

MAN 4163263
Rev. A 03-2008



MODEL:
544317A
RENOVAIRE



OP / PARTS MANUAL

**CALIFORNIA
Proposition 65 Warning**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

 **WARNING**

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

**Californie Proposition 65
Avertissement**

Les échappements des moteurs diesel et certains de leurs composés sont reconnus par l'Etat de Californie pour être cancérigènes, provoquer des défauts congénitaux et d'autres dangers en matière de reproduction.

 **AVERTISSEMENT**

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.

**California Advertencia
de la Proposicion 65**

El estado de California hace saber que los gases de escape de los motores diesel y algunos de sus componentes producen cáncer, defectos de nacimiento y otros daños en el proceso de reproducción humana.

 **ADVERTENCIA**

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.

**CALIFORNIA
Proposition 65 Warning**

Battery posts, terminals, wiring insulation, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
WASH HANDS AFTER HANDLING.



IMPORTANT MESSAGE

Thank you for purchasing this Schiller Grounds Care, Inc. product. You have purchased a world class product, one of the best designed and built anywhere.

This machine comes with a Technical Manual containing safety, operation, parts and service information. The useful life and good service you receive from this machine depends to a large extent on how well you read and understand this manual. Treat your machine properly, lubricate and adjust it as instructed, and it will give you many years of reliable service.

Your safe use of this Schiller Grounds Care, Inc. product is one of our prime design objectives. Many safety features are built in, but we also rely on your good sense and care to achieve accident-free operation. For best protection, study the manual thoroughly. Learn the proper operation of all controls. Observe all safety precautions. Follow all instructions and warnings completely. Do not remove or defeat any safety features. Make sure those who operate this machine are as well informed and careful in its use as you are.

See a Schiller Grounds Care, Inc. dealer for any service or parts needed. Schiller Grounds Care, Inc. service ensures that you continue to receive the best results possible from Schiller Grounds Care, Inc. products. You can trust Schiller Grounds Care, Inc. replacement parts because they are manufactured with the same high precision and quality as the original parts.

Schiller Grounds Care, Inc. designs and builds its equipment to serve many years in a safe and productive manner. For longest life, use this machine only as directed in the manual, keep it in good repair and follow safety warnings and instructions. You'll always be glad you did.

Schiller Grounds Care, Inc.
One Bob Cat Lane
Johnson Creek, WI 53038-0469

TABLE OF CONTENTS.....	FIGURES	PAGE
SAFETY.....		2
ASSEMBLY		3
HYDRAULIC HAND PUMP		4, 5
TRANSPORTING/OPERATION		6
SERVICE		7, 8
SPECIFICATIONS.....		9
AERATION TOOLS		10
DRAGMAT		11
REPLACEMENT PARTS (SEAL KIT)		12
PARTS SECTION.....		13
FRAME ASSEMBLY	FIGURE 1	14, 15
AERATING WHEEL.....	FIGURE 2	16, 17
HYDRAULIC HAND PUMP	FIGURE 3	18, 19

NOTICE !!!

Unauthorized modifications may present **extreme** safety hazards to operators and bystanders and could also result in product damage.

Schiller Grounds Care, Inc. strongly warns against, rejects and disclaims any modifications, add-on accessories or product alterations that are not designed, developed, tested and approved by Schiller Grounds Care, Inc.'s Engineering Department. Any Schiller Grounds Care, Inc. product that is altered, modified or changed in any manner not specifically authorized after original manufacture—including the addition of “after-market” accessories or component parts not specifically approved by Schiller Grounds Care, Inc.—will result in the Schiller Grounds Care, Inc. Warranty being voided.

Any and all liability for personal injury and/or property damage caused by any unauthorized modifications, add-on accessories or products not approved by Schiller Grounds Care, Inc. will be considered the responsibility of the individual(s) or company designing and/or making such changes. Schiller Grounds Care, Inc. will vigorously pursue full indemnification and costs from any party responsible for such unauthorized post-manufacture modifications and/or accessories should personal injury and/or property damage result.



This symbol means:
ATTENTION!
BECOME ALERT!

Your safety and the safety of others is involved.

Signal word definitions:

The signal words below are used to identify levels of hazard seriousness. These words appear in this manual and on the safety labels attached to Schiller Grounds Care, Inc. machines. For your safety and the safety of others, read and follow the information given with these signal words and/or the symbol shown above.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices or property damage.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage.

GENERAL NOTE: FRONT, REAR, RIGHT HAND AND LEFT HAND REFERENCES BELOW ARE WITH RESPECT TO AN OPERATOR AT THE CONTROLS.

SET-UP

Refer to Figure 1 on pages 14 - 15 for set-up.

1. Remove crate top and sides.
2. Check inflation pressure on transport tires. The correct tire pressure should be 55 psi.
3. Bolt the tongue (12) to the frame (5) using four 1/2-13 x 2" bolts (4), four 1/2" lockwashers (1), and four 1/2-13 nuts (3).
4. Hitch the Renovaire to the draw bar on the tractor. Attach the customer supplied 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.

⚠ WARNING

To prevent possible injury use an adequate lifting device when placing main frame on blocks.

5. (Optional) For ease of machine removal from the crate base, raise the frame and insert boards/planks under the transport wheels to help drive the machine off the crate.
6. Activate the hydraulic cylinder to raise the aerating wheel assemblies. Drive the tractor forward to take the Renovaire off the crate base.
7. Hook the transport eye bolt assembly (11) onto the cradle end lugs (27) on each end. Slowly deactivate the hydraulic cylinder to lower the cradle so that the weight rests on the eye bolt spring assemblies.

TINES AND BLADE SET UP

Refer to Figure 2 on pages 16 - 17 for

⚠ CAUTION

Tines and blades are sharp. To prevent possible injury wear leather gloves and other personal protective equipment as required.

8. Mount the aerating tines (or blades) to the aerating wheels in a safe manner. Use a jackstand while mounting aerating tines (or blades).

NOTE: For maximum performance, a double set of tines (or blades) may be mounted onto the aerating wheels. **Mount on the inside of each 2-wheel set.**

9. Grease aerating wheels and pivots.

HYDRAULIC HAND PUMP

1. Apply teflon tape to the threads of the hydraulic swivel elbow **12**, Figure 3 and install onto the hydraulic cylinder **10**. Do not tighten at this time.
2. Mount the hydraulic hand pump **9** onto the pump plate **8** using (4) 5/16-18 X 1-1/4" screws **4**, (4) 5/16 lockwashers **3** and (4) 5/16-18 nuts. See Figure 3.
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 (2) U-bolts **14**, mount the pump plate **8** onto the frame securing it with 5/16 lockwashers and 5/16-18 nuts.

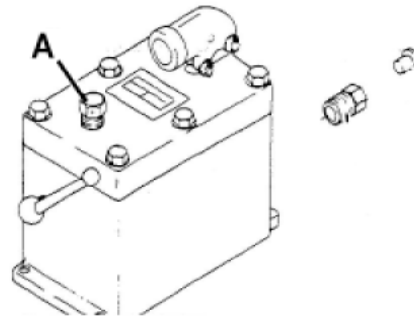
CAUTION

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

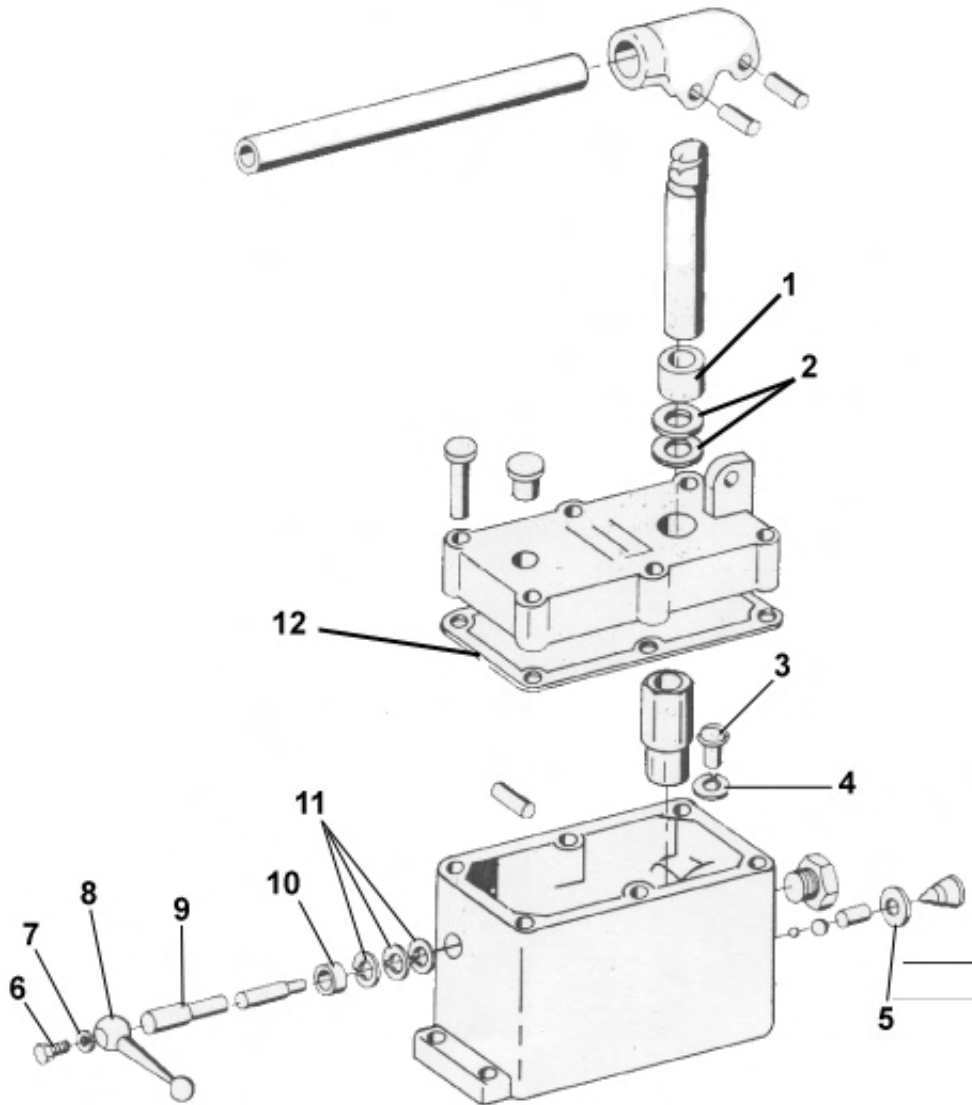
NOTE: Removal of plastic plug, without removing the connector from the pump could cause some of the plug to be forced into the pump.

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 **10** 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 the 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 the vent-filler plug **A** and fill the pump with one quart (.946L) of type "A" or "F" transmission fluid. **DO NOT** substitute with any other type of fluid.



8. Position the pump handle **13** on the top side of the tongue, between the hitch and where the tongue mounts to the frame. Place a handle clip **7** approximately 2" (51 mm) from each end of the handle and mark their locations for drilling.
9. Mark and drill a 9/64" (3.6 mm) hole at each location and install the clips using the #10-5/8" self tapping screws **11**.



546010 - Hydraulic Hand Pump

For use on Renovaire when hydraulic lifting system on tractor is not used. There are three service kits available for gasket and seal replacement on worn pumps.

548812 - Seal and Gasket Kit

Includes one each of items 1, 4, 5 and 12; two each of item 2; and three each of item 11. For use on pumps: HP2503-51-00 P148, HP2503-51-00 P348

548831 - Release Valve Replacement Kit

Includes one each of items 6, 7, 8, 9 and 10; and three each of item 11. For use on all units

548832 - Safety Valve Replacement Kit

Includes one each of item 4; and one assembled safety valve subassembly (substitute for item 3). Specify pressure setting required. For use on all units

TRANSPORTING

CAUTION

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 **11**, Figure 1 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

CAUTION

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 possible 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

CAUTION

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 Schiller Grounds Care, Inc. 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.

Thoroughly clean all tines inside and out when aerating is completed. A light coat of oil will prevent rust and insure proper coring and slicing the next time the unit is put into service.

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.

Transport Wheels

1. Check daily.
2. Repack with grease yearly.
3. Air pressure: **MINIMUM** 45 p.s.i.
MAXIMUM 65 p.s.i.

Axle Replacement

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 **19** Figure 2.
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.

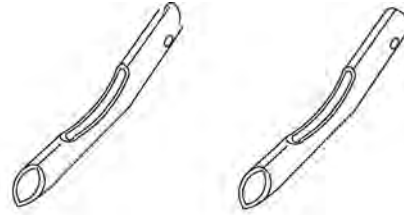
Storage Instructions

1. 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.
2. Unit should be stored on boards to protect tines or blades from rust and damage. Store in a dry location.
3. Lubrication before long storage periods will help prevent moisture build up in the lubrication cavities.
4. When bringing unit out of storage, check for loose bolts and damaged parts. Tighten and replace as needed.
5. Check hydraulic cylinder for leaks and replace seal kit if needed. If the cylinder end cap has a **RETAINING RING**, order item **25**. If the cylinder cap has a **LOCK WIRE**, order item **30**.
6. 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 14 to order replacement seal kits for the pump. The hydraulic hose can be obtained by ordering item **10**.
7. Proper storage and maintenance will extend the usage and performance of the unit.

Specifications	
Chassis:	2" extra strong pipe
Hitch:	Clevis type with 3/4" diameter pin
Axles:	Aerating: 1-1/4" diameter Transporting: 3/4" diameter bolted to frame
Wheels:	Aerating: 12 cast iron wheels w/bushings Transporting: Pneumatic 4.80 X 4.00-8, 6 ply
Net Weight:	w/roller bearings Approximately 1000 lbs.
Dimensions:	
Width:	8'
Transport Height:	30"
Length:	9'
Operating Speed:	Up to 10 mph
Transport Speed:	Up to 10 mph
Aerating Width:	6'
Aerating Depth:	Up to 5"
Aerating Pattern:	Approximately 6" X 6"
Hydraulic Lift:	Raise and lower aerating wheels
Hydraulic Cylinder	2-1/2" bore with 8" stroke rated @ 3000 p.s.i.
Lubrication	Pressure grease fittings

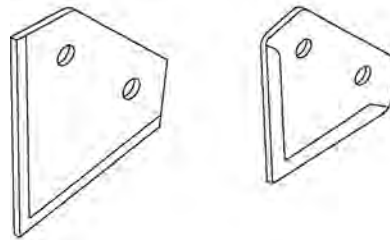
515196 - 1/2" Coring Tine
515197 - 3/4" Coring Tine
(Single Tine Part Numbers)

Use 1/2" or 3/4" coring tines for thorough aeration programs in the Spring and Fall. Soil cores up to 4" (102mm) in length can be removed with minimal surface disturbance letting in air, moisture and fertilizer to the root zone. The cores on the surface quickly disintegrate forming top dressing for an excellent seed bed. Using this system, rain water run-off is minimized and extra moisture is held down in the root zone.



521155 - Deep Slicing Knife
515193- Shallow Slicing Knife
(Single Knife part Numbers)

Use for aeration and renovation programs during all seasons. Slicing knives control thatch by cutting through grass runners and also have the advantage of no surface clean up after aerating. Knives are especially helpful in that they do not place buried seeds of noxious weeds on the surface where they can germinate.

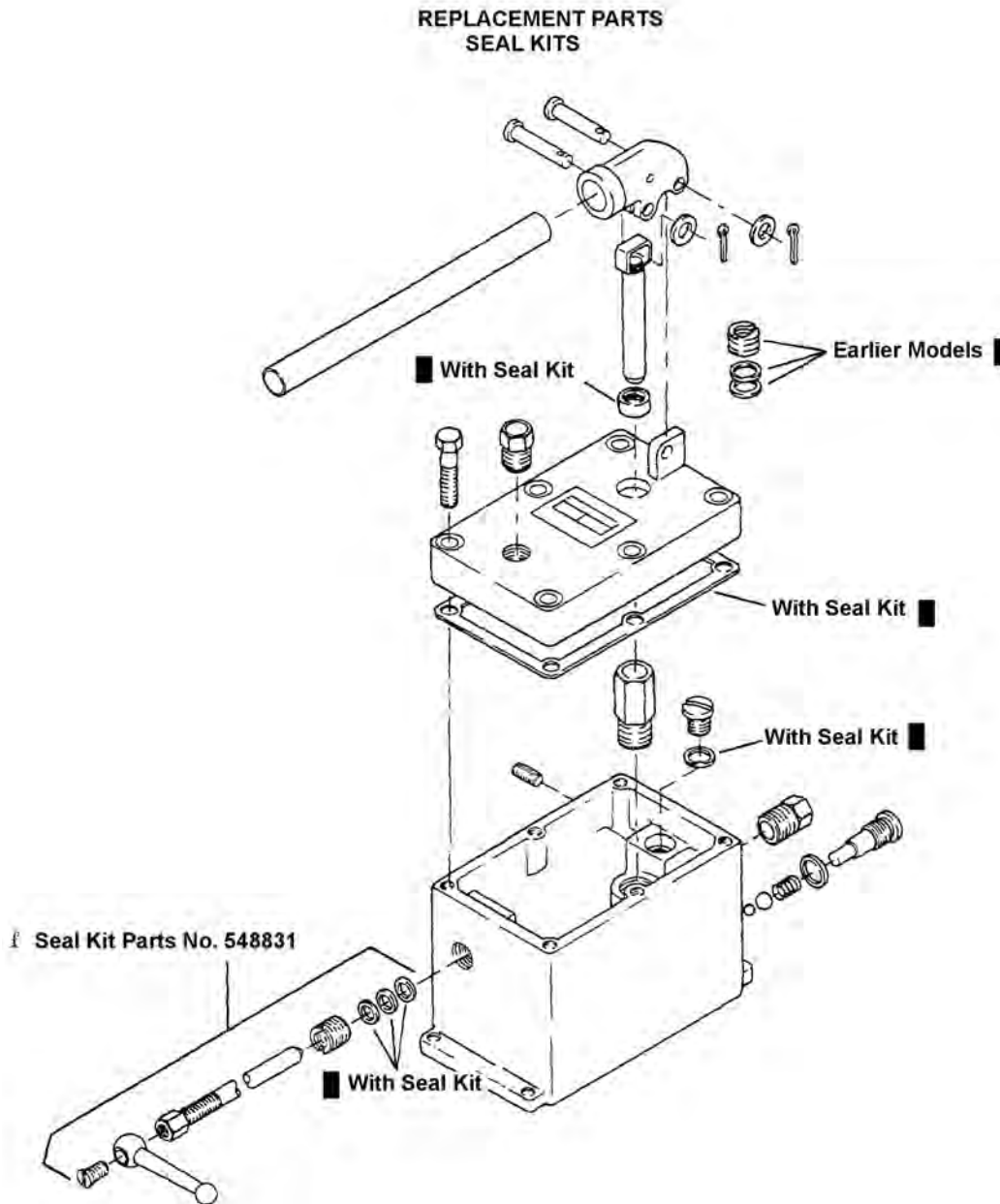


Slicing knives are especially recommended for athletic fields. Due to the "invisible" slices, moisture, air and fertilizer can be trapped while not creating hazardous playing conditions for athletes.

520404- Aerating Tine
(Single Tine Part Number)

Use for turf building and Fall renovation programs. These tines will thoroughly open up the soil by penetrating deep into the ground bringing up large amounts of soil, which then becomes top dressing.





SEAL KITS

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

f These parts included in Seal Kit Part No. 548831
 These parts included in Seal Kit Part No. 548812

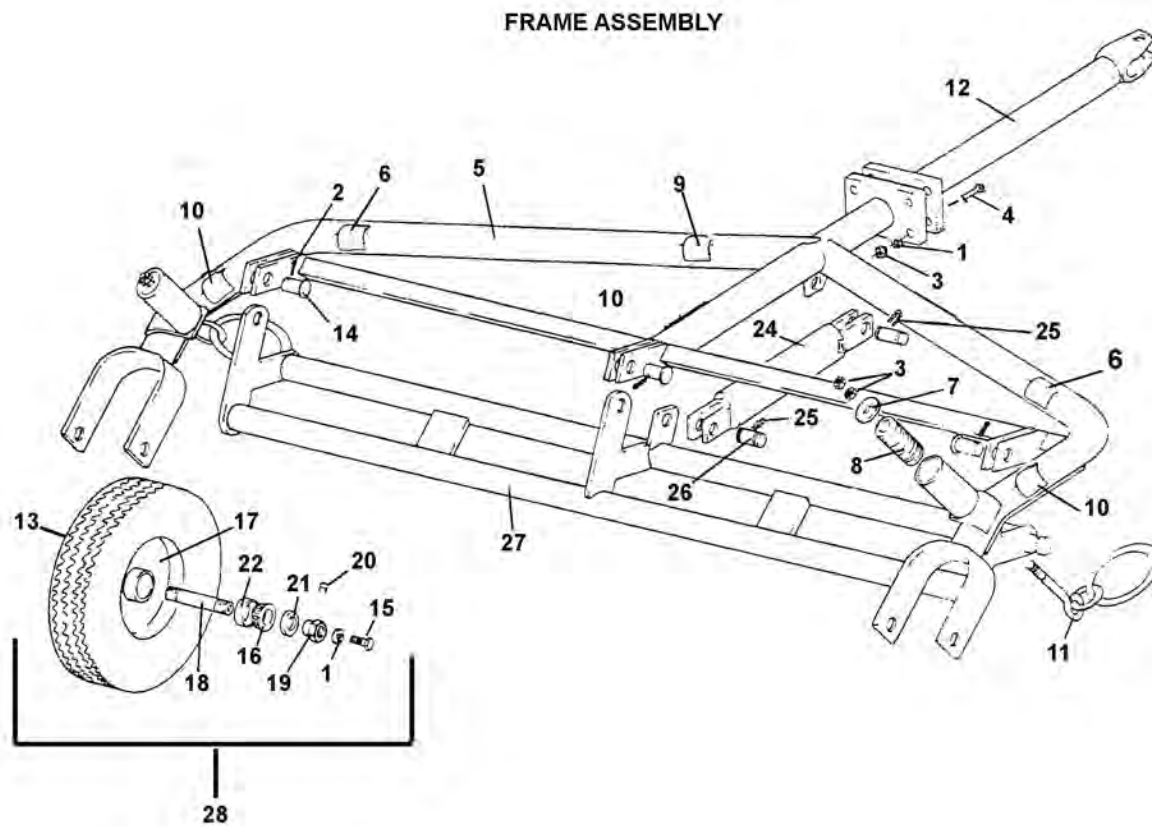
Earlier Models: Some of the earlier models will have these parts to be replaced. Seal kit Part No. 548812 contains these parts, but depending on which model you have, they may not have to be used.

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

FRAME ASSEMBLY

RENOVAIRE

FIGURE 1



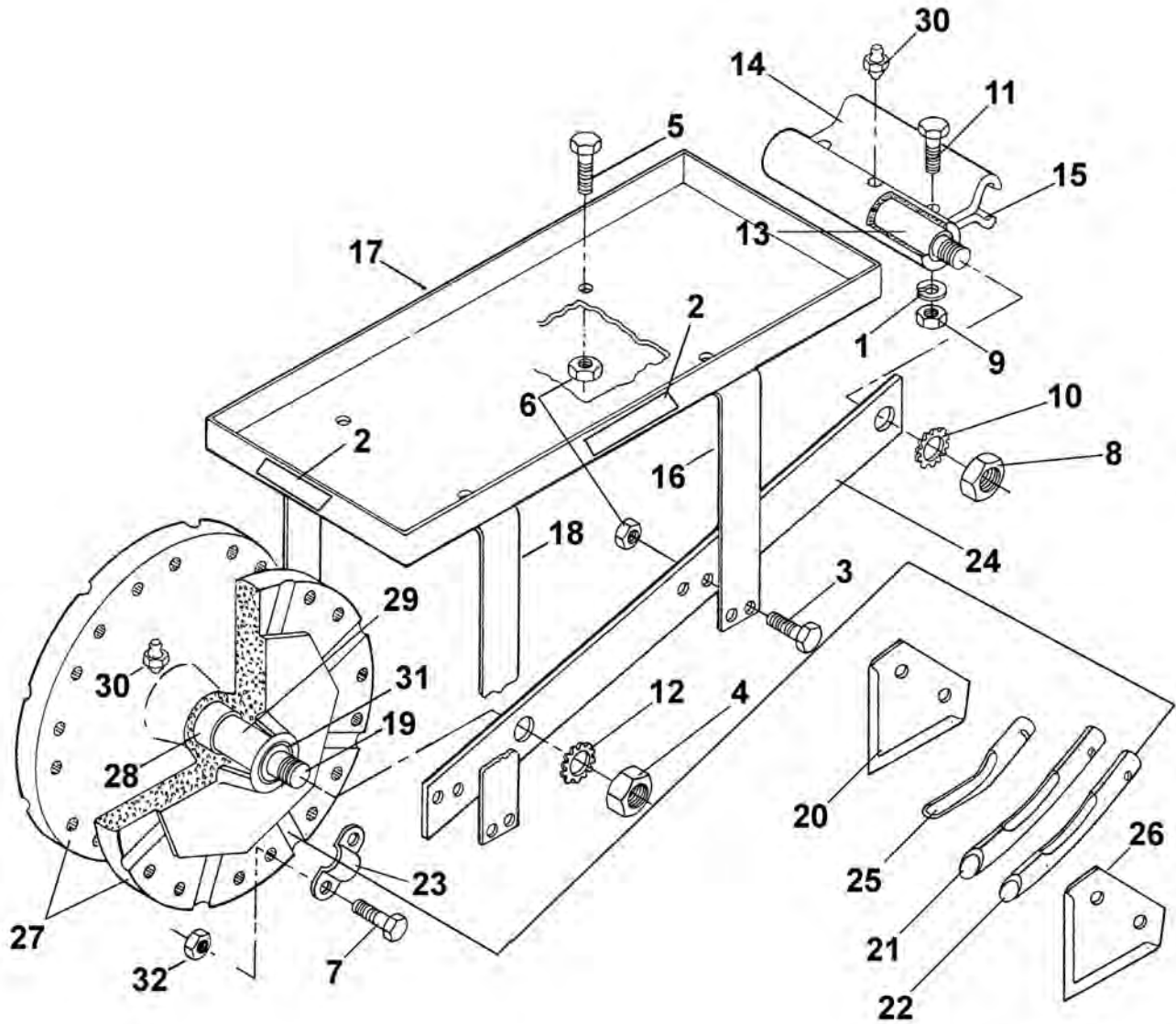
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1-1	64006-05	LOCKWSHR-HELICAL 1/2	8				
1-2	64140-5	COTTER PIN-1/8X1-1/2	3				
1-3	64025-19	NUT-1/2-13 HEX	8				
1-4	64123-24	BOLT-1/2-13 X 2	4				
1-5	544315	FRAME-MAIN	1				
		(INCLUDES ITEMS 6, 9, 10)					
1-6	835892	DECAL DANGER HANDS & FEET	2				
1-7	64163-91	WASHER-.531X2.000X.125	2				
1-8	518495	SPRING	2				
1-9	519842	LABEL-INSTRUCTION	1				
1-10	4130430	LABEL-RENOVAIRE	2				
1-11	546018	EYE BOLT, ASSEMBLY	2				
1-12	545499.2	TONGUE	1				
1-13	546009-1	WHEEL	2				
		(INCLUDES ITEMS 16, 17, 21, 22, & 23)					
1-14	548473	PIN-CRADLE	3				
1-15	64123-05	BLT-HEX 1/2-20X1-1/2	4				
1-16	385174	BEARING-CONE	2				
1-17	515181	HUB	2				
1-18	515182	AXLE	2				
1-19	515183	NUT-3/4-16	4				
1-20	64044-11	SCREW-SET 10-24X1/4	2				
		TIRES-4.80/4.00-8	2				
		(CAN BE OBTAINED LOCALLY)					
1-21	807630	SEAL-OIL	4				
1-22	808088	CUP-BEARING	4				
1-23*	886735	STEM-VALVE	2				
1-24	546014	CYLINDER-HYD 2-1/2	1				
		(WITH RETAINING RING)					
	545535	KIT-SEAL	1				
	548345	RING-LOCKING	1				
1-25	548602	PIN-HAIR	4				
1-26	548603	PIN-CLEVIS	2				
1-27	546017.2	ASSY-CRADLE	1				
1-28	546009	tire and wheel assy	2				
		(INCLUDES ITEMS 1, 15-22)					

*NOT ILLUSTRATED

AERATING WHEEL

RENOVAIRE

FIGURE 2



ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
2-1	64006-05	LOCKWSHR-HELICAL 1/2	12				
2-2	4161125	DECAL-RYAN OVAL (ON REAR AND OUTSIDE OF TWO OUTSIDE TRAYS ONLY)	4				
2-3	64123-70	BLT-HEX 3/8-16X1-1/2	48				
2-4	305134	NUT-HEX, JAM, 7/8-14	12				
2-5	64123-50	BLT-HEX 3/8-16X1	24				
2-6	64229-03	NUT-NYLON LOCK 3/8-16	72				
2-7	64123-100	BLT- HEX 3/8-16X2-1/4	192				
2-8	307665	NUT, HEX, JAM, 3/4-16	12				
2-9	64025-19	NUT-1/2-13 HEX	12				
2-10	309799	WASHER, SHKPRF, 3/4	12				
2-11	316912	SCREW, HEX 1/2-13X2-1/4	12				
2-12	316954	LOCKWASHER-7/8	12				
2-13	515103	SHAFT	6				
2-14	515109.7	CLAMP	6				
2-15	515115.7	CAP	6				
2-16	515118.7	SUPPORT-WEIGHT TRAY	6				
2-17	515119.2	TRAY-WEIGHT	6				
2-18	515120.7	SUPPORT-WEIGHT TRAY	6				
2-19	515185	AXLE	6				
2-20	515193	KNIFE-SHALLOW	96				
2-21	515196	TINE, 1/2" CORING	96				
2-22	515197	TINE, 3/4" CORING	96				
2-23	515198	CLAMP-TINE	96				
2-24	515204.7	RAIL-SIDE	12				
2-25	520404	TINE, AERATING	96				
2-26	521155	KNIFE, DEEP SLICING	96				
2-27	546048	WHEEL (CONTAINS ITEMS 28 & 29)	12				
2-28	515184	BUSHING	12				
2-29	4163242	SPACER, WHEEL ASSEMBLY	12				
2-30	548230	FITTING	18				
2-31	548256	SEAL-OIL	24				
2-32	64141-4	NUT-WLF 3/8-16	192				

HYDRAULIC HAND PUMP

RENOVAIRE

FIGURE 3

HYDRAULIC HAND PUMP

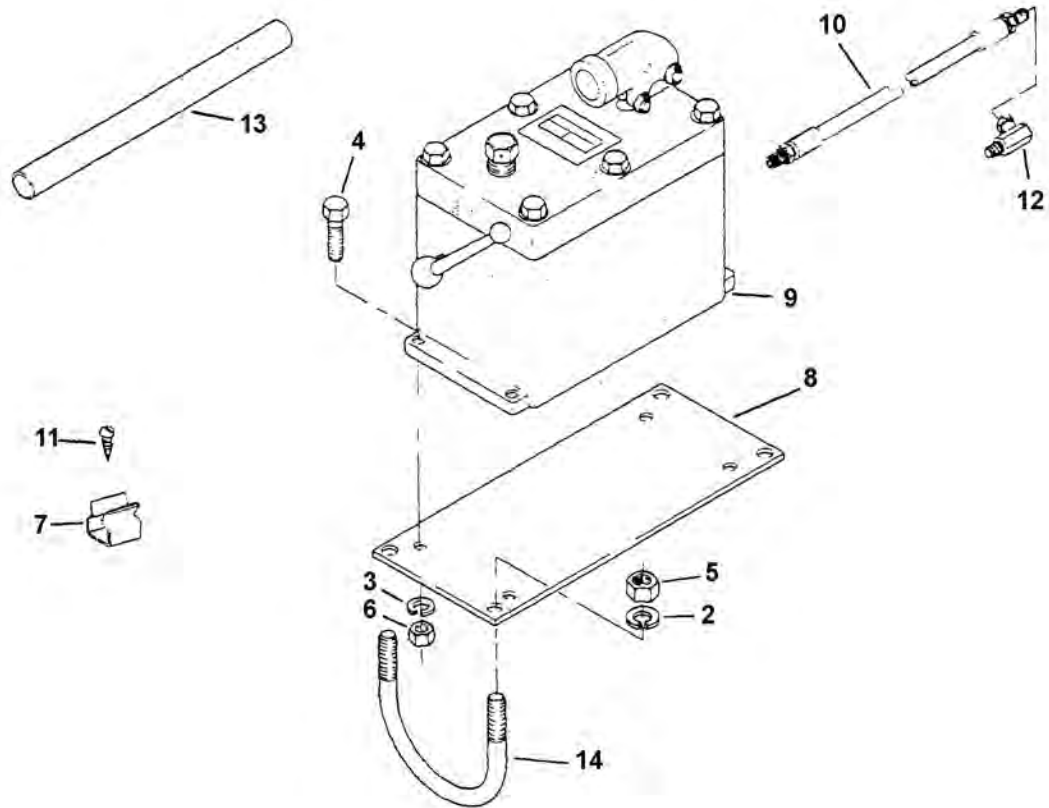


FIGURE 3

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
3-1	545370	PUMP KIT, COMP	1				
3-2	64006-03	WASHER-LOCK 3/8 HELICAL	4				
3-3	64006-02	LOCKWASHER-HELICAL 5/16	4				
3-4	64123-47	BLT-HEX 5/16-18X1-1/4	4				
3-5	64025-05	NUT-3/8-16 HEX	4				
3-6	64025-02	NUT-HEX 5/16-18	4				
3-7	518455	CLIP-HANDLE	2				
3-8	521656.7	PLATE-PUMP	1				
3-9	546010	HOUSING-PUMP	1				
3-10	546012	HOSE-HYD 20" (508 mm)	1				
3-11	F0314	SCREW-#10 X 3/4 SLF TP	2				
3-12	48255-01	STREET ELBOW 90DEG 3/8	1				
3-13	548592.7	HANDLE	1				
3-14	814494	U-BOLT-3/8-16	2				

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BOB-CAT BUNTON RYAN STEINER