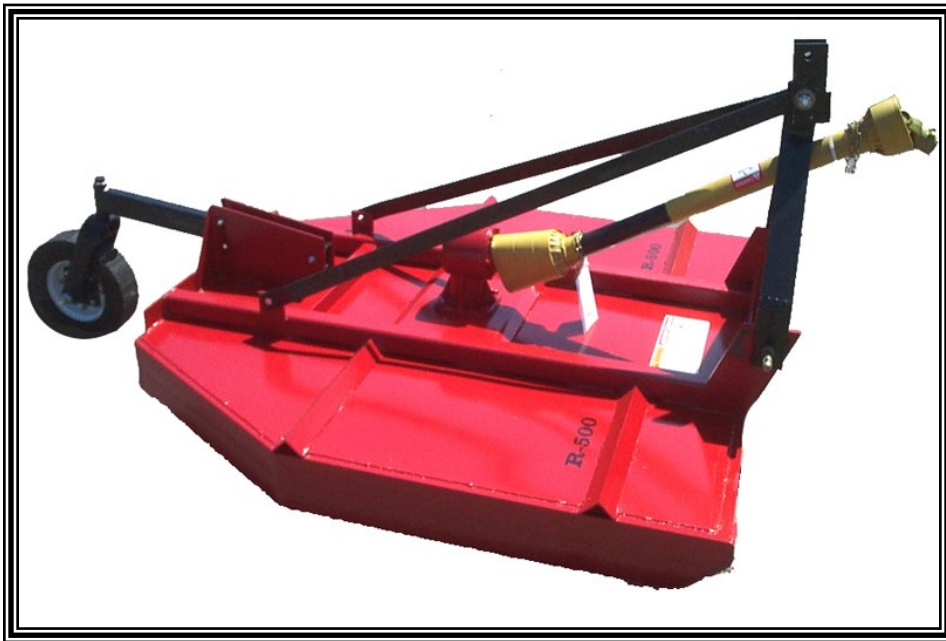


RINGO

ROTARY CUTTER

OWNER'S MANUAL

Assembly - Operation - Maintenance - Parts



Model R-350 - 36"

Model R-400 - 48"

Model R-500 - 60"

Model R-502 - 60"

Model R-600 - 72"

Model R-602 - 72"

**OIL & GREASE ALL
PIVOT POINTS!
WARRANTY DOUSE
NOT COVER LACK OF
LUBRICATION!!**

SAFETY

YOU are responsible for the SAFE operation and maintenance of your Rotary Cutter. YOU must ensure that you and anyone else who is going to operate, maintain or work around the cutter be familiar with the operating and maintenance procedures and related SAFETY information contained in this manual. This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating the cutter.

Remember, **YOU** are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program.

Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Rotary Cutter owners must give operating instructions to operators or employees before allowing them to operate the cutter, and at least annually thereafter per OSHA (Occupational Safety and Health Administration) regulation 1928.57.
- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. All accidents can be avoided.
- In addition to the design and configuration of 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 equipment. Train all new personnel and review instructions frequently with existing workers. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Think SAFETY! Work SAFELY!

Keep hands and feet clear of mower while tractor engine is running. Failure to do so could result in serious injury from rotating blades or PTO shaft.

Always keep the blade carrier and blade bolts tight.

Loose blades can easily pierce a quarter inch steel plate and/or seriously injure personnel.

Always keep all shields and guard chains furnished with machine in place and in good working order. Failure to do so could result in operator being struck by high speed rotating blades, thrown object or being entangled in rotating parts, resulting in injury to personnel.

Before operating the rotary cutter, carefully inspect the area on which the rotary cutter will be used. Be sure to remove all objects that might be thrown by the rotating blades. Also, note any gullies, ditches, or rough terrain when you are inspecting the area.

Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Failure to do so could result in serious injury.

Wear appropriate protective gear. This list includes, but is not limited to:

- A hard hat
- Protective shoes with slip resistant soles
- Protective goggles, glasses or face shield
- Heavy gloves
- Protective clothing

Always disengage drive line and block machine before performing any maintenance work on machine. Failure to do so could result in serious injury.

Only the operator should ride on the tractor and no one should ride on the mower. Persons riding on tractor or mower could easily fall into the path of the tractor or mower resulting in serious injury.

Disengage the PTO, and turn off the tractor engine before leaving the tractor.

Check drive line connections to cutter and tractor before operation. Be sure QD locks are operating and locked. Failure to do so could result in drive line becoming disconnected from the tractor and cutter. Personnel could be struck by fast rotating drive line resulting in serious injury.

Cutter blades should be replaced in pairs to maintain balance and avoid vibration. Failure to do so could result in damage to machine.

Use extreme caution when operating on hillside. Cutters are more likely to throw objects when operating on hillside and tractors can easily tip over if dropped in hold. Either could result in serious injury to operator.

Always disengage PTO before transporting cutter. Failure to do so could result in persons being struck by loose objects thrown by rotating blades. Thrown objects from rotating blades can strike with killing force.

ASSEMBLY AND SET-UP INSTRUCTIONS

- A. Remove the snap ring from input shaft on gear box, attach the PTO shaft and install shear bolt. Be sure to replace the snap ring to gear box input shaft. The snap ring will hold the PTO shaft in place if the shear bolt is sheared.
- B. Check all bolts including gear box mounting bolts, blade bolts and blade carrier bolt.
- C. Adjust the tail wheel bracket to level the rotary cutter or obtain desired cutting position.
- D. Make sure gear box is filled to check plug with 140 weight oil. (Smallest plug located at the lower right rear of the gearbox. See Fig. A)
- E. Lubricate tailwheel hub and spindle every 8 hours of use.
- F. Lubricate PTO every 9 hours of use.
- G. If it is determined that the PTO shaft is either too long or too short for your tractor, see your dealer for correct shaft lengths. This is not a frequent problem, however the correct shaft length should be checked to avoid damage to the PTO shaft or other components.
- H. We suggest that you get the feel of your rotary cutter on open, familiar ground. Remember that the centrifugal force of the rotary blades and carrier can keep pushing you forward, even after you have disengaged your clutch, unless your tractor is equipped with live PTO or an over-runner. Therefore, approach obstacles with caution.

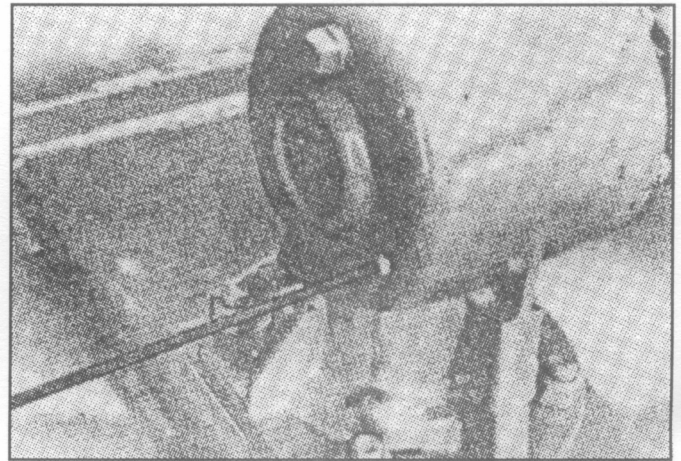


FIGURE A

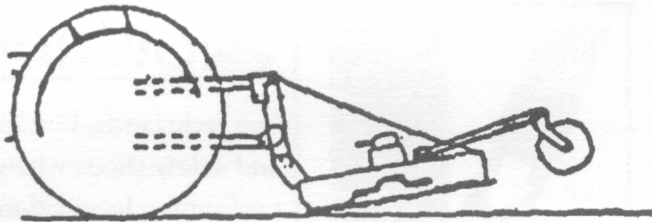
OPERATION

The Rotary Cutter is designed to be used with tractors from 15 hp to 75 hp with 540 RPM PTO.

1. Check gear box for lubricant.
2. Check all lubrication points on PTO shaft and tail wheel.
3. Be sure all bolts are tight and snap rings are in place.
4. Be sure the rotary cutter is properly mounted on tractor.
5. Adjust and level rotary cutter for desired cutting height.

ADJUSTING LEVEL OF CUTTER ON YOUR TRACTOR

Cutter Too Low in Front

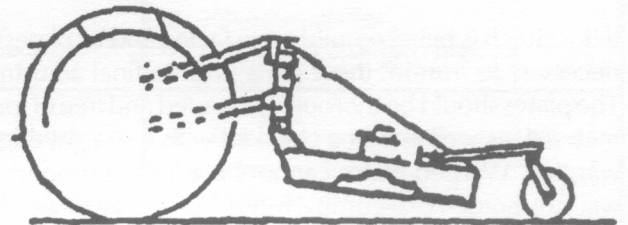


INCORRECT

Blade too high on sides causing skipping and uneven cutting; blades become worn.

Blade striking ground causing slip clutch to slip excessively.

Cutter Too Low in Rear

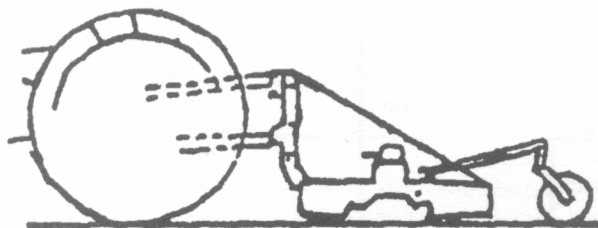


INCORRECT

Excessive wear and tear on tail wheel. Rear skirt dragging causing balling up problems.

Blade too high on sides causing skipping and uneven cutting.

Cutter Level



CORRECT

Blade cutting evenly with grass being spread evenly.

Slip Clutch: The slip clutch serves as overall protection for the tractor, drive line, and gear box. Even though new clutch assemblies are "run-in" and checked for torque prior to shipment readjustment may be advisable if the clutch has been exposed to the weather for an extended period of time. The clutch facing and plates should be inspected for rust and/or corrosion.

Since proper adjustment is necessary for satisfactory performance, follow the steps listed below to obtain proper adjustment.

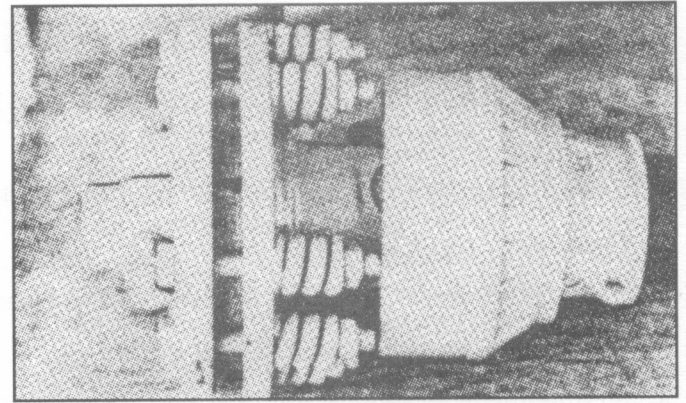


FIGURE 27 Slip Clutch

Steps	Procedures
1	Make a trial run in the heaviest operating conditions expected. If the clutch slips noticeably, tighten the 8 adjusting bolts no more than 1/2 turn between trial runs until clutch slippage is reduced.
2	Scribe a mark across the clutch facing (Fig. 27). When subjected to shock loads, a separation of the marks will assure that clutch setting is correct. NOTE: Check the clutch periodically during the first hour of operation for excessive heat build-up due to undetected slippage.

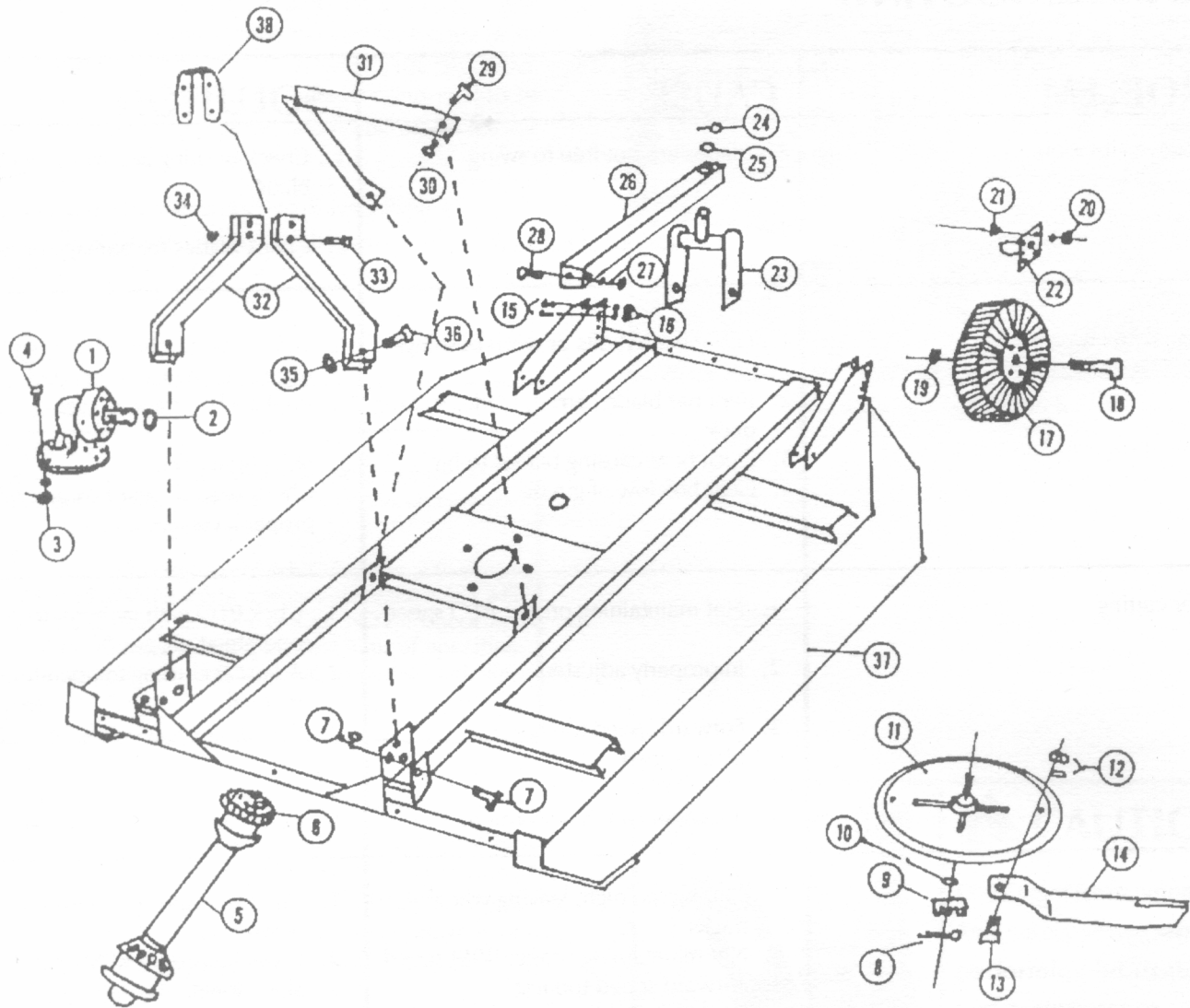
If the clutch is being rebuild (new facing and/or plates), it is necessary to "run-in" these parts prior to final adjustment. The plates should be thoroughly cleaned and free of foreign material, as well as being checked with a straight edge for warping. Warped plates cannot be adjusted properly and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

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

	<p>▲ CAUTION</p> <p>Use jackstands, blocks and safety shoes when performing lubrication and maintenance</p>
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TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Excessive vibration	<ol style="list-style-type: none"> 1. Blades are not free to swing 2. Blades are out of balance 	<ol style="list-style-type: none"> 1. Check bushing and movement of blades. 2. Check blades for damage or replace
Unusual noise	<ol style="list-style-type: none"> 1. Loose blade bolts or worn bushings 2. Bent bar blade carrier, blades striking deck 3. Deck bent causing blades to hit 4. Gear box low of grease 	<ol style="list-style-type: none"> 1. Tighten bolts, check bushings for wear and change as needed 2. Replace bar blade carrier 3. Straighten deck 4. Check seals in gear box and fill to proper level
Poor cutting	<ol style="list-style-type: none"> 1. Not maintaining proper PTO speed 2. Improperly adjusted 3. Forward speed too fast blade speed 4. Dull blades 5. Improper clutch adjustment 	<ol style="list-style-type: none"> 1. Chck PTO with tachometer and operate at proper RPM 2. Adjust according to operator's manual 3. Coordinate forward speed with 4. Sharpen blades 5. Adjust according to manual
Machine streaking	<ol style="list-style-type: none"> 1. Cutting too high, leaving wheel tracks 2. Not maintaining proper RPM speed 3. Forward speed too fast 	<ol style="list-style-type: none"> 1. Cut lower and slow forward speed down 2. Maintain proper RPM speed 3. Slow down
PTO will not telescope	<ol style="list-style-type: none"> 1. Improper lubrication 2. PTO twisted 3. Bent PTO 4. Shields damaged 	<ol style="list-style-type: none"> 1. Separate and fill female tube half full of grease 2. Replace twisted portion. Caution operator not to ground out machine 3. PTO too long. Size to tractor according to manual 4. Replace
PTO twisted	<ol style="list-style-type: none"> 1. Over torqued 2. Not maintaining correct PTO speed 	<ol style="list-style-type: none"> 1. Caution operator not to ground out machine 2. Maintain proper PTO speed
Excessive clutch slippage	<ol style="list-style-type: none"> 1. Improperly adjusted 2. Burnt or damaged facing 	<ol style="list-style-type: none"> 1. Adjust according to manual 2. Rework clutch or replace according to manual

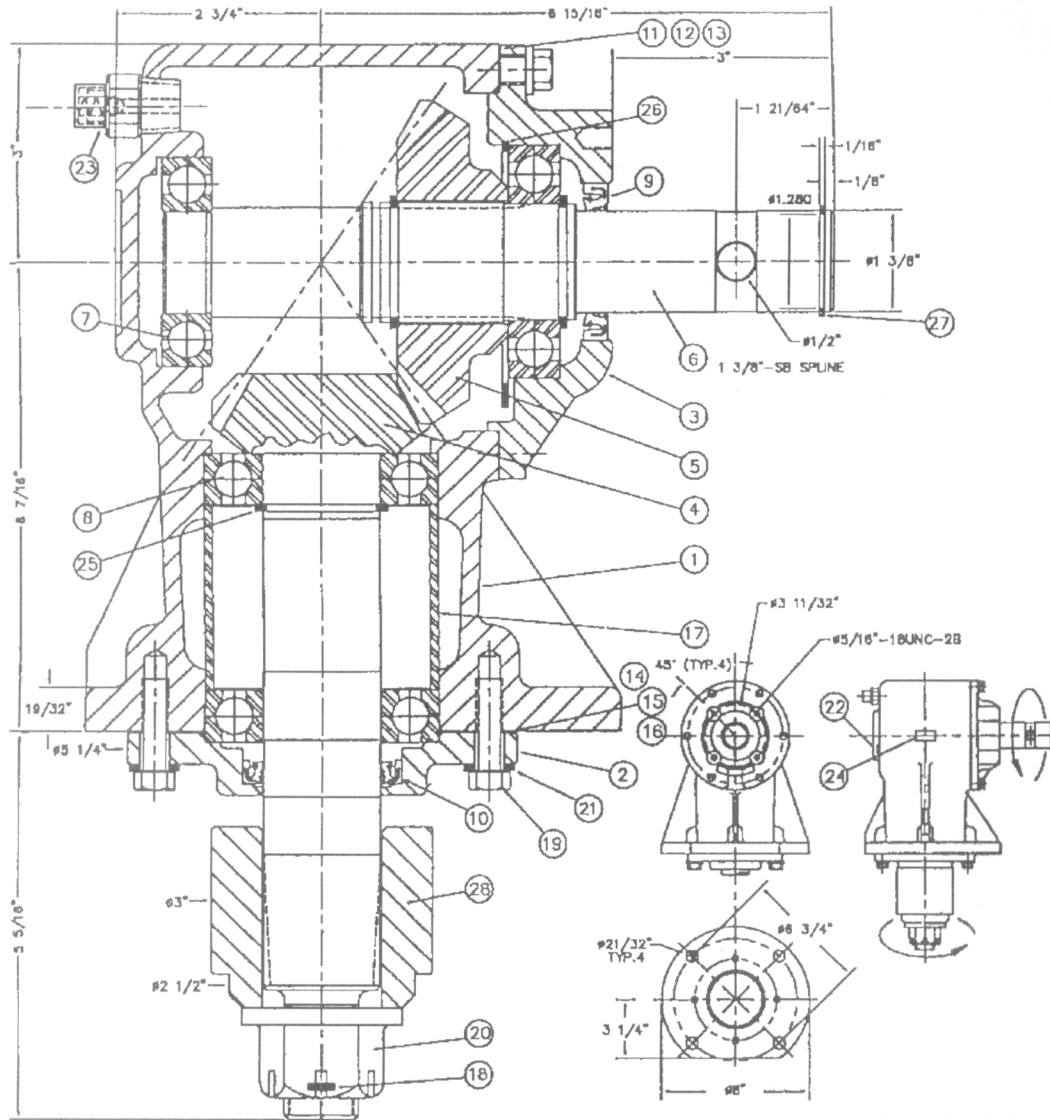


PARTS LIST

Ref. No.	Description	Part #	R350	R400	R500	R600	R502	R602
1	Gear Box 40 hp Smooth 1.97	101-HS *	1	1				
1	Gear Box 40 hp Smooth 1.42	101ST			1	1		
1	65 hp Smooth	102M					1	1
1	65 hp Splined	103H					1(OP)	1(OP)
2	1 3/8" Snap Ring	104SMH	1	1	1	1	1	1
3	5/8" Nut & Lock Washer	105S	4	4	4	4		
3	3/4" Nut & Lock Washer	106MH					4	4
4	5/8" x 2" Bolt	107R	4	4	4	4		
4	3/4" x 3" Bolt	108MH					4	4
5	PTO, Complete	109-40	1					
5	PTO, Complete	110-48		1				
5	PTO, Complete	111-60			1		1	
5	PTO, Complete	112-72				1		1
5	PTO, Complete Slip/Clutch	111-60-S					1(OP)	

Ref. No.	Description	Part #	R350	R400	R500	R600	R502	R602
5	PTO, w/Slip Clutch	113-72H						
5	PTO w/Slip Clutch	114-84H						
6	1/2" Lock Nut	115-SMH	1	1	1	1	1	1
7	1/2" x 3 1/2" Grade #2 Bolt	116-SMH	1	1	1	1	1	1
8	1/8" Cotter Pin	117-SMH	1	1	1	1	1	1
9	1" Fine Thread Nut	118-SMH	1	1	1	1	1	1
10	1" Washer, Flat	119-SMH	1	1	1	1	1	1
11	Spun Metal Dish Blade Carrier	120-S	1	1	1	1		
11	3/4" x 16 1/2" Flat Blade Carrier	121-MH					1	1
11	3/4" x 27 1/2" Flat Blade Carrier	122-H						
12	1 1/8" Lock Washer and Nut	123-SMH	2	2	2	2	2	2
13	1 1/8" Blade Bolt	124-SMH	2	2	2	2	2	2
14	Mower Blade Overall Length 15 3/4"	K-215	2					
14	Mower Blade Overall Length 18 3/4"	K-213		2				
14	Mower Blade Overall Length 24 3/4"	K-214			2		2	
14	Mower Blade Overall Length 30 1/4"	K-212				2		2
14	HD Mower Blade 1/2" x 4" x 31 1/4"	K-210						
15	1/2" x 3 1/2" Bolt	125-SMH	2	2	2	2	2	2
16	1/2" Nut, Self Locking	126-SMH	2	2	2	2	2	2
17	Tail Wheel (No TAT)	127-SMH	1	1	1	1	1	1
18	1" x 7 1/2" Bolt	128-SMH	1	1	1	1	1	1
19	1" Nut, Self Locking	129-SMH	1	1	1	1	1	1
20	1/2" Nut, Lock Washer	130-SMH	4	4	4	4	4	4
21	1/2" x 1 1/2" Bolt	131-SMH	4	4	4	4	4	4
22	Tail Wheel Hub, Cast	132-SM	1	1	1	1	1	1
22	Sealed Bearing Hub	133-H						
23	Tail Wheel Bracket	134-SMH	1	1	1	1	1	1
24	1/2" x 1 1/2" Bolt	135-SMH	1	1	1	1	1	1
25	1/2" Lock Nut	136-SMH	1	1	1	1	1	1
26	Tail Wheel Tube	137-SMH	1	1	1	1	1	1
27	1/2" Nut, Lock Washer	138-SMH	1	1	1	1	1	1
28	1/2" x 3 1/2" Bolt	139-SMH	1	1	1	1	1	1
29	1/2" x 1 1/2" Bolt	140-SMH	2	2	2	2	2	2
30	1/2" Nut, Lock Washer	141-SMH	2	2	2	2	2	2
31	3rd Link Braces	142-SM	1	1	1	1	1	1
31	Heavy Duty	143-H						
32	1/2" x 4" A-Frame	144-SM	2	2	2	2	2	2
32	5/8" x 4" A-Frame	145-H						
33	5/8" x 4" Bolt	146-SMH	1	1	1	1	1	1
34	5/8" Nut, Lock Washer	147-SMH	1	1	1	1	1	1
35	7/8" Nut, Lock, Fine Thread	148-SM	2	2	2	2	2	2
35	3/4" S-Lock Nut	149-H						
36	3/4" x 3" Bolt	150-H						
36	Lift Pin Cat. #1	151-SM	2	2	2	2	2	2
37	Main Body	152-SMH	1	1	1	1	1	1
38	Top Link Knuckle	153-H						

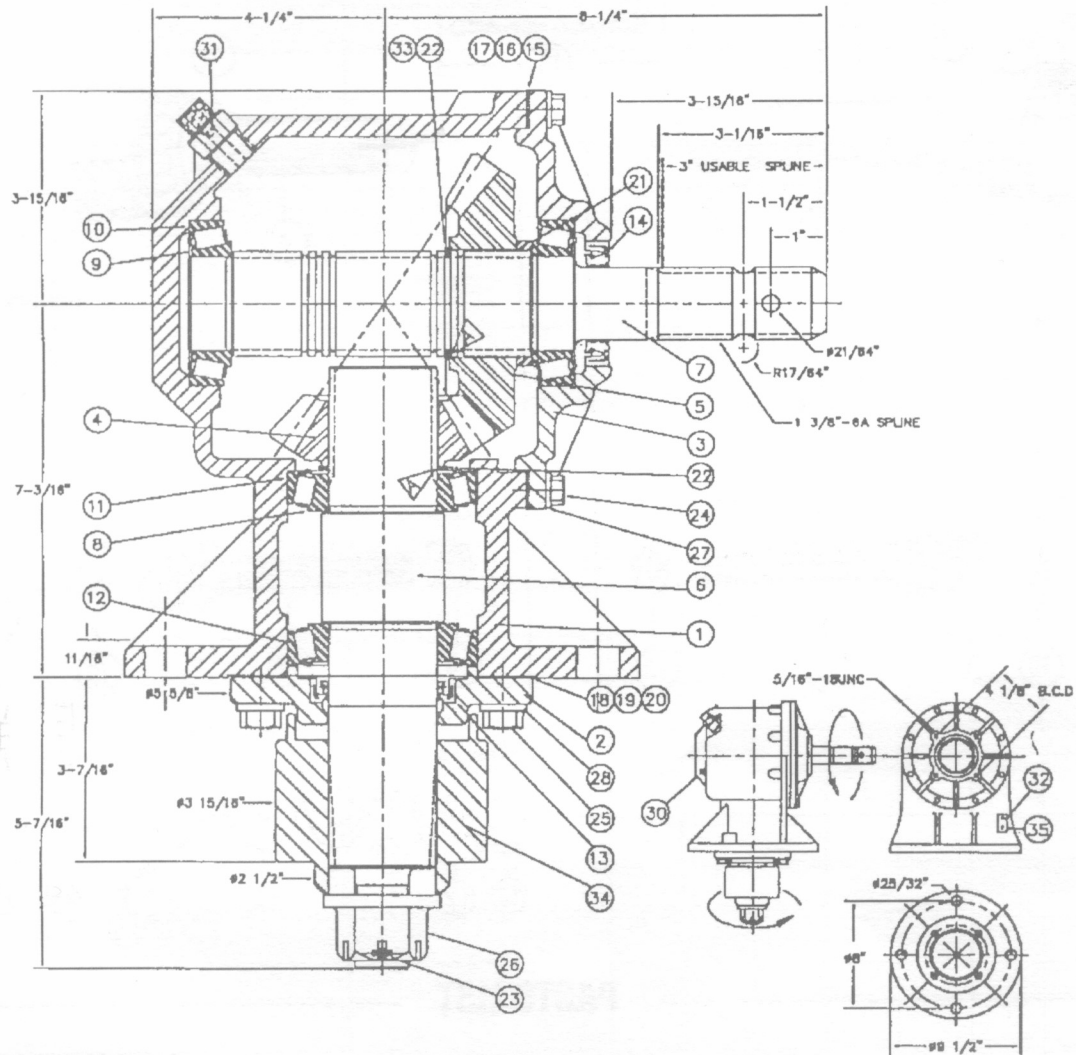
OMNI GEAR BOX ASSY., 40 hp, Model RC-30 1:1.47



PARTS LIST

Ref. No.	Description	Part #	Qty	Ref. No.	Description	Part #	Qty
1	Housing	010001	1	14	Lock Washer	130002	10
2	Spacer	090000	1	15	Ball Bearing 208K	050007	3
3	Retaining Ring	200000	3	16	Gasket	070001	1
4	Pinion I5T	030002	1	17	Cap	020003	1
5	Ball Bearing 207K	050006	1	18	Seal	060003	1
6	Input Shaft	040040	1	19	Blade Hub	210000	1
7	Pipe Plug, 1/2"	140000	1	20	Flat Washer	130001	1
8	Gear 22T	030003	1	21	Hex Nut	120000	1
9	Gasket	070002	1	22	Cotter Pin	100001	1
10	Retaining Ring	200001	1	23	Pipe Plug	140001	1
11	Seal	060002	1	24	I.D. Tag	190000	1
12	Cap	020002	1	25	Rivet	240001	2
13	Cap Screw	110000	10	26	Retaining Ring	200040	1

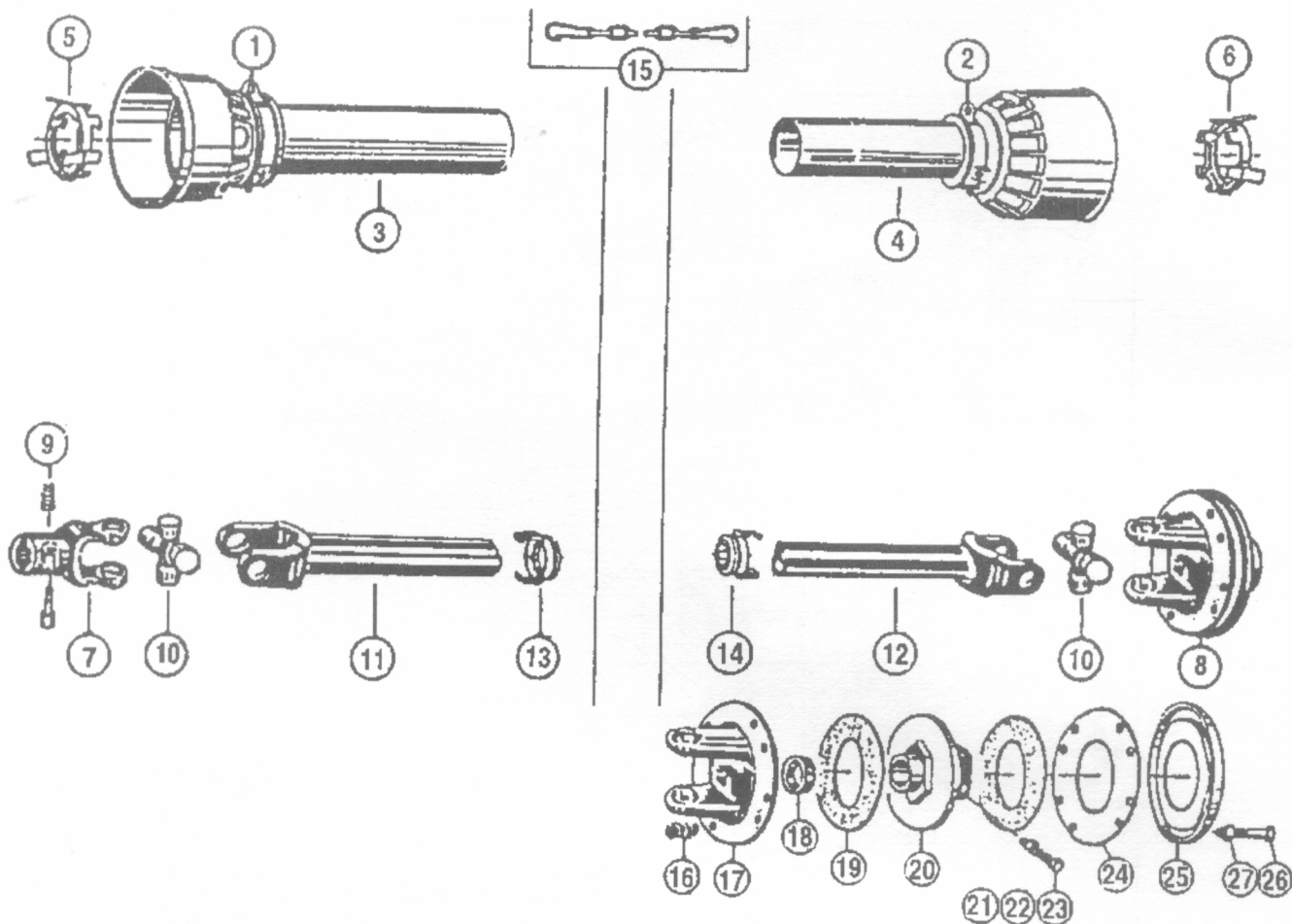
GEAR BOX ASSY., 75 hp, Model RC-61 1:1.48



PARTS LIST

Ref.	Description	Part #	Qty	Ref.	Description	Part #	Qty
1	Housing	010059	1	15A	Seal, Splined Shaft	060006	1
2	Output Shaft	040112	1	16	Input Cap	020006	1
3	Bearing Cone 368	050008	2	17	Cap Screw 3/8" x 16 x 1-1/4"	110001	8
4	Bearing Cup 362	050015	2	18	Lock Washer	130002	8
5	Output Gear 13T	030038	1	19	Gasket 0.3	070143	Var
6	Input Shaft	040114	1	20	Gasket 0.15	070144	Var
6A	Input Shaft, Splined	040135	1	21	Gasket 0.1	070145	Var
7	Bearing cone LM603049	050012	2	22	Output Cap	020005	1
8	Bearing Cup LM603014	050013	2	23	Lock Washer	130003	4
9	Retaining Ring	200003	1	24	Cap Screw, 1/2" x 13 x 1-1/2"	110002	4
10	Input Gear 19T	030039	1	25	Seal	0600004	1
11	Gasket 0.3	070140	Var	26	1/8" Sq. Hd. Pipe Plug	140017	1
12	Gasket 0.15	070141	Var	27	Rivet	240001	2
13	Gasket 0.1	070142	Var	28	I.D. Tag	190000	1
14	1/2" Sq. Hd. Pipe Plug	140000	2	29	Spacer	090055	1
15	Seal	060005	1				

PTO ASSEMBLY



PARTS LIST

Ref. No.	Description	Part #	R350	R400	R500	R600	R502	R602
1	Bell Assy., Front 1/2 (Outer)	K3101	1	1	1	1	1	1
		K5102						
2	Bell Assy., Rear 1/2 (Inner)	K3103	1	1	1	1	1	1
		K5104						
3	Shield, Front 1/2 (Outer)	K3105	1	1				
		K3106			1		1	
		K3107				1		1
		K5108						
		K5109						
4	Shield, Rear 1/2 (Inner)	K3110	1	1				
		K3111			1		1	
		K3112				1		1
		K5113						
		K5114						

Ref. No.	Description	Part #	R350	R400	R500	R600	R502	R602
2 5	Shield Bearing, Front 1/2	K3115	1	1	1	1	1	1
		K5116						
6	Shield Bearing, Rear 1/2	K3117	1	1	1	1	1	1
		K5118						
7	Yoke Assy, Front (Outer)	K3119	1	1	1	1	1	1
		K5120						
8	Clutch Assy	K5121					OP	OP
9	Pin and Spring Assy	K3122	1	1	1	1	1	1
		K5123						
10	Cross Kit Assy	K3124	2	2	2	2	2	2
		K5125						
11	Tube, Front 1/2 (Outer)	K3126	1	1				
		K3127			1		1	
		K3128				1		1
		K5129						
		K5130						
12	Tube, Rear 1/2 (Inner)	K3121	1	1				
		K3132			1		1	
		K3133				1		1
		K5134						
		K5135						
13	Support Bearing, Front	K3136	1	1	1	1	1	1
		K5137						
14	Support Bearing, Rear	K3138	1	1	1	1	1	1
		K5139						
15	Shield Chain	K5140	1	1	1	1	1	1
16	Clutch Spring	K5141					8	8
17	Clutch Yoke	K5142					1	1
18	Bushing	K5143					1	1
19	Clutch Facting	K5144					2	2
20	Clutch Yoke (Inner)	K5145					1	1
21	Capscrew, 7/16" x 14 x 3	K5146					2	2
22	Washer, 7/16"	K5147					2	2
23	Nut, 7/16" x 14	K5148					2	2
24	Drive Plate (Inner)	K5149					1	1
25	Drive Plate (Outer)	K5150					1	1
26	Capscrew 3/8"	K5151					8	8
27	Nut, Lock 3/8"	K5152					8	8
28	Yoke, Rear 1/2 (Inner)	K3153	1	1	1	1	1	1

WARRANTY

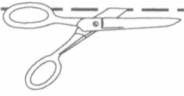
We warranty each new Rotary Cutter against defect in material or workmanship for a period of 90 days. We will not warranty any cutter that has obviously been abused or in any case involving negligence in setup procedures as outlined in this manual.

In the event it is necessary to replace or repair any part(s) during the warranty period go to your dealer with the defective part(s) and he will assist you in securing the needed replacement.

Neither manufacturer or the dealer shall be held responsible for loss of use of the machine, loss of time, inconvenience, commercial loss or consequential damages.

In order for your Rotary Cutter to be covered by our warranty policy, the equipment registration form on the bottom of this form must be completed and returned within 15 days from date of purchase.

The warranty policy is not effective unless the equipment registration is recorded in our office.



REGISTRATION

THE FOLLOWING REGISTRATION FORM MUST BE ON FILE AT **Ringo Hill Farms Equipment**
1624 Rt. 212, Quakertown, PA 18951 Phone (610)346-7340 WITHIN 30 DAYS OF DELIVERY TO
USER OR WARRANTY CLAIM WILL NOT BE HONORED.

Model _____ Date Delivered _____

Name of Owner _____

Address (Street, Route, P.O. Box) _____

City _____ State _____ Zip _____

Name of Selling Dealer _____

City _____ State _____ Zip _____



Ringo Hill Farms Equipment Co., Inc.
1624 Rt. 212 Quakertown, Pa 18951
Phone: (610)-346-7340 Fax: (610)-346-8041
www.RingoHill.com