLID BANDS, RUBBER FLAPS, AND OTHER GUARDS ARE SUBJECT TO WEAR AND LOST OR BROKEN PIECES. IT IS THE OPERATOR'S RESPONSIBILITY TO SEE THAT THESE ITEMS OF SAFETY EQUIPMENT ARE REPAIRED AND/OR REPLACED AS SOON AS DAMAGE OCCURS, OR YOU WILL BE OPERATING MACHINE THAT IS IN AN UNSAFE CONDITION.**



00756007

PART NO. 00756007 WARNING Use/Repair Shields/Guards

## WARNING

USE PAPER OR CARDBOARD TO CHECK FOR LEAKS. **NEVER USE YOUR HAND.** IF OIL PENETRATES SKIN, GANGRENE OR OTHER SERIOUS INJURY COULD OCCUR. **GET IMMEDIATE MEDICAL ATTENTION.**

See Operator's Manual.



00756059

PART NO. 00756059 DANGER Oil Penetration

## DANGER

CUTTING BLADES

THROWN OBJECTS



FLAIL



ROTARY



FLAIL



ROTARY

### KEEP AWAY - ROTATING BLADES

SERIOUS INJURY OR DEATH CAN RESULT FROM THROWN OBJECTS OR BLADE CONTACT.

- \* STOP MOWING IF PERSONS ARE NOT CLEAR OF THROWN OBJECTS.
- \* DO NOT STAND ON OR NEAR MACHINE WHEN IN OPERATION.
- \* DO NOT OPERATE WITH DEFLECTORS OR GUARDS REMOVED. 00756485

PART NO. 00756485 DANGER Cutting Blades/Thrown Obj.



## SAFETY

SAFETY

# IMPORTANT

For your safety and to guarantee optimum product reliability, always use Genuine ALAMO INDUSTRIAL replacement parts. The use of inferior "will-fit" parts will void Warranty of your ALAMO INDUSTRIAL implement and may cause premature or catastrophic failure which can result in serious injury or death. If you have any questions concerning the repair parts you are using, contact ALAMO INDUSTRIAL, 1502 E. Walnut Seguin, TX 78155 (830) 372-3551.



02925100

PART NO. 02925100 CAUTION Use Genuine Parts

## **⚠ WARNING: PRESSURIZED TANK**

- 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 tank that is still pressurized and may cause serious injury to eyes, face, and exposed skin.

02971123

PART NO. 02971123 WARNING Pressurized Tank

## ATTENTION

02966305

SERVICE HYDRAULIC SYSTEM  
WITH UNIVERSAL TRACTOR  
HYDRAULIC OIL.

PART NUMBER 02966305

PART NO. 02966305 INSTRUC Use Universal Tractor Hydraulic Oil

### ATTENTION!

TO PREVENT PREMATURE HYDRAULIC COMPONENT FAILURE, DO NOT OVERSPEED ENGINE. WHEN USING THE MOWER ATTACHMENT, OPERATE TRACTOR AT THE ENGINE SPEED WHICH WILL DELIVER 540 PTO RPM ON THE TACHOMETER. OVERSPEEDING THE ENGINE AND PUMP WHEN OPERATING THE MOWER WILL OVERHEAT AND RAPIDLY RUIN THE OIL WHICH WILL DECREASE THE LIFE OF HYDRAULIC COMPONENTS

02965093

# 02965093 INSTRUC Do Not Overspeed engine

## OPERATOR'S MANUAL INSIDE

### READ & UNDERSTAND

Before Operating Tractor & Implement



If Manual is missing, obtain one before operating from Dealer or ALAMO INDUSTRIAL, 1502 E. Walnut, Seguin, TX 78155. Customer Service 800-356-6286



02977417

# 02977417 INSTRUC Operators Man. Inside

HYDRO 60 & 72 04/03

Safety Section 1-12

# 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 Regulations

OSHA regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved."

### Employer Responsibilities:

To ensure employee safety during Tractor and Implement operation, it is the employee'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 mowing if bystanders or passerbys come within 100 yards.

### 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

## INTRODUCTION

This Rotary Mower is designed with care and built with quality materials by skilled workers. Proper assembly, maintenance, and operating practices, as described in this manual, will help the owner/operator get years of satisfactory service from the machine.

The purpose of this manual is to familiarize, and instruct. 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.

Careful use and timely service saves extensive repairs and costly downtime losses. The Operation and Maintenance Sections of the manual train the owner/operator how to work the Mower correctly and attend to appropriate maintenance. The Trouble Shooting Guide helps diagnose difficulties with mower and offers solution to the problems.

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.

**CAUTION** The lowest level of Safety Message; warns of possible minor injury. Decals located on the Mower with this Signal Word are Black and Yellow.



**WARNING** Serious injury or possible death! Decals are Black and Orange.



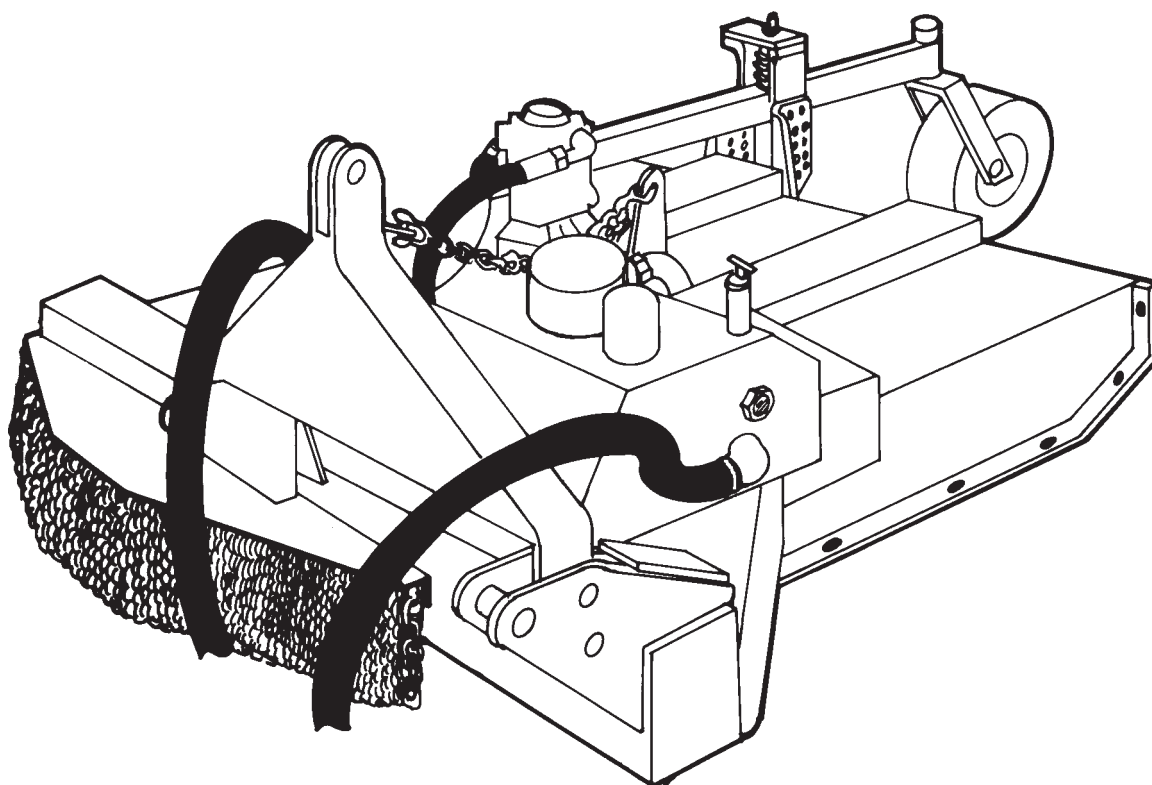
**DANGER** Imminent death/critical injury. Decals are Red and White.





# INTRODUCTION

## INTRODUCTION



These rugged Mowers are designed for medium-duty work. They can mow pastures, cut brush up to 2" in diameter, and control grass and weeds on highways or industrial sites.

### **DANGER**



For Non-Agricultural use, OSHA, ASAE, SAE, and ANSI standards require the use of Chain Guards, Deflectors, or Solid Skirts at all times. The Mower manufacturer strongly recommends the use of Chain Gaurds, Deflectors, or Solid Skirts for Agricultural purposes as well to reduce the risk of property damage, serious bodily injury, or even death from objects thrown out by or from contact with the Cutting Blades.

### **WARNING**



At least 20% of the tractor's total weight must be on the front tires with the Mower lifted to provide adequate traction for safe steering under good conditions. Slow down on hills, rough terrain, and curves.

Front and rear, and left and right are determined by the normal direction of travel (the same as on your automobile).

# 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 Mower.
2. Fill out the Warranty Card in full. Be sure to answer all questions, including the Serial Number of the Mower. 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 Alamo Group within thirty days of delivery of the mower.*

3. Record the Mower 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 Mower.

# **ASSEMBLY SECTION**

# ASSEMBLY

The HYDRO 60 & 72 Mower will attach to most tractors with Cat. II Hitch and 540 PTO RPM.

## DEALER SET-UP INSTRUCTIONS

Assembly of this mower is the responsibility of the Alamo dealer. The mower should be delivered to the owner completely assembled, lubricated, and adjusted for normal cutting conditions.

Set up mower as received from the factory with these instructions. Open parts box and lay parts out to make location easy. Refer to the parts lists and exploded view drawings for more detail.

This mower is shipped partially assembled. Assembly will be easier if components are aligned and loosely assembled before tightening hardware.

**CAUTION!** Always use personal protection devices such as eye, ear and feet protectors during assembly.



### A-FRAME ASSEMBLY (FIGURE 1)

1. Attach the A-Frame (1) to the Mower with Pins (3) & Clips (4) and Nut (8) and Bolt (9).
2. Attach the Chain (5) to the A-Frame(1) and Mower Deck with Shackle (2) and Nut (7) and Bolt (6).

Assembly of the A-Frame is complete.

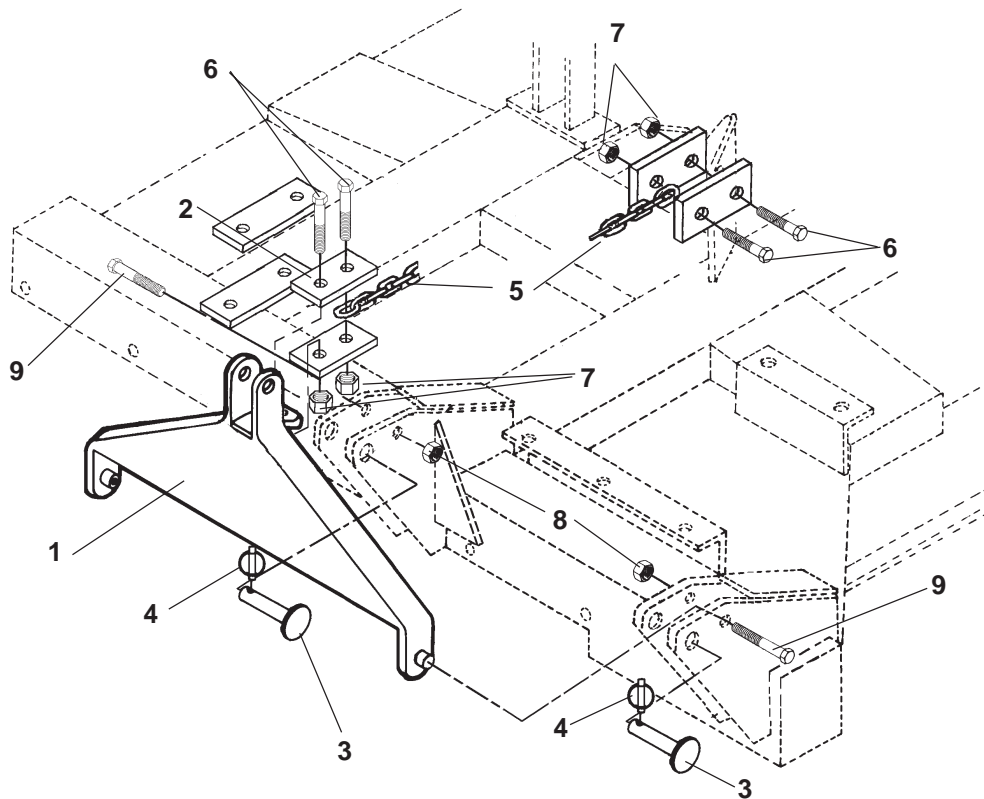


Figure 1. A-Frame Attachment

# ASSEMBLY

## TAIL WHEEL ASSEMBLY (FIGURE 2)

1. Attach the Tail Wheel (1) to the Mower Deck with 1/2 x 6-1/2 bolt (3) and 1/2 x 3-3/4 bolt (2) retain with 1/2 locknuts (4). Tighten all capscrews per torque chart in Maintenance section.

Assembly of the Tail Wheel is complete.

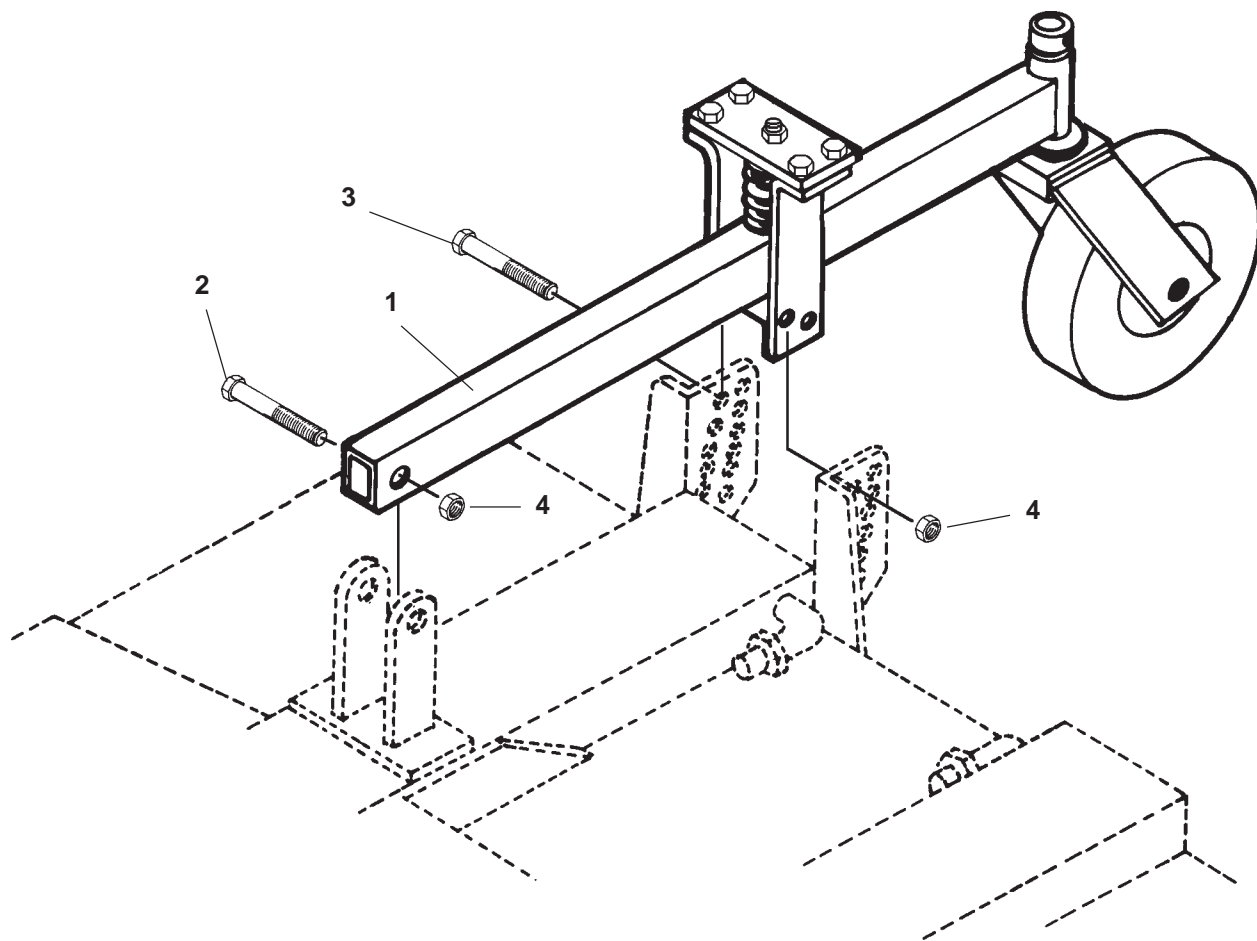
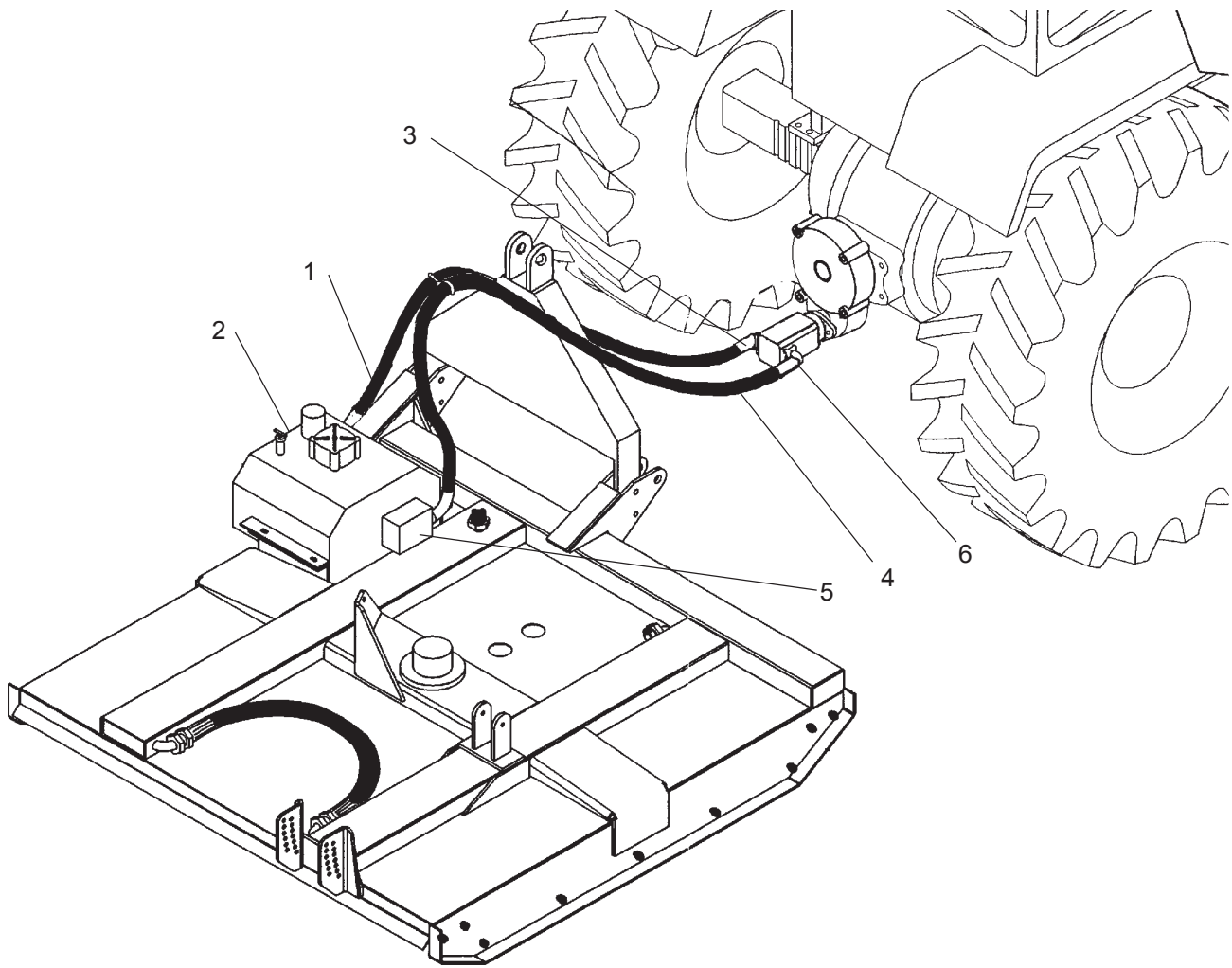


Figure 2. Tail Wheel Attachment

ASSEMBLY

# ASSEMBLY

## ASSEMBLY



**Figure 3. Hose Routing**

### **HOSE ROUTING (FIGURE 3)**

Attach the Return Hose (1) P/N #02964745 to the output sides (2) of the Hydraulic Tank Assembly and the input (3) side of the Pump

Attach the Output Hose(4) P/N # to the input sides (5) of the Hydraulic Tank Assembly and the output side (6) Pump.

The Hose Attachment is complete

# **OPERATION SECTION**

# OPERATION

## OPERATION

### START-UP INSTRUCTIONS

1. Read all safety instructions. Decals on the Mower warn you of particular and multiple hazards. Some decals are attached close to part of the Mower where there is a possible hazard. Read and make sure you understand the safety messages before you operate the HYDRO 60 & 72. Keep all decals clean and readable. Replace lost or damaged decals.
2. Before operating, read all the safety and operating instructions in the Operator's Manual for both the tractor and mower.
3. Power for operating the mower is supplied from the tractor PTO. Refer to your tractor manual instructions for engaging and disengaging the PTO. Start the tractor and idle at a slow engine speed until oil is being pumped. Always engage the PTO at low engine RPM and run the mower for a short period until all air is removed from the hoses. Keep all person's well clear of mower since blades can throw objects with great velocity for a considerable distance! KEEP CLEAR!
4. Check the fluid level in the Hydraulic Tank and add oil if required. As the air has been forced out of the 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 the 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. Fill with universal tractor hydraulic oil.
5. Basic trouble shooting guide for first start-up.
  - a. Pump is making noise - check for obstruction in suction hose and tank suction assembly, check alignment of pump driveshaft.

### STOPPING INSTRUCTIONS

**IMPORTANT:** Stop mower and tractor immediately upon striking an obstruction. Inspect the cutter and repair any damage before resuming operation. **Do not disengage PTO when engine is at full PTO RPM. Always idle engine before disengaging PTO.**

#### WARNING!



Avoid personal injury. When attempting to stop a tractor which does not have live PTO, the momentum created by the blade carrier of a rotary mower can cause the tractor to be pushed forward. DO NOT operate this mower unless tractor has live or independent PTO.

To commence operation, reduce engine speed and engage the tractor PTO. Before starting to cut, gradually increase engine speed until PTO is turning at 540 RPM to prevent overloading of components.

#### DANGER!



Chain guards must be installed if operating with people or livestock in the area or close to highways or buildings and in all non-agricultural operations.

Enter the area to cut with the mower operating at PTO speed and, if it becomes necessary to temporarily regulate engine speed during operations, increase or decrease the throttle gradually.



# OPERATION

## OPERATING INSTRUCTIONS

1. Engage the PTO shaft at low engine RPM and speed the engine up after blades are fully engaged. Never engage the PTO shaft at a high engine RPM. This could cause damage to the PTO shaft as well as the Speed Increaser and Pump. Always operate PTO at the recommended RPM when mowing. This is necessary to maintain proper blade speed and to produce a clean cut.
2. Proper ground speed for cutting will depend upon the height, type, and density of material to be cut. Normally, ground speed will range from 2 to 5 mph. Tall dense material should be cut at low speed while thin medium height material can be cut at a faster ground speed.
3. Always run the Mower at the highest position which will enable you to obtain the desired cutting results. Allowing the blades to cut into the ground will cause wear and undue strain on the mower frame and mower components.
4. If you are mowing in conditions of heavy growth or rough ground where the blades cut into the ground and the tractor engine slows down, do not depress the clutch on the tractor to allow the engine to speed up and engage the clutch again. This procedure exerts tremendous strain on Mower components. Always disengage the PTO and move forward or backwards until the machine is clear.
5. This mower is designed with free swinging blades. This feature reduces the amount of shock transmitted to other components. Always make sure the blades can swing freely on the blade bar.
6. When cutting foliage and fine shredding is desired, run the mower level or slightly lower in the rear so as to keep the material in the mower until it is shredded. This will require more power but will shred better. When cutting heavy foliage and fine shredding is not desired, raise the rear of the mower 1/4 to 1/2 inch. This will allow the high volume of material to be discharged and requires much less power.
7. Do not ride the clutch on the tractor. Mow in the appropriate gears to give the correct ground speed.

As often as possible, stop mowing when other people are passing by. Although the Mower is shielded to prevent objects from being thrown out by the blades, no one shield device is 100% effective. The safest possible course is the only sensible approach to the problem of endangering a passerby. The operator has greater knowledge of the dangers of being around this Mower while it is operational than the person on the street.

### WARNING!



Avoid personal injury. Pick up all rocks and other debris before cutting. Enter new areas carefully. Cut material higher the first time to allow cutter to clear unseen objects. Never assume an area is clear. Always check.

Extremely tall grass should be cut twice. Raise mower and cut twice the desired height. Cut the second time at desired height at 90 degrees to first pass.

**Remember, sharp blades produce cleaner cuts and use less power.**

Before cutting, analyze the area to determine the best cutting procedure. Consider the height and type of material and the terrain type: hilly, level or rough.

# OPERATION

## TROUBLESHOOTING GUIDE

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
Excessive Vibration	1. Check for loose nuts on bladeholder and blades.	Tighten if loose.
	2. Check to see if blades are free swinging.	Free Blades so they swing.
	3. Check for even wear on each blade tip. Were both blades changed at the same time?	Weigh Blades. Weight should be within 1 oz. Always replace both blades.
	4. Blade broken.	Replace blades, in set.
	5. Blade carrier bent.	Replace carrier.
	6. New blade or bolts matched with worn blade or bolts.	Replace blades or bolts in sets.
Not Cutting Clean	1. Blades dull.	Sharpen or replace blades.
	2. Carrier RPM too low.	Use correct PTO speed and check for correct speed changer ratio. See specifications.
	3. Cutter not level.	See Cutting Height Adjustment.
	4. Ground speed too fast.	Reduce ground speed by shifting to a lower gear.
	5. Blades locked back.	Free blades.
	6. Blades riding up due to blade bolt wear or loose bolts.	Replace blade bolts.

# OPERATION

## TROUBLESHOOTING GUIDE

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
Streaking Conditions	1. Conditions too wet for cutting.	Allow grass to dry before cutting. Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower may help.
	2. Dull blades.	Sharpen or replace blades.
	3. Height of cutter lower at rear or front.	See Cutting Height Instructions.
Blade Bolts	1. Bolts not tightened.	Tighten bolts to 350 ft.lbs.
	2. Bolt hole elongated or oversized.	Replace Bushing or Blade Carrier.
	3. Locknut worn out.	Replace Locknut.
Blades Wears Too Fast	1. Cutting in sandy conditions.	Increase cutting height.
	2. Cutting in rocky conditions.	Increase cutting height.



# **MAINTENANCE SECTION**

# MAINTENANCE

Before operating your HYDRO 60 & 72, make sure it is properly lubricated and thoroughly inspected. Only a minimum of time and effort is required to regularly lubricated and maintain this machine to provide long life and trouble free operation.

## LUBRICATION INFORMATION

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.

## LUBRICATION

The HYDRO 60 & 72 must be serviced daily to achieve the best operation and longest life. Good quality grease from a hand grease gun in all grease fittings should be sufficient.**FIGURE 1.**

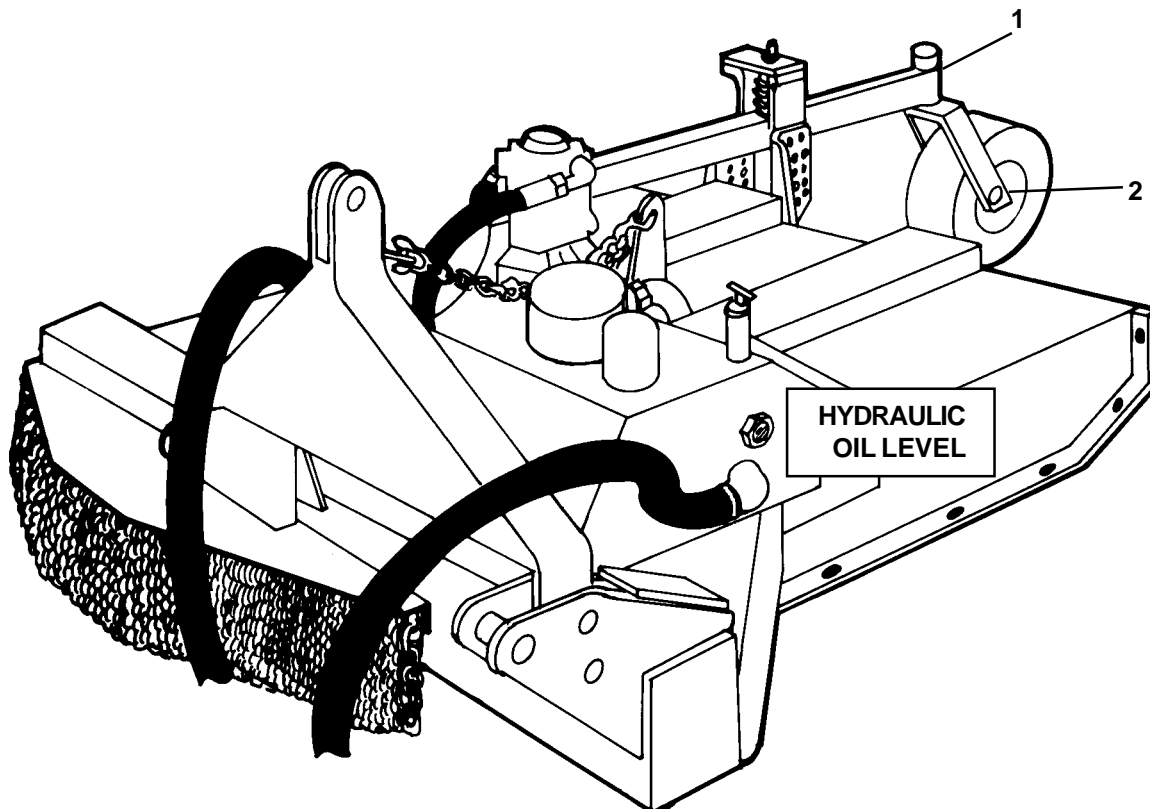


FIGURE 1

ITEM	DESCRIPTION	FREQUENCY
1	Tailwheel Pivot	10 Hours
2	Wheel Hub	Weekly

# MAINTENANCE

## HYDRAULIC OIL, FILTERS, AND COMPONENTS

Filters and Oil - Change the return filter in the tank after the first 200 hours of operation. Change the filters again at 800 hours; then, change the oil and filters at 1600 hours. After that, continue to change the filter every 800 hours and the oil every 1600 hours. Hydraulic oil to be universal tractor hydraulic oil. Use SAE 90 wt. in Speed Increaser. Use the above procedures as part of a good filter maintenance program.

Keep all hoses and adapters tight. Repair any leaks immediately. Do not overtighten hose end fittings.

Tighten to specifications only. **FIGURE 2.**

Check the hydraulic oil level daily.

## PROPER OIL LEVEL

Maintain the oil level within the sight gauge located on the side of the reservoir. Never fill the tank above the sight gauge level. A space is maintained 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. Fill with 15W40CD or equivalent.

**Speed Increaser** - Oil in the speed changer should be maintained up to the level plug located about 1/3 of the way up on either side of the speed changer. use an SAE EP 90 wt. oil.

### RECOMMENDED HOSE END TORQUE VALUES FOR 37 DEGREE ANGLE STEEL HOSE END FITTINGS

DASH SIZE	NOMINAL SIZE (IN.)	TORQUE (IN.LBS.)	VALUE* (FT.LBS.)
-4	1/4	140	12
-6	3/8	230	19
-8	1/2	450	38
-10	5/8	650	54
-12	3/4	900	75
-16	1	1200	100
-20	1-1/4	1600	133
-24	1-1/2	2000	167
-32	2	2800	233

\* Straight threads do not always seal better when higher torques are used. Too much torque causes distortion and may lead to leakage.

**FIGURE 2**

# MAINTENANCE

## BLADE SERVICING

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

**IMPORTANT!** When sharpening blades, grind each blade the same amount to maintain balance. The difference in blade weights should not exceed 1 ounce. Unbalanced blades will cause excessive vibration which can damage gear box bearings. Vibration may also cause structural cracks in the mower.

### WARNING!



Use only original equipment blades on this mower. They are made of special heat-treated alloy steel. Substitute blades may not meet specifications and may fail in a hazardous manner that could cause injury.

**IMPORTANT!** When changing Blades always replace the Blade Bolt & Blade Nut at the same time. Reuse of Blade Bolts or Nuts could fail in a hazardous manner that could cause injury.

## BLADE SHARPENING

Always sharpen both blades at same time to maintain balance. Follow original sharpening pattern as shown in **Figure 3**. Always sharpen blades by grinding. DO NOT heat and pound out edge. Do not sharpen blade to a razor edge, but leave a 1/16" blunt edge. Do not sharpen back side of blade.

### WARNING!



Avoid personal injury. Always block the mower up to prevent it from falling when the blades and/or carrier are being serviced.

### WARNING!

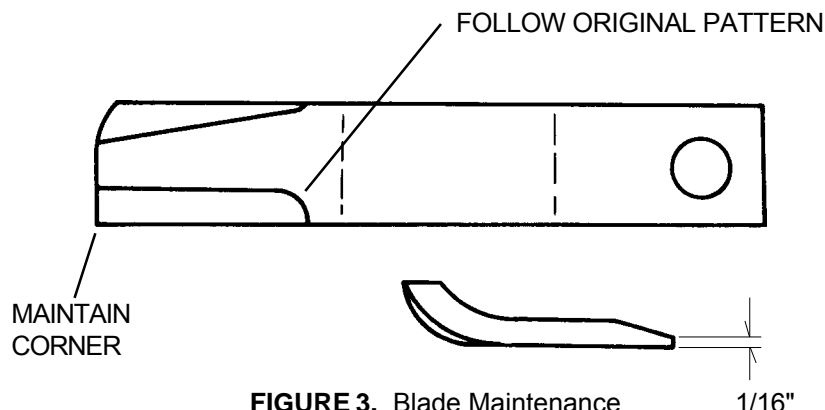


Avoid Personal injury. Always wear safety glasses and face protection when grinding blades.

### DANGER!



Replace bent or broken blade with new blades. NEVER ATTEMPT TO STRAIGHTEN OR WELD ON BLADES SINCE THIS WILL LIKELY CRACK OR OTHERWISE DAMAGE THE BLADE WITH SUBSEQUENT FAILURE AND POSSIBLE SERIOUS INJURY FROM THROWN BLADES. (SGM-10)



**FIGURE 3.** Blade Maintenance

1/16"



# MAINTENANCE

## BLADE REMOVAL FOR SHARPENING

To remove blades for sharpening or replacement, remove the cover plate on deck of mower near Hydraulic Motor. Remove lock nut from blade bolt. Always replace nut when replacing blade bolt. Replace bolt if worn more than 1/8" inch at any point. Always replace bolt and nut when installing new blades. Tighten lock nut to 350 ft. lbs.

### WARNING!



Avoid personal injury. Blade and/or blade carrier removal should be done only with the tractor engine shut off, key removed, in neutral, parking brake on, and PTO disengaged and the mower blocked in the raised position.

## BLADE CARRIER REMOVAL

Support the blade carrier before removing the four bolts. Use an Allen Wrench and loosen the four socket headed bolts. Do not remove the bolts until all four have been loosened several revolutions.

## BLADE CARRIER INSTALLATION

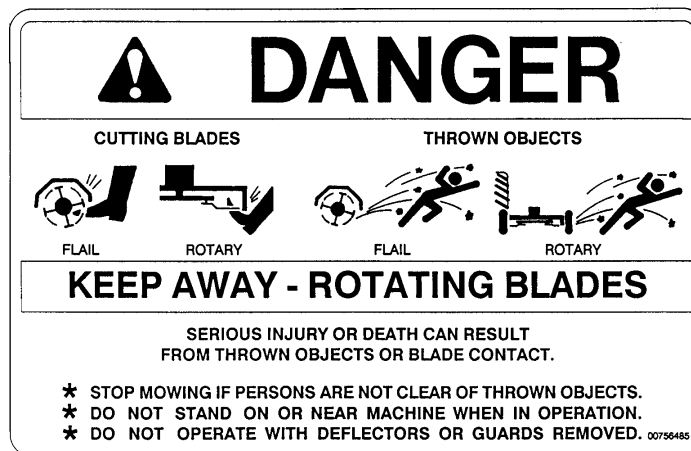
To install blade carrier place the carrier in position and start each of the four socket headed bolts. Be sure to use locktight or thread adhesive on each of the four bolts. Tighten in a crossing pattern until each bolt is torqued to 450 ft. lbs.

**IMPORTANT!** Always recheck spindle output shaft slotted blade carrier retaining nut torque after a few hours operation.

### WARNING!



Avoid personal injury. Do not work under mower without support blocks to keep frame from falling.



# MAINTENANCE

## STORAGE

Your rotary mower represents an investment from which you should get the greatest possible benefit. Therefore, when the season is over, the cutter should be thoroughly checked and prepared for storage so that a minimum amount of work will be required to put it back into operation for the next season. The following are suggested storage procedures:

1. Thoroughly clean the cutter.
2. Lubricate the cutter as covered in Maintenance Section.
3. Tighten all bolts and pins to the recommended torque.
4. Check the cutter for worn or damaged parts. Make replacements immediately.
5. Store the cutter in a clean, dry place with the cutter housing resting on blocks.
6. Use spray touch-up enamel where necessary to prevent rust and maintain the appearance of the cutter.




## 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.

**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.

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

Proper Torque values for bolts that are measured in Inches

Bolt Diameter	 Head Marking No Marks Grade Two	 Head Marking Three Lines Grade Five	 Head Marking Six Lines Grade Eight
	Pound - Foot Value Dry	Pound - Foot Value Dry	Pound - Foot Value Dry
1/4"	5.5	9	12.5
5/16"	11	18	26
3/8"	20	33	46
7/16"	32	52	75
1/2"	50	80	115
9/16"	70	115	160
5/8"	100	160	225
3/4"	175	280	400
7/8"	175	450	650
1"	270	675	975
1-1/8"	375	850	1350
1-1/4"	530	1200	1950
1-3/8"	700	1550	2550
1-1/2"	930	2100	3350

Proper Torque values for Metric bolts





Bolt Diameter	 Head Marking 4.8	 Head Marking 8.8 or 9.8	 Head Marking 10.9	 Head Marking 12.9
	Pound - Foot Value Dry	Pound - Foot Value Dry	Pound - Foot Value Dry	Pound - Foot Value Dry
6mm	4.5	8.5	12	14.5
8mm	11	20	30	35
10mm	21	40	60	70
12mm	37	70	105	120
14mm	60	110	165	190
16mm	92	175	255	300
18mm	125	250	350	410
20mm	180	350	500	580
22mm	250	475	675	800
24mm	310	600	850	1000
27mm	450	875	1250	1500
30mm	625	1200	1700	2000

FIGURE 4. Torque Chart

\* To get Newton-Meters multiply pound-foot of torque by 1.356

# MAINTENANCE

## DISASSEMBLY OF SPINDLE HOUSING

### WARNING



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.

### WARNING



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

### WARNING



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.

Remove blade bar or pan.

Remove hydraulic motor.

Remove spindle housing from unit.

Drain remaining oil from housing.

Remove locknut and lockwasher.

Using a chisel with a 3/16" wide cutting edge, place it parallel with and into one (1) of the staking slots in the threaded section of the shaft. Then drive it downward until the bent part of the staking flange on adjusting nut is bent outward and is free of the slot and threads of the shaft. This procedure is done in two (2) places on the shaft (**Figure 5**).

Using a chisel, bend the tang on the lockwasher until it is free from the slot in the nut. (Not all spindle housings are equipped with this lockwasher, but it should be installed during re-assembly.)

Unscrew locknut and remove locknut and lockwasher. Using the original bolts that hold the blade bar or pan on, insert the bolts into the spindle and turn the bolts until they contact the bearing ring (**Figure 6**).

In a clockwise bolt pattern, rotate each bolt 1/4 revolution (**Figure 7**).

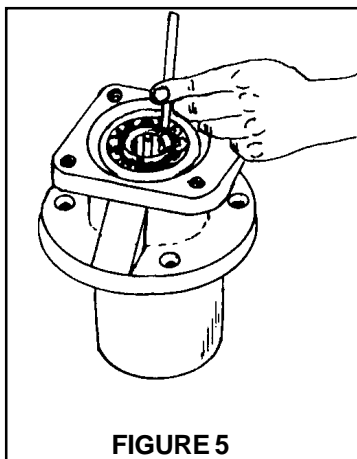


FIGURE 5

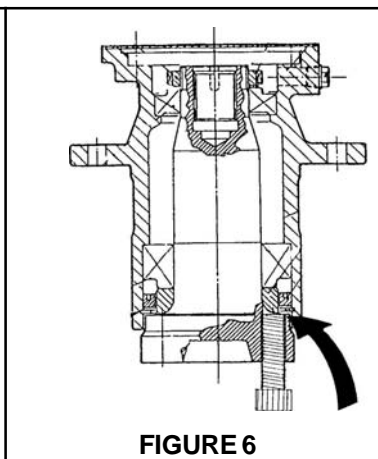


FIGURE 6

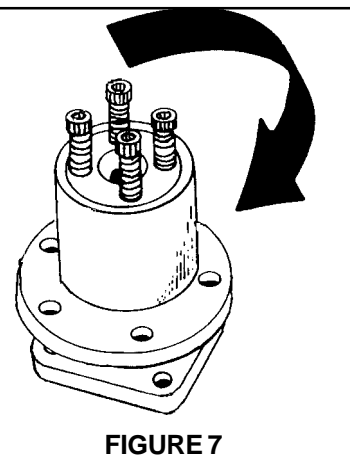


FIGURE 7

MAINTENANCE

# MAINTENANCE

Continue turning the bolts 1/4 revolution until shanked bolts will thread into the spindle (**Do not turn original bolts more than 3 revolutions**).

Remove the bolts and thread into the spindle four (4) shanked bolts (p/n 02964353).

In a clockwise pattern rotate each bolt 1/4 revolution until the spindle is free from the housing.

Using a flat blade screwdriver, remove retaining ring from the spindle housing.

To remove seal from housing, hold housing in a vise or clamp the housing so that it cannot be moved. Use a small pry bar and pry the seal out. Be careful not to damage the inside wall of the spindle housing.

Remove bearing.

If replacing bearings:

From the top of the spindle housing, using a punch, drive the bearing cup down **BE CAREFUL NOT TO DAMAGE THE SPINDLE HOUSING!**

Turn the spindle housing over and from the bottom side of the spindle housing, using a punch, drive the remaining bearing cup out.

Clean spindle housing, spindle and bearings thoroughly.

When rebuilding the spindle housing assembly, always replace the locknut, lockwasher, retaining ring, gasket, and seal.

## INSPECTION

Bearing and cups:

Inspect bearings and bearing cups for nicks, pitting, discoloration and wear. If any exist, replace bearing and bearing cup.

Bearing ring:

Inspect bearing ring for grooves, pits, scratches, nicks, and sharp edges. If any exist, replace the bearing ring.

## ASSEMBLY

If installing new bearings, be sure to install new bearing cups (races). When installing the bearing cups, make sure that they are properly seated. **DO NOT DRIVE AGAINST THE BEARING SURFACE.** Install both cups at this time.

Turn housing upside down, so that the larger bearing, seal, and retaining ring may be installed. Lubricate seal before installing. Install the bearing, then install the seal approximately 1/4" from the top. Place the retaining ring in the housing on top of the seal. Drive the retaining ring and seal down evenly, until the retaining ring is seated in the groove.

# MAINTENANCE

Be sure the retaining ring is in the groove all the way around and the seal is against the retaining ring.

Be sure the seal is not cocked.

Place a thin coat of silicone on the inside of the bearing ring. Place the bearing ring on the spindle. Using a piece of 2-3/4" 16 gage tubing, 8" long, drive the bearing ring down on the spindle until the bearing ring bottoms out against the spindle. Remove any excess silicone from the spindle and bearing ring.

With the spindle sitting upright, set the spindle housing (with bearing, seal and retaining ring in place) down on the spindle so that the bearing is centered with the spindle. Using the same piece of tubing, drive the bearing down until the bearing bottoms out against the bearing ring. Be sure the bearing is seated against the bearing ring. Insert the upper bearing, lockwasher, and locknut.

**\*Important:** If the bearing ring is not properly seated or if the bearing is not properly seated against the bearing ring the assembly will lose its preload on the bearings, resulting in rapid leaking of oil and bearing failure.

Tighten the new locknut until a rollin torque of 12-15 in-lbs. is reached on the shaft.

Align the locknut with the lockwasher so that a tang may be bent into the slot. Bend tang into slot, then stake the locknut into the slots on the shaft (2 places).

Bolt the spindle housing to unit. (Torque bolts to 400 ft-lbs.)

Install gasket between the housing and motor. Torque bolts to 120 ft-lbs.

Fill spindle housing with NLGI 000 grease. Alamo Group P/N 00765444.

Install the blade bar or pan and torque bolts to 400 ft-lbs.

**\*Important:** Make sure spindle housing is equipped with a vented breather pug. If breather plug is clogged or a pipe plug is installed, oil will be forced past the seal.

## IMPORTANT

For your safety and to guarantee optimum product reliability, always use Genuine ALAMO INDUSTRIAL replacement parts. The use of inferior "will-fit" parts will void Warranty of your ALAMO INDUSTRIAL implement and may cause premature or catastrophic failure which can result in serious injury or death. If you have any questions concerning the repair parts you are using, contact ALAMO INDUSTRIAL, 1502 E. Walnut Seguin, TX 78155 (830) 372-3551.

**ALAMO**  
INDUSTRIAL  
02925100

MAINTENANCE

# ALAMO INDUSTRIAL

## LIMITED WARRANTY

### 1. LIMITED WARRANTIES

- 1.01. Alamo Industrial 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 Dealer to the designated factory.

### 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. NOT WITHSTANDING 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.

Alamo Industrial Implement Model \_\_\_\_\_ Serial Number \_\_\_\_\_

Date Purchased \_\_\_\_\_ Dealer \_\_\_\_\_

ATTENTION:  
READ YOUR OPERATOR'S MANUAL

**ALAMO INDUSTRIAL**

An Alamo Group Company  
Post Office Drawer 549  
Seguin, Texas 78156  
830-379-1480





## TO THE OWNER/OPERATOR/DEALER

To keep your implement running efficiently and safely, read your manual thoroughly and follow these directions and the Safety Messages in this Manual. The Table of Contents clearly identifies each section where you can easily find the information you need.

The OCCUPATIONAL SAFETY AND HEALTH ACT (1928.51 Subpart C) makes these minimum safety requirements of tractor operators:

### REQUIRED OF THE OWNER:

1. Provide a Roll-Over-Protective Structure that meets the requirements of this Standard; and
2. Provide Seatbelts that meet the requirements of this paragraph of this Standard and SAE J4C; and
3. Ensure that each employee uses such Seatbelt while the tractor is moving; and
4. Ensure that each employee tightens the Seatbelt sufficiently to confine the employee to the protected area provided by the ROPS.

### REQUIRED OF THE OPERATOR

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

- 
- ☒ **Keep children away from danger all day, every day...**
  - ☒ **Equip tractors with rollover protection (ROPS) and keep all machinery guards in place...**
  - ☒ **Please work, drive, play and live each day with care and concern for your safety and that of your family and fellow citizens.**

