



RYAN[®]

REN-O-THIN[®]

POWER RAKE

REN-O-THIN III MODEL 544864A

REN-O-THIN IV MODEL 544865A

REN-O-THIN IV MODEL 544865B

OPERATOR'S PARTS AND SERVICE MANUAL

BOB-CAT • BUNTON • CUSHMAN • JACOBSEN • RANSOMES • RYAN

TEXTRON

TURF CARE AND SPECIALTY PRODUCTS

Part No.524590 Rev. 1

GENERAL INFORMATION



IMPORTANT!

THIS MANUAL WILL AID YOU IN THE SAFE OPERATION AND PROPER MAINTENANCE OF YOUR EQUIPMENT. READ MANUAL THOROUGHLY BEFORE ATTEMPTING OPERATION. IF ANY PORTION IS NOT CLEARLY UNDERSTOOD, CONTACT AN AUTHORIZED DEALER FOR CLARIFICATION.

To make sure you are fully aware of safety and service information, the following two symbols are used throughout this manual.



This symbol is used throughout the manual to alert you to information about unsafe actions or situations, and will be followed by the word DANGER, WARNING, or CAUTION. DANGER indicates immediate hazards that may result in severe injury or death. WARNING indicates unsafe actions or situations that may cause severe injury, death and/or major equipment or property damage. CAUTION indicates unsafe actions or situations that may cause injury, and/or minor equipment or property damage.

NOTICE

This symbol appears next to information or instructions which will help you operate and maintain your equipment the right way.



WARNING

The information and instructions included in this manual alert you to certain things you should do very carefully. If you do not, you could:

- hurt yourself or others
- hurt the next person who operates the equipment
- damage the equipment.

This manual contains essential operation and safety information and must remain with the unit at all times, within easy access of any operator.

Additional manuals are available through your dealer.

IMPORTANT!

THIS EQUIPMENT SHOULD NOT BE MODIFIED OR ADDED TO WITHOUT THE MANUFACTURER'S AUTHORIZATION.



WARNING

Altering this equipment in any manner which adversely affects the equipments operation, performance, durability or use, may cause hazardous conditions.

Direct any inquiries to:

Ransomes America Corporation
Attn: Chief Engineer
P.O. Box 82409
Lincoln, NE. 68501-2409 USA

SPECIFICATION INFORMATION

All information contained in this manual is the latest available at the time of printing. Ransomes America Corp. reserves the right to make changes at any time without notice.

Whenever a name brand product is specified, an equivalent product may be used unless stated otherwise.

CHANGE OF OWNERSHIP OR ADDRESS

Ransomes America Corp. makes every effort to keep owners informed of all safety related information. Therefore, changes in ownership and/or address should be reported to the manufacturer.

Your dealer has REGISTRATION CHANGE FORMS which will be filled out and filed by the dealer for his records, and a copy will be sent to the manufacturer.

DEALER INFORMATION

For your nearest dealer location write to:

Ransomes America Corporation
Attn: Sales Coordinator
P.O. Box 82409
Lincoln, NE. 68501-2409 USA

In the USA and Canada call 1-800-228-4444 (dealer information only).

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IDENTIFICATION NUMBERS

The Model number and Serial Number are printed on the nameplate decal located on the back of the chassis (See Figure 1). These numbers **must** appear on all correspondence concerning this unit.

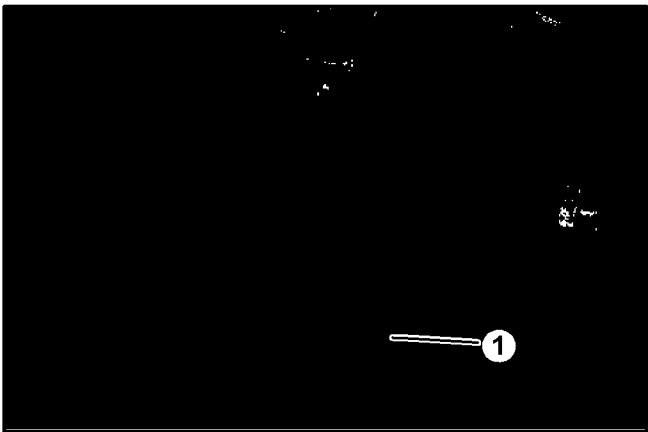


FIGURE 1

1. Nameplate Decal

SPECIFICATIONS

Chassis	12 gauge steel, formed and welded
Reduction	1.33:1 (engine to reel)
Wheelbase	14 5/8" (371 mm) at level position
Reel speed	2700 RPM
Cutting Width	18" (457 mm)
Cutting Depth	7/8" (22 mm)
Blade Adjustment	1" (25 mm) above ground level to 7/8" (22 mm) below ground level

Weight (less reel)

..... (Model 544864A) 98 lbs. (44.9 Kg.)
 (Model 544865A) 116 lbs. (53 Kg.)
 (Model 544865B) 106 lbs. (48 Kg.)

Engine **(Model 544864A)** 5 h.p. Briggs and Stratton model no. 133432, type 0036, trim 02, four cycle, aluminum cylinder with cast iron sleeve, 3600 RPM governor—no load, recoil starter.

(Model 544865A) 7 h.p. Briggs and Stratton model no. 176432, type 0035, trim 02, four cycle, aluminum cylinder with cast iron sleeve, 3600 RPM governor—no load, recoil starter.

(Model 544865B) 6.5 h.p. Briggs and Stratton model no. 121432 type 0120 trim E1, four cycle, aluminum cylinder with cast iron sleeve, 3600 RPM governor– no load, recoil starter.

SET-UP

Remove equipment and parts from the packing box and inspect it for possible shipping damage. You should have the following items:

- Upper and lower handle
Pre-assembled chassis and engine
Loose parts bag
Reel assembly (if ordered with unit)

REEL INSTALLATION

1. Remove the belt guards and tilt the unit back to allow access to the underside of the chassis.



CAUTION

- **Block the unit as required to prevent it from falling accidentally.**
2. Loosen the reel clamps and pivot down and away from chassis. With the pulley end toward the engine side of unit, set the reel into place against the chassis. Bearing guides on the reel will provide correct alignment. Refer to Figure 2.

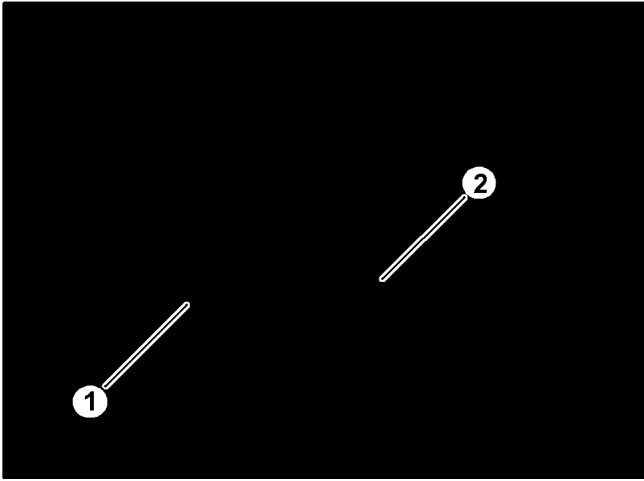


FIGURE 2

- 1. Reel Clamp**
- 2. Bearing Guide**

3. Pivot the clamps back up over the reel bearings. Install the reel clamp rods, washers and nuts. See Figure 3. Tighten the nuts securely but do not over tighten. Check reel to make sure it rotates freely.

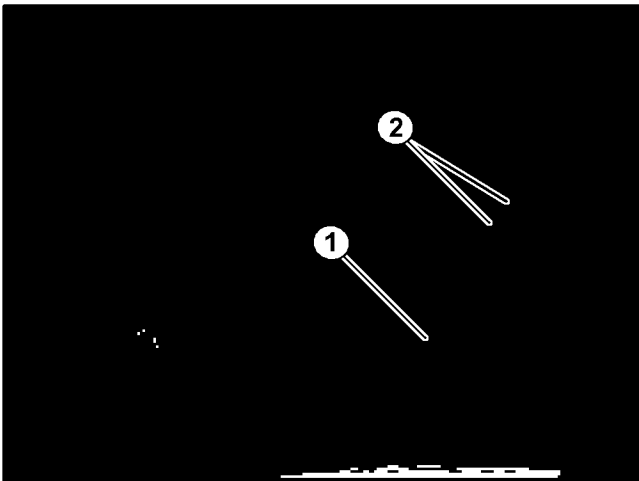


FIGURE 3

- 1. Reel Clamp Rod**
- 2. Reel Clamp Nut and Washer**

PULLEY AND BELT INSTALLATION

1. Gently tap the woodruff key (from loose parts bag) into the slot on the reel shaft.
2. Start the two (2) set screws into the reel pulley.
3. Slide the pulley, hub out, onto the reel shaft. Tap it into position over the woodruff key.
4. Align the reel pulley with the engine pulley. Placing a straight edge across both pulleys will show when the two pulleys are aligned.

5. Tighten the reel pulley set screws and check the engine pulley set screws to make sure they are also tight.
6. Place the new belt(s) between the idler pulley and the snubber on the idler arm then over the engine and reel pulleys. See Figure 4.

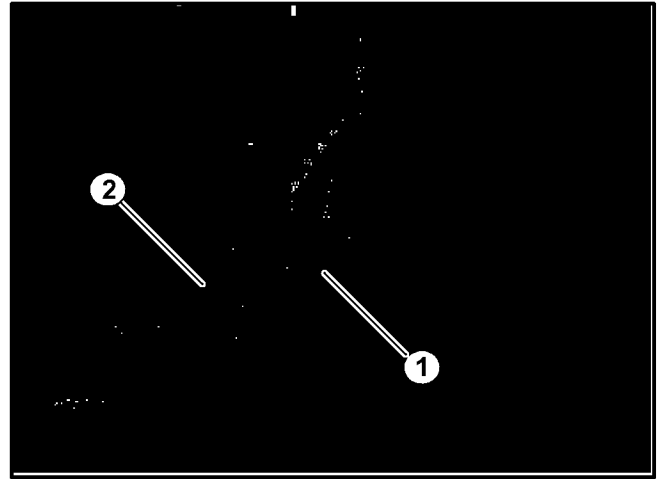


FIGURE 4

- 1. Snubber**
- 2. Idler Pulley**

HANDLE AND CABLE INSTALLATION

1. Assemble the upper and lower handle sections using the hardware provided in the loose parts bag.
2. Mount the handle to the unit by placing the bottom ends of the handle over the pins at the top edge center of the chassis. Secure the handle with hairpins (from loose parts bag).
3. Connect one end of the spring (from loose parts bag) to the clutch cable and the other end to the arm of the clutch bail on the handle. See Figure 5.

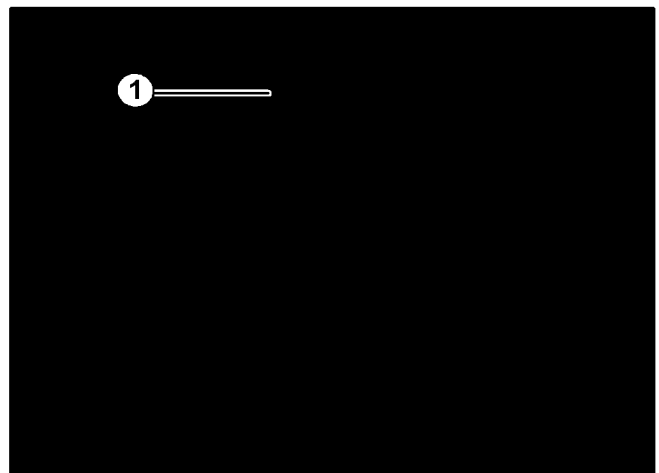


FIGURE 5

- 1. Clutch Control Bail**

4. Pull the bail back against the handle. The idler pulley should be tight against the reel belts when the bail is against the handle.

5. Release the bail. The idler pulley should move away from the reel belts and allow the belts to slip on the engine pulley when the bail is released.
6. Reinstall the belt guards. The belt stop rod should be positioned outside the belts as shown in Figure 6.

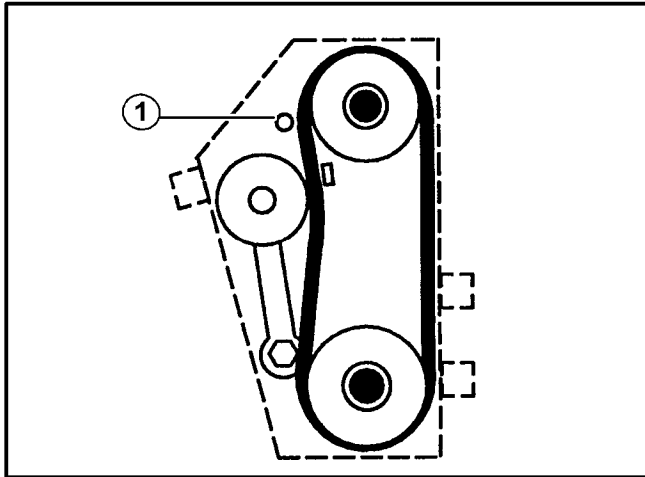


FIGURE 6

1. Belt Stop Rod

LUBRICATE WHEEL BEARINGS

Using a pressurized lubrication gun and a lithium based lubricant, lubricate the wheel bearings. This procedure should be done at the time of set-up and also after every 25 hours of service.

NOTICE

- During set-up, each wheel cavity should be filled. The cavity is full when lubricant is seen coming out of bearing.

BLADE HEIGHT ADJUSTMENT

Blade height is adjusted by loosening the locking lever and turning the adjusting knob to raise or lower the front wheels. See Figure 7.

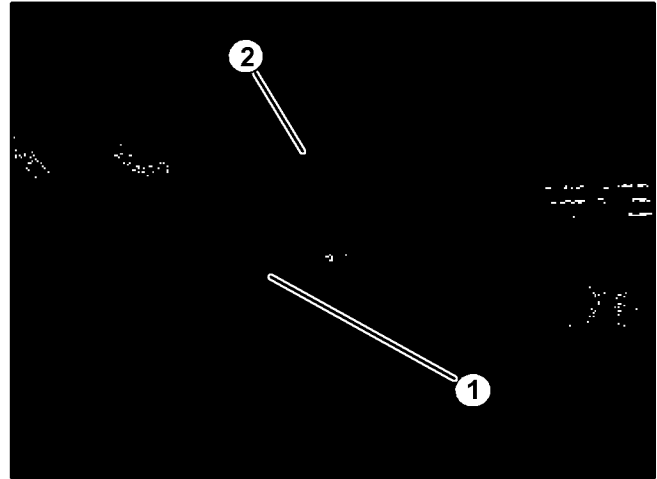


FIGURE 7

- 1. Locking Lever**
- 2. Adjusting Knob**

After installing any reel, make the first adjustment on a hard level surface.

Adjust the blades to 1/8" (3 mm) above the surface. Test this setting on a small area, then adjust the blades to turf conditions as required. Each number on the adjustment decal represents a change of 1/8" (3mm).

If the desired blade position cannot be obtained by adjusting the front wheels, the rear wheels can be adjusted. Mounting the wheels in the top hole lowers the blades and mounting the wheels in the bottom hole raises the blades.

The front axle may be locked in the down position to prevent the floating action if desired. Install and secure 1/2" screws, washers, lockwashers and nuts in the slots above the axle. This will prevent the axle from moving.

OPERATION



DANGER

- **DO NOT** operate this equipment until you have thoroughly read and understand the operation section of this manual.
- **DO NOT** operate this equipment without all shields in place.
- **DO NOT** make any adjustments or perform any maintenance while the engine is running.
- **Always** run unit engine where there is plenty of fresh air to prevent a buildup of carbon monoxide fumes. Carbon monoxide fumes are colorless, odorless and deadly. **NEVER** run unit

in an enclosed space where exhaust fumes may collect.

- Always stop engine and **DO NOT** smoke or allow open flames or sparks when refueling. Gasoline is extremely flammable and highly explosive under certain conditions.
- Any warning decal that becomes illegible must be replaced immediately.
- To prevent injuries from thrown blades, **NEVER** operate the unit with reel blades that are missing, cracked, badly bent or in any type of abnormal condition.
- Inspect the area to be raked before operating. Remove any objects that may present a safety hazard or damage the equipment.
- To prevent injury from rotating blades, **NEVER** place hands or feet beneath the unit.
- This unit is not self propelled by a mechanical drive system. However, under some conditions the reel rotation may cause the unit to move under it's own power.
- Engage the reel **ONLY** when you are in the proper operator's position behind the handle.
- The clutch bail is designed to be held by the operator to keep the reel belt engaged **ONLY** during use. **DO NOT** clamp or fasten the bail to the handle. If the reel is allowed to rotate while the operator is not in the proper operating position, the unit may move on it's own. This will create an unsafe situation whereby the operator and or bystanders may be injured.

DAILY PRE-OPERATION CHECK

Visually check for loose or damaged parts and fasteners. Repair or replace as needed before unit is placed into operation.

Check the reel for bent or broken blades, replace as necessary.

Check engine oil level. Add oil if necessary following the engine manufacturers recommendations. Refer to engine manual included with literature packet.

Fill the fuel tank with the amount and type recommended by the engine manufacturer.

STARTING THE ENGINE

The engine controls for the 5 h.p. 6.5 h.p. and 7 h.p. are illustrated below in Figures 8, 9 and 10.

1. Turn fuel shut-off valve to "ON" position.
2. Push stop switch to "ON" position.

3. Move manual choke control lever to "CHOKE" position.
4. Move engine throttle control lever to "FAST" position.
5. Grasp starter grip and pull slowly until resistance is felt, then pull cord rapidly to start engine. Repeat if necessary with choke opened slightly.
6. Once engine starts, move choke to "RUN" position.
7. Adjust throttle control on engine as required.

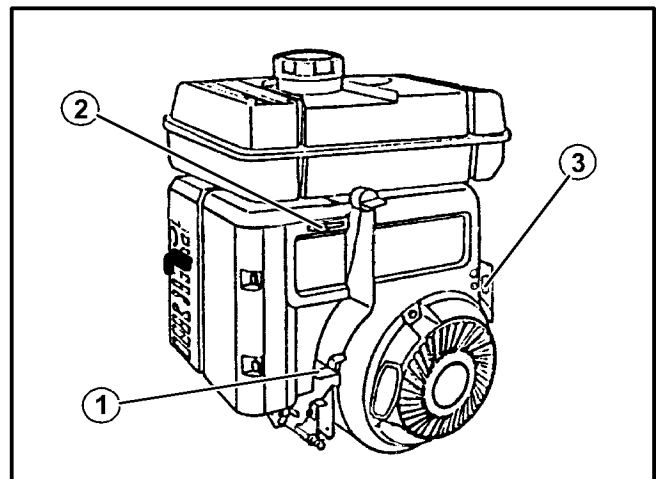


FIGURE 8

(5 H.P. ENGINE)

1. Throttle Control
2. Choke Control
3. Stop Switch

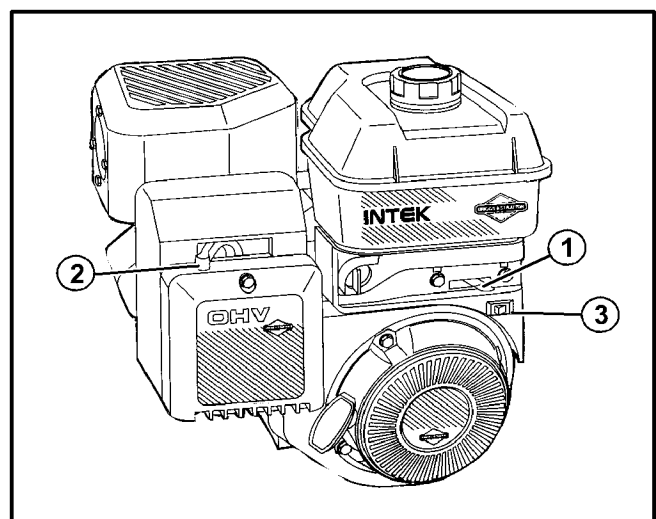


FIGURE 9

(6.5 H.P. ENGINE)

1. Throttle Control
2. Choke Control
3. Stop Switch

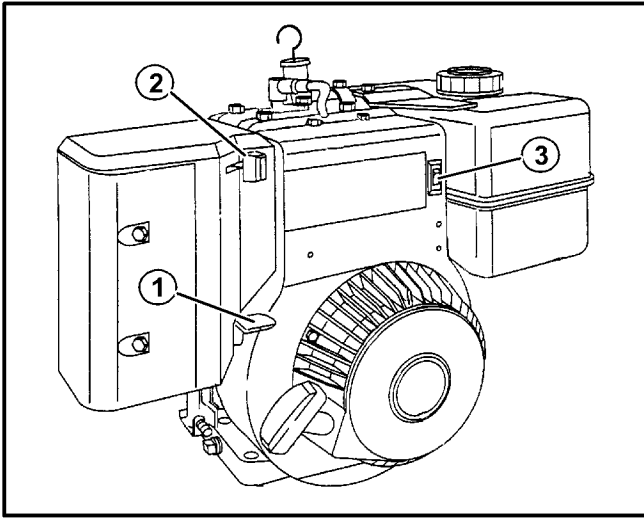


FIGURE 10

(7 H.P. ENGINE)

- 1. Throttle Control**
- 2. Choke Control**
- 3. Stop Switch**

TIPS FOR OPERATING THE UNIT

Start the unit in motion **before** engaging the reel to prevent unnecessary damage to the turf and to avoid bogging down the engine. Disengage the reel before stopping forward motion.

Make all passes across the turf at a uniform speed.

Disengage the reel at the end of each pass and before slowing or stopping to make a turn. This prevents turf damage while turning the unit.

If the engine bogs down while going through a thick patch or turf, push down on the handle just enough to raise the reel and allow the engine to return to normal speed.

NOTICE

- Never cross hard objects or surfaces (sidewalks, driveways, stepping stones, etc.) with the reel engaged. Severe blade damage may occur.

REELS AND SUGGESTED USES

Flail Blade Reel, Part No. 544440

1/8" (3 mm) flail blades for thatch control and breaking up soil cores after aerating. This reel is **NOT RECOMMENDED** for fine lawns and turf, such as golf course greens.

1/8" (3 mm) Fixed Blade Reel, Part No. 545440

2" (51 mm) blade spacing is excellent for general dethatching, renovating and breaking up cores.

1/16" (1.6 mm) Fixed Blade Reel, Part No. 547452

Blades can be spaced on 1" (25 mm) or 1 1/2" (38 mm) centers with the use of spacers between the blades. Use the 1" blade spacing for renovating heavy grass areas or preparing a lawn for re-seeding. Use the 1 1/2" (38 mm) blade spacing for renovating and thinning all coarse stemmed grasses.

1/32" (0.8 mm) Fixed Blade Reel, Part No. 547453

3/4" (19 mm) blade spacing is excellent for thatch and grain control on fine bent grasses, vertical slicing, renovating and seed bed preparation.

SERVICE



WARNING

- When replacement parts are required, use genuine RYAN parts or parts with equivalent characteristics, including type, strength and material. Failure to do so may result in product malfunction and possible injury to the operator and/or bystanders.

BELT REPLACEMENT

Belt tension is maintained by a spring loaded idler, controlled by the clutch bail. No belt tension adjustment is necessary when proper belts are use.

NOTICE

- A matched pair of belts must be used for correct operation. If one belt needs to be replaced, you **MUST** replace both belts to assure proper belt tension.
1. Remove belt guards and old belts from unit.
 2. Place the new belts between the idler pulley and the snubber on the idler arm and then over the engine and reel pulleys. See Figure 11.

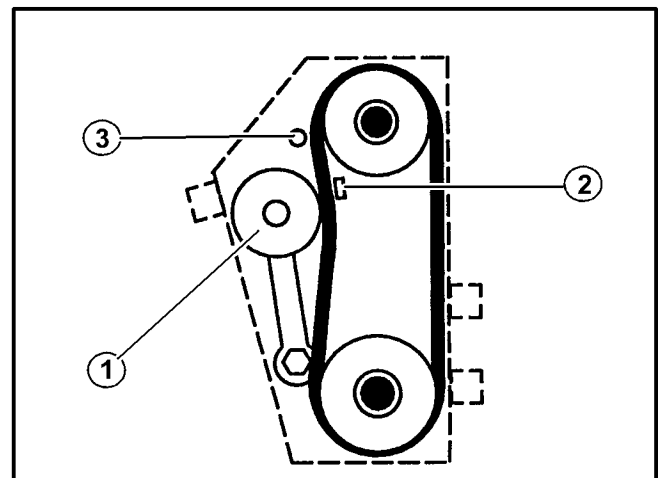


FIGURE 11

- 1. Idler Pulley**
- 2. Snubber**
- 3. Belt Stop Rod**

3. Install the belt guards. Make sure the belt stop rod is outside of the belt. See Figure 11.

LUBRICATION

The reel and idler pulley bearings are factory sealed and require no lubrication.

Wheel bearings have lubrication fittings and require lubrication with a standard lithium based lubricant after every 25 hours of use.

BLADE REPLACEMENT

Fixed Blade Reels

To replace worn or damaged blades or to change to different blade and/or spacer combination:

1. Remove the entire reel from the chassis.
2. Remove bearing from end of shaft (opposite the pulley end). Loosen the set screw securing the locking collar. With a small punch, tap the bearing approximately one quarter turn in the opposite direction of the reel rotation. This relieves the cam lock action of the bearing and it can be removed from the shaft.
3. Hold the shaft to keep it from turning and remove the shaft nut. Remove the blades and spacers from the shaft and replace or rearrange as required.

When reassembling the reel, it is important to start and end with a spacer. DO NOT assemble with a blade next to the shaft nut at either end.

Fixed blades must be placed on the shaft in a pattern 60° off center from the previous blade. See Figure 12 illustration.

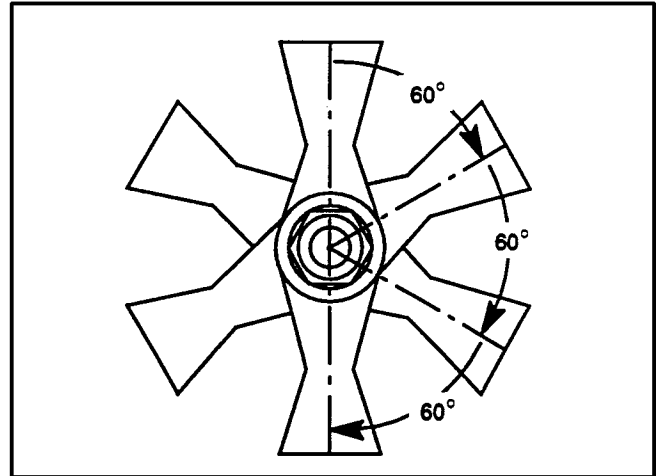


FIGURE 12

4. Re-install the shaft nut and tighten securely to keep the blades from coming loose.
5. Re-install the reel bearing by exactly reversing the steps taken to remove it.

NOTICE

- Blades that are worn on one cutting face may be reversed and used again.

Flail Blade Reels

Work on only one of the six blade shaft assemblies at a time.

1. Remove the cotter pin from one end of one of the blade shafts and pull the shaft out.
2. Replace the blades and other worn parts and re-assemble in the proper order while sliding the shaft back into place.
3. Install a new cotter pin to secure the shaft.

BELT GUARD ROD ADJUSTMENT

There are two belt guard rods mounted in the belt guard. The long rod helps to prevent the belts from slipping off the engine pulley. The short rod (belt stop rod) acts as a belt brake when the clutch bail is released, insuring that the reel stops quickly.

It is important that these two rods are adjusted correctly. If the belt guard is removed for any reason, make sure the two rods are positioned at the end of their respective slots. See Figure 13.

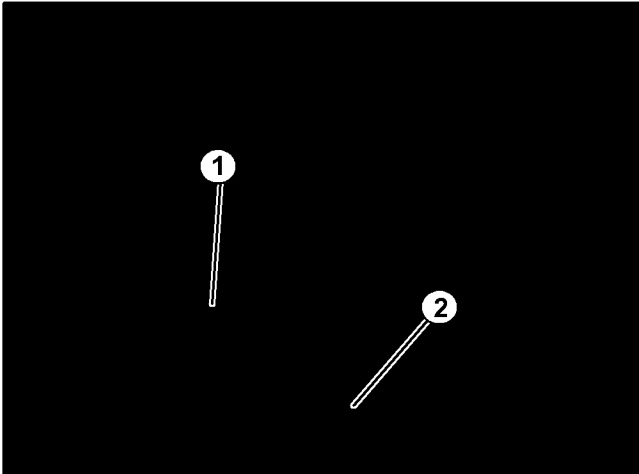


FIGURE 13

- 1. Long Belt Guard Rod**
- 2. Short Belt Guard Rod
(Belt Stop Rod)**

STORAGE



DANGER

- **To prevent possible explosion or ignition of vaporized fuel, DO NOT store equipment with fuel in the tank or carburetor in an enclosure with open flame (furnace, water heater pilot light, etc.).**

DAILY STORAGE

After daily usage of unit:

Wash the unit with water after the engine has cooled down.

Check the reel blades for damage. Replace any cracked, broken, bent or worn blades.

Check the engine oil level and inspect the air cleaner for excessive dirt or any obstructions. Service engine

according to engine manufacturers recommendations. Refer to engine manual for all recommendations.

EXTENDED STORAGE

To prepare the unit for extended storage (30 days or more):

1. Drain the fuel from the tank and fuel lines.
2. Start and run the engine until all the fuel in the carburetor bowl is gone and the engine stops.
3. While the engine is still warm, drain the crankcase oil. Replace engine oil with the proper weight and type for the next season that the unit will be used.
4. Remove the spark plug and squirt a small amount of engine oil into the cylinder. Slowly pull the starter a few times to distribute oil in the cylinder and reinstall the spark plug.
5. Check the reel for damaged blades and replace as needed.
6. Lubricate the wheel bearings with a standard lithium based lubricant.

To put the unit back into service after extended storage:

Check for loose parts and tighten as necessary.

Check for damaged blades and replace as necessary.

Fill the fuel tank.

Check the engine oil level.

Start the engine and check for fuel leaks. Repair any leaks before operating the unit.

TOUCH UP PAINT

Ransomes Green

16 oz. (0.5 L) spray can, order Part No. 838140


1 qt. (0.95 L) can, order Part No. 838141

TORQUE SPECIFICATIONS HEX HEAD CAP SCREWS

The torque values shown should be used as a general guideline when specific torque values are not given.

U.S. Standard Hardware

Grade	Shank Size (Diameter in inches, fine or coarse thread)														
		1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1	1 1/8			
SAE grade 5 *	ft. lbs.	9	18	31	50	75	110	150	250	378	583	782			
	N·m	12	24	42	68	102	150	203	339	513	790	1060			
SAE grade 8 **	ft. lbs.	13	28	46	75	115	165	225	370	591	893	1410			
	N·m	18	38	62	108	156	224	305	502	801	1211	1912			
Flangelock Screw w/ Flangelock Nut	ft. lbs.		24	40											
	N·m		33	54											

* Grade 5 marking –  Minimum commercial quality (Lower quality not recommended).

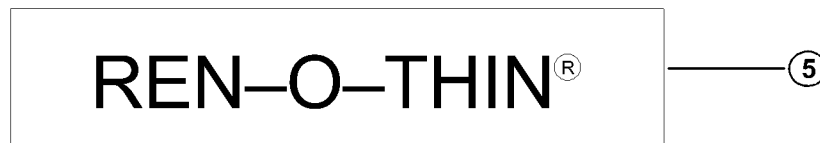
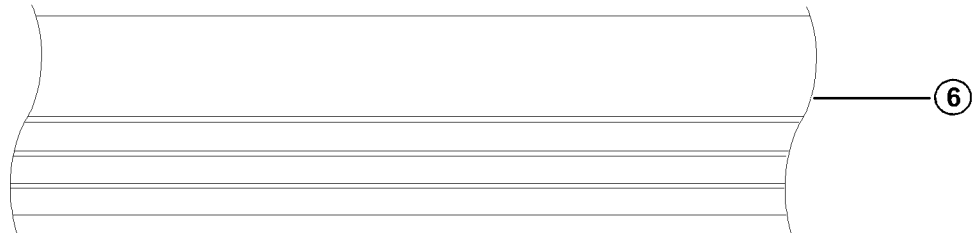
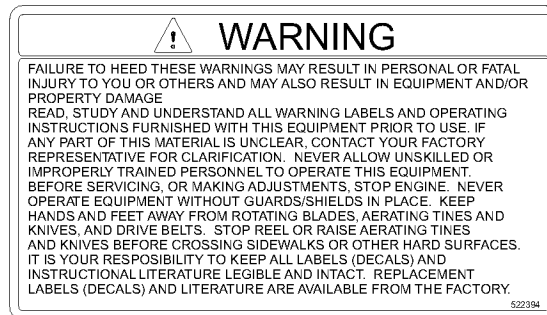
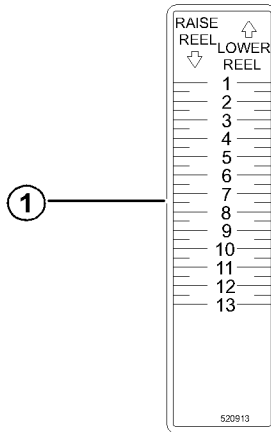
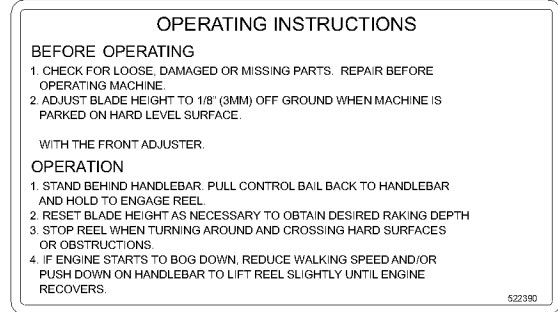
** Grade 8 marking – 

Metric Standard Hardware

Grade	Shank Size (Diameter in millimeters, fine or coarse thread)														
		M4	M5	M6	M7	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27
Grade 8.8*	ft. lbs.	1.5	3	5.2	8.2	13.5	24	43.5	70.5	108	142	195	276	353	530
	N·m	2	4	7	11	18	32	58	94	144	190	260	368	470	707
Grade 10.9**	ft. lbs.	2.2	4.5	7.5	12	18.8	35.2	62.2	100	147	202	275	390	498	747
	N·m	3	6	10	16	25	47	83	133	196	269	366	520	664	996
Grade 12.9***	ft. lbs.	2.7	5.2	8.2	15	21.8	43.5	75	119	176	242	330	471	596	904
	N·m	3.6	7	11	20	29	58	100	159	235	323	440	628	794	1205

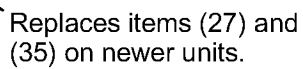
* Grade 8.8 marking –  ** Grade 10.9 marking –  *** Grade 12.9 marking – 

DECALS



Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
1	520913	Decal, height adjustment	1	5	524387	Decal, Ren-o-thin	1
2	522390	Decal, operating instructions	1	6	838494	Decal, stripe, 2.41" x 20 ft. (6.1 M)	As Req'd
3	522394	Decal, operator warning	1	7	520912	Decal, reel control	1
4	524281	Decal, RYAN	1				

CHASSIS GROUP



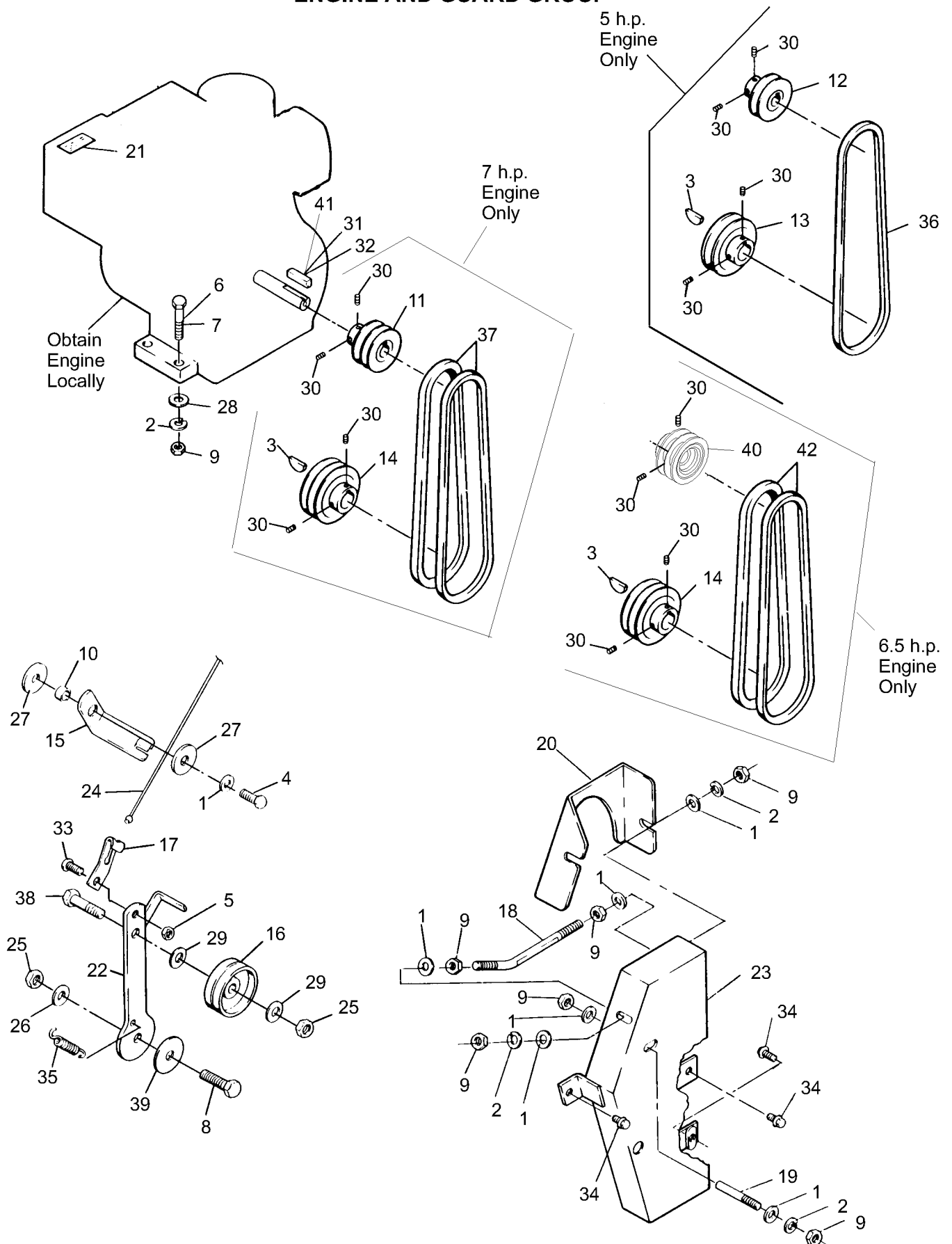
CHASSIS GROUP

Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
1	304636	Pin, cotter, 1/8 x 1 1/8	2	21	524387	•Decal, Ren-o-thin	1
2	306322	Screw, 5/16-18 x 7/8	2	22	838494	•Decal, striping, 2 3/8 x 20 ft. (6.1 M)	As Req'd
3	306325	Lockwasher, 5/16	2	23	545859	Pivot	1
4	306840	Screw, 1/2-13 x 3	2	24	316947	•Pin, spirol, 5/16 x 1 1/4	2
5	306932	Nut, 5/16-18	2	25	545861	Shield, trailing	1
6	306941	Nut, castle, 1/2-20	2	26	548238	•*Rivet, pop, 3/16 x 5/8	5
7	308332	Nut, 1/2-13	4	27	545862	Screw, adjusting	1
8	517226	Bushing	2	28	547436	Wheel, 8 x 1 3/4	4
9	518972	Clamp, reel	2	29	520983	•Bearing	2
10	519043	Rod, reel clamp	2	30	548048	Nut, lock, 5/16-18	2
11	520875	Spacer, flanged	2	31	548155	Washer, special	2
12	520877	Rod, shield	1	32	548157	Washer, 33/64	10
13	522256	Washer, felt	4	33	548164	Washer, 3/8	3
14	522375	Lever, locking	1	34	548190	Pin, hair, 3/32 x 1 3/4	2
15	522385	Axle	1	35	548357	Ring, retaining	1
16	545840	Chassis (w/decals)	1	36	548993	Nut, lock, 3/8-24	2
17	520913	•Decal, height adjustment	1	37	809156	Washer, 9/16	1
18	522390	•Decal, operating instruction	1	38	540273	Screw, adjusting	1
19	522394	•Decal, operator warning	1	39	306328	Pin, cotter, 3/32 x 3/4	1
20	524281	•Decal, RYAN	1				

• INDENTED PART NAMES INDICATE THESE PARTS ARE INCLUDED IN PRECEDING ASSEMBLY

* Not Illustrated

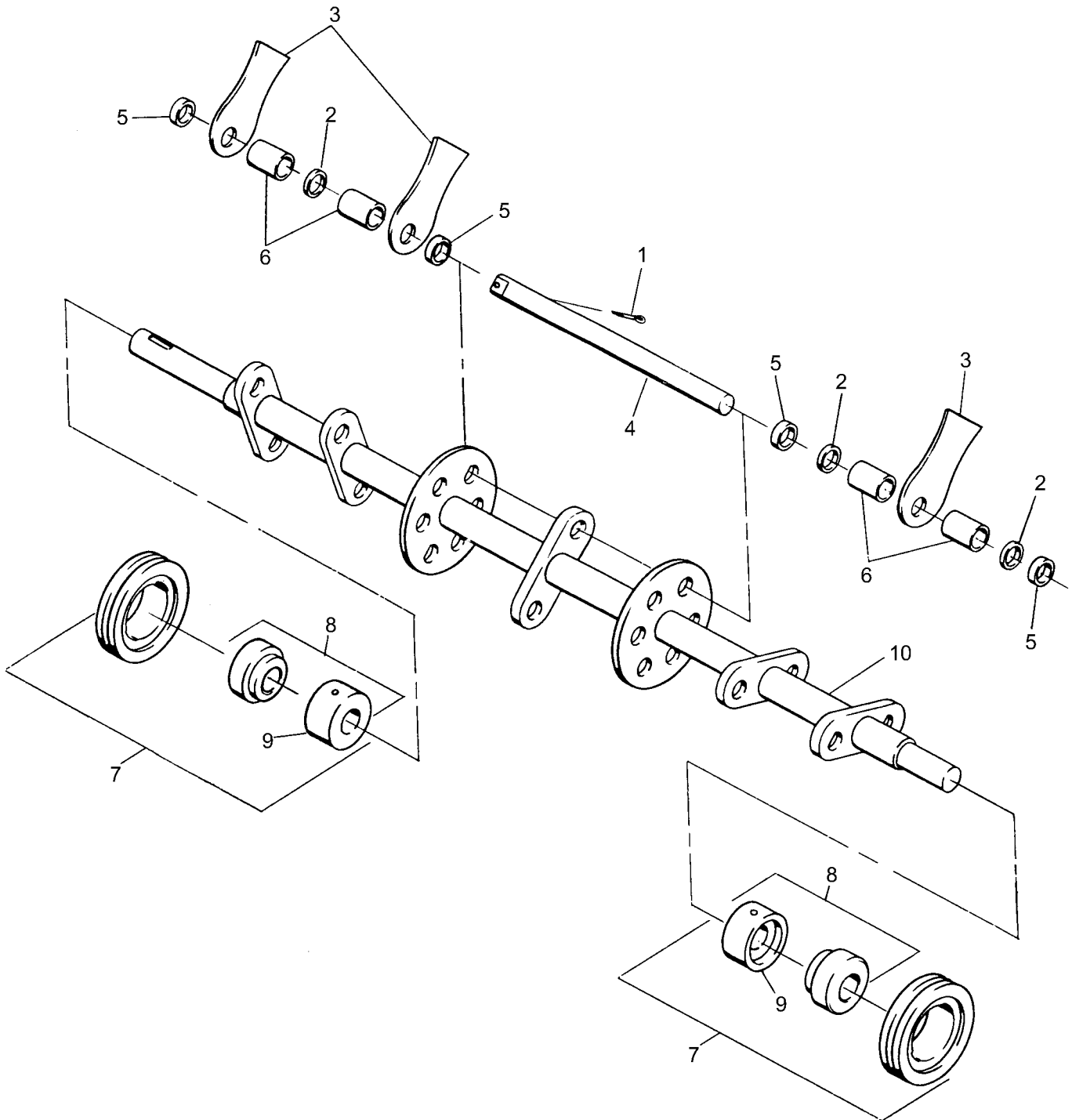
ENGINE AND GUARD GROUP



ENGINE and GUARD GROUP

Ref. No.	Part No.	Description	No. Req'd			Ref. No.	Part No.	Description	No. Req'd		
			5 h.p.	6.5 h.p.	7 h.p.				5 h.p.	6.5 h.p.	7 h.p.
1	103867	Washer, 5/16	7	7	6	24	547445	Cable, control	1	1	1
2	306325	Lockwasher, 5/16	7	7	7	25	548052	Nut, lock, 3/8-16	2	2	2
3	306367	Key, woodruff, 3/16 x 5/16 x 3/4	1	1	1	26	548155	Washer, 3/8	1	1	1
4	306369	Screw, 5/16-24 x 3/4	1	1	1	27	548157	Washer, 7/16	2	2	2
5	306375	Nut, 1/4-20	1	1	1	28	548159	Washer, 5/16	4	4	4
6	306423	Screw, 5/16-18 x 1 3/4			4	29	548164	Washer, 3/8	2	2	2
7	306501	Screw, 5/16-18 x 1 1/2	4	4		30	548201	Screw, set, 5/16-18 x 5/16	4	4	4
8	306835	Screw, 3/8-16 x 1 1/4	1	1	1	31	548359	Key, square, 1/4 x 1/4 x 1 3/4			1
9	306932	Nut, 5/16-18	10	10	10	32	548366	Key, square, 3/16 x 3/16 x 1 1/4			1
10	515268	Bushing	1	1	1	33	548735	Screw, 1/4-20 x 3/4	1	1	1
11	517097	Pulley, engine			1	34	548901	Screw, flangelock, 5/16-18 x 1/2	3	3	3
12	517099	Pulley, engine	1			35	548995	Spring, extension	1	1	1
13	517137	Pulley, reel			1	36	548996	Belt	1		
14	517139	Pulley, reel			1	37	548997	Belt set (2 matched belts)			1
15	523802	Arm, deflector	1	1	1	38	551094	Screw, 3/8-16 x 1 3/4	1	1	1
16	520870	Pulley, idler	1	1	1	39	822419	Washer, special, 1 5/8	1	1	1
17	520878	Clip, cable	1	1	1	40	524779	Pulley 3"			1
18	520879	Rod, belt guide	1	1	1	41	805875	Key, square, 3/16 x 1 3/4			1
19	520902	Rod, belt stop	1	1	1	42	524801	Belt set (2 matched belts)			1
20	520941	Guard, belt(inner)	1	1	1						
21	521813	Decal, safety sound level			1						
22	547435	Arm, idler	1	1	1						
23	547440	Guard, belt(outer)	1	1	1						

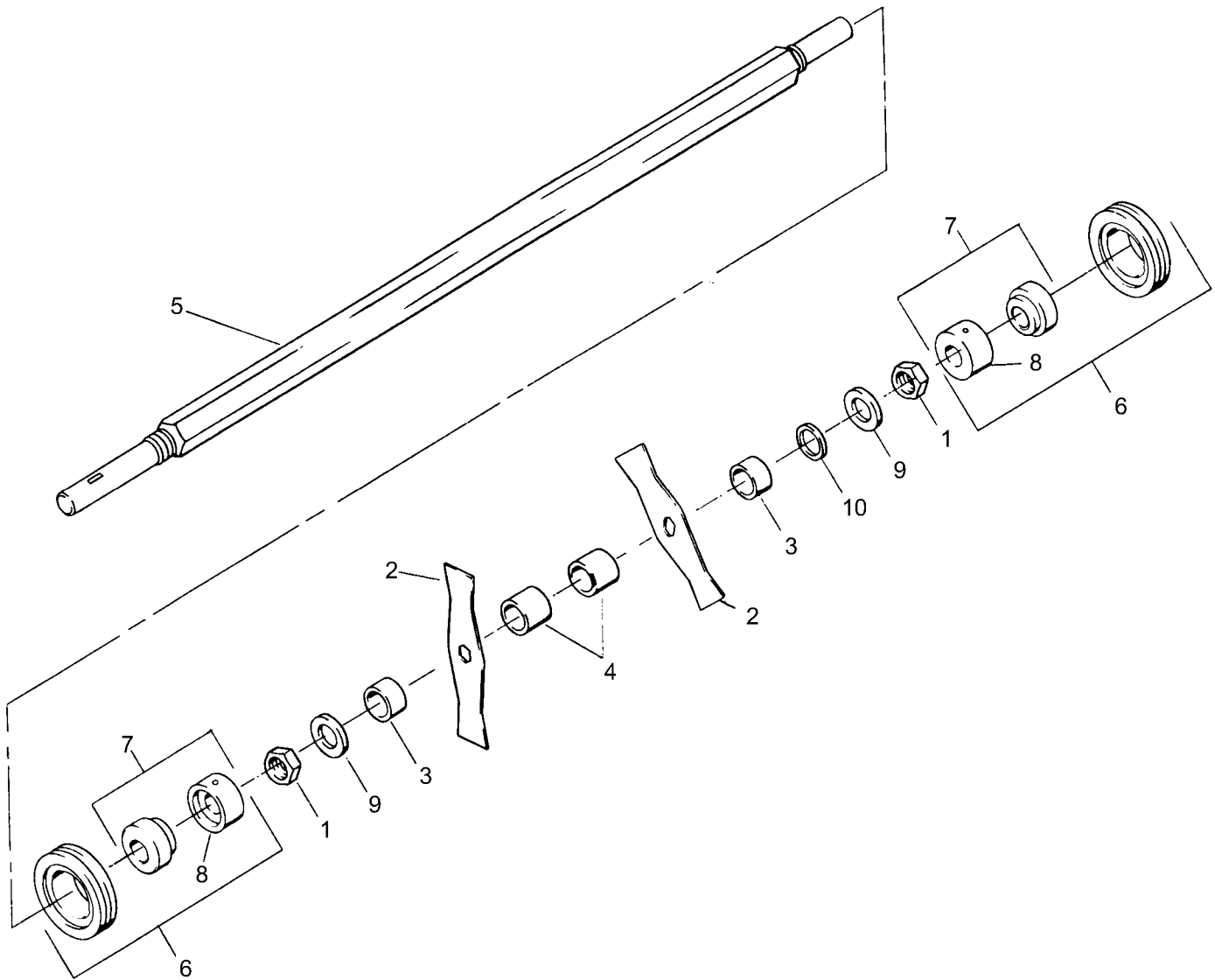
FLAIL BLADE REEL **Part No. 544440**



Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
1	306956	Pin, cotter, 1/8 x 3/4	6	6	517163	Spacer, rubber .891 (23 mm)	24
2	308091	Washer, 1/2	18	7	545640	Pillow Block, complete	2
3	516897	Blade, flail	18	8	548101	•Bearing, ball	1
4	517155	Shaft	6	9	521857	•Collar, locking	1
5	517162	Spacer, rubber .328 (8 mm)	24	10	546377	Shaft, main	1

• INDENTED PART NAMES INDICATE THESE PARTS ARE INCLUDED IN PRECEDING ASSEMBLY

FIXED 1/8" BLADE REEL
Part No. 545440

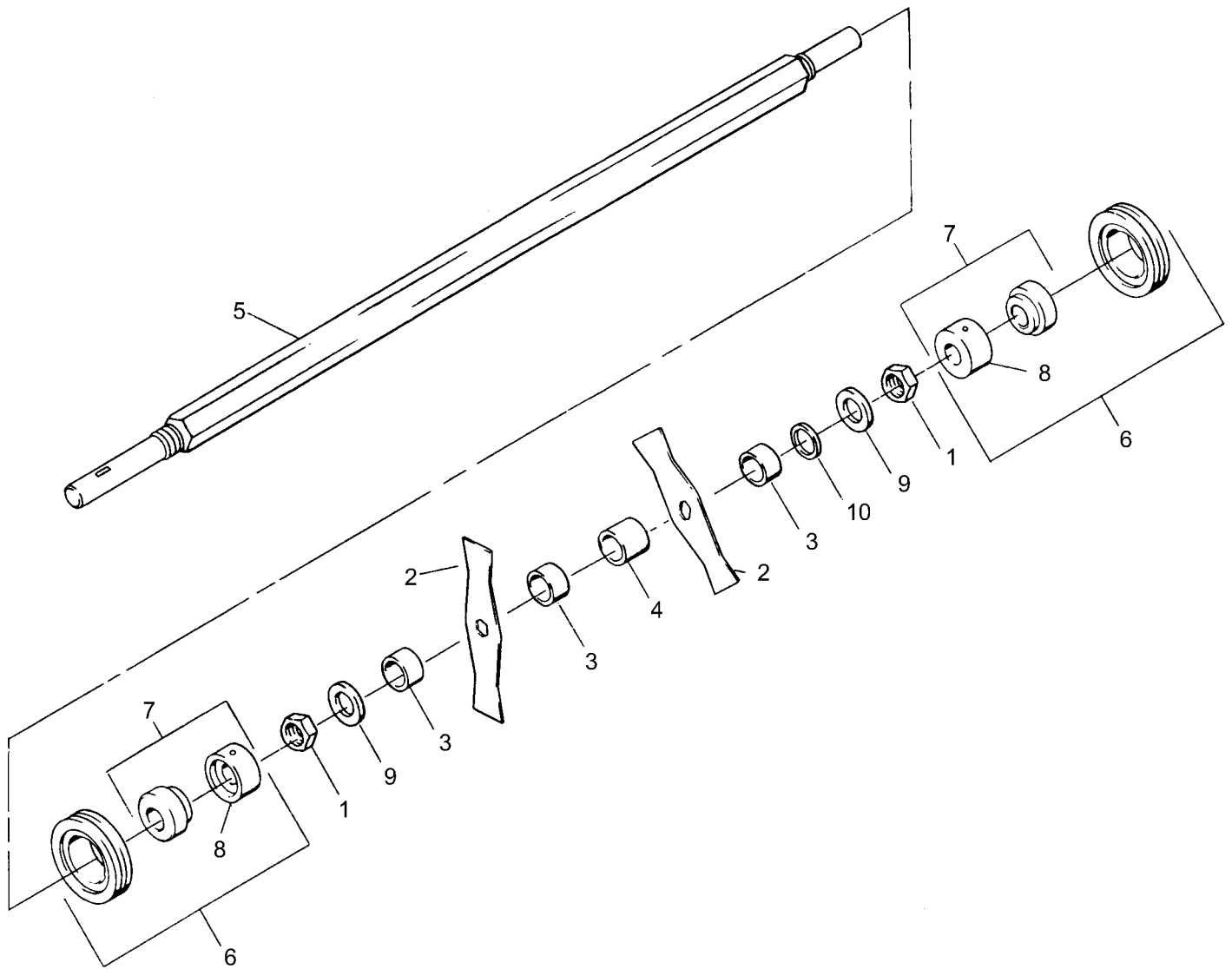


Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
1	305134	Nut, jam, 7/8-14	2	6	545640	Pillow block, complete	2
2	516898	Blade, 1/8" (3.2 mm)	13	7	548101	•Bearing, ball	1
3	516904	Spacer, .700 (19.6 mm)	14	8	521857	•Collar, locking	1
4	516905	Spacer, .900 (23 mm)	12	9	548176	Washer	2
5	517148	Shaft	1	10	820484	◇Spacer, .125 (3.2 mm)	1

• INDENTED PARTS NAMES INDICATE THESE PARTS ARE INCLUDED IN PRECEDING ASSEMBLY

◇ Use spacers as required so that the nut (ref. no. 1) will not contact hex shaft when tight.

FIXED 1/16" BLADE REEL
Part No. 547452

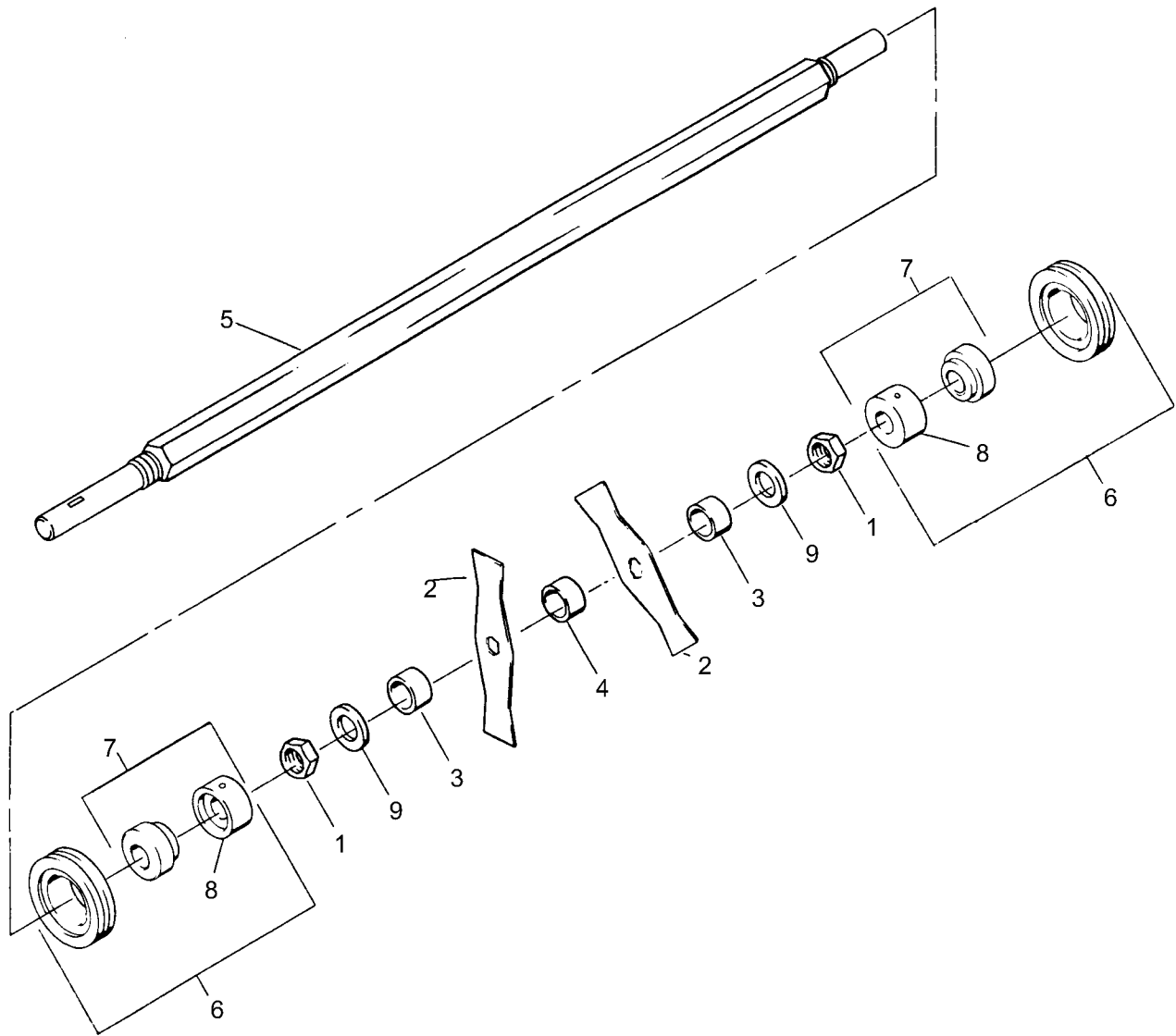


Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
1	305134	Nut, jam, 7/8-14	2	6	545640	Pillow block, complete	2
2	516900	Blade, 1/16" (1.6 mm)	13	7	548101	•Bearing, ball	1
3	516903	Spacer, .500 (12.7 mm)	14	8	521857	•Collar, locking	1
4	516905	Spacer, .900 (23 mm)	12	9	548176	Washer	2
5	517148	Shaft	1	10	820484	◇Spacer, .125 (3.2 mm)	1

• INDENTED PARTS NAMES INDICATE THESE PARTS ARE INCLUDED IN PRECEDING ASSEMBLY

◇ Use spacers as required so that the nut (ref. no. 1) will not contact hex shaft when tight.

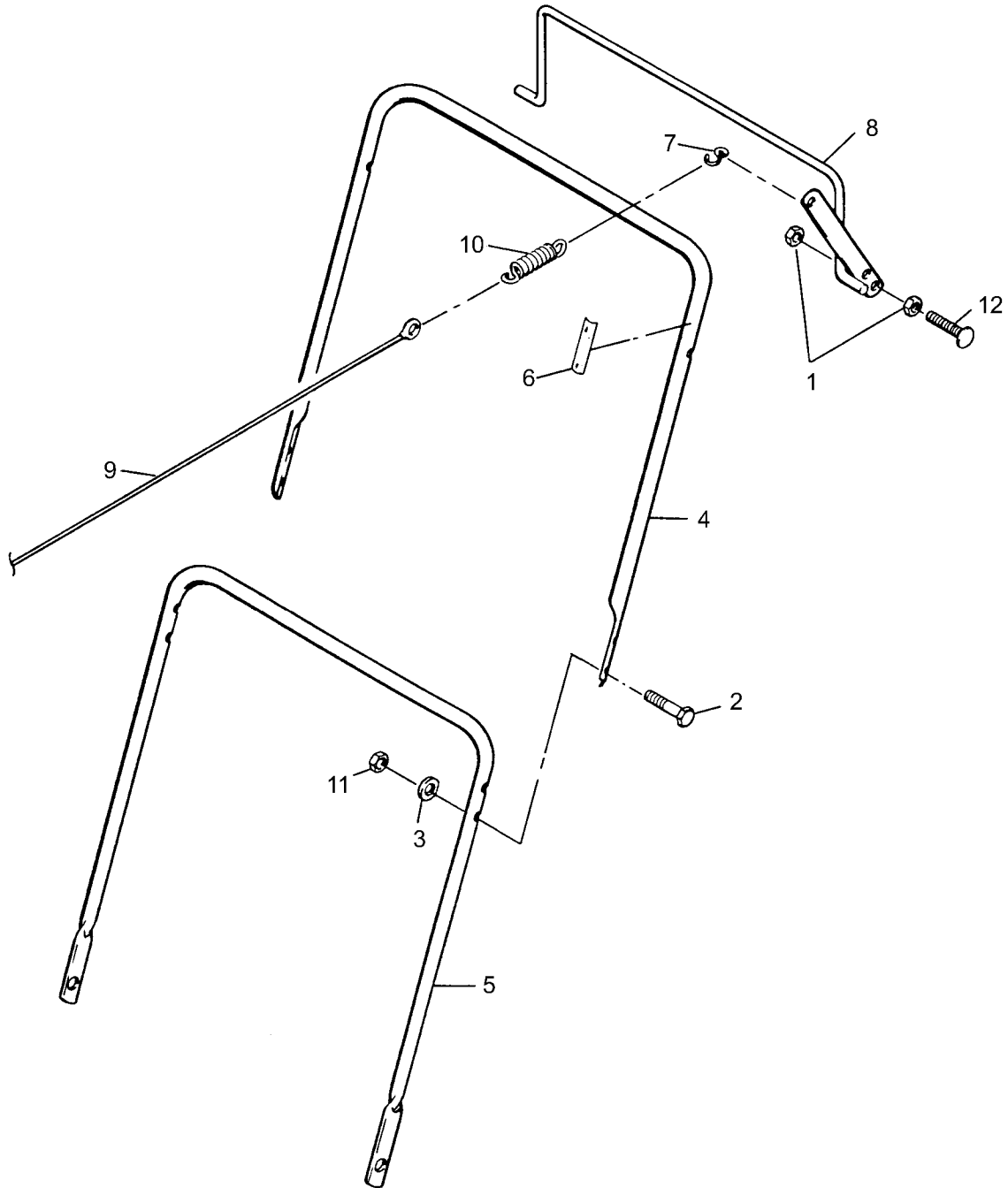
FIXED 1/32" BLADE REEL
Part No. 547453



Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
1	305134	Nut, jam, 7/8-14	2	6	545640	Pillow block, complete	2
2	516901	Blade, 1/32" (0.8 mm)	25	7	548101	•Bearing, ball	1
3	516903	Spacer, .500 (12.7 mm)	2	8	521857	•Collar, locking	1
4	516904	Spacer, .700 (19.6 mm)	24	9	548176	Washer	2
5	517148	Shaft	1				

• INDENTED PARTS NAMES INDICATE THESE PARTS ARE INCLUDED IN PRECEDING ASSEMBLY

HANDLE



Ref. No.	Part No.	Description	No. Req'd.	Ref. No.	Part No.	Description	No. Req'd.
1	302103	Nut, jam, 5/16-18	2	7	521744	Hook "S"	1
2	303459	Screw, 1/4-20 x 1 1/2	4	8	547441	Bail, clutch control	1
3	308090	Washer, 1/4	4	9	547445	Cable, control	1
4	520868	Handle, upper	1	10	548994	Spring, extension	1
5	520869	Handle, lower	1	11	800059	Nut, lock, 1/4-20	4
6	520912	Decal, clutch	1	12	800062	Bolt, carriage, 5/16-18 x 1 1/4	1

SERVICE

[illegible]

RANSOMES AMERICA CORPORATION WARRANTY

Ransomes America Corporation (RAC) warrants for one (1) year each new Ransomes/Cushman/Ryan unit and serialized accessories except for the Envirojet high pressure injection system components which are warranted for one (1) year or 200 hours whichever occurs first, according to the following terms:

This warranty extends to the original retail purchaser only and commences on the date of original retail purchase. Accordingly this warranty is not transferable to any subsequent purchasers.

Any part of the Ransomes unit or serialized accessory manufactured by RAC and found in the reasonable judgement of RAC to be defective in material or workmanship **will be repaired or replaced by** an authorized Ransomes/Cushman/Ryan dealer without charge for parts and labor.

The Ransomes unit or serialized accessory including any defective part must be returned to an authorized Ransomes/Cushman/Ryan dealer within the warranty period. The expense of returning the Ransomes unit or serialized accessory to an authorized dealer for warranty service and the expense of returning it back to the owner after repair or replacement will be paid for by the owner. RAC's responsibility in respect to claims is limited to making the required repairs or replacements, and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any Ransomes unit or serialized accessory.

Proof of purchase will be required by the authorized Ransomes/Cushman/Ryan dealer to substantiate any warranty claim. All warranty work must be performed by an authorized Ransomes/Cushman/Ryan dealer.

RAC makes no warranty with respect to engines, tires, batteries, regulators, starter-generators, electric motors, or other parts not of their manufacture as such parts are usually warranted separately by their respective manufacturers.

This warranty does not include service items subject to normal wear, such as filters, spark plugs, ignition points, brake and clutch linings, belts, light bulbs, fuses, bearings, electrical contacts, etc.

This warranty does not cover any Ransomes unit or serialized accessory that has been subject to misuse, neglect, negligence, or accident, or that has been operated or maintained in any way contrary to the operating or maintenance instructions as specified in the Ransomes/Cushman/Ryan Operator's Manual. The warranty does not apply to any Ransomes unit or serialized accessory that has been altered or modified so as to adversely affect the units operation, performance or durability or that has been altered or modified so as to change its intended use. In addition, the warranty does not extend to repairs made necessary by normal wear, or by the use of parts or accessories which in the reasonable judgement of RAC are either incompatible with the Ransomes/Cushman/Ryan unit or adversely affect its operation, performance or durability.

RAC reserves the right to change or improve the design of any Ransomes unit or serialized accessory without assuming any obligation to modify any unit previously manufactured.

ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING **MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE** OR OTHERWISE ARE EXPRESSLY EXCLUDED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. ANY ACTION FOR BREACH OF WARRANTY MUST BE COMMENCED NO LATER THAN ONE YEAR FROM THE DATE OF DELIVERY.

RAC'S OBLIGATION UNDER THIS WARRANTY IS STRICTLY AND EXCLUSIVELY **LIMITED TO THE REPAIR OR REPLACEMENT** OF DEFECTIVE PARTS, AND RAC DOES NOT ASSUME OR AUTHORIZE ANYONE TO ASSUME FOR THEM ANY OTHER OBLIGATION.

RAC ASSUMES NO RESPONSIBILITY FOR INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO, EXPENSE FOR GASOLINE, EXPENSE OF RETURNING THE RANSOMES UNIT TO AN AUTHORIZED DEALER AND EXPENSE OF RETURNING IT BACK TO THE OWNER. MECHANIC'S TRAVEL TIME, TELEPHONE OR TELEGRAM CHARGES, TRAILERING OR TOWING CHARGES, RENTAL OF A LIKE UNIT DURING THE TIME WARRANTY SERVICE IS BEING PERFORMED, TRAVEL, LODGING, LOSS OR DAMAGE TO PERSONAL PROPERTY, LOSS OF REVENUE, LOSS OF USE OF UNIT, LOSS OF TIME OR INCONVENIENCE.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

RANSOMES • CUSHMAN • RYAN
P.O. BOX 82409
Lincoln, Nebraska 68501-9971

WARRANTY SERVICE

To make a claim under warranty, contact an authorized Ransomes/Cushman/Ryan dealer immediately upon realizing a problem exists. We recommend having the warranty work performed by the dealer who originally sold you the unit; however, warranty work can be sought from any authorized Ransomes/Cushman/Ryan dealer. Remember, your Ransomes unit must be delivered to an authorized Ransomes/Cushman/Ryan dealer within the warranty period, and all warranty work must be performed only by an authorized Ransomes/Cushman/Ryan dealer. Proof of purchase will be required by the dealer to substantiate any warranty claim.

EXAMPLES OF ITEMS NOT COVERED UNDER WARRANTY

Provisions of the warranty will not apply to:

Normal service requirements arising during the warranty period, such as carburetor or ignition adjustment and cleaning or wear of a drive belt, brake, clutch linings or starter brushes.

Normal service work over and above the repair and replacement of defective parts.

Unit subject to misuse, neglect, negligence, or accident.

Units that have been altered or modified so as to adversely affect their operation, performance or durability or to change their intended use.

Repairs made necessary by the use of parts or accessories which are either incompatible with the unit or adversely affects the operation, performance or durability.

Units not operated or maintained in accordance with the instructions in the Ransomes/Cushman/Ryan Operator's Manual.

Normal cleaning, adjusting or replacing of such items as filter, spark plugs, ignition points, light bulbs, fuses or starter drive.

Periodic checking or adding of lubricant to the unit or service check-up, tune-up or diagnosis.

Expense of delivering the unit to the dealer and expense of returning the unit back to the owner, mechanic's travel time, trailering or towing charges, or rental of a like unit during the time warranty repairs are being performed.

Engines, tires, batteries, regulators, starter-generators and electric motors manufactured by other than Ransomes America Corporation are not covered under this warranty as such parts are usually warranted by their respective manufacturers.

This warranty applies only to the original retail purchaser. Second-owner or subsequently owned units are not covered under warranty.

OWNER'S OBLIGATION AND RESPONSIBILITY

Normal maintenance service and replacement of service items are the responsibility of the owner and as such are not considered defects in material or workmanship within the terms of the warranty. Individual operating habits and usage contribute to the need for maintenance service.

See your Ransomes/Cushman/Ryan dealer for proper maintenance and care of your unit. Proper maintenance and care will assist in keeping your overall operating cost at a minimum.



WARNING



The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Advertissement



Advertencia

L'émission du moteur de ce matériel contient des produits chimiques que l'Etat de Californie considère être cancérigènes, provoquer des défauts congénitaux et d'autres dangers en matière de reproduction.

El estado de California hace saber que los gases de escape de este producto contienen productos químicos que producen cáncer, defectos de nacimiento y otros daños en el proceso de reproducción humana.

RYAN®

TEXTRON

TEXTRON TURF CARE AND SPECIALTY PRODUCTS

P.O. Box 82409 • Lincoln, Nebraska • 68501-2409