

CONVEY-ALL®



BTS290



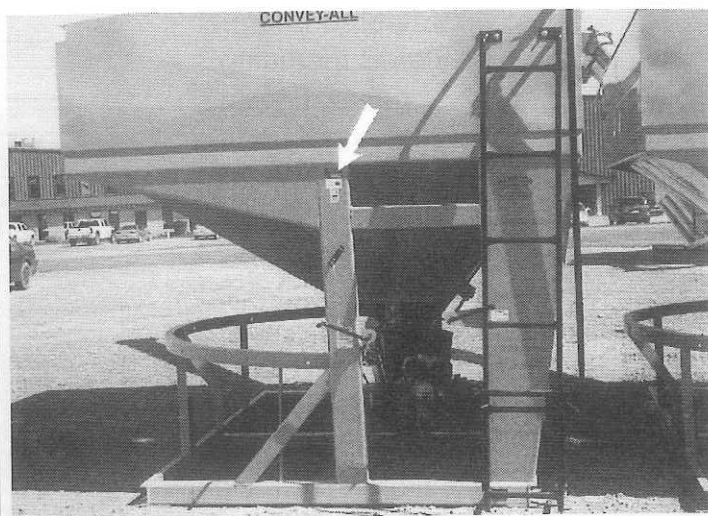
BTS405

**SEED TENDER
MODELS BTS 290, BTS 405 & WT290
OPERATOR'S MANUAL**

SERIAL NUMBER LOCATION

Always give your dealer the serial number of your Convey-All Seed Tender models BTS290, BTS405 & WT290 when ordering parts or requesting service or other information.

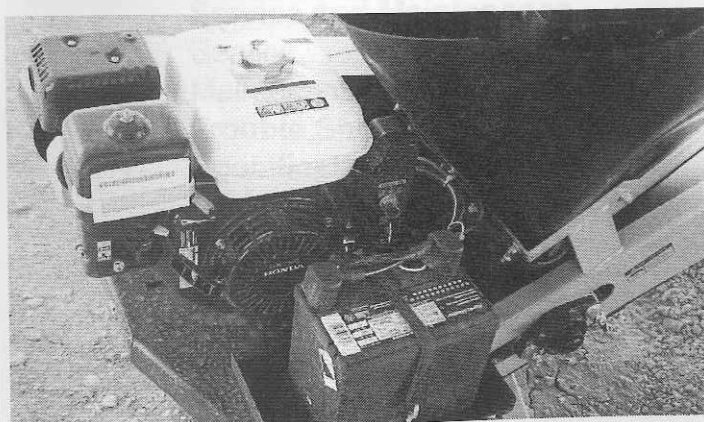
The serial number plate is located where indicated. Please mark the number in the space provided for easy reference.



BTS290



BTS405



Engine (Typical)

SERIAL NUMBER LOCATIONS (TYPICAL)

Model Number _____

Serial Number _____

Engine Serial Number _____

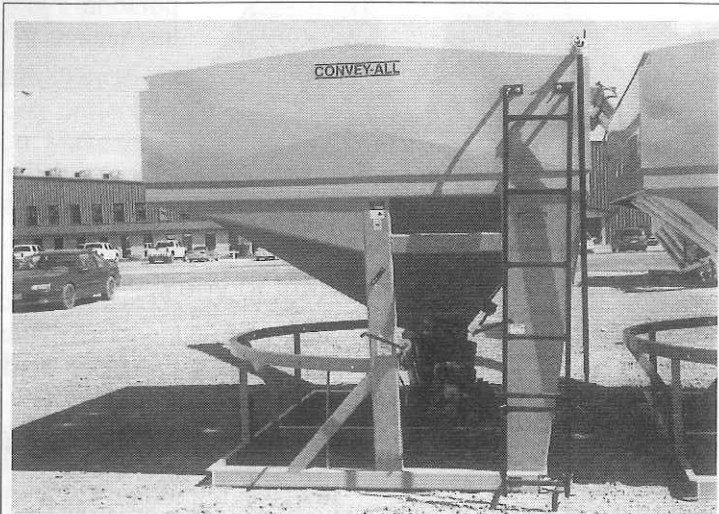
TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
1	Introduction	1
2	Safety	2
2.1	General Safety	3
2.2	Equipment Safety	4
2.3	Safety Training	5
2.4	Safety Signs	5
2.5	Preparation	6
2.6	Operating Safety	7
2.7	Maintenance Safety	7
2.8	Lock-Out Tag Safety	8
2.9	Storage Safety	8
2.10	Transport Safety	8
2.11	Refueling Safety	9
2.12	Battery Safety	9
2.13	Hydraulic Safety	9
2.14	Gas Motor Safety	10
2.15	Safety Sign-Off Form	11
3	Safety Sign Locations	12
4	Operation	16
4.1	To the New Operator or Owner	16
4.2	Machine Components	17
4.3	Machine Break-In	18
4.4	Pre-Operation Checklist	18
4.5	Controls	19
4.6	Machine Preparation	23
4.7	Attaching/Unhooking	26
4.8	Field Operation	27
4.9	Storage	40
5	Service and Maintenance	41
5.1	Service	41
5.2	Maintenance	47
6	Trouble Shooting	51
7	Specifications	52
7.1	Mechanical	52
7.2	Hydraulic Fitting Torque	52
7.3	Bolt Torque	53
8	Index	54

1 INTRODUCTION

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

Safe, efficient and trouble free operation of your Seed Tender system requires that you and anyone else who will be operating or maintaining the machine, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained within the Operator's Manual.



Gas Engine Powered



Hydraulic Motor Powered

This manual covers the Seed Tender Models BTS290, BTS405 & WT290 manufactured by Convey-All Inc.. Differences are explained where appropriate. Use the Table of Contents and Index as a guide to locate required information.

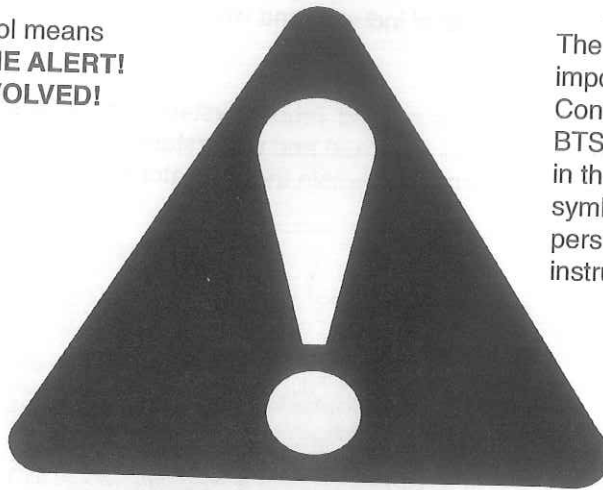
Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your Convey-All Inc. dealer or distributor if you need assistance, information or additional copies of the manuals.

OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout this manual, are as seen from the truck drivers' seat and facing in the direction of travel.

2 SAFETY

SAFETY ALERT SYMBOL

This Safety Alert symbol means
ATTENTION! BECOME ALERT!
YOUR SAFETY IS INVOLVED!



The Safety Alert symbol identifies important safety messages on the Convey-All Seed Tender Models BTS290, BTS405 & WT290 and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided

SIGNAL WORDS:

Note the use of the signal words **DANGER**, **WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guide-lines:

DANGER - Indicates an imminently hazardous situation that, if not avoided, 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 that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

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

If you have any questions not answered in this manual or require additional copies of the manual or the manual is damaged, please contact your dealer or Convey-All Industries Inc., Box 2008, 130 Canada St., Winkler Manitoba, R6W 4B7. 1-800-418-9461 • ph: 204-325-4195 • fax: 204-325-8116

SAFETY

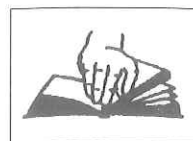
YOU are responsible for the **SAFE** operation and maintenance of your Convey-All Seed Tender system. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Seed Tender be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. 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 seed delivery system.

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 the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

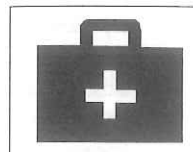
- Seed Tender system owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter.
- The most important safety feature on this equipment is a **SAFE** operator. It is the operator's responsibility to read and understand **ALL** Safety and Operating instructions in the manual and to follow these. 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. Always be and stay alert to any possible unsafe operating or maintenance procedures or conditions.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety of the components and systems and could affect the life of the equipment, possibly invalidating the warranty coverage.
- Think **SAFETY!** Work **SAFELY!**

2.1 GENERAL SAFETY

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, adjusting, filling, unloading or unplugging the Seed Tender system.



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



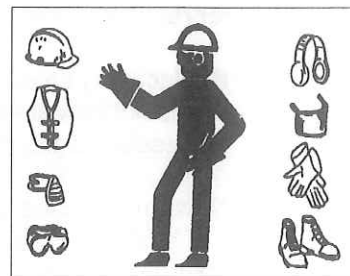
3. Have a fire extinguisher available for use should the need arise and know how to use it.



4. Do not allow riders.

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

- A hard hat
- Protective shoes with slip resistant soles
- Protective goggles, glasses or face shield
- Heavy gloves
- Protective clothing
- Respirator



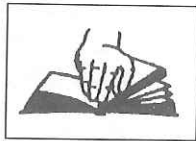
6. Install and secure all guards before starting.
7. Stop engine, remove ignition key and wait for all moving parts to stop before servicing, repairing, adjusting, loading, filling or unplugging.
8. Establish a lock-out tag-out policy for the work site. Be sure all personnel are trained in and follow all procedures. Lock-out tag-out all power sources before working around loading/unloading equipment.
9. Clear the area of people, especially small children, before starting.
10. Review safety related items annually with all personnel who will operating, using or maintaining the Seed Tender system.

2.2 EQUIPMENT SAFETY GUIDELINES

1. Safety of the operator and bystanders is one of the main concerns in designing and developing a machine. 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.
2. 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.
3. Replace any safety sign or instruction sign that is not readable or is missing. Location of such safety signs is indicated in this manual.
4. 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.
5. **Under no circumstances should young children be allowed to work with this equipment. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.** Review the safety instructions with all users annually.
6. This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible, properly trained and physically able person familiar with farm machinery and trained in this equipment's operations. If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.
7. 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.**
8. 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.
9. In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, 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 the machine. Refer also to Safety Messages and operation instruction in each of the appropriate sections of the auxiliary equipment and machine Manuals. Pay close attention to the Safety Signs affixed to the auxiliary equipment and the machine.

2.3 SAFETY TRAINING

1. 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.
2. In addition to the design and configuration of equipment, 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.
3. 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.
4. **Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your auxiliary equipment, before assembly or operating, to acquaint yourself with the machines. If this machine is used by any person other than yourself. It is the machine owner's responsibility to make certain that the operator, prior to operating:**
 - a. **Reads and understands the operator's manuals.**
 - b. **Is instructed in safe and proper use.**
5. Know your controls and how to stop conveyors and any other auxiliary equipment quickly in an emergency. Read this manual and the one provided with your other equipment.
6. 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. 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. If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.



2.4 SAFETY SIGNS

1. Keep safety signs clean and legible at all times.
2. Replace safety signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety signs are available from your authorized Distributor or Dealer Parts Department or the factory.

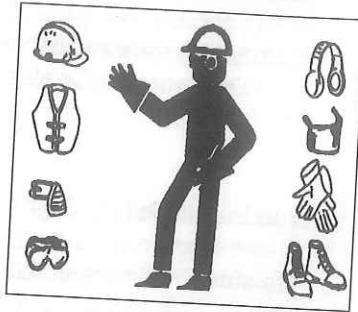
How to Install Safety Signs:

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

2.5 PREPARATION

1. Never operate the seed tender system and auxiliary equipment until you have read and completely understand this manual, the auxiliary equipment Operator's Manual, and each of the Safety Messages found on the safety signs on the delivery system and auxiliary equipment.

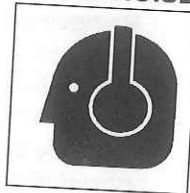
2. Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation,



operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not allow long hair, loose fitting clothing or jewelry to be around equipment.

3. **PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!**

Motors or equipment attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 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 (from tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.



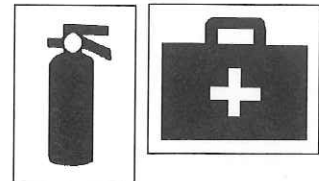
4. Clear working area of debris, trash or hidden obstacles that might be hooked or snagged, causing injury, damage or tripping.
5. Operate only in daylight or good artificial light.
6. Be sure machine is properly anchored to the trailer, adjusted and in good operating condition.
7. Ensure that all safety shielding and safety signs are properly installed and in good condition.
8. Before starting, give the machine a "once over" for any loose bolts, worn parts, cracks, leaks, frayed belts and make necessary repairs. Always follow maintenance instructions.

2.6 OPERATING SAFETY

1. Make sure that anyone who will be operating the Seed Tender system or working on or around the unit reads and understands all the operating, maintenance and safety information in the operator's manual. Review safety related items annually.
2. Keep all bystanders, especially children, away from the machine when loading or unloading is being done, or when authorized personnel are carrying out maintenance work.
3. 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.
4. Stop engine, remove ignition key and wait for all moving parts to stop before servicing, repairing, adjusting, loading, filling or unplugging.
5. Keep hydraulic components in good condition.
6. Keep working area clean and free of debris to prevent slipping or tripping.
7. Do not allow riders on the trailer or frame when transporting.
8. Keep hands, feet, hair and clothing away from moving parts.
9. Do not place hands, arms or body between seed box and conveyor frame to prevent pinching or crushing. Components can move unexpectedly.
10. Stay away from overhead power lines. Electro-cution can occur without direct contact.
11. Install and secure all guards before starting.
12. Use care when climbing on frame or ladder to prevent slipping or falling.
13. Do not smoke when refueling or working around machine.
14. Fasten frame securely to trailer before transporting.
15. Always empty rear compartment first and load front compartments first to prevent an unbalanced load. An unbalanced load can cause hitch to upend.

2.7 MAINTENANCE SAFETY

1. Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
2. 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.
3. Make sure there is plenty of ventilation. Never operate the engine in a closed building. The exhaust fumes may cause asphyxiation.
4. Before working on this machine, shut off the engine, and remove the ignition keys.
5. Never work under equipment unless it is blocked securely.
6. Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance.
7. Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
8. A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.
9. Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.
10. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.



2.8 LOCK-OUT TAG-OUT SAFETY

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

2.9 STORAGE SAFETY

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

2.10 TRANSPORT SAFETY

1. Comply with state and local laws governing safety and transporting of farm machinery on public roads.
2. Check that all the lights, reflectors and other lighting requirements are installed and in good working condition.
3. Be sure that the trailer is equipped with brakes that are in good working order. Be familiar with their operation.
4. Do not exceed a safe travel speed. Slow down for rough terrain and when cornering.
5. Fasten frame securely to trailer before transporting.
6. Be sure that the trailer is hitched positively to the towing vehicle and a retainer is used through the hitch jaws. Always attach a safety chain between the hitch and the towing vehicle.
7. Stay away from overhead power lines. Electrocutation can occur without direct contact.
8. Plan your route to avoid heavy traffic.
9. Always install conveyor transport lock before transporting.
10. Do not drink and drive.
11. 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.
12. Never allow riders on either trailer or machine.

2.11 REFUELLING SAFETY

1. Handle fuel with care. It is highly flammable.
2. Allow engine to cool for 5 minutes before refuelling. Clean up spilled fuel before restarting engine.
3. Do not refuel the machine while smoking or when near open flame or sparks.
4. Fill fuel tank outdoors.
5. Prevent fires by keeping machine clean of accumulated trash, straw, grease and debris.

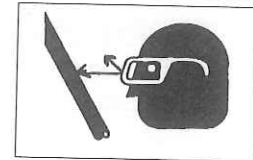
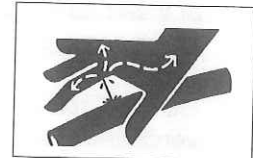


2.12 BATTERY SAFETY

1. Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive.
2. Avoid contact with battery electrolyte: wash off any spilled electrolyte immediately.
3. Wear safety glasses when working near batteries.
4. Do not tip batteries more than 45 degrees, to avoid electrolyte loss.
5. To avoid injury from spark or short circuit, disconnect battery ground cable before servicing any part of electrical system.

2.13 HYDRAULIC SAFETY

1. Always place all tractor hydraulic controls in neutral before disconnecting from tractor or working on hydraulic system.
2. Make sure that all components in the hydraulic system are kept in good condition and are clean.
3. Replace any worn, cut, abraded, flattened or crimped hoses.
4. 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.
5. 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.



6. 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.
7. Relieve pressure in hydraulic system before maintaining or working on machine.

2.14 GAS MOTOR SAFETY

BEFORE STARTING ENGINE, READ AND UNDERSTAND THE OPERATING AND MAINTENANCE INSTRUCTIONS THAT CAME WITH YOUR ENGINE.

WARNING: DO NOT

1. DO NOT run engine in an enclosed area. Exhaust gases contain carbon monoxide, an odourless and deadly poison.
2. DO NOT place hands or feet near moving or rotating parts.
3. DO NOT store, spill, or use gasoline near an open flame, or devices such as a stove, furnace, or water heater which use a pilot light or devices which can create a spark.
4. DO NOT refuel indoors where area is not well ventilated. Outdoor refuelling is preferred.
5. DO NOT fill fuel chipper while engine is running. Allow engine to cool for 5 minutes before refuelling. Store fuel in approved safety containers.
6. DO NOT remove fuel tank cap while engine is running.
7. DO NOT operate engine if gasoline is spilled. Move machine away from the spill and avoid creating any ignition until gasoline has evaporated.
8. DO NOT smoke while filling fuel tank.
9. DO NOT choke carburetor to stop engine. Whenever possible, gradually reduce engine speed before stopping.
10. DO NOT run engine above rated speeds. This may result in injury.
11. DO NOT tamper with governor springs, governor links or other parts which may increase the governed speed.
12. DO NOT tamper with the engine speed selected by the original equipment manufacturer.
13. DO NOT check for spark with spark plug or spark plug wire removed.
14. DO NOT crank engine with spark plug removed. If engine is flooded, place throttle in "FAST" position and crank until engine starts.
15. DO NOT strike flywheel with a hard object or metal tool as this may cause flywheel to shatter in operation. Use proper tools to service engine.
16. DO NOT operate engine without a muffler. Inspect periodically and replace, if necessary. If engine is equipped with a muffler deflector, inspect periodically and replace, if necessary with correct deflector.
17. DO NOT operate engine with an accumulation of grass, leaves, dirt or other combustible materials in the muffler area.
18. DO NOT use this engine on any forest covered, brush covered, or grass covered unimproved land unless a spark arrester is installed on the muffler. The arrester must be maintained in effective working order by the 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 land.
19. DO NOT touch hot muffler, cylinder or fins because contact may cause burns.
20. DO NOT run engine with air cleaner or air cleaner cover removed.

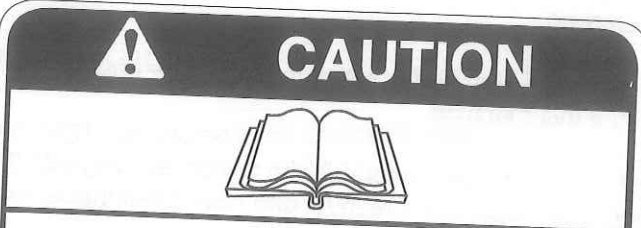
WARNING: DO

1. ALWAYS DO remove the wire from the spark plug when servicing the engine or equipment TO PREVENT ACCIDENTAL STARTING. Disconnect the negative wire from the battery terminal if equipped with a 12 volt starting system.
2. DO keep cylinder fins and governor parts free of grass and other debris which can affect engine speed.
3. DO examine muffler periodically to be sure it is functioning effectively. A worn or leaking muffler should be repaired or replaced as necessary.
4. DO use fresh gasoline. Stale fuel can gum carburetor and cause leakage.
5. DO check fuel lines and fittings frequently for cracks or leaks. Replace if necessary.

3 SAFETY SIGN LOCATIONS

The types of safety signs and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

A



CAUTION

- Read and understand the Operator's manual before using. Review safety instructions annually.
- Stop engine, remove ignition key, and wait for all moving parts to stop before servicing, repairing, adjusting, loading, filling or unplugging.
- Keep working area clean and free of debris to prevent slipping or tripping.
- Do not allow riders on trailer or frame when transporting.
- Only enter bin when it is empty.
- Keep hands, feet, hair and clothing away from moving parts.
- Do not place hands, fingers or arms between unloading conveyor frame when moving unloading frame.
- Stay away from overhead power lines. Electro-cution can occur without direct contact.
- Install and secure all guards before starting.
- Use care when climbing on frame or ladder to prevent slipping or falling.
- Do not smoke when refueling or working around machine.
- Fasten frame securely to trailer or truck frame before transporting or moving.
- Always empty rear compartment first to prevent an unbalanced load. An unbalanced load can cause hitch to upend.
- Keep hydraulic components in good condition.

13-1100-0004

B



WARNING

UPENDING HAZARD

To prevent serious injury or death from upending hazard:

- Do not stand over hitch when unhooking.
- Load or fill the front bin or compartments first to keep weight on hitch.
- Unload or empty rear bin or compartments first to keep weight on hitch.

13-1100-0011

C



WARNING

FALLING HAZARD

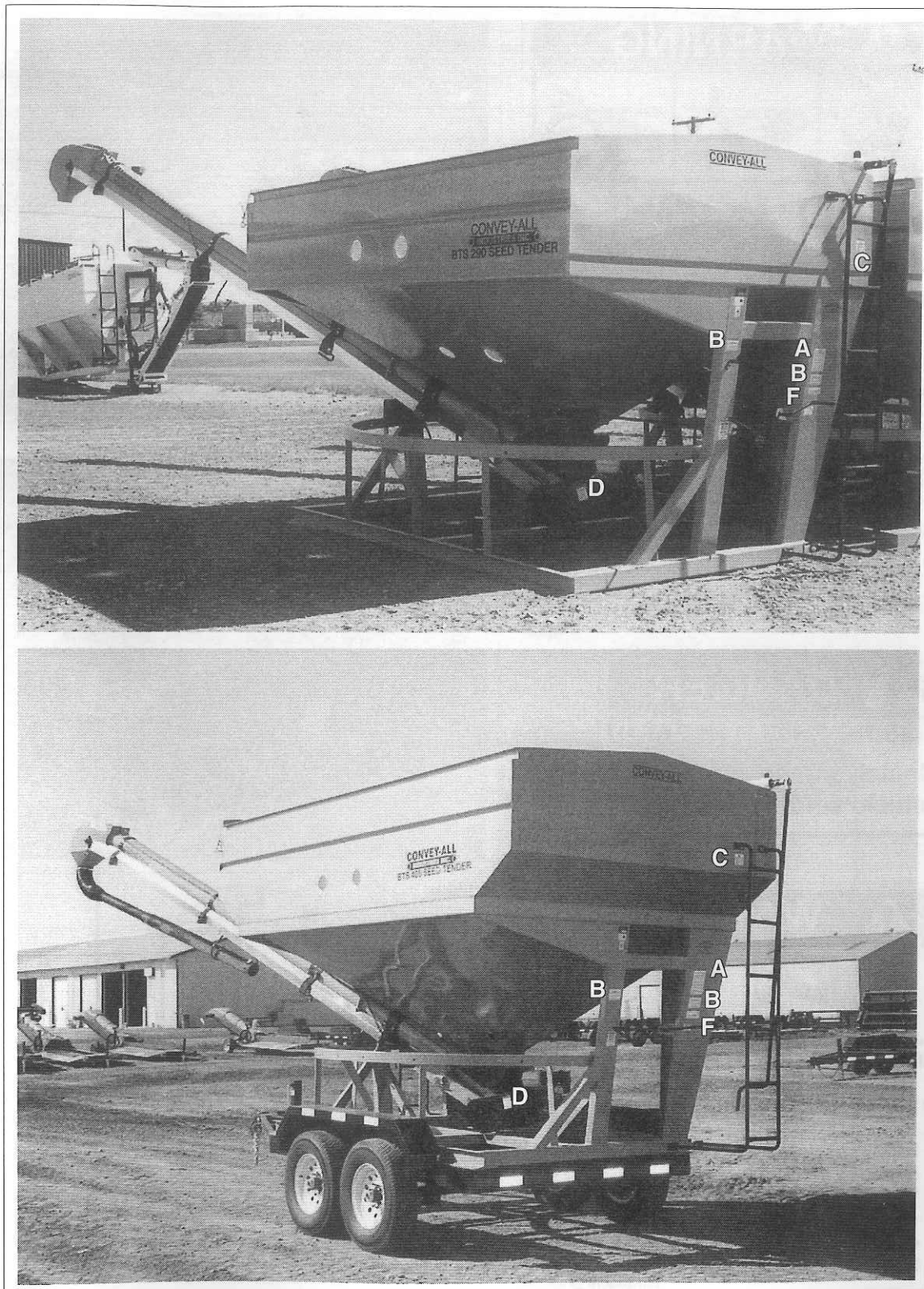
To prevent serious injury or death from falling:

- Use special care when climbing ladder or frame to prevent slipping or falling.
- Keep rungs clean to prevent slipping.
- Have others use care when climbing.

13-1100-0039

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

The types of safety signs and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.



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

The types of safety signs and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

D



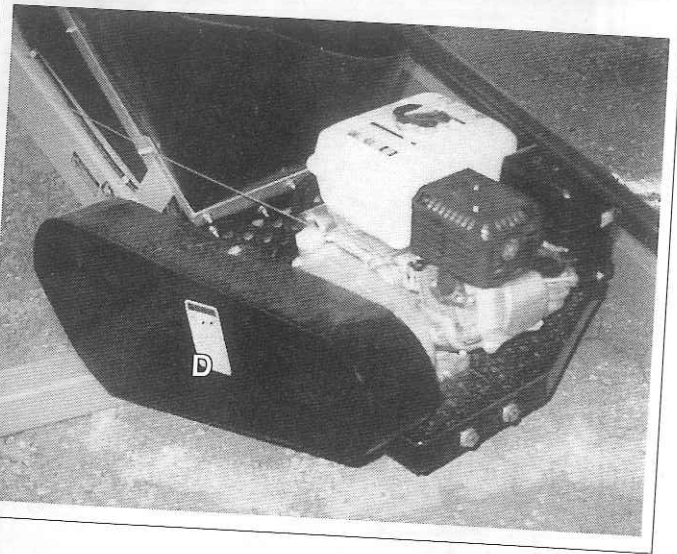
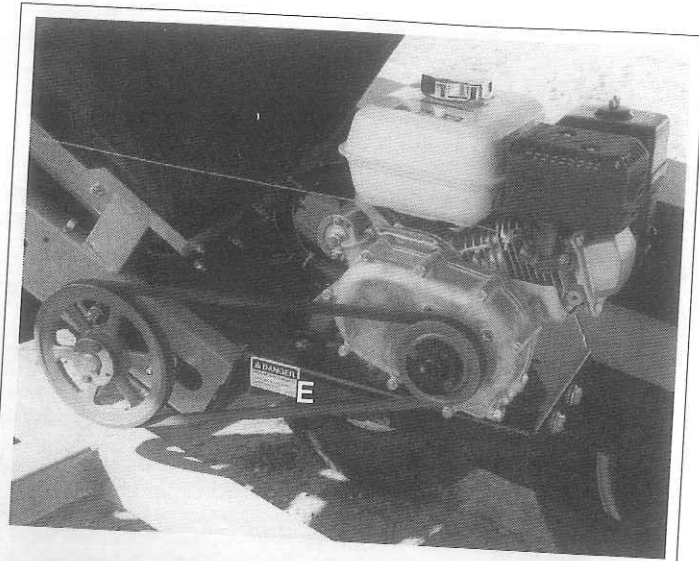
WARNING

**ROTATING PART HAZARD
KEEP AWAY**

To prevent serious injury or death from rotating parts:

1. Place all controls in neutral or off, stop engine or motor, remove ignition key or disable power source and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
2. Install and secure all guards before operating.
3. Do not operate with rotating parts exposed.

13-1100-0005



E



DANGER

MISSING SHIELD HAZARD

Install and secure shield before operating.

13-1100-0014

F



WARNING

HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

1. Relieve pressure on system before repairing or adjusting.
2. Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
3. Keep all components in good repair.

13-1100-0010

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

The types of safety signs and locations on the equipment are shown in the illustration below. Good safety requires that you familiarize yourself with the various safety signs, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.



F

DANGER

ELECTROCUTION HAZARD
KEEP AWAY FROM POWER LINES

To prevent serious injury or death from electrocution:

- Keep at least 50 feet (15 m) away from power lines when extending or folding unloading conveyor.
- Electrocution can occur without direct contact.

13-1100-0012

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

4 OPERATION



OPERATING SAFETY

- Make sure that anyone who will be operating the seed delivery system or working on or around the unit reads and understands all the operating, maintenance and safety information in the operator's manual. Review safety related items annually
- Keep all bystanders, especially children, away from the machine when loading or unloading is being done, or when authorized personnel are carrying out maintenance work.
- Establish a lock-out tag-out policy for the work site. Be sure all personnel are trained in and follow all procedures. Lock-out tag-out all power sources before servicing the unit or working around loading/unloading equipment.
- Stop engine, remove ignition key and wait for all moving parts to stop before servicing, repairing, adjusting, loading, filling or unplugging.
- Keep working area clean and free of debris to prevent slipping or tripping.
- Do not allow riders on the trailer or frame when transporting.
- Keep hands, feet, hair and clothing away from moving parts.
- Do not place hands, arms or body between seed box and frame or lid to prevent pinching or crushing. Components can move unexpectedly.
- Stay away from overhead power lines. Electrocutation can occur without direct contact.
- Install and secure all guards before starting.
- Use care when climbing on frame or ladder to prevent slipping or falling.
- Do not smoke when refueling or working around machine.
- Fasten frame securely to trailer before transporting.
- Always empty rear compartment and load front compartment first to prevent an unbalanced load. An unbalanced load can cause hitch to upend.

4.1 TO THE NEW OPERATOR OR OWNER

The Convey-All Seed Tenders are designed to take a bulk batch of seed and transfer it quickly into a planter or drill. Be familiar with the machine before starting.

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 machine. Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the worksite. Untrained operators are not qualified to operate the machine.

In addition to the design and configuration of equipment, 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 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 machine. Follow all safety instructions exactly.

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 and how to set it to provide maximum efficiency. By following the operating instructions in conjunction with a good maintenance program, your seed tender will provide many years of trouble free service.

4.2 MACHINE COMPONENTS

The Convey-All Seed Tenders are designed as bulk seed transfer units to transfer large amounts of seed or fertilizer into a planter or drill.

Bulk seed is loaded into the bins. A belt conveyor pivots along the left side of the frame and transfers the seed from the bins into planters or drills as appropriate. Slide gates on the seed boxes control the flow of seed into the conveyor.

A gas engine mounted on the pivoting frame powers the unloading conveyor. A centrifugal clutch on the engine output shaft engages when the engine speed reaches 1400 PRM. A belt drive system transmits power from the engine to the conveyor. An optional hydraulic drive system is also available.

The conveyor and drive is mounted on a pivoting platform that allows for unloading along the left side of the frame. A telescoping spout on the end of the conveyor allows for convenient distribution.

Each machine must be mounted to a brake equipped trailer for convenient transporting. Brake equipped trailers are available from Convey-All.

- A Seed Bins
- B Frame
- C Gas Engine
- D Hydraulic Drive
- E Conveyor
- F Spout
- G Pivot Platform
- H Top Cover
- J Slide Gate Levers
- K Transport Lock

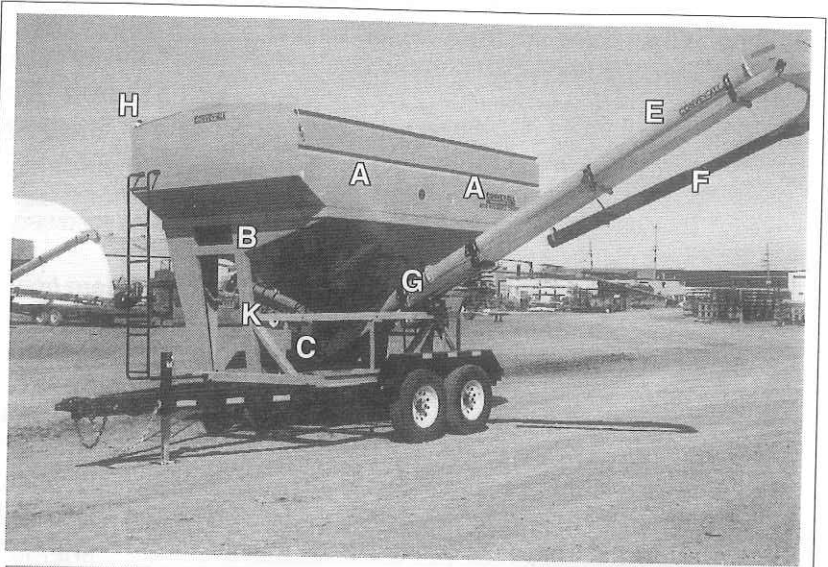


Fig. 1 MACHINE COMPONENTS

4.3 MACHINE BREAK-IN

A special break-in procedure has been developed to insure the integrity of the machine when first starting. When using the machine for the first time, follow this procedure:

A. Before Starting:

1. Read the Engine and Machine Operator's manuals.
2. Review and follow pre-operation and pre-start procedures before starting machine.

B. At 1/2, 5 and 10 Hours:

1. Check all machine fluid levels, fuel and engine oil. Refuel or top up as required.
2. Lubricate the points defined in the Maintenance section.
3. Check the tension and alignment of the conveyor drive system and conveyor belting. Tension and align as required.
4. Check hardware and fasteners: tie-downs, all fasteners and wheel bolts. Tighten to their specified torque.
5. Check the controls. Be sure that they all function properly.
6. Check that the trailer brakes are connected and functioning as required.

C. At 10 Hours:

1. Change the engine oil. Replace with the specified oil.
2. Then go to the service schedule as defined in the Maintenance section and engine manual.

4.4 PRE-OPERATION CHECKLIST

Efficient and safe operation of the Convey-All Seed Tender system requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. 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 delivery system and each time thereafter, the following areas should be checked off:

1. Lubricate the machine per the schedule outlined in the "Maintenance" section.
2. Check the engine fluid levels: fuel, gear box and crankcase oil. Add as required.
3. Check tie-down hardware. Tighten or re-torque as required.
4. Check that the unloading conveyor pivoting frame can move freely.
5. Check the tires and ensure that they are inflated to their specified pressure.
6. Remove all entangled material.

4.5 CONTROLS

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

1. Gas Engine:

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

A. Electric Start:

a. Ignition Switch:

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

OFF - Turn key fully counterclockwise to stop the electrical system power and turn the engine off.

RUN - Turn clockwise on detent 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.

b. Choke:

This push/pull knob controls the position of the choke. Pull the knob out to close the choke for starting when the engine is cold. Push the knob in to open the choke as the engine warms. Always push the knob fully in when operating the machine.

c. Throttle:

This lever controls the engine RPM. Turn the lever clockwise to increase engine speed and counterclockwise to decrease.

d. Fuel Shut-Off Valve:

This valve controls the flow of fuel to the engine. Turn the valve at right angles to the fuel line to turn the fuel off and parallel to turn the fuel on.

e. Indicator Light & Circuit Breaker Reset:

The LED indicator light and circuit monitors the condition of the engine electrical circuit. It will illuminate when the circuit exceeds its preset value and trip the breaker. Depress the indicator to reset the breaker and the light will go out.



Fig. 2 ENGINE (Typical)

2. **Remote Throttle:**

This 2 switch pistol grip handle is used to set the throttle position on the engine. Press and hold the top button switch and the engine RPM will increase to high idle. Press and hold the bottom switch and the engine RPM will decrease to low idle. Press and hold the yellow thumb switch to stop the engine.

Always place the pistol grip in its storage position on the conveyor tube when not being used.



Fig. 3 REMOTE THROTTLE

3. **Hydraulic Control:**

This rope is connected to the spring-loaded hydraulic control valve that controls the flow of oil to the drive motor. Pull on the rope and hold to turn the motor on. Release the rope to turn the hydraulic motor off and stop the conveyor.

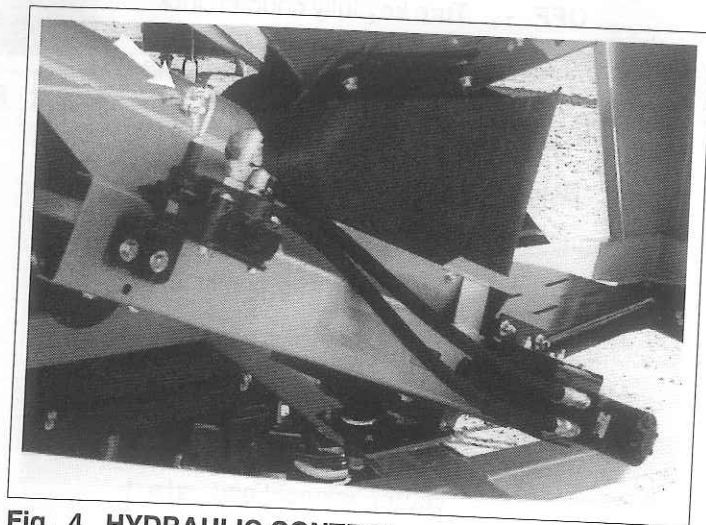
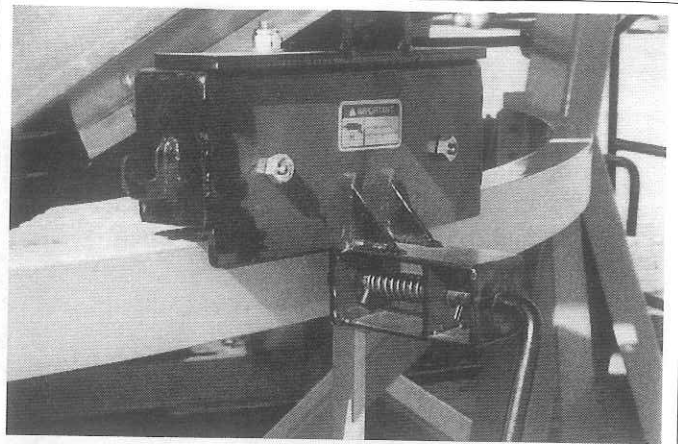


Fig. 4 HYDRAULIC CONTROL

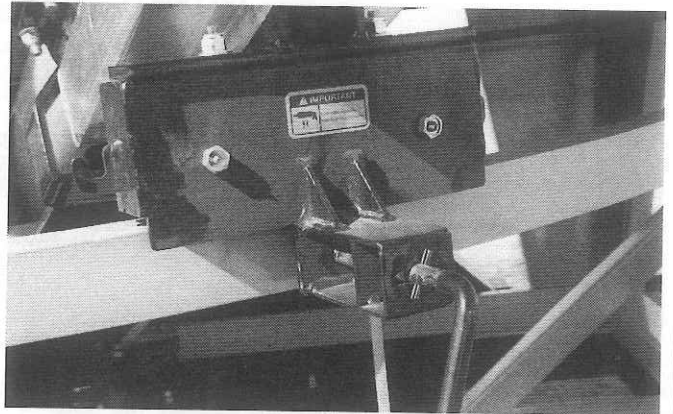
4. **Pivot Conveyor Platform Lock:**

Turn the lever to line up the roll pin with the slots and pull it out to release the conveyor platform frame. Turn lever to move roll pin over frame. Reverse procedure to lock conveyor platform frame.

A transport or storage lock at each end of the pivot frame is used to anchor the conveyor platform in position.



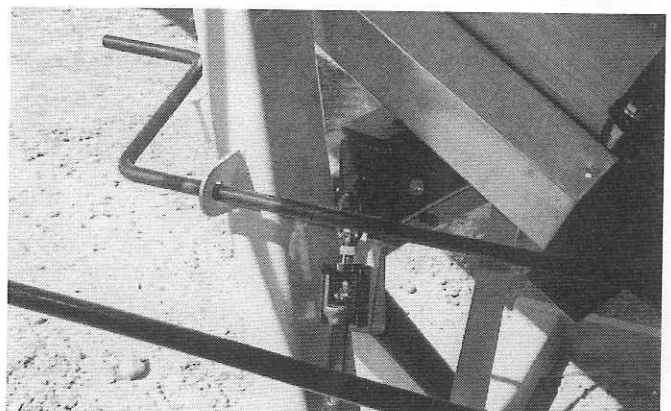
Lever Locked



Lever Released



Front Lock

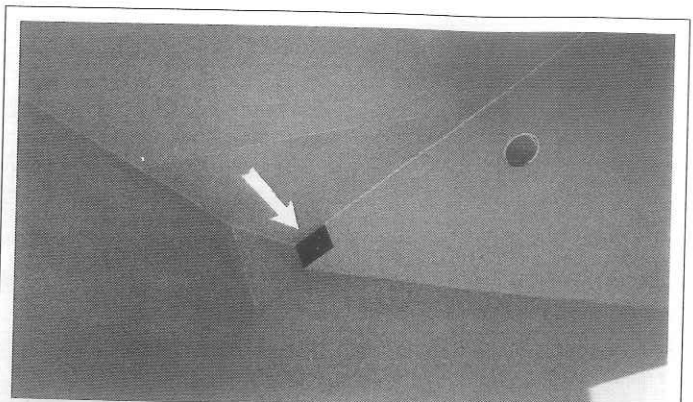


Rear Lock

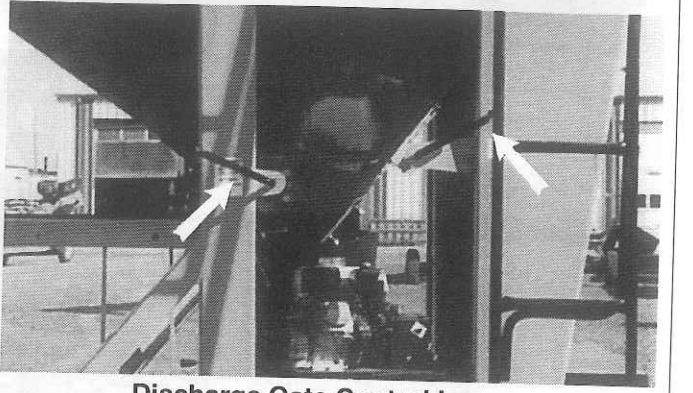
Fig. 5 CONVEYOR PLATFORM LOCKS

5. **Discharge Gates:**

Each machine is designed with a moveable slide on the bottom of the bin to control the flow of material. Turn the left lever clockwise to close the discharge gate for the front tank and counterclockwise to open. Turn the right lever clockwise to close the discharge gate for the rear tank and counterclockwise to open.



Discharge Gate

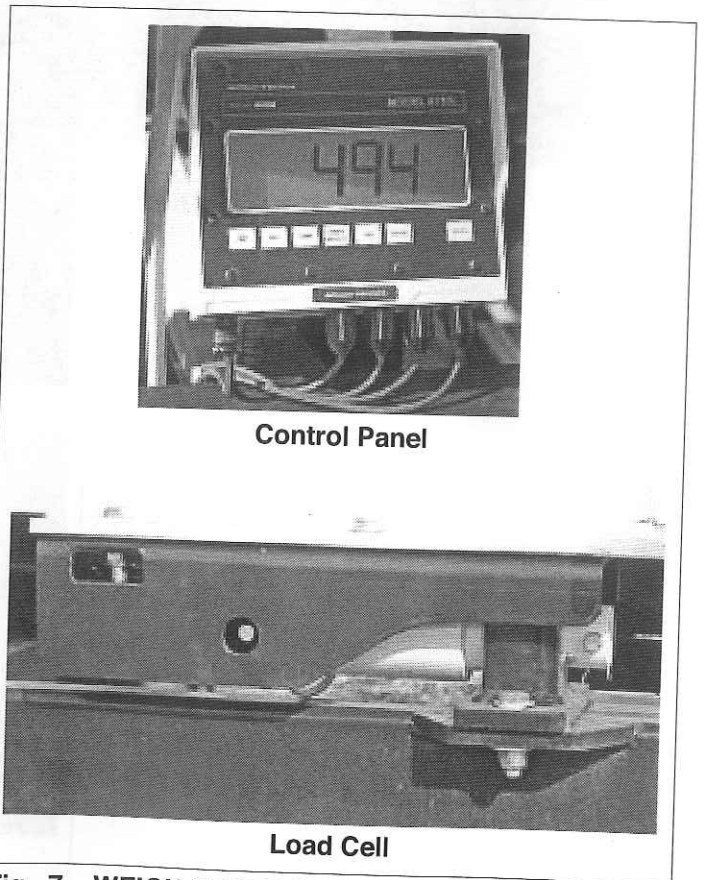


Discharge Gate Control Levers

Fig. 6 DISCHARGE GATES

6. **Weigh Scale:**

This control panel displays the reading from the weighing system. Review the instruction manual supplied with the unit for operational details.



Control Panel

Load Cell

Fig. 7 WEIGH SCALE SYSTEM

4.6 MACHINE PREPARATION

The Tender is shipped from the factory as an individual unit and can be mounted on a truck or a trailer that is available from Convey-All. Follow these recommendations when preparing the unit:

4.6.1 Installing on a Truck or Trailer

When loading on a truck or trailer, follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Use a forklift, crane or hoist with adequate capacity to lift the machine.
3. Attach to the center cross-frame when lifting. Be sure to keep the frame balanced.
4. Lift frame and move over truck or trailer frame.

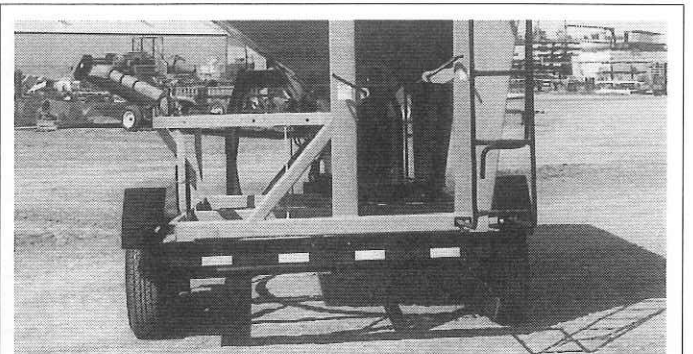


Fig. 8 FORKLIFT



Fig. 9 TRAILER (Typical)

5. Set down on deck.
6. Secure to the deck.



Trailer



Truck

Fig. 10 MOUNTED

7. Install the anchor bolts at each corner of the frame when mounting on trailer.



Fig. 11 ANCHOR BOLTS (Typical)

4.6.2 Spout

The unit is shipped from the factory with the spout not attached to the tender conveyor discharge. Follow this procedure when installing the spout:

1. Clear the area of bystanders, especially small children.
2. Lay the spout on the ground and cut the mating section in 4 places to allow it to slide over the discharge.
3. Slide the clamp over the tube.
4. Slide the spout over the discharge until it seats against the tube frame.

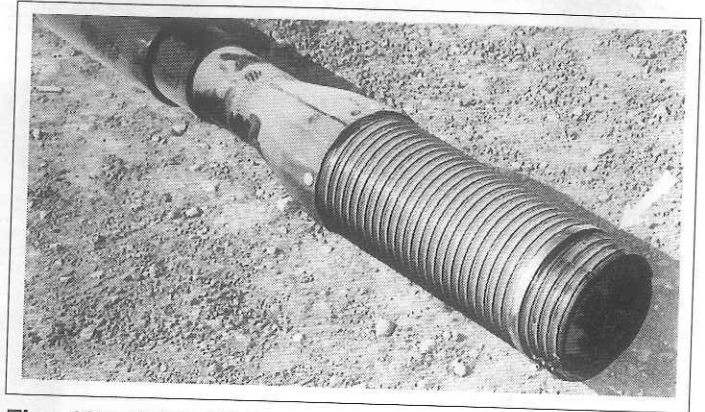


Fig. 12 CUTS/CLAMP

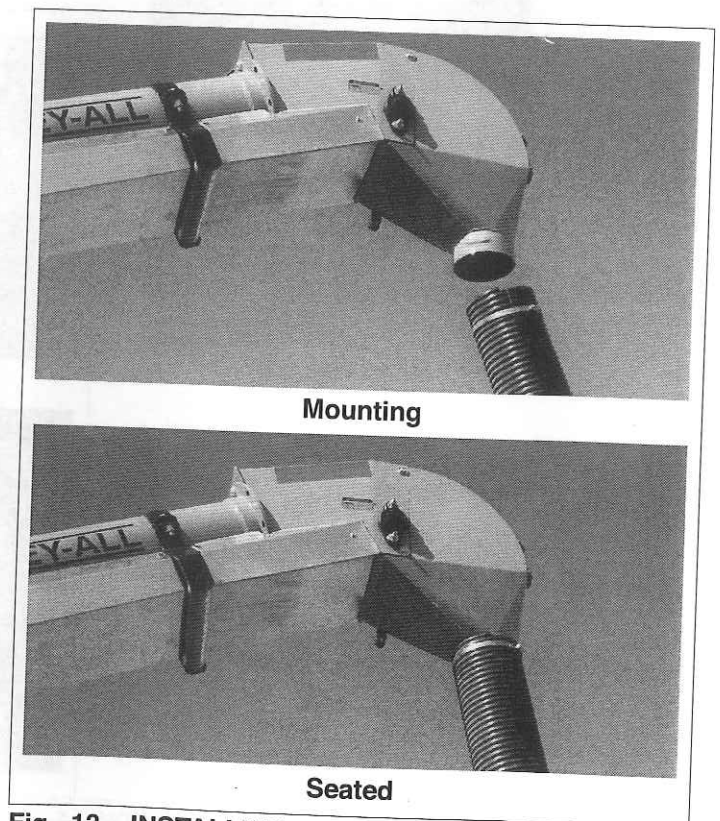


Fig. 13 INSTALLING

5. Secure by tightening the clamp.

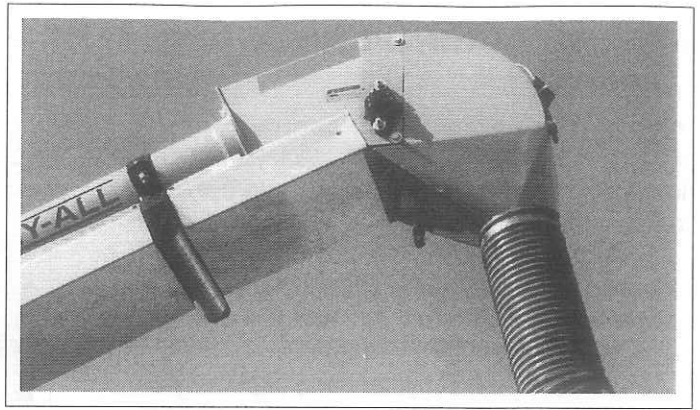


Fig. 14 CLAMPING

6. Stow in the storage cradle.

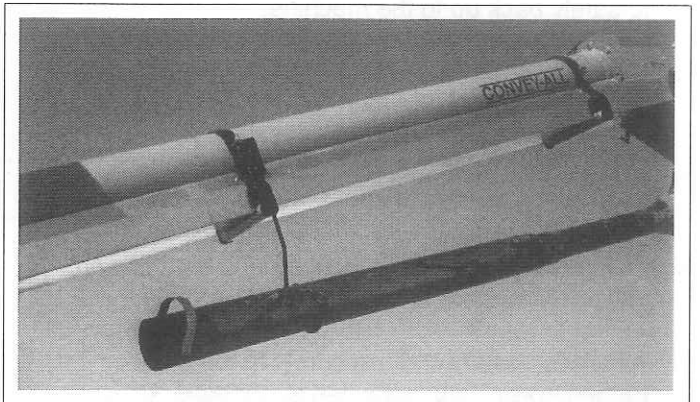


Fig. 15 STOWING

4.7 ATTACHING/UNHOOKING TOW VEHICLE

The unit can be mounted on a trailer. Trailers are available from Convey-All but others can be used. However, it must be equipped with integral electric brakes to help stop the unit.

Follow this procedure when attaching the trailer to the tow vehicle:

1. Make sure that all bystanders, especially small children, are clear of the working area.
2. Make sure there is enough room and clearance to safely back up to the machine.
3. Slowly back the tow vehicle until the jaws on the hitch and ball are aligned.
4. Use the jack to lift the hitch and place the jaws over the ball on the hitch.
5. Flip the latch to lock the jaws around the ball and install the retainer to secure the linkage.
6. Attach the safety chain securely to the truck frame to prevent unexpected separation. Cross the chains when attaching.
7. Connect the wiring harness for the lights.
8. Connect the brake harness and the brake emergency cable.
9. Route the harness and cables across the hitch to prevent snagging. Be sure to provide slack for turning.
10. Raise the jack. Pull out the pin and place jack frame in its stowed position.
11. Reverse the above procedure when unhooking.

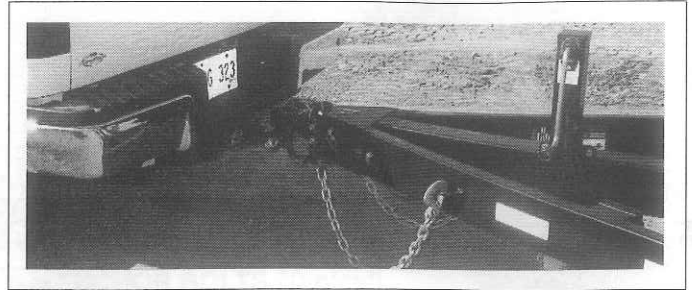


Fig. 16 JAWS

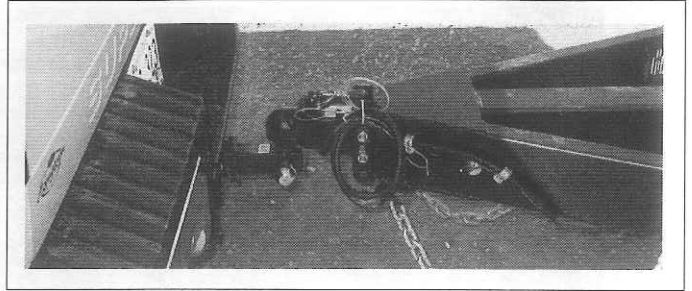


Fig. 17 RETAINER

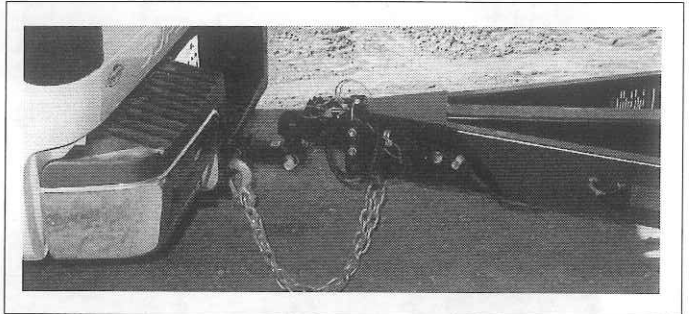


Fig. 18 SAFETY CHAIN

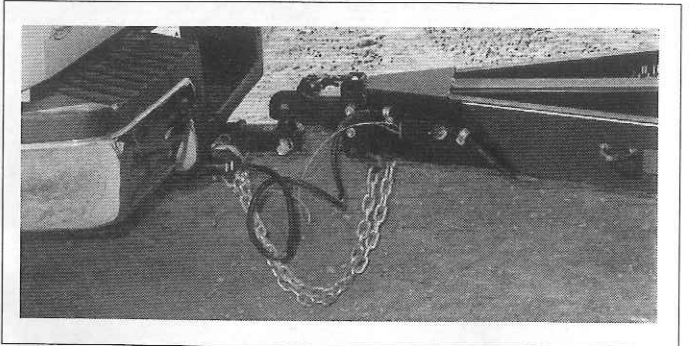


Fig. 19 WIRING HARNESS

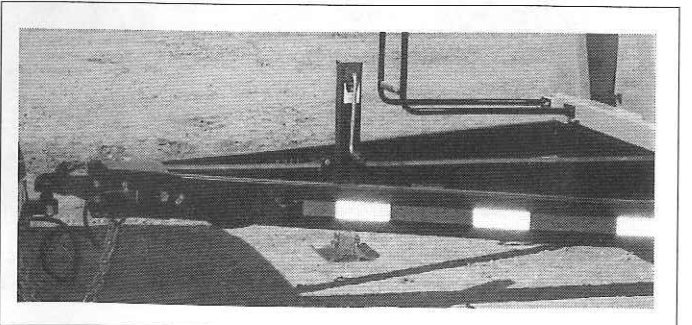


Fig. 20 JACK

4.8 FIELD OPERATION



OPERATING SAFETY

- Make sure that anyone who will be operating the seed delivery system or working on or around the unit reads and understands all the operating, maintenance and safety information in the operator's manual. Review safety related items annually
- Keep all bystanders, especially children, away from the machine when loading or unloading is being done, or when authorized personnel are carrying out maintenance work.
- Establish a lock-out tag-out policy for the work site. Be sure all personnel are trained in and follow all procedures. Lock-out tag-out all power sources before servicing the unit or working around loading/unloading equipment.
- Stop engine, remove ignition key and wait for all moving parts to stop before servicing, repairing, adjusting, loading, filling or unplugging.
- Keep working area clean and free of debris to prevent slipping or tripping.
- Do not allow riders on the trailer or frame when transporting.
- Keep hands, feet, hair and clothing away from moving parts.
- Do not place hands, arms or body between seed box and frame or lid to prevent pinching or crushing. Components can move unexpectedly.
- Stay away from overhead power lines. Electrocution can occur without direct contact.
- Install and secure all guards before starting.
- Use care when climbing on frame or ladder to prevent slipping or falling.
- Do not smoke when refueling or working around machine.
- Fasten frame securely to trailer before transporting.
- Always empty rear compartment and load front compartment first to prevent an unbalanced load. An unbalanced load can cause hitch to upend.

The Convey-All Seed Tender is designed to handle any kind of seed, transport it and transfer it into planters and drills as required. Inspect the machine at the start of each day to be sure it is in good mechanical condition.

Follow this procedure when using the Seed Tender:

1. Attach trailer to the towing truck.
2. Review and follow the pre-operation checklist.
3. Open roll top lid.



Fig. 21 ROLL TOP LID (Open)

- a. Fill the front bin first to prevent upending.



- b. Fill the rear bin.
- c. Close the roll top lid.

IMPORTANT
Always load the front seed bin first to minimize the chance of the hitch upending.

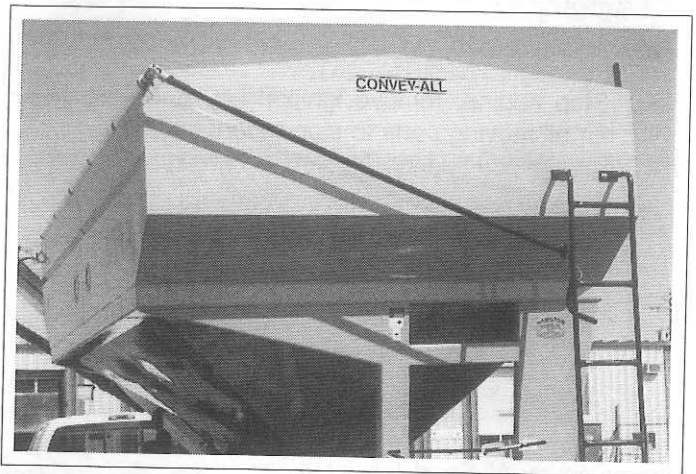


Fig. 21 ROLL TOP LID (Closed)

4. Turn unloading platform to position conveyor frame pointing forward.



Fig. 23 POSITIONED

5. Attach transport lock between frame and unloading conveyor tube frame.
6. Transport to the working area. Review the trailer Operator's manual and follow the instructions.
7. Drive up to the planter or drill on either side or back up to it.
8. Shut off engine on tow vehicle, set park brake, remove ignition key and wait for all moving parts to stop before leaving cab.
9. Disconnect transport lock.
10. Turn unloading assembly platform to position discharge spout over the drill or planter seed boxes.
11. Lock platform in position. Turn platform to be sure the lock is engaged.
12. Unhook discharge spout from frame.

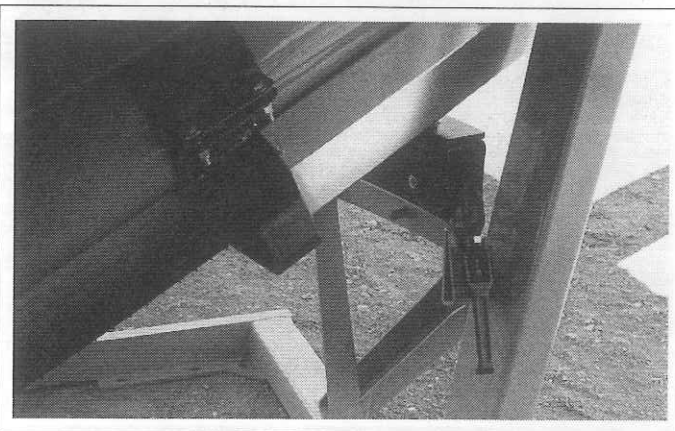


Fig. 24 TRANSPORT LOCK



Fig. 25 DISCHARGE SPOUT

13. Gas Engine:

- a. Start the unloading engine.
- b. Open the boxes/bins on the drill or planter.
- c. Extend the spout over a box or bin.



Fig. 26 SPOUT

- d. Open bin discharge gate.

IMPORTANT

Always unload the rear bin first to prevent the hitch from upending.

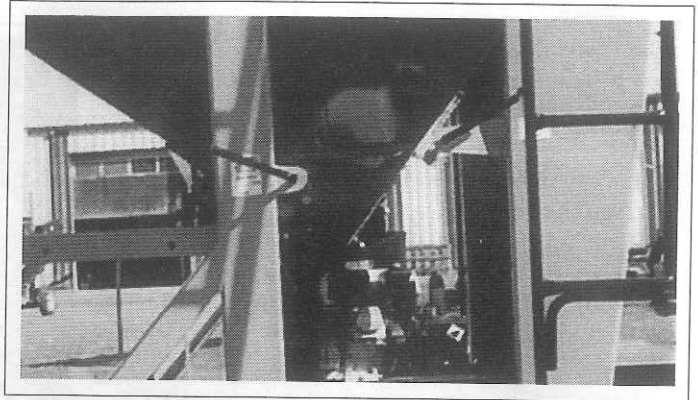


Fig. 27 BIN DISCHARGE GATE

- e. Increase the engine speed until the centrifugal clutch engages and fills the box or bin.

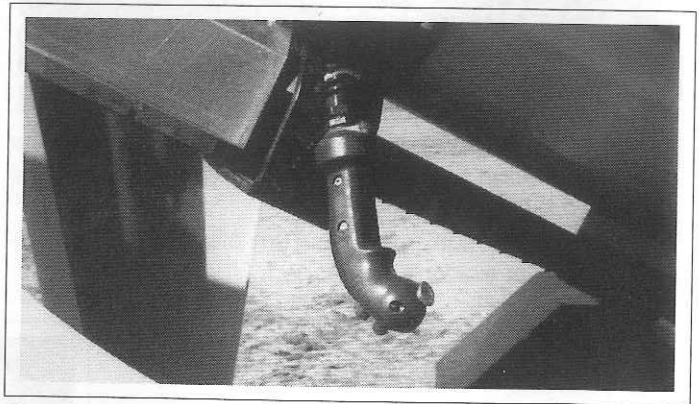


Fig. 28 REMOTE THROTTLE SWITCH

14. Hydraulic Dive Model:

- a. Start engine on hydraulic power unit.
- b. Set park brake.
- c. Place the hydraulic control lever in detent.
- d. Increase engine speed to mid-range.
- e. Open boxes or bins on drill or planter.
- f. Extend the spout into or over a box or bin.



Fig. 29 EXTENDING SPOUT

- g. Open bin discharge gate.

IMPORTANT

Always unload the rear bin first to prevent the hitch from upending.

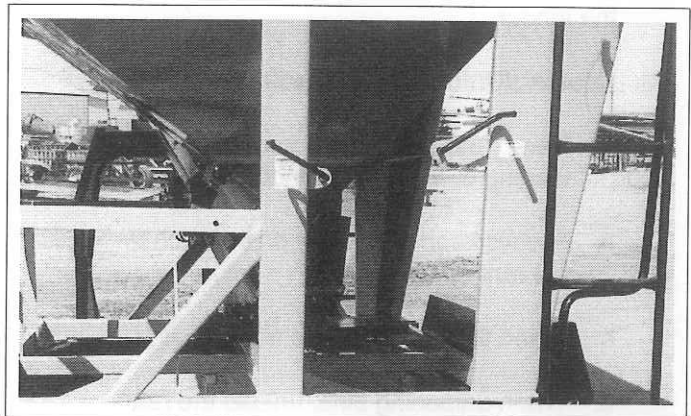


Fig. 29 DISCHARGE GATE (Typical)

- h. Pull on the hydraulic valve remote control rope to start filling bins.
- i. Release rope to stop the conveyor.

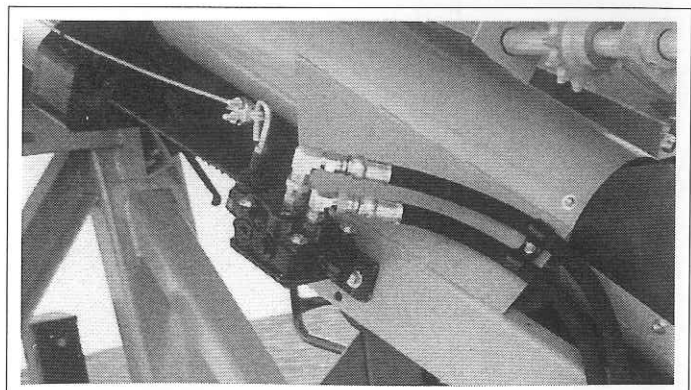


Fig. 31 CONTROL ROPE

15. Reduce engine RPM to low idle or release hydraulic control rope to stop the unloading conveyor.
16. Move spout to next box or bin and increase engine RPM or pull on the hydraulic control rope to fill the next one.
17. Repeat with the remaining boxes or bins.

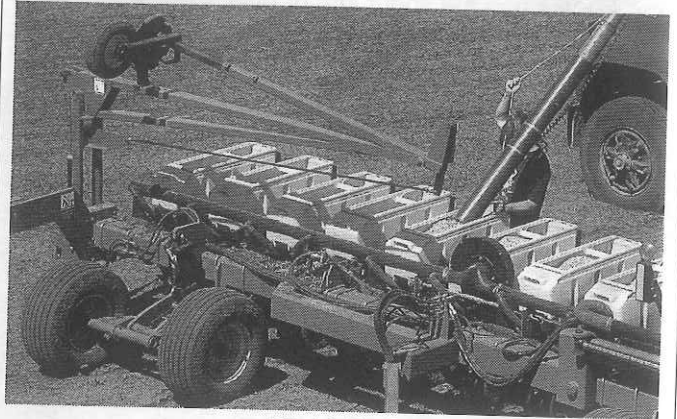
IMPORTANT

When rear seed box is empty, close its discharge gate and open front box discharge gate and empty front box.

18. Stow spout under conveyor tube.
19. Place hydraulic power unit control in neutral or out of detent.
20. Stop unloading engine or hydraulic power unit and place ignition keys in your pocket.
21. Turn discharge conveyor to straight ahead and attach transport lock.
22. Return to the side or end of the field to fill the tender.
23. **Loading/Unloading/Reloading:**
 - a. Read and follow the procedure for loading or unloading tender.
 - b. Always keep the weight on the hitch to prevent upending.
 - c. When filling bins, fill the front bin first.
 - d. When unloading bins, unload the rear bin first.



Left End



Right End

Fig. 32 FILLING



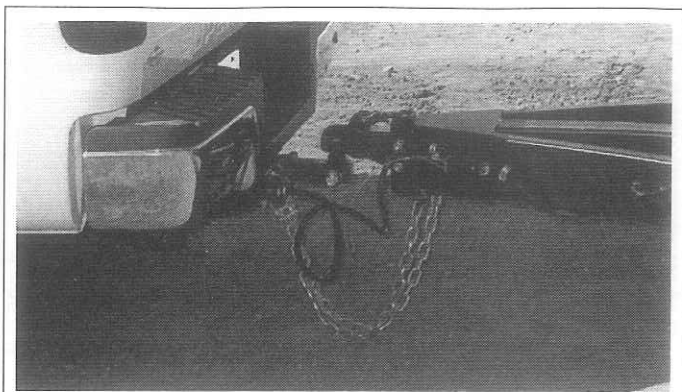
24. Trailer:

The machine must be used on a trailer with sufficient load capacity and be equipped with electric brake. Convey-All does build and can supply a trailer specifically matched to the machine.

Non-Convey-All trailers must be checked to verify load carrying capacity. It must also be equipped with electric brakes to help with stopping. Always attach the emergency brake cable to the tow vehicle when hooking up to the truck.

Always check the tightness of the anchor bolts before transporting and at the start of each working day.

Check and maintain the tires at their specified pressure at all times.



Brake Cable

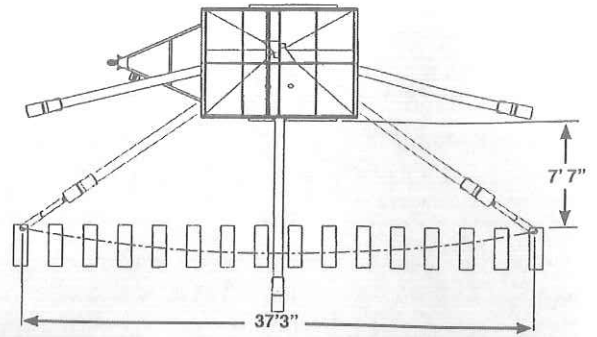


Anchor Bolts (Typical)

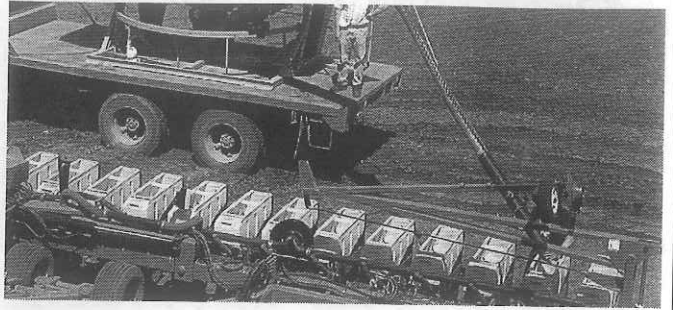
Fig. 33 TRAILER

25. Unloading Orientation:

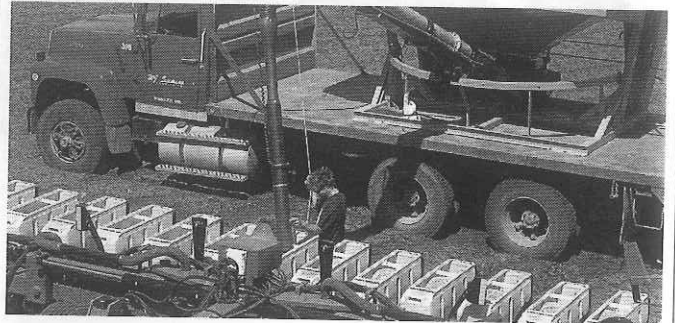
The unloading conveyor pivoting platform can be positioned at 11 different angles when unloading. Always secure the platform with the manual lock prior to starting the engine for unloading.



Schematic



Rear



Center



Front

Fig. 34 UNLOADING ORIENTATION

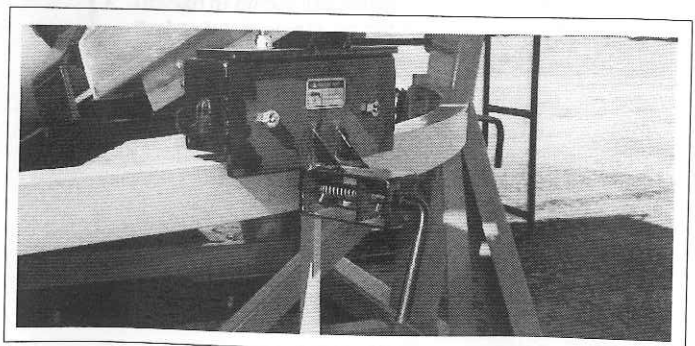


Fig. 35 PLATFORM LOCK

26. Unloading Speed:

A centrifugal clutch on the engine output engages when the engine speed exceeds 1400 RPM to drive the unloading conveyor. Increasing the engine speed will increase the unloading rate.

Use the switches on the pistol grip to increase or decrease engine RPM or stop the engine. The pistol grip is stowed on the conveyor tube frame when not in use.

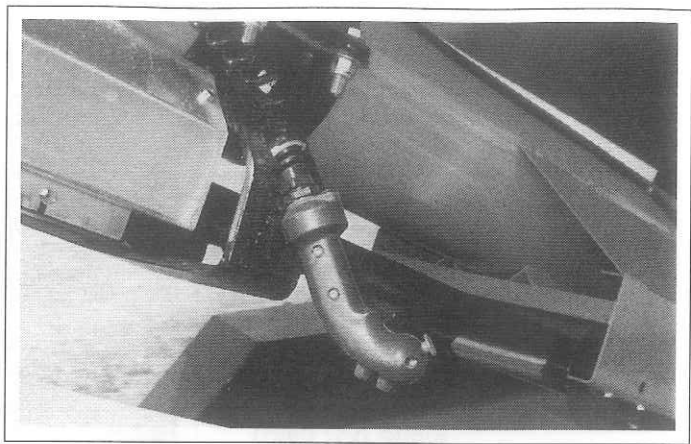


Fig. 36 THROTTLE SWITCHES

27. Unloading Speed (Hydraulic):

The amount of oil flowing through the hydraulic motor determines the speed of the motor output shaft and the conveyor speed. Use the power unit engine RPM or system flow divider to set the amount of oil flowing through the system. Increase the flow of oil to increase speed and decrease to slow speed.

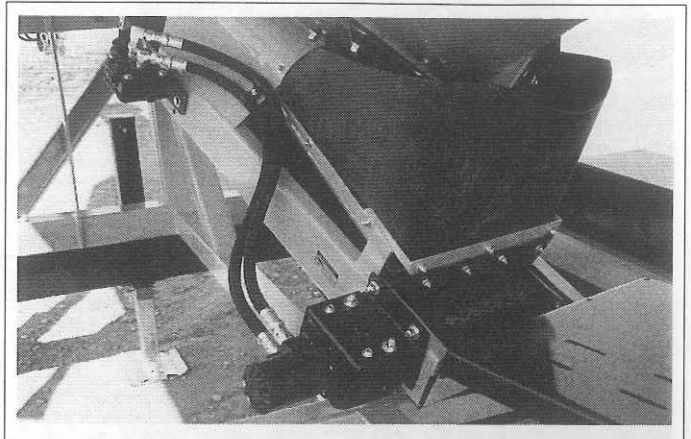


Fig. 37 HYDRAULIC MOTOR

28. Unloading:

- a. Open the slide gate on the bottom of the frame to allow the seed to reach the unloading conveyor.
- b. Unload the rear box first to maintain weight on the hitch at all times.
- c. Always lock the slide gates when transporting, storing or not in use.

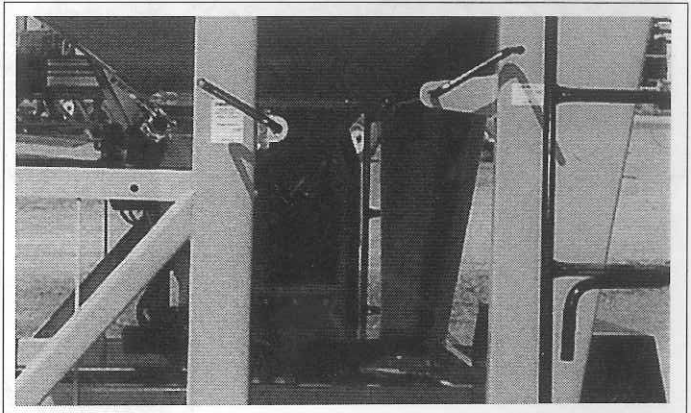
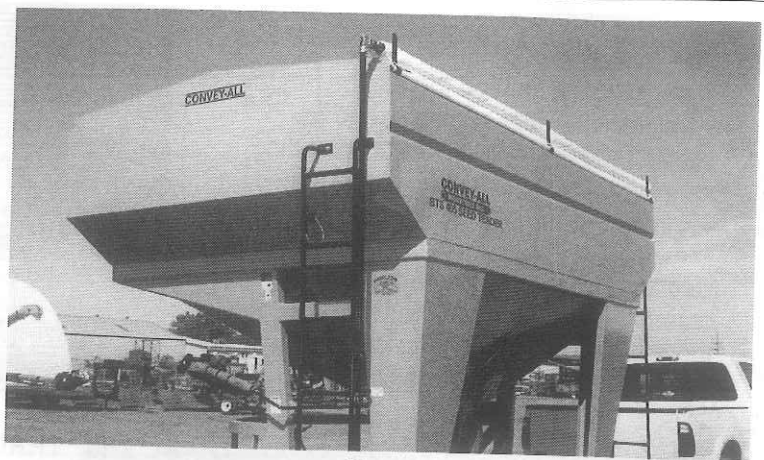


Fig. 38 SLIDE GATES

29. Roll Top Cover:

An roll top tarp is used to cover the unit. Roll the tarp back when filling the bins.

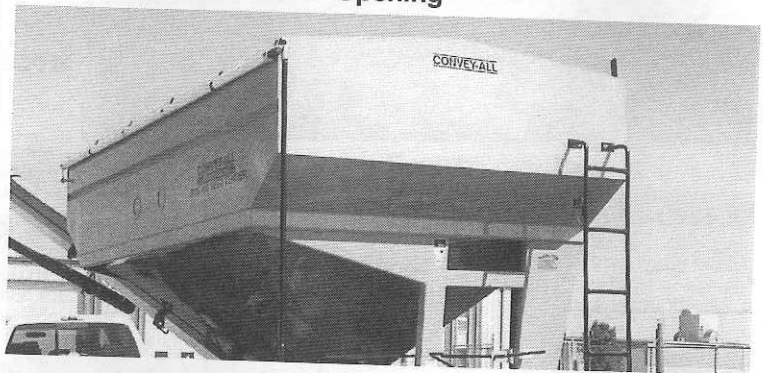
Always turn the handle to put pressure on the tarp when covering the bins. Be sure there is a slight bend in the handle rod when placed in storage bracket.



Open



Opening



Closed



Secured - Storage Bracket

Fig. 39 ROLL TOP COVER

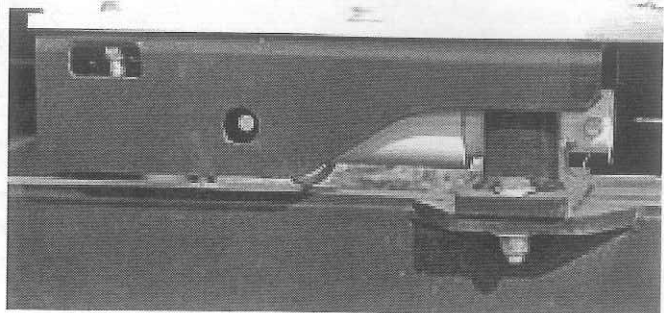
30. Weighing System (Model WT290 Only):

An weighing system is available for the Model WT290 only. Review the manual supplied with the weighing system for operating instructions. The system consists of:

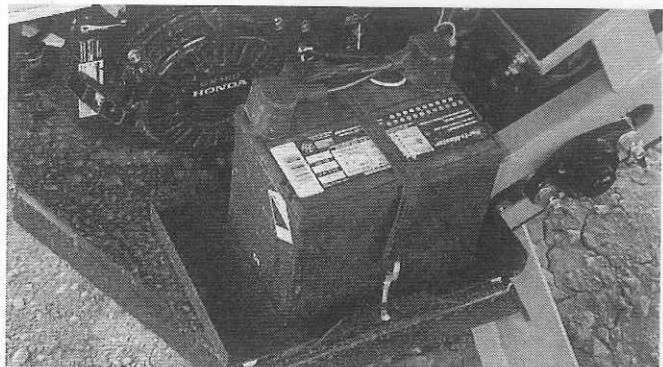
- a. Read out scale.
- b. Load cells on each corner of frame.
- c. 12 volt power source.



Read Out Scale



Load Cell



Battery

Fig. 40 WEIGHING SYSTEM

31. Sight Glasses:

Each bin in the tender is designed with a sight glass on the upper and lower sides to allow the operator to monitor the amount of material in the bin. Watch the sight glass to monitor the amount of material in the compartment while transferring the material.

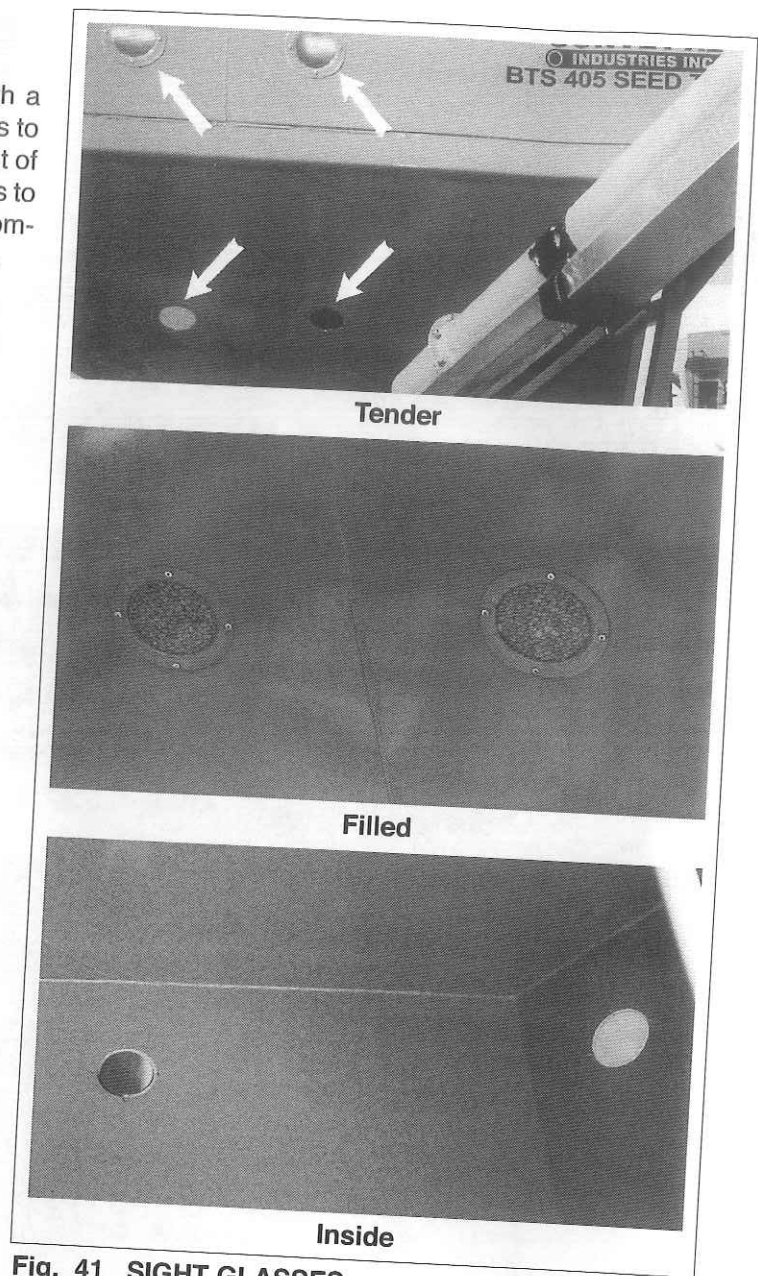


Fig. 41 SIGHT GLASSES

32. Unplugging:

If the machine plugs, follow this procedure:

- a. Stop and disable engine or power unit.
- b. Remove spout on discharge outlet frame.
- c. Unplug discharge and the spout.
- d. Close the tank discharge gate.
- e. Remove obstruction from between the tank discharge gate and conveyor.
- f. Attach and secure the discharge spout.
- g. Stow spout in the storage cradle.

33. Operating Hints:

- a. Be sure the trailer is always securely attached to the towing vehicle with a mechanical retainer through the hitch, a safety chain, lighting harness and the brake emergency cable connected.
- b. Always maintain weight on the hitch to prevent upending. Unload the rear bin/box first. Load the front bin/box first.
- c. Swing the unloading conveyor into the desired position for convenient and easy unloading.
- d. Use the remote throttle switch on the discharge chute to control the engine speed when unloading.

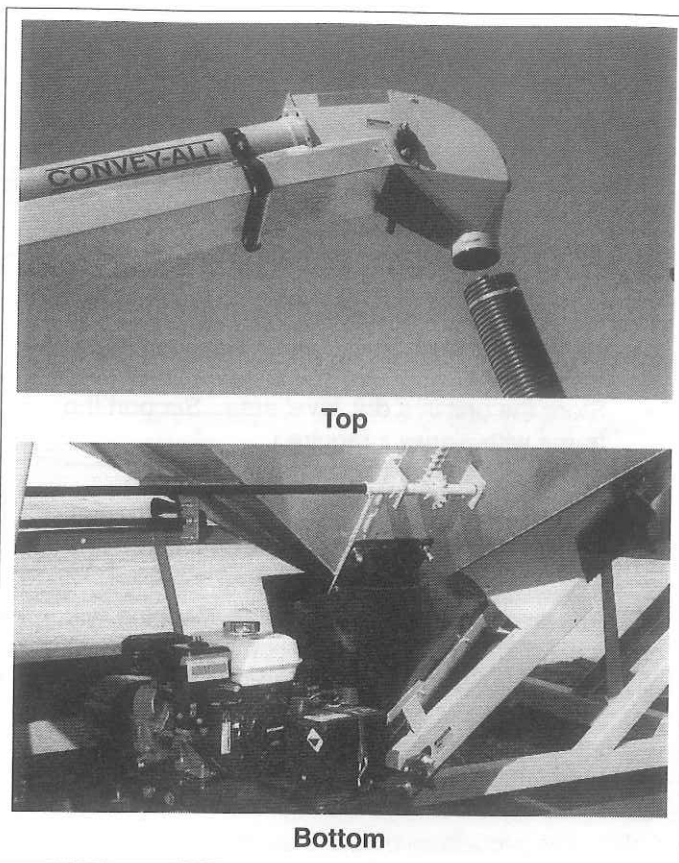


Fig. 42 UNPLUGGING



Fig. 43 FILLING

4.9 STORAGE



OPERATING SAFETY

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

4.9.1 PLACING IN STORAGE

After the season's use or when the machine will not be used for a period of time, completely inspect all major systems of the Seed Tender. Replace or repair any worn or damaged components to prevent any unnecessary down time at the beginning of the next season.

Follow this procedure before storing:

1. Remove all material from the machine.
2. Turn fuel valve off.
3. Thoroughly wash the machine with a pressure washer or water hose to remove all dirt, mud or debris.
4. Inspect all rotating parts for entangled material. Remove all entangled materials.
5. Check the condition of the belts and pulleys. Replace or adjust as required.
6. Check the condition of the unloading conveyor belting. Replace any damaged belt.
7. Touch up all paint nicks and scratches to prevent rusting.
8. Remove ignition key and store in a secure place.
9. Remove the battery (if electric start) and store it in a cool, dry area on wooden blocks or a wooden pallet. Charge it monthly to maintain an adequate charge.
10. It is best to store the machine inside. If that is not possible, cover with a waterproof tarpaulin and tie down securely.

11. Store in an area away from human activity.
12. Do not allow children to play around the stored unit.

4.9.2 REMOVING FROM STORAGE

When removing the machine from storage, follow this procedure:

1. Remove the tarpaulin if covered.
2. Install and connect the battery.
3. Bring the ignition key.
4. Review and follow the Pre-Operation Checklist.

IMPORTANT

If the machine has been stored for more than 6 months, warm the engine by running it for 2-3 minutes and drain the oil. Change the oil while the oil is warm to remove any condensation. Refer to Maintenance section.

5 SERVICE AND MAINTENANCE



MAINTENANCE SAFETY

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- 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.
- Make sure there is plenty of ventilation. Never operate the engine in a closed building. The exhaust fumes may cause asphyxiation.
- Before working on this machine, shut off the engine, and remove the ignition keys.
- Never work under equipment unless it is blocked securely.
- Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
- 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.
- When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.

5.1 SERVICE

5.1.1 FUELS, FLUIDS AND LUBRICANTS

1. **Grease:**
Use an SAE multi-purpose high temperature grease or a multi-purpose lithium base grease.
2. **Fuel:**
Use a regular unleaded automotive gasoline for all operating conditions.

Capacity: 1.0 liters (2.1 US pints)

3. **Engine Oil:**
Use a typical SAE 10W30 or 10W40 multi-viscosity motor oil for normal operating conditions. Consult your engine manual for recommended oil in cold temperatures.

Capacity: 1.1 liters (1.16 US qt)

4. **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.

5.1.2 GREASING

Refer to section 5.1.1 for recommended grease. Use the Maintenance Checklist provided 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. Replace and repair broken fittings immediately.
4. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

5.1.3 SERVICING INTERVALS

8 Hours or Daily

1. Check power unit fluid levels. Top as required.
 - a. Check engine oil level. Top up as required.
 - b. Check fuel level. Add as required.
 - c. Check the oil level in the centrifugal clutch reservoir.

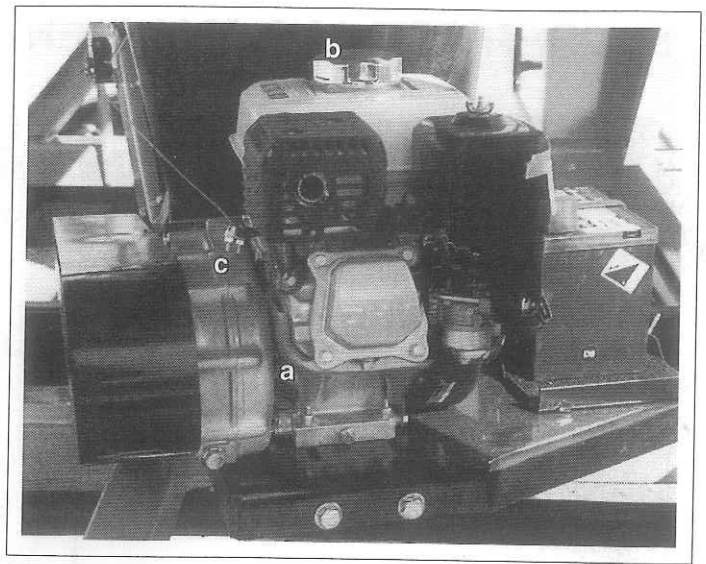


Fig. 44 ENGINE FLUID LEVELS

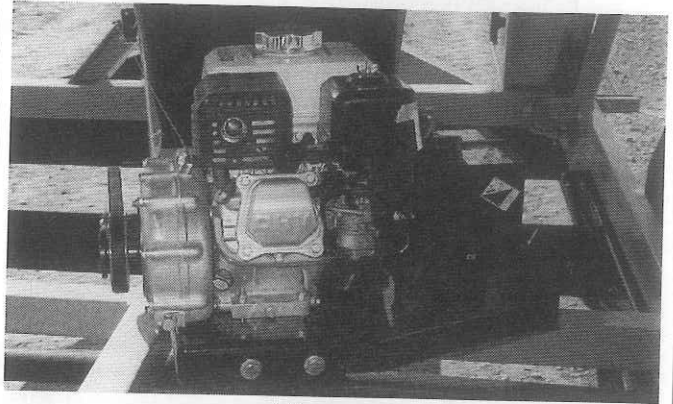


2. Check drive belt tension and alignment.

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



Tension

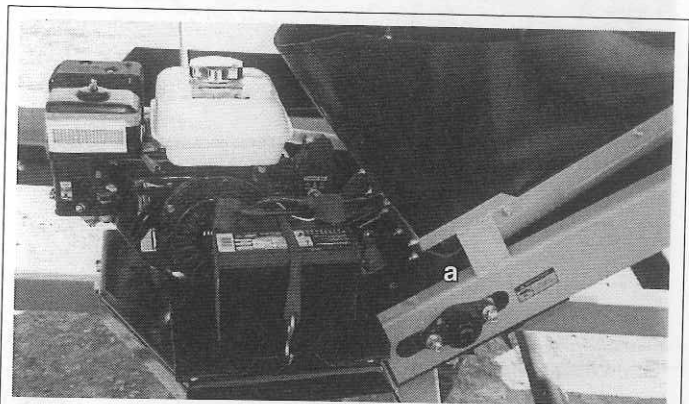


Alignment

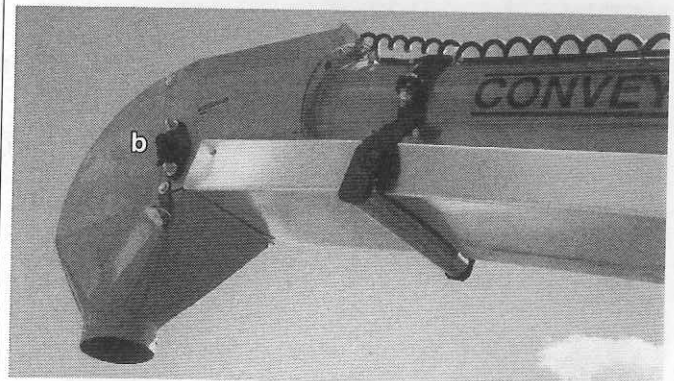
Fig. 45 DRIVE BELT

50 Hours or Weekly

1. Grease the conveyor roller bearings.
 - a. Drive roller (2 locations).
 - b. Idler roller (2 locations).



Drive End



Idler End

Fig. 46 CONVEYOR ROLLER BEARINGS

100 Hours or Bi-weekly

1. Change the engine oil.
 - a. Drain plug.
 - b. Fill plug.

IMPORTANT

Change more frequently if operating in high ambient temperatures or in very dusty or dirty conditions.

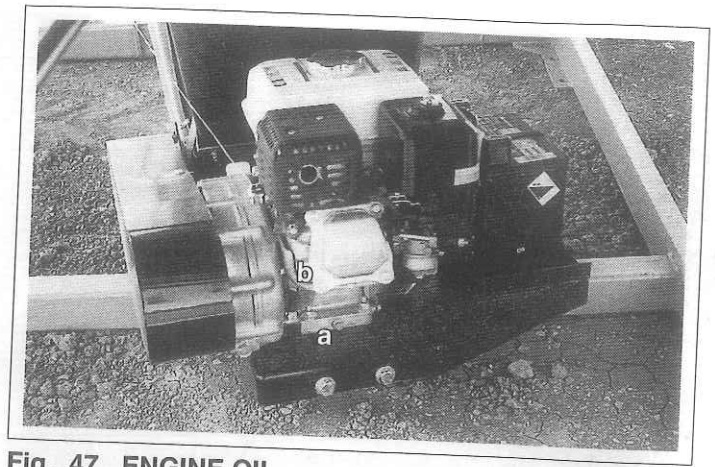


Fig. 47 ENGINE OIL

2. Change oil in the centrifugal clutch gear box.
 - a. Drain plug.
 - b. Fill plug.

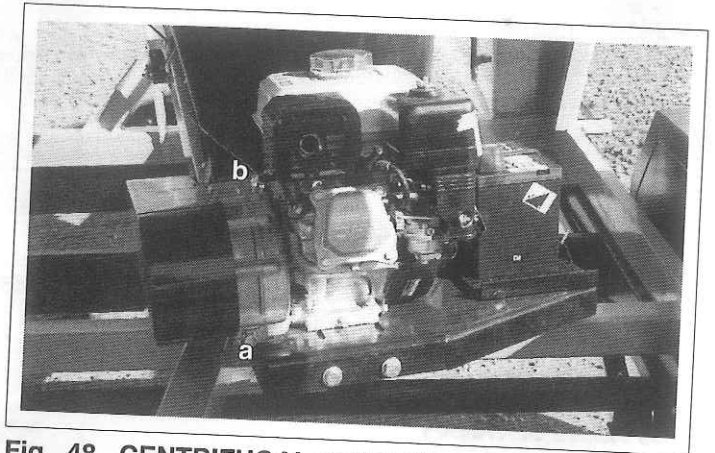


Fig. 48 CENTRIFUGAL CLUTCH

3. Clean the engine air intake filter.

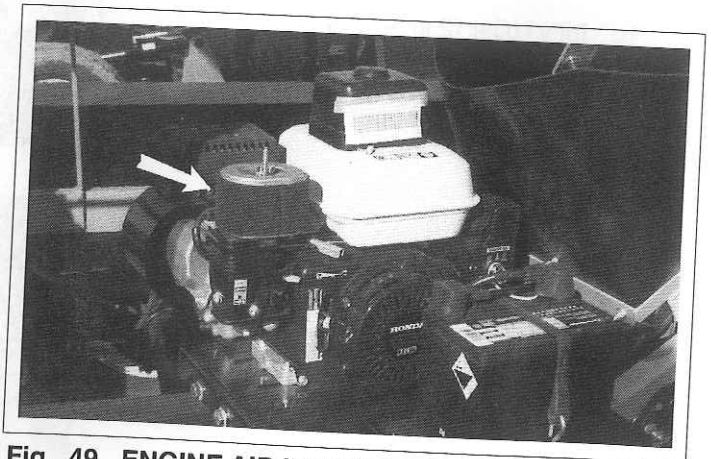


Fig. 49 ENGINE AIR INTAKE FILTER

4. Check tension and alignment of unloading conveyor.

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

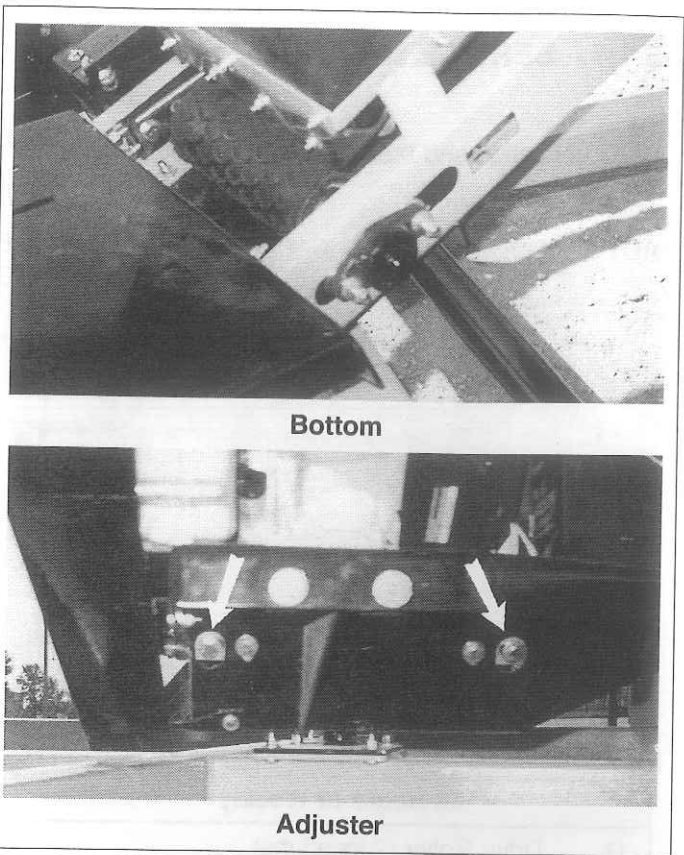


Fig. 50 UNLOADING CONVEYOR

400 Hours or Annually

1. Oil roller chain coupler on hydraulic model.

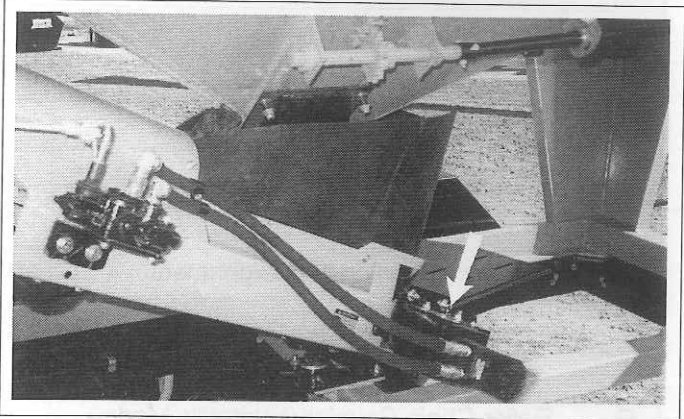


Fig. 51 ROLLER CHAIN COUPLER

2. Wash machine.



Fig. 52 WASH MACHINE

5.1.4 SERVICE RECORD

See Lubrication and Maintenance sections for details of service. Copy this page to continue record.

ACTION CODE:

CL CLEAN
L LUBRICATE

R REMOVE
CK CHECK

CH Change
RE Repack

MAINTENANCE	HOURS SERVICED BY												
8 Hours or Daily													
CK	Engine Fluid Levels												
CK	Fuel Level												
CK	Centrifugal Clutch Oil Level												
CK	Drive Belt Tension												
50 Hours or Weekly													
G	Drive Roller (2 locations)												
G	Idler Roller (2 locations)												
100 Hours or Bi-weekly													
CH	Engine Oil												
CH	Centrifugal Clutch Oil												
CL	Air Cleaner												
CK	Conveyor Tension and Alignment												
400 Hours or Annually													
G	Roller Chain Coupler (Hydraulic Model)												
CL	Machine												

5.2 MAINTENANCE

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

5.2.1 ENGINE OIL CHANGING

1. Review the Operator's Manual for the engine.
2. Allow the engine to cool before changing oil. Hot oil can cause burns if it contacts exposed skin. Draining works best if the oil is warm.
3. Be sure the ignition switch is OFF and fuel valve is turned off.
4. Place a pan under the drain plug.
5. Remove the drain plug and allow oil to drain for 10 minutes.
6. Install the engine drain plug and tighten.
7. Dispose of the oil in an approved container and manner.
8. Add the specified type and amount of motor oil. Refer to Section 5.1.1 or the engine manual.
9. Run the engine for 1 minute and check for leaks.
10. If leaks are found around the drain plug, tighten slightly and repeat step 11.
11. Check engine oil level. Top up as required.

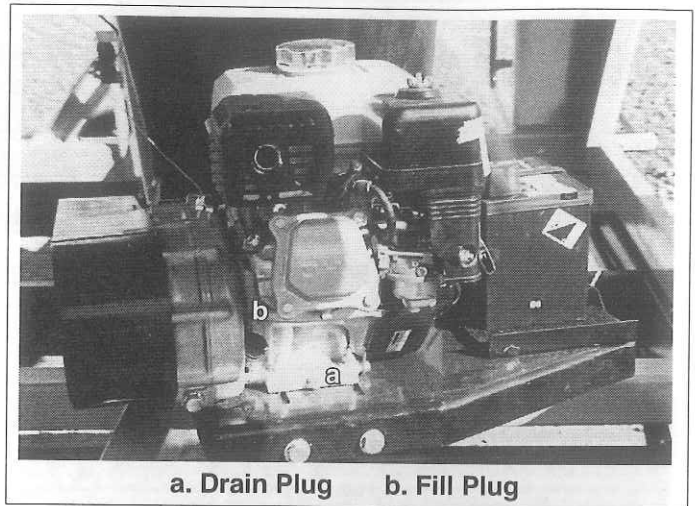


Fig. 53 CHANGING ENGINE OIL

5.2.2 AIR CLEANER MAINTENANCE

Each engine is equipped with an air filter to remove dust and dirt from entering the air intake. To clean the filter, follow this procedure:

1. Read the engine manual supplied with the machine.
2. Remove the filter cover.
3. Remove filter and shake out.
4. Wash in a filter cleaning detergent if heavily caked with dirt. Allow time to dry before reinstalling.
5. Replace filter after washing 5 times.
6. Install clean filter and secure cover.

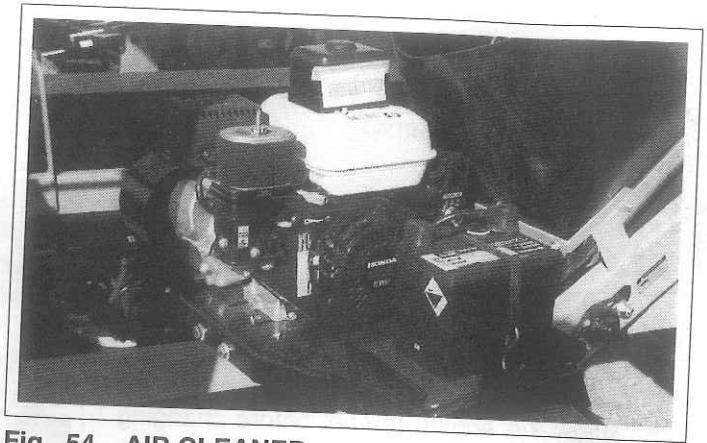


Fig. 54 AIR CLEANER

5.2.3 UNLOADING CONVEYOR DRIVE BELT

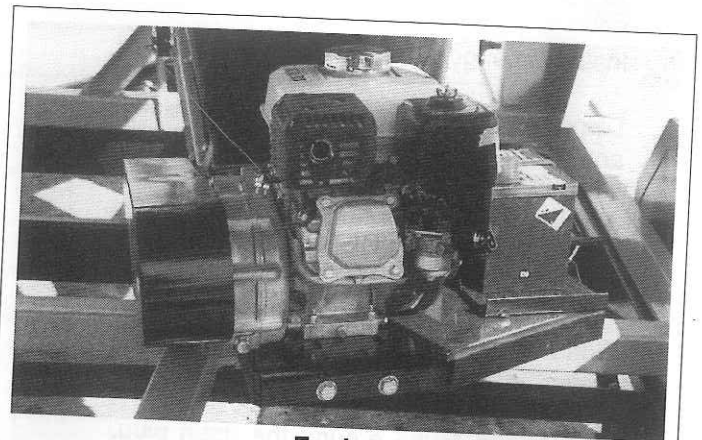
The unloading conveyor is driven by a belt from the motor. The belt is tightened by moving the engine base with the adjusting bolt.

Release the base when replacing the belt. Always install and secure the guard before resuming work.

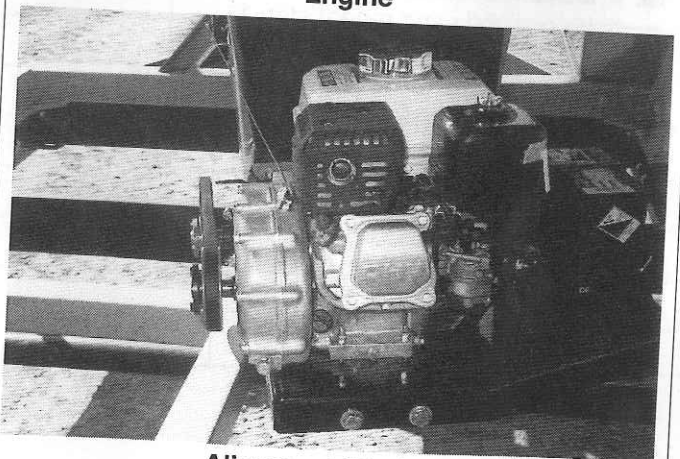
- a. Loosen engine base anchor bolts.
- b. Move engine base with adjusting bolts to set the belt tension.
- c. Tighten jam nut and clamping bolts.
- d. Tighten anchor bolts.



Always check the alignment when replacing the belt.



Engine



Alignment (Typical)

Fig. 55 DRIVE BELT

5.2.4 UNLOADING CONVEYOR BELT TENSION/ALIGNMENT OR REPLACEMENT

A flat conveying belt is used to move material from the box/bin into a drill or planter. The tension and alignment of the conveyor should be checked daily to insure proper function. Replace the conveying belt when damaged or badly worn. To maintain belt, follow this procedure:

1. Place all controls in their OFF or neutral position.

2. Stop engine, remove ignition key and lock-out.

3. **Tension:**

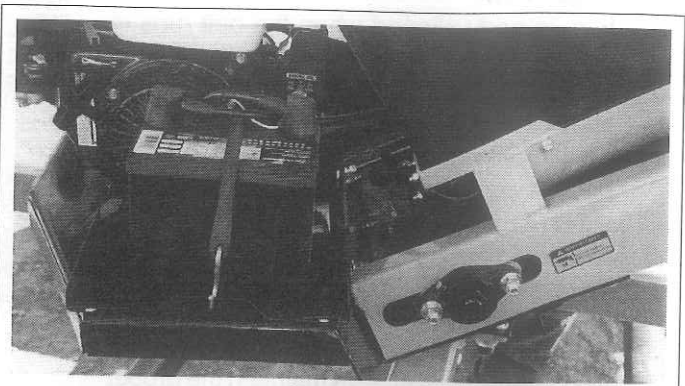
It is tensioned correctly when the belt does not skip on the drive roller when loaded.

a. **Drive Shaft:**

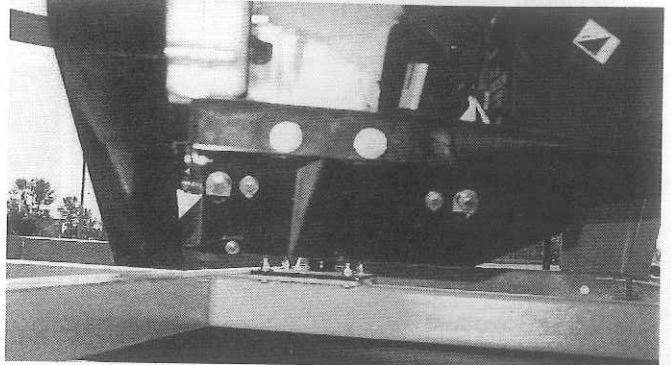
- Loosen the drive shaft anchor bolts.
- Loosen adjusting bolt jam nut.
- Turn adjusting bolt to move shaft to desired position.
- Tighten jam nut and anchor bolts to their specified torque.
- Repeat on the other side to maintain belt alignment.
- Measure the position to be sure.

b. **Idler Shaft:**

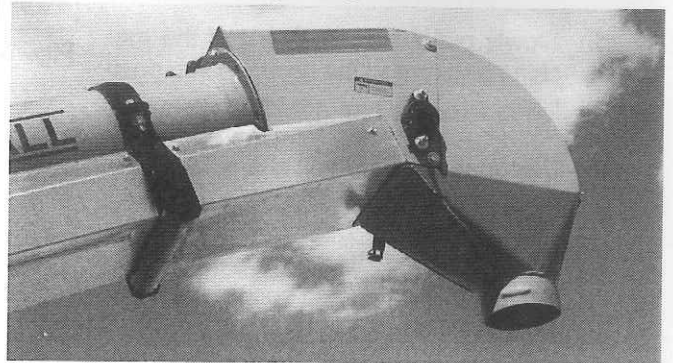
- Loosen the idler shaft bearing housing anchor bolts.
- Slide or tap bearing housing to the desired position.
- Tighten bearing housing anchor bolts to their specified torque.
- Repeat with other side to maintain belt alignment.
- Measure the position to be sure.



Bottom



Adjusting Bolts



Top

Fig. 58 TENSION ADJUSTING (TYPICAL)

4. **Alignment:**

It is properly aligned when the belt runs in the center of the frame and the 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 contacts the sides, it must be aligned. Align by loosening the shaft bearing assembly on the tight side or tightening the bearing assembly on the loose side. Move the bearing assemblies on either the drive or driven shafts to align the conveyor but always maintain the proper tension.

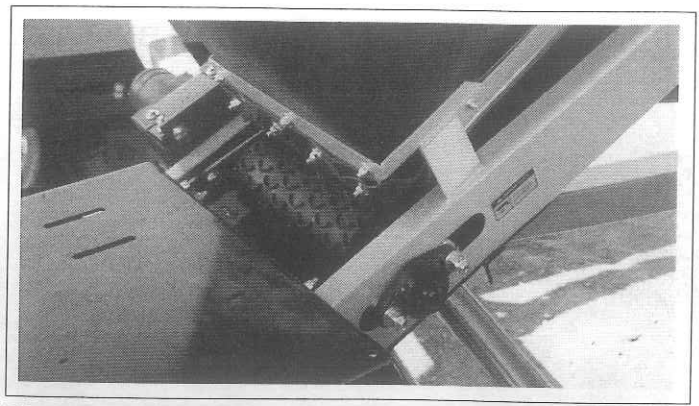


Fig. 57 CONVEYOR ALIGNMENT (TYPICAL)

5. **Replacement:**

- a. Move one or both of the shafts into their loosest position.
 - b. Open the conveyor by removing the connecting rod on the belt
 - c. Attach the replacement belt to the end of the old conveyor.
 - d. Slowly pull the old belt out of the machine and thread the new one into position.
 - e. Disconnect the old belt and connect the ends of the new one together.
 - f. Move the shafts into position to set the tension of the belt and secure the bearing assemblies.
9. Check the tension and alignment of the conveyor frequently during the first 10 hours of operation and set as required. Then, go to the regular maintenance schedule. Normally a conveyor will seat itself during the first 10 hours of operation and then require less or no adjustment.

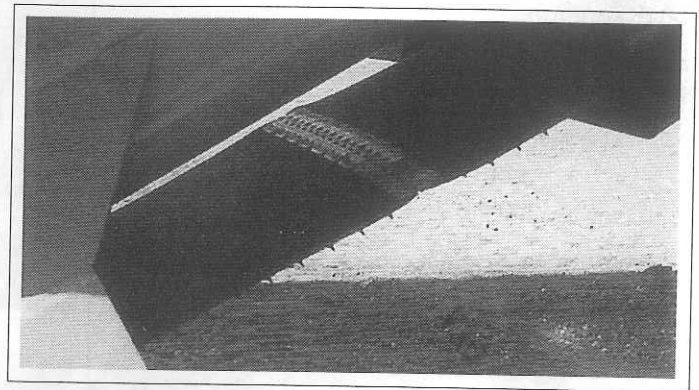


Fig. 58 BELT CONNECTOR (TYPICAL)

6 TROUBLE SHOOTING

The Convey-All Seed Tender uses a belt conveyor to move seed from boxes/bins into a drill or planter. It is a simple machine that requires minimum maintenance.

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

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

PROBLEM	CAUSE	SOLUTION
Engine won't start.	No fuel.	Fill the fuel tank.
	Low engine oil.	Fill the crankcase with oil.
	Cold engine.	Open choke.
	Ignition switch off.	Turn ignition switch on.
	Battery dead.	Recharge or replace battery.
	Engine problem.	Refer to engine manual.
Unloading conveyor won't turn.	No power.	Start engine and increase speed above 1400 RPM.
	Drive belt slipping.	Tighten drive belt.
	Failed centrifugal clutch.	Replace clutch.
	No hydraulic power.	Start engine of hydraulic power source and place valve in detent.
	Power not engaged.	Pull and hold rope to engage hydraulic valve.
Remote throttle doesn't work.	No power.	Check charge of battery. Recharge or replace as required.
		Check connections in the remote throttle harness. Be sure connectors are clean and terminals are firmly pushed together.

7 SPECIFICATIONS

7.1 MECHANICAL

Specifications: BTS290 Seed Tender		Specifications: BTS405 Seed Tender	
Conveyor	8" dia. x 21' tube with 10" wide belt	Conveyor	8" dia. x 18' tube with 10" wide belt
Discharge Rate	1,500 lbs./min.	Discharge Rate	Up to 1,500 lbs./min.
Hopper Capacity	290 units (240 bu.) single or equal split hopper	Hopper Capacity	405 units (338 bu.) equal split hopper is standard
Conveyor Swing	Conveyor transports to front or rear and has a 152° swing	Conveyor Swing	Conveyor transports to front and swings 152° to fill most planters with only one set-up. Can also be used to fill center-fill planters
Mounting	Deck mount frame. Also available with 23" high dedicated gooseneck or bumper hitch trailer	Mounting	Deck mount frame. Ready to mount on most truck or trailer decks.
Length	24'2" (tank plus conveyor in transport position)	Length	23'10" (hopper plus conveyor in transport position)
Hopper Length	11' 6"	Hopper Length	14'
Hopper Width*	8'	Hopper Width*	8'
Hopper Height*	8' 3"	Hopper Height*	9' 1"
Conveyor Height*	10' 4"	Conveyor Height*	9' 1"
Discharge Height*	8' 8 3/4"	Discharge Height*	7' 6"
Weight*	2560 lbs. with gas drive & split hopper	Weight* (empty)	2660 lbs.

*For total discharge height, transport dimensions and weight add the dimensions and weight of the trailer or truck deck.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

7.2 HYDRAULIC FITTING TORQUE

TIGHTENING FLARE TYPE TUBE FITTINGS *

1. Check flare and flare seat for defects that might cause leakage.
2. Align tube with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten the swivel nut to the torque shown.

* The torque values shown are based on lubricated connections as in reassembly.

Tube Size OD	Nut Size Across Flats	Torque Value*		Recommended Turns To Tighten (After Finger Tightening)	
		(N.m)	(lb-ft)	(Flats)	(Turn)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	11/16	24	18	1	1/6
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

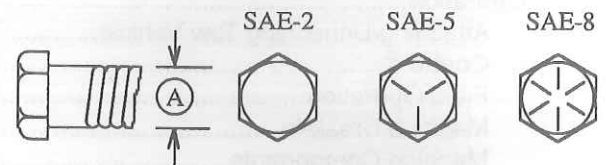
7.3 BOLT TORQUE

CHECKING 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.

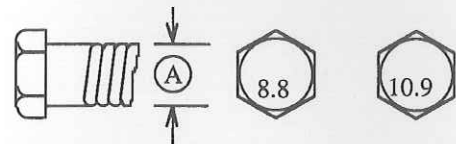
ENGLISH TORQUE SPECIFICATIONS

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	.5	.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.

