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NOTICE

ANY PART, PORTION, DESIGN, NUMBER, SPECIFICATION, AND/OR DIMENSION IN THIS MANUAL IS SUBJECT TO CHANGE WITHOUT NOTICE BY THE MANUFACTURER.

INTRODUCTION

The purpose of this manual is to provide the user with specifications and procedures for the operation, maintenance and repair of this SMORACY product. As with any piece of equipment, safety should always be a constant thought while the machine is being operated, serviced or stored. In order to highlight this consideration, the material which addresses safety is proceeded by the following signal words:

Signal Word	Likelihood of Occurrence	Degree of Potential Injury or Damage
⚠ **DANGER**	Will occur if warning is ignored	Severe
⚠ **WARNING**	Can occur if warning is ignored	Severe
⚠ **CAUTION**	Will or can occur if warning is ignored	Minor to Severe
NOTICE	Important, but not hazard related	Minor

The equipment is designed and manufactured in accordance with the latest product industry standards. This alone does not prevent injury. It is the operator's responsibility to use good judgement and follow the warnings and instructions as indicated in this manual, on the machine and follow all safety standards per ANSI and OSHA instructions.

⚠ WARNING

Improper use of the product can result in severe personal injury. Personnel using the equipment must be qualified, trained and familiar with the operating procedures as defined in this manual, prior to operating the product.

⚠ WARNING

It is the responsibility of the owner or employer to insure that the operator is trained and practices safe operation while using and servicing the machine. It is also the owner's responsibility to provide and follow a regularly scheduled preventative maintenance and repair program on the product, using only factory approved replacement parts. Any unapproved repairs or modifications may not only damage the machine and its performance, but could result in severe personal injury. Unapproved repairs or modifications will void warranty and eliminate manufacturer of any liability claims. Consult the equipment manufacturer!!!

Each machine is shipped with a manual, a customer's check sheet on the product, and any available parts & service manuals on component parts not produced by this manufacturer. Additional copies of these manuals and check sheets can be purchased from the manufacturer, or through the dealer. Engine parts, service and maintenance manuals **MUST** be purchased through the engine manufacturer or their dealer.

NOTICE

The producer of this Smoracy product reserves the right to make any modifications or revisions to the design or specifications of its machine without advance notice. The producer also reserves the right to change machine and part prices as needed without advance notice.

EXPLANATION OF LIMITED WARRANTY

The manufacturer will not reimburse the customer or dealer labor costs incurred for installing “bolt-on” or “slip-on” items, such as hydraulic pumps and motors, control valves, flow dividers, belts, sheaves, etc. The manufacturer will provide replacement parts to the customer for defective parts during the warranty period. **Defective parts must be returned to Smoracy, LLC.** It will be the customer’s responsibility to install the replacement parts unless arrangements are made with the selling dealer.

The manufacturer will not reimburse travel costs to servicing dealer unless prior approval has been obtained from the manufacturer. It is the customer’s responsibility to deliver the machine to dealer’s service facility, unless other arrangements have been agreed to between selling dealer and customer.

The manufacturer may elect, at its discretion, to reimburse reasonable labor costs to customer or dealer for major defect repairs. Diagnostic labor and overtime labor will not be covered under warranty. Prior approval must be obtained from Smoracy, LLC.

There are several forms that must be completely filled out and returned to us in reference to our portion of warranty. Read and understand the Smoracy Limited Warranty responsibilities. Some components on your machine are covered by their respective manufacturers and cannot be handled through Bandit Industries as stated in Warranty Section of this manual.

Use this manual to help you resolve what and where your problem is, in most cases you can fix it easily. If you still have problems, work through the dealer you purchased the machine through, or contact Smoracy, LLC direct if needed.

Make sure the following forms are used, for us as well as you, to keep track of service and pending warranty request. It is our company policy that all parts shipped out will be invoiced until the possible warranty parts are returned with a Warranty Claim Form completed for consideration.

Make sure the Warranty Validation Form is completed and sent in to us as soon as you receive the machine. This will activate our warranty responsibilities.

If Warranty Validation Form is not on file, all Warranty consideration is null and void.

NOTICE

Prior to delivery to final owner and during storage, this machine must be serviced and lubricated to avoid damage that will not be covered under warranty, see “Lubrication & Coolant” page.

Also, damage or premature failure of equipment components because of incorrect or incomplete service and maintenance by the equipment owner will not be covered under warranty.

All controls, safety devices, guards, and shields must be correctly operational and securely in place at all times during equipment operation.

SMORACY, LLC LIMITED WARRANTY
(989) 561-2270

Smoracy, LLC also referred to as “Manufacturer” warrants this new product to be free of defects in workmanship and material for a period of 6 months or 1000 operating hours, which ever comes first.

This warranty takes effect upon delivery to the original retail purchaser. The manufacturer at it’s option will replace or repair at a point designated by the manufacturer, any parts which appear to have been defective in material or workmanship. The manufacturer is not responsible for labor, consequential damages, traveling or down time expenses.

This warranty and any possible liability of Smoracy, LLC is expressly in lieu of any other warranties, expressed or implied, including but not limited to, any implied warranty or merchantability of fitness for a particular purpose and of any noncontractual liabilities including product liabilities based upon negligence or strict liability. Smoracy, LLC will not be liable for consequential damages resulting from breach of warranty.

All parties involved agree that the Owner’s Sole and Exclusive Remedy against the Manufacturer, whether in contract or arising out of this warranty, instructions, representations, or defects shall only be for the replacement or repair of defective parts as provided herein. In no event or circumstances shall the Manufacturer’s liability exceed the purchase price of the machine. The buyer also agrees that no other remedy (including but not limited to consequential or incidental loss) shall be available to him or her.

It is absolutely necessary to return the Warranty Validation Form, completely and accurately filled out, and notify Smoracy, LLC in writing within ten (10) days from the date of purchase to validate this warranty. If Warranty Validation Form is not on file, all Warranty Consideration is NULL AND VOID.

This warranty will <u>not</u> apply if the Smoracy product is not operated with replacement parts or equipment <u>not</u> manufactured or recommended by Smoracy, LLC.

This warranty will not apply if the Smoracy product is not operated in a manner recommended by the manufacturer. The following examples would void the warranty:

1. The completed Warranty Validation Form is not on file.
2. The Smoracy product has been abused, or not serviced properly.
3. Repairs or attempted repairs made without prior written authorization.
4. Repairs made due to normal wear are not warrantable.
5. The Smoracy product was involved in, or damaged by an accident.
6. The Smoracy product was damaged from any type of foreign material.

The owner is responsible for all scheduled maintenance as explained in the Operators Manuals. Negligence of proper maintenance or any other negligence, accident or fire; nor with failure to adjust, tighten, or replace wear items included but not limited to items such as cutter teeth, cutterbodies, belts, lubrication fluids, bearings, filters, hydraulic components, loose nuts or bolts, etc. may void warranty.

All components and parts being returned to Smoracy, LLC for warranty consideration must be complete and assembled when delivered. Hydraulic components and parts must be returned assembled with all fluid ports capped or plugged and free of foreign contamination, or warranty will not be considered.

SMORACY, LLC LIMITED WARRANTY
(989) 561-2270

NOTICE This warranty applies only to new and unused equipment or parts thereof manufactured by Smoracy, LLC and is void if the machine is operated with replacement parts or equipment not manufactured or recommended by Smoracy, LLC.

All other components are warranted by their respective manufacturers (i.e. engines, axles, hydraulic pumps and motors, clutches, tires, batteries, etc.) Any machines used for lease or rental purposes warranty is limited to 90 days from the first day of initial service.

NOTICE **Clutch maintenance and adjustments and engine maintenance (air filter maintenance, oil changes, oil filter maintenance, etc.) are important to your machine. Refer to the clutch or engine manual for the maintenance schedule. Failure to perform the clutch or engine maintenance will void the warranty with the respective manufacturer, Smoracy, LLC does not warranty these components!**

CONTINENTAL U.S. INFORMATION PHONE NUMBERS FOR ACCESSORIES (NOT COVERED UNDER PRODUCT WARRANTY PROGRAM)

Caterpillar Engines (Thru 275Hp)	1-800-551-2938	E.S.I.	1-815-985-0383
Caterpillar Engines (300Hp & Up)	1-866-228-2111	L.O.R. MFG.	1-866-644-8622
Cummins Engines	1-248-573-1592	Omnex Radios	1-419-294-4985
Perkins Engines	1-800-551-2938	Dexter Axles	1-574-295-7888
Honda Engines	1-734-453-6258	Tires	1-989-463-4088
John Deere Engines	1-888-803-9175	Caterpillar Tracks	1-309-636-1100
PT Tech Clutch	1-330-414-3172	Interstate Batteries	1-800-331-2000
NACD, Rockford Clutch	1-800-383-9204	Petro-Canada Hydrex XV	1-888-284-4572
Twin Disc Clutch	1-262-638-4000		

(Phone numbers for outside the continental U.S. can be supplied from your phone directory or local Smoracy dealer.)

In order to process any warranty claims, it is the owner's responsibility to report the claims promptly to the Manufacturer, or our authorized dealer from whom the equipment was purchased.

It is necessary to include the following information on any and all requests for warranty:

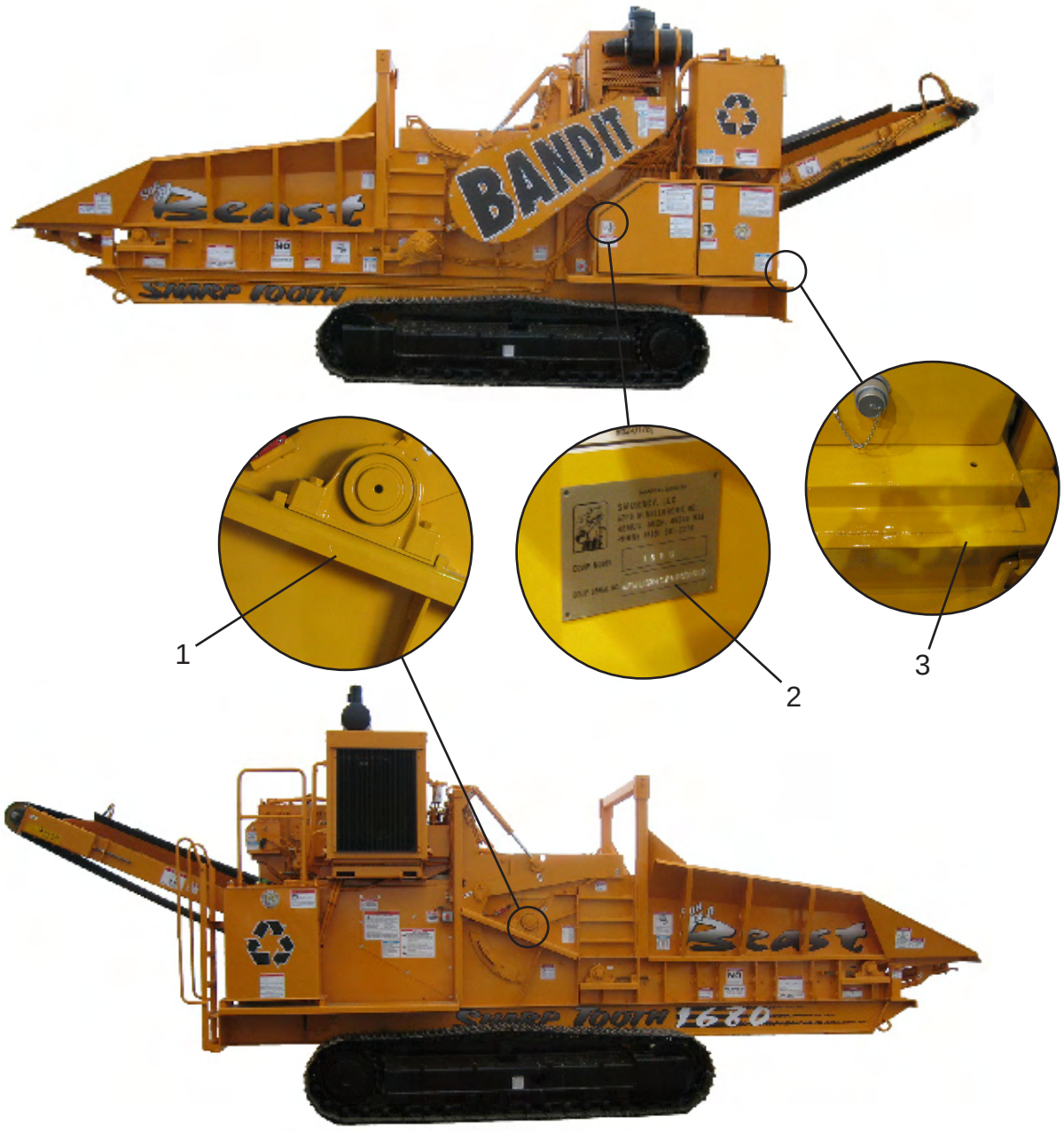
1) Warranty Claim Form, obtained from Smoracy, LLC or it's dealers, completely and accurately filled out.
2) Dealer from whom purchased.
3) Date of delivery.
4) Serial number of unit.
5) Model number of unit.
6) Engine make and serial number.
7) Length of time in use (hours on machine).
8) Date of Failure.
9) Nature of Failure.

Smoracy, LLC, reserves the right to alter, improve, revise or modify any parts or products with the altered, improved, revised or modified parts or products. They also may change design, specifications, or part prices without advance notice.

Smoracy, LLC, is NOT responsible for updating or upgrading completed machines with design changes that are made after it's production.

Smoracy, LLC, expects the Customer/Owner to bring their machine to the Dealer/Manufacturer for Warranty Repairs. The Manufacturer DOES NOT pay Dealers or Customers for bringing their machine in for repair. Nor does the Manufacturer furnish loaner machines while the unit is being repaired.

TYPICAL GRINDER SERIAL NUMBER AND/OR WORK ORDER NUMBER LOCATIONS



1. Serial Number stamped into bearing pad.
2. Serial Number on equipment tag.
3. Work Order Number stamped into top of rear bumper.

NOTE: The engine information is located on the engine block. The clutch information is located on the clutch plate (if equipped).

SAFETY PROCEDURES

⚠ DANGER

The words ⚠ Danger, ⚠ Warning, ⚠ Caution, and Notice are used on the safety decals and throughout this manual, to make you aware of the safety procedures. These procedures are very important, read and obey them.

YOUR SAFETY IS VERY IMPORTANT TO US!

This machine is equipped with safety decals, guards and designs for your protection.

Don't ever take the machine for granted, always be cautious and careful when operating your equipment.

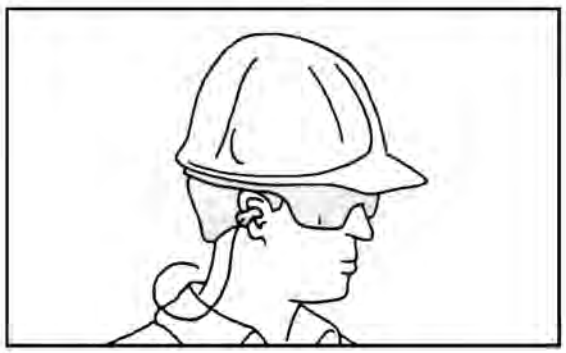
Read and follow all the instructions in your manual thoroughly. Your safety is dependent on your knowledge of how to operate and maintain this machine. You may obtain additional copies of this manual from your Smoracy, LLC Dealer.

Before operating machine, you must have all potential operators; read and understand manuals and decals, watch the video and follow the recommendations.

Regardless of how hard a manufacturer tries to produce a safe machine, accidents still happen. Normally accidents are caused by people making mistakes. They do not read the manual, they ignore warning decals or do not use lockouts provided for their safety. This normally happens after the person has become accustomed to the machinery. In the initial start up and operation of the machinery, they are cautious, they are very careful because they do not understand the machine.

This equipment is intended for use by personnel who are experienced with similar equipment. Always operate safely. It is also recommended that someone else is present while operating or servicing in case an accident should occur. Never operate any machine while under the influence of drugs or alcohol.

Keep children, bystanders and animals clear of working area. Never operate equipment that is in need of repair or adjustment.



⚠ DANGER

Before starting the machine, take a minute to check a few things. The recycler should be in an area restricted from people passing by. This area around the recycler must be free of all objects that can obstruct movement when working with the recycler. The machine should be checked for loose tools or foreign objects, especially in the infeed conveyor area. All tools not in use should be secured in a tool box.

⚠ WARNING

Operators **must** at all times be located within easy reach of all feed control and shut-off devices when the unit is running. They must be attentive and prepared to activate the devices.

⚠ DANGER

Torn or loose clothing is more likely to get caught in moving machinery parts. Keep such items as long hair, shirt sleeves, and shirt tails properly contained. Avoid wearing necklaces, rings, watches, and especially neckties while operating this machinery. Make sure the machine is in excellent condition, and all the guards are in place, tight and secure.

Wear all personal protection equipment and follow all safety standards per ANSI and OSHA instructions. Examples of equipment: hard hat, face shield, safety glasses, gloves, ear protection, etc. Always keep a fully charged fire extinguisher with the machine while operating and servicing the machine.

SAFETY PROCEDURES

⚠ DANGER

DO NOT operate this machine indoors! Exhaust fumes can be fatal. Never refuel while the machine is running. Never refuel in the shop or building. Always refuel in a well ventilated area, away from sparks or open flames, DO NOT SMOKE. Extinguish all smoking materials. Wipe up all spilled fuel before restarting the engine. Do not fill above 1/2" (12.7 mm) from top of tank.

To obtain the most from your machine, for the least amount of cost, it is a good practice to set up and follow a scheduled preventative maintenance program. It will eliminate many possible problems and down time.

⚠ DANGER

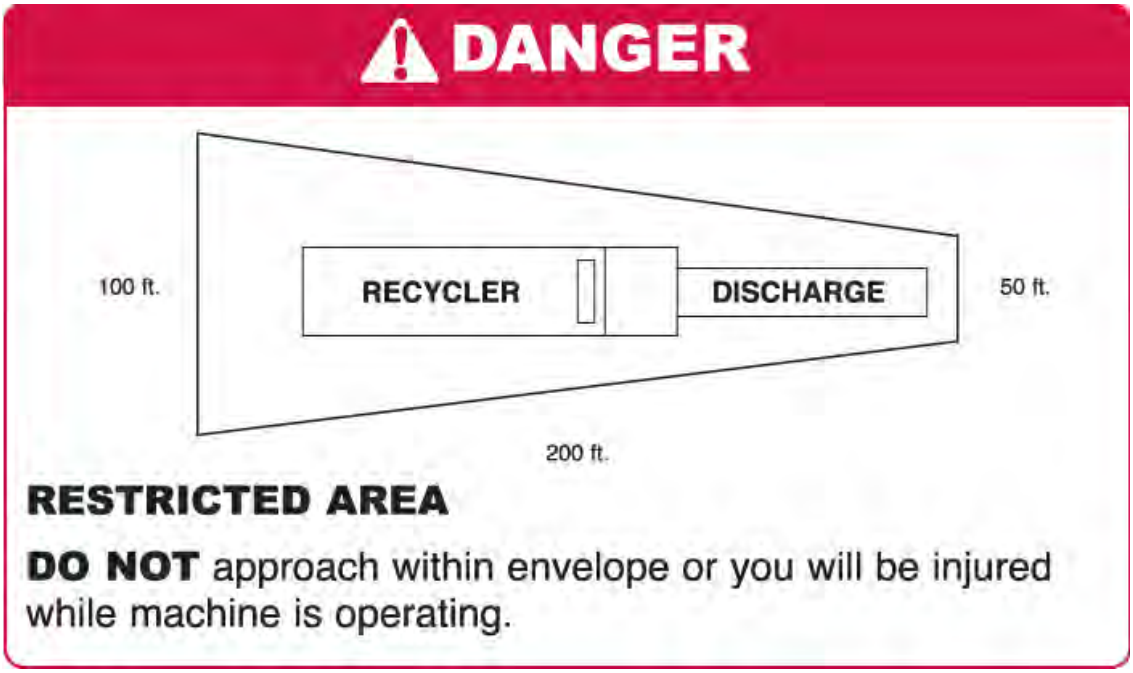
Never stand at the entrance to the infeed conveyor or look over the infeed conveyor side panels. Never attempt to manually dislodge material located on the infeed conveyor while the machine is running. Never raise feedwheel yoke and look inside, or look down infeed conveyor while machine is working. Entanglement in infeed conveyor can cause serious injury. Stay away from the infeed conveyor during operation. If the conveyor drive is not shut off, a stalled conveyor may restart unexpectedly as the obstruction is removed. Do not hand feed raw material onto infeed conveyor.

⚠ DANGER

Entanglement in the discharge belt conveyor can cause serious injury. Stay away from the conveyor during operation. If the conveyor drive is not shut off, a stalled conveyor may restart unexpectedly as the obstruction is removed. Avoid the discharge belt conveyor area. Ejected material can cause serious injury. Stay away! Stay clear of thrown and falling objects. Take the following precautions to avoid injuries from thrown and falling objects: Wear all applicable safety equipment. Only properly protected workers are allowed in "thrown object area". All machines in "thrown object area" must have overhead protection. Machines used to load the recycler must have an enclosed cab. Do not leave controls unattended while machine is operating. Locate the recycler a safe distance from buildings, public roads and populated areas.

⚠ DANGER

Avoid power lines. Electrocution is possible if the recycler touches a power line. Take the following precautions. Position the recycler and any loading equipment at least 10 feet (3 meters) from electric lines. If the machine contacts an electric line stay away from the machine.



SAFETY PROCEDURES

⚠ DANGER

Never work under or around the feedwheel without first disengaging clutch, turning off engine, waiting for the cutter head to come to a complete stop, turning battery disconnect switch off, and make sure the ignition key is in your possession. Some maintenance requires that you work under the feedwheel while it is in the raised position. The feedwheel yoke assembly is equipped with two safety devices that must be put in place before work commences.

1. Yoke Lock Pins:

With the engine running, clutch disengaged, and the cutterhead completely stopped, raise the feedwheel yoke to its maximum height using the feedwheel yoke manual control valve. Install the yoke lock pins in the yoke lock holes or locate the hydraulic yoke lock valve and pull the lever. The hydraulic yoke lock pins located on top of the cutterhead housing will extend or engage.

2. Safety Chain:

Now use the safety chain attached to the discharge belt conveyor rest / feedwheel lift cylinder mount and secure it to the lugs located on the feedwheel yoke. With the safety devices in place lower the feedwheel yoke until it contacts the yoke lock pins and the safety chain pulls tight. Disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, turn battery disconnect switch off, and make sure the ignition key is in your possession. For added safety it is a good practice to use an additional chain to help support the feedwheel yoke to the discharge belt conveyor rest / feedwheel lift cylinder mount. When all safety devices are in place you may start performing maintenance to the machine.

Do Not feed this machine with the top feedwheel pinned, blocked or secured in the open position.

⚠ DANGER

Stay away from the feedwheel and cutterhead areas. Never stand close to the feedwheel assembly while the machine is running. Never attempt to do work on or near a raised feedwheel without making sure all safety devices are secured. Always install or engage the yoke lock pins, and use the safety chain to secure the feedwheel assembly to the discharge belt conveyor rest / feedwheel lift cylinder mount. Follow proper shut down procedures before beginning any type of maintenance to the recycler.

⚠ DANGER

Do not work on the machine if the engine is running with the clutch disengaged. A clutch can self engage if either the pilot or throw-out bearing happens to seize to the main output shaft.

There are various types of clutches (PTO's) available for this type of equipment. Make sure to study the original clutch manufacturer's manual that is provided with the machine and follow its instructions for operation, service, and adjustments. Some styles require clutch engagement to be maintained so that it takes a lot of force, others will require very little force, and some are push button, electric, manual lever, or hydraulic activation. Each different style clutch (PTO) is a very expensive item that will fail if not correctly maintained and adjusted. It will be quite costly if a few minutes are not taken daily, weekly, and monthly to keep the clutch serviced as required.

The operator must take care in the engagement and disengagement of the clutch, engine RPM should always be below 1000 RPM. When the engine has sufficiently warmed up, bump the clutch handle against engagement to start the cutterhead turning. This will have to be repeated until the cutterhead is turning at proper ratio with engine RPM. Then push the handle all the way in gear until it locks into position securely. After engagement raise engine RPM to full throttle. Engaging and disengaging the clutch at high engine RPM will quickly and excessively wear out clutch plates as well as bearings. Refer to clutch manufacturer's manual for proper service and operation.

⚠ DANGER

Avoid moving parts. Keep hands, feet, and clothing away from power driven parts. Keep all guards and shields in place and properly secured.

⚠ DANGER

NEVER sit, stand, lay, climb or ride anywhere on this machine while it is running, operating, or in transit. You will be injured.

CALIFORNIA

Proposition 65 Warning

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

SAFETY PROCEDURES

⚠ WARNING

It is very important after you have operated a new machine for approximately an hour to shut down the machine and recheck all nuts and bolts. It is normal for nuts and bolts to loosen once on a new piece of machinery. If you tighten them now, there is a good possibility they won't loosen again. Certain nuts and bolts must be checked periodically such as cutterbody and cutter teeth nuts and bolts, etc. for torque and fit.

Most of the nuts used on the Smoracy Recycler are self locking. After a nut or bolt has been removed five times, it should be replaced to insure proper tightness. This is especially critical on the cutterbody and cutter tooth nuts and bolts!

After the engine is started, let the cutterhead turn at the lowest RPM's possible. Listen for any type of noise that is foreign. Any steel on steel noise is foreign. If you hear a noise, stop the engine, find the problem and fix it.

⚠ WARNING

It is very important after you have operated a new machine for approximately an hour to shut down the machine and recheck all hydraulic fittings. Retighten as needed.

DO NOT GO NEAR HYDRAULIC LEAKS! High pressure oil easily punctures skin causing serious injury, gangrene, or death. Avoid burns from fluid. Hot fluid under pressure can cause severe burns. DO NOT use fingers or skin to check for leaks. Lower load or relieve hydraulic pressure before loosening fittings. Relieve all pressure in the system before disconnecting the lines, hoses, or performing other work. Use a piece of cardboard to find leaks. Never use your bare hands. Allow system to cool down to ambient temperature before opening any coolant or hydraulic oil system.

In cold weather situations let your hydraulic system idle for approximately 15 minutes to allow the system to warm up to operating temperature.

⚠ WARNING

DO NOT operate this machine unless all hydraulic control devices operate properly. They must function, shift and position smoothly and accurately at all times. Faulty controls can cause personal injury!

⚠ DANGER

DO NOT run or operate this machine with any door/compartment open. Door enclosures are guards, you can be injured if open during operation.

⚠ WARNING

DO NOT open the belt shield door unless engine and all machine parts have completely stopped moving. Open this door only to check for proper drive belt tension. DO NOT start or operate this machine unless door is securely in place.

⚠ WARNING

The machine was built with a cutterhead hood engine disable plug which disables the engine if it is not installed properly with the cutterhead hood in the closed position. Correctly installed and maintained, the engine will not start or it will shut off if the cutterhead hood engine disable plug is disconnected. The cutterhead hood must NEVER be open or opened during operation.

⚠ WARNING

Never use jumper cables during freezing temperatures. Tow the machine inside and allow the battery time to warm up. If the machine must be started outside, inspect the battery acid for ice formation. Explosion will occur with a frozen battery. If the machine is going to be operated in excessively cold conditions, a larger cold cranking amp battery may be needed to insure proper and prompt starting. Never use jumper cables in a confined or unventilated area. Battery acid fumes are explosive. Battery acid can cause severe burns. Never expose an open flame or spark near the battery. Keep all burning materials away from the battery. When servicing the battery, shield eyes and face, and do not smoke. Service in a well ventilated area.

⚠ DANGER

The knives must be securely fastened and torqued in position. If one comes loose or breaks during operation, someone or something may get injured.

⚠ DANGER

Beast knives are sharp and can be dangerous. It is always necessary for your protection to be extra careful and wear leather gloves when handling knives.

⚠ DANGER

Inspect raw materials pile for prohibited materials. The following are examples of prohibited materials to be avoided. Material and products containing toxic substances, explosive or flammable materials including chemicals, liquids, gases, pressurized containers etc., tires, glass, heavy rigid plastic, sheet metal, masonry, stone materials, and solid metals.

SAFETY PROCEDURES

NOTICE

Do not attempt to start the engine or engage the engine PTO (power-take-off) system on this machine if the cutterhead is jammed or frozen in place. If you do, you will damage or ruin the drive belts and/or the PTO which will not be covered under warranty and will cost you down time and money.

⚠ DANGER

DO NOT hand feed this machine! This machine is designed to only be fed by a mechanical log loader. Feeding material into this machine by hand is not permitted or authorized. Severe injury or death can result!

⚠ DANGER

Always block the tires and the machine tongue whenever the machine is unhooked for operation. DO NOT rely on the hydraulic stabilizers. With the bouncing and rocking, the stabilizer cylinders may have a tendency to leak off allowing the machine to drop slowly down. Do not depend on them for stability. Install secure blocking as needed.

⚠ DANGER

Keep the machine in good condition. Be sure the machine is in good operating condition and that all safety devices, including guards and shields are installed and functioning properly. Visually inspect the machine daily before starting the machine. Refer to the “Daily Start Up & Maintenance”. Make no modifications to your equipment unless specifically recommended or requested by Smoracy, LLC.

NOTICE

Tongue jacks or optional rear stabilizers, whether hydraulic or manually operated are designed to stabilize the machine. The tongue jack or rear stabilizers are not designed to hold the machine off the ground at any time. Install secure blocking and / or chocking as needed. Before transporting the machine, insure the tongue jack and rear stabilizers are fully retracted and secured to the transport position.

⚠ WARNING

Before transporting the machine: 1) Clean out any existing material on the machine by allowing the machine to operate for several minutes without further loading. 2) Idle engine and disengage clutch. 3) Make sure that the feedwheel is in the lowered position. 4) Make sure all manual hydraulic control valves are in the off position. 5) Switch engine off and remove ignition key. 6) Lock radiator debris screen in transport position, if equipped. 7) Stow remote cable controls inside hydraulic compartment. 8) Lock compartment doors. 9) Clean off all debris and potential fire hazards from the machine. Along with these procedures make sure to follow all of the transportation procedures on pages 32 - 34. Make sure that the tongue has been raised to the proper height and attach the machine securely to the towing vehicle. Once secured to vehicle, locate stabilizer leg and secure it in the transport position. Always hook safety chains to vehicle by crossing them under the tongue allowing enough slack to avoid binding or dragging the ground when making turns. Check brakes and highway lights make sure that they are all operating properly. Check that the plug terminal functions match the towing vehicle for proper operation. Make sure that the discharge conveyor is in the transport position. Be sure to check tire pressure before you begin to transport the machine. If machine is equipped with a vise, make sure to secure in place and clamp jaws closed. Close and secure any of the following, if equipped: tool box, battery box, engine cowl doors and side panels, radiator debris screens, inspection doors, cabinet doors, housing covers, tank caps and covers, etc.

⚠ WARNING

Check laws and regulations. Know and obey all federal, state, and local laws and regulations that apply to your work situation and the transportation of a machine this size.

SAFETY PROCEDURES

⚠ WARNING

Check for fires, clean off debris, switch off battery. Do not leave this machine unattended until all potential fire debris is removed, no fire or smoldering exists and battery is switched off. The diesel engine creates many hot spots, including exhaust manifold and turbo. Remove all flammable debris (wood, mulch, oils, fuels, etc.) from: engine turbo and exhaust, beside and around engine, under engine and tanks, inside belt shield, inside control cabinets, anywhere materials collect. Do not leave this machine unattended until all fire hazards are removed, hot spots are cold and battery is disconnected. Always keep several fire extinguishers on the job at all times. Smoracy, LLC is not responsible for fires caused by fire hazards left to smolder and burn, or improper shutdown procedures.

⚠ WARNING FIRE HAZARD

If standard or available the self activating fire extinguishers located in various places will not stop your machine from burning. They are there to help put out a fire that may start. If a fire gets going after you have left the machine, they will be ineffective. You must clean the debris away from the engine and other hot areas before leaving the machine! It is your responsibility to properly maintain and test the extinguishers as instructed by the directions that come with the fire extinguisher. If you do not have that information contact Smoracy, LLC.

SAFETY PROCEDURES

IF MACHINE IS EQUIPPED WITH A SELF PROPELLED UNDERCARRIAGE

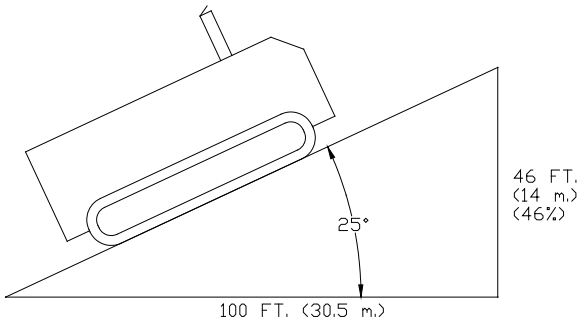
Machines equipped with undercarriage tracks are shipped with a manual from the track manufacturer. Refer to it for service, operation, and safety information.

⚠ WARNING

Do not attempt to operate the machine on an ascending or descending slope of more than 25° or 46% or a side slope of more than 17° or 30%, it is Dangerous and could be Fatal. This is the maximum slope grade the machine can be operated on if the hydraulics, self propelled undercarriage, and engine are running at maximum performance and good traction is sustained.

Maximum Slope Grade

Ascending or Descending Slope



Side Slope

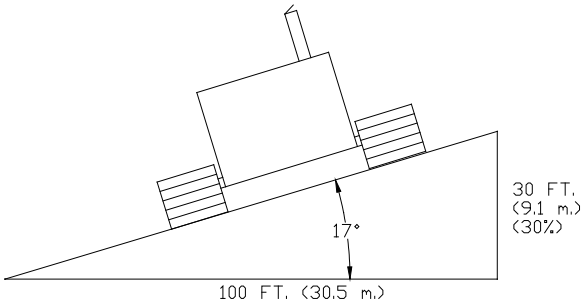


Diagram shows percentage to degree of slope.
Percentage is in vertical feet for every 100 horizontal feet.

⚠ WARNING

Any increase from the specified maximum operating angles may cause loss of lubrication function and damage the engine.

⚠ DANGER

The machine should never be parked on a slope at any time. The machine can coast or creep causing equipment and/or personal injury.

⚠ DANGER

Make sure everyone is clear of machine before moving the machine. Stay clear of undercarriage travel system when the machine is moving.

⚠ DANGER

DO NOT entangle feet or hands in undercarriage travel system.

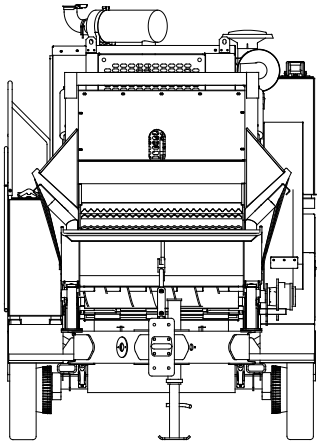
⚠ DANGER

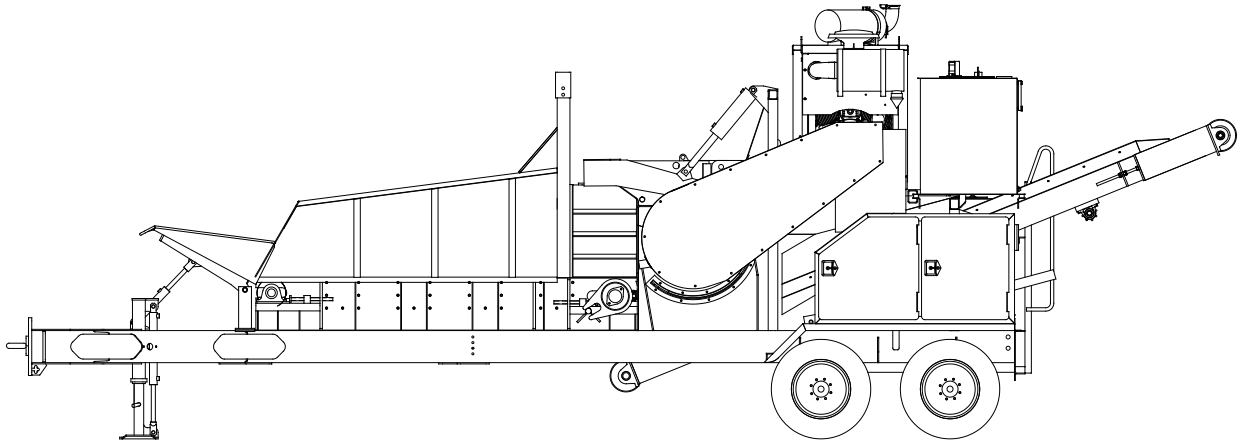
Use **EXTREME CAUTION** when traveling over non-level surface! This machine can tip over or tip backwards on non-level surface. You will cause engine damage, machine damage and possible personal injury!

⚠ DANGER

NEVER sit, stand, lay, climb or ride anywhere on this machine while it is running, operating, or in transit. You will be injured.

EQUIPMENT SPECIFICATIONS





Approximate Dimensions & Weights

(Dimensions & weights will vary depending on optional equipment)

Approx. Weight:	Model 1680:	26,000 lbs. (11,790 kg)
	Model 1680 Track:	32,500 lbs. (14,740 kg)

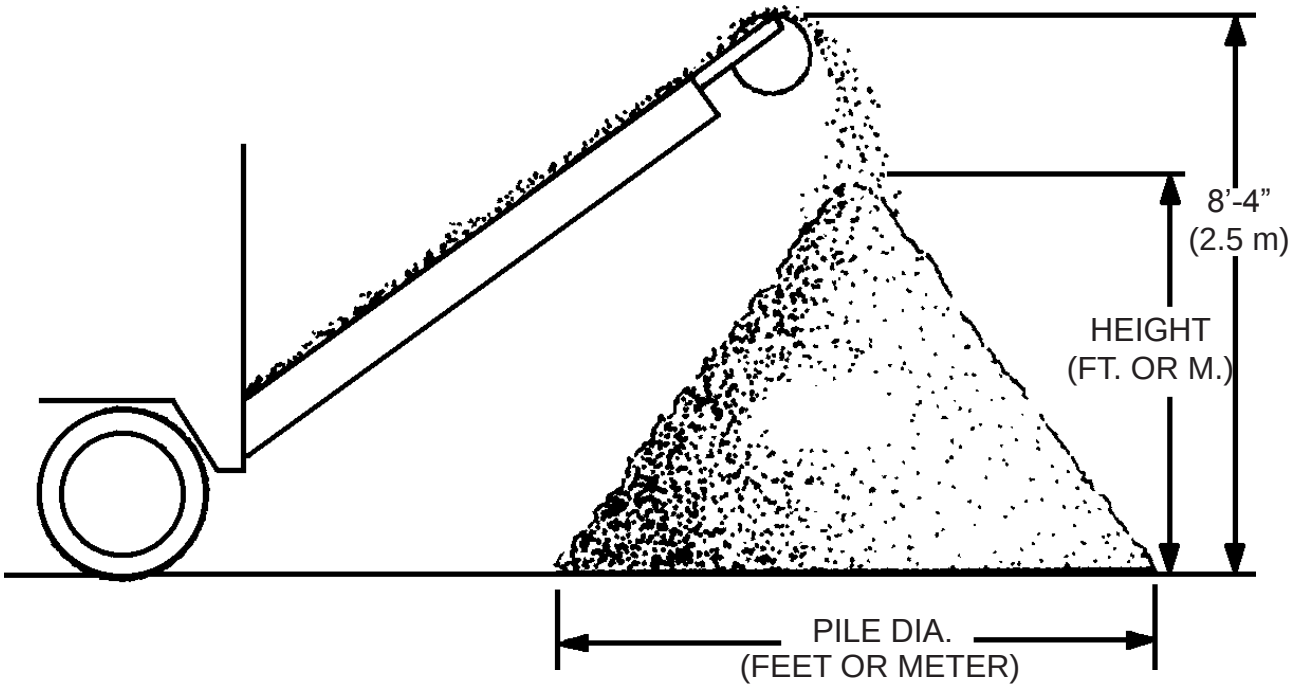
(Approximate weights depending on engine and equipment options.)

Overall Dimension:	Model 1680:	Height:	12’ (3.7 m),	Length:	32’ (9.8 m),	Width:	8’ (2.4 m)
	Model 1680 Track:	Height:	12’ 4” (3.8 m),	Length:	27’ (8.2 m),	Width:	8’ 2” (2.5 m)

	Model 1680	Model 1680 Track
Fuel Tank Capacity:	50 Gallons (189 Liters)	50 Gallons (189 Liters)
Hydraulic Tank Capacity:	60 Gallons (227 Liters)	60 Gallons (227 Liters)

(Approximate dimension depending on equipment options.)

VOLUME OF A CONE

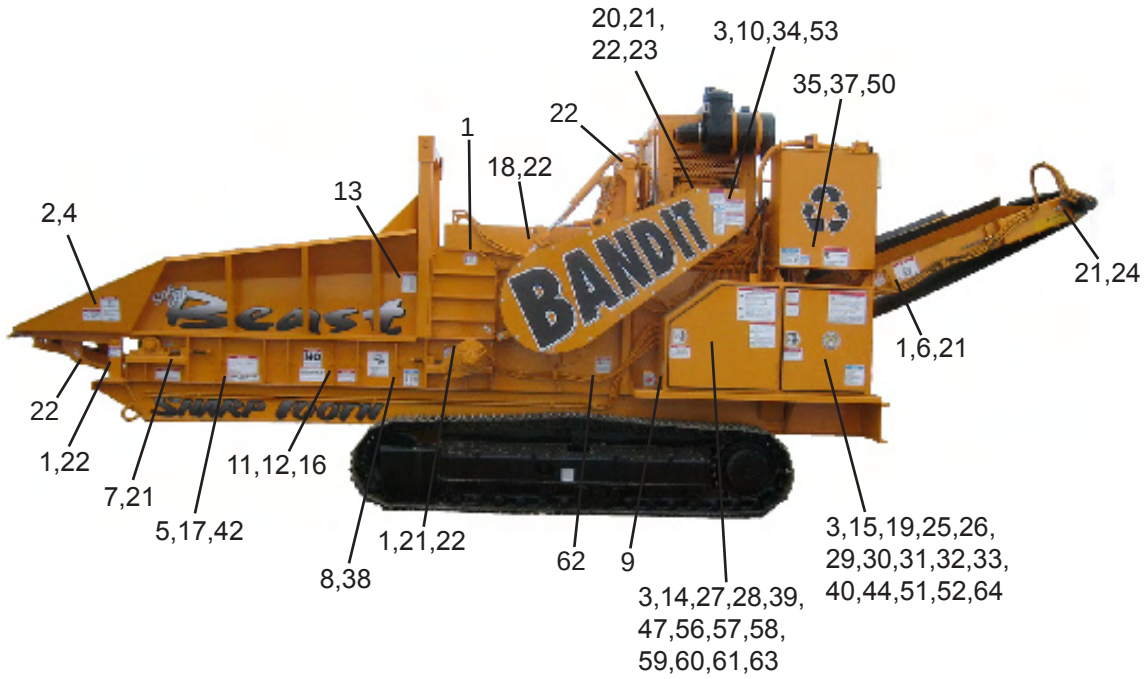


APPROX. VOLUME OF PILE = $\frac{\text{DIA. (FEET)} \times \text{DIA. (FEET)} \times \text{HEIGHT (FEET)}}{100}$
IN CUBIC YARDS

APPROX. VOLUME OF PILE = DIA. (METER) x DIA. (METER) x HEIGHT (METER) x .26
IN CUBIC METERS

DECAL LOCATIONS

Decal locations may vary, these are general locations.



DECAL LOCATIONS

Modifications and/or additions of decals to this list will happen.
Consult machine dealer or manufacturer for most current decal package.

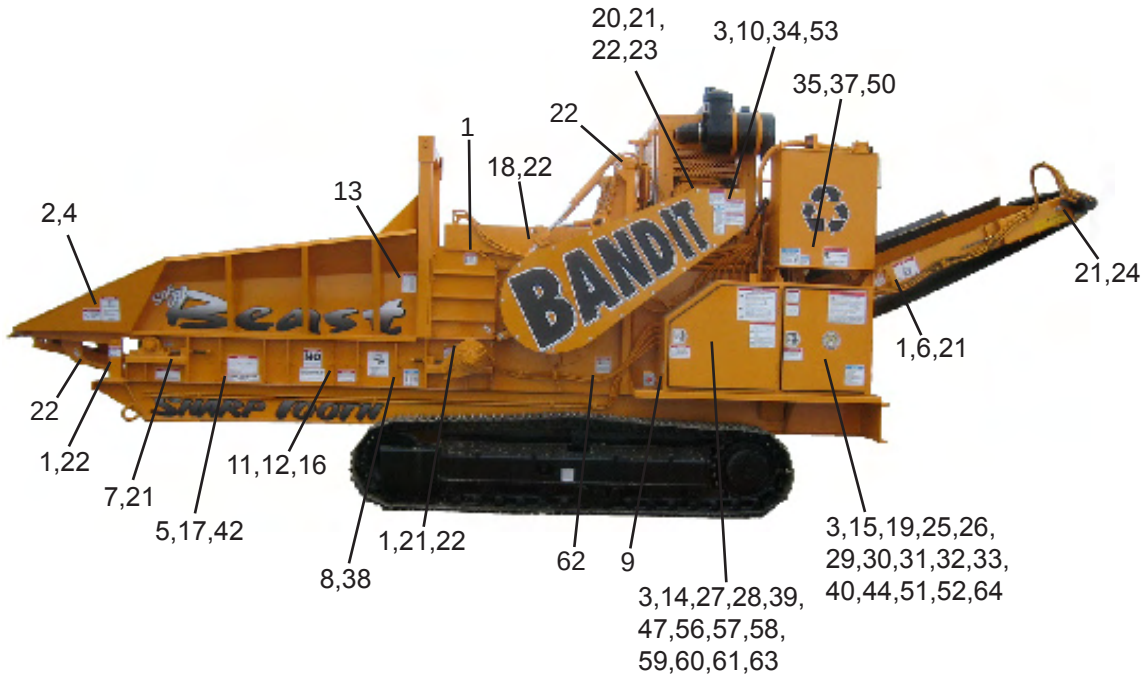
LOCATION	NUMBER	DESCRIPTION
1.	SPD-02	Moving Parts Keep Hands...
2.	SPD-16	Do Not Hand Feed...
3.	SPD-17	Do Not Run Or Operate...With Door/Compartment Open...
4.	SPD-20	Flying Objects Stand Clear...
5.	SPD-23	Restricted Area...Within Envelope...
6.	SPD-24	Falling Objects - Stand Clear
7.	SPD-25	Stand Clear - Moving Conveyor
8.	SPD-26S	Do Not Work Under Feed Wheel...
9.	SPD-27	Hydraulic Shut Down Switch
10.	SPD-28	Do Not Insert Fingers...
11.	SPD-29	NO Do Not Climb Or Reach Into Infeed Conveyor...
12.	SPD-30	Do Not Sit, Stand, Lay, Climb...
13.	SPD-31	Never Work Under Top Feed Wheel/Yoke...
14.	SPD-32	Do Not operate this Machine...
15.	ID-42	Bandit Industries, Inc...USA
16.	ID-43	Distributed By Bandit Industries, Inc....
17.	ID-66	1680 Recycler
18.	INST-02	Yoke Lock Hole
19.	INST-03	Yoke Lock Bar
20.	INST-04	Arrow
21.	INST-12	Grease Daily
22.	INST-16	Grease Weekly
23.	INST-39	Oil Daily
24.	INST-40	Avoid Feed Coupler Problems...
25.	INST-44	Proposition 65
26.	INST-45	For Parts And Service...
27.	INST-47	Trouble Shooting Machine Problems
28.	INST-51	Fire Warning...Self Activating Fire Extinguishers...
29.	INST-53	Hydraulic Oil...Hydrex XV...
30.	INST-92	Air Brake Release
31.	INST-101	Canada Engine Decal
32.	INST-147	Remote Starting Procedures

NOTICE

Some decals are for optional equipment. Decal locations may vary, these are general locations.
If any decals become damaged, replace immediately.

DECAL LOCATIONS

Decal locations may vary, these are general locations.



DECAL LOCATIONS

Modifications and/or additions of decals to this list will happen.
Consult machine dealer or manufacturer for most current decal package.

LOCATION	NUMBER	DESCRIPTION
33.	N-02	Maintain Lubrication...
34.	N-03	Service Required Under Beltshield...
35.	N-05	Frequently Adjust...PTO...
36.	SPN-06	Decal Maintenance..
37.	N-07	Clutch Operation...
38.	N-08	Patents...
39.	N-09	...Adjustable Hydraulic Feed Speed Control...
40.	SPN-14	Do Not Start To Weld...Unless...
41.	SPN-17	Battery Disconnect Switch Off (Arrow) On
42.	SPN-20	Maximum Towing Speed 55 MPH (88 KPH)
43.	N-30	Must Wait 45 Seconds Before Turning Off Battery...
44.	N-33	Engine Oil Lubrication...Break-In...Check Daily...
45.	SPN-36	12 Volt Circuit
46.	SPN-37	Hood Hydraulic Power Unit Off (Arrow) On
47.	SPW-01	Do Not Go Near Oil Leaks...
48.	SPW-02	Diesel Fuel Only...
49.	SPW-04	Frozen Battery Will Explode...
50.	SPW-08	Wear Eye & Personal Protection...
51.	SPW-11	Do Not Leave Unit Parked On A Slope...
52.	SPW-13	Check For Fires, Clean Off Debris, Switch Off Battery...
53.	SPW-15	Do Not Open This Door...Belt Tension...
54.	---	Basic Safety Decal Kit (Options may require additional decals)
55.	---	Beast Model 1680 Logo Decal Kit
56.	INL-501	Feedwheel - Inlaid Plaque
57.	INL-502	Infeed - Inlaid Plaque
58.	INL-503	Yoke - Inlaid Plaque
59.	INL-504	Discharge - Inlaid Plaque
60.	INL-505	Stabilizer - Inlaid Plaque
61.	INL-515	Brush Assist - Inlaid Plaque

Additional Decals for Machine Equipped With A Track Undercarriage - Consult dealer or manufacturer for general locations.

62.	SPD-19	...Minimum 10 Feet Away From Tracks...
63.	SPW-06	Do Not Attempt...Slope Of More Than...
64.	SPW-07	Do Not Move Machine...Horn Is Blown...
65.	---	Beast Track Logo Decal Kit

NOTICE

Some decals are for optional equipment. Decal locations may vary, these are general locations.
If any decals become damaged, replace immediately.

DECALS

Decals located on your Smoracy equipment contain useful information to assist you in operating your equipment safely. Some of the decals on your machine and their location are shown in this section.

It is very important that all decals remain in place and in good condition on your machine. Please follow the care and instructions given below:

1) You should use soap and water to keep your decals clean. Never use mineral spirits or any other abrasive cleaners.
2) Replace immediately any missing or damaged decals. The location the decal is going to be applied to must be clean and dry, and at least 40°F (5°C) before applying decal.
3) When the need arises to replace a machine component with a decal attached, be sure and replace the decal.
4) Replacement decals are available, and can be purchased from the manufacturer or your Smoracy Dealer.
5) Combination English / Spanish decals are typically standard. Other foreign language decals are available and may be purchased. Mail translated decals required to Smoracy, LLC.

EXAMPLES:

AUTOFEED SYSTEM

Consult the original manufacturer's manual for your grinders
Autofeed operating and maintenance procedures

When processing material through the grinder, the feed system will automatically stop when the engine drops below a preset RPM point. The engine is constantly being monitored by an adjustable electronic speed switch. The switch can be adjusted so that at a given RPM, an electronic relay system will operate the hydraulic solenoid valves to stop the feedwheel and infeed conveyor until the engine has recovered speed. The patented "Autofeed Plus" system will reverse the feedwheel and infeed conveyor for a set period of time and then stop until the engine has recovered speed. The autofeed system will then automatically turn the feed on to resume forward travel.

Due to required components and equipment options a machine may have various types or brands of autofeed systems. Each grinder is shipped with the original manufacturer's manual for the autofeed system it is equipped with.

For the approximate autofeed settings on all systems refer to page 22, refer to the check sheet of the grinder, or contact your local dealer or Bandit Industries.

Do not power wash the digital tach hour meters. Pressure causes unwarranted damage. **Do not spray tach, this will void warranty.**

PART NUMBERS FOR AUTOFEED DIGITAL TACH HOUR METERS

L.O.R. MFG.
Part Number: 900-2906-82

For Service Call
1-866-644-8622

AUTOFEED TERMINOLOGY

PPR Pulses per revolution. On magnetic pick-up machines, this setting will be the number of teeth on the gear or sprocket it is reading. On alternator pick-up machines, the setting will need to be obtained from your local dealer or Bandit Industries.

Mag Pick-up Magnetic pick-up, also called pick-up probe. This is normally located screwed into the flywheel housing on the engine block. It can also be found on the clutch housing or chipper shaft. See Figure 1.

Dual Coil Reverse Valve This will normally be located on the back of the feedwheel valve and infeed conveyor valve. The solenoid is approximately 1-1/2" (38 mm) x 2" (51 mm) x 4" (101 mm) long. It will have an electrical connector on the top of it. See Figure 2.

Solenoid Electronically activated to produce a magnetic pull which shifts the spool inside the hydraulic valve. Shifting of the spool changes oil flow direction from operating forward or dumping oil to tank.

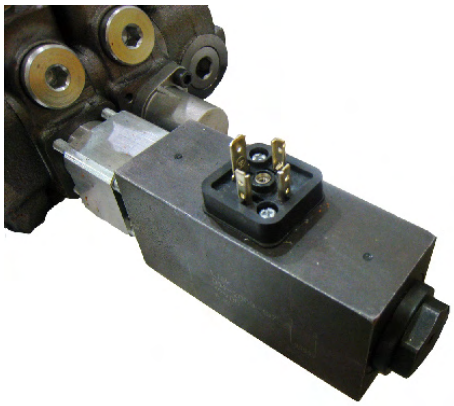
High High or HI is the setting when the feedwheel and infeed conveyor will turn back on (feeding operation).

Low Low or LO is the setting when the autofeed will reverse the feedwheel and infeed conveyor and then turn the feedwheel and infeed conveyor off.

Back Amount of time in seconds the feedwheel and infeed conveyor will back the wood away from the cutterhead. Normally this will be set at 1.0 seconds.

Figure 1

Figure 2



APPROXIMATE DIGITAL AUTOFEED SETTINGS (FOR ALL AUTO FEED SYSTEMS - REFERENCE ONLY)

NOTICE Refer to the Completion/Check Sheet, that is shipped with the machine for the correct engine rpm. If needed, contact your local dealer or Bandit Industries.

Some Current Engine Types	Maximum RPM	PPR Value	High Setting	Low Setting	Feed Reverse Time
Cat 3056E / Perkins 1106C - 180 Hp	2500	126	2300	2100	1.0
Cat C6.6L / Perkins 1106D - 213 Hp	2200	126	2000	1900	1.0
Cat C7 - 250 Hp	2100	154	1900	1700	1.0
Cummins QSB4.5 - 160 Hp	2500	138	2300	2100	1.0
Cummins QSB6.7 - 215, 250, 275 Hp	2500	138	2300	2100	1.0
John Deere 6068 - 173, 200 Hp	2400	129	2200	2000	1.0
John Deere 6068 - 250 Hp	2200	147	1900	1700	1.0
John Deere 6090 - 250, 275 Hp	2200	129	1900	1700	1.0

TROUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTION
No Display	-Gauge not getting power.	-Check continuity of Red wire to a clean power source. -Check 7.5 amp fuse. -Check connection at engine disable plug at hood pin. -Check key switch for switched power in and out.
	-Gauge not properly grounded.	-Check continuity of Black wire to ground connection.
	-Dead Battery.	-Charge or replace.
Feedwheel & Infeed Conveyor Do Not Stop (Autofeed Doesn't Activate)	-Loose grinder belts.	-Tighten or replace per manual specifications.
	-Clutch slipping.	-Adjust per clutch manufacturer's recommendations.
	-Faulty tach.	-Check autofeed tachometer settings.
	-Low or "LO" setting wrong.	-Check autofeed tachometer settings.
Feedwheel & Infeed Conveyor Do Not Re-engage	-Engine RPM not reaching HI set point on tach.	-Check HI RPM setting on gauge to make sure it is not set too close to full RPM of engine. HI setting should be 150 to 200 RPM below full engine RPM.
	-System pressure.	-Check and readjust per manual specifications.
	-Faulty tach.	-Consult local dealer or Bandit Industries.
No Signal	-Engine not running.	-Normal operating condition.
	-Bad signal wire.	-Check continuity on the signal wire (white wire in autofeed harness).
Gauge Jumped Program	-Shorts in wire harness.	-Check for possible worn wires or loose connections.
	-Faulty ground.	-Check black wire for a good ground.
	-Faulty tach.	-Consult local dealer or Bandit Industries.
Feedwheel & Infeed Conveyor Run In Reverse From Normal	-Backup time set wrong.	Reset backup time. Normal setting is 1.0 seconds.
	-Valve sticking.	-Check solenoid operation. -Override spool manually by sticking a small allen wrench in the end of the solenoid. -Replace solenoid.
	-Type settings programmed wrong.	-Reprogram or consult local dealer or Bandit Ind.

CONTROLS

STARTING THE RECYCLER

Follow the daily start-up and maintenance check list before starting the recycler. Before starting the engine make sure that the clutch is not engaged. Turn the battery disconnect switch to the on position. Make sure the hydraulic shut down switches are not depressed. Make sure the cutterhead hood engine disable plug is plugged together. Turn the ignition switch one stop to the ON position. This will turn on the electrical fuel pump and the rest of the electrical system. Then turn the ignition switch all the way to the right and hold until the engine starts. There will be a five second delay, during this time a beeping sound will be heard alerting anyone near the machine that it is starting. Also the temperature overheat light will cycle letting you know that it is working.

Some engines have a pressure override switch wired into their systems. In this case, depress the pressure override button and turn the ignition switch all the way to the right, now hold both until the engine starts. Once their is oil pressure the override button may be released.

REMOTE STARTING PROCEDURE

1) Follow the daily start-up and maintenance check list before starting the recycler.
2) Press radio / tether switch to radio on the control panel.
3) Press run / idle switch to idle on the control panel.
4) Insure switches and paddles are in neutral positions on the radio remote.
5) Insure the red e-stop button on the radio remote is depressed.
6) If it's a track machine, press the on switch on the radio remote.
   If it's a trailerized machine, press the feedwheel reverse switch on the radio remote.
7) The red e-stop light flashes quickly on the radio remote.
8) Twist and release the red e-stop button on the radio remote.
9) The yellow active light on the radio remote will flash.
10) The green link light on the control panel will flash.
11) Now the engine is ready to start.

CONTROL CABINET

Radio Remote Receiver

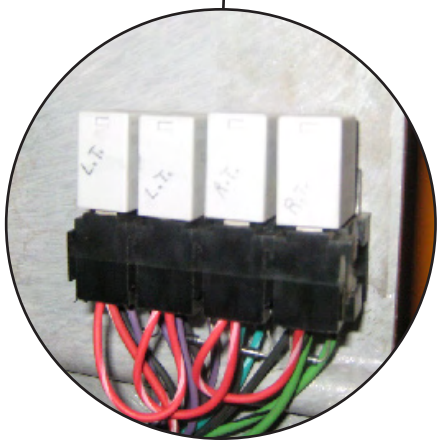
Autofeed Tach

GEM Gauge For Engine

Tether Control Harness

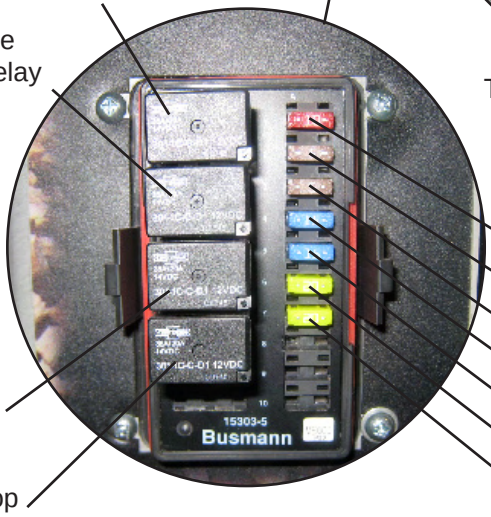
Relays / Fuses

Control Panel



Track Relays (If Equipped) (Inside Of Control Panel)

Connector For Tether Control (Outside Of Cabinet)



Throttle Up Relay

Throttle Down Relay

Yoke Up Relay

E-Stop Relay

Autofeed Fuse

GEM Gauge Fuse

Manual/Radio Switch Fuse

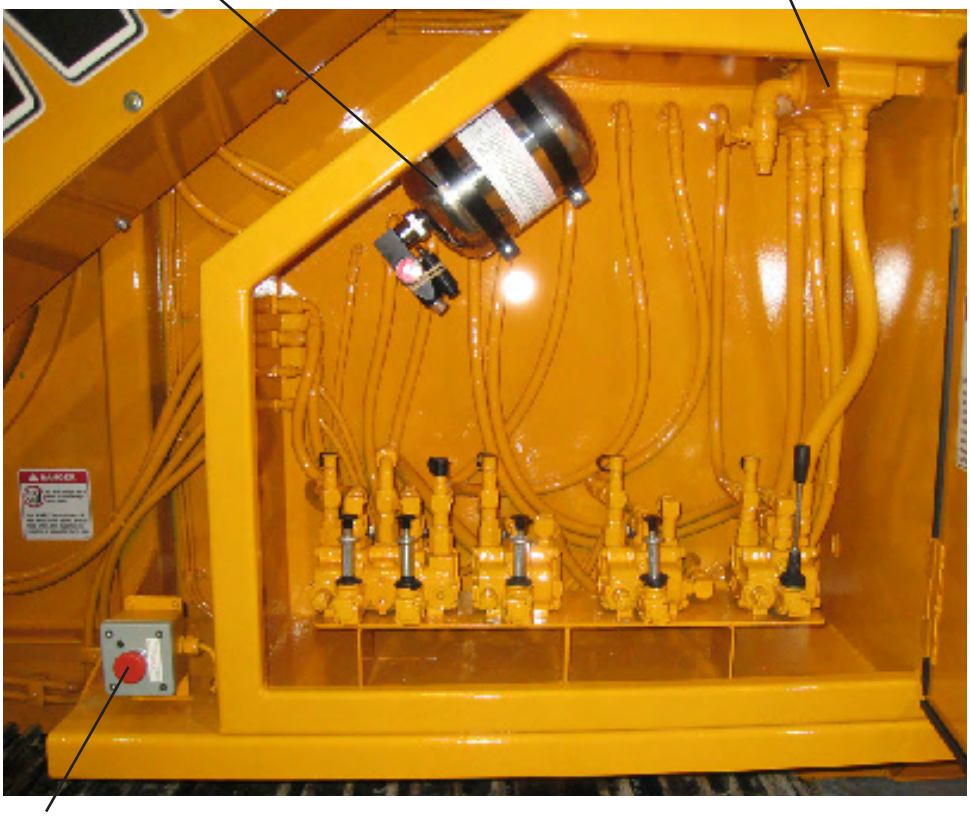
Track Drive Fuse

Radio Remote Fuse

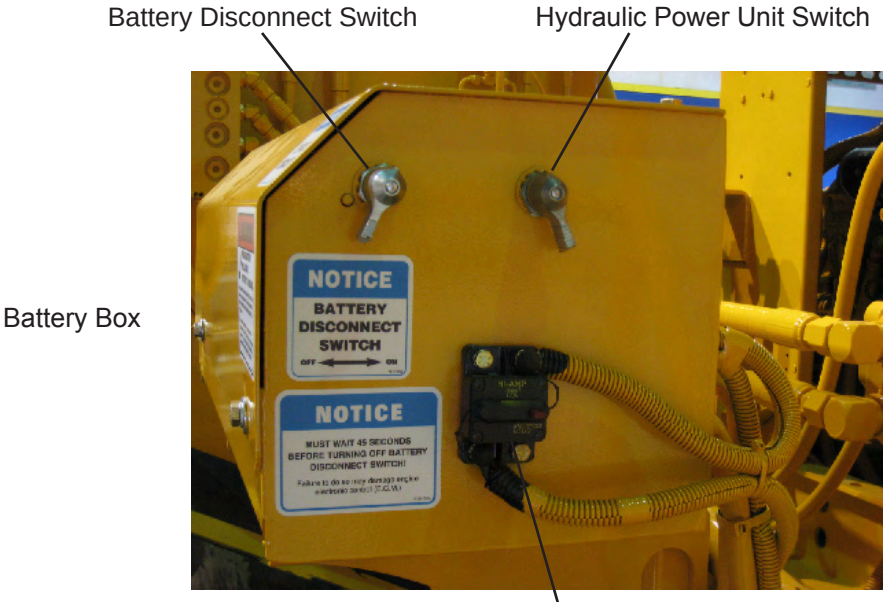
Work Light Fuse

E-Stop Fuse

HYDRAULIC CABINET



BATTERY BOX

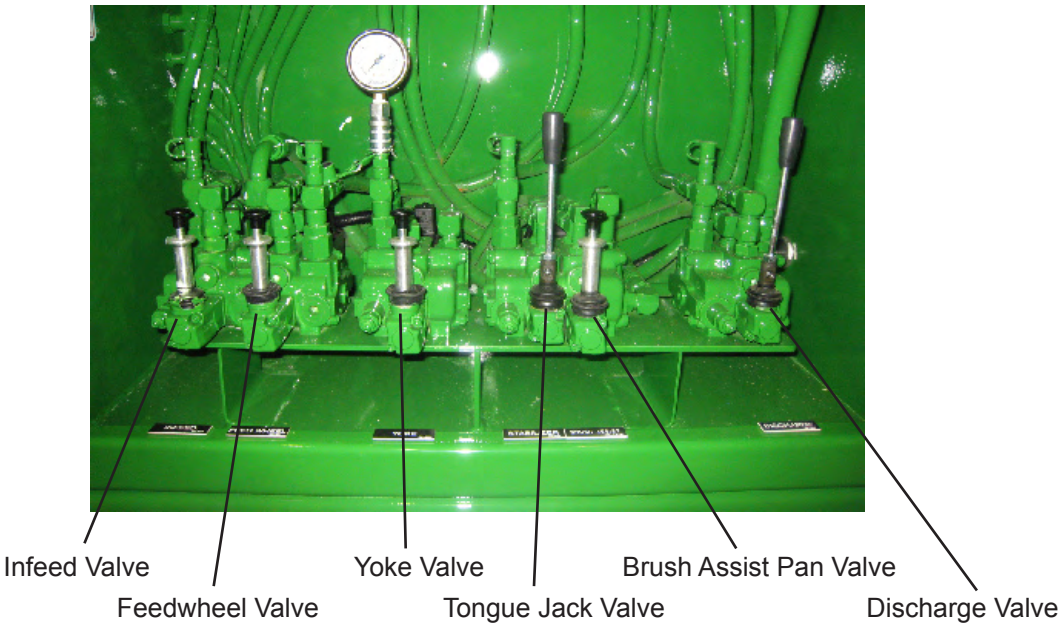


CURB SIDE OF MACHINE

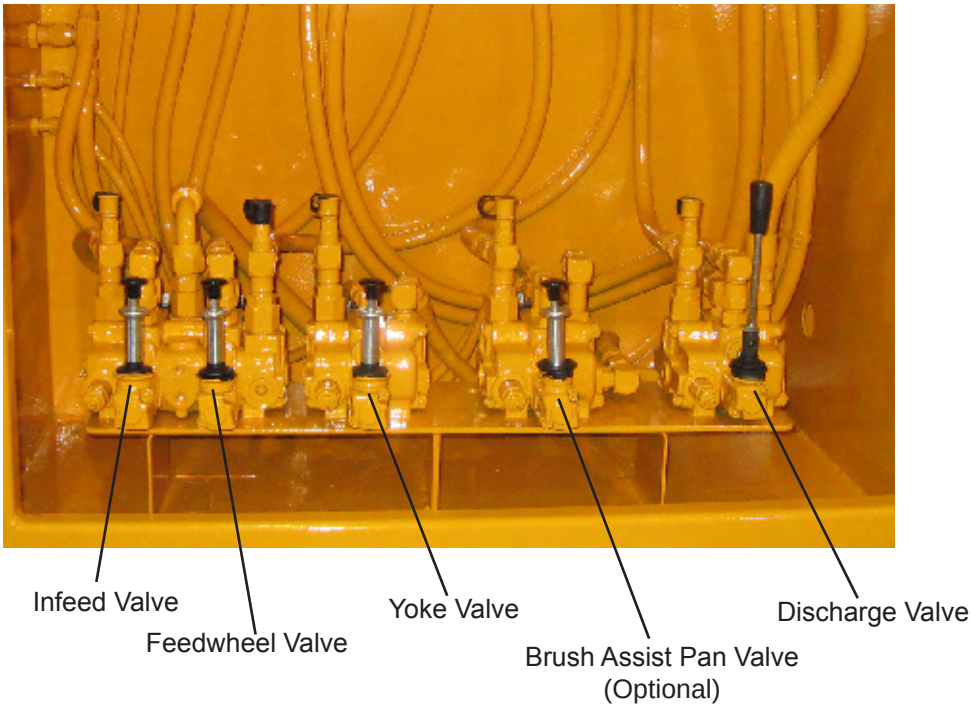
CURB SIDE OF MACHINE

Hydraulic Power Unit Tether Control

TRAILERIZED MACHINE HYDRAULIC CABINET



TRACK MACHINE HYDRAULIC CABINET



CONTROL OPERATING PROCEDURES

Infeed Control Valve:

The infeed control valve operates the infeed conveyor. To make the infeed conveyor operate so it is pulling material into the machine, push and hold the control handle away from the operator, towards the machine. To make the infeed conveyor operate so it is pushing material out of the machine, pull and hold the control handle towards the operator, away from the machine. The infeed control valve is off in the center position.

Feedwheel Control Valve:

The feedwheel control valve operates the feedwheel rotation. To make the feedwheel operate so it is pulling material into the machine, push and hold the control handle away from the operator, towards the machine. To make the feedwheel operate so it is pushing material out of the machine, pull and hold the control handle towards the operator, away from the machine. The feedwheel control valve is off in the center position.

Yoke Control Valve:

The yoke control valve operates the yoke cylinders. To lower the yoke, push the control handle away from the operator, towards the machine. To raise the yoke, pull the control handle towards the operator, away from the machine. The yoke control valve is off in the center position.

Tongue Jack Control Valve (trailerized machine only):

NOTE: Remove the lock pin BEFORE operating this function.

The tongue jack control valve operates the tongue jack cylinder. To raise the front of the machine, push the control handle away from the operator, towards the machine. To lower the front of the machine, pull the control handle towards the operator, away from the machine. The tongue jack control valve is the off position in the center position.

Brush Assist Pan Control Valve (optional on track machines):

Slowly raise the brush assist pan to feed longer material. The brush assist pan control valve operates the brush assist pan cylinder(s). To raise the brush assist pan, push the control handle away from the operator, towards the machine. To lower the brush assist pan, pull the control handle towards the operator, away from the machine. The brush assist pan control valve is off in the center position. The brush assist pan should be lowered all the way when transporting.

Discharge Control Valve:

The discharge control valve operates the discharge conveyor. To make the discharge conveyor operate so it is taking material away from the machine, push the control handle away from the operator, towards the machine. To make the discharge conveyor operate so it is bringing material to the machine, pull and hold the control handle towards the operator, away from the machine. The discharge control valve is off in the center position.

Hydraulic Shut Down Switch:

The hydraulic shut down switches will turn off all hydraulic operated functions, if one is depressed. There is a green light on each one to show that there is power at that switch and is not depressed. One switch is located on each side of the machine.

Cutterhead Hood Engine Disable Plug:

The cutterhead hood engine disable plug cuts off the power to the engine if the device is unplugged. The engine will roll over, but will not start if the cutterhead hood engine disable plug is unplugged.

Hydraulic Power Unit:

The hydraulic power unit operates a cylinder to lift the cutterhead hood. Before the hydraulic power unit can be used, the machine needs to shut down, clutch disengaged, key in your possession, battery disconnect switch turned to the off position, hydraulic power unit switch turned to on, unplug cutterhead engine disable plug, and plug the hydraulic power unit tether into the connector on the curb side of the machine.

TRAILERIZED MACHINE

Radio Remote Control

Tether Control

TRACK MACHINE

Radio Remote Control

Tether Control

CONTROL OPERATING PROCEDURES

Infeed Switch:

The infeed switch operates the infeed conveyor. To make the infeed conveyor operate so it is pulling material into the machine, push the switch away from the operator. To make the infeed conveyor operate so it is pushing material out of the machine, pull and hold the switch towards the operator. When the switch is let go from the reverse position, the infeed conveyor will stop. To stop the infeed conveyor, pull the switch towards the operator.

Feedwheel Switch:

The feedwheel switch operates the feedwheel rotation. To make the feedwheel operate so it is pulling material into the machine, push the switch away from the operator. To make the feedwheel operate so it is pushing material out of the machine, pull and hold the switch towards the operator. When the switch is let go from the reverse position, the feedwheel will stop. To stop the feedwheel, pull the switch towards the operator.

Yoke Up / All Feed Reverse Switch:

If the switch is pushed and held away from the operator, the yoke will raise. When the switch is let go, the yoke will fall down. If the switch is pulled and held towards the operator, the infeed conveyor and the feedwheel will operate so it is pushing material out of the machine. The infeed conveyor and feedwheel will resume to operating as they were before the switch was pulled when the switch is let go.

Brush Assist Pan Switch (optional on track machines):

Slowly raise the brush assist pan to feed longer material. The brush assist pan switch operates the brush assist pan cylinder(s). To raise the brush assist pan, push and hold the switch away from the operator until the pan closes as needed. To lower the brush assist pan, pull and hold the switch towards the operator until the pan opens as needed. The brush assist pan should be lowered all the way when transporting.

Engine Stop Switch:

The engine stop button cuts off the power to the engine if the button is pressed. The engine will roll over, but will not start if the engine stop switch is depressed.

High / Low Switch (track machines only):

If the switch is pushed away from the operator, the machine will be in high range for moving the from one job site to another. If the switch is pulled towards the operator, the machine will be in low range for positioning the machine, loading or unloading from a trailer, etc.

Throttle Switch:

To raise the engine rpm, push and hold the switch away from the operator until the desired rpm is reached. To lower the engine rpm, pull and hold the switch towards the operator until the desired rpm is reached.

Left Track Switch (track machines only):

To move the left track forward, push and hold the switch away from the operator. To reverse the left track, pull and hold the switch towards the operator. The track is off when the switch is in the center position.

Right Track Switch (track machines only):

To move the right track forward, push and hold the switch away from the operator. To reverse the right track, pull and hold the switch towards the operator. The track is off when the switch is in the center position.

Radio Remote Control Batteries:

The radio remote control for the trailerized machine requires 4 (four) AA batteries. The radio remote control for the track machine requires 4 (four) C batteries. If the batteries go dead in the radio remote controls, the engine will shut down.

TRANSPORTATION PROCEDURES

⚠ WARNING

BEFORE TRANSPORTING THE MACHINE THE FOLLOWING MUST BE COMPLETED.

1) Clean out any existing material in the recycler by allowing the machine to operate for several minutes with out any further loading.

2) Place the infeed conveyor control in the “off” or middle position.

3) Place the feedwheel control in the “off” or middle position.

4) Idle engine, disengage clutch, and wait for the cutterhead to come to a complete stop.

5) Pull pin on the clutch handle and fold up out of the way.

6) Raise the front of the machine or transport trailer with the tongue jack and remove the stabilization blocks used. Remove the lock pin before raising the front of the machine.

7) Couple machine or transport trailer to transport vehicle by lowering the machine onto the hitch. Make sure the hitch matches the coupling size. Then secure hitch and lock it.

8) Lift the foot pad of the tongue jack to the transport position and install the lock pin.

9) Place the hydraulic folding infeed pan in the open position.

10) Place all manual hydraulic controls in the “off” or middle position.

11) Turn off engine, wait for the cutterhead to come to a complete stop, and you must have the ignition key in your possession.

12) Turn the battery disconnect switch to the “off” position.

13) Disconnect and store the tether remote control or the radio remote control in the control cabinet.

14) Empty the collection bin (if equipped) at the back of the frame.

15) Remove all potential fire hazards. Remove hazards such as wood, fuel, oil, etc. The top of the engine, around the exhaust system and turbo are areas to be kept especially clean. Remove the engine cowl doors (if equipped) and clean beside and around the engine. Clean around and under the fuel tank and the hydraulic tank, inside the beltshield, inside the control cabinets, and anywhere else materials have collected. This must be done prior to starting the machine each day, must be done every time the machine is left attended during the day, and definitely must be done at the end of each day. Spend some time walking around the machine checking for any hot spots. Check the bearings on the cutterhead, infeed conveyor, and discharge conveyor to make sure they are not hot so they do not start a fire. It is your responsibility to prevent fires so keep the machine and the area around clean from debris.

16) Store all tools and make sure all boxes and cabinets are closed and secured.

17) Attach the safety chains by crossing them under hitch, make sure to allow the proper amount of slack in chains to avoid binding or dragging the ground when making turns.

TRANSPORTATION PROCEDURES cont.

18) Connect the brake lines (if equipped) and make sure the air tank drain valve is closed. Check brakes to make sure they are operating correctly.

19) Plug in the electrical connection and check running lights, turn signals, and brake lights. All must be operating properly before transporting the machine.

20) Check tires for correct pressure, cuts or damaged rims.

21) Check lug nuts and retorque if necessary. Check new units before operation, check again after 20-25 miles (32-40 km) and regularly check at least weekly.

22) Inspect and replace any axle dust caps that are damaged or leaking.

23) Check wheel bearings and grease or oil axles per axle manufacturer's manual.

24) Walk around the machine to confirm that everything is secure and that there is not anything loose that could fall off during transport. Look under machine to ensure nothing is dragging. Look down both sides of the machine for anything sticking out that may become damaged during transport.

25) Close and secure any of the following, if equipped: engine cowl doors and side panels, radiator debris screens, inspection doors, housing covers, tanks caps and covers, vise, etc.

26) Fold and secure the ladder(s) on the machine (if applicable).

27) If the machine is self propelled and on a transport trailer, make sure the trailer has the correct load capacity, the machine is positioned on the trailer for correct weight distribution, and the machine is securely bound down to the trailer bed per your States binding requirements. Make sure the loading ramps are securely stored for transport. (See Loading & Unloading Self-Propelled Machines.)

28) The machine is now ready for transport. Make sure to obey all local regulations and laws regarding the transporting of this type of machine.

29) Do not drive too fast for road conditions or exceed speed regulations for equipment towing. Machine must be hauled level and the towing vehicle must be sized to handle hitch weight, towing weight, and braking requirements.

LOADING & UNLOADING SELF-PROPELLED MACHINES

⚠ WARNING

BEFORE ATTEMPTING TO USE A TRAILER FOR TRANSPORT, MAKE SURE THE TRAILER TOWING VEHICLE IS APPROPRIATE FOR THE TASK.

1) The trailer has a cargo weight rating capacity for the weight of the machine. The combined weight of the trailer and the machine can not exceed the load capacity of the tires, axles, hitch coupler system or the GVWR (Gross Vehicle Weight Rating) of the trailer.
2) The trailer must have a lighting system and a braking system to match and perform correctly off the towing vehicle's system. You must meet the Federal and your States' Department of Transportation Code of Regulations concerning lights, brakes, and highway transit.
3) Make sure the towing vehicle has the hauling and hitch capacity ratings for the trailer and machine combination. The towing vehicle must be mechanically sound and capable of handling the towing job.
4) The trailer should be constructed with appropriate chain down positions for the specific sized machine. You must have binders that will withstand the strain of the machine trying to move while it is being transported.
5) When the machine is positioned on the trailer bed, there should be about 15% of the total trailer package weight on the tongue or hitch.
6) The loading ramps or loading gate of the trailer must be constructed to withstand the weight and forces involved in loading and unloading the machine.

⚠ WARNING

BEFORE LOADING OR UNLOADING THE MACHINE INSPECT AND CONFIRM THE FOLLOWING STEPS: When loading or unloading the self-propelled machine on the trailer, use care and caution. The maneuvering of the equipment must be slow, smooth, and intentional, not fast and jerky.

1) Make sure the trailer and towing vehicle are parked on a flat surface. They must be stable on the surface with the brakes locked and/or the wheels choked to avoid unwanted movement.
2) Position the loading ramps or loading gate securely between the trailer and the ground level. Have them located so that they are in line with the tires or tracks of the machine when it moves.
3) Remove and store the chains and binders used for transporting.
4) Confirm that there are not any obstacles on the trailer bed, around the trailer that may cause restricted movement of the machine or the operator.
5) The only person in the area should be the one that is operating the machine controls, and he/she should be very experienced with the controls on this machine.
6) If you are on streets, roads or public areas, position the warning cones etc, per your company's safety policy.
7) Follow all pre-startup instructions for the machine.
8) Typically, the engine end of the machine should be positioned so that it is toward the tongue of the trailer, during transport.
9) Align the machine with the trailer bed, and the loading ramps. The only equipment movement should be slowly, straight on or straight off the trailer.
10) With the engine and the machine at as low a speed as possible, move the machine toward the ramp system. Make sure the alignment is correct throughout the travel.
11) Properly secure the equipment and the area to avoid any possible accidents or dangers.

MAINTENANCE SECTION

Your recycler will give you many hours of production time with inexpensive repairs if you follow the proper maintenance instructions in this manual. A Daily Maintenance Check must be done each day prior to putting your Recycler to work. Maintenance shall be performed only by those authorized by the owner and trained to perform such operations. The authorized person shall notify the crew that maintenance is to be done and that the Recycler must be shut down and secured.

⚠ DANGER

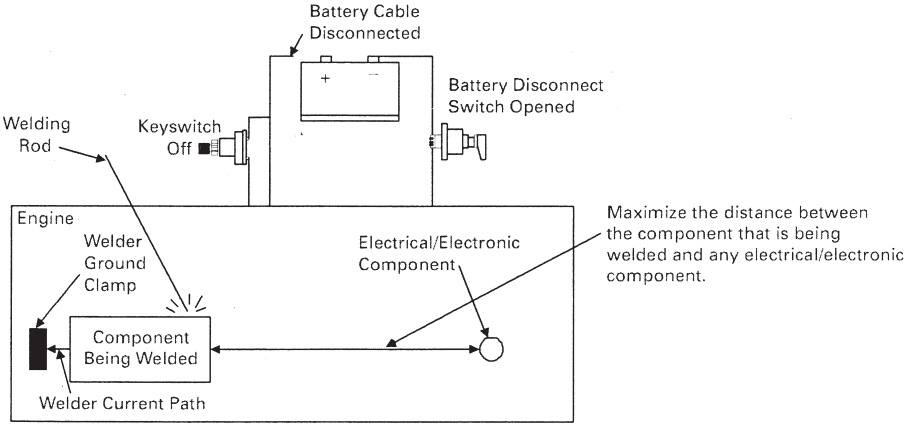
It is the responsibility of the owner or employer to provide education and training in job-site specific hazards associated with the job, work procedures and practices involved, special precautions and personal protective clothing and equipment requirements as applicable to employee job assignments. Before staring any maintenance on the recycler, any person involved MUST read and understand all safety precautions described in this manual. Failure to do this may cause serious injury and even death!

⚠ DANGER

DO NOT work on the Recycler if the engine is running. A clutch can self-engage if either the pilot or throw-out bearing happens to seize to the main output shaft. Make sure that you are wearing all of your personal protective equipment and you have the key to the Recycler in YOUR possession. It is your responsibility to ensure that the Recycler is isolated and will not operate before proceeding with any maintenance or repairs. When all safety procedures are in place you may start working on the machine.

⚠ WARNING

Any repairs that require welding or the use of a cutting torch should be done in the morning so that a smoldering fire will be caught during the day. You should always keep several fully charged fire extinguishers with the machine at all times. Before welding any place on the machine it is imperative that you follow the specific engine manufactures instructions for proper welding and grounding procedures. An electrical spike from the welder will damage the ECU (Electronic Control Unit), which is the computer that controls your engine or clutch and is very costly to replace. The ECU must be disconnected and the Battery Disconnect Switch turned off.



⚠ DANGER

Some maintenance requires that you work under the feedwheel while it is in the raised position. The feedwheel yoke assembly is equipped with two safety devices that must be put in place before work commences.

With the engine running, clutch disengaged, and the cutterhead completely stopped, raise the feedwheel yoke to its maximum height using the feedwheel yoke manual control valve. Install the yoke lock pins in the yoke lock holes or locate the hydraulic yoke lock valve and pull the lever. The yoke lock pins located on top of the cutterhead housing will extend or engage.

Now use the safety chain attached to the discharge belt conveyor rest / feedwheel lift cylinder mount and secure it to the lugs located on the feedwheel yoke. With the safety devices in place lower the feedwheel yoke until it contacts the yoke lock pins and the safety chain pulls tight. Disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, turn battery disconnect switch off, and make sure the ignition key is in your possession. For added safety it is a good practice to use an additional chain to help support the feedwheel yoke to the discharge belt conveyor rest / feedwheel lift cylinder mount. When all safety devices are in place you may start performing maintenance to the machine.

MAINTENANCE SECTION

The Beast Recycler is a very simple machine to maintain. If you will follow a regular scheduled preventative maintenance program you should have years of trouble free operation.

⚠ DANGER

Before attempting any type of maintenance disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, switch the battery disconnect to the off position, and make sure the ignition key is in your possession.

⚠ DANGER

Do not let anyone operate or maintain this machine until they have thoroughly read this manual, reviewed the equipment decals, watched the equipment video, and has been properly trained. You can purchase additional Smoracy, LLC manuals, decals and videos for a nominal fee.

NOTICE

Consult your engine manual for proper break-in procedures. Various engines require somewhat different procedures, but basically the engines need to operate at lower R.P.M.'s and loads for a specific time.

NOTICE

Failure to properly break-in your engine may result in poor bearing and piston ring surfaces.

NOTICE

The machine has only been run for a short time to test proper hydraulic pressures, possible leaks, etc. The fuel tank will be empty. Fuel is provided through a small auxiliary tank for testing. This immensely helps maintain safety in our manufacturing facility and while shipping.

NOTICE

Expensive damage to the machine will occur if proper preparation is not taken before welding on the machine. Be sure to disconnect both battery cables and the engine ECM (engine control module) before welding. Follow the specific Engine MFG. instructions for proper welding and grounding procedures, before attempting to weld on the machine. If welding on the machine, do not ground the welder through the machine bearings, ground near work to be performed.

DAILY START UP & MAINTENANCE

1) Check the safety decals and engine gauges:
Replace any missing or damaged decals and/or engine gauges.

2) Check all safety equipment:
Check for proper operation. Repair or replace as needed.

3) Check entire machine for loose bolts, nuts, parts, or components:
Check entire machine for any loose parts or components. Check for loose nuts or bolts. Torque, tighten, or replace any of the loose components. See page 42 for specific bolt torques.

4) Check all guards:
Check to make sure all guards are in place and installed correctly. Make sure they are secure.

5) Check for foreign objects:
Make sure the clutch is disengaged, the engine off, switch the battery disconnect to the off position, and also make sure the ignition key is in your possession. Switch the hydraulic power unit to the on position and lift the cutterhead hood. Put the safety chains in place and lower the cutterhead hood until the chains are tight. Look for any foreign objects on the infeed conveyor and in the cutterhead housing. Remove any foreign objects found.

6) Check the cutterhead assembly:
Check for elongated bolt holes, secure welds, torqued bolts, excessive wear and impact cracks. If a problem is found contact the grinder manufacturer or an authorized Bandit dealer. Also check the cutterhead housing at this time for wear or damage. Also inspect the cutterhead bearings.

DAILY START UP & MAINTENANCE cont.

7) Check the condition of the cutterbodies, cutter teeth, wiper inserts, and attaching hardware:
Check the condition of the cutterbodies, cutter teeth, and wiper inserts. Look for, find, and tighten any component that has loosened up, damaged, or missing. Replace if necessary.

8) Check cutterhead to turn:
Very carefully, manually with a pry bar or wood bar, turn the cutterhead a full revolution. This is to insure the cutter teeth have proper clearance. If the cutterhead is jammed with debris or frozen in place, DO NOT attempt to start the engine and engage clutch until the cutterhead rotates freely.

9) Check anvil clearance, tightness, and wear:
Measure the anvil clearance. The clearance should be 1/4" (6.4 mm) from a new tooth. Check the anvil hardware, make sure the bolts are at the proper tightness. Replace if necessary.

10) Check the screen:
Check for wear or damage. Repair or replace as necessary.

11) Grease all bearings daily:
Use an EP-2 Lithium type grease only for all bearings. Purge cutterhead bearings, feedwheel bearing, infeed conveyor bearings, and discharge bearings with grease. You can not over grease these bearings. The bearings are designed with a relief system that will not allow over greasing. In other words, you can not hurt the bearing seals by pumping in too much grease. Most of the failures related to bearings are diagnosed as "Contamination". Contamination is caused by improper lubrication. Wipe off excess grease. **Excessive grease will attract dirt.**

12) Check / adjust the cutterhead belt tension:
The belts will need to be tightened several times in the first few days of operation. A loose belt will slip and glaze over. Once they slip you must replace them. See pages 54 - 55 for procedures. Check the hydraulic pump drive belt tension also, if equipped.

13) Check hydraulic oil level:
The hydraulic oil reservoir tank level should always remain at 7/8 full. Remember to check DAILY to avoid excessive heat build up.

14) Check hydraulic shut-off valves:
Check to insure all shut-off valves are open.

15) Check for any fluid leaks:
Inspect for any oil, fuel, hydraulic oil, or engine coolant leaks. Check all hoses, fittings, lines, and tanks. DO NOT use fingers or skin to check for hydraulic leaks. Repair or replace any damaged or leaking components.

16) Check the fuel level:
Check the fuel level, running out and repriming is time consuming. Do not over fill, and you must leave fuel expansion space in the top of the tank.

17) Check engine oil and coolant levels:
Follow the engine manufacturer manual recommendations for fluid levels. You MUST follow specific ENGINE MFG. manual recommendations for radiator coolant, additives, lubrication, correct engine speed, ETC.

18) Check radiator, debris screen:
Thoroughly clean radiator fins at least once a day and twice in excessive condition. Make sure debris is not packed between fins. Use pressurized water spray to clean. Do not rely on air pressure. The radiator will only appear to be clean. A partially plugged radiator will not allow the engine to cool properly. Improper service, maintenance, or neglect will cause overheating problems and engine failure.

19) Fasten debris screen (if equipped):
If equipped, fasten debris screen in front of the radiator.

20) Check air cleaner or precleaner:
Clean or replace element following engine manual recommendations. Also, check and clean the vacuator valve.

21) Check clutch:
Check for proper lubrication, and engagement tension adjustment, frequently adjust and lubricate per PTO clutch manufacturer's manual. Smoracy, LLC does not warranty clutch failures.

22) Unfold clutch handle:
Unfold clutch handle from transport position and pin into place.

23) Check hydraulic control valves:
Inspect all hydraulic control valves and insure they operate smoothly and shift correctly.

DAILY START UP & MAINTENANCE (cont.)

24) Check the discharge direction:
Make sure the discharge is pointed in a safe direction.

25) Block the tires and tongue (if applicable):
Before operation block the tires and tongue for stability. Do not rely on tongue jack for operational stabilization.

26) Check tires (if applicable):
Check tires for wear, weather checking and damage. Replace if damaged.

27) Inspect axle dust caps (if applicable):
Inspect axle dust caps and replace if damaged or leaking.

28) Inspect, adjust, and lubricate tracks (if applicable):
Inspect, adjust, and lubricate tracks as needed per track MFG. manual.

29) Remove all potential fire hazards:
Remove hazards such as wood debris, mulch, oils, fuels, etc.

30) Check around machine:
Check around the entire machine for tools, cans, saws, etc. All tools not in use should be stored in a tool box.

31) Review all safety procedures on decals, from manual, and from video.

32) Make sure all safety equipment is being worn:
Make sure you are wearing all of your safety equipment: hard hat, face shield, gloves, eye protection, ear protection, etc. per ANSI and OSHA standards.

33) Turn battery disconnect switch on.

34) Make sure the throttle switch is in the idle position on the control panel.

35) Remember to check EVERYTHING on the checklist.

WEEKLY MAINTENANCE

1) Grease cylinder lug pin bushings:
Grease cylinder lug pin bushings on the yoke and brush assist pan with 1 to 2 shots of EP-2 Lithium type grease. Wipe off excessive grease. **Excessive grease will attract dirt.**

2) Grease infeed conveyor chain adjusters:
Grease infeed conveyor chain adjusters with 1 to 2 shots of EP-2 Lithium type grease. Wipe off excessive grease. **Excessive grease will attract dirt.**

3) Grease yoke pivot bushings:
Grease yoke pivot bushings with 1 to 2 shots of EP-2 Lithium type grease. Wipe off excessive grease. **Excessive grease will attract dirt.**

4) Lubricate all pivoting and hinged areas:
Lubricate all pivoting and hinged areas on the machine (i.e. cabinet doors, brush assist pan, etc.)

5) Check alternator and fan belts on engine:
As applicable adjust and maintain per the engine manufacturer's manual.

6) Check wheel lug nuts:
Keep lug nuts tight, retorque, replace if needed.

7) Check and retighten tank mount bolts:
Check and retighten the fuel tank and hydraulic tank mount bolts.

8) Check fluid level in pump bearing block(s) (if equipped):
Keep the fluid level in the pump bearing block(s) full, use an 80W/90 type gear lube

MONTHLY MAINTENANCE

1) Check towing hitch:
Check for excessive damage or wear. Replace if needed. Keep pintle ring greased to reduce wear.

2) Inspect discharge motor connection:
Check and maintain correct torque, on discharge motor connection. See page 46.

3) Check discharge conveyor belt:
Check the tracking and tightness of the discharge conveyor belt. Make sure the belt is running true. The belt should not be rubbing on the frame. It is better for the discharge belt to run loose. Damage to the discharge belt will occur if it's too tight. Adjust as needed.

4) Check infeed conveyor chain:
Check the tracking and tightness of the infeed conveyor chain. Make sure the chain is running true. The chain should be 1" (25.4 mm) above the frame. The infeed chain should be approximately 1/8" (3.2 mm) from the anvil. Adjust as needed.

5) Check bearings and sheaves:
Check, retighten all bearing bolts, bearing lock collars, and also sheave bushings to correct torques.

6) Check hydraulic pumps, motors, and gear boxes:
Check tightness and connections of all hydraulic pumps, hydraulic motors, and gear boxes. Tighten if needed.

7) Check hydraulic function pressures:
Check, reset and maintain all hydraulic function pressure settings to a maximum of the specified PSI (bar). This will give you the best performance from the hydraulic system.

8) Tire air pressure (if equipped):
Fill each tire to rated capacity on tire.

9) Check wheel bearings (if equipped):
Check and grease or oil wheel bearings per axle manufacturer's instructions.

10) Check and adjust brakes (if equipped):
Check and adjust brakes as needed per axle MFG. manual.

3 MONTH MAINTENANCE

1) Hydraulic oil filter(s):
Must be replaced after FIRST 10 HOURS OF OPERATION, USE A 10 MICRON FILTER. After first change replace oil filter every 3 months or 400 hours.

6 MONTH MAINTENANCE

1) Pump bearing block(s) (if equipped):
Pack the female splines of the bearing block(s) every 6 months or every 1000 hours with an EP-2 Lithium type grease. See page 47.

2) Feedwheel gear box:
Change gear lube after first 50 hours and 100 hours, then every 6 months or every 1000 hours afterwards. Requires 31 oz. (.92 L) of 80W/90 type gear lube, keep full.

3) Infeed conveyor gear box:
Change gear lube after first 50 hours and 100 hours, then every 6 months or every 1000 hours afterwards. Requires 22 oz. (.65L) of 80W/90 type gear lube, keep full.

YEARLY MAINTENANCE

1) Hydraulic oil:
Change hydraulic oil and flush the hydraulic reservoir tank.

2) Hydraulic suction screen(s):
Change hydraulic suction screen(s) yearly or every 2000 hours.

3) Hydraulic power unit:
Change hydraulic power unit fluid yearly or every 2000 hours. Requires ATF Dexron III / Mercon type transmission fluid.

DAILY START UP & MAINTENANCE CHECK LIST

Each day before starting your machine these checks must be made:

		O.K.	Repaired
1)	Check the safety decals and engine gauges, replace if damaged.	☐	☐
2)	Check, maintain, and service all safety equipment for proper operation.	☐	☐
3)	Check entire machine for loose nuts, bolts, and components.	☐	☐
4)	Check all guards to make sure they are tight and securely in place.	☐	☐
5)	Check and remove foreign objects on the infeed and in the cutterhead housing.	☐	☐
6)	Check the condition of the cutterhead assembly.	☐	☐
7)	Check condition of cutterbodies, cutter teeth, wiper inserts, and attaching hardware.	☐	☐
8)	Carefully rotate cutterhead with a pry bar or wood bar to insure proper anvil and screen clearance. If cutterhead is jammed with debris or frozen in place, do not attempt to start engine and engage clutch until cutterhead rotates freely.	☐	☐
9)	Check anvil clearance, tightness, and wear. Clearance of 1/4" (6.4mm) from new tooth.	☐	☐
10)	Check the screen for wear or damage.	☐	☐
11)	Grease (purge) cutterhead, feedwheel, infeed, and discharge bearings daily.	☐	☐
12)	Check and / or adjust cutterhead belt tension and alignment.	☐	☐
13)	Check and always maintain hydraulic oil level at 7/8 full.	☐	☐
14)	Check to insure all hydraulic shut-off valves are open.	☐	☐
15)	Check all hoses, fittings, lines, and tanks for damage and fluid leaks.	☐	☐
16)	Check fuel level. (Running out and repriming is time consuming).	☐	☐
17)	Check engine oil, coolant levels, and correct engine speed. Follow ENGINE MANUFACTURER'S manual specs. Engine Must Be Level To Check Fluids.	☐	☐
18)	Check radiator and debris screen. Clean as necessary. Clean cooling fan and shroud on air cooled engines.	☐	☐
19)	If equipped, fasten debris screen in front of the radiator.	☐	☐
20)	Check air cleaner, precleaner, and vacuator valve. Clean as necessary.	☐	☐
21)	Check clutch for proper engagement tension and lubrication, frequently adjust and grease per PTO manufacturer's manual recommendations.	☐	☐
22)	Unfold the clutch handle from the transport position and pin into place.	☐	☐
23)	Check hydraulic control valves and insure they operate and shift correctly.	☐	☐
24)	Check to make sure the discharge is pointed in a safe direction.	☐	☐
25)	Block tires and tongue for stability before operation. Do not rely on tongue jack.	☐	☐
26)	Check condition of tires (if equipped).	☐	☐
27)	Inspect and replace any axle dust cap that is damaged or leaking (if equipped).	☐	☐
28)	Inspect, adjust, lubricate tracks per manufacturer's manual recommendations (if equipped).	☐	☐
29)	Remove all potential fire hazards: wood debris, mulch, oils, fuels, etc.	☐	☐
30)	Check around the entire machine for any foreign objects, tools, cans, saws, etc.	☐	☐
31)	Review all safety procedures on decals, from manual, and from video.	☐	☐
32)	Wear all applicable safety equipment: hard hat, face shield, gloves, eye protection, ear protection, etc.	☐	☐
33)	Turn battery disconnect switch on.	☐	☐
34)	Make sure the throttle switch is in the idle position on the control panel.	☐	☐
35)	Remember to check EVERYTHING on the checklist.	☐	☐

WEEKLY CHECK LIST

		O.K.	Repaired
1)	Grease yoke and brush assist pan cylinder lug pin bushings with 1 to 2 shots.	☐	☐
2)	Grease infeed conveyor chain adjusters with 1 to 2 shots.	☐	☐
3)	Grease yoke pivot bushings with 1 to 2 shots.	☐	☐
4)	Lubricate all pivoting and hinged areas (i.e. cabinet doors, brush assist pan, etc.)	☐	☐
5)	Check alternator and fan belts on engine.	☐	☐
6)	Check and retighten wheel lug nuts.	☐	☐
7)	Check and retighten fuel tank and hydraulic tank mount bolts.	☐	☐
8)	Keep pump bearing block(s) full of gear lube (if equipped).	☐	☐

MONTHLY CHECK LIST

		O.K.	Repaired
1)	Check towing hitch for wear, keep pintle ring greased.	☐	☐
2)	Inspect discharge motor connection. Torque to 250 ft.-lbs. (339 Nm)	☐	☐
3)	Check discharge conveyor belt tightness and tracking.	☐	☐
4)	Check infeed conveyor chain tightness and tracking.	☐	☐
5)	Check and retighten bearing bolts, bearing lock collars, and sheave bushings.	☐	☐
6)	Check connections and tightness of hydraulic pumps, motors, and gear boxes.	☐	☐
7)	Check hydraulic pressure. Set to specified PSI (bar).	☐	☐
8)	Check and fill tires to rated pressures.	☐	☐
9)	Check and grease or oil wheel bearings, follow axle MFG. instructions (if equipped).	☐	☐
10)	Check and adjust brakes, follow axle MFG. instructions (if equipped).	☐	☐

3 MONTH CHECK LIST

		O.K.	Repaired
1)	Replace hydraulic oil filter after first 10 hours, then quarterly or every 400 hours.	☐	☐

6 MONTH CHECK LIST

		O.K.	Repaired
1)	Pack the female splines of the bearing block(s) with grease (if equipped).	☐	☐
2)	Change gear lube in feedwheel gear box after first 50 hours and 100 hours, then every 6 months or every 1000 hours afterwards.	☐	☐
3)	Change gear lube in infeed conveyor gear box after first 50 hours and 100 hours, then every 6 months or every 1000 hours afterwards.	☐	☐

YEARLY CHECK LIST

		O.K.	Repaired
1)	Change hydraulic oil and flush the hydraulic tank.	☐	☐
2)	Replace the hydraulic suction screen(s) annually or every 2000 hours.	☐	☐
3)	Change hydraulic power unit fluid.	☐	☐

MAINTENANCE SECTION

BOLT TORQUE CHART

(THESE TORQUES ARE BASED ON DRY, CLEAN THREADS)

DESCRIPTION	BOLT SIZE	TORQUE (FT.-LBS.)	TORQUE (Nm)
Cutterbody Holder Bolts	1” - 14 NS	700	949
Cutter Tooth Bolts	3/4” - 10 NC	376	510
Beast Knife Nuts	3/4” - 16 NF	420	569
Wiper Insert Bolts	5/8” - 11 NC	160	216
Cutterhead Bearing Bolts	3/4” - 10 NC	376	510
Cutterhead Shaft Bushing “4040”	5/8” - 11 NC	142	193
Anvil Bolts	3/4” - 10 NC	250	339
Infeed Conveyor Bearing Bolts	5/8” - 11 NC	160	217
Feedwheel Bearing Bolts	5/8” - 11 NC	160	217
Discharge Conveyor Bearing Bolts	5/8” - 11 NC	160	217
Discharge Head Lee-Tite Coupler Clamp	5/8” - 18 NF	250	339
Screen Retainer Plate	1/2” - 13 NC	75	102
Engine Hold Downs	3/4” - 10 NC	250	339
Engine Sheave Bushing “F”	9/16” - 12 NC	75	102
Cutterhead Sheave Bushing “J”	5/8” - 11 NC	135	183
Solenoid Retainer Nut On Dump Valve & 2 Speed		4 - 6	5 - 8
Solenoid Retainer Nut On Control Valves		17.7	24
Hitch Mount Bolts	3/4” - 10 NC	376	510

Before tightening bolts be sure you have the correct size bolt for the correct amount of torque.
Use only factory approved knives and hardware.

BASIC WHEEL TORQUE REQUIREMENTS (per mfg.)

KEEP LUG NUTS PROPERLY TIGHTENED, CHECK NEW UNIT BEFORE OPERATION, CHECK AGAIN AFTER 20-25 MILES (32-40 km) AND REGULARLY CHECK AT LEAST WEEKLY.

5 & 6 Lug Hubs (1/2” - 20 Studs) .....90 - 120 ft.-lbs. Torque (122 - 163 Nm)
8 Lug Hubs (1/2” - 20 Studs) .....90 - 120 ft.-lbs. Torque (122 - 163 Nm)
8 Lug Hubs (9/16” - 18 Studs) .....110 - 120 ft.-lbs. Torque (149 - 163 Nm)
8 Lug Hubs (5/8” - 18 Studs) .....190 - 210 ft.-lbs. Torque (258 - 285 Nm) (Cone Nut)
8 Lug Hubs (5/8” - 18 Studs) .....275 - 325 ft.-lbs. Torque (373 - 441 Nm) (Flange Nut)
10 Lug Hubs (3/4” - 16 Studs) .....450 - 500 ft.-lbs. Torque (610 - 678 Nm)

(Consult axle manufacturers manual shipped with each machine for specific axle-stud-wheel combination lug nut torques.)

PAINT CARE

To help keep up the appearance of your Smoracy Equipment and reduce the possibility of surface rust follow these steps:

1) The machine should be washed on a regular basis with a non-abrasive mild detergent and then rinsed thoroughly. Do not pressure wash sensitive areas like: decals, gauges, electronic devices, autofeed control, etc.
2) If a stone chip, paint scratch, or paint crack occurs - it should be repaired immediately. Simply sand the edges of the damaged paint area, mask off the surrounding area and apply primer and paint to the dry, clean, and warm surface. This will help keep the damaged area from spreading or getting worse.
3) If you are unable to sand and mask the area, there are containers of primer and paint available. A small brush can be used to touch up the area.
4) Also, primer and most colors of paint are available in aerosol spray cans to simply spray over the effected area after it is cleaned, dry, and warmed. This method is not as reliable as the process in step #2.

It is also reported that some equipment owners polish their machine at least yearly, and keep good mud flaps on their towing trucks.

NOTICE

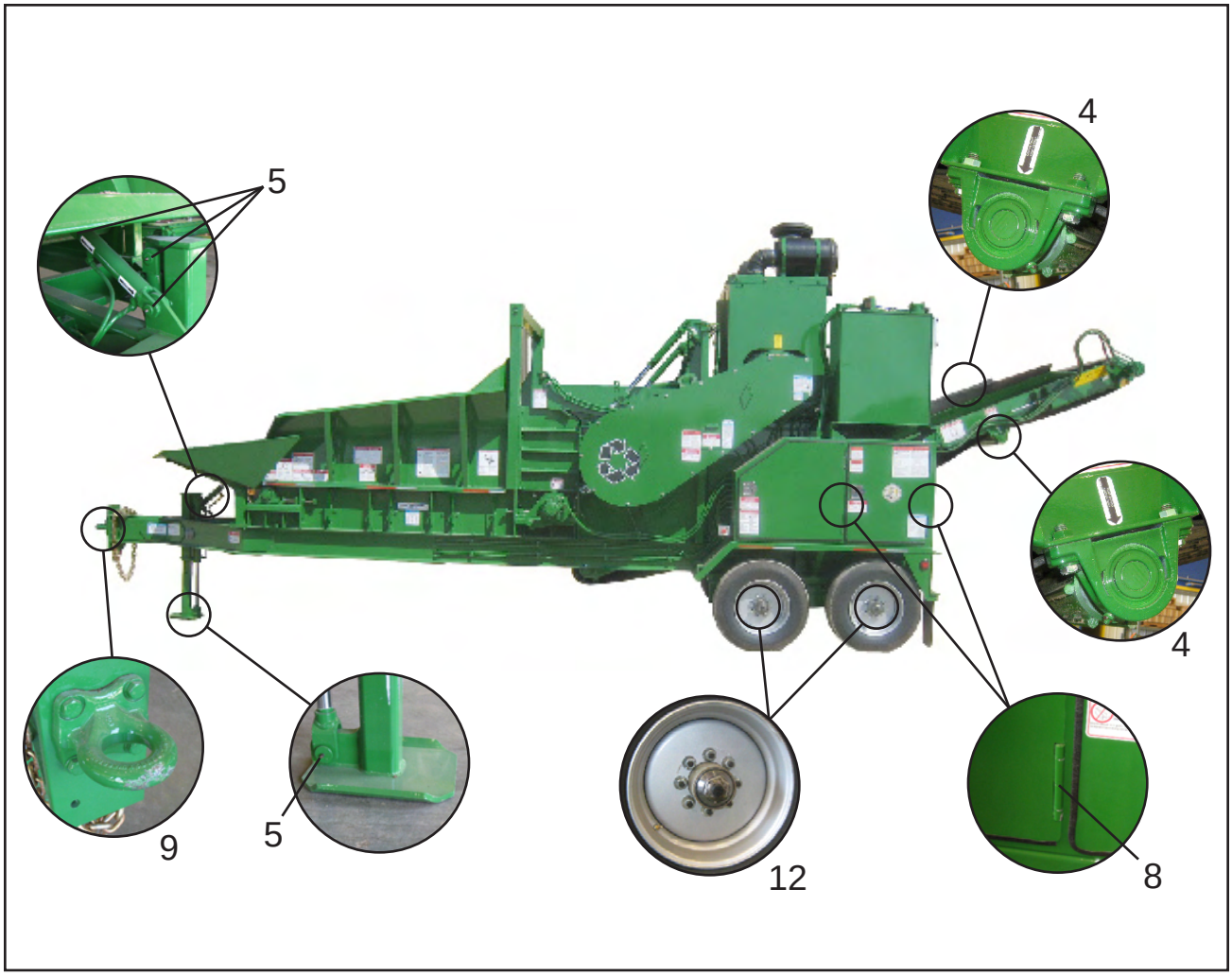
DO NOT start to weld on this machine unless:

- Wiring harness on engine electronic control unit has been disconnected.
- Battery and/or battery disconnect switch has been disconnected.
- Fire safety equipment is present.
- All combustible material and liquids has been removed.
- Machine is completely shut down with no moving parts.
- Complete ANSI, OSHA and manufacturers safety instructions are followed.

You will damage machine and/or yourself.

LUBRICATION CHART

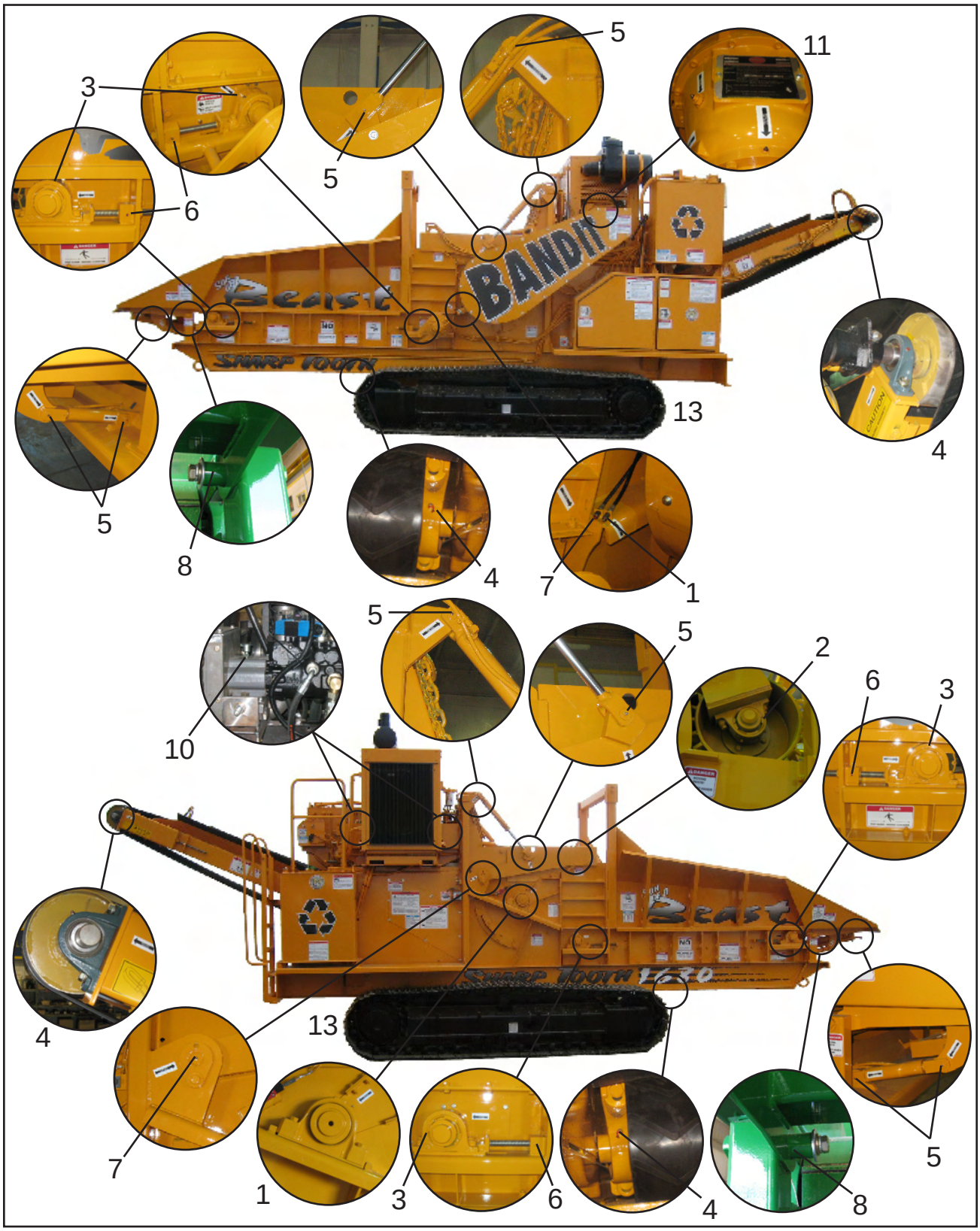
		CHECK			
#	DESCRIPTION	DAY	WEEK	MONTH	PROCEDURE
1	Cutterhead Bearings	X			Purge bearings daily - wipe off excess
2	Feedwheel Bearing	X			Purge bearing daily - wipe off excess
3	Infeed Conveyor Bearings	X			Purge bearings daily - wipe off excess
4	Discharge Conveyor Bearings	X			Purge bearings daily - wipe off excess
5	Cylinder Lug Pin Bushings		X		1 to 2 shots of grease - wipe off excess
6	Infeed Conveyor Chain Adjusters		X		1 to 2 shots of grease - wipe off excess
7	Yoke Pivot Bushings		X		1 to 2 shots of grease - wipe off excess
8	Pivoting & Hinged Areas		X		Lubricate (i.e. cabinet doors, brush assist pan, etc)
9	Pintle Eye Ring			X	Grease to reduce wear
10	Bearing Blocks - if equipped			6 Months	Pack female splines with grease
11	Clutch	→			Grease per MFG's instructions
12	Wheel Bearings - if equipped	→			Grease or oil per MFG's instructions
13	Tracks - if equipped	→			Grease per MFG's instructions



NOTICE Use as a reference only, locations may vary depending on options or component manufacturer. Lubrication point instructions are described on the machine, in the Lubrication & Coolant Section and Maintenance Section of this manual, or component manufacturer's manual.

Smoracy, LLC

LUBRICATION CHART



NOTICE Use as a reference only, locations may vary depending on options or component manufacturer. Lubrication point instructions are described on the machine, in the Lubrication & Coolant Section and Maintenance Section of this manual, or component manufacturer's manual.

Smoracy, LLC

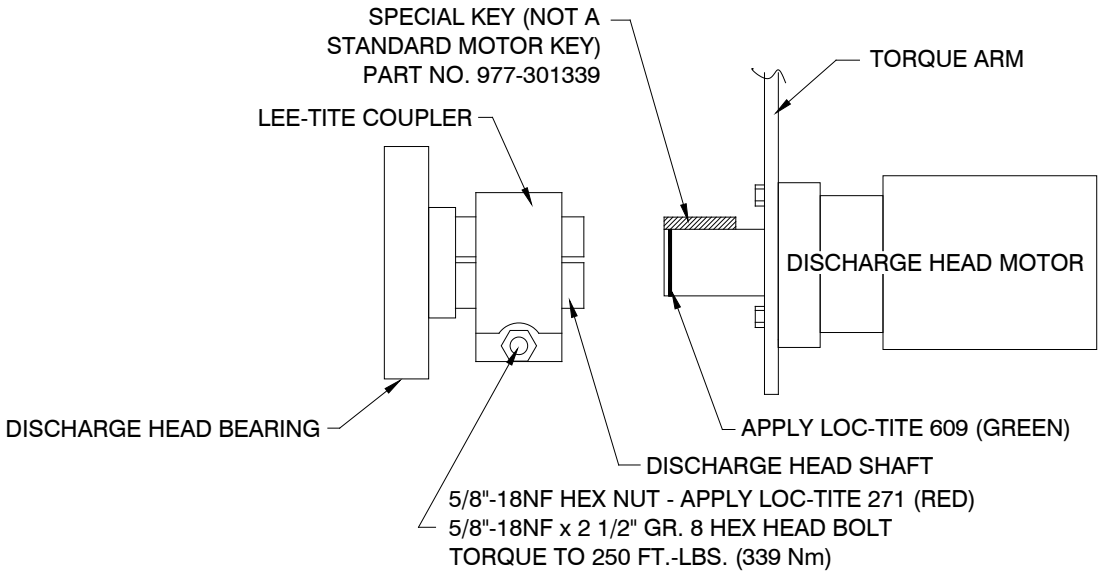
PROPER PROCEDURE FOR INSTALLATION OF LEE-TITE COUPLERS AND DISCHARGE HEAD MOTORS

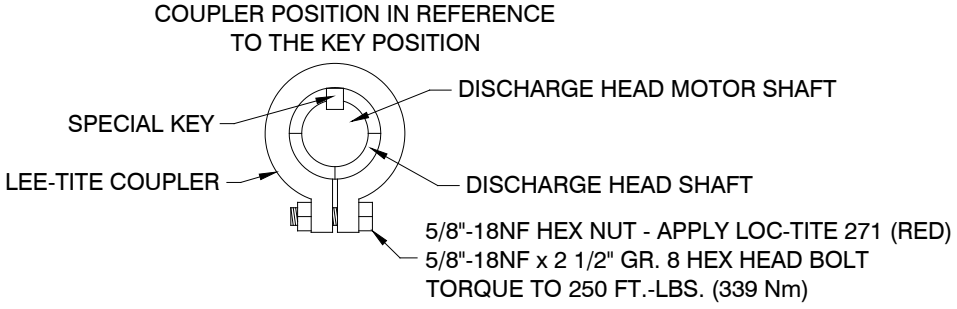
A. **Proper Equipment Needed:**

1. Discharge head motor with straight shaft.
2. 5/16” x 1/2” x 1 7/16” long key (special) Part number: 977-301339
3. Correct discharge head shaft and coupler ass’y
4. Emery cloth and/or a file
5. Torque wrench
6. 15/16” socket
7. A degreaser agent
8. Loc-Tite 271 (red)
9. Loc-Tite 609 (green)

B. **Installation Procedure**

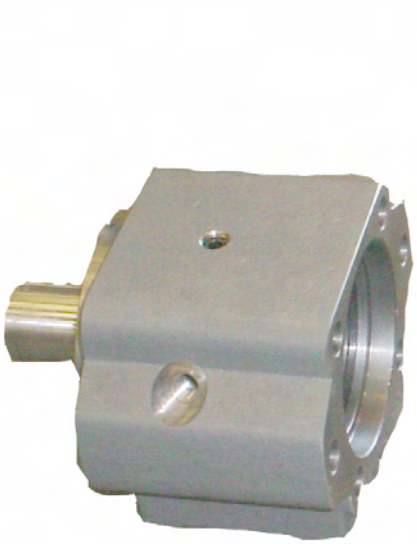
1. Remove any sharp edges on the coupler bore, the motor shaft, or the discharge head shaft. Example: Emery cloth or file for burrs on keyways or shafts.
2. Clean the coupler bore, motor shaft, and discharge head shaft with a degreasing solvent.
3. Install the correct key in the discharge head motor shaft.
4. Slide the coupler onto the discharge head shaft.
5. Apply Loc-Tite 609 (green) on the discharge head motor shaft.
6. Install the motor with the torque arm installed and key into the discharge head shaft.
7. Position the coupler so the keyway in the discharge head shaft is covered by the solid portion of the coupler. See figures below.
8. Apply Loc-Tite 271 (red) on the coupler nut.
9. Tighten the coupler bolt and torque to 250 ft.-lbs. (339 Nm).



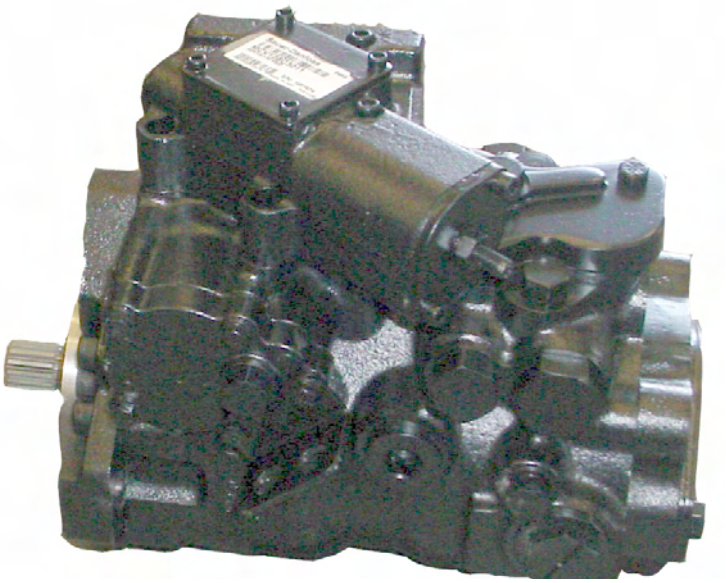


SERVICING BEARING BLOCK

Your machine maybe equipped with bearing block(s) and hydraulic pump(s) that are belt driven. The female splines in the bearing block need to be packed with an EP-2 Lithium type grease every six months or every 1000 hours. To do this, unbolt the hydraulic pump from the bearing block and slide the hydraulic pump out of the bearing block. There is no need to loosen or remove the drive belts or hydraulic lines. Once the hydraulic pump is removed from the bearing block, inspect the internal splines of the bearing block and the external splines of the hydraulic pump. The tops of the splines should be flat. If the splines are pointed, they are wore and need to be replaced. If the splines are good, pack the internal splines of the bearing block with an EP-2 Lithium type grease, reinstall the hydraulic pump, and bolt the hydraulic pump to the bearing block.

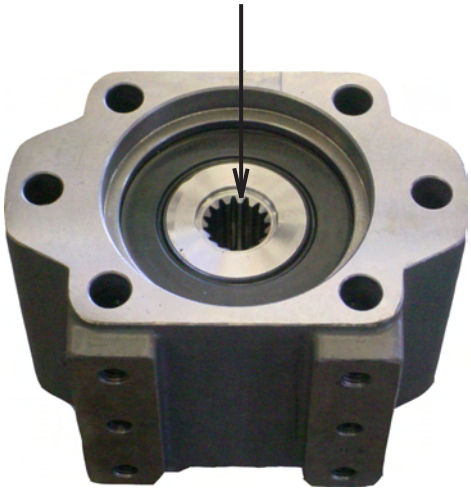


BEARING BLOCK

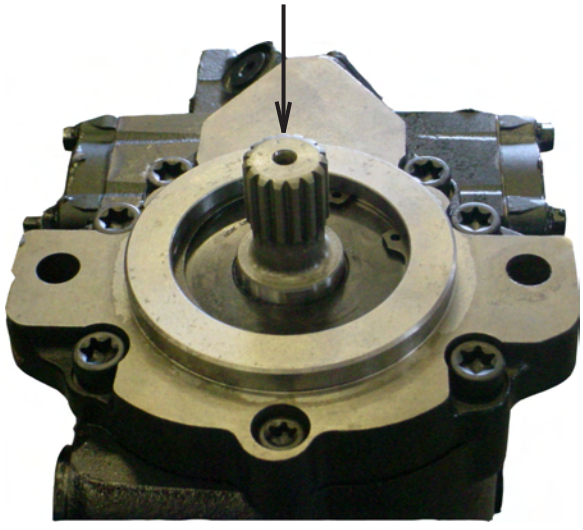


HYDRAULIC PUMP

INTERNAL SPLINES OF THE BEARING BLOCK



EXTERNAL SPLINES OF THE HYDRAULIC PUMP



NOTICE Parts may not be exactly as shown.

SCREEN MAINTENANCE

OPERATION

Various screens are available for sizing the product. Screens are a very high wear item on your machine and should be checked frequently. Also check to see if the screen retainer plate bolts are at 75 ft.-lbs. (102 Nm). **IF THE SCREENS ARE BENT OR BROKEN, REPLACE IMMEDIATELY. FAILURE TO DO SO WILL CAUSE COSTLY DAMAGE TO YOUR MACHINE.**

⚠ DANGER

Before attempting any type of maintenance disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, switch the battery disconnect to the off position, and make sure the ignition key is in your possession.

SCREEN REPLACEMENT

1. Follow all pre-maintenance shut down procedures.
2. Turn off the engine and turn the battery disconnect switch off.
3. Unbolt the screen retainer plate from the right side (curb side) of machine.
4. Slide the screen out of the machine and slide a new screen in position.
5. Place the screen retainer plate back on and torque the bolts to 75 ft.-lbs (102 Nm).
6. Very carefully, manually with a pry bar or wood bar, turn the cutterhead a full revolution. This is to ensure the cutter teeth and screen have proper clearance. If the cutterhead is jammed with debris or frozen in place, DO NOT attempt to start the engine and engage the clutch until the cutterhead rotates freely.
7. If the cutter teeth contact the screen, the cutterhead needs to be adjusted.
8. You should also check the anvil clearance and infeed clearance at this time also,. After checking everything above, unsecure and lower the feedwheel.
9. After the engine is started, let the cutterhead turn at the lowest possible RPM's possible. Listen for any type of noise that is foreign. Any steel on steel noise is foreign. If you hear a noise, stop the engine, find the problem and fix it.

ANVIL MAINTENANCE

⚠ DANGER

Before attempting any type of maintenance disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, switch the battery disconnect to the off position, and make sure the ignition key is in your possession.

ADJUSTING ANVIL

1. With the engine running, clutch disengaged, and the cutterhead completely stopped, raise the feedwheel yoke to its maximum height using the feedwheel yoke manual control valve.
2. Install the yoke lock pins in the yoke lock holes, see Figure 1.
3. Use the safety chain attached to the feedwheel lift cylinder mount and secure it to the lugs located on the feedwheel yoke, see Figure 1.
4. With the safety devices in place lower the feedwheel yoke until it contacts the yoke lock pins and the safety chain pulls tight.
5. Follow all pre-maintenance shut down procedures. Disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, turn battery disconnect switch off, and make sure the ignition key is in your possession.
7. Set the anvil before setting or adjusting the infeed chain.
8. Loosen the anvil bolts.
9. Adjust the anvil to have a 1/4” (6.4 mm) minimum clearance from a new tooth, see Figure 2.
10. Tighten the anvil bolts to the specified torque.
11. Very carefully, manually with a pry bar or wood bar, turn the cutterhead a full revolution. This is to ensure the cutter teeth have proper clearance. If the cutterhead is jammed with debris or frozen in place, DO NOT attempt to start the engine and engage clutch until the cutterhead rotates freely.
12. Do Not feed this machine with the top feedwheel pinned, blocked or secured in the open position.
13. After the engine is started, let the cutterhead turn at the lowest possible RPM’s possible. Listen for any type of noise that is foreign. Any steel on steel noise is foreign. If you hear a noise, stop the engine, find the problem and fix it.

Figure 1

Figure 2

INFEED MAINTENANCE

⚠ DANGER

Before attempting any type of maintenance disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, switch the battery disconnect to the off position, and make sure the ignition key is in your possession.

ADJUSTING INFEED CONVEYOR

1. Follow all pre-maintenance shut down procedures.

2. Set the anvil before adjusting the infeed conveyor, see the previous pages for instructions.

3. Locate the chain adjusting screws, which will be in the middle of the machine on each side of the infeed conveyor. See Figure 1.

4. Loosen the bolts holding down the pillow block bearings.

5. Turn the adjusting screws clockwise to get the infeed conveyor chain closer to the anvil and counter-clockwise to bring the infeed conveyor chain away from the anvil.

6. Turning one screw more than the other will cause the chain to run to one direction. Turn the other adjusting screw to straighten up the path of the infeed conveyor chain.

7. The infeed conveyor chain should be as close to the anvil as possible without coming in contact with the anvil (approximately 1/8” or 3.2 mm). See Figure 2.

8. Be sure that both sides are at the same clearance and that the infeed conveyor chain is running straight.

9. When adjustment is finished be sure to tighten the bearing bolts.

INFEED MAINTENANCE

Figure 1

Figure 2

INFEED MAINTENANCE

⚠ DANGER

Before attempting any type of maintenance disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, switch the battery disconnect to the off position, and make sure the ignition key is in your possession.

ADJUSTING INFEED CONVEYOR CHAIN TENSION

1. Follow all pre-maintenance shut down procedures.

2. Set the anvil and adjust the infeed chain to the anvil before adjusting the infeed conveyor chain tension, see the previous pages for instructions..

3. Locate the chain tensioning screws, which will be at the front end of the machine on each side of the infeed conveyor. See Figure 1.

4. Loosen the bolts holding down the pillow block bearings.

5. Turn the tensioning screws clockwise to tighten and counter-clockwise to loosen.

6. Turning one screw more than the other will cause the chain to run to one direction. Turn the other tension screw to straighten up the path of the infeed conveyor chain.

7. The conveyor chain has the correct tension when the chain is running a certain distance above the frame if it is measured half way between the infeed head shaft and the infeed return idler wheel. For S/N 1014 and after, the chain will be running approximately 2 1/4” (57.2 mm) above the frame. For S/N 1007 through 1013 the chain will be running approximately 1” (25.4 mm) above the frame. See Figure 2.

8. Be sure that both sides are tensioned the same and that the infeed conveyor chain is running straight.

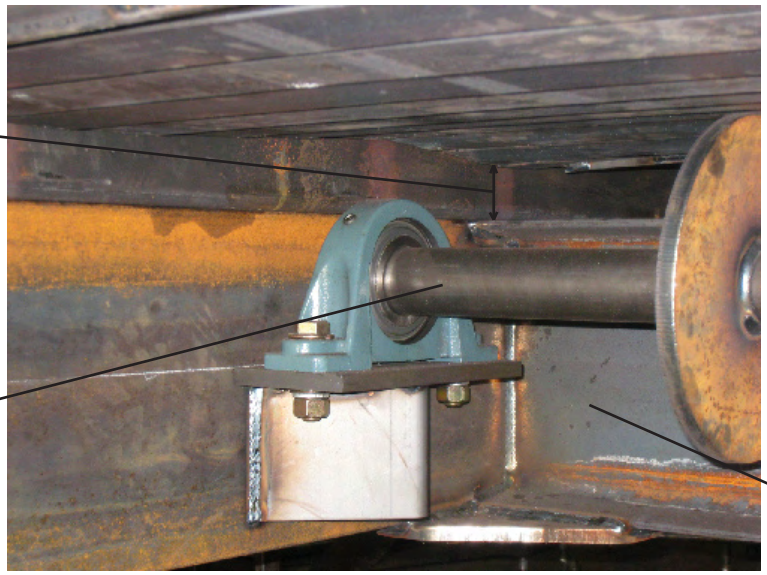
9. When adjustment is finished be sure to tighten the bearing bolts.

INFEED MAINTENANCE

Figure 1

Adjusting screw for the infeed conveyor chain tension

Figure 2



Distance above the frame to set the infeed conveyor chain tension.

Infeed Return Idler Wheel

Frame

BELT TENSION

GENERAL RULES FOR TENSIONING

1. Check tensioning during the first 2 through 48 hours of run-in operation especially.
2. Over tensioning or under tensioning shortens belt and bearing life.
3. Keep belts free from foreign materials that may cause the belt to slip.
4. Make V-drive inspection on a periodic basis. Never use belt dressing as this will damage the belt and cause early failure.
5. Belts should never be forced over the sheave. Allow enough room for belts to slip on.
6. Always make sure sheaves are aligned properly.

TENSIONING PROCEDURE

Main Drive Belts

Follow all pre-maintenance shut down procedures. Locate the center of the belt span between the sheaves. Push or pull on the belt until the belt has deflected 7/8" (22.2 mm). Record the push or pull force. For a new belt the force should be 19 to 22 lbs./belt (8.6 to 10.0 kg/belt). After the break-in period, the force should be 14 to 20 lbs./belt (6.4 to 9.1 kg/belt). Adjust the belt tension if the force falls outside of this range. If belts are not properly adjusted belts will slip, glaze over, and be ruined. This is NOT covered by warranty.

1) Remove beltshield.
2) To adjust the belt tension, loosen the four engine mounting bolts and the jam nuts on the engine adjuster on the radiator end of the engine.
3) Adjust the belt tension with the engine adjuster on the clutch end of the engine. If you have to push the engine with the adjuster, the belts will tighten slightly after the engine is realigned.
4) Use the engine adjuster on the radiator end of the engine to realign the engine, so the engine sheave and chipper sheave are aligned. The sheaves can be checked with a string or straight edge.
5) Torque the two engine mounting bolts (see Torque Chart for the correct torque) on the opposite side of the engine from the engine adjusters.
6) Loosen the jam nuts on the engine adjuster on the radiator end of the engine.
7) Torque the engine mount bolt and then tighten the engine adjuster jam nuts on the radiator end.
8) Hand tighten the remaining engine mount bolt and loosen the engine adjuster jam nut on the clutch end half a rotation. Loosen the engine adjuster jam nuts all the way and torque the engine mount bolt.
9) Tighten the engine adjuster jam nuts on the clutch end.
10) Recheck the belt tension and alignment, if readjustment is needed go back to step 2.
11) Reinstall beltshield.

NOTICE lbs./belt (kg/belt) is per 1 belt. If equipped with 4 groove poly band belt, lbs./belt (kg/belt) must be multiplied by 4. If equipped with two 3 groove poly band belts, lbs./belt (kg/belt) must be multiplied by 3 for each poly band belt.

NOTICE It is a good practice to rotate the belts during tensioning. Then recheck deflections. The belts may need to be tightened again.

Pump Drive Belts (If equipped)

1) Locate the center of the span between sheaves.
2) Push or pull down on the belt until the belt has deflected 1/4" (6.4 mm).
3) Record push or pull down force. The force should be 14 - 17 lbs (6.4 - 7.7 kg).
4) Adjust the belt tension if the force falls outside of this range.

Do not over tighten the hydraulic pump belt. For best results use a good belt tension tester. Most all pump failures result from too much side load on the pump shaft. Too much belt tension is very easy to detect inside a failed pump. Pumps with this condition will not be covered under warranty.

DO NOT IGNORE THIS MAINTENANCE RULE!

New belts stretch very soon and must be adjusted several times in the first few hours of operation. Adjust after one hour of operation, then every four hours until the belts quit stretching.

Failure to do this will cause the belts to burn and fly off. **THIS FAILURE IS NOT COVERED BY WARRANTY!**

BELT TENSION

FIGURE 1

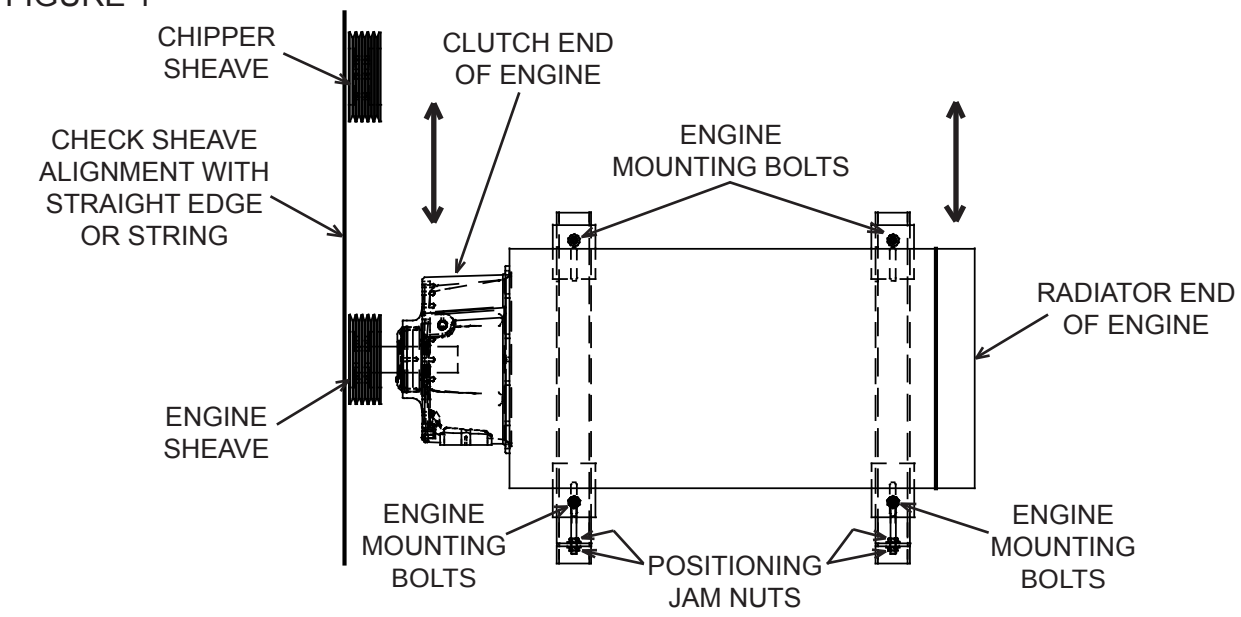
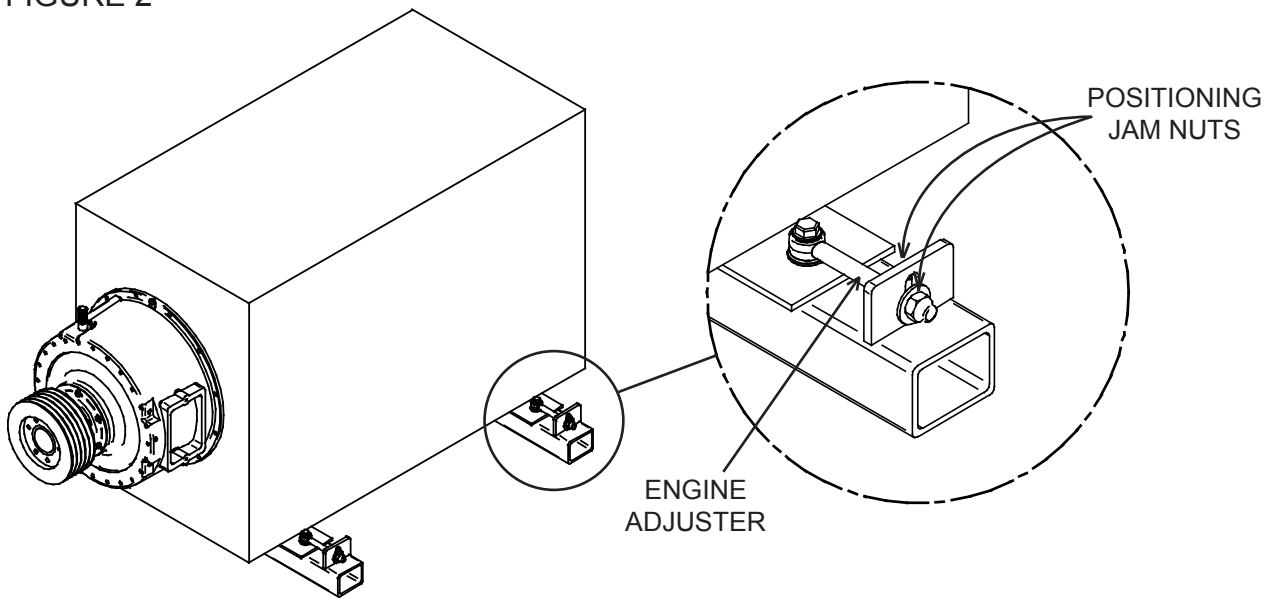
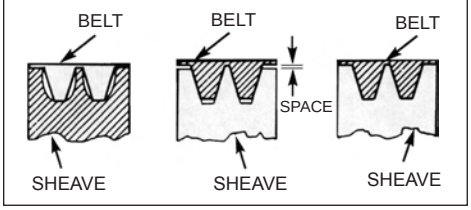


FIGURE 2

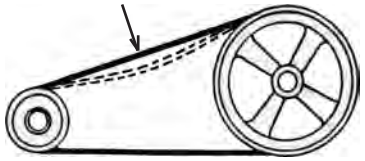


Worn or misaligned belts and sheaves in the power train causes belt slippage, thus power loss. Keep the power train working for you, not against you, by checking for needed adjustment or replacement.



Main Drive belts maximum of 3/8" deflection with 22 to 24 lbs. of force for a Model 90.

Pump Drive belts maximum of 1/4" deflection with 14 - 17 lbs. of force.



DISCHARGE MAINTENANCE

⚠ DANGER

Before attempting any type of maintenance disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, switch the battery disconnect to the off position, and make sure the ignition key is in your possession.

ADJUSTING DISCHARGE CONVEYOR BELT TENSION

1. If the discharge belt is slipping or rubbing on the frame, it should be tightened. It is better for the discharge belt to run loose. Damage to the discharge belt will occur if it's too tight. Adjust as needed.
2. Follow all pre-maintenance shut down procedures.
3. Loosen the discharge drive adjuster assemblies and adjust them so the magnetic head assembly moves out. Damage to the discharge belt will occur if it's too tight.
4. Tighten the discharge drive adjuster assemblies.
5. Make sure the discharge belt is running true after the machine is started.

ADJUSTING DISCHARGE CONVEYOR BELT TRACKING

1. Follow all pre-maintenance shut down procedures.
2. If the discharge belt is running to the clutch side of the machine, the discharge drive adjuster assembly on the radiator side of the machine needs to be adjusted out and vice-versa.
3. Loosen the appropriate discharge drive adjuster assembly and adjust it so the magnetic head assembly moves out.
4. Tighten the discharge drive adjuster assembly.
5. Make sure the discharge belt is running true after the machine is started.

TIRE WEAR DIAGNOSTIC CHART

Wear Pattern		Cause	Action
	Center Wear	Over Inflation	Adjust pressure to particular load per tire catalog
	Edge Wear	Under Inflation	Adjust pressure to particular load per tire catalog
	Side Wear	Not Hauling Trailer Level Bent Axles Wide Tires Wheel Bearings	Must be hauled parallel to ground Replace as needed Characteristic of wide flotation tires Adjust or replace
	Cupping	Out-Of-Balance Wheel Bearings	Check bearing adjustment and balance tires Adjust or replace
	Flat Spots	Wheel Lock Up & Tire Skidding	Avoid sudden stops when possible and adjust brakes.

The wear pattern and tread life of tires involves many variables that the user has control of, but DOES NOT fall under faulty manufacture or design.

The following is a list of some causes supplied by tire suppliers and axle manufacturers:

- Misalignment - from rough roads, pot holes, excessive speeds and hitting curbs.
- Tire Width - the wider the tire for flotation, the more uneven the tire wear.
- Tire Air Pressure - to much or too little, for the load.
- Vehicle Hitch Height - if trailer is not level with ground, axle camber is misaligned.
- Maintenance - wheel bearing lubrication and adjustment. Follow axle MFG. instructions.
- Brakes - uneven or misadjusted brakes cause irregular brake activation.

RECOMMENDED BRAKE ADJUSTMENT PROCEDURE PER AXLE MANUFACTURER.

The proper clearance between the shoe and drum surfaces will be set up initially from our factory to assure proper operation during the normal break in period. No further adjustment will be necessary until the vehicle completes the recommended break in period of 200 miles (322 km).

Since all brakes of this type must be burnished or ”run in” before their full effectiveness can be achieved, the MFG. maintenance manuals call for readjustment after the first 200 miles (322 km) of operation. This usually allows ample time for the burnishing to take place. Readjustments are not necessary for brakes fitted with self-adjustment features although periodic inspection is suggested.

The following shows the correct adjustment for the MFG. brakes of 12 1/4” diameter.

NOTICE Clearances that are too small will result in excessive drag and overheating while too much clearance can render the brake nonfunctional.

AXLE SIZE	SIZE	TYPE	DIAMETRAL CLEARANCE	CLICKS TO BACK OFF
10,000 LBS.	12 1/4” X 3.38”	Electric	.040” (1 mm)	AUTOMATIC ADJUSTING
10,000 LBS.	12 1/4” X 3.38”	Air	.030” (.8 mm)	N/A
12,000 LBS.	12 1/4” X 5”	Electric	.040” (1 mm)	AUTOMATIC ADJUSTING
12,000 LBS.	12 1/4” X 5”	Air	.030” (.8 mm)	N/A

For additional brake adjustment procedures consult the axle manufacturer manual.

TROUBLE SHOOTING

PROBLEM - ENGINE WILL NOT START:

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Battery Disconnect Switch off.	1. Turn switch on.
2. Battery cables cut or corroded terminals.	2. Inspect battery cables for damage, repair or replace as necessary. Clean battery terminals.
3. Dead or low battery.	3. Charge or replace battery.
4. No power to ignition switch. Circuit breaker tripped.	4. Reset circuit breaker in engine gauge panel.
5. No power to engine gauge panel. Main fuse blown.	5. Check in-line fuse near engine starter and replace if necessary. This fuse protects the entire engine gauge panel and its functions.

PROBLEM - ENGINE TURNING BUT WILL NOT START:

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Cutterhead hood engine disable plug disconnected.	1. Check the cutterhead hood engine disable plug to insure that it is installed and operating correctly.
2. No fuel.	2. Fill fuel tank and prime engine fuel system.
3. Problem with the engine or the engine control panel.	3. Consult engine manufacturer's manual.

PROBLEM - NONE OF THE HYDRAULIC SYSTEMS ARE WORKING:

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Hydraulic shut down switch.	1. Make sure all hydraulic shut down switches are pulled out.
2. Shut-off valve(s) on hydraulic oil tank not on.	2. Turn shut-off valve(s) on.
3. Blown fuse for solenoids of hydraulic shut down system. These solenoids valves need to be energized or the oil is pumped back to tank.	3. Replace in-line fuse near engine gauge panel if powered by Cat or Cummins. John Deere units have the fuse near the starter.
4. Loss of power to hydraulic shut down circuit.	4. John Deere equipped machines only have an auxiliary solenoid near the engine starter to supply power for this circuit. Check to make sure you are getting power through this solenoid.
5. Low oil in hydraulic tank.	5. Keep oil level at 7/8 full.
6. Pump belts missing if so equipped.	6. Replace pump belts.
7. Broken pump shaft.	7. Repair or replace pump.
8. Suction strainer in hydraulic tank is plugged.	8. Remove and clean or replace strainer.

TROUBLE SHOOTING

PROBLEM - NONE OF THE TETHER CONTROLS ARE WORKING:

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Hydraulic systems are not working.	1. Refer to NONE OF THE HYDRAULIC SYSTEMS ARE WORKING in this TROUBLE SHOOTING section.
2. Switches in gauge panel in wrong position.	2. Check switches to make sure they are positioned correctly.
3. Poor connection at Deutsch plug.	3. Check connections at the control panel and the side of the control cabinet to make sure it is secure.
4. Tripped circuit breaker or blown fuse.	4. The electrical circuit is protected by a circuit breaker on the side of the battery box. Reset the circuit breaker.
5. Tether control cable damaged.	5. Inspect cable for any cut or damaged wire. Try using the radio remote control and if everything works then the tether control may be damaged.

PROBLEM - NONE OF THE RADIO REMOTE CONTROLS ARE WORKING:

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Hydraulic systems are not working.	1. Refer to NONE OF THE HYDRAULIC SYSTEMS ARE WORKING in this TROUBLE SHOOTING section.
2. Switches in gauge panel in wrong position.	2. Check switches to make sure they are positioned correctly.
3. Did not start machine in correct order.	3. See REMOTE STARTING PROCEDURES in the CONTROLS section.
4. Battery inside Radio Remote is dead.	4. Replace battery.
5. Tripped circuit breaker or blown fuse.	5. The electrical circuit is protected by a circuit breaker on the side of the battery box. Reset the circuit breaker.
6. No radio signal.	6. Too far away from machine. Also check antenna and coaxial cable connections.
7. Radio remote control is damaged from being dropped or left in the weather.	7. Connect the tether control to the machine and if everything works fine then the radio remote control may be damaged.

TROUBLE SHOOTING

PROBLEM - INFEED CONVEYOR NOT OPERATING USING THE MANUAL CONTROLS: (all other hydraulic functions are working)

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Material wedged or stuck preventing the infeed conveyor chain from turning.	1. With the machine shut down, check around infeed conveyor looking for anything that may have the infeed conveyor chain bound up. In cold climates the infeed conveyor chain could be frozen to the bed.
2. Broken drive or idler sprocket assemblies.	2. Check both drive and idler sprockets to make sure they are all right as well as the bearings that support them.
3. Check to see if the drive key in the infeed drive sprocket or infeed hydraulic motor shaft has sheared.	3. Check shafts for damage and replace key.
4. Check the flow controls to see if they are open (if equipped).	4. If the flow controls are opened up too far the infeed conveyor chain can stop under heavy load.
5. Low hydraulic system pressure.	5. A check of the hydraulic pressure can be done by placing the pressure gauge into the diagnostic port provided on the control valve. Put the infeed conveyor manual control valve into forward or reverse position to check the infeed conveyor working hydraulic pressure. An 1800 PSI (124 bar) reading would indicate that the infeed conveyor is mechanically stalled by some obstruction. A very low pressure reading would indicate a hydraulic problem with the pressure relief valve or the hydraulic pump. See the hydraulic section for procedures on checking hydraulic pump and relief valve setting.
6. No hydraulic system pressure.	6. Follow the pressure line from the valve bank back to the manifold used for the hydraulic shut down system. Identify the electric solenoid for this circuit and verify that you have a 24 or 12 volt reading (depending on the engine) with the ignition switch on. These solenoid valves need to be energized or the oil is pumped back to tank. If you have the proper voltage, try swapping this solenoid with another to determine if it is bad. If the problem moves to the circuit you swapped with then the solenoid is at fault. If the problem stays with the circuit you are working on then the pump is your problem.

TROUBLE SHOOTING

PROBLEM - INFEED CONVEYOR NOT OPERATING USING THE RADIO REMOTE OR TETHER CONTROLS: (all other hydraulic functions are working)

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. No electrical signal to the solenoid on the control valve.	1. Check for electrical power at the solenoid while engaging the switch for the infeed conveyor on the radio remote or tether controls. A wire may be broke or have a faulty relay on the control panel.
2. Bad solenoid on the control valve.	2. Swap the solenoid with solenoid from a different valve and if the problem follows the solenoid, replace the solenoid.
3. Faulty switch in radio remote control or tether control.	3. If using the radio remote control, switch to the tether control and vice versa to determine if the problem may be in the remote.

PROBLEM - DISCHARGE CONVEYOR BELT NOT RUNNING: (all other hydraulic functions are working)

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Material wedged or stuck preventing the discharge conveyor belt from turning.	1. With the machine shut down, check around discharge conveyor belt looking for anything that may have the discharge conveyor belt bound up.
2. Discharge conveyor belt running off track.	2. Adjust the conveyor belt so that it is running centered.
3. Discharge conveyor belt drive roller spinning inside of belt.	3. Adjust the conveyor belt tension.
4. Check to see if the key in the hydraulic drive has sheared.	4. Check shaft for damage and replace key.
5. Coupler loose or broken.	5. Tighten to correct torque or replace.
6. Broken drive or idler drum assemblies.	6. Check both drive and idler drums to make sure they are all right as well as the bearings that support them.
7. No or low hydraulic system pressure.	7. Check the hydraulic pressure and adjust as needed.

PROBLEM - DISCHARGE CONVEYOR BELT BOUNCING OR JERKING:

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Material wedged in idler drum causing a high spot.	1. With machine shut down, remove any debris trapped in the idler drum.
2. Bent shaft on drive or idler drum rollers.	2. Check both drum rollers and replace if damaged.

TROUBLE SHOOTING

PROBLEM - FEEDWHEEL WILL NOT TURN USING THE MANUAL CONTROLS:
(all other hydraulic functions are working)

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Material wedged or stuck preventing the feedwheel from turning.	1. Raise and secure the feedwheel using all safety devices. With the machine shut down, check around feedwheel looking for anything that may have it bound up.
2. Check to see if the drive key in the feedwheel hydraulic motor shaft has sheared.	2. Check shaft for damage and replace key.
3. Feedwheel bearing failure.	3. Raise and secure feedwheel using all safety devices and check bearing. Replace if necessary.
4. Check the flow controls to see if they are open (if equipped).	4. If the flow controls are opened up too far the feedwheel can stop under heavy load.
5. Low hydraulic system pressure.	5. A check of the hydraulic pressure can be done by placing the pressure gauge into the diagnostic port provided on the control valve. Put the feedwheel manual control valve into forward or reverse position to check the feedwheel working hydraulic pressure. An 1200 PSI (83 bar) reading would indicate that the feedwheel is mechanically stalled by some obstruction. A very low pressure reading would indicate a hydraulic problem with the pressure relief valve or the hydraulic pump. See the hydraulic section for procedures on checking hydraulic pump and relief valve setting.
6. No hydraulic system pressure.	6. Follow the pressure line from the valve bank back to the manifold used for the hydraulic shut down system. Identify the electric solenoid for this circuit and verify that you have a 24 or 12 volt reading (depending on the engine) with the ignition switch on. These solenoid valves need to be energized or the oil is pumped back to tank. If you have the proper voltage, try swapping this solenoid with another to determine if it is bad. If the problem moves to the circuit you swapped with then the solenoid is at fault. If the problem stays with the circuit you are working on then the pump is your problem.

TROUBLE SHOOTING

PROBLEM - FEEDWHEEL NOT TURN USING THE RADIO REMOTE OR TETHER CONTROLS: (all other hydraulic functions are working)

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. No electrical signal to the solenoid on the control valve.	1. Check for electrical power at the solenoid while engaging the switch for the feedwheel on the radio remote or tether controls. A wire may be broke or have a faulty relay on the control panel.
2. Bad solenoid on the control valve.	2. Swap the solenoid with one from a different valve and if the problem follows the solenoid, replace the solenoid.
3. Faulty switch in radio remote control or tether control.	3. If using the radio remote control, switch to the tether control and vice versa to determine if the problem may be in the remote.

PROBLEM - FEEDWHEEL YOKE WILL NOT LOWER: (all other hydraulic functions are working)

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Yoke lock pins are installed or safety chains attached.	1. Raise feedwheel and remove yoke locks pins and / or safety chains.
2. Material wedged or bound up around feedwheel yoke.	2. Do not attempt any type of maintenance without first disengaging clutch, waiting for the cutterhead to come to a complete stop, raise feedwheel and install all safety devices, turning off engine, turning battery disconnect switch off, and you must have the ignition key in **YOUR** possession, then check around feedwheel yoke to determine what might be restricting it.
3. Bent lift cylinder rod.	3. Repair or replace cylinder.

PROBLEM - FEEDWHEEL YOKE WILL NOT RAISE USING THE RADIO REMOTE OR TETHER CONTROLS: (all other hydraulic functions are working)

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. No electrical signal to the solenoid on the control valve.	1. Check for electrical power at the solenoid while engaging the switch for the yoke on the radio remote or tether controls. A wire may be broke or have a faulty relay on the control panel.
2. Bad solenoid on the control valve.	2. Swap the solenoid with one from a different valve and if the problem follows the solenoid, replace the solenoid.
3. Faulty switch in radio remote control or tether control.	3. If using the radio remote control, switch to the tether control and vice versa to determine if the problem may be in the remote.

TROUBLE SHOOTING

PROBLEM - FEEDWHEEL YOKE WILL NOT RAISE USING THE MANUAL CONTROLS: (all other hydraulic functions are working)

POSSIBLE CAUSE	POSSIBLE SOLUTIONS
1. Material wedged or bound up around feedwheel yoke.	1. Do not attempt any type of maintenance without first disengaging clutch, turning off engine, waiting for the cutterhead to come to a complete stop, turning battery disconnect switch off, and you must have the ignition key in **YOUR** possession, then check around feedwheel yoke to determine what might be restricting it.
2. Low hydraulic system pressure.	2. A check of the hydraulic pressure can be done by placing the pressure gauge into the diagnostic port provided on the control valve. Pull the yoke manual control handle towards you to check the working hydraulic pressure. A 1200 PSI (83 bar) reading would indicate that the yoke is mechainically stalled by some obstruction. A very low pressure reading would indicate a hydraulic problem with the pressure relief valve or the hydraulic pump. See procedure for checking hydraulic pump and relief valve setting in the hydraulic section.
3. No hydraulic system pressure.	3. Follow the pressure line from the valve bank back to the manifold used for the hydraulic shut down system. Identify the electric solenoid for this circuit and verify that you have a 24 or 12 volt reading (depending on the engine) with the ignition switch on. These solenoid valves need to be energized or the oil is pumped back to tank. If you have the proper voltage, try swapping this solenoid with another to determine if it is bad. If the problem moves to the circuit you swapped with then the solenoid is at fault. If the problem stays with the circuit you are working on then the pump is your problem.
4. Broken piston or bad seals in lift cylinders.	4. Oil coming out of the vent plug at the top of the cylinder would indicate a problem. Repair or replace cylinder.

HYDRAULIC SECTION

⚠ WARNING

DO NOT GO NEAR HYDRAULIC LEAKS!

High pressure oil easily punctures skin causing serious injury, gangrene, or death. If injured, seek emergency medical help. Immediate surgery is required to remove oil. DO NOT use fingers or skin to check for leaks. Lower load or relieve hydraulic pressure before loosening fittings.

⚠ WARNING

DO NOT operate this machine unless all hydraulic control devices operate properly. They must function, shift and position smoothly and accurately at all times. Faulty controls can cause personal injury!

HYDRAULIC FLUID REQUIREMENTS

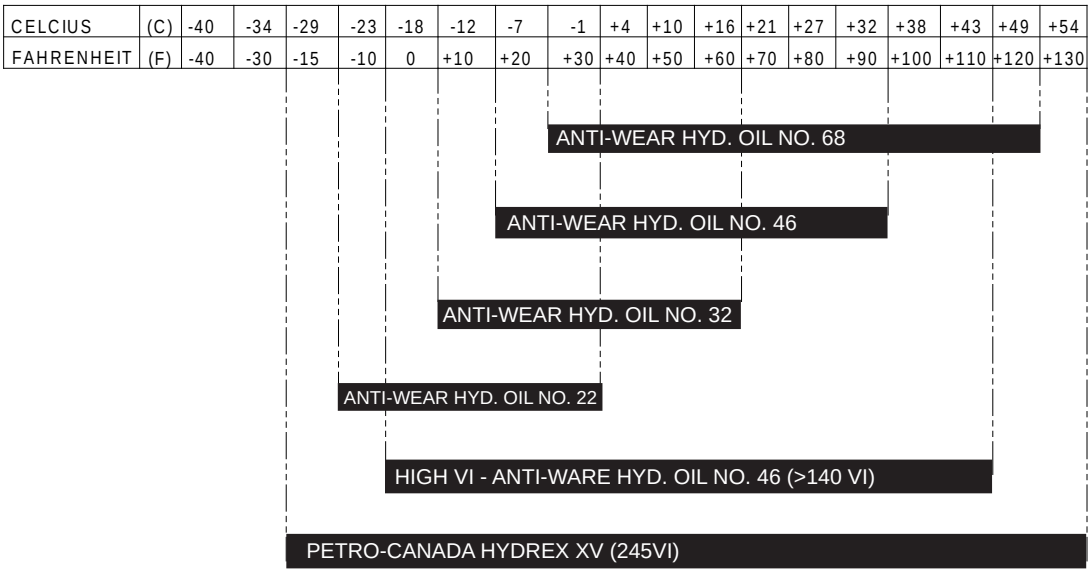
This machine is equipped with “Petro-Canada Hydrex XV” hydraulic fluid. It is recommended to replace with the same. “Petro-Canada Hydrex XV” is an all season hydraulic fluid. This is a premium performance, long life anti-wear, hydraulic fluid, designed for all season use in heavy duty hydraulic systems. “Petro-Canada Hydrex XV” allows year round use under wide extremes of temperature. It allows the hydraulic system to start at temperatures as low as -40°C/-40°F, under no load conditions and it improves lubrication of hydraulic components at high operating temperatures. It will also help protect against hydraulic failures during the wide temperature swings of spring and fall. To find the closest “Petro-Canada Hydrex XV” dealer call 1-888-284-4572.

Multi Viscosity motor oils are not recommended to mix with “Petro-Canada Hydrex XV” hydraulic oil. AW oils may mix with “Petro-Canada Hydrex XV” hydraulic oil. The following are specifications and authorizations of compatible oils. Only a high quality anti-wear (AW) hydraulic oil containing foam, corrosion, rust and oxidations inhibitors should be used. This viscosity grade depends on the oil temperature in service, based on the climate and operating conditions.

	Hydrex XV	ISO 22, AW	ISO 32, AW	ISO 46, AW	ISO 68, AW	ISO 100, AW
Viscosity Index	>235	>95	>95	>95	>95	>95
Flash Point	>240°C /464°F	>200°C /395°F	>210°C /410°F	>220°C /430°F	>220°C /430°F	>240°C /464°F
Oxidations Stability (ASTM D0943)	>9,000 Hours	>3,000 Hours	>3,000 Hours	>3,000 Hours	>3,000 Hours	>3,000 Hours
Cold Start-up, No Load, Max	-40°C/-40°F	-34°C/-29°F	-26°C/-14°F	-19°C/-3°F	-9°C/16°F	-4°C/24°F

HYDRAULIC SECTION

Alternate hydraulic oils are available, but they do not equal the performance or longevity of the “Hydrex XV” oil. Consult the following information supplied by the oil distributor.



Note: The above chart is a suggested guide for viscosity of hydraulic fluids at start up ambient temperature. The load, demand, and cleanliness of the equipment will affect actual oil temperatures which can increase dramatically above ambient air temperatures during operation. The actual viscosity needed is based on oil temperature during operation and not air temperature. Compare your fluid specifications with the specifications below to verify compliance.

When choosing a hydraulic fluid - these maximum and minimum specifications must be met:

Minimum Viscosity during operation = 12 cSt
Maximum No-Load Viscosity at start-up = 2000 cSt

Hydraulic fluids vary in their resistance to oxidation at elevated temperatures, their ability to protect against metal-to-metal contact under increasing temperature, and their ability to separate water from the fluid. Viscosity is temperature dependant. Fluids with high viscosity-index (VI) will thin out slower at higher temperature and thicken slower at colder temperatures allowing a wider operating range. Choose a fluid that has test results in these areas for best results.

Based on the varying temperatures of the area where Bandit equipment is used, and the high demand and loads placed on this equipment, Bandit has filled each hydraulic system with Petro-Canada’s Hydrex XV All Season Hydraulic Fluid for maximum protection and performance.

Contact Petro Canada at (888) 284-4572 to find a dealer near you.

NOTICE

Some equipment and components such as fluid engagement clutch’s (PTO’s) have their own lubrication requirements. Consult their manufactures manual for that information.

HYDRAULIC SECTION
THE RECYCLER HYDRAULIC SYSTEM

The recycler is equipped with a very efficient, simple hydraulic system. Each component is capable of withstanding a specified PSI (bar) and still operate for a very long time.

If the simple rules mentioned below are followed, the hydraulic components will last for years:

•After you have operated a new machine for approximately an hour shut down the machine and recheck all hydraulic fittings for tightness and leaks.

• Avoid hydraulic pump cavitation. Low oil levels or cold start-ups will cause the hydraulic pump to cavitate. Cavitation will ruin the pump and possibly the entire hydraulic system. Cavitation only has to happen once. This will start the pump on its way to ruin. Allow hydraulic system to turn slowly for several minutes in cold weather in order for hydraulic system to warm up. Cavitation is not covered under warranty.

• Do not increase the relief valve settings beyond specified PSI (bar). This will cause damage to hydraulic components. Do not set any other hydraulic component past it's specified pressure or this will cause damage to the hydraulic components.

• Keep hydraulic oil clean. Dirty oil will cause excessive wear and loss of hydraulic power.

• Replace the hydraulic oil filter(s) after first 10 hours and with each 400 hours of operation or 3 months.

• Replace hydraulic oil & suction screen(s) at least once yearly. This is also a very good time to flush and clean the tank. Replace hydraulic oil immediately if it is contaminated or looks "milky". See pages 65 - 66 for hydraulic oil requirements.

• If the machines hydraulic system is kept clean and the hydraulic pressures are not increased beyond the specified PSI (bar), the maximum use and life should be received from the hydraulic system.

• If a problem is encountered, it will more than likely be located in the relief valve or something as simple as belts slipping, check these first.

• Do not close the hydraulic shut-off valve for more than 3 to 4 seconds. Hydraulic shut-off valve handle must be completely turned on at all times unless checking hydraulic pressure. Pressure gauge should be safely stored and installed only when checking pressure. Follow above instructions or this will cause unwarranted damage to the hydraulic components.

• Never close the ball valves on the hydraulic tank suction ports (if equipped) while the machine is running, this will ruin the hydraulic pump and components.

• Some component manufacturers require different specific hydraulic lubrication, such as gear boxes, undercarriage drives, etc. Refer to their manuals and maintenance section of this manual.

⚠ WARNING

It is very important after you have operated a new machine for approximately an hour to shut down the machine and recheck all hydraulic fittings. Retighten as needed.

DO NOT GO NEAR HYDRAULIC LEAKS! High pressure oil easily punctures skin causing serious injury, gangrene, or death. Avoid burns from fluid. Hot fluid under pressure can cause severe burns. DO NOT use fingers or skin to check for leaks. Lower load or relieve hydraulic pressure before loosening fittings. Relieve all pressure in the system before disconnecting the lines, hoses, or performing other work. Use a piece of cardboard to find leaks. Never use your bare hands. Allow system to cool down to ambient temperature before opening any coolant or hydraulic oil system.

In cold weather situations let your hydraulic system idle for approximately 15 minutes to allow the system to warm up to operating temperature.

⚠ WARNING

DO NOT operate this machine unless all hydraulic control devices operate properly. They must function, shift and position smoothly and accurately at all times. Faulty controls can cause personal injury!

⚠ DANGER

Keep the machine in good condition. Be sure the machine is in good operating condition and that all safety devices, including guards and shields are installed and functioning properly. Visually inspect the machine daily before starting the machine. Refer to the "Daily Start Up & Maintenance". Make no modifications to your equipment unless specifically recommended or requested by Smoracy, LLC.

HYDRAULIC SECTION

⚠ DANGER

Before attempting any type of maintenance disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, switch the battery disconnect to the off position, and make sure the ignition key is in your possession.

NOTICE

DO NOT UNDER ANY CIRCUMSTANCES OVER-SET THESE RELIEF PRESSURES, BECAUSE IT WILL CAUSE DAMAGE TO COMPONENT PARTS AS WELL AS HYDRAULIC PARTS.

NOTICE

These Typical Hydraulic Flows And Relief Pressure Settings Are With The Engine At Full RPM. All Settings Are Subject To Change!

⚠ CAUTION

After the initial start-up of the machine and after any replacement of hydraulic components, that fittings and hoses should be re-checked for leaks and clearances.

HYDRAULIC RELIEF VALVE SETTING

Infeed Conveyor	1800 PSI (124 bar)
Feedwheel	1200 PSI (83 bar)
Yoke	1200 PSI (83 bar)
Discharge Conveyor	2400 PSI (165 bar)
Stabilizer	1800 PSI (124 bar)
Brush Assist Pan (if equipped)	1800 PSI (124 bar)
Tracks (if equipped)	contact dealer or Bandit Ind.

PROCEDURE FOR CHECKING RELIEF VALVE SETTING

All hydraulic circuits have a diagnostic port located in the valve. Each machine is delivered with a 3000 PSI (207 bar) gauge. Before checking any pressures the hydraulic oil must be at normal operating temperature. Also remember to relieve any pressure in the hydraulic system before disassembly. Checking these pressures needs to be done with engine operating at full RPM's so the machine must be secured. Allow no one on or near the machine while performing these tests except the operator. The tests are all completed at the hydraulic cabinet on the left hand side or road side of the machine.

The order of the valves may vary due to options on the machine, but the typical valve layout is as follows. Starting with the valve on the left side of the hydraulic cabinet. This valve bank has electric/manual controls for the infeed conveyor and feedwheel rotation. There are two diagnostic ports and two reliefs in this valve bank, one for the infeed conveyor and one for the feedwheel rotation. Before checking the infeed conveyor chain or the feedwheel rotation circuits you will need to disconnect the hydraulic hoses at the drive motor that is being checked and cap them. This is necessary to cause a restriction so you can check the system pressure. Remember, never work on or near the feedwheel without yoke lock pins and safety chain in place. The feedwheel must be down before testing hydraulic system pressure. Also, make sure the flow controls (if equipped) for the infeed conveyor and the feedwheel systems are open so no oil is being drained back to tank.

The second valve from the left should be the feedwheel yoke valve. As with any circuit using hydraulic cylinders all you need to do is stall it out at the end of its stroke to cause a pressure build up.

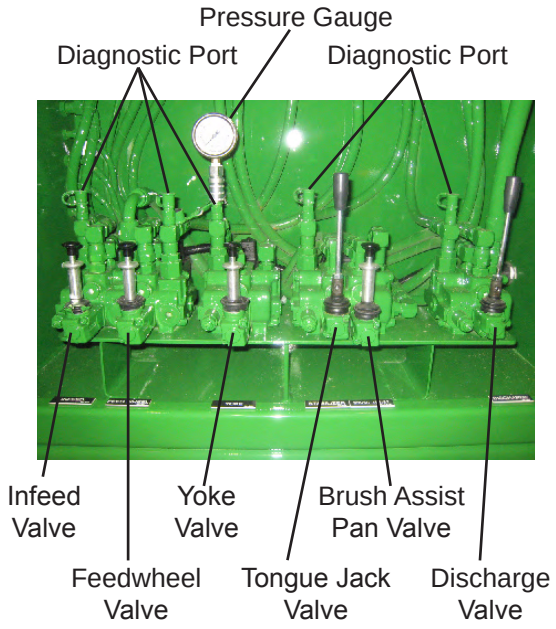
If the machine is trailerized, the third valve will be the tongue jack and brush assist pan valve. This valve bank has one relief for both valve functions. If the machine has a track undercarriage, the third valve from the left may be the brush assist pan valve, if equipped with that option. As with any circuit using hydraulic cylinders all you need to do is stall it out at the end of its stroke to cause a pressure build up.

The last valve from the left should be the discharge conveyor valve. Before checking the discharge conveyor belt circuit you will need to disconnect the hydraulic hoses at the drive motor and cap them. This is necessary to cause a restriction so you can check the system pressure.

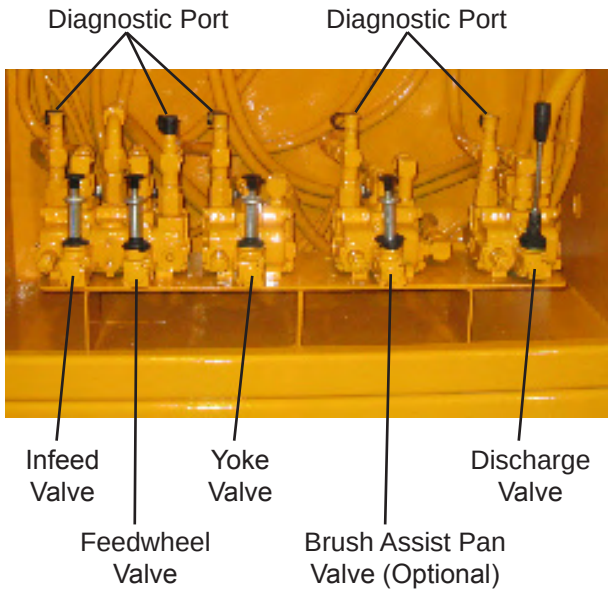
PROCEDURE FOR CHECKING RELIEF VALVE SETTING cont.

1. Refer to the correct relief valve pressure setting for the hydraulic circuit being checked.
2. To begin checking system pressures place the pressure gauge in the diagnostic port of the valve that needs to be checked.
3. If checking a hydraulic motor, unhook the hydraulic hoses at that motor and cap them.
4. With the machine and area secure, start the engine and open throttle to full RPM's.
5. Push the control valve handle away from you and observe reading.
6. If the pressure reading is not correct, adjust the relief valve by loosening the lock nut and slowly screwing the adjustment in to increase the pressure or out to decrease the pressure.
7. If this fails to adjust the pressure the problem may be either with the dump valve or the pump.
8. Follow this procedure to check the hydraulic system.
9. Reconnect the hydraulic hoses to the drive motors when you have completed all testing.
10. Check the fluid level in the hydraulic tank to make sure that it is still 7/8 full.

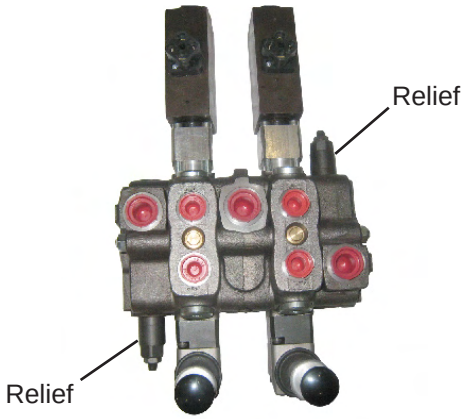
Trailerized Machine Cabinet



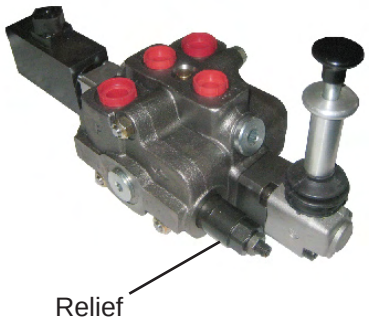
Track Machine Cabinet



Infeed / Feedwheel Valve



Valve



CUTTERHEAD SECTION

The cutterhead is one of the most important components to keep a preventive maintenance schedule on. The cutterhead is the heart of your recycler, it does most of the work. The cutterhead MUST be maintained daily. Watch your cutter teeth patterns. Experiment with different styles of cutter teeth and patterns. Learn what works best for you and your machine. We can not stress enough how important it is to maintain your cutter head.

⚠ DANGER

NEVER RUN THE MACHINE WITH THE FOLLOWING FAILURES. THIS WILL CAUSE SERIOUS DAMAGE TO YOUR MACHINE AND POSSIBLE SERIOUS INJURY TO OPERATORS.

The single most important thing to understand is that bolts will come loose due to the pounding and the vibration of the machine. ALWAYS keep the cutterbody bolts tight (700 ft.-lbs. or 949 Nm). Failure to do so will cause premature wear to the cutterbody. Loose bolts could also cause the support arm to crack. (See Figures 1, 2, & 2).

Replace the support arm if the mounting holes measure more than 1.042" (26.5 mm) in diameter or are oblong. (See Figure 3).

ALWAYS use Smoracy, LLC replacement parts. Using parts not made for the machine could cause costly damage to the machine.

ALWAYS keep cutter teeth tight. Torque to 376 ft.-lbs. (510 Nm). Torque to 420 ft.-lbs. (569 Nm) if using Beast knives.

NEVER allow the cutter tooth wear beyond useful life of carbide or wear material. Replace immediately.

When using the Beast knife, apply Loc-Tite 271 (red) on the knife stud and then tighten until there is 1 5/8" (41.3 mm) of the stud sticking out of the cutterbody. (See Figure 4).

The shank of the cutterbody holder bolt should be 1/8" (3.2 mm) inside of the support arm. When clamping the cutterbody be sure the nut does not bottom out. (See Figure 5).

NOTICE

It is a good practice to stop after 20 or 30 minutes of running new teeth and/or cutterbodies in order to retighten any loose nuts and bolts to their specified torque.

FIGURE 1

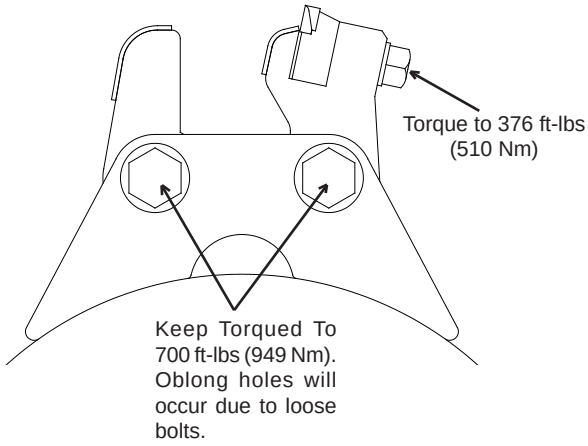


FIGURE 2

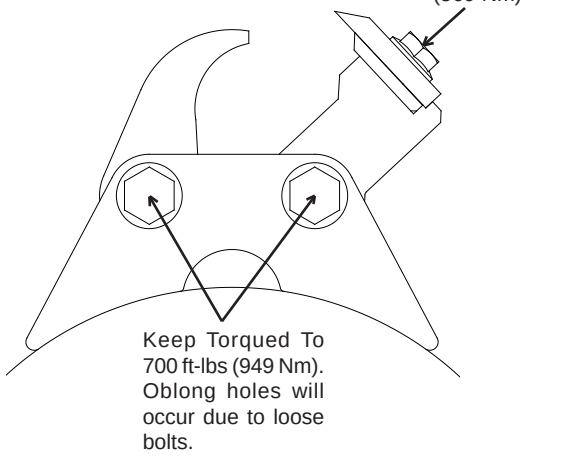
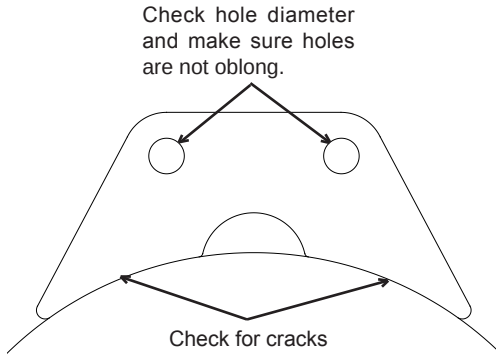
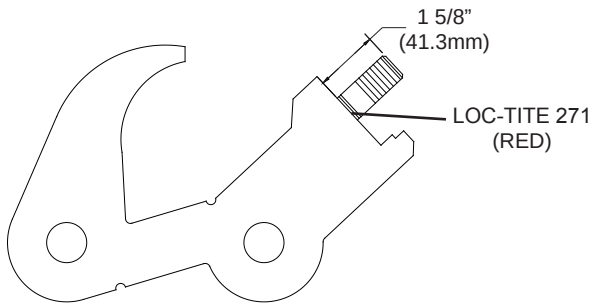


FIGURE 3



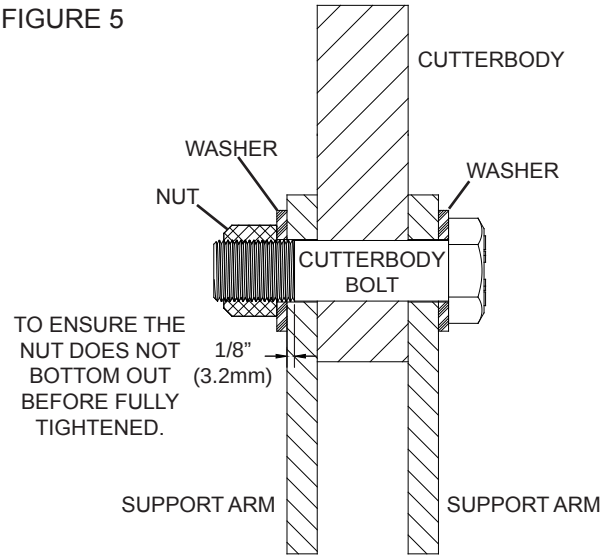
CUTTERHEAD SECTION

FIGURE 4



APPLY LOC-TITE 271 (RED) ON THE STUD AND THEN TIGHTEN THE STUD UNTIL 1 5/8" (41.3mm) IS STICKING OUT OF THE CUTTERBODY.

FIGURE 5

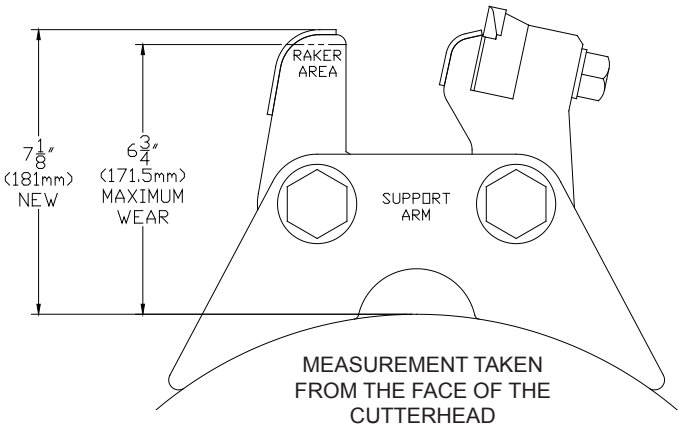


CUTTERBODY

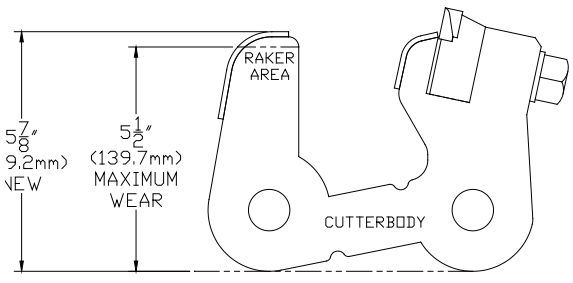
The cutterbody used in the Beast has a leading edge referred to as the "raker". The raker is designed to control the depth of cut that the cutter tooth will take. The more the raker wears, the larger the cut that the cutter tooth is allowed to take. If using a small hole screen taking large cuts means that the material has to beat around inside the cutterhead housing until small enough to exit through the screen. This robs horsepower that could be used at the cutter tooth. Also, taking bigger cuts puts undue stress on the cutterhead shaft leading to possible shaft failure.

When new, the cutterbody has a hard surface weld applied to the raker area. It is imperative that this area be maintained. The diagrams below show the height of the raker area when new and the maximum allowable wear. While in the machine these measurements are taken from the face of the cutterhead drum. When worn, remove the cutterbody from the cutterhead and build up the raker area with a hard surface weld using the dimensions below as a guide. You could also lay a worn cutterbody on a new one to see how far to build up the worn area. If using a wire feed welder, it is suggested to use a Lincoln Lincore 60-0 or a Stoody 101HC wire. If using a stick welder, it is suggested to use a Lincoln Wearshield 60 or the Stoody Stoodite 2134. If there is excessive wear, it is recommended that the cutterbody be replaced with a new one. Be careful not to build up the worn area above the height as when it was new because this will affect how the machine feeds.

Never weld on the cutterbodies while in the machine, as there is the potential for fire. It pays to have several extra cutterbodies as replacements and weld up worn ones at your leisure.



MEASUREMENT TAKEN FROM THE FACE OF THE CUTTERHEAD



MEASUREMENT TAKEN FROM A FLAT SURFACE

CUTTERBODY BOLTS

The cutterhead of the Beast uses a replaceable cutterbody that is designed to fail should something foreign get into the machine. They take an enormous amount of abuse with the bolts that hold the cutterbody in place being one of the critical components. During the initial design and testing of this machine a bolt was developed that is made special for Smoracy, LLC just for this application. The tolerances and the length of the shank make it unique to any other bolt on the market. Maintaining the proper torque of 700 ft.-lbs. (949 Nm) on this bolt is also extremely critical. Using the wrong bolts or not keeping them tight allows for movement between the cutterbody and the support arms which in turn leads to fatigue and failure. Once the cutterbody is allowed to run loose the integrity of the hole in the support arm is lost and must be replaced. Otherwise the bolt will never be able to stay tight again. If using an air wrench, check to make sure that it is capable of reaching the proper torque.

A few customers have had cutterbodies break loose from the cutterhead. In every case, it was because they were not using the proper bolt. A lot of lost time and money will occur if there is a failure due to using inferior parts. Any warranty claims will be denied if the cutterhead was run with anything other than parts supplied by Smoracy, LLC.

When ordering new cutterbodies, new bolts must be ordered as well. It is recommended to order extra to have on hand for future use.

⚠ WARNING

It is very important after you have operated a new machine for approximately an hour to shut down the machine and recheck all nuts and bolts. It is normal for nuts and bolts to loosen once on a new piece of machinery. If you tighten them now, there is a good possibility they won't loosen again. Certain nuts and bolts must be checked periodically such as cutterbody and cutter teeth nuts and bolts, etc. for torque and fit.

Most of the nuts used on the Smoracy Recycler are self locking. After a nut or bolt has been removed five times, it should be replaced to insure proper tightness. This is especially critical on the cutterbody and cutter tooth nuts and bolts!

After the engine is started, let the cutterhead turn at the lowest RPM's possible. Listen for any type of noise that is foreign. Any steel on steel noise is foreign. If you hear a noise, stop the engine, find the problem and fix it.

KNIFE GRINDING AND FILING

Only Smoracy Beast knives and hardware are recommended for use in your Smoracy grinders. Only then can you be assured of a quality product that fits and performs the best to the standards of excellence that is expected from the Smoracy grinder.

Knives MUST be kept sharp at all times for the ultimate machine and knife performance. The main cause of poor cutting performance is dull knives.

Dull Knives Cause:

- Excessive waste of engine horsepower
- Bad quality chips; chunks, slivers, etc.
- Excessive strain on knives and mounting hardware
- Excessive strain on cutterhead bearings and total machine
- Excessive chipping vibration damaging the machine
- Excessive strain on drives, PTO's, engines, etc.
- Loss of time and money

The Dulling Of Knives Is Caused By:

- Poor quality knives
- Improper anvil to knife clearance
- Dirt, grit, or foreign material on the wood
- Knives ground at wrong angle
- Improper care of knives and knife hardware

These are just a few factors, there are other situations that can lead to the dulling of knives.

NOTICE

Many times a knives cutting edge/point can be brought back to a good edge with a #10 Flat Bastard Mill File. This can reduce the amount of regrinding.

Typical Knife Grinding Angles:
Beast Knives = 36° ± 1/2° Angle

Knives should be replaced in sets. These sets are determined by the amount of resharpening done to the knives (knife width). Regrinding knives reduces the width of the knife. Knife replacement should be done in sets of the same width knives. That will reduce chipping vibration and increase chipping performance.

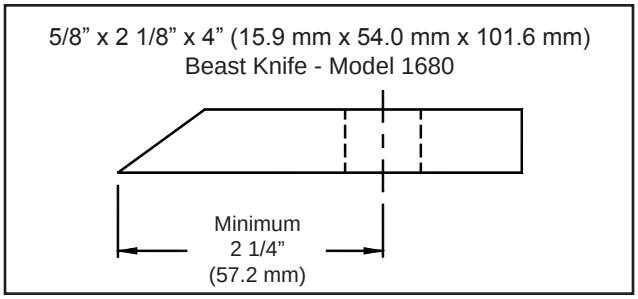
NOTICE

- Keep knives sharp.
- Keep knife angle correct when grinding.
- Do not over grind so knife is narrower than allowed width, or you will pack wood and break knives.
- Use correct knife size, knife quality, knife mounting hardware, and torque knife mounting hardware to the specified torque.
- Replace knife mounting hardware after (5) times of tightening.

⚠ CAUTION

Do not grind the knives in a direction which produces a radius, or hollow grind, on the surface of the knife. Strength and life of the cutting edge is reduced.

- For maximum chipper efficiency, the original cutting angle must be maintained when the knives are sharpened. The knives should be machine ground to produce a flat, straight edge.
- Do not sharpen the knives with a hand held power grinder. The knife angle can't be held and heat will distort the metal.
- Sharpening techniques should be the same as those employed for any high carbon steel cutting edge. Use a coolant and exercise care not to draw temper or crack the cutting edges by excessive heating.
- Knives may be sharpened repeatedly as long as their original width is not reduced to less than the specified minimum width. If a knife measures less than the specified minimum width after sharpening, it must be discarded.
- Inspect the knives after grinding to ensure the knives are free of cracks.
- Maintain spare sharpened knives to avoid downtime for knife sharpening.



REPLACING CUTTERBODIES

⚠ WARNING

Whenever servicing the cutterhead area, ALWAYS look for cracked welds and/or excessive wear on the support arms. Cracks and worn support arms could cause a cutterbody to come off the cutterhead. This will cause major damage to your machine.

⚠ DANGER

Access to the cutter teeth is under the cutterhead hood. Do not attempt any type of maintenance without first disengaging clutch, turning off engine, waiting for the cutterhead to come to a complete stop, turning battery disconnect switch off, and you must have the ignition key in **YOUR** possession.

NOTICE

ALWAYS use Smoracy, LLC replacement parts. Failure to do so may cause major damage to your machine.

CUTTERBODY REPLACEMENT

1. Follow all pre-maintenance shut down procedures. Disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, turn battery disconnect switch off, and you must have the ignition key in **YOUR** possession.
2. Unplug the engine disable plug on the curb side of the machine. See Figure 1.
3. Unbolt the cutterhead hood, there is one bolt on each side. See Figure 1.
4. Switch the power to on for the hood hydraulic power unit. The switch is located on the battery box. See Figure 2.
5. Lift the cutterhead hood with the hood hydraulic power unit.
6. Secure the cutterhead hood in the raised position with the chains. See Figure 3.
7. Block the cutterhead so that it will not turn on you when working on the cutterbodies.
8. Remove the 1” bolts and nuts that attach the cutterbody to the support arm, this will allow the cutterbody to be taken out of the cutterhead.
9. Insert the new cutterbody into the support arms. Use only 1” bolts supplied by Smoracy, LLC to put back together. Failure to do so, may cause premature failure to the cutterbodies and will cause damage to your machine. (Tighten the 1” fine threaded bolts and nuts to 700 ft.-lbs. or 949 Nm.)
10. Lower the cutterhead hood and bolt the hood in position.
11. Switch the hood hydraulic power unit to off.
12. Check all screen, anvil, and infeed chain clearances. (1/4” or 6.4 mm minimum on anvil and screen) (as close as possible which is approximately 1/8” or 3.2 mm minimum on infeed conveyor chain).
13. Plug the engine disable plug on the curb side of the machine back together.

REPLACING CUTTERBODIES

Figure 1

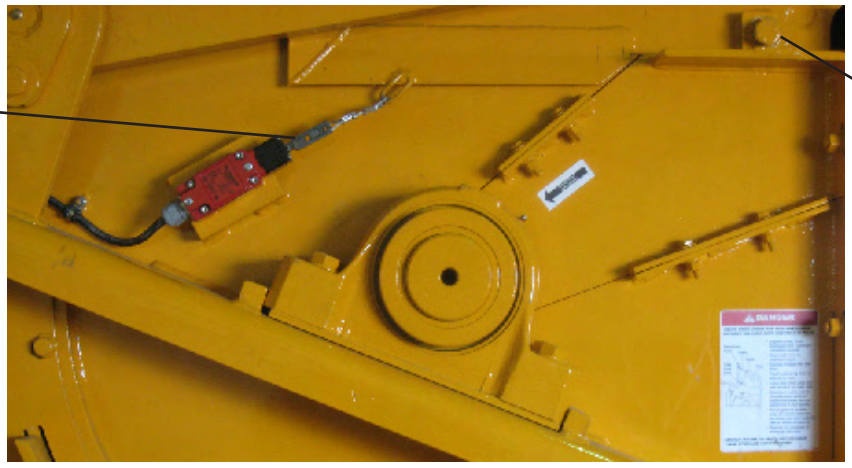


Figure 2

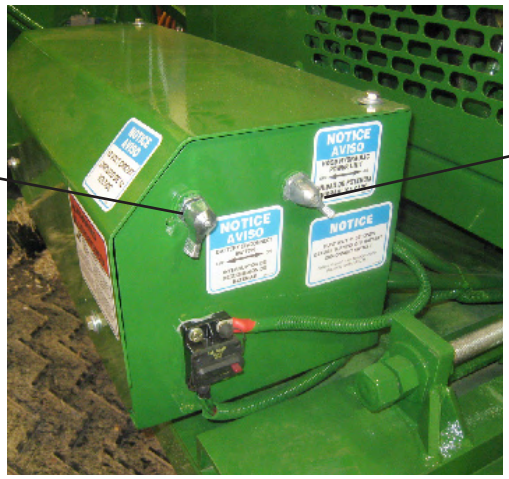


Figure 3

REPLACING CUTTER TEETH

⚠ WARNING

Whenever servicing the cutterhead area, ALWAYS look for cracked welds and/or excessive wear on the support arms. Cracks and worn support arms could cause a cutterbody to come off the cutterhead. This will cause major damage to your machine.

⚠ DANGER

Access to the cutter teeth is under the cutterhead hood. Do not attempt any type of maintenance without first disengaging clutch, turning off engine, waiting for the cutterhead to come to a complete stop, turning battery disconnect switch off, and you must have the ignition key in **YOUR** possession.

NOTICE

ALWAYS use Smoracy, LLC replacement parts. Failure to do so may cause major damage to your machine.

TEETH REPLACEMENT

1. Follow all pre-maintenance shut down procedures. Disengage clutch, turn off engine, wait for the cutterhead to come to a complete stop, turn battery disconnect switch off, and you must have the ignition key in **YOUR** possession.
2. Unplug the engine disable plug on the curb side of the machine. See Figure 1.
3. Unbolt the cutterhead hood, there is one bolt on each side. See Figure 1.
4. Switch the power to on for the hood hydraulic power unit. The switch is located on the battery box. See Figure 2.
5. Lift the cutterhead hood with the hood hydraulic power unit.
6. Secure the cutterhead hood in the raised position with the chains. See Figure 3.
7. Block the cutterhead so that it will not turn on you when working on the cutter teeth.
8. Remove the 3/4” bolt from the cutter tooth and then remove the tooth. If your machine is equipped with Beast knives, remove the 3/4” nut and then remove the Beast knife and check the counter knife.
9. Install a new cutter tooth and tighten bolt to 376 ft.-lbs. (510 Nm). If your machine is equipped with Beast knives, install a counter knife and new Beast knife and tighten nut to 420 ft.-lbs. (569 Nm).
10. Lower the cutterhead hood and bolt the hood in position.
11. Switch the hood hydraulic power unit to off.
12. Check all screen, anvil, and infeed chain clearances. (1/4” or 6.4 mm min. on anvil and screen) (as close as possible which is approximately 1/8” or 3.2 mm minimum on infeed conveyor chain).
13. Plug the engine disable plug on the curb side of the machine back together.

TOOTH LIFE

Tooth life depends on the amount of abrasive materials and contaminates in the raw material, the amount of production being processed, and how fine the end product is.

As a general rule we suggest that you change your worst 6 teeth daily if they need it or not. You can use these teeth for future running if some may break or go bad. Changing the six worst teeth will keep your cutterhead operating well.

For maximum productivity never stack logs or railroad ties. Allow this type of material to go through in a single layer. Contact your local dealer or Bandit Industries for further questions.

REPLACING CUTTER TEETH

Figure 1

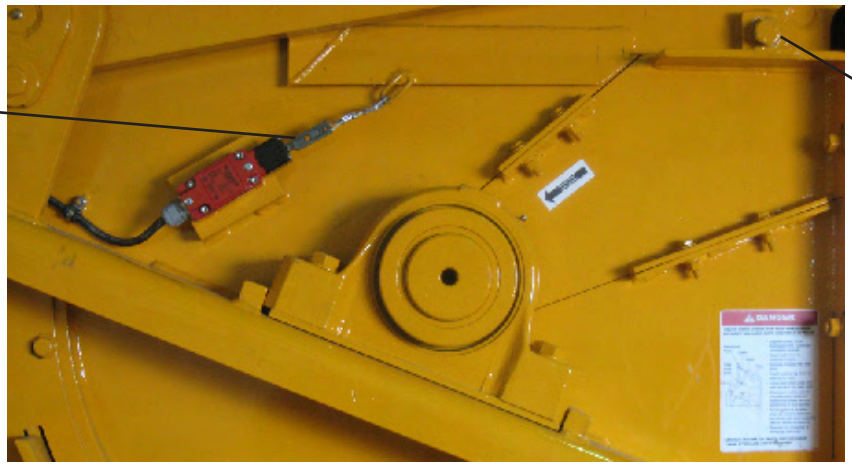


Figure 2

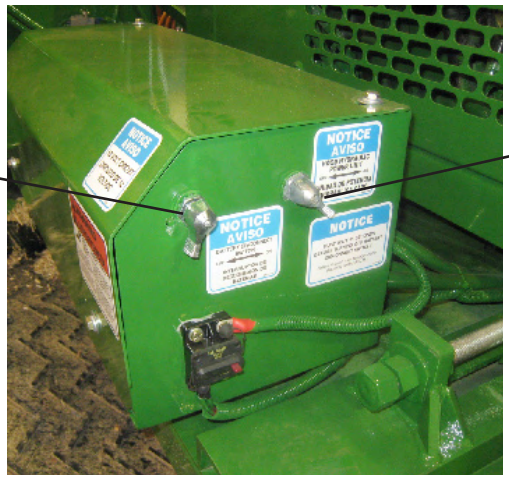


Figure 3

LUBRICATION & COOLANT

1) Engine:
Follow original equipment manufacturer's requirements for both changing oils and filters, refer to engine manual specifications.

2) Engine Coolant:
Refer to engine manufacturer's manual specifications.

3) Clutch:
Follow original equipment manufacturer's requirements for both greasing and adjusting. Frequently, adjust and lubricate per PTO manufacturer's manual.

4) Wheel Bearings:
Follow axle manufacturer's instructions for greasing or oiling wheel bearings.

5) Tracks (if equipped):
Follow track manufacturer's instructions for specific track lubricating procedures.

6) Hydraulic Reservoir Tank:
Completely change hydraulic oil, suction screen(s), and flush the tank annually. Change hydraulic oil filter(s) AFTER FIRST 10 HOURS OF OPERATION. Then change hydraulic oil filter(s) every 3 months or 400 hours thereafter. Maintain hydraulic oil level 7/8 full. See hydraulic oil requirements below. Check hydraulic oil level in tank daily.

7) Hydraulic Fluid Requirements:
See pages 65 - 66 for hydraulic fluid requirements.

8) Cutterhead, Feedwheel, Infeed, & Discharge Bearings:
Use an EP-2 Lithium type grease only for all bearings. Purge all bearings with grease daily, you can not over grease these bearings. The bearings are designed with a relief system that will not allow over greasing. In other words, you can not hurt the bearing seals by pumping in to much grease. Wipe off excess grease. **Excessive grease will attract dirt.**

Most of the failures related to bearings are diagnosed as "Contamination". Contamination is caused by improper lubrication.

Especially important is proper lubrication when the chipper is setting idle. The bearings must be fully purged when shut down. Then the bearings must be again fully purged each thirty (30) days and the machine allowed to run for approximately 10 minutes. Then fully purged again before the machine is put back into operation. Failure to do this will ruin the bearings. Bearings corrode when the machine is setting idle.

The second largest cause of bearing failure is operating them at high speeds when the grease is cold. This causes the bearing race to turn on the shaft. Naturally this ruins the bearing as well as the shaft. Allow the bearings to turn at slower speeds for at least five minutes. Also check the bearing lock collar set screws or bearing locknut for tightness each 30 days. Loose set screws or locknut allows the race to turn on the shaft. Failed bearings diagnosed as contamination or cold starts at high speed are not covered by warranty of the bearing manufacturer.

9) Grease cylinder lug pin bushings:
Grease cylinder lug pin bushings on the yoke and brush assist pan (if equipped) weekly with 1 to 2 shots of EP-2 Lithium type grease. Wipe off excessive grease. **Excessive grease will attract dirt.**

10) Infeed Conveyor Chain Adjusters:
Grease infeed conveyor chain adjusters weekly with 1 to 2 shots of EP-2 Lithium type grease. Wipe off excessive grease. **Excessive grease will attract dirt.**

11) Pivoting And Hinged Areas:
Lubricate all pivoting and hinged areas weekly. (i.e. cabinet doors, brush assist pan, etc.)

12) Pintle Eye Ring:
Keep greased to reduce wear and extend the normal life of your pintle eye ring.

13) Feedwheel Gear Box:
Change gear lube after first 50 hours and 100 hours, then every 6 months or every 1000 hours afterwards. Requires 31 oz. (.92 L) of 80W/90 type gear lube, keep full.

14) Infeed Conveyor Gear Box:
Change gear lube after first 50 hours and 100 hours, then every 6 months or every 1000 hours afterwards. Requires 22 oz. (.65 L) of 80W/90 type gear lube, keep full.

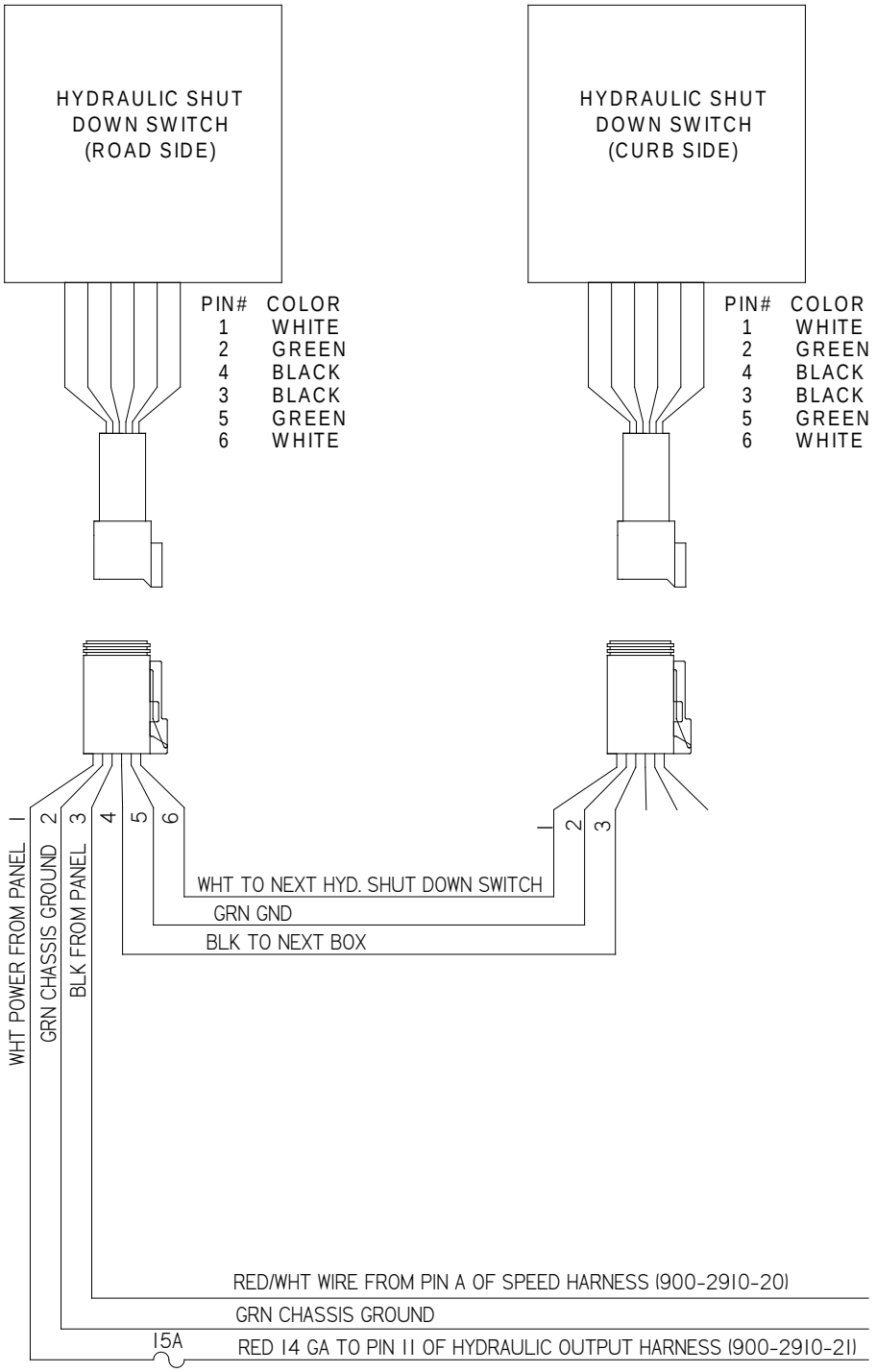
15) Hydraulic Power Unit:
Change fluid yearly. Requires ATF Dexron III / Mercon type transmission fluid, keep full.

16) Pump Bearing Block(s) (if equipped):
Check and keep the fluid level in the pump bearing block(s) full weekly, use an 80W/90 type gear lube. Pack the female splines of the bearing block(s) every 6 months or every 1000 hours with an EP-2 Lithium type grease.

ELECTRICAL SECTION

HYDRAULIC SHUT DOWN SCHEMATIC

SPECIFIC SCHEMATIC FUNCTION MAY VARY
DEPENDING ON OPTIONS OR COMPONENT MANUFACTURER.



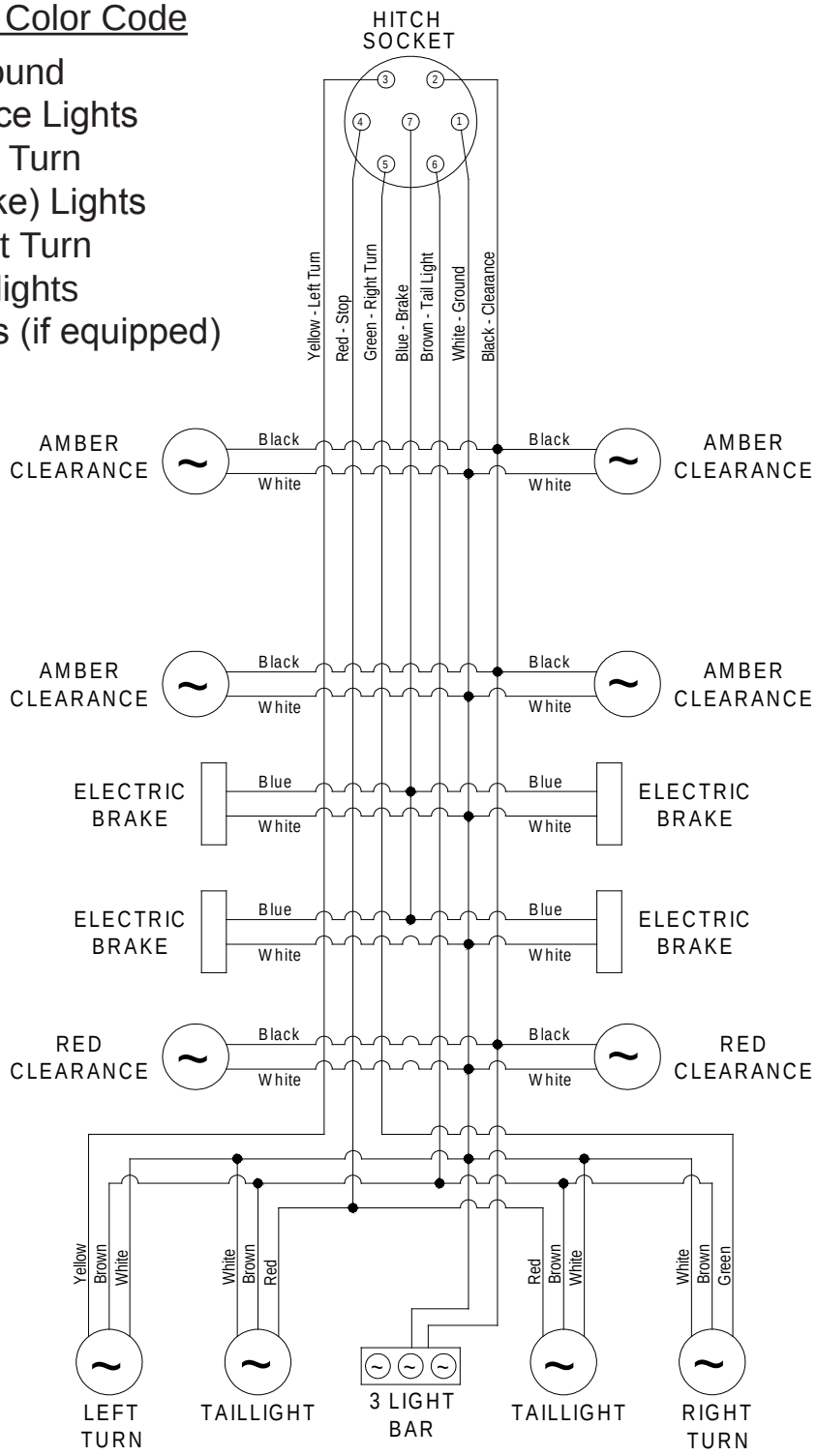
ELECTRICAL SECTION

TRAILERIZED TAILLIGHT SCHEMATIC

SPECIFIC SCHEMATIC FUNCTION MAY VARY
DEPENDING ON OPTIONS OR COMPONENT MANUFACTURER.

7 Wire Main Cable Color Code

White - Ground
Black - Clearance Lights
Yellow - Left Turn
Red - Stop (Brake) Lights
Green - Right Turn
Brown - Taillights
Blue - Electric Brakes (if equipped)



Smoracy, LLC

REPLACEMENT PARTS SECTION

Depending on what replacement parts you are ordering
the following information will be needed:

RECYCLER COMPONENTS	ENGINE COMPONENTS	CLUTCH COMPONENTS
Serial Number	Brand	Brand
Model Number of Recycler	Engine Serial Number	Serial Number
	Engine Spec. Number	Assembly Number of Clutch

NOTICE

When ordering any replacement parts you should have the serial number (S/N) and model of the machine to ensure that you receive the correct replacement part. See page 6 for typical serial number & work order number locations.

NOTICE

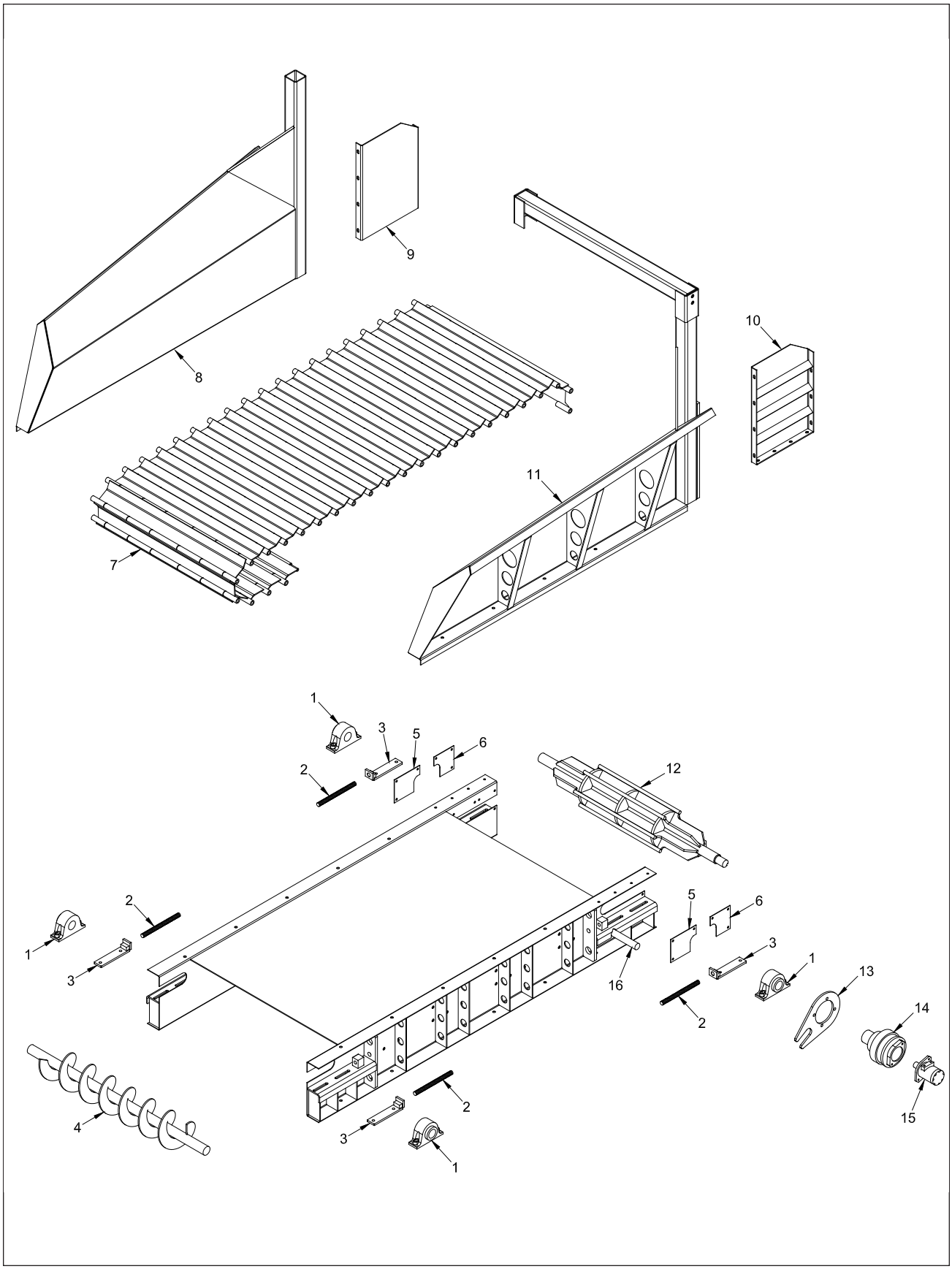
All nuts, bolts, washers, and many other components can be ordered by physical description.

NOTICE

Some of the components shown in this section are for optional equipment and may not apply to every machine.

NOTICE

Smoracy, LLC reserves the right to make changes in models, size, design, installations and applications on any part without notification.

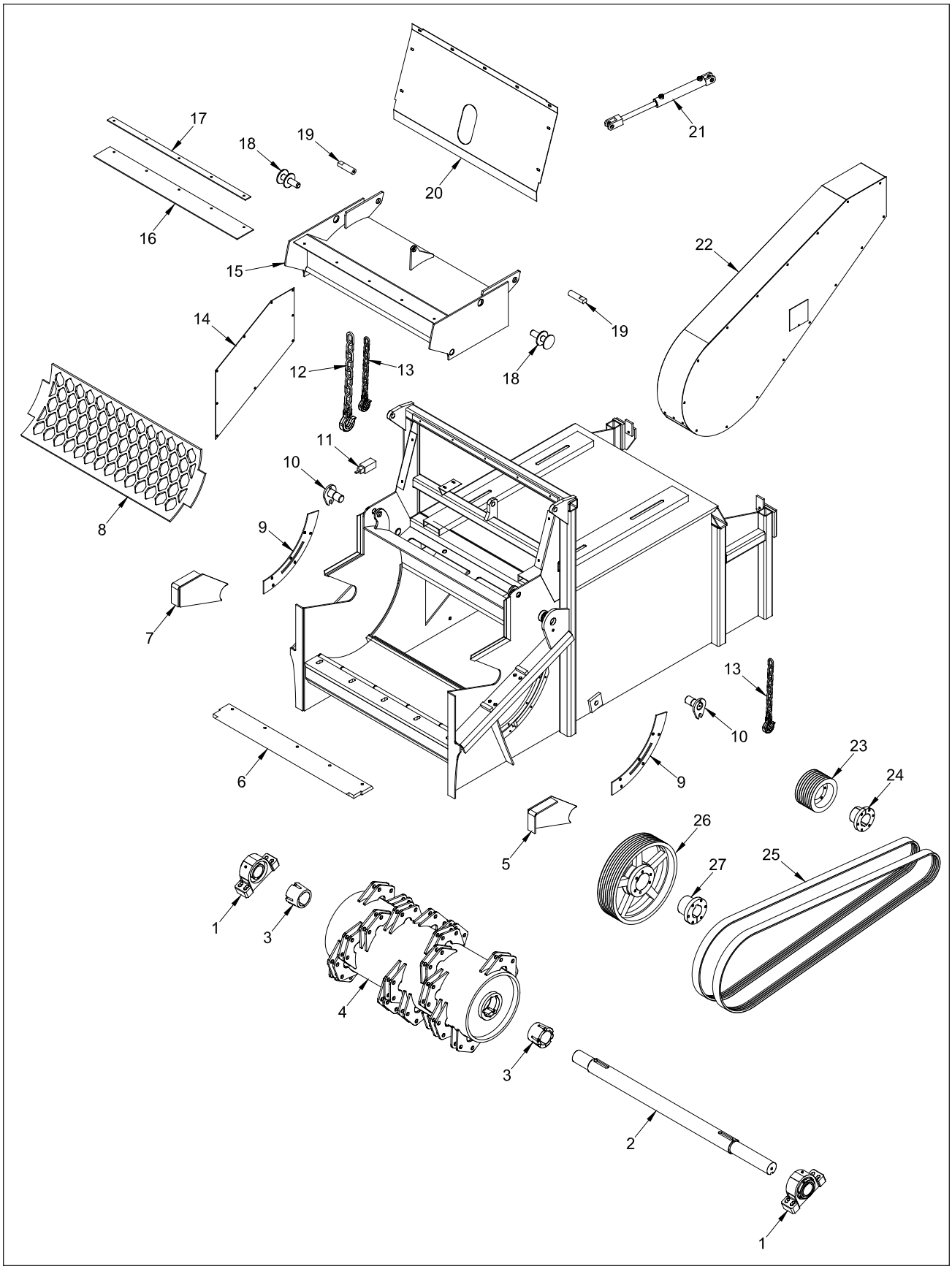


NOTICE Parts may not be exactly as shown.

Smoracy, LLC

LOCATION	PART NUMBER	DESCRIPTION
1.	900-1906-33	Infeed Tail Shaft Bearing / Infeed Head Shaft Bearing
2.	982-300588	Bearing Adjustment Rod - 1”-8NC x 13”
3.	977-200267	Bearing Pad
4.	982-200052	Infeed Tail Shaft Assembly
5.	982-300530	Infeed Head Shaft Filler
6.	982-300529	Infeed Head Shaft Filler
7 a.	982-100026	Infeed Conveyor Chain Assembly
b.	982-100022	Single Chain Link Assembly (Not Shown)
c.	982-300524	Pin (Not Shown)
8.	982-200072	Infeed Side Assembly - Curb Side
9.	982-200048	Yoke Housing Assembly - Curb Side
10.	982-200047	Yoke Housing Assembly - Road Side
11.	982-200071	Infeed Side Assembly - Road Side
12.	982-100021	Infeed Head Shaft Assembly
13.	982-300463	Torque Arm
14.	900-3940-60	Infeed Gear Box
15.	900-3942-29	Infeed Hydraulic Motor
16.	982-300228	Torque Arm Stop

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**



NOTICE Parts may not be exactly as shown.

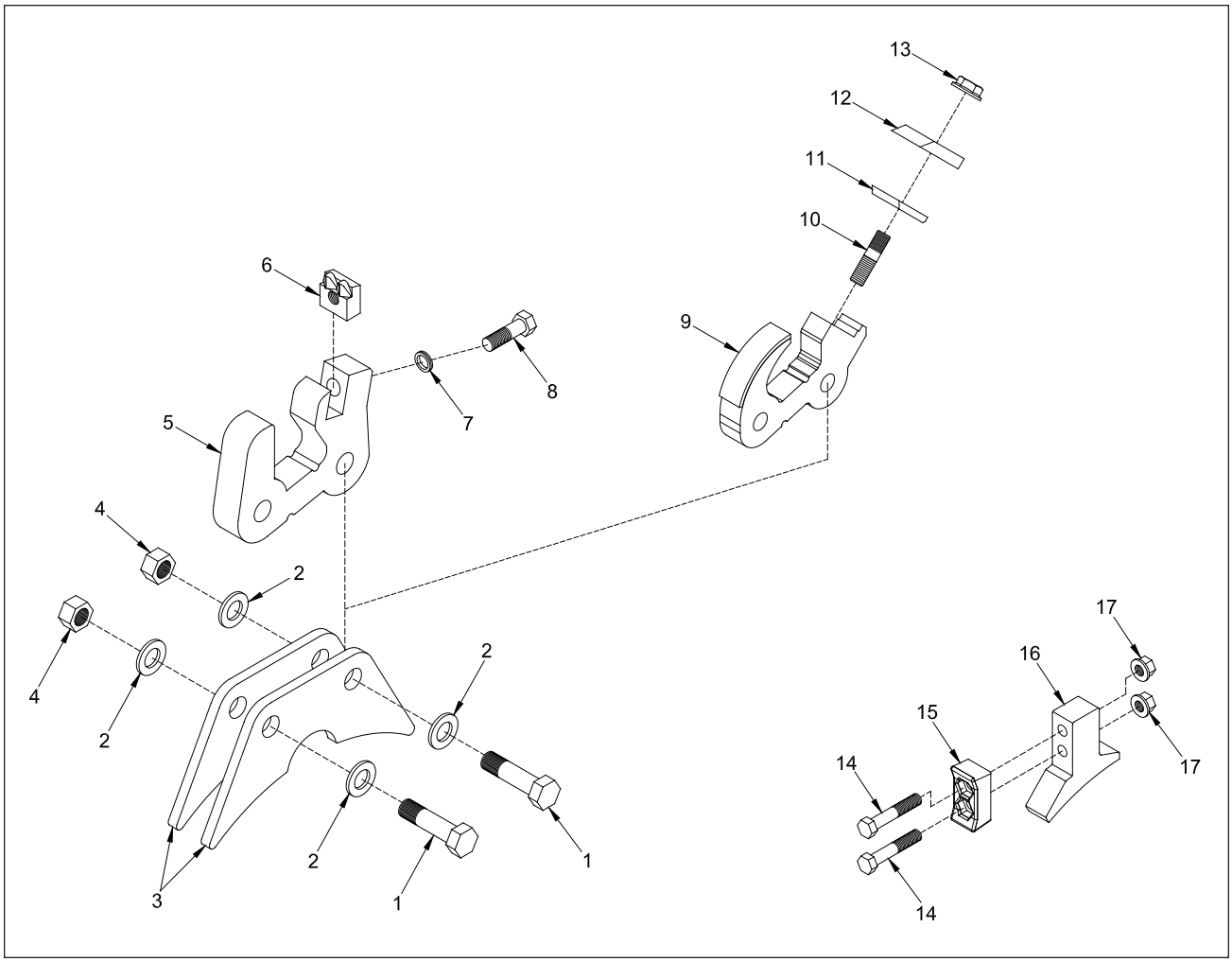
Smoracy, LLC

LOCATION	PART NUMBER	DESCRIPTION
1.	900-1913-76	Cutterhead Bearing
2.	982-300007	Cutterhead Shaft Only
3.	900-1907-17	Cutterhead Taperlock Bushing
4.	982-100000	Cutterhead Assembly (Includes 2 & 3)
5.	982-200097	Base Side Cover - Road Side
6.	982-300437	Anvil
7.	982-200098	Base Side Cover - Curb Side
8.	See Page 88	Screens
9.	982-300580	Screen Retainer Plate
10.	977-200155	Yoke Pivot Pin
11.	900-2916-31	Cutterhead Engine Disable Switch
12 a.	982-100031	Yoke Safety Chain Assembly
b.	900-4904-42	Hook Only
13 a.	982-100032	Hood Safety Chain Assembly
b.	900-4913-12	Hook Only
14.	982-300382	Discharge Clean Out Panel
15.	982-200043	Hood Assembly
16.	982-300690	Rubber Flap - Yoke / Base
17.	982-300688	Rubber Flap Washer Plate
18.	982-200094	Yoke Lock Pin
19.	900-3936-59	Hood Pivot Pin
20.	982-300177	Head Lift Pump Access Panel
21 a.	900-3925-03	Hood Lift Cylinder
b.	900-3923-05	Lock Valve (Not Shown)
22.	982-200081	Beltshield Assembly
23.	**	Engine Sheave
24.	**	Engine Bushing
25.	**	Drive Belts
26.	**	Cutterhead Sheave
27.	**	Cutterhead Bushing

****** Components vary with engine options, order by S/N of machine or physical description**.**

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**

Smoracy, LLC



LOCATION	PART NUMBER	DESCRIPTION
1.	900-4908-78	1”-14NS x 3 7/8” Cutterbody Bolt
2.	900-6907-68	Cutterbody Washer
3.	982-300044	Support Arm
4.	900-4904-92	1”-14NS Cutterbody Nut
5.	982-300045	Cutterbody
6.	See Page 87	Cutter Tooth
7.	900-4905-91	3/4” Nordlock Washer
8.	900-4902-78	3/4”-10NC x 2 1/2” Cutter Tooth Bolt
9.	982-200116	Cutterbody For Beast Knives
10.	977-303081	3/4” x 3” Stud
11.	977-303080	Counter Knife
12.	977-303079	Beast Knife
13.	900-4914-26	3/4”-16NF Stover Flange Nut
14.	900-4906-98	5/8”-11NC x 3 1/2” Wiper Insert Bolt
15.	See Page 87	Wiper Insert
16.	977-300085	Wiper Insert Mount
17.	900-4913-17	5/8”-11NC Locking Flange Wiper Insert Nut

NOTICE Parts may not be exactly as shown.

Smoracy, LLC

TOOTH & WIPER INSERT STYLES

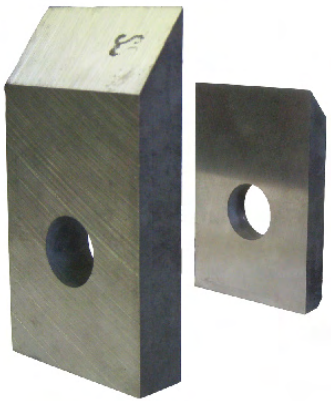
DOUBLE SPLITTER TOOTH
Part Number: 977-100137

DOUBLE BLUNT NOSE SPLITTER TOOTH
Part Number: 982-100023

DOUBLE BUTCHER TOOTH
Part Number: 982-100024

DOUBLE 1” CARBIDE TOOTH
Part Number: 977-100221

2” WIDE G-55 TOOTH
Part Number: 977-200233



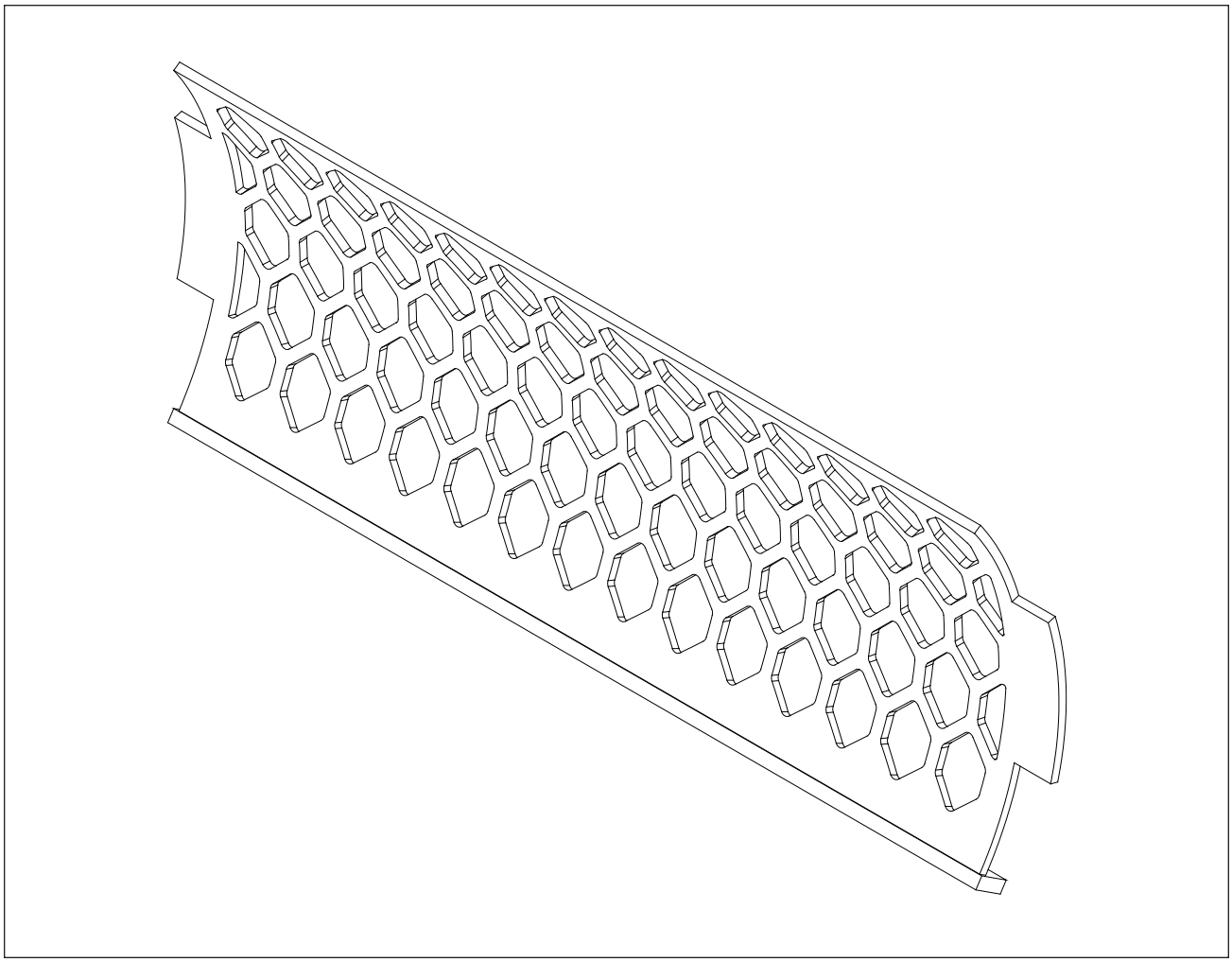
BEAST KNIFE
Part Number: 977-303079
COUNTER KNIFE
Part Number: 977-303080

WIPER INSERT WITH HARD FACING
Part Number: 901-100000

WIPER INSERT WITH CARBIDE SPRINKLE
Part Number: 901-100009

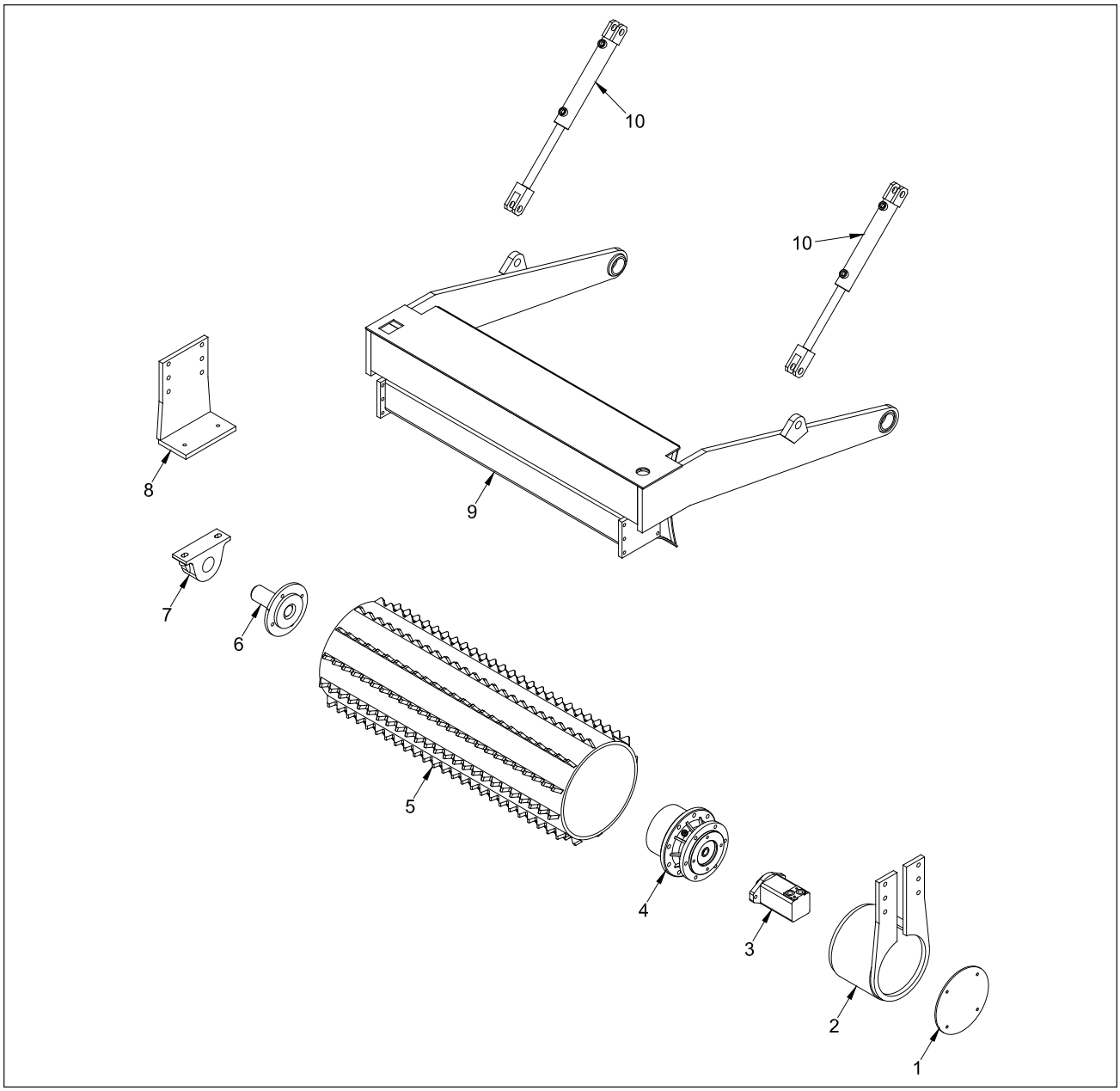
NOTICE Parts may not be exactly as shown.

Smoracy, LLC



LOCATION	PART NUMBER	DESCRIPTION
	MACHINES WITH S/N 1011 AND UP	
1 a.	982-200099	1” Modified Diamond Screen
b.	982-200090	2” Modified Diamond Screen
c.	982-200082	3” Modified Diamond Screen
d.	982-200091	4” Modified Diamond Screen
e.	982-200092	5” Modified Diamond Screen
f.	982-200093	6” Modified Diamond Screen
	MACHINES WITH S/N 1007, 1008, 1009, & 1010 ONLY	
g.	982-300339	1” Modified Diamond Screen
h.	982-300338	2” Modified Diamond Screen
i.	982-300189	3” Modified Diamond Screen
j.	982-300469	4” Modified Diamond Screen
k.	982-300470	5” Modified Diamond Screen
l.	982-300471	6” Modified Diamond Screen

NOTICE Parts may not be exactly as shown.

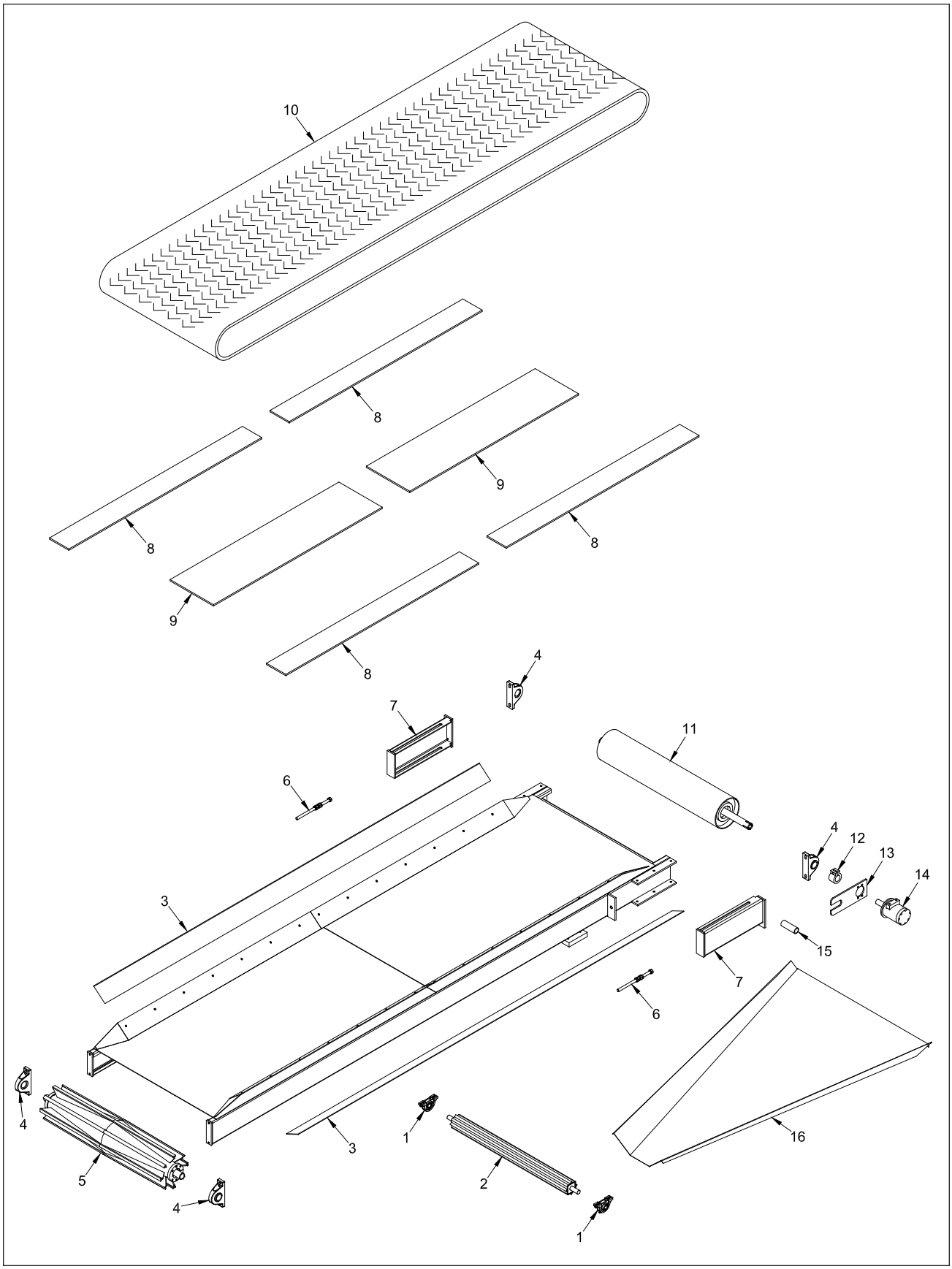


LOCATION	PART NUMBER	DESCRIPTION
1.	982-300429	Feedwheel Drive Cover
2.	982-200057	Feedwheel Drive Mount Assembly
3.	900-3940-49	Feedwheel Drive Motor
4.	900-3931-38	Feedwheel Drive Gear Box
5.	982-200001	Feedwheel Assembly
6.	982-200028	Feedwheel Idler Stub Shaft Assembly
7.	900-1906-33	Feedwheel Idler Bearing
8.	982-200056	Feedwheel Idler Bearing Mount Assembly
9.	982-200055	Yoke Assembly (Includes 2 & 8)
10.	900-3925-03	Yoke Cylinder

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**

NOTICE Parts may not be exactly as shown.

Smoracy, LLC



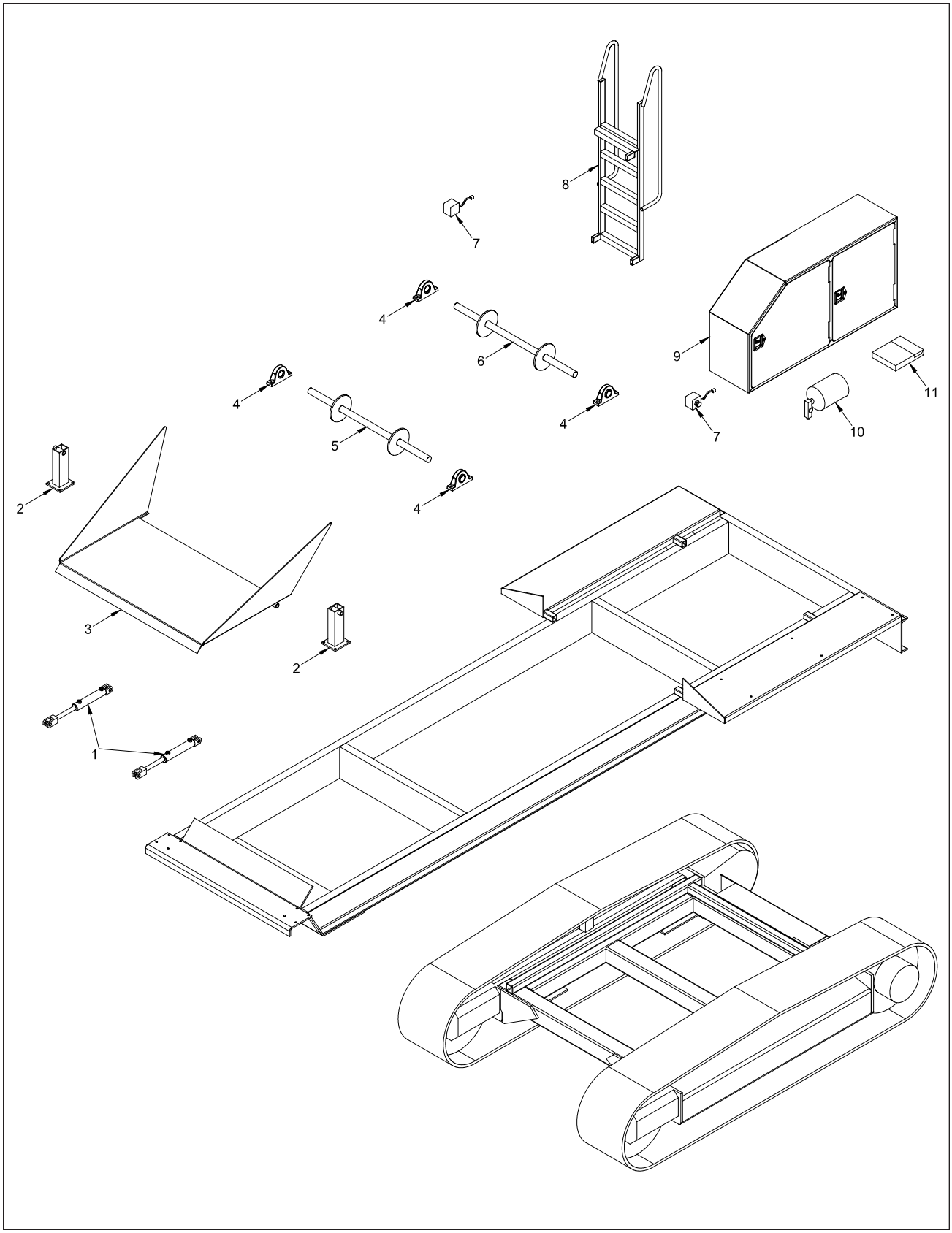
NOTICE Parts may not be exactly as shown.

Smoracy, LLC

LOCATION	PART NUMBER	DESCRIPTION
1.	900-1908-79	Bearing For Shaker Roller
2.	982-200108	Discharge Shaker Roller Assembly
3.	982-300668	Rubber Discharge Panning To Base Wall Filler
4.	900-1905-10	Bearing For Idler Wheel & Magnetic Head Drive Pulley
5 a.	977-100001	Fanned Idler Wheel Assembly
b.	977-301188	Idler Wheel Shaft Only
c.	900-1909-35	Idler Wheel Bushing Only
6 a.	977-301829	Discharge Drive Adjuster Rod
b.	900-4910-17	Discharge Drive Adjuster Nut
c.	900-4910-19	Discharge Drive Adjuster Jam Nut
7.	982-200085	Discharge Drive Adjuster Assembly
8.	982-300589	Discharge Panning Side Plastic
9.	900-7901-02	Discharge Panning Middle Plastic
10.	900-1915-08	Conveyor Belt
11 a.	900-1906-71	Magnetic Head Drive Pulley Assembly
b.	982-300233	Shaft Only For Magnetic Head Drive Pulley
12 a.	977-301338	Lee-Tite Coupler
b.	977-301339	Key For Lee-Tite Coupler (Not Shown)
13.	983-300913	Torque Arm
14.	900-3923-12	Magnetic Head (Discharge) Hydraulic Motor
15.	977-301182	Torque Arm Stop
16.	982-300704	Discharge Chute

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**

TRACK FRAME



NOTICE Parts may not be exactly as shown.

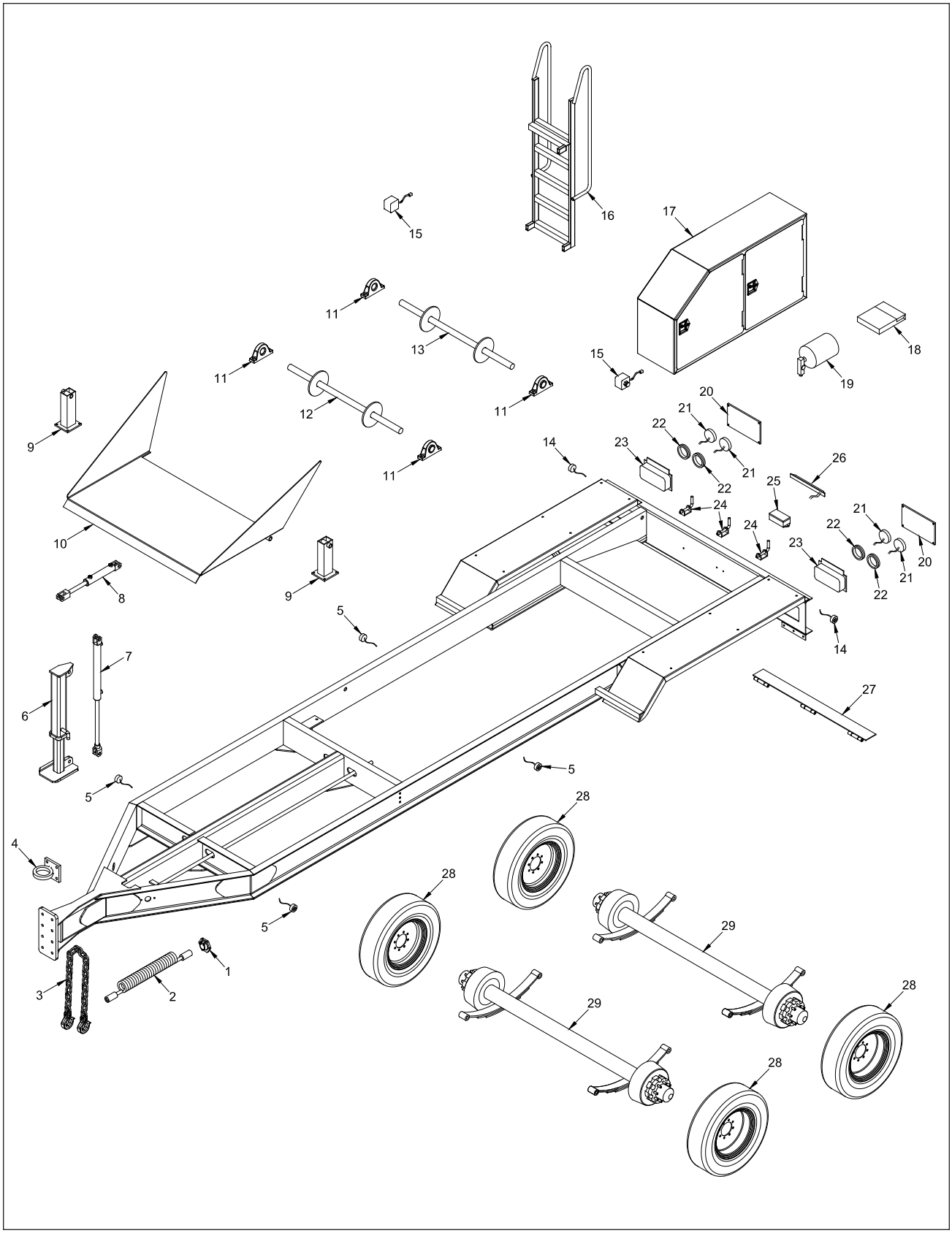
Smoracy, LLC

TRACK FRAME

LOCATION	PART NUMBER	DESCRIPTION
1.	900-3927-32	Brush Assist Pan Cylinder
2.	982-200086	Brush Assist Pan Assembly
3.	982-200069	Brush Assist Pan Mount Post Assembly
4.	900-1905-10	Infeed Idler Bearing
5.	982-200110	Infeed Idler Assembly
6.	982-200078	Infeed Idler Assembly
7 a.	900-2914-65	Hydraulic Shut Down Assembly With Side Wire
b.	900-2914-66	Hydraulic Shut Down Switch Only
c.	900-2901-06	Box Only For Hydraulic Shut Down
d.	900-2914-67	Cover With LED Light Only For Hydraulic Shut Down
e.	900-2914-68	Harness With Crimp Connectors For Hydraulic Shut Down
8.	982-200063	Rear Ladder Assembly
9 a.	982-200068	Cabinet Assembly
b.	900-4908-19	“T” Handle Latch
c.	CH545	Key For “T” Handle Latch
10.	900-9903-01	Fire Extinguisher
11.	900-9902-07	Manual Holder

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**

TRAILERIZED FRAME



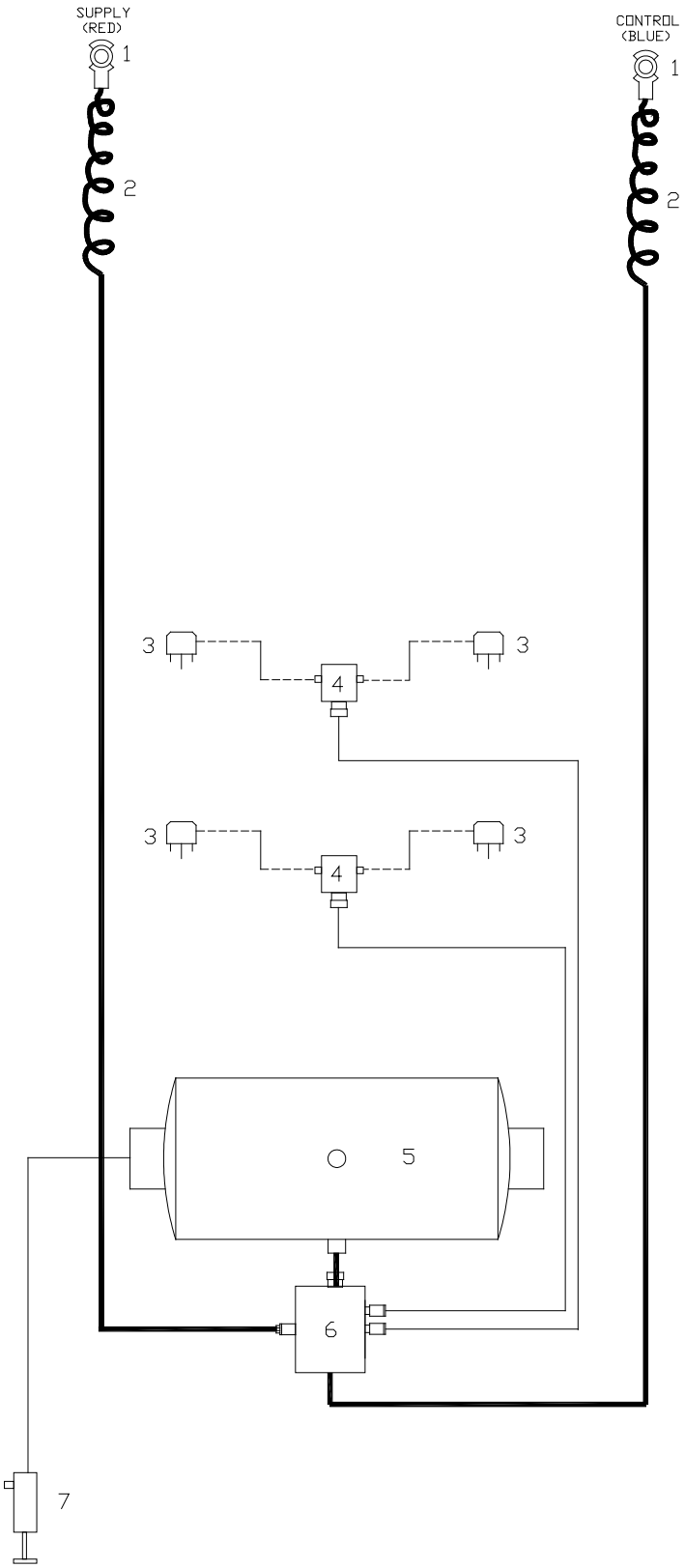
NOTICE Parts may not be exactly as shown.

Smoracy, LLC

TRAILERIZED FRAME

LOCATION	PART NUMBER	DESCRIPTION
1 a.	900-2918-83	Taillight Connector Socket
b.	900-2918-84	Rubber Boot (Not Shown)
2.	900-2911-13	Taillight Pigtail Connector
3 a.	977-100053	Safety Chain With Hooks And Spring Latches
b.	900-4904-42	Hook Only
4.	900-5900-71	3” Pintle Hitch
5 a.	900-2910-17	Amber LED Marker Light
b.	900-2913-08	Marker Light Pigtail
6.	982-100003	Tongue Jack Assembly
7.	900-3926-64	Tongue Jack Cylinder
8.	900-3927-32	Brush Assist Pan Cylinder
9.	982-200096	Brush Assist Pan Mount Post Assembly
10.	982-200036	Brush Assist Pan Assembly
11.	900-1905-10	Infeed Idler Bearing
12.	982-200110	Infeed Idler Assembly
13.	982-200078	Infeed Idler Assembly
14 a.	900-2909-60	Red LED Marker Light
b.	900-2913-08	Marker Light Pigtail
15 a.	900-2914-65	Hydraulic Shut Down Assembly With Side Wire
b.	900-2914-66	Hydraulic Shut Down Switch Only
c.	900-2901-06	Box Only For Hydraulic Shut Down
d.	900-2914-67	Cover With LED Light Only For Hydraulic Shut Down
e.	900-2914-68	Harness With Crimp Connectors For Hydraulic Shut Down
16.	982-200063	Rear Ladder Assembly
17 a.	982-200068	Cabinet Assembly
b.	900-4908-19	“T” Handle Latch
c.	CH545	Key For “T” Handle Latch
18.	900-9902-07	Manual Holder
19.	900-9903-01	Fire Extinguisher
20.	977-301530	Poly Tail Light Cover
21 a.	900-2908-76	LED Tail Light
b.	900-2908-74	Adapter Wire For LED Tail Light (Not Shown)
22.	900-2908-75	Rubber Grommet For LED Tail Light
23.	900-2908-78	Tail Light Mount Box
24 a.	900-4904-90	Spring Latch - 3/4”
b.	900-7900-96	Rubber Cap (Not Shown)
25.	900-2902-41	Junction Box For Wiring
26.	900-2902-81	LED 3 Light Bar
27.	982-200111	Clean-Out Door Assembly
28 a.	900-5904-76	235/75R-17.5” Tire & Steel, 8-Bolt Rim
b.	900-5908-81	235/75R-17.5” Tire & Aluminum, 8-Bolt Rim
c.	900-5904-48	235/75R-17.5” Tire Only
d.	900-5904-49	17.5” x 6.75” Steel, 8-Bolt Rim Only
e.	900-5908-78	17.5” x 6.75” Aluminum, 8-Bolt Rim Only
29 a.	900-5908-71	12,000 Lb. Leaf Spring Axle Assembly With Air Brakes
b.	900-5905-31	12,000 Lb. Leaf Spring Axle Assembly With Electric Brakes
c.	900-5904-39	10,000 Lb. Torflex Axle Assembly With Electric Brakes

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**



NOTICE Parts may not be exactly as shown.

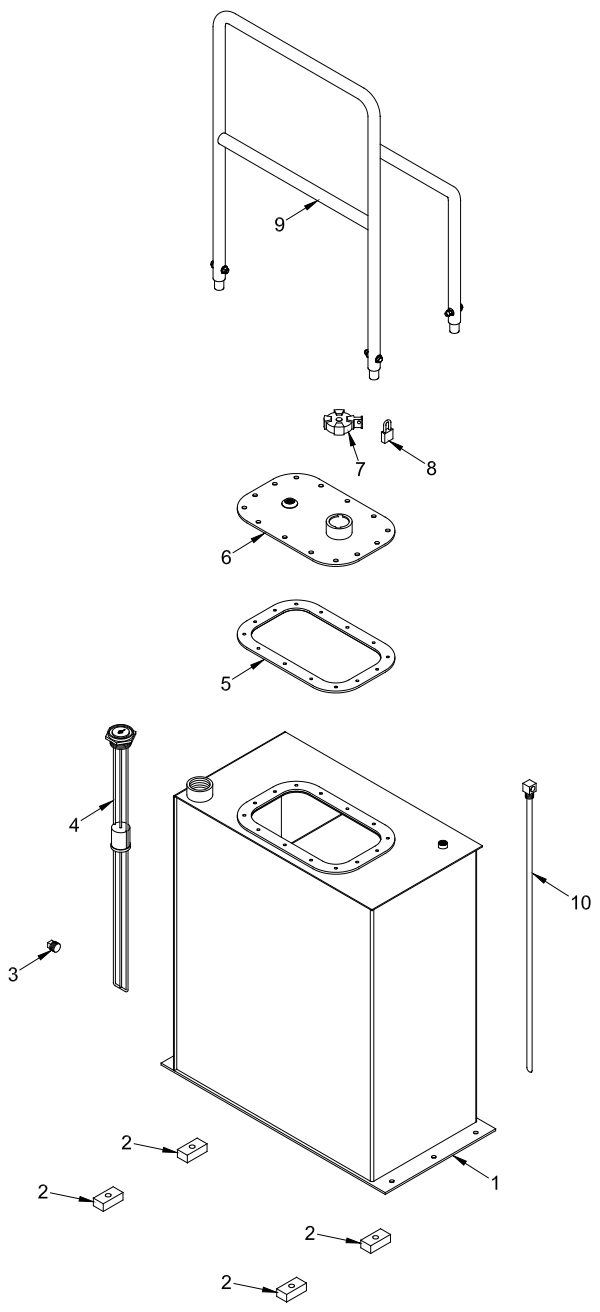
Smoracy, LLC

LOCATION	PART NUMBER	DESCRIPTION
1.	900-5903-81	Glad Hands
2.	900-3911-17	Coil Flex Hose (1 Set)
3 a.	**	Air Chamber - 10,000 lb Axle
b.	**	Air Chamber - 12,000 lb Axle
4.	900-3925-61	Quick Release Valves
5.	900-5905-56	Air Tank
6.	900-5905-57	Air Tank Regulator
7.	901-100001	Brake Air Release Assembly
Assorted Regulator and Tank Fittings (Not Shown)		
8.	900-9900-34	150 lb. safety check
9.	900-9900-32	1/4” NPT Petcock

**** Order By Serial Number Of Machine, Will Vary With Different Axles And Options.**

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**

FUEL TANK



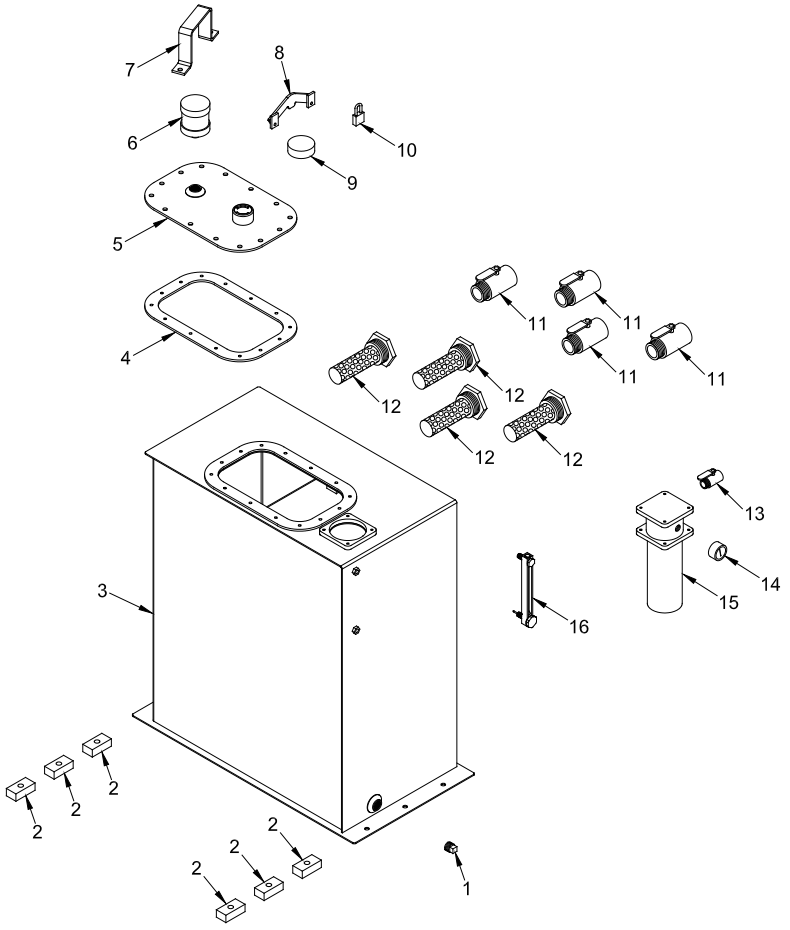
NOTICE Parts may not be exactly as shown.

FUEL TANK

LOCATION	PART NUMBER	DESCRIPTION
1.	982-200054	Fuel Tank Assembly (Includes 3,5,6, & 7)
2.	900-7900-14	Rubber Tank Mount Isolators
3.	900-3922-60	Magnetic Drain Plug
4.	900-2923-28	Rochester Sight Gauge For Fuel Tank - 36”
5.	982-300639	Tank Top Seal - Fuel & Hydraulic
6.	982-300180	Tank Cover - Fuel & Hydraulic
7 a.	900-3934-56	Fuel Locking Fill Cap - Green (Replaces 900-3917-71)
b.	900-3935-06	Keeper For Fuel & Hydraulic Locking Fill Cap (Not Shown)
8 a.	900-4912-40	Padlock With Short Shackle For Tank With Locking Cap
b.	P812	Key For Padlock (Not Shown)
9.	982-200065	Curb Side Hand Rail Assembly
10.	900-3933-66	Drop Pipe Assembly For Suction Line (Without Hose Barb)

NOTICE Tank assemblies vary with options.
Specify all options when ordering.

HYDRAULIC TANK



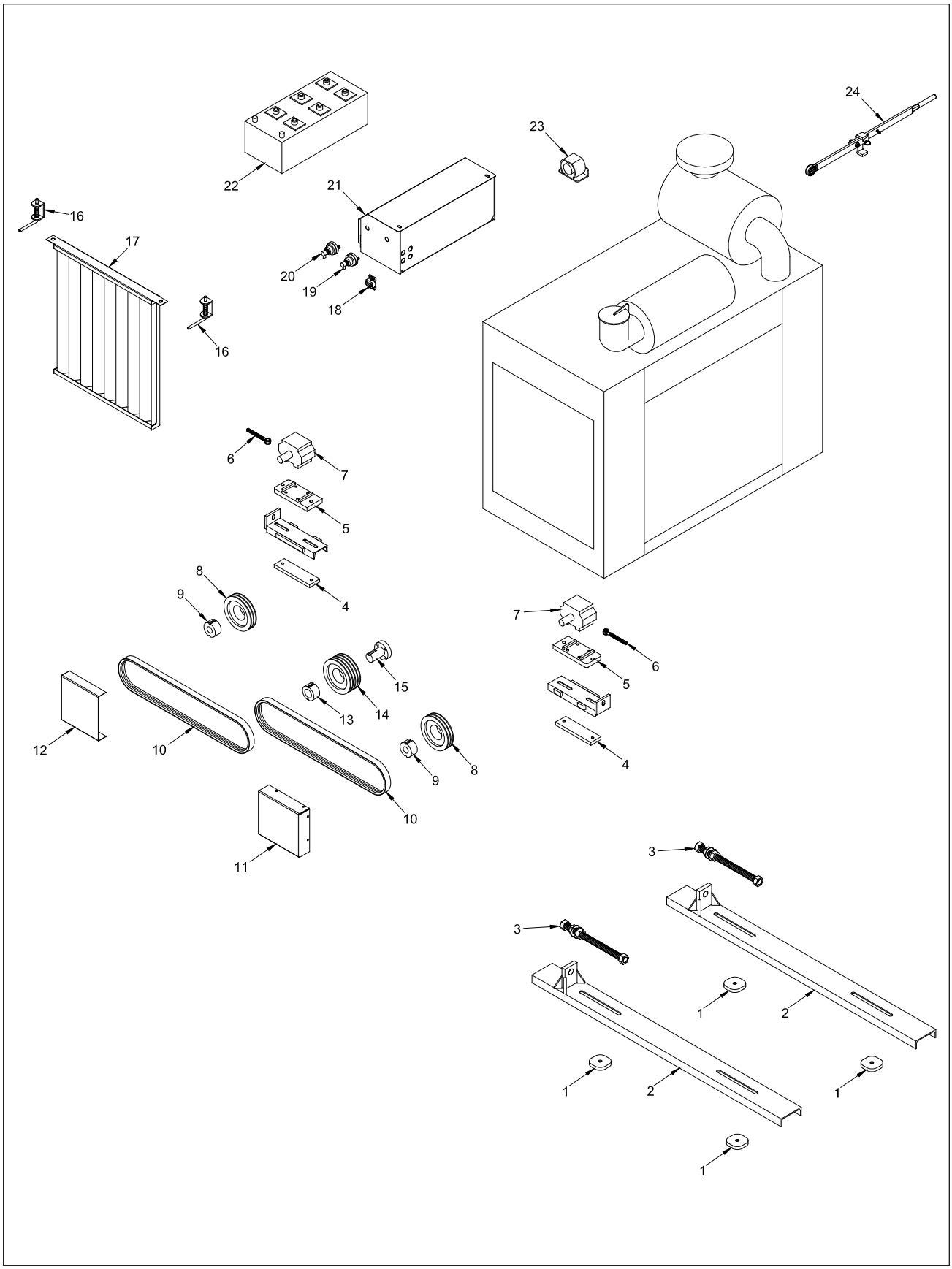
NOTICE Parts may not be exactly as shown.

Smoracy, LLC

HYDRAULIC TANK

LOCATION	PART NUMBER	DESCRIPTION
1.	900-3922-60	Magnetic Drain Plug
2.	900-7900-14	Rubber Tank Mount Isolators
3.	982-200058	Hydraulic Tank Assembly (Includes 4 & 5)
4.	982-300639	Tank Top Seal - Fuel & Hydraulic
5.	982-300180	Tank Cover - Fuel & Hydraulic
6.	900-3913-68	Moisture Separator
7.	977-300113	Moisture Separator Guard
8.	980-0506-85	Fill Cap Lock Assembly
9.	900-3913-72	Fill Cap - Non Vented
10 a.	900-4912-40	Padlock With Short Shackle For Tank With Locking Cap (Not Shown)
b.	P812	Key For Padlock (Not Shown)
11.	900-3920-13	Ball Valve - 1 1/4”
12.	900-3904-48	Suction Screen
13.	900-3920-99	Ball Valve - 3/4”
14.	900-3901-73	Filter Gauge
15 a.	900-3940-35	Filter Head Assembly (Includes Filter)
b.	900-3940-36	Filter Only
16.	900-3901-78	Temperature/Sight Gauge

NOTICE Tank assemblies vary with options.
Specify all options when ordering.



NOTICE Parts may not be exactly as shown.

Smoracy, LLC

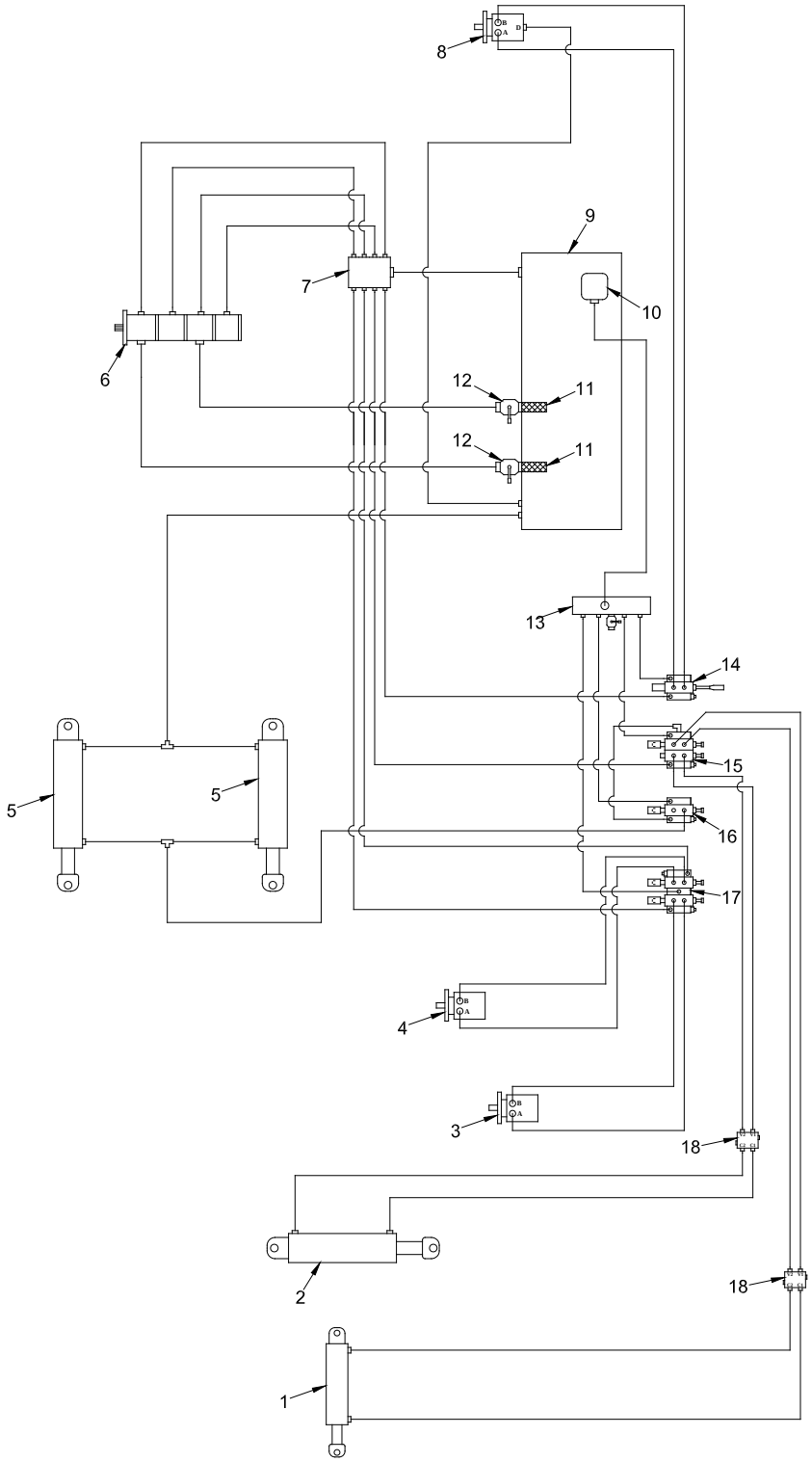
LOCATION	PART NUMBER	DESCRIPTION
1.	977-300206	Engine Mount Pad
2.	**	Engine Rail
3.	982-200106	Engine Adjuster Assembly
4.	978-300129	Pump Mount Slide
5.	978-300126	Pump Mount
6.	900-4902-75	Pump Belt Tension Adjuster
7 a.	900-3901-64	Pump Bearing Block
b.	900-3904-42	Oil Cup (Not Shown)
8.	**	Pump Sheave
9.	**	Pump Bushing
10.	**	Pump Belt
11.	977-200304	Pump Drive Guard Assembly - Infeed Side
12.	978-200046	Pump Drive Guard Assembly - Discharge Side
13.	**	Stub Shaft Bushing
14.	**	Stub Shaft Sheave
15.	**	Engine Stub Shaft
16 a.	900-4901-83	Spring Latch - 1/2”
b.	900-7900-93	Rubber Cap For Spring Latch (Not Shown)
17.	**	Debris Screen Assembly - Optional
18.	900-2914-81	Main Circuit Breaker
19.	900-6907-66	Hydraulic Power Unit Switch
20.	900-2903-58	Battery Disconnect Switch
21.	982-200083	Battery Box Assembly
22.	900-6907-88	Battery - 1400 CCA
23.	900-2908-04	Start-Up Beeper
24.	982-100029	Clutch Handle Assembly

****** Components vary with engine options, order by S/N of machine or physical description**.**

NOTICE **Nuts, bolts, washers, and all other components can be ordered by physical description.**

Smoracy, LLC

TRAILERIZED



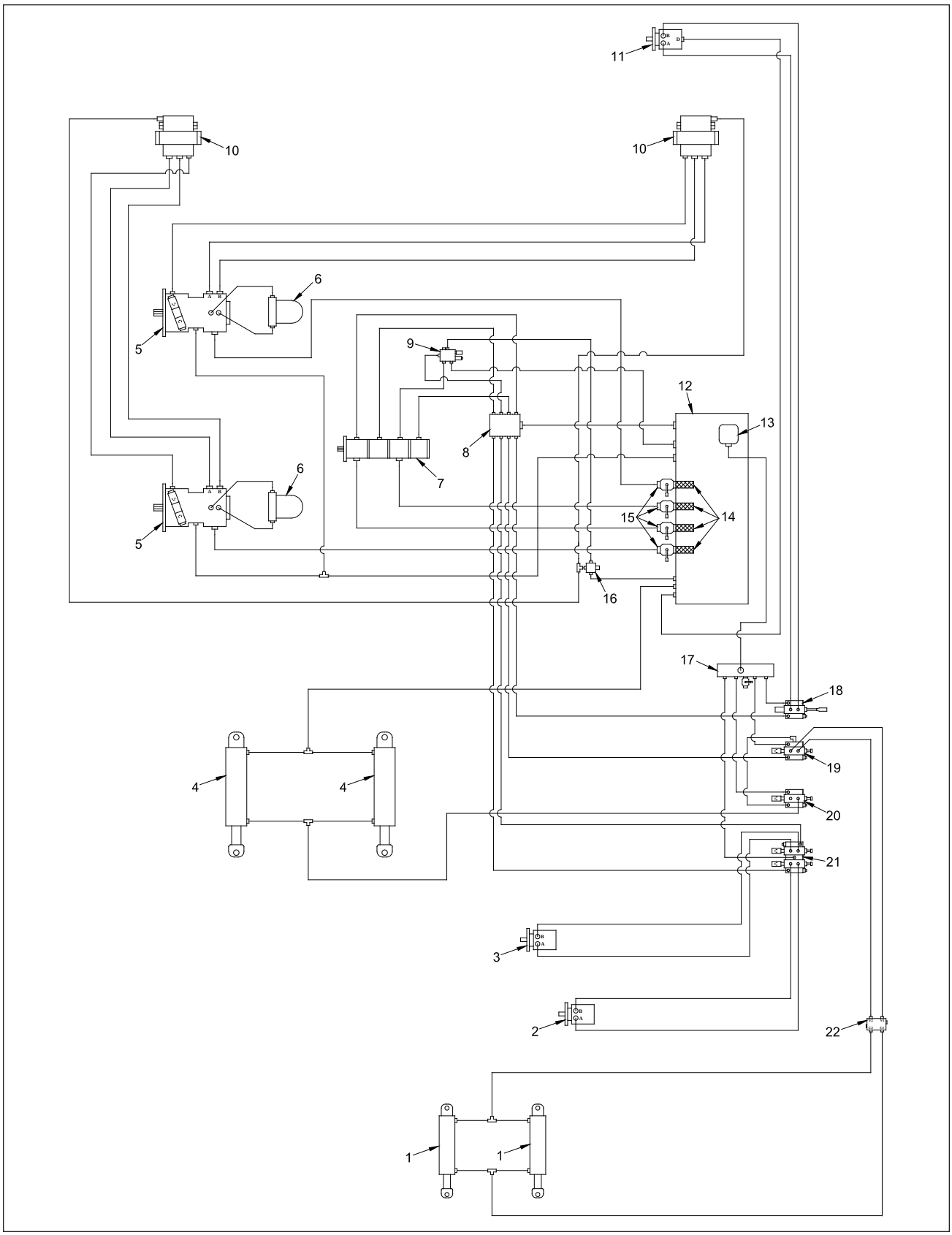
NOTICE Parts may not be exactly as shown.

TRAILERIZED

LOCATION	PART NUMBER	DESCRIPTION
1.	900-3927-32	Brush Assist Pan Cylinder
2.	900-3926-64	Tongue Jack Cylinder
3.	900-3942-29	Infeed Hydraulic Motor
4.	900-3940-49	Feedwheel Drive Motor
5.	900-3925-03	Yoke Cylinder
6.	**	Hydraulic Pump
7 a.	900-3926-58	Hydraulic Dump Valve Without Solenoids
b.	900-3919-92	Solenoid Only
8.	900-3923-12	Magnetic Head (Discharge) Hydraulic Motor
9.	See Pages 100-101	Hydraulic Tank
10 a.	900-3940-35	Filter Head Assembly (Includes Filter)
b.	900-3940-36	Filter Only
c.	900-3901-73	Filter Gauge (Not Shown)
11.	900-3904-48	Suction Screen
12.	900-3920-13	Ball Valve - 1 1/4”
13 a.	982-200024	Return Manifold Assembly
b.	900-3920-99	Ball Valve - 3/4”
14.	900-3937-52	Discharge Valve
15.	900-3937-53	Tongue Jack / Brush Assist Pan Valve
16.	900-3940-31	Yoke Valve
17.	900-3937-50	Infeed / Feedwheel Valve
18.	900-3923-05	Lock Valve
19.	900-3924-56	Optional Flow Control Valve (Not Shown)

NOTICE Make sure to order components according to fitting type, fittings may vary on all components.
**** Hydraulic components, fittings, hoses will very depending on optional equipment. Order by physical description.**
**** Hydraulic pumps and track motors need to be ordered by physical description and serial number of machine.**

TRACK



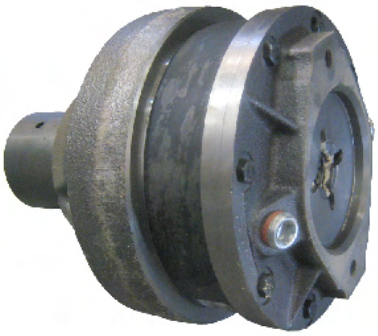
NOTICE Parts may not be exactly as shown.

TRACK

LOCATION	PART NUMBER	DESCRIPTION
1.	900-3927-32	Brush Assist Pan Cylinder - Optional
2.	900-3942-29	Infeed Hydraulic Motor
3.	900-3940-49	Feedwheel Drive Motor
4.	900-3925-03	Yoke Cylinder
5 a.	900-3940-97	Track Hydraulic Pump
b.	900-3926-09	Forward / Reverse Valve
6 a.	900-3926-94	Charge Filter
b.	900-3926-93	Head For Charge Filter
7.	**	Hydraulic Pump
8 a.	900-3926-58	Hydraulic Dump Valve Without Solenoids
b.	900-3919-92	Solenoid Only
9.	900-3925-86	Priority Flow Divider
10.	**	Track Motor
11.	900-3923-12	Magnetic Head (Discharge) Hydraulic Motor
12.	See Pages 100-101	Hydraulic Tank
13 a.	900-3940-35	Filter Head Assembly (Includes Filter)
b.	900-3940-36	Filter Only
c.	900-3901-73	Filter Gauge (Not Shown)
14.	900-3904-48	Suction Screen
15.	900-3920-13	Ball Valve - 1 1/4”
16 a.	900-3941-48	Two Speed Valve & Solenoid
b.	900-3919-92	Solenoid Only
17 a.	982-200024	Return Manifold Assembly
b.	900-3920-99	Ball Valve - 3/4”
18.	900-3937-52	Discharge Valve
19.	900-3941-47	Brush Assist Pan Valve - Optional
20.	900-3940-31	Yoke Valve
21.	900-3937-50	Infeed / Feedwheel Valve
22.	900-3923-05	Lock Valve
19.	900-3924-56	Optional Flow Control Valve (Not Shown)

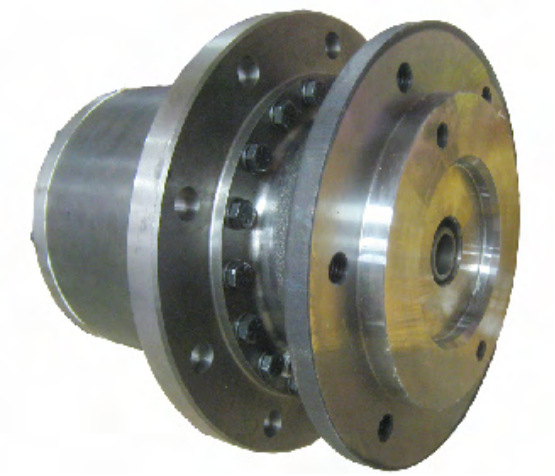
NOTICE Make sure to order components according to fitting type, fittings may vary on all components.
**** Hydraulic components, fittings, hoses will very depending on optional equipment. Order by physical description.**
**** Hydraulic pumps and track motors need to be ordered by physical description and serial number of machine.**

Infeed Hydraulic Motor
Part Number: 900-3942-29

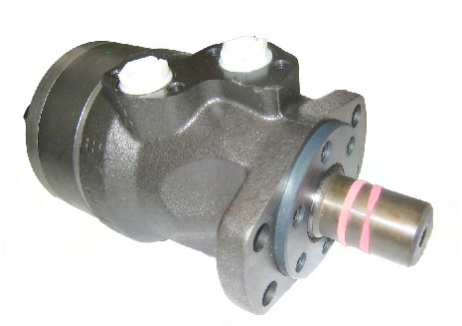


Infeed Gear Box
Part Number: 900-3940-60

Feedwheel Drive Motor
Part Number: 900-3940-49



Feedwheel Drive Gear Box
Part Number: 900-3931-38



Magnetic Head (Discharge) Hydraulic Motor
Part Number: 900-3923-12

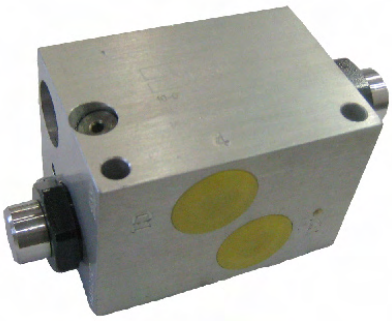
NOTICE Parts may not be exactly as shown.

Hydraulic Dump Valve Without Solenoids
Part Number: 900-3926-58

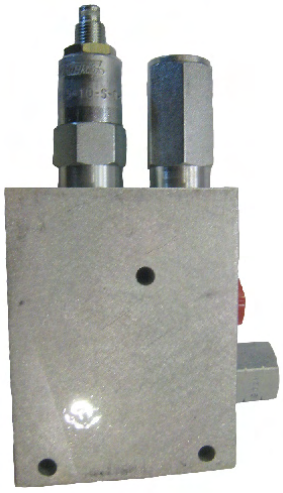
Solenoid Only
Part Number: 900-3919-92

Two Speed Valve & Solenoid (Track Only)
Part Number: 900-3941-48

Solenoid Only
Part Number: 900-3919-92

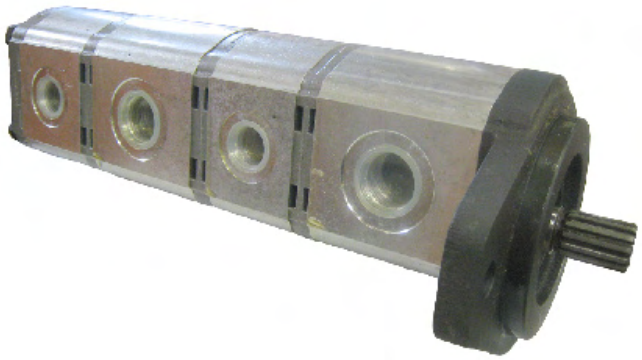


Cylinder Lock Valve
Part Number: 900-3923-05

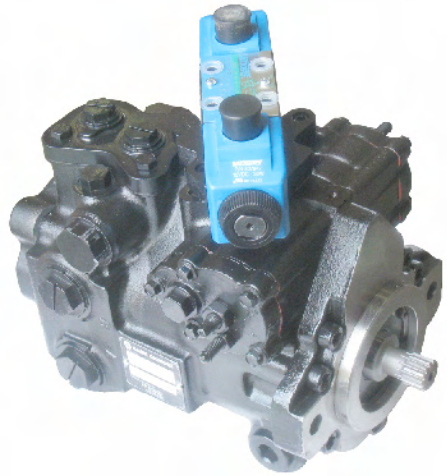


Priority Flow Divider (Track Only)
Part Number: 900-3925-86

NOTICE Parts may not be exactly as shown.

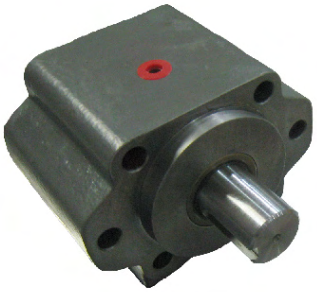


Hydraulic Pump
Part Number: 900-3940-37 (CCW Rotation)
900-3937-56 (CW Rotation)



Track Hydraulic Pump (Track Only)
Part Number: 900-3940-97

Forward / Reverse Valve Only
Part Number: 900-3926-09



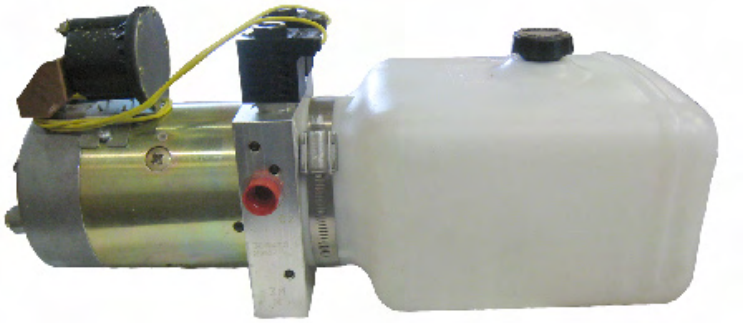
Pump Bearing Block
Part Number: 900-3901-64

Oil Cup (Not Shown)
Part Number: 900-3904-42

Charge Filter (Track Only)
Part Number: 900-3926-94

Head For Charge Filter (Track Only)
Part Number: 900-3926-94

NOTICE Parts may not be exactly as shown.



Hydraulic Power Unit & Tether Control
Part Number: 900-3937-98

Suction Screen
Part Number: 900-3904-48

Optional Flow Control Valve
Part Number: 900-3924-56

NOTICE Parts may not be exactly as shown.

1.

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7.

NOTICE Parts may not be exactly as shown.

LOCATION	PART NUMBER	DESCRIPTION
1 a.	900-2917-32	Radio Remote Control - Trailerized Machine
b.	900-2917-23	Radio Remote Control Kit - Trailerized Machine (Includes 1a, 3, & 4)
2 a.	900-2918-37	Radio Remote Control - Track Machine
b.	900-2918-38	Radio Remote Control Kit - Track Machine (Includes 2a, 3, & 4)
3 a.	900-2918-95	Antenna Kit
b.	900-2918-96	Antenna Panel Adapter (Not Shown)
4 a.	900-2917-31	Receiver - Trailerized Machine
b.	900-2918-36	Receiver - Track Machine
5 a.	**	Control Box - Trailerized Machine
b.	**	Control Box - Track Machine
c.	900-2906-82	Autofeed Tach Only - 12v
d.	900-2906-97	Throttle Switch
e.	900-2906-99	Radio/Tether / Manual Switch
f.	900-2909-81	Rubber Boot For Switch
g.	900-2917-41	Relay For Throttle, Yoke, & E-Stop
h.	900-2914-49	Relay For Tracks (if equipped)
6.	**	Tether Control - Trailerized Machine
7.	**	Tether Control - Track Machine

****** Components vary with machine options, order by S/N of machine or physical description**.**

SERVICE RECORD

DATE	DESCRIPTION	AMOUNT

