

# **RANKIN**

## **SPINNER SPREADERS**



**Assembly, Operation,  
Service & Parts Manual  
For Models PL180, PL300 & PL500**

February 2009

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# INTRODUCTION

*We would like to thank you for purchasing a Rankin product and we assure you that you have made a good choice, as now you have a very high quality machine. Please follow all instructions contained in this manual for a long and trustworthy machine life.*

Know your controls. Read this manual and the manual provided with your tractor before operating your equipment. Keep this manual handy for ready reference. Learn how to stop the tractor engine and spreader quickly in case of an emergency. **DO NOT** allow adults without proper instructions or children to operate machinery. Require all operators to read this manual carefully and become acquainted with all adjustments and operating procedures before attempting to operate the equipment. Replacement manuals can be obtained from your selling dealer.



**It is IMPORTANT to read this manual carefully before operating the spreader!**

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 death 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.

# SAFETY DECALS



## ATTENTION!

Be sure that the safety labels are readable. Clean them up using a cloth, water and soap. Replace the damaged labels placing them in the right position, as subsequently described.

The safety signs on the machine supply the most important indications; their observance helps your safeness.



**1. ATTENTION!** Before making any operation on the machine, stop the engine of the tractor or of the self-moving means, remove the key, put on the parking brake and read carefully the operator's manual.



**3. ATTENTION!** Check the sense of rotation and the number of revolutions (540 rpm) of the tractor power before placing the PTO shaft.



**4. ATTENTION! - DANGER** Possible throwing of material and/or objects, please do not stop or come up to the machine. Keep a safety distance of 50 feet, at least, from the machine.



**2. ATTENTION! DANGER** of entangling and dragging. Do not put hands near the running gearbox.



**4. ATTENTION! DANGER** of crushing. Do not stop between the machine and the tractor when the tractor engine is running.

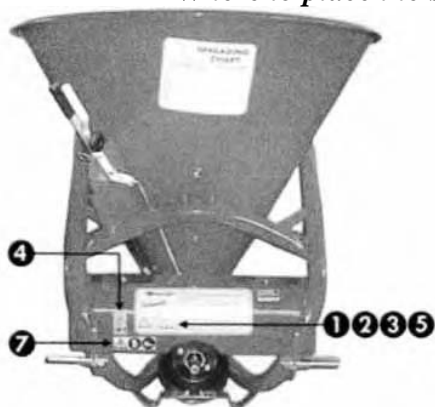


**6. ATTENTION! DANGER** of shearing. Do not approach limbs to the spreader disc when the machine is running.



**7. ATTENTION!** Use the individual Protection Devices, as required.

### Where to place the safety decals on the machine



# PREPARATION CHECKLIST



## **THIS CHECKLIST TO REMAIN IN OWNER'S MANUAL**

**IT IS YOUR RESPONSIBILITY TO COMPLETE THE PROCEDURES LISTED**

**BELOW BEFORE OPERATING THE SPREADER**

### **Preparation Check List**

- 1. Implement is completely assembled.
- 2. Inspect for damage and loose or missing parts
- 3. All decals in place and readable.
- 4. All fittings and drive components are secure.
- 5. Overall condition good.
- 6. Check hopper for any foreign objects.
- 7. Operator has been instructed on the safe and proper use of the implement.
- 8. Lubrication - See *Lubrication & Maintenance* Section

The purpose of this manual is to assist you in operating and maintaining your spreader 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 because we maintain an ongoing program of product improvement, we reserve the right to make improvements in design or changes in specifications without incurring any obligation to install them on units previously sold. Because of the possibility that some photographs in this manual were taken of prototype models, production models may vary in some detail.

**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.**

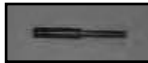
### **RETAIL CUSTOMER'S WARRANTY RESPONSIBILITY**

It is the Retail Customer and/or Operator's responsibility to read the Operator's Manual, to operate, lubricate, maintain and store the product in accordance with all instructions and safety procedures. Failure of the operator to read the Operator's Manual is a misuse of this equipment. It is the Retail Customer and/or Operator's responsibility to inspect the product and to have any part(s) repaired or replaced when continued operation would cause damage or excessive wear to other parts or cause a safety hazard. It is the Retail Customer's responsibility to deliver the product to the authorized dealer from whom he purchased it, for service or replacement of defective parts which are covered by warranty. Repairs to be submitted for warranty consideration must be made within thirty (30) days of failure. It is the Retail Customer's responsibility for any cost incurred by the dealer for traveling to or hauling of the product for the purpose of performing a warranty obligation or inspection.

# ASSEMBLING THE SPREADER



- 1.) Assemble the gearbox to the frame with 8 x 16 bolts.



- 2.) Use this pin to fix the disc to the shaft.



- 3.) Install the retainer to hold the disc in place.



- 4.) Place the PVC hopper on the frame.



- 5.) Install the 2 opening levers.



- 6.) Regulate the slides on their rods.

## ASSEMBLING THE SPREADER



- 7.) Drill holes in PVC hopper, then bolt in place.



- 8.) Put the lower agitator and the holding rubber cap on.



- 9.) Install the lower hitch pins.

# SAFETY INFORMATION



## OPERATIONAL SAFETY

It is absolutely necessary to empty the hopper before lowering the spreader to the ground.

Guards and safety shields are for your protection. **DO NOT** operate equipment unless they are in place.

**ALWAYS** engage tractor PTO at engine idle.

Disengage tractor PTO and shift into neutral before attempting to start engine.

Read and observe all safety decals on the tractor and spreader.

**NEVER** allow anyone, other than the operator, within 25' of machine while in operation.

**DO NOT** stop or start suddenly when going uphill or downhill. Avoid operation on steep slopes.

Be alert for holes in terrain and other hidden hazards. **ALWAYS** drive slowly over rough ground.

Reduce speed on slopes and in sharp turns to prevent tipping or loss of control. Be careful when changing directions on slopes.

Take all possible precautions when leaving tractor unattended: Disengage PTO, lower spreader, shift into neutral, set parking brake, stop engine and remove key from ignition.

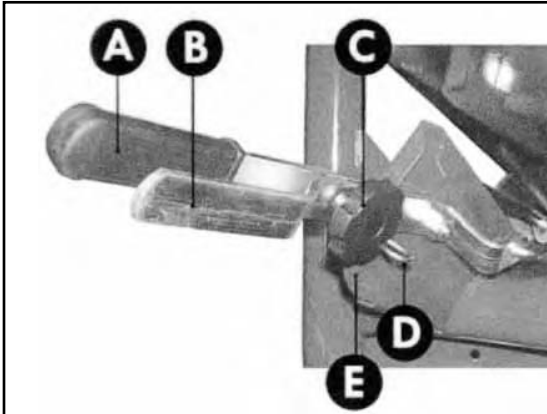
Front tractor weights or front tire ballast should be used to enhance front-end stability on small tractors.



# ADJUSTING THE SPREAD

The fertilizer spreading is regulated through the regulation lever that moves the opening section on the bottom of the hopper.

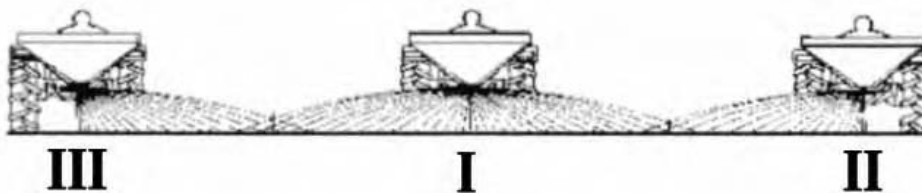
In order to carry out the regulation, after having consulted the spreading table, according to the type of product to spread and to the spreader speed, it is necessary to move the lever "A" along the graduated scale "E" and blocking it in the chosen position with the pin "D".



		SPREADING CHART FOR FERTILIZER										SPREADING CHART FOR SEED													
		FERTILIZER NAME		SPREADER SPEED (km/h)										SEED NAME		SPREADER SPEED (km/h)									
		GRAIN	LIQUID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
LARGE	0.5	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
SMALLER	0.5	80	160	240	320	400	480	560	640	720	800	880	960	1040	1120	1200	1280	1360	1440	1520	1600	1680	1760	1840	
SMALLER	0.5	60	120	180	240	300	360	420	480	540	600	660	720	780	840	900	960	1020	1080	1140	1200	1260	1320	1380	
SMALLER	0.5	40	80	120	160	200	240	280	320	360	400	440	480	520	560	600	640	680	720	760	800	840	880	920	
SMALLER	0.5	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	460	
SMALLER	0.5	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	
SMALLER	0.5	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	
SMALLER	0.5	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	
SMALLER	0.5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
SMALLER	0.5	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	
SMALLER	0.5	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.6	
SMALLER	0.5	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	
SMALLER	0.5	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1.0	1.05	1.1	1.15	

See this chart on the next page

In order to spread from both sides (ref. I), "A" and "B" levers must be in the same position, connected through grip handle "C".



In order to carry out the spreading only through the left side (ref. II), it is necessary to disconnect the two levers removing the "C" grip handle, to set the lever "A" in the chosen position, given by the spreading chart, and to bring the lever "B" towards the higher part (position 1) in order to close the shutter of the right side.

In order to spread only on the right side (ref. III) you have to move the lever "A" up, (in position 1) and regulate the quantity to spread with the lever "B".



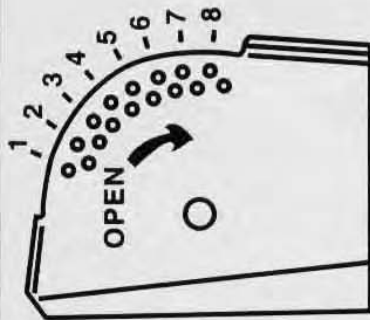
Distribution on right side (ref. III)



Distribution on left side (ref. II)

# SPREADING CHART

# SPREADING CHART



## SPREADING CHART FOR SEED

	TRACTOR SPEED (MPH)	WORKING WIDTH (FEET)	QUANTITY SPREAD IN LBS./ACRE AT VARIOUS GATE SETTINGS							
			5	6	7	8				
WHEAT	3	52	0	46	129	268				
	5		0	28	77	161				
ALFALFA & CLOVER	3	31	43	163	340	645				
	5		26	98	204	387				
FESCUE & RYEGRASS	3	19	0	0	85	161				
	5		0	0	51	97				
RED CLOVER	3	31	44	167	333	642				
	5		26	100	200	385				
KENTUCKY BLUE GRASS & BERMUDA GRASS	3	12	30	131	311	660				
	5		18	78	186	396				
SUDAN GRASS	3	52	0	49	131	271				
	5		0	29	79	163				
BARLEY	3	49	0	25	81	186				
	5		0	15	49	111				
RYE	3	40	0	25	81	186				
	5		0	15	49	111				

## SPREADING CHART FOR FERTILIZER

	TRACTOR SPEED (MPH)	WORKING WIDTH (FEET)	QUANTITY SPREAD IN LBS./ACRE AT VARIOUS GATE SETTINGS							
			2	3	4	5	6	7	8	8.5
LARGE GRANULAR FERTILIZER	2.5	60	132	245	402	635	929	1014	1140	1248
	5.0		66	123	201	318	465	507	570	624
	7.5		44	82	134	212	310	338	380	416
MEDIUM GRANULAR FERTILIZER	2.5	53	—	311	448	709	925	1025	1118	1182
	5.0		—	156	224	355	463	513	559	591
	7.5		—	104	149	237	309	342	373	394
FINE GRANULAR FERTILIZER	2.5	40	112	189	322	529	747	842	963	1051
	5.0		56	95	166	265	374	421	482	526
	7.5		37	63	111	177	249	280	321	351
CRYSTAL (AMMON. SILPHATE)	2.5	23	226	368	560	890	1236	1354	1522	1632
	5.0		113	184	280	445	618	677	761	816
	7.5		75	123	187	297	412	451	507	544
THOMAS MEAL (BASIC SLAG)	4.0	20	—	—	571	—	1270	—	1685	—
	8.0	—	—	—	286	—	635	—	843	—

# ADJUSTMENT

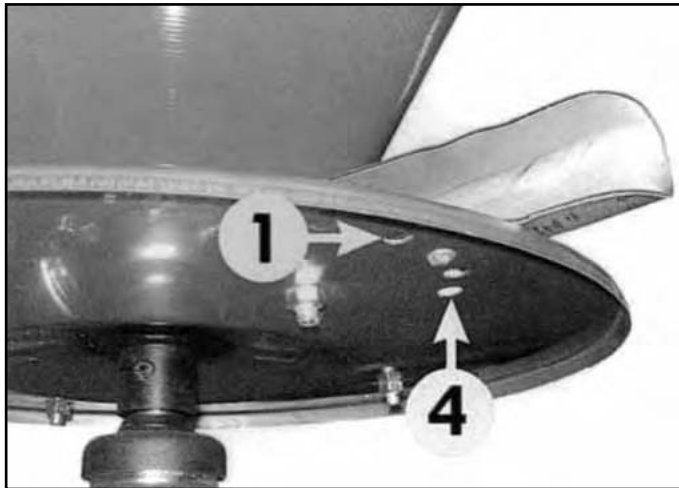
- **ADJUSTMENT**

It is not possible to have an exact spreading chart for equipment that makes use of the centrifugal principle, as the distributed quantity depends on the speed, on the radius of distribution, on the quality and humidity of the fertilizer, and on the roughness of the land.

The fertilizer must always be stored and conserved adequately, so as to keep its physical characteristics unchanged.

- **HOW TO ADJUST THE SPREADER VANES**

The disc vanes can be set in 4 different positions. Position #1 increases the distribution to the left. Position #4 increases the distribution to the right. For normal even spreading, use holes #2 and #3.



*Spreading disc's vanes settings*

## LUBRICATION & SERVICE

*Before every use and after every 8 hours of effective work, carry out the greasing of the machine.*

Make sure the greasing zerks are well cleaned from mud or other residuals before using them to inject lubricating grease. Lubricate with lithium grease the points, shown in the picture.



*Point to grease*

### REPLACEMENT OF THE SPREADER VANES

In case the spreading vanes of the disc break or get damaged, it is necessary to replace them with new ones.



Unscrew the nut and replace the damaged vane.

The fixing items (nuts and bolts) must be of the same type as those provided from the manufacturer.

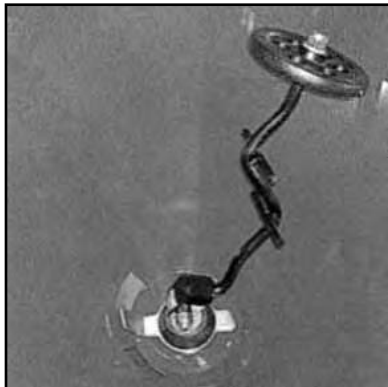
## GENERAL INFORMATION & OPTIONS

The spreaders are equipped with a stainless steel disc with 4 adjustable vanes in 4 different positions. The vanes are bolted in place in the most used position.

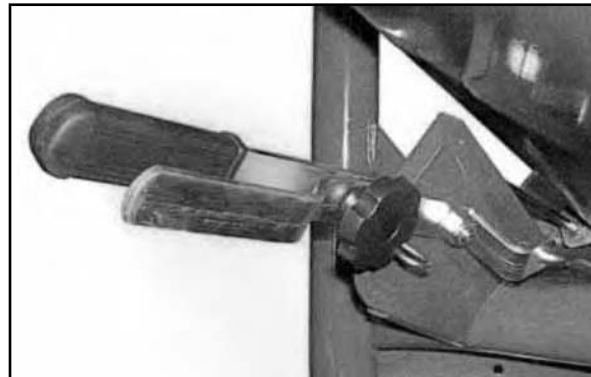


*Spreader Disc*

The feeding of the disc is by gravity through an opening, located on the bottom of the hopper, inside of which a mix/agitator is applied, in order to prevent the fertilizer lumps formation. A sheet case is placed in front of the disc, in order to prevent the spreading in the front side of the machine.



*Optional Agitator*



*Lever System*

If the material you are spreading does not flow evenly, a longer optional agitator is available.

If band spreading on rows is required, a one or two row band spreading attachment is available. This attachment is easy to bolt up to all models of our 3-point hitch spreaders.



## OPERATION



### WARNING

**NEVER** put hands or hand held tools in spreader while PTO is engages and gearbox is turning. Failure to follow warning can result in personal injury and/or damage to the spreader.

- A) Make sure spreader is properly assembled and secure to 3-point hitch
- B) Before using spreader, make sure that the spreading disc is in a horizontal position, about 2 ½ feet fromt the ground.
- C) Place material to be spread in hopper.
- D) Set levers in position needed for your spreading application. (*See page 8 for tables*)
- E) Engage tractor PTO at engine idle.

***NOTE: Never engage PTO above engine idle***

# MAINTENANCE

## LUBRICATION -

**DRIVESHAFT** - The driveshaft must be lubricated before the spreader is put into use. After that, grease *every 8 hours*. It is also necessary, from time to time, to untelescope the driveshaft to clean and re-grease tubings.

**GEARBOX** - Grease *every 40 hours*.

## CLEANING AND STORAGE -

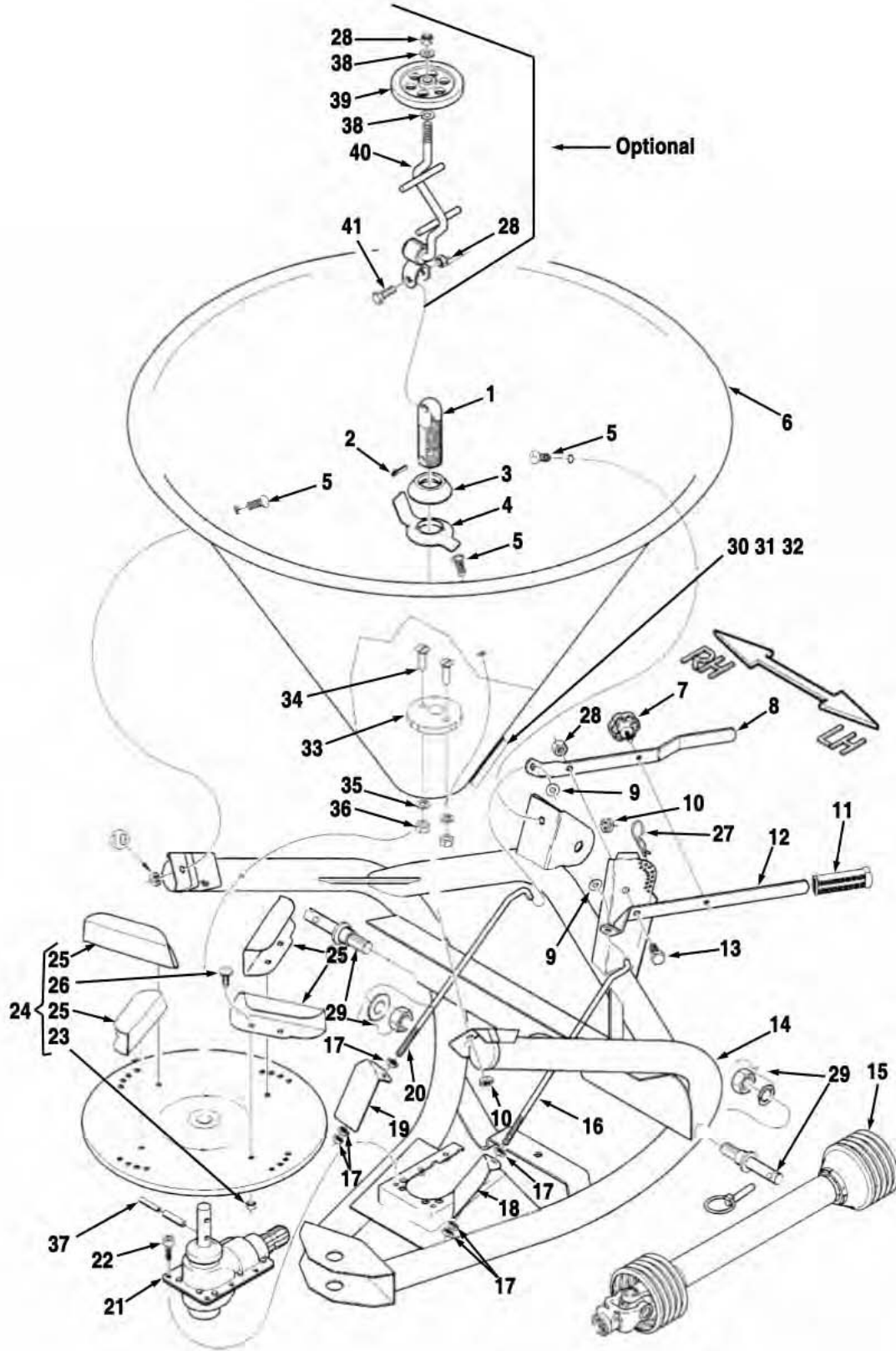
- Wash hopper with water after each use.
- Never let material build-up on shutters or in the hopper.
- Check spreader for needed repairs before using again.

## SAFETY INFORMATION -

### SAFETY TIPS:

1. Always wear relatively tight and belted clothing when operating spreader. Loose clothing should not be worn, as it could get caught in the moving parts or controls of spreader.
2. Spreader should be operated only by qualified personnel.
3. When starting spreader, always maintain a safe distance from moving parts.
4. Keep hands, feet, and clothing away from all moving parts.

# COMPLETE ASSEMBLY

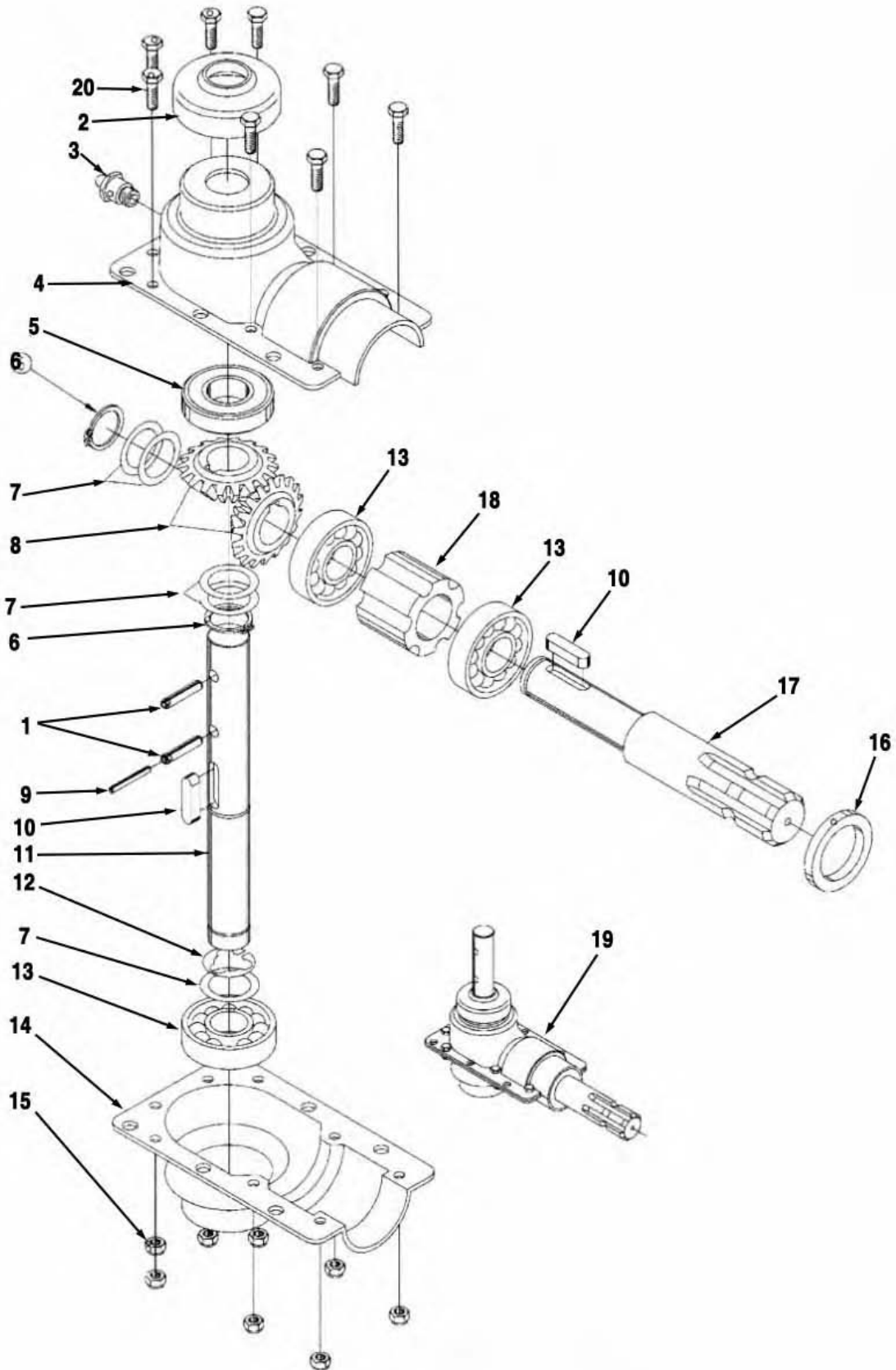




# COMPLETE ASSEMBLY

<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	330.001	Agitator Shaft
2	305.001	Spring Pin 8 x 40
3	304.013	Rubber Ring
4	619.002	Lower Agitator
5	300.044	Screw 10 x 20
6	609.039	Complete PVC 480#
6	609.035	Complete PVC 765#
6	609.037	Complete PVC 1000#
7	302.003	Lever Lock Knob
8	604.001	Right Lever
9	303.009	Flat Washer 10.5 x 21 UNI 6592
10	301.010	Hex Nut M10 UNI 5588
11	304.008	Rubber Grip
12	604.002	Left Lever
13	300.024	Hex Head Screw 12 x 35 UNI 5739
14	613.003	Frame "Pin" Style
15 31	1.001	Driveline
16	602.002	Left Tie Rod
17	803.279C	Hex Nut M10 x 1.5
18	605.006	Left Shutter
19	605.005	Right Shutter
20	602.001	Right Tie Rod
21	322.002	Gearbox
22	300.014	Hex Socket Head Cap Screw 8 x 16
23	301.012	Hex Nut M8 UNI 5588
24	610.019	Spreader Disk w/Stainless Steel Vane
25	601.002	Stainless Steel Distributor Vane
26	300.030	Round Head Screw 8 x 16 UNI 5731
27	307.001	Hair Pin Cotter
28	301.008	Self Locking Nut M12
29	633.001	Lower Link Pin
30	622.030	Lateral Slide RH
31	622.027	Lateral Slide Center
32	622.031	Lateral Slide LH
33	614.002	Plate Bottom Hopper
34	300.040	Screw 8 x 20
35	303.013	Washer 8 x 24
36	301.012	Hex Nut M8 UNI 5588
37	305.003	Spring Pin 5 x 40
38	303.026	Flat Washer 13 x 25 UNI 6592
39	304.011	Buffer Wheel
40	613.009	Agitator Frame Upper
41	802.654C	M12 x 1.75 x 55 Gr 8.8

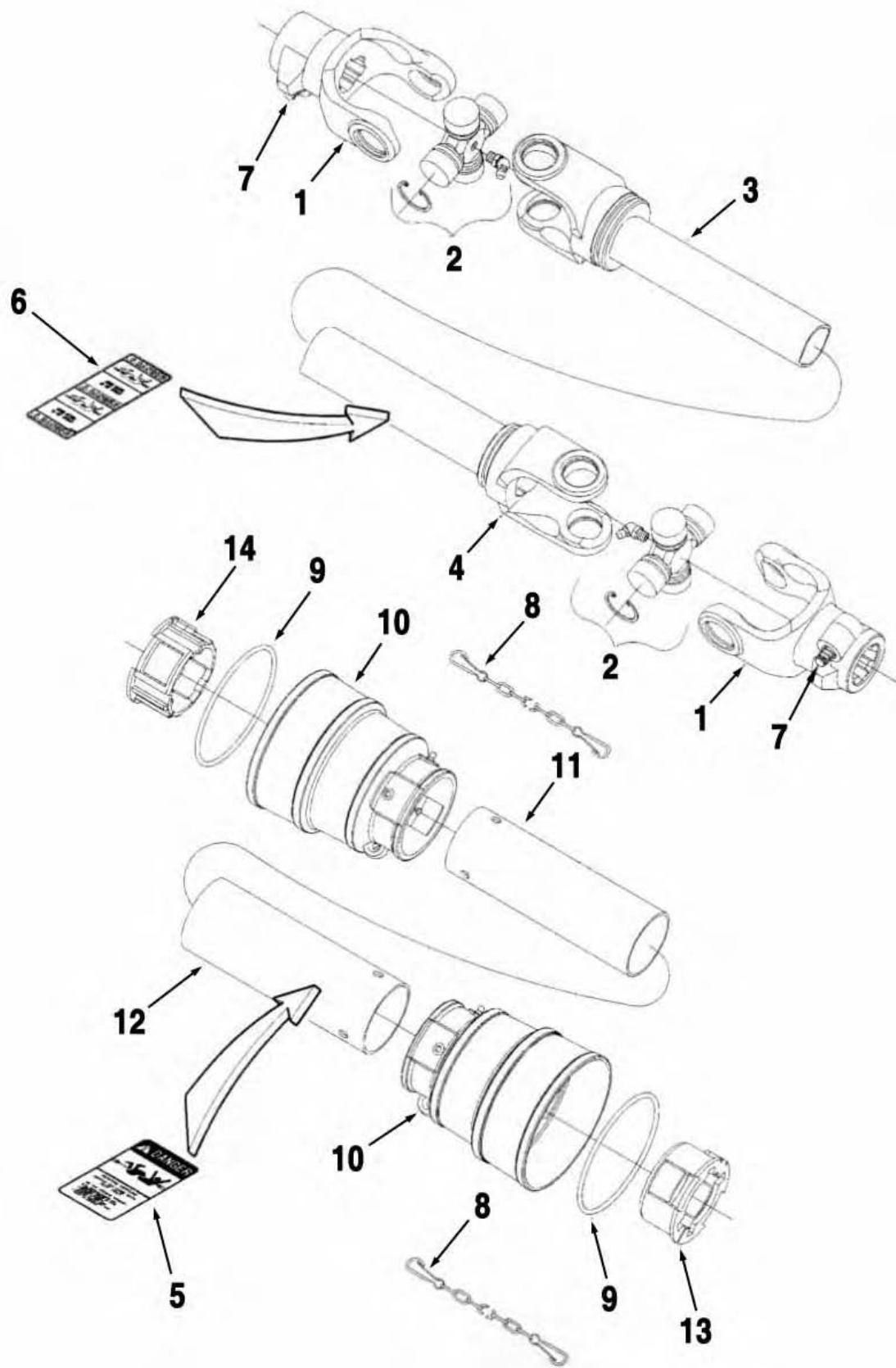
# GEARBOX ASSEMBLY



## **GEARBOX ASSEMBLY (322.002)**

<b><u>REF #</u></b>	<b><u>PART NO.</u></b>	<b><u>DESCRIPTION</u></b>
1	305.001	Spring Pin 8 x 40
2	304.002	Output Shaft Cowling
3	306.002	Grease Nipple
4	314.002	Upper Shell
5	310.001	Ball bearing Output Top
6	313.011	Internal Retainer Ring
7	303.011	Washer 25 x 35 x 0.5 DIN 988
8	316.003	Pinion Gear
9	305.003	Split Pin
10	326.003	Spline Key
11	323.009	Output Shaft
12	313.010	External Retainer Ring
13	310.002	Ball Bearing In/Output
14	314.001	Lower Shell
15	301.009	Self Locking Nut M6
16	309.001	Input Shaft Oil Seal
17	323.008	Input Shaft
18	329.011	Spacer Input Shaft
19	322.002	Gearbox
20	300.026	Hex Head Cap Screw

# DRIVELINE ASSEMBLY



# DRIVELINE ASSEMBLY

<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
31	1.001	Driveline
1	1021010	Yoke Assembly (Tract End)
2	1001020	Cross Assembly (U-joint)
3	1991034N	Inside Tube with Yoke
4	1981032N	Outside Tube with Yoke
5	818-552C	Decal Danger PTO Driveline
6	818-540C	Decal Danger Guard Miss PTO
7	1581038	Complete Push-Pin Kit
8	044321	Driveline Shield Safety Chain
9	1211233	Stiffening Ring
10	1781003	Standard Soft Cone
11	1871031	Inner Tube
12	1770031	Outer Tube
13	1781005	Tube Bearing (Outer)
14	1781004	Tube Bearing (Inner)

# LIMITED WARRANTY

## **RANKIN**

**R a n k i n** warrants each new **R a n k i n** 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 **R a n k i n** 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.

**R a n k i n** in no way warranties engines, tires, or other trade accessories, since these items are warranted separately by these respective manufacturers.

**R a n k i n** 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.

**Rankin Equipment Co.**  
3205 Bay Street, Union Gap, WA 98903  
P.O. Box 168, Yakima, WA 98907-0168

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

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

### CUSTOMER INFORMATION

**NAME:** \_\_\_\_\_

**PURCHASED FROM:** \_\_\_\_\_

**DATE OF PURCHASE:** \_\_\_\_\_

**MODEL NUMBER:** \_\_\_\_\_

**SERIAL NUMBER:** \_\_\_\_\_