



GRAIN BELT CONVEYOR

1300, 1500, 1800, 2000, 2400 SERIES (30'-120') OPERATION MANUAL

This manual applies to the following models:

1335, 1340, 1345, 1355

1535, 1540, 1545, 1550, 1555, 1565, 1575, 1585, 1590, 15100

1835, 1845, 1855

2035, 2040, 2045, 2055, 2065, 2075, 2085, 2095, 20100,
20105, 20110, 20115, 20120

2465, 2475, 2485, 2495, 24105, 24110, 24120

ORIGINAL INSTRUCTIONS



Read this manual before using product. Failure to follow instructions and safety precautions can result in serious injury, death, or property damage. Keep manual for future reference.

Part Number:
P1512123 R2

Revised: Feb/15





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1. Introduction

Thank you for purchasing a Batco Grain Belt Conveyor. This equipment will allow safe and efficient operation when you read and follow all of the instructions contained in this manual. With proper care, your Grain Belt Conveyor will provide you with many years of trouble-free operation.

Keep this manual handy for frequent reference and to review with new personnel. A sign-off form is provided on the inside front cover for your convenience. If any information in this manual is not understood or if you need additional information, please contact your local distributor or dealer for assistance.

This manual should be regarded as part of the equipment. Suppliers of both new and second-hand equipment are advised to retain documentary evidence that this manual was provided with the equipment.

➔ Equipment is available in various combinations. In most cases, the following instructions will apply to all machines. Where the assembly information varies, additional instructions will be included and will be indicated with an arrow.



Always give your dealer the serial number on your equipment (shown above) when ordering parts or requesting service or other information. Please record this information in the table below for easy reference.

| | |
|----------------------|--|
| Model Number | |
| Serial Number | |
| Date Received | |

1.1. PURPOSE OF THE EQUIPMENT

The Grain Belt Conveyor is designed to move grain, pulse crops, treated seeds, fertilizer or any other similar granular material. The Grain Belt Conveyor must be inclined to an angle less than the angle of repose of the material to be moved and must be operated with all guards installed. Use in any other way is considered as contrary to the intended use and is not covered by the warranty.

The Grain Belt Conveyor is not intended for use with canola.

This equipment should be operated, serviced, and repaired only by persons who are familiar with its particular characteristics and who are acquainted with the relevant safety procedures. Any arbitrary modifications carried out on this equipment may relieve the manufacturer of liability for any resulting damage or injury.

2. Components Overview

Before operating the conveyor, all operators should familiarize themselves with the location and function of the components for their specific conveyor length as shown below.

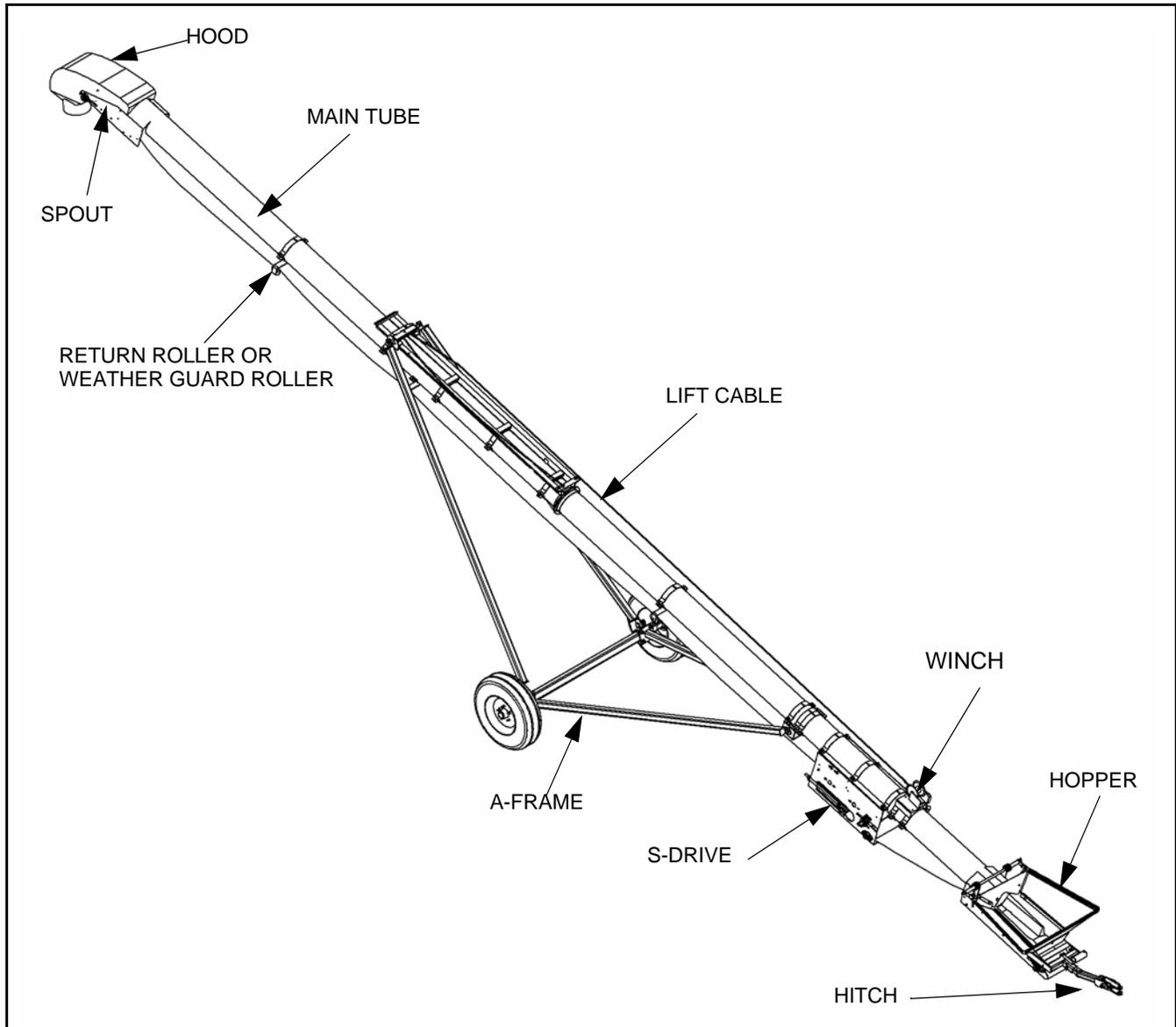


Figure 2.1 Typical Conveyor Components for 35'-50' Lengths

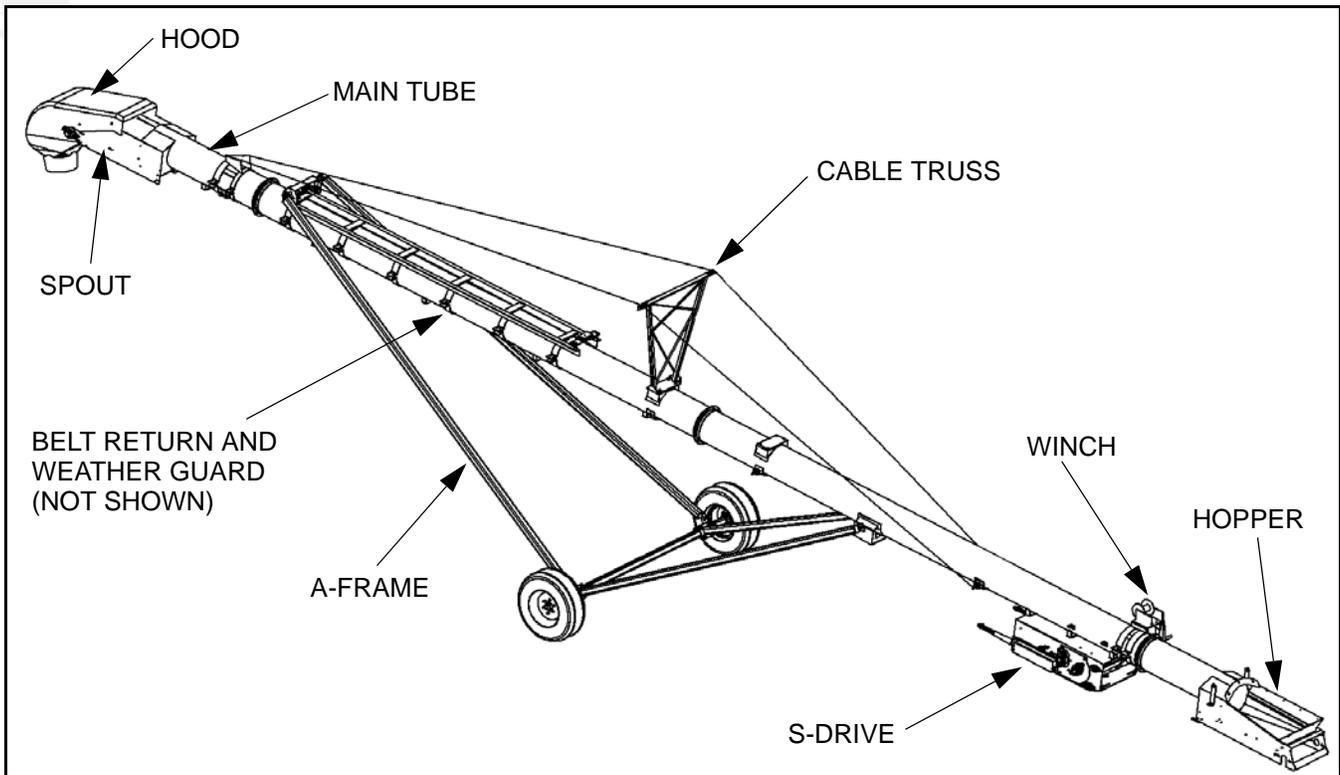


Figure 2.2 Typical Conveyor Components for 55' Length



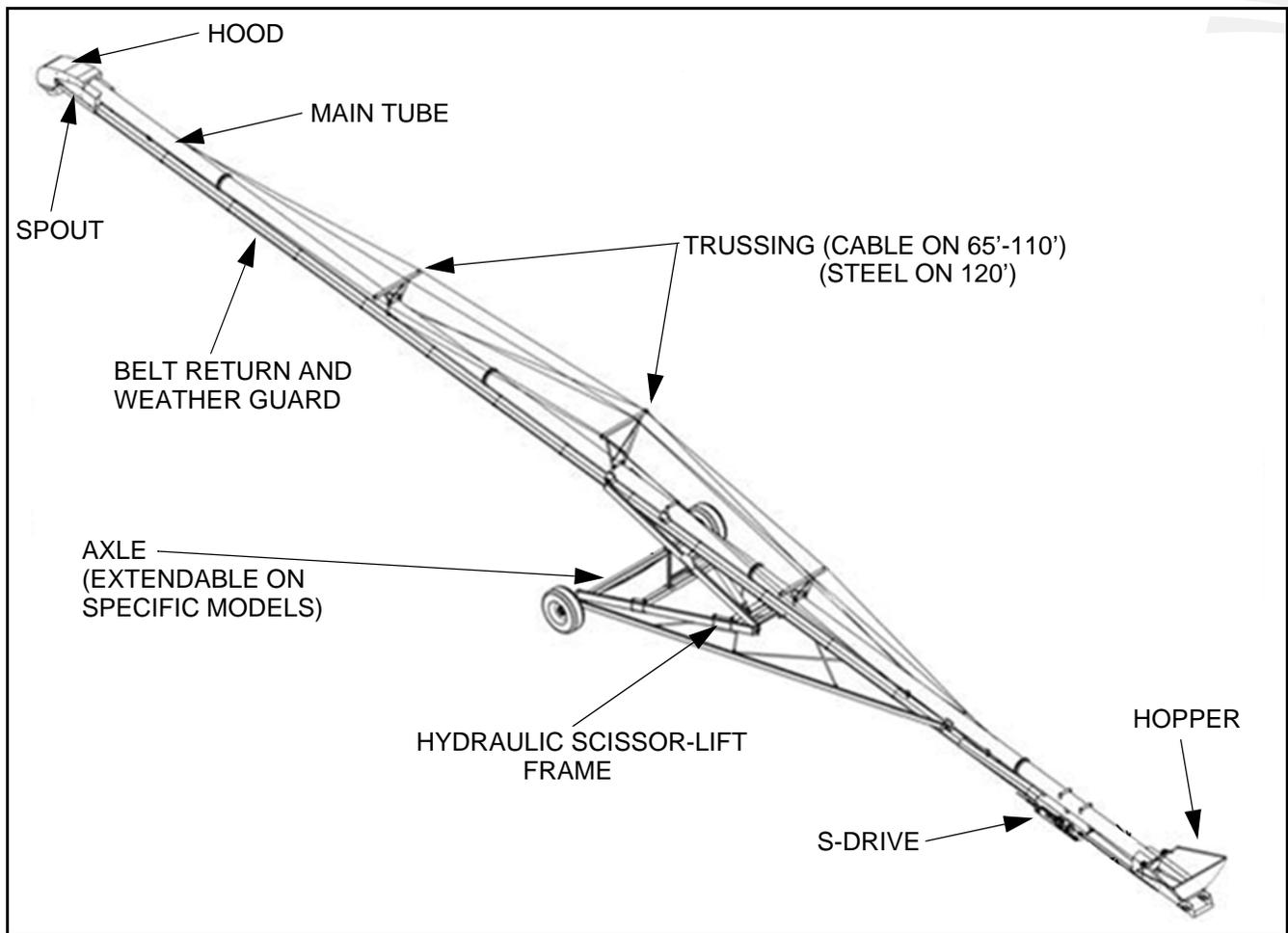


Figure 2.3 Typical Conveyor Components for 65'-120' Lengths

2.1. FUNCTIONAL OVERVIEW

This conveyor has a continuous belt that travels through a tube for moving grain or any granular product. The machine is portable and can be raised or lowered as required for loading and unloading of trucks and storage facilities.

Depending on the conveyor's options, an electric motor, gas engine, or PTO supplies power to the S-drive located under the tube. Grain enters the conveyor through an intake hopper at the bottom end and exits through the discharge spout at the top end. A winch or hydraulic cylinder(s) is the mode used to raise or lower the conveyor. Depending on the conveyor's length, an A-frame or scissor frame is used to support and provide mobility to the conveyor.

2.2. MODEL NUMBERING CONVENTION

Regarding model numbering for the Batco 1300, 1500, 1800, 2000, 2400 Series (30'-120') Grain Belt Conveyor, the convention may be explained by the following example:

"1565", where:

- "15" means 15 inch wide belt
- "65" means 65 foot approximate tube length

3. Safety

3.1. GENERAL SAFETY INFORMATION



The Safety Alert symbol identifies important safety messages on the product 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 messages.

Why is SAFETY important?

- Accidents disable and kill.
- Accidents cost.
- Accidents can be avoided.

SIGNAL WORDS: Note the use of the signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTICE** with the safety messages. The appropriate signal word for each message has been selected using the definitions below as a guideline.

DANGER



Indicates an imminently hazardous situation that, if not avoided, will result in serious injury or death.

WARNING



Indicates a hazardous situation that, if not avoided, could result in serious injury or death.

CAUTION



Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

NOTICE

Indicates a potentially hazardous situation that, if not avoided, may result in property damage.

YOU are responsible for the **SAFE** use and maintenance of your equipment. **YOU** must ensure that you and anyone else who is going to work around the equipment understands all procedures and related **SAFETY** information contained in this manual.

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.

Important: *Below are general instructions that apply to all safety practices. Any instructions specific to a certain safety practice (e.g., Operational Safety), can be found in the appropriate section. Always read the complete instructional sections and not just these safety summaries before doing anything with the equipment.*



- It is the equipment owner, operator, and maintenance personnel's responsibility to read and understand **ALL** safety instructions, safety decals, and manuals and follow them when assembling, operating, or maintaining the equipment. All accidents can be avoided.
- Equipment owners must give instructions and review the information initially and annually with all personnel before allowing them to operate this product. Untrained users/operators expose themselves and bystanders to possible serious injury or death.
- Use this equipment for its intended purposes only.
- Do not modify the equipment in any way without written permission from the manufacturer. Unauthorized modification may impair the function and/or safety, and could affect the life of the equipment. Any unauthorized modification of the equipment voids the warranty.
- Do not allow any unauthorized person in the work area.

3.1.1. PERSONAL PROTECTIVE EQUIPMENT (REQUIRED TO BE WORN)

EAR PROTECTION

- Wear ear protection to prevent hearing damage.



WORK GLOVES

- Wear work gloves to protect your hands from sharp and rough edges.



STEEL-TOE BOOTS

- Wear steel-toe boots to protect feet from falling debris.



SAFETY GLASSES

- Wear safety glasses at all times to protect eyes from debris.



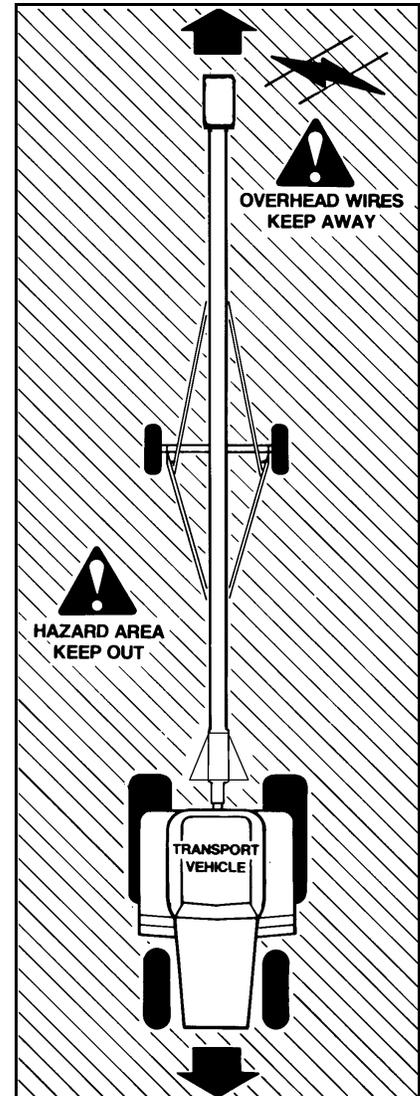
HARD HAT

- Wear a hard hat to help protect your head.



3.2. TRANSPORT AND PLACEMENT SAFETY

- Be sure that conveyor is empty before raising or lowering.
- Check with local authorities regarding transport on public roads. Obey all applicable laws and regulations.
- Always travel at a safe speed, never exceeding 20 mph (32 km/h). Reduce speed on rough surfaces. Use caution when turning corners or meeting traffic.
- Make sure the SMV (slow moving vehicle) emblem and all the lights and reflectors that are required by local authorities are in place, are clean, and can be seen by all over-taking and oncoming traffic. Always use hazard-warning flashers on tractor/towing vehicle when transporting unless prohibited by law.
- Do not allow riders on the machine, towing vehicle, tractor, or skid steer during transport.
- Stay away from overhead obstructions and power lines when operating and transporting. Electrocutation can occur without direct contact.
- Fully lower conveyor before transporting, and only raise when next to storage facility.
- Review the work safety area diagram before starting work.
- Attach a conveyor to towing vehicle with a pin and retainer. Always attach safety chain(s).
- Chock front and rear conveyor and tractor wheels before operating.
- Do not raise the intake end above drawbar, conveyor upending may occur.
- Be familiar with the machine transport hazard area. If anyone enters the hazard area, shut down the machines immediately. Clear the area before restarting.
- Do not transport conveyor on slopes greater than 20°.
- When lowering the auger the track shoe may become stuck; if this happens, do not continue to turn the winch handle counter-clockwise because it will disengage the brake mechanism and create an unsafe condition. Too much slack in the cable may also cause the conveyor to drop suddenly.
- The winch must make a clicking sound when raising conveyor. If clicking sound stops, retain grip on handle, lower conveyor fully, and repair winch.
- After lowering conveyor, turn handle clockwise 2 clicks to lock winch brake.
- The winch is designed for manual operation only.
- Always keep a minimum of 3 cable wraps on the winch drum.
- Wheels must be free to move when raising or lowering conveyor. Do not use conveyor as a crane or hoist.



- Long conveyors have a large turning radius. Allow ample room for turning as discharge end may swing dramatically.
- Only move the conveyor with a tractor/towing vehicle. Never move by hand.

3.3. OPERATIONAL AND MAINTENANCE SAFETY

- Keep hands, feet, hair, clothing, and jewelry away from all moving and/or rotating parts.
- Stay away from overhead obstructions and power lines; electrocution may occur without direct contact.
- Do not operate with any of the guards removed.
- The machine is closely balanced. Do not lift unless there is a downward weight on the intake end to prevent upending.
- ➔ • Set park brake on tractor before starting.
- Lower conveyor to its lowest position when not in use.
- Operate conveyor on level ground free of debris. If ground is uneven, anchor the conveyor to prevent tipping or upending.
- Place stands or blocks under the frame before working beneath the machine.
- Always work with a second person around conveyor in case of accident.
- Empty conveyor before raising or lowering.
- Do not get on or beneath conveyor when raising or lowering.
- Inspect lift cable before using conveyor. Replace if frayed or damaged.
- Do not lift intake above tow bar height or conveyor may upend.
- Be familiar with the machine hazard area shown in Figure 3.1 and 3.2. If anyone enters the hazard area, shut down the machines immediately. Clear the area before restarting.

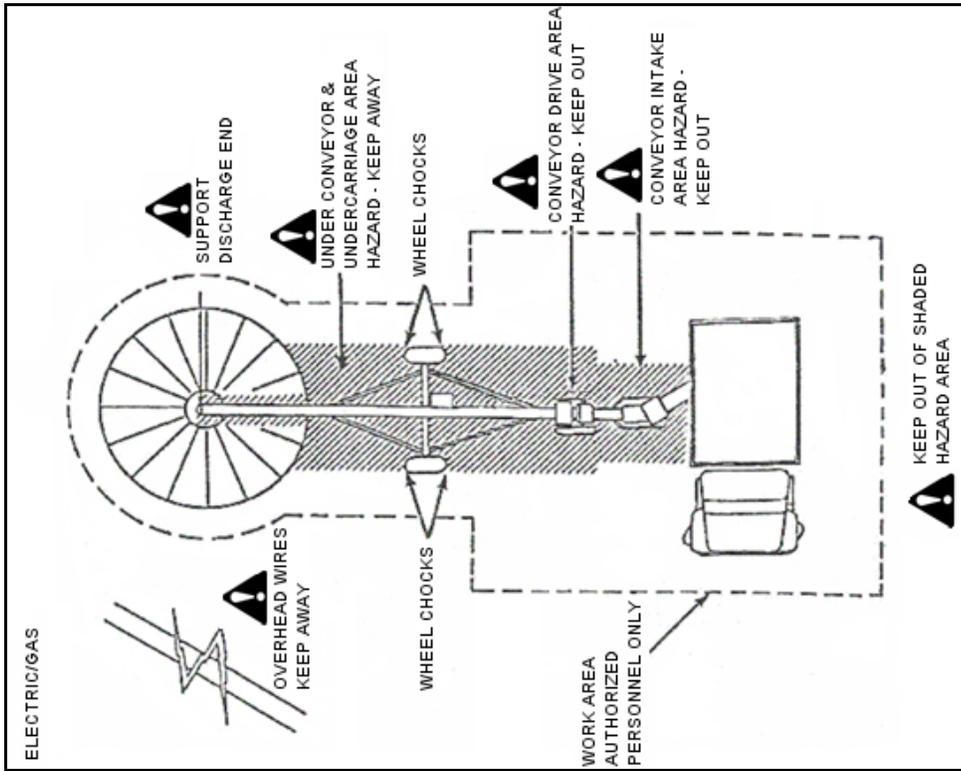


Figure 3.1 Workplace Hazard Area (Electric/Gas Area)

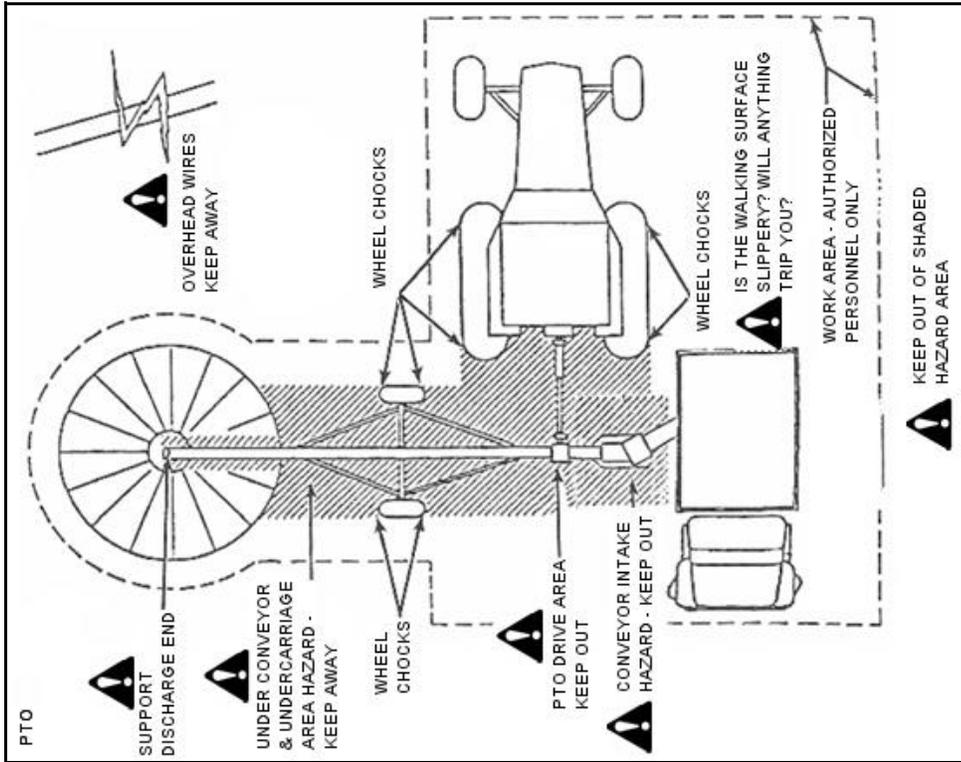


Figure 3.2 Workplace Hazard Area (PTO Drive)

3.4. CONVEYOR BELT

WARNING

- DO NOT step on or touch moving conveyor belt.
- Shut off and lock out power to adjust, service, or clean.



3.5. DRIVES AND LOCKOUT SAFETY

Inspect the power source (drive) before using and know how to shut down in an emergency. Whenever you service or adjust your equipment, make sure you shut down and lock out your power source to prevent inadvertent start-up and hazardous energy release. Know the procedure(s) that applies to your equipment from the following power sources.

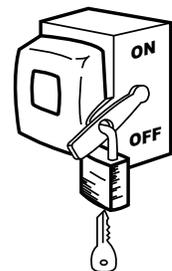
3.5.1. ELECTRIC MOTOR SAFETY

WARNING

Power Source

- Electric motors and controls shall be installed and serviced by a qualified electrician and must meet all local codes and standards.
- A magnetic starter should be used to protect your motor.
- You must have a manual reset button.
- Reset and motor starting controls must be located so that the operator has full view of the entire operation.
- Locate main power disconnect switch within reach from ground level to permit ready access in case of an emergency.
- Motor must be properly grounded.
- Guards must be in place and secure.
- Ensure electrical wiring and cords remain in good condition; replace if necessary.

SERVICE DISCONNECT



Lockout

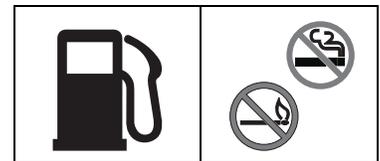
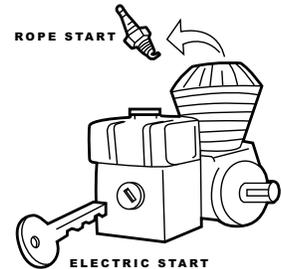
- The main power disconnect switch should be in the locked position during shutdown or whenever maintenance is performed.
- If reset is required, disconnect all power **before** resetting motor.

3.5.2. GAS ENGINE SAFETY

WARNING

Power Source

- Keep guards in place and secure.
- Properly ventilate surrounding area.
- Never fill the fuel tank while smoking or near an open flame. Always shut down and allow engine to cool before filling with fuel.
- Never overfill the tank or spill fuel. If fuel is spilled, clean it up immediately.
- Be sure to use the correct type and grade of fuel.
- Ground the fuel funnel or nozzle against the filler neck to prevent sparks that could ignite fuel vapors.
- Be sure to replace the fuel fill cap when you are done.



Lockout

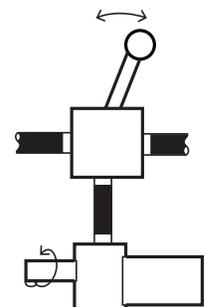
- For engines with an electric start, remove the ignition key, the spark plug wire, or the spark plug.
- For engines with a rope or crank start, remove the spark plug wire or the spark plug.

3.5.3. HYDRAULIC DRIVE SAFETY

WARNING

Power Source

- Refer to the rules and regulations applicable to the power source operating your hydraulic drive.
- Do not connect or disconnect hydraulic lines while system is under pressure.
- Keep all hydraulic lines away from moving parts.
- Escaping hydraulic fluid under pressure will cause serious injury if it penetrates the skin surface (serious infection or toxic reaction can develop). See a doctor immediately if injured.
- Use metal or wood as a backstop when searching for hydraulic leaks and wear proper hand and eye protection.
- Check all hydraulic components are tight and in good condition. Replace any worn, cut, abraded, flattened, or crimped hoses.



- Clean the connections before connecting to equipment.
- Do not attempt any makeshift repairs to the hydraulic fittings or hoses with tape, clamps, or adhesive. The hydraulic system operates under extremely high pressure; such repairs will fail suddenly and create a hazardous and unsafe condition.

Lockout

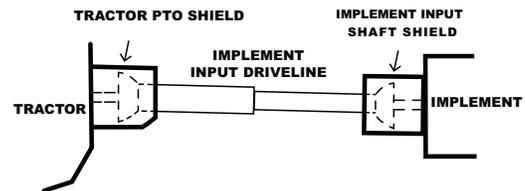
- Always place all hydraulic controls in neutral and relieve system pressure before disconnecting or working on hydraulic system.

3.5.4. PTO DRIVELINE SAFETY

WARNING

Driveline

- Keep body, hair, and clothing away from rotating PTO driveline.
- Make certain the driveline shields telescope and rotate freely on driveline before attaching.
- Make certain the driveline is securely attached at both ends.
- Do not operate equipment unless all driveline, tractor, and equipment shields are in place and in good working order.
- Do not exceed operating speed of 540 rpm.
- Keep u-joint angles small and equal. Do not exceed maximum recommended length for PTO driveline.
- Engage tractor park brake and/or chock wheels.



Lockout

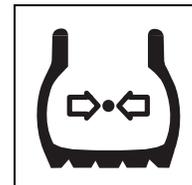
- Position all controls in neutral, shut off tractor's engine, and remove key from tractor.
- If removing key is impossible, remove PTO driveline from tractor.

3.6. TIRE SAFETY

- Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion that may result in serious injury or death.
- DO NOT attempt to mount a tire unless you have the proper equipment and experience to do the job.
- Have a qualified tire dealer or repair service perform required tire maintenance.

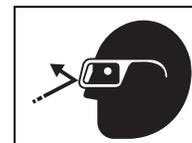


- When replacing worn tires, make sure they meet the original tire specifications. Never undersize the replacement tire.
- DO NOT weld to the tire rim with the tire mounted on the rim. This action may cause an explosion which could result in serious injury or death.
- Inflate tires to the manufacturer's recommended pressure.
- Tires should not be operated at speeds higher than their rated speed.
- Keep wheel lug nuts tightened to manufacturer's recommendations.
- Never reinflate a tire that has been run flat or seriously under-inflated without removing the tire from the wheel. Have the tire and wheel closely inspected for damage before remounting.



3.7. BATTERY SAFETY

- Wear safety glasses when working near batteries.
- Make certain the battery or terminal covers are in place and in good working order.
- Keep all sparks and flames away from batteries; gas given off by electrolyte is explosive.
- Avoid contact with battery electrolyte. Wash off any spilled electrolyte immediately.
- Do not tip batteries more than 45° to avoid electrolyte loss.
- To avoid injury from sparks or short circuits, disconnect battery ground cable before servicing any part of an electrical system.



3.8. STORAGE SAFETY

- Store the unit in an area away from human activity.
- Do not permit children to play on or around the stored equipment.
- Fully lower conveyor before storing.

3.9. SAFETY DECALS

- Keep safety decals clean and legible at all times.
- Replace safety decals that are missing or have become illegible. See decal location figures that follow.
- Replaced parts must display the same decal(s) as the original part.
- Replacement safety decals are available **free of charge** from your distributor, dealer, or factory.

3.9.1. DECAL INSTALLATION/REPLACEMENT

1. Decal area must be clean and dry, with a temperature above 50°F (10°C).
2. Decide on the exact position before you remove the backing paper.

3. Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
4. Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
5. Small air pockets can be pierced with a pin and smoothed out using the sign backing paper.

3.9.2. SAFETY DECAL LOCATIONS AND DETAILS

Replicas of the safety decals that are attached to the equipment and their messages are shown in the figure(s) that follow. Safe operation of the equipment requires that you familiarize yourself with the various safety decals and the areas or particular functions that the decals apply to, as well as the safety precautions that must be taken to avoid serious injury, death, or damage.

Batco reserves the right to update safety decals without notice. Safety decals may not be exactly as shown.

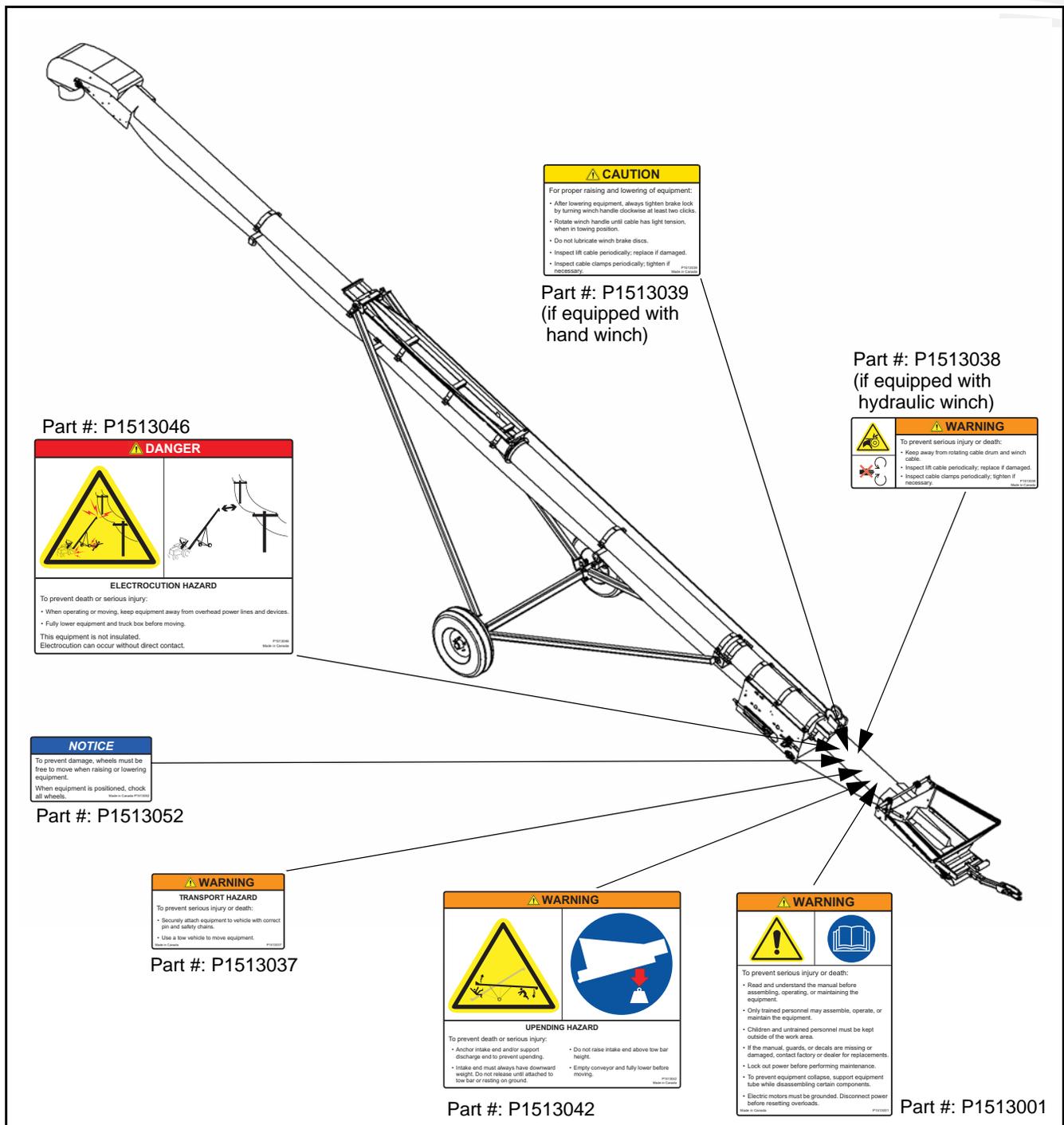


Figure 3.1 Safety Decal Locations for 35'-55' Conveyor Lengths

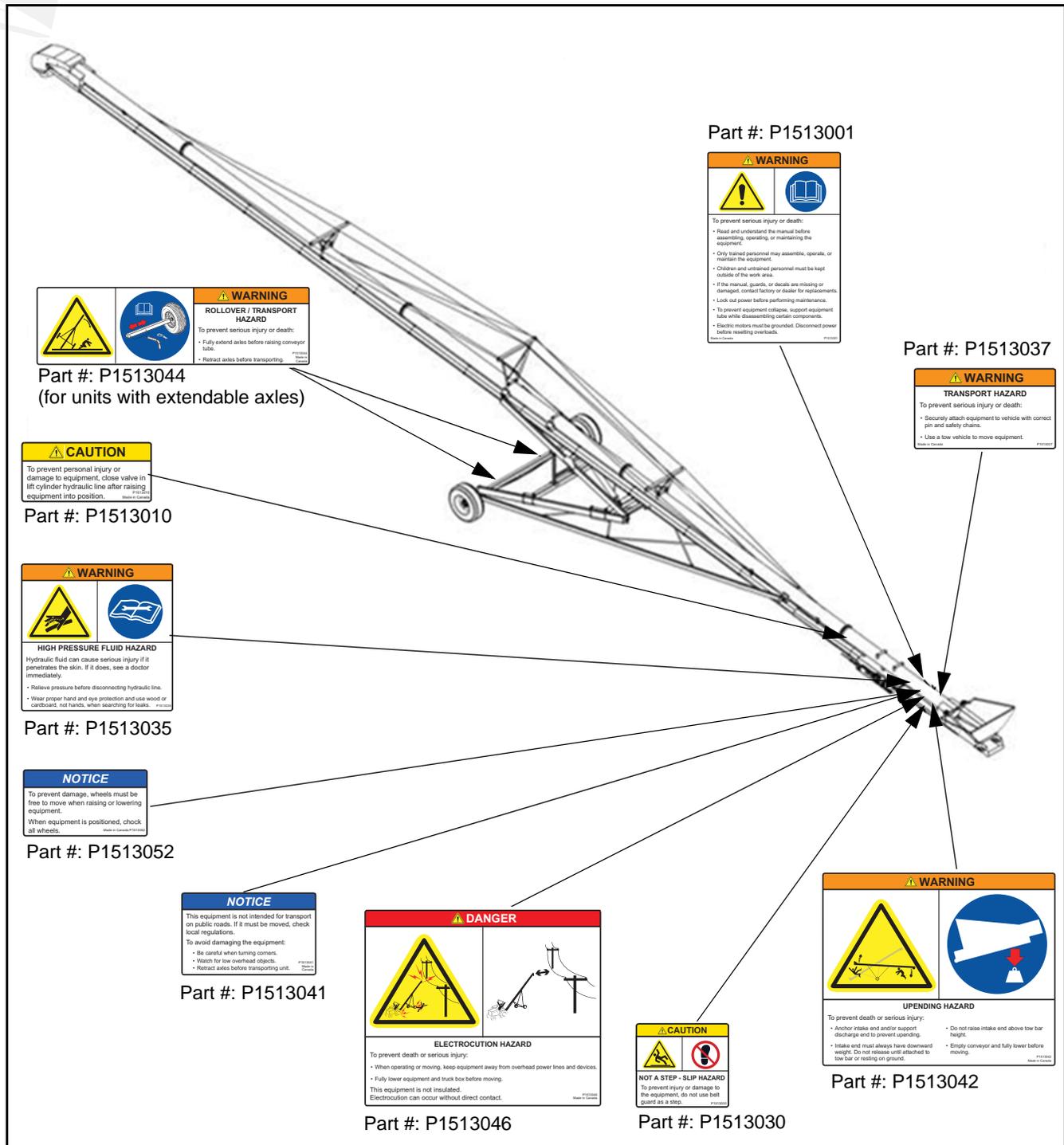


Figure 3.2 Safety Decal Locations for 65'-120' Conveyor Lengths

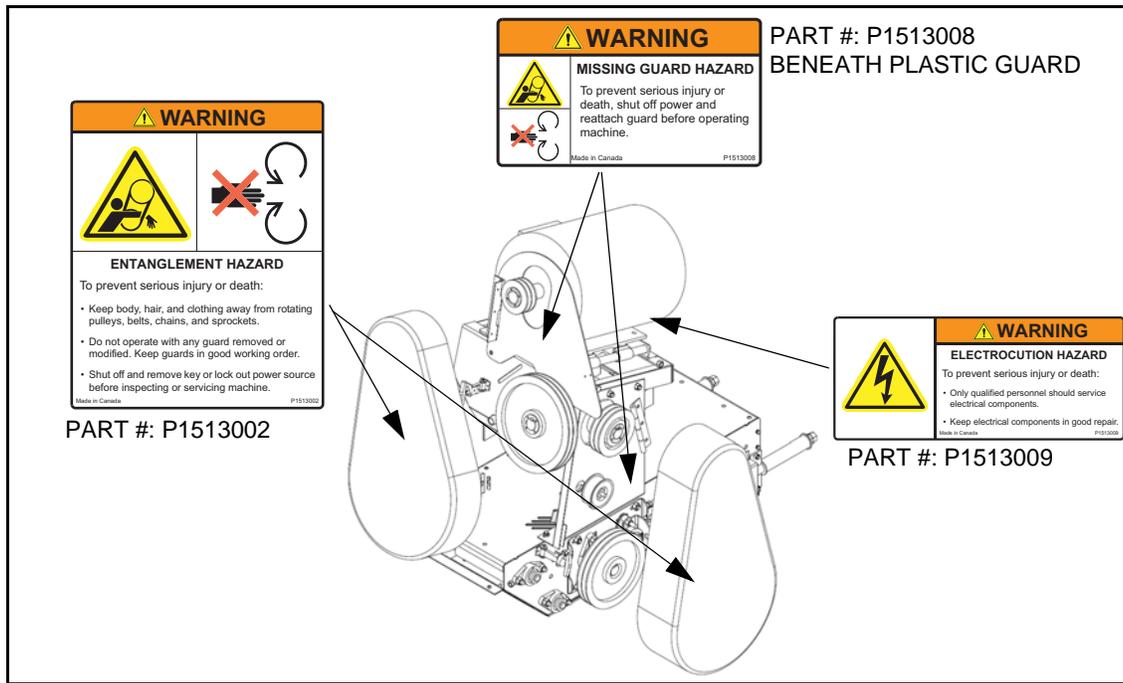


Figure 3.3 Electric S-Drive Safety Decal Locations

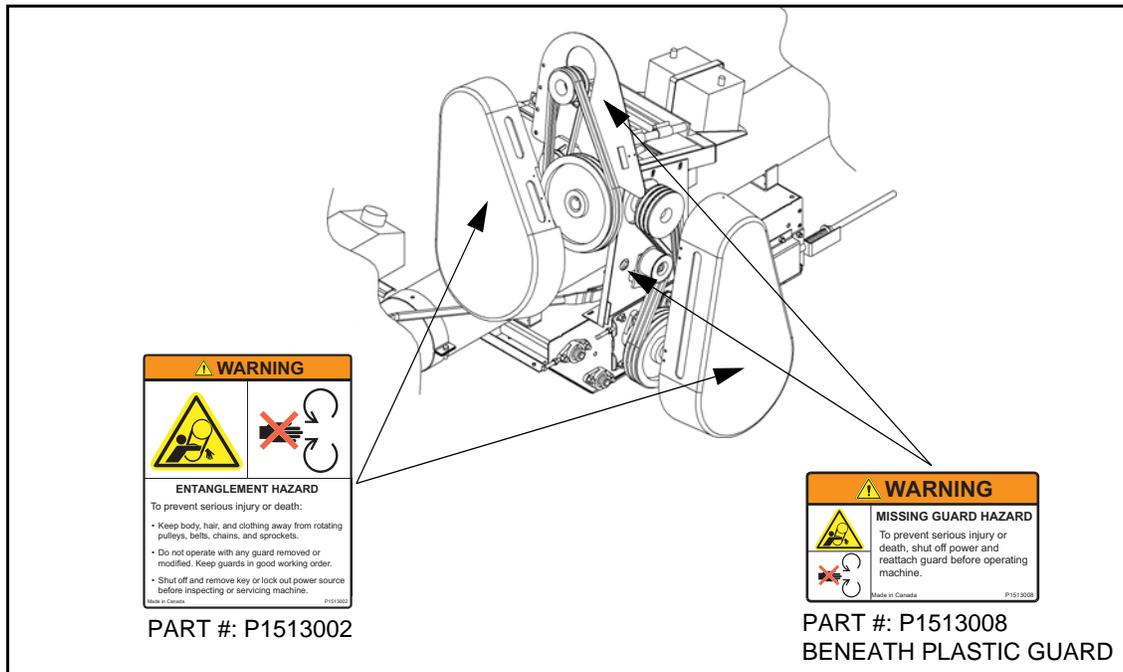


Figure 3.4 Gas S-Drive Safety Decal Locations

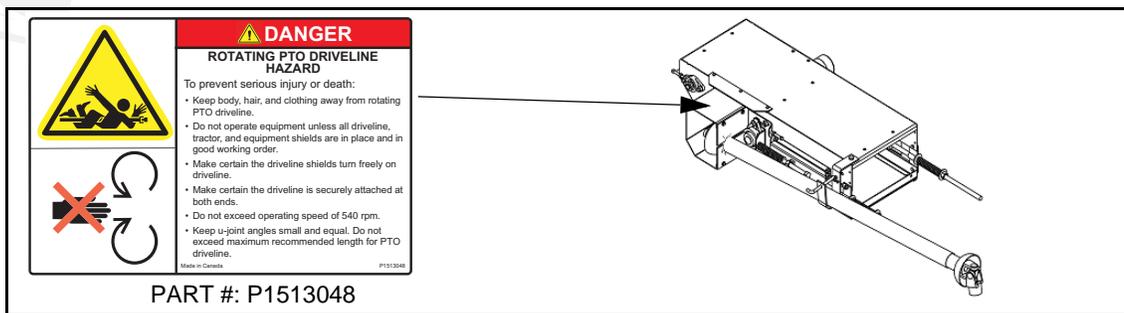


Figure 3.5 PTO S-Drive Safety Decal Location

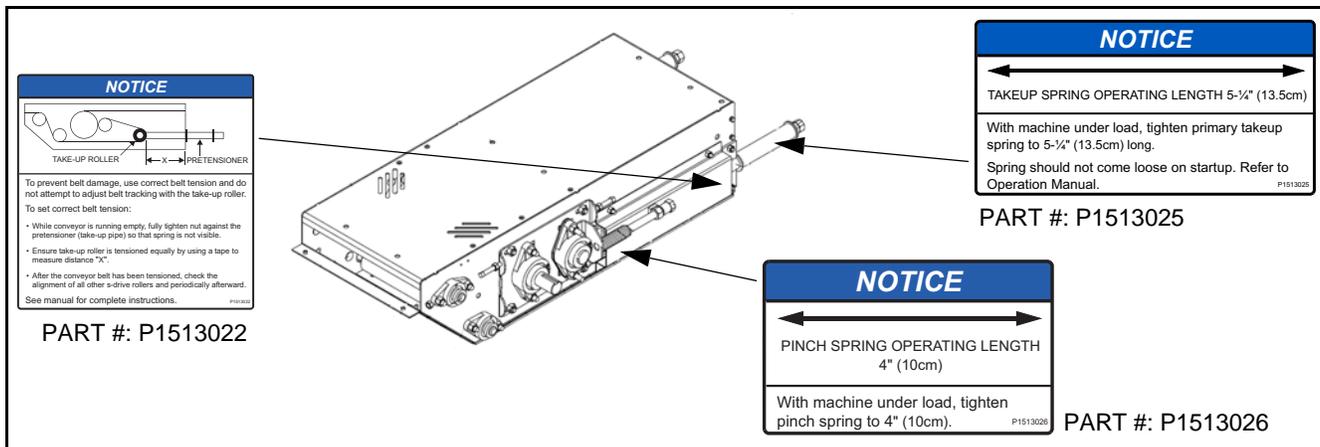


Figure 3.6 S-Drive Safety Decal Locations

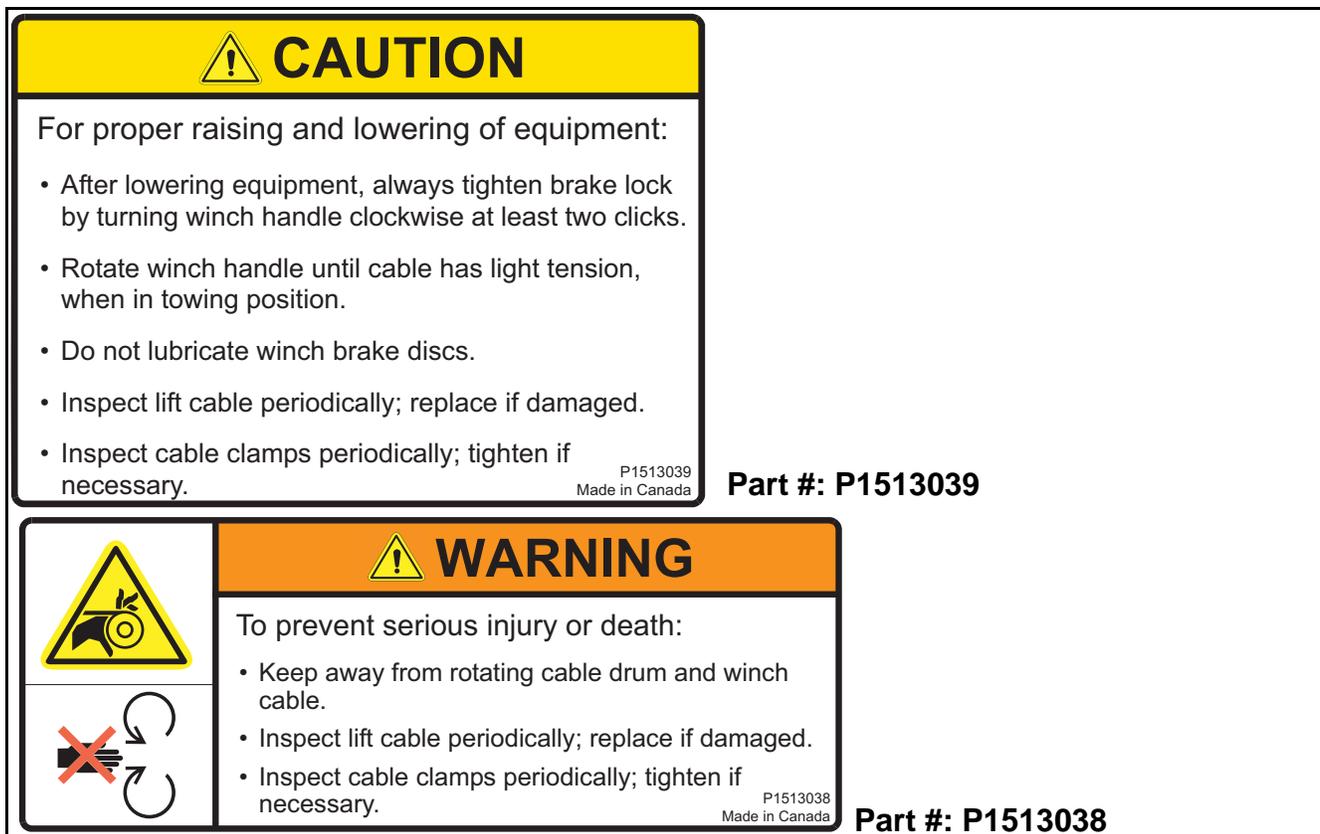


Figure 3.7 Safety Decal Details

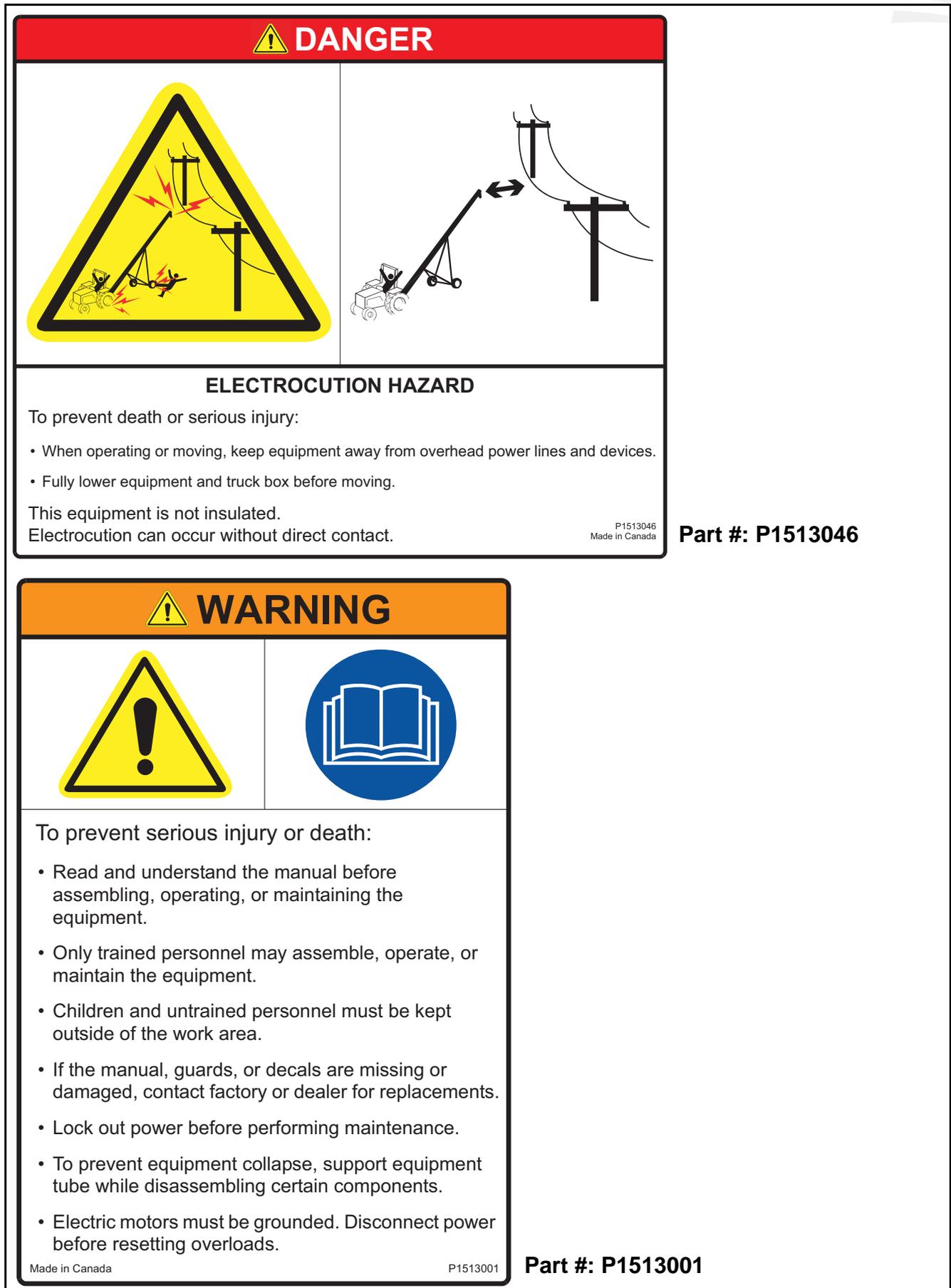


Figure 3.8 Safety Decal Details

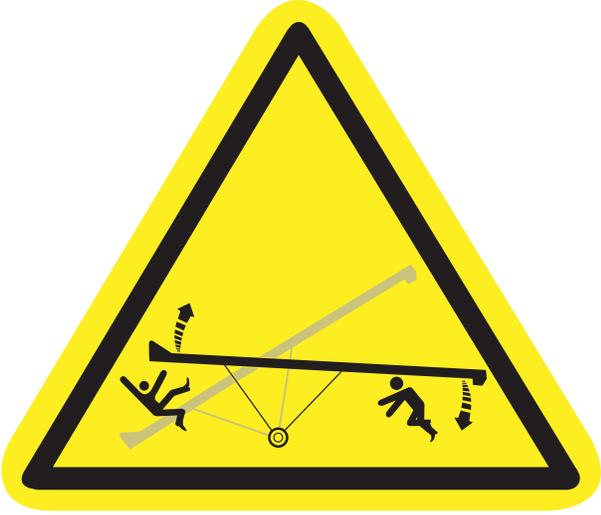
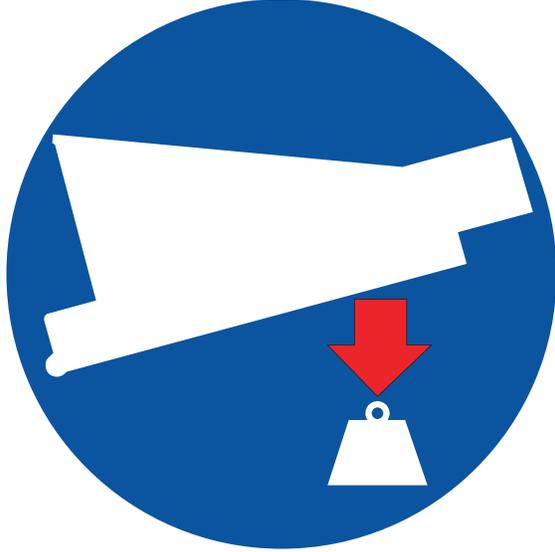
| | |
|---|--|
|  WARNING | |
|  |  |
| UPENDING HAZARD | |
| <p>To prevent death or serious injury:</p> <ul style="list-style-type: none"> • Anchor intake end and/or support discharge end to prevent upending. • Intake end must always have downward weight. Do not release until attached to tow bar or resting on ground. • Do not raise intake end above tow bar height. • Empty conveyor and fully lower before moving. | |
| <small>P1513042 Made in Canada</small> | |
| Part #: P1513042 | |
|  WARNING | |
| TRANSPORT HAZARD | |
| <p>To prevent serious injury or death:</p> <ul style="list-style-type: none"> • Securely attach equipment to vehicle with correct pin and safety chains. • Use a tow vehicle to move equipment. | |
| <small>Made in Canada P1513037</small> | |
| Part #: P1513037 | |
| NOTICE | |
| <p>To prevent damage, wheels must be free to move when raising or lowering equipment.</p> <p>When equipment is positioned, chock all wheels.</p> | |
| <small>Made in Canada P1513052</small> | |
| Part #: P1513052 | |

Figure 3.9 Safety Decal Details

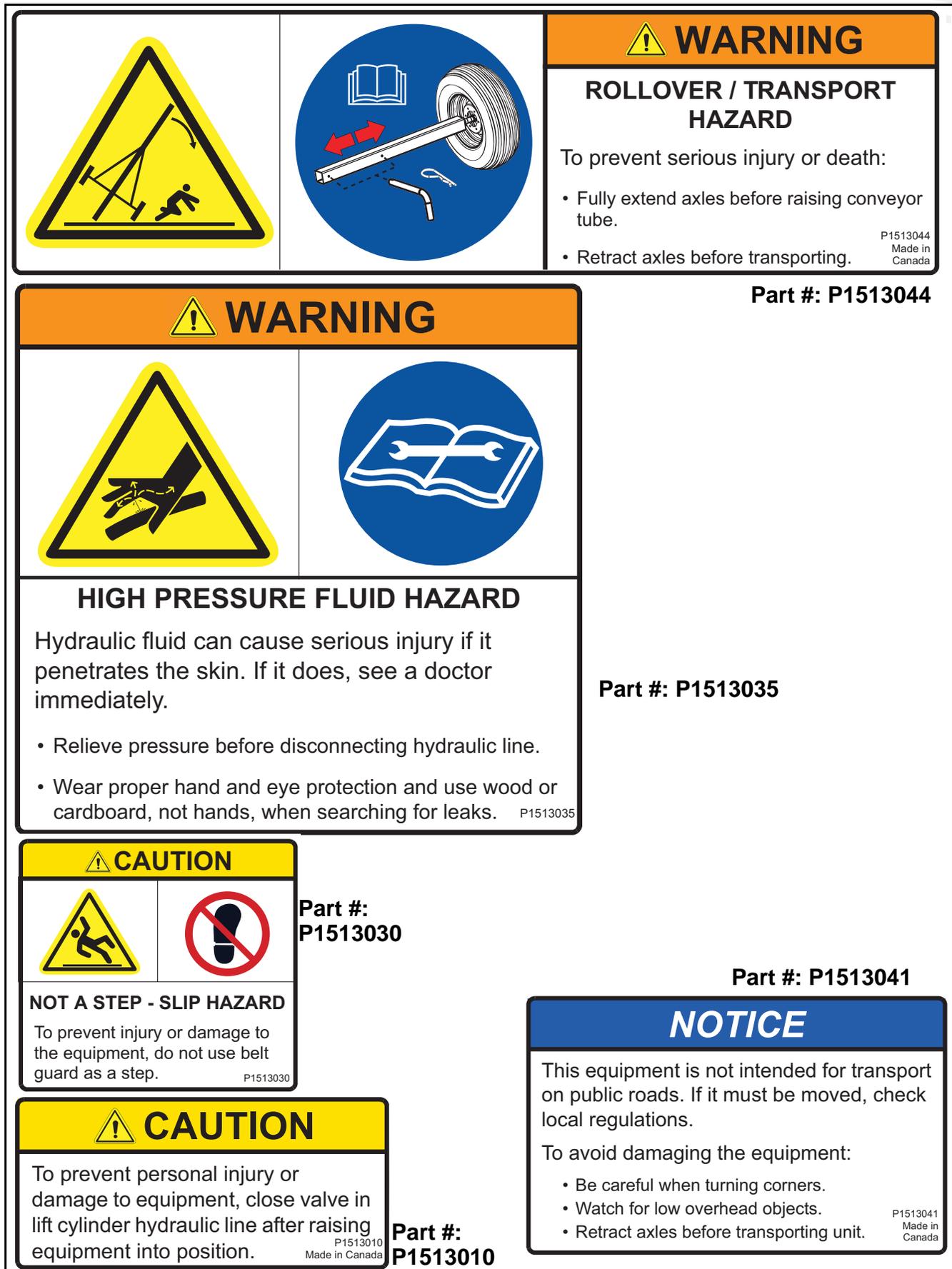
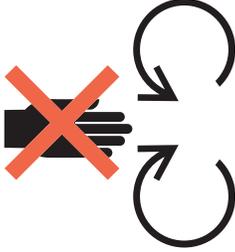


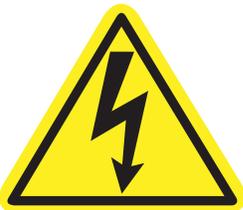
Figure 3.10 Safety Decal Details

|  WARNING | |
|--|---|
|  |  |
| ENTANGLEMENT HAZARD | |
| To prevent serious injury or death: | |
| <ul style="list-style-type: none"> • Keep body, hair, and clothing away from rotating pulleys, belts, chains, and sprockets. • Do not operate with any guard removed or modified. Keep guards in good working order. • Shut off and remove key or lock out power source before inspecting or servicing machine. | |
| <small>Made in Canada</small> <small>P1513002</small> | |

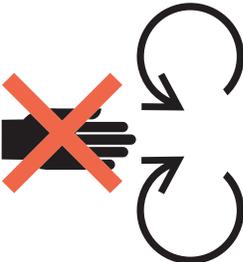
Part #: P1513002

|  WARNING | |
|--|--|
|  | MISSING GUARD HAZARD To prevent serious injury or death, shut off power and reattach guard before operating machine. |
| <small>Made in Canada</small> <small>P1513008</small> | |

Part #: P1513008

|  |  WARNING |
|--|--|
| | ELECTROCUTION HAZARD To prevent serious injury or death: |
| | <ul style="list-style-type: none"> • Only qualified personnel should service electrical components. • Keep electrical components in good repair. |
| | <small>Made in Canada</small> <small>P1513009</small> |

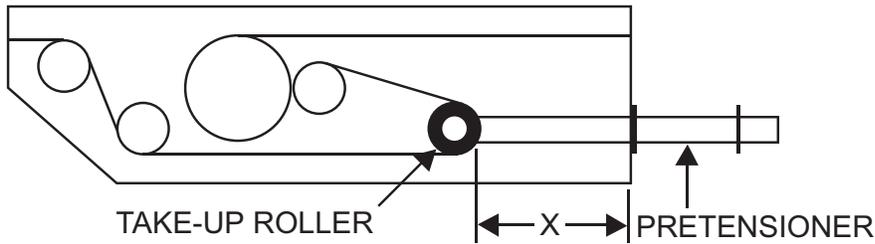
Part #: P1513009

|  |  DANGER |
|---|--|
|  | ROTATING PTO DRIVELINE HAZARD To prevent serious injury or death: |
| | <ul style="list-style-type: none"> • Keep body, hair, and clothing away from rotating PTO driveline. • Do not operate equipment unless all driveline, tractor, and equipment shields are in place and in good working order. • Make certain the driveline shields turn freely on driveline. • Make certain the driveline is securely attached at both ends. • Do not exceed operating speed of 540 rpm. • Keep u-joint angles small and equal. Do not exceed maximum recommended length for PTO driveline. |
| | <small>Made in Canada</small> <small>P1513048</small> |

Part #: P1513048

Figure 3.11 Safety Decal Details

NOTICE



To prevent belt damage, use correct belt tension and do not attempt to adjust belt tracking with the take-up roller.

To set correct belt tension:

- While conveyor is running empty, fully tighten nut against the pretensioner (take-up pipe) so that spring is not visible.
- Ensure take-up roller is tensioned equally by using a tape to measure distance "X".
- After the conveyor belt has been tensioned, check the alignment of all other s-drive rollers and periodically afterward.

See manual for complete instructions.

P1513022

Part #: P1513022

NOTICE



TAKEUP SPRING OPERATING LENGTH 5- $\frac{1}{4}$ " (13.5cm)

With machine under load, tighten primary takeup spring to 5- $\frac{1}{4}$ " (13.5cm) long.

Spring should not come loose on startup. Refer to Operation Manual.

P1513025

Part #: P1513025

NOTICE



PINCH SPRING OPERATING LENGTH
4" (10cm)

With machine under load, tighten pinch spring to 4" (10cm).

P1513026

Part #: P1513026

Figure 3.12 Safety Decal Details

4. Transport

WARNING Before continuing, ensure you have read and understand the relevant information in the safety section. Safety information is provided to help prevent serious injury, death, or property damage.

| CAUTION | |
|---|--|
|  | It may be necessary to raise the outlet end above the storage facility to provide clearance to raise the intake end. |

4.1. PRE-TRANSPORT CHECKLIST

Before transporting conveyor, ensure that:

1. Conveyor is in the fully lowered position.
2. Fully retract wheel axles, if equipped.
 - a. Ensure the conveyor is on level ground before attempting to retract the axles. **Conveyor must be attached to tractor at all times.**
 - b. Using the jack supplied, insert it into one of the jack lugs located on one end of the axle. Jack must be secured to jack lug using pin (attached to jack).
 - c. Raise one side at a time. Ensure that the jack is vertical. Turn the crank to start raising the jack. Raise one side of the axle until the tire clears the ground.
 - d. Remove the axle pin from the axle and slide the axle inward until the first set of holes line up. Reinsert the axle pin and secure with R-clip hairpin. Lower the jack.
 - e. Repeat the process on the other side of the axle to retract the other side.
- ➔ 4. On **electric motor models**, unplug the power cord, wrap around frame, and secure to prevent dragging.
- ➔ 5. On **PTO drive models**, place the driveline in its stowed position before moving or transporting.
- ➔ 6. For **gas drive models**, shut off fuel supply.

4.2. TRANSPORT PROCEDURE

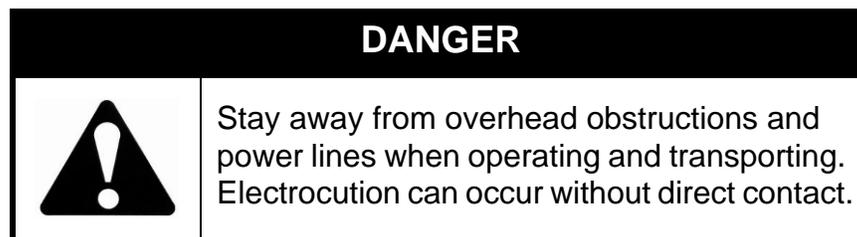
1. Check with local authorities regarding conveyor transport on public roads. Obey all applicable laws and regulations.

2. Make sure the SMV (slow moving vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean, and can be seen clearly by all overtaking and oncoming traffic.
3. Always use hazard warning flashers on tractor or towing vehicle when transporting unless prohibited by law.
4. Always travel at a safe speed. Use caution when turning corners or meeting traffic.
5. It is not recommended that the machine be transported faster than 20 mph (32 km/h). Table 4.1 references the acceptable transport speed as per the ratio of tractor weight versus conveyor weight. See "Appendix" on page 61 for conveyor weights.

Table 4.1 Speed versus Weight Ratio

| Road Speed | Weight or fully equipped or loaded implement(s) relative to weight of towing machine |
|------------------------|--|
| Up to 32 km/h (20 mph) | 1 to 1, or less |
| Up to 16 km/h (10 mph) | 2 to 1, or less |
| Do not tow if | More than 2 - 1 |

6. Use caution when moving conveyors over rolling terrain. In severe dips the discharge end may contact the ground.
7. Never go across slopes of more than 11°. It is better to go straight up or straight down the slope.



8. Long conveyors have a large turning radius. Allow ample room for turning as discharge end may swing dramatically.



5. Placement

WARNING Before continuing, ensure you have read and understand the relevant information in the safety section. Safety information is provided to help prevent serious injury, death, or property damage.

5.1. UNDER HOPPER BOTTOM BINS

BEFORE MOVING CONVEYOR UNDERNEATH HOPPER BIN:

1. Confirm that hopper is centered between the hopper bin vertical legs. This ensures that the operator has adequate clearance.
- ➔ 2. Ensure the conveyor motor will not make contact with the hopper cone when in its final position.
3. Collapse the cloth hopper until it is positioned under the bin.
4. Move conveyor into place.
5. Raise the conveyor spout to desired height using hydraulics or winch.
- Important:** 6. Ensure ball valve (for hydraulic lifts) is closed, or ensure winch is locked.
7. Make sure that gravel is not jammed against the belt under the hopper.

NOTICE

Ensure that the ball valve is closed. Failure to do so will cause the frame to lower, damaging the conveyor.

5.2. FILLING BINS

1. Back the machine up to the storage facility while it is in its lowered configuration.
2. If equipped with extendable wheel axles, place in extended position.
 - a. Ensure the conveyor is on level ground before attempting to extend the axle extensions. **Conveyor must be attached to tractor at all times.**
 - b. Using the jack supplied, insert it into one of the jack lugs located on one end of the axle. Jack must be secured to jack lug using pin (attached to jack).
 - c. Raise one side at a time. Ensure that the jack is vertical. Turn the crank to start raising the jack. Raise one side of the axle until the tire clears the ground.
 - d. Remove the axle pin from the axle and slide the axle outward until the second set of holes line up. Reinsert the axle pin and secure with R-clip hairpin. Lower the jack.



- e. Repeat the process on the other side of the axle to extend the other side.

| WARNING | |
|---|--|
|  | <p>Unit Rollover Hazard:</p> <p>Before raising the unit, axles must be fully extended.</p> <p>Retract axles before transporting unit.</p> <p>Failure to follow these procedures could result in serious injury or death.</p> |

3. Set the park brake on the tractor before dismounting.
4. Use the hydraulic scissor-lift or winch to raise the machine so it clears the storage facility.
5. Slowly back the machine up until the discharge is over the opening in the storage facility.
6. Use the hydraulics or winch to slowly lower the machine to the bin.

| NOTICE |
|--|
| <p>Do not rest the spout or hood on the bin. This may cause hood or belt damage.</p> |

7. Place chocks in the front and back of each wheel.
8. When releasing conveyor from the towing vehicle, test the intake end for downward weight.
9. Unhook the unit from the tractor or towing vehicle and lower hopper to the ground.

| WARNING | |
|---|---|
|  | <p>Upending hazard:</p> <p>Do not hook or unhook hitch unless weight is down.</p> |

10. Lower the machine to the bin, but do not let it rest on the bin.
11. Close ball valve and disconnect hydraulic hose.
12. Remove the hitch from the machine to prevent interfering with other equipment.
13. Prior to operating the conveyor, review Section 3.3. and follow all set-up instructions.
14. Check angle of machine. Ensure that the machine angle is less than the angle of repose of the material to be moved. See Section 10.6. on pg. 66 for more help.

6. Operation

WARNING Before continuing, ensure you have read and understand the relevant information in the safety section. Safety information is provided to help prevent serious injury, death, or property damage.

6.1. PRE-OPERATION CHECKLIST

BEFORE OPERATING THE CONVEYOR EACH TIME:

- Service the machine per the schedule outlined in Section 8.1.
- Use only a tractor, gas engine, or electric motor of adequate power to operate the machine. See Specifications in Sections 10.1. on page 61 and 10.3. on page 63.

Important: *If equipped, check winch and cable. There should be at least 3 complete wraps of cable around the winch drum in transport position. Check that cable anchor on winch drum is tight. Inspect cable and replace if frayed or damaged.*

- Check that cable clamps are secure.
- Check that drive (Gas/Electric Motors) and conveying belts are not frayed or damaged and that they are properly adjusted and aligned. See Maintenance section.
- Ensure wheels are chocked.
- Check that hopper and spout areas are free of obstructions.
- Support discharge end or anchor intake end before using.

6.2. MACHINE BREAK-IN AND OPERATION

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

BEFORE STARTING:

1. Read the conveyor and motor (if equipped) operation manuals.
2. During the first few minutes of operation, check the conveyor belt alignment to ensure preset alignment does not vary under loaded conditions. See Maintenance section.

AFTER OPERATING OR TRANSPORTING FOR 1/2 HOUR:

1. Re-torque all the wheel bolts.
2. Re-torque fasteners and hardware.
3. Check the drive and conveyor belt tension and alignment. Tension or align as required. See Maintenance section.

AFTER OPERATING FOR 5 AND 10 HOURS:

1. Re-torque all wheel bolts, fasteners, and hardware.

2. Check the drive and conveyor belt tension and alignment. Tension or align as required.

6.2.1. DRIVE SETUP

PTO DRIVE MODEL:

1. Back the tractor into position.
2. Chock tractor wheels.
3. Attach PTO shaft.

ELECTRIC MOTOR MODEL:

1. Have a certified electrician provide power to the machine.
2. Provide convenient shutdown switches and comply with local electrical codes.
3. Use a totally enclosed electric motor when conveying in extremely dusty conditions. Be sure electric motor is properly grounded.

GAS ENGINE MODEL:

1. Have engine installed by an electrical technician.
2. Ensure electrical cables are properly grounded.
3. Ensure drive belts are properly aligned and in good condition.
4. Ensure that fuel lines are in good condition and are not contacting any obstructions.
5. Fill system with fuel.

6.2.2. STARTING CONVEYOR

| WARNING | |
|---|---|
|  | Anchoring and/or support of the conveyor during operation is necessary. When emptying the conveyor, the weight balance transfers to the upper end of the machine, which can cause upending. |

PTO DRIVE:

1. Place all controls in neutral.
2. Engage tractor parking brake.
3. Start tractor and run at low idle.
4. Engage PTO and steadily increase engine speed to desired speed.

Important: *Position tractor to keep u-joint angles equal and as small as possible.*

| CAUTION | |
|---|--|
|  | <p>Hydraulic safety ball valve must be fully opened before lifting or lowering the conveyor.</p> <p>Valve must be closed when conveyor is in a fixed position to prevent the hydraulic cylinder from creeping downward during operation.</p> |

ELECTRIC DRIVE:

1. Turn the electric motor ON.
2. Engage belt drive if equipped.

GAS ENGINE DRIVE:

1. Disengage gas engine drive belt or electric clutch.
2. Move throttle to 1/4 position for starting.
3. Use choke, if required.
4. Start engine.
5. Run engine for a couple of minutes until the engine warms.
6. Engage belt drive or electric clutch and increase engine speed to desired speed.

| CAUTION | |
|---|--|
|  | <p>Conveyor should not be left in a raised position for extended periods of time. Fully lower conveyor to prevent the risk of damage or personal injury.</p> |

6.2.3. CONVEYOR SHUTDOWN

PTO MODELS:

1. Run until the belting is empty.
2. Reduce engine speed to low idle.
3. Disengage PTO clutch.
4. Shut off engine and remove ignition key.

ELECTRIC MOTOR MODELS:

1. Run until the belting is empty.
2. Disengage belt drive if equipped.
3. Turn off motor and lock out power source.

GAS DRIVE MODELS:

1. Run until the belting is empty.
2. Reduce engine speed to low idle.
3. Disengage belt drive; or disengage electric clutch if unit is equipped with one.
4. Shut off engine.

6.2.4. EMERGENCY SHUTDOWN

Although it is recommended that the tube be emptied before stopping, in an emergency situation, stop or shut down the power source immediately.

Important: *Lock out all power and ensure the machine components come to a stop before inspecting.*

Correct the emergency before resuming work.

6.2.5. RE-STARTING (FULL TUBE)

When the machine is shut down inadvertently or for an emergency, the tube will still be filled with material.

Important: *Since the start-up torque loads are much higher than normal when the tube is full, restart at low idle engine speed for the **PTO and gas engine models**.*

It may be necessary to tighten the drive belts (Electric/Gas Models) slightly to handle the heavier than normal loads (see Section 8.3.4.).

6.2.6. CONVEYOR OPERATING ANGLES

The conveyor lift can set the tube angle at any position between 12° and 30° when operating. Because the belt does not have roll back barriers, the material will roll back if the angle is too steep. Do not position the conveyor at an angle steeper than the angle of repose of the material to be moved.

See Section 10.6. for help on determining these angles.

Note: *The lower the angle, the greater the capacity.*

6.2.7. BELT SPEED

The best results are obtained when the input drives are set to provide a belt speed of 500 to 600 ft/min on the 1300 and 1500 series, and 600 to 650 ft/min on the 1800, 2000, and 2400 series.

Count the number of belt revolutions per minute to determine belt speed. Approximate belt length is double the length of your machine plus 3'. See packing slip for belt lengths.

Note: *Use the connector splice as a reference when counting belt revolutions.*

Contact your dealer or the factory for the appropriate drive components to give the recommended belt speed.

6.2.8. OPERATING TIPS

- Direct the flow of material into the input hopper in the direction of the belt for the best capacity.
- Attempting to move material at too steep an angle can result in excessive slide back and poor capacity.
- Always listen for any unusual sounds or noises. If any are heard, stop the machine and determine the source. Correct the problem before resuming work.
- Always close the hydraulic safety ball valve once the machine is positioned.
- Do not run the machine for long periods of time without material on the belt- ing. It increases belt wear.
- Do not support outlet end directly on the storage facility. Tie down the intake (hopper) or weigh it down to prevent upending.
- To achieve maximum capacity, feed material onto belt until material tube clearance is 1/2"; do not flood feed hopper.
- On the **PTO drive models**, align the tractor axis with the conveyor input shaft to minimize the angles of the universal joints on the PTO driveline.

Note: *On the standard hopper conveyor, the best capacity is obtained when the material is loaded into the hopper as close to the tube as possible.*



7. Storage



Before continuing, ensure you have completely read and understood this manual's Safety chapter, in addition to the safety information in the section(s) below.

To PROTECT THE CONVEYOR IN STORAGE:

1. Lower the conveyor to its lowest position for storage.
2. Select an area that is dry, level, and free of debris.
3. Remove all residual material from the conveyor.
4. Stop machine so that the belt lacing is inside the tube. This protects the lacing from weathering.
5. Wash the entire machine thoroughly using a water hose or pressure washer to remove all dirt, mud, debris, or residue.
6. Inspect all hydraulic hoses (if equipped), fittings, lines, couplers, and valves. Tighten any loose fittings. Replace any fitting or hose if damaged.
7. Touch up all paint nicks and scratches to prevent rusting.
8. If machine is not equipped with belt weather guards, position it in such a way as to limit wind exposure to the belt.
9. Place a block under the jack to ensure it will not freeze to the ground in the winter.

To prepare the conveyor for use after storage, perform general maintenance. See Section 8.3. for further details.



8. Maintenance

WARNING *Before continuing, ensure you have read and understand the relevant information in the safety section. Safety information is provided to help prevent serious injury, death, or property damage.*

8.1. MAINTENANCE SCHEDULE

8.1.1. INITIAL START-UP SERVICING

Since the belt alignment is preset to run true under a condition of no load, it is important to check alignment and make adjustments if required during the initial few minutes of loaded operation. To adjust alignment, see Section 8.3.5. Conveyor Belt Alignment on page 48.

8.1.2. 8 HOURS OR DAILY

ALL MODELS

- Check the conveyor belt tension and alignment. See Section 8.3.3.

PTO DRIVE MODELS

- Grease all grease fittings at 8 - 10 hour intervals.
- Inspect u-joint for wear.
- Ensure that the connection between PTO shaft and spline is secure.
- Inspect guards and ensure they are in good condition and are free to rotate.

GAS ENGINE DRIVE MODELS

- Check fuel level and add as required.
- Check gearbox oil level.
- Check crankcases oil level and add as required.
- Check drive belt tension and alignment.
- Check the hydraulic wet kit oil reservoir level, if equipped.
- Refer to gas engine operation manual for further details.

ELECTRIC DRIVE MODELS

- Check drive belt tension and alignment.
- Check gearbox oil level.
- Check the hydraulic wet kit oil reservoir level, if equipped.

8.1.3. 40 HOURS OR WEEKLY

- Check the conveying belt tension and alignment. See Section 8.3.3.
- Check condition of hopper flashing. Be sure it seals the hopper and prevents grain leakage.
- Look for hydraulic leaks and repair if required.
- Clean engine air filter (if equipped).

8.1.4. 200 HOURS OR ANNUALLY

- Check tube for straightness. Adjust cables, if required. See Section 8.3.3.
- Check tire pressure and add air if required. Inflation pressure details can be found on the tire itself.
- Check roller bearings for wear. Any rollers making noise, getting hot while running, or that have play should be replaced.
- Repack wheel bearings.
- Wash machine.
- Check gear box oil level (if equipped).
- Inspect roller lagging to see if it is showing signs of wear.
- Check belt lacing. If any clips are worn through, replace all lacing.
- Check hopper flashing for wear and replace any that are worn. Worn flashing will cause hopper leakage.

NOTICE

Operating the conveyor with a damaged roller will result in a damaged conveyor belt.

8.2. MAINTENANCE CHECKLIST

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

Use the maintenance checklist provided to keep a record of all scheduled maintenance.

Note: *Not all options will apply to your machine.*

✓ = Check CL = Clean L = Lubricate C = Change R = Repack

| 8 Hours/Daily | | Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|-------------------------|---------------------------|--------|--------|--------|----|----|----|----|----|-------------------------|----------------------------|--------|--------|----|----|----|----|----|----|----|----|----|----|----|
| ✓ | Conveyor Belt Tracking | | | | | | | | | | | | | | | | | | | | | | | |
| L | PTO shaft (3) | | | | | | | | | | | | | | | | | | | | | | | |
| ✓ | Fuel & Oil Level(s) | | | | | | | | | | | | | | | | | | | | | | | |
| | | Day | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |
| ✓ | Conveyor Belt Tracking | | | | | | | | | | | | | | | | | | | | | | | |
| L | PTO shaft (3) | | | | | | | | | | | | | | | | | | | | | | | |
| ✓ | Fuel & Oil Level(s) | | | | | | | | | | | | | | | | | | | | | | | |
| | | Day | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 |
| ✓ | Conveyor Belt Tracking | | | | | | | | | | | | | | | | | | | | | | | |
| L | PTO shaft (3) | | | | | | | | | | | | | | | | | | | | | | | |
| ✓ | Fuel & Oil Level(s) | | | | | | | | | | | | | | | | | | | | | | | |
| | | Day | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 |
| ✓ | Conveyor Belt Tracking-- | | | | | | | | | | | | | | | | | | | | | | | |
| L | PTO shaft (3) | | | | | | | | | | | | | | | | | | | | | | | |
| ✓ | Fuel & Oil Level(s) | | | | | | | | | | | | | | | | | | | | | | | |
| 40 Hours/Weekly | | Week | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| ✓ | Belt Tension & Alignment | | | | | | | | | | | | | | | | | | | | | | | |
| ✓ | Conveyor Belt Tracking | | | | | | | | | | | | | | | | | | | | | | | |
| ✓ | Hopper Flashing Condition | | | | | | | | | | | | | | | | | | | | | | | |
| ✓ | Check for Hydraulic Leaks | | | | | | | | | | | | | | | | | | | | | | | |
| Electric Drive Models | | | | | | | | | | | | | | | | | | | | | | | | |
| ✓ | Drive Belt Tens. & Align. | | | | | | | | | | | | | | | | | | | | | | | |
| Gas Engine Drive Models | | | | | | | | | | | | | | | | | | | | | | | | |
| ✓ | Drive Belt Tens. & Align. | | | | | | | | | | | | | | | | | | | | | | | |
| CL | Air Cleaner Foam | | | | | | | | | | | | | | | | | | | | | | | |
| 200 hours / Annually | | Year 1 | Year 2 | Year 3 | | | | | | | Year 1 | Year 2 | Year 3 | | | | | | | | | | | |
| ✓ | Tube Straightness | | | | | | | | | ✓ | Belt Lacing | | | | | | | | | | | | | |
| ✓ | Roller Bearings | | | | | | | | | ✓ | Hopper Flashing | | | | | | | | | | | | | |
| R | Wheel Bearings | | | | | | | | | Hydraulic Drive Models | | | | | | | | | | | | | | |
| CL | Machine | | | | | | | | | L | Roller Chain-Input Coupler | | | | | | | | | | | | | |
| ✓ | Roller Lagging | | | | | | | | | Gas Engine Drive Models | | | | | | | | | | | | | | |
| ✓ | Check Tire Pressure | | | | | | | | | C | Engine Oil | | | | | | | | | | | | | |

8.3. SERVICE & MAINTENANCE PROCEDURES

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

8.3.1. FLUIDS AND LUBRICANTS

GREASE:

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

ENGINE CRANKCASE OIL:

- See engine operation manual for details.

ENGINE GASOLINE:

- See engine operation manual for details.

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.

8.3.2. GREASING

Note: *Most original equipment bearings used by Batco are sealed units and will not accept grease.*

1. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
2. Replace and repair broken fittings immediately.
3. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

8.3.3. CONVEYOR BELT TENSION

Adjusting your conveyor belt for proper tension helps to ensure trouble-free operation and long belt life. A conveyor belt only needs to be tight enough to not slip on the drive roller. If the belt is too loose, it will slip on the drive roller making a noticeable sound, slowing the belt down. To correct belt slippage and set proper tension in the belt, follow the steps in the corresponding section below.

Important: *If belt is slipping and adjustment bolts are fully tightened, then belt must be shortened due to stretch over long time usage, or replaced depending on wear. See Section 8.3.7.*

Belt should not be easy to pull from the hopper transition sides, otherwise the belt will require tensioning.

When conveyor is starting/operating, the belt stretches and a pair of springs extend to take-up the stretched belt. See indicator on side of s-drive for recommended spring compression. Excessive droop between s-drive and hopper should be corrected.

WARNING



Ensure ignition key is removed, or lock out power source before adjusting or servicing conveyor.

NOTICE

Failure to stop using a conveyor with a slipping belt will damage it and/or the drive roller lagging. In extreme cases, sections of burnt belt will have to be replaced. This type of damage is not covered by warranty.

8.3.4. BELT TENSION INSTRUCTIONS

WARNING



Before tensioning belt, remove ignition key and lock out power.
After tensioning belt, replace guards if removed.

S-DRIVE

1. Tighten take-up bolts 1"; ensure they are equal.
2. Check belt tension by running conveyor for 1 minute. If belt is not slipping, then proceed to next step; otherwise repeat from step 1.
3. If belt is not slipping, but now running to one side, the drive roller needs to be re-aligned. "See "Conveyor Belt Alignment" on page 48.

S-DRIVE WITH SPRINGS

1. Tighten take-up roller bolts so that springs compress and match dimension B (Figure 8.1). If springs are already properly compressed, then tighten the take-up bolts 1"; ensure they are tensioned equally by measuring the position of the take up roller dimension A (Figure 8.1.). Tension until both sides are equal.
2. Check belt tension by running conveyor for 1 minute. If belt is not slipping, then proceed to next step; otherwise repeat from step 1.
3. If belt is not slipping, but now running to one side, the tensioned roller needs to be re-aligned. See Section 8.3.5. Conveyor Belt Alignment on page 48.

Note: *Springs should open up during operation. If they don't, the belt is too tight. Springs are meant to expand under load to absorb loose belt.*

8.3.5. CONVEYOR BELT ALIGNMENT

Important: *Some belts may have uneven edges, appearing misaligned. Wait until the belt makes a complete revolution before adjusting rollers.*

If your belt is tracking to one side, use the instructions below and follow the steps listed to center it. Follow the steps in the appropriate section(s) in order. If you are unsure where the problem is, start at the beginning of this section and work your way to the end. Skip sections that do not apply. The process can be lengthy but will help ensure trouble-free operation and long belt life.

Important: *Ensure that conveyor is empty of all product before adjusting belt alignment.*

| WARNING | |
|---|--|
|  | Before aligning belt, remove ignition key and lock out power. After aligning belt, replace guards if removed. |

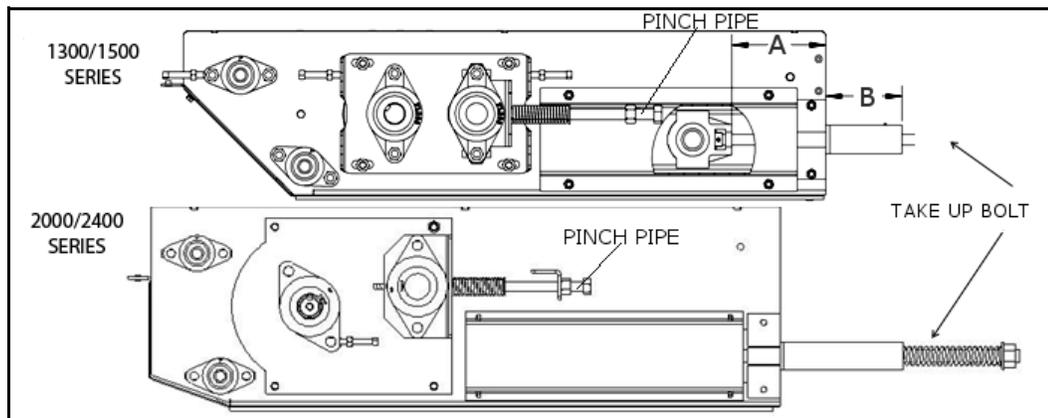


Figure 8.1 Pinch S-Drive

S-DRIVE BELT ALIGNMENT TIPS

1. If belt tracks to the side of the s-drive, check that s-drive is level with the hopper. U-clamps will have to be loosened slightly and re-tightened to level s-drive.
2. The only adjustment required on the s-drive should be on the drive roller. If the belt still tracks to one side after adjusting the s-drive roller, then follow the procedure for the wrap roller, if equipped, and repeat the same procedure for the s-drive return roller if there are still problems.
3. Do not adjust the take-up roller on the s-drive; instead, use a tape measure and measure dimension 'A' on both sides of the s-drive as shown in Figure 8.1 to ensure take-up bearings/bolts are tightened equally.

S-DRIVE TAKE-UP ROLLER

1. Measure length 'A' in Figure 8.1 on each side of s-drive. If lengths not equal then adjust nuts until equal.
2. Restart conveyor and run empty for 1 minute.
3. Stop conveyor, remove ignition key or lock out power source.

4. If belt has centered, then move to next step below; otherwise, repeat from step 1.
5. Tighten bearing bolts and jam nut (if equipped).

S-DRIVE DRIVE ROLLER

1. Loosen bearing bolts and jam nut (if equipped).
2. Rotate adjustment bolt 1/2 turn on the side the belt is running toward.
3. Restart conveyor and run empty for 1 minute.
4. Stop conveyor, remove ignition key or lock out power source.
5. If belt has centered, then move to next step below; otherwise, repeat from step 1.
6. Tighten mount plate bolts, bearing bolts and jam nut (if equipped).

S-DRIVE PINCH ROLLER

1. This roller will follow the same steps as the S-drive Drive Roller if adjusted properly.
2. Ensure bolts are just loose enough to allow pinch roller to move.
3. Springs should be compressed to match indicator. Some units are equipped with a bolt spacer. Tighten bolt fully against spacer.

HOPPER ROLLER

1. Loosen bearing bolts and jam nut (if equipped).
2. Rotate adjustment bolt 1/2 turn on the side the belt is running toward.
3. Restart conveyor and run empty for 1 minute.
4. Stop conveyor, remove ignition key or lock out power source.
5. If belt has centered, then move to next step below; otherwise, repeat from step 2.
6. Tighten bearing bolts and jam nut (if equipped).

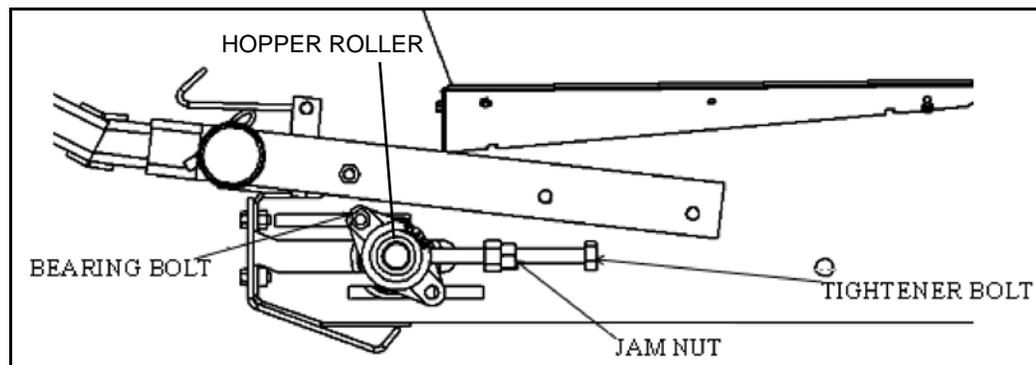


Figure 8.2 Hopper Roller

SPOUT ROLLERS

1. Loosen bearing bolts and jam nut (if equipped).
2. Rotate adjustment bolt 1/2 turn on the side the belt is running toward.
3. Restart conveyor and run empty for 1 minute.
4. Stop conveyor, remove ignition key or lock out power source.

5. If belt has centered, then move to next step below; otherwise, repeat from step 2.
6. Tighten bearing bolts and jam nut (if equipped).

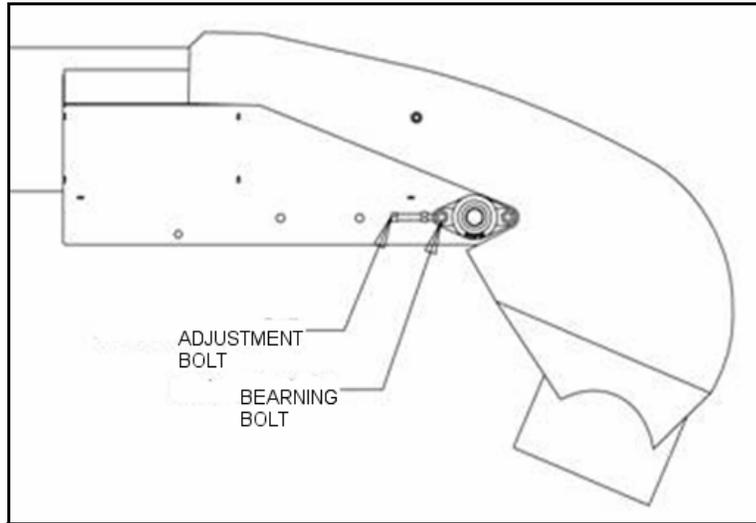


Figure 8.3 Spout

BELT RETURN

1. Start at hopper or last adjusted roller and check that belt is centered on each belt return bracket.
2. If belt is not centered, adjust bracket toward hopper slightly on side belt is tracking toward. (Hex Rollers)
3. Adjust wear blocks if unit has weather protectors (see Figure 8.4).

Note: *Wear blocks are located on every second weather protector bracket.*

4. Restart conveyor and run empty for 1 minute.
5. Stop conveyor, remove ignition key or lock out power source.
6. If belt has not centered repeat from step 2.

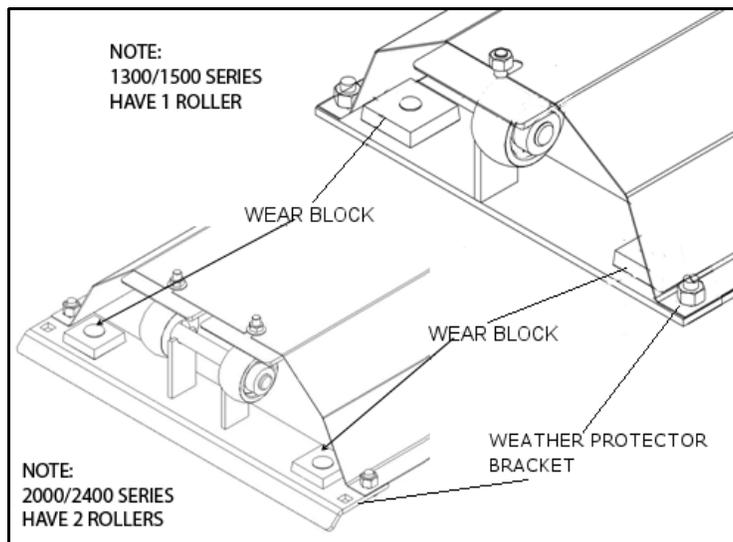


Figure 8.4 Weather Guard Guide Block

8.3.6. BELT RELACING

1. Rotate the belting until the lacing is by the hopper or easily accessible.
2. Loosen conveyor belt and remove lacing retainer clip and pin (see Figure 8.5).

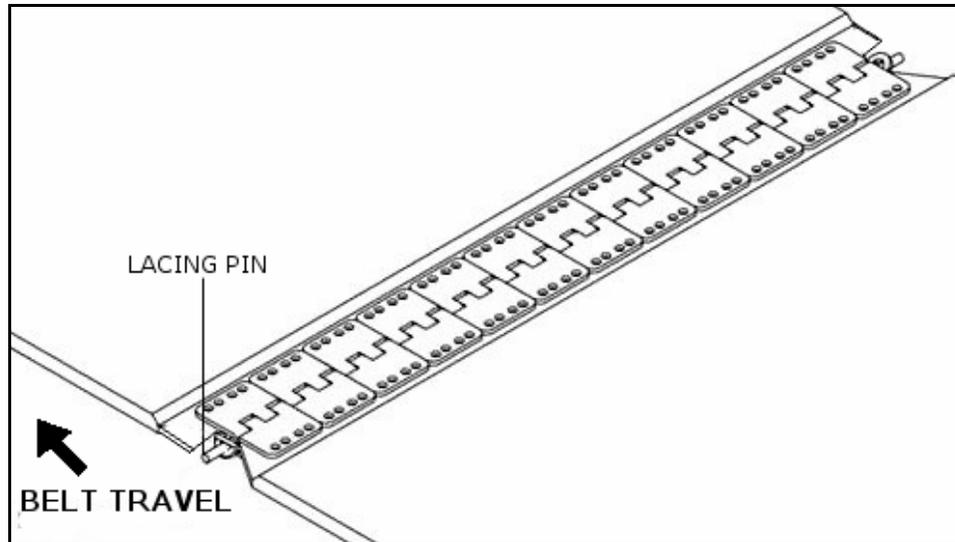


Figure 8.5 Belt Lacing Pin

3. Using a square and sharp knife, cut lacing off right behind the lacing clips. Cut belt **MUST** have a square end.
4. Use knife to cut Chevron pattern off 1" back from end of belt. This ensures that the lacing is centered and fully seated on the belt.
5. Use lacing tool to install new lacing clips. Lacing clips are one clip shorter than belt width. For example: the lacing for a 15" wide belt is 14 clips. Center lacing on belt and install lacing as per instructions on lacing tool.
6. Reattach conveyor belt ends together. If required, use a ratchet strap clamped to both ends of belt to cinch belting ends together (see Figure 8.6).
7. Install lacing pin and crimp retainer clips onto each end of the lacing pin.
8. Remove ratchet strap and tighten conveyor belt. See Section 8.3.3.
9. Check and set belting alignment. See Section 8.3.5.
10. Clear area of all bystanders and engage conveyor drive. Allow to run for 30 seconds, then shut down conveyor and inspect lacing.

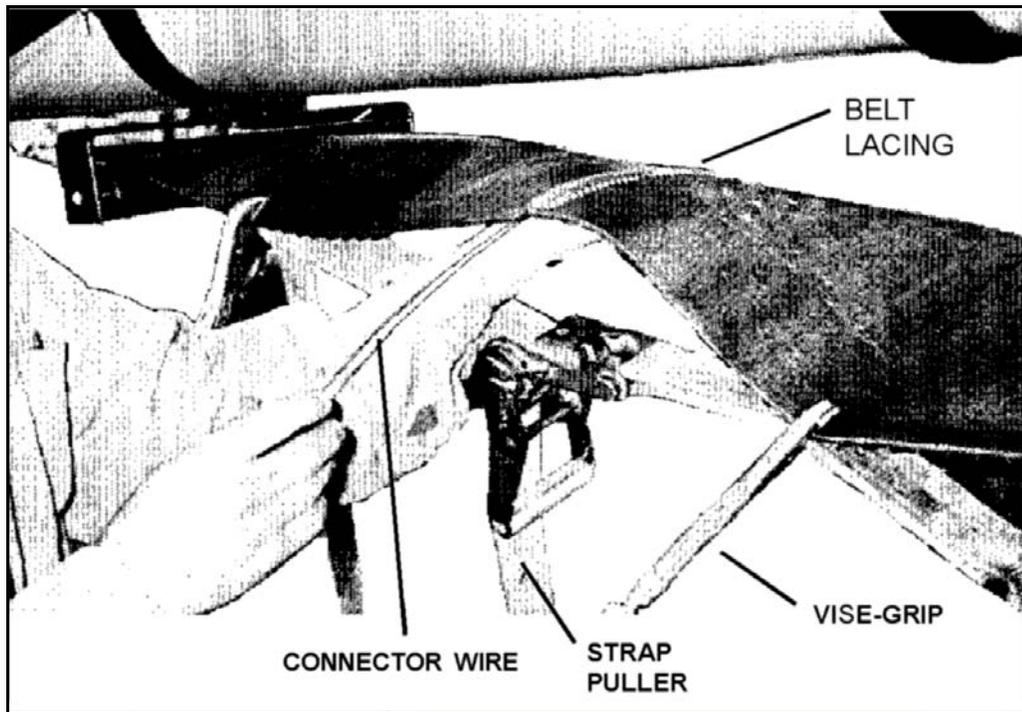


Figure 8.6 Strap Puller

8.3.7. CONVEYOR BELT REPLACEMENT

1. Shut down and lock out power.
2. Rotate the belting until the lacing is by the hopper or easily accessible.
3. Move the tension roller to its loosest position, by loosening the s-drive takeup bolts (see Figure 8.1).
4. Pull all the slack to the lacing area.
5. Remove the lacing pin (see Figure 8.5).
6. Attach one end of the replacement belt to the belt end being removed, closest to the hopper.

| WARNING | |
|---|--|
|  | <p>Shut off power and lock out before pulling belt through machine.</p> <p>DO NOT use drive or motor to pull replacement belt through conveyor. Damage to conveyor and serious injury can occur.</p> |

Important: *Ensure that the belt is installed as shown in Figure 8.5. Note the directions of belt travel and square and trimmed edge positions.*

7. Pull the old belt out and the new belt will be threaded into place (see Figure 8.7).

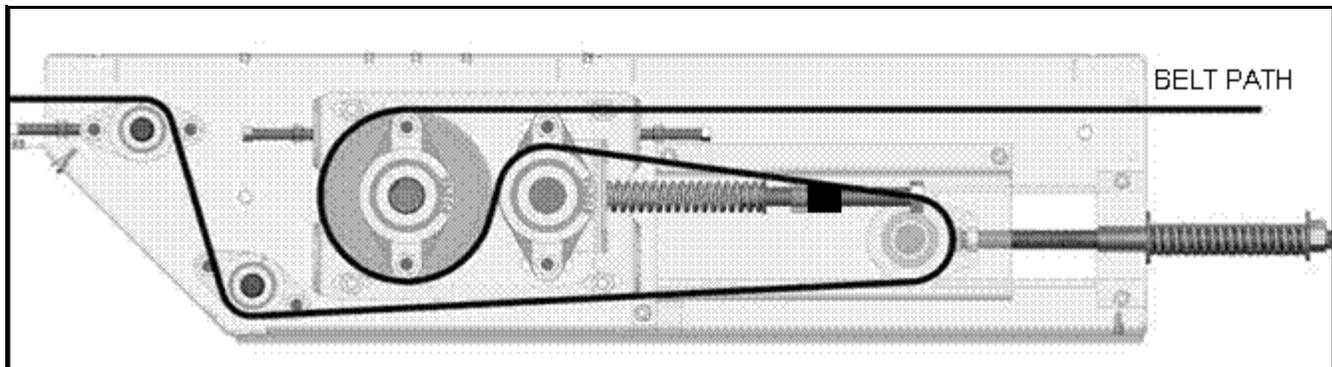


Figure 8.7 Drive Belt Path

8. Disconnect the old belt.
9. Reattach conveyor belt ends together. If required, use a ratchet strap clamped to both ends of belt to cinch belting ends together (see Figure 8.6).
10. Install lacing pin and crimp retainer clips onto each end of the lacing pin (see Figure 8.5).
11. Remove ratchet strap and tighten conveyor belt. See Section 8.3.3.
12. Check and set belting alignment. See Section 8.3.5.
13. Engage conveyor drive. Allow to run for 30 seconds, then shut down conveyor and inspect lacing.

8.3.8. DRIVE BELT TENSION & ALIGNMENT (GAS AND ELECTRIC DRIVE)

Power to the conveyor is transmitted through a set of v-belts. The drive system must be maintained at the proper belt tension and pulley alignment to obtain desired performance and life. When maintaining the belt drive system follow the appropriate sections below.

| WARNING | |
|---|---|
|  | <p>Before working on drive belt:</p> <p>Gas Drives: Remove ignition key and lock out power.</p> <p>Electric Drives: Turn motor off and unplug power cord or turn off power at master panel.</p> |

BELT TENSION

1. Push on the center of the belt span with a force of approximately 5 lb.
2. The belts will deflect approximately 1/4" to 1/2" when properly tensioned.
3. Move the motor base to set drive belt tension.
4. Close and secure guards.

BELT ALIGNMENT

1. Lay a straight edge across the pulley faces to check the alignment.
2. Use the pulley hub to move the pulley to the required position for alignment.
3. Tighten hub bolts to secure pulley on shaft.
4. Check belt tension.
5. Close and secure guards.

BELT REPLACEMENT

1. Move motor base to its loosest position.
2. Remove old belts and replace with new one.
3. Check pulley alignment. Adjust if required.
4. Close and secure guards.

8.3.9. DRIVELINE SHIELD (PTO DRIVE)

1. The shield must turn freely on the PTO shaft. Daily lubrication of both shield bearings and periodic cleaning will ensure safe operation of the shield.
2. If the shield is damaged or worn, replace the components.

8.3.10. TUBE ALIGNMENT CABLE TRUSS

1. Loosen cable clamps on trusses.
2. Support spout end of unit.
3. Starting from the innermost cables and working your way out, tighten cable eyebolts evenly on both sides until the spout just starts to bow upward (see Figure 8.8).
 - The tube should not deflect to the left or right if tightened evenly.
 - When material is conveyed, the tube may deflect down.
 - Tension should be greater on shorter cables than on longer cables. If the conveyor tubes remain straight then the cables are tensioned properly.
4. Tighten cable clamps on trusses.
5. Secure jam nut on cable eyebolt.

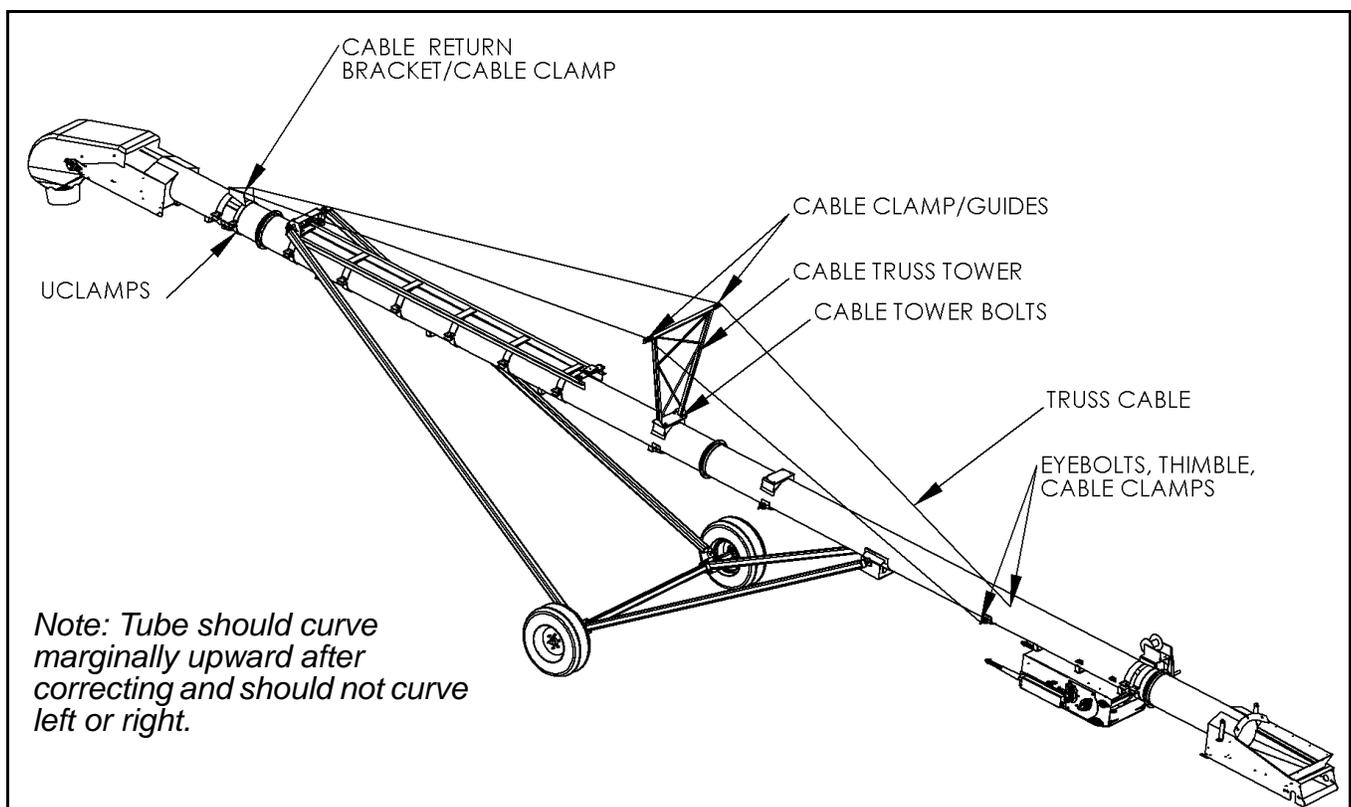


Figure 8.8 Cable Truss Assembly (A-Frame 55' Shown)

9. Troubleshooting

The Batco Grain Conveyor is a simple and reliable system that requires minimal maintenance. In the following section, we have listed many of the problems, causes, and solutions to the problems that you may encounter.

If you encounter a problem that is difficult to solve even after having read through this troubleshooting section, please call your local Batco dealer or distributor. Before you call, please have this operation manual and the serial number from your machine ready.

Overall

| Problem | Cause | Solution |
|-------------------------------|--|--|
| Low conveying capacity. | • conveyor angle is too high | • re-position with lower tube angle (see Section 10.6.) |
| | • incorrect belt speed | • verify and adjust belt speed to appropriate speed (see Section 8.3.3.) |
| | • conveyor belt slipping | • see Section 8.3.3. |
| | • drive belts slipping | • see Section 8.3.3. |
| Low capacity for some grains. | • smaller and smoother grains will slide at shallower angles | • see Section 6.2.8. |

Belt

| Problem | Cause | Solution |
|------------------------------|--|---|
| Belt slipping. | • conveying belt loose | • tighten and align belt (see Section 8.3.3. and 8.3.5.) |
| | • drive roller lagging worn or damaged | • replace drive roller lagging |
| | • drive belts loose | • tighten and align (see Section 8.3.3. and 8.3.5.) |
| | • belt frozen to tube from operating in high humidity in cold conditions | • remove conveyor from area of high humidity and warm belt to de-ice |
| Excessive belt edge fraying. | • belt not aligned | • align and tension belt (see Section 8.3.3. and 8.3.5.) |
| Belt loose. | • belt stretches over time | • re-tension belt (see Section 8.3.3.) |
| | | • can also be caused by oily grain/product |
| | | • if belt tightener on s-drive is fully engaged, you may need to shorten belt |

Hopper

| Problem | Cause | Solution |
|--------------------------------------|--|---|
| Grain leaking from conveyor hopper. | • belt not tracked (centered) | • track belt (see Section 8.3.5.) |
| | • flashing installed incorrectly or worn | • inspect flashing for wear and replace if required |
| | • hopper cloth worn or damaged | • replace damaged hopper cloth |
| | • transition filler rings are worn or need replacement | • adjust transition filler rings; replace if worn |
| Hopper cloth collapsing under grain. | • misaligned or broken spring(s) | • check spring installation and repair as required |
| | • pivot shafts improperly installed | • on some machines, switching pivot shafts left to right will increase hopper tension |

Tube

| Problem | Cause | Solution |
|---------------------------------------|-------------------------------------|--------------------------------------|
| Conveyor tube appears curved or sags. | • support cables tightened unevenly | • align cables (see Section 8.3.10.) |

Drive

| Problem | Look For | Solution |
|---------------------|--------------------------------|---|
| Drive making noise. | • slipping belt | • see Section 8.3.3. and 8.3.5. |
| | • hot shaft, pulley or bearing | • overheated components indicate a failed bearing that must be repaired |
| | • broken drive roller | • replace damaged component |

Spout

| Problem | Cause | Solution |
|--|---|------------------------------------|
| Grain leaking from conveyor spout between belt and tube. | • belt not tracked (centered) | • track belt (see 8.3.5.) |
| Grain leaking from conveyor spout between hood and belt. | • belt speed is too fast, hood plugging | • decrease belt speed or feed rate |

Frame

| Problem | Cause | Solution |
|---|--|--|
| Scissor lift not lifting conveyor | <ul style="list-style-type: none"> ball valve on lift line closed | <ul style="list-style-type: none"> open ball valve |
| | <ul style="list-style-type: none"> inadequate pressure from source | <ul style="list-style-type: none"> use alternate hydraulic pressure source; contact your local dealer for assistance. |
| Conveyor lifts slowly. | <ul style="list-style-type: none"> inadequate hydraulic pressure from source | <ul style="list-style-type: none"> use alternate hydraulic pressure source; contact your local dealer for assistance |
| | <ul style="list-style-type: none"> if conveyor lowers faster than it lifts, then the check valve may be installed in opposite direction | <ul style="list-style-type: none"> lower machine to transport position and inspect check valve; re-install in opposite direction if required (see indicator arrow on valve) |
| Machine will lift but not lower. | <ul style="list-style-type: none"> foreign object clogging check valve | <ul style="list-style-type: none"> contact your local dealer for assistance |
| Conveyor will not stay elevated. | <ul style="list-style-type: none"> ball valve not closed while in elevated position | <ul style="list-style-type: none"> close ball valve |
| | <ul style="list-style-type: none"> leaking hydraulic hose or fitting | <ul style="list-style-type: none"> lower machine to transport position and repair leaks as required |
| | <ul style="list-style-type: none"> leaking seal in hydraulic cylinder | <ul style="list-style-type: none"> lower machine to transport position and repair or replace winch |
| | <ul style="list-style-type: none"> faulty winch | <ul style="list-style-type: none"> lower machine to transport position and repair or replace winch |
| Conveyor makes noise while lifting. | <ul style="list-style-type: none"> frame parts loose and move while lifting | <ul style="list-style-type: none"> replace damaged components and re-tension frame fasteners |
| | <ul style="list-style-type: none"> faulty cable | <ul style="list-style-type: none"> lower machine to transport position and repair or replace cable |
| Lift cylinder discharges oil from breather while lifting. | <ul style="list-style-type: none"> if machine lifts, this is just captured oil in the top of the cylinder | <ul style="list-style-type: none"> clean up oil spill and continue operation as normal |
| | <ul style="list-style-type: none"> if machine will not lift, seal in hydraulic cylinder is damaged | <ul style="list-style-type: none"> lower machine to transport position and repair hydraulic cylinder as required |

Brackets

| Problem | Cause | Solution |
|---------------------------|--|---|
| U-clamps sliding on tube. | <ul style="list-style-type: none"> clamp not properly crimped to tube | <ul style="list-style-type: none"> contact your local dealer for correct positioning |

10. Appendix

10.1. SPECIFICATIONS FOR 35'-50' CONVEYORS (1300, 1500, 1800 SERIES)

NOTE: ALL ANGLES AND MEASUREMENTS SHOWN ARE MACHINE LIMITS. THE MAX OPERATION ANGLE DEPENDS ON THE PRODUCT BEING CONVEYED, USUALLY LESS THAN 30°.

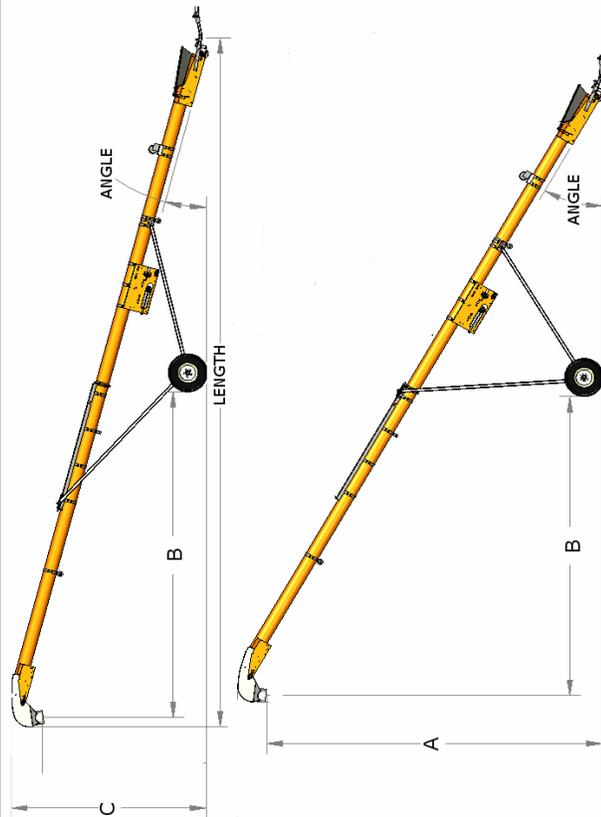


Table 10.1 Specifications for 35'-50' Conveyors (1300, 1500, 1800 Series)

| Model # | Belt Length | Total Weight | UP - OPERATION | | | DOWN - TRANSPORT | | | Length | Overall Width | PTO (hp) | Electric (hp) | Gas (hp) |
|-------------------|-------------|--------------|----------------|-------|-------|------------------|-------|-------|--------|---------------|----------|---------------|----------|
| | | | A | B | Angle | C | B | Angle | | | | | |
| 1335 PTO | 72' 8" | 1492 lb | 15.4' | 15.7' | 28.0° | 10.6' | 16.3' | 17.0° | 35.0' | 7.5' | 25.0 | 5.0 | n/a |
| 1335 ELEC/ HYD | 72' 8" | 1508 lb | 15.4' | 15.7' | 28.0° | 10.4' | 16.4' | 17.0° | 35.0' | 7.5' | n/a | 5.0 | 11.0 |
| 1340 ELEC/ HYD | 82' 8" | 1543 lb | 16.5' | 10.8' | 31.0° | 9.8' | 11.6' | 15.0° | 40.0' | 7.5' | n/a | 7.5 | 11.0 |
| 1345 | 92' 8" | 1600 lb | 21.5' | 19.5' | 30.0° | 12.5' | 21.3' | 15.0° | 45.0' | 7.5' | 25.0 | 7.5 | 13.0 |
| 1535 ELEC/ HYD | 74' 3" | 1570 lb | 15.5' | 16.3' | 28.0° | 10.8' | 16.9' | 16.0° | 35.0' | 7.5' | n/a | 7.5 | 20.0 |
| 1540 | 84' 3" | 1640 lb | n/a | n/a | n/a | n/a | n/a | n/a | 40.0' | 7.5' | 25.0 | 7.5 | 20.0 |
| 1545 | 94' 3" | 1684 lb | 21.4' | 20.4' | 29.0° | 12.3' | 21.9' | 14.0° | 45.0' | 7.5' | 25.0 | 7.5 | 20.0 |
| 1550 | 105' 6" | 2072 lb | 26.1' | 28.8' | 30.0° | 14.1' | 26.0' | 15.0° | 50.0' | 10.3' | 30.0 | 10.0 | 24.0 |
| 1835 | 73' 9" | 2246 lb | 15.5' | 15.5' | 30.0° | 11.1' | 17.1' | 17.0° | 35.0' | 7.5' | 25.0 | 10.0 | n/a |
| 1845 | 93' 9" | 2532 lb | 21.1' | 18.0' | 30.0° | 12.5' | 22.0' | 15.0° | 45.0' | 7.5' | 30.0 | 10.0 | n/a |

10.2. SPECIFICATIONS FOR 55' CONVEYORS (1300, 1500, 1800 SERIES)

NOTE: ALL ANGLES AND MEASUREMENTS SHOWN ARE MACHINE LIMITS. THE MAX OPERATION ANGLE DEPENDS ON THE PRODUCT BEING CONVEYED, USUALLY LESS THAN 30°.

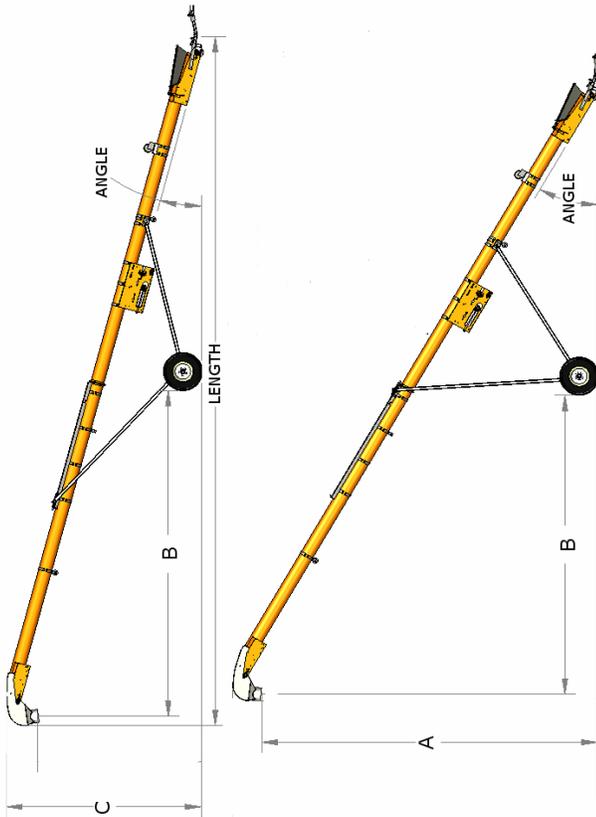


Table 10.2 Specifications for 55' Conveyors (1300, 1500, 1800 Series)

| Model # | Belt Length | Total Weight | UP - OPERATION | | | | | | DOWN - TRANSPORT | | | | Electric (hp) | Gas (hp) |
|---------|-------------|--------------|----------------|-------|-------|-------|-------|-------|------------------|----------|-----|----|---------------|----------|
| | | | A | B | Angle | C | B | Angle | Width | PTO (hp) | | | | |
| 1355 | 113'10" | 2268 lb | 26.2' | 22.2' | 30.0° | 14.9' | 23.6' | 15.0° | 9.0' | 30 | 7.5 | 27 | | |
| 1555 | 115'3" | 2354 lb | 26.3' | 22.2' | 30.0° | 14.9' | 23.6' | 15.0° | 9.0' | 30 | 10 | 27 | | |
| 1855 | 113'9" | 3076 lb | 26.1' | 23.0' | 30.0° | 15.4' | 24.3' | 15.0° | 10.3' | 40 | 15 | - | | |

10.3. SPECIFICATIONS FOR 65'-100' CONVEYORS (1500 SERIES)

NOTE: ALL ANGLES AND MEASUREMENTS SHOWN ARE MACHINE LIMITS. THE MAX OPERATION ANGLE DEPENDS ON THE PRODUCT BEING CONVEYED, USUALLY LESS THAN 30°.

Table 10.3 Specifications for 65'-100' Conveyors (1500 Series)

| Model # | Belt Length | Total Weight | UP - OPERATION | | | DOWN - TRANSPORT | | | PTO (hp) | Electric (hp) | Gas (hp) |
|---------|-------------|--------------|----------------|-------|-------|------------------|-------|-------|----------|---------------|----------|
| | | | A | B | Angle | C | B | Angle | | | |
| 1565 | 135'6" | 2997 lb | 31.4' | 22.4' | 30.0° | 11.6' | 26.1' | 9.2° | 30 | 15 | 27 |
| 1575 | 155'0" | 3252 lb | 36.6' | 30.9' | 30.0° | 12.6' | 36.2' | 9.2° | 40 | 20 | 27 |
| 1585 | 175'0" | 3734 lb | 41.7' | 35.2' | 30.0° | 14.2' | 41.7' | 8.8° | 40 | 20 | 35 |
| 1590 | 185'0" | 3850 lb | 44.2' | 39.5' | 30.0° | 14.9' | 46.7' | 8.8° | 50 | 25 | 35 |
| 15100 | 205'0" | 4450 lb | 49.0' | 39.7' | 30.0° | 13.5' | 48.3' | 7.4° | 50 | 25 | 35 |

10.4. SPECIFICATIONS FOR 35'-55' CONVEYORS (2000 SERIES)

NOTE: ALL ANGLES AND MEASUREMENTS SHOWN ARE MACHINE LIMITS. THE MAX OPERATION ANGLE DEPENDS ON THE PRODUCT BEING CONVEYED, USUALLY LESS THAN 30°.

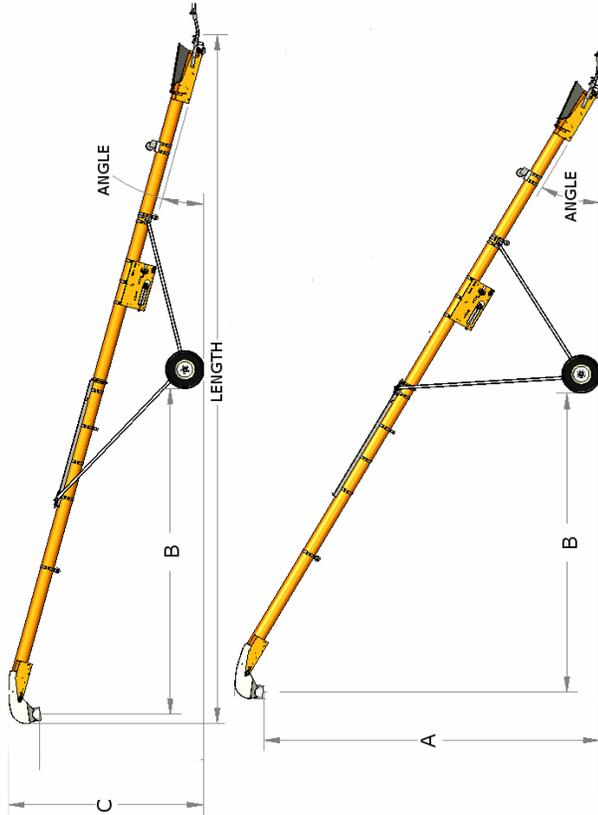


Table 10.4 Specifications for 35'-55' Conveyors (2000 Series)

| Model # | Belt Length | Total Weight | UP - OPERATION | | | DOWN - TRANSPORT | | | Overall Width | PTO (hp) | Electric (hp) |
|---------|-------------|--------------|----------------|-------|-------|------------------|-------|-------|---------------|----------|---------------|
| | | | A | B | Angle | C | B | Angle | | | |
| 2035 | 77' 10" | 2765 lb | 16.1' | 16.9' | 30.0° | 10.7' | 17.4' | 16.0° | 7.5' | 40.0 | 15.0 |
| 2040 | 86' 4" | 2883 lb | 19.2' | 16.8' | 30.0° | 11.9' | 17.8' | 16.0° | 7.5' | 40.0 | 15.0 |
| 2045 | 97' 10" | 3098 lb | 20.8' | 21.4' | 30.0° | 13.0' | 22.7' | 15.0° | 7.5' | 40.0 | 15.0 |
| 2055 | 117' 10" | 3650 lb | 26.1' | 24.7' | 30.0° | 13.8' | 24.0' | 15.0° | 10.3' | 50.0 | 20.0 |

10.5. SPECIFICATIONS FOR 65'-120' CONVEYORS (2000, 2400 SERIES)

NOTE: ALL ANGLES AND MEASUREMENTS SHOWN ARE MACHINE LIMITS. THE MAX OPERATION ANGLE DEPENDS ON THE PRODUCT BEING CONVEYED, USUALLY LESS THAN 30°.

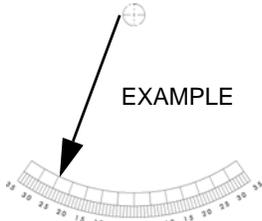
Table 10.5 Specifications for 65'-120' Conveyors (2000, 2400 Series)

| Model # | Belt Length | Total Weight | UP - OPERATION | | | DOWN - TRANSPORT | | | Width | Angle | PTO (hp) | Electric (hp) |
|---------|-------------|--------------|----------------|-------|-------|------------------|-------|-------|---------------|-------|----------|---------------|
| | | | A | B | Angle | C | B | Angle | | | | |
| 2065 | 137'10" | 4826 lb | 31.1' | 22.3' | 30.0° | 12.2' | 25.3' | 10.0° | 11.6' / 14.8' | 60 | 25 | |
| 2075 | 157'10" | 5126 lb | 36.3' | 31.1' | 30.0° | 13.7' | 35.3' | 10.0° | 11.6' / 14.8' | 60 | 30 | |
| 2085 | 177'10" | 5868 lb | 40.7' | 32.1' | 30.0° | 12.7' | 38.1' | 10.0° | 11.6' / 14.8' | 70 | 30 | |
| 2095 | 197'10" | 6127 lb | 46.4' | 40.7' | 30.0° | 14.4' | 48.0' | 9.0° | 11.6' / 14.8' | 80 | 40 | |
| 20100 | 206'4" | 7721 lb | 50.2' | 42.1' | 30.0° | 17.2' | 48.4' | 9.0° | 11.6' / 14.8' | 80 | 40 | |
| 20105 | 217'10" | 7990 lb | 51.1' | 39.6' | 30.0° | 16.6' | 49.1' | 9.0° | 11.6' / 14.8' | 80 | 40 | |
| 20110 | 227'10" | 9155 lb | 54.0' | 44.4' | 30.0° | 17.1' | 54.1' | 8.0° | 11.6' / 14.8' | 100 | 50 | |
| 20115 | 236'4" | 9250 lb | 52.2' | 56.9' | 30.0° | 16.6' | 66.4' | 8.0° | 11.6' / 14.8' | 100 | 50 | |
| 20120 | 247'10" | 9430 lb | 59.3' | 52.1' | 30.0° | 18.4' | 63.8' | 8.0° | 11.6' / 14.8' | 100 | 50 | |
| 2465 | 141'2" | 5081 lb | 32.1' | 23.4' | 30.0° | 12.5' | 26.0' | 10° | 11.6' / 14.8' | 60 | 25 | |
| 2475 | 161'2" | 5396 lb | 36.1' | 32.0' | 30.0° | 14.3' | 35.8' | 10° | 11.6' / 14.8' | 70 | 30 | |
| 2485 | 181'2" | 6153 lb | 42.3' | 32.6' | 30.0° | 13.7' | 38.6' | 8° | 11.6' / 14.8' | 80 | 30 | |
| 2495 | 201'2" | 6630 lb | 47.1' | 41.5' | 30.0° | 14.9' | 48.5' | 8° | 11.6' / 14.8' | 80 | 40 | |
| 24105 | 221'2" | 8305 lb | 52.5' | 40.7' | 30.0° | 16.3' | 49.7' | 8° | 11.6' / 14.8' | 90 | 40 | |
| 24110 | 231'2" | 9495 lb | 53.9' | 45.3' | 30.0° | 17.1' | 54.7' | 8° | 11.6' / 14.8' | 100 | 50 | |
| 24120 | 251'2" | 9770 lb | 60.0' | 53.4' | 30.0° | 18.4' | 64.6' | 8° | 11.6' / 14.8' | 120 | 50 | |

10.6. CONVEYOR PRODUCT CHART

The following table indicates the maximum angle a conveyor can move grain.

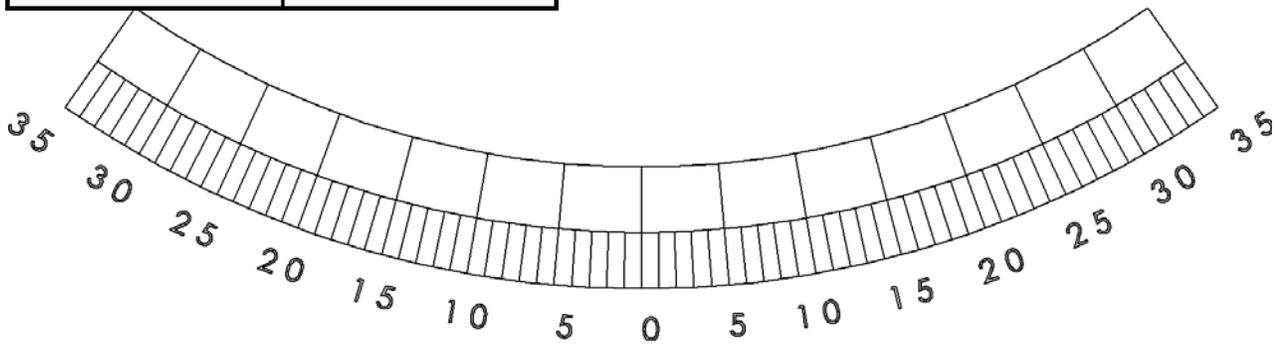
To roughly determine conveyor angle, use angle guide on right. Stand the manual (vertically) on conveyor s-drive or tube and hold a string with a weight attached to end against the top of this page. Weighted end of string will fall between degree lines, and from this the approximate angle of the conveyor can be determined.



| Other Materials | Maximum Conveyor Operating Angle (degrees) |
|-----------------|--|
| Sawdust | 38 |
| Coal | 27-45 |
| Wood Chips | >45 |

| Grain | Maximum Conveyor Operating Angle (degrees) |
|-----------|--|
| Flax | 24 |
| Lentils | 29 |
| Mustard | 26 |
| Oats | 28 |
| Peas | 30 |
| Rice | 36 |
| Rye | 25 |
| Soybeans | 28 |
| Sunflower | 22 |
| Triticale | 23 |
| Wheat | 26 |

| Grain | Maximum Conveyor Operating Angle (degrees) |
|--------------------|--|
| Alfalfa Pellets | 34 |
| Barley | 25 |
| Canary Seed | 26 |
| Chickpeas | 30 |
| Corn | 26 |
| Shelled Corn (Dry) | 25 |
| Shelled Corn (Wet) | 28 |
| Cotton Seed | 30-45 |
| Durum | 25 |



NEW EQUIPMENT WARRANTY

Batco Manufacturing Ltd. will warrant each new conveyor to be free from factory defects in material and workmanship under normal use and service when set up and operated in accordance with factory instructions.

Commercial applications will reduce the warranty period to 90 days from the original date of delivery.

This warranty will apply under the following conditions:

- The warranty will be limited to one year from the date of purchase.
- A “Warranty Registration Form” and “Inspection Report” must be filled out and returned to Batco Manufacturing Ltd. at the time of sale in order to qualify for replacement of defective parts.
- The warranty is void on any unit that has been tampered with or has been subject to misuse, negligence, or accident.
- The warranty is limited to the supplying of replacement parts in exchange for parts defective due to material or factory workmanship.
- The warranty covers material only, unless expenditures are pre-authorized by Batco Manufacturing Ltd. in writing.
- A reasonable allowance may be charged to cover labor for replacement of damaged parts at the discretion of the Batco Warranty Department.
- Normal wear and service items such as belts, hoses, flashing, etc., will only be considered warranty at the discretion of the Batco Warranty Department.

All warranty repairs must be performed at an authorized Batco dealership in order to receive credit.

Returned parts must be sent to the factory freight prepaid in order to qualify for warranty replacement, and will be returned freight collect.

Please direct all claims to the attention of the Warranty Department at Batco Manufacturing Ltd. (306-773-7779)



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