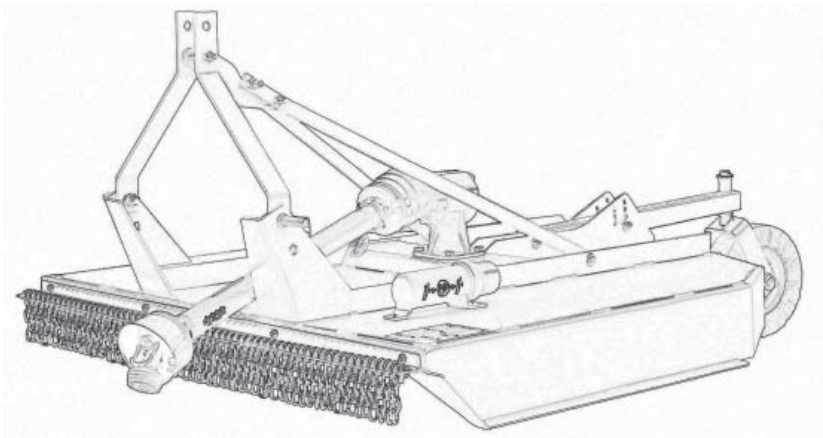
GEARMORE®

ROTARY MOWER



Operation, Service & Parts Manual For
Shear Pin Models:
RC20-48P, RC20-60P, & RC20-72P
Slip Clutch Models:
RC20-48SC, RC20-60SC, & RC20-72SC

January 2008

Form: RC20MowerRev.indd

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INTRODUCTION

To The Dealer:

Assembly and proper installation of this product is the responsibility of the dealer. Read manual instructions and safety rules. Make sure all items on the *Preparation Check List* in the Operator's Manual are completed before releasing equipment to the owner.

!LEA EL INSTRUCTIVO!
Si no lee Ingles, pida ayuda a alguien que si lo lea para que le traduzca las medidas de seguridad.

To The Owner:

Read this manual before operating your equipment. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all adjustments and operating procedures before attempting to operate the equipment. Replacement manual can be obtained from your selling dealer.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Please observe all safety information in this manual and safety decals on the equipment.

For service, your authorized dealer has trained mechanics, genuine service parts, and the necessary tools and equipment to handle all of your service needs.

Use only genuine service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model number and serial number of your equipment in the warranty page of this manual.

Throughout this manual, the term IMPORTANT is used to indicate that failure to observe procedures can cause damage to equipment. The terms CAUTION, WARNING and DANGER are used in conjunction with the Safety-Alert Symbol, (a triangle with an exclamation mark), to indicate the degree of hazard for items of personal safety.

This Safety-Alert Symbol indicates a hazard and means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

DANGER — **Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.**

WARNING — **Indicates a potentially hazardous situation that, if not avoided, could result in deaht or serious injury, and includes hazards that are exposed when guards are removed.**

CAUTION — **Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.**

IMPORTANT — **Indicates that failure to observe can cause damage to equipment.**

NOTE — **Indicates helpful information.**

DEALER PREPARATION CHECKLIST

THIS CHECKLIST TO REMAIN IN OWNER'S MANUAL

IT IS THE RESPONSIBILITY OF THE DEALER TO COMPLETE THE PROCEDURES LISTED BELOW BEFORE THE DELIVERY OR THE SALE OF THIS IMPLEMENT TO THE CUSTOMER.

Dealer Preparation Check List

- ❑ 1. Implement is completely assembled.
- ❑ 2. Gearbox filled with oil and checked for possible leaks. (See page 27)
- ❑ 3. All fittings lubricated. (See page 20)
- ❑ 4. All shields in place and in good condition.
- ❑ 5. All fasteners torqued to specifications given in Torque Chart. (See page 32)
- ❑ 6. Check PTO driveline. Make sure it is the correct length to operate rotary mower with intended tractor.
- ❑ 7. Check front of input gearbox shaft and make sure that snap ring is properly installed. (PTO shaft shear pin only).
- ❑ 8. Check shear/retaining bolt for proper grade and installation.
- ❑ 9. All decals in place and readable. (See page 7)
- ❑ 10. Overall condition good (i.e. paint, welds, etc.).
- ❑ 11. Operator's manual has been given to owner and the owner has been instructed on the safe and proper use of the rotary mower.

WARNING

For Non-Agricultural use OSHA, ASAE, SAE, and ANSI standards require the use of Chain Guards or other protective guards at all times. Manufacturer strongly recommends the use of such guards for Agricultural uses 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.

Dealer's Signature:_____

Purchaser's Signature:_____

GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your rotary cutter for years of service. Read it carefully. The information and instructions in this manual have been compiled from extensive field experience and engineering data. Some information may be general in nature due to unknown and varying operating conditions. However, through experience and these instructions, you should be able to develop procedures suitable to your particular situation.

The illustrations and data used in this manual were current at the time of printing, but due to possible inline production changes, your machine may vary slightly in detail. We reserve the right to redesign and change the machines as may be necessary without notification.

WARNING: Some illustrations in this manual show the rotary cutter with safety shields removed to provide a better view. The rotary cutter should never be operated with any safety shielding removed.

Throughout this manual, references are made to right and left direction. These are determined by standing behind the equipment facing the direction of forward travel. Blade rotation is counter-clockwise as viewed from the top of the mower.

All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by an operator's single careless act. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon theawareness, concern, judgment, and proper training of personnel involved in the operation, transport, maintenance, and storage of equipment.

It has been said *"The best safety device is an informed, careful operator."* We ask you to be that kind of operator.

- TRAINING

  Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals and safety decals are available from your dealer.) Failure to follow instructions or safety rules can result in serious injury or death.

  If you do not understand any part of this manual and need assistance, see your dealer.

  Know your controls and how to stop engine and attachment quickly in an emergency.

  Operators must be instructed in and be capable of the safe operation of the equipment, its attachments, and all controls. Do not allow anyone to operate this equipment without proper instructions. Never allow children or untrained persons to operate equipment.

- PREPARATION

  Check that all hardware is properly installed. Always tighten to torque chart specifications unless instructed otherwise in this manual.

  Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.

  Make sure attachment is properly secured, adjusted, and in good operating condition.

  Make sure collar slides freely and is seated firmly in tractor PTO spline groove.

  Before putting equipment into service, check and adjust driveline length as instructed in Operator's Manual. Driveline must not bottom out or pull apart throughout the full range of the tractor hitch. Do not operate until driveline length is correct.

  Make sure driveline shield safety chain is attached as shown in this manual. Replace if damaged or broken. Check that driveline guards rotate freely on driveline before putting equipment into service.

  Before starting power unit, check all equipment driveline guards for damage. Replace any damaged guards. Make sure all guards rotate freely on all drivelines. If guards to not rotate freely on drivelines, repair and replace bearings before putting equipment into service.

  Inspect chain or rubber deflectors before each use. Replace if damaged.

  Remove accumulated debris from this equipment, power unit, and engine to avoid fire hazard.

  Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in "locked up" position at all times.

  A minimum of 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a loader, front wheel weights, ballast in tires or front tractor weights. Weight the tractor and equipment. Do not estimate.

SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Make sure all safety decals are installed. Replace if damaged. *(See Safety Decals section for location.)*

Make sure shields and deflectors are properly installed and in good condition. Replace if damaged.

Inspect and clear area of stones, branches, or other hard objects that might be thrown, causing injury or damage.

- TRANSPORTATION
  Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in "locked up" position at all times.

  A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a loader, front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate.

  Always comply with all state and local lighting and marking requirements.

  Never allow riders on power unit or attachment.

  Do not operate PTO during transport.

  Watch for hidden hazards on the terrain.

  Do not operate or transport on steep slopes.

  Do not operate or transport equipment while under the influence of alcohol or drugs.

- OPERATION
  Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.

Never direct discharge toward people, animals, or property.

Use both front and rear deflectors to reduce the possibility of objects being thrown.

These mowers are intended for agricultural applications only. Do not operate within 300 feet of bystanders or public roads or highways.

Do not operate or transport equipment while under the influence of alcohol or drugs.

Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.

Operate only in daylight or good artificial light. Always comply with all state and local lighting and marking requirements.

Never allow riders on power unit or attachment.

Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in "locked up" position at all times.

Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting power unit engine.

Operate tractor PTO at 540 RPM. Do not exceed. Do not operate PTO during transport.

Look down and to the rear and make sure area is clear before operating in reverse. Do not operate or transport on steep slopes. Do not stop, start, or change directions suddenly on slopes. Use extreme care and reduce ground speed on slopes and rough terrain.

Watch for hidden hazards on the terrain during operation.

SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation.

Leak down or failure of mechanical or hydraulic system can cause equipment to drop.

- MAINTENANCE
  Before dismounting power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3-point hitch and all raised components to the ground, set parking brake, stop engine, remove key, and unfasten seat belt.

  Before performing any service or maintenance, disconnect driveline from tractor PTO.

  Before working underneath, carefully read Operator's Manual instructions, disconnect driveline, raise mower, securely block up all corners with jackstands, and check stability. Secure blocking prevents equipment from dropping due to hydraulic leak down, hydraulic system failures, or mechanical component failures.

  Do not modify or alter or permit anyone else to modify or alter the equipment or any of its components in any way.

  Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.

  Make sure attachment is properly secured, adjusted, and in good operating condition.

  Keep all persons away from operator control area while performing adjustments, service, or maintenance.

  Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. Never place any part of the body underneath equipment or between moveable parts, even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death. Follow Operator's Manual instructions for working underneath and blocking requirements or have work done by a qualified dealer.

  Make certain all movement of equipment components has stopped before approaching for service.

  Frequently check blades. They should be sharp, free of nicks and cracks, and securely fastened. Do not handle blades with bare hands. Careless or improper handling may result in serious injury. Your dealer can supply genuine replacement blades. Substitute blades may not meet original equipment specifications and may be dangerous.

  Tighten all bolts, nuts, and screws to torque chart specifications. Check that all cotter pins are installed securely to ensure equipment is in a safe condition before putting unit into service.

  Make sure all safety decals are installed. Replace if damaged. (See *Safety Decals Section* for location.)

  Make sure shields and deflectors are properly installed and in good condition. Replace if damaged.

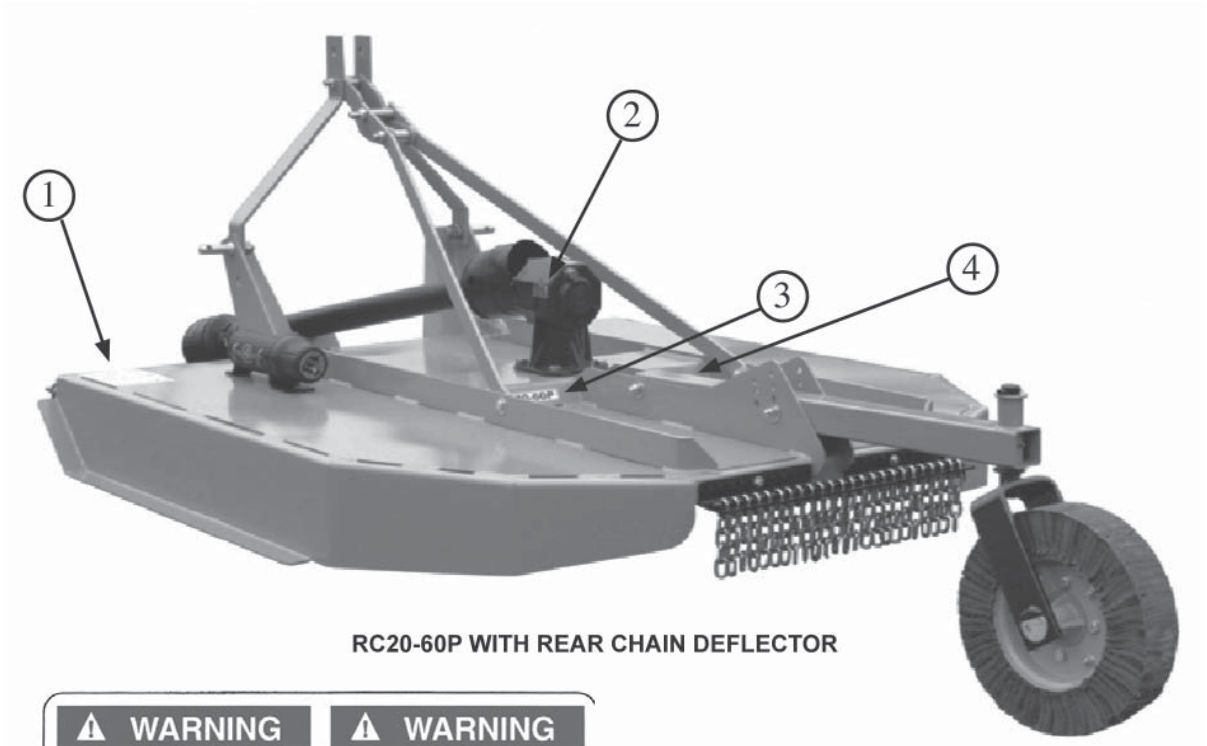
- STORAGE
  Block equipment securely for storage.

  Keep children and bystanders away from storage area.

  Follow manual instructions for storage.

SAFETY & INSTRUCTION DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!
Replace Immediately if Damaged!



RC20-60P WITH REAR CHAIN DEFLECTOR

WARNING

ROTARY CUTTERS MAY DISCHARGE OBJECTS AT HIGH SPEEDS, WHICH COULD RESULT IN SERIOUS INJURY TO BY-STANDERS OR PASSERS-BY.
- DO NOT OPERATE CUTTER IN VICINITY OF OTHER PERSONS.
- KEEP ENCLOSED SIDES, PERMANENT BANDS, BELTING, HIGHWAY CHAINS OR OTHER FACTORY APPROVED DISCHARGE SHIELDS IN PLACE AND IN GOOD REPAIR.

WARNING

TO AVOID SERIOUS INJURY OR DEATH,
- READ OPERATOR'S MANUAL BEFORE OPERATING & FOLLOW ALL PRECAUTIONS. (CONTACT DEALER FOR MANUALS.)
- KEEP SHIELDS AND GUARDS IN PLACE. KEEP CLEAR OF DRIVES AND BELTS.
- LOWER IMPLEMENT, STOP ENGINE AND REMOVE KEY BEFORE DISMOUNTING.
- SECURELY SUPPORT MOWER & REMOVE KEY BEFORE WORKING UNDERNEATH.
- NO RIDERS. DO NOT OPERATE MOWER IN VICINITY OF OTHER PERSONS.
- KNOW HOW TO STOP TRACTOR AND EQUIPMENT QUICKLY IN AN EMERGENCY.
- CLEAR MOWING AREA OF DEBRIS.
- ALLOW NO CHILDREN OR UNQUALIFIED PERSONS TO OPERATE EQUIPMENT.
- BE CAREFUL ON UNEVEN TERRAIN. DECREASE SPEED WHEN TURNING.
- DO NOT OPERATE MOWER IN TRANSPORT POSITION.

CAUTION

THIS IMPLEMENT IS DESIGNED TO OPERATE AT 540 RPM MAXIMUM TRACTOR PTO SPEED.
ALL DRIVE LINE SHIELDS MUST BE KEPT IN PLACE.

WARNING

IMPLEMENT CAN FALL FROM HYDRAULIC SYSTEM FAILURE. TO AVOID SERIOUS INJURY OR DEATH,
- BLOCK UP OR SECURELY SUPPORT IMPLEMENT BEFORE WORKING UNDERNEATH.
- PURGE ALL AIR FROM HYDRAULIC SYSTEM BEFORE ATTEMPTING TO RAISE OR LOWER THIS IMPLEMENT.
- STAND CLEAR IF LOWERING OR RAISING IMPLEMENT.
- DO NOT USE HAND OR SKIN TO CHECK FOR HYDRAULIC LEAKS. USE CARDBOARD OR WOOD.
- HIGH PRESSURE OIL LEAKS CAN PENETRATE SKIN CAUSING SERIOUS INJURY AND GANGRENE. CONSULT A PHYSICIAN IMMEDIATELY.
- LOWER THE IMPLEMENT AND RELEASE HYDRAULIC PRESSURE BEFORE LOOSENING FITTINGS.
- REFER TO OWNERS MANUAL FOR DETAILS.

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

DANGER

KEEP AWAY-ROTATING BLADES
SERIOUS INJURY OR DEATH CAN RESULT FROM THROWN OBJECTS OR BLADE CONTACT.
- DO NOT STAND ON OR NEAR MACHINE WHEN IN OPERATION.
- DO NOT OPERATE WITH DEFLECTORS OR GUARDS REMOVED.
- ROPS (ROLLOVER PROTECTIVE SYSTEM) AND SEAT BELT EQUIPPED TRACTOR IS RECOMMENDED FOR OPERATOR USE IN ALL MOWING OPERATIONS.

(1) Safety Decal
PN 100211

NEEDS
90W
OIL

(2) Need Oil Decal
PN 100197

RC20-60P

(3) Model Number

RC20-60SC
0000020
60 IN STANDARD DUTY ROTARY CUTTER 40HP SLIP CLUTCH

(4) Serial Number

TECHNICAL DESCRIPTION

Model	RC20-48	RC20-60	RC20-72
Capacity			
Cutting Width	48 inches	60 inches	72 inches
Cutting Height	1.5 to 9 inches	1.5 to 9 inches	1.5 to 9 inches
Cutting Capacity (diameter)	up to 1 inch	up to 1 inch	up to 1 inch
Cutting Chamber Depth	7.5 inches	7.5 inches	7.5 inches
Tractor Compatibility			
Tractor PTO HP Range	18 - 45	20 - 65	25 - 65
Tractor PTO	540	540	540
Hitch			
Category	1, adaptable to 2	1, adaptable to 2	1, adaptable to 2
Dimensions			
Overall Width, inches	53	65	77
Overall Length, inches	95	103	116
Approx. Weight, lbs.	550	610	700
Deck Thickness, gauge	12	12	12
Skirt Thickness, gauge	7	7	7
Driveline			
Type	Shear Bolt or Slip Clutch	Shear Bolt or Slip Clutch	Shear Bolt or Slip Clutch
Gearbox			
HP Rating	40 / 60	40 / 60	40 / 60
Blades			
Thickness, inches	0.5	0.5	0.5
Width, inches	3	3	3
Type	Heat Treated Suction	Heat Treated Suction	Heat Treated Suction
Blade Tip Speed, ft./min.	13,090	14,336	14.955
Blade Holder			
Type Round Pan-Type	Round Pan-Type	Round Pan-Type	Round Pan-Type
Diameter, inches	24	24	36
Wheels			
	Laminated	Laminated	Laminated
Diameter Laminated, inches	15	15	15
Width Laminated, inches	3.75	3.75	3.75
Enclosure Options			
Front Deflector	Belting or Chain	Belting or Chain	Belting or Chain
Rear Deflector	Belting or Chain	Belting or Chain	Belting or Chain

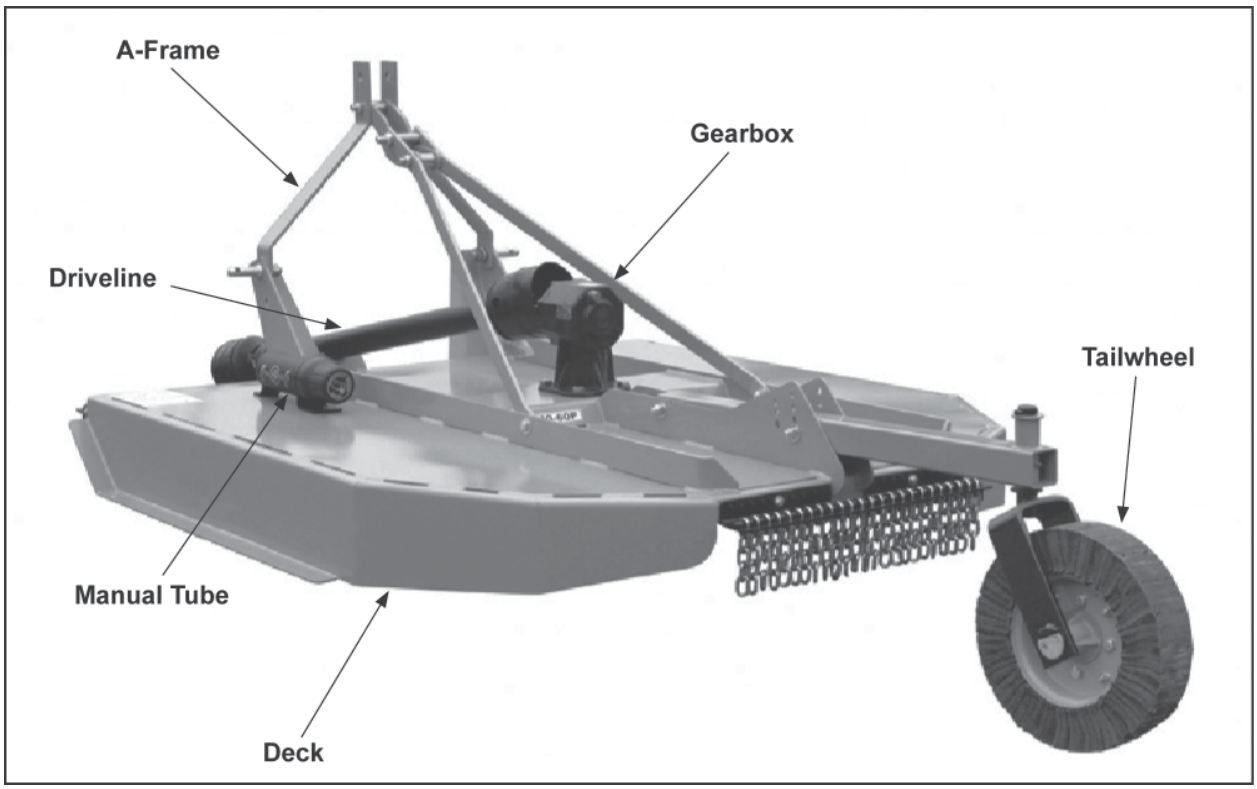
Assembly / Set up (approx.) One (1) Man Hours / Unit

*Cutter configuration; slip clutch, front and rear deflectors and laminated tailwheel

GENERAL DESCRIPTION

Your standard duty RC20 Rotary Mower has been carefully designed for cutting grass and small brush. This manual is provided to give you the necessary operation and maintenance instructions for keeping your rotary mower in excellent operating condition. Please read this manual thoroughly. Understand the purpose of the controls and how to use them. Observe all safety precautions on the machine and noted throughout this manual. If any assistance or additional information is needed, contact your authorized dealer. Each cutter has free-swinging blades which reduce the shock on impact when a stationary object is hit. A shear bolt through the input shaft or slip clutch equipped driveline protects the gearbox and driveline from damage.

Major Components



Cutter configuration: shear pin PTO, front and rear deflectors, and laminated tire

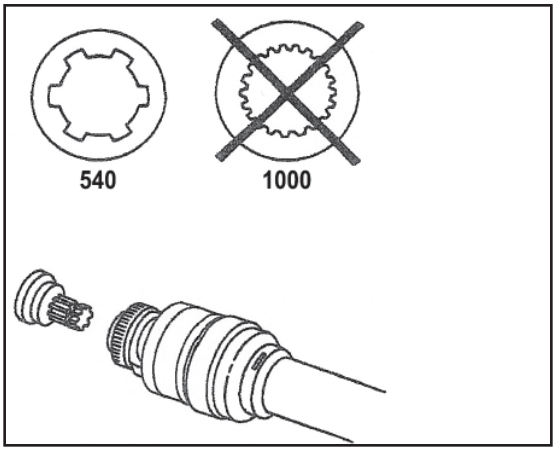
PREPARATION

- **Selecting Tractor PTO Speed**

IMPORTANT: Never operate a cutter equipped for 540 rpm PTO drive with a factor equipped to 1000 rpm PTO.

Always run tractor at rated PTO speed. Overspeed will cause damage to drive system.

Refer to your tractor Operator's manual to change PTO stub shaft, if necessary.



- **Positioning Drawbar**

IMPORTANT: To prevent damage to the driveline, remove, shorten, or place drawbar to one side. If equipped with clevis, remove it.

- **Preparing the Cutter**

Perform the following procedures before operating the cutter:

Gearbox

- ❑ Check oil level. (See *Lubrication and Maintenance section*.)
- ❑ Check hardware torque. (See *Lubrication and Maintenance section*.)
- ❑ Remove any material wound on gearbox shafts.
- ❑ Check oil seal for leakage.

Blades and Blade Holder

- ❑ Inspect blades for wear or damage. (See CHECKING BLADE WEAR in *Service section*.)
- ❑ Check blade hardware torque. (See *Lubrication and Maintenance section*.)
- ❑ Check blade holder hardware torque. (See *Lubrication and Maintenance section*.)

Hitch Pins

- ❑ Check torque on hitch pin lock nut.
- ❑ Insure all bolts on cutter are fastened securely.

Lubricating the Cutter

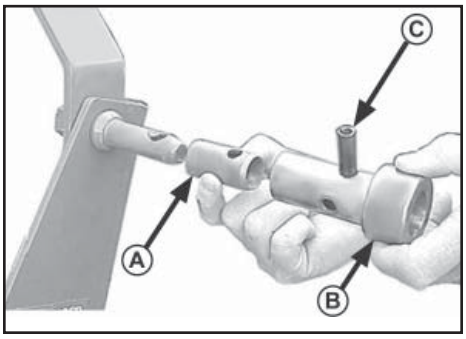
- ❑ Lubricate cutter and driveline. (See *Lubrication and Maintenance section*.)

PREPARATION

- **Installing Hitch Pin Bushings for Category 1 Quick Coupler Hitch**

Note: Install bushings on both hitch pins. Right-hand side shown.

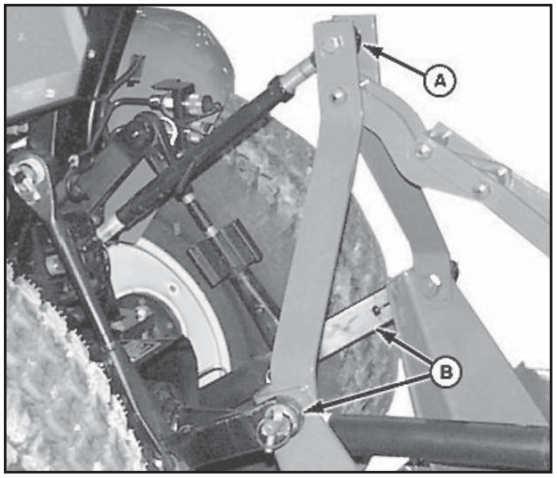
1. Install bushing (A) over hitch pin wit cross hole as shown.
2. Install bushing (B) as shown.
3. Align holes in bushings with hole n hitch pin and install roll pin (C).



A - Bushing
B - bushing
C - Roll Pin

- **Using Category 2, 3-Point Hitch**

Install bushings on cutter hitch pis and tractor center link connection.



A - Center Link Connection
B - Hitch Pins

- **Checking Driveline Shields**

DANGER **Entanglement in rotating driveline can cause serious injury or death. Disengage PTO, engage parking brake or place transmission in "PARK", shut off tractor, and remove key before working near driveline.**

Check driveline shields by making sure they rotate freely (A).

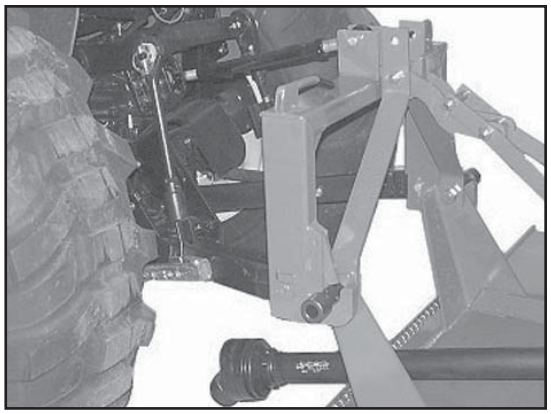
Lubricate or repair if necessary.

A - Driveline Shield

ATTACHING

- **Attaching Cutter to Tractor with Quick Coupler Hitch**

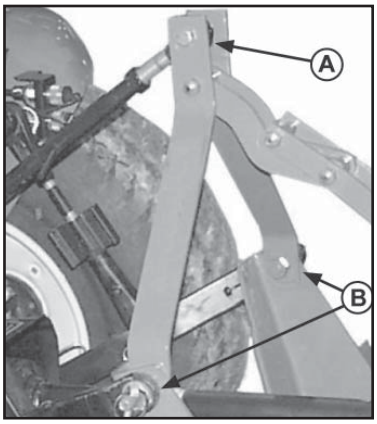
CAUTION: To avoid bodily injury or machine damage whenever an implement is attached, put transmission in PARK position and check the full range of hitch for interference, binding, or PTO separation. Do not stand between tractor and implement.



1. Slowly push hitch control level to lower hitch until quick couplet hooks are lower than cutter hitch pins.
2. Back up tractor to cutter hitch.
3. Raise hitch high enough to engage cutter hitch pins in hooks.
4. Engage tractor parking brake and/or place transmission in "Park".
5. Shut off tractor engine and remove key.
6. See ATTACHING PTO DRIVELINE in this section.
7. Start tractor engine.
8. Slowly pull hitch control level to raise cutter. Check for interference. (See CHECKING DRIVELINE/CUTTER CLEARANCE in this section.)
9. Lower cutter to ground and adjust if necessary.

- **Attaching Cutter to Tractor with 3-Point Hitch**

CAUTION: To avoid bodily injury or machine damage whenever an implement is attached, put transmission in PARK position and check the full range of hitch for interference, binding, or PTO separation. Do not stand between tractor and implement.



A - Tractor Center Link
B - Tractor Draft Links

1. Back up tractor to cutter with hitch points approximately in alignment.
2. Engage tractor parking brake and/or place transmission in "PARK".
3. Shut off tractor engine and remove key.
4. Remove center link mounting hardware and hitch pin assemblies at both hitch masts.
5. Install tractor draft links on hitch pins. Secure with quick-lock pins (stored on tractor draft links.)
6. Align center link with upper hole in cutter mast straps and install center link mounting hardware.
7. Tighten all link and brace hardware on Flex Hitch (A).
8. See ATTACHING PTO DRIVELINE in this section.
9. Start tractor engine.
10. Slowly pull hitch control lever to raise cutter. Check for interference. (See CHECKING DRIVELINE/CUTTER CLEARANCE in this section.)
11. Lower hitch to ground and adjust center link and/or lift links if necessary. (See procedures in your tractor Operator's Manual.)

ATTACHING

- **Assembling PTO Driveline Telescoping Members (If Necessary)**

1. Apply multipurpose grease around outside surface of inner driveline tube (A).
2. Align driveline halves and assemble telescoping members together.
3. Apply multipurpose grease, or equivalent, to all lubrication fittings before operating. (See *Lubrication and Maintenance Section*.)

- **Attaching PTO Driveline**

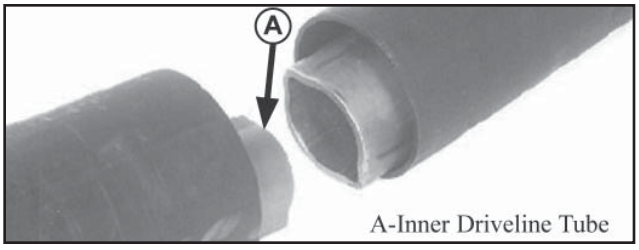
DANGER **Shut off tractor engine before attaching PTO driveline. Entanglement in rotating driveline can cause serious injury or death.**

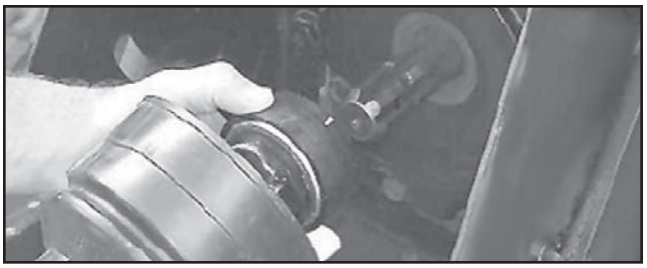
IMPORTANT: Keep driveline and powershaft splines clean of paint, dirt and chaff. Apply multipurpose grease or equivalent on tractor PTO shaft before attaching PTO driveline.

1. Shut off tractor engine.
2. Raise tractor PTO shield, if equipped.

IMPORTANT: Do not use bell on driveline to lift driveline into position. Damage to shielding can occur.

3. Support driveline, cradling it in your hand.
4. Pull collar back toward cutter. Align splines by rotating cutter driveline. Push driveline onto tractor PTO shaft until collar snaps into place.
5. Pull back on shield to make sure driveline is locked.
6. Do not pull back on collar, this will release latch.
7. Lower tractor PTO shield, if equipped.





IMPORTANT: Slip clutch components must be free to rotate when necessary. After thirty (30) days or more, linings of slip clutch may draw moisture. Linings may bond to metal parts causing slip clutch to be ineffective, resulting in machine damage.

8. Slip clutch operational check.
   After the implement has been stored for thirty (30) days or more, perform the following operational check:
   - **a.** Loosen bolts and lock nuts progressively until tension is relieved.
   - **b.** To aid in determining slippage, scribe/mark a line across clutch plate and Belleville Spring.
   - **c.** With tractor at idle speed, engage tractor PTO drive 2 - 3 seconds. Clutch should slip without turning blades. If clutch does not slip, contact your authorized dealer.
   - **d.** Tighten bolts and lock nuts progressively, leaving a gap of 4mm, between clutch plate and Belleville Spring.

ATTACHING

- **Checking Driveline/Cutter Clearance**

IMPORTANT: Prevent driveline damage from contact with frame or machine damage from contact with tractor tires. Raise cutter slowly and check for interference. If necessary, shorten center link or lengthen lift links to provide clearance to full lift height.

1. Raise cutter slowly and check for clearance between driveline shield and cutter deck.
2. Check clearance between tractor tires and foot guards or chain deflector.
3. Check to see if hitch height position will provide clearance desired.

NOTE:
Final adjustments should be made before operating cutter. See ADJUSTING CUTTING HEIGHT AND ANGLE in Operating the Cutter section. Center link should be installed in lowest hole at tractor end if there are multiple holes. Lift height may also be limited by installing stops on rockshaft control lever bracket.

4. Shorten center link or lengthen lift links to provide clearance. (See your tractor Operator's Manual.)

IMPORTANT: PTO driveline may be too long for some tractor models, causing tractor transaxle damage. Hold driveline sections parallel to each other and check for a minimum of 6 inches overlap.

5. Raise and lower cutter slowly to check for binding or interference. Check cutter-to-tractor driveline telescoping length to ensure it does not bottom out. Modify driveline if necessary. (See MODIFYING PTO DRIVELINE in *Assembly Section*.)

DETACHING

- **Detaching Cutter from Tractor**

CAUTION: To prevent personal injury caused by unexpected movement:

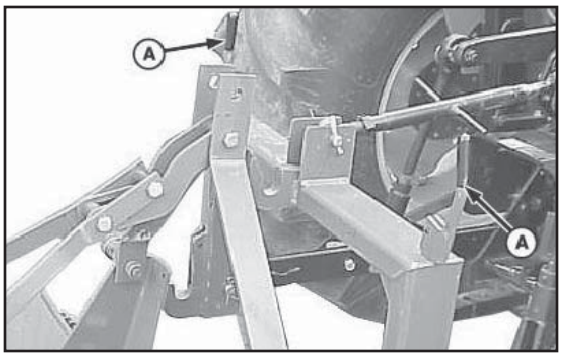
a. Park machine on a level surface.
b. Engage tractor parking brake and/or place transmission in "Park".
c. Disengage PTO.
d. Shut off tractor engine and remove key.

1. Park cutter on a level surface, or block tailwheel so machine cannot roll after detaching from the tractor.
2. Slowly push hitch control lever to lower cutter close to the ground.
3. Engage tractor parking brake and/or place transmission in "Park".

DANGER **Shut off tractor engine before detaching PTO driveline. Entanglement in rotating driveline can cause serious injury or death.**

4. Shut off tractor engine and remove key.
5. Raise tractor PTO shield, if equipped.
6. Pull collar back toward cutter and slide drive line off tractor shaft.
7. Support and collapse driveline completely and lower onto PTO holder.
8. Lower tractor PTO shield, if equipped.

IMPORTANT: Do not use plastic shield on driveline to hold driveline in position. Damage to shielding can occur.



- **Tractor with Quick Coupler Hitch**
  1. Raise both latch control levers on quick coupler (A).
  2. Start tractor engine.
  3. Lower cutter to the ground. Continue lowering quick coupler until hooks clear cutter hitch pins.

- **Tractor with 3-Point Hitch**
  1. Remove quick-lock pins from hitch pins and install in storage position on tractor draft links.
  2. Remove and lower tractor draft links from hitch pins.
  3. Disconnect center link from mast straps. Position tractor center link in transport location. Reinstall center link pin/hardware.
  4. Carefully drive tractor away.

IMPORTANT: After thirty (30) days or more, linings of slip clutch may draw moisture. Linings may bond to metal parts causing slip clutch to be ineffective. Loosen all lock nuts on slip clutch. This will relieve spring load on the discs reducing this problem during storage. Preparing cutter for operation, refer to Assembling Slip Clutch in Service Section.

OPERATION

GENERAL SAFETY

Only qualified people should operate this machine. Wear close fitting clothing and safety equipment appropriate to the job. It is recommended that tractor be equipped with Rollover Protective Systems (ROPS) and a seat belt be used. Before beginning operation, clear work area of objects that may be picked up and thrown. Check for ditches, stumps, holes, or other obstacles that could upset tractor or damage rotary cutter. Always turn off tractor engine, set parking brake, and allow rotary cutter blades to come to a complete stop before dismounting.

- **Preparing Cutter for Operation**

DANGER **To help prevent severe injury or death to you or someone else:**

a. **Do not engage tractor PTO when cutter is in fully raised position (transport position).**
b. **Keep all persons away from machine when raising and lowering cutter.**

IMPORTANT: To avoid damaging the machine from impact on ground when lowering, adjust rate at which hitch will lower.

1. Adjust tractor rockshaft rate-of-drop. Allow at least two (2) seconds for machine to lower from full lift height to the ground. (See your tractor Operator's Manual.)
2. If equipped, disengage tractor hitch/rockshaft control lever from transport lock position and lower cutter to the ground. (See your tractor Operator's Manual.)
3. Adjust tractor lift links to level machine side-to-side. (See your tractor Operator's Manual.)
4. Adjust cutting height and angle. (See Adjusting Cutting Height and Angle in this section.)

- **Adjusting Cutting Height and Angle**

DANGER **Help prevent bodily injury or death caused by entanglement in rotating driveline or blades. Entanglement in rotating driveline or being struck by blades can cause serious injury or death. Before making any adjustments:**

a. **Lower machine until rear wheel just touches or is slightly above ground.**

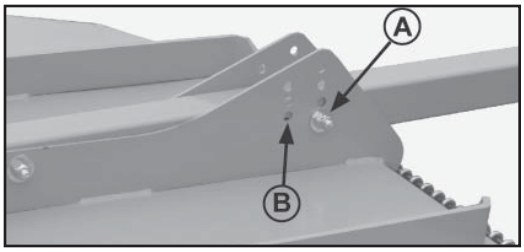
b. **Engage tractor parking brake and/or place transmission in "PARK".**
c. **Disengage PTO.**
d. **Shut off tractor engine and remove key.**
e. **Wait until all moving parts have stopped.**
f. **Disconnect PTO driveline from tractor.**

1. Loosen bolt and locknut (B), remove bolt, washers and lock nut (A), raise tailwheel to highest position and install bolt, washer, and lock nut (A).
2. Using rockshaft control lever, position front of cutter at desired cutting height at location.
3. Adjust depth stop. (See your tractor Operator's manual.)
4. Adjust center link so rear of cutter is approximately 2 inches (51mm) higher than front.

NOTE:
The rotary cutter should be operated at the highest position which will give optimal cutting results. This will help prevent the blades from striking the ground, reducing blade wear and undue strain on the cutter. For best results under heavier cutting conditions, always tilt the rotary cutter approximately 2 inches (51mm) lower in the front. This tilt decreases horsepower requirements and increases potential ground speed. When fine shredding is desired, adjust rotary cutter deck level or slightly lower in the rear. This will keep the foliage under rotary cutter until thoroughly shredded. More power is required for shredding.

5. Lower tailwheel to support rear of the cutter.
6. Install bolt, washers, and lock nut (A) into one of the seven holes (B) that aligns with the hole in wheel support.
7. Reinstall bolt, washers, and lock nut. Tighten lock nut. (A)

NOTE: The tailwheel supports the rear of the machine and the draft links support the front to allow the cutter to follow the ground contour.

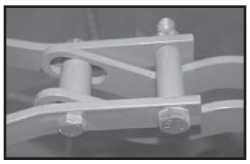


A - Lock Nut, Washers, Bolt B - Adjustment Hole

Each rotary cutter can be adjusted to several cutting heights from 1.5 inches to 9 inches of cutting height by moving the rockshaft control lever in conjunction with moving the tailwheel adjustment bolt among the height adjustment holes (see photo above).

IMPORTANT: Loosening the center link may allow the driveline to contact the cutter frame or tractor tires to contact the foot guards or chain shield. Raise the cutter slowly and check for interference. Lengthen tractor lift links to provide clearance to full height.

NOTE: Lift height may also be limited by installing stops on rockshaft control lever bracket.



7. Lengthen tractor lift links, in necessary, to provide clearance.
8. Adjust tractor center link until bushing is centered in slot.

- **Follow Safe Operating Procedures**

1. Perform BEFORE EACH USE maintenance in the *Lubrication and Maintenance Section*.
2. Start tractor per tractor operator's manual.
3. Raise/lower 3-point hitch to place cutter in working position.
4. Look to be sure no one is near cutter.
5. With tractor at idle speed, slowly engage PTO drive.

DANGER STAY CLEAR OF ROTATING DRIVELINE. DO NOT OPERATE WITHOUT DRIVELINE SHIELDS IN PLACE AND IN GOOD CONDITION. FAILURE TO HEED THESE WARNINGS MAY RESULT IN PERSONAL INJURY OR DEATH.

6. Set tractor throttle for appropriate PTO speed (540 RPM).

DANGER ROTATING CUTTER BLADES. STAND CLEAR UNTIL ALL MOTION HAS STOPPED. TO AVOID AN ACCIDENTAL FALL FROM TRACTOR AND POSSIBLE INJURY BY MOWER, IT IS RECOMMENDED THAT TRACTOR BE EQUIPPED WITH ROLLOVER PROTECTION SYSTEM (ROPS) AND A SEAT BELT BE USED BY THE OPERATOR FOR ALL MOWING OPERATIONS.

7. Place tractor in gear and proceed forward.

NOTE:
Tractor forward speed should be controlled by gear selection, not engine speed. For maximum cutting efficiency, forward speed should allow cutter to maintain a constant, maximum blade speed. If cutter stalls or tractor engine bogs, disengage PTO. Before re-engaging PTO, position cutter in a cut area and reduce tractor throttle to idle. If rotary cutter continuously stalls, select lower gear and/or increase cutting height.

OPERATION

- **Keep Riders Off Machine**

DANGER **Keep riders off. Riders are subject to injury or death such as being struck by foreign objects and being thrown off the machine. Riders may also fall off and be run over by machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.**

- **Follow Safety Operating Procedures**

DANGER **To help prevent severe injury or death to you or someone else, please observe the following:**

- ❑ **Never operate cutter when other people are in the vicinity. Debris can be thrown hundreds of feet.**
- ❑ **Keep all deflectors in place. Including those on discharge opening at front and rear of deck.**
- ❑ **Before starting machine, lower to the ground. Engage tractor PTO and gradually increase the speed.**
- ❑ **Operate tractor at rated PTO speed. If engine speed is too slow or too fast, machine may not perform properly.**
- ❑ **Where conditions make it necessary to slow ground speed, shift to a lower gear rather than reducing engine speed. The engine will maintain rated speed and keep cutter running at optimum cutting speed.**
- ❑ **Operate machine from tractor seat only.**
- ❑ **Never adjust machine while in motion.**
- ❑ **Slow down when turning or traveling over rough ground.**
- ❑ **Avoid holes when operating on hillsides. Tractor roll-over could result.**
- ❑ **Shut off tractor engine and engage tractor parking brake and/or place transmission in "Park" when leaving tractor. Remove key when leaving tractor unattended.**
- ❑ **Components behind shields may rotate several minutes after power is shut off. Look and listen for evidence of rotation before removing shielding.**

LUBRICATION & MAINTENANCE

- **Lubricating & Maintaining Machine Safely**

DANGER **Help prevent bodily injury or death caused by entanglement in rotating driveline or blades. Entanglement in rotating driveline or being struck by blades can cause serious injury or death.**

Components will be hot after operation. Let all components cool before servicing.

Replace all shields after lubricating or servicing.

- **Maintenance Check List**

Perform scheduled maintenance as outlined below. Lower machine to ground, turn off tractor and set parking brake before doing maintenance inspections or work. All bolts should be torqued as recommended in the Torque Specifications unless otherwise indicated.

- **Maintenance Before Each Use**

CAUTION: Do not clean, lubricate or adjust machine while it is in motion.

1. Check tractor tire air pressure. Refer to tractor operator's manual.
2. Check blades and spindles to be sure that no foreign objects such as wire or steel strapping bands are wrapped around them.
3. Check blade bolts for tightness. (Tighten to 425 ft./lbs.)

IMPORTANT: Operating with loose blade hardware will damage the blade holder and blades.

   a. RC20-48: Remove tailwheel tube assembly support. (See REMOVING AND INSTALLING TAILWHEEL SUPPORT in *Service Section*.)
   b. Locate blade hardware under hole.

Note: Blade bolt tightening requires a 1 ½" socket with extension, a torque multiplier, and a torque wrench to torque nut to 425 ft./lbs.

   c. RC20-48: Reinstall tailwheel tube assembly support in original position.

4. Inspect blades for wear. (See *Service Section Checking Blade Wear*). Always replace both blades on blade holder with genuine parts.
5. Make certain driveline shields are in place and in good repair.
6. Inspect tailwheel for wear, damage, or foreign objects. (Repair or replace if necessary.)
7. Before each use refer to LUBRICATION LOCATIONS AND INTERVALS in this section.
8. During operation, listen for abnormal sounds which might indicate loose part, damaged bearings, or other damage.

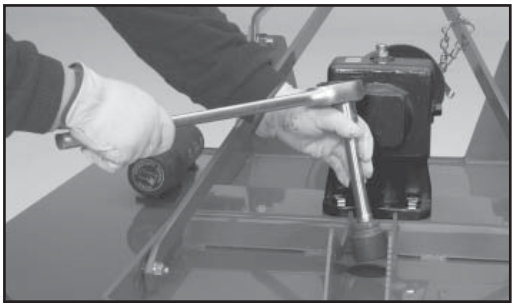
- **Maintenance After Each Use.**

1. Clean all debris from rotary cutter especially under side of deck. When cleaning underside of deck, securely block machine into position.

IMPORTANT: To help prevent structural damage caused by loose hardware, check all hardware after first eight (8) hours of use and tighten all hardware to specifications.

- **Observe Lubrication Symbols**

Lubricate with SAE multipurpose type grease (unless otherwise specified) at hourly intervals indicated on the symbols.



LUBRICATION & MAINTENANCE

- **Lubrication Before Each Use**

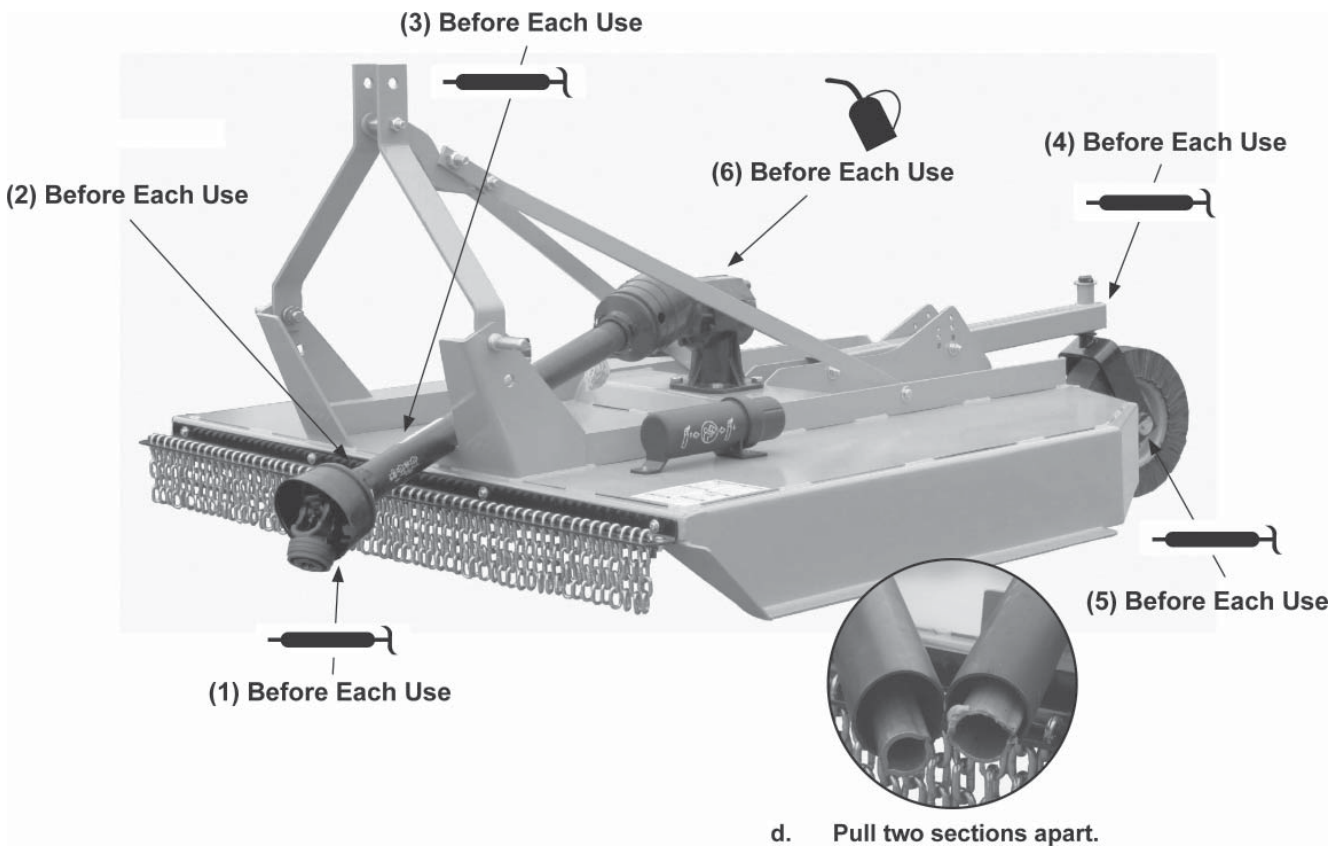
1. **Driveline Universal Joints**
   - **a.** Apply multi-purpose grease with a grease gun.

2. **Driveline Guard**
   - **b.** Apply 2 - 3 shots of multi-purpose grease with grease gun to plastic fitting.

3. **Driveline Profile**
   - **c.** Disconnect PTO driveline.
   - **d.** Pull two sections apart.
   - **e.** Apply thin coat of multi-purpose grease to inside of female section.
   - **f.** Re-assemble sections

Note: Pull each section to be sure driveline and shields are securely connected. Make certain PTO shielding is in good condition. Do not grease outer or inner plastic shields.

4. **Tailwheel Pivot Tube**
   - **g.** Apply multi-purpose grease with grease gun.
5. **Tailwheel**
   - **h.** Apply multi-purpose grease with grease gun.
6. **Gearbox**
   - **i.** Check oil level by removing oil level check plug on side of gearbox.
   - **j.** Add EP80-90W gear oil if necessary to bring oil level to check plug hole.



SERVICE

- **Practice Safe Service Procedures**

CAUTION: To help prevent personal injury caused by unexpected movement, be sure to service machine on a level surface.

Before servicing or adjusting machine connected to a tractor:

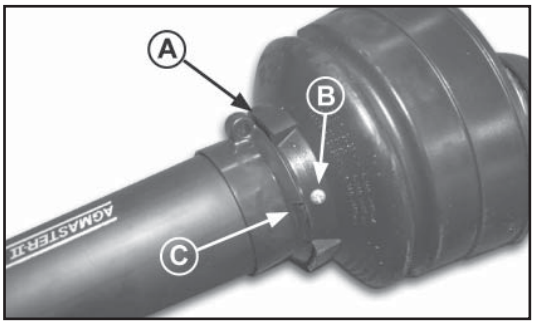
1. Lower machine to the ground.
2. Engage tractor parking brake and/or place transmission in "Park".
3. Disengage PTO.
4. Shut off tractor engine and remove key.
5. Wait until all moving parts have stopped.
6. Disconnect PTO driveline from tractor.

The blades and blade pan may rotate for several minutes after PTO is shut off. Look and listen for rotating driveline to stop before working on the cutter.

When servicing blades or blade pan, it will be necessary to work underneath cutter. Be sure to support cutter frame at all four corner locations with safety shop stands to prevent accidental lowering. Do not position safety stands under wheel support because these component scan rotate.

- **Disassembling & Assembling Driveline Shields**

1. Separate telescoping parts.
2. Remove driveline shield screw (B).
3. Rotate cone to align tab (C) with hole (A) and slide shield rearward off of driveline.
4. Assemble in reverse order.

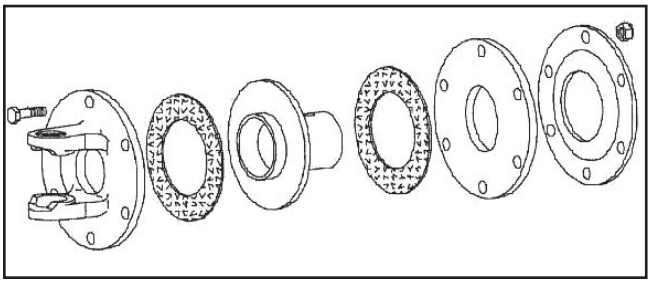


- **Disassembling & Inspecting Slip Clutch**

1. Remove slip clutch driveline. (See procedure in this section.)

NOTE:
Belleville springs, which are part of the clutch, keep tension on all components. When disassembling, release tension by loosening hardware progressively.

2. Loosen bolts and lock nuts progressively until tension is relieved.
3. Friction disks may appear to be part of the hub or yoke, tap lightly on edge to separate.
4. Inspect clutch components for wear or damage. Repair or replace parts as necessary.



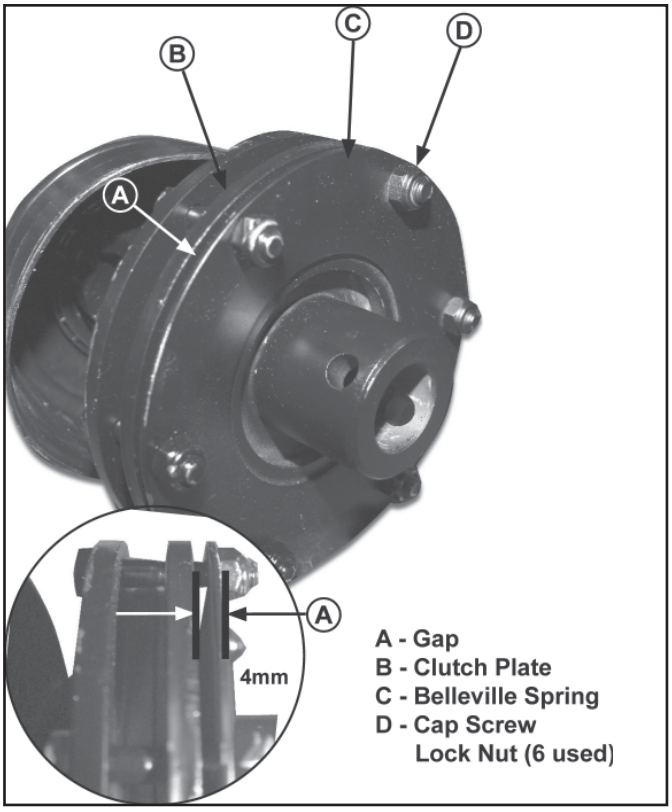
- **Assembling Slip Clutch**

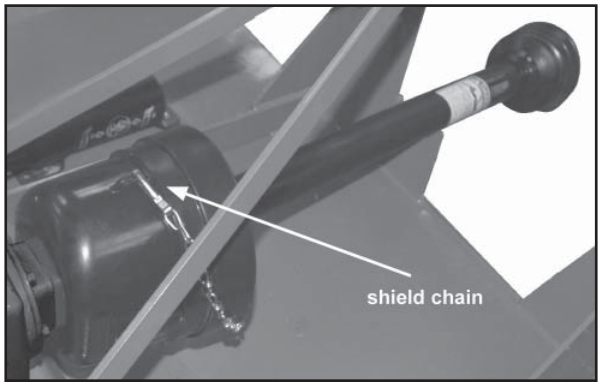
Assemble slip clutch in reverse order of disassembly using the following instructions:

1. Install Belleville spring with concave side facing away from yoke end.

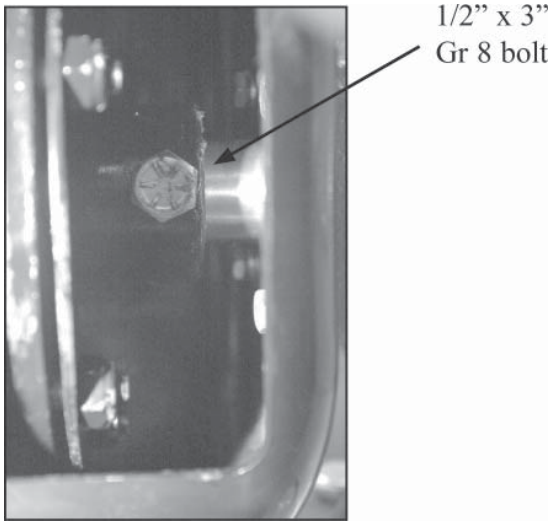
IMPORTANT: To avoid driveline damage, DO NOT overtighten bolts and lock nuts. A gap must be left between clutch plate (B) and Belleville spring (C).

2. Tighten bolts and lock nuts progressively, leaving a gap (A) 4mm, between clutch plate (B) and Belleville spring (C).





(Disconnect driveline shield chain)

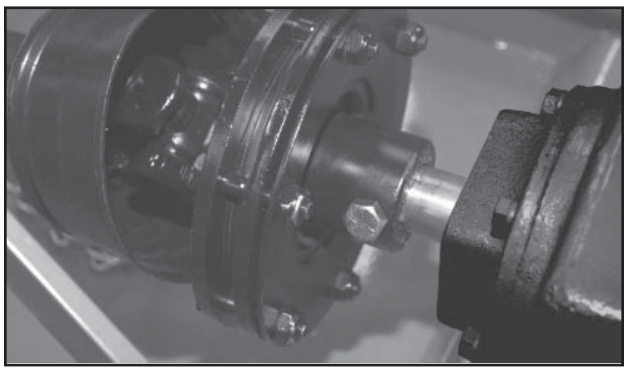


- **Removing & Installing Driveline - Slip Clutch**

1. Disconnect driveline shield chain.
2. Open access panel on shield.
3. Remove driveline assembly from gearbox output shaft by removing ½" x 3" Grade 8 bolt and lock nut.
4. Make repairs as necessary:
   - **a.** Slip clutch service - See DISASSEMBLING AND INSPECTING SLIP CLUTCH in this section.
   - **b.** Driveline repair - see your authorized dealer.

IMPORTANT: Apply multi-purpose grease on gearbox input shaft. ½" x 3" Grade 8 bolt and lock nut required to attach driveline to gearbox input shaft.

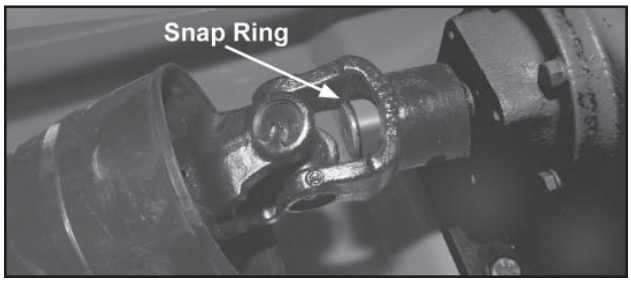
5. Install driveline in reverse order of removal.



NOTE: Slip clutch removed for illustration purposes.

SERVICE

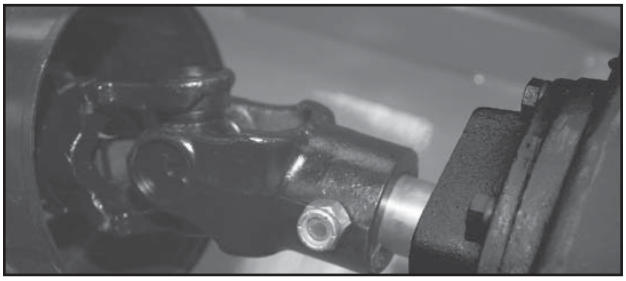
- **Removing & Installing Driveline - Shear Bolt**



1. Disconnect driveline shield chain.
2. Bend back driveline shield cone.
3. Remove shear bolt and lock nut.
4. Push driveline onto input shaft toward gearbox and remove snap ring.
5. Pull driveline from gearbox shaft.
6. Replace or repair as necessary.
7. Install in reverse order of removal.

- **Replacing Driveline Shear Bolt**

IMPORTANT: Avoid shear bolt failure at start up by engaging the PTO slowly at low engine rpm.

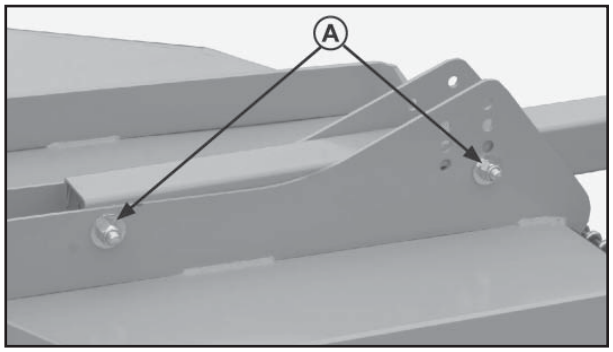


NOTE: Driveline shield pulled back for illustration purposes. Cutter drive components are protected from shock loads by a shear bolt.

If shear bolt fails:

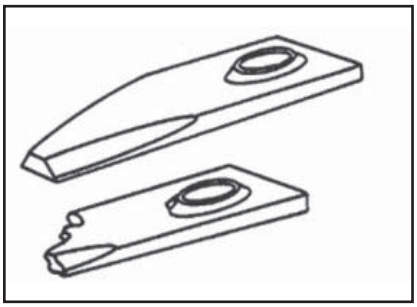
1. Bend back driveline shield cone.
2. If necessary remove sheared bolt with hammer and punch and realign holes in yoke and shaft.
3. Replace with ½" x 3" Grade 2 bolt and lock nut.

- **Removing & Installing Tailwheel Support**



CAUTION: When removing and installing tailwheel support, it will be necessary to support the cutter. Before servicing cutter, refer to PRACTICE SAFE SERVICE PROCEDURES at the beginning of this section.

1. Remove ½" lock nut, washer and ½" x 4" bolt (A).
2. Remove tailwheel support.
3. Install tailwheel support in reverse order.



- **Checking Blade Wear**

IMPORTANT: Operating with blades that are not alike will cause vibration. Always replace worn or broken blades in pairs. Never replace a single blade. Check blades regularly for wear or breakage.

SERVICE

- **Replacing Blades**

IMPORTANT: Operating with loose blade hardware will damage the blade pan and blades. Whenever the blades have been removed or replaced, blade hardware MUST also be replaced. Always use genuine parts. Check blade hardware torque after one hour of operation and every eight (8) hours thereafter.

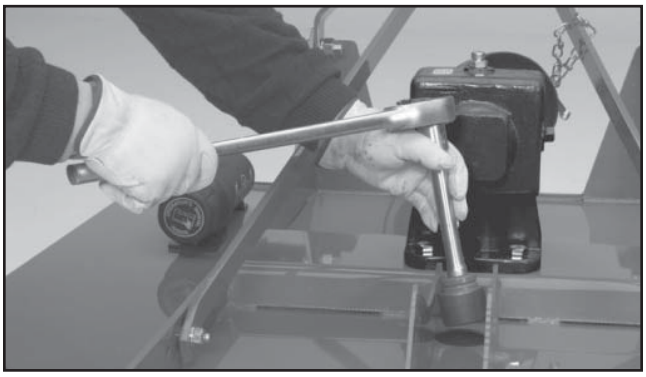
NOTE: Suction blades have cutting edge on one side only. Note blade rotation when installing blades. (See DIRECTION OF BLADE ROTATION in this section).

RC1048: Tailwheel support much be removed to locate
blade access hole.

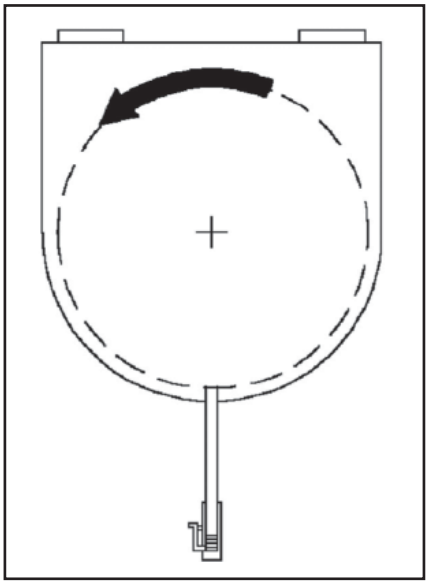
1. RC20-48: Remove tailwheel support. (See REMOVING AND INSTALLING TAILWHEEL SUPPORT in this section).
2. Manually rotate driveline to align lock nut with access hole in top of deck. Discard mounting hardware.
3. Install new hardware and tighten lock nut to 425 ft.-lbs.
4. RC20-48: Install tailwheel support.

- **Direction of Blade Rotation**

IMPORTANT: Cutter shown is viewed from the top. Take special note of blade rotation shown by the arrow.



CAUTION: When replacing blades, blade hardware and blade pan it will be necessary to work underneath cutter. Be sure to support cutter frame at all four corner locations with safety shop stands to prevent accidental lowering. Do not position safety stands under wheel support because these components can rotate.



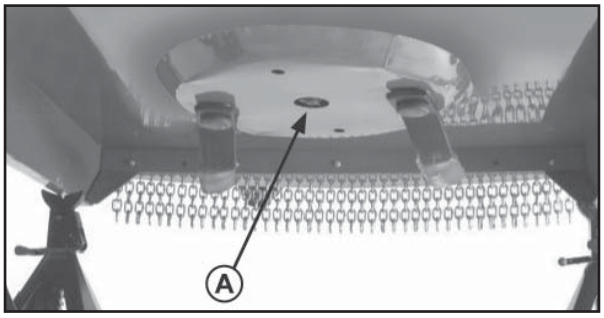
SERVICE

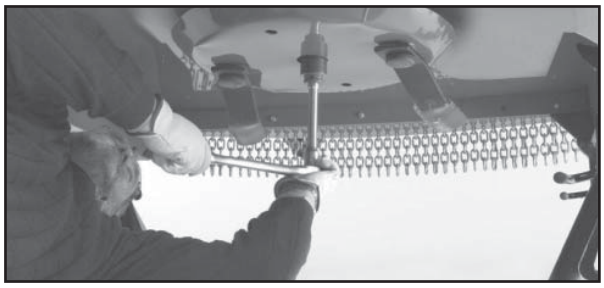
- **Replacing Blade Pan**

1. Remove the blades. (See REPLACING BLADE in this section).
2. Remove cotter pin from output shaft of the gearbox.
3. Loosen castle nut to the bottom of the output shaft (A). Do not remove castle nut as it must hold the blade pan when it becomes loose.
4. Tap with a hammer around the hub using a block of wood as shown in photo.

NOTE: The output shaft of the gearbox is tapered. A few taps around the hub will loosen the blade pan.

5. Remove castle nut slowly and allow the blade pan to be removed.
6. Remove blade pan.

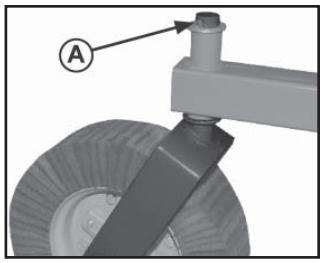




7. To reinstall blade pen, reverse the above steps. Be sure to tighten the castle nut and replace the cotter pin.
8. Replace blades. (See REPLACING BLADE in this section).

- **Replacing Tailwheel Pivot/Spindle**

1. Remove ½" lock nut, washer and ½" x 4" bolt.
2. Raise tailwheel to highest position and replace hardware.
3. Remove roll pin and washer (A).
4. Slide tailwheel assembly out of tailwheel support tube.
5. Replacing tailwheel, reverse the above steps.



STORAGE

- **At the End of your Cutting Season**

1. Drain and change the oil in the gearbox.
2. Check (and replace where necessary) blades, bolts, and nuts on the cutter.
3. Clean cutter and touch up any rust spots that may have appeared.
4. Replace any safety decals if damaged.
5. Store rotary cutter in a clean dry location.

ASSEMBLY

- **Perform Predelivery Service Safely**

CAUTION: Understand the predelivery procedure before doing the work.

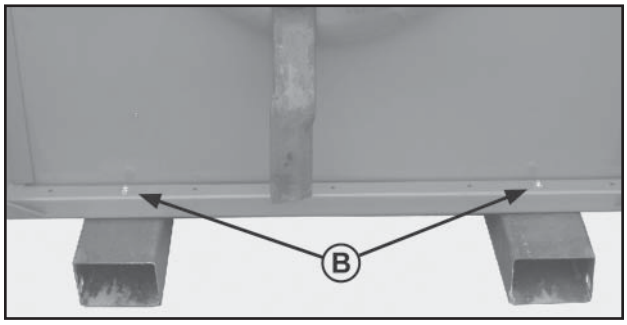
During the assembly, test, and adjustment procedures it may be necessary to operate drives and hydraulic systems. Stay clear of machine elements when raising or lowering machine and during operation of drivelines.

Practice good communication with other service technicians. Be aware of their actions and alert them to potential hazards.

Never lubricate, service, or adjust machine while it is running. Keep hands, feet, and clothing away from power-driven or hydraulically operated parts. If it is necessary to inspect the machine while it is in operation, be alert to moving parts in the immediate area.

- **Remove Shipping Dunnage and Parts**

DANGER: To help prevent bodily injury from accidental lowering of the cutter, attach a lifting strap or chains to cutter rear support frame and a hoist.

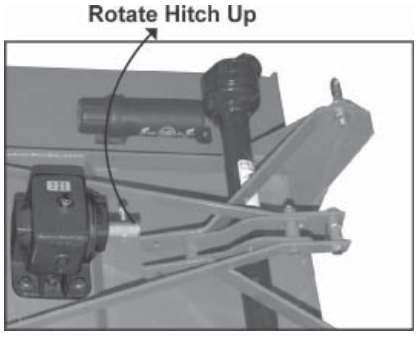


1. Remove loose parts attached to the cutter on the underside of the deck and remove additional hardware from inside of the OM tube.
2. Wrap lifting strap or chains around cutter rear support frame and attach to a hoist.
3. Lower machine onto 4-inch wood blocks.
4. Remove all shipping bands, wires and loose parts from around the cutter.
5. Remove shipping stands from cutter by removing hitch pins (A) and 1/2” bolts (B). Discard shipping stands, flat washers and bolts.
6. Install hitch pins and tighten to specified torque.

ASSEMBLY

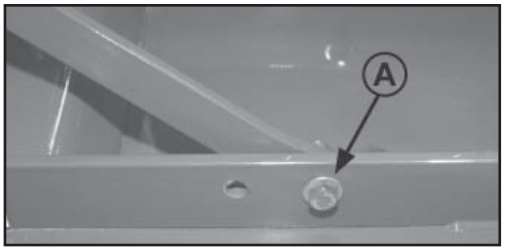
- **Assemble Hitch**

1. Rotate hitch up.
2. Install hitch pivot bushing, bolt, lock nut and tighten.

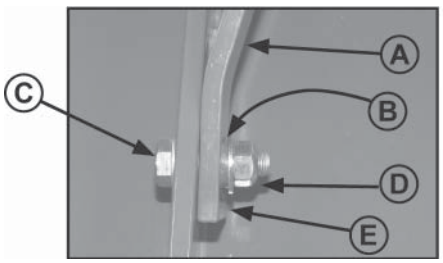


IMPORTANT: Please do not over tighten hardware.

3. Attach lift arm brace to frame using ½" x 1 ¾" bolt, bushing, washers and lock nut.
4. Attach lift arm brace to frame using ½" x 1 ¾" bolt, bushing, washers and lock nut. Install bolt, bushing, and lock nut into hole and tighten to specifications. (A) see photo below.

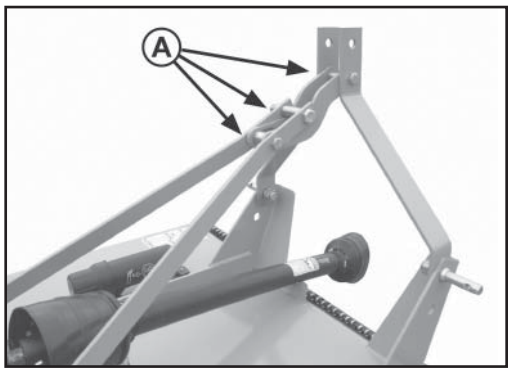


5. Repeat on opposite brace.
6. Tighten all link and brace hardware (A).
7. Attach lift arm brace (A) to frame using ½" x 1 ¾" bolt (C), bushing (B), flat washer (E), and lock nut (D). Tighten bolt to specifications.



A - Brace
B - Bushing
C - 1/2" x 13/4" bolt Gr5
D - Lock Nut
E- Washer

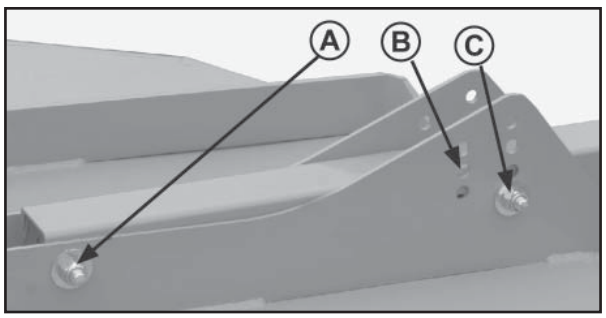
8. Repeat on opposite brace.
9. Tighten all link and brace hardware (A).



IMPORTANT: Please do not over tighten hardware.

- **Install Tailwheel Support**

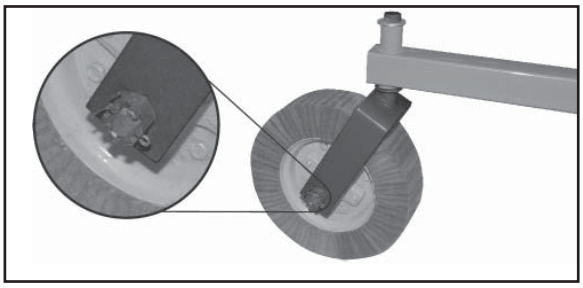
1. If necessary remove tailwheel support from shipping position.
2. Place tailwheel support between brackets on deck.
3. Install ½" x 4" bolt, washers and lock nut (A).
4. Install ½" x 4" bolt, and lock nut (C) into one of seven holes (B) that aligns with hole in wheel support. (See ADJUSTING CUTTING HEIGHT and ANGLE in the Cutter Operation section).
5. Tighten hardware.



ASSEMBLY

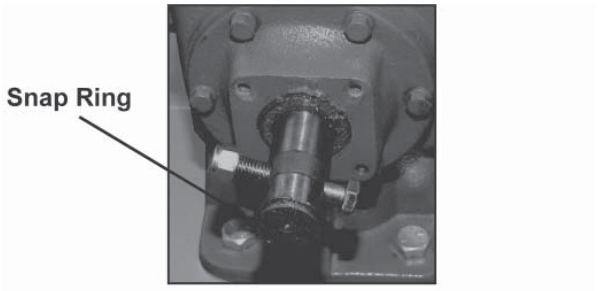
- **Install Tailwheel**

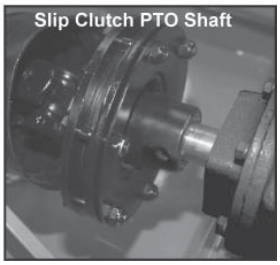
1. If necessary, attach using axle bolt, castle nut and cotter pin.
2. Tighten hardware.



- **Install Driveline**

1. Remove snap ring and shear/retaining bolt from gearbox input shaft or PTO shaft.
2. Remove paint from gearbox input shaft.
3. Install slip clutch shield (if equipped).
   a. Open access panel on shield.
   b. Attach shield to gearbox using four 5/16" x 3/4" bolt Grade 2 and flat washers. Tighten to specifications.
4. Install driveline. (See REMOVING and INSTALLING DRIVELINE in *Service section*).





NOTE: Driveline shield pulled back for illustration purposes.

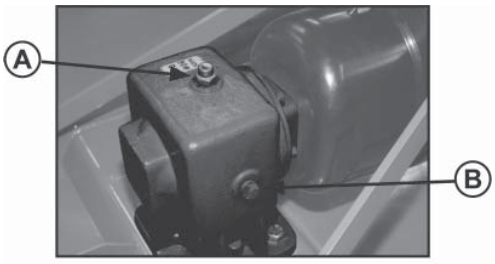
- **Fill Gearbox**

IMPORTANT: Cutter is shipped without gearbox lubricant. DO NOT operate the cutter without filling gearbox with specified amount of lubricant listed below, or gearbox will be damaged. (See LUBRICATION and MAINTENANCE section).

1. Remove breather plug (A) from filler hole.
2. Fill gearbox according to initial fill with 32 ounces of EP80W-90 gear oil.

IMPORTANT: Oil will move into lower cavity of gearbox during initial operation. Check oil level after 30 minute break-in period and before every use.

3. After approximately 30 minutes of initial operation, remove check plug (B) and check oil level. Oil should just seep from check plug hole.
4. Add oil if necessary and replace plug (A).



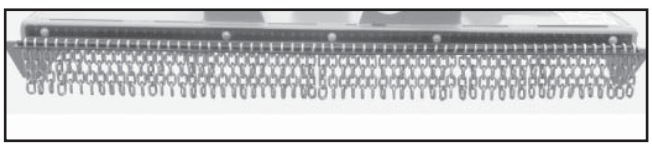
RC21 Series Gearbox

A - Breather Plug B - Check Plug

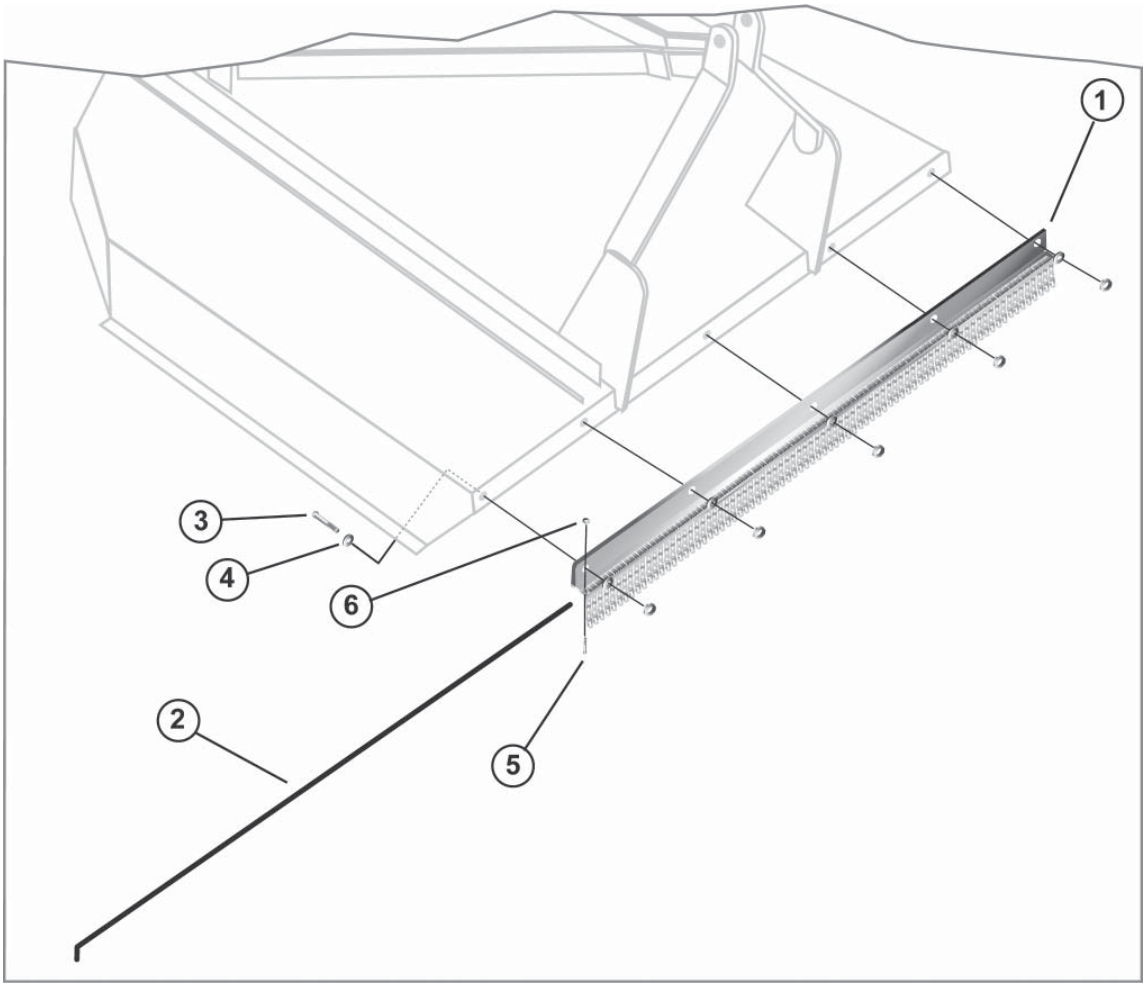
- **Install Front Deflector-Chains (if equipped)**

IMPORTANT: Install hardware with lock nuts and flat washers on the outside of cutter.

1. Install deflector using provided bolts, flat washers and lock nuts. Insert bolts from inside out of rotary cutter. Tighten hardware to specifications in torque chart.



ASSEMBLY

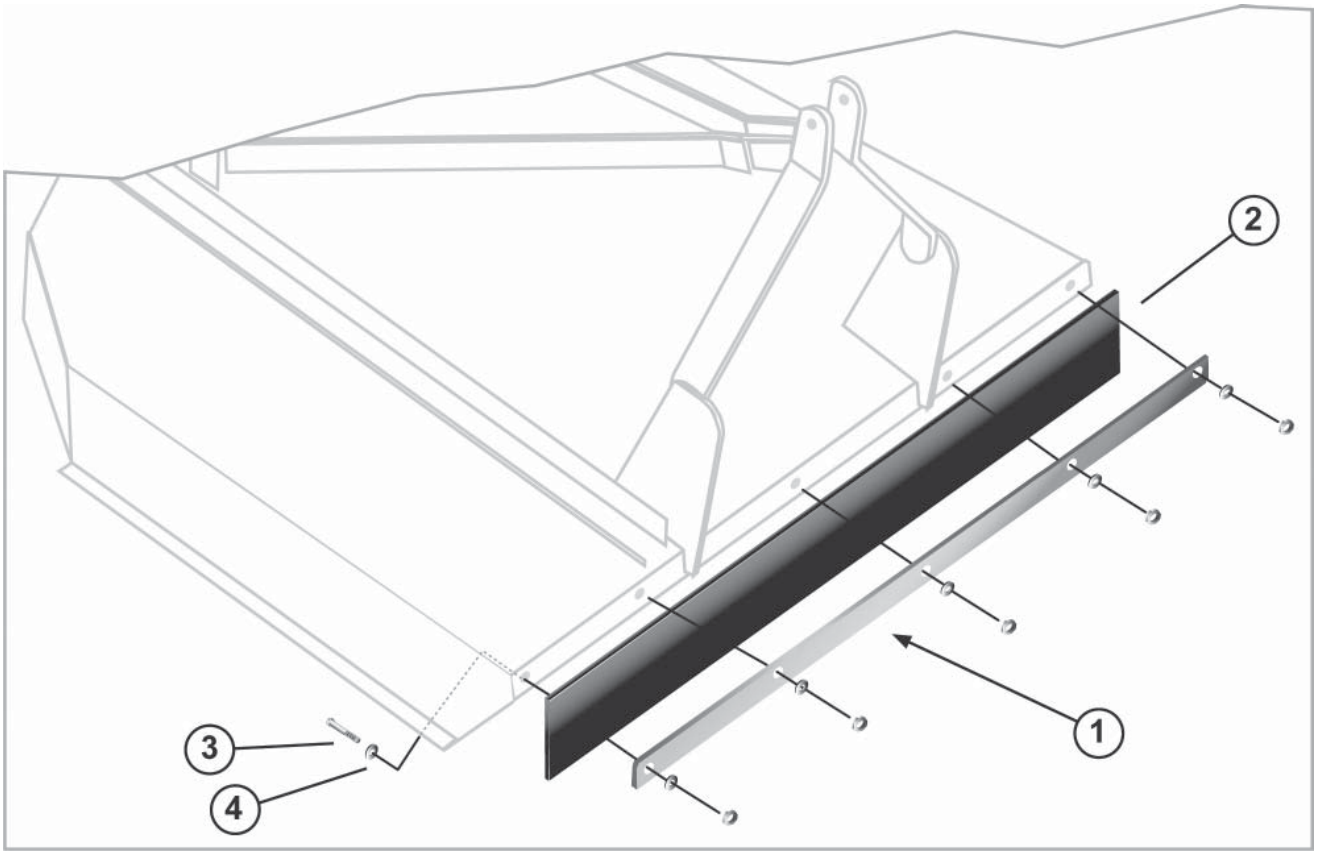


- **Install Front Deflector-Chains (if equipped)**

1. Insert 5⁄16" x 3" bolts and flat washers (Items 3 & 4) through hole from inside out of rotary cutter.
2. Place front chain guard (Item 1) against tube frame of rotary cutter and install flat washers, lock washers, and nuts until all are installed.
3. Rotate retaining bar (Item 2) into a large slot in chain guard frame and instal 5⁄16" x ¾" bolt into slot (Item 5). Tighten 5⁄16" lock nut (Item 6).
4. Repeat process for rear chain guard.

WARNING:
Rotary cutter must be equipped with front and rear guards when operating in the vicinity of highways or in any area where people may be present.

ASSEMBLY



- **Install Front Deflector-Rubber (if equipped)**

1. Insert 5⁄16" x 3" bolts and flat washers (Items 3 & 4) through hole from inside out of rotary cutter.
2. Place belt guard (Item 2) against tube frame of rotary cutter and install front belt guard frame (Item 1) flat washers, lock washers and nuts until all are installed, clamping belt guard between belt guard frame and rotary cutter front tube.
3. Repeat process for rear belt guard.

WARNING:
Rotary cutter must be equipped with front and rear guards when operating in the vicinity of highways or in any area where people may be present.

Final Inspection and Adjustments

IMPORTANT: PTO driveline may be too long for some tractor models, causing tractor transaxle damage. Modify driveline if necessary.

Attach rotary cutter to tractor and check cutter-to-tractor driveline telescoping length clearance. (See CHECKING DRIVELINE/CUTTER CLEARANCE in Attaching section).

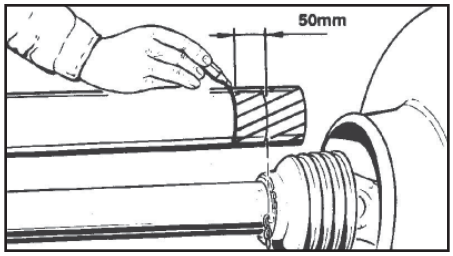
IMPORTANT: Blade hardware MUST be checked after the first hour and every eight (8) hours thereafter.

Check blade hardware torque. Retighten hardware after one hour of operation and every eight (8) hours thereafter. (See MAINTENANCE BEFORE EACH USE in Lubrication and Maintenance section).

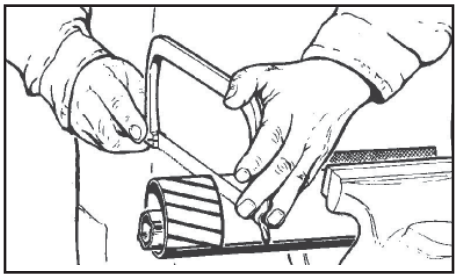
MODIFY PTO DRIVELINE

- **Modify PTO Driveline (If necessary)**

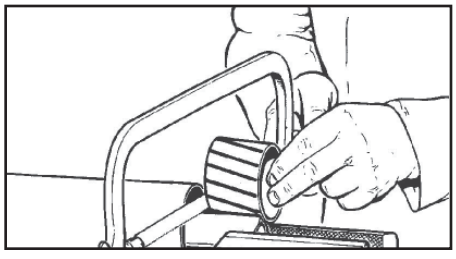
1. To adjust the length, hold the half-shafts next to each other in the shortest working position and mark them.



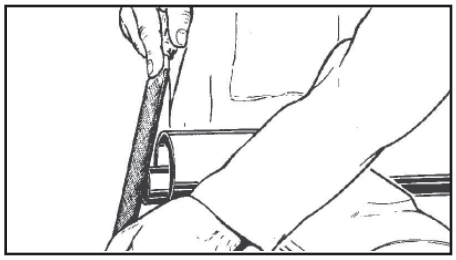
2. Shorten inner and outer guard tubes equally.



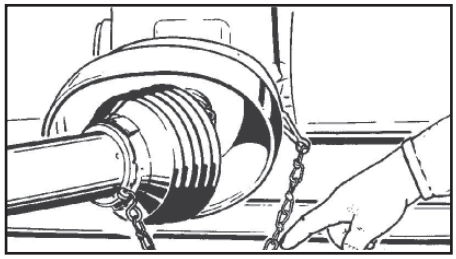
3. Shorten inner and outer sliding profiles by the same length as the guard tubes.



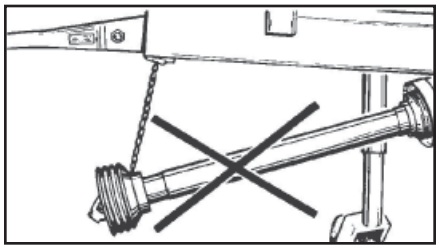
4. Round off all sharp edges and remove burrs. Grease sliding profiles. No other changes may be made to PTO drive shaft and guard.



5. Chains must be fitted so as to allow sufficient articulation of the shaft in all working positions.



6. The PTO drive shaft must not be suspended from the chains!

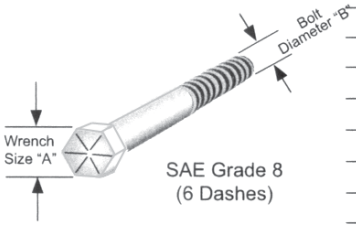


TORQUE SPECIFICATIONS

AMERICAN
Bolt Head Markings

SAE Grade 2
(No Dashes)

SAE Grade 5
(3 Dashes)

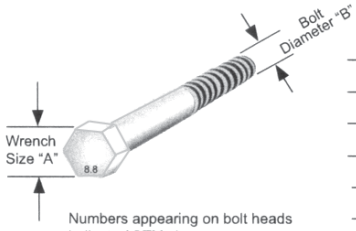


SAE Grade 8
(6 Dashes)

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

WRENCH SIZE(IN.)"A"	BOLT DIAMETER (IN.)"B" AND THREAD SIZE	SAE GRADE 2	SAE GRADE 5	SAE GRADE 8
7/16	1/4 -20 UNC	6 (7)	8 (11)	12 (16)
7/16	1/4 - 2/ UNF	6 (8)	10 (13)	14 (18)
1/2	5/16 -18 UNC	11 (15)	17 (23)	25 (33)
1/2	5/16 - 24 UNF	13 (17)	19 (26)	27 (37)
9/16	3/8 - 16 UNC	20 (27)	31 (42)	44 (60)
9/16	3/8 -24 UNF	23 (31)	35 (47)	49 (66)
5/8	7/16 -14 UNC	32 (43)	49 (66)	70 (95)
5/8	7/16 - 20 UNF	36 (49)	55 (75)	78 (106)
3/4	1/2 - 13 UNC	49 (66)	76 (103)	106 (144)
3/4	1/2 - 20 UNF	55 (75)	85 (115)	120 (163)
7/8	9/16 -12 UNC	70 (95)	109 (148)	153 (207)
7/8	9/16 - 18 UNF	79 (107)	122 (165)	172 (233)
15/16	5/8 - 11 UNC	97 (131)	150 (203)	212 (287)
15/16	5/8 - 18 UNF	110 (149)	170 (230)	240 (325)
1-1/8	3/4 - 10 UNC	144(195)	266 (360)	376 (509)
1-1/8	3/4 - 16 UNF	192 (260)	297 (406)	420 (569)
1-5/16	7/8 - 9 UNC	166 (225)	430 (583)	606 (821)
1-5/16	7/8 - 14 UNF	184 (249)	474 (642)	668 (905)
1-1/2	1-8 UNC	250 (339)	644 (873)	909 (1232)
1-1/2	1 - 12 UNF	274 (371)	705 (955)	995 (1348)
1-1/2	1-14 UNF	280 (379)	721 (977)	1019 (1381)
1-11/16	1-1/8 - 7 UNC	354 (480)	795 (1077)	1288 (1745)
1-11/16	1-1/8 -12 UNF	397 (538)	890 (1206)	1444 (1957)
1-7/8	1-1/4 - 7 UNC	500 (678)	1120 (1518)	1817 (2462)
1-7/8	1-1/4 - 12 UNF	553 (749)	1241 (1682)	2013 (2728)
2-1/16	1-3/8 - 6 UNC	655 (887)	1470 (1992)	2382 (3228)
2-1/16	1-3/8 -12 UNF	746 (1011)	1672 (2266)	2712 (3675)
2-1/4	1-1/2 - 6 UNC	870 (1179)	1950 (2642)	3161 (4283)
2-1/4	1-1/2 - 12 UNF	979 (1327)	2194 (2973)	3557 (4820)

METRIC



Numbers appearing on bolt heads indicate ASTM classes.

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

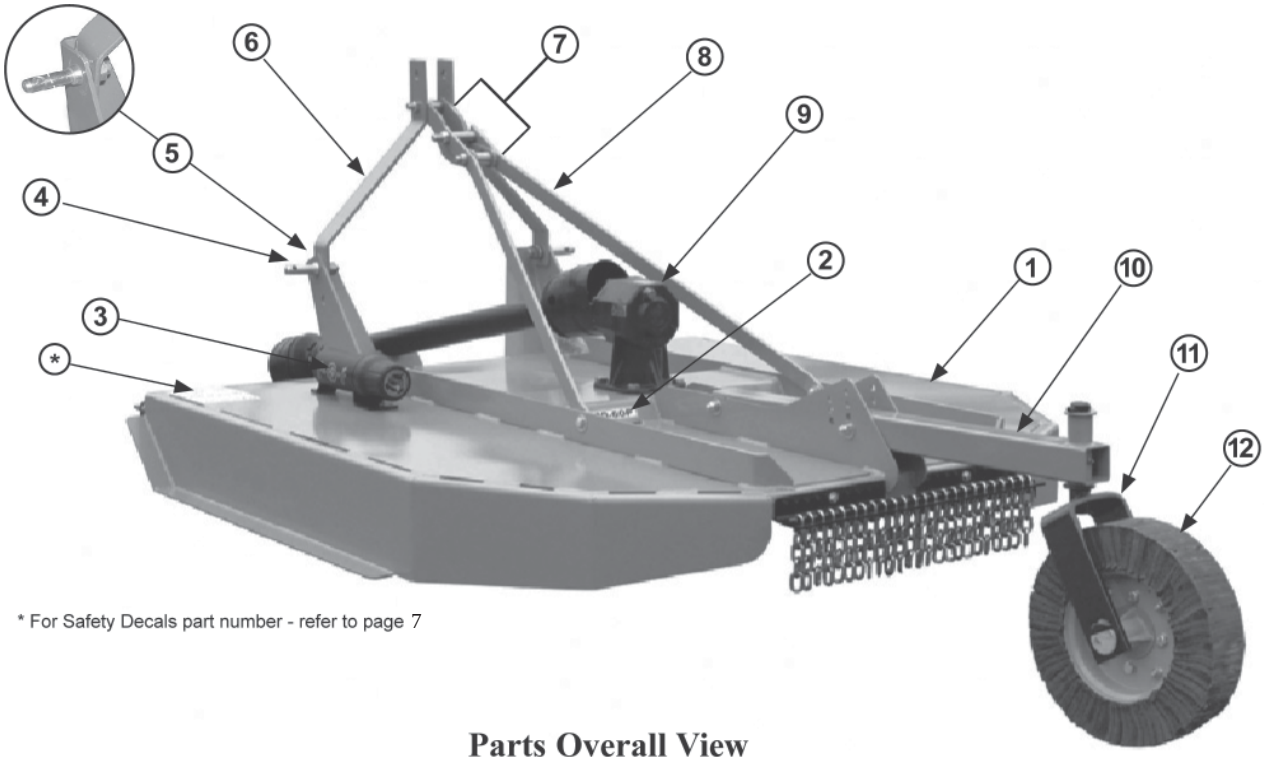
Proper torque for metric fasteners used on manufacturer emplement.
Recommended Torque in Foot Pounds (Newton Meters).*

WRENCH SIZE (mm) "A"	BOLT DIA. (mm) "B"	ASTM 4.6	ASTM 8.8	ASTM 9.8	ASTM 10.9
8	5	1.8 (2.4)		5.1 (6.9)	6.5 (8.8)
10	6	3 (4)		8.7 (12)	11.1 (15)
13	8	7.3 (10)		21.1 (29)	27 (37)
16	10	14.5 (20)		42 (57)	53 (72)
18	12	25 (34)	74 (100)	73 (99)	93 (126)
21	14	40 (54)	118 (160)	116 (157)	148 (201)
24	16	62 (84)	167 (226)	181 (245)	230 (312)
30	20	122 (165)	325 (440)		449 (608)
33	22		443 (600)		611 (828)
36	24	211 (286)	563 (763)		778 (1054)
41	27		821 (1112)		138(1542)
46	30	418 (566)	1119 (1516)		1547(2096)

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Possible Remedy
Leaves a streak of uncut or partially cut grass.	1. Rotary cutter not level, side to side. 2. Blade dull or bent. 3. Blades unable to cut that part of grass pressed by path of tractor tires. 4. Possible build up of material under rotary cutter.	Level 3-pt hitch linkage on tractor. Sharpen or replace blades. Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower will help. Clean rotary cutter.
Blade cuts grass lower in center of swath than at the edge.	1. Height of rotary cutter lower at rear or at front.	Adjust rotary cutter height and altitude so that rotary cutter rear & front are with 1/2" of same height.
Material discharges from cutter unevenly, or discharges clumps of grass.	1. Grass or brush may be too high or thick. 2. Grass wet.	Reduce ground speed but maintain 540 rpm at tractor PTO, or make two passes over material. Raise rotary cutter for the first pass and lower for the second pass, preferably cutting 90^0 to the first pass. Raise rear of rotary cutter high enough to permit material to discharge. Allow grass to dry before mowing. Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower will help.
Gearbox overheating.	1. Low on lubricant. 2. Improper lubricant type. 3. Excessive trash build up around gearbox.	Fill to proper level. Replace with proper lubricant. Remove trash.
Rotary cutter will not cut. **Rotary cutter will not cut all the time. (slip clutch only)**	1. Shear bolt sheared 2. Slip clutch slipping.	Install new shear bolt. Adjust slip clutch according to guidelines on page 22.
Excessive vibration.	1. Possible build up of material on blade 2. Blades locked into position. 3. Check for even wear on each blade tip. 4. Broken blade. 5. New blade or bolts not matched with worn blade or bolts.	Clean blade pan. Free blades so they swing free. Weigh each blade. Weight should be with in 1 oz. Always replace both blades. Replace blades, in set. Replace blades or bolts in sets.
Gearbox noisy.	1. Low oil in gearbox.	Check oil level. Add oil.

PARTS

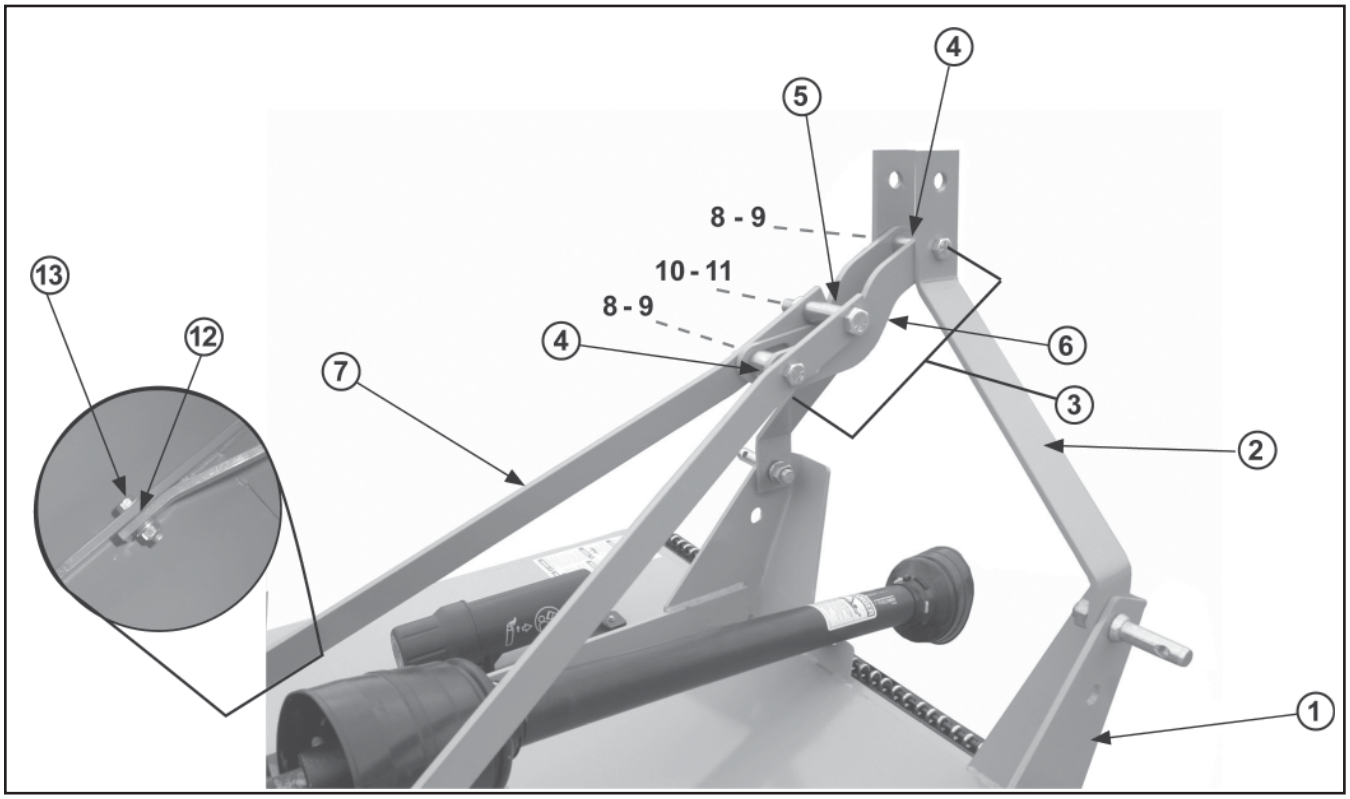


* For Safety Decals part number - refer to page 7

Parts Overall View

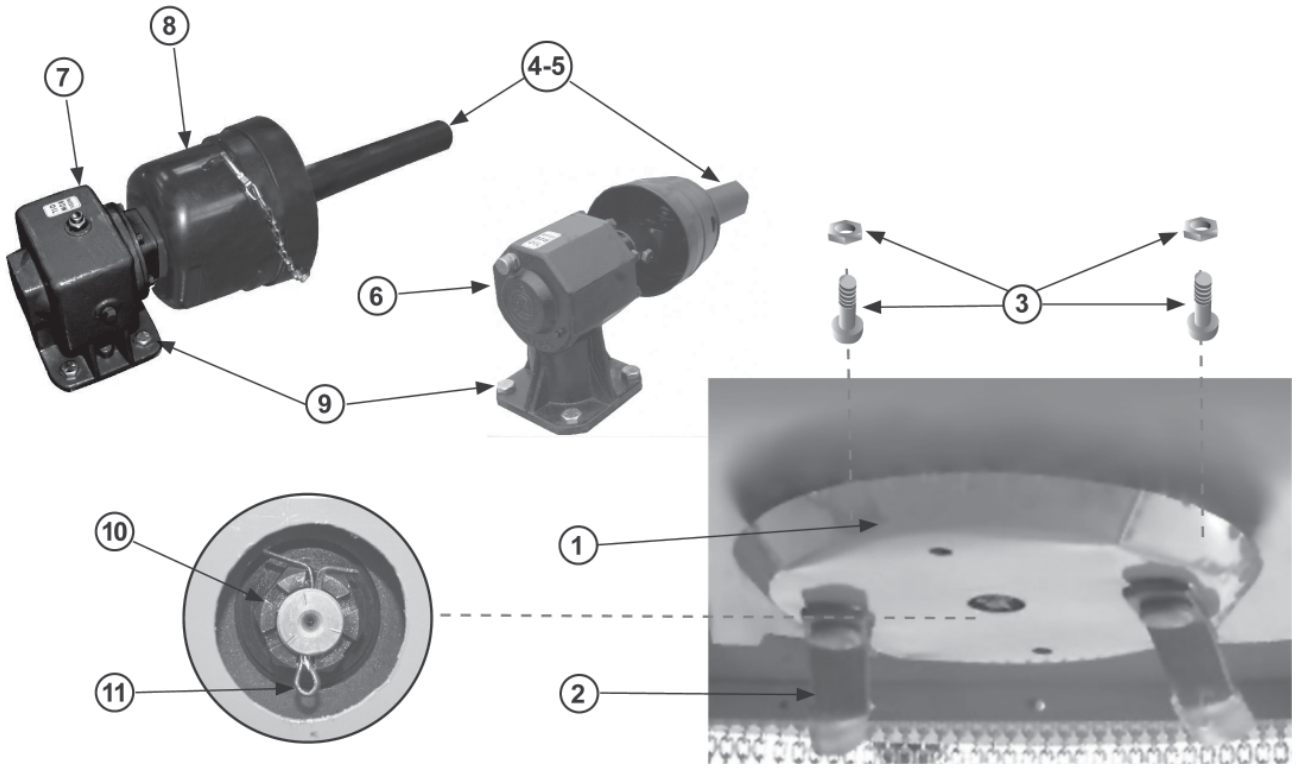
REF #	QTY.	PART NO.	DESCRIPTION
1	1	NA	Deck Assembly
2	1	100542	Model Number Decal RC20 - 48P
2	1	100572	Model Number Decal RC20 - 48SC
2	1	100543	Model Number Decal RC20 - 60P
2	1	100573	Model Number Decal RC20 - 60SC
2	1	100544	Model Number Decal RC20 - 72P
2	1	100574	Model Number Decal RC20 - 72SC
3	1	100165	Manual Tube
4	1	100101	Lift Pin, Cat 1
5	1	300345	Lift Pin, Bushing
6	1	300326	Heavy Duty Top Link Mount
7	1	300277	Pivot Link Kit
8	1	300283	Lift Strap RC20 - 48" & 60" cut
8	1	300284	Lift Strap RC20 - 72" cut
9	1	300105	Gearbox RC20 Series 40 hp
10	1	300290	Tailwheel Tube Assembly
11	1	300239	Tailwheel Fork with Roll Pin
12	1	300237	Laminated Tailwheel

PARTS



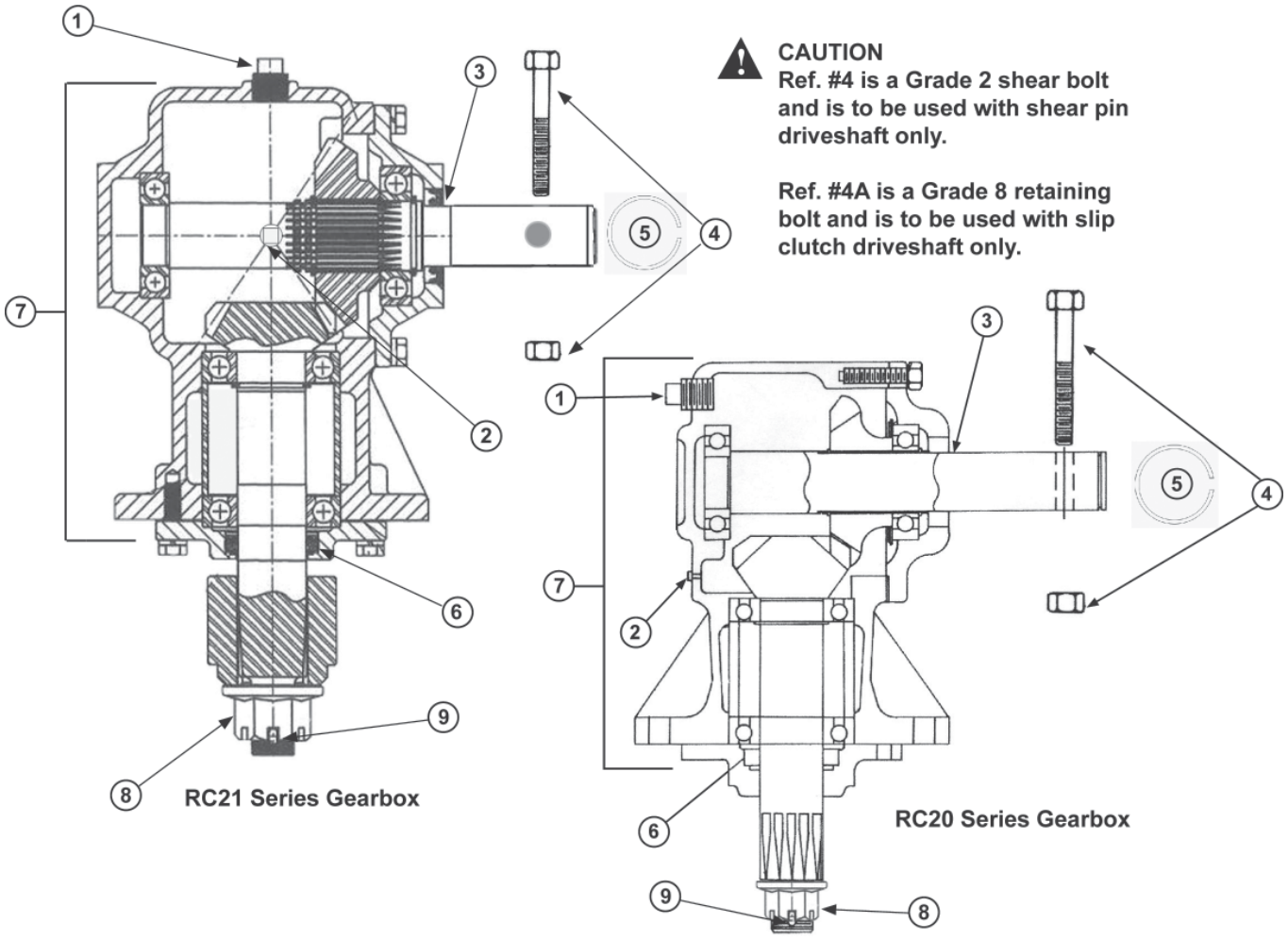
REF #	QTY.	PART NO.	DESCRIPTION
1	1	NA	Hit Mount Lug
2	2	300326	Top Link Mount
3	1	300277	Pivot Link Kit
4	2	300279	Hitch Pivot Bushing
5	1	300282	Mount Bushing
6	2	300280	Pivot Link
7	2	300283	Lift Strap RC20 - 48" & 60" cut
7	2	300284	Lift Strap RC20 - 72" cut
8	1	100207	Hitch Pivot Bolt
9	1	100161	Hitch Pivot Lock Nut
10	1	100102	Center Hitch Pivot Bolt
11	1	100112	Center Hitch Pivot Lock Nut
12	1	300285	Lift Strap Bushing
13	1	300203	Lift Strap Bolt Kit

PARTS - GEARBOX & BLADE PAN ASSY



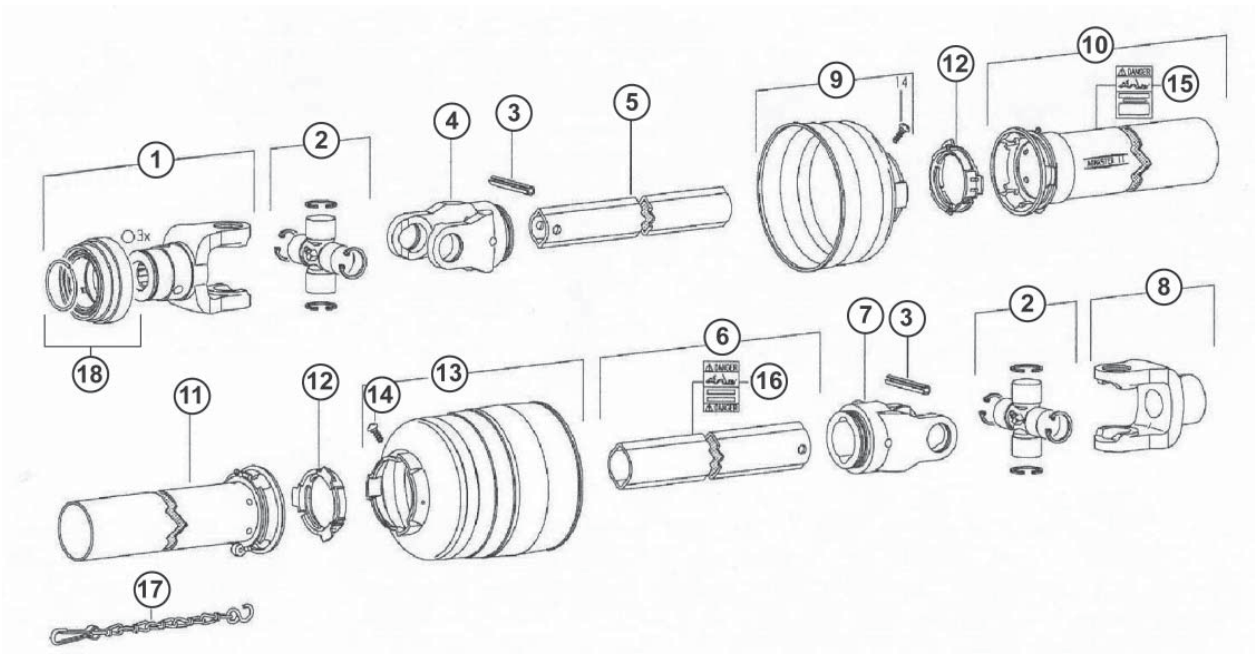
REF #	QTY.	PART NO.	DESCRIPTION
1	1	300321	Blade Pan RC20 - 48" & 60" cut
1	2	300322	Blade Pan RC20 - 72" cut
2	1	300125	Blade Set (2 Blades) RC20 - 48" cut
2	2	300126	Blade Set (2 Blades) RC20 - 60" & 72" cut
3	1	300325	Blade Bolt Assy Set (2 Blade Bolts and Lock Nuts)
4	2	300230	PTO Shaft (Shear Pin) RC20 Series - 48" cut
4	2	300231	PTO Shaft (Shear Pin) RC20 Series - 60" & 72" cut
5	2	300232	PTO Shaft (Slip Clutch) RC20 Series - 48" cut
5	1	300233	PTO Shaft (Slip Clutch RC20 Series - 60" & 72" cut
6	1	300105	RC20 Series 40 Hp Gearbox
8	1	300211	Slip Clutch Cone
9	1	100208	Gearbox Attaching Bolt (⅝" x 2" Gr8 NF)
9	1	100209	Gearbox Attaching Lock Nut (⅝" Top NF Lock Nut)
10	1	300234	Blade Hub Nut (Gearbox Output Shaft)
11	1	100113	Cotter Pin (Gearbox)

PARTS - GEARBOX



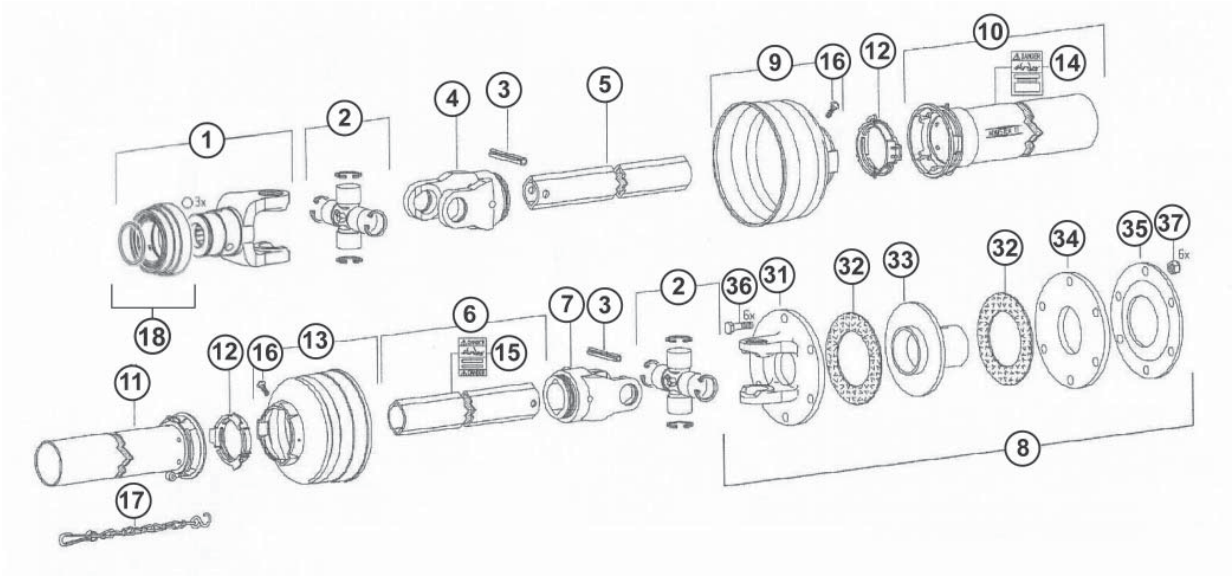
REF #	QTY.	PART NO.	DESCRIPTION
1	1	300136	Breather Fill Plug
2	1	300137	Oil Check Level Plug
3	1	300343	Seal, Input Shaft
4	1	300133	Shear Bolt and Lock Nut (Grade 2)
4a	1	300134	Retaining Bolt & Lock Nut (Slip Clutch only Gr. 8)
5	1	300135	Snap Ring - Input Shaft
6	1	300344	Seal, Output Shaft
7	1	300105	Gearbox
8	1	300234	Blade Hub Nut (Gearbox Output Shaft)
9	1	100113	Cotter Pin (Gearbox)

PARTS - DRIVELINE SHEAR PIN ASSY



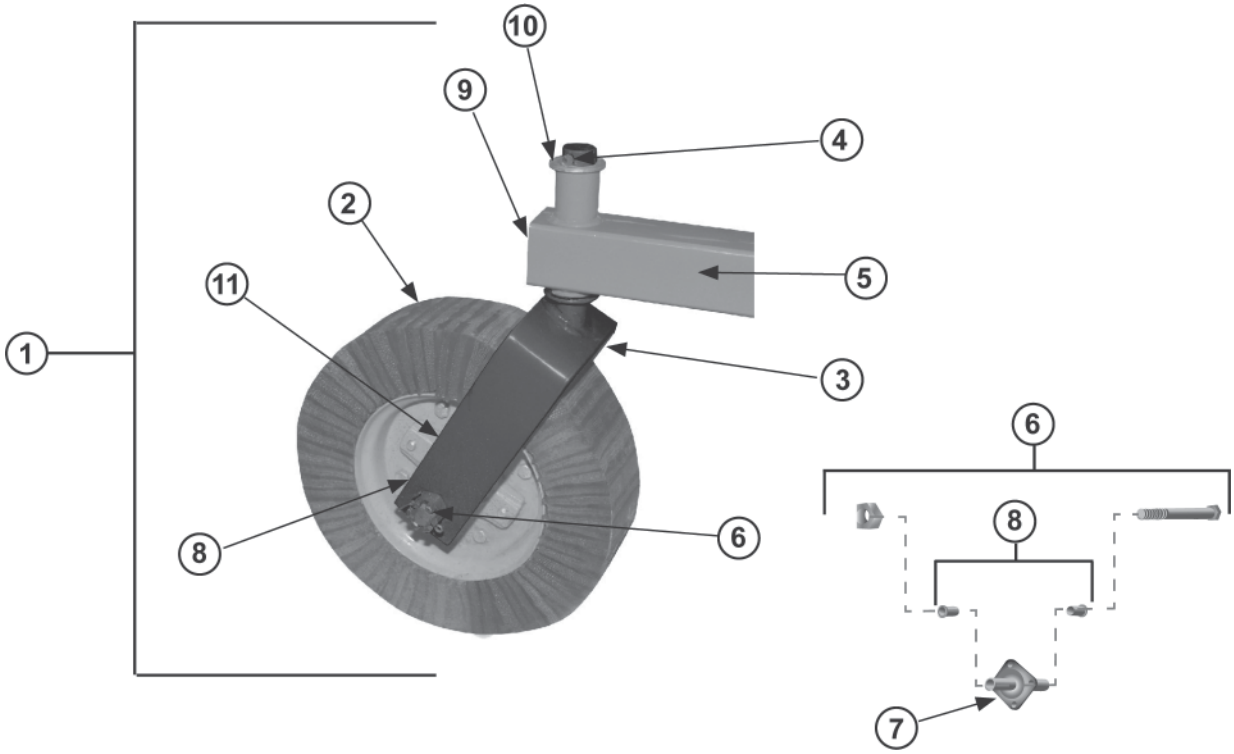
REF #	QTY.	PART NO.	DESCRIPTION
1	1	300246	Yoke 1 ⅜" - 6 Spl. ASGE
2	2	300247	Cross & Bearing Kit
3	2	300248	Roll Pin 10 x 65
4	1	300249	Inboard Yoke Ov
5	1	300250	Inner Profile Ov for 48" cut
6	1	300251	Outer Profile 1 for 48" cut
5	1	300266	Inner Profile Oc for 60" & 72" cut
6	1	300267	Outer Profile 1 for 60" & 72" cut
7	1	300252	Inboard Yoke 1
8	1	300264	Yoke 1 ⅜" RB, 0.531DT
9	1	300254	Shield Cone
10	1	300255	Outer Shield Tube Ovl. for 48" cut
11	1	300256	Inner Shield Tube Rnd. for 48" cut
10	1	300268	Outer Shield Tube Ovt. for 60" & 72" cut
11	1	300269	Inner Shield Tube Rnd. for 60" & 72" cut
12	2	300257	Bearing Ring SC 15
13	1	300265	Shield Cone Extended (for shear pin)
14	2	300261	Screw-in (for shield cones)
15	1	300259	Decal (Out-In on Out Shield Tube)
16	1	300260	Decal (Outer Profile Inn-In)
17	1	300262	Safety Chain
18	1	300263	Collar Kit - In Item 1

PARTS - DRIVELINE SLIP CLUTCH ASSY



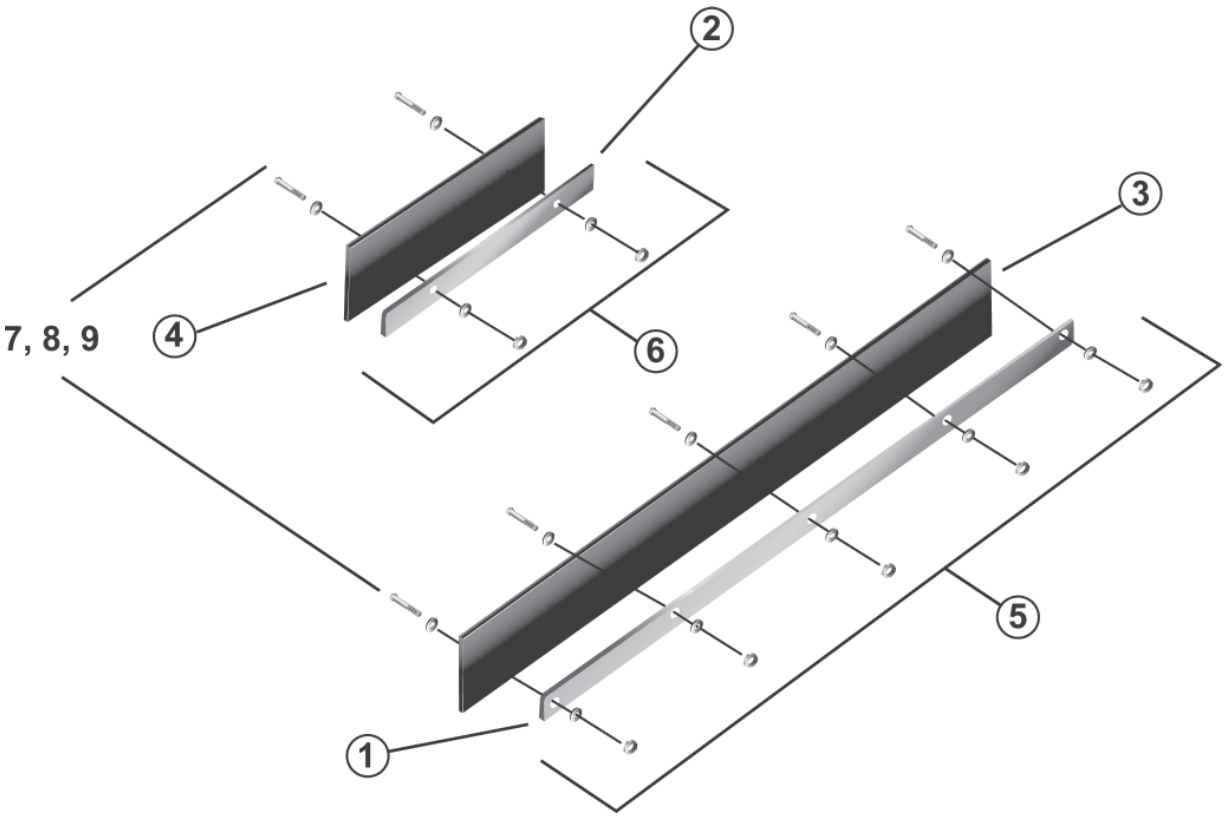
REF #	QTY.	PART NO.	DESCRIPTION
1	1	300246	Yoke 1 ⅜" - 6 Spl. ASGE
2	2	300247	Cross & Bearing Kit
3	2	300248	Roll Pin 10 x 65
4	1	300249	Inboard Yoke Ov
5	1	300250	Inner Profile Ov for 48" cut
6	1	300251	Outer Profile 1 for 48" cut
5	1	300266	Inner Profile Oc for 60" & 72" cut
6	1	300267	Outer Profile 1 for 60" & 72" cut
7	1	300252	Inboard Yoke 1
8	1	300253	Yoke 1 ⅜" RB, 0.531DT
9	1	300254	Shield Cone
10	1	300255	Outer Shield Tube Ovl. for 48" cut
11	1	300256	Inner Shield Tube Rnd. for 48" cut
10	1	300268	Outer Shield Tube Ovt. for 60" & 72" cut
11	1	300269	Inner Shield Tube Rnd. for 60" & 72" cut
12	2	300257	Bearing Ring SC 15
13	1	300258	Shield Cone Extended (for shear pin)
14	2	300259	Decal (Out-In on Out Shield Tube)
15	1	300260	Decal (Outer Profile Inn-In)
16	1	300261	Screw-in (for Shield Cones)
17	1	300262	Safety Chain
18	1	300263	Collar Kit - In Item 1
31	1	399270	Flange Yoke
32	2	300271	Friction Disc
33	1	300272	Hub 1 ⅜" RB
34	1	300273	Thrust Plate
35	1	300274	Belleville Spring
36	6	300275	Hex Bolt-M 10 x 50
37	6	300276	Hex Locknut-M10

PARTS - TAILWHEEL ASSY



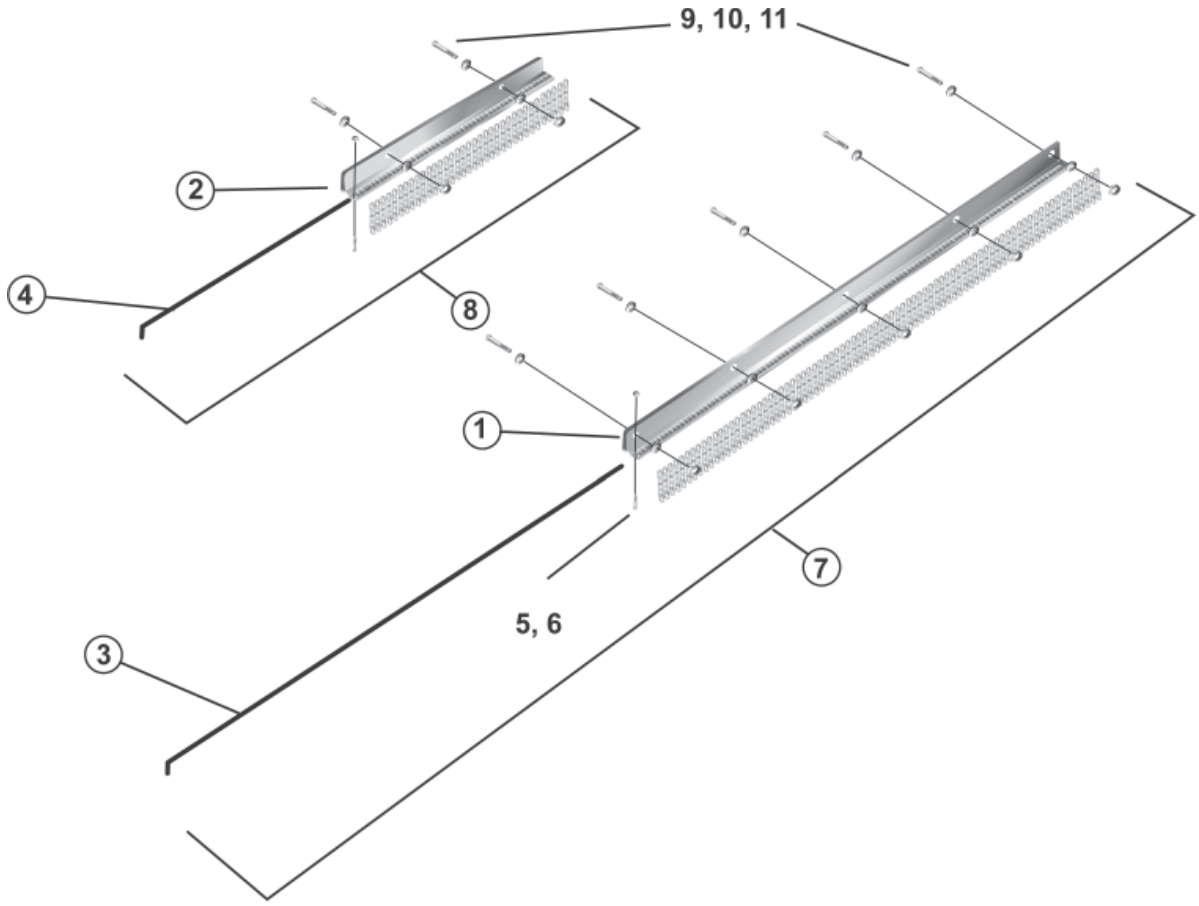
REF #	QTY.	PART NO.	DESCRIPTION
1	1	300235	Laminated Tailwheel Assembly - Complete
2	1	300237	Tailwheel - Laminated Tire
3	1	300239	Tailwheel Fork with Roll Pin
4	1	300240	Roll Pin (Tailwheel Fork)
5	1	300290	Tailwheel Tube for RC20 Series Rotary Cutters
6	1	300128	Axle Bolt Kit for Laminated Tire
7	1	300130	Tailwheel Hub for Laminated Tire
8	1	300312	Bushing (Tailwheel - Laminated Tire)
9	1	100116	Grease Zerk
10	1	100115	1 ¼" Flat Washer
11	1	100210	Grease Zerk for Tailwheel Hub

PARTS - RUBBER BELT DEFLECTOR ASSY



REF #	QTY.	PART NO.	DESCRIPTION
1	1	300327	Front Belt Guard Frame RC20-48
1	1	300328	Front Belt Guard Frame RC20-60
1	1	300329	Front Belt Guard Frame RC20-72
2	1	300330	Rear Belt Guard Frame
3	1	300331	Front Belt RC20-48
3	1	300332	Front Belt RC20-60
3	1	300333	Front Belt RC20-72
4	1	300334	Rear Belt
5	1	300335	Front Belt Guard Kit RC20-48
5	1	300336	Front Belt Guard Kit RC20-60
5	1	300337	Front Belt Guard Kit RC20-72
6	1	300338	Rear Belt Guard Kit
7	7	100141	Bolt 5⁄16" x 3" Gr. 5
8	14	100142	Flat Washer 5⁄16"
9	7	100135	Lock Nut 5⁄16"

PARTS - CHAIN DEFLECTOR ASSY



Chain Deflector Assembly (after 09-2007)

REF #	QTY.	PART NO.	DESCRIPTION
1	1	300339	Front Belt Guard Frame RC20-48
1	1	300340	Front Belt Guard Frame RC20-60
1	1	300341	Front Belt Guard Frame RC20-72
2	1	300342	Rear Belt Guard Frame
3	1	300167	Front Rod RC20-48
3	1	300168	Front Rod RC20-60
3	1	300169	Front Rod RC20-72
4	1	300170	Rear Rob
5	1	100151	Retaining Bolt 5⁄16" x 3⁄4" Gr. 5
6	1	100135	Retaining Lock Nut 5⁄16"
7	1	300343	Front Chain Guard Kit RC20-48
7	1	300344	Front Chain Guard Kit RC20-60
7	1	300345	Front Chain Guard Kit RC20-72
8	1	300346	Rear Chain Guard Kit
9	7	100141	Bolt 5⁄16" x 3" Gr. 5
10	14	100142	Flat Washer 5⁄16"
11	7	100135	Lock Nuts 5⁄16"

LIMITED WARRANTY

GEARMORE INC.

GEARMORE, INC., warrants each new Gearmore product to be free from defects in material and workmanship for a period of twelve (12) months from date of purchase to the original purchaser. This warranty shall not apply to implements or parts that have been subject to misuse, negligence, accident, or that have been altered in any way.

Our obligation shall be limited to repairing or replacement of any part, provided that such part is returned within thirty (30) days from date of failure to Gearmore through the dealer from whom the purchase was made, transportation charges prepaid.

This warranty shall not be interpreted to render us liable for injury or damages of any kind or nature, direct, consequential or contingent, to person or property. This warranty does not extend to loss of crops, loss because of delay in harvesting or any other expenses, for any other reasons.

Gearmore in no way warranties engines, tires, or other trade accessories, since these items are warranted separately by these respective manufacturers.

Gearmore reserves the right to make improvements in design or changes in specification at any time, without incurring any obligations to owners or units previously sold.

GEARMORE, INC.
13477 Benson Ave.
Chino, CA 91710

Always refer to and heed machine operating warning decals on machine.

The serial number of this product is stored in our computer database, thus submitting a warranty registration card is not required.

CUSTOMER INFORMATION

NAME: _____

PURCHASED FROM: _____

DATE OF PURCHASE: _____

MODEL NUMBER: _____

SERIAL NUMBER: _____