



# Owner's Manual

## 20 Series Field Belt Conveyors

Publication No. B012777 – Rev 12

Toll Free 1-866-427-2638  
[www.brandt.ca](http://www.brandt.ca)

 **Brandt**



# Pre-delivery Inspection Sheet

## To the Dealer

In order to ensure that this Belt Conveyor will provide your customer with many years of trouble free service, please ensure that the following Dealer Inspection has been performed.

## DEALER INSPECTION REPORT

### General

- Wheel Bolts Tight. (90 ft-lbs.)
- Tire Pressure as per sidewall marking.
- Drive belts aligned and tensioned correctly.
- Verify via the safety section that ALL safety decals in place and legible.
- Tube flange bolts are tight.
- All fasteners are tight.
- Paint scratches are touched up.
- S-Drive and discharge bearing set screws are tight.
- All safety shields and guards are installed and secure.
- All pivot points, U-Joints and PTO Shafts have been lubricated.
- Conveying belt is installed in proper direction - as per assembly section.
- Conveying belt is routed correctly - as per assembly section.
- The outside lug of one of the outer lacing clips has been squeezed tightly against the lacing pin - look for squeeze mark.
- Ensure silicone is spread over lacing and pin.
- Intake hopper fabric is not torn, the seam is to the outside of hopper and the plastic trim is installed.
- All roller shaft ends are sprayed with corrosion inhibitor.
- Wind Guard plates are shingled properly.
- All applicable service bulletins performed.
- If equipped, the engine oil level is to the full mark.
- If equipped, the fuel tank is partly filled.
- If equipped, the electric clutch engages when switch is turned on.
- If equipped, check the oil level in all gearboxes.
- If equipped, the downspout and buckets are installed properly.
- If equipped, the light kit functions properly.

### Run In

- Conveyor has been elevated and lowered without any problems.
- Ensure the belt has been tensioned to be in the middle of the green zone decal.
- Engage the drive and be sure the belt starts to move without any slippage.
- Conveyor has been run slowly to check the belt tracking first at the S-Drive, then the Intake and then the Discharge.
- Conveyor has been run for 20 minutes and the conveying belt alignment has been checked and adjusted.
- The lacing pin has been checked to make sure it is still in place.

**20 Series Field Conveyor**

\_\_\_ Conveyor has been checked for unusual noises and vibration.

\_\_\_ Conveying belt has been re-tensioned after run in.

\_\_\_ Time on complete rotation of belt and check decal for proper speed.

Date \_\_\_\_\_ Dealer's Signature: \_\_\_\_\_

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## CHAPTER 1 Introduction

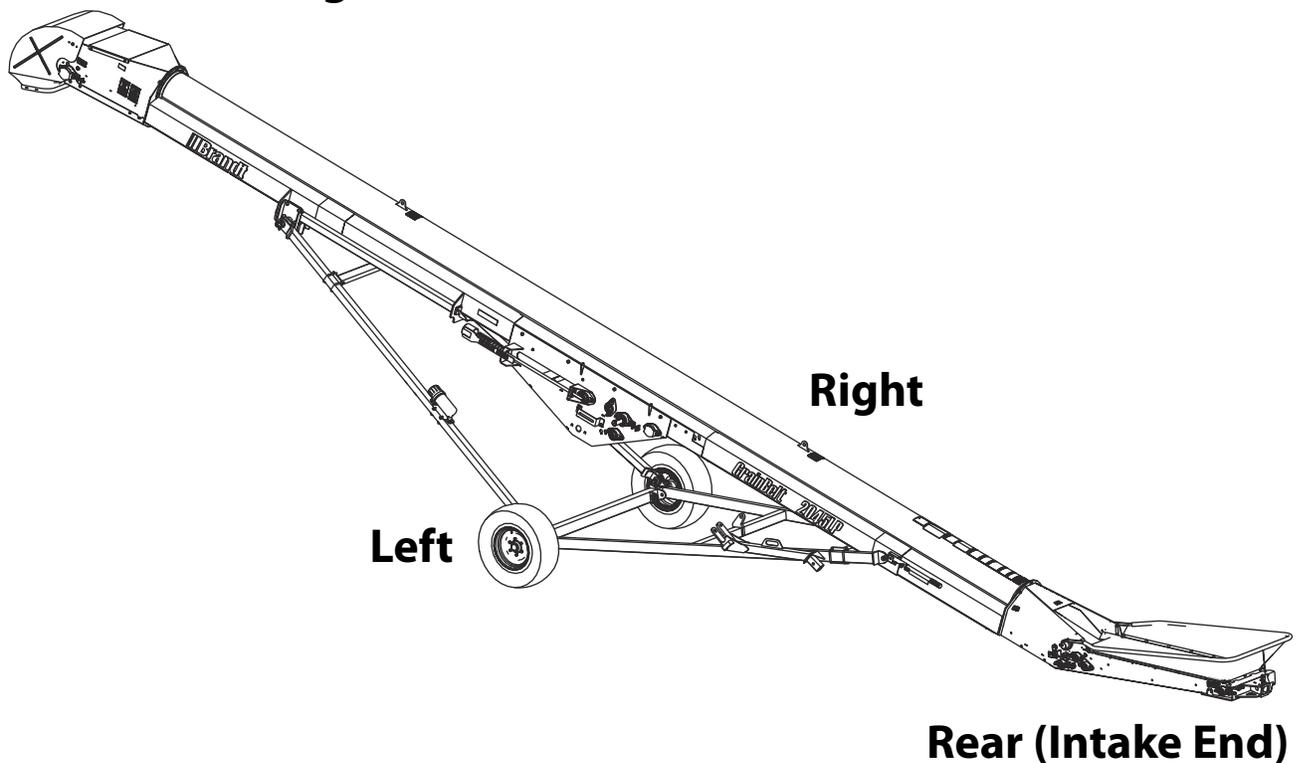
This manual is for use with Brandt Industries Ltd. 20 Series Field Belt Conveyors with a Low Profile Intake. Safe and efficient operation of your Conveyor requires that anyone who will inspect and work on this machine read and understand the information included in this manual. A person that is not trained and has not read this manual is not qualified to work on this machine. Read this manual before proceeding with any inspections or repairs on this machine.

Use the Table of Contents as a guide. Keep all manuals for future use. Contact Brandt Industries Ltd. if you need additional copies of this manual.

### 1.1 Operator Orientation

The directions left, right, front and rear, as mentioned throughout the manual, are as seen from the intake of the conveyor facing the conveyor outlet.

#### Front (Discharge End)

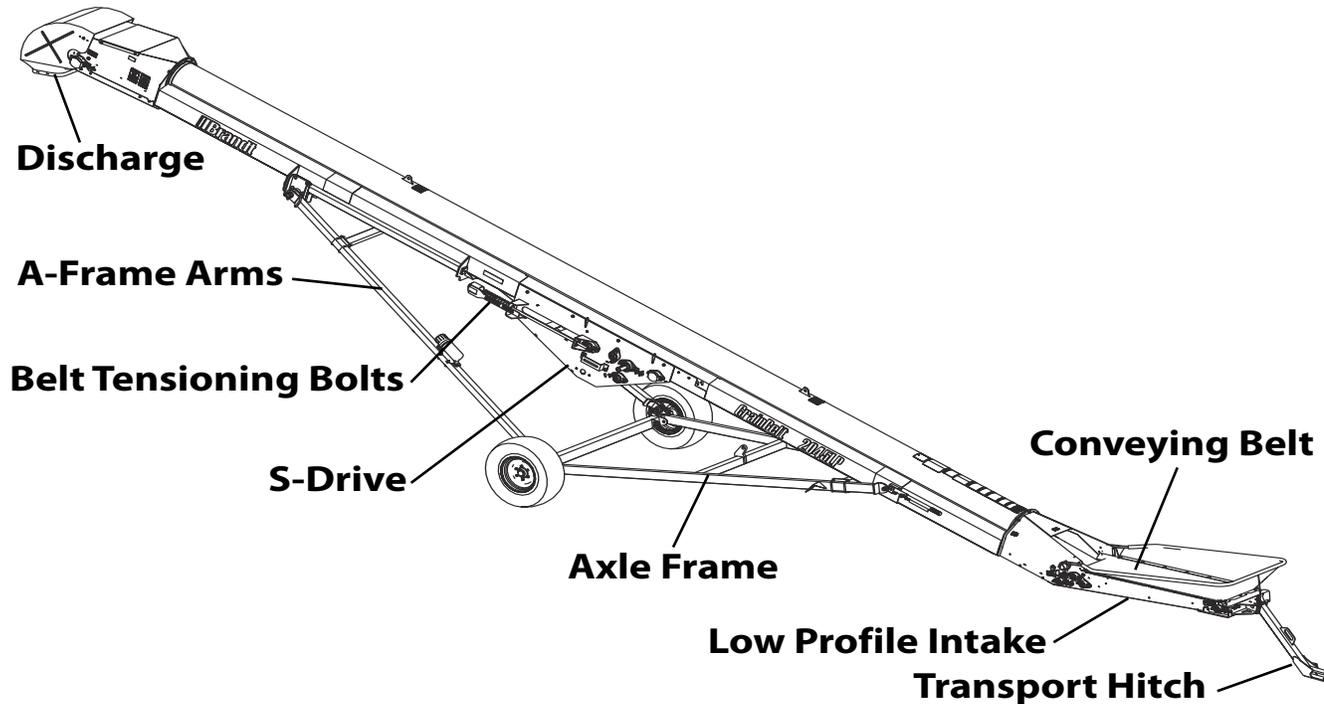




## 1.3 General Specifications

Model	2045LP	2055LP
<b>Performance</b>		
Capacity <sup>1</sup> (bushels per hour)	12,000 - 14,000	10,000 - 12,000
Recommended Horsepower - Gas <sup>2</sup> /Diesel	35	35
Recommended Horsepower - Electric	20	20
<b>Dimensions</b>		
Belt Width	20"	20"
Conveyor Length	47' 11"	55' 3"
Raised Height	21' 3"	25' 5"
Raised Reach	17' 3"	22' 10"
Lowered Reach	19' 7"	26' 4"
Transport Height (hitch at 12")	11' 0"	12' 5"
Transport Length	50' 9"	60' 5"
Intake Reach	24' 2"	15' 0"
with EZMove	16' 0"	15' 0"
Wheel Track	8' 8"	8' 8"
Total Weight	4,950 lbs	5,200 lbs
Hitch Weight (without EZMove)	200 lbs	256 lbs
Tube Diameter	14"	14"
Tire Size	ST225/75 R15	ST225/75 R15
<b>Features</b>		
Lift Mechanism	Manual or Hyd. Winch	Manual or Hyd. Winch
Windguards	Standard	Standard
Belt Type	Rubber	Rubber
Drive System	S Drive	S Drive
<b>Hopper</b>		
Hopper Style	Low Profile	Low Profile
Hopper Width & Length	40" x 70"	40" x 70"
Collapsed Hopper Height	8"	8"
Extended Hopper Height	16"	16"
1 - Standardized Test capacities. Actual results may vary by crop and moisture content		
2 - J1940 Gross Engine Horsepower		

## 1.4 Description and Location of Major Components



This product has been designed and built to give maximum performance, economy and ease of operation under a variety of operating conditions. To maintain the condition of this product and ensure trouble-free operation, it is important that routine maintenance procedures, as specified, are carried out at the recommended intervals.

Dimensions and weights are approximate only. To provide a better view, certain illustrations in this manual show safety shields removed. It is important that the machine never be operated without safety shields. Keep all shields in place. Actual product may not appear exactly as shown in the illustrations.

The information contained in this manual is subject to change. The manufacturer may at any time, for technical or other necessary reasons, modify any of the details or specifications of the product described in this manual. Please read the safety precautions carefully and follow the advice offered BEFORE operating the machine.

## CHAPTER 2 **Important Safety Information**

It is your responsibility as an owner, operator or supervisor, to know what specific requirements, precautions and work hazards exist. It is also your responsibility to make these known to all other personnel working with the equipment or in the area, so that they too may take any necessary safety precautions that may be required.

You are responsible for the safe operation and maintenance of this equipment. Make sure that all persons who operate, maintain or work near this equipment know the contents of this manual.

You are the key to safety. These safety precautions protect you and the people near you. Include these precautions in your safety program. Accidents can be prevented.

**THINK SAFETY**

**WORK SAFELY**

## 2.1 Safety Symbols / Signal Words

### 2.1.1 Recognizing Safety Information



This is the Safety Alert Symbol. It is used to alert you to injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

### 2.1.2 Understanding Signal Words

A signal word – DANGER, WARNING or CAUTION – is used with the Safety Alert Symbol.



**DANGER!** Is reserved for a hazard that, if not avoided, will result in death or serious injury.



**WARNING!** Indicates a hazard that, if not avoided, could result in death or serious injury.



**Caution.** Shows a hazard that, if not avoided, could result in injury.



**Notice.** Indicates that your heightened awareness is required to avoid practices not related to personal injury.

These safety signs include a message that tells what the hazard is, and the steps to avoid the hazard.

### 2.1.3 Safety Messages / Decals

Different safety messages are displayed on this equipment. Locate, read, and understand the safety messages. The DANGER, WARNING, CAUTION or NOTICE symbol can be shown with a safety message.

These messages mean:



Crush Hazard



Cutting Hazard



Hearing Protection



Hard Hat



Pinch Hazard



Entanglement



Eye Protection



High Voltage



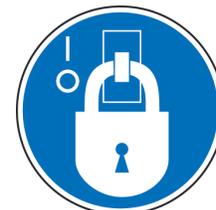
Heavy Object



Breathing Protection



Stop



Lock-out Location



Lock-out Required

*Note:* Some of these messages will not be used on this product. They are shown for example only.

## NOTICE

**Notice.** Replace safety signs when they become damaged. Make sure to include safety signs on replacement parts. New safety signs are available from Brandt Industries Ltd.

## 2.2 General Safety Precautions

- **THE MOST IMPORTANT SAFETY DEVICE ON THIS MACHINE IS A SAFE OPERATOR.** It is the operator's responsibility to read and understand all safety and operating instructions in the manual and to follow them.
- Conveyor owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes them self and bystanders to possible serious injury or death.
- Read and understand the Operator's manual and all safety signs before operating, maintaining, adjusting, unplugging or transporting the conveyor.
- Keep equipment, operator's stations, and the area around the equipment clean.
- Do not perform unauthorized modifications to this equipment.
- Make and follow an approved maintenance and inspection schedule.
- Do not remove, change, or disable machine guards.
- Keep railings, fences, and barriers in good condition and in place.
- Correct malfunctions and preform repairs immediately on discovery.
- Do not replace fasteners, or hardware, or mechanical connectors with a different or unknown grade or type. Torque fasteners and hardware to the correct value.
- Do not overload or exceed the machine capacity. Do not operate the machine at speeds or systems pressures that exceed the designed ratings.
- Use tools applicable to the work. Use power tools to loosen threaded fasteners only. Do not use SAE tools on SI (metric) fasteners.
- Use the correct lifting equipment for moving heavy parts. Follow recommended procedures for removal and installation of parts.
- Always have two people present when operating the machine.
- Keep the area clear of bystanders, especially children. Always ensure a clear path to the power source is available should the need arise to shut it down in case of an emergency.
- Have a first-aid kit available for use should the need arise and know how to use it.
- Provide a fire extinguisher for use in case of a fire. **Store in a highly visible place.**
- Do not allow riders on the machine.
- Place all controls in neutral, stop and lock out the power source and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging the machine.
- Know where overhead electrical lines are located and stay away from them. Electrocution can occur without direct contact.
- Know the location and read all decals on the machine. They contain important alerts and precautions which are to be followed at all times.

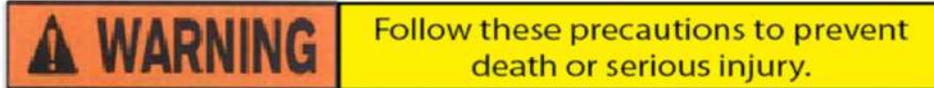
### 2.2.1 Personal Protection Equipment

- Wear close-fitting clothing and personal protection equipment that is required for the work. Do not allow clothing to interfere with vision, hearing, or free use of hands and feet.
- Wear approved hearing protection as required. Continuous exposure to high noise levels can cause loss of hearing.
- Wear hand protection suitable for the work. The appropriate gloves will reduce exposure to surface temperatures, chemical absorption through the skin, cuts and skin injury.
- Wear eye and face protection required for the work.
- Hard hats should be worn while working on this machine.
- Wear approved steel-toe footwear.
- **DO NOT** wear neckties, jewelry or loose-fitting clothing when operating or working on this equipment.
- Safety requires your full attention to the work. DO NOT wear radio or music headphones.
- Dusts, moulds and other pollutants can cause health problems. Operators should wear the appropriate breathing apparatus when operating or working on this equipment.

### 2.2.2 Handling Chemicals Safely

- Direct exposure to hazardous chemicals can cause serious injury. Hazardous chemicals used in Brandt products can include lubricants, coolants, paints, fuels, adhesives and other products.
- A Material Safety Data Sheet (MSDS) provides specific details on these chemical products; physical and health effects; safety precautions; and emergency response procedures.
- Check the MSDS before you start any job that involves a potentially hazardous chemical. You will understand the risk and how to do the work safely. Follow procedures and use approved equipment.

## 2.3 Operating Precautions



- Read and understand the operator's manual prior to operating the conveyor.
- Read and understand the operator's manual for the brake winch prior to operating the conveyor.
- Complete an inspection of the machine before operating. Check condition of belts, gearboxes, drivelines, etc. and repair or replace if necessary.
- Watch for overhead electrical lines when moving the conveyor.
- Ensure all guards are in place and in good repair before operating.
- Keep hands, feet, hair and clothing away from all moving or rotating parts.
- Clear the area of all bystanders, especially children, before starting.
- Keep away from the intake of the conveyor while the machine is running. Keep others away.
- When cleaning out the corners of a truck box, do not lean over the conveyor intake.
- Do not use your hands or feet when cleaning out the intake hopper.
- Do not use the conveyor downspout as a support.
- Stay clear of the conveyor discharge end.
- Make sure the intake end of the conveyor is anchored or the discharge end is supported before moving any product.
- Do not stand on the edge of the truck box when loading a truck.
- Use extreme caution when maneuvering at or near maximum height. While the conveyor is in transport position, it should be backed until it is close to the bin then raised to the height needed, then carefully moved back to the bin. Under no circumstances should the conveyor be moved while it is at maximum height.
- Dusts, molds and other pollutants can cause health problems. Therefore, operators should wear the appropriate breathing apparatus.
- Wear hearing protection while operating.
- Do not run the conveyor at high speeds when it is empty.

## 2.4 Hydraulic System Safety Precautions



- Lock-out/Tag-out the hydraulic system before performing maintenance or repairs to the machine.
- Ensure that the equipment being repaired is not connected to other systems (electrical, pneumatic) on the machine. Lock-out/Tag-out other systems to prevent unintended start-up or operation.
- Do not attempt temporary repairs to hydraulic components using tape, clamps, cement, etc. The hydraulic system operates using extremely high pressure. These repairs will fail suddenly and create a hazard and unsafe condition.
- Ensure replacement parts meet the capacity and pressure rating of the original part.
- When changing more than one part, completely install one part at a time to prevent incorrect connections. Protect openings from contamination.
- Wear appropriate personal protection equipment when searching for a hydraulic leak. Use a piece of wood or cardboard as a backstop instead of your hands to isolate and identify a leak. **If you suspect you have been injured by a concentrated high pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin.**

**THERE MAY BE NO VISIBLE SYMPTOMS IMMEDIATELY AFTER EXPOSURE.**

## 2.5 Transport Safety

- Make sure you are in compliance with all local regulations regarding transport of Agricultural equipment on public roads and highways.
- Make sure the hitch on the towing vehicle is rated for the gross weight of the towed machine.
- Always lower the conveyor to its lowest position before transporting. The conveyor lifting slide should be firmly against the transport stop. Keep light tension on the lifting cable.
- Make sure the Slow Moving Vehicle emblem and all the lights and reflectors that are required by the local highway and transporting authorities are in place, clean and can be seen clearly by all overtaking or oncoming traffic.
- Attach securely to tow vehicle or tractor using a  $\frac{3}{4}$ " dia. pin with a retainer and safety chain. Refer to Fig. 2-2 in Section 2.5.1 for safety chain attachment method.
- When transporting use a clevis-to-tongue connection. Never use a clevis-to-clevis or tongue-to-tongue connection as this can lead to hitching failure. See Fig. 2-1.



**FIGURE 2-1. Hitch Connection**

## 20 Series Field Conveyor

- Do not exceed 32 km/h (20 mph) when towing a conveyor.
- The conveyor is not equipped with brakes. Make sure the tow vehicle has sufficient braking capacity to handle the extra load. The conveyor may not exceed 1.5 times the towing vehicle weight.
- Check the tires for cracks and make sure they are inflated to the recommended pressure as per sidewall marking.
- Never allow riders on the conveyor.
- Use hazard flashers on tow vehicle except where prohibited by law.
- Stay clear of all overhead electrical lines. Electrocution can occur without direct contact.
- Be careful not to turn too sharply when transporting the conveyor. Damage to the conveyor and/or towing vehicle can occur.
- Be aware of posts, trees, buildings and other obstacles when turning.

### 2.5.1 Safety Chain Installation

- Ensure that the chain has a load rating equal to or greater than the Gross Vehicle Weight.
- Attach the safety chain from the conveyor to the towing vehicle. The chain should be looped through the hole in the Hitch Tube Gusset on the intake of the conveyor (see Fig. 2-2). Route the chain through the intermediate support on the side of the conveyor hitch to the towing vehicle. Do not use the intermediate support as the primary method of attachment.
- Allow no more slack in the chain than necessary for articulation.
- Do not leave the safety chain attached to the conveyor while conveying product. When not in use, store the safety chain in a clean dry place.
- The safety chain should be replaced and not be used if one or more of the links or end fittings are broken, stretched or otherwise damaged or deformed. The replacement chain must be rated and stamped for the appropriate towing operation.

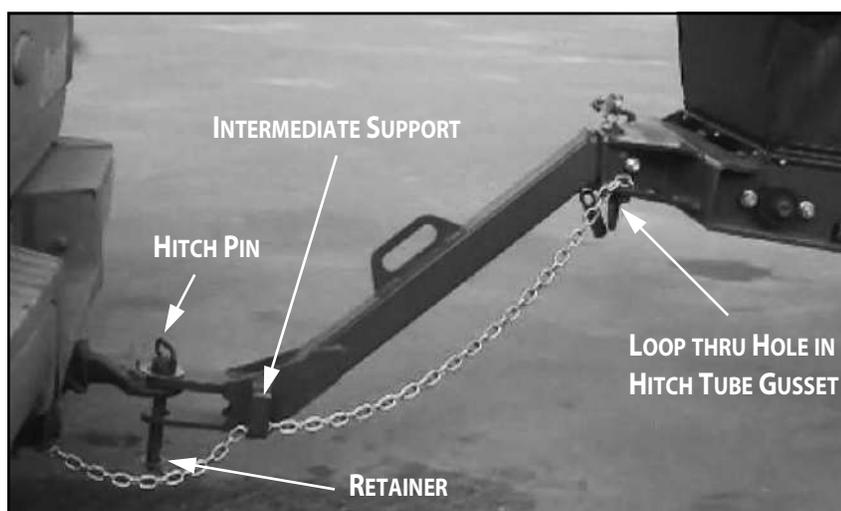


FIGURE 2-2. Safety Chain Installation

## 2.6 Welding/Heating Safety Precautions



- Do not weld or use a torch near pressurized fluid lines. Fluid lines can burst and create a flammable spray, resulting in severe burns to yourself and bystanders.
- Toxic fumes may be created when paint is heated by welding or using a torch. Remove paint a minimum of 4 inches (100mm) from the area affected by heating.
- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before heating. Remove the solvent or paint stripper and flammable material from the area. Ventilate the area for 15 minutes before welding or heating.
- Lock-out/Tag-out electrical power to the machine.
- Ground welding machine as near to the weld area as possible.
- Do not use chlorinated solvent in the area where welding will take place.
- Perform all work in a well-ventilated area. Use a welder's respirator.
- Dispose of paint and solvents properly.

## 2.7 Maintenance Safety

- Always disengage power, shut down the engine, remove the ignition key, be sure all moving parts have stopped before attempting to maintain or service the unit.
- Support the machine with blocks or stands when changing tires or working beneath.
- Follow good shop practices:
  - keep service areas clean and dry.
  - be sure electrical tools are properly grounded.
  - use adequate light for the job at hand.
  - use personal protective equipment. (ie. gloves, safety glasses, etc.)
- Use only tools, jacks and hoists of sufficient capacity for the job.
- Relieve pressure from the hydraulic system before servicing.
- Before applying pressure to a hydraulic system, be sure all connections and fittings are tight and in good condition. Never check for leaks with your hands. Always use a piece of wood.
- Replace all shields after maintenance. Never operate without shields, guards or access doors in place.

## 2.8 Grain Bin Safety

- Never enter a grain bin unless at least two people are present. Have one person outside the bin who can shut down the machine if an emergency arises.
- Always ensure an escape route exists before entering the bin.
- Do not walk on top of the grain in a bin unless another person is present and the person on the grain is equipped with a safety line.

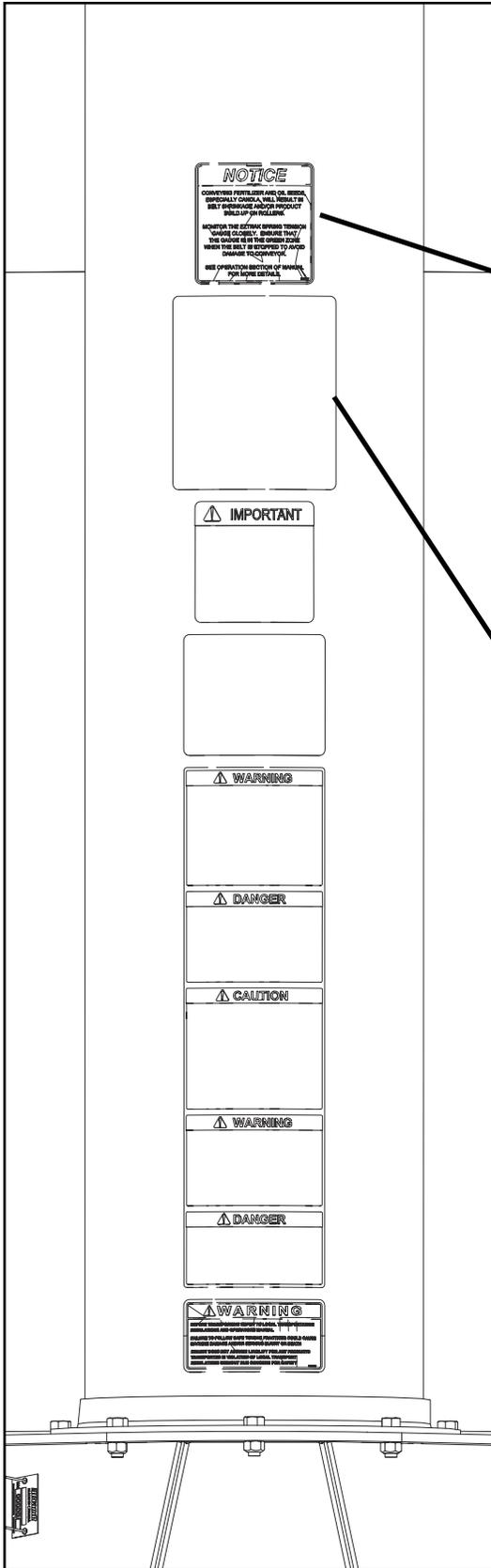
## 2.9 Safety Decals

- Read and understand all decals before operating. Take care to follow all precautions and warnings displayed on the decals.
- Keep safety decals and signs clean and legible at all times.
- Replace safety decals and signs that are missing or have become illegible.
- Replaced parts that originally displayed a safety sign must also display the original sign.
- Safety decals or signs are available from your Dealer Parts Department or the factory.

## 2.10 Safety Decal Locations

The following illustrations show the position and content of the various safety decals on the Brandt Grain Belt Conveyor. If safety decals ever become damaged, removed or illegible, new decals must be applied.





# NOTICE

Conveying oil seeds, especially canola, in a non-Oilseed-Certified™ GrainBelt will result in belt shrinkage and/or product build up on rollers and may void the warranty.

When conveying fertilizers, monitor the EZTrack spring tension gauge closely. While the belt is stopped, ensure that the gauge is in the green zone to avoid damage to conveyor.

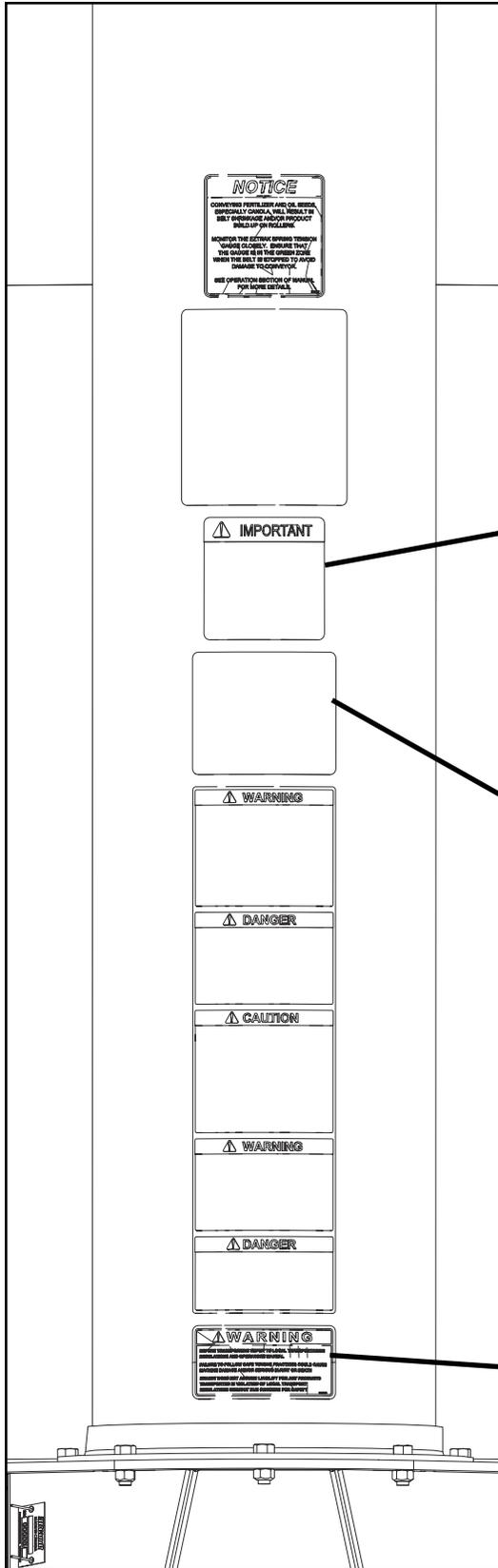
See operation section of manual for more details.

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## DAILY OPERATIONAL CHECKLIST

- A BELT TENSION**  
Read instructions and check belt tension BEFORE operating the Grainbelt.
- B LACING INSPECTION**  
Slowly rotate belt so lacing is visible in the hopper. Inspect lacing and lacing pin for wear and/or damage .
- C BELT TRACKING**
  1. Run conveyor at a moderate speed to adjust tracking. If Conveyor does not have S-Drive proceed to step 3.
  2. Check tracking at "S" drive where belt enters. Adjust bearing until belt centered.
  3. Check tracking at intake roller. Adjust bearing until belt centered.
  4. Check tracking at discharge. Adjust bearing until belt centered.
- D BELT SPEED (PTO DRIVE ONLY)**  
Run conveyor with tractor at 1200 ENGINE RPM. Time one rotation of the belt. Determine the belt speed using the "BELT SPEED" decal on the intake. Adjust tractor RPM or Hydraulic Oil Flow so that belt speed is between 400-800 ft/min.  
See manual for more detailed information

B029027



**! IMPORTANT**

**BELT TRACKING AND BELT TENSION**

Please Be Advised That Belt Tracking and Belt Tension Must Be Monitored During Operation.

Proper Belt Tracking and Belt Tension Are the Responsibility of the Owner/Operator.

PLEASE CONSULT YOUR MANUAL FOR FURTHER DETAILS ON TRACKING AND BELT TENSION.

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**BELT TENSION & BELT SPEED**

**SETTING BELT TENSION**

Adjust the belt tension as shown in the Service Section of the Operator's Manual.

**DETERMINING BELT SPEED**

To determine belt speed, use a stop watch to find the time the belt takes to make 1 revolution.

Belt Speed (FPM)	2045 Time (Seconds)	2055 Time (Seconds)
400	15.3	18.3
500	12.2	14.6
600	10.2	12.2
700	8.7	10.5
800	7.7	9.2

Do not exceed 800 FPM belt speed or damage to the conveyor will result.

See manual for more detailed information

2045 & 2055  
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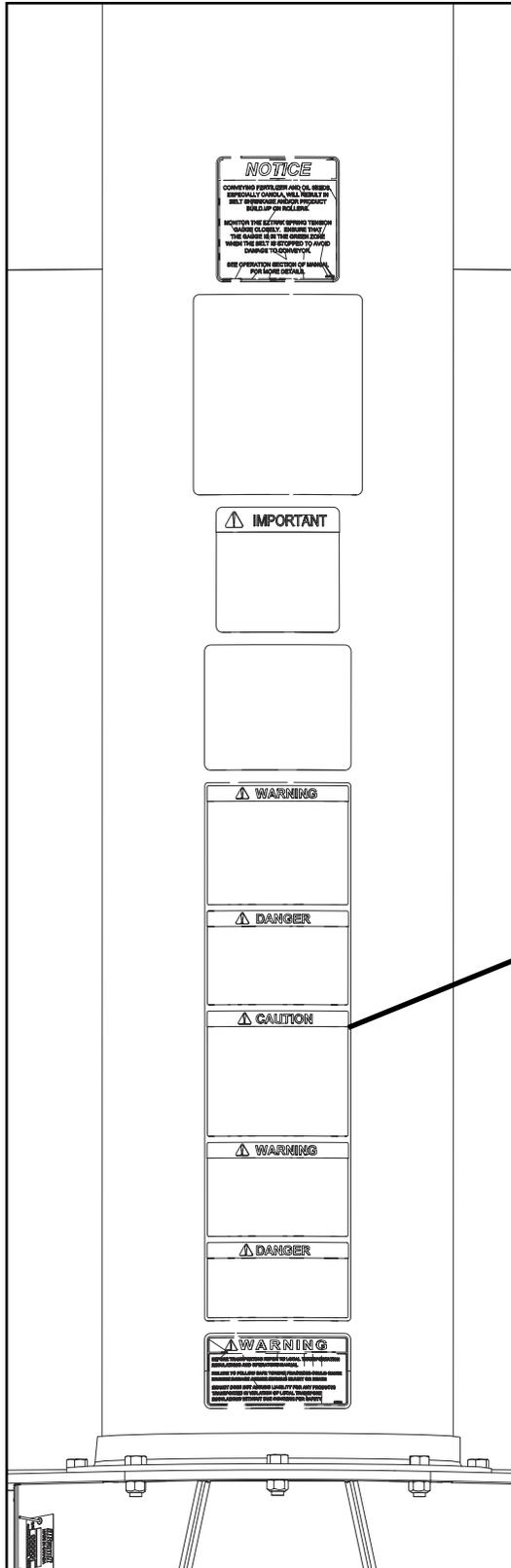
**! WARNING**

BEFORE TRANSPORTING REFER TO LOCAL TRANSPORTATION REGULATIONS AND OPERATORS MANUAL

FAILURE TO FOLLOW SAFE TOWING PRACTICES COULD CAUSE MACHINE DAMAGE AND/OR SERIOUS INJURY OR DEATH

BRANDT DOES NOT ASSUME LIABILITY FOR ANY PRODUCTS TRANSPORTED IN VIOLATION OF LOCAL TRANSPORT REGULATIONS WITHOUT DUE CONCERN FOR SAFETY

B029971



**⚠ WARNING**

**UPENDING HAZARD**

1. The intake end of the conveyor must always have downward weight.
2. Use weight transfer jack to apply a minimum of 150 lbs of intake weight before operating.
3. Release weight transfer jack and put in storage position before transporting.
4. Immediately lower the auger to transport position before moving.

FAILURE TO DO SO MAY CAUSE INJURY OR DAMAGE TO THE CONVEYOR

**⚠ DANGER**




**MOVING PART HAZARD**

To prevent serious injury or death from moving parts:  
 KEEP AWAY. Moving parts can crush and dismember.  
 Do not operate without guards and shields in place.  
 Close and secure guards and shields before starting.  
 Keep hands, feet, hair, and clothing away from moving parts.  
 Disconnect and lockout power source before adjusting or servicing.  
 Do not stand or climb on machine when operating.

**⚠ CAUTION**

1. Read and understand the operator's manual before operating.
2. Keep all safety shields in place and in good working order.
3. Make sure everyone is clear before operating or moving the machine.
4. Keep hands, feet, and clothing away from all moving parts.
5. Shut off and disable the power before adjusting, servicing or cleaning the conveyor.
6. Support discharge and/or anchor intake to prevent upending.
7. Empty conveyor before moving to prevent tipping.
8. Lower conveyor to its fully down position before moving or transporting.
9. Keep away from intake.

**⚠ WARNING**




**HIGH-PRESSURE FLUID HAZARD**

To prevent serious injury or death:  
 Relieve pressure on system before repairing or adjusting or disconnecting.  
 Wear proper hand and eye protection when searching for leaks.  
 Use wood or cardboard instead of hands.  
 Keep all components in good repair.

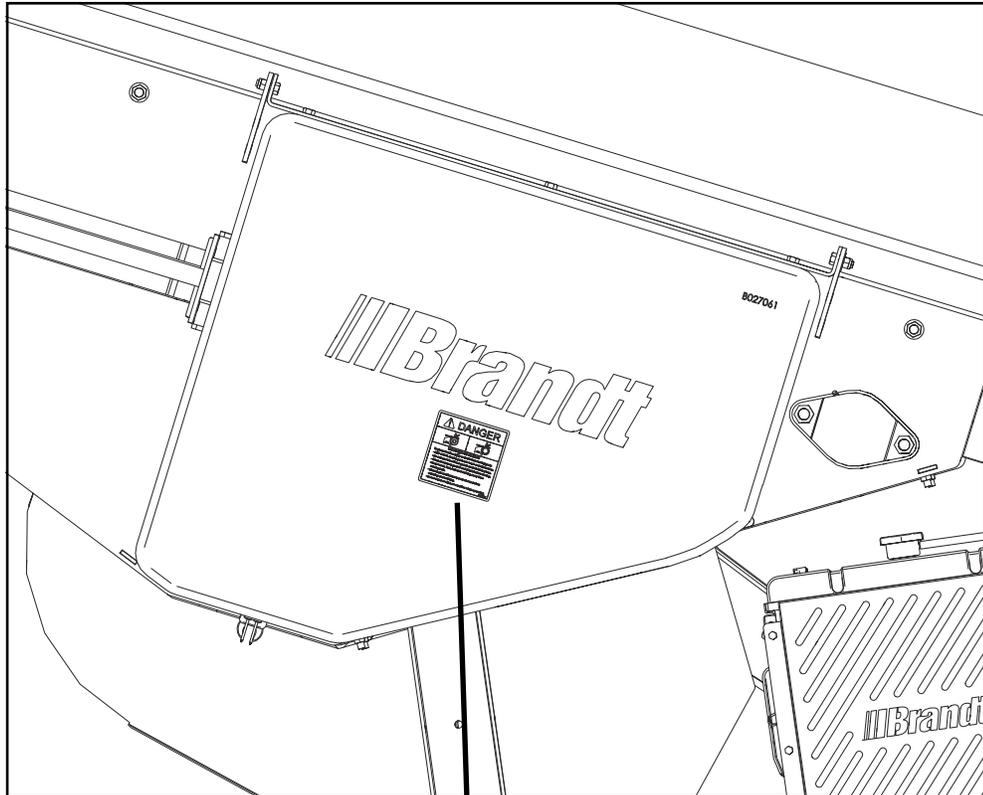
**⚠ DANGER**



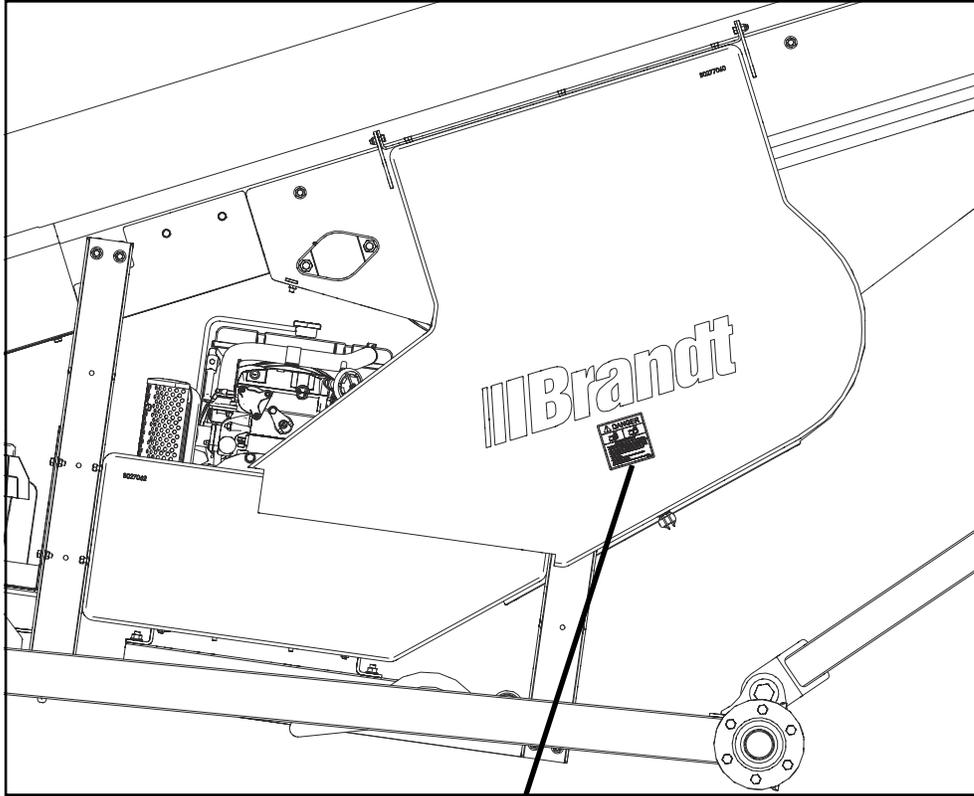
**ELECTROCUTION HAZARD**

To prevent serious injury or death from electrocution:  
 Stay away from overhead power lines when transporting or raising machine.  
 This machine is not grounded.  
 Electrocution can occur without direct contact.

B0290108



 <b>DANGER</b>	
	
<b>MOVING PART HAZARD</b>	
To prevent serious injury or death from moving parts:	
<ul style="list-style-type: none"><li>- KEEP AWAY, Moving parts can crush and dismember.</li><li>- Do not operate without guards and shields in place.</li><li>- Close and secure guards and shields before starting.</li><li>- Keep hands, feet, hair and clothing away from moving parts.</li><li>- Disconnect and lockout power source before adjusting and servicing.</li><li>- Do not stand or climb on machine when operating.</li></ul>	
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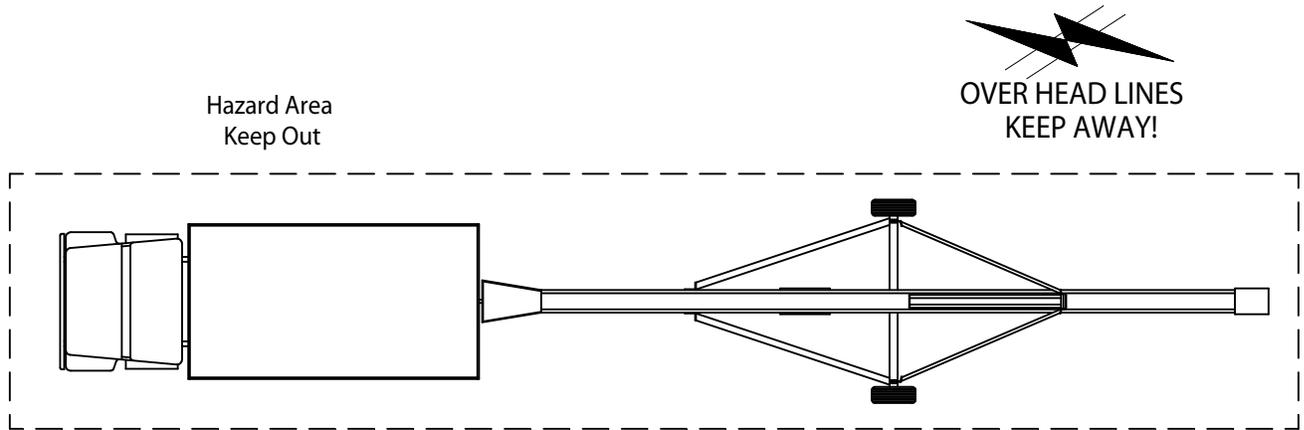


 <b>DANGER</b>	
	
<b>MOVING PART HAZARD</b>	
To prevent serious injury or death from moving parts:	
<ul style="list-style-type: none"><li>- KEEP AWAY, Moving parts can crush and dismember.</li><li>- Do not operate without guards and shields in place.</li><li>- Close and secure guards and shields before starting.</li><li>- Keep hands, feet, hair and clothing away from moving parts.</li><li>- Disconnect and lockout power source before adjusting and servicing.</li><li>- Do not stand or climb on machine when operating.</li></ul>	
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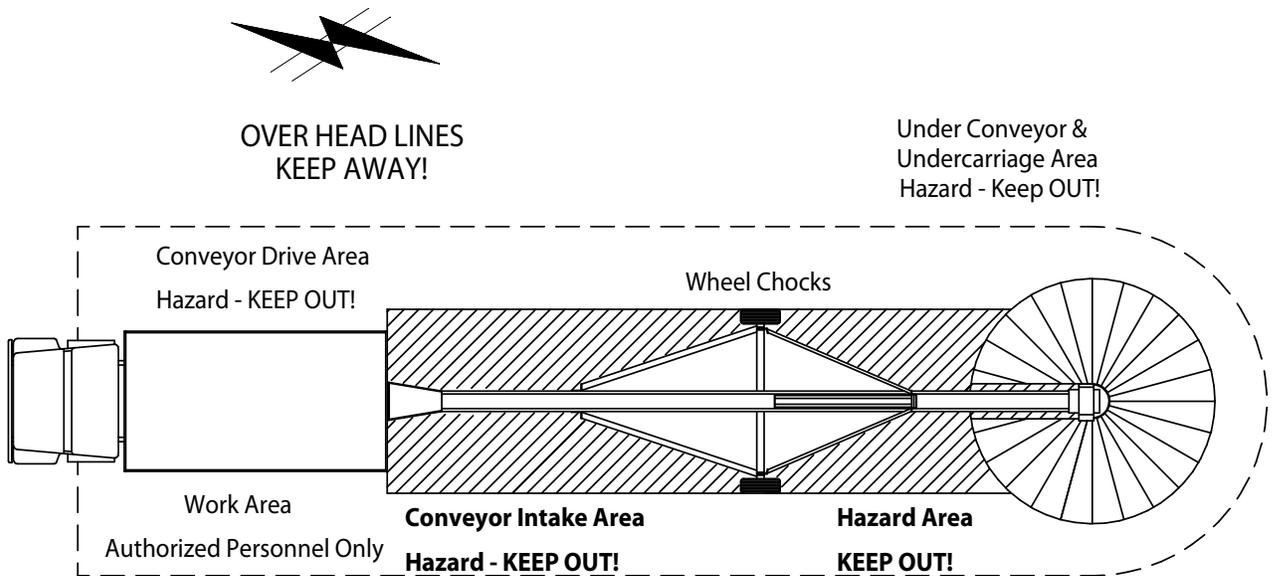
## 2.11 Work Area Safety

The work areas shown below and on the next page should be marked off with barriers. It shall be the duty of the operator to see that children and/or other persons stay out of the work area! Trespassing into the work area by any one not directly involved in the actual operation, or trespassing into the hazard area by anyone, shall result in an immediate shut down by the operator. Prior to start up and during operation, it shall be the responsibility of the operator to see that the work area has secure footing, is clean and free of all debris and tools which may cause accidental tripping and/or falling.

### 2.11.1 Transport



### 2.11.2 Gas/Diesel Engine or Electric Motor Drive





## CHAPTER 3 Assembly

Before beginning to assemble your new Brandt Conveyor, you are advised to read the following instructions carefully. Familiarize yourself with all the sub-assemblies and parts making up the conveyor. Check that all parts are on hand and arranged for easy access.

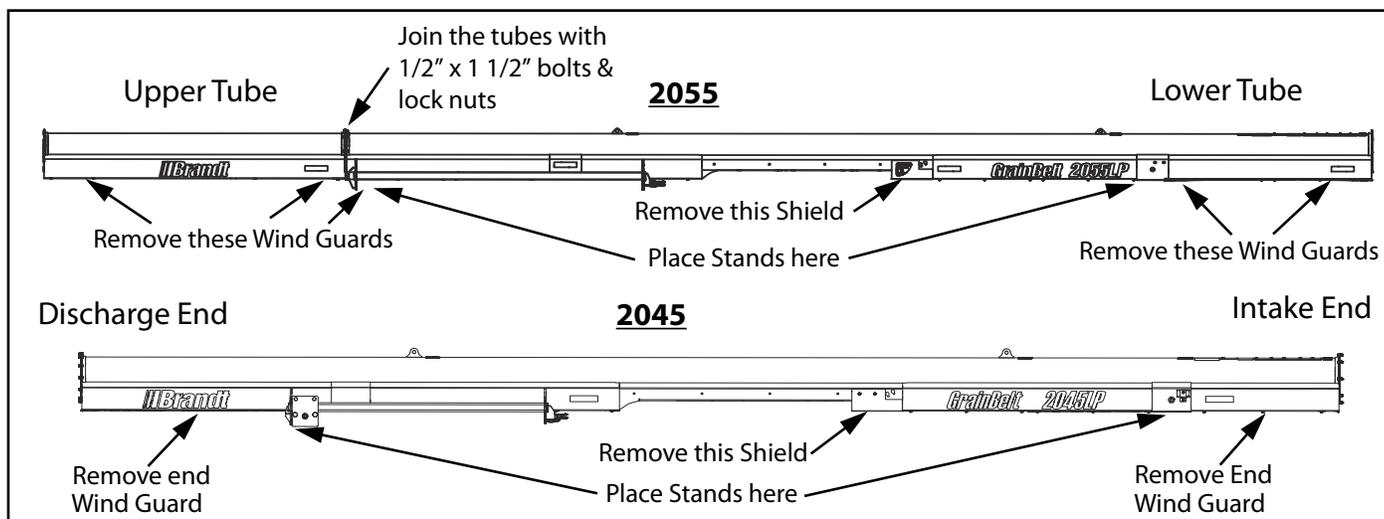
### 3.1 Preparing the Assembly Site

**IMPORTANT:** In order to setup the tube conveyor, at least two people are required and the assembly must be carried out in a large open area with a flat floor surface. Do not attempt to assemble the conveyor alone or without a front end loader or overhead crane.

1. In order to ensure that the main tube is assembled together straight. The stands must be at least 24" high to allow easy access to the intake.

### 3.2 Assembly

1. Position the tube on the stands as shown in Fig 3-1.
2. Remove the Wind Guards shown in Fig 3-1. The fasteners will be reused. The discharge end and centre Wind Guard will be remounted after the belt is installed. The Intake end Wind Guard will be remounted after the Axle Frame is attached to the tube.

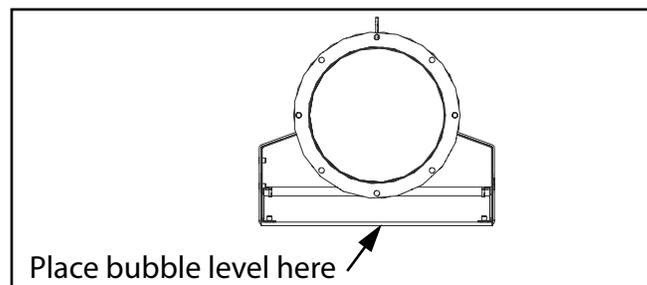


**FIG. 3-1. Stand Placement and Tube Joining**

#### 3. 2055 Conveyor

Join the Upper and Lower Tubes using twelve 1/2" x 1 1/2" bolts and lock nuts. Make sure the tube joint is aligned, smooth and square to each other.

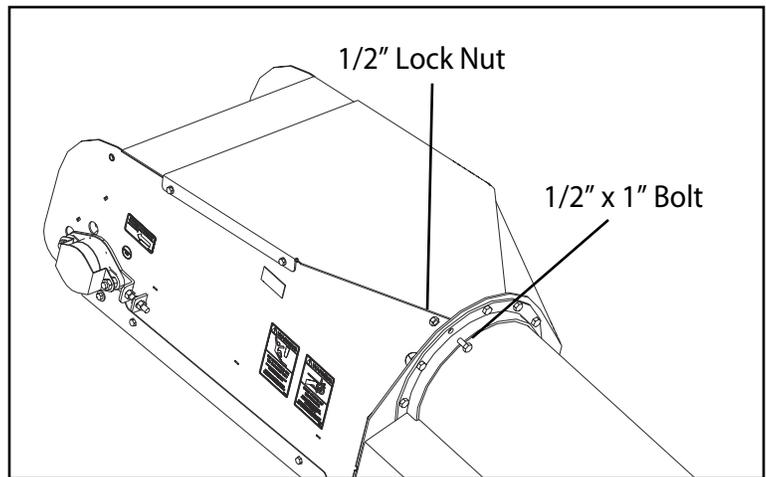
4. Place a bubble level onto a horizontal bracket on the tube. See Fig 3-2. Shim the tube until it is level.



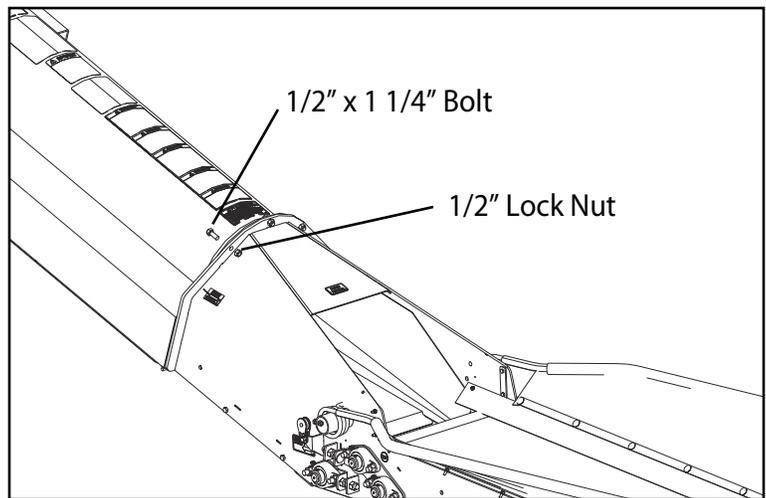
**FIG. 3-2. Bubble Level Placement**

## 20 Series Field Conveyor

5. Mount the Discharge Assembly and the Intake Assembly to the tube as shown in Fig 3-3 and Fig 3-4. Use the fasteners shown. Do not tighten at this time.
6. Use the bubble level to level both the Discharge and Intake assemblies. Make sure the tube joints are aligned and smooth, as shown in Fig 3-5. Tighten the joining bolts.
7. Bolt the EZ Trak Lower Plate to the EZ Trak Top Weldment using four  $3/8"$  x  $1"$  bolts and lock nuts. Mount the EZ Trak assembly into the S-Drive using four  $3/8"$  x  $1"$  carriage bolts and serrated flange nuts, as shown in Fig 3-6.
8. Install the Springs, Tension Gauges and Adjustment Bolts as shown. Leave the tensioning roller in its loosest position at this time.
9. Remove the two shields from the underside of the S-Drive. They will be remounted after the belt has been installed.



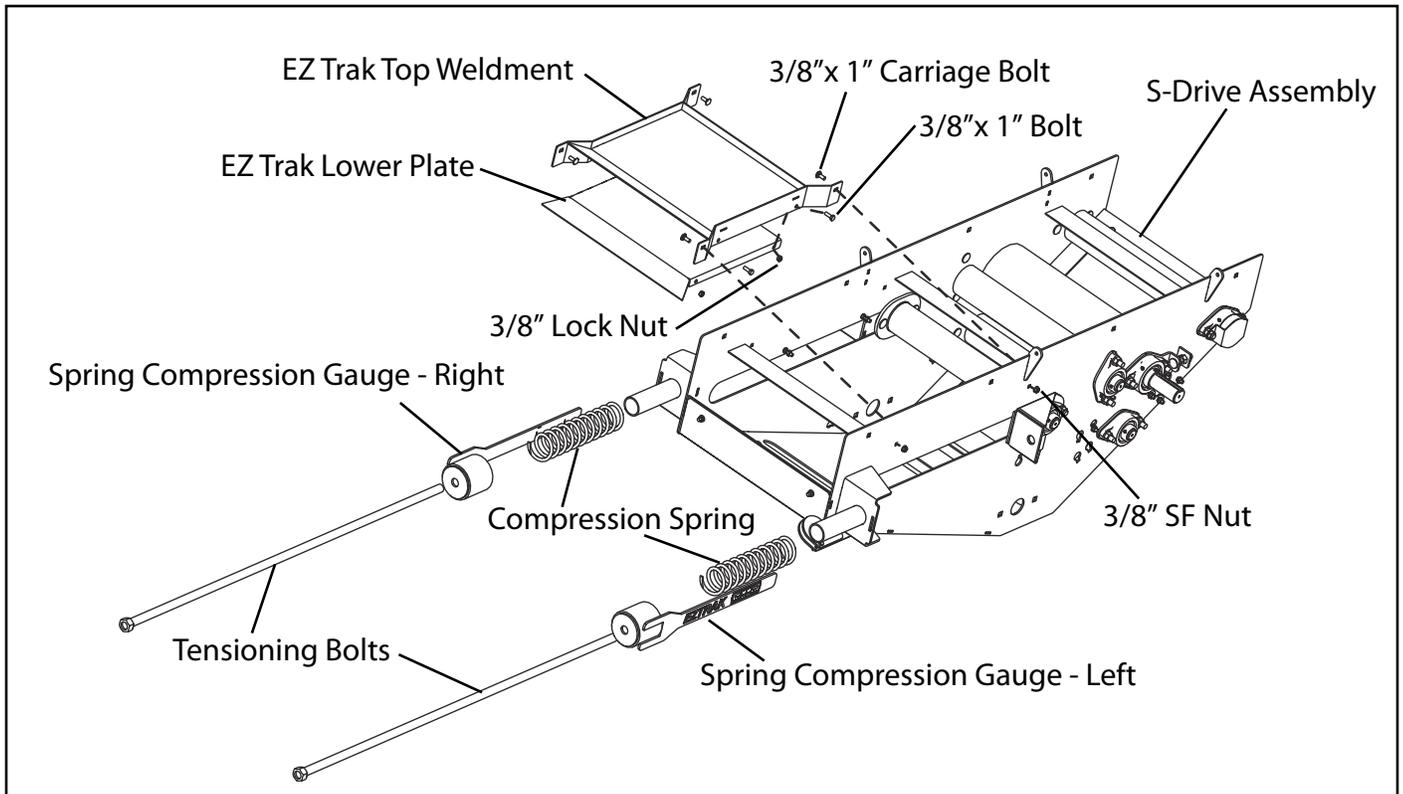
**FIG. 3-3. Mounting the Discharge Assembly**



**FIG. 3-4. Mounting the Intake Assembly**

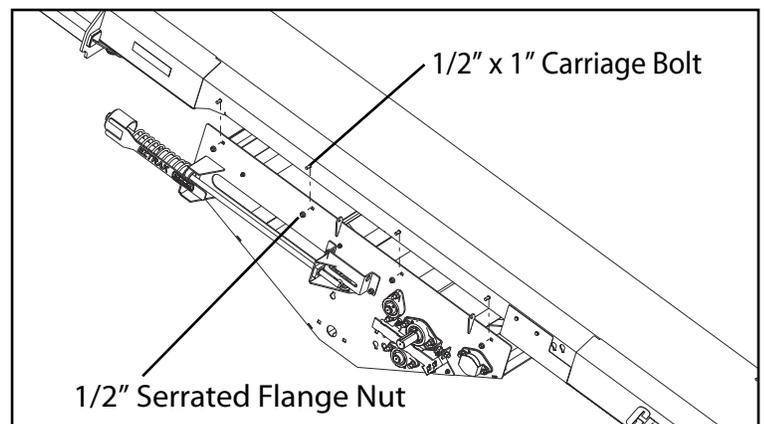


**FIG. 3-5. Tube Joint Alignment**

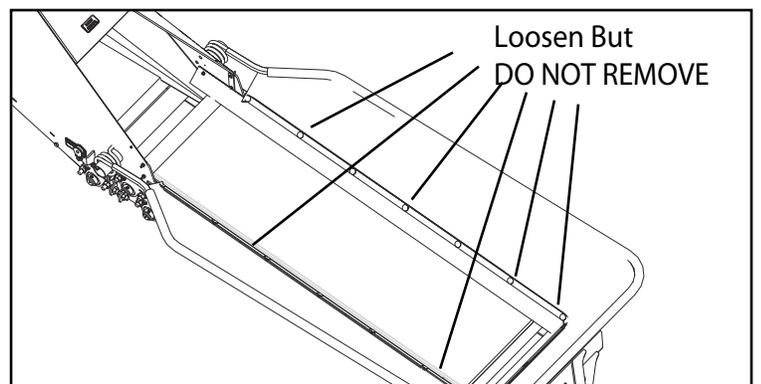


**FIG. 3-6. S-Drive Assembly**

10. Mount the S-Drive to the tube as shown in Fig 3-7 using eight 1/2" x 1" short neck carriage bolts and serrated flange nuts.
11. Loosen but do not remove the bolts that hold the intake flashing in place as shown in Fig 3-8. This will ease installation of the belt.



**FIG. 3-7. Mounting the S-Drive**



**FIG. 3-8. Intake Flashing Bolts**

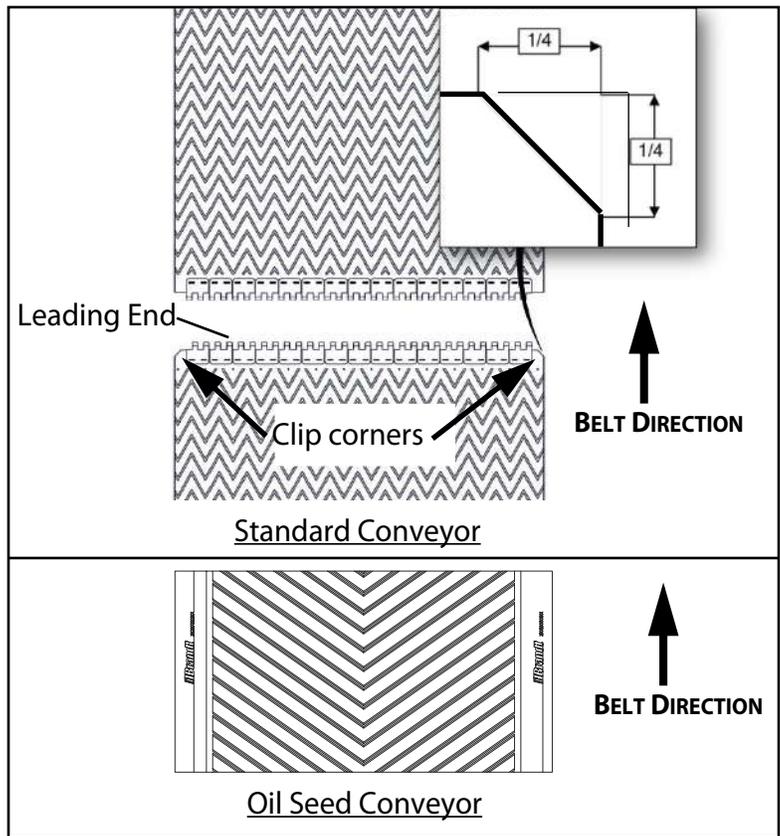
## 20 Series Field Conveyor

12. Unroll the end of the belt and trim the corners of the leading end as show in Fig. 3-9. Make sure to trim only the end shown. Fig. 3-9 shows the direction of travel of the belt
13. Note how the edge of the chevron is pointing in the belt direction. **Make sure the leading end of the belt goes first.** Check that all the staples which hold the lacing to the belt are crimped properly.
14. Fig 3-10 shows where to start feeding the belt into the conveyor. Make sure the leading end is inserted first, with the slider backing on top. The belt goes over the rod shown and through the Belt Guide.
15. Pull the belt through the underside of the intake, around the roller, under all intake flashing strips and thread it around the two 'S' rollers. Take your time doing this as it can be difficult. Fig.3-11.

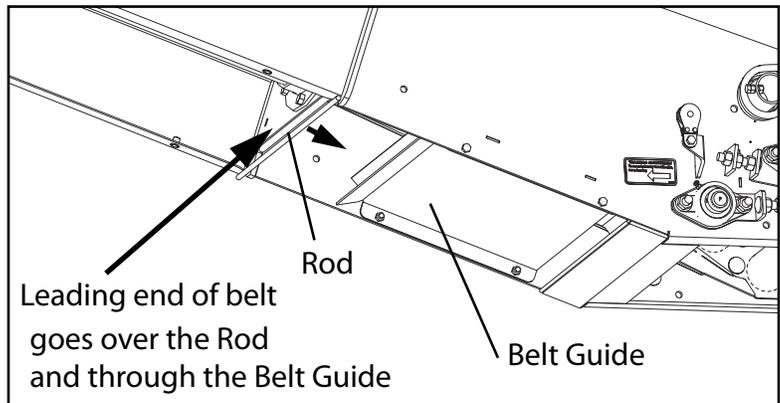
**Note:** On the Oil Seed Conveyors, the belt must go under the long flashings inside the transition area of the intake.

16. Insert a "fish tape" into the discharge end of the conveyor and push it down the tube to the intake.
17. Attach the "fish tape" to the belt by running a wire through the lacing.

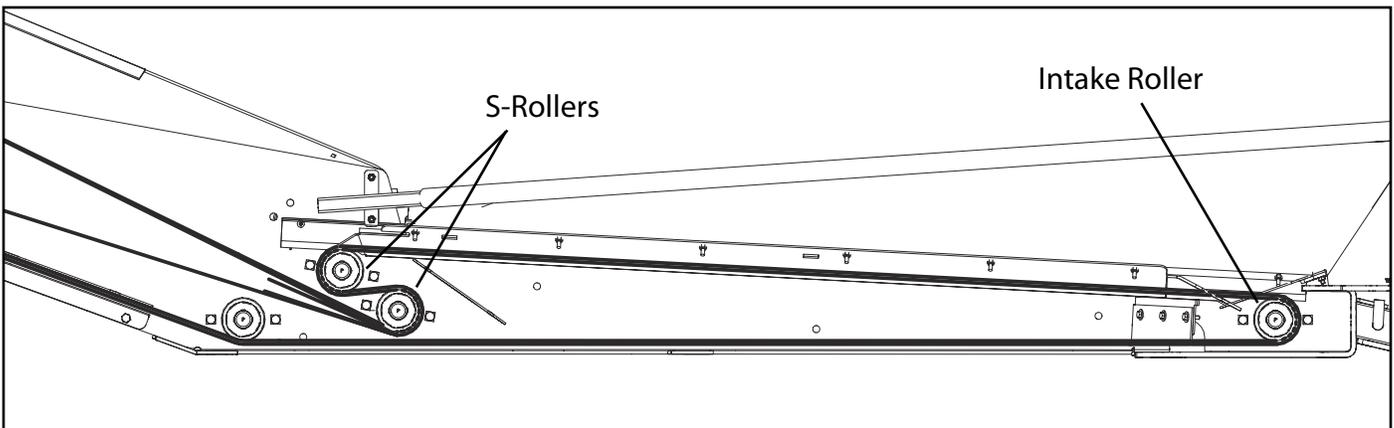
**\*CRITICAL\*** Make sure that tube assembly is properly held in position so that it doesn't fall off the stands when pulling the belt through.



**FIG. 3-9. Belt Trimming**



**FIG. 3-10. Inserting the Belt**

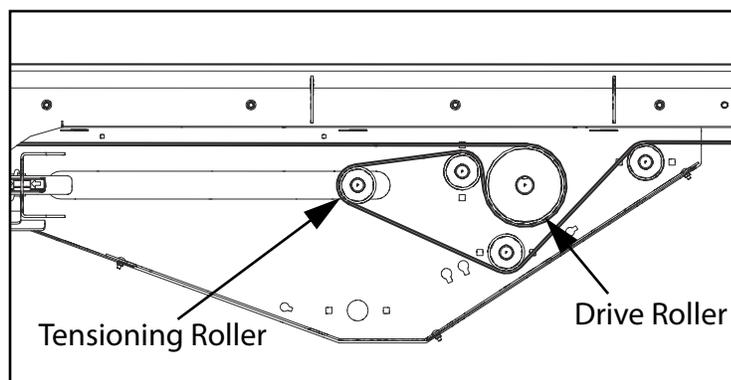


**FIG. 3-11. Routing the Belt around the Intake and S Rollers**

18. Pull the belt through the tube and continue except for approximately 1'.

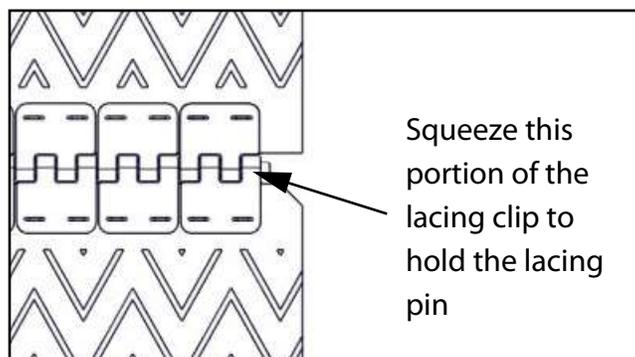
**Note:** Make sure the tensioner roller on the S-drive has been backed-off to its loosest position.

19. Wrap the belt around the discharge roller and push it through the lower section of the discharge and down the underside of the tube to the S-Drive.



**FIG. 3-12. Belt Path through the S-Drive**

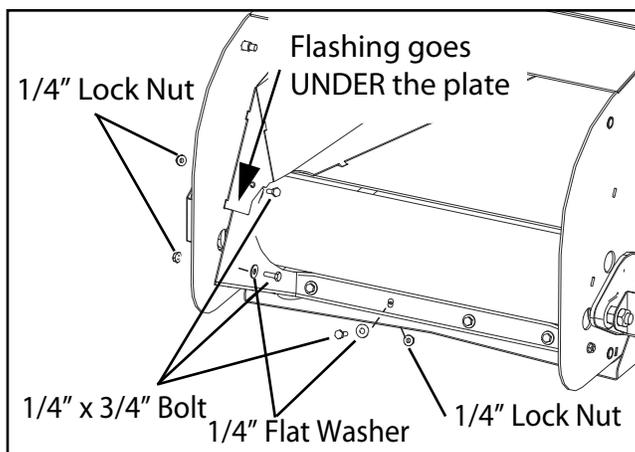
20. Thread the belt through the belt guide and around the S-Drive rollers as shown in Fig 3-12.
21. Bring the end of the belt through the S-drive and connect it to the other end of the belt using the lacing pin.
22. Squeeze the portion of the outside lacing clip as shown in Fig 3-13. Make sure the clip bites into the plastic of the lacing pin to hold it in place. Do this on one lacing clip only.
23. Trim the excess pin with side cutters. Do not leave any pin extending past the edge of the belt.
24. Apply a layer of silicone over the lacing.
25. Turn the Tensioner Roller Adjusting Bolts (on the S-Drive) to tighten the conveyor belt. Refer to Section 5.4 for proper tensioning of the conveyor belt.



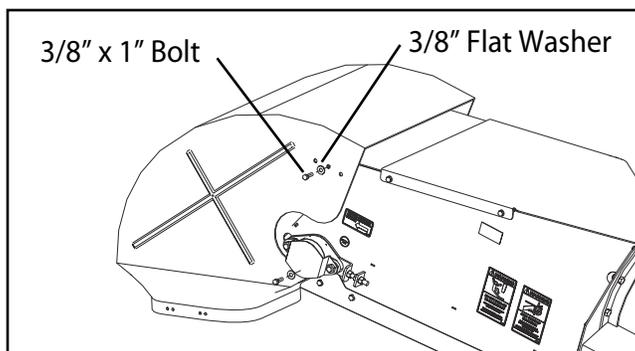
**FIG. 3-13. Squeezing the Lacing Clip**

**Make sure the belt is centered on the rollers.**

26. Re-tighten all intake flashing bolts and install all guards and covers previously removed except for the Wind Guard Plate closest to the intake.
27. Attach the Discharge Flashing to the Discharge Weldment using six 1/4" x 3/4" bolts, flat washers, lock nuts. The flashing goes under the inside plate as shown. Ensure the flashing is tight against the metal backing. See Fig 3-14. Two holes in the flashing will have to be made for the end bolts.
28. Attach the Discharge Hood to the Discharge Weldment using four 3/8" x 1" bolts and flat washers. Use the center hole in the upper locations at this time. See Fig 3-15.



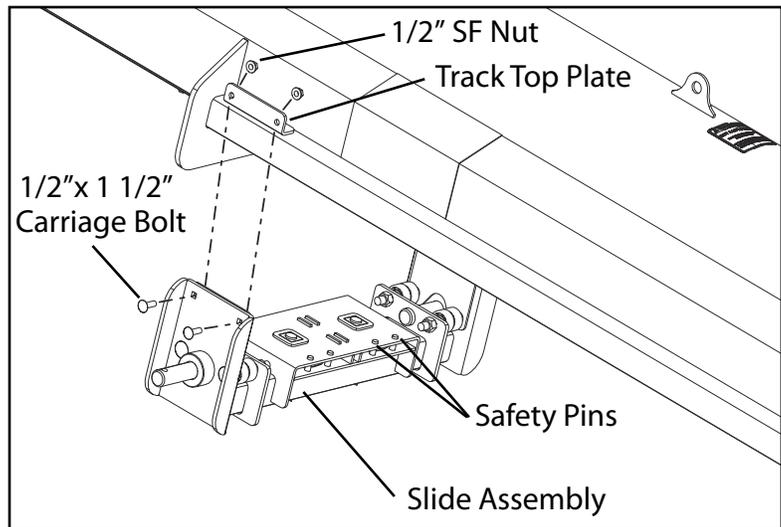
**FIG. 3-14. Install the Discharge Flashing**



**FIG. 3-15. Installing the Discharge Hood**

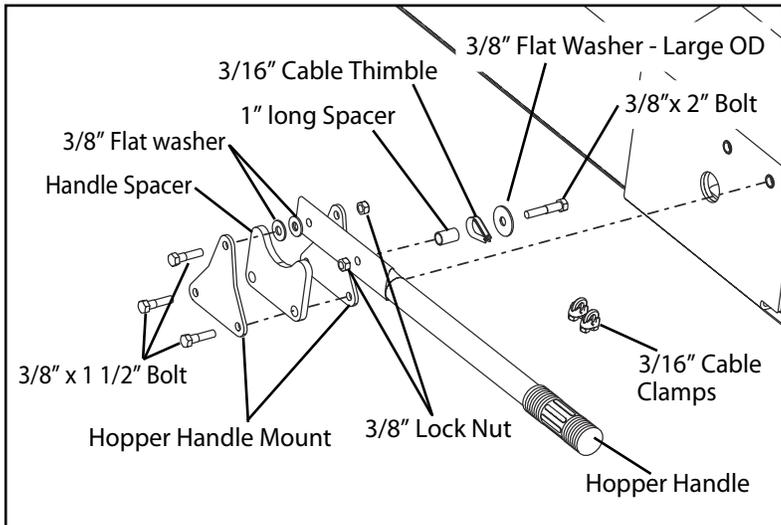
## 20 Series Field Conveyor

29. Position the Slide Assembly under the square tubing as shown in Fig 3-16. Make sure the safety pins are on the intake side with the open side facing the discharge.
30. Attach the Track Top Plates to the Slide Assembly using two 1/2" x 1 1/2" carriage bolts and 1/2" serrated flange nuts on each plate. See Fig. 3.16.
31. Loosely mount the Hopper Handle Mounts with the Handle Spacer between, to the side of the tube beside the Axle Arm pivot point using two 3/8" x 1 1/2" bolts, as shown in Fig 3-17.



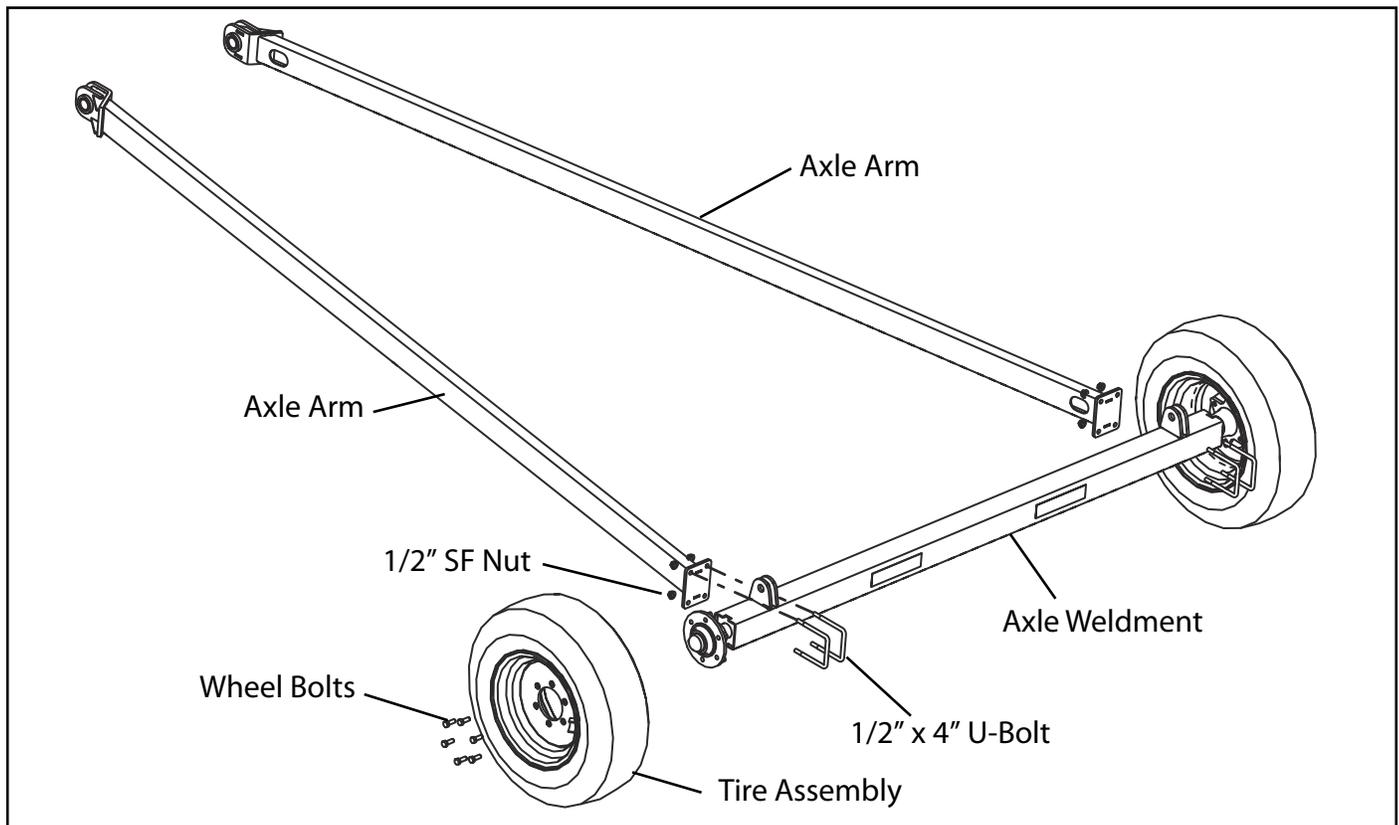
**FIG. 3-16. Installing the Slide Assembly**

32. Attach Hopper Handle between the Hopper Handle Mounts using a 3/8" x 1 1/2" bolt, two flat washers and lock nut. Do not fully tighten this nut, the handle must be able to rotate. Now tighten the 3/8" x 1 1/2" bolts holding the lower portion of the Mount to the tube. See Fig 3-17.



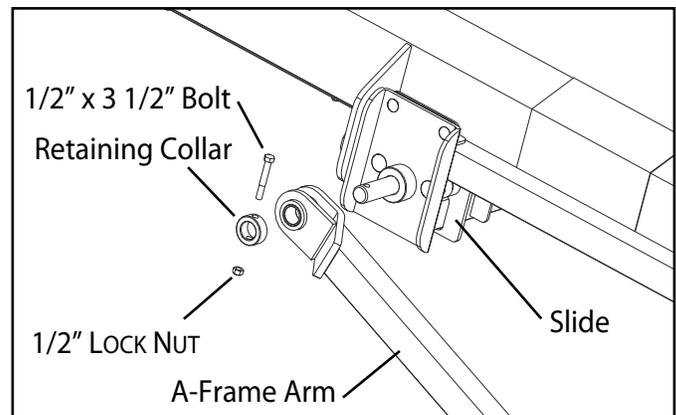
**FIG. 3-17. Installing the Hopper Handle**

33. Slide the 1 1/2" OD x 3/8" ID flat washer, 5/8" OD x 1" lg. spacer and the 3/16" cable thimble onto the a 3/8" x 2" bolt and insert the end of the bolt into the other hole in the Hopper Handle. Secure in place using a 3/8" stover lock nut.
34. With the Hopper Handle positioned as shown, wrap the 3/16" intake cable around the thimble and secure with two 3/16" cable clamps. The cable length will be adjusted after the Axle Frame is attached to the tube.

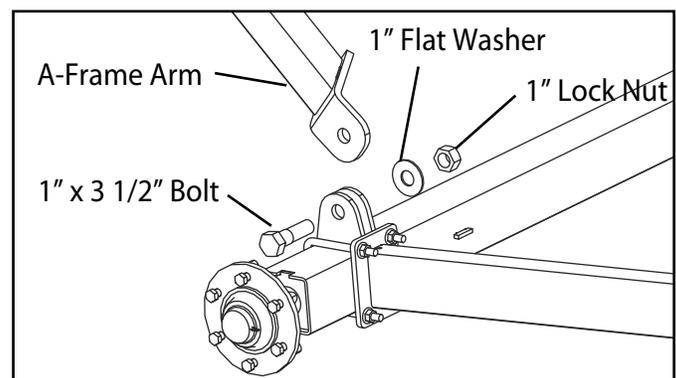


**FIG. 3-18. Axle Frame Assembly**

35. Attach the Axle Arms to the Axle using two 1/2" x 4" U-Bolts and lock nuts. Make sure there is one U-Bolt on either side of the A-Frame Mount Lugs. See Fig. 3-18.
36. Fasten the Tire Assemblies to the hubs using 1/2" Wheel Bolts. Torque to 90 lbs.ft.
37. Slide the A-Frame Arms on to the pins on the Track Slide and secure with a Retaining Collar, a 1/2" x 3 1/2" bolt and a lock nut on each arm. See Fig 3-19.
38. Connect the A-Frame Arms to the lugs on the Axle using a 1"x 3 1/2" bolt, a 1" flat washer and lock nut for each arm. Do not fully tighten the bolts. The Arms must be able to move freely. See Fig 3-20.



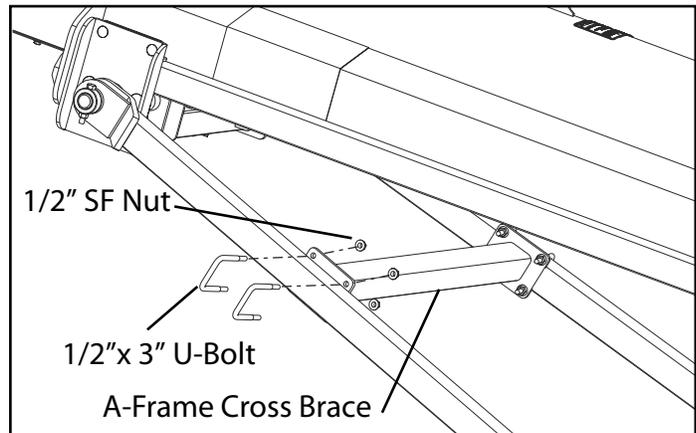
**FIG. 3-19. Mounting A-Frame Arms to Slide**



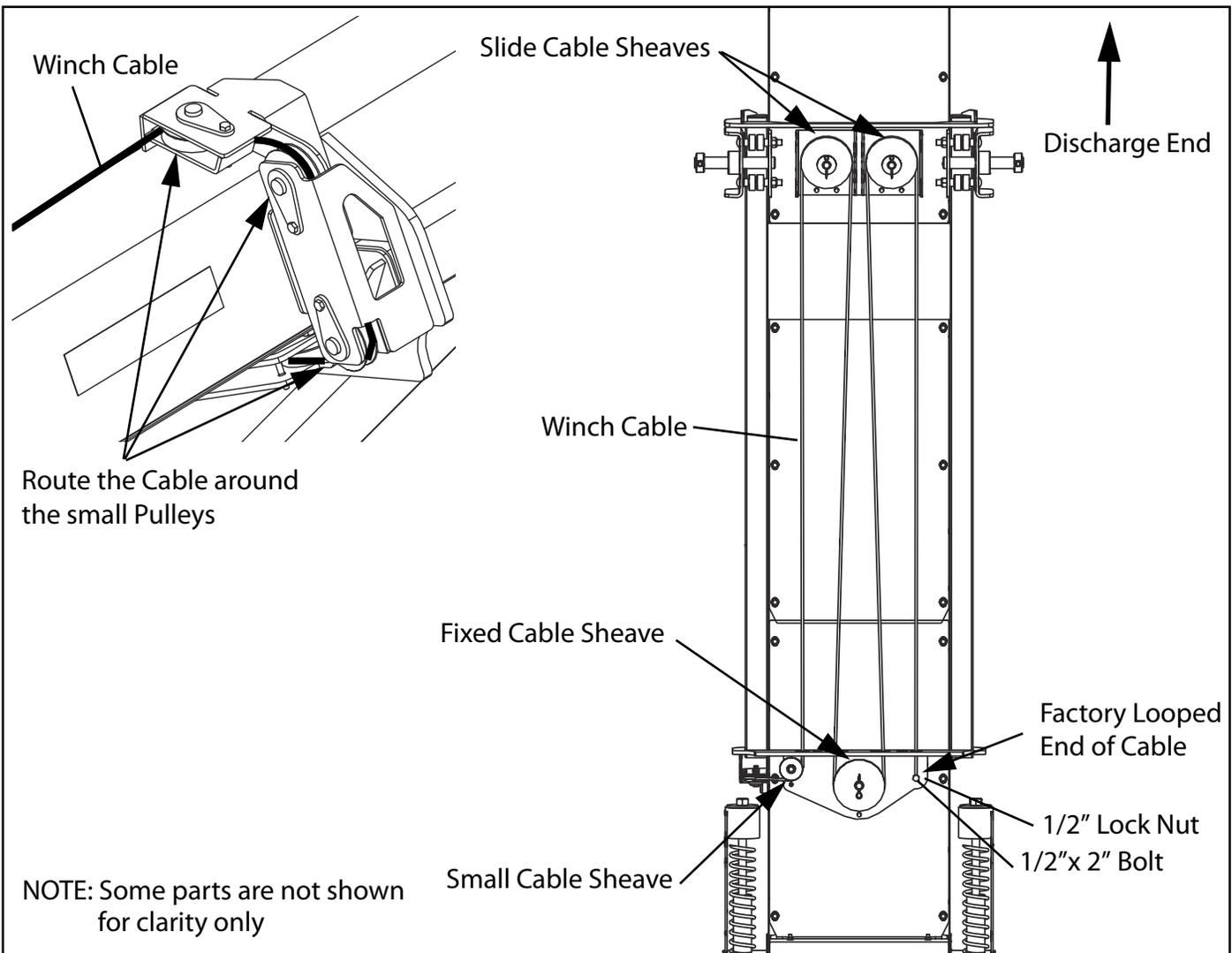
**FIG. 3-20. Mounting A-Frame Arms to Axle Frame**

## 20 Series Field Conveyor

39. Mount the A-Frame Cross Brace to the A-Frame Arms as shown in Fig 3-21 using fasteners shown. To ensure that the cross brace is square, measure from the top of each A-Frame Arm as well as the diagonal distance.
40. Bolt the factory looped end the Lift Cable to the frame. See Fig 3-22.
41. Thread the winch cable through the appropriate sheaves. Roll up the rest of the cable and loop it over the right S-Drive adjusting bolt for the time being.

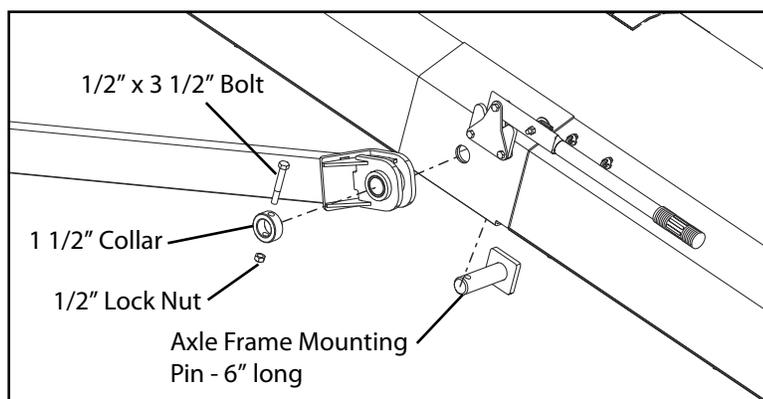


**FIG. 3-21. Installing the A-Frame Cross Brace**

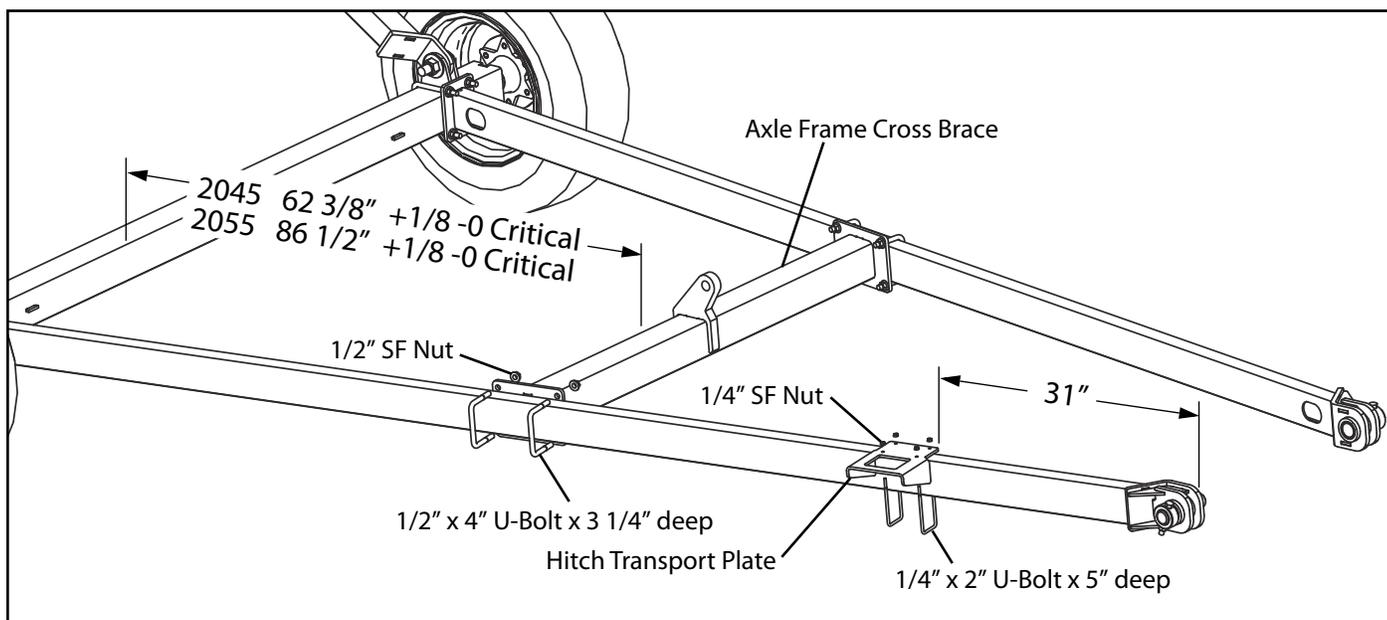


**FIG. 3-22. Routing the Winch Cable (viewed from under Conveyor tube)**

42. Raise the intake end of the conveyor slightly and remove the stand. Rest the intake on the ground.
43. Carefully wrap a sling around the Discharge Assembly and raise the discharge end to approximately 12' using a front end loader or crane.
44. Raise the Axle Frame Arms and attach them to the tube using a Axle Frame Mounting Pin, 1 1/2" Collar, a 1/2" x 3 1/2" bolt and lock nut on both sides, as shown in Fig 3-23.

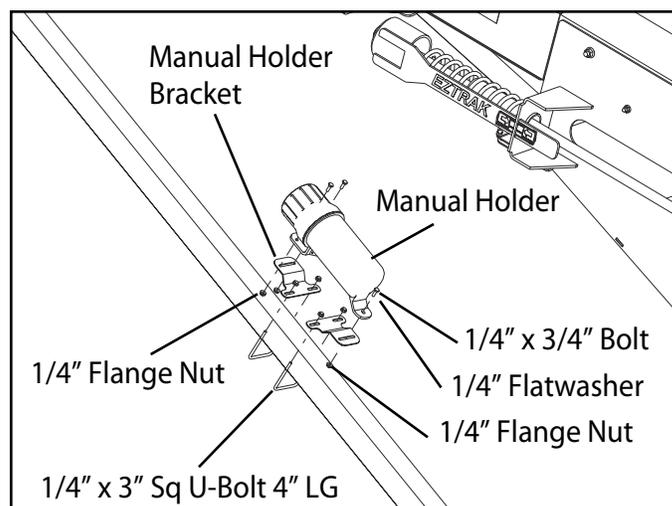


**FIG. 3-23. Axle Frame to Tube Connection**



**FIG. 3-24. Mounting the Axle Frame Cross Brace and Hitch Transport Plate**

45. Mount the Axle Frame Cross Brace to the undercarriage as shown in Fig 3-24. Use the fasteners shown.
46. Install the Hitch Transport Plate to the left Axle Frame Arm using the fasteners shown.
47. Check all the Undercarriage assembly bolts for tightness. All bolts should now be tight except for the pivoting bolts which need to rotate.
48. Carefully lower the conveyor tube until the Slide rests against the Transport Stop.
49. Install the Manual Holder on the left A-Frame Arm using the components shown in Fig 3-25.
50. Replace the removed Wind Guards when finished.



**FIG. 3-25. Mounting the Manual Holder**

### 51. Oil Seed Conveyors Only

Clean the area of the conveyor tube shown in Fig. 3-26 and carefully install the Oil Seed Decals.

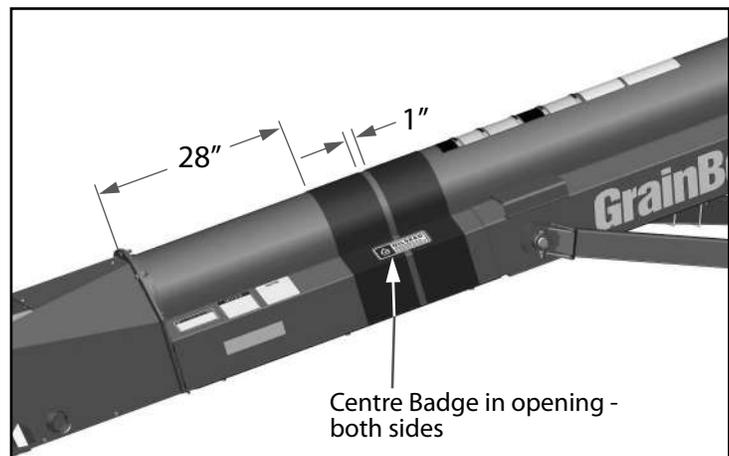


FIG. 3-26. Installing the Oil Seed Decals

## 3.3 Winch Assembly

The Winch, either hand powered or hydraulic powered, mounts to the Winch Mount Plate on the right side of the conveyor tube.

1. Attach the Winch to the Winch Mount Plate using three 3/8" x 1 1/4" serrated flange bolts and serrated flange nuts. Fig. 3-27 shows the hand winch. The hydraulic winch mounts in the same manner.
2. Take the cable which is coiled around the right Tensioning Bolt and route it down to the winch. Make sure the cable goes over the top side of the winch drum. Fasten the cable to the drum using the clamp included with the winch.

**Note:** Make sure there are at least 3 wraps of cable around the drum before the conveyor starts to lift.

**Note:** The hand powered winch should 'click' when the conveyor is being raised. Always keep slight tension on the cable when the conveyor is in transport position.

### CAUTION

**Caution.** Be sure to retighten the winch cable clamps after the conveyor has been raised 2 or 3 times.

**Note:** The position of the winch may have to be adjusted to ensure the cable winds evenly on the drum.

**CAREFULLY READ AND UNDERSTAND THE INSTRUCTION SHEET PROVIDED FOR THE WINCH.**

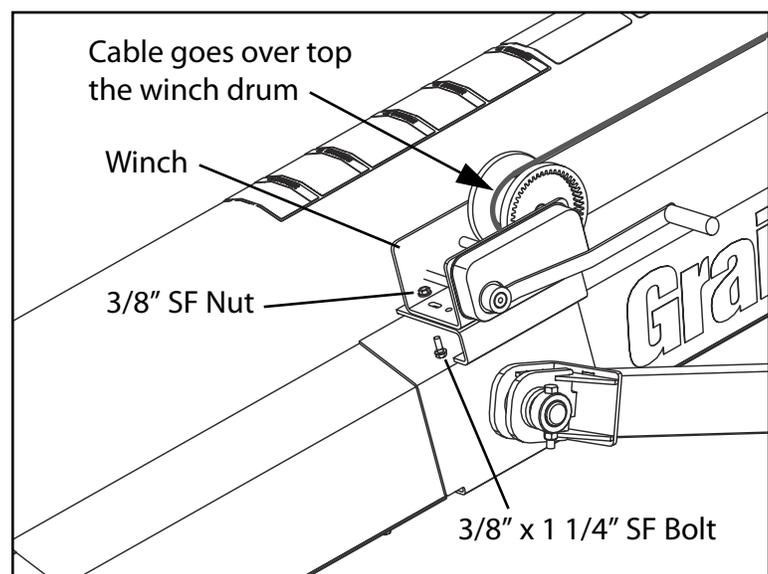


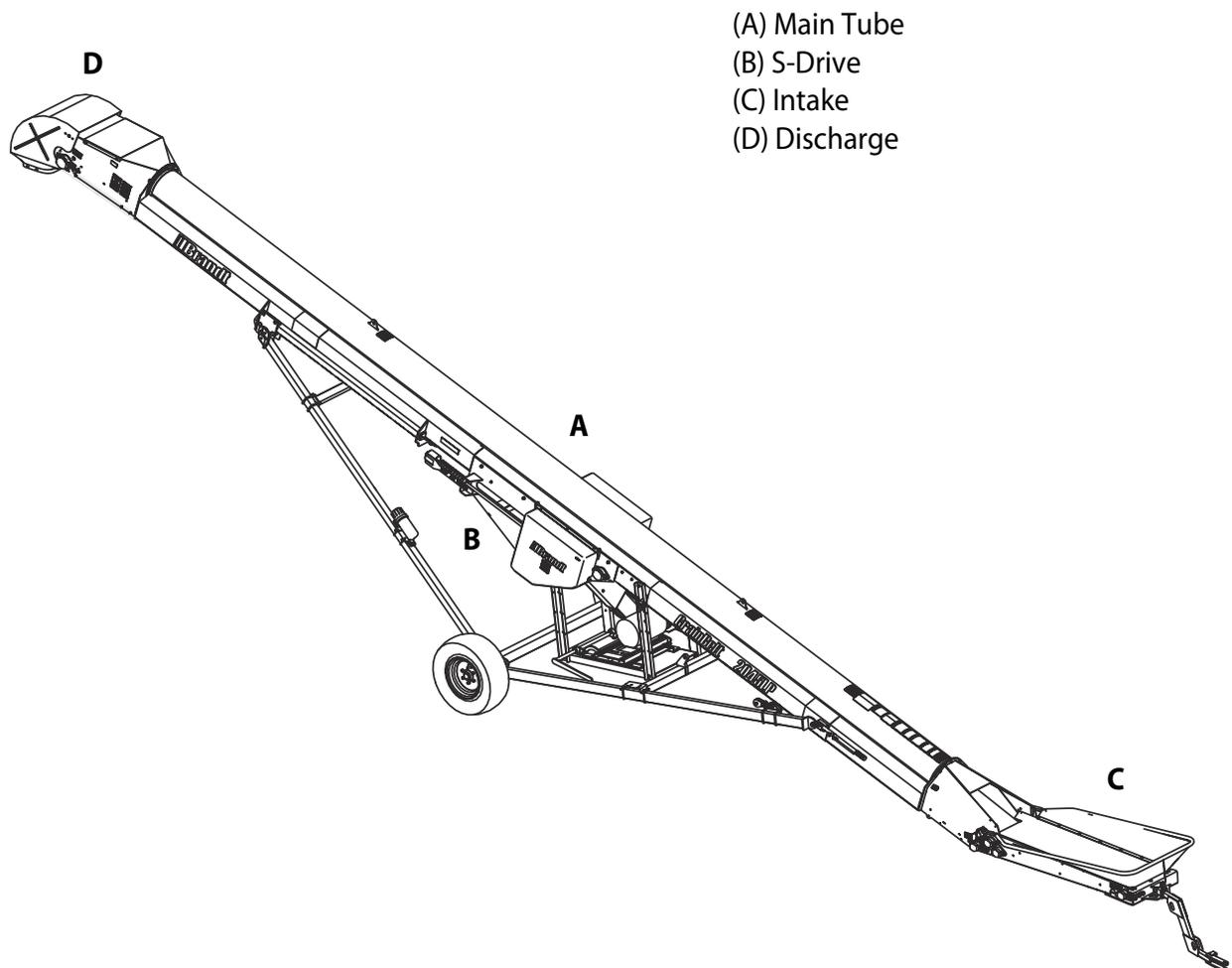
FIG. 3-27. Routing the Winch Cable

## CHAPTER 4 Operation

### 4.1 Principles of Operation

The Brandt Belt Conveyors are used for moving products to or from a storage site. The conveyor is powered by either an electric motor, gas or diesel engine. The engine/motor is mounted beneath the main tube (A). The power is transferred to the conveyor through the S-Drive (B) mounted to the main tube. The power is transferred to the conveyor through the S-Drive (B) mounted to the main tube.

Options include an EZMOVE Conveyor Mover, a cover for the intake (C) and a plastic downspout for the discharge.



## 4.2 Setup for Operation of a New Machine

### 4.2.1 Before running the new Conveyor

1. Read operator’s manual, especially Sections 2,4 and 5.
2. Tighten wheel bolts to specified torque.
3. Check all fasteners and ensure they are tightened to specified torque levels.
4. Check that all guards are in place, secure and functional.
5. Check the winch and cable for security and operation. There should be at least three complete wraps of cable around the winch drum in the full down position. The cable anchor on the winch drum must be tight.

The Brandt Belt Conveyors have been designed to the specifications on the following table.

Drive Speed	
Motor	Belt Speed (fpm)
Gas Drive	550
20HP Electric	550
Diesel Drive	750

A slower belt speed is more gentle on the product where as a higher belt speed increases capacity but may increase product damage.

To determine belt speed of the conveyor, use a stop watch to find the time the belt takes to make one revolution.

	2045LP	2055LP
Belt Speed (fpm)	Time (sec)	Time (sec)
550	11.1	13.3
750	8.2	9.8

### 4.2.2 Initial Break-in

While the conveyor is running, be aware of any unusual noises or vibrations.

#### **NOTICE**

**Notice.** A new belt will tend to wear slightly at the edges and throw out small pieces of belting for approximately the first 5 minutes of use. This is normal. Check the belt tension and alignment closely during this period.

1. Re-torque all fasteners and hardware.
2. Check the conveyor belt for tension and alignment.
3. Check the conveyor drive belts for tension and alignment.

### 4.3 Pre-Operation Checklist

Before operating the Conveyor and each time thereafter, the following areas should be checked.

1. Ensure the conveyor belt slides freely inside the tube.
2. Service the machine as per the schedule in the maintenance section of this manual.
3. Make sure all guards and shields are in place and in good repair.
4. Check the tires for proper inflation and be sure they are in safe road condition.
5. Check the conveyor belt for tension, alignment and condition.
6. Check the conveyor drive belts for tension, alignment and condition.
7. Check and clear the conveyor of any obstructions.
8. Check the condition of the belt lacing and the lacing pin.
9. Check the winch cable for fraying. If the cable is frayed at all, replace immediately.
10. Check the winch brake. Repair if necessary.
11. After the conveyor has been positioned, anchor the intake end or support the discharge end to prevent tipping.

### 4.4 Work Area Placement

Moving the Conveyor with a Towing Vehicle into or out of the Working Area.

1. Clear the entire area of all debris.
2. When moving the conveyor, always use a vehicle. When raising from or attaching to a vehicle, test the intake end for downward weight. Lift it slowly and keep the intake end no higher than the tow vehicle's hitch. Be sure all product is emptied from the conveyor before lifting.

#### WARNING

**WARNING! Never move the conveyor manually. Do not push on the conveyor undercarriage.**

3. The conveyor must be on a level surface attached to a vehicle and the wheels must be free to move when raising or lowering.
4. If the conveyor must be raised before placement, make sure the entire area above the conveyor and in the line of travel is clear of obstructions and electrical wires.

#### DANGER

**DANGER! Keep clear of all power lines. Electrocutation can occur without direct contact with power lines.**

5. The conveyor has the ability to lift to a 32 degree angle, but will only move product up to 30 degrees. It has been designed this way to allow easy placement in the storage facility.
6. Use extreme caution when moving the conveyor into working position. Make sure everyone is clear of the work area, especially children.

#### DANGER

**DANGER! Once in place, anchor the intake end or support the discharge end before using. Failure to do so, can result in damage to the conveyor and/or serious injury or death as it may tip over during use.**

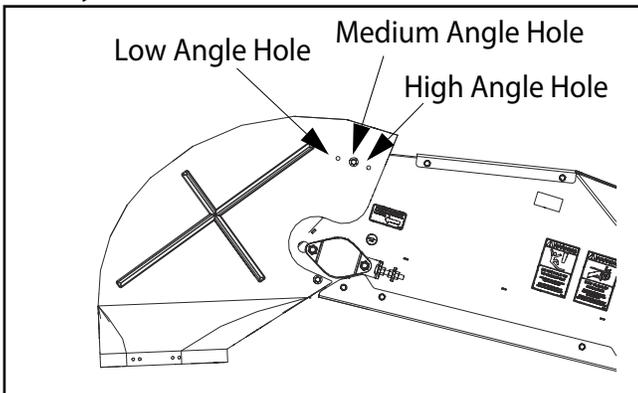
7. The wheels should be chocked on **BOTH** sides of the conveyor and power source.

#### DANGER

**DANGER! DO NOT attempt to increase the conveyor height by positioning the wheels on lumber, blocks or by any other means.**

## 4.5 Discharge Hood Adjustment

The angle of the Discharge Hood is adjustable. Depending on the height the conveyor will most frequently be used at, you can change the angle by removing the upper mounting bolt and tilting the hood to the best angle. The figure shows which hole to use depending on the angle of the conveyor.



## 4.6 Conveyor Drives and Lock Out

It is essential to inspect your conveyor drive before adding power and know how to shut it down in case of an emergency.

Whenever you must service or adjust the conveyor, make sure to stop the engine and lock out the power source!

### 4.6.1 Electric Motor

1. Electric motors and controls must be installed by a qualified electrician and must meet the standards set by the National Electrical Code and all local and provincial/state codes.
2. A magnetic starter should be used to protect the motor.
3. There must be a manual reset button.
4. You must disconnect the power **BEFORE** resetting the motor.

5. The reset and the motor starting controls must be located so that the operator has full view of the entire operation.
6. Keep all guards and shields in place.

### LOCK OUT

A main power disconnect switch capable of being locked only in the OFF position shall be provided. This shall be locked whenever work is being done to the conveyor.

### 4.6.2 Diesel or Gasoline Engine

1. Never attempt to adjust or service an engine while it is in operation.
2. Shut down and allow the engine to cool before filling with fuel.
3. Keep all guards and shields in place.

### LOCK OUT

1. For engines with rope or crank start, remove the spark plug wire or spark plug.
2. For engines with electric start, remove the ignition key, spark plug wire or spark plug.

## 4.7 Full Load Operating

During the regular operation of your conveyor, one person must be in position to monitor the operation.

It is also good practice to visually inspect the conveyor periodically during the actual operation. You should be alert for unusual vibrations, noises and loosening of fasteners.

### **WARNING**

**WARNING! Clear the area of all bystanders especially children.**

1. Keep all safety shields and devices in place.
2. Make certain everyone is clear before operating or moving the machine, especially children.
3. Keep hands, feet and clothing away from moving parts.
4. Regulate the amount of grain entering the conveyor to keep it from overloading.
5. Shut off the power and lock out the power source before adjusting, servicing or cleaning the conveyor.
6. Check the conveyor belt tracking under load.

In certain situations when conveying small grained product, leakage may be observed at the discharge end of the conveyor. This may be caused by product getting behind the belt at the intake end. If this is observed, try slowing the belt speed and decreasing the amount of product being conveyed. Keep in mind that different temperatures, different moisture contents and different products can all effect the capacity of the conveyor.

To get full capacity from the Belt Conveyor, the intake should be "Flood Fed" as much as possible (also see Oil Seed and Fertilizer Operation section). Try to keep the conveyor intake as full as possible without spilling product over the side. The figure shows an example of this.



## 4.8 Cold Weather Operation

Before any cold weather operation, make sure to remove all snow and ice from the conveyor intake.

1. Clear as much snow and ice away as possible from where the intake end of the conveyor will be positioned before starting.
2. Run the conveyor empty at a slow speed for approximately 2 minutes before putting any product through the machine to allow the belt to warm up.
3. After all the product has been conveyed, run the conveyor empty at a slow speed for approximately 2 minutes to remove any moisture that has built up on and under the belt.

## 4.9 Oilseed & Fertilizer Operation

The conveying of different products will cause the belt to either shrink or stretch. The oil from crushed Oilseed or the dust from fertilizer can penetrate the fabric side of the belt (the under side of the belt) and cause the belt to shrink during use. The top side of the belt is fully protected by the rubber or PVC cover. Heavy grains such as corn and wheat may cause the belt to stretch during use.

When conveying oilseeds and fertilizer, it is recommended that two things be done during operation to reduce the shrinkage on the belt:

1. Make every effort to keep the product in the hopper below the edges of the belt - i.e. less than full capacity. This will make it difficult for the product to get to the backside of the belt and therefore reduce the shrinkage that **will** occur.
2. The lacing is another area on the conveyor where product can get to the backside of the belt. Fine seeded crops such as canola and flax can fall through the openings of the lacing. To minimize this, coat the lace with a layer of silicone to fill the gaps. Coat the lace with silicone as required.

**The spring tension gauge located on the side of the conveyor S-Drive allows the operator to react to the shrinkage or expansion of the belt.**

**During use in all products but especially in oilseeds and fertilizers, be sure that the tension gauge is in the green zone when the conveyor belt is stopped. Adjust as necessary to maintain consistent belt tension and reduce the potential for lacing, belt, and bearing failures. See Section 5.4**

## 4.10 Conveyor Shutdown

### 4.10.1 Normal Shutdown

1. Reduce the flow of grain into the conveyor slowly.



**DANGER! If the flow of grain into the conveyor is shut off too quickly, tipping of the conveyor from uneven weight distribution may occur. Make sure the intake end has been anchored, the discharge end has been supported.**

2. Make sure the hopper and tube are empty before stopping the unit.
3. Before the operator leaves the work area, the power source must be locked out.

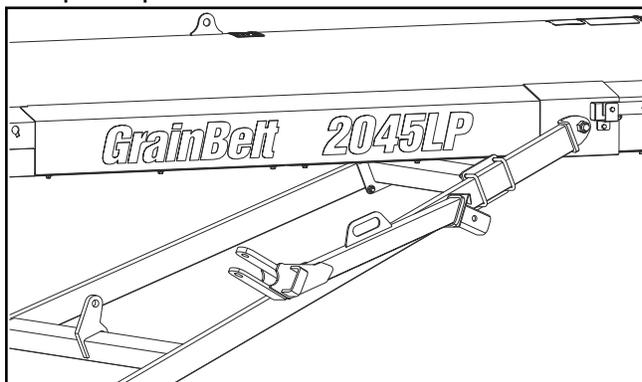
### 4.10.2 Emergency Shutdown

1. Immediately, shut down the diesel, electric or gas motor.
2. Should it be necessary to shutdown the conveyor under load, disconnect and lock out the power source. Clear as much product from the hopper and tube as possible. Never attempt to start the conveyor when full.
3. Starting the unit under load may result in damage to the conveyor. Such damage is considered abuse of the equipment and is not covered under warranty.

## 4.11 Clean Up and Storage

When the operation has been completed, it is recommended that you move the conveyor to the new work area or storage area.

1. Clean the entire area.
2. Remove all anchors, supports and wheel chocks.
3. Move the conveyor slowly out of working position with a towing vehicle - **NOT BY HAND.**
4. If not already in transport position, lower the conveyor to the full down position immediately upon clearance of any obstruction.
5. Transport the conveyor to the new work area or storage area. It is recommended that the conveyor be stored in the fully down position with the intake end anchored to the ground.
6. **Never leave the conveyor resting against a bin or storage building.**
7. Store the Transport Hitch as shown below. Hold it in place with the L-Pin and the hair pin clip.



## 4.12 Transport

Moving the Conveyor with a Towing Vehicle to or from the Work Area.

1. Clear the area of bystanders, especially children.
2. Always transport the conveyor in the fully down position. The Slide of the undercarriage should be seated against the transport stop with **slight tension on the winch cable** and at least **three complete wraps** of cable around the winch drum.
3. Make certain the hitch pin or bolt is securely attached and an additional safety chain is secure to the conveyor and tow vehicle. **See Section 2.5.1 for proper safety chain routing.**
4. **DO NOT** transport the conveyor at speeds in excess of 20 MPH. Be sure to comply with all local regulations governing marking, towing and maximum width.
5. Be aware of overhead obstructions and electrical wires. Electrocutation can occur without direct contact with power lines.
6. Never allow people to stand underneath or ride on the conveyor when it is being transported.
7. Always transport the conveyor with the collapsible hopper held in the collapsed position to avoid damage from rocks.



## CHAPTER 5 Maintenance

### 5.1 Fluids and Lubricants

1. Grease - Use an SAE multipurpose high temperature grease with extreme-pressure (EP) rating. Also acceptable is an SAE multipurpose lithium based grease.
2. Storing Lubricants - Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

### 5.2 Lubrication

1. Use the provided Maintenance Checklist to keep a record of all scheduled maintenance.
2. Use a hand held grease gun for all greasing.
3. Wipe fittings clean before greasing to avoid injecting dirt and grit.
4. Use a single shot of grease unless otherwise noted.
5. Repair and replace broken or missing fittings immediately.
6. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

**Note:** DO NOT OVER GREASE AS THIS MAY DAMAGE THE BEARING.

### 5.3 Service Intervals

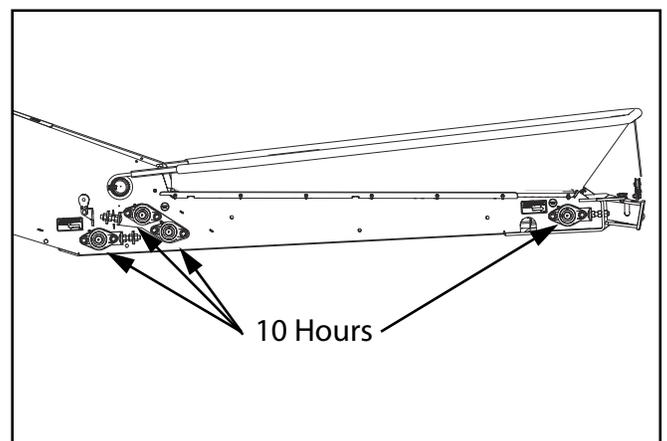
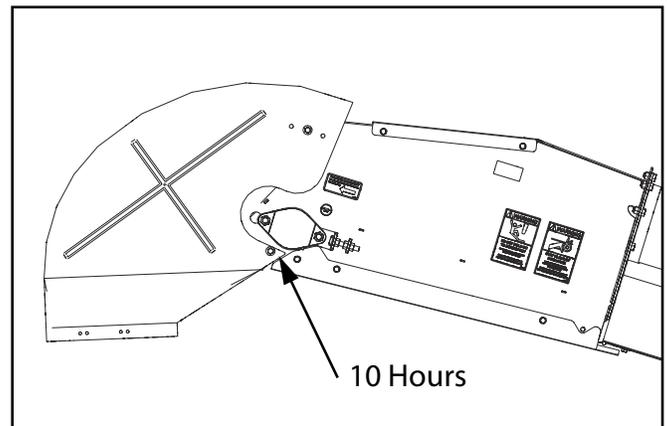
These service intervals are listed in addition to the new machine break in items as described in the first Operation Section on Section 4.1.

#### 5.3.1 10 Hours or Daily

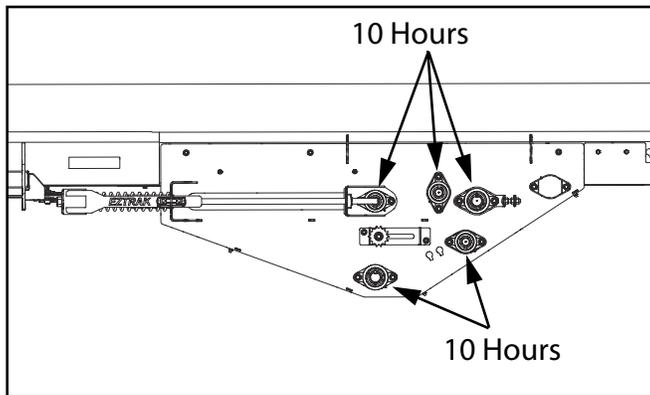
1. Lubricate all roller bearings.
2. Check the motor/engine drive belt tension. The belts should deflect 3/4" with 9 lbs. force at the center of the span.
3. Check the conveyor belt tension and alignment. See Section 5.4.

**Note:** Due to shrinkage or stretching, the belt tension will be effected. Adjust the belt as required to maintain proper belt tension.

4. Check the conveying belt lacing.
5. For the first 50 hours of Operation, check drive belt tension every 10 hours or daily. After check every 50 hours or weekly.



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### 5.3.2 50 Hours or Weekly

1. Lubricate drive chain.
2. Check motor/engine drive belt tension.

### 5.3.3 Annually

1. Check the wheel bearing tightness, repack if necessary.
2. Check that all hardware is properly tightened and secure.
3. Check wheel bolts for proper torque.
4. Inspect the Oil Seed Scrapers. If clearance is observed, adjust the scrapers so they are just touching the rollers.

## 5.4 Conveying Belt Tension and Alignment

Proper belt tension depends on several factors but is primarily due to the commodity being conveyed and the capacity at which the conveyor is running. The more capacity the tighter the belt will need to be to prevent slippage. The heavier the product being conveyed the tighter the belt will need to be.

The tension and alignment of the belt should be checked daily, or more often if required, to be sure it does not slip or run to one side. Particular care should be taken with a new conveyor belt.

A new belt will require much closer observation than a belt that has been used for a period of time. The new belt needs to “break in”. This means that stretching or contracting (stretching due to loading the product on the belt and contracting due to oil and dust penetrating the back side of the belt) takes place during the first 10 hours of operation. Once broke in the belt tension will require much less observation.

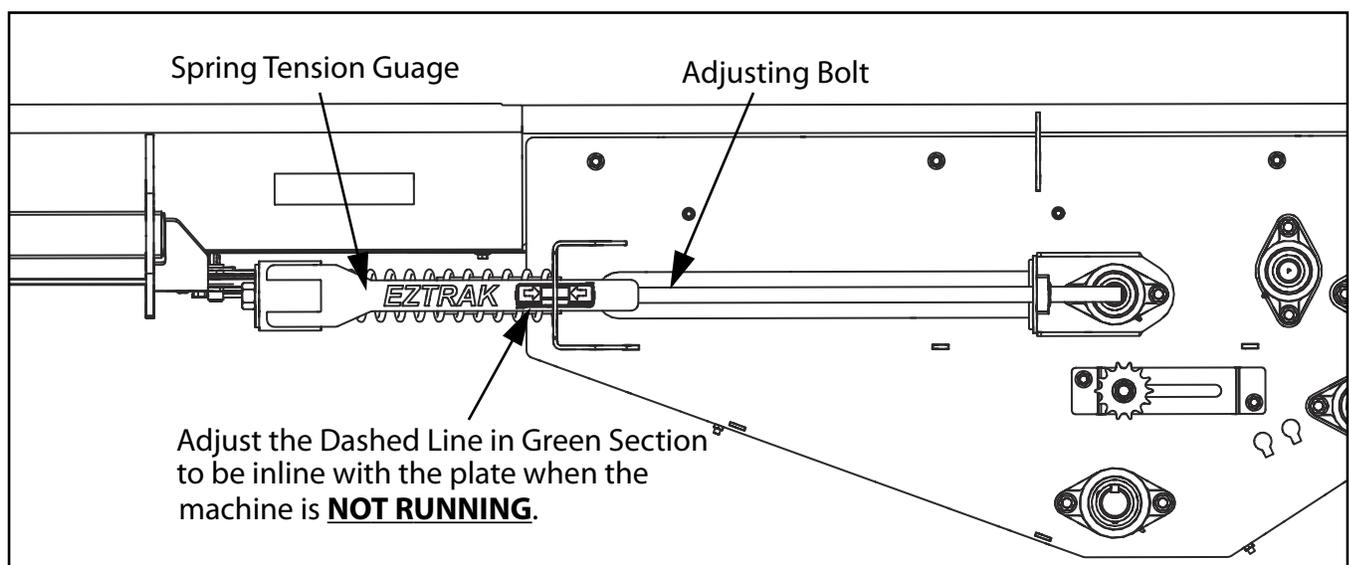
A properly tensioned belt will not slip when it is operating. It is the operators responsibility to ensure that the conveyor belt is not slipping during operation.

**IMPORTANT:** Belt tension is affected by belt shrinkage and stretching. If your belt is too tight, bearing failure and/or belt failure will result. If your belt is too loose, damage to the drive roller and or conveyor belt will result. Adjust the belt as required, to maintain proper belt tension.

### 5.4.1 Adjusting the Belt Tension

Follow this belt tension procedure to adjust the conveyor belt tension. **Please note that this is a starting point only.** The belt tension must be carefully monitored during the first 10 hours of operation and daily there after.

1. Disable the power source before adjusting the belt tension.
2. Adjust the compression spring until the dashed line in the green section of the decal on the left Spring Tension Gauge is in-line with the edge of the plate where the Tension Gauge goes through the slot in the Tensioner Mount. Make sure to adjust both bolts the same amount or tracking problems will occur.



## 20 Series Field Conveyor

3. Run the conveyor for 1 minute then stop it and lock out the power source. Examine the Spring Tension Gauge and readjust if necessary.

**Note:** While the machine is running, the dashed line on the gauge **WILL NOT** be in-line with the plate. The dashed line should only be in-line with the plate when the machine has stopped.

**IMPORTANT:** Do not adjust the belt tension with the conveyor running. This will cause the belt to be over-tensioned and will cause damage to the belt, bearings and/or rollers. The belt tension should only be examined and tensioned when the machine is stopped.

4. Repeat steps 2 and 3 until the edge of the plate remains in the center of the green section when the machine is stopped.
5. If you notice the belt slipping at any time during operation, shut the conveyor down immediately and examine the Tension Gauge. You can determine if the belt is slipping by listening to the belt go through the tube or by watching the intake roller. If the belt is slipping, the intake roller will be changing speeds throughout the belt revolution.
6. Run a load through the conveyor and monitor belt slippage.

## 5.4.2 Belt Alignment

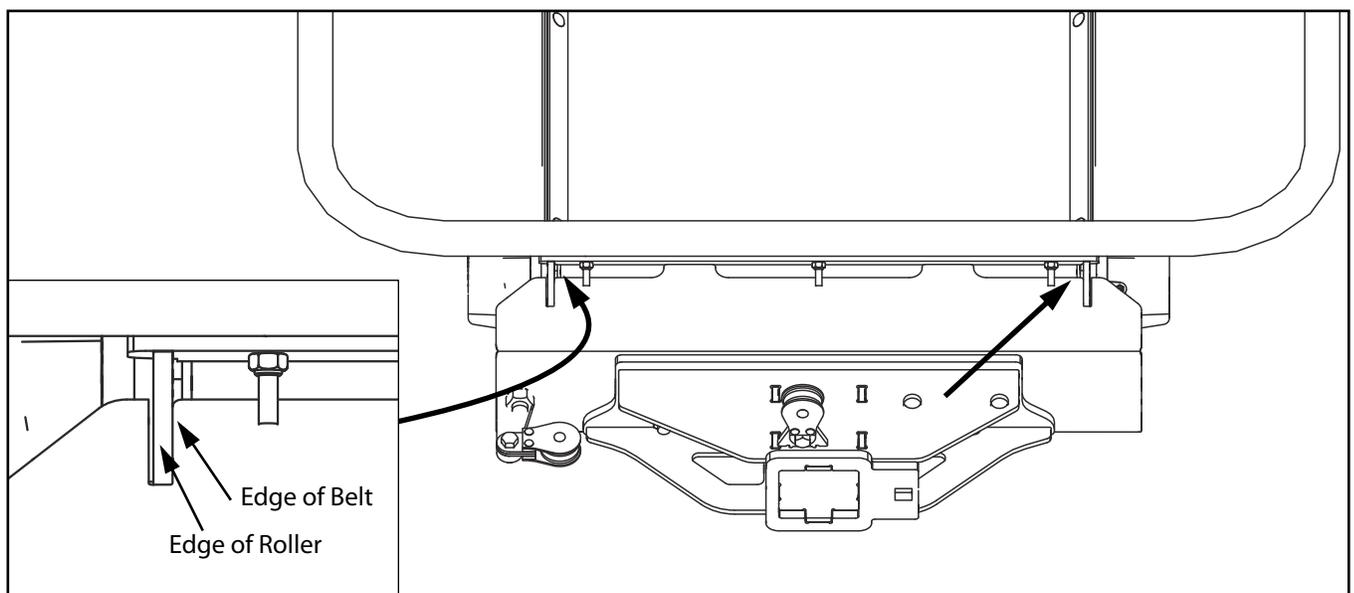
The belt is properly aligned when it runs in the center of the rollers.

Check frequently during the first few minutes of operation and several times during the first 10 hours of operation.

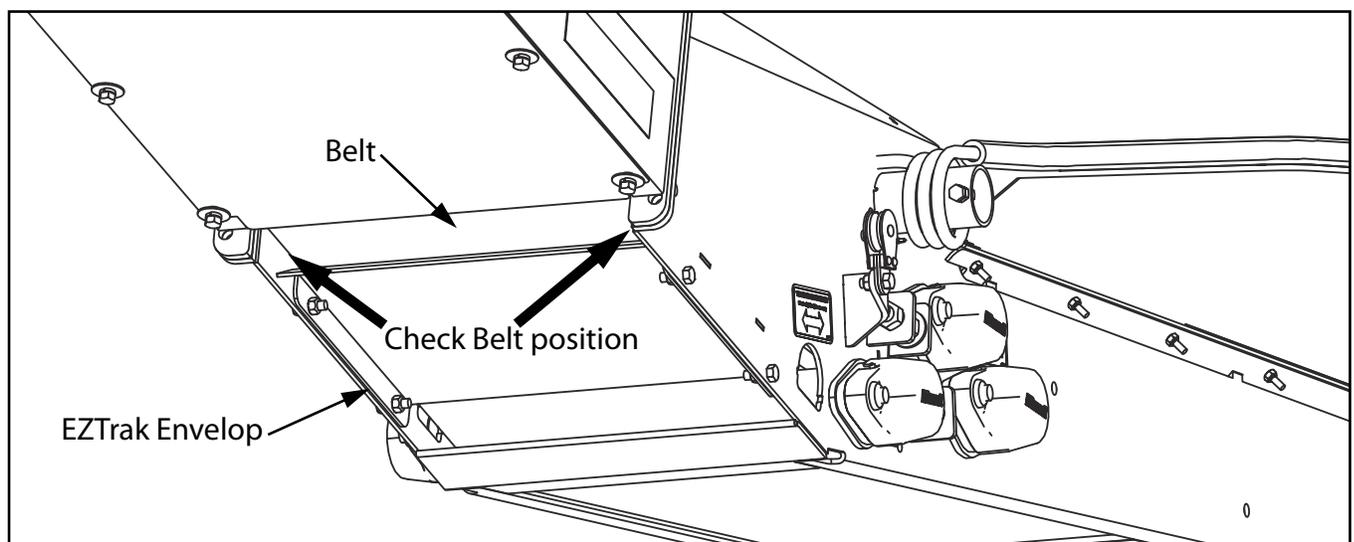
*Note:* It is normal for the belt to wander from side to side on the rollers. It should not, however, push hard to one side and stay there.

### Step 1 - Checking the Alignment at the Intake

1. Check the belt alignment at the end of the Intake by looking in the open slots to determine if the belt is centered on the Roller. Do not make any adjustments at this time.



2. Check the belt alignment under the intake at the transition point as shown below, to determine if the belt is running through the center of the EZTrak envelope.



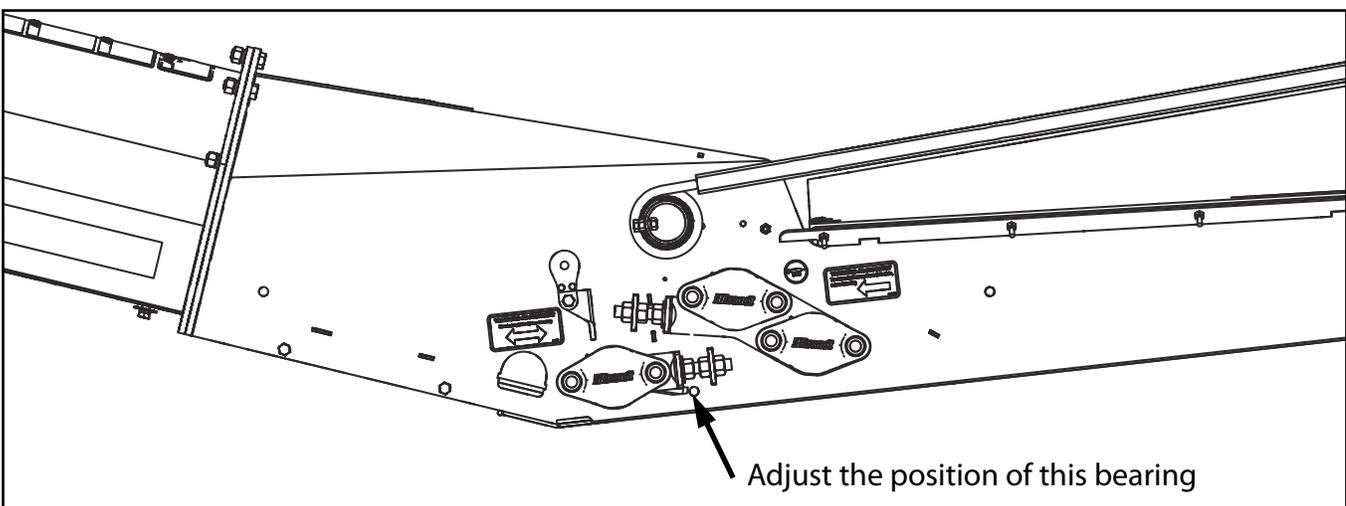
## 20 Series Field Conveyor

3. If adjustment is required at the transition location, loosen the fasteners on the bearing shown below and use the adjustment bolt to move the roller in the required direction. Adjust the bearing location a little at a time.
4. Using the engine or motor, run the belt several revolutions, Stop the belt and check the belt position in the EZTrak envelop.

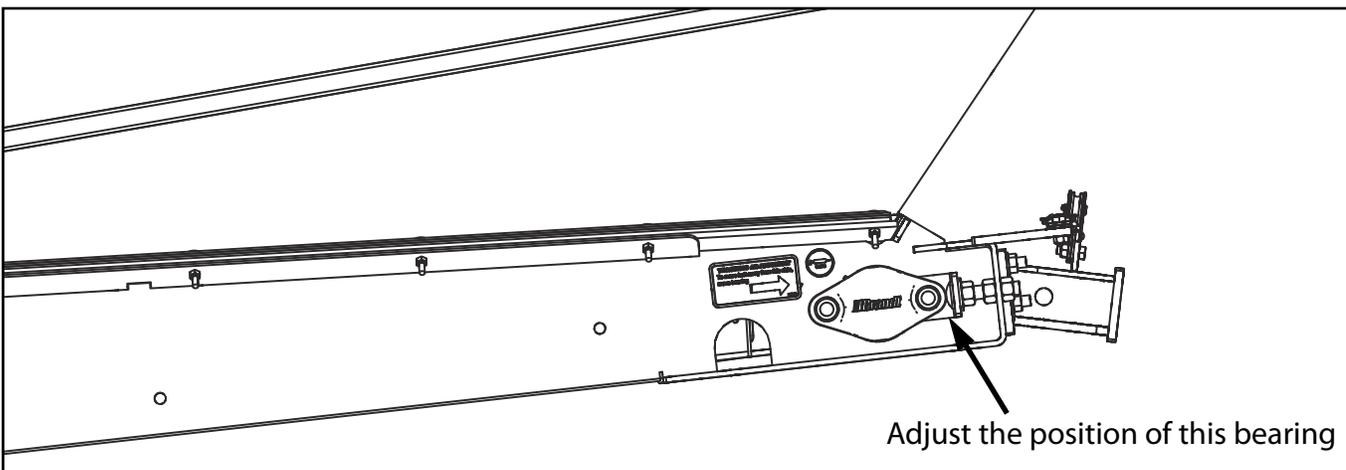
### **⚠ DANGER**

**DANGER!** DO NOT MAKE BEARING POSITION ADJUSTMENTS WHILE THE BELT IS RUNNING. STOP THE BELT AND THEN MAKE ADJUSTMENTS.

Repeat the adjustments until the belt runs in the middle of the EZTrak envelop. Secure the adjustment bolt in place and tighten the bearing mounting fasteners.

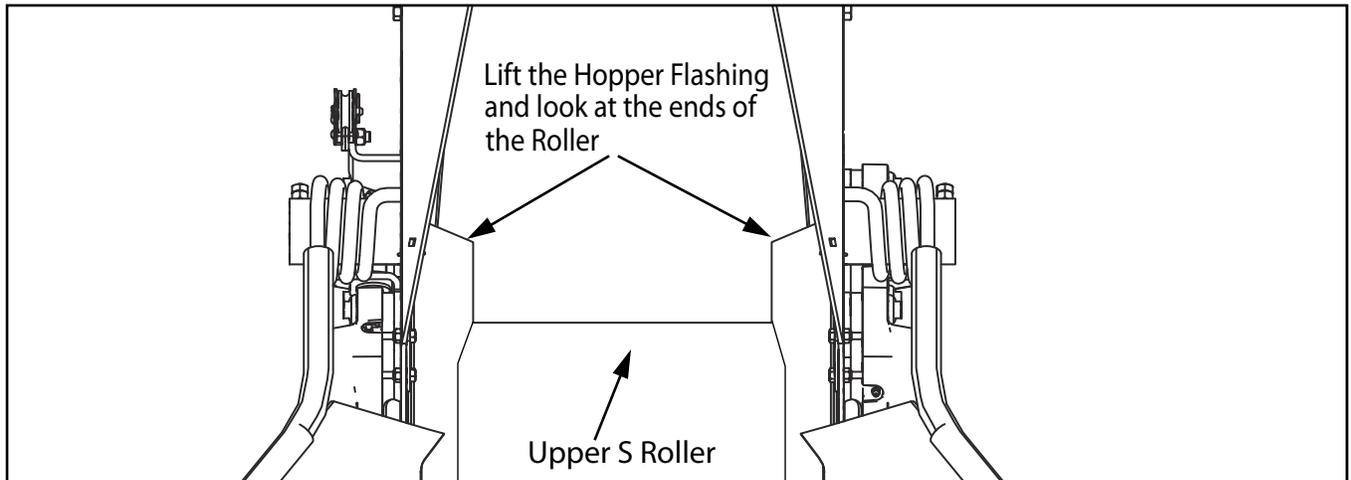


5. Recheck the belt alignment at the end of the Intake to determine if the belt is centered on the roller. If not centered, loosen the fasteners on the bearing shown below and use the adjustment bolt to move the roller in the required direction. Adjust the bearing location a little at a time.

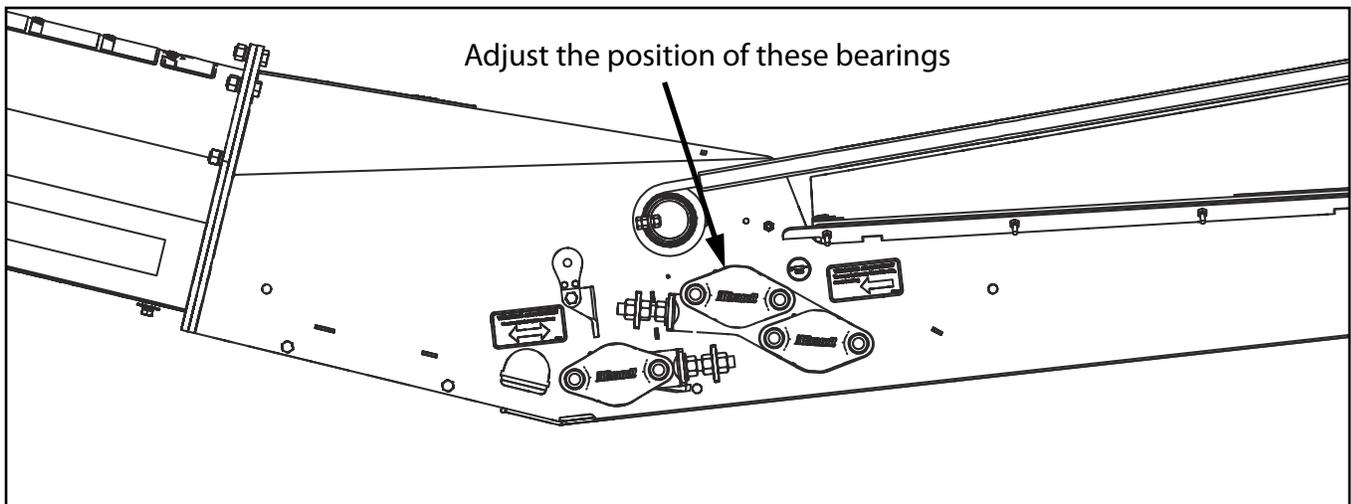


6. Using the engine or motor, run the belt several revolutions, Stop the belt and check the belt position on the roller. Repeat the adjustments until the belt runs in the middle of the roller. Secure the adjustment bolt in place and tighten the bearing mounting fasteners.

7. Check the belt alignment on the S Rollers by lifting the ends of the hopper flashing as shown below.



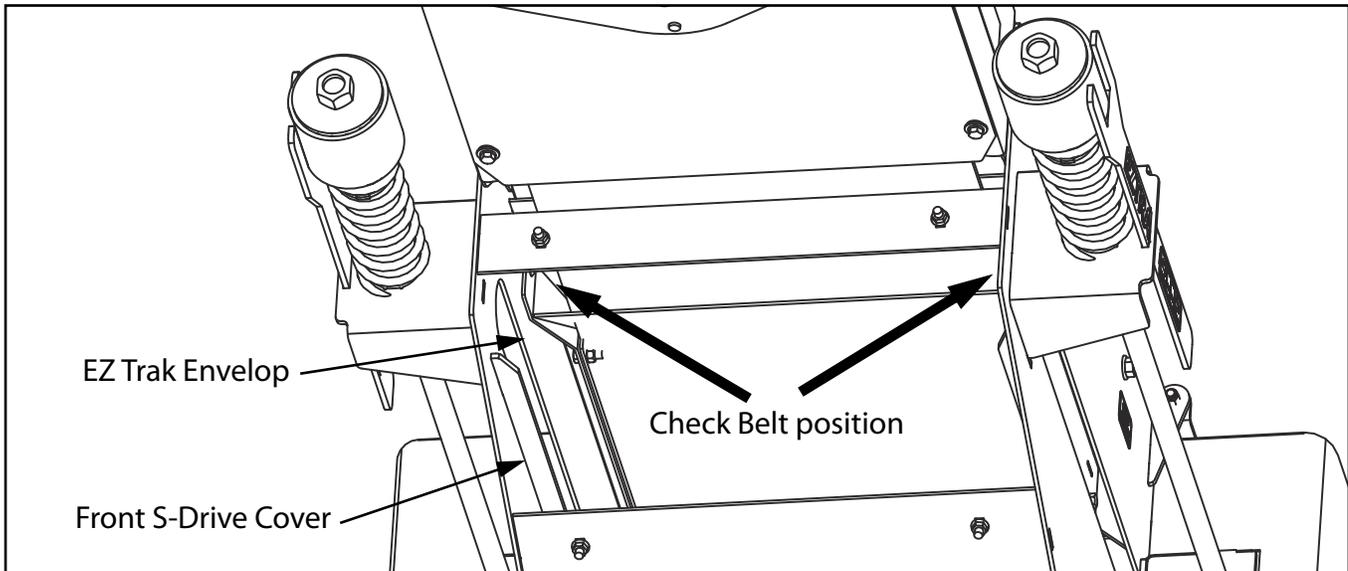
8. If adjustment is required at this location, loosen the fasteners on the bearings shown below and use the adjustment bolt to move the rollers in the required direction. Adjust the bearing location a little at a time.



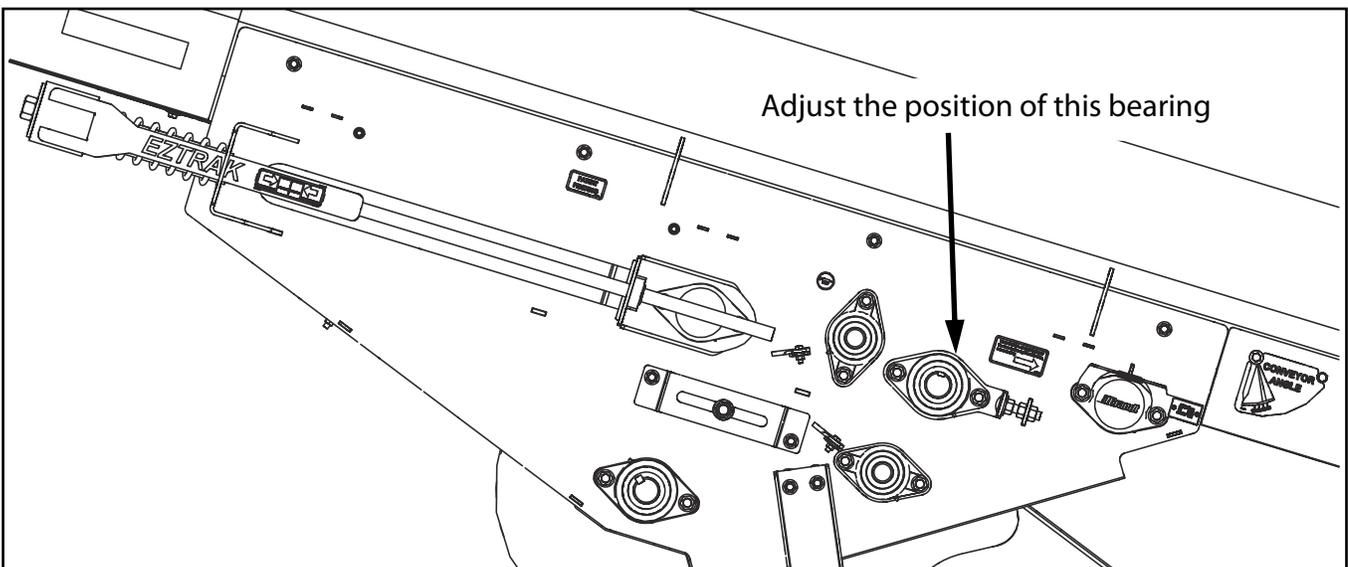
9. Using the engine or motor, run the belt several revolutions, Stop the belt and check the belt position on the roller. Repeat the adjustments until the belt runs in the middle of the roller. Secure the adjustment bolt in place and tighten the bearing mounting fasteners.

## Step 2 - Checking the Alignment at the S-Drive

1. Remove the front S-Drive Cover as shown. Observe the belt as it goes into the EZ Trak envelop to determine if the belt is centered.



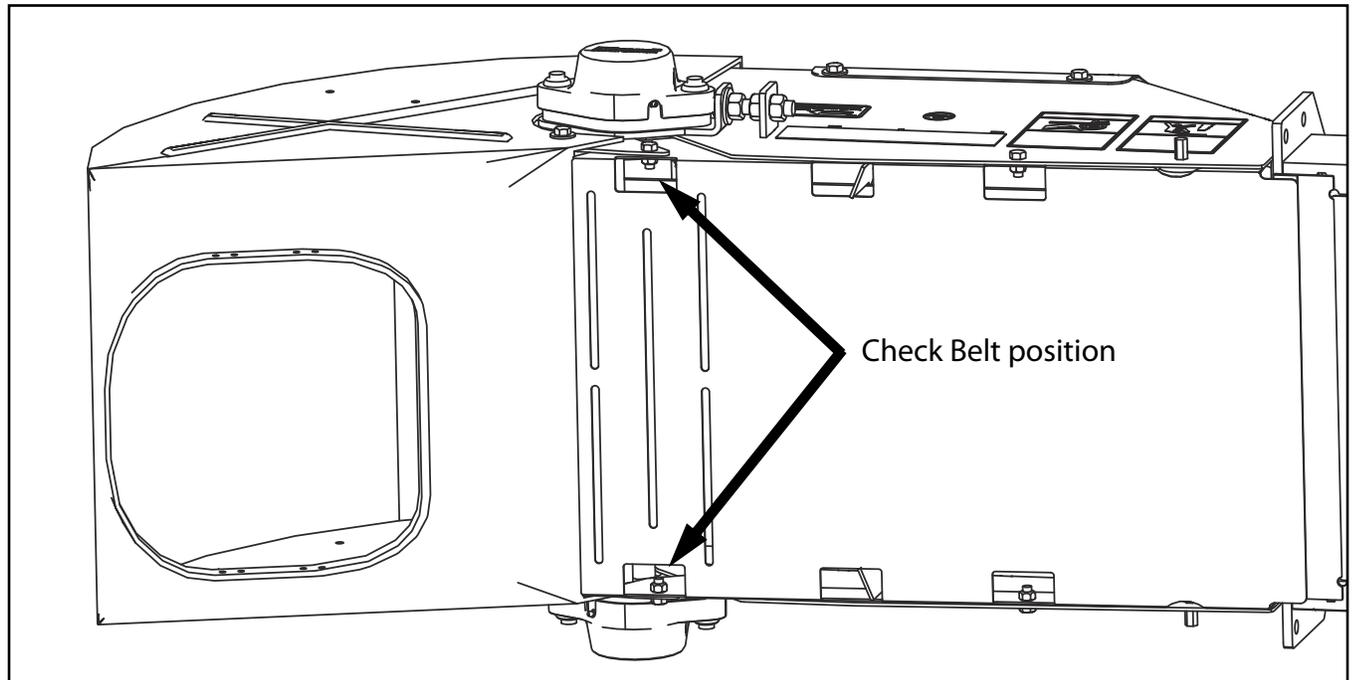
2. Check the belt alignment in the EZ Trak Envelop and the Main Drive Roller to determine if the belt is centered. If not centered, loosen the fasteners on the bearing shown below and use the adjustment bolt to move the roller in the required direction. Adjust the bearing location a little at a time.



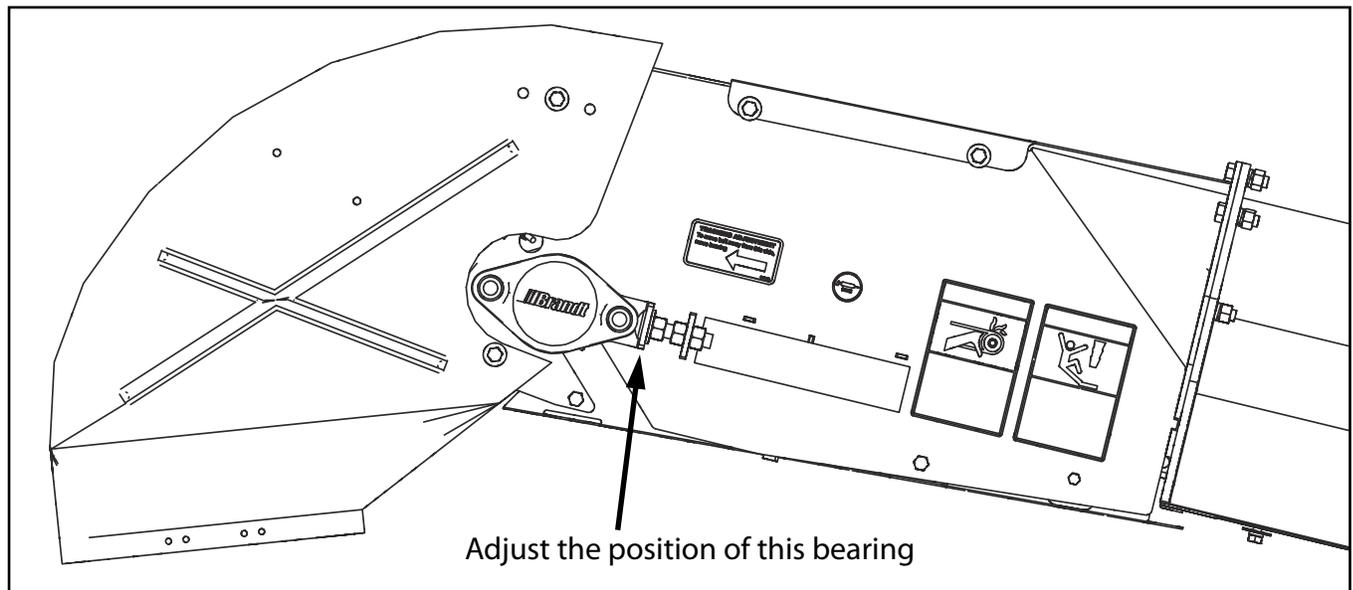
3. Using the engine or motor, run the belt several revolutions, Stop the belt and check the belt position in the envelop and on the roller. Repeat the adjustments until the belt runs in the middle of the envelop and roller. Secure the adjustment bolt in place and tighten the bearing mounting fasteners.
4. Re- install the front S-Drive Cover.

### Step 3 - Checking the Alignment at the Discharge

1. Check the belt alignment at the end of the Discharge by looking in the open slots to determine if the belt is centered on the Discharge Roller.



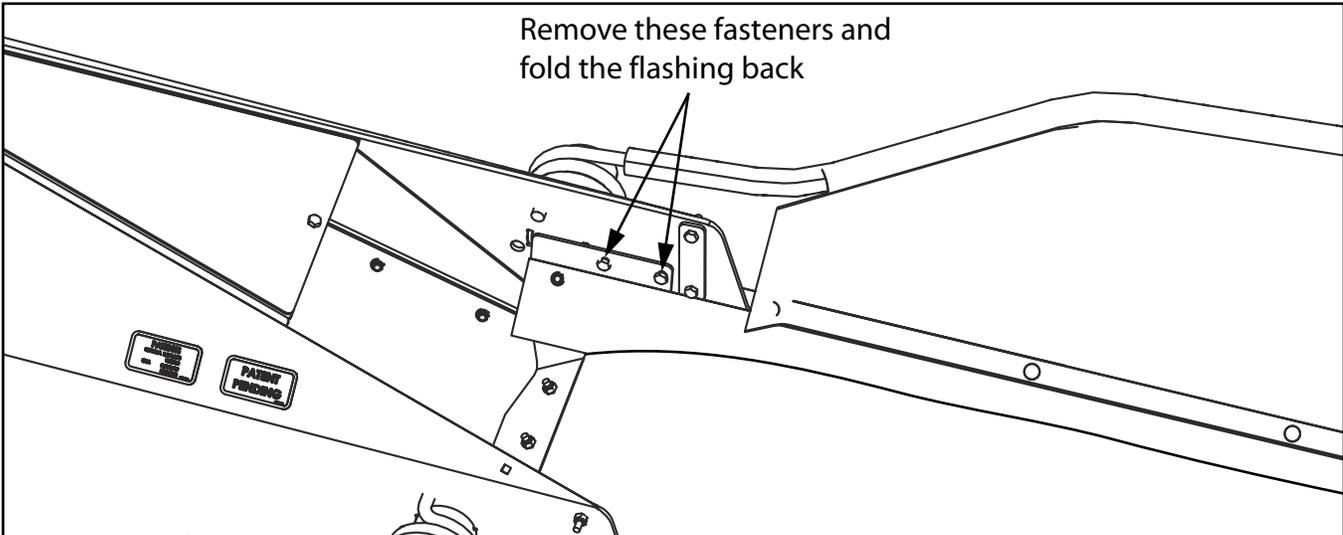
2. If adjustment is required at the discharge location, loosen the fasteners on the bearing shown below and use the adjustment bolt to move the roller in the required direction. Adjust the bearing location a little at a time.



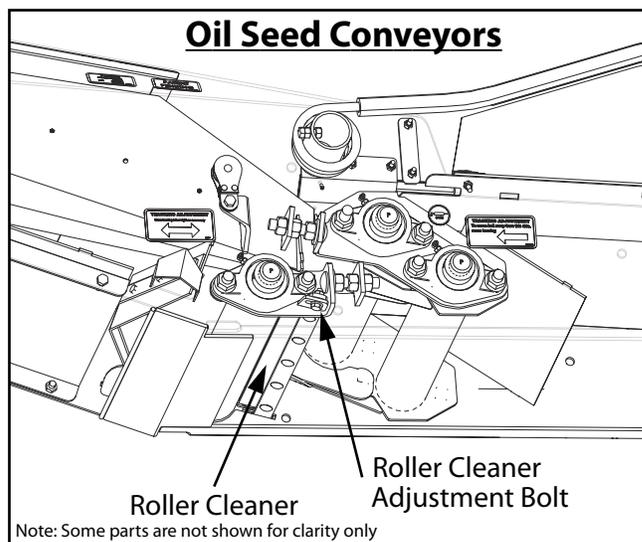
3. Using the engine or motor, run the belt several revolutions, Stop the belt and check the belt position on the discharge roller. Repeat the adjustments until the belt runs in the middle of the roller. Secure the adjustment bolt in place and tighten the bearing mounting fasteners

## Oil Seed Conveyors

When dealing with an Oil Seed Conveyor, follow all the previous steps. However, in order to view the ends of the rollers in the hopper transition area, the bolts shown below must be removed and the flashing folded back.



Note: Oil Seed Conveyors have a roller cleaner on the intake roller shown in the graphic below. If tracking adjustments must be done on this roller, loosen the bolts holding the Roller Cleaner before adjusting the tracking, otherwise the roller could contact the cleaner. After the tracking is adjusted, reposition the Roller Cleaner so it lightly touches the roller and tighten the bolts.



## 5.5 Belt Replacement

1. Remove the wind guard covers from the center of the conveyor.
2. Rotate the belt until the belt lacing is in this portion of the conveyor.
3. Move the tensioning roller to its loosest position and pull the slack to the seam area.
4. Remove the wire connector and open the belt.

**Note:** Check the lacing staples on the new belt for proper crimping.

5. Attach one end of the new belt to the belt being removed.
6. Pull the old belt out and the new belt will be threaded into place.
7. Disconnect the old belt and connect the ends of the new belt and secure with the new pin. See Section 3, Fig. 3-13 and follow steps 22 to 24 of the Assembly Section.
8. Set the belt tension. See Section 5.4.
9. Check and set the belting alignment.
10. Remount the Wind Guard Covers.

## 5.6 Lacing Inspection

Particular attention should be paid to the belt lacing. Because of the flexing motion of the belt, the lacing is always in motion.

Things to look for are:

1. Wear in the joining pin.
2. The lacing can pull out of the belt.
3. The staples which hold the lacing on the belt can become loose or bent. To check this, you must look on the back side of the belt. Any staples that are broken, must be replaced. Any that are bent, can be straightened and re-crimped. When installing a new belt, check that all the staples are crimped properly before installing in the tube.

## 5.7 Wheel Hub Installation

### 5.7.1 Adjusting the Hub Tightness

To adjust the 6 bolt wheel hub tightness, use the following instructions.

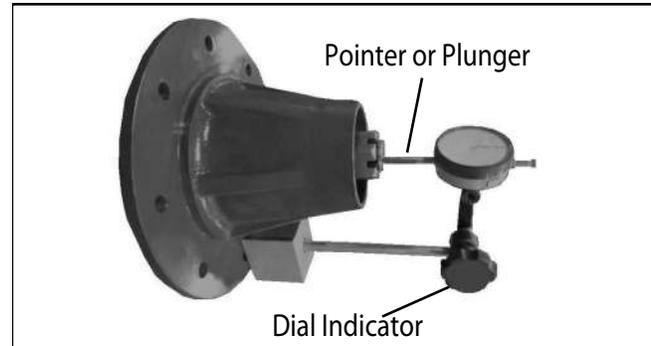
1. Remove the dust cap from the hub. Remove the cotter pin holding the castle nut in place.
2. Torque the castle nut to 100 ft-lbs. Turn the hub one full rotation to seat the cups and cones. Repeat this process of tightening and rotating four times. This will ensure the cones are properly seated in the cups.
3. Loosen the castle nut one full turn or until the nut can be turned by hand.
4. Torque the castle nut to 30 ft-lbs. Turn the hub one full rotation to seat the cones in the cups.
5. Loosen the castle nut until the first castellation lines up with the cotter pin hole. This should be no more than 1/6 of a turn.
6. Install the cotter pin but do not bend the ends yet.
7. Turn the hub and make sure it rotates freely. If the hub is the proper tightness, bend the ends of the cotter pin, pack the dust cap with grease and install.

If the hub seems too loose in the axial direction, check the endplay to verify it is within 0.001" to 0.005", as shown in Section 5.7.2.

### 5.7.2 Checking Endplay of an Installed Hub

**Note:** Endplay must be checked with a Dial Indicator.

1. Ensure the hub has been installed using the previous installation instructions.
2. Attach the base of the Dial Indicator to the mounting face of the hub.



3. Adjust the Dial Indicator plunger or pointer so it is parallel with the spindle axis.
4. Grasp the hub assembly at the 3 o'clock and 9 o'clock positions. Push and pull on the hub and read the bearing end play as the total indicator movement.
5. End play must be within the range of 0.001" to 0.005". If it is, proceed to step 8.
6. If the endplay measurement exceeds 0.005", repeat the procedure in Section 5.7.1 and recheck the endplay.
7. If the endplay still exceeds 0.005" after repeating the instructions in Section 5.7.1, tighten the castle nut to the next castellation. This should not exceed 1/6 of a turn.
8. Install the cotter pin and check to ensure the hub rotates freely.
9. Pack the dust cap with grease and install.

## 5.8 Service Record

Use this table to record the service work done to the machine. See Lubrication Section 5.2 for details of service.

Table Codes C - Check L - Lubricate

Hours									
Serviced By, Initial									
<b>Service Schedule</b>									
10 hours or Daily									
L - All Roller Bearings									
C - Drive Belt Tension									
C - Conveyor Belt Tension									
C - Conveyor Belt Lacing									
Weekly									
Lubricate Drive Chain									
Check Drive Belt Tension									
Annually									
C - Wheel Bearings, Repack if necessary									
C - Check all fasteners for tightness									
C - Check wheel bolts for proper torque									

## 5.9 General Torque Specifications

Use the following guidelines when tightening bolts.

- Tighten all bolts to the torques specified in charts unless otherwise noted throughout this manual.
- Check the tightness of the bolts periodically, using the bolt-torque chart as a guide.
- Replace hardware with the same strength bolt.
- Torque figures are valid for non-greased or non-oiled threads and heads unless otherwise specified. Do not grease or oil bolts or cap screws unless specified in this manual. When using locking elements, increase the torque values by 5%.

### 5.9.1 Unified Inch Bolt and Screw Torque Values

TS1871 -UN-01MAY03

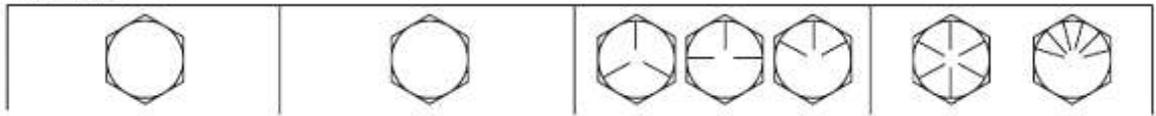


TABLE 5-1. Unified Inch Bolt and Screw Torque Values

Bolt or Screw Size	SAE Grade 1				SAE Grade 2 <sup>a</sup>				SAE Grade 5, 5.1 or 5.2				SAE Grade 8 or 8.2			
	Lubricated <sup>b</sup>		Dry <sup>c</sup>		Lubricated <sup>b</sup>		Dry <sup>c</sup>		Lubricated <sup>b</sup>		Dry <sup>c</sup>		Lubricated <sup>b</sup>		Dry <sup>c</sup>	
	N.m	lb-in	N.m	lb-in	N.m	lb-in	N.m	lb-in	N.m	lb-in	N.m	lb-in	N.m	lb-in	N.m	lb-in
1/4	3.7	33	4.7	42	6	53	7.5	66	9.5	84	12	106	13.5	120	17	150
													<b>N.m</b>	<b>lb-ft</b>	<b>N.m</b>	<b>lb-ft</b>
5/16	7.7	68	9.8	86	12	106	15.5	137	19.5	172	25	221	28	20.5	35	26
									<b>N.m</b>	<b>lb-ft</b>	<b>N.m</b>	<b>lb-ft</b>				
3/8	13.5	120	17.5	155	22	194	27	240	35	26	44	32.5	49	36	63	46
			<b>N.m</b>	<b>lb-ft</b>	<b>N.m</b>	<b>lb-ft</b>	<b>N.m</b>	<b>lb-ft</b>								
7/16	22	194	28	20.5	35	26	44	32.5	56	41	70	52	80	59	100	74
	<b>N.m</b>	<b>lb-ft</b>														
1/2	34	25	42	31	53	39	67	49	85	63	110	80	120	88	155	115
9/16	48	35.5	60	45	76	56	95	70	125	92	155	115	175	130	220	165
5/8	67	49	85	63	105	77	135	100	170	125	215	160	240	175	305	225
3/4	120	88	150	110	190	140	240	175	300	220	380	280	425	315	540	400
7/8	190	140	240	175	190	140	240	175	490	360	615	455	690	510	870	640
1	285	210	360	265	285	210	360	265	730	540	920	680	1030	760	1300	960
1-1/8	400	300	510	375	400	300	510	375	910	670	1150	850	1450	1075	1850	1350
1-1/4	570	420	725	535	570	420	725	535	1280	945	1630	1200	2050	1500	2600	1920
1-3/8	750	550	950	700	750	550	950	700	1700	1250	2140	1580	2700	2000	3400	2500
1-1/2	990	730	1250	930	990	730	1250	930	2250	1650	2850	2100	3600	2650	4550	3350

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For plastic insert or crimped steel type lock nuts, for stainless steel fasteners, or for nuts on U-bolts, see the tightening instructions for the specific application. Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical grade.

Replace fasteners with the same or higher grade. If higher grade fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

<sup>a</sup> Grade 2 applies for hex cap screws (not hex bolts) up to 6 in. (152mm) long. Grade 1 applies for hex cap screws over 6 in. (152mm) long and for all other types of bolts and screws of any length.

<sup>b</sup> Lubricated means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or 7/8 in. and larger fasteners with JDM F13C zinc flake coating.

<sup>c</sup> Dry means plain or zinc plated without any lubrication, or 1/4 to 3/4 in. fasteners with JDM F13B zinc flake coating.

### 5.9.2 Metric Bolt and Screw Torque Values

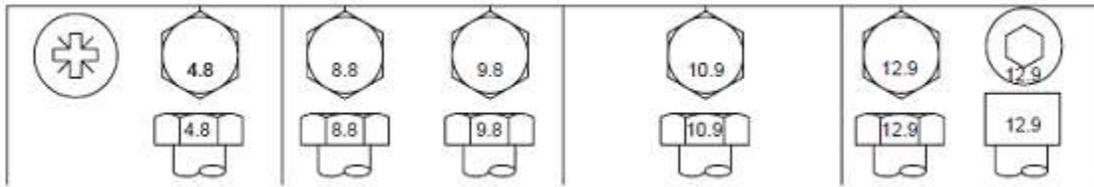


TABLE 5-2. Metric Bolt and Screw Torque Values

Bolt or Screw Size	Class 4.8				Class 8.8 or 9.8				Class 10.9				Class 12.9			
	Lubricated <sup>b</sup>		Dry <sup>c</sup>		Lubricated <sup>b</sup>		Dry <sup>c</sup>		Lubricated <sup>b</sup>		Dry <sup>c</sup>		Lubricated <sup>b</sup>		Dry <sup>c</sup>	
	N.m	lb-in	N.m	lb-in												
M6	4.7	42	6	53	8.9	79	11.3	100	13	115	16.5	146	15.5	137	19.5	172
									N.m	lb-ft	N.m	lb-ft	N.m	lb-ft	N.m	lb-ft
M8	11.5	102	14.5	128	22	194	27.5	243	32	23.5	40	29.5	37	27.5	47	35
			N.m	lb-ft	N.m	lb-ft	N.m	lb-ft								
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
	N.m	lb-ft														
M12	40	29.5	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	46	80	59	120	88	150	110	175	130	220	165	205	150	260	190
M16	100	74	125	92	190	140	240	175	275	200	350	255	320	235	400	300
M18	135	100	170	125	265	195	330	245	375	275	475	350	440	325	560	410
M20	190	140	245	180	375	275	475	350	530	390	675	500	625	460	790	580
M22	265	195	330	245	510	375	650	480	725	535	920	680	850	625	1080	800
M24	330	245	425	315	650	480	820	600	920	680	1150	850	1080	800	1350	1000
M27	490	360	625	460	950	700	1200	885	1350	1000	1700	1250	1580	1160	2000	1475
M30	660	490	850	625	1290	950	1630	1200	1850	1350	2300	1700	2140	1580	2700	2000
M33	900	665	1150	850	1750	1300	2200	1625	2500	1850	3150	2325	2900	2150	3700	2730
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2770	4750	3500

Torque values listed are for general use only, based on the strength of the bolt or screw. DO NOT use these values if a different torque value or tightening procedure is given for a specific application. For stainless steel fasteners or for nuts on U-bolts, see the tightening instructions for the specific application. Tighten plastic insert or crimped steel type lock nuts by turning the nut to the dry torque shown in the chart, unless different instructions are given for the specific application.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class. If higher property class fasteners are used, tighten these to the strength of the original. Make sure fastener threads are clean and that you properly start thread engagement. When possible, lubricate plain or zinc plated fasteners other than lock nuts, wheel bolts or wheel nuts, unless different instructions are given for the specific application.

<sup>b</sup> Lubricated means coated with a lubricant such as engine oil, fasteners with phosphate and oil coatings, or M20 and larger fasteners with JDM F13C zinc flake coating.

<sup>c</sup> Dry means plain or zinc plated without any lubrication, or M6 to M18 fasteners with JDM F13B zinc flake coating.

### 5.9.3 Suggested Torque for Hydraulic Fittings

TABLE 5-3. Suggested Torque for Hydraulic Fittings

Fitting Size	Dash Size	Torque					
		37° JIC		ORB		ORF	
		ft-lb	N-m	ft-lb	N-m	ft-lb	N-m
1/4	04	12	15	14	20	12	15
3/8	06	20	25	23	30	25	35
1/2	08	40	55	40	55	55	75
5/8	10	60	80	45	60	75	100
3/4	12	80	110	75	100	130	175
7/8	14	-	-	85	115	170	230
1	16	110	150	120	165	210	285
1-1/4	20	130	175	155	210	250	340
1-1/2	24	165	225	170	230	320	435

### 5.9.4 Suggested Torque for Tapered Pipe Thread Hydraulic Fittings

TABLE 5-4. Tapered Pipe Thread Torque

Suggested Wrenching Torque for Tapered Pipe Thread Fittings						
Tapered Pipe Thread with Sealant*			Tapered Pipe Thread without Sealant			
Thread Size	N-m	lb-ft	Thread Size	N-m	lb-ft	
1/16-27 UNF	15	10	1/16-27 UNF	20	15	
1/8-27 UNF	20	15	1/8-27 UNF	25	20	
1/4-18 UNF	25	20	1/4-18 UNF	35	25	
3/8-18 UNF	35	25	3/8-18 UNF	45	35	
1/2-14 UNF	45	35	1/2-14 UNF	60	45	
3/4-14 UNF	60	45	3/4-14 UNF	75	55	
1-11 1/2 UN	75	55	1-11 1/2 UN	90	65	
1-1/4-11 1/2 UN	95	70	1-1/4-11 1/2 UN	110	80	
1-1/2-11 1/2 UN	110	80	1-1/2-11 1/2 UN	130	95	
2- 11 1/2 UN	130	95	2- 11 1/2 UN	160	120	
*SUGGESTED WRENCHING TORQUE FOR TAPERED PIPE THREAD chart meets FUNK Engineering Procedures Manual Torque Specifications QS04.01.4 (YZS-101)						

## 5.9.5 Cable Clamps

TABLE 5-5. Cable Clamp Torque Values

Cable Clamp Size	Min. Number of Clamps	Amount of Cable to turn back in inches	Torque in lb-ft
3/16"	2	3 3/4"	7.5
1/4"	2	4 3/4"	15
5/16"	2	5 1/4"	30
3/8"	2	6 1/2"	45
1/2"	3	11 1/2"	45
5/8"	3	12"	90

## 5.10 SAE-to-Metric Conversions

This manual provides values and measurements in units according to the standards of the Society of Automotive Engineers (SAE). Table 5-6 provides the conversion factor for SAE units to SI units (metric system).

TABLE 5-6. SAE-to-Metric Conversion

SAE Unit	Conversion Factor	SI Units (Metric)
ft/min	x 0.3048	Metres/min (m/min)
ft/s	x 0.3048	Metres/s (m/s)
US gallon	x 3.7854	Litres (L)
US gal/min (GPM)	x 3.7854	Litres/min (L/min)
hp	x 0.7457	Kilowatts (kW)
in	x 2.54	Centimetres (cm)
in	x 25.4	Millimetres (mm)
in <sup>3</sup>	x 16.3871	Cubic centimetres (cm <sup>3</sup> or cc)
lb	x 0.4535	Kilogram (kg)
lbf	x 4.4482	Newtons (N)
lbf.ft or ft-lb	x 1.3558	Newton metres (N.m)
lbf.in or in-lb	x 0.1129	Newton metres (N.m)
mph	x 1.6063	Kilometres/hour (km/h)
oz	x 29.5735	Millilitres (ml)
psi	x 0.06894	Bar
psi	x 6.8948	Kilopascals (kPa)
psi	x 0.00689	Megapascals (MPa)

## 5.11 Acronyms and Abbreviations

TABLE 5-7. Acronyms and Abbreviations

Term / Symbol	Definition
'	Foot
"	Inch
A	Ampere
API	American Petroleum Institute
ASABE	American Society of Agricultural and Biological Engineers
ASTM	American Society of Testing and Materials
F	Fahrenheit
ft	Foot
ft/min	Feet per minute
ft/s	Feet per second
GPM	U.S. gallons per minute
hp	Horsepower
HPU	Hydraulic power unit
Hz	Hertz
in <sup>3</sup>	Cubic inches
ID	Inside diameter
lb	Pound
lbf	Pounds force
lbf.ft or ft-lb	Pound feet or foot pounds
lbf.in or in-lb	Pound inches or inch pounds
mph	Miles per hour
N/A	Not applicable
OD	Outside diameter
OEM	Original Equipment Manufacturer
oz	Ounce
PH	Phase
psi	Pounds per square inch
RPM	Revolutions per minute
SAE	Society of Automotive Engineers
VAC	Volts, alternating current
VDC	Volts, direct current



## CHAPTER 6 Troubleshooting

The Brandt Grain Belt Tube Conveyors have been designed to give long and trouble-free use. Minor problems do, however, occur from time to time. 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 reading through this trouble shooting section, please contact your local Brandt dealer. Before you call, please have this manual and the serial number from your Conveyor at hand.

<b>Symptom</b>	<b>Possible Cause</b>	<b>Solution</b>
Conveyor will not run.	Conveyor belt loose.	Tighten and align the belt.
	Drive belts loose.	Tighten the drive belts.
	Drive belts worn or glazed.	Replace the drive belts and re-tension.
	Belting frozen to the tube from operating in high humidity conditions in extreme cold.	Clear away all snow from the intake end before start up. Run the conveyor empty after use to allow the belt to dry prior to shut down.
	Chain Failure	Replace Chain
	Chain Skipping	Adjust Chain Tension
Conveyor belt edge is fraying.	Conveyor belt is not aligned.	Re-align the conveyor belt.
Drive belt is rolling over on to side	Drive belt not tensioned properly	Tension Belt properly
Drive belt wearing out	Belt not tensioned properly	Tension Belt Properly
Drive belt whipping on return side	Kiss idler not contacting belt	Move the kiss idler to contact the belt slightly on return side of the belt.
Poor capacity	Angle is too steep.	If possible, reposition with a lower angle.
	Slow operating speed.	Increase operating speed.
	Conveyor belt slipping.	Tighten and align the conveyor belt.

**20 Series Field Conveyor**

<b>Symptom</b>	<b>Possible Cause</b>	<b>Solution</b>
Leakage at the hopper.	Flashing wore out or not positioned properly.	Replace or reposition the flashing.
	Angle is too steep	Decrease angle of conveyor
	Too much roll back of product in the transition area of the intake.	Reduce the feed rate into the intake.
	Conveyor is not level from side to side	Reposition conveyor and make sure it is level from side to side.
Leakage at the discharge.	Belt speed too high.	Reduce belt speed.
	Wiper worn out or not positioned properly.	Replace or reposition the wiper.
	Over feeding the hopper. Product getting behind the belt.	Reduce the amount of incoming product.
Leakage	Gap between the belt and intake transition plates near mount flange.	Align intake with tube so there is no gap.
	Edge of transition plate not flush with mount flange.	Grind edge from mount flange so that the belt is tight to the side intake and tube throughout the entire transition.

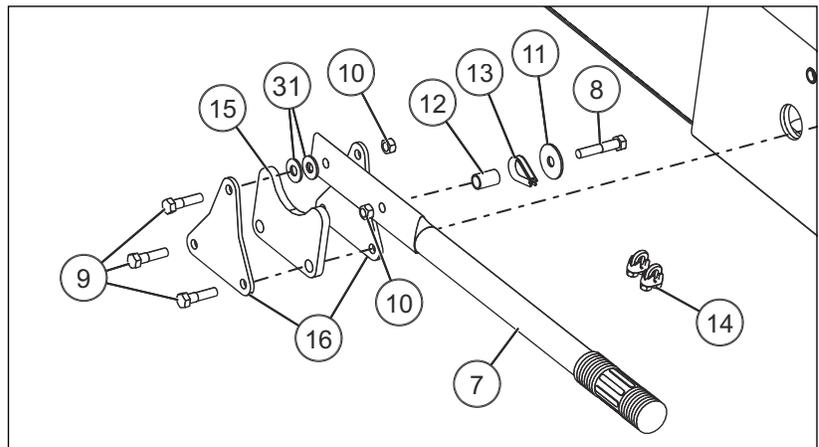
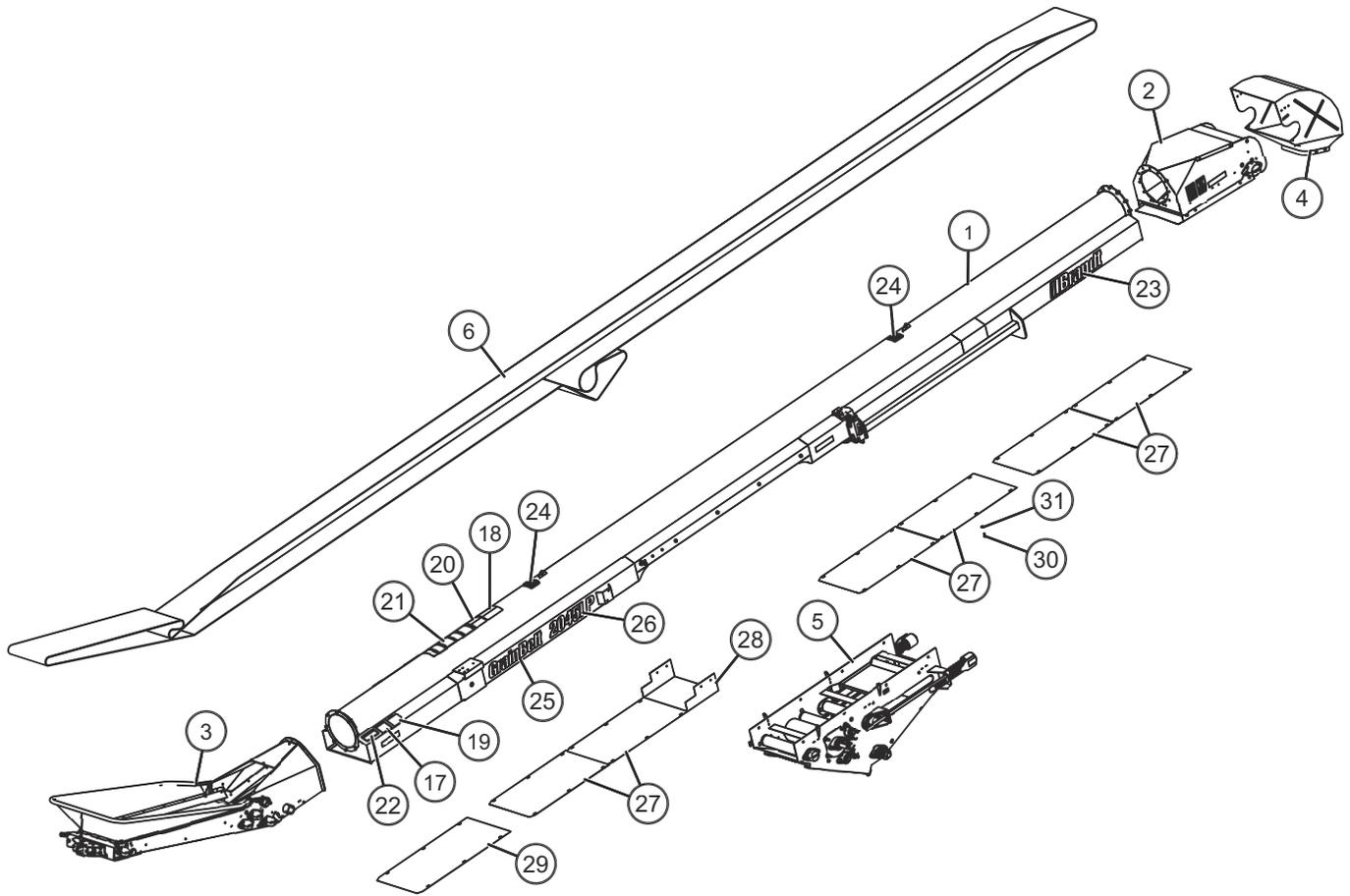
## CHAPTER 7 **Parts List**

### **7.1 Drawing List**

1. 2045 Tube Assembly on page 64
2. 2055 Tube Assembly on page 66
3. Standard Intake Assembly on page 68
4. Oil Seed Intake Assembly on page 70
5. Discharge Assembly on page 72
6. Standard S-Drive Assembly on page 74
7. Oil Seed S-Drive Assembly on page 76
8. Undercarriage Assembly on page 78
9. Slide Assembly on page 80

<sup>NS</sup> Items not shown in drawing.

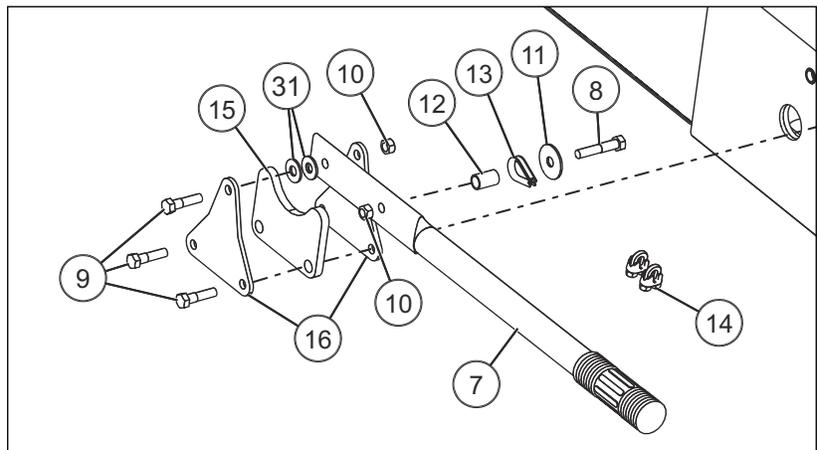
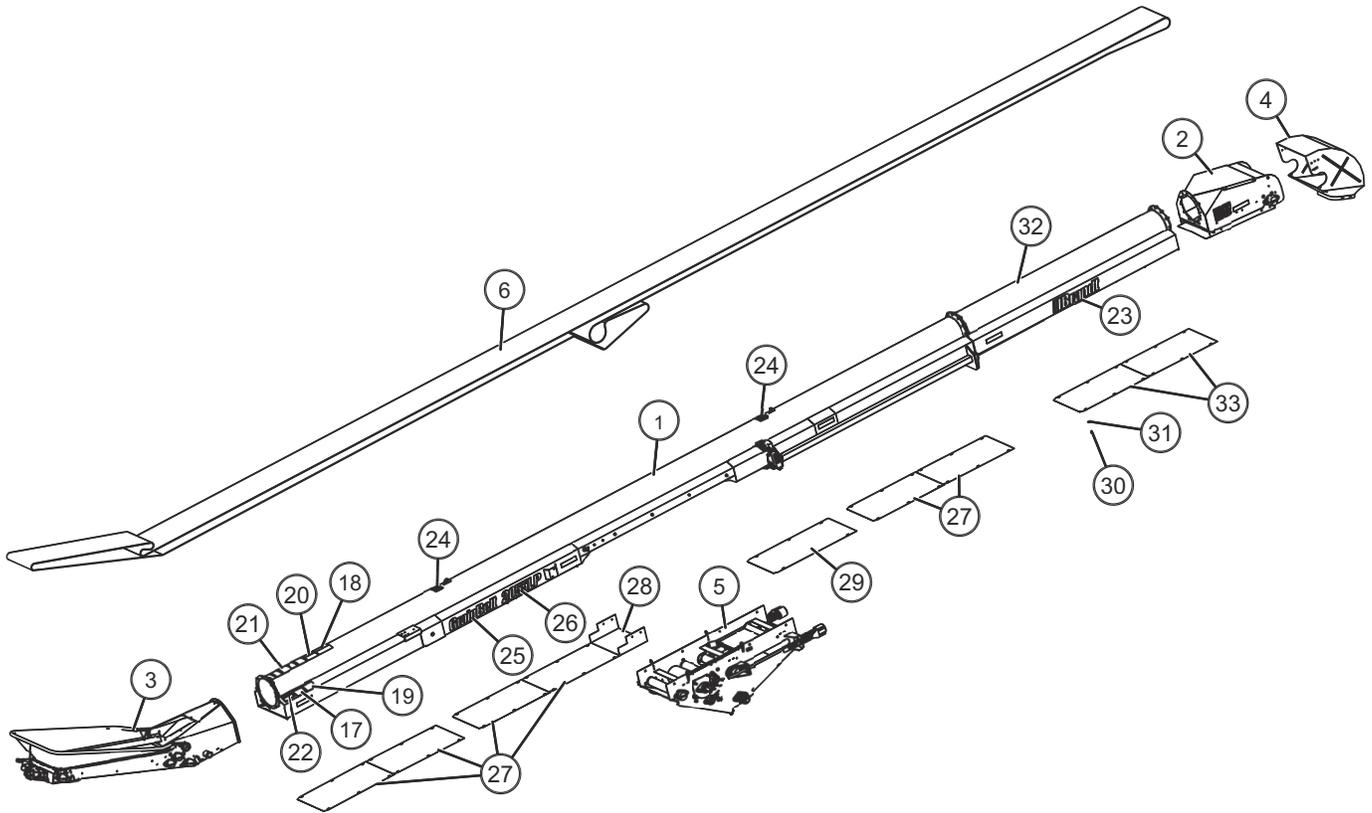
# 2045 Tube Assembly



**Hopper Handle Assembly**

REF #	PART NO.	DESCRIPTION	QTY
1	2079793	2055 LOWER TUBE C/W DECALS	1
2	C214451	20 SERIES DISCHARGE ASSY	1
3	2072196	20SERIES STANDARD LP INTAKE ASSEMBLY	1
3	2072188	20SERIES OIL SEED LP INTAKE ASSEMBLY	1
4	B027605	DISCHARGE SPOUT, 20 SERIES	1
5	2072203	20 SERIES STD FIELD S DRIVE ASSEMBLY	1
5	2072190	20 SERIES OIL SEED FIELD S DRIVE ASSEMBLY	1
6	B018655	BELT, RUBBER 2045LP	1
6	2079680	BELT, OIL SEED 2045LP	1
7	C2149041	HOPPER HANDLE	1
8	B001028	BOLT 3/8" x 2" UNC GR5 PLT	1
9	B001031	BOLT 3/8" x 1 1/2" UNC GR5 PLT	3
10	B0011325	LOCKNUT 3/8" STOVER	2
11	B0011496	FLATWASHER 3/8" x 1 1/2" OD	1
12	B002310	SPACER 5/8" OD x.512" ID x 1"	1
13	B008061	CABLE THIMBLE 3/16"	1
14	B008060	CABLE CLAMP 3/16"	2
15	C2158136	HANDLE SPACER	1
16	C2158068	HOPPER HANDLE MOUNT	2
17	B029006	DECAL - OIL SEED	1
18	B029027	DECAL - DAILY OPERATIONS	1
19	B029827	DECAL - TRACKING WARNING	1
20	B0290102	DECAL - BELT SPEED	1
21	B0290108	DECAL - BELT CONVEYOR SAFETY	1
22	B029971	DECAL - SAFE TRANSPORT	1
23	B029150	DECAL - BRANDT DIECUT	2
24	B029977	DECAL - NOT A LIFT POINT	2
25	B029802	DECAL - LARGE GRAINBELT	2
26	B029829	DECAL - 2045LP	2
27	C2147870	2045 SHORT WINDGUARD	6
28	C2147872A	2045 BOLT ON WINDGUARD	1
29	C2147871	2045 LONG WINDGUARD	1
30	B001433	BOLT 3/8"x 1" SERRATED FLANGE	45
31	B001149	FLATWASHER 3/8"	47
NS	C204585	20" LACING PIN KIT	1
NS	B021323	ALLIGATOR LACING - 20" c/w PIN	1
NS	B0186305	RUBBER BELT - 20" WIDE x 5' LG - LACED	AR
NS	2079928	OIL SEED BELT - 20" WIDE x 5' LG - LACED	AR
NS	2079931	OIL SEED BELT - 20" WIDE x 10' LG - LACED	AR

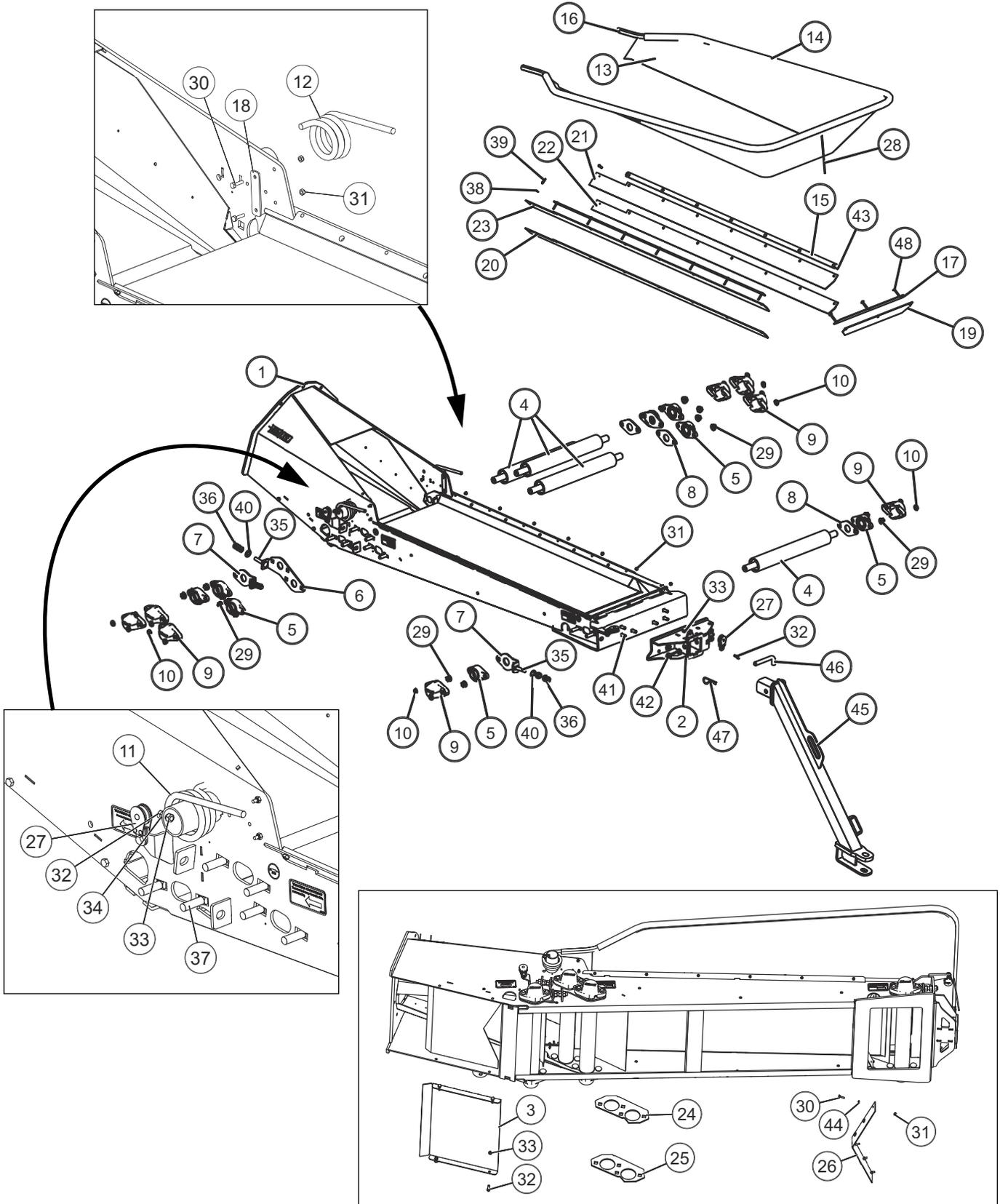
# 2055 Tube Assembly



**Hopper Handle Assembly**

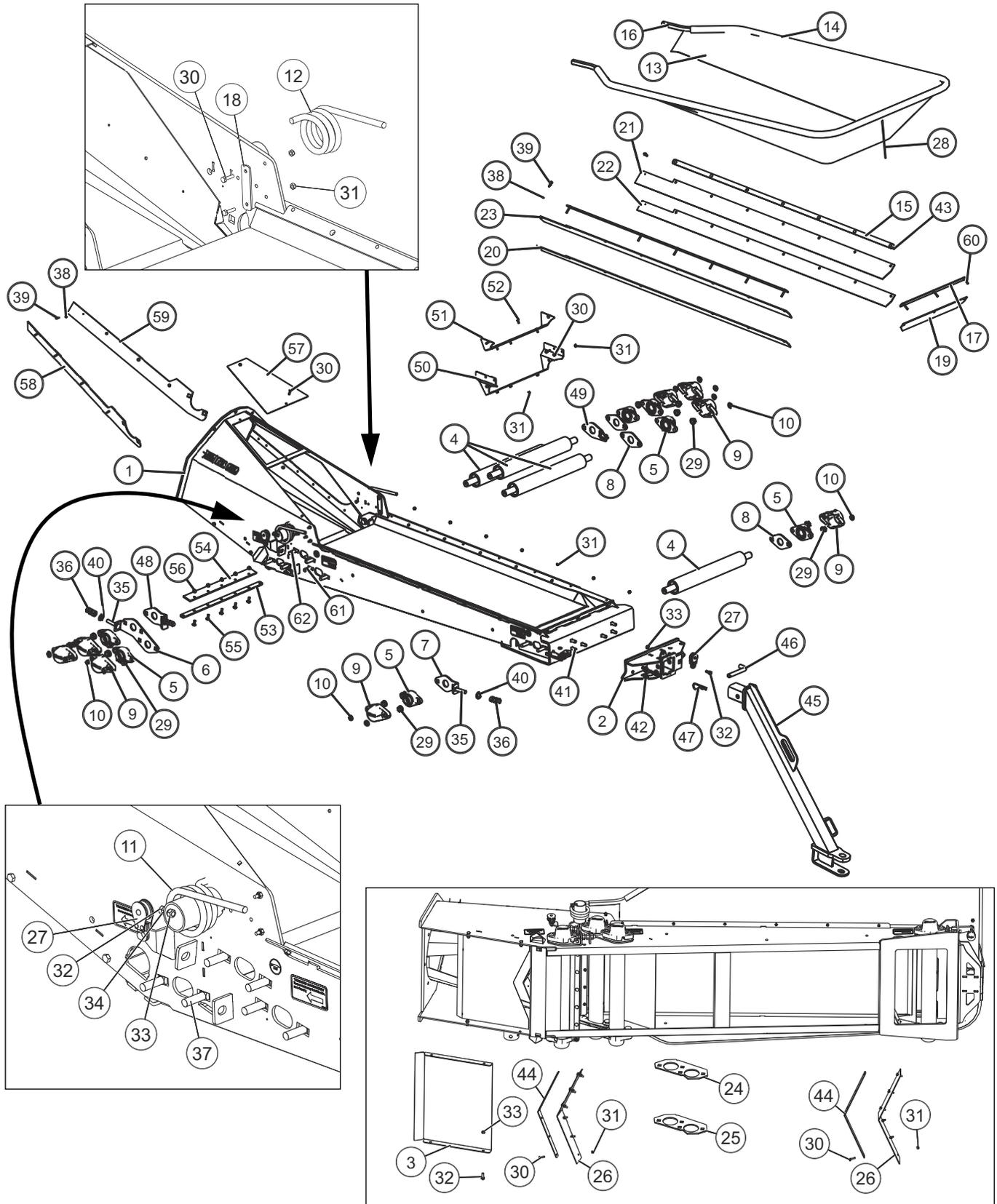
REF #	PART NO.	DESCRIPTION	QTY
1	C2147971	2055 LOWER TUBE C/W DECALS	1
2	C214451	20 SERIES DISCHARGE ASSY	1
3	2072196	20SERIES STANDARD LP INTAKE ASSEMBLY	1
3	2072188	20SERIES OIL SEED LP INTAKE ASSEMBLY	1
4	B027605	DISCHARGE SPOUT, 20 SERIES	1
5	2072203	20 SERIES STD FIELD S DRIVE ASSEMBLY	1
5	2072190	20 SERIES OIL SEED FIELD S DRIVE ASSEMBLY	1
6	B018656	BELT, RUBBER 2055LP	1
6	2079679	BELT, OIL SEED 2055LP	1
7	C2149041	HOPPER HANDLE	1
8	B001028	BOLT 3/8" x 2" UNC GR5 PLT	1
9	B001031	BOLT 3/8" x 1 1/2" UNC GR5 PLT	3
10	B0011325	LOCKNUT 3/8" STOVER	2
11	B0011496	FLATWASHER 3/8" x 1 1/2" OD	1
12	B002310	SPACER 5/8" OD x.512" ID x 1"	1
13	B008061	CABLE THIMBLE 3/16"	1
14	B008060	CABLE CLAMP 3/16"	2
15	C2158136	HANDLE SPACER	1
16	C2158068	HOPPER HANDLE MOUNT	2
17	B029006	DECAL - OIL SEED	1
18	B029027	DECAL - DAILY OPERATIONS	1
19	B029827	DECAL - TRACKING WARNING	1
20	B0290102	DECAL - BELT SPEED	1
21	B0290108	DECAL - BELT CONVEYOR SAFETY	1
22	B029971	DECAL - SAFE TRANSPORT	1
23	B029150	DECAL - BRANDT DIECUT	2
24	B029977	DECAL - NOT A LIFT POINT	2
25	B029802	DECAL - LARGE GRAINBELT	2
26	B029830	DECAL - 2055LP	2
27	C2147870	2045 SHORT WINDGUARD	6
28	C2147872A	2045 BOLT ON WINDGUARD	1
29	C2147871	2045 LONG WINDGUARD	1
30	B001433	BOLT 3/8"x 1" SERRATED FLANGE	64
31	B001149	FLATWASHER 3/8"	66
32	C2147974	2055 UPPER TUBE C/W DECALS	1
33	C2147988	2055 UPPER TUBE WINDGUARD	3
NS	C204585	20" LACING PIN KIT	1
NS	B021323	ALLIGATOR LACING - 20" c/w PIN	1
NS	B0186305	RUBBER BELT - 20" WIDE x 5' LG - LACED	AR
NS	2079928	OIL SEED BELT - 20" WIDE x 5' LG - LACED	AR
NS	2079931	OIL SEED BELT - 20" WIDE x 10' LG - LACED	AR

# Standard Intake Assembly



REF	PART No.	DESCRIPTION	QTY	REF	PART No.	DESCRIPTION	QTY
1	2079445	STD LP INTAKE	1	31	8000731	1/4" LOCK NUT	27
2	2072469	HITCH RECIEVER	1	32	8000237	3/8" x 1" BOLT - GR.5	9
3	C2137861	EZ TRAK BOTTOM PLATE	1	33	8014204	3/8" LOCK NUT	9
4	C211754	INTAKE ROLLER	4	34	8000755	3/8" HEX NUT	2
5	B0172015	1 1/4" BEARING - 2 BOLT	8	35	8025187	5/8" x 3" CARRIAGE BOLT	3
6	C2137860	S ROLLER ADJUSTER PLATE	1	36	8000796	5/8" HEX NUT	9
7	C211615	ROLLER ADJUSTER PLATE	2	37	8000480	5/8" x 2 1/4" CARRIAGE BOLT	16
8	C2147927	BEARING SPACER	4	38	8003578	#10 FLAT WASHER	6
9	2067858	BEARING COVER	8	39	B0020367	#10 x 1" TEK SCREW	2
10	2071356	BEARING COVER NUT	16	40	8001135	3/4" SAE FLAT WASHER	3
11	B021740L	HOPPER SPRING - LEFT	1	41	8000361	1/2" x 1 1/2" CARRIAGE BOLT	6
12	B021740R	HOPPER SPRING - RIGHT	1	42	8023369	1/2" SF NUT	6
13	B021418	HOPPER CANVAS	1	43	8000138	1/4" x 1 3/4" ELEVATOR BOLT	14
14	B024083	FLEXIBLE CONDUIT	1	44	8014348	1/4" FLAT WASHER	6
15	C2137862	LONG FABRIC STRAP	1	45	C2179519	TRANSPORT HITCH	1
16	C202350	HOPPER RAIL	1	46	B0020316	3/4" x 5 3/8" L-PIN	1
17	C202341	SHORT FABRIC STRAP	1	47	B002091	HAIR PIN CLIP	1
18	C211796	SHORT FABRIC CLAMP	2	48	8031986	1/4" x 1 1/4" ELEVATOR BOLT	3
19	B027606	END FLASHING	1				
20	B027561L	LOWER HOPPER FLASHING - LEFT	1				
21	B027562R	UPPER HOPPER FLASHING - RIGHT	1				
22	B027561R	LOWER HOPPER FLASHING - RIGHT	1				
23	B027562L	UPPER HOPPER FLASHING - LEFT	1				
24	B027569R	S ROLLER FLASHING - RIGHT	1				
25	B027569L	S ROLLER FLASHING - LEFT	1				
26	B027554	INTAKE WIPER	1				
27	B008097	PULLEY BLOCK	3				
28	2052534	HOPPER CABLE	1				
29	8011879	5/8" SF NUT	16				
30	8000124	1/4" x 1" BOLT - GR.5	10				

# Oil Seed Intake Assembly



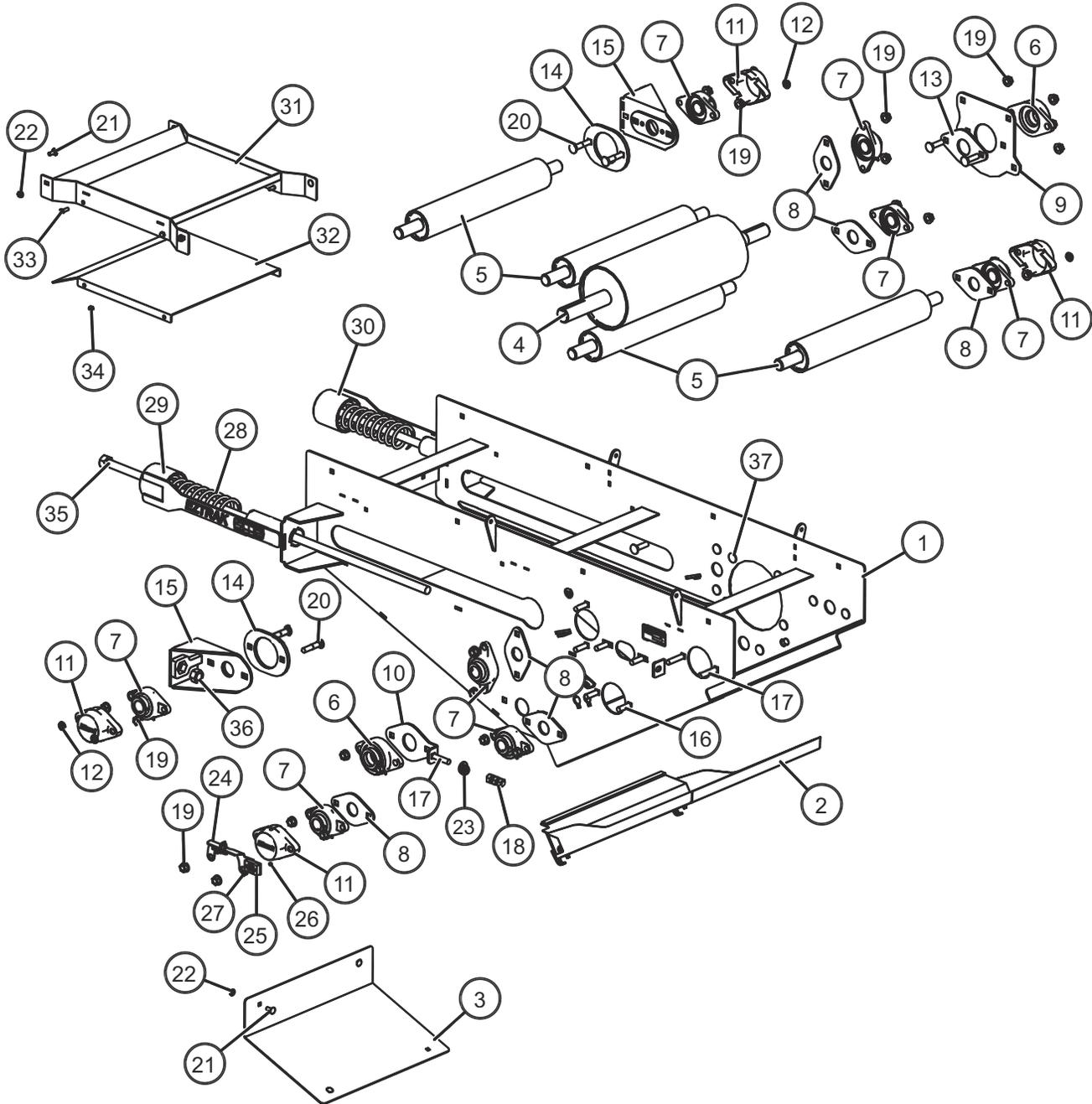
20 Series Field Conveyor

REF	PART No.	DESCRIPTION	QTY	REF	PART No.	DESCRIPTION	QTY
1	2073781	OIL SEED LP INTAKE	1	36	8000796	5/8" HEX NUT	9
2	2072469	HITCH RECIEVER	1	37	8000480	5/8" x 2 1/4" CARRIAGE BOLT	14
3	C2137861	EZ TRAK BOTTOM PLATE	1	38	8003578	#10 FLAT WASHER	10
4	C211754	INTAKE ROLLER	4	39	B0020367	#10 x 1" TEK SCREW	10
5	B0172015	1 1/4" BEARING - 2 BOLT	8	40	8001135	3/4" SAE FLAT WASHER	3
6	C2137860	S ROLLER ADJUSTER PLATE	1	41	8000361	1/2" x 1 1/2" CARRIAGE BOLT	6
7	C211615	ROLLER ADJUSTER PLATE	1	42	8023369	1/2" SF NUT	6
8	C2147927	BEARING SPACER	3	43	8000138	1/4" x 1 3/4" ELEVATOR BOLT	14
9	2067858	BEARING COVER	8	44	2072143	WIPER STRAP	2
10	2071356	BEARING COVER NUT	16	45	C2179519	TRANSPORT HITCH	1
11	B021740L	HOPPER SPRING - LEFT	1	46	B0020316	3/4" x 5 3/8" L-PIN	1
12	B021740R	HOPPER SPRING - RIGHT	1	47	B002091	HAIR PIN CLIP	1
13	B021418	HOPPER CANVAS	1	48	2061525	ROLLER ADJUSTER PLATE	1
14	B024083	FLEXIBLE CONDUIT	1	49	2061526	BEARING PLATE	1
15	C2137862	LONG FABRIC STRAP	1	50	2072138	WIPER MOUNT	1
16	C202350	HOPPER RAIL	1	51	2072137	WIPER	1
17	C202341	SHORT FABRIC STRAP	1	52	8000115	1/4" x 3/4" CARRIAGE BOLT	6
18	C211796	SHORT FABRIC CLAMP	2	53	2073947	SCRAPER MOUNT	1
19	B027606	END FLASHING	1	54	2072146	SCRAPER	1
20	B027561L	LOWER HOPPER FLASHING - LEFT	1	55	8000174	5/16" x 1" CARRIAGE BOLT	5
21	B027562R	UPPER HOPPER FLASHING - RIGHT	1	56	8000747	5/16" FLANGE LOCK NUT	5
22	B027561R	LOWER HOPPER FLASHING - RIGHT	1	57	2072153	COVER	1
23	B027562L	UPPER HOPPER FLASHING - LEFT	1	58	2072135	TRANSITION FLASHING - LEFT	1
24	B027569R	S ROLLER FLASHING - RIGHT	1	59	2072287	TRANSITION FLASHING - RIGHT	1
25	B027569L	S ROLLER FLASHING - LEFT	1	60	8031986	1/4" x 1 1/4" ELEVATOR BOLT	3
26	2072144	INTAKE WIPER	2	61	8000485	5/8" x 2 1/2" CARRIAGE BOLT	2
27	B008097	PULLEY BLOCK	3	62	8013393	5/8" x 2 3/4" BOLT - GR.5	2
28	2052534	HOPPER CABLE	1				
29	8011879	5/8" SF NUT	16				
30	8000124	1/4" x 1" BOLT - GR.5	22				
31	8000731	1/4" LOCK NUT	45				
32	8000237	3/8" x 1" BOLT - GR.5	9				
33	8014204	3/8" LOCK NUT	9				
34	8000755	3/8" HEX NUT	2				
35	8025187	5/8" x 3" CARRIAGE BOLT	3				



REF #	PART NO.	DESCRIPTION	QTY
1	C214452A	20" DISCHARGE C/W DECALS	1
2	B017224	1 15/16" BEARING - 2 BOLT	2
3	C214487	DISCHARGE BOTTOM	1
4	C205055	1 15/16" BEARING PLATE	1
5	C202450	ROLLER	1
6	B021253	IDLER ROLLER	1
7	C202472	DISCHARGE CAP	1
8	2074066	WIPER	1
9	2071356	BEARING COVER NUT	4
10	2067863	BEARING COVER	2
11	C2137843	ADJUSTER PLATE	1
12	8000230	3/8" x 3/4" BOLT - GR.5	10
13	8000117	1/4" x 3/4" BOLT - GR.5	6
14	8000734	1/4" FLANGE LOCK NUT	6
15	8014348	1/4" FLAT WASHER	6
16	8025187	5/8" x 3" CARRIAGE BOLT	1
17	8001135	3/4" SAE FLAT WASHER	1
18	8000796	5/8" HEX NUT	3
19	8011879	5/8" SERRATED FLANGE NUT	4
20	8000480	5/8" x 2 1/4" CARRIAGE BOLT	4
21	8000237	3/8" x 1" BOLT - GR.5	4
22	8001100	3/8" FLAT WASHER	4
23	B027605	DISCHARGE SPOUT	1
24	B027607	DISCHARGE WIPER	1
25	8000731	1/4" LOCK NUT	6
26	B029966	DISCHARGE DECAL	2
27	B029967	DOWNSPOUT WARNING DECAL	2

# Standard S-Drive Assembly

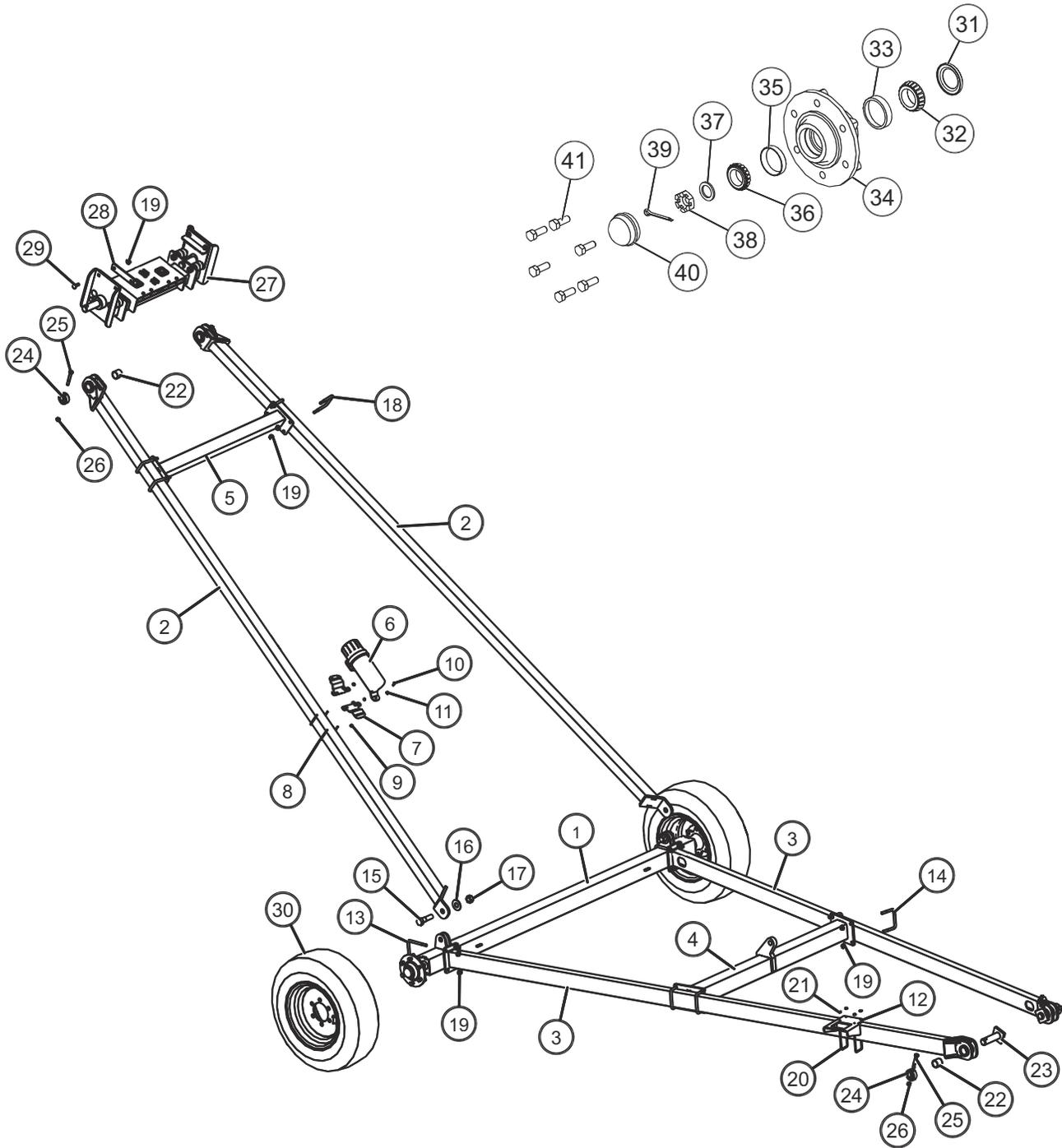


REF #	PART NO.	DESCRIPTION	QTY
1	2073677	S-DRIVE FRAME	1
2	2073702	CLEAN OUT TRAY	1
3	C2137815	REAR GUARD	1
4	C2177807	DRIVE ROLLER	1
5	C2177808	ROLLER	4
6	B017224	1 15/16" BRAEING - 2 BOLT	2
7	B0172235	1 1/2" BEARING - 2 BOLT	8
8	C211609	BEARING SPACER	6
9	C2158184	ROLLER ACCESS PANEL	1
10	C2137843	ADJUSTMENT PLATE	1
11	2067875	BEARING COVER	4
12	2071356	BEARING COVER NUT	6
13	C205055	1 15/16" BEARING HOUSING PLATE	1
14	C2137810	TENSIONER BACK	2
15	2056515	TENSIONER	2
16	8000486	5/8" x 2 1/4" CARRIAGE BOLT	19
17	8025187	5/8" x 3" CARRIAGE BOLT	3
18	8000796	5/8" HEX NUT	3
19	8011879	5/8" SERRATED FLANGE NUT	26
20	8005335	5/8" x 2 3/4" CARRIAGE BOLT	4
21	8000235	3/8" x 1" CARRIAGE BOLT	8
22	8000762	3/8" SERRATED FLANGE NUT	8
23	8001135	3/4" SAE FLAT WASHER	1
24	2079684	TACH MOUNT	1
25	B026190	TACH KIT	1
26	8000492	#6 LOCK NUT	2
27	8004015	#6 x 5/8" SCREW	2
28	B0210736	TENSION SPRING	2
29	C2137812L	TENSION ADJUSTER - LEFT	1
30	C2137812R	TENSION ADJUSTER - RIGHT	1
31	C2137816	EZ TRAK TOP	1
32	C2137817	EZ TRAK BOTTOM PLATE	1
33	8000237	3/8" x 1" BOLT - GR.5	4
34	8014204	3/8" LOCK NUT	4
35	C2137811	ADJUSTMENT ROD	2
36	8000832	1" HEX NUT	2
37	8025356	5/8" x 1 1/2" CARRIAGE BOLT	4



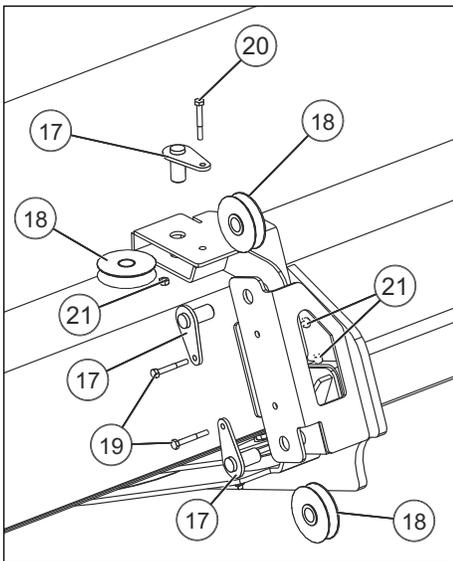
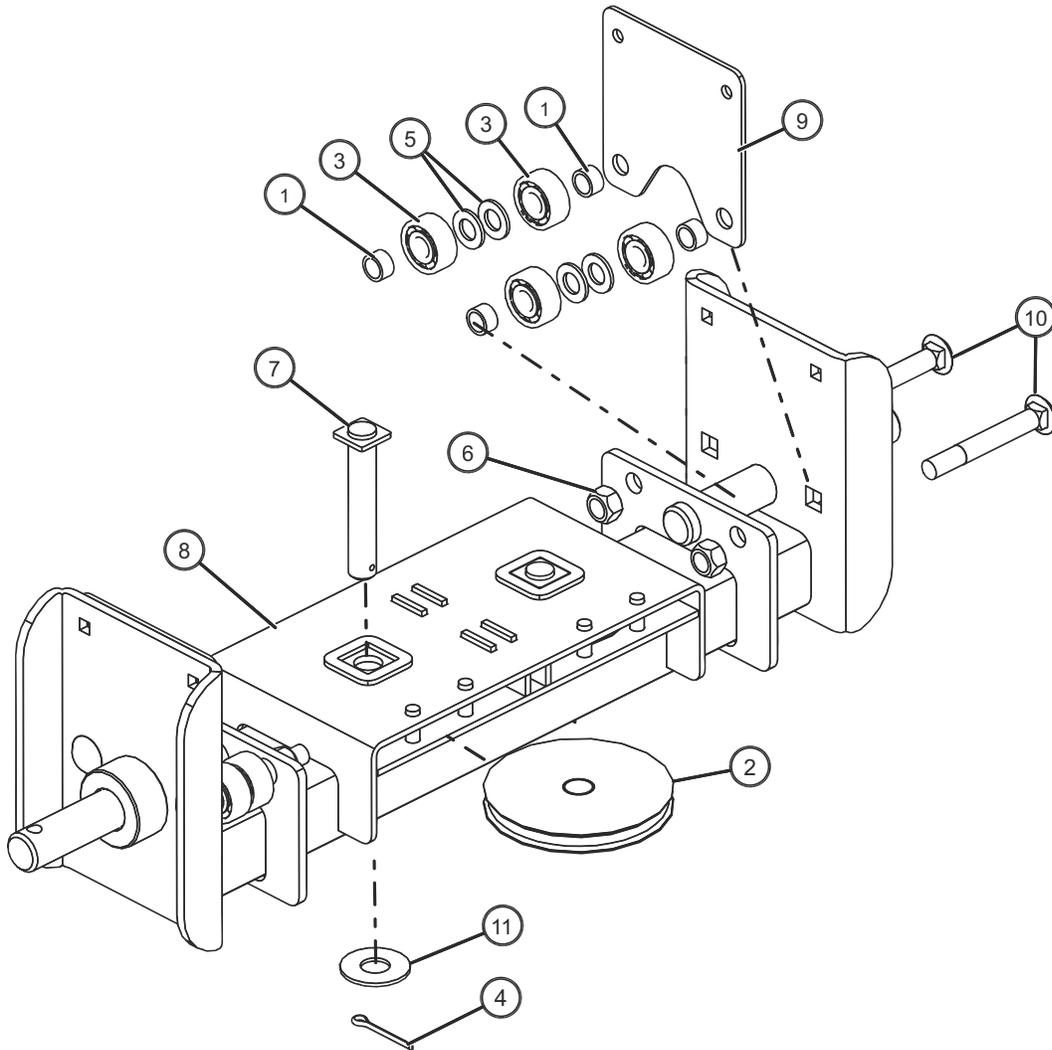
REF #	PART No.	DESCRIPTION	QTY
1	2073677	S-DRIVE FRAME	1
2	2073702	CLEAN OUT TRAY	1
3	C2137815	REAR GUARD	1
4	C2177807	DRIVE ROLLER	1
5	C2177808	ROLLER	4
6	B017224	1 15/16" BRAEING - 2 BOLT	2
7	B0172235	1 1/2" BEARING - 2 BOLT	8
8	C211609	BEARING SPACER	6
9	C2158184	ROLLER ACCESS PANEL	1
10	C2137843	ADJUSTMENT PLATE	1
11	2067875	BEARING COVER	4
12	2071356	BEARING COVER NUT	6
13	C205055	1 15/16" BEARING HOUSING PLATE	1
14	C2137810	TENSIONER BACK	2
15	2056515	TENSIONER	2
16	8000486	5/8" x 2 1/4" CARRIAGE BOLT	19
17	8025187	5/8" x 3" CARRIAGE BOLT	3
18	8000796	5/8" HEX NUT	3
19	8011879	5/8" SERRATED FLANGE NUT	26
20	8005335	5/8" x 2 3/4" CARRIAGE BOLT	4
21	8000235	3/8" x 1" CARRIAGE BOLT	8
22	8000762	3/8" SERRATED FLANGE NUT	8
23	8001135	3/4" SAE FLAT WASHER	1
24	2079684	TACH MOUNT	1
25	B026190	TACH KIT	1
26	8000492	#6 LOCK NUT	2
27	8004015	#6 x 5/8" SCREW	2
28	B0210736	TENSION SPRING	2
29	C2137812L	TENSION ADJUSTER - LEFT	1
30	C2137812R	TENSION ADJUSTER - RIGHT	1
31	C2137816	EZ TRAK TOP	1
32	C2137817	EZ TRAK BOTTOM PLATE	1
33	8000237	3/8" x 1" BOLT - GR.5	4
34	8014204	3/8" LOCK NUT	4
35	C2137811	ADJUSTMENT ROD	2
36	8000832	1" HEX NUT	2
37	2073719	CLEANER MOUNT	2
38	2073723	CLEANER	2
39	8000177	5/16" x 1" BOLT - GR.5	14
40	8000747	5/16" FLANGE LOCK NUT	10
41	8023520	5/16" SERRATED FLANGE NUT	4
42	8025356	5/8" x 1 1/2" CARRIAGE BOLT	4

# Undercarriage Assembly

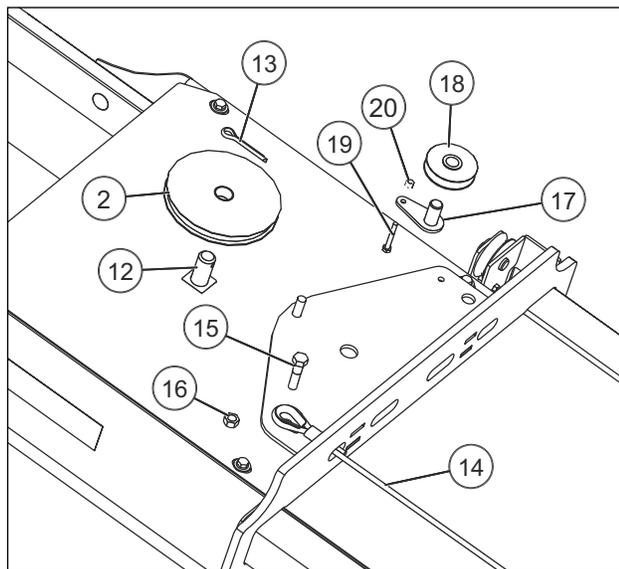


REF #	PART No.	DESCRIPTION	QTY
1	2079634	AXLE WELDMENT	1
2	2079660	A-FRAME ARM - 2045	2
2	2079504	A-FRAME ARM - 2055	2
3	2079665	AXLE ARM - 2045	2
3	2079523	AXLE ARM - 2055	2
4	2079668	AXLE ARM CROSS BRACE - 2045	1
4	2079646	AXLE ARM CROSS BRACE - 2055	1
5	2079621	A-FRAME CROSS BRACE	1
6	B0275102	MANUAL HOLDER	1
7	C314500	MANUAL HOLDER BRACKET	2
8	B0020115	1/4" x 3" U-BOLT x 4" DEEP	2
9	8000734	1/4" FLANGE LOCK NUT	7
10	8000117	1/4" x 3/4" BOLT - GR.5	3
11	8014348	1/4" FLAT WASHER	3
12	2079650	HITCH STORAGE PLATE	1
13	B002018	1/2" x 4" U-BOLT x 5 1/2" DEEP	4
14	B0020171	1/2" x 4" U-BOLT x 3 1/4" DEEP	4
15	8000611	1" x 3 1/2" BOLT - GR.5	2
16	8023674	1" FLAT WASHER	2
17	8000064	1" LOCK NUT	2
18	B002017	1/2" x 3" U-BOLT x 4 3/8" DEEP	4
19	8023369	1/2" SERRATED FLANGE NUT	28
20	B0020106	1/4" x 2 1/4" U-BOLT x 5" DEEP	2
21	8023235	1/4" SERRATED FLANGE NUT	4
22	B017732	PLASTIC BUSHING - 1.75" OD x 1.5" ID x 1.5" LG	8
23	C2148000	AXLE ARM MOUNTING PIN	2
24	C2147904	RETAINER BUSHING	4
25	8000417	1/2" x 3 1/2" BOLT - GR.5	4
26	8015210	1/2" LOCK NUT	4
27	C2147982A	SLIDE ASSEMBLY	1
28	C2147984	TRACK TOP PLATE	2
29	8000361	1/2" x 1 1/2" CARRIAGE BOLT	4
30	B011221	TIRE & WHEEL ASSEMBLY w/o MOVER	2
30	B011221EZ	TIRE & WHEEL ASSEMBLY w/ MOVER	2
31	B011650	GREASE SEAL - 6 BOLT HUB	1/HUB
32	B0116651	INNER CONE - 6 BOLT HUB	1/HUB
33	B011652	INNER CUP - 6 BOLT HUB	1/HUB
34	B011003	6 BOLT HUB c/w BEARINGS	1/HUB
35	B011602	OUTER CUP - 6 BOLT HUB	1/HUB
36	B011603	OUTER CONE - 6 BOLT HUB	1/HUB
37	B001158	FLATWASHER 1" SAE	1/HUB
38	B011681	CASTLE NUT 1" - 14 TPI	1/HUB
39	B002054	COTTER PIN 3/16" x 2"	1/HUB
40	B011503	DUST CAP - 6 BOLT HUB	1/HUB
41	B011504	WHEEL BOLT 1/2" UNF X 1 1/4"	6/HUB

# Slide Assembly



**Winch Cable Sheave Ass'y**



**Under Side of Tube**

<b>REF #</b>	<b>PART No.</b>	<b>DESCRIPTION</b>	<b>QTY</b>
1	C2147879	SLIDE BEARING SPACER	8
2	C2148006A	CABLE PULLEY ASSEMBLY	3
3	B017256	BEARING- 3/4" ID x 2.047" OD	8
4	B002054	3/16" x 2" COTTER PIN	2
5	B001157	3/4" SAE FLAT WASHER	8
6	8023319	3/4" STOVER LOCK NUT	4
7	C2147983	LIFT CABLE PULLEY LONG PIN	2
8	C2147982	TRACK SLIDE WELDMENT	1
9	B027791	TRACK SLIDE SLIDER PLATE	2
10	8025194	3/4" x 5" CARRIAGE BOLT	4
11	8023674	1" FLAT WASHER	2
12	C2147876	CABLE PULLEY PIN	1
13	B002050	1/4" x 2" COTTER PIN	1
14	2067282	5/16" CABLE x 64" c/w LOOP	1
15	8000383	1/2" x 2" BOLT - GR.5	1
16	8015210	1/2" LOCK NUT	1
17	C2147875	SMALL CABLE PULLEY PIN	4
18	C2158181A	3" PULLEY ASSEMBLY	4
19	8000142	1/4" x 2" BOLT - GR.5	3
20	8000139	1/4" x 1 3/4" BOLT - GR.5	1
21	8000055	1/4" LOCK NUT	4







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