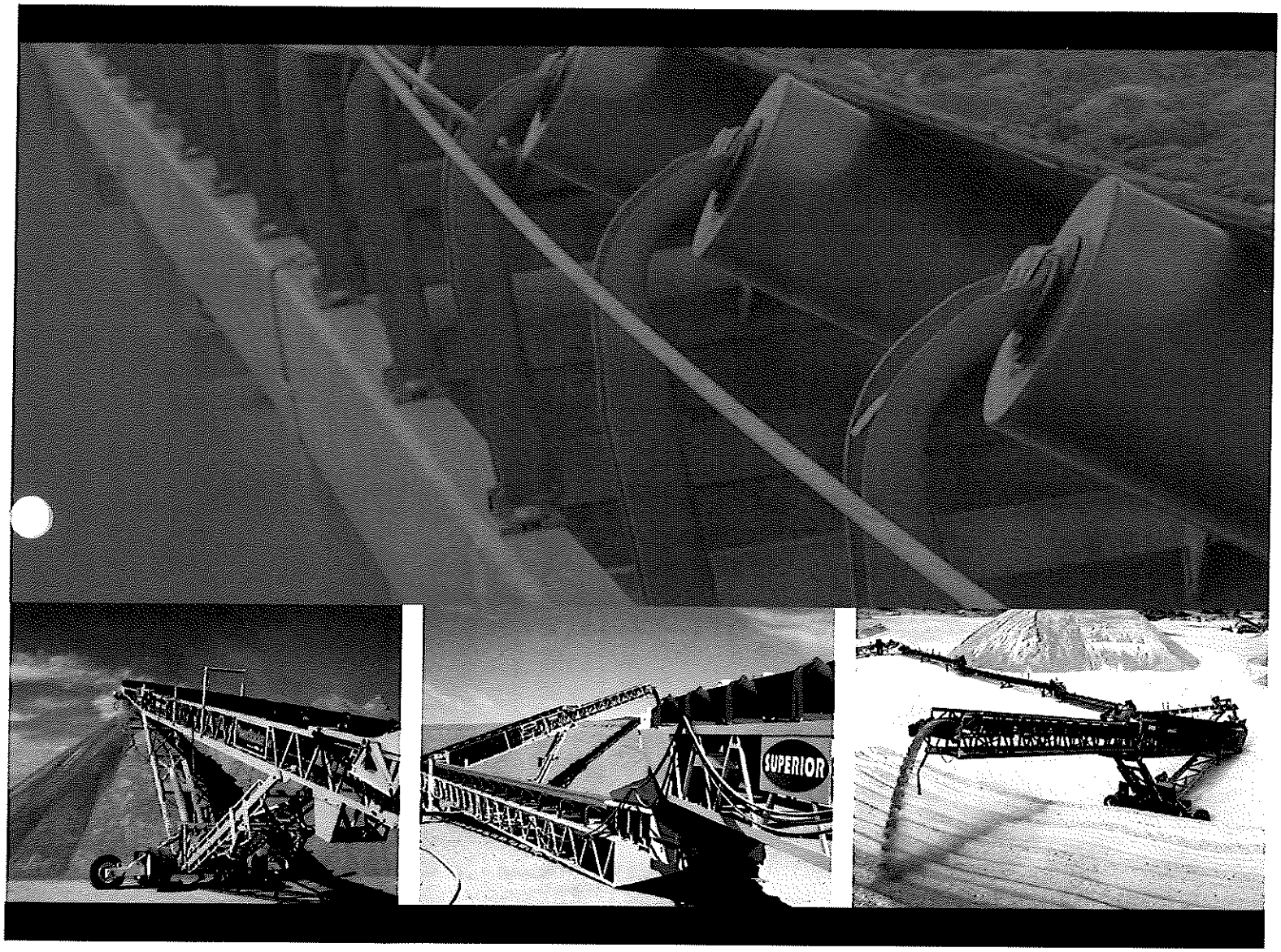
SUPERIOR INDUSTRIES



Owner's Manual

Telestacker™ Conveyor

Serial No. 7000 and Above
09.01.06

THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL. CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF DEATH OR SERIOUS INJURY.

If Safety Decals on this machine use the words **Danger, Warning or Caution,** which are defined as follows:

• **DANGER:** Indicates an immediate hazardous situation that, if not avoided, will result in death or serious injury. The color associated with Danger is RED.

• **WARNING:** Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.

• **CAUTION:** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

If Safety Decals on this machine are ISO two panel Pictorial, decals are defined as follows:

• The first panel indicates the nature of the hazard.
• The second panel indicates the appropriate avoidance of the hazard.
• Background color is YELLOW.
• Prohibition symbols such as  and  if used, are RED.

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE DEATH OR SERIOUS INJURY. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR.

• Is instructed in safe and proper use in machine.
• Reads and understands the Manual(s) pertaining to the machine.
• Reads and understands ALL Safety Decals on the machine.
• Clears the area of other persons.
• Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.

It is your responsibility to observe pertinent laws and regulations and follow Superior Industries instructions on machine operation and maintenance.

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Table of Contents

Introduction

Safety Instructions

Installation Instructions

Operating Instructions

Maintenance

Parts Identification

Appendix

Owner Information

Congratulations on your selection of a Superior Industries belt conveyor. This belt conveyor is one of the most economical means of transporting bulk material from one point to another. It has been designed to provide years of profitable and dependable service. To ensure maximum performance of your belt conveyor, it is mandatory that you thoroughly study this owner's manual and follow its recommendations. Proper operation and maintenance are essential to prevent injury or damage and to maximize machine life.

Continuous improvement and advancement of Superior Industries products may result in changes to your equipment that may not be reflected in this publication. Superior Industries reserves the right to make product improvements to the equipment at any time. Although great care has been taken to ensure the accuracy of this publication Superior Industries does not assume any liability for errors or omissions.

Serial Number Location

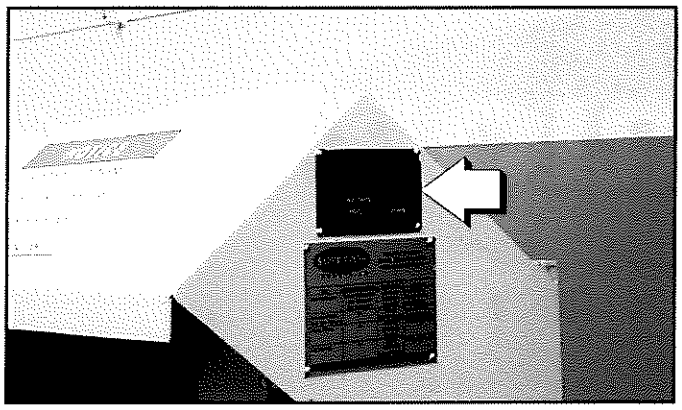


Figure 1

Always use your serial number when requesting information for your belt conveyor or when ordering parts.

The serial number is located on the right (road side) of the conveyor by the electrical power panel **(Figure 1)**.

Manual Storage

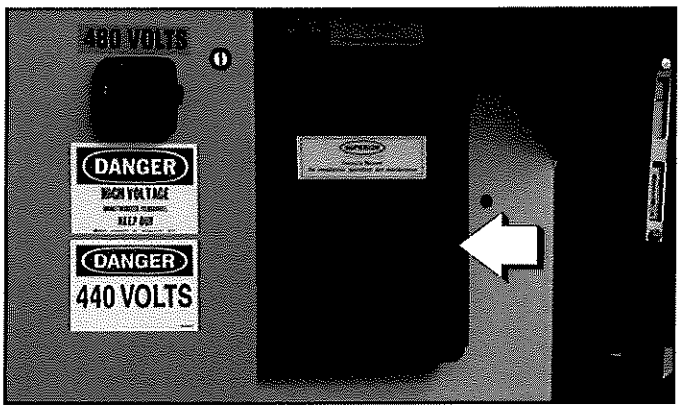


Figure 2

Keep the owner's manual and the entire documentation packet in the storage compartment provided on your belt conveyor. The owner's manual must be available for all operators.

Reference Information

Write the correct information for your belt conveyor in the spaces below. Always use these numbers when referring to your belt conveyor.

Serial Number: _____

Your Superior Industries Dealer:

Name: _____

Address: _____

Phone: _____

Superior Industries
315 East State Highway 28
PO Box 684
Morris, MN 56267


SUPERIOR
INDUSTRIES

Safety First

Accidents can be prevented by recognizing the causes or hazards before an accident occurs and doing something about them. Regardless of the care used in the design and construction of this equipment, there are some areas that cannot be safeguarded without interfering with accessibility and efficient operation.

⚠ Safety Alert Symbol

This message alert symbol identifies important safety messages on the equipment and in the owner's manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

IMPORTANT

This message alert identifies information that must be heeded for proper operation of the equipment and to prevent damage or deterioration of the equipment.

In the owner's manual and on decals used on the equipment the words **DANGER, WARNING, CAUTION, IMPORTANT, and NOTE** are used to indicate the following:

DANGER: This word warns of immediate hazards which, if not avoided, will result in severe personal injury or death.

WARNING: This word refers to a potentially hazardous situation which, if not avoided, could result in severe personal injury or death.

CAUTION: This word refers to a potential hazard or unsafe practice which may result in minor or moderate personal injury.

IMPORTANT: Highlights information that must be heeded.

NOTE: A reminder of other related information that needs to be considered.

Be certain all equipment operators are aware of the dangers indicated by safety decals applied to the equipment, and be certain they follow all safety decal instructions. Contact Superior Industries for safety decal replacement.

Superior Industries can not anticipate every possible circumstance that may involve a potential hazard. The warnings in this owner's manual are not all inclusive.

Owner's Responsibility

Operate and maintain this belt conveyor in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and/or laws; and in compliance with on-product labeling and this owner's manual instructions.

Make sure that all personnel have read this owner's manual, and thoroughly understand safe and correct installation, operation, and maintenance procedures.

Make sure the belt conveyor is installed correctly before being placed in service, and at regular intervals thereafter serviced in accordance with procedures outlined in this owner's manual.

Fulfill all warranty obligations so as not to void the warranties. The warranty policy located on the inside back cover outlines the warranty policy of Superior Industries. For a complete description of Superior Industries obligations arising from the sale of this equipment, refer to Superior Industries terms and conditions of sale on the back of Superior Industries sales contract.

Safety Rules

⚠ WARNING

These are general safety considerations. Additional precautions may be necessary to operate your equipment in a safe manner. Be certain you are operating your equipment in accordance with all safety codes, OSHA rules and regulations, insurance requirements; and local, state, and federal laws.

⚠ WARNING

To ensure personal and equipment safety, lower the conveyor undercarriage to its lowest position in winds of 30 mph or higher. If lowering is not an option, tie down (anchor) the conveyor at the axle.

- Do not allow anyone to operate the conveyor until he or she has read the owner's manual and is completely familiar with all safety precautions.
- Do not allow inexperienced persons unfamiliar with the equipment, or unfamiliar with safe operating and maintenance procedures for the equipment to operate or maintain the conveyor.

- Do not allow persons under the influence of alcohol, medications, or other drugs that can impair judgement or cause drowsiness to operate or maintain the conveyor.
- Make sure everyone is clear of the conveyor before starting the belt during operation or maintenance.
- The conveyor requires an operator at all times. Never leave the machine running and unattended.
- Do not wear loose hanging clothes, neckties, or jewelry. Long hair is to be placed under a cap or hat. These precautions will help prevent you from becoming caught in the moving parts of the conveyor.
- Do wear safety glasses, ear protection, respirators, gloves, hard hats, safety shoes, and other protective clothing when required.
- Requirements for personal protective equipment will vary depending upon conveyor placement and material to be conveyed. It is the responsibility of conveyor operators to be certain they make use of all necessary personal protective equipment.
- Buildup of materials on pulleys or idlers will lead to belt misalignment or damage. When removing such materials, the conveyor must be stopped and power controls must be locked out and tagged out (see Lockout/Tagout page 5).
- The conveyor should not be used to handle materials other than those which were specified as part of its design. It is the operator's responsibility to be aware of the conveyor system capacities (see Telestacker Conveyor Specifications page 79) and operate the conveyor accordingly.
- Make sure the operator's area is clear of any distracting objects. Keep work areas clean, and free of grease and oil to avoid slipping or falling.
- Periodically check all guards, shields and structural members. Replace or repair anything that could cause a potential hazard.
- When the belt is moving, the material travels at a speed sufficient to cause injury. Do not start the conveyor until you are certain no one is exposed to the moving parts or to the material being discharged from the end of the conveyor.
- If any safety devices are not functioning properly, do not use the conveyor. Remove it from service until it has been properly repaired.
- Do not replace components or parts with other than factory-recommended service parts. To do so may decrease the effectiveness of the unit.
- It is the operator's responsibility to be aware of equipment operation and work area hazards at all times.
- Operators are responsible to know the location and function of all controls and indicators, including electrical power panels, hydraulic controls, motor controls, incline indicators, fuel and oil level indicators, belt scale controls, etc.
- Operators are responsible to know the location and function of all guards and shields including but not limited to drive guards, pulley guards, and nip guards; and are responsible to make certain that all guards are in place when operating the conveyor.
- Operators are responsible to be aware of safety hazard areas and follow instructions on warning, caution, or danger decals applied to the conveyor.
- Know the area before operating the conveyor. Be aware of power lines or other equipment. Watch for adequate overhead clearance.
- When doing maintenance work on structural parts or repairing any moving parts: Disconnect and lockout and tagout all power sources (see Lockout/Tagout page 5). Know OSHA requirements. Block all wheels to prevent the conveyor from moving, and block any extended hydraulic cylinders to prevent them from moving or retracting.
- Do not lubricate parts while the conveyor is running.
- Do not smoke while servicing the machine.
- Before servicing the conveyor, make sure the conveyor has cooled down. Hydraulic components, engine, radiator can get hot enough to cause serious injury.
- Be sure the conveyor is in the lowest position before transporting.
- Do not exceed maximum transport speed of 55 mph on the roadway.

Hydraulic Safety (if equipped)

- The hydraulic system is under high pressure. Make sure all lines and fittings are tight and in good condition. These fluids escaping under high pressure can have sufficient force to penetrate skin and cause serious injury.
- Escaping hydraulic fluid under pressure can have sufficient force to penetrate skin, causing serious injury. Never check for leaks by using any part of your body to feel for escaping fluid.

Engine and Battery Safety (if equipped)

- Always stop the engine and remove the key from the key switch when leaving the conveyor unattended.
- Never operate the engine in an enclosed area. Proper ventilation is required under all circumstances.
- Hot coolant can spray out if radiator cap is removed while system is hot. To remove radiator cap, let system cool, turn to first notch, then wait until all pressure is released. Scalding can result from fast removal of radiator cap.
- Do not make sparks or use an open flame near the battery.
- When disconnecting battery terminals, remove the negative (-) cable first; then remove the positive (+). When connecting cables, connect positive (+) first, then connect the negative (-).
- Disconnect the battery (both terminals) before welding on any part of the machine. Failure to do so may cause damage to sensitive electrical components (if equipped).
- Batteries contain acid which burns eyes and skin on contact. Wear goggles, protective clothing and rubber gloves to keep acid off body. In case of acid contact, wash immediately with water. In case of eye contact, get prompt medical attention and wash eye with clean, cool water for at least 15 minutes. If electolyte is taken internally, drink large quantities of water or milk. Do not induce vomiting. Get prompt medical attention.
- When working around batteries, remember all the exposed metal parts are "live". Never lay a metal object across the terminals because a spark, short circuit, explosion or personal injury may result.
- Battery post, terminals and related accessories contain lead and lead components. Wash hands after handling.

Lockout/Tagout

⚠ WARNING

Failure to follow correct lockout and tagout procedures could result in death or serious injury!

Lockout/tagout procedures have three main purposes. First, to prevent the unexpected or accidental start-up of equipment, secondly, to notify other workers when a piece of equipment is unsafe to operate, and finally, to prevent injury to personnel from energy that is stored in devices such as springs, accumulators, hydraulic systems, batteries, and so on.

There are two methods used to lockout or tagout equipment. The operator may either turn the master key to the OFF position and remove the key, or disconnect the batteries. Regardless of which lockout method is used, place one or more tags on machine controls or access doors to let other workers know that maintenance is being performed on the machine and/or the machine is unsafe to operate.

According to 29CFR part 1910 of OSHA regulations, the employer must establish a lockout/tagout system of procedures, training, and periodic inspection before any employee operates, services, or maintains a piece of equipment.

All employees are responsible for seeing that equipment is locked out and tagged out according to the employer's policies.

Equipment must be locked out and tagged out under the following circumstances:

- Any time repairs or maintenance is to be performed on the equipment.
- When cleaning or lubricating the equipment.
- When cleaning blocked or jammed mechanisms.
- Any time the equipment is to be left unattended.

A lock and a tag may be applied by any maintenance person who will be working on the equipment, the foreman or team leader responsible for the job, and anyone who will be working on the equipment.

If several people will be working on a piece of equipment, each person must apply their own tag.

Only the person who applied a lock or tag can remove it.

Safety Decals

Check and replace any worn, torn, hard to read, or missing safety decals on your conveyor.

19-00157

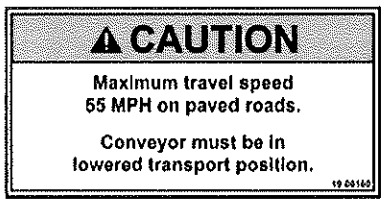
Location: Placed on each side of the conveyor maximum every 20 feet on center.

19-00158

Location: Placed on all moving parts guard covers, exposed pulleys, and return roller guards.

19-00159

Location: Placed by all pinch point hazards.



19-00160

Location: Placed by tow eye or fifth wheel hitch.

Site Preparation

Conveyor Terms

Note: The following may not show your exact machine but the terms are the same for all models.

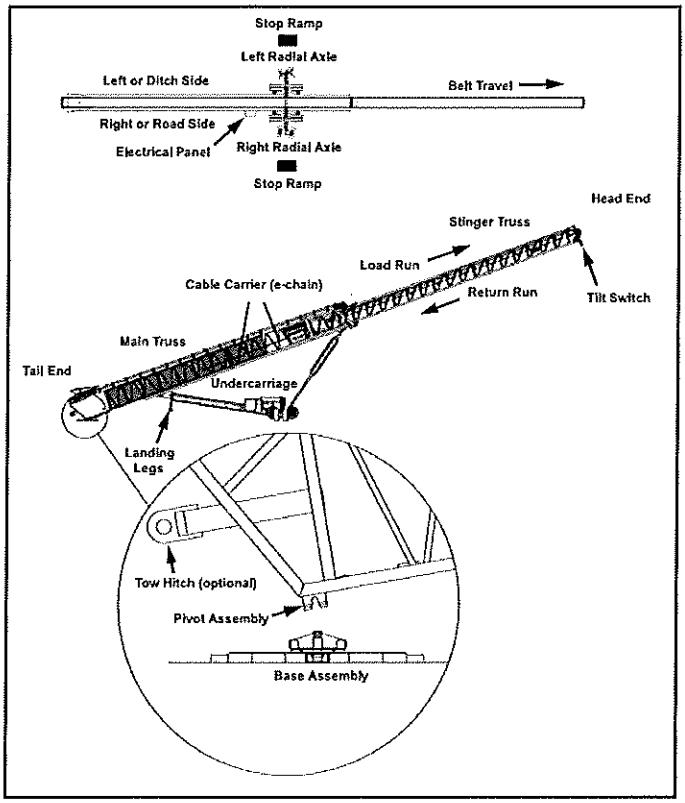


Figure 3

General Site Conditions

IMPORTANT

All Telestacker conveyors must be kept level (1.5% grade or less, 0.5% grade for 170' and 190' only) to maintain proper balance and to keep a permanent twist from setting into the conveyer frame and undercarriage.

⚠ WARNING

Make certain the entire area is free from obstacles and overhead power lines.

Location of conveyor is generally determined by the location of the intake and discharge of material to be conveyed.

Improper site conditions can adversely affect the operation and maintenance of your conveyor. The area around the conveyor should be kept clear and level to make the loading of the conveyor and discharge of material as convenient as possible.

Radial Runway

The hydraulic power travel requires less than 1.5% grade on solid compacted ground or poured concrete runway for the radial travel in order for the conveyor to operate properly. The 170' and 190' conveyor require 0.5% grade or less.

Concrete Pad - Swing Axle Only

A concrete pad must be in place before the setup and use of the swing axle conveyor.

A conveyor pivot base will be sent to you prior to the shipment of your conveyor. The pivot base will be a part of the counterweight construction.

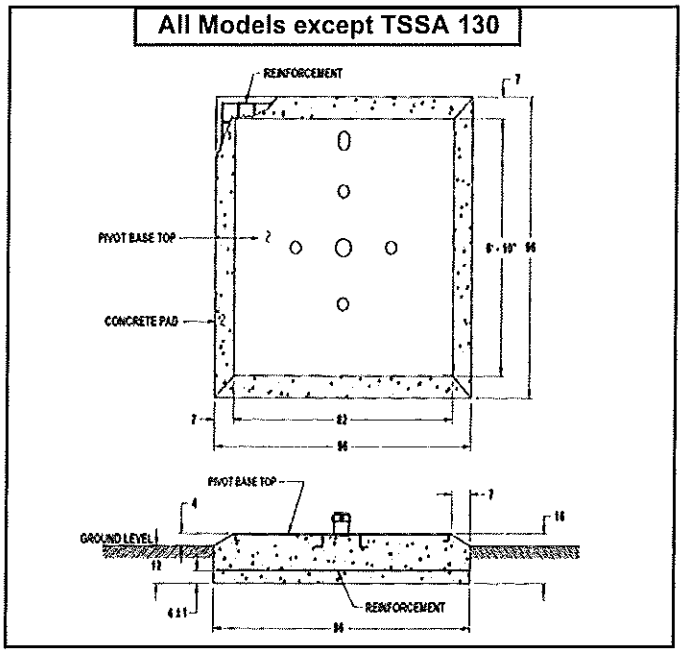


Figure 4

Dimensions and layout for the concrete pad (All Models except TSSA 130) are provided **(Figure 4)**. Construct the counterweight according to weight requirements and local concrete designer.

Place the concrete pad in position for operation. Make certain it is level with radial runway.

Remember to allow proper concrete curing time before attempting to place the conveyor.

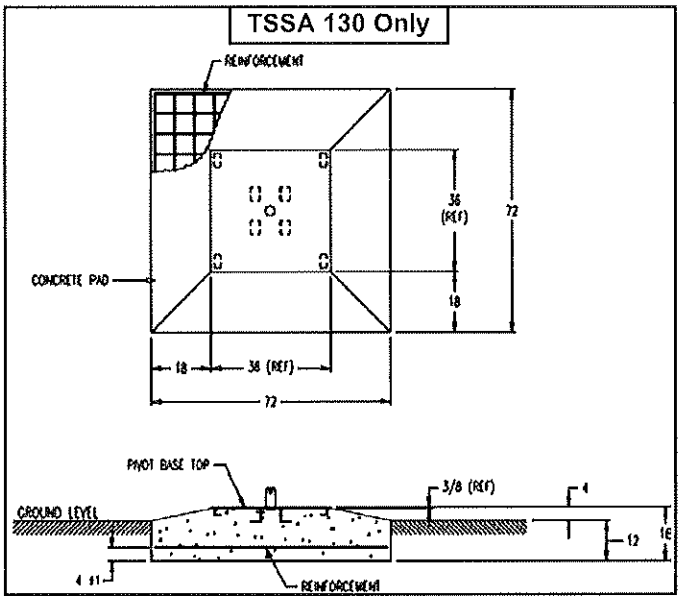


Figure 5

Dimensions and layout for the concrete pad (TSSA 130 Only) are provided **(Figure 5)**. Construct the counterweight according to weight requirements and local concrete designer.

Place the concrete pad in position for operation. Make certain it is level with radial runway.

Remember to allow proper concrete curing time before attempting to place the conveyor.

Positioning Stop Ramps

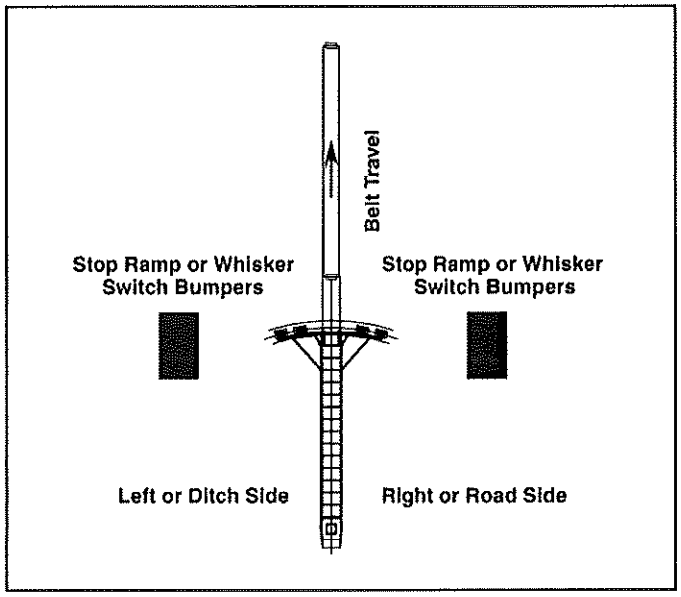


Figure 6

Swing Axle

To prevent the conveyor from going beyond its intended radial path, Superior recommends a 24" concrete stop ramp on both sides of the radial travel runway. These stop ramps can be placed ten feet beyond the existing arc of the runway **(Figure 6)**.

Fold Down Axle

To prevent the conveyor from going beyond its intended radial path, Superior recommends a 24" pile of material for a 2-wheel drive unit, and a 36" pile of material for a 4-wheel drive on each side of the radial travel runway. Concrete barriers are another option **(Figure 6)**.

Conveyor Set Up - Swing Axle

⚠ WARNING

Do not attempt to raise or extend conveyor until the swing axle has been set up into operating position. Any raising of the conveyor before the swing axle has been put in operating position will result in severe structural damage.

Raising the Tag Axle on 170' and 190' Conveyors

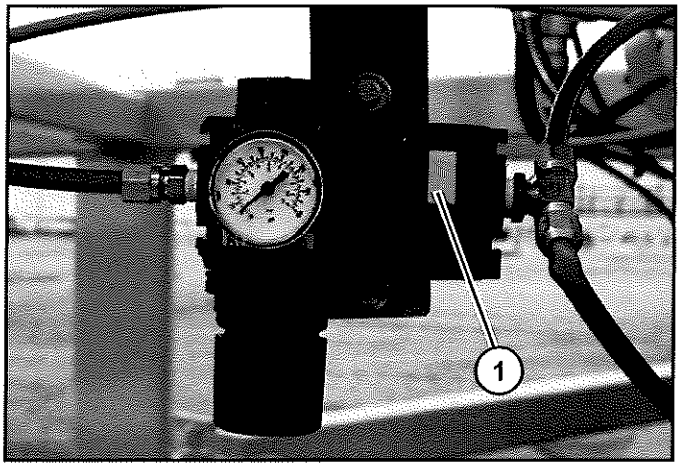


Figure 7

1. Deflate the air springs by turning the lever (Item 1) **(Figure 7)**.

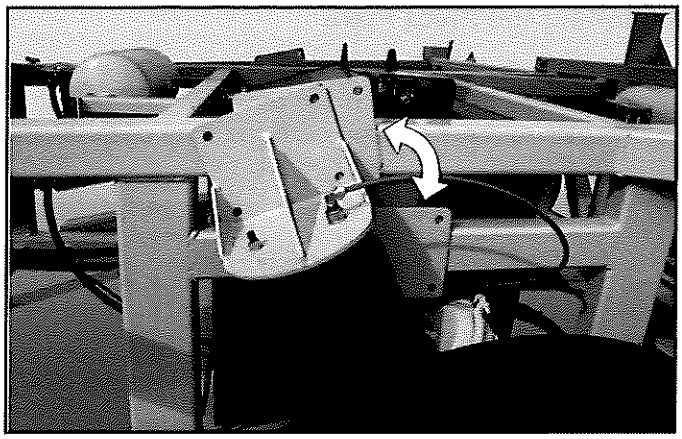


Figure 8

2. Remove the four bolts on the top mount.
3. Using appropriate equipment, raise the tag axle **(Figure 8)**.

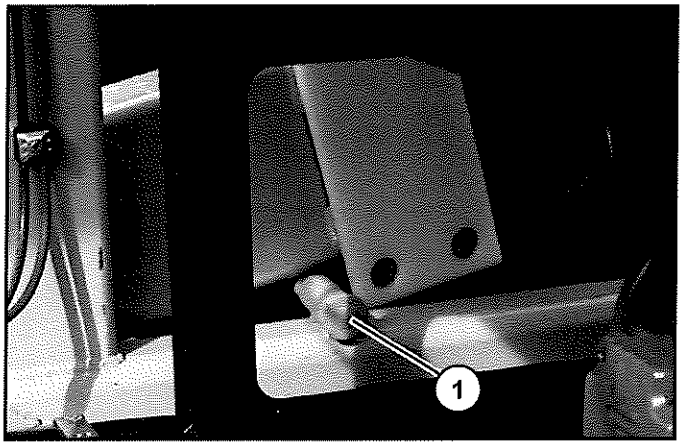


Figure 9

4. Pin (Item 1) **(Figure 9)** the tag axle to hold it in the upright position.
5. Reinstall the four bolts and secure to the undercarriage for operation.

Installing the Pivot Plate

1. Remove the conveyor pivot plate from its transport position on the tail end of the conveyor. Securely hook a chain to the plate and slide the pivot plate off the mounting pin.

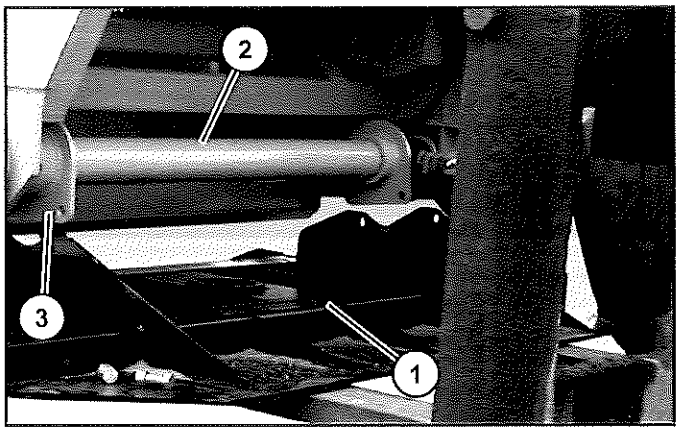


Figure 10

2. Install the pivot plate (Item 1) by lifting up the pivot plate to the pin shaft (Item 2) under the tail of the conveyor. Bolt the pivot plate to the tabs (Item 3) with the supplied bolts **(Figure 10)**.

Figure 11

3. To install the pivot plate and to set the tail end of the conveyor in place, lift the tail end at the lifting eyes with the proper weight rated equipment **(Figure 11)**.

Note: See "Blocking and Lifting the Conveyor" on page 24.

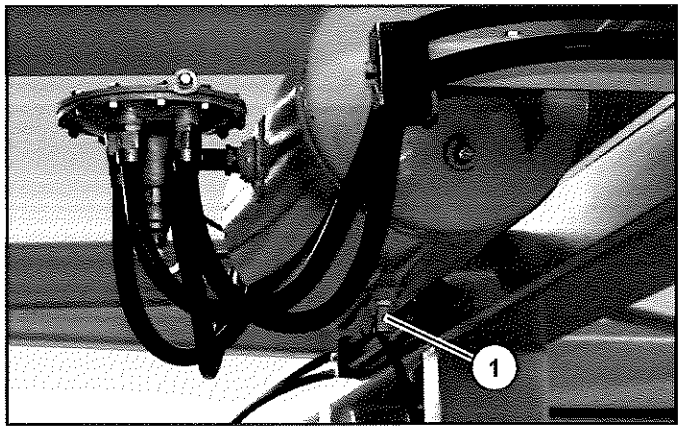


Figure 12

4. Release the air brakes by adjusting the air valve (Item 1) **(Figure 12)** on the bottom of the tank. The air brakes cannot be applied when raising and lowering the conveyor.

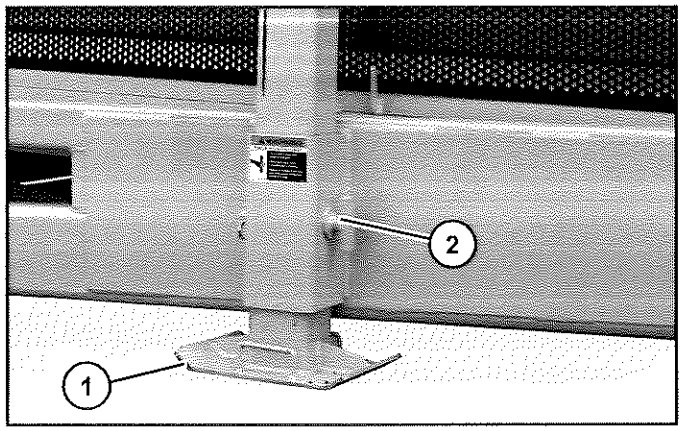


Figure 13

5. After the pivot plate is installed, the landing legs must be lifted for operation. Manually unpin the landing legs (Item 1), slide them up, and repin (Item 2) the landing legs to their highest point **(Figure 13)**.

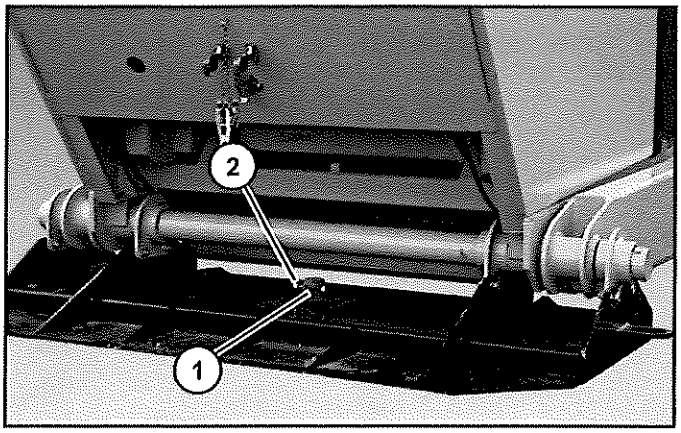


Figure 14

6. Lower the conveyor over the pin (Item 1) and secure the conveyor to the pad with the supplied keeper and bolt (Item 2). To ensure conveyor and operator safety, the conveyor must be operated with the supplied ground pin attached to the concrete pad **(Figure 14)**.

Swinging Out Axle for Radial Travel

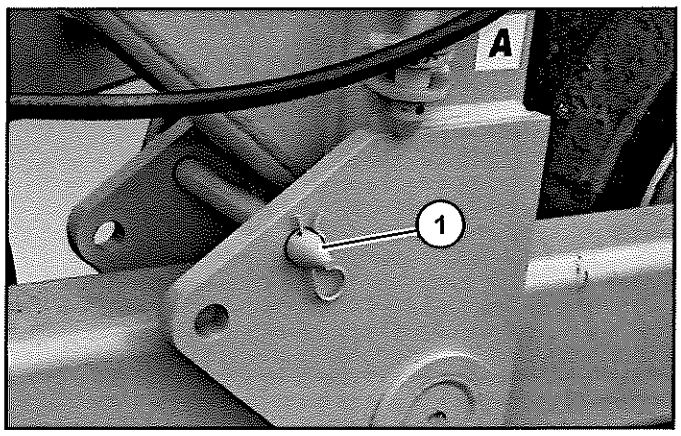


Figure 15

1. Move the pin (Item 1) **(Figure 15)** on the tandem walking beam to the set up position. The top hole is for transport and operating position and the bottom hole is used only during set up. It will keep the walking beam from tipping up and down. When set up is complete return the pin to the operating position (top hole).

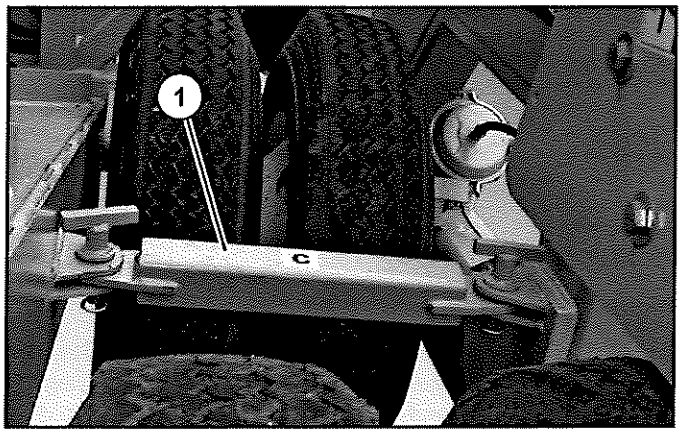


Figure 16

2. Remove the two "C" bars (Item 1) **(Figure 16)** from the transport position and pin into the operating position.

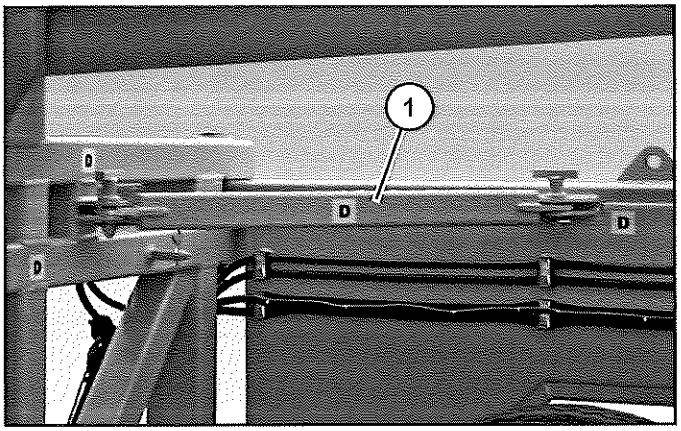


Figure 17

3. Unpin the two "D" bars (Item 1) **(Figure 17)** from the transport position and place the pins in their operating position.

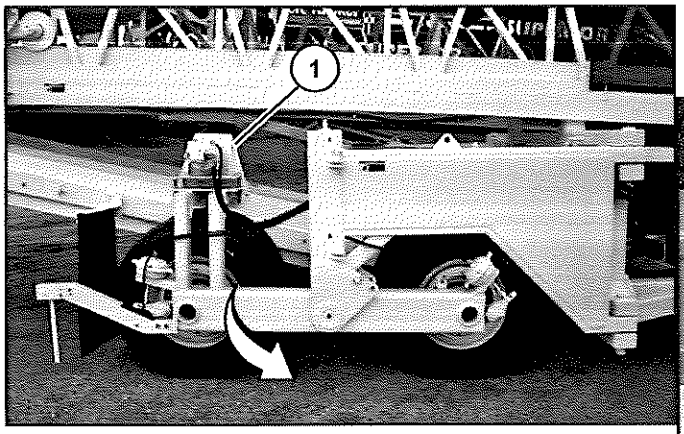


Figure 18

4. Swing out the axle assembly for radial travel. Start on the side of the conveyor with the power travel (Item 1) **(Figure 18)**. If your conveyor is equipped with the dual drive power travel, you can swing out either side first.

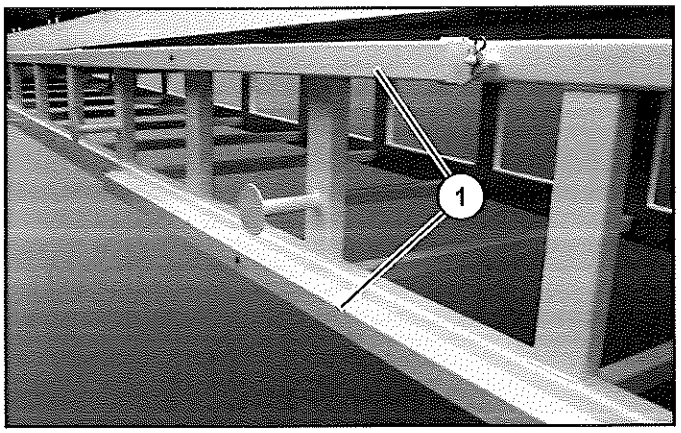


Figure 19

5. Remove the four bars (Item 1) **(Figure 19)** marked with an "A" from the side of the conveyor undercarriage by removing the hair pin clips, then sliding them off their positions, and set aside.

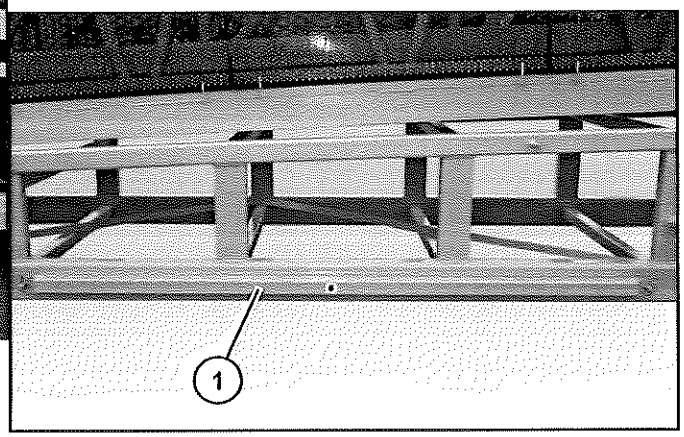


Figure 20

6. Unpin the two bars marked with a "B" (Item 1) **(Figure 20)** from the transport position and place them on the side of the conveyor frame as marked for storage. The "A" bars must be removed prior to placing the "B" bars.

7. Your conveyor may have the hydraulic lifting jack option installed. If equipped, have a qualified electrician wire power to the electrical panel. Start the conveyor and check hydraulic motor phase rotation. See "Hydraulic Motor Phase Rotation" on page 19.

   Raise one side of the conveyor with the hydraulic jack or other proper lifting equipment.

Note: The conveyor can be lifted by many different methods. For other options see "Blocking and Lifting the Conveyor" page 24.

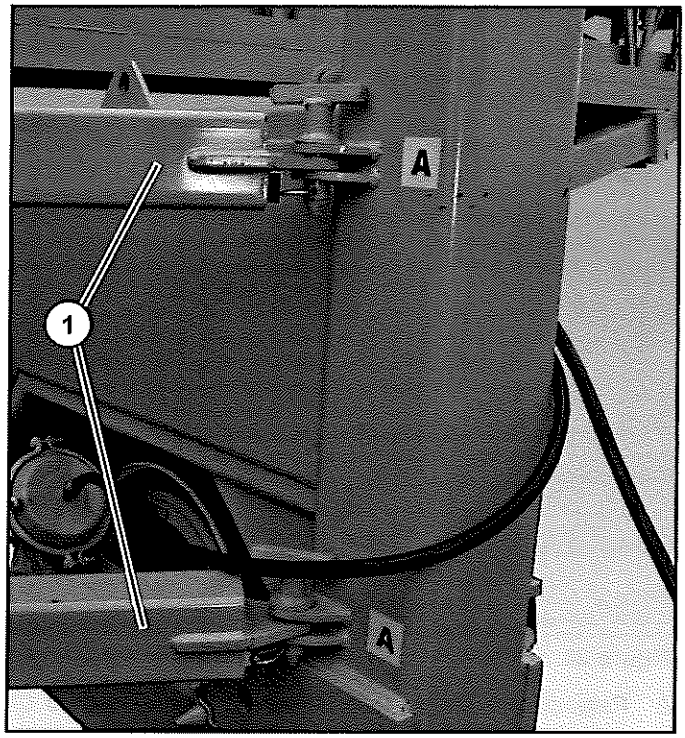


Figure 21

8. Pin two of the four "A" bars (Item 1) **(Figure 21)** into their operating positions.
9. Lower the conveyor to the ground.
10. Install the counting wheel and radial proximity switch. See "Counting Wheel and Radial Proximity Switch (Swing Axle Only)" on page 16.

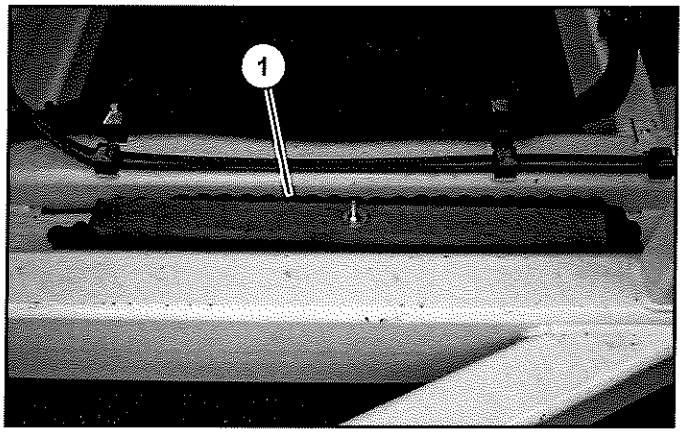


Figure 22

11. The power travel chain (Item 1) **(Figure 22)** is stored on the undercarriage for transport. Remove for installation.
12. The power travel guard is installed for transporting. Remove before installing the chain.

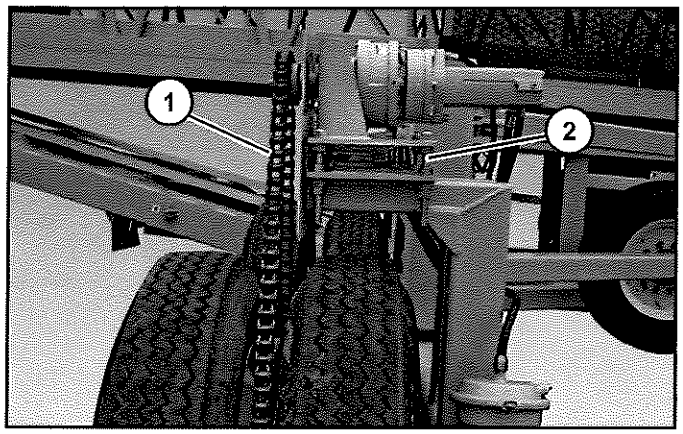


Figure 23

13. Install the chain (Item 1) by wrapping the chain around both the drive and driven sprocket. Install the full link connector and properly tension the chain by adjusting the bolts (Item 2) **(Figure 23)**. Make sure the sprockets are correctly aligned.

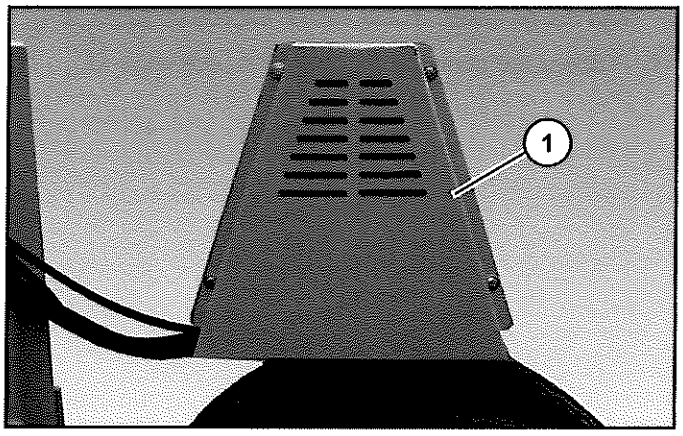


Figure 24

14. Bolt on the power travel guard (Item 1) **(Figure 24)**.
15. Follow the same set up procedure for the other axle.

Note: Block the axle in the radial position before swing out the axle on the opposite side. See "Blocking and Lifting the Conveyor" on page 24.

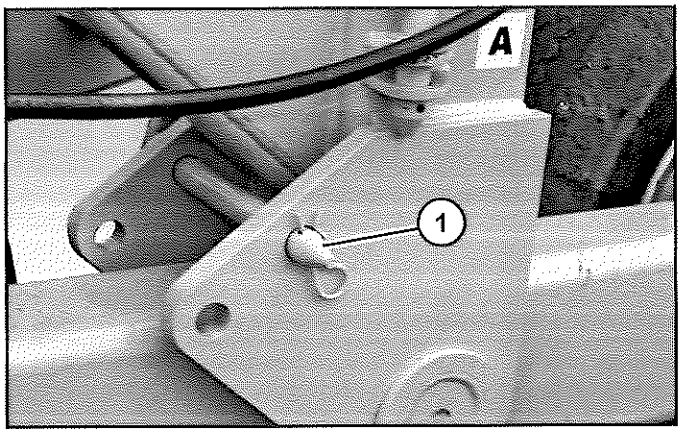


Figure 25

16. Be sure walking beam pins (Item 1) **(Figure 25)** are back in the top position on both sides of the conveyor before performing any operation.
17. After both sides are set up in the radial position it is now ready for operation. Set the material flow switch and the tilt switch. Refer to instructions on page 18.
18. Prepare the conveyor for operation, see page 28.

Conveyor Set Up - Fold Down Axle

Installing Pivot Plate

1. Position tail end of conveyor as close to the feed point as possible.

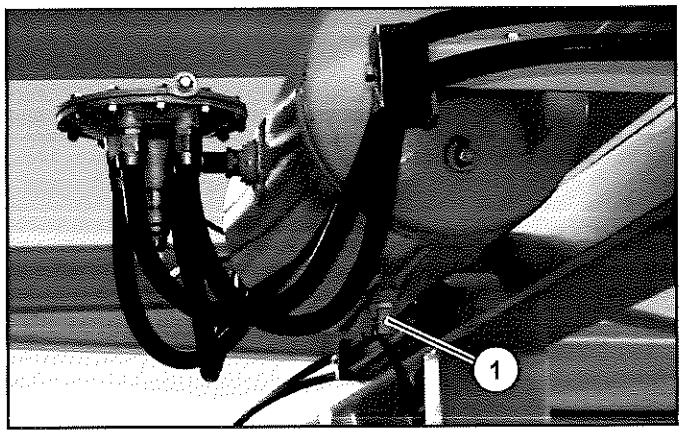


Figure 26

2. Release the air brakes. Do this by adjusting the air valve (Item 1) **(Figure 26)** on the bottom of the tank. The air brakes cannot be applied when raising and lowering the conveyor.
3. The pivot plate is transported on side of the tail end of the conveyor. With appropriate lifting equipment, hook a chain to the plate and slide the pivot plate off the mounting pin.
4. Position the pivot plate under the tail of the conveyor. Raising the conveyor will lower the tail onto the pivot plate.
5. Install power to the conveyor in order to continue with raising the conveyor. Contact a qualified electrician to connect the power.
6. After power is connected, turn on the hydraulic pump. See "Hydraulic Motor Phase Rotation" on page 19.

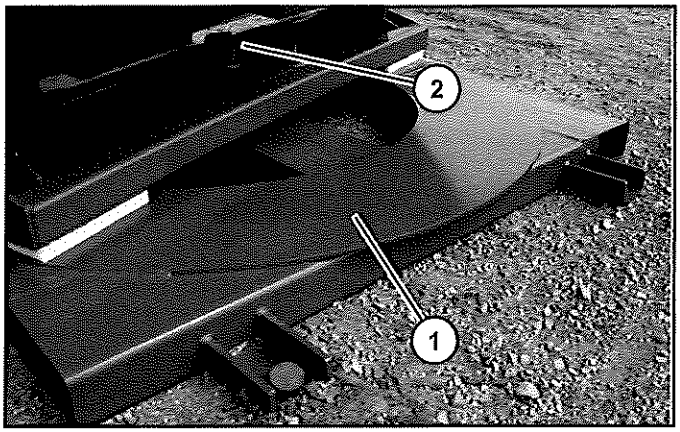


Figure 27

7. Now you can raise the head end of the conveyor to secure the tail to the pivot plate (Item 1). The yoke on the conveyor will seat around the pinning point on the pivot plate. Secure the conveyor to the plate with the supplied bolt (Item 2) **(Figure 27)**.

Note: If you have a low profile conveyor read the following instructions, if not skip to step 16.

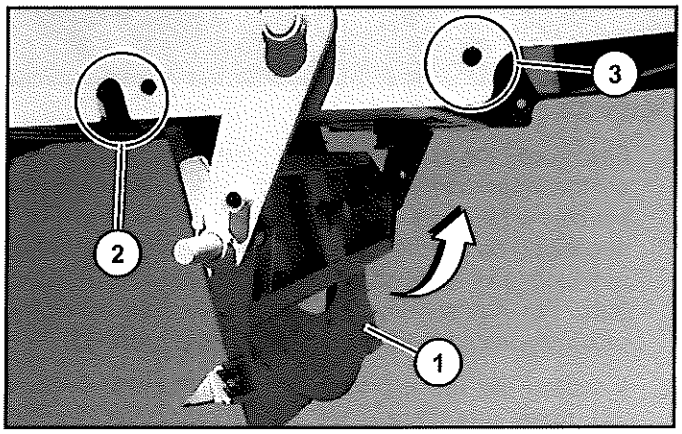


Figure 28

8. If you have a low profile conveyor, the pivot plate and fifth wheel (Item 1) are integrated into the tail end of the conveyor. You will swing the base from the 5th wheel transport position (Item 2) to the operational pivot base plate position (Item 3) **(Figure 28)**.

   Switch from transport to operational modes by removing the lock bolt from the latch holding up the 5th wheel plate. The plate will swing down from its transport position, then, on both sides of the tail end pull the pins. This will fully swing the plate down into operational position.

9. Replace the pins on both sides of the tail end to secure the plate in place.

10. Lower the conveyor into operational position by setting the tail end of the conveyor in place. Lift the tail end at the lifting eyes with the proper weight rated equipment. Lift the tail end until of the conveyor until the jack legs are off the ground.

Note: See "Blocking and Lifting the Conveyor" on page 24.

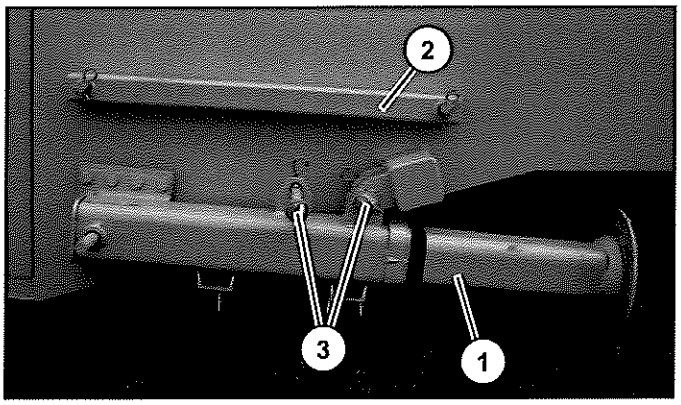


Figure 29

11. Move the jack legs (Item 1) **(Figure 29)** into the operational position. To adjust the jack legs first unpin and remove the brace arm.

12. Repin the brace arm (Item 2) **(Figure 29)** into the operating position.

13. Swing the jack legs up and pin (Item 3) **(Figure 29)** into place.

14. Lower the conveyor to the ground for operation. The teeth in the bottom of the plate will hold the tail in place.

15. Continue to step 18.

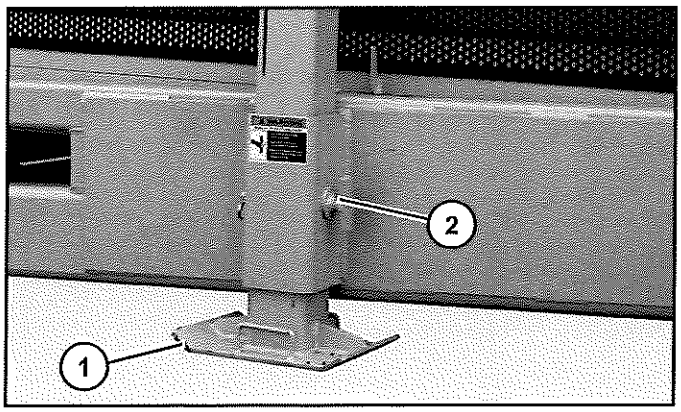


Figure 30

16. After the conveyor tail has been set in place on the pivot plate, raising the conveyor will lift the landing legs off the ground. Manually unpin the landing legs (Item 1), slide them up, and repin (Item 2) the landing legs to their highest point **(Figure 30)**.

Note: If you have hydraulic cylinders to raise and lower the conveyor's landing legs, you may seat the tail of the conveyor in the pivot base by lowering the landing legs.

17. Set the material flow switch and the tilt switch. Refer to instructions on page 18.

18. Prepare the conveyor for operation, see page 28.

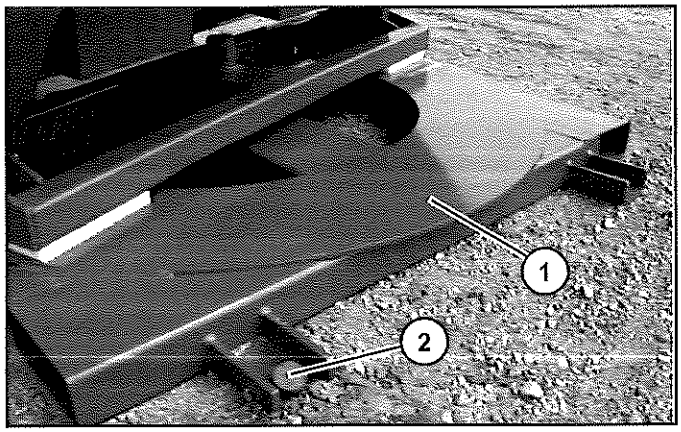


Figure 31

19. Once you've prepared the conveyor for operation and determined that the tail of the conveyor is in the right spot, secure the pivot plate (Item 1). It is important the tail end of conveyor is secured before starting any automated operation. Pound the stakes (Item 2) supplied with the conveyor into the ground at the 4 holes on the corner of the pivot plate. If necessary, use additional stakes to keep the tail from moving **(Figure 31)**.

20. Start the conveyor's program and place the first windrow of the stockpile. This will determine the radial arc.

21. To set the radial arc reference post and eye. See "Radial Reference Eye (Fold Down Axle Only)" on page 17.

Feedback Switch Set Up

The feedback switches provide the necessary information to allow the conveyor to run in automatic mode. They need to be set up prior to conveyor operation.

Counting Wheel and Radial Proximity Switch (Swing Axle Only)

The counting wheel and the radial proximity switch provide a signal back to the automation program determining the distance the conveyor has radial traveled.

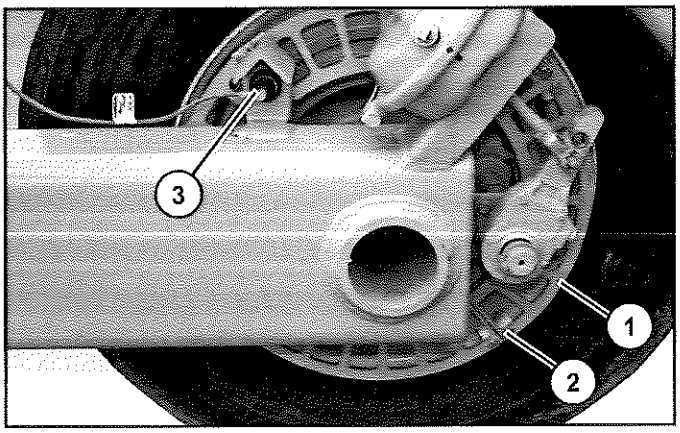


Figure 32

1. First install the counting wheel (Item 1). This is stored on the undercarriage for transportation. Remove the counter wheel from its holder and place the two halves in position on the tire rim, bolting with the bolts (Item 2) provided and positioning the nut towards the wheel hub. For transporting, bolts are located with the proximity switch in the electrical panel **(Figure 32)**.

2. Installing the radial proximity switch (Item 3) **(Figure 32)**, make sure there is 1/4" to 3/8" clearance from the counting wheel.

3. Tighten the coupling. (Do not over tighten.)

4. Make sure there is less than 5 mm distance between the counting wheel and the proximity switch by rotating the wheel in a complete circle.

Radial Reference Eye (Fold Down Axle Only)

After you know the stockpile's radial arc, it is time to introduce the radial reference post. The post works with a photo eye to feed information back to the PLC. It keeps track of the center of the radial arc as you build the stockpile.

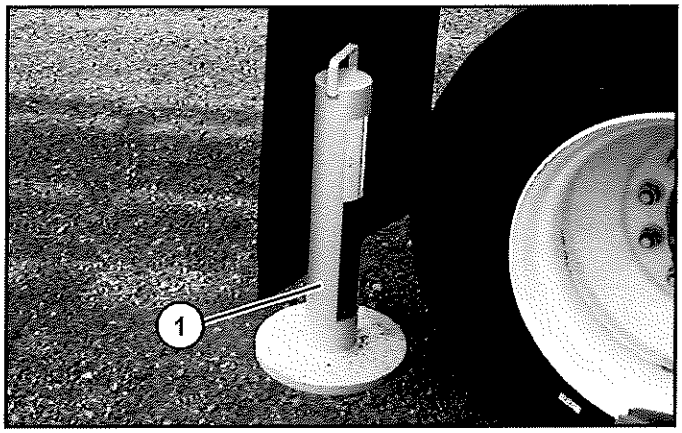


Figure 33

1. The radial reference post (Item 1) **(Figure 33)** is located on the undercarriage of the conveyor for transportation. Unhook and remove.

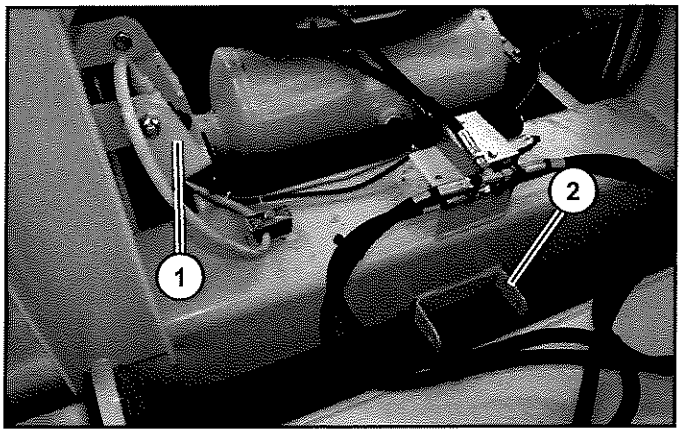


Figure 34

2. Remove the photo eye from the transport position (Item 1) and bolt into the operating position (Item 2) **(Figure 34)**. Face the eye towards the head end of the conveyor. DO NOT tighten bolts, the bracket (Item 2) for the photo eye needs to swing.

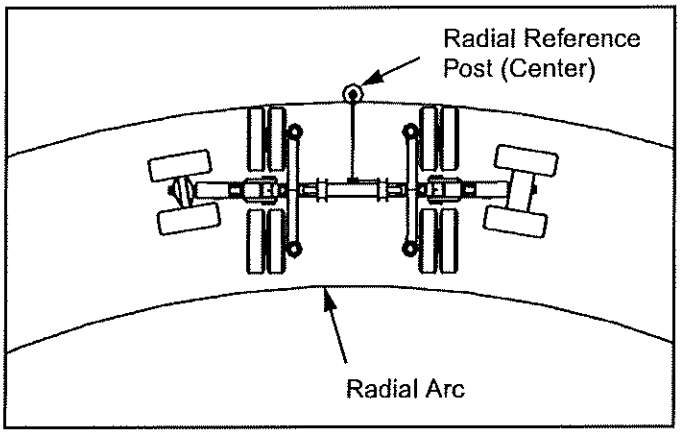


Figure 35

3. Set the radial reference post in the center of the radial arc with the reflector tape facing away from conveyor **(Figure 35)**.
4. Once the conveyor made a few passes, set the post where you believe the center of the radial arc to be. Turn the reflector tape towards the conveyor. When the conveyor travels past the post again, it will detect center in the automation program.

If you need to adjust the center after realizing the post is not at the center of the arc, reposition the post and the automation will pick up the new placement.

⚠ WARNING

Make sure all personnel understand that reflective clothing will give a false signal to the Conveyor photo eye.

Always remember to keep the reflector tape and photo eye clean. This will ensure the automation gets correct feedback.

Material Flow Switch

You may have either a mechanical or photo eye style material flow switch. The material flow switch sends a signal back to the automation program that there is material on the belt. If there is no material on the belt the conveyor will stop radial travel and stinger extension until the material flow continues.

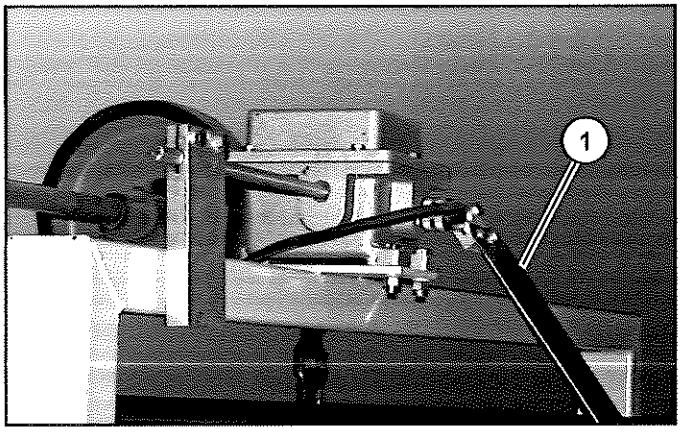


Figure 36

- The material flow switch (Item 1) **(Figure 36)** needs to be set prior to operation. To set the mechanical material flow switch, adjust the actuating paddle for minimal flow. Remove the cover and set cams inside of the housing so the paddle will drag in the material.

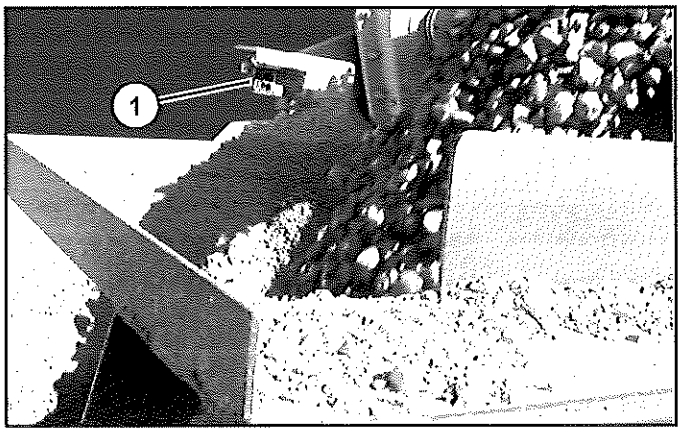


Figure 37

- With a photo eye flow switch (Item 1) **(Figure 37)**, make sure the photo eye is being interrupted by material between the main conveyor and the stinger conveyor.

Tilt Switch

A tilt switch sends a signal back to the automation program on the current stockpile height. When material builds up to the switch, tilting it, the conveyor will continue to finish the layer by either extending or retracting. Then raise the conveyor to continue cycle.

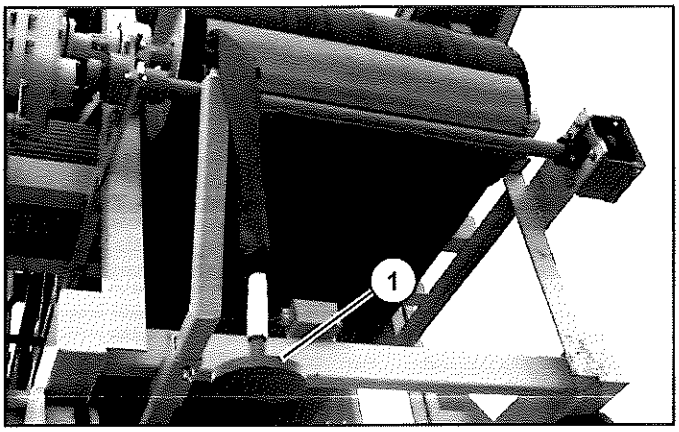


Figure 38

For transport, the tilt switch (Item 1) **(Figure 38)** is upside down. Move the tilt switch from the travel position to operating position.

Hydraulic Motor Phase Rotation

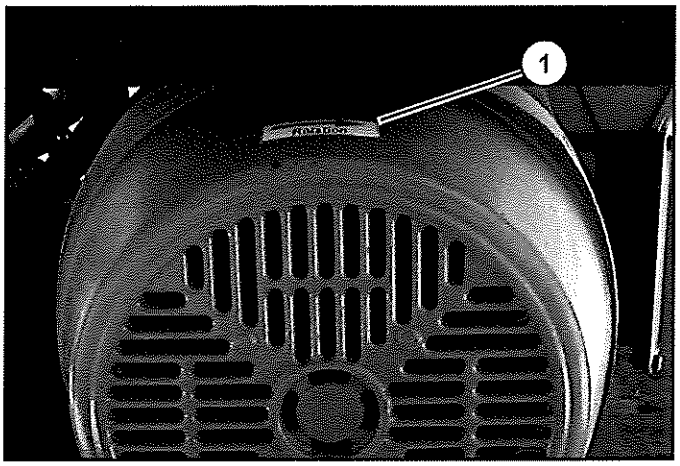


Figure 39

After power is installed and before operating the conveyor, check hydraulic motor phase rotation.

Check the fan rotation by briefly energizing the motor starter. Do this by comparing the rotation of the fan to the arrow (Item 1) **(Figure 39)** on the fan shroud of the motor. This will insure all motors are rotating correctly.

If the fan is not rotating correctly, contact your local electrician to interchange the leads in the power panel.

Belt Set-up

Belt Installation

Belts are customarily packaged in crates which can be rolled from place to place. Crates and rolls are usually marked with an arrow which shows the direction in which they should be rolled.

⚠ WARNING

A crated belt should always be rolled in the direction indicated on the crate so that the end of the outer wrap acts as a brake. If rolled in the opposite direction, the end of the wrap causes a sudden lunging force, and injury to the handlers can result!

When hoisting the belt roll, a bar should be passed through the hole in the center of the roll. Fasten chain or cable to the ends of the bar for lifting, and use a spreader bar above the roll to prevent damage to the edge of the belt.

Always store the belt roll suspended on a tube or bar, or resting on the face width of the belt. Storing the belt roll with weight on one edge may stretch the belt, making it difficult to square at assembly and train during the initial operation. Belts should be stored in a dry, cool building. Never drop the belt or store it on its edges.

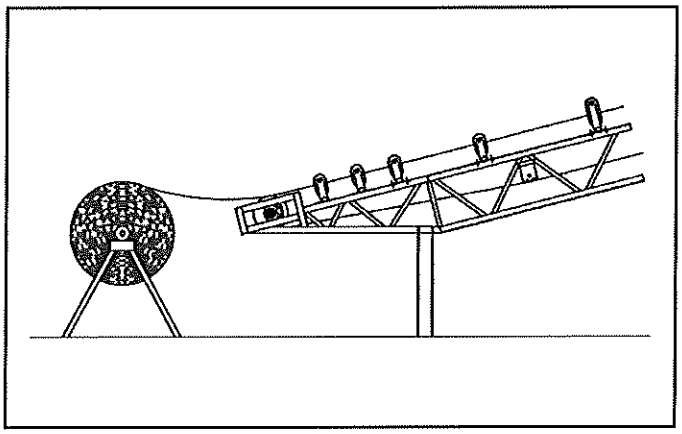


Figure 40

Installation of the belt begins with building a suitable stand behind the conveyor and then aligning the belting roll with the conveyor frame **(Figure 40)**. If the area behind the conveyor will not permit this method of threading, the roll of belting can be suspended above the conveyor frame for threading.

Next, check the position of the side take-up bearings to make sure they are positioned all the way to the beginning of the adjustment frame. This will give you maximum take-up ability after belt installation. Then check the belt to make sure the load side (side with the thickest rubber covering) is facing up.

Most belting is shipped from the factory cut to length with additional allowance for squaring ends for the splice.

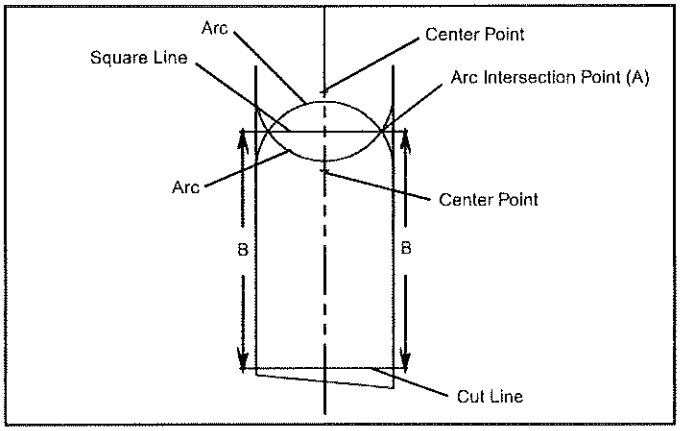


Figure 41

The molded edges on new belts are not always straight and parallel. Whenever practical, it is recommended to square ends of belt with the centerline of the belt. Mark the center point of the belt using a light colored chalk or pencil **(Figure 41)**. Then draw an average centerline using these points as a guide. Locate two center points on the belt such that arcs will overlay. Draw the arcs on the belt. Using a steel straight edge, draw the square line through the two arc intersection points (A). Measure an equal distance (B) on both sides of belt from square line to the cut line.

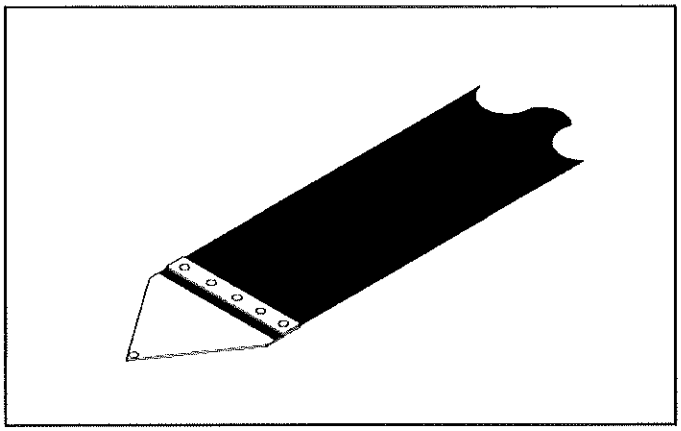


Figure 42

Position the fastener manufacturer's template on the belt (or fashion one yourself given the manufacturer's recommendation for fastener spacing) and punch holes in the end of the belt for the fasteners. Always follow the manufacturer's recommendations as to the proper size of fasteners to be used on any belt. Attach a clamping plate onto the end of the belt to enable an even pull for threading the belt onto the conveyor **(Figure 42)**.

Place the pulling plate on the bottom side of the belt so it will pass more easily over the troughing idlers. Bolt the clamping plate to the belt through the fastener holes-the number of bolts should be proportionate to the amount of pull exerted.

Connect a cable or rope to the clamping plate. A braking system can be made by using a belt clamp mounted on the conveyor frame to prevent belt runaway while threading. Slowly pull the belt into position (near the tail section for easy access) with a block and tackle or similar equipment.

Attach 2 stretcher clamps roughly 3 feet from each end of the belt. Make sure the stretcher clamp on the squared end of the belt is parallel with the belt end. Remove the clamping plate and firmly attach the parallel stretcher clamp to the conveyor frame.

Evenly draw the belt ends together, using a cable-jack or similar means, and pull the unsquared end of the belt over the top of the squared end until the correct belt tension is obtained. Maintaining this tension, create a centerline following the procedure described earlier, and mark a squared line where the belt must be cut for the splice.

Place a wooden plank under the splice point to facilitate the cutting and punching of holes in the belt. Cut the belt, position the fastener manufacturer's template on the belt end, and punch holes for the fasteners.

The use of belt tape under the belt fasteners is recommended to help reinforce the splice area. Refer to instructions included with the belt fasteners for proper installation.

IMPORTANT

When adding or replacing sections of conveyor belt, always leave a minimum distance of 3 feet between belt splices. Installing belt sections of less than 3 foot length may place enough stress on the splices to cause damage if both splices run over the head or tail pulleys at the same time.

Belt Training

⚠ WARNING

Always shut the conveyor off and do lock out/tagout before adjusting any conveyor idlers.

Belt training is a process of adjusting idlers and loading conditions in a manner which will correct any tendency of the belt to run off. Never attempt to train the belt by unequal adjustment of tension take-ups. The tension take-ups are only to be used for keeping the tail pulley square with the conveyor frame, and to produce the necessary belt tension to prevent slippage and excessive belt sag between idlers.

The training of a conveyor belt causing it to travel over the center area of idlers, pulleys, and return rollers is vitally important to trouble-free operation and low maintenance cost. Unless the belt is warped and curved from improper manufacture, use, or storage, it is possible to train it for central running. The following recommendations are basic to belt training procedures:

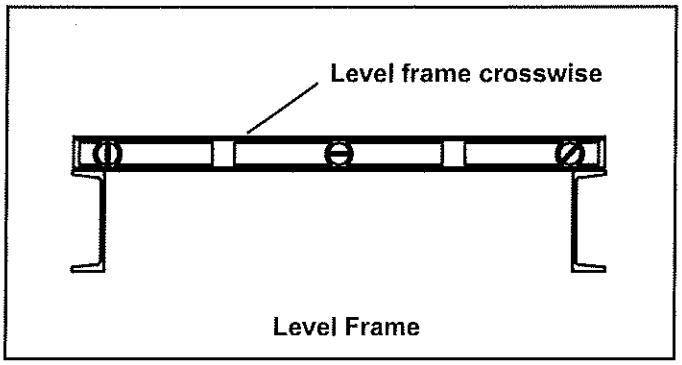
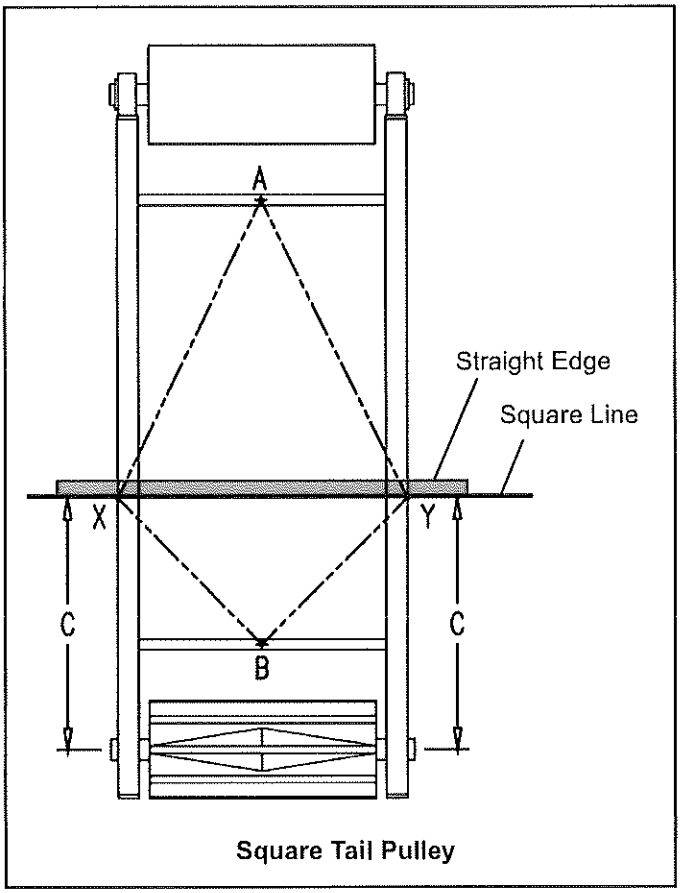


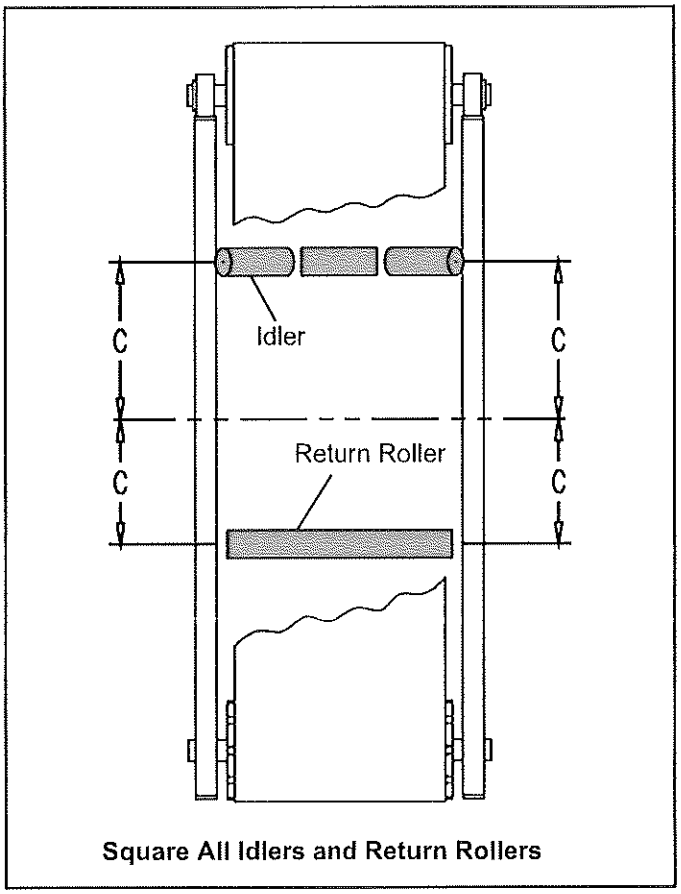
Figure 43

1. Level all frames crosswise as gravity will force the belt off-center if one side of the conveyor frame is lower than the other **(Figure 43)**.



Square Tail Pulley

Figure 44



Square All Idlers and Return Rollers

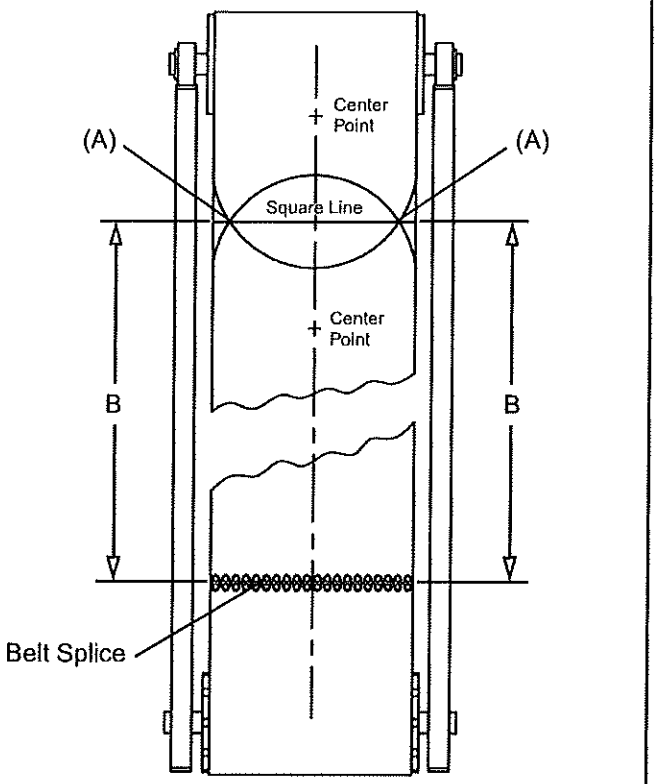
Figure 45

2. Square the tail pulley with the frame **(Figure 44)**. Locate and mark point (A) at the midpoint of a conveyor cross member. Next, measure an arbitrary distance from point (A) to locate a point (X) on the edge of the conveyor frame. Then measure the same distance from point (A) to locate a point (Y) on the other edge of the conveyor frame. Line (XY) should now be square with the conveyor frame.

   On the other side of the square line (line XY), locate a point (B) at the midpoint of a cross member. Measure the distance of (BX) and (BY) to verify that line (XY) is square. Line (BX) and (BY) should be equal.

   Clamp a straight edge to the conveyor frame directly on top of the square line. Any component on the conveyor can now be squared by measuring from the straight edge equal distance on each side. Example: To square the tail pulley measure equal distance (C) on each side **(Figure 44)**.

3. Square all idlers and return rollers with the frame by measuring from the straight edge on both sides of the conveyor and tighten the attachment bolts **(Figure 45)**.



Check Belt Splice for Squareness

Figure 46

4. Check the belt splice for squareness. Mark the center point of the belt using light colored chalk or pencil. Then draw an average centerline using these points as a guide. Locate two center points on the belt for arc placement. Draw the arcs on the belt. Using a steel straight edge, draw the square line through the two arc intersection points (A). Measure an equal distance (B) on both sides of the belt from the square line to belt splice. Check the belt run on the return run side of the conveyor, or place a large plywood board under the belt on the load side to get accurate measurements **(Figure 46)**.

5. Run the conveyor empty and at reduced speed if possible. If the belt should show a side creep at only the splice area and this progressed along the conveyor instead of remaining at one point on the frame, the splice may not be square and may have to be redone. If necessary resplice the belt.

   Place a wooden plank under the splice point to facilitate the cutting and punching of the holes in the belt. Cut the belt, position the fastener manufacturers template on the belt end and punch holes for the fasteners. The use of belt tape under the belt fasteners is recommended to help reinforce the splice area. Refer to instructions included with the belt fasteners for proper installation.

   If you don't have sufficient belt length to resplice after squaring the belt ends, you will have to add a section of belt. When adding belt sections, remove enough length from the original belt to allow for a minimum distance of 3 feet between belt splices.

   Once you have determined the splice is square, examine the return run side of the conveyor for side creep first, beginning at the head end and working down to the tail. Make adjustments where side creep occurs as follows:

   a. The point of maximum side creep (D) requires adjustment of a preceding idler (E) when you are facing in the direction of belt travel.

   b. Loosen the bolts and pivot the idler (E) around its midpoint just as you would turn a steering wheel to bring an automobile back to the center of its lane. Make these adjustments in small amounts; tighten the bolts and making a test run after each adjustment to see the effect on side creep. Run the belt at least three revolutions for the adjustment to take effect. If the point of maximum side creep changes, adjust the idler that precedes that new point.

   c. When the slow running belt is centered, change to a higher speed (if possible). Load the belt with material and continue testing until normal operating conditions cause no deviations from central running.

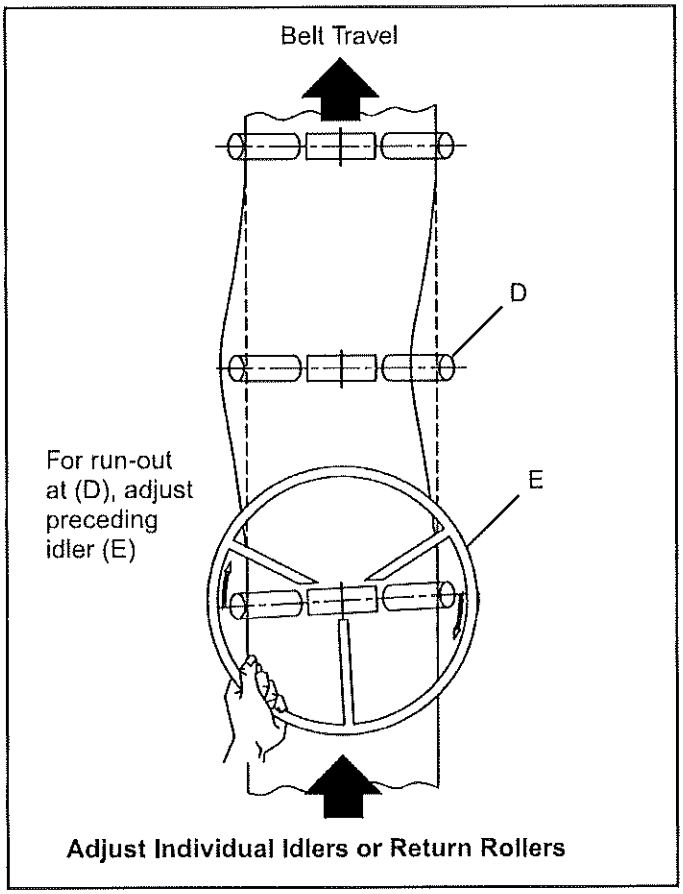


Figure 47

6. Examine the load run side of the conveyor, following the belt travel from tail to head end. Make the same adjustments where side creep occurs.

Blocking and Lifting the Conveyor

Swing Axle Only

Figure 48

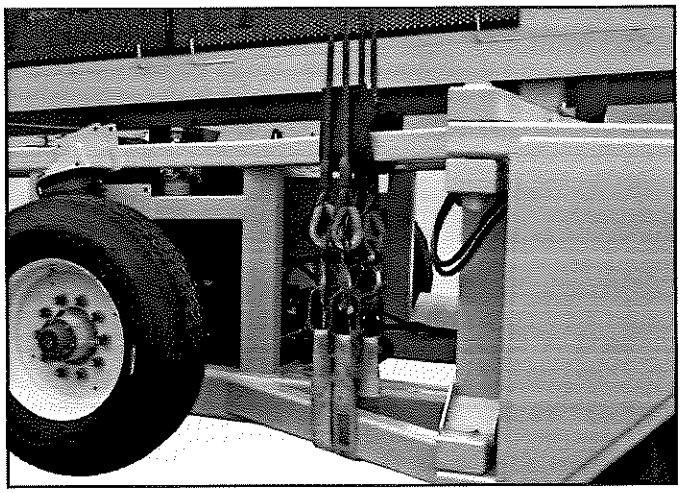


Figure 49

Using a jack **(Figure 48)**, hydraulic jack (if equipped), or other appropriate equipment **(Figure 49)**, raise the axle on the conveyor one side at a time.

Swing Axle or Fold Down Axle

⚠ WARNING

Lift conveyors as recommended or damage could occur.

Figure 50

Lift the tail end at the lifting eyes with the proper weight rated equipment **(Figure 50)**.


SUPERIOR
INDUSTRIES

Pre-Operation Check List

Before starting the conveyor for the first time:

- Carefully read through all safety instructions in the owner's manual.
- Check the e-chain clearance between the track and stinger of the conveyor. See "Cable Carrier (E-chain)" on page 57.
- Check to make sure the hydraulic hoses in the E-chain are pulled tight at the mouth of the E-chain, where the hoses come out.
- Check the primary load roller shims, secondary load roller shims, and support rollers by watching to make sure the stinger is centered in the main frame while it extends and retracts. See "Load Roller Shimming" on page 56.
- Check the winch cable tension. See "Winch Cable" on page 57.
- Visually inspect all lug nuts and conveyor bolting.
- Have a qualified electrician connect power to the conveyor.
- Check to be sure the reducers are filled to the proper oil level. See "Lubrication" on page 48.
- Check to be sure that skirtboards at loading points are installed and adjusted. See "Rubber Skirtboards" on page 60.
- Loosen and remove the v-belts by adjusting the torque arm reducer or motor mount tension bolts. See "V-Belts" on page 61.
- If conveyor has multiple motors, steps should be taken to ensure the conveyor load is shared equally between the motors.
- When a belt scraper is used (if equipped), be sure that it is properly installed and working. See belt scraper and tensioner materials.
- Check taper-lock bushings in the drive sheave for proper torque settings. See "Torque and Tension Charts" on page 105.
- Check bushings in all belt conveyor pulleys for proper torque settings. See "Torque and Tension Charts" on page 105.
- Check bearings on conveyor shafts for proper torque settings. See "Torque and Tension Charts" on page 105.

Every time before starting the conveyor:

- Be certain all guards and safety devices are in place and in working order.
- Visually inspect all conveyor components for leaks, wear, and damage.
- Check and remove all tools and any foreign objects from the belt, particularly on the return run side where they may get between the pulleys and belt. Grease on the belt should be removed immediately as it will deteriorate the belt.
- Make certain no parts of the conveyor have been locked out and tagged out. If they have, determine who placed the lockouts, and have them remove the lockouts or tagouts before starting the conveyor.
- Walk completely around the conveyor, making certain no other personnel are under, on top of, or next to the conveyor. Warn anyone nearby that you are starting up the conveyor.
- Check the operation of safety stop lines and switches, if applicable, after starting the conveyor.

Preparing the Conveyor for Operation

- Contact a qualified electrician to wire power to the electrical panel, unless previously wired during installation.
- After power is connected, turn on the hydraulic pump. See "Hydraulic Motor Phase Rotation" on page 19.
- Before fully raising the conveyor, bleed the air from the raise cylinders. See "Raise Cylinder" on page 53.
- Fold Down Axle Only - The fold down arms are configured with an electrical proximity switch that communicates whether the radial tires are raised or lowered. The conveyor truss will not raise or lower unless the fold down or radial travel tires are off the ground.
- Manually operate all functions of the conveyor to ensure that everything is functioning properly. Do this by using the manual controls located on the electrical panel. Raise, extend, retract, lower and radial travel the conveyor left and right. See "Manual Operation" on page 28.
- Now it is time to program the stockpile type and size into the conveyor's automation program. See "Automatic Operation" on page 30. Once you've entered the stockpile parameters, you will be able to determine the conveyor's home position. This position is defined as fully retracted, lowered, and all the way to the left. This is where the automated pile cycle will start and move to the right.
- After entering the stockpile parameters, run material on the conveyor to determine if the feed point is correct and that the belts are trained and tightened properly. Move the conveyor to the home position, start the conveyor belts, and feed material onto the conveyor.
- Make certain that the material is loading into the center of the hopper and running on the center of the belts. If your conveyor is not level, your belt tracking will be off. If you need to track and tighten the belt, see "Belt Set-up" page 19.

Manual Operation

Electrical Control (if equipped)

IMPORTANT

When entering the electrical panel, be sure to disconnect the power at the source and put a lockout/ tagout tag on the panel. If the source is not shutdown the conveyor electrical panel will still be live even though the disconnect (Item 2) (Figure 51) is shut off.

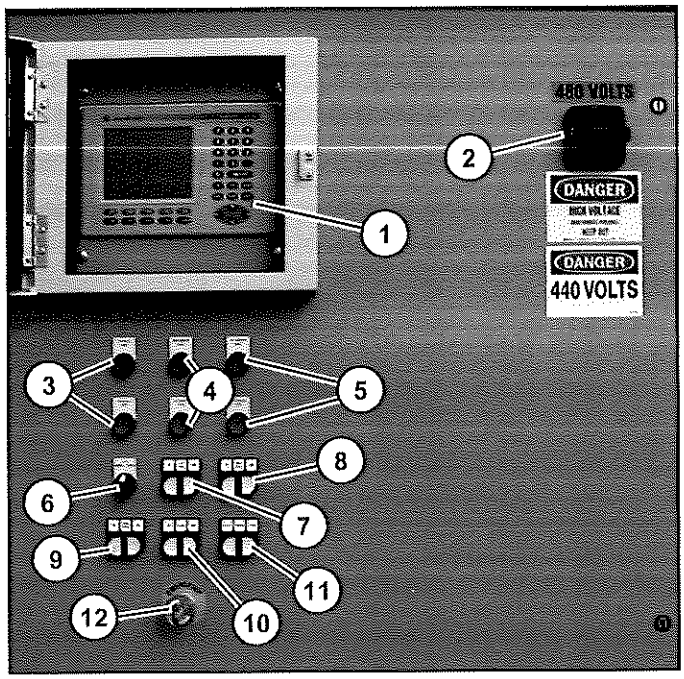


Figure 51

The panel is located on the right (roadside) of the conveyor.

Refer to **(Figure 51)** for the following explanations:

1. Touch screen - Allows the operator to enter in automatic mode settings. See "Automatic Operation" on page 30.
2. Disconnect Handle - Shuts off main power before entering the electrical panel.
3. Hydraulic Pump Start/Stop - Push the start button to turn the hydraulic power unit on, push the stop button to turn the power button off.
4. Main Conveyor Start/Stop - Push the start button to turn the main conveyor on, push the stop button to turn the main conveyor off.

5. Extension (Stinger) Conveyor Start/Stop - Push the start button to turn the extension (stinger) conveyor on, push the stop button to turn the extension (stinger) conveyor off.
6. Manual/Auto/Remote - Turn the selector to the mode of operation desired.
   - Manual Mode - The conveyor controlled manually using the push buttons on the electrical panel.
   - Auto Mode - The conveyor is controlled through the touch screen and PLC program.
   - Remote Mode - The conveyor is controlled manually using the remote control. See "Remote Control (if equipped)" on page 29.

To perform the following operations (Item 7 - 11) the conveyor must be in manual mode.

7. Left Wheel Up/Down - (FD axle option only) Push the up button to raise the axle, push the down button to lower the axle.
8. Right Wheel Up/Down - (FD axle option only) Push the up button to raise the axle, push the down button to lower the axle.
9. Radial Wheels CW/CCW - Push the CW button to radial travel the conveyor to the right, push the CCW button to radial travel the conveyor to the left.
10. Incline Up/Down - Push the up button to raise the entire conveyor, push the down button to lower the entire conveyor.
11. Conveyor Ret/Ext - Push the Ret button to retract the extension (stinger) conveyor into the main frame, push the Ext button to extend the extension (stinger) conveyor out of the main frame.
12. E-Stop - Push the e-stop button when you need to immediately stop the conveyor. The e-stop will turn off all 120V in the electrical panel.

Remote Control (if equipped)

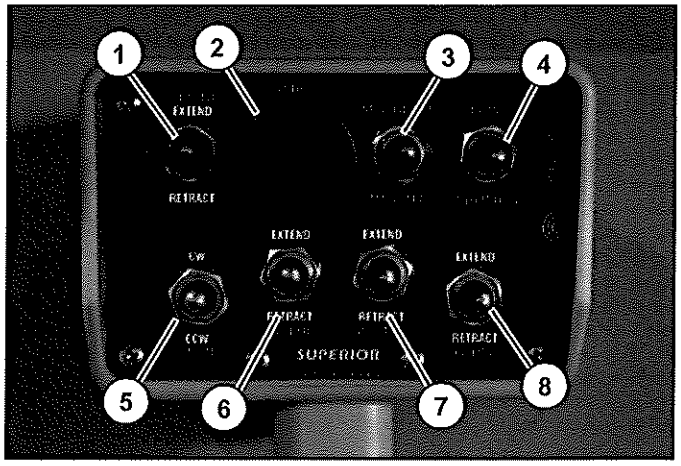


Figure 52

To operate the conveyor with the remote control, switch the conveyor to remote mode on the electrical panel.

Refer to **(Figure 52)** for the following explanations:

1. Stinger Extend/Retract - Flip the switch down to retract the stinger into the main frame, flip the switch up to extend the stinger out of the main frame.
2. E-Stop - Push the e-stop button when you need to immediately stop the conveyor. The e-stop will turn off all 120V in the electrical panel.
3. Stinger Belt/Main Belt - Flip the switch up to start the stinger belt, flip the switch up again to stop the stinger belt. Flip the switch down to start the main belt, flip the switch down again to stop the main belt.
4. Horn/Hyd Motor - Flip the switch down to start the hydraulic system, flip the switch down again to stop the hydraulic system. Flip the switch up to sound the horn.
5. Radial Wheels CW/CCW - Flip the switch up to radial travel the conveyor to the right, flip the switch down to radial travel the conveyor to the left.
6. Left FD Extend/Retract - (FD axle option only) Flip the switch up to extend the axle, flip the switch down to retract the axle.
7. Right FD Extend/Retract - (FD axle option only) Flip the switch up to extend the axle, flip the switch down to retract the axle.
8. Incline Extend/Retract - Flip the switch up to raise the entire conveyor, flip the switch down to lower the entire conveyor.

Hydraulic Control (if equipped)

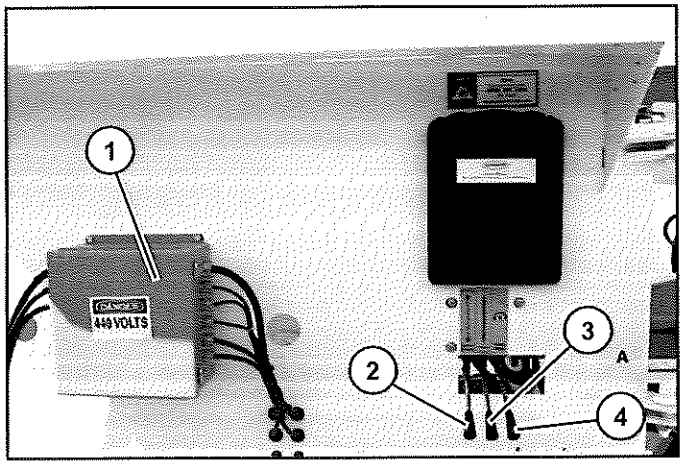


Figure 53

If your conveyor is equipped with a manual hydraulic package, a qualified electrician is required to wire to the electrical junction box (Item 1) **(Figure 53)**.

Turn power on to the conveyor from the main power source. The belts on the main conveyor and the extension (stinger) conveyor will start moving.

To extend or retract the stinger, lift the lever (Item 2) to extend the stinger, lower the lever (Item 2) to retract the stinger **(Figure 53)**.

To raise and lower the conveyor, lift the lever (Item 3) to raise the conveyor up, lower the lever (Item 3) to lower the conveyor down **(Figure 53)**.

To radial travel the conveyor, lift the lever (Item 4) to make the conveyor travel to the left, lower the lever (Item 4) to make the conveyor travel to the right **(Figure 53)**.

Automatic Operation

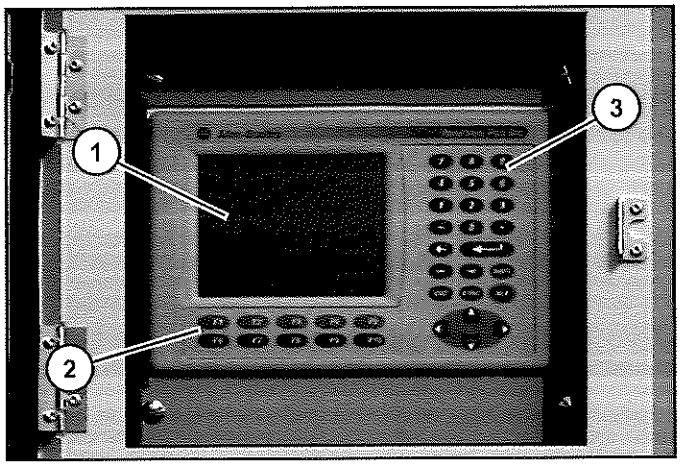


Figure 54

The automation package with this conveyor is equipped with a touch screen (Item 1). Simply touch the screen to choose a function or make the selection using the function keypad (Item 2). The numerical keypad (Item 3) can also be used to enter values **(Figure 54)**.

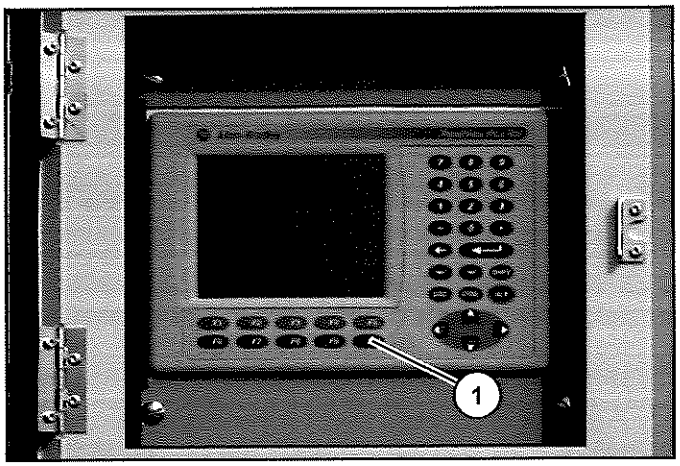


Figure 55

The **[F10]** button (Item 1) **(Figure 55)** will always take you back to the previous screen.

After starting the automation program, a screen saver will appear after ten minutes. To remove the screen saver, touch the screen or any function button to start operation.

Always start a new pile with the conveyor set to the home position. Home position is fully retracted, fully lowered, and to the left where the pile will start building.

Starting a New Pile

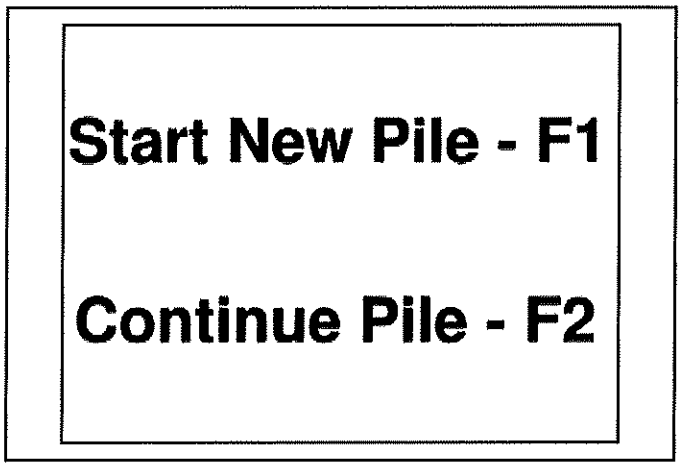


Figure 56

1. To begin a new pile press **Start New Pile** or **[F1]** **(Figure 56)**.

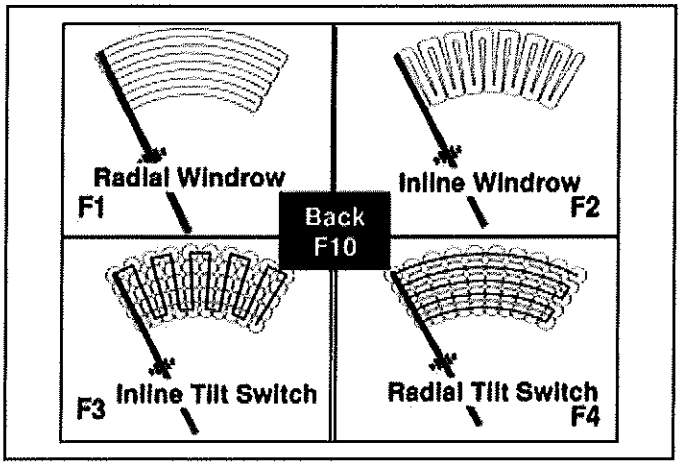


Figure 57

2. Select desired pile type on the main menu screen **(Figure 57)**.
   - **Radial Windrow** or **[F1]**
   - **Inline Windrow** or **[F2]**
   - **Inline Conical** or **[F3]**
   - **Radial Conical** or **[F4]**

Note: See "Pile Type Examples" on page 37.

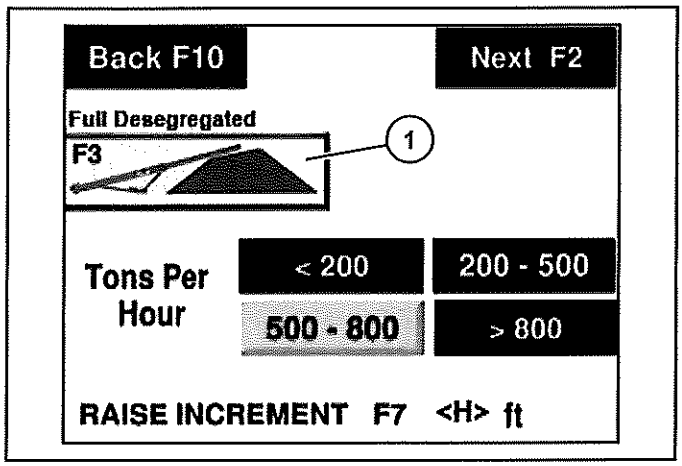


Figure 58

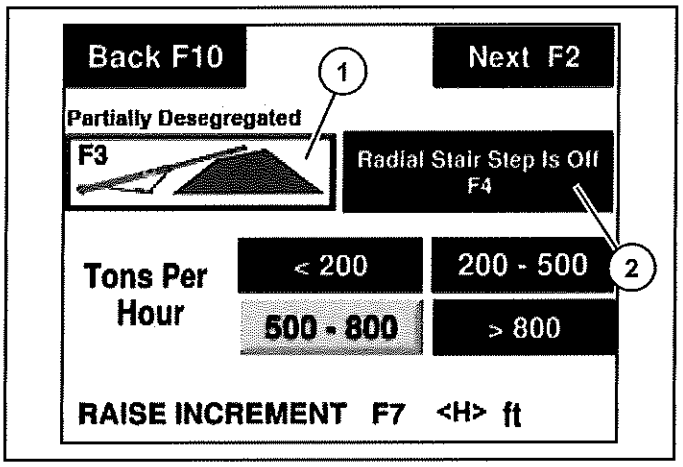


Figure 59

3. To choose between a Fully Desegregated Pile (Item 1) **(Figure 58)** and Partially Desegregated Pile (Item 1) **(Figure 59)** by pressing the **screen** or **[F3]**.

   The partially desegregated menu will show the Radial Stair Step option (Item 2) **(Figure 59)**. Press the **screen** or **[F4]** to turn on or off this operation.

Note: See "Desegregated Piles" on page 39.

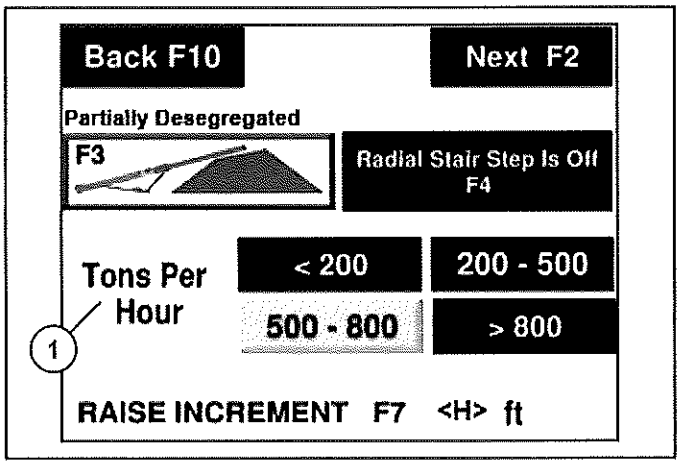


Figure 60

4. Select your tons per hour (Item 1) **(Figure 60)** by pressing the corresponding button on the screen.
   - < 200 Tons Per Hour
   - 200-500 Per Hour
   - 500-800 Tons Per Hour
   - > 800 Tons Per Hour

⚠ WARNING

Improper size of material or overloading the belt capacity may result in injury or conveyor damage.

For the proper belt capacity for your conveyor see page 79.

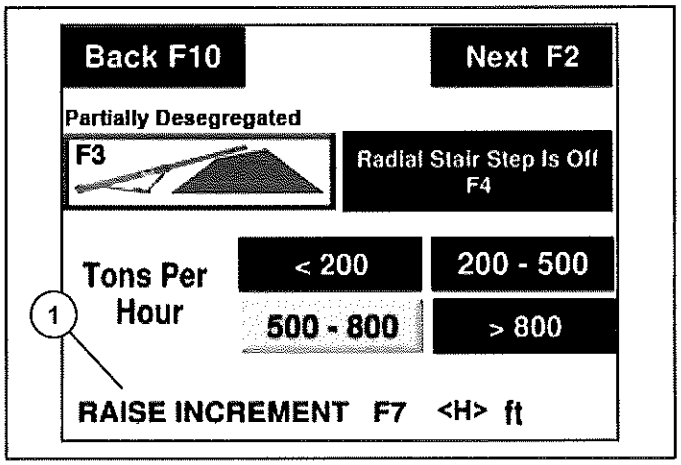


Figure 61

5. Press screen **Raise Increment** (Item 1) **(Figure 61)** or **[F7]**.

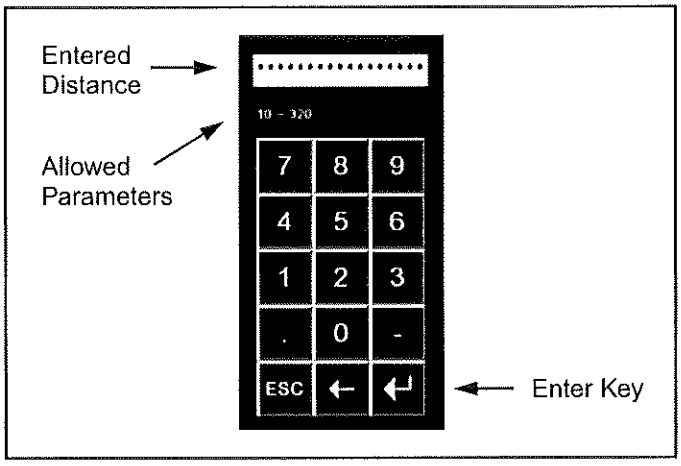


Figure 62

6. Enter the raise increment distance (H) (select 1-9 ft) then press enter **(Figure 62)** or enter the values on the numeric keypad.

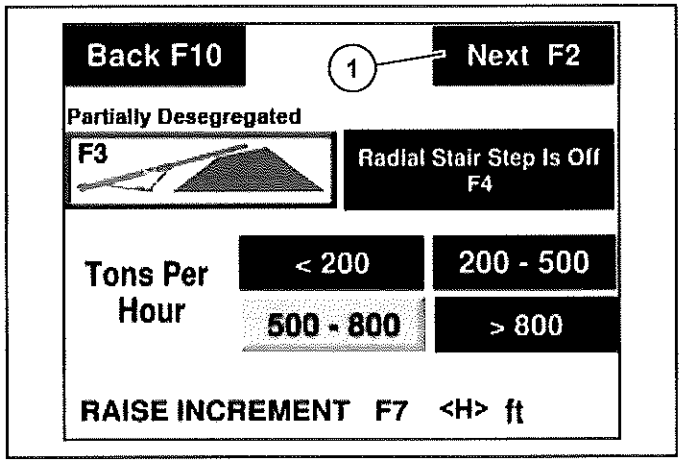


Figure 63

7. Press screen **Next** (Item 1) **(Figure 63)** or **[F2]** to continue.

8. The automation screen will now show the pile choice that you selected in step 2. Enter the values and follow the instructions for your pile type.

Radial Windrow

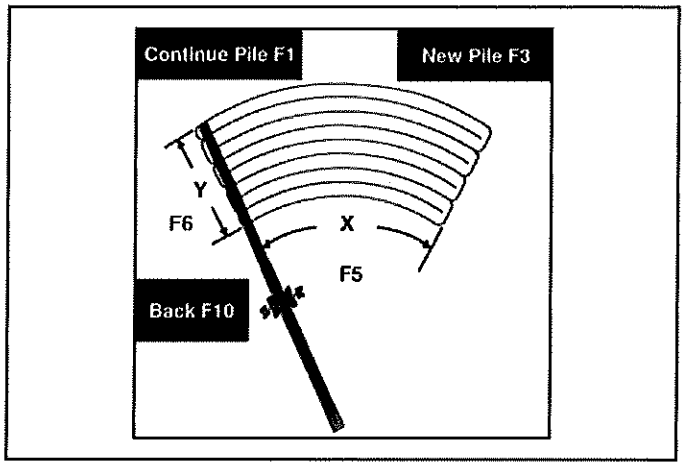


Figure 64

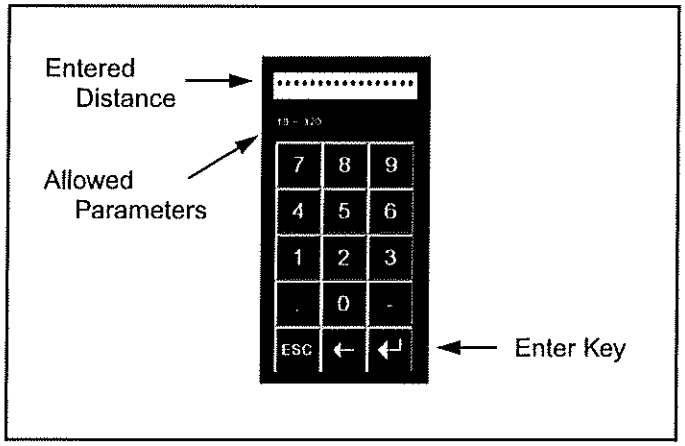


Figure 65

a. Press screen **F5** or **[F5]** to adjust radial arc distance (X) **(Figure 64)**.

b. Enter radial arc distance (select 10-320 ft) press enter **(Figure 65)**.

c. Press screen **F6** or **[F6]** to adjust extension distance (Y) **(Figure 64)**.

d. Enter extension distance press enter **(Figure 65)**. (Select 10-46 - TS110 / 10-56 - TS130 / 10-66 - TS 150 & 170 / 10-86 - TS190)

e. Press screen **F3** or **[F3]** to proceed with your new pile parameters or press screen **F1** or **[F1]** to accept to a previous enter pile **(Figure 64)**.

f. Continue to step 9.

Inline Windrow

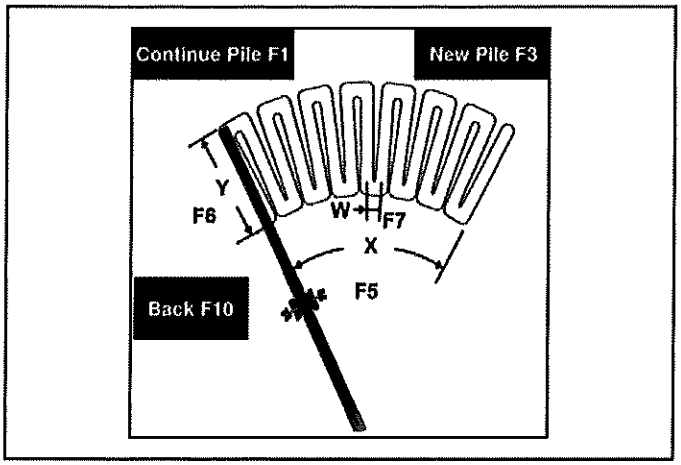


Figure 66

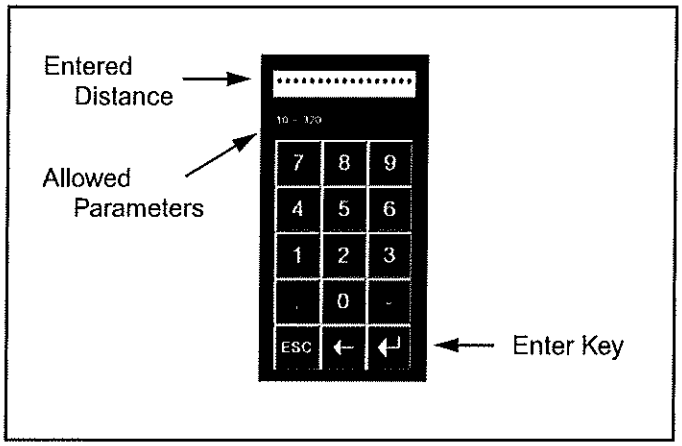


Figure 67

a. Press screen **F5** or **[F5]** to adjust radial arc distance (X) **(Figure 66)**.

b. Enter radial arc distance (select 10-320 ft) press enter **(Figure 67)**.

c. Press screen **F6** or **[F6]** to adjust extension distance (Y) **(Figure 66)**.

d. Enter extension distance press enter **(Figure 67)**. (Select 10-46 - TS110 / 10-56 - TS130 / 10-66 - TS 150 & 170 / 10-86 - TS190)

e. Press screen **F7** or **[F7]** to adjust radial increment value (W) **(Figure 66)**.

f. Enter radial increment distance (select 1-9 ft) press enter **(Figure 67)**.

g. Press screen **F3** or **[F3]** to proceed with your new pile parameters or press screen **F1** or **[F1]** to accept to a previous enter pile **(Figure 66)**.

h. Continue to step 9.

Inline Conical

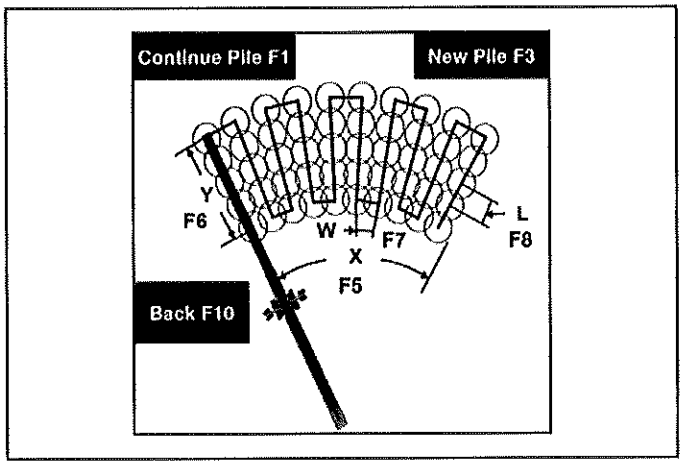


Figure 68

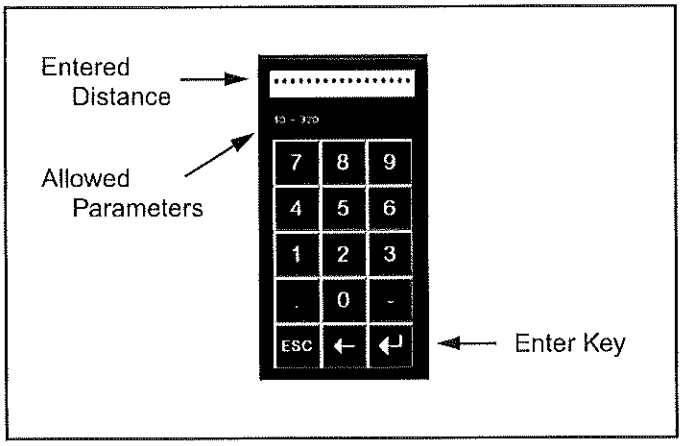


Figure 69

a. Press screen **F5** or **[F5]** to adjust radial arc distance (X) **(Figure 68)**.

b. Enter radial arc distance (select 10-320 ft) press enter **(Figure 69)**.

c. Press screen **F6** or **[F6]** to adjust extension distance (Y) **(Figure 68)**.

d. Enter extension distance press enter **(Figure 69)**. (Select 10-46 - TS110 / 10-56 - TS130 / 10-66 - TS 150 & 170 / 10-86 - TS190)

e. Press screen **F7** or **[F7]** to adjust radial increment distance (W) **(Figure 68)**.

f. Enter radial increment distance (select 1-9 ft) press enter **(Figure 69)**.

g. Press screen **F8** or **[F8]** to adjust extension increment distance (L) **(Figure 68)**.

h. Enter extension increment distance (select 1-9 ft) press enter **(Figure 69)**.

i. Press screen **F3** or **[F3]** to proceed with your new pile parameters or press screen **F1** or **[F1]** to accept to a previous enter pile **(Figure 68)**.

j. Continue to step 9.

Radial Conical

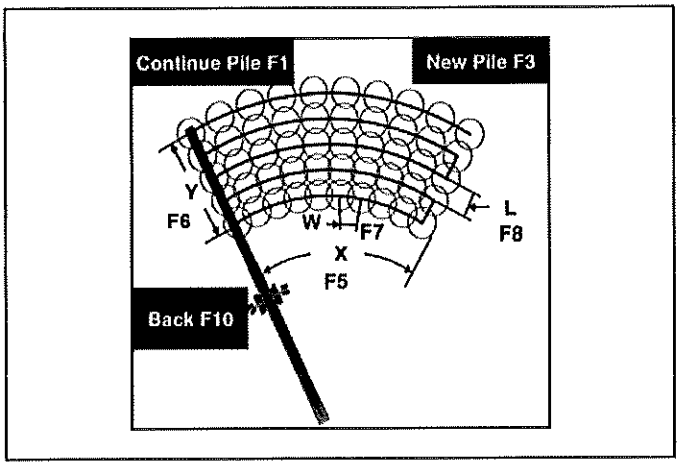


Figure 70

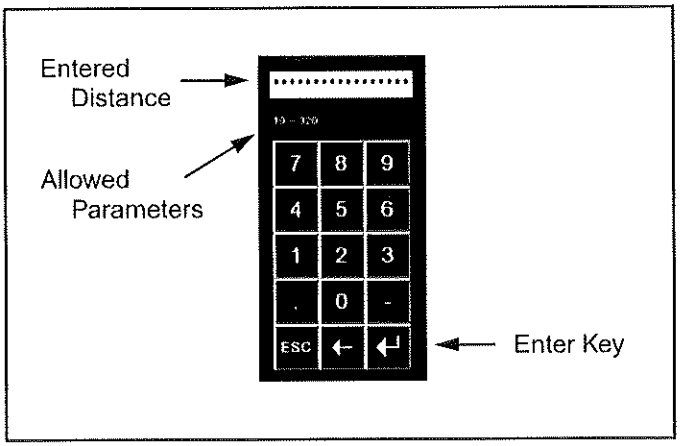


Figure 71

a. Press screen **F5** or **[F5]** to adjust radial arc distance (X) **(Figure 70)**.

b. Enter radial arc distance (select 10-320 ft) press enter **(Figure 71)**.

c. Press screen **F6** or **[F6]** to adjust extension distance (Y) **(Figure 70)**.

d. Enter extension distance press enter **(Figure 71)**. (Select 10-46 - TS110 / 10-56 - TS130 / 10-66 - TS 150 & 170 / 10-86 - TS190)

e. Press screen **F7** or **[F7]** to adjust radial increment distance (W) **(Figure 70)**.

f. Enter radial increment (select 1-9 ft) press enter **(Figure 71)**.

g. Press screen **F8** or **[F8]** to adjust extension increment distance (L) **(Figure 70)**.

h. Enter extension increment (select 1-9 ft) press enter **(Figure 71)**.

i. Press screen **F3** or **[F3]** to proceed with your new pile parameters or press screen **F1** or **[F1]** to accept to a previous enter pile **(Figure 68)**.

j. After NEW PILE is pushed, another button will appear that says DONE. Press the DONE button, this will take you the start cycle screen.

k. Continue to step 9.

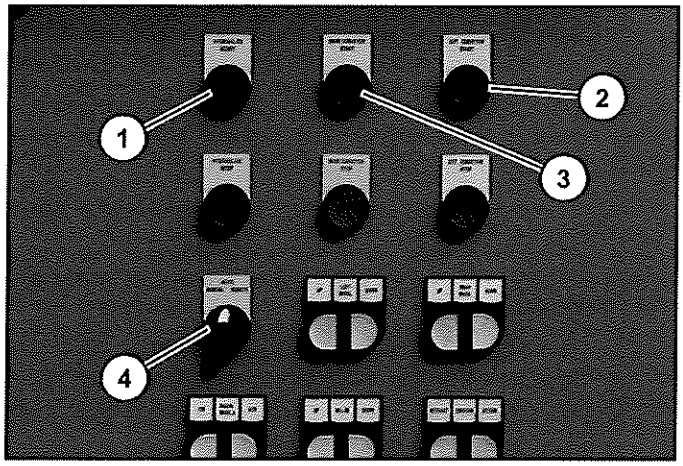


Figure 72

9. On the electrical panel, push the hydraulic pump start button (Item 1) **(Figure 72)** to start the hydraulic system.

10. Push the extension (stinger) conveyor start button (Item 3) **(Figure 72)** to start the extension conveyor belt.

11. Push the main conveyor start button (Item 2) **(Figure 72)** to start the main conveyor belt.

12. Turn the switch to the auto position (Item 4) **(Figure 72)**.

Note: For a full explanation on electrical panel switch and the operation, see "Manual Operation" on page 28.

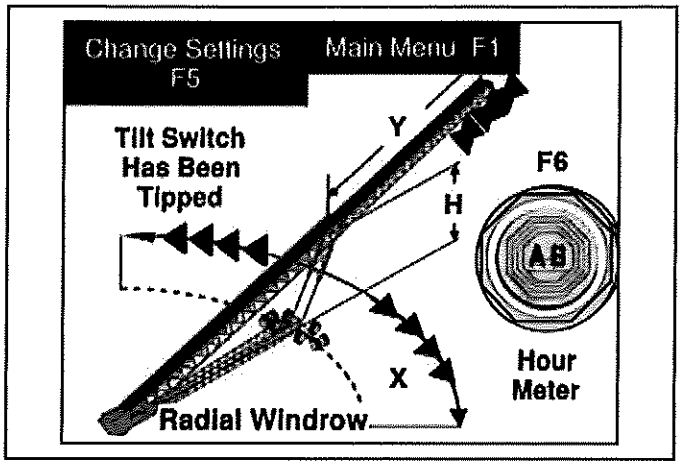


Figure 73

13. The screen will now display the pile type selected and all the parameters set in step 8. The following functions are available on this screen:

- Press screen **AB** (Green Button) or **[F6]** to start conveyor **(Figure 73)**.
- Press screen **F5** or **[F5]** to change settings **(Figure 73)**.
- Press screen **F1** or **[F1]** to choose a different pile **(Figure 73)**.
- The Tilt Switch Has Been Tipped on the screen will appear when the tilt switch has been activated for 5 seconds. This will stay on until conveyor rises to its next level **(Figure 73)**.
- The Hour Meter will track running hours of the conveyor. **(Figure 73)**.

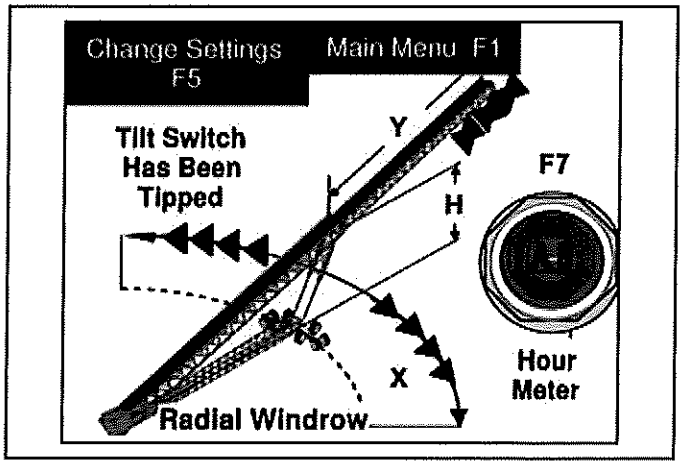


Figure 74

14. Press screen **AB** (Red Button) or **[F7]** to stop the conveyor **(Figure 74)**.

Continuing a Pile

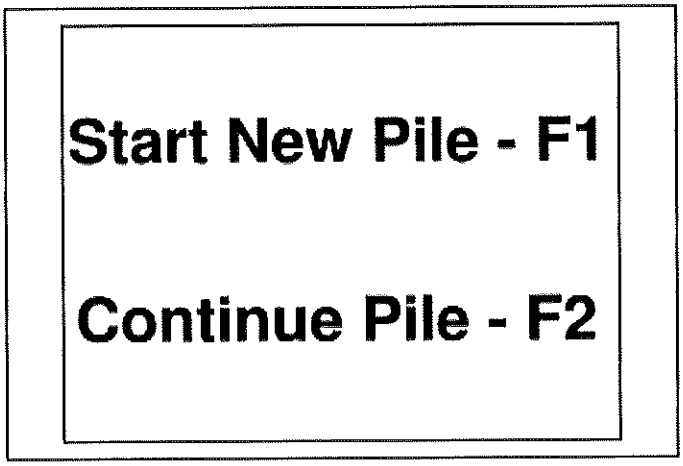


Figure 75

1. To continue a previous pile press screen **F2** or **[F2]** **(Figure 75)**.

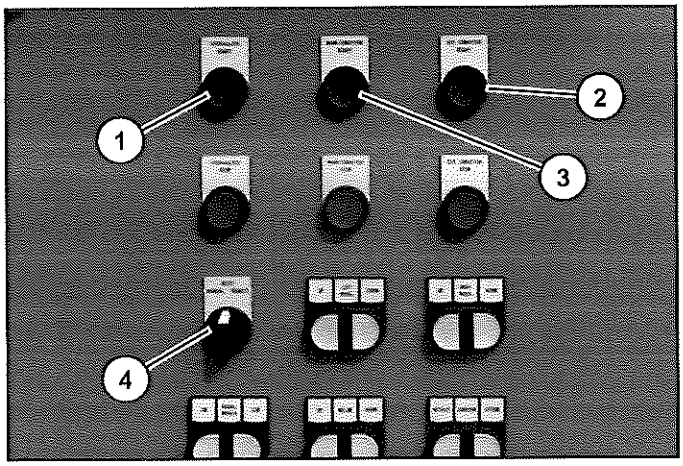


Figure 76

2. On the electrical panel, push the hydraulic pump start button (Item 1) **(Figure 76)** to start the hydraulic system.
3. Push the extension (stinger) conveyor start button (Item 3) **(Figure 76)** to start the extension conveyor belt.
4. Push the main conveyor start button (Item 2) **(Figure 76)** to start the main conveyor belt.
5. Turn the switch to the auto position (Item 4) **(Figure 76)**.

Note: For a full explanation on electrical panel switch and the operation, see "Manual Operation" on page 28.

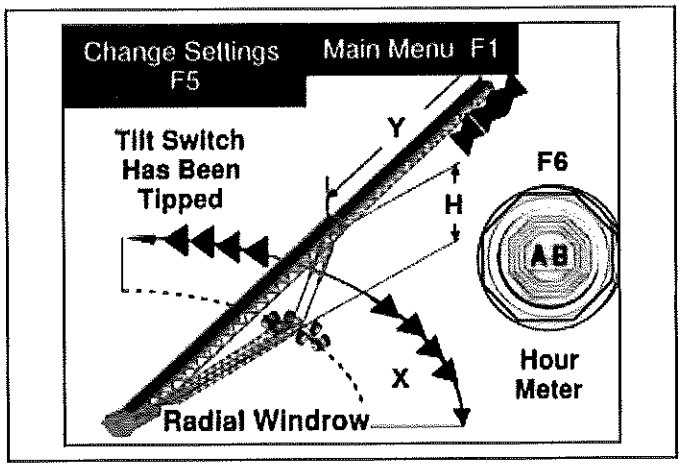


Figure 77

6. The screen will now display the pile type selected and all the previous parameter settings. The following functions are available on this screen:
   - Press screen **AB** (Green Button) or **[F6]** to start conveyor **(Figure 73)**.
   - Press screen **F5** or **[F5]** to change settings **(Figure 73)**.
   - Press screen **F1** or **[F1]** to choose a different pile **(Figure 73)**.
   - The Tilt Switch Has Been Tipped on the screen will appear when the tilt switch has been activated for 5 seconds. This will stay on until conveyor rises to its next level **(Figure 73)**.
   - The Hour Meter will track running hours of the conveyor. **(Figure 73)**.

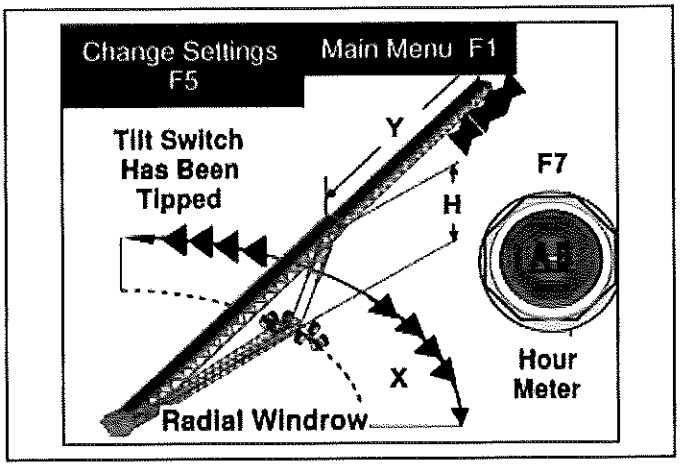


Figure 78

7. Press screen **AB** (Red Button) or **[F7]** to stop the conveyor **(Figure 74)**.

Pile Type Examples

Use the following examples to build the proper pile type for your specific application.

Radial Windrow

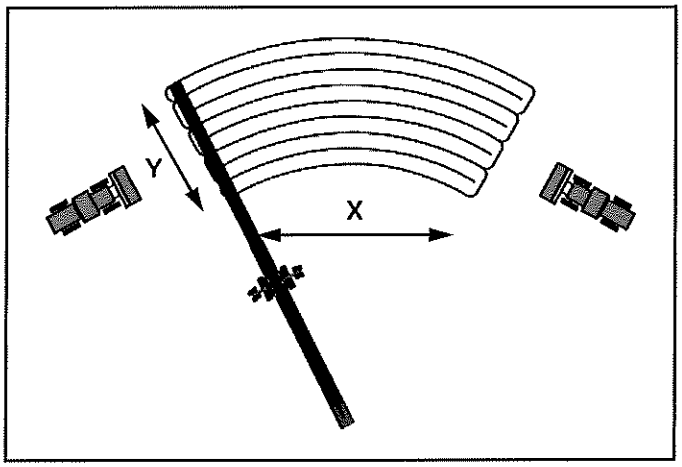


Figure 79

The radial windrow pile is created by radial traveling the conveyor back and forth while the stinger telescopes in and out to create each windrow. After the first level is finished the tilt switch will trigger the PLC to raise the conveyor to the new height and the conveyor will begin building the next level of windrows. The conveyor travels continuously while it is building the pile.

Once the parameters have been entered into the PLC and the conveyor is set to auto mode the conveyor program will build the pile continuously similar to the configuration shown **(Figure 79)** until the pile reaches the maximum height requirement.

Suggested applications of when to use the radial windrow pile type:

- When the X dimension is greater than the Y dimension. The conveyor would be used more efficiently when covering material over a large area **(Figure 79)**.
- Continuous material flow off the discharge point of the conveyor.
- When the loader needs to reclaim the material from each side of the pile for a better blend of material **(Figure 79)**.

Inline Windrow

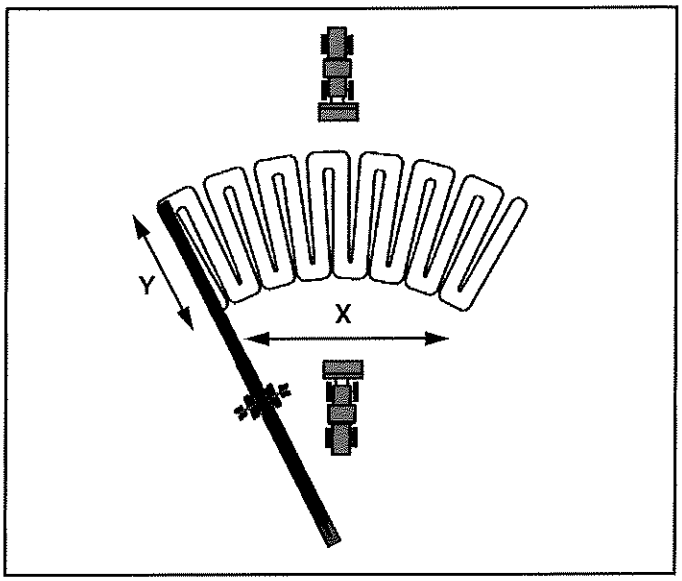


Figure 80

The inline windrow pile is created by telescoping the stinger from front to back then the conveyor moves one radial increment over to create each new windrow. After the first level is finished the tilt switch will trigger the PLC to raise the conveyor to the new height and the conveyor will begin building the next level of windrows. The conveyor travels continuously while it is building the pile.

Once the parameters have been entered into the PLC and the conveyor is set to auto mode the conveyor program will build the pile continuously similar to the configuration shown **(Figure 80)** until the pile reaches the maximum height requirement.

Suggested applications of when to use the inline windrow pile type:

- When the X dimension is less than the Y dimension. The conveyor would be used more efficiently when covering material over a more narrow area **(Figure 80)**.
- Continuous material flow off the discharge point of the conveyor.
- When a particular space needs to be filled with material. Example: Material is piled between concrete walls or a confined area.
- When the loader needs to reclaim the material from the back or front of the pile for a better blend of material **(Figure 80)**.

Inline Conical

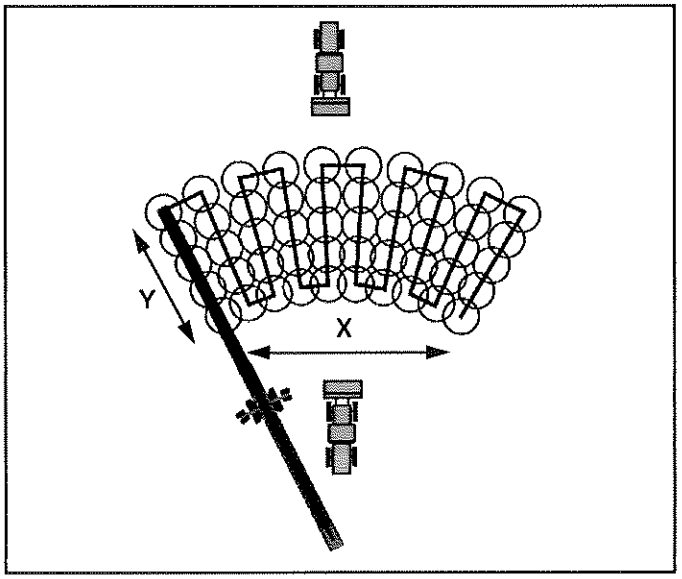


Figure 81

The inline conical pile follows the same pattern as the inline windrow pile except the conveyor will create a series of conical piles instead of a windrow. The conveyor will build each conical pile until it reaches the tilt switch, then the conveyor will move the stinger one increment and start building the next conical pile. After the first level is finished the tilt switch will trigger the PLC to raise the conveyor to the new height and the conveyor will begin building the next series of conical piles.

Once the parameters have been entered into the PLC and the conveyor is set to auto mode the conveyor program will build the pile in a series of conical piles similar to the configuration shown **(Figure 81)** until the pile reaches the maximum height requirement.

Suggested applications of when to use the radial conical pile type:

- When the X dimension is less than the Y dimension. The conveyor would be used more efficiently when covering material over a more narrow area **(Figure 81)**.
- The material flow off the discharge point of the conveyor is not constant.
- When a particular space needs to be filled with material. Example: Material is piled between concrete walls or a confined area.
- When the loader needs to reclaim the material from the back or front of the pile for a better blend of material **(Figure 81)**.

Radial Conical

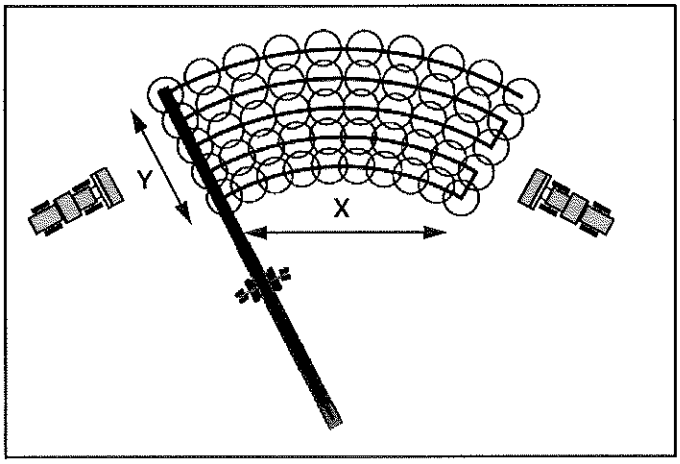


Figure 82

The radial conical pile follows the same pattern as the radial windrow pile except the conveyor will create a series of conical piles instead of a windrow. The conveyor will build each conical pile until it reaches the tilt switch, then the conveyor will move one radial increment and start building the next conical pile. After the first level is finished the tilt switch will trigger the PLC to raise the conveyor to the new height and the conveyor will begin building the next series of conical piles.

Once the parameters have been entered into the PLC and the conveyor is set to auto mode the conveyor program will build the pile in a series of conical piles similar to the configuration shown **(Figure 82)** until the pile reaches the maximum height requirement.

Suggested applications of when to use the radial conical pile type:

- When the X dimension is greater than the Y dimension. The conveyor would be used more efficiently when covering material over a large area **(Figure 82)**.
- The material flow off the discharge point of the conveyor is not constant.
- When the loader needs to reclaim the material from each side of the pile for a better blend of material **(Figure 82)**.

Desegregated Piles

Segregation

Segregation occurs when a pile has a mix of larger and smaller particles of material and the larger material settles to the outside and the smaller finer material stays towards the top and middle of the pile. When the larger coarser material settles to the outside of the pile it is called overrun and it is one of the causes of segregation. Segregation can be controlled through choosing the correct pile style and by building a partially desegregated or fully desegregated pile.

All pile types will be partially desegregated unless other options or modes are chosen on the automation touch screen.

Partially Desegregated

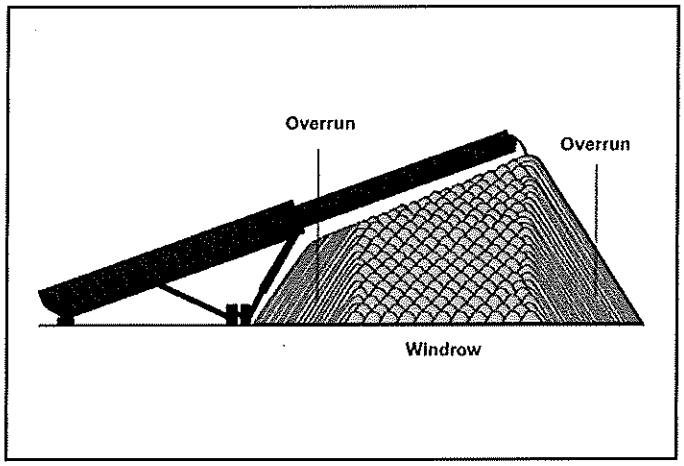


Figure 83

A partially desegregated pile **(Figure 83)** is partially free of segregation. The conveyor is capable of building a much larger pile with this type. The peak of the pile is at the extension limit of the stinger.

The pile will have overrun on the back and each side. The program automatically stair steps the front to keep the axles from being buried by material.

Radial Stair Step

When in the partially desegregated mode the radial stair step option can be used. This option will radial stair step the sides of the pile to keep segregation to a minimum. The back of the pile will still have overrun.

Fully Desegregated

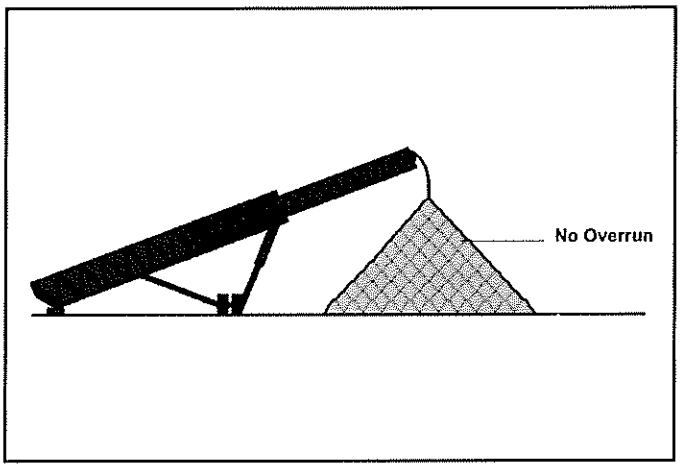


Figure 84

A fully desegregated pile **(Figure 84)** is completely free of segregation. The pile is built in the form of an elongated pyramid made up of smaller windrows within the pile. By building the pile in a pyramid shape it eliminates overrun and the pile will have a more consistent mix of material.

The fully desegregated mode should be used when it is critical to have a mix of material for a particular application.

When this mode is selected on the automation screen all four sides of the pile will be stair stepped in towards the top of the pile.

Loading Material

⚠ WARNING

Improper size of material or overloading the belt capacity may result in injury or conveyor damage.

Note: For the proper belt capacity for your conveyor see page 79.

A conveyor belt, correctly installed and trained, will run straight and true. The belt must run centered on all terminal, snub, and take-up pulleys, idlers and return rollers throughout the entire length. Straight running also requires that the belt contact the horizontal roller of the idlers.

Never use side-guide idlers to compensate for erratic belt travel. Self-aligning idlers should not be used to guide the belt into correct running position, but rather as a safeguard against unusual operating conditions after the belt has been properly trained.

IMPORTANT

Incorrect belt installation and training can result in severe edge damage, excessive power demands, and material spillage and leakage through the skirtboards at the loading point.

Material spillage is the usual reason for belt carcass ruptures and pulley cover gouging and stripping, while leakage at the skirtboards results in excessive belt cover wear under the skirtboards.

After the belt has been properly trained while running empty, load the belt to facilitate breaking it in. When operating, the conveyor must be running before receiving material from the discharge unit. When shutting down, the feeding unit must be stopped first, while the conveyor will continue to run until empty. Check to be sure the electric controls are wired to provide the proper starting and stopping sequence. If you are running very wet or moist material, run the belt empty for at least three complete revolutions to clean material from the belt.

With the belt operating under load, check the belt for runout and, if necessary, realign idlers. See "Belt Training" on page 21.

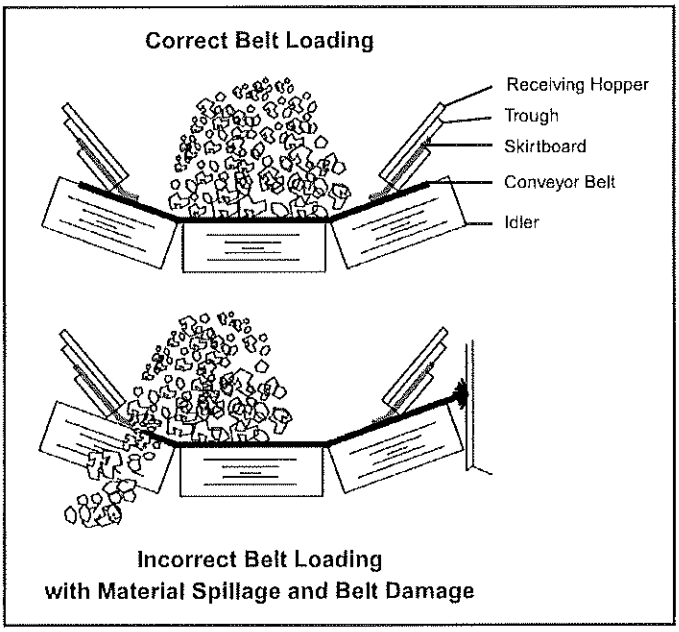


Figure 85

After the conveyor has been thoroughly checked over and all belt training completed, the conveyor can be loaded. Start with a light load and gradually work up to the load that the conveyor was designed to handle. When stopping the conveyor, operate until the belt is clear of material, especially at the end of each working day. During cold weather, material remaining on the belt will freeze to the rubber covering and may cause damage.

IMPORTANT

Check chutes to see that the material is being directed onto the center of the belt (Figure 85). Off-center loading is harmful to belt, idlers, and shafting. The loading point of a conveyor is critical. Here the belt receives its major abrasion and practically all of its impact. The ideal condition is to have the material pass from chute to belt at the same speed and direction of travel as the belt, with a minimum amount of impact.

Rubber skirtboards are bolted to the trough to form the load centrally on the belt, to prevent side spillage, and to prevent material from spilling out the back or bottom of the trough. Larger material spilling out the back of the trough has potential to catch in the belt or damage the tail pulley. Skirtboards will require adjustment or replacement as they wear.

Material must be stilled on the belt before it reaches the end of the skirtboards. If the material particles are still tumbling as they pass the skirtboard ends, belt speed may need to be adjusted, feed arrangement or rate may need to be adjusted, or the trough and skirtboards may need to be extended in order to avoid side spillage of material.

Transporting

Swing Axle

1. Retract the stinger completely.

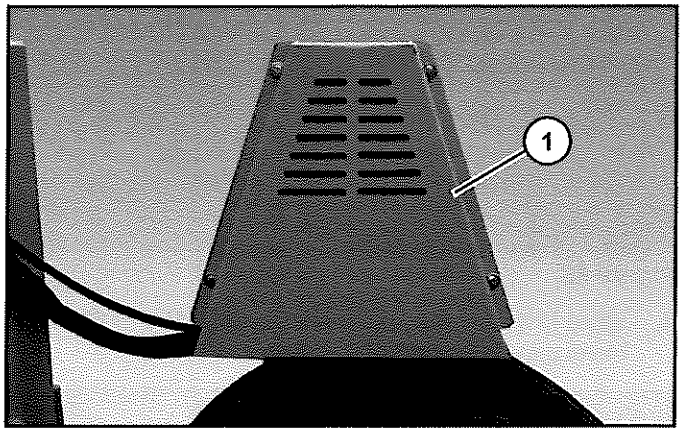


Figure 86

2. Remove the power travel guard (Item 1) **(Figure 86)**.

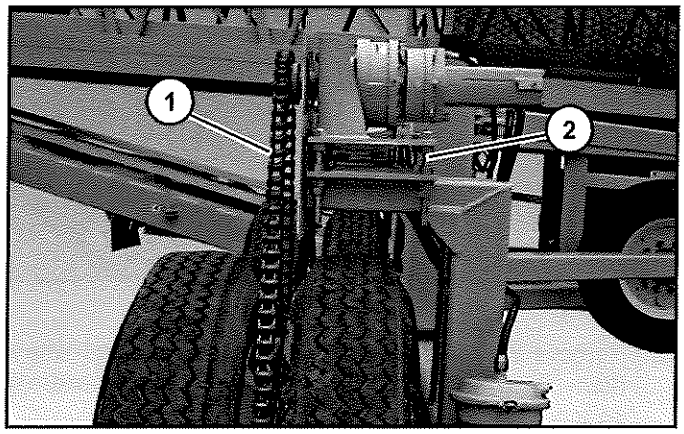


Figure 87

3. Remove the power travel chain (Item 1), relieve tension on the chain by adjusting the bolts (Item 2). Remove the full link connector and remove the chain **(Figure 87)**.

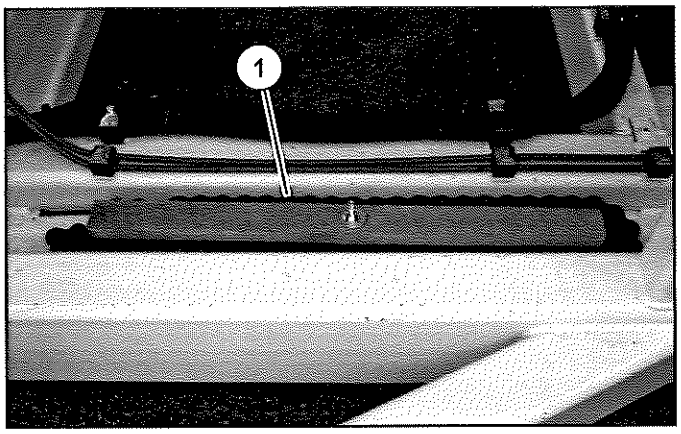


Figure 88

4. Store chain in the transport location. Reinstall power travel guard **(Figure 88)**.

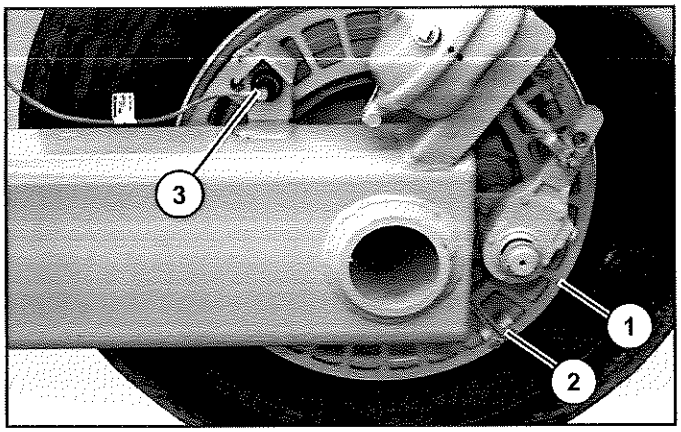


Figure 89

5. Remove the bolts (Item 1) securing the counter wheel (Item 2) **(Figure 89)**. Remove the radial proximity switch.

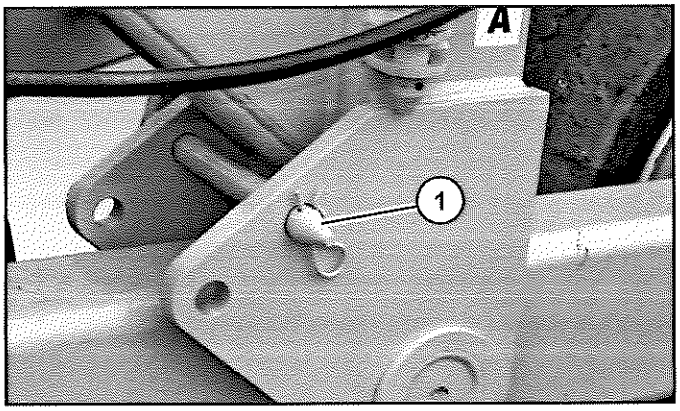


Figure 90

6. Remove the walking beam pins (Item 1) **(Figure 90)** on both sides of conveyor from the top (operating) position and place into the bottom (set-up/take down) position.

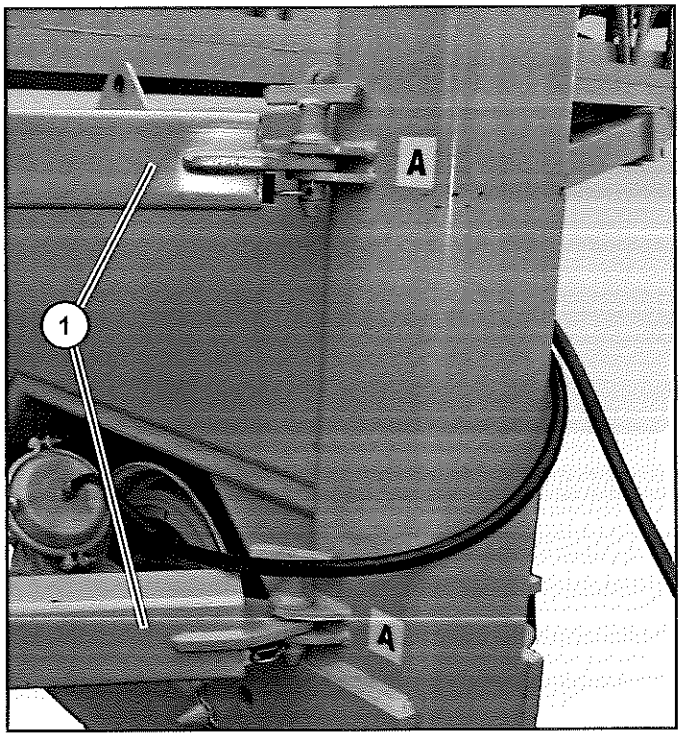


Figure 91

7. Using appropriate equipment, lift the conveyor one side at a time (block wheels on opposite side) and remove the four A bars (Item 1) **(Figure 91)**.

Note: See "Blocking and Lifting the Conveyor" on page 24.

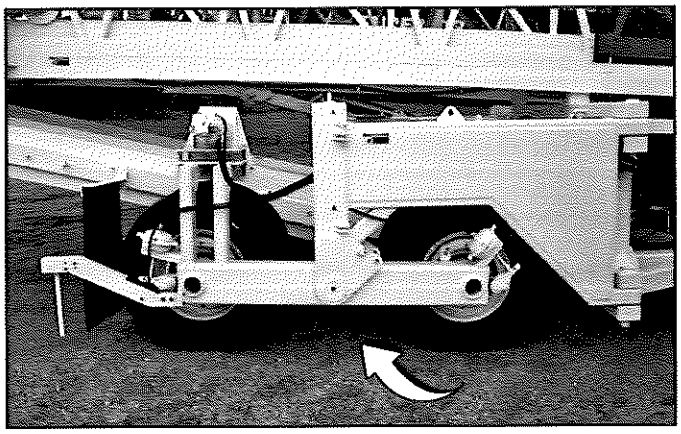


Figure 92

8. Swing the axle arm back into transport position. Repeat for the opposite side **(Figure 92)**.

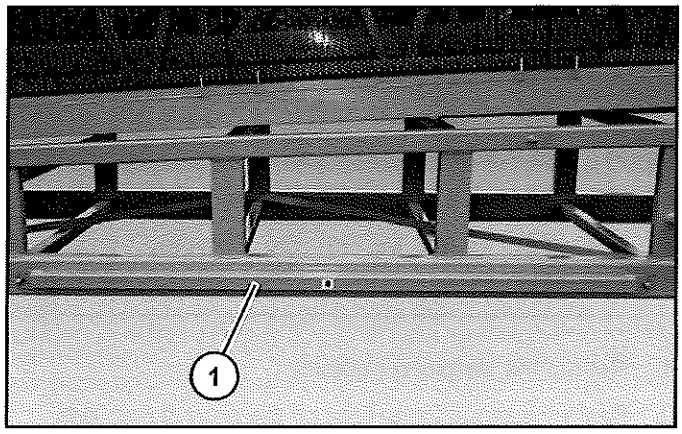


Figure 93

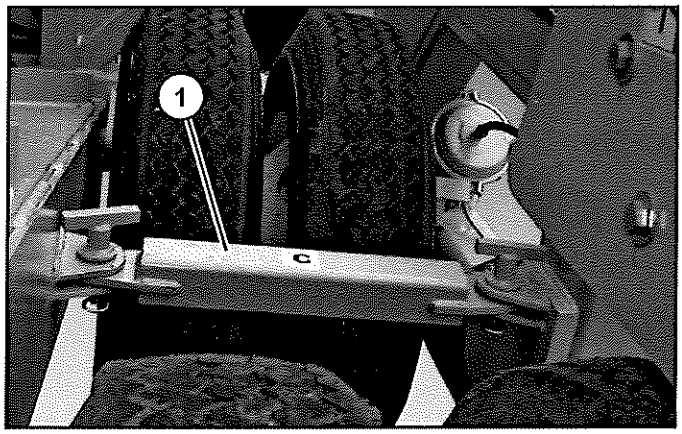


Figure 94

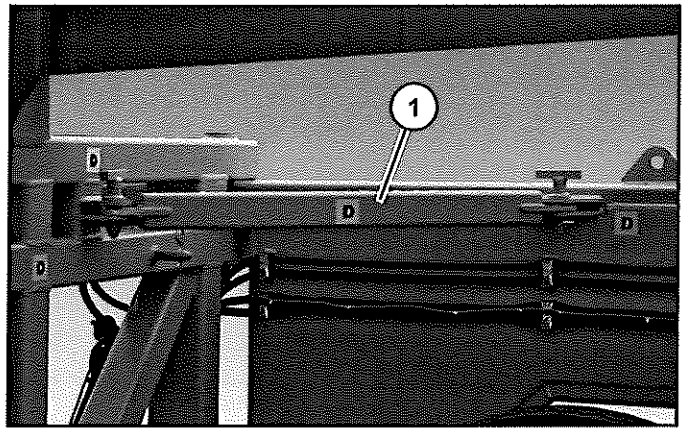


Figure 95

9. Remove bars, B (Item 1) **(Figure 93)**, C (Item 1) **(Figure 94)**, and D (Item 1) **(Figure 95)** from operating position and pin in transport position. Place the four A bars in transport position on the side of the conveyor body.

10. Remove the walking beam pins on both sides of conveyor from the bottom (set-up/take down) position and place into the top (operating) position.

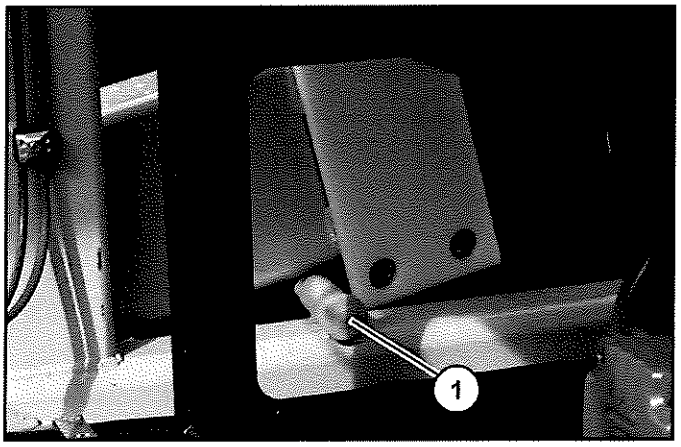


Figure 96

11. Unpin the tag axle (Item 1) **(Figure 96)**.

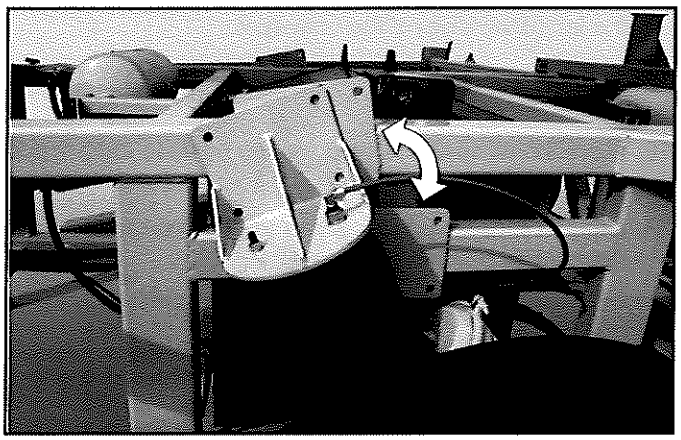


Figure 97

12. Remove the four bolts holding the tag axle in place. Using appropriate equipment, lower the tag axle to the transport position. Reinstall the four bolts. Inflate air springs.

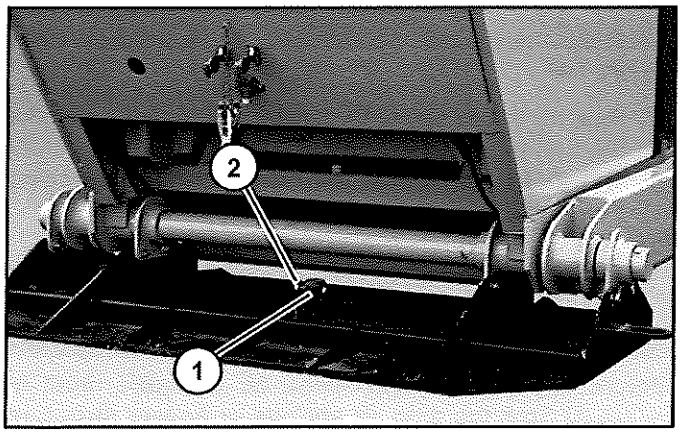


Figure 98

13. Remove the keeper bolt to free the pivot plate (Item 1) **(Figure 98)** from the concrete pad.

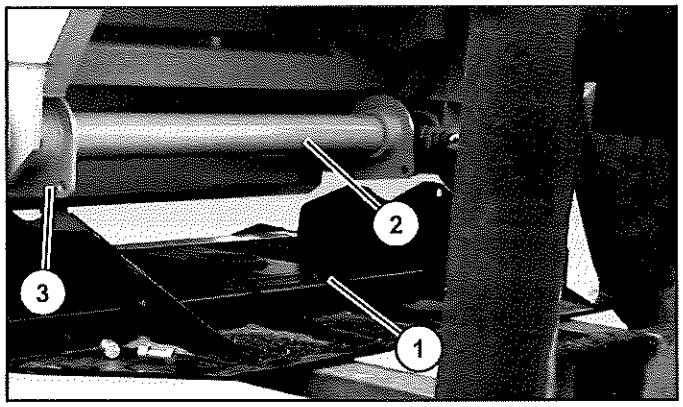


Figure 99

14. Remove the pivot plate (Item 1) from the shaft (Item 2) by removing the bolts from the tabs (Item 3) **(Figure 99)**. Replace the pivot plate to the counter weight on the left (ditch side) of the conveyor.
15. Remove concrete pad and relocate to new position, or build a new pad.
16. Move the tilt switch from operating position to transport position.
17. Contact a qualified electrician to remove the electrical connection.

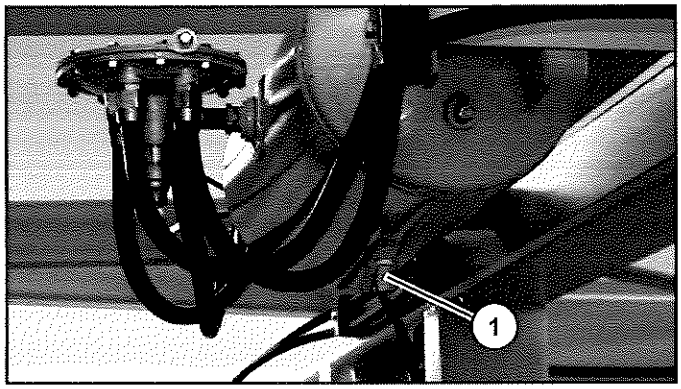


Figure 100

18. Reapply the air brake. Do this by adjusting the air valve (Item 1) **(Figure 107)** on the bottom of the tank. Make certain the air brakes are working correctly before transport.

IMPORTANT

Before any reverse movement, air pressure must be released from tag axle air springs or severe structural damage will occur.

FD Axle

⚠ CAUTION

- **Maximum travel speed 55 mph on paved roads.**
- **Conveyor must be in the lowered transport position.**

1. Retract the stinger completely.
2. Raise the radial travel tires off the ground one foot.

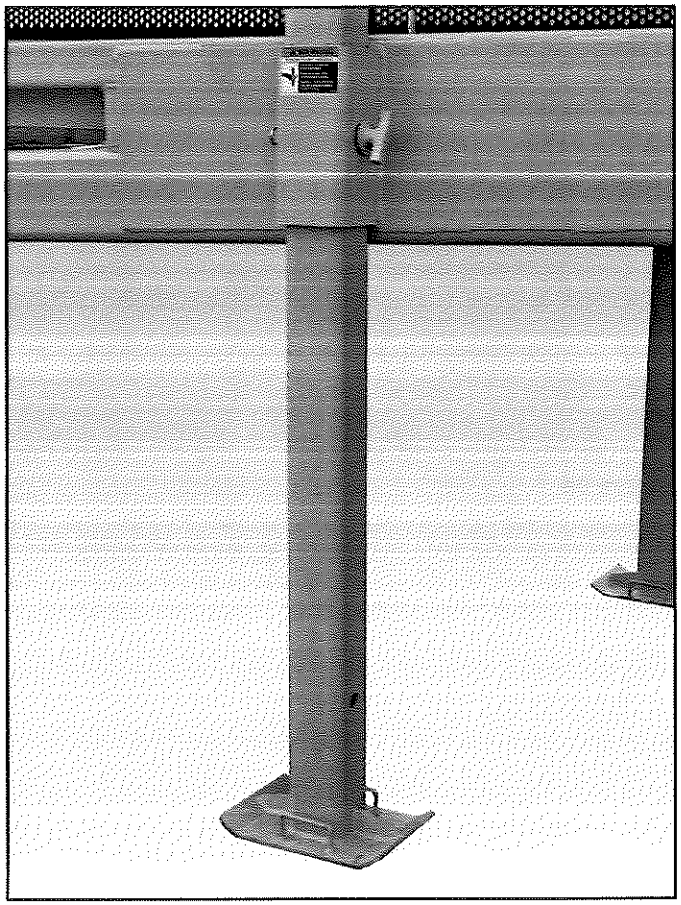


Figure 101

3. Raise conveyor enough to pin landing legs into transport position **(Figure 101)**.

Note: If you have a low profile conveyor read the following instructions, if not skip to step 9.

4. Lift the conveyor tail off the ground.

Note: See "Blocking and Lifting the Conveyor" on page 24.

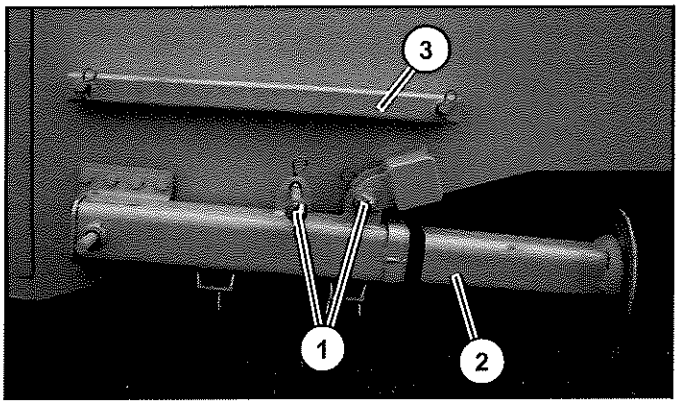


Figure 102

5. Remove pins (Item 1) and swing the jack legs (Item 2) into the transport position **(Figure 102)**.
6. Remove the brace arm (Item 3) **(Figure 102)** from the stored position and repin in the transport position.

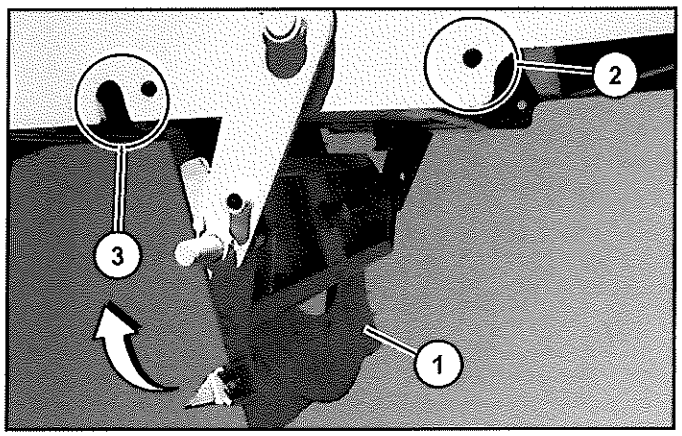


Figure 103

7. Switch the pivot plate (Item 1) from the operating position (Item 2) to the transport position (Item 3), remove the lock bolt. The plate will swing down, rotate up into the transport position **(Figure 103)**.
8. Replace the pins on both sides to secure in place.

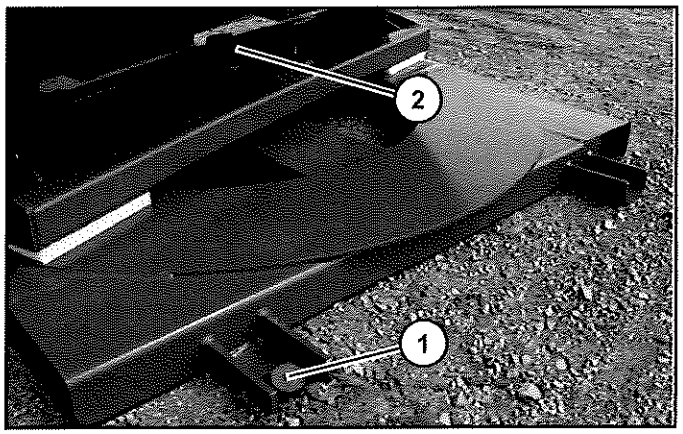


Figure 104

9. Remove the stakes (Item 1) holding the pivot plate in place. Remove the bolt (Item 2) securing the tail end of the conveyor to the pivot plate **(Figure 104)**.
10. Lower the conveyor completely. This will raise the tail to transport height.

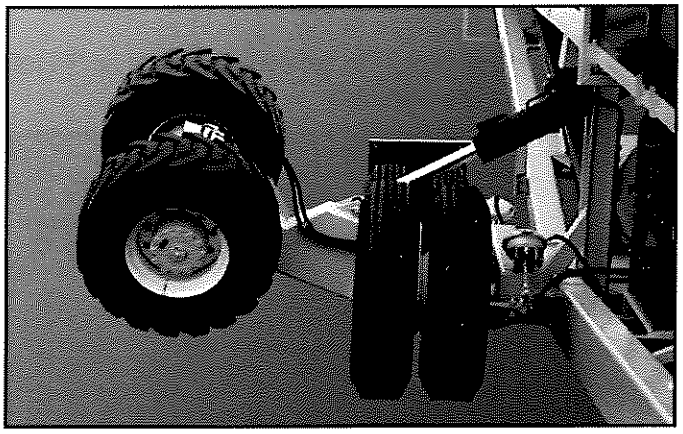


Figure 105

11. Raise the radial travel wheels completely **(Figure 105)**.

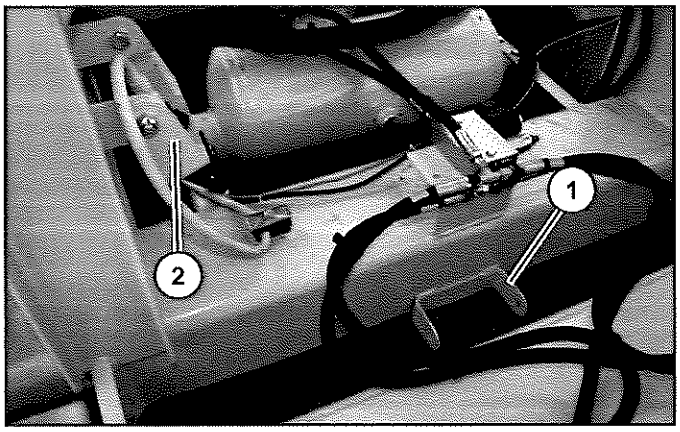


Figure 106

12. Move the radial photo eye from operating position (Item 1) to transport position (Item 2) **(Figure 106)**.
13. Move the tilt switch from operating position to transport position.
14. Contact a qualified electrician to remove the electrical connection.
15. Replace the pivot plate to the counter weight on the left (ditch side) of the conveyor.

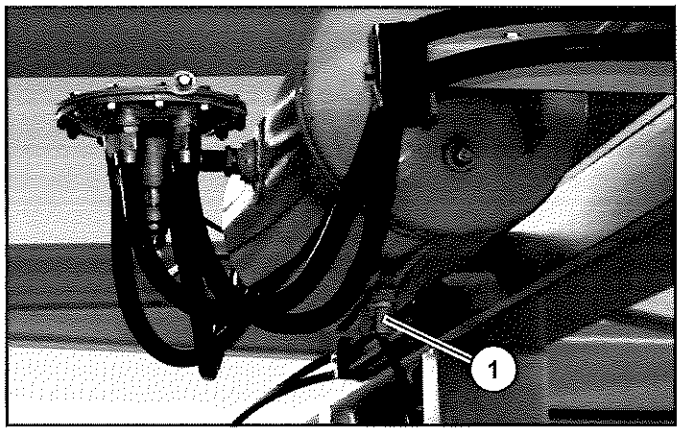


Figure 107

16. Reapply the air brake. Do this by adjusting the air valve (Item 1) **(Figure 107)** on the bottom of the tank. Make certain the air brakes are working correctly before transport.

General Maintenance

⚠ WARNING

Failure to follow correct lockout and tagout procedures could result in death or serious injury!

⚠ WARNING

Review safety instructions on page 3 before starting maintenance.

To ensure efficient operation, the operator or maintenance personnel should inspect, lubricate, and make necessary adjustments and repairs at regular intervals. Parts that are starting to show wear should be ordered ahead of time, before a costly breakdown occurs and you have to wait for replacement parts. Keep good maintenance records, and adequately clean your conveyor after each use.

Proper lubrication is important. Too little lubricant will cause premature failure of a bearing. Too much lubrication usually causes high operating temperature and early failure of seals. Follow all lubrication instructions included in this section.

If you store your conveyor for a long period of time, remove the tension on the belt.

As Required Maintenance

- Make sure idlers and return rollers contact the belt and run free under load.
- If you are using a belt scale it will be necessary to level the idlers by shimming under each one.
- Maintain a level conveyor.
- Make certain tire inflation does not exceed recommended PSI rating. See "Tire Pressure" on page 104.
- First 50 hours of operation change the power travel gearbox oil. See "Hydraulic System (if equipped)" on page 51.
- Be certain the radial arc path is free of materials.
- Check winch cable tension before operating conveyor.
- Replace the PLC battery after two years. See "PLC and Touch Screen" on page 62.

Maintenance Schedule

HOURS	SERVICE POINTS	SERVICE REQUIRED					PAGE #
		CHECK	CLEAN	CHANGE	FILL	ADJUST	
Every 10	Machine		X				-
	Hydraulic Oil Level	X					52
	Hydraulic Oil Temperature	X					-
	Loose Bolts					X	-
	Belt Travel	X					21
	Safety Stop Lines & Switches (if equipped)	X					-
	Drive Pulley	X					-
Every 50	Belt Tension	X					54
	Skirtboard	X				X	60
	Belt Fasteners for Wear	X					54
	Belt for Tears	X					54
	Safety Labels	X					-
	Belt Scraper	X	X			X	61
Every 100	Winch Cable	X					57
	FD Axle	X					50
	Walking beam	X					51
Every 250	Hoses and Wiring	X					-
	Oil Leaks	X					53
	Breather Cap		X				53
	Pressure Gauge	X					-
	UHMW Plates	X					55
Every 500	Breather Cap			X			53
	Hydraulic Tank		X				52
	Hydraulic Filter			X			52
Every 1000	Hydraulic Tank Fluid			X	X		51
	Power Travel Gearbox			X			51
	Planetary Hub			X	X		51
	Wheel Hub	X			X		51

Lubrication

Lubricate the various parts as follows:

- Bearings: Follow manufacturer's recommendations in the provided documentation. Bearings mounted on head and tail pulley shafts will run under 250 RPM. Bearings mounted on balanced drive jack shafts will run around 1800 RPM.
- Adjusting bolts: Lubricate as needed.
- Motors: Follow manufacturer's recommendations in the provided documentation.

Reducer

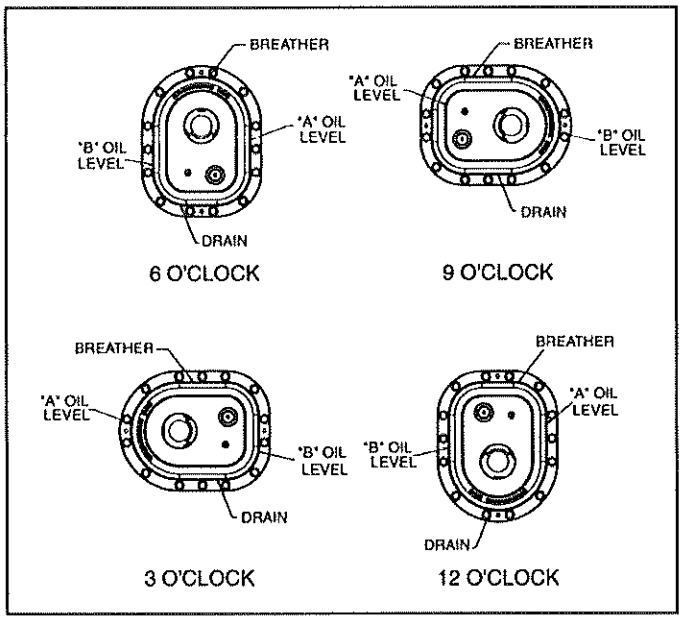


Figure 108

The drawing **(Figure 108)** shows the breather, magnetic drain and oil level plug locations for the four standard mounting positions. The breather is installed in the fill hole in the top and the magnetic drain plug is installed in the bottom of the reducer in its relative position. Use oil level "A" for speeds at or below those shown in Table No. 1. Use oil level "B" for speeds above those shown in Table No. 1.

Table No. 1 - Use oil level "B" for speeds above those shown below.

Reducer Size	Output RPM for Reducer Ratios				
	5:1	9:1	15:1	25:1	35:1
207	275	112	99	70	40
215	236	97	85	70	40
307	204	90	79	70	40
315	202	85	62	70	40
407	176	-	63	55	-

Table No. 2 - Approximate oil capacities in quarts

Reducer Size	5:1 Ratio							
	Oil Level "A"				Oil Level "B"			
	3	6	9	12	3	6	9	12
207	6.5	7.0	7.5	7.0	3.0	4.0	4.5	4.5
215	9.0	10.0	11.5	10.5	4.0	5.5	7.0	6.0
307	13.0	13.5	15.5	14.0	7.0	8.5	10.0	15.5
315	17.0	19.5	19.5	17.5	10.0	12.5	13.0	11.0
407	21.5	18.0	16.0	18.0	13.0	11.0	7.5	11.5
Reducer Size	9:1, 15:1, 25:1, 35:1 Ratio							
	Oil Level "A"				Oil Level "B"			
	3	6	9	12	3	6	9	12
207	6.5	7.0	7.5	7.0	3.0	4.0	4.5	4.5
215	8.0	9.0	11.0	10.0	4.0	5.0	7.0	6.0
307	12.0	12.5	15.0	14.0	7.0	8.0	10.0	9.5
315	15.5	18.0	19.0	17.0	9.5	11.5	13.0	11.0
407	19.0	15.5	16.0	17.5	11.0	9.0	7.5	11.5

Reducer Size	Vertical			
	5:1 Ratio		9:1, 15:1, 25:1, 35:1 Ratio	
	Input Shaft Up	Input Shaft Down	Input Shaft Up	Input Shaft Down
207	8.50	9.00	8.50	9.00
215	13.00	12.50	12.00	12.00
307	18.50	20.00	17.50	19.00

Reducer Size	Vertical			
	5:1 Ratio		9:1, 15:1, 25:1, 35:1 Ratio	
	Input Shaft Up	Input Shaft Down	Input Shaft Up	Input Shaft Down
315	24.00	26.00	22.50	25.00
407	21.50	21.00	19.00	19.50

IMPORTANT

Petroleum-based and synthetic lubricants which contain anti-wear/extreme pressure additives must not be used in units with internal backstops. These additives decrease the backstop's ability to prevent reverse rotation and will result in backstop failure.

Relubrication

After approximately one week or 100 hours of operation, drain and replace with fresh oil. Change oil at least once a year thereafter; more often if the atmosphere is damp or dusty.

Petroleum-based Lubricants

For normal operating conditions, oil should be changed every 2,500 hours or six months, whichever occurs first. If temperatures vary by season, the oil should be changed to suit the ambient operating temperature.

Synthetic Lubricants

Some type of synthetic lubricants can be used in shaft mount reducers. These lubricants can extend oil change intervals to as much as 8,000 to 10,000 hours on operating temperatures and lubricant contamination. If temperatures vary by season, the oil should be changed to suit the ambient operating temperature.

Reducer Size	AGMA Oil Viscosity Grades for Ambient Operating Temperatures			
	Between 14°F and 50°F		Between 50°F and 95°F	
	Output (RPM)	Output (RPM)	Output (RPM)	Output (RPM)
207	5 (5-360)	4 (361-400)	6 (5-360)	5 (361-400)
215	5 (5-300)	4 (301-400)	6 (5-300)	5 (301-400)
307	5 (5-280)	4 (281-400)	6 (5-260)	5 (261-400)
315	5 (5-260)	4 (261-400)	6 (5-220)	5 (221-400)
407	5 (5-220)	4 (221-400)	6 (5-200)	5 (201-400)

Wheel Hubs

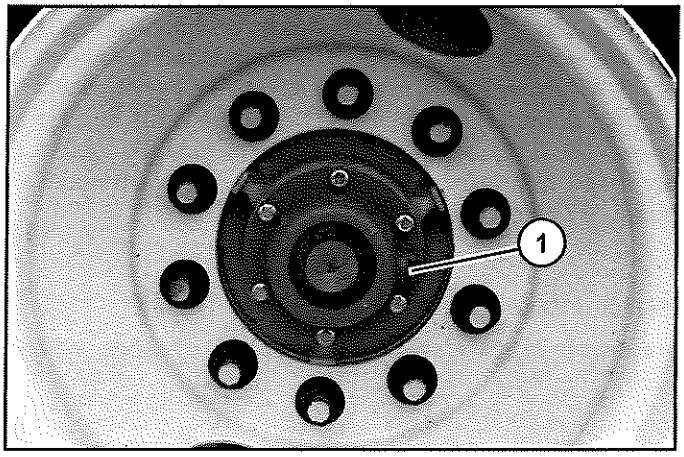


Figure 109

The wheel hubs are filled with 75W90 gear lube. Add gear lube to the hubs when low.

When the hub lubricant is below the fill line, remove the plug (Item 1) **(Figure 109)** and add 75W90 gear lube until the oil reaches the fill line. Reinsert plug.

Swing Axle Only

Power Travel Gearbox

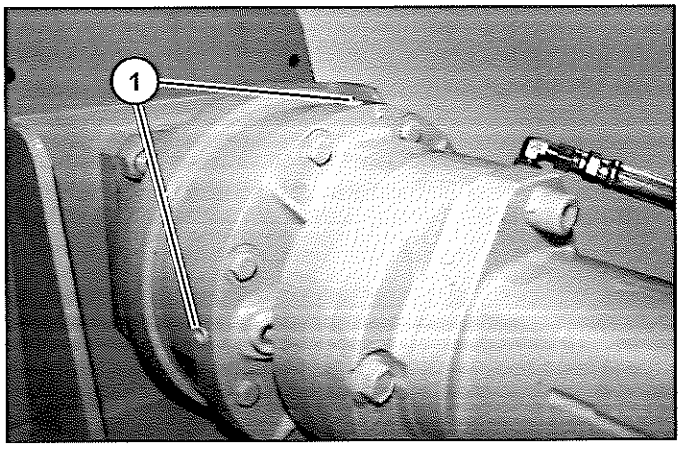


Figure 110

Gearbox oil capacity: 17 oz.

Use a good grade of oil with a viscosity of ISO 150-220 at 100° F. If ambient temperatures are not within the parameters of the oil used it is recommended to change to an oil with a temperature range suitable to the application. Use drain and fill plugs (Item 1) **(Figure 110)** located in cover. Oil is to be changed after the first 50 hours of operation with subsequent changes every 1000 hours or yearly, which ever comes first.

Walking Beam

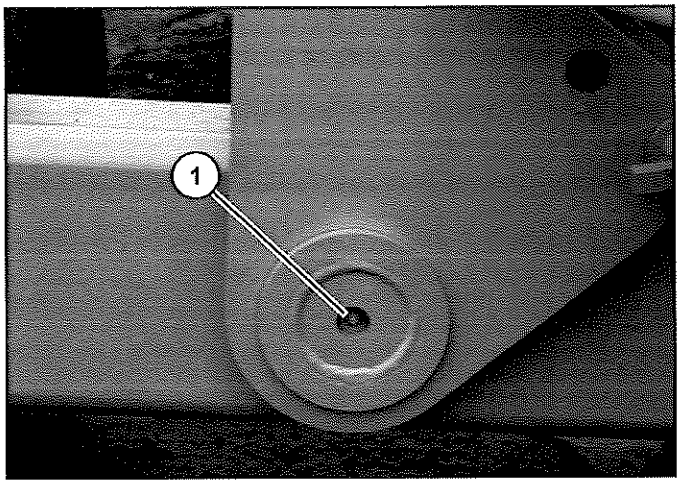


Figure 111

Grease the walking beam grease fitting (Item 1) **(Figure 111)** twice a month. Use a #2 general purpose lithium based grease.

Fold Down Axle Only

Axle

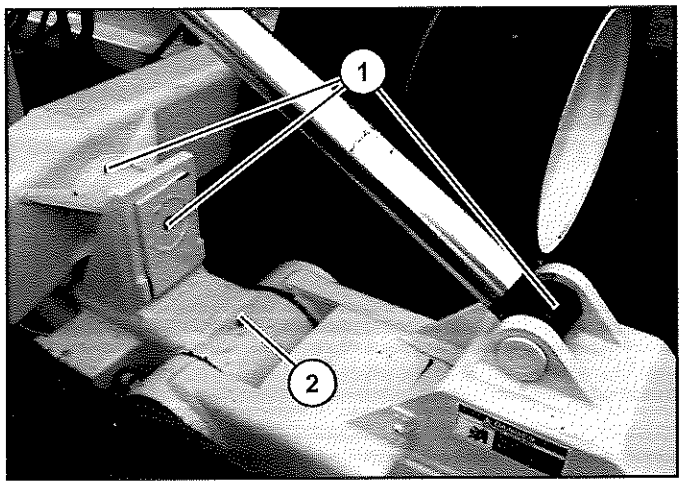


Figure 112

Grease the five fold down axle grease fittings, three (Item 1) and two-top and bottom (Item 2) **(Figure 112)** twice a month. Use a #2 general purpose lithium based grease.

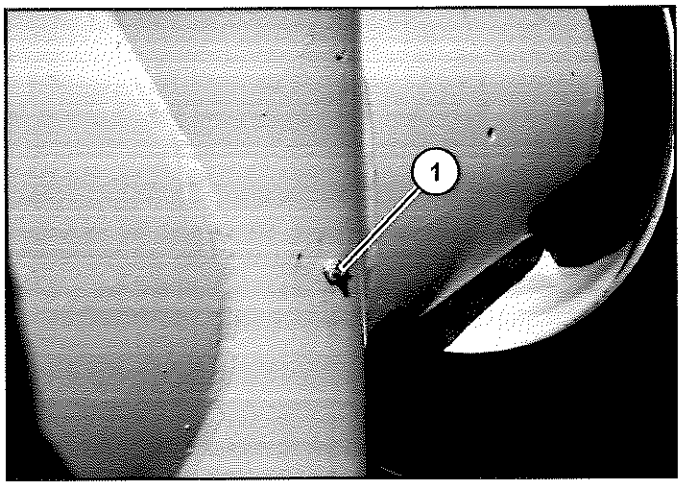


Figure 113

Grease the axle fitting (Item 1) **(Figure 113)** twice a month. Use a #2 general purpose lithium based grease.

Planetary Hubs

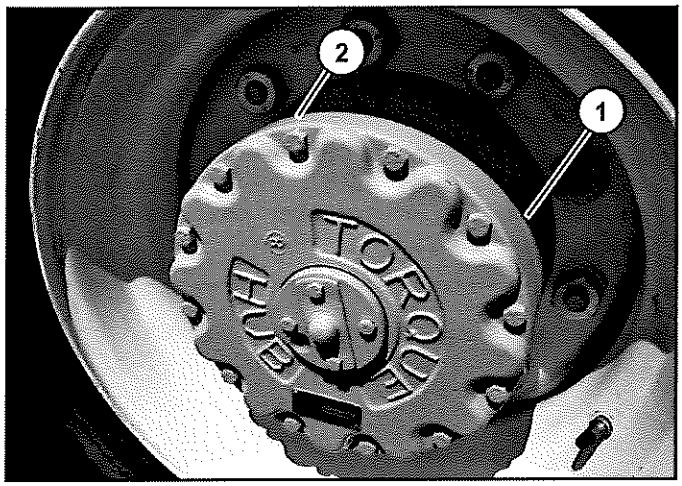


Figure 114

The planetary hubs are filled with 75W90 gear lube. It is recommended to change the lubricant in the hubs yearly.

To check the hub lubricant, rotate the wheel until the plug (Item 1) is level to the center point of the wheel (3 o'clock position). Remove the plug. If the oil level is below the hole, add 75W90 gear lube into the fill plug (Item 2) until the oil just begins to run out. Reinsert plug **(Figure 114)**.

To replace the hub lubricant, Turn the hub until the plug (Item 1) is at the bottom. Remove the plug and drain the oil. Turn the hub until the plug is level to the center point of the wheel (3 o'clock position), and add 75W90 gear lube into the fill plug (Item 2) until the oil just begins to run out. Reinsert plug **(Figure 114)**.

Hydraulic System (if equipped)

Hydraulic Oil

Hydraulic Oil Type: ISO 32

Hydraulic Oil Tank Capacity: 55 gallon, 100 gallon

⚠ WARNING

Extreme caution must be used when working adjacent to and with high pressure hydraulic oil lines. If any oil is injected into the skin, it is absolutely essential that the injured person seek immediate medical care from a facility that is familiar with this type of injury or permanent injury may result.

The use of approved oil in the hydraulic system is essential for satisfactory system operation. Keep the hydraulic oil in the original closed containers. Clean the top of container before opening and pouring. Use a clean funnel with built in strainer and use extreme care to keep dirt out of the system.

Change the hydraulic oil:

- Every 2000 hrs
- Whenever contamination is suspected or
- Once a year

IMPORTANT

In any instance when the level of oil in the hydraulic oil tank falls below the safe operating level, a hydraulic hose fails, or a hydraulic leak develops, IMMEDIATELY shut off the conveyor and do not restart until oil levels are restored to operating levels.

Note: If the natural color of the fluid has become black or milky, it is possible that an overheating or water contaminant problem exists. If either of these situations exist, determine the cause and make the necessary repairs then change the oil and filters.

Checking the Hydraulic Oil Level

Check the hydraulic oil level daily.

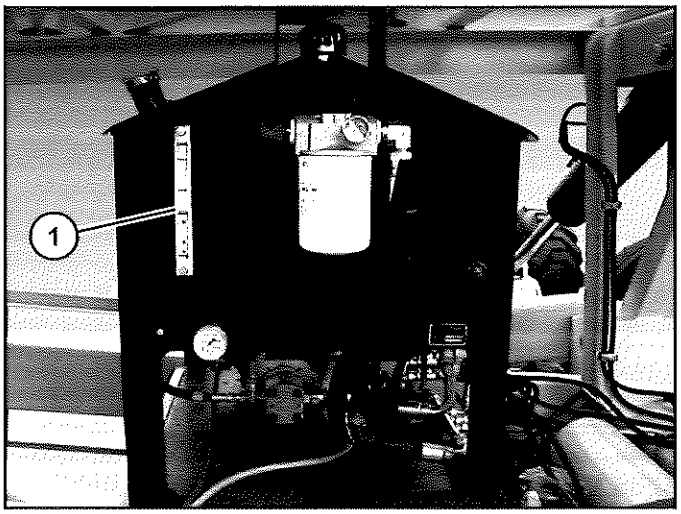


Figure 115

Note: Lower the conveyor, retract the stinger completely, and raise the FD axles (if equipped) before checking the hydraulic oil level.

When the oil is not visible on the bottom of sight gauge (Item 1) **(Figure 115)** the oil level is low. Add oil until it is visible on the top of sight gauge.

Keeping the Hydraulic System Clean

Anytime the hydraulic system is opened up for repairs and/ or anytime fluid is changed or added, it must be assumed that contaminants are being introduced to the system. Cleanliness cannot be overemphasized. Changing the oil filter and oil at the proper intervals is necessary to maintain quality and a reliable system.

It is of utmost importance when working on any hydraulic system to keep the components and surrounding area being serviced as clean as possible. Pressure wash all mud, grease, oil, and dirt off the area to be opened up and serviced. Before loosening and removing hydraulic fittings and hoses, spray the immediate area around the fittings with a pressure washer. Have threaded plugs and/or caps of the proper size in hand to install immediately. Do not leave hoses or hydraulic components exposed.

Hydraulic Oil Filter

IMPORTANT

Filtration of hydraulic oil is critical to proper lubrication. Use only filters meeting performance specifications. Use of improper filters may lead to premature hydraulic failure.

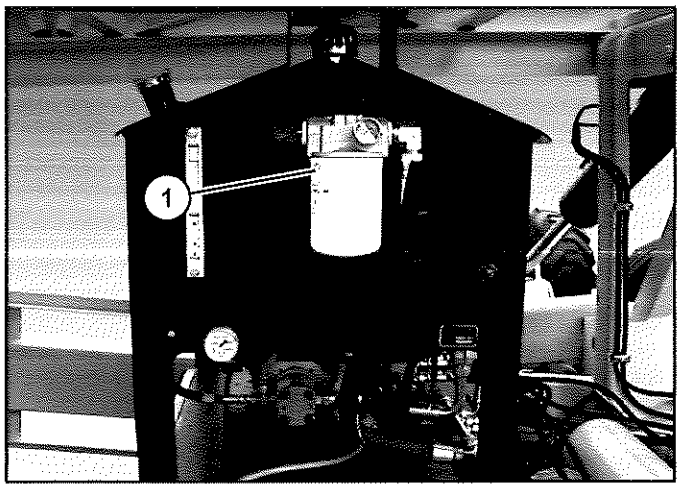


Figure 116

This conveyor has a return filter (Item 1) **(Figure 116)** which is located on front of the hydraulic tank.

Change the hydraulic oil filters according to the following:

- Change the hydraulic oil filters every 1000 hrs of operation.
- Change the hydraulic oil filters when oil is changed seasonally.
- Change the hydraulic oil filters and the hydraulic oil if contamination is suspected.

Changing Hydraulic Oil and Filters

Note: It is advisable to pressure wash the outside and top of the hydraulic tank. Also wash the oil filter assembly and the area around the oil filter. Do this before starting the following procedure.

Note: It is recommended whenever changing hydraulic oil to also replace the hydraulic filter.

1. Clean the tank top and filter areas before proceeding.
2. Remove plug on the bottom of the hydraulic tank, and drain the oil into appropriate container.
3. Replace the plug.
4. Install new hydraulic oil filter canisters.
5. Fill the hydraulic oil tank with specified hydraulic oil.

Note: There must be oil in the tank when the conveyor is running. If the pumps do not receive oil, severe pump damage is possible within 10 seconds.

Hydraulic Part Replacement

Whenever repairing/replacing any hydraulic parts follow these guidelines:

1. Power wash entire machine, especially around area to be worked on.
2. Clean all connections to be removed with an aerosol degreaser and brush before loosening. Repeat flush with aerosol degreaser with fitting backed out 2-3 turns.
3. Immediately cap or plug any connection that is opened with clean, threaded caps and plugs.
4. Make necessary repairs.
5. Install a new return filter.
6. Cycle any cylinder or motor that has been opened, 5 times, through complete stroke, to move any air and debris to the tank.

Note: There must be oil in the tank when the conveyor is running. If the pumps do not receive oil, severe pump damage is possible within 10 seconds.

Hydraulic System Breather

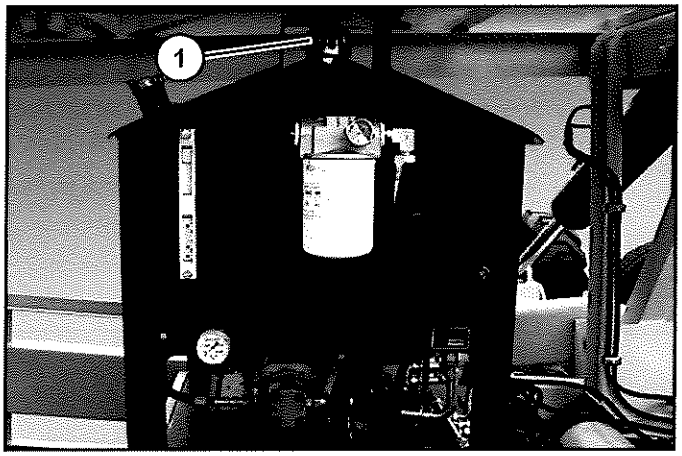


Figure 117

The hydraulic tank is equipped with a screw on canister breather (Item 1) **(Figure 117)**. The breather is located on top of the tank. The breather should be replaced if the unit is run in extremely dirty conditions or once every season.

Raise Cylinder

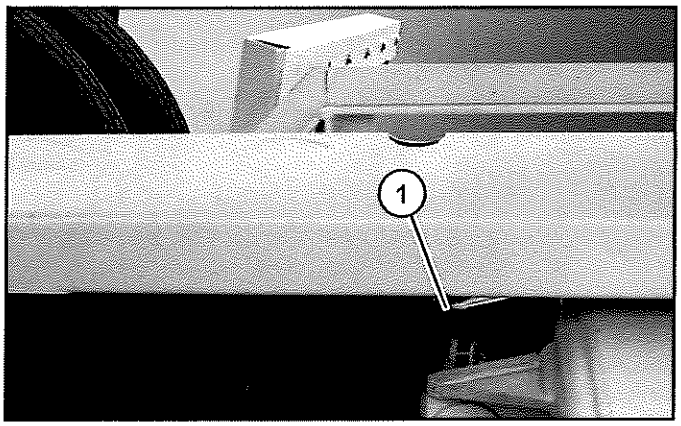


Figure 118

To bleed the air from the raise cylinders, turn the bleeder valve (Item 1) **(Figure 118)** in a counterclockwise direction. This will open the valve and allow the air to escape from the cylinder. When a steady stream of oil comes from the bleeder, turn the valve in a clockwise direction until the valve is closed. If the conveyor cylinders are not rising in unison, there is still air present in the cylinders and you will need to bleed both cylinders again. Make sure to stay clear from any oil spray

Relief Valve Adjustment

Due to certain shipping restrictions or customer requests, the conveyor may not have been completely plumbed or the hydraulics may not have been available for testing. In some cases, the manual directional valve may not be set to the proper relief setting. The relief valve manufacturer has preset the valve at factory for 2000 PSI. Superior Industries conveyors require a relief valve setting of 3000 PSI.

To adjust the relief valve, you will need the following tools:

- 1/2" wrench (to remove the cap nut) (Manual valve only)
- 9/16" wrench (to loosen the lock nut) (Manual valve only)
- 3/16" Allen wrench (to adjust the set screw) (Manual valve only)

To adjust the relief to the maximum pressure limit, increase the hydraulic load to a maximum limit.

For example: Extend the "raise" cylinder on the undercarriage with the telescoping pins in place. This will "dead head" the pump. At the same time, tune the adjustment screw (Item 1) **(Figure 119)** or (Item 2) **(Figure 120)**, depending on your hydraulic configuration, clockwise until the pressure gauge reads 3000 PSI. Set the lock nut.

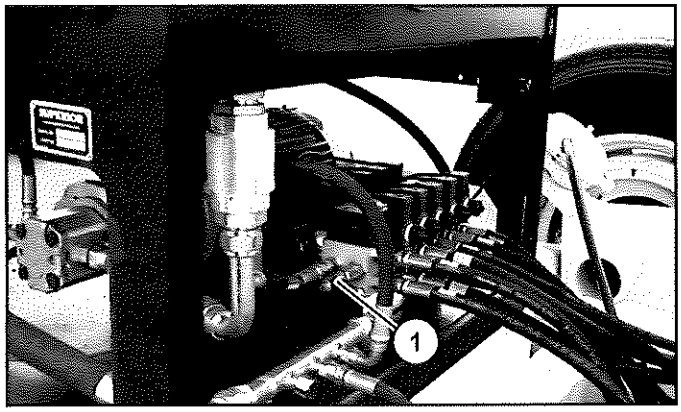


Figure 119

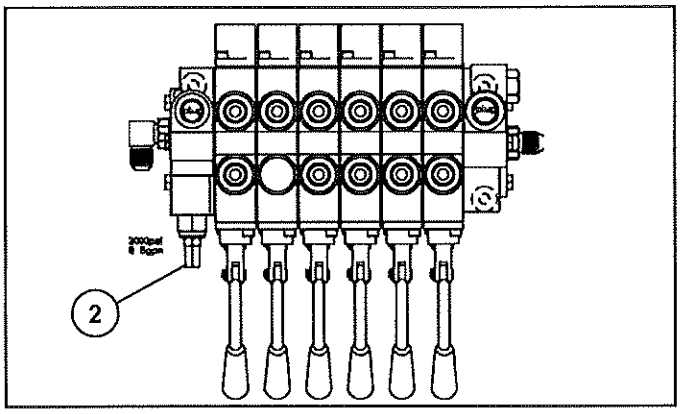


Figure 120

Belt Maintenance

Belt Tightening

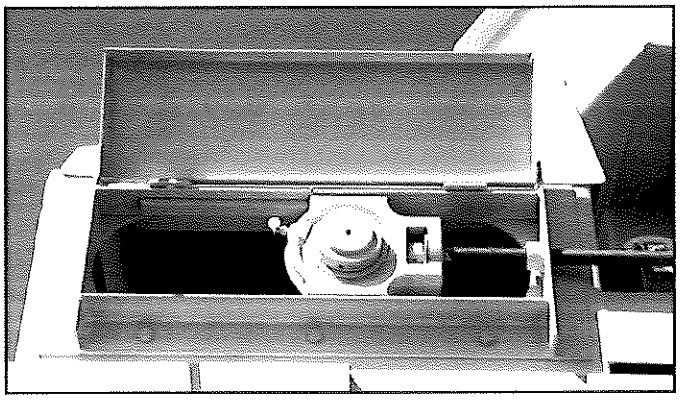


Figure 121

This conveyor is equipped with take-up side adjusting bolts **(Figure 121)** at the tail end to maintain the necessary belt tension. With a wrench, loosen the take-up side adjusting bolts to move the sliding bearing assemblies forward. Apply the proper tension to the belt to prevent slippage and excessive belt sag between idlers, and then re-tighten the take-up side adjusting bolts.

A standard guide for ensuring proper belt tension:

1. Before tightening the belt, measure out 100 inches. Mark the belt on both ends of the measurement.
2. Tighten the belt until the 100 inch section measures 100-1/4 to 100-1/2 inches.

Belt Repair

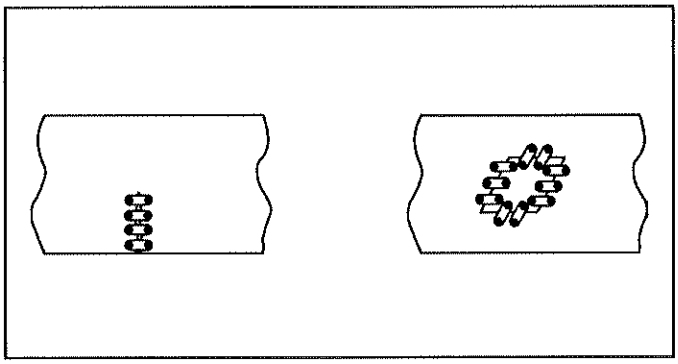


Figure 122

Fasteners can be used to make quick repairs to belt tears or to replace belt sections with new pads of the same belting **(Figure 122)**. Coat all exposed edges or cuts with rubber cementing compound to prevent any moisture or foreign material from entering the belt carcass and causing further damage.

UHMW Plates

Base Wear Plate

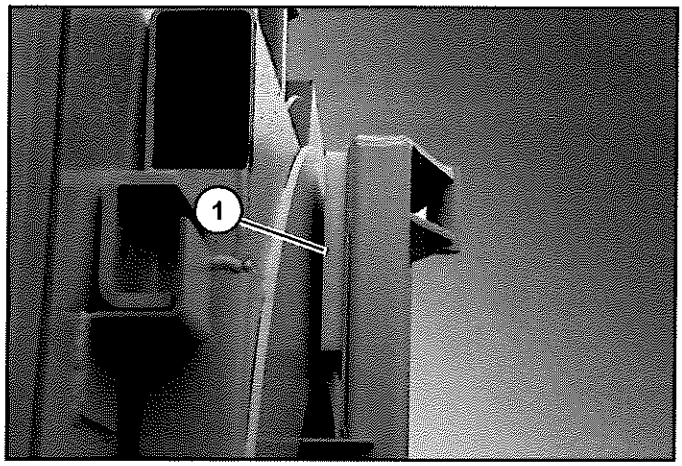


Figure 123

Replace the base wear plate (Item 1) **(Figure 123)** when it is worn to 1/8" thickness away from the bolt heads. Check wear plate every 250 hours of operation.

Stinger Wiper

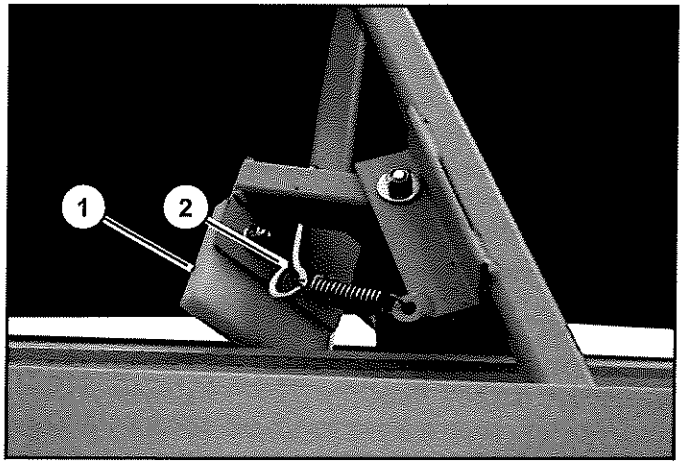


Figure 124

Replace the stinger wiper (Item 1) **(Figure 124)** when it is worn and not clearing the stinger rail properly. Check wiper plate every 250 hours of operation.

Note: The eyebolt (Item 2) can be used to add tension to the spring if necessary.

Stinger Guides

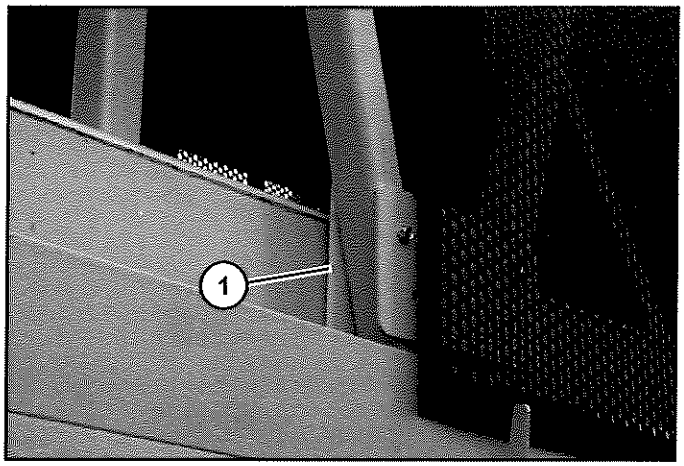


Figure 125

Replace the stinger guide (Item 1) **(Figure 125)** when it is worn to 1/8" thickness away from the bolt heads. Check wear plate every 250 hours of operation.

Note: The guides can be placed in any position up & down the truss. If desired, remove the self-tapping screws, move the guides and drill a 9/32" hole in the lattice members. Reinstall self-tapping screws.

Load Roller Shimming

Load rollers are shimmed at factory, but may need adjustment after road or pit transport.

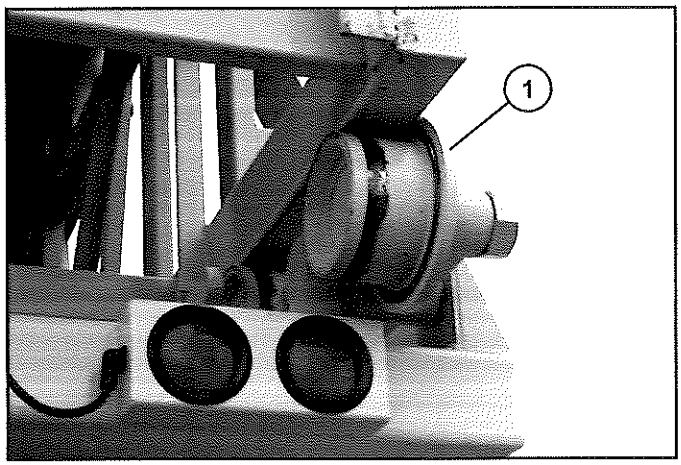


Figure 126

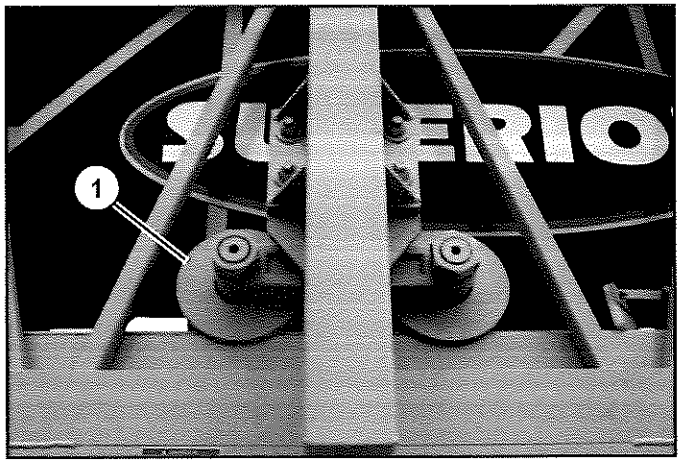


Figure 127

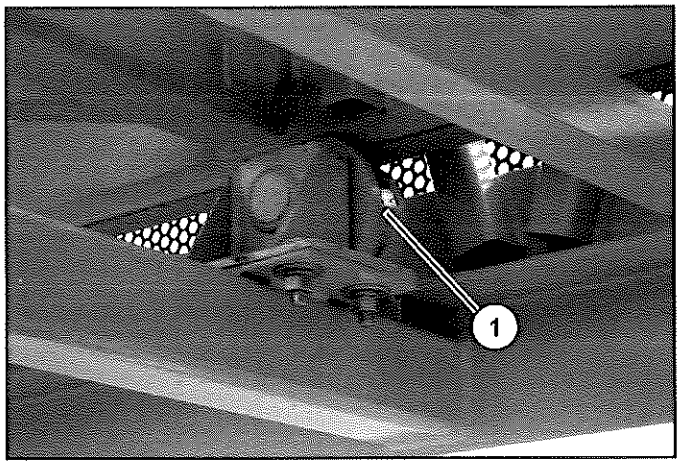


Figure 128

1. Make certain all primary (Item 1) **(Figure 126)**, secondary (Item 1) **(Figure 127)**, and support rollers (Item 1) **(Figure 128)** are in good mechanical shape. The primary load rollers are located closest to the head end of the conveyor.
2. Retract stinger conveyor so it is resting on all four support rollers (Item 1) **(Figure 128)**.

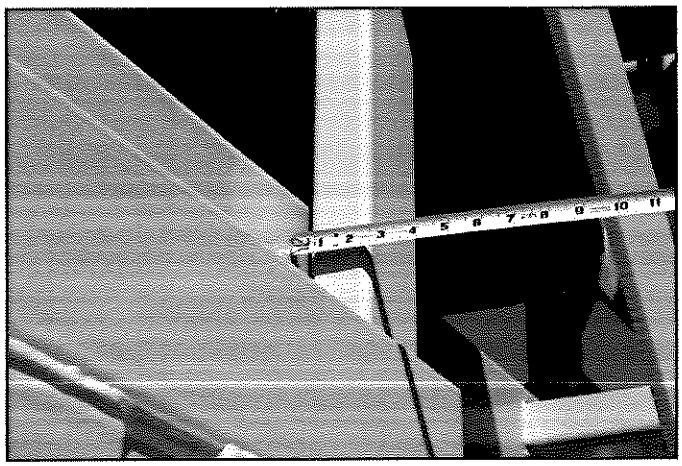


Figure 129

3. Measure between the stinger tube and main conveyor lower angle **(Figure 129)** to be certain both sides are equal. If they are not equal, adjust support rollers. Extend stinger conveyor past the support rollers to remove weight from rollers. Loosen bolts and slide assemblies the required distance on slotted stand. Tighten bolts. Repeat on other side of conveyor, and repeat procedure on second set of support rollers. Retract stinger conveyor and re-measure to be certain both sides are equal.
4. Measure the clearance between the secondary rollers and the main stinger tube. There should be no more than 1/4" on each side. If clearance is greater than 1/4" each side, shim accordingly. Shims can be ordered through Superior Industries Parts department at (320)-589-2406. Part numbers are 10-02795 for a 1/8" plate, or 10-02794 for a 1/4" plate.
5. Measure the clearance between the primary load rollers and the main stinger tube. There should be no more than 1/4" on each side. If clearance is greater than 1/4" inch each side, shim accordingly. Washers for shimming can be ordered using I.D. (inner dimension) 2-15/16" in 1/4" or 1/8" thickness.

Once shimming is complete, the stinger should operate without interference with the main conveyor lattices.

Cable Carrier (E-chain)

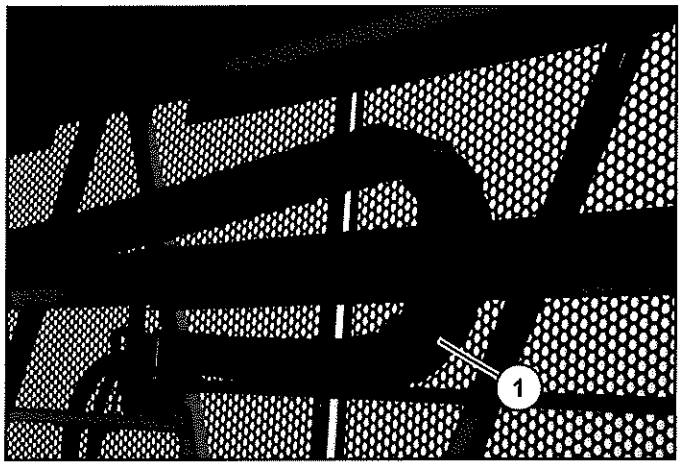


Figure 130

To prevent cable carrier (Item 1) **(Figure 130)** breakage or damage keep the cable carrier free of dirt and debris. Use a pressure washer to clean the cable carrier as necessary.

In freezing conditions make certain the entire cable carrier is free of ice to prevent damage to the cable carrier and/or the conveyor.

Winch Cable

Cable Tension

⚠ WARNING

Never place any body parts inside the truss frame unless the stinger is secured with a chain to the main conveyor frame. Failure to do so may cause serious injury or death.

The winch drum must be free of material build-up. Material build-up can cause excessive cable tensions and result in cable failure.

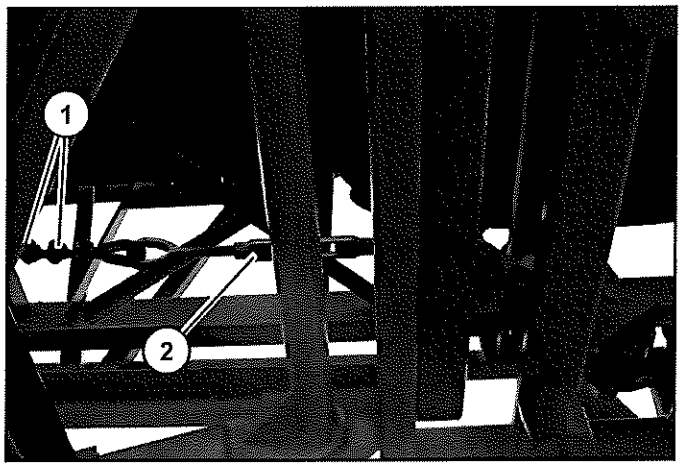


Figure 131

Check cable clamps (Item 1) **(Figure 131)** on the winch cable after the first 50 hours of use.

The turnbuckle (Item 2) **(Figure 131)** can be used to take up the slack in the winch cable.

If the turnbuckle does not take up the slack in the winch cable, extend both ends of the turnbuckle.

Note: Extending both ends of the turnbuckle will allow for additional tightening of the winch cable.

Loosen the cable clamps, take up the slack in the winch cable, then tighten the cable clamps. Tighten the turnbuckle to take up the remaining slack in the winch cable.

Cable on the slack (tail) side of winch must be taut, however, it is not to exceed approximately 1000 lbs. tension. A loose cable may cause improper winding. Over 1000 lbs. of initial tension may cause excessive load on the cable during operation.

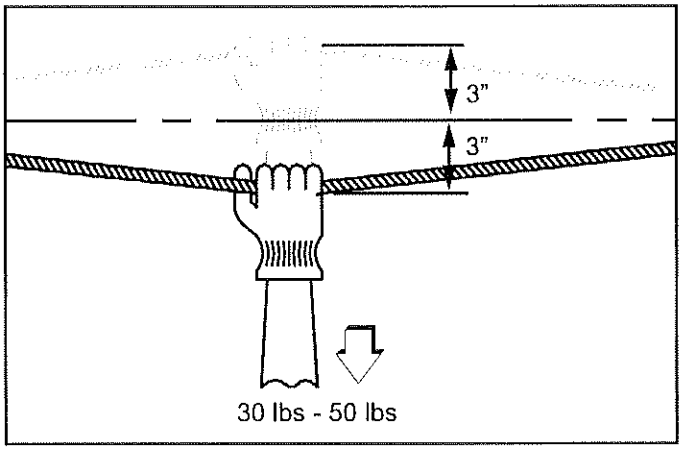


Figure 132

To check for proper winch cable tension, the conveyor must be lowered into the lowest position and fully extended. The tension is to be checked near the midpoint of the cable, which is at the mid point of the main conveyor. Pull sideways on the cable in this location with an effort of approximately 30 to 50 lbs **(Figure 132)**. If the cable is properly tensioned, you should be able to pull the cable at least three inches to either side. If it is not possible to displace the cable three inches, the cable should be loosened and rechecked. If it is possible to displace the cable more than three inches, the cable should be tightened and rechecked.

Wire Rope Inspection and Maintenance

Inspection:

A comprehensive inspection of the wire rope is critical to the ongoing safe operation of the equipment. This inspection must be performed as frequently as once a week. There are many variables that determine the safe operating life of a wire rope.

IMPORTANT

Wire rope safety depends largely on the use of good judgement by the person appointed to perform the inspection.

The following conditions should be sufficient reason for questioning rope safety and for consideration of replacement:

- In running ropes, six (6) randomly distributed broken wires in one rope lay, or three (3) broken wires in one strand in one rope lay.
- Abrasion, scrubbing, or peening causing loss of more than one-third of the original diameter of the outside wires.
- Evidence of severe corrosion.
- Severe kinking, severe crushing, or other damage resulting in distortion of the rope structure.
- Evidence of any heat damage resulting from a torch or arc caused by contact with electrical wires.
- Reductions from nominal diameter of more than 3/64".
- Excessive rope stretch or elongation.
- Bird-caging or other distortion resulting in some members of the rope structure carrying more load than others.
- Noticeable rusting or development or broken wires in the vicinity of attachments.

In order to establish data as a basis of judging the proper time for replacement, a continuous inspection record shall be maintained. This record shall cover points of deterioration listed.

Lubrication:

Rope should be maintained in a well lubricated condition. It is important that lubricant be applied as part of a maintenance program and be compatible with the original lubricant. Those sections of rope which are located over sheaves or otherwise hidden during inspection and maintenance procedures require special attention when lubricating rope. The object of rope lubrication is to reduce internal friction and to prevent corrosion.

Rope Replacement:

Rope shall be stored to prevent damage or deterioration.

Unreeling or uncoiling of rope shall be done as recommended by the rope manufacturer and with extreme care to avoid kinking or inducing a twist.

Before cutting a rope, seizings shall be placed on each side of the place where the rope is to be cut to prevent unlaying of the strands. On PRE-formed rope, one seizing on each side of the cut is required.

During installation, care shall be observed to avoid dragging of the rope in dirt or around objects which will scrape, nick, crush, or induce sharp bends in it.

Cable Break Safety Mechanism (if equipped)

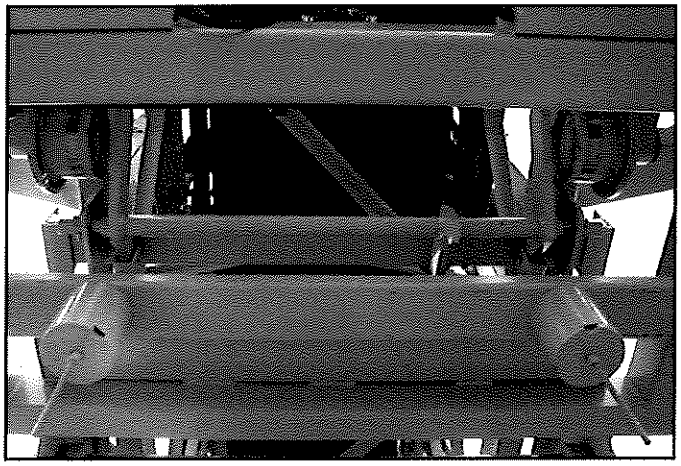


Figure 133

The stinger safety catch system **(Figure 133)** is a device that will ensure user safety in the event of a cable failure. in the event of winch cable failure, a set of forks will be triggered into the path of the stinger cross members, stopping the stinger with minimal damage to the cross members.

Stinger Safety Catch Reset

The system is set at the factory and requires no further adjustment. However, if the system must be reset, do the following:

1. With the compression spring in its free state, rotate the stopping forks down as far as they will go.
2. Attach the complete open turnbuckle to the 1-1/4" thick mounting tab. The rod in the mounting tab should be holding the forks in the lowered position.
3. Tighten the cable using the turnbuckle.
4. Compress the spring 8 inches by tightening the nut and washer combination on the long threaded rod. This will ensure sufficient force to trigger the forks in the event of a winch cable failure.
5. Raise the conveyor to full incline and extend the stinger in and out.
6. Lower the conveyor and re-tighten the turnbuckle.

Torque Settings

Reducer Bushings

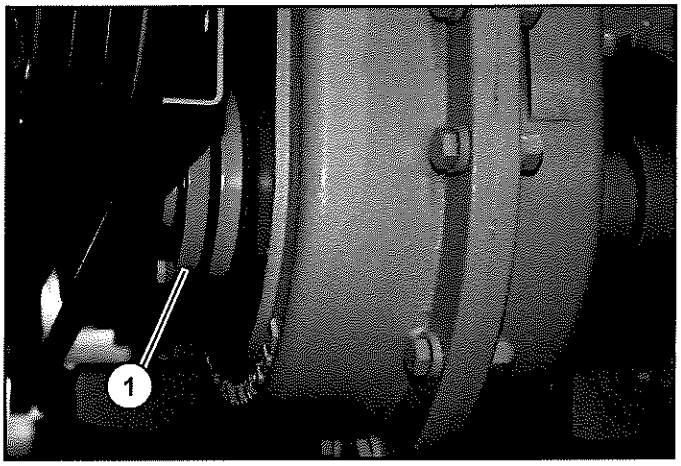


Figure 134

Check the reducer bushings (Item 1) **(Figure 134)** for proper torque settings. See "Torque and Tension Charts" on page 105.

Taper-lock Bushings

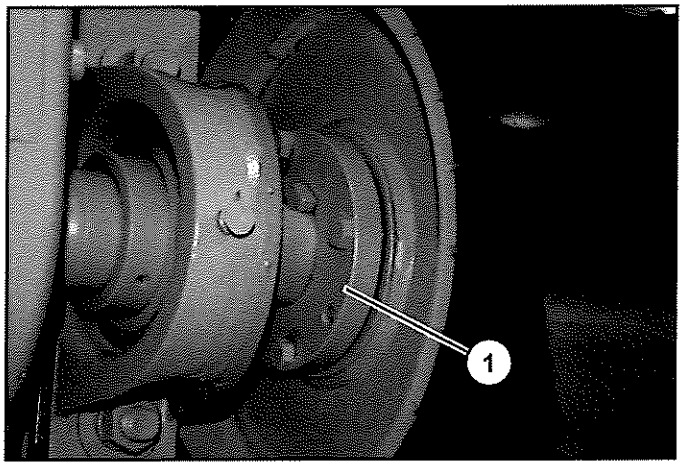


Figure 135

Check the taper-lock bushings (Item 1) **(Figure 135)** for proper torque settings. See "Torque and Tension Charts" on page 105.

Conveyor Shaft Bearings

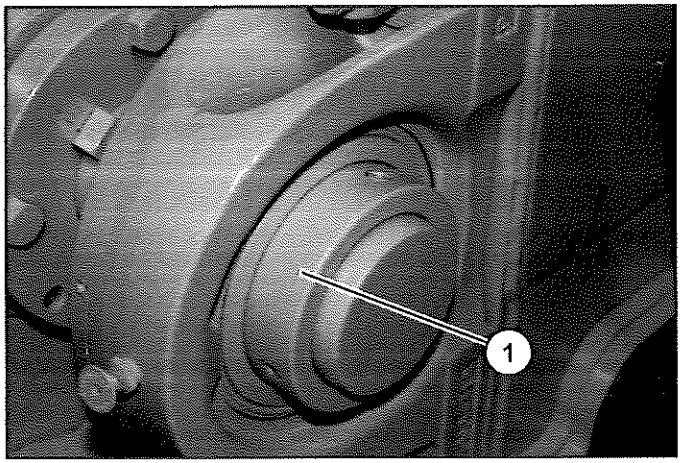


Figure 136

Check the bearings (Item 1) **(Figure 136)** on the conveyor shafts for proper torque settings. See "Torque and Tension Charts" on page 105.

Rubber Skirtboards

Adjustment and Replacement

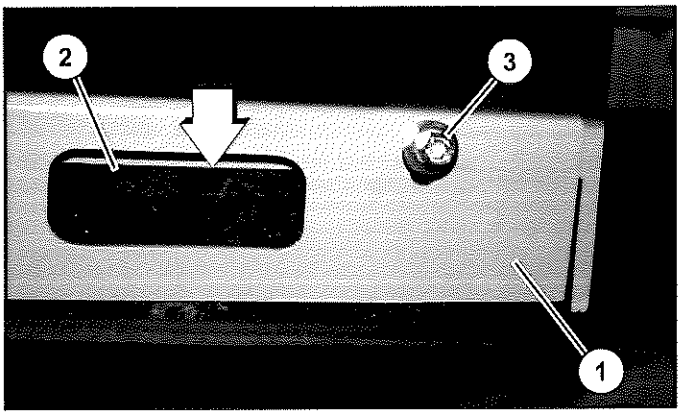


Figure 137

To adjust **(Figure 137)**: As the belt gets worn and retightened the skirtboards will need to be adjusted to keep material from spilling.

1. Open the clampbar (Item 1) that holds the skirtboard (Item 2) by loosening the nuts (Item 3).
2. Push on top of the skirtboard until the skirtboard presses against the belt.
3. Retighten clampbar.

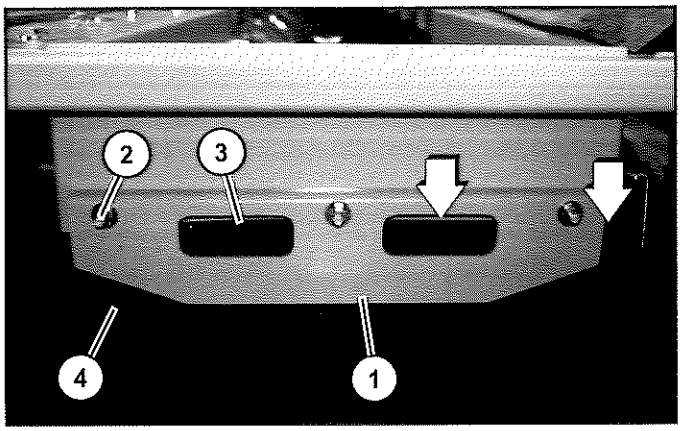


Figure 138

To replace **(Figure 138)**:

1. Open the clampbar (Item 1) by loosening the nuts (Item 2) and remove the skirtboard (Item 3).
2. Before installing the new skirtboard, cut the corners (Item 4) to match the contour of the belt.
3. Slide the new skirtboard in, push on top of the skirtboard until the skirtboard presses against the belt.
4. Retighten the clampbar.

V-Belts

Turn the drive sheave by hand to determine the direction of rotation. Run the drive motor or use a phase rotation indicator to determine the drive sheave direction of rotation. If both sheaves are not rotating in the same direction, the unit must be rewired by a qualified electrician.

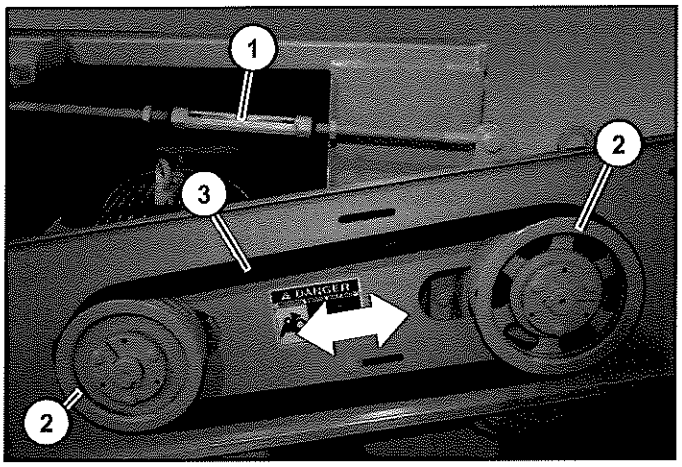


Figure 139

1. To loosen and remove the v-belts, remove the guard.
2. Once the guard is removed, turn the turnbuckle on the torque arm (Item 1) to bring the sheaves (Item 2) closer together **(Figure 139)**.
3. When the v-belts (Item 3) **(Figure 139)** are loose, remove and replace.
4. Retighten the torque arm and use a v-belt tension gauge to measure proper tension.
5. Reinstall the guard.

Belt Scraper (if equipped)

Belt Scraper Maintenance

- Make sure all fasteners are tight. Tighten if necessary.
- Check blade for excessive wear. If blade is worn to wear line, replace.
- Wipe all warning labels clean. Replace if worn and unreadable.

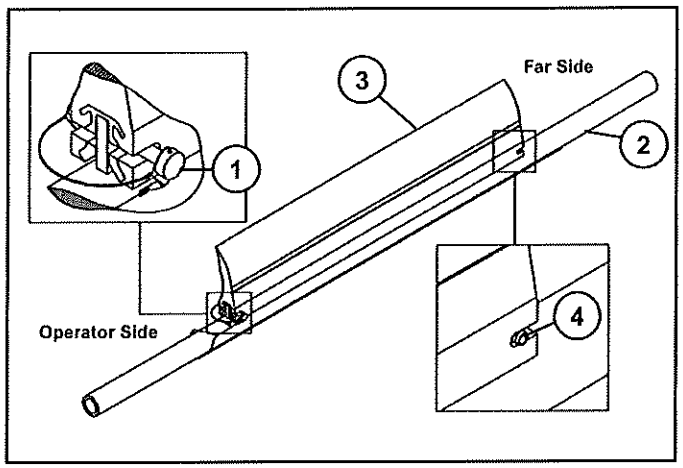


Figure 140

Removing and Installing the Blade

1. Release tension on mainframe.
2. Remove the lock pin (Item 1) from operator side of mainframe (Item 2) and blade (Item 3) **(Figure 140)**.
3. Pull blade away from stationary pin (Item 4) **(Figure 140)** on far side of mainframe, and remove from mainframe. Make sure lock pin remains attached to mainframe.
4. Position blade (Item 3) on mainframe (Item 2) with blade curve facing conveyor belt. Push far side end of blade against stationary pin (Item 4) until it locks **(Figure 140)**.
5. Insert lock pin in mainframe and blade.
6. Reapply tension to belt scraper. See "Torque and Tension Charts" on page 105.

PLC and Touch Screen

Battery Replacement

The PLC battery has a life expectancy of five years. It is recommended to change the battery every two years. If the battery is drained the program in the PLC will be lost.

When the processors "Battery Low" indicator is lit, install a replacement battery immediately. After the indicator turns on the battery will last for at least 14 days.

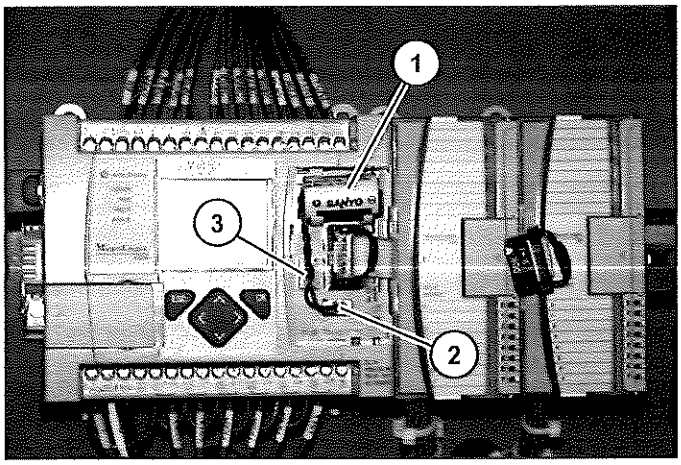


Figure 141

1. Insert battery (Item 1) **(Figure 141)** into replacement battery pocket with wires facing up.
2. Insert replacement battery wire connector into connector port (Item 2) **(Figure 141)**.
3. Secure battery wires under wire latch (Item 3) **(Figure 141)**.

Cold Weather

IMPORTANT

The touch screen has a recommended operating temperature range of 32°F-131°F. Recommended storage temperature is between -4°F and 158°F.

The touch screen may be removed in cold weather to prevent damage to the components.

1. Disconnect all power to the conveyor.
2. Unplug the power connection at the back of the touch screen.
3. Disconnect the communication cable on the back of the touch screen by unscrewing the two screws on either side of the connector.
4. Remove the wing nuts on the sub-panel.
5. Remove the touch screen.

Troubleshooting

If the problem you are experiencing with your conveyor is not listed below or if the solution suggested below does not fix the problem call Superior Industries at 800-321-1558 for technical help.

Belt System

Problem	Solutions
Belt runs off at the tail pulley.	Return rollers may be out of alignment. Inspect and realign at right angles to the center of the belt.
	Idlers or pulleys out-of-square with center line of conveyor. Realign. See "Belt Training" on page 21.
	Frozen idlers. Free idlers and lubricate. Replace idlers if necessary.
	Off-center loading. Material feed should be in direction of belt travel and at belt speed, centered on the belt. See "Loading Material" on page 40.
	Material build up. Remove accumulation and install cleaning devices, scrapers, or return belt covering.
Belt runs off at the head pulley.	Idlers leading to head pulley may be out of alignment. Realign. See "Belt Training" on page 21.
	Idlers or pulleys out-of-square with center line of conveyor. Realign. See "Belt Training" on page 21.
	Pulley lagging may be worn-replace if necessary.
	Material build up. Remove accumulation and install cleaning devices, scrapers, or return belt covering.
	Idlers improperly placed. Contact Superior Industries about relocating idlers or inserting additional idlers spaced to support the belt.
	Return rollers may be out of alignment. Inspect and realign at right angles to the center of the belt.
Belt runs to one side at a particular point along the conveyor.	Idlers or pulleys out-of-square with center line of conveyor. Realign. See "Belt Training" on page 21.
	Frozen idlers. Free idlers and lubricate. Replace idlers if necessary.
	Conveyor frame may not be level. Position the conveyor in a level work area.
	Return rollers may be out of alignment. Inspect and realign at right angles to the center of the belt.
Belt section runs to one side along the full length of the conveyor.	Belt splices may not be square. See "Belt Training" on page 21.
	Improper or incorrectly installed belt fasteners.
	Belt edge may be worn or broken. Remove worn section and splice in a new one. See "Belt Repair" on page 54.
	Return rollers may be out of alignment. Inspect and realign at right angles to the center of the belt.

Problem	Solutions
Belt runs centered while empty, but off-center when loaded.	Off-center loading. Material feed should be in direction of belt travel and at belt speed, centered on the belt. See "Loading Material" on page 40.
Belt slips.	Insufficient belt tension. Use take-up side adjusting bolts to increase belt tension. See "Belt Tightening" on page 54.
	Insufficient traction between belt and pulley. Lag the drive pulley, using grooved lagging in wet conditions. Contact Superior Industries about increasing wrap with the addition of snub pulleys.
	Material build up. Remove accumulation and install cleaning devices, scrapers, or return belt covering.
	Frozen idlers. Free idlers and lubricate. Replace idlers if necessary.
	Pulley lagging may be worn-replace if necessary.
	Material wedged between skirtboards, belt and conveyor components.
Belt slips on startup.	Insufficient belt tension. Use take-up side adjusting bolts to increase belt tension. See "Belt Tightening" on page 54.
	Insufficient traction between belt and pulley. Lag the drive pulley, using grooved lagging in wet conditions. Contact Superior Industries about increasing wrap with the addition of snub pulleys.
	Pulley lagging may be worn-replace if necessary.
	Material wedged between skirtboards, belt and conveyor components.
Excessive belt stretch.	Excessive belt tension. Reduce load being conveyed or adjust conveyor take-up side adjusting bolts to reduce tension.
	Material build up. Remove accumulation and install cleaning devices, scrapers, or return belt covering.
	Dual pulley drives may not be running at the same speed. This is likely only if friction wheel drive tires were replaced. Contact Superior Industries for replacement tires.
	Damage to belt by abrasives, chemicals, heat, oil, etc. Be certain belt was designed for use with specific materials being conveyed. If abrasive materials work into cuts and between plies, make spot repairs. See "Belt Repair" on page 54.
Belt breaks around the fasteners.	Improper or incorrectly installed belt fasteners.
	Excessive belt tension. Reduce load being conveyed or adjust conveyor take-up side adjusting bolts to reduce tension.
	Excessive impact of material on belt or fasteners. Modify feed to reduce impact. Contact Superior Industries about installing impact idlers, where possible, to absorb impact.
	Material between belt and pulley. Remove accumulation and improve maintenance. Adjust the skirtboards.

Problem	Solutions
Vulcanized splice separation.	Excessive belt tension. Reduce load being conveyed or adjust conveyor take-up side adjusting bolts to reduce tension.
	Material between belt and pulley. Remove accumulation and improve maintenance. Adjust the skirtboards.
Excessive belt top cover wear.	Excessive impact of material on belt or fasteners. Modify feed to reduce impact. Contact Superior Industries about installing impact idlers, where possible, to absorb impact.
	Material loading speed too high or too low. Adjust feed rate or change belt speed. Contact Superior Industries to determine if a different drive sheave size may be used to change belt speed.
	Off-center loading. Material feed should be in direction of belt travel and at belt speed, centered on the belt. See "Loading Material" on page 40.
	Material build up. Remove accumulation and install cleaning devices, scrapers, or return belt covering.
	Damage to belt by abrasives, chemicals, heat, oil, etc. Be certain belt was designed for use with specific materials being conveyed. If abrasive materials work into cuts and between plies, make spot repairs. See "Belt Repair" on page 54.
Excessive belt bottom cover wear.	Material build up. Remove accumulation and install cleaning devices, scrapers, or return belt covering.
	Frozen idlers. Free idlers and lubricate. Replace idlers if necessary.
	Insufficient traction between belt and pulley. Lag the drive pulley, using grooved lagging in wet conditions. Contact Superior Industries about increasing wrap with the addition of snub pulleys.
	Material between belt and pulley. Remove accumulation and improve maintenance. Adjust the skirtboards.
	Pulley lagging may be worn-replace if necessary.
Excessive belt edge wear.	Off-center loading. Material feed should be in direction of belt travel and at belt speed, centered on the belt. See "Loading Material" on page 40.
	Belt may be strained on one side. A new belt should straighten out after two to three hours running. Belt section may require replacement.
	Damage to belt by abrasives, chemicals, heat, oil, etc. Be certain belt was designed for use with specific materials being conveyed. If abrasive materials work into cuts and between plies, make spot repairs. See "Belt Repair" on page 54.
	Material build up. Remove accumulation and install cleaning devices, scrapers, or return belt covering.

Problem	Solutions
Belt cover swells or soft spots.	Damage to belt by abrasives, chemicals, heat, oil, etc. Be certain belt was designed for use with specific materials being conveyed. If abrasive materials work into cuts and between plies, make spot repairs. See "Belt Repair" on page 54.
	Excessive impact of material on belt or fasteners. Modify feed to reduce impact. Contact Superior Industries about installing impact idlers, where possible, to absorb impact.
	Material between belt and pulley. Remove accumulation and improve maintenance. Adjust the skirtboards.
Belt hardens or cracks.	Damage to belt by abrasives, chemicals, heat, oil, etc. Be certain belt was designed for use with specific materials being conveyed. If abrasive materials work into cuts and between plies, make spot repairs. See "Belt Repair" on page 54.
	Pulley lagging may be worn-replace if necessary.
	Improper belt storage and handling.
Lengthwise grooving or cracking of belt top cover.	Skirtboards improperly placed. Adjust skirtboards so that they do not rub against the belt.
	Frozen idlers. Free idlers and lubricate. Replace idlers if necessary.
	Material build up. Remove accumulation and install cleaning devices, scrapers, or return belt covering.
	Excessive impact of material on belt or fasteners. Modify feed to reduce impact. Contact Superior Industries about installing impact idlers, where possible, to absorb impact.
	Material wedged between skirtboards, belt and conveyor components.
Belt fabric decay.	Excessive impact of material on belt or fasteners. Modify feed to reduce impact. Contact Superior Industries about installing impact idlers, where possible, to absorb impact.
	Material between belt and pulley. Remove accumulation and improve maintenance. Adjust the skirtboards.
	Damage to belt by abrasives, chemicals, heat, oil, etc. Be certain belt was designed for use with specific materials being conveyed. If abrasive materials work into cuts and between plies, make spot repairs. See "Belt Repair" on page 54.

Problem	Solutions
Belt ply separation.	Excessive belt tension. Reduce load being conveyed or adjust conveyor take-up side adjusting bolts to reduce tension.
	Belt edge may be worn or broken. Remove worn section and splice in a new one. See "Belt Repair" on page 54.
	Damage to belt by abrasives, chemicals, heat, oil, etc. Be certain belt was designed for use with specific materials being conveyed. If abrasive materials work into cuts and between plies, make spot repairs. See "Belt Repair" on page 54.
	Belt running speed may be too fast. Contact Superior Industries about using a different drive sheave to change the running speed.
Belt cleating separation, damage.	Improper belt tracking, with cleating hitting the conveyor frame.
	Material conveyed may be breaking the bond. Contact Superior Industries.
Belt fasteners pull out.	Improper or incorrectly installed belt fasteners.
	Splice area may be striking obstructions, including the conveyor frame.

Belt Scraper and Tensioner

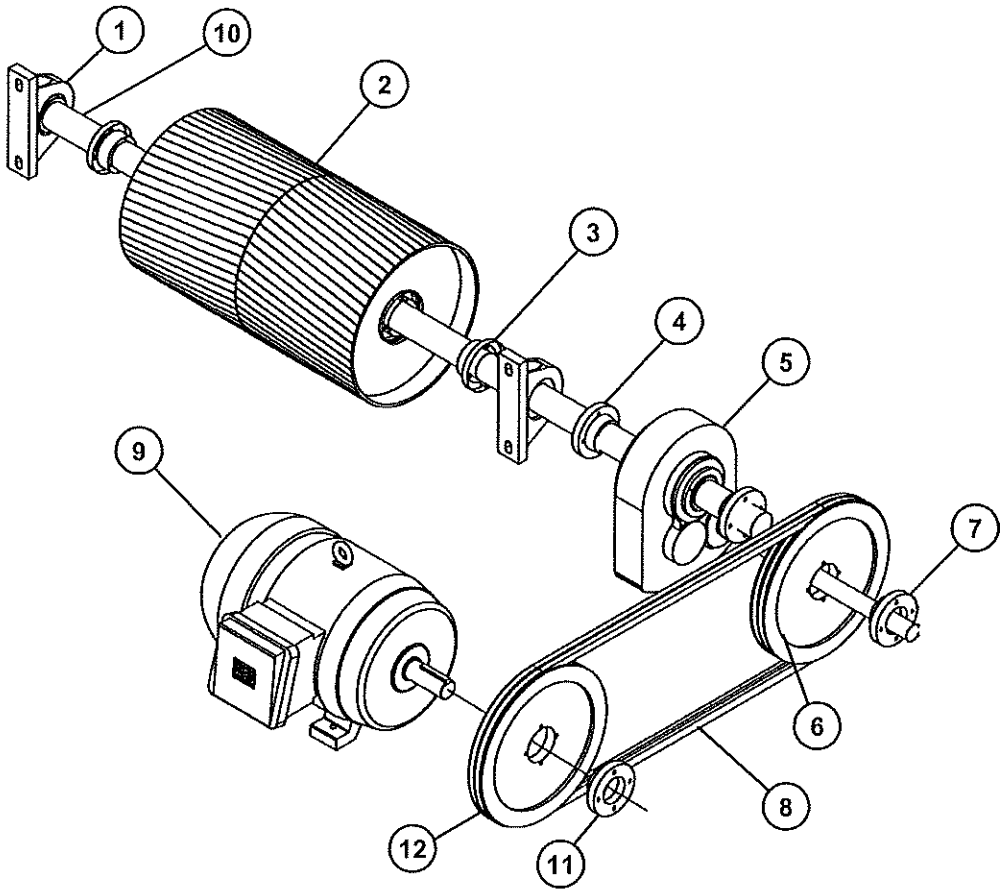
Excessive blade wear.	Tension of scrapper on belt is set too high. Reduce tensioner setting.
More blade wear in center than on ends.	Pulley may be crowned. Use segmented blade.
Insufficient cleaning and carryback.	Tension of scraper on belt is set too low or too high. Increase or decrease tensioner setting. Blade may be worn. Check blade and replace if necessary.

Automation

Conveyor does not raise after each layer.	Check continuity of electrical cord going to the tilt switch.
	Check all terminal connection for the tilt switch.
	Check tilt switch functionality with ohm meter.
	Tilt Switch may be defective.
Stinger only goes in and out a short distance.	Check winch encoder input light on PLC while the stinger is moved in and out manually.
	Check continuity of electrical cord going to the winch encoder.
	Check all terminal connection for the winch encoder.
	Verify that the winch encoder has 24VDC at pins A and B.
Conveyor cycles fine the first layer but after it raises the stinger only goes in and out.	The radial increment is set too close to the radial limit. Reset the radial increments to a value less than previously used.
	The radial limit is set too close to the radial increment. Reset the radial limit to a value larger than previously used.
Conveyor will not go up all the way.	Cycle has reached the height limit. Start a new cycle.
	Cycle cannot build up due to operation limits used. Start a new cycle.

Head End Drive Components

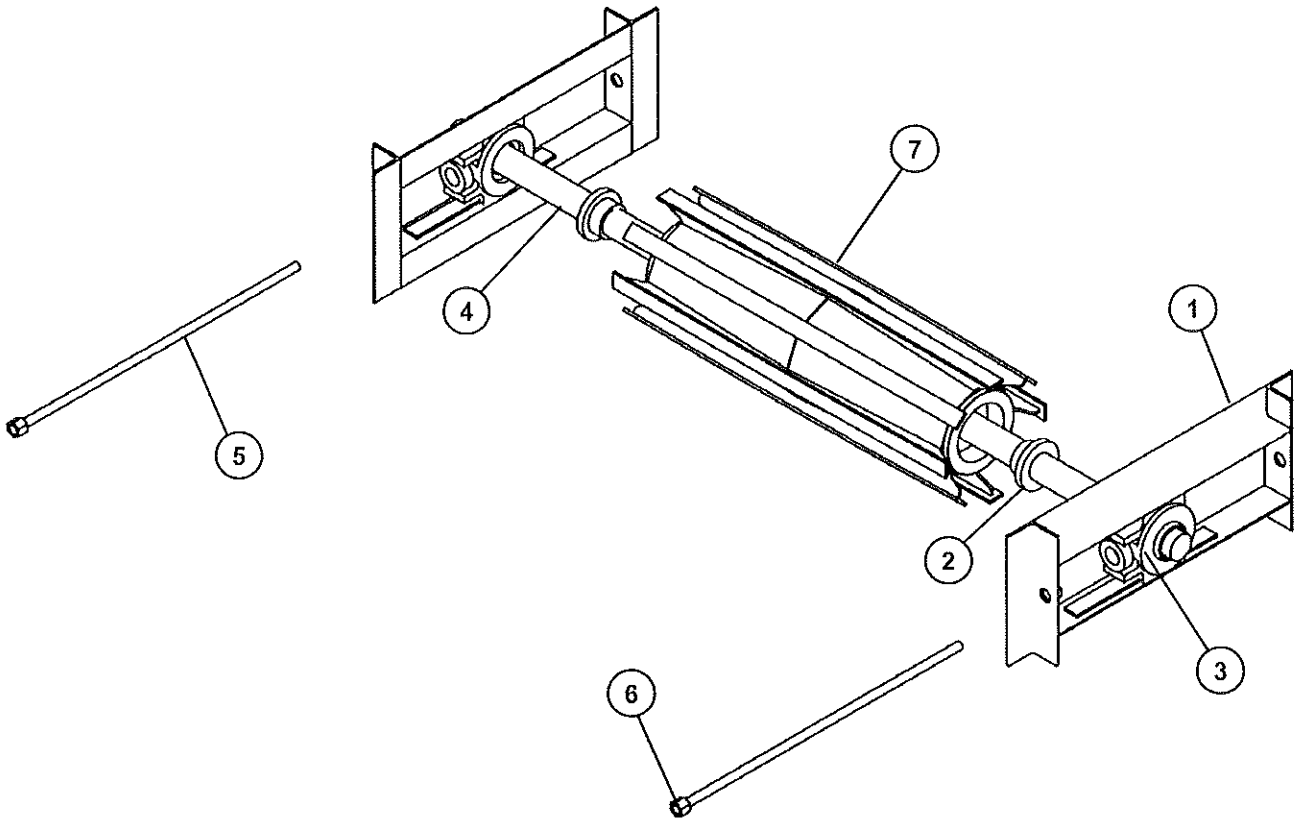
To order replacement parts call **800-321-1558** (Parts Department) with your serial number.



Ref #	Description
1	Pillow Block Bearing
2	Drum Pulley
3	Bushing
4	Gear Reducer Bushing
5	Gear Reducer
6	Drive Sheave
7	Bushing
8	V-Belt
9	Motor
10	Drive Shaft
11	Bushing
12	Driven Sheave

Wide Slot Take-up Components

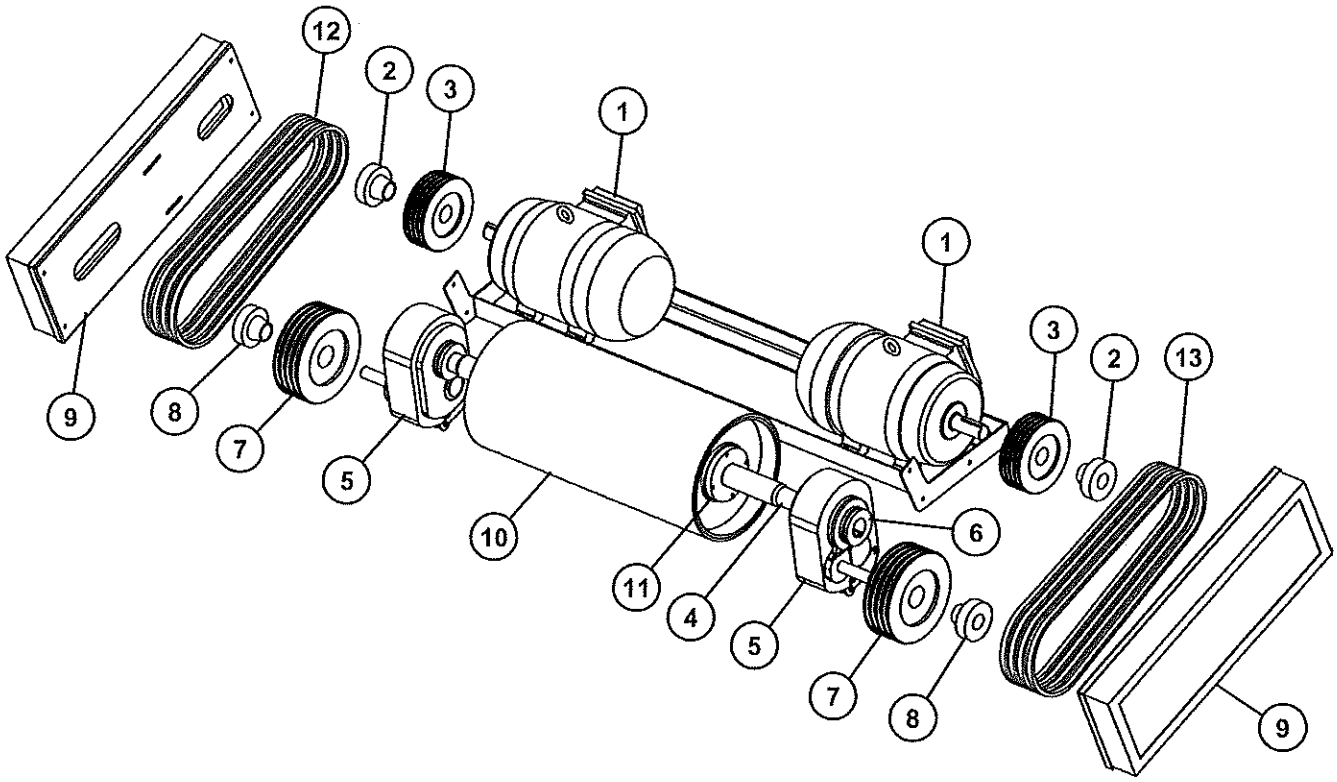
To order replacement parts call **800-321-1558** (Parts Department) with your serial number.



Ref #	Description
1	Window Style Take-up
2	Bushing
3	Wide Slot Take-up Bearing
4	Tail Pulley Shaft
5	Acme Rod
6	Acme Nut
7	Wing Pulley

Dual Drive Components

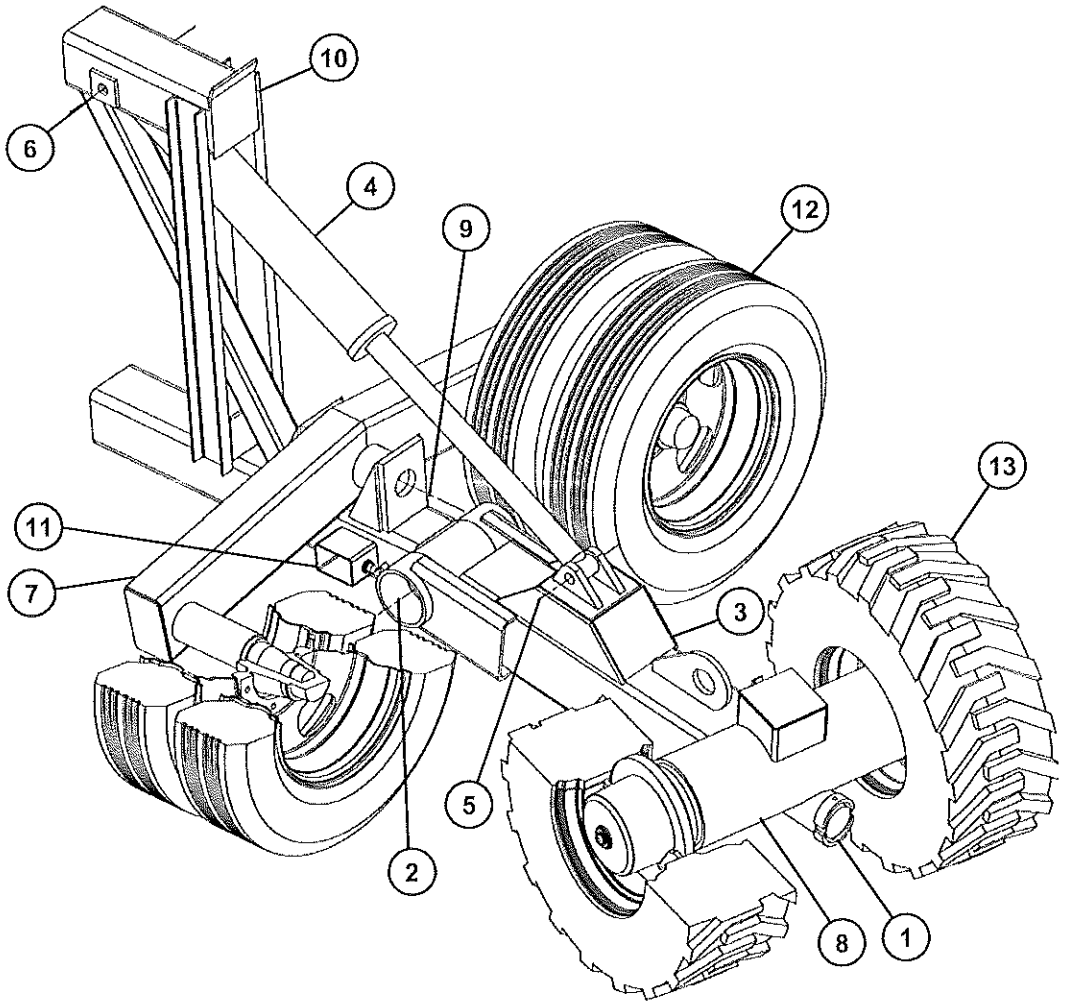
To order replacement parts call **800-321-1558** (Parts Department) with your serial number.



Ref #	Description	Ref #	Description
1	Motor	8	Reducer Sheave Bushing
2	Motor Sheave Bushing	9	Drive Guard
3	Motor Sheave	10	Drive Pulley
4	Drive Shaft	11	Drive Pulley Hub
5	Reducer	12	V-Belts Center Line Side
6	Reducer Bushing	13	V-Belts Ditch Side
7	Reducer Sheave		

FD Axle Components

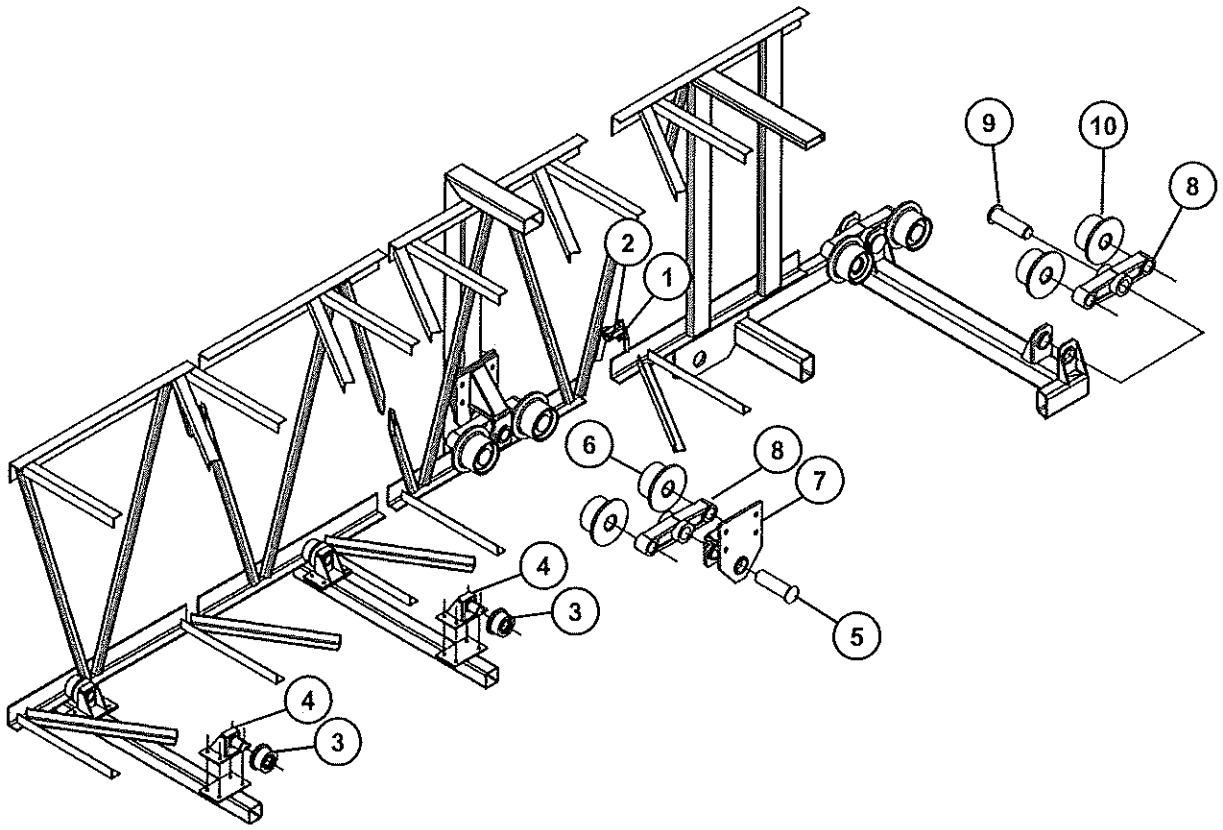
To order replacement parts call **800-321-1558** (Parts Department) with your serial number.



Ref #	Description	Ref #	Description
1	Locking Collar	8	Power Travel - 2WD (1) 8 CD Power Travel (1) Dead Head - 4WD (1) 4 CD Power Travel (1) 4 CD Power Travel - Center Side
2	Fold Down Arm Pin		
3	Fold Down Arm	9	Transport Walking Beam Pin
4	FD Hydraulic Cylinder	10	Main Axle Frame
5	Rod End Cylinder Pin	11	FD Prox Switch
6	Barrel End Cylinder Pin	12	Transport Tires
7	Transport Walking Beam (1 Left/1 Right)	13	Radial Travel Tires

Load Roller Components

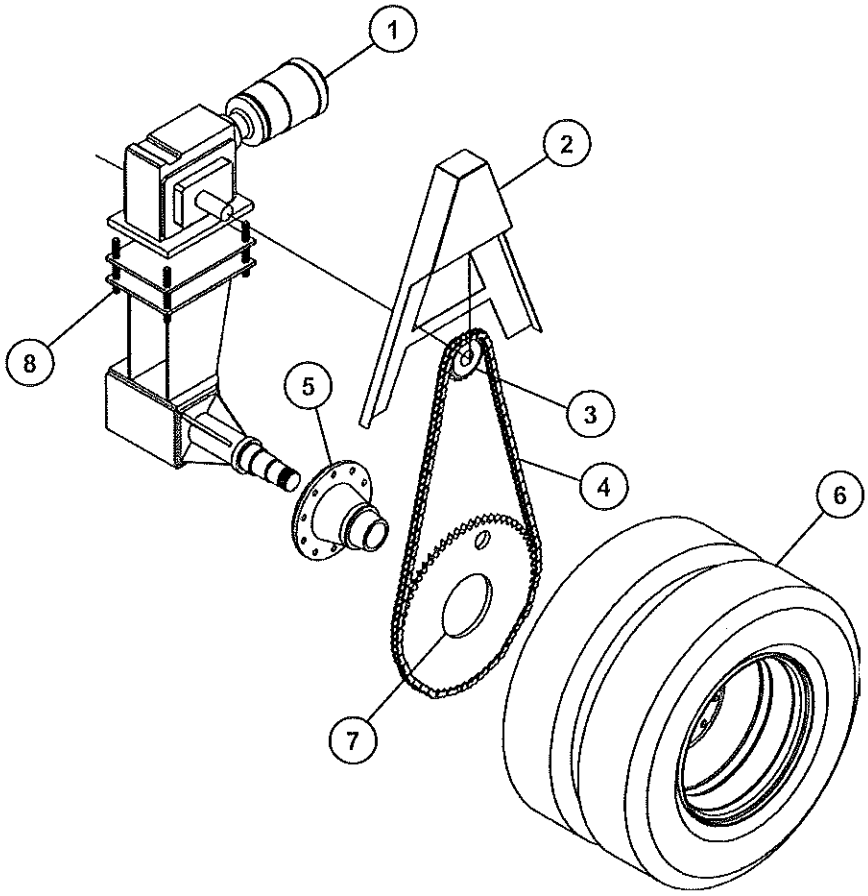
To order replacement parts call **800-321-1558** (Parts Department) with your serial number.



Ref #	Description
1	Poly Wiper Blade
2	Tension Spring
3	5" Idler Roller Assembly
4	5" Idler Roller Mounting Bracket
5	Top Load Roller Walking Beam Pin
6	Top Load Roller (3-1/2" Wide)
7	Top Roller Walking Beam Bracket
8	Cast Walking Beam
9	Bottom Load Roller Walking Beam
10	Bottom Load Roller (4-1/2" Wide)

Power Travel Components - Electric

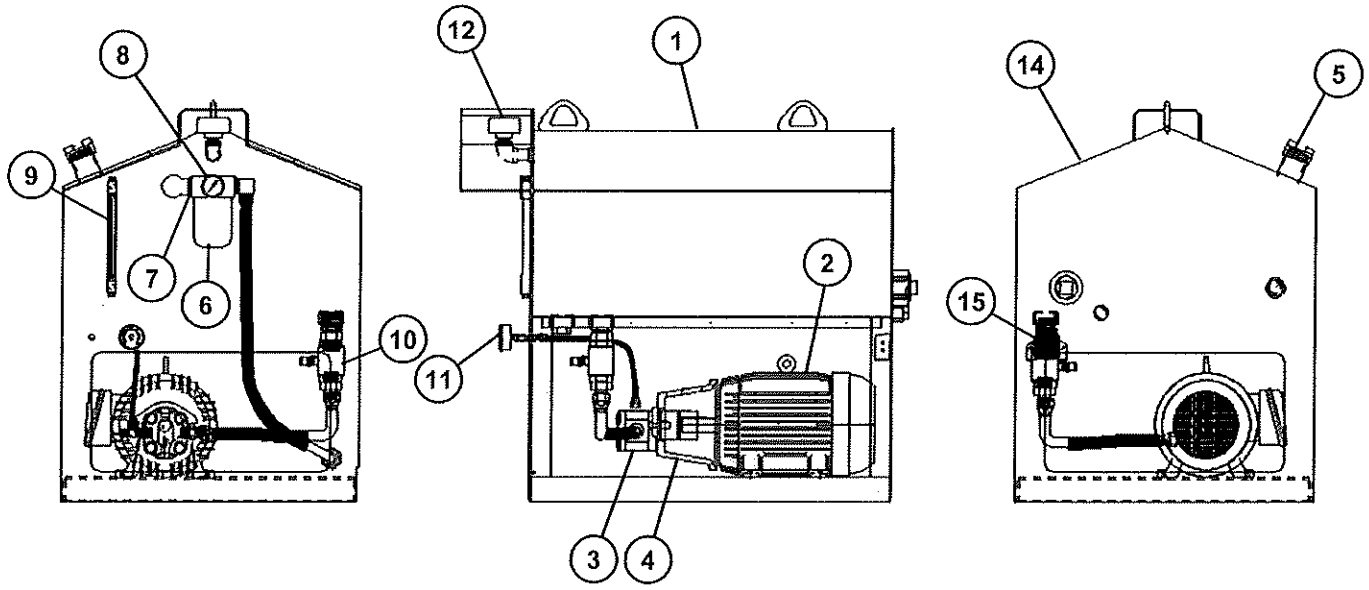
To order replacement parts call **800-321-1558** (Parts Department) with your serial number.



Ref #	Description
1	Gear Motor (electric version)
2	Power Travel Chain Guard
3	Sprocket
4	Roller Chain
5	Wheel Hub
6	Tire/Wheel (Single or Dual)
7	Sprocket Note: The sprocket is welded to the wheel rim. It is separated for illustration purposes only.
8	Rod

Hydraulic Components - 55 gallon - 10 hp

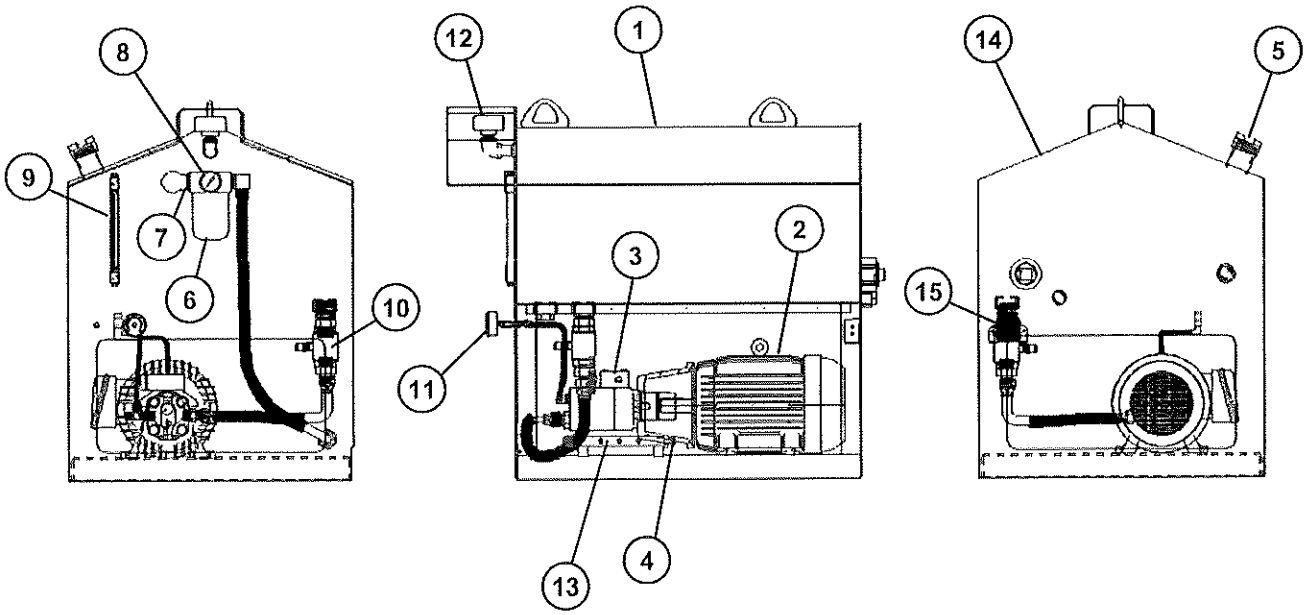
To order replacement parts call **800-321-1558** (Parts Department) with your serial number.



Ref #	Description	Ref #	Description
1	Tank	9	Sight Glass
2	Motor, 10 hp	10	Valve
3	Gear Pump	11	Pressure Gauge
4	Pump Mount	12	Breather
5	Filler Cap	13	Manifold
6	Filter Element	14	Cover
7	Filter Head	15	Horn (automated units only)
8	Filter Element Indicator		

Hydraulic Components - 100 gallon - 10 hp

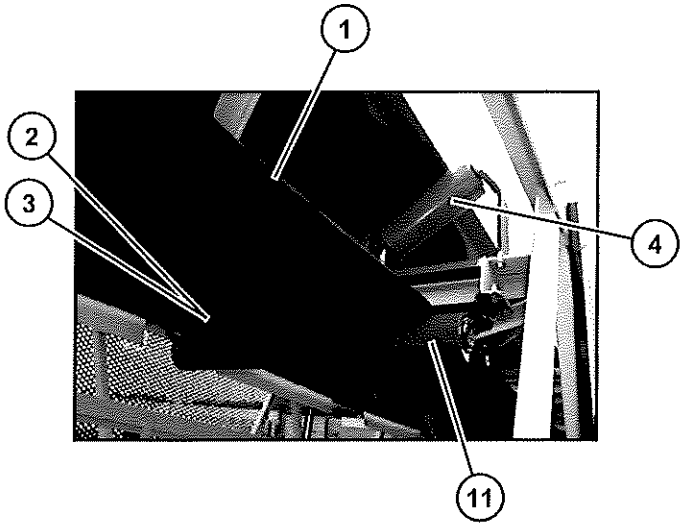
To order replacement parts call **800-321-1558** (Parts Department) with your serial number.

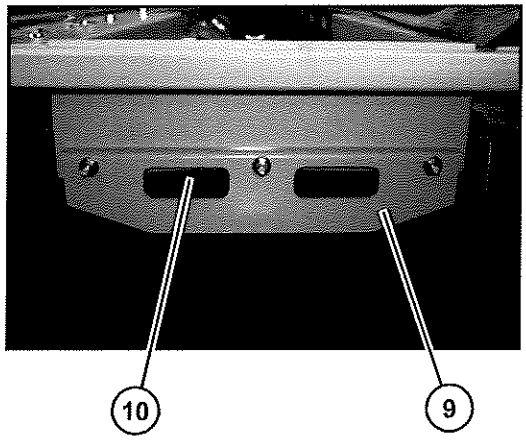


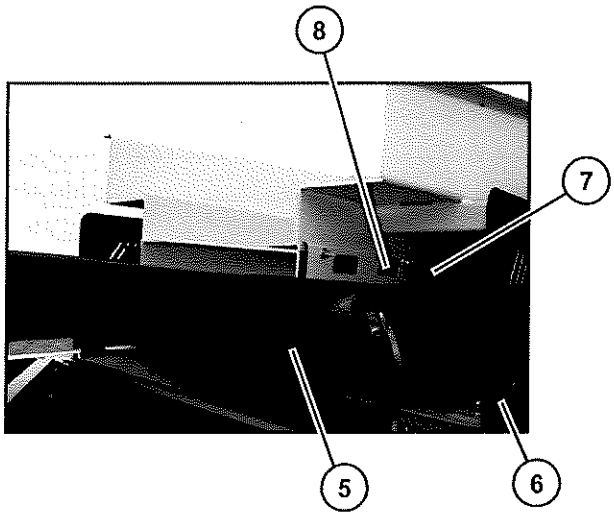
Ref #	Description	Ref #	Description
1	Tank	9	Sight Glass
2	Motor, 10 hp	10	Valve
3	Pump Piston	11	Pressure Gauge
4	Pump Mount	12	Breather
5	Filler Cap	13	Manifold
6	Filter Element	14	Cover
7	Filter Head	15	Horn (automated units only)
8	Filter Element Indicator		

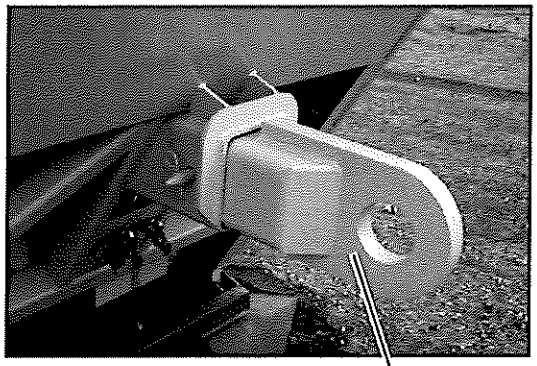
Miscellaneous Components

To order replacement parts call **800-321-1558** (Parts Department) with your serial number.









Ref #	Description	Ref #	Description
1	Belt	8	Side Skirtboard
2	Belt Fastener	9	Rear Clampbar
3	Belt Fastener Tape	10	Rear Skirtboard
4	Idler, 35°	11	Return Roller
5	Idler, 20°	12	Tow Ring
6	Side Trough Guard		
7	Side Clampbar		

Recommended Spare Parts List

In order to reduce down time of your equipment waiting for parts to ship, it is recommended you keep the following parts on hand for replacement as needed.

Ref #	Description
1	UHMW Base Plate
2	UHMW Wiper Plate
3	Idler
4	E-chain
5	E-chain Links
6	Hydraulic Filter
7	Hydraulic Pump
8	Hydraulic Breather
9	Hydraulic Sight Glass
10	Hydraulic Dump Valve
11	Belt Scraper
12	Tilt Switch
13	Winch Encoder
14	Radial Limit Switch
15	Radial Photo Switch
16	24V Horn
17	TS Cable Kit
18	Material Flow Switch
19	Interlock Valve
20	FD Overcenter Valve
21	Zero Speed Switch
22	FD Hyd Cylinder Cover
23	Planetary Hub Stub
24	Planetary Hub Nut
25	Bladder Type Reducer Breather
26	Anchor Pivot Plate
27	Remote Control, Transmitter & Receiver
28	PLC
29	PLC Battery
30	Belt Fasteners
31	V-belts
32	Load Roller Shims 1/4" and 1/8"
33	Stinger Guide
34	UHMW Stinger Plate

Telestacker Conveyor Specifications

FD Axle

Main frame	60' long with 52" deep truss	36" x 110'
	70' long with 52" deep truss	30" x 130'
	70' long with 70" deep truss	36" x 130', 42" x 130'
	80' long with 70" deep truss	30" x 150', 36" x 150'
Chord angles	Full length from tail to head end undercarriage pinning point	
Stinger	60' long with 36" deep truss	36" x 110'
	70' long with 36" deep truss	30" x 130'
	70' long with 54" deep truss	36" x 130', 42" x 130'
	80' long with 54" deep truss	30" x 150', 36" x 150'
Extension	110' with hydraulic cable winch	36" x 110'
	130' with hydraulic cable winch	30" x 130', 36" x 130', 42" x 130'
	150' with hydraulic cable winch	30" x 150', 36" x 150'
Safety stop	Mechanically stops retraction	
Drive	Class I head end	
Gear reducer	Shaft mount	
Backstop	Installed in reducers	
Motors	25/25 HP 1800 RPM TEFC	36" x 110'
	20/20 HP 1800 RPM TEFC	30" x 130', 30" x 150'
	30/25 HP 1800 RPM TEFC	36" x 130'
	40/40 HP 1800 RPM TEFC	42" x 130'
	30/30 HP 1800 RPM TEFC	36" x 150'
V-belt drive	With drive guard	
Capacity	500 STPH of 100 PCF material, 25 degree surcharge (90% fines, 10% lumps 6" minus)	30" x 130', 30" x 150'
	800 STPH of 100 PCF material, 25 degree surcharge (90% fines, 10% lumps 7" minus)	36" x 110', 36" x 130', 36" x 150'
	1200 STPH of 100 PCF material, 25 degree surcharge (90% fines, 10% lumps 8" minus)	42" x 130'
Belt speed	450 / 600 fpm	
Drive pulley	16" diameter, 3/8" herringbone lagged drum	
Tail pulley	14" diameter, wing type pulley	
Shafts	Turned and polished	
Bearings	Sealmaster - Browning	
Take ups	Screw type	
Undercarriage	Hydraulic raise with 10 hp pumping unit, cylinders, and cover protect from debris	
Axle type	FD 40 axle	
Transport axle	(8) 11-22.5 tires, tandem walking beam. 11' 11" travel width	
Radial axle	(4) 385 / 65D-19.5 tires on hydraulic outriggers. 18'5" stacking width.	

Radial travel	2 wheel drive with 2 HP planetary on each wheel	
Fifth wheel	Included	
Anchor pivot	maintains tail end during radial travel	
Brakes	Complete air brake package	
Lights	Brake and directional signals	
Mud flap	Installed behind transport wheels	
Landing gear	Adjustable height with pin locks	
Belting	2-ply 3/16 x 1/16 220 PIW	30" x 130', 30" x 150', 36" x 110', 36" x 130', 36" x 150'
	3-ply 3/16 x 1/16 330 PIW	42" x 130'
Belt splice	Flexco mechanical steel fasteners	
Idlers	CEMA B, 5" dia. rolls, sealed for life ball bearings	30" x 130', 30" x 150', 36" x 110', 36" x 130', 36" x 150'
	CEMA C, 5" dia. rolls, sealed for life ball bearings	42" x 130'
Load area	20° trough, 16" spacing, on main conveyor only	
Trough	35° on 4' spacing	30" x 130', 30" x 150', 36" x 110', 36" x 130', 36" x 150'
	35° (3.5' main / 4' stinger spacing)	42" x 130'
Returns	steel rolls on 8' spacing	
Radial hopper	Rock box style	
Gathering trough	6' long with adjustable rubber flashing	
Control system	Manual - mechanical levers control FD axle, power travel, conveyor raise and stinger extension	
Electrical	Enclosure with main disconnect, circuit breaker and starters	

Swing Axle

Main frame	80' long with 52" deep truss	36" x 130'
	80' long with 70" deep truss	36" x 150', 42" x 150'
	100' long with 70" deep truss	36" x 170', 42" x 170', 36" x 190'
Chord angles	Full length from tail to head end undercarriage pinning point	
Stinger	60' long with 36" deep truss	36" x 130'
	80' long with 54" deep truss	36" x 150', 42" x 150', 36" x 170', 42" x 170'
	100' long with 54" deep truss	36" x 190'
Extension	130' with hydraulic cable winch	36" x 130'
	150' with hydraulic cable winch	36" x 150', 42" x 150'
	170' with hydraulic cable winch	36" x 170', 42" x 170'
	190' with hydraulic cable winch	36" x 190'
Safety stop	Mechanically stops retraction	
Drive	Class I head end	
Gear reducer	Shaft mount	
Backstop	Installed in reducers	
Motors	20/15 HP 1800 RPM TEFC	36" x 130'
	20/20 HP 1800 RPM TEFC	36" x 150'
	40/(2) 20 HP 1800 RPM TEFC	42" x 150'
	25/20 HP 1800 RPM TEFC	36" x 170'
	50/(2) 20 HP 1800 RPM TEFC	42" x 170'
	25/25 HP 1800 RPM TEFC	36" x 190'
V-belt drive	With drive guard	
Capacity	500 STPH of 100 PCF material, 25 degree surcharge (90% fines, 10% lumps 7" minus)	36" x 130', 36" x 150', 36" x 170', 36" x 190'
	1200 STPH of 100 PCF material, 25 degree surcharge (90% fines, 10% lumps 8" minus)	42" x 150', 42" x 170'
Belt speed	450 / 600 fpm	
Drive pulley	16" diameter, 3/8" herringbone lagged drum	
Tail pulley	14" diameter, wing type pulley	
Shafts	Turned and polished	
Bearings	Sealmaster - Browning	
Take ups	Screw type	
Undercarriage	Hydraulic raise with 10 hp pumping unit, cylinders, and cover protect from debris	
Axle type	Swing type axle	
Transport axle	(8) 11-22.5 tires, tandem walking beam. 11' 10" travel width	36" x 130', 36" x 150', 36" x 170', 36" x 190'
	(8) 315 / 80R-22.5 tires, tandem walking beam. 11' 10" travel width	42" x 150', 42" x 170'

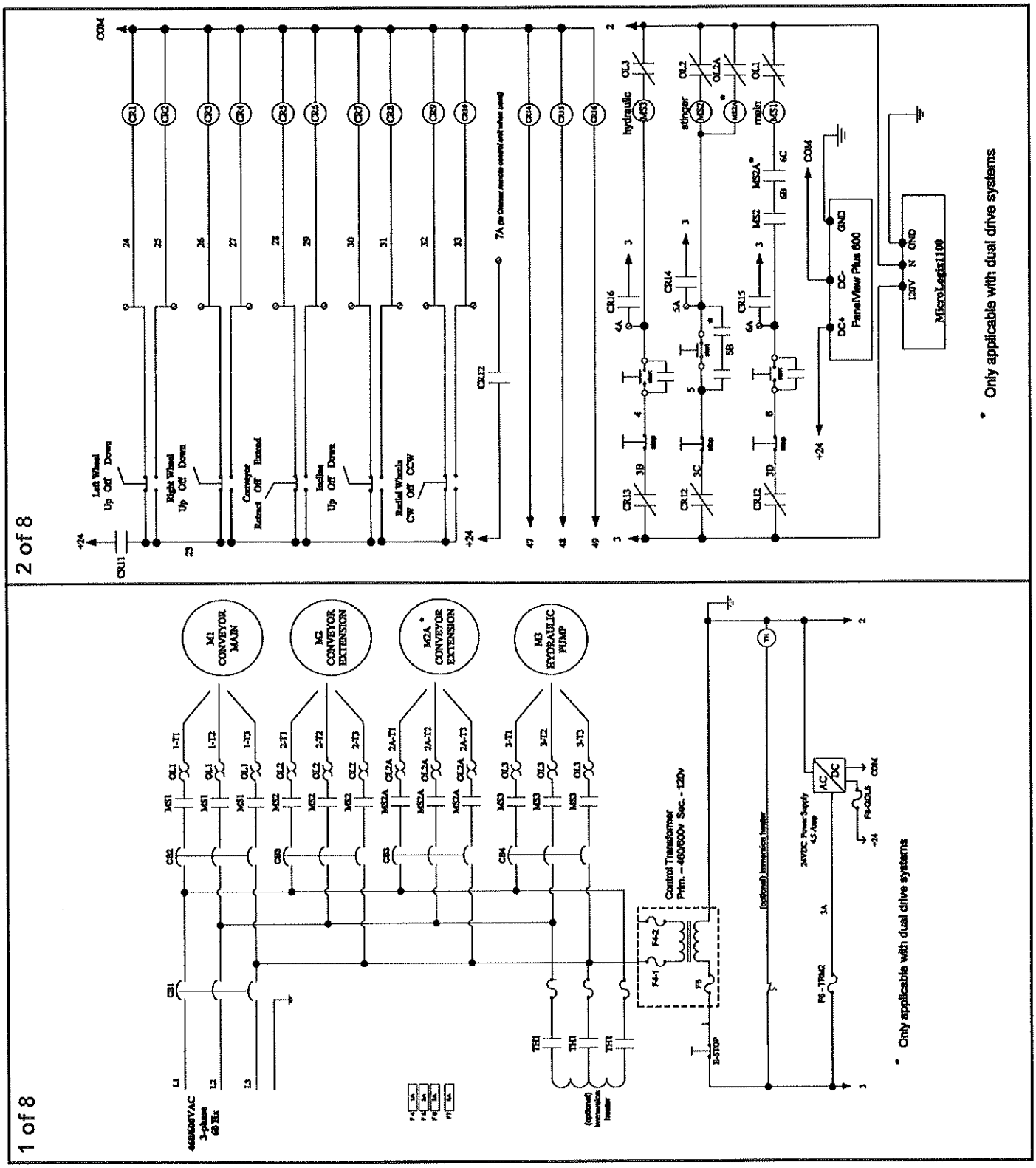
Tag axle	Not Included	36" x 130', 36" x 150', 42" x 150'
	(2) 11-22.5 tires, air spring suspension	36" x 170', 42" x 170', 36" x 190'
Radial axle	Transport axle manually swings to stacking position	
Radial travel	One hydraulic motor with chain and sprockets	
Fifth wheel	Included	
Anchor pivot	Customer-supplied concrete base secures tail end during radial travel	
Brakes	Complete air brake package	
Lights	Brake and directional signals	
Mud flap	Installed behind transport wheels	
Landing gear	Adjustable height with pin locks	
Belting	2-ply 3/16 x 1/16 220 PIW	36" x 130', 36" x 150', 36" x 170', 36" x 190'
	3-ply 3/16 x 1/16 330 PIW	42" x 150', 42" x 170'
Belt splice	Flexco mechanical steel fasteners	
Idlers	CEMA B, 5" dia. rolls, sealed for life ball bearings	36" x 130', 36" x 150', 36" x 170', 36" x 190'
	CEMA C, 5" dia. rolls, sealed for life ball bearings	42" x 150', 42" x 170'
Load area	20° trough, 16" spacing, on main conveyor only	
Trough	35° on 4' spacing	36" x 130', 36" x 150', 36" x 170', 36" x 190'
	35° (3.5' main / 4' stinger spacing)	42" x 150', 42" x 170'
Returns	steel rolls on 8' spacing	
Radial hopper	Rock box style	
Gathering trough	6' long with adjustable rubber flashing	
Control system	Manual - mechanical levers control power travel, conveyor raise and stinger extension	
Electrical	Enclosure with main disconnect, circuit breaker and starters	

Optional

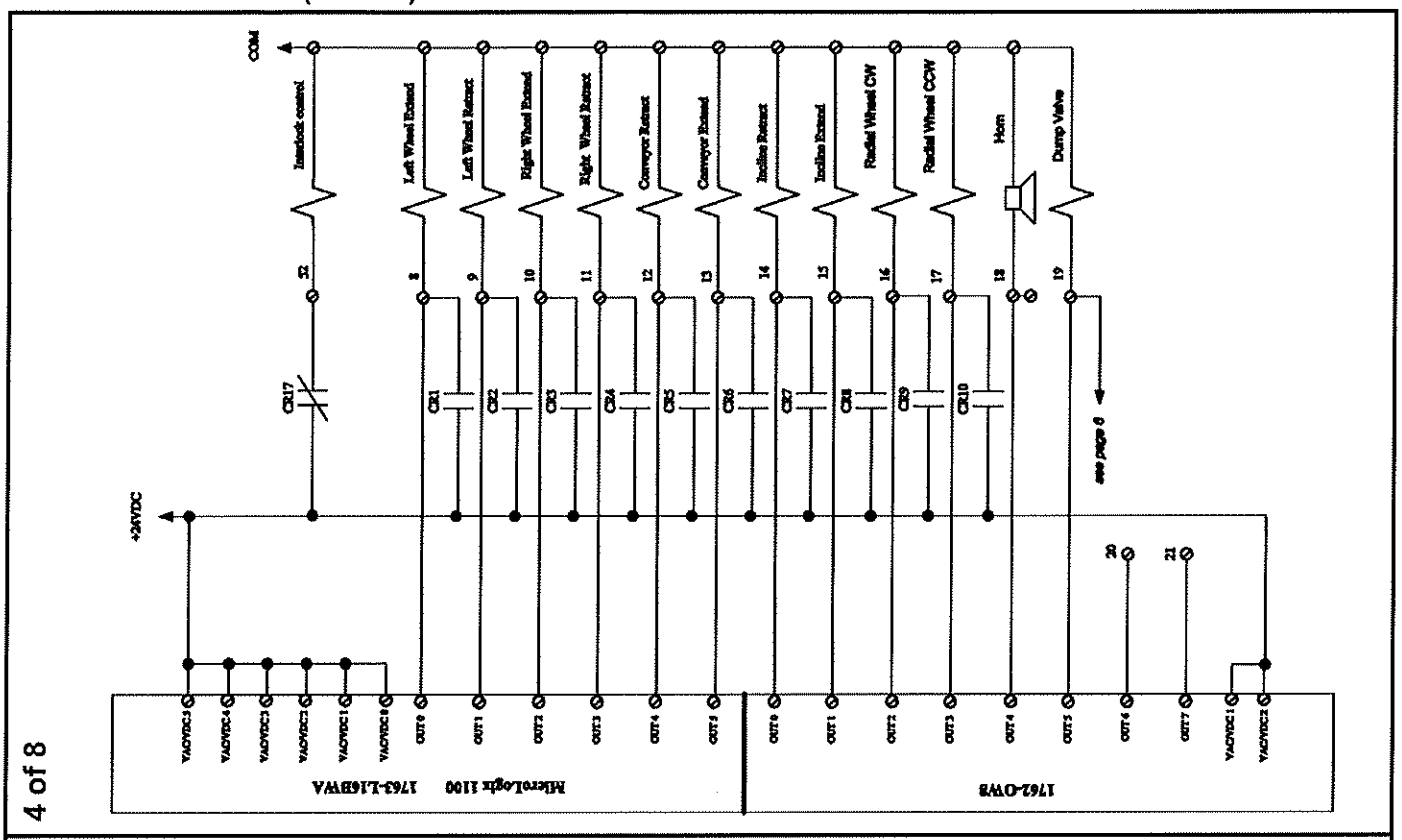
800 tph capacity	Main motor 40 hp, Stinger motor (2) 20 hp CEMA C recommended
1000 tph capacity	Main motor 50 hp, Stinger motor (2) 25 hp 50 rpm higher belt speed CEMA C recommended
1500 tph capacity	Main motor 60 hp, Stinger motor (2) 25 hp
Dual power travel	Two hydraulic motors with chain and sprockets
4 wheel drive	4-wd, 2 HP planetary drive on each wheel
Tow eye	For pit transport, adjustable
Belt scraper	Martin Engineering OEM primary, one each on stinger and main
Idler upgrade	CEMA C
Self aligning idlers	One troughing on main, one return on stinger
Impact idlers	20 deg. Impact troughing, 16" spacing, on main conveyor only
Rubber disc return	Rubber cushioned
Belt upgrade	3 ply, 3/16 x 1/16 330 PIW
Vulcanized splice	Factory vulcanized belt splice
Compensation linkage	For FD axle with manual or remote control system
Spray bar	On head end of main frame, includes spray bar with flood nozzles, water supply line and control panel
Start up	2 days of on-site training, contl. US and Canada
Hydraulic landing jacks	One set, control valve, Honda power unit
PilePro	Hydraulic functions are controlled by PLC parameters inputted by the operator; may be manually controlled by switches on control panel
Mechanical material flow switch	Mechanical switch, stops power travel when no material is on belt
Photo electric material flow switch	Photo-electric switch, stops power travel when no material is on belt
Manual remote	Operates hydraulic functions from up to 1000 feet away
Axle jacks	Lift conveyor to move axle between radial position and travel position
E-chain cover	Protect e-chain from debris
Auto grease system	For head pulleys only

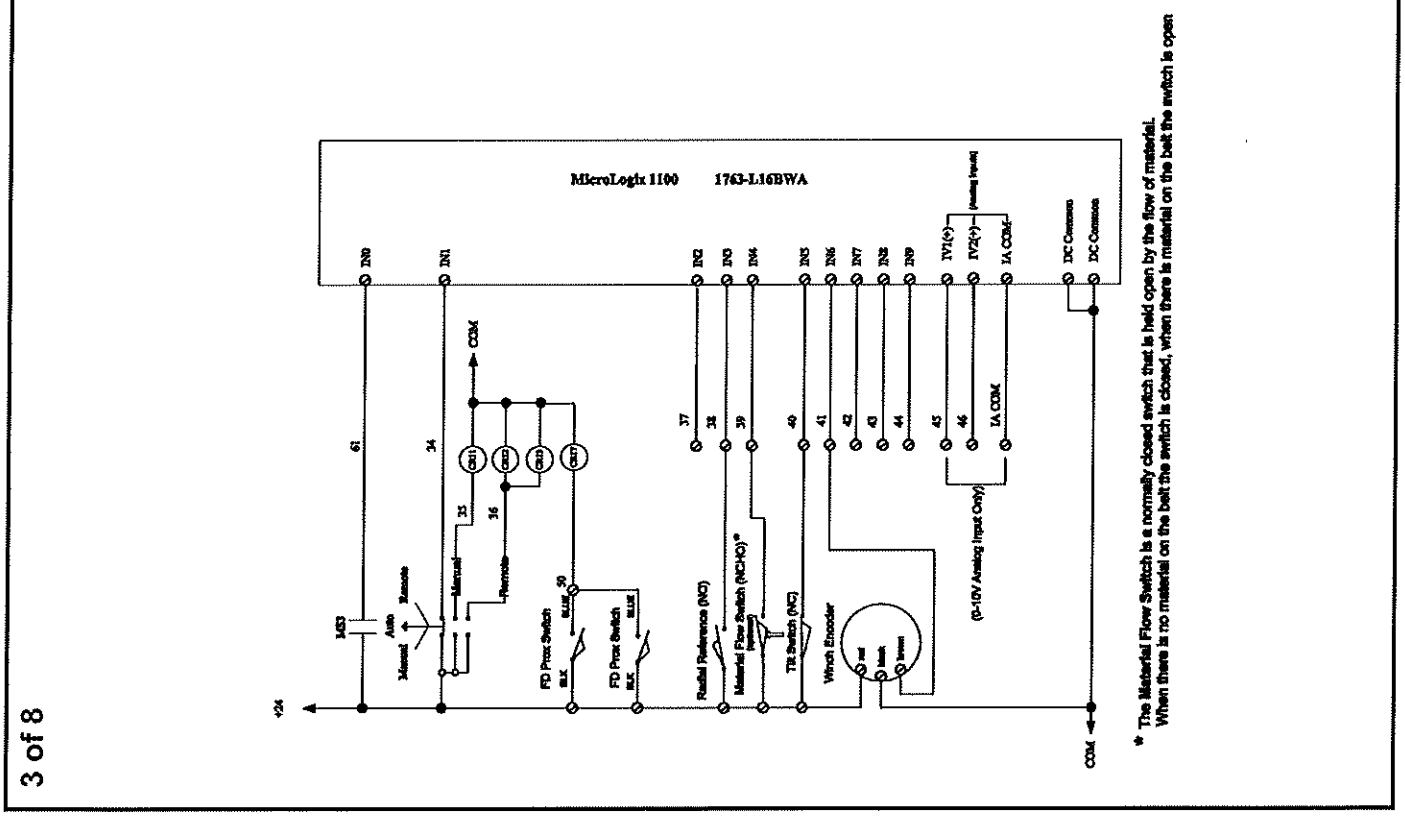
Electrical Schematic

Automated FD Axle



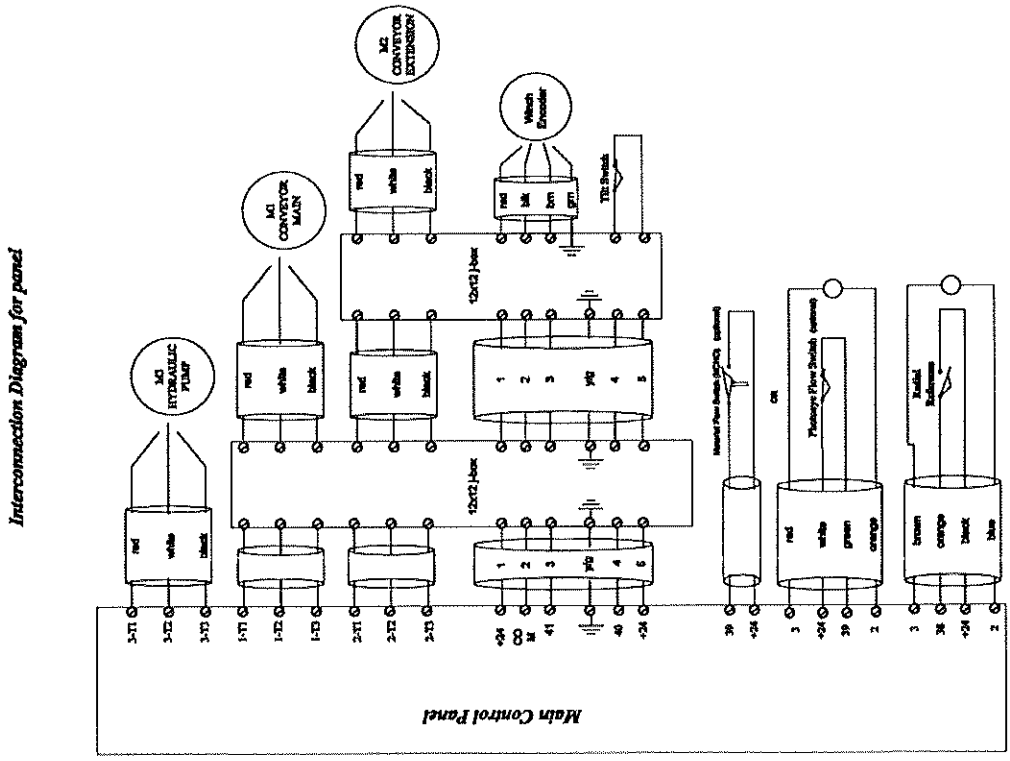
Automated FD Axle (Cont'd)



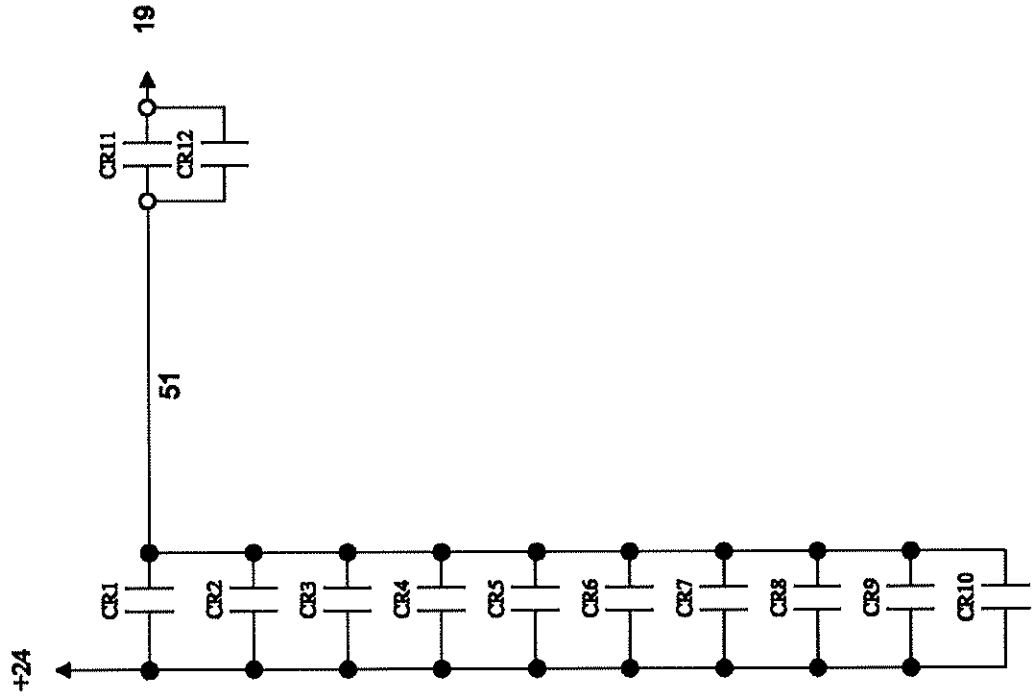


Automated FD Axle (Cont'd)

6 of 8

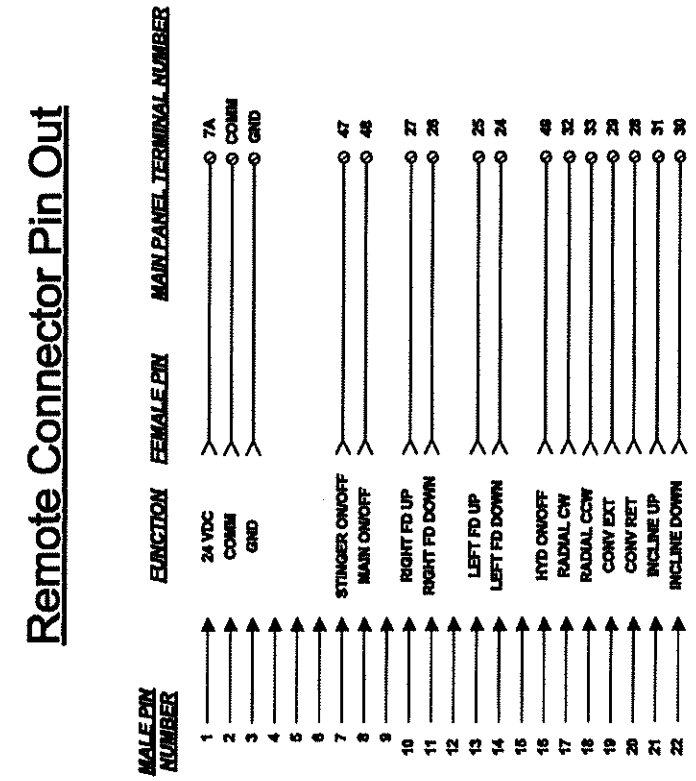


5 of 8

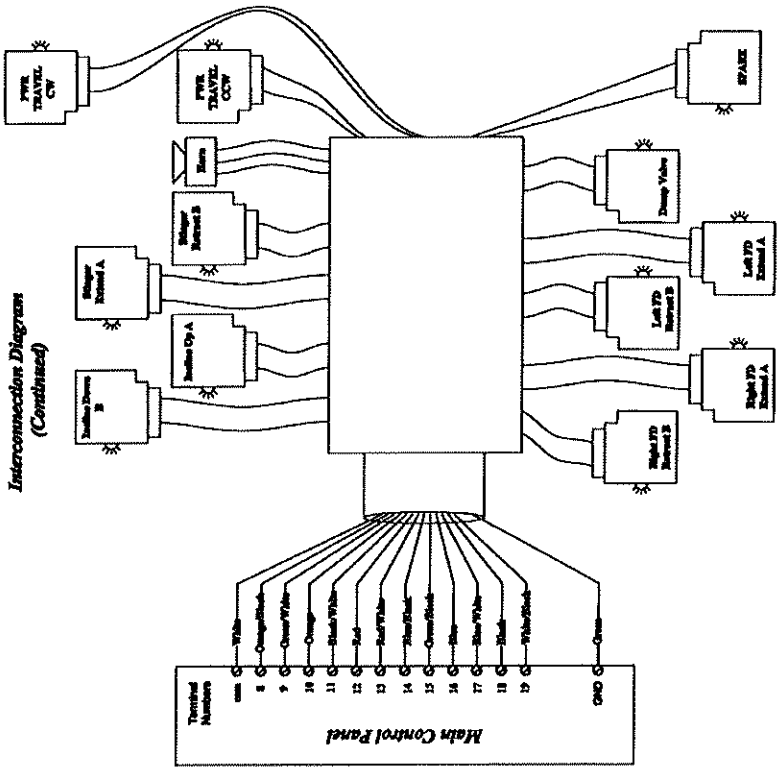


Automated FD Axle (Cont'd)

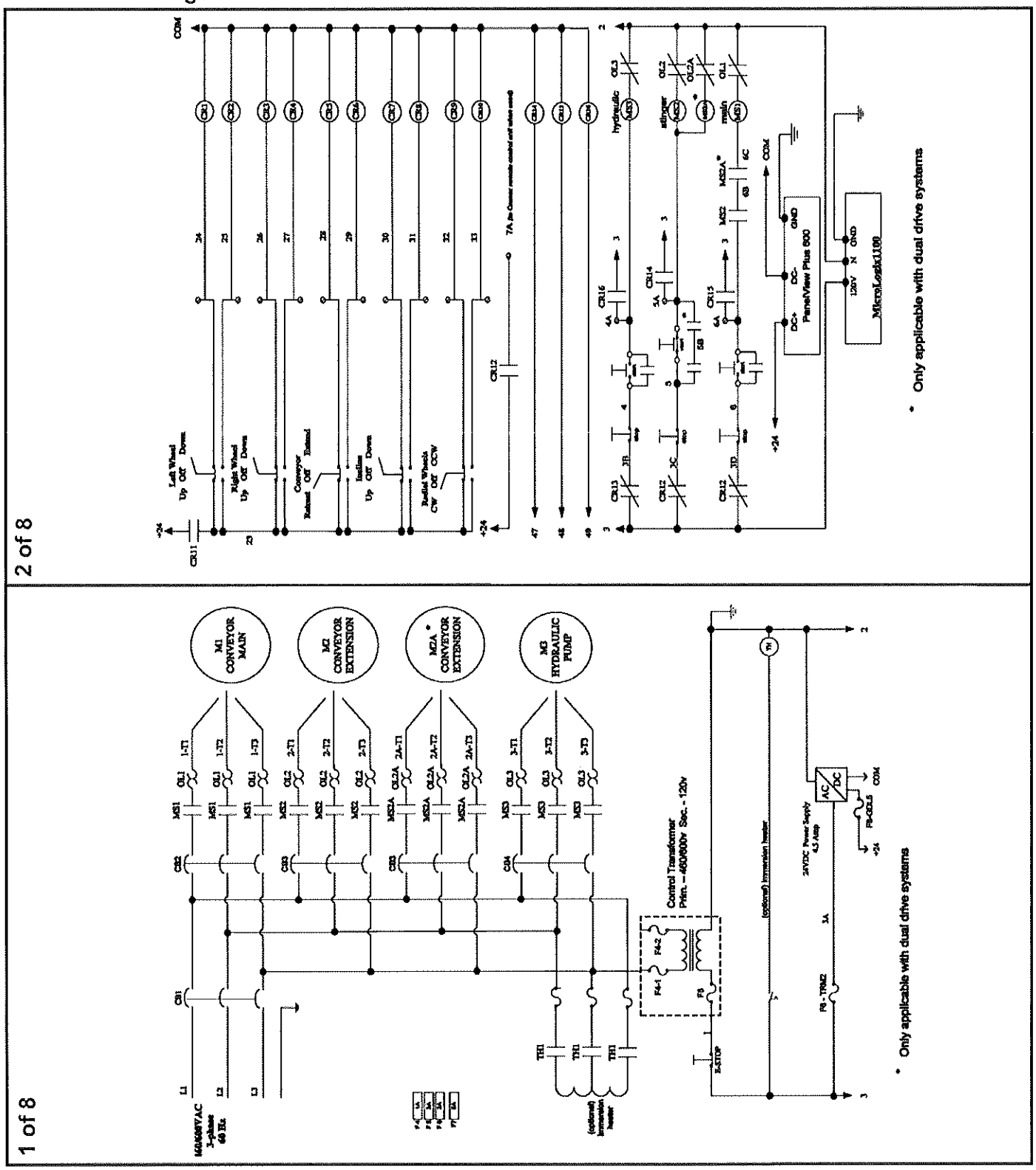
8 of 8



7 of 8

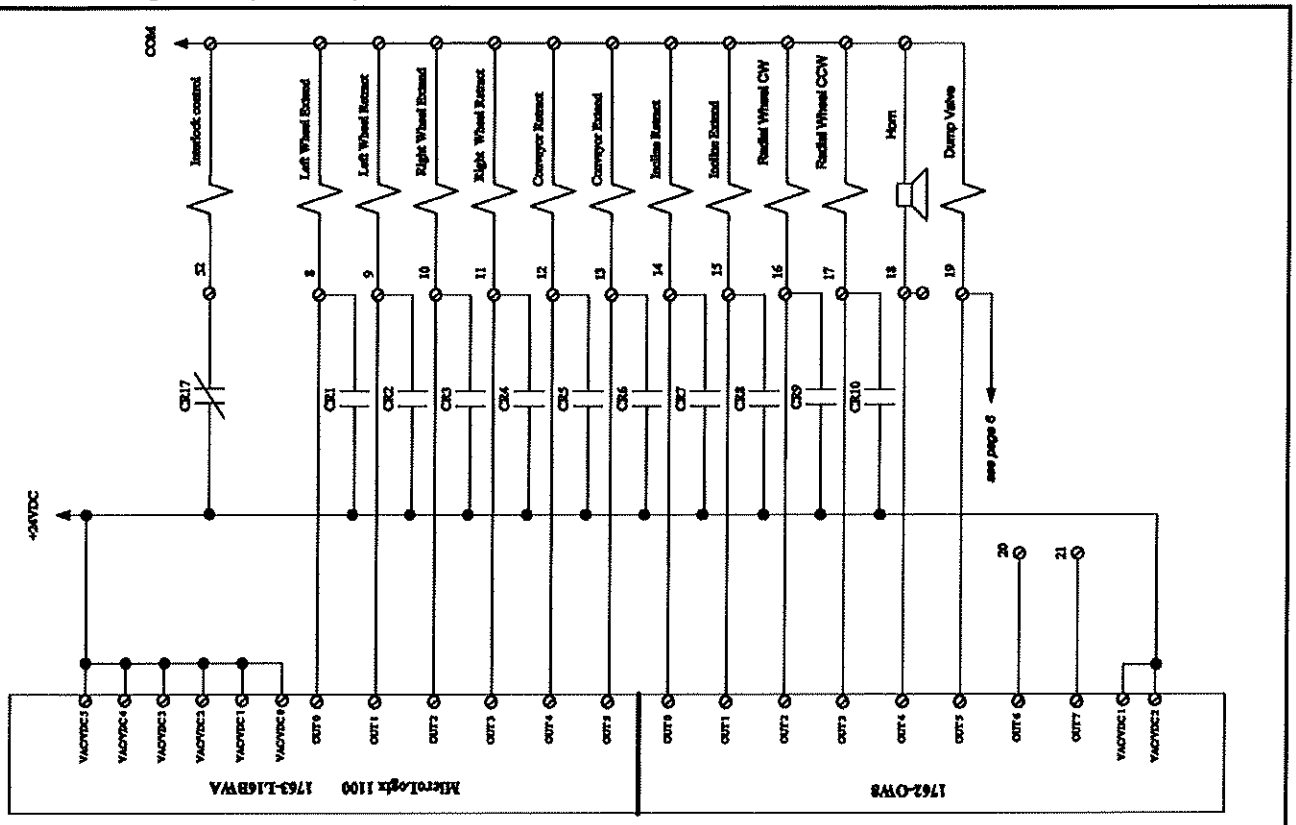


Automated Swing Axle



Automated Swing Axle (Cont'd)

4 of 8



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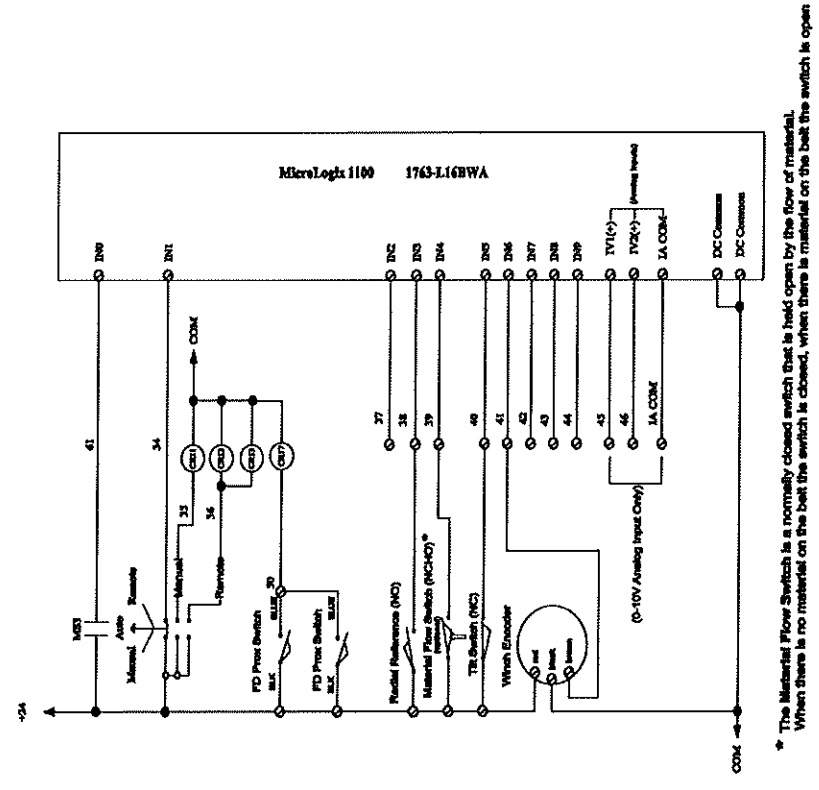

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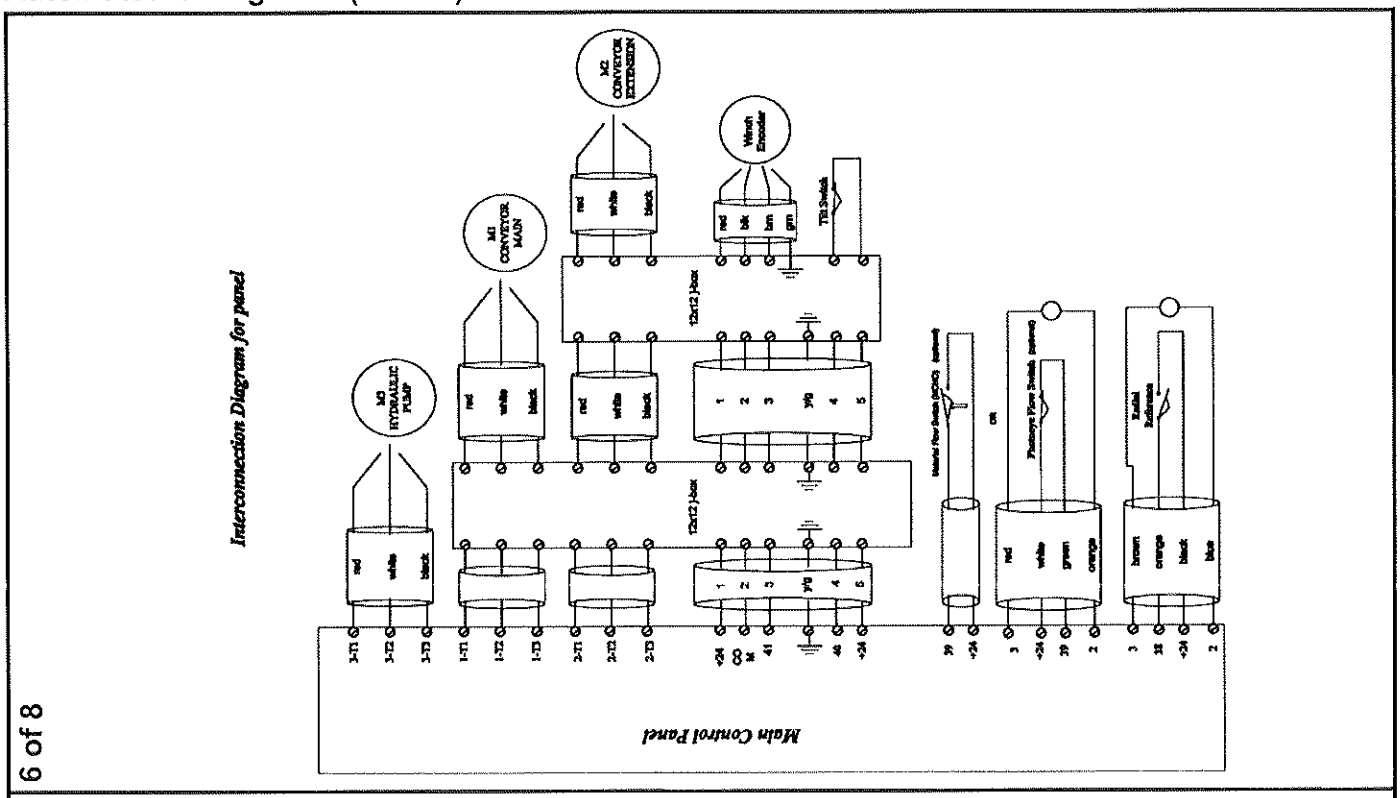
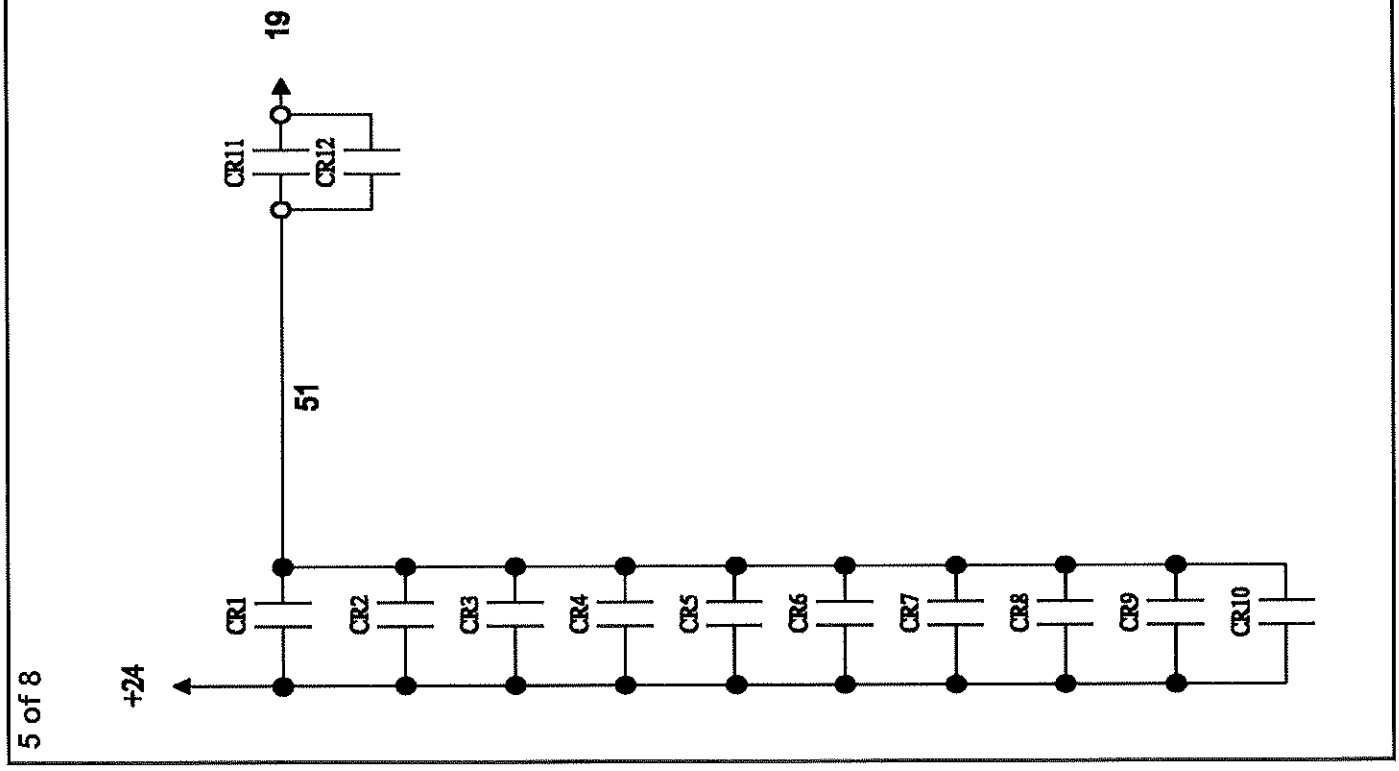
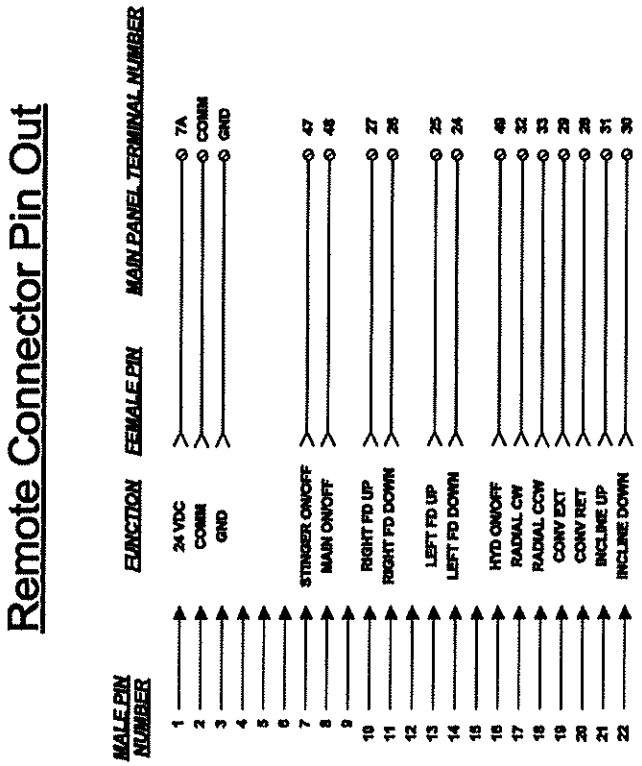


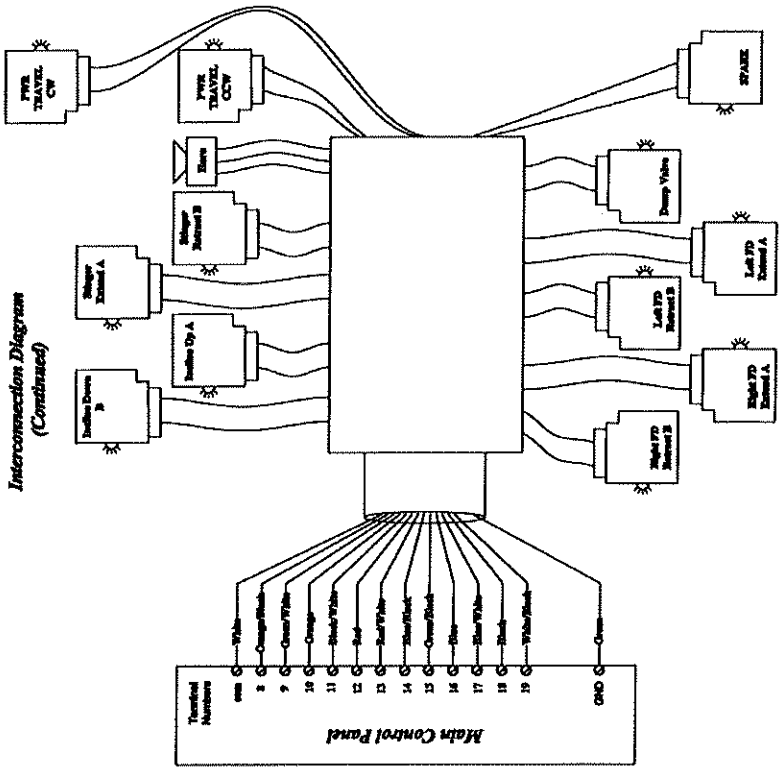


Automated Swing Axle (Cont'd)

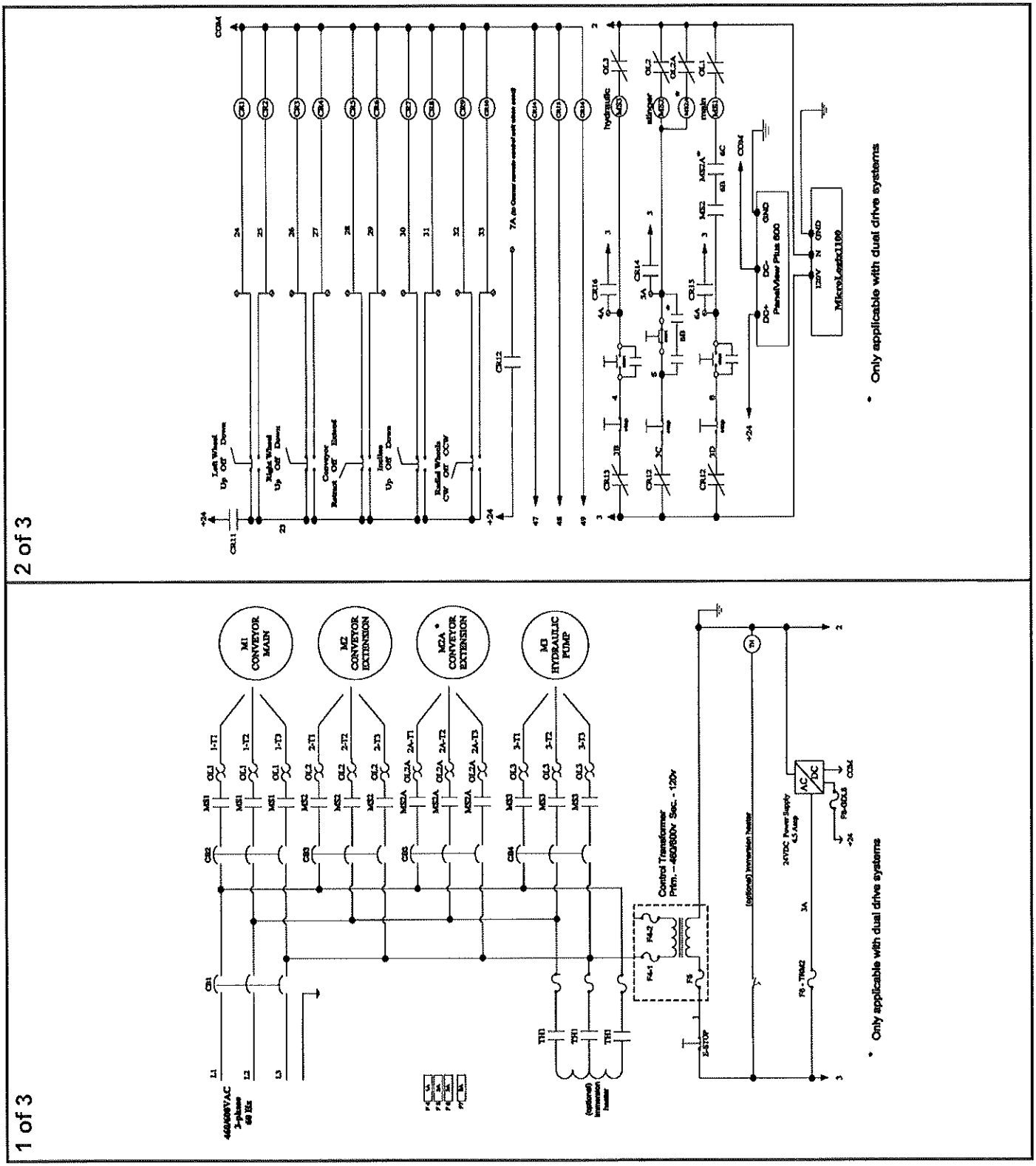
8 of 8



7 of 8

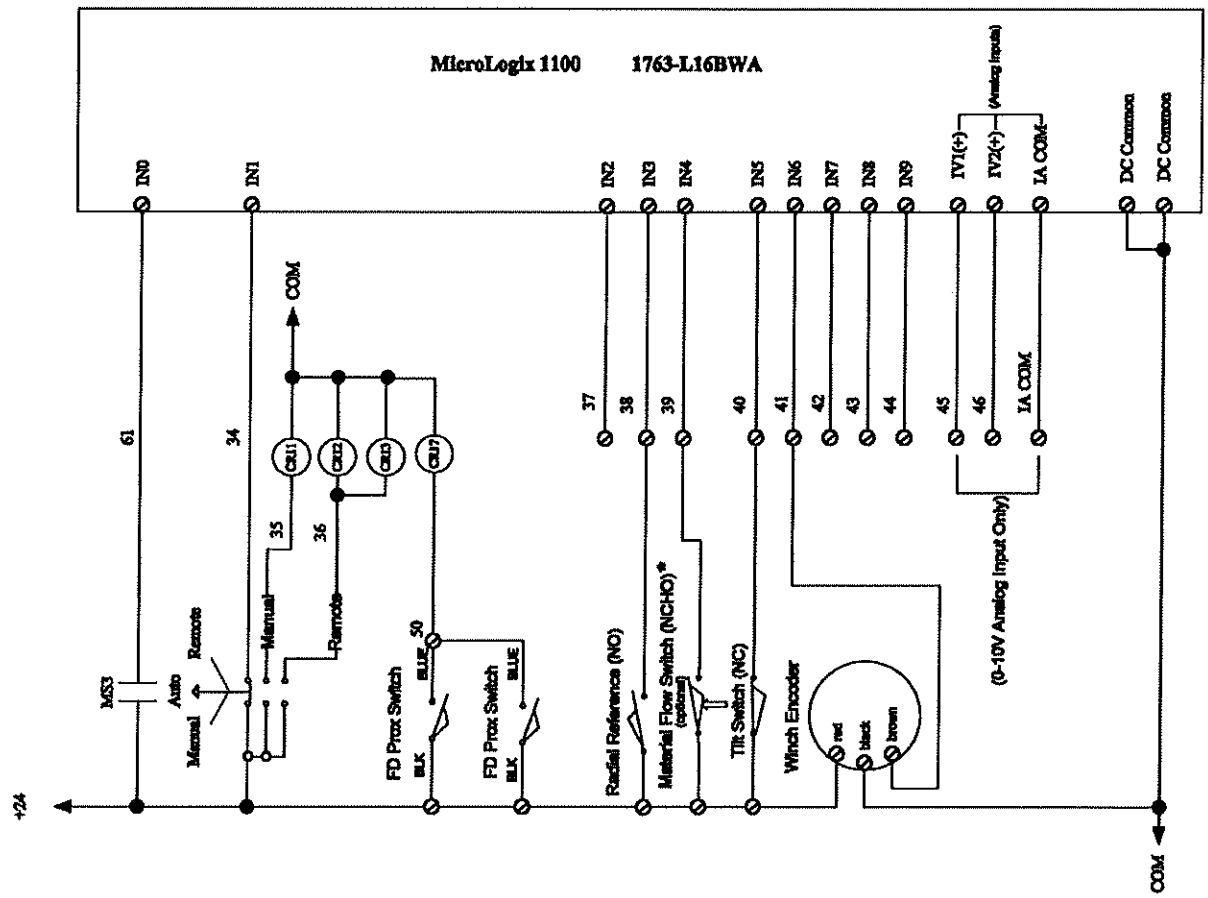


Manual FD Axle

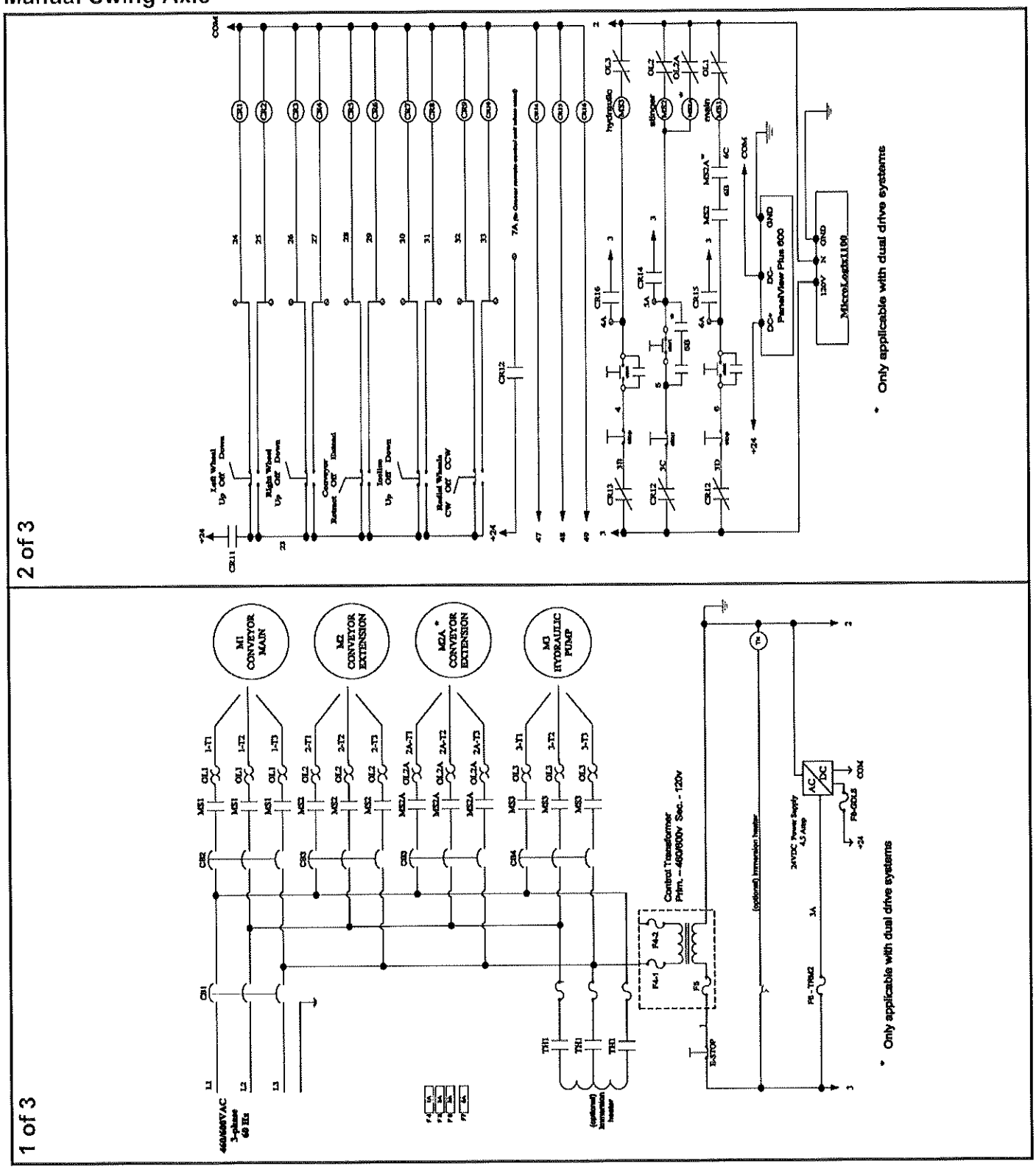


Manual FD Axle (Cont'd)

3 of 3

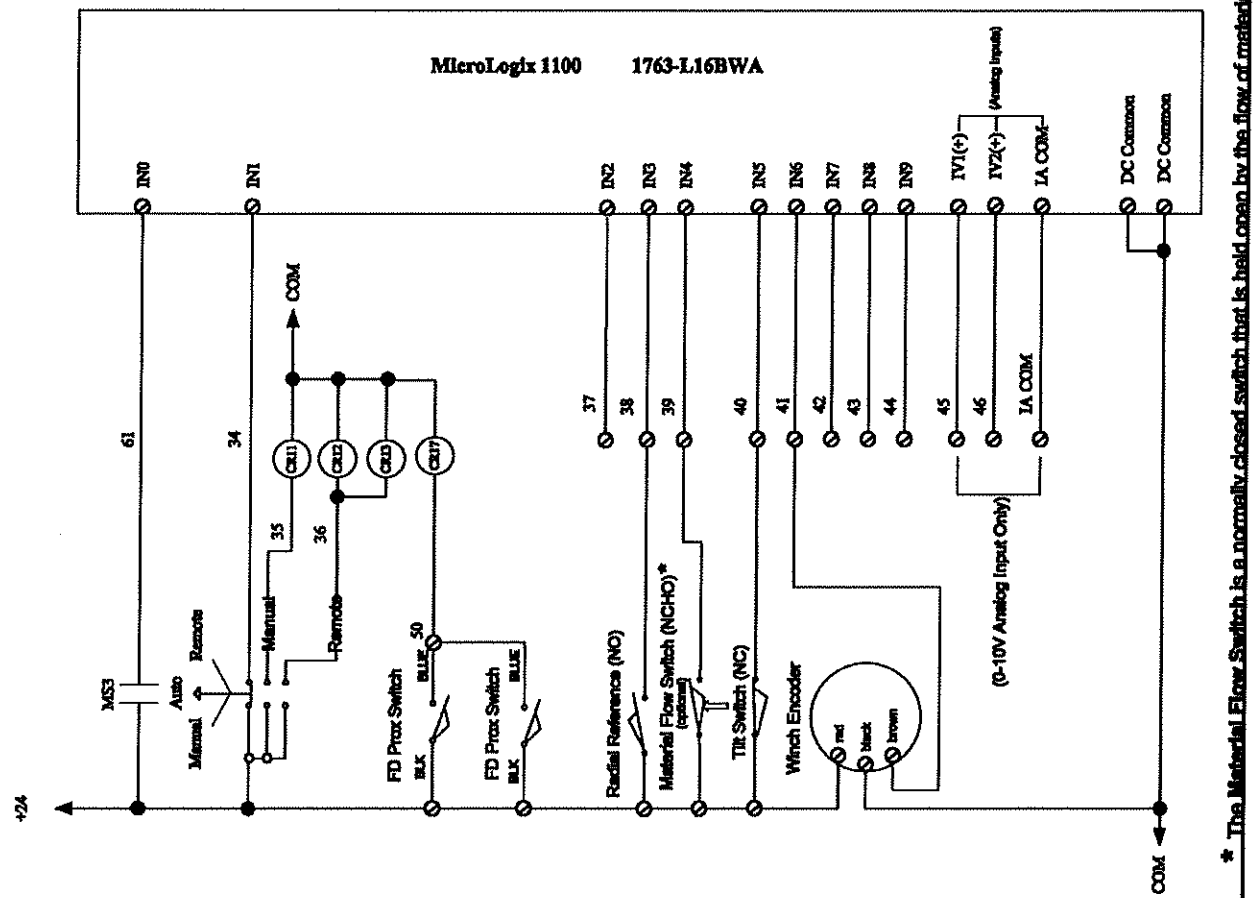


Manual Swing Axle

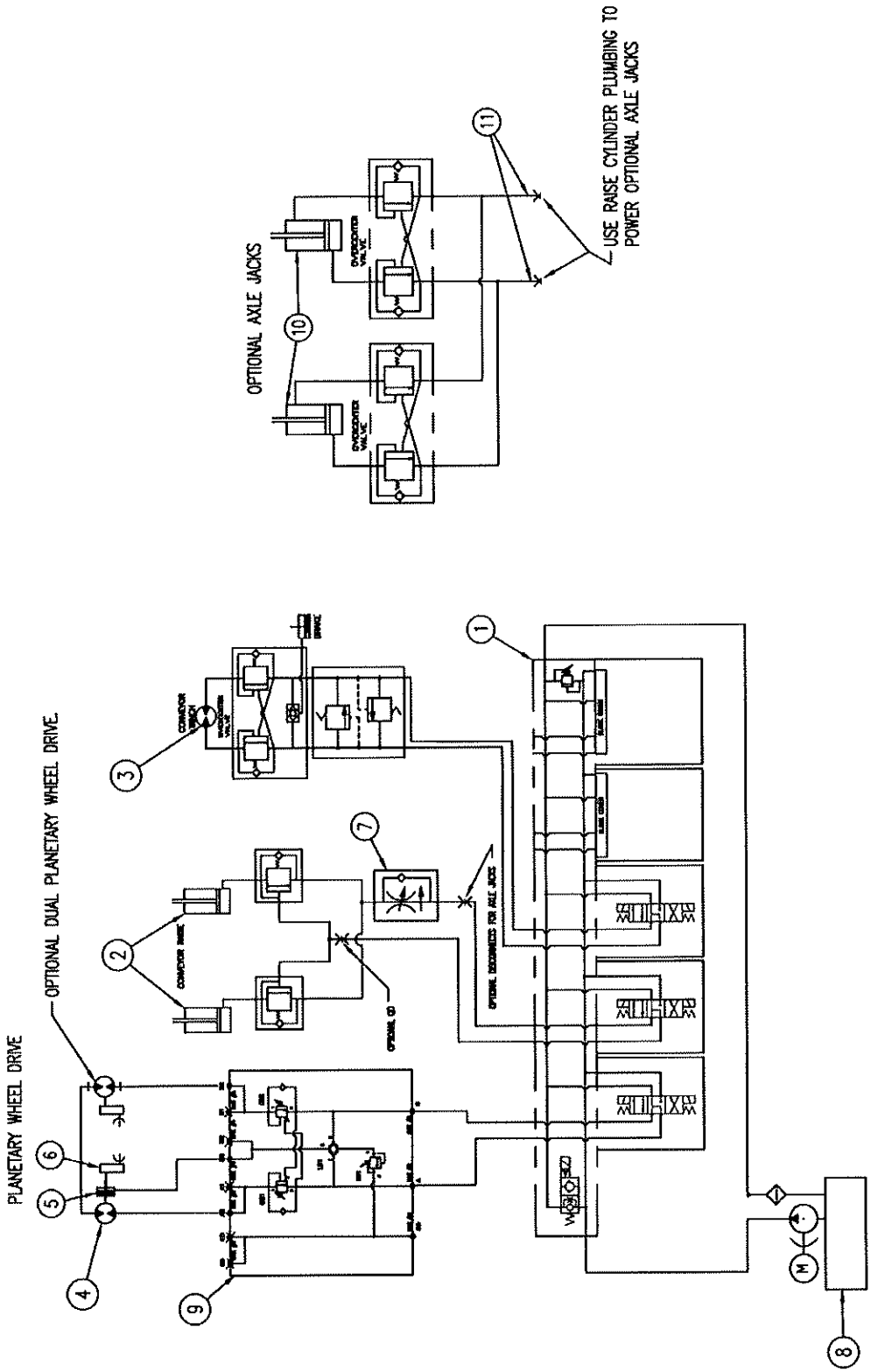


Manual Swing Axle (Cont'd)

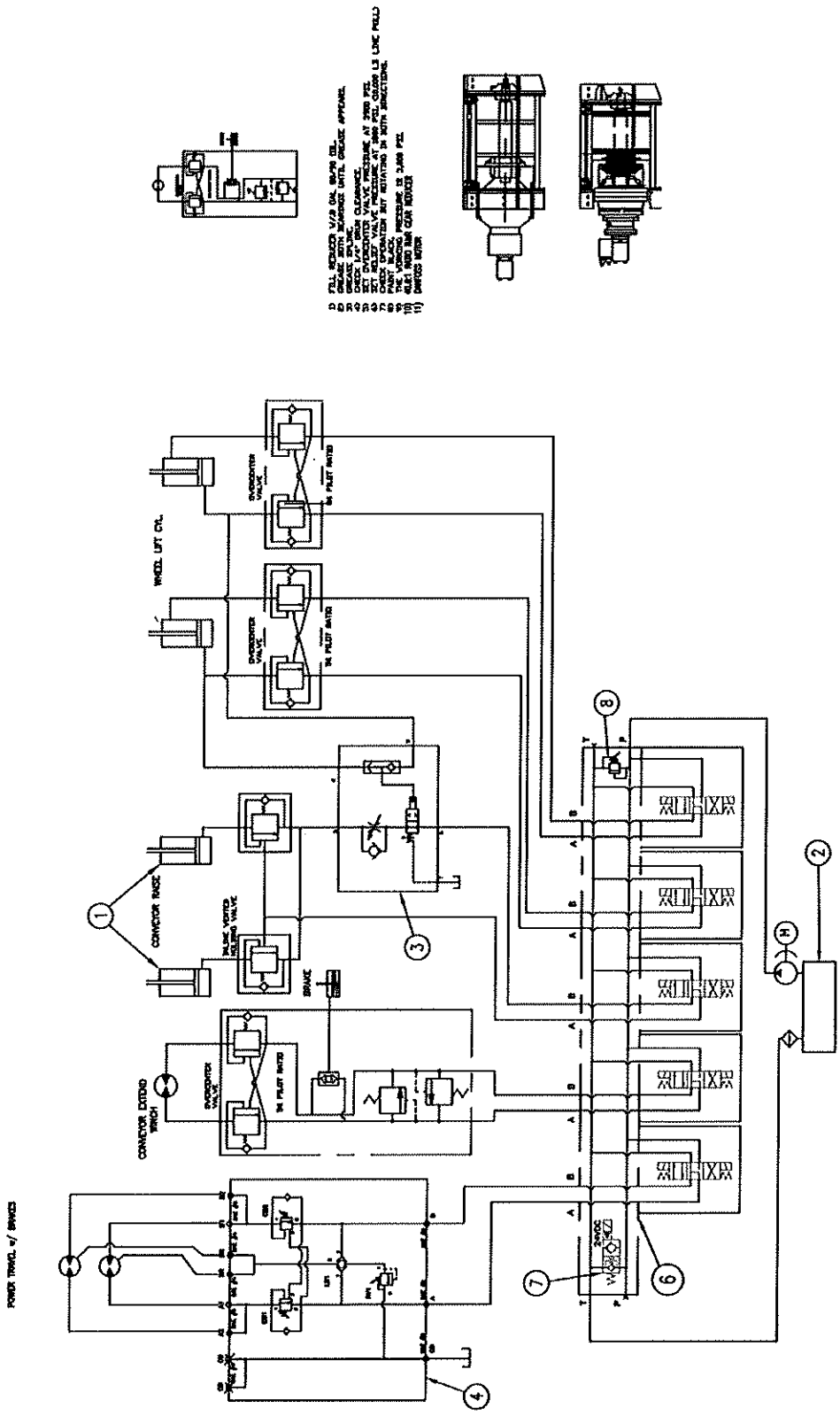
3 of 3



Hydraulic Schematic - Swing Axle

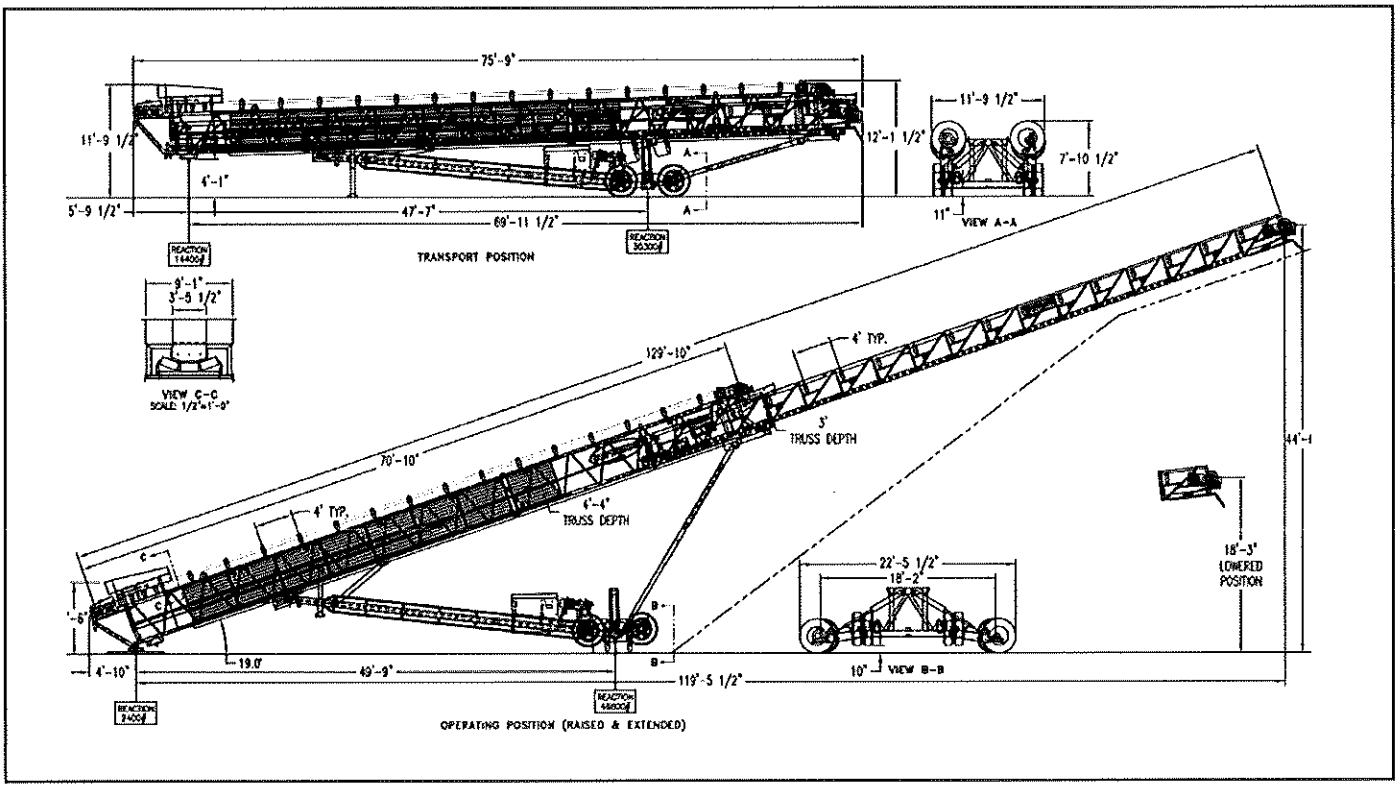


Hydraulic Schematic - FD Axle

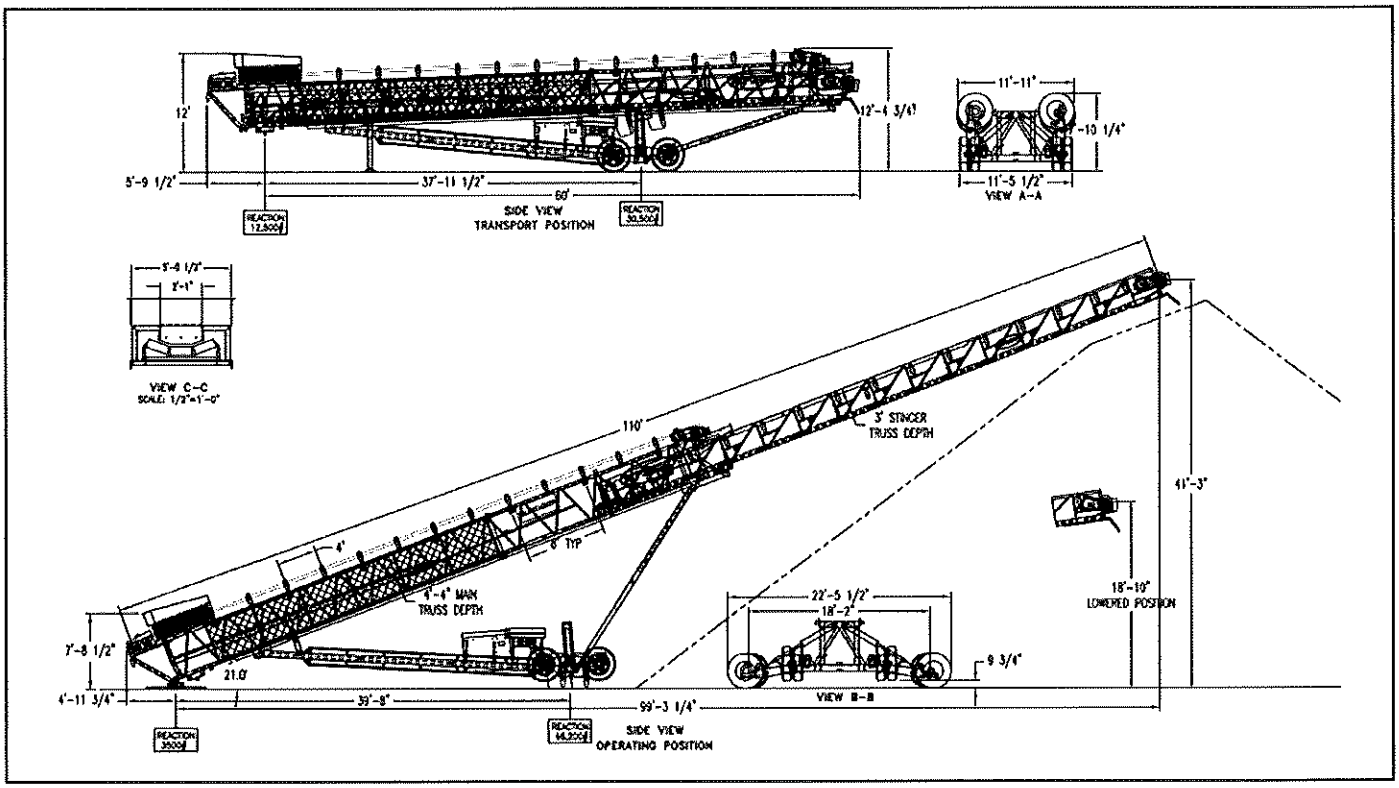


Dimensional Information

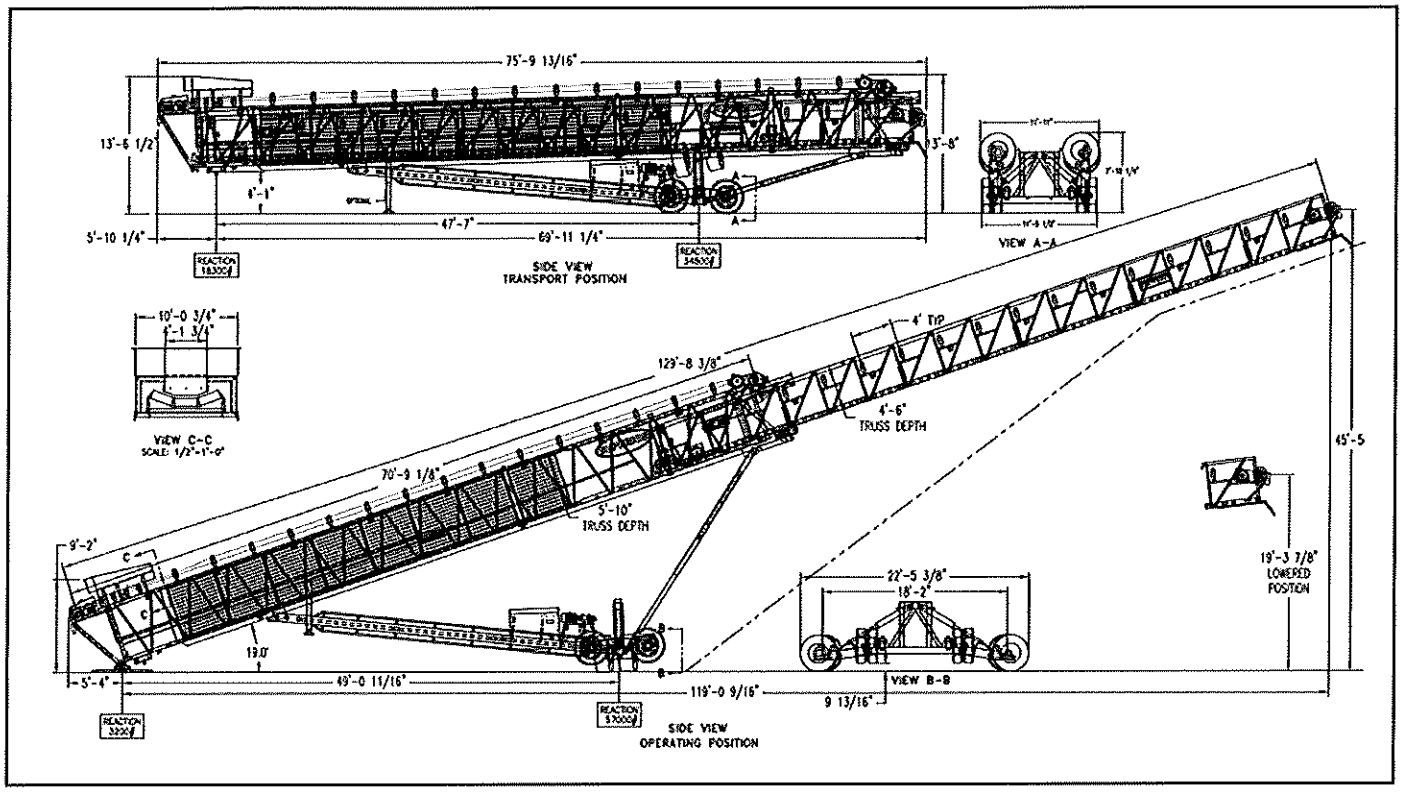
TS 30 x 130 FD Axle



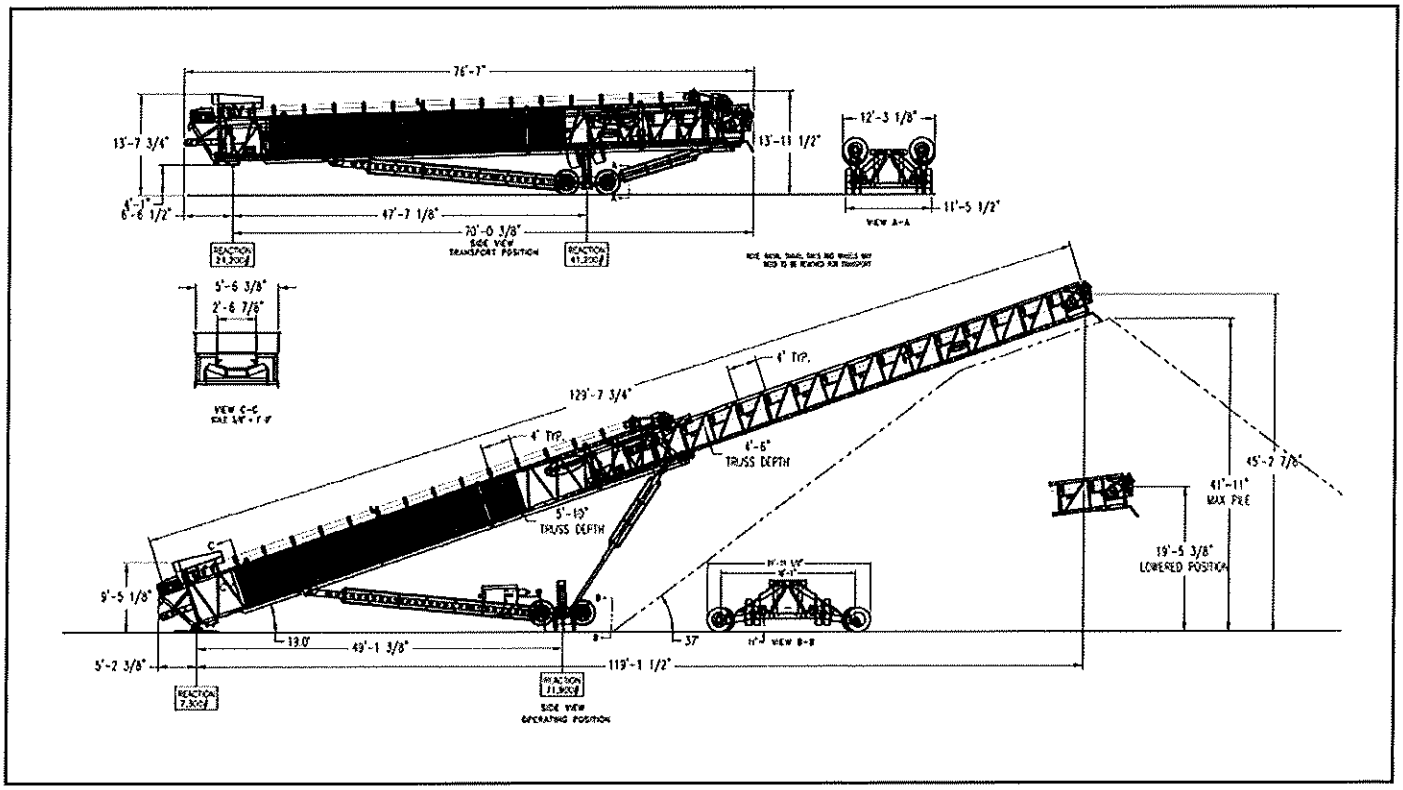
TS 36 x 110 FD Axle



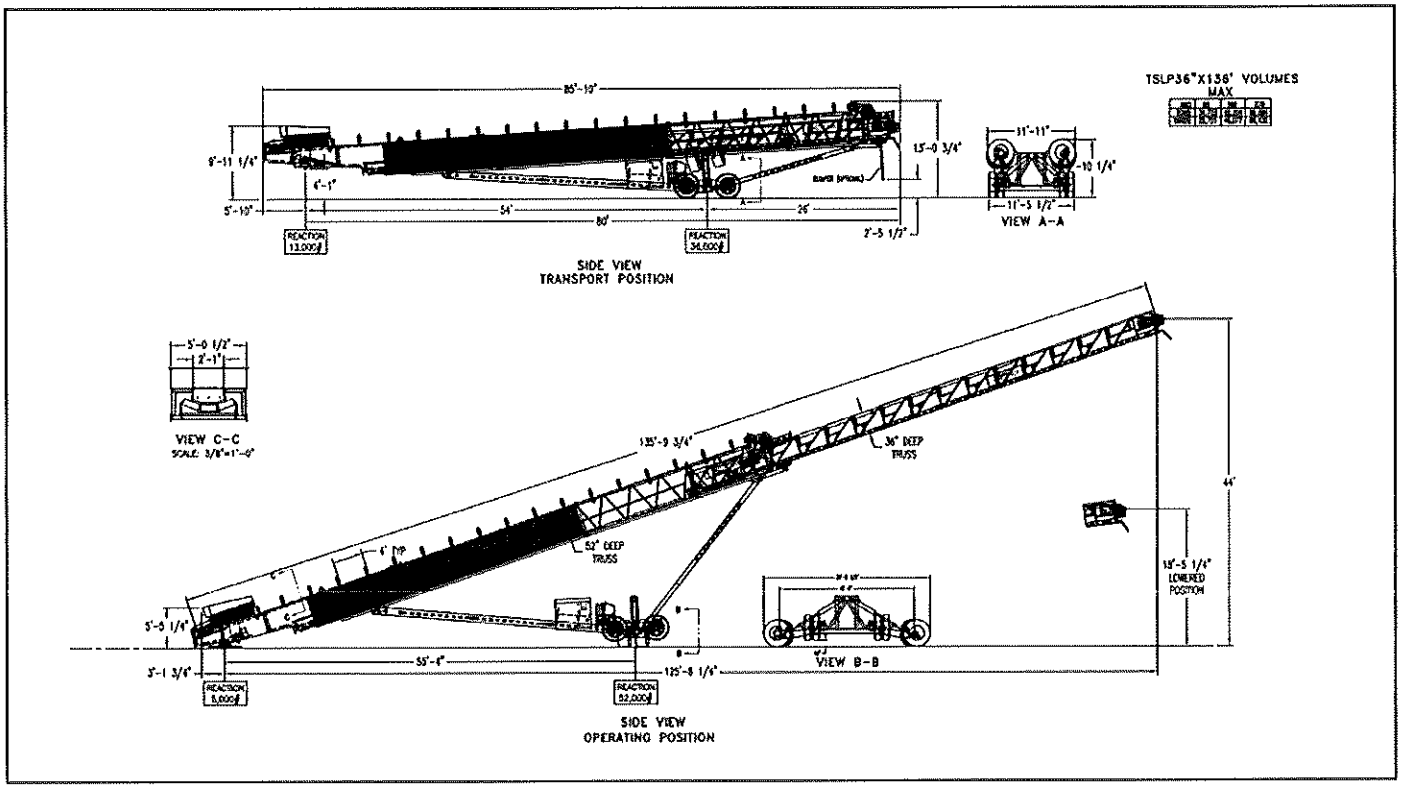
TS 36 x 130 FD Axle



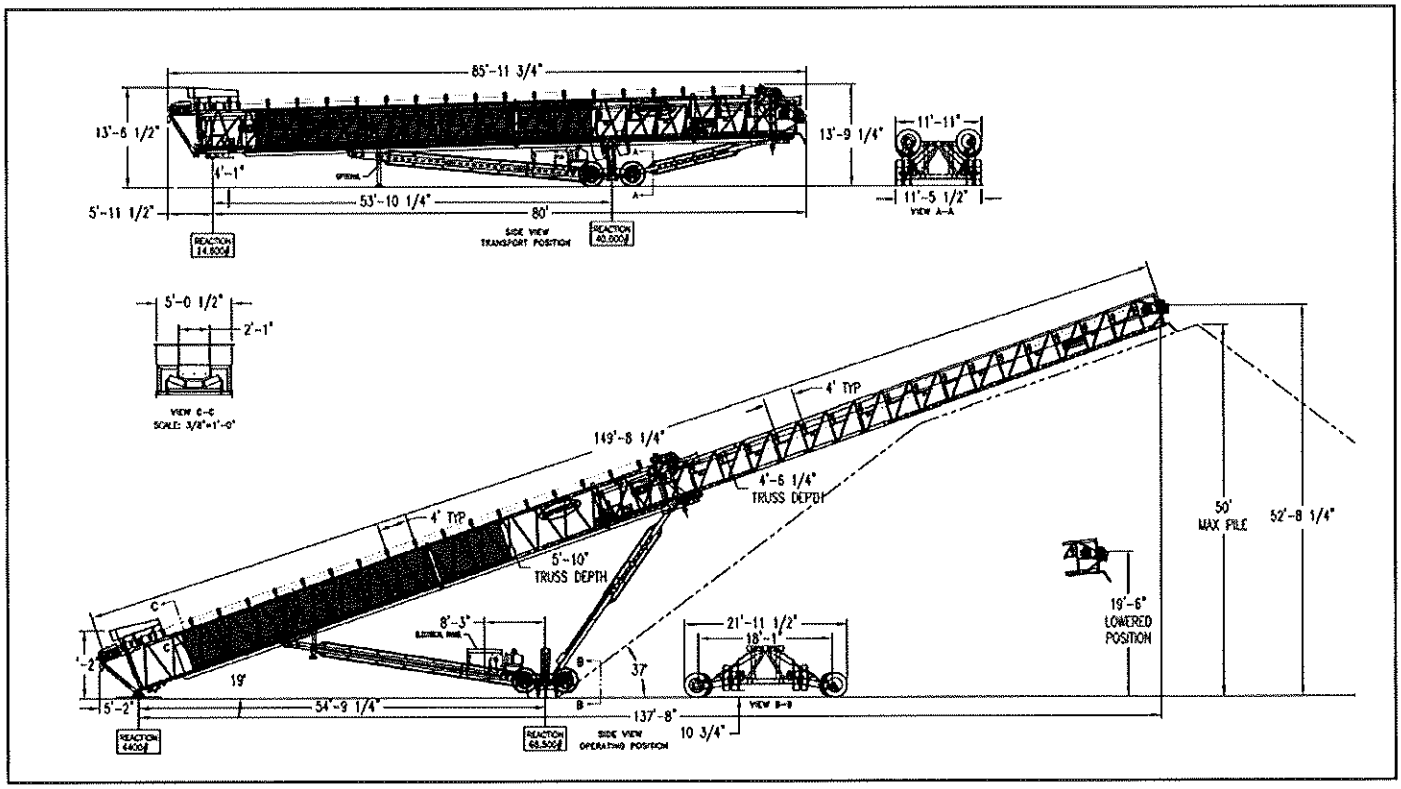
TS 42 x 130 FD Axle



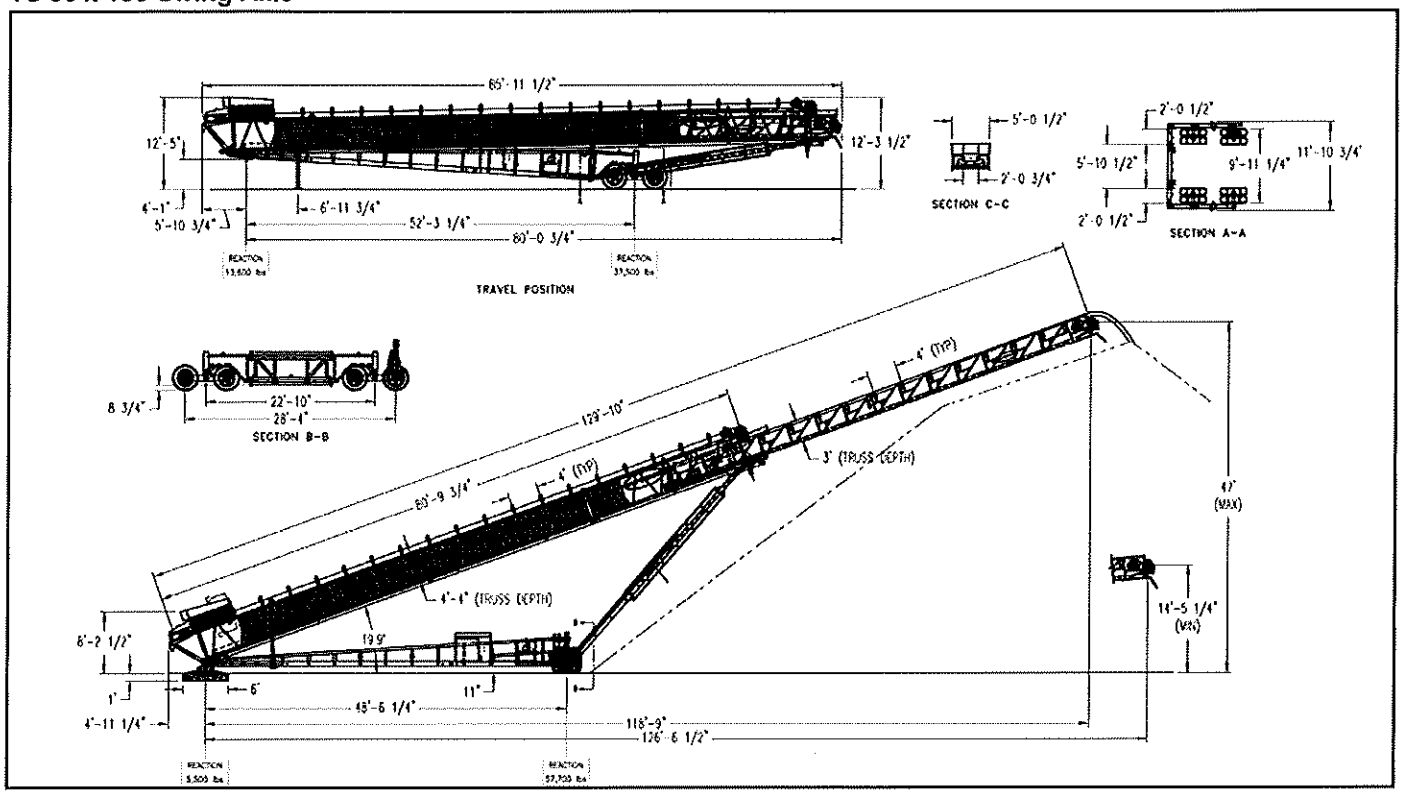
TS 36 x 136 Low Profile FD Axle



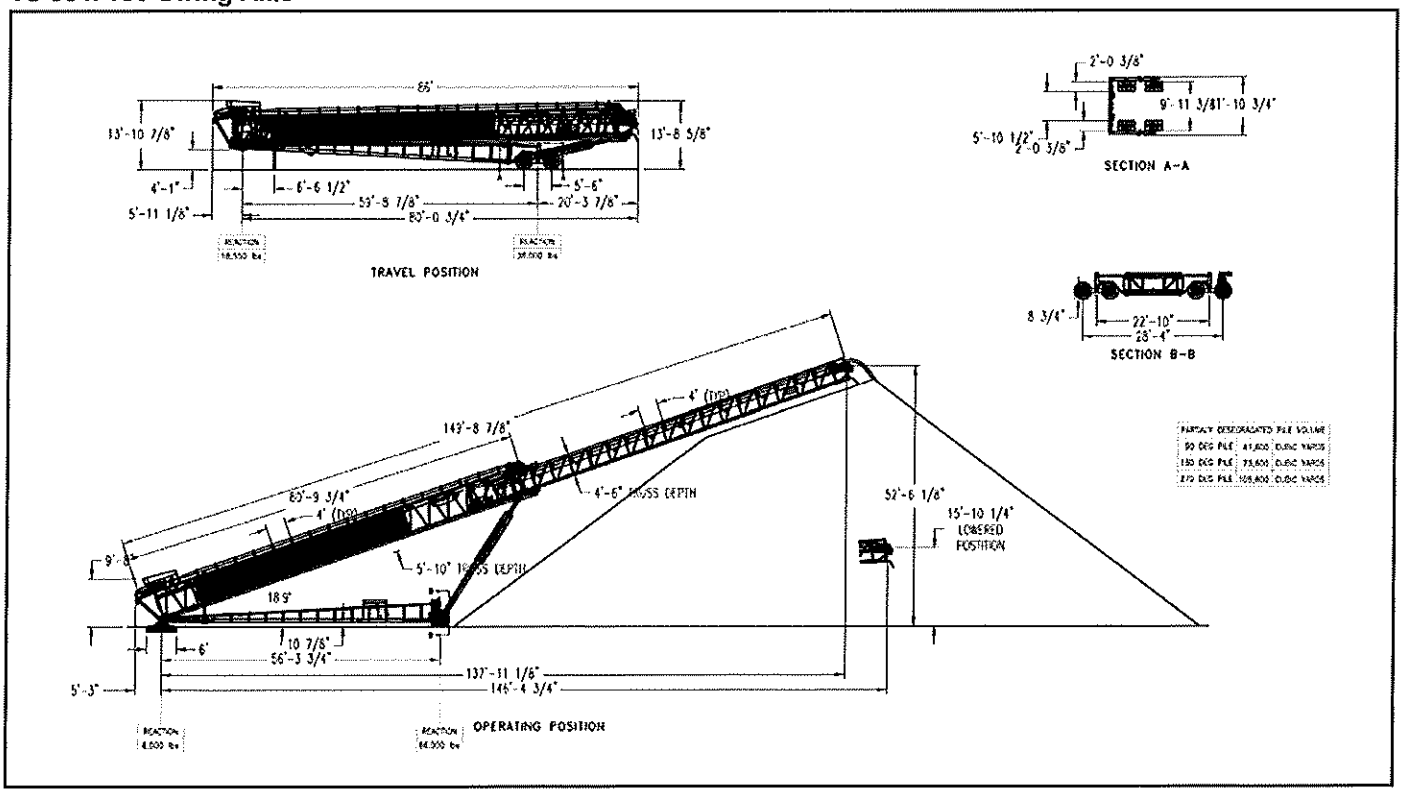
TS 36 x 150 FD Axle



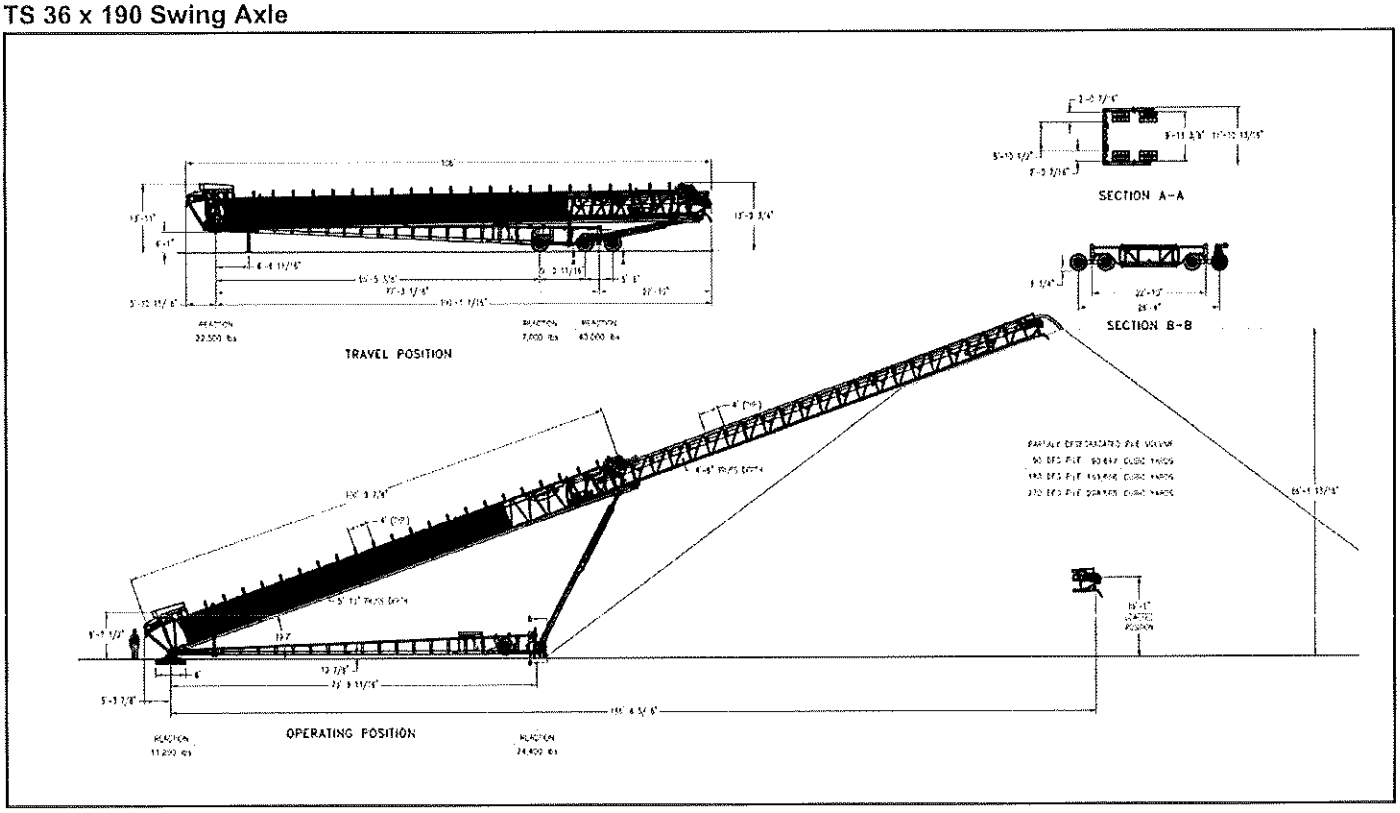
TS 36 x 130 Swing Axle



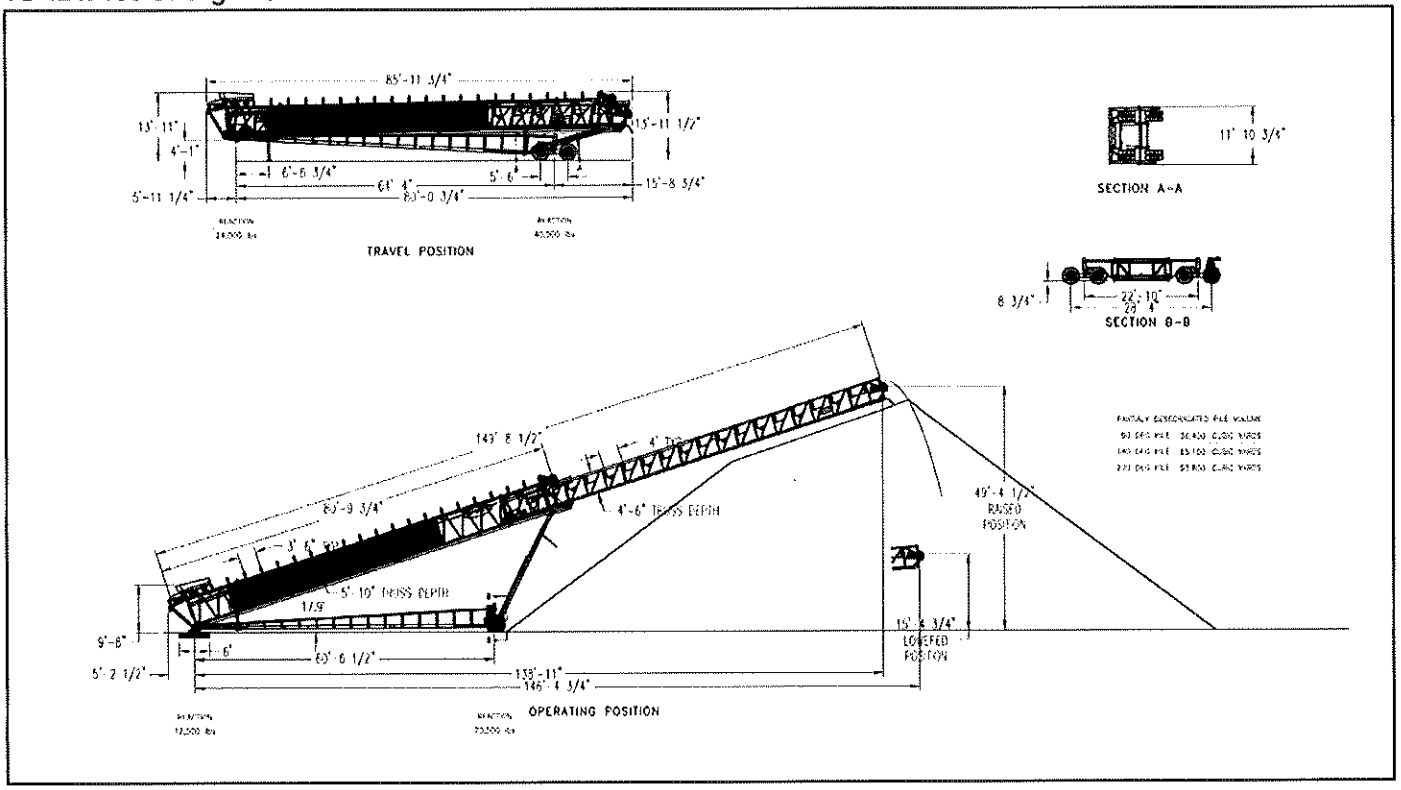
TS 36 x 150 Swing Axle



TS 36 x 190 Swing Axle



TS 42 x 150 Swing Axle



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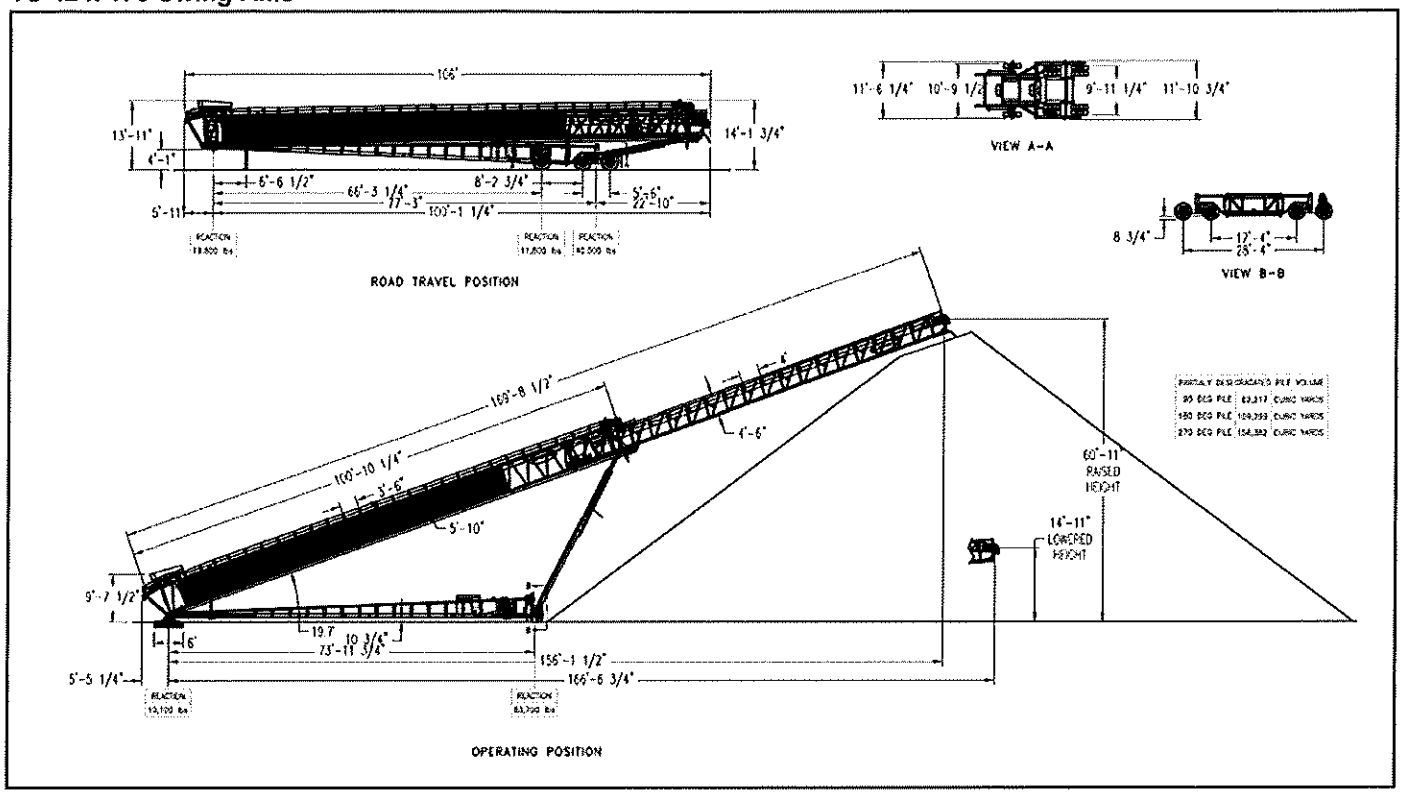


Tire Pressure

Recommended tire pressures.

Locate your Telestacker model number, verify the tire type, then match the tire part number with the PSI rating.

Model	Radial	Travel	Tag Axle
30 x 130 TS	09-00129/09-00150	09-00171	N/A
30 x 150 TS	09-00129-09-00130	09-00146	N/A
36 x 110 TS	09-00129/09-00130	09-00171	N/A
36 x 130 TS	09-00129/09-00130	09-00171	N/A
36 x 130 TSSA	N/A	09-00171	N/A
36 x 150 TS	09-00129/09-00130	09-00171	N/A
36 x 150 TSSA	N/A	09-00171	N/A
36 x 170 TSSA	N/A	09-00171	09-00180
36 x 190 TSSA	N/A	09-00171	09-00181
42 x 110 TS	09-00129/09-00130	09-00146	N/A
42 x 130 TS	09-00129/09-00130	09-00146	N/A
42 x 150 TS	09-00129/09-00130	09-00146	09-00213
42 x 150 TSSA	N/A	09-00177	N/A
42 X 170 TSSA	N/A	09-00177	09-00213

Tire Part Number	PSI Rating
09-00129/09-00130	100 PSI
09-00146	105 PSI
09-00171	75 PSI
09-00177	130 PSI
09-00180	75 PSI
09-00181	130 PSI
09-00213	130 PSI

Torque and Tension Charts

QD® Bushings - Recommended Torque*

Bushing Symbol	Before Clamping Diameter	Size	Screw Torque (in. lbs.)
QDSDS	1.69	1/4 x 1-3/8	108
QDSD	2.69	1/4 x 1-7/8	108
QDSK	3.31	5/16 x 2	180
QDSF	3.88	3/8 x 2	360

XT® Bushings - Recommended Torque*

Hub	Number and Size of Cap Screws	Wrench Torque (in. lbs.)	Wrench Torque (ft. lbs.)
XT 20	4 (5/16-18 NC x 1-1/4)	200	17
XT 25	4 (3/8 - 16 NC x 1-3/4)	350	30
XT 30	4 (7/16 - 14 NC X 1-1/2)	550	45
XT 35	4 (1/2 - 13 NC x 1-3/4)	840	70
XT 40	4 (9/16 - 12 NC x 2)	1,200	100
XT 45	4 (5/8 - 11 NC x 2-1/4)	1,680	140
XT 50	4 (3/4 - 10 NC x 2-1/2)	3,000	250
XT 60	4 (7/8 - 9 NC x 2-1/2)	4,800	400
XT 70	4 (1 - 8 NC x 3)	7,200	600

MARTIN® Internal Spring Tensioner - Recommended Tension**

Belt Width in. (mm)	Number of Notches	
	Precleaner (Standard)	Secondary
18 (400-500)	2	3
24 (500-650)	3	4
30 (650-800)	4	5
36 (800-1000)	5	6
42 (1000-1200)	6	8
48 (1200-1400)	6	9
54 (1400-1600)	4***	3***
60 (1600-1800)	4***	3***
72 (1800-2000)	5***	4***
84 (2000-2200)	6***	4***
96 (2200-2400)	7***	5***
*** Per tensioner; dual tensioners required		

* QD and XT are registered trademarks of Emerson Electric.
** Martin is a registered trademark of Martin Engineering.

Hydraulic Fitting Torque Data

For 37° and 45° (Machined or Flared)

Dash Size	Nominal Tube Size	Thread Size	Torque - Steel FT-LB (NM)	Torque - Brass FT-LB (NM)
4	1/4	7/16-20	10-11 (13-15)	5-6 (6-3/4-9)
5	5/16	1/2-20	13-15 (18-20)	7-9 (10-13)
6	3/8	9/16-18	17-19 (23-26)	12-15 (17-20)
8	1/2	3/4-16	34-38 (47-52)	20-24 (27-2/3-33)
10	5/8	7/8-14	50-56 (69-76)	34-40 (46-1/3-55)
12	3/4	1-1/16-12	70-78 (96-106)	53-60 (72-1/3-82)
16	1	1-5/16-12	94-104 (127-141)	74-82 (100-1/2-111)
20	1-1/4	1-5/8-12	124-138 (169-188)	75-83 (101-1/2-113)
24	1-1/2	1-7/8-12	156-173 (212-235)	79-87 (9-9)
32	2	2-1/2-12	219-243 (296-329)	158-175 (17-3/4-19)

For Flat-Face "O" Ring Seal (Steel)

Dash Size	Nominal Tube Size	Thread Size	Torque FT-LB (NM)
4	1/4	7/16-20	10-12 (14-16)
6	3/8	9/16-18	18-20 (24-27)
8	1/2	3/4-16	32-40 (43-54)
10	5/8	7/8-14	46-56 (60-75)
12	3/4	1-1/16-12	65-80 (90-110)
14	7/8	1-3/16-12	65-80 (90-110)
16	1	1-5/16-12	92-105 (125-240)
20	1-1/4	1-5/8-12	125-140 (170-190)
24	1-1/2	1-7/8-12	150-180 (200-245)

For SAE "O" Ring Boss (Steel)

Dash Size	Nominal Tube Size	Thread Size	Torque FT-LB (NM)
3	3/16	3/8-24	8-10 (11-13)
4	1/4	7/16-20	14-16 (20-22)
5	5/16	1/2-20	18-20 (24-27)
6	3/8	9/16-18	24-26 (33-35)
8	1/2	3/4-16	50-60 (68-78)
10	5/8	7/8-14	72-80 (98-110)
12	3/4	1-1/16-12	125-135 (170-183)
14	7/8	1-3/16-12	160-180 (215-245)
16	1	1-5/16-12	200-220 (270-300)
20	1-1/4	1-5/8-12	210-280 (285-380)
24	1-1/2	1-7/8-12	270-360 (370-490)

English Bolt Torque Data

Property Class and Head Markings	No Mark 1 or 2b 	5 5.1 5.2 	8 8.2 
Property Class and Nut Markings	No Mark 2 	5 	8 

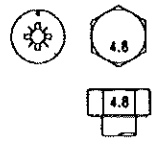
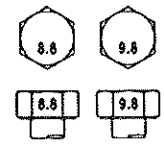
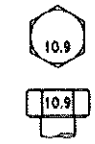
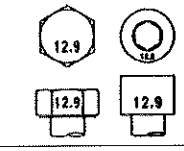
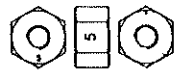
English Bolt and Cap Screw Information (Lubricated)

Size	Grade 1 FT-LB (NM)	Grade 2* FT-LB (NM)	Grade 5, 5.1, 5.2 FT-LB (NM)	Grade 8 or 8.2 FT-LB (NM)
1/4	2.8 (3.7)	4.5 (6)	7 (9.5)	10 (13.5)
5/16	5.5 (7.7)	9 (12)	15 (20)	21 (28)
3/8	10 (14)	16 (22)	26 (35)	36 (50)
7/16	16 (22)	26 (35)	41 (55)	58 (80)
1/2	25 (33)	39 (53)	63 (85)	90 (120)
9/16	36 (48)	56 (75)	90 (125)	130 (175)
5/8	50 (67)	78 (105)	125 (170)	160 (215)
3/4	87 (120)	140 (190)	225 (300)	310 (425)
7/8	140 (190)	140 (190)	360 (490)	500 (700)
1	210 (290)	210 (290)	540 (725)	750 (1050)
1-1/8	300 (470)	300 (470)	675 (900)	1075 (1450)
1-1/4	425 (570)	425 (570)	950 (1300)	1500 (2050)
1-3/8	550 (750)	550 (750)	1250 (1700)	2000 (2700)
1-1/2	725 (1000)	725 (990)	1650 (2250)	2650 (3600)

English Bolt and Cap Screw Information (Dry)

Size	Grade 1 FT-LB (NM)	Grade 2* FT-LB (NM)	Grade 5, 5.1, 5.2 FT-LB (NM)	Grade 8 or 8.2 FT-LB (NM)
1/4	3.5 (4.7)	5.5 (7.5)	9 (12)	12.5 (17)
5/16	7 (10)	11 (15)	18 (25)	26 (35)
3/8	13 (17)	20 (27)	33 (44)	46 (63)
7/16	20 (28)	32 (44)	52 (70)	75 (100)
1/2	31 (42)	50 (67)	80 (110)	115 (150)
9/16	45 (60)	70 (95)	115 (155)	160 (225)
5/8	62 (85)	100 (135)	160 (215)	225 (300)
3/4	110 (150)	175 (240)	280 (375)	400 (550)
7/8	175 (240)	175 (240)	450 (625)	650 (875)
1	270 (360)	270 (360)	675 (925)	975 (1300)
1-1/8	375 (510)	375 (510)	850 (1150)	1350 (1850)
1-1/4	530 (725)	530 (725)	1200 (1650)	1950 (2600)
1-3/8	700 (950)	700 (950)	1550 (2150)	2550 (3400)
1-1/2	925 (1250)	930 (1250)	2100 (2850)	3350 (4550)

Metric Bolt Torque Data

Property Class and Head Markings				
Property Class and Nut Markings				

Metric Bolt and Cap Screw Information (Lubricated)

Size	Class 4.8 FT-LB (NM)	Class 8.8 or 9.8 FT-LB (NM)	Class 10.9 FT-LB (NM)	Class 12.9 FT-LB (NM)
M6	3.5 (4.8)	6.5 (9)	9.5 (13)	11.5 (15)
M8	8.5 (12)	16 (22)	24 (32)	28 (37)
M10	17 (23)	32 (43)	47 (63)	55 (75)
M12	29 (40)	55 (75)	80 (110)	95 (130)
M14	47 (63)	88 (120)	130 (175)	150 (205)
M16	73 (100)	140 (190)	200 (275)	240 (320)
M18	100 (135)	195 (260)	275 (375)	325 (440)
M20	140 (190)	275 (375)	400 (530)	460 (625)
M22	190 (260)	375 (510)	540 (725)	625 (850)
M24	250 (330)	475 (650)	675 (925)	800 (1075)
M27	360 (490)	700 (950)	1000 (1350)	1150 (1600)
M30	490 (675)	950 (1300)	1350 (1850)	1600 (2150)
M33	675 (900)	1300 (1750)	1850 (2500)	2150 (2900)
M36	850 (1150)	1650 (2250)	2350 (3200)	2750 (3750)

Metric Bolt and Cap Screw Information (Dry)

Size	Class 4.8 FT-LB (NM)	Class 8.8 or 9.8 FT-LB (NM)	Class 10.9 FT-LB (NM)	Class 12.9 FT-LB (NM)
M6	4.5 (6)	8.5 (11)	12 (17)	14.5 (19)
M8	11 (15)	20 (28)	30 (40)	35 (47)
M10	21 (29)	40 (55)	60 (80)	70 (95)
M12	37 (50)	70 (95)	105 (140)	120 (165)
M14	60 (80)	110 (150)	165 (225)	190 (260)
M16	92 (125)	175 (240)	225 (350)	300 (400)
M18	125 (175)	250 (330)	350 (475)	410 (560)
M20	180 (240)	350 (475)	500 (675)	580 (800)
M22	250 (330)	475 (650)	675 (925)	800 (1075)
M24	310 (425)	600 (825)	850 (1150)	1000 (1350)
M27	450 (625)	875 (1200)	1250 (1700)	1500 (2000)
M30	625 (850)	1200 (1650)	1700 (2300)	2000 (2700)
M33	850 (1150)	1650 (2200)	2350 (3150)	2750 (3700)
M36	1075 (1450)	2100 (2850)	3000 (4050)	3500 (4750)

SUPERIOR INDUSTRIES, LLC

WARRANTY: Seller warrants to original Buyer that the merchandise manufactured by Seller will be free from defects in material and workmanship when used under proper and normal use for a period of one year after delivery. Seller's liability under this warranty is expressly limited, in Seller's discretion, to replacing or repairing any merchandise found to be defective within one year after delivery. Buyer expressly agrees that replacement or repair of the merchandise is, in Seller's discretion, Buyer's sole and exclusive remedy for any breach of warranty. In the event any merchandise is found to be defective during the warranty period, Buyer shall notify Seller in writing of any claimed defect within thirty days after such defect is first discovered, but not later than one year from the date merchandise was delivered to the Buyer and provide Seller with an opportunity to inspect and test the merchandise claimed to be defective. The effects of normal wear and tear do not constitute a defect for purposes of this warranty. Seller shall pay all reasonable transportation charges incurred in returning to Seller any merchandise agreed in writing by Seller to be defective; however, Buyer shall pay all transportation, removal and replacement charges covering any merchandise returned that does not prove to be defective. This warranty is provided by the Seller solely to the original Buyer of the merchandise and applies to merchandise manufactured by the Seller as well as any warranties provided by the Seller's suppliers.

THIS WARRANTY IS THE SOLE, EXCLUSIVE AND ENTIRE WARRANTY PERTAINING TO THE SELLER'S MERCHANDISE AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES OF ANY NATURE WHATSOEVER, WHETHER EXPRESS, IMPLIED OR ARISING BY OPERATION OF LAW, TRADE USAGE OR COURSE OF DEALING, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE.

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds. Wash hands after handling.

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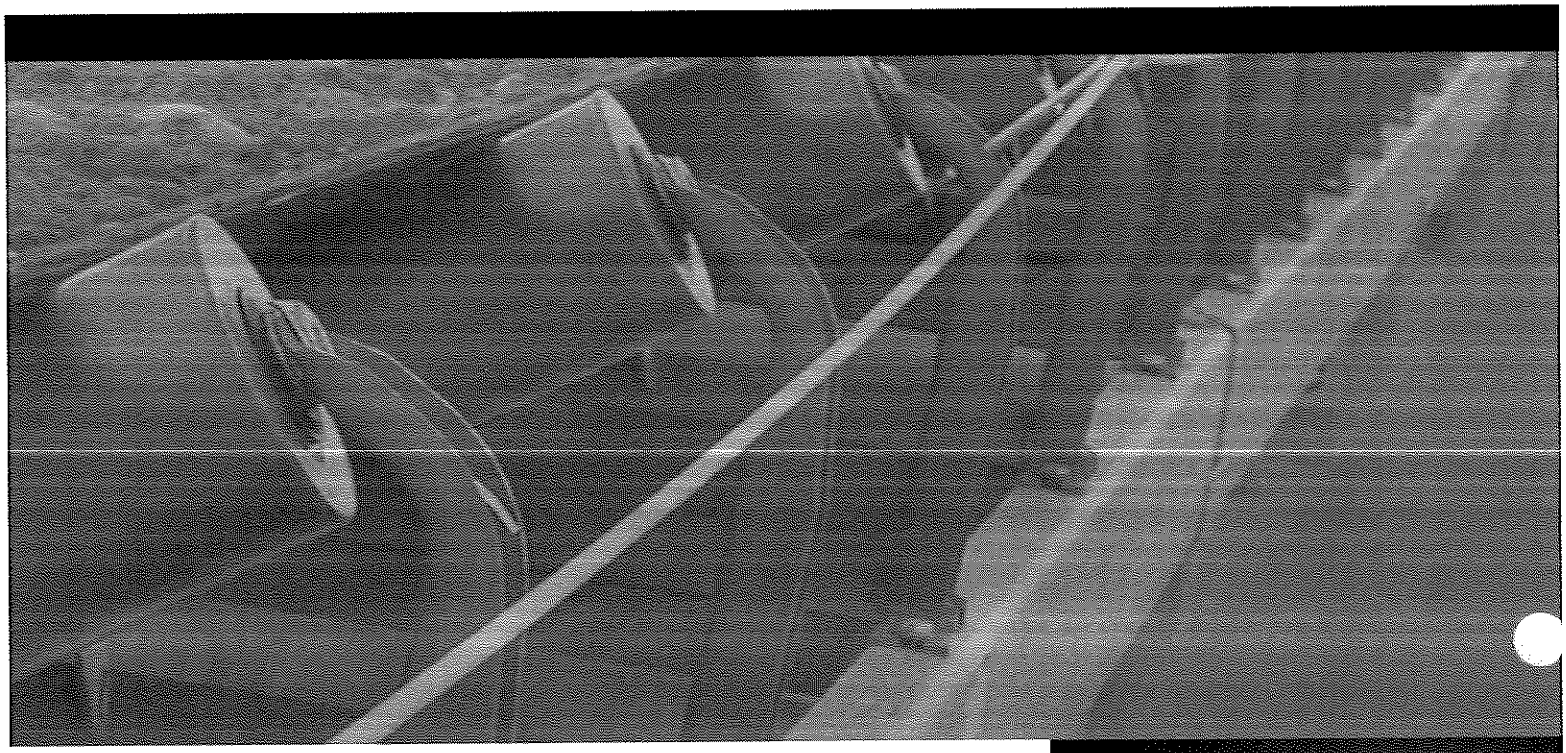
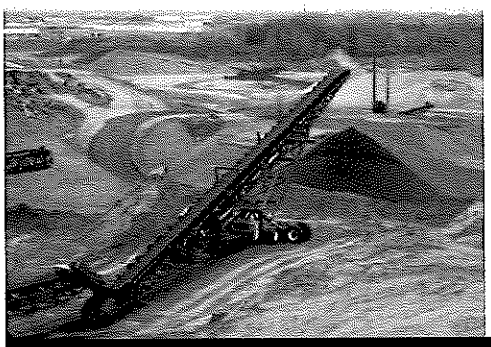
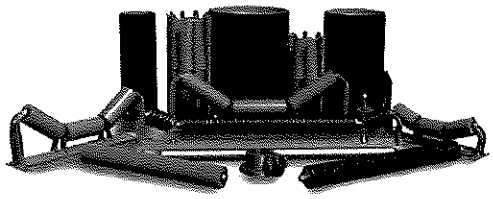
PO Box 684 / East State Highway 28
Morris, MN 56267







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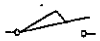
PILEPRO AUTOMATION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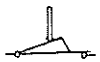
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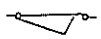
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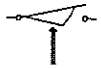
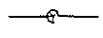
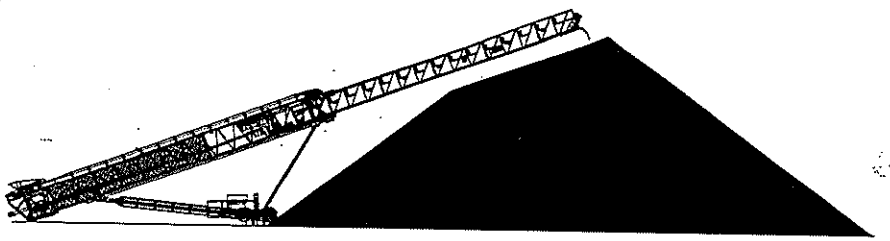

— NORMALLY CLOSED HELD OPEN(NCHO)


— INTERNAL PANEL WIRE CONNECTIONS


— SCREW TERMINAL ON TERMINAL STRIP

CAUTIONARY NOTES:

- THIS MACHINE IS SUBJECT TO VIBRATION WHILE IN USE AND TRANSPORT. ALL ELECTRICAL CONNECTIONS SHOULD BE INSPECTED PERIODICALLY AND TIGHTENED TO THE SPECIFIED TORQUE TO INSURE RELIABLE AND SAFE OPERATION.
- ALL BLOWN FUSES MUST BE REPLACED WITH SPECIFIED SIZE AND TYPE TO INSURE SAFE OPERATION.
- DO NOT OPERATE THIS MACHINE IF ANY WIRES HAVE MISSING OR DAMAGED INSULATION OR HAVE BEEN SUBJECTED TO ABUSE. REMOVE POWER AND REPLACE OR REPAIR AFFECTED WIRES IMMEDIATELY.
- THE ELECTRICAL CONTROLS ON THIS MACHINE SHOULD ONLY BE INSTALLED OR REPAIRED BY A QUALIFIED ELECTRICIAN OR PERSONS WITH KNOWLEDGE WITH ELECTRICAL WIRING SYSTEMS, AND IN ACCORDANCE WITH ALL LOCAL ELECTRICAL CODES AND ELECTRICAL HAZARD SAFETY PRACTICES.
- READ AND UNDERSTAND ALL INSTRUCTIONS AND MANUALS SUPPLIED WITH THIS MACHINE PRIOR TO OPERATION.
- THIS MACHINE MUST BE SOLIDLY CONNECTED TO AN EARTH GROUND AT ALL TIMES WHILE IN OPERATION.
- TURN MACHINE POWER OFF WHEN NOT IN USE TO PREVENT UNAUTHORIZED OR ACCIDENTAL OPERATION.
- TURN MACHINE POWER OFF BEFORE DOING ANY MAINTENANCE OR REPAIRS TO ELECTRICAL SYSTEM.
- DO NOT OPERATE THIS MACHINE IN THE PRESENCE OF FLAMMABLE OR EXPLOSIVE MATERIALS.



REV	DATE	DESCRIPTION OF REVISION
L		
K	10/19/09	ADDED PROPORTIONAL CIRCUIT FOR RADIAL TRAVEL AND CR22 TO DUMP VALVE
J	09/10/09	ADDED INCLINATION SENSOR AND CONVEYOR EXTENSION MONITORING CONTACTS
H	07/10/09	CHANGED PLC TO ML1400, ADDED RADIAL LIMIT SWITCH, ANALOG INPUT WIRING
G	05/09/08	CHANGED REMOTE PORT TO AMPHENOL CONNECTOR
F	03/03/08	CHANGED REMOTE STOP/START CIRCUIT
E	04/04/07	ADDED SENSING INTERLOCK OPTIONS
D	5/20/06	CHANGED TO PV+600 AND ML1100 PLC
C	3/31/06	CHANGED TO 3-PHASE IMMERSION HEATER
B	3/31/05	CHANGED REMOTE CONNECTOR PIN-OUT
A	3/31/05	CHANGED MOTOR CONTROLS TO MOMENTARY ACTUATORS

REVISIONS

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SHEET TO SHEET: #1 ← SHEET # / 22 ← LINE #

DRAWING TO DRAWING: DWG:ELECXXXX SHT:XX LINE: XX → DRAWING / LINE # → SHEET #

WIRE # 3 | TERMINAL # 5 | PIN # 7

ELECTRICAL-SCHEMATIC,TRSC,AUTOMATION & REMOTE,GENIUS-PKG

File: 11-01087

TITLE: PilePro Automation

DATE: 12/4/2009 | DRAWN BY: APB,BKA

Drawing No: ELEC-SCH\11-01087 | Revision: K | SHEET 1 OF 5

SUPERIOR INDUSTRIES

Equipment Division
PO Box 684
Highway 28 East
Morris, MN 56267

REMOTE CONNECTOR PIN OUT

MALE PIN NUMBER	FUNCTION	FEMALE PIN	MAIN PANEL TERMINAL NUMBER
A	24 VDC	A	7A
B	COM	B	COM
C	GND	C	GND
D	*(NO CONNECTION)*	D	
E	*(NO CONNECTION)*	E	
F	*(NO CONNECTION)*	F	
G	STINGER BELT ON	G	47
H	MAIN BELT ON	H	48
J	HORN	J	18
K	RIGHT FD RETRACT	K	27
L	RIGHT FD EXTEND	L	26
M	*(NO CONNECTION)*	M	
N	LEFT FD RETACT	N	25
P	LEFT FD EXTEND	P	24
R	MAIN BELT OFF	R	58
S	HYDRAULICS ON	S	49
T	RADIAL CW	T	32
U	INCLINE EXTEND	U	31
V	STINGER EXTEND	V	29
W	STINGER RETRACT	W	28
X	RADIAL CCW	X	33
Y	INCLINE RETRACT	Y	30
Z	STINGER BELT OFF	Z	57
a	HYDRAULICS OFF	a	59

SUPERIOR EQUIPMENT 08-03979 PLUS1 PROPORTIONAL VALVE DRIVER

PLUS 1 DIAGNOSTICS
The following describes the contents of the PropDriver.P1D file that can be used with the Plus 1 service tool to diagnose and setup the controller.

Log Functions - The log functions are used to monitor the plus one program.

Outputs
C2p03.OutputValue – The actual current on the CW output pin. 15000 = 1500.0mA or 1.5A.
C2p04.OutputValue – The actual current on the CCW output pin. 15000 = 1500.0mA or 1.5A.
C2p05.Dig – This is the status of the digital output for the dump valve relay.
C2p06.OutputValue – The actual current on the SPARE CW output pin.
C2p07.OutputValue – The actual current on the SPARE CCW output pin.
C2p08.Dig – This is the status of the SPARE digital output for the dump valve relay.

FltNo – This is the fault number of the internal fault monitoring. The faults are as follows:
1 – CW Output Pin overloaded. 2 – CCW Output Pin Overloaded.
3 – DUMP Output Pin Overloaded. 4 – CW PWM Driver Error. 5 – CCW PWM Driver Error.

Inputs
C1p06.DigIn – The ramp enable digital input.
C1p10.DigIn – The CW travel digital input.
C1p10.Volt – The CW travel variable input.
C1p11.DigIn – The CCW travel digital input.
C1p11.Volt – The CCW travel variable input.

Signals
CW_Var_OK – CW Variable Signal Received.
CW_Var_Go – Drive the CW output with the CW Variable Signal.
CCW_Var_OK – CCW Variable Signal Received.
CCW_Var_Go – Drive the CCW output with the CCW Variable Signal.
CW_Dig_Go – Drive the CW output with the digital signal (full current).
CCW_Dig_Go – Drive the CCW output with the digital signal (full current).
CW_Out – The proportional Signal for CW direction. 5000 = 50.00%
CCW_Out – The proportional Signal for CCW direction. 5000 = 50.00%

Parameter Functions - The parameter functions are used to setup the controller.

Settings:
AccelTime – The amount of seconds it will take for the coil signal to ramp from 0% -100%. 3 is Default.
DeccelTime – The amount of seconds it will take for the coil signal to ramp from 100% - 0%. 3 is Default.
Max Current – The maximum current that the coil will be driven with when at 100%. The range is 500mA to 3000mA. 2300 is Default.
Min Current – The minimum current that the coil will be driven with when at 0.01%. The range is 0mA to 1000mA. 500 is Default.

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SHEET TO SHEET | DRAWING TO DRAWING | WIRE # | TERMINAL # | PIN #

ELECTRICAL-SCHEMATIC,TRSC,AUTOMATION & REMOTE,GENIUS-PKG

FILE: 11-01087

TITLE: PilePro Automation

DATE: 12/4/2009

DRAWING NO: \ELEC-SCH\11-01087

DRAWN BY: RPELISKA

REVISION: K

SHEET 7 OF 8

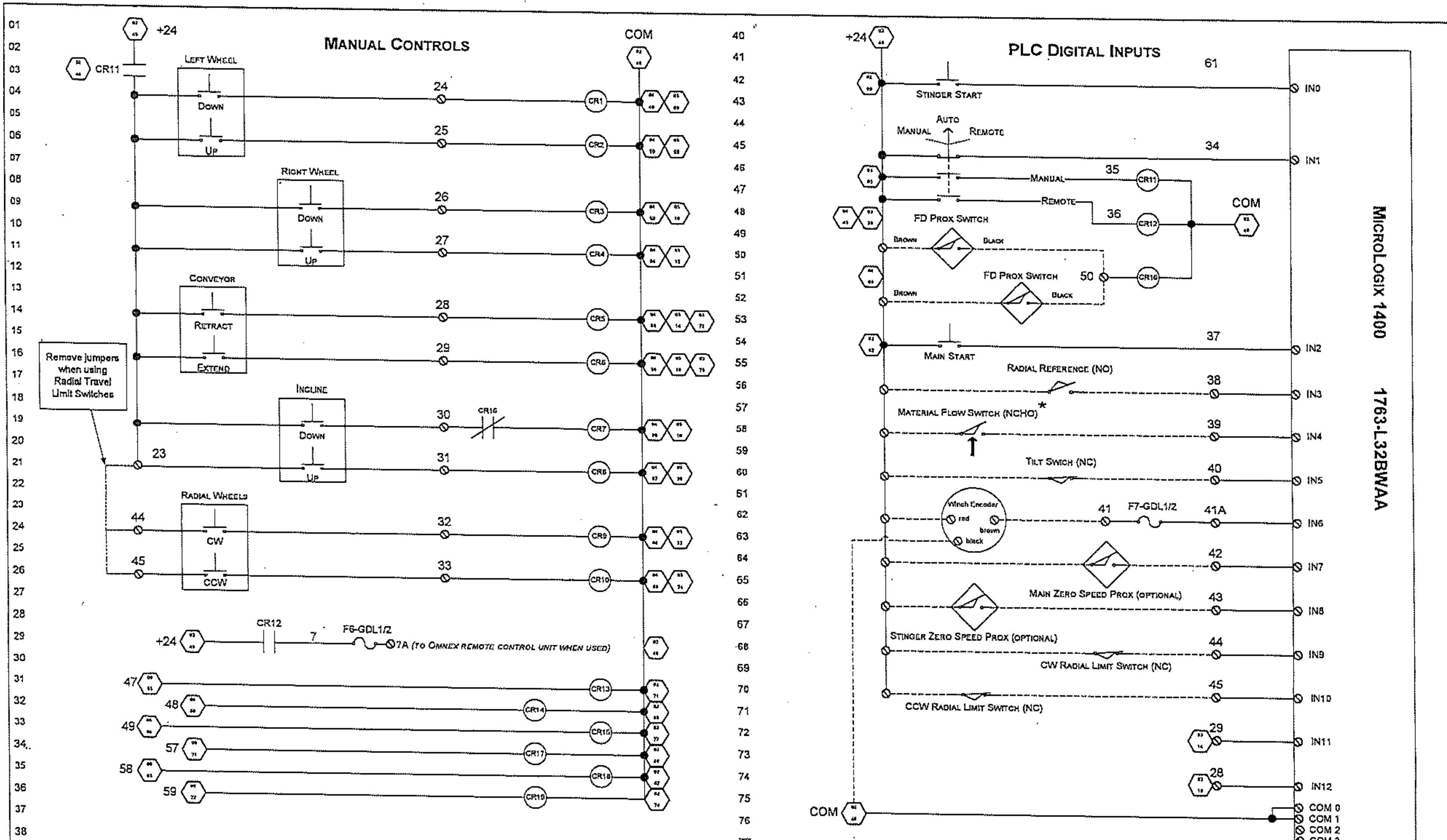
SUPERIOR INDUSTRIES
Equipment Division
PO Box 994
Highway 28 East
Morris, MN 56267

Hose list for Telestacker

Group	Part	QTY	Size (ID)	Type	Est. OAL - in.	OAL -in.	End Fittings	Usage	Complete Description
Fold Down Cylinders	Ditch/Left	2	-6	100R17-TC	130"	**130"**	-8 FJ X -8 FJ	Manifold to Outrigger	-6 HOSE ASSY, -8FJX-8FJ
	Road/Right	2	-6	100R17-TC	112"	**158"**	-8 FJ X -8 FJ	Manifold to Outrigger	-6 HOSE ASSY, -8FJX-8FJ
Lift Cylinders	A	1	-6	100R17-TC	48"	**99"**	-6 FJ X -8 FJ	Manifold to Tee	-6 HOSE ASSY, -6FJX-8FJ,
	B	1	-6	100R17-TC	48"	**84"**	-6 FJ X -8 FJ	Manifold to Interlock Block	-6 HOSE ASSY, -6FJX-8FJ,
	Rod	2	-6	100R17-TC	48"	**143"**	-6 FJ X -8 FJ	Tee to Cylinder	-6 HOSE ASSY, -6FJX-8FJ,
	Piston	2	-6	100R17-TC	48"	**143"**	-6 FJ X -8 FJ	Interlock Block to Cylinder	-6 HOSE ASSY, -6FJX-8FJ,
Radial Travel, CW/CCW	A	1	-8	100R17-TC	158"	**236"**	-8 FJ90 X -8 FJ	Manifold to Motor BH	-8 HOSE ASSY, -8FJ90 X-8FJ
	B	1	-8	100R17-TC	158"	**236"**	-8 FJ90 X -8 FJ	Manifold to Motor BH	-8 HOSE ASSY, -8FJ90 X-8FJ
	Drain	1	-6	100R17-TC	140"	**266"**	-6 FJ X -8 FJ	Reservoir Return to Motor BH	-6 HOSE ASSY, -6FJX-8FJ,
Winch	Arm	2	-8	100R17-TC	458"	**480"**	-8 FJ X -8 FJ	Manifold through arm to BH	-8 HOSE ASSY, -8FJ X-8FJ
	Trav	2	-8	100R17-TC	243"	**264"**	-8 FJ X -8 FJ	BH under carriage to Cabletrak	-8 HOSE ASSY, -8FJ X-8FJ
	Cable	2	-6	100R17-TC	243"	**960"**	-8 FJ X -8 FJ	Cabletrak to Winch	-6 HOSE ASSY, -8FJX-8FJ
	Home	2	-6	100R17-TC	48"		-8 FJ X -8 FJ	Jumper at winch	-6 HOSE ASSY, -8FJX-8FJ

1. 3000 PSI Working Pressure
2. 100R17 with tough cover prefered. OD of hoses must conform to the following. -6 hose must fit in 5/8" clamps, -8 inside of 13/16" clamps. The tighter radius, working pressure, and OD, is the most important factor. Hose type is open for discussion.
3. Please label with lengths and line item # for identification.
4. Winch/Cable is 72' per KMEC plus, 8' to allow 4' tails on each side.

-6 est hose length 300 ft.
-8 est hose length 170 ft.



* THE MATERIAL FLOW SWITCH IS A NORMALLY CLOSED SWITCH THAT IS HELD OPEN BY THE FLOW OF MATERIAL
WHEN THERE IS NO MATERIAL ON THE BELT THE SWITCH IS CLOSED, WHEN THERE IS MATERIAL ON THE BELT THE SWITCH IS OPEN

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SHEET TO SHEET — SHEET # / LINE #
DRAWING TO DRAWING — DWG:ELECXXXX SHT: XX LINE: XX — DRAWING LINE # — SHEET #
WIRE # 3 — TERMINAL # 9 — PN # 7

ELECTRICAL-SCHEMATIC,TRSC,AUTOMATION & REMOTE,GENIUS-PKG

File 11-01087	TITLE: PiloPro Automation	DATE: 12/4/2009	DRAWN BY: APELIUKA	SUPERIOR INDUSTRIES — Equipment Division, PO Box 684, Highway 28 East, Morris, MN 56267
		Drawing No: 1ELEC-SCH11-01087	REVISION: K	SHEET 3 OF 8

Telstacker E Rev 7

PLC Spare and Analog Inputs

RESERVED FOR FUTURE USE

MicroLogix 1400 1763-L32BWAA

IN13
IN14
IN15
IN16
IN17
IN18
IN19

AICOM
AI0
AI1
AI2
AI3

COM ANA
IV0 (+)
IV1 (+)
IV2 (+)
IV3 (+)

Analog Inputs

Blue
Grey
Brown
Inclination Sensor

+24

PLC Outputs

+24

COM

MicroLogix 1400 176-L32BWAA

VAC/VDC 0
VAC/VDC 1
VAC/VDC 2
VAC/VDC 3
VAC/VDC 4
VAC/VDC 5
VAC/VDC 6

OUT 0
OUT 1
OUT 2
OUT 3
OUT 4
OUT 5
OUT 6
OUT 7
OUT 8
OUT 9

CR15
CR1
CR2
CR3
CR4
CR5
CR6
CR7
CR8
CR9
CR10

52 Interlock Control
8 Left Wheel Extend
9 Left Wheel Retract
10 Right Wheel Extend
11 Right Wheel Retract
12 Conveyor Retract
13 Conveyor Extend
14 Incline Retract
15 Incline Extend
16A Radial Wheel CW
17A Radial Wheel CCW

1762-OW8

OUT 0
OUT 1
OUT 2
OUT 3
OUT 4
OUT 5
OUT 6
OUT 7
VAC/VDC 1
VAC/VDC 2

CR22

18 Horn
19 Dump Valve
20 Main Stop (CR21)
21 Stinger Stop (CR20)

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Sheet to Sheet
Drawing to Drawing
Wire #
Terminal #
Pin #

ELECTRICAL-SCHEMATIC,TRSC,AUTOMATION & REMOTE,GENIUS-PKG

File 11-01087

Title: PilePro Automation

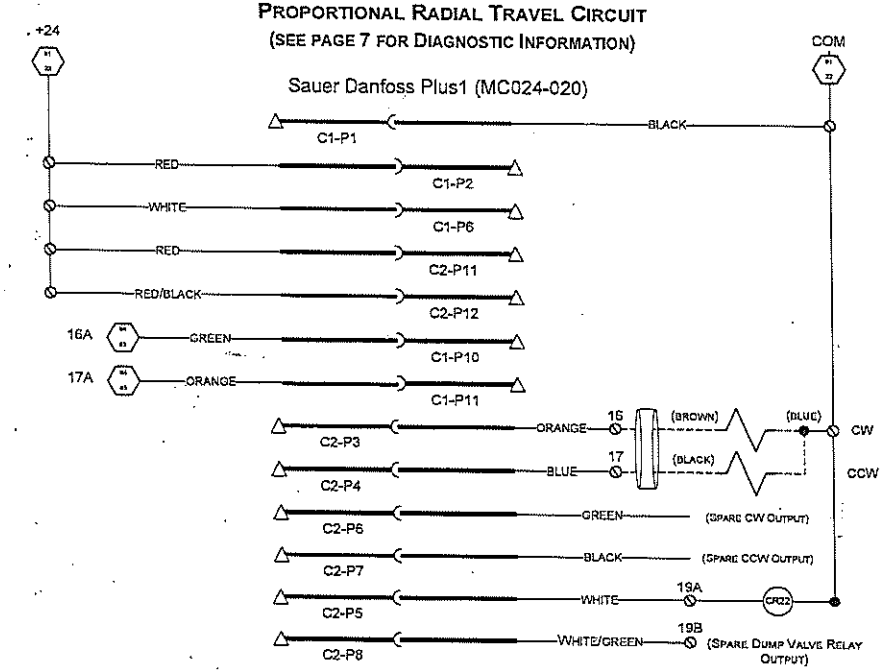
Date: 12/4/2009
Drawing No: VELEC-SCH11-01087
Drawn By: APELEMA
Revision: K
Sheet 4 of 8

SUPERIOR INDUSTRIES

Equipment Division
PO Box 684
Highway 28 East
Morris, MN 56267

Proportional Radial Travel Circuit

(See page 7 for Diagnostic Information)



DANFOSS PLUS1 PIN CONNECTION

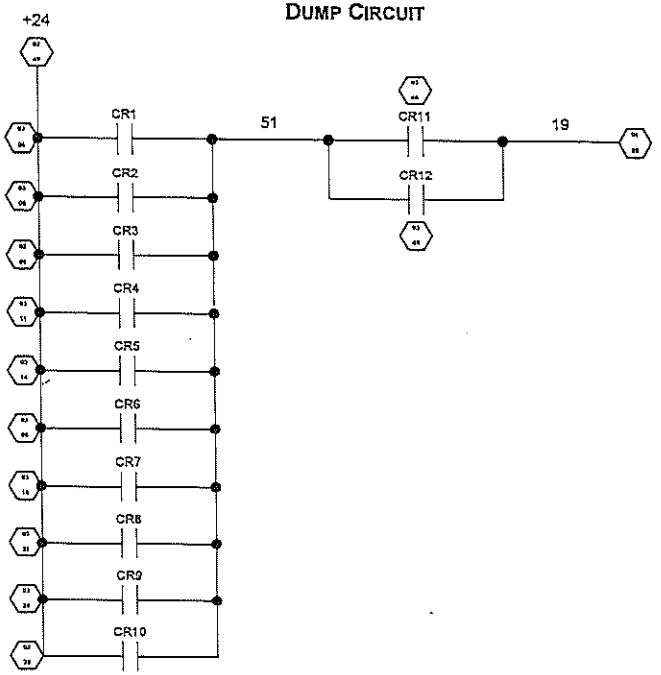
Cx-Px

DANFOSS PLUS1 CABLE CONNECTION

*(Spare Preprogrammed Output)

PLUS1	FUNCTION	CABLE	COLOR	TERMINAL/WIRE #
C1-P1	POWER SUPPLY COMMON	SO CORD 18-5	(BLACK)	COM
C1-P2	+24VDC POWER	SO CORD 18-5	(RED)	+24
C1-P6	RAMP ENABLE	SO CORD 18-5	(WHITE)	+24
C1-P10	TRAVEL CW INPUT	SO CORD 18-5	(GREEN)	16A (FROM PLC)
C1-P11	TRAVEL CCW INPUT	SO CORD 18-5	(ORANGE)	17A (FROM PLC)
C2-P3	CW PROPORTIONAL OUTPUT	SO CORD 18-8	(ORANGE)	16 (TO PROPORTIONAL VALVE COIL)
C2-P4	CCW PROPORTIONAL OUTPUT	SO CORD 18-8	(BLUE)	17 (TO PROPORTIONAL VALVE COIL)
C2-P5	DUMP VALVE OUTPUT	SO CORD 18-8	(WHITE)	CR22 COIL (DUMP VALVE)
C2-P6	*CW PROPORTIONAL OUTPUT	SO CORD 18-8	(GREEN)	*SPARE
C2-P7	*CCW PROPORTIONAL OUTPUT	SO CORD 18-8	(BLACK)	*SPARE
C2-P8	*DUMP VALVE OUTPUT	SO CORD 18-8	(WHITE/BLACK)	*SPARE (19B)
C2-P11	+24VDC POWER	SO CORD 18-8	(RED)	+24
C2-P12	+24VDC POWER	SO CORD 18-8	RED/BLACK)	+24

Dump Circuit



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SHEET TO SHEET

DRAWING TO DRAWING

WIRE # 3 TERMINAL # 5 PIN # 7

ELECTRICAL-SCHEMATIC,TRSC,AUTOMATION & REMOTE,GENIUS-PKG

File 11-01087

TITLE: PilePro Automation

DATE 12/4/2009

DRAWN BY: APELISKA

Drawing No \ELEC-SCH\11-01087

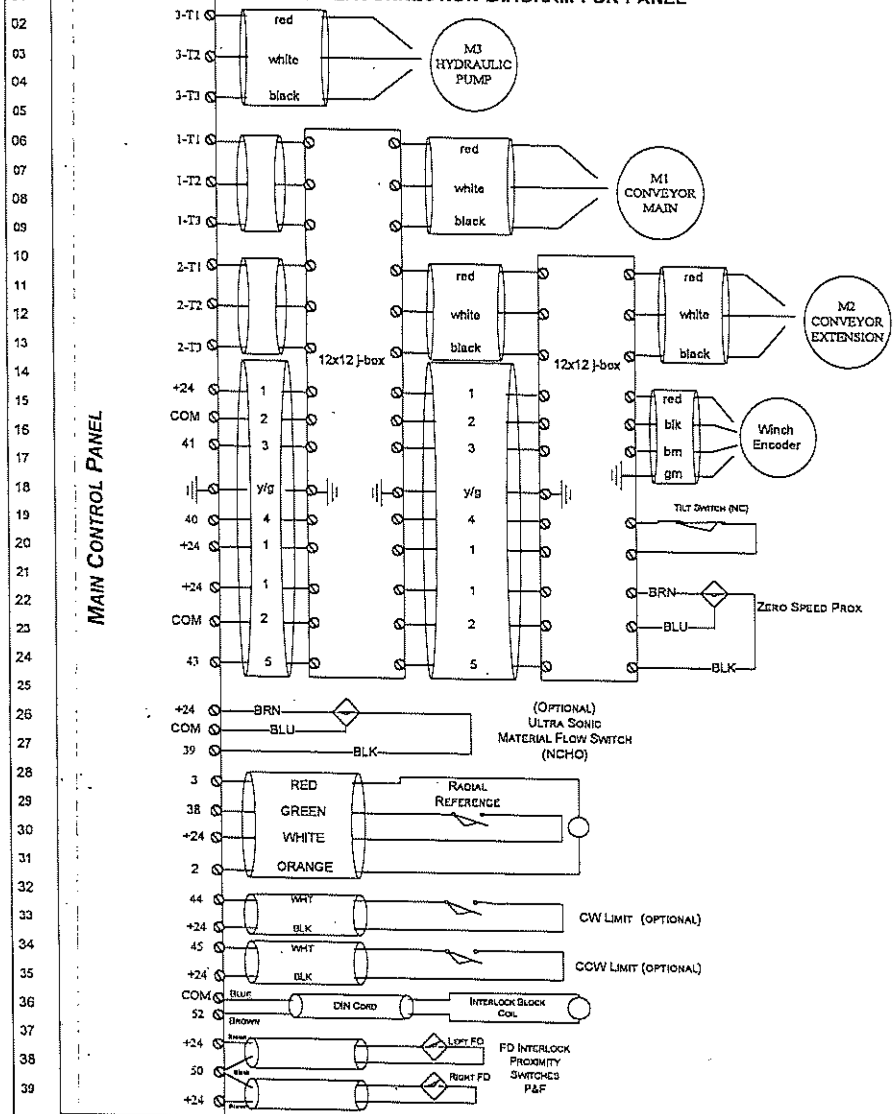
REVISION K

SHEET 6 OF 8

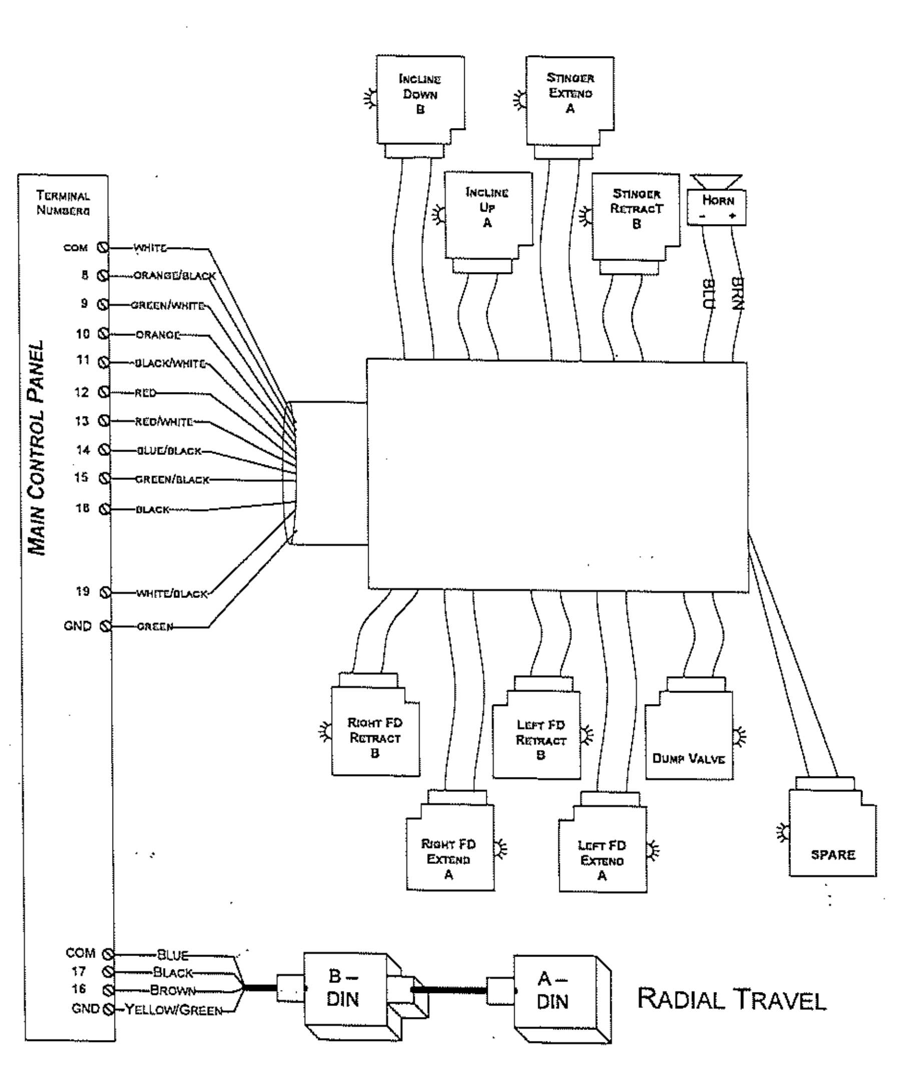
SUPERIOR INDUSTRIES

Equipment Division
PO Box 684
Highway 28 East
Morris, MN 56267

Interconnection Diagram for Panel



Interconnection Diagram Solenoid Valves and Horn



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Sheet to Sheet: Sheet # / Line #
Drawing to Drawing: DWG:ELEC-XXXX SHT: XX LINE: XX — Drawing / Line # / Sheet #
Wire # 3 | Terminal # 5 | Pin # 7

ELECTRICAL-SCHEMATIC,TRSC,AUTOMATION & REMOTE,GENIUS-PKG

File: 11-01087

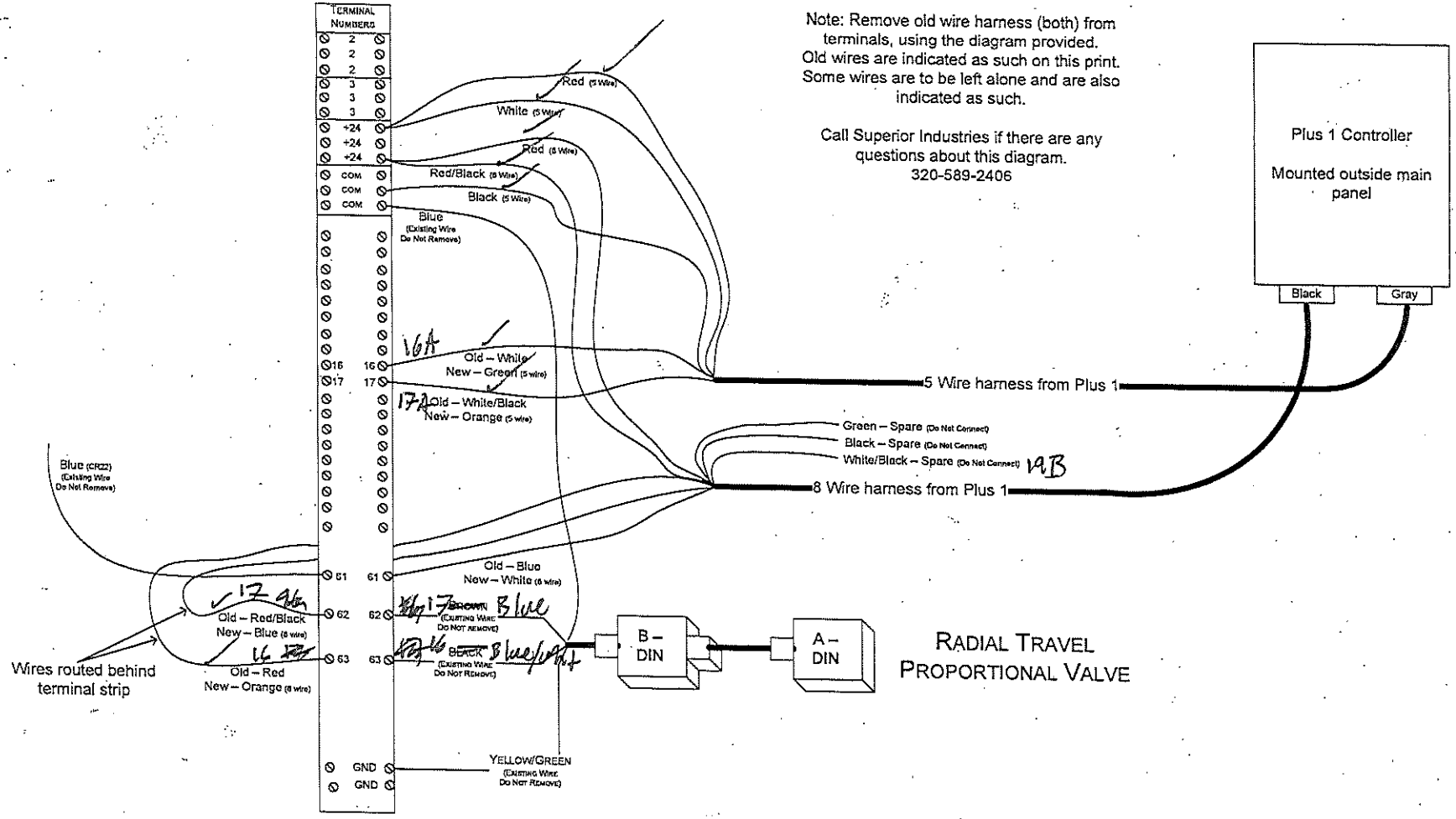
Title: PilePro Automation

Date: 12/4/2009 | Drawn by: SPELMAN
Drawing no: ELEC-SCH11-01087 | Revision: K | Sheet 8 of 8

SUPERIOR INDUSTRIES
Equipment Division
PO Box 684
Highway 28 East
Morris, MN 56267

Field Retro-fit Plus 1 Conversion for WO#42720

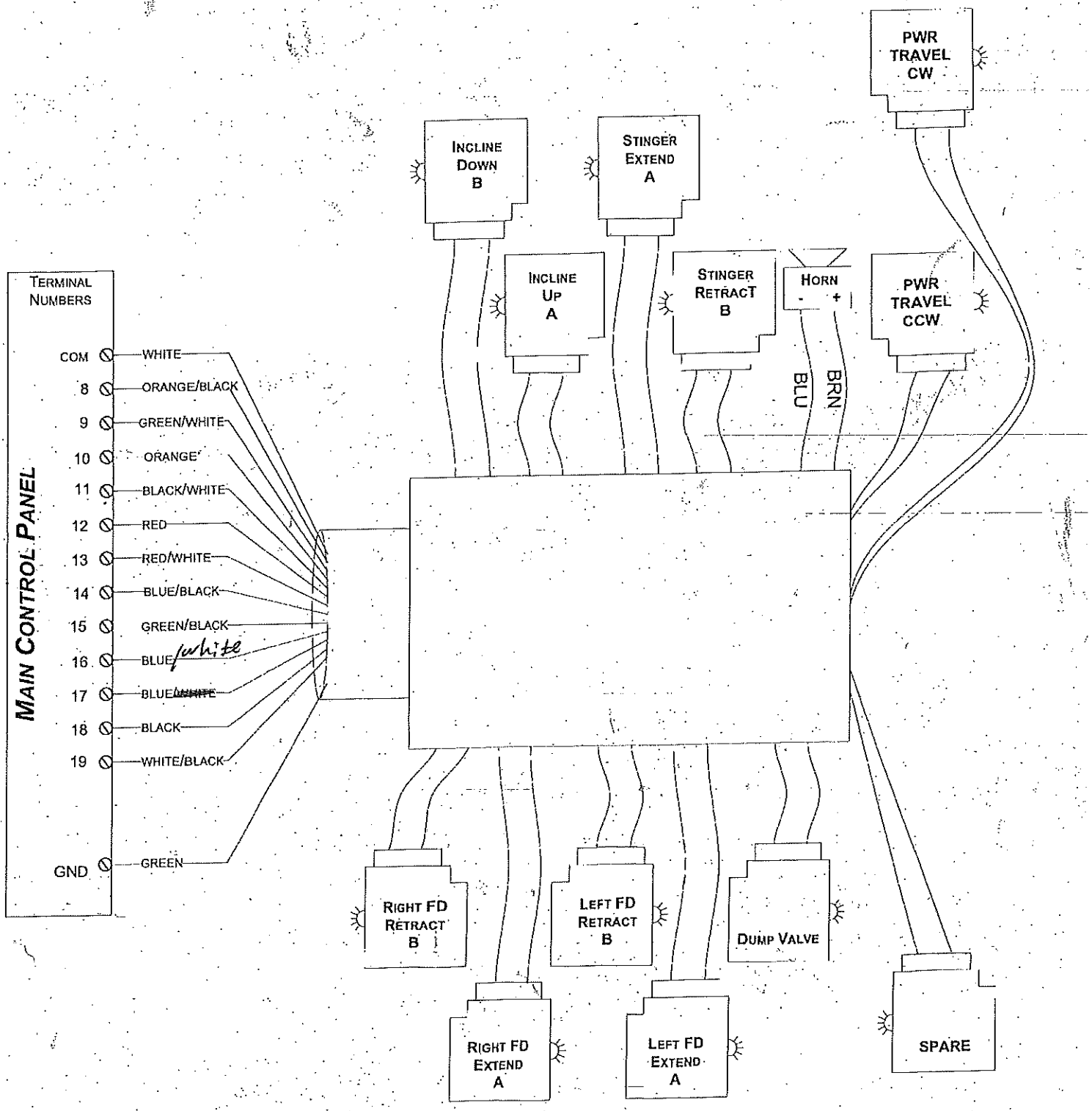
Main Control Panel Terminal Strip

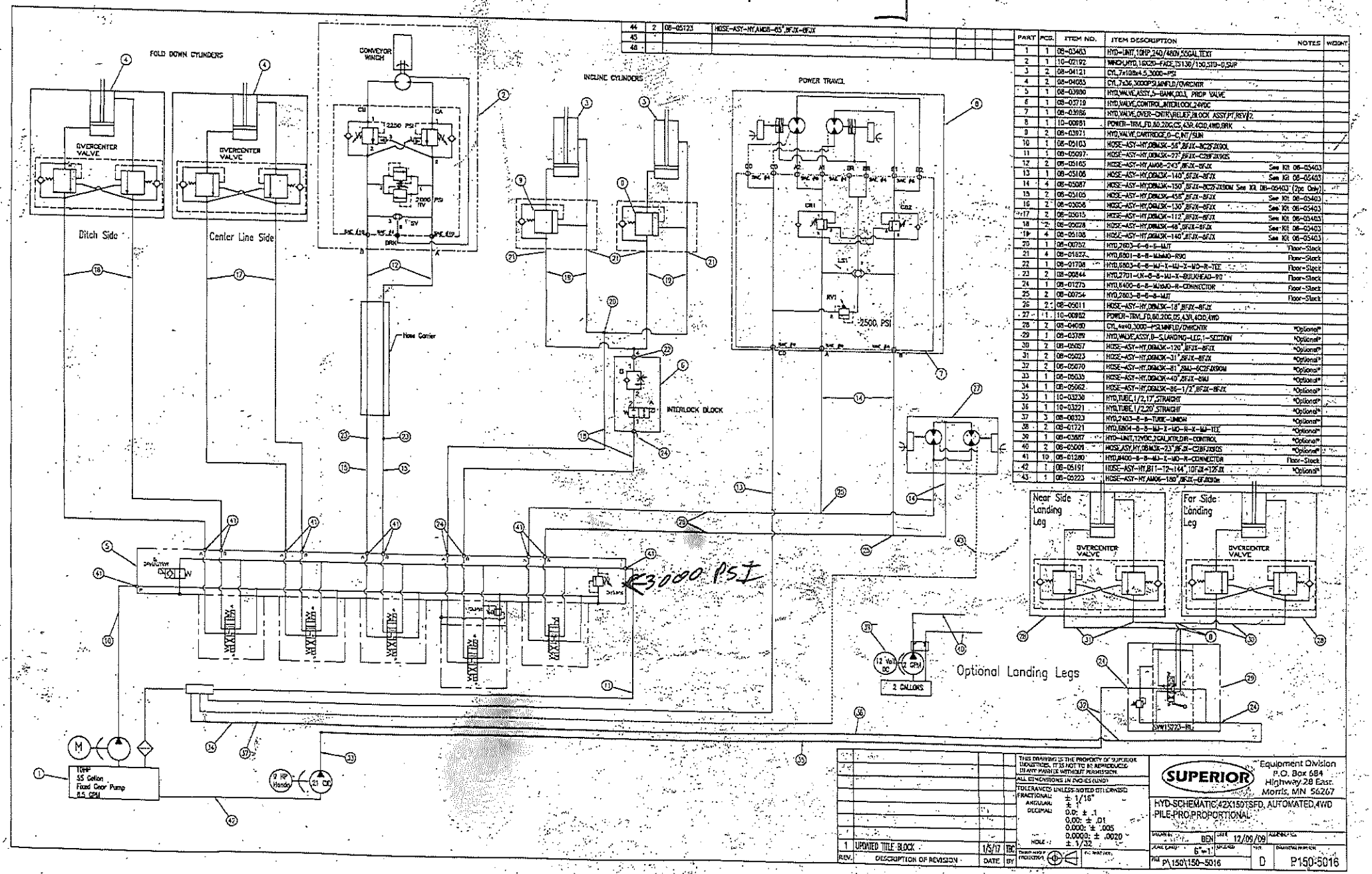


Note: Remove old wire harness (both) from terminals, using the diagram provided. Old wires are indicated as such on this print. Some wires are to be left alone and are also indicated as such.

Call Superior Industries if there are any questions about this diagram.
320-589-2406

INTERCONNECTION DIAGRAM SOLENOID VALVES AND HORN





44	2	08-05123	HOSE-ASY-HY,AM08-65",8FJX-8FJX
45			
46			

PART	PCS.	ITEM NO.	ITEM DESCRIPTION	NOTES	WEIGHT
1	1	08-03463	HYD-UNIT,10HP,240/460V,55GAL,TEXT		
2	1	10-02192	WINCH,HYD,18000-FACE,15130/150,STD-D,SUP		
3	2	08-04121	CYL,7x10Bx4.5,3000-PSI		
4	2	08-04065	CYL,7x36,3000PSI,MNFLD/OVRCNTR		
5	1	08-03980	HYD,VALVE,ASSY,5-BANK,DO3, PROP VALVE		
6	1	08-03719	HYD,VALVE,CONTROL,INTERLOCK,24VDC		
7	1	08-03986	HYD,VALVE,OVER-CNTR,RELIEF,BLOCK ASSY,PT,REV'Z		
8	1	10-00881	POWER-TRVL,FD,60.20G,CS,43R,4OD,4WD,98K		
9	2	08-03971	HYD,VALVE,CARTRIDGE,0-C,INT/SUN		
10	1	08-05103	HOSE-ASY-HY,08M3K-56",8FJX-8C2FJX90L		
11	1	08-05097	HOSE-ASY-HY,08M3K-27",8FJX-C2BFJX90S		
12	2	08-05105	HOSE-ASY-HY,AM08-243",8FJX-8FJX	See Kit 08-05403	
13	1	08-05106	HOSE-ASY-HY,08M3K-140",8FJX-8FJX	See Kit 08-05403	
14	4	08-05087	HOSE-ASY-HY,08M3K-150",8FJX-8C2FJX90M See Kit 08-05403 (2pc Only)		
15	2	08-05109	HOSE-ASY-HY,08M3K-458",8FJX-8FJX	See Kit 08-05403	
16	2	08-03056	HOSE-ASY-HY,08M3K-130",8FJX-8FJX	See Kit 08-05403	
17	2	08-05015	HOSE-ASY-HY,08M3K-112",8FJX-8FJX	See Kit 08-05403	
18	2	08-05028	HOSE-ASY-HY,08M3K-48",8FJX-8FJX	See Kit 08-05403	
19	4	08-05108	HOSE-ASY-HY,08M3K-140",8FJX-8FJX	See Kit 08-05403	
20	1	08-00752	HYD,2603-8-8-8-MJT	Floor-Stock	
21	4	08-01822	HYD,8901-8-8-MJMO-R90	Floor-Stock	
22	1	08-01708	HYD,8803-8-8-MJ-X-MJ-X-MO-R-TEE	Floor-Stock	
23	2	08-00844	HYD,2701-MJ-8-8-MJ-X-BULKHEAD-90	Floor-Stock	
24	1	08-01275	HYD,8400-8-8-MJMO-R-CONNECTOR	Floor-Stock	
25	2	08-00754	HYD,2603-8-8-8-MJT	Floor-Stock	
26	2	08-05011	HOSE-ASY-HY,08M3K-18",8FJX-8FJX		
27	1	10-00902	POWER-TRVL,FD,60.20G,DS,43R,4OD,4WD		
28	2	08-04080	CYL,4x40,3000-PSI,MNFLD/OVRCNTR	*Optional*	
29	1	08-03789	HYD,VALVE,ASSY,D-5,LANDING-LEG,1-SECTION	*Optional*	
30	2	08-05057	HOSE-ASY-HY,08M3K-120",8FJX-8FJX	*Optional*	
31	2	08-05023	HOSE-ASY-HY,08M3K-31",8FJX-8FJX	*Optional*	
32	2	08-05070	HOSE-ASY-HY,08M3K-81",8MJ-6C2FJX90M	*Optional*	
33	1	08-05035	HOSE-ASY-HY,08M3K-40",8FJX-8MJ	*Optional*	
34	1	08-05062	HOSE-ASY-HY,08M3K-86-1/2",8FJX-8FJX	*Optional*	
35	1	10-03230	HYD,TUBE,1/2,17",STRAIGHT	*Optional*	
36	1	10-03221	HYD,TUBE,1/2,20",STRAIGHT	*Optional*	
37	3	08-00323	HYD,2403-8-8-TUBE-UNION	*Optional*	
38	2	08-01721	HYD,8804-8-8-MJ-X-MO-R-X-MJ-TEE	*Optional*	
39	1	08-03617	HYD-UNIT,12VDC,2GAL,KTY,DIR-CONTROL	*Optional*	
40	2	08-05009	HOSE,ASY,HY,08M3K-23",8FJX-C2BFJX90S	*Optional*	
41	10	08-01280	HYD,8400-8-8-MJ-X-MO-R-CONNECTOR	Floor-Stock	
42	1	08-05191	HOSE-ASY-HY,B11-12-144",10FJX-12FJX	*Optional*	
43	1	08-05223	HOSE-ASY-HY,AM06-180",8FJX-6FJX90e	*Optional*	

REV.	DESCRIPTION OF REVISION	DATE	BY
1	UPDATED TITLE BLOCK	1/5/17	TH

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ALL DIMENSIONS IN INCHES (UNO)

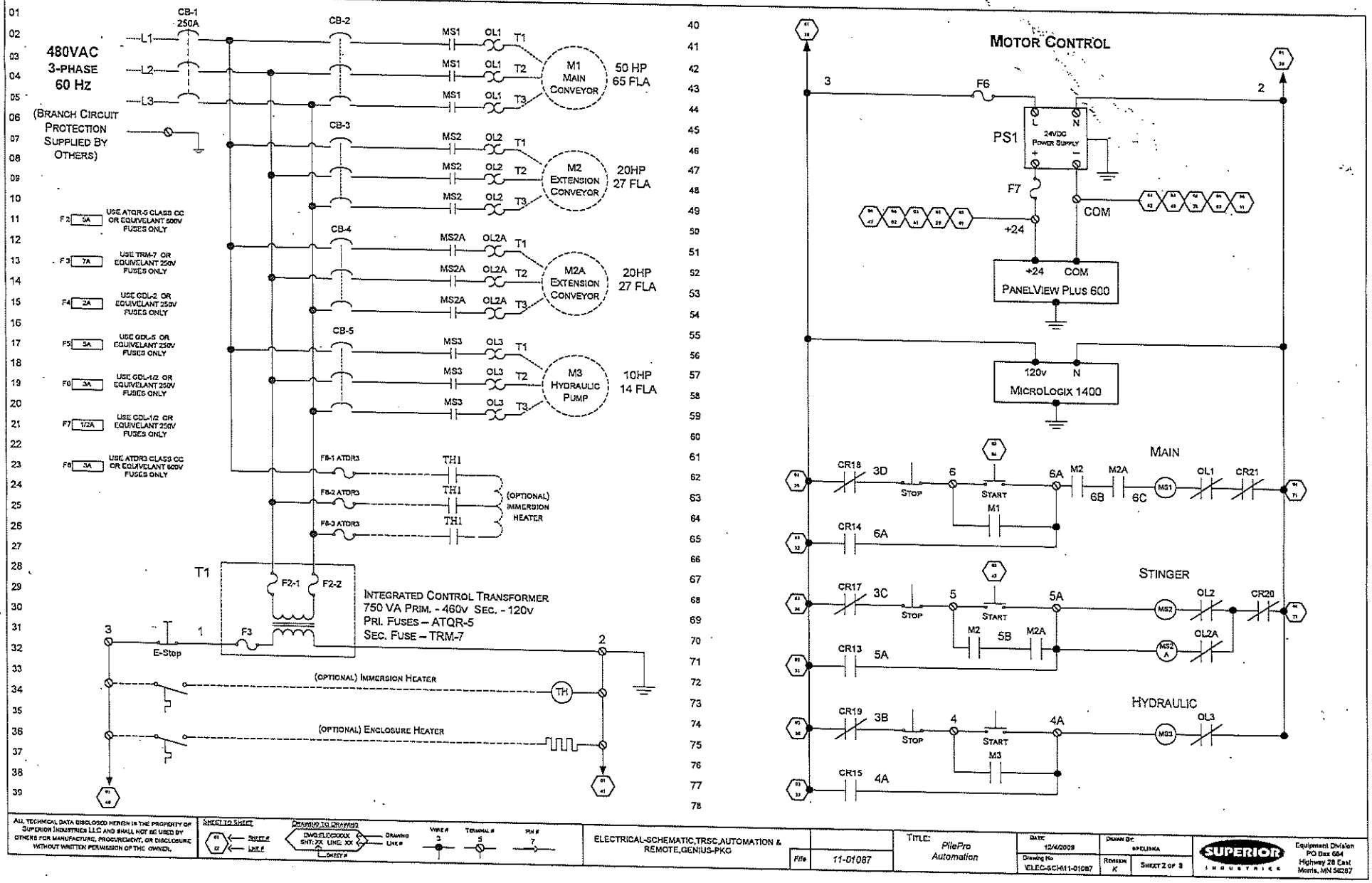
TOLERANCES UNLESS NOTED OTHERWISE

FRACTIONAL: ± 1/16"
ANGULAR: ± 1°
DECIMAL: 0.0: ± .1; 0.00: ± .01; 0.000: ± .005; 0.0000: ± .0020
HOLE: ± 1/32

SUPERIOR
Equipment Division
P.O. Box 684
Highway 28 East
Morris, MN 56267

HYD-SCHEMATIC,42X150TSFD, AUTOMATED,4WD
PILE-PRO,PROPORTIONAL

DRAWN BY: BEN | DATE: 12/09/09 | ASSEMBLY NO.
SCALE: 6"=1" | SIZE: D | DRAWING NUMBER: P150-5016
FILE: P:\150\150-5016



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SHEET TO SHEET

DRAWING TO DRAWING

ELECTRICAL-SCHEMATIC,TRSC,AUTOMATION & REMOTE,GENIUS-PKG

File 11-01087

TITLE: PilePro Automation

DATE 12/4/2009

Drawing No ELEC-SCH11-01087

Drawn By: SPELLMAN

Revision K

Sheet 2 of 3

SUPERIOR INDUSTRIES
Equipment Division
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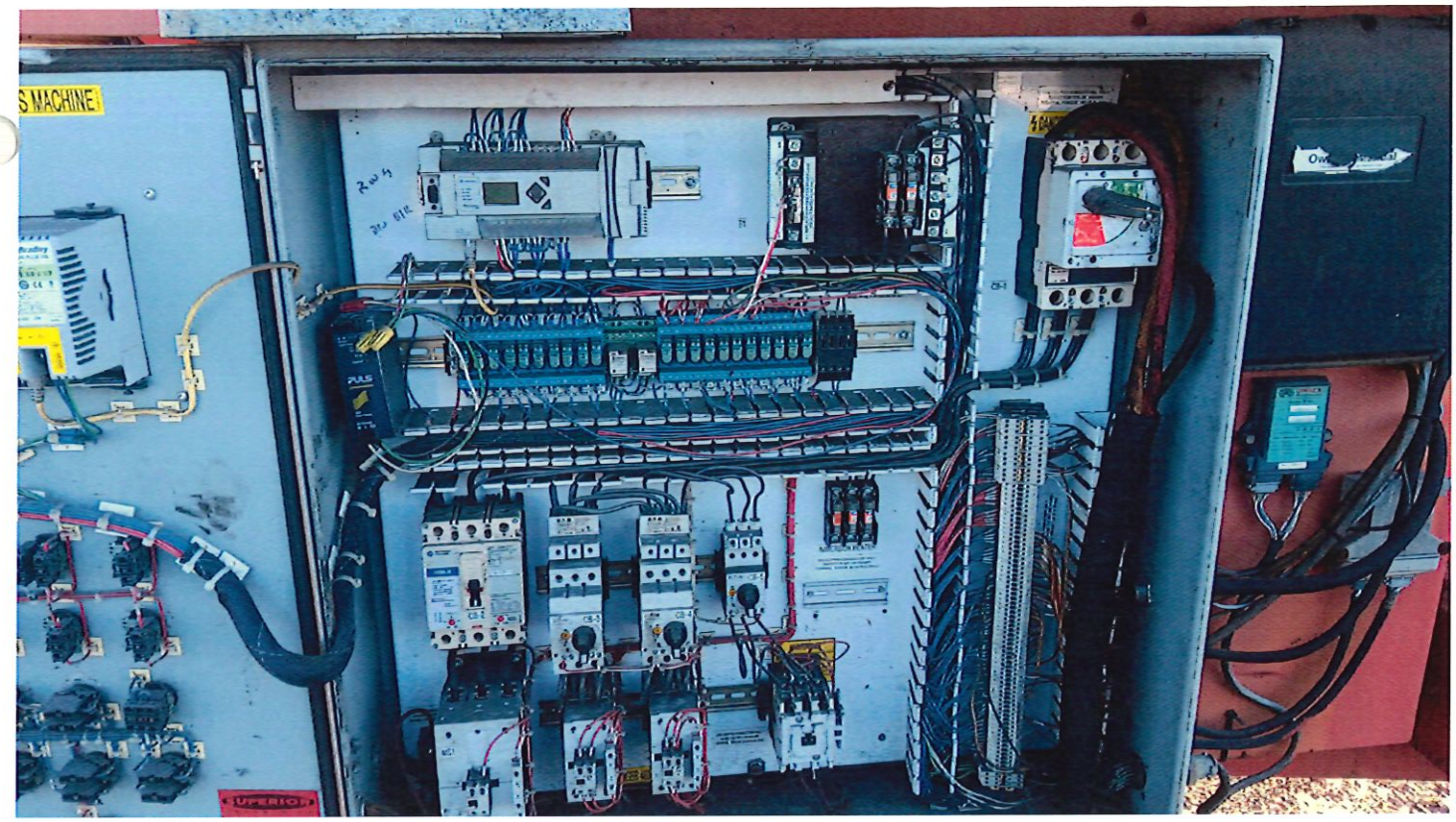
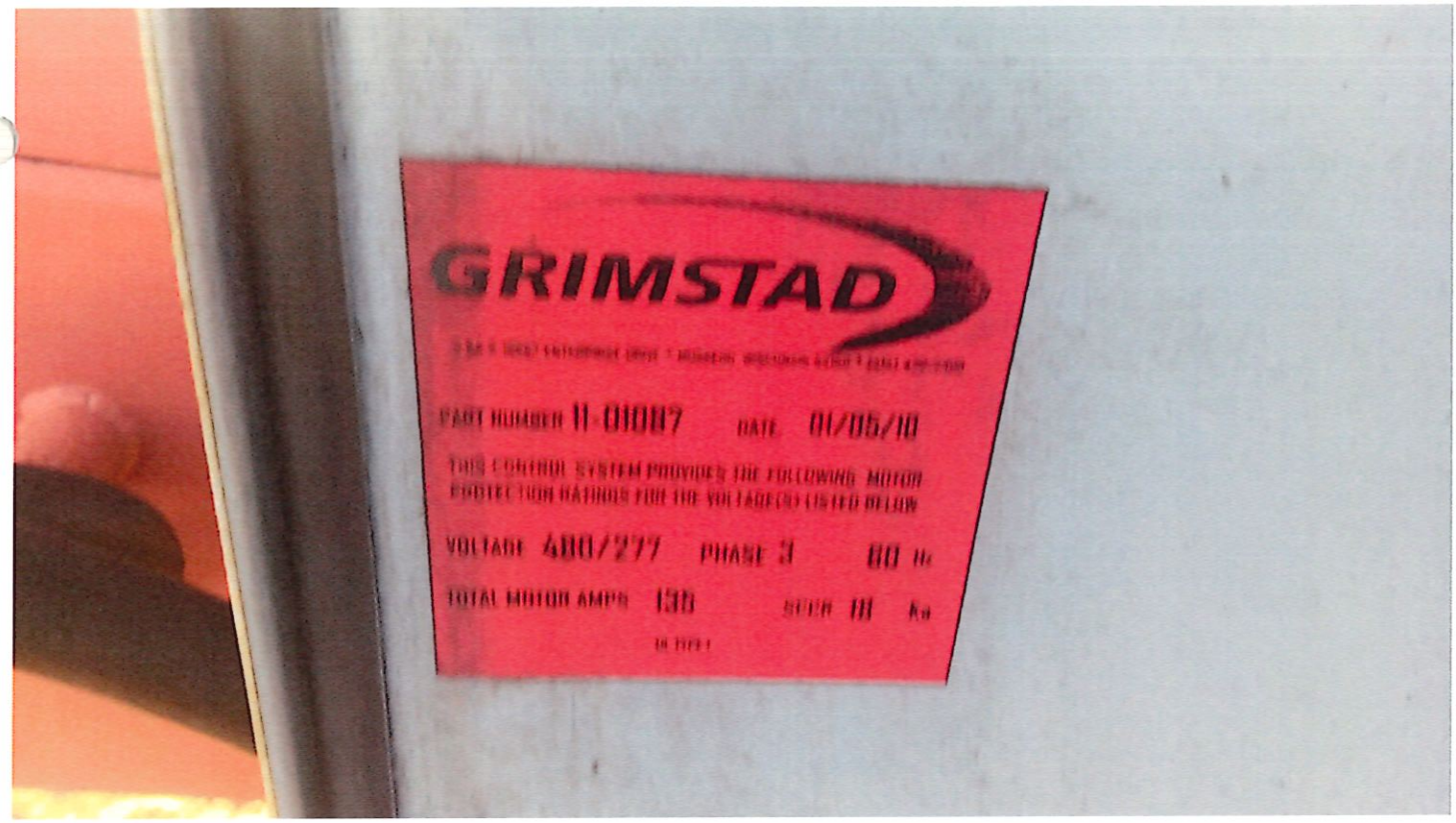

S MACHINE
PULS
UPERIO


SUPERIOR
INDUSTRIES
PART NUMBER 11-01087
DATE: 01/05/10
VOLTAGE 480
PHASE-3
Hz 60
LARGEST MOTOR HP 50
AMPS 65
TOTAL MOTOR HP 100
AMPS 135
SERVICE AMPS 150
SCCR 18 Ka
WORK ORDER NUMBER 143531
SERIAL NUMBER


GRIMSTAD
PART NUMBER H-01087
DATE 01/05/10
THIS CONTROL SYSTEM PROVIDES THE FOLLOWING MOTOR
PROTECTION RATINGS FOR THE VOLTAGE(S) LISTED BELOW
VOLTAGE 480/277
PHASE 3
60 Hz
TOTAL MOTOR AMPS 136
kA