HAYBUSTER®

H-1135™

PTO Driven Tub Grinder

Includes Stationary Electrical Supplement

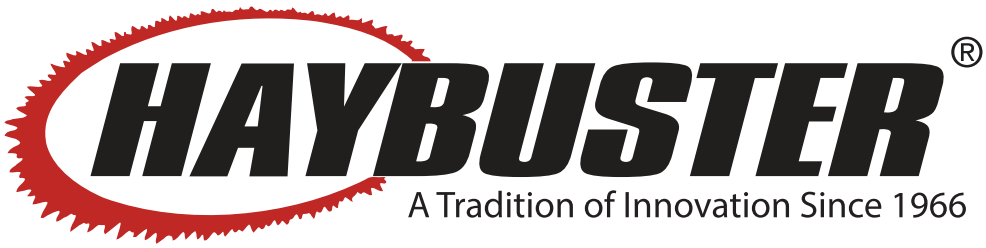


Operating Instructions

and Parts Reference

DURATECH® INDUSTRIES
0500167 July 2026

DuraTech Industries International Inc.
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www.duratechindustries.net www.haybusters.com


HAYBUSTER®
A Tradition of Innovation Since 1966



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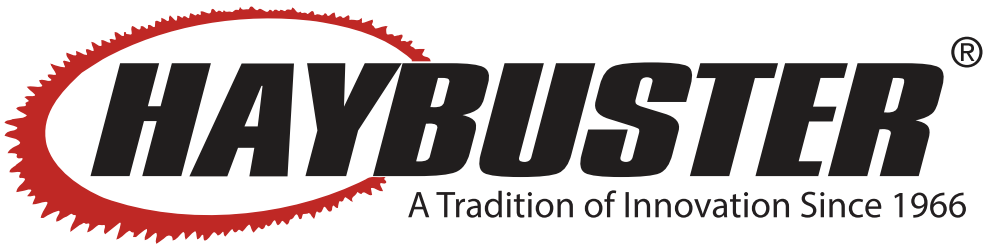
Operating Instructions

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DuraTech Industries International Inc. (DuraTech Industries) has made every effort to assure that this manual completely and accurately describes the operation and maintenance of the H-1135 PTO Driven Tub Grinder™ as of the date of publication. DuraTech Industries reserves the right to make updates to the machine from time to time. Even in the event of such updates, you should still find this manual to be appropriate for the safe operation and maintenance of your unit.

This manual, as well as materials provided by component suppliers to DuraTech Industries are all considered to be part of the information package. Every operator is required to read and understand these manuals, and they should be located within easy access for periodic review.

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Foreword

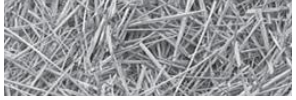
All personnel must read and understand the following sections before operating the H-1135 Tub Grinder.

- Foreword and Section 1, important safety information.
- Section 2, “Machine operation,” which explains normal operation of the machine.
- Section 2.1, “Pre-Operation Inspection”.

Appropriate use of unit

The H-1135 Tilt Tub Grinder is designed to grind material into more palatable or manageable rations for your operation. It has multiple uses:

1. Grind most types of hay
   - Big round bales
   - Loose hay
   - Square bales
2. Grind most types of grain
   - Ear corn
   - Shell corn
   - High moisture corn



- Most small grains

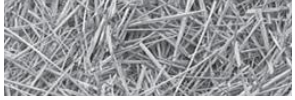
3. Grind most types of crop residue
   - Stover
   - Straw
4. Grind various sizes
   - Screens are available from 1/8” to 8”
   - Combine screen sizes to get desired cut

Operator protection

As with all machinery, care needs to be taken in order to insure the safety of the operator and those in the surrounding area.



WARNING: The **OPERATOR IS RESPONSIBLE** for the safety of the operator and those in the surrounding area. Operators and those observing the operation of the H-1135 Tub Grinder are required to wear head, eye, and ear protection, No loose clothing is allowed.



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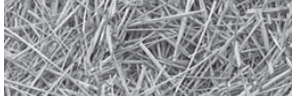
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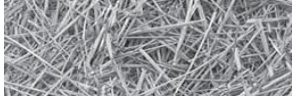
PTO Driven Tub Grinder

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Introduction

The H-1135 Tub Grinder is designed to grind material into more palatable or manageable rations for your operation. It has multiple uses:

1. Grind most types of hay
   - Big round bales
   - Loose hay
   - Square bales
2. Grind most types of grain
   - Ear corn
   - Shell corn
   - High moisture corn
   - Most small grains
3. Grind most types of crop residue
   - Stover
   - Straw
4. Grind various sizes
   - Screens are available from 1/8” to 8”
   - Combine screen sizes to get desired cut

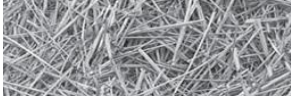
To avoid possible damage to the machine and risk of injury to the operator, consult with a DuraTech Industries International, Inc. (DuraTech Industries) representative before attempting to shred materials other than livestock forage.

Purpose

The purpose of this owner’s manual is to explain maintenance requirements and routine adjustments for the most efficient operation of your H-1135 Tub Grinder. There is also a trouble shooting section that may help in case of problems in the field. Any information not covered in this manual may be obtained from your dealer.

Special Note: When reference is made as to front, rear, left hand, or right hand of this machine, the reference is always made from standing at the rear end of the machine and looking toward the hitch. Always use serial number and model number when referring to parts or problems. Please obtain your serial number and write it below for your future reference.

MODEL: H-1135 SERIAL NO. _____



How to use this manual

Manual organization

This manual is organized into the following parts:

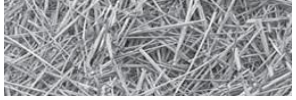
- **Part 1:** Operating Instructions
  - **Section 1:** Safety decals, safety instructions and information
  - **Section 2:** Describes the purposes of each part, and safe operating procedures.
  - **Section 3:** Describes how to maintain the H-1135 Tub Grinder.
  - **Section 4:** Describes how to trouble shoot problems with the H-1135 Tub Grinder.
- **Part 2:** Part's reference contains diagrams of each assembly, with the part number of each part. A key on the same or facing page contains a description of the part and the quantity used.

Dealer responsibilities

- Perform a daily pre-operation inspection as described in Section 2, "Operation."
- Upon delivery of the unit to the customer, it is your responsibility to conduct a training session on the safe operation of the unit for the primary operator(s). You must also conduct a "walk-around" inspection of all safety instructional decals on the machine itself. Decals are illustrated in **Part 2: Parts Reference.**
- Complete and return the Warranty Registration postcard. DuraTech Industries must receive this form before activating the warranty. Appendix A provides details of the warranty.

Operator responsibilities

- Note the important safety information in the Foreword and in Section 1, "Safety."
- Thoroughly review sections 1 and 2, which explain normal operation of the machine, and section 3, which explains maintenance requirements. These sections will function as your textbook during the dealer-conducted training course that is required before you can use the unit.
- Manuals for certain allied supplier's components are provided separately. You should also be familiar with their contents.
- Keep copies of all manuals in a readily accessible location for future reference.



Section 1: Safety

The safety of the operator is of great importance to DuraTech Industries/Haybuster. We have provided decals, shield and other safety features to aid you in using your machine safely. In addition, we ask you to be a careful operator who will properly use and service your Haybuster equipment.

WARNING: FAILURE TO COMPLY WITH SAFETY INSTRUCTIONS THAT FOLLOW WITHIN THIS MANUAL COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH. BEFORE ATTEMPTING TO OPERATE THIS MACHINE, CAREFULLY READ ALL INSTRUCTIONS CONTAINED WITHIN THIS MANUAL. ALSO READ THE INSTRUCTION MANUAL PROVIDED WITH YOUR TRACTOR.

THIS MACHINE IS NOT TO BE USED FOR ANY PURPOSE OTHER THAN THOSE EXPLAINED IN THE OPERATOR'S MANUAL, ADVERTISING LITERATURE OR OTHER DURATECH INDUSTRIES WRITTEN MATERIAL PERTAINING TO THE H-1135 TUB GRINDER.

1.1 Safety-alert symbols

Decals are illustrated in **Part 2: Parts Reference.**

The safety decals located on your machine contain important and useful information that will help you operate your equipment safely.

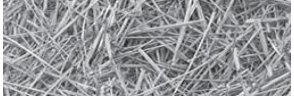
To assure that all decals remain in place and in good condition, follow the instructions below:

- Keep decals clean. Use soap and water - not mineral spirits, adhesive cleaners and other similar cleaners that will damage the decal.
- Replace all damaged or missing decals. When attaching decals, surface temperature of the machine must be at least 40° F (5° C). The surface must be also be clean and dry.
- When replacing a machine component to which a decal is attached, be sure to also replace the decal.
- Replacement decals can be purchased from your Haybuster dealer.

DuraTech Industries uses industry accepted **ISO/ANSI** standards in labeling its products for safety and operational characteristics.

Safety-Alert Symbol

Read and recognize safety information. Be alert to the potential for personal injury when you see this safety-alert symbol.



DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.



DANGER:
Signal word - White Lettering/Red Background
Safety Alert Symbol - White Triangle/Red Exclamation Point

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



WARNING:
Signal word - Black Lettering/Orange Background
Safety Alert Symbol - Black Triangle/Orange Exclamation Point

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.



CAUTION:
Signal word - Black Lettering/Yellow Background
Safety Alert Symbol - Black Triangle/Yellow Exclamation Point

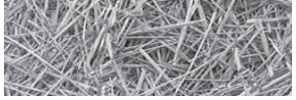
This manual uses the symbols to the right to denote important safety instructions and information.



The **DANGER**, **WARNING** and **CAUTION** symbols are used to denote conditions as stated in the text above. Furthermore, the text dealing with these situations is surrounded by a box with a white background, will begin with **DANGER**, **WARNING**, or **CAUTION**.

The **INFORMATION** symbol is used to denote important information or notes in regards to maintenance and use of the machine. The text for this information is surrounded by a box with a light grey background, and will begin with either **IMPORTANT** or **NOTE.**

	**1. Yellow warning triangle/black graphical symbol, indicates what the hazard is.** **Hazard Identification**
	**2. Red circle-with-slash/black graphical symbol indicates a prohibited action to avoid the hazard.** **Prohibited Action**
	**3. Blue mandatory action circles/white graphical symbol - indicates an action to take to avoid the hazard.** **Mandatory Action**



1.2 Operator - personal equipment

THE OPERATOR

Physical Condition

You must be in good physical condition and mental health and not under the influence of any substance (drugs, alcohol) which might impair vision, dexterity or judgment.

Do not operate a **H-1135** when you are fatigued. Be alert - If you get tired while operating your **H-1135,** take a break. Fatigue may result in loss of control. Working with any farm equipment can be strenuous. If you have any condition that might be aggravated by strenuous work, check with your doctor before operating

Proper Clothing



Clothing must be sturdy and snug-fitting, but allow complete freedom of movement. Avoid loosefitting jackets, scarfs, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that could become entangled with the machine.



Protect your head with a hard hat to reduce the risk of injury from flying debris.



Protect your hands with gloves when handling hammers, screens, etc.. . Heavy-duty, nonslip gloves improve your grip and protect your hands.



Good footing is most important. Wear sturdy boots with nonslip soles. Steel-toed safety boots are recommended.



To reduce the risk of injury to your eyes never operate a **H-1135** unless wearing goggles or properly fitted safety glasses with adequate top and side protection.



Tractor noise may damage your hearing. Always wear sound barriers (ear plugs or ear mufflers) to protect your hearing. Continual and regular users should have their hearing checked regularly.

1.3 Machine safety labels

The safety decals located on your machine contain important information that will help you operate your equipment. Become familiar with the decals and their locations.

DANGER: ROTATING PARTS WITHIN CAN KILL OR DISMEMBER. WAIT FOR ALL MOVEMENT TO STOP BEFORE SERVICING, UNLOADING, OR INSPECTING MACHINE.



6500082

DANGER: ROTATING DRIVELINE, CONTACT CAN CAUSE DEATH, KEEP AWAY!

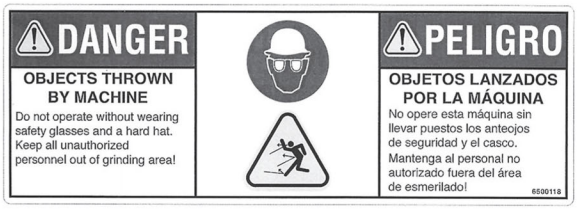
DO NOT OPERATE WITHOUT

- ALL DRIVELINE GUARDS, TRACTOR AND EQUIPMENT SHIELDS IN PLACE
- DRIVELINES SECURELY ATTACHED AT BOTH ENDS
- DRIVELINE GUARDS THAT TURN FREELY ON DRIVELINE



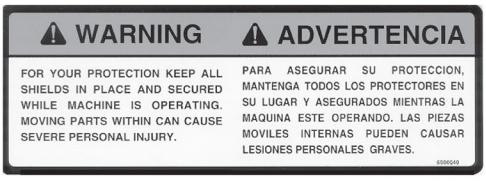
6500085

DANGER: OBJECTS THROWN BY MACHINE
DO NOT OPERATE WITHOUT WEARING SAFETY GLASSES AND A HARD HAT.
KEEP UNAUTHORIZED PERSONNEL OUT OF THE GRINDING AREA

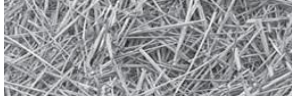


6500118

WARNING: FOR YOUR PROTECTION KEEP ALL SHIELDS IN PLACE AND SECURED WHILE MACHINE IS OPERATING MOVING PARTS WITHIN CAN CAUSE SEVERE PERSONAL INJURY.



6500040



WARNING: FOR YOUR PROTECTION AND PROTECTION OF OTHERS, **PRACTICE THE FOLLOWING SAFETY RULES**.

1. BEFORE OPERATING THIS MACHINE, READ THE OPERATOR'S MANUALS SUPPLIED WITH THIS MACHINE AND YOUR TRACTOR.

2. CHECK OPERATORS MANUALS TO BE SURE YOUR TRACTOR MEETS THE MINIMUM REQUIREMENTS FOR THIS MACHINE.

3. READ ALL DECALS PLACED ON THIS MACHINE FOR YOUR SAFETY AND CONVENIENCE.

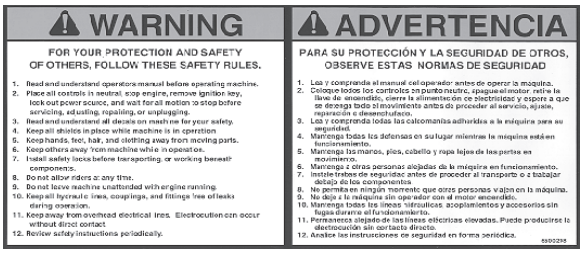
4. NEVER ALLOW RIDERS ON THIS IMPLEMENT OR THE TRACTOR.

5. KEEP OTHERS AWAY FROM THIS MACHINE WHILE IN OPERATION.

6. KEEP ALL SHIELDS IN PLACE WHILE MACHINE IS OPERATING.

7. KEEP HANDS, FEET, LOOSE CLOTHING, ETC., AWAY FROM POWER DRIVEN PARTS.

8. ALWAYS SHUT OFF MACHINE AND ENGINE BEFORE SERVICING, UNCLOGGING, INSPECTING, OR WORKING NEAR THIS MACHINE FOR ANY REASON. ALWAYS PLACE TRANSMISSION IN PARK OR SET PARK BRAKE AND WAIT FOR ALL MOVEMENT TO STOP BEFORE APPROACHING THIS MACHINE.



6500041

WARNING: NO RIDERS
SERIOUS INJURY COULD RESULT FROM RIDING ON THE MACHINE.



6500043

WARNING: THROWN OBJECT HAZARD
TO PREVENT SERIOUS INJURY OR DEATH DO NOT RAISE TUB WHEN ROTOR IS TURNING.

1. DISENGAGE ROTOR AND ALLOW TO COME TO A COMPLETE STOP.

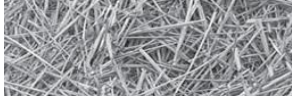
2. BE CERTAIN THAT ALL PERSONNEL ARE CLEAR OF MACHINERY AREA.

3. RAISE TUB TO FULL VERTICAL POSITION.

4. STOP ENGINE AND REMOVE KEY BEFORE APPROACHING TUB AND ROTOR AREA.



6500209



WARNING: OVERHEAD CONVEYOR HAZARD
TO PREVENT SERIOUS INJURY OR DEATH:

DO NOT WALK UNDER CONVEYOR AT ANY TIME. STAY CLEAR OF CONVEYOR DURING OPERATION, RAISING, AND LOWERING. LOWER CONVEYOR FULLY BEFORE SERVICING.

KEEP OTHERS AWAY.



6500214

WARNING: HIGH-PRESSURE FLUID HAZARD, TO PREVENT SERIOUS INJURY OR DEATH:

- RELIEVE PRESSURE ON SYSTEM BEFORE REPAIRING OR ADJUSTING OR DISCONNECTING.

- WEAR PROPER HAND AND EYE PROTECTION WHEN SEARCHING FOR LEAKS. USE WOOD OR CARDBOARD INSTEAD OF HANDS.

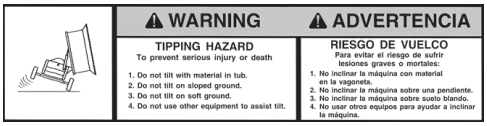
- KEEP ALL COMPONENTS IN GOOD REPAIR.



6500220

WARNING: TIPPING HAZARD
TO PREVENT SERIOUS INJURY OR DEATH

1. DO NOT Tilt WITH MATERIAL IN TUB.
2.. DO NOT Tilt ON SLOPED GROUND.
3. DO NOT Tilt ON SOFT GROUND.
4. DO NOT USE OTHER EQUIPMENT TO ASSIST Tilt.

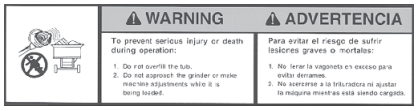


6500282

WARNING: TO PREVENT SERIOUS INJURY OR DEATH DURING OPERATION:

1. DO NOT OVERFILL THE TUB.

2. DO NOT APPROACH THE GRINDER OR MAKE MACHINE ADJUSTMENTS WHILE IT IS BEING LOADED.

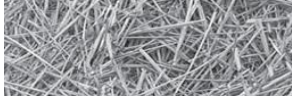


6500283

WARNING: PINCH POINT STAY BACK



6500339

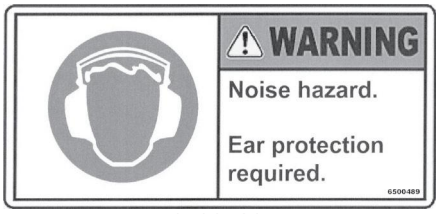


WARNING: Moving parts can crush and cut.
Keep hands clear.



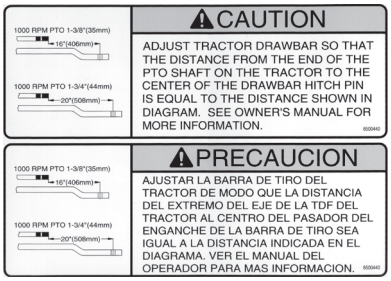
6500488

WARNING: Noise hazzard.
Ear protection required.



6500489

CAUTION: ADJUST TRACTOR DRAWBAR SO THAT THE
DISTANCE FROM THE END OF THE PTO SHAFT ON THE TRACTOR TO THE CENTER OF THE DRAWBAR HITCH PIN IS EQUAL TO THE DISTANCE SHOWN IN DIAGRAM. SEE OWNER'S MANUAL FOR MORE INFORMATION.



6500440

CAUTION: Do not operate machine unless an approved fire extingisher is installed.



6500497

1.4 Thrown objects and operator safety

An operational characteristic of all grinders is that objects may be thrown out of the hopper. Thrown objects may present a safety hazard to persons in the area. This section is to inform the operator of this characteristic, and what can be done to reduce the risk of injury to the operator and persons in the area. Keep all observers away from the machine.

Figure 1.1 shows an object being hit as the hammer is on the upswing. A general pattern for where thrown objects may land is shown in Figure 1.2.

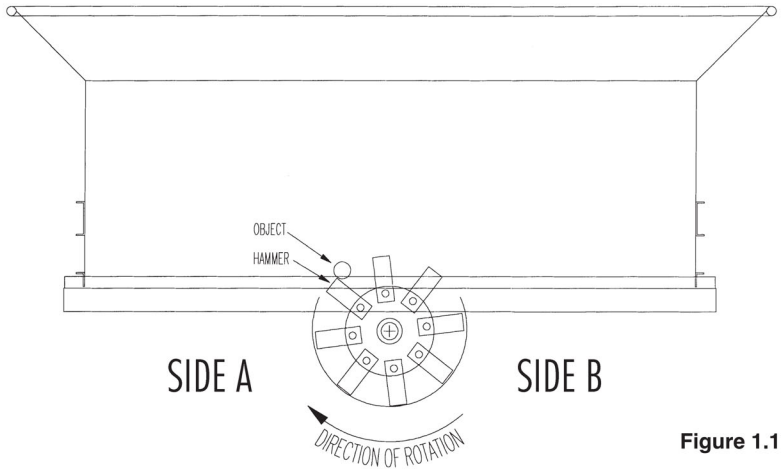


Figure 1.1

VIEWED FROM THE REAR OF THE H-1135

NOTE: The difference in the size of the area for side A versus side B. Side B is larger.

Dimensioning the size of this area is not practical. The distance a thrown object may travel is dependent on several conditions, including, but not limited to, rotor speed and diameter, condition of the hammers, style of hammers, object mass, object shape, amount of material in the tub, and how the hammer strikes the object.

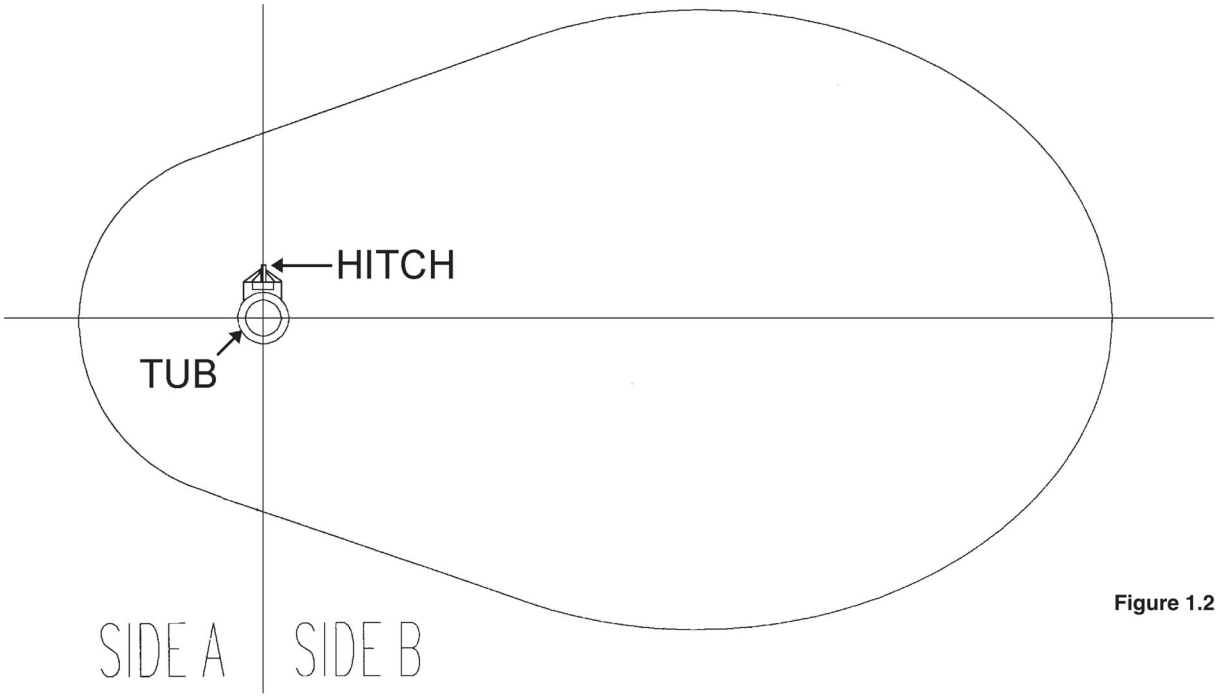
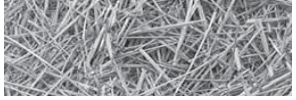


Figure 1.2



The amount of material in the tub can dampen or stop the object's potential flight. Keeping the tub full will reduce the risks. Filling the tub at least 1/2 full when starting will reduce the risk. Using a geyser plate can help reduce thrown objects. A risk may arise when the tub is being emptied, such as at the end of the grind. Running the engine at slower speeds when starting or finishing the grind will also help, especially slowing down when emptying the tub.



WARNING: To minimize the potential risk of injury or property damage, the operator must:

a) Place side B towards open areas, away from property and people.

b) Load the grinder from side A with a loader equipped with an enclosed cab.

c) Keep observers out of the area.

d) Wear a hard hat and safety glasses, at a minimum, and require that any other persons in the area are similarly equipped.

1.5 Shielding

This H-1135 Tub Grinder is equipped with shielding at all major points of potential injury. All Shields should be kept in place during operation. Bodily injury may occur if the unit is operated without shields.



WARNING: Shields are installed for your protection and to keep material off machine parts. Do not operate this Tub Grinder without shields in place.

1.6 Personal protection equipment

Operators and authorized observers of the H-1135 Tub Grinder are required to wear head, eye, and ear protection. No loose clothing is allowed.

1.7 Safety Review

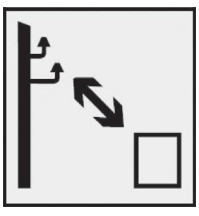
WARNING: Before attempting to operate your H-1135 Tub Grinder, carefully read and follow instructions given below and contained elsewhere in this manual.

BEFORE OPERATING

1. Read and follow all instructions contained in:
   - Operators Manual
   - Tractor Operators Manual
   - Decals placed on H-1135 Tub Grinder.

NOTE: Your dealer has additional copies of these materials.

2. Allow only properly instructed, responsible individuals to operate your machine. Carefully supervise inexperienced operators.
3. Use a tractor that meets the requirements contained in this manual. **See Appendix C, Required for Operation.**
4. Make sure the H-1135 Tub Grinder is in good operating condition and that all protective shields are in place and in proper working order. Replace damaged shields before operating.
5. Be sure all bystanders and other workers are clear before starting tractor and grinder.
6. Make no modifications to the H-1135 Tub Grinder unless specifically recommended or requested by DuraTech Industries.
7. Check periodically for broken or worn parts and make necessary repairs.
8. Be sure the unit is securely attached to tractor during grinder operation and road transport.



Keep sufficient distance away from electrical power lines.
WARNING: Electrocution is possible when running this machine during an electric storm or heavy fog.

DURING OPERATION

1. Enforce the following safety precautions to prevent serious personal injury.
   - Keep everyone clear of work area except operator seated at tractor controls.
   - **Never work on or near grinder unless engine is off, and all motion has stopped.**
   - Disengage PTO before starting engine.
2. Power take off shafts must be locked in place with protective PTO shields in place.
3. Keep hands, feet, and clothing away from power driven parts.
4. Keep shields in place and in good condition.
5. Watch out for and avoid any object that might interfere with the proper operation of the machine.
6. Loose clothing, necklaces, and similar items are more easily caught in moving parts. Avoid the use of these items and keep long hair confined.
7. Because it is possible that your H-1135 may be used in dry areas or the presence of combustibles, special precautions should be taken to prevent fires and fire fighting equipment should be readily available.



NO SMOKING IN THIS AREA



DANGER! NO OPEN FLAMES IN THIS AREA

8. Never allow riders on the machine at any time.

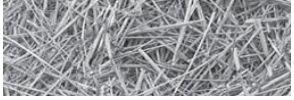


NORMAL SHUTDOWN PROCEDURE



WARNING: For your safety and the safety of others, you must use the following normal shutdown procedure before leaving the controls unattended for any reason, including servicing, cleaning, or inspecting. A variation of the following procedure may be used if so instructed within this manual or if an extreme emergency requires it.

1. Run H-1135 Tub Grinder until discharge conveyor is empty, and grind as much of the material in the tub as possible.
2. Reduce engine speed to idle.
3. Disengage PTO
4. Disengage hydraulics.
5. Place transmission in park and set parking brake.
6. Shut off tractor engine and remove key.
7. Wait for all movement to stop.
8. Disconnect PTO driveline from tractor.



1.8 Fire Prevention

Grinding wood, hay, and other products in a tub grinder produces a large amount of potentially combustible material. The risks of fire can be significantly reduced with proper operating and maintenance procedures. This does include frequent removal of dust, debris, and other combustible materials.

Most of the products that are ground are dry and the grinding process can produce fine, dusty material. The grinding process can produce heat and the spinning rotor will circulate air within the grinding chamber. For a fire to start, fuel, oxygen and heat in sufficient quantity, must be present. During normal operation and with a properly maintained tub grinder, the material being ground will move through the grinding chamber so quickly that it doesn't have a chance to heat up sufficiently to start a fire. Also, the rapid rate that a tub grinder can pile material will quickly smother small hot spots that might occur during normal grinding operations. Keeping the material moving through the machine and across the top of the rotor is important to keep frictional heating of the material to a minimum.

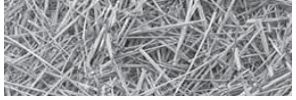
NEVER leave the vicinity of the unit with the engine running**.**

PROPER OPERATION OF THE TUB GRINDER:

- Do not grind materials any finer than necessary. Finely ground materials will produce more dust and increase the risk of fire. If finely ground materials are required, it is better to grind the materials coarse first with large opening screens installed in the grinder and then regrind them to the desired consistency by installing smaller opening screens in the grinder. Be especially cautious when grinding materials that can burn easily.
- When filling the tub grinder during start-up begin by filling the rear of the tub and avoid placing materials on the spinning rotor. When material begins to fall over the rotor, set the governor control on "Manual" and rotate the tub slowly while continuing to fill the tub. Use the tub cover to control thrown objects as much as possible. When the tub is 1/2 to 2/3 full, the governor control can be set to "auto" and grinding operations can resume normally. Do not allow the tub to stop for any significant amount of time with material over the rotor to minimize frictional heating.
- Do not smoke when working with combustible materials.

REMOVAL AND CLEANING INSTRUCTIONS:

- Clean the engine compartment or electric motor area daily or more often if conditions require it be done more frequently. When cleaning the engine compartment, always clean the top of the engine and the areas around exhaust manifolds, exhaust plumbing and turbochargers.
- Check the rotor box for debris built up around the rotor. Remove material that may be packed tight near the bearings, on shaft or other rotating components because it will become hot due to friction.
- At shutdown, always clean and remove all dust, debris, or combustible material off the entire grinder. Use high-pressure air or water if necessary. Always move the grinder and all other equipment away from the ground material pile before leaving the job site in case of smoldering combustion in the ground material.



TUB GRINDER MAINTENANCE:

- Repair any fuel or hydraulic leaks as quickly as they are discovered. Clean up spills immediately. Fuel or oil soaked materials can contribute significantly to the rapid spreading of a fire once it has begun.
- Inspect all electrical wiring periodically. Any chafed or damaged wires should be repaired immediately. Keep all electrical connections tight to prevent arcs or sparks.
- Contact between the rotor and any stationary component of the grinding chamber such as contact between the hammers and the screens must be corrected immediately.

1.9 Fire Extinguishers:



CAUTION: Do not operate machine unless an approved fire extingisher is installed.

The fire extinguishers should be ABC dry chemical extinguishers that are appropriate for use with materials normally encountered on a tub grinder.

If a fire does start, CALL THE LOCAL FIRE DEPARTMENT IMMEDIATELY. Then, use the fire extinguisher if you feel confident that you can extinguish the fire. A 10# extinguisher will last about 15-20 seconds and a 20# extinguisher will last about 20-24 seconds, so they will not stop a large fire. The fire extinguishers should be at least 10#, but the preferred are 20# .

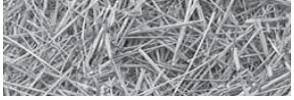
When using a fire extinguisher, use the P A S S method:

- Approach the fire with the wind at your back.
- **Pull the pin,**
- **Aim the spout,**
- **Squeeze the trigger, and**
- **Sweep along the base of the fire from about 6-8 feet away.**

Read the label on your extinguisher now, most extinguishers have descriptions of this method, and an estimated working time.

If an extinguisher is only partially used, the dry chemical will jam in the seals, allowing the extinguisher to loose its pressure charge in less than an hour, making it useless to you. It must be recharged before placing it back on the machine. Have the extinguisher recharged today; a fire will not wait for you to recharge your extinguisher tomorrow!

Fire extinguishers should be inspected and recharged by a professional at least annually to keep them at optimum performance! A “verification of service” collar that confirms the month and year of service should be attached to the neck of the container to confirm when the extinguisher was last serviced.

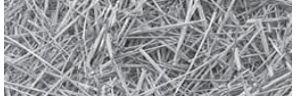


1.10 Towing



CAUTION: DO NOT TRANSPORT THE H-1135 TUB GRINDER without first securing the conveyor in the transport position (see Section 2.6.1).

1. Be sure all loose parts are securely fastened down.
2. Make sure all bystanders are clear.
3. Hitch H-1135 Tub Grinder to a tow vehicle with adequate load carrying and braking capacity. Be sure to attach safety chains between tow vehicle and H-1135 Tub Grinder. Tongue weight is 1,900 lbs. (862 kg).
4. Pull PTO apart and attach to transport bracket on the right hand side of the grinder.
5. Ensure that hitch jack is stored in the up position.
6. Check the turning clearance between H-1135 Tub Grinder and the towing vehicle.
7. Connect H-1135 light harness to the towing vehicle.
8. Check local ordinances regarding restrictions for H-1135 Tub Grinder travel on your planned route.
9. Be aware of machine width at all times and do not exceed 20 miles per hour.
10. Check your state laws regarding the use of lights, slow moving vehicle signs, and other possible requirements.
11. Use good judgment and drive carefully, especially over rough and uneven roads.



1.11 Service and maintenance

WARNING: Before performing any maintenance on the machine or getting into the tub, be sure rotor and all moving parts have come to a complete stop. Shut off engine and remove the key.

Before working on or near the Tub Grinder or any reason such as servicing, inspecting or unclogging the machine:

- Follow the normal shutdown procedure found in Section 2.4.1 of this manual.
- If the unit is still attached to a towing vehicle, place the towing vehicle's transmission in park and set the parking/emergency brake.
- Relieve all pressure in the hydraulic system before disconnecting hydraulic lines or performing work on the system. Make sure all connections are tight and the hoses and lines are in good condition before applying pressure to the system.

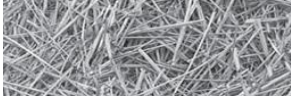
WARNING: Hydraulic fluid escaping under pressure can be invisible and have enough force to penetrate the skin. When searching for a suspected leak, use a piece of wood or a cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection or reaction.

- If performing maintenance or servicing which requires the tub to be tilted up, make sure that the tub cylinder stop is in place on the tub tilt cylinder before you begin. For more information, see sections 2.2.9 and 2.7.

WARNING: For your protection **ALWAYS** install the tub cylinder stop on the tub tilt cylinder when the tub is tilted. **NEVER** engage tractor PTO when the tub is raised.

WARNING: FAILURE TO COMPLY WITH SAFETY INSTRUCTIONS THAT FOLLOW WITHIN THIS MANUAL COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH. BEFORE ATTEMPTING TO OPERATE THIS MACHINE, CAREFULLY READ ALL INSTRUCTIONS CONTAINED WITHIN THIS MANUAL. ALSO READ THE INSTRUCTION MANUAL PROVIDED WITH YOUR TRACTOR.

THIS MACHINE IS NOT TO BE USED FOR ANY PURPOSE OTHER THAN THOSE EXPLAINED IN THE OPERATOR'S MANUAL, ADVERTISING LITERATURE OR OTHER DURATECH INDUSTRIES WRITTEN MATERIAL PERTAINING TO THE H-1135 TUB GRINDER.



Section 2: Operation

There is no substitute for a sound preventative maintenance program and a well-trained operator.

To insure long life and economical operation, learn how to operate the H-1135 Tub Grinder and how to use the controls properly. Thoroughly instruct the operator in maintenance and operation of the H-1135 Tub.

GENERAL OPERATING CONDITIONS

Operating Temperature

This equipment will operate correctly in its intended ambient, at a minimum between +5°C and +40°C (41°F and 104°F).

Relative Humidity

The equipment will operate correctly within an environment at 50% RH, +40°C (104°F). Higher RH may be allowed at lower temperatures.

Measures shall be taken by the Purchaser to avoid the harmful effects of occasional condensation.

Altitude

This equipment will operate correctly up to 1000 m (3,280 ft.) above mean sea level.

Transportation and Storage

This equipment will withstand, or has been protected against, transportation and storage temperatures of -25°C to +55°C (-13°F to +131°F) and for short periods up to +70°c (+158°F).

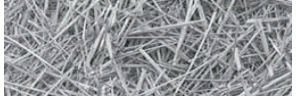
It has been packaged to prevent damage from the effects of normal humidity, vibration and shock.

2.1 Pre-Operating Inspection

Prior to the starting the H-1135 Tub Grinder, make a visual inspection of the machine. This can be done when lubricating the machine. Any items that are worn, broken, missing or needing adjustment must be serviced accordingly before operating the H-1135 Tub Grinder.



WARNING: Before inspecting the machine, use the normal shutdown procedure found in Section 2.4.1.



BEFORE OPERATING CHECKS

Before operating the H-1135 Tub Grinder, follow these instructions:

- ❑ Read and understand the operator's manual.
- ❑ Learn how to operate the controls properly. Do Not let anyone operate without instruction.
- ❑ Know the machine's safety features and understand the safety precautions.
- ❑ Be sure the machine is hitched properly to the tractor.
- ❑ Be sure to lubricate all lubrication points. See lubrication chart, Section 3.1.
- ❑ Check for loose bolts.
- ❑ Make sure machine is properly adjusted.
- ❑ Check hydraulic oil level
- ❑ Check hydraulic components for leaks or damage.



WARNING: Hydraulic fluid escaping under pressure can be almost invisible and can have sufficient force to penetrate the skin. When searching for suspected leaks, use a piece of wood or cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection or reaction.

- ❑ Visually examine rotor to see if any parts have excessive wear. These parts include shaft, plates, rods, hammers and moveable plate.
- ❑ Check screens and screen hold downs for wear and tightness.
- ❑ Check installation and condition of hammers.
- ❑ Visually examine rotor bearings and mounting bolts.
- ❑ Check all bearings for wear.
- ❑ Check chains and belts for proper tension and condition.
- ❑ Make sure all shields and guards are in place.
- ❑ Check condition of decals, replace if excessively worn.
- ❑ Check lug nuts for correct tightness. Lug nuts should be tightened to a minimum of 240 ft-lbs (33 Kg-M).
- ❑ Check condition of tire rims.
- ❑ Check tires for proper air pressure. 48 PSI (3.3 BAR)
- ❑ Always grind with the machine and tractor stationary on level ground.
- ❑ In cold weather, allow five minutes for the machine to warm up before grinding.
- ❑ Start the machine and check the tub direction, speed control governor for proper operation.
- ❑ Watch for unusual or excessive vibration. If any occur, immediately shut off the power. Check to see what is wrong and correct it before starting the grinder again.
- ❑ If grinding grain, be sure proper grain attachment is in place.

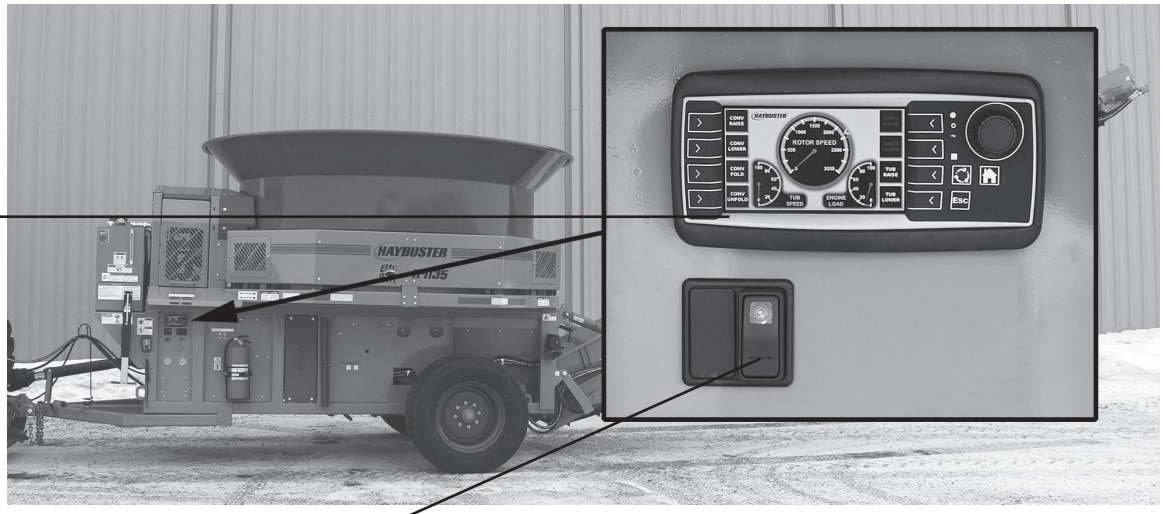
2.2 Introduction to the machine

2.2.1 Description of the H-1135 Tub Grinder

The Tub Grinder is designed to grind most types of hay, grain and crop residue such as stover and straw. The unit incorporates a number of basic features including the rotating tub, the electronic governor, the rotor and hammer assemblies, the tub chain and drive assemblies, belly auger and discharge conveyor, and the axle and hitch assemblies.

Material is fed into the tub of the unit by appropriate means, such as a wheel loader. As the tub rotates, the material is exposed to the rotating hammers. The hammers then grind the material before the material is discharged by the belly auger and discharge conveyors.

Figure 2.1
side view showing operator station and major system components



2.2.2 Overview of Operator's Controls

Operator controls include:

- **Electronic governor:** The electronic governor controls all functions of the H-1135 Tub Grinder. They include tub raise/lower, tub forward/reverse, tub/rotor speed, conveyor fold/unfold and conveyor raise/lower.
- **Tractor engine speed:** The tractor engine speed should be set so 1000 PTO shaft is running at 1000 RPM.
- **Tractor PTO lever**: Engaging the tractor's PTO lever spins rotor, runs both conveyor belt and powers the tub hydraulic drive. The conveyor must be unfolded to the working position before the PTO can be engaged.

2.2.3 Electronic governor

The Wachendorf A3X with an HFX32 control system will control the Tub and Discharge Conveyor functions of a Tub Grinder.

Display

Start up screen:

Company logo

Screen will show when power is applied to the display for approx. 10 sec.



Loading screen:

Company logo, with loading bar

Screen will show right after Start up screen for approx. 10 sec.



Home screen:

Home Screen will show right after the loading screen, when the Home button is pressed from any of the other pages, or when the Encoder is pressed from the Manual Function screen.

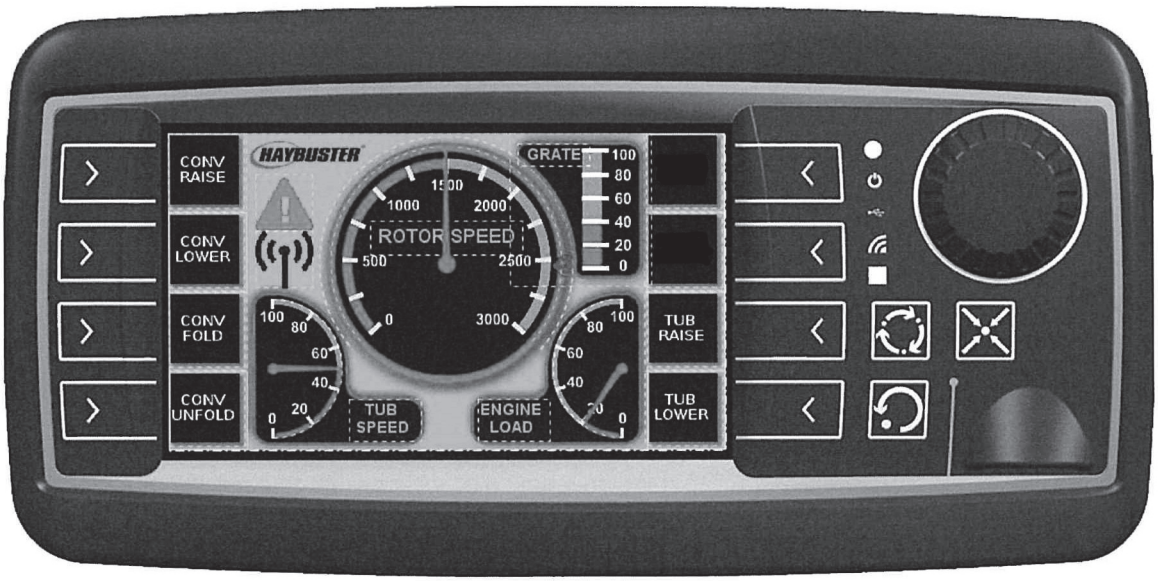


- Tub FWD/REV buttons will control the Tub FWD/REV outputs as described later in this manual.

- The Tub Speed gauge will indicate the Tub Speed output with a scale of 0-100.
  - When the Tub Speed button is pressed the Encoder knob will be linked to the Tub Speed setting and the Tub Speed icon will change to red in color.
  - The Tub Speed can also be adjusted by using the Tub Speed Inc. and Dec. buttons on the radio remote.
- The Engine Load gauge will indicate the Engine Load setting with a scale of 0-100.
  - When the Engine Load button is pressed the Encoder knob will be linked to the Engine Load setting and the Engine Load icon will change to red in color.
- When the Display Light button is pressed the Encoder knob will be linked to the Display Backlight setting and the Display Light icon will change to red in color.
- The Set Speed button will set the Rotor Speed Max indicated by a blue arrow on the outside edge of the Rotor Speed gauge. The Rotor Speed Min is indicated by the green arrow. (**See also Section 2.8**)
- The Rotor RPM gauge will display the Rotor RPM with a scale of 0-3,000.
- A fault icon will pop up anytime there is a fault triggered in the controller.
- A radio icon will pop up when the transmitter is connected to the receiver.

Manual Function Screen:

The Manual Function screen will be accessed by pressing the next button or the encoder on the Home Page.



The following functions can be operated on the Manual Function screen. Functions marked with and (*) can also be operated with the radio remote.

1. Conveyor Raise*
2. Conveyor Lower*
3. Conveyor Fold
4. Conveyor Unfold
5. Tub Raise
6. Tub Lower

- When a button for one of the functions is pressed the corresponding output will be momentarily turned ON and the button will change color. When the button is released the output will be turned OFF.
- Interlocks:
    - o The Tub Raise output will be de-activated if there are pulses detected on the Rotor Speed input. An alarm window will show if the Tub Raise button is pressed while the function is locked out. If there are no pulses detected on the Rotor Speed input, the Tub Raise output will be activated after the Tilt Enable Timer expires. The Tilt Enable Time can be changed using the Impulse Service tool.

Hours screen:

The Hours screen will be accessed by pressing the next button on the Manual Function screen.



- Pressing the Fault Menu button will take the operator to the Fault Screen page.

- The Grind Hours window will display the total number of hours the machine has run with the Rotor ON.

- The Service Hours window will display the total number of hours the machine has run with the Rotor ON since the last Service Hours Reset. Pressing the Service Hours Reset button will reset the Service Hours window to zero.

- The Job Hours window will display the total number of hours the machine has run with the Rotor ON since the last Job Hours Reset. Pressing the Job Hours Reset button will reset the Job Hours window to zero.

Fault screen:

The faults will show up in the fault table screen when they occur.



The Active Fault screen will display a table indicating the J1939 DM1 message fault codes. The fault codes will be displayed as numerical values unless otherwise specified in the Fault Codes table. (**See section 4.2**)

- The ECU (electronic control unit) column indicates which controller the fault is coming from.
- The SPU (suspect parameter number) column indicated what function has a fault.
- The OC (occurrence count) column indicated how many times the fault has occurred.
- The FMI (fault mode indicator) column indicated the reason for the fault.

Fault Reset Button

- The Fault Reset button will reset all active faults.

The Display and Controller Software version will be displayed on this screen.

Hardkeys:

Next

- When the Next button is pressed, the display changes to the next screen.

Home Button

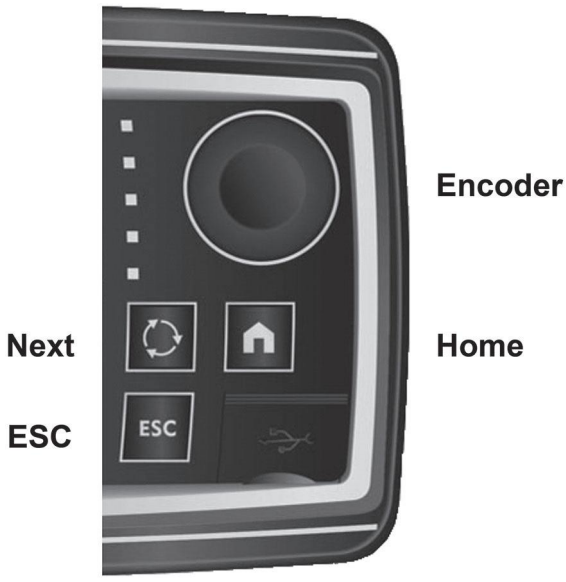
- When the home button is pressed the display will go to the home screen.

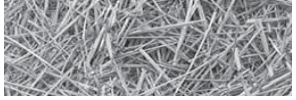
ESC Button

- When the ESC button is pressed the display will go back to the previous screen or view.

Encoder

- When the Encoder button is pressed, the display changes to the next screen.





2.2.4 Rotor

The Rotor and screens are the heart of the tub grinder. The rotor on this H-1135 Tub Grinder is equipped with 88 swinging hammers. Dull edges on the hammers and/or screens will result in a loss of capacity and increased horse power requirements.

IMPORTANT: Hammer and hammer rod life can be extended by keeping the rotor rotating at 2300 RPM. **Excessive tractor horsepower and/or overfeeding the rotor can cause the hammers to lay back resulting in excessive wear on both the hammers and hammer rods.**

CAUTION: Keep all foreign objects out of the tub and away from the rotor. Foreign objects may cause personal injury or damage to the H-1135 Tub Grinder.

CAUTION: At full speed, energy is stored in the rotor. **Do not use the tractor PTO brake to stop the rotor. Reduce engine speed before disengaging the PTO.**

2.2.5 Screens

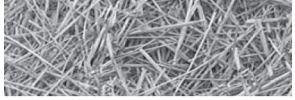
All H-1135 Tub Grinders require two screens. They come equipped from the factory with a 2" (5 cm) diameter hole screen and a 3" (8 cm) diameter hole screen. Any combination of hole sizes may be used. As a general rule, use the largest diameter screens capable of doing the job.

When using a combination, place the smallest hole diameter on the right hand side of the rotor box where the material enters the rotor.

The size of the hole in the screen determines the coarseness of grind. The larger the hole diameter, the coarser the grind. Hole sizes can vary from 1/8" diameter through 8" diameter. In general, use the larger screen sizes for grinding hay.

As a general guide, DuraTech Industries recommends the following screen sizes:

Hay	2" to 8" (5 cm to 20 cm)
Ear Corn	5/8" to 1" (1.6 cm to 2.5 cm)
Shelled Corn	3/4" (1.9 cm) dry, 5/8" (1.6 cm) high moisture
Small Grains	1/4" (.6 cm) to 3/8" (.9cm)



2.2.6 Tub

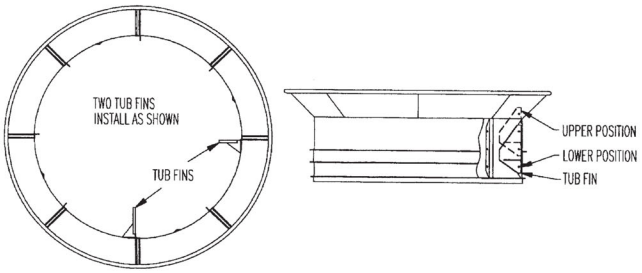
The purpose of the tub is to contain the material above the rotor, and to keep the rotor loaded

Tub Fins

Two tub fins are furnished with the H-1135 Tub Grinder.

When grinding large round bales, use only one of the tub fins, bolted in the upper position. Two tub fins across from each other may hold the bale up and reduce capacity.

When grinding small round bales, square bales, or loose hay, use two tub fins bolted in the lower position.



2.2.7 Slug Buster and Mill Grate

A slug buster or mill grate is installed above the rotor to regulate the amount of material entering the rotor chamber. The standard slug buster is used for ideal grinding conditions (dry hay). The mill grate is used for “less than ideal grinding”, (wet hay or tough grasses).

2.2.8 Conveyors, Lifting and Folding

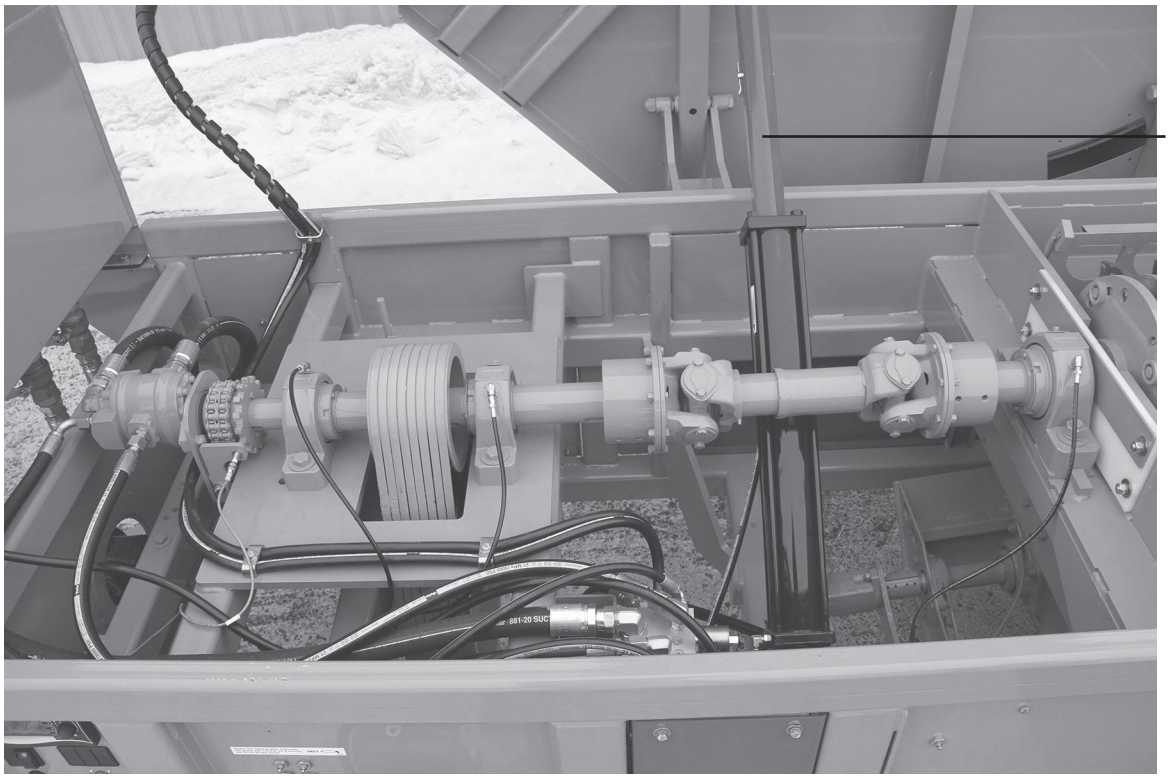
An electric switch on the H-1135 tub grinder controls the conveyor lift and fold. The tractor supplies hydraulic oil for operating the conveyor lift and fold system. Activate the tractors hydraulic circuit before operating the valve on the H-1135 tub grinder.

2.2.9 Hydraulic Tilt Platform

The H-1135 tub grinder can be tilted 90 degrees for access to the rotor, screens, and drive line. Operation of the tub tilt cylinder is performed using the controls for the tractor which is located on the tractor. After using the normal shut down procedures, the hopper platform can then be opened.

WARNING: To prevent serious injury or death, do not tilt platform on unlevel ground or with material in the tub.

WARNING: For your protection **ALWAYS** install the tub cylinder stop when the tub is tilted. **NEVER** engage tractor PTO when the tub is raised.



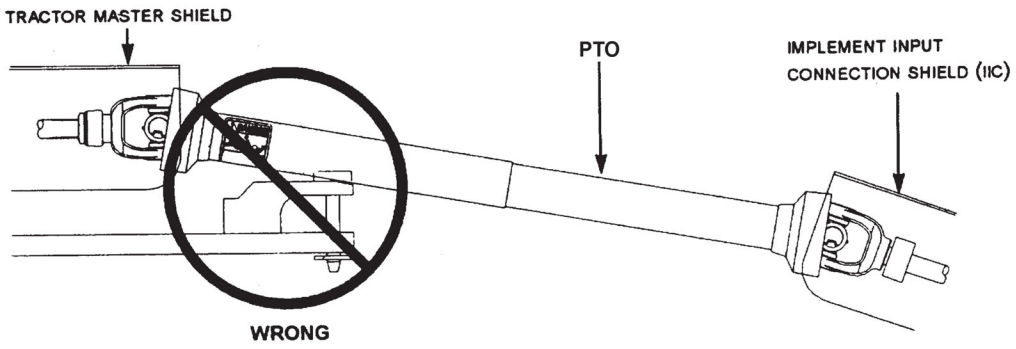
2.3 Machine Operation

2.3.1 Tractor Set Up

A tractor drawbar and 3-point arms can cause interference with the PTO driveline. This interference can cause serious damage to the PTO guarding and the PTO telescoping members.

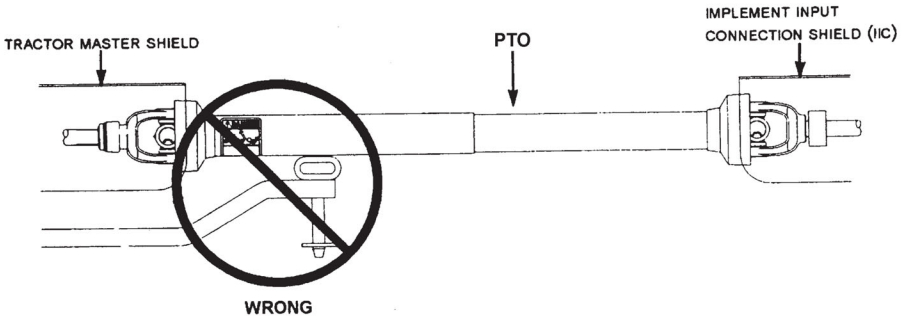
If this implement is attached to a tractor with a clevis hitch (hammer strap) style drawbar, the hammer-strap must be removed to prevent damage to the PTO guarding and the PTO telescoping members. See Figure 2.2.

Figure 2.2
incorrect clevis hitch (hammer strap) style drawbar set up

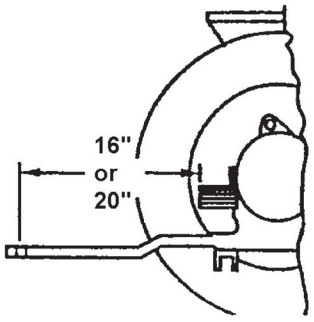


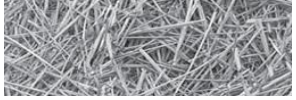
If this implement is attached to a tractor with an offset in the drawbar, be certain it is in the down position to prevent damage to the IID guarding and the IID telescoping members. See Figure 2.3.

Figure 2.3
incorrect offset style drawbar set up



If this implement is attached to a tractor with 3-point arms, the arms must be fully raised and locked in position to prevent damage to the PTO guarding and the telescoping members. Adjust the tractor drawbar so the distance from the end of the PTO shaft on the tractor to the center of the drawbar hitch pin hole is 16” (41 cm.) for a 1-3/8” shaft, or 20” (51 cm.) for a 1-3/4” shaft, as shown in the illustration to the right.





2.3.2 How to hook up to tractor

To hitch the H-1135 to a tractor, perform the following steps:

1. To reduce wear on the PTO shaft knuckle joints, tractor PTO shaft should be in line (parallel) with the H-1135 Tub Grinder. If tractor is equipped with swinging drawbar, adjust so the tractor PTO and H-1135 Tub grinder drive shaft are in line.
2. Connect hydraulic lines to the tractor.
3. Connect electrical lines to tractor.

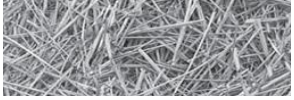


CAUTION: To insure a safe hook-up, the H-1135 Tub Grinder and tractor should be connected with a 1" locking pin.

2.3.3 How to disconnect from tractor

To disconnect the H-1135 from a tractor, perform the following steps:

1. Park H-1135 Tub Grinder and tractor on a level spot.
2. Lower jack to ground, place blocks under jack if ground is soft.
3. Disconnect electrical wires.
4. Disconnect hydraulic lines.
5. Disconnect PTO, place shaft in shaft holder.
6. Raise hitch of H-1135 Tub Grinder to remove weight from tractor hitch by adjusting jack.
7. Remove hitch pin.
8. Drive tractor away slowly.



2.3.4 How to operate machine as a unit

INTRODUCTION

Tractor engines are designed to reach maximum power at PTO speed (1000 rpm), and most tractors are capable of engine speeds from 10 to 20 percent over PTO speed. It will be necessary to operate tractor PTO at approximately 1000 rpm.

The Electronic Governor controls the feed rate to keep the tractor at its peak power point. The operator is able to select the operating range so that when the feed of material lugs down the tractor, the Electronic Governor will reduce the feed at a high enough PTO speed for the tractor to recover automatically if a slug is encountered.

GRINDING

Place materials to be ground directly into the tub. The best method for filling the H-1135 Tub Grinder is:

1. Engage Rotor and increase speed to 1000 RPM on the PTO shaft
2. Fill the tub about half full of unground materials before starting tub rotation.
3. Start tub.
4. Place additional materials in the tub.

LOOSE HAY

The best capacity will be obtained if the tub is consistently kept no less than half full of loose hay. When loading the tub, place materials slightly to the front rather than directly over the rotor. For best results feed the tub with small portions.

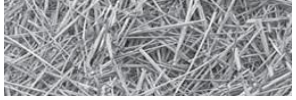
WET OR FROZEN HAY

This is the toughest material for any grinder to handle. When filling the tub with wet or frozen hay, deposit small quantities on a more frequent basis rather than filling the tub with one load.

LARGE ROUND BALES

Place large round bales in the tub on end or on the side. Try grinding bales each way to determine which method will work best for you.

IMPORTANT: Never drop a large round bale into the tub from a high level. Ease the bale over the edge and down into the tub carefully. Dropping a large bale directly on top of the rotor will cause damage to the rotor.



CROP RESIDUE

When grinding crop residues, use the same methods as with loose hay. Extremely wet or frozen materials should be placed sparingly into the tub.

SMALL GRAINS

Grinding small grains requires special attachments. These attachments fit directly over the rotor. It is not recommended that small grains be ground without the use of one of the small grain attachments. (See Appendix B: H-1135 Specifications under the heading “Options”.)

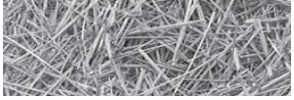
EAR CORN

Grinding ear corn requires a special attachment. This attachment fits directly over the rotor and uses crossbars in the tub to feed corncobs into the rotor. (See Appendix B: H-1135 Specifications under the heading “Options”.)

IF LODGING OCCURS

Materials may lodge against the side of the tub and not feed down to the rotor. If this occurs, reverse the tub direction briefly and then start the tub in a forward direction again. This practice normally dislodges any materials.

WARNING: Never attempt to dislodge material inside the rotor when the machine is in operation by physically pushing down on materials. **WHEN THE MACHINE IS IN OPERATION, STAY OUT OF THE TUB.**



2.4 Shutdown procedures

2.4.1 Normal Shutdown Procedure

CAUTION: At full speed, energy is stored in the rotor. **Do not use the tractor PTO brake to stop the rotor.**

WARNING: The stored up energy in the rotor causes it to rotate long after disengaging the tractor PTO. Before performing any maintenance on the machine or getting into the tub, be sure rotor and all moving parts have come to a complete stop.

Before working on or near the H-1135 Tub Grinder for any reason, including servicing, inspecting or unclogging machine:

1. Run H-1135 Tub Grinder until discharge conveyor is empty, and grind as much of the material in the tub as possible.
2. Reduce engine speed to idle.
3. Disengage PTO
4. Disengage hydraulics.
5. Place transmission in park and set parking brake.
6. Shut off tractor engine and remove key.
7. Wait for all movement to stop.
8. Disconnect PTO driveline from tractor.

2.4.2 Emergency Shutdown Procedure

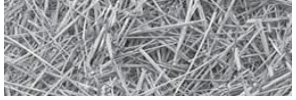
Disengage PTO and tractor hydraulics

2.5 Storage

2.5.1 Preparing for storage

To prepare the unit for storage, perform the following steps:

1. Check the wheel bearings for lubrication requirements and adjustments at the end of the season.
2. Check the pressure roller bearings for lubrication and adjustments at the end of the season.
3. Clean the machine thoroughly to prevent rust and to make inspections easier. Clean and repaint the tub floor to prevent rust and sticking problems at start up time.
4. Check for loose or worn chains, belts, sprockets, and pulleys.
5. Check the condition of bearings.



2.5.2 Removing from storage

To prepare the unit for use after storage, perform the following steps:

1. Perform a thorough pre-operation inspection.

2.6 Road Transport

2.6.1 Set up to transport

Inspect H-1135 Tub Grinder for any loose parts, tools, or any materials. Remove them or fasten them securely to the H-1135 Tub Grinder.

To set up the H-1135 for transport, perform the following steps:

1. Fold the conveyor.
2. Check for local restrictions on towing.

2.6.2 Change back to operate

To set up H-1135 for operation, perform the following steps:

1. Connect H-1135 Tub grinder to tractor.
2. Connect hydraulic hoses and electrical cable to tractor
3. Lower the discharge conveyor.
4. Unfold conveyor to working length.

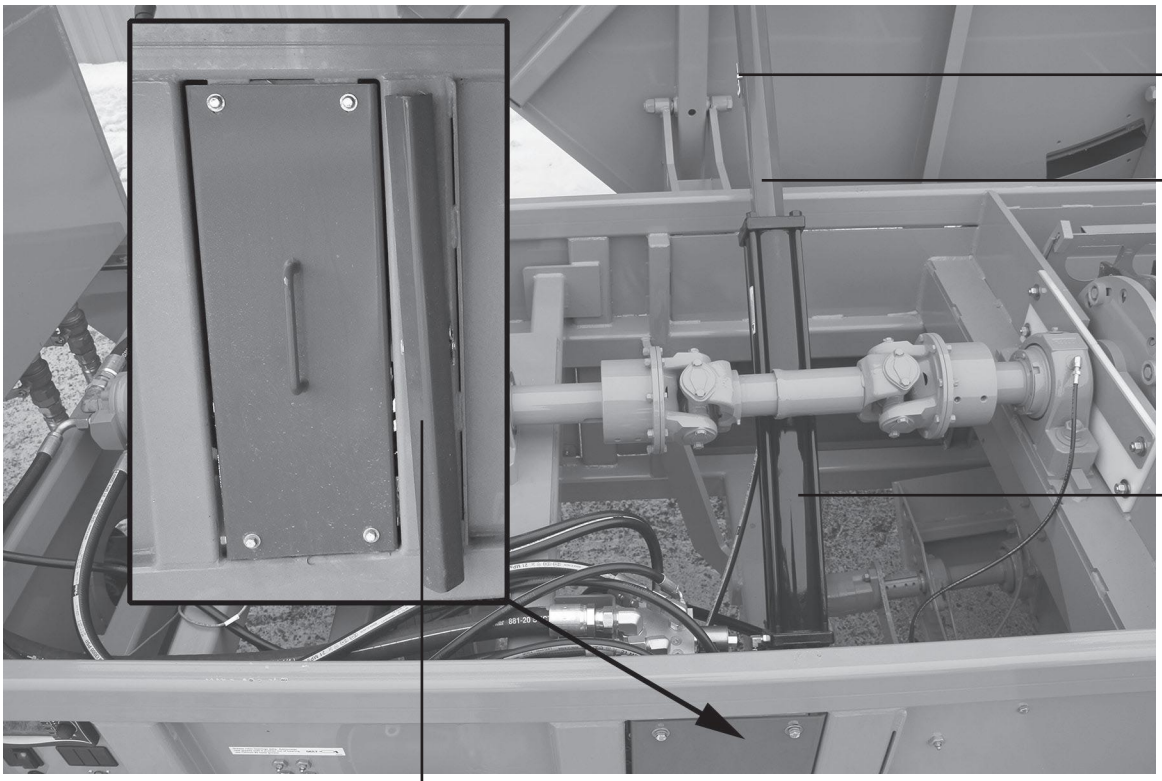
2.7 Raising the Tub Platform

WARNING: To prevent serious injury or death, do not tilt platform on unlevel ground or with material in the tub.

To raise the tub platform, perform the following steps:

1. Park machine on firm level ground or surface.
2. Remove all material from tub.
3. Disengage the PTO.
3. Clear personnel from work area.
4. Raise platform.
5. Install tub cylinder stop.

WARNING: For your protection **ALWAYS** install the tub cylinder stop when the tub is tilted. **NEVER** engage tractor PTO when the tub is raised.

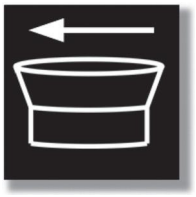


2.8 Operation of the Electronic Governor

Auto/Manual Mode

- The system has two modes of operation: Auto Mode and Manual Mode. The mode of operation can be toggled using the Auto/Manual button on the display.

Tub

- **Tub Forward** 

  - **ON**

    If the Tub Forward button is pressed on the display or the radio remote, and the Tub Forward output is de-active, and the Tub Reverse output is de-active, and either the Rotor Speed input is greater than zero, or the system is in Manual Mode:

    - Tub Forward output will be activated.
    - Tub Speed output will be ramped from minimum output to the output setting indicated by the display.
    - Tub Forward indicator on the display will change color from black to red.

  - **OFF**

    If the Tub Forward output is active, and the system is switched from Manual Mode to Auto Mode while the Rotor Speed input is zero, or the Tub Forward button is pressed on the display or radio remote, or the Tub Reverse button is pressed on the display:

    - Tub Forward output will be de-activated.
    - Tub Speed output will be de-activated.
    - Tub Forward indicator on the display will change color from red to black.

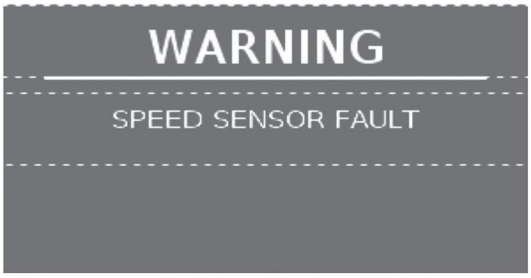
    If the Rotor Speed input goes to zero when the Tub Forward output is active, and the system is in Auto Mode:

    - Tub Forward output will be de-activated.
    - Tub Speed output will be de-activated.
    - Tub Forward indicator on the display will change color from red to black.
    - Speed Sensor Fault will be activated.

- **Warning**

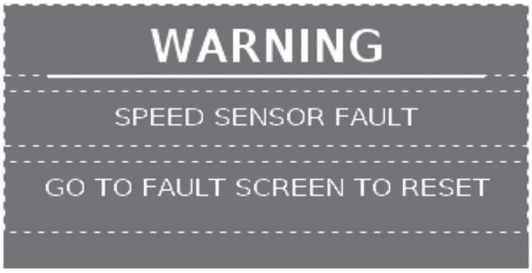
  If the Tub Forward button is pressed on the display, and the Tub Forward output is de-active, and the Tub Reverse output is de-active, and the Rotor Speed input is less than zero, and the system is in Auto Mode:

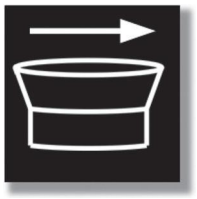
  - The following alarm window will be shown on the display for 3 seconds:



If the Tub Forward button is pressed on the display, and the Tub Forward output is de-active, and the Tub Reverse output is de-active, and the Rotor Speed input is less than zero, and the system is in Auto Mode, and the Speed Sensor Fault is active:

- The following alarm window will be shown on the display for 3 seconds:



- **Tub Reverse** 

  - **ON**

    If the Tub Reverse button is pressed on the display or radio remote, and the Tub Forward output is de-active, and the Tub Reverse output is de-active, and either the Rotor Speed input is greater than zero, or the system is in Manual Mode:

    - Tub Reverse output will be activated.
    - Tub Speed output will be ramped from minimum output to the output setting indicated by the display.
    - Tub Reverse indicator on the display will change color from black to red.

o **OFF**

If the Tub Reverse output is active, and the system is switched from Manual Mode to Auto Mode while the Rotor Speed input is zero, or the Tub Forward button is pressed on the display or the radio remote, or the Tub Reverse button is pressed on the display:

- Tub Reverse output will be de-activated.
- Tub Speed output will be de-activated.
- Tub Reverse indicator on the display will change color from red to black.

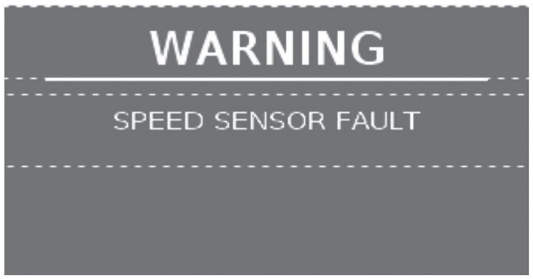
If the Rotor Speed input goes to zero when the Tub Reverse output is active and the system is in Auto Mode:

- Tub Reverse output will be de-activated.
- Tub Speed output will be de-activated.
- Tub Reverse indicator on the display will change color from red to black.
- Speed Sensor Fault will be activated.

o **Warning**

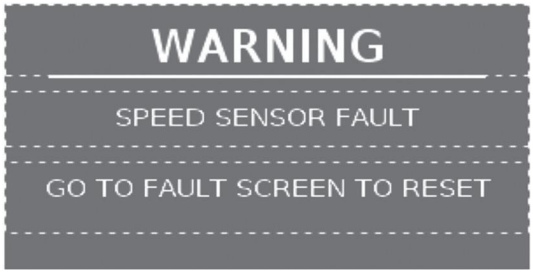
If the Tub Reverse button is pressed on the display, and the Tub Forward output is de-active, and the Tub Reverse output is de-active, and the Rotor Speed input is less than zero, and the system is in Auto Mode:

- The following alarm window will be shown on the display for 3 seconds:

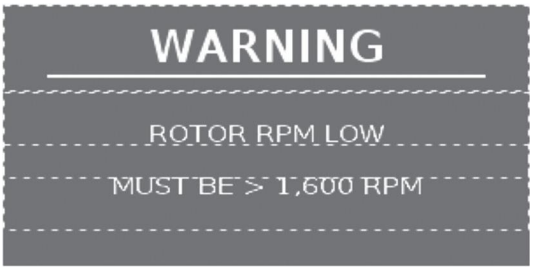


If the Tub Reverse button is pressed on the display, and the Tub Forward output is de-active, and the Tub Reverse output is de-active, and the Rotor Speed input is less than zero, and the system is in Auto Mode, and the Speed Sensor Fault is active:

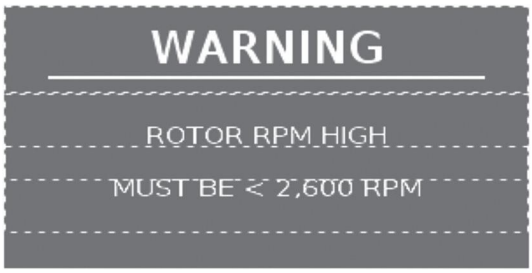
- The following alarm window will be shown on the display for 3 seconds:

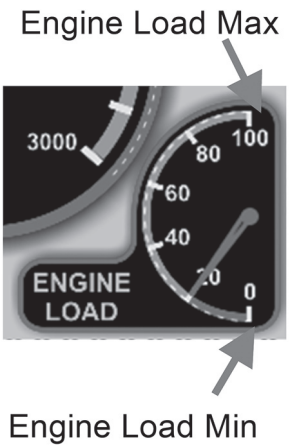


- **Tub Speed**
  - The Tub Speed ramp rate and output current will have adjustable parameters in the Impulse Service Tool.
  - <u>Manual Mode:</u>
    - The Tub will operate in an open loop control mode and will not compensate for rotor rpm changes.
    - There will be a Tub Speed gauge on the display to indicate the percentage of output from 0-100 percent.
    - The Tub Speed will be adjustable on Home Screen of the display.
  - <u>Auto Mode:</u>
    - The Tub will operate in a closed loop control mode and will compensate for rotor rpm changes.
    - The Tub Speed will be adjustable on Home Screen of the display. This will be the maximum speed the Tub will operate at and is the same speed used in Manual Mode.
    - The Engine Load will be used to reduce the Tub Speed to provide an anti-stall function to the rotor. This setting will be adjustable on the Home Screen of the display and will be displayed as 0-100%.
    - Rotor Speed Max (Blue Arrow) is the setpoint at which the Tub starts to slow down. This is set using the Set Speed button on the display. This value will not be allowed to go above the Set Speed Limit High RPM and below the Set Speed Limit Low RPM. These values can be changed with the Impulse Service Tool.
    - If the Set Speed button is pressed when the Rotor Speed is less than the Set Speed Limit Low RPM:
      - The following alarm window will be shown on the display for 3 seconds.



- If the Set Speed button is pressed when the Rotor Speed is greater than the Set Speed Limit High RPM:
  - The following alarm window will be shown on the display for 3 seconds.

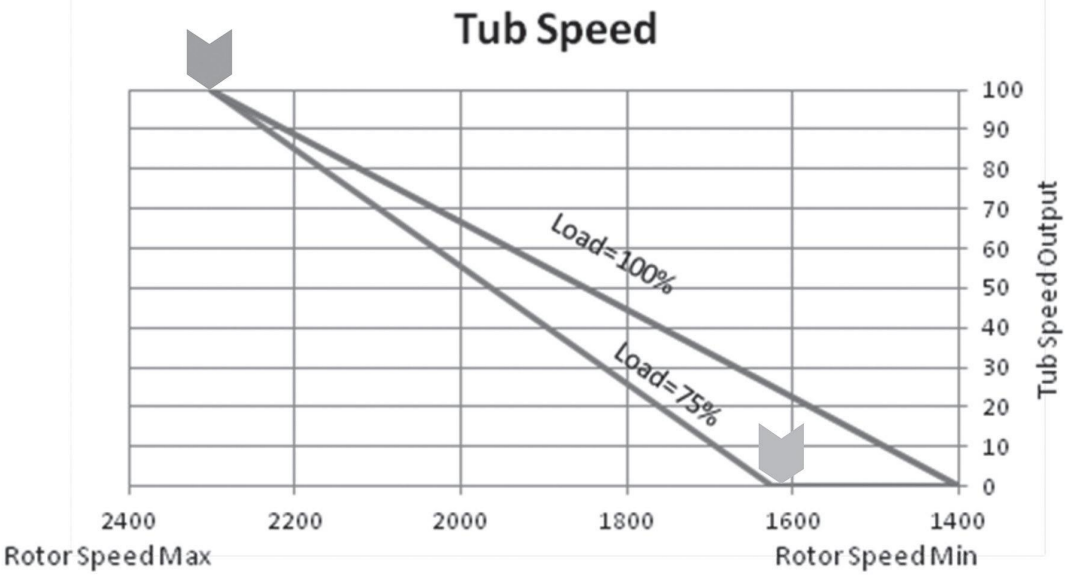




- Rotor Speed Min Limit is the RPM where the Tub will stop when the Engine Load is set to 100%.
- Rotor Speed Min (Green Arrow) is the setpoint the Tub will slow down to. If the Engine Load is set to less than 100%, the Tub will still start to slow down at the Rotor Speed Max setpoint but the Tub will be stopped at the Engine Load percentage between the Rotor Speed Max and the Rotor Speed Min Limit.
- Load Example:
  - Rotor Speed Max = 2,300 rpm
  - Rotor Speed Min Limit = 1,400 rpm
  - Engine Load Display = 75%

Calculate Engine Load RPM: 0.75 * (2300-1400) = 675 rpm

Calculate Rotor Speed Min: 2,300 – 675 = 1,625 rpm

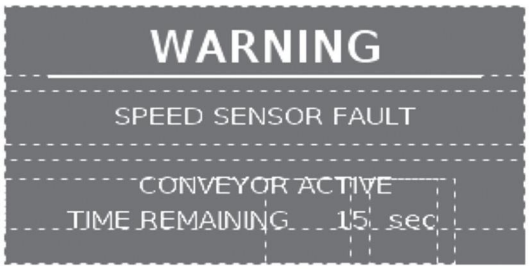


Conveyor

- If the Conveyor button is pressed on the display and the Conveyor Forward output is de-active and the Rotor Speed input is greater than zero or the system is in Manual Mode:
  - Conveyor Forward output will be activated.
  - Conveyor Forward indicator on the display will change color from black to red.

- If the Conveyor Forward output is active, or the Conveyor button is pressed on the display:
  - Conveyor Forward output will be de-activated.
  - Conveyor Forward indicator on the display will change color from red to black.

- If the Conveyor Fwd output is active, and the Speed Sensor Fault is active:
  - Conveyor Forward output will be de-activated after the Conveyor Speed Off Timer expires. The Conveyor Speed Off Time can be changed with the Impulse Service Tool.
  - Conveyor Forward indicator on the display will change color from red to black.
  - The following alarm window will be shown on the display while the countdown is active:



Bypass

- If the Conveyor output is active and either the Tub FWD or Tub REV outputs are active the Bypass output will be activated.

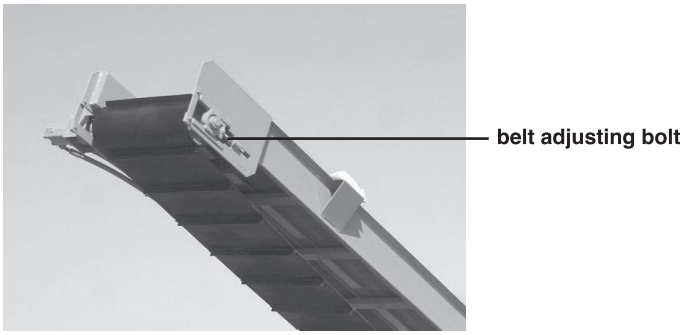
- If the Conveyor output is de-active or the Tub FWD and Tub REV outputs are de-active the Bypass output will be de-activated.

2.9 Adjusting the conveyor belt tension

The rollers on the discharge conveyor are adjustable to allow for belt stretching and tracking. If the conveyor belt slows down or stops during operation, slippage may be the cause. To eliminate slippage, tighten the adjusting bolts on the conveyor equally. This will help to keep the belt centered on the rollers.

IMPORTANT: Do not overtighten conveyor belts. Use only enough tension to eliminate belt slippage.

Figure 2.6
discharge conveyor belt adjusting bolts



2.10 Adjusting the conveyor belt tracking

A. When a new belt is installed: Use only genuine DuraTech Industries parts.

1. Begin by adjusting the drive roller so that the mounting bearings are the same distance from the end of the conveyor frame. This ensures that the roller centerline is square with conveyor frame. Adjust the idler roller tension bolts so that they are equal on both sides of the conveyor.

B. If the belt is running to the right side, perform the following steps:

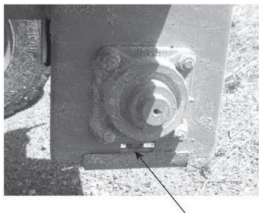
1. Adjust the idler roller tension bolt on the right side of the conveyor. Increase tension by approximately 2 full turns of the adjusting nut.
2. Make certain that all personnel are clear of machine and the start engine. Engage the tractor PTO.

NOTE: The rotor will also be turning.

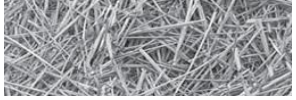
3. Observe conveyor belt tracking from a safe location.
4. If further adjustment is required, disengage tractor PTO, and shut down the machine using the normal shutdown procedure.
5. Some adjustment of the drive roller may be required if no improvement is noted by increasing the idler roller tension.
6. Repeat steps 1-5 until proper tracking is achieved.

C. If the belt is running to the left side, perform the following steps:

1. Adjust the idler roller tension bolt on the left side of the conveyor. Increase the tension by approximately 2 full turns of the adjusting nut.
2. Make certain that all personnel are clear of machine and start engine. Engage the tractor PTO.
3. Observe the tracking of the conveyor belt from a safe location.
4. If further adjustment is required, disengage tractor PTO and shutdown using the normal shutdown procedure.
5. Some adjustment of the drive roller may be required if no improvement is noted by increasing the idler roller tension.
6. Repeat steps 1-5 until proper tracking is achieved.



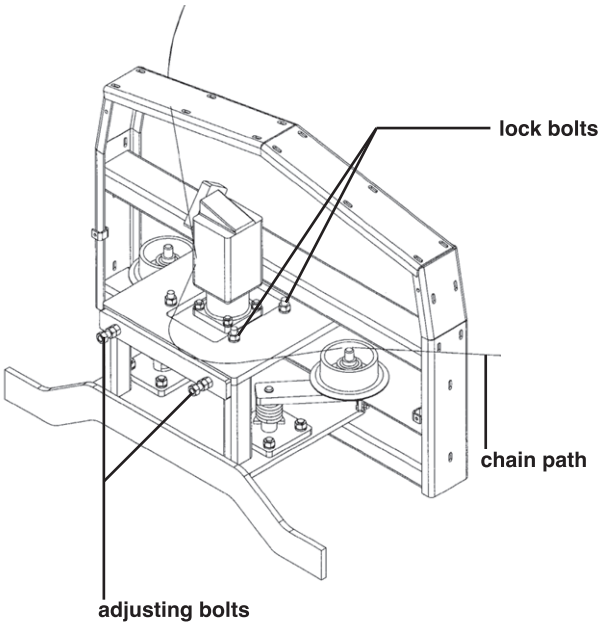
idler roller tension adjusting bolt

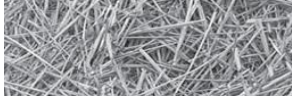


2.11 Adjusting tub chain tension

To adjust the tub chain tension, perform the following steps:

1. Loosen (4) bolts holding motor mounting plate.
2. Turn (2) adjusting bolts to set chain tension.
3. Tighten the (4)bolts holding motor mounting plate.





2.12 Main drive belt adjustment

Power is transferred from the drive shaft to the rotor through drive belts and two sheaves. Maintaining the proper tension on these belts is critical for reaching optimum grinder performance. A spring tensioning system is used on the H-1135 grinder to maintain tension as belts stretch over time. To properly tension the drive belts turn the tensioning rod until the spring caps come into contact with the tubes that the springs are seated into. **DO NOT OVERTIGHTEN!**

The two sheaves must be running parallel, if they are not the belts will not track, premature belt wear or belts running off of the sheaves will result. Adjust sheave alignment if needed.

Discharge Conveyor Flow Control Valve

A flow control valve is located on the side of the discharge conveyor. This valve allows the operator to control the speed of the discharge conveyor; it will not vary the speed of the belly augers.

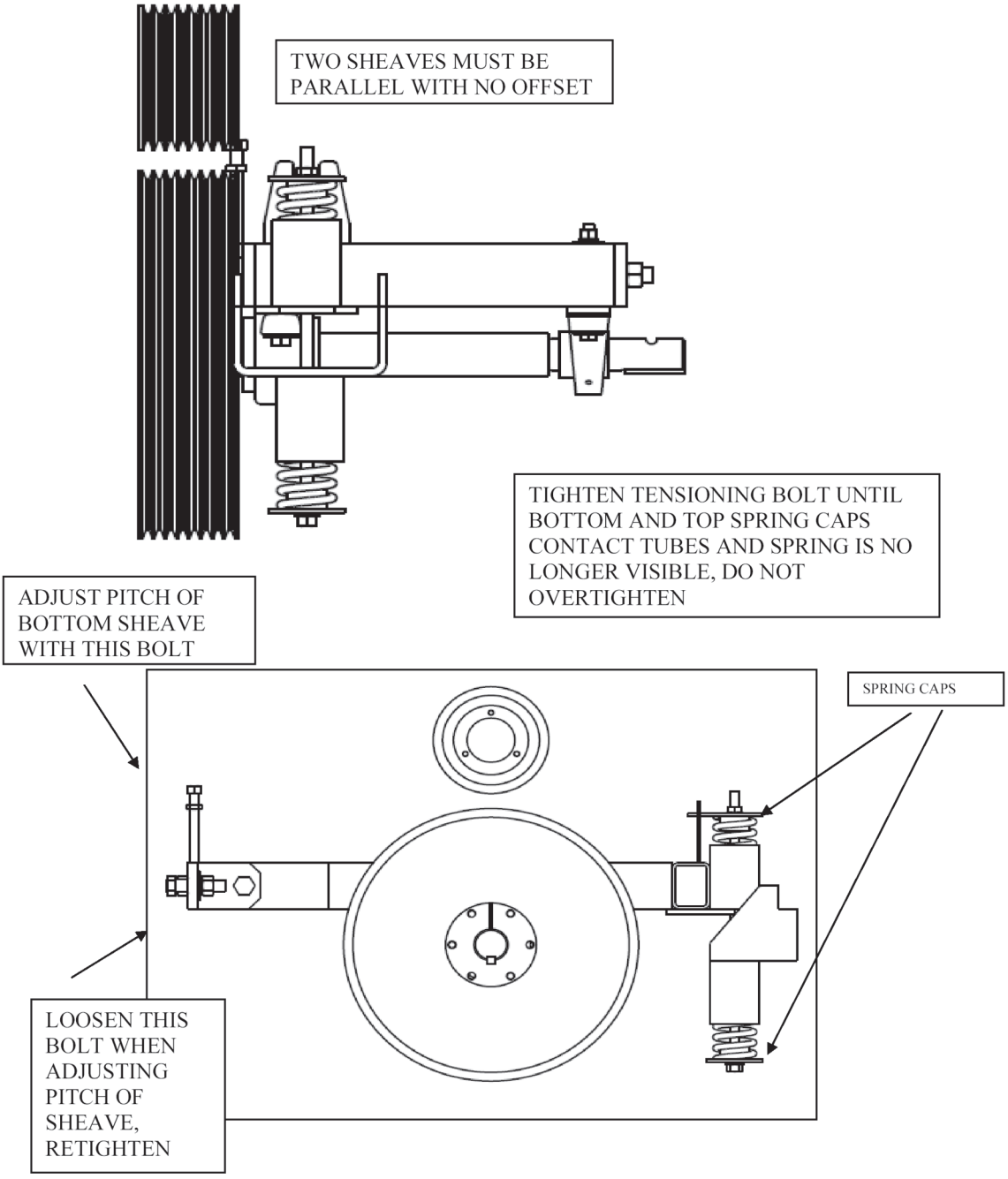
Adjusting the discharge conveyor flow control valve

The discharge conveyor flow control valve can be used to slow the discharge conveyor down which is helpful when grinding in windy conditions, when loading trucks, or when the grinder output is low. The flow to the hydraulic motor can be varied from approximately zero to the maximum flow by adjusting the valve from min (0) to max setting (10).



Note: Whenever this valve is used to decrease the speed of the discharge conveyor, heat will be generated. The hydraulic system may not be able to dissipate the excess heat generated in warm operating conditions. Always be aware of the hydraulic oil temperature; a thermometer is located on the side of the hydraulic reservoir. If the oil temperature becomes greater than 175°F (79°C) adjust the valve to max setting (10).

Figure 2.7
sheave alignment



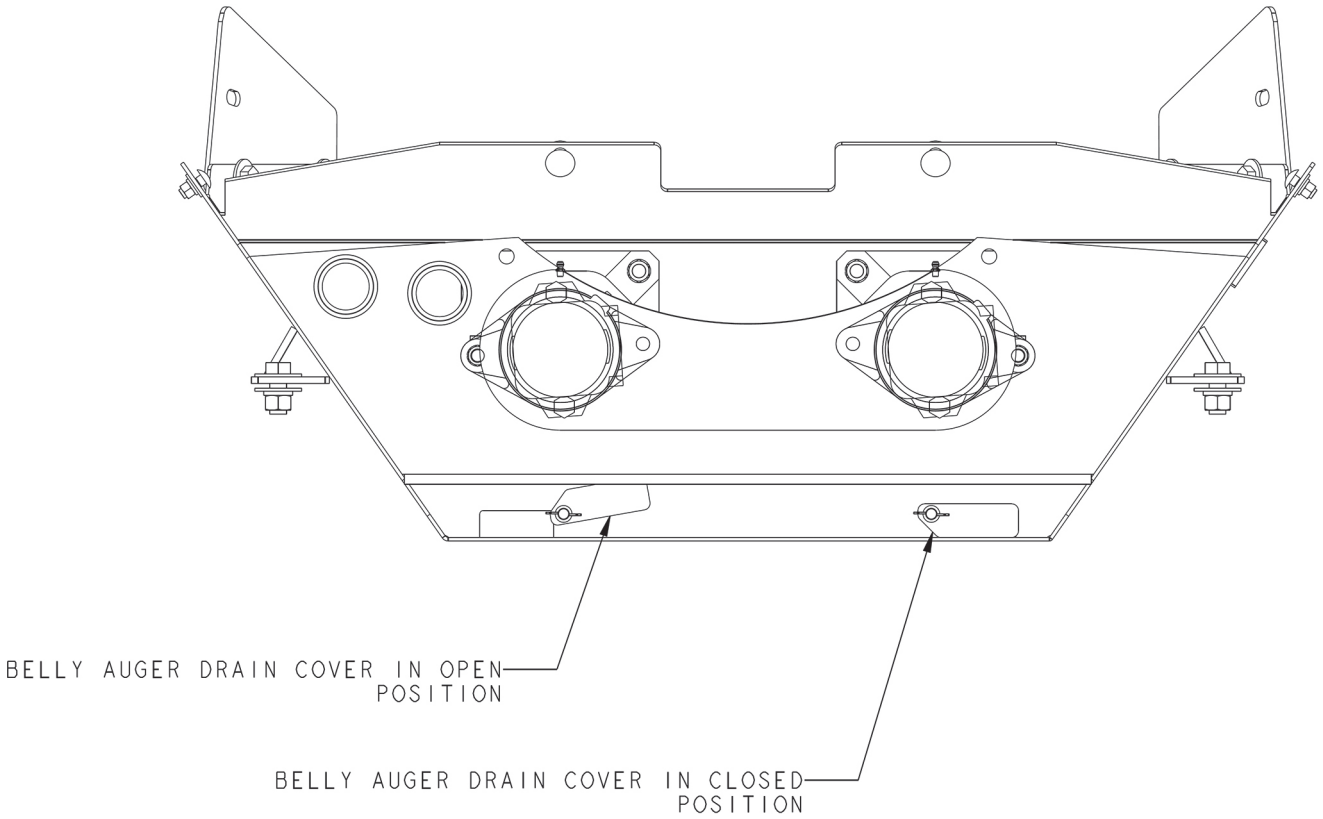
2.13 Sensor test

Set the gap between the sensor and the sprocket to 3/32” (2.4 mm). Sensor resistance should be 900 ohms +/- 10%.

2.14 Belly auger drain covers

Belly auger drain covers should be in the open position to allow any moisture to drain out.

When grinding small grains the belly auger covers should be in the closed position to keep the grain from spilling out.



2.15 Operating grinder using the Remote Radio Transmitter

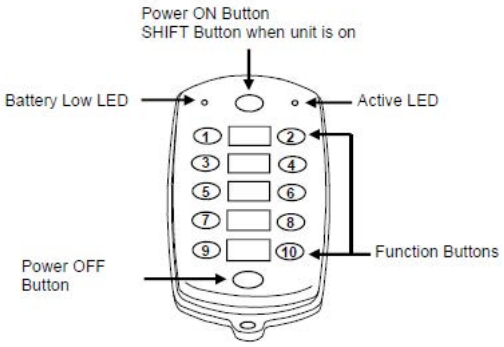
Systems overview

The **ORIGA T110/R170** is a portable, long range, programmable radio remote control system. Designed as a compact and easy-to-use product, this member of the **ORIGA** family puts complete control of your machine where it is needed most, with the operator.

The **R170 receiver** is designed to be powered from a 12VDC or 24VDC system.

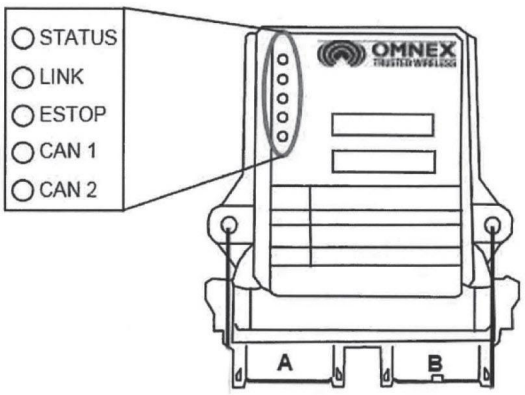
The **ORGIA T110 transmitter** comes with 10 buttons to provide the user with flexibility to control the functions needed. The transmitter uses four standard, long lasting AA batteries.

Figure 2.8
T110 transmitter control buttons



CAUTION: Only clean the buttons or whole remote radio transmitter with a soft cloth lightly dampened with water.

R170 receiver status indicators



The (Status) light is GREEN when in normal operating mode.

The (Link) light flashes GREEN to indicate a signal is being received from an OMNEX transmitter.

The (E-Stop) light is RED when the Emergency-Stop relay is open and GREEN when the relay is closed (a valid radio link is received by the R170).

The (CAN 1) and (CAN 2) lights indicate when the respective CAN ports are active.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

2.15a Replacing batteries and powering “ON” the remote radio transmitter

The battery compartment is located on the back of the transmitter. Using a slotted screwdriver, remove the battery cover and insert four “AA” batteries. Orientation of the batteries is embossed inside the battery housing.



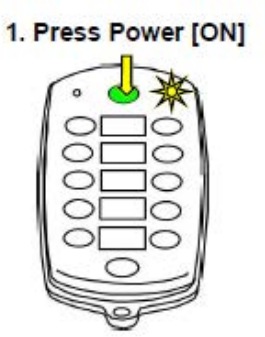
T110 Battery Housing

WARNING: When using “AA” batteries do not install backwards, charge, put in fire or mix with other battery types. May explode or leak causing injury. Keep the battery compartment dry to prevent corrosion. **Replace all batteries as a complete set and do not mix and match battery types**.

NOTE: For operation at temperatures below 14°F (-10° C) lithium batteries are recommended. Low temperatures reduce battery performance for both alkaline and lithium types. Refer to the battery manufacture’s specifications for detailed information on low temperature performance.

Turning ON the Transmitter

Refer to the light legend below for diagram details.



If the transmitter’s (Active) light does not flash, check the battery orientaion.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

Turning OFF the Transmitter

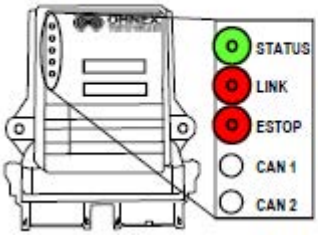
To turn off the transmitter, press the Power (OFF) button.

2.15b Test the Transmitter/Receiver Link

Follow these steps to ensure there is a Radio Link between the transmitter and receiver.

Refer to the Light Legend for diagram details.

1. Power the R170

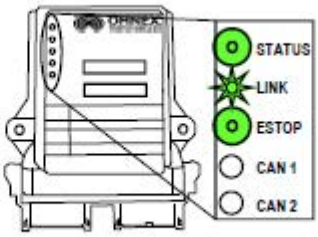


The (E-Stop) light and the (Link) light will display RED (provided the transmitter is off), and the (Status) light will show GREEN.

2. Power the T110







If the (Active) light on the transmitter is flashing and the (Link) light on the receiver is flashing GREEN, a link between the two exists.

The ORIGA System is now ready for use.

If the receiver's (Link) light does not become flashing GREEN follow the steps under **Download ID Code**.



2.15c Download ID Code (Use in case of Link Test Failure)

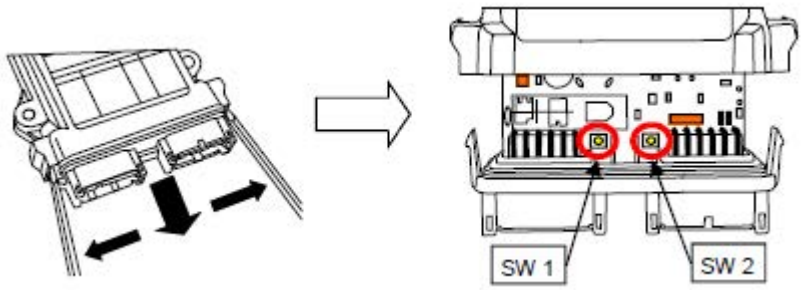
Follow these steps to download the transmitter's unique ID Code into the receiver. This will allow the receiver to establish a Radio link with a specific transmitter. **Refer to Troubleshooting Chart #4 for Tips and Considerations**

NOTE: It is necessary to download the ID code when replacing either the transmitter or the receiver.

The R170 requires a transmitter ID from an OMNEX wireless transmitter before it can be operated. The R170 can only hold a single transmitter ID; if another ID is downloaded then the new ID will overwrite the previous ID. OMNEX transmitter IDs are unique, ensuring that the R170 will only respond to the correct transmitter

1. Opening the R170 Case

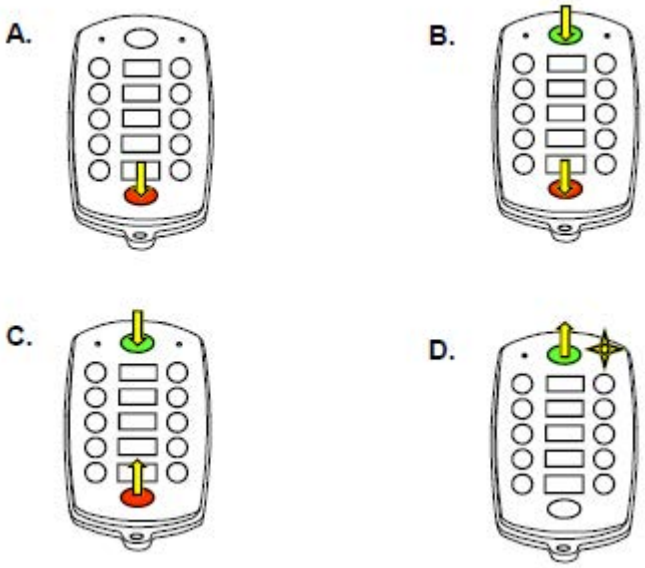
The cap is held on by two plastic tabs at opposing sides, which can be unlatched as shown using a screwdriver. Once the cap is free, the R170 can slide open.



The two push buttons can be used to configure the R170 for desired operation. The button marked as [SW 1] is used for general configuration and the button marked as [SW 2] is used for CAN configuration.

2. Power T110 into Configuration Mode

A . Press and Hold Power [OFF]
B. Press and Hold Power [ON]
C. Release Power [OFF] button
D. Release Power [ON] button

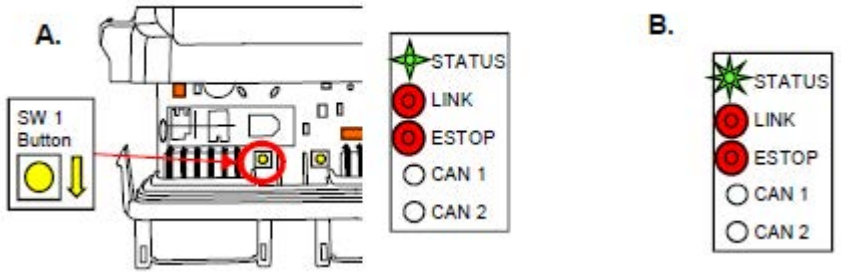




3. Setting R170 into Configuration Mode

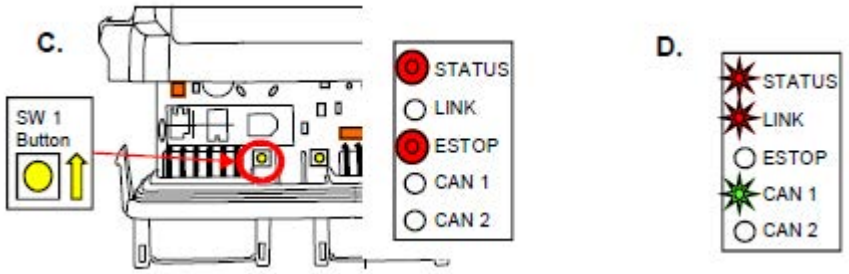
A. Press and hold [SW 1] on the front of the R170

B. Hold [SW 1] until the (Status) light begins to flash GREEN quickly



C. When this occurs, release the button to enter Setup mode.

D. If the [SW1] button is held for more than 10 seconds, the (Status) and (Link) LEDs will rapidly flash RED showing the “stuck switch” indicator.



NOTE: *The R170 will only remain in Setup Mode for 30 seconds. If a transmitter ID is not successfully received during this time, the R170 will exit Setup Mode. The (Status) and (Link) lights will also flash RED to indicate that there was an error downloading the transmitter ID. If this happens try downloading the transmitter ID again as described above. Pressing [SW 1] again will stop the (Status) and (Link) lights from flashing RED.*



Unsuccessful ID download

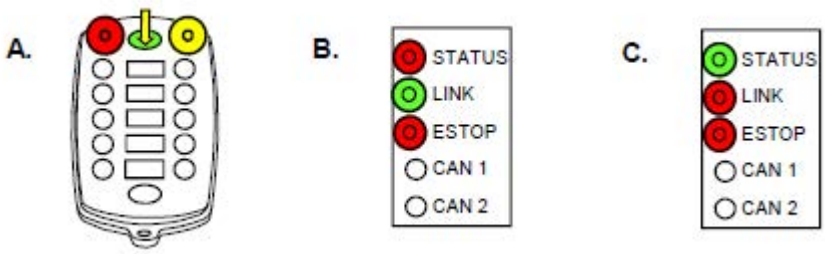
4. Download ID Code

NOTE: *When downloading a new ID to a receiver, a safety feature requires that the transmitter be in close proximity to the receiver. This will prevent a transmitter from accidentally reprogramming a different receiver in the area.*

A. Press Power [ON] button to send code

B. (Link) light goes to GREEN during download.

C. Once complete, (Link) light goes to RED as the transmitter turns off



NOTE: *When replacing the receiver cover, ensure the cover snaps completely into place to create a weather proof seal around the base of the receiver.*

NOTE: *A transmitter ID may be downloaded at anytime even if the R170 already has a valid transmitter ID—the new ID will simply overwrite the previous ID. When the R170 enters Setup Mode, it shuts down the CAN ports and opens the Emergency-Stop Relay, thus disabling normal operations.*

2.15d Changing Start Up and Shutdown Configurations

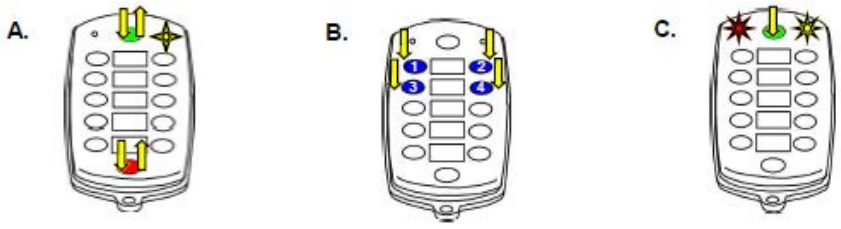
The T110/R170 system has 3 available startup and shutdown modes that can be configured with the following steps.

1. Power T110 into Configuration Mode & Enter Configuration Password

A. Power T110 into configuration mode by following Step #2 from Download ID Code

B. Press function buttons in order 3, 1, 4, 2

C. Press Power [ON] button



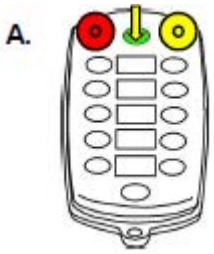
2. Enter Start Up and Shut Down Code

Enter the 10-digit Configuration Code associated with one of the following startup and shutdown modes:

ON / OFF Mode	1188888888	**ON** normal. **OFF** when T110 / R170 link is lost.
Secure Mode	4188888888	ON by entering the "3, 1, 4, 2" password on the T110 and pressing the GREEN [Power] button. **OFF** when T110 / R170 link is lost.
Auto Power Down Mode	5188888888	**ON** normal. **OFF** when T110 / R170 link is lost or after 10 minutes of being idle.

3. Send Code

A. Press Power [ON] button to set code



Once the code has been set, the RED (Battery) light and the YELLOW (Active) light on the transmitter will go out as the transmitter turns off.



2.16 Operating grinder using the T110/R270 Remote Radio Transmitter (for SN 1125045135 and Up)

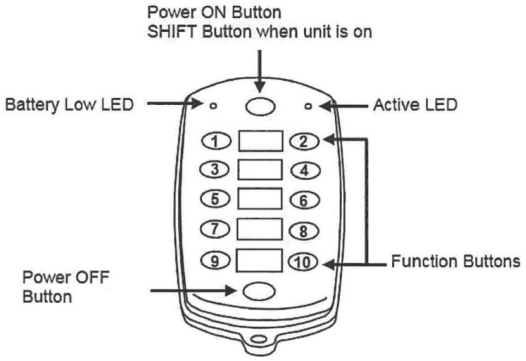
Systems overview

Eaton's **OMNEX Trusted Wireless** remote control system is portable, long range, programmable and designed as a compact and easy-to-use product. This **Trusted Wireless** system puts complete control of your machine where it's needed most, with the operator. It's robust, easy to install and has complete self-diagnostics. This system can be a simple cable replacement or add intelligence to make it a total control package.

The **OMNEX Trusted Wireless T110** RCU uses Frequency Hopping Spread Spectrum (FHSS) technology. FHSS devices concentrate their full power into a very narrow signal that randomly hops from frequency to frequency within a designated band. This transmission pattern, along with CRC-16 error-checking techniques, enables our industrially hardened FHSS signals to overcome interference that commonly affects licensed radios.

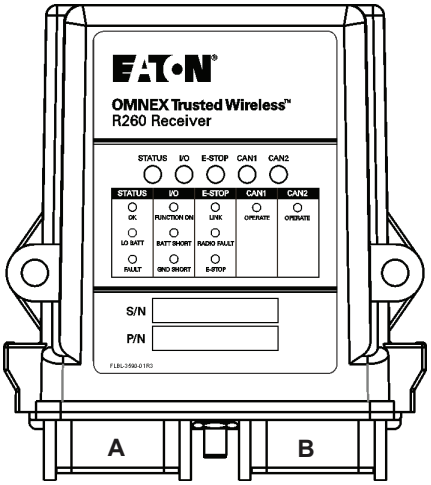
The 12 button **T110** provides the user flexibility to control the functions they need, and is available in both the 900MHz and 2.4GHz frequency bands. The transmitter uses regular alkaline AA batteries. Each **T110** transmitter uses a unique ID code to ensure that no two systems will conflict at a job site.

Figure 2.8
T110 transmitter control buttons



CAUTION: Only clean the buttons or whole remote radio transmitter with a soft cloth lightly dampened with water.

R270 Receiver Status Indicators



The (Status) light is GREEN when in normal operating mode.

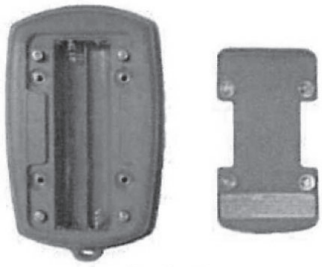
The (I/O) light is GREEN to indicate an output is on.

The (E-Stop) light is RED when there is no radio link and flashing GREEN when valid radio data is received by the R270.

The (CAN 1) and (CAN 2) lights indicate when the respective CAN ports are active.

2.16b Replacing batteries and powering “ON” the remote radio transmitter

The battery compartment is located on the back of the transmitter. Using a slotted screwdriver, remove the battery cover and insert four “AA” batteries. Orientation of the batteries is embossed inside the battery housing.



T110 Battery Housing

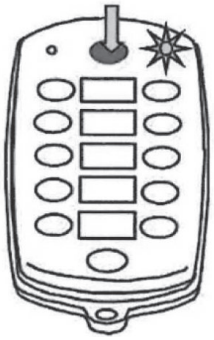
WARNING: When using “AA” batteries do not install backwards, charge, put in fire or mix with other battery types. May explode or leak causing injury. Keep the battery compartment dry to prevent corrosion. **Replace all batteries as a complete set and do not mix and match battery types**.

NOTE: For operation at temperatures below 14°F (-10° C) lithium batteries are recommended. Low temperatures reduce battery performance for both alkaline and lithium types. Refer to the battery manufacture’s specifications for detailed information on low temperature performance.

Turning ON the Transmitter

Refer to the light legend below for diagram details.

1. Press Power [ON]



If the transmitter’s (Active) light does not flash, check the battery orientaion.

Turning OFF the Transmitter

To turn off the transmitter, press the Power (OFF) button.

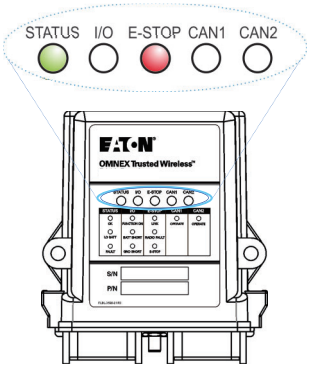
Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

2.16c Test the Transmitter/Base Station Link

Follow these steps to ensure there is a radio link between the transmitter and Base Station. Refer to the Light Legend for diagram details.

1. R270 (Base Station)

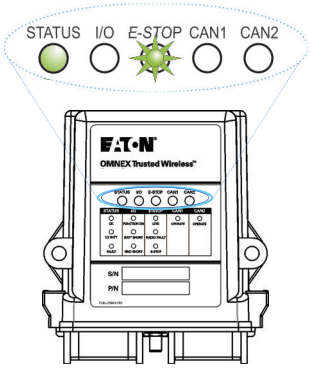
Apply power to the R270 and confirm the light pattern as shown in the diagram on the right.

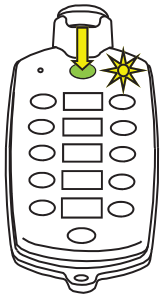


2. Power Transmitter

Press the green ON button to power up the T110 transmitter.

The base station E-STOP light will flash green once a link has been established.





The System is now ready for use.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

Section 3: General Maintenance

SERVICE AND MAINTENANCE



CAUTION: If for any reason arc welding is to be done, always ground cylinder to frame of machine to prevent arcing in bearings.



WARNING: DISCONNECT THE RADIO RECEIVER BEFORE WELDING!
Failure to disconnect will result in destruction of the radio receiver.

1. Before working on or near the H-1135 Tub Grinder for any reason, including servicing, inspecting or unclogging machine:

    a. Run H-1135 Tub Grinder until discharge conveyor is empty, and grind as much of the material in the tub as possible.

    b. Reduce engine speed to idle.

    c. Disengage PTO

    d. Disengage hydraulics.

    e. Place transmission in park and set parking brake.

    f. Shut off tractor engine and remove key.

    g. Wait for all movement to stop.

    h. Disconnect PTO driveline from tractor.

2. When replacing any part on your H-1135 Tub Grinder, be sure to use only DuraTech Industries authorized parts.

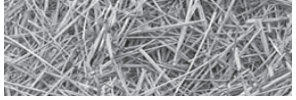
3. Relieve all pressure in the hydraulic system before disconnecting the lines or performing other work on the system. Make sure all connections are tight and the hoses and lines are in good condition before applying pressure to the system.



WARNING: Hydraulic fluid escaping under pressure can be invisible and have enough force to penetrate the skin. When searching for a suspect leak, use a piece of wood or cardboard rather than your hands. If injured, seek medical attention immediately to prevent serious infection or reaction.

4. Visually examine to see if any internal parts show excessive wear. Repair or replace needed parts. These parts include rotor plates and holes in the plates that support the rods. Enlarged holes can cause rods to break.

    Also check rods, rod locking and retaining devices, hammers, screens, screen tracks and hold downs, main shaft, hinges or anything else that could wear and perhaps fail if not properly maintained, and cause



damage to the rotor and/or personnel safety. Check bearing alignment and mounting bolts to insure a firm foundation and reduced vibration.

Keep all foreign objects out of the tub and away from the rotor. Foreign objects may result in personal injury or cause severe damage to hammers, screens, rods, and other parts that will cause rotor failure.

5. Check for loose or worn chains, belts, sprockets and pulleys.

6. Keep sprockets and pulleys aligned.

7. Inspect rotor and all rotating parts for wrapped twine or wire build up.

8. If machine is going to sit idle for an extended period of time, tub floor should be cleaned to prevent rust and sticking problems at start up time.

9. The proper tire pressure is 48 PSI (3.3 BAR).

10. The wheel bearings should be checked for lubrication and adjustments yearly, preferably at the end of the season.

If a generous amount of grease is on the bearing and in the housing, and if the grease is soft, the grease will not need changing.

If the lubricant is caked and the bearing seems dry, wash the bearing to remove old grease. Repack the bearing.

3.1 Lubrication



CAUTION: Follow normal shutdown procedure before adjusting or lubricating.

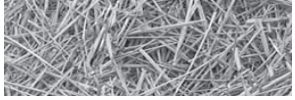
When operating the H-1135 Tub Grinder during cold weather, perform all lubrication after bearings are at operating temperatures.

BEARING LUBRICATION

Bearings operating in the presence of dust and water should contain as much grease as speed will permit, since a full bearing with a slight leakage is the best protection against entrance of foreign material. In the higher speed ranges, too much grease will cause overheating.

High-speed operation, abnormal bearing temperature may indicate faulty lubrication. Normal temperature may range from “cool to warm to the touch” up to a point. Unusually high temperatures “too hot to touch for more than a few seconds” accompanied by excessive leakage of grease indicates too much grease. High temperatures with no grease showing at the seals, particularly if the bearing seems noisy, usually indicate too little grease. Normal temperature and a slight showing of grease at the seals indicate proper lubrication.

The following chart is a general guide for relubrication. Certain conditions may require a change of lubrication periods as dictated by experience.



Lubrication Chart

REF. NO.	LOCATION	NUMBEROF GREASE FITTINGS	FREQUENCY	
1	Jack Shaft Bearings	2	10 hrs.	*
2	Tub Chain Idler Pivot	2	Daily	
3	Rotor Bearings	2	Daily	*
4	Tub Pivot	2	40 hrs.	*
5	Belly Auger Bearings	4	10 hrs.	*
6	Bull Wheel	2	10 hrs.	
7	Discharge Conveyor Bearings	4	40 hrs.	*
8	Discharge Conveyor Lift Pivot	2	40 hrs.	
9	PTO	2	100 hrs	
10	Wheel Bearings	-	Annually	
11	Tub Pressure Roller	-	Sealed	
12	Roller Chains	-	Oil Daily in Dusty Conditions	

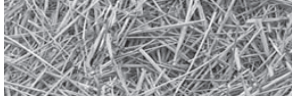


Figure 3.1
rotor bearing lubrication point

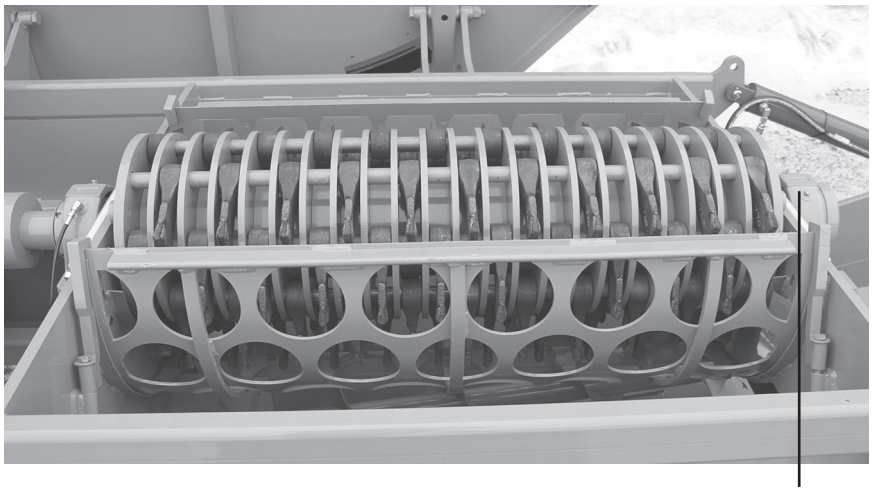
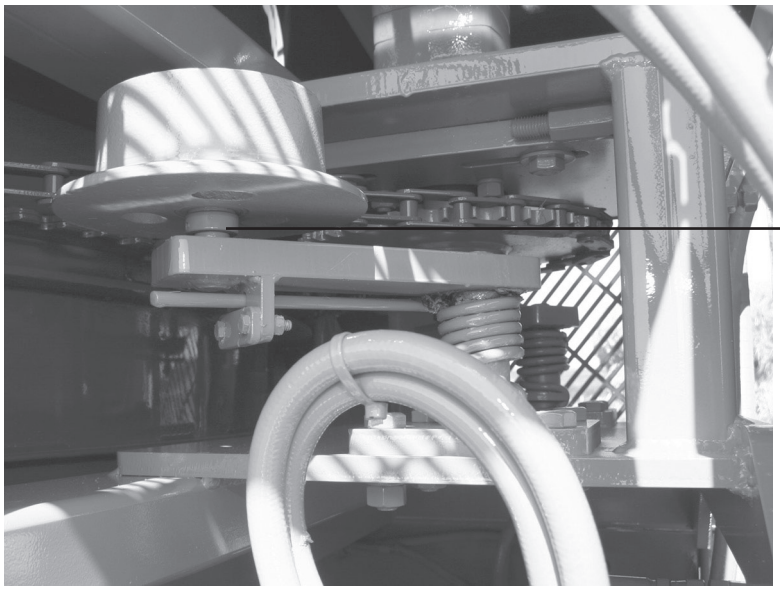


Figure 3.2
belly auger bearing lubrication points and rotor bearing lubrication point



Figure 3.3
tub chain idler pivot lubrication point



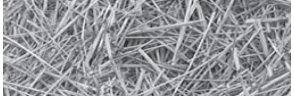


Figure 3.4
jack shaft bearing and bull wheel bearing lubrication points



Figure 3.5
tub pivot lubrication points

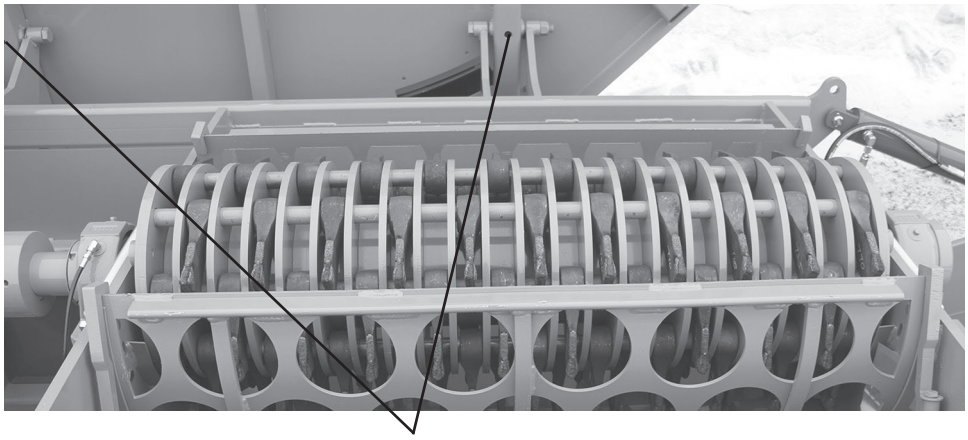
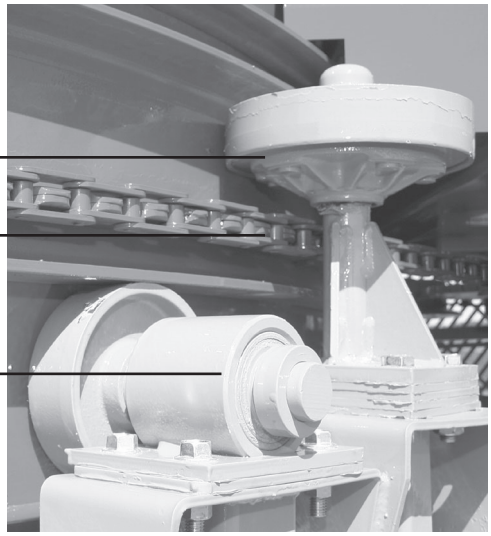


Figure 3.6
tub roller, tub pressure roller and roller chain



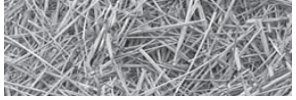


Figure 3.7
PTO lubrication points

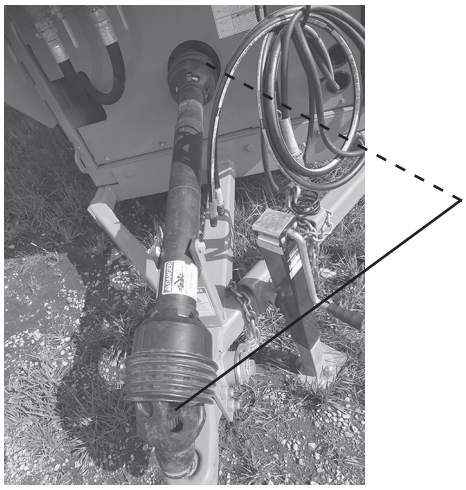


Figure 3.8
discharge conveyor bearings (2 of 4)



Figure 3.9
discharge conveyor bearings lubrication points (2 of 4)

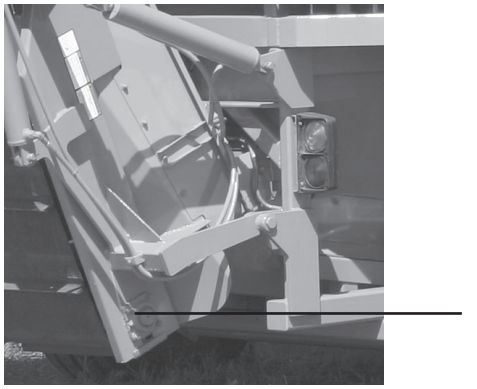
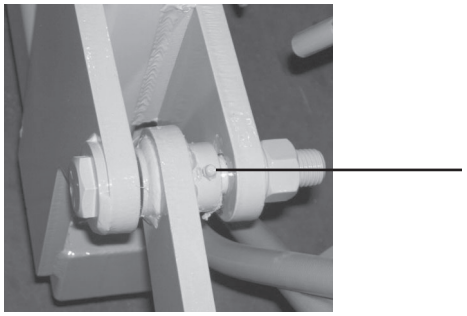


Figure 3.10
conveyor lift pivot lubrication points



3.2 Hydraulic system

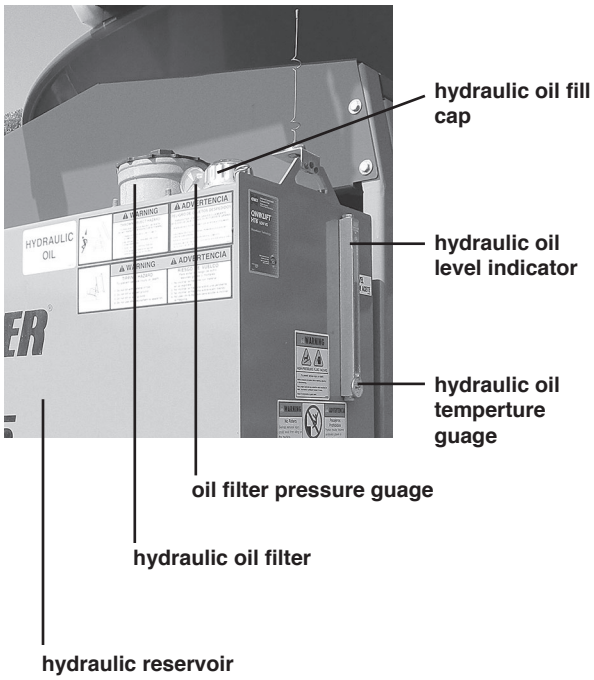
CAUTION: Lack of proper oil level in the reservoir tank will cause system to heat under continuous running. Check the hydraulic oil level daily and replace as necessary.

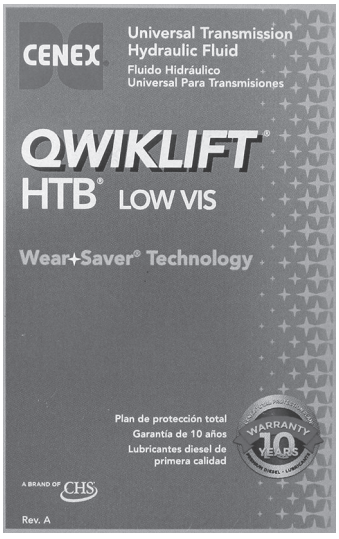
Hydraulic Oil Reservoir Capacity: 60 gallons

All machines have been pre-run at the factory to insure all functions are preforming correctly. The hydraulic reservoir contain approximately 60 gallons of hydraulic oil.

The in tank hydraulic oil filters should be changed after the first 10 hours of operation. Change hydraulic oil and filters after the first 100 hours of operation. Thereafter, change hydraulic oil filters every 500 hours and change hydraulic oil and filters at least every 1000 hours of operation. Change the in tank oil filter if the oil filter pressure gauge indicates a plugged filter

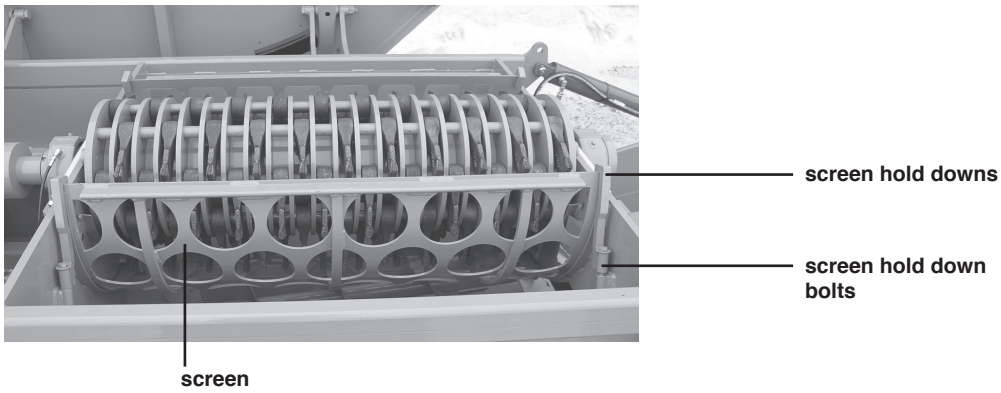
Check the hydraulic oil regularly, and if the oil has a burnt smell or milky appearance, change it immediately.





DuraTech Industries recommends using Cenex Qwicklift HTB LOW VIS if your machine has a Qwicklift decal on the hydraulic tank. Other acceptable fluids include Mobil 423, Farmland Super HTB, Conoco Hydroclear Power Tran Fluid, or other similar fluids. If the hydraulic tank does not have a decal, then all the above fluids are acceptable.

3.3 Screens



CHANGING SCREENS

CAUTION: Keep all foreign objects out of the tub and away from the rotor. Foreign objects may cause personal injury or damage to the machine.

CAUTION: Follow normal shutdown procedure before entering tub to do any service work.

To change screens on the H-1135, perform the following steps:

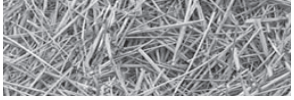
1. Raise the tub platform using the following steps

WARNING: To prevent serious injury or death, do not tilt platform on unlevel ground or with material in the tub.

WARNING: For your protection **ALWAYS** install the tub cylinder stop or tub prop when the tub is tilted. **NEVER** engage tractor PTO when the tub is raised.

   a. Park machine on level ground or surface.
   b. Remove all material from tub.
   c. Clear personnel from work area.
   e. Raise platform.
   f. Install tub cylinder stop.

2. Loosen and remove bolts on the screen hold down.
3. With a large hook or bar, pull the screen from its chamber.
4. Make sure material is clear from screen track.
5. Install the new screen.
6. Replace the screen hold down, and bolts.
7. Tighten all bolts securely.



3.4 Hammermill maintenance

Visually examine the mill to see if any of the internal parts show excessive wear. These parts should include rotor discs and the holes in the discs that support the rods. Enlarged holes can cause rods to break or bend. Also check rods, rod locking or retaining devices, hammers, screens, screen tracks and hold downs, main shaft, platform locking devices, hinges or anything else that could wear and perhaps fail and causing damage to the hammermill and/or personnel safety if not properly maintained. The bearings should also be checked along with mounting bolts to insure a firm foundation and reduced vibration.



CAUTION: Keep all foreign objects out of the tub and away from the mill. Foreign objects may result in personal injury or damage to the machine.

The hammers have been designed and manufactured to provide the best compromise between hardness for good wearing qualities and strength for dependability and resistance to breakage.



WARNING: The hammers have been heat treated, and any alteration of the hammers by heating, grinding, resurfacing or any other process can change the mechanical properties of the hammer and make it unsuitable or dangerous to use.

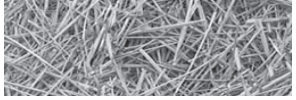
Because of the high capacity of the machine, the hammers will wear and must be considered expendable.

Screens have two cutting edges. When cutting edges become rounded, the screen can be turned end for end exposing the new cutting edges. The results of badly worn hammers and screens is loss of capacity, and added horse power requirements.

Hammer rods are case hardened to maximize wearability and toughness, although hammer rods must be considered expendable.



NOTE: Hammer and hammer rod life can be extended by keeping rotor rotating at 2300 RPM. Over powering or over feeding the rotor will cause the swinging hammers to lay back resulting in excessive wear on both the hammers and the rods.



3.5 Balanced Hammer maintenance and replacement

Important Safety Instructions-Please Read

CAUTION: Before entering tub to do any service work, raise the tub platform following the instructions in **Section 2.7 Raising the Tub Platform**. After raising the tub platform follow procedures 5 thru 8 of the **Normal Shutdown Procedure in Section 2.4.1**.

Any alteration of the hammer by heating, grinding, resurfacing or any other process that can change the mechanical properties of the hammer and make it unsuitable or dangerous.

These hammers are not designed to grind or crush hard materials such as metal, rocks, coal, mineral or other similar materials that can cause hammer failure and should never be allowed to enter the hammermill.

When installing or changing hammers, be sure to follow the directions on the installation diagram. The hammers being installed have been balanced by the rod. Carefully follow instructions. Misplacement could cause excessive vibrations. After installing a new set of hammers watch for unusual or excessive vibration upon start up of the hammermill. If any occurs, immediately shut off the power. Check to see what is wrong and correct it before starting the mill again. Do not mix hammers from two different sets. Hammers are balanced per rod and not per hammer.

Always wear safety glasses when hammers are being installed, changed or removed. Do not hit hammers during any of the above processes. Striking a hammer may cause particles to fly-off and become a safety hazard.

CAUTION: Before entering tub to do any service work, raise the tub platform following the instructions in **Section 2.7 Raising the Tub Platform**. After raising the tub platform follow procedures 5 thru 8 of the **Normal Shutdown Procedure in Section 2.4.1**.

We recommend the following for replacing hammers:

- Always replace hammers in pairs, 180 degress apart. This process is necessary due to the weight difference of the hammers. **(See figure 3.11 Hammer Layout)**

  Having received four boxes of forged hammers for a complete set of (88) H-1135 hammers, each box has two rows of (11) hammers for a total of 22 hammers. Each box is designated with the number of which rods each row of 11 hammers needs to be installed on.

  EXAMPLE: First box should be tagged with 1-5; the first row should go on #1 rod (which you will designate) while the second row in the box should go 180 degrees to the #5 rod. The other three boxes repeat the process the same way on rods: 2-6, 3-7, 4-8 for a total of 8 rods.

To replace the hammers on this machine, perform the following steps:

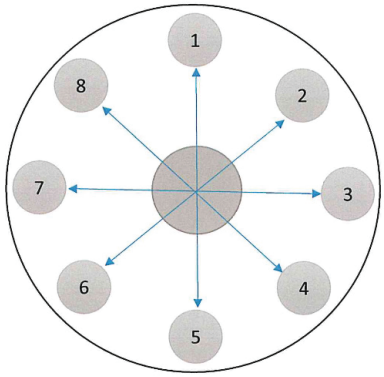
1. Raise the tub platform following the instructions in **Section 2.7 "Raising the tub platform"**.

WARNING: To prevent serious injury of death, do not tilt platform on unlevel ground of with material in the tub.

WARNING: For your protection ALWAYS install the tub cylinder stop on the tub tilt cylinder when tub is tilted. NEVER engage tractor PTO when the tub is raised.

2. Loosen two bolts at the rear of rotor that holds the movable plate in place.
3. Rotate the movable plate to align holes allowing hammer rods to be removed through the rear of rotor.
4. Remove one row of hammers and replace with new hammers, by assembling the 11 new hammers on the rotor from right to left as positioned in the box.
5. Rotate rotor 180 degrees and replace the hammers with the second row of hammers in the box. **(See figure 3.11 Hammer Layout)**
6. Continue steps 4 and 5 until all the hammers have been replaced on all eight rods.
7. After all hammers have been replaced, turn movable plate to lock rods in place and then tighten bolts.
8. When staring the rotor after installing a new set of hammers, watch for unusual or excessive vibration. If any occurs, immediately shut off the rotor. Check to see what is wrong and correct it before starting the rotor again.

Figure 3.11 hammer layout



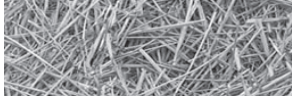
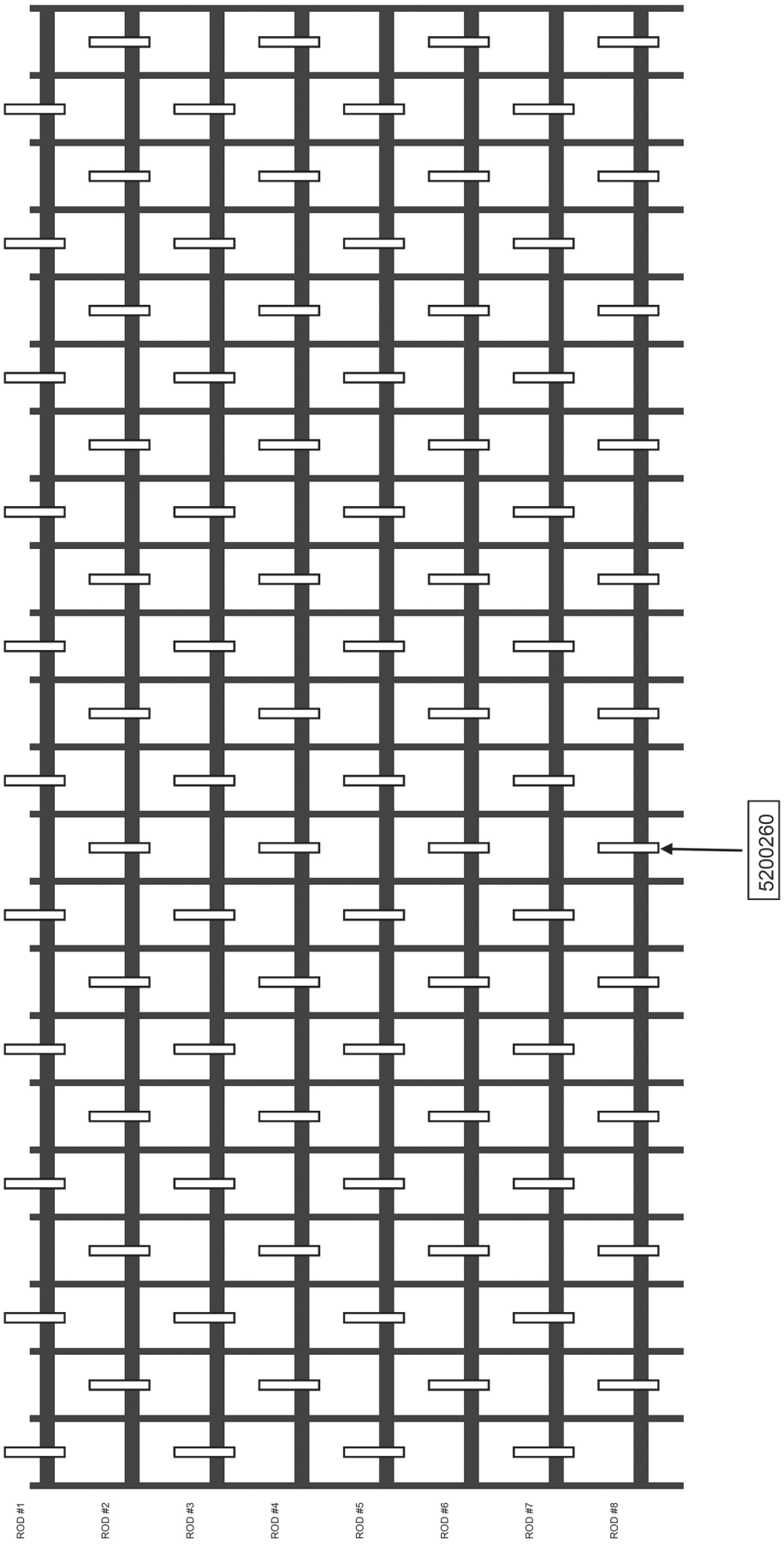


Figure 3.12
hammer spacing chart for the H-1135



3.6 Dodge Rotor bearing installation

WARNING: To ensure the rotor is not unexpectedly started, turn off and lock out or tag the power sources before proceeding. Failure to observe these precautions could result in bodily injury.

NOTE: Bearing housing caps and bases are not interchangeable and must be matched with mating half. Install the non-expansion bearing first.

Instruction Manual For IMPERIAL Adapter Mounted DODGE ISAF

Pillow Blocks and IP Unitized SphericalRoller Bearing Pillow Blocks, Flanges, Piloted Flanges & Take Ups

GENERAL INFORMATION

DODGE ISAF and IP Spherical Roller Bearing mounted units incorporate a unique way of seating, mounting, and dismounting the unit to and from the shaft. The patented sealing system (Pat. #5,908,249) has proven effective in protecting the internal bearing components, due to its constant pressure, while suit allowing a full + or 1 degree of misalignment.. The patented IMPERIAL system (Pat. #5,489.156) pulls the bearing on the adapter based upon a predetermined clockwise rotation of the locknut. Dismounting is accomplished via counterclockwise rotation of the locknut Keep in mind that the thread on the locknut as well as on the adapter is a left hand thread.

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tog power source before proceeding. Failure to observe these precautions could result in bodily Injury.

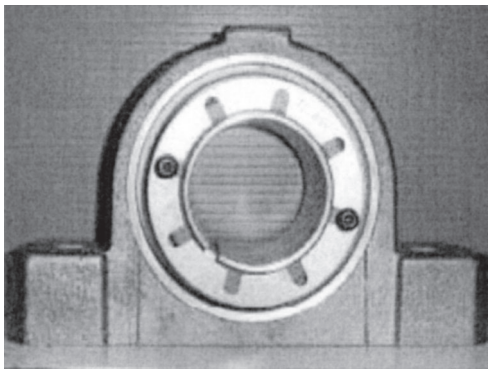
INSPECTION

Inspect shaft Ensure that the shaft is smooth, straight, clean, and within commercial tolerance Inspect unit. Do not allow unit to be exposed to any dirt or moisture.

Keep weight off bearing during mounting via a sling or jacks

WARNING: Because of the possible danger to persons(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided. and are neither provided by Baldor Electric nor are the responsibility of Baldor Electric. This Unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved.

MOUNTING



Picture 1

Install the non expansion unit first.

1. Apply a coating of light oil or other rust inhibitor to the adapter area of the shaft.

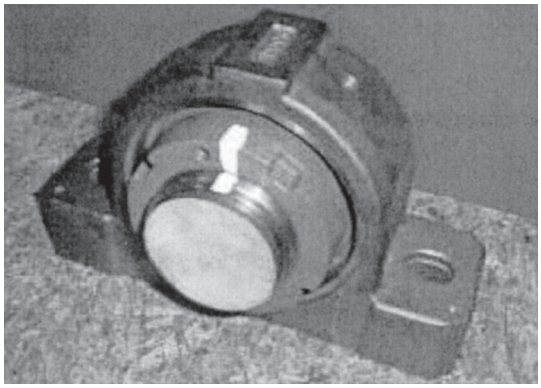
2. Before mounting bearing to shaft, remove lockplate from bearing and turn locknut counterclockwise one to two turns to allow adapter to expand fully. The unit is now shaft ready. Slide the bearing to the desire position on the shaft.

3. Proper locking of this unit to the shaft is based on turning the locknut clockwise 1-1/4 to 1-1/2 turns. The turning of the locknut must start from a "ZERO reference point." This "ZERO reference point' is defined as the point when the clearance between adapter sleeve, shaft and bearing bore has been removed, and all surfaces are in metal to metal contact

3A. To reach the 'ZERO Reference Point," rotate locknut clockwise, using both hands, as tight as possible. Continue to tighten 1-1/4 to 1-1/2 turns.

NOTE: All Weight Must Be Removed From The Bearing When Obtaining The "ZERO Reference Point."

4. Once “ZERO reference point” is reached, scribe a line through both locknut face and adapter face (Picture 2). Then continue to tighten the locknut (Picture 3) by turning it clockwise using hammer and drift or spanner by the appropriate rotation angle shown on Table 1. Proper mounting has been achieved when the scribed line on the locknut has rotated from the scribed line on the adapter face by the angle shown on Table 1. To reach the full rotation of the locknut, the use of hammer blows onto spanner or drift may be needed for proper mounting.



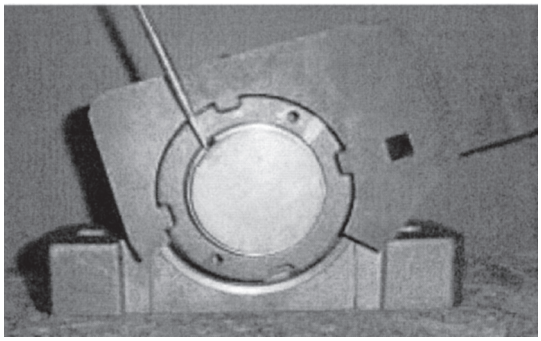
Picture 2

5. a) Slide lockplate over shaft and align tang of lockplate with slot in adapter sleeve.

   b) Find a locknut hole that aligns with a lockplate hole. If the closest locknut hole is beyond a lockplate hole, then tighten, not loosen, the locknut to meet a lockplate hole

   c) Insert lockwasher and tighten button head screws to lock assembly. (Ref. Picture 4)

6. Bolt down pillow block or flange unit to the structure.



Picture 3

7. Repeat steps 1 through 6 for the expansion bearing except immediately after Step 2 do the following:

EXPANSION

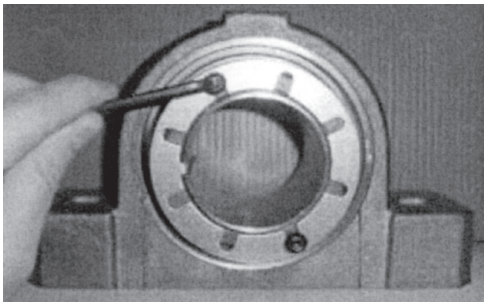
Pillow Blocks (Locknut facing outboard)

Align pillow block housing mounting holes with substructure mounting holes. Position insert in center of travel on rear expanding bearing.

NOTE: This is necessary because in the process of mounting, bearing is being drawn toward locknut. **Also remember to keep weight off of bearing.**

NOTE: Use hardened washers and properly tightened bolts to obtain sufficient clamp force between the bearing block and the mounting structure.

Picture 4

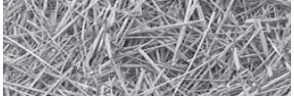


3.7 Cleaning the display unit

NOTE: Do **NOT** use high pressure when cleaning the display screen unit.

Using high pressure washers will cause damage to the display screen and is not covered by warranty.

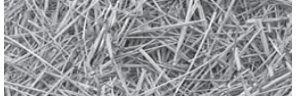




Section 4: Troubleshooting the H-1135

4.1 Control parameters for Electronic Governor

Control Parameter	Value	Value Range	Description
Tub Speed			
Tub Speed Min (mA)	300	0-2,000	Minimum output current to the Tub Speed solenoid coil. The units are in milliamps.
Tub Speed Max (mA)	1,225	0-2,000	Maximum output current to the Tub Speed solenoid coil. The units are in milliamps.
Tub Speed Ramp Up (ms)	2,000	0-10,000	The amount of time the Tub Speed output will ramp from minimum output to maximum output. The units are in milli-seconds.
Tub Speed Ramp Down (ms)	0	0-10,000	The amount of time the Tub Speed output will ramp from maximum output to minimum output. The units are in milli-seconds.
Service			
Speed Input – Pulses Per Rev	15	0-100	Number of gear teeth for the speed sensor target ring.
Rotor Speed Input – Sample Time (ms)	10	0-10,000	Time between each sample the controller takes of the speed input. There are 25 samples the controller averages the signal over.
Tilt Enable Time (sec)	1	0-100	The time delay before the Tilt Enable output turns on after the Rotor Speed equals zero.
Rotor Speed Min Limit	1400	0-3000	The lower RPM limit for the anti-stall feature. When the Engine Load setting is at 100% the anti-stall feature will meter the Tub Speed output down to this RPM.
Set Speed Limit Low RPM	1600	0-3000	The lower RPM limit for the Set Speed button.
Set Speed Limit High RPM	2600	0-3000	The high RPM limit for the Set Speed button.
Conveyor Speed Off Time (ms)	30	0-100	The amount of time the Conveyor will stay ON for after a Speed Sensor fault occurs.
Grind Hours *Only shown in EA1667-E1P REV XX OEM.icf	0	0-65535	Changing this number will change the overall number of Grind Hours the machine has recorded. Take the number of hours and multiply by 10. After changing this number in the value box do not click Flash Parameters, just cycle power to the controller.



4.1A Monitor parameters for Electronic Governor

Monitor Parameter	Description
Rotor RPM	The speed the Rotor is turning.
Grate Height	The height of the grate in inches.
Tub Speed (mA)	The output current to the Tub Speed output. The units are in milliamps.
Tub FWD (0=OFF, 1=ON)	The digital output state of the Tub FWD output.
Tub REV (0=OFF, 1=ON)	The digital output state of the Tub REV output.
Conveyor FWD (0=OFF, 1=ON)	The digital output state of the Conveyor FWD output.
Bypass (0=OFF, 1=ON)	The digital output state of the Bypass output.
Conveyor Raise (0=OFF, 1=ON)	The digital output state of the Conveyor Raise output.
Conveyor Lower (0=OFF, 1=ON)	The digital output state of the Conveyor Lower output.
Conveyor Fold (0=OFF, 1=ON)	The digital output state of the Conveyor Fold output.
Conveyor Unfold (0=OFF, 1=ON)	The digital output state of the Conveyor Unfold output.
Tub Raise (0=OFF, 1=ON)	The digital output state of the Tub Raise output.
Tub Lower (0=OFF, 1=ON)	The digital output state of the Tub Lower output.
Grind Hours	The number of Grind Hours recorded.
Service Hours	The number of Service Hours recorded.
Job Hours	The number of Job Hours recorded.

4.2 Fault Codes

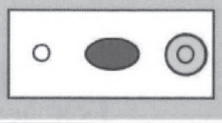
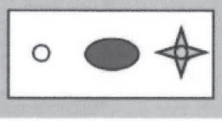
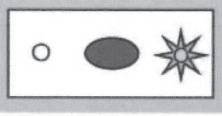
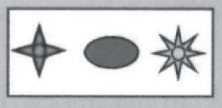
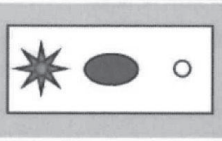
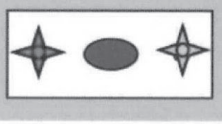
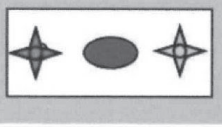
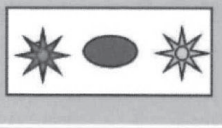
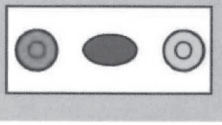
ECU	SPN-FMI	Description
ECU1	701-5	Tub Forward Output: Open or Short to Ground
ECU1	701-6	Tub Forward Output: Short to Battery
ECU1	702-5	Tub Reverse Output: Open or Short to Ground
ECU1	702-6	Tub Reverse Output: Short to Battery
ECU1	703-5	Tub Speed Output: Open or Short to Ground
ECU1	703-6	Tub Speed Output: Short to Battery
ECU1	704-5	Bypass Output: Open or Short to Ground
ECU1	704-6	Bypass Output: Short to Battery
ECU1	705-1	Speed Sensor: Below Normal
ECU1	706-5	Conv Forward Output: Open or Short to Ground
ECU1	706-6	Conv Forward Output: Short to Battery
ECU1	706-5	Conv Raise Output: Open or Short to Ground
ECU1	706-6	Conv Raise Output: Short to Battery
ECU1	707-5	Conv Lower Output: Open or Short to Ground
ECU1	707-6	Conv Lower Output: Short to Battery
ECU1	708-5	Conv Fold Output: Open or Short to Ground
ECU1	708-6	Conv Fold Output: Short to Battery
ECU1	709-5	Conv Unfold Output: Open or Short to Ground
ECU1	709-6	Conv Unfold Output: Short to Battery
ECU1	710-5	Tub Raise Output: Open or Short to Ground
ECU1	710-6	Tub Raise Output: Short to Battery
ECU1	711-5	Tub Lower Output: Open or Short to Ground
ECU1	711-6	Tub Lower Output: Short to Battery

4.3 General Troubleshooting

1. No grinding capacity	1. The screen is plugged. 2. The hammers or screens are badly worn. 3. Materials are too light or fluffy.	1. Clean out the holes in the screen. 2. Replace or turn worn parts. 3. Mix the lighter material with heavier material. 4. Use a larger screen. 5. Use the grapple loader to force feed the material.
2. The tub slows down or turns slowly.	1. The electronic governor is not adjusted properly. 2. The electronic governor system malfunctions. 3. The hydraulic pressure is low.	1. See the sections on the electronic governor in the operations section of this manual. 2. See Troubleshooting the electronic governor in this manual. 3a. Check oil pressure. 3b. Look for internal leakage or wear in the orbit motor or pump.
3. The machine vibrates excessively.	1. A hammer is broken. 2. The rotor bearing is defective. 3. The driveline is worn or misaligned. 4. Foreign material is wrapped in the rotor. 5. The hammer pattern is incorrect.	1. Replace the broken hammer. 2. Replace the rotor bearing. 3. Replace worn part or the complete driveline. 4. Remove the foreign material. 5. See section 3.5 for more information about replacing hammers.
4. The engine looses excessive RPM's before the tub stops.	1. The electronic governor is not adjusted properly.	1. See the sections on the electronic governor in the operations section of this manual.
5. The tub stalls.	1. The tub hydraulic system pressure is set too low. 2. The tub is overloaded due to wet or tough grinding materials. 3. Too much material in the tub. 4. The tub is binding. 5. The hydraulic oil is too hot causing electronic governor valve to bind.	1a. Check oil pressure. 1b. Readjust the pressure relief valve to 2,000 PSI max. 2. Reduce amount of material in tub or shift the hydraulic tub drive to low range. 3. Reduce the amount of material in tub. 4. Remove material buildup between the tub and the platform framework. 5. Reduce the load on the hydraulic system, or stop and allow the hydraulic oil to cool.
6. The hydraulic oil overheats.	1. Pressure relief valve in control valve is faulty. 2. The tub is overloaded. 3. Worn pump, control valve, hyd. motors, etc. 4. Creating excessive heat with discharge conveyor flow control valve.	1. Check oil pressure. 2. Reduce the amount of material in the tub. 3. Rebuild or replace the hydraulic components as necessary. 4. Allow discharge conveyor to run at full speed.

4.4 Troubleshooting the OMNEX Trusted Wireless T110/R170 (for SN up to 1125045035)

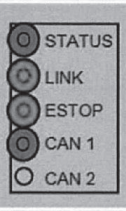
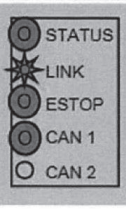
Diagnostics-T110 Transmitter

Indicator Lights	Description	Solution
	Occurs when ever a function is pressed. Will also remain on momentarily on Power Up.	N/A
	Transmitter is in Download mode.	To take it out of Download mode turn transmitter off and turn it back on again.
	Transmitter is in Operating mode.	N/A
	Low Battery.	Change Batteries ***Note:*** *Low batteries will last approximately 8 hours once the Low Battery light begins to flash. Replace batteries during next break.*
	Fast Flash for approx. 10 seconds indicates T110 failure.	Send the unit in for service.
	Stuck button detected.	Toggle the buttons a few times. Call for service. Send the unit in for service.
	**On Power Down** Unit is still powered, likely due to an on function or stuck button.	Toggle the buttons a few times. Call for service. Send the unit in for service.
	Transmitter is in Configuration mode.	To take it out of Configuration mode turn transmitter off and turn it back on again.
	Transmitter is downloading ID Code.	Wait for approximately 5 seconds. Once the download is complete the transmitter will automatically shut off.



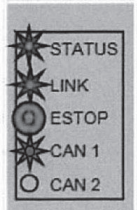
Diagnostics-R170 Receiver

Normal Operation

Indicator Lights	Description
	**Transmitter is OFF** If the transmitter is off, the receiver is operating properly. This will be the status of the receiver after the Download ID procedure as the transmitter automatically shuts off after ID download.
	**Transmitter is ON** When the transmitter is turned on, the Link light (fast flashing) and E-Stop (GREEN) indicates the receiver is operating properly

Trouble Indicators

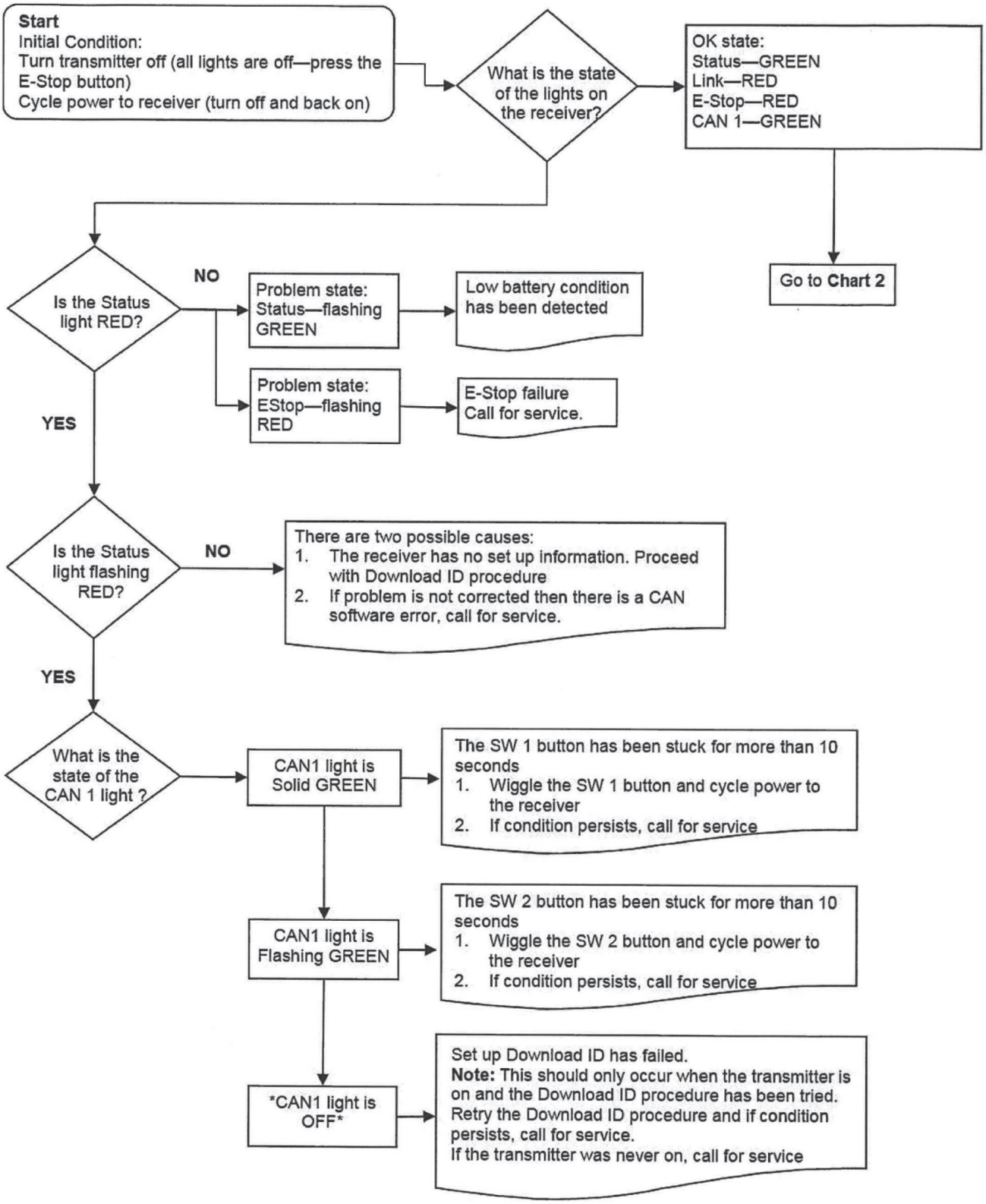
Note: *In some cases, the indicator lights will be different depending on whether the transmitter is on or off. For all cases listed below, the transmitter's status is OFF unless otherwise indicated. Please note the transmitter status in the "Description" column for each case.*

Indicator Lights	Description	Solution	Indicator Lights	Description	Solution
	**Transmitter is OFF** The SW 1 button is stuck for more than 10 seconds *(If the transmitter is on, the LINK light will be OFF)*	Wiggle the button to try and get unstuck. If condition persists, contact customer service.		During normal operation, this may indicate irrecoverable CAN software error or upon power-up, out of the box, the unit has no setup information or setup information is corrupt	Proceed through the Download ID procedure. If this doesn't work contact Customer Service
	**Transmitter is OFF** The SW 2 button is stuck for more than 10 seconds *(If the transmitter is on, the LINK light will be OFF)*	Wiggle the button to try and get unstuck. If condition persists, contact customer service.		Setup download failed.	Try again, no more than a couple of times, or contact customer service.
	**Transmitter is OFF** A low battery condition has been detected.	To detect intermittent conditions caused by poor or corroded ground or power circuits, the GREEN light will continue to flash for		**Transmitter is OFF** E-Stop relay failure *(If the transmitter is ON, the LINK light will be fast flashing GREEN)*	Contact Customer Service



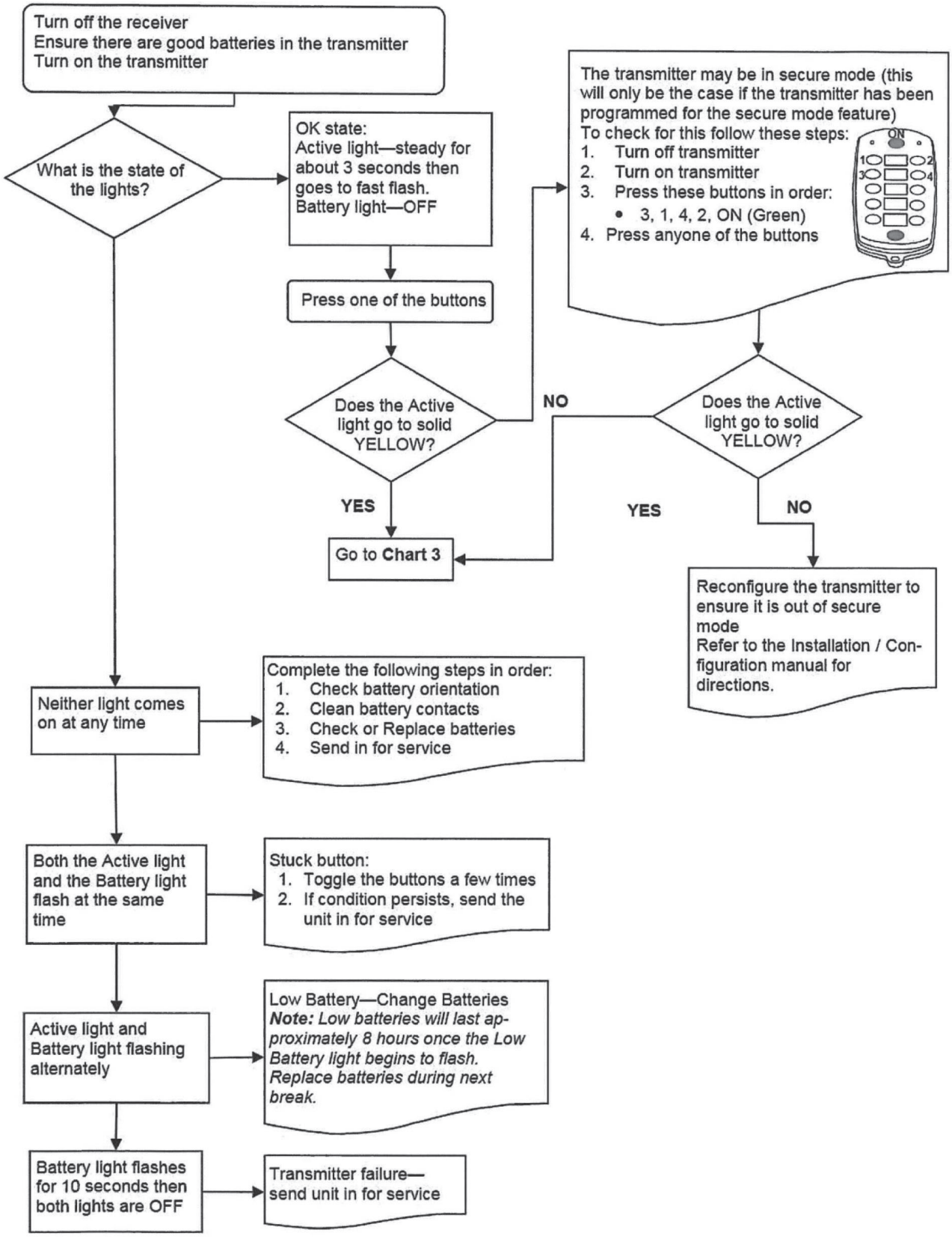
Troubleshooting guide-Chart #1

Test the Receiver—R170



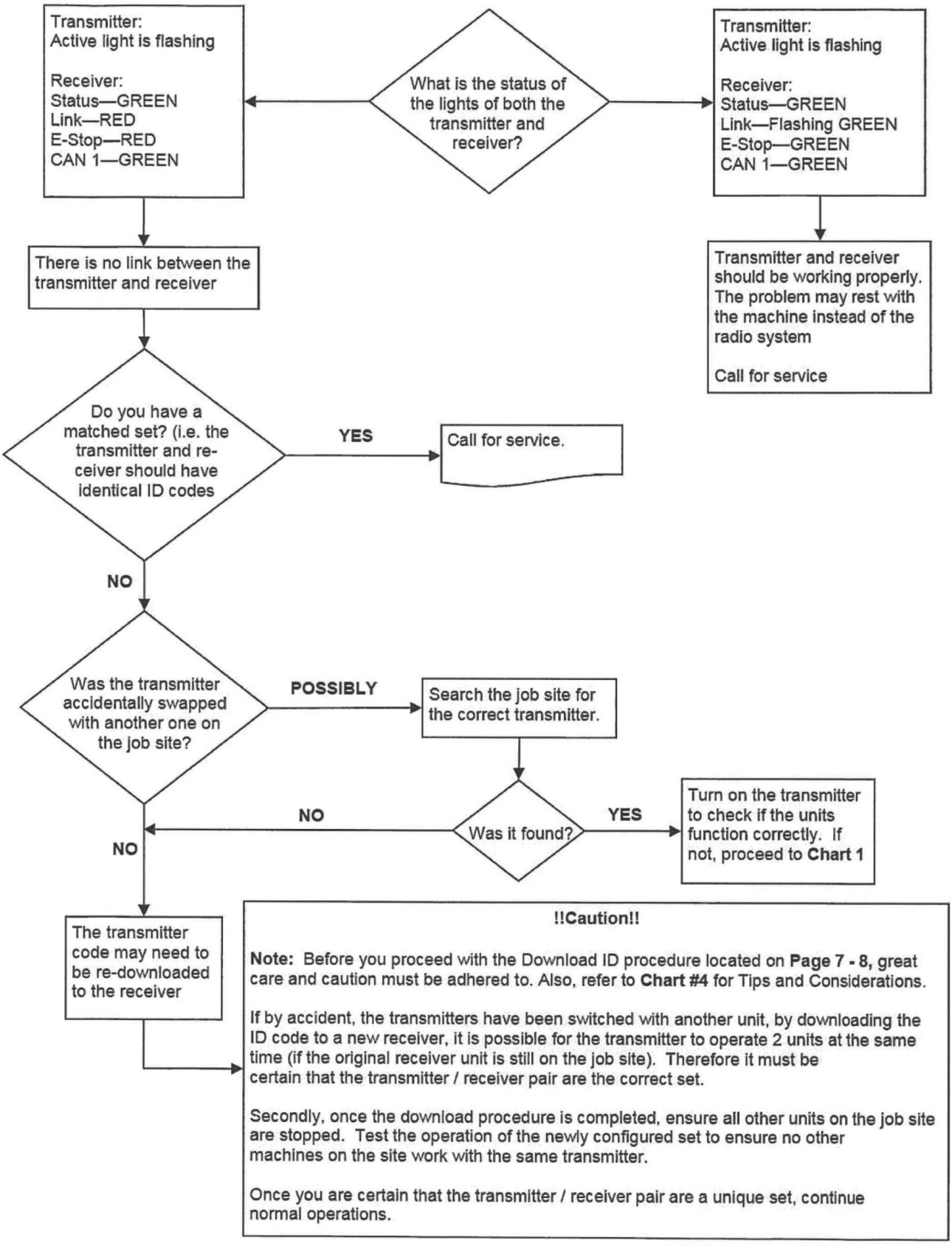
Troubleshooting guide-Chart #2

Test the Transmitter—T110



Troubleshooting guide-Chart #3

Testing the Transmitter / Receiver Communication



Troubleshooting guide-Chart #4

Considerations when Downloading the ID

Potential downloading issues

If testing of the receiver and transmitter both show the system as working (Chart 1 & 2), then the transmitter and receiver will both go into Download/Configuration mode.

Possible issues could arise during Step 4, the download phase of reprogramming. In this case there are 2 symptoms to look for:

1. The Link light on the receiver will not turn GREEN when the power switch is toggled on the transmitter to download
2. The receiver will "time out" indicating that it didn't receive a signal from the transmitter within the 30 seconds from the time the receiver was put into Setup Mode.

If all indications appear normal during the download phase, test the link by turning on the transmitter (note: the transmitter shuts off after transmitting the ID code in Step 4)

1. If the Link light on the receiver doesn't turn GREEN, the receiver didn't receive all of the information that was sent from the transmitter.

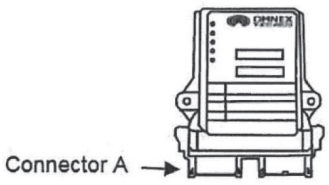
Possible Solutions

1. Try the Downloading steps again
2. If this doesn't correct the problem, send both the transmitter and receiver in for service.

Note: *you could try to determine whether the fault lies with the transmitter or receiver by completing the downloading procedure with a different transmitter. If this step works, then the fault lies with the original transmitter. If not, the fault may lie with the receiver.*

!!Caution!!

Note: Before attempting downloading with another transmitter, understand that reprogramming the receiver with another transmitter, could result in two receivers on the job site responding to the one transmitter. If the original transmitter was sent in for repair, Disconnect the receiver (disconnect connector A) to continue using the machine without remote capability and without fear of inadvertently operating the machine with the other transmitter.

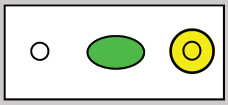
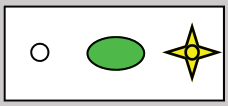
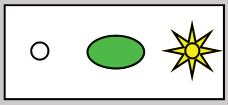
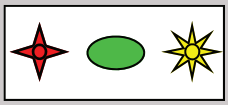
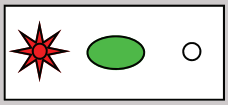
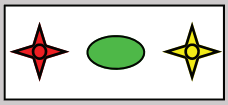
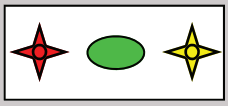
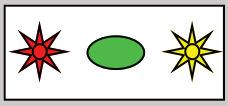
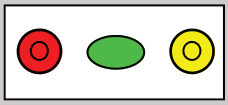


Reprogramming Tips:

1. Use a pointy instrument to depress the Setup button on the receiver (i.e. a pen) as the button is relatively small
2. Follow each step as laid out in the procedure
3. Never lay the receiver circuit board down on anything metallic (there are contact points on the back which could contact the metal and damage the receiver)

4.5 Troubleshooting the OMNEX Trusted Wireless T110/R270 (for SN 1125045135 & Up)

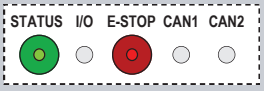
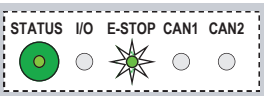
Diagnostics - T110 Transmitter

Indicator Lights	Description	Solution
	Occurs when ever a function is pressed. Will also remain on momentarily on Power Up.	N/A
	Transmitter is in Download mode.	To take it out of Download mode turn transmitter off and turn it back on again.
	Transmitter is in Operating mode.	N/A
	Low Battery.	Change or Recharge Batteries ***Note:*** *Low batteries will last approximately 8 hours once the Low Battery light begins to flash.*
	Fast Flash for approx. 10 seconds indicates T110C failure.	Send the unit in for service.
	Stuck button detected.	Toggle the buttons a few times. Call for service. Send the unit in for service.
	**On Power Down** Unit is still powered, likely due to an on function or stuck button.	Toggle the buttons a few times. Call for service. Send the unit in for service.
	Transmitter is in Configuration mode.	To take it out of Configuration mode turn transmitter off and turn it back on again.
	Transmitter is downloading ID Code.	Wait for approximately 5 seconds. Once the download is complete the transmitter will automatically shut off.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

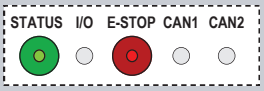
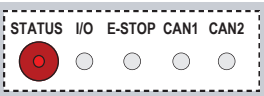
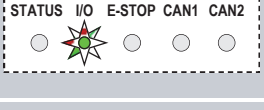
Diagnostics-R270 Receiver

Normal Operation

	**RCU is OFF** If the RCU is off, the Base Station is operating properly.
	**RCU is ON** When the RCU is turned on, the Status light (GREEN) and E-STOP light (fast flashing) indicate the Base Station is operating properly
	**RCU is ON in Operation** When a function is activated on the RCU, the I/O light will turn on GREEN. This indicates the Base Station is operating properly
	**RCU is OFF** When a latched function is activated and then the RCU is turned off, the IO light stays on GREEN. If the system was intentionally designed this way, the Base Station is operating properly, if not call for service.
	**RCU is ON or OFF** Activity on CAN a channel. Light is on when CAN is running and will flash whenever a message is received or sent. Light is off when CAN is *not* initialized or disabled.

Trouble Indicators

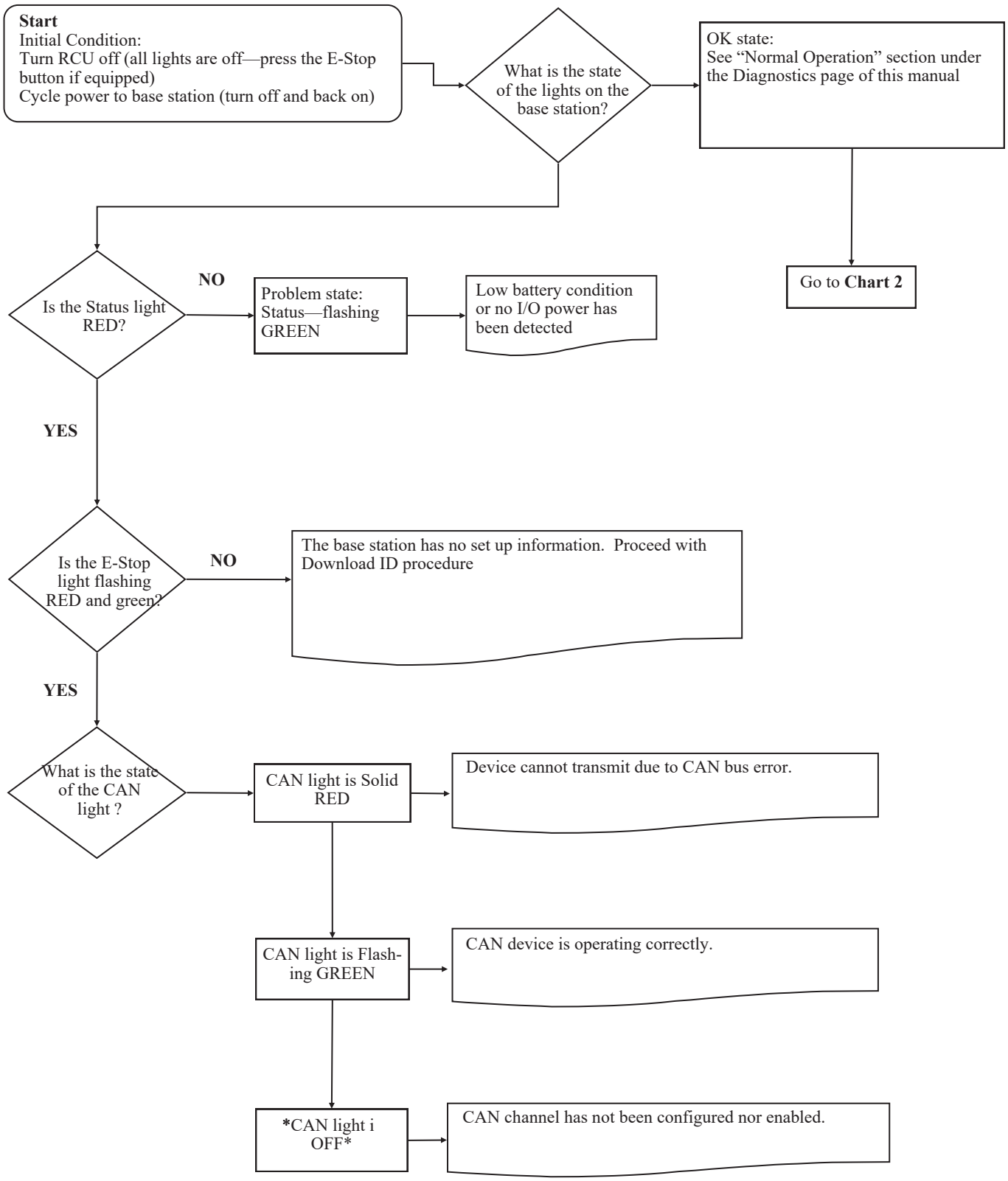
Note: *In some cases, the indicator lights will be different depending on whether the RCU is on or off. Please note the RCU status in the "Description" column for each case.*

Indicator Lights	Description	Solution
	**RCU is ON** The reason is the RCU is not communicating with the Base Station.	Refer to **Troubleshooting Chart #3** for solutions
	**RCU is ON or OFF** Internal fault or blown output fuse.	Cycle power on the Base Station. Refer to **Troubleshooting Chart #1** for solutions. If the problem persists then contact Eaton eMobility Wireless service providing part and serial number.
	**RCU is ON** A short to ground or excessive current draw on an output. Likely caused by a wiring fault.	Ensure RCU is functioning properly, check status of each output connection: Activate each circuit in turn and observe Status Light. • If GREEN, circuit is OK. • If RED, there is a short in the wiring.
	**RCU is ON** A short to battery has occurred. Likely caused by a wiring fault.	Ensure RCU is functioning properly, check status of each output connection: Activate each circuit in turn and observe Status light. • If GREEN, circuit is OK. • If RED, there is a short in the wiring.
	**RCU is ON or OFF** CAN channel 1 is in fault.	Verify that the CAN 1 network is wired correctly. Check for; breaks, shorts, and network termination. If problem persists then contact Eaton eMobility Wireless service providing part & serial number.
	**RCU is ON or OFF** CAN channel 2 is in fault.	Verify that the CAN 2 network is wired correctly. Check for; breaks, shorts, and network termination. If problem still persists then contact Eaton eMobility Wireless service providing part & serial number.

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

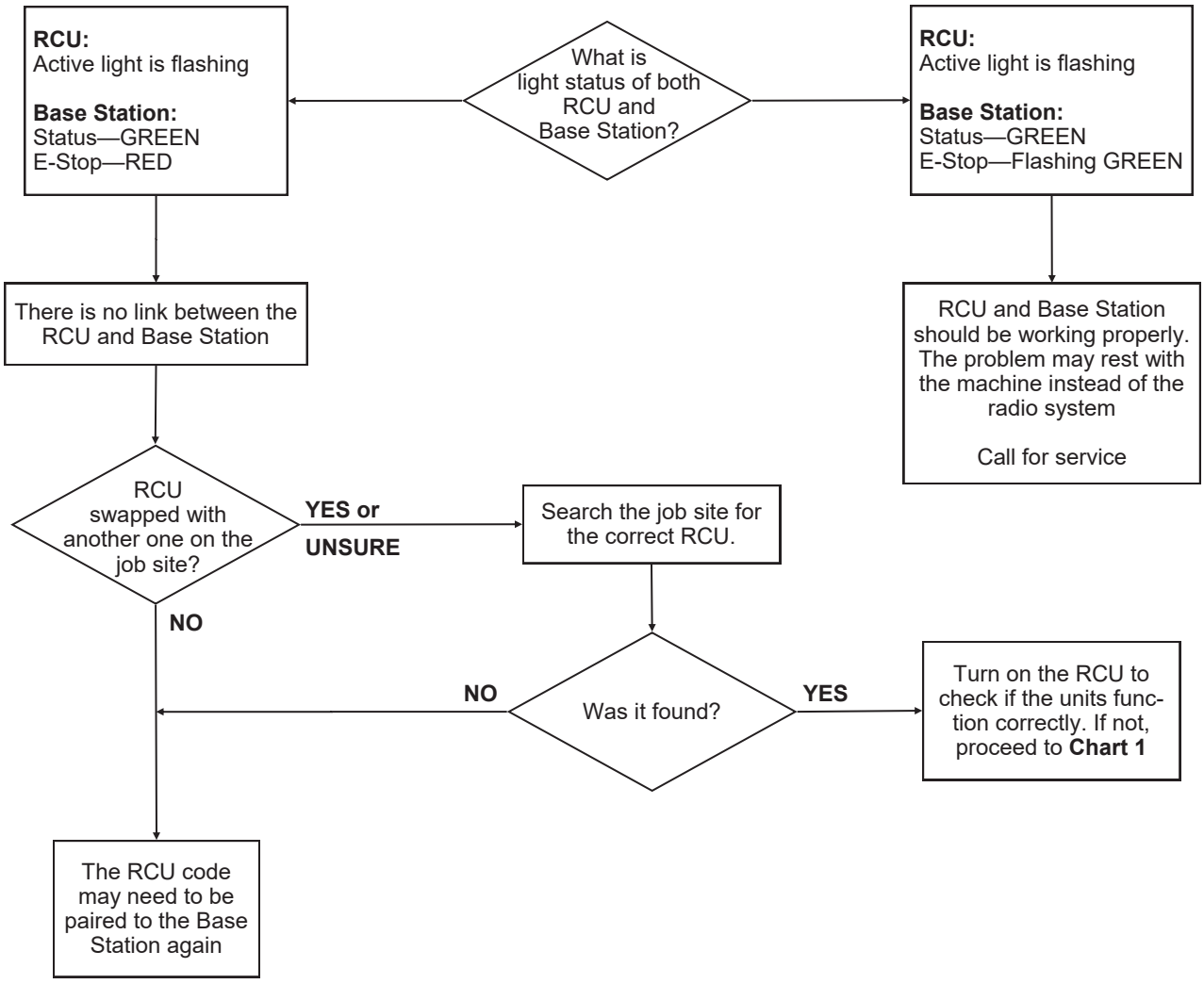
Troubleshooting guide - Chart #1 for the R270

Test the Base Station—R270



Troubleshooting guide - Chart #2 for the R270

Testing the Transmitter / Base Station Communication



Troubleshooting Guide - Continued for the R270

Considerations when Pairing

Potential Issues

If testing of the RCU and Base Station both show the system as working (Chart 1 & 2), then the RCU and Base Station will both go into Pairing/Service mode.

Possible issues could arise during Step 3, the teaching phase of pairing. In this case there are 2 symptoms to look for:

1. The Link light on the Base Station will not turn GREEN when the power switch is toggled on the RCU to download
2. The Base Station will “time out” indicating that it didn’t receive a signal from the RCU within the 30 seconds from the time the Base Station was put into Pairing Mode.

If all indications appear normal during the pairing phase, test the link by cycling power on the RCU (note: the RCU remains in service mode after pairing in Step 3).

1. If the Link light on the Base Station doesn’t turn GREEN, the Base Station didn’t receive all of the information that was sent from the RCU.

Possible Solutions

1. Try the Downloading steps again
2. If this doesn’t correct the problem, send both the RCU and Base Station in for service.

NOTE: If possible try to determine whether the fault lies with the RCU or Base Station by completing the reprogramming procedure with a different RCU. If this step works, then the fault lies with the original RCU. If not, the fault may lie with the Base Station.

Reprogramming Tips:

1. Be patient and deliberate when pressing the Power and E-Stop buttons in the correct order during power up in Service Mode.
2. Use a blunt pointed instrument to depress the Setup button on the Base Station (i.e. a pen) as the button is relatively small.
3. Follow each step as laid out in the procedure.
4. Never lay the Base Station circuit board down on anything metallic (there are contact points on the back which could contact the metal and damage the Base Station).

Troubleshooting Guide - Chart #1 for the T110

Test the Transmitter—T110

Turn off the Base Station.
Ensure there are good/charged batteries in the transmitter
Turn on the transmitter

What is the state of the lights?

OK state:
Active light—steady for about 3 seconds then goes to fast flash.
Battery light—OFF

Press one of the buttons

Does the Active light go to solid YELLOW?

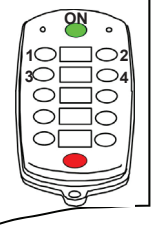
YES

Go to **Chart 2**

NO

The transmitter may be in secure mode (this will only be the case if the transmitter has been programmed for the secure mode feature)
To check for this follow these steps:

1. urn off transmitter
2. Turn on transmitter
3. Press these buttons in order:
   - 3, 1, 4, 2, ON (Green)
4. Press anyone of the buttons



Does the Active light go to solid YELLOW?

YES

NO

Reconfigure the transmitter to ensure it is out of secure mode
Refer to the Installation / Configuration manual for directions.

Neither light comes on at any time

Complete the following steps in order:

1. Chec battery orientation
2. Clean battery contacts
3. Check, Recharge or Replace batteries
4. Send in for service

Both the Active light and the Battery light flash at the same time

Stuck button:

1. Toggle the buttons a few times
2. If condition persists, send the unit in for service

Active light and Battery light flashing alternately

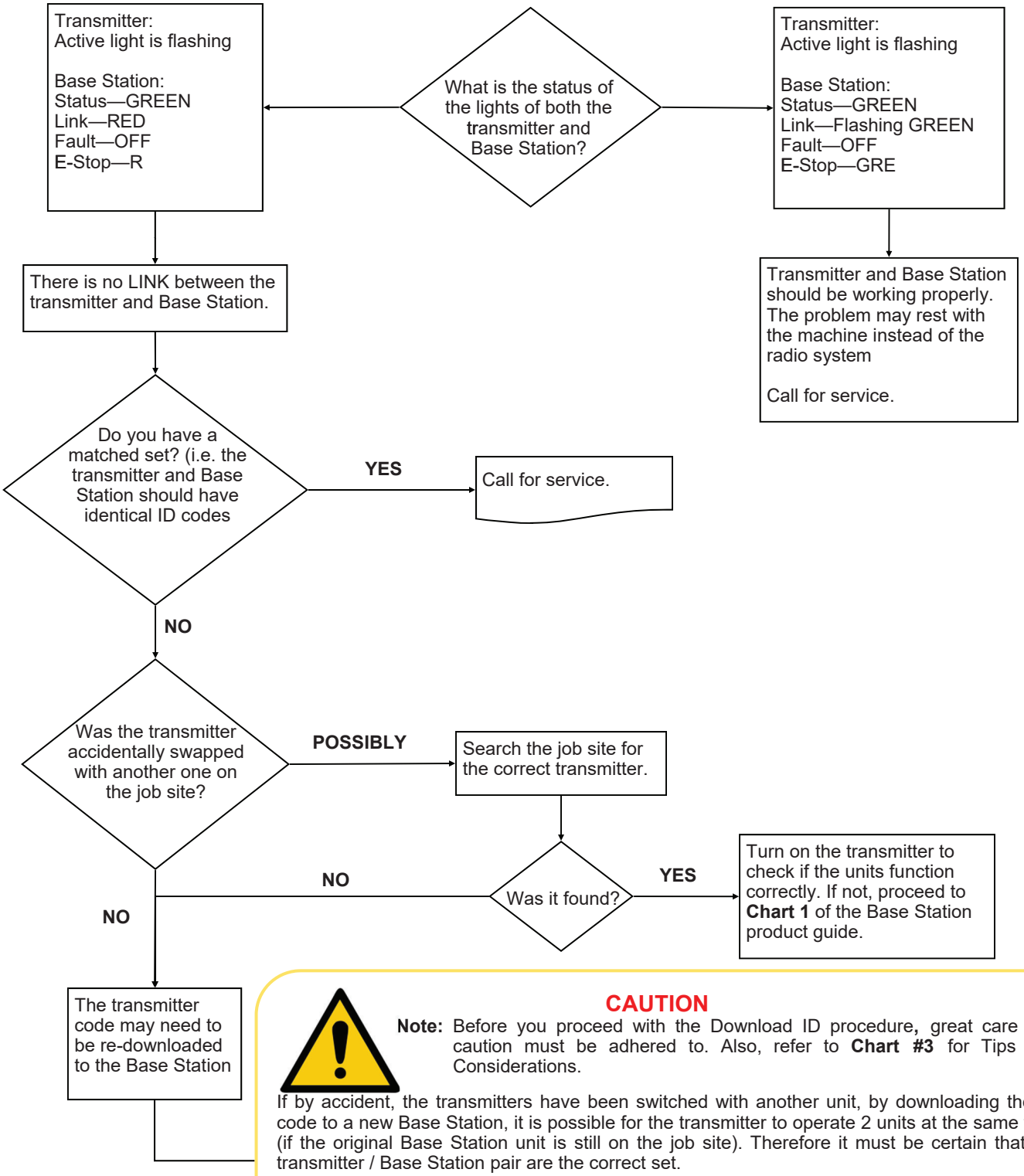
Low Battery—Change/Recharge Batteries
Note: *Low batteries will last approximately 8 hours once the Low Battery light begins to flash.*
Replace or charge the batteries during next break.

Battery light flashes for 10 seconds then both lights are OFF

Transmitter failure—send unit in for service

Troubleshooting Guide - Chart #2 for the T110

Testing the T110/ Base Station Communication



CAUTION

Note: Before you proceed with the Download ID procedure, great care and caution must be adhered to. Also, refer to **Chart #3** for Tips and Considerations.

If by accident, the transmitters have been switched with another unit, by downloading the ID code to a new Base Station, it is possible for the transmitter to operate 2 units at the same time (if the original Base Station unit is still on the job site). Therefore it must be certain that the transmitter / Base Station pair are the correct set.

Secondly, once the download procedure is completed, ensure all other units on the job site are stopped. Test the operation of the newly configured set to ensure no other machines on the site work with the same transmitter.

Once you are certain that the transmitter / Base Station pair are a unique set, continue normal operations.

Troubleshooting Guide - Chart #3 for the T110

Considerations when Downloading the ID

Potential downloading issues

If testing of the transmitter and Base Station both show the system as working (Chart 1 of this and the Base Station product guides), then the transmitter and Base Station will both go into Download/Configuration mode.

Possible issues could arise during Step 4, the download phase of reprogramming. In this case there are 2 symptoms to look for:

1. The Link light on the Base Station will not turn GREEN when the power switch is toggled on the transmitter to download.
2. The Base Station will "time out" indicating that it didn't receive a signal from the transmitter after 30 seconds from the time the Base Station was put into Setup Mode.

If all indications appear normal during the download phase, test the link by turning on the transmitter (note: the transmitter shuts off after transmitting the ID code in Step 4)

1. If the Link light on the Base Station doesn't turn GREEN, the Base Station didn't receive all of the information that was sent from the transmitter.

Possible Solutions

1. Try the Downloading steps again.
2. If this doesn't correct the problem, send both the transmitter and Base Station in for service.

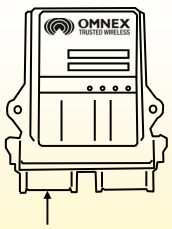
Note: *You could try to determine whether the fault lies with the transmitter or Base Station by completing the Reprogramming procedure with a different transmitter. If this step works, then the fault lies with the original transmitter. If not, the fault may lie with the Base Station.*

CAUTION



Before attempting reprogramming with another transmitter, understand that reprogramming the Base Station with another transmitter could result in two Base Stations on the job site responding to the one transmitter.

If the original transmitter was sent in for repair, disconnect the Base Station (disconnect connector A) to continue using the machine without remote capability and without fear of inadvertently operating the machine with the other transmitter.



Connector A

Reprogramming Tips:

1. Be patient and deliberate when pressing the Power and E-Stop buttons in the correct order during power up in Configuration mode.
2. Use a pointed instrument to depress the Setup button on the receiver (i.e. a pen) as the button is relatively small.
3. Follow each step as laid out in the procedure.
4. Never lay the receiver circuit board down on anything metallic (there are contact points on the back which could contact the metal and damage the Base Station).

4.6 Pairing Instructions for the T110 Transmitter and the R270 Base Station

Pairing

This function allows you to pair a RCU with an R270 Base Station. Pairing is required to teach a RCU's unique configuration to a Base Station. Once complete the Base Station is capable of establishing a two-way radio link with a unique RCU.

Pairing is a three step process:

1. Prepare the RCU.
2. Prepare the R270 Base Station.
3. Start Pairing.

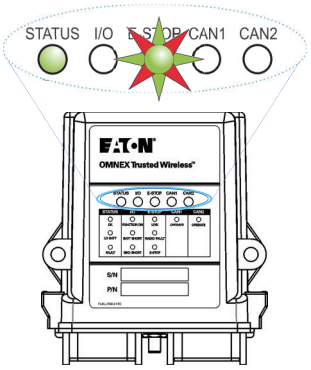
NOTE: It is necessary to associate the RCU to Base Station when replacing either the RCU or Base Station

1. Prepare the RCU

Place the RCU into its respective Pairing mode. **Do not** yet press the pairing button.

2. Prepare the R270 Base Station

Prepare the R270 Base Station using the RCU's rear-mounted magnet.



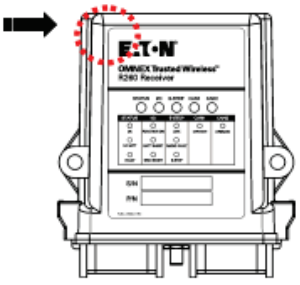
2.1. Power R270 Base Station

Supply power to the R270 Base Station. The Base Station is ready when its lights are as follows:

Status: solid green
E-Stop: red & green alternating

2.2. Initiate R270 Pairing Mode

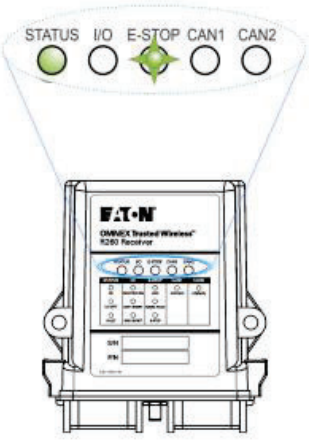
A. Maneuver the T110 remote so that its magnet is placed over the top left corner of the R270.



Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

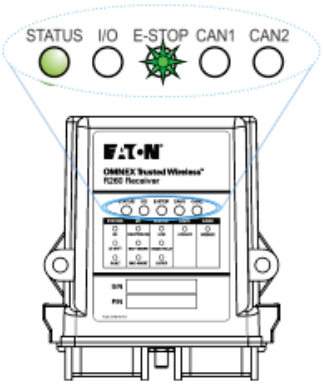
B. Adjust the position of the remote until the R270 E-Stop light slowly flashes green.

B.



C. Remove the remote when the R270 E-Stop light starts flashing green quickly.

C.



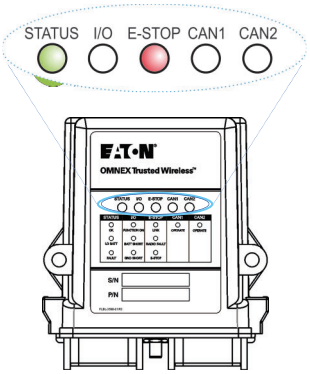
NOTE: If the R270 is left in Pairing Mode and idle for over 30 seconds, the R270 will time out. The E-Stop light will turn red after Pairing Mode times out. To return to Pairing Mode, repeat step 2.2.

3. Pairing

Follow these steps to ensure there is a radio link between the transmitter and Base Station. Refer to the Light Legend for diagram details.

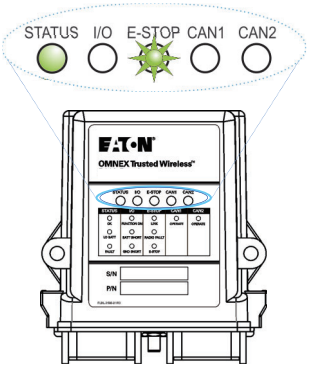
3.1 R270 (Base Station)

Apply power to the R270 and confirm the light pattern as shown in the diagram on the right.



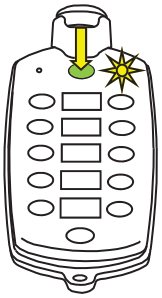
Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

3.2. Power Transmitter



Press the green ON button to power up the T110 transmitter.

The base station E-STOP light will flash green once a link has been established.



> ***NOTE:*** *The transmitter will shut itself off (and the Base Station will then shut off all outputs) after a factory configurable duration of inactivity as a battery saving feature. Momentarily operating any button on the transmitter, including the [Power] button will restart the idle countdown timer.*

The System is now ready for use.

If the Base Station's link light does not become GREEN follow the steps under **4.6 Download ID Code**.

4.7 Download ID Code (Use in case of Link Test failure)

Follow these steps to download the transmitter's unique ID Code into the Base Station. This will allow the Base Station to establish a radio link with a specific transmitter. Refer to **Troubleshooting Chart #3** for Tips and Considerations

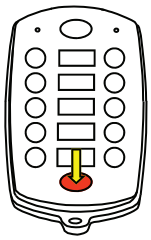
NOTE: *It is necessary to download the ID Code when replacing either the transmitter or the Base Station.*

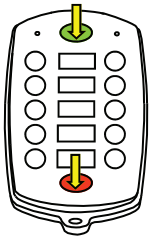
1. Power the Base Station

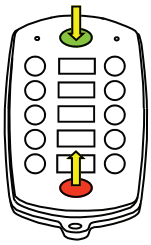
Supply power to the Base Station.

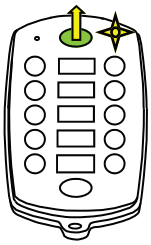
2. Power T110 into Configuration Mode

A. Press and Hold Power [OFF]
B. Press and Hold Power [ON]
C. Release Power [OFF] button
D. Release Power [ON] button

A. 

B. 

C. 

D. 

Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light

3. Downloading a Single Transmitter ID

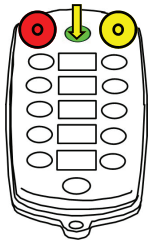
Place the Base Station into the Setup Mode for the Primary ID.

Notes: 1. Downloading the Primary ID will clear all other IDs already downloaded into that Base Station.

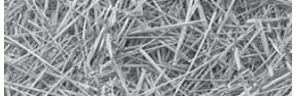
2. If left idle in Setup Mode for over 30 seconds, the Base Station will time out. To return to Setup Mode, repeat steps #2 and #4.

4. Send Code

1. Press the Power [ON] button to send code.
2. Once the ID Code has been downloaded, the RED (Battery) light and the YELLOW (Active) light on the transmitter will go out.



Light Legend	Solid	Slow Flash	Fast Flash	Red Light	Green Light	Yellow Light	Alternating Red & Green Light



Appendix A: Warranty

DuraTech Industries International Inc. warrants to the original purchaser for 12 months from purchase date that this product will be free from defects in material and workmanship when used as intended and under normal maintenance and operating conditions. This warranty is limited to the replacement of any defective part or parts returned to our factory in Jamestown, North Dakota, USA, within thirty (30) days of failure.

This warranty shall become void if in the judgment of DuraTech Industries International, Inc. the machine has been subject to misuse, negligence, alterations, damaged by accident or lack of required normal maintenance, or if the product has been used for a purpose for which it was not designed.

All claims for warranty must be made through the dealer which originally sold the product and all warranty adjustments must be made through same.

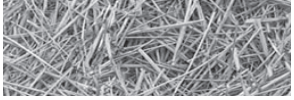
This warranty does not apply to tires or bearings or any other trade accessories not manufactured by DuraTech Industries International Inc. Buyer must rely solely on the existing warranty, if any, of these respective manufacturers.

DuraTech Industries International Inc., shall **not** be held liable for damages of any kind, direct, contingent, or consequential to property under this warranty. DuraTech Industries International Inc., cannot be held liable for any damages resulting from causes beyond its control. DuraTech Industries International Inc., shall **not** be held liable under this warranty for rental costs or any expense or loss for labor or supplies.

DuraTech Industries International Inc., reserves the right to make changes in material and/or designs of this product at any time without notice.

This warranty is void if DuraTech Industries International Inc. does not receive a valid warranty registration card at its office in Jamestown, North Dakota, USA, within 10 days from date of original purchase.

All other warranties made with respect to this product, either expressed or implied, are hereby disclaimed by DuraTech Industries International Inc.



Appendix B: H-1135 Specifications

Weight ..... 14,500 lbs. (6,577.1 kg)
Width at Flare ..... 11 ft 4 in. (3.54 m)
Loading Height ..... 9 ft 2 in (2.79 m)
Transport Height..... 10 ft 7 in (3.2 m)
Transport Length ..... 21 ft 8 in (6.6 m)
Wheels ..... Drop center rims, Tapered roller bearings
Bearings ..... All standard size, grease sealed
Recommended Tire Size ..... 445/50R 225 (20 ply)
Recommended Cylinder Speed ..... 2300 rpm

Capacity ..... Hay - up to 40 tons/hr.
..... Ear corn - up to 800 Bu/hr.
..... Grain and shelled corn -Up to 3400 Bu/hr.

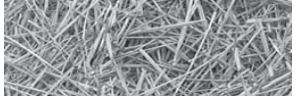
Rotor - Std No. of Hammers 88
Hammer Size ..... 2-1/2" x 7-3/4" x 1/2" (6 cm x 20 cm x 1 cm)
Rotor - Shaft diameter ..... 3-1/2 in. (9 cm) stress proof steel
Rotor Size ..... 50 in. long, 26 in. diameter with hammers extended
Screen Area ..... 2,781 sq. in. (17,942 sq. cm.)
Screens Available (inches) ..... 1/8, 3/16, 1/4, 3/8, 1/2, 5/8, 3/4, 1, 1-1/2, 2, 3, 4,5, 6, 7, 8 Round holes. 2,3,4 Slotted Holes

Feed Delivery ..... 26 ft. folding rubber belt conveyor w/cleats 24 in. Wide
Tub size ..... 8'-11" (2.72 m) ID
Tub Depth ..... 4 ft 2 in. (1.27 m)
Tub Drive ..... Electro-Hydraulic

Options

AVAILABLE OPTIONS FOR DURATECH INDUSTRIES H-1135 TUB GRINDER:

- Ear Corn Kit
- Geyser Plate
- Grain Grinding Hopper
- Mill Grate / Slugbar Combination
- Various Screens Sizes
- Material Guide



Appendix C: Required for operation

Tractor - 200 to 315 hp

1000 RPM PT0 Shaft

Dual Hydraulics, double acting control valve, 8 GPM, 1500 psi (30.31 lpm x 10,345 Kpa)

See also Section 2.3.1, Tractor Set Up.



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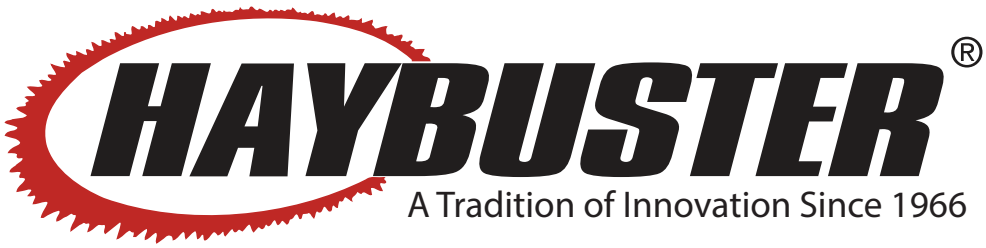
H-1135™
PTO Driven Tub Grinder

Parts Reference

DuraTech Industries International Inc. (DuraTech Industries) has made every effort to assure that this manual completely and accurately describes the operation and maintenance of the H-1135 PTO Driven Tub Grinder™ as of the date of publication. DuraTech Industries reserves the right to make updates to the machine from time to time. Even in the event of such updates, you should still find this manual to be appropriate for the safe operation and maintenance of your unit.

This manual, as well as materials provided by component suppliers to DuraTech Industries are all considered to be part of the information package. Every operator is required to read and understand these manuals, and they should be located within easy access for periodic review.

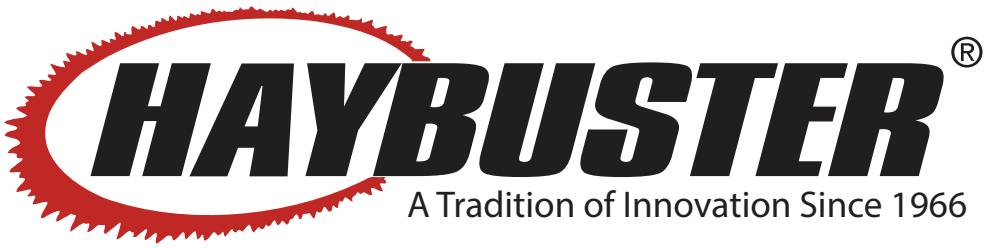
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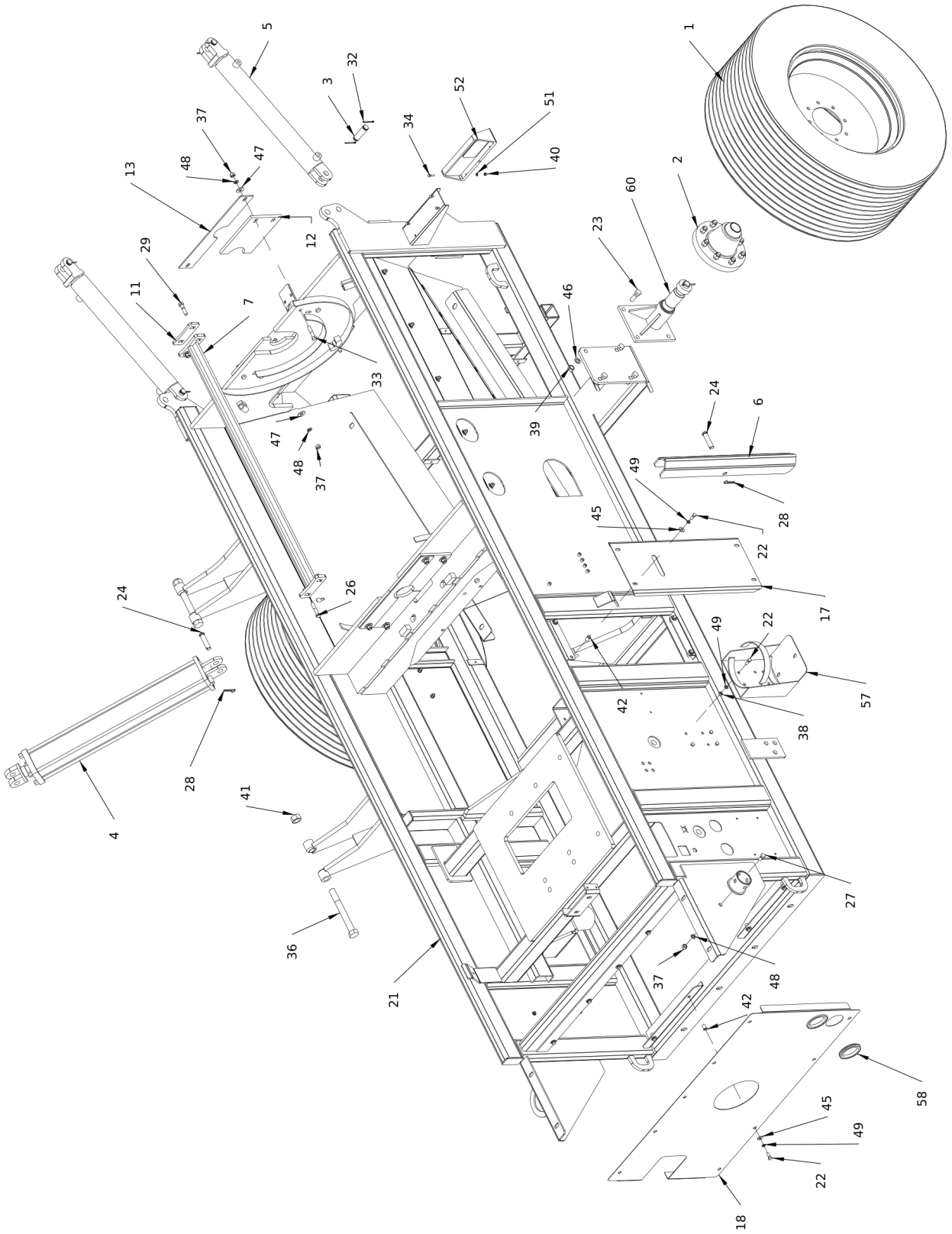

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H-1135 Tub Grinder Parts Reference

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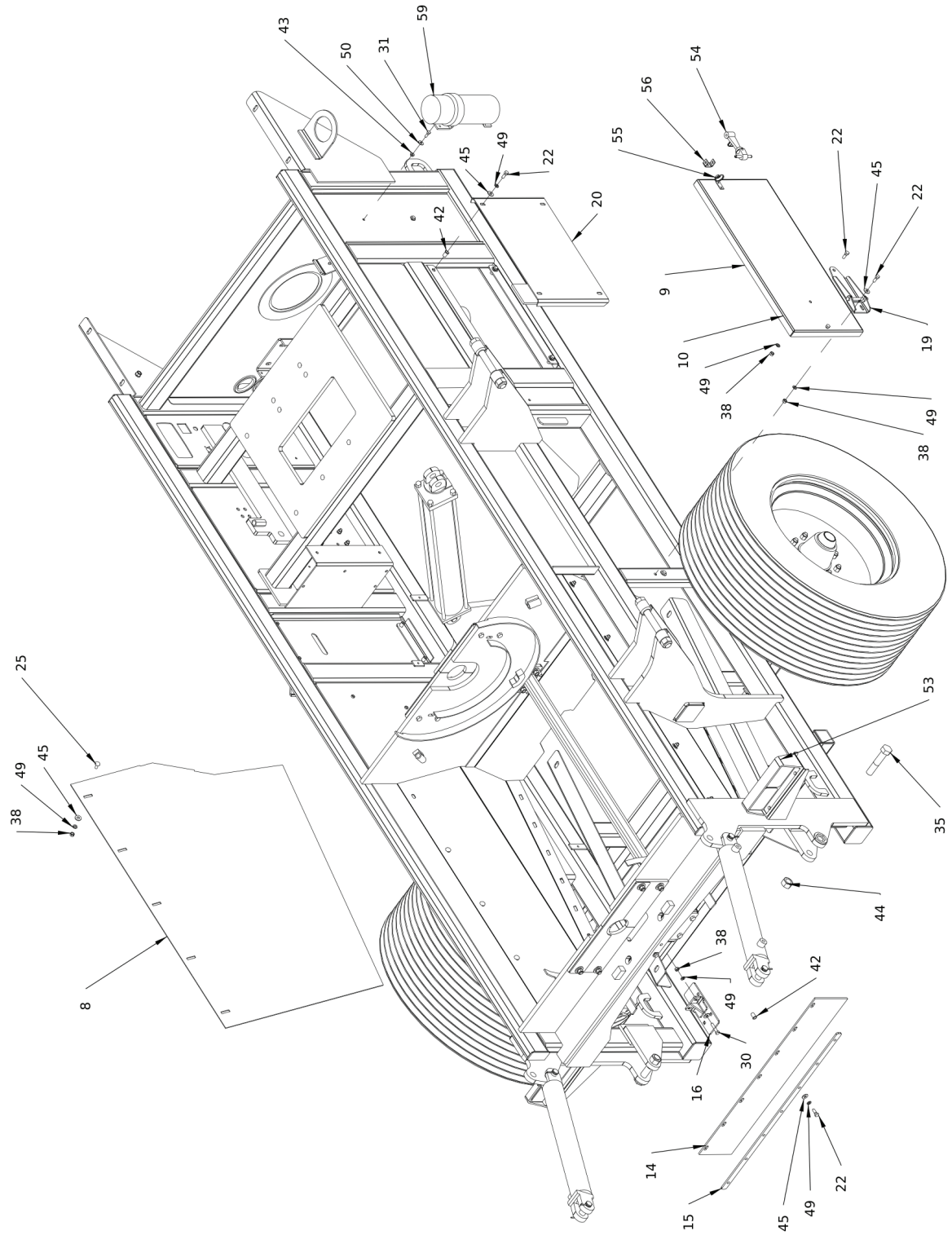

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Item	Part No.	Name	Remarks	Qty	Uom
1	2600880	WHL\ASSY\445X50RX22.5\20PLY\8-BOLT	(SEE WHEEL AND HUB)	2	EA.
2	2900140	HUB\ASSY\H817\8BOLT\8"B.C.\6"PILOT	(SEE WHEEL AND HUB), Also needs to be ordered 4800534, 4900053 and 5000133	2	EA.
3	4100030	PIN 1" X 3-1/2" HYD. CYL.		4	EA.
4	4100144	CYL\HYD\4X30\1-3/4 ROD\CLEVIS ENDS\O-RING PORTS		1	EA
5	4100261	CYL\HYD\3X20\1-1/2ROD\PAR#8 O-RING PORT\CTD		2	EA.
6	4500737	STOP\CYL\PLFRM		1	EA
7	4501838	GUIDE\SCRN		1	EA
8	4502295	SH\SIDE\BELLY		2	EA.
9	4502336	DOOR\ACCESS\TNSNR		1	EA
10	4502337	DOOR\ACCESS\MAINT		1	EA
11	4502386	SPCR\GUIDE\SCRN		1	EA
12	4502391	SEAL\RTR		4	EA
13	4502392	CVR\SEAL\RTR		2	EA
14	4502430	BELT\SEAL\TRNSTN\CNVYR		1	EA
15	4502431	STRP\RET\BLT		1	EA
16	4502619	MNT\MNFLD\HOSE\HYD		1	EA
17	4502700	DOOR\FRM\MN		1	EA.
18	4502800	SHLD\PTO		1	EA
19	4703579	HINGE\ASSY\FAB\3-1/2		1	EA
20	4705483	DOOR\FRM\MN		1	EA
21	4705488	FRM\MAIN\H1135		1	EA.
22	4800003	BOLT\HEX\3/8X1		32	EA.
23	4800010	BOLT\HEX\5/8X2		8	EA.
24	4800046	PIN\CLEVIS\3/4X3		2	EA
25	4800053	BOLT\CRG\3/8X1\NC		10	EA.
26	4800070	BOLT\HEX\1/2X2-1/2		2	EA.
27	4800085	BOLT\HEX\1/2X1		1	EA.
28	4800107	PIN\HAIR\1/8(#9)		2	EA.
29	4800114	BOLT\HEX\1/2X2		2	EA.
30	4800142	BOLT\HEX\3/8X1-3/4		2	EA.
31	4800147	BOLT\HEX\5/16X7/8		2	EA.
32	4800203	PIN\COT\5/32X2		8	EA.
33	4800251	BOLT\HEX\1/2X2-1/4\NC		8	EA.
34	4800277	BOLT\HEX\1/4X1		8	EA.
35	4800546	BOLT\HEX\1X5\NC		2	EA
36	4800601	BOLT\HEX\1X9\NC		2	EA.

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Item	Part No.	Name	Remarks	Qty	Uom
37	4900001	NUT\HEX\1/2\NC		13	EA.
38	4900002	NUT\HEX\3/8\NC		20	EA.
39	4900005	NUT\HEX\5/8\NC		8	EA.
40	4900009	NUT\HEX\1/4\NC		8	EA.
41	4900015	NUT\NYLCK\1\NC		2	EA.
42	4900083	NUT\INSERT\3/8\.LONG\0.15-0.312\(.418/CD)		24	EA
43	4900108	NUT\FLG\SERR\5/16\NC		2	EA.
44	4900127	NUT\TPLCK\1\NC		2	EA.
45	5000001	WASH\FLAT\3/8		38	EA.
46	5000003	WASH\LOCK\5/8		8	EA.
47	5000004	WASH\FLAT\1/2		12	EA.
48	5000006	WASH\LOCK\1/2		13	EA.
49	5000019	WASH\LOCK\3/8		44	EA.
50	5000023	WASH\FLAT\5/16		2	EA.
51	5000024	WASH\LOCK\1/4		8	EA.
52	5701284	LGHT\TAIL\AMBER-LEFT\4PN-WP\LED		1	EA.
53	5701285	LGHT\TAIL\AMBER-RGHT\4PN-WP\LED		1	EA.
54	7501660	LATCH\RBBR\8\W-STD-CATCH		1	EA.
55	7500190	LATCH\RBBR\CATCH\6		1	EA
56	7500347	LATCH\RBBR\MNT\6		1	EA
57	7500853	BRKT\EXTINGUISHER\20LB		1	EA
NS	7500852	EXTINGUISHER\FIRE\20LB		1	EA
58	7501068	GRMMT\RBBR\3-5/8X3IDX3/8T		2	EA
59	7501629	CNSTRS\MANUAL\12.5X4.5		1	EA.
60	8101469	SPNDL\HUB\ASSY\2800	(SEE WHEEL AND HUB)	2	EA

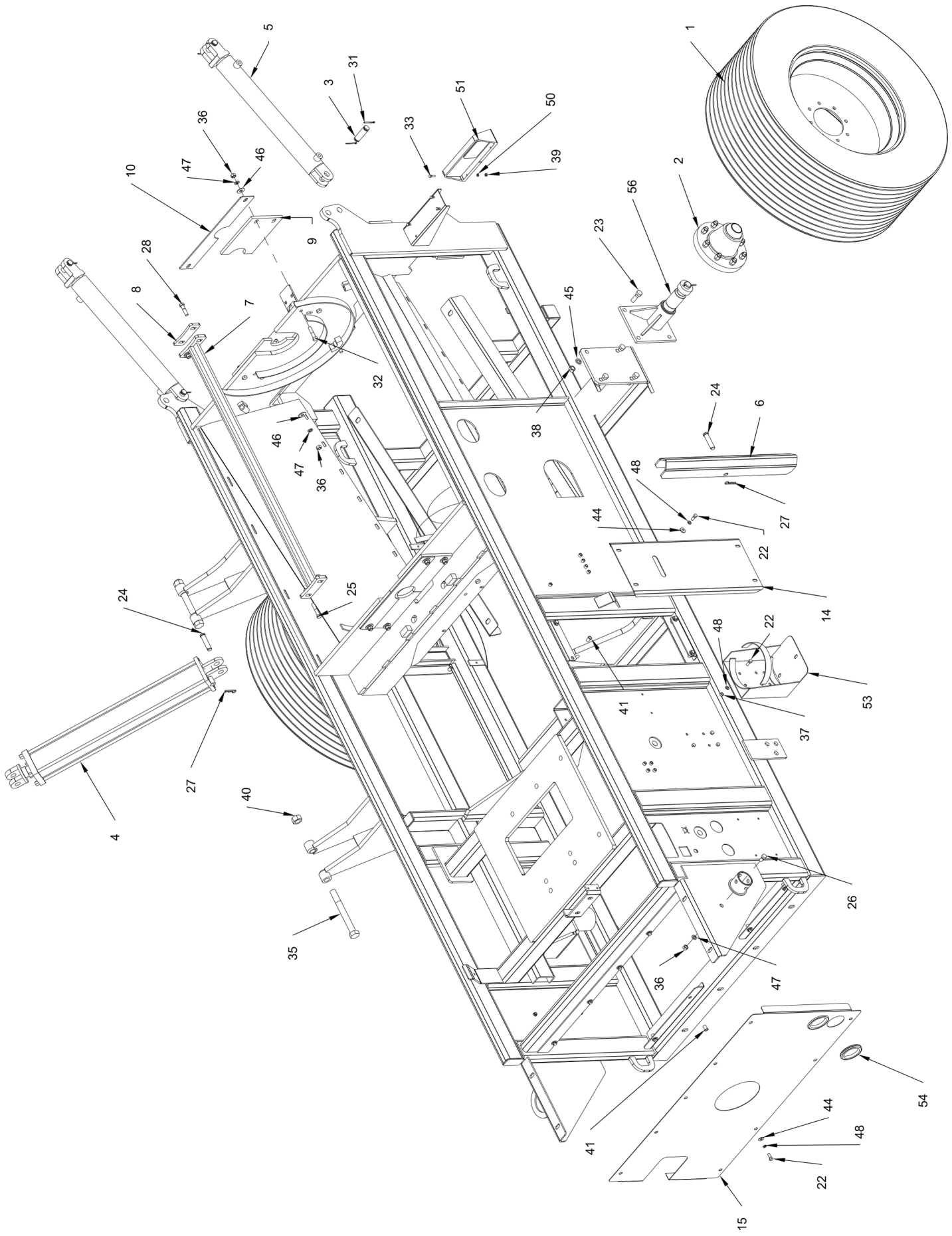

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H-1135 Mainframe Assembly-View B (for SN Up to 1126054935)

Item	Part No.	Name	Remarks	Qty	Uom
1	2600880	WHL\ASSY\445X50RX22.5\20PLY\8-BOLT	(SEE WHEEL AND HUB)	2	EA.
2	2900140	HUB\ASSY\H817\8BOLT\8"B.C.\6"PILOT	(SEE WHEEL AND HUB), Also needs to be ordered 4800534, 4900053 and 5000133	2	EA.
3	4100030	PIN 1" X 3-1/2" HYD. CYL.		4	EA.
4	4100144	CYL\HYD\4X30\1-3/4 ROD\CLEVIS ENDS\O-RING PORTS		1	EA
5	4100261	CYL\HYD\3X20\1-1/2ROD\PAR#8 O-RING PORT\CTD		2	EA.
6	4500737	STOP\CYL\PLFRM		1	EA
7	4501838	GUIDE\SCRN		1	EA
8	4502295	SH\SIDE\BELLY		2	EA.
9	4502336	DOOR\ACCESS\TNSNR		1	EA
10	4502337	DOOR\ACCESS\MAINT		1	EA
11	4502386	SPCR\GUIDE\SCRN		1	EA
12	4502391	SEAL\RTR		4	EA
13	4502392	CVR\SEAL\RTR		2	EA
14	4502430	BELT\SEAL\TRNSTN\CNVYR		1	EA
15	4502431	STRP\RET\BLT		1	EA
16	4502619	MNT\MNFLD\HOSE\HYD		1	EA
17	4502700	DOOR\FRM\MN		1	EA.
18	4502800	SHLD\PTO		1	EA
19	4703579	HINGE\ASSY\FAB\3-1/2		1	EA
20	4705483	DOOR\FRM\MN		1	EA
21	4705488	FRM\MAIN\H1135		1	EA.
22	4800003	BOLT\HEX\3/8X1		32	EA.
23	4800010	BOLT\HEX\5/8X2		8	EA.
24	4800046	PIN\CLEVIS\3/4X3		2	EA
25	4800053	BOLT\CRG\3/8X1\NC		10	EA.
26	4800070	BOLT\HEX\1/2X2-1/2		2	EA.
27	4800085	BOLT\HEX\1/2X1		1	EA.
28	4800107	PIN\HAIR\1/8(#9)		2	EA.
29	4800114	BOLT\HEX\1/2X2		2	EA.
30	4800142	BOLT\HEX\3/8X1-3/4		2	EA.
31	4800147	BOLT\HEX\5/16X7/8		2	EA.
32	4800203	PIN\COT\5/32X2		8	EA.
33	4800251	BOLT\HEX\1/2X2-1/4\NC		8	EA.
34	4800277	BOLT\HEX\1/4X1		8	EA.
35	4800546	BOLT\HEX\1X5\NC		2	EA
36	4800601	BOLT\HEX\1X9\NC		2	EA.

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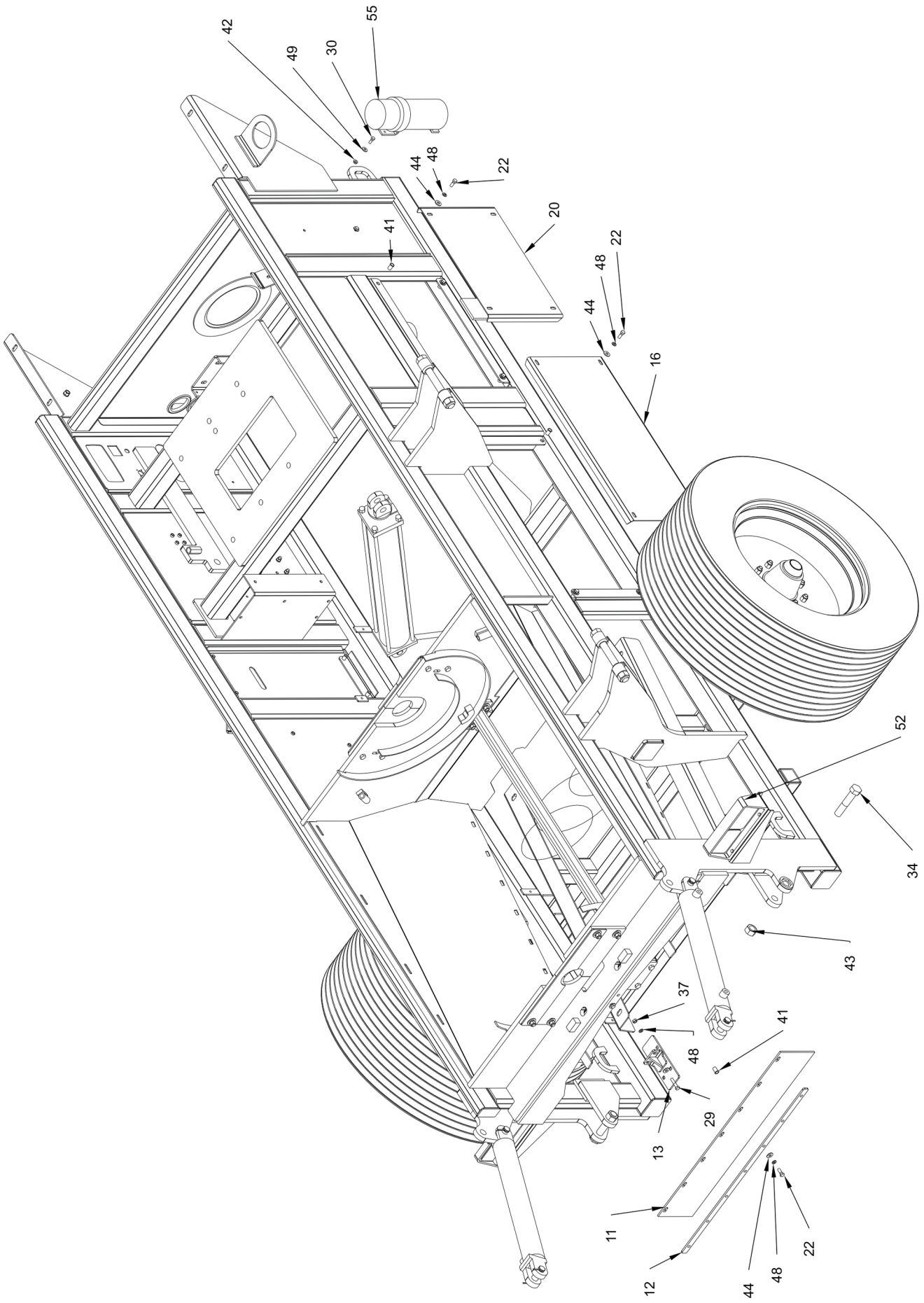
Item	Part No.	Name	Remarks	Qty	Uom
37	4900001	NUT\HEX\1/2\NC		13	EA.
38	4900002	NUT\HEX\3/8\NC		20	EA.
39	4900005	NUT\HEX\5/8\NC		8	EA.
40	4900009	NUT\HEX\1/4\NC		8	EA.
41	4900015	NUT\NYLCK\1\NC		2	EA.
42	4900083	NUT\INSERT\3/8\.LONG\0.15-0.312\(.418/CD)		24	EA
43	4900108	NUT\FLG\SERR\5/16\NC		2	EA.
44	4900127	NUT\TPLCK\1\NC		2	EA.
45	5000001	WASH\FLAT\3/8		38	EA.
46	5000003	WASH\LOCK\5/8		8	EA.
47	5000004	WASH\FLAT\1/2		12	EA.
48	5000006	WASH\LOCK\1/2		13	EA.
49	5000019	WASH\LOCK\3/8		44	EA.
50	5000023	WASH\FLAT\5/16		2	EA.
51	5000024	WASH\LOCK\1/4		8	EA.
52	5701284	LGHT\TAIL\AMBER-LEFT\4PN-WP\LED		1	EA.
53	5701285	LGHT\TAIL\AMBER-RGHT\4PN-WP\LED		1	EA.
54	7501660	LATCH\RBBR\8\W-STD-CATCH		1	EA.
55	7500190	LATCH\RBBR\CATCH\6		1	EA
56	7500347	LATCH\RBBR\MNT\6		1	EA
57	7500853	BRKT\EXTINGUISHER\20LB		1	EA
NS	7500852	EXTINGUISHER\FIRE\20LB		1	EA
58	7501068	GRMMT\RBBR\3-5/8X3IDX3/8T		2	EA
59	7501629	CNSTRS\MANUAL\12.5X4.5		1	EA.
60	8101469	SPNDL\HUB\ASSY\2800	(SEE WHEEL AND HUB)	2	EA


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Item	Part No.	Name	Remarks	Qty	Uom
1	2600880	WHL\ASSY\445X50RX22.5\20PLY\8-BOLT	(SEE WHEEL AND HUB)	2	EA.
2	2900140	HUB\ASSY\H817\8BOLT\8"B.C.\6"PILOT	(SEE WHEEL AND HUB), Also needs to be ordered 4800534, 4900053 and 5000133	2	EA.
3	4100030	PIN 1" X 3-1/2" HYD. CYL.		4	EA.
4	4100144	CYL\HYD\4X30\1-3/4 ROD\CLEVIS ENDS\O-RING PORTS		1	EA
5	4100261	CYL\HYD\3X20\1-1/2ROD\PAR#8 O-RING PORT\CTD		2	EA.
6	4500737	STOP\CYL\PLFRM		1	EA
7	4501838	GUIDE\SCRN		1	EA
8	4502386	SPCR\GUIDE\SCRN		1	EA
9	4502391	SEAL\RTR		4	EA
10	4502392	CVR\SEAL\RTR		2	EA
11	4502430	BELT\SEAL\TRNSTN\CNVYR		1	EA
12	4502431	STRP\RET\BLT		1	EA
13	4502619	MNT\MNFLD\HOSE\HYD		1	EA
14	4502700	DOOR\FRM\MN		1	EA.
15	4502800	SHLD\PTO		1	EA
16	4503103	DOOR\FRM\MN		1	EA.
17	4503213	WELD\SIDE\BLLY\L		1	EA.
18	4503214	WELD\SIDE\BLLY\R		1	EA.
19	4503215	FRM\MAIN\H1135		1	EA.
20	4705483	DOOR\FRM\MN		1	EA
21	4705488	FRM\MAIN\H1135		1	EA.
22	4800003	BOLT\HEX\3/8X1		32	EA.
23	4800010	BOLT\HEX\5/8X2		8	EA.
24	4800046	PIN\CLEVIS\3/4X3		2	EA
25	4800070	BOLT\HEX\1/2X2-1/2		2	EA.
26	4800085	BOLT\HEX\1/2X1		1	EA.
27	4800107	PIN\HAIR\1/8(#9)		2	EA.
28	4800114	BOLT\HEX\1/2X2		2	EA.
29	4800142	BOLT\HEX\3/8X1-3/4		2	EA.
30	4800147	BOLT\HEX\5/16X7/8		2	EA.
31	4800203	PIN\COT\5/32X2		8	EA.
32	4800251	BOLT\HEX\1/2X2-1/4\NC		8	EA.
33	4800277	BOLT\HEX\1/4X1		8	EA.
34	4800546	BOLT\HEX\1X5\NC		2	EA
35	4800601	BOLT\HEX\1X9\NC		2	EA.
36	4900001	NUT\HEX\1/2\NC		13	EA.

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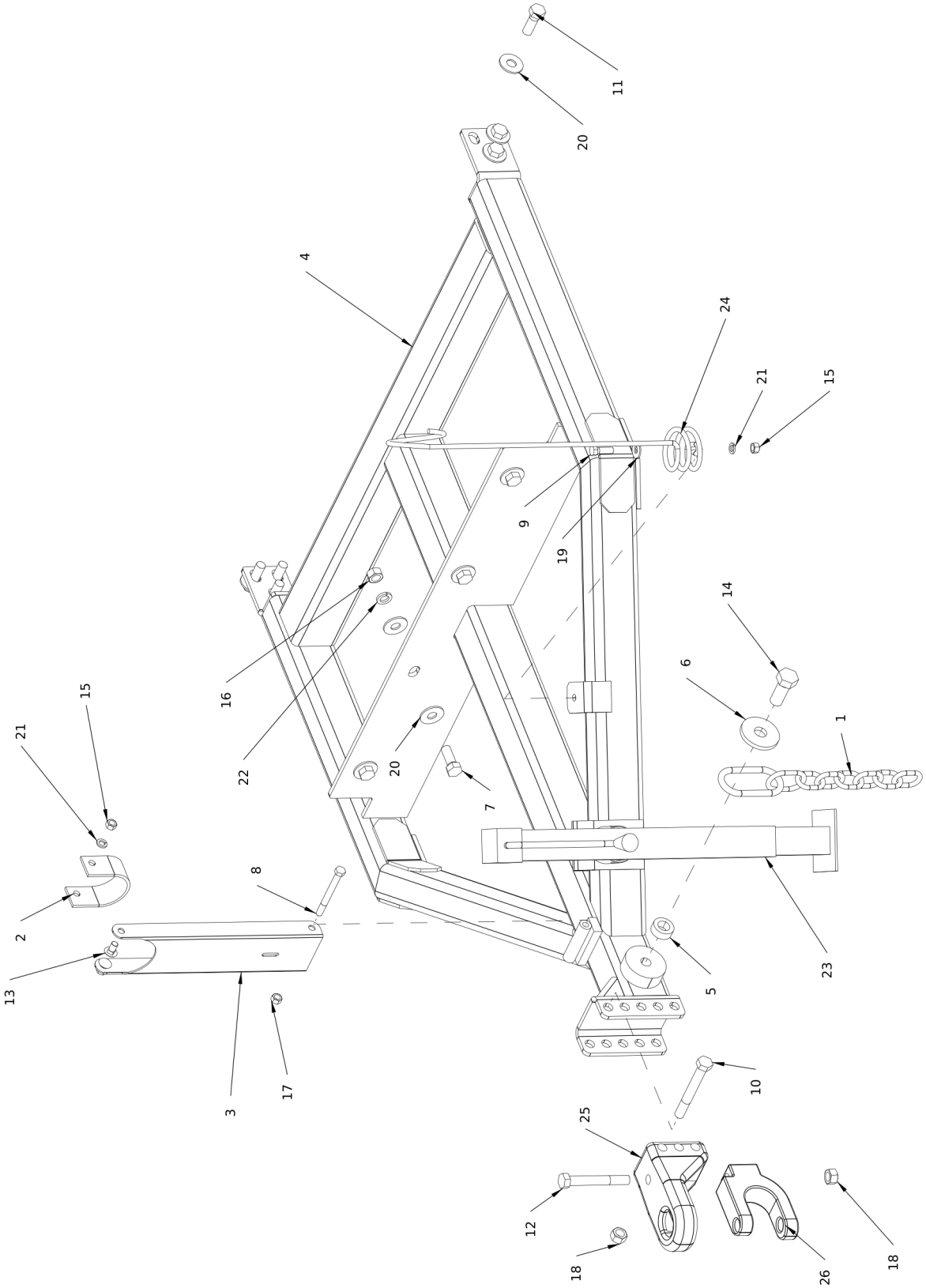
Item	Part No.	Name	Remarks	Qty	Uom
37	4900002	NUT\HEX\3/8\NC		6	EA.
38	4900005	NUT\HEX\5/8\NC		8	EA.
39	4900009	NUT\HEX\1/4\NC		8	EA.
40	4900015	NUT\NYLCK\1\NC		2	EA.
41	4900083	NUT\INSERT\3/8\.LONG\0.15-0.312\(.418/CD)		28	EA
42	4900108	NUT\FLG\SERR\5/16\NC		2	EA.
43	4900127	NUT\TPLCK\1\NC		2	EA.
44	5000001	WASH\FLAT\3/8		30	EA.
45	5000003	WASH\LOCK\5/8		8	EA.
46	5000004	WASH\FLAT\1/2		12	EA.
47	5000006	WASH\LOCK\1/2		13	EA.
48	5000019	WASH\LOCK\3/8		34	EA.
49	5000023	WASH\FLAT\5/16		2	EA.
50	5000024	WASH\LOCK\1/4		8	EA.
51	5701284	LGHT\TAIL\AMBER-LEFT\4PN-WP\LED		1	EA.
52	5701285	LGHT\TAIL\AMBER-RGHT\4PN-WP\LED		1	EA.
53	7500853	BRKT\EXTINGUISHER\20LB		1	EA
54	7501068	GRMMT\RBBR\3-5/8X3IDX3/8T		2	EA
55	7501629	CNSTRS\MANUAL\12.5X4.5		1	EA.
56	8101469	SPNDL\HUB\ASSY\2800	(SEE WHEEL AND HUB)	2	EA


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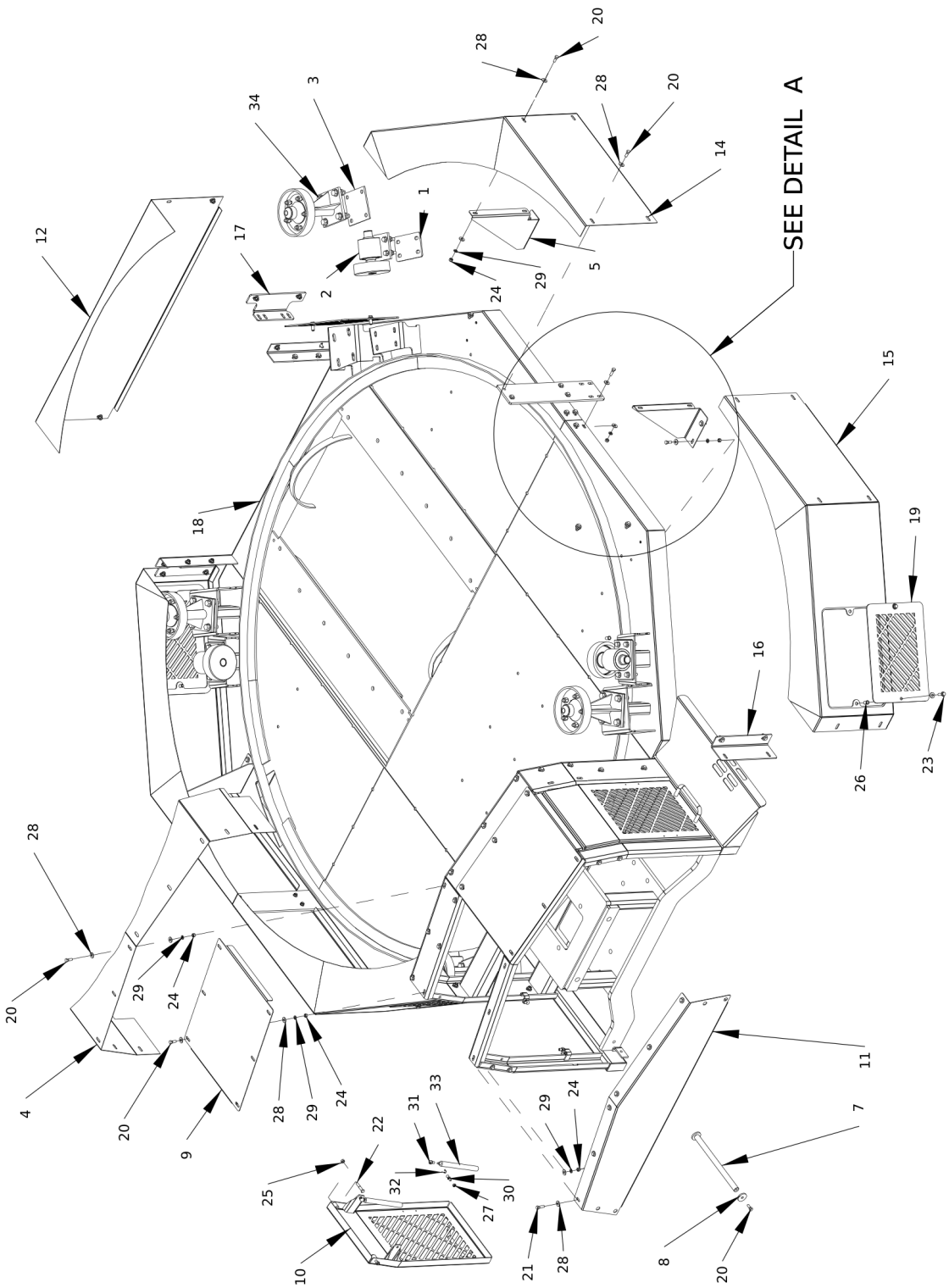
Item	Part No.	Name	Remarks	Qty	Uom
1	2600880	WHL\ASSY\445X50RX22.5\20PLY\8-BOLT	(SEE WHEEL AND HUB)	2	EA.
2	2900140	HUB\ASSY\H817\8BOLT\8"B.C.\6"PILOT	(SEE WHEEL AND HUB), Also needs to be ordered 4800534, 4900053 and 5000133	2	EA.
3	4100030	PIN 1" X 3-1/2" HYD. CYL.		4	EA.
4	4100144	CYL\HYD\4X30\1-3/4 ROD\CLEVIS ENDS\O-RING PORTS		1	EA
5	4100261	CYL\HYD\3X20\1-1/2ROD\PAR#8 O-RING PORT\CTD		2	EA.
6	4500737	STOP\CYL\PLFRM		1	EA
7	4501838	GUIDE\SCRN		1	EA
8	4502386	SPCR\GUIDE\SCRN		1	EA
9	4502391	SEAL\RTR		4	EA
10	4502392	CVR\SEAL\RTR		2	EA
11	4502430	BELT\SEAL\TRNSTN\CNVYR		1	EA
12	4502431	STRP\RET\BLT		1	EA
13	4502619	MNT\MNFLD\HOSE\HYD		1	EA
14	4502700	DOOR\FRM\MN		1	EA.
15	4502800	SHLD\PTO		1	EA
16	4503103	DOOR\FRM\MN		1	EA.
17	4503213	WELD\SIDE\BLLY\L		1	EA.
18	4503214	WELD\SIDE\BLLY\R		1	EA.
19	4503215	FRM\MAIN\H1135		1	EA.
20	4705483	DOOR\FRM\MN		1	EA
21	4705488	FRM\MAIN\H1135		1	EA.
22	4800003	BOLT\HEX\3/8X1		32	EA.
23	4800010	BOLT\HEX\5/8X2		8	EA.
24	4800046	PIN\CLEVIS\3/4X3		2	EA
25	4800070	BOLT\HEX\1/2X2-1/2		2	EA.
26	4800085	BOLT\HEX\1/2X1		1	EA.
27	4800107	PIN\HAIR\1/8(#9)		2	EA.
28	4800114	BOLT\HEX\1/2X2		2	EA.
29	4800142	BOLT\HEX\3/8X1-3/4		2	EA.
30	4800147	BOLT\HEX\5/16X7/8		2	EA.
31	4800203	PIN\COT\5/32X2		8	EA.
32	4800251	BOLT\HEX\1/2X2-1/4\NC		8	EA.
33	4800277	BOLT\HEX\1/4X1		8	EA.
34	4800546	BOLT\HEX\1X5\NC		2	EA
35	4800601	BOLT\HEX\1X9\NC		2	EA.
36	4900001	NUT\HEX\1/2\NC		13	EA.

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Item	Part No.	Name	Remarks	Qty	Uom
37	4900002	NUT\HEX\3/8\NC		6	EA.
38	4900005	NUT\HEX\5/8\NC		8	EA.
39	4900009	NUT\HEX\1/4\NC		8	EA.
40	4900015	NUT\NYLCK\1\NC		2	EA.
41	4900083	NUT\INSERT\3/8\.LONG\0.15-0.312\(.418/CD)		28	EA
42	4900108	NUT\FLG\SERR\5/16\NC		2	EA.
43	4900127	NUT\TPLCK\1\NC		2	EA.
44	5000001	WASH\FLAT\3/8		30	EA.
45	5000003	WASH\LOCK\5/8		8	EA.
46	5000004	WASH\FLAT\1/2		12	EA.
47	5000006	WASH\LOCK\1/2		13	EA.
48	5000019	WASH\LOCK\3/8		34	EA.
49	5000023	WASH\FLAT\5/16		2	EA.
50	5000024	WASH\LOCK\1/4		8	EA.
51	5701284	LGHT\TAIL\AMBER-LEFT\4PN-WP\LED		1	EA.
52	5701285	LGHT\TAIL\AMBER-RGHT\4PN-WP\LED		1	EA.
53	7500853	BRKT\EXTINGUISHER\20LB		1	EA
54	7501068	GRMMT\RBBR\3-5/8X3IDX3/8T		2	EA
55	7501629	CNSTRS\MANUAL\12.5X4.5		1	EA.
56	8101469	SPNDL\HUB\ASSY\2800	(SEE WHEEL AND HUB)	2	EA


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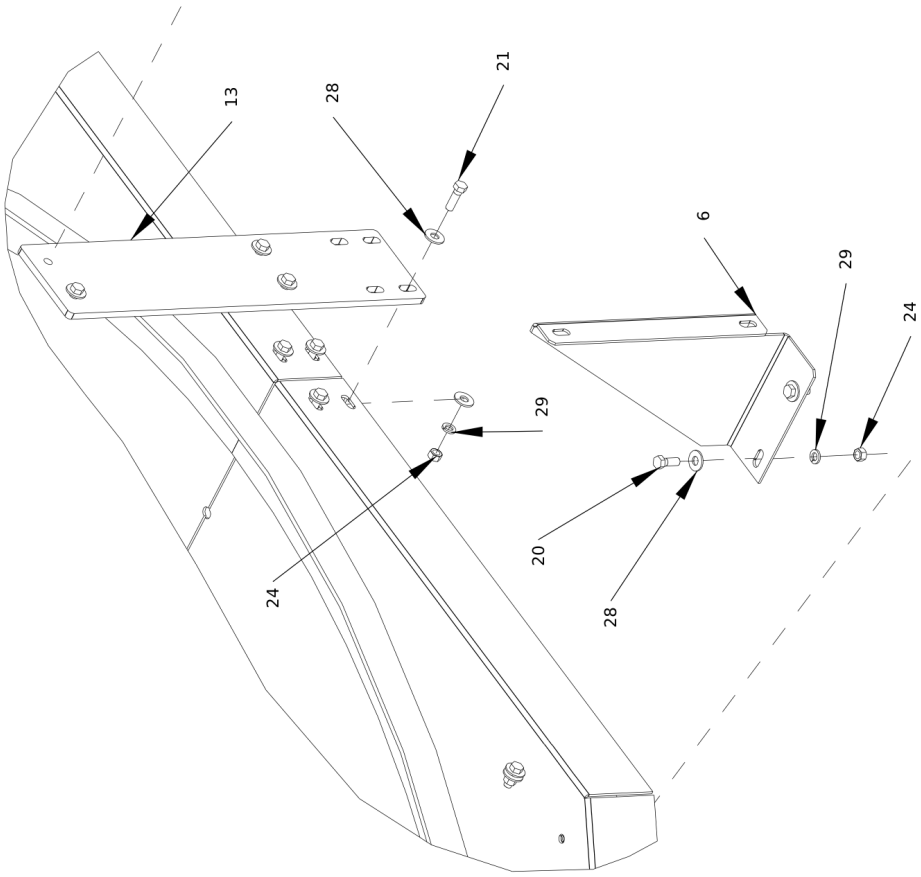
Item	Part No.	Name	Remarks	Qty	Uom
1	1100285	CHAIN\3/8\SFTY\AG\21000LB		1	EA
2	4500754	BELT\BRKT\PTO		1	EA.
3	4502674	BRKT\STAND\PTO\1030		1	EA
4	4502773	HITCH\PTO\H1100		1	EA
5	4704337	BUSHING\MNT\CHAIN\SAFETY		1	EA
6	4704338	WASHER\CHAIN\SAFETY		1	EA
7	4800033	BOLT\HEX\3/4X2		4	EA.
8	4800041	BOLT\HEX\1/2X5		1	EA.
9	4800082	BOLT\HEX\1/2X1-1/2		1	EA.
10	4800248	BOLT\HEX\3/4X6		1	EA.
11	4800283	BOLT\HEX\3/4X2-1/4		6	EA
12	4800492	BOLT\HEX\3/4X5-1/2\GR8\NC		1	EA
13	4800908	BOLT\CRG\1/2X1		2	EA.
14	4800980	BOLT\HEX\1X2-1/2\GR5\NC		1	EA
15	4900001	NUT\HEX\1/2\NC		3	EA.
16	4900004	NUT\HEX\3/4\NC		4	EA.
17	4900014	NUT\TPLCK\1/2\NC		1	EA.
18	4900139	NUT\TPLCK\3/4\GR8\NC		2	EA.
19	5000004	WASH\FLAT\1/2		1	EA.
20	5000005	WASH\FLAT\3/4		14	EA.
21	5000006	WASH\LOCK\1/2		3	EA.
22	5000012	WASH\LOCK\3/4		4	EA.
23	5800633	JACK\7000\SDWND\SQ\15"TRVL	Order 5800611 weld on bell if needed	1	EA.
24	7500170	HOSE MINDER		1	EA.
25	7501047	HITCH\BASE\#3\PPI\1"PIN		1	EA.
26	7501048	HITCH\CLEVIS\PPI\1"PIN		1	EA.


SEE DETAIL A
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Item	Part No.	Name	Remarks	Qty	Uom
1	4501131	SHIM\RLLR\SUP\TUB\1/4		4	EA
2	4704069	RLLR\TUB\ASSY\STEEL		4	EA
3	4501476	SHIM\RLLR\PRESS		4	EA
4	4501518	SHLD\DRIVE\TUB		1	EA
5	4501915	BRKT\SHLD\CHAIN\DRIVE\TUB		2	EA
6	4501916	BRKT\SHLD\CHAIN\DRIVE\TUB		2	EA
7	4501931	PIN\PLFRM\TILTCYL		1	EA
8	4501932	WASH\1-3/4 O.D.		2	EA
9	4502088	CVR\DRV\TUB		2	EA
10	4502089	DOOR\DRV\TUB		2	EA
11	4502401	CVR\FR\FRM\MN		1	EA
12	4502422	SHLD\DRV\CHAIN\TUB\REAR		1	EA
13	4502631	SPPRT\SHLD\SD\TUB		2	EA
14	4502663	SHLD\TUB\LR\RF		2	EA
15	4502662	SHLD\TUB\LF\RR		2	EA
16	4502640	MNT\SHLD\TUB\FR		2	EA
17	4502641	MNT\SHLD\TUB\REAR		2	EA
18	4502642	FRM\PLTFRM\TILT\H1130\RTR\REAR		1	EA
19	4703727	DOOR\SHLD\TUB		4	EA
20	4800003	BOLT\HEX\3/8X1		66	EA.
21	4800098	BOLT\HEX\3/8X1-1/4\NC		14	EA.
22	4800146	BOLT\HEX\3/8X2		4	EA.
23	4800914	BOLT\FLG\SERR\3/8X1-1/4\NC		8	EA
24	4900002	NUT\HEX\3/8\NC		70	EA.
25	4900023	NUT\TPLCK\3/8\NC		4	EA.
26	4900083	NUT\INSERT\3/8\.LONG\0.15-0.312\(.418/CD)		8	EA
27	4900142	NUT\TPLCK\5/16\NC		8	EA.
28	5000001	WASH\FLAT\3/8		148	EA.
29	5000019	WASH\LOCK\3/8		70	EA.
30	7500664	BALL STUD\SHOCK\FITTING\M6		8	EA
31	7500665	SHOCK\END\FITTING\M6		8	EA
32	7500666	SHOCK\SAFTY\CLIP		8	EA
33	7500680	SPRNG\GAS\60LB\9416K174		4	EA
34	4500247	RLLR\PRESS\COMPL		4	EA
CA	4502348	PLTFRM\ASSY\SUB\H1130\H1135			EA.
NS	4500737	STOP\CYL\PLFRM		1	EA
NS	4800046	PIN\CLEVIS\3/4X3		1	EA
NS	4800107	PIN\HAIR\1/8(#9)		1	EA.

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Item	Part No.	Name	Remarks	Qty	Uom
NS	4800468	SCR\RD\SLOT\#10-24X1/2\NC		4	EA.
NS	4900072	NUT\HEX\#10\NC		4	EA.
NS	5000071	WASH\LOCK;EXT\STAR\#10		4	EA.
NS	7500756	BMPR\RBBR\1-1/32X5/8		4	EA



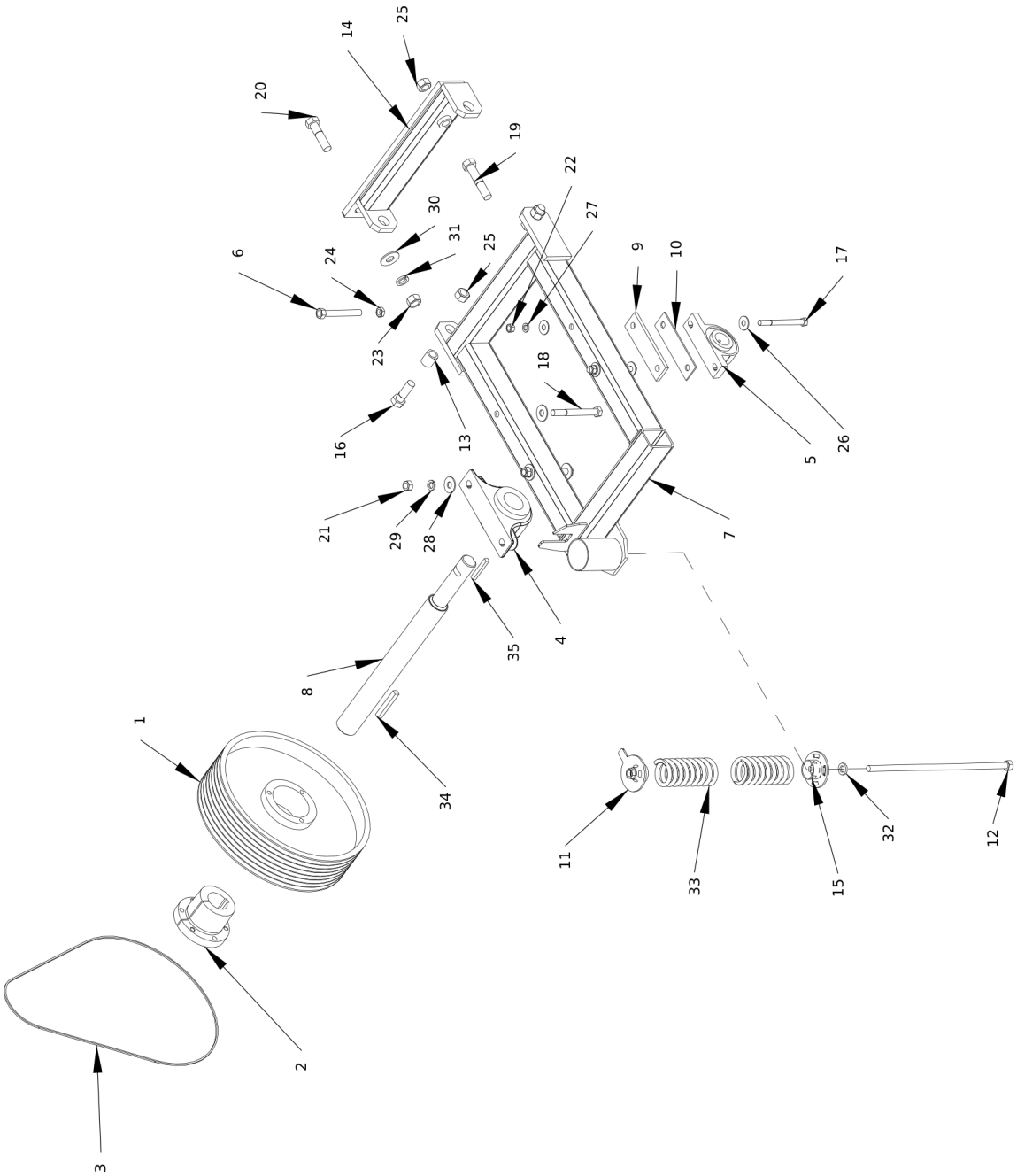
DETAIL A
SCALE 1/8

H-1135 Platform Assembly-Detail A

Item	Part No.	Name	Remarks	Qty	Uom
1	4501131	SHIM\RLLR\SUP\TUB\1/4		4	EA
2	4704069	RLLR\TUB\ASSY\STEEL		4	EA
3	4501476	SHIM\RLLR\PRESS		4	EA
4	4501518	SHLD\DRIVE\TUB		1	EA
5	4501915	BRKT\SHLD\CHAIN\DRIVE\TUB		2	EA
6	4501916	BRKT\SHLD\CHAIN\DRIVE\TUB		2	EA
7	4501931	PIN\PLFRM\TILTCYL		1	EA
8	4501932	WASH\1-3/4 O.D.		2	EA
9	4502088	CVR\DRV\TUB		2	EA
10	4502089	DOOR\DRV\TUB		2	EA
11	4502401	CVR\FR\FRM\MN		1	EA
12	4502422	SHLD\DRV\CHAIN\TUB\REAR		1	EA
13	4502631	SPPRT\SHLD\SD\TUB		2	EA
14	4502663	SHLD\TUB\LR\RF		2	EA
15	4502662	SHLD\TUB\LF\RR		2	EA
16	4502640	MNT\SHLD\TUB\FR		2	EA
17	4502641	MNT\SHLD\TUB\REAR		2	EA
18	4502642	FRM\PLTFRM\TILT\H1130\RTR\REAR		1	EA
19	4703727	DOOR\SHLD\TUB		4	EA
20	4800003	BOLT\HEX\3/8X1		66	EA.
21	4800098	BOLT\HEX\3/8X1-1/4\NC		14	EA.
22	4800146	BOLT\HEX\3/8X2		4	EA.
23	4800914	BOLT\FLG\SERR\3/8X1-1/4\NC		8	EA
24	4900002	NUT\HEX\3/8\NC		70	EA.
25	4900023	NUT\TPLCK\3/8\NC		4	EA.
26	4900083	NUT\INSERT\3/8\.LONG\0.15-0.312\(.418/CD)		8	EA
27	4900142	NUT\TPLCK\5/16\NC		8	EA.
28	5000001	WASH\FLAT\3/8		148	EA.
29	5000019	WASH\LOCK\3/8		70	EA.
30	7500664	BALL STUD\SHOCK\FITTING\M6		8	EA
31	7500665	SHOCK\END\FITTING\M6		8	EA
32	7500666	SHOCK\SAFTY\CLIP		8	EA
33	7500680	SPRNG\GAS\60LB\9416K174		4	EA
34	4500247	RLLR\PRESS\COMPL		4	EA
CA	4502348	PLTFRM\ASSY\SUB\H1130\H1135			EA.
NS	4500737	STOP\CYL\PLFRM		1	EA
NS	4800046	PIN\CLEVIS\3/4X3		1	EA
NS	4800107	PIN\HAIR\1/8(#9)		1	EA.

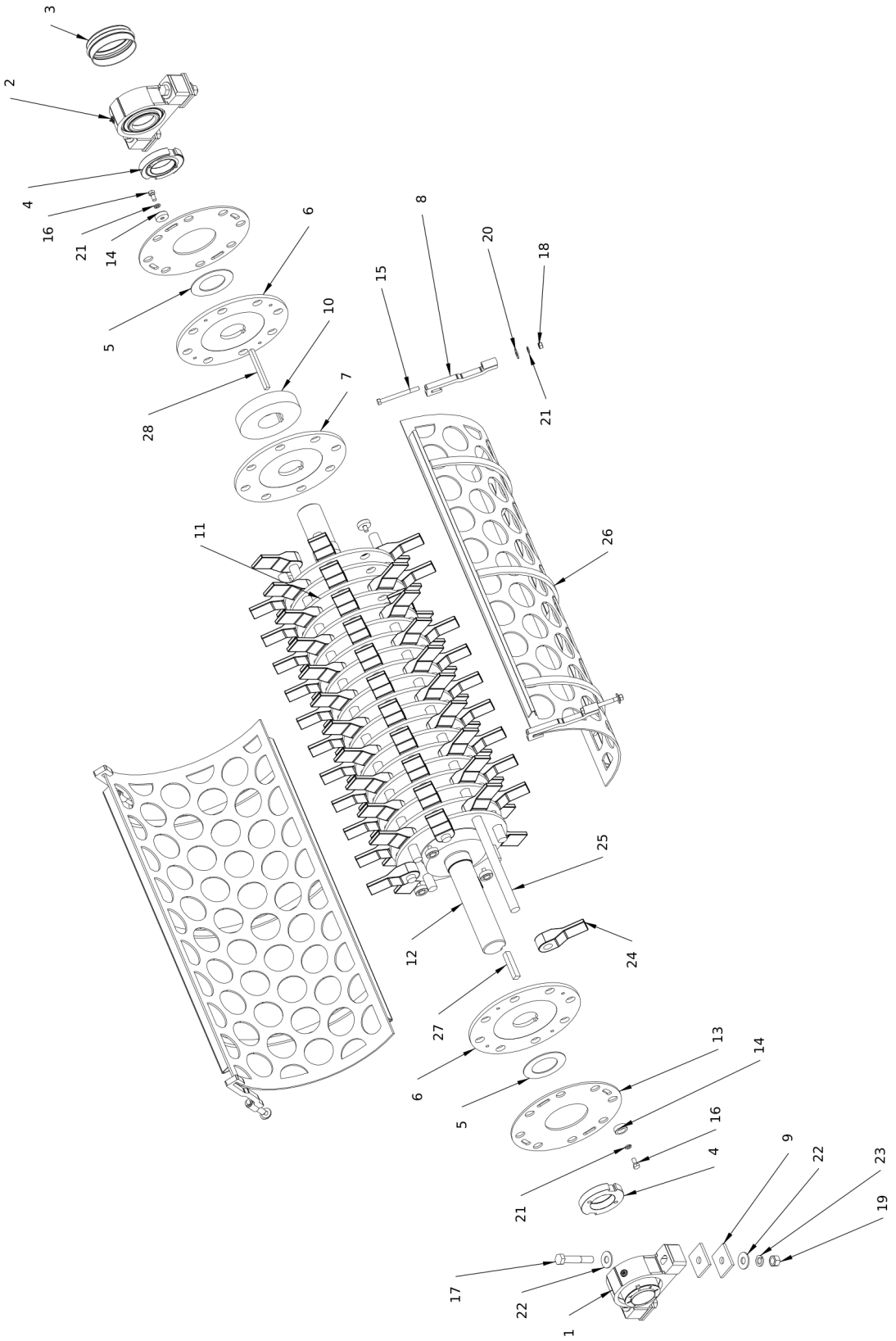
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Item	Part No.	Name	Remarks	Qty	Uom
NS	4800468	SCR\RD\SLOT\#10-24X1/2\NC		4	EA.
NS	4900072	NUT\HEX\#10\NC		4	EA.
NS	5000071	WASH\LOCK;EXT\STAR\#10		4	EA.
NS	7500756	BMPR\RBBR\1-1/32X5/8		4	EA


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Bull Wheel Assembly

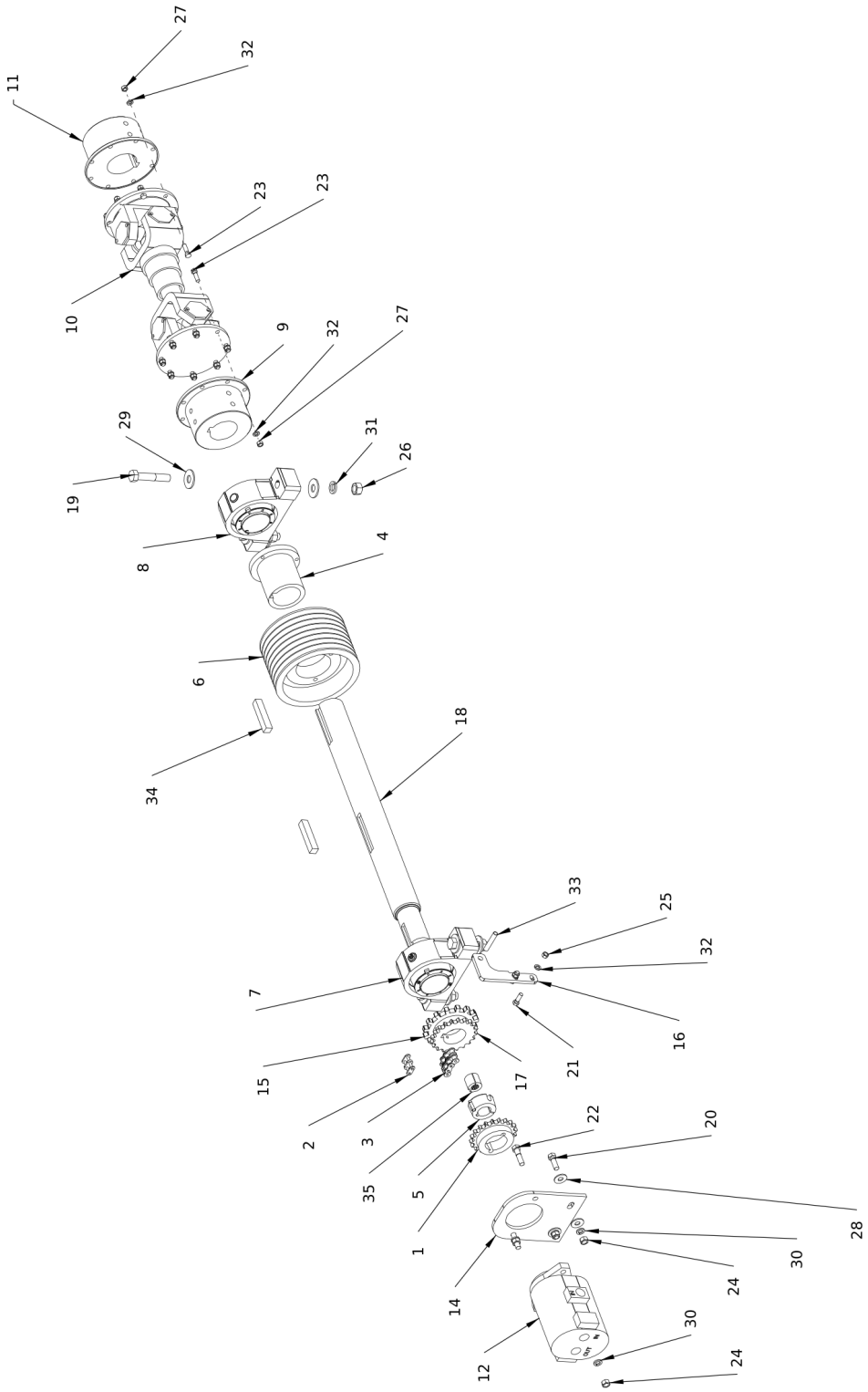
Item	Part No.	Name	Remarks	Qty	Uom
1	1400605	SHVE\5V-8\21.2\85V2120J		1	EA
2	1400642	BUSH\QD\J\2-3/4		1	EA
3	1600102	V-BELT\5VP850		8	EA
4	2000509	BRG\PB\2-3/4\E\DODGE		1	EA
5	2000510	BRG\PB\2\2BOLT		1	EA.
6	4501170	BOLT\FRM\TGHTNR\CHAIN\TUB		1	EA
7	4502330	WHL\BULL\FRM\OFFSET		1	EA
8	4502331	SHFT\WHL\BULL\OFFSET		1	EA
9	4502333	SHIM\BRG\WHL\BULL		1	EA
10	4502334	SHM\THN\BRG\WHL\BLL		1	EA
11	4502338	CAP\SPRNG\TNSNR		1	EA
12	4502340	ROD\TNSNR\WHL\BULL		1	EA
13	4502380	TUBE\WHL\BLL		2	EA
14	4502419	ADJ\WHL\BLL		1	EA
15	4502425	CAP\TNSNR\WHL\BLL		1	EA
16	4800140	BOLT\HEX\1X3\NC		2	EA
17	4800155	BOLT\HEX\5/8X7		2	EA.
18	4800295	BOLT\HEX\3/4X7		2	EA
19	4800546	BOLT\HEX\1X5\NC		1	EA
20	4800647	BOLT\HEX\1X4\NC		1	EA.
21	4900004	NUT\HEX\3/4\NC		4	EA.
22	4900005	NUT\HEX\5/8\NC		2	EA.
23	4900031	NUT\HEX\1\NC		1	EA
24	4900104	NUT\JAM\3/4\NC		1	EA.
25	4900127	NUT\TPLCK\1\NC		3	EA.
26	5000002	WASH\FLAT\5/8		4	EA.
27	5000003	WASH\LOCK\5/8		2	EA.
28	5000005	WASH\FLAT\3/4		4	EA.
29	5000012	WASH\LOCK\3/4		2	EA.
30	5000014	WASH\FLAT\1		1	EA.
31	5000053	WASH\LOCK\1		1	EA
32	5000115	WASH\FLAT\3/4\EXTRTHK\GR8		1	EA
33	6100091	SPG\COMP\8X3-1/2OD\1/2WD		2	EA
34	6200013	KEY\SQ\5/8X4-1/2		1	EA
35	6200062	KEY\SQ\1/2X3-1/2		1	EA
CA	4502328	WHL\BULL\OFFSET\H1030\H1130\H1135			EA
NS	3700961	HOSE\LUB\1/8X40\MPS-MPS			EA
NS	3700963	HOSE\LUB\1/8X34\MPS-MPS			EA


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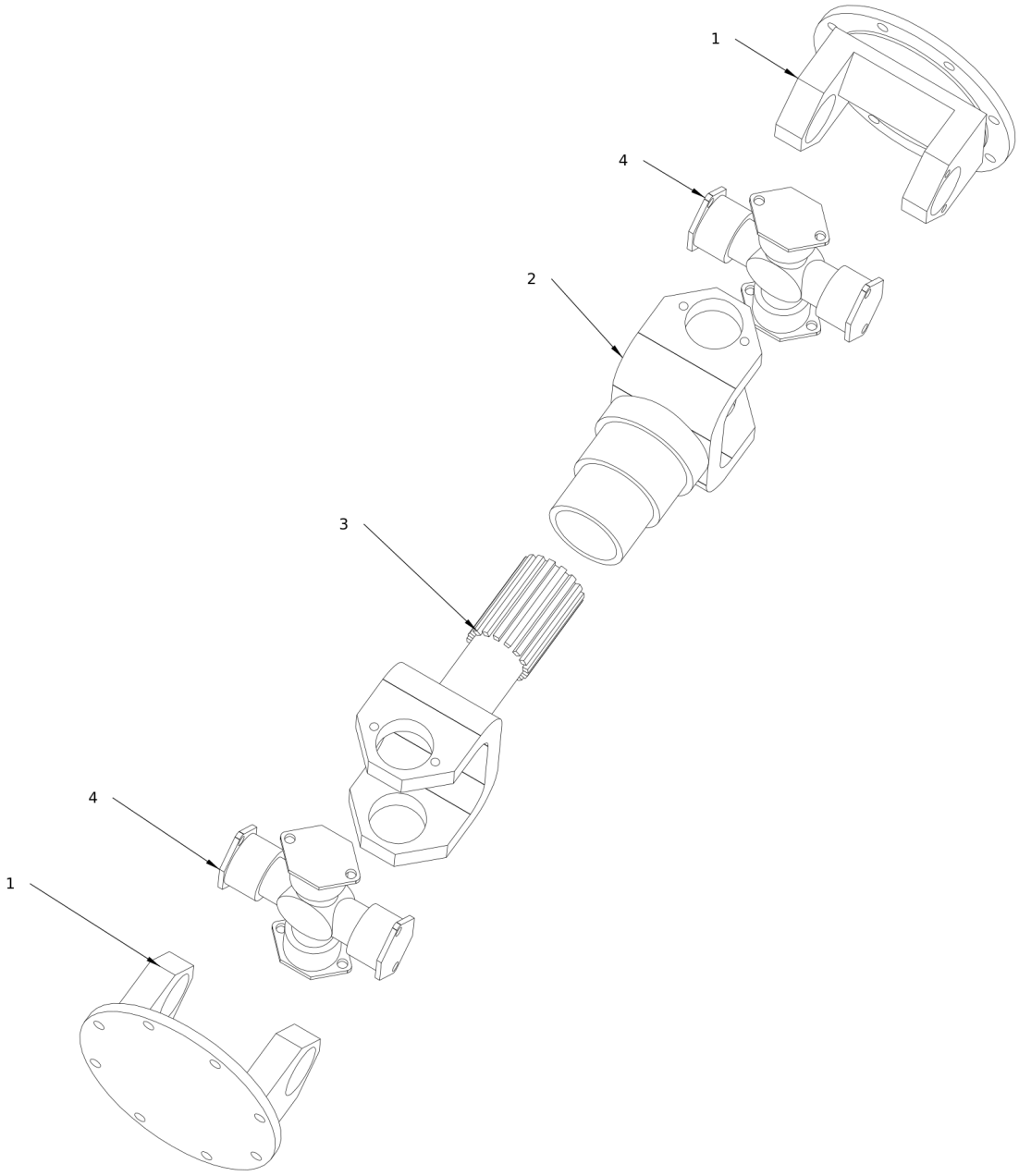
Item	Part No.	Name	Remarks	Qty	Uom
1	2000585	BRG\PB\3-1/4\ISAF\NON-EXP		1	EA
2	2000586	BRG\PB\3-1/4\ISAF\EXP		1	EA
3	2900162	CAP\END\BRG\3-1/4\ISAF		1	EA
4	4500142	NUT\CYL\3-1/2	Liability Waiver Required	2	EA
5	4500626	WASH\THRUST\3-5/8IDX6	Liability Waiver Required	2	EA
6	4502318	PL\RTR\1/2X3-1/2ID\1-1/4RDS\TPPD	Liability Waiver Required	2	EA
7	4502321	PL\RTR\3.5X1/2X15.75\1-1/4RDS\FCD	Liability Waiver Required	21	EA
8	4502643	HOLDDOWN\SCRN\LASERED		4	EA
9	4502670	SHIM\BRG\RTR		8	EA
10	4502694	SPCR\CAST\8.645ODX3.503IDX1.773 THICK		14	EA
11	4502695	SPCR\CAST\8.645ODX3.503IDX1.773 THICK		8	EA
12	4502986	SHFT\RTR\3-1/2X71-3/4\3-1/4BRG		1	EA.
13	4702292	PL\RTR\MVBL\6IDX15-3/4\1-1/4ROD	Liability Waiver Required	2	EA
14	4704292	WASHER\PL\MOVEABLE\RTR		8	EA
15	4800077	BOLT\HEX\1/2X5-1/2		5	EA.
16	4800085	BOLT\HEX\1/2X1		8	EA.
17	4800925	BOLT\HEX\7/8X5		4	EA
18	4900001	NUT\HEX\1/2\NC		5	EA.
19	4900022	NUT\HEX\7/8\NC		4	EA
20	5000004	WASH\FLAT\1/2		5	EA.
21	5000006	WASH\LOCK\1/2		13	EA.
22	5000098	WASH\FLAT\7/8		8	EA
23	5000106	WASH\LOCK\7/8		4	EA
24	5200262	HMMR\FORGED\1-1/4\SET\H1130	1 Set = 88 Hammers	1	SET
25	5300105	ROD\HMMR\1-1/4X50		8	EA
26	5400062	SCREEN\4" HOLE\1/4\H1100		2	EA
27	6200024	KEY\SQ\3/4X4		1	EA
28	6200035	KEY\RECT\1/2X5/8X6-1/4		4	EA
CA	4502984	RTR\ASSY\50X1-1/4ROD\1135\ALLCAST>			EA.
CA	4502985	ORDER 4502985BR			EA.
NS	5400095	SCREEN\1/8" HOLE\1/4\H1100			EA
NS	5400074	SCREEN\3/16" HOLE\1/4\H1100			EA
NS	5400052	SCREEN\1/4" HOLE\1/4\H1100			EA
NS	5400053	SCREEN\3/8" HOLE\1/4\H1100			EA
NS	5400054	SCREEN\1/2" HOLE\1/4\H1100			EA
NS	5400055	SCREEN\5/8" HOLE\1/4\H1100			EA
NS	5400056	SCREEN\3/4" HOLE\1/4\H1100			EA
NS	5400049	SCREEN\1" HOLE\1/4\H1100			EA

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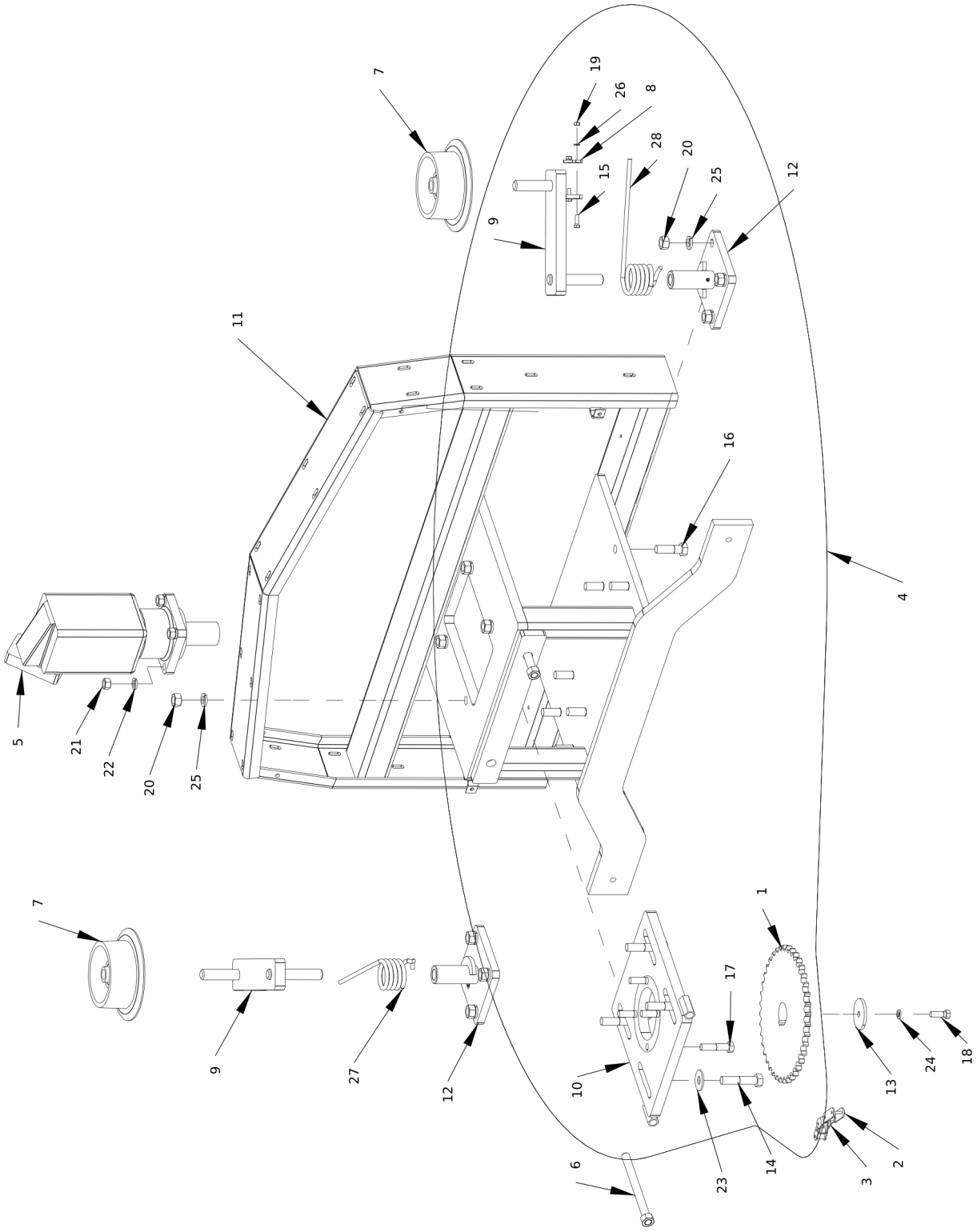
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NS	5400066	SCREEN\1 1/2" HOLE\1/4\H1100			EA
NS	5400050	SCREEN\2" HOLE\1/4\H1100			EA
NS	5400051	SCREEN\3" HOLE\1/4\H1100			EA
NS	5400062	SCREEN\4" HOLE\1/4\H1100			EA
NS	5400102	SCREEN\5" HOLE\1/4\H1100			EA
NS	5400110	SCREEN\6" HOLE\1/4\H1100E			EA
NS	5400111	SCREEN\7" HOLE\1/4\H1100E			EA
NS	5400103	SCREEN\8" HOLE\1/4\H1100			EA
NS	5400080	SCREEN\DUMMY\1/4\H1100			EA


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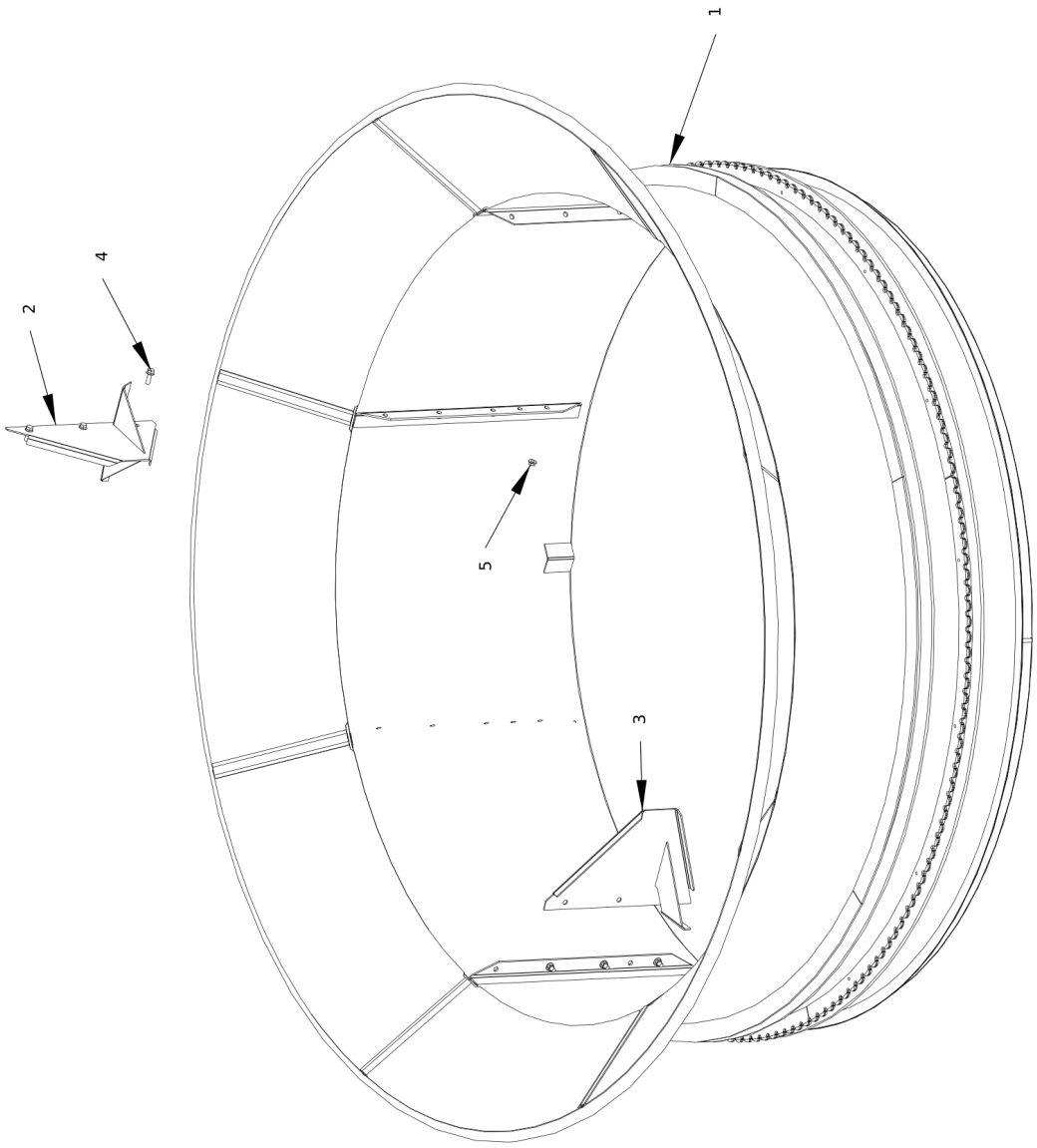
Item	Part No.	Name	Remarks	Qty	Uom
1	1000295	SPKT\60\TPR\20\2012\REV		1	EA
2	1100064	CHAIN\60DBL\CL		1	EA.
3	1100193	CHAIN\60DBL\19		1	EA
4	1400624	BUSH\R2\3		1	EA
5	1400658	BUSH\TAPER\1-1/2\2012\W/KEY		1	EA
6	1400667	SHVE\5V-8\9.75\F		1	EA
7	2001052	BRG\PB\3\IMPRL\NON-EXP		1	EA
8	2001053	BRG\PB\3\IMPRL\EXP		1	EA
9	3600156	FLG\DRLIN\3\1710		1	EA
10	3600907	DRLIN\COMP\19.25\1710		1	EA.
11	3600908	FLG\3-1/4ID\1710\DRLIN		1	EA.
12	4200142	PUMP\HYD\TNDM\1.78CIDX1.3CID		1	EA
13	4502617	SEAL\ADJ\SHFT\RTR		4	EA
14	4502665	BRKT\PUMP		1	EA.
15	4502784	SPKT\SNSR		1	EA
16	4502785	BRKT\SENSOR		1	EA
17	4502796	SPKT\60\B\20\2-7/16\5/8KW		1	EA
18	4705461	SHFT\JACK\PUMPDRIVE		1	EA
19	4800063	BOLT\HEX\3/4X4		4	EA.
20	4800082	BOLT\HEX\1/2X1-1/2		2	EA.
21	4800098	BOLT\HEX\3/8X1-1/4\NC		2	EA.
22	4800114	BOLT\HEX\1/2X2		2	EA.
23	4800487	BOLT\HEX\3/8X1-1/4\GR8/NF		16	EA
24	4900001	NUT\HEX\1/2\NC		4	EA.
25	4900002	NUT\HEX\3/8\NC		2	EA.
26	4900004	NUT\HEX\3/4\NC		4	EA.
27	4900125	NUT\HEX\3/8\GR8\NF		16	EA
28	5000004	WASH\FLAT\1/2		4	EA.
29	5000005	WASH\FLAT\3/4		8	EA.
30	5000006	WASH\LOCK\1/2		4	EA.
31	5000012	WASH\LOCK\3/4		4	EA.
32	5000019	WASH\LOCK\3/8		18	EA.
33	5701157	SENSOR\SPEED\HALL;EFFECT		1	EA
34	6200024	KEY\SQ\3/4X4		2	EA
35	7501443	INSERT\SPLINED\7/8;13TTHX1-1/2OD		1	EA
	4502627	CPLR\DRV\PMP\6020CHNX7/8SPLN	(Includes #1, #5 and #35)		EA


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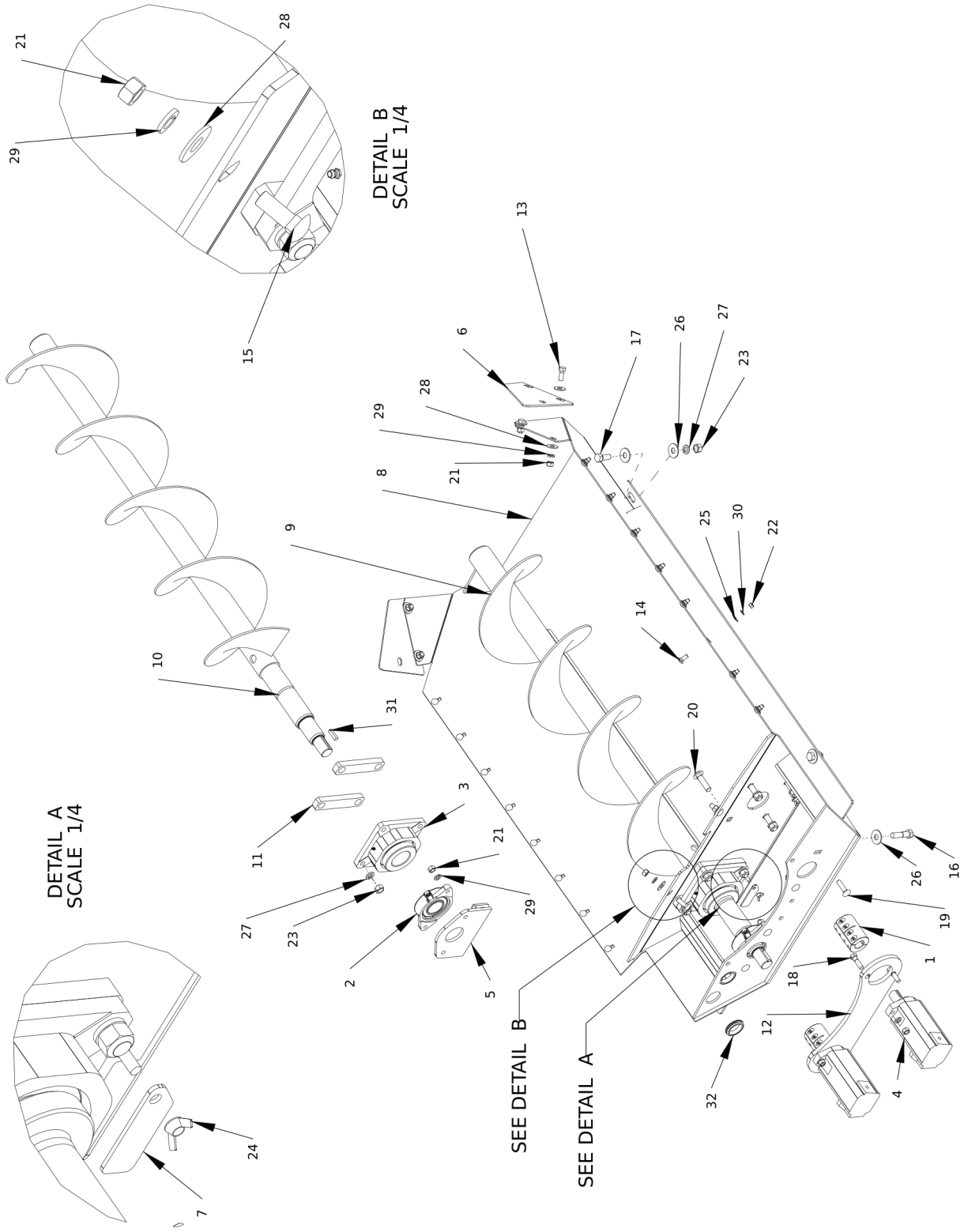
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1	3600152	FLANGE YOKE 1710		2	EA
2	3600153	SLIP YOKE 1710		1	EA
3	3600154	YOKE SHAFT 1710		1	EA
4	3600155	JOURNAL AND BEARING KIT 1710		2	EA
CA	3600907	DRLIN\COMP\19.25\1710			EA.


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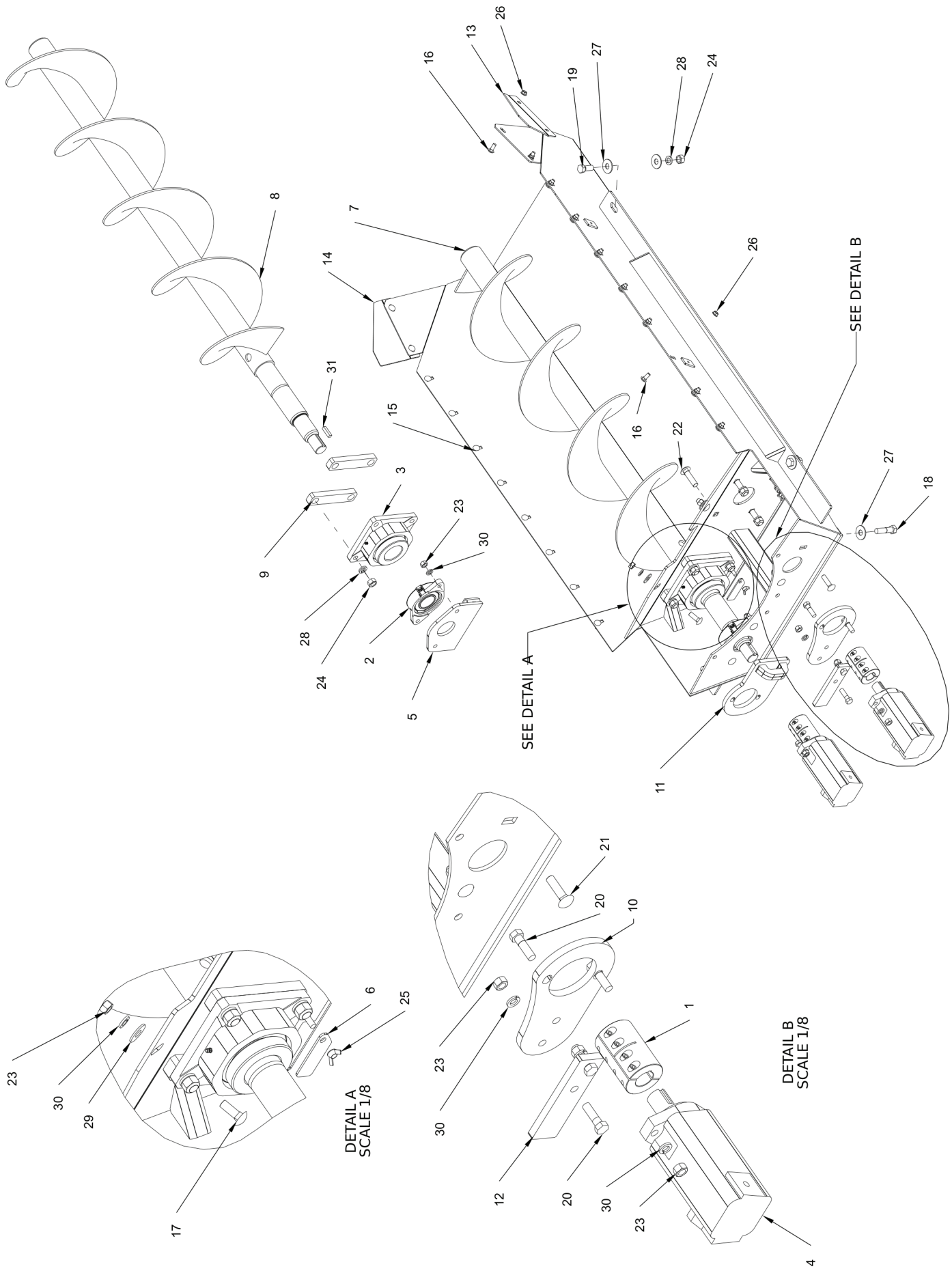
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1	1000311	SPKT\B\80\50\2-1/4\1/2KEY		1	EA
2	1100070	CHAIN\2080\CL		1	EA
3	1100071	CHAIN\2080\OL		1	EA
4	1100260	CHAIN\2080\183		1	EA
5	4200121	MTR\HYD\40.6\1000\2-1/4\1-5/16FOR		1	EA
6	4501328	BOLT\HEX\3X4X8-1/2		2	EA
7	4501331	RLLR\DR\TUB		2	EA
8	4501383	BRKT\SPRING\		2	EA
9	4501705	BRKT\RLLR\TNSN		2	EA
10	4501707	BRKT\MTR\DRV\TUB		1	EA
11	4502642	FRM\PLTFRM\TILT\H1130\RTR\REAR		1	EA
12	4703168	BRKT\RLLR\TNSN		2	EA
13	4703713	WASH\MTR\ORBIT		1	EA
14	4800011	BOLT\HEX\3/4X3-1/2		4	EA.
15	4800013	BOLT\HEX\5/16X1		4	EA.
16	4800115	BOLT\HEX\3/4X2-1/2		8	EA.
17	4800196	BOLT\HEX\5/8X2-3/4		4	EA.
18	4800575	BOLT\HEX\1/2X1-1/2\NF		1	EA
19	4900003	NUT\HEX\5/16\NC		4	EA.
20	4900004	NUT\HEX\3/4\NC		14	EA.
21	4900005	NUT\HEX\5/8\NC		4	EA.
22	5000003	WASH\LOCK\5/8		4	EA.
23	5000005	WASH\FLAT\3/4		4	EA.
24	5000006	WASH\LOCK\1/2		1	EA.
25	5000012	WASH\LOCK\3/4		12	EA.
26	5000022	WASH\LOCK\5/16		4	EA.
27	6100078	SPG\DR\TUB		1	EA.
28	6100079	SPG\DR\TUB		1	EA.


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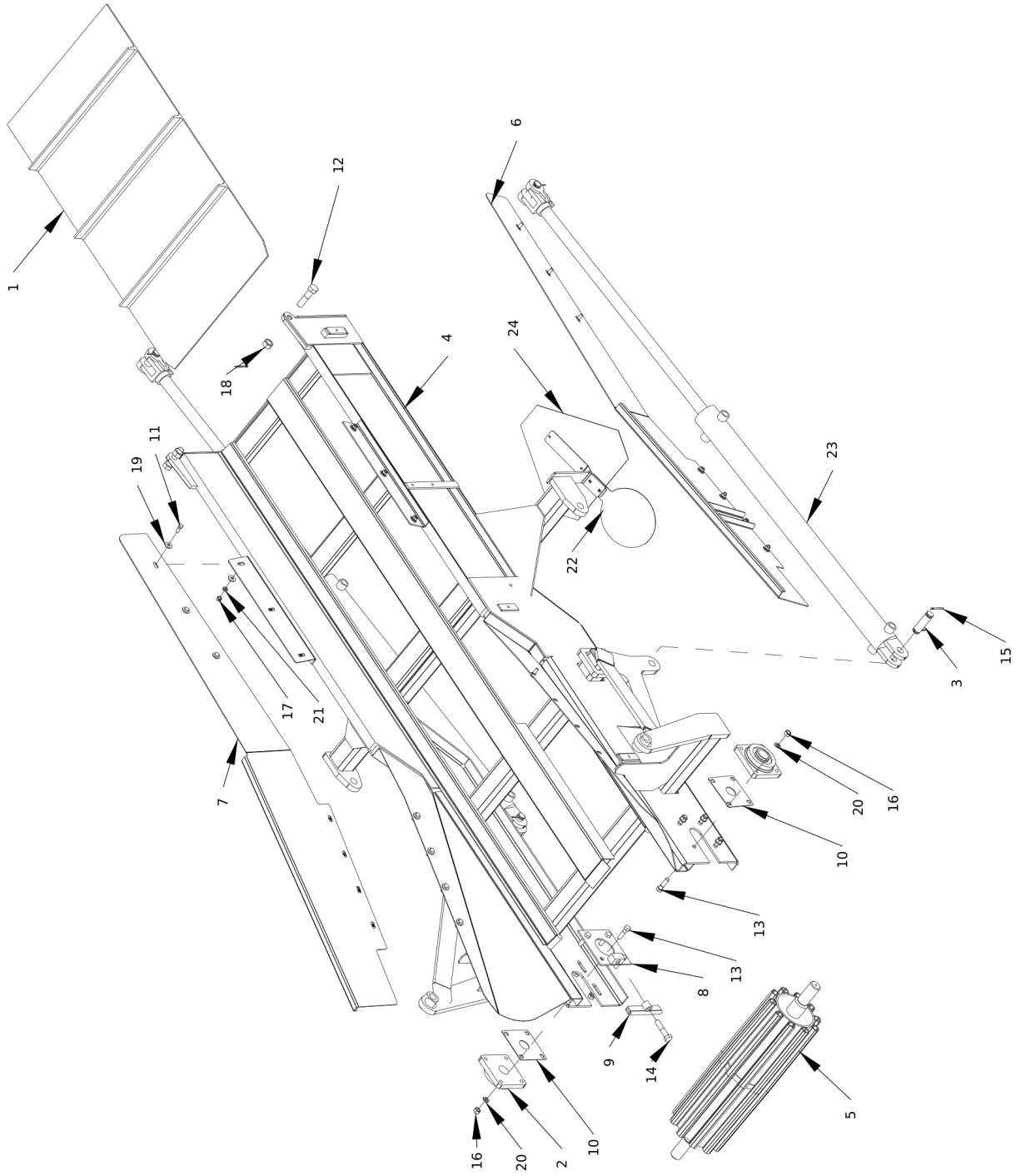
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1	4502346	TUB\H1100\TTH\CNTNS		1	EA
2	4502409	AGTTR\TUB\FIN\10		1	EA
3	4502410	AGTTR\TUB\FIN\14		1	EA
4	4800929	BOLT\FLG\SERR\1/2X1-1/2\NC		6	EA
5	4900133	NUT\FLG\1/2\NC		6	EA


DETAIL B
SCALE 1/4
DETAIL A
SCALE 1/4
SEE DETAIL B
SEE DETAIL A

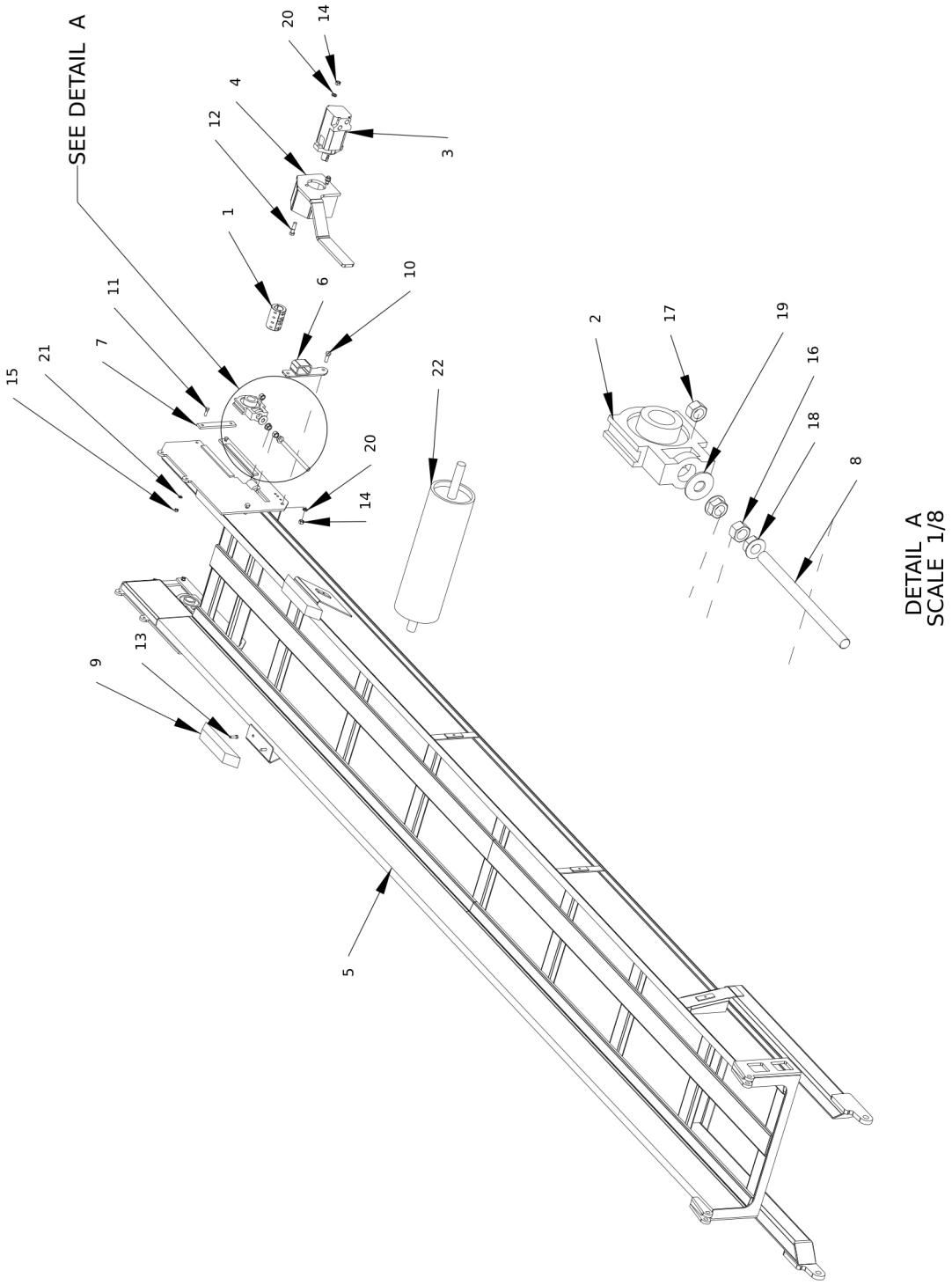
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1	1400659	CPLR\RIGID\1.5X1.25		2	EA
2	2000587	BRG\FLG\2"-BLT\SSCRW		2	EA
3	2000588	BRG\FLG\2-1/2\4-BLT\D-LOCK		2	EA
4	3900005	MTR\HYD\14.9\2000\SAE;A		2	EA
5	4502312	ADJSTR\BRG\FR		2	EA
6	4502427	SH\SIDE\PAN\CNVYR		2	EA
7	4502603	CVR\HOLE\DRN		2	EA
8	4502657	WELD\PAN\CNVYR\BELLY\H1130		1	EA
9	4502658	AUGER\RIGHT		1	EA
10	4502659	AUGER\LEFT		1	EA
11	4502666	SPCR\BRG\AGR\CNVYR		4	EA
12	4502755	BRKT\MTR\DRIVE		1	EA
13	4800018	BOLT\HEX\1/2X1-1/4		4	EA.
14	4800053	BOLT\CRG\3/8X1\NC		16	EA.
15	4800061	BOLT\CRG\1/2X1-1/2\NC		2	EA
16	4800079	BOLT\HEX\5/8X2-1/2		4	EA.
17	4800106	BOLT\HEX\5/8X1-1/2		4	EA.
18	4800178	BOLT\HEX\1/2X1-3/4		4	EA.
19	4800334	BOLT\CRG\1/2X2\NC		4	EA
20	4801232	BOLT\CRG\5/8X2-1/2		8	EA
21	4900001	NUT\HEX\1/2\NC		14	EA.
22	4900002	NUT\HEX\3/8\NC		16	EA.
23	4900005	NUT\HEX\5/8\NC		12	EA.
24	4900032	NUT\WING\3/8\NC		2	EA.
25	5000001	WASH\FLAT\3/8		16	EA.
26	5000002	WASH\FLAT\5/8		12	EA.
27	5000003	WASH\LOCK\5/8		16	EA.
28	5000004	WASH\FLAT\1/2		10	EA.
29	5000006	WASH\LOCK\1/2		14	EA.
30	5000019	WASH\LOCK\3/8		16	EA.
31	6200021	KEY\SQ\3/8X1-1/2\HARDEND		2	EA.
32	7500360	GRMT\RBBR\2X1.75IDX1/4T		2	EA.
CA	4502660	CNVYR\BLLY\H1130			EA


SEE DETAIL A
SEE DETAIL B
DETAIL A
SCALE 1/8
DETAIL B
SCALE 1/8

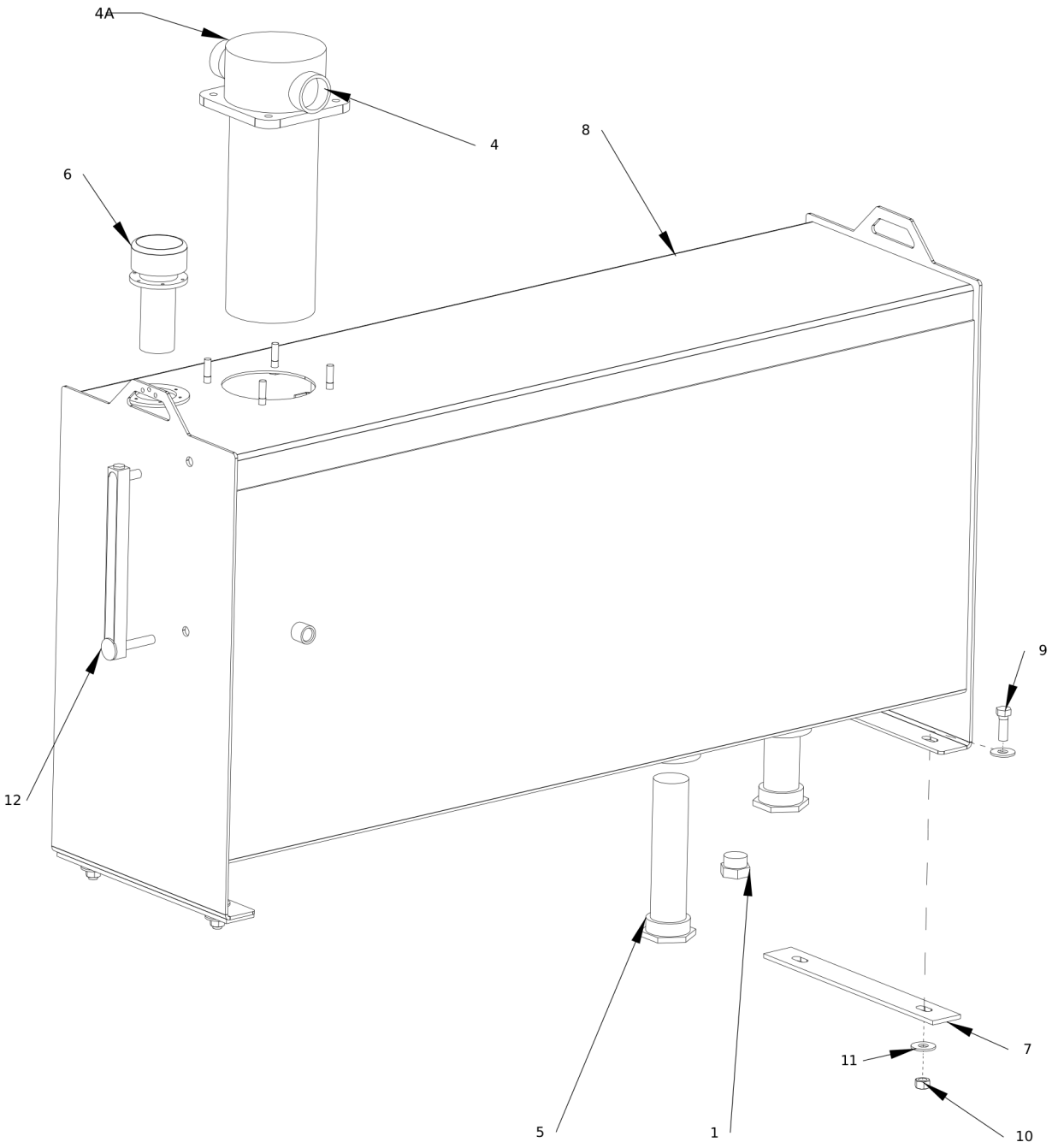
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1	1400659	CPLR\RIGID\1.5X1.25		2	EA
2	2000587	BRG\FLG\2"-BLT\SSCRW		2	EA
3	2000588	BRG\FLG\2-1/2\4-BLT\D-LOCK		2	EA
4	3900005	MTR\HYD\14.9\2000\SAE;A		2	EA
5	4502312	ADJSTR\BRG\FR		2	EA
6	4502603	CVR\HOLE\DRN		2	EA
7	4502658	AUGER\RIGHT		1	EA
8	4502659	AUGER\LEFT		1	EA
9	4502666	SPCR\BRG\AGR\CNVYR		4	EA
10	4503204	BRKT\MTR\DRIVE		1	EA.
11	4503205	BRKT\REC\MTR\DRIVE		1	EA.
12	4503206	PL\LINK\MTR\DRIVE		1	EA.
13	4503207	SH\SIDE\PAN\CNVYR		1	EA.
14	4503208	SH\SIDE\PAN\CNVYR		1	EA.
15	4503211	PAN\CNVYR\BELLY\H1135		1	EA.
16	4800053	BOLT\CRG\3/8X1\NC		20	EA.
17	4800061	BOLT\CRG\1/2X1-1/2\NC		2	EA
18	4800079	BOLT\HEX\5/8X2-1/2		4	EA.
19	4800106	BOLT\HEX\5/8X1-1/2		4	EA.
20	4800178	BOLT\HEX\1/2X1-3/4		6	EA.
21	4800334	BOLT\CRG\1/2X2\NC		4	EA
22	4801232	BOLT\CRG\5/8X2-1/2		8	EA
23	4900001	NUT\HEX\1/2\NC		12	EA.
24	4900005	NUT\HEX\5/8\NC		12	EA.
25	4900032	NUT\WING\3/8\NC		2	EA.
26	4900076	NUT\FLG\SERR\3/8\NC		20	EA.
27	5000002	WASH\FLAT\5/8		12	EA.
28	5000003	WASH\LOCK\5/8		16	EA.
29	5000004	WASH\FLAT\1/2		2	EA.
30	5000006	WASH\LOCK\1/2		12	EA.
31	6200021	KEY\SQ\3/8X1-1/2\HARDEND		2	EA.
CA	4503212	ASSY\PAN\CNVYR\BLLY\H1135			EA.


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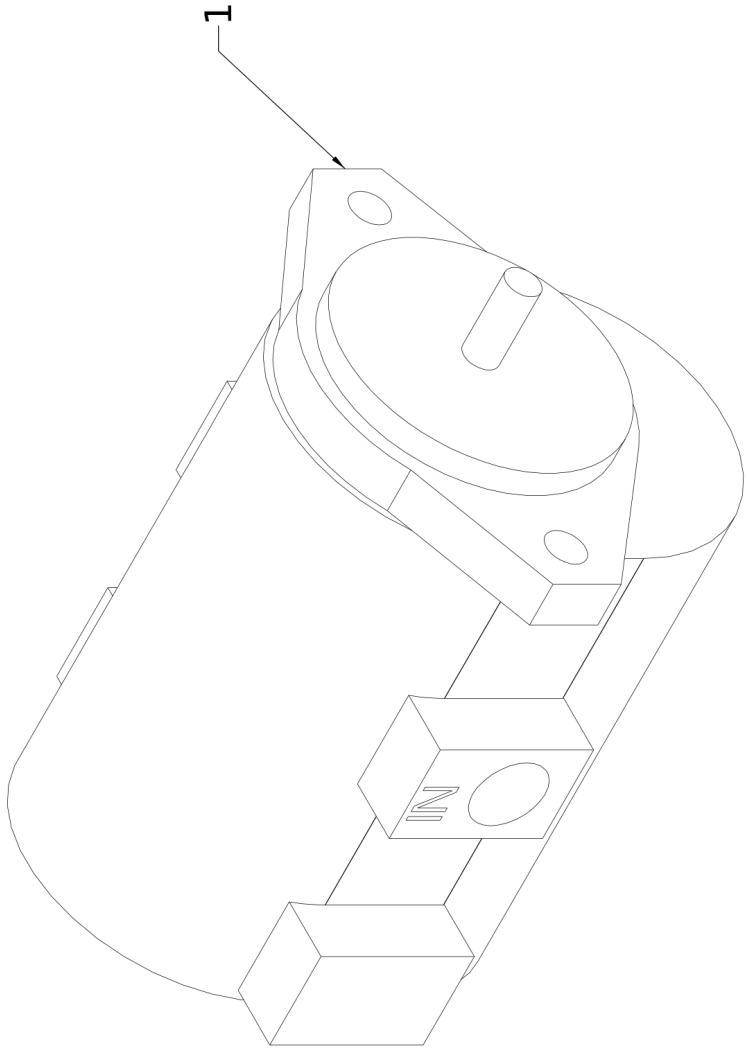
Item	Part No.	Name	Remarks	Qty	Uom
1	1700231	BELT\CNVYR\24X606\CLEATED		1	EA
2	2000303	BRG\FLG\1-1/2\BOLT		2	EA
3	4100030	PIN 1" X 3-1/2" HYD. CYL.		4	EA.
4	4502305	CONV\LOWER\H1130\FLDNG		1	EA
5	4502418	RLLR\IDLER\32-3/4X8\CNVYR\DISCH		1	EA
6	4502428	TRNSTN\CNVYR\LFT		1	EA
7	4502429	TRNSTN\CNVYR\RGHT		1	EA
8	4701528	BRKT\ADJ\TRACKING\CNVYR\DISCH		1	EA
9	4701529	HOOK\ROD\ADJ\BELT\CNVYR\DISCH		1	EA
10	4704067	PL\SEAL\BRG		2	EA
11	4800003	BOLT\HEX\3/8X1		14	EA.
12	4801303	BOLT\HEX\3/4X2-3/4		2	EA
13	4800178	BOLT\HEX\1/2X1-3/4		8	EA.
14	4800196	BOLT\HEX\5/8X2-3/4		1	EA.
15	4800203	PIN\COT\5/32X2		8	EA.
16	4900001	NUT\HEX\1/2\NC		8	EA.
17	4900002	NUT\HEX\3/8\NC		14	EA.
18	4900139	NUT\TPLCK\3/4\GR8\NC		2	EA.
19	5000001	WASH\FLAT\3/8		28	EA.
20	5000006	WASH\LOCK\1/2		8	EA.
21	5000019	WASH\LOCK\3/8		14	EA.
22	7501701	DECAL\ASSY\ID\SPD\25MPH/40KM/H		1	EA.
23	4100175	ORDER 4100352 CYL\HYD\3X36\PARALLEL		2	EA
23A	4100352	CYL\HYD\3X36\PARALLEL\CLEV\7/8FOR			EA.
24	7501353	SIGN\SMV\PLSTC-BCKNG		1	EA.
CA	4502304	CNVYR\DISCH\ASSY\FLDG\H1130	(this is for a complete upper and lower discharge conveyor)		EA
NS	1700142	LCNG\CBL\R-2\24			EA
NS	1700143	LCNG\R-2\24			EA


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DETAIL A
SCALE 1/8

Item	Part No.	Name	Remarks	Qty	Uom
1	1400659	CPLR\RIGID\1.5X1.25		1	EA
2	2000320	BRG\TUU\1-1/2\W-ECC\BSEAL		2	EA
3	3900014	MTR\HYD\9.6\2000\1-1/4SH		1	EA
4	4502227	BRKT\ARM\TORQUE\MTR		1	EA
5	4502303	CONV\UPPER\FLDNG		1	EA
6	4502811	BRKT\ARM\TORQUE		1	EA
7	4702204	STRAP\REINFRC\GUIDE\BRG\CNVYR		2	EA
8	4702205	BOLT\ADJ\RLLR\DRV\CNVYR		2	EA
9	4704099	BMPR\CNVYR\DISCH		2	EA
10	4800082	BOLT\HEX\1/2X1-1/2		2	EA.
11	4800098	BOLT\HEX\3/8X1-1/4\NC		4	EA.
12	4800114	BOLT\HEX\1/2X2		2	EA.
13	4801198	SCR\LAG\3/8X1-1/2		4	EA
14	4900001	NUT\HEX\1/2\NC		4	EA.
15	4900002	NUT\HEX\3/8\NC		4	EA.
16	4900005	NUT\HEX\5/8\NC		2	EA.
17	4900012	NUT\TPLCK\5/8\NC		2	EA.
18	4900110	NUT\FLG\SERR\5/8\NC		4	EA.
19	5000002	WASH\FLAT\5/8		2	EA.
20	5000006	WASH\LOCK\1/2		4	EA.
21	5000019	WASH\LOCK\3/8		4	EA.
22	7501373	RLLR\DSCHG\24X8\RBBR		1	EA
CA	4502304	CNVYR\DISCH\ASSY\FLDG\H1130	(this is for a complete upper and lower discharge conveyor)		EA

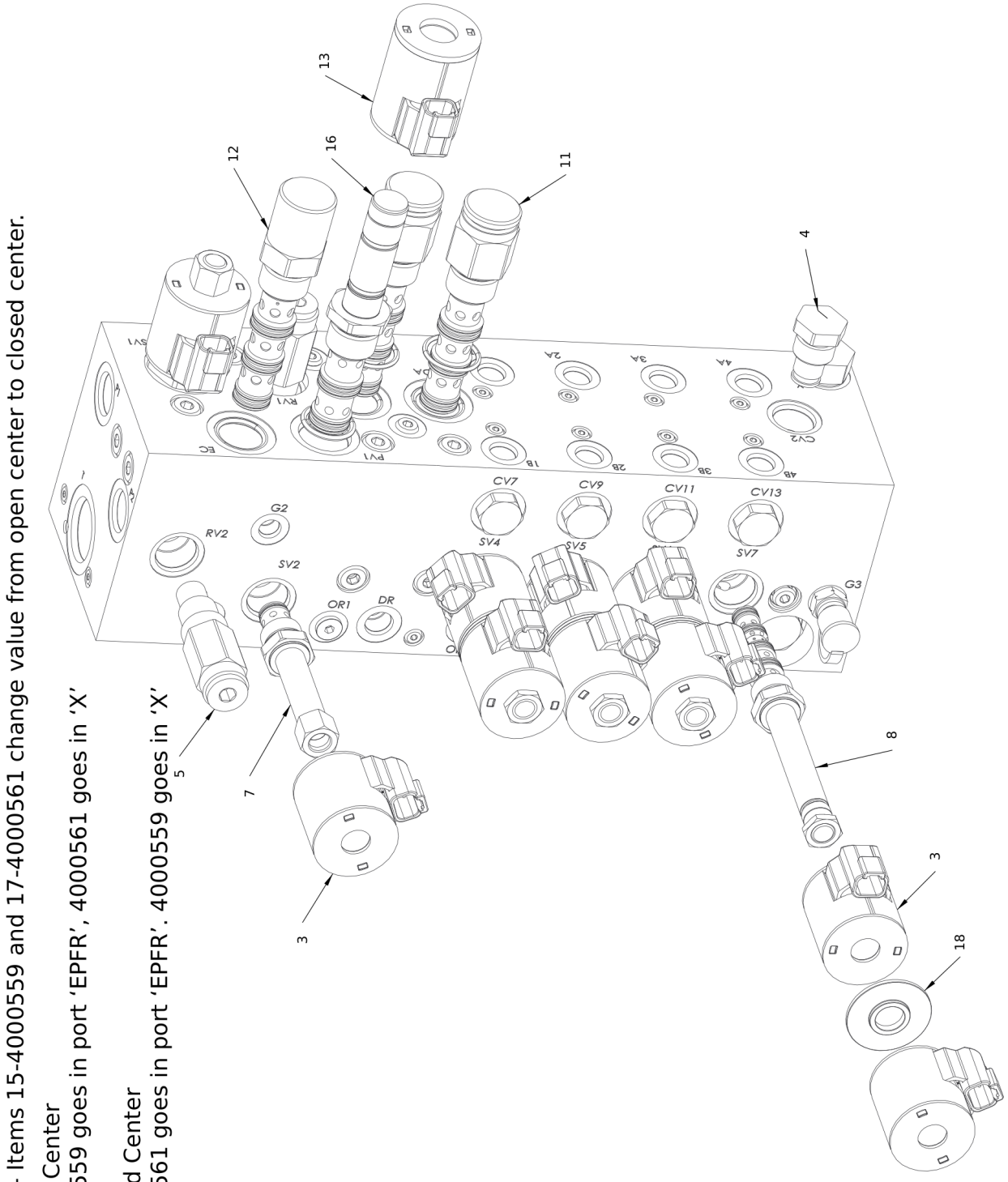

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Item	Part No.	Name	Remarks	Qty	Uom
1	3800301	FTG\1-5/16MOR\PLUG\HEX		1	EA
2	3800718	FTG\3/4FOR\WELD\FLG		1	EA
3	3801006	FTG\2-1/2FOR\WELD\FLG\HVY		2	EA
4	4400043	FILTER\HYDRAULIC\RETURN\IN-TANK ELEMENT 4400074		1	EA
NS	4400074	FLTR\ELMT\10MIC\INTANK	WEAR PARTS		EA
4A	4400066	GAUGE\FLTR\25PSI\1/8NPTF			EA
5	4400067	FLTR\SCRN\2-1/2MORX1-7/8FOR\30G PM\ST30-100-RV3		2	EA
NS	4400158	O-RING\2.337IDX.116\BUNA\AS568-932	WEAR PARTS		EA
6	4400071	VENT\W/LOCK\CAP\HYD		1	EA
NS	4400159	GASKET\NECK\4400071	WEAR PARTS		EA
NS	4400160	GASKET\CAP\4400071	WEAR PARTS		EA
7	4502424	BELT\CUSH\TNK\OIL\60GAL		2	EA
8	4502799	TANK\OIL\60GAL		1	EA
9	4800082	BOLT\HEX\1/2X1-1/2		4	EA.
10	4900014	NUT\TPLCK\1/2\NC		4	EA.
11	5000004	WASH\FLAT\1/2		8	EA.
12	7500615	GAUGE\LEVEL\10\W/THERMOMETER		1	EA
NS	7501587	O-RING\5/8IDX3/32\BUNA90\AS568-114	WEAR PARTS		EA
CA	4502526	TANK\OIL\ASSY\H1030			EA.


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Item	Part No.	Name	Remarks	Qty	Uom
1	4200142	PUMP\HYD\TNDM\1.78CIDX1.3CID		1	EA
NS	4200161	PUMP\SEAL\KIT\4200142			EA

H-1135 Tub Grinder Parts Reference



4000598 Hydraulic Valve Assembly-View A

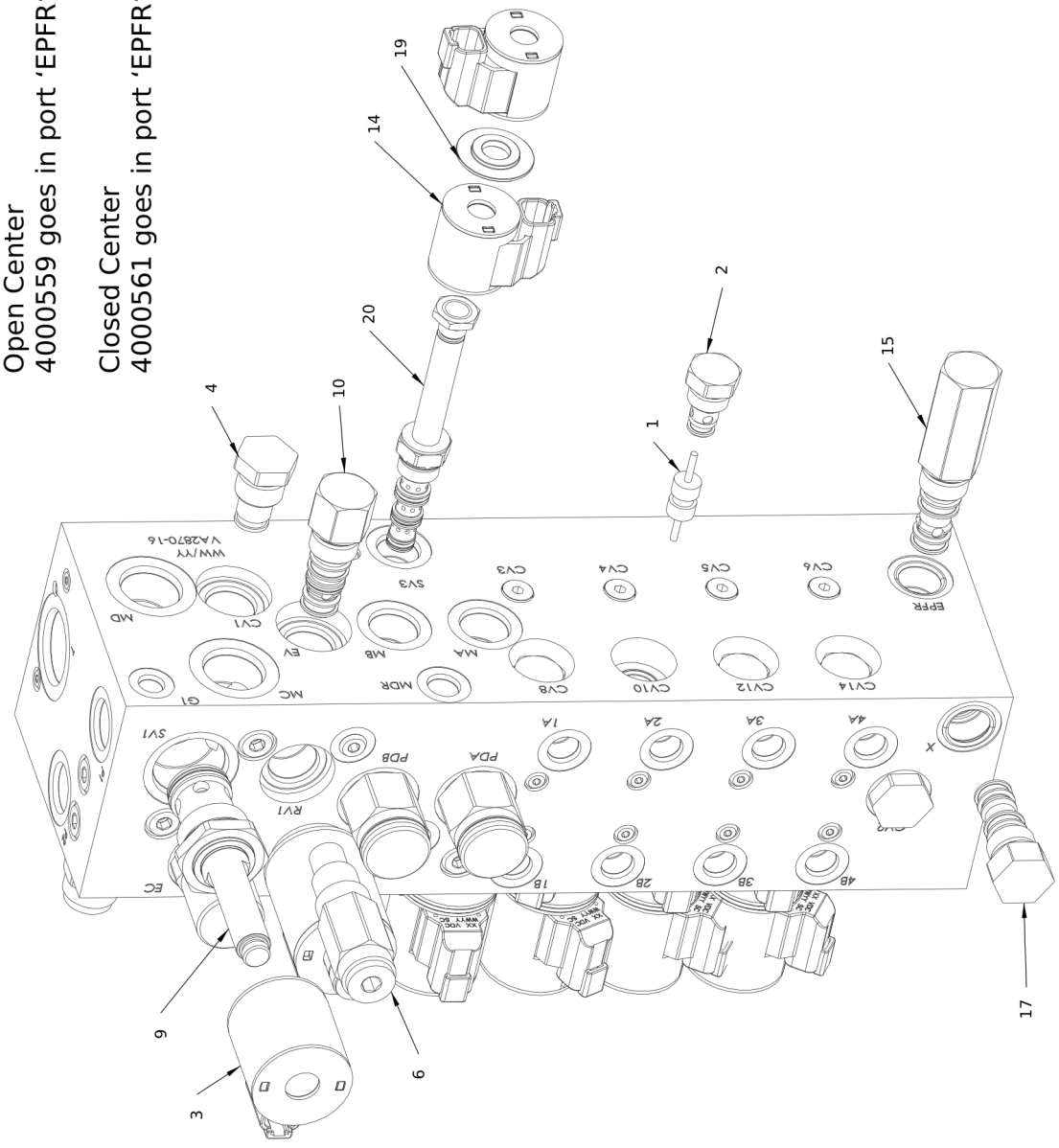
Item	Part No.	Name	Remarks	Qty	Uom
1	4000230	VALVE\HYD\PILOT\PISTON		4	EA
2	4000231	VALVE\HYD\CART\CHECK\CV0820\100P		8	EA
3	4000347	VALVE\HYD\SOL\12V\E10\DTZ\W/DIODE		10	EA
4	4000446	VALVE\CHECK\CART\CV1020		2	EA
5	4000510	VLV\HYD\RELIEF\CART\3000		1	EA.
6	4000548	VLV\HYD\RELIEF\CART\2500		1	EA.
7	4000549	VALVE\HYD\CART\N:OPEN\2WAY;2POS		1	EA.
8	4000550	VALVE\HYD\CART\5WAY;3POS		4	EA
9	4000552	VALVE\HYD\CART\N.O.;POPPET		1	EA.
10	4000553	VALVE\CART\VENTED PRESS BLOCK\EV10		1	EA.
11	4000555	VALVE\HYD\CART\4POS3WAY\PILOTED		2	EA.
12	4000556	VALVE\HYD\CART\COMP\80PSI		1	EA.
13	4000557	VALVE\HYD\SOL\12V\E70\DTZ\W/DIODE		1	EA
14	4000558	VALVE\HYD\SOL\12V\E08\DTZ\W/DIODE		2	EA
15	4000559	VALVE\HYD\CART\PRESS;COMP\160PSI		1	EA.
16	4000560	VALVE\HYD\CART\PROPOR\NC\2WAY		1	EA.
17	4000561	VALVE\HYD\CART\PLUG\3 WAY		1	EA.
18	4000562	VALVE\HYD\SOL\SPACER\E10		4	EA.
19	4000563	VALVE\HYD\SOL\SPACER\E8		1	EA.
20	4000595	VALVE\HYD\CART\3POS,4WAY\OPEN:CENTER		1	EA.
CA	4000598	VLV\HYD\AUX\BLK\MFLD\12V		1	EA.

H-1135 Tub Grinder Parts Reference

Note - Items 15-4000559 and 17-4000561 change value from open center to closed center.

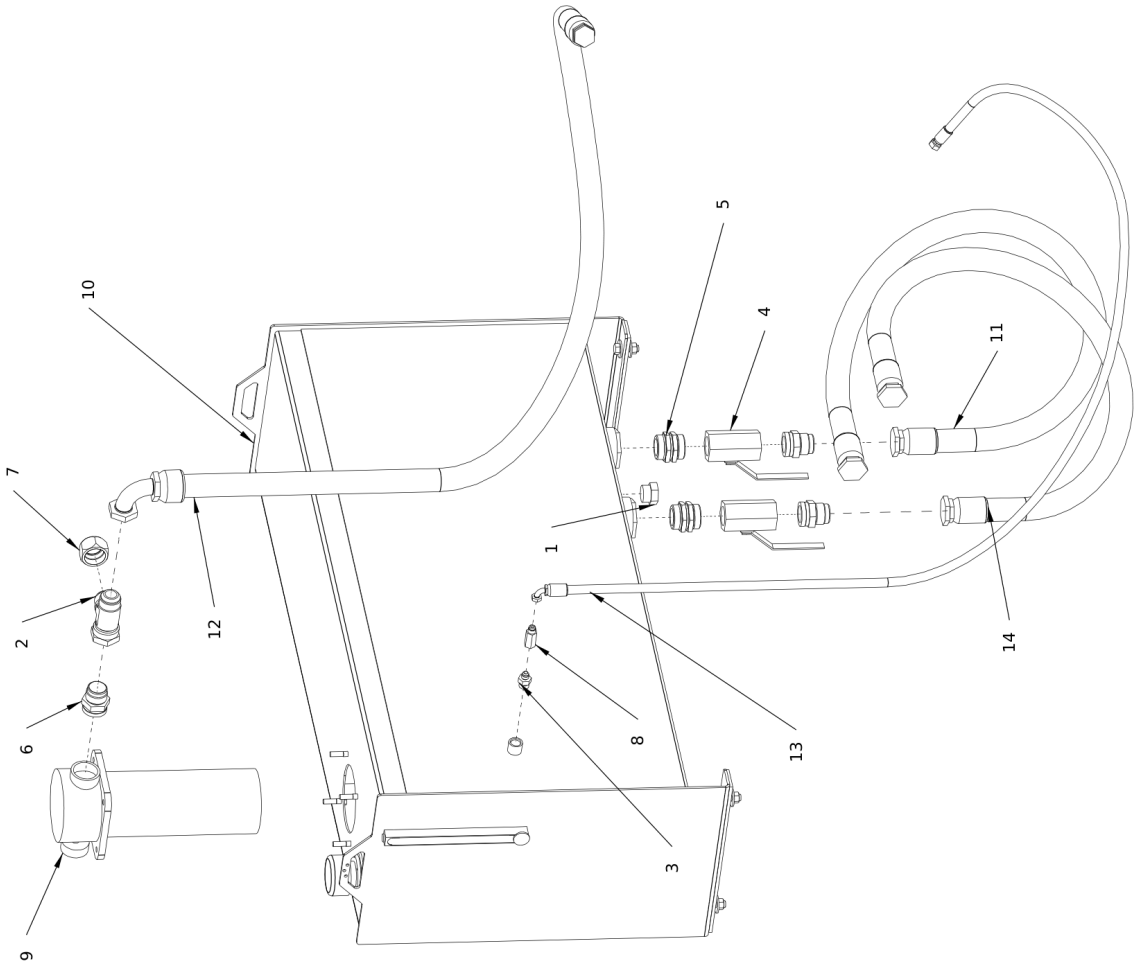
Open Center
4000559 goes in port 'EPFR', 4000561 goes in 'X'

Closed Center
4000561 goes in port 'EPFR'. 4000559 goes in 'X'

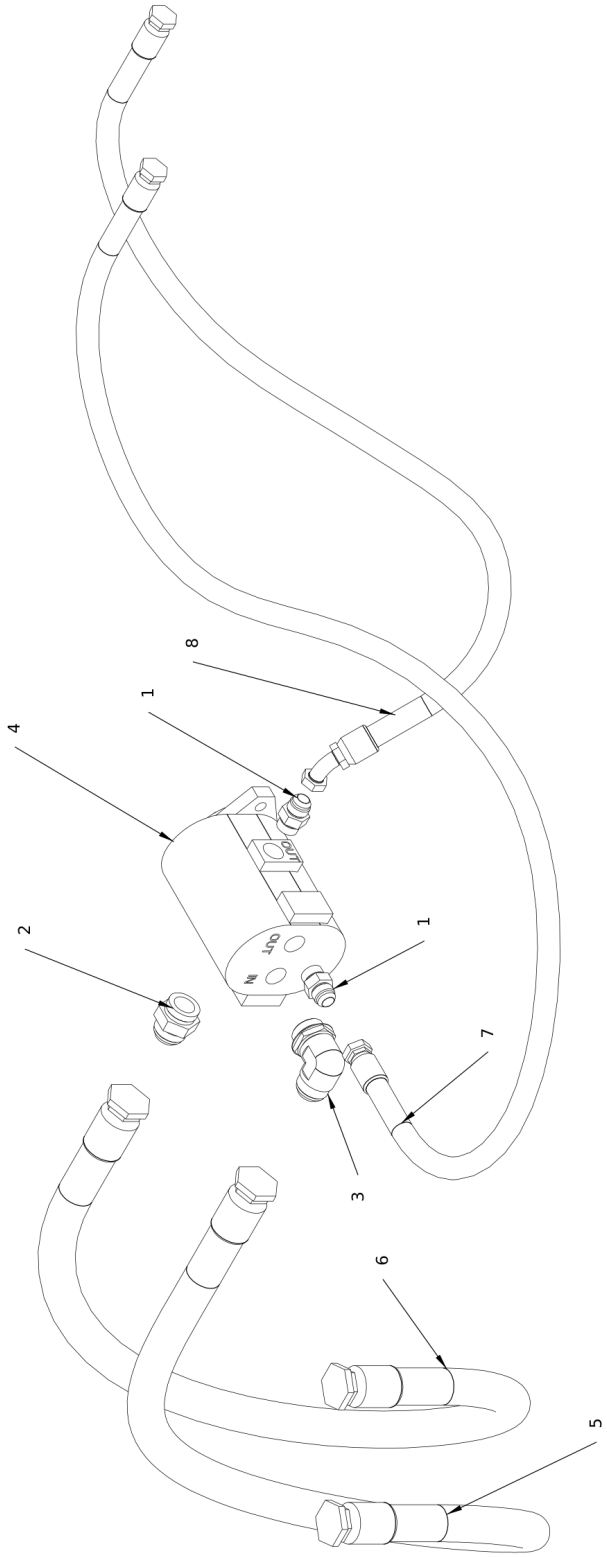


4000598 Hydraulic Valve Assembly-View B

Item	Part No.	Name	Remarks	Qty	Uom
1	4000230	VALVE\HYD\PILOT\PISTON		4	EA
2	4000231	VALVE\HYD\CART\CHECK\CV0820\100P		8	EA
3	4000347	VALVE\HYD\SOL\12V\E10\DTZ\W/DIODE		10	EA
4	4000446	VALVE\CHECK\CART\CV1020		2	EA
5	4000510	VLV\HYD\RELIEF\CART\3000		1	EA.
6	4000548	VLV\HYD\RELIEF\CART\2500		1	EA.
7	4000549	VALVE\HYD\CART\N:OPEN\2WAY;2POS		1	EA.
8	4000550	VALVE\HYD\CART\5WAY;3POS		4	EA
9	4000552	VALVE\HYD\CART\N.O.;POPPET		1	EA.
10	4000553	VALVE\CART\VENTED PRESS BLOCK\EV10		1	EA.
11	4000555	VALVE\HYD\CART\4POS3WAY\PILOTED		2	EA.
12	4000556	VALVE\HYD\CART\COMP\80PSI		1	EA.
13	4000557	VALVE\HYD\SOL\12V\E70\DTZ\W/DIODE		1	EA
14	4000558	VALVE\HYD\SOL\12V\E08\DTZ\W/DIODE		2	EA
15	4000559	VALVE\HYD\CART\PRESS;COMP\160PSI		1	EA.
16	4000560	VALVE\HYD\CART\PROPOR\NC\2WAY		1	EA.
17	4000561	VALVE\HYD\CART\PLUG\3 WAY		1	EA.
18	4000562	VALVE\HYD\SOL\SPACER\E10		4	EA.
19	4000563	VALVE\HYD\SOL\SPACER\E8		1	EA.
20	4000595	VALVE\HYD\CART\3POS,4WAY\OPEN:CENTER		1	EA.
CA	4000598	VLV\HYD\AUX\BLK\MFLD\12V		1	EA.


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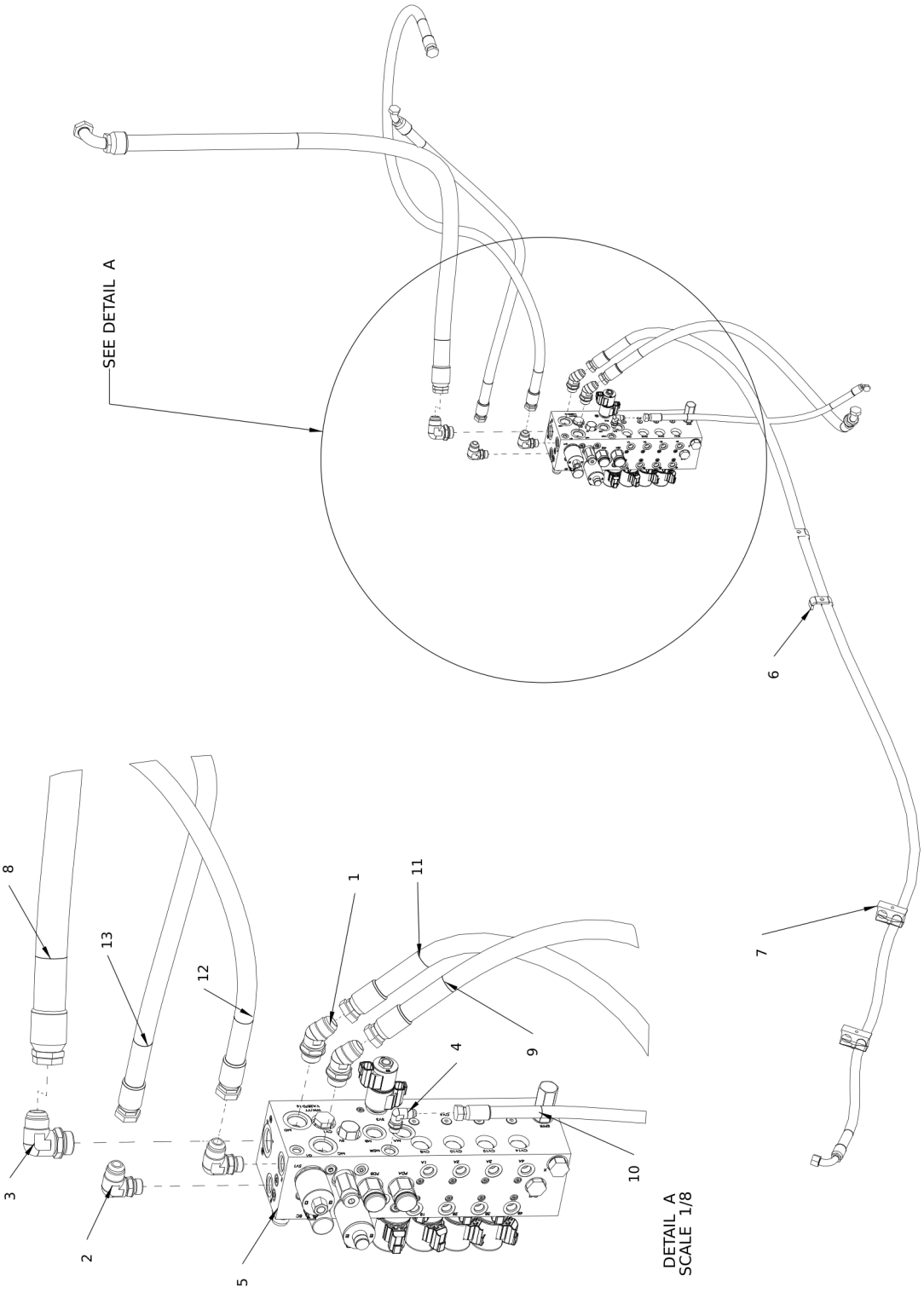
Item	Part No.	Name	Remarks	Qty	Uom
1	3800301	FTG\1-5/16MOR\PLUG\HEX		1	EA
2	3800486	FTG\1-5/8FJICX1-5/8MJICX1-5/8MJIC\RUN;TEE		1	EA
3	3800530	FTG\3/4MORX9/16MJIC\ST		1	EA.
4	3800740	VALVE\BALL\1-1/2\1-7/8FOR\1/4 TURN\W/LOCK		2	EA
5	3800745	FTG\1-7/8MORX1-7/8MOR\ADPT		2	EA
6	3800808	FTG\1-7/8MORX1-5/8MJIC\ST		3	EA
7	3801030	FTG\1-5/8FJIC\CAP		1	EA.
8	4000601	VLV\CHECK\POPPET\9/16MJIC		1	EA.
9	4400043	FILTER\HYDRAULIC\RETURN\IN-TANK ELEMENT 4400074		1	EA
	4400074	FLTR\ELMT\10MIC\INTANK			EA
10	4502799	TANK\OIL\60GAL		1	EA
11	3701595	HOSE\HYD\1-1/4X49\1-5/8FJICX1-5/8FJIC	SUPPLY PORT FRONT PUMP TO RIGHT TANK PORT SCREEN	1	EA.
12	3701567	HOSE\HYD\1-1/4X74\1-5/16FJCX1-5/8FJC90DEG	T PORT AUX. VALVE TO TANK	1	EA.
13	3701728	HOSE\HYD\3/8X80\3/4FJC90X9/16FJC	DR PORT AUX. VALVE TO TANK	1	EA.
14	3701595	HOSE\HYD\1-1/4X49\1-5/8FJICX1-5/8FJIC	SUPPLY PORT REAR PUMP TO LEFT TANK SCREEN	1	EA.


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Item	Part No.	Name	Remarks	Qty	Uom
1	3800277	FTG\1-1/16MORX1-1/16MJIC\ST		2	EA
2	3800470	FTG\1-5/8MORX1-5/8MJIC\ST		1	EA
3	3800741	FTG\1-5/8MORX1-5/8MJIC\90		1	EA
4	4200142	PUMP\HYD\TNDM\1.78CIDX1.3CID		1	EA
5	3701595	HOSE\HYD\1-1/4X49\1-5/8FJICX1-5/8FJIC	SUPPLY PORT FRONT PUMP TO RIGHT TANK PORT SCREEN	1	EA.
6	3701595	HOSE\HYD\1-1/4X49\1-5/8FJICX1-5/8FJIC	SUPPLY PORT REAR PUMP TO LEFT TANK SCREEN	1	EA.
7	3701764	HOSE\HYD\3/4X43\1-1/16FJX1-1/16FJC45DEG	PUMP TO P1 PORT AUX. VALVE	1	EA.
8	3701765	HOSE\HYD\3/4X55\1-1/16FJX1-1/16FJC45DEG	PUMP TO P2 PORT AUX. VALVE	1	EA.

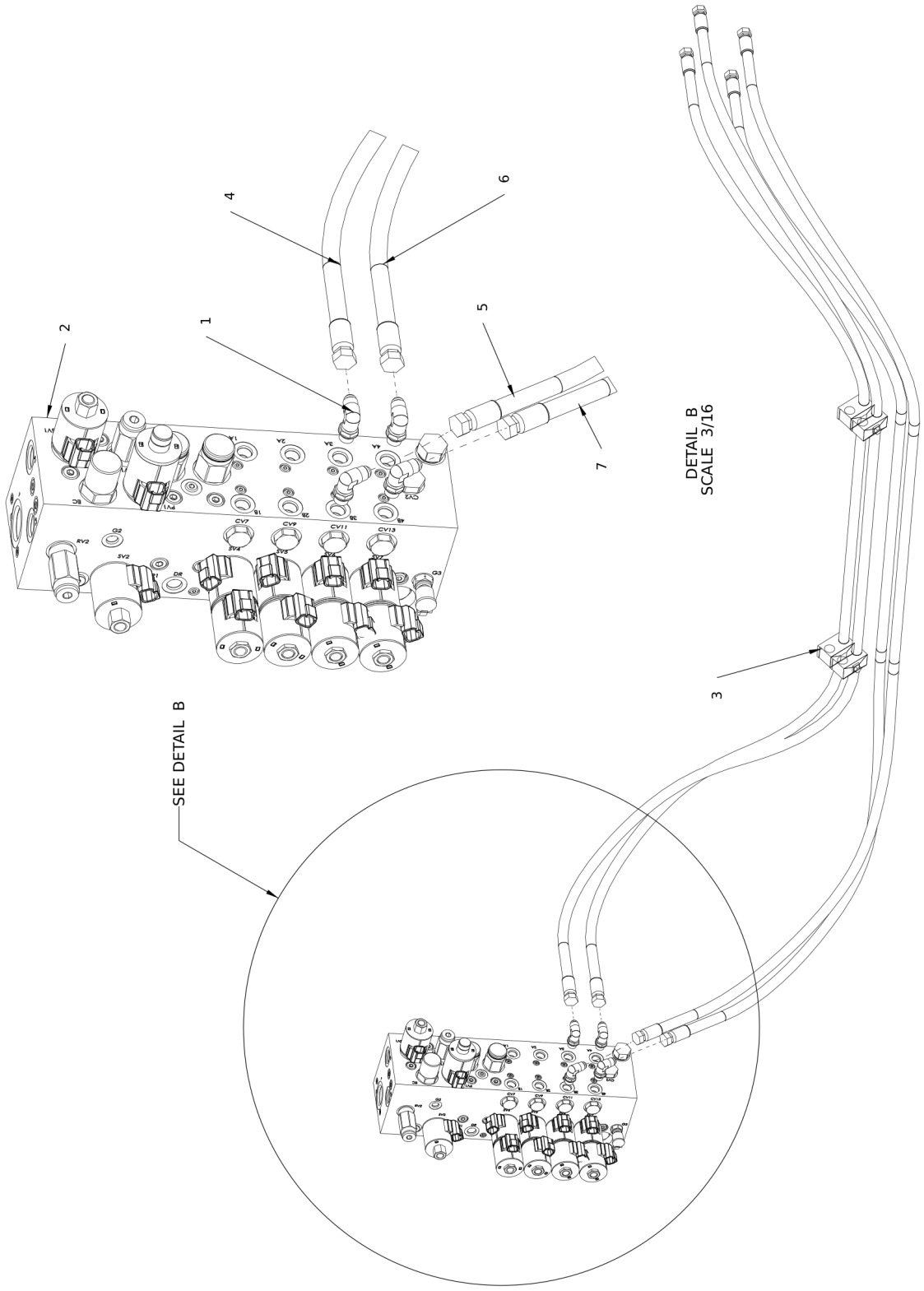

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Item	Part No.	Name	Remarks	Qty	Uom
1	3800694	FTG\3/4FOR\QUICK;CPLR\FEMALE		2	EA.
2	3800696	FTG\7/8MORX3/4MJIC\90		2	EA.
3	3800757	FTG\9/16MORX9/16MJIC\90		1	EA.
4	4000598	VLV\HYD\AUX\BLK\MFLD\12V		1	EA.
5	3700985	HOSE\HYD\1/2X144\3/4MORX3/8FJICS	TRACTOR TO IN PORT AUX. VALVE	1	EA
6	3700985	HOSE\HYD\1/2X144\3/4MORX3/8FJICS	TRACTOR TO OUT PORT AUX. VALVE	1	EA
7	3701728	HOSE\HYD\3/8X80\3/4FJC90X9/16FJC	DR PORT AUX. VALVE TO TANK	1	EA.


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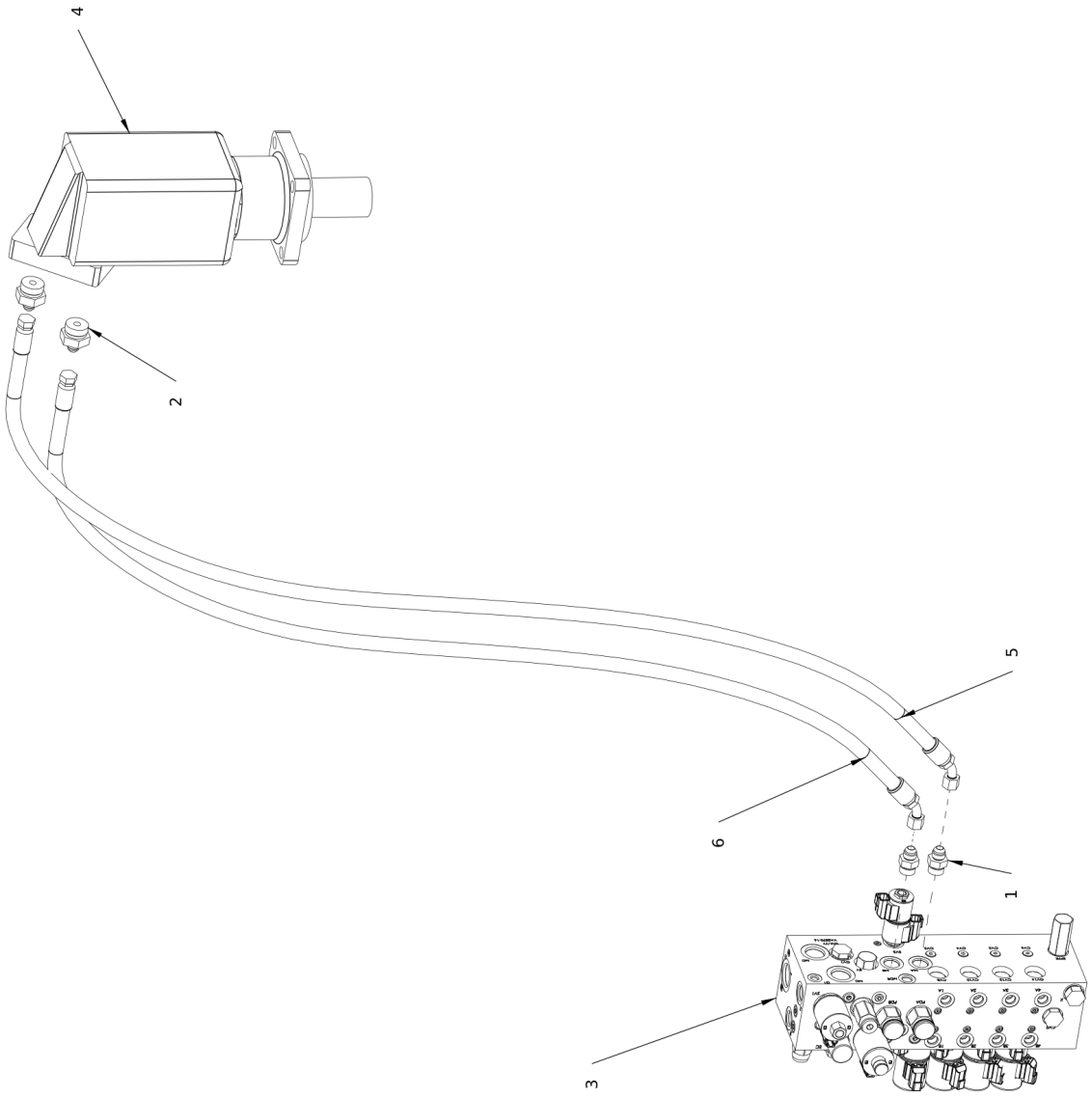
Item	Part No.	Name	Remarks	Qty	Uom
1	3800532	FTG\1-1/16MORX1-1/16MJIC\45		2	EA
2	3800535	FTG\7/8MORX1-1/16MJIC\90		2	EA
3	3800728	FTG\1-5/16MORX1-5/16MJIC\90		1	EA.
4	3800757	FTG\9/16MORX9/16MJIC\90		1	EA.
5	4000598	VLV\HYD\AUX\BLK\MFLD\12V		1	EA.
6	4700777	CLMP\HOSE\1/2		2	EA.
7	7501337	CLMP\HOSE\CUSH\3/4		2	EA
8	3701567	HOSE\HYD\1-1/4X74\1-5/16FJCX1-5/8FJC90DEG	T PORT AUX VALVE TO TANK FILTER	1	EA.
9	3701778	HOSE\HYD\3/4X36\1-1/16FJX1-1/16FJC45DEG	MC PORT AUX VALVE TO MOTOR PORT B BELLY AUGER	1	EA.
10	3701767	HOSE\HYD\3/8X40\9/16FJICX7/16FJIC\90WH	MDR PORT TO BELLY ORBIT	1	EA.
11	3701575	HOSE\HYD\3/4X184\1-1/16FJC90X1-1/16FJC	MD PORT AUX VALVE TO EX PORT CONV. FLOW CONTROL VALVE	1	EA.
12	3701764	HOSE\HYD\3/4X43\1-1/16FJX1-1/16FJC45DEG	PUMP TO P1 AUX. VALVE PORT	1	EA.
13	3701765	HOSE\HYD\3/4X55\1-1/16FJX1-1/16FJC45DEG	PUMP TO P2 AUX. VALVE PORT	1	EA.

H-1135 Tub Grinder Parts Reference

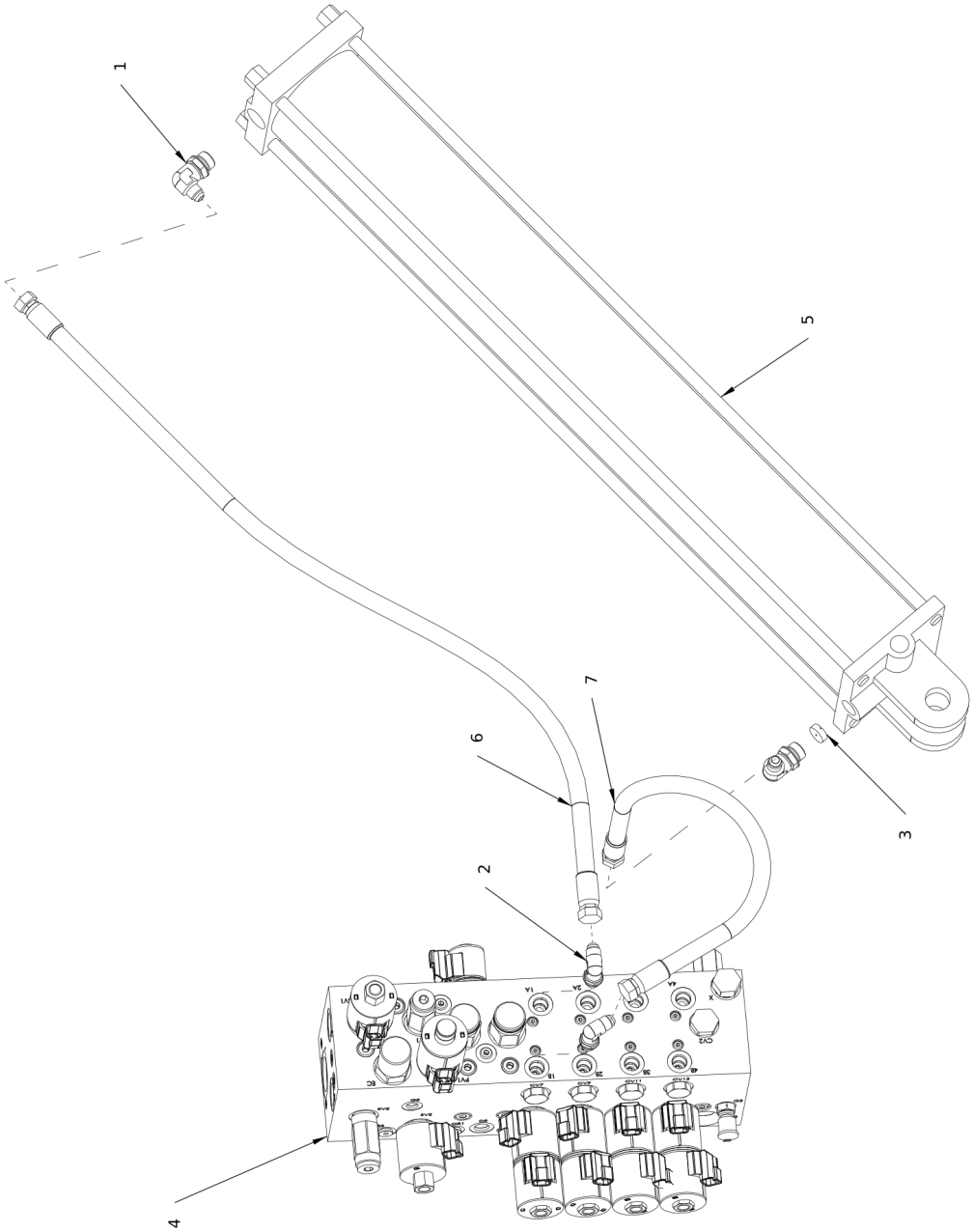


H-1135 Hydraulic Aux Valve Assembly-View C

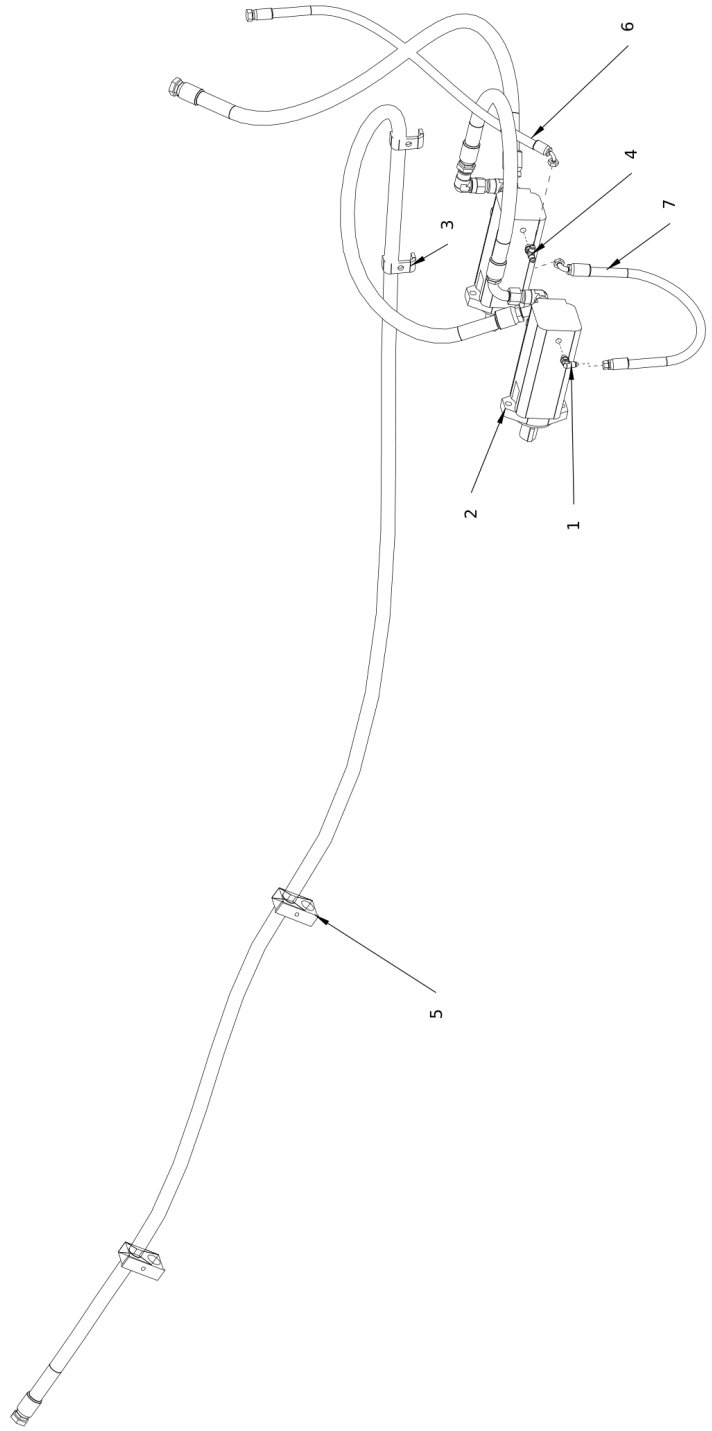
Item	Part No.	Name	Remarks	Qty	Uom
1	3800757	FTG\9/16MORX9/16MJIC\90		4	EA.
2	4000598	VLV\HYD\AUX\BLK\MFLD\12V		1	EA.
3	7501387	CLMP\HOSE\CUSH\3/8\TWIN		2	EA
4	3701761	HOSE\HYD\3/8X124\9/16FJICS	PORT 3A AUX VALVE TO 4TH FROM REAR ON CONVEYOR BLOCK BOTTOM	1	EA.
5	3701761	HOSE\HYD\3/8X124\9/16FJICS	PORT 3B AUX VALVE TO 3RD FROM REAR ON CONVEYOR BLOCK BOTTOM	1	EA.
6	3701761	HOSE\HYD\3/8X124\9/16FJICS	PORT 4A AUX VALVE TO 2ND FROM REAR ON CONVEYOR BLOCK BOTTOM	1	EA.
7	3701761	HOSE\HYD\3/8X124\9/16FJICS	PORT 4B AUX VALVE TO REAR PORT ON CONVEYOR BLOCK BOTTOM	1	EA.


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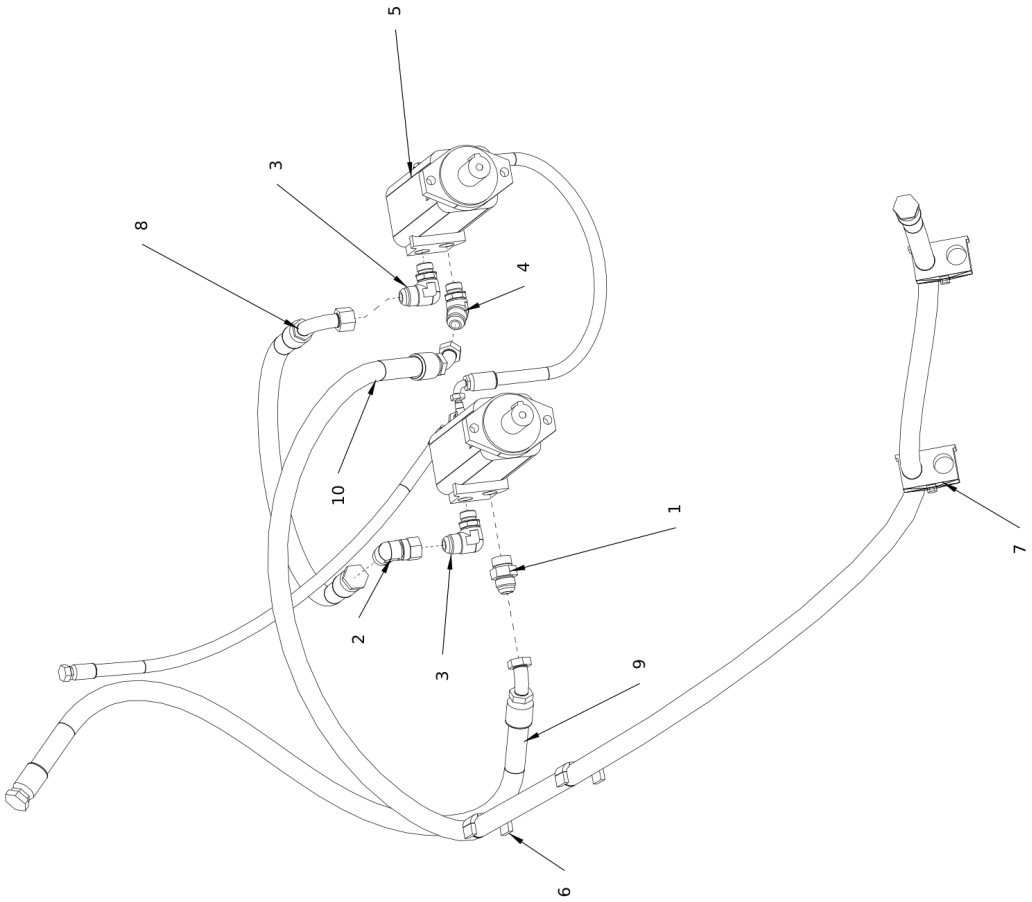
Item	Part No.	Name	Remarks	Qty	Uom
1	3800328	FTG\7/8MORX3/4MJIC\ADPT		2	EA.
2	3800938	FTG\1-5/16MORX3/4MJIC\ADPT		2	EA
3	4000598	VLV\HYD\AUX\BLK\MFLD\12V		1	EA.
4	4200121	MTR\HYD\40.6\1000\2-1/4\1-5/16FOR		1	EA
5	3701566	HOSE\HYD\1/2X175\3/4FJICSX3/4FJIC45	PORT MA AUX. VALVE TO UPPER PORT ORBIT MOTOR	1	EA.
6	3701566	HOSE\HYD\1/2X175\3/4FJICSX3/4FJIC45	PORT MB AUX. VALVE TO LOWER PORT ORBIT MOTOR	1	EA.


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Item	Part No.	Name	Remarks	Qty	Uom
1	3800453	FTG\3/4MORX9/16MJIC\90		2	EA.
2	3800757	FTG\9/16MORX9/16MJIC\90		2	EA.
3	3800844	FTG\3/4MOR\ORIFICE\0.062"		1	EA
4	4000598	VLV\HYD\AUX\BLK\MFLD\12V		1	EA.
5	4100144	CYL\HYD\4X30\1-3/4 ROD\CLEVIS ENDS\O-RING PORTS		1	EA
6	3701479	HOSE\HYD\3/8X50\9/16FJIC	2A PORT AUX VALVE TO ROD END TUB TILT CYL.	1	EA.
7	3701407	HOSE\HYD\3/8X26\9/16FJICS	2B PORT AUX VALVE TO BASE END TUB TILT CYL.	1	EA.

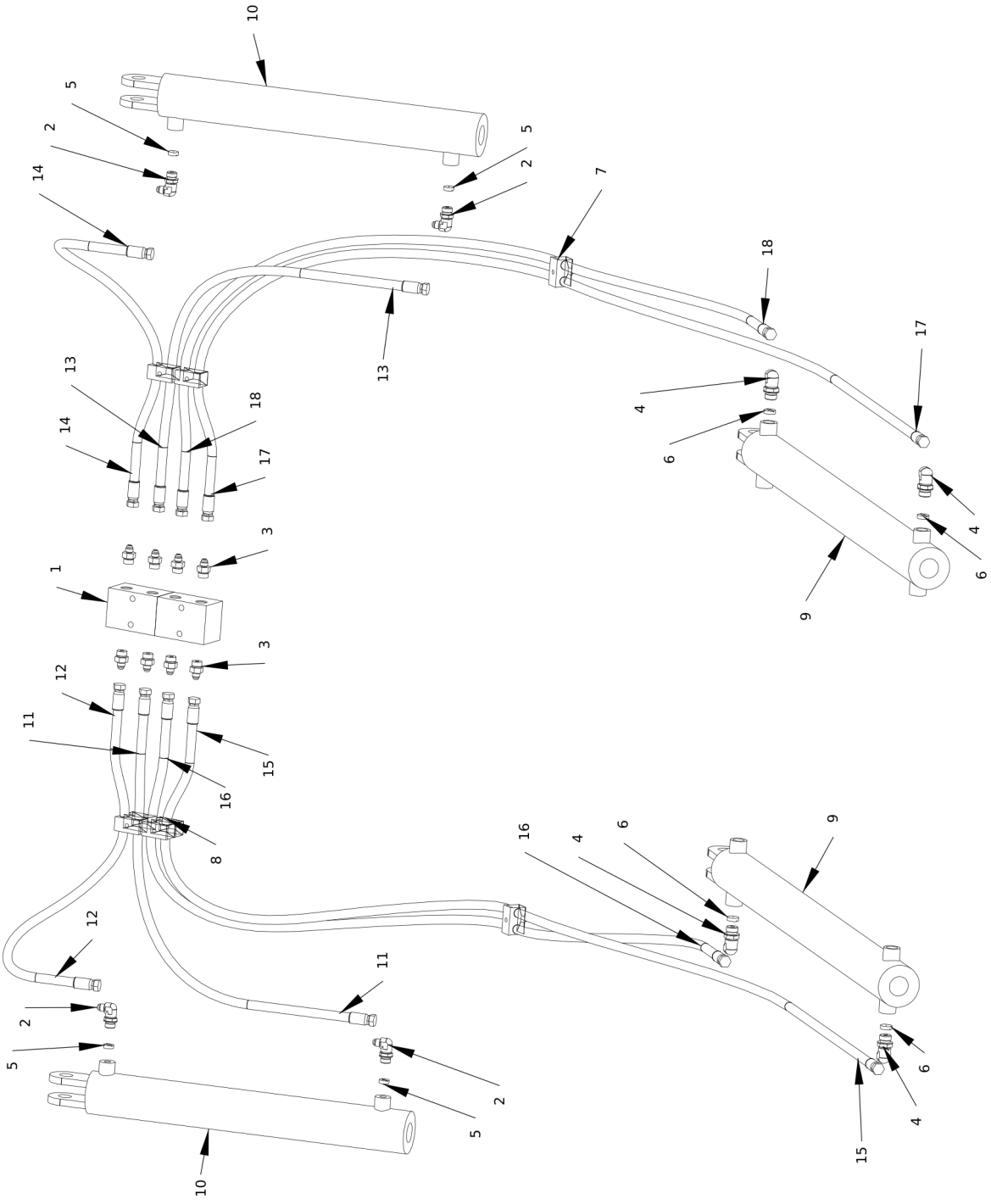

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Item	Part No.	Name	Remarks	Qty	Uom
1	3800472	FTG\7/16MORX7/16MJIC\90		1	EA
2	3900005	MTR\HYD\14.9\2000\SAE;A		2	EA
3	4700777	CLMP\HOSE\1/2		2	EA.
4	3800988	FTG\7/16MJICX7/16MJICX7/16MOR\TEE		1	EA
5	7501337	CLMP\HOSE\CUSH\3/4		2	EA
6	3701767	HOSE\HYD\3/8X40\9/16FJICX7/16FJIC\90WH	MDR TO BELLY ORBIT TEE	1	EA.
7	3701484	HOSE\HYD\3/8X21.25\7/16FJICX7/16FJIC\90	CASE DRAIN TEE RIGHT ORBIT TO CASE DRAIN LEFT ORBIT MOTOR	1	EA


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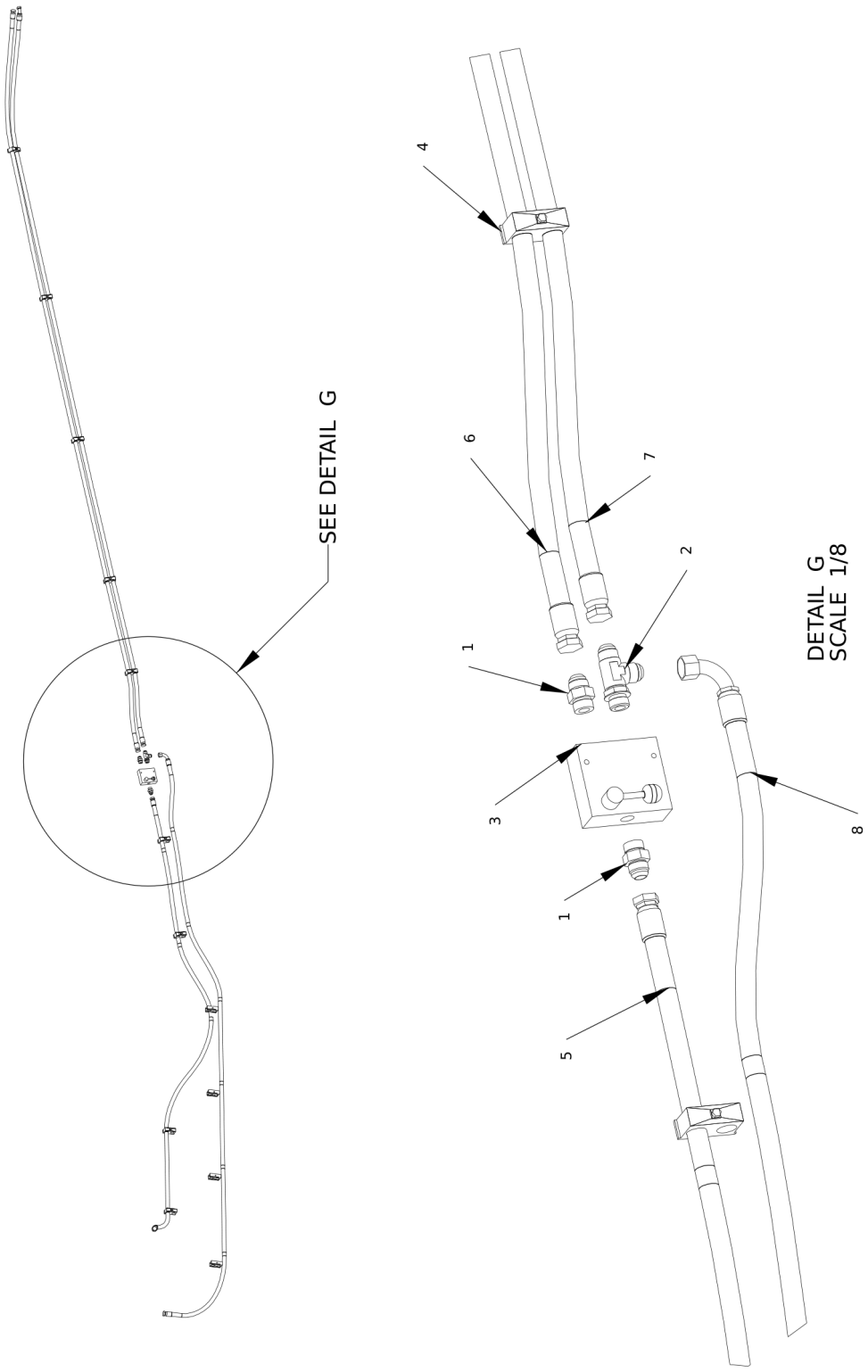
H-1135 Belly Auger Hydraulic Assembly-View B

Item	Part No.	Name	Remarks	Qty	Uom
1	3800277	FTG\1-1/16MORX1-1/16MJIC\ST		1	EA
2	3800280	FTG\1-1/16MJICX1-1/16FJIC\90\SW		1	EA
3	3800535	FTG\7/8MORX1-1/16MJIC\90		2	EA
4	3800669	FTG\MORXMJIC\45		1	EA
5	3900005	MTR\HYD\14.9\2000\SAE;A		2	EA
6	4700777	CLMP\HOSE\1/2		2	EA.
7	7501337	CLMP\HOSE\CUSH\3/4		2	EA
8	3701483	HOSE\HYD\3/4X13.5\1-1/16FJC90X1-1/16FJC	PORT B LEFT ORBIT MOTOR TO PORT B RIGHT ORBIT MOTOR	1	EA
9	3701778	HOSE\HYD\3/4X36\1-1/16FJX1-1/16FJC45DEG	MC PORT AUX VALVE TO MOTOR B BELLY AUGER	1	EA.
10	3701575	HOSE\HYD\3/4X184\1-1/16FJC90X1-1/16FJC	PORT A AUGER ORBIT TO IN PORT FLOW CONTROL	1	EA.


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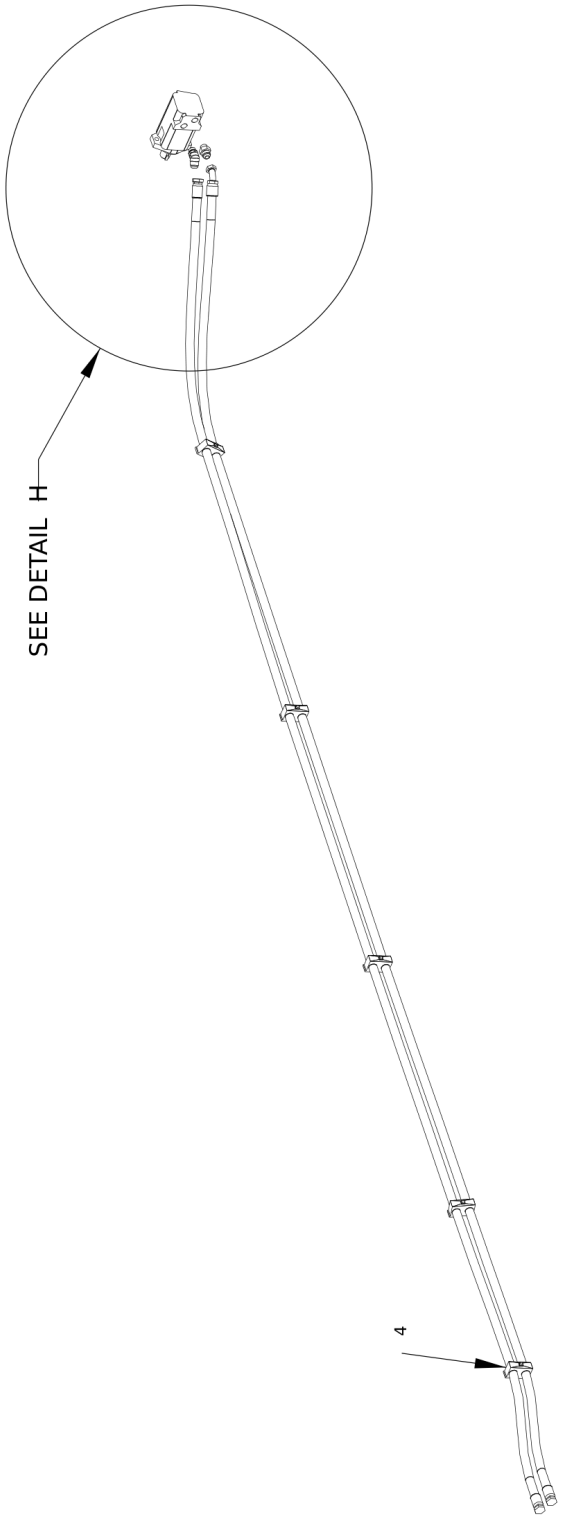
Item	Part No.	Name	Remarks	Qty	Uom
1	3800428	MNFLD\DBL;TEE\BLK\3/4FOR		2	EA.
2	3800453	FTG\3/4MORX9/16MJIC\90		4	EA.
3	3800530	FTG\3/4MORX9/16MJIC\ST		8	EA.
4	3800538	FTG\7/8MORX9/16MJIC\90		4	EA.
5	3800844	FTG\3/4MOR\ORIFICE\0.062"		4	EA
6	3801016	FTG\7/8MOR\ORIFICE\0.052		4	EA.
7	7501336	CLMP\HOSE\CUSH\3/8		4	EA
8	7501387	CLMP\HOSE\CUSH\3/8\TWIN		2	EA
9	4100352	CYL\HYD\3X36\PARALLEL\CLEV\7/8FOR		2	EA.
	4100355	KIT\SEAL\CYL\HYD\3\PARALLEL\CTD	(seal kit for 4100352)		EA.
10	4100261	CYL\HYD\3X20\1-1/2ROD\PAR#8 O-RING PORT\CTD		2	EA.
10A	4100328	CYL\HYD\3X20\1-1/2ROD\PAR			EA.
11	3700989	HOSE\HYD\3/8X53\9/16FJICS	ROD END LEFT LIFT CYLINDER TO REAR PORT FRONT DIVIDER BLOCK	1	EA
12	3700913	HOSE\HYD\3/8X34\9/16FJICS	CAP END LEFT LIFT CYLINDER TO FRONT PORT FRONT DIVIDER BLOCK	1	EA
13	3700989	HOSE\HYD\3/8X53\9/16FJICS	ROD END RIGHT LIFT CYLINDER TO REAR PORT FRONT DIVIDER BLOCK	1	EA
14	3700913	HOSE\HYD\3/8X34\9/16FJICS	CAP END RIGHT LIFT CYLINDER TO FRONT PORT FRONT DIVIDER BLOCK	1	EA
15	3700990	HOSE\HYD\3/8X111\9/16FJICS	ROD END LEFT FOLD CYLINDER TO REAR PORT REAR DIVIDER BLOCK	1	EA
16	3700735	HOSE\HYD\3/8X73\9/16FJIC	CAP END LEFT FOLD CYLINDER TO FRONT PORT REAR DIVIDER BLOCK	1	EA
17	3700990	HOSE\HYD\3/8X111\9/16FJICS	ROD END RIGHT FOLD CYLINDER TO REAR PORT REAR DIVIDER BLOCK	1	EA
18	3700735	HOSE\HYD\3/8X73\9/16FJIC	CAP END RIGHT FOLD CYLINDER TO FRONT PORT REAR DIVIDER BLOCK	1	EA

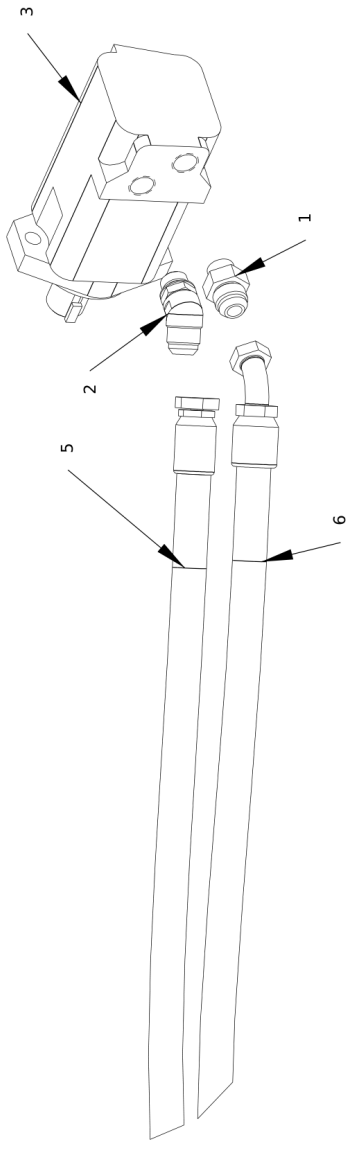
H-1135 Tub Grinder Parts Reference



Item	Part No.	Name	Remarks	Qty	Uom
1	3800277	FTG\1-1/16MORX1-1/16MJIC\ST		2	EA
2	3800463	FTG\1-1/16MORX1-1/16MJICX1-1/16MJIC\RUN;TEE		1	EA
3	4000482	VALVE\HYD\FLO;CNTRL\0-30\MAN		1	EA
4	7501337	CLMP\HOSE\CUSH\3/4		13	EA
5	3701575	HOSE\HYD\3/4X184\1-1/16FJC90X1-1/16FJC	PORT A AUGER ORBIT TO IN PORT CONVEYOR FLOW CONTROL VALVE	1	EA.
6	3700968	HOSE\HYD\3/4X238\1-1/16FJCX1-1/16FJC	CF PORT CONVEYOR FLOW CONTROL TO PORT B CONVEYOR ORBIT	1	EA
7	3700992	HOSE\HYD\3/4X236\1-1/16FJX1-1/16FJC45DEG	PORT A CONVEYOR ORBIT TO EX PORT ON DISCHARGE CONVEYOR FLOW CONTROL VALVE	1	EA
8	3701763	HOSE\HYD\3/4X203\1-1/16FJC90X1-1/16FJC	EX PORT DISCHARGE CONVEYOR FLOW CONTROL TO MD PORT AUX. VALVE	1	EA.

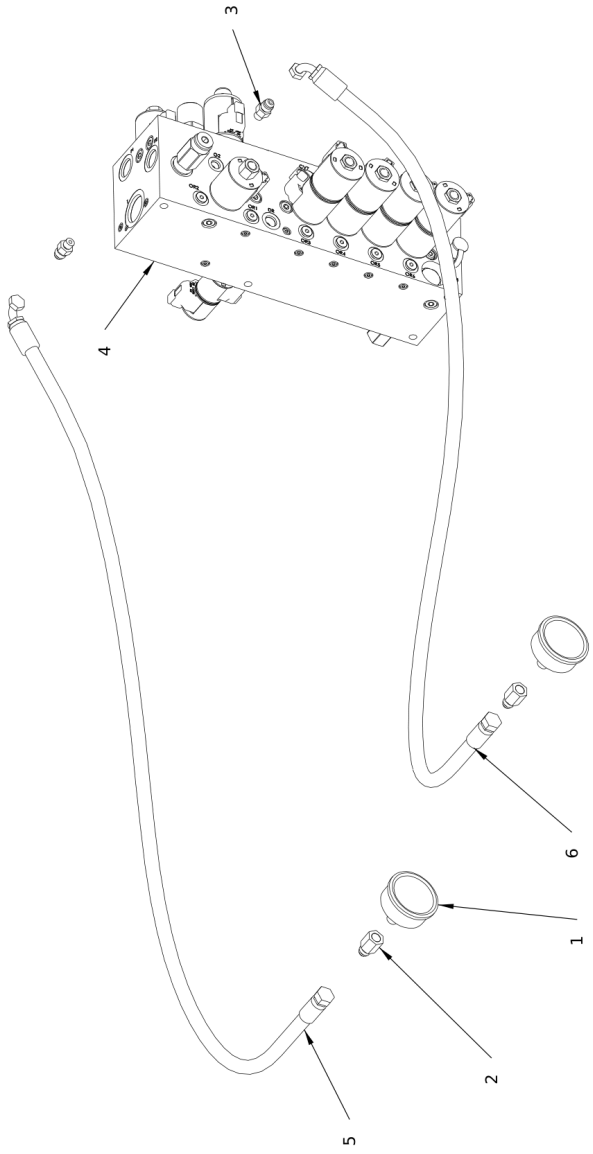
H-1135 Tub Grinder Parts Reference



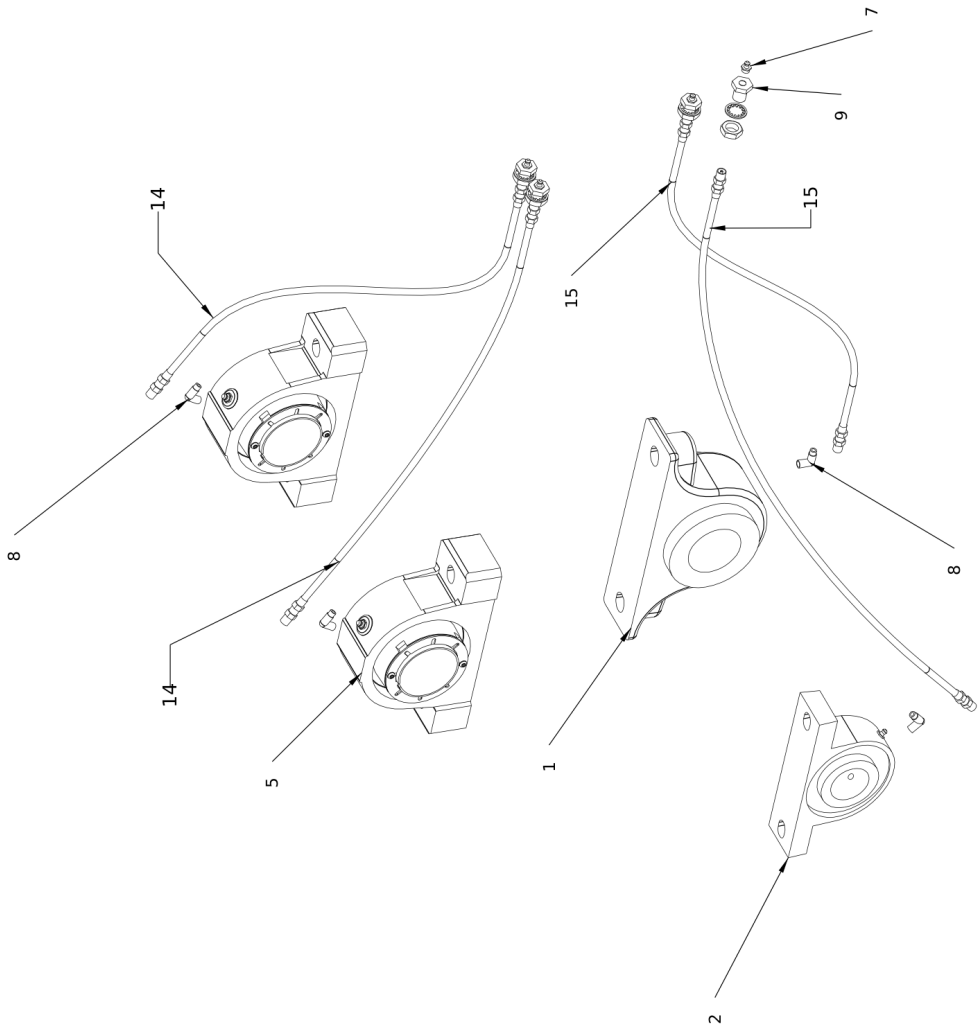


DETAIL H
SCALE 3/16

Item	Part No.	Name	Remarks	Qty	Uom
1	3800527	FTG\7/8MORX1-1/16MJIC\ST		1	EA
2	3800669	FTG\MORXMJIC\45		1	EA
3	3900014	MTR\HYD\9.6\2000\1-1/4SH		1	EA
4	7501337	CLMP\HOSE\CUSH\3/4		5	EA
5	3700968	HOSE\HYD\3/4X238\1-1/16FJCX1-1/16FJC	CF PORT CONVEYOR FLOW CONTROL TO PORT B CONVEYOR ORBIT	1	EA
6	3700992	HOSE\HYD\3/4X236\1-1/16FJX1-1/16FJC45DEG	PORT A CONVEYOR ORBIT TO EX PORT ON DISCHARGE CONVEYOR FLOW CAONTROL VALVE	1	EA

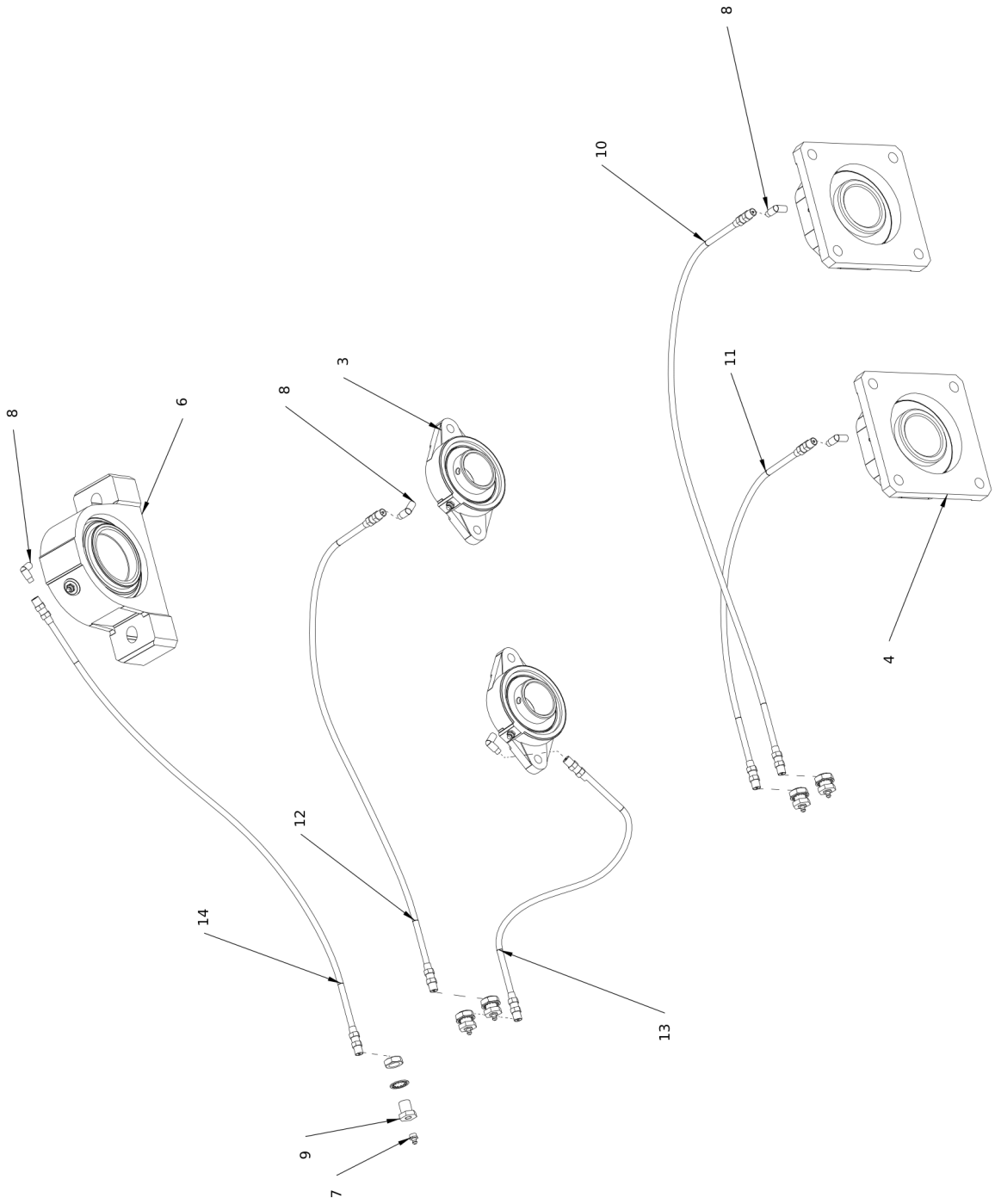

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Item	Part No.	Name	Remarks	Qty	Uom
1	3800381	GAUGE\3000PSI\REAR STEM		2	EA
2	3800758	FTG\9/16MJICX1/4FP\ADPT		2	EA
3	3800763	FTG\7/16MORX9/16MJIC\ST		2	EA
4	4000598	VLV\HYD\AUX\BLK\MFLD\12V		1	EA.
5	3701766	HOSE\HYD\3/8X65\9/16FJC90X9/16FJC	CNVYR PRESSURE GAUGE TO G1 AUX VALVE	1	EA.
6	3701766	HOSE\HYD\3/8X65\9/16FJC90X9/16FJC	TUB PRESSURE GAUGE TO G2 AUX VALVE	1	EA.

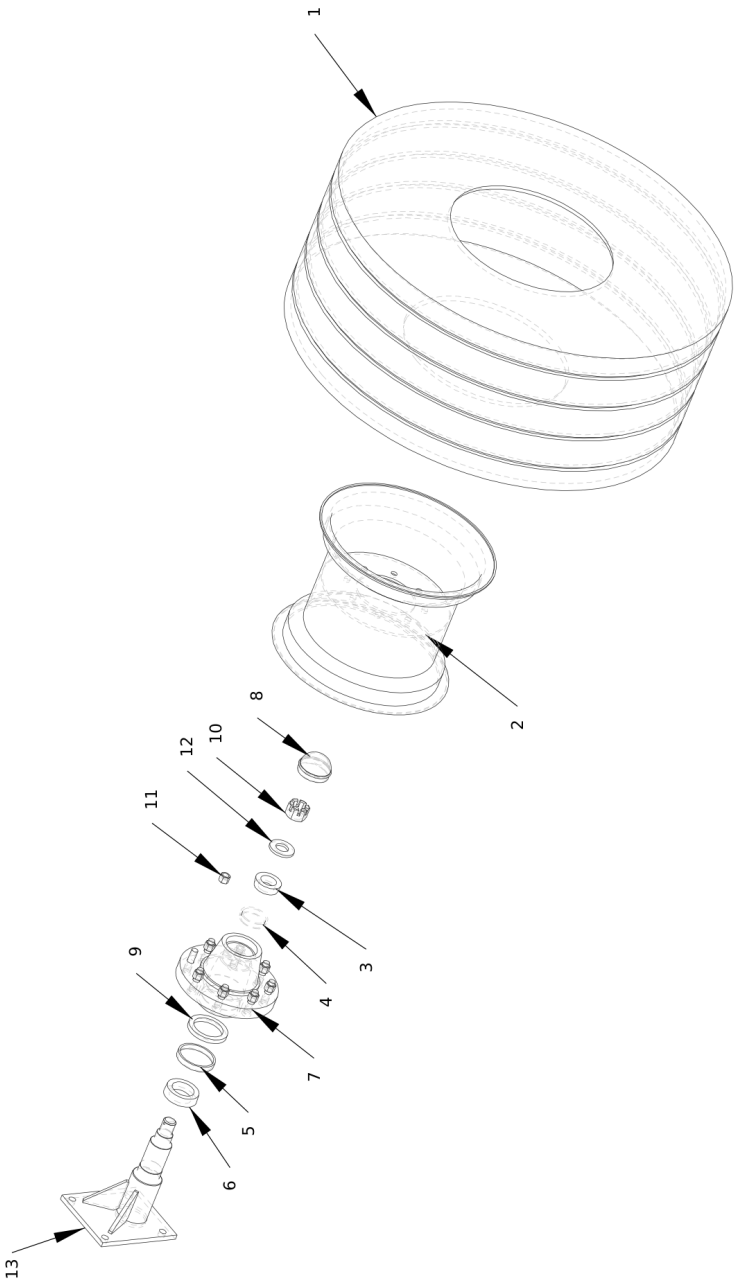

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H-1135 Jack Shaft and Bull Wheel Grease Lines

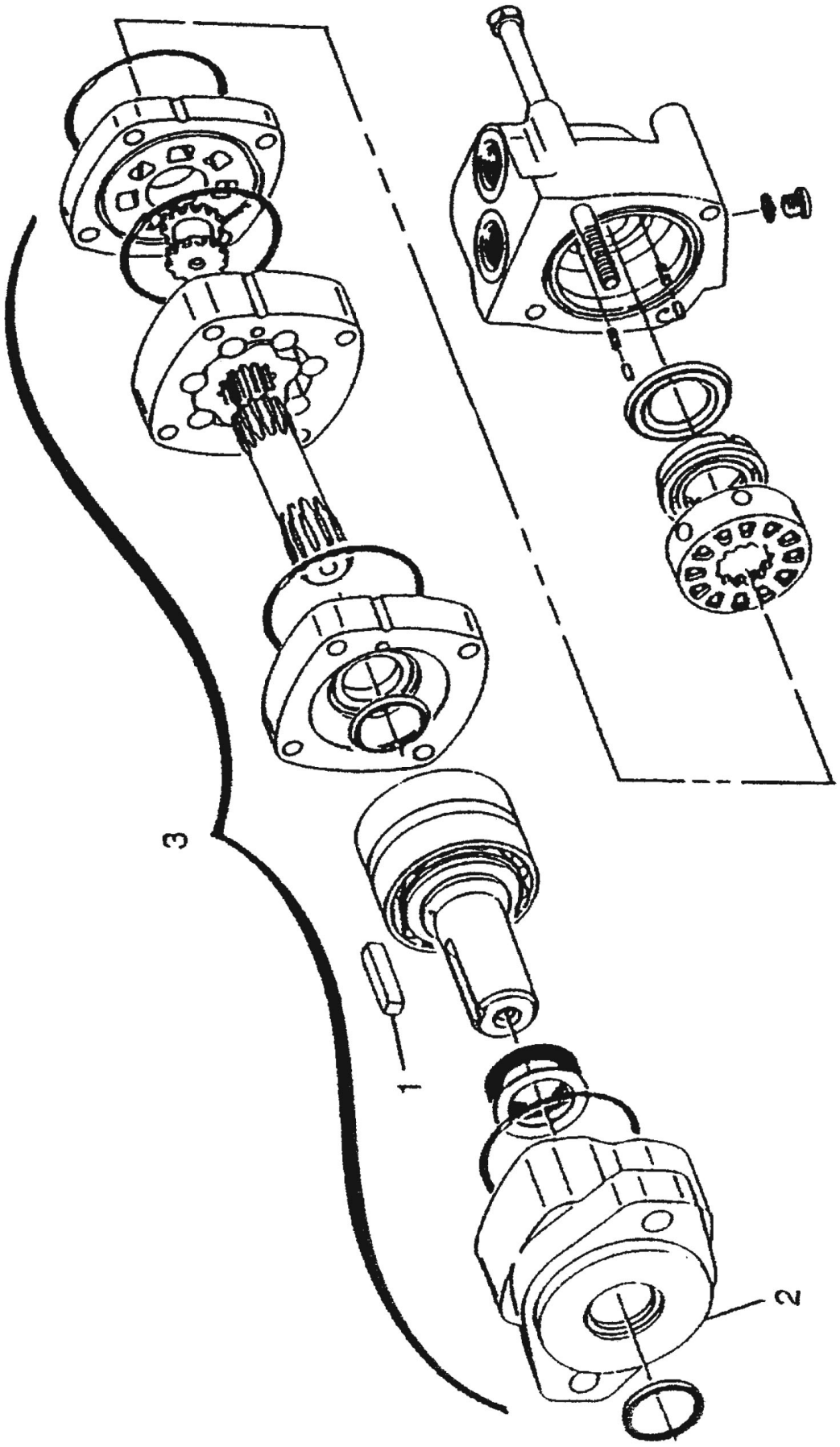
Item	Part No.	Name	Remarks	Qty	Uom
1	2000509	BRG\PB\2-3/4\E\DODGE		1	EA
2	2000510	BRG\PB\2\2BOLT		1	EA.
3	2000587	BRG\FLG\2"-BLT\SSCRW		2	EA
4	2000588	BRG\FLG\2-1/2\4-BLT\D-LOCK		2	EA
5	2001052	BRG\PB\3\IMPRL\NON-EXP		1	EA
6	2001053	BRG\PB\3\IMPRL\EXP		2	EA
7	3800043	FTG\LUB\1/8MPXZRK\SHORT		11	EA.
8	3800111	FTG\1/8MPX1/8FP\90D\ST;EL		9	EA.
9	3800895	FTG\1/8FP\CPLG\ANCHOR\5/8NF		9	EA.
10	3701488	HOSE\LUB\1/8X43\MPS-MPS		1	EA.
11	3701487	HOSE\LUB\1/8X27.25\MPS-MPS		1	EA.
12	3701486	HOSE\LUB\1/8X37.25\MPS-MPS		1	EA
13	3701485	HOSE\LUB\1/8X22.5\MPS-MPS		1	EA
14	3700961	HOSE\LUB\1/8X40\MPS-MPS		3	EA
15	3701597	HOSE\LUB\1/8X37\MPS-MPS		2	EA


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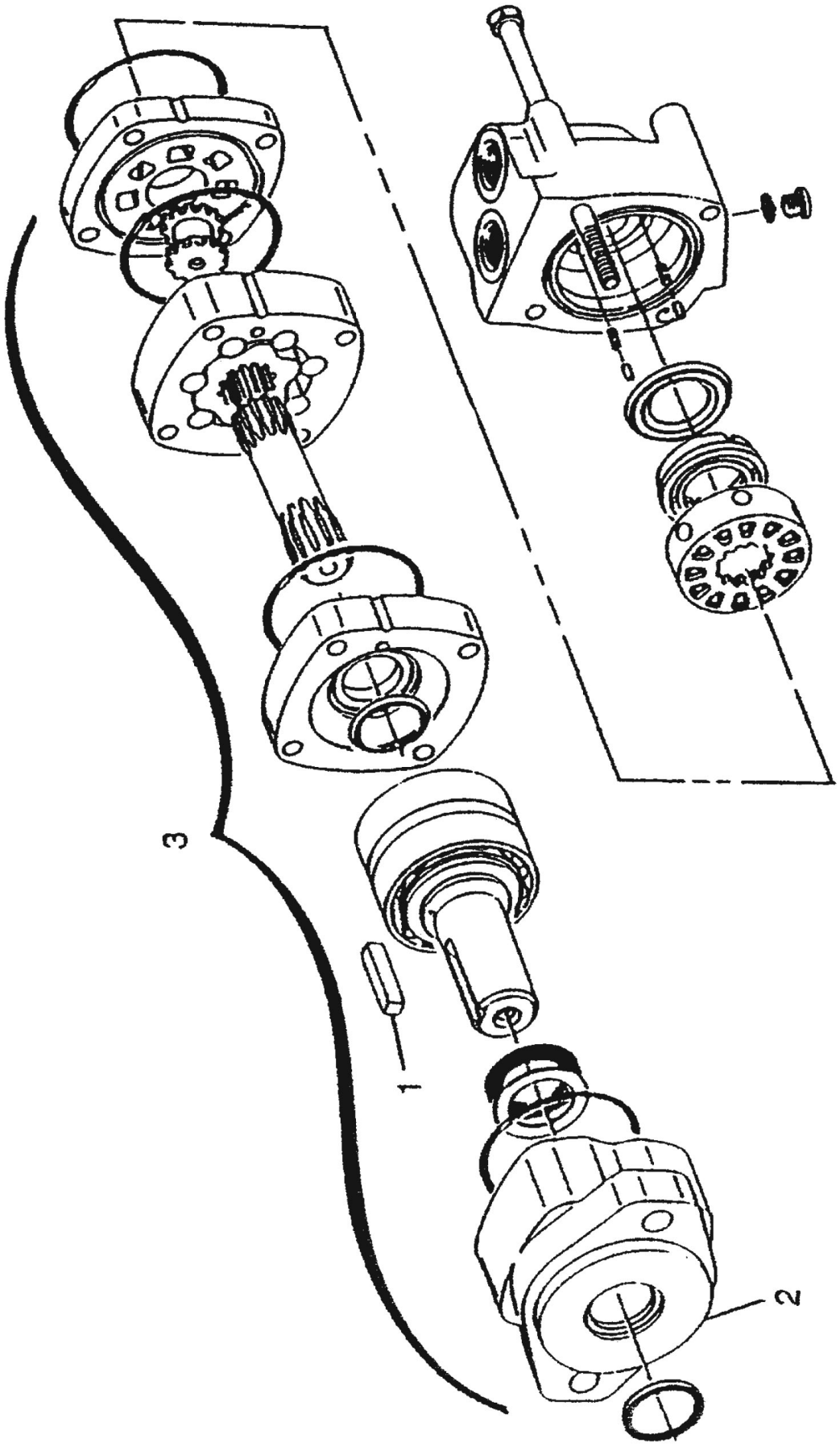
Item	Part No.	Name	Remarks	Qty	Uom
1	2000509	BRG\PB\2-3/4\E\DODGE		1	EA
2	2000510	BRG\PB\2\2BOLT		1	EA.
3	2000587	BRG\FLG\2"-BLT\SSCRW		2	EA
4	2000588	BRG\FLG\2-1/2\4-BLT\D-LOCK		2	EA
5	2001052	BRG\PB\3\IMPRL\NON-EXP		1	EA
6	2001053	BRG\PB\3\IMPRL\EXP		2	EA
7	3800043	FTG\LUB\1/8MPXZRK\SHORT		11	EA.
8	3800111	FTG\1/8MPX1/8FP\90D\ST;EL		9	EA.
9	3800895	FTG\1/8FP\CPLG\ANCHOR\5/8NF		9	EA.
10	3701488	HOSE\LUB\1/8X43\MPS-MPS		1	EA.
11	3701487	HOSE\LUB\1/8X27.25\MPS-MPS		1	EA.
12	3701486	HOSE\LUB\1/8X37.25\MPS-MPS		1	EA
13	3701485	HOSE\LUB\1/8X22.5\MPS-MPS		1	EA
14	3700961	HOSE\LUB\1/8X40\MPS-MPS		3	EA
15	3701597	HOSE\LUB\1/8X37\MPS-MPS		2	EA


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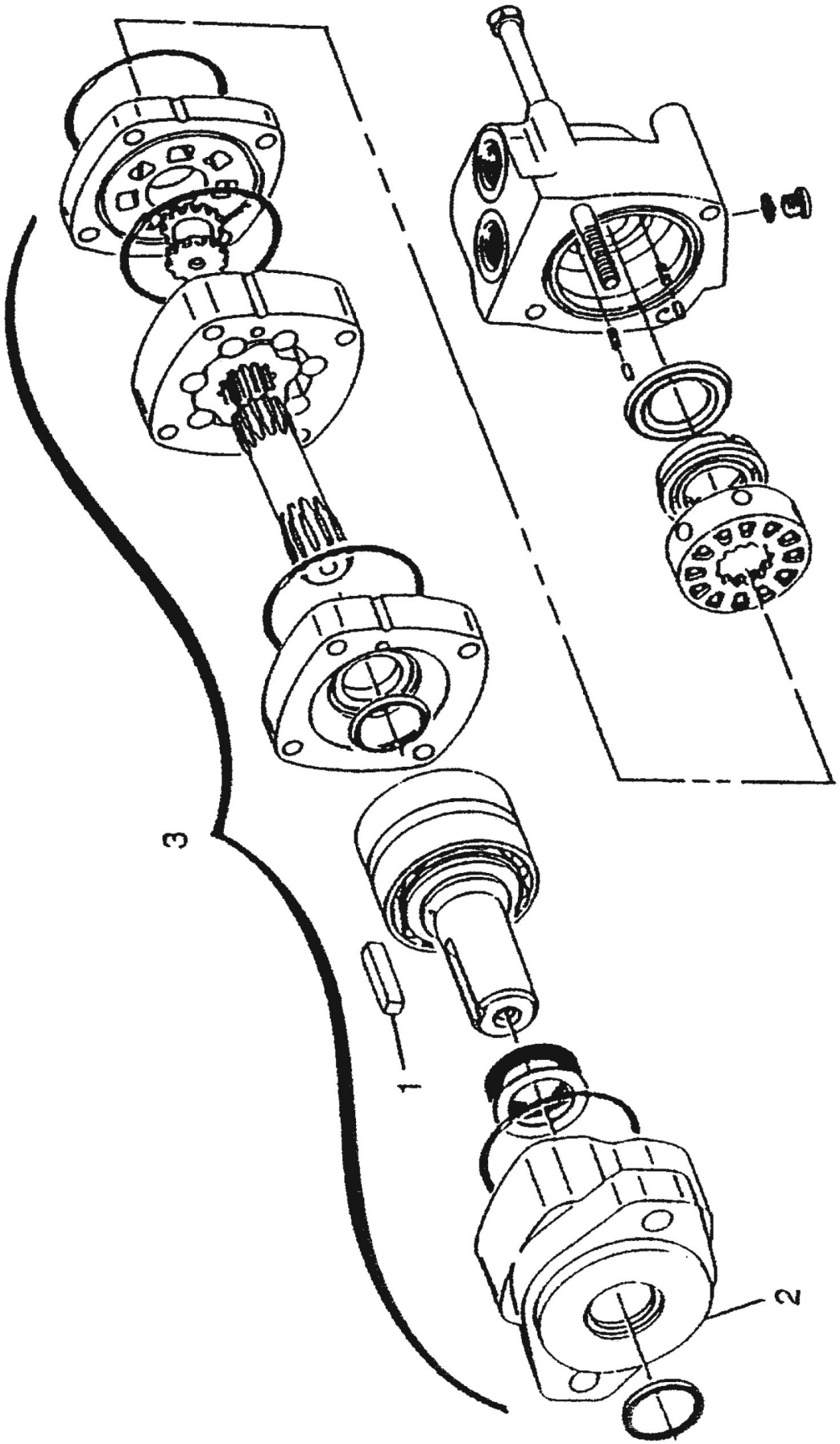
Item	Part No.	Name	Remarks	Qty	Uom
1	2600859	TIRE\445/50R22.5		1	EA
2	2600655	WHL\8-BOLT\22.5X13		1	EA.
3	2900125	HUB\H817\CONE\OUTER (LM501349)		1	EA.
4	2900126	HUB\H817\CUP\OUTER (LM501310)		1	EA.
5	2900127	HUB\H817\CUP\INNER (382A)		1	EA.
6	2900128	HUB\H817\CONE\INNER (387A)		1	EA.
7	2900140	HUB\ASSY\H817\8BOLT\8"B.C.\6"PILOT	Also needs to be ordered 4800534, 4900053 and 5000133	1	EA.
8	2900130	CAP\DUST\H817 (DC26)		1	EA.
9	2900131	SEAL\GREASE\H817 (SE42)		1	EA.
10	4900053	NUT\CASTLE\1-1/4\NF		1	EA.
11	4900114	NUT\TAPER\WHEEL\5/8\NF		8	EA.
12	5000065	WASH\2.5OD\1.25ID\224		1	EA
13	8101600	SPNDL\2800		1	EA.
CA	2600880	WHL\ASSY\445X50RX22.5\20PLY\8-BOLT	(INCLUDES 1 & 2)		EA.
CA	2900140	HUB\ASSY\H817\8BOLT\8"B.C.\6"PILOT	(INCLUDES 3,4,5,6,7,8,9 & 11), Also needs to be ordered 4800534, 4900053 and 5000133		EA.
CA	8101469	SPNDL\HUB\ASSY\2800	(INCLUDES 2900140, 4800534, 5000133 & 8101600)		EA
CA	4503008	WHL\SPNDL\ASSY\H1135	(INCLUDES 2600880 & 8101469)		EA.
NS	4800534	PIN\COT\3/16X2-1/2			EA
NS	5000133	WASH\SPNDL\1-5/16ID\2-1/2OD\1/4T			EA.


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Item	Part No.	Name	Remarks	Qty	Uom
1	6200004	KEY\SQ\5/16X1-1/2		1	EA
2	3900011	MTG FLG(2000 SER)		1	EA
3	3900014	MTR\HYD\9.6\2000\1-1/4SH			EA
NS	7501005	KIT\SEAL\2000ORBIT		1	EA

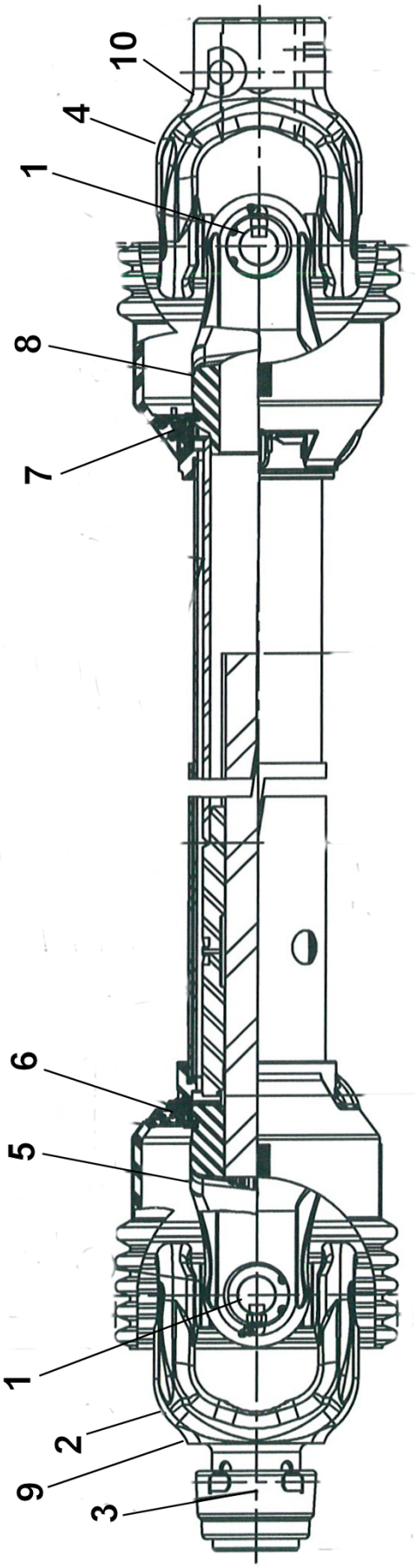

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Item	Part No.	Name	Remarks	Qty	Uom
1	6200004	KEY\SQ\5/16X1-1/2		1	EA
2	3900011	MTG FLG(2000 SER)		1	EA
3	3900020	MTR\HYD\11.9\2000\SAE;A;>			EA
NS	7501005	KIT\SEAL\2000ORBIT		1	EA

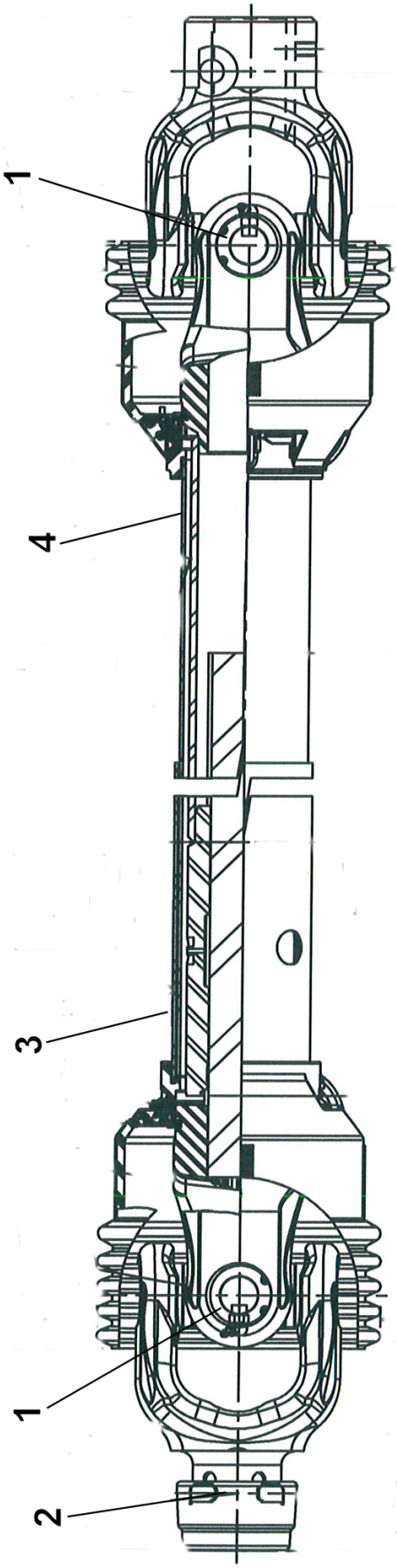

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Item	Part No.	Name	Remarks	Qty	Uom
3	4200121	MTR\HYD\40.6\1000\2-1/4\1-5/16FOR			EA
NS	4200123	SEAL\KIT\MTR\119-1030		1	EA.

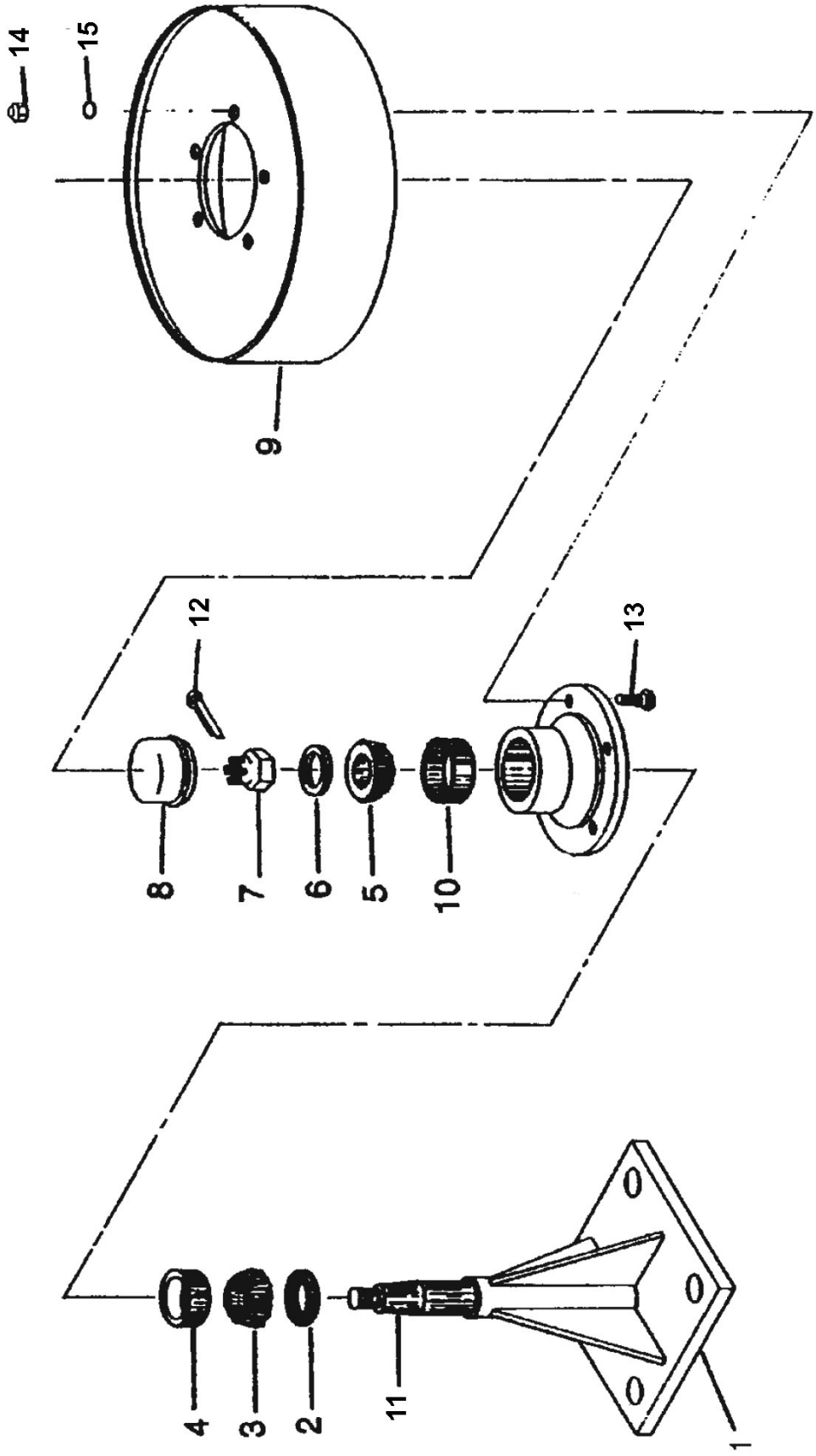
H-1135 Tub Grinder Parts Reference



Item	Part No.	Name	Remarks	Qty	Uom
1	3600738	CROSS&BRG\77E\WSLR		2	EA
2	3600741	YOKE\77E\1-3/4\LOCK\AUTO		1	EA
3	3600775	LOCK\SAFTY;SLD\KIT\1-3/4\77E		1	EA
4	3600852	JOINT&TUBE\77E\3600831		1	EA.
5	3600853	YOKE&SHAFT\77E\3600831		1	EA.
6	3600854	GUARD\PTO\1-3/4\77E\20SPLN\OUTER		1	EA
7	3600855	GUARD\PTO\1-3/4\77E\20SPLN\INNER		1	EA.
8	3600856	YOKE&TUBE&SLEEVE\77E\3600831		1	EA.
9	3600871	PTO\HALF\TRACTOR\3600831		1	EA
10	3600873	PTO\HALF\MACHINE\3600831 & 3600832		1	EA
CA	3600831	PTO\COMP\77E\20SP\1-3/4			EA

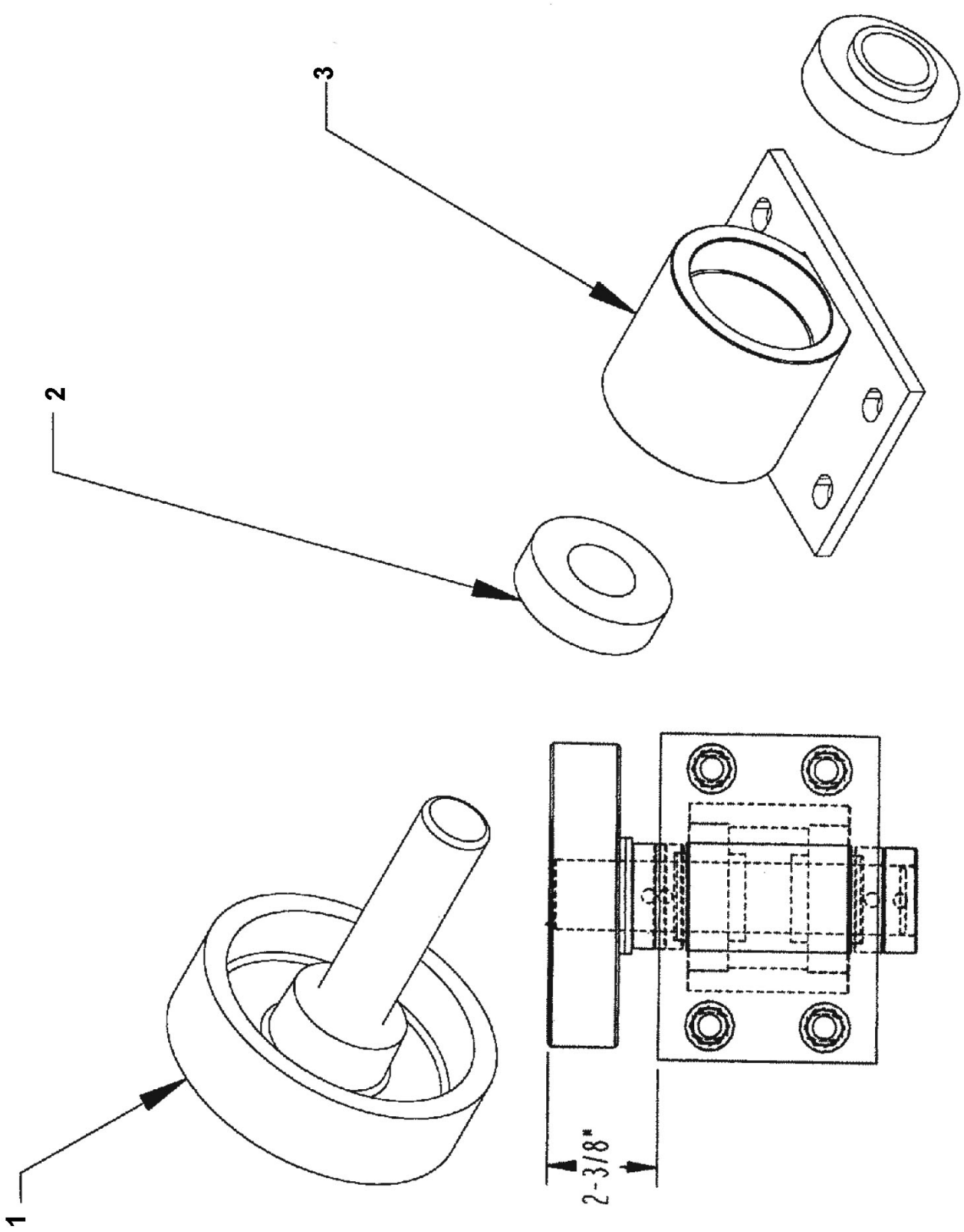

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Item	Part No.	Name	Remarks	Qty	Uom
1	3600738	CROSS&BRG\77E\WSLR		2	EA
2	3600777	LOCK\SAFTY;SLD\KIT\1-3/8\77E		1	EA
3	3600872	ORDER 3600832		1	EA
4	3600873	PTO\HALF\MACHINE\3600831 & 3600832		1	EA
CA	3600832	PTO\COMP\77E\21SP\1-3/8			EA


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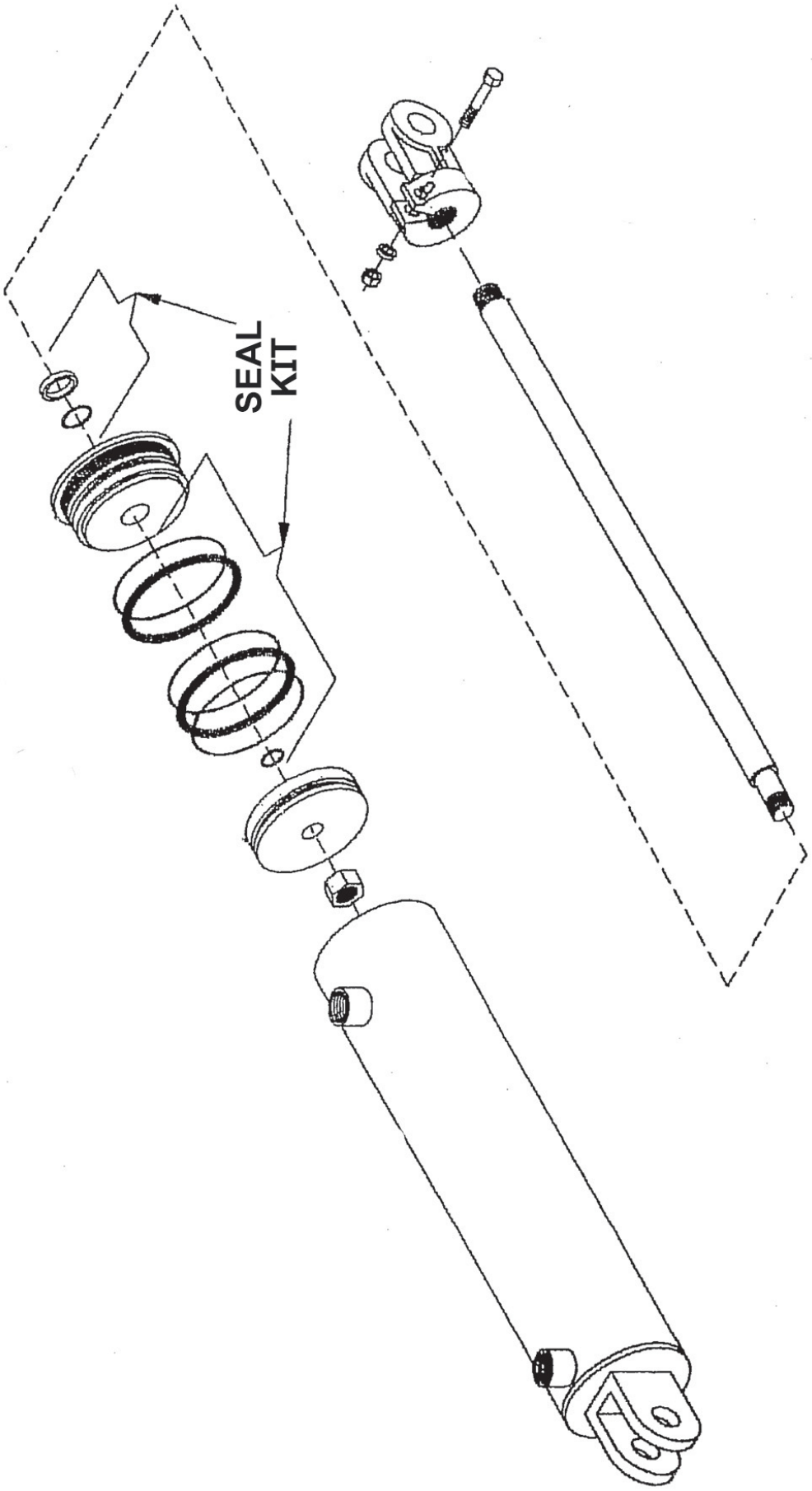
Pressure Roller Assembly

Item	Part No.	Name	Remarks	Qty	Uom
1	4501090	BRKT\RLLR\PRESS\10"		1	EA
2	2900055	SEAL/WHEEL HUB(16069)		1	EA
3	2900018	CONE\OUTER\WHL;HUB(67048		1	EA
4	2900004	CUP\INNER\WHEEL HUB		1	EA
5	2900061	OUTERCONE/WHL;HUB(11949		1	EA
6	5000094	WASH\SPNDL\5/8		1	EA
7	4900112	NUT\SLOT.\5/8\NF		1	EA
8	2900064	CAP/WHL;HUB(985)		1	EA
9	4700115	DRUM\RLLR\PRESS		1	EA
10	2900056	OUTERCUP/WHL;HUB(11910)		1	EA
11	3000025	SPNDL\PRESS\RLLR\10"		1	EA
12	4800172	PIN\COT\1/8X2		1	EA.
13	2900010	BOLT\WHL\WHL;HUB\100 SR		5	EA
14	4900094	NUT\TPR\WHEL\1/2\13/16OD\NF		5	EA
15	5000004	WASH\FLAT\1/2		5	EA.
CA	2900057	HUB\5-BOLT\(985)\COMPLETE			EA
NS	4800949	BOLT\FLG\5/8X2\GR8\NC			EA
NS	4900178	NUT\FLG\TPLCK\5/8\GR8\NC			EA

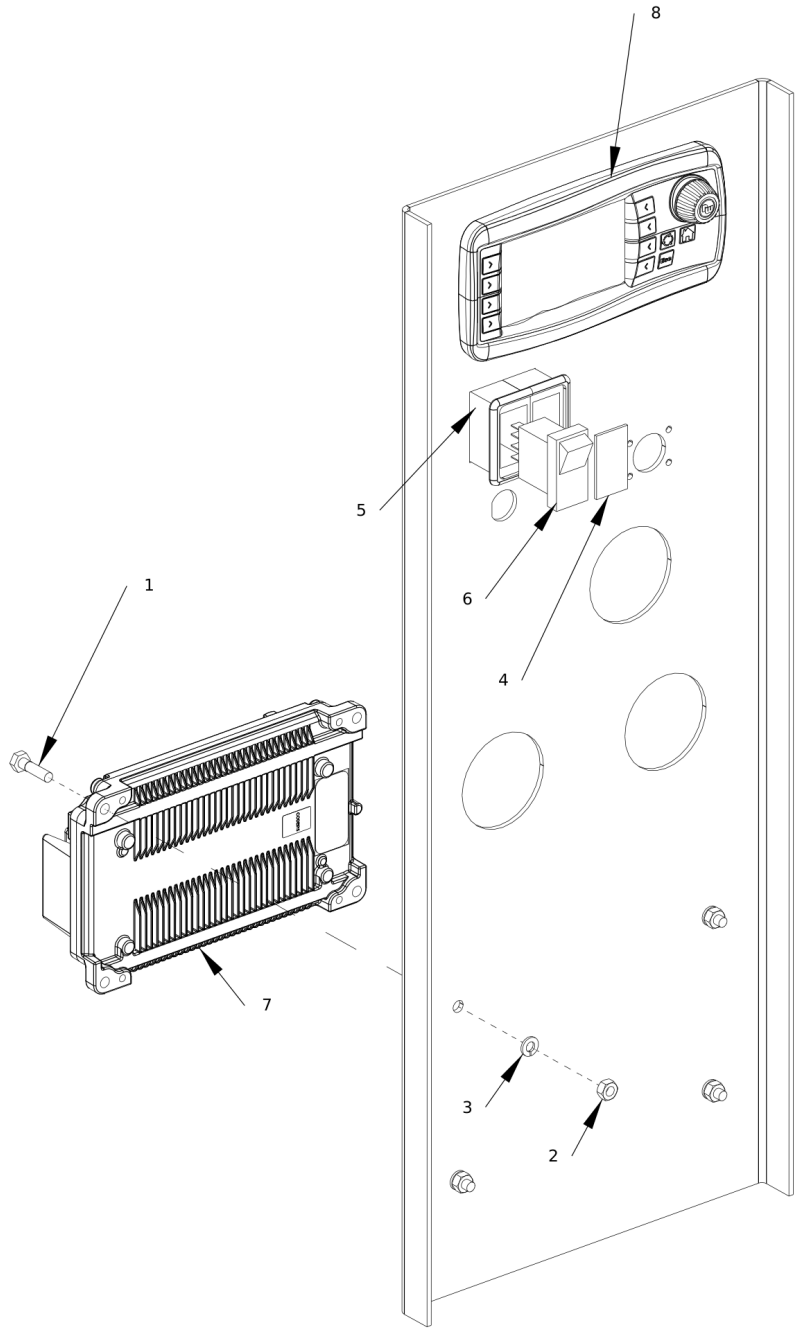

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Tub Roller Bearing Assembly

Item	Part No.	Name	Remarks	Qty	Uom
1	1200013	RLLR\TUB\1-1/2\W/O FLANGE		1	EA
2	2000584	BRG\CYL\1-1/2\DLOK		2	EA
3	4702007	BRG\PB\RLLR\TUB\ASY	(Includes #2)	1	EA
CA	4704069	RLLR\TUB\ASSY\STEEL	(Includes #1, #2, #3)		EA
NS	4800930	BOLT\FLG\SERR\1/2X2\NC			EA
NS	4900100	NUT\FLG\TPLCK\1/2\NC			EA
NS	4701863	SHIM\RLLR\TUB\10GA			EA


SEAL
KIT

Item	Part No.	Name	Remarks	Qty	Uom
	4100144	CYL\HYD\4X30\1-3/4 ROD\CLEVIS ENDS\O-RING PORTS			EA
	4100180	KIT\SEAL\CYL\HYD\4X30\1-3/4"ROD		1	EA
	4100352	CYL\HYD\3X36\PARALLEL\CLEV\7/8FOR			EA.
	4100143	CYL\HYD\SEAL;KIT\3X1-1/2		1	EA.
	4100261	CYL\HYD\3X20\1-1/2ROD\PAR#8 O-RING PORT\CTD			EA.
	4100289	KIT\SEAL\CYL\HYD\3X20		1	EA.
	4100328	CYL\HYD\3X20\1-1/2ROD\PAR			EA.
	4100143	CYL\HYD\SEAL;KIT\3X1-1/2		1	EA.


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Item	Part No.	Name	Remarks	Qty	Uom
1	4800277	BOLT\HEX\1/4X1		4	EA.
2	4900009	NUT\HEX\1/4\NC		4	EA.
3	5000024	WASH\LOCK\1/4		4	EA.
4	5700329	SWITCH\RCKR\PLUG		1	EA
5	5700333	SWITCH\RCKR\MNT\PNL\MTPL		2	EA.
6	5700547	SWITCH\RCKR\DPST\12V\2LIT\15A\LATCH\W/RASED BRCKT		1	EA
7	5701189	CNTRL\HFX32		1	EA.
8	5701234	DSPLY\WACH\OPUS\A3X		1	EA.
NS	4300089	Order 5701157		1	EA
NS	4502789	SHIM\CNTRLLR		1	EA
NS	4801439	BOLT\HEX\M5X12\0.8P		4	EA.
NS	5701073	KIT\MNT\DASH\WACHENDORF		1	EA

Note: The R170 remote and antenna have been obsoleted by the manufacture. To replace an existing R170, order the replacement kit 5701318.



Item	Part No.	Name	Remarks	Qty	Uom
	4503004	RMT\RAD\H1135\OMNX\2.4GHz (COMPLETE)			EA.
	4900009	NUT\HEX\1/4\NC		4	EA.
	5000024	WASH\LOCK\1/4		4	EA.
	5701182	HARN\OPT\HFX\RADIO		1	EA.
	7500755	CUSH\RBBR\1-OD\1/4-20X3/4		2	EA
	5701237	RADIO\REMOTE\OMNEX\T110R170\PS00404\2.4 GHZ	5701237-Obsoleted	1	EA.
	5700744	RADIO\ANTNA&CBL\12FT\MCX\R160		1	EA
	5700887	RADIO\TRNSMTR\OMNEX\T110\2.4GHZ		1	EA
	5701238	RADIO\RECEIVER\OMNEX\R170\PS00404\2.4 GHZ	Order 5701318 for replacement	1	EA.
	5701318	RADIO\RECEIVER\OMNEX\R270 AND ADAPTOR	Includes 5701321	1	EA.
	5701321	RADIO\ANTNA;ADAPTER\SMA-M X MCX-F		1	EA.

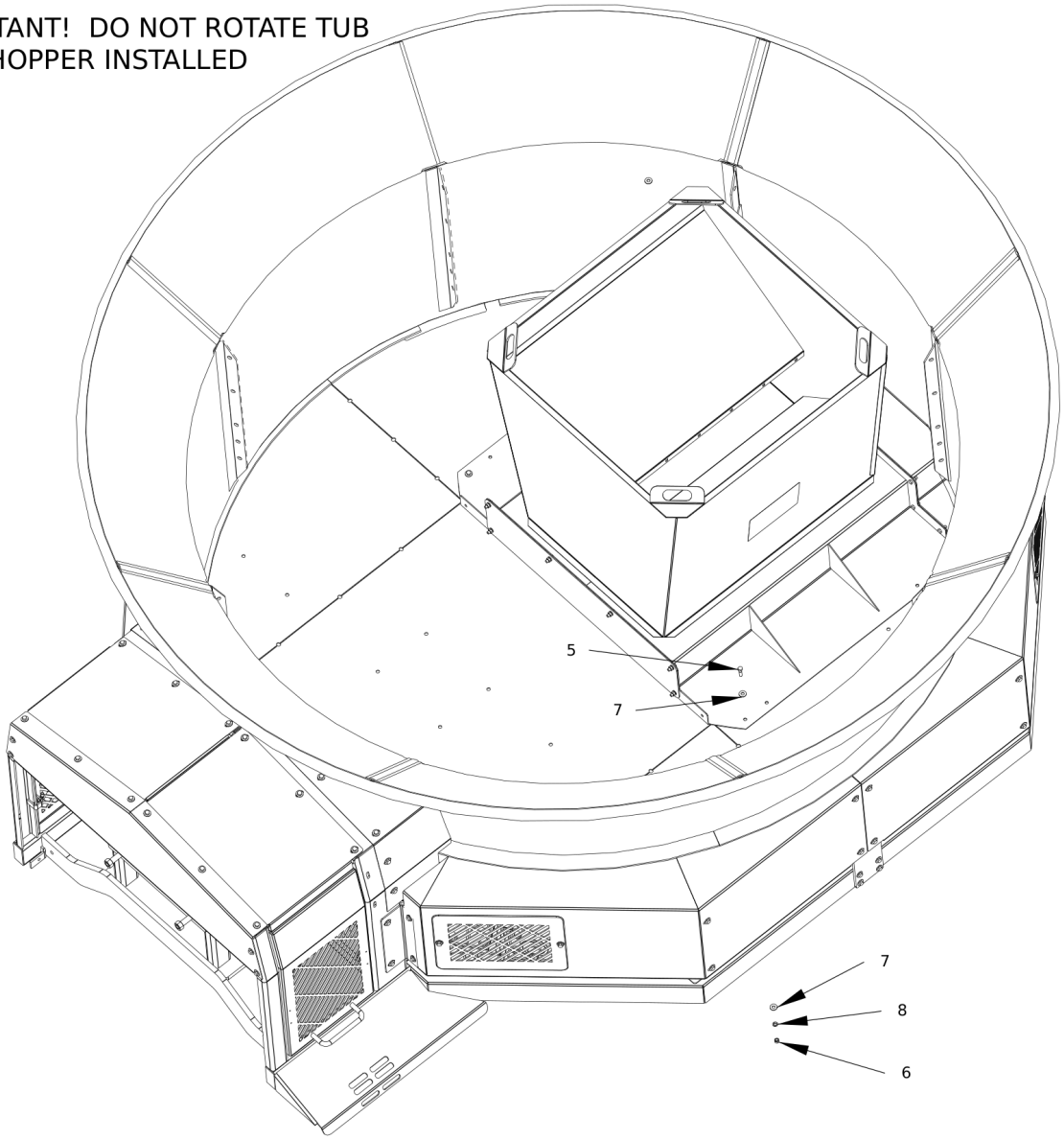


Item	Part No.	Name	Remarks	Qty	Uom
	4503004	RMT\RAD\H1135\OMNX\2.4GHz (COMPLETE)	(Includes 4900009, 5000024, 5701182, 5701317 & 7500755)		EA.
	4900009	NUT\HEX\1/4\NC		4	EA.
	5000024	WASH\LOCK\1/4		4	EA.
	5701182	HARN\OPT\HFX\RADIO		1	EA.
	7500755	CUSH\RBBR\1-OD\1/4-20X3/4		2	EA
	5701317	RADIO\REMOTE\OMNEX\T110R270\PS00404\2.4 GHZ	(INCLUDES 5700887, 5701318 & 5701319)	1	EA.
	5700887	RADIO\TRNSMTR\OMNEX\T110\2.4GHZ		1	EA
	5701318	RADIO\RECEIVER\OMNEX\R270 AND ADAPTOR		1	EA.
	5701319	RADIO\ANTNA&CBL\12FT\R260		1	EA.

Grain Hopper Option Installation:

1. Orient tub so that two interior tub angles are centered in front of cylinder box.
2. Bolt front (Item 2) and rear (Item 3) covers to grain hopper with hardware. Check to see that hopper baffle orientation is correct.
3. Place rounded end of hopper tight against the tub seal ring.
4. Check to see the hopper is centered side to side over rotor.
5. Drill four 7/16" holes through tub floor using hopper as guide.
6. Secure hopper to the floor with provided 3/8" hardware.

IMPORTANT! DO NOT ROTATE TUB WITH HOPPER INSTALLED



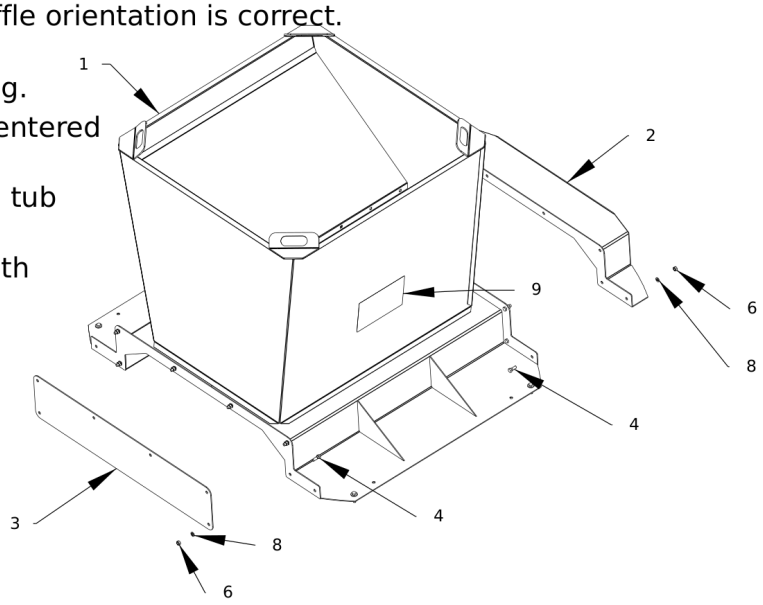
Optional Grain Hopper-View 1

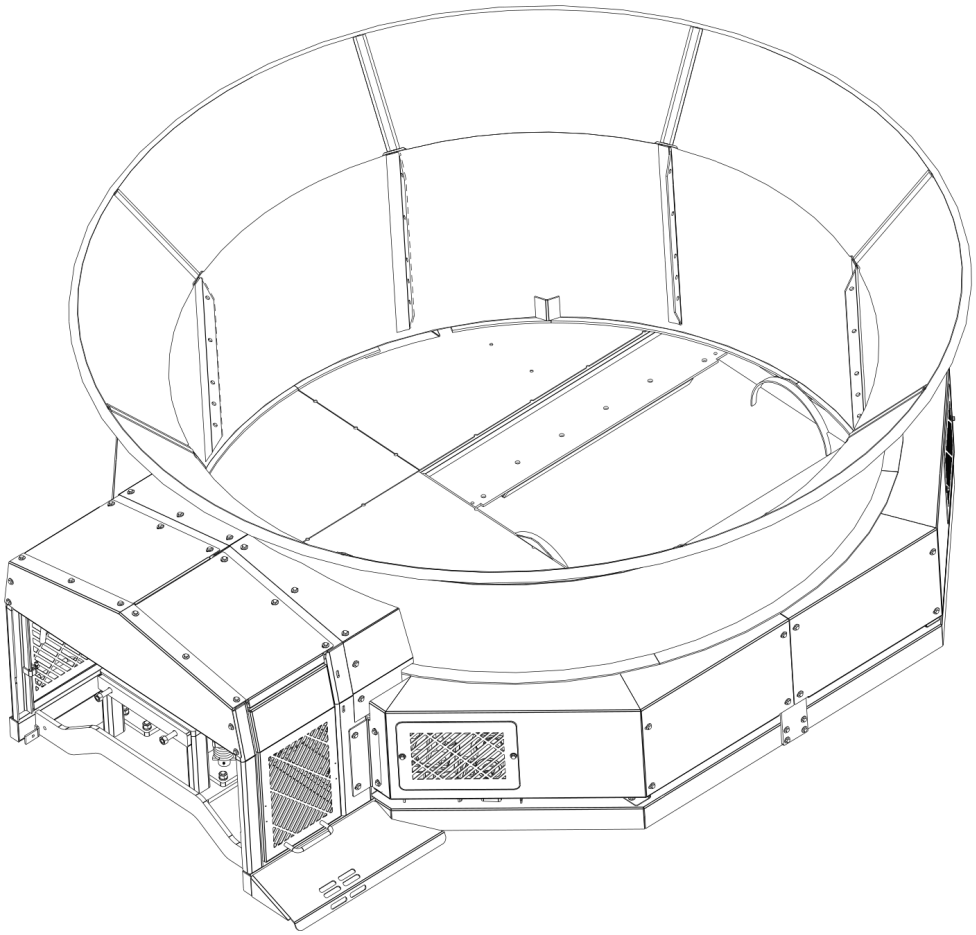
Item	Part No.	Name	Remarks	Qty	Uom
1	4501335	HPPR\GRAIN		1	EA
2	4501340	CVR\RTR\HPPR\GRAIN		1	EA
3	4501341	CVR\END\HPPR\GRAIN		1	EA
4	4800003	BOLT\HEX\3/8X1		14	EA.
5	4800034	BOLT\HEX\3/8X1-1/2		4	EA.
6	4900002	NUT\HEX\3/8\NC		18	EA.
7	5000001	WASH\FLAT\3/8		8	EA.
8	5000019	WASH\LOCK\3/8		18	EA.
9	6500452	DECAL\INFO\GRAIN;HPPR		2	EA
CA	4501347	HPPR\GRAIN\ASSY\COMPLETE			EA
NS	4502853	KIT\FLAP\GRAIN HPPR			EA.

Grain Hopper Option Installation:

1. Orient tub so that two interior tub angles are centered in front of cylinder box.
2. Bolt front (Item 2) and rear (Item 3) covers to grain hopper with hardware. Check to see that hopper baffle orientation is correct.
3. Place rounded end of hopper tight against the tub seal ring.
4. Check to see the hopper is centered side to side over rotor.
5. Drill four 7/16" holes through tub floor using hopper as guide.
6. Secure hopper to the floor with provided 3/8" hardware.

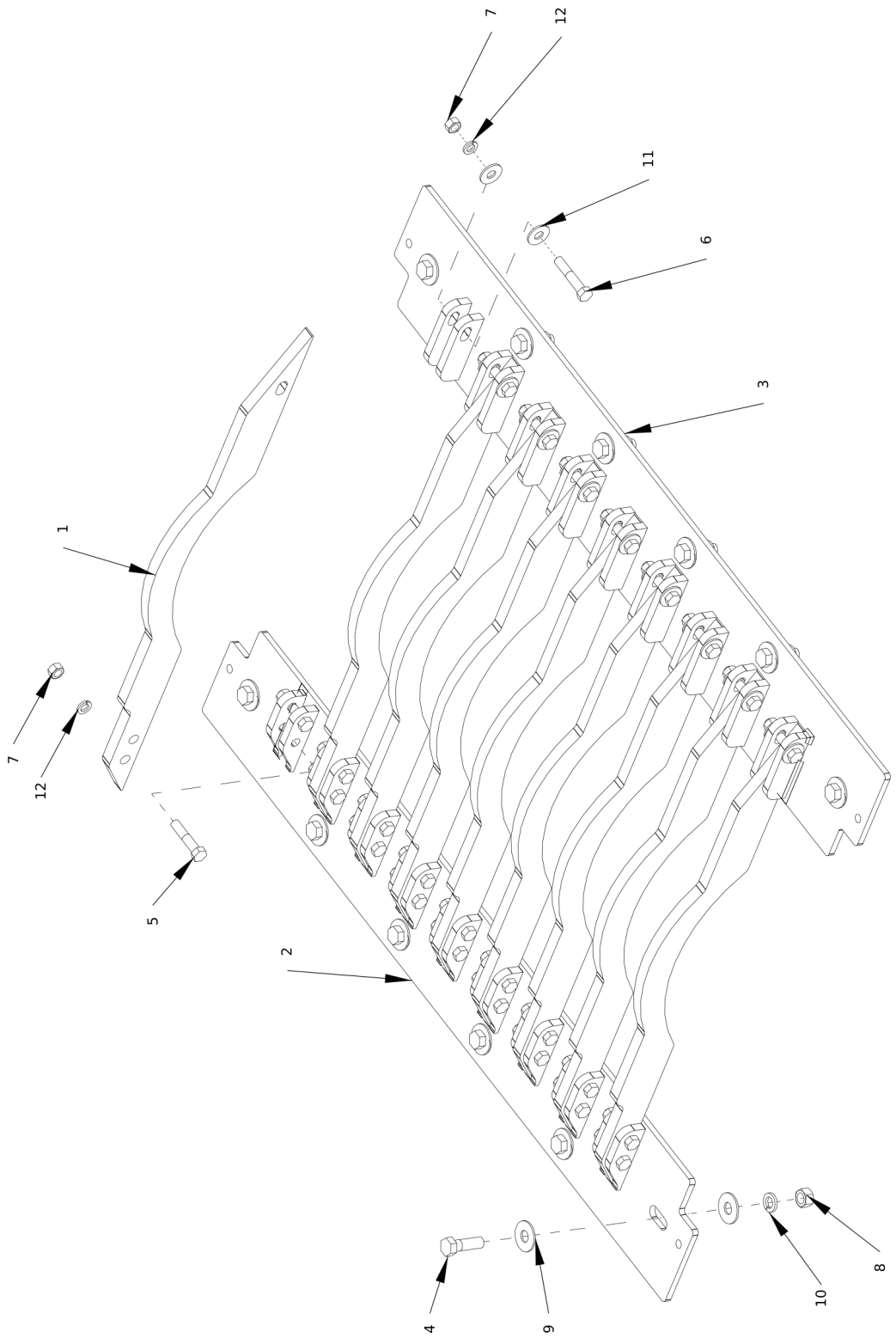
IMPORTANT! DO NOT ROTATE TUB WITH HOPPER INSTALLED





Item	Part No.	Name	Remarks	Qty	Uom
1	4501335	HPPR\GRAIN		1	EA
2	4501340	CVR\RTR\HPPR\GRAIN		1	EA
3	4501341	CVR\END\HPPR\GRAIN		1	EA
4	4800003	BOLT\HEX\3/8X1		14	EA.
5	4800034	BOLT\HEX\3/8X1-1/2		4	EA.
6	4900002	NUT\HEX\3/8\NC		18	EA.
7	5000001	WASH\FLAT\3/8		8	EA.
8	5000019	WASH\LOCK\3/8		18	EA.
9	6500452	DECAL\INFO\GRAIN;HPPR		2	EA
CA	4501347	HPPR\GRAIN\ASSY\COMPLETE			EA
NS	4502853	KIT\FLAP\GRAIN HPPR			EA.

H-1135 Tub Grinder Parts Reference

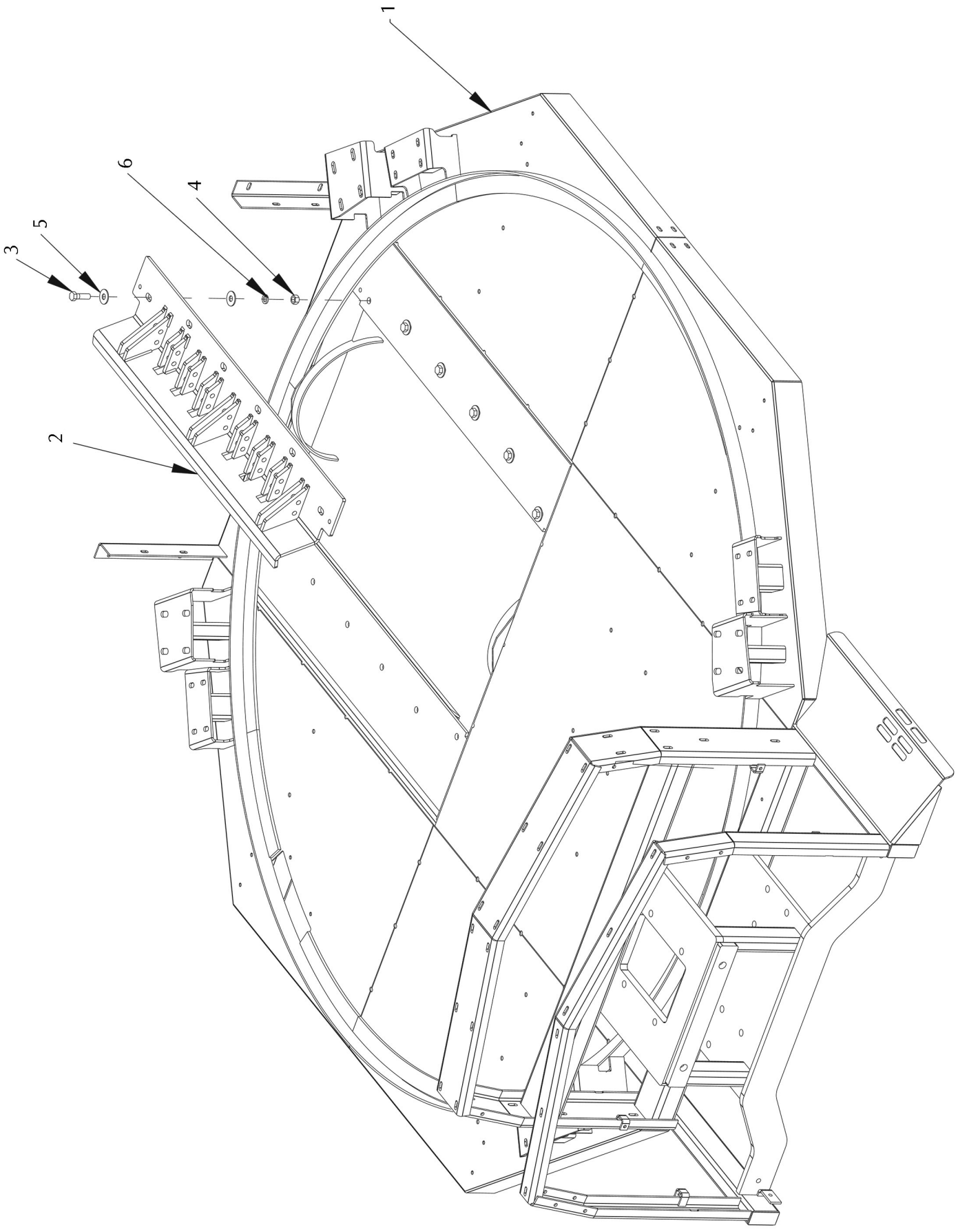


Item	Part No.	Name	Remarks	Qty	Uom
1	4502678	ORDER 4503013		9	EA
2	4502832	PL\SIDE\GRATE\MILL		1	EA
3	4502834	PL\SIDE\GRATE\MILL\9 BAR		1	EA
4	4800010	BOLT\HEX\5/8X2		12	EA.
5	4800070	BOLT\HEX\1/2X2-1/2		18	EA.
6	4800351	BOLT\HEX\1/2X2-3/4		9	EA.
7	4900001	NUT\HEX\1/2\NC		27	EA.
8	4900005	NUT\HEX\5/8\NC		12	EA.
9	5000002	WASH\FLAT\5/8		24	EA.
10	5000003	WASH\LOCK\5/8		12	EA.
11	5000004	WASH\FLAT\1/2		18	EA.
12	5000006	WASH\LOCK\1/2		27	EA.
CA	4502284	GRATE\MILL\9BAR\2-1/2\ASSY			EA

NOTE:
The ear corn attachment is designed specifically for grinding ear corn.
It should not be used when grinding day, other bulk materials or small grains.
This attachment fits directly over the rotor and bold to the tub platform.
Agitator bars inside the tub move ear corn to the rotor.

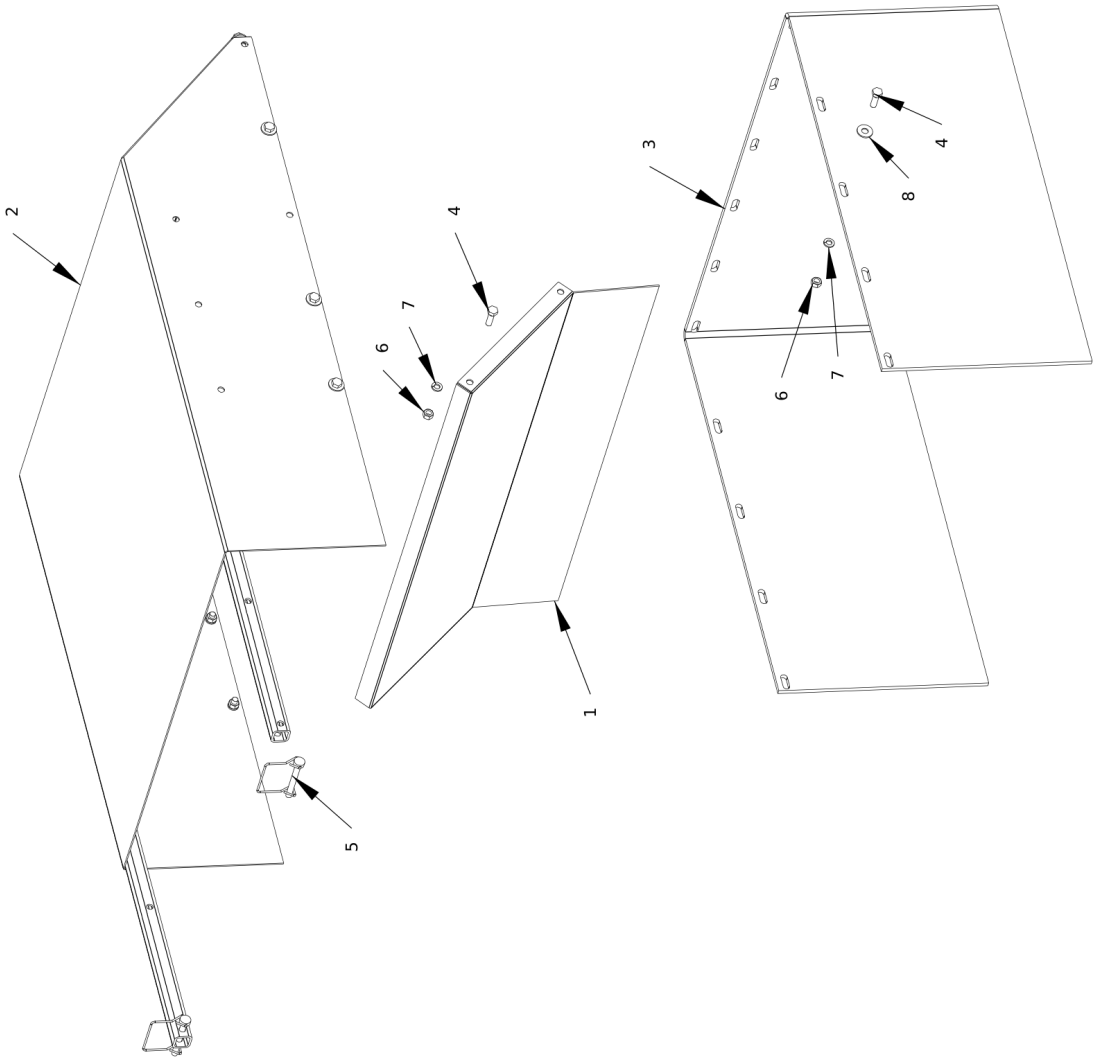
Optional Ear Corn Kit

Item	Part No.	Name	Remarks	Qty	Uom
1	4500128	PIPE\CROSS\2X107		2	EA
2	4500751	BRKT\COVER\ROTOR\EARCORN		2	EA
3	4501052	COVER\ROTOR\EAR CORN>		1	EA
4	4800114	BOLT\HEX\1/2X2		4	EA.
5	4900001	NUT\HEX\1/2\NC		4	EA.
6	5000004	WASH\FLAT\1/2		8	EA.
7	5000006	WASH\LOCK\1/2		4	EA.
CA	4501053	AGTTR\EAR_CORN\KIT\H1130 H1100E\DEALER_INSTALLED			EA


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Optional Geyser Plate

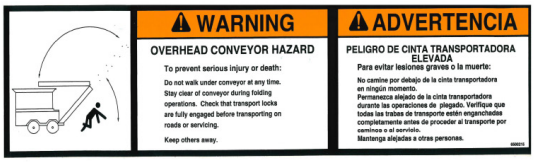
Item	Part No.	Name	Remarks	Qty	Uom
1	4502642	FRM\PLTFRM\TILT\H1130\RTR\REAR		1	EA
2	4502839	PL\GEYSER\9 BAR		1	EA
3	4800010	BOLT\HEX\5/8X2		6	EA.
4	4900005	NUT\HEX\5/8\NC		6	EA.
5	5000002	WASH\FLAT\5/8		12	EA.
6	5000003	WASH\LOCK\5/8		6	EA.
CA	4203058	PL\GYSR\W/MILL\9BAR\2-1/2\ASSY\H1135>	(Includes #2 thru #6)		EA.


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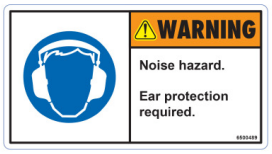
Item	Part No.	Name	Remarks	Qty	Uom
1	4501616	DEFL\GUIDE\MATL\CNVY\UPPR		1	EA
2	4501617	GUIDE\MATL\CNVY\UPPR\24		1	EA
3	4501618	BELT\GUIDE\MATL\CNVYR\UPPR		1	EA
4	4800013	BOLT\HEX\5/16X1		18	EA.
5	4800559	PIN\LYNCH\5/16X2-1/2\W/SQ;WIRE;KEEPER		2	EA.
6	4900003	NUT\HEX\5/16\NC		18	EA.
7	5000022	WASH\LOCK\5/16		18	EA.
8	5000023	WASH\FLAT\5/16		16	EA.
CA	4501609	GUIDE\DSCH\CNVYR\24"CNVYR\KIT>			EA



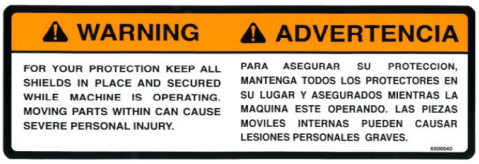
1 - 6500020



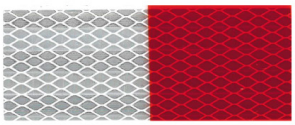
8 - 6500215



15 - 6500489



2 - 6500040



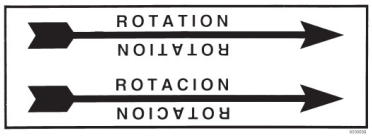
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16 - 6500497



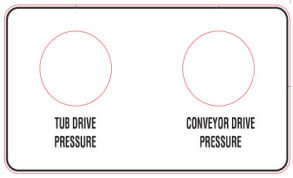
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3 - 6500056



10 - 6500339



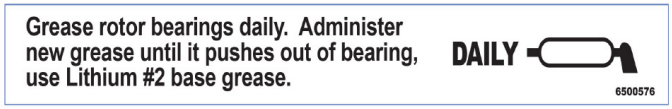
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4 - 6500082



11 - 6500363



19 - 6500576



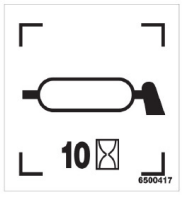
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21 - 6500604



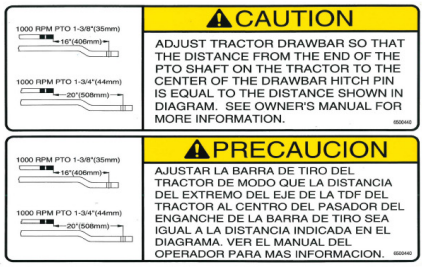
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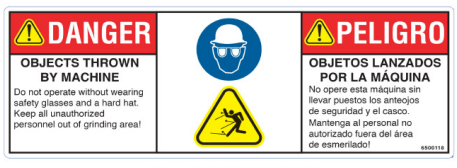
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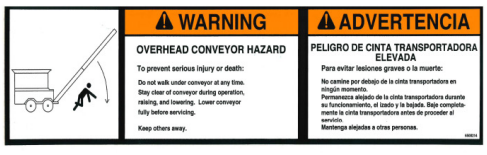
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14 - 6500440



6 - 6500118

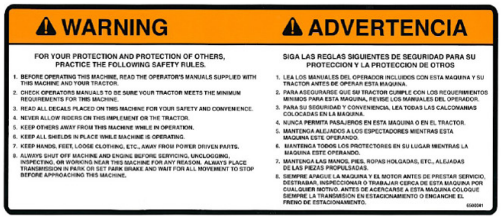


7 - 6500214

Item	Part No.	Name	Remarks	Qty	Uom
1	6500020	DECAL\LOGO\HYBSTR\SNBRS\3		2	EA.
2	6500040	DECAL\WARN\SHIELD\PROT		2	EA.
3	6500056	DECAL\INFO\ROTATION\STR		2	EA
4	6500082	DECAL\DNGR\ROTATN;PART;>		3	EA.
5	6500085	DECAL\DNGR\ROTATNG;DR-LNE		1	EA.
6	6500118	DECAL\DNGR\OBJCT;THROWN		1	EA
7	6500214	DECAL\WARN\OVRHED;CNVYR;HAZARD		2	EA
8	6500215	DECAL\WARN\FOLDNG;CNVYR;>		2	EA
9	6500245	DECAL\MISC\TAPE\RED\WHT\		8	FT
10	6500339	DECAL\WARN\PINCH;POINT		4	EA
11	6500363	DECAL\LOGO\BIGBITE\UNVRSL		2	EA
12	6500417	DECAL\GREASE\10 HRS		9	EA.
13	6500418	DECAL\GREASE\40 HRS		2	EA.
14	6500440	DECAL\CAUT\ADJ_DRWBAR\16&20		1	EA
15	6500489	DECAL\WARN\PPE\HEARING		1	EA
16	6500497	DECAL\EXTINGUISHER\FIRE		1	EA
17	6500550	DECAL\NOTICE\DISPLAY\CLEANING		1	EA.
18	6500538	DECAL\GAUGE\PRESSURE\1030		1	EA
19	6500576	DECAL\BRG\RTR\GREASE\DAILY		2	EA.
20	6500591	DECAL\LOGO\H1135		3	EA.
21	6500604	DECAL\LOGO\STRPNG\BLK+RED-W-BARS		4	EA.
CA	6500590	DECAL\KIT\H1135	(LESS 6500561 DECAL\KIT\TANK\OIL\H1030\H1130\H1135)		EA.
NS	7500077	Yellow Spray Paint	ORDER 7500980		EA.
NS	7500092	Yellow Paint			EA.
NS	7500091	Yellow Paint			EA.
NS	7500078	Red Spray Paint			EA.
NS	7500105	Red Paint			EA.
NS	7500104	Red Paint			EA.

HAYBUSTER®

1 - 6500020



2 - 6500041



3 - 6500043

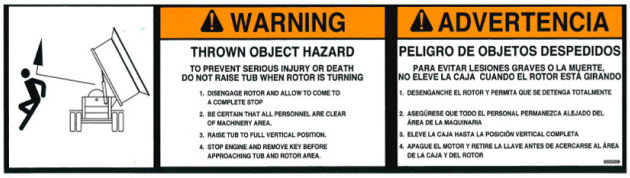


4 - 6500052

HYDRAULIC OIL

6500124

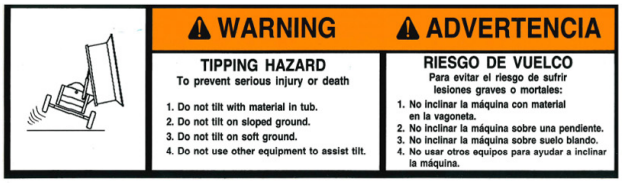
5 - 6500124



6 - 6500209



7 - 6500220



8 - 6500282



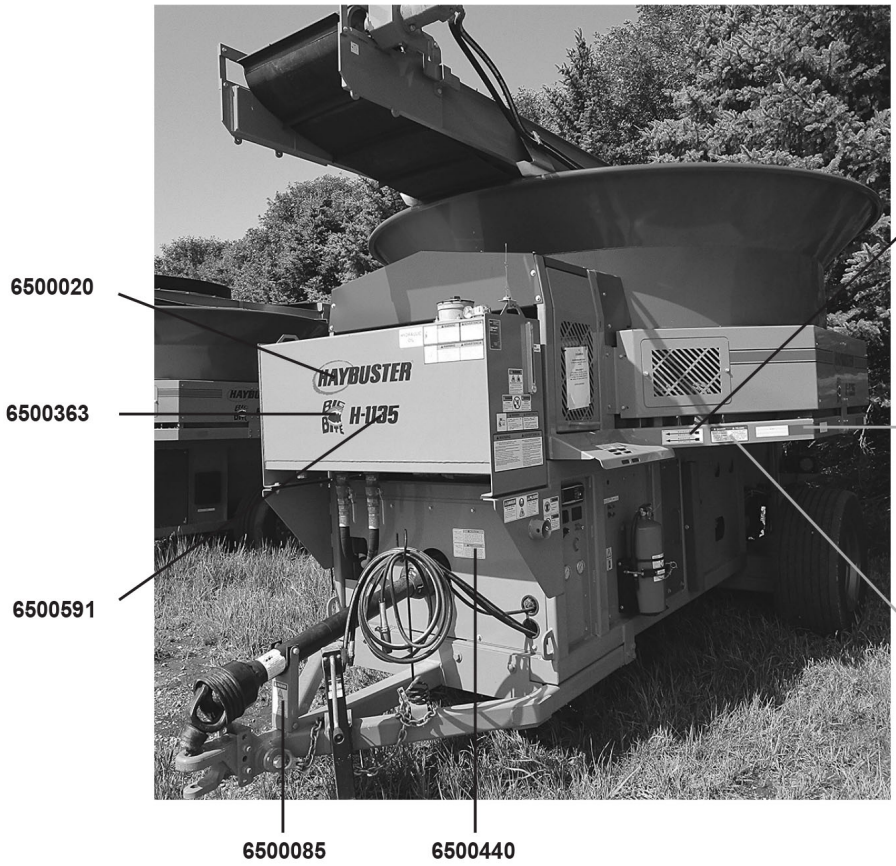
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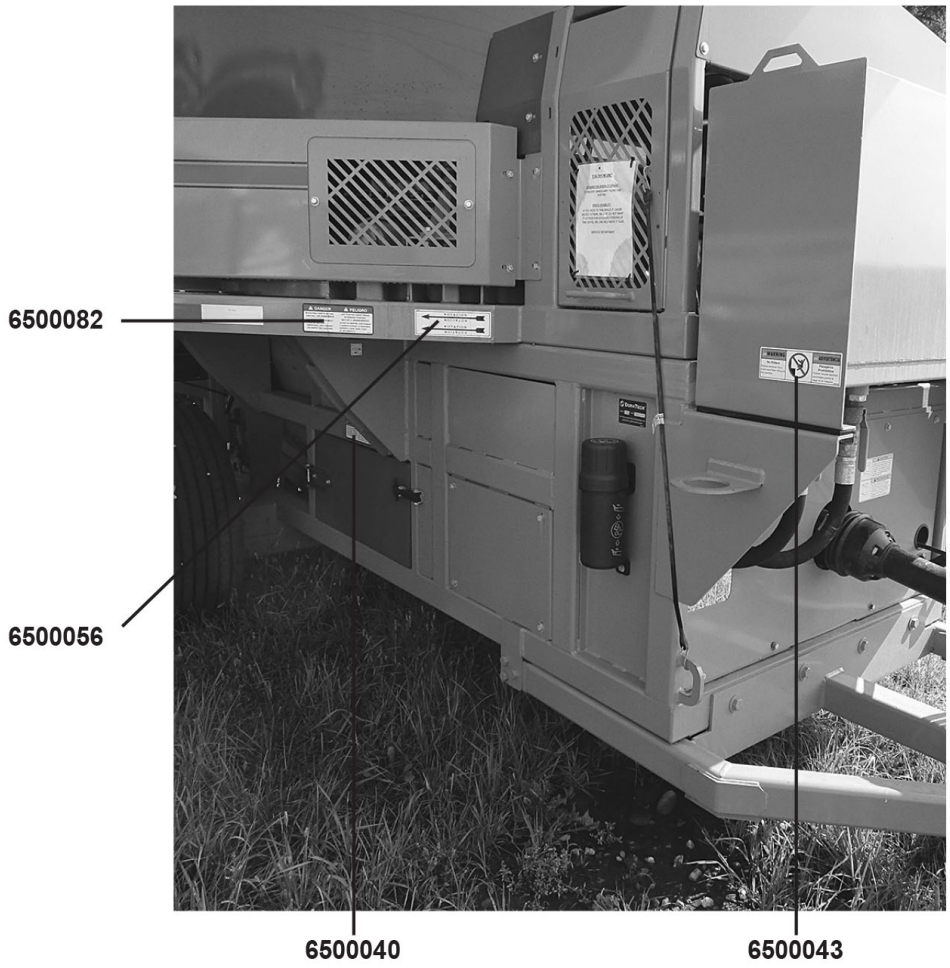
BIG BITE

10 - 6500363

Item	Part No.	Name	Remarks	Qty	Uom
1	6500020	DECAL\LOGO\HYBSTR\SNBRS\3		1	EA.
2	6500041	DECAL\WARN\PROTECTION		1	EA.
3	6500043	DECAL\WARN\NO;RIDERS		2	EA.
4	6500052	DECAL\INFO\OIL;LEVEL		1	EA
5	6500124	DECAL\INFO\HYD;OIL		1	EA
6	6500209	DECAL\WARN\THROWN;OBJCT;HAZARD		1	EA
7	6500220	DECAL\WARN\HI;PRESS;FLUID		1	EA.
8	6500282	DECAL\WARN\TIPPING;HZRD		1	EA
9	6500283	DECAL\WARN\OVERLOAD;TUB		1	EA
10	6500363	DECAL\LOGO\BIGBITE\UNVRSL		1	EA
CA	6500561	DECAL\KIT\TANK\OIL\H1030\H1130\H1135			EA.


6500052
6500220
6500043
6500283
6500041
6500118
6500489
6500020
6500591
6500245
6500576
6500497
6500417
6500363
HAYBUSTER
H-1135


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HAYBUSTER
H-1135

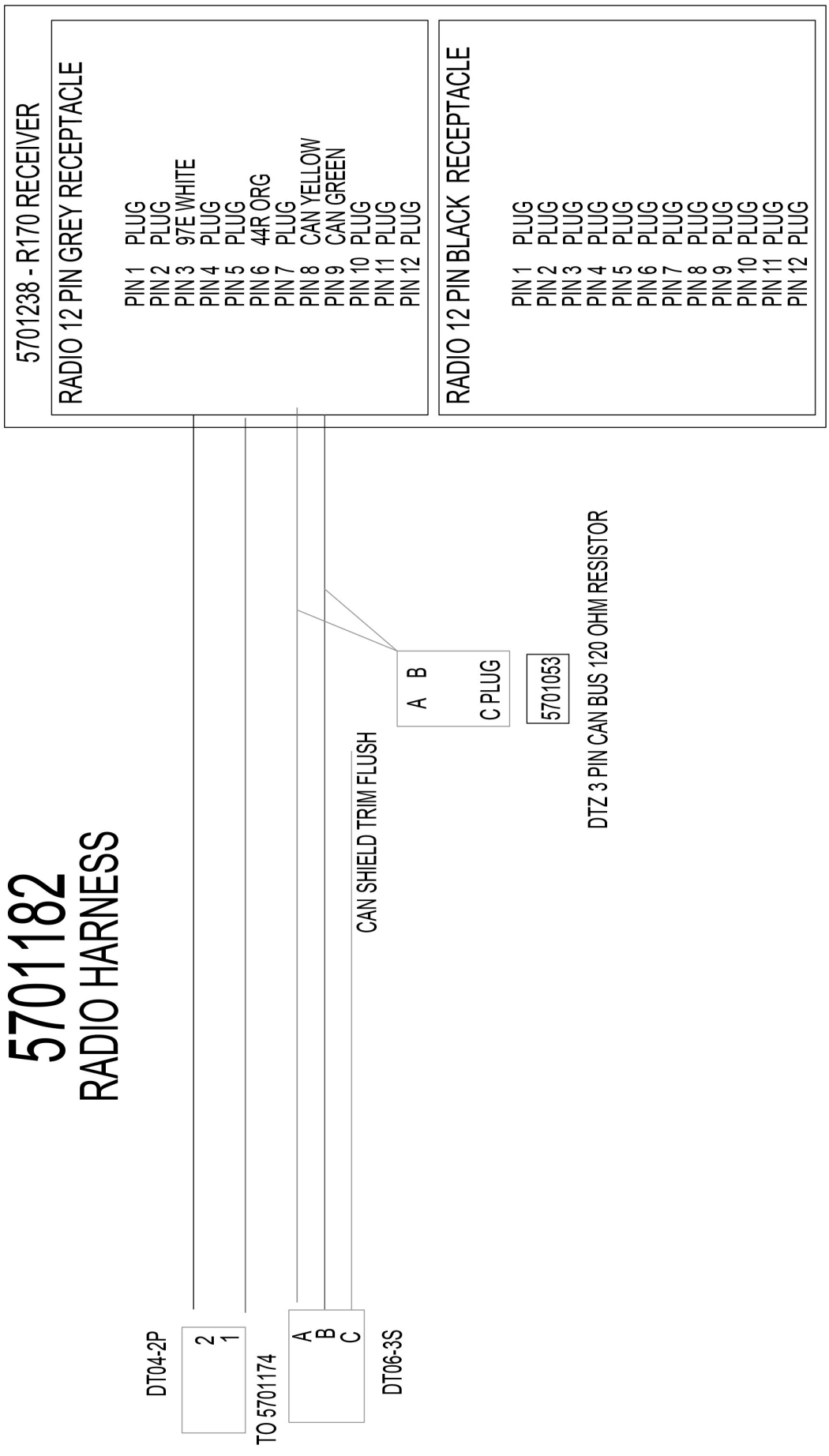

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6500056
6500040
6500043


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6500282
6500209
6500040
HAYBUSTER
H-1135
HYDRAULIC OIL
WARNING
ADVERTENCIA

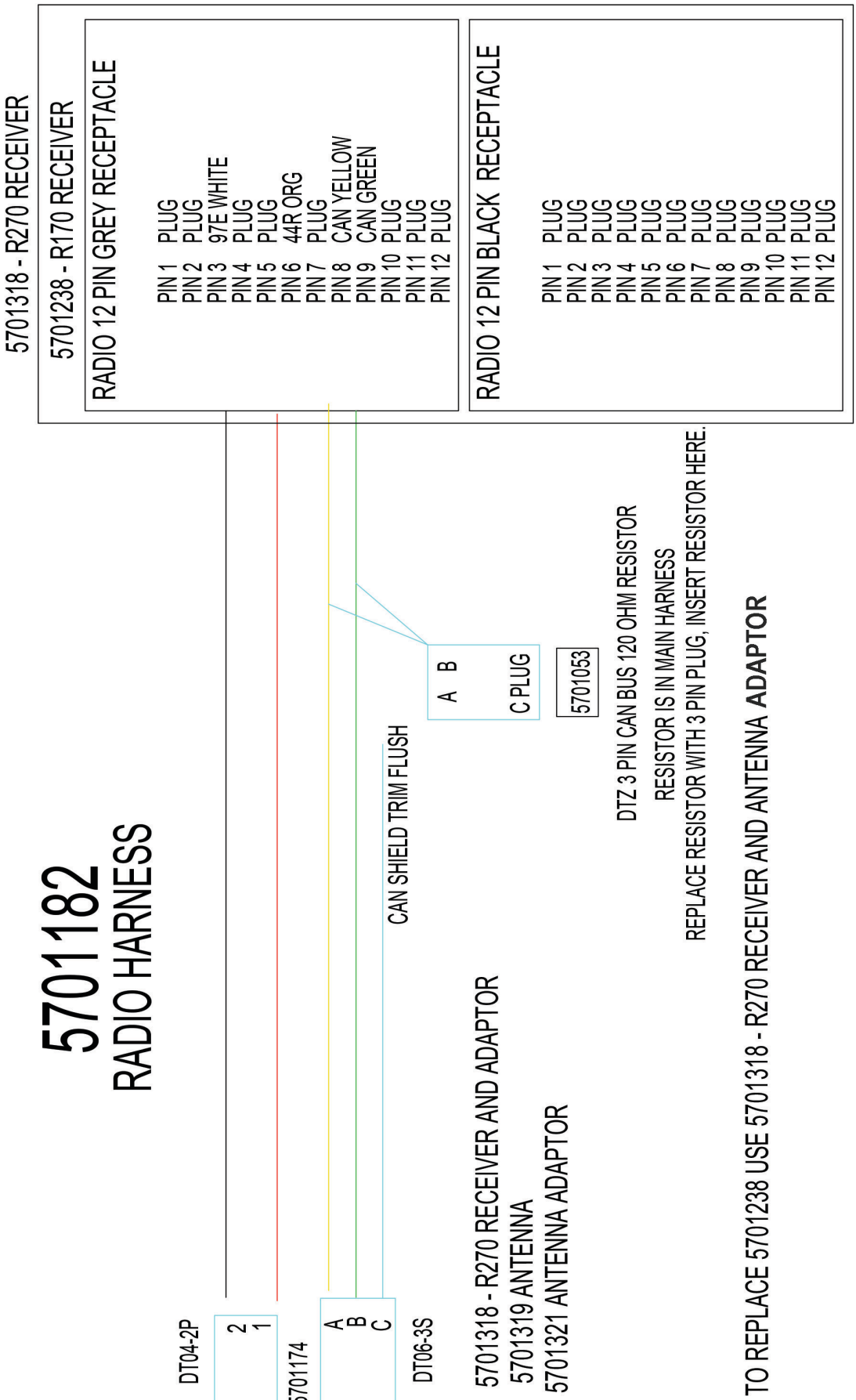

6500576
6500418
6500418
6500339


6500215
6500214

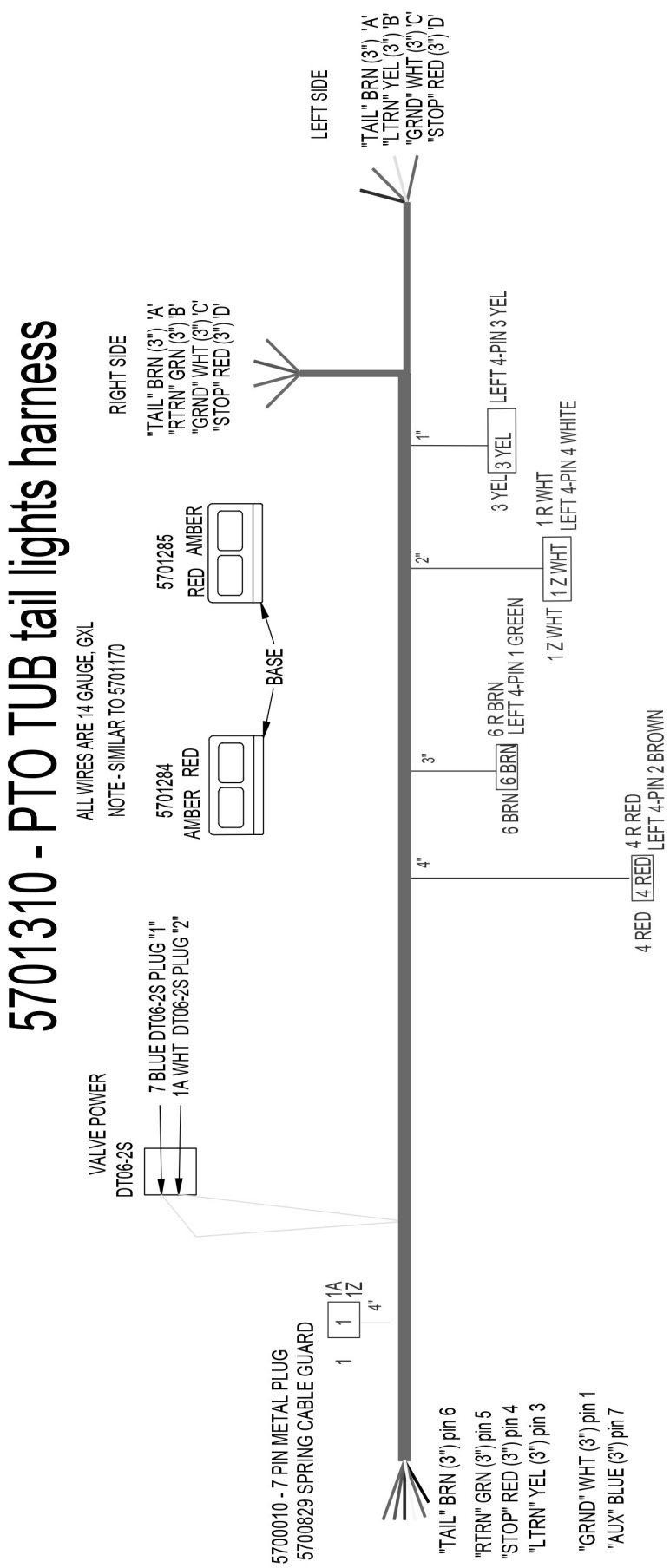
H-1135 Tub Grinder Parts Reference

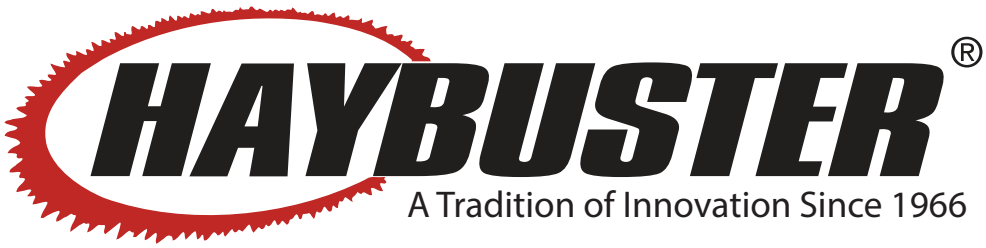


H-1135 Tub Grinder Parts Reference



H-1135 Tub Grinder Parts Reference




HAYBUSTER®
A Tradition of Innovation Since 1966



H-1135™
Tub Grinder
Stationary Electrical Supplement

Operating Instructions

DuraTech Industries International Inc. (DuraTech Industries) has made every effort to assure that this manual completely and accurately describes the operation and maintenance of the H-1135 PTO Driven Tub Grinder™ as of the date of publication. DuraTech Industries reserves the right to make updates to the machine from time to time. Even in the event of such updates, you should still find this manual to be appropriate for the safe operation and maintenance of your unit.

This manual, as well as materials provided by component suppliers to DuraTech Industries are all considered to be part of the information package. Every operator is required to read and understand these manuals, and they should be located within easy access for periodic review.

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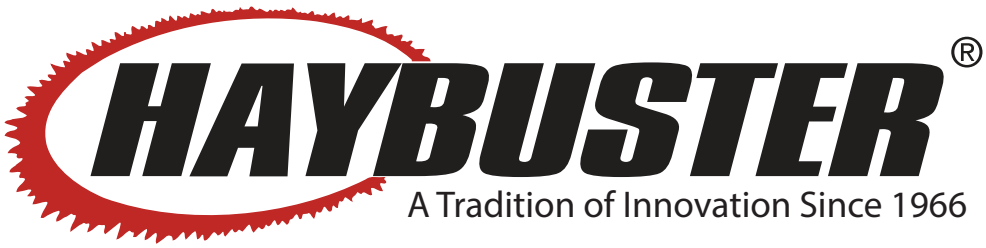

HAYBUSTER®
A Tradition of Innovation Since 1966

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H1135 Electric Tub Grinder-Operators Manual Supplement

This is a supplement to the H-1135 Tub Grinder Operators Manual and Partsbook. The main part of this book applies to this Tub Grinder except where described in this attached supplement.

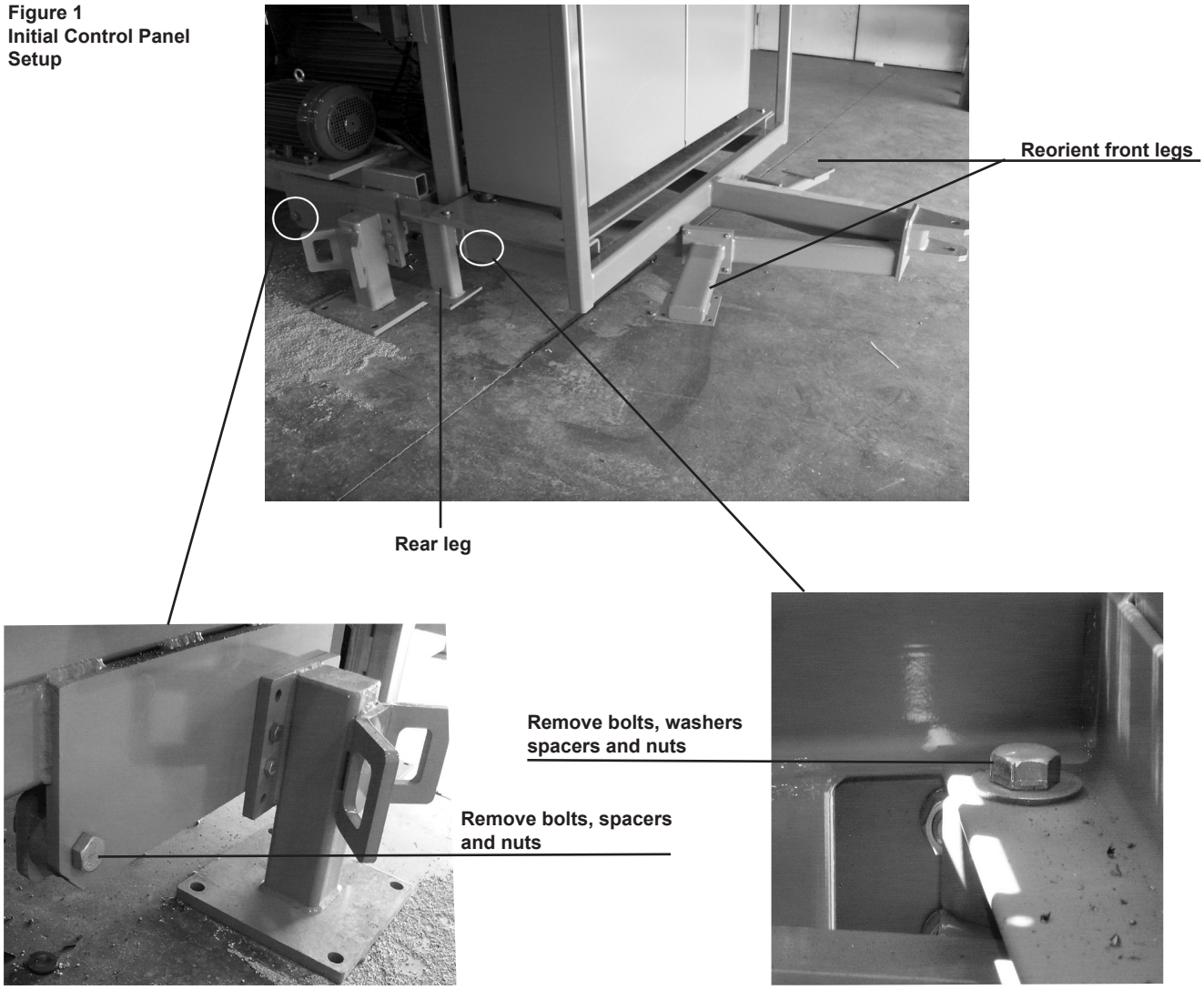
Before starting the H-1135 Electric Tub Grinder review all:

- Safety Recommendations – See **Section 1** of the Operating Instructions in this manual.
- Pre-Operation instructions– See **Section 2** of the Operating Instructions in this manual.
- ***ABB Softstarters Type PSTX30...PSTX1250 Users Manual short form***-for all information regarding the soft start controller. (Manual can also be found at **https://soulutions.abb/softstarters** or on the inside door of the control panel.)

Supplement Section 1: Initial Control Panel Set-Up

1. Unbolt front legs from hitch and reorient so that they are positioned like the rear legs of the control panel assembly and bolt back on. (*See Figure 1)*
2. Disconnect the control box assembly from the machine by removing the bolts, spacers and nuts on both sides of the machine. (Total of four bolts.)

Figure 1
Initial Control Panel Setup



Supplement Section 2: Start-Up

Warning: Make sure that all safety measures have been taken before switching on the power supply.

1. Make sure the main breaker is turned off before opening panel door.

2. Before starting the H-1135 Electric Tub Grinder make sure that "**Soft Start**" switch in the control panel is set on "SS". (*See Figure 2.*).



Figure 2
SS/ATL Switch
(Inside Control Panel.)

Note: Do **NOT** use ATL (Across The Line) if at all possible. This puts a major load on the electrical system and on the drivelines.

3. Perform a safety inspection: Walk around the H-1135 Electric Tub Grinder and verify that:

   - there is no damage to the machine components or to it's electrical components.(See also **Section 2.1** of the Operating Instructions in this manual.)
   - it is in good operating condition and that all protective shields are in place and in proper working order. Replace damaged shields before operating.
   - all bystanders and other workers are clear and wearing personal protective equipment before starting the grinder. (See also **Section 1** of the Operating Instructions in this manual.)

Note: Next step will bring grinder up to full operating Amperage.



Figure 3
Main Breaker
(Shown in the OFF position.)

Start button
(green botton)

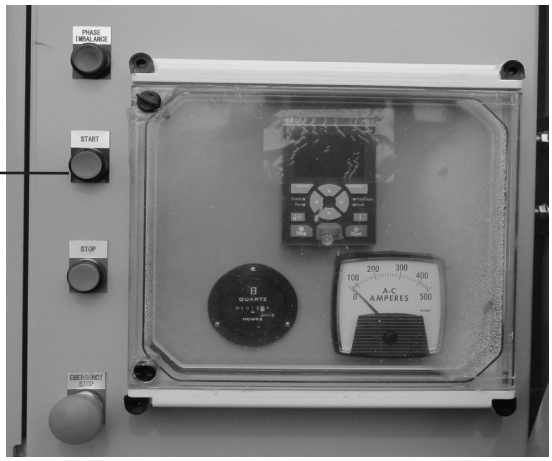


Figure 4
Start Button location

4. Close the panel door and turn the main breaker ***ON*** by turning the handle downward.
   Located on the right panel door (*See Figure 3*)

5. Shout the word **"CLEAR"**

6. Then press the ***start*** button on the outside of the control panel. (*See Figure 4*.)

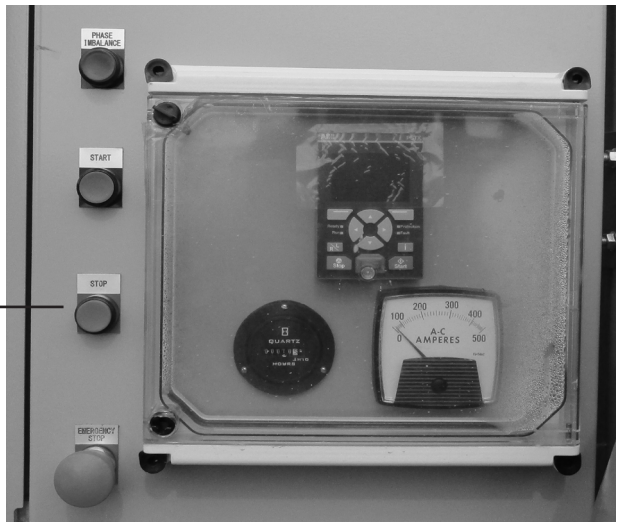
Note: Electric motor will not start if platform is raised.

Supplement Section 3: Shut-Down Procedure

1. Run H-1135 Electric Tub Grinder until no more material is being ground and the discharge conveyor is empty.

2. Push ***stop*** button on the outside of the control panel. (*See Figure 5*)

Figure 5
Stop Button location



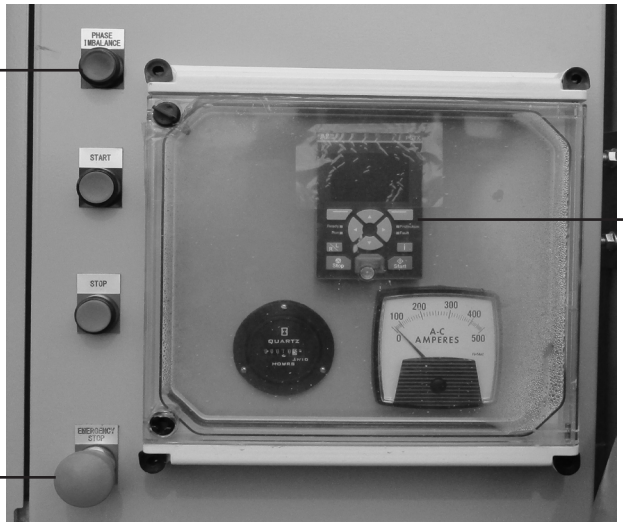
Supplement Section 4: Other Control Panel Functions

Phase Imbalance light will come on when the Littlelfuse MotorSaver voltage monitor registers a fault. (See **Supplement Section 10: Troubleshooting**.)

Emergency Stop button. Cuts all power to machine and stops all functions immediately. Except the driveline will continue to turn for a short time before coming to a complete stop.

Human Machine Interface (HMI): See *ABB Softstarters Type PSTX30...PSTX1250 Users Manual short form* regarding use, parameters settings and troubleshooting. (Manual can also be found at **https://soulutions.abb/softstarters**.)

Figure 6
Other control panel functions



Supplement Section 5: Electronic Governor

The Wachendorf A3X display will control the tub and discharge conveyor functions of the Tub Grinder.

Display

Start up screen:

Company logo

Screen will show when power is applied to the display for approx. 10 sec.



Loading screen:

Company logo, with loading bar

Screen will show right after Start up screen for approx. 10 sec.



Hardkeys:

Next

- When the Next button is pressed, the display changes to the next screen.

Home Button

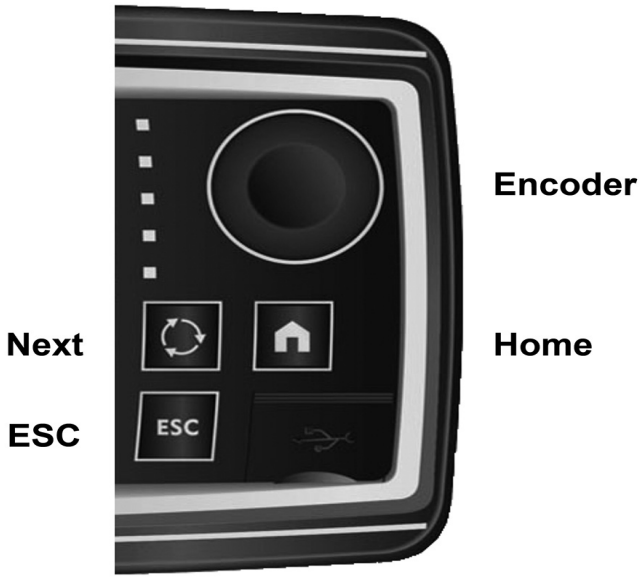
- When the home button is pressed the display will go to the home screen.

ESC Button

- When the ESC button is pressed the display will go back to the previous screen or view.

Encoder

- When the Encoder button is pressed, the display changes to the next screen.



Home screen:

Home Screen will show right after the loading screen, when the Home button is pressed from any of the other pages, or when the Encoder is pressed from the Manual Function screen.



- Tub FWD/REV buttons will control the Tub FWD/REV outputs as described in **Supplement Section 6: Operation of the Electronic Governor.**.

- The Tub Speed gauge will indicate the Tub Speed output with a scale of 0-100.
  - o When the Tub Speed button is pressed the Encoder knob will be linked to the Tub Speed setting and the Tub Speed icon will change to red in color.
  - o The Tub Speed can also be adjusted by using the Tub Speed Increase and Decrease buttons on the radio remote.

- The Motor Load gauge will indicate the Motor Load setting with a scale of 0-100.
  - o When the Motor Load button is pressed the Encoder knob will be linked to the Motor Load setting and the Motor Load icon will change to red in color.

- When the Display Light button is pressed the Encoder knob will be linked to the Display Backlight setting and the Display Light icon will change to red in color.



- The Min Amps button will set the Amp Minimum and will be indicated by a blue arrow on the outside edge of the Amps gauge. The Amp Max is indicated by the green arrow. (*See Figure 7*) **(See also Supplement Section 6: Operation of the Electronic Governor.)**

- The Amps gauge will display the Amps with a scale of 0-400 Amps.

- A fault icon will pop up anytime there is a fault triggered in the controller.



- A radio icon will pop up when the transmitter is connected to the receiver.



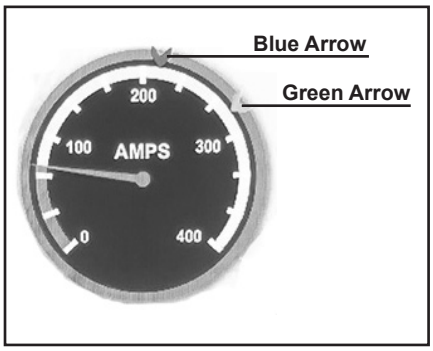


Figure 7
Min Amps-Max Amps

Manual Function Screen:

The Manual Function screen will be accessed by pressing the next button or the encoder on the Home Page.



The following functions can be operated on the Manual Function screen.

1. Conveyor Raise*
2. Conveyor Lower*
3. Conveyor Fold
4. Conveyor Unfold
5. Tub Raise
6. Tub Lower

Functions marked with an (*) can also be operated with the radio remote.

- When a button for one of the functions is pressed the corresponding output will be momentarily turned ON and the button will change color. When the button is released the output will be turned OFF.

- Interlocks:
  - The Tub Raise output will be de-activated if there are pulses detected on the Rotor Speed input. An alarm window will show if the Tub Raise button is pressed while the function is locked out. If there are no pulses detected on the Rotor Speed input, the Tub Raise output will be activated after the Tilt Enable Timer expires.

Hours screen:

The Hours screen will be accessed by pressing the next button on the Manual Function screen.



- The Grind Hours window will display the total number of hours the machine has run with the Rotor ON.

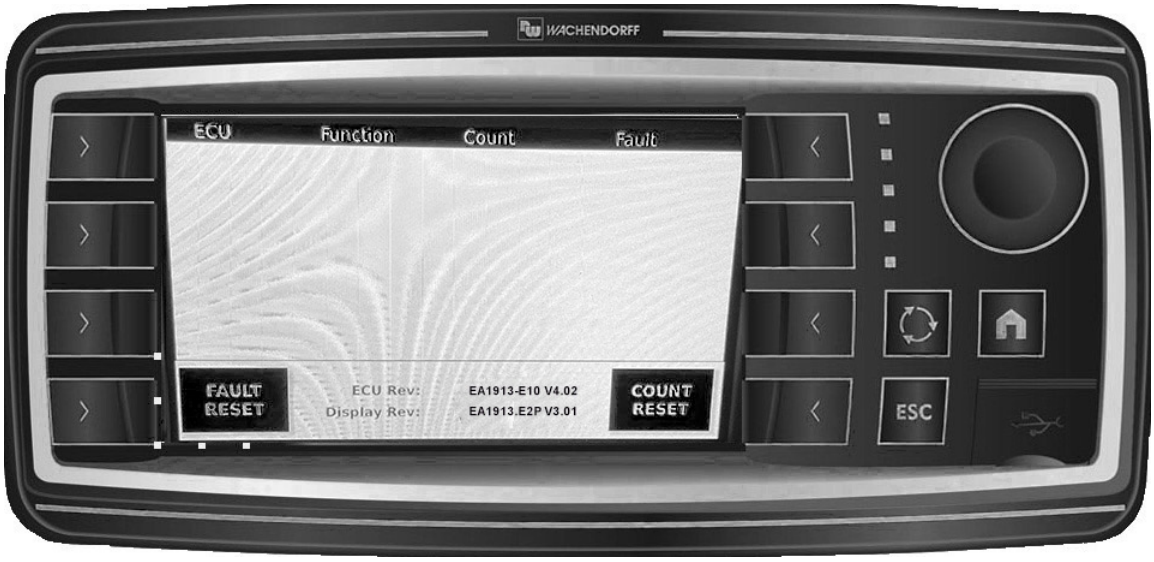
- The Service Hours window will display the total number of hours the machine has run with the Rotor ON since the last Service Hours Reset. Pressing the Service Hours Reset button will reset the Service Hours window to zero.

- The Job Hours window will display the total number of hours the machine has run with the Rotor ON since the last Job Hours Reset. Pressing the Job Hours Reset button will reset the Job Hours window to zero.

- Pressing the Fault Menu button will take the operator to the Fault Screen page.

Fault screen:

The faults will show up in the fault table screen when they occur.



The Active Fault screen will display a table indicating the J1939 DM1 message fault codes. The fault codes will be displayed as numerical values unless otherwise specified in the Fault Codes table. (See Section 4.2)

- The **ECU** (electronic control unit) column indicates which controller the fault is coming from.
- The **Function** column indicated what function has a fault.
- The **Count** column indicates how many times the fault has occurred.
- The **Fault** column indicated the reason for the fault.

Fault Reset Button

- The Fault Reset button will reset all active faults.

Display and Controller Software

The Display and Controller Software version will be displayed on this screen.

Version levels must be this or above:

ECU REV: EA1913-E10 V4.02

DISPLAY REV: EA1913.E2P V3.01

Supplement Section 6: Operation of the Electronic Governor

Auto/Manual Mode

- The system has two modes of operation: Auto Mode and Manual Mode. The mode of operation can be toggled using the Auto/Manual button on the display.

Tub

- **Tub Forward**



  - **ON**

    If the Tub Forward button is pressed on the display or the radio remote, and the Tub Forward output is de-active, and the Tub Reverse output is de-active, and either the Amps input is greater than zero, or the system is in Manual Mode:

    - Tub Forward output will be activated.
    - Tub Speed output will be ramped from minimum output to the output setting indicated by the display.
    - Tub Forward indicator on the display will change color from black to red.

  - **OFF**

    If the Tub Forward output is active, and the system is switched from Manual Mode to Auto Mode while the Amps input is zero, or the Tub Forward button is pressed on the display or radio remote, or the Tub Reverse button is pressed on the display:

    - Tub Forward output will be de-activated.
    - Tub Speed output will be de-activated.
    - Tub Forward indicator on the display will change color from red to black.

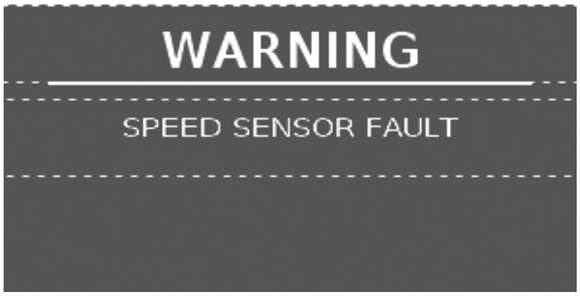
    If the Amps input goes to zero when the Tub Forward output is active, and the system is in Auto Mode:

    - Tub Forward output will be de-activated.
    - Tub Speed output will be de-activated.
    - Tub Forward indicator on the display will change color from red to black.
    - Speed Sensor Fault will be activated.

- **Warning**

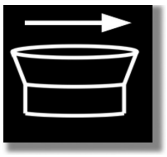
  If the Tub Forward button is pressed on the display, and the Tub Forward output is de-active, and the Tub Reverse output is de-active, and the Amp Speed input is less than zero, and the system is in Auto Mode:

  - The following alarm window will be shown on the display for 3 seconds:



If the Speed Sensor Fault is active:

- Go to the fault screen to reset the fault.

- **Tub Reverse**
  - **ON** 

If the Tub Reverse button is pressed on the display or radio remote, and the Tub Forward output is de-active, and the Tub Reverse output is de-active, and either the Amp Speed input is greater than zero, or the system is in Manual Mode:

- Tub Reverse output will be activated.
- Tub Speed output will be ramped from minimum output to the output setting indicated by the display.
- Tub Reverse indicator on the display will change color from black to red.

- **Tub Speed**

  o Manual Mode:

  - The Tub will operate in an open loop control mode and will not compensate for amperage changes.

  - There will be a Tub Speed gauge on the display to indicate the percentage of output from 0-100 percent.

  - The Tub Speed will be adjustable on Home Screen of the display.

  o Auto Mode:

  - The Tub will operate in a closed loop control mode and will compensate for amperage changes.

  - The Tub Speed will be adjustable on Home Screen of the display. This will be the maximum speed the Tub will operate at and is the same speed used in Manual Mode.

  - The Motor Load will be used to reduce the Tub Speed to provide an anti-stall function to the rotor. This setting will be adjustable on the Home Screen of the display and will be displayed as 0-100%.

  - The Min Amps (Blue Arrow) is the setpoint at which the Tub starts to slow down. This is set using the Min Amps button on the display. This value will not be allowed to go above the Max Amp limit (Green Arrow) and below the Min Amp limit. (*See Figure 8*)

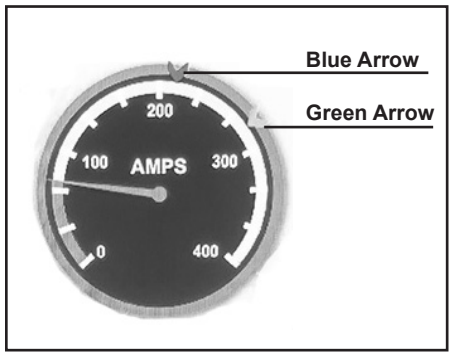
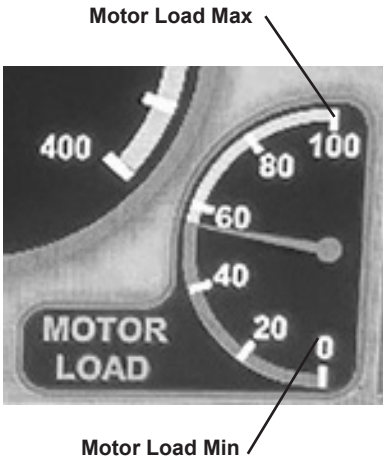


Figure 8
Min Amps-Max Amps

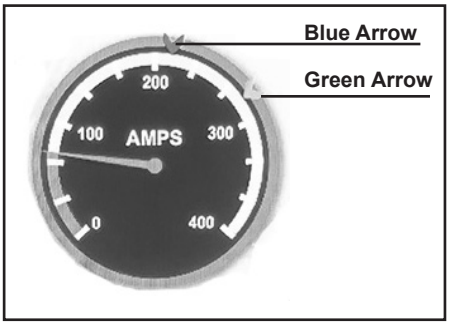
Figure 9
Motor Load



- Amp Max Limit is the current draw amerage where the Tub will stop when the Motor Load is set to 100%.(*See Figure 9*)

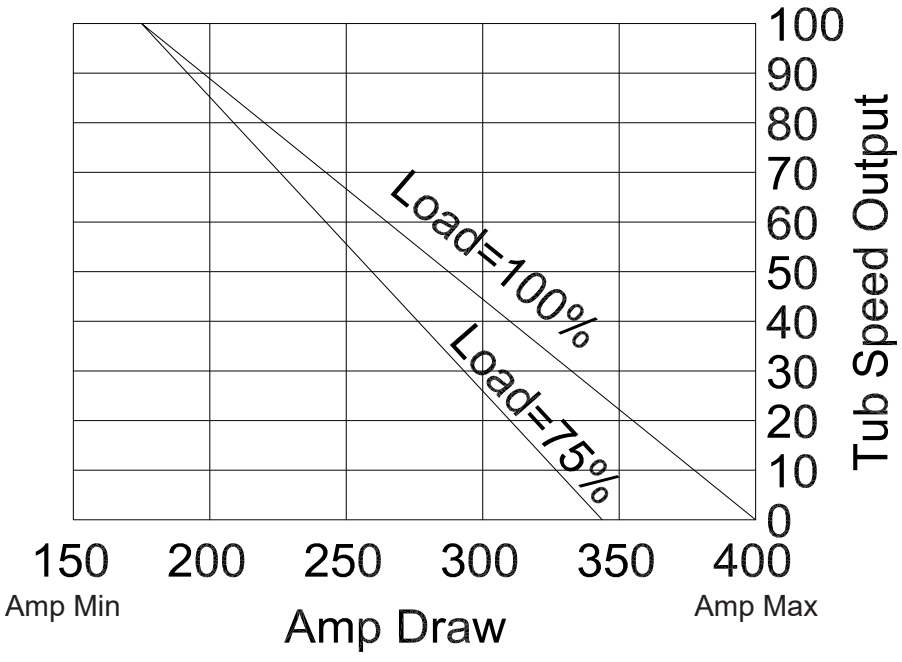
- Amp Max (Green Arrow) is the setpoint where the Tub will stop. If the Motor Load is set to less than 100%, the Tub will still start to slow down at the Amp Minimum (Blue Arrow) setpoint but the Tub will be stopped at the Motor Load percentage between the Amp Minimum and the Amp Max Limit. (*See Figure 10*)

Figure 10
Min Amps-Max Amps



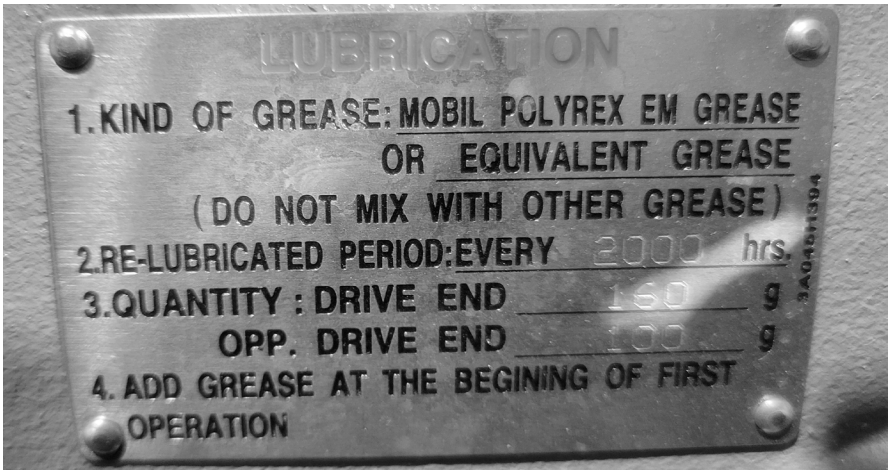
- **Load Example:**
  - Amp Minimun=175 amps
  - Amps Max=400 amps
  - Motor Load Display = 75%

Calculate Amp draw increase: 0.75 * (400-175) = 169 amps
Calculate Amp Max: 175+169=344 amps

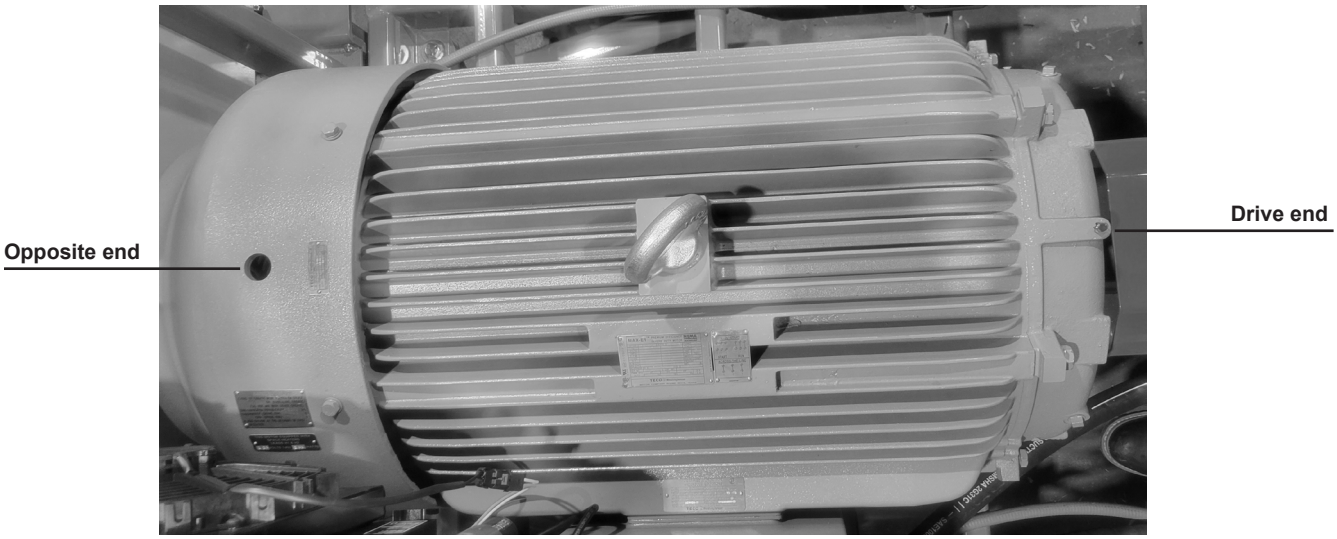


Supplement Section 7: Lubrication

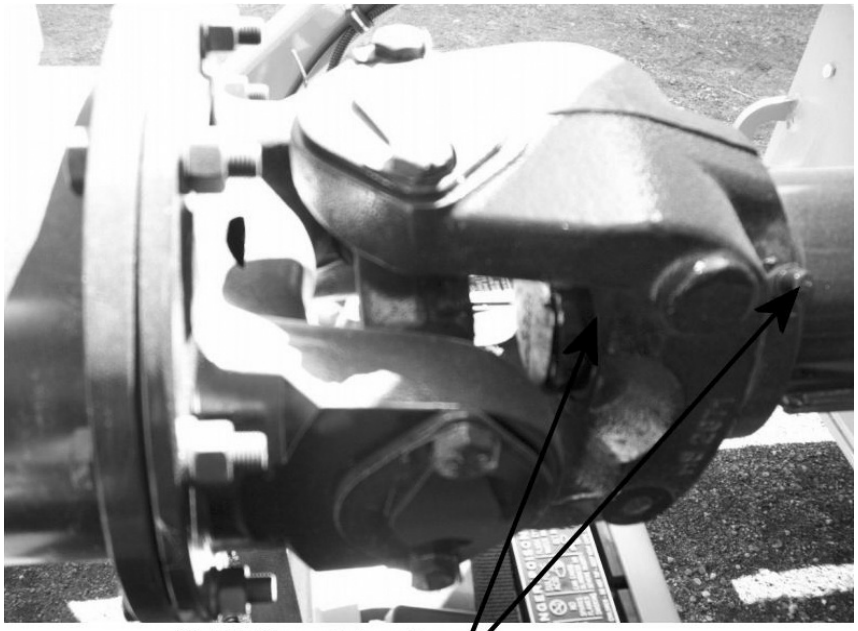
Teco-Whitewestinghouse Motor requires the use of Mobile Polyrex Em or equivalent grease. The (2) grease zerks on this motor must be re-lubricated every 2000 hours. 160 grams of grease is to be placed in the drive end zerk. 100 grams required for end opposite the drive.



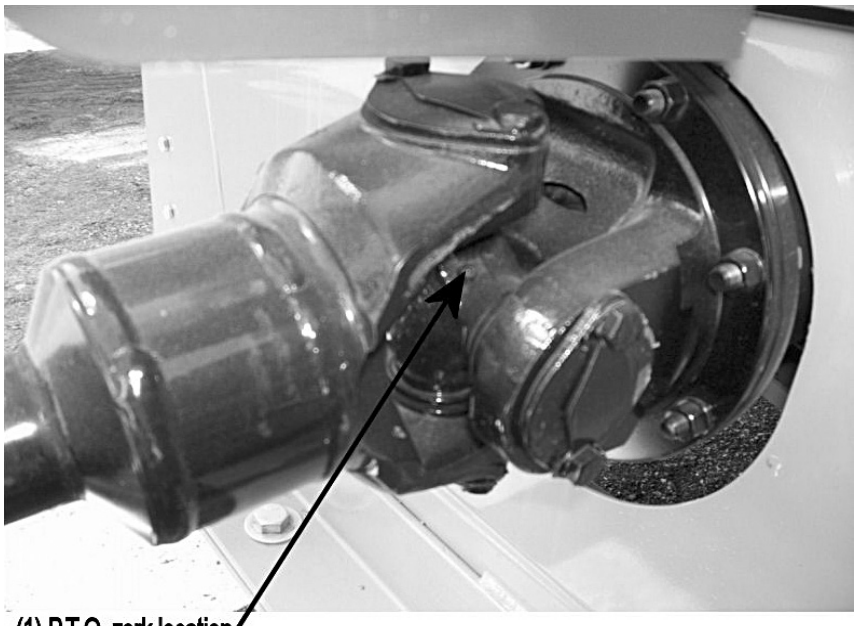
The locations of the grease zerks for the motor are shown below.



The P.T.O. shaft has (3) grease zerks that need to be lubricated every 40 hours using standard grease. These locations are shown below.



(2) P.T.O. zerk locations



(1) P.T.O. zerk location

Supplement Section 8: Hydraulic Cooler

The H-1135 Electric Grinder is equipped with DC motor driven hydraulic oil cooler to provide supplemental cooling of the hydraulic oil. The fan on the cooler is driven by a DC electric motor. The fan on/off and direction is regulated by a controller based on the oil temperature. Air is sucked through a screen box which the cooler is attached to. Once the oil is above 125°F the fan is turned on bringing air over the cooler fins. Debris is stopped by the screen as air passes through to the cooler. If the screen plugs up and air flow is decreased to the cooler the oil will heat up, once the oil reaches 170°F the fan will stop and then reverse for 30 seconds. The debris will be blown off of the screen and the fan will resume in the forward direction. The fan will turn off once the oil temp falls below 105°F.



Indicator LED's

The controller has two LED's which display the system status. The green LED will light when power to the system is applied and no errors are detected. The red LED will blink if there are faults to the output (fan motor). The output is monitored for no-load or overload conditions. If a fault condition occurs, count the number of blinks of the red LED, then refers to the error codes below:

RED ERROR CODE LED BLINKS:

1 TIME = FAN OVERLOAD

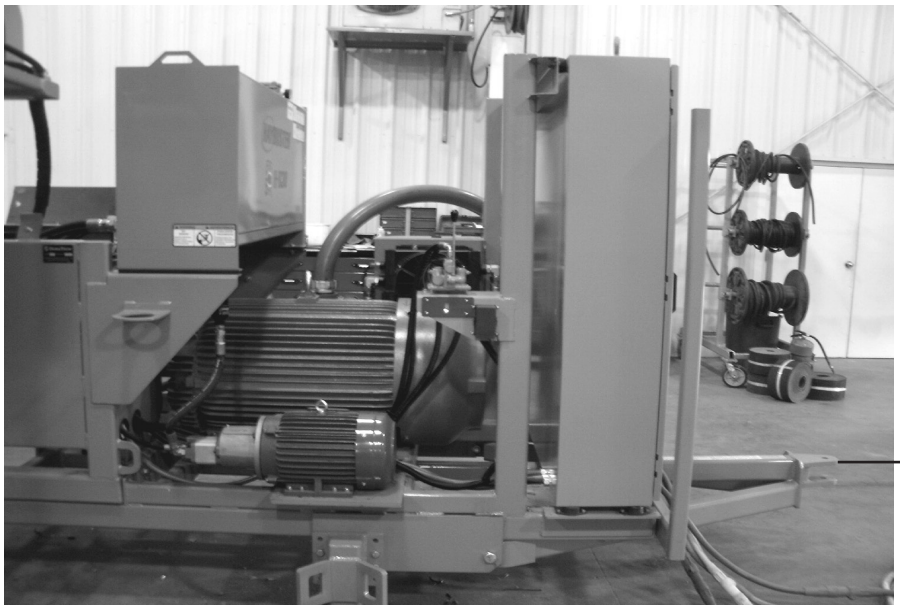
2 TIMES = FAN OPEN

For troubleshooting the hydraulic cooler, see **Supplement Section 10: Troubleshooting: Hydraulic Cooler.**

Supplement Section 9: Transport Hitch

The H-1135 Electric Tub Grinder is shipped with a hitch installed to aid in loading, transporting to the job site, and to protect the starter panel during shipment. This hitch is designed for low speeds (5 mph (8 km/h) and under) and is **NOT** to be used for road transport.

ATTENTION: The H-1135 Electric Tub Grinder is **NOT** designed for road transport. Transporting the H-1135 Electric over 5 mph (8km/h) can cause machine damage and will void the warranty!

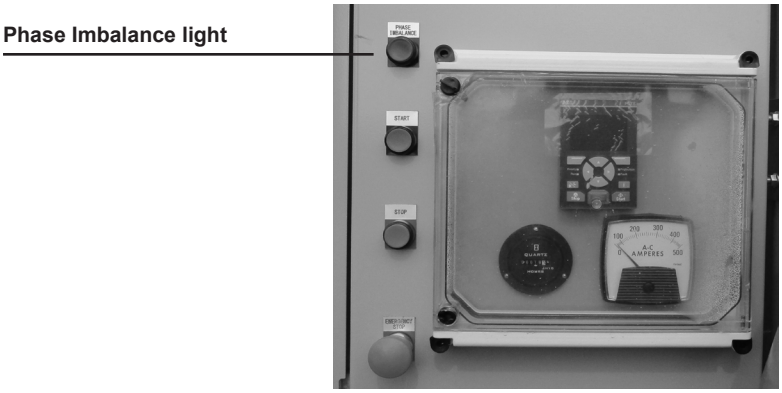




Supplement Section 10: Troubleshooting

10.1 Troubleshooting: Phase Imbalance

The phase imbalace light comes on when the Littlelfuse MotorSaver voltage monitor registers a fault.



Warning: Disconnect main breaker **BEFORE** opening the electrical panel doors.

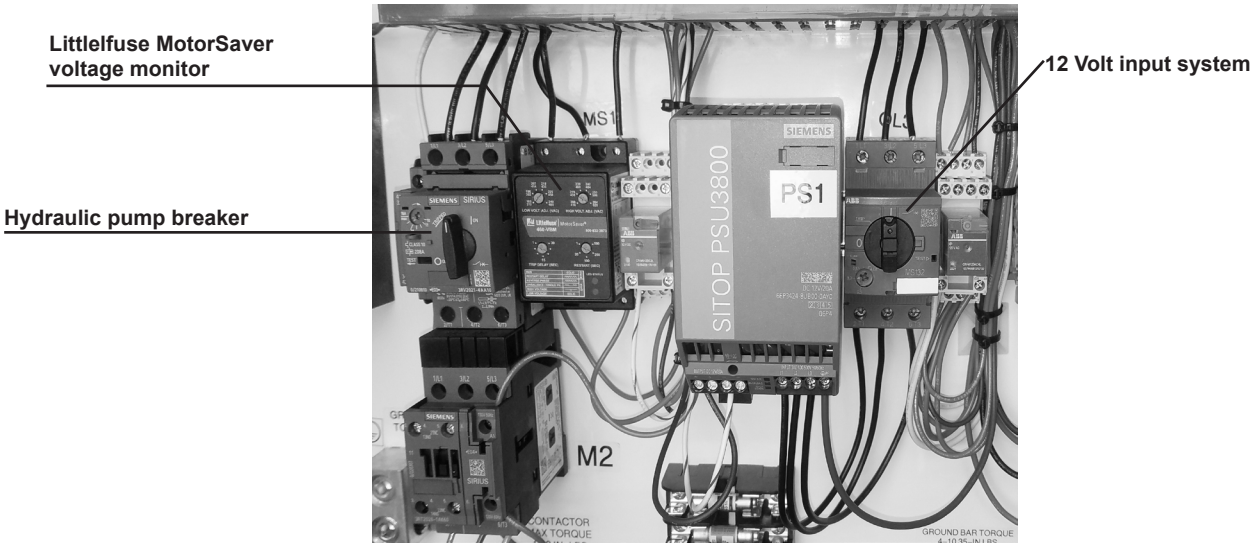
To see the fault:

Step #1. Disconnect the main breaker located on front right hand door of electrical panel

Step #2. Stand facing the electrical panel, open the right hand door, then the left hand door.

Figure 3
Main Breaker
(Shown in the OFF position.)



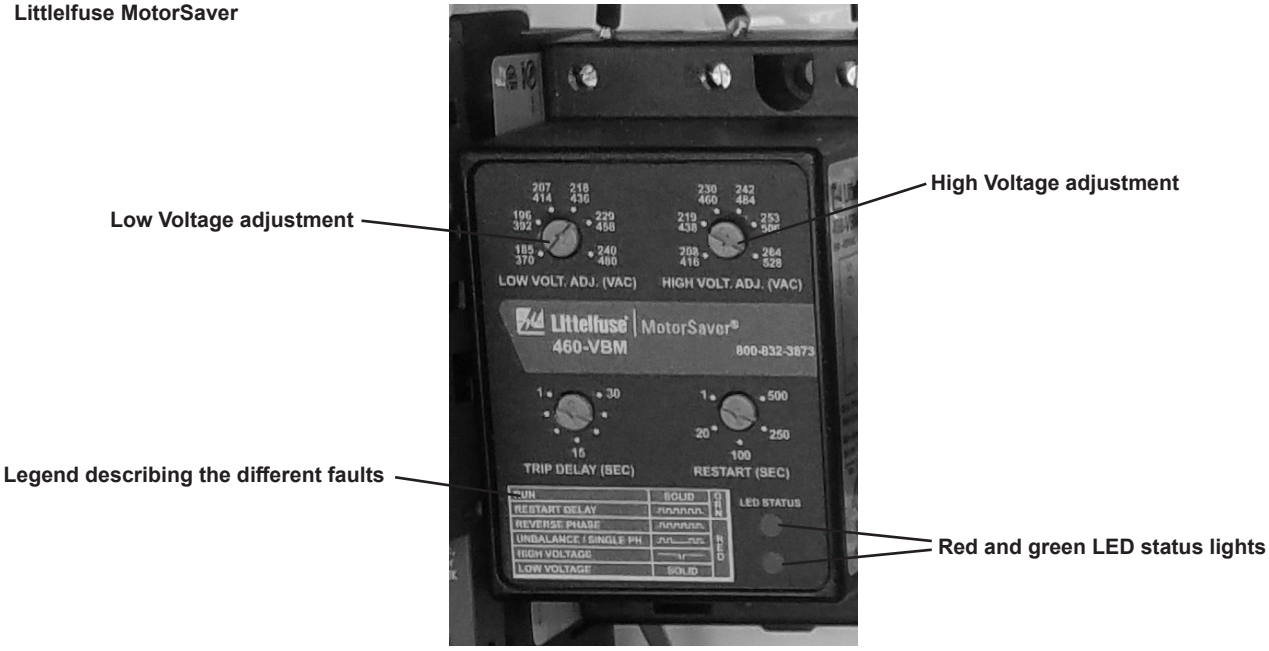


Step #3. Leave left hand door open. Close right hand door and close the main breaker.

Warning: The curcuits inside the electric panel are **ENERGIZED**! Keep hands out!

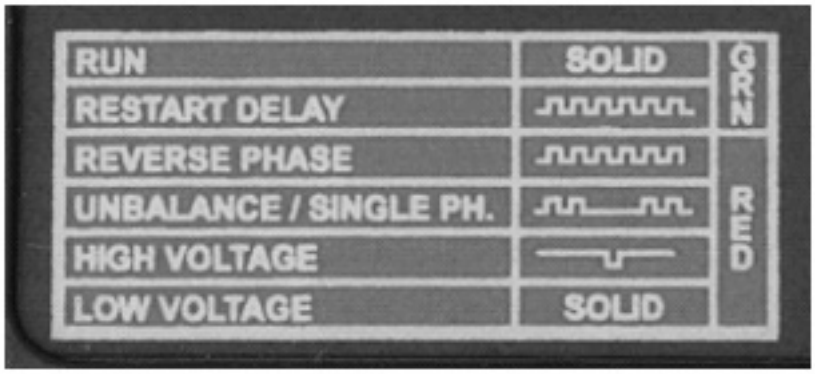
Step #4. When power is applied, the red or green LED status lights will be flashing on the Littlelfuse MotorSaver.

Littlelfuse MotorSaver



Step #5. The legend on the Littlelfuse MotorSaver describes the different faults.

Littlelfuse MotorSaver legend



Other Phase Imbalance troubleshooting issues:

- High or low voltage set points may need to be adjusted during initial installation. (See photo in **Step #4**)

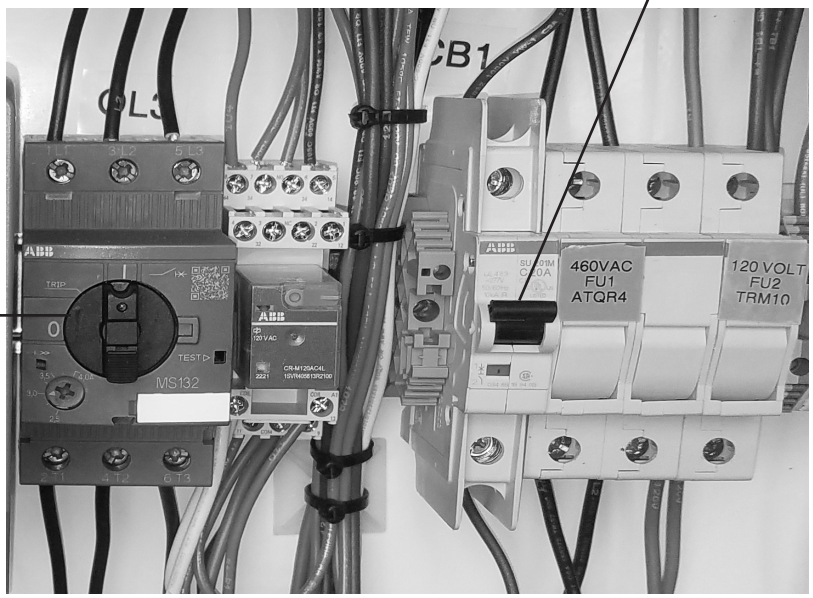
- If the main leads into the panel are reversed during installation, the Littelfuse MotorSaver will register a reverse phase fault.

10.2 Troubleshooting: Other breakers in the electrical panel

- Hydraulic motor breaker needs to be in the “ON” position. (*See Figure 11*)
- 12 Volt input system needs to be in the “ON” position. This runs all the Haybuster controls. (*See Figure 11*)

12 Volt output circuit breaker (Shown in the “ON” position)

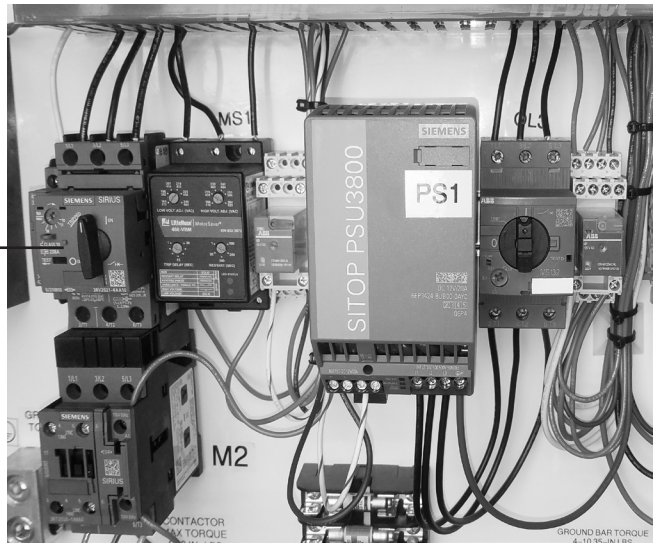
Figure 11
Hydraulic motor breaker
12 Volt input system



12 Volt input system

- Hydraulic pump breaker needs to be in the “ON” position. (*See Figure 12*)

Figure 12
Hydraulic pump breaker



Hydraulic pump breaker

10.3 Troubleshooting: Hydraulic Cooler

- The controller is overheating.

  1. Either the fan is drawing more current than it should.
  2. The controller is not being cooled sufficiently.
  3. Check the fuse in the power wire fuse holder. (30 Amp fuse)

- The fan is not connected.

  Check for broken wires.

  The minimum current draw must be 2 Amps to keep the system from showing an error.

- In case of controller failure, power can be redirected so the fan will run constantly.

  To redirect the power:

  1. Disconnect fan from fan controller. (*See Figure 13*)
  2. Disconnect power from fan controller. (*See Figure 14*)



Figure 13
Disconnect fan from fan controller

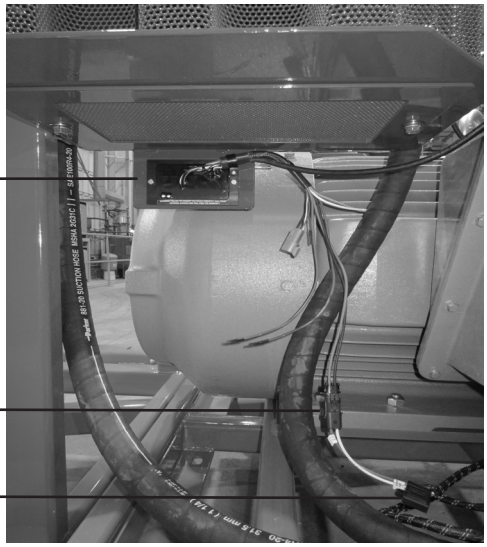
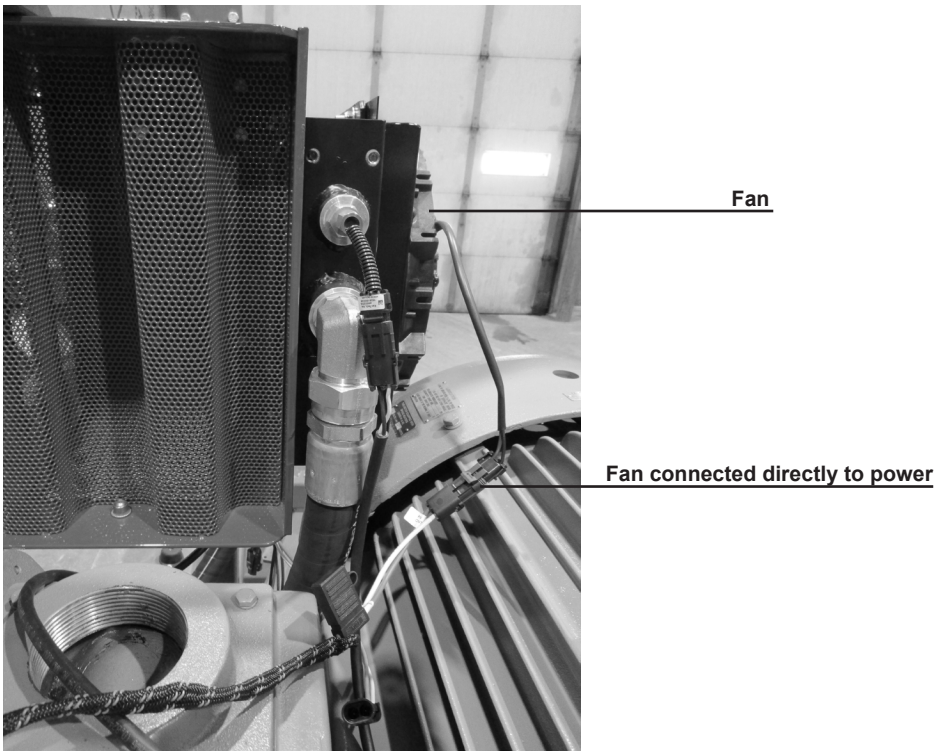


Figure 14
Disconnect power from fan controller

- 3. Connect the fan directly to the power. The fan will now run continuously. (*See Figure 15*)

Figure 15
Fan connected directly to the power.



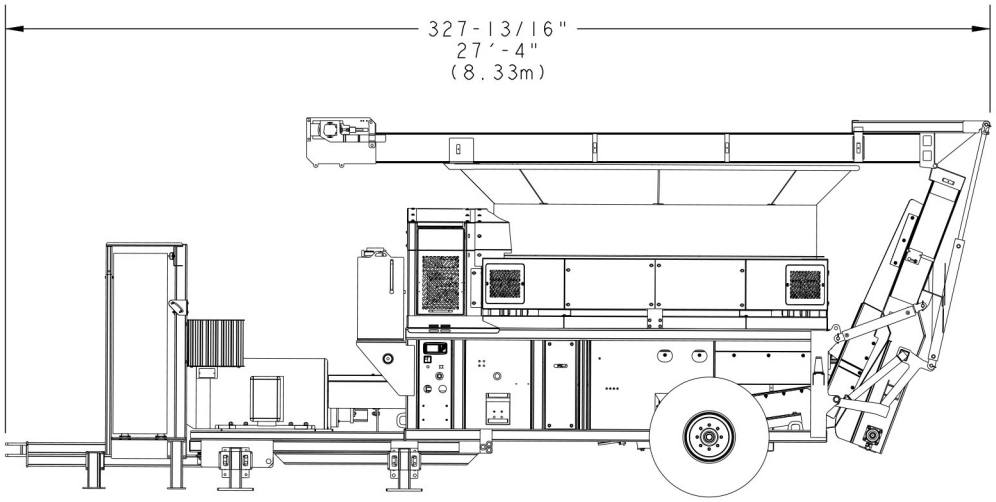
H-1135 Electric Specifications

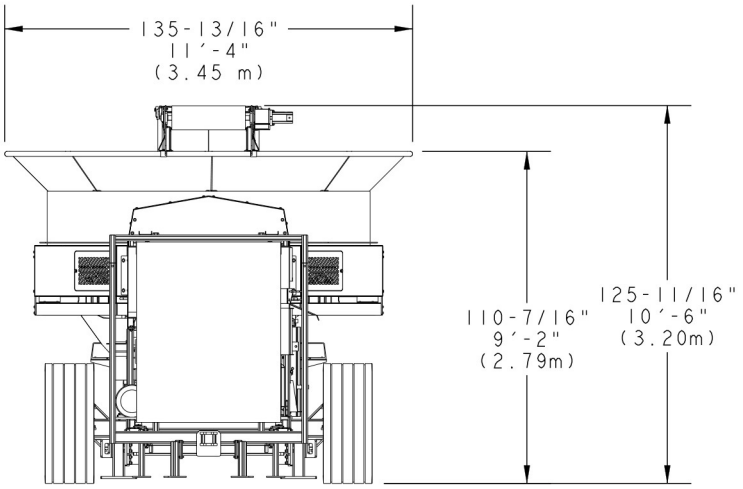
Weight.....25,000 lbs. (11340kg)
Width at Flare..... 11 ft 4 in. (3.54 m)
Loading Height ..... 9 ft 2 in. (2.79 m)
Transport Height..... 10 ft 6 in. (3.20 m)
Transport Length..... ,,27 ft 4 in. (8.33m)
Wheels ..... Drop center rims, Tapered roller bearings
Bearings .....All standard size, grease sealed
Recommended Tire Size 445/50R22.5
Capacity .....Hay - up to 40 tons/hr.
.....Ear corn - up to 800 Bu/hr.
.....Grain and shelled corn -Up to 3400 Bu/hr.
Rotor - Std No. of Hammers.....88
Hammer Size .....2-1/2 x 7-3/4 x 1/2 (6 cm x 20 cm x 1 cm)
Rotor - Shaft diameter .....3-1/2 in. (9 cm) stress proof steel
Rotor Size .....50 in. long, 26 in. diameter with hammers extended
Screen Area .....2,781 sq. in. (17,942 sq. cm.)
Screens Available (inches) .....1/8, 3/16, 1/4, 3/8, 1/2, 5/8, 3/4, 1, 1-1/2, 2, 3, 4,5, 6, 7, 8 Round holes. 2,3,4 Slotted Holes
Feed Delivery ..... .26 ft. folding rubber belt conveyor w/cleats 24 in. Wide
Tub size.....8 ft 11 in, (2.72 m) ID
Tub Depth .....4 ft. 2 in. (1.27 m)
Tub Drive..... .Electro-Hydraulic

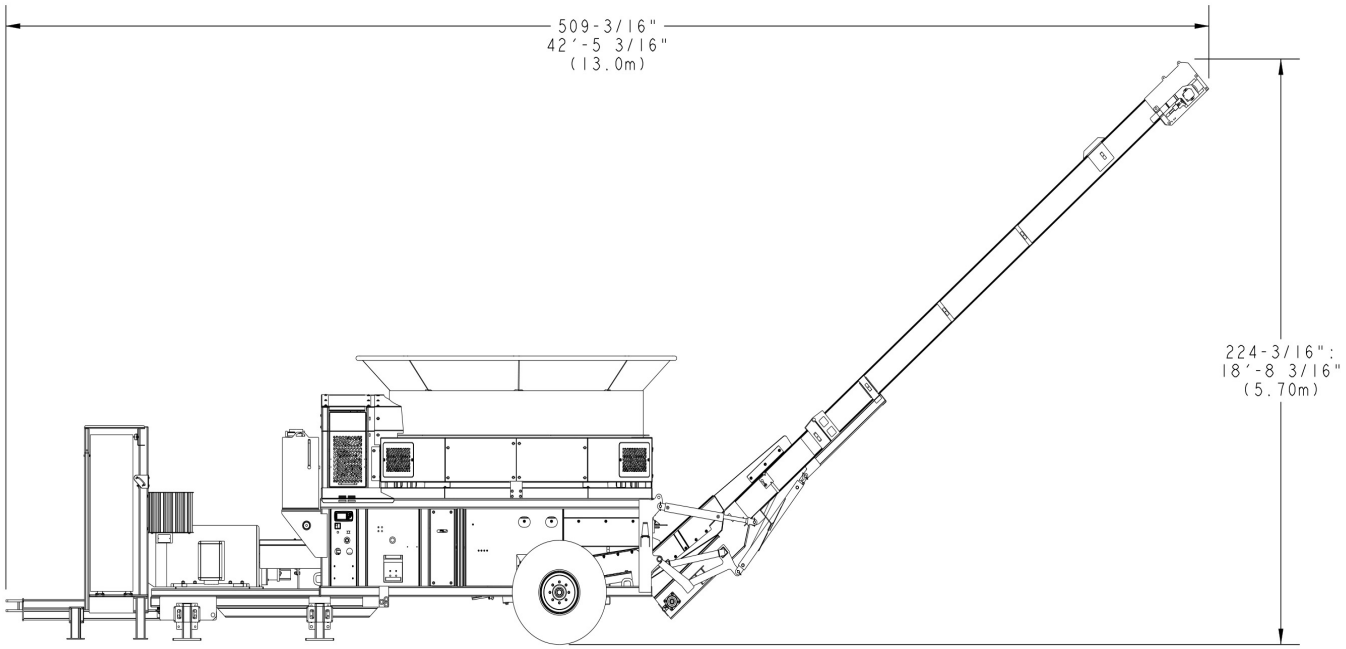
Options

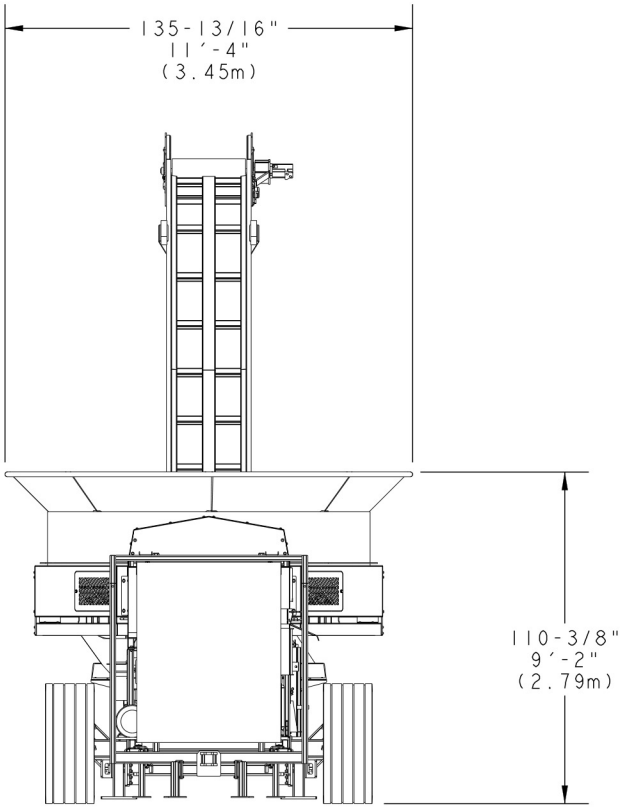
AVAILABLE OPTIONS FOR DURATECH INDUSTRIES H-1135 ELECTRIC TUB GRINDER:

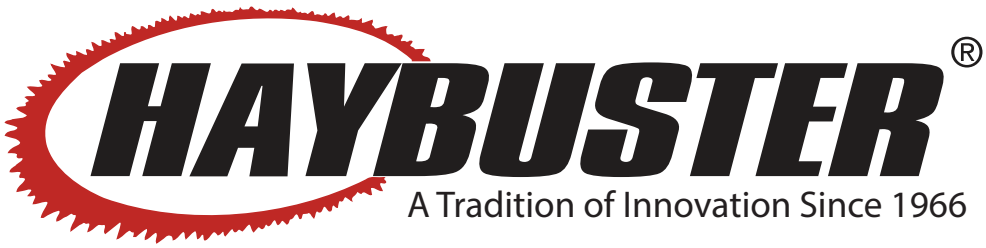
- Ear Corn Kit
- Grain Grinding Hopper
- Various Screens Sizes
- Material Guide


327-13/16"
27'-4"
(8.33m)


135-13/16"
11'-4"
(3.45 m)
110-7/16"
9'-2"
(2.79m)
125-11/16"
10'-6"
(3.20m)


509-3/16"
42'-5 3/16"
(13.0m)
224-3/16":
18'-8 3/16"
(5.70m)


135-13/16"
11'-4"
(3.45m)
110-3/8"
9'-2"
(2.79m)


HAYBUSTER®
A Tradition of Innovation Since 1966



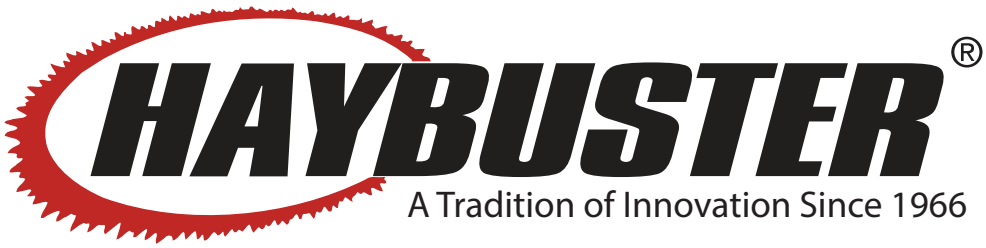
H-1135™
Tub Grinder
Stationary Electrical Supplement

Parts Reference

DuraTech Industries International Inc. (DuraTech Industries) has made every effort to assure that this manual completely and accurately describes the operation and maintenance of the H-1135 PTO Driven Tub Grinder™ as of the date of publication. DuraTech Industries reserves the right to make updates to the machine from time to time. Even in the event of such updates, you should still find this manual to be appropriate for the safe operation and maintenance of your unit.

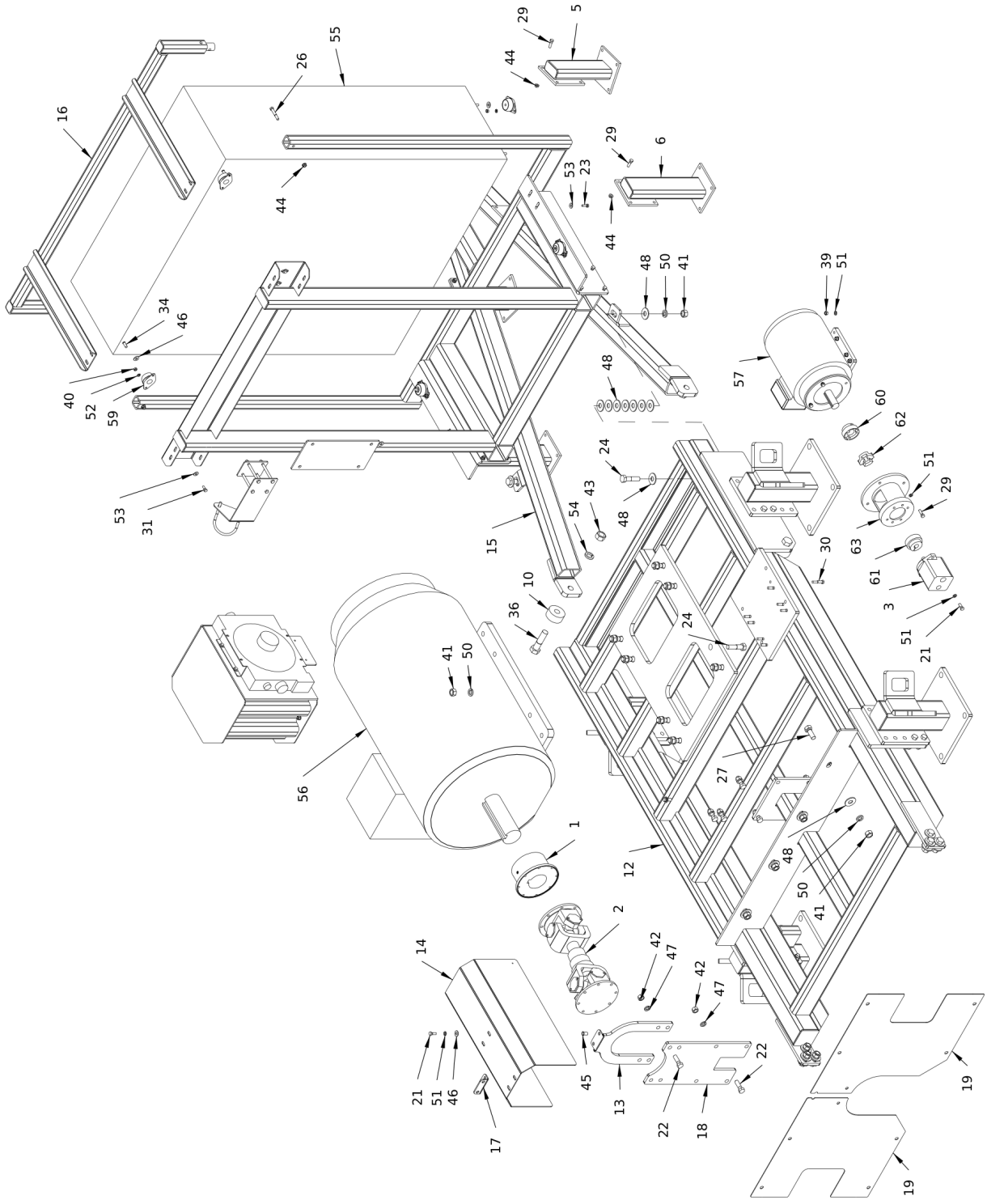
This manual, as well as materials provided by component suppliers to DuraTech Industries are all considered to be part of the information package. Every operator is required to read and understand these manuals, and they should be located within easy access for periodic review.

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H-1135 Stationary Tub Grinder Electric Supplement Parts Reference

H-1135 Electric Motor Assembly-View 1 1
H-1135 Electric Motor Assembly-View 2 7
H-1135 60Hz Bull Wheel Electric Assembly 13
H-1135 50Hz Bull Wheel Electric Assembly 17
Geyser Plate with Mill Grate-9 Bar-3" 21
4000598 Hydraulic Valve for Electric-View A 23
4000598 Hydraulic Valve for Electric-View B 25
H-1135 Electric Hydraulic Cooler Assembly 27
H-1135 Electric Hydraulic Oil Tank Assembly 29
H-1135 Electric Cassapa Pump Hydraulic Assembly 31
5701276-H-1135 Electric Motor Tub Grinder Valve Harness Schematic 33
H-1135 Electric Hydraulic Schematic 34


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H-1135 Electric Motor Assembly-View 1

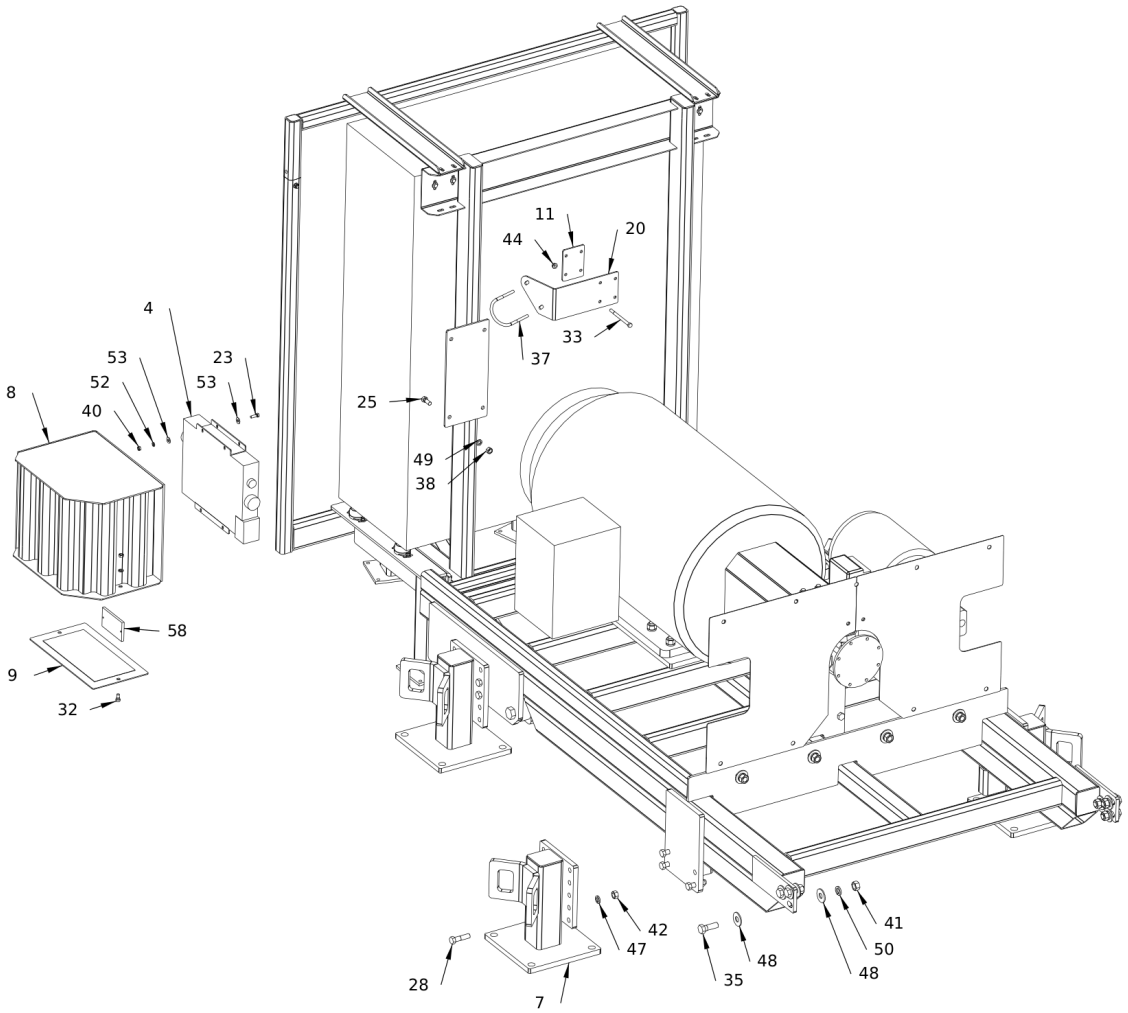
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34	4800276	BOLT\HEX\3/8X1-1/4\NF		6	EA
35	4800283	BOLT\HEX\3/4X2-1/4		6	EA
36	4800647	BOLT\HEX\1X4\NC		2	EA.
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54	5000053	WASH\LOCK\1		2	EA
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55A	5701200	PKG\STRTR\380V\3PH\50HZ	(USED IN THE 380V@50HZ)		EA.
55B	5701280	PKG\STRTR\380V\60HZ\300HP\4PL	(USED IN THE 380V@60HZ)		EA.
55C	5700949	PKG\STRTR\575V\60HZ\300HP\4PL	(USED IN THE 575V@60HZ)		EA
55D	5701221	PKG\STRTR\415V\3PH\50HZ	(USED IN THE 415V@50HZ)		EA.
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56B	5700974	MTR\ELEC\300HP\380V\60HZ\4PL			EA
56C	5700950	MTR\ELEC\300HP\575V\60HZ\4PL			EA
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57B	5700952	MTR\ELEC\10HP\380V\60HZ\4PL\254TC	(USED IN THE 380V@60HZ)		EA
57C	5701266	MTR\ELEC\10HP\575\60HZ\4PL	(USED IN THE 575V@60HZ)		EA.
57D	5701278	MTR\ELEC\10HP\415V\4PL\50HZ	(USED IN THE 415V@50HZ)		EA.
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59	7501391	CUSH\RBBR\3-3/4X2-1/4X1-1/4\3/8UNC		6	EA
60	7501449	CPLNG\200SERIES\1-3/8"\5/16"KW	(USED IN THE 460V @60HZ, 415V@50HZ & 575V @60HZ)	1	EA
60A	7501469	CPLNG\300SERIES\1-5/8"X3/8"KW	(USED IN THE 380V @50HZ & 380V @60HZ)		EA

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61A	7501470	CPLNG\300SERIES\7/8\13TOOTH	(USED IN THE 380V @50HZ & 380V @60HZ)		EA
62	7501451	CPLNG\200SERIES\INSERT\URETH	(USED IN THE 460V @60HZ, 415V@50HZ & 575V @60HZ)	1	EA
62A	7501471	CPLNG\300SERIES\INSERT\URETH	(USED IN THE 380V @50HZ & 380V @60HZ)		EA
63	7501452	CPLNG\PUMP\MTR\ELEC\182-256TC	(USED IN THE 460V @60HZ, 415V@50HZ & 575V @60HZ)	1	EA
63A	7501468	CPLNG\PUMP\MTR\ELEC\254TC	(USED IN THE 380V @50HZ & 380V @60HZ)		EA


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H-1135 Electric Motor Assembly-View 2

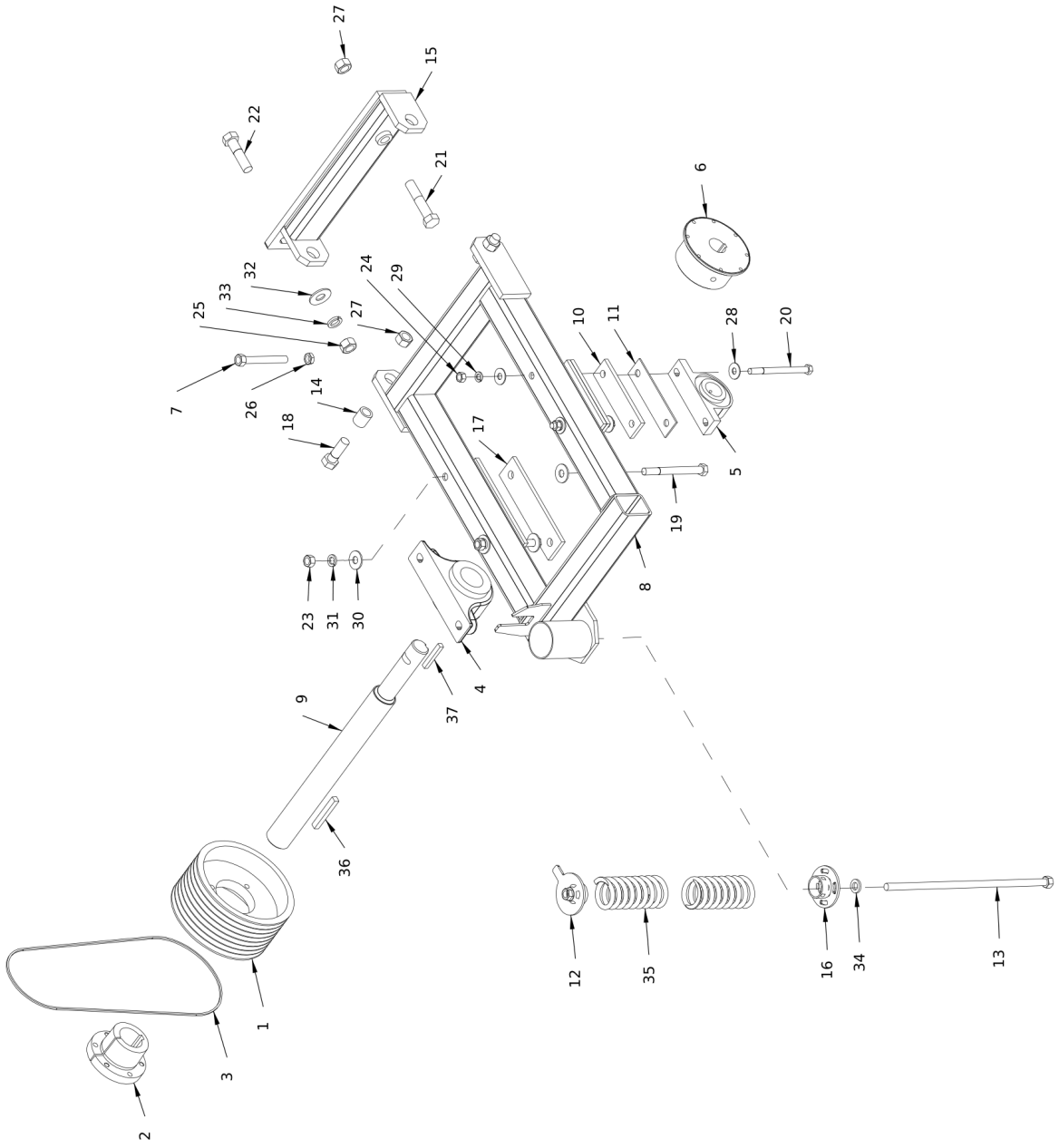
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4	4200167	RAD\HYD\DCS16\12VDC\W/BYPASS		1	EA
4A	5700897	SENSOR\TEMP		1	EA
5	4501697	JACKSTAND\H1130EL\12		2	EA
6	4501699	JACKSTAND\H1130EL\16		2	EA
7	4502625	STND\FR\FRM\ELEC		4	EA
8	4502635	MNT\RAD\HYD		1	EA
9	4502636	DR\SCRN\RAD		1	EA
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11	4502904	SH\MNT\CONDUIT		1	EA
12	4503014	PLTFRM\MTR\ELEC		1	EA.
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14	4503017	SHLD\SHFT\DRIVE\FRONT		1	EA.
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16	4503020	GUARD\TOP\SOFTSTART\H1135EL		1	EA.
17	4503022	MNT\SHLD\DRIVE\FRONT		1	EA.
18	4503023	PL\STRP\DRVLN		1	EA.
19	4503026	CVR\FR\ELEC		2	EA.
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22	4800010	BOLT\HEX\5/8X2		8	EA.
23	4800013	BOLT\HEX\5/16X1		12	EA.
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33	4800202	BOLT\HEX\3/8X5		4	EA
34	4800276	BOLT\HEX\3/8X1-1/4\NF		6	EA
35	4800283	BOLT\HEX\3/4X2-1/4		6	EA
36	4800647	BOLT\HEX\1X4\NC		2	EA.
37	4801222	BOLT\U\3/8X4X5-1/2		1	EA

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40	4900003	NUT\HEX\5/16\NC		16	EA.
41	4900004	NUT\HEX\3/4\NC		20	EA.
42	4900005	NUT\HEX\5/8\NC		24	EA.
43	4900031	NUT\HEX\1\NC		2	EA
44	4900076	NUT\FLG\SERR\3/8\NC		22	EA.
45	4900083	NUT\INSERT\3/8\.LONG\0.15-0.312\(.418/CD)		2	EA
46	5000001	WASH\FLAT\3/8		8	EA.
47	5000003	WASH\LOCK\5/8		24	EA.
48	5000005	WASH\FLAT\3/4		38	EA.
49	5000006	WASH\LOCK\1/2		4	EA.
50	5000012	WASH\LOCK\3/4		20	EA.
51	5000019	WASH\LOCK\3/8		18	EA.
52	5000022	WASH\LOCK\5/16		16	EA.
53	5000023	WASH\FLAT\5/16		20	EA.
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55	5700945	PKG\STRTR\380-480V\50/60HZ\4PL	(USED IN THE 460V@60HZ)	1	EA
55A	5701200	PKG\STRTR\380V\3PH\50HZ	(USED IN THE 380V@50HZ)		EA.
55B	5701280	PKG\STRTR\380V\60HZ\300HP\4PL	(USED IN THE 380V@60HZ)		EA.
55C	5700949	PKG\STRTR\575V\60HZ\300HP\4PL	(USED IN THE 575V@60HZ)		EA
55D	5701221	PKG\STRTR\415V\3PH\50HZ	(USED IN THE 415V@50HZ)		EA.
56	5700946	MTR\ELEC\300HP\460\60HZ\4PL		1	EA
56A	5700951	MTR\ELEC\300HP\380V\50HZ\4PL			EA
56B	5700974	MTR\ELEC\300HP\380V\60HZ\4PL			EA
56C	5700950	MTR\ELEC\300HP\575V\60HZ\4PL			EA
56D	5701277	MTR\ELEC\300HP\415V\50HZ\4PL			EA.
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57A	5701201	MTR\ELEC\10HP\380V\4PL\50HZ	(USED IN THE 380V@50HZ)		EA.
57B	5700952	MTR\ELEC\10HP\380V\60HZ\4PL\254TC	(USED IN THE 380V@60HZ)		EA
57C	5701266	MTR\ELEC\10HP\575\60HZ\4PL	(USED IN THE 575V@60HZ)		EA.
57D	5701278	MTR\ELEC\10HP\415V\4PL\50HZ	(USED IN THE 415V@50HZ)		EA.
58	5700955	CNTRL\FAN\SNGL\12&24V		1	EA
59	7501391	CUSH\RBBR\3-3/4X2-1/4X1-1/4\3/8UNC		6	EA
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60A	7501469	CPLNG\300SERIES\1-5/8"X3/8"KW	(USED IN THE 380V @50HZ & 380V @60HZ)		EA

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Item	Part No.	Name	Remarks	Qty	Uom
61	7501450	CPLNG\200SERIES\7/8\13TOOTH	(USED IN THE 460V @60HZ, 415V@50HZ & 575V @60HZ)	1	EA
61A	7501470	CPLNG\300SERIES\7/8\13TOOTH	(USED IN THE 380V @50HZ & 380V @60HZ)		EA
62	7501451	CPLNG\200SERIES\INSERT\URETH	(USED IN THE 460V @60HZ, 415V@50HZ & 575V @60HZ)	1	EA
62A	7501471	CPLNG\300SERIES\INSERT\URETH	(USED IN THE 380V @50HZ & 380V @60HZ)		EA
63	7501452	CPLNG\PUMP\MTR\ELEC\182-256TC	(USED IN THE 460V @60HZ, 415V@50HZ & 575V @60HZ)	1	EA
63A	7501468	CPLNG\PUMP\MTR\ELEC\254TC	(USED IN THE 380V @50HZ & 380V @60HZ)		EA

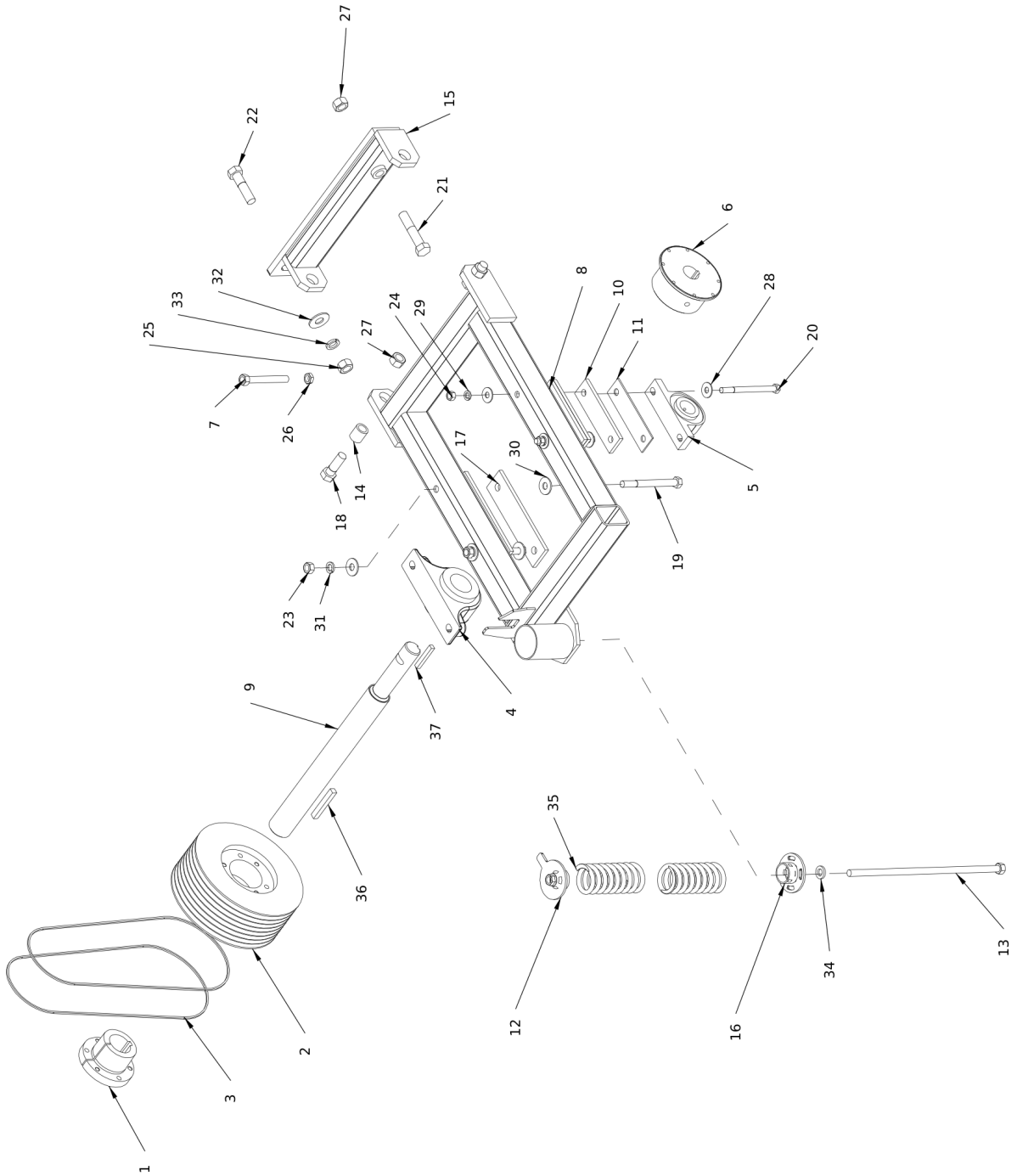

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H-1135 60Hz Bull Wheel Electric Assembly

Item	Part No.	Name	Remarks	Qty	Uom
1	1400656	SHVE\5V-8\11.8\85V180F		1	EA
2	1400657	BUSH\QD\F\2-3/4		1	EA
3	1600104	V-BELT\4/5VP710		1	EA
4	2000509	BRG\PB\2-3/4\E\DODGE		1	EA
5	2000510	BRG\PB\2\2BOLT		1	EA.
6	3600923	FLG\2ID\1710\DRVLN		1	EA.
7	4501170	BOLT\FRM\TGHTNR\CHAIN\TUB		1	EA
8	4502330	WHL\BULL\FRM\OFFSET		1	EA
9	4502331	SHFT\WHL\BULL\OFFSET		1	EA
10	4502333	SHIM\BRG\WHL\BULL		3	EA
11	4502334	SHM\THN\BRG\WHL\BLL		1	EA
12	4502338	CAP\SPRNG\TNSNR		1	EA
13	4502340	ROD\TNSNR\WHL\BULL		1	EA
14	4502380	TUBE\WHL\BLL		2	EA
15	4502419	ADJ\WHL\BLL		1	EA
16	4502425	CAP\TNSNR\WHL\BLL		1	EA
17	4502622	SHIM\BRG\WHL\BULL\1/2"		2	EA
18	4800140	BOLT\HEX\1X3\NC		2	EA
19	4800232	BOLT\HEX\3/4X8		2	EA
20	4800236	BOLT\HEX\5/8X8		2	EA.
21	4800546	BOLT\HEX\1X5\NC		1	EA
22	4800647	BOLT\HEX\1X4\NC		1	EA.
23	4900004	NUT\HEX\3/4\NC		4	EA.
24	4900005	NUT\HEX\5/8\NC		2	EA.
25	4900031	NUT\HEX\1\NC		1	EA
26	4900104	NUT\JAM\3/4\NC		1	EA.
27	4900127	NUT\TPLCK\1\NC		3	EA.
28	5000002	WASH\FLAT\5/8		4	EA.
29	5000003	WASH\LOCK\5/8		2	EA.
30	5000005	WASH\FLAT\3/4		4	EA.
31	5000012	WASH\LOCK\3/4		2	EA.
32	5000014	WASH\FLAT\1		1	EA.
33	5000053	WASH\LOCK\1		1	EA
34	5000115	WASH\FLAT\3/4\EXTRTHK\GR8		1	EA
35	6100091	SPG\COMP\8X3-1/2OD\1/2WD		2	EA
36	6200013	KEY\SQ\5/8X4-1/2		1	EA
37	6200062	KEY\SQ\1/2X3-1/2		1	EA
NS	4800958	SCR\SET\ALN\1/2X3/4\NC		2	EA

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Item	Part No.	Name	Remarks	Qty	Uom
NS	4801253	SCR\CAP\ALN\5/8X4\NF		1	EA

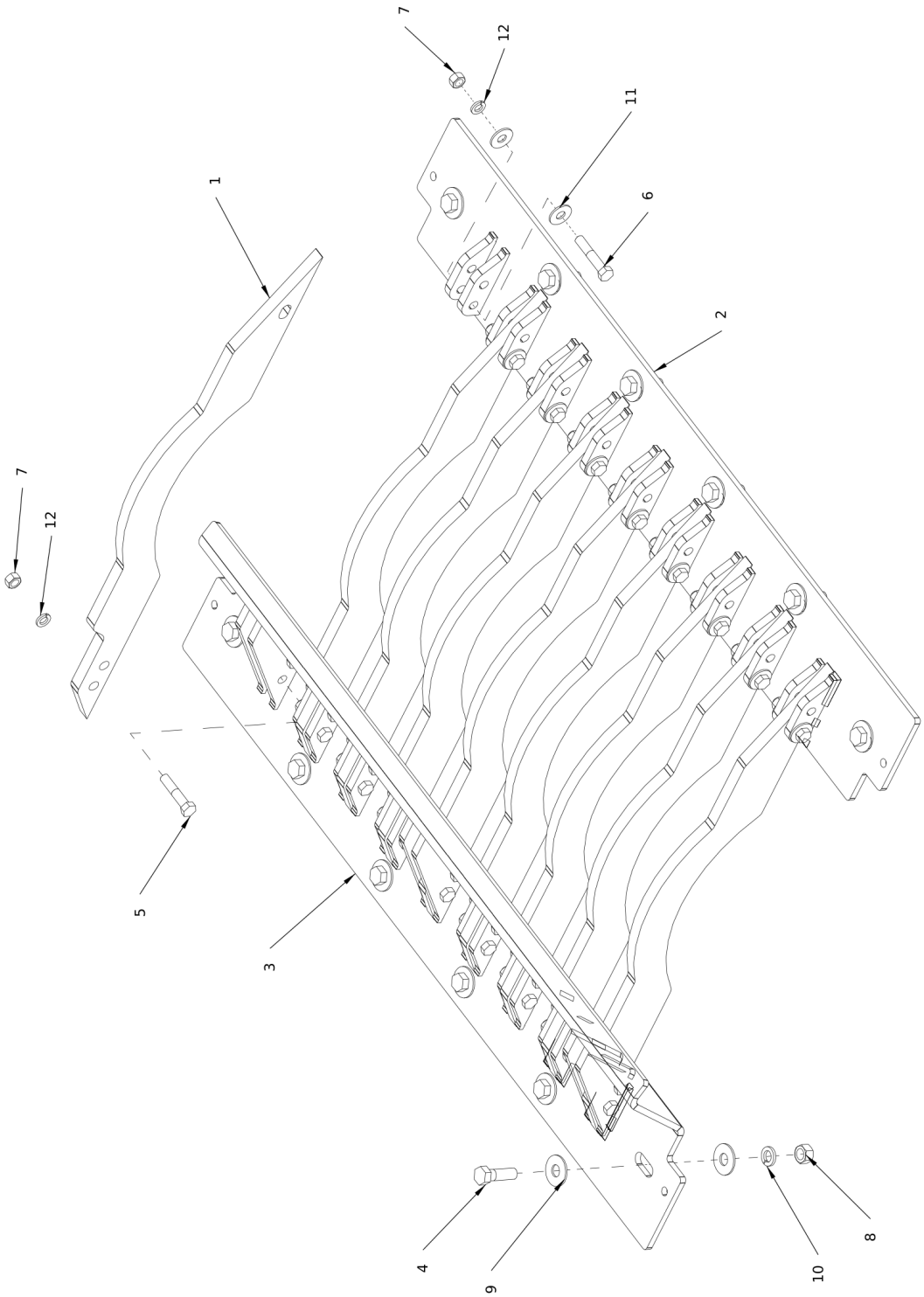

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H-1135 50Hz Bull Wheel Electric Assembly

Item	Part No.	Name	Remarks	Qty	Uom
1	1400657	BUSH\QD\F\2-3/4		1	EA
2	1400860	SHVE\5V-8\14.0\QD85V1400F		1	EA.
3	1600133	V-BELT\4/5VP\750		2	EA.
4	2000509	BRG\PB\2-3/4\E\DODGE		1	EA
5	2000510	BRG\PB\2\2BOLT		1	EA.
6	3600923	FLG\2ID\1710\DRVLN		1	EA.
7	4501170	BOLT\FRM\TGHTNR\CHAIN\TUB		1	EA
8	4502330	WHL\BULL\FRM\OFFSET		1	EA
9	4502331	SHFT\WHL\BULL\OFFSET		1	EA
10	4502333	SHIM\BRG\WHL\BULL		3	EA
11	4502334	SHM\THN\BRG\WHL\BLL		1	EA
12	4502338	CAP\SPRNG\TNSNR		1	EA
13	4502340	ROD\TNSNR\WHL\BULL		1	EA
14	4502380	TUBE\WHL\BLL		2	EA
15	4502419	ADJ\WHL\BLL		1	EA
16	4502425	CAP\TNSNR\WHL\BLL		1	EA
17	4502622	SHIM\BRG\WHL\BULL\1/2"		2	EA
18	4800140	BOLT\HEX\1X3\NC		2	EA
19	4800232	BOLT\HEX\3/4X8		2	EA
20	4800236	BOLT\HEX\5/8X8		2	EA.
21	4800546	BOLT\HEX\1X5\NC		1	EA
22	4800647	BOLT\HEX\1X4\NC		1	EA.
23	4900004	NUT\HEX\3/4\NC		4	EA.
24	4900005	NUT\HEX\5/8\NC		2	EA.
25	4900031	NUT\HEX\1\NC		1	EA
26	4900104	NUT\JAM\3/4\NC		1	EA.
27	4900127	NUT\TPLCK\1\NC		3	EA.
28	5000002	WASH\FLAT\5/8		4	EA.
29	5000003	WASH\LOCK\5/8		2	EA.
30	5000005	WASH\FLAT\3/4		4	EA.
31	5000012	WASH\LOCK\3/4		2	EA.
32	5000014	WASH\FLAT\1		1	EA.
33	5000053	WASH\LOCK\1		1	EA
34	5000115	WASH\FLAT\3/4\EXTRTHK\GR8		1	EA
35	6100091	SPG\COMP\8X3-1/2OD\1/2WD		2	EA
36	6200013	KEY\SQ\5/8X4-1/2		1	EA
37	6200062	KEY\SQ\1/2X3-1/2		1	EA
CA	4502991	PARTS\ASSY\FNL\1135\ELEC\50HZ			EA.

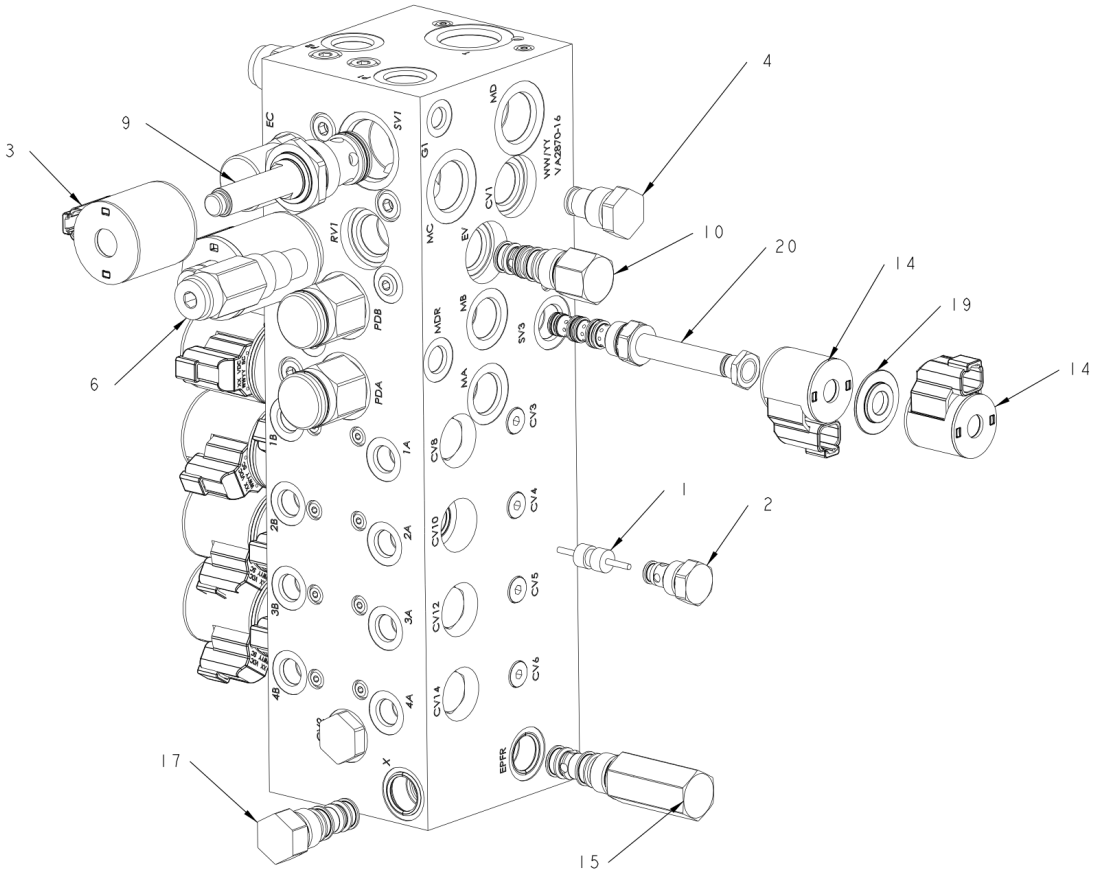
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Item	Part No.	Name	Remarks	Qty	Uom
NS	4800958	SCR\SET\ALN\1/2X3/4\NC		2	EA
NS	4801253	SCR\CAP\ALN\5/8X4\NF		1	EA


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Geyser Plate with Mill Grate-9 Bar-3"

Item	Part No.	Name	Remarks	Qty	Uom
1	4502679	BAR\GRATE\MILL\RAISED\3"\9BAR		9	EA
2	4502832	PL\SIDE\GRATE\MILL		1	EA
3	4502839	PL\GEYSER\9 BAR		1	EA
4	4800010	BOLT\HEX\5/8X2		12	EA.
5	4800070	BOLT\HEX\1/2X2-1/2		18	EA.
6	4800351	BOLT\HEX\1/2X2-3/4		9	EA.
7	4900001	NUT\HEX\1/2\NC		27	EA.
8	4900005	NUT\HEX\5/8\NC		12	EA.
9	5000002	WASH\FLAT\5/8		24	EA.
10	5000003	WASH\LOCK\5/8		12	EA.
11	5000004	WASH\FLAT\1/2		18	EA.
12	5000006	WASH\LOCK\1/2		27	EA.
CA	4503025	PL\GYSR\W/MILL\9BAR\3"\ASSY			EA.

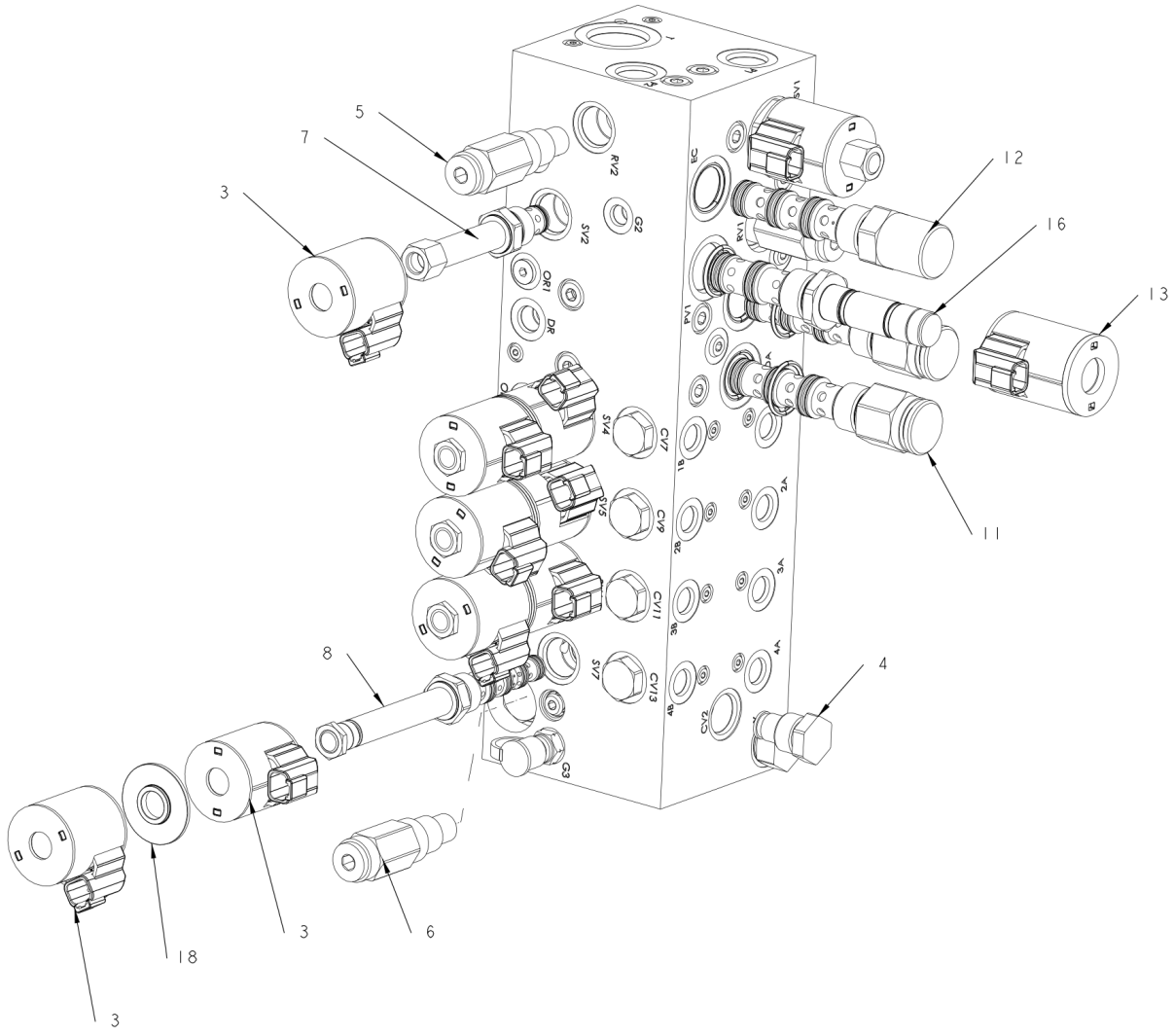


Note- Items 15-4000559 and 17-4000561 change valve from open center to closed center

Open Center
4000559 goes in port 'EPFR', 4000561 goes in 'X'

Closed Center
4000561 goes in 'EPFR', 4000559 GOES IN 'x'

Item	Part No.	Name	Remarks	Qty	Uom
1	4000230	VALVE\HYD\PILOT\PISTON		4	EA
2	4000231	VALVE\HYD\CART\CHECK\CV0820\100P		8	EA
3	4000347	VALVE\HYD\SOL\12V\E10\DTZ\W/DIODE		10	EA
4	4000446	VALVE\CHECK\CART\CV1020		2	EA
5	4000510	VLV\HYD\RELIEF\CART\3000		1	EA.
6	4000548	VLV\HYD\RELIEF\CART\2500		2	EA.
7	4000549	VALVE\HYD\CART\N:OPEN\2WAY;2POS		1	EA.
8	4000550	VALVE\HYD\CART\5WAY;3POS		4	EA
9	4000552	VALVE\HYD\CART\N.O.;POPPET		1	EA.
10	4000553	VALVE\CART\VENTED PRESS BLOCK\EV10		1	EA.
11	4000555	VALVE\HYD\CART\4POS3WAY\PILOTED		2	EA.
12	4000556	VALVE\HYD\CART\COMP\80PSI		1	EA.
13	4000557	VALVE\HYD\SOL\12V\E70\DTZ\W/DIODE		1	EA
14	4000558	VALVE\HYD\SOL\12V\E08\DTZ\W/DIODE		2	EA
15	4000559	VALVE\HYD\CART\PRESS;COMP\160PSI		1	EA.
16	4000560	VALVE\HYD\CART\PROPOR\NC\2WAY		1	EA.
17	4000561	VALVE\HYD\CART\PLUG\3 WAY		1	EA.
18	4000562	VALVE\HYD\SOL\SPACER\E10		4	EA.
19	4000563	VALVE\HYD\SOL\SPACER\E8		1	EA.
20	4000595	VALVE\HYD\CART\3POS,4WAY\OPEN:CENTER		1	EA.
CA	4000598	VLV\HYD\AUX\BLK\MFLD\12V			EA.

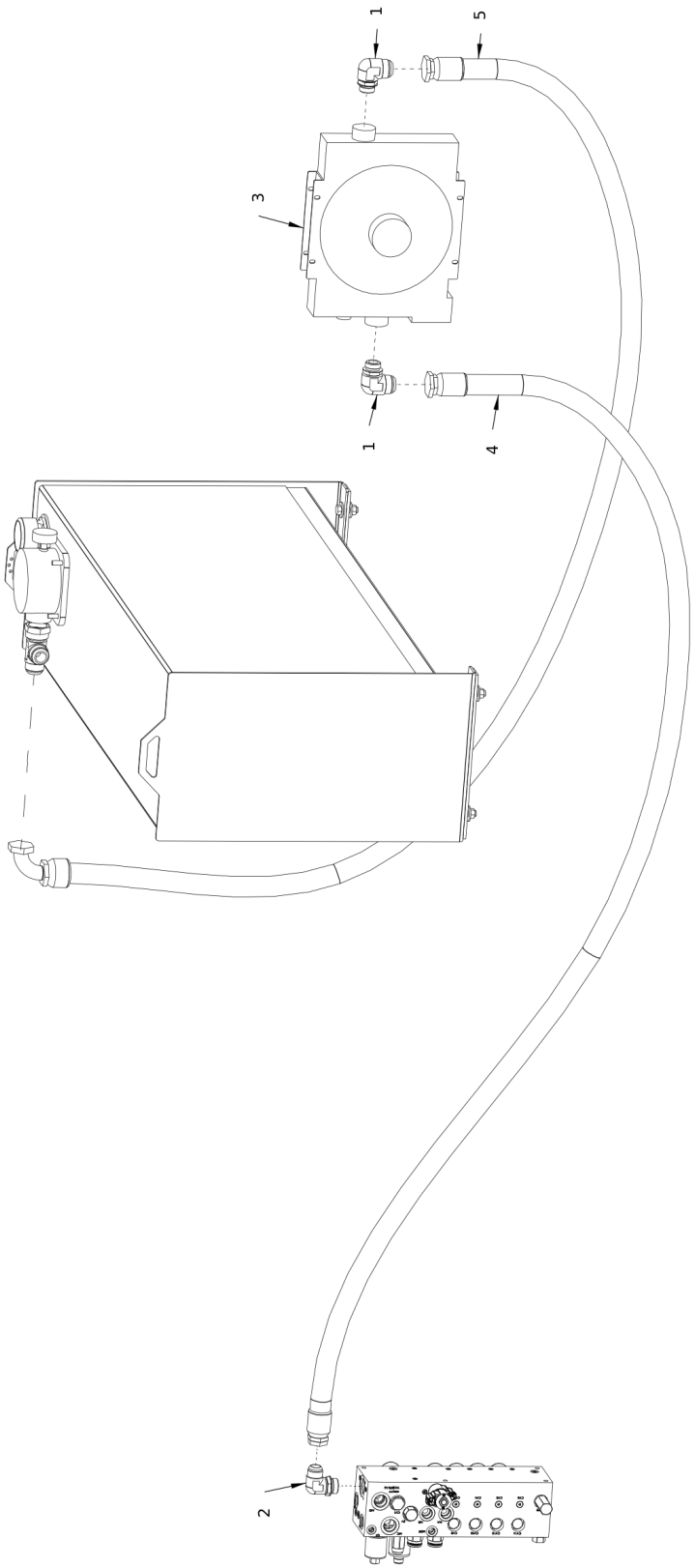


Note- Items 15-4000559 and 17-4000561 change valve from open center to closed center

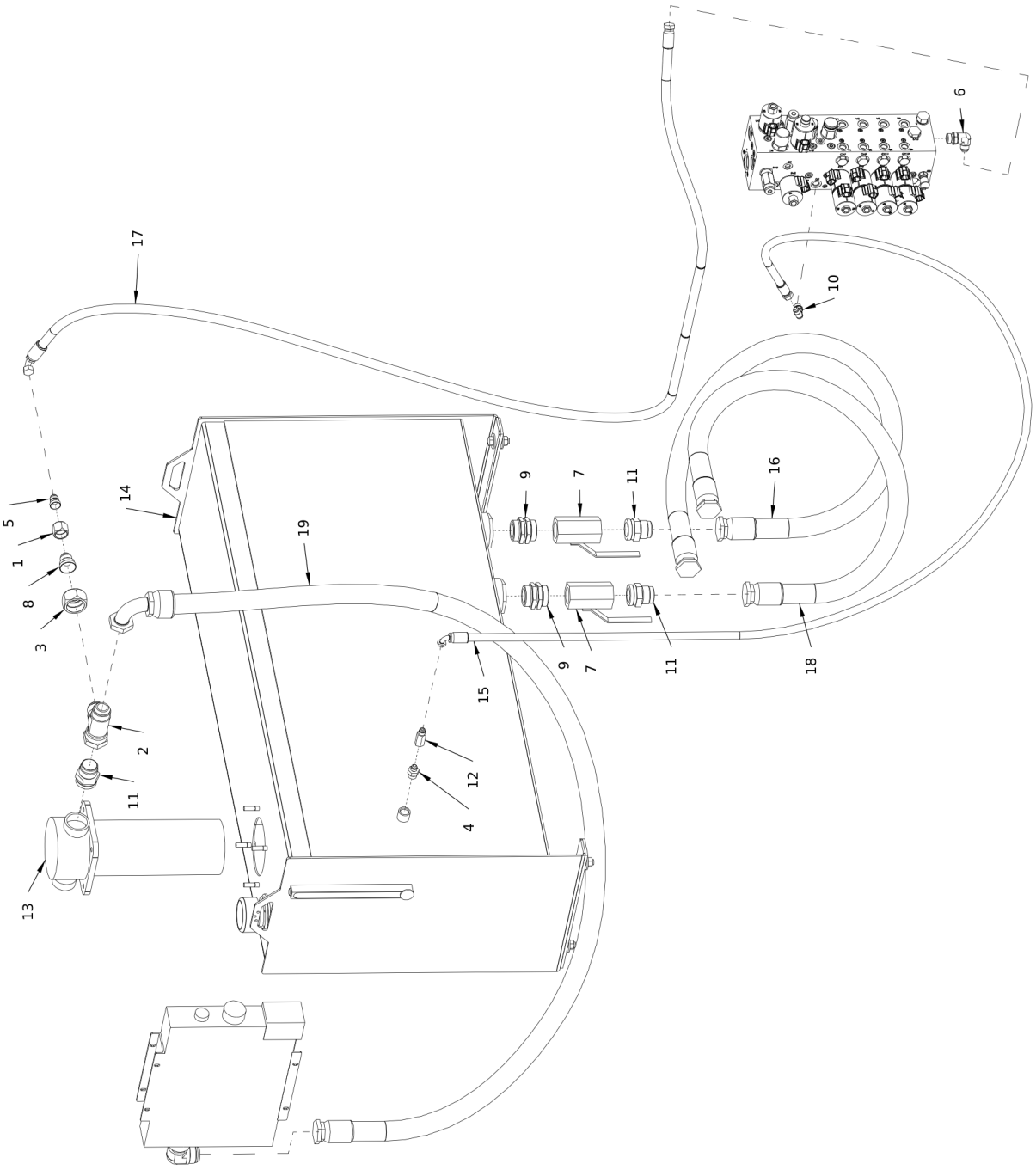
Open Center
4000559 goes in port 'EPFR', 4000561 goes in 'X'

Closed Center
4000561 goes in 'EPFR', 4000559 GOES IN 'x'

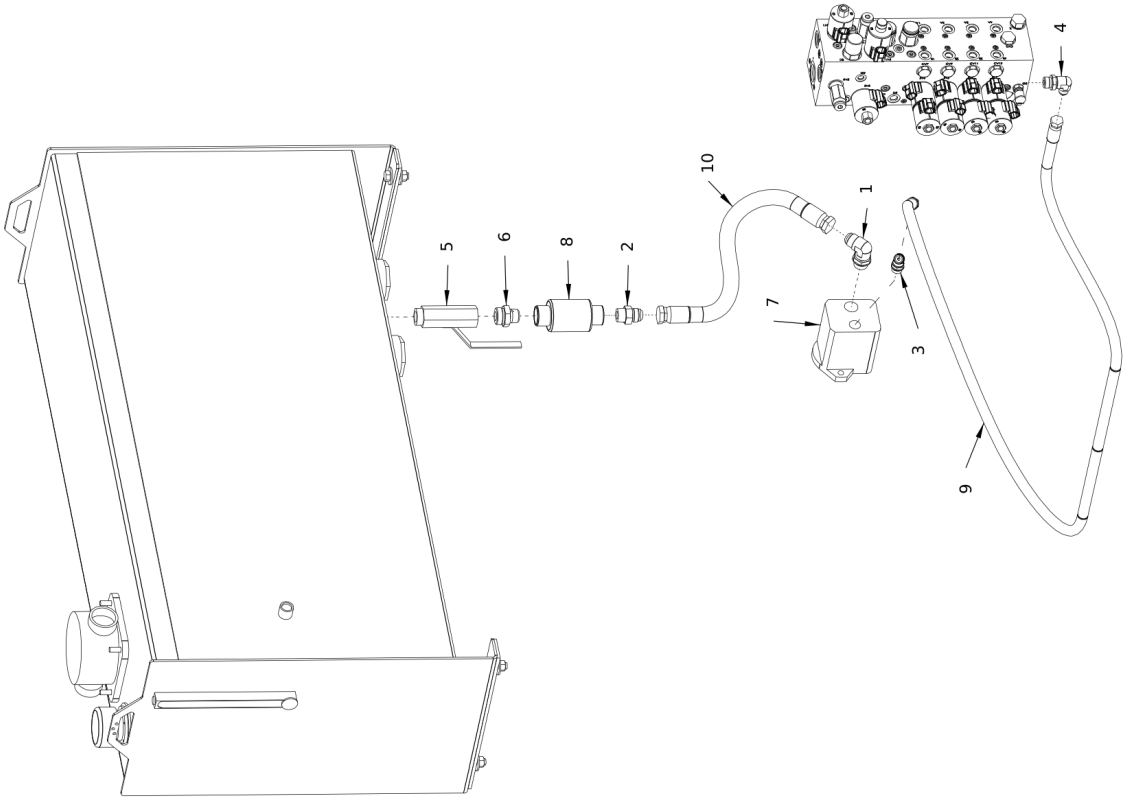
Item	Part No.	Name	Remarks	Qty	Uom
1	4000230	VALVE\HYD\PILOT\PISTON		4	EA
2	4000231	VALVE\HYD\CART\CHECK\CV0820\100P		8	EA
3	4000347	VALVE\HYD\SOL\12V\E10\DTZ\W/DIODE		10	EA
4	4000446	VALVE\CHECK\CART\CV1020		2	EA
5	4000510	VLV\HYD\RELIEF\CART\3000		1	EA.
6	4000548	VLV\HYD\RELIEF\CART\2500		2	EA.
7	4000549	VALVE\HYD\CART\N:OPEN\2WAY;2POS		1	EA.
8	4000550	VALVE\HYD\CART\5WAY;3POS		4	EA
9	4000552	VALVE\HYD\CART\N.O.;POPPET		1	EA.
10	4000553	VALVE\CART\VENTED PRESS BLOCK\EV10		1	EA.
11	4000555	VALVE\HYD\CART\4POS3WAY\PILOTED		2	EA.
12	4000556	VALVE\HYD\CART\COMP\80PSI		1	EA.
13	4000557	VALVE\HYD\SOL\12V\E70\DTZ\W/DIODE		1	EA
14	4000558	VALVE\HYD\SOL\12V\E08\DTZ\W/DIODE		2	EA
15	4000559	VALVE\HYD\CART\PRESS;COMP\160PSI		1	EA.
16	4000560	VALVE\HYD\CART\PROPOR\NC\2WAY		1	EA.
17	4000561	VALVE\HYD\CART\PLUG\3 WAY		1	EA.
18	4000562	VALVE\HYD\SOL\SPACER\E10		4	EA.
19	4000563	VALVE\HYD\SOL\SPACER\E8		1	EA.
20	4000595	VALVE\HYD\CART\3POS,4WAY\OPEN:CENTER		1	EA.
CA	4000598	VLV\HYD\AUX\BLK\MFLD\12V			EA.


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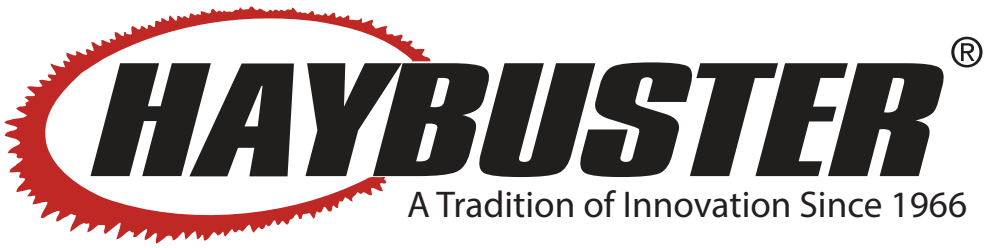
Item	Part No.	Name	Remarks	Qty	Uom
1	3800712	FTG\1-5/16MORX1-5/8MJIC\90		2	EA
2	3800728	FTG\1-5/16MORX1-5/16MJIC\90		1	EA.
3	4200167	RAD\HYD\DCS16\12VDC\W/BYPASS		1	EA
	4200184	RAD\FAN&MOTOR\12VDC	(REPLACEMENT FAN AND MOTOR FOR 4200167)		EA.
4	3701800	HOSE\HYD\1-1/4X144\1-5/16FJICX1-5/8FJIC	INLET PORT COOLER TO T PORT AUX VALVE	1	EA.
5	3701799	HOSE\HYD\1-1/4X158\1-5/8FJICX1/5/8FJIC\90	OUT PORT COOLER TO TANK FILTER TEE	1	EA.
NS	5700897	SENSOR\TEMP		1	EA
NS	3800949	FTG\3/4MORX1/8FP\ADPT		1	EA


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Item	Part No.	Name	Remarks	Qty	Uom
1	3800462	FTG\1-1/16NUTFJICS		1	EA
2	3800486	FTG\1-5/8FJICX1-5/8MJICX1-5/8MJIC\RUN;TEE		1	EA
3	3800488	FTG\1-5/8NUTFJICS		1	EA
4	3800530	FTG\3/4MORX9/16MJIC\ST		1	EA.
5	3800553	FTG\1-1/16FJICX3/4MJIC\ADPT		1	EA
6	3800696	FTG\7/8MORX3/4MJIC\90		1	EA.
7	3800740	VALVE\BALL\1-1/2\1-7/8FOR\1/4 TURN\W/LOCK		2	EA
8	3800743	FTG\1-5/8FJICX1-1/16MJIC\ADPT		1	EA
9	3800745	FTG\1-7/8MORX1-7/8MOR\ADPT		2	EA
10	3800757	FTG\9/16MORX9/16MJIC\90		1	EA.
11	3800808	FTG\1-7/8MORX1-5/8MJIC\ST		3	EA
12	4000601	VLV\CHECK\POPPET\9/16MJIC		1	EA.
13	4400043	FILTER\HYDRAULIC\RETURN\IN-TANK ELEMENT 4400074		1	EA
14	4502799	TANK\OIL\60GAL		1	EA
15	3701728	HOSE\HYD\3/8X80\3/4FJC90X9/16FJC	DR PORT AUX VALVE TO TANK	1	EA.
16	3701595	HOSE\HYD\1-1/4X49\1-5/8FJICX1-5/8FJIC	SUPPLY PORT FRONT PUMP TO RIGHT TANK PORT SCREEN	1	EA.
17	3701802	HOSE\HYD\1/2X117.5\3/4FJICX3/4FJIC\90	TANK FILTER TEE TO B PORT AUX VALVE	1	EA.
18	3701595	HOSE\HYD\1-1/4X49\1-5/8FJICX1-5/8FJIC	SUPPLY PORT REAR PUMP TO LEFT TANK PORT SCREEN	1	EA.
19	3701799	HOSE\HYD\1-1/4X158\1-5/8FJICX1/5/8FJIC\90	OUT PORT COOLER TO TANK FILTER TEE	1	EA.


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Item	Part No.	Name	Remarks	Qty	Uom
1	3800279	FTG\1-1/16MORX1-1/16MJIC\90		1	EA
2	3800539	FTG\1-1/16MJICX3/4MP\ST\SOLID		1	EA
3	3800675	FTG\7/8MORX3/4MJIC\45		1	EA.
4	3800696	FTG\7/8MORX3/4MJIC\90		1	EA.
5	3800950	VALVE\BALL\16MOR\16FOR		1	EA
6	3800951	FTG\1-5/16MORX3/4MP		1	EA
7	4200124	PUMP\HYD\.89CID\CASAPPA		1	EA
8	4400141	FLTR\HYD\SUCT\INLN\10GPM		1	EA
9	3701801	HOSE\HYD\1/2X95\3/4FJICX3/4FJIC	PRESSURE PORT CASSAPA PUMP TO A PORT AUX VALVE	1	EA.
10	3701219	HOSE\HYD\3/4X19\1-1/16FJCX1-1/16FJC	BOTTOM PORT OIL TANK SUCTION PORT CASSAPA PUMP	1	EA


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Delivery Report

Delivery Date	Machine Model	Serial No.	
Dealer Name		Engine Serial No.	
Dealer Address		Invoice No.	
Dealer City		State	Zip
Dealer Email		Phone	

Customer Name		
Customer Address	Phone	
Customer City	State	Zip
Customer Email		

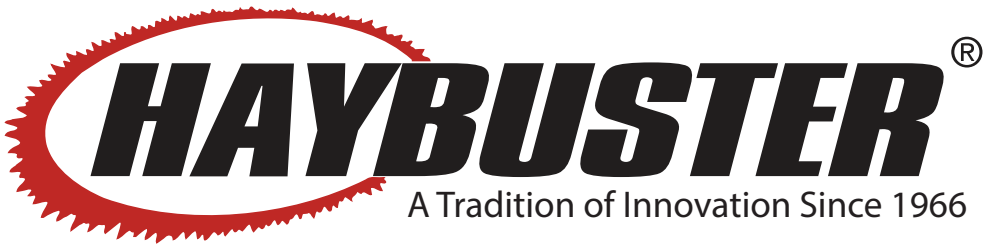
The following items are to be checked as they are explained to the owner / operator at the time of delivery

- ☐ Explain the delivery packet and present the operators manual(s) to the owner / operator.
- ☐ Review and inspect the machine safety signs (decals) and the operator's manual.
- ☐ Advise the owner that the dealer is the source to obtain operator training, and information regarding the correct application of the machine to the job, as well as service and warranty information.
- ☐ Explain the capabilities and restrictions of the machine as it applies to the owner's application as defined in the operator's manual.
- ☐ Explain the operation of the controls and start up and shut down procedures of the engine and power transmission components of the machine.
- ☐ Explain rated lift or carrying capacity and loading and unloading procedures of the machine to maintain safety and stability of the machine.
- ☐ Explain proper folding, unfolding, and transporting procedures to the owner / operator.
- ☐ Explain recommended fueling procedures on engine equipped machines.
- ☐ Explain proper loading and unloading of materials from the tub or grinding chamber of the machine.
- ☐ Objects thrown by shredding or spinning rotors may represent a hazard to personnel and property in the area. Minimize risks by planning and by keeping personnel and property clear of hazaard area.
- ☐ Explain the availability and use of the tub cover to further reduce risks of thrown objects.
- ☐ Review maintenance and lubrication procedures with the operator / maintenance person as defined in the operators manual.
- ☐ Advise never to use the machine in an environment with explosive or flammable materials present.
- ☐ Explain warranty policy and limitations to the owner / operator.

⚠ Warning

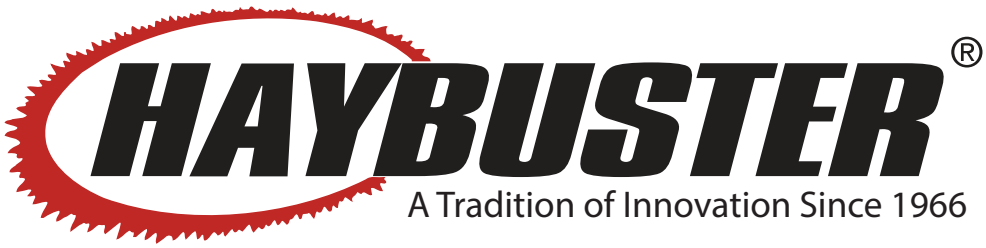
Misuse of the machine or modification or removal of the guards, safety devices, or control interlocks can cause injury or death.

The above delivery information has been explained to me. I understand the operation and maintenance of this machine. I also acknowledge the warranty conditions and limitations as outlined.	
Owner / Operator Signature	**Date**
Dealer Representative Signature	**Date**


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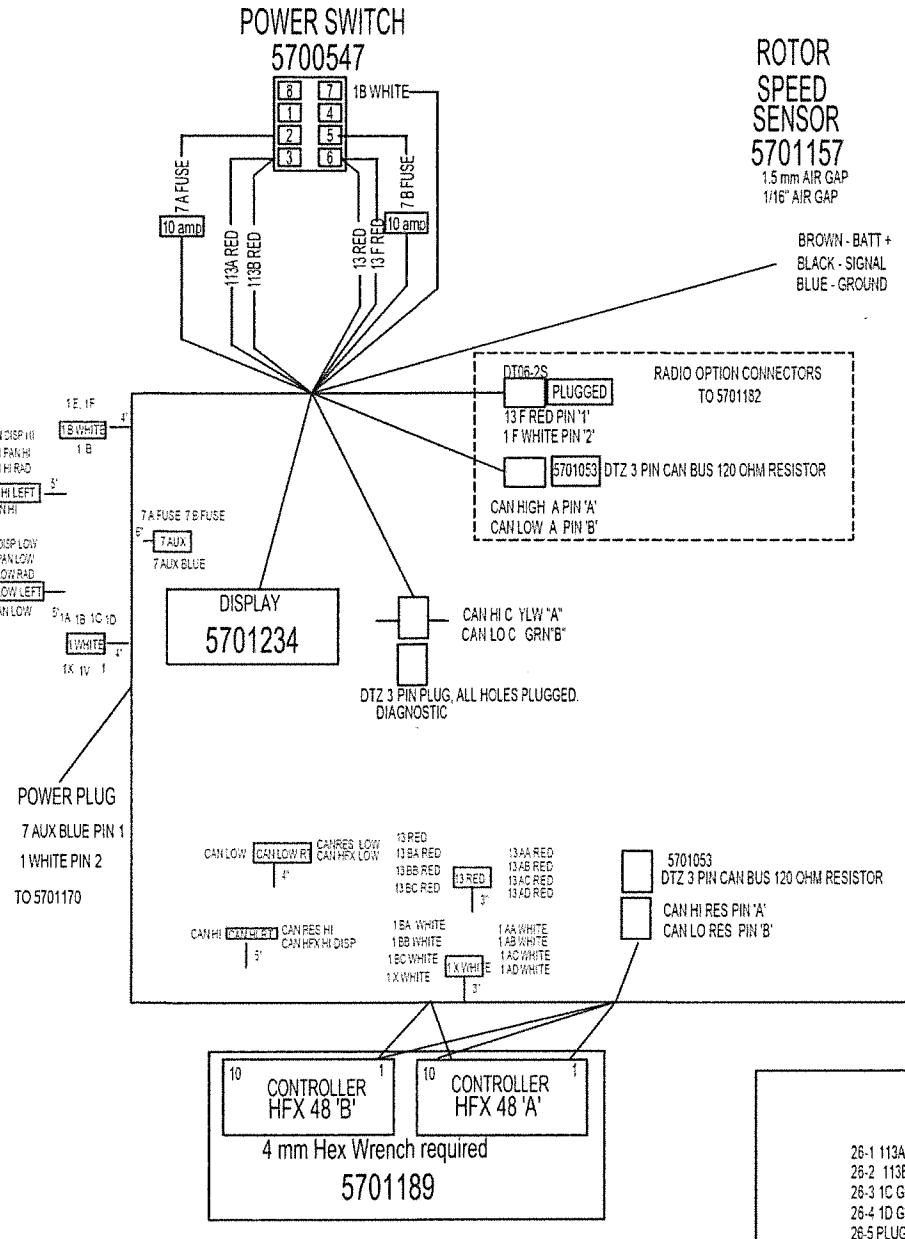
Appendix D: Schematic Foldouts

5701174 - H-1135 Machine Harness.....FO-1
5701170 - PTO Tub Tallight Harness (for SN Up to 1123030035).....FO-2
H-1135 Hydraulic Schematic.....FO-3
5701276 -Electric Motor H-1135 Tub Grinder Valve Harness.....FO-4
H-1135 Electric Hydraulics Schematic.....FO-5


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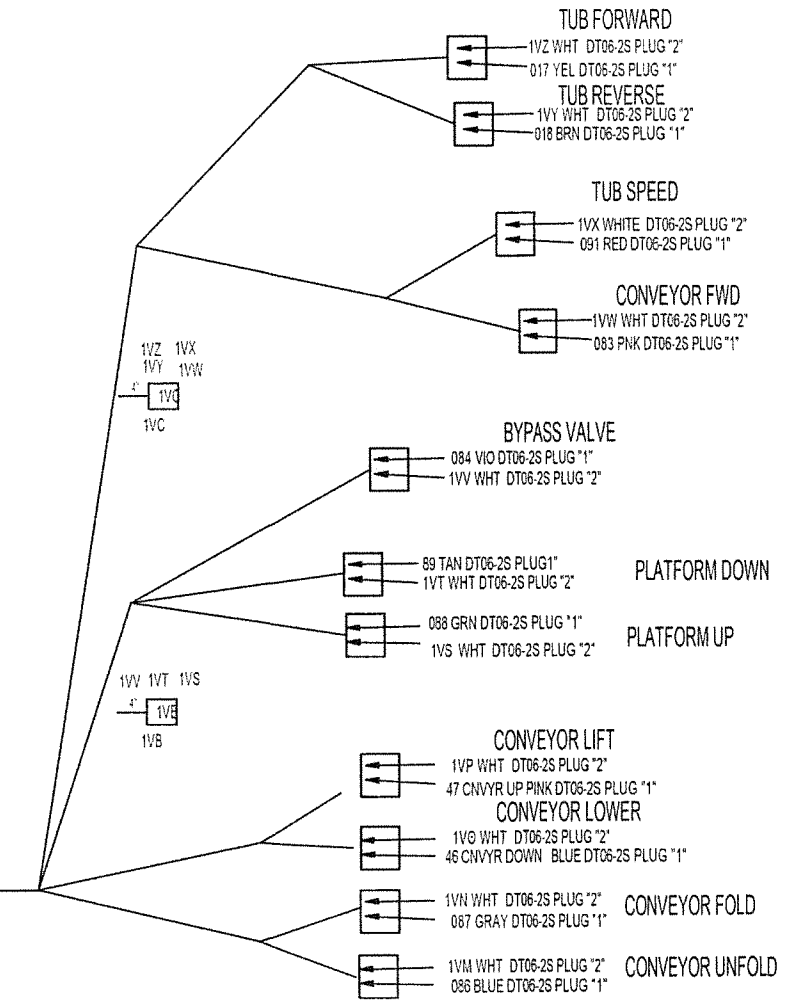
5701174 - PTO TUB GRINDERS

Rev 0 2020-01-20



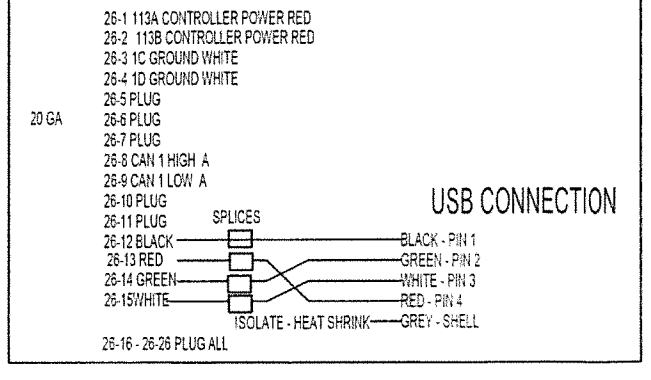
5701189

HFX 48 'B'		HFX 48 'A'	
SOCKET 1	100BA POWER	SOCKET 1	83 PINK
SOCKET 2	100BB POWER	SOCKET 2	017 YELLOW
SOCKET 3	100BC POWER	SOCKET 3	18 BROWN
SOCKET 4	PLUG	SOCKET 4	185 LT BLUE CRATE RAISE PLUG
SOCKET 5	PLUG	SOCKET 5	186 LT GREEN CRATE LOWER PLUG
SOCKET 6	PLUG	SOCKET 6	100A6 POWER
SOCKET 7	PLUG	SOCKET 7	1AA WHITE GROUND
SOCKET 8	PLUG	SOCKET 8	PLUG
SOCKET 9	PLUG	SOCKET 9	100AA POWER
SOCKET 10	PLUG	SOCKET 10	100AB POWER
SOCKET 11	PLUG	SOCKET 11	PLUG
SOCKET 12	1BA WHITE GROUND	SOCKET 12	PLUG
SOCKET 13	1BB WHITE GROUND	SOCKET 13	HFXCAN HIGH YELLOW
SOCKET 14	PLUG	SOCKET 14	PLUG
SOCKET 15	PLUG	SOCKET 15	PLUG
SOCKET 16	PLUG	SOCKET 16	PLUG
SOCKET 17	PLUG	SOCKET 17	192 BLUE SENSOR ROTOR SPEED
SOCKET 18	PLUG	SOCKET 18	1AB WHITE GROUND
SOCKET 19	PLUG	SOCKET 19	100AC POWER
SOCKET 20	PLUG	SOCKET 20	191 WHITE SENSOR COMMON GROUND
SOCKET 21	PLUG	SOCKET 21	PLUG
SOCKET 22	1BC GROUND	SOCKET 22	PLUG
SOCKET 23	PLUG	SOCKET 23	HFXCAN LOW GREEN
SOCKET 24	PLUG	SOCKET 24	PLUG
SOCKET 25	PLUG	SOCKET 25	PLUG
SOCKET 26	PLUG	SOCKET 26	PLUG
SOCKET 27	PLUG	SOCKET 27	PLUG
SOCKET 28	PLUG	SOCKET 28	1AC WHITE GROUND
SOCKET 29	PLUG	SOCKET 29	1AD WHITE GROUND
SOCKET 30	PLUG	SOCKET 30	190 RED SENSOR COMMON POWER
SOCKET 31	PLUG	SOCKET 31	88 GREEN
SOCKET 32	47 PINK	SOCKET 32	89 TAN
SOCKET 33	46 BLUE	SOCKET 33	PLUG
SOCKET 34	87 GREY	SOCKET 34	PLUG
SOCKET35	86 BLUE	SOCKET35	84 VIOLET
SOCKET 36	PLUG	SOCKET 36	PLUG
SOCKET 37	PLUG	SOCKET 37	PLUG
SOCKET 38	PLUG	SOCKET 38	PLUG
SOCKET 39	PLUG	SOCKET 39	PLUG
SOCKET 40	PLUG	SOCKET 40	91 PINK

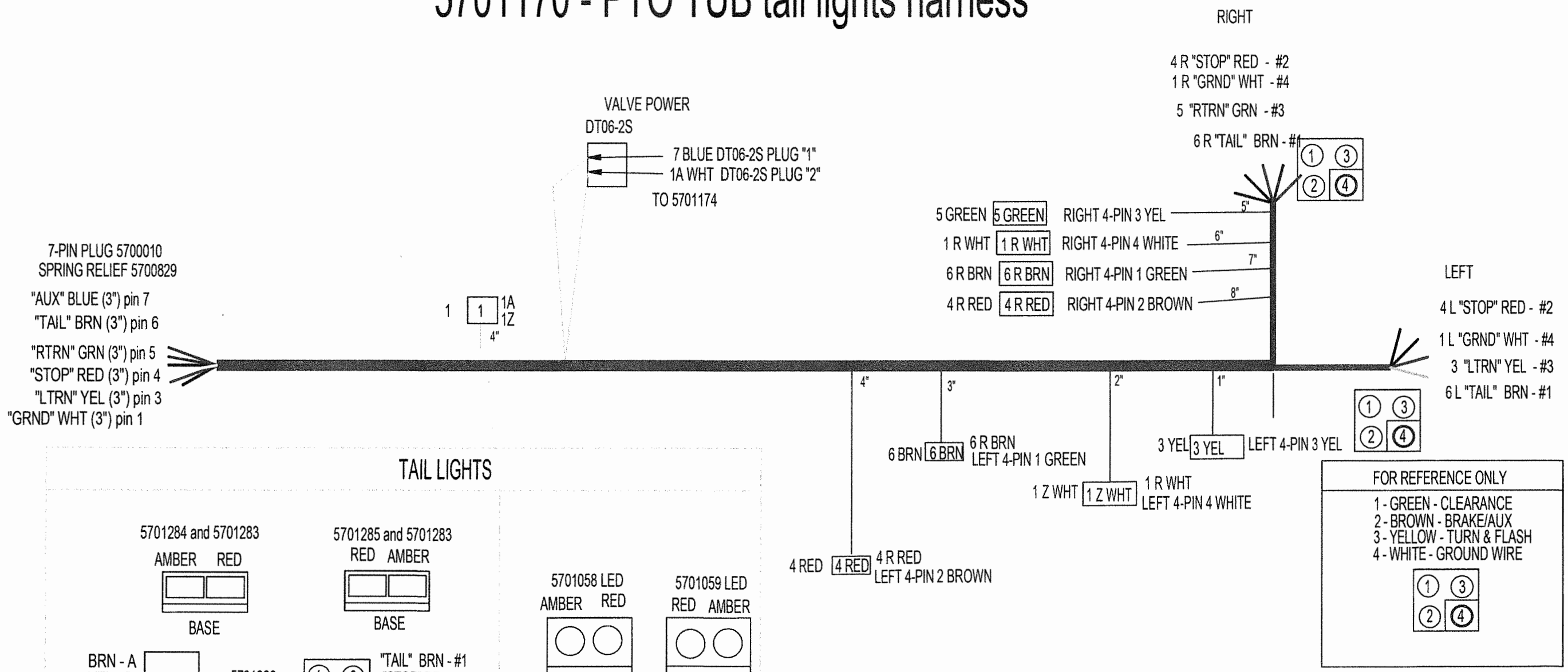


DISPLAY

5701234

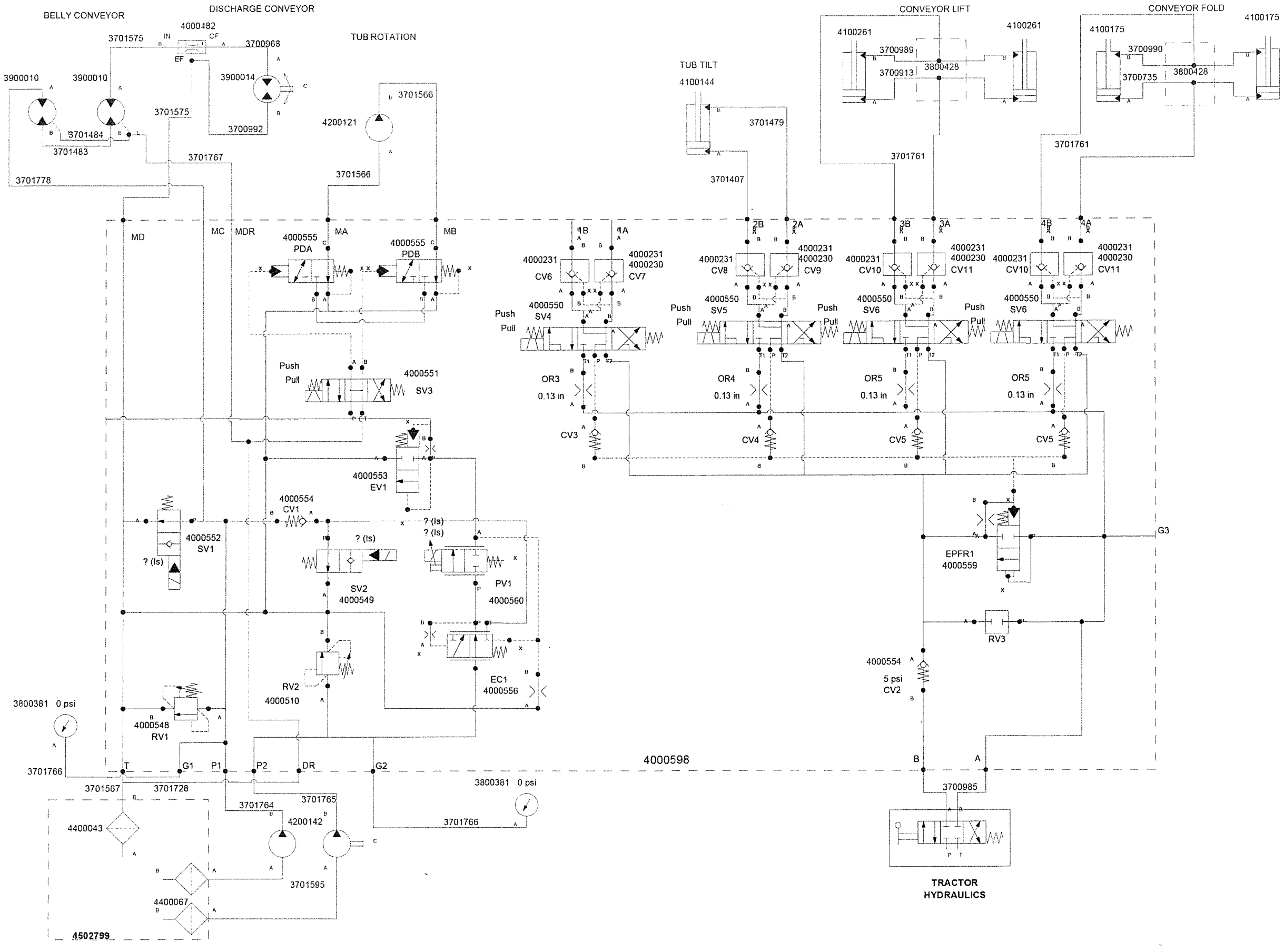


5701170 - PTO TUB tail lights harness



TAIL LIGHTS

H-1135 HYDRAULIC SCHEMATIC



5701276 -Electric Motor 1135 Tub Grinder valve harness

DISPLAY

26-1 113A CONTROLLER POWER RED
26-2 113B CONTROLLER POWER RED
26-3 1C GROUND WHITE
26-4 1D GROUND WHITE
26-5 PLUG
26-6 PLUG
26-7 PLUG
26-8 CAN 1 HIGH DIS
26-9 CAN 1 LOW DIS
26-10 PLUG
26-11 PLUG
26-12 BLACK
26-13 RED
26-14 GREEN
26-15WHITE
SPLICES
USB CONNECTION
BLACK - PIN 1
GREEN - PIN 2
WHITE - PIN 3
RED - PIN 4
ISOLATE - HEAT SHRINK
GREY - SHELL
26-16 - 26-26 PLUG ALL

POWER SWITCH 5700547

1A WHITE
10 amp
10 amp
113A RED
113B RED
6"
13 RED
13 F RED

ROTOR SPEED SENSOR 5701157

1.5 mm AIR GAP
1/16" AIR GAP

CAN DISP HI
CAN PAN HI
CAN HI RAD
CAN HI LEFT
CAN HI
5"

11 B FUSE
11 A FUSE
11
11 RED
6"

1 A WHITE
1 B WHITE
1 C WHITE
1 D WHITE
1 WHITE
8"
1 WHITE
1 X WHITE
1 V WHITE

1 E WHITE
1 F WHITE
4"
1 B WHITE
1 B WHITE

8"
6"

CAN HI PAN YLW "A"
CAN LO PAN GRN "B"
DT06-33
ALL HOLES PLUGGED.

RADIO OPTION CONNECTORS
TO 5701182
DT06-2S
PLUGGED
13 F RED PIN '1'
1 F WHITE PIN '2'
5701053
CAN HIGH A PIN 'A'
CAN LOW A PIN 'B'
DTZ 3 PIN CAN BUS 120 OHM RESISTOR

DISPLAY
5701234

CAN SHIELD DIS
CAN SHIELD PAN
CAN SHIELD RAD

CAN DISP LOW
CAN PAN LOW
CAN LOW RAD
CAN LOW
LEFT CAN LOW
7"

CAN LOW
CAN LOW
CANRES LOW
CAN HFX LOW
10"
13 RED
13 BA RED
13 BB RED
13 BC RED
13 RED
11"
13 AA RED
13 AB RED
13 AC RED
13 AD RED

CAN HI
CAN HI
CAN RES HI
CAN HFX HI DISP
9"
1 BA WHITE
1 BB WHITE
1 BC WHITE
1 X WHITE
1 X WHITE
11"
1 AA WHITE
1 AB WHITE
1 AC WHITE
1 AD WHITE

HFX RESISTOR
5701053
DTZ 3 PIN CAN BUS 120 OHM RESISTOR
CAN HI RES PIN 'A'
CAN LO RES PIN 'B'

5701189

10 CONTROLLER HFX 48 'B' 1
10 CONTROLLER HFX 48 'A'
4 mm Hex Wrench required

21
21
21 FUSE
30 amp
23 WHITE 12 GA W/P SHROUD 'B'
21 FUSE 12 GA W/P SHROUD 'A'
30 AMP FUSE

FAN CONTROLLER

3"
RED BATT + PIN'1'
BLACK BATT - PIN'2'
FAN CONTROLLER
5700955
20 GAUGE WIRES
BLUE, BLACK,
WHITE, GREEN
FOR PROGRAMMING PURPOSES

BLACK "A" WHITE "B"
RED "A" WHITE "B"
5700897
TEMPERATURE SENSOR

YELLOW FAN A+ SCKT 1
WHITE FAN A- SCKT 2
GREEN NOT USED
BLUE NOT USED

FAN A IS ON RADIATOR 4200167
FAN
4200184
BLACK - PIN'1'
BLUE - PIN'2'

CURRENT TRANSFORMER 4300091

-L 1CT WHITE
+K 2CT BLACK

SOFT STARTER PANEL

1 WHITE - V- ON 12 V POWER SOURCE
2CT BLACK MOTOR AMP SIGNAL
11 RED - V+ ON 12 V POWER SOURCE
21 RED FAN POWER
23 WHITE FAN GROUND
184 ORG SIGNAL TO START ELEC MOTOR

HFX 48 'B' 5701189

DRC26-40SB

SOCKET 1	13 BA POWER	0462-201-20141 SOCKET (20 GAUGE WIRE)
SOCKET 2	13 BB POWER	0462-005-20141 SOCKET (16 GAUGE WIRE)
SOCKET 3	13 BC POWER	0413-204-2005 PLUG
SOCKET 4	PLUG	
SOCKET 5	PLUG	
SOCKET 6	PLUG	
SOCKET 7	PLUG	
SOCKET 8	PLUG	
SOCKET 9	PLUG	
SOCKET 10	PLUG	
SOCKET 11	PLUG	
SOCKET 12	1BA WHITE GROUND	
SOCKET 13	1BB WHITE GROUND	
SOCKET 14	PLUG	
SOCKET 15	PLUG	
SOCKET 16	PLUG	
SOCKET 17	PLUG	
SOCKET 18	PLUG	
SOCKET 19	PLUG	
SOCKET 20	PLUG	
SOCKET 21	PLUG	
SOCKET 22	1BC GROUND	
SOCKET 23	184 ORG ELECTRIC MOTOR SIGNAL	
SOCKET 24	PLUG	
SOCKET 25	PLUG	
SOCKET 26	PLUG	
SOCKET 27	PLUG	
SOCKET 28	PLUG	
SOCKET 29	PLUG	
SOCKET 30	PLUG	
SOCKET 31	PLUG	
SOCKET 32	47 PINK	
SOCKET 33	46 BLUE	
SOCKET 34	87 GREY	
SOCKET35	86 BLUE	
SOCKET 36	PLUG	
SOCKET 37	PLUG	
SOCKET 38	PLUG	
SOCKET 39	PLUG	
SOCKET 40	PLUG	

HFX 48 'A'

DRC26-40SA

SOCKET 1	83 PINK	0462-201-20141 SOCKET (20 GAUGE WIRE)
SOCKET 2	17 YELLOW	0462-005-20141 SOCKET (16 GAUGE WIRE)
SOCKET 3	18 BROWN	0413-204-2005 PLUG
SOCKET 4	PLUG (AUX 1)	
SOCKET 5	PLUG (AUX2)	
SOCKET 6	13 AA POWER	
SOCKET 7	1AA WHITE GROUND	
SOCKET 8	PLUG TILT ENABLE	
SOCKET 9	13 AB POWER	
SOCKET 10	13 AC POWER	
SOCKET 11	PLUG	
SOCKET 12	PLUG	
SOCKET 13	HFXCAN HIGH YELLOW	
SOCKET 14	PLUG	
SOCKET 15	PLUG	
SOCKET 16	PLUG	
SOCKET 17	192 BLACK SENSOR ROTOR SPEED	
SOCKET 18	1AB WHITE GROUND	
SOCKET 19	13 AD POWER 12 V DC	
SOCKET 20	191 BLUE SENSOR GROUND	
SOCKET 21	PLUG	
SOCKET 22	PLUG	
SOCKET 23	HFXCAN LOW GREEN	
SOCKET 24	PLUG	
SOCKET 25	PLUG	
SOCKET 26	PLUG	
SOCKET 27	PLUG	
SOCKET 28	1AC WHITE GROUND	
SOCKET 29	1AD WHITE GROUND	
SOCKET 30	190 BROWN SENSOR POWER 5 vdc	
SOCKET 31	88 GREEN	
SOCKET 32	89 TAN	
SOCKET 33	2CT BLACK Electric Motor Amps	
SOCKET 34	PLUG	
SOCKET35	84 VIOLET	
SOCKET 36	PLUG	
SOCKET 37	PLUG	
SOCKET 38	PLUG	
SOCKET 39	PLUG	
SOCKET 40	91 RED	

TUB FORWARD

1VZ WHT DT06-2S PLUG "2"
017 YEL DT06-2S PLUG "1"

TUB REVERSE

1VY WHT DT06-2S PLUG "2"
018 BRN DT06-2S PLUG "1"

TUB SPEED

1VX WHITE DT06-2S PLUG "2"
091 RED DT06-2S PLUG "1"

CONVEYOR FWD

1VW WHT DT06-2S PLUG "2"
083 PINK DT06-2S PLUG "1"

1VZ 1VX
1VY 1VW
4"
1VC
1VC

BYPASS VALVE

84A VIO DT06-2S PLUG "1"
1VV WHT DT06-2S PLUG "2"

PLATFORM DOWN

89 TAN DT06-2S PLUG1"
1VT WHT DT06-2S PLUG "2"

PLATFORM UP

088 GRN DT06-2S PLUG "1"
1VS WHT DT06-2S PLUG "2"

1VV 1VT 1VS
4"
1VB
1VB

CONVEYOR LIFT

1VP WHT DT06-2S PLUG "2"
47 CNVYR UP PINK DT06-2S PLUG "1"

CONVEYOR LOWER

1VO WHT DT06-2S PLUG "2"
46 CNVYR DOWN BLUE DT06-2S PLUG "1"

CONVEYOR FOLD

1VN WHT DT06-2S PLUG "2"
087 GRAY DT06-2S PLUG "1"

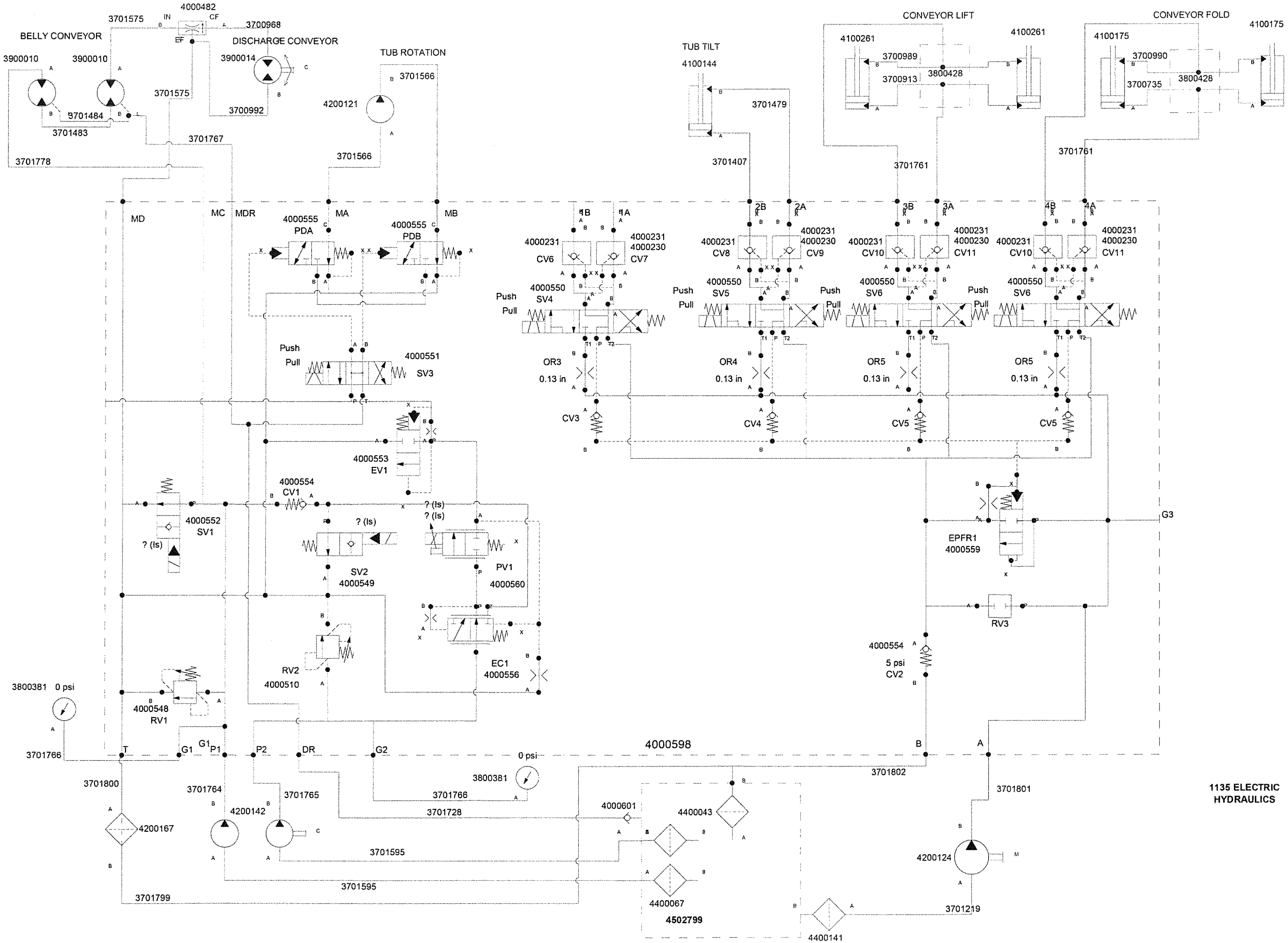
CONVEYOR UNFOLD

1VM WHT DT06-2S PLUG "2"
086 BLUE DT06-2S PLUG "1"

8"
1V
1V
1VC
1VB
1VA

4"
1VA
1VA
1VP 1VN
1VO 1VM

Note - In case of controller failure, the controller can be unplugged and power can be connnected direct to fan, so the fan runs constantly



1135 ELECTRIC HYDRAULICS