

CONVEY-ALL[®]

CST-1550

COMMERCIAL SEED TENDER



convey-all.com/cst-1550

OPERATOR'S MANUAL

SIGN-OFF FORM

Meridian Manufacturing Inc. follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE), and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the tube conveyor must read and clearly understand ALL Safety, Operating and Maintenance Information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to operate this machine.

The following Sign-Off Form is provided for your record keeping to show that all personnel who will be working with the equipment have read and understand the information in the Operator's Manual and have been instructed in the operation of the equipment. Copy this page to continue record.

[illegible]

**PRODUCT REGISTRATION FORM
and INSPECTION REPORT**

CONVEY-ALL®

The Dealer must fill out this form, and be signed by both the Dealer and Buyer at the time of delivery. Scan or photograph the completed form (must be legible), and email it to: register@convey-all.com
A copy of this form may also be mailed to: Box 760, 275 Hespler Ave, Winkler Manitoba R6W 4A8.

Buyer's Name _____	Dealer's Name _____
Address _____	Address _____
City _____	City _____
Province/State _____	Province/State _____
Postal/Zip Code _____	Postal/Zip Code _____
Country _____	Country _____
Phone Number _____	Phone Number _____
Model Number _____	Serial Number _____
Delivery Date _____	General Purpose: <input type="checkbox"/> Private <input type="checkbox"/> Commercial

UNIT INSPECTION

- ☐ No paint damage, scratches, or corrosion
- ☐ No hydraulic oil leaks, fuel leaks, air leaks
- ☐ Checked engine/hydraulic fluid levels
- ☐ Hydraulic Hoses Secure and Fittings Tight
- ☐ Conveyor Belts Move Freely
- ☐ Conveyor Belts Aligned and Tensioned
- ☐ Rear Conveyor Swings and Moves Freely. Limit Switches function correctly
- ☐ Gate cylinders and limit switches function correctly
- ☐ Checked trailer tires and air-ride system
- ☐ Checked Tire Pressure

SAFETY INSPECTION

- ☐ All Guards/Shields Installed and Secured
- ☐ All Safety Decals Clear and Legible
- ☐ Reflectors, Trailer Lights are Clean
- ☐ All Lights are Clean and Working
- ☐ Reviewed Operating/Safety Instructions

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

Date _____ Dealer's Signature _____

The above equipment and Operator's 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 _____

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Section 1: INTRODUCTION

Thank you for choosing a Convey-All® Commercial Seed Tender (CST).

Convey-All® products are built by Meridian Manufacturing Inc. The equipment we design and manufacture meet the exacting standards of the agriculture industry.

Keep this manual for reference and to pass on to new operators or owners. Call your dealer, distributor or Meridian if you need assistance, information, additional/replacement copies, or a digital version.

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

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

OPERATOR ORIENTATION

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

SERIAL NUMBER LOCATION

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

The tender's VIN plate is beside the front landing gear, and serial number is on the rear support.

VIN Plate No: _____

Serial No: _____

Engine Serial No: _____

RC Version No: _____



Fig 1 - VIN plate next to front, left-side landing gear



Fig 2 - Serial # on rear, left-side, vertical beam

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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:

**ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!**

The Safety Alert Symbol identifies important safety messages on the 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 Convey-All® Commercial Seed Tender (CST). Be sure that you and anyone else who will operate, maintain or work around the tender be familiar with the safety, operating and maintenance procedures.


This manual will take you step-by-step through your working day and alerts you to all good safety practices that should be adhered to while operating the CST.

Remember, you are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a regular part of your safety program. Be certain that everyone who will work with this equipment follows these procedures.


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 per OSHA (Occupational Safety and Health Administration) regulation 1928.57.
 - The operator should be responsible, properly trained and physically able. You should be familiar with farm machinery in general.
- 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 tender. 

- Only trained, competent persons shall operate the unit. 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 personal protective gear (PPE). This list includes but is not limited to:

- Hard hat
- Protective shoes with slip resistant soles
- Eye protection
- Heavy 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.

- Review safety related items annually with all personnel who will be operating or maintaining the tender.

2.3 EQUIPMENT SAFETY GUIDELINES

- Safety of the operator and bystanders is one of the main concerns in designing and developing equipment. 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 persons to operate this unit until they have been trained. They must know all safety precautions.
- In order to provide a better view, some images in this manual may show an assembly with a safety guard removed.
 - Equipment should never be operated in this condition. All guards must be in place. If removal becomes necessary for repairs, replace the shield prior to use.
- This equipment is dangerous to children and persons unfamiliar with its operation.
- Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - DON'T 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 conveyor 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.
- 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 10°C (50°F).
 - 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 conveyor. The position of decals may vary depending on the machine's options. Decals are not shown at actual size.

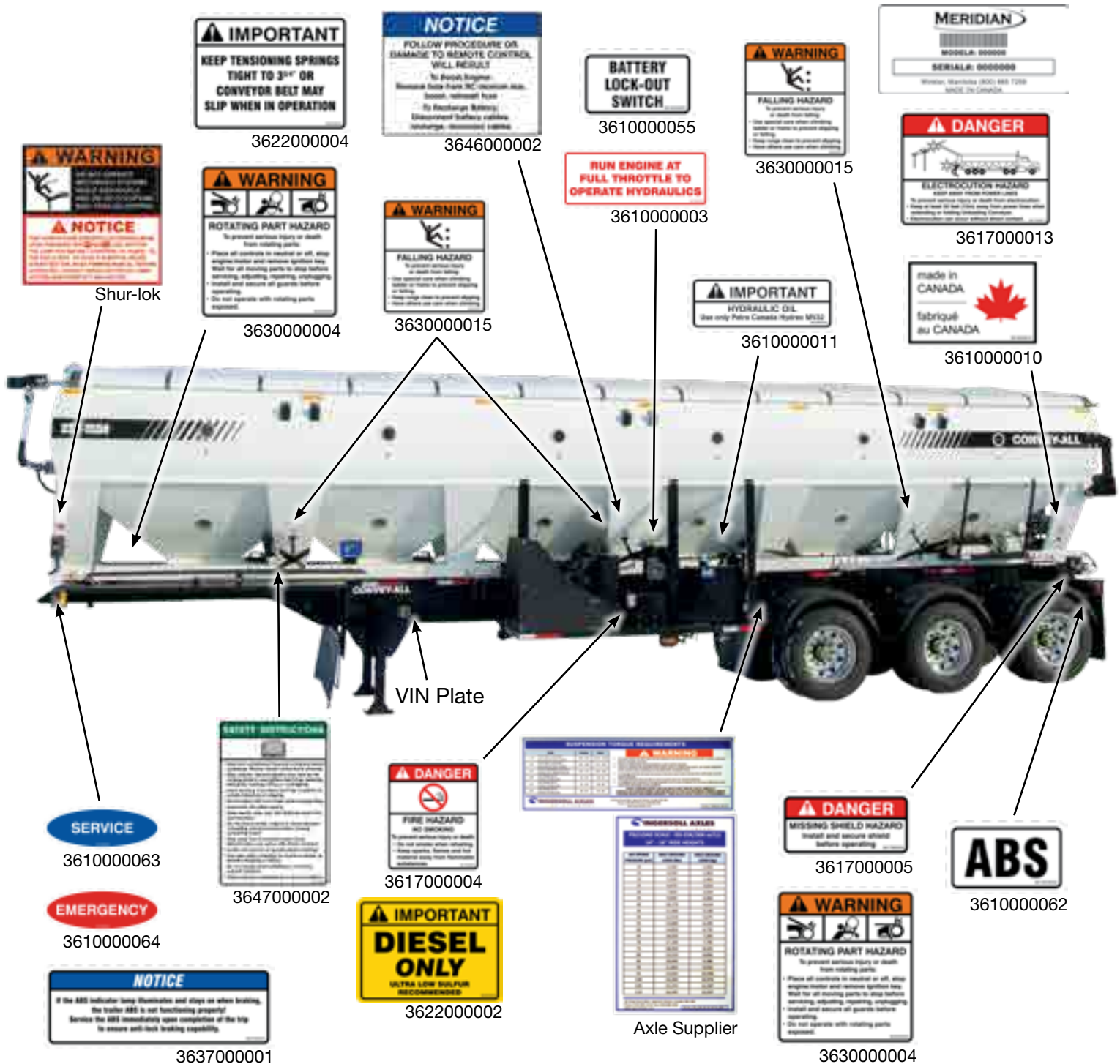
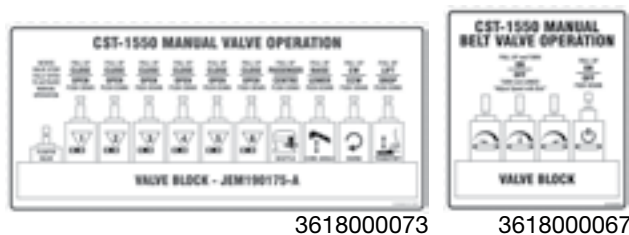


Fig 3 - Decals on driver-side of CST-1550



Valve decals located on
compartment wall above valves



Fig 4 - Decals on passenger-side of CST-1550



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 engine and CST until you have read this manual, and understand the information.

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

- Personal protective equipment (PPE) including:

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



They are recommended during operation, maintenance or when transporting the tender.

- 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 hearing protection be worn on a full-time basis if the noise in the operator's position exceeds 80db.



Noise over 85db on a long-term basis can cause severe hearing loss.

Noise over 90db 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 and/or frayed belts. Make the necessary repairs.
 - Always follow maintenance instructions.




2.7 PLACEMENT SAFETY

- Stay away from overhead power lines when operating or moving the tender. Electrocution can occur without direct contact.
- Store rear conveyor long passenger-side of tender when moving. Swing the conveyor towards the back only when ready to unload.
- Position tender providing enough space for truck to load and 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 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 carburetor to stop engine.
Choke only for an emergency stop.

2.10 MAINTENANCE SAFETY

- Review Section 4: Service and Maintenance, before maintaining or operating the conveyor.
- 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.
- Relieve pressure from hydraulic circuit before servicing.
- Before applying pressure to a hydraulic system, make sure all components are tight and that hoses and couplings are in good condition.
- Keep hands, feet, hair and clothing away from all moving/rotating parts.
- Replace parts with genuine factory replacement parts to restore your equipment to original specifications.
 - Meridian Manufacturing Inc. will not be responsible for injuries or damages caused by use of 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.
- Before resuming work, when maintenance work is complete, install and secure all guards.
- Replace damaged or not clearly visible decals.





2.11 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 the 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 specified amount.



2.12 BATTERY SAFETY

- Keep all sparks and flames away from batteries, as 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.
- Boosting the engine through the battery, or recharging the battery, will cause a short in the wireless system, killing it.

To boost the engine:

- Remove the fuse from the wireless receiver (remote control) box
- Boost the engine
- Reinstall the fuse

To recharge the battery:



- Disconnect the battery cables
- Recharge the battery
- Reconnect the cables



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- Before using the battery, after it has been in storage, be sure it has the optimal charge.

2.13 HYDRAULIC SAFETY

- Always place all hydraulic controls in neutral before disconnecting and working on the hydraulic systems.
- Relieve pressure in hydraulic system before maintaining or working on machine.
- Be sure that all components in the hydraulic system are kept in good condition and are clean.
- Replace any worn, cut, abraded, flattened or crimped hoses.
- Do not attempt any makeshift repairs to the hydraulic fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high-pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.
- Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak. 
- If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface. 

2.14 OPERATING SAFETY

- Please remember it is important that you read and heed the safety messages on the CST. Clean or replace all decals that cannot be clearly read and understood. They are there for your safety, as well as the safety of others.

- Ensure that everyone operating the CST, working on, or around it, reads and understands all the information in the operator's manual.



- Review the safety, operating and maintenance instructions annually.

- Keep all bystanders, especially children, away from the machine when loading or unloading. Only authorized personnel should be in the area when carrying out maintenance work.

- Do not place hands, arms or body between trailer and rear conveyor frame to prevent pinching or crushing. Components can move unexpectedly.



- Use care when climbing on frame or ladder to prevent slipping or falling.



- 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 loading/unloading equipment.

- Stop the engine. Place all controls in neutral, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.

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

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



- Do not allow riders on the tender when transporting.

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



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



- Do not operate machine when any guards are removed.

- Set park brake on tractor before starting.

- Be sure that the rear conveyor is empty before raising/lowering, swinging or shuttling.

- The rear conveyor is 26 feet long. It needs a 26 feet radius of clear work area around the passenger-side and behind to move the conveyor into work position.

2.15 WORKPLACE HAZARD AREA

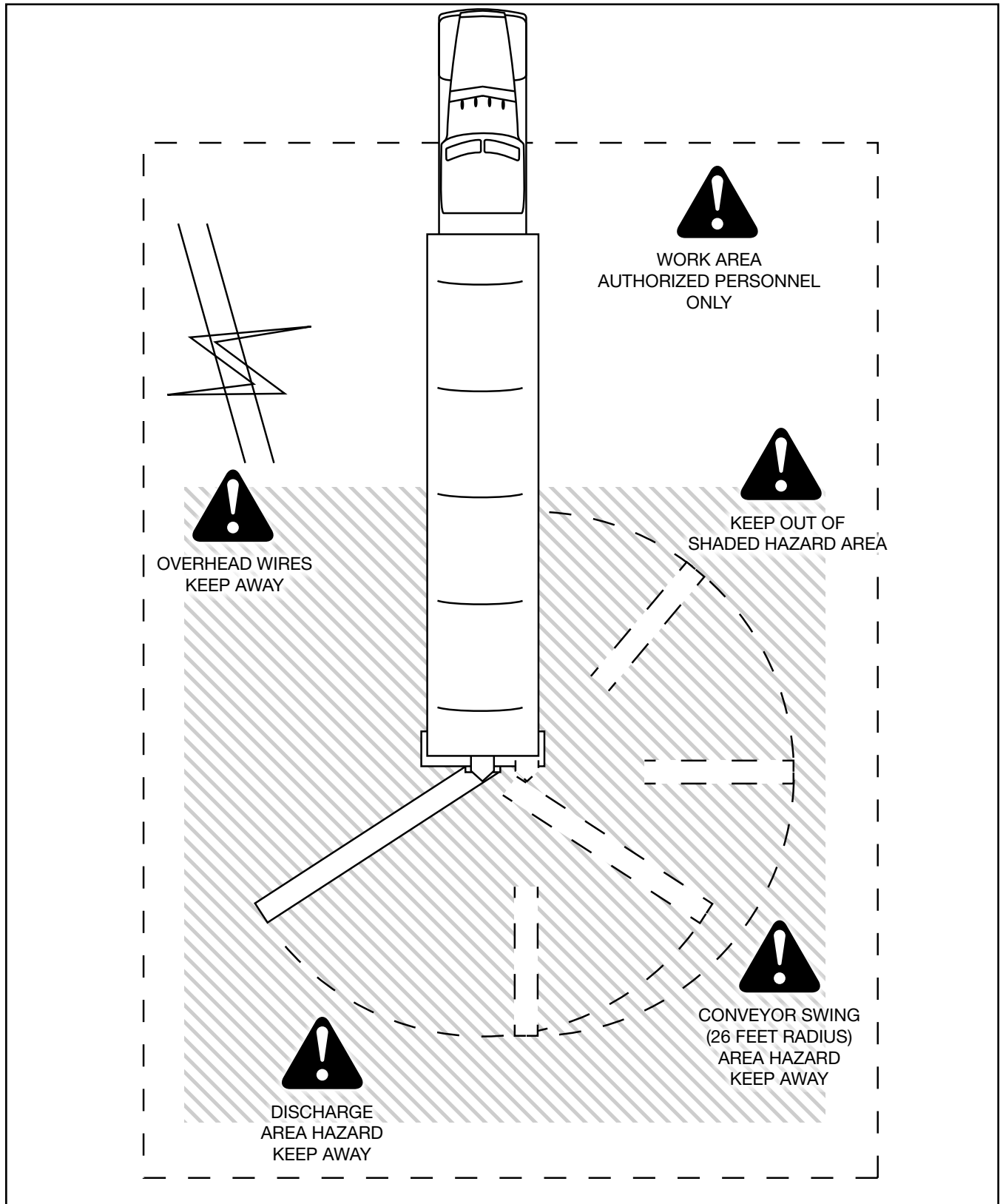


Fig 7 - Workplace Hazard Area

2.16 TRANSPORT SAFETY

- Close valves in hydraulic line before transporting.
- Check that all the lights, reflectors and other lighting requirements are installed and in good working condition.
- Be sure that the trailer is equipped with brakes that are in good working order. Be familiar with their operation.
- Always fasten the Rear Conveyor transport lock before driving away.
- Never allow riders on the trailer.
- Comply with all local laws governing safety and transporting equipment on public roads.
- Do not exceed a safe travel speed. Slow down for rough terrain and when cornering.
- Stay away from overhead power lines. Electrocution can occur without direct contact.
- 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.

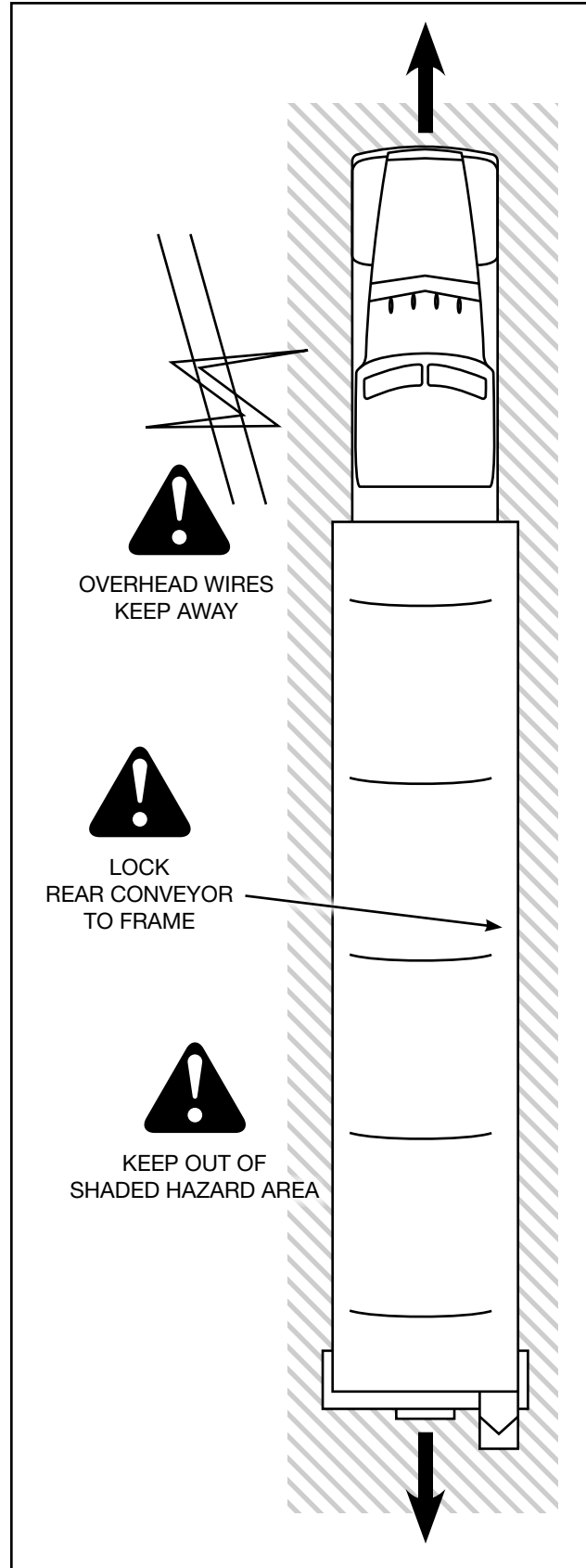


Fig 8 - Transporting Hazard Area

2.17 STORAGE SAFETY

- Close roll tarp to prevent unauthorized entry into the compartments. Also to protect the compartment coating against sun damage.
- Store the tender on a firm, level surface.
- Store in an area away from human activity.
- Make certain all mechanical locks are safely and positively connected before storing.
- Remove the battery.
 - Be sure to store it fully charged.
 - Store it inside.
 - Do not sit battery on a cold concrete floor.
- Do not permit children to play on or around the stored tender.

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Section 3: OPERATION

WARNING

- Read and understand the Operator's Manual, and all safety decals, before using.
- Place all controls in neutral, stop the engine, remove ignition key. Wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- Clear the area of bystanders, especially children, before starting.
- Install and secure all guards before starting. Do not operate machine when any guards are removed.
- Use care when climbing on frame or ladder to prevent slipping or falling.
- Stay away from overhead obstructions and power lines during operation. Electrocution can occur without direct contact.
- Do not allow riders on CST when transporting.
- Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
- Do not place hands, arms or body between the trailer and rear conveyor frame to prevent pinching or crushing. Components can move unexpectedly.
- Keep hydraulic components in good condition.
- Keep working area clean and free of debris to prevent slipping or tripping.
- Establish a lock-out, tag-out policy for the work site. Train all personnel in, and follow all procedures. Lock-out, tag-out all power sources before servicing the unit or working around loading/unloading equipment.

The Convey-All® Commercial Seed Tender has many features incorporated into it as a result of suggestions made by customers like you.

Hazard controls and accident prevention depend on the personnel operating and maintaining the equipment. Their concern, attentiveness and proper training are crucial.

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. By following recommended procedure, a safe working environment is provided for the operator, co-workers and bystanders in the area around the work site.

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

3.1 MACHINE COMPONENTS

The main components are listed below:

- a. Six Compartments
- b. Compartment gates (one below each gate)
- c. Slave conveyor
- d. Slave conveyor hydraulic drive
- e. Slave conveyor discharge spout
- f. Rear (Incline) conveyor (stored along passenger-side, drive at discharge)
- g. Engine
- h. Fuel tank, hydraulic oil reservoir and battery
- i. Manual hydraulic controls
- j. Wireless Handset, two different versions
- k. Wireless receiver box
- l. Weigh scale control panel
- m. Weigh scale junction boxes (one per side)
- n. Weigh scale cell (5 per side)
- o. Ladder (storage location)
- p. Ladder mount brackets, top/bottom (3 locations)
- q. Canvas tarp
- r. Tarp control
- s. Gate light box
- t. Document holder



Fig 9 - Wireless handset



Fig 10 - Wireless handset with large screen



Fig 11 - Left side of CST-1550

3.2 COMPONENTS AND CONTROLS

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

Diesel Engine:

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

- a. **Battery Lock-Out Switch:**
Turn the switch clockwise to give battery power to entire CST.
- b. **Ignition Switch:**
This key operated switch controls the electric power to the engine.

Off - Turn key to the vertical position to stop the electrical system power and turn the engine off.

Run - Turn clockwise to the run position. This is the position where the engine will continue to run.

Start - Turn the key clockwise to engage the starter solenoid and start the engine.

Meters and Warning Lights:

The ignition box contains a display of all the engine functions.



Fig 12 - Diesel engine



Fig 13 - Fuel tank and hydraulic oil reservoir

IMPORTANT:

Always operate at full throttle
to allow the hydraulics to operate
at maximum performance.

Fuel Tank, Hydraulic Reservoir and Battery:

The fuel tank has a capacity of 57 Litres (15 US Gal). The hydraulic oil reservoir's capacity is: 189 Litres (50 US Gal). The battery is behind the fuel tank.

Hydraulic Valve Bank:

The wireless handset will operate functions.

All tender functions can also be manually controlled at the bank of hydraulic valves mounted on the rear, left frame. Each valve is designed with a flow control as part of the base.

- a. The Floater Valve is behind the pressure gauge on the left-hand block.
 - **Note:** This overrides the remote control.
 - Rotate the floater valve stem fully open (up) to activate the manual valve functions.
 - Close the valve stem to deactivate.
- b. Gate Valves:
Six gate valves are in a row.
 - Pull up the valve head to close the gate.
 - Push down, to open the gate.
- c. Shuttle Conveyor:
 - Pull up the valve head to slide conveyor along the rear frame to the passenger-side.
 - Push down, to slide it to the centre.
- d. Angle Conveyor:
(Raise/lower rear conveyor discharge):
 - Pull up the valve head to raise the discharge.
 - Push down, to lower it.
- e. Swing Conveyor:
 - Pull up the valve head to swing the conveyor clockwise.
 - Push down, to swing it counterclockwise.
- f. Transport Conveyor
(Lift/drop rear conveyor hopper):
 - Pull up the valve head to lift the conveyor.

Note: When lifted fully, it can be swung around into transport position.
 - Push down, to drop the conveyor, lower than the slave conveyor discharge.

Note: Once below, it can be shuttled into working position.

Note:

Slave and rear (incline) conveyor motors are connected and run by the same valve.

Note:

The Floater Valve must be activated to manually operate the belt valves.

- g. Conveyor belt motors valve
- h. Slave conveyor belt valves
- i. Slave belt speed adjustment dials

Note:

Belt valve heads may be a push/pull or threaded stem type.

- Pull up and rotate a half-turn to lock.
- or -
- Rotate the head fully open (up) or fully closed (down).

One of these actions will run the belts.

- g. Conveyor belt valve operation:
Pull up (or rotate) to run both belts.
- h. Slave conveyor belt speed adjustment:
 - Pull up (or rotate), one of three valves, to run belt at that speed.
 - Left valve is speed 1, middle valve is speed 2, Right valve is speed 3.
- i. Adjust the slave conveyor belt speed:
 - Rotate to loosen the lower dial.
 - Rotate the top dial; up to increase speed, down to decrease speed.
 - Tighten the lower dial when done.

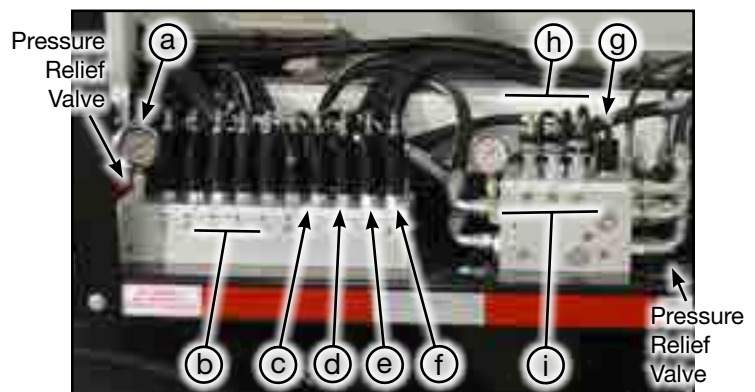


Fig 14 - Valve blocks

Wireless System:

The wireless functions correspond to the valve bank on the left side, at the rear of the CST. The Wireless receiver box is mounted beside the manual valve blocks.

Refer to the wireless system manual for specific setup and calibration instructions.

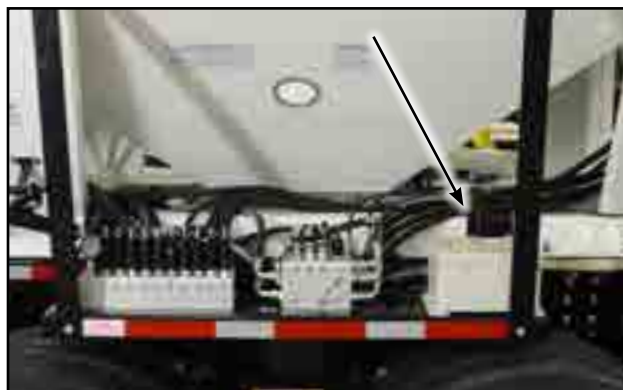


Fig 15 - Wireless receiver box

Slave Conveyor and its Discharge Spout:

The slave conveyor uses a PVC, smooth belt. It has a spout to discharge product directly, without using the rear conveyor.

The slave conveyor belt speed can be adjusted using the manual valves. See page 3-4.



Fig 16 - Slave discharge spout

Weight Scale:

The tender comes with a scale package which weighs all the compartments together.

There are 5 load cells on each side, sandwiched between the trailer and tender frame.

There are 2 junction boxes, one per side, attached to the frame under compartment number four. Each junction box connects the five load cells on its side.

The information collected by the load cells, is displayed on the control panel and wireless handset (if equipped).



Fig 17 - Weight Scale Indicator

Note:

Refer to the Scale Indicator and Wireless Handset user manuals for instructions on calibration and operation.



Fig 18 - (a) Load Cell, (b) weigh scale junction box

Rear (Incline) Conveyor:

The rear conveyor uses a rubber, paddle belt. It is 26 feet long, and is stored along the passenger-side of the tender. It needs a 26 feet radius to swing around, and be positioned below the slave conveyor discharge to move product.

There is an access panel below the hopper which can be opened to clean the belt.

When the conveyor frame is centred below the slave conveyor's discharge, the conveyor can swing in a 114° arc. At a 40° angle, its discharge height is 17' 4".

⚠ WARNING**CONVEYOR MOVEMENT HAZARD**

Clear area before moving the conveyor.
Movements may be sudden causing injury.

NOTICE**CONVEYOR DAMAGE HAZARD**

Periodical adjustment of the limit switches may be necessary after long travel/rough roads.

There are five limit switches to control the conveyor's movements. Each switch is labeled (L#) for wiring on the circuit board. They are listed below in order of operation:

Rotation Centre Limit Switch (L3):

This switch will activate when it contacts the plate as the conveyor swings 180° from stow position to point directly back from the tender.

The Green LED (on the light box at top, rear of tender) will illuminate when the rear conveyor has triggered the switch.

- The conveyor must be at rotation centre for all other movements to happen.

Once the rear conveyor is below the slave discharge, and the shuttle centre switch is activated, the conveyor can swing, lift and lower into working position.



Fig 19 - Limit switches controlling rear conveyor movements



Fig 20 - Hopper access panel



Fig 21 - Rotation centre limit switch (L3)

Transport Cylinder Limit Switch (L5):

This switch is deactivated when the cylinders are retracted (hopper raised), and will activate once the hopper is lowered fully.

- In the same action, a cylinder will lift the conveyor's discharge.
- To lower the hopper, and raise the discharge, switches L3 and L2, must be activated.

Discharge Raise Limit Switch (L4):

This switch contacts a bracket, when the cylinder is retracted completely.

- The discharge will be at it's highest point.

Shuttle Centre Limit Switch (L1):

The switch, at the centre of the rear frame, will contact the conveyor frame once it arrives at the centre of the tender.

- To shuttle the frame to centre, switches L3, L4 and L5 must be activated.

Note:

To swing, lift and lower the conveyor into working position, switches L1 and L5 must be activated.

Shuttle Passenger-Side Limit Switch (L2):

The switch must contact the frame as it arrives at the corner of the tender.

- To return the conveyor frame to the passenger-side for stowing, switches L3, L4 and L5 must be activated.

Simple adjustments to the limit switches, will allow the rear conveyor to move correctly without restriction or damage to the tender itself.



Fig 22 - Transport cylinder limit switch (L5)



Fig 23 - Discharge raise limit switch (L4)



Fig 24 - Shuttle centre limit switch (L1)



Fig 25 - Shuttle passenger-side centre limit switch (L2)

Cameras:

A camera is mounted on the discharge of the slave conveyor, and the rear conveyor.

The cables for the cameras monitor screen are routed to the front of the tender by the factory. From there, the owner can hook up the screen to the truck cab, or another location.

Working Lights:

There are 2 lights mounted at the top, rear of the unit.

Another light is situated at the end of the rear conveyor discharge spout.

There are three smaller lights located:

- above the engine
- above the fuel tank and hydraulic reservoir
- above the hydraulic valve bank

The lights are controlled using the wireless handset.

Gate Light Box:

There is a box containing LEDs on the rear frame.

When a gate is opened, the corresponding red, numbered LEDs will illuminate.

Be sure to press the button on the handset until the LED goes out, then the gate is completely closed.

The green LED, between #3 and 4, indicates when the rear conveyor is at rotation centre.



Fig 26 - Light and camera on rear conveyor discharge



Fig 27 - Working lights

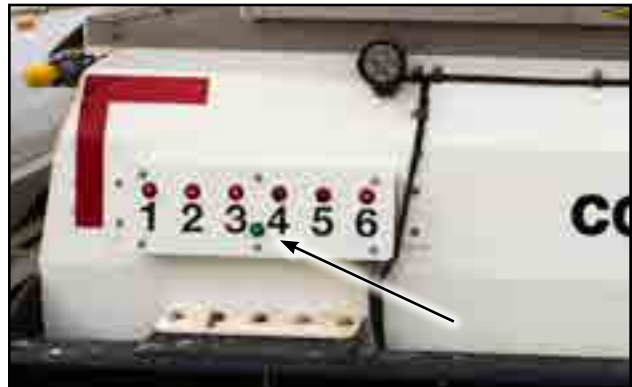


Fig 28 - Gate Light Box. Arrow points to the green LED

Electric Roll Tarp:**NOTICE**

COATING DAMAGE POSSIBLE
Always cover the tender with roll tarp when not in use to prevent compartment coating damage.

This set of switches is on the frame at the front, left side. It controls the electric motor on the Roll Tarp covering the top of the CST.

1. Press and hold the left switch (O) to open the roll-top cover.
2. Press and hold the right switch (C) to close the roll-top cover.
3. Release the switch and the motor will stop.

Six Compartments:

All the compartment slopes and hopper gates are built with stainless steel.

Compartment Inner Ladder Rungs:

Each compartment is designed with an inner ladder rungs to provide access to the inside of each compartment.

Exterior Ladder:

An exterior ladder is stored at the front, driver-side of the tender.

There are 3 sets of ladder mount brackets along the top, driver-side to hang the ladder from. At shoulder height, below the mount brackets, are ladder braces to secure the ladder to.



Fig 29 - Roll-top tarp controls



Fig 30 - Compartment ladder rungs



Fig 31 - Stored exterior ladder



Fig 32 - Exterior ladder brackets

Sight Glass:

Each compartment in the tender is designed with an upper and lower sight glass to allow the operator to monitor the amount of material in the compartment.



Fig 33 - Sight glasses

Air-Ride Suspension:

This tender sits on axles with air-ride suspension.

The air bag dump pull-switch is at the rear, driver-side corner of the tender.



Fig 34 - Air-ride suspension



Fig 35 - Air bag dump

Document Holder:

A document holder is secured to the front, driver-side compartment support, above the fender.



Fig 36 - Document holder

3.3 MACHINE BREAK-IN

There are no operational restrictions on the tender when used for the first time.

The conveyor belts' alignment is set at the factory, to track correctly without carrying a load.

Before Starting:

1. Read the engine, and CST operator's manuals.
2. Review the Pre-Operation Inspection before starting machine.

After Operating 1/2, 5, 10 Hours:

3. Lubricate the points defined in Section 4: Service and Maintenance.
4. Check the conveyor hydraulic drive systems. Adjust as required.
5. Check conveyor belts tension and alignment.
6. Check hardware and fasteners. Tighten to their specified torque.
7. Check the wireless handset. Be sure that it functions properly.
8. Check that the trailer air brakes are functioning as required.
9. Check the engine and hydraulic fluid levels.

After 10 Hours:

Go to the service schedule as defined in Section 4.2 Servicing Intervals.

3.4 PRE-TRIP INSPECTION

Efficient and safe operation of the CST requires that each operator knows the operating procedures.

This pre-trip inspection (similar to what is required for commercial tractor trailers) is provided for the operator.

The following areas should be checked before each trip, for personal safety and to maintain the good mechanical condition of your tender:

1. Inspect trailer/tender for damage or leaks.
2. Inspect suspension system and air brakes.
 - No air leaks. No wear on hoses and cables.
3. Lights and reflectors must be clean, undamaged and operational.
4. Check tire pressure, treads and sidewalls.
5. Tighten wheel hubs. Hub oil level is high.
6. Rear conveyor must be locked in transport position, when not in use.
7. Check engine, fuel and hydraulic oil levels.
8. Be sure the battery has optimal charge. If needed, charge the battery before connecting it with the battery cables.
9. Lubricate the machine per the schedule outlined in the Maintenance section.

3.5 PRE-OPERATION INSPECTION

10. Check that the rear conveyor can swing, shuttle and raise/lower freely.
11. Check that the conveyor belts are aligned and tensioned properly.
12. Remove any entangled material.

3.6 WIRELESS HANDSET FUNCTIONS

The wireless functions correspond to the manual valve on the tender. The following are explanations of each button and its function:



ON/OFF Button (Red):
Turns the wireless handset on and off.



ZERO Button:
Resets the scale, when no load applied.

GROSS

GROSS Button:
- Press to view Gross weight for entire unit.
- Press again to show Net weight.

SETUP

SETUP Button:
Refer to wireless handset's manual for handset default settings and functions.

NET

NET Button:
- Press to view Gross weight for entire unit.
- Press again to show Net weight.

TARE

TARE Button:
Press to enter weight of empty tender.



LIGHTS Button:
Turns CST's working lights on and off.

Extract Rear Conveyor - for work:



SWING Button:
Swing rear conveyor around 180° from storage to "rotation centre". It will point directly back from the tender.



DROP Button:
Drop hopper of the rear conveyor fully. It will sit below the height of the slave conveyor discharge.

In the same function, the discharge will rise to its limit. Hold down button until both movements are complete.



SHUTTLE Button:
Shuttle rear conveyor frame until it's hopper is below the slave conveyor discharge.

Once the rear conveyor is positioned below the slave conveyor, the discharge can be swung, raised and lowered for work. The rear conveyor belt will now run.



BELT POWER Button:
Turns both belts on and off.



BELT SPEED Button:
There are three speeds, press button a fourth time to return to the slowest speed.



SELECT GATE Button:
Press to choose a compartment gate. An LED on the back of the tender will identify the open gate.



OPEN GATE Button:
Opens selected compartment gate.



CLOSE GATE Button:
Closes selected compartment gate.

Stow Rear Conveyor - for transport:



SHUTTLE Button:
Shuttle the rear conveyor frame back to the passenger-side corner of tender.



LIFT HOPPER Button:
Lift the rear conveyor, to transport height.

In the same function, the discharge will lower to horizontal. Hold down button until both movements are complete.



SWING Button:
Swing the rear conveyor around until it is lays long the side of the tender.




Fig 37 - Wireless handset, not to scale

3.7 WIRELESS HANDSET (LARGE SCREEN) FUNCTIONS

The wireless handset functions correspond to the manual valve on the tender. The following are explanations of each button and its function:


SETUP SETUP Button:
Refer to wireless handset's manual for handset default settings and functions.

0 ZERO Button:
Resets the scale, when no load applied.


 ON/OFF Button (Red):
Turns the handset on and off.


G/N GROSS / NET Button:
- Press to view Gross weight for entire unit.
- Press again to show Net weight.

TARE TARE Button:
Press to enter weight of the empty tender.


 LIGHTS Button:
Turns CST's working lights on and off.

Extract Rear Conveyor - for work:

 SWING Button:
Swing rear conveyor around 180° from storage to "rotation centre". It will point directly back from the tender.


 DROP Button:
Drop hopper of the rear conveyor fully. It will sit below the height of the slave conveyor discharge.


In the same function, the discharge will rise to its limit. Hold down button until both movements are complete.

 SHUTTLE Button:
Shuttle rear conveyor frame until it's hopper is below the slave conveyor discharge.


Once the rear conveyor is positioned below the slave conveyor, the discharge can be swung, raised and lowered for work. The rear conveyor belt will now run.




 BELT POWER Button:
Turns both belts on and off.


 BELT SPEED Button:
There are three speeds, press button a fourth time to return to the slowest speed.


SELECT GATE SELECT GATE Button:
Press to choose a compartment gate. An LED on the back of the tender will identify the open gate.

 OPEN GATE Button:
Opens selected compartment gate.

 CLOSE GATE Button:
Closes selected compartment gate.

Stow Rear Conveyor - for transport:

 SHUTTLE Button:
Shuttle the rear conveyor frame back to the passenger-side corner of tender.

 LIFT HOPPER Button:
Lift the rear conveyor, to transport height.

In the same function, the discharge will lower to horizontal. Hold down button until both movements are complete.


 SWING Button:
Swing the rear conveyor around until it is lays long the side of the tender.



Fig 38 - Wireless handset with large screen, not to scale

3.8 REAR CONVEYOR OPERATION

The rear conveyor must be stored and locked in transport position whenever it is not in use.

To Extract the Rear Conveyor:

1. Unlatch the rear conveyor from it's storage bracket.

Note:

Be sure handset is fully charged.

2. Swing the conveyor around 180° from storage to "rotation centre", placing it straight out the back of the tender.
 - Green LED on rear of tender will light indicating conveyor is swung to centre.



Note: Conveyor must be centred to operate the following movements:

- Drop conveyor hopper.
- Shuttle conveyor frame sideways.

3. Drop hopper fully, to sit below slave discharge.



In the same function, the discharge will rise to its limit. Hold down the button until both movements are complete.

Note: To drop the hopper:

- Conveyor must be at rotation centre.
- Conveyor frame must be at passenger-side corner.

4. Shuttle conveyor frame to centre, positioning its hopper below the slave discharge.



Note: To shuttle sideways:

- Conveyor must be at rotation centre.
- Conveyor hopper must be dropped fully.
- Discharge must be raised completely.

5. The rear conveyor is now in working position. It can be swung left to right, in a 114° arc. The discharge can be raised (to a maximum of 18' 8") or lowered into unloading position.

To Stow the Rear Conveyor:

6. Swing the conveyor back to "rotation centre", so it points directly back from the tender. Green LED will light.



7. Raise the conveyor discharge to its limit.



8. Shuttle the conveyor frame back to the passenger-side (right) corner.



Note: To shuttle:

- Conveyor must be at rotation centre.
- Conveyor hopper must be dropped completely.
- Conveyor discharge must be raised fully.

9. Lift the conveyor hopper to storage height.



In the same function, the discharge will lower. Hold down button until both movements are complete.

- Conveyor will now be horizontal.

Note: To lift the hopper:

- Conveyor must be at rotation centre.
- Conveyor frame must be at passenger-side corner.

10. Swing the conveyor back around to sit on the storage bracket along the side of the tender.



Note: To swing the conveyor for storage:

- Conveyor frame must be at the corner.
- Conveyor hopper must be lifted completely (conveyor will be horizontal).

11. Use the latch on the storage bracket to lock the conveyor in place.

3.9 OPERATING ON SITE

The Convey-All® CST is designed to handle any kind of seed, or granular chemical. Use the unit to transport it to or from the field as required. The tender can also be used to transport product to market.

Inspect the machine at the start of each day to be sure it is in good mechanical condition.

1. Perform Pre-Trip and Pre-Operation Inspections.
Refer to Section 3.4 and 3.5
2. Attach the CST trailer to the towing truck.
3. Transport to the working location.
4. Set truck park brake and remove ignition key.
5. Disengage Battery Lock-Out Switch, to give battery power to the tarp controls.
6. Open roll tarp.
7. Fill the compartment(s).
8. Close the roll-tarp.
- Keeping the tender compartments covered as much as possible helps to protect the paint coating from sun damage.
9. Engage the Battery Lock-Out Switch.
10. Transport to the unloading area.

⚠ WARNING

HIGH CENTRE OF GRAVITY
Tender has a high centre of gravity
when loaded.
Careful when driving!



Fig 39 - Transport to the location



Fig 40 - Engine control and battery lock-out



Fig 41 - Open roll top



Fig 42 - Transporting CST to site

⚠ WARNING**STRANGULATION HAZARD**

Careful the wireless handset does not become caught in running machinery, while hanging from the neck.

11. Disengage the Battery Lock-Out Switch
12. Start engine.
13. Refer to page 3-4 for hydraulic valves.
Refer to Section 3.6 for an explanation of wireless handset functions.
14. If the rear conveyor is to be used for unloading, refer to Section 3.7 to move rear conveyor into working position.

Note:

The conveyor will need a 26' radius of open space around the tender to swing.

IMPORTANT:

Always lower conveyor to run at 40° or less.
Capacity will be drastically reduced at steeper angle.

15. Move the rear conveyor into position.
16. The rear conveyor can be swung through a 114° arc, and raised to a 40° angle, to allow it to fill more than one compartment in your planter, drill, distributor or spreader.
17. Start the conveyor belt(s).

Note:

Rear conveyor hopper must be below slave discharge for rear belt to run.

Both belts are operated with one switch.
They have preset speed differences to prevent plugging.



Fig 43 - Engine



Fig 44 - Rear conveyor transport lock



Fig 45 - Swing rear conveyor



Fig 46 - Position rear conveyor

18. Select a compartment to unload from.



Fig 47 - MW520 RFX wireless handset

19. Open the gate under the selected compartment to empty.



Fig 48 - Compartment gate cylinder

NOTICE

PLUGGING HAZARD

Open one compartment gate at a time to minimize the chance of plugging the unit.

20. Close the gate to the empty compartment, before opening the next one.

IMPORTANT:

To use the manual valves:

- Pull up the valve head to activate its function.
- Push down to stop the action.

To use the conveyor belt speed valves:

- Pull up and turn the valve behind the dial.
- Adjust speed with the dial in front of the valve.
- When finished adjusting the speed, turn and push down on the valve.

Refer to page 3-4 for more detail.



Fig 49 - Filling seeder

21. Be sure the gates to close all compartments when finished.

22. Turn off the conveyor belts.

23. Swing the rear conveyor around to the side of the conveyor.

24. Lock in storage position.

25. Reduce engine speed to low idle.

26. Turn the engine OFF. Remove the ignition key.

27. Place wireless handset in a secure location for storage.

Continue on with your work day.



Fig 50 - Hydraulic valve block



Fig 51 - Rear conveyor



Fig 52 - Rear conveyor latch



Fig 53 - Diesel engine

3.10 STORAGE

After the season's use, or when the CST will not be used for a period of time, completely inspect and clean every part of the tender.

Replace or repair any worn or damaged components to prevent any unnecessary down time at the beginning of the next season.

1. Remove all the left over product from inside the compartments, also on and around both conveyor belts.
2. Thoroughly wash the unit to remove all dirt, mud, debris and residue.
 - Wash inside the compartments and around the gates.
 - Wash the top and under the belts.
 - Clean inside the rear conveyor tube.
3. Close roll tarp to prevent unauthorized entry into the compartments. Also to protect the compartment coating against sun damage.
4. Inspect all rotating parts for entanglements. Remove anything caught in the mechanisms.
5. Check the condition of the components in the hydraulic system. Repair, replace or adjust as required.
6. Check the condition of the slave and rear conveyor belts. Replace any damaged belts.
7. Lubricate all fittings and fill grease cavities.
8. Touch up all paint nicks and scratches to prevent rusting.

9. Remove the battery.
 - Be sure it is fully charged.
 - Store it inside.
 - Do not sit battery on a cold, concrete floor.
10. It is best to store the machine inside.
If that is not possible, cover the engine with a waterproof tarpaulin and tie down securely.
11. Store in an area away from human activity.
12. Do not allow children to climb on or play around the stored tender.

3.11 REMOVING FROM STORAGE

When removing the tender from storage, follow the Pre-Trip and Pre Operation Checklists in Sections 3.4 and 3.5.



Fig 54 - Tender in storage

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Section 4: SERVICE AND MAINTENANCE

WARNING

- Review the Operator's Manual and all safety items before working/maintaining.
- Place all controls in neutral, stop engine, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
- 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.
- Before applying pressure to the hydraulic system, make sure all components are tight and all hoses/coupling are in good condition.
- Always use personal protective equipment; safety glasses, gloves, hearing protection, when performing any service or maintenance.
- Relieve pressure from hydraulic circuits before servicing or repairing.
- Keep hands, feet, hair and clothing away from moving and/or rotating parts.
- Make sure there is plenty of ventilation. Never operate the engine in a closed building. The exhaust fumes may cause asphyxiation.
- A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.
- Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.
- Keep decals clean. Replace if damaged or not clearly visible.

4.1 FLUIDS AND LUBRICANTS

Fuel & Engine Oil:

Refer to the engine operator's manual, for specific instructions.

The fuel tank capacity is 57 Litres (15 US Gal.)

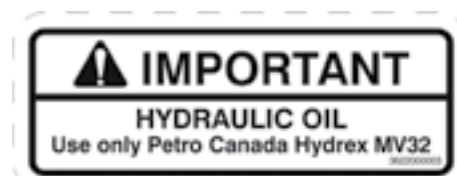
Grease:

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

Hydraulic Oil:

Use an ISO grade 32 hydraulic oil for all operating conditions (Hydrex MV32 or comparable).

The Oil Reservoir capacity: 189 Litres (50 US Gal.)



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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.



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Fig 55 - Lubricate decal

4.1.1 Greasing:**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/repair broken fittings immediately.
5. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.



Fig 56 - Diesel engine



Fig 57 - Fuel tank and hydraulic oil reservoir

4.2 SERVICING INTERVALS

Use the Service Record provided on page 4-11, to keep a record of all scheduled maintenance.

The conveyor belt alignment is preset to run true under a condition of no load. It is important to check alignment and make adjustments, if required, during the initial few minutes of loaded operation.

Check bearings for wear daily.

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

IMPORTANT:

For engine servicing and maintenance, refer to it's manual for complete details.

4.2.1 Every 10 Hours or Daily:

1. Check fuel level.
 - Add as required.
2. Check oil level in hydraulic reservoir.
 - Add as required.
3. Inspect conveyor belt lacing for wear.
4. Check the conveyor belts' tension daily while breaking-in the tender.
 - Refer to Section 4.3.1
5. Check the conveyor belts' alignment frequently during the first 10 hours of operation until it seats itself.
 - Refer to Section 4.3.2
6. Inspect all rollers and bearings for play and wear.
 - Replace if necessary.



Fig 58 - Slave conveyor drive



Fig 59 - Rear conveyor drive

4.2.2 Every 50 Hours or Weekly:**7. Check the conveyor belt tension.**

Watch the tension more often while breaking-in the conveyor, because the belt may stretch. Refer to Section 4.3.1

Note:

A properly tensioned belt will not slip when in operation.

8. Check the conveyor belt alignment.
- How the belt is aligned to the rollers must be checked at the hopper, transition, at the drive box and the discharge.

Watch the alignment more frequently during the first 10 hours of operation. It usually seats itself and can be checked weekly after that. Refer to Section 4.3.2

9. Inspect the couplers, between the hydraulic motors and drive rollers, for wear.
10. Oil the hydraulic drive coupler or chain.



Fig 60 - Slave conveyor tension bolts, belt cover removed



Fig 61 - Adjustment bolt, rear conveyor discharge

4.2.3 Every 100 Hours or Monthly:**Note:**

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

11. Grease the slave conveyor roller bearings.
 - Tail end
 - Drive and discharge rollers
12. Oil couplers on hydraulic drives.
 - At discharge of slave conveyor
 - At discharge of rear conveyor
13. Grease the rear (incline) conveyor roller bearings.
 - Tail end
 - Drive and discharge rollers
14. Grease rear conveyor movement points.
 - a. Grease shuttle point.
 - b. Grease swing points.
 - c. Grease conveyor raise cylinder points.
 - d. Grease conveyor drop cylinder points.
15. Grease the gate cylinder and bushings, below each compartment.
16. Check the tension and alignment of the slave and rear conveyors.

Refer to Sections 4.3.2 and 4.3.3



Fig 62 - Rear conveyor movement points

4.2.4 Every 200 Hours or Annually:**IMPORTANT:**

Refer to engine manual for complete details on service and maintenance.

Refer to this link for axle maintenance:
<http://www.dexteraxle.com/resources/manuals/-in-tags/tags/Heavy-Duty>

17. Take hydraulic oil sample and send to lab for particle count analysis.
 - Change oil if necessary.
18. Change hydraulic filter. Refer to Section 4.3.4
19. Check and clean suspension air tank.
 - Drain moisture from tank.
20. Inspect air lines to suspension and brakes, for wear and leaks.
 - Be sure they are secure, not kinked, and have clearance from moving parts.
21. Inspect suspension for missing or broken fasteners or spring leaf.
 - Check components for wear, leaks and other deterioration.
22. Inspect brake system for wear, cracks, etc.
23. Adjust brakes. Refer to online instructions.
24. Check axle alignment.
25. Check oil level in wheel hubs.
 - Inspect hubs for leaks.
26. Lubricate and repack wheel bearings.
27. Inspect tires for wear and check pressure.
28. Re-torque wheel nuts.

29. Ensure reflectors, transport lights and work lights are clean and operational.

- **Note:** The transport light harness has a lifetime manufacturer warranty.

30. Wash tender.

- Refer to Section 3.10 for thorough cleaning instructions.



Fig 63 - Hydraulic system oil filter



Fig 64 - Air-ride suspension



Fig 65 - Clean tender

4.3 MAINTENANCE PROCEDURES

By following a careful service and maintenance program for your tender, you will enjoy many years of trouble-free service.

Note:

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

⚠ WARNING

ROTATING PART HAZARD

Turn off engine. Wait for belt and rollers to stop moving, before working on the belt.

4.3.1 Conveyor Belt Tension:

The tension of both the slave and rear (incline) conveyor belts should be checked daily to insure proper function.

Note:

Belt is tensioned correctly when it does not slip on the drive roller when loaded.

Belt Tension of Slave Conveyor:

1. Loosen the roller bearing housings at the tail.
2. The tension is set and controlled by the springs on both sides of the slave conveyor belt.

Tighten, or loosen the tension bolts, so the springs have a measurement of 3-3/4" (95 mm).

3. Tighten the roller bearing housing.
4. Measure the spring lengths to be equal.

Belt Tension of Rear (Incline) Conveyor:

5. Loosen the roller bearing housings at the rear conveyor discharge.
6. Tighten or loosen the adjustment bolts for correct tension of the paddle belt.
7. Tighten the roller bearing housings.



Fig 66 - Slave conveyor tension bolt and springs



Fig 67 - Adjustment bolts on rear conveyor

4.3.2 Conveyor Belt Alignment:

The belt is properly aligned when the it runs in the centre of the frame and the roller shafts.

Be sure to run the conveyor a full revolution to check the entire belt.

The belt can move from side-to-side while it is turning as long as it does not contact the sides. If it touches the sides, it must be aligned.

WARNING

ROTATING PART HAZARD

Turn off engine. Wait for belt and rollers to stop moving, before working on the belt.

Note:

If belt is out of alignment,
it will move to the loose side.

Tighten loose side or loosen tight side.

Belt Adjustment of Slave Conveyor:

1. Loosen the roller bearing housing on the side to be adjusted.
2. Align by loosening or tightening the shaft bearing assemblies at the tail and discharge rollers.
3. Align the bearing assemblies on either the drive, or driven shaft end of the drive roller.
4. Tighten all the roller bearing housings.
5. Test the belt by running the conveyor belt.
6. Repeat this process until the belt tracks correctly.

Belt Adjustment of Rear (Incline) Conveyor:

7. Loosening or tightening the shaft bearing assemblies at the tail and discharge rollers.
8. Align the bearing assemblies on either the drive, or driven shaft end of the drive roller.
9. Tighten all the roller bearing housings.
10. Test the belt by running the conveyor belt.
11. Repeat this process until the belt tracks correctly.



Fig 68 - Slave conveyor tension bolt and springs



Fig 69 - Adjustment bolts on rear conveyor

4.3.3 Conveyor Belt Replacement:**Slave Conveyor Belt Replacement:**

1. Remove the discharge hood from slave conveyor.
2. Rotate the belt until the lacing is accessible at the discharge.
3. Loosen the belt tension.
4. Disconnect the conveyor belt by removing the lacing cable.
5. Attach the new belt to the end of the existing belt.
6. Pull the old belt out of the machine.
 - The new one will thread into position.
7. Disconnect the old belt and connect the ends of the new one together.
 - Cut off excess cable.
 - Crimp lacing at one end to lock cable in place.
 - Cut and taper the corners of the trailing end of the belt.

IMPORTANT:

Taper the trailing belt corners, so they doesn't catch when rotating.

8. Tension and align the new conveyor belt.

Rear (Incline) Conveyor Belt Replacement:

9. Remove the access panel in the rear conveyor.
10. Rotate the belt until the lacing is accessible.
11. Loosen the belt tension.
12. Disconnect the conveyor belt by removing the lacing cable.

13. Attach the new belt to the end of the existing belt.

14. Pull the old belt out of the machine.
 - The new one will thread into position.

15. Disconnect the old belt and connect the ends of the new one together.
 - Cut excess cable.
 - Crimp lacing at one end to lock cable in place.
 - Cut and taper the corners of the trailing end of the belt.

16. Tension and align the new conveyor belt.

Check the tension and alignment of the conveyor belt frequently during the first 10 hours of operation. Adjust as required. Then, go to the regular service schedule.

Normally a conveyor belt will seat itself during the first 10 hours of operation and then require less or no adjustment.



Fig 70 - Rear conveyor, access panel removed



Fig 71 - Alligator lacing on rear conveyor paddle belt

4.3.4 Changing Hydraulic Filter and Oil:

1. Place all controls in neutral, stop engine and remove ignition key before maintaining.

⚠ WARNING**HOT LIQUID HAZARD**

Hydraulics must cool before changing oil.
Hot oil can cause burns if it
contacts exposed skin.

IMPORTANT:

Annually, have an hydraulic oil sample
tested for particle count.

Hydraulic Filter Replacement:

2. Place pan under the filter to catch any spilled oil.
3. Remove hydraulic oil filter, and dispose of it.
4. Fill the new filter with hydraulic oil.
5. Apply a light coat of oil to the O-ring and install the replacement filter. Snug up by hand and then tighten another 1/2 turn.
6. Run engine and hydraulic for 1-2 minutes. Check for oil leaks.
 - If a leak is found around the filter, tighten slightly.

Hydraulic Oil Replacement:

7. Test hydraulic oil annually for particle count.
 - Only if necessary, change the oil.
8. Hydraulic oil reservoir contains 189 Litres (50 US Gallons).
 - Place a large container, or tank under drain plug.
9. Remove the plug, and drain oil to until empty.
10. Install and tighten the drain plug.
11. Dispose of the used oil in an approved container.
12. Fill the reservoir with specified oil.
13. Run engine and hydraulic for 1-2 minutes. Check for oil leaks.
 - If a leak is found, tighten fitting slightly.



Fig 72 - Hydraulic reservoir and filter

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, Province/State, 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

This section contains a list of common problems, causes and offer quick solutions to those issues.

If problems are confronted which are difficult to solve, even after having read through this section, please contact your authorized dealer, distributor or Meridian Manufacturing Inc. Before you call, please have this Operator's Manual and the unit's serial number ready.

Problem

Possible Cause	Possible Solution
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Rear Conveyor Hopper Does Not Drop/Lift

Rear conveyor may not be in "rotation centre" (limit switch is not activated)	Swing conveyor 180° from stow position. Green LED will light when centred.
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Rear Conveyor Does Not Shuttle Sideways

Rear conveyor may not be in "rotation centre" (limit switch is not activated)	Swing conveyor 180° from stow position, green LED will light when centred (limit switch must activate).
Rear conveyor hopper may not have dropped fully (limit switch is not activated)	Drop the hopper completely (limit switch must activate)
Rear conveyor discharge may not be raised fully (limit switch is not activated)	Raise the discharge completely (limit switch must activate)

Rear Conveyor Does Not Swing. Discharge Does Not Raise/Lower.

Conveyor hopper may not be positioned directly below the slave discharge (limit switch is not activated)	Swing conveyor 180° from stow position, green LED will light when centred. Drop the hopper and raise discharge completely. Shuttle conveyor frame to centre (limit switches must activate).
--	---

Rear Conveyor Belt Does Not Run

Rear conveyor belt will operate only when its hopper is directly below the slave discharge (limit switch is not activated)	Swing conveyor 180° from stow position, green LED will light when centred. Drop hopper completely. Shuttle conveyor frame to centre (limit switches must activate).
--	---

Engine Labouring

Belt is sticky on the back side, because of oily product or wet/snowy conditions	Clean the belt
Air cleaner dirty	Clean the air cleaner, and/or replace the air filter

continued on next page

Problem

Possible Cause	Possible Solution
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Belt Does Not Track Correctly

Roller lagging may be worn	Replace roller or have it re-lagged
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Conveyor Belt Will Not Run

No power	Start engine, increase speed to maximum RPM
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Low Capacity

Hydraulic system - valve, pump or motor could be malfunctioning	Check and adjust pressure set screw on valve. Test flow from pump. Check for oil leaks under motor. Replace what is needed.
---	---

Wireless Handset Not Functioning

Batteries may have died during storage	Ensure batteries are good
Batteries replaced, but still won't work	Need to synchronize wireless handset to Receiver

Charging Battery Will Short Wireless Electrical System

Boosting current will short electrical system	If boosting to start engine, remove fuse from receiver box. If recharging battery, disconnect from CST.
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No Hydraulic Flow

Flow valve closed	Open flow circuit valve
Hydraulic filter plugged	Replace plugged hydraulic filter

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: (800) 665-7259.

Specifications and measurements are subject to change without notice.

Table 1 - Specifications

MODEL	LENGTH	WIDTH	HEIGHT	DISCHARGE HEIGHTS MIN/MAX	CONVEYOR SWING DIAMETER	WEIGHT EMPTY	# OF COMP. X FT3 (TOTAL)	UNITS / COMP. * (TOTAL)	BUSHEL / COMP. (TOTAL)	COMP. CAPACITY ** IMP (METRIC)	TOTAL CAPACITY ** IMP (METRIC)
CST-1550	43' 10"	8' 5"	11' 6"	7' 11" @15° 17' 4" @ 40°	38' 9" @ 30°	25,060 lb	6 x 258.5 (1551)	320 ea. (1920)	208 ea. (1248)	8 Ton ea. 7.3 MT ea.	48 Ton 43.6 MT

* Units based on 50 lb/unit. ** Capacity based on 62 lb/ft3.

Table is base on liquid measurements, and does not account for piling above the side walls.

6.1 BOLT TORQUE

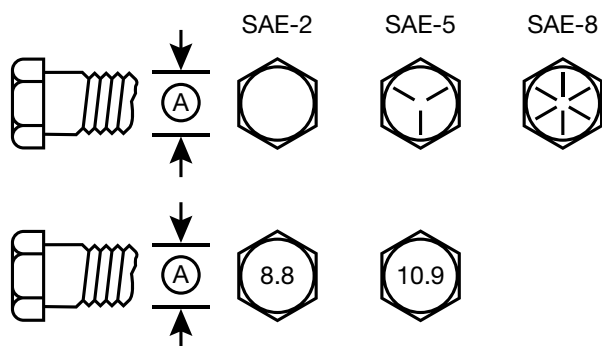
The tables shown below give correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same strength bolt.

Table 2 - English Torque Specifications

BOLT DIA. "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	12
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 3 - Metric Torque Specifications

BOLT DIA. "A"	BOLT TORQUE*			
	8.8 (Nm) (ft-lb)		10.9 (Nm) (ft-lb)	
M3	0.5	0.4	1.8	1.3
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



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.

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LIMITED WARRANTY STATEMENT

1. Meridian Manufacturing Inc, hereafter referred to as Meridian®, warrants each new product (the "Goods") to be free from defects in material and workmanship under normal use and service for a period of one (1) year or ninety (90) days in the case of commercial use, from the shipment date from the Meridian dealer (FCA).
2. Meridian warrants replacement parts and components either manufactured or sold by, will be free from defects in materials or workmanship under normal use and service for thirty (30) days from the shipment date from the Meridian dealer (FCA), or the remainder of the original warranty period on the Goods, whichever is longer.
3. This warranty does not apply to:
 - a. To any merchandise or components thereof, which in the sole and unfettered opinion of Meridian, have been subject to misuse, unauthorized modifications, alteration, accident, negligence, product abuse or lack of required maintenance.
 - b. If repairs have been made with parts or by persons other than those parts or persons approved by Meridian.
 - c. To parts and accessories not manufactured by Meridian including, but not limited to, engines, batteries, tires, belts, PTO shafts or other trade accessories. Such parts shall be covered by the warranty given by the actual manufacturer, if any.
 - d. To failure of parts; or failure of parts to perform due to wear under normal or excessive service conditions; or to failure due to use by the Purchaser for purposes other than originally intended at time of manufacture, including without limitation using the Goods for mixing fertilizer, etc.; or used in excess of the built specifications.
 - e. To Goods used in areas exposed to corrosive or aggressive conditions including, but not limited to, salt water from either inside or outside the Goods.
 - f. To failures or defects arising out of damage during shipment or during storage.
 - g. To materials replaced or repaired under this warranty, except to the extent of the remainder of the applicable warranty.
4. The obligation of Meridian under this warranty shall not arise unless Meridian is notified and this warranty is presented together with a written statement specifying the claim or defect within thirty (30) days after the failure is first detected or made known to the Purchaser and within: (i) one (1) year, or ninety (90) days in the case of commercial use; or (ii) thirty (30) days in the case of replacement parts and components manufactured by Meridian; from the shipment date from the Meridian dealer (FCA). Meridian in its sole and unfettered discretion shall determine if the claim is valid and whether correction of the defect or failure shall be made by repair or replacement of the materials.
5. Title to any replaced materials Meridian wishes to have pass to it, shall pass to Meridian.
6. The obligation of Meridian hereunder extends only to the original Purchaser or Buyer to whom the Goods were initially sold. This warranty shall not be subject to any assignment or transfer without the written consent of Meridian.
7. The purchaser acknowledges that it has made its own independent decision to approve the use of the Goods and also the specific fabrication and construction procedures utilized to complete the Goods, and has satisfied itself as to the suitability of these products for its use.

8. This warranty is subject to the following limitations, provisions and conditions:
 - a. Meridian shall have no liability hereunder for any claims, including field re-work.
 - b. Meridian shall not be liable for any incidental loss or damage, however caused, including, without limitation, normal wear and tear.
 - c. Meridian makes no express or implied warranties of any nature whatsoever except for such express warranties as set out herein. The warranty provided herein is in lieu of and excludes all other warranties, guarantees or conditions pertaining to the Goods, written or oral, statutory, express or implied, (except the warranty as to title) including any warranty as to the merchantability or fitness for any particular purpose. Meridian expressly disclaims all other representations, conditions or warranties, expressed or implied, statutory or otherwise and any representations, warranties or conditions that may arise from a course of dealing or usage of trade. The warranty provided herein shall constitute Meridian's sole obligation and liability and the Purchaser's sole remedy for breach of warranty. No other warranty has been made by any employee, agent, or representative of Meridian and any statements contained in any other printed material of Meridian is expressly excluded here from. Meridian shall not be responsible for any warranty offered by the Purchaser to its customers with respect to the Goods and the Purchaser shall indemnify Meridian with respect to same if any of those customers makes a claim against Meridian relating to any such warranty.
 - d. Subject to Meridian's obligations contained in paragraphs 1 and 2 herein, none of Meridian, its officers, directors, servants or agents shall be liable, or responsible for any loss or damage (including strict liability and liability for loss or damage due to items which the manufacturing processes are designed to identify) whether such loss or damage is caused by negligence in any manner whatsoever (including gross negligence, error, misrepresentation, misstatement, imprudence, lack of skill or lack of judgement).
9. The sole financial obligation of Meridian under this warranty shall be limited to the repair or replacement of the Goods as originally supplied and in no event shall they exceed the original cost of the Goods supplied.
10. Meridian shall not have any obligation under any warranty herein until all accounts have been paid in full by the Purchaser.
11. The construction and interpretation of this Warranty shall be governed by the laws of the Province of Manitoba.

Register your product at: www.meridianmfg.com
For warranty information send an email to: warranty@meridianmfg.com

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.

CONVEY-ALL[®]

(800) 665-7259 | www.convey-all.com | tenders@convey-all.com