

CONVEY-ALL

INDUSTRIES INC.



COMMERCIAL SEED TENDER

Models:

CST-C Series, CST-1500

OPERATOR'S MANUAL

LIMITED WARRANTY

Convey-All warrants to the buyer that the new machinery is free from defects in material and workmanship.

This warranty is only effective as to any new machinery which has not been altered, changed, repaired or treated since its delivery to the buyer, other than by Convey-All or its authorized dealers or employees, and does not apply to accessories, attachments, tools or parts, sold or operated with new machinery, if they have not been manufactured by Convey-All.

Convey-All shall only be liable for defects in the materials or workmanship attributable to faulty material or bad workmanship that can be proved by the buyer, and specifically excludes liability for repairs arising as a result of normal wear and tear of the new machinery or in any other manner whatsoever, and without limiting the generality of the foregoing, excludes application or installation of parts not completed in accordance with Convey-All operator's manual, specifications, or printed instructions.

Written notice shall be given by registered mail, to Convey-All within seven (7) days after the defect shall have become apparent or the repairs shall have become necessary, addressed as follows:

**Convey-All Industries Inc.
130 Canada Street
Winkler Manitoba R6W 0J3
Canada**

This warranty shall expire one (1) year after the date of delivery of the new machinery.

If these conditions are fulfilled, Convey-All shall at its own cost and at its own option either repair or replace any defective parts provided that the buyer shall be responsible for all expenses incurred as a result of repairs, labor, parts, transportation or any other work, unless Convey-All has authorized such expenses in advance.

The warranty shall not extend to any repairs, changes, alterations, or replacements made to the new equipment other than by Convey-All or its authorized dealers or employees.

This warranty extends only to the original owner of the new equipment.

This warranty is limited to the terms stated herein and is in lieu of any other warranties whether expressed or implied, and without limiting the generality of the foregoing, excluded all warranties, expressed or implied or conditions whether statutory or otherwise as to quality and fitness for any purpose of the new equipment. Convey-All disclaims all liability for incidental or consequential damages.

This machine is subject to design changes and Convey-All shall not be required to retrofit or exchange items on previously sold units except at its own option.

WARRANTY VOID IF NOT REGISTERED

WARRANTY REGISTRATION FORM & INSPECTION REPORT

This form must be filled out by the dealer and signed by both the dealer and buyer at the time of delivery.

Buyer's Name _____ Dealer's Name _____

Address _____ Address _____

City _____ City _____

Province/State _____ Province/State _____

Postal Code/Zip Code _____ Postal Code/Zip Code _____

Country _____ Country _____

Phone Number _____

Unit's Model Number _____ Unit's Serial Number _____

Delivery Date _____ General Purpose: Private Commercial

UNIT INSPECTION

- All Fasteners Tight
- Drive Belts Aligned and Tensioned
- Driveline Secured to Machine
- Hydraulic Hoses Free and Fittings Tight
- Conveyor Belts Move Freely
- Conveyor Belts Aligned and Tensioned
- Folding conveyor Folds Freely
- Checked Engine Fluid Levels
- Lubricated Machine

SAFETY INSPECTION

- All Guards, Shields Installed and Secured
- All Safety Decals Installed and Legible
- Reflectors, Slow Moving Vehicle (SMV) Clean
- All Lights Clean and Working
- Reviewed Operating and Safety Instructions

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

Date _____ Dealer's Rep. Signature _____

The above equipment and Operator's Manual have been received by me and I have been thoroughly instructed as to care, adjustments, safe operation and applicable warranty policy.

Date _____ Buyer's Signature _____

WHITE	YELLOW	PINK
CONVEY-ALL	DEALER	CUSTOMER

This page intentionally left blank

TABLE OF CONTENTS

DESCRIPTION	PAGE
Section 1: INTRODUCTION	1-1
1.1 Operator Orientation	1-1
1.2 Serial Number Location	1-1
Section 2: SAFETY	2-1
2.1 Safety Orientation	2-2
2.2 General Safety.	2-2
2.3 Equipment Safety Guidelines	2-3
2.4 Safety Training.	2-4
2.5 Safety Decals	2-4
2.5.1 How to Install Safety Signs.	2-4
2.6 Work Preparation	2-5
2.7 Maintenance Safety	2-6
2.8 Placement Safety	2-6
2.9 Operating Safety	2-7
2.10 Hydraulic Safety	2-8
2.11 Transport Safety	2-8
2.12 Battery Safety	2-9
2.13 Lock-Out Tag-Out Safety	2-9
2.14 Storage Safety	2-9
2.15 Safety Symbol Identification	2-10
Section 3: OPERATION	3-1
3.1 Machine Components.	3-2
3.2 Components and Controls	3-4
3.3 CST-1500 Folding Conveyor Shuttle Movement.	3-14
3.4 Machine Break-In	3-15
3.5 Pre-Operation Checklist	3-15
3.6 Operating on Site	3-16
3.7 Storage	3-21
3.8 Removing from Storage	3-21
Section 4: SERVICE AND MAINTENANCE	4-1
4.1 Fuels, Fluids and Lubricants	4-1
4.1.1 Greasing	4-2
4.2 Servicing Intervals.	4-2
4.2.1 Every 10 Hours or Daily	4-2
4.2.2 Every 50 Hours, 50 Loads or Weekly	4-3
4.2.3 Every 200 Hours, 200 Loads or Monthly	4-7

continue on next page

TABLE OF CONTENTS con'd

DESCRIPTION	PAGE
4.3 Maintenance Procedures	4-8
4.3.1 Changing Engine Oil and Filter	4-8
4.3.2 Cleaning/Changing Air Cleaner	4-9
4.3.3 Changing Hydraulic Oil and Filter	4-10
4.3.4 Changing In-Line Fuel Filter	4-11
4.3.5 Slave Conveyor Drive Chain, CST-C Models	4-12
4.3.6 Conveyor Belt Tension	4-13
4.3.7 Conveyor Belt Alignment	4-14
4.3.8 Conveyor Belt Replacement	4-15
4.4 Service Record	4-17
Section 5: TROUBLESHOOTING	5-1
Section 6: SIGN-OFF FORM	6-1
Section 7: REFERENCE	7-1
7.1 Specifications	7-1
7.2 Bolt Torque	7-2

Section 1: INTRODUCTION

Congratulations on your choice of a Convey-All Commercial Seed Tender (CST) to complement your seed delivery system in your agricultural operation. This equipment has been designed and manufactured to exceed the exacting standards for such equipment in the agricultural industry and will keep your seed delivery operation working at optimum efficiency.

The tender is shown mounted onto a trailer. The CST and trailer are separate equipment. There is no information referring to the trailer in this document.

Keep this manual handy for frequent reference. Pass it on to new operators or owners. Call your dealer, distributor or Convey-All Industries Inc., for assistance, information, additional/replacement copies, or a digital copy.

Information provided herein is of a descriptive nature. Convey-All Industries Inc. reserves the right to modify the machinery design and specifications provided herein without any 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 truck driver's seat and facing the direction of travel.

1.2 SERIAL NUMBER LOCATION

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

The tender's serial number is located near the front pad, and on the rear support.

Write the numbers in the below for easy reference.

CST Serial No: _____

Engine Model No: _____

Engine Serial No: _____



Fig 1 - Front, left side of unit



Fig 2 - Rear, left side of unit, vertical beam

This page intentionally left blank

Section 2: SAFETY



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.

DANGER - Indicates an imminently hazardous situation. If not avoided, it will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

WARNING - Indicates a potentially hazardous situation. If not avoided, it 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.

CAUTION - Indicates a potentially hazardous situation. If not avoided, it may result in minor or moderate injury. It may be used to alert against unsafe practices.

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

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 CST 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 working part of your safety program. Be certain that EVERYONE operating this equipment is familiar with, and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- CST 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 most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow them. Most accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Unauthorized modification may impair the function and/or safety of the equipment. The change could also affect the life of the equipment.
- Think SAFETY! Work SAFELY!

2.2 GENERAL SAFETY

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

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

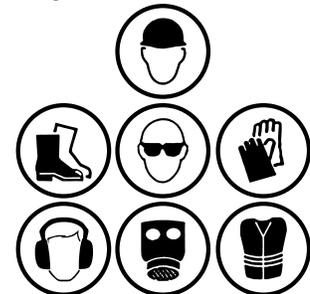
- Have a first-aid kit available for use should the need arise and know how to use it. 

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

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

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

- A hard hat
- Protective shoes with slip resistant soles
- Eye protection
- Heavy gloves
- Hearing protection
- Respirator or filter mask



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

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

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.

You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury or death, study the following precautions and insist those working with you, or for you, follow them.

- In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.
- Replace any safety or instruction decal that is not readable or is missing.
- 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.

- The operator should be a responsible, properly trained and physically able person familiar with farm machinery and trained in this equipment's operations.
- Under no circumstances should young children be allowed to work with this equipment.
- If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.
- Do not allow persons to operate this unit until they have read this manual. They should have a thorough understanding of the safety precautions and of how it works.

Review the safety instructions with all users annually.

- 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.

2.4 SAFETY TRAINING

- Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.
- Hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment.
- It has been said, "The best safety feature is an informed, careful operator." We ask you to be that kind of an operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Accidents can be avoided.
- Working with unfamiliar equipment can lead to careless injuries. Read this manual before operating, to acquaint yourself with the machine.



If this tender is used by any person other than yourself, is loaned or rented, it is the machine owner's responsibility to make certain that the current/future operators:

- Reads and understands the operator's manuals.
- Is instructed in safe and proper use.
- Know your controls and how to stop the engine, and machine quickly in an emergency. Read this manual and the one provided with your power unit.
- Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will operate the machinery.

Personnel who have not read this manual are not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.

- Physical limitations of the employees need to be recognized and accommodated.

2.5 SAFETY DECALS

- Keep signage clean and legible at all times.
- Replace safety decals that are missing or have become illegible.
- If an original part which contained a safety decal, has been replaced by a new part; it show also display the decal.
- 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 Convey-All Industries Inc.

2.5.1 How to Install Safety Signs:

1. Be sure that the installation area is clean and dry.
2. Ensure temperature is above 50°F (10°C).
3. Determine exact position before you remove the backing paper.
4. Remove the smallest portion of the split backing paper.
5. Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
6. Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
7. Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

2.6 WORK PREPARATION

- Never operate the engine and CST until you have read and completely understand this manual, the power unit's Operator's Manual, and each of the Safety Messages found on the safety signs on the power unit and machine.



- Personal protective equipment including:
 - hard hat
 - safety glasses
 - safety shoes
 - gloves



are recommended during operation, adjustment, maintaining, repairing, removal, or moving the implement.



- 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 shielding 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 MAINTENANCE SAFETY

- Review the Operator's Manual and all safety items before working with and maintaining the tender. 
- Place all controls in neutral or off, 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 a hydraulic system, make sure all components are tight and that hoses and couplings are in good condition. 
- Relieve pressure from hydraulic circuit before servicing.
- Keep hands, feet, hair and clothing away from all 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.

- Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments.
- Before resuming work, install and secure all guards when maintenance work is completed.
- Keep safety decals clean. Replace any signage that is damaged or not clearly visible.

2.8 PLACEMENT SAFETY

- Stay away from overhead power lines when moving the tender. Electrocution can occur without direct contact. 
- Locate unit to provide ample space for loading or unloading.
- Store Folding Conveyor in its folded position when moving. Unfold only when ready to unload.
- Be familiar with the machine's hazard zones. If anyone enters the hazard area, shut down machine immediately.

Clear the area before restarting.
- Operate the tender on level ground free of debris.

2.9 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 compartment and Folding 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 conveyor is empty before raising/lowering, swinging or folding.

2.10 HYDRAULIC SAFETY

- Always place all hydraulic controls in neutral before disconnecting and working on hydraulic systems.
- Relieve pressure in hydraulic system before maintaining or working on machine.
- Make 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. 

2.11 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 engage Folding Conveyor transport lock before transporting.
- Never allow riders on the trailer.
- 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.
- Stay away from overhead power lines. Electrocutation 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.

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 remote control system, killing it.

To boost the engine:

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

To recharge the battery:

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



36-3000-0029

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

2.13 LOCK-OUT TAG-OUT SAFETY

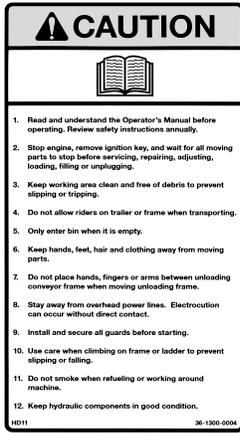
- Establish a formal Lock-Out, Tag-Out program for your operation.
- Train all operators and service personnel before allowing them to work around the equipment.
- Provide tags on the machine and a sign-up sheet to record tag out details.

2.14 STORAGE SAFETY

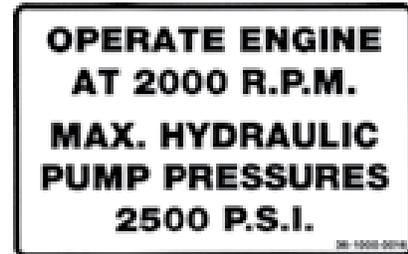
- Store the CST on a firm, level surface.
- Store in an area away from human activity.
- If required, make sure the unit is solidly blocked up.
- Make certain all mechanical locks are safely and positively connected before storing.
- Remove the battery. Be sure it is fully charged. Store it inside. Do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

2.15 SAFETY SYMBOL IDENTIFICATION

There are various types of safety messages on decals in many locations on the CST. Good safety practices include being familiar with the signage, the type of warning, the area, and the function related to that area.



36-1300-0001



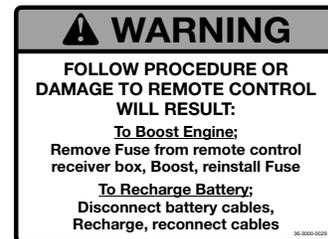
36-1000-0016



36-3000-0005



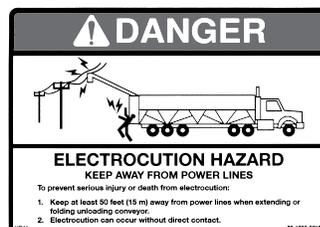
36-1700-0004



36-300-0029



36-3000-0015

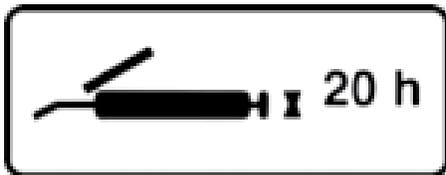


36-1700-0013



36-1700-0015

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



36-2200-0001



36-3000-0001



36-1700-0005



36-3000-0010



36-300-0004



36-300-0014



36-1000-0021



36-2200-0004



36-1000-0003

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



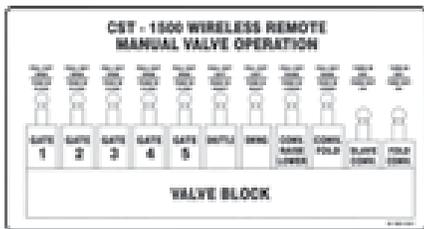
36-2200-0005



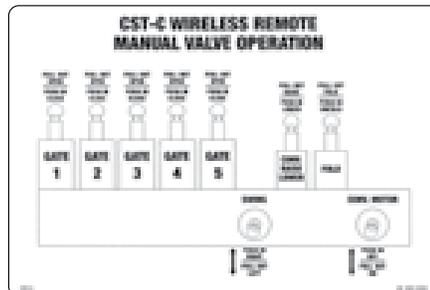
36-1000-0011



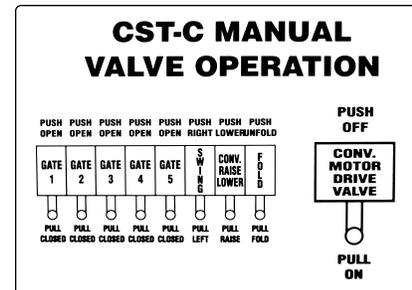
36-2200-0002



36-1800-0041



36-1800-0003



36-1500-0002

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

Section 3: OPERATION



Operating Safety

- Read and understand the Operator's Manual, and all safety decals, before using. Review safety related items annually.
- 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. If anyone enters hazard areas, shut down machine immediately. Clear the area before restarting.
- 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.
- Do not allow riders on the CST when transporting.
- Stay away from overhead obstructions and power lines during operation. Electrocutation can occur without direct contact.
- Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
- Do not place hands, arms or body between compartment and Folding 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.

It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the tender. Follow all safety instructions exactly. It is everyone's business. By following recommended procedure, a safe working environment is provided for the operator, bystanders and 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. Read this manual carefully to learn how to operate the machine safely. There are instructions on how to set it, to provide maximum efficiency. By following the operating instructions, in conjunction with a good maintenance program, your CST will provide many years of trouble free service.

3.1 MACHINE COMPONENTS

The Commercial Seed Tender is available in a variety of sizes depending on the required seed capacity.

A self-contained hydraulic power pack is mounted onto the side, and consists of an engine, fuel tank, hydraulic pump, oil reservoir and associated plumbing.

A remote control is used to set and operate the unit. Each hopper can be opened or closed individually.

The CST is shown mounted onto a trailer. The CST and trailer are separate equipment. There is no information referring to the trailer in this document.

The main components are shown below.

* There are some options shown which may not be available on all models.

* The position of components may vary depending on the model.

- a. Hoppers (number varies by model)
- b. Hopper Discharge Gate
- c. Folding Conveyor
- d. Slave Conveyor
- e. Folding Conveyor Discharge Spout
- f. Slave Conveyor Discharge Spout (CST-1500 only)
- g. Engine
- h. Fuel and Hydraulic Oil Tanks (right side)
- i. Hydraulic Controls
- j. Remote Control
- k. Ladder
- l. Canvas Tarp
- m. Tarp Controls
- n. Gate Indicators
- o. Document Container
- p. Folding Conveyor Transport Lock

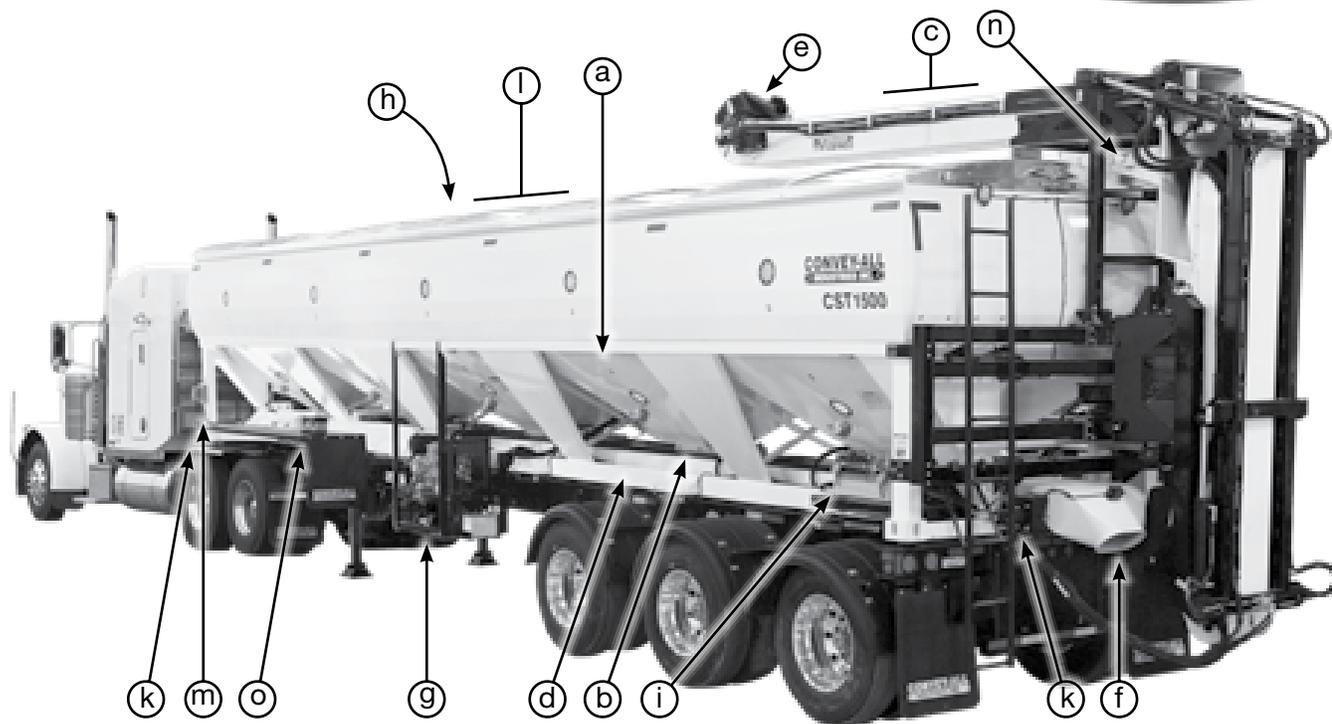


Fig 3 - Left Side of CST-1500, Remote Control Above

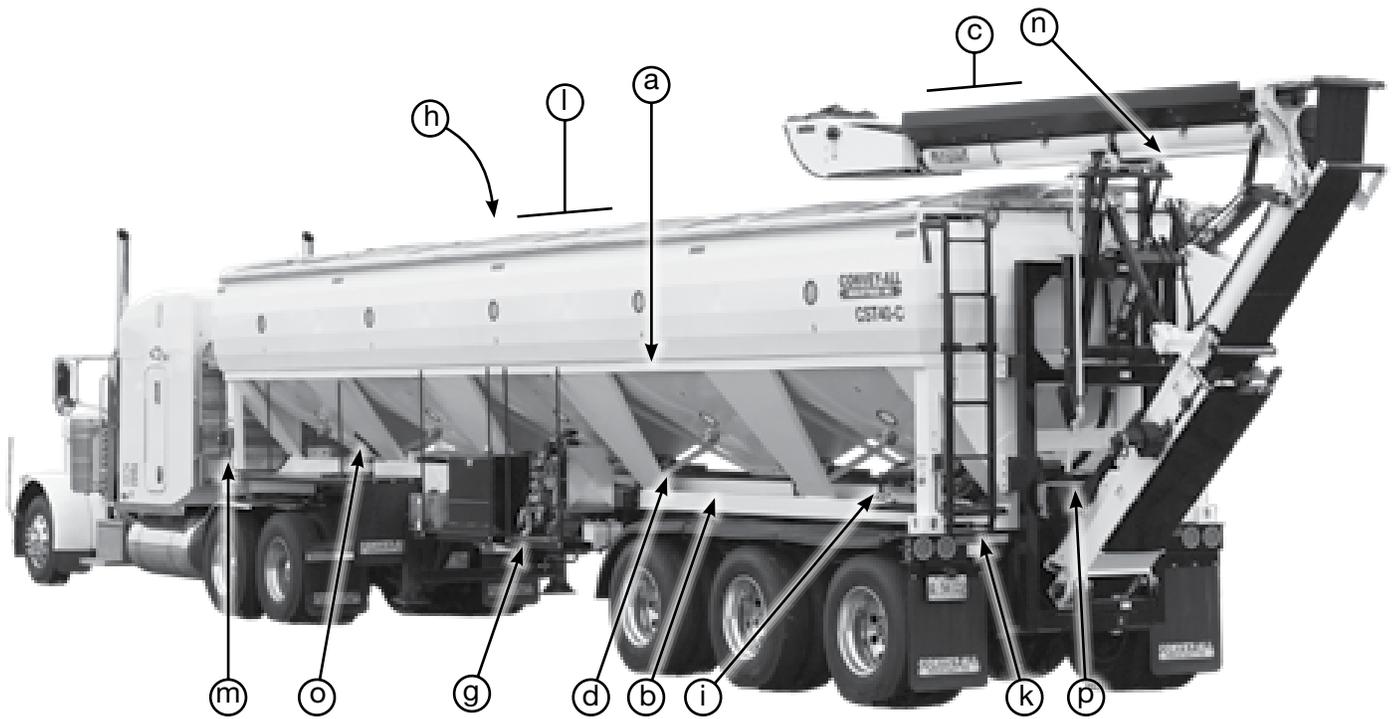


Fig 4 - Left Side of CST-40-C

3.2 COMPONENTS AND CONTROLS

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

There is an engine shield in front of the engine, facing the driving direction, for protection.

* The location and functionality may vary depending on the engine and CST model.

CAT Diesel Engine:

Read the engine manufacturer's instruction 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 fully clockwise to the last spring-loaded detent position to engage the starter solenoid and start the engine. Release the key when the engine starts and it will return to the RUN position.

Meters and Warning Lights:

All meters are above, and warning lights are to the left of the ignition switch.

- c. **Throttle:**
Let the engine warm up. Push in, then turn the dial to the left for full RPM.

IMPORTANT:

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

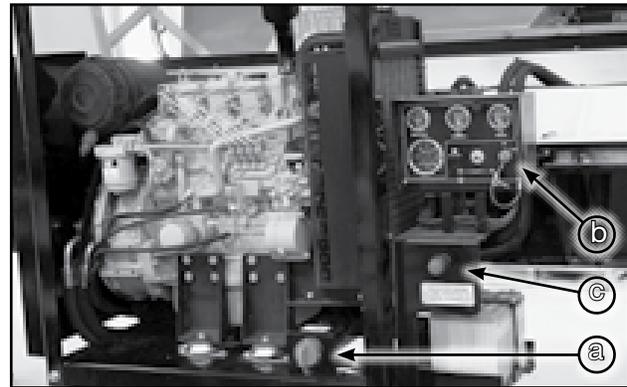


Fig 5 - CAT Diesel Engine

Gas Engine (Optional):

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

Ignition Switch:

This key operated switch controls the electric power to the engine.

There is a tachometer under the switch.



Fig 6 - Subaru Ignition Switch

- a. Run/Choke:
Push lever (a) left to run. This is the position where the engine will continue to run.

Move the lever to the right to close the choke for starting when the engine is cold.

- b. Throttle:
Move lever left (b) for idle, and to the right for full RPM. Always operate at full throttle to allow the hydraulics to operate at maximum performance.

- c. Winter/Summer Intake Air Control:
Pull button (c) out for Winter conditions. Push in for Summer conditions.

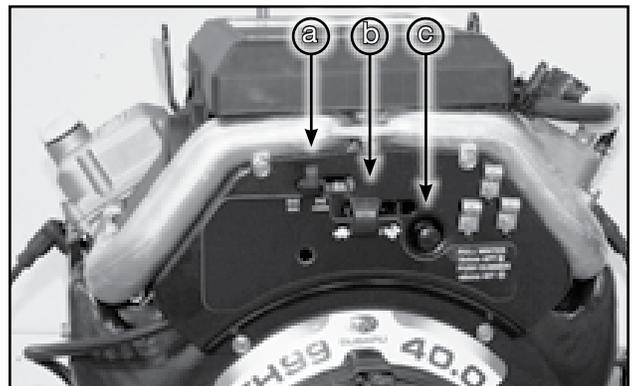


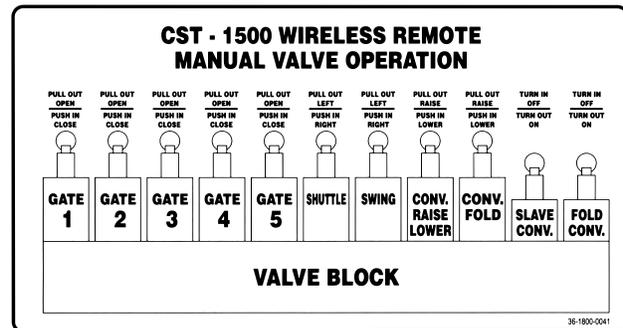
Fig 7 - Subaru Gas Engine

Hydraulic Valve Bank, CST-1500:

All machine functions are controlled by the bank of hydraulic valves mounted on the rear left frame. Each valve is designed with a flow control as part of the base.

These functions are to be operated using the remote control handset, refer to page 3-8. The functions can also be manually operated at the valve:

- a. Gate Valves:
 - Each of the first five valves, control one of the hopper gates.
 - Pull up the top of the valve to open the gate.
 - Push valve down, to close the same gate.
- b. Shuttle Folding Conveyor:
 - Pull up the top of this valve to move the conveyor horizontally along the rear frame.
 - Push valve down, to return conveyor previous position.
- c. Swing Folding Conveyor:
 - Pull up the top of this valve to swing the conveyor left.
 - Push valve down, to swing it right.
- d. Raise/Lower Folding Conveyor:
 - Pull up the top of this valve to raise the conveyor.
 - Push valve down, to lower it.
- e. Fold Conveyor:
 - Pull up the top of this valve to unfold the conveyor.
 - Push valve down, to fold it.
- f. Slave Conveyor Motor:
 - Push red, valve button down and turn until it pops up, to turn on the conveyor motor.
 - Push down and turn back, to turn off.
- g. Folding Conveyor Motor:
 - Push red, valve button down and turn until it pops up, to turn on the conveyor motor.
 - Push down and turn back, to turn off.



36-1800-0041

Fig 8 - Valves Bank Decal, CST-1500

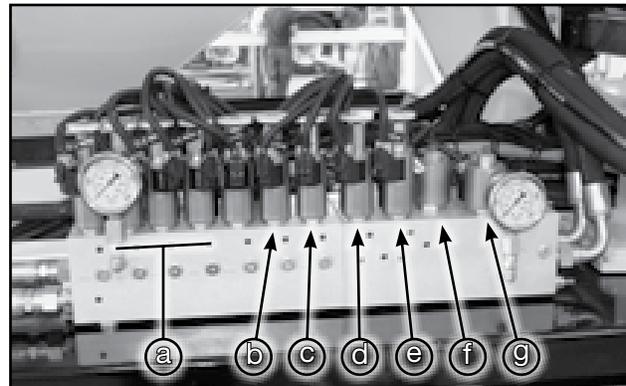


Fig 9 - Hydraulic Valves, CST-1500

Hydraulic Valve Bank, CST-C Models:

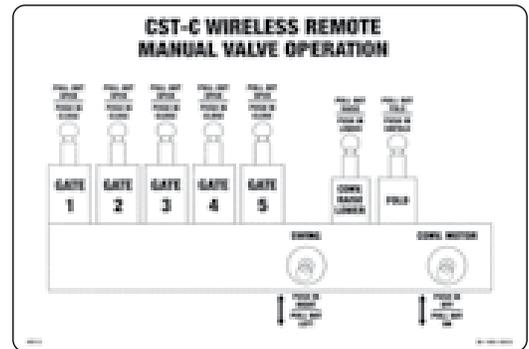
All machine functions are controlled by the bank of hydraulic valves mounted on the rear left frame. Each valve is designed with a flow control as part of the base.

These functions are to be operated using the remote control handset, refer to page 3-8. The functions can also be manually operated at the valve:

- a. Gate Valves:
 - Each of the first five valves, control one of the hopper gates.
 - Pull up the top of the valve to open the gate.
 - Push valve down, to close the same gate.
- b. Swing Folding Conveyor:
 - Pull out the top of this valve to swing the conveyor left.
 - Push valve in, to swing it right.
 -
- c. Raise/Lower Folding Conveyor:
 - Pull up the top of this valve to raise the conveyor.
 - Push valve down, to lower it.
- d. Fold Conveyor:
 - Pull up the top of this valve to fold the conveyor.
 - Push valve down, to unfold it.
- e. Conveyor Motors:
 - Pull out the top of this valve to turn on both conveyor motors.
 - Push valve in, turn off the motors.

Note:

Both the Slave and Folding conveyors are controlled with one valve. Each has a pre-set speed difference, to ensure that the conveyors will not become plugged from overfeeding.



36-1800-0003

Fig 10 - Valves Bank Decal, CST-C Models

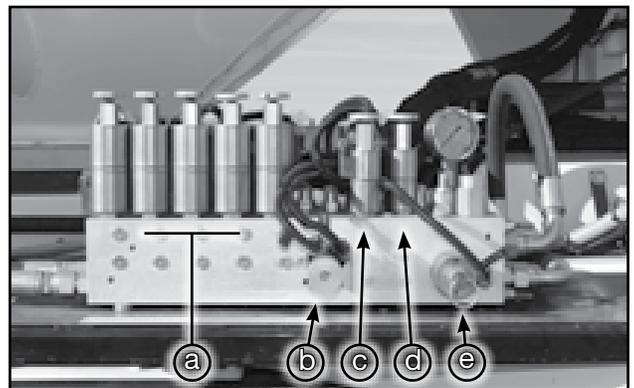


Fig 11 - Hydraulic Valves, CST-C Models

Manual Hydraulic Valve Bank (Optional):

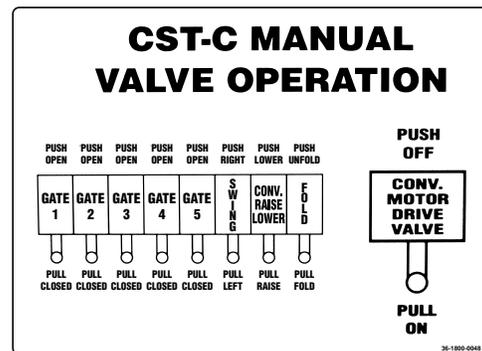
Manual valve operation is available. The valve bank is positioned on the drivers side, rear on the unit. Each valve is designed with a flow control as part of the base.

The valves may vary depending on the CST model, and options.

- a. Gate Valves:
Each of the first five valves, control one of the hopper gates.
 - Push the valve to open the gate.
 - Pull valve, to close the same gate.
- b. Swing Folding Conveyor:
 - Push the valve to swing the conveyor right.
 - Pull valve, to swing it left.
 -
- c. Raise/Lower Folding Conveyor:
 - Push the valve to lower the conveyor.
 - Pull valve, to raise it.
- d. Fold Conveyor:
 - Push the valve to unfold the conveyor.
 - Pull valve, to fold it.
- e. Conveyor Motors:
 - Push the valve to turn off both conveyor motors.
 - Pull valve, turn on the motors.

Note:

Both the Slave and Folding conveyors are controlled with one valve. Each has a pre-set speed difference, to ensure that the conveyors will not become plugged from overfeeding.



36-1500-0048

Fig 12 - Manual Valve Bank Decal

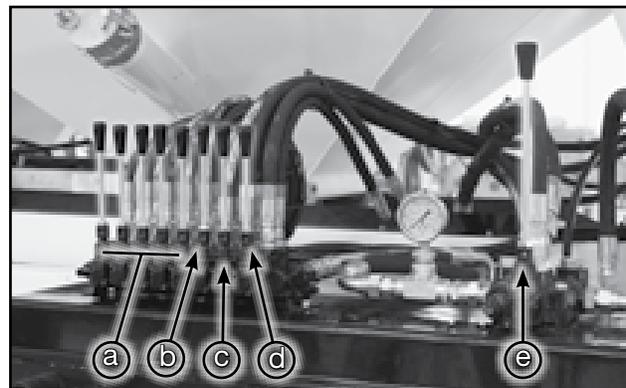


Fig 13 - Manual Hydraulic Valves

Remote Control:

The remote control functions correspond to the valve bank on the left side, at the rear of the CST.

If the unit comes with the weigh scale option, it's information will be controlled and displayed on the handset.

The handset comes with a neck strap, equipped with a safety quick release.

The Remote Control Receiver is mounted on the inside of the frame on the left side, at the rear, close to the valve bank.

Refer to the Remote Control's instruction manual for more detailed instructions.

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

ZERO Button:
Zeros the scale reading, when no load applied.

GROSS Button:
Press to view Gross weight for the entire unit.

SETUP Button:
Refer to Remote Control's manual for Setup function.

NET Button:
Shows Net weight for the entire unit.

TARE Button:
Press to enter TARE weight.

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

CLOSE Button:
Closes selected hopper gate.

SELECT Button:
Press to choose a hopper, number displayed on LCD screen.

OPEN Button:
Opens selected hopper gate.

UNFOLD Button:
Unfolds the Folding conveyor.

BELT Button:
Turns both belts on and off.

FOLD Button:
Folds the Folding conveyor.

SHUTTLE LEFT & RIGHT Buttons:
Swings conveyor at the rear of CST.

UP, DOWN, LEFT, RIGHT Buttons:
Swings, raises and lowers Folding conveyor into position.



Fig 14 - Remote Control Handset

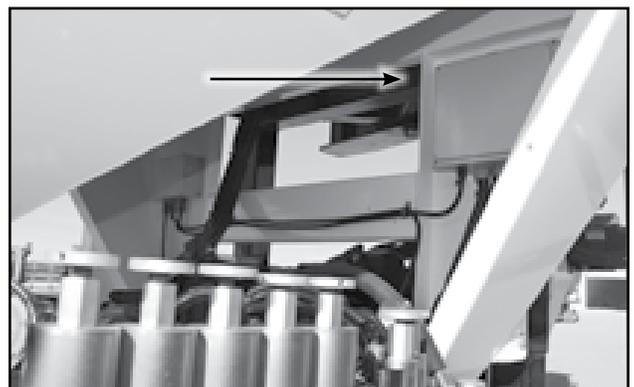


Fig 15 - Remote Control Receiver

Gate Status Lights:

A panel of lights on the rear of the frame indicates the status of the gates on the bottom of the hoppers.

When the light is illuminated, the gate is open.

Be sure to depress the button on the remote control until the light goes OFF and the gate is completely closed.

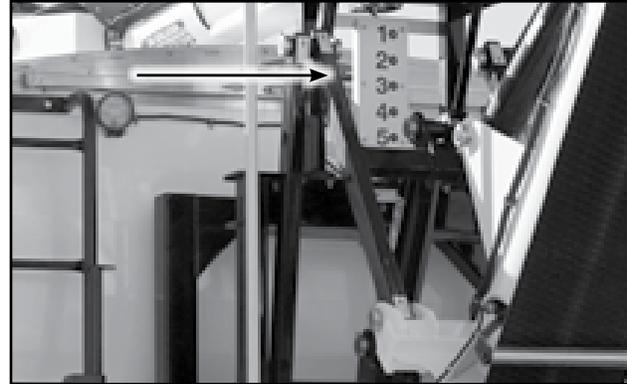


Fig 16 - Hopper Gate Status Lights

Electric Roll-Top Tarp:

This set of switches is on the frame at the front, left side. It controls the electric motor on the Roll-Top 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 switches and the cover will stop.

The CST-1500 has a separate wireless remote control for the Electric Roll-Top Tarp. This is a standard feature only on this model.



Fig 17 - Roll-Top Tarp Controls

Conveyor Belts:

On the CST-C models, both the Slave and Folding Conveyors use rubber, crescent top belts.

On the CST-1500, the Slave Conveyor uses a rubber, crescent top belt, and the Folding Conveyor has a rubber, paddle belt.

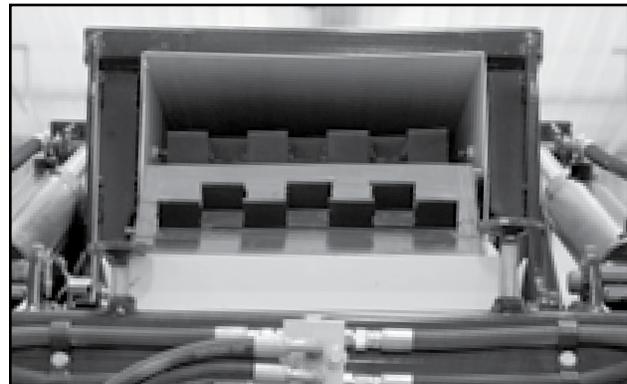


Fig 18 - Paddle Belt Folding Conveyor, CST-1500

Folding Conveyor Transport Lock, CST-C Models:

A mechanical pin is used to lock the Folding Conveyor frame in position for transportation or storage.

Use the "swivel control" on the remote control (or hydraulic valve) to centre the Folding Conveyor to lock in place.

Pull down on the lock handle to unfold and swing the folding conveyor.



Fig 19 - Transport Lock, CST-C Models

Folding Conveyor Limit Switches, CST-1500:

The CST-1500 uses 3 Limit Switches in it's Folding Conveyor.

- Folding Conveyor's swing needs to be centred before folding.
- Folding Conveyor needs to be fully folded on top of unit before shuttling sideways.
- Discharge portion (to the Fold Pivot) of the Folding Conveyor needs to be fully unfolded for the belt motor to run.

IMPORTANT:

Limit switch will allow conveyor motor to run when unfolded, pointing vertical. Always lower conveyor to run at 40° or less. Capacity will be drastically reduced at steeper angle.

Hopper Ladder:

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

Hopper Catwalk, CST-1500:

There is a catwalk across each hopper on the driver's side.

Exterior Ladder:

There is a ladder on the front and rear of the unit.

The rear ladder on the CST-1500, is removable. It can be positioned on the driver's or passenger's side of the CST.



Fig 20 - CST-1500

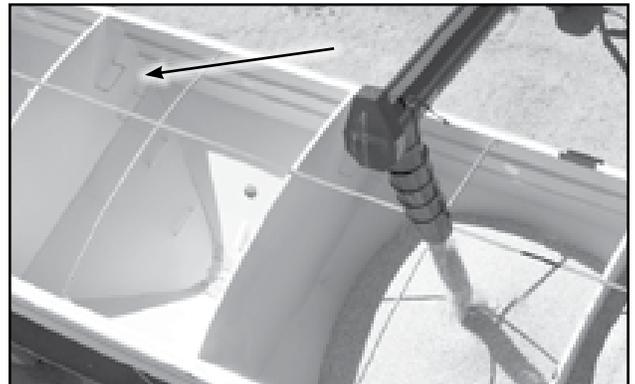


Fig 21 - Hopper Ladders



Fig 22 - Hopper Catwalk, CST-1500



Fig 23 - Exterior Ladder

Weight Scale (Optional):

The CST is available with a scale which weighs the all the hoppers together.

If the scale is part of the unit, there will be a Load Cell (a), below each hopper, sandwiched between the trailer and CST frame. Five on each side.

There are two Scale Junction Boxes (b) attached to the frame under hopper number three, one on each side. Each junction box connects the five Load Cells on it's corresponding side. Figure 23 shows the junction box for the Load Cells on the right side. The Load Cell shown, is one of five on the left side.

Figure 24 shows the Main Scale Junction Box (c). It is attached to the frame at the rear on the right side.

The information collected by the Load Cells, is displayed on the Remote Control.



Fig 24 - Main Scale Junction Box

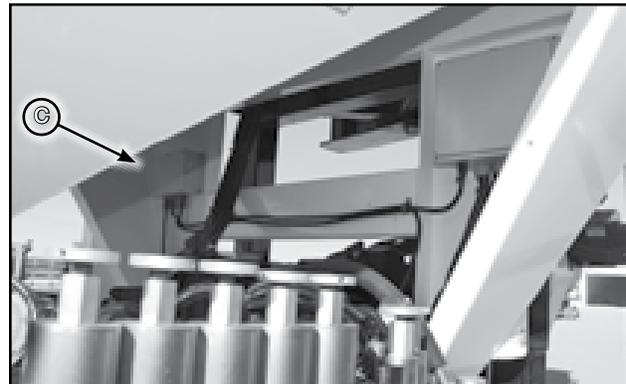


Fig 25 - Main Scale Junction Box

Slave Discharge Spout, CST-1500:

The Slave Conveyor has a Discharge Spout. The Folding Conveyor can be shuttled sideways, out of the way. Then the Slave Conveyor can discharge product directly out the back.

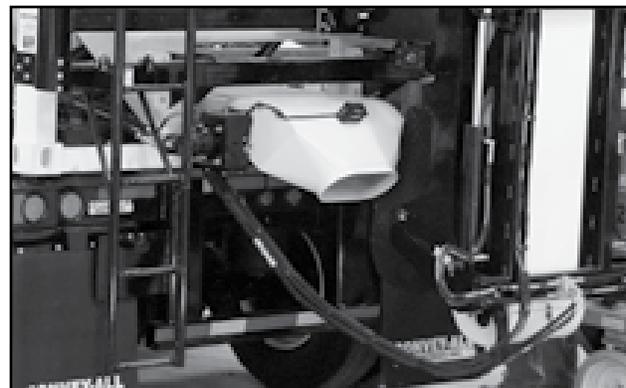


Fig 26 - Slave Conveyor Discharge Spout, CST-1500

Folding Conveyor Discharge Spout:

CST-C models contain a standard discharge spout with a 4 foot long canvas hood.

The CST-1500 comes with a positionable spout. It can tilt, to give the correct discharge angle. This model comes with a 3 foot canvas hood.



Fig 27 - Folding Conveyor Discharge Spout, CST-C Models

Sight Glass:

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

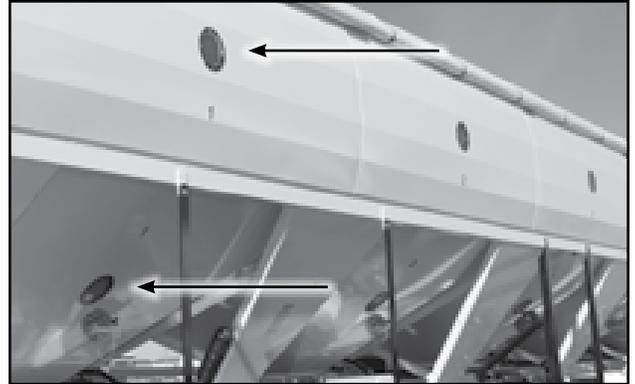


Fig 28 - Sight Glass

Poke Hole Tubes:

Each hopper has a Poke Hole Tube, on the driver's side. This can be used to help the product flow, if bridging occurs.



Fig 29 - Poke Hole Tubes

Optional Camera:

A camera can be mounted on the end of the Folding Conveyor discharge spout.

The cables for the cameras' monitor screen would be strung 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.



Fig 30 - Camera and Working Light

Working Lights:

There are 2 lights mounted at the top, rear of the unit. Another light is situated at the end of the Folding 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 from the remote control handset.



Fig 31 - Document Holder

Document Holder:

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

3.3 CST-1500 FOLDING CONVEYOR SHUTTLE MOVEMENT



NOTICE - Balance Hazard:
 It is possible to transport the CST-1500 with Folding Conveyor shuttled to the side. Be aware of the off-centre weight.

From the factory, the shuttle movement on the Folding Conveyor is set to be from centre to the right.

- Push the hydraulic valve in, moves the conveyor from centre to the right side.
- Pull valve up, moves conveyor left, back to centre.

Note:

Push valve in retracts cylinder
 Pull valve out extends cylinder

The movement can be changed to shuttle from centre to the left side.

1. Centre Conveyor.
2. Remove the bolt and pin holding the extended cylinder to the Conveyor frame.
3. Use the hydraulics to retract the cylinder only. It is free from the conveyor, leaving it centred.
4. When retracted, install the pin, and bolt into place on the right side of the conveyor.
5. The rear ladder will need to be moved from the left to right side.
 - Remove the 2 hair pins (a).
 - Lift ladder, and remove it from the frame (b).
6. Place the ladder on the right side, and secure with the hair pins.

The Folding conveyor will now shuttle to the left side.

Note:

The hydraulic valve will now move the conveyor opposite from before.
 Push valve in retracts cylinder, centring conveyor.
 Pull valve up extends cylinder, shuttles to the left.

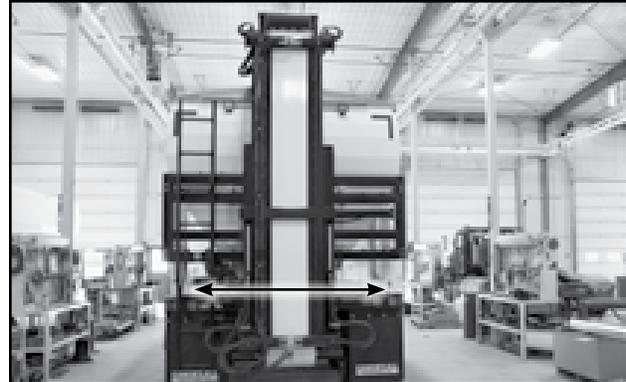


Fig 32 - Folding Conveyor Shuttle Movement, CST-1500



Fig 33 - Cylinder Frame Connection

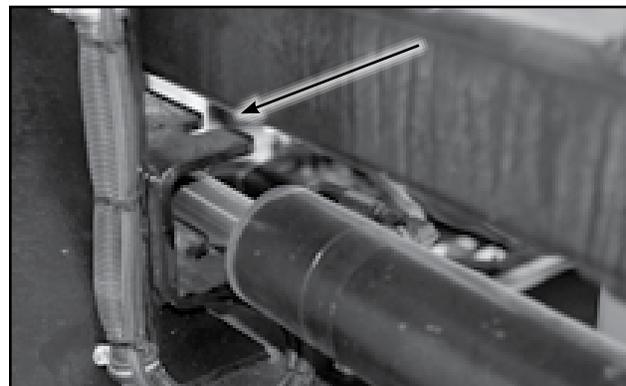


Fig 34 - Alternate Cylinder Frame Connection

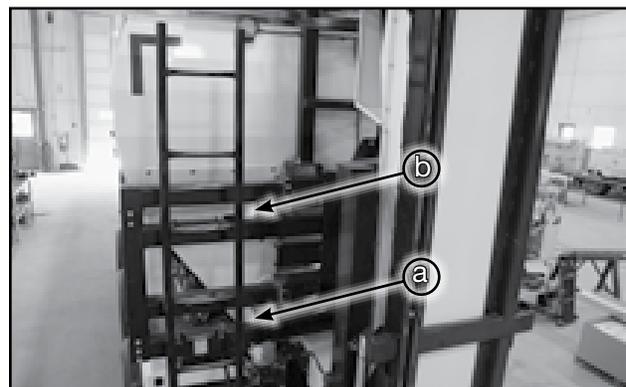


Fig 35 - Rear Ladder, CST-1500

3.4 MACHINE BREAK-IN

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

The conveyor belt's alignment is set at the factory, to track correctly without carrying a load. It is important to check alignment and make adjustments, if required, during the first few minutes of operation.

It is recommended that the following procedural and mechanical items be checked:

Before Starting:

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

After Operating or Transporting 1/2, 5, 10 Hours:

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

After 10 Hours:

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

3.5 PRE-OPERATION CHECKLIST

Efficient and safe operation of the CST requires that each operator reads the operating procedures. They should also understand all related safety precautions outlined in this manual. A pre-operational checklist is provided for the operator. It is important for both personal safety and maintaining the good mechanical condition of the delivery system that this checklist be followed.

Before operating the unit and each time thereafter, the following areas should be checked:

1. Check engine fluid levels.
2. Be sure the battery has optimal charge. If needed, charge the battery before connecting it with the battery cables.
3. Lubricate the machine per the schedule outlined in the Maintenance section.
4. Check that the Folding Conveyor swinging frame can move freely.
5. Check that the Folding Conveyor can fold freely.
6. Check that the conveyor belting is aligned and tensioned properly.
7. Remove all entangled material.
8. Check engine fluid levels.

3.6 OPERATING ON SITE

The Convey-All CST is designed to handle any kind of seed, granular or chemical. Use the unit to transport it to or from the field as required. Inspect the machine at the start of each day to be sure it is in good mechanical condition.

Follow these procedures when using the CST:

1. Review the Pre-Operation Checklist.
Refer to Section 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 top cover.

Note:

The CST-1500 has a wireless remote control for the roll-top tarp.

7. Fill the hopper(s).
8. Close the roll-top cover.
9. Engage the Battery Lock-Out Switch.

10. Transport to the unloading area.



Fig 36 - Roll-Top Cover



Fig 37 - Roll-Top Tarp Controls



Fig 38 - Filling the Hopper



Fig 39 - Transporting CST to Site



WARNING - Strangulation Hazard:
Careful the remote control handset does not become caught in running machinery, while hanging from the neck.

11. Disengage the Battery Lock-Out Switch
12. Start engine.

CST-1500 Models:

13. Refer to page 3-6 for hydraulic valves.
Refer to page 3-9 for remote control instructions.

Unfold discharge portion of the Folding Conveyor (at the Fold Pivot).

IMPORTANT:

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

14. Move the Folding Conveyor into position.
15. The Folding Conveyor can be swung through a 144° arc to allow it to fill more than one compartment on the planter, drill, distributor or spreader.

Note:

Folding conveyor can be shuttled to the side, if not needed.

16. Start the conveyor belt(s).

Note:

Both conveyors run independent from each other.
They have preset speed differences to prevent plugging.

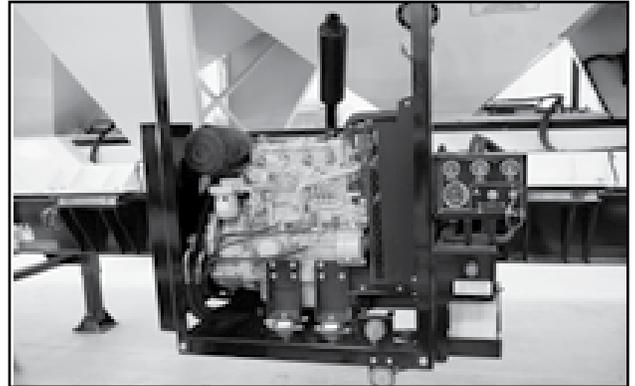


Fig 40 - Engine



Fig 41 - CST-1500

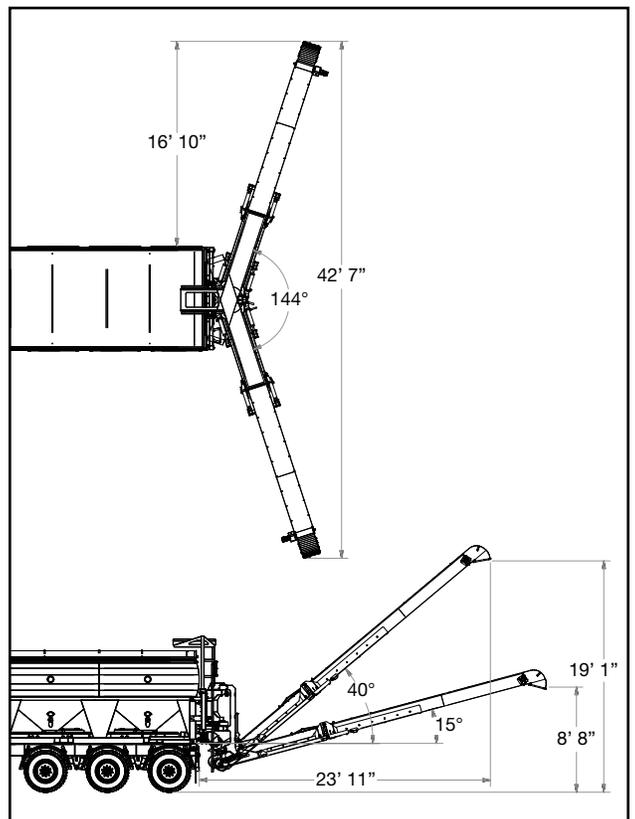


Fig 42 - Movement Schematic, CST-1500

CST-C Models:

17. Disengage the transport lock (bright yellow on some models).



Fig 43 - Transport Lock, CST-C Models

18. Move the Folding Conveyor into position.
Refer to page 3-7 to 3-8 for hydraulic valves.
Refer to page 3-9 for remote control instructions.

19. The Folding Conveyor frame can be swung through a plus or minus 26° arc to allow it to fill more than one compartment on the planter, drill, distributor or spreader.

20. Start the conveyor belts.

Note:

Both Slave and Folding Conveyors are controlled with one valve. Each has a pre-set speed difference, to ensure that the Folding Conveyor will not become plugged from overfeeding.

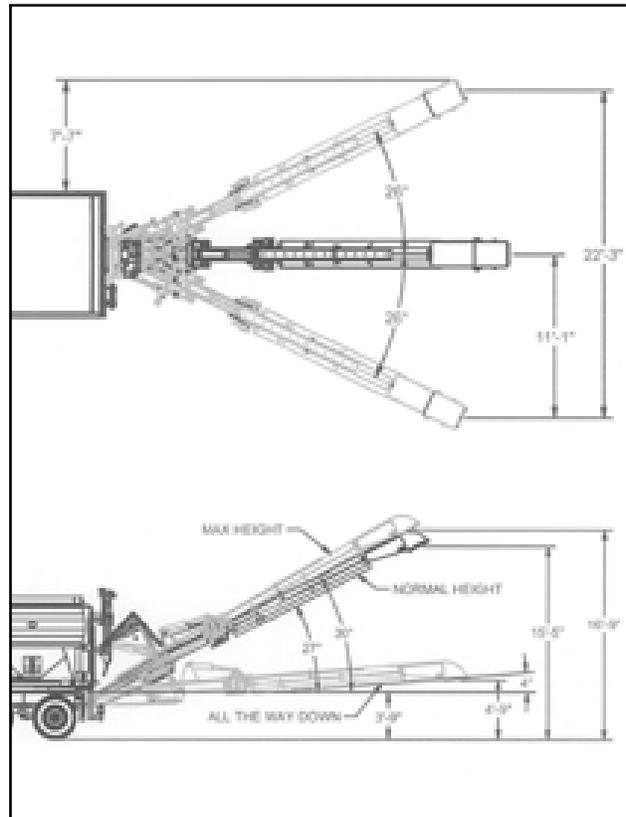


Fig 44 - Movement Schematic, CST-C Models

All CST Models:

21. Select a hopper to unload from.



Fig 45 - Remote Control

22. Open the gate under the selected hopper to empty.

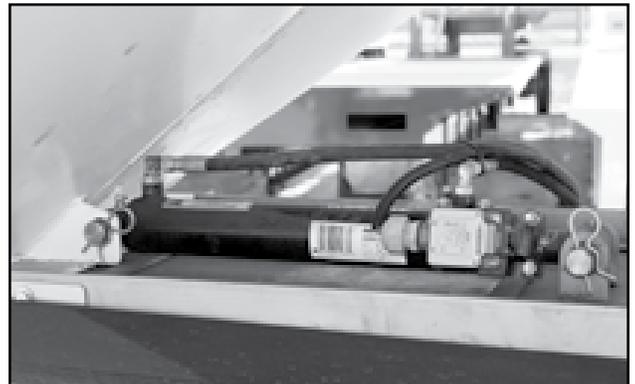


Fig 46 - Hopper Discharge Gate Cylinder



NOTICE - Plugging Hazard:
Open one hopper at a time to minimize the chance of plugging the unit.



Fig 47 - Filling Seeder

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



Fig 48 - Filling Railcar

24. Be sure the gates to close all compartments when finished.
25. Turn off the conveyor belts.

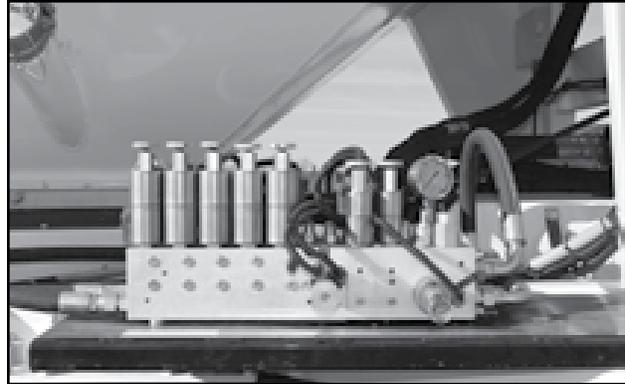


Fig 49 - Hydraulic Valve Bank, CST-C Models

26. Pivot the Folding Conveyor completely, to lie flat on top of the tender.



Fig 50 - Folding Conveyor, CST-1500

27. Engage the Folding Conveyor's transport lock on the CST-C models.



Fig 51 - Paddle Belt Folding Conveyor, CST-C Models

28. Reduce engine speed to low idle.
29. Turn the engine OFF. Remove the ignition key.
30. Place remote control in a secure location for storage.

Continue on with your work day.



Fig 52 - CAT Diesel Engine

3.7 STORAGE

After the season's use, or when the CST will not be used for a period of time, completely inspect all major systems of the tender.

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

Follow these procedures before storing:

1. Remove all left over material from the machine.
2. Thoroughly wash the unit to remove all dirt, mud and debris.
3. Inspect all rotating parts for entanglements. Remove anything caught in the mechanisms.
4. Check the condition of the components in the hydraulic system. Repair, replace or adjust as required.
5. Check the condition of the Slave and Folding Conveyors. Replace any damaged belts.
6. Lubricate all fittings and fill grease cavities.
7. Touch up all paint nicks and scratches to prevent rusting.
8. It is best to store the machine inside.

If that is not possible, cover with a waterproof tarpaulin and tie down securely.

9. Remove the battery.
 - Be sure it is fully charged.
 - Store it inside.
 - Do not sit the battery on a cold, concrete floor.
10. Store in an area away from human activity.
11. Do not allow children to play around the stored unit.

3.8 REMOVING FROM STORAGE

When removing the machine from storage, follow the Pre-Operation Checklist in Section 3.5.



Fig 53 - CST in Storage

This page intentionally left blank

Section 4: SERVICE AND MAINTENANCE



Servicing Safety

- Review the Operator's Manual and all safety items before working with, maintaining the machine.
- 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 that all hoses and coupling are in good condition.
- Always use personal protective devices such as safety glasses, gloves and 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 safety signs clean. Replace any sign that is damaged or not clearly visible.

4.1 FUELS, FLUIDS AND LUBRICANTS

Fuel & Engine Oil:

Refer to the engine manual, for specific instructions. The fuel tank capacity is 57 Litres (15 US Gal.)

Hydraulic Oil:

Use an ISO grade 36 hydraulic oil for all operating conditions (Hydrex MV36 or comparable). The Oil Reservoir capacity is: 189 Litres (50 US Gal.)

Grease:

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

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 the Service Record provided on page 4-15 to keep a record of all scheduled maintenance.

1. Use only a hand-held grease gun for all greasing. An air-powered greasing system can damage the seals on bearings and lead to early failures.
2. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
3. All bearings are sealed and greasable. They require minimal lubricant.

Recommended greasing is 1 small stroke every 2 weeks. 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.



36-2200-0001

4.2 SERVICING INTERVALS

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

Schedules may vary depending on equipment options and engine model contained in the present unit.

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 operation.

Check bearing for wear daily.

4.2.1 Every 10 Hours or Daily:

1. Check fuel level.
2. Check engine oil level. Clean air filter.
3. Check hydraulic oil level.
4. Check radiator fluid level.

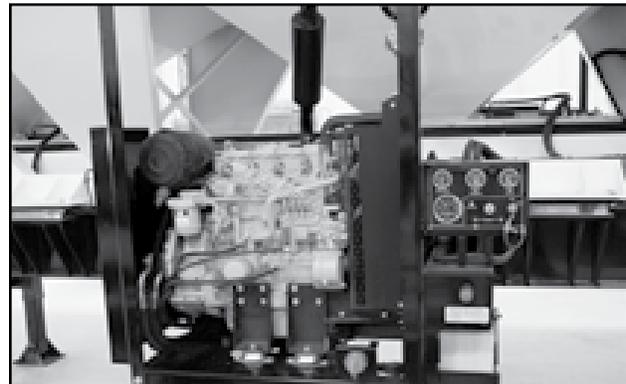


Fig 54 - CAT Diesel Engine



Fig 55 - Radiator



Fig 56 - CAT Diesel Engine

4.2.2 Every 50 Hours, 50 Loads or Weekly:

5. Grease Folding Conveyor.

CST-1500:

- a. Grease drive roller bearings.
- b. Oil chain on hydraulic drive motors.
- c. Grease roller bearings.
- d. Grease pivot points.
- e. Grease swing points.
- f. Grease shuttle points.

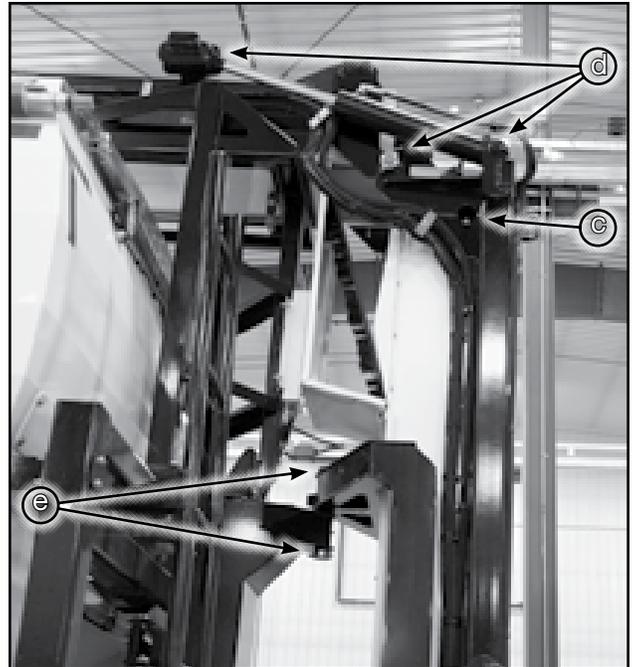


Fig 57 - Left Side, CST-1500 Models



Fig 58 - Folding Conveyor Discharge, CST-C Models

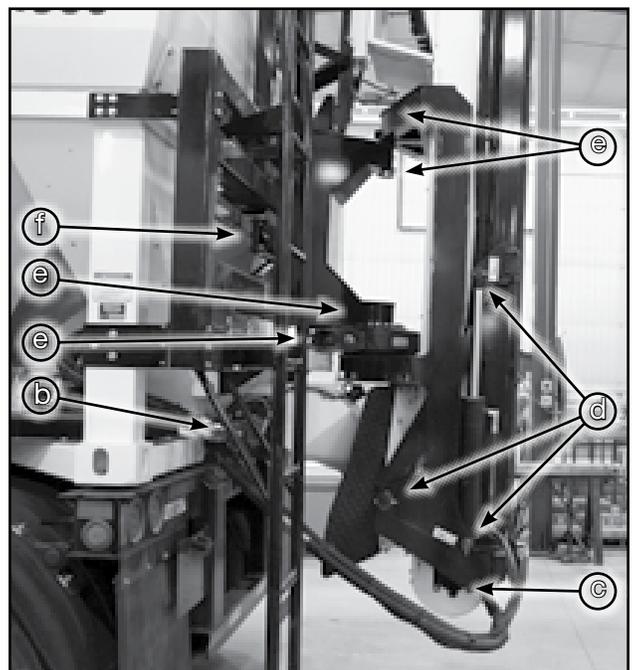


Fig 59 - Left Side, CST-1500 Models

CST-C Standard Folding Conveyor Models:

- a. Grease Drive Roller bearings and Hydraulic Motor.
- b. Grease Tail Roller, Discharge Roller.
- c. Grease Pivot points.
- d. Grease Swing points.

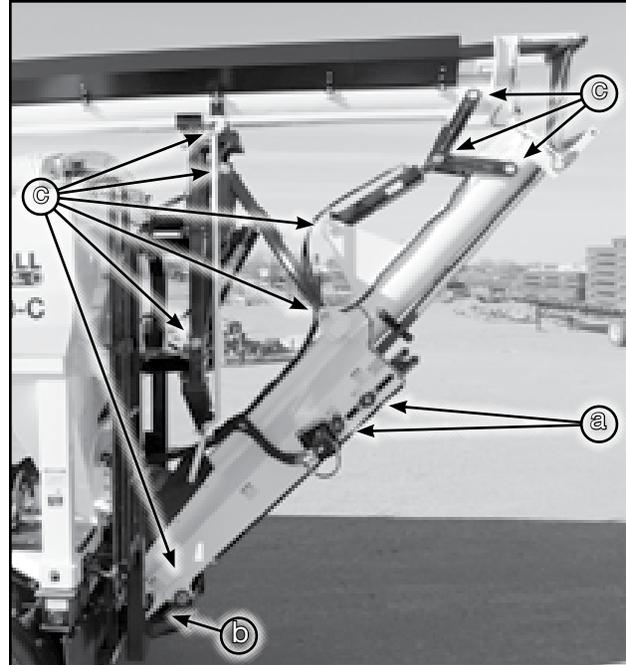


Fig 60 - Left Side, CST-C Models

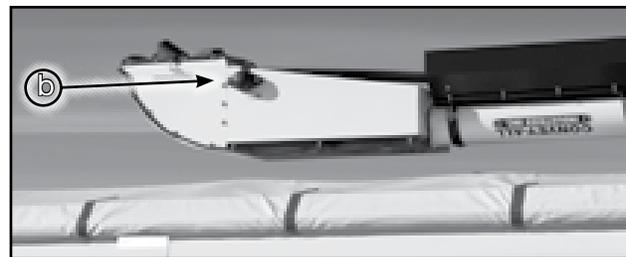


Fig 62 - Discharge, CST-C Models



Fig 61 - Right Side, CST-C Models

All CST Models:

6. Grease the Slave Conveyor roller bearings.
 - All drive ends.
 - All tail ends.

7. Oil chain on hydraulic drive.



Fig 63 - Drive of Slave Conveyor, CST-C Models

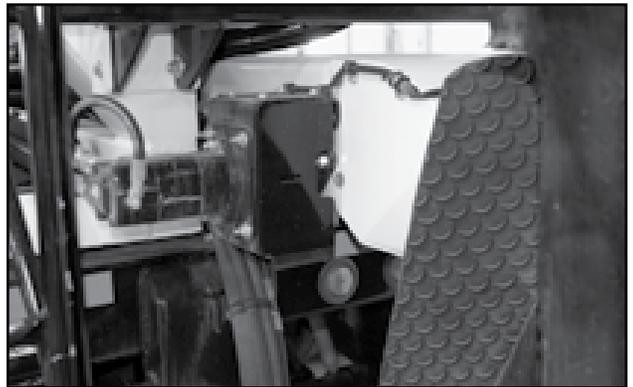


Fig 64 - Drive of Slave Conveyor, CST-1500

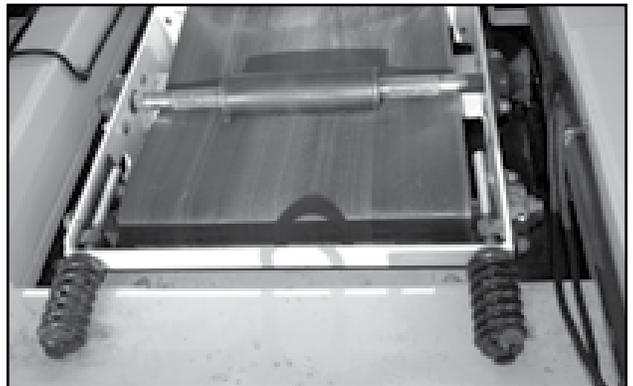


Fig 65 - Folding Conveyor Drive, CST-C Models

8. Grease the discharge gate cylinder end bushings.



Fig 66 - Gate Cylinder

9. Check the tension and alignment of the Slave and Folding Conveyors.
Refer to Sections 4.3.6 and 4.3.7

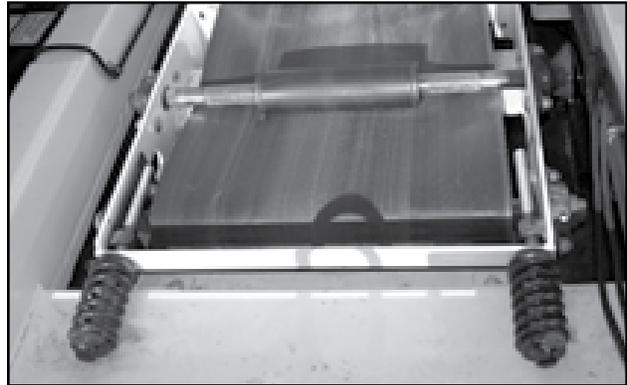


Fig 67 - Tension Bolts, Slave Conveyor



Fig 68 - Tension Bolts on Folding Conveyor, CST-C Models

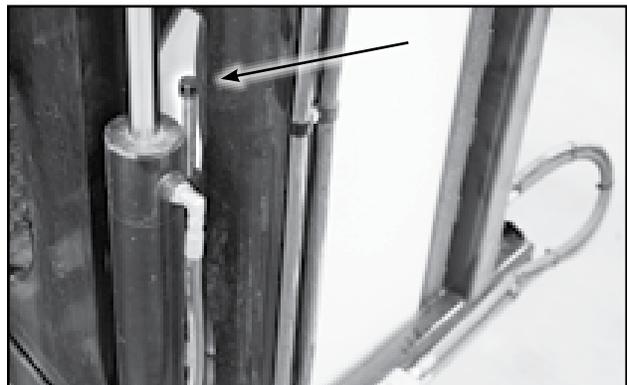


Fig 69 - Tension Bolts on Folding Conveyor, CST-1500

4.2.3 Every 200 Hours, 200 Loads or Monthly:

10. Change engine oil and filter.

11. Change air filter.

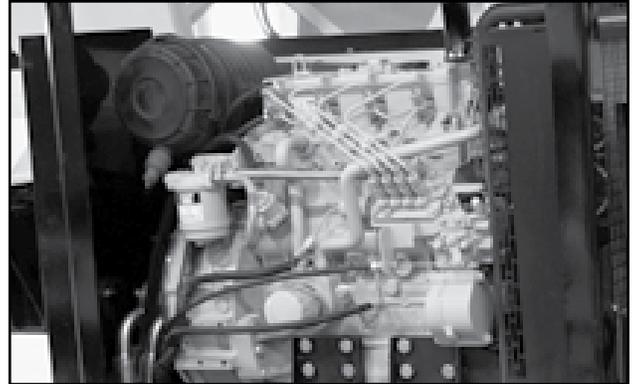


Fig 70 - CAT Diesel Engine



Fig 71 - Subaru Gas Engine

12. Change hydraulic oil and filter.



Fig 72 - Hydraulic System Oil Filter

13. Change in-line fuel filter.

14. Wash machine.

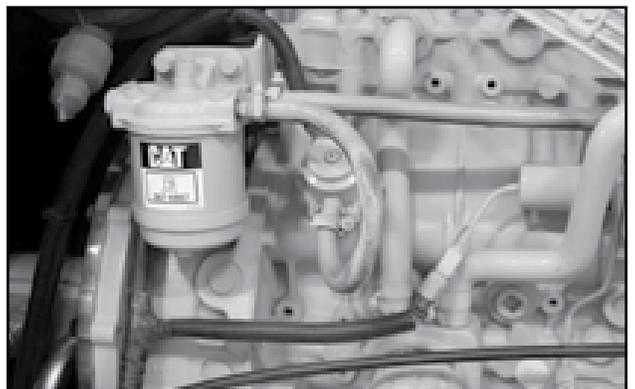


Fig 73 - In-Line Fuel Filter, Cat Engine

4.3 MAINTENANCE PROCEDURES

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

4.3.1 Changing Engine Oil and Filter:

1. Review the Operator's Manual for the engine.
2. Place all controls in neutral, stop engine and remove ignition key before maintaining.



WARNING: Hot Liquid
Engine must to cool before changing the oil.

3. Allow the engine to cool before changing the oil. Hot oil can cause burns if it contacts exposed skin.

Note:

It is best to change oil while the engine is warm to keep the contaminants in suspension.

4. Place a pan under the drain plug (a).
5. Remove the drain and allow the oil to drain for 10 minutes.
6. Install and tighten the drain plug.
7. Dispose of the used oil in an approved container and manner.
8. Remove engine oil filter (b).
9. 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.
10. Fill the crankcase with specified oil (c).
11. Run the engine for 1-2 minutes and check for oil leaks.
12. If leaks are found around the drain plug or filter, tighten slightly. Repeat Step 9.
13. Check engine oil level (d). Top up as required.



Fig 74 - Subaru Gas Engine

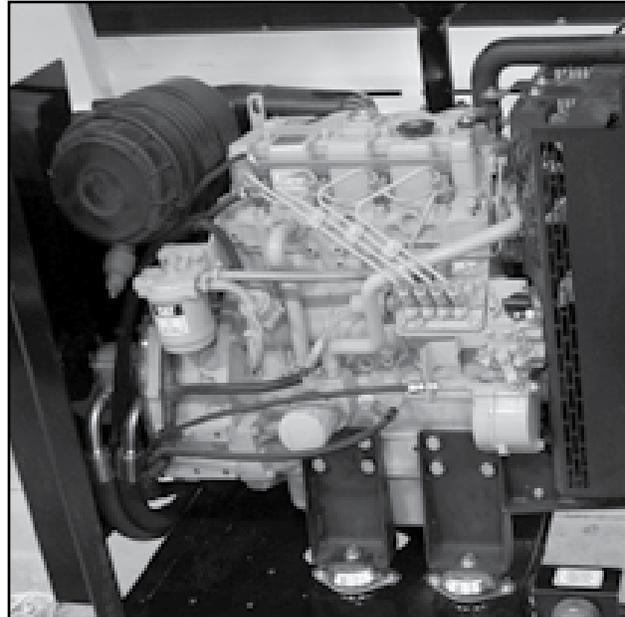


Fig 75 - CAT Diesel Engine

4.3.2 Cleaning/Changing Air Cleaner:

1. Review the Operator's Manual for the engine.



WARNING: Hot Equipment
Engine must cool before working on.

2. Place all controls in neutral, stop engine and remove ignition key before maintaining.
3. Remove the cover over the air cleaner.
4. Remove the foam from the engine.
5. If reusing, use an air hose to blow the dust and debris out of the foam.
6. Reinstall foam, or change for new foam.
7. Install and secure the cover.

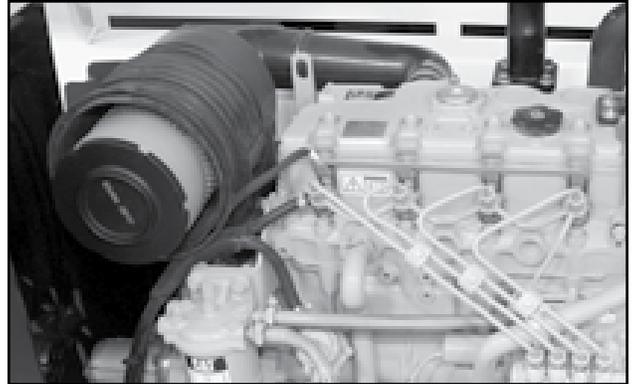


Fig 76 - CAT Diesel Engine



Fig 77 - Subaru Gas Engine

4.3.3 Changing Hydraulic Oil and Filter:

1. Review the Operator's Manual for the engine.
2. Place all controls in neutral, stop engine and remove ignition key before maintaining.



WARNING: Hot Liquid
Engine and hydraulics must to cool before changing the oil.

3. Allow the engine to cool before changing the oil. Hot oil can cause burns if it contacts exposed skin.

Note:

It is best to change oil while the engine is warm to keep the contaminants in suspension.

4. Place a large pan, pail or tank under the drain plug.
5. Remove the drain and allow the oil to drain for 10 minutes.
6. Install and tighten the drain plug.
7. Dispose of the used oil in an approved container and manner.
8. Place a pan under the filter to catch any spilled oil.
9. Remove hydraulic oil filter.
10. 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.
11. Fill the reservoir with specified oil.
12. Run the engine for 1-2 minutes and check for oil leaks.
13. If leaks are found around the drain plug or filter, tighten slightly. Repeat Step 10.
14. Check oil level. Top up as required.



Fig 78 - Hydraulic Reservoir and Filter

4.3.4 Changing In-Line Fuel Filter:

1. Review the Operator's Manual for the engine.



WARNING: Moving Parts
Stop engine and remove ignition key before maintaining.



WARNING: Hot Equipment
Engine must cool, before working on.

2. Place all controls in neutral, stop engine and remove ignition key before maintaining.
3. Allow the engine to cool before performing any maintenance work.
4. Place a pan under the filter to catch any spilled fuel.
5. Clamp off the line on each side of the filter to prevent the loss of any fuel.
6. Loosen the hose clamps on either side of the fuel filter.
7. Remove old fuel filter.
8. Install new filter and tighten hose clamps to their specified torque.
9. Remove catch pan and dispose of any spilled fuel in an environmentally safe manner.
10. Start engine and run for 1 to 2 minutes to check for leaks at the fuel filter. Re-tighten hose clamps if any leakage occurs.

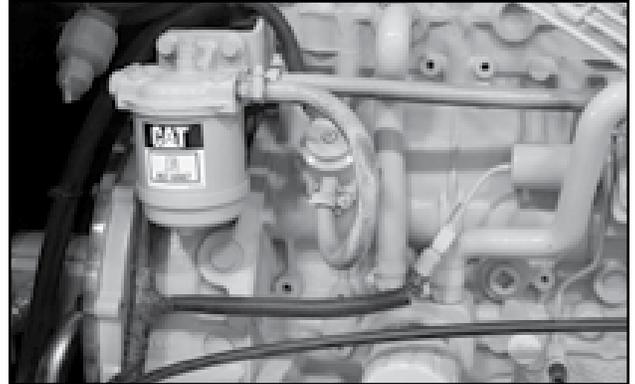


Fig 79 - In-Line Fuel Filter, CAT Diesel Engine

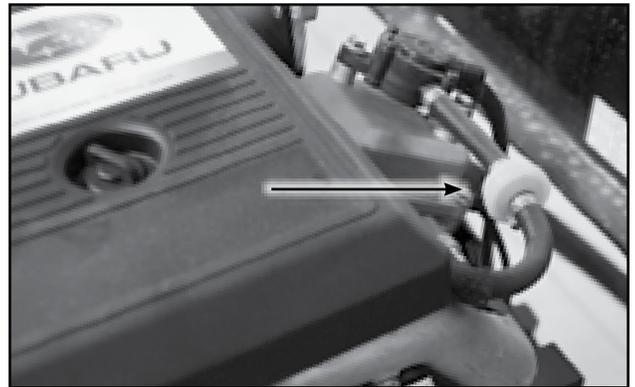


Fig 80 - In-Line Fuel Filter, Subaru Gas Engine

4.3.5 Slave Conveyor Drive Chain, CST-C Models:

The conveyor is driven by a roller chain from the hydraulic motor. The chain is tightened by moving the motor mounting bolts.

Loosen the mounting bolts when replacing the chain.

Always close and secure the guard before resuming work.



WARNING: Guards Removed
Machine is shown with guards removed for illustrative purposes only. Never operate machine with access guards opened or removed.

1. Loosen hydraulic motor anchor bolts.
2. Move the motor and sprockets to set the chain tension.
3. Tighten anchor bolts.



NOTICE: Sprocket Misalignment
Always check the sprocket alignment when replacing the chain.

4. Oil Drive Chain



Fig 81 - Roller Chain Drive

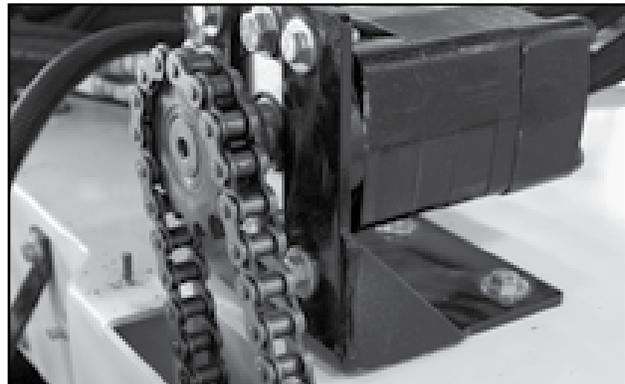


Fig 82 - Roller Chain Drive, Guard Removed

4.3.6 Conveyor Belt Tension:

The tension and alignment of both the Slave and Folding Conveyor belts should be checked daily to insure proper function.

To maintain belt, follow this procedure:

1. Place all controls in their neutral or off position.
2. Stop engine, remove ignition key and lock-out.

Note:

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

3. Loosen the roller bearing housings.
4. The tension is set and controlled by the springs on both sides of each conveyor belt.

Tighten, or loosen the tension bolts, so the springs have a starting measurement of:

- Slave conveyor on all models: 3-3/4" (95 mm)
- CST-1500, 10-1/2 inches (266.7 mm)
- CST-C Models, 3-3/4 inches (95 mm)

IMPORTANT:

Spring measurements are a starting point only!

5. After measuring the spring, continue to adjust, depending on the weight of the product.

For example: tighten more for fertilizer, loosen for lighter seed.

6. Tighten roller bearing housing.
7. Repeat with other side to maintain belt alignment.

Measure the spring lengths on both to be sure they are equal.



Fig 83 - Slave Conveyor Tension Bolt and Springs

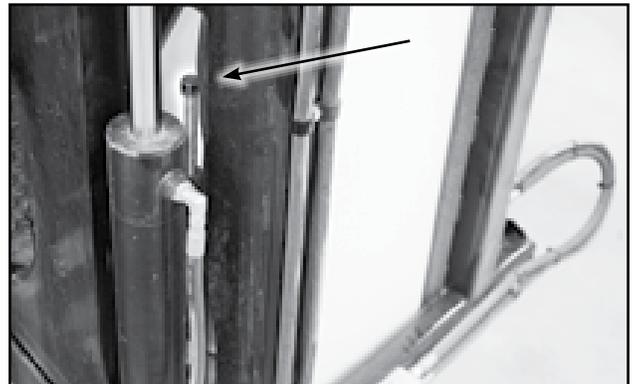


Fig 84 - Tension Bolts on Folding Conveyor, CST-1500

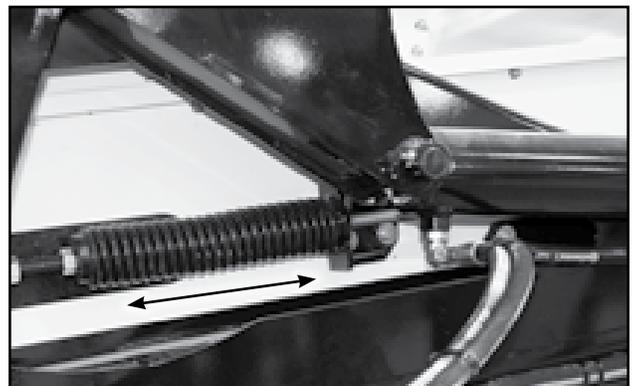


Fig 85 - Tension Spring on Folding Conveyor, CST-1500



Fig 86 - Tension Bolts on Folding Conveyor, CST-C Models

4.3.7 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 doesn't contact the sides. If it touches the sides, it must be aligned.

Note:

If belt is out of alignment,
it will move to the loose side.
Tighten loose side or loosen tight side.

1. Loosen the roller bearing housing on the side to be adjusted.
2. Align by loosening or tightening the shaft bearing assembly on the correct side.

Move the bearing assemblies on either the drive, or driven shafts to align the belt.

3. Tighten the roller bearing housing.
4. Test the belt by running the conveyor belt.
5. Repeat this process until the belt tracks correctly.

IMPORTANT:

Always maintain the proper tension.



Fig 87 - Tension Bolt on Slave Conveyor

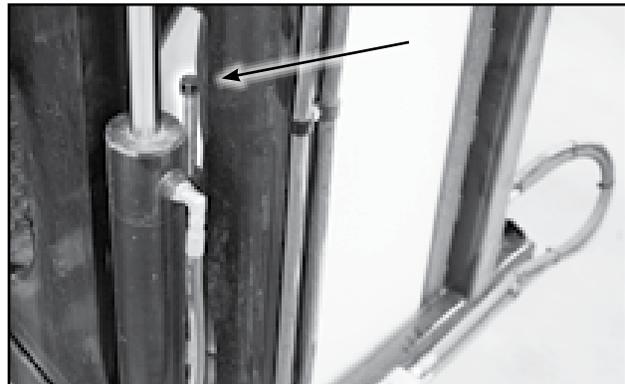


Fig 88 - Tension Bolts on Folding Conveyor, CST-C Models



Fig 89 - Tension Bolts on Folding Conveyor, CST-C Models

4.3.8 Conveyor Belt Replacement:

Replace the belt when it is damaged or badly worn. To do this, follow this procedure:

1. Rotate the belt to where the lacing is accessible.
 - Slave Conveyor, open the front guard to expose the belt.
 - Unfolding Conveyor, the belt can be accessed from underneath.
2. Move the tail roller to its loosest position.
3. Open the conveyor belt by removing the connecting rod on the lacing.
4. Attach the replacement belt to the end of the old belt.
5. Slowly pull the old belt out of the machine. The new one will thread into position.
6. Disconnect the old belt and connect the ends of the new one together.
7. Move the shafts into position to set the tension of the belt and secure the bearing assemblies.
8. 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 90 - Belt Connector



Fig 91 - Access Door on Folding Conveyor, CST 1500

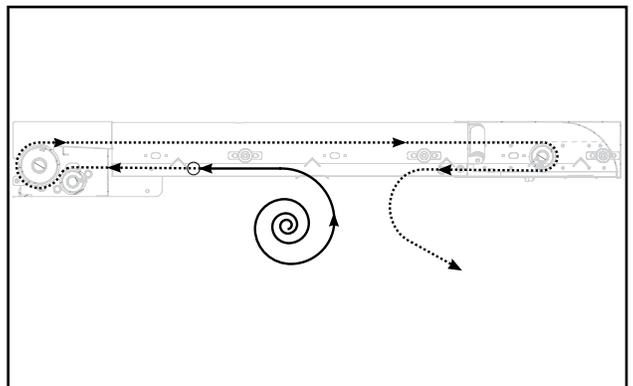


Fig 92 - Threading Replacement Belt

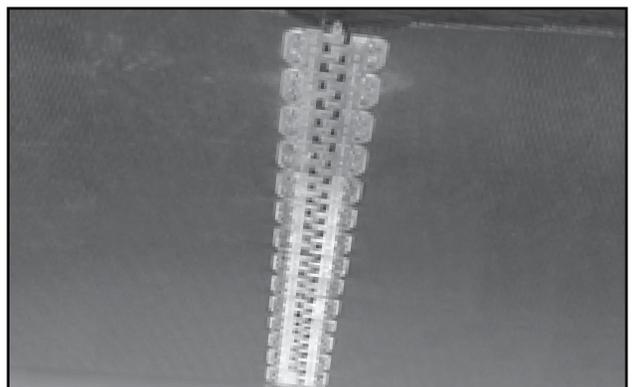


Fig 93 - Alligator Lacing

This page intentionally left blank

4.4 SERVICE RECORD

See Section 4.2 for Servicing Intervals. That section is only a general guide under good conditions. Under extreme, or unusual circumstances adjust service timing accordingly.

For more detailed schedule pertaining to the specific engine model, consult its Operator Manual.

Copy this page to continue record.

Maintenance	Hours																		
	Serviced By																		
10 Hours or Daily																			
Check Engine Oil Level																			
Check Fuel Level																			
Clean Air Filter																			
Check Hydraulic Oil Level																			
Check Radiator Fluid Level																			
50 Hours or Weekly																			
Grease Conveyor Roller Bearings																			
Grease Pivot, Swing and Shuttle Points																			
Oil Chain on Hydraulic Drive																			
Grease Discharge Gate Cylinders/Bushings																			
Check Conveyor Belt Tension																			
Check Conveyor Belt Alignment																			
200 Hours or Annually																			
Change Engine Oil and Filter																			
Change Air Filter																			
Change Hydraulic Oil and Filter																			
Change In-Line Fuel Filter																			
Wash Machine																			

This page intentionally left blank

Section 5: TROUBLESHOOTING

In the following troubleshooting 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 troubleshooting 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

Possible Cause	Possible Solution
-----------------------	--------------------------

Engine Labouring

Belt is sticky on the back side, because of oily product or wet/snowy conditions	Clean the belt
Hopper flashing too tight	Adjust to loosen the flashing
Air cleaner dirty	Clean the air cleaner, and/or replace the air filter

Belt Not Turning

Hopper flashing may be stuck to belt, because it is running dry and rubber is heating up	Turn off unit! Manually peel flashing up and off hopper. Then run dry product through to create barrier between flashing and belt
--	---

Belt Doesn't Track Correctly

Roller lagging may be worn	Replace roller or have it relagged
----------------------------	------------------------------------

Product Leakage

Product may be getting under the belt at the hopper, traveling up inside the belt and leaking off delivery end	Replace hopper flashing
--	-------------------------

Conveyor Won't Run

No power	Start engine, increase speed to maximum RPM
----------	---

continue on next page

Problem cont'd

Possible Cause	Possible Solution
----------------	-------------------

Low Capacity

Drive roller worn out or is slipping	Replace drive belt
Electric/Gas system - drive roller is slipping	Replace V-belt
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.

Remote Control Not Functioning

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

Charging Battery Will Short Remote Control Electrical System

Boosting current will short electrical system	If boosting to start engine, remove fuse from receiver box If recharging battery, disconnect from CST
---	--

No Hydraulic Flow

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

This page intentionally left blank

Section 7: REFERENCE

For information not included here, or for a digital copy of this manual, please call your dealer or Convey-All Industries Inc. directly for assistance (1-800-418-9461).

7.1 SPECIFICATIONS

Model	Length in Feet	Total Cubic Feet (Bu.)	Total Tons* (Tonnes)	Number - Size of Compartments	Cubic Feet per Compartment	Tons per Compartment	Conveyor Length	Discharge Height	Body Width	Overall Height	Conveyor Swing
CST-19-C	19	670 (536)	20.1 (18.3)	2 - 6' & 1 - 8'	6' = 200 8' = 270	6' = 6.0 8' = 9.0	30' 3"	5' to 17'	7' 6"	13' 5"	22' 10"
CST-20-C	20	750 (600)	22.5 (20.45)	2 - 6' & 1 - 8'	6' = 225 8' = 300	6' = 6.75 8' = 9.0	30' 3"	5' to 17'	8'	13' 5"	22' 10"
CST-26-C	26	975 (780)	29.25 (26.6)	3 - 6' & 1 - 8'	6' = 225 8' = 300	6' = 6.75 8' = 9.0	30' 3"	5' to 17'	8'	13' 5"	22' 10"
CST-32-C	32	1200 (960)	36.0 (32.7)	4 - 8'	8' = 300	8' = 9.0	30' 3"	5' to 17'	8'	13' 5"	22' 10"
CST-39-C	39	1350 (1080)	40.5 (36.8)	5 - 8'	8' = 270	8' = 8.1	30' 3"	5' to 17'	8'	13' 5"	22' 10"
CST-40-C	40	1500 (1200)	45.0 (40.9)	5 - 8'	8' = 300	8' = 9.0	30' 3"	5' to 17'	8'	13' 5"	22' 10"
CST-1500	40	1500 (1200)	45.0 (40.9)	5 - 8'	8' = 300	8' = 9.0	28' 5"	8' 8" to 19' 1"	8' 5"	13' 4"	42' 7"

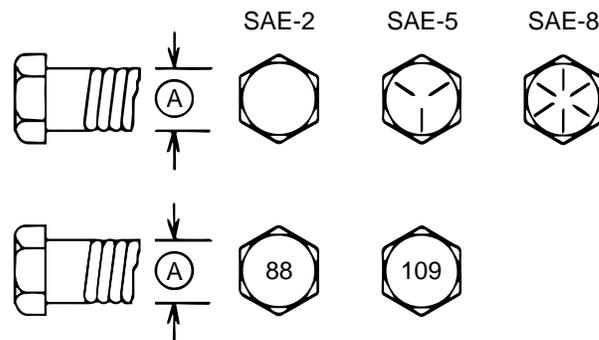
*Based on 60 lb per cubic foot

7.2 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.

ENGLISH TORQUE SPECIFICATIONS						
Bolt Diameter "A"	Bolt Torque*					
	SAE 2 (N.m) (lb-ft)		SAE 5 (N.m) (lb-ft)		SAE 8 (N.m) (lb-ft)	
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

METRIC TORQUE SPECIFICATIONS				
Bolt Diameter "A"	Bolt Torque*			
	8.8 (N.m) (lb-ft)		10.9 (N.m) (lb-ft)	
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.



130 CANADA STREET
WINKLER, MANITOBA R6W 0J3
CANADA

1-800-418-9461
P: (204) 325-4195
F: (204) 325-8116