

OPERATOR'S MANUAL

MX Series Manure Spreader

MX25G, MX50G, MX80G
MX50P, MX80P

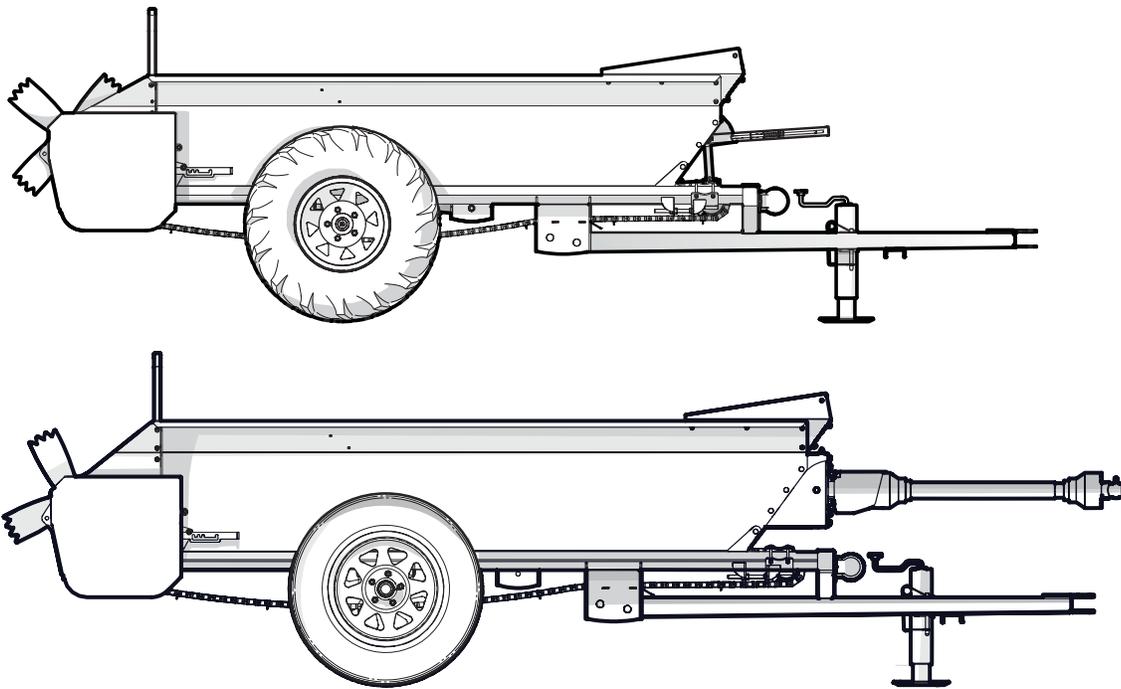


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1. Introduction

Congratulations on your choice of a Wallenstein MX Series Manure Spreader!

This manual covers the following models:

- **Ground Drive – MX25G, MX50G, MX80G**
- **PTO Drive – MX50P, MX80P**

All models feature selectable speed apron control with 662 style apron chain. The apron bed is laid with tongue-and-groove poly floorboards that do not rust or rot, and are easy to clean. Steel components are made from corrosion resistant carbon steel, powder coat painted for extra protection.

For safe, efficient, and problem-free operation of this Wallenstein Equipment product, make sure that everyone who uses or maintains the machine reads and understands the information in this manual and the engine manufacturer's manual.

For information about the accessories, go to WallensteinEquipment.com.

Keep this manual available for frequent reference and to give to new operators or owners. Call your local Wallenstein dealer or the distributor if you need assistance, information, or additional copies of the manuals.

Units of measurement in Wallenstein technical manuals are written as: US Customary (SI metric)

For support or service, contact your local Wallenstein Equipment dealer or distributor.

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This manual is subject to change without notice. For the most current information, go to WallensteinEquipment.com.



1.1 Delivery Inspection Report

Wallenstein MX Series Manure Spreader

To register your product and start the warranty, go to WallensteinEquipment.com.

This form must be completed by the dealer at the time of delivery, and then signed by the dealer and customer.

I received the product manuals and was thoroughly instructed about the care, adjustments, safe operation, and applicable warranty policy.

I thoroughly instructed the customer about the equipment care, adjustments, safe operation, and applicable warranty policy, and reviewed the manuals with them.

Customer

Dealer

Address

Address

City, State/Province, ZIP/Postal Code

City, State/Province, ZIP/Postal Code

()

()

Phone Number

Phone Number

Contact Name

Model

Serial Number

Delivery date

Dealer Inspection Checklist

- _____ All belts are aligned and the tension is correct.
- _____ Drive chain tension is correct.
- _____ PTO shaft telescopes and shield turns.
- _____ Clutch is adjusted and functions correctly.
- _____ Gearbox oil level is correct.
- _____ Apron chain moves freely and the tension is correct.
- _____ Beater bar moves freely.
- _____ Speed-control mechanism moves freely.
- _____ All fasteners are tightened to the correct torque.
- _____ All grease points are lubricated.
- _____ Purchased accessories are included, if applicable.

_____ Operator's Manual is in the storage tube.

_____ Tire pressure is correct (see the tire sidewall).

_____ Tires are in good condition.

Safety Checks

_____ All safety labels are applied and legible.

_____ Operating and safety instructions were reviewed.

_____ All guards, shields, and covers are installed and secure.

_____ A retainer is installed through each hitch point.

_____ Wheel lug nuts are tightened to the correct torque.

1.2 Serial Number Location

Always provide the model and serial number of your Wallenstein product when you order parts, or request service or other information. The product information plate location is shown in the following illustration.

Record the model and serial number of your product here:

Model	
Serial Number	

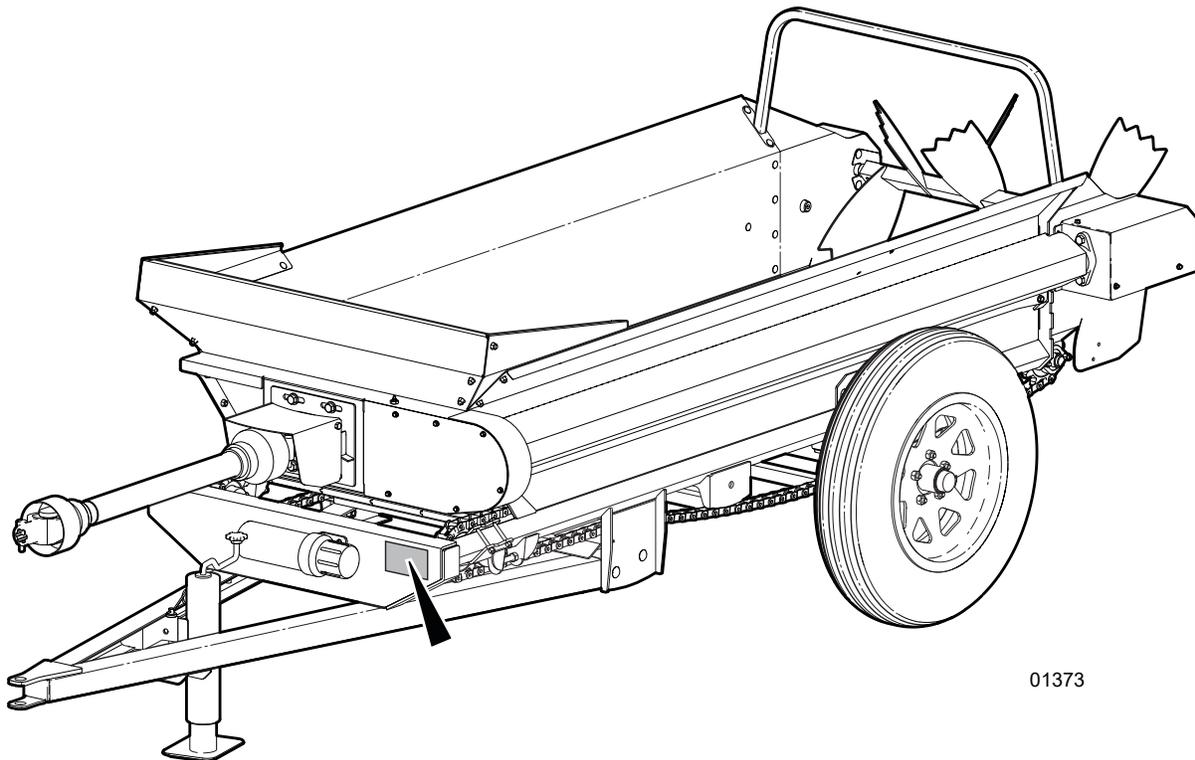


Figure 1 – Serial Number Plate Location (Typical)

1.3 Types of Labels on the Machine

There are different types of labels on your Wallenstein product. The labels are for safety, information, and product identification. This section explains what the labels are for and how to read them.

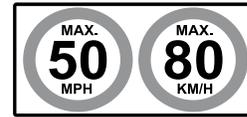
Safety labels are pictorial with a yellow background and have two panels. They can be vertical or horizontal.



Mandatory action labels are pictorial with a blue background and usually rectangular with single or multiple symbols. This label shows the type of personal protective equipment (PPE) that is necessary for safe operation.



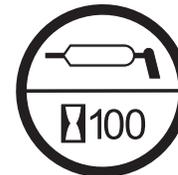
Information labels are usually pictorial with a white background and the number of panels can be different. This type of label gives the operator information or shows the operation of a control.



Product labels show the machine model and serial number. For more product information, scan the quick response (QR) code.



Maintenance labels have a green background and the number of panels can be different. This label shows the type of maintenance and how frequently it is necessary.



For safety label definitions, see *Safety Label Definitions on page 11*. For a complete illustration of labels and label locations, download the parts manual for your Wallenstein product at WallensteinEquipment.com.

2. Safety

2.1 Safety Alert Symbol

This Safety Alert Symbol means:

ATTENTION! BE ALERT!
YOUR SAFETY IS INVOLVED!

The safety alert symbol identifies important safety messages on the machine and in the manual.

When you see this symbol, be aware of the possibility of personal injury or death. Follow the instructions in the safety message.



2.2 Signal Words

The signal words **DANGER**, **WARNING** and **CAUTION** identify the severity of a hazard to anyone who uses the machine. The applicable signal word for each message was selected using the following guidelines:

DANGER

Identifies a hazardous situation that, if not avoided, **will** result in serious injury or death. This signal word is used to tell anyone who uses the machine about the most hazardous situations and machine components that cannot be guarded against.

WARNING

Identifies a hazardous situation that, if not avoided, **could** result in serious injury or death. This signal word includes hazards that occur when guards are removed and can be used to tell anyone who uses the machine about unsafe practices.

CAUTION

Identifies a hazardous situation that, if not avoided, **could** result in minor or moderate injury. It can also be used to tell anyone who uses the machine about unsafe practices.

IMPORTANT – Identifies a situation that could result in damage to the machine or property, but is not a personal injury hazard.



Provides additional information that is helpful.

2.3 Why is SAFETY important?

- **Accidents disable and kill people.**
- **Accidents cost money.**
- **Accidents are preventable**

YOU are responsible for the safe operation and maintenance of your Wallenstein product. **YOU** must make sure that you and anyone else who uses, maintains, or works around the machine is familiar with the operation and maintenance procedures and related **SAFETY** information contained in this manual. Obey the safety best practices included in this manual when you use your machine.

YOU are responsible for your own safety. Obey safety best practices to protect yourself and the people around you. Make these practices part of your safety program. Make sure that **EVERYONE** who uses this machine is familiar with the recommended operation and maintenance procedures, and obeys all the safety instructions. Most accidents can be prevented.

Do not risk injury or death by ignoring safety instructions and best practices.

2.4 Safety Rules

WARNING!



Wear the necessary hearing protection when you operate this machine. Prolonged exposure to loud noise can cause permanent hearing loss.

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- Follow ALL safety and operating instructions in this manual. The most important safety device on this equipment is a SAFE operator. 
- Operators of this machine must be responsible, physically able people who are familiar with machinery and trained in the operation of this equipment.
- Learn the meaning of all the safety labels that are on the machine. For definitions, see *Safety Label Definitions on page 11*.
- Review safety related items annually with all personnel who will be operating the machine or performing maintenance.
- Do not expect a person to operate the manure spreader who has not read all of the instructions and safety information in this manual. An untrained operator is not qualified and exposes themselves and bystanders to possible serious injury or death.
- Never consume alcohol or drugs prior to or while using this equipment. Alertness or coordination can be affected. Consult your doctor about using this machine while taking prescription medications.
- Wear appropriate PPE when using or servicing this machine. This includes, but is not limited to:
 - A hard hat
 - Heavy gloves
 - Hearing protection
 - Respirator or filter mask
 - Protective shoes with slip resistant soles
 - Protective glasses, goggles, or face shield
- Wear hearing protection on a full-time basis if the noise in the operator's position exceeds 80 dB. Noise over 85 dB on a long-term basis can cause severe hearing loss. Noise over 90 dB adjacent to the operator over a long-term basis may cause permanent, total hearing loss.
- Keep a first-aid kit available for use, should the need arise, and know how to use it. 

- Keep a fire extinguisher available for use, should the need arise, and know how to use it.



- Do not use a tractor unless it is equipped with a roll over protective structure (ROPS). Always wear the seat belt when operating a tractor. Serious injury or even death could result from falling off the tractor in the event of a rollover where the operator could be pinned.
- Do not allow long hair, loose fitting clothing, or jewelry near the equipment.
- Know how to stop the equipment quickly in the event of an emergency. For instructions, see *Stopping in an Emergency on page 23*.
- Only operate the machine in daylight or good artificial light.
- Do not risk injury or death by ignoring good safety practices.

2.5 Equipment Safety Guidelines

- The manure spreader is not intended for use or transport on public roadways. For more information, see *Transporting on page 28*.
- Never operate the machine with any shield removed. Keep all shields in place. If shield removal is required for service or maintenance, replace the shield prior to using the manure spreader.
- Replace any safety or instruction labels that are not readable or missing.
- Do not modify the equipment in any way. Unauthorized modification may result in serious injury or death, and may impair the function and life of the equipment. Unapproved modifications void the warranty.
- Make sure that the machine is properly stationed, adjusted, and in good operating condition.
- Never exceed the limits of a piece of machinery. If the machine's ability to do a job or to do it safely is in question – **DO NOT TRY IT.**

2.6 Safe Condition

Placing the machine in a **safe condition** means setting the machine to a state that makes it safe to work on before performing any service, maintenance, or storage preparation.

If the manure spreader cannot be disconnected from the tow vehicle, complete the following to set the equipment to a safe condition:

SAFE CONDITION

1. Turn off the mechanical drive.
2. Set the tow vehicle's parking brake
3. Turn off the engine.
4. Remove the ignition key.
5. Make sure that all components have stopped moving.
6. Block the wheels to prevent movement.

2.7 Safety Training

Safety is a primary concern in the design and manufacture of Wallenstein products. Unfortunately, efforts to provide safe equipment can be wiped out by a single careless act.

- It is the operator's responsibility to read, understand, and follow ALL safety and operating instructions in this manual. 
- Train all new personnel and review instructions frequently with existing personnel. Make sure that only a properly trained and physically able person uses the machine. A person who has not read and understood all instructions is not qualified to use the machine. An untrained operator can cause serious injury or death to themselves or others.
- Learn the controls and how to stop the machine quickly in the event of an emergency. For instructions, see *Stopping in an Emergency* on page 23.
- If the machine is loaned or rented, it is the owner's responsibility to make sure that, prior to using the machine, every operator:
 - Reads and understands this manual.
 - Is instructed in the safe and correct use of the equipment.
 - Understands and knows how to complete the **Safe Condition** procedure.

PTO-drive Models

Safety

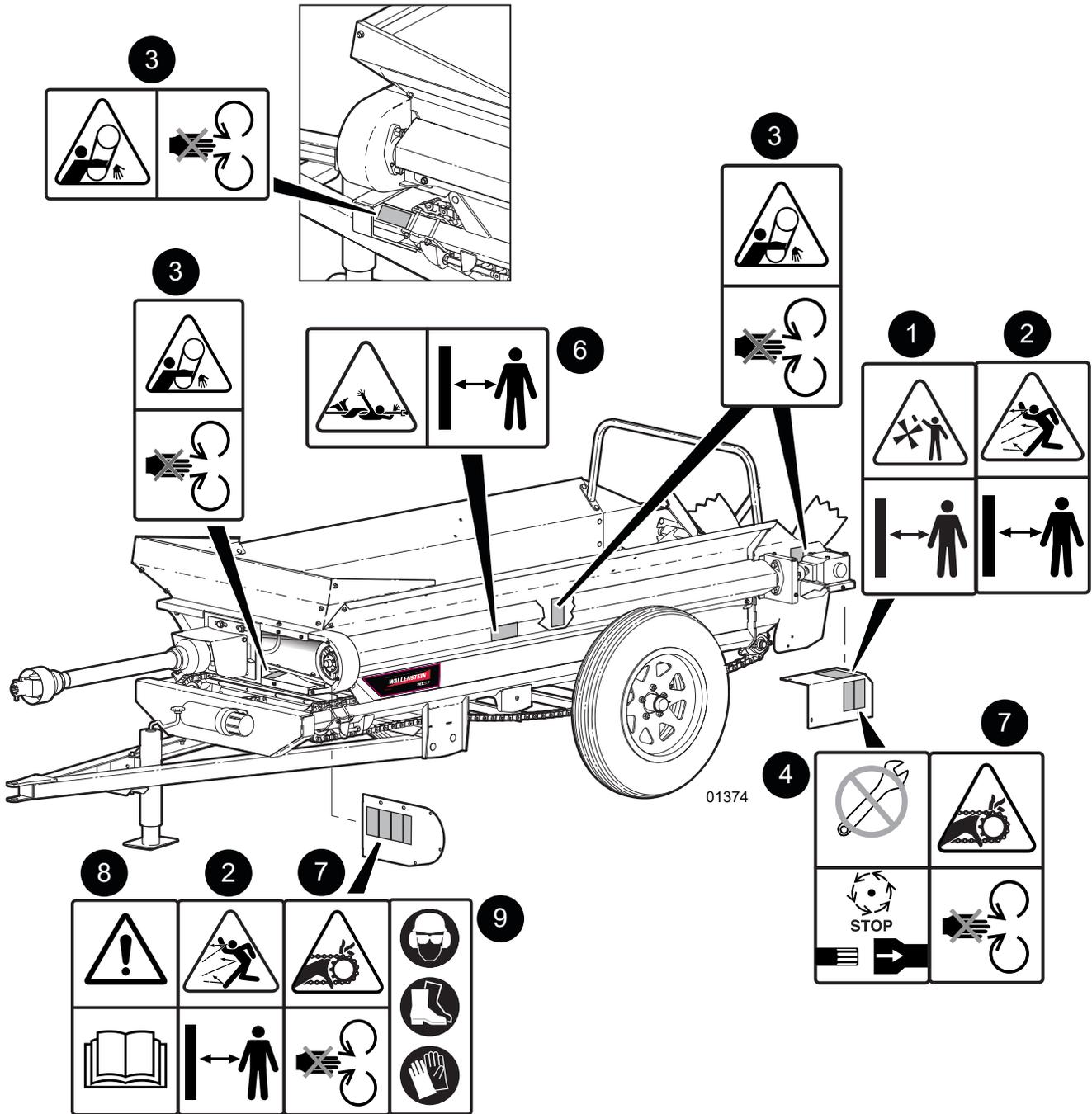


Figure 4 – PTO-driven Manure Spreaders

Ground-drive Models

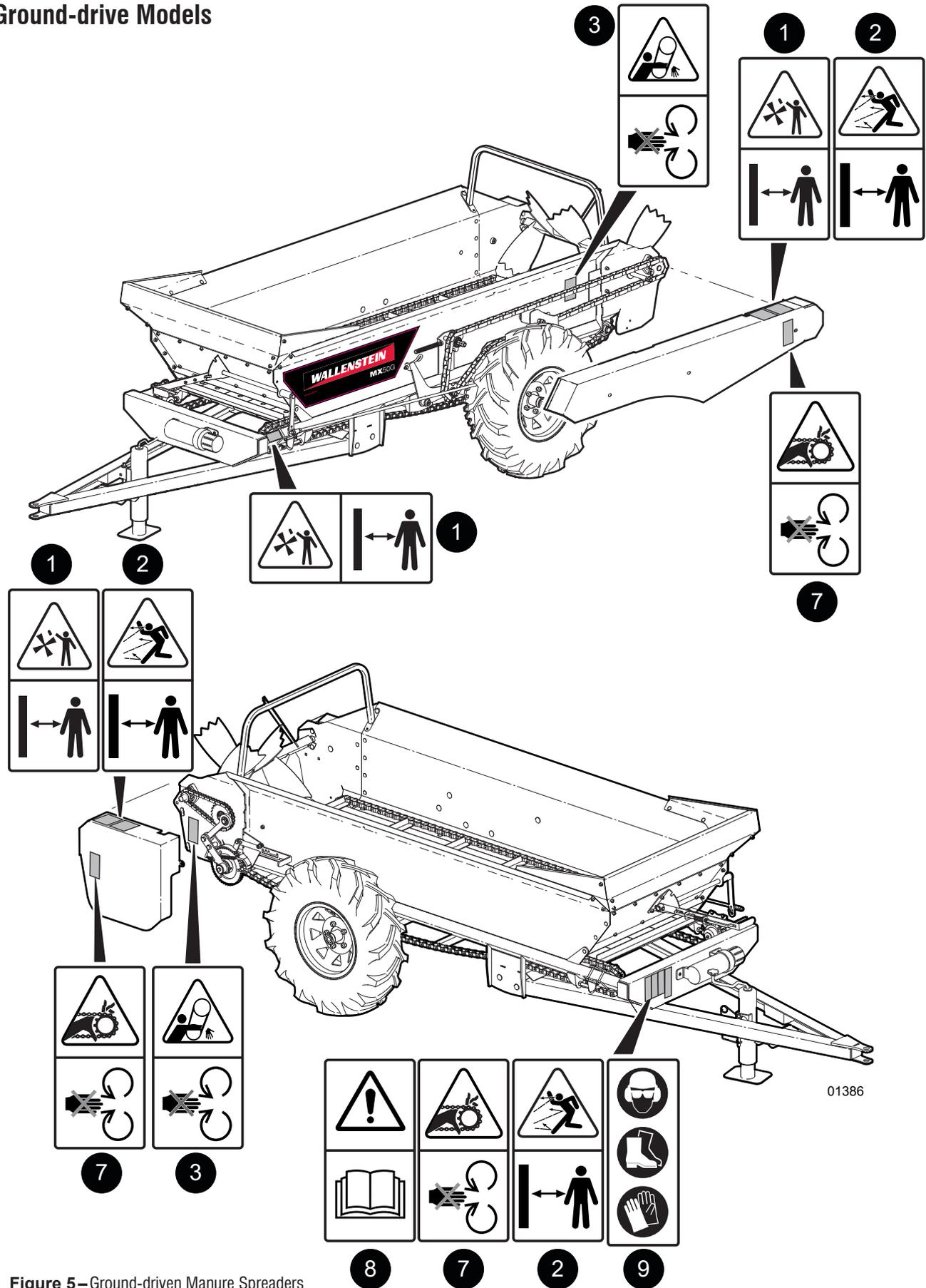
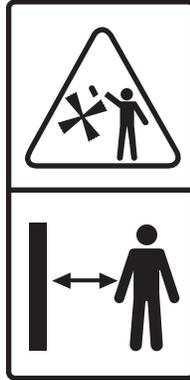


Figure 5—Ground-driven Manure Spreaders

1. WARNING!

Risk of entanglement in beater-bar paddles.

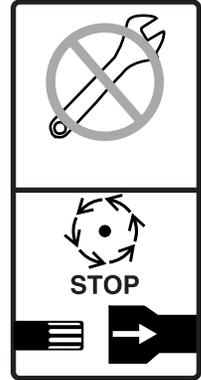
Keep hands, loose clothing, and long hair away from the beater-bar paddles while they are operating.



4. WARNING!

Risk of serious injury or death if the power take-off (PTO) is not stopped and disengaged.

Before performing any maintenance, stop the engine, and then disengage the PTO.



2. WARNING!

Risk of injury from flying debris!

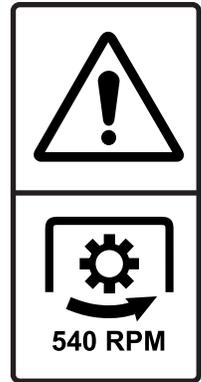
Stay clear of manure discharge. The beater bar can expel manure or other material fast enough to cause injury.



5. WARNING!

Risk of personal injury from component failure.

Excessive PTO speeds, above 540 rpm, or incorrect rotation can result in machine damage.



3. WARNING!

Do not operate machine without shields in place.

Failure to do so may cause serious injury or death.



6. WARNING!

Risk of entanglement in rotating drive line!

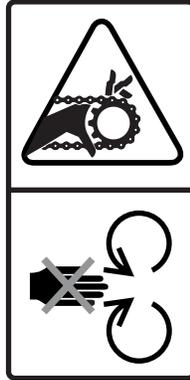
Stay clear of the PTO shaft when the machine is operating. Do not operate the machine with the PTO shaft cover removed. Keep hands, loose clothing, and long hair away from the drive line while it is rotating.



7. WARNING!

Risk of being caught in rotating parts resulting in serious injury.

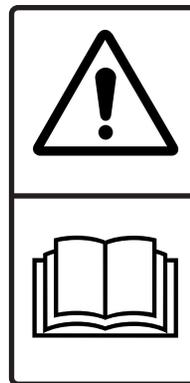
Do not attempt to reach in with the shields removed while the machine is operating. Keep hands, loose clothing, and long hair away.



8. CAUTION!

Read the operator's manual.

Read ALL operating instructions in the manual and learn the meaning of ALL safety signs on the machine.



9. CAUTION!

Always wear the appropriate PPE when using this machine.

For example:

- A hard hat
- Heavy gloves
- Hearing protection
- Protective shoes with slip resistant soles
- Protective glasses, goggles, or a face shield



2.10 Replace a Safety Label

- Always replace safety labels that are missing or have become illegible. Replacement safety labels are available from your local Wallenstein Equipment dealer or distributor.
- Keep the safety labels clean and legible at all times.
- When a part that has a safety label on it is replaced, the correct safety label must be applied to the replacement part.

2.10.1 Conditions

- The installation area must be clean and dry.
- The application surface must be clean and free of grease or oil.
- The ambient temperature must be above 50 °F (10 °C).

2.10.2 Tool

Use a squeegee, plastic card, or similar tool to smooth the label.

2.10.3 Procedure

1. Identify the label location.
2. Peel the label off the backing paper.
3. Hold the label above the location where you are going to apply it.
Align the edges of the label with an edge of the machine.
4. Start at one edge and carefully press the center of the adhesive side of the label onto the machine.
5. Use an appropriate tool to smooth the label. Work from one side to the other.
6. If there are small air pockets:
 - a. Use a pin to pierce the air pocket.
 - b. Use a piece of the label backing paper to smooth the air pocket.

3. Familiarization

A Wallenstein Compact Manure Spreader is a light-duty trailer designed to hold, transport, and spread manure or other similar material. A set of beater-bar paddles at the back of the main box spread the manure.

PTO or ground-drive models are available. PTO-drive models use power from the tractor transmitted through a PTO shaft. Power is transmitted along the left-hand side of the frame to drive the beater bar and unloading chain systems. Ground-drive systems power the beater bar and unloading chain systems through the wheels. The drive system is located on the left-hand side of the frame.

3.1 New Operator

WARNING!

Make sure that all operators understand how to put the machine in a safe condition before they start any service or maintenance work. For instructions, see *Safe Condition* on page 9.

It is the responsibility of the owner and the operator to read this manual, and to train all operators before they work with the machine. Obey all safety instructions.

Only a fully trained operator is approved to use the machine. A person who operates the machine without the correct training is a danger to themselves and others, and can cause property damage.

3.2 Training

Each operator must be trained in the correct operating procedures before using the machine. Use *page 10* to keep a training record.

1. Teach the new operator the control locations, functions, and movement directions.
2. Put the machine in a large open area and let the new operator learn the control functions and machine responses.
3. After the new operator knows and is comfortable with the machine, they can start work.

3.3 Operator Orientation

IMPORTANT! When describing controls throughout this manual, the directions for left side, right side, front, and rear are determined when sitting in the driver seat, facing the direction of forward machine travel.

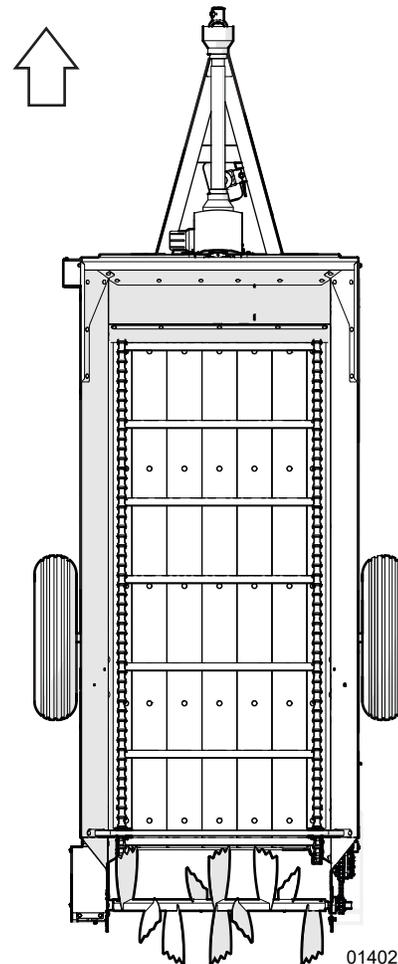
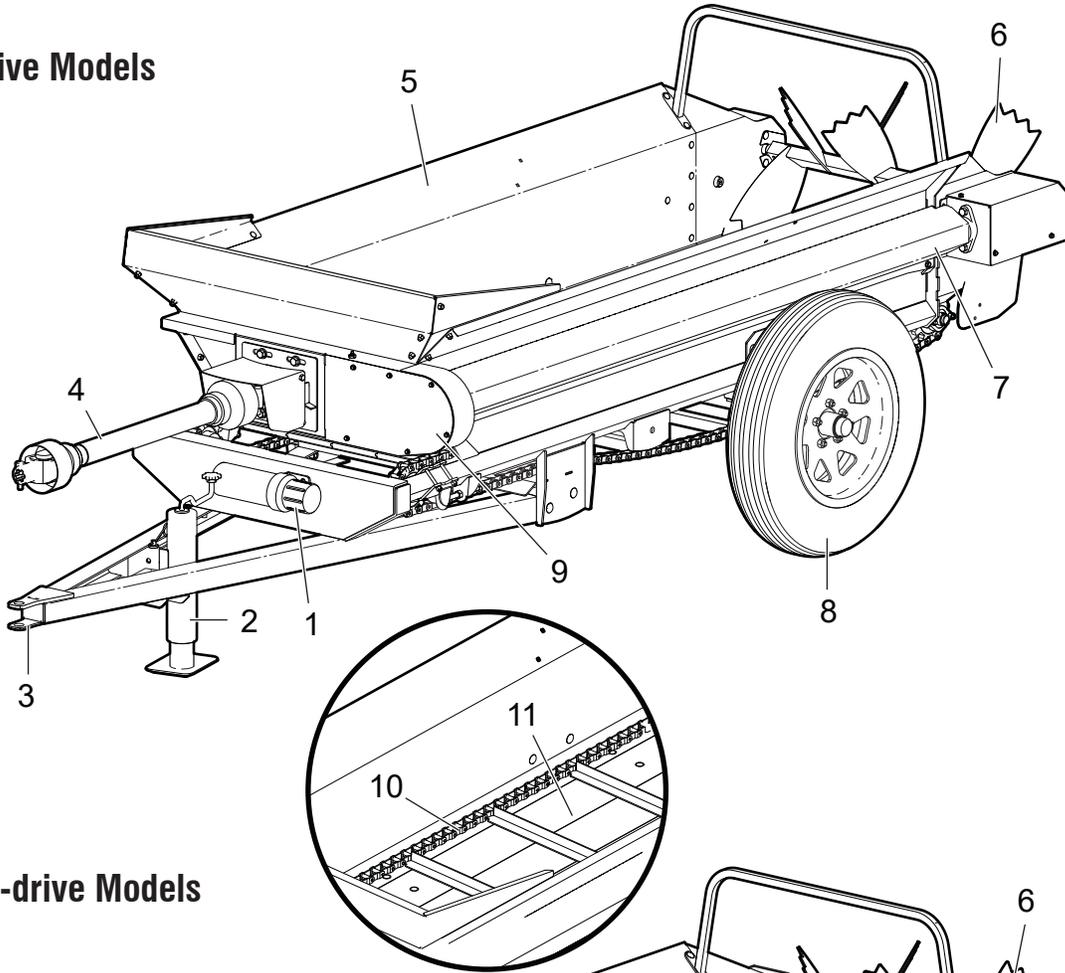


Figure 2—Operator orientation

3.4 Machine Components

PTO-drive Models



Ground-drive Models

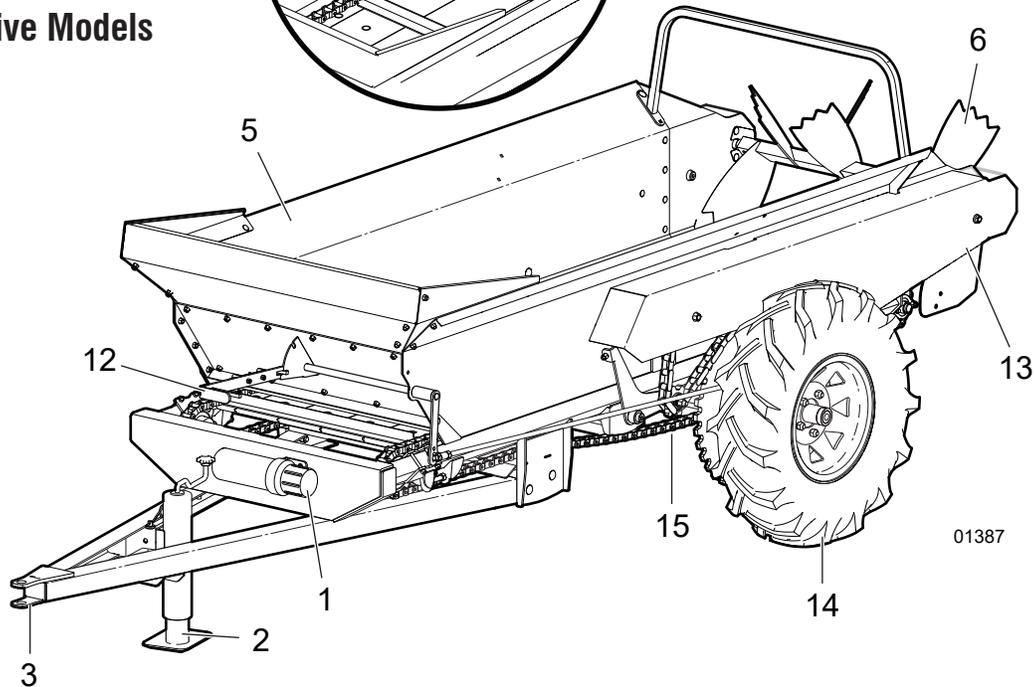


Figure 6—Machine Components

- | | | |
|--------------------------------|---|--|
| 1. Operator's manual container | 6. Beater bar and paddles | 11. Tongue-and-groove poly floorboards |
| 2. Trailer jack | 7. Beater-bar drive cover | 12. Ground-drive control |
| 3. Clevis-hitch tongue | 8. Six-ply (6PR) farm specialist tires | 13. Apron drive chain shield |
| 4. PTO shaft | 9. Front belt-drive shield | 14. Ground-drive tires |
| 5. Main box | 10. Heavy-duty apron chain with tensioner | 15. Apron-drive chain |

4. Attaching to a Tow Vehicle

! WARNING!

Never let anyone stand between the tractor and the implement during hitching. Too fast of an approach or the operator's foot slipping from the clutch can lead to injury or fatality to the person standing nearby.

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When coupling or uncoupling the manure spreader to or from a tow vehicle, the manure spreader should always be parked on a level, dry area that is free of debris and other foreign objects.

1. Keep bystanders clear of the area.
2. Make sure that there is enough space and clearance to safely back up to the tow vehicle.
3. Use the trailer jack to raise the clevis hitch to the height of the tow vehicle draw bar.
4. Slowly back up the tow vehicle until the draw bar and clevis hitch are aligned.
5. Attach the clevis hitch. Place the hitch pin through the clevis and draw bar, and then install the snap-lock pin to secure the hitch pin.
6. Use the crank to raise the trailer-jack leg.
7. Pull out the pin, and then swivel the trailer jack to its stowed position.

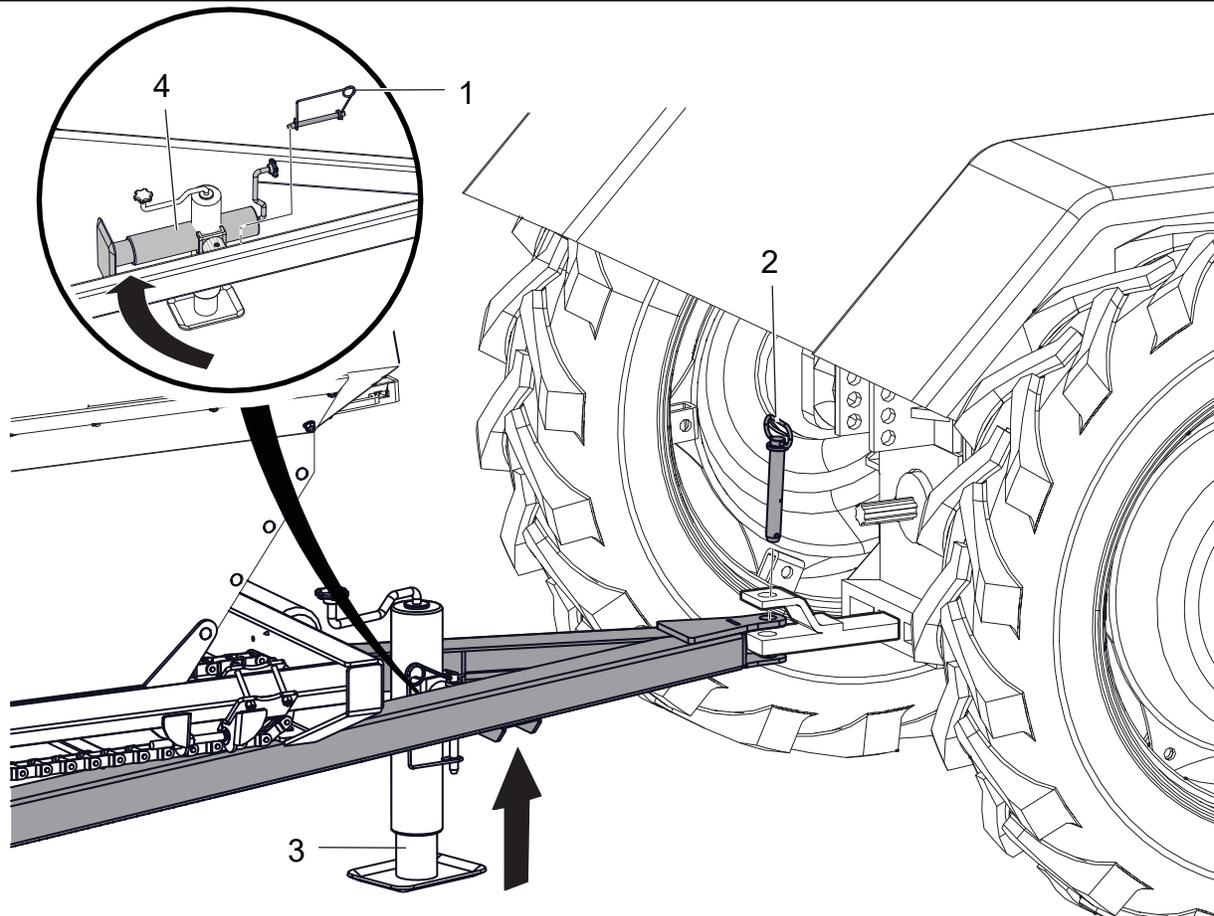


Figure 7 – Attaching to a Tow Vehicle

1. Snap-lock pin
2. Hitch pin
3. Trailer-jack leg
4. Trailer jack in the stowed position

5. PTO Shaft

Before installing the PTO shaft, make sure that it is the correct size.

5.1 Sizing a PTO Shaft

PTO-drive Models

IMPORTANT! The PTO shaft that came with your machine may need to be shortened.

CAUTION!

Wear suitable eye protection when cutting steel tubes.

- Hook up the manure spreader to the tractor.
- Take the PTO shaft that came with your machine, fully collapse it, and then measure the distance between the locking yokes. Call this measurement **A**.

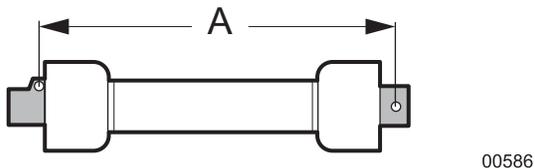


Figure 8—Measurement A

- Measure the distance between the grooves for the locking collars on each input, and then subtract 2 inches (50 mm) from this measurement. Call this measurement **B**.

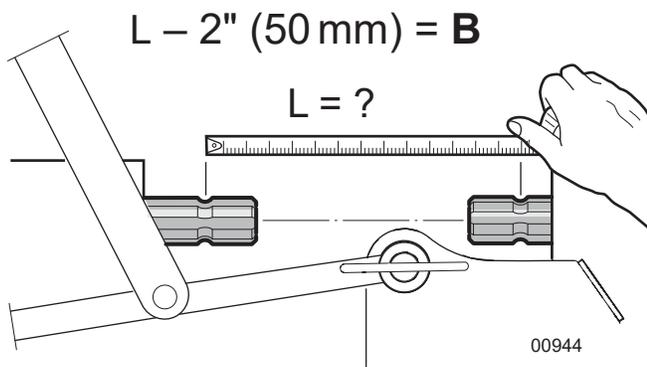


Figure 9—Measurement B

- If the collapsed length **A** (from Step 2) is longer than measurement **B** (from Step 3), the PTO shaft must be shortened.

- Subtract **B** from the uncut PTO shaft measurement **A**. ($A - B$).

The result is the length that **BOTH** halves of the PTO shaft should be shortened. Call this cut length **C** ($A - B = C$).

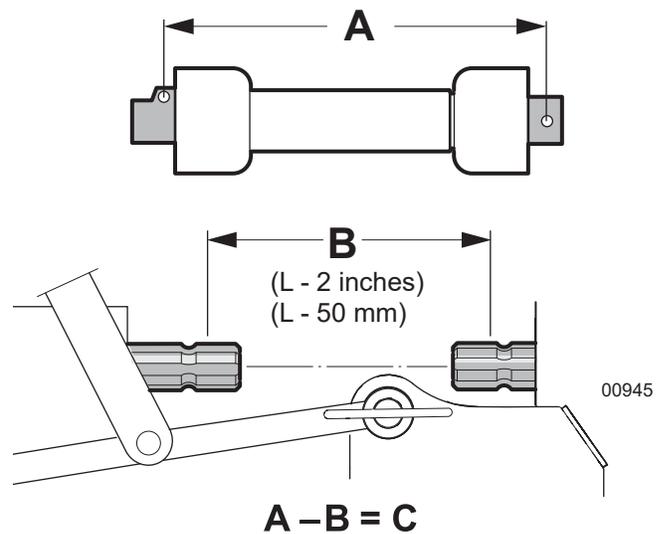


Figure 10— $C = \text{Cut Length}$

- Pull the PTO shaft apart, and then measure and cut off length **C** from each of the outer plastic covers and inner metal tubes.

NOTE: Use the cut off piece of outer shielding to mark the inner tube. Leave the steel center tubes longer than the plastic outer tubes; otherwise, they can be harder to put back together.

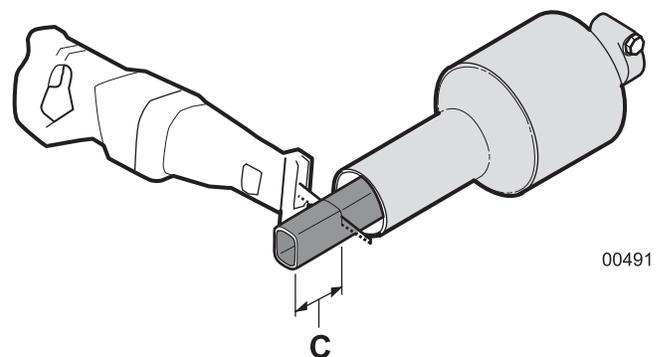


Figure 11—Cut Off Length C from Both PTO Shaft Halves

5.2 Installing a PTO Shaft

Make sure that the equipment is in the following state:

- The tractor is turned off and the parking brake is applied.
- The PTO shaft shielding is in good condition and able to turn freely, independent of the PTO shaft.
- The PTO yoke ends are clean. Adding a small amount of lubricant on the splines can help them to slide on.

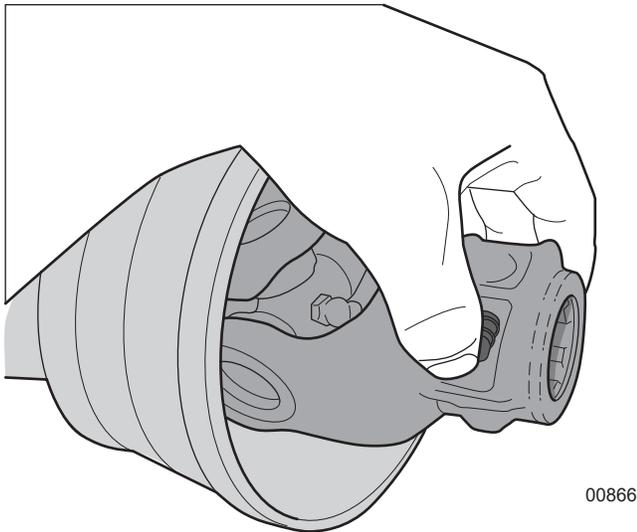


Figure 12—Locking-Pin Button

1. Install the PTO shaft on the implement:
 - a. Press the locking-pin button and push the shaft end onto the input PTO.
 - b. Connect the safety chain to the implement, so that the shielding does not turn during operation.
2. Slide out the end of the PTO shaft up to the tractor output PTO, aligning the two shaft splines.
3. Press the locking-pin button and push the shaft end onto the tractor output PTO.
4. Once it is started, slide the shaft all the way on. You might hear a click and the locking-pin button should retract to the original position.
5. Check that the shaft lock is fully seated by taking your hands off the locking-pin button, and then pulling back on the shaft.

6. Controls

WARNING!

Do not operate the machine until you are thoroughly familiar with the position and function of the various controls. Read the operator's manual thoroughly. Your safety is involved!

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Before starting work, all operators should familiarize themselves with the location and function of the controls.

6.1 Beater and Apron Chain Drive

A four-position drive-control lever is located on the right-hand side of the box, just behind the rear wheel.

The beater and apron drive has three speeds:

FAST (3), MEDIUM (2), SLOW (1)

Push the lever downward, slide to the desired setting, and then release it. Slide the lever to **N** (Neutral) to disengage the drive.

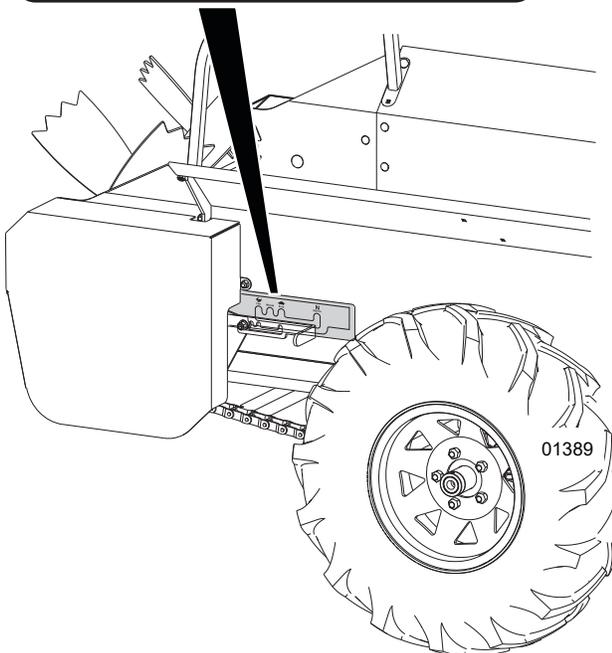
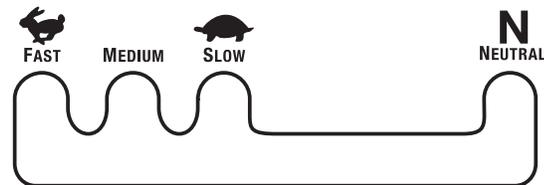


Figure 13—Apron Drive Control

6.2 PTO-drive Models

For information about operation of the PTO control, see the tractor operator's manual.

1. Set the beater and apron drive speed, as required.
2. Engage the tractor's PTO to control the manure spreader.

6.3 Ground-drive Models

1. Set the beater and apron speed, as required.
2. Set the ground drive by squeezing the handle, and then pushing the handle down to ON to engage the drive.

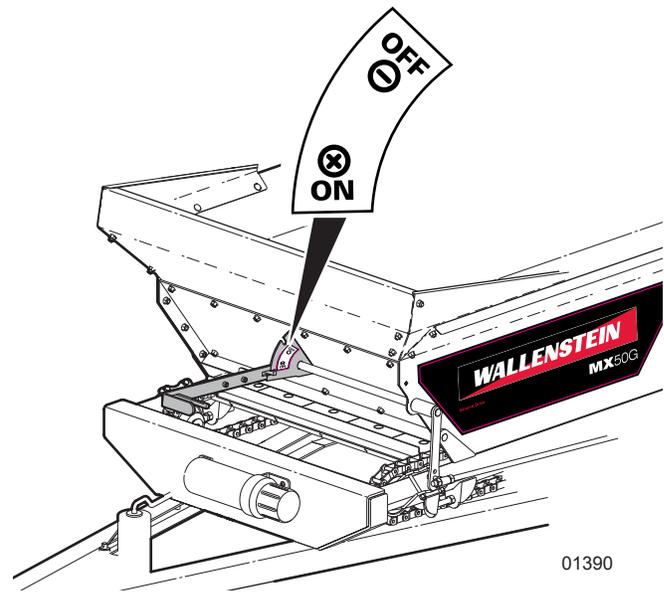


Figure 14—Ground-drive Model

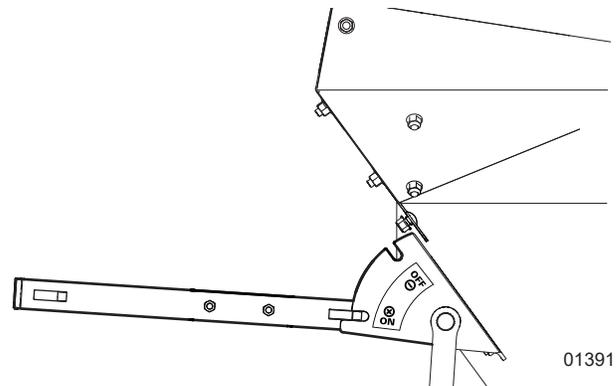


Figure 15—Ground-drive Engagement Lever

7. Operating Instructions

The operator is responsible for being familiar with and following all operating and safety procedures.

7.1 Operating Safety

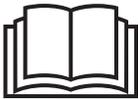


WARNING!



Wear the necessary hearing protection when you operate this machine. Prolonged exposure to loud noise can cause permanent hearing loss.

W016

- It is the operator's responsibility to read, understand, and follow ALL safety and operating instructions in this manual. 
- Never use the machine until the operators are adequately trained in the safe operation of the machine and have read and completely understand:
 - The safety and operation sections of this manual.
 - The safety labels on the machine.
 - The tow vehicle operator's manual.
- Understand and know how to complete the **Safe Condition** procedure (see *Safe Condition* on page 9).
- Wear the appropriate PPE and do not allow long hair, loose fitting clothing, or jewelry near the equipment.
- Inspect the manure spreader for damage or loose parts. Repair or replace parts, as required, before beginning work.
- Make sure that all safety shields are in place, secure, and in good condition. Moving parts on manure spreaders, such as PTO drivelines, side shafts, pulleys, and sprockets are hazardous if not shielded.
- Do not start the manure spreader until you know everyone is clear of the machine.
- Do not operate PTO-driven manure spreaders above 540 rpm. Excess speeds can damage the manure spreader and void the warranty.
- Complete the **Pre-operation Checks** before starting work (see *Pre-Operation Checklist* on page 23).
- Never operate any controls from the ground. Remain seated on the tow vehicle while operating the manure spreader. It is extremely dangerous to attempt adjustments when the manure spreader is operating. Spinning beater-bar paddles and other moving parts can cause injury or death.
- Do not allow anyone within 20 ft (6 m) of the manure spreader during operation. Objects thrown from the rear of the manure spreader could cause injury.
- Always remove loose manure or soil from tires and other parts of the equipment before entering a roadway. Manure or wet soil left on the roadway by your tow vehicle and manure spreader can cause slippery road conditions for other vehicles.
- Use caution when loading the manure spreader. Be aware of objects and bystanders that are around you. Never exit a tractor or skid steer with the bucket raised.
- Do not load the manure spreader unless it is hitched to a tow vehicle. Do not unhitch a loaded manure spreader from the tow vehicle and leave it supported only by the trailer jack.
- Make sure that there is plenty of ventilation in the loading area. Gases produced by decomposing manure in storage can be toxic or poisonous to people or animals. Methane gas is odorless and explosive in nature.
- Be careful when scraping or dumping at a push-off ramp. If the ramp surface is slick or wet, a tractor or skid steer could slide over the edge of the ramp.
- Do not attempt to scrape or clean the inside of the manure spreader when the PTO (PTO-drive models) is engaged. Falling into the manure spreader's spinning paddles could be fatal.
- Always spread manure up or down a slope. Spreading across a slope creates a risk of rollover.
- Never allow anyone to ride on the manure spreader.
- Stop the engine when leaving the manure spreader unattended.
- In freezing temperatures, make sure that the apron chain is not frozen to the main-box floor or sides. Make sure that there are no lumps of manure frozen to the floor. A frozen load could result in equipment damage.
- Always park the manure spreader on level ground. Place blocks ahead of and behind the wheels before unhooking it. This prevents the manure spreader from unexpectedly rolling when it is separated from the tow vehicle.

7.2 Stopping

1. Slow the tow-vehicle engine to low idle.
2. Stop forward movement.
3. For PTO-drive models, disengage the PTO.
4. Turn off the tow-vehicle engine.
5. Remove the ignition key and wait for all moving parts to stop.

7.3 Stopping in an Emergency

If an emergency occurs:

1. Stop forward movement.
2. For PTO-drive models, disengage the PTO. If available, activate the tractor's emergency PTO shutoff.
3. Turn off the tow vehicle engine.
4. Correct the condition that caused the emergency before starting the equipment.

7.4 Pre-Operation Checklist

For personal safety and to maintain good mechanical condition of the manure spreader, complete the following pre-operation checks before each use.

Items to Complete	✓
Check that the machine is properly hitched. Make sure that the retainers are installed on the mounting pins.	
Check for and remove any manure or other material that is entangled in the spreader.	
Check that the manure spreader was lubricated, as specified in the <i>Maintenance Schedule on page 29</i> .	
Check that the beater-bar and drive system move freely.	
Check the tire pressure. If required, inflate the tires to the pressure that is noted on tire sidewall.	
Check that all covers and shields are in place. Make sure that they are secure.	
Check the tightness of all fasteners. Make sure that your equipment is working and in good repair.	
Make sure that the operator is wearing the appropriate PPE, such as a hard hat, safety eyewear, safety footwear, safety vest, hearing protection, and gloves.	
Make sure that the operator is not wearing loose-fitting clothing or jewelry, and that long hair is tied back.	

7.5 Machine Break-In

Although there are no operational restrictions on the manure spreader when it is used for the first time, it is recommended that the following mechanical items be checked:

After 1–5 hours of operation:

- Check that the apron chain and drive system move freely.
- Check that the beater-bar and drive system move freely.
- Check all nuts, bolts, and other fasteners for damage and tightness. If required, tighten them to the specified torque. For more information, see *Specifications on page 38*.
- Check the oil level in the gearbox (PTO-drive models). If required, top-up the oil. For instructions, see *Gearbox on page 35*.
- Check for entangled material. Remove all entangled material before resuming work.
- Check the tire pressure. If required, inflate the tires to the correct pressure.

After 10 hours of operation:

1. Repeat the *after 1–5 hours of operation* checks.
2. Complete the maintenance tasks that are specified in the *Maintenance Schedule on page 29*.

7.6 Loading

- Make sure that the manure spreader is securely attached to the tow vehicle.
- Choose a flat, open, solid area for loading the manure spreader. Do not load the manure spreader when it is at a steep angle to avoid a tipping hazard.
- Load the manure spreader from front to back. This loading method spreads the manure uniformly in the main box.
- Do not overload the manure spreader.
- Break up any large chunks of manure.
- Be cautious of foreign objects in the manure that could jam the beaters and potentially damage the machine. Smaller objects could be thrown toward the driver.
- If you are loading the manure spreader in freezing weather, be aware of frozen chunks of manure that could damage the machine.

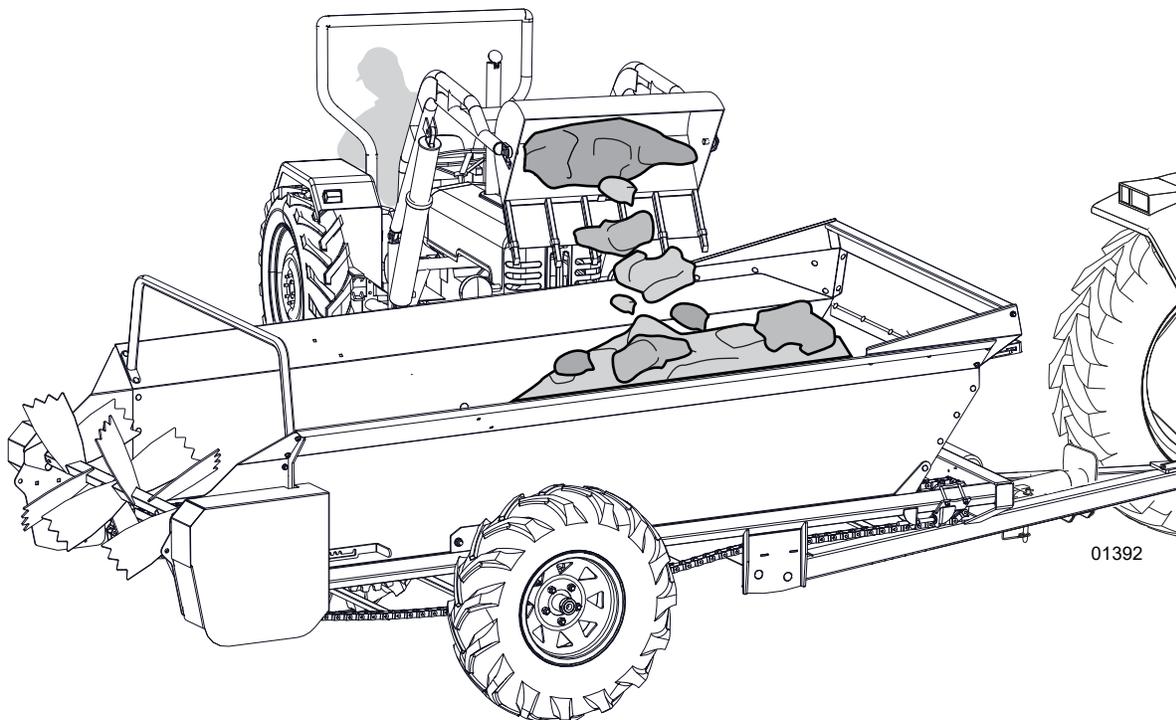


Figure 16—Load the Manure Spreader

7.7 Spreading

PTO-drive Models

WARNING!



Risk of personal injury from component failure.



Excessive PTO speeds above 540 rpm or incorrect rotation can result in machine damage.

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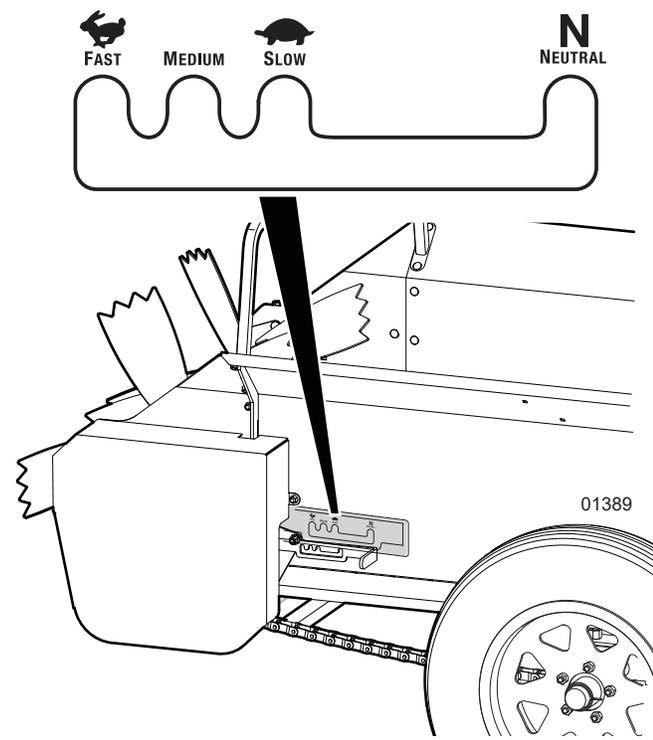


Figure 17—Apron Drive Control

1. With the PTO turned off, move the manure spreader from the loading area to the spreading area.
2. Stop the tractor, and then set the parking brake.
3. Set the apron-drive control to the desired speed.
4. With the engine speed at low idle, slowly engage the PTO to start the beater bar spinning and the apron chain moving.
5. Release the parking brake and begin to drive ahead, while increasing the PTO speed. Increase the PTO speed, as desired. Do not exceed the maximum speed of 540 rpm.
6. When you are finished spreading, disengage the PTO. Return to the loading area and repeat the loading procedure, as required.

Operational Tips

If possible, to minimize manure splattering on the driver, drive the tractor into the wind when spreading. Reducing the ground speed and PTO speed also reduces splattering.

The manure spreader can be driven between 3–6 mph (4.5–9 km/h) when spreading. Select the ground speed based on the terrain and how fast you want to unload. Slow the ground speed as the machine empties to reduce splattering.

Mid-range PTO speed of 250–350 rpm is recommended. Higher speeds can increase the amount of splatter. Do not exceed 540 rpm.

Some manure is finer or more fluid. In this case, an optional end gate can be installed to prevent the manure from draining out during loading. For more information about accessories for your manure spreader, contact your Wallenstein dealer or go to WallensteinEquipment.com.

Ground-drive Models

1. With the ground drive disengaged (in the OFF position), move the manure spreader from the loading area to the spreading area.

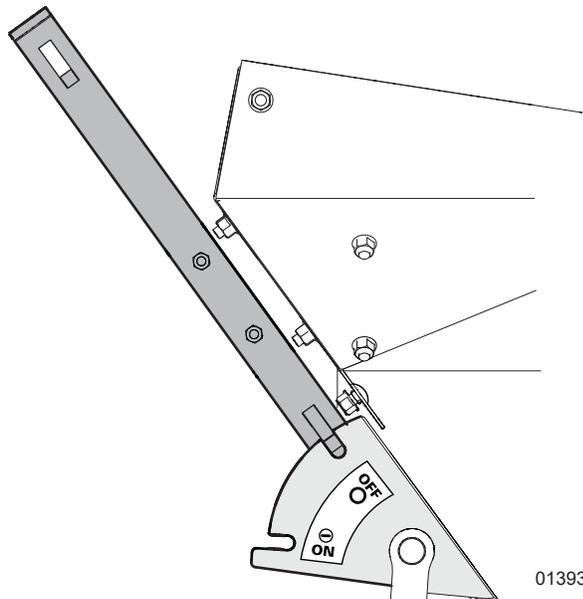


Figure 18—Ground Drive Disengaged

2. Stop the tow vehicle, and then set the parking brake. Set the apron drive control to the desired speed.

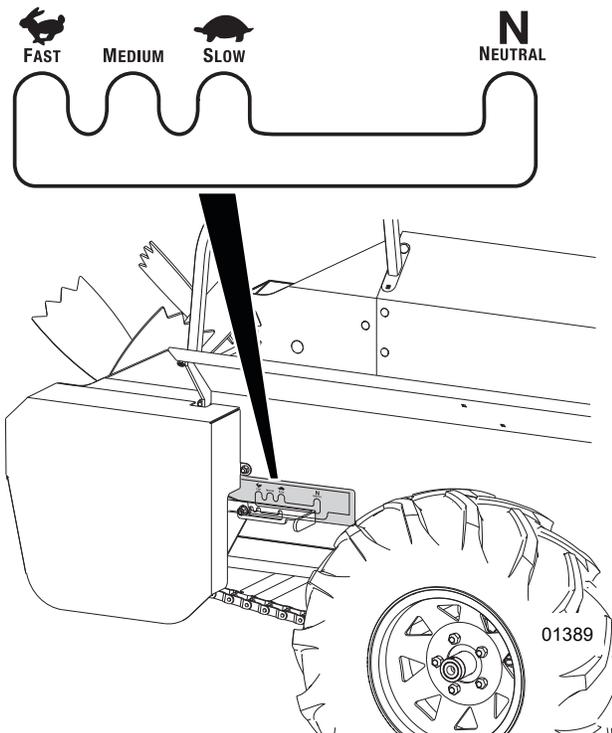


Figure 19—Apron Drive Control

3. Engage the ground-drive system (set it to the ON position).
4. Release the tow-vehicle's parking brake and drive ahead to begin unloading the spreader.

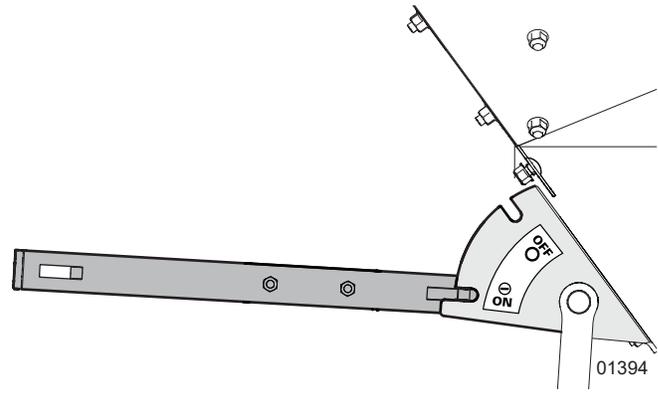


Figure 20—Ground Drive Engaged

5. When you are finished spreading, stop the tow vehicle and disengage the ground drive. Return to the loading area and repeat the loading procedure, as required.

Operational Tips

If possible, to minimize manure splattering on the driver, drive the tow vehicle into the wind when spreading. Reducing the ground speed also reduces splattering.

The manure spreader can be driven between 3–6 mph (4.5–9 km/h) when spreading. Select the ground speed based on the terrain and how fast you want to unload. Slow the ground speed as the machine empties to reduce splattering.

Some manure is finer or more fluid. In this case, an optional end gate can be installed to prevent the manure from draining out during loading. For more information about accessories for your manure spreader, contact your Wallenstein dealer or go to WallensteinEquipment.com.

7.8 Removing a Jam

Use the following procedure if manure or other material in the manure spreader bridges or jams up. Be aware that if you are spreading in very cold weather, frozen chunks of manure could cause a blockage.

PTO-drive Models

1. Stop the tractor, apply the parking brake, and then turn off the engine.
2. Remove manure from around the beater-bar paddles.
3. Inspect the machine to determine what has caused the jam or blockage, and remove it.
4. Make sure that there are no hard or frozen chunks of manure, or foreign objects in the main box.
5. Start the tractor and leave it at a low idle.
6. Slowly engage the PTO.
7. Do one of the following:
 - If the beater bar turns freely, continue spreading manure.
 - If the beater bar fails to turn, continue with Step 8.
8. Disengage the PTO, apply the parking brake, and then turn off the tractor.
9. Inspect the following apron chain locations:
 - Inside the main box
 - Main box undercarriage
 - Front and rear sprockets
10. If the apron drive and chain appear to be in working order, repeat Steps 5 and 6, and then continue with Step 11.
11. Do one of the following:
 - If the beater bar turns freely, continue spreading manure.
 - If the beater bar fails to turn, repeat Step 8, and then manually unload the manure spreader to find the blockage.

Ground-drive Models

1. Stop the tow vehicle, apply the parking brake, and then turn off the engine.
2. Remove manure from around the beater-bar paddles.
3. Inspect the machine to determine what has caused the jam or blockage and remove it.
4. Make sure that there are no hard or frozen chunks of manure, or foreign objects in the main box.
5. Start driving the tow vehicle ahead slowly and try to engage the drive.
6. Do one of the following:
 - If the beater bar turns freely, continue spreading manure.
 - If the beater bar fails to turn, continue with Step 7.
7. Stop the tow vehicle, apply the parking brake, and then turn off the engine.
8. Inspect the following apron drive and chain areas:
 - Inside the main box
 - Undercarriage
 - Front and rear sprockets
9. If the apron drive and chain appear to be in working order, repeat Step 5, and then continue with Step 10.
10. Do one of the following:
 - If the beater bar turns freely, continue spreading manure.
 - If the beater bar fails to turn, repeat Step 7, and then manually unload the manure spreader to find the blockage.

7.9 Transporting

IMPORTANT! Equipment that is transported on a public roadway must comply with the local laws that govern the safety and transport of machinery.

The manure spreader is not intended for use or transport on public roadways. Therefore, it does not include the required lights, reflectors, and markings.

Before taking the manure spreader on a public roadway, install the required lighting, reflectors, and markings, and make sure that they are in good working condition.

For specific requirements, contact your local transportation authority.

7.9.1 Transport Safety

- Never allow riders on the manure spreader.
- Do not exceed a safe travel speed. Slow down for rough terrain and cornering.
- Make sure that the spreader is securely hitched to the tow vehicle and that a retainer is through the drawbar. Always attach a safety chain between the hitch and the tow vehicle.

7.9.2 Before Transporting the Manure Spreader

Check each of the following:

- For PTO-drive models, PTO is disengaged.
- Trailer jack is raised and locked in position.
- Tire pressure is correct. If required, inflate the tires to the pressure that is specified on the tire sidewall.
- Tires and rims are in good condition. Replace a cut tire or repair the rim damage.
- Lug nuts are tight. Tighten loose lug nuts to the required torque. For torque specifications, see *Lug Nut Torque on page 40*.
- Axle dust caps are in good condition. Replace axle dust caps that are damaged or leaking.

7.10 Storage

IMPORTANT! During cold weather months, never store manure in the manure spreader between unloading times. A frozen load can cause equipment damage.

After use for one season or when the manure spreader will not be used for an extended length of time, completely inspect all of the major systems. Replace or repair any worn or damaged components to prevent unnecessary down time at the beginning of the next season. Touch up scratches or dents.

Before Storing the Manure Spreader

IMPORTANT! Do not use a pressure washer on sealed bearings. Dirt can be forced inside the bearing case and eventually cause the bearing to fail.

1. Remove all manure or other material from the main box.
2. Remove any entangled material.
3. Use a pressure washer to thoroughly remove all manure and debris from the machine.

Storing the Manure Spreader

IMPORTANT! Do not store the manure spreader with wet manure in it or store it outdoors when it is loaded. Failure to do this can cause corrosion of the metal parts.

1. Park the manure spreader in a flat, dry location.
2. Lower the trailer jack, and then lock it in position.
3. Rest the PTO shaft on the PTO holder (PTO-drive models).
4. Chock the wheels to prevent movement.
5. During freezing temperatures, remove excess moisture from the moving parts (for example the apron chain and beater bar).
6. Inspect all rotating parts and remove all entangled material.
7. Check the condition of the following components:
 - Bearings (replace seized or damaged bearings)
 - Apron chain (adjust a chain that has sagged)
 - Sprockets (replace damaged sprockets)
 - Chains (replace a worn or damaged chain)
8. If the manure spreader is in an outdoor storage location, cover it with a waterproof tarp (whenever possible, an indoor storage location is recommended).

Removing from Storage

Complete the *Pre-Operation Checklist on page 23*.

8. Service and Maintenance

WARNING!

Risk of serious personal injury. Stop engine before performing ANY service or maintenance procedure. Reinstall all covers and shields removed before putting machine back into service.

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8.1 Maintenance Safety

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Read and understand all of the information in the *Safety* section that starts on *page 7*.
- Follow good shop practices that include, but are not limited to the following:
 - Keep the service area clean and dry.
 - Ground electrical outlets and tools correctly.
 - Make sure that there is an adequate amount of light for the current task.
- Never operate the tow vehicle in a closed building. The exhaust fumes may cause asphyxiation.
- Never work underneath equipment unless it is securely supported by blocks.
- Always wear the appropriate PPE.
- When replacement parts are required, only use genuine original equipment manufacturer (OEM) parts. Wallenstein Equipment cannot be held responsible for damage or injuries that are caused by use of unapproved parts or accessories.
- Inspect and tighten all bolts, nuts, and screws.
- Reinstall all safety shields and covers after completing service or maintenance.
- Use regular cleaners to clean parts. Do not use gasoline.
- Always use the correct tools for the task, make sure that the tools are in good condition, and understand how to use them.
- Have a qualified tire dealer or repair service complete all required tire maintenance. Do not attempt to mount a tire unless you have the proper equipment and experience for this task. Failure to follow the correct procedures when mounting a tire on a wheel or rim can cause an explosion, which may result in serious injury or death.
- When replacing worn tires, make sure that they meet the original tire specifications. Never undersize a tire.

8.2 Grease Type

Use an SAE multi-purpose high temperature grease with extreme pressure (EP) performance. Alternatively, an SAE multipurpose lithium-based grease is acceptable.

8.3 Maintenance Schedule

Complete maintenance procedures at the specified time or hour interval, whichever comes first.

After Each Use

Clean the manure spreader. For instructions, see *Before Storing the Manure Spreader on page 28*.

Every 8 hours or Daily

Grease the PTO shaft (PTO-drive models).	See <i>page 30</i>
Check the tire pressure. The specified tire pressure is located on tire sidewall.	Inflate, as required
Check the wheel lug-nut torque.	See <i>page 40</i>
Check the apron and roller chain lubrication. Lubricate the chains, as required.	See <i>page 33</i>
Check the tightness of all fasteners. Tighten fasteners, as required.	See <i>page 39</i>
Complete the pre-operation checks.	See <i>page 23</i>

Every 50 hours or Annually

Check the gearbox oil level.	See <i>page 35</i>
Check / adjust the PTO-drive belt tension and condition (PTO-drive models).	See <i>page 35</i>
Check the hub-ratcheting mechanism.	See <i>page 33</i>

8.3.1 Grease Points

IMPORTANT! Use a hand-held grease gun for all greasing. Pump one shot of grease per fitting.

- Wipe the grease fitting with a clean cloth before applying the grease to avoid injecting dirt and grit.
- Replace and repair broken fittings immediately.
- If a fitting does not accept grease:
 - Remove and clean it thoroughly.
 - Clean the lubricant passageway.
 - If required, replace the fitting.

Location	Every 8 hours of Operation	Number of Grease Points
1	PTO-shaft universal joints (PTO-drive models)	2
2	PTO-shaft slip joint (PTO-drive models)	1

Location	Every 50 hours of Operation or Annually	Number of Grease Points
3	PTO-shaft shield (PTO-drive models)	2
4	Apron-shaft bearings (all models)	2
5	Axle bearings (all models)	2
6	Ratchet-drive sprocket (all models)	2
7	Inner and outer bearings (PTO-drive models)	2
8	Drive-shaft bearings (PTO-drive models)	2

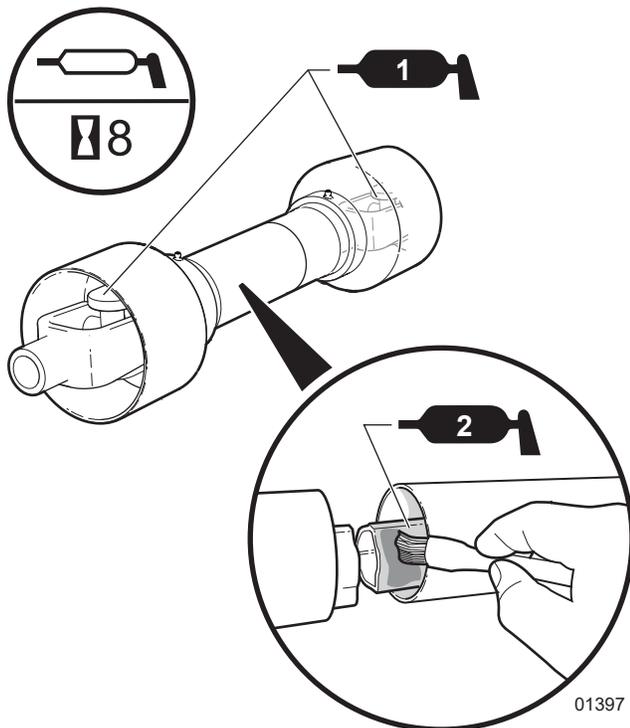


Figure 21 – PTO-drive 8-hour Grease Points

PTO-drive Models

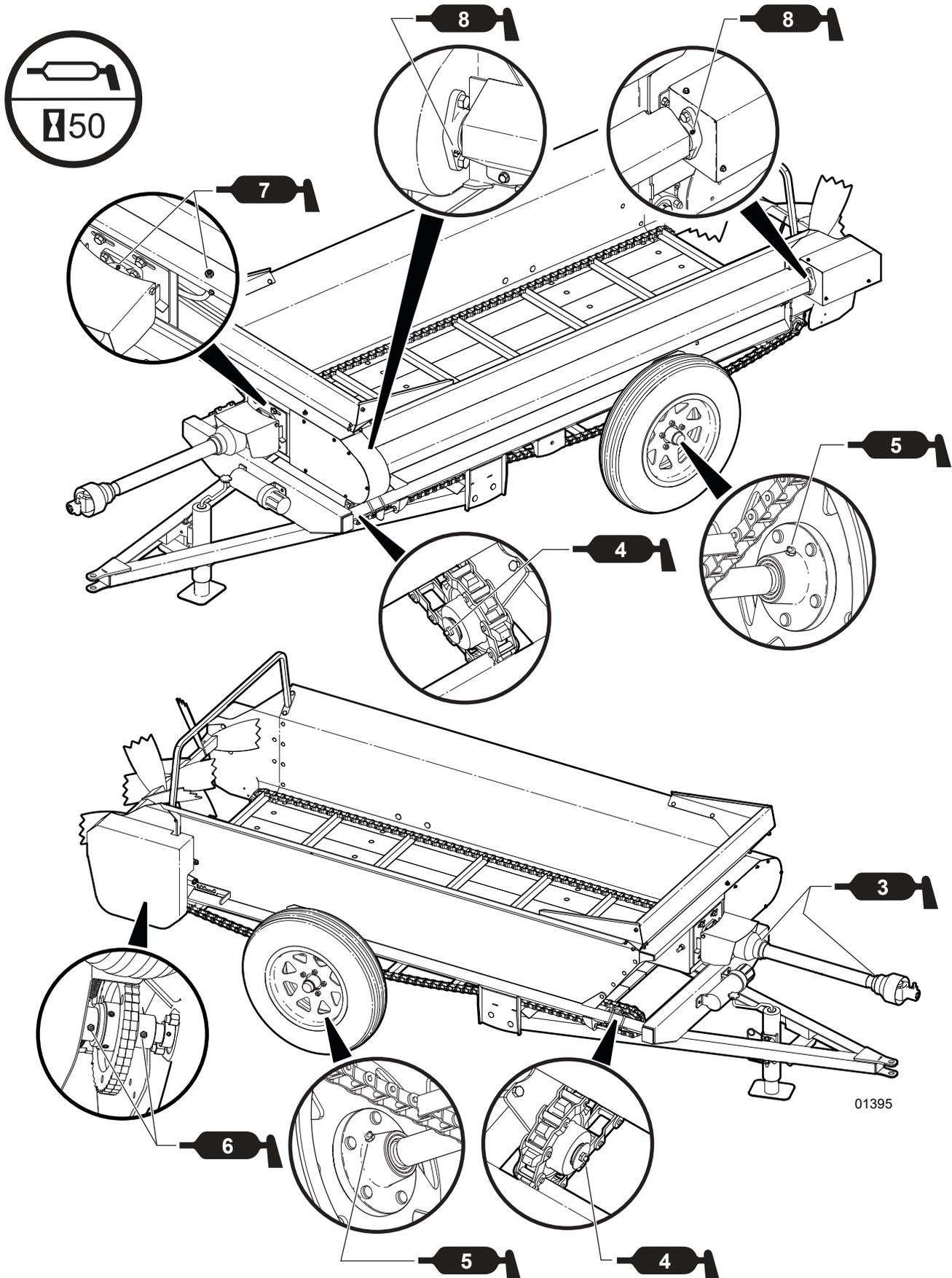


Figure 22—PTO-drive 50-hour Grease Points

Ground-drive Models

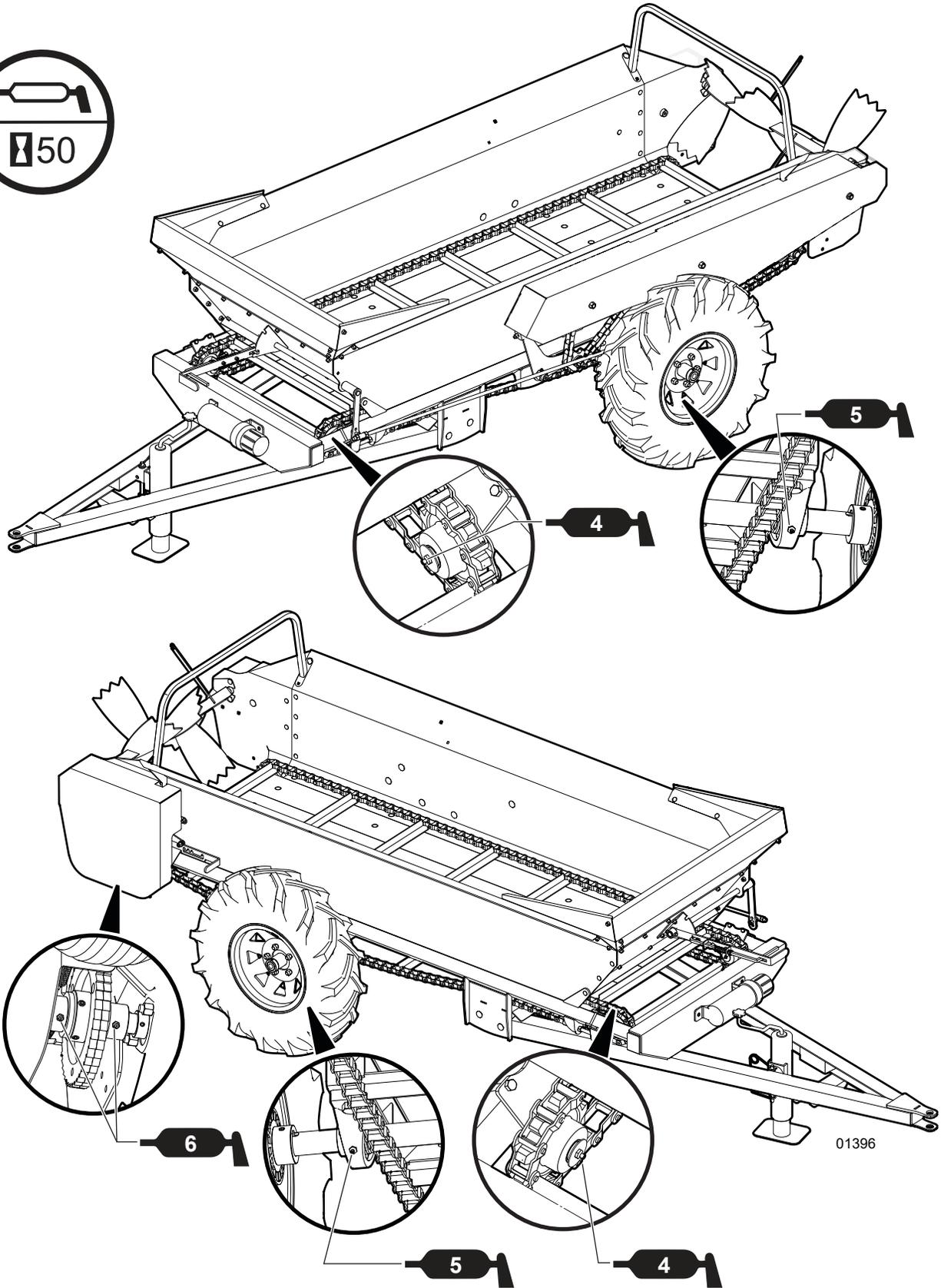


Figure 23—Ground-drive 50-hour Grease Points

8.4 Roller Chain

Lubricate the roller chains every 50 hours or monthly. Use a good quality chain lubricant for the best performance.

All Models

Check the condition of the hub-ratcheting mechanism, roller chain, and apron chain every 50 hours.

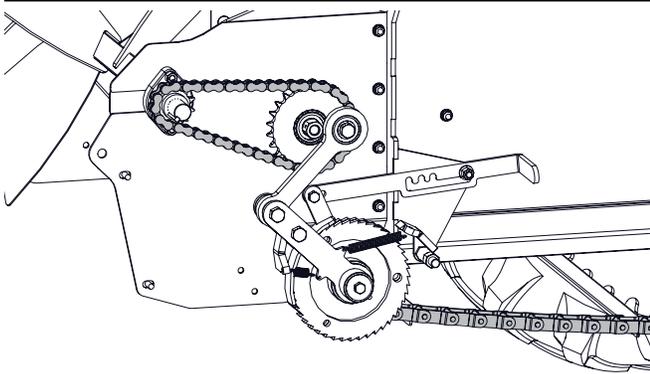


Figure 24—Roller Chain and Apron Chain

Ground-drive Models

Check the ground-drive roller chain and apron chain every 50 hours.

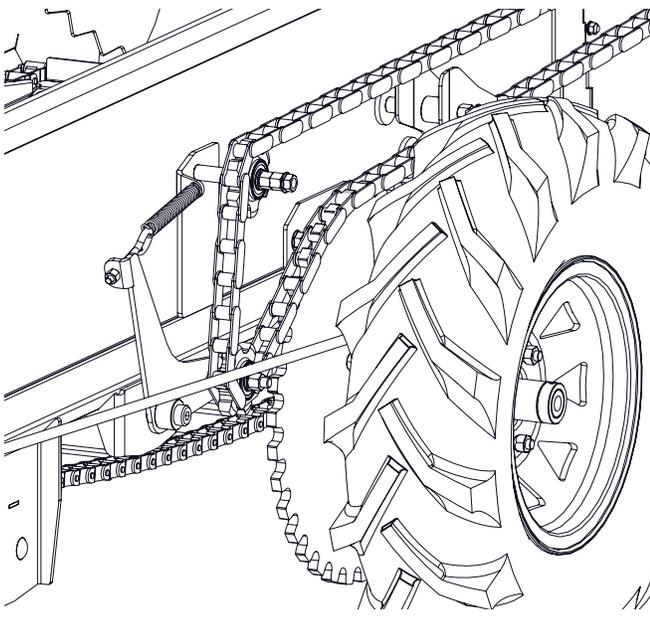


Figure 25—Ground-drive Roller Chain

8.5 Apron Chain

Lubricate the apron chain every 50 hours or monthly. Use a good quality chain lubricant for the best performance.

The apron chain pushes manure into the beater-bar paddles for spreading. It must be oiled frequently and kept at the correct tension for the chain to reach its maximum expected life.

8.5.1 Oiling the Apron Chain

IMPORTANT! Do not use a pressure washer on sealed bearings. Dirt can be forced inside the bearing case and eventually cause the bearing to fail.

1. Use a pressure washer to clean the manure spreader.
2. Apply a coat of oil to the sections of the apron chain that are inside the main box.
3. Run the manure spreader or move it forward to move the apron chain and bring the sections that are under the manure spreader into the main box (the oiled sections move under the manure spreader).
4. Repeat Step 2 to oil the sections of apron chain that were not previously oiled.

8.5.2 Tensioning the Apron Chain

IMPORTANT! Adjust both sides the same amount to keep the loading even.

The apron chain tension is correct when it sags 6–8 in (15–20 cm) below the manure spreader frame.

Use the idler-mount plate adjusting bolts to set the apron chain to the required tension.

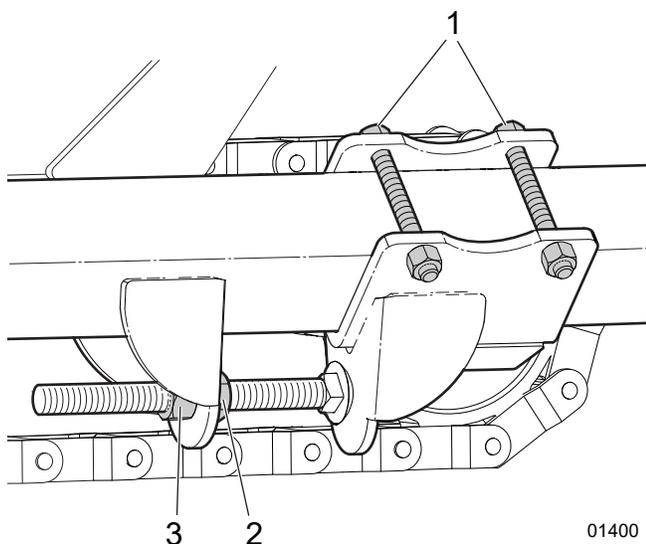


Figure 26–Apron-chain Adjustment

On each side of the manure spreader:

1. Loosen the two idler-mount bolts (1).
2. Loosen the jam nut (2).
3. Turn the adjustment nut (3) on each side of the manure spreader equally to set the apron-chain tension.
4. Tighten the jam nut.
5. Tighten the idler-mount bolts.

8.5.3 Shortening the Apron Chain

Over time the apron chain can stretch. If it stretches to a point where no further adjustment is possible, links must be removed to set it to the correct tension.

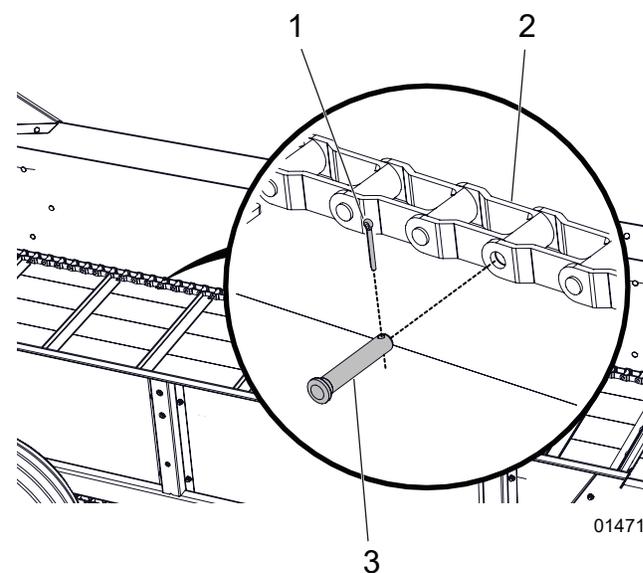


Figure 27–Apron-chain Link

1. Use the apron-chain tensioner to completely loosen the tension on both sides of the apron chain.
2. Determine how many chain links (2) to remove.
3. On one side of the apron chain:
 - Find the clevis pin (3).
 - Remove the cotter pin (1) from the clevis pin.
 - Remove the clevis pin from the chain links.
 - Separate the chain.
4. Use a chain breaker and carefully remove the chain pin.
5. Remove the required number of chain links.
6. Repeat Steps 3-5 on the other side of the apron chain.
7. On both sides of the apron chain:
 - Insert the clevis pin to reassemble the chain links.
 - Install the cotter pin in the clevis pin to secure it.

8.6 Main Box Sealing Flap

Periodically check the condition of the front main box sealing flap. Replace the sealing flap if the sides or bottom of the main box are not adequately sealed.

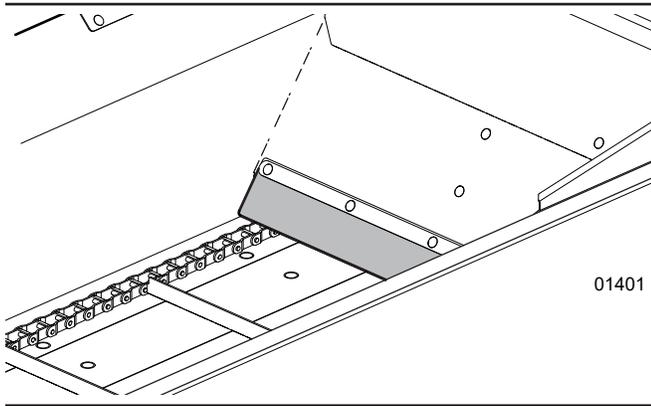


Figure 28—Sealing Flap

8.7 Gearbox

PTO-drive Models

Check the gearbox oil level every 50 hours.

Use a good quality SAE 90 EP (ISO VG 320) gear oil in the gearbox. The gearbox oil capacity is 12 oz (350 mL).

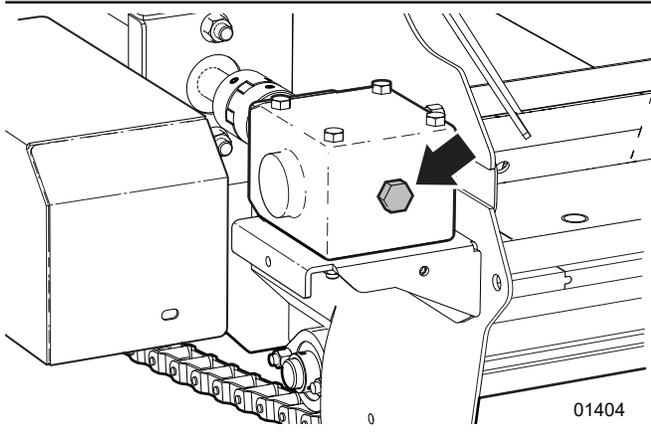


Figure 29—Gearbox Oil-reservoir Plug

1. Remove the gearbox shield.
2. Remove the plug on the back of the gearbox.
3. Check the oil level (the oil level should be even with the bottom of the hole).
4. If required, add oil.
5. Replace the plug.
6. Install the gearbox shield.

Drive Belt

WARNING!

Do not operate the machine with any of the guards or shields removed. The machine is shown with guards or shields removed for illustrative purposes only.

W001

PTO-drive Models

8.7.1 Adjust the Drive Belt Tension

IMPORTANT! Drive belt deflection should not measure more than 3/4–1 in. (20–25 mm).

Drive belts transmit PTO power to the drive shaft. The drive shaft then provides power to the gearbox that drives the beater bar.

When a belt is in disrepair or loose, the ability to efficiently transfer power from the PTO to the drive shaft may be affected. It is important to check the condition and tension of the belts on a regular basis. Replace a frayed, cracked, or worn drive belt.

Remove the belt-drive shield to check the tension. Use a drive-belt tension gauge for accurate measurement. If a gauge is not available, push on the belts with your fingers to observe their deflection.

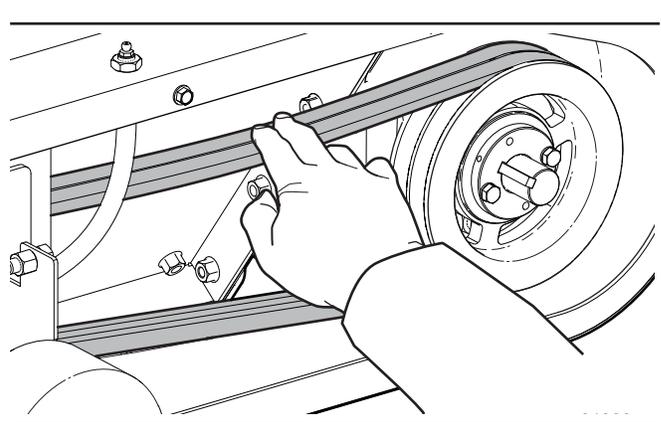


Figure 30—Drive-belt Deflection

8.7.2 Replace the Drive Belts

IMPORTANT! Always replace drive belts as a matched set.
Recheck the drive-belt tension after 10 hours of use.

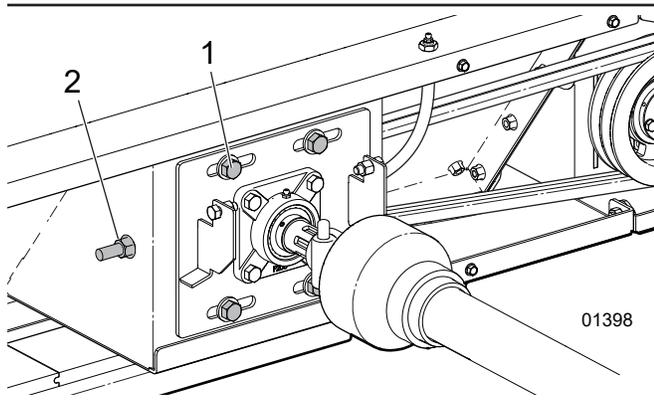


Figure 31—Tensioning a Drive Belt

1. Remove the belt-drive shield.
2. Loosen (do not remove) the four bearing-mount bolts (1).
3. Turn the drive-belt tensioning nut (2) counterclockwise to loosen it.
4. Push down on the drive belts to pull the bearing over until the drive belts are loose enough to remove.
5. Remove the drive belts, and then install a new set of belts.
6. Slide the bearing to snug up the belts.
7. Turn the belt tensioning nut clockwise to apply tension.
8. Check the drive-belt tension. For instructions, see *Adjust the Drive Belt Tension on page 35*.
9. Make sure that the pulley alignment is correct, and then tighten the four bearing-mount bolts.
10. Reinstall the belt-drive shield.

8.8 Beater-bar Paddles

For optimal performance, inspect the beater-bar paddles on a regular basis and replace paddles that are worn or damaged. Contact your Wallenstein dealer to purchase replacement paddles.

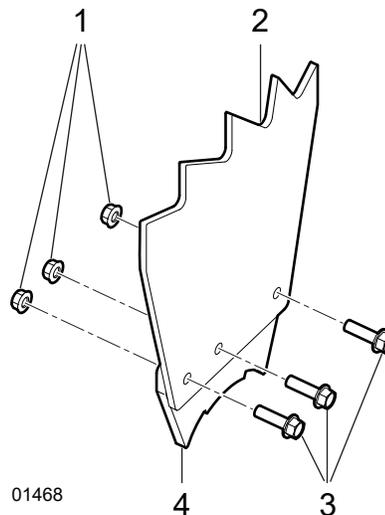


Figure 32—Beater-bar Paddle Replacement

1. Set the machine to a safe condition. For instructions, see *Safe Condition on page 9*.
2. Rotate the beater bar to access the required paddle (2).
3. Remove the three bolts (3) and serrated nuts (1) that secure the paddle to the paddle holder (4), and then remove the paddle.
4. Align a new paddle with the bolt holes.
5. Install the three bolts and nuts to secure the paddle to the pallet holder (if required, use new fasteners).
6. Tighten the paddle bolts and nuts to the recommended torque. For more information, see *Bolt Torque on page 39*.
7. Repeat Steps 2–6 for each additional paddle that requires replacement.

9. Troubleshooting

Wallenstein manure spreaders are simple and reliable machines that requires minimal maintenance.

The following table provides possible causes and solutions for some of the common problems you may encounter.

If you encounter a problem that is difficult to solve, even after you read through this troubleshooting section, please call your local dealer, distributor, or Wallenstein. Before you call, have the serial number for your manure spreader handy. For more information, see *Serial Number Location on page 5*.

PTO-drive Models

Problem	Cause	Solution
Beater bar does not turn.	Obstruction.	Clear debris from the beater-bar paddle area.
	PTO is not engaged.	Engage the PTO.
	Drive belt is too loose.	Adjust or replace the drive belts.
Slow spreading or no spreading.	Engine speed is too slow.	Set the tractor throttle to 540 rpm.
	Apron-drive speed is set too slow.	Increase the apron-drive speed.
	Apron chain is frozen to the floor.	Use hot water to free the apron chain. Always make sure that the apron chain is not frozen before starting the PTO.
	Apron chain is broken or is off the sprockets.	Repair the chain and adjust the tension.
	Drive belt is slipping.	Adjust or replace the drive belts.
Unusual vibration while operating.	A beater-bar paddle is broken or missing.	Replace broken or missing beater-bar paddles.
	PTO driveline is out of phase.	Align the PTO driveline.
	Debris in the beater-bar paddles.	Clean the beater-bar paddles and remove any frozen debris.
Apron / beater bar control not working.	Return spring is weak.	Replace the return spring.
	Speed-control mechanism is dirty.	Clean and lubricate the speed-control mechanism.

Ground-drive Models

Problem	Cause	Solution
Beater bar does not turn	Obstruction.	Clear debris from the beater-bar paddle area.
	Ground drive is not engaged.	Engage the ground drive.
	Drive belt is too loose.	Adjust or replace the drive belts.
Apron chain does not move.	Apron chain is not turned on.	Engage the ground drive.
	Apron chain links are off the sprocket.	Adjust the apron chain tension.
Slow spreading or no spreading.	Apron-drive speed is set too slow.	Increase the apron-drive speed.
	Apron chain is frozen to the floor.	Use hot water to free the apron chain. Always make sure that the apron chain is not frozen before starting.
	Apron chain is broken or is off the sprockets.	Repair the chain and adjust the tension.
Unusual vibration while operating.	A beater-bar paddle is broken or missing.	Replace broken or missing beater-bar paddles.
	Debris in the beater-bar paddles.	Clean the beater-bar paddles and remove any frozen debris.
Apron / beater control not working.	Return spring is weak.	Replace the return spring.
	Speed-control mechanism is dirty.	Clean and lubricate the speed-control mechanism.

10. Specifications

For available accessories, go to WallensteinEquipment.com.

10.1 Machine Specifications¹

Model	MX25G	MX50G	MX50P	MX80G	MX80P
Recommended Tractor Size	12–45 hp 9–33.6 kW	15–55 hp 11–41 kW	15–55 hp 11–41 kW	20–75 hp 15–56 kW	35–95 hp 26–70.8 kW
Drive Type	Ground	Ground	PTO	Ground	PTO
Beater Drive	Chain and sprocket	Chain and sprocket	Belt drive / gearbox	Chain and sprocket	Belt drive / gearbox
Apron Drive	Chain and Sprocket				
Capacity (Heaped)	25 bushels	50 bushels	50 bushels	80 bushels	80 bushels
	31-1/4 ft ³ 0.9 m ³	62-1/2 ft ³ 1.8 m ³	62-1/2 ft ³ 1.8 m ³	100 ft ³ 2.8 m ³	100 ft ³ 2.8 m ³
Box Dimensions (LxWxH)	72" x 26" x 15" (183 cm x 66 cm x 38 cm)	89" x 32" x 17" (226 cm x 81 cm x 43 cm)	89" x 32" x 17" (226 cm x 81 cm x 43 cm)	102" x 38" x 20" (259 cm x 97 cm x 51 cm)	102" x 38" x 20" (259 cm x 97 cm x 51 cm)
Dimensions (LxWxH)	117" x 48" x 29" (297 cm x 122 cm x 74 cm)	156" x 57" x 36" (396 cm x 145 cm x 91 cm)	156" x 57" x 36" (396 cm x 145 cm x 91 cm)	168" x 63" x 37" (427 cm x 160 cm x 94 cm)	168" x 63" x 37" (427 cm x 160 cm x 94 cm)
Loading Height	29" (74 cm)	36" (92 cm)	36" (92 cm)	37" (94 cm)	37" (94 cm)
Tire size	6 x 12	7.6 x 15	7.6 x 15	7.6 x 15	7.6 x 15
Number of Paddles	8	10	10	10	10
Weight	510 lb (231 kg)	795 lb (361 kg)	795 lb (361 kg)	920 lb (417 kg)	920 lb (417 kg)
Tongue Weight	34 lb (15 kg)	50 lb (23 kg)	50 lb (23 kg)	56 lb (25 kg)	56 lb (25 kg)
Floor	Rustproof tongue-and-groove poly				
Box Construction	Corrosion resistant carbon steel – powder coated				
Apron Chain Type	662 Chain				

¹ Specifications are subject to change without notice.

10.2 Bolt Torque

IMPORTANT! If you replace hardware, use fasteners of the same grade.

IMPORTANT! The torque specifications in these tables are for non-greased or non-oiled threads. Do not grease or oil fastener threads unless otherwise indicated. When using a thread lock, increase the specified torque 5%.



Bolt grades are identified by the marks on top of the bolt head.

These bolt torque specification tables provide the correct torque settings for common bolts and capscrews. Tighten all bolts to the torque that is specified in the table, unless otherwise indicated. Check the bolt tightness periodically.

Imperial Bolt Torque Specifications

Bolt Diameter	Torque					
	SAE Gr. 2		SAE Gr. 5		SAE Gr. 8	
	lbf•ft	N•m	lbf•ft	N•m	lbf•ft	N•m
1/4 inch	6	8	9	12	12	17
5/16 inch	10	13	19	25	27	36
3/8 inch	20	27	33	45	45	63
7/16 inch	30	41	53	72	75	100
1/2 inch	45	61	80	110	115	155
9/16 inch	60	95	115	155	165	220
5/8 inch	95	128	160	215	220	305
3/4 inch	165	225	290	390	400	540
7/8 inch	170	230	420	570	650	880



SAE Gr. 2



SAE Gr. 5



SAE Gr. 8

Metric Bolt Torque Specifications

Bolt Diameter	Torque			
	Gr. 8.8		Gr. 10.9	
	lbf•ft	N•m	lbf•ft	N•m
M3	0.4	0.5	1.3	1.8
M4	2.2	3	3.3	4.5
M6	7	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M14	83	112	116	158
M16	166	225	229	310
M20	321	435	450	610
M30	1,103	1,495	1,550	2,100



8.8



10.9

10.3 Lug Nut Torque

WARNING!

Wheel lug nuts must be installed and kept at the correct torque to prevent loose wheels, broken studs, or possible separation of a wheel from the axle.

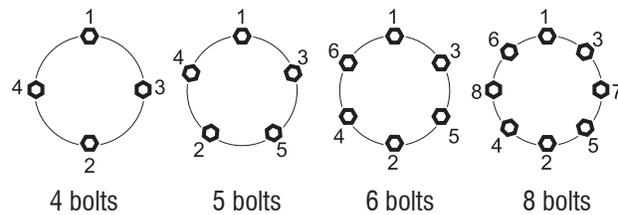
It is an extremely important safety procedure to apply and maintain the correct torque on lug nuts that secure the wheel to the trailer axle. A calibrated torque wrench is the best tool to make sure that the correct amount of torque is applied to a fastener.

Tighten wheel lug nuts to the correct torque before the first use and after each wheel removal. After a wheel is installed, check and torque the lug nuts after the first 10 miles (16 km), 25 miles (40 km), and 50 miles (80 km). Check the lug nut torque periodically thereafter.

- Start all lug nuts onto the threads by hand.
- Tighten lug nuts in stages, following the pattern shown below the Lug Nut Torque Specifications table.

Lug Nut Torque Specifications				
Wheel size	Units	First stage	Second stage	Third stage
8 inch	lbf•ft N•m	12–20 16–26	30–35 39–45.5	45–55 58.5–71.5
12 inch	lbf•ft N•m	20–25 26–32.5	35–40 45.5–52	50–60 65–78
13 inch	lbf•ft N•m	20–25 26–32.5	35–40 45.5–52	50–60 65–78
14 inch	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156
15 inch	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156
16 inch	lbf•ft N•m	20–25 26–32.5	50–60 65–78	90–120 117–156

Lug nut torque pattern:



11. Warranty



LIMITED WARRANTY

Wallenstein products are warranted to be free of defects in materials and workmanship under normal use and service, for a period of

Five Years for Consumer Use

Two Years for Commercial/Rental Use

from the date of purchase, when operated and maintained in accordance with the operating and maintenance instructions supplied with the unit. Warranty is limited to the repair of the product and/or replacement of parts.

This warranty is extended only to the original purchaser and is not transferable.

Repairs must be done by an authorized dealer. Products will be returned to the dealer at the customer's expense. Include the original purchase receipt with any claim.

This warranty does not cover the following:

- 1) Normal maintenance or adjustments
- 2) Normal replacement of wearable and service parts
- 3) Consequential damage, indirect damage, or loss of profits
- 4) Damages resulting from:
 - Misuse, negligence, accident, theft or fire
 - Use of improper or insufficient fuel, fluids or lubricants
 - Use of parts or aftermarket accessories other than genuine Wallenstein parts
 - Modifications, alteration, tampering or improper repair performed by parties other than an authorized dealer
 - Any device or accessories installed by parties other than an authorized dealer
- 5) Engines. Engines are covered by the manufacturer of the engine for the warranty period they specify. For the details of your engine warranty, see your engine owner's manual. Information about engine warranty and service is also available in the FAQ section at www.wallensteinequipment.com

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