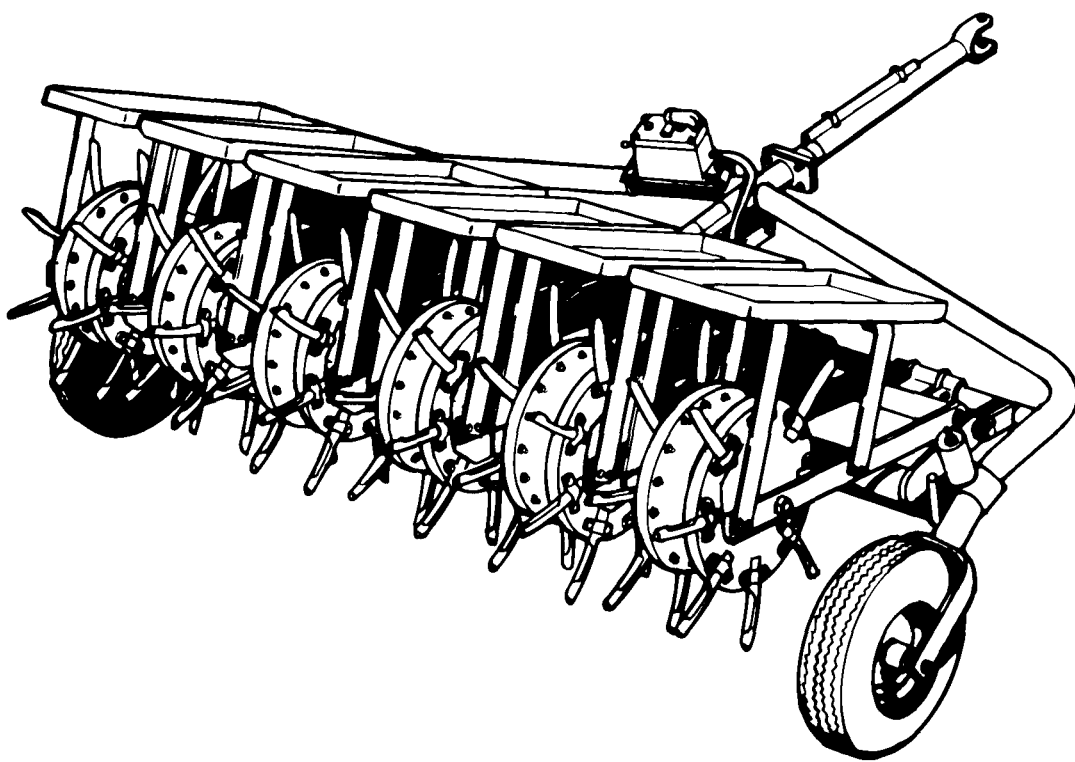


RYAN®

OPERATOR'S & PARTS MANUAL



RENOVAIRE®

MODEL 544317

RENOVAIRE

IMPORTANT!

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

THE INFORMATION AND INSTRUCTIONS INCLUDED ALERT YOU TO CERTAIN THINGS YOU SHOULD DO VERY CAREFULLY. IF YOU DON'T, YOU COULD:

- HURT YOURSELF OR OTHERS.
- HURT THE NEXT PERSON WHO OPERATES THE EQUIPMENT.
- DAMAGE THE EQUIPMENT.

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



This symbol (SAFETY WARNING) appears next to information (in bold type) which may help keep you and others from being hurt.



This symbol (NOTE) appears next to information or instructions which may help you operate and maintain your equipment properly.



SAFETY WARNING

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

IMPORTANT!

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

Direct any inquiries to:

CUSHMAN INC. Engineering department
Attn. Chief Engineer
P.O. Box 82409
Lincoln, Nebraska 68501



SAFETY WARNING

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

SERVICE PUBLICATIONS

Additional operators/parts manuals are available for a minimum charge at this address:

CUSHMAN INC.
Attn. Ryan Service Department
P.O. Box 82409
Lincoln, Nebraska 68501

PRODUCT REFERENCE

When reference is made in this manual to a brand name, number, product or specific tool, an equivalent product may be used unless stated otherwise.

ILLUSTRATIONS & SPECIFICATIONS

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of printing. Cushman reserves the right to make changes at any time without notice.

OWNER REGISTRATION

Cushman makes every effort to keep owners informed of all safety related information, therefore, changes in address and/or ownership are to be reported to the MANUFACTURER. Your RYAN dealer has REGISTRATION CHANGE forms which will be filled out and:

- Returned to the MANUFACTURER,
- Filed by the DEALER for his record.

If you are unable to locate your RYAN dealer, write directly to:

Warranty Service Department
CUSHMAN INC.
P.O. Box 82409
Lincoln, Nebraska 68501

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SPECIFICATIONS

Aerating Pattern	Approximately 6" x 6" (152 x 152 mm)
Aerating Width	6' (1.8 M)
Axles	Aerating: 1 1/4" (31 mm) diameter Transporting: 3/4" (22 mm) diameter
Chassis	2" (51 mm) diameter round pipe
Dimensions	Transport height 30" (76 mm) Length 9' (2.7 M) Width 8' (2.4 M)
Hitch	Clevis with 3/4" (22 mm) diameter pin
Hydraulic Cylinder	2 1/2" (64 mm) bore with 8" (203 mm) stroke rate at 3000 p.s.i. (20 682 kPa)
Hydraulic Lift ...	Raise and lower the aerating wheels using the tractor hydraulics. (See optional attachments, hand pump)
Lubrication	Pressure fittings. Refer to the lubrication instructions, Page 4.
Operating Speed	Up to 10 MPH (6 Km/h).
Tires	4.80/4.00 - 8, 4 Ply Nylon-load range C
Tire Pressure	65-70 p.s.i. (448-483 kPa)
Tubes	4.80/4.00 - 8

Weight	Approximately 1000 lbs (454 kg.)
Weight Tray Capacity	150 lbs. (68 kg) per tray
Wheels	Aerating: 12 cast iron wheels with bushings Transporting: 8" (203 mm) steel rims & roller bearings

ASSEMBLY



SAFETY WARNING

- **To prevent injury, use an adequate lifting device when placing main frame on blocks.**
- **Use jackstands to provide adequate support. Do not rely on hydraulic or mechanical jacks.**

NOTE

- Refer to Frame Assembly Parts List on Page 4 to assist with assembly.
1. Set the main frame assembly (Part No. 544315), on jackstands. Frame needs to be at least 18" (457 mm) above the floor.
 2. Install transport wheels to the yokes using four 1/2-20 x 1 1/2" screws and lockwashers. Tighten and check tires for free rotation.
 3. Bolt the tongue to the frame securing it with four 1/2-13 x 2 1/2" screws, lockwashers and nuts (See Figure 1).
 4. Mount the cradle onto the frame using the three clevis pins (Part No. 548473). Insert the cradle lugs in between the mounting tabs on the frame (See Figure 2). Beginning in the middle of the cradle, install a clevis pin and secure with a cotter pin (Part No. 120310). Install and secure the remaining clevis pins.

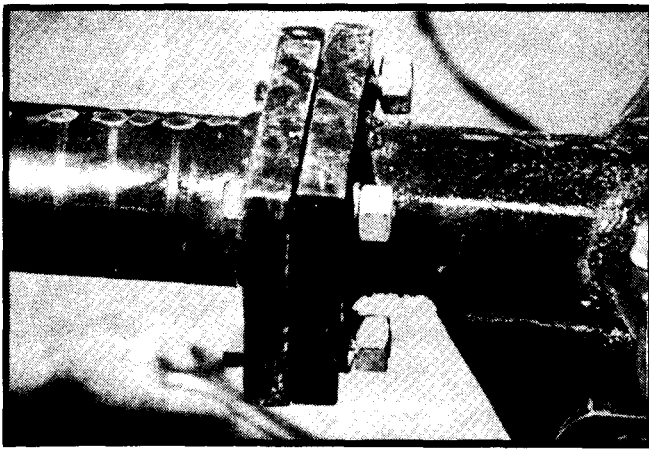


Figure 1
Tongue Mounted To Frame

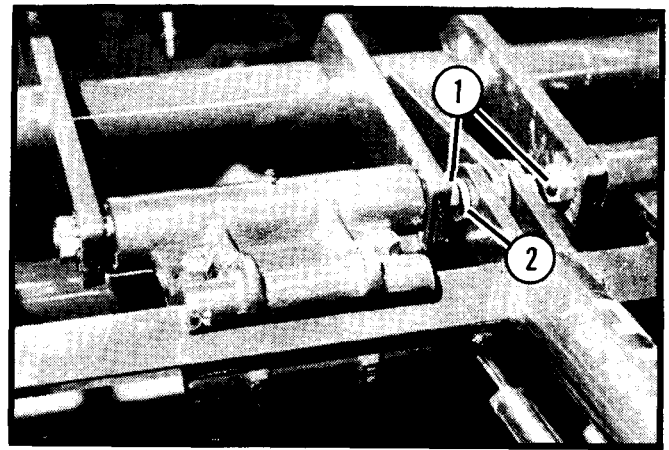


Figure 3
1. Pivot Shaft
2. Clevis Pin

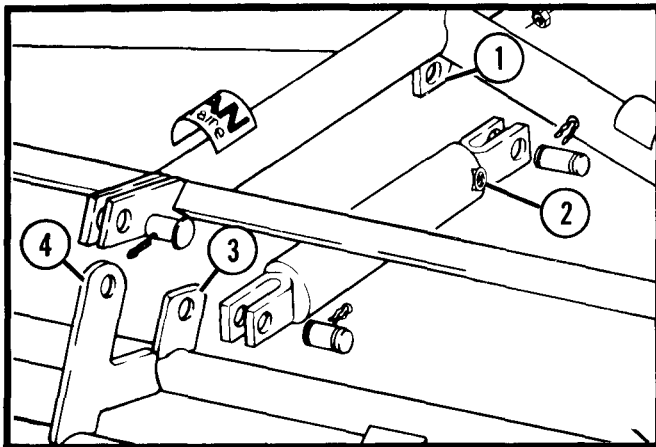


Figure 2
1. Lug On Underside Of Frame
2. Opening For Hydraulic Attachment
3. Lug On Cradle (Cylinder Mount)
4. Lug On Cradle (Frame Mount)

5. Attach the hydraulic cylinder (Part No. 546014) to the lug on the underside of the frame using a clevis pin (Part No. 548603). Secure the clevis with hair pins (Part No. 548602). See note below.

NOTE

- The hydraulic cylinder has an opening for a hose attachment. The cylinder must be installed with this opening positioned toward the front of the unit (See Figure 2).
6. Using the other clevis pin (Part No. 548603), attach the other end of the cylinder to the lug on the cradle. Secure the clevis with hair pins (Part No. 548602) (See Figure 2).

7. Mount the aerating wheel assemblies to the tool bar. (The aerating wheels Part No. 546048 are mounted to the side rails Part No. 515204 and to the clamps Part No. 515109). Beginning in the middle of the frame, clamp a wheel assembly onto the tool bar. Keep a minimum gap of 1/8" (3 mm) between, the pivot shaft on the clamp and the clevis pin securing the cradle onto the frame (See Figure 3). With wheel assembly in position, alternate tightening the two 1/2-13 x 2 1/4" screws and nuts clamping the wheel assembly onto the tool bar. Torque each screw to 75 ft-lbs (102 N·m).
8. Attach a wheel assembly toward the outside of the frame keeping a minimum gap of 1/8" (3 mm) between, the pivot shaft on the clamp and the clevis pin on the cradle. Secure assembly as stated in Step 7 and repeat the middle and side assembly on the other side of the frame. Mount the remaining wheel assemblies onto the tool bar, spacing them evenly between the wheel assemblies already mounted.
9. Using the 3/8-16 x 1 1/2" screws, mount the weight tray supports to the side rails of the wheel assemblies. Secure with lockwashers and nuts. Mount the weight trays onto these supports securing each tray with four 3/8-16 x 1" screws, lockwashers and nuts.
10. Mount the desired accessories to the aerating wheels (tines or blades). For maximum performance, a double set of tines may be mounted onto the aerating wheels. A longer screw is needed for this application and can be obtained by ordering (Part No. 311213).

11. Lubricate aerating wheels until grease can be seen at the wheel bushings. Check aerating wheels for free rotation.
12. Remove the jackstands from beneath the main frame. Hitch the Renovaire to the draw bar on the tractor and attach the hydraulic hose from the tractor to the hydraulic cylinder.

NOTE

- If using the hydraulic hand pump refer to the instructions for pump installation. The Hydraulic hand pump is used with the Renovaire when the hydraulic lifting system on the tractor is not used.

HYDRAULIC HAND PUMP

1. Apply teflon tape to the threads of the hydraulic swivel elbow (Part No. 548390) and install onto the hydraulic cylinder. Do Not tighten.
2. Mount the hydraulic hand pump onto the pump plate (Part No. 521656), securing it with four 5/16-18 x 1 1/4" screws, lockwashers and nuts.
3. For ease of operation (left or right hand operator) the hand pump can be installed on either side of the main frame. Determine which side to mount the pump and using the two 3/8-16 U-bolts (Part No. 814494), mount the pump plate (with attached pump) onto the frame securing it with lockwashers and nuts.

IMPORTANT!

BEFORE INSTALLING THE HYDRAULIC HOSE, REMOVE THE HOSE/CONNECTOR FITTING FROM THE PUMP AND REMOVE THE PLASTIC PLUG.

NOTE

- Removal of plastic plug, without removing the connector from the pump, could cause some of the plug to be forced into the pump (See Figure 4).

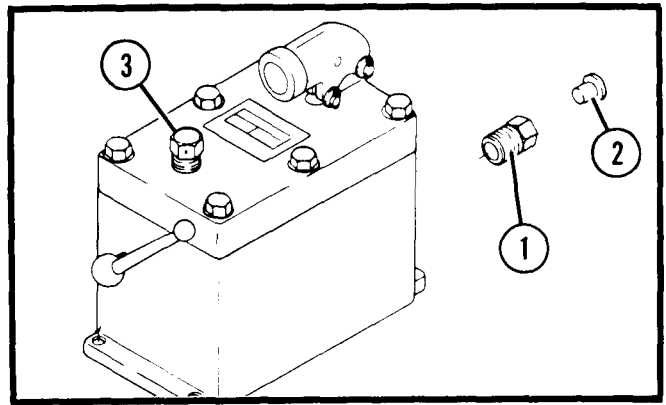


Figure 4

- 1. Hydraulic Hose/Connector**
- 2. Plastic Plug**
- 3. Vent-filler Plug**

4. Wrap teflon tape around the threads of the hose/connector fitting and reinstall onto the pump.
5. Teflon tape the connector fittings on the hydraulic hose (Part No. 546012) and install the hose onto the pump. Position the hose, for installation onto the hydraulic elbow fitting on the cylinder. Make sure the hose does not become kinked or interfere with any moving parts.
6. With hose properly positioned, adjust the elbow on the cylinder to the approximate position required to connect the hose and elbow fitting. Tighten the elbow into position and tighten the hose onto the elbow. Double check all fittings and hardware for tightness.
7. Remove vent-filler plug (See Figure 4) and fill the pump with 1 qt. (.946L) of type "A" or "F" transmission fluid. DO NOT substitute with any other type of fluid.

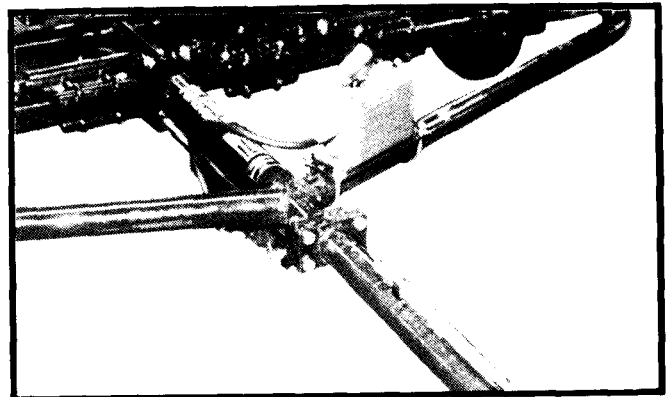


Figure 5
Hydraulic Hand Pump Installed

8. Position the pump handle on the top side of the tongue, between the hitch and to where the tongue mounts to the frame. Place a handle clip (Part No. 518455) approximately 2" (51 mm) from each end of the handle and mark their locations for drilling.
9. Drill a 9/64" (3.6 mm) hole at each location and install the clips using the #10-5/8" self tapping screws.

TRANSPORTING



SAFETY WARNING

- **This unit is not designed nor meant to be towed at speeds in excess of 10 MPH (16 Km/h).**
 - **Towing at excessive speeds will cause damage to frame and/or wheels. This type of damage will not be repaired under the terms of the warranty.**
1. Raise the aerating wheels high enough to hook the eye bolts (Part No. 546018) onto the latch hooks on the side of the cradle assembly.
 2. Lower the aerating wheels until the eye bolts are supporting the cradle assembly.

OPERATION



SAFETY WARNING

- **Before operating, check the area to be aerated and remove any objects which may present a safety hazard or which may damage the aerator (rocks, cans, etc.).**
 - **Do not leave the tractor unattended without first lowering the aerator and stopping the engine.**
 - **To prevent injury, do not operate aerator without weight trays in place. Do not make any adjustments or perform any maintenance while tractor is running.**
1. Position tractor and equipment where aerating is to begin.

2. Lower aerating wheels and proceed to aerate.

NOTE

- Never cross hard surfaces (sidewalks, driveways, stepping stones etc.) with the tines down.
- To prevent turf damage, aerator must be raised completely out of the ground while turning the tractor.
- **Do not** back up when the tines are in the ground or damage to the tines and clamps may occur.
- When aerating soft ground and full penetration is **not** desired, the depth may be controlled by raising the cradle assembly with the hydraulic system.
- Failure to lubricate the aerating wheels can cause damage to the axles, bushings and the wheels.

SERVICE



SAFETY WARNING

- **DO NOT use tractor hydraulics to support the aerator while servicing. Hydraulic lines may rupture causing unit to fall suddenly.**
- **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.**

Lubrication

1. Lubricate aerating wheels after every four hours of use. Use a standard lithium based grease.
2. After lubrication of wheels is complete, lubricate the pivot shafts located on the clamps secured to the tool bar.
3. Wipe off lubrication fittings before and after lubrication of aerating wheels.
4. Transport wheel bearings should be repacked yearly using a good grade wheel bearing lubricant.

Tire Pressure

Keep the tires inflated to the proper tire pressure recommended.

Tire Pressure. 65-70 psi (448-483 kPa)
Tires. 4.80 / 4.00-8 4 Ply Nylon - load range C



SAFETY WARNING

- **Caution must be used when reinflating or bringing a low tire up to the recommended pressure. Use a pressure gauge before connecting an air hose to a partly inflated tire. Due to the low air volume requirements of a small tire, over-inflation may be reached in a matter of two or three seconds, which may cause the tire to explode.**

NOTE

- Improper tire inflation will shorten the life of the tires. It may also cause the equipment to pull erratic which could cause personal injury or damage to property.

Axle Replacement

To obtain a replacement axle order Part No. 515185.

1. Remove the weight tray from the desired aerating wheel assembly. The weight tray supports can remain attached to the side rail.
2. Remove the aerating wheel assembly from the tool bar.
3. Remove one side rail from the wheel assembly and remove the axle. You may need to tap the axle, using a wood or rubber mallet, to remove it.
4. Install the new axle.
5. Attach the side rail onto the wheel assembly and mount the assembly onto the tool bar.
6. Mount the weight tray onto the tray supports.

7. Lubricate the wheel after assembly.

Storage Instructions

Thoroughly clean all tines, inside and out, after aerating is completed. A light coat of oil sprayed onto the tines or blades will help prevent rust and ensure proper coring the next time the unit is put into service.

Unit should be stored on boards to protect tines or blades from rust and damage. Store in a dry location.

Lubrication before long storage periods will help prevent moisture build up in the lubrication cavities.

When bringing unit out of storage, check for loose bolts and damaged parts, tighten and replace as needed.

Check hydraulic cylinder for leaks and replace seal kit if needed. To obtain seal kit, order Part No. 545535 (If the cylinder end cap has a RETAINING RING). Order seal kit Part No. 545642 (If the cylinder cap has a LOCK WIRE).

If the unit is equipped with a hydraulic hand pump, check the pump for leaks and proper fluid level. Check the hydraulic hose connections for tightness and check the hose for any wear or damage. Refer to the parts list on Page 9 to order replacement seal kits for the pump. The hydraulic hose can be obtained by ordering Part No. 546012.

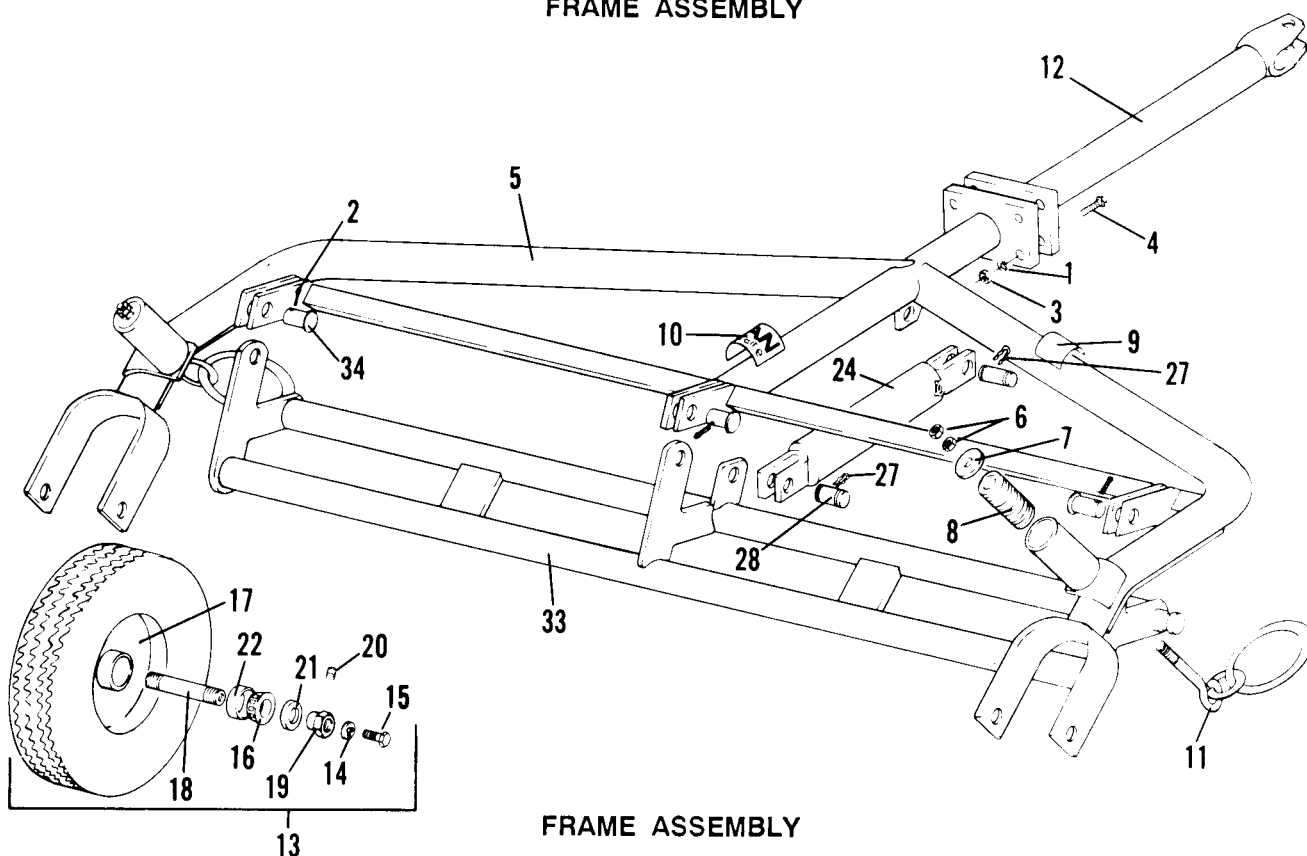
Proper storage and maintenance will extend the usage and performance of the unit.

TOUCH UP PAINT

Evergreen Green (Dark Green)
16 oz. (0.05L) Spray, order Part No. 825361
1 qt. (0.95L) Can, order Part No. 825363

Turfkin Green (Light Green)
16 oz. (0.05L) Spray, order Part No. 523340
1 qt. (0.95L) Can, order Part No. 523339

FRAME ASSEMBLY



FRAME ASSEMBLY

Ref. No.	Part No.	Description	No. Req'd	Ref. No.	Part No.	Description	No. Req'd
1	120166	Lockwasher, 1/2"	4	21	807630	. Seal, oil	2
2	120310	Pin, cotter 1/8 x 1 1/2"	3	22	808088	. Cup, bearing	2
3	308332	Nut, 1/2-13	4	23◇	886735	. Stem, valve	1
4	311840	Screw, 1/2-13 x 2"	4	24▽	546014	Cylinder, hydraulic 2 1/2" (63 mm) bore (End cap with RETAINING RING)	1
5f	544315	Frame, main	1	25◇	545535	. Kit, seal (For cylinder above only)	1
6	308332	. Nut, 1/2"-13	4	26◇	548345	. Ring, locking (For cylinder above only)	1
7	515235	. Washer, 1/2"	2	27	548602	. Pin, hair	4
8	518495	. Spring	2	28	548603	. Pin, clevis	2
9	519842	. Decal, Instruction	1	29▽	546014	Cylinder, hydraulic 2 1/2" (63 mm) bore (End cap with LOCK WIRE)	1
10	521207	. Decal, Renovaire	1	30◇	545642	. Kit, seal (For cylinder above only)	1
11	546018	. Bolt, eye	2	31	548602	. Pin, hair	4
12	545499	Tongue, complete	1	32	548603	. Pin, clevis	2
13	546009	Wheel, transporting complete .. Serviced parts per wheel	2	33	546017	Cradle, complete	1
14	120166	. Lockwasher, 1/2"	2	34	548473	Pin, cradle	3
15	306875	. Screw, 1/2-20 x 1 1/2"	2				
16	385174	. Bearing, cone	2				
17	515181	. Hub	1				
18	515182	. Axle	1				
19	515183	. Nut, 3/4-16	2				
20	800225	. Screw, set 10-24 x 1/4"	2				
	◇◇	. Tire, 4.80/4.00-8, 4 ply	1				

INDENTED PART NAMES INDICATE THESE PARTS ARE INCLUDED IN PRECEDING ASSEMBLY

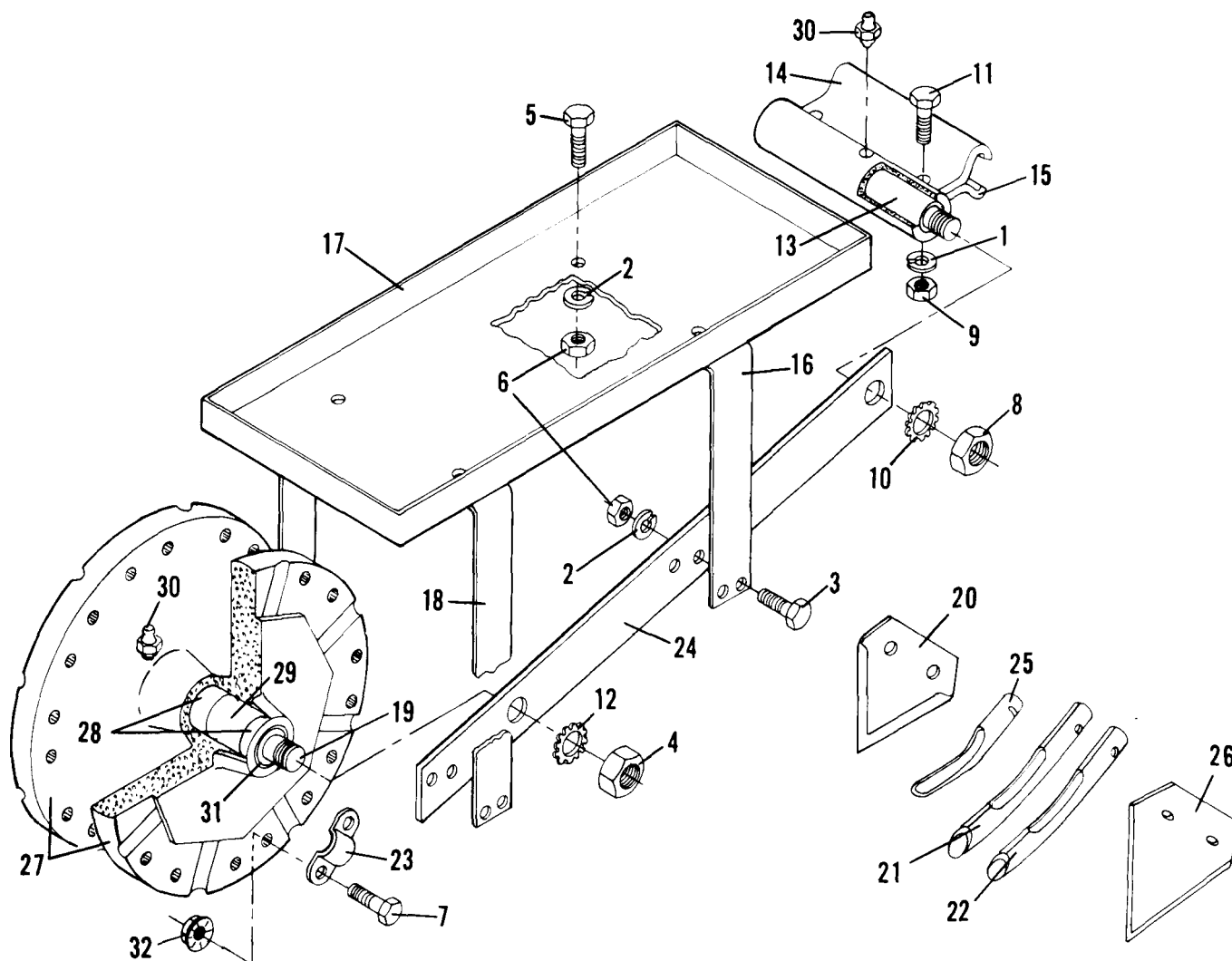
f When ordering a replacement frame for Model 544317 (7710 and prior), order frame assembly Part No. 544315, tongue assembly Part No. 545499 and attaching hardware, item numbers 1, 3 and 4 in the above Parts List.

◇◇ Tires can be purchased locally.

▽ Be sure to order the correct seal kit. The cylinder with retaining ring requires Seal Kit Part No. 545535. The cylinder with the lock wire requires Seal Kit Part No. 545642.

◇ Not illustrated.

AERATING WHEEL ASSEMBLY



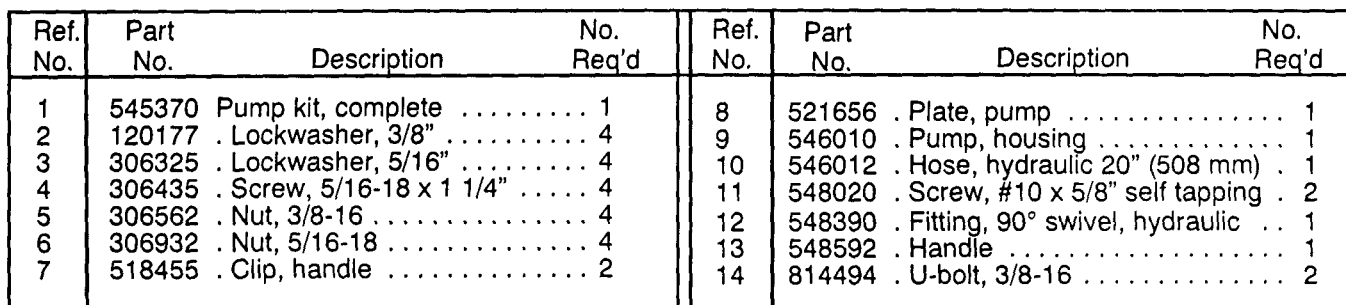
AERATING WHEEL ASSEMBLY

Ref. No.	Part No.	Description	No. Req'd	Ref. No.	Part No.	Description	No. Req'd
1	120166	Lockwasher, 1/2"	12	18	515120	Support, weight tray	6
2	120177	Lockwasher, 3/8"	72	19	515185	Axle	6
3	302600	Screw, 3/8-16 x 1 1/2"	48	20◇	515193	Knife, shallow slicing	96
4	305134	Nut, 7/8-14 jam	12	21◇	515196	Tine, 1/2" (13 mm) diameter coring	96
5	306414	Screw, 3/8-16 x 1"	24	22◇	515197	Tine, 3/4" (19 mm) diameter coring	96
6	306562	Nut, 3/8-16	72	23	515198	Clamp, tine	96
7	306836	Screw, 3/8-16 x 2 1/4"	192	24	515204	Rail, side	12
8	307665	Nut, 3/4-16 jam	12	25◇	520404	Tine, aerating	96
9	308332	Nut, 1/2-13	12	26◇	521155	Knife, deep slicing	96
10	309799	Lockwasher, 3/4" shakeproof	12	27	546048	Wheel, aerating	12
11	316912	Screw, 1/2-13 x 2 1/4"	12	28	515184	. Bushing	12
12	316954	Lockwasher, 7/8" shakeproof	12	29	521814	. Spacer	12
13	515103	Shaft, pivot	6	30	548230	Fitting, lubrication	18
14	515109	Clamp	6	31	548256	Seal, oil	24
15	515115	Cap	6	32	548804	Nut, 3/8-16 flangelock	192
16	515118	Support, weight tray	6				
17	515119	Tray, weight	6				

INDENTED PART NAMES INDICATE THESE PARTS ARE INCLUDED IN PRECEDING ASSEMBLY

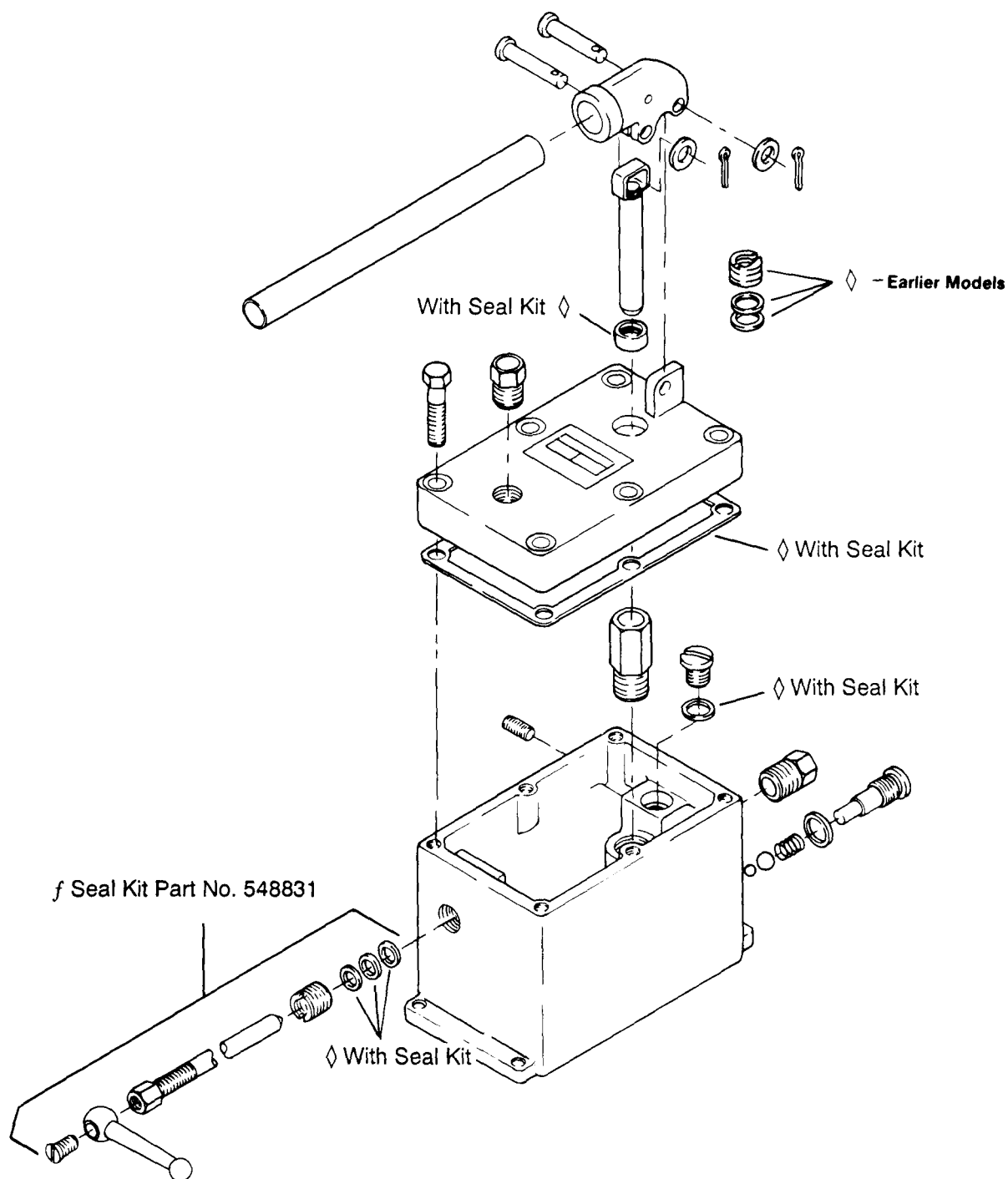
◇ See page 7 for descriptions and suggested uses.

HYDRAULIC HAND PUMP



8

REPLACEMENT PARTS SEAL KITS



SEAL KITS

Ryan has three service kits available for gasket and seal replacement on worn pumps. Using the illustration and part numbers, determine which Replacement Seal Kit is needed then contact your nearest Ryan dealer.

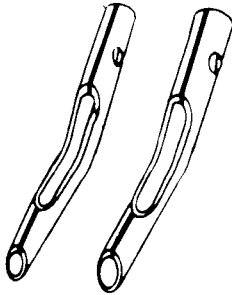
◊ These parts included in Seal Kit Part No. 548812

f These parts included in Seal Kit Part No. 548831

Earlier Models. Some of the earlier models will have these parts to be replaced. Seal kit Part No. 548812 contains these parts, but depending on which model you have, they may not have to be used.

A Relief Valve is also available. The valve is optional and can be obtained by ordering Part No. 548832.

SUGGESTED USES AND ACCESSORIES FOR THE RENOVAIRE

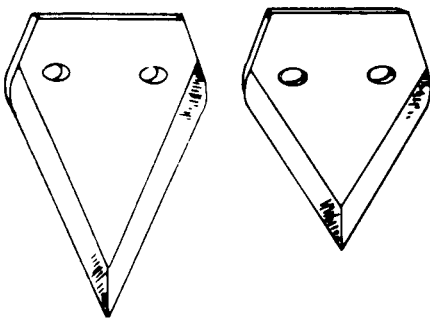


Single Tine
Part No.

50 Piece
Part No.

515196 ——— 1/2" Coring Tine	545220
515197 ——— 3/4" Coring Tine	545221

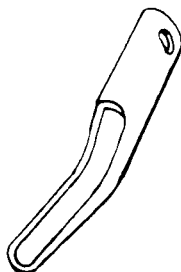
These tines are for use with aeration programs in the Spring and Fall. Soil cores up to 4" (102 mm) long are removed with minimum surface disturbance. Tines can be ordered singularly or in a 50 piece set. Use correct part number when ordering.



515193 ——— Shallow Slicing Knife	545512
521155 ——— Deep Slicing Knife	545223

Slicing knives are for all season aeration and renovation programs. Slicing knives control thatch by cutting through grass runners and have the advantage of no surface clean up after job completion. Knives are especially helpful because they do not place buried seeds from noxious weeds onto the grounds surface allowing them to germinate.

Slicing knives are highly recommended for use on athletic fields. Due to the slices, moisture, air and fertilizer can be absorbed creating non-hazardous playing conditions.



520404 ——— Aerating Tine ——— 545222


These tines are for turf building and fall renovating programs. The tines thoroughly open up the soil by penetrating deep into the ground and bringing up large amounts of soil which then becomes top dressing.

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.	2	4	7	11	18	32	58	94	144	190	260	368	470	707
	N·m	1.5	3	5.2	8.2	13.5	24	43.5	70.5	108	142	195	276	353	530
Grade 10.9**	ft.-lbs.	3	6	10	16	25	47	83	133	196	269	366	520	664	996
	N·m	2.2	4.5	7.5	12	18.8	35.2	62.2	100	147	202	275	390	498	747
Grade 12.9***	ft.-lbs.	3.6	7	11	20	29	58	100	159	235	323	440	628	794	1205
	N·m	2.7	5.2	8.2	15	21.8	43.5	75	119	176	242	330	471	596	904

* Grade 8.8 marking – 

** Grade 10.9 marking – 

*** Grade 12.9 marking – 

RYAN® LIMITED WARRANTY

CUSHMAN INC., a Ransomes Company, warrants for one (1) year all new Ryan turf care products, 8910 and later. All previous models (8910 and prior) with the exception of LA 28, GA 24 and GA 30, have a 90 day warranty. The Ryan LA 28, GA 30 and GA 24 models (8810 and prior) have a (1) year warranty. All new Ryan products are warranted 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 Ryan Product or accessory manufactured by Cushman Inc. and found in the reasonable judgement of Cushman Inc. to be defective in material or workmanship will be repaired or replaced by an authorized Ryan distributor without charge for parts and labor.

The Ryan product including any defective part must be returned to an authorized Ryan distributor within the warranty period. The expense of returning the Ryan product to an authorized distributor for warranty service and the expense of returning it back to the owner after repair or replacement will be paid for by the owner. Cushman Inc.'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 Ryan product. Proof of purchase will be required by the authorized Ryan distributor to substantiate any warranty claim. All warranty work must be performed by an authorized Ryan distributor.

Cushman Inc. makes no warranty with respect to engines, tires, 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 blades, tines, filters, spark plugs, ignition points, brake and clutch linings, or belts. This warranty does not cover any Ryan product 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 Ryan Operator's Manual. The warranty does not apply to any Ryan product that has been altered or modified so as to adversely affect the vehicle's 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 Cushman Inc. are either incompatible with the Ryan product or adversely affect its operation, performance or durability.

Cushman Inc. reserves the right to change or improve the design of any Ryan product without assuming any obligation to modify any vehicle previously manufactured.

ALL IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE APPLICABLE ONE YEAR PERIOD. ALL IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE ARE DISCLAIMED IN THEIR ENTIRETY AFTER THE EXPIRATION OF THE ONE YEAR WARRANTY PERIOD.

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

CUSHMAN INC. ASSUMES NO RESPONSIBILITY FOR INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO, EXPENSE FOR GASOLINE, EXPENSE OF RETURNING THE RYAN PRODUCT TO AN AUTHORIZED DISTRIBUTOR 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 PRODUCT DURING THE TIME WARRANTY SERVICE IS BEING PERFORMED, TRAVEL, LODGING, LOSS OR DAMAGE TO PERSONAL PROPERTY, LOSS OF REVENUE, LOSS OF USE OF THE RYAN PRODUCT, 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.

This warranty applies to all Ryan products sold in the United States. Any products sold elsewhere are warranted by the affiliated marketing company of Cushman Inc.

CUSHMAN INC. • A RANSOMES COMPANY
P.O. BOX 82409
Lincoln, Nebraska 68501-9971

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WARRANTY SERVICE

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

EXAMPLES OF ITEMS NOT COVERED UNDER WARRANTY

Provisions of the warranty will not apply to:

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

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

Products 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 vehicle or adversely affects the operation, performance or durability.

Products not operated or maintained in accordance with the instructions in the Ryan Operator's Manual.

Normal cleaning, adjusting or replacing of such items as filter, spark plugs, ignition points.

Periodic checking or adding of lubricants to the products or service check-up, tune-up or diagnosis.

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

Engines, tires, or parts manufactured by other than Ryan 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 products 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 Ryan distributor for proper maintenance and care of your product. Proper maintenance and care will assist in keeping your overall operating cost at a minimum.

To validate a warranty claim, it is the owner's responsibility to maintain all components in proper adjustment and service the product as specified in the Ryan Operator's Manual. It is the owner's responsibility to provide proper lubrication for all components and provide correct recommended fuel for the products. It is the owner's responsibility to maintain the correct tire pressures where applicable.



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