BATCO

# Portable Grain Belt Conveyor

## Paddle
## Operator Manual

**This manual applies to:**

**1500 Series: 1525, 1530, 1540**

**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: P1512125 R0
Revised: October 2017

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# *CONTENTS*

# 1. Introduction

Thank you for purchasing a Batco Portable 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 conveyor will provide you with many years of trouble-free operation.

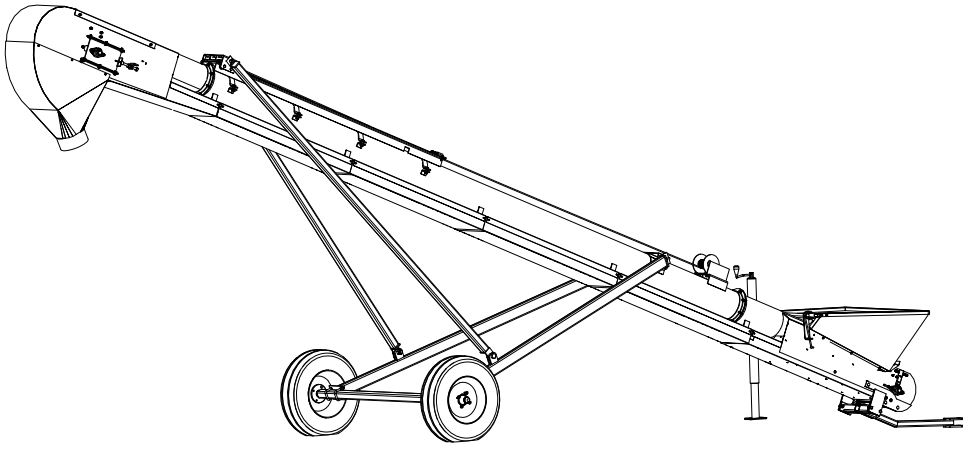
Keep this manual handy for frequent reference and to review with new personnel. A sign-off form is provided on the inside front cover for your convenience. If any information in this manual is not understood or if you need additional information, please contact your local distributor or dealer for assistance.

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.

## 1.1. Serial Number Location

Always give your dealer the serial number on your conveyor (shown below) 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** | |



## 1.2. Intended Use

The conveyor is designed solely for use in the intended agricultural use as listed below. Use in any other way is considered as contrary to the intended use. Compliance with and strict adherence to the conditions of

operation and maintenance as specified by the manufacturer, also constitute essential elements of the intended use.

The conveyor should be operated, maintained, serviced, and repaired only by persons who are familiar with its particular characteristics and who are acquainted with the relevant safety procedures.

Accident prevention regulations and all other generally recognized regulations on safety and occupational medicine must be observed at all times.

Any modifications made to the conveyor may relieve the manufacturer of liability for any resulting damage or injury.

**Intended use for the conveyor:**

- Handling grain, pulse crops, treated seeds, or other similar materials.

Use in any other way is considered as contrary to the intended use and is not covered by the warranty.

## *1.2.1 Misuse*

Do not use the conveyor for:

- transferring material other than dry, free-flowing food-grains.
- conveying canola, or any other oilseeds
- lifting or using as a hoist or crane.

# 2. Safety

## 2.1. Safety Alert Symbol and Signal Words

This safety alert symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of injury or death, carefully read the message that follows, and inform others.

**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.

## 2.2. General Product Safety

**YOU** are responsible for the **SAFE** use and maintenance of your conveyor. **YOU** must ensure that you and anyone else who is going to work around the conveyor 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. All accidents can be avoided.

- It is the conveyor 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.

- Owners must give instructions and review the information initially and annually with all personnel before allowing them to operate the conveyor. Untrained users/operators expose themselves and bystanders to possible serious injury or death.
- The conveyor is not intended to be used by children.
- Use the conveyor for its intended purposes only.
- Do not modify the conveyor 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 conveyor. Any unauthorized modification of the conveyor will void the warranty.

## 2.3. Overhead Power Lines

**DANGER**

- When operating or moving, keep conveyor away from overhead power lines and devices.
- The conveyor is not insulated.
- Electrocution can occur without direct contact.

## 2.4. Moving Conveyor Belt Safety

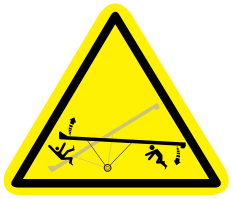
**WARNING**

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

## 2.5. Upending

**WARNING**

- 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 the conveyor and fully lower before moving.



## 2.6. Rotating Parts Safety

**WARNING**

- 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.

## 2.7. Work Area Safety

- Have another trained person nearby who can shut down the conveyor in case of accident.
- The work area should be kept clear of bystanders.
- Keep the work area clean and free of debris.

**Figure 1. Conveyor Work Area (Electric Drive)**

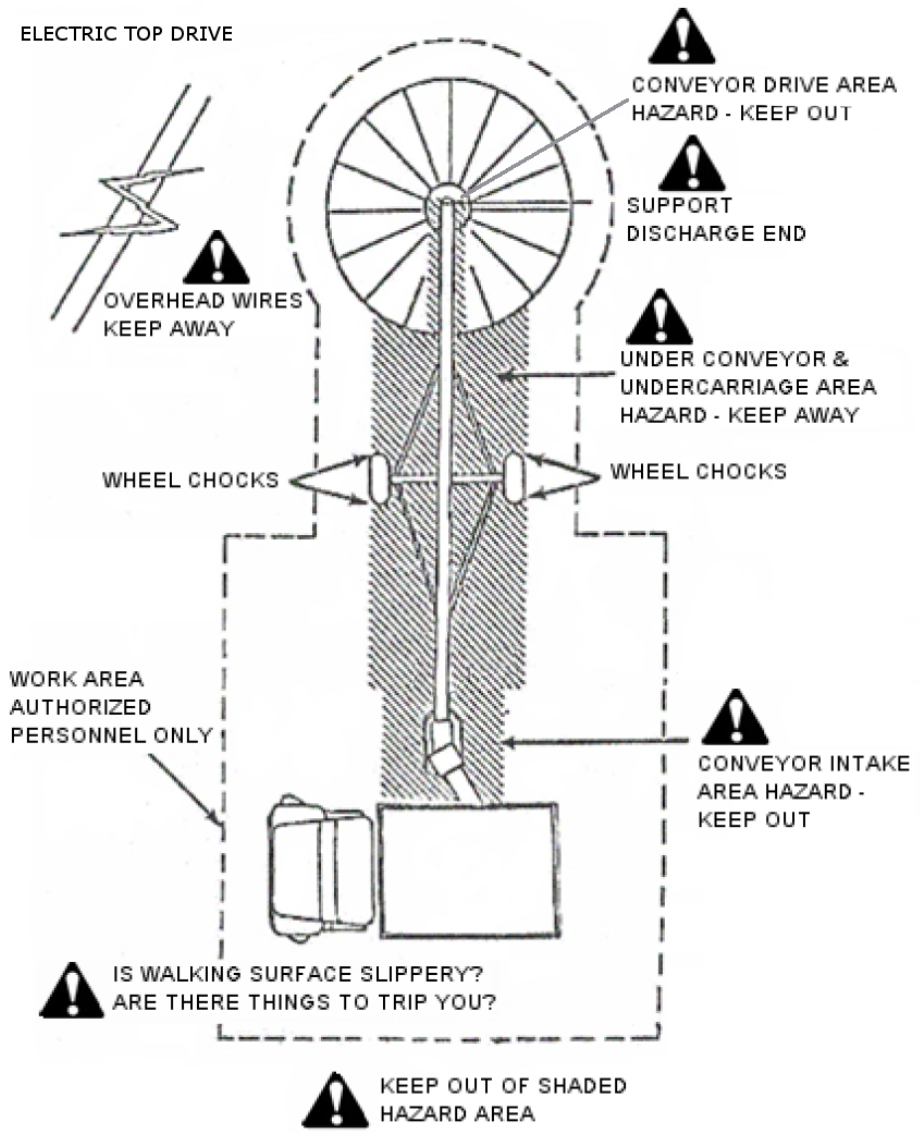
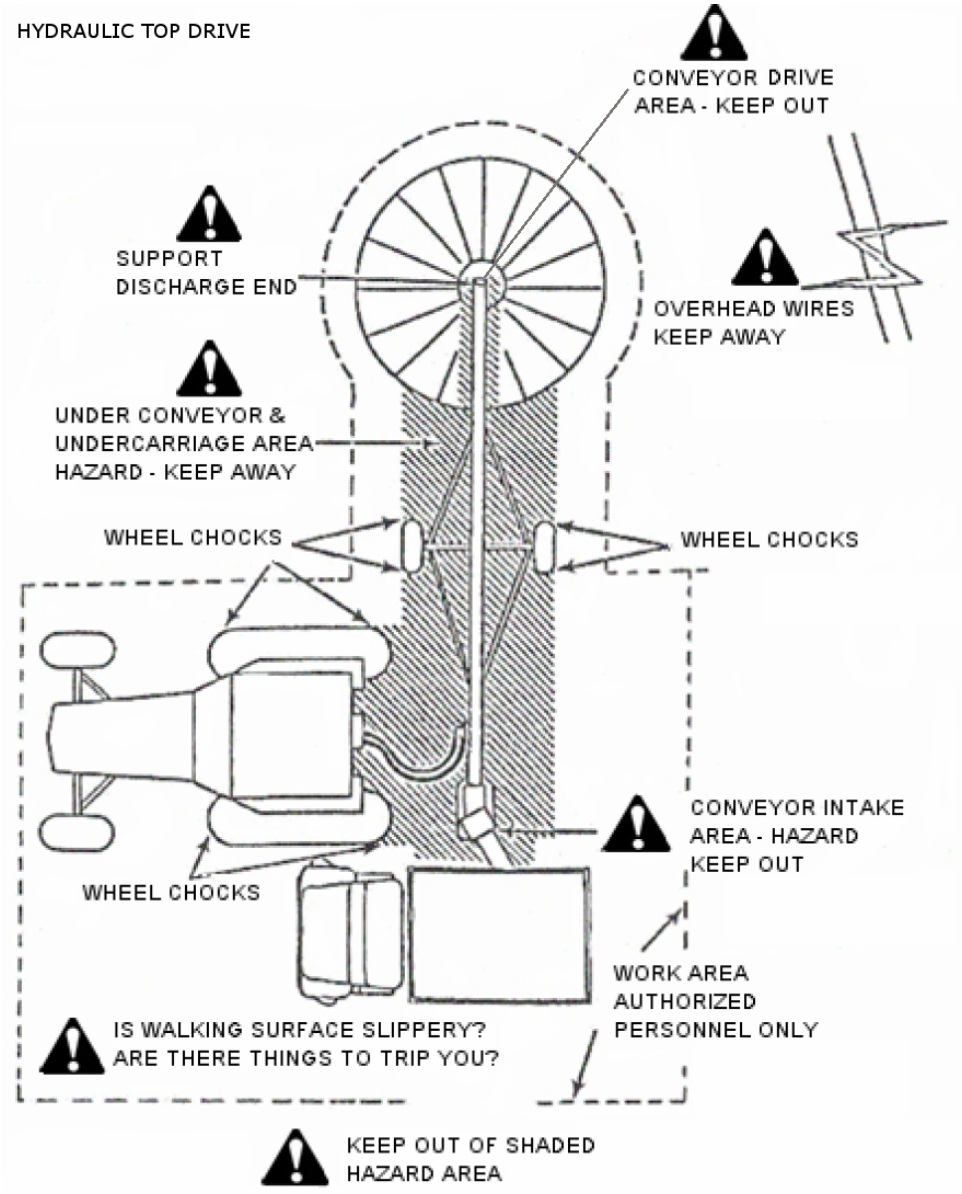


**Figure 2. Conveyor Work Area (Hydraulic Drive)**




## 2.8. Guards Safety

**⚠ WARNING**

- Keep guards in place and do not operate unless all guards are in place.
- Do not walk on, step on, or damage guards.
- Lock out power before removing a guard.
- Ensure all guards are replaced after performing maintenance.

## 2.9. Raising and Lowering the Conveyor

**⚠ WARNING**

- Before raising/lowering/moving/adjusting the conveyor, make sure the area around the conveyor is clear of obstructions and/or untrained personnel. Never allow anyone to stand on or beneath the conveyor when it is being placed.
- Lower the conveyor to its lowest position when not in use.
- Empty the conveyor before raising or lowering.
- Do not get on or beneath the conveyor when raising or lowering.
- Raise and lower conveyor on reasonably level ground only.
- Never attempt to increase height of the tube by positioning wheels on lumber, blocks, or by any other means. To do so will result in damage to conveyor and/or serious injury.
- Do not raise the conveyor in high winds.

## 2.10. Hand Winch Safety

**⚠ WARNING** **When Equipped:**

- Inspect lift cable before using. Replace if frayed or damaged. Make sure lift cable is seated properly in cable sheaves and cable clamps are secure.
- Tighten brake lock by turning winch handle clockwise at least two clicks after lowering the conveyor.
- Lower the conveyor fully before towing, then rotate winch handle until cable has light tension.
- Do not lubricate winch brake discs.

## 2.11. Conveyor Stability

**⚠ WARNING**

- Transport and place equipment on reasonably level ground when raising, lowering, positioning, or operating.
- Chock wheels and anchor intake end after placement.

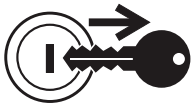
## 2.12. Towing the Conveyor

**⚠ WARNING**

- 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.
- Do not transport on slopes greater than 20°.
- 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 conveyor or towing vehicle during transport.
- Attach to towing vehicle with an appropriate pin and retainer. Always attach safety chain(s).
- Place the conveyor in the transport position before moving on roads.

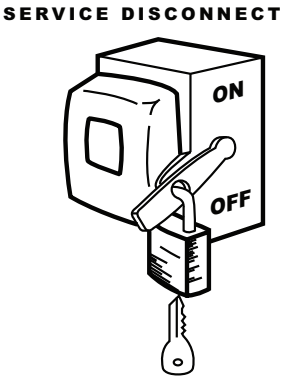
## 2.13. Drives and Lockout Safety

Inspect the power source(s) before using and know how to shut down in an emergency. Whenever you service or adjust your equipment, make sure you shut down the power source and unplug or remove the key (as applicable) to prevent inadvertent start-up and hazardous energy release. Know the procedure(s) that applies to your equipment from the following power source(s). Ensure that all personnel are clear before turning on power to equipment.



## *2.13.1 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.
- Use a totally enclosed electric motor if operating in extremely dusty conditions.

**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.

## *2.13.2 Hydraulic Power 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.

## 2.14. Tire Safety

**⚠ WARNING** 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.

## 2.15. Personal Protective Equipment

The following Personal Protective Equipment (PPE) should be worn when operating or maintaining the equipment.

### Safety Glasses

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

### Coveralls

- Wear coveralls to protect skin.

### Hard Hat

- Wear a hard hat to help protect your head.

**Steel-Toe Boots**

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

**Work Gloves**

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

**Dust Mask**

- Wear a dust mask to prevent breathing potentially harmful dust.

## 2.16. Safety Equipment

The following safety equipment should be kept on site:

**Fire Extinguisher**

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

**First-Aid Kit**

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

## 2.17. 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 as applicable.

### *2.17.1 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.

## *2.17.2 Safety Decal Locations and Details*

Replicas of the safety decals that are attached to the conveyor and their messages are shown in the figure(s) that follow. Safe operation and use of the conveyor 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.

**Figure 3. Safety Decal Locations**

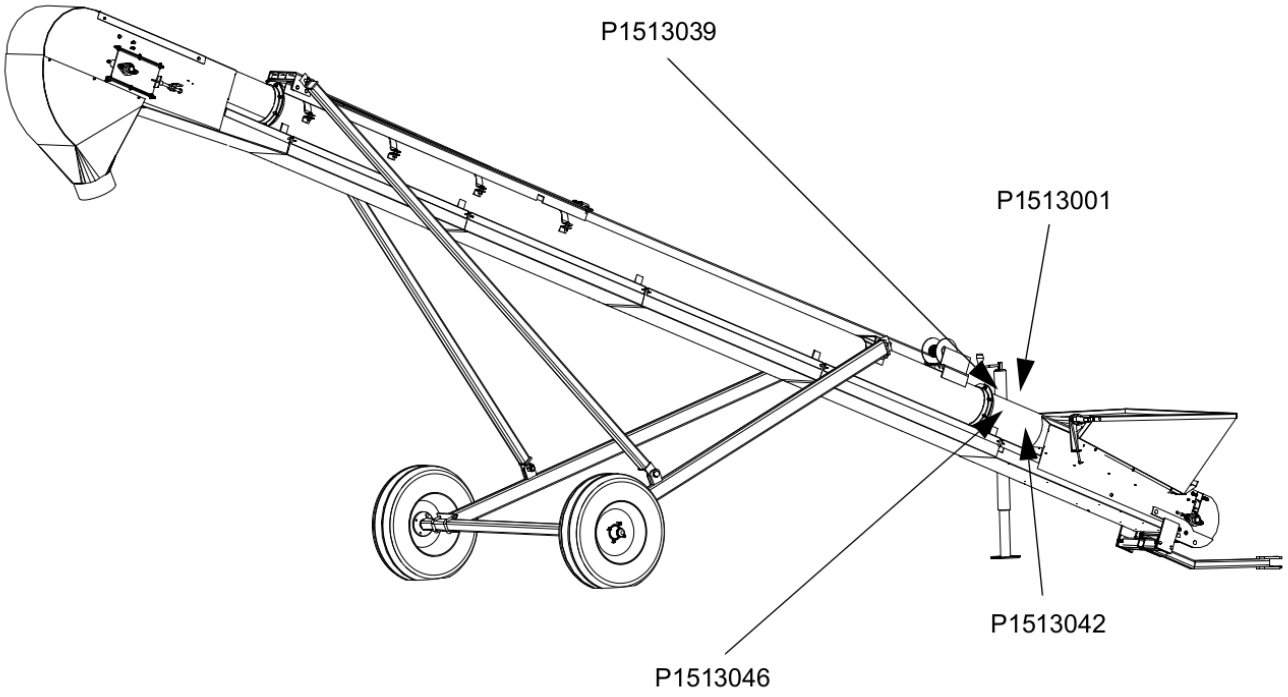


**Figure 4. Electric Drive Safety Decal Locations**

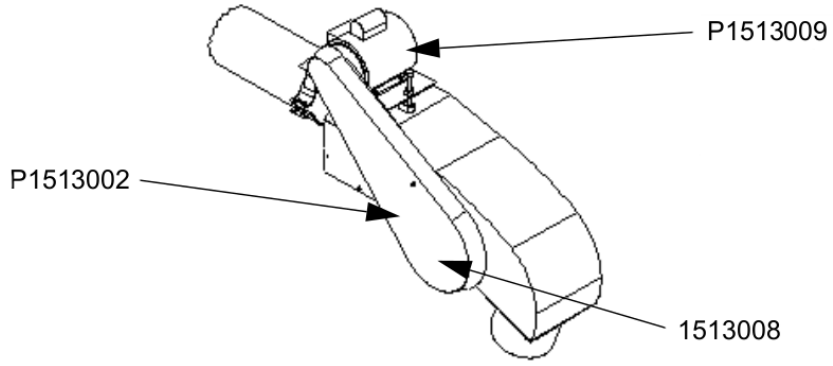



**Figure 5. Hydraulic Drive Safety Decal Location**

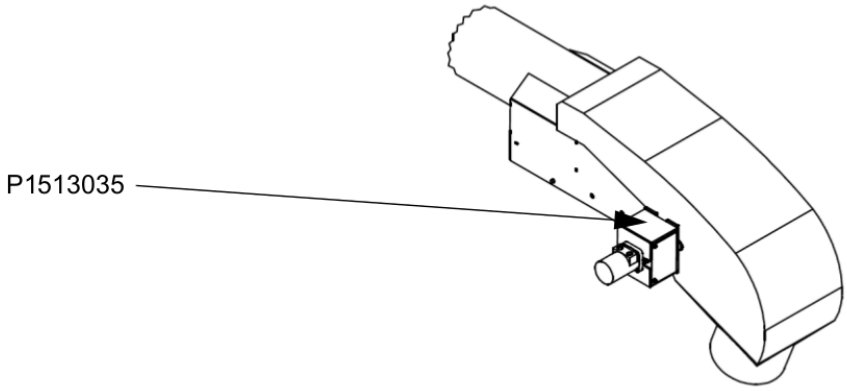


**Table 1. Safety Decals**

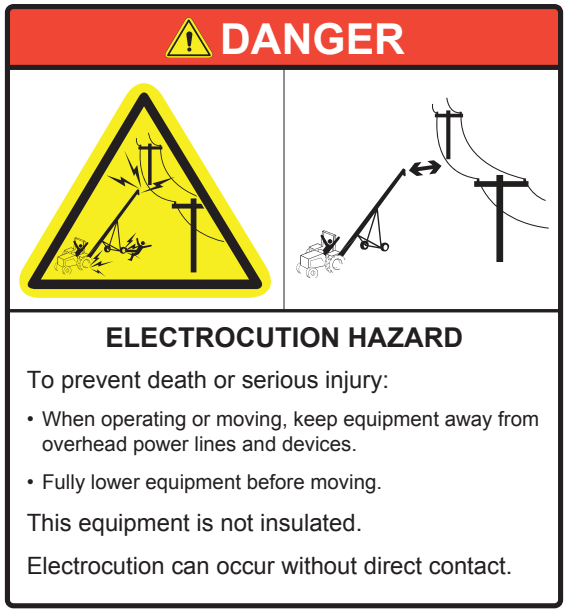
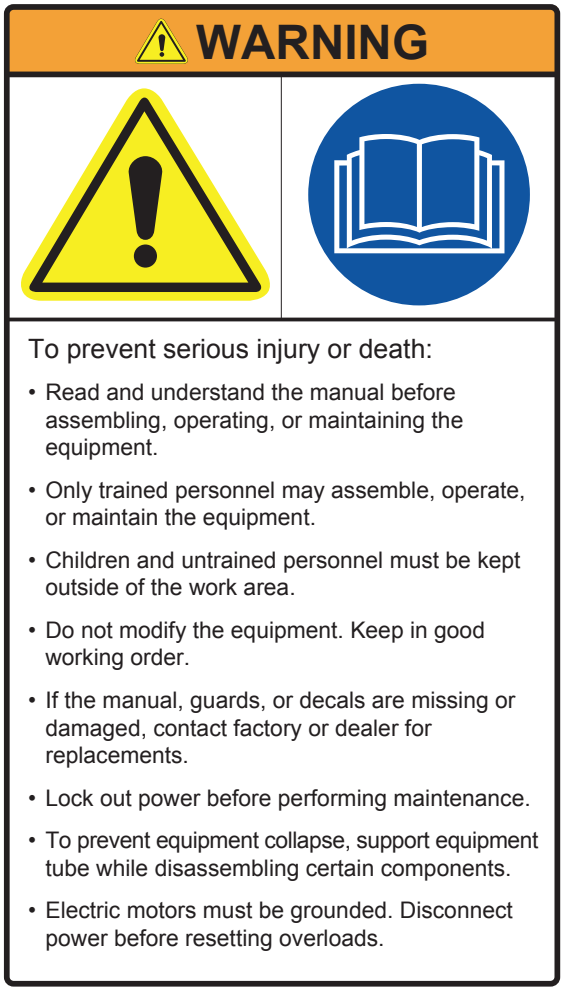
| Part Number | Description |
|---|---|
| P1513046 |  |
| P1513001 |  |

**Table 1 Safety Decals (continued)**

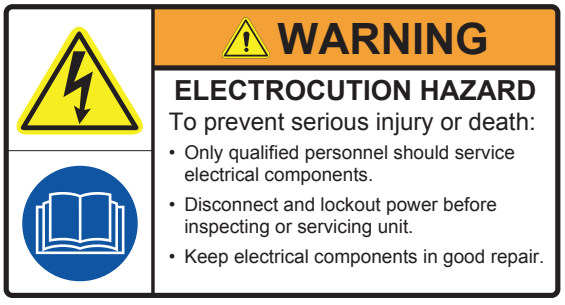
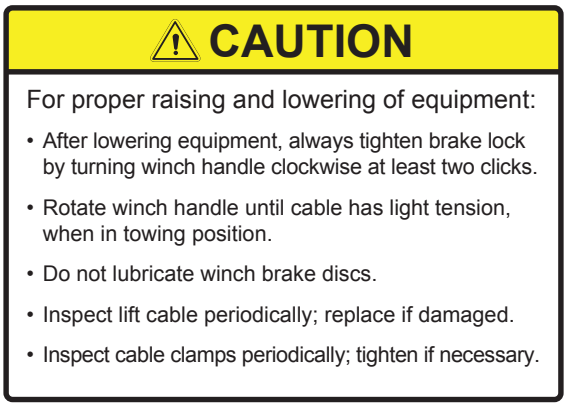
| Part Number | Description |
|---|---|
| P1513042 |  |
| P1513002 |  |
| P1513009 |  |

**Table 1 Safety Decals (continued)**

| Part Number | Description |
|---|---|
| P1513008 |  |
| P1513035 |  |
| P1513039 |  |

# 3. Features

This section covers the main features of the Batco Portable Grain Belt Conveyor.

**Figure 6. Typical Paddle Components**

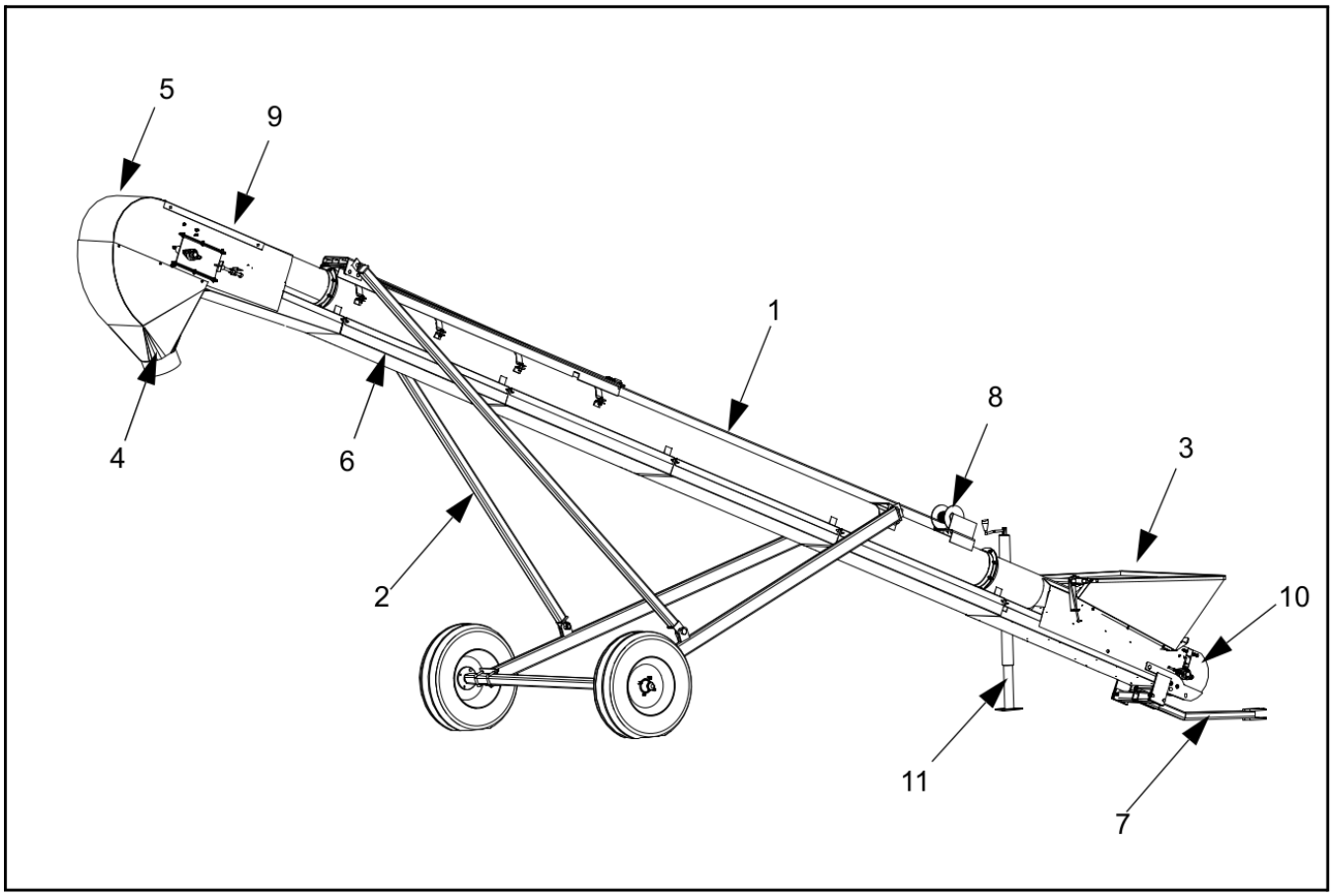



**Table 2. Typical Paddle Components**

| Item | Description |
|---|---|
| 1 | Tube |
| 2 | A-Frame |
| 3 | Hopper |
| 4 | Spout Assembly |
| 5 | Hood |
| 6 | Belt Return |

| Item | Description |
|---|---|
| 7 | Hitch |
| 8 | Winch |
| 9 | Top Drive Motor (Electric or Hydraulic) |
| 10 | Clean-out |
| 11 | Jack |

# 4. Transport

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

## 4.1. Transport Safety

**WARNING**

- 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.
- Yield to other drivers and allow faster traffic to pass.
- 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 transport during times of limited visibility such as fog, snow, or heavy rain. Take extra precautions at night and at dusk.
- Keep others away from the transport vehicle and conveyor.
- Do not allow riders on the conveyor or towing vehicle during transport.
- Stay away from overhead obstructions and power lines when operating and transporting. Electrocution can occur without direct contact.
- Fully lower the conveyor before transporting, and only raise when next to storage facility.
- Attach to towing vehicle with a pin and retainer. Always attach safety chain(s).
- Do not raise the intake end above drawbar, upending may occur.
- Empty conveyor of all grain before transporting. Transporting a full conveyor will place excessive loads on the tube, frame, axle, hitch, and tow vehicle.
- Do not transport on slopes greater than 20°.
- Do not transport with an under-inflated tire(s).
- If the conveyor wheels are partially or fully buried in snow or grain, failure to clear area around the wheels before transporting may cause damage to the conveyor or result in serious injury.

## 4.2. Transport Preparation

1. It is not recommended that the conveyor be transported faster than 20 mph (32 km/h). Table 3 on page 24 references the acceptable transport speed as per the ratio of tractor weight versus conveyor weight. See Specifications for conveyor weights.
2. Ensure the conveyor will clear any overhead obstructions or electrical wires prior to transporting. Refer to Specifications for the transport height of your conveyor.
3. Longer conveyors have a large turning radius. Allow ample room for turning as discharge end may swing dramatically.

**Table 3. 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 to 1 |

## 4.3. Connect the Conveyor to the Towing Vehicle

Follow all safety precautions when transporting the conveyor and use a proper towing vehicle.

1. Place the conveyor in the full down position. The frame should be in the full down position with slight tension on the lift cable. Refer to Lowering procedure.
2. Place and secure hitch pin and safety chain. The safety chain should be threaded and form a cradle that will prevent the conveyor from digging into the road surface or upsetting (should a breakaway occur) before attaching to the towing vehicle.
3. Replace the safety chain if one or more links or end fittings are stretched, broken, damaged, or deformed.
4. The safety chain should have a load rating at least as high as the conveyor weight, refer to Specifications.

   **Important**

   Use a type of hitch pin that will not allow conveyor to separate from towing vehicle.

5. Use caution when transporting the conveyor over rolling terrain. In severe dips, the intake end may contact the ground.

# 5. Placement

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

## 5.1. Placement Safety

**WARNING**

- The conveyor is not insulated, keep away from overhead power lines. Electrocution can occur without direct contact.
- Anchor intake end before using.
- Place the conveyor on reasonably level ground before operating. The conveyor could topple if ground is too uneven.
- Chock the conveyor wheels after placement.
- Empty the conveyor before raising, lowering, or positioning.
- Check that wheels are free to move before raising or lowering the conveyor.
- Never attempt to increase height of the conveyor by positioning wheels on lumber, blocks, or by any other means.
- Do not permit anyone to stand beneath the conveyor when raising or lowering.
- Move the conveyor into position slowly. Do not unhitch and attempt to move by hand.
- Do not leave tube in raised position when not in use.

## 5.2. Positioning the Conveyor

To position the conveyor using a tractor:

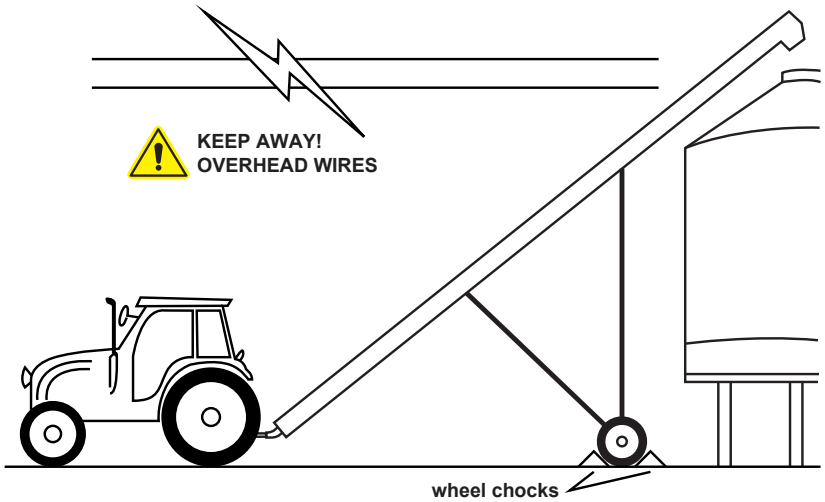
**Filling Bins**

1. Back the conveyor up to the bin while it is in its lowered configuration.
2. Set the park brake on the tractor before dismounting.
3. Raise the conveyor so it clears the bin.
4. Slowly back the conveyor up until the outlet is over the opening in the bin.
5. Unhook the conveyor from the tractor and lower the intake end to the ground.

   **WARNING** Upending hazard, do not hook or unhook hitch unless weight is down.
6. Slowly lower the conveyor spout to the bin.

   **NOTICE** Do not rest the spout or hood on the bin. This may cause hood or belt damage.
7. Remove the hitch from the conveyor to prevent interfering with other equipment.
8. Place chocks in the front and back of each wheel and anchor the intake end.

**Figure 7. Typical Grain Conveyor Placement for Filling Bins**




### Under Hopper Bottom Bins

1. Center the conveyor between the hopper bin's vertical legs.
2. Collapse the cloth hopper until the conveyor is fully positioned under the bin.
3. Move the conveyor into place. Do not allow the conveyor tube or components to contact the bin.
4. Raise the conveyor to the desired height.
5. Make sure that gravel is not jammed against the belt under the hopper.
6. Place chocks in the front and back of each wheel and anchor the intake end.

## 5.3. Hand Winch Operation

➡ When equipped with a Hand Winch:

### Before using the hand winch, ensure that:

- the cable anchor on the winch drum is tight.
- all cable clamps are secure.
- the lift cable is seated in cable pulley.
- the cable is in good condition, if damaged, replace it immediately.
- there is a minimum of 3 cable wraps on the winch drum when the conveyor fully lowered.

### To operate:

1. Turn the winch handle to raise and lower the conveyor. The winch must make a clicking sound when raising the conveyor. If clicking sound stops, retain grip on handle, lower the conveyor fully and repair winch.
2. When lowering, if the cable becomes slack before conveyor is in full down position, this indicates that the track shoe is stuck. To correct the problem, reverse the winch and raise the conveyor until the cable is taut and the track slides normally. Do not lubricate the winch brake discs.

3. After lowering the conveyor, always tighten the brake lock by turning the winch handle clockwise at least two clicks.
4. After lowering, rotate the winch handle until cable has light tension.

## 5.4. Conveyor Operating Angles

The paddle conveyor lift can set the tube angle at positions as high as 40°.

Because the belt has roll back barriers, the material will be prevented from rolling back even at steep angles.

**Note**

The lower the angle, the greater the capacity.

# 6. Operation

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

## 6.1. Operation Safety

**WARNING**

- Keep away from rotating and moving parts, including the conveyor belt, drive components, shafts, and bearings.
- Do not enter the grain bin while the conveyor is operating.
- Always operate with guards, covers, and shields in place.
- Have another trained person nearby who can shut down the equipment in case of accident.
- Keep the work area clear of bystanders.
- Keep the work area clean and free of debris.
- Ensure maintenance has been performed and is up to date.

Refer to your bin operation manual for specific operating and safety information for your bin.

## 6.2. Start-up and Break-in

Although there are no operational restrictions on the conveyor when used for the first time, it is recommended that the following items be checked during the first hours of operation.

1. Check that the conveyor intake and discharge areas are free of obstructions.
2. Check conveyor belt alignment to ensure preset alignment does not vary under loaded conditions. See Maintenance Section for alignment instructions.
3. Check the conveyor belt tension. See Maintenance Section for tension instructions.
4. **Electric Drive Models:** Check the drive belt tension and alignment. See Maintenance Section for instructions.
5. Visually inspect the conveyor, see Visual Inspection in Maintenance Section.
6. Check tightness of all bolts/nuts, fasteners, and hardware (re-torque if necessary).
7. Start the conveyor and operate normally.
8. Be aware of unusual sounds. If any are heard, determine the source and stop the conveyor. Lock out and correct the problem before resuming work. If you are unsure of the problem or procedure, contact your local dealer.
9. Do not run the conveyor for long periods of time without material on the conveyor belt because it increases wear. Try to run only when moving material.
10. Stop the conveyor when it is empty of grain and lockout power, lower fully.

**Important**

After the initial start-up and inspection, the conveyor should be shut down and visually inspected (see Maintenance Section) after approximately ten hours of operation.

## 6.3. Operation - Electric Motor Models

➡ When equipped with an Electric Motor:

1. Turn the electric motor on.
2. Run until the conveyor is empty.
3. Turn off motor and lock out power source.
4. Unplug the power cord, wrap around the equipment and secure to prevent dragging, especially when transporting or placing the conveyor.

## 6.4. Operation - Hydraulic Motor Models

1. Place all tractor controls in neutral.
2. Start the tractor and run at low idle.
3. Engage the tractor hydraulic control lever and increase the engine to desired speed.

   **Note**

   The correct operation of a hydraulic system is directly linked to the pump's ability to supply the correct oil flow and pressure. If you cannot obtain the correct belt speed, check with your dealer to ensure the power unit is delivering the correct oil volume and pressure.
4. Run until the belting is empty.
5. Reduce tractor engine speed to low idle.
6. Place hydraulic control lever in neutral.
7. Shut off engine and remove ignition key.
8. Disconnect hydraulic hoses, and wrap hose around frame to prevent dragging.

## 6.5. Loading Area

To achieve maximum capacity:

- Feed material onto the belt until the material tube clearance is 1/2".
- Direct the flow of material into the input hopper in the direction of the belt travel for the best capacity.

Do not flood feed the hopper.

## 6.6. Conveyor Belt Speed

The best results are obtained when the input drives are set to provide a conveyor belt speed of 440 ft/min.

Count the number of belt revolutions per minute to determine belt speed. See Specifications for belt length.

**Note**

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

To calculate, for example, 600ft/minute belt speed for a 47ft belt:

$$\frac{BeltSpeed}{BeltLength} = \frac{600}{47} = 12.76$$

Therefore, 12.76 or approximately 13 belt passes per minute will provide a 600ft/min belt speed.

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

If the belt speed is too low, conveyor may leak around transition area.

## 6.7. Material Change Over

To reduce the risk on contamination when changing over materials please be sure to follow each of the steps below.

1. Stop the conveyor and brush any residual material in the hopper onto the belt.
2. Start the conveyor and run empty for two minutes.
3. Shutdown the conveyor.
4. Remove the cleanout cover and remove any material. Please see the image below for the amount of material to expect for a typical change over.

   **⚠ WARNING** Lock out the power source before removing the cleanout cover.

5. Replace cleanout cover ensuring that both legs are engaged and the clamps are secured.
6. The conveyor is now ready to receive a new material.

## 6.8. Emergency Shutdown

In an emergency situation:

1. Stop or shut down the power source immediately and lock out all power.
2. Stop the flow of material (if applicable).
3. Ensure the machine components come to a stop before inspecting.
4. Correct the emergency situation before resuming work.

## 6.9. Restarting with a Full Tube

When the conveyor is shut down inadvertently or for an emergency and the tube and hood only are filled with material. If the belt return is also filled with material then first refer to Section 6.10. – Restarting with a Plugged Belt Return on page 31.

1. With the power source locked out, remove as much of the grain as possible from the tube and intake using a shop vacuum or other tool. Do not use your hands.

   **NOTICE** Starting under load may result in damage to the conveyor if grain is not removed as much as possible.

2. If guards or covers have been opened or removed, close or replace them before restarting the unit.
3. **Electric Drive Models:** It may be necessary to tighten the drive belts slightly to handle the heavier than normal loads.

4. **Hydraulic Drive Models:** Since the start-up torque loads are so much higher than normal when the conveyor belting is full, restart at low speed. Do not let the conveyor belt drive roller spin on the belt if conveying belt does not start moving immediately. This will damage the drive roller and conveying belt.
5. Once the conveyor has been started, you may resume normal operation.

## 6.10. Restarting with a Plugged Belt Return

The paddle conveyor has a sealed belt return. Plugging the hood when filling a bin will result in the tube and belt return completely filling with material and will require an emergency stop. If the hood becomes plugged and the tube and belt return have been filled with material, do not restart the paddle conveyor until the tube and belt return are free of material.

To remove material from a plugged paddle conveyor:

1. Lock out power to the conveyor.
2. Remove the clean-out cover and allow as much material as possible to fall out.
3. Scoop the material away from the path of the exposed paddles at the clean-out.
4. Secure a bar to the drive roller and have an operator run the belt in reverse by hand. If the belt will not move have a second operator push on the exposed paddles in the hopper.
5. Have a third person continuously scoop material away from the path of the exposed paddles at the clean-out.
6. Once the conveyor has been completely emptied, replace the clean-out cover and remove the bar that was attached to the drive roller. Ensure all guards have been replaced before re-engaging the power source.
7. Check belt tension and alignment as specified in 7. Maintenance on page 33.

## 6.11. Shutdown

When operation has been completed:

1. Once the conveyor is clear of grain, lock out the power source.
2. Lower the conveyor fully.
3. Clean out any remaining grain from the conveyor with a vacuum or sweep out.
4. Clean the entire work area.
5. Remove anchors, supports, and chocks.

## 6.12. Clean Out

After using your conveyor, follow the clean out steps below to ensure longer belt life and trouble free operation. Failure to clean out the conveyor can cause build up of product on the belt and roller shafts, causing spillage, roller misalignment, and excess wear/damage to the belt.

**⚠ WARNING** Failure to lock out power can cause severe injury.

1. Remove any product remaining in the hopper and spout with a vacuum or sweep out.
2. Remove debris from shafts, sheaves, and drive belts (as equipped).

3. Once the conveyor is empty of all product, check for damage on belt and lacing such as notches or cut outs. Any damage on belt may result in product getting under it creating a build-up. If belt replacement and re-lacing is necessary, refer to the Maintenance Section.

   **Important**

   Ensure the conveyor is free from all product and debris to prevent build-up. Any build-up on belt and shaft becomes a source of spillage and can cause belt misalignment with the possibility of belt edges sustaining damage on the fixed structure. Build-up on the hopper and spout will cause the belt to wear faster due to drag.

4. Once cleaned out, cover intake to prevent moisture from collecting in hopper.

## 6.13. Storage

After the season's use, the conveyor should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components and perform maintenance as described in the Maintenance Section to prevent any unnecessary downtime at the start of the next season.

To ensure a long, trouble-free life, this procedure should be followed when preparing the unit for storage.

1. Remove all residual material from the hopper and the tube.
2. Stop the machine with the belt lacing inside the tube. This helps prevent the lacing from rusting.
3. Wash the entire conveyor thoroughly using a water hose or pressure washer to remove all dirt, mud, debris, or residue.
4. Inspect all moving or rotating parts to see if anything has become entangled in them. Remove any entangled material.
5. Touch up all paint nicks and scratches to prevent rusting.
6. Check tire pressure and inflate, see Specifications section for inflation pressure.
7. Inspect the conveyor for cracks, tightness of fittings and fasteners, hydraulic hose cracks (if applicable). Have required repairs performed to replace worn or damaged components and complete required annual maintenance.
8. Store in an area that is dry, level, free of debris, and away from human activity. Store inside if possible.
9. Cover motor with waterproof tarpaulin if stored outside to protect from weather.
10. Chock wheels.
11. Support intake on blocks to eliminate prolonged contact with the ground.
12. Lower the conveyor to its lowest position for storage.

# 7. Maintenance

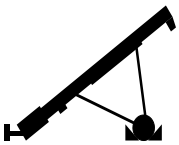
Before continuing, ensure you have completely read and understood this manual's Safety section, in addition to the safety information in the section(s) below.

## 7.1. Maintenance Safety

**⚠ WARNING**

- Keep components in good condition. Follow the maintenance procedures.
- Ensure the service area is clean, dry, and has sufficient lighting.
- Do not modify any components without written authorization from the manufacturer. Modification can be dangerous and result in serious injuries.
- Shut down and lock out power before maintaining equipment.
- After maintenance is complete, replace all guards, service doors, and/or covers.
- Use only genuine Batco replacement parts or equivalent. Use of unauthorized parts will void warranty. If in doubt, contact Batco or your local dealer.

**Before attempting maintenance of any kind:**



- Lower the conveyor fully.
- Chock wheels.
- Support tube if performing maintenance on the undercarriage assembly.
- **If equipped with hydraulics:** Before applying pressure to a hydraulic system, make sure all components are tight and that hoses and couplings are in good condition.

## 7.2. Maintenance Schedule

Proper maintenance habits mean a longer life, better efficiency, and safer operation. Please follow the Maintenance Schedule below. Keep good records of the hours the conveyor has been operated and the maintenance performed.

| |
|---|
| **Daily:** |
| Section 7.3. – Visually Inspect the Equipment on page 34 |
| Section 7.4. – Lubricate the Equipment on page 35 |
| **Monthly:** |
| **When Equipped:**Section 7.6. – Inspect Hydraulic Hoses and Fittings on page 35 |

| |
|---|
| Section 7.7. – Inspect the Hopper Flashing on page 36 |
| Section 7.8. – Check the Roller Bearings on page 36 |
| Section 7.9. – Check the Roller Lagging on page 36 |
| **Annually:** |
| **Hydraulic Drive Models:** Section 7.5. – Oil the Chain Coupler on page 35 |
| Section 7.10. – Conveyor Belt Tension on page 36 |
| Section 7.11. – Conveyor Belt Alignment on page 37 |
| Section 7.13. – Clean and Wash the Equipment on page 40 |
| **As Required:** |
| **Electric Drive Models:** Section 7.14. – Tension the Drive Belts on page 40 |
| **Electric Drive Models:** Section 7.15. – Align the Drive Belts on page 40 |
| **Electric Drive Models:** Section 7.16. – Replace the Drive Belts on page 41 |
| Section 7.17. – Repack the Wheel Bearings with Grease on page 41 |
| Section 7.18. – Inspect and Service the Hand Winch and Lift Cable on page 41 |
| Section 7.12. – Conveyor Belt Replacement on page 38 |

## 7.3. Visually Inspect the Equipment

Check the following during a visual inspection:

1. Ensure all guards are in place and in good working order.
2. Examine the conveyor for damage or unusual wear.
3. Check tightness of bolts/nuts, fasteners, and hardware (re-torque if necessary).
4. Be sure all safety decals are in place and are legible.
5. Check that the discharge and intake area are free of obstructions.
6. Inspect all moving or rotating parts to see if anything has become entangled in them. Remove any entangled material.

   **⚠ WARNING** Lock out power before inspecting.

7. **When equipped:** Inspect hydraulic hoses and fittings for leaks and wear. Fix or replace where necessary.
8. Examine tires for gashes, uneven wear, or loss of air pressure. Maintain pressure according to tire sidewall recommendations.
9. Check all operating, lifting, and transport components. Replace damaged or worn parts before using the conveyor.
10. Inspect the winch cable for fraying, kinking, unwinding, or other possible damage.

## 7.4. Lubricate the Equipment

Your equipment can operate at top efficiency only if clean fluids and lubricants are used. Use clean containers to handle all fluids and lubricants. Store them in an area protected from dust, moisture, and other contaminants.

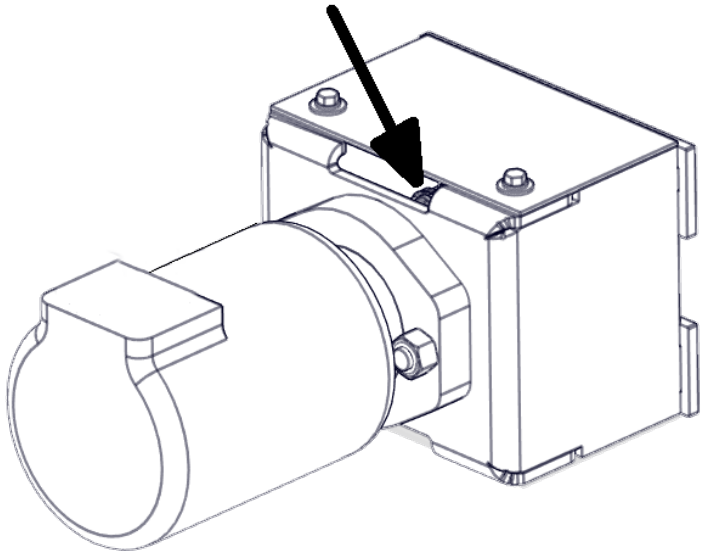
1. Wipe the grease fittings with a clean cloth before greasing to avoid injecting dirt and grit.
2. Use a hand-held grease gun for all greasing.
3. If fittings will not take grease, remove and clean thoroughly.
4. Replace fittings if they are broken or will not accept grease.

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

## 7.5. Oil the Chain Coupler

The chain coupler is located between the hydraulic motor and the conveyor's drive roller.

**Figure 8. Chain Coupler Location**



## 7.6. Inspect Hydraulic Hoses and Fittings

➡ When equipped:

1. Pressurize the system.
2. Using a piece of cardboard or wood, run it along the length of the hose and around all fittings.

**⚠ WARNING** Escaping hydraulic fluid under pressure will cause serious injury if it penetrates the skin surface.

3. Replace the hose or tighten/replace the fitting if a leak is found.
4. Replace any hose that is badly cut, nicked, abraded, or is separating from the crimped end of the fitting.
5. Secure hoses to the machine.

## 7.7. Inspect the Hopper Flashing

Check hopper flashing for wear and replace any that are worn. Worn flashing will cause hopper leakage.

## 7.8. Check the Roller Bearings

Check roller bearings for wear. Any rollers making noise, getting hot while running, or that give should be replaced.

## 7.9. Check the Roller Lagging

Inspect roller lagging to see if it is showing signs of wear.

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

## 7.10. 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 and 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 either be replaced (see Section 8.3.6. Conveyor Belt Replacement on page 36) or shortened and relaced (contact your dealer for instructions).

Belt should not be easy to pull from the hopper transition sides, if it is easy you need to tension the belt.

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

**NOTICE** Do not operate conveyor if belt is slipping. Stop conveyor and tighten belt. Failure to do so will damage the belt and may void the warranty.

**Important**

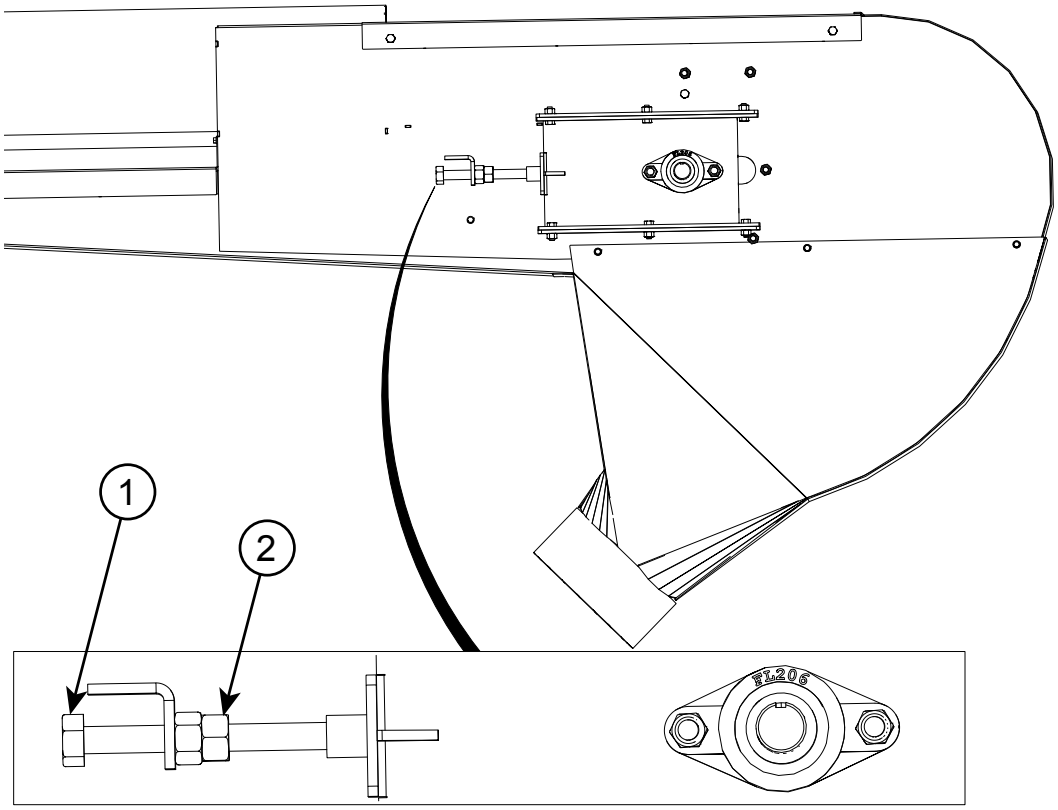
Some belts may have uneven edges, appearing misaligned. Wait until the belt makes a complete revolution before adjusting rollers.

### *7.10.1 Belt Tension Instructions*

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

1. Extend the two adjustment bolts equally (use a tape measure to verify). Belt should deflect 1-2” when pushed down with a 5 lb force, or be difficult to pull from sides of hopper transition. See Figure 9
2. Adjust and tighten the jam nut.
3. Check belt tension by running conveyor for one minute.
4. If belt is slipping, repeat the procedure, starting at step 1.
5. If belt is not slipping, but now running to one side, the drive roller needs to be aligned. See Section 7.11. – Conveyor Belt Alignment on page 37.

**Figure 9. Top Drive Roller Adjustment Bolts**




| Item | Description |
|---|---|
| 1 | Adjustment Bolt |
| 2 | Jam Nut |

## 7.11. Conveyor Belt Alignment

If your belt is tracking to one side, use the instructions below and follow the steps listed to center it.

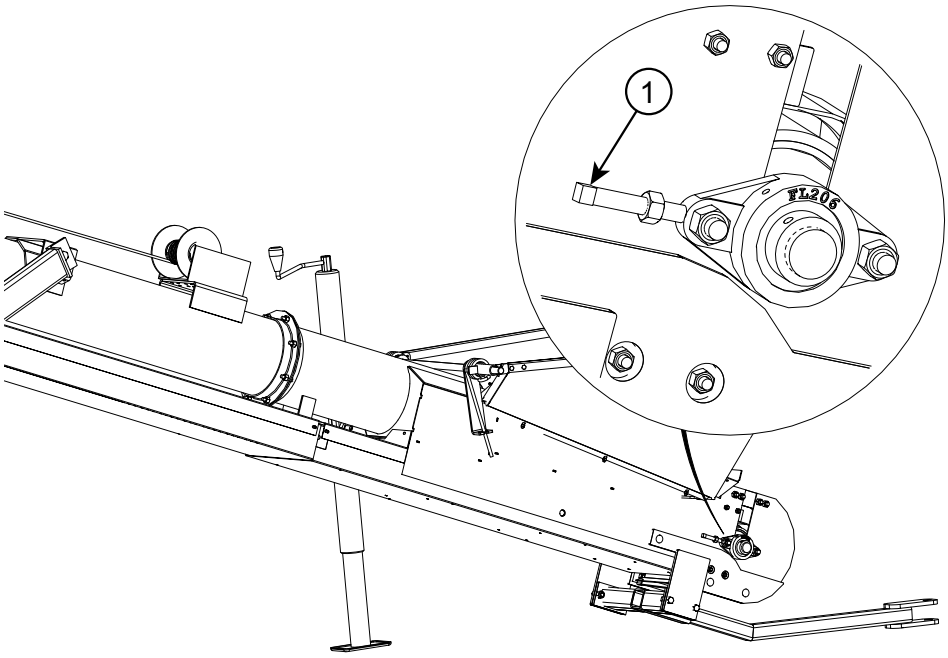
**Important**

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.

1. Stop conveyor, remove ignition key or lock out power source.
2. Rotate adjustment bolt clockwise on the side that the belt is running toward. If a rotation of more than 1/4" does not fully align the belt, adjust the top roller adjustment bolt in a similar fashion, see Figure 10
3. Restart conveyor and run empty for one minute.
4. Stop conveyor, remove ignition key or lock out power source.
5. If belt is not centered, repeat the procedure starting from step 2.

**Figure 10. Lower Belt Roller Adjustment Bolt**




| Item | Description |
|---|---|
| 1 | Adjustment Bolt |

## 7.12. Conveyor Belt Replacement

Removing the cleanout assembly and the bottom guards of the belt return before starting the belt replacement procedure will assist in ease of access and help prevent the paddle belt becoming caught on components during installation.

**⚠ CAUTION** Chock wheels to prevent conveyor from rolling during belt replacement.

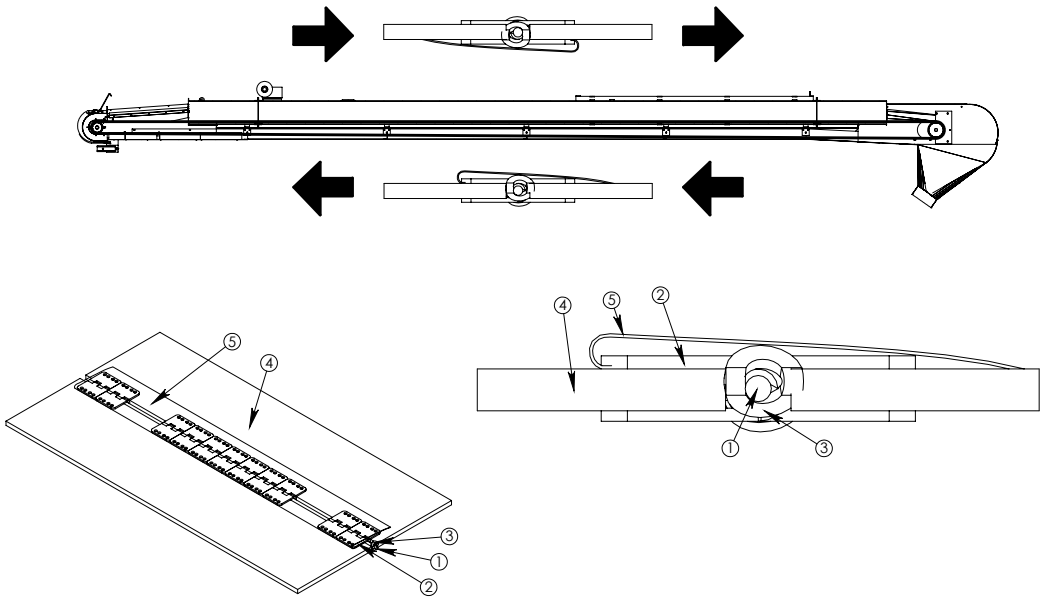
1. Rotate the belting until the lacing is in the hopper and easily accessible.
2. Adjust the top drive tension roller to its loosest position.
3. Pull all the slack to the lacing area using a ratchet strap.
4. Remove the lacing pin, see Figure 11.

5. Attach one end of the replacement belt to the belt end being removed, closest to the hopper.

   **Note**
   Ensure that the belt is installed as shown in Figure 11, noting the direction of belt travel.

6. Pull the old belt out and the new belt will be threaded into place.
7. Disconnect the old belt.
8. Install lacing pin and crimp pin retainers onto each end of the lacing pin.
9. Remove ratchet strap and tighten conveyor belt. See Section 7.10. – Conveyor Belt Tension on page 36.
10. Check and set belting alignment. See Section 7.11. – Conveyor Belt Alignment on page 37.
11. Engage conveyor drive. Allow to run for 30 seconds, then shut down conveyor and inspect lacing.

**Figure 11. Belt Orientation and Lacing**




| Item | Description | Quantity |
|---|---|---|
| 1 | Alligator Lacing Pin | 1 |
| 2 | Alligator Clip | 22 |
| 3 | Lacing Pin Retainer | 2 |
| 4 | Paddle Belt | 1 |
| 5 | Lacing Seal | 1 |

# 7.13. Clean and Wash the Equipment

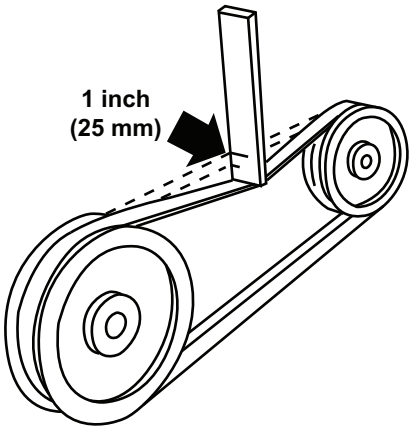
1. Clean out excess grain from all areas of the conveyor.
2. Make sure water can drain from the conveyor tube and intake, then wash the tube with a water hose or pressure washer until all dirt, mud, debris, or residue is gone.
3. Provide sufficient time for the water to drain from the conveyor.

# 7.14. Tension the Drive Belts

➡ When equipped:

1. Remove guard and push on the center of the belt span with a force of approximately 5 lb.
2. The belts will deflect approximately 1” (25 mm) when properly tensioned.

**Figure 12. Schematic**




3. Tighten or loosen the drive belts (or idler pulley when equipped) to achieve the proper tension.

   **Important**

   The drive belt should be just tight enough to not slip on the drive pulley when operating. If the belt is too loose, it will slip, possibly causing a squeaking sound and slowing the belt down. If the belt is too tight, it will cause excess wear.

4. Reattach and secure guard. Start system to ensure proper operation.

# 7.15. Align the Drive Belts

➡ When equipped:

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 the hub bolts to secure pulley on the drive shaft.
4. Check the belt tension.
5. Reattach and secure the guard.

## 7.16. Replace the Drive Belts

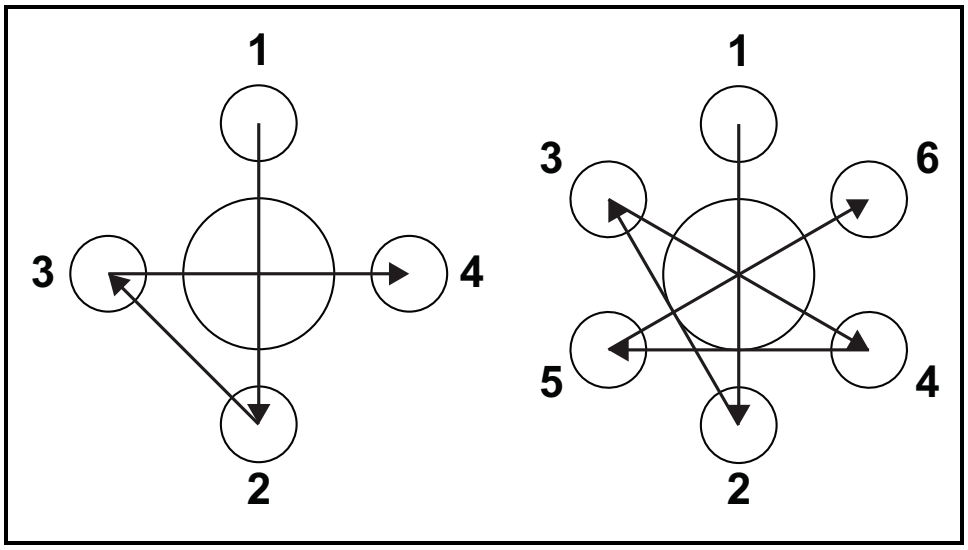
➡ When equipped:

1. Fully loosen the drive belts.
2. Remove and replace the old belts.
3. Tighten the drive belts as described in Belt Tension.
4. Align the drive belts as described in Belt Alignment.
5. Reattach and secure the guard.

## 7.17. Repack the Wheel Bearings with Grease

1. Block wheels and ensure unit is stable.
2. Remove the wheel bolts and the wheels.
3. Clean wheel and hub mounting surfaces to ensure there is no rust or debris.
4. Remove the wheel bearing and pack with grease. Use SAE multi-purpose high-temperature grease with extreme pressure (EP) performance. SAE multi-purpose lithium-based grease is also acceptable.
5. Tighten the wheel bolts (diagonal pattern) with a torque wrench to 100 ft-lb (±10 ft-lb) of torque. Inspect to make sure the wheel is sitting flush with the hub.

**Figure 13. Diagonal Pattern for 4-bolt and 6-bolt Tires**




## 7.18. Inspect and Service the Hand Winch and Lift Cable

➡ When equipped:

**⚠ WARNING** Place conveyor in fully lowered position with cable slack.

1. Inspect the cable for damage such as fraying, kinking, or unwinding. Replace if damaged (see below).

2. Check to make sure cable clamps are secure.
3. Oil cable pulleys as needed.
4. Keep a film of grease on the gears. Occasionally oil the bushings, drum shaft, and ratchet.
5. Do not get oil or grease on brake discs.
6. Replace brake discs if less than 1/16" (1.6 mm) thick.
7. Check for proper ratchet pawl operation:
    - When cranking in (clockwise) = loud clicking
    - When cranking out (counterclockwise) = no clicking and ratchet pawl fully engaged into gear teeth.

### To Replace the Lift Cable:

1. Unwind the winch drum until cable is slack and remove all cable clamps.
2. Remove the cable.
3. Reverse the above steps to install the new cable.

# 8. Troubleshooting

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

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

**WARNING** Shut down and lock out all power sources before diagnosing any of the causes or attempting any of the solutions below.

In the following section, we have listed some causes and solutions to some of the problems you may encounter.

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

Conveyor

| Problem | Cause | Solution |
|---|---|---|
| Low conveying capacity. | Conveyor angle is too high. | Re-position with lower tube angle, see Operation. |
| | Incorrect belt speed. | Verify and adjust belt speed to appropriate speed, see Belt Speed in Operation. |
| | Conveyor belt slipping. | Tighten conveyor belt, see Conveyor Belt Tension in Maintenance. |
| | **When equipped:**<br>Drive belts slipping. | Tighten belts, see Drive Belt Tension in Maintenance. |
| Conveyor belt slipping. | Conveying belt loose. | Tighten and align belt, see Belt Tension and Belt Alignment in Maintenance. |
| | Drive roller lagging worn or damaged. | Replace drive roller lagging, see dealer. |
| | **When equipped:**<br>Drive belts loose. | Tighten belts, see Drive Belt Tension in Maintenance. |
| | 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 conveyor belt edge fraying. | Belt not aligned. | Align belt, see Belt Alignment in Maintenance. |

| | | |
|---|---|---|
| Conveyor belt loose. | Belt stretches over time. | Re-tension belt, see Belt Tension in Maintenance. |
| | | If belt is fully tensioned, you may need to shorten belt and re-lace, see Belt Relacing in Maintenance. |
| Grain leaking from conveyor hopper. | Belt not aligned (centered). | Align belt, see Belt Alignment in Maintenance. |
| | Flashing installed incorrectly or worn. | Inspect flashing for wear and replace if required. |
| | Hopper cloth worn or damaged. | Replace damaged hopper cloth. |
| 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. |
| Grain leaking from conveyor discharge between belt and tube. | Belt not aligned (centered). | Align belt, see Belt Alignment in Maintenance. |
| Grain leaking from conveyor discharge between hood and belt. | Belt speed is too fast, hood plugging. | Decrease belt speed, see Belt Speed in Operation. |
| U-clamps or brackets sliding on tube. | U-clamps or brackets not properly crimped to tube. | Contact dealer or Batco to correct positioning. |
| Grain Leaking at cleanout cover. | Belt not aligned. | Align and tension belt. |
| | Clean out seals loose. | Tighten seals to belt. |
| | Cleanout seals worn. | Replace seals. |
| | Cleanout cover not on properly. | Check that both hooks are engaged on the bottom of the hopper. |
| | Belt worn. | Replace belt. |
| | Flashing worn. | Replace flashing. |

Frame/Undercarriage with Hand Winch

| Problem | Cause | Solution |
|---|---|---|
| The conveyor will not raise or lower. | The conveyor is already at its maximum or minimum height. | If at maximum height, lower the conveyor. |
| | Obstruction in the slide. | Clear the obstruction. |
| | Faulty cable. | Replace cable. |
| | Faulty winch. | Consult your local dealer. |
| | The bottom or top of the conveyor is obstructed. | Clear the obstruction. |
| The conveyor will not stay elevated. | Faulty winch. | Lower conveyor to transport position and repair or replace winch. |

Electric Drive Models Only

| Problem | Cause | Solution |
|---|---|---|
| Drive making noise. | Slipping drive belt. | Tighten belts, see Drive Belt Tension in Maintenance. |
| | Hot shaft, pulley or bearing. | Overheated components indicate a failed bearing that must be repaired. |
| | Broken drive roller. | Replace damaged component. |

# 9. Specifications

## Specifications

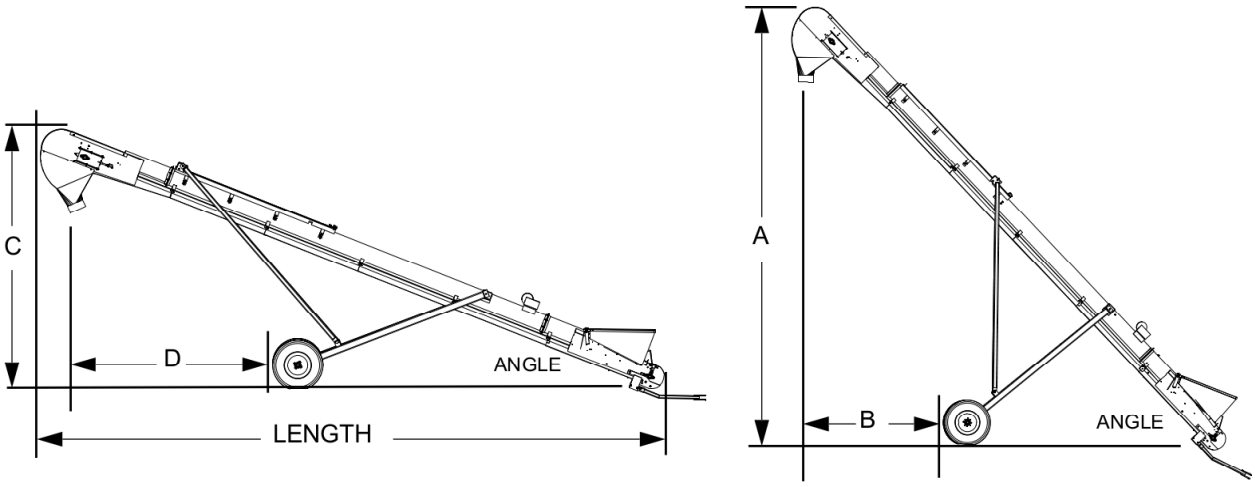



**Table 4. Paddle Conveyor**

| Model | Belt Length | Total Weight (lb) | UP — OPERATION | | | DOWN — TRANSPORT | | | Length (ft) | Overall Width (ft) | Electric (hp) | Hyd (hp) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A (ft) | B (ft) | Angle (°) | C (ft) | D (ft) | Angle (°) | | | | |
| 1525 Paddle | 51' 4" | 1162 | 14.2 | 6.9 | 40.0 | 12.5 | 7.5 | 25.0 | 25.0 | 7.5 | 5.0 | 6.2 |
| 1530 Paddle | 61' 4" | 1382 | 17.3 | 8.3 | 40.0 | 12.9 | 9.7 | 22.0 | 30.0 | 7.5 | 5.0 | 6.2 |
| 1540 Paddle | 81' | 1712 | 24 | 10.7 | 40.0 | 13.4 | 14.5 | 17.0 | 40.0 | 9.1 | 7.5 | 6.2 |

# 10. Batco Limited Warranty

**This warranty relates to Batco Conveyors (the "Product") sold by Batco-Rem, (which is a division of Ag Growth Industries Partnership, referred to herein as the "Seller") and applies only to the first user of the Product (meaning a purchaser directly from the Seller or from an authorized dealer or distributor of the Product, referred to herein as the "Buyer").**

**This warranty shall only be effective if properly registered with the Seller in accordance with information provided to the Buyer at the time of sale.**

1. The Seller warrants to the Buyer that the Product is free from defects in material and workmanship **under normal and reasonable use**.

2. This warranty applies only to defects in materials and workmanship and not to damage incurred in shipping or handling, through normal wear and tear, or damage due to causes beyond the control of the Seller such as lightning, fire, flood, wind, earthquake, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration, improper assembly, improper installation, improper maintenance or improper repair of the Product.

3. **The warranty period for the Product shall be one year from delivery of the Product to the Buyer where the Product is used in a normal farm operation. The warranty period for the Product shall be 90 days from delivery of the Product to the Buyer where the Product is used in a commercial operation. No warranty is given where the Product was used to convey canola.** In the event that any part incorporated into the Product is manufactured and sold to the Seller by a third party vendor, such part is only warranted to the extent of the warranty given by that third party.

4. The obligations set forth in this warranty are conditional upon the Buyer promptly notifying the Seller of any defect and completing reasonably required documentation and, if required, promptly making the Product available for correction. The Seller shall be given reasonable opportunity to investigate all claims and no Product shall be returned to the Seller or part disposed of until after inspection and approval by the Seller and receipt by the Buyer of written shipping instructions, with transportation charges prepaid.

5. Upon return of the Product, or such part of the Product that requires correction, the Seller shall, at the Seller's option, either repair or replace the Product or such part. The Seller shall replace or attempt to repair and return the Product or such part within a reasonable period of time from receipt of an approved warranty claim from the Buyer. If the Seller is unable to repair or replace the Product, the Buyer shall be entitled to a credit note in the amount of the purchase price for the Product.

6. The total liability of the Seller on any claim, whether in contract, tort or otherwise, arising out of, connected with, or resulting from the manufacture, sale, delivery, repair, replacement or use of the Product or any part thereof **shall not exceed the price paid for the Product** and the Seller shall not be liable for any special indirect, incidental or consequential damages caused by reason of the installation, modification, use, repair, maintenance or mechanical failure of the Product. **Consequential or special damages as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs and operational inefficiencies.**

7. **Notwithstanding anything contained herein to the contrary, the foregoing is the Buyer's sole and exclusive remedy for breach of warranty by the Seller in respect of the Product. The Seller, for itself, its agents, contractors, employees and for any parent or subsidiary of the Seller, expressly disclaims all warranties, either express or implied, written or oral, including implied warranties of merchantability or fitness for a particular purpose and undertakes no obligation with respect to the conformity of the Product except as set out in the purchase agreement, if any, or marketing materials.**

8. The foregoing warranty is the entire warranty of the Seller to the Buyer and the Buyer shall not be entitled to rely upon any representation or warranty contained in any marketing material of the Seller in respect of the Product. The Seller neither assumes, nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning the Product.

**WARRANTY VOID IF NOT REGISTERED**

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