



# TECHNICAL MANUAL

## Safety, Operation, Parts & Service

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Model:  
744317 RENOVAIRE



*WARNING: If incorrectly used this machine can cause severe injury. Those who use and maintain this machine should be trained in its proper use, warned of its dangers and should read the entire manual before attempting to set up, operate, adjust or service the machine.*



4130421 REV A

**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.

## IMPORTANT MESSAGE

Thank you for purchasing this Jacobsen 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 Jacobsen 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 Jacobsen dealer for any service or parts needed. Jacobsen service ensures that you continue to receive the best results possible from Jacobsen's products. You can trust Jacobsen replacement parts because they are manufactured with the same high precision and quality as the original parts.

Jacobsen 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.

**Jacobsen, a Textron Company**  
**One Bob Cat Lane**  
**Johnson Creek, WI 53038-0469**

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## NOTICE !!!

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

Jacobsen, a Textron Company strongly warns against, rejects and disclaims any modifications, add-on accessories or product alterations that are not designed, developed, tested and approved by Jacobsen's Engineering Department. Any Jacobsen 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 Jacobsen—will result in the Jacobsen 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 Jacobsen will be considered the responsibility of the individual(s) or company designing and/or making such changes. Jacobsen 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 Jacobsen 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

1. Set Frame Assembly on blocks so that hitch end of frame is approximately 18" above ground.

### **CAUTION**

To prevent possible injury use an adequate lifting device or a minimum of two (2) men when placing main frame on blocks.

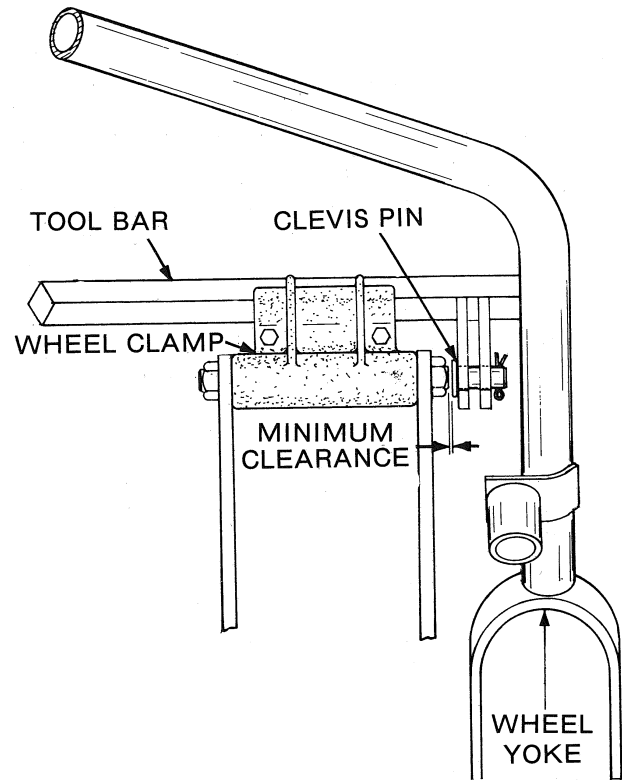
2. Attach transport tires to wheel yokes and inflate tires to 55 p.s.i.
3. Attach cradle assembly to yokes on frame as shown in frame assembly diagram.
4. Attach hydraulic cylinder to lugs on underside of frame and cradle assembly. Make sure end of cylinder with hose attachment points toward hitch of machine.
5. Assemble aerating wheels as shown in assembly diagram. Do not mount weight trays at this time.
6. Attach aerating wheel to square bar on main frame as shown in **Figure 1**.

**NOTE:** Attach outside aerating wheel sets as close to clevis pin as possible and the middle sets as close to center clevis pin as possible. Center the middle set of each side.

7. Attach aerating tools on aerating wheels.

### **CAUTION**

Tines and slicing knives are sharp. To prevent possible injury use caution when installing these items.



**FIGURE 1**

8. Attach weight trays as shown in assembly diagram.
9. Remove blocks from beneath main frame.
10. Attach machine to tractor at draw bar and attach hydraulic hose from tractor to cylinder.
11. Lubricate aerating wheels until grease can be seen at wheel bushings.

### OPERATION

**NOTE:** Failure to lubricate aerating wheels can cause serious damage to aerating wheels, bushings and axles.

#### CAUTION

To prevent possible injury do not operate machine without weight trays in place. Do not make any adjustments or perform any maintenance while tractor is running.

Before operating Renovaire, check all moving parts and all fasteners, also check area and remove any objects which may present a safety hazard or damage the machine. (Rocks, cans, etc.)

1. Position the tractor and machine where you wish to begin aerating.
2. Lower aerating wheels and proceed to aerate.

**NOTE:** When aerating in soft ground and full penetration is not desired, the depth may be controlled with the hydraulic system.

Never cross hard objects or surfaces (sidewalks, drives, stepping stones, etc.) with the tines down.

The Renovaire is designed to be towed. Do not back up when the tines are in the ground or damage to the tines and clamps may result.

#### CAUTION

To prevent possible injury or damage to the aerator, DO NOT leave tractor unattended without lowering aerator to lowest position and shutting off motor of tractor.

### TRANSPORTING

1. Raise aerating wheels high enough to hook latching rings over hook on sides of cradle assembly.
2. Lower aerating wheels until latching rings on eye bolt assembly hold the cradle assembly

#### CAUTION

To prevent possible injury or damage to the aerator, DO NOT leave tractor unattended without lowering aerator to lowest position and shutting off motor of tractor.

## SERVICE

### CAUTION

When replacing any bolt, screw or other fastener, use only original equipment parts or parts of equivalent strength and material to prevent possible failure.

1. 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 unit is put into service.

## LUBRICATION

1. Wipe off grease fittings before and after greasing.
2. Grease aerating wheel bearings as required.

## TRANSPORT WHEELS

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

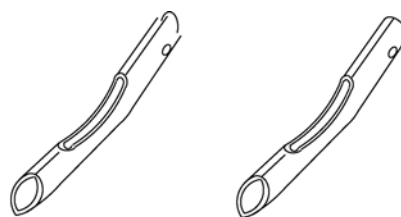
## SPECIFICATIONS

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

## **545364 - 1/2" Coring Tine Kit**

## **545365 - 3/4" Coring Tine Kit**

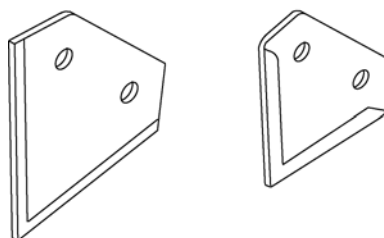
Each kit consisting of 100 #515196 1/2" coring tines or 100 #515197 3/4" coring tines is for thorough aeration programs in the Spring and Fall. Soil cores up to 4" (102mm) in length can be removed with minimal surface disturbance letting in air, moisture and fertilizer to the root zone. The cores on 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.



## **545363 - Deep Slicing Knife Kit**

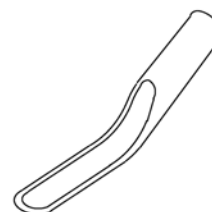
Consists of 100 #521155 slicing knives, this kit is for aeration and renovation programs during all seasons. Slicing knives control thatch by cutting through grass runners and also have the advantage of no surface clean up after aerating. Knives are especially helpful in that they do not place buried 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.

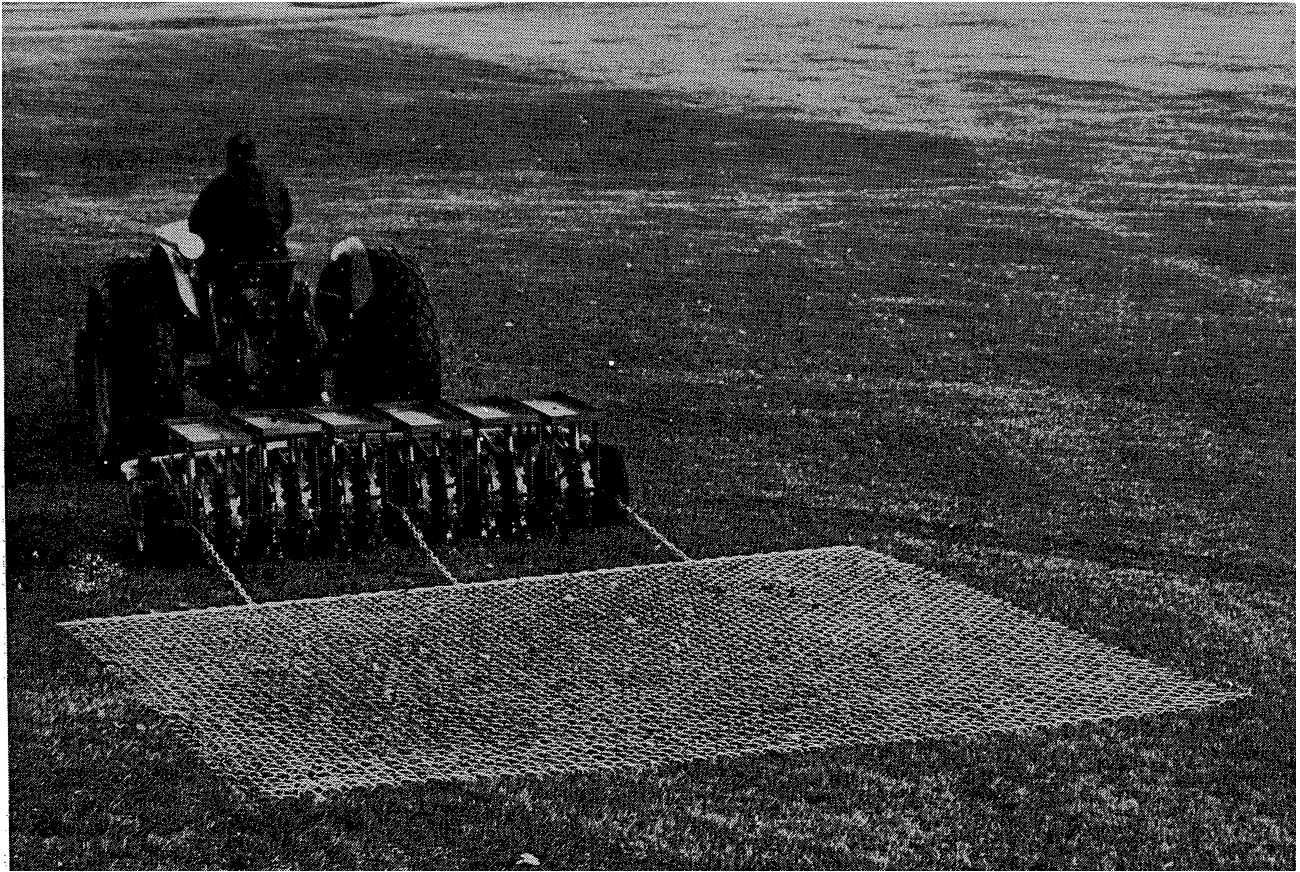


## **545366 - Aerating Tine Kit**

Consists of 100 #520404 tinew, this kit is 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.



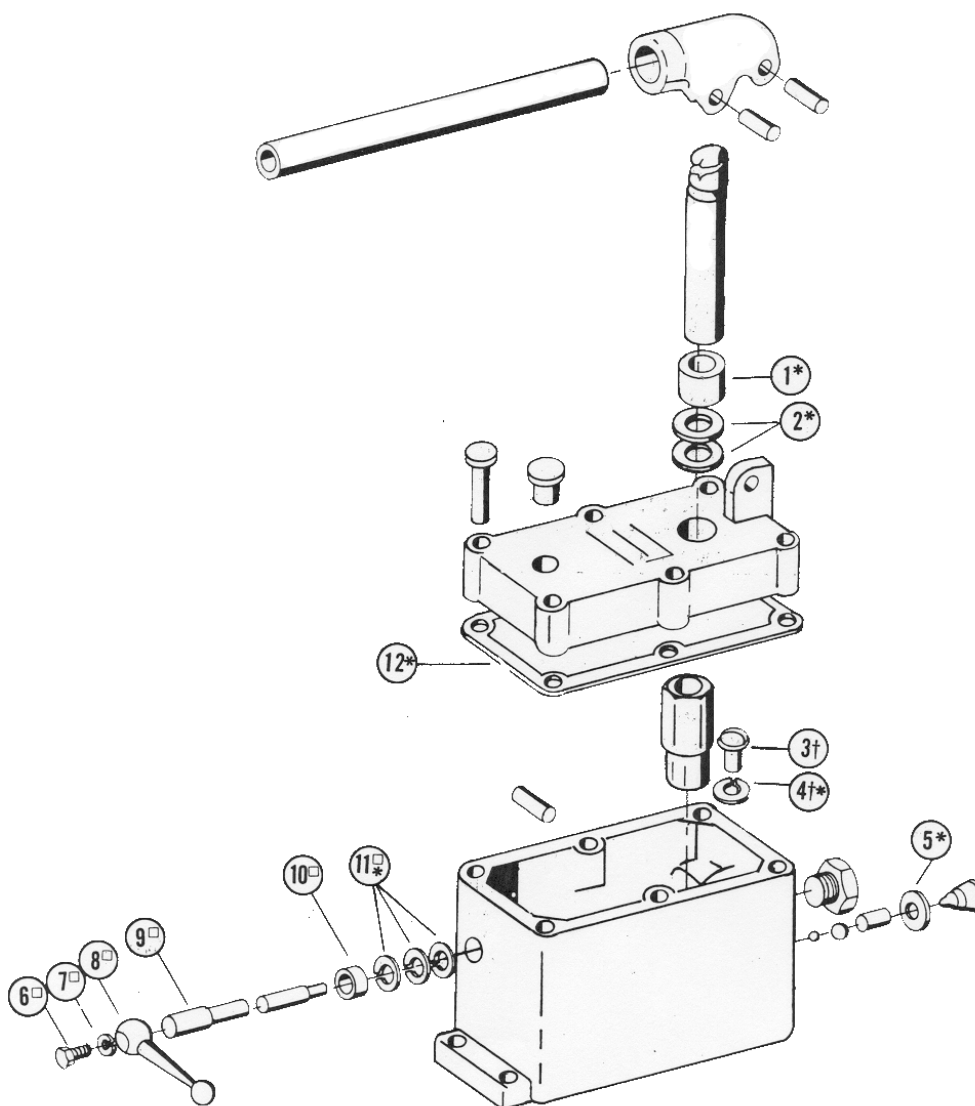




## 544518 - DRAGMAT

When aerating a fairway, a DRAGMAT can be attached directly behind the Renovaire to break up the cores while aerating all in one quick easy operation.

Mat size: 12' wide x 10' long.



## 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

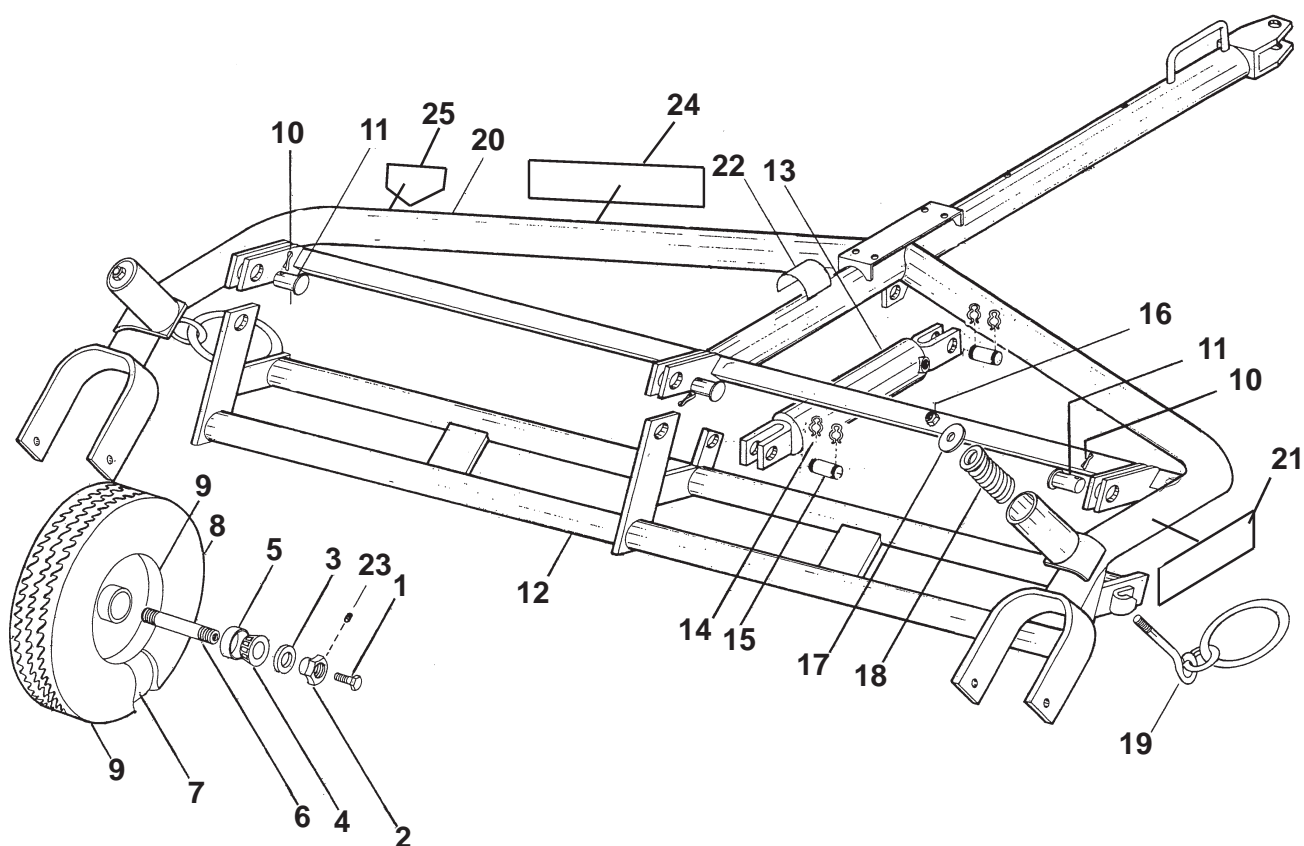
Includes one each of items 6, 7, 8, 9 & 10; and three each of item 11. For use on all units

## 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

# **PARTS SECTION**

FIGURE 1

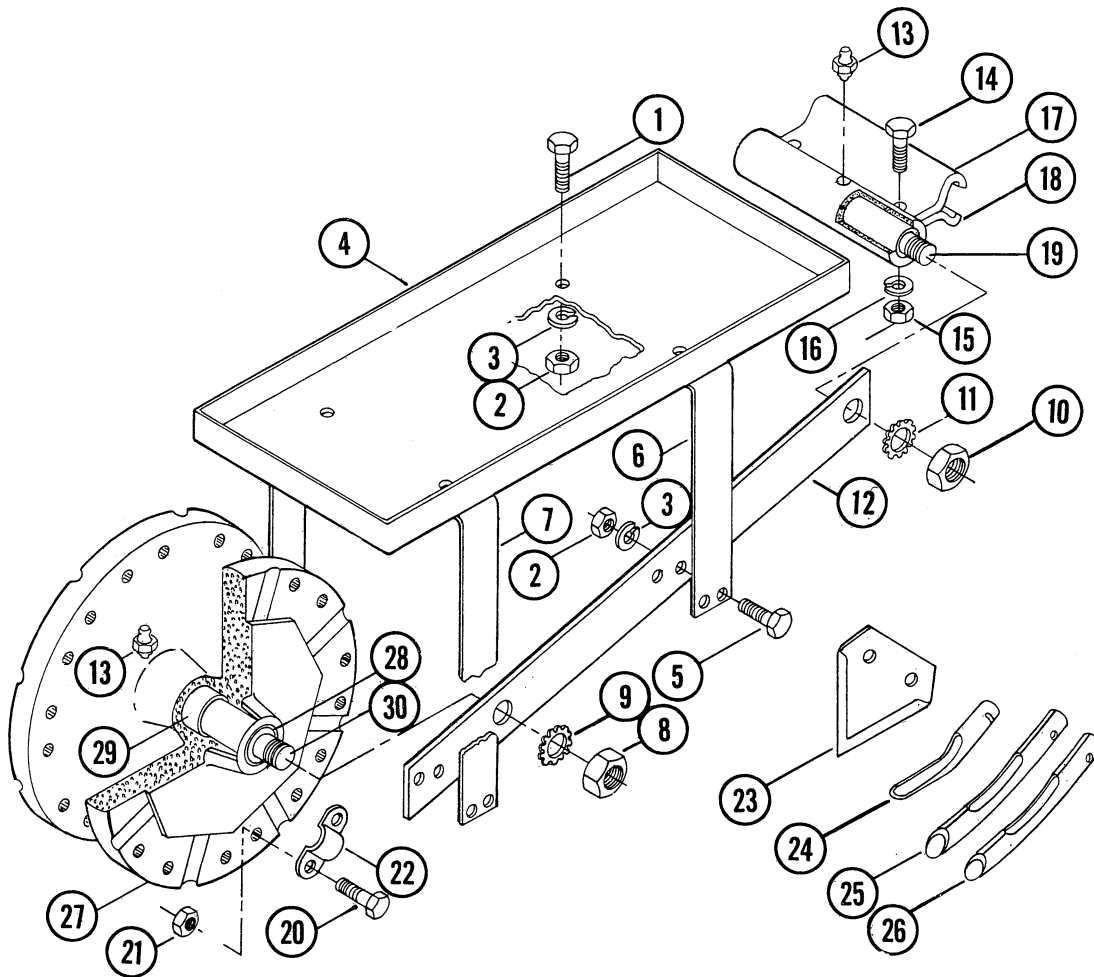


## FIGURE 1

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1-1	548008	SCREW, HEX HD 1/2-20X1	4				
1-2	515183	NUT, 1/2-20	4				
1-3	548265	SEAL, OIL	4				
1-4	548124	BEARING, TAPERED	4				
1-5	385174	BEARING, CUP	4				
1-6	515182	AXLE	2				
1-7	548494	TUBE	2				
1-8	548590	TIRE	2				
1-9	515181	HUB	2				
	*546009	TIRE AND WHEEL ASSY	2				
	(INCLUDES ITEMS 2-9)						
1-10	120310	PIN, COTTER, 1/8" X 1-1/2"	3				
1-11	548473	PIN, CRADLE	1				
1-12	546017	CRADLE ASSEMBLY	1				
1-13	546014	CYLINDER	1				
1-14	548602	PIN, HAIR	4				
1-15	548603	PIN, CLEVIS	2				
1-16	548051	NUT, LOCK, 1/2-13	2				
1-17	515235	WASHER	2				
1-18	518495	SPRING	2				
1-19	546018	EYE BOLT, ASSEMBLY	2				
1-20	546016	FRAME ASSEMBLY	1				
1-21	4130430	LABEL-RENOVAIRE	2				
1-22	519842	DECAL, INSTRUCTION	1				
1-23	548210	SET SCREW, 10-24 X 1/2	4				
1-24	4124074	LABEL-JACOBSEN	2				
1-25	835892	DECAL, DANGER	2				

**\*NOT ILLUSTRATED**

FIGURE 2



## FIGURE 2

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
2-1	306414	SCREW, HEX HD 3/8-16X1	24				
2-2	306562	NUT, HEX, 3/8-16	72				
2-3	120177	WASHER, LOCK, 3/8	72				
2-4	515119	TRAY, WEIGHT	6				
2-5	302600	SCREW, HEX 3/8-16X1-1/2	48				
2-6	515118	SUPPORT, TRAY	6				
2-7	515120	SUPPORT, TRAY	6				
2-8	305134	NUT, HEX, JAM, 7/8-14	12				
2-9	316954	WASHER, SHKPRF, 7/8	12				
2-10	307665	NUT, HEX, JAM, 3/4-16	12				
2-11	309799	WASHER, SHKPRF, 3/4	12				
2-12	515204	RAIL, SIDE	12				
2-13	548230	GREASE FITTING, 5/16	18				
2-14	316912	SCREW, HEX 1/2-13X2-1/4	12				
2-15	308332	NUT, HEX, 1/2-13	12				
2-16	120166	WASHER, LOCK, 1/2	12				
2-17	515109	CLAMP	6				
2-18	515115	CAP	6				
2-19	515103	SHAFT	6				
2-20	306836	SCREW, HEX 3/8-16X2-1/2	192				
2-21	548804	NUT, WHIZLOCK, 3/8-16	192				
2-22	515198	CLAMP	96				
2-23	521155	KNIFE, DEEP SLICING	96				
2-24	520404	TINE, AERATING	96				
2-25	515196	TINE, 1/2" CORING	96				
2-26	515197	TINE, 3/4" CORING	96				
	(SEE PAGE 6 FOR AERATION TOOLS AND SUGGESTED USES.)						
2-27	546048	WHEEL	12				
2-28	548256	SEAL, OIL	24				
2-29	515184	BUSHING	24				
2-30	515185	AXLE	6				

## **World Class Quality, Performance And Support**



Equipment from Jacobsen, a Textron company, is built to exacting standards ensured by ISO 9001 and ISO 14001 registration at all our manufacturing locations.

A worldwide dealer network and factory-trained technicians backed by Textron Parts Xpress provide reliable, high-quality product support.



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***BOB-CAT BROUWER BUNTON CUSHMAN RYAN STEINER***