

# MERIDIAN<sup>®</sup>

## OPERATOR'S MANUAL



### BOX SEED TENDER

SEED TITAN™ 2SE • SEED TITAN™ 4SE



# PRODUCT REGISTRATION FORM



**Attention Dealers:**

You can register products online through the Dealer Login: <http://dealers.meridianmfg.com/login/>

It is mandatory to register your product in order to qualify for future warranty claims that may arise. Knowingly falsifying information on this form will result in the voiding of the product warranty.

You may scan/photograph this completed form (must be legible), email it to: [register@meridianmfg.com](mailto:register@meridianmfg.com)

A copy of this form may be mailed to Meridian Manufacturing Inc. 2902 Expansion Blvd. Storm Lake, IA 50588

Buyer's Name _____	Dealer's Name _____
Address _____	Address _____
City, State/Prov _____	City, State/Prov _____
Zip/Postal Code _____	Zip/Postal Code _____
Phone Number _____	Phone Number _____

**Note:** Registering a product in multiple entry format is only allowed when the product has the same model number and the same dealer, however each serial number must be legibly listed for each unit. Delivery dates for a multiple entry must be within a one month time frame.

Product Information \_\_\_\_\_

Model # \_\_\_\_\_ Serial # \_\_\_\_\_

Invoice Date \_\_\_\_\_

**Important:** Please send this form to the Meridian Manufacturing Inc. location which built this product being registered. If you require further assistance call you're dealer or the Meridian outlet nearest to your location.

We want to thank you for purchasing a Meridian manufactured product. Whether this is your first Meridian purchase or you have been a customer for years, you are now part of the Meridian community of customers and we appreciate your business.

It is important that you now complete the product registration information and this form indicating you have received delivery. This registration and information is necessary to ensure you have access to warranty and product updates in the event it be required in the future.

Registration can be completed by using this form or visiting your dealer who will complete the form online. You will be given access to the Meridian Community and become eligible for updates, special offers and prizes.

Again, thank you for choosing Meridian.

I have thoroughly instructed the buyer on the above described equipment. The review included the content of this manual, equipment care, adjustments, safe operation and warranty policy.

Date \_\_\_\_\_ Dealer's Signature \_\_\_\_\_

The above equipment and this manual have been received by me. I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date \_\_\_\_\_ Buyer's Signature \_\_\_\_\_

# DEALER INSPECTION REPORT



MERIDIAN MANUFACTURING INC.  
2902 EXPANSION BLVD. STORM LAKE, IA 50588  
T: (800) 437-2334 P: (712) 732-1780 F: (712) 732-1028  
www.meridianmfg.com iowa\_warranty@meridianmfg.com

Unit's Model Number \_\_\_\_\_

Unit's Serial Number \_\_\_\_\_

- Tender frame secured to trailer
- Check fuel level and fuel shut-off valve
- Check engine oil level
- Check reduction case oil level
- Start Honda engine
- Brake and lighting harness connection
- Remote throttle control functions
- Lubricate unit where necessary
- Check air pressure in tires
- Electric brakes in working condition
- All guards/shields installed correctly
- All safety signs installed and intact
- Reflectors and lights clean and working
- Review safety and operating instructions
- Inspect customer's hitch for 2-5/16" ball/gooseneck hitch
- Verify receipt of all options ordered

# CERTIFICATE OF ORIGIN



MERIDIAN MANUFACTURING INC.  
2902 EXPANSION BLVD. STORM LAKE, IA 50588  
T: (800) 437-2334 P: (712) 732-1780 F: (712) 732-1028  
www.meridianmfg.com iowa\_warranty@meridianmfg.com

LICENSING INFORMATION	Delivery Date _____
DEALER _____	SOLD TO _____
Address _____	Address _____
City _____	City _____
State _____	State _____
Zip Code _____	Zip Code _____
Phone Number _____	Phone Number _____
Unit's Model Number _____	Unit's Serial Number _____

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## Section 1: INTRODUCTION

Congratulations on your choice of a Meridian® Seed Titan™ Box Seed Tender. It is designed to handle any kind of bulk seed, quickly transport it, and then transfer it into planters and drills, as required. This equipment has been designed and manufactured to meet the exacting standards for such equipment in the agricultural industry and will keep your seed delivery system at optimum efficiency.

Keep this manual handy for future reference. Pass it on to new operators or owners. Call your dealer, distributor or Meridian, if you need assistance, information, additional/replacement copies or a digital copy of this manual.

The information provided herein is of a descriptive nature. Meridian Manufacturing Inc. reserves the right to modify the machinery design and specifications provided herein without and preliminary notice.

Performance quality may depend on the material being handled, weather conditions and other factors.

### 1.1 OPERATOR ORIENTATION

The directions left, right, front, and rear, as mentioned throughout this manual, are as seen from the tow vehicle driver's seat, facing in the direction of travel.

### 1.2 SERIAL NUMBER

Always give your dealer the serial number of your tender when ordering parts or requesting service or other information.

Use the space provided for easy reference.

Tender Model No: \_\_\_\_\_

Tender Serial No: \_\_\_\_\_

Engine Model No: \_\_\_\_\_

Engine Serial No: \_\_\_\_\_



Fig 1 - Serial number located at rear of tender



Fig 2 - Serial number on engine

### 1.3 PATENT INFORMATION



Meridian® continuously enhances its product offering through product improvements and new product innovations. Marketplace feedback, technological innovation, new materials and manufacturing methods, and a philosophy of continuous improvement constantly challenge the company to develop new and better ways of addressing market needs. Meridian® is committed to innovation and reinvestment and as a result, the company maintains a portfolio of patents and intellectual property. For more information on our patents please see our website:

[www.meridianmfg.com/patents](http://www.meridianmfg.com/patents)

## Section 2: SAFETY

3 Big Reasons why safety is important to you:

- Accidents Disable and Kill
- Accidents Cost
- Accidents Can Be Avoided

The Safety Alert Symbol means:



The Safety Alert Symbol identifies important safety messages on the seed tender and in this manual.

The following signal words are used in this manual to express the degree of hazard for areas of personal safety.

When you see the symbol and/or the signal words described below, obey the accompanying message to avoid possible injury or death.



Indicates a hazardous situation that, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations. Typically for machine components which, for functional purposes, cannot be guarded.



Indicates a hazardous situation, if not avoided, could result in death or serious injury. This word identifies hazards that are exposed when guards are removed. It may be used to alert against unsafe practices.



Indicates a hazardous situation, if not avoided, could result in minor or moderate injury. It may be used to alert against unsafe practices.



Indicates practices or situations which may result in the malfunction of, or damage to equipment.



Safety instructions (or equivalent) signs indicate specific safety-related instructions or procedures.

## 2.1 SAFETY ORIENTATION

YOU are responsible for the SAFE operation and maintenance of your Meridian® Seed Tender. Be sure that everyone who will operate, maintain or work around it, is familiar with the safety, operating and maintenance procedures.

This manual will take you step-by-step through your working day. It will alert you to all the safe practices that should be adhered to while operating the tender.

It has been said, "The best safety feature is an informed, careful operator." Good safety practices not only protect you but also the people around you. Make these practices a dynamic part of your workday.

Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Tender owners must give operating instructions to operators or employees before allowing them to operate the machine.

Procedures must be reviewed annually thereafter, as per OSHA (Occupational Safety and Health Administration) regulation 1928.57.

- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to understand all safety and operating instructions in this document, and to follow them.
- An untrained operator exposes himself and bystanders to possible serious injury or death.
- Think SAFETY! Work SAFELY!

## 2.2 GENERAL SAFETY

- Read and understand the Operator's Manual and all safety decals before operating, maintaining, adjusting or unplugging the auger. 

- Only trained competent persons shall operate the tender. An untrained operator is not qualified to operate the machine.

- Have a first-aid kit available for use should the need arise. 

- Provide a fire extinguisher for use in case of an accident. Store in a highly visible place. 

- Do not allow riders.

- Do not allow children, spectators or bystanders within hazard area around the machine.

- Wear appropriate protective gear. This list may include but is not limited to:

- Hard hat
- Protective shoes with slip resistant soles
- Eye protection
- Work gloves
- Hearing protection
- Respirator or filter mask
- Hi-Visibility safety vest



- Never use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment.

Consult your doctor about operating this machine while taking prescription medications.

- If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.
- Do not allow long hair, loose fitting clothing or jewelry to be around equipment.

## 2.3 EQUIPMENT SAFETY GUIDELINES

- Safety of the operator and bystanders is one of the main concerns when designing and developing this tender. However, every year many accidents occur which could have been avoided by a few seconds of thought, and a more careful approach to handling equipment.
- Do not allow personnel to operate this unit until they have read this manual. They should have a thorough understanding of the safety precautions.

Review the safety instructions with all users annually.

- In order to provide a better view, some images or drawings in this manual may show an assembly with safety guards removed.

Equipment should never be operated in this condition. All guards must be in place. If removal becomes necessary for repairs, replace the guard prior to use.



- This equipment is dangerous to children and persons unfamiliar with its operation.

The operator must be responsible, properly trained and physically able. You should be familiar with farm machinery in general.

- Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - DO NOT TRY IT.
- Do not modify the equipment in any way. Unauthorized modification result in serious injury or death and may impair the function and life of the equipment.
- The design and configuration of this tender includes safety decals and equipment. They need to be clean, readable and in good condition.

## 2.4 SAFETY DECALS

- Keep safety decals clean and legible at all times.
- Replace safety decals that are missing or have become illegible.
- Replaced parts must display the same decal(s) as the original parts.
- All safety decals have a part number in the lower right hand corner. Use this part number when ordering replacements.
- Safety decals are available from your authorized distributor, dealer's parts department or from Meridian Manufacturing Inc.

### 2.4.1 Applying Decals:

1. Be sure the application area is clean and dry. Ensure the surrounding temperature is above 50°F (10°C).
  - a. Remove all dirt, grease, wax from surface.
  - b. Clean the area with a non-ammonia based cleaner.
  - c. Wipe the clean surface with isopropyl alcohol on paper towel, and allow to dry.
2. Determine the exact position before you remove the backing paper.
3. Peel a small portion of the split backing paper.
4. Align the decal over the specified area. Use a squeegee to carefully press the small portion, with the exposed adhesive backing, into place.
5. Slowly peel back the remaining paper and carefully smooth the rest of the decal into place.
6. Small air pockets can be pierced with a pin and smoothed out using the squeegee, or a piece of sign backing paper.

## 2.5 SAFETY DECAL LOCATION

The following illustrations show the general location of decals on this tender. The position of decals may vary depending on the machine's options. Decals are not shown at actual size.



Fig 3 - Safety decal locations

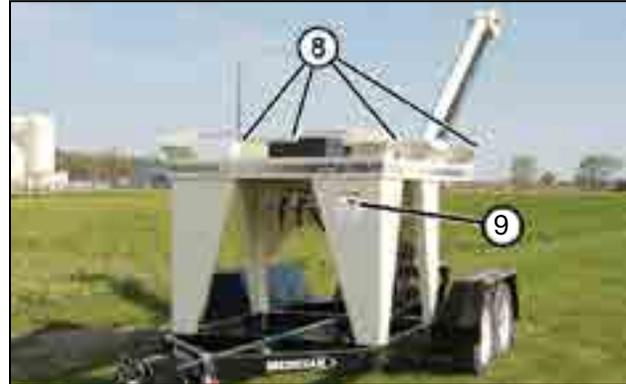


Fig 4 - Safety decal locations

**NOTICE**

**Product Warranty**

Meridian Manufacturing Group (hereinafter "Meridian") warrants all products manufactured by it to be free of defect in material and workmanship for a period of (1) year from the date of purchase.

This Meridian warranty does not cover:

- Accessories supplied by Meridian but manufactured by others. Meridian will facilitate the other manufacturer warranty for the benefit of the purchaser but will not be bound thereby (example: augers, trailers, agitators, etc.).
- Products that have been altered by anyone other than a Meridian employee or are used by the purchaser for the purposes other than what was intended at time of manufacture or used in excess of the "built specifications".
- Products that are custom manufactured by Meridian utilizing the purchaser's design which deviates from the Meridian normal production line manufacture or customized features of the products.
- Malfunction or damages to the product from misuse, negligence, customer alteration, accidents or product abuse due to incoming material or poor material flow ability or lack of required performance or required maintenance (e.g., poor material flow ability caused by incoming wet fertilizer or hot soybean meal, etc.).
- Loss of time, inconvenience, loss of material, down time or any other consequential damage.
- Product used for a function that is different than designed intent (e.g., storing soybean meal in grain bin, unacceptable material in the bin such as hot bean meal when product originally designed for other application, etc.).

To activate this warranty, the purchaser must make contact in writing with Meridian within one (1) year of date of purchase. After contact, Meridian has the right to determine the cause and qualify the legitimacy of the claim. Meridian, upon acceptance of a warranty claim shall have a reasonable time to plan any repair or replacement and may effect repair or replacement out of its factory or through contract with a local repair service. If a purchaser after warranty notice is made chooses to make the repair itself, Meridian must approve any expenses before they are incurred to be responsible for customer reimbursement.

Meridian shall be liable on a warranty claim for repair or replacement of any defective products and this is the purchaser's sole and exclusive remedy. Meridian will not be liable for any other or further remedy including claims for personal injury, property damage or consequential damage. The law of the State of Iowa shall govern and any such claim and any issues with regard to the same shall be resolved in the Iowa District Court for Buena Vista County, Iowa.

18432

1. NOTICE — Product Warranty (Part #18432)

**MERIDIAN**  
MANUFACTURING GROUP

Serial# **6720110948768**

**2897 Expansion Blvd.**  
**Storm Lake, IA 50588**  
**712-737-1780**  
**Made in U.S.A**

2. Product Serial Number Decal (Part #19984)

**WARNING**

**ENTANGLEMENT HAZARD**

Entanglement with moving parts could cause serious injury or death:

- Do not operate without guard.
- Avoid contact with rotating parts.
- Stay clear of moving parts.

19937

3. WARNING — Rotating Part Hazard (Part #19937)

**DANGER**

**ENTANGLEMENT HAZARD**

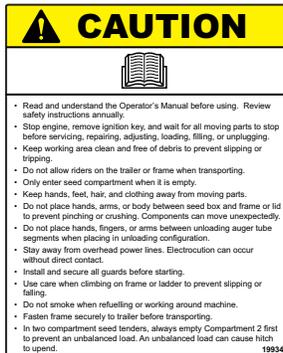
Guard Has Been Removed.

Entanglement with moving parts will cause serious injury or death:

- Do not operate without guard.
- Install guard before operating.

18435

4. DANGER — Entanglement Hazard (Part #18435)



5. CAUTION — Read and Understand (Part #19934)



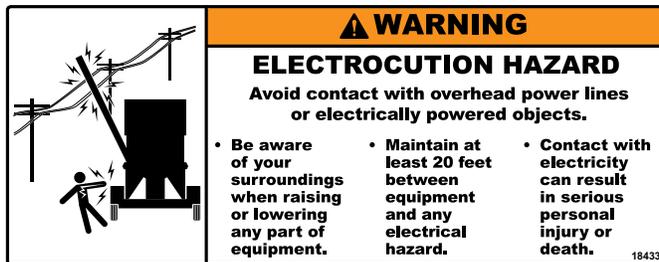
8. WARNING — Pinch Point Hazard (Part #19956)



6. WARNING — Entanglement Hazard (Part #19936)



9. WARNING — Upending Hazard (Part #19938)



7. WARNING — Electrocutation Hazard (Part #18433)

REMEMBER - If safety decals have been damaged, removed, become illegible, or parts were replaced without signage, new ones must be applied. New decals are available from your authorized dealer.

## 2.6 WORK PREPARATION

- Never operate the tender and its engine until you have read this manual, and understand the information.

Also, read the engine operator's manual.

- Be familiar with the safety messages found on the decals around this unit.

- Personal protective equipment (PPE) include:

- Hard hat
- Eye protection
- Protective shoes
- Work gloves



They are recommended during installation, placement, operation, maintenance and removal of the equipment.

- Do not allow long hair, loose fitting clothing or jewelry to be around equipment.
- **PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!**

Agricultural equipment can often be noisy enough to cause permanent, partial hearing loss. We recommend that you 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.

### Note:

Hearing loss from loud noise (tractors, chain saws, radios, etc.) is cumulative over a lifetime without hope of natural recovery.

- Clear working area of stones, branches or hidden obstacles that might be hooked or snagged, causing injury or damage.
- Operate only in daylight or good artificial light.
- Be sure machine is in a stable position, is adjusted and in good operating condition.
- Ensure that all safety guards and safety decals are properly installed and in good condition.
- Before starting, inspect the unit for any loose bolts, worn parts, cracks, leaks or frayed belts. Make the necessary repairs.

Always follow the maintenance instructions.

## 2.7 PLACEMENT SAFETY

- Never move by hand.
- Locate tender providing enough space for trucks to load or unload.
- Operate tender on level ground, free of debris.

## 2.8 LOCK-OUT TAG-OUT SAFETY

- Establish a formal Lock-Out Tag-Out program for your operation.
- Train all operators and service personnel before allowing them to work around the area.
- Provide tags on the machine and a sign-up sheet to record tag out details.

## 2.9 MAINTENANCE SAFETY

- Review Section 4: Service and Maintenance, before maintaining or operating the tender.
- Follow good shop practices:
  - Keep service area clean and dry.
  - Be sure electrical outlets and tools are properly grounded.
  - Use adequate light for the job.
- Place all controls in neutral or off. Stop engine, and remove ignition key. Wait for all moving parts to stop before servicing, adjusting, repairing.
- Keep hands, feet, hair, and clothing away from all moving/rotating parts.
- Replace parts with genuine factory replacements parts to restore your equipment to original specifications.



Meridian Manufacturing Inc. will not be responsible for injuries or damages caused by using unapproved parts and/or accessories.

- Make sure there is plenty of ventilation. Never operate the engine in a closed building. The exhaust fumes may cause asphyxiation.
- Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments.
- Place stands or blocks under the frame before working beneath the machine.
- Before resuming work, install and secure all guards when maintenance work is completed.
- Replace damaged or not clearly visible decals.

## 2.10 TIRE SAFETY

- Failure to follow procedure when mounting a tire on a wheel or rim can produce an explosion and may result in serious injury or death.
- Do not attempt to mount a tire unless you have proper equipment and training to do the job.
- Have a qualified tire dealer or repair service perform required tire maintenance.
- When replacing worn tires, make sure they meet original tire specifications. Never undersize.
- Reference the tire side wall for information on the maximum cold tire pressure (PSI). Keep the tires inflated to this setting.



## 2.11 BATTERY SAFETY

- Keep all sparks and flames away from battery, as the gas given off by electrolyte is explosive.
- Avoid contact with battery electrolyte. Wash off any spilled electrolyte immediately.
- Wear safety glasses when working near batteries.
- Do not tip batteries more than 45 degrees, to avoid electrolyte loss.
- To avoid injury from spark or short circuit, disconnect battery ground cable before servicing any part of electrical system.
- When storing tender for an extended period:
  - Remove the battery.
  - Be sure it is fully charged.
  - Store it inside.
  - Do not sit battery on a cold, concrete floor.
- Before using battery, after storage, check charge.
- Never attempt to jump start a frozen battery.



## 2.12 ENGINE SAFETY

- Read and understand the operating manual provided with the engine. 
- Use proper tools to service engine.
- Do not run engine in an enclosed area. Exhaust gases contain carbon monoxide, an odorless and deadly poison.
- Store fuel in approved safety containers.
- Do not store fuel near open flame. 

Appliances such as a stove, furnace, or water heater use a pilot light which can create a spark. 
- No smoking when filling fuel tank.
- Do not remove fuel cap while engine is running.
- Do not refuel indoors where area is not well ventilated. Outdoor refueling is preferred.
- Do not refuel while engine is running. Allow engine to cool for 5 minutes before proceeding.
- Use fresh fuel. Stale fuel can gum carburetor and cause leakage.
- Check fuel lines and fittings frequently for cracks or leaks. Replace if necessary.
- Do not operate engine if fuel has spilled. Move machine away. Avoid creating any ignition until the fuel has evaporated.
- Do not run engine above rated speeds. This may result in damage and injury.
- Do not tamper with the engine speed selected by the original equipment manufacturer.
- Do not operate engine with grass, leaves, dirt or other combustible materials in muffler area.
- Do not operate engine without muffler.

- Do not tamper with governor springs, governor links or other parts which may increase the governed engine speed.
- Do not strike flywheel with hard object or metal tool. This may cause it to shatter in operation.
- Keep cylinder fins/governor parts free of grass and other debris which can affect engine speed.

### **WARNING**

#### HOT EQUIPMENT HAZARD

Do not touch muffler, cylinder or fins while engine is running. Contact will cause burns.

- Do not use this engine on any forest covered, brush covered, or grass covered unimproved land, unless a spark arrester is installed on muffler. The arrester must be maintained in effective working order by operator.

In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands.

- Inspect the muffler periodically. Replace it when necessary.

If engine is equipped with a muffler deflector, inspect periodically. Replace with correct part.

- Do not check for spark, or crank engine with spark plug or spark plug wire removed.
- Do not run engine with air filter or its cover removed.

### **NOTICE**

#### POSSIBLE ENGINE DAMAGE

Decelerate engine slowly to stop. Avoid choking the carburetor to stop engine. Choke only for an emergency stop.

## 2.13 OPERATING SAFETY

- Anyone who will be operating this tender, or working around it, must read this manual. They must know operating, maintenance, safety info.



Review the manual annually.

- Clean or replace all safety decals if they cannot be clearly read and understood.
- Place all controls in neutral, and stop the engine. Remove the ignition key. Wait for all moving parts to stop before adjusting, repairing or unplugging.
- Keep all bystanders, especially children, away from the machine when running.

Also, when authorized personnel are carrying out maintenance work.

- Establish a Lock-Out, Tag-Out policy for the work site. Be sure all personnel are trained in and follow all procedures.

Lock-Out, Tag Out all power sources before servicing the unit or working around equipment.

- Be familiar with machine hazard area. If anyone enters hazard areas, shut down machine immediately. Clear the area before restarting.

- Keep hands, feet, hair and clothing away from all moving/rotating parts.



- Do not allow riders on the tender when moving or transporting it.

- Keep working area clean and free of debris to prevent slipping/tripping.



- Stay away from overhead obstructions and power lines during operation and transporting. Electrocutation can occur without direct contact.

- Do not operate the tender when any guards are removed.

## 2.14 REFUELLING SAFETY

- Handle fuel with care. It is highly flammable.
- Allow engine to cool for five minutes before refuelling. Clean up spilled fuel before restarting engine.

- Do not refuel the machine while smoking or when near open flame or sparks.



- Fill fuel tank outdoors.

- Prevent fires by keeping machine clean of accumulated trash, straw, grease, and debris.



## 2.15 TRANSPORT SAFETY

- Lock the conveyor tube in transport position.
- Ensure that the trailer brakes are in good working order. Be familiar with their operation.
- Check that all the lights, reflectors and other lighting requirements are installed and in good working condition. 
- Never allow riders on the tender.
- Be sure the trailer is securely hitched to the towing vehicle and a retainer is used through the hitch jaws. Always attach a safety chain between the hitch and the towing vehicle.
- Stay away from overhead power lines. Electrocution can occur without direct contact. 
- Comply with all local laws governing safety and transporting of equipment on public roads.
- Do not exceed a safe travel speed. Slow down for rough terrain and when cornering.
- Plan your route to avoid heavy traffic.
- Do not drink and drive.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.

## 2.16 STORAGE SAFETY

- Store in an area away from human activity.
- If required, make sure the unit is solidly blocked up.
- Remove the battery and store it in a dry location. Do not sit it on a cold concrete floor.
- Make certain all mechanical locks are safely and positively connected before storing.
- Do not permit children to play on or around the stored machine.

## Section 3: OPERATION

### WARNING

- Read and understand the Operator's Manual.
- Before servicing, repairing or unplugging; stop engine, remove ignition key and wait for moving parts to stop.
- Clear the area of bystanders, especially children, before starting.
- Do not allow riders on the tender.
- Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
- Be familiar with the hazard area. If anyone unauthorized enters, shut down the machine immediately. Clear area before restarting.
- Do not operate machine with guards removed.
- Keep working area clean and free of debris to prevent slipping or tripping.
- Establish Lock-Out, Tag Out policy for work site. Ensure personnel follow all these procedures. Lock-out tag-out all power sources before servicing or working around equipment.

The Meridian® Seed Titan™ 2SE and 4SE Box Seed Tenders are designed to transport large amounts of seed to a planter or drill.

It is the responsibility of the owner and operators to read this manual and to train all personnel before they start working with the machine. Follow all safety instructions exactly - it is everyone's business. By following the recommended procedure, a safe working environment is provided for the operator, co-workers and bystanders in the area around the work site.

The design and configuration of this tender includes safety decals and equipment. Hazard controls and accident prevention are dependent upon the personnel operating and maintaining it. Their awareness, concern, prudence and proper training are crucial.

Many features incorporated into this machine are the result of suggestions made by customers like you.

By following the operating instructions, in conjunction with a good maintenance program, your tender will provide many years of trouble free service.

### 3.1 MACHINE COMPONENTS

The Meridian Seed Tenders is designed as a bulk seed transfer unit to transport large amounts of seed into a planter or drill.

Large bulk seed boxes are loaded onto the seed tender frame. The center-mounted conveyor then transfers the seed from the seed boxes into a planter or drill. Slide gates on the unit control the flow of seed into the conveyor.

A gas engine mounted on the frame powers the conveyor drive pulley. A centrifugal clutch reduction case on the engine output shaft engages when the engine speed reaches 1400 RPM. The conveyor belt drive system transmits power from the engine to the conveyor. Use the conveyor throttle switch to increase or decrease the speed of the conveyor.

The 2SE conveyor will unload to either side and out of the back of the unit.

The 4SE conveyor will unload to either side, out of the back of the unit, or out of the front of the unit.

- a. Trailer Frame
- b. Break-Away Trailer Brake System
- c. Trailer Jack
- d. Safety Chains
- e. Document Holder (inside frame)
- f. Seed Box Frame
- g. Conveyor Tube
- h. Discharge Spout
- i. Conveyor Tube Lock
- j. Conveyor Rotation Lock Handle

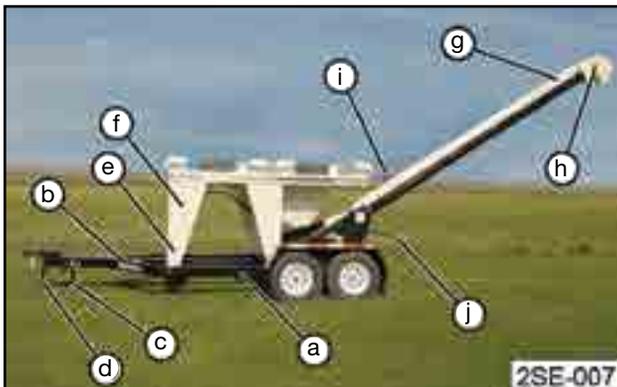


Fig 5 - Seed Titan™ 2SE tender

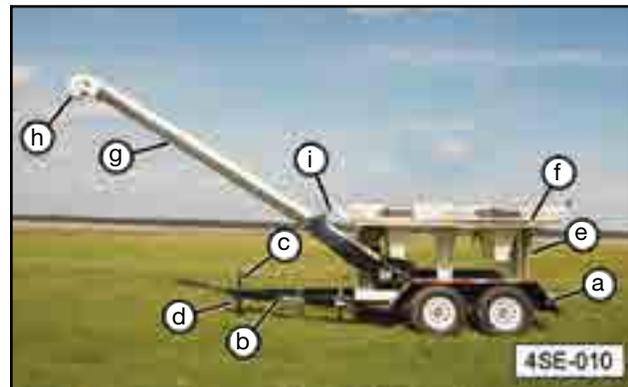


Fig 6 - Seed Titan™ 4SE tender

### 3.2 COMPONENTS AND CONTROLS

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

Options and their locations may vary.

#### Gas Engine:

Read the engine manufacturer's manual for more detailed instructions.

#### CAUTION

HOT MUFFLER WILL BURN  
Stay away if engine has been running.

- a. Electrical System Key Ignition Switch:  
Insert the key to operate.
- b. Starting Rope:  
Turn the key to ON. Pull the retracting rope with T-bar to manually start the engine.
- c. Throttle Actuator:  
This is an electronic unit to control the engine speed by a switch mounted at the end of the discharge spout. This allows the person filling the planter boxes to control the output flow of seed.
- d. Choke Lever:  
Choke the valve for starting when the engine is cold. Open the choke as the engine warms.
- e. Fuel Shut-Off Valve:  
Slide the fuel valve toward engine to turn ON.

#### IMPORTANT:

Always run at maximum engine speed.

- e. Fuel Shut-Off Valve:  
Slide the fuel valve toward engine to turn ON.

ALWAYS close the valve OFF when not in use or before transporting.

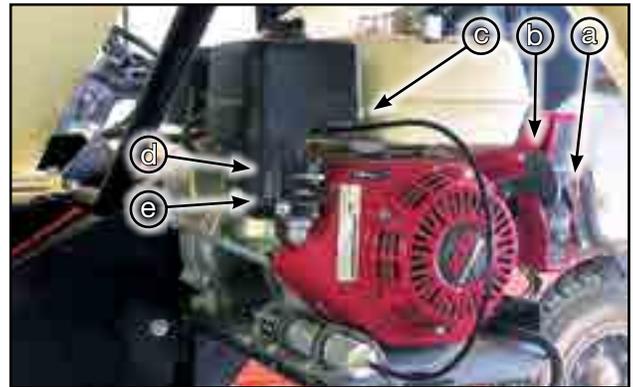


Fig 7 - Gas engine



Fig 8 - Gas engine

- f. Engine Circuit Protector:  
This protects the battery charging circuit. A short circuit, or a battery connected with reverse polarity, will trip the circuit breaker. The green indicator inside the circuit protector will pop out to show that the circuit protector has switched off.
- g. Engine Oil Reservoir:
- h. Fuel Tank:
- i. Centrifugal Clutch Reduction Case:  
Speed reduction for the belt drive.
- j. Centrifugal Clutch Gearbox Oil Reservoir:

### 12 Volt Battery:

#### SAFETY INSTRUCTIONS

Engine does not charge battery.  
Manually recharge battery periodically.

A 12 Volt battery supplies the power to start the gasoline engine. The battery must be periodically recharged from an external source to keep it fully charged.

### Conveyor/Engine Throttle Switch:

This two-position toggle switch controls the throttle for the engine. Move the switch to the right to increase the engine speed and to the left to decrease the speed.

#### Note:

The switch can be moved to any convenient location by relocating switch and wiring harness.



Fig 9 - Engine Circuit Protector

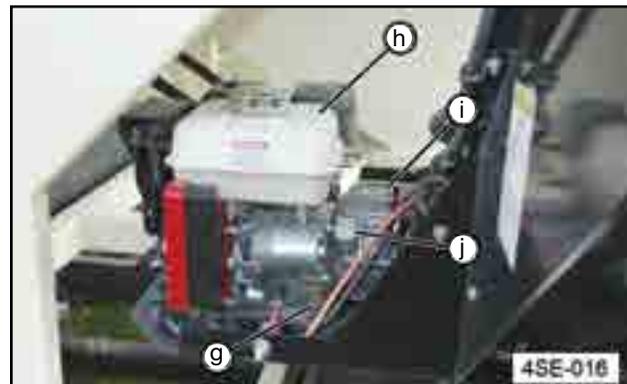


Fig 10 - Gas engine



Fig 11 - Battery



Fig 12 - Throttle Switch

**Compartment Gate Handles:**

Open and close the compartment gates with these handles.

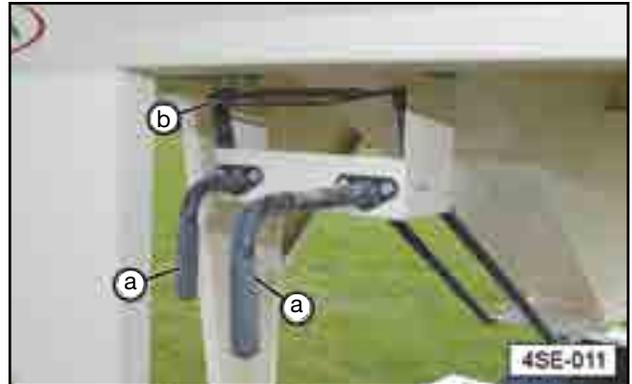


Fig 13 - (a) Compartment Gate Handles, (b) Lock Plate

**Conveyor Tube Transport Lock Plate:**

To move the conveyor tube, remove the retaining pin, and lift the lock plate out of the way.



Fig 14 - Conveyor tube transport lock

**Conveyor Tube Rotation Lock Handle:**

Raise the handle to release the lock. Then, the conveyor can be rotated around.



Fig 15 - Conveyor tube rotation lock handle

**Trolley Lock Plate (Titan 4SE only):**

The trolley moves the conveyor tube to slide from the front to the back.

Lift the trolley lock plate out of the way prior to moving trolley. Lower the lock plate to secure the trolley in front or back.



Fig 16 - Trolley lock plate

**Delivery Spout:**

The delivery spout contains adjustment bolts underneath it. These are used to adjust the conveyor belt tracking.



Fig 17 - Conveyor delivery spout

**Tender hopper:**

The Titan 2SE has hoppers for two seed boxes, and the 4SE has hoppers for four seed boxes.

Each hopper has a cover to protect its chute.

There are lock-down arms at each corner to secure the seed boxes in place.



Fig 18 - Front of trailer

**Trailer:**

The tender is mounted on a custom built trailer, which comes with a jack, safety chains and a Break-Away braking system.



Fig 19 - Trailer



Fig 20 - Front of trailer

### Break-Away Switch:

A Break-Away Switch is installed on all trailers.

The control box contains LEDs to show the condition of enclosed battery. There is a Test button to check the battery level.

#### IMPORTANT:

Test the Break-Away Switch periodically.  
Removing the pin, then pull the trailer to feel if the brakes have engaged.

The cable attached to the Break-Away Switch pin, must go around the ball before coupling the trailer to the tow vehicle.

During transportation, if the trailer should detach from the transport vehicle, the pin will be pulled out engaging the trailer's brakes.

### NOTICE

#### TRANSPORT HAZARD

Always secure the safety chains to the tow vehicle, in addition to the Break-Away Switch.

### Weigh Scale Package (Optional):

A scale package allows the seed to be weighed as the tender is being filled or as it is emptied into the planter.

Refer its manual for all the information.



Fig 21 - Break-Away system



Fig 22 - Weigh Scale Display

### **3.3 MACHINE BREAK-IN**

A special break-in procedure has been developed to ensure the integrity of the seed tender when first put into service. Follow the Before Starting instructions and then follow the Inspections for 1/2, 5, and 10 hour instructions at the appropriate interval.

After completing these instructions, follow the normal service schedule in the Maintenance and Service sections and the engine manual.

#### **3.3.1 Before Starting:**

1. Read and follow the instructions in this manual, and the engine manual.
2. Review and follow the Pre-Operation Checklist before starting machine.
3. Initially check wheel bolt torque and then again at 10, 25, and 50 miles.  
Refer to Section 6.2 Bolt Torque.
4. Start the engine and check the controls. Be sure that they function properly.

#### **3.3.2 Inspections at 1/2, 5, and 10 Hours:**

1. Check the engine's oil level.
  - Fill fluids as required.
2. Check the oil level in the centrifugal clutch reduction case.
  - Fill fluids as required.
3. Check the tension and alignment of the belt drive and of the conveyor belt.
4. Check hardware and fasteners; frame to trailer tie-downs, all fasteners, and wheel bolts. Tighten to their specified torque.
5. At 10 hours, change the engine oil.
  - Check engine manual for the specified oil.

### 3.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of this Meridian® Box Seed Tender requires that each operator reads and follows the operating instructions and all related safety precautions identified in this manual.

This pre-operational checklist is provided for both personal safety and to maintain the efficient operation of the tender. Check the following areas each time before you operate this tender:

1. Lubricate the machine, as outlined in the Service and Maintenance section.
2. Check the engine oil and fuel levels.
  - Add, if required.
3. Check the oil level in the centrifugal clutch reduction case.
  - Add, if required.
4. Check the drive belt tension.
  - Refer to Section 4.3.3
5. Check hardware and fasteners; seed tender frame to trailer tie-downs, hitch bolts, trailer hitch to trailer bolts, and all other fasteners. Tighten to their specified torque.

**IMPORTANT:**

The engine warranty is void if the engine is run without oil.

6. Make sure the wheel bolt lug nuts are tight.
7. Check the tires and ensure that they are inflated to their specified pressure.
8. Remove all entangled material.
9. Visually inspect the conveyor tube, conveyor belt, and delivery spout for damage.
10. Test the Break-Away brake unit and the trailer brakes.
  - a. Make sure the trailer brakes are operating properly.
  - b. Be sure the trip wire to the break-away switch is connected to the tow vehicle.
  - c. Make sure the pin is correctly installed in the break-away switch.
  - d. Press the Test button to see if the indicator illuminates green.
    - If the red light illuminates, the battery charge is low.
    - Refer to the Section 4.3.15 Break-Away System in the Maintenance section for instructions on charging the battery.

### 3.5 ATTACHING TO TOW VEHICLE

**⚠ WARNING**

**UPENDING HAZARD**

Do not stand over hitch when unhooking the trailer from the tow vehicle.  
 Load seed box 1 (closest to hitch) first to keep weight on the hitch.  
 Unload seed box 2 first to keep weight on the hitch.

**⚠ WARNING**

**CRUSH HAZARD**

Ensure that all bystanders, especially small children, are clear of work area.  
 Ensure there is enough room and clearance to safely back up to the tender.

1. Complete the Pre-Operation Checklist.
2. Use the trailer jack to lift the hitch above the height of the receiver on the tow vehicle (standard hitch assembly shown).
3. Remove the retainer pin. Release or open the receiver by pulling the locking cover back, as shown.

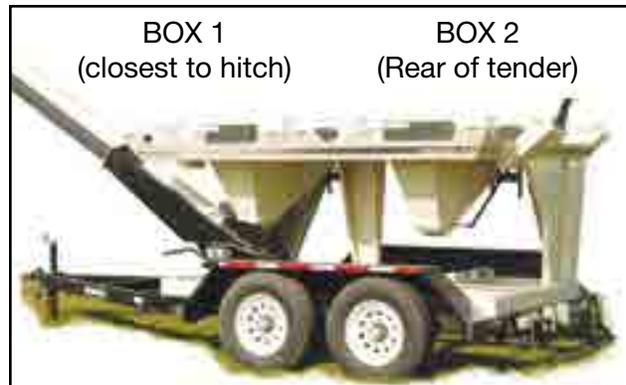


Fig 23 - Box position identification



Fig 24 - Trailer jack



Fig 25 - Hitch receiver Retainer pin



Fig 26 - Hitch receiver lock cover

4. Slowly back the tow vehicle until the hitch and ball are aligned.
5. Lower the hitch onto the ball.
6. Raise the jack and place it in its stowed position.
7. Close the receiver by pulling the spring loaded locking collar back to release the hitch mechanism.
  - Install the retainer clip to prevent unwanted opening of the receiver.
8. Attach the safety chain securely to the tow vehicle to prevent unexpected separation.
  - Cross the chains when attaching.
9. Connect the wiring harness for the lights and brakes.
10. Connect the break-away system cable to the tow vehicle.
  - Plug the key on the end of the cable into the receiving unit.
11. Route all the cables in a manner that will prevent snagging.
  - Be sure to provide slack for turning.

**IMPORTANT:**

Conveyor tube must be locked in transport position at all times while towing.

## NOTICE

**UPENDING HAZARD**

Seed tender must be connected to tow vehicle at all times during operation to avoid unit from tipping backwards.

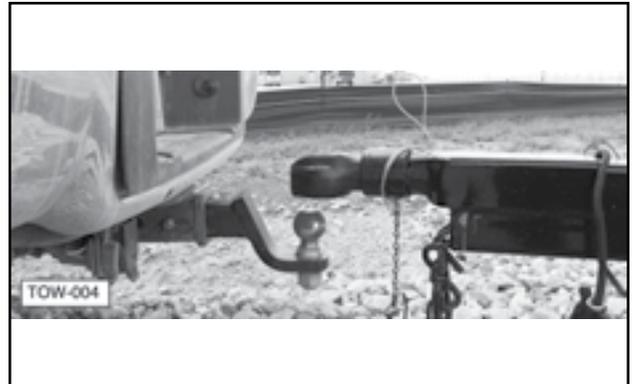


Fig 27 - tow vehicle ball and trailer hitch



Fig 28 - Raise and stow jack



Fig 29 - Break-Away cable



Fig 30 - Break-Away cable

### 3.6 LOADING SEED BOXES

The images in this section identify the correct method for loading and unloading seed boxes from the unit. The tenders shown may not be the exact model described in this manual.

#### NOTICE

##### UPENDING HAZARD

Tender must be connected to tow vehicle at all times during operation to avoid tipping backwards.

#### WARNING

##### UPENDING HAZARD

Always load the front seed box first to maintain a positive tongue weight. Negative tongue weight can cause the hitch to rapidly swing upward if not securely fastened to the tow vehicle, which can result in personal injury.

#### WARNING

##### CRUSH HAZARD

Use caution when lifting seed boxes. A typical seed box weighs 330 lb (150 kg) when empty. Seed boxes have the capacity of holding up to 2500 lb (1135 kg) of seed. Keep bystanders away from loading area and at least 15 ft (4.5 m) from the seed box. Use a lifting device with a rated lift capacity capable of safely moving the seed boxes.

1. Remove the latch pins from the corner lock-down arms. See Figure 32
2. Flip the lock-down arms to open, before loading the seed box.
3. Remove the two hairpin retainer clips and remove the chute cover(s).
  - Place the clips back into the retainer studs.
  - Store the cover(s) in a location where it will not be damaged.

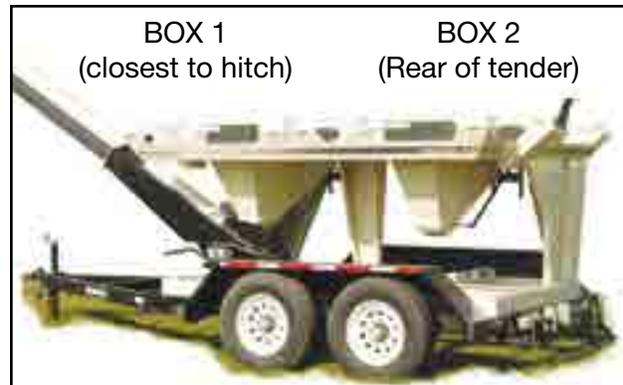


Fig 31 - Box position identification



Fig 32 - Lock-down arm and latch pin



Fig 33 - Open corner lock-down arms



Fig 34 - Remove protective chute cover

4. Make sure there are no foreign objects or impacted seed blocking the chute leading to the conveyor belt.
5. Clean the frame of debris.
6. Clear the area of all workers and bystanders.

**⚠ CAUTION**

**PINCH POINT**

Keep body parts away from between seed box and frame when loading.

7. Use a suitable lifting device, to carefully place the seed box onto the tender.
8. Make sure the seed box is seated properly over the hopper and rubber chute.
9. Make sure the chute contacts the bottom of the seed box.
10. Flip the lock-down arms over.
  - Insert the pins to secure the arms in place, to hold the seed box.

**IMPORTANT:**

Rubber chute must be checked after loading seed boxes to ensure they are sealed all around prior to opening seed box gates.

**IMPORTANT:**

Seed boxes must be locked down at all times while loaded on the unit, empty or full.

11. Open the seed box gate valve.
12. **IMPORTANT:** To remove seed boxes:
  - Work slowly to identify any shifting weight quickly.
  - Start by unloading the box(es) from the rear.
  - Unload the front box(es) second.



Fig 35 - Seed box chute

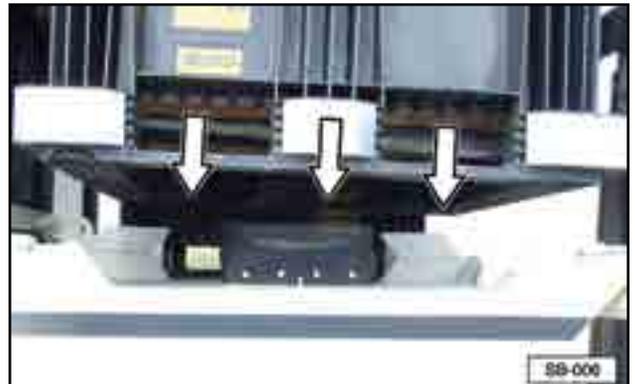


Fig 36 - Lower seed box over chute



Fig 37 - Chute contacts seed box



Fig 38 - Close and latch corner lock-down arms

### 3.7 DELIVERING SEED TO PLANTER

1. Position the seed tender near the planter.
2. Turn off the engine of the tow vehicle, set the parking brake, and remove the ignition key before leaving the cab.

**IMPORTANT:**

Seed tender must be connected to tow vehicle at all times during operation to avoid unit from tipping backwards.

**⚠ DANGER**

**ELECTROCUTION HAZARD**  
Keep away from power lines.

- Be aware of your surroundings when raising or lowering the auger tube.
- Maintain at least 20 feet between the equipment and any electrical hazard.
- Contact with electricity can result in serious personal injury or death.

3. Remove the hairpin clip to raise the handle lock plate.
  - Lift the lock plate handle.
  - Raise the conveyor lock plate and secure it upright, with the hairpin clip.



Fig 39 - Lock plate handle on Titan 2SE



Fig 40 - Raise Titan 2SE lock plate



Fig 41 - Lock plate handle on Titan 4SE



Fig 42 - Raise Titan 4SE lock plate

4. To reposition the conveyor tube:
  - Raise the handle, at the base of the tube, to release the locking mechanism.
  - Rotate the tube to the desired position.
  - Lock it in place.

**IMPORTANT:**

The lock handle on the conveyor tube locks into the notches in the base of the unit. Make sure the lock handle is securely locked in place before unloading seed.



Fig 45 - 2SE tube swing



Fig 46 - 4SE tube shuttle and swing

5. **Seed Titan™ 4SE shuttle movement:**  
The conveyor tube can slide from the front of the seed tender to the rear by releasing the trolley lock plate.

Make sure the trolley lock plate is in place to prevent the trolley from moving during unloading.



Fig 43 - Slide conveyor and lock trolley

6. Always lower both jack stands, before positioning the conveyor tube to the rear, away from the tongue.

The jacks will support the weight of the conveyor.



Fig 44 - Lower jacks when conveyor is at the rear

7. Press and hold the remote throttle switch to move the throttle lever 1/3 the distance of the full open position.
  - An electronic actuator is connected to the throttle lever to increase and decrease the speed of the engine.



Fig 47 - Remote throttle switch

8. Start the gas engine.
  - a. Move fuel valve lever (3) to the ON position.
  - b. To start a cold engine, move choke lever (4) to the CLOSED position.

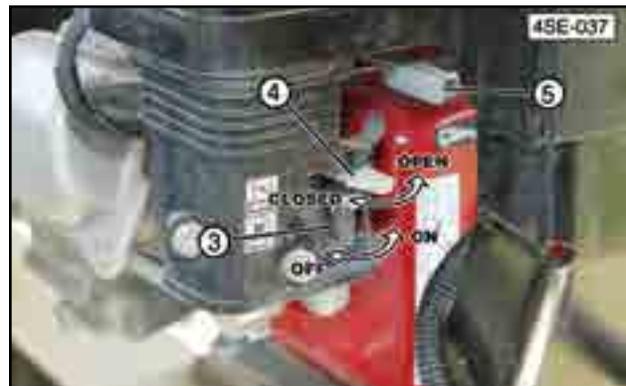


Fig 48 - engine controls

- c. Turn the key switch to the START position. Release the key switch when the engine ignites.
9. Allow the engine to warm up for two or three minutes. If the choke was closed to start the engine, gradually open it as the engine warms up.



Fig 49 - Start the engine

10. If necessary, decrease the engine speed below 1400 RPM using the remote throttle control switch.
  - The centrifugal clutch on the engine will engage and rotate the conveyor when the engine speed exceeds 1400 RPM.
  - Increasing the engine speed will increase the unloading rate.



Fig 50 - Remote throttle control switch

## **⚠ WARNING**

### UPENDING HAZARD

Always unload rear seed boxes first to maintain a positive tongue weight. Negative tongue weight can cause the hitch to rapidly swing upward if not securely fastened to the tow vehicle, which can result in personal injury.

11. Lift the lock plate (1) to release the slide gate handles.

#### **Note:**

Figure 51 shows the lock plate in the open position, which will allow the slide gates to open. Figure 52 shows the lock plate in the closed position.

12. Pull the handle to open the slide gate.
  - Close slide gate by pushing the handle in.
13. Fill the planting equipment.
  - a. Move delivery spout to the planter bin.
  - b. Increase engine RPM to start conveyor belt rotating.
  - c. When the bin is full, reduce the engine RPM to low idle which will stop the conveyor belt.
  - d. Repeat this process until planter is full.
14. When the job is done, close the seed box slide gate.
15. Close the lock plate.
16. Reduce engine RPM to stop the conveyor belt.

#### **IMPORTANT:**

If the tender will not be used again for an extended period of time, the tube should be cleared of all seed. This will help prevent the tube from being clogged with seed.



Fig 51 - Lift lock plate to use slide gate handles



Fig 52 - Lock plate in "locked/closed" position



Fig 53 - Fill planter bin

### 3.8 UNPLUGGING

#### NOTICE

Shut off fuel  
when not in use.

17. Turn off the engine.
  - Close the Fuel Shut-Off valve.
18. Return the conveyor tube to its transport position, before towing the tender off-site.
  - Lock it in place.
19. **Seed Titan 4SE:**  
Be sure the trolley lock plate is secured, to prevent it from moving during transportation.

#### WARNING

##### ENTANGLEMENT HAZARD

- Do not operate with access door open.
- Do not place hands or fingers near rotating or moving parts.
- Do not operate without guard.
- Stop engine and remove key, before working on the machine.

If the conveyor tube plugs:

1. Stop the engine and remove the ignition key.
2. Lock-Out, Tag-Out the tender system.
3. Open the access door at the base of the conveyor.
4. Clean out seed and remove any obstruction.
5. Close and secure the access door(s).



Fig 54 - Conveyor tube access door

## 3.9 STORAGE

### SAFETY INSTRUCTIONS

#### PERSONAL INJURY HAZARD

- Store the tender in an area away from human activity.
- Do not permit children to play on or around the stored machine.
- Store the unit in a dry, level area. Support the frame with planks, if required.

#### 3.9.1 Placing into Storage:

After the season's use or when it will not be used for an extended period of time, the tender should be inspected and prepared for storage.

Repair or replace any worn or damaged components to prevent unnecessary downtime at the beginning of the next season.

To have a long, trouble-free life, follow these instructions:

1. Close the engine Fuel Shut-Off valve.
2. Remove the ignition key and store in a secure place.
3. Check the condition of the centrifugal clutch reduction case, pulleys, idlers, and drive belt. Replace or adjust, as required.
4. Remove the battery.
  - Be sure it is fully charge, check monthly.
  - Store it inside.
  - Do not sit battery on a cold, concrete floor.
5. Remove all seed from the hopper chutes and inside the conveyor tube.
6. Inspect all moving or rotating parts and remove any entangled material.

7. Thoroughly wash the tender to remove all dirt, mud, debris and residue.
  - Wash around and inside the hoppers and their chutes.
  - Clean inside the conveyor tube, and belt.

8. Lubricate all grease fittings and conveyor belt roller bearings.

Make sure that all grease cavities have been filled with grease to remove any water residue from the washing. This also protects the bearing seals.

9. Touch up paint nicks and scratches to prevent rusting.
10. Store the tender inside if possible.
  - If it must be outside, cover with a waterproof tarp and tie down securely.

#### 3.9.2 Removing From Storage:

When removing the tender from storage, in preparation for work:

11. Remove the tarp, if covered.
12. Install and connect the battery.
13. Review and follow the Pre-Operation Checklist.
14. Review and follow the Service Intervals in the Maintenance section.

#### IMPORTANT:

If the machine has been stored for more than twelve months, warm the engine by running it for two to three minutes. Then drain the oil. Change the oil while the oil is warm to remove any condensation.



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## Section 4: SERVICE AND MAINTENANCE

### WARNING

- Review the Operator's Manual and all safety items before maintaining the tender.
- Follow good shop practices:
  - Keep service area clean and dry.
  - Be sure electrical outlets and tools are properly grounded.
  - Use adequate light for the job at hand.
- Lock-Out, Tag-Out tender operation.
- Clear the area of bystanders, especially children, before repairing or adjusting.
- Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
- Before servicing, repairing or unplugging; stop engine, remove ignition key and wait for moving parts to stop.
- Ensure there is plenty of ventilation. Never operate the engine in a closed building. The exhaust fumes may cause asphyxiation.
- Place stands or blocks under frame before working beneath the unit.
- When maintenance is complete, before resuming work, install and secure all guards.
- Keep safety decals clean. Replace any decal that is damaged or not readable.

By following the operating instructions, in conjunction with a good maintenance program, your tender will provide many years of trouble free service.

Original Equipment Manufacturer (OEM) literature, for components of this tender, are stored in the document holder, attached to the tender frame. For more specific information contact the manufacturer directly.

### 4.1 FLUIDS AND LUBRICANTS

#### Fuel and Engine Oil:

Refer to the engine manual for specific information:

- Crankcase capacity
- Type of fuel to use, and quantity

#### Storing Lubricants:

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants.

Store them in an area protected from dust, moisture and other contaminants.

#### 4.1.1 Greasing:

Use an SAE multipurpose high temperature grease with extreme pressure (EP) performance. Also acceptable, SAE multipurpose lithium based grease.

### NOTICE

#### GREASING HAZARD

Too much grease causes excessive overheating. Under-greasing accelerates equipment wear.

No grease should be seen around bearings. If there is, too much grease was applied and the seal has ruptured!

#### IMPORTANT:

Grease bearings only one pump per month under normal usage conditions.

Bearing greasing frequency should be determined by usage and conditions.

1. Use a hand-held grease gun for all greasing.
2. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.
3. All bearings are greasable, but require only minimal grease.

Recommended greasing is one small stroke every month. Be careful not to over-grease as this may push the seal out.

4. Replace and repair broken fittings immediately.
5. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.



Fig 55 - Seed Titan™ 2SE



Fig 56 - Seed Titan™ 4SE

## 4.2 SERVICING INTERVALS

The following recommended periods are based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication and oil changes.

Schedules may vary depending on options and engine model contained in your equipment.

### **WARNING**

#### FIRE HAZARD

Gasoline is a highly combustible fuel.

Improper use, handling, or storage of gasoline can be dangerous.

Never touch or fill a hot engine.

- DO NOT fill fuel tank near an open flame, while smoking or while engine is running.
- DO NOT fill tank in an enclosed area with poor ventilation.
- Wipe up spills immediately.

#### **IMPORTANT:**

Refer to the engine manual for complete servicing and maintenance details.

The axle is built by Dexter Axle Company. Refer to their online maintenance information.

#### 4.2.1 Every 10 Hours or Daily:

1. Check engine oil level
  - Fill as needed.
2. Check engine fuel level.
  - Add as needed.
3. Check Centrifugal Clutch Reduction Case oil level.
  - Add as needed.
4. Test trailer break-away system.
5. Inspect tires.
6. Check wheel bolt torque at 10, 25, and 50 miles.
7. Check conveyor belt tension and alignment.
8. Check drive belt tension and alignment.
9. Inspect all conveyor belt rollers and bearings for play and wear.

#### 4.2.2 Every 50 Hours or Weekly:

10. Clean or replace the engine air filter element.
  - Clean or replace the foam filter.
  - Replace the paper air filter, as required.
11. Check the tire pressure. Inflate tires to the recommended pressure stated on the tire.



Fig 57 - Engine air filter

**4.2.3 Every 100 Hours or Monthly:**

12. Grease conveyor belt roller bearings.
13. Check wheel nuts.
  - Torque to 90-120 ft-lb
14. Adjust the trailer brakes.
15. Inspect tires for wear.
16. Grease the axles.
17. Inspect brake magnets for wear.
18. Inspect suspension parts for wear.
19. Check battery electrolyte levels, and clean terminals to remove dirt and corrosion.

30. Check trailer axle, frame, hitch and tender hold-down bolts.
  - Refer to Section 6.2 Bolt Torque.
31. Check conveyor tube and bearing bolts.
32. Thoroughly clean the tender.
  - Wash to remove all dirt, mud, debris and residue.
  - Wash around and inside the intake hopper and chutes.
  - Clean inside the conveyor tube, and belt.

**4.2.4 Every 200 Hours or Annually:**

20. Change the engine oil.
21. Change Reduction Case Oil.
22. Check that battery retains maximum charge.
23. Inspect the tires for wear.
24. Inspect brake lining wear:
  - Check brake cylinder for leaks.
  - Inspect brake wiring for damage.
  -
25. Repack the wheel bearings:
  - Check for excessive play in the bearings.
  - Grease the wheel bearings.
26. Check the wheel hub for wear.
27. Inspect axle grease seal for leakage.
28. Inspect springs for any wear or loss of arch.
29. Inspect all electrical wiring connections for looseness or corrosion.
  - Tighten and/or seal, as necessary.



Fig 58 - Grease roller bearings



Fig 59 - Trailer wheels

## 4.3 MAINTENANCE PROCEDURES

### 4.3.1 Engine Maintenance:

Refer to the engine manual for complete details on your particular model.

#### SAFETY INSTRUCTIONS

##### REFUELLING HAZARD

- Handle fuel with care. It is highly flammable.
- Allow engine to cool for five minutes before refuelling. Clean up spilled fuel before restarting engine.
- Do not refuel the machine while smoking or when near open flame or sparks.
- Fill fuel tank outdoors.
- Prevent fires by keeping machine clean of accumulated trash, straw, grease, and debris.

#### Approved Fuel:

Use unleaded automotive gasoline for all operating conditions. The fuel tank capacity is 6.4 US quarts (6.1 liters).

#### Engine Oil:

Use a typical SAE 10W-30 or 10W-40 multiviscosity motor oil for normal operating conditions. Consult your engine manual for the recommended oil in cold temperatures. The crankcase capacity is 1.16 US quarts (1.1 liters).

#### Engine Circuit Protection:

The circuit protector protects the battery charging circuit. A short circuit, or a battery connected with reverse polarity, will trip the circuit breaker.

The green indicator inside the circuit protector will pop out to show that the circuit protector has switched off. If this occurs, determine the cause of the problem, and correct it before resetting the circuit protector.

Push the circuit protector button to reset.  
Revised 02.2021

### Change Engine and Reduction Case Oil:

#### CAUTION

BURN HAZARD  
Hot engine oil can burn skin.

1. Review the engine manual.
2. Allow the engine to cool before changing oil. Draining works best when the oil is warm.
3. Be sure the engine key switch is in the OFF position and the fuel valve is turned OFF.
4. Place a pan under the drain plug. Remove the drain plug and allow the oil to drain for ten minutes.
5. Reinstall the drain plug and tighten.
6. Dispose of the oil in an approved container.
  - Follow industrial disposal regulations.
7. Fill the engine with SAE 10W-30 oil for general usage. If the engine is operated in more extreme conditions, refer to the engine manual for oil recommendations.
8. Run the engine for one minute and recheck the oil level. Add oil, as needed.

#### Air Cleaner and Filter:

Check and remove any debris from the foam cover of the air cleaner daily before each use. Thoroughly wash or replace the foam cover every three months or 50 hours of operation (clean it more frequently when used in dusty conditions).

### 4.3.2 Engine Speed Setting:

#### **WARNING**

##### ROTATING PART HAZARD

The engine speed must be adjusted with the engine running. Use extreme caution when working near rotating parts.

Every engine is set with a high idle of 3000 RPM. Before using the seed tender, check the RPM.

1. Start the engine. Set the engine to high idle (full throttle).
2. Use a tachometer to check the large drive pulley speed. The pulley should turn 200 RPM at high engine speed.
3. Use a screwdriver to reset the high idle stop screw if required to obtain the desired speed



Fig 60 - Engine speed setscrew



Fig 61 - Drive belt pulley inside guard

### 4.3.3 Drive Belt Tension:

**Note:**

2SE are shown in Figures 62 to 65  
4SE are shown in Figures 66 to 68

The conveyor is driven by a belt from the engine. The belt is tightened by moving the engine base with the adjusting bolt.

**IMPORTANT:**

Always install and secure the guard before resuming work.

1. Loosen the four engine mounting bolts (1).
2. Loosen the engine base stabilizing bolt.
3. Loosen the jam nut on engine base adjusting bolt (2).
4. Move the engine base to set the desired belt tension.
5. Tighten the jam nut.
6. Tighten the four engine mounting bolts.
7. Tighten the engine base stabilizing bolt.



Fig 62 - Titan 2SE engine mount bolts

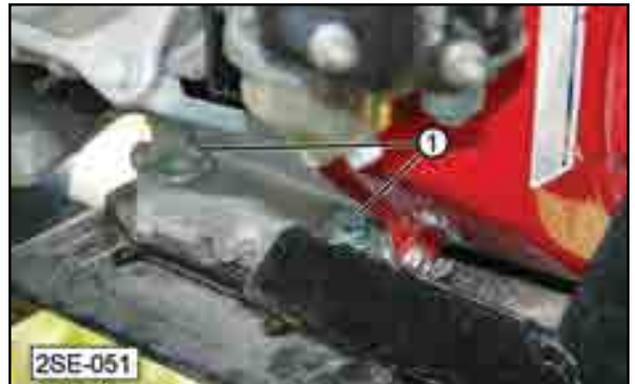


Fig 63 - Titan 2SE engine mount bolts



Fig 64 - 2SE Engine base stabilizing bolts



Fig 65 - Engine base adjusting bolt

The Seed Titan™ 4SE conveyor is also driven by a belt from the engine. The belt is tightened by moving the engine base with the adjusting bolt.

**IMPORTANT:**

Always install and secure the guard before resuming work.

The instructions for the 4SE are the same as for the 2SE:

1. Loosen the four engine mounting bolts (1).
2. Loosen the engine base stabilizing bolt.
3. Loosen the jam nut on engine base adjusting bolt (2).
4. Move the engine base to set the desired belt tension.
5. Tighten the jam nut.
6. Tighten the four engine mounting bolts.
7. Tighten the engine base stabilizing bolt.



Fig 66 - Titan 4SE engine mount bolts



Fig 67 - Titan 4SE engine base stabilizing bolts



Fig 68 - 4SE engine base adjusting bolt

#### 4.3.4 Drive Belt Installation:

See Figure for the correct routing of the drive belt. Always check the alignment of the pulleys when replacing the belt.

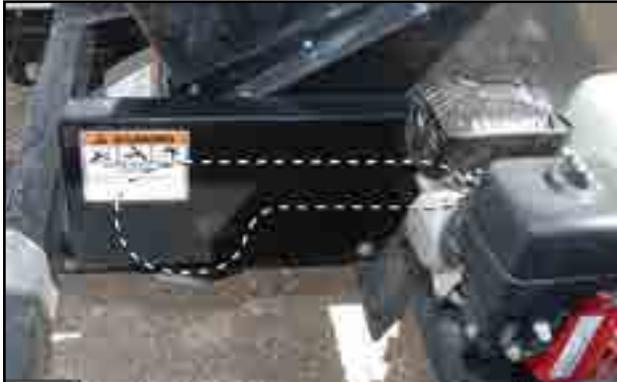


Fig 69 - 2SE Drive belt routing



Fig 70 - 4SE drive belt routing

#### 4.3.5 Battery Maintenance/Replacement:

Inspect the battery at least once every six months and before using the seed tender at the beginning of the season. Always follow the safety instructions when servicing a battery.

- Check the batteries at least every six months for low Voltage, leakage, etc.
- Always use the correct size and type of battery. Replace old batteries with a new SP-30 Lawn and Garden battery with 230 CCA and 290 CA ratings.
- Do not install the battery cable to the wrong terminal. Make sure the RED cable is connected to the + (plus) terminal and the BLACK cable is connected to the - (minus) terminal.
- Remove the batteries from the seed tender if not expected to be in use for several months.
- Use recommended practices when recharging a dead battery.
- Remove any corrosion from the battery post using a wire brush terminal cleaner. Corrosion can also be removed using a baking soda paste and water to neutralize and remove the acid from the battery terminals.
- Dispose of old batteries properly.
- Make sure the tie-down strap is connected to the frame of the battery box and in good condition (not cracked, cut, or damaged).
- The battery is not charged when the engine is operating. If the battery is not charging using an external charger, check the fuse. Replace the fuse if necessary.

#### 4.3.6 Conveyor Belt Tension:

1. Loosen the locknut on each side of the belt tension mechanism.
2. Tighten the two adjusting bolts equally to 23 ft-lb. While holding the adjusting bolt in place, retighten both locking nuts.
3. Start the conveyor and make sure the belt is tracking in the center of the drive drum.
  - If the belt is not tracking properly, use the Belt Tracking Adjustment procedure to correct the problem.



Fig 71 - Conveyor belt tension bolt

#### 4.3.7 Conveyor Belt Alignment:

##### **IMPORTANT:**

The drive drum, at the bottom of the conveyor must be square (drive shaft must be equal distance from end of unit) for the belt to track properly.

##### **Note:**

If belt is not tracking correctly, it will move to the loose side.

Tighten loose side or loosen tight side.

1. Adjust one side at a time.
  - Loosen the locking nuts on the adjusting bolt.
2. Tighten or loosen the bolt on one side, below the delivery spout, to correct the tracking problem.
3. Using a wrench, hold the adjusting bolt in place while tightening the locking nut against the housing.
4. Slowly, test run the conveyor belt.
  - Check if the belt is tracking centered.
  - Re-adjust, if needed.

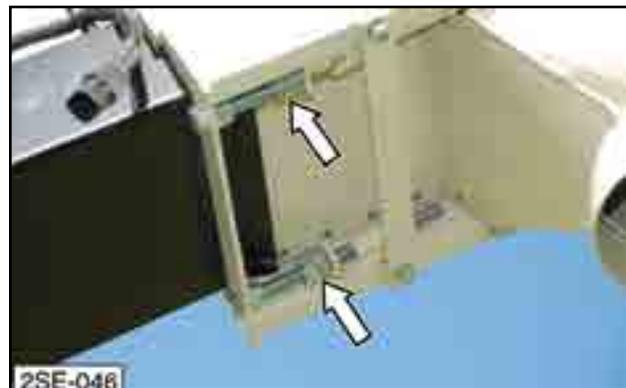


Fig 72 - Conveyor belt tracking adjustment bolts

#### 4.3.8 Conveyor Belt Replacement:

If the belt is unbroken, it may be possible to use the old belt to thread the new belt into the delivery tube.

1. Position tube for easy access to both ends.
2. Open the clean out door.
3. Loosen the lower drive drum adjusting bolts.
4. If the old belt can be used to install the new belt, continue with this step; if not, continue to Step 5.
  - a. Remove belt guard to access belt lacing.
  - a. Disconnect the lacing.
  - b. Attach the replacement belt to the end of the old conveyor belt.
  - c. Slowly pull the old belt out of the spout, threading the new one into position.
  - d. Disconnect the old belt and connect the lacing of the new belt together.
5. If the old belt cannot be used:
  - a. Remove the delivery spout.
  - a. Remove the galvanized belt guards.
  - b. Thread the new belt through the tube.
  - c. Connect the two ends of the belt lacing.
6. Tighten the two drive drum tension bolts equally to 23 ft-lb. While holding the adjusting bolt in place, retighten both locking nuts.
7. Start the engine. Run the conveyor to make sure the belt tracks properly.
  - If the belt does not track properly, refer to Section 4.3.8 Belt Tracking instructions to correct the problem.
8. Recheck the tension and alignment of the belt frequently during the first ten hours of operation and adjust, as needed.

**Note:**

The belt normally seats itself during the first 10 hours of operation and can be checked weekly



Fig 73 - Conveyor tube access door



Fig 74 - Belt Tension bolts



Fig 75 - Conveyor belt lacing



Fig 76 - Delivery spout

### 4.3.9 Unplugging Conveyor Tube:

#### **⚠ WARNING**

##### ENTANGLEMENT HAZARD

- Do not operate with access door open.
- Do not place hands or fingers near rotating or moving parts.
- Do not operate without guard.
- Stop engine and remove key, before working on the machine.

#### **NOTICE**

Do not operate the conveyor when:

- It is plugged with excess seed
  - Hindered from moving by a foreign object.
- Continued operation can cause damage to conveyor or result in a broken conveyor belt.

If the conveyor becomes plugged, follow this procedure:

1. Position the conveyor with easy access to both ends.
2. Stop the engine and remove the ignition key.
3. Place a lock-out tag on the control box to prevent accidental starting of the conveyor.
4. Open the lower access door at the bottom of the conveyor and remove any excess seed or obstruction.
5. Close and secure the lower access door.
6. Also check the delivery spout for blockage and remove any obstructions.

#### **Note:**

In some extreme case it may be necessary to remove the galvanized belt guards and/or the belt itself.



Fig 77 - Conveyor tube access door



Fig 78 - Delivery spout

**4.3.10 Axle, Trailer, Frame Bolts:**

Check the torque on the axle, frame, trailer and tender hold-down bolts at least once per year. Refer to Section 6.2 Bolt Torque.

Also, check conveyor tube and bearing bolts.



Fig 79 - Axle bolts



Fig 80 - Frame hold-down bolts



Fig 81 - Titan 2SE with optional weigh scale package



Fig 82 - Titan 4SE trailer hitch bolts



Fig 83 - Titan 2SE with optional weigh scale package



Fig 84 - Titan 4SE frame hold-down bolts

#### 4.3.11 Wheel Bolt Torque Requirements:

### **WARNING**

#### EXPLOSIVE FORCE HAZARD

To prevent injury due to possible dangerous separation of wheels from the axle, the wheel nuts must be maintained at the proper torque levels. Properly tightened wheel nuts prevent loose wheels and broken studs.

Initially check the wheel bolt torque at 10, 25, and 50 miles, as well as after each wheel removal.

#### **Note:**

Torque wrenches are the best method to ensure the proper amount of torque is being applied to a wheel nut.

1. Tighten the wheel nuts in three stages:
  - First stage: 20 to 25 foot pounds.
  - Second stage: 50 to 60 foot pounds.
  - Third stage: 90 to 120 foot pounds.
2. Tighten the wheel nuts in a clockwise, cross-axle alternating pattern.

#### 4.3.12 Tires:

Check the tires for normal and/or abnormal tire wear. Replace tires that are damaged or worn beyond normal tread life.

Replace the tires with Meridian® part number 18131 or an equivalent tire:

3T235/80R16

TR643

Load Range E

For Trailer Service Only

#### 4.3.13 Wheel Bearings:

Each axle is equipped with a grease zerk under the center dust cap of the wheel. Add grease sparingly to the wheel bearings, using only wheel bearing grease. The wheel bearings should be repacked annually. Check for excessive end play and tighten, if necessary.

#### **IMPORTANT:**

Over greasing wheel bearings can cause them to overheat, resulting in damage and/or failure.

#### 4.3.14 Welding Repairs:

Repair welding must be done with care and with procedures that may be beyond the capabilities of the ordinary welder.

Before performing any type of welding repair to the seed tender, contact Meridian® for approval.

#### **IMPORTANT:**

Anyone performing a welding repair should be certified in accordance to the American Welding Society (AWS) standards.

### 4.3.15 Trailer Break-Away System:

#### Testing the Battery:

1. Disconnect the trailer plug from the tow vehicle; otherwise, you are testing the tow vehicle's battery.
2. Press the green TEST button on the control box located inside the frame of the trailer.
  - The green indicator light will illuminate if the battery is fully charged.
  - If the yellow or red indicator lights illuminate, the unit's battery should be charged before towing the trailer.

#### IMPORTANT:

If the battery is weak or dead (red indicator, even after charging), as indicated by the indicator light, the battery must be replaced.

3. Plug the trailer into the tow vehicle. The yellow "Charging" light should be ON.
4. Test the system by pulling the pin out of the break-away switch. The battery will activate the brakes. (**Note:** Do not use this kit as a parking brake). The battery should be charged and tested prior to each trailer outing.

#### Changing Battery:

The battery in the break-away system is rechargeable. If the battery will not hold a charge, replace the battery.

#### Replacing Battery:

The battery in the break-away system is replaceable. If the battery will not hold a charge, replace the battery. Contact the OEM supplier for a replacement battery.



Fig 85 - Tongue of trailer



Fig 86 - Break-Away system

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## 4.5 ORDERING PARTS

Always give the Model Number and Serial Number when ordering parts.

To get your parts promptly the following information will be required:

- The part name and number
- Your Name, Address, Town, State/Province, Country
- Complete information for shipping

Confirm all phoned in orders in writing. If Purchase Orders are required please note the number on the written order.

Unless claims for shortages or errors are made immediately upon receipt of goods, they will not be considered.

Inspect all goods received immediately upon receipt. When damaged goods are received, insist that a full description of the damage is made with the carrier against the freight bill. If this is insisted upon, full damage can be collected from the transport company.

No responsibility is assumed for delay or damage to merchandise while in transit. Dealers responsibility ceases upon delivery or pickup of shipment from or to the transportation company. Any freight damage claims must be made with the transportation company, not with the dealer.

## Section 5: TROUBLESHOOTING

In the following trouble shooting section, we have listed many of the problems, causes and solutions to the problems which you may encounter.

If you encounter a problem that is difficult to solve, even after having read through this trouble shooting section, please contact your authorized dealer, distributor or the factory. Before you call, please have this Operator's Manual and the serial number from your machine ready.

### ***PROBLEM***

<b>CAUSE</b>	<b>SOLUTION</b>
--------------	-----------------

#### *Engine will not start*

No fuel	Fill the fuel tank
Low engine oil	Fill the crankcase with oil
Cold engine	Open choke
Ignition key switch off	Turn ignition key switch on
Battery dead	Recharge or replace battery
Engine problem	Refer to engine manual

#### *Conveyor will not start*

Not rotating	Start engine and increase speed above 1400 RPM
Drive pulley connection or conveyor coupling	Repair or replace
Drive belt slipping	Increase belt tension
No hydraulic oil in reduction case	Check oil level
Failed centrifugal clutch	Replace clutch

#### *Electrical functions are not working properly*

Battery cable or battery	Check battery cable. Be sure battery is fully charged.
Improper ground	Check for proper grounding electrical circuit

continue on next page

*Remote throttle doesn't work*

No input power	Check charge of battery. Recharge or replace, as required
	Check connections in the remote throttle harness. Be sure connectors are clean and terminals are firmly pushed together.

*Scale display is not working when power is ON*

No input power	Inspect the power cable for possible damage
	Check the wiring connections for corrosion, bent pins, or wire damage
Incorrect Voltage	The required Voltage is over 10.5 Volts with a negative ground. If the Voltage drops to 10.1 Volts, the low battery indicator will appear.
Dead battery	Make sure the seed tenders 12 VDC battery is fully charged and the output is 12 Volts
Internal fuse	Replace the 5 mm x 20 mm, 1 Amp, 250 Volt fast acting fuse
Check for incorrect connection to the battery	Connect BLACK wire to Ground and WHITE wire to +12 VDC

*Scale display turns OFF automatically*

Insufficient power	The indicator will automatically turn OFF if the Voltage drops below 10.1 Volts
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## Section 6: REFERENCE

For information not included here, or for a digital copy of this manual, please call your dealer, or Meridian Manufacturing Inc. directly for assistance. Visit our website at: [www.meridianmfg.com](http://www.meridianmfg.com).

**Note:**

The drawings and schematics are contained in a separate parts book.

### 6.1 SPECIFICATIONS

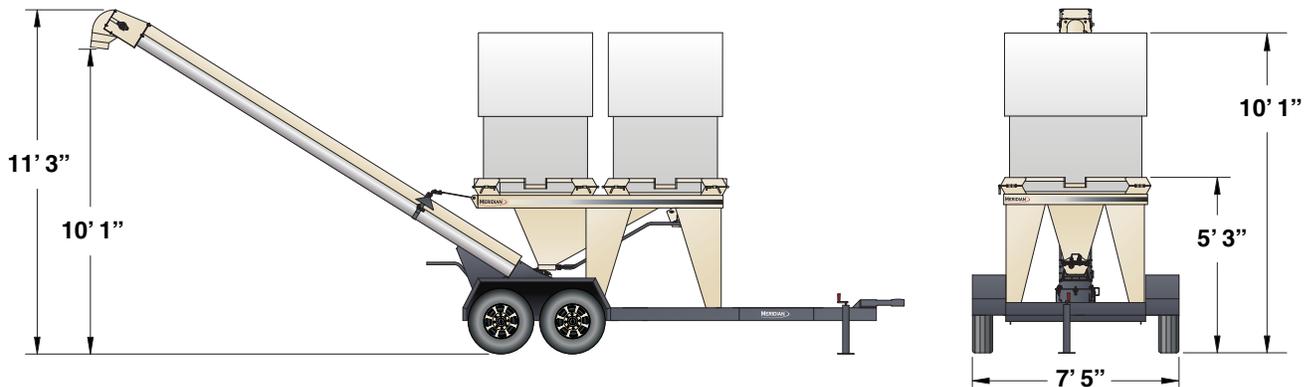


Fig 87 - Titan 2SE measurements

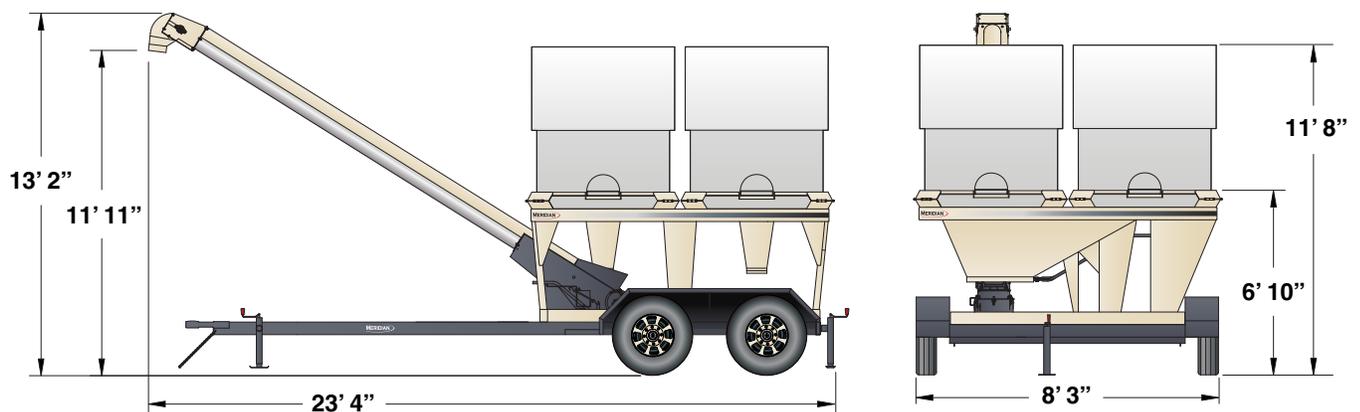


Fig 88 - Titan 4SE measurements

## 6.2 BOLT TORQUE

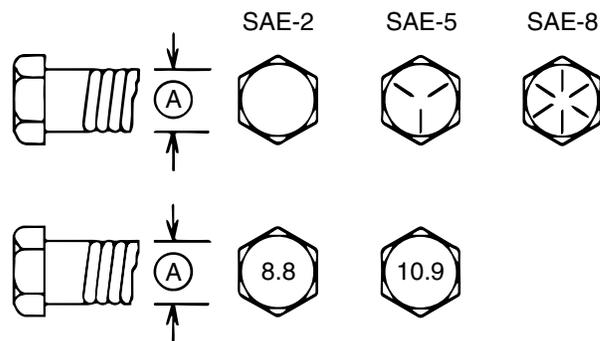
The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

IMPERIAL TORQUE SPECIFICATIONS						
Bolt Diameter "A"	Bolt Torque*					
	SAE 2 (Nm) (ft-lb)		SAE 5 (Nm) (ft-lb)		SAE 8 (Nm) (ft-lb)	
	1/4"	8	6	12	9	17
5/16"	13	10	25	19	36	27
3/8"	27	20	45	33	63	45
7/16"	41	30	72	53	100	75
1/2"	61	45	110	80	155	115
9/16"	95	60	155	115	220	165
5/8"	128	95	215	160	305	220
3/4"	225	165	390	290	540	400
7/8"	230	170	570	420	880	650
1"	345	225	850	630	1320	970

Table 1 - Imperial Torque

METRIC TORQUE SPECIFICATIONS				
Bolt Diameter "A"	Bolt Torque*			
	8.8 (Nm) (ft-lb)		10.9 (Nm) (ft-lb)	
	M3	0.5	0.4	1.8
M4	3	2.2	4.5	3.3
M5	6	4	9	7
M6	10	7	15	11
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	225	166	310	229
M20	435	321	610	450
M24	750	553	1050	774
M30	1495	1103	2100	1550
M36	2600	1917	3675	2710

Table 2 - Metric Torque



Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

\* Torque value for bolts and capscrews are identified by their head markings.

# LIMITED WARRANTY STATEMENT

Meridian Manufacturing Inc. (hereinafter referred to as Meridian) warrants all products sold hereunder to be free from defects in manufacturing and workmanship, under normal and proper storage, service, and use, for a period of 2 (TWO) years: the first year - full warranty on Parts and Labor, the second year - Parts Only; when used in accordance with the manufacturer's guidelines, from the first date of use. Our liability extends only to the repair or replacement of the defective parts. No labor charge for the correction of the defect, by repair or replacement, will be paid by Meridian, unless prior written authorization has been granted by Meridian. Units that have been in service, then sold will carry the remainder of the 2 year warranty from Meridian.

This warranty is not applicable to, and Meridian makes no warranty with respect to, any parts not installed by Meridian or its representatives.

No implied warranty shall apply beyond the aforementioned warranty period. The foregoing warranty is exclusive of all other statutory, written or oral warranties, and no other warranties of any kind, statutory or otherwise, are given or herein expressed.

Meridian will not, under any circumstance; whether as a result of breach of contract, breach of warranty, tort, strict liability or otherwise; be liable for consequential, incidental, special or exemplary damages. This includes, but not limited to: loss of profits, loss of use or damage to any property or equipment, cost of capital, cost of substitute product, facilities or services, down time costs or claim of claimant's customers. Meridian liability for all claims of any kind or for any loss or damage arising out of, resulting from or concerning any aspect of this warranty, or from the products or services furnished hereunder; shall not exceed the purchase price allocable to the specific product which gives rise to the claim. Any or all such liability shall terminate upon the expiration of the warranty set forth above.

Certain chemicals may exist in the end user's locations, which may release airborne contaminants that can directly impact the integrity of essential paint and components. Exposure of these chemicals, to components with different chemical combinations may result in significant damage to paint, decals and mechanical failure. Meridian warranty does not cover these conditions unless otherwise noted.

All Meridian products that fall under warranty and needs service must be brought back to the dealer or point of purchase, unless otherwise agreed upon by the Meridian Warranty Department.

Register your product at: [www.meridianmfg.com](http://www.meridianmfg.com)

For warranty information, email: [warrantyusa@meridianmfg.com](mailto:warrantyusa@meridianmfg.com) | phone: (800) 437-2334

## WARRANTY REQUEST PROCEDURE

1. The product must be registered with Meridian Manufacturing Inc.
2. The purchaser must contact the dealer, from where the unit was purchased, immediately upon discovery of any defects.
3. A completed Warranty Request (Claim) Form must be submitted by the dealer to the Meridian's warranty representative for review and any subsequent course of action.
  - Warranty requests must be completed with ALL required information in order it to be considered for approval.
  - Send photographs of the entire piece of equipment, and of the specific area of concern.
4. Warranty repair work will only be performed by Meridian or an approved representative of Meridian. Warranty work completed prior to Meridian's approval will NOT be honoured. Failure to follow this procedure may affect any or all of this warranty.
5. All warranty requests will be adjudicated at the sole discretion of Meridian and in accordance with the terms and conditions of the warranty.



(800) 437-2334 | [www.meridianmfg.com](http://www.meridianmfg.com) | [tenders@meridianmfg.com](mailto:tenders@meridianmfg.com)