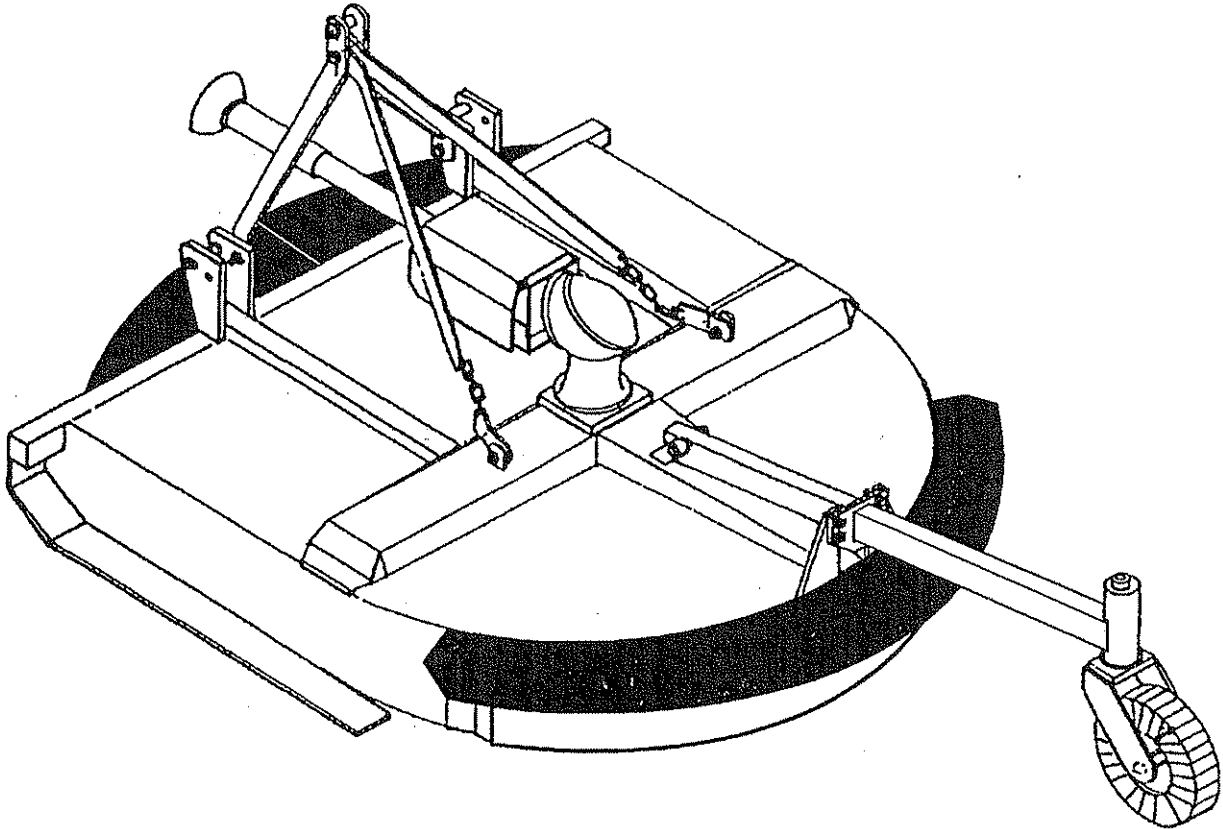




CY60/72

ROTARY CUTTER



OPERATOR'S MANUAL with PARTS LISTING

FW McCONNEL LTD

Temeside Works
Ludlow
Schropshire SY8 1JL
England

An Alamo Group Company

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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.



4. BLOCK UP SECURELY BEFORE WORKING UNDER.



1. Study and understand Operator's Manuals, Safety Signs, 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 implement or tractor. Allow no riders on tractor or implement. Falling off may cause serious injury or death from being run over by tractor or cutter or contact with rotating blades.

3. Operate only with tractor having Roll-Over Protective Structure (ROPS) and with seatbelt fastened securely and snugly to prevent injury and possible death from falling off or tractor overturn. Personal Protective Equipment such as Hard Hat, Safety Glasses, Safety shoes, and 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 components 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 *Cylinder Stops as Transport Blocks securely on pull-type and folding implements. Slow down when turning and on hillsides.

- Attach **Safety Chain to cutter and towing unit securely. See Operator's Manual.

6. Make certain that SMV sign, Warning Lights, and Reflectors are clearly visible. Follow local traffic codes.

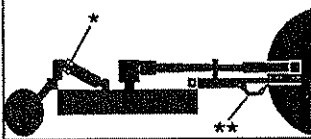
7. Never operate with Cutting Head raised if passersby, bystanders, or traffic are in the area to reduce possibility of injury or death from objects thrown by Blades under Guards or cutter structure.

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

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

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



00749117

WARRANTY INFORMATION:

Read and understand the complete Warranty Statement found in this Manual. Fill out the Warranty Registration Form in full and return it to 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.



PRE-DELIVERY SERVICE

CHECK AND ADJUST OR LUBRICATE AS REQUIRED

LUBRICATION & HYDRAULICS

- Gearbox (Oil Levels)
- Drivelines (Proper length & lubrication)
- Wheel Hubs (Lubricate)
- Hinge & Pivots (Lubricate)
- Hydraulic Cylinder Vent Plugs
- Gearbox Vent Plugs (Location and Operation)
- Hydraulic Hoses (Check for leaks & connections)

TIRES & WHEELS

- Tire Air Pressure/Lug Nuts (Correct Torque)
- Wheel Hub Dust Caps
- Tail Wheel Beam (Lube & Height Adjustment)
- Wheel Bearing (Check Grease and Preload)

ATTACHMENTS & INSTALLATION

- Deflectors, Front & Rear
- Shredding Attachments
- Correct Blade Travel Direction
- Axle Arms & Beams
- Tongue & Control Rods (Installed and Adjusted)
- All Bolts - Pins & Nuts (Proper Torque)

IMPLEMENT TO TRACTOR CONNECTION

- Draw Bar Length (Set & Checked)
- A-Frame Pivot & Links
- Control Rods Adjusted (Equal Loads)
- Axle Height (Adjusted)
- Cutting Height (Adjusted & Locked)
- Implement Belts (Proper Tension & Alignment)
- Implement Wing (Adjust Height to Match Center)
- Implement Wing (Check Proper Raising Operation)
- C.V. Drivelines (Check Max Turn Radius)
- Pull Type Hitch (Height Adjustment)
- Hydraulic Hoses (Tied to Prevent Interference)

SAFETY ITEMS

- Protective Shields (Operation & Installation)
- Driveline Clutch (Torque Limiter) (Adjust & Run-in)
- Safety Decals (Installed)
- Operator's Manual (Supplied)
- Tractor PTO Shield (Installed)
- S.M.V. Emblem (Installed if Needed)
- Tongue Jack (Installation and Operation)
- Safety Tow Chains (Installed)

Inspection Performed - Warranty & Safety Procedure Explained - Installation Complete

Implement Serial # _____ Implement Model _____ Tractor Model _____

Owner's Signature _____ Date _____

Dealer Signature _____ Date _____

TABLE OF CONTENTS

SAFETY SECTION	1-1
Safety Information	1-2
Safety Decal Location	1-5
INTRODUCTION SECTION.....	2-1
ASSEMBLY SECTION.....	3-1
A-Frame Assembly.....	3-2
Tail Wheel Assembly	3-2
Offset Adapter Assembly	3-3
Hydraulic Relief Assembly	3-4
Driveline Assemblies.....	3-4
Blade Carrier Assembly	3-6
Guards and Deflectors Assembly.....	3-7
OPERATION SECTION	4-1
Cutter Preparation	4-2
Hydraulic Relief	4-2
Tractor Preparation	4-3
Field Operation and Adjustments	4-4
Starting Cutter	4-5
Leveling Cutter	4-5
Adjusting Speed	4-6
Height of Cut	4-6
Detaching and Storing	4-8
Transporting	4-7
Troubleshooting.....	4-9
MAINTENANCE SECTION	5-1
Lubrication	5-2
Torque Chart	5-4
Blades.....	5-4
Drivelines & Shields	5-5
Shear Pin Coupling	5-7
Torque Limiter (CY72)	5-8
Slip Clutch (CY60).....	5-9
PARTS SECTION	6-1
Parts Ordering Guide	6-2
Parts Table of Contents	6-3

SAFETY SECTION

SAFETY

DANGER There are obvious and hidden potential hazards in the operation of this Cutter. **REMEMBER!** This machine is often operated in rough terrain conditions and brush up to 3 inch diameter. The Blades of this mower can throw objects for a great distance at very high speeds. Serious injury or even death may occur unless care is taken to insure the safety of the operator, bystanders, or passersby in the area.



PELIGRO Si Ud. no lee Inglés, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad.



¡LEA EL INSTRUCTIVO!



DANGER Never operate the tractor and mower until you have read and completely understand this manual, the Tractor Operator's Manual, and each of the Safety Messages found on the tractor and mower. Always maintain the safety decals in good readable condition. If a decal becomes torn, painted over, or otherwise illegible, order replacement decals immediately.



Included here is a list of Safety Messages which should be followed. Serious injury or death may occur unless care is taken to follow these Safety Messages and use good common sense in avoiding hazards.

Read this manual carefully to acquaint yourself with the CY60/72 Rotary Cutter. Working with unfamiliar equipment can lead to accidents. Equipment should be operated only by those who are responsible and instructed to do so.

DANGER Rotary Cutters 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 CUTTING IF PASSERSBY ARE WITHIN 100 YARDS UNLESS:

- Front and Rear Deflectors, or Chain Guards, or Bands are installed and in good, workable condition;
- Cutter section is 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, reduce wear and tear on the Cutter drivetrain, spread cut material better, eliminate streaking, and make the final cut more uniform.

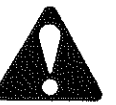
DANGER The Chain Guards, Bands, Deflectors, Driveline shields, and Gearbox Shields should be used and maintained in good working condition. They should be inspected carefully, at least daily for missing or broken cable, chain links, shields, or guards. Missing, broken, or worn items must be replaced at once to reduce the possibility of injury from thrown objects or entanglement.



WARNING Extreme care should be taken when operating near loose objects, such as gravel, rocks, wire, and other debris. Foreign objects should be removed from the site or avoided to prevent machine damage and/or bodily injury or even death.



DANGER The rotating parts of this machine have been designed and tested for rugged use. However, they could fail upon impact with heavy, solid objects such as steel guard rails and concrete abutments. 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.



SAFETY

WARNING



The operator and all support personnel should wear "hard hats", "safety shoes", and "safety glasses" at all times for protection from injury by falling objects and items thrown by the machine.

DANGER



Operate the mower only with a tractor equipped with an approved roll-over-protective system (ROPS). Always wear your seat belt. 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 or the Tractor.

WARNING



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 mount or dismount a moving tractor. Operate the tractor controls from the tractor seat only.

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. 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.

DANGER



Be particularly careful in transport. Turn curves or go up hills only at a low speed and at a gradual steering angle. Make certain that at least 20% of the tractor's weight is on the front wheels to maintain safe steering. Slow down on rough or uneven surfaces.

WARNING



Make certain that the "Slow Moving Vehicle" (SMV) sign is installed in such a way as to be clearly visible and legible. Use flashing warning lights and follow all local traffic regulations.

WARNING



Periodically inspect all moving parts for wear and replace with authorized service parts if an excessive amount of wear is present.

WARNING



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.

DANGER



Do not mount or dismount the tractor while the tractor is cutting. Mount the tractor only when it is completely stopped.

DANGER



Never leave the cutter in the raised transport position. Cutter could fall causing injury to anyone who might inadvertently be under mower.

DANGER



Never clean or adjust PTO-driven equipment with the tractor engine running.

SAFETY

DANGER Never allow riders on either tractor or Cutter. Falling off can kill.



DANGER Never allow children to operate or ride on the tractor or Cutter.



DANGER Never work under the Cutter Deck, the framework, or any lifted component unless the Cutter is securely supported or blocked up to prevent sudden or inadvertent falling which could cause serious injury or even death.



WARNING Always maintain the safety decals in good readable condition. If a decal becomes torn, painted over, or otherwise illegible, order replacement decals immediately.



DANGER Never run the tractor engine in a closed building without adequate ventilation. The exhaust fumes can be hazardous to your health. (Diesel fumes are not dangerous to the same degree.)



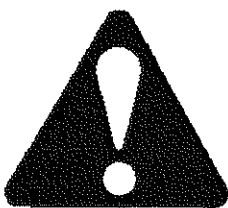
DANGER Make sure the PTO shield is installed when using PTO-driven equipment, and always replace the PTO shield if damaged.



CAUTION **PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!**
Tractors with or without Cutters attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db. Noise over 85db on a long-term basis can cause severe hearing loss. Noise over 90db adjacent to the Operator over a long-term basis may cause permanent, 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.

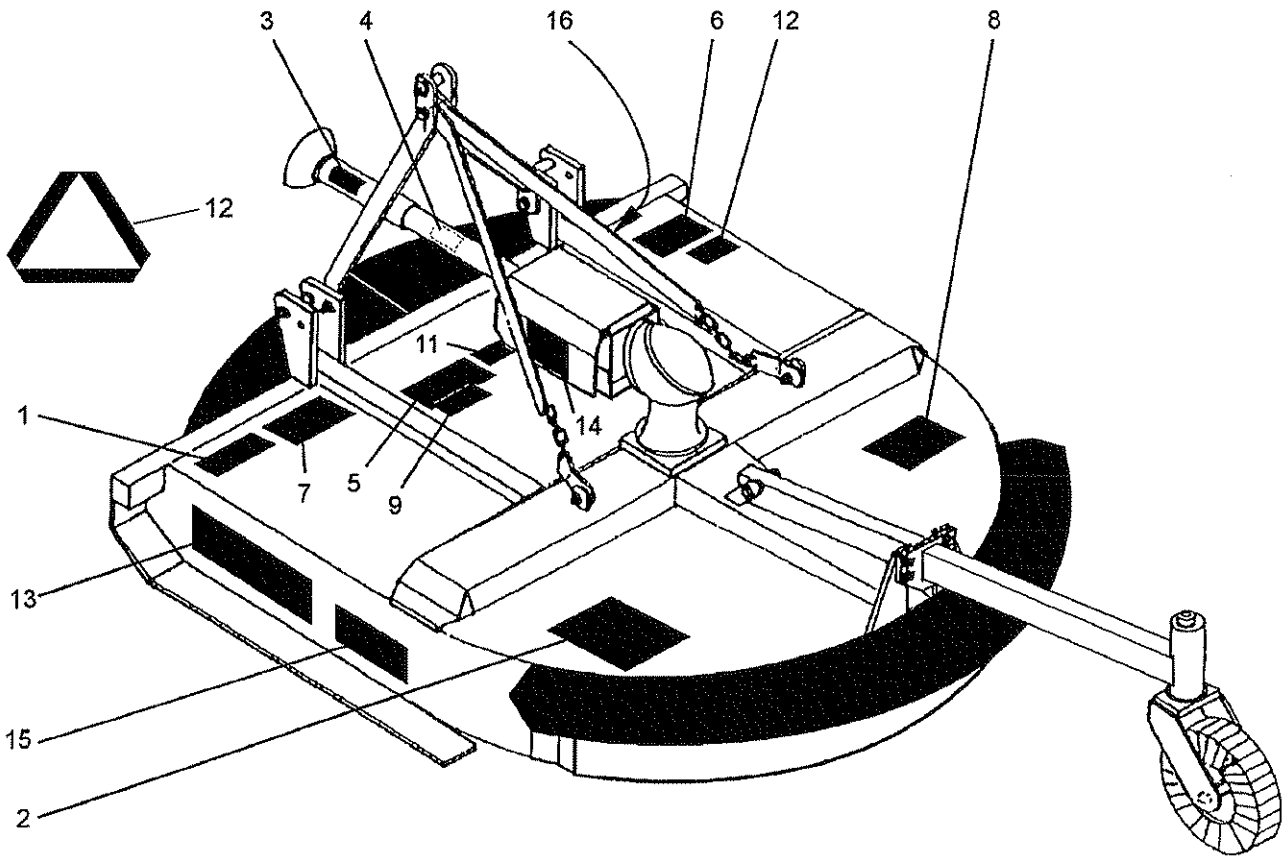


In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the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



**WHEN THIS SYMBOL IS DISPLAYED,
BE ALERT!
PAY ATTENTION!
SOMEONE'S LIFE IS AT STAKE!**

SAFETY DECAL LOCATION



ITEM	PART NO.	QTY	LEVEL	DESCRIPTION
1	00725746	1	PELIGRO	Get Manual Translated
2	00749117	1	DANGER	Multi-Hazard, Rigid Frame
3	00756004	1	DANGER	D/L Shield Missing-Do not operate
4	00756005	1	DANGER	Rotating Driveline
5	00756494	1	DANGER	Driveline Hazards
6	00760657	1	CAUTION	Genuine Parts, Rotary
7	00769736	1	WARNING	Use/Repair Shields & Guards
8	00769737	1	DANGER	Blades/Thrown Objects
9	D103	1	INSTRUC	540 RPM PTO
10	00763613	1	INSTRUC	Slip Clutch
11	00763977	1	INSTRUC	Notice to Owner
12	03200347	*	REFLECTV	SMV
13	D303	2	NAME	Rhino(4-3/8 x 16-3/4)
14	D302	2	LOGO	Rhino(4-7/8 x 6-1/2)
15	D317	2	NAME	CY60
	D315	2	NAME	CY72
16	nfs	1	PLATE	Serial Plate

* Furnished by the tractor manufacturer.

SAFETY DECALS

PELIGRO

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

LEA EL INSTRUCTIVO



00725745

1-- 00725746

2 -- 00749117 - Not Shown
(See Inside Front Cover of Manual)

12 -- Slow Moving Vehicle Symbol
(Available from Tractor Manufacturer)

15 -- Name Decal CY60 or CY72

16 -- Serial Plate NOT FOR SALE



11- D302

DANGER



ROTATING DRIVELINE
CONTACT CAN CAUSE DEATH
KEEP AWAY!

DO NOT OPERATE WITHOUT—

- ALL DRIVELINE, TRACTOR AND EQUIPMENT SHIELDS IN PLACE
- DRIVELINES SECURELY ATTACHED AT BOTH ENDS
- DRIVELINE SHIELDS THAT TURN FREELY ON DRIVELINE

00756005

4 -- 00756005

DANGER



**GUARD MISSING
DO NOT OPERATE**

00756004

DANGER



**GUARD MISSING
DO NOT OPERATE**

00756004

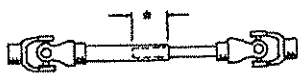
DANGER

3-- 00756004

DANGER

1. MAKE CERTAIN DRIVELINES ARE OF THE CORRECT LENGTH AND SECURELY ATTACHED. DRIVELINE SEPARATION AND/OR PTO STUB SHAFT FAILURE CAN CAUSE INJURY OR DEATH. (See Operator's Manual for procedure.)

* SEE MANUAL FOR MINIMUM OVERLAP & MINIMUM/MAXIMUM LENGTHS



2. MAKE CERTAIN THAT DRIVELINE SHIELDS ARE INSTALLED CORRECTLY AND TURN FREELY TO PREVENT INJURY OR DEATH FROM ENTANGLEMENT



3. MAKE CERTAIN THAT DRIVELINE SHIELDS ARE FREE TO ROTATE SEPARATELY AND TELESCOPE FREELY TO PROVIDE PROTECTION AGAINST ENTANGLEMENT.

4. 540 PTO RPM UNLESS SPECIFICALLY MARKED OTHERWISE.

00756494

5 -- 00756494

SAFETY DECALS

WARNING

**OPERATE THIS MACHINE AT
540 RPM
TRACTOR PTO SPEED ONLY**

Overspeeding PTO may cause component failure with resulting injury.

D103

9 - D103



CAUTION



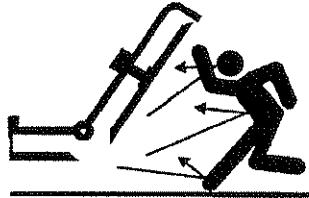
For your safety and to guarantee optimum product reliability, always use genuine RHINO replacement parts. The use of inferior "will-fit" parts will void warranty of your RHINO implement and may cause premature or catastrophic failure which can result in serious injury or death. If you have any questions concerning the repair parts you are using, contact Servis-Rhino, POB 712, Seguin, TX 78156-0712

00760657

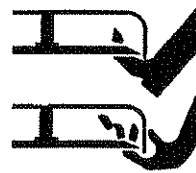
6 - 00760657

DANGER

THROWN OBJECTS



CUTTING BLADES



KEEP AWAY - ROTATING BLADES

BEING HIT BY THROWN OBJECTS OR CONTACTING ROTATING BLADES CAN CAUSE INJURY OR DEATH.

- Stop mowing if passersby enter the area of thrown objects (See Operator's Manual).
- Do not operate with Mower or Wing raised off the ground. (See Operator's Manual).
- Operate only if all Guards-Deflectors are in place and in good condition.

00769737

8 - 00769737

ATTENTION!

Do not operate PTO until ALL Slip Clutches are properly adjusted and checked to make certain that **NONE ARE FROZEN** and that **ALL WILL SLIP** under excessive load. See Operator's Manual for complete instructions.

00763613

10-00763613

SAFETY DECALS

WARNING

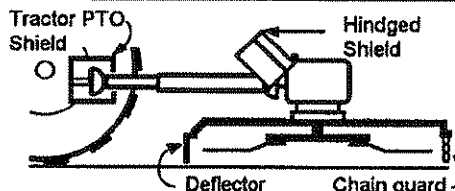
FAILURE TO USE AND MAINTAIN SHIELDS AND DEFLECTORS IN GOOD CONDITION MAY LEAD TO INJURY OR DEATH FROM ENTANGLEMENT WITH ROTATING PARTS, BEING HIT BY OBJECTS THROWN WITH GREAT FORCE BY BLADES, OR BY BLADE CONTACT.

● Always replace Guards which have been removed for maintenance. Never operate with Guards missing or broken.

● Chain Guards, Gearbox & Driveline Shields, Rubber-Fabric Deflectors, and Solid Band Enclosures are subject to wear and lost or broken parts and must be repaired or replaced as soon as damage is found.

● Safety Shielding must be installed and in good condition to reduce the possibility of thrown objects any time this machine is operated in any area where thrown objects could cause property damage or bodily injury.

ROTARY 00769736



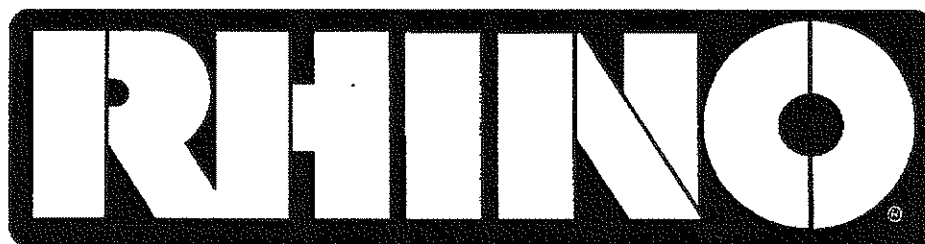
7 -- 00769736

NOTICE TO OWNER

An OPERATOR'S MANUAL (with Repair Parts Listing) and a WARRANTY REGISTRATION CARD were attached to this implement during final inspection at the factory. If they were not attached at the time of purchase, please contact your selling dealer at once.

1. Read and understand Manual before operating the implement.
2. Complete, sign, and mail the Warranty Registration Card in today. 00763977

11-00763977



10 - D303

CY6072/12-94

Safety Section 1-8

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INTRODUCTION SECTION

INTRODUCTION

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

Careful use and timely service saves extensive repairs and costly downtime losses. The Operations and Maintenance sections of the manual trains the owner/operator how to work the Cutter correctly and attend to appropriate maintenance. The Trouble-Shooting Guide helps diagnose difficulties with the Cutter and offers solutions 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. Red and White Decals.

ATTENTION OWNER/OPERATOR

BEFORE OPERATING THIS MACHINE:

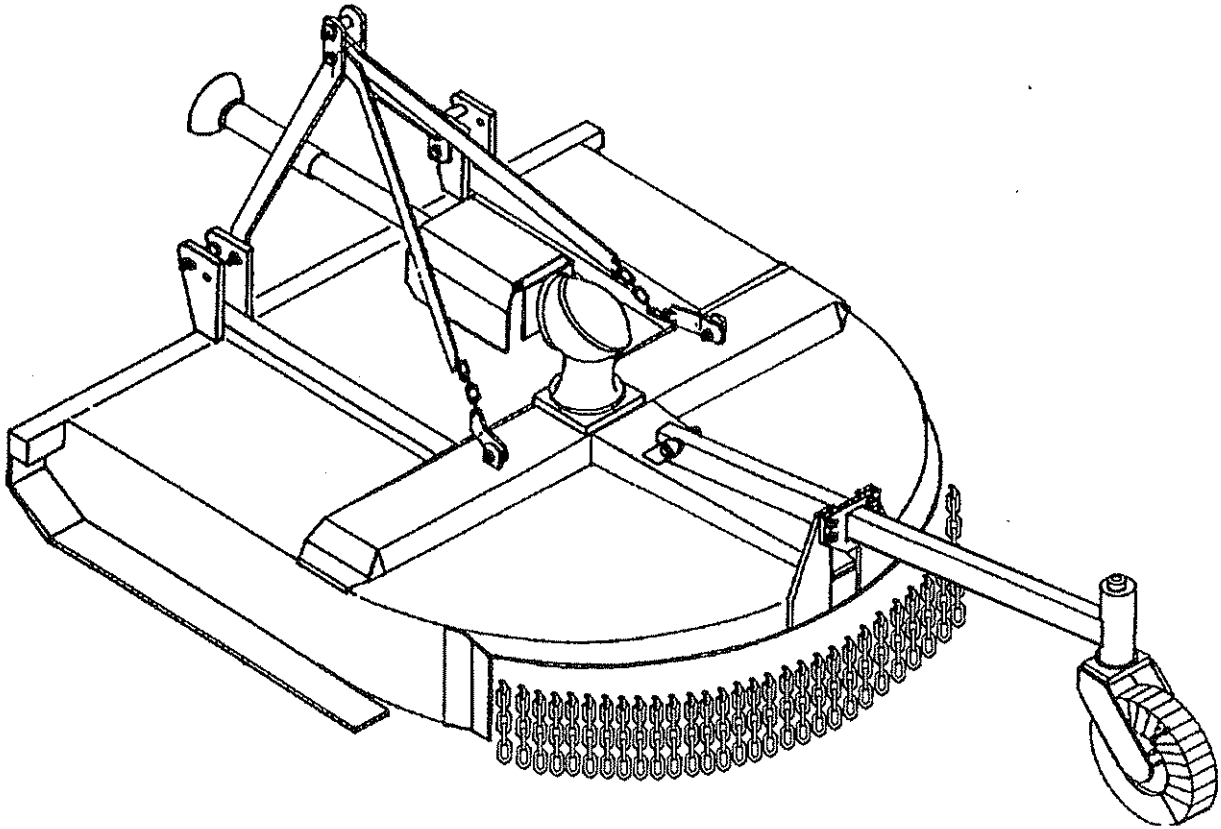
1. Carefully read the Operator's Manual, completely understand the Safety Messages and instructions, and know how to operate correctly both the tractor and Cutter.

2. Fill out the Warranty Card in full, and mail promptly. Be sure to answer all questions, including the Serial Number of the Mower.

NOTE: Warranties are honored only if completed "Owner Registration and Warranty" cards are received by Alamo Group within thirty days of delivery of the mower.

3. Record the Mower Model and Serial Number on the Warranty card at the front of the Operator's Manual. Keep this as part of the permanent maintenance file for the Cutter.

INTRODUCTION



These rugged Cutters are designed for heavy-duty work. They can mow pastures, cut brush up to 3-1/2" 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 or Solid Skirts at all times. The Cutter manufacturer strongly recommends the use of Chain Guards 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.

The 60" Cutter requires a minimum of 30 HP; the 72" Cutter requires a minimum of 35 HP. The maximum allowable horsepower for either size is 90HP.

WARNING!



At least 20% of the tractor's total weight must be on the front tires with the Cutter 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 driving an automobile.



ASSEMBLY SECTION

ASSEMBLY

A-FRAME, BRACES AND HITCH PINS

The 3-Point lift A-Frame uprights attach to the Cutter mainframe with 5/8" Capscrews, a Bushing to the inside of the lug (fig. 1) where the uprights attach, and a Flatwasher under the head of the screw. Bolt the Brace Rod Assemblies (fig. 2) and Spacer to the A-Frame Uprights.

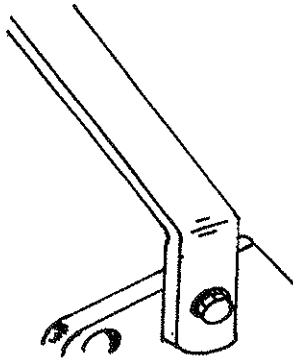


Figure 1

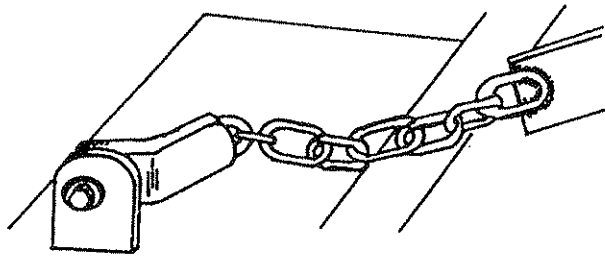


Figure 2

TAIL WHEELS

Slide the Tail Wheel Beam (fig. 3) through the Positioning Bracket until the hole in the beam aligns with the lugs on the Mainframe. Insert the Capscrew and tighten the Locknut until it is snug but not tight enough to clamp the Beam to the Lugs.

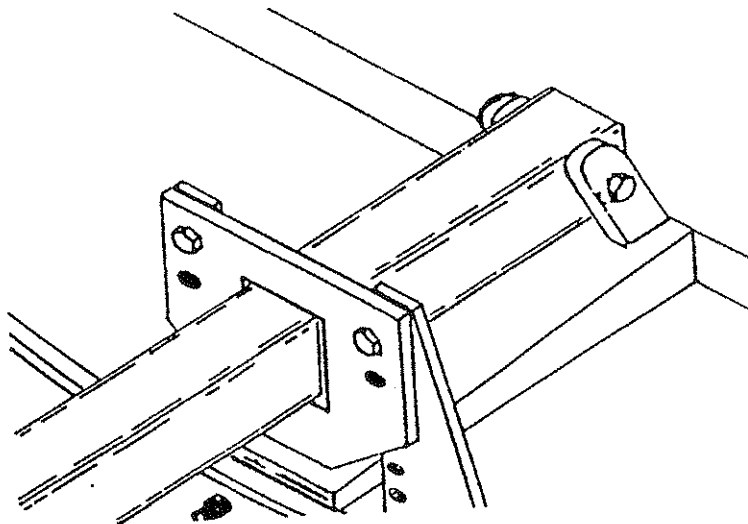


Figure 3

ASSEMBLY

OFFSET ADAPTER HITCH (EXTRA EQUIPMENT)

Fasten the Offset Adapter Hitch Weldment (fig. 4) to the lift lugs using the Hitch Pin holes. Fasten the Adjustable Leg to the left side lug if the Cutter is to offset to the left. The Cutter will make a cleaner cut behind the wheel tracks if it is offset to the left. Reverse the Assembly for right offset.

Install the Brace Bars. Fasten the chain end to the rear mounting hole in the Gearbox Base Plate. Adjust the Brace Bar so the Hitch Assembly is nearly perpendicular.

Attach the Cutter to the tractor. Install stabilizer bars or adjust sway chains to prevent side sway of the Cutter.

WARNING!



Stabilizer Bars or Sway Chains must be installed and adjusted tightly. Without these bars or chains, serious damage to the Driveline can occur, and broken parts could cause bodily injury to the operator or bystanders. Stabilizer Bars or Sway Chains are available at most tractor dealerships.

Raise the Cutter to check clearance between the Driveline and Cutter Deck. Set the lift stop on the tractor to ascertain that the Driveline does not strike the deck.

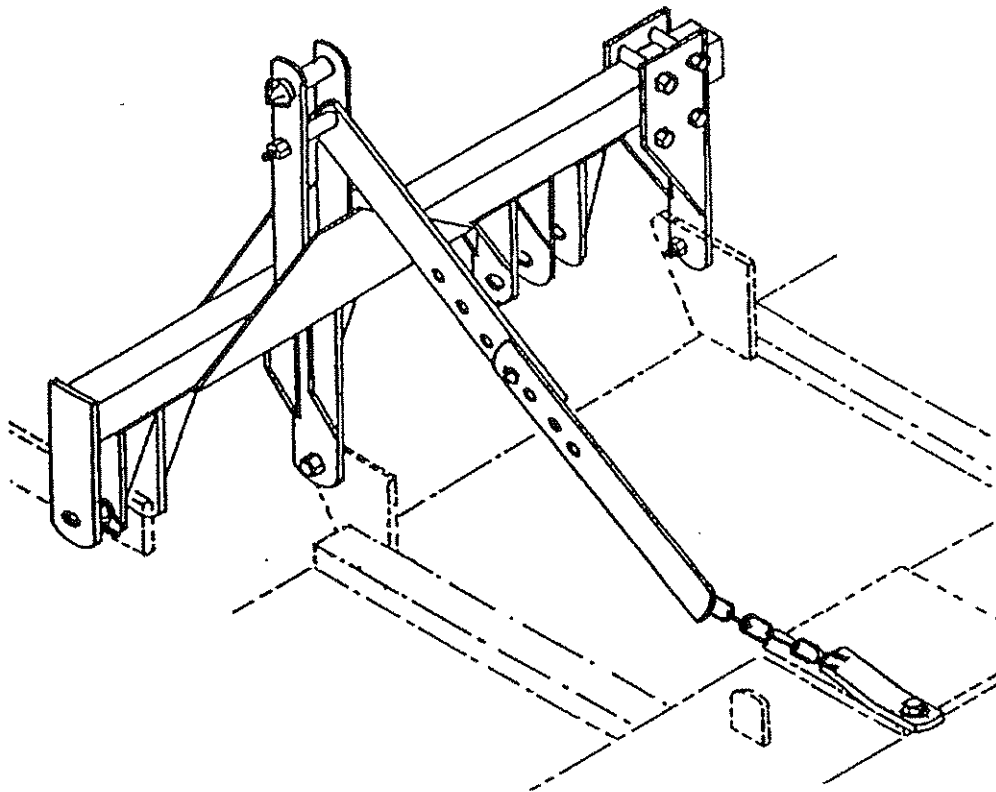


Figure 4

ASSEMBLY

HYDRAULIC RELIEF (EXTRA EQUIPMENT)

The Hydraulic Relief Assembly takes the weight from the tractor's lift hydraulics and allows the Cutter to return to the preset cutting height when the Cutter is lowered.

The Hydraulic Relief attaches to the 3/4" dia. Upper Hitch Pin through the Adjusting Block of the A-Frame of the Offset Adapter Hitch (fig. 5). The Clip and Shackles anchor the Relief Chain to the lower lift lugs on the Mainframe. The solid portion of the Relief Chain straddles the notched section of the Top Link; correct positioning is determined after attachment to the tractor (fig. 6). The length of the Top Link can be changed by reversing the Adjusting Block position and using the Set Screw for fine adjustment.

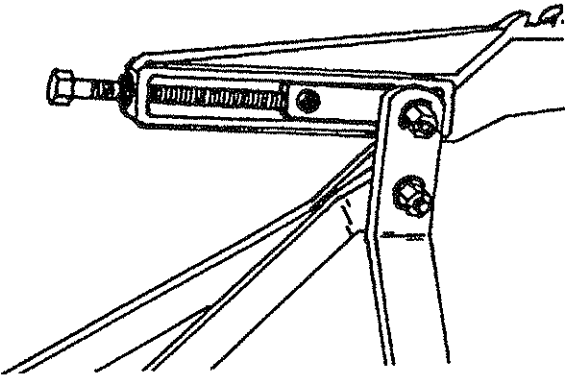


Figure 5

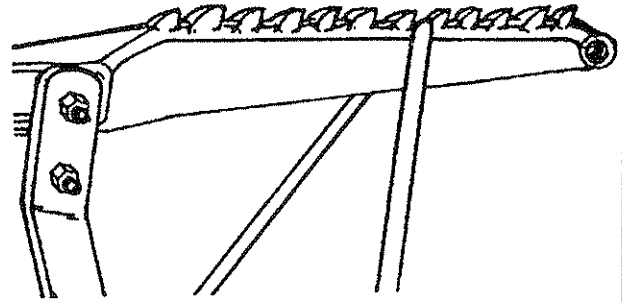


Figure 6

DRIVELINES

Attach the Input Driveline with integral Shields to the Tractor PTO and Gearbox Shaft, using the correct Driveline for each specific machine. Drivelines differ for 540 RPM as well as for Slip Clutch operations. Refer to the "Maintenance" Section of this Manual for service instructions. Be sure that the Slip or QD Pin is completely in place and the yoke is securely seated on the tractor's PTO stub shaft.

SHIELDS AND GUARDS

Shields and Guards are provided for the protection of the operator. The Manufacturer strongly recommends the use of Protective Shielding at all times. Do not operate the machine without Shields in place.

DANGER!



For Non-Agricultural use, OSHA, ASAE, SAE, and ANSI standards require the use of Chain Guards or Solid Skirts at all times. The Cutter manufacturer strongly recommends the use of Chain Guards 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.

DANGER!



Make certain that all Shields are installed and turn freely and that the tractor PTO shield is replaced before starting the PTO.

WARNING!



Use safety devices on all equipment.

ASSEMBLY

BLADE CARRIERS AND BLADES

These Cutters are shipped with the Gearbox and Slip Clutch or Shear Pin Adaptor Flange already assembled to the Mainframe. The Blade Hub and Blade Carrier (fig. 7) are shipped separately with the Straight Blade (fig. 8) option selected by the owner.

Secure the mainframe vertically, allowing good access to the Gearbox Shaft, for safe installation of the Blade Carrier and Blades.

NOTE: Blade Bolts have left-hand threads. Tighten to 350 ft/lb torque.

WARNING! Use particular care when working on Blade Carriers. Blades are heavy and sharp and can pivot causing injury to arms and hands.

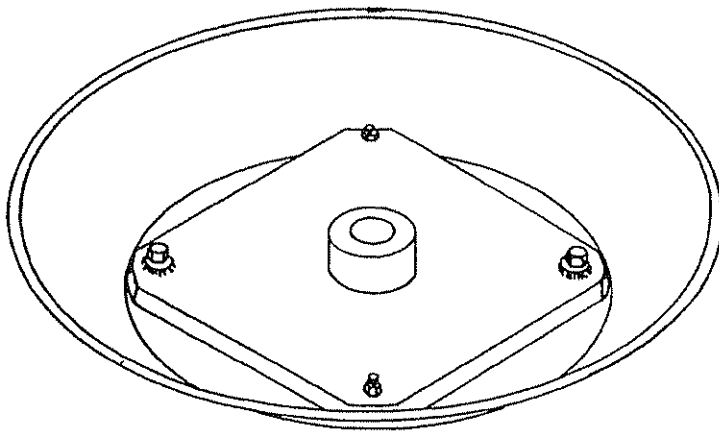


FIG. 7 BLADE CARRIER

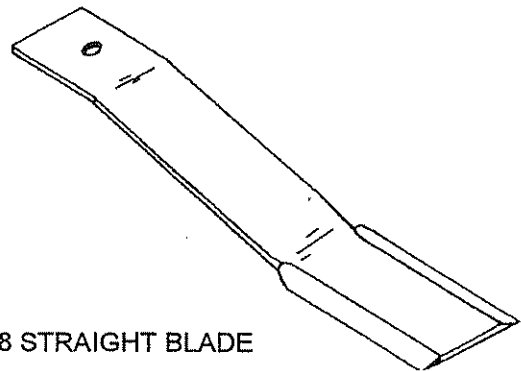


FIG. 8 STRAIGHT BLADE

FRONT AND REAR CHAIN GUARDS

The Front Chain Guard sections are bolted under the Front Mainframe Cross Tubes with Bolts, Washers, and Locknuts. The front foot guard is attached using the same hardware and holes.

The Rear Chain Guard attaches to the rear of the Mainframe Deck in seven places using 1/2" Carriage Bolts, Washers, and Nuts. Three Spacers are used at the center attachment points of the Rear Deck. Five brackets, nuts, and bolts attach the rear foot guard to the rear chain guard.

Refer to the "Parts Listing" Section for correct assembly and part numbers for Chain Guards.

DANGER!



For Non-Agricultural use, OSHA, ASAE, SAE, and ANSI standards require the use of Chain Guards or Solid Skirts at all times. The Mower manufacturer strongly recommends the use of Chain Guards 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.



OPERATION SECTION

OPERATION

CUTTER PREPARATION

3-POINT HITCH

A tractor with a Category I Hitch attaches to the top of the A-Frame (fig. 1) of the 60" Cutter without an adaptor. The Category II Hitch, standard on the 72" Cutter, requires no adapters to attach to a tractor with a Category II, 3-Point Hitch. When attaching a 72" machine to a Category I Hitch, the two lower Hitch Pins must be replaced with 7/8" diameter Pins, and a 1" o.d. Bushing must be placed over the 3/4" Top Link Pin.

The tractor Lift Arms are attached to the Lift Lugs. Category I Hitches use 7/8" diameter Hitch Pins, and 1-1/8" diameter Hitch Pins are required for Category II.

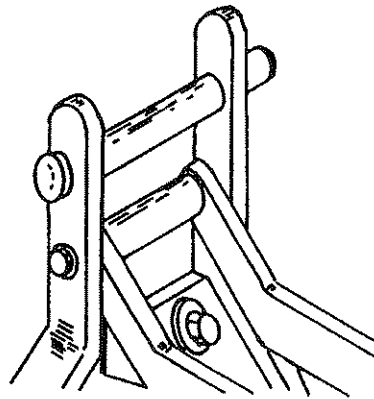


Figure 1

3-POINT LIFT WITH HYDRAULIC RELIEF (fig. 2) (EXTRA EQUIPMENT)

No preparation is required for attaching Hydraulic Relief equipment to a Cutter on a tractor with a Category I Hitch. For tractors with Category II Hitches, remove the 1" OD Bushing from the end of the Hydraulic Relief Top Link. The Hydraulic Relief allows the operator to set a precise cutting height and automatically maintains that height.

CAUTION!



For increased safety during transport, the Hydraulic Relief can also provide adequate transport height even without tractor hydraulic by setting the solid section of the Chain Link in the position closest to the tractor.

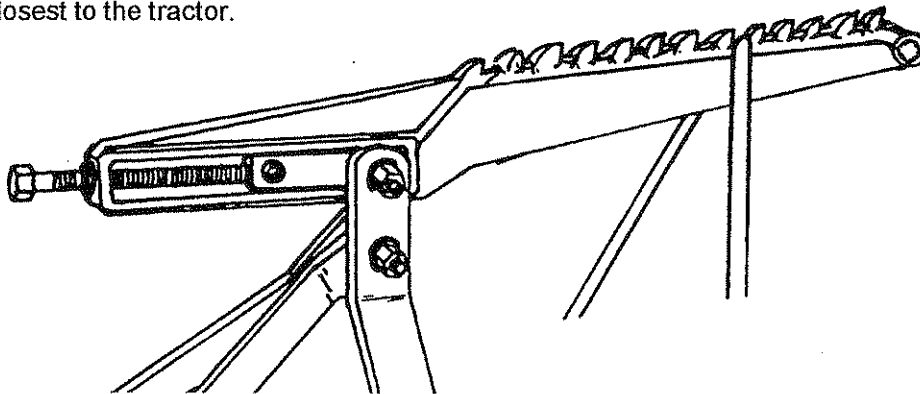


Figure 2

OPERATION

TRACTOR PREPARATION

BALLAST (FRONT END WEIGHT)

An implement code of 7.85 has been assigned to the Cutter. Add enough front end weight to assure that at least 20% of the tractors original weight is on the front wheels for safe transport.

WHEEL TREADS

Tractor wheel tread spacing should be increased when working on inclines or rough ground to reduce the possibility of tipping.

STABILIZER BARS OR SWAY BLOCKS


Use stabilizer bars or sway blocks to prevent side sway of the Cutter. Stabilizer bars must be used with the Offset Adaptor.

DRAFT LINKS

The linkage to the Lower Draft Links should be set in the "float" position, allowing the unit to follow the contour of the terrain.


DRAWBAR

Shorten or remove the tractor Drawbar so it will not interfere with the up and down movement of the Cutter.




DANGER

CUTTING BLADES



FLAIL ROTARY

THROWN OBJECTS



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

OPERATION

ATTACHING TO TRACTOR

Back any tractor with a Category I or II hitch up to the Cutter with a 3-Point Hitch. Align the Lower Draft Arm with the Lower Lift Pins of the Cutter. Connect the Draft Links and Stabilizer Bars to the unit's Wrist Pins and attach the Top Link. Remove the Bushing in the Hydraulic Relief Top Link to attach to Category II hitches. The solid section of the Relief Chain should be over the Top Link allowing some slack.

Cutters with Offset Adapter Hitches connect to a Category I or II 3-Point Hitch in the same way as with the A-Frame. The machine offsets approximately 13" for a Category I Hitch, and 16" with Category II.

DRIVELINE

Attach the Driveline to the Tractor PTO by depressing the Interlock Pin on the Driveline Yoke and pushing the Yoke over the Spline until the Pin snaps out to the original position. Pull out on the Driveline to ascertain the Yoke is locked into position on the PTO Shaft.

DANGER!

Make certain that all Driveline Shields and the tractor's master shield are installed and functional.

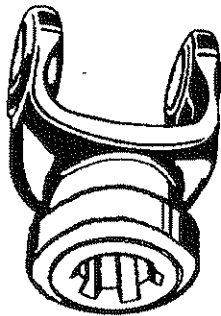


Figure 3 CY60 540 RPM DRIVELINE YOKE

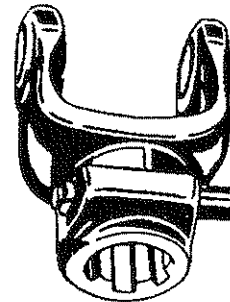


Figure 4 CY72 540 RPM DRIVELINE YOKE

OPERATION

STARTING THE CUTTER

Make Certain that all Bolts are tight. Use the "Torque Chart" in the Maintenance Section of this Manual to check required Bolt tightness. See that all Protective Shields are properly attached. Be sure that all support personnel are a safe distance from the machine. Start the Tractor engine, engage the PTO, and allow the RPM to build slowly to the maximum. Starting the PTO at full RPM can shear the Driveline Pin or make the Slip Clutch slip too much and overheat.

Start cutting only when the PTO reaches full RPM. Stop the engine immediately if there are any unusual sounds, loose bolts, or too much vibration. Refer to the "Troubleshooting Guide" at the end of this section for possible causes and remedies for the most common operational problems.

CAUTION!



Make certain that the Integral Shields turn freely on the Driveline and that the Shields telescope easily.

LEVELLING

To level the Cutter front-to-rear and still allow the Cutter to follow the terrain, adjust the length of the Top Link. Allow enough slack in the A-Frame Brace Chains so the mower is 2" to 3" lower in the rear. Adjust the Lower Lift Arms and the Tail Wheel set to level the Cutter from side to side. When the Hydraulic Relief Assembly (extra equipment) is used, lower the Cutter to the ground and adjust the Setscrew in the Top Link for front-to-rear leveling.

The solid section of the Lift Chain can be moved to help level the Cutter front-to-rear. Attach the Tail Wheel in the holes which hold the Cutter level with the 3-Point Hitch Adjustment. The A-Frame Brace Chain should be loose, allowing the rear of the Cutter to pivot on uneven terrain.

WARNING!



When raising the Cutter with the tractor's Hydraulic System, set the stop on the Hydraulic Control Quadrant at a height that will prevent interference between the front of the Mainframe and the Driveline.

WARNING!



For safer transport, move the Solid Section of the hydraulic Relief Lift Chain as close to the front as possible.

OPERATION

ADJUSTING SPEED AND HEIGHT OF CUT

A tractor forward speed of 4 MPH or less is recommended for normal grass mowing. Reduce speed to 3 MPH for heavy grass and high weeds. Although the cutting height can be set as low as 9/16", cutting height of 3" or more is recommended. Remember, slowing down can improve the quality of the job.

GENERAL OPERATIONS

As often as possible, stop mowing when other people are passing by. Although the Cutter 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 Cutter while it is operational than the person on the street.

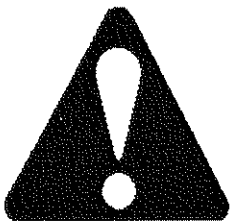
WAIT A MINUTE--SAVE A LIFE!!

Keeping cut materials from building up around the Gearbox, Driveline, and Slip Clutch will prevent over heating, which is a major cause of damage to the Cutter.

This Cutter is only warranted for brush up to 3" in diameter.

The Cutter should generally be operated with the frame level with the ground. However, in very heavy weeds, raising the rear of the Cutter 1/2" to 1" can improve the job.

Attach the tractor's Stabilizer Bars to prevent side sway which could damage the Driveline. Stabilizer Bars are required while using the Offset Adapter Hitch when the Cutter is off-balance to one side. The Stabilizer Bars help prevent the Driveline from hitting the Frame.



**WHENEVER THIS SYMBOL IS DISPLAYED:
ATTENTION!
BE ALERT!
SOMEONE'S SAFETY IS INVOLVED!**

OPERATION

TRANSPORTING

Pay particularly close attention to the Safety Messages regarding transport. Avoid unnecessary injuries and equipment damage by exercising cautious, conscientious, travel procedures.

Attaching the Cutter to the Tractor increases the overall length of the working unit. Allow additional clearance for the Cutter to swing when turning.

Raise the Cutter as high as possible for transporting while maintaining clearance between the Driveline and Deck of the 3-Point Lift Cutter.

Pneumatic tire pressure should be kept at around 20 psi to decrease shock during transport. When using puncture-proof, Laminated Tires, be sure that the flat side of the Lug Nut is against the wheel.

When using the Hydraulic Relief, adjust as described earlier for safer transport.

WARNING!



When transporting the Cutter on a road or highway, use the tractor warning lights, SMV Sign, Reflectors, and other devices for adequate warning to the operators of other vehicles. Check the traffic regulations governing the locale where mowing is to be done and work safely within those strictures.

CAUTION!



Be sure that the tractor Lift Lever is locked into the "transport" detent before attempting to transport the Cutter.

CAUTION!



Hold transport speed to a maximum of 15 mph especially when using puncture-proof, laminated Tires. These tires are designed for off-road use only. They can be used on road surfaces at very low speeds and then only for a short distance. Heat from pavement friction can build up causing the tire to ignite. The steel band holding the sections in place could break, causing extensive damage to the Cutter and tractor as well as possible injury to the operator and passerby.

OPERATION

DETACHING AND STORING

Lower the Cutter to the ground. Park the tractor with the transmission in the correct gear (Automatic Transmission--Park; Standard Transmission--Neutral). Set the parking brake, shut off the engine, and remove the key. Wait until the PTO stops rotating before getting down from the tractor.

WAIT A MINUTE---SAVE A LIFE!

Disconnect the Driveline from the tractor PTO. Disconnect the Top Link and the Lower Lift Links from the Cutter.

CAUTION! Make certain that 20% of the tractor's original weight is on the front tires for safe storage.

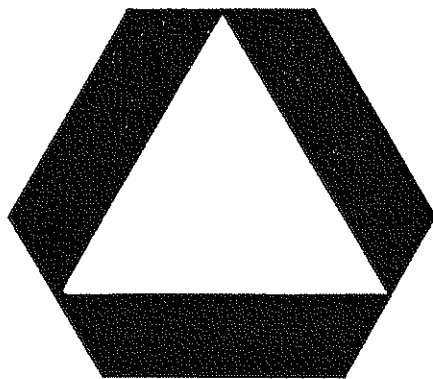


WARNING! Keep hands and feet out from under Blades. Block up the frame securely before working on or under components.



BEFORE OPERATING OR TRANSPORTING THIS CUTTER

Always display this emblem on the rear of the tractor transporting this mower where it is clearly visible to oncoming traffic. Prominent display of this symbol will help the operator avoid accidents which could cause injury or possibly death.



SMV SYMBOL

OPERATION

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
NOT CUTTING CLEAN	Blades dull. Blade rotation incorrect. Using Straight Blades. Carrier RPM too low. Mower not leveled. Tires mashing down grass. Ground speed too fast. Blades locked back. Blades riding up due to Blade Bolt wear. Blades bent up.	Sharpen or replace Blades. Use correct Blade for Carrier. Use Fan Blades in grass. Increase PTO speed. Adjust machine level (in very heavy weeds, 1/2" to 1" low in front). Use Offset Adapter to move Cutter to the left. Reduce ground speed. Free Blades. Replace Blade Bolts Replace Blades.
BREAKING BLADE BOLTS	Operating with loose Blade Bolts. Worn Blade Bolt.	Tighten Blade Bolts to 350 ft./lbs (Left Hand threads) Replace Bolt.
CUTTING TOO HIGH	Blades bent up. Blade Bolt Bushing broken or loose. Blade Carrier bent. Blades on upside down.	Replace Blades. Replace or reweld Bushing. Weld with E7018 low Hydrogen rods. Straighten or replace Blade Carrier. Turn Blades right side up and tighten.
CUTTER VIBRATES	Blade locked back. Drivelines not phased. Blade broken. Blade Carrier bent. Blade Hub not properly seated on Shaft. New Blade matched with worn Blade.	Loosen locked Blade. Replace Driveline. Replace Blades in sets. Repair or replace Carrier. Remove Hub, check Key and Shaft, and replace or seat properly. Replace Blades in sets
CUTTER WINDROWING	Cutting heavy material.	Raise Cutter and reduce ground speed.
BLADES WEAR FAST	Cutting in sandy or rocky conditions. Blades too soft.	Increase cutting height. Replace Blades; with hardened, high-quality, Rhino Blades from the manufacturer.
BLADE BOLTS WORKING LOOSE	Bolts not tightened. Bolt hole elongated or oversized. Locknut worn out.	Tighten Bolts to 350 ft. lbs. Replace Bushing or replace Blade Carrier. Replace Locknut.

OPERATION

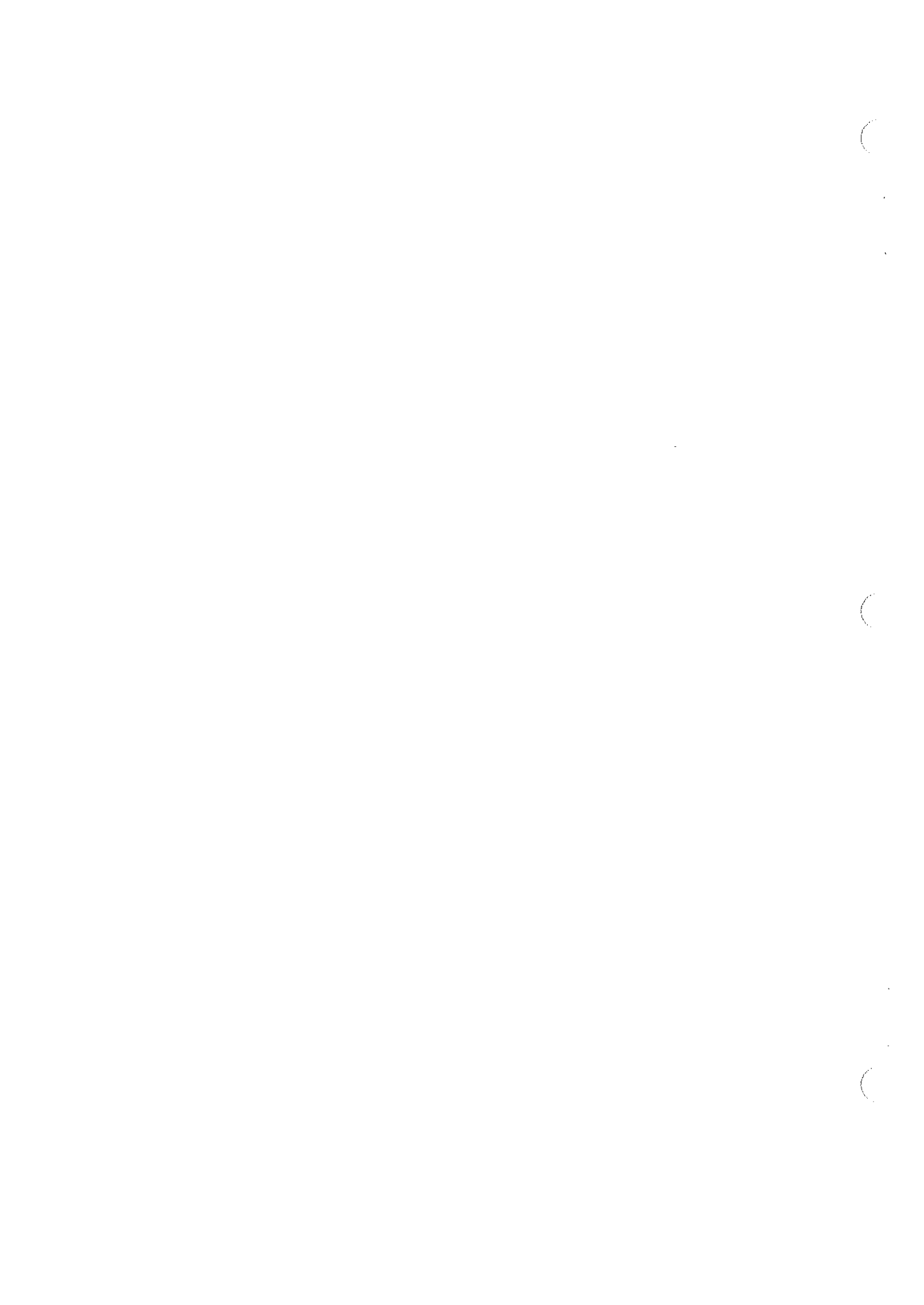
TROUBLESHOOTING (Continued)

PROBLEM	POSSIBLE CAUSE	REMEDY
BROKEN CROSS OR CUPS	Load too high for joint.	Use protective device with joint. Check joint angles and phasing. Slow down or raise Cutter.
END GALLING OF CROSS AND CUPS	Speed too high. Ears have deformed.	Reduce speed to 540. Install thrust washer.
NEEDLE ROLLERS HAVE BRINELLED INTO CUP AND CROSS	Load too high for joint.	Check for small joint angles. Use protective device. Check joint angles and phasing.
SHAFT OR TUBE TWISTED	Over-loaded.	Replace part and then slow down or or raise Cutter. Use protective device. Use only Shear Pins from the manufacturer.
TUBE BROKEN IN WELDED SEAM	Over-loaded.	Replace part.
YOKE BROKEN AT EAR TIP	Over-loaded.	Replace part.
GEARBOX NOISY	Improper backlash. Rough gears. Worn Bearing.	Refer to Maintenance Section Run in or change Gears. Replace Bearing.
SLIP CLUTCH SLIPPING EXCESSIVELY	Excessive load. Springs weak. Improper adjustment. Too much power for Slip Clutch. Friction Facings worn. Oil on Facings. Friction Facings glazed.	Reduce speed and/or raise Mower. Replace Springs. Re-adjust Slip Clutch. Reduce ground speed and material intake. Replace Facings. Replace Facings Clean with emery cloth.
OIL BLOWING OUT VENT PLUG	Flat bottomed Vent Plug or shallow cavity Plug. Oil level too high.	Replace with proper Vent Plug, Cavity in Oil Plug should be approximately 5/8". Lower oil level to Plug.

OPERATION

TROUBLESHOOTING (Continued)

PROBLEM	POSSIBLE CAUSE	REMEDY
GEARBOX LEAKING	Damaged Oil Seal. No Oil Seal. Oil too light. Bent Shaft. Oil Seal race rough. Oil Seal installed wrong. Oil Seal not sealing in the housing. Bearings loose. Vent Plug stopped up. Oil level too high. Gasket damaged. Bolts loose.	Replace Seal. Install Oil Seal. Use EP140. Replace Oil Seal and Shaft. Replace Shaft or repair Race. Replace Seal. Replace Seal or use a sealant on O.D. of Seal. Adjust Bearings. Open Vent Plug. Drain oil to proper level. Replace Gasket. Tighten Bolts.
DRIVELINE INTEGRAL SHIELDS RATTLING OR NOT TURNING FREELY	Integral Shields deformed. Nylon Bearing worn.	Replace Shield. Replace Nylon Bearing.



MAINTENANCE SECTION

MAINTENANCE

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

WARNING! Always disengage the PTO before raising the Rotary Cutter for transporting or making adjustments.



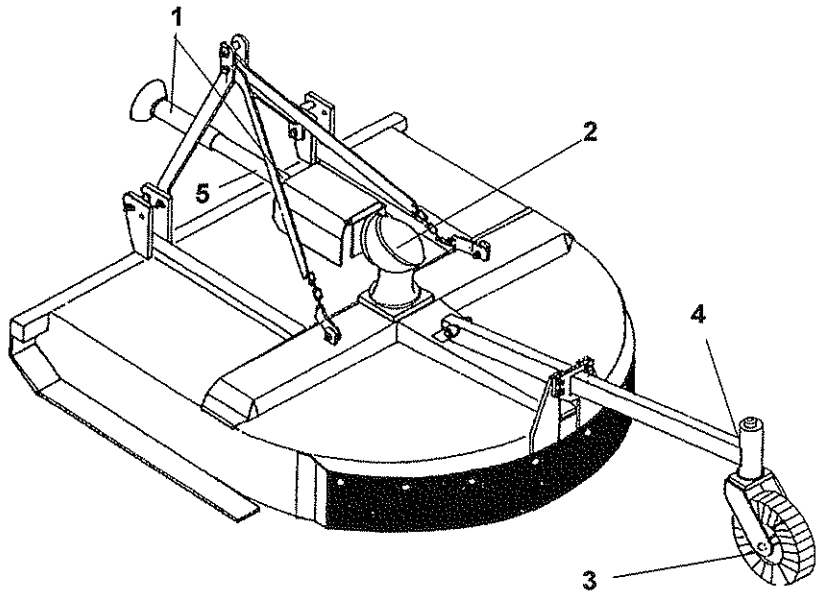
LUBRICATION INFORMATION

Do not let excess grease collect on or around parts, particularly when operating in sandy areas. The illustrations show 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.

Use an SAE multi-purpose, lithium-type grease for all locations shown. Be sure to clean the fitting thoroughly before using grease gun. Daily lubrication of the wing driveline slip joint is necessary. Failure to maintain proper lubrication will result in damage to U-joints, gearbox, and/or driveshaft.

LUBRICATION FITTING LOCATION

ITEM	DESCRIPTION	FREQUENCY
1	U-Joints	8 hours
2	Gearbox	Check Daily
3	Wheel Hubs	10 hours
4	Tail Beam	8 hours
5	Driveline	8 hours



GEARBOX LUBRICATION

The Gearbox was filled with oil at the factory. However, it is necessary that the operator check the Gearbox before operations. The oil should be up level of the Test Plug on the side of the Gearbox. The Filler/Breather Plug is on the top of the Gearbox. Fill through this Plug using 80W90T oil. EP 90 may be substituted in colder climates.

Check the oil level after operating long enough for warmed oil to flow through the Bearings into the lower Gearbox cavity. Refill to the test plug level. Check the oil again before operation, after every 40 hours of mowing, and at the beginning and end of each mowing season.

NOTE: Overfilling the Gearbox will cause pressure to build up and cause Oil Seals to leak.

ATTENTION: If the Gearbox suddenly starts making an unusual noise, stop at once, check for leaks, and refill Gearbox as required.

MAINTENANCE

DRIVELINE LUBRICATION

Grease Fittings are located on the Cross Assembly of each U-Joint (Figure 1) and on the Round Housing (fig. 20). Grease the U-Joint after each 10 hours of use. Do not force grease through the Needle Cup Assemblies. Grease the Round Housing after every 10 hours of use, except in sandy soil conditions. Some PTO-to-Hitch connections may necessitate cutting a hole in the shields to be able to align the Grease Fitting holes for lubrication.

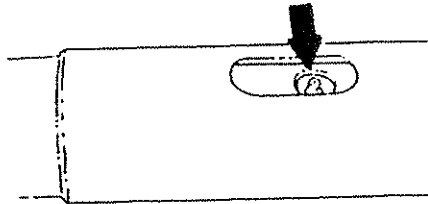


Figure 1

SLOTTED NUT (CY72 ONLY)

Tighten nut so that mating flanges are spaced apart with a clearance equal to the thickness of a piece of writing paper. If nut is too tight, this could cause Torque Limiter to not slip properly. (Figure 2)

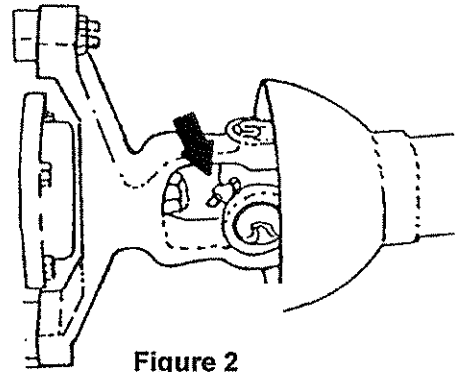


Figure 2

TAIL WHEEL ASSEMBLY

Tail Wheel Bearings are packed at the factory with heavy-duty bearing grease. Grease Fittings are provided in the Wheel Hub (Figure 3) and Tail Wheel Beam (Figure 4). Grease after 10 hours of use.

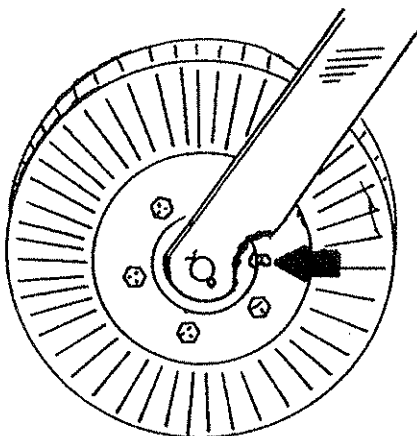


Figure 3

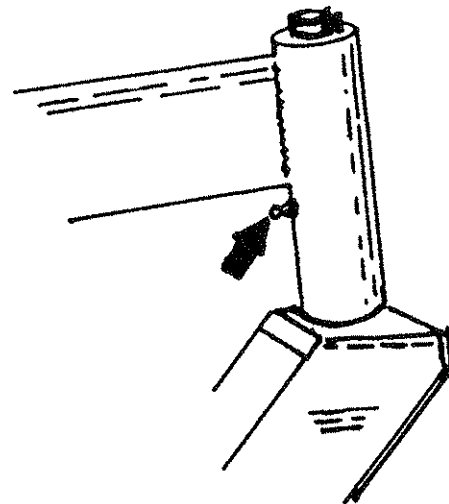


Figure 4

NOTE: GREASE EVERY 10 HOURS OF USE!

MAINTENANCE

HARDWARE

TORQUE CHART Figure 5

Check nuts, bolts, and other miscellaneous hardware regularly. Loose hardware is easily lost, causes increased wear on parts, and increases the chance of breakdown. Loose hardware creates potential hazards which could result in personal injury to the operator, support personnel, and bystanders. Use the "Torque Chart" below when tightening bolted connections.

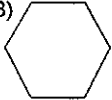


RECOMMENDED TORQUE IN FT-LBS (Nm) COARSE AND FINE THREADS			
2 (B)  5 (D)  8 (F) 			
Bolt Diameter	Plain Head	Three Dashes	Six Dashes
1/4	Not used	10 (14)	14 (19)
5/16	Not used	20 (27)	30 (41)
3/8	Not used	35 (47)	50 (68)
7/16	35 (47)	55 (75)	80 (108)
1/2	55 (75)	85 (115)	120 (163)
9/16	75 (102)	130 (176)	175 (237)
5/8	105 (142)	170 (230)	240 (325)
3/4	185 (251)	300 (407)	425 (576)
7/8	160 (217)	445 (603)	685 (929)
1	250 (339)	670 (908)	1030 (1396)
1-1/8	330 (447)	910 (1234)	1460 (1979)
1-1/4	480 (651)	1250 (1695)	2060 (2793)

Figure 5

BLADE AND BLADE CARRIER BOLTS

Blade and Blade Carrier Bolts should be inspected before machine start-up each day and if any problems similar to those described in the "Trouble-Shooting Guide" occur. Always stop the engine, remove the key, and disconnect the PTO Driveline before working on the Blades and Blade Carrier.

DANGER! Do not put hands or feet under the Cutter without securely blocking the deck up.



A Blade Bolt inspection hole is located on the deck for convenient access to the Blade Bolts. After the first few hours of operation, check the Blade Bolts and the Blade Carrier Mounting Hub for tightness on the Gearbox Output Shaft. Blade Bolts must be tightened to 350 ft/lb, have a square shank, and left hand threads.

Keep the Blades sharp for better cutting. When it is necessary to change Blades, replace in pairs for good Blade Carrier balance, and use only **Alamo Group** parts. When replacing or sharpening Blades, rotate the square shank of the Blade Bolt 1/4 turn to allow for even wear on the Blade Bolts. Replace the Blade Bolts as the wear becomes noticeable.

MAINTENANCE

REPLACING BLADE CARRIER BUSHINGS

Use a wheel puller to remove the Blade Carrier Mounting Hub from the Gearbox. Do not use a hammer. Hammering the end of the Gearbox Output Shaft can damage the Shaft threads and bearings. Cut out the old Blade Bolt Bushings and weld in the replacement Bushings using a low-hydrogen rod (E7018 rods recommended). Before welding, be sure that the new Bushings are straight and square. Weld with the flange on the bottom. Refer to the Parts Listings Section of this Manual for part numbers and locations.

DRIVELINES AND SHIELDS

Check this connection before start-up each day. Maintain this bolted connection at 125 ft/lb torque.

The Interlocking Pin of the CY72 540 RPM Yoke (Figure 6) needs no maintenance other than periodic inspection to see that the pin is secure.

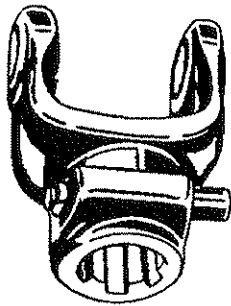


FIGURE 6 540 RPM YOKE

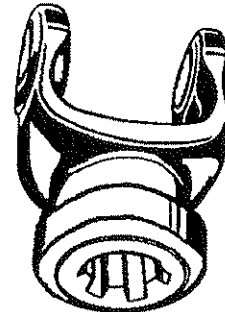


FIGURE 7 CY60 SLIDE COLLAR YOKE

All bolts holding the Canopy Shield in place over the Driveline and Slip Clutch must remain tight at all times to maintain the protective features for which they were designed. Keep the Bolts tightened according to the "Torque Chart" on the preceding page.

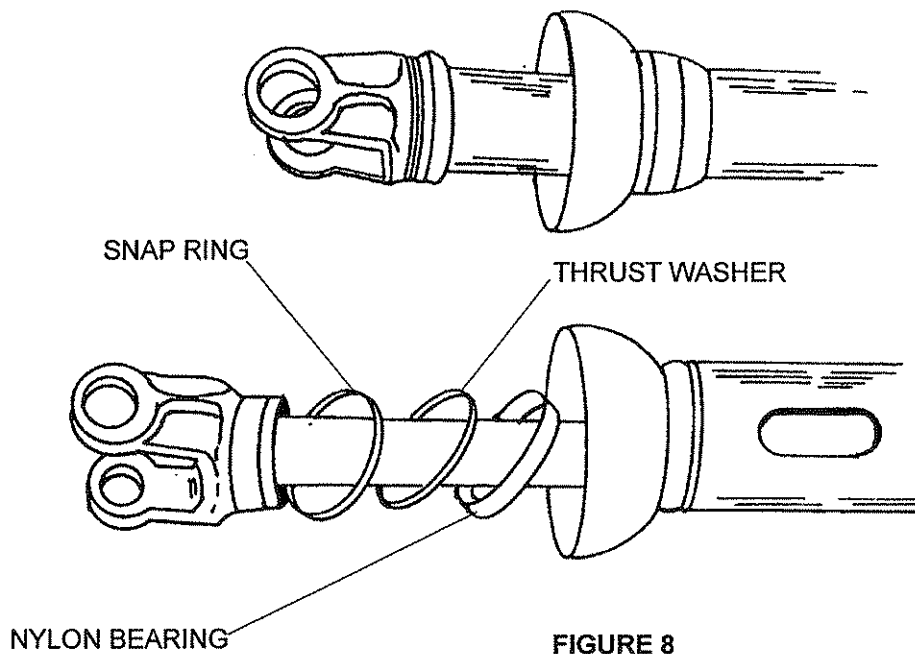
MAINTENANCE

The Driveline Integral Shields should not become dented or otherwise damaged. The Integral Shield Assembly has a nylon Bearing at each end and should turn freely (Figure 8). This nylon bearing should not require lubrication at any time. To remove the Integral Shields for replacement or repair, press the three Snap Ring Lugs out of Shield Slots by inserting a screwdriver into each slot one at a time, and pull the Shield off the Driveline. Install the new or repaired Shield on the Driveline. Place the Snap Ring and Thrust washer over the Driveline Housing or Shaft so the Snap Ring is against the yoke. Place the Nylon Bearing in the Bearing groove. Place the Flat end of the shield over the Housing so the Nylon Bearing fits into the Shield Bearing Retainer. Align the slot in the Snap Ring with one of the slots in the Shield. With the screwdriver, push the other two lugs into the slots.

CAUTION!



Make certain that the Driveline Integral Shields are free to telescope and rotate around the Driveline without binding.



GREASE FITTING

NOTE: Do not over-lubricate!!

MAINTENANCE

TORQUE LIMITER (CY72)

Avoid overheating of the Torque Limiter by too long or too frequent slipping, as this can damage the friction plates and limiter parts. When checking Torque Limiter for overheating, DO NOT touch with hand. Torque Limiter could be extremely hot and cause severe burn.

If an adjustment is required, this may be done in the field by following the procedure outlined below. Following these instructions will give maximum rated torque and long life. (Figure 9).

- (a) With the three Capscrews (#8) backed out until the points are below the surface of the circular Adjusting Nut (#7), run Adjusting Nut up finger-tight, or slightly less than finger-tight.
- (b) Alternately tighten the hardened, cup point Capscrews (#8) no more than one-half turn at a time until the Capscrew heads "Bottom Out". Do not over tighten the Capscrews nor completely flatten the Spring Washers (#5).

If the Hub is removed from the Shaft for any reason, the Shaft and Hub should be coated with a heavy grease before reassembly to prevent Hub from freezing to Shaft.

SEASONAL TORQUE LIMITER MAINTENANCE

It is important that the Torque Limiter slips when an obstacle or load heavier than the setting is encountered. Before using the cutter each season, use the following procedure to make sure the torque limiter will slip and give the overload protection required.

1. Loosen Bolts (#8) until gap between adjusting nut (#7) and guide ring is approximately 1/16".
2. Attach machine to tractor, set engine at approximately half throttle and quickly engage PTO. This procedure will break Torque Limiter facings loose and allow the proper torque to be maintained.
3. Return the bolts to their original position as described in (b) above.

NOTE: If machine sits outside longer than 30 days and is exposed to rain and humid air, the clutches should be removed from machine and stored in a dry area. Torque Limiter facings will soak up moisture and cause the metal plates to rust badly. When this occurs, the break-away torque increases greatly and damage to gearbox, driveline, or tractor PTO can occur.

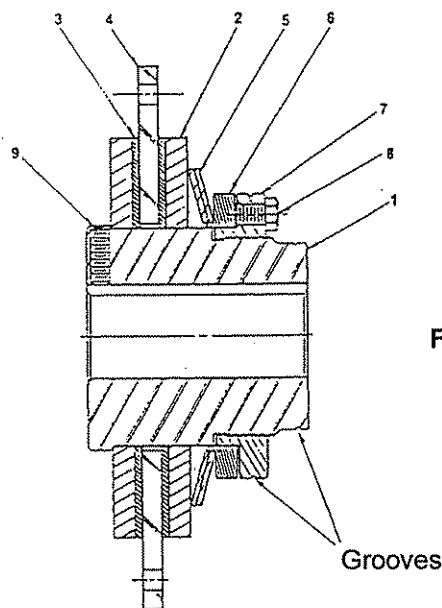


FIGURE 9

MAINTENANCE

SLIP CLUTCH (CY60)

A Slip Clutch is incorporated in the PTO driveline. It is designed to slip, absorb the shock load, and protect the driveline.

Clutch torque setting is factory set. If clutch slips excessively, check friction discs for excessive wear. Discs are 1/8" thick when new. Replace after 1/32" wear.

To adjust slip clutch, first check length of springs as assembled on clutch. Length should be 1-5/16 inch. If not, adjust length of bolt to obtain proper spring length. If additional adjustment is required, tighten each bolt 1/2 turn.

NOTE! DO NOT tighten spring bolts over 1/2 turn at any adjustment. Excessive tightening can cause clutch to become frozen and not slip which could cause damage to tractor PTO, Drivelines, or Gearbox.

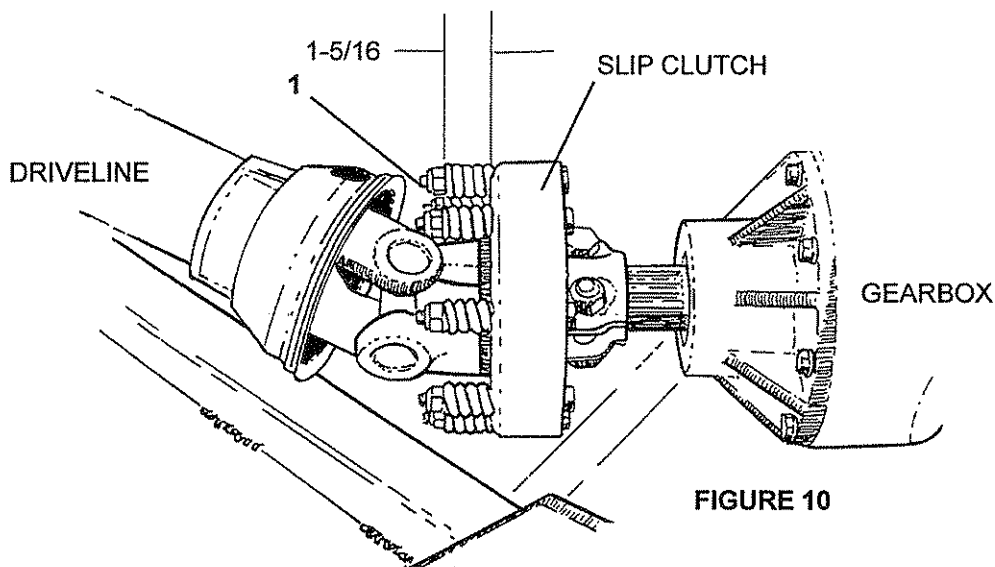
Avoid overheating of clutches caused by too long or too frequent slipping of the clutch since this can damage the friction plates and clutch parts. When checking slip clutch for overheating, do not touch with hand. Clutch could be extremely hot and cause severe burn.

SEASONAL CLUTCH MAINTENANCE (FIGURE 10)

It is important that the clutches slip when an obstacle or load heavier than the clutch setting is encountered. Before using the cutter each season, use the following procedure to make sure the clutch will slip and give the overload protection required.

1. Loosen nuts (1) **Figure 11** until the spring is free, and then retighten approximately one turn.
2. Attach machine to tractor, set engine at approximately half throttle and quickly engage PTO. This procedure will break clutch facings loose and allow the proper torque to be maintained.
3. Return the nuts and bolts to their original position of 1-5/16" compressed spring length. This setting is approximately 1-3/4 turns of the nut after the nut has contacted the spring.

NOTE: If machine sits outside longer than 30 days and is exposed to rain and humid air, the clutches should be removed from machine and stored in dry area. Clutch facings will soak up moisture and cause the metal plates to rust badly. When this occurs, the break-away torque increases greatly and damage to gearbox, driveline, or tractor PTO can occur.



PARTS SECTION

PARTS ORDERING GUIDE

The following instructions are offered to help eliminate needless delay and error in processing purchase orders for the equipment in this section.

1. The Parts Section is prepared in logical sequence and grouping of parts that belong to the basic machine featured in this manual. Part Numbers and Descriptions are given to help locate the parts and quantities required.
2. The Purchase Order must include the name and address of the person or organization ordering the parts, who should be charged, and if possible, the serial number of the machine for which the parts are ordered.
3. The Purchase Order must clearly list the quantity of each part, the complete and correct part number, and the basic name of the part.
4. The Manufacturer reserves the right to substitute parts where applicable.
5. Some parts are unlisted items which are special production items not normally stocked and are subject to special handling. Request a quotation for such parts before sending a Purchase Order.
6. The Manufacturer reserves the right to change prices without prior notice.

NOTE: Please refer to The Safety Section in the front of this Manual for the proper Part Number when ordering Replacement Safety Decals.



For maximum safety and to guarantee optimum product reliability, always use genuine Servis-Rhino Parts. The use of inferior replacement parts may cause premature or catastrophic failure which could result in serious injury or death. Direct any questions regarding parts to:



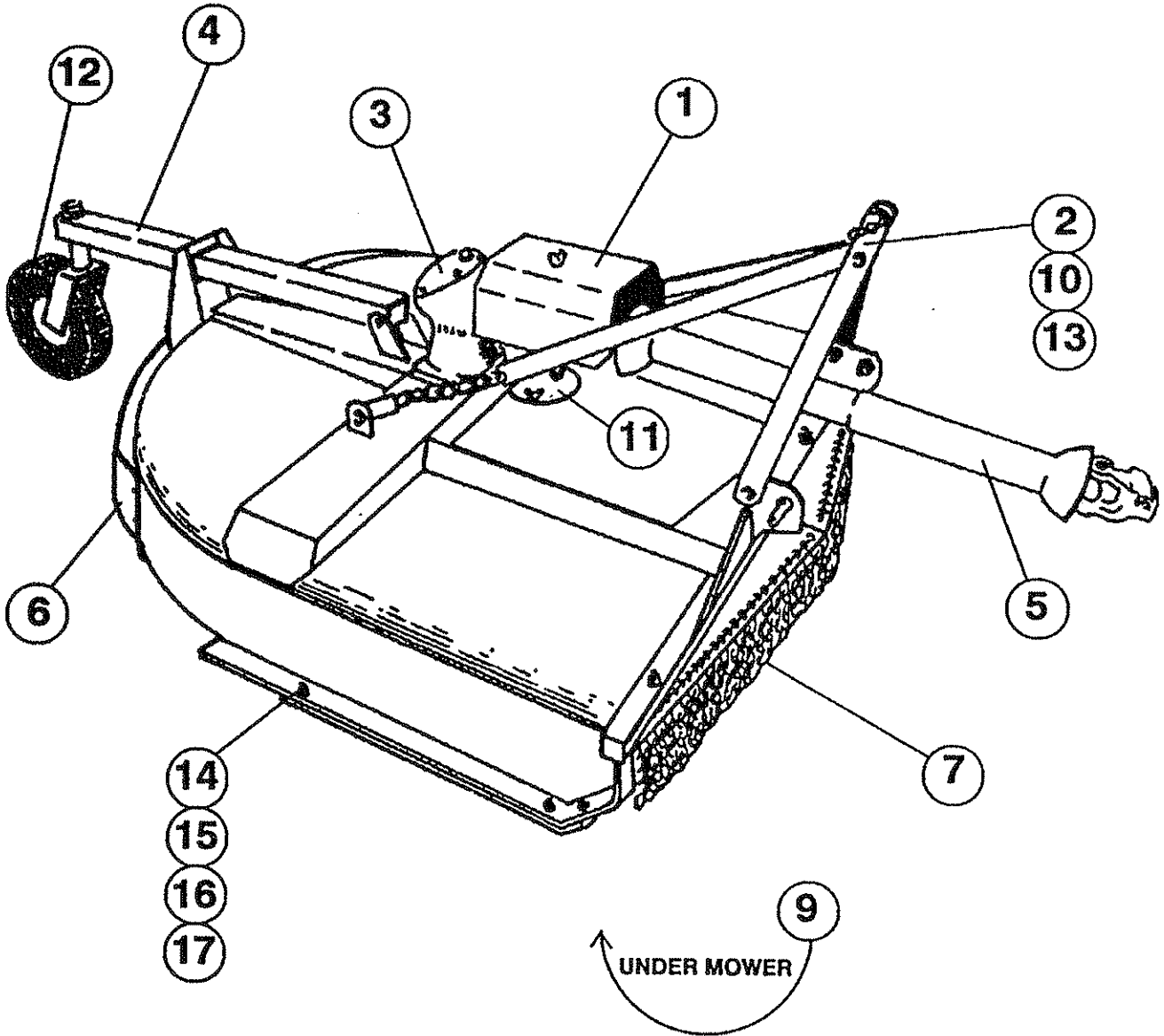
Servis-Rhino
P.O. Drawer 712
Seguin, Texas 78156
512-372-3080

PARTS TABLE OF CONTENTS

General Assembly	6-4
Gear Box Assembly (CY60)	6-6
Gear Box Assembly (CY72)	6-8
Slipclutch Assembly (CY60)	6-10
Torque Limiter (CY72)	6-11
Shields	6-12
Driveline Assemblies	6-14
PTO Square Shaft Assembly	6-16
Blade Carrier Assembly	6-17
Hydraulic Relief Assembly	6-18
Offset Adapter Assembly	6-19
Tail Wheel Mounting Assembly	6-20
Tail Wheel Assembly	6-21
A-Frame Assembly (CY60).....	6-22
A-Frame Assembly (CY72).....	6-23
Front Guard Assembly	6-24
Rear Guard Assembly	6-25

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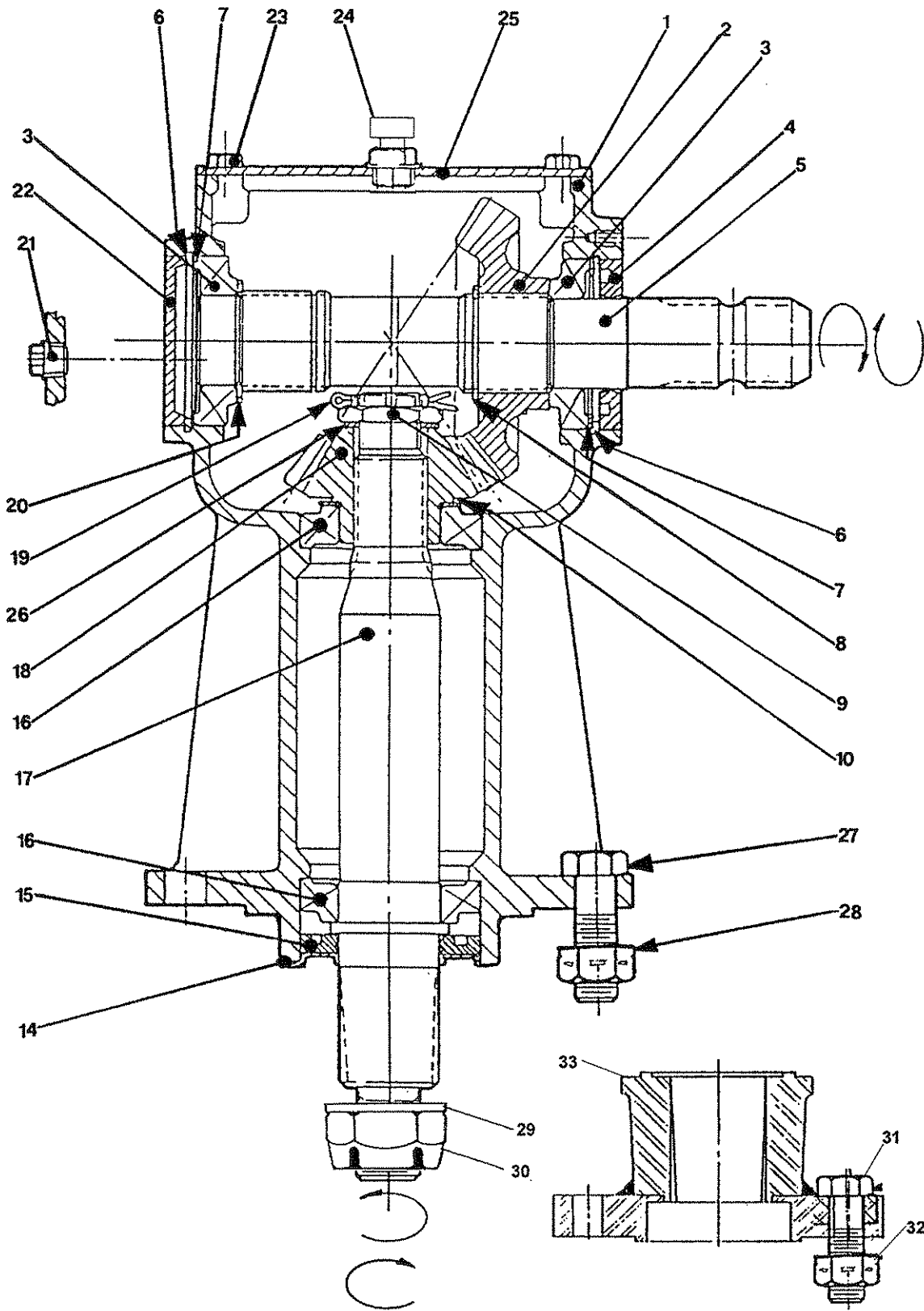
GENERAL ASSEMBLY



GENERAL ASSEMBLY

ITEM	PART NO.	QTY	DESCRIPTION	PAGE
1	-----	1	Gearbox Shield Assembly (CY60)	6-12
	0581070000	1	Gearbox Shield Assembly (CY 72)	6-13
2	-----	1	CY60 A-Frame	6-22
	-----	1	CY72 A-Frame	6-23
3	00755598	1	Gearbox Assembly (CY60)	6-6
	0580540000	1	Gearbox Assembly (CY72)	6-8
4	-----	1	Tail Wheel Mounting Assembly	6-20
5	-----	1	Driveline Assemblies	6-14
6	0622071000	1	CY60 Rear Guard Assemblies	6-25
	0582070000	1	CY72 Rear Guard Assemblies	6-25
7	00756321	1	CY60 Front Guard Assemblies	6-24
	00756322	1	CY72 Front Guard Assemblies	6-24
9	-----	1	Blade Carrier Assembly	6-17
10	0702310000	1	Optional Offset Adapter Assembly	6-19
11	5710121	1	Inspection Cover Plate	6-17
12	0585020200	1	Tail Wheel Caster Assembly	6-21
13	58504	1	Optional Hydraulic Relief Assembly	6-18
14	2A361612	6	Plow Bolt	
15	00013901	6	Nut	
16	15B600	6	Flatwasher	
17	00012101	6	Lockwasher	

CY60 GEARBOX ASSEMBLY p/n 00755598



CY6072/12-94

Parts Section 6-6

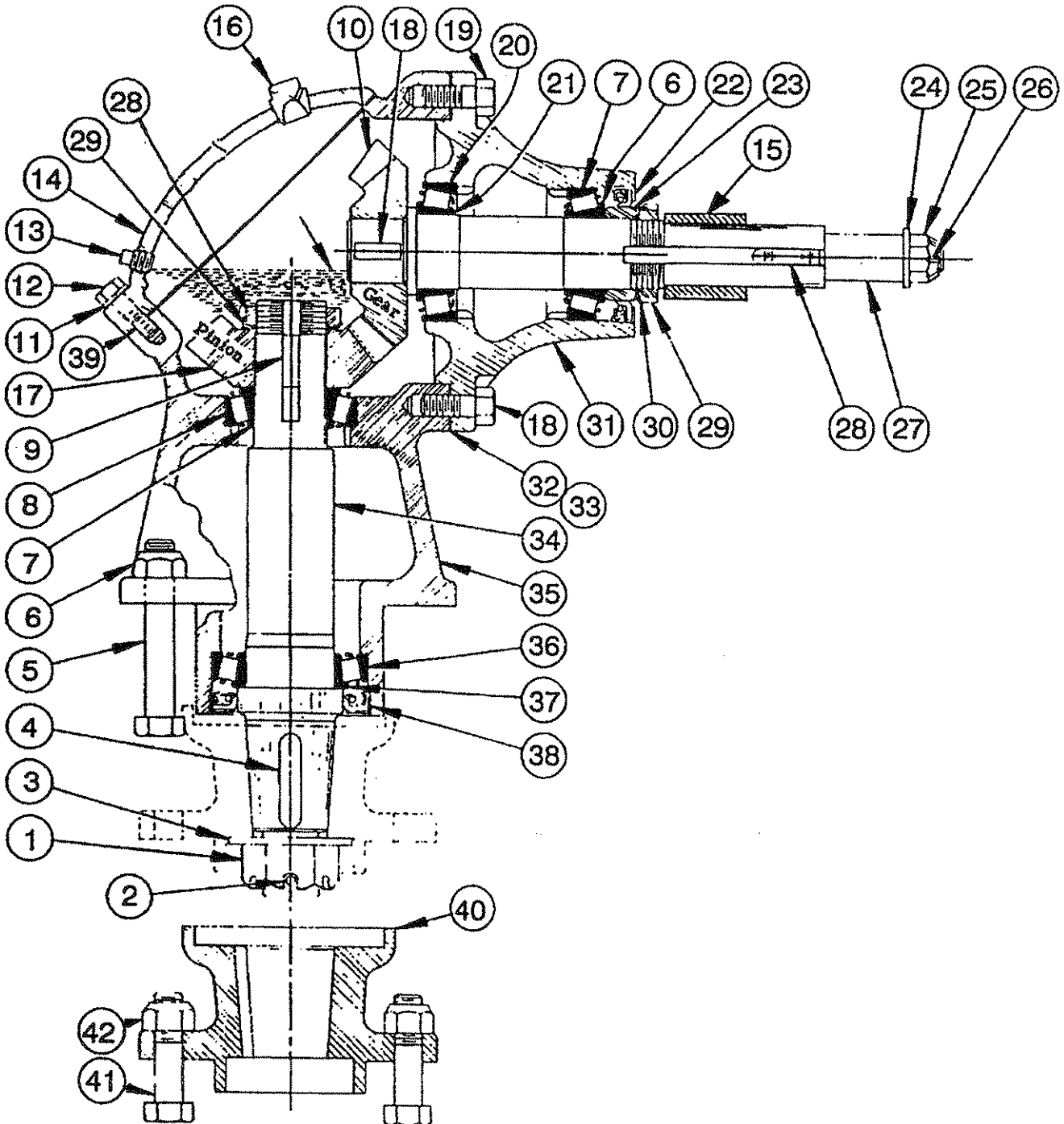
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CY60 GEARBOX ASSEMBLY p/n 00755598

CW in - CCW out

ITEM	PART NO.	QTY.	DESCRIPTION
1	00755613	1	Casing
2	00755614	1	Crown Wheel Gear(24 Teeth)
3	00755615	2	Bearing
4	00753238	1	Oil Seal
5	00755617	1	Shaft
6	00755618	2	Internal Circlip
7	00755619	2	Shim
8	00755620	1	External Circlip
9	00755621	1	Nut
10	00755622	1	Shim
14	00755626	1	Protective Shield
15	00755627	1	Oil Seal
16	00755628	2	Bearing
17	00755629	1	Shaft
18	00755630	1	Bevel Pinion (16 Teeth)
19	00026200	1	Cotter Pin
20	00755632	1	Shim
21	00755633	1	Plug
22	00755634	1	Cap
23	00755635	4	Hex Bolt
24	00758654	1	Vent Plug
25	00755637	1	Cover
26	00755638	1	Shim
27	02959391	6	Bolt
28	00037200	6	Locknut
29	00755623	1	Washer
30	00755624	1	Nut, Castle
31	7AH5101820	4	Bolt
32	5GR10180	4	Locknut
33	00760042	1	Hub

CY72 GEARBOX ASSEMBLY p/n 0580540000



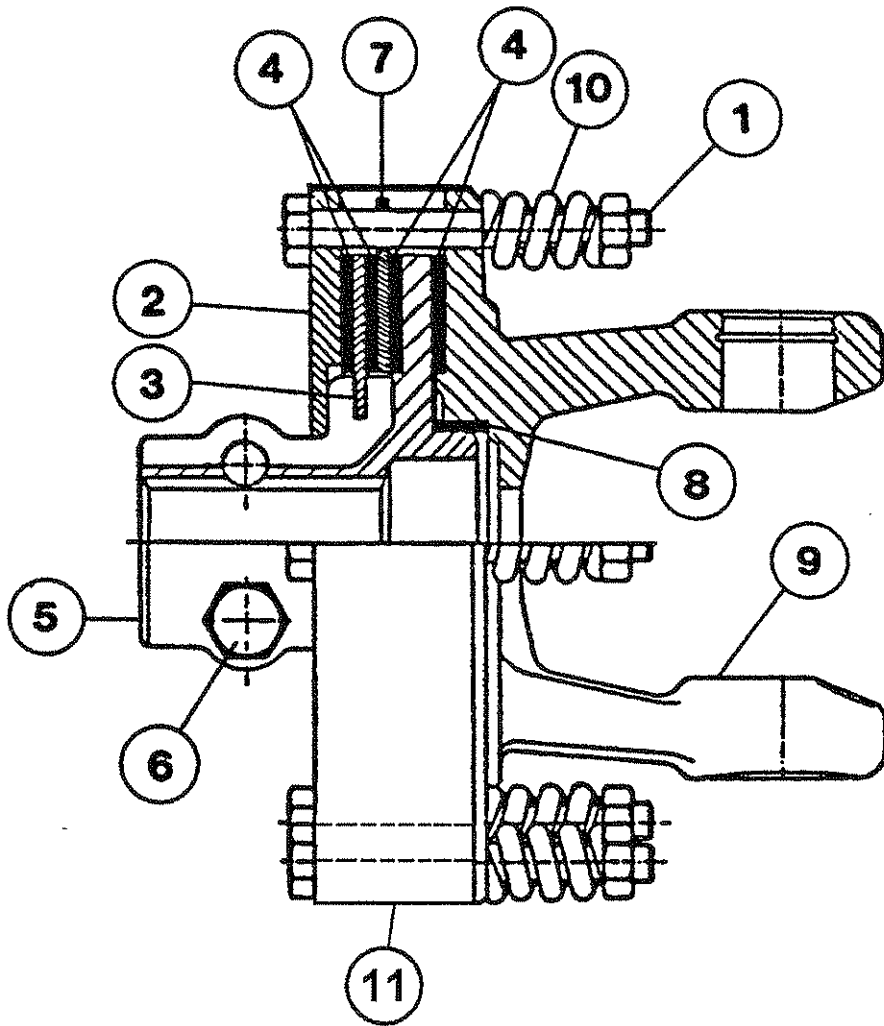
CY6072/12-94

Parts Section 6-8

CY72 GEARBOX ASSEMBLY p/n 0580540000

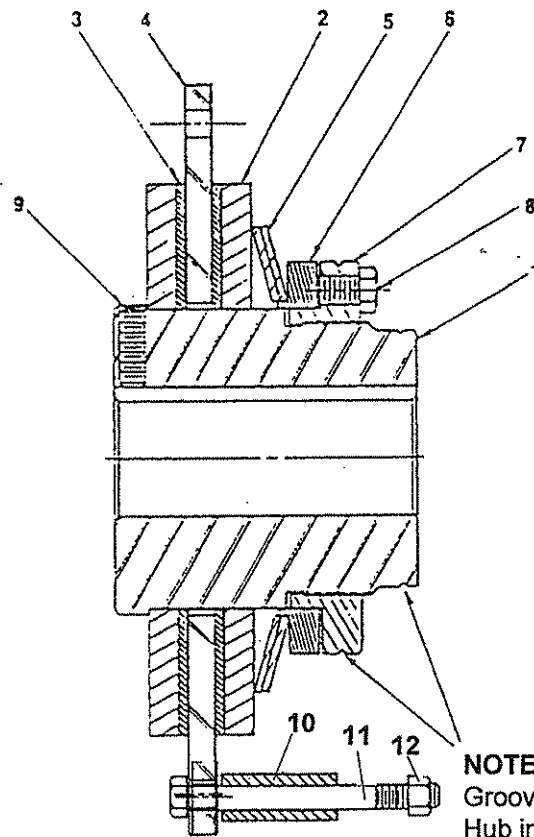
ITEM	PART NO.	QTY.	DESCRIPTION
1	5D20120	1	Slotted Hex Nut
2	163016	1	Cotter Pin
3	15C2000	1	Plain Washer
4	581037	1	Square Key
5	00749127	4	Bolt, GR5
6	00749136	4	Locknut
7	W83	2	Bearing Cone
8	W84	2	Bearing Cup
9	571036	1	Sq. Key (Heat treated)
10	651043G	1	Bevel Gear, 22-teeth
11	00012101	6	Lockwasher
12	00753642	6	Bolt
13	3711350	1	NPT PipePlug(Oil Level Test)
14	0581000004	1	Gearbox Cover
15	641041	1	Sleeve,2-11/32 lg.
16	301021	1	Pipe Plug (Oil Filler)
17	651043P	1	Bevel Gear, 16-teeth
18	PT209	1	Woodruff Key, "E"
19	7A181310	6	Place Bolt
20	PT102	1	Bearing Cup
21	PT101	1	Bearing Cone
22	PT103	1	Oil Seal
23	271096	1	Bearing Collar
24	5312316	1	Washer, Hardened
25	5312315	1	Yoke Nut
26	16212012	1	Cotter Pin
27	0581000003	1	Input Drive Shaft
28	271099	1	Sq. Key
	581066	1	Sq. Key(Used with Slip Clutch)
29	PT104	2	Locknut
30	PT105	2	Lockwasher
31	571032	1	Driveshaft Housing
32	571037	1	Shim Set
33	571038	1	1/64" Gasket
34	651045	1	Blade Shaft
35	0581000002	1	Gearbox Housing
36	581039	1	Bearing Cup
37	581038	1	Bearing Cone
38	5810310	1	Oil Seal
39	561055	1	1/32" Gasket
40	581036	1	Blade Hub, Only
41	00749127	4	Bolt, Gr5
42	00749136	4	Locknut

CY60 SLIP CLUTCH



ITEM	PART NO.	QTY.	DESCRIPTION
1	00754199	8	Bolt and Nut Set
2	00754203	1	Outer Flange
3	00754201	1	Clutch Plate
4	00754202	4	Disk
5	00755599	1	Body Friction Clutch
6	00755600	2	Bolt and Nut Set
7	00754314	1	Plate w/Holes
8	00754301	1	Spacer
9	00754302	1	Yoke Friction
10	00754303	8	Spring
11	00754304	1	Dirt Shield

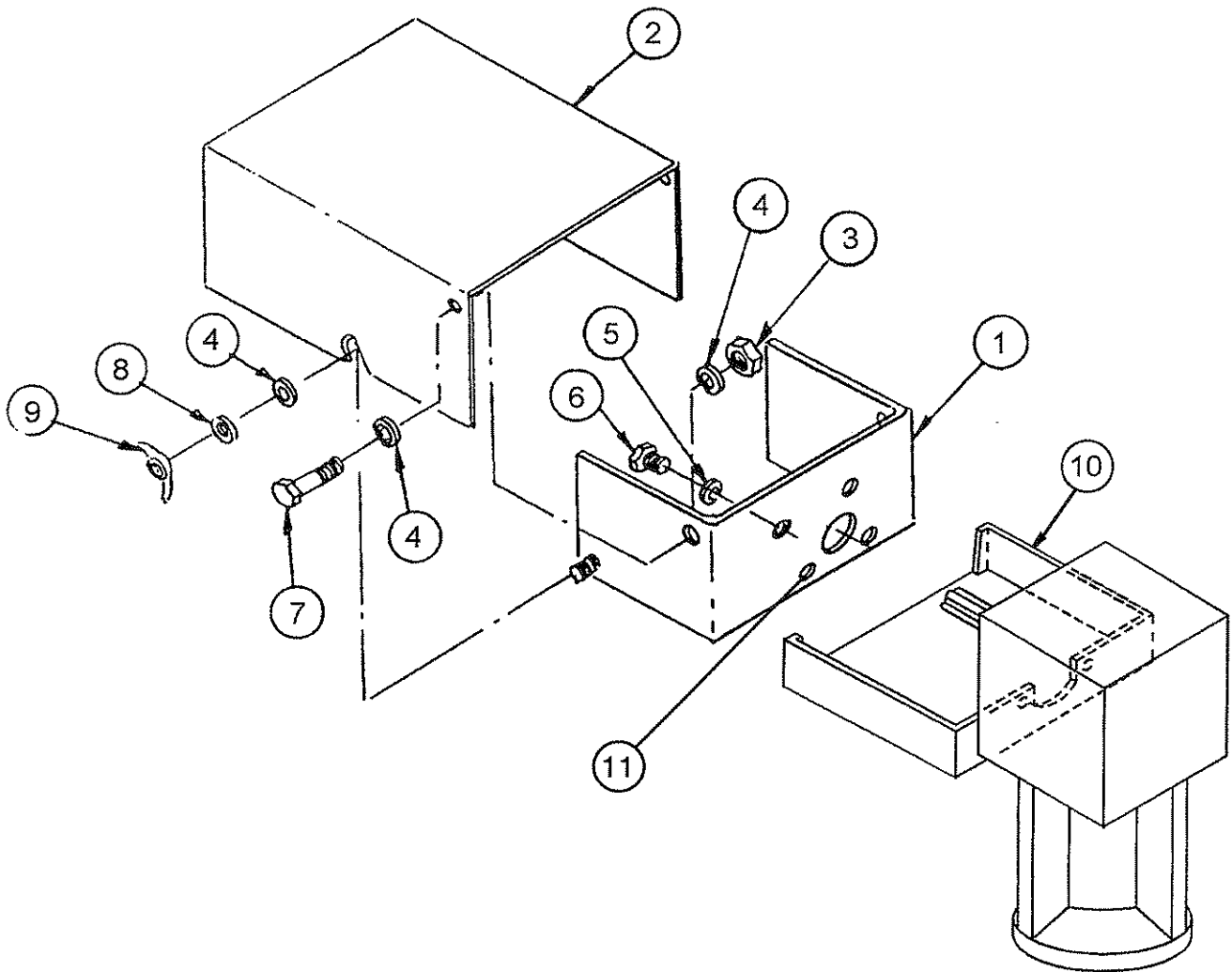
CY72 TORQUE LIMITER



NOTE:
Groove O.D. of Nut &
Hub indicated 3-1/4 Dia.

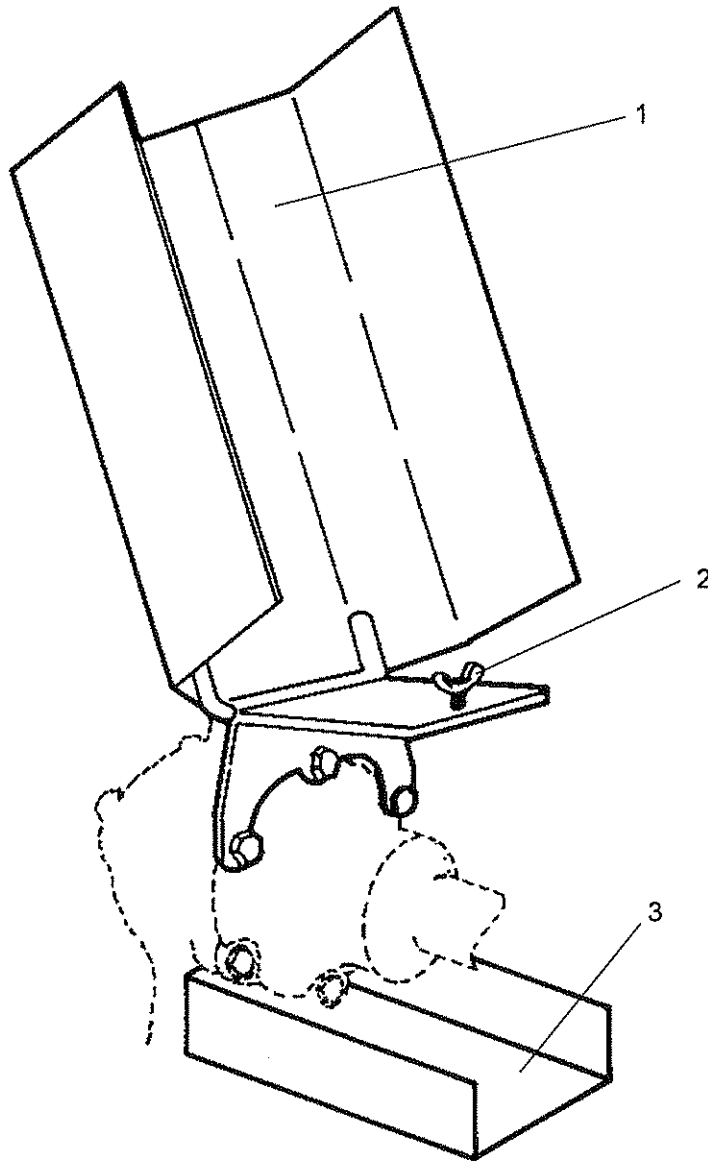
ITEM	PART NO.	QTY.	DESCRIPTION
1	00759345	1	Torque Limiter Hub
2	0581060002	2	Pressure Plate
3	0581060003	2	Friction Disc
4	581063A	1	Drive Plate
5	0581060004	2	Belleville Spring
6	0581060005	1	Guide Ring
7	00759346	1	Adjustment Nut
8	0581060008	3	Tension Screw
9	9C15188	1	Set Screw, Socket
10	0581060031	2	Spacer
11	63092200	4	Bolt (For Cast Yoke)
	7AH551832	4	Bolt (For Welded Yoke)
12	00750940	4	Locknut

CY60 GEARBOX SHIELD



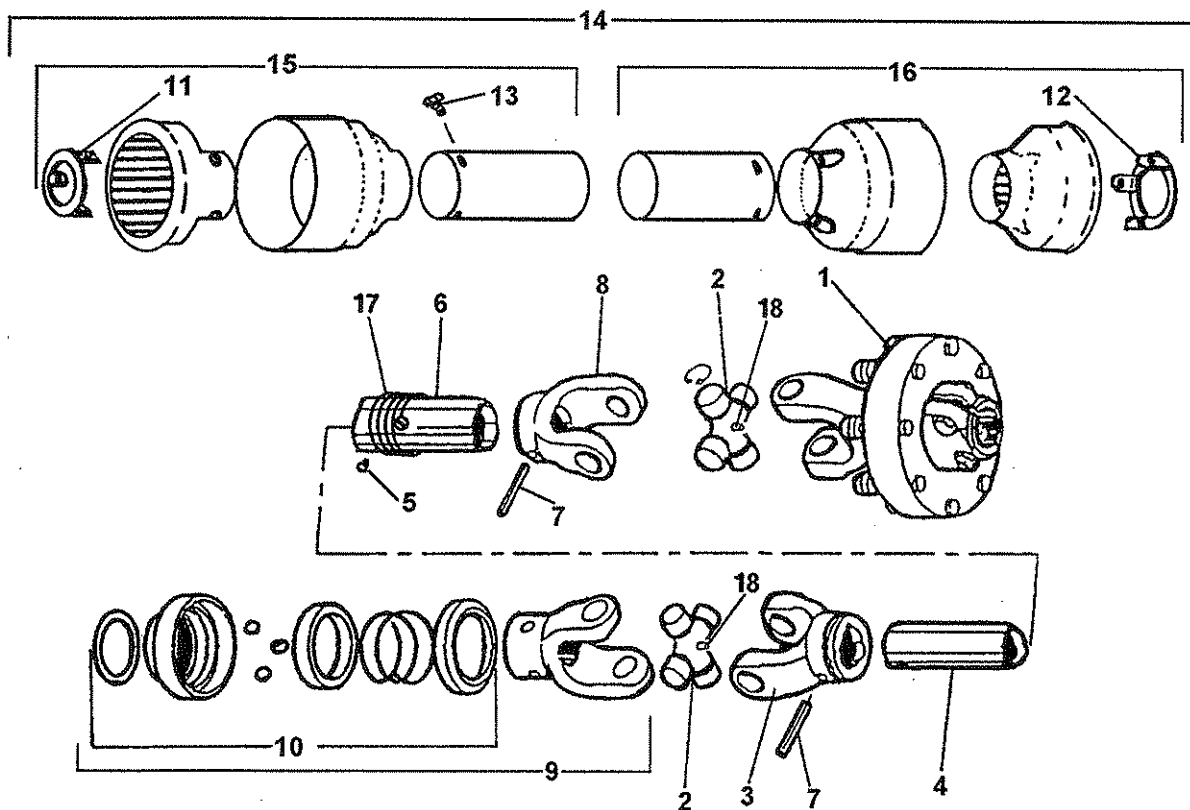
ITEM	PART NO.	QTY	DESCRIPTION
1	00757742	1	Safety Shield Bracket
2	00757573	1	Safety Shield
3	00015800	2	Nut
4	00011100	4	Washer
5	00011700	4	Lockwasher
6	00035900	2	Bolt
7	00753642	2	Bolt
8	00024100	2	Flatwasher
9	00004000	2	Wingnut
10	00769842	1	Lower Shield
11	10119000	2	Bolt (Lower Half)

CY72 GEARBOX SHIELD



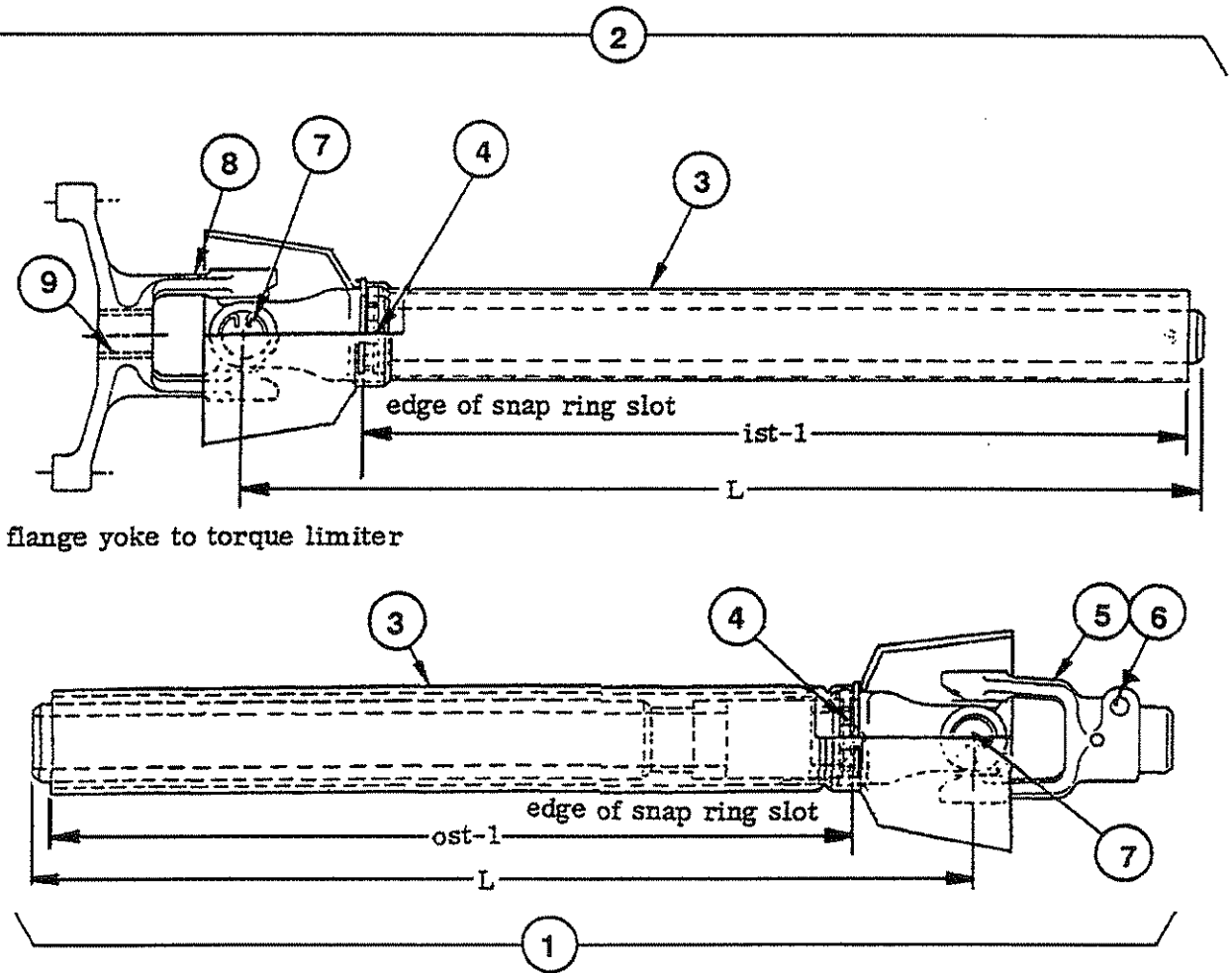
ITEM	PART NO.	QTY	DESCRIPTION
1	0581070000	1	Complete Shield Assembly
2	5F5180	1	Wing Nut
3	00763105	1	Shield- Bracket

CY60 DRIVELINE ASSEMBLY p/n 00761322



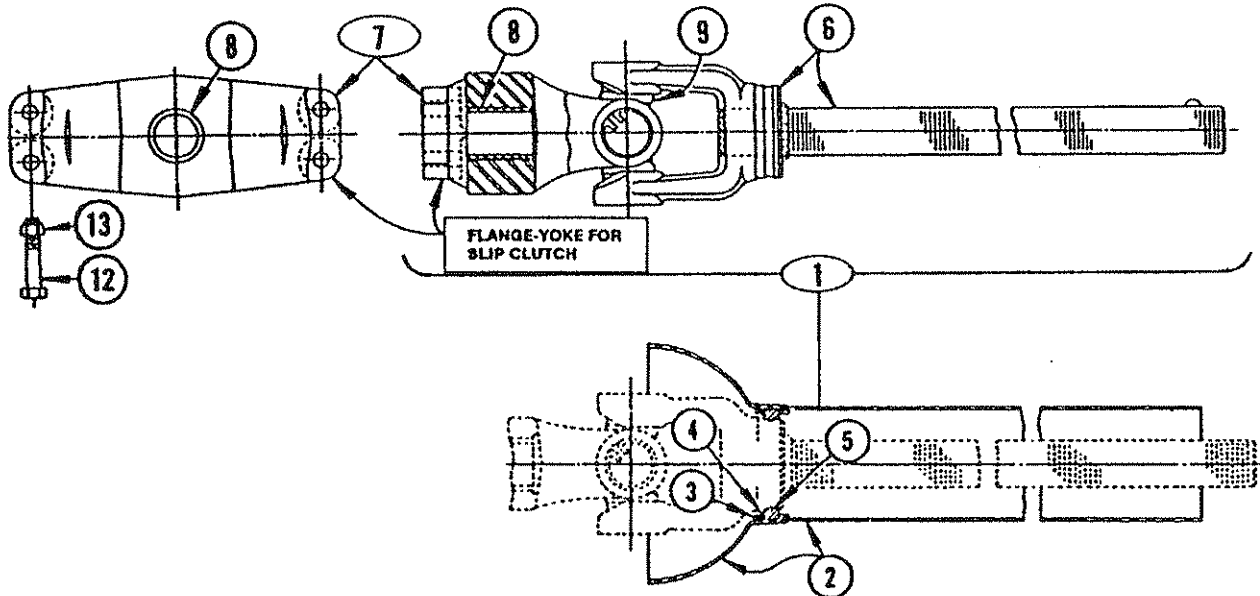
ITEM	PART NO.	QTY	DESCRIPTION
1	00756075	1	Complete Slip Clutch
2	00752896	2	Cross Journal Set
3	00754153	1	Inner Yoke
4	00762735	1	Hardened Inner Tube
5	00754335	1	Grease Fitting
6	00762726	1	Outer Tube
7	00754167	2	Roll Pin
8	00754154	1	Outer Yoke
9	00752883	1	Complete Collar Yoke
10	00757144	1	Collar Kit
11	00754332	1	Retaining Collar for Outer Tube
12	00754331	1	Retaining Collar for Inner Tube
13	00754330	6	Bolt
14	00754379	1	Complete Shield (Both Halves)
15	00754377	1	Outer Shield Half
16	00754378	1	Inner Shield Half
17	00761075	1	Centering Spring
	00754376	1	Inner Tube Half w/Shield
	00761324	1	Outer Half w/Shield and Clutch

CY72 DRIVELINE w/WORLD SHIELD p/n 00763222



ITEM	PART NO.	QTY	DESCRIPTION
1	00763226	1	Tractor Half of Driveline w/World Shield
2	00763224	1	Implement Half of Driveline w/World Shield
3	00762941	1	Inner & Outer World Shield
4	00762942	1	Bearing Kit for World Shield
5	00191900	1	Yoke 1-3/8 6 Spline
6	00749960	1	Q.D. kit
7	00189700	2	U-Joint Kit
8	W3081	1	Yoke, Torque Limiter
9	271105B	1	Bearing

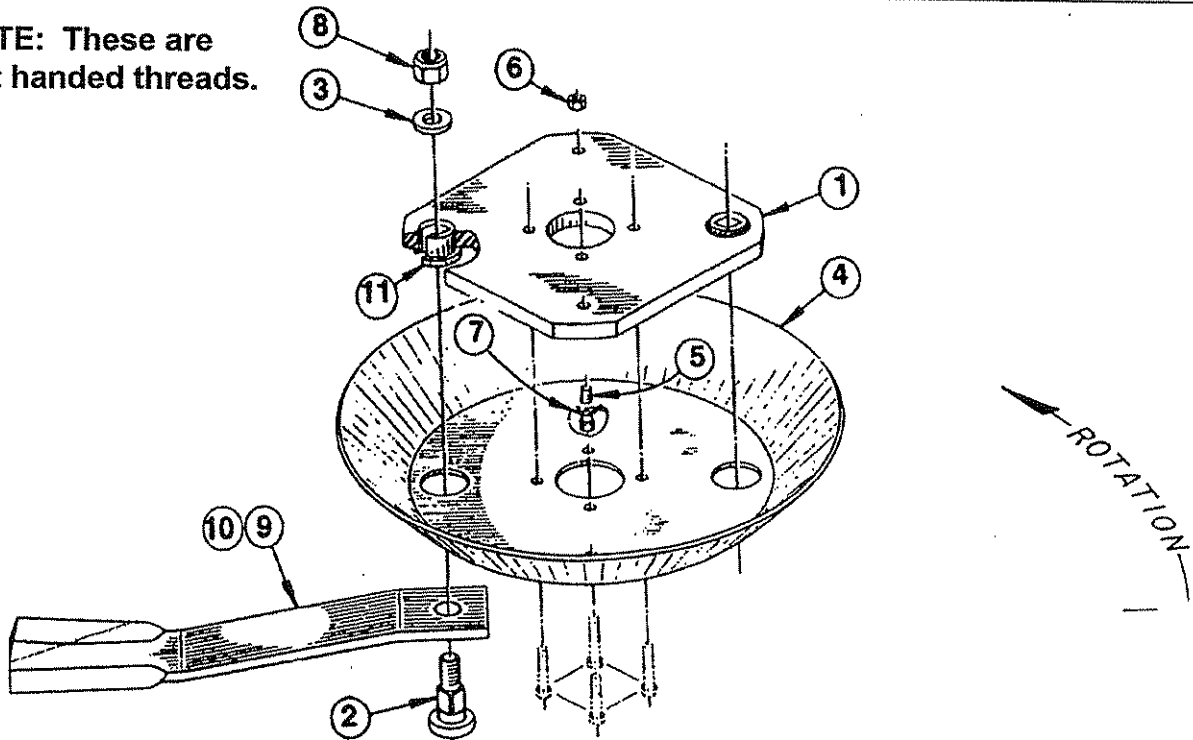
PTO SQUARE SHAFT ASSEMBLY



ITEM	PARTNO.	QTY	DESCRIPTION
1	W705RD6	1	Complete Square Shaft Assy. w/Shield Lift-Type with Torque Limiter
2	W315RD1	1	Inner Shield(for D & D6 Shaft)
3	W937	1	Snap Ring
4	W936	1	Thrust Washer
5	W335	1	Nylon Bearing
6	W316D	-	Yoke & Square Shaft Weldment
7	W3081	1	Slip Clutch Yoke w/Bushing
8	271105B	1	Yoke Bushing Only
9	00189700	1	Center Cross Parts Repair Kit

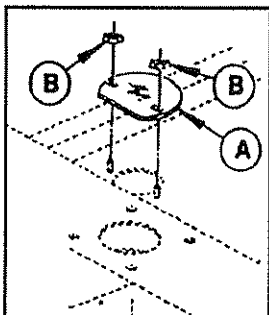
BLADE CARRIER ASSEMBLY (INCLUDING PAN)

NOTE: These are left handed threads.



ITEM	PART NO.	QUANTITY		DESCRIPTION
		CY60	CY72	
1	582011	-	1	Blade Carrier Plate,Wldmt
	622011	1	-	Blade Carrier Plate,Wldmt
2	571044	2	2	Shoulder Bolt (L.H. Thds)
3	571045	2	2	Shoulder Bolt Washer
4	622012	1	-	Blade Carrier Pan
	582012	-	1	Blade Carrier Pan
5	7AH5101816	2	2	Bolt Gr5
6	00749136	2	2	Locknut
7	00756077	2	2	Washer, Heat Treated
8	5GL16140	2	2	Locknut (L.H. Threads)
9	582013	-	2	Blade Flat CY72
10	0652010030	2	-	Blade Flat CY60
11*	571042B	2	2	*Shoulder Bolt Bushing
	B571044	2	2	Shoulder Bolt & Locknut

* Shoulder Bolt Bushing is replaceable in item #1 by cutting old part out and welding new part in carefully with (E-7018) low-hydrogen rods.



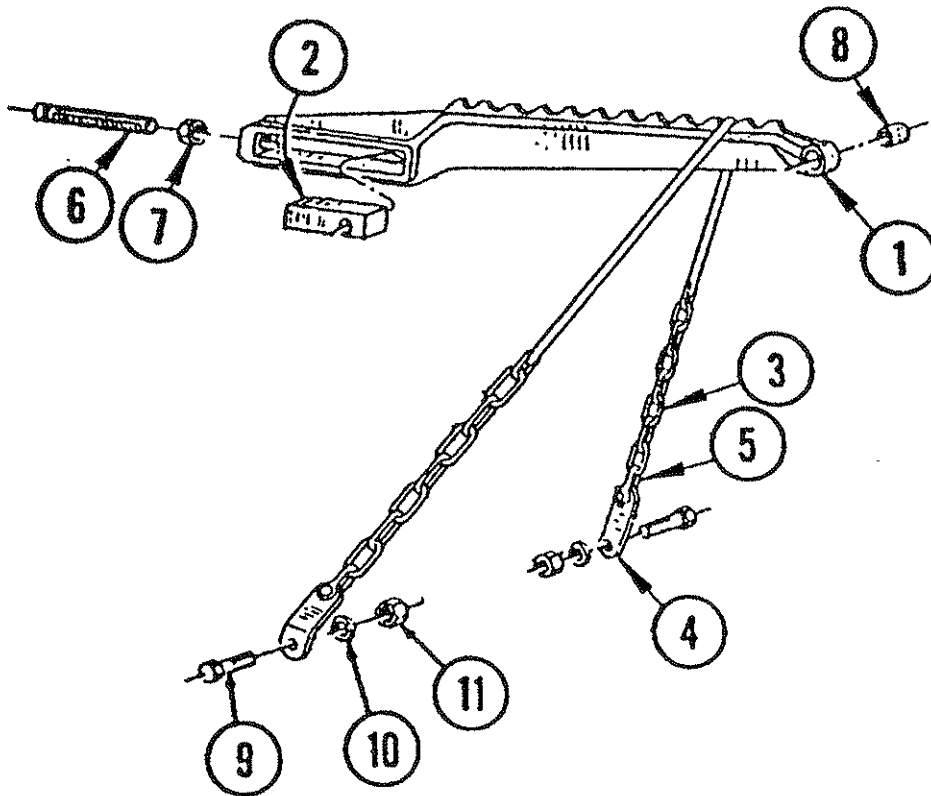
ITEM	PART NO.	QTY.	DESCRIPTION
A	5710121	1	Cover Plate for access hole
B	5F6160	2	Wing Nut

CY6072/12-94

Parts Section 6-17

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HYDRAULIC RELIEF ASSEMBLY p/n 58504

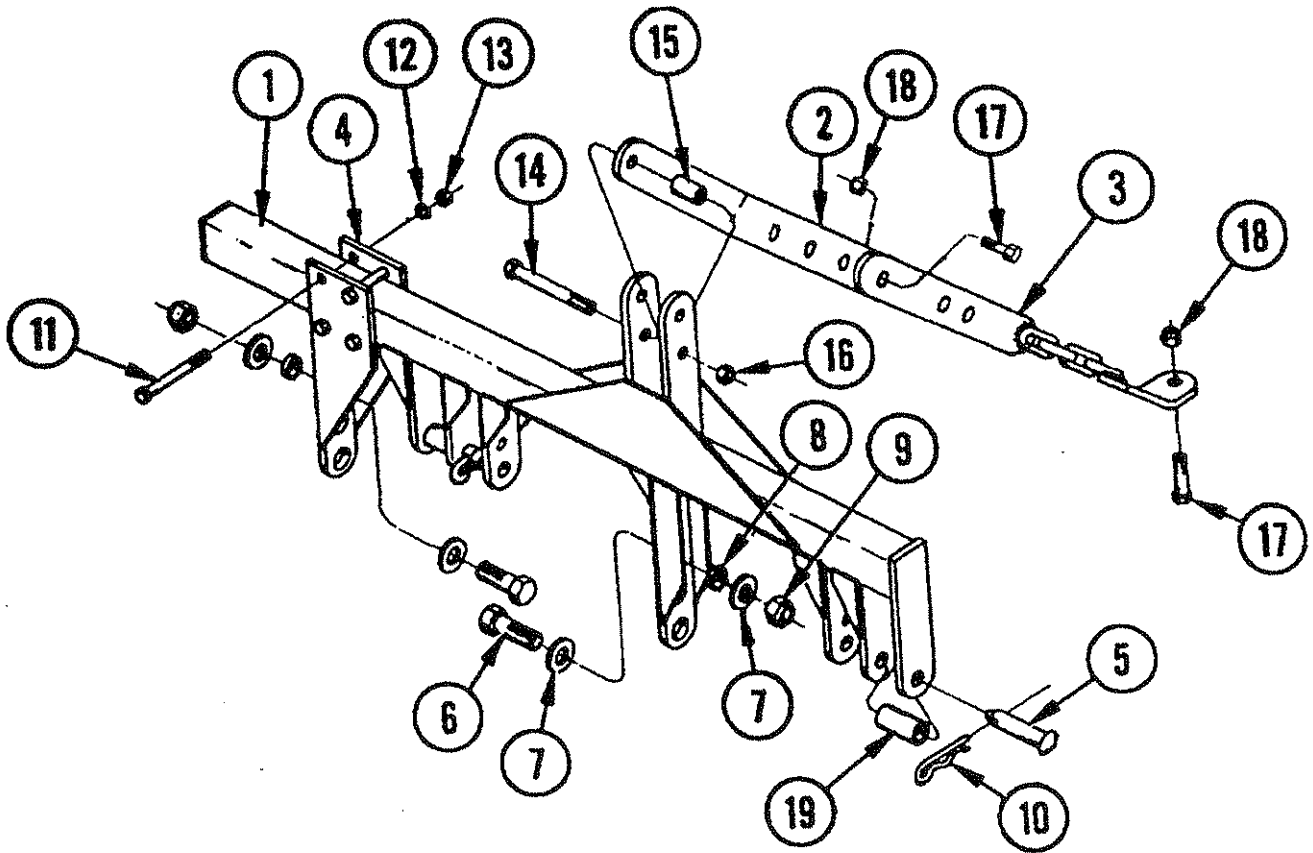


ITEM	PART NO.	QTY.	DESCRIPTION
1	625041	1	Top Link
2	625042	1	Adjusting Block, Reversible
3	483061	1	Hydraulic Relief Chain
4	423016B2	2	Hydraulic Relief Chain Clip
5	21600	2	3/8" Round Pin Chain Shackle
6	9A1121048	1	3/4" x 6" Sq. Hd. Cup Point Setscrew
7	5C12100	1	3/4 Jamnut
8*	625043	1	Bushing (1" O.D.)
9	7A101116	2	Capscrew
10	131000	2	Lockwasher
11	5B10110	2	Hex Nut

* Furnished for use w/Category-1 Tractor Only

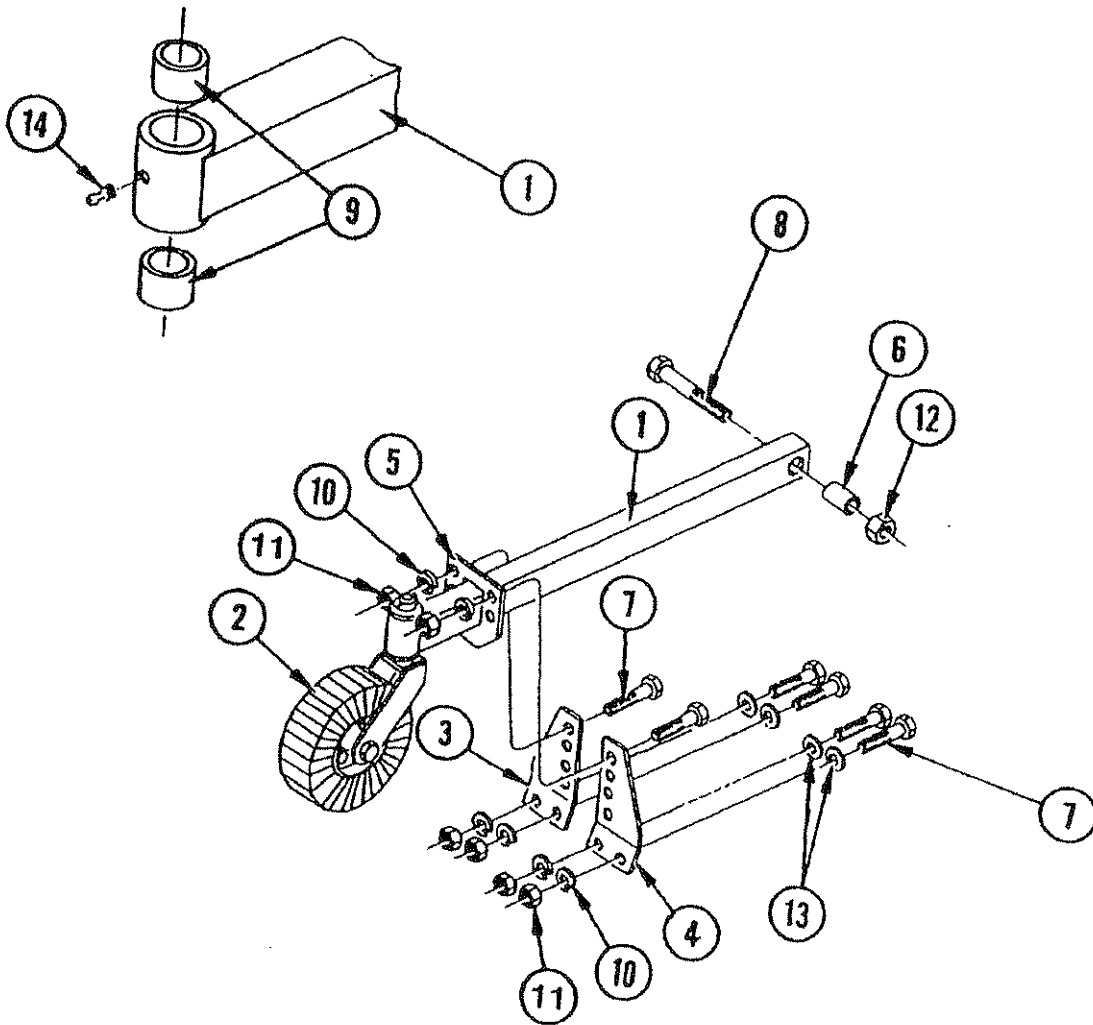
NOTE: Refs. 9, 10, & 11 used only with 3-Point Lift Offset Adapter, Page 6-19.

3-POINT LIFT OFFSET ADAPTER p/n 0702310000



ITEM	PART NO.	QTY.	DESCRIPTION
1	0702310100	1	Adapter Mainframe Weldment
2	0702310001	1	Brace Bar
3	0702310300	1	Brace Lug & Chain Weldment
4	0702310200	1	Adjustable Lift Lug Weldment
5	511027	2	Wrist Pin
6	7A14924	2	Bolt
7	15B1400	4	Plain Washer
8	423013	4	Bushing
9	5GR1490	2	Locknut
10	3W6	2	Retaining Pin
11	7A81336	4	Bolt
12	13800	4	Lock Washer
13	5B8130	4	Hex Nut
14	7AH5121636	1	Bolt
15	595062	1	Spacer
16	5JRC12160	1	Deformed Thd. Top Lock Nut
17	7AH5101816	2	Bolt Gr5
18	5GR10180	2	Locknut
19	743013	2	Bushing

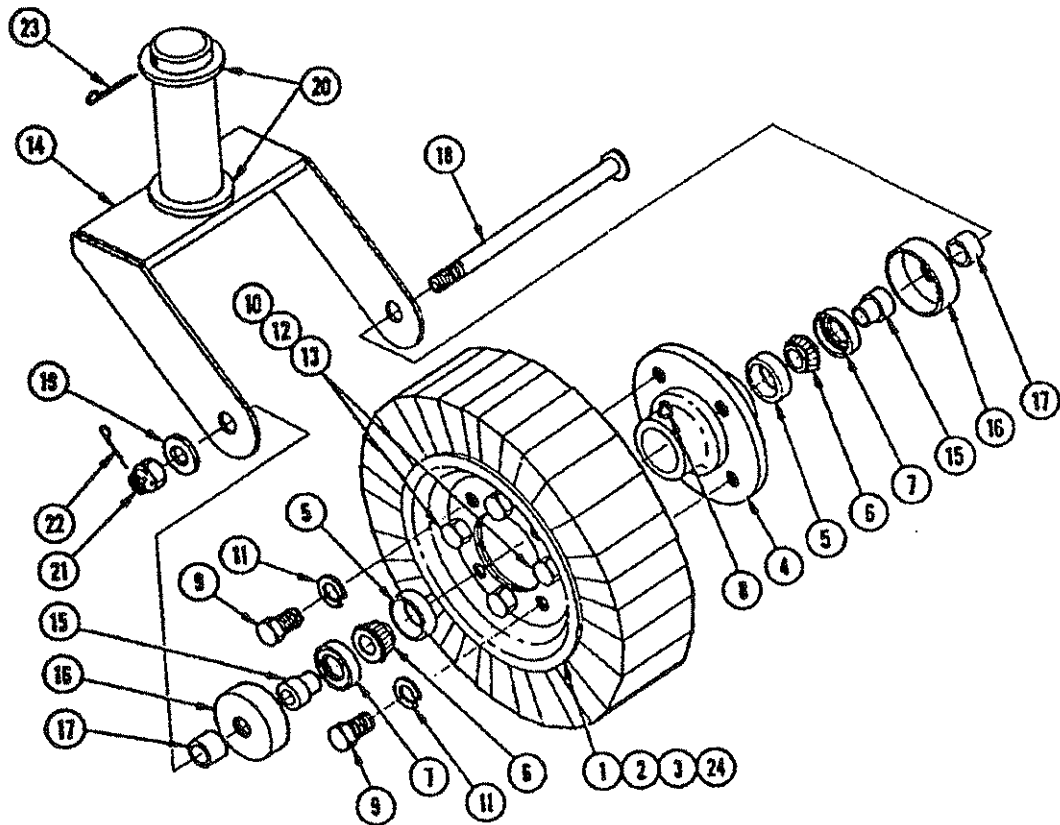
TAILWHEEL MOUNTING ASSEMBLY



ITEM	PART NO.	QTY		DESCRIPTION
		CY60	CY72	
1	00770289	-	1	Tailwheel Beam(w/Bushings)
	00770258	1	-	Tailwheel Beam(w/Bushings)
2	*0585020200	1	1	Tailwheel Assembly
3	0585020002	1	1	Left Side Support Bracket
4	0585020001	1	1	Right Side Support Bracket
5	0585020300	1	1	Positioning Bracket
6	0585021101	1	1	Spacer
7	7A81312	6	6	Bolt
8	7A101140	1	1	Bolt
9	361129	2	2	Sintered Iron Bushing, 1-1/2 ID
10	00001300	6	6	Lock Washer
11	5B8130	6	6	Nut
12	5GR10110	1	1	Locknut
13	15B800	4	4	Plain Washer
14	651062F	1	1	Grease Fitting

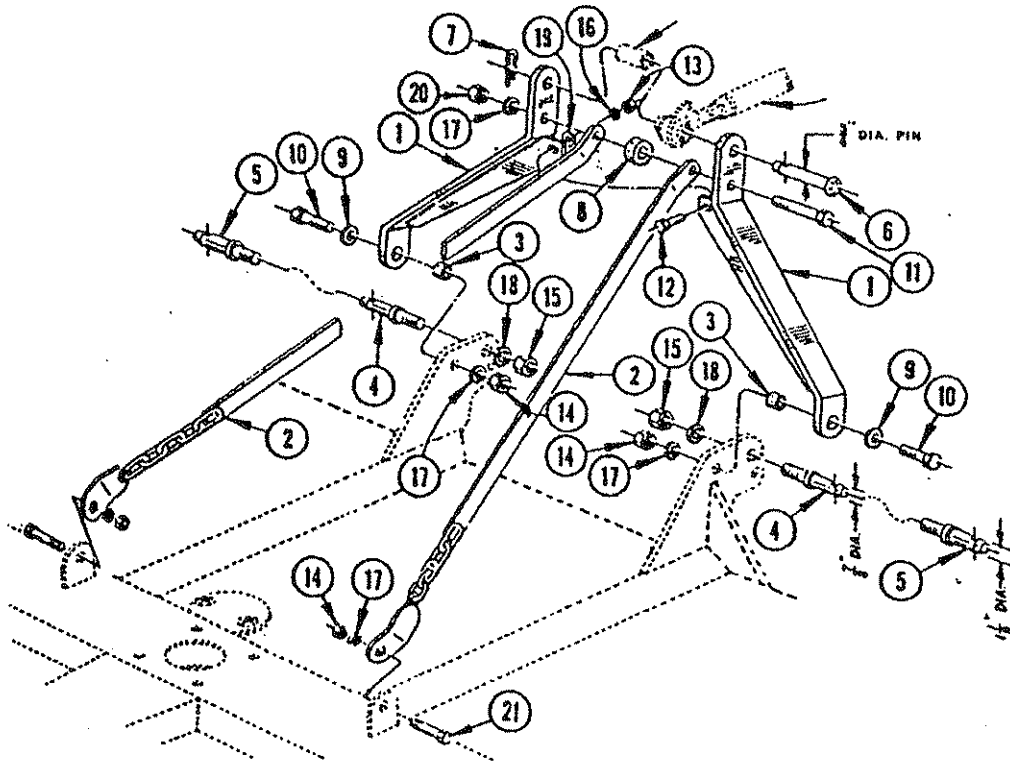
* See following page for parts breakdown

TAILWHEEL ASSEMBLY p/n 0585020200



ITEM	PART NO.	QTY.	DESCRIPTION
1	373024	1	Wheel Assy.(1 ea. items 2,3, & 373024D)
2	373024A	1	Tire 4.00 x 8pp, 15-3/8" OD
3	373024B	1	Wheel Only, 8" Dia. (Bolted Assy.)
4	373024C	1	Hub, (w/Bearing Cups & Grease fitting)
	373024D	ref.	Hub, (w/Bearings, Seals, Grease Fitting, Bolts,L.W.)
5	373024G	2	Bearing Cup
6	373024F	2	Bearing Cone
7	373024E	2	Seal, Grease
8	17C1792B	1	Grease Fitting
9	7A8208	4	Capscrew, Hex Head
10	7A6166	4	Capscrew, Hex Head
11	13800	4	Lock Washer
12	13600	4	Lock Washer
13	5B6160	4	Nut
14	0585020210	1	Fork(Weldment)
15	37302C2C	2	Sleeve, Shoulder
16	37302D2B	2	Cup, Dust
17	511016	2	Bushing, Spacer
18	37302D2A	1	Bolt, Spindle (Special)
19	15B1200	1	Washer, Plain SAE
20	15B2400	2	Washer, Plain SAE
21	5E12160	1	Nut, Slotted
22	1621/2012	1	Pin, Cotter
23	00758829	1	Roll Pin
24	373024H	1	Tire & Wheel(Bolted Assy. Only, Less Hub)

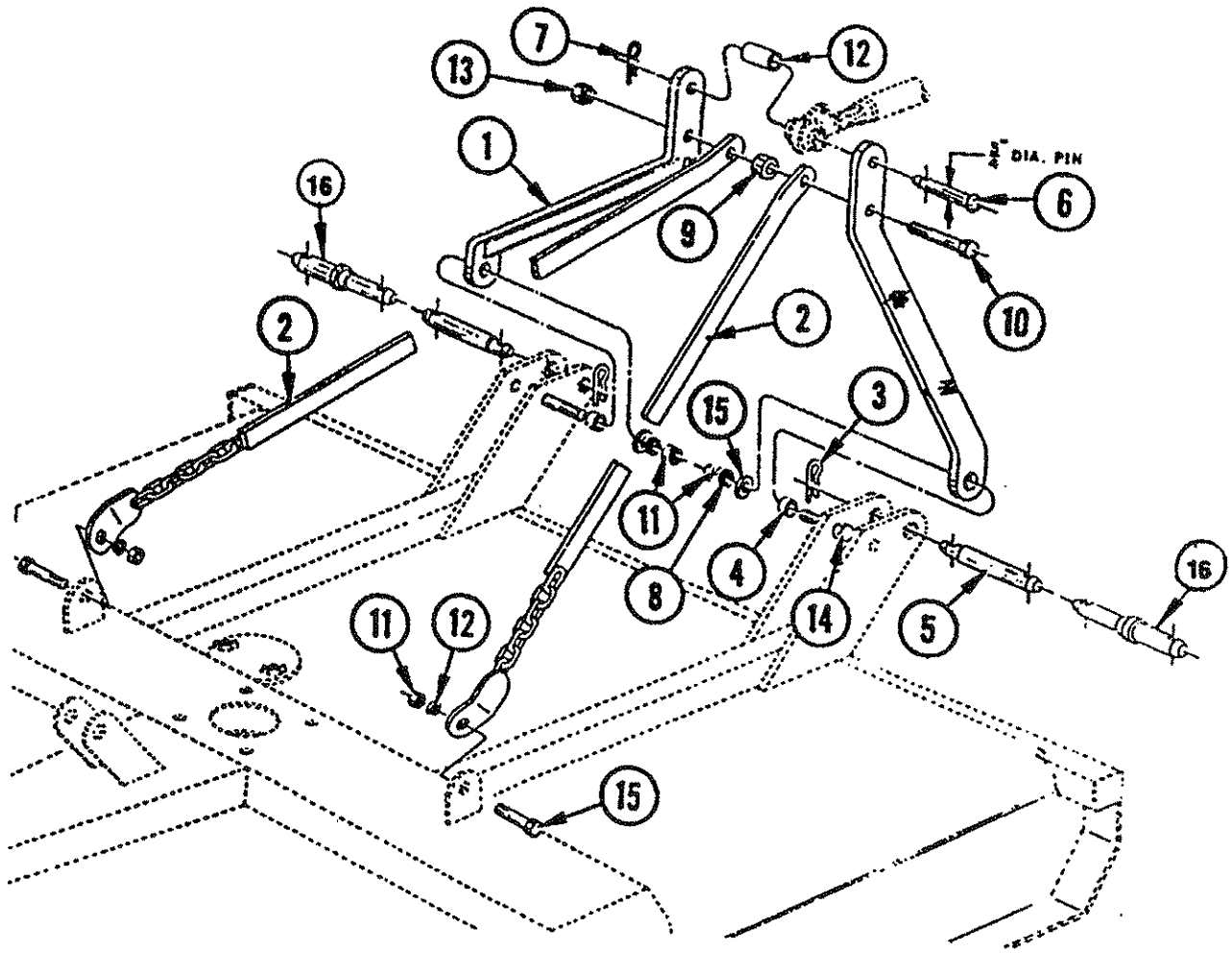
CY60 A-FRAME ASSEMBLY



ITEM	PART NO.	QTY	DESCRIPTION
1	483015A	2	A-Frame Upright
2	00757264	2	Brace Flat, Chain
3	523012	2	Pivot Bushing
4	*00603500	2	Wrist Pin, 7/8 Dia.(Cat. I)
5	00748100	2	Wrist Pin, 1-1/8 Dia.(Cat. II)
6	37107B12	1	Hitch Pin (For Top Link)
7	37107B13	1	Retaining Pin
8	625053	1	A-Frame Spacer
9	00001400	2	Washer
10	00750952	2	Capscrew, Hex Head
11	7AH8101832	1	Capscrew, Hex Head
12	00748823	1	Capscrew, Hex Head
13	00001200	1	Hex Nut
14	00010400	4	Hex Nut
15	00603600	2	Hex Nut
16	00001300	1	Lockwasher
17	00010300	5	Lockwasher
18	131400	2	Lockwasher
19	00002700	1	Washer
20	5B10180	1	Hex Nut
21	10406000	2	Bolt

* Furnished as standard

CY72 A-FRAME ASSEMBLY



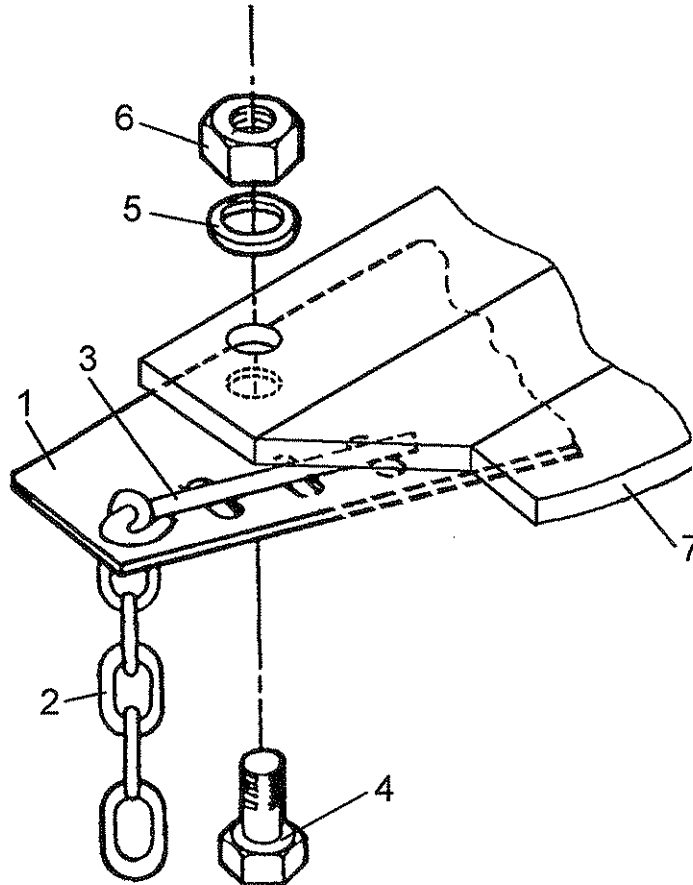
ITEM	PART NO.	QTY.	DESCRIPTION
1	0585050100	2	A-Frame Leg Weldment
2	0585050200	2	Brace Flat & Chain
3	3W6	2	Retaining Pin
4	523012	2	Bushing
5	4410212AS	2	Wrist Pin (Cat. II Only)
6	37107B12	1	Hitch Pin
7	37107B13	1	Retaining Pin
8	131000	4	Lock Washer
9	0585050001	1	A-Frame Spacer
10	7AH8121632	1	Bolt, Gr8
11	5B10110	4	Nut
12	441029	1	Bushing
13	5JRC12160	1	Lock Nut
14	7AH5101116	4	Bolt, Gr5
15	00756077	2	Washer
16	4410212A	2	Wrist Pin (Cat. I)

FRONT GUARD ASSEMBLY

CY72 00756207 RH
CY72 00756209 LH

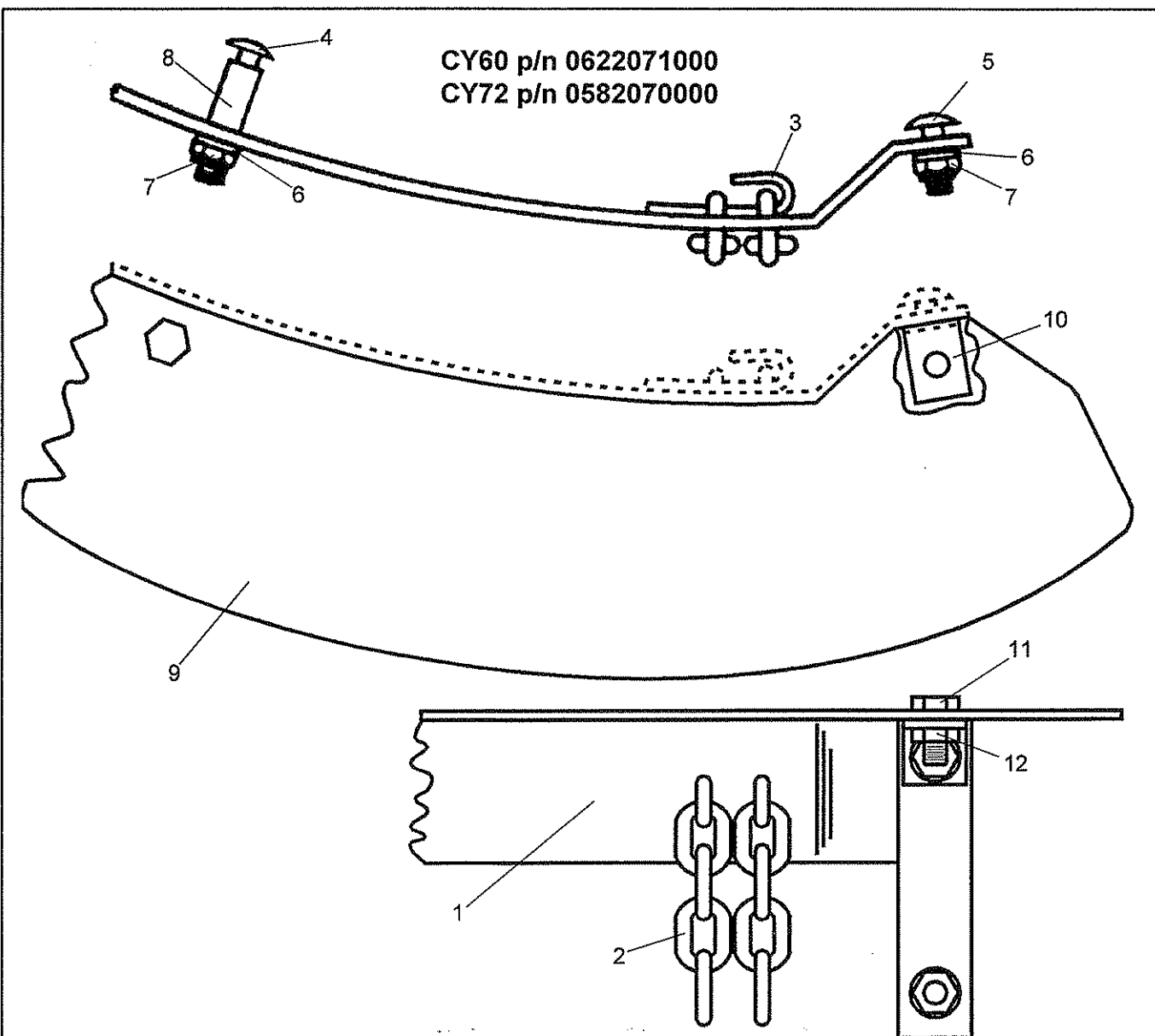
CY60 00756206 RH
CY60 00756208 LH

CY60 COMPLETE CHAIN GUARD ASSEMBLY P/N 00756321
CY72 COMPLETE CHAIN GUARD ASSEMBLY P/N 00756322



ITEM	PART NO.	QTY	QTY	DESCRIPTION
		CY60	CY72	
1	00756204	1	-	Chain Guard Plate-CY60 RH & LH
	00756205	-	1	Chain Guard Plate-CY72 RH & LH
2	00751126	27	33	Chain - 6 Link
3	00756210	2	-	Rod RH & LH
	00756211	-	2	Rod RH & LH
4	7A101128	2	2	Capscrew
5	00001400	2	2	Plain Washer
6	00695100	2	2	Locknut
7	00770817	1	-	Right Front Foot Guard
	00769662	1	-	Left Front Foot Guard
	00770804	-	1	Right Front Foot Guard
	00769620	-	1	Left Front Foot Guard

REAR GUARD ASSEMBLY



ITEM	PART NO.	QTY CY60	QTY CY72	DESCRIPTION
1	0582070100	-	1	Chain Guard Weldment
	0622071100	1	-	Chain Guard Weldment
2	00755090	51	64	Chain Proof Coil
3	0583070200	-	1	Rod
	0623070200	1	-	Rod
4	281324	3	3	Carriage Bolt
5	281312	4	4	Carriage Bolt
6	15B800	7	7	Plain Washer
7	5GR8130	7	7	Locknut
8	582052	3	3	Pipe Spacer
9	00769654	1	-	Foot Guard Rear
	00769621	-	1	Foot Guard Rear
10	00769622	5	5	Bracket
11	00011800	5	5	Bolt
12	00001800	5	5	Nut

CY6072/12-94

Parts Section 6-25



In addition to the standard Limited Warranty, Rhino provides one year (12 months), (6 months for Commercial/Industrial Users) Limited Warranty on the Driveline components provided that these components have been properly maintained and lubricated that and have not been subjected to abuse or mis-use.

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.

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- 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.**

