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5 General Reference and Specifications
Introduction

The implement described in this manual has been designed with care and built by skilled workers using quality materials and processes. Proper assembly and maintenance will provide you with satisfactory use for seasons to come.

**DANGER**

Read this entire manual before attempting to assemble, adjust or operate this implement. Failure to comply with this warning can result in personal injury or death, damage to the implement or its components and inferior operation.

Description of Unit

Utilizing many of the rugged and reliable features of the original Pulvi-Mulcher, these units are still performing seedbed finishing operations in fields all over the world. The lower horsepower requirements and smaller size fit into many specialty niche markets such as nurseries and landscape operations and equine training facilities. Choice of notched or crowfoot wheels allow these machines to be set-up to match your soil conditions.

Using this Manual

This manual will familiarize you with safety, assembly, operation, adjustment, and maintenance. Read this manual and follow the recommendations to help ensure safe and efficient operation.

- The information in this manual is current at time of printing. Some parts may have changed to assure top performance.
- Location reference: Right and Left designations in this manual are determined by facing the direction the implement will travel during field operation, unless otherwise stated.

Owner Assistance

If customer service or repairs are needed, contact your Brillion dealer. They have trained personnel, parts and service equipment specially designed for Brillion products. Your implement’s parts should only be replaced with Brillion parts. If items covered in this manual are not understood, contact your local Landoll/Brillion Dealer.

Warranty Registration

Brillion Farm Equipment, by Landoll, shall have no warranty obligation unless each product is registered within 10 days of retail purchase, using the Landoll Corporation Ag Products on-line registration process. Please refer to the Ag Products Policy and Procedures Manual, accessible at www.landoll.com for step by step instructions regarding product registration.

Enter your product information below for quick reference.

**MODEL NUMBER**

**SERIAL NUMBER**

**DATE OF PURCHASE**

Refer to the ID plate as shown. See Figure 1-1.

---

Figure 1-1: ID Plate
INTRODUCTION AND SAFETY INFORMATION

Safety

NOTE
Investigation has shown that nearly 1/3 of all farm accidents are caused by careless use of machinery. Insist that all people working with you or for you abide by all safety instructions.

Understanding Safety Statements
You will find various types of safety information on the following pages and on the implement decals (signs) attached to the implement. This section explains their meaning.

NOTICE
Special notice - read and thoroughly understand.

CAUTION
Proceed with caution. Failure to heed caution may cause injury to person or damage product.

WARNING
Proceed with caution. Failure to heed warning will cause injury to person or damage product.

DANGER
Proceed with extreme caution. Failure to heed notice will cause injury or death to person and/or damage product.

NOTE
You should read and understand the information contained in this manual and on the implement decals before you attempt to operate or maintain this equipment.

Examine safety decals and be sure you have the correct safety decals for the implement. See Figure 1-3. Order replacement decals through your Brillion dealer.

Keep these signs clean so they can be observed readily. It is important to keep these decals cleaned more frequently than the implement. Wash with soap and water or a cleaning solution as required.

Replace decals that become damaged or lost. Also, be sure that any new implement components installed during repair include decals which are assigned to them by the manufacturer.

When applying decals to the implement, be sure to clean the surface to remove any dirt or residue. Where possible, sign placement should protect the sign from abrasion, damage, or obstruction from mud, dirt, oil etc.

DANGER
• Do not allow anyone to ride on the tractor or implement. Riders could be struck by foreign objects or thrown from the implement.
• Never allow children to operate equipment.
• Keep bystanders away from implement during operation.

Transporting Safety

IMPORTANT
It is the responsibility of the owner/operator to comply with all state and local laws.

When transporting the implement on a road or highway, use adequate warning symbols, reflectors, lights and slow moving vehicle sign as required. Slow moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.

Do not tow an implement that, when fully loaded, weighs more than 1.5 times the weight of the towing vehicle. Carry reflectors or flags to mark the tractor and implement in case of breakdown on the road.

Do not transport at speeds over 20 MPH under good conditions. Never travel at a speed which does not allow adequate control of steering and stopping. Reduce speed if towed load is not equipped with brakes.

Avoid sudden stops or turns because the weight of the implement may cause the operator to lose control of the tractor. Use a tractor heavier than the implement.

Use caution when towing behind articulated steering tractors; fast or sharp turns may cause the implement to shift sideways.

Keep clear of overhead power lines and other obstructions when transporting. Know the transport height and width of your implement.

Attaching, Detaching and Storage
• Do not stand between the tractor and implement when attaching or detaching implement unless both are blocked from moving.
• Block implement so it will not roll when unhitched from the tractor.
INTRODUCTION AND SAFETY INFORMATION

Maintenance Safety
- Block the implement so it will not roll when working on or under it to prevent injury.
- Do not make adjustments or lubricate the machine while it is in motion.
- Make sure all moving parts have stopped.
- Understand the procedure before doing the work. Use proper tools and equipment.

Protective Equipment
- Wear protective clothing & equipment appropriate for the job. Avoid loose fitting clothing.
- Because prolonged exposure to loud noise can cause hearing impairment or hearing loss, wear suitable hearing protection, such as earmuffs or earplugs.

Tire Safety
Tire changing can be dangerous and should be performed by trained personnel using correct tools and equipment.
When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side, not in front of or over the tire assembly. Use a safety cage if available.
When removing and installing wheels use wheel-handling equipment adequate for the weight involved.

Chemical Safety
Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil & property.
Read chemical manufacture’s instructions and store or dispose of unused chemicals as specified. Handle chemicals with care & avoid inhaling smoke from any type of chemical fire.
Store or dispose of unused chemicals as specified by the chemical manufacturer.

Prepare for Emergencies
- Keep a First Aid Kit and Fire Extinguisher handy
- Keep emergency numbers for doctor, ambulance, hospital and fire department near phone.

High Pressure Fluid Safety
Escaping fluid under pressure can be nearly invisible and have enough force to penetrate the skin causing serious injury. Use a piece of cardboard, rather than hands, to search for suspected leaks.
Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.
Avoid the hazard by relieving pressure before disconnecting hydraulic lines.

NOTE
Relieve hydraulic pressure by shifting the control valve lever to float.
Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
Safety Chain

Use a safety chain to help control drawn machinery should it separate from the tractor drawbar.

Use a chain with a strength rating equal to or greater than the gross weight of towed machinery, in accordance with ASAE S338.2 specifications. If two or more machines are pulled in tandem, a larger chain may be required. Chain capacity must be greater that the total weight of all towed implements.

A second chain should be used between each implement.

Attach the chain to the tractor drawbar support or specified anchor location. Never attach the chain to an intermediate support. Allow only enough slack in the chain to permit turning. The distance from hitch pin to attachment point or intermediate support point should not exceed 9 inches. If the distance from the drawbar pin to either the front or rear chain attachment point exceeds 9 inches, intermediate chain support is required.

Replace chain if any links or end fittings are broken, stretched or damaged.

Do not use a safety chain for towing.

Figure 1-2: Safety Chain
Safety Decals

Figure 1-3: Safety Decals
Figure 1-4: Decal Locations
Chapter 2
Assembly

CAUTION

Do not work on or under this machine unless securely blocked and supported by a hoist or tractor or by other sufficient means.

WARNING

Do not attempt to lift heavy parts (such as the frame, rockshaft) manually. Use a hoist or a fork lift to move these parts into position.

NOTE

Refer to the repair parts manual 2K796 for identification of parts and for the approximate relationship of the parts in assembly.

To ensure alignment of assemblies, leave the nuts loose until completion of final assembly. Use lock washers or flat washers as specified. Spread all cotter pins.

After completion of final assembly, tighten all nuts evenly to prevent misalignment, distortion or binding. Tighten all screws and nuts to the recommended torques. See Page 4-1.

IMPORTANT

- If pre-assembled parts or fasteners are temporarily removed, remember where they go. It is best to keep parts separated.
- Check that all working parts move freely, bolts are tight and cotter pins spread.
- Refer to the Torque Table for proper torque valves. Note the different torque requirements for bolts with lock nuts. See Page 4-1.

“Left” and “Right” refer to directions seen as if standing behind the machine and facing in the direction of forward travel.

Frame Assembly

NOTE

Use bevel washers where the bolts pass through channel flanges.

Place Short Roller at the front of the machine and Long Roller at the rear of the machine. Slide the Short Axle Mount into the front/shorter Roller and the Long Axle Mount into the rear/longer Roller. With the formed end of the LH and RH Channels to the front, bolt the Long Axle Mounts to the side of the Channels on the front with 1/2-13 x 2 Bolts, Lockwashers and Nuts. Bolt the Short Axle Mounts under the Channels on the rear with 1/2-13 x 2-1/2 Bolts, Beveled Washers, Lockwashers and Nuts. See Figure 2-2.

Bolt Front Channel with welded reinforcements towards the top of the channel upward and Rear Channel with the channel flanges forward to LH and RH Channels using 5/8-11 x 1-3/4 Bolts, Lockwashers and Nuts. All the channels top flanges should be flush. See Figure 2-3.

Position the Center Truss over the center of the frame and attach it to Front and Rear Channels using 5/8-11 x 1-3/4 Bolts, Lockwashers and Nuts. See Figure 2-3.

Attach the SMV sign to the rear channel with 5/16-18 x 1 bolts, flat washers and locknuts.

NOTE

Crowfoot Wheel Rotation Arrow must follow the direction of travel.

Figure 2-1: Crowfoot Rotation
Rollers to Frame

Figure 2-2: Rollers to Frame
Center Truss

Figure 2-3: Center Truss
Attaching the Rockshaft

**NOTE**

Make sure the mounting surfaces are free of rust or dirt.

Attach the Rockshaft to the Center Truss by place the Bearing Cap on top and on each side of the Rockshaft Lug. Place LH and RH Axle Supports onto each end of the Rockshaft. Raise the Rockshaft up so the Bearing Caps capture the Truss Flanges. Secure LH and RH Axle Supports to Frame Channels with 5/8-11 x 1-3/4 Bolts, Lockwashers and Nuts. Place the Bearing Yoke under the rockshaft aligning them with the Bearing Caps and securing them to the Truss with 1/2-13 x 1-1/2 Bolts, Lockwashers and Nuts. See Figure 2-5.

Attach the Float Link to the Rockshaft with 1 x 2-1/2 Clevis Pin, secure with 3/16 x 1-1/2 Cotter Pin. Lock Float Link in place with 1/2 x 2-1/2 Clevis Pin, secure with Hairpin Cotter.

Attach the base end of 3 x 8 Hydraulic Cylinder to Truss Lug and the rod end to the top hole in the Float Link with vendor supplied hardware.

Tire Installation

**WARNING**

Use a torque wrench to assure proper torque. Insufficient torque can cause stud breakage and damage the wheel pilots. Over torque can overstress the studs and strip the threads.

**NOTE**

All tire/wheel assemblies are mounted with the valve stem facing outward from Hub and Spindle.

Install the tire and wheel assembly onto the hub with 1/2-20 X 1 Wheel Bolts and tighten to 65 ft-lbs. See Figures 2-4 and 2-5. The M881 Pulvi-Mulcher uses 7.60 x 15 6 ply tires. Inflate all tires equally to avoid side draft. Follow the tire manufacturer’s recommended pressures listed on the sidewall of the tires.
Figure 2-5: Rockshaft
Drawbar Installation

Drawbar is attached to the frame with 1 x 7-7/16 Mounting Pin, secure with 1/4 x 1-1/2 Cotter Pins. Attach the Drawbar Braces to the Frame by inserting a pivot bushing into the reinforced portion of the brace and placing the brace between the frame bottom angles, secure with 1/2-13 x 2-1/2 Bolts, Lockwashers and Nuts. Place the other end of the brace between the drawbar tube and formed angle, secure with 1/2-13 x 6-1/2 Bolt, Lockwasher and Nut. See Figure 2-6.


Attach Safety Chain using 1-8 x 3 Bolt, Flat Washers and Locknut.

Bolt the Flat Spring to the bottom of the drawbar using 3/8-16 x 7/8 Bolts and Locknuts. Place the Clevis between the drawbar front lugs, secure with 1 x 6-1/4 Pin and 1/4 x 1-1/2 Cotter Pins. The Flat Spring supports the Clevis for easier hook-up.

Install the Jack on the left side of the drawbar.

See “General Torque Specifications” on page 4-1.
Figure 2-6: Drawbar
Drawbar Linkage

Insert 2 x 36-1/4 Straps through the front of the Truss and position a strap on each side of the Rockshaft Lug bottom hole, secure with 3/4 x 1-7/8 Clevis Pin and 5/32 x 1-1/2 Cotter Pin. Place the springs over the Spring Guide rods and slide them over the Drawbar Anchor Plate tubes. Insert the 3/4-10 x 10 Bolt through the Spring Guide and Drawbar Anchor Plate and screw it into the yoke. Join the Yoke and the 2 x 36-1/4 Straps with a 2-1/2 x 7-1/4 Strap and 3/4 x 1-7/8 Clevis Pins, secure with 5/32 x 1-1/2 Cotter Pins. See Figure 2-7.

When making the final connection, the drawbar may need to be blocked up a few inches for easier assembly. Turn the 3/4-10 x 10 Bolt into or out of the yoke to level the Pulvi-Mulcher.

For tractors with low drawbars, turn the bolt out of the yoke so that the bolt is just through the yoke.

For tractors with higher drawbars, turn the bolt further into the yoke.

Most of the Bolt threads will be used when the tractor drawbar is 20 inches or more above the ground.
Transport Lock Installation

Install Transport Bracket to the rear of the Truss with 1/2-13 x 1-1/2 Bolts, Lockwashers and Nuts and to the Rear Frame Channel with 5/8-11 x 1-3/4 Bolts, Lockwashers and Nuts. See Figure 2-8.

Place the Transport Lock Straps hole end on each side of the Rockshaft Lug and insert 1 x 3 Cylinder Pin, secure with 1/4 x 2-1/2 Roll Pin and Hairpin Cotter. Attach the Straps slotted end on each side of the Transport Bracket, secure with 3/4 x 2-3/4 Clevis Pin, Flat Washers and 5/32 x 1-1/2 Cotter Pin.

Thread 3/8-16 Nut approximately 2" from the bottom of 3/8-16 x 3 Bolt head. Insert the Bolt into the hole on the left truss channel and secure Bolt under the Truss Flange with the other 3/8-16 Nut.

Figure 2-8: Transport Lock
Hydraulics Installation

**WARNING**
Escaping fluid under pressure can be nearly invisible and have enough force to penetrate the skin causing serious injury. Use a piece of cardboard, rather than your hands, to search for suspected leaks. Wear protective gloves & safety glasses or goggles when working with hydraulic systems.

**CAUTION**
Do not raise the machine without the use of hydraulics. This would introduce air into the hydraulic cylinder. When the transport pin is removed the frame would lower rapidly possibly causing injury.

Install Elbow Fitting O-Ring end into the Cylinder Ports and attach hoses. Run the hoses down the drawbar through the hose support towards the tractor. See Figure 2-10.

Turn an Adapter Fitting O-Ring end into each Coupler. Install Adapter into the end of each hose.

Secure hoses with tie straps.

Hook tractor to implement and disengage the Transport Lock. Charge the Hydraulic System.

**Tightening Procedure For JIC 37° Swivel Female Nuts**
1. Check flare and seat for defects.
2. Lubricate the connection.
3. Install hoses without twists.
4. Hand tighten until connection bottoms.
5. Using 2 wrenches to prevent twisting, rotate the swivel nut 2 wrench flats (1/3 turn).
6. For reassembly, follow the same procedure but tighten only 1 wrench flat (1/6 turn).

**Tightening Procedure For Swivel O-Ring Fittings**
1. Lubricate o-ring and install the fitting until the metal washer which backs up the o-ring contacts the face of the boss.
2. Orient the fitting by turning counterclockwise up to 1 turn.
3. Tighten the lock nut using 50-60 foot pounds torque.

Purging the Hydraulic System

**WARNING**
Escaping hydraulic fluid can cause serious personnel injury. Relieve system pressure before repairing, adjusting, or disconnecting. Wear proper hand and eye protection when searching for leaks. Use cardboard instead of hands. See Figure 2-9. Keep all components (cylinders, hoses, fittings, etc.) in good repair.

The hydraulic system is not filled with oil and should be purged of air before transporting and field operations. Carefully hitch the M881 to the tractor and connect the hydraulic hoses. Check to make sure the tractor hydraulic reservoir is full of the manufacturer’s recommended oil.

Bleed the air from the hydraulic system before moving the machine. Bleed the air from the transport system first. This can be done by partially raising and lowering the machine slowly 5 or 6 times. Gradually increase the length of stroke until the last two cycles are the full stroke on the cylinder.

Figure 2-9: Hydraulic Leak Detection

Escaping fluid under pressure can be nearly invisible and have enough force to penetrate the skin causing serious injury. Use a piece of cardboard, rather than your hands, to search for suspected leaks. Wear protective gloves & safety glasses or goggles when working with hydraulic systems.
Figure 2-10: Hydraulics

- Hyd Cylinder, 3 x 8
- Elbow, 08 MOR x 08 MJ 90 Deg
- 141881 Hose Asm, 3/8 x 136
- Adapter, 08 MOR x 08 MJ
- Male Coupler
Table provided for general use.

NOTES:
Tooth Mounting Dimensions

Figure 2-11: Tooth Mounting Dimensions
Tooth Control Installation

Mark the tubes for Teeth/Tine locations prior to installing the tubes. See Figure 2-11. Do Not Install Teeth/Tines at this time.

NOTE
The Control Brackets are mounted in different positions based on the tine.

C-Tooth Installation

Slide the Front Spring Tooth Support, making certain that the 5 inch width of the support is toward the rear of machine and slide the Control Bracket (square hole is rotated) onto the left side of the front Tooth Tube. Place a Front Tooth Tube Bearing (bearing tube is open) onto each end of the Tooth Tube so the tube is below the bolt holes. Raise Tooth Tube up and secure the Tooth Tube Brackets to the Frame with 1/2-13 x 1-1/2 Bolts, Lockwashers and Nuts. See Figure 2-15. Attach Front Spring Tooth Support by placing spacers between the Tooth Support and Truss, secure with 1/2-13 x 4-1/2 Bolt, Lockwasher and Nut. Install Spring Tooth Quadrant to the Front Spring Tooth Support 5 inch width, secure with 1/2-13 x 2 Bolts, Lockwashers and Nuts.

Slide the Rear Tooth Tube through the round support tube located at the rear of the Truss and slide the Control Bracket (square hole is straight) onto the right side of the rear Tooth Tube. Place a Rear Tooth Tube Bearing (bearing tube is obstructed) onto each end of the Tooth Tube so the tube is below the bolt holes, secure to the Frame with 1/2-13 x 1-1/2 Bolts, Lockwashers and Nuts. See Figure 2-16. Install Spring Tooth Quadrant to the Truss rear right side, secure with 1/2-13 x 2 Bolts, Lockwashers and Nuts.

Install the Lift Handle Assemblies to the front and rear Control Brackets with 3/8-16 x 2 Bolts, Lockwashers and Nuts. Ensure the handles swing freely and latch properly. Tighten the front and rear Control Brackets to the Tooth-Tubes using 3/8-16 x 1-1/4 Set Screws.

Manually check the Linkage to ensure there is no binding and no interferences when the Tooth Tubes are rotated.

Install C-teeth onto the pre-marked tooth tube with Tooth Clamp, Clamp Strap, Lockwasher and Nut. See Figure 2-12.
Figure 2-13: Front C-Tooth

Figure 2-14: Rear C-Tooth
S-Tine Installation

Slide the Front Spring Tooth Support, making certain that the 5 inch width of the support is toward the rear of machine and slide the Control Bracket (square hole is straight) onto the left side of the front Tooth Tube. Place a Front Tooth Tube Bearing (bearing tube is open) onto each end of the Tooth Tube so the tube is below the bolt holes. Raise Tooth Tube up and secure the Tooth Tube Brackets to the Frame with 1/2-13 x 1-1/2 Bolts, Lockwashers and Nuts. See Figure 2-17. Attach Front Spring Tooth Support by placing spacers between the Tooth Support and Truss, secure with 1/2-13 x 4-1/2 Bolt, Lockwasher and Nut. Install Spring Tooth Quadrant to the Front Spring Tooth Support 5 inch width, secure with 1/2-13 x 2 Bolts, Lockwashers and Nuts.

Slide the Rear Tooth Tube through the round support tube located at the rear of the Truss and slide the Control Bracket (square hole is rotated) onto the right side of the rear Tooth Tube. Place a Rear Tooth Tube Bearing (bearing tube is obstructed) onto each end of the Tooth Tube so the tube is below the bolt holes, secure to the Frame with 1/2-13 x 1-1/2 Bolts, Lockwashers and Nuts. See Figure 2-18. Install Spring Tooth Quadrant to the Truss rear right side, secure with 1/2-13 x 2 Bolts, Lockwashers and Nuts.

Install the Lift Handle Assemblies to the front and rear Control Brackets with 3/8-16 x 2 Bolts, Lockwashers and Nuts. Ensure the handles swing freely and latch properly. Tighten the front and rear Control Brackets to the Tooth Tubes using 3/8-16 x 1-1/4 Set Screws.

Manually check the Linkage to ensure there is no binding and no interferences when the Tooth Tubes are rotated. For ease of installation, assemble Points with 3/8-16 x 1-3/4 Plow Bolt and Flanged Locknut onto the S-Tine prior to mounting the Tine onto the Tooth Tube. See Figure 2-13. Install S-Tines onto the pre-marked Tooth Tube with Clamp, 1/2-13 x 3-1/2 Carriage Bolt and Lock Nut. See Figure 2-12.

Figure 2-15: S-Tine

Figure 2-16: S-Tine Point
Figure 2-17: Front S-Tine

Figure 2-18: Rear S-Tine
Rear Scraper Installation

With the Rollers on level ground, place the scraper bar on top of the frame side channels. Place a Decal Bracket on each side over the Scraper Bar mounting hole. Secure the Scraper Bar and the Decal Brackets with 1/2-13 x 2 Bolts, Beveled Washers, Flat Washer, Lockwasher and Nut. See Figure 2-19.

Attach the Scrapers to the bar so that there is a 1/4” gap between the wheel and scraper with 3/8-16 x 1-1/2 Carriage Bolts, Flat Washers, Lockwashers and Nuts. See Figure 3-9.
Front Scrapers - Optional

Position the Scraper Bar LH and Scraper Bar RH under the Truss, between the Frame side channel and the Front Support Center. Secure the Scraper Bars to the Frame with 5/8-11 x 1-1/2 Bolts, Lockwashers and Nuts to the Support Center with 1/2-13 x 1-1/2 Bolts, Lockwashers and Nuts. See Figure 2-20.

Attach the Scrapers to the bar so that there is a 1/4" gap between the wheel and scraper with 3/8-16 x 1-1/2 Carriage Bolts, Flat Washers, Lockwashers and Nuts. See Figure 3-9.
Land Leveler - Optional

Attach the eight leveler supports to the front frame using 1/2-13 x 2 Bolts, Lockwashers and Nuts. Position Leveler Angle in front of Leveler Supports align holes and secure with 1/2-13 x 2 Bolts, Lockwashers and Nuts. See Figure 2-21.
Chapter 3

Operation

**Tractor Preparation**

The M881 Pulvi-Mulcher is designed to be pulled by tractor equipped with a drawbar.

Before attaching the implement, prepare the tractor as follows:

1. Inflate the rear tractor tires equally and add ballast according to the tractor operator’s manual.
2. Lock the tractor drawbar in the center position.

**Pulvi-Mulcher Preparation**

1. Prior to operating the M881 Pulvi-Mulcher, inspect it thoroughly for good operating condition.
2. Replace worn or missing parts.
3. When the machine is new, check the bolt tightness after a few hours of operation. Tighten any loose nuts or bolts. Check the lift wheel lug bolts daily.
4. Check the lift wheel tire inflation. Inflate all tires equally to avoid side draft. Follow the tire manufacturer’s recommended pressures listed on the sidewall of the tires.

**Attaching to the Tractor**

1. Align the tractor drawbar with the machine. Raise or lower the hitch, as needed, using the jack. Attach the unit with proper size hitch pin.
2. Raise jack and drop leg before setting the machine in motion.
3. Clean all hydraulic couplings and attach to the tractor.
4. Fully extend the hydraulic cylinder, and place the transport lock straps in the transport lock position. See Figure 3-6.
5. Attach safety chain to tractor allowing plenty of movement for turning both directions. The safety chain should latch securely to prevent it coming loose.
Hydraulic Cylinder Hook Up

For instances where the cylinder stays with the tractor, not the implement;

**Install Cylinder:** (Machine locked in Raised position)
Remove pin from cylinder base end, attach cylinder base to front of frame. Remove clevis pin, 1/2 x 2-1/2 and hairpin from float link to allow it to pivot forward. Remove pin from cylinder rod end and attach cylinder rod to float link. Route hoses through hose holder. Attach hose to tractor couplers if not already done. Raise machine, disconnect transport lock straps and move to storage position. **See Figure 3-7.** Reinstall float link clevis pin and hairpin.

If machine is lowered, the only difference is make sure transport lock straps are in storage position. Ensure 1/2 x 2-1/2 Clevis Pin is locking Float Link **See Figure 3-7.**

**Remove Cylinder:**
Raise machine fully. Attach transport lock straps to hole in rockshaft lug.
Remove 1/2 inch pin from float link in right side.
Retract cylinder, machine weight should still be supported by transport lock straps.
Remove cylinder pins and cylinder. Reinstall clevis pin and hairpin to save for next time. Remove hoses.
Hydraulic Lift System

The M881 Pulvi-Mulcher is equipped with a hydraulic lift system. A hydraulic cylinder is used on the rockshaft.

![Figure 3-2: Hydraulic Leak Detection](image)

**WARNING**

Escaping hydraulic fluid can cause serious personnel injury. Relieve system pressure before repairing, adjusting, or disconnecting. Wear proper hand and eye protection when searching for leaks. Use cardboard instead of hands (See Figure 3-2.) Keep all components (cylinders, hoses, fittings, etc.) in good repair.

**If the hydraulic system** is not filled with oil it must be charged and purged of air before transporting and field operations. Carefully hitch the Pulvi-Mulcher to the tractor and connect the hydraulic lift hoses. Check to make sure the tractor hydraulic reservoir is full of the manufacturer's recommended oil.

Slowly raise the machine, and continue to hold the hydraulic lever until lift cylinder is fully extended. Lower and raise the unit to verify that cylinder is working throughout the stroke. Fully extend the lift cylinder and continue to hold the lever until all cylinder rod movement stops. Raise/Lower machine 5 times to purge air from the system.

Do not loosen any hoses or fittings. Recheck tractor reservoir to make sure it is within operating limits.

Hydraulic Oil Capacity; is a 1/2 gallon.
C-Tooth Adjustment

The working depth of the spring teeth is controlled by the hand lever on each tooth bar. Adjustments range from having the teeth clear of ground when using the machine as a pulverizer, to a maximum working depth of 5-1/2 inches.

NOTE
Keep in mind that the tines will spring back, so the maximum depth will vary depending on the soil type.

CAUTION
Do Not Attempt to remove pin connecting cylinder to rockshaft if there is any load on cylinder. Machine will fall and may cause injury.
S-Tine Adjustment

The working depth of the spring teeth is controlled by the hand lever on each tooth bar. Adjustments range from having the teeth clear of ground when using the machine as a pulverizer, to a maximum working depth of 8 inches.

**NOTE**
Keep in mind that the tines will spring back, so the maximum depth will vary depending on the soil type.

**CAUTION**
Do Not Attempt to remove pin connecting cylinder to rockshaft if there is any load on cylinder. Machine will fall and may cause injury.

![Figure 3-4: S-Tine Adjustment](image-url)
Spring Adjustment

During the raising cycle, the springs are used to force the rear of the machine to lift before the front, preventing a jolt when it shifts from rear heavy to front heavy. Tighten springs only to the level needed to accomplish this.

Figure 3-5: Spring Adjustment
Transport Lock

Field to Road: To prepare for transport, remove the Pin and Hairpin from the Transport Lock Straps and move the Straps on each side of the Rockshaft Lug. Re-insert the Pin and Hairpin into the Straps. Machine is now ready for transport. See Figure 3-6.

Road to Field: To prepare for field operation, remove the Transport Lock Straps from the Rockshaft Lug by removing the Pin and Hairpin and moving the Straps on each side of the Bolt on the left of the center truss. Re-insert the Pin and Hairpin into the Straps. The bolt will prevent the straps from moving. See Figure 3-7.

Figure 3-6: Transport Lock - Field to Road

Figure 3-7: Transport Lock - Road to Field
**Scrapper Adjustment**

The Pulvi-Mulcher, if equipped with notched rear wheels will have scrapers. To adjust scrapers; lower machine on level surface. Adjust scrapers to 1/4" gap between scraper and wheel.

*Scrapers are optional on notched front rollers. Adjustment procedure is the same for the front.*

**Land Leveler - Optional**

Adjust the Land Leveler to the highest position that does the required job. Its purpose is to break up and scatter any large lumps that are above the normal ground level.

*If the soil pushes ahead of the bar, its set too low. Striking large rocks will damage the leveler bar and possibly other parts of the machine.*
Transport

1. Check and follow all federal, state, and local requirements before transporting the Pulvi-Mulcher.

2. The Pulvi-Mulcher should be transported only by tractor required for field operation. The implement weight should not exceed more than 1.5 times the tractor weight. Maximum transport speed for the Pulvi-Mulcher is 20 mph.

3. When towing equipment in combination, the maximum equipment ground speed shall be limited to the lowest specified ground speed of any of the towed implements.

4. Maximum transport speed shall be the lesser of travel speed specified in the operator’s manual, speed identification symbol, information sign of towed equipment, or limit of road conditions.

5. Slow down when driving on rough roads. Reduce speed when turning, or on curves and slopes to avoid tipping. Equipment altered other than the place of manufacture may reduce the maximum transport speed. Additional weight, added tanks, harrowing attachments, etc. may reduce implement load carrying capabilities.

6. A safety chain is provided with the implement to insure safe transport.
   - The safety chain should have a tensile strength equal to or greater than the gross weight of the implement. The chain is attached to the upper hitch clevis hole with two flat washers between the clamp plates to assure a tight connection. Always use a 1” diameter Grade 8 bolt for this connection.
   - Attach the safety chain to the tractor drawbar (See Figure 3-10.) Provide only enough slack in the chain for turning. Do not use an intermediate chain support as the attaching point for the chain on the tractor. Do not pull the implement by the safety chain.

   Regularly inspect the safety chain for worn, stretched, or broken links and ends. Replace the safety chain if it is damaged or deformed in any way.

   ![Figure 3-10: Safety Chain](image)

7. Check that tires are of proper size, load rating, and inflated to manufacture specifications before transporting. Check wheel lug bolts to ensure tightness. See “General Torque Specifications” on page 4-1.

8. Know the transport heights and widths of the unit before transporting. Use caution when transporting near bridges and power lines.

   ![WARNING](image) Excessive speed may result in loss of control of the tractor and implement, reduced braking ability, or failure of the implement tire or structure. Do not exceed the implement maximum specified ground speed regardless of the capability of the maximum tractor speed.

9. Raise the machine to full transport height.

10. Install transport locks on lift systems. Do not depend solely on implement hydraulics for transport. See Figure 3-6.

   ![WARNING](image) Electrocution can occur without direct contact

   Failure to use transport lock pins during transport may result in permanent equipment damage, serious injury or death
11. Transport during daylight hours when ever possible. Make sure SMV emblem is clearly visible and operating. Remove any obstructions such as dirt, mud, stalks or residue that restricts view before transporting. See Figure 3-11.

Figure 3-11: SMV Sign
General Torque Specifications

This chart provides tightening torques for general purpose applications when special torques are not specified on process or drawing. Assembly torques apply to plated nuts and capscrews assembled without supplemental lubrication (as received condition). They do not apply if special graphite moly-disulfide or other extreme pressure lubricants are used. When fasteners are dry (solvent cleaned) add 33% to as received condition torque. Bolt head identification marks indicate grade and may vary from manufacturer to manufacturer. Thick nuts must be used on grade 8 capscrews. Use value in [   ] if using prevailing torque nuts.

### TORQUE SPECIFIED IN FOOT POUNDS

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<th>UNC SIZE</th>
<th>SAE Grade 2</th>
<th>SAE Grade 5</th>
<th>SAE Grade 8</th>
<th>UNF SIZE</th>
<th>SAE Grade 2</th>
<th>SAE Grade 5</th>
<th>SAE Grade 8</th>
</tr>
</thead>
</table>

### METRIC:

Coarse thread metric class 10.9 fasteners and class 10.0 nuts and through hardened flat washers, phosphate coated, Rockwell “C” 38-45. Use value in [   ] if using prevailing torque nuts.

<table>
<thead>
<tr>
<th>Nominal thread diameter (mm)</th>
<th>Newton Meters (Standard Torque)</th>
<th>Foot Pounds (Standard Torque)</th>
<th>Nominal Thread Diameter (mm)</th>
<th>Newton Meters (Standard Torque)</th>
<th>Foot Pounds (Standard Torque)</th>
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<td>34 [47]</td>
<td>30</td>
<td>1330 [1470]</td>
<td>990 [1090]</td>
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<td>60 [75]</td>
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<td>1790 [1950]</td>
<td>1340 [1450]</td>
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<td>18</td>
<td>275 [330]</td>
<td>205 [245]</td>
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Hydraulic Fitting Torque Specifications

37 degree JIC, ORS, & ORB (REV. 10/97)
This chart provides tightening torques for general purpose applications when special torques are not specified on process or drawing. Assembly torques apply to plated nuts and capscrews assembled without supplemental lubrication (as received condition). They do not apply if special graphite moly-disulfide or other extreme pressure lubricants are used. When fasteners are dry (solvent cleaned) add 33% to as received condition torque. Bolt head identification marks indicate grade and may vary from manufacturer to manufacturer. Thick nuts must be used on grade 8 capscrews. Use value in [ ] if using prevailing torque nuts.

**TORQUE SPECIFIED IN FOOT POUNDS**

**PARKER® BRAND FITTINGS**

<table>
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<th>O-ring boss</th>
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<td>15-17</td>
<td>13-15</td>
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<td>-5</td>
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<td>58-62</td>
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**AERQOQUI® BRAND FITTINGS**

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**GATES® BRAND FITTINGS**

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<td>-14</td>
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<td>111-125</td>
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<td>-32</td>
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<td>210-250</td>
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</table>

**Fasteners**

Before operating your Brillion machine, check all hardware for tightness. Use the Tightening Torque Table as a guide. **See Page 4-1.**

After a few hours of use, check entire machine and tighten any loose nuts or bolts. Daily or periodic checks should be made thereafter.

When replacing bolts, be sure to use fasteners of equal grade.
Tires

**WARNING**

Use a torque wrench to assure proper torque. Insufficient torque can cause stud breakage and damage the wheel pilots. Over torque can overstress the studs and strip the threads.

**NOTE**

All tire/wheel assemblies are mounted with the valve stem facing outward from Hub and Spindle.

The M881 Pulvi-Mulcher uses 7.60 x 15 6 ply tires. Inflate all tires equally to avoid side draft. Follow the tire manufacturer’s recommended pressures listed on the sidewall of the tire.

![Figure 4-1: Stud Tightening Sequence](image)

Wheel Bearing Maintenance

Wheel bearing maintenance should be performed at the beginning of every season of use. Check the wheel bearings periodically for excessive end play. If needed, adjust or replace them using the following procedure:

1. Place the frame on blocks or stands sufficient to lift the tire clear of the ground.
2. Remove the tire.
3. Remove the hub cap, cotter pin, slotted nut and washer.
4. Remove the hub. Clean and inspect the bearings and hub cavity. Replace any worn or defective parts.
5. Repack the bearings using a high-quality wheel bearing grease.
6. Slide the triple-lip seal onto the spindle. Do not install the seal into the hub.
7. Slide the inner bearing cone and hub onto the spindle.
8. Install the outer bearing cone, washer and slotted nut.
9. Tighten the slotted nut while rotating the hub until there is a slight resistance to wheel rotation. Then, back the slotted nut off one notch, until the wheel rotates freely without end play.
10. Slide the triple-lip seal to the hub and install the seal in the hub.

**NOTE**

The triple-lip seals should point away from the hub to keep contaminants out and allow grease to pass.

11. Install a new cotter pin and re-install the hub cap.

Lubrication Maintenance

Grease bearing caps and the axle supports every 12 hrs. See Figure 4-2.

Grease wheels hubs every 50 hrs. See Figure 4-2.

Hydraulic Maintenance

**IMPORTANT**

Unfold, lower the unit to the ground, and relieve hydraulic pressure before attempting to service any hydraulic component.

1. Check the tractor hydraulic fluid level per tractor owners manual and after any leakage. Check fluid level with the cylinder in the retracted position.
2. If cylinder or valve leaks, disassemble the parts to determine the cause of the leak. Any time a cylinder is opened up, or whenever any seal replacement is necessary, it is advisable to clean all parts and replace all seals. Seal kits are available from your Brillion/Landoll dealer.
3. Check all hydraulic hoses weekly. Look for binding or cracking. Replace all worn or defective parts immediately.
4. Transport locks are provided to hold the implement in a raised position. Do not attempt to perform any service work under the implement without first installing the transport locks. Before servicing any hydraulic component, lower the implement to the ground and relieve all system pressure. If a hydraulic component is disconnected, repaired, or replaced, it will be necessary to purge the system of air before operation. See “Purging the Hydraulic System” on page 2-10 on how to purge the hydraulic systems.
Figure 4-2: Lubrication Points and Intervals
Clamp Tightening Procedure

The tightening procedure and torque requirement is critical in keeping the clamp tight and also has a significant affect on the bearing life of the axles with internal bearings.

Clamp Tightening Procedure:
Check axle and clamp for burrs on mating surfaces.
Remove end play between wheels by sliding wheels toward the fixed end of the axle.
Position clamp snugly against the end wheel.
Tighten the U-bolt evenly to 57 Ft/Lbs (U-bolt must be tightened first.) See Figure 4-3.
Tighten set screws to 37 Ft/Lbs (Some clamps do not have set screws.)

If the axle has an internal bearing, check that it turns freely. You should be able to turn the bearing with your fingers. If rotation is jerky, loosen set screws and U-bolt until bearing turns smoothly. It may be necessary to loosen and reposition clamp.
The torque requirement is recommended for axles without internal bearings, but is not critical.

Axle Installation:
When installing a roller axle with an internal bearing onto a support bracket, it is important to keep the roller axle aligned as straight as possible to the installed position. If the roller assembly is significantly out of line when sliding it unto a fixed support, the inner race of the bearing may crack and cause premature bearing failure.

Figure 4-3: Clamp Tightening
C-Tooth Point Replacement
As the C-tooth point wears, a replacement reversible point is available for installation.

Place the reversible point on the front of the C-tooth, line-up the two bolt holes, insert two 3/8-16 X 1-3/4 Cultivator Bolts and tighten using two 3/8-16 Flanged Lock Nuts. See Figure 4-4.

Figure 4-4: C-Tooth Point Replacement

Storage
1. The service life of the Pulvi-Mulcher will be extended by proper off-season storage practices. Prior to storing the unit, complete the following procedures:
   a. Completely clean the unit.
   b. Inspect the machine for worn or defective parts. Replace as needed.
   c. Repaint all areas where the original paint is worn off.
   d. Grease all exposed metal surfaces of shanks and points.
   e. Apply a light coating of oil or grease to exposed cylinder rods to prevent them from rusting.
   f. Lubricate each point of the machine as stated in “Lubrication Points and Intervals” on page 4-4.
2. Store the unit in a shed or under a tarpaulin to protect it from the weather. The ground tools and tires should rest on boards, or some other object, to keep them out of the soil.
3. Relieve Hydraulic Pressure in hoses after locks are installed.
4. Block wheels before unhitching from tractor.
# Maintenance Chart

*(Subject to change without notice)*

<table>
<thead>
<tr>
<th>Maintenance Item</th>
<th>Initial Run-In</th>
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<th>50 Hours</th>
<th>100 Hours/Annually</th>
<th>Storage</th>
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<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Adjust Scraper if equipped</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grease Wheel Hub</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repack Wheel Hub Bearings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Tighten Roller Axle Wheels and Clamps</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>** Clean machine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Grease after cleaning</td>
<td></td>
<td></td>
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</tr>
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** Avoid spraying high pressure washer directly at bearing seals and electrical connections.
MAINTENANCE

Table provided for general use.

NOTES:
### Chapter 5

#### General Reference and Specifications

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<th></th>
<th>M881, MC881, MCC881</th>
<th>MS881, MCS881, MCCS881</th>
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</thead>
</table>
| **Approximate Weight** | M881: 2,934 lbs. (1,302 kg)  
MC881: 2,824 lbs. (1,271 kg)  
MCC881: 2,739 lbs. (1,233 kg)  | MS881: 2,944 lbs. (1,325 kg)  
MCS881: 2,841 lbs. (1,266 kg)  
MCCS881: 2,724 lbs. (1,226 kg)  |
| **Working Width**      | 7 ft. 4 in. (2.2 m)  | 7 ft. 4 in. (2.2 m)  |
| **Transport Width**    | 7 ft. 10 in. (2.35 m)  | 7 ft. 10 in. (2.35 m)  |
| **Transport Height**   | 3 ft. 0 in. (.9 m)  | 3 ft. 0 in. (.9 m)  |
| **Overall Length Transport** | 16 ft. 2 in. (4.85 m)  | 16 ft. 2 in. (4.85 m)  |
| **Pulverizer Wheels Front** |                      |                         |
| **Type of Wheel**      | M881: 16.25 in. (413 mm) Notched Gray Iron  
MC881/MC881: 16.5 in. (419 mm) Crowfoot Gray Iron |  
MS881: 16.25 in. (413 mm) Notched Gray Iron  
MCS881/MCCS-881: 16.5 in. (419 mm) Crowfoot Gray Iron |
| **Number of Wheels**   | M-881: 21  
MC881/MCC881: 14 | MS881: 21  
MCS881/MCCS-881: 14 |
| **Pulverizer Wheels Rear** |                     |                         |
| **Type of Wheel**      | M881/MC881: 16.25 in. (413 mm) Notched Gray Iron  
MCC881: 16.5 in. (419 mm) Crowfoot Gray Iron |  
MS881/MCS881: 16.25 in. (413 mm) Notched Gray Iron  
MCCS881: 16.5 in. (419 mm) Crowfoot Gray Iron |
| **Number of Wheels**   | M881/MC-881: 22  
MCC881: 15 | MS881/MCS-881: 22  
MCCS881: 15 |
| **Roller Axle Size**   | 4 in. (102 mm)  | 4 in. (102 mm)  |
| **Type of Teeth**      | Conventional "C" Teeth | 10 mm "S-Tine" Teeth with 1.38 in. (35 mm) Reversible Point or 2.75 in. (70 mm) Shovel |
| **Number of Teeth**    | 13 | 13 |
| **Nominal Teeth Spacing** | 6 in. (153 mm) | 6 in. (153 mm) |
| **Tooth Depth Control** | Individual Front and Rear Manual | Individual Front and Rear Manual |
| **Maximum Tooth Depth of Operation** | 4 in. (102 mm) | 4 in. (102 mm) |
| **Hitch**              | Pull-Type with Hydraulic Lift | Pull-Type with Hydraulic Lift |
| **Tire Size**          | 7.60 x 15-6 Ply Implement Rib (Singles) | 7.60 x 15-6 Ply Implement Rib (Singles) |
| **Safety Warning Lights & SMV Emblem** | SMV Only | SMV Only |
| **Travel Link**        | Standard | Standard |
| **Land Leveler Kit**   | Optional | Optional |
| **Front Roller Scraper Kit (Notched Rollers)** | Optional on M881 | Optional on MS881 |
| **Safety Chain Kit**   | Standard | Standard |
| **Powder Coat Paint, Red** | Standard | Standard |
| **Hydraulic Cylinder and Hose Kit** | Standard | Standard |
| **Horsepower Requirements** | 6 to 8 HP (4.5 to 6 kW) per ft. | 6 to 8 HP (4.5 to 6 kW) per ft. |
| **Recommended Operating Speed** | 3 to 6 MPH (5 to 10 km/h) | 3 to 6 MPH (5 to 10 km/h) |
Table provided for general use.

NOTES:
Document Control Revision Log:

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<th>Revision</th>
<th>Improvement(s) Description and Comments</th>
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<td></td>
<td>WML</td>
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Equipment from Landoll Corporation is built to exacting standards ensured by ISO 9001 registration at all Landoll manufacturing facilities.

Pulvi-Mulcher
Models - M881, MC881, MCC881, MS881, MCS881, MCCS881
Operator’s Manual

Re-Order Part Number 2K795

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