

TABLE OF CONTENTS

	<u>PAGE NO.</u>
INTRODUCTION & WARRANTY.....	2
SAFETY PROCEDURES.....	7
SAFETY DECALS.....	15
AUTOFEED SECTION.....	21
EQUIPMENT SPECIFICATIONS.....	28
CONTROLS.....	33
START-UP PROCEDURES.....	44
TRANSPORTATION PROCEDURES.....	46
<u>MAINTENANCE.....</u>	<u>47</u>
DAILY, WEEKLY, MONTHLY CHECKSHEET.....	49
TROUBLE SHOOTING.....	53
CUTTERHEAD/CUTTERTEETH SECTION.....	68
SCREEN SECTION.....	75
AUGER SECTION.....	76
DRIVE BELT/CHAIN TENSION SECTION.....	79
HYDRAULIC SECTION.....	80
LUBRICATION.....	84
BOLT TORQUE.....	85
ELECTRICAL SECTION.....	86
CLUTCH SECTION.....	88
PAINT AND APPEARANCE.....	88
<u>REPLACEMENT PARTS SECTION.....</u>	<u>89</u>
INFEEED CONVEYOR COMPONENTS.....	90
RECYCLER COMPONENTS.....	92
DUST SUPPRESSION COMPONENTS.....	96
TEETH COMPONENTS.....	98
ANVIL & CONCAVE DOOR COMPONENTS.....	100
SCREEN COMPONENTS.....	102
SCREEN HOIST COMPONENTS.....	104
DISCHARGE CONVEYOR COMPONENTS.....	106
AUGER COMPONENTS.....	108
FRAME & ACCESSORY COMPONENTS.....	110
HYDRAULIC SYSTEM COMPONENTS.....	112
CLUTCH COMPONENTS.....	148
THROWER COMPONENTS.....	154
ENGINE COMPONENTS.....	156
CONTROL COMPONENTS.....	162
INDEX.....	164

NOTE- 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 the Beast Recycler. 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 preceded 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 recycler is designed and manufactured in accordance with the latest machine 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.

⚠ WARNING

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

⚠ 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 recycler, 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. Consult the equipment manufacturer!!!

Each machine is shipped with a manual, a customer’s check sheet on the recycler, any available parts & service manuals on component parts not produced by this manufacturer, and service & safety video tape. 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.

NOTE - The producer of the Beast Recycler 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.

Smoracy, LLC

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 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. 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, LLC Limited Warranty responsibilities. Some components on your machine are covered by their respective manufacturers and cannot be handled through Smoracy, LLC 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.

Smoracy, LLC

**SMORACY, LLC LIMITED WARRANTY
(989) 561-2270**

Smoracy, LLC also referred to as “Manufacturer” warrants each new model 3680 Track Beast Recycler to be free of defects in workmanship and material for a period of six 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.

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 not apply if the Beast Recycler is not operated in a manner recommended by the manufacturer. The following examples would void the warranty:

1. The completed Recycler Warranty Validation Form is not on file.
2. The Smoracy, LLC Recycler 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 Recycler was involved in, or damaged by an accident.
6. The Recycler 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 belts, lubrication fluids, bearings, filters, hydraulic components, loose nuts or bolts, etc. may void warranty.

Smoracy, LLC

**SMORACY, LLC LIMITED WARRANTY
(989) 561-2270**

NOTE: This warranty applies only to new and unused equipment or parts thereof manufactured by Smoracy, LLC. This warranty will not apply if the Smoracy, LLC Recycler is not 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, 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.

USA & CANADA INFORMATION PHONE NUMBERS FOR ACCESSORIES (NOT COVERED UNDER RECYCLER WARRANTY PROGRAM)			
Caterpillar Engines	1-248-349-7050	PT Tech Fluid Clutch	1-330-239-4933
Cummins Engines	1-248-478-9700	Interstate Batteries	1-800-331-2000
John Deere Engines	1-888-803-9175	Twin Disc Clutch	1-262-638-4000
Dexter Axles	1-574-295-7888	LOR Manufacturing	1-866-644-8622
Honda Engines	1-770-497-6400		

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.
- 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 Recycler 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.

You will need the machine identification number, serial number, when ordering parts for your machine. The serial number will also be required by law enforcement in order to track down your machine if it is ever stolen. The machine serial number is stamped on the machines cutter head bearing pad. Please make a note of this number.

Smoracy, LLC

TYPICAL RECYCLER SERIAL NUMBER LOCATIONS



- 1. Inside the Control Cabinet
- 2. Curb Side Bearing Pad

NOTE: The engine information is located on the engine block. The clutch information is located on the clutch plate.

Smoracy, LLC

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 shields
- 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.

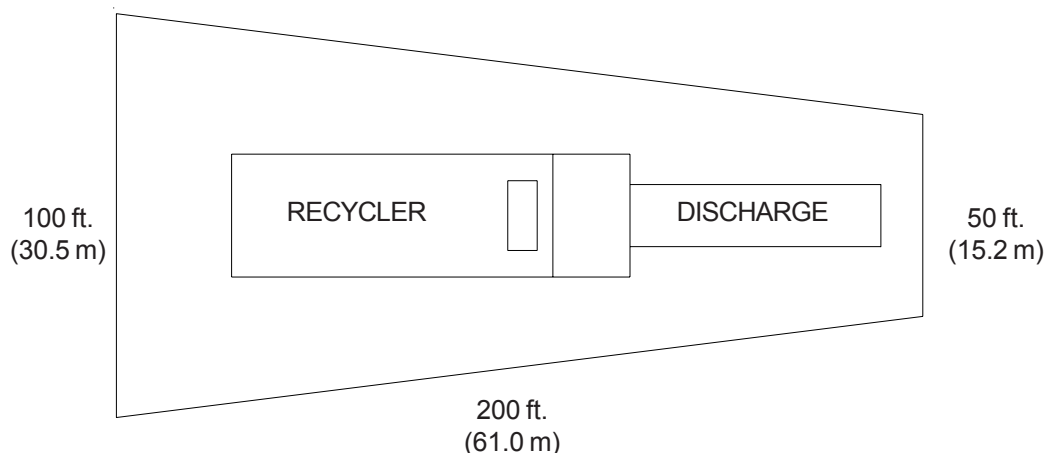
ALWAYS keep several type A:B:C fire extinguishers operational and on the job at all times.

SMORACY, LLC IS NOT RESPONSIBLE FOR FIRES CAUSED BY FIRE HAZARDS LEFT TO SMOLDER AND BURN, OR IMPROPER SHUTDOWN PROCEDURES.



RESTRICTED AREA

DO NOT approach within envelope or you will be injured while machine is operating.



Smoracy, LLC

SAFETY PROCEDURES

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 recycler, you must have all potential operators; read and understand manuals, decals, and watch the video tape and follow all 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.

⚠ WARNING

Operators **must** at all times be located within easy reach of all feed control and shut-off devices when the unit is running. Also always be observant and prepared to activate controls to prevent an accident.

⚠ 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 your movement when working with the machine. 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.

⚠ DANGER

Do Not wear torn or loose clothing it 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, safety glasses, gloves, ear protection, etc. Do not wear gauntlet or secured fit gloves. Always keep a fully charged type A:B:C fire extinguisher with the machine while operating or servicing the recycler.



SAFETY PROCEDURES

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

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 a raised Feedwheel without making sure all safety devices are secured. Always engage the hydraulic Yoke Lock Bars, and use the Safety Chain to secure the Feedwheel assembly to the Discharge Belt Conveyor rest before replacing Cutterhead inserts or bodies. Follow proper shutdown procedures before beginning any type of maintenance to the Recycler.

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.

NOTICE

To avoid damage to the Discharge Conveyor do not move the machine with the Conveyor extended. Do not fold or unfold the Conveyor on uneven ground. Do not cause abrupt stops when raising or lowering the Conveyor. Do follow all operation, service and safety guidelines. Do follow these steps to purge air from the hydraulic system every time the Conveyor is moved.
1) Place pressure gauge in diagnostic port of valve bank.
2) With Conveyor resting in fold or unfold position, operate valve to position it further in that direction. Hold valve position for 4 to 5 seconds until gauge reaches system pressure.
3) Repeat these steps for second control valve. Now you may proceed to raise or lower the Conveyor. Do operate the Conveyor folding actions with the engine at idle. Do fold the Conveyor upper section first, then the mid section. **NEVER** slam the Discharge Belt Conveyor to a rest.

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.

WARNING

It is very important after you have operated a new machine for approximately an hour, shut down the machine and recheck all nuts and bolts. It is normal for 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 bolts should be checked periodically such as Cutterbody and Teeth bolts, etc. for torque and fit.

Most of the nuts used on the Smoracy, LLC Recycler are self locking. After a nut has been removed five times, it should be replaced to insure proper tightness.

SAFETY PROCEDURES

WARNING

DO NOT GO NEAR HYDRAULIC LEAKS! High pressure oil easily punctures skin causing serious injury, gangrene, or death. DO NOT use fingers or skin to check for leaks. Lower load or relieve hydraulic pressure before loosening fittings. Use a piece of cardboard to find leaks. Never use your bare hands.

In cold weather situations let your hydraulic system idle for approximately 15 minutes to allow the system to warm up to operating temperature. Avoid burns from fluid. Hot fluid under pressure can cause severe burns. Relieve all pressure in the system before disconnecting the lines, hoses or performing other work. Allow system to cool down to ambient temperature before opening any coolant or hydraulic oil system.

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.

DANGER

Avoid power lines. Electrocutation 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.

DANGER

DO NOT operate this machine indoors! Exhaust fumes can be fatal. Never refuel while the machine is running or engine is hot. 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 the recycler, for the least amount of cost, it is a good practice to set and follow a scheduled preventative maintenance program. It will eliminate many possible problems and down time.

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.

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 "Start-up Procedures". Make no modifications to your equipment unless specifically recommended or requested by Smoracy, LLC.

WARNING

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

WARNING

The machine was built with a maintenance door engine disable plug which disables the engine if it is not installed properly with the maintenance in the closed position. Correctly installed and maintained, the engine will not start or it will shut off if the maintenance door engine disable plug is disconnected. The maintenance door 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. Explosion will occur with a frozen battery. Never use jumper cables in a confined or unventilated area. Battery acid fumes are explosive. Battery acid can cause severe burns. Avoid contact with eyes, skin and clothing. Battery fumes are flammable and can explode. Never expose an open flame or spark near the battery. Keep all burning materials away from the battery. When servicing the battery, do not smoke, shield eyes and face. Service in a well ventilated area.

Smoracy, LLC

SAFETY PROCEDURES



Never work under or around the Feedwheel 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. 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 Bars:

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. Then locate the Hydraulic Yoke Lock valve and pull the lever. The Yoke Lock Bars 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 and secure it to the lug located on the right side of the Feedwheel Yoke. With the safety devices in place lower the Feedwheel Yoke until it contacts the Yoke Lock Bars 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 you must have the ignition key in **YOUR** possession. For added safety it is a good practice to use an additional log chain to help support the Feedwheel Yoke to the conveyor rest. 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.



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!



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



Before you change the Screen in your Recycler you must remember to never do any maintenance work inside or around your Recycler 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.

The Recycler is equipped with a remote controlled electric lift to assist service person while changing the screen. It is only to be used to assist in changing the screen!!! Always follow the instructions in the lift owners manual! Never attempt any maintenance or service unless the equipment is completely shut down! Never overload lift or its cable, it is only to be used to handle the recycler screens (max. 300 lbs. or 136 kg)! Always keep components 100% operational and maintained: cable, hooks, wiring, connections, bolts and nuts, controls, etc.! Always replace wire rope if it shows kinks, frayed wires, broken or worn strands! Always wear quality leather gloves when handling wire rope! Always stay clear of wire rope, hooks, lift and screen while operating! Always insure that the brake device in lift is operational and maintained, before using it!

First lower winch cable to Screen area, remove winch hook stop block from winch hook. Hook winch up to the back of Screen and snug up the cable. Remove the eight mounting bolts that hold the screen in place. Remove Screen using winch. Clean ALL debris from Screen mounting area, then install new Screen. Reinsert clamp locks and bolts into Screen mounting area. Lightly snug up bolts then adjust Screen. Screen must ALWAYS be at least 1/8" (3.2 mm) minimum from teeth. When final adjustment is completed torque bolts to 376 ft.-lbs (510 Nm). Reinstall winch stop block before reeling in winch cable. Stop block must pull tightly to engine base when winch operation is complete.



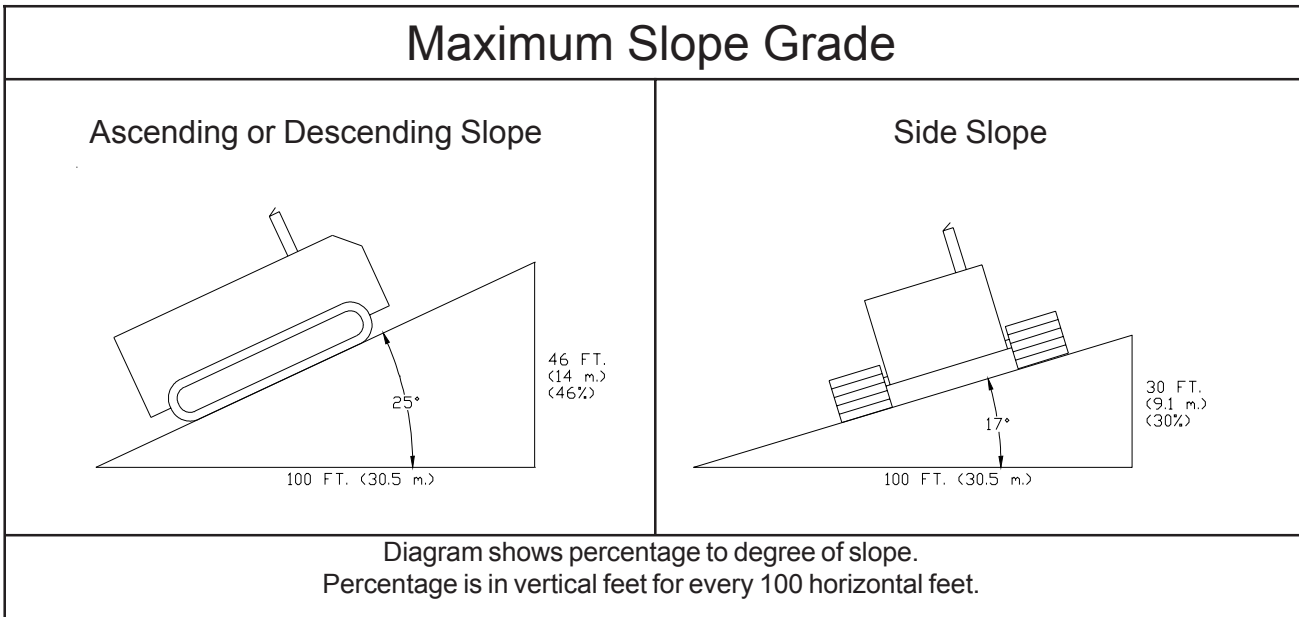
Do not open the belt shield door unless engine and all machine parts have completely stopped moving. Open this door only to check for proper drive belt tension. Do not start or operate this machine unless door is securely in place.

SAFETY PROCEDURES

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 track 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, tracks, and engine are running at maximum performance and the tracks sustain good traction.



⚠ WARNING

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

⚠ DANGER

The track 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 track machine. Stay clear of track 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 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.

Smoracy, LLC

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 type A:B:C 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

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. Remember, it should take most of your strength to engage the clutch. If the clutch engages easily, DO NOT OPERATE this recycler until the clutch has been adjusted. The clutch is an expensive component of the Beast Recycler. It needs proper maintenance (see maintenance section and manufacturers manual for detailed information). The operator must take care in the engagement and disengagement of the engine, RPM should always be 800 to 900 RPM.

 WARNING

If the machine is equipped with a screen hoist, do not operate the hoist while the machine is running. Make sure the screen hoist and all the components are in good working order before operating. Use extreme care and safety when operating the screen hoist. Screen hoist operation is a one person job. This means the person who hooks the hoist to the screen is the same person who operates the hoist. Make sure the screen is securely attached to the screen hoist before lifting. Do not exceed the lifting capabilities of the screen hoist. This device is designed and authorized to lift screens only! Before resuming machine operation or transporting the machine, make sure the screen hoist and all components are properly stored on the machine and the screen hoist disconnect switch is in the off position. Do not leave the machine unattended, unless the screen hoist disconnect switch is in the off position. Use only the manufacturer's recommended fluid for the hoist pump.

SAFETY PROCEDURES

FIRE WARNING!

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.

WARNING

Before transporting the machine: 1) Clean out any existing material in 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) Stow remote cable controls inside hydraulic compartment. 7) Lock compartment doors. 8) Clean off all Debris and potential fire hazards from the machine. Along with these procedures make sure to follow all of the instructions in the "Transportation Procedures" section.



Smoracy, LLC

SAFETY DECALS

Safety Decals located on your Beast Recycler 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:

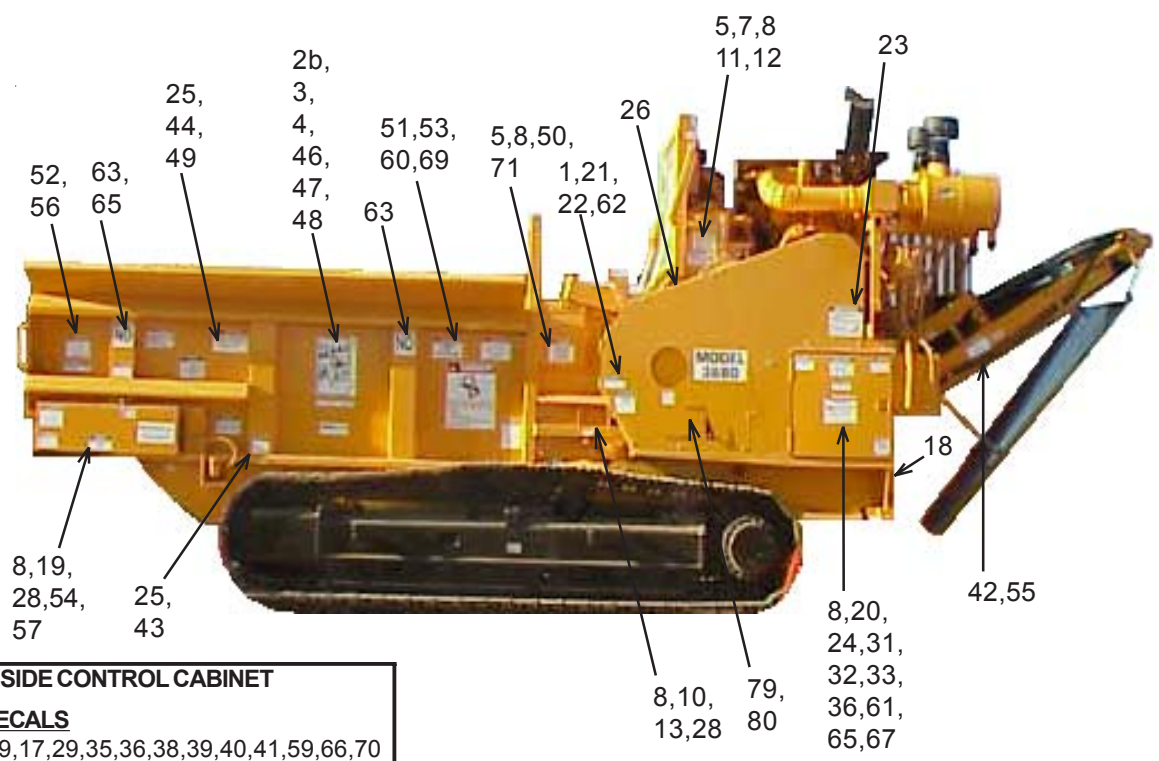
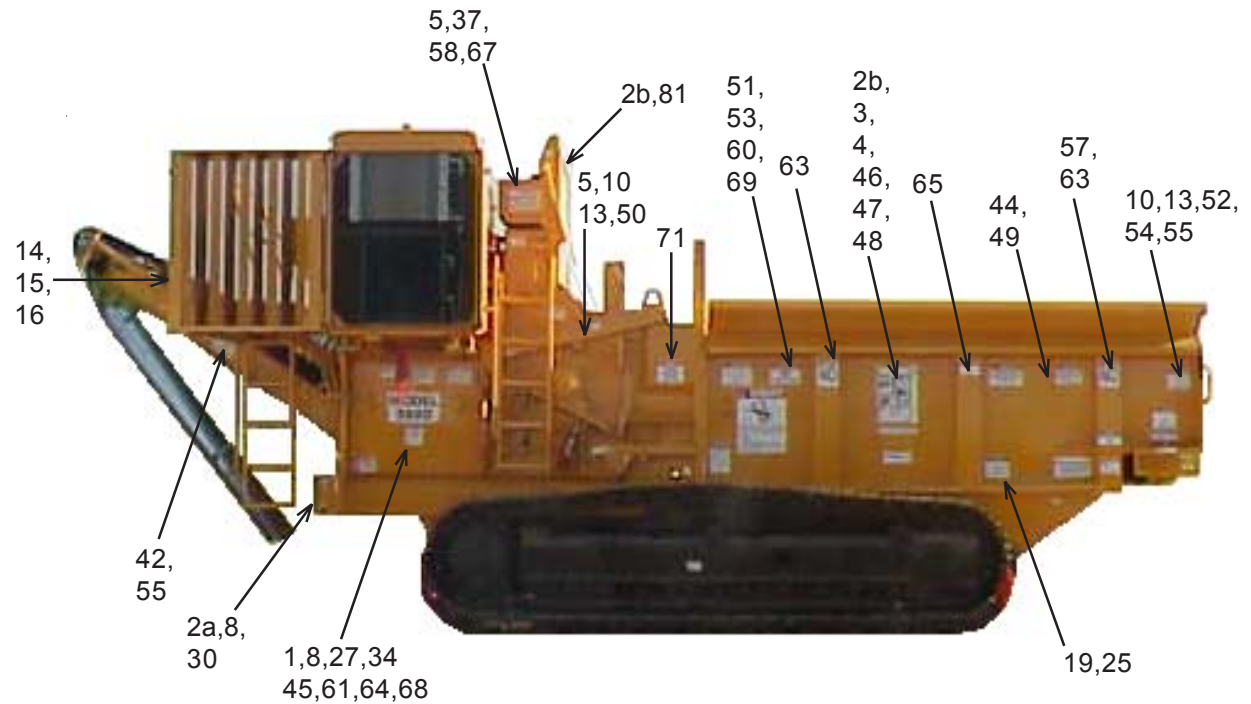
- 1) You should use soap and water to keep your decals clean. Never use mineral spirits or any other abrasive cleaners.
- 2) Replace immediately any missing or damaged decals. If decals are damaged or removed it is the owner's responsibility to replace them. The location the decal is going to be applied 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, LLC Dealer.

EXAMPLES:



DECAL LOCATIONS - MODEL 3680 TRACK

ALTHOUGH LOCATIONS MAY VARY, ALL DECALS MUST BE ON MACHINE DURING OPERATION
IF ANY DECALS BECOME DAMAGED, REPLACE IMMEDIATELY.



<p>INSIDE CONTROL CABINET</p> <p>DECALS 6, 9, 17, 29, 35, 36, 38, 39, 40, 41, 59, 66, 70</p> <p>PLAQUES 72, 73, 74, 75, 76, 77, 78</p>

Smoracy, LLC

DECAL LOCATIONS - MODEL 3680 TRACK

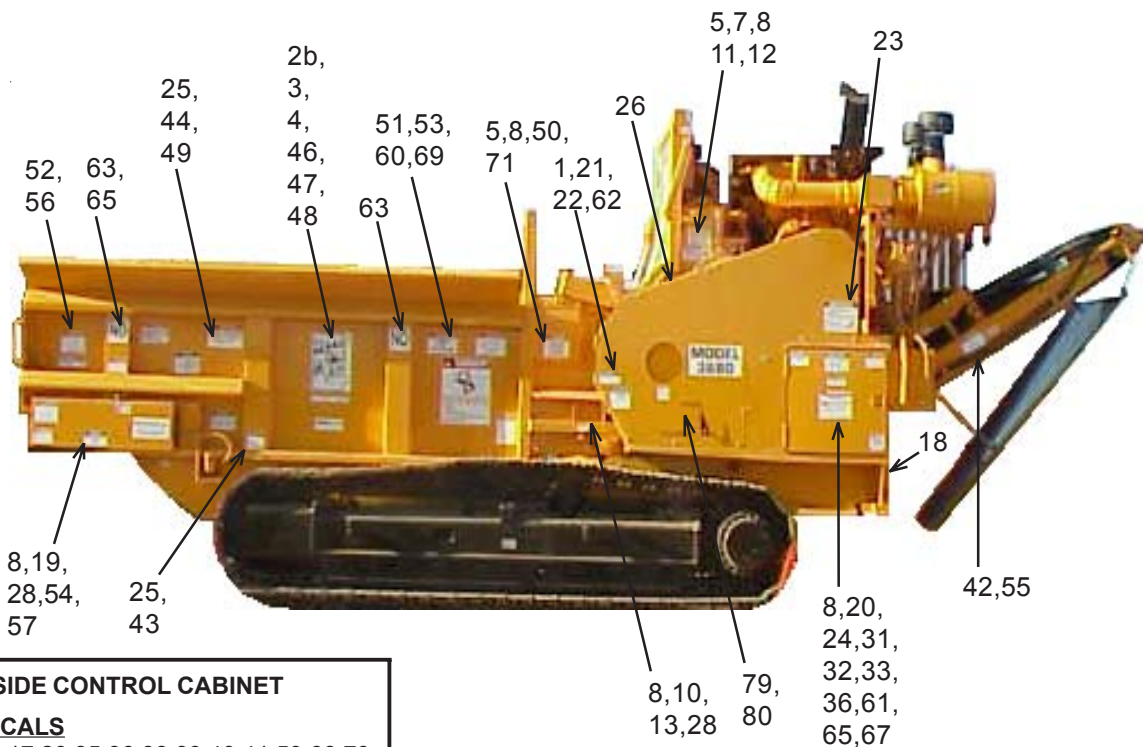
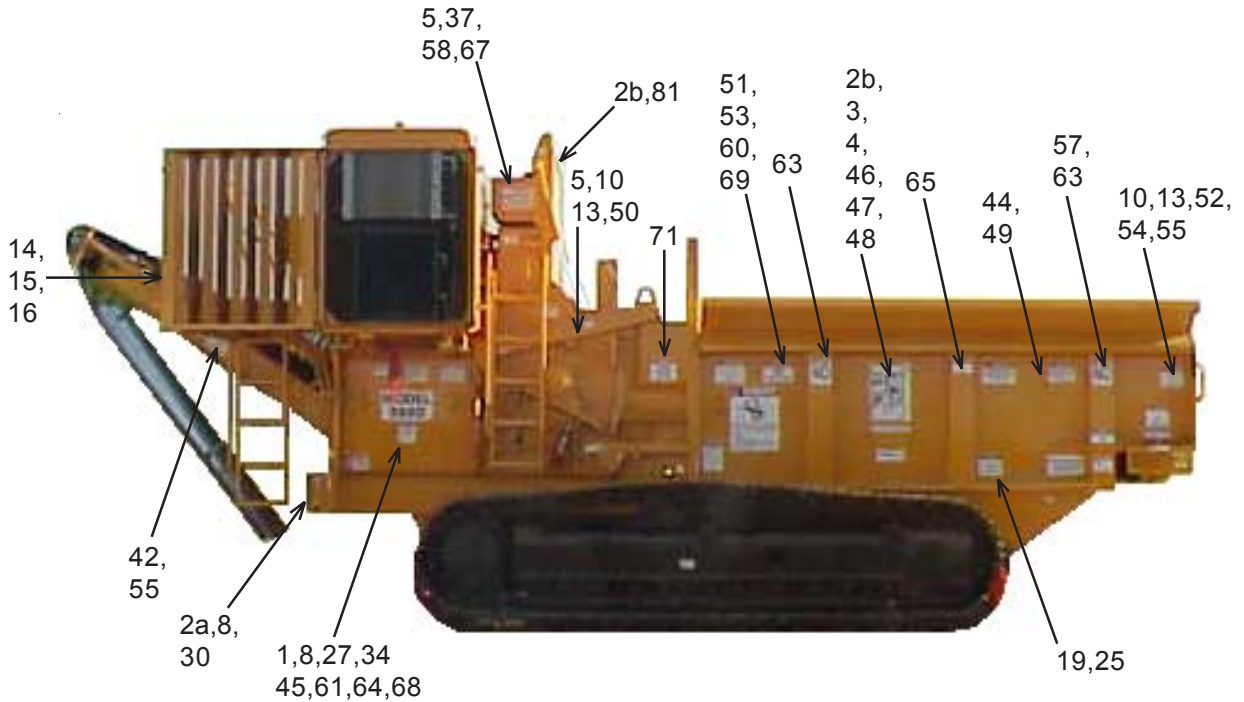
Modifications and/or additions of decals to this list will happen.
 Consult recycler dealer or manufacturer for most current decal package.

LOCATION NUMBERS	DECAL NUMBERS	DESCRIPTION
1.	ID-33	3680 Recycler...
3.	ID-43	Distributed By: Bandit Industries Inc...
Variety of locations	INST-04	Arrow
Variety of locations	INST-12	Grease Daily Arrow
Variety of locations	INST-16	Grease Weekly
7.	INST-38	Avoid Problems And Equipment Damage...
8.	INST-39	Oil Daily
9.	*Optional INST-44	California Proposition 65...
10.	INST-45	For Parts And Service...
11.	INST-47	Trouble Shooting Machine Problems...
12.	INST-50	Avoid Damage To Discharge Conveyor...
13.	INST-51	Fire Warning! The Self Activating...
14.	INST-53	Hydraulic Oil.....
15.	INST-56	Avoid Costly Downtime.....
16.	INST-59	Adjust Chain Tension.....
66.	INST-100	Lubricate Cutter Head.....
17.	N-02	Notice Maintain Lubrication and Hydraulics...
18.	N-03	Notice Service Required Under...
19.	N-05	Notice Frequent Adjustment...
20.	N-06	Notice Decal Maintenance Is...
21.	N-07	Notice The Clutch Handle Should Not...
22.	N-08	Notice This Machine Is Covered...
23.	N-14	Notice Do Not Start To Weld...
24.	N-16	Notice 24 Volt Circuit
25.	N-17	Notice Battery Disconnect.....
27.	N-26	Notice Battery Disconnect Switch...
28.	N-27	Set Feed To Match Material
29.	N-28	In Line Fuel Filter
64.	N-30	Notice Must Wait 45 Seconds.....

***SOME DECALS ARE FOR OPTIONAL COMPONENTS**

DECAL LOCATIONS - MODEL 3680 TRACK

ALTHOUGH LOCATIONS MAY VARY, ALL DECALS MUST BE ON MACHINE DURING OPERATION
IF ANY DECALS BECOME DAMAGED, REPLACE IMMEDIATELY.



<p>INSIDE CONTROL CABINET</p> <p>DECALS 6,9,17,29,35,36,38,39,40,41,59,66,70</p> <p>PLAQUES 72,73,74,75,76,77,78</p>

Smoracy, LLC

DECAL LOCATIONS - MODEL 3680 TRACK

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

LOCATION NUMBERS	DECAL NUMBERS	DESCRIPTION
30.	W-01	⚠ Warning Do Not Go Near Leaks...
31.	W-02	⚠ Warning Combustible Liquid...
32.	W-04	⚠ Warning Frozen Battery Will Cause...
33.	W-08	⚠ Warning Wear Eye & Personal Protection...
34.	W11	⚠ Warning Do Not Leave.....
35.	W-13	⚠ Warning Check For Fires, Clean Off Debris...
36.	W-14	⚠ Warning This Recycler Is Equipped With...
37.	W-15	⚠ Warning Do Not Open This Door Unless...
38.	D-02	⚠ Danger Moving Parts...
39.	D-16	⚠ Danger Do Not Hand Feed This Machine...
40.	D-17	⚠ Danger Do Not Run Or Operate This Machine...
41.	D19	⚠ Danger Do Not Entangle Feet or Hands...
42.	D-20	⚠ Danger Flying Objects Stand Clear...
43.	D-23	⚠ Danger Restricted Area Do Not Approach...
44.	D-24	⚠ Danger Falling Objects Stand Clear...
45.	D-25	⚠ Danger Stay Clear - Moving Conveyor
46.	D-26	⚠ Danger Do Not Work Under Feed Wheel...
47.	D-27	⚠ Danger Hydraulic Shut Down Switch
48.	D-28	⚠ Danger Do Not Insert Fingers...
49.	D-29	⚠ Danger NO Do Not Climb Or Reach...
50.	D-30	⚠ Danger Do Not Sit, Stand, Lay, Climb...
51.	D-31	⚠ Danger Never Work Under Top Feed Wheel...
52.	D-32	⚠ Danger Avoid Injury Or Death...
53.	D-34	⚠ Danger Do Not Work Under Top Wheel...
	INL-501	Inlaid Plaque - Feedwheel
	INL-502	Inlaid Plaque - Infeed
	INL-503	Inlaid Plaque - Yoke
	INL-504	Inlaid Plaque - Discharge
	INL-506	Inlaid Plaque - Conveyor Fold
	INL-507	Inlaid Plaque - Yoke Lock
	INL-508	Inlaid Plaque - Screen
	INL-509	Inlaid Plaque - Auger
60.	OPEN	Open Vinyl
61.	CLOSED	Closed Vinyl
62.		Model 3680 Beast Vinyl
63.	*Optional Magnet	Caution Strong Magnet

***SOME DECALS ARE FOR OPTIONAL COMPONENTS**

Smoracy, LLC

SAFETY DECALS

Safety Decals located on your Beast Recycler 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. If decals are damaged or removed it is the owner's responsibility to replace them. 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.

EXAMPLES:



Smoracy, LLC

AUTO FEED SECTION

AUTOFEED SYSTEM

Consult the original manufacturer’s manual for your recyclers
Autofeed operating and maintenance procedures

When processing material through the recycler, 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. The “Autofeed Plus” system will reverse for a set period of time and then stop until the engine has recovered speed. The “Autofeed Plus” system will then automatically turn the feed on to resume forward travel.

Due to required components and equipment options a recycler may have various types or brands of “Autofeed Plus” systems. Each recycler is shipped with the original manufacturer’s manual for the “Autofeed Plus” system it is equipped with.

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

AUTOFEED DIGITAL TACH HOUR METERS

Digital E-290 “Autofeed Plus”
(White Face)
Part Number 900-2906-83 (24 volt)



For Service/Warranty Call
1-866-644-8622

Smoracy, LLC

AUTO FEED OPTIONS

ENGINE PANEL/RADIO CONTROL SYSTEM



Transmitter



See “Control Box Components” For Parts Reference Numbers

(Picture shown is typical, your control box may have other options)

Smoracy, LLC

AUTO FEED OPTIONS

NOTICE

Before you begin programming, you will need to determine the appropriate numbers (values) to use for the following settings:

HI RPM:

This is the RPM at which the controller will turn OFF.

LO RPM:

This is the RPM at which the controller turns ON.

BACKUP TIME:

This is the time, in milliseconds, to allow the feed system to reverse.

PROGRAMMING SEQUENCE

1) Turning On Program Mode:

While The Engine Is Off:

Press and hold the set button while turning ignition key ON. Release button. Go To Step #2


While The Engine Is Running:


Press and hold the set button for 2 to 3 seconds. Release Button. Go To Step #2


NOTE:

To advance from one setting to the next (while engine is running) you must **PRESS & HOLD** the **SET** button until the screen changes.

2) Set the HI RPM Value:

To decrease the setting value press the  button.


To increase the setting value press the  button.

To save the setting press the  button. The set button initiates the program mode, saves settings, and finalizes the program mode.

3) Set the LOW RPM Value:

To decrease the setting value press the  button.

To increase the setting value press the  button.

To save the setting press the  button. The set button initiates the program mode, saves settings, and finalizes the program mode.

Smoracy, LLC

4) Set the BACKUP TIME Value:

To decrease the setting value press the ^{down} ▽ button.

To increase the setting value press the ^{up} △ button.

To save the setting press the ^{set} ○ button. The set button initiates the program mode, saves settings, and finalizes the program mode.

INFORMATION DISPLAY

(This information will only be displayed when in run mode, not in program mode.)

- 1) To display the running hours press the ^{down} ▽ button.
- 2) To display the engine speed (RPM's) press the ^{up} △ button.
- 3) To display the Total cumulative hours press the ^{Total hrs} ○ button.

DISABLING OUTPUTS

Holding the ^{down} ▽ button for 4 seconds disables BOTH outputs.

The unit then alternates between displaying the RPM's for 9 to 10 seconds and "OFF" for 1 second.

To enable outputs, press either the ^{up} △ or the ^{set} ○ buttons.

NOTE: This feature only works when engine is running.

RED LED

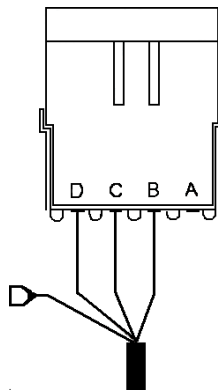
The Red LED will light when Output 1 is active and putting out positive voltage to the feed system solenoid valves. This happens when the Autofeed stops the feed system from feeding in, reverses and stays lit until the feed system starts to feed again.

OUTPUT WIRING

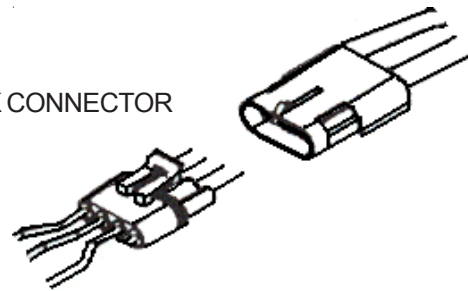
IMPORTANT:

It is of the utmost importance that the digital control be connected to a clean power source. The clean power source can or could include (first choice) the accessory side of the key switch or (second choice) the run side of the key switch.

A clean power source is the result of filtering unwanted voltage spikes and EMF. Spikes can be prevented by the installation of clamping diodes at their source (coils).



WEATHER-PACK CONNECTOR



POSITION	COLOR	FUNCTION
D	ORANGE	Positive output to solenoid coil (Output 2)
C	GREEN	Positive output to solenoid coil (Output 1)
B	RED	Positive Voltage from <u>clean</u> power source
A	BLACK	Ground
	WHITE	Signal from alternator or magnetic pickup

TROUBLE SHOOTING

IF THE POWER TO CHECK THE FEED SOLENOID IS INCONSISTENT OR DOES NOT WORK, CHECK THE FOLLOWING WITH A MULTIMETER:

MULTIMETER SET AT RX100 RANGE

TP1 to TP5	0 ohms
TP2 to TP6	0 ohms
TP3 to TP7	0 ohms
TP4 to TP9	0 ohms
TP10 to TP8	0 ohms
TP4 to TP8	0 ohms with ON-OFF switch ON

AC VOLTAGE TEST

With the engine running and the multimeter set to the 0-50 Volts AC range, TP1 or TP5 should show a reading of 6-40 Volts AC to ground.

DC VOLTAGE TEST

With the autofeed turned on, the engine at idle, and the multimeter set to DC Volts, TP4 or TP8 should show a reading of 12-16 Volts DC to ground. The feedwheels should not be turning.

1. Select DC volts on the multimeter.
2. Put the red (+) lead on the multimeter to the red lead supplying power to the speed sensor.
If there is no voltage:
 - a. Check the 7.5 amp in line fuse and replace if bad.
 - b. Check the wires to the quick connectors on both sides of the speed sensor control.
(Making sure they are not broken)
 - c. Check the wires at the solenoid valve.

NOTE: The solenoid will be ON when the engine is off (with key turned to the on position) or when the RPM is at a low idle. If the above adjustments and voltage checks do not work, then replace the autofeed control. Call your dealer and they can send another control already programmed for the engine used on the recycler.

TROUBLE SHOOTING

POSSIBLE CAUSES WHY AUTOFEED DOES NOT WORK OR IS INTERMITTENT:

Possible Cause:	Solution:
1. Dirty Tach Probe	1. Remove tach probe and clean any debris from its end. To install, turn the probe in till it touches the flywheel teeth and then back it out 3/4 of a turn. (Tach probe located on top of the flywheel housing)
2. Faulty Tach Probe	2. With the engine shut down and the ignition switch off, check the draw at the probe by using a meter capable of reading ohms. There should be a reading of 140 ohms, if not then the probe needs to be replaced. To install, turn the probe in until it touches the flywheel teeth and then back it out 3/4 of a turn.
3. Incorrect settings	3. Follow the procedures for changing the settings of the "Autofeed Plus" system to make sure that they are correct.
4. Engine not returning to full rated RPM's	4. Check engine throttle setting to make sure it is where it should be. "Autofeed Plus" system high RPM setting is too close to actual engine high RPM's. There should be about a 200 RPM difference.
5. Clutch or drive belts slipping	5. The "Autofeed Plus" system works with the engine speed so if the clutch or belts are slipping allowing the Cutterhead to slow down and the engine speed doesn't, than the "Autofeed Plus" will not stop. If this happens you will need to adjust or replace the belts or clutch.

APPROXIMATE DIGITAL AUTOFEED SETTINGS (FOR REFERENCE ONLY)

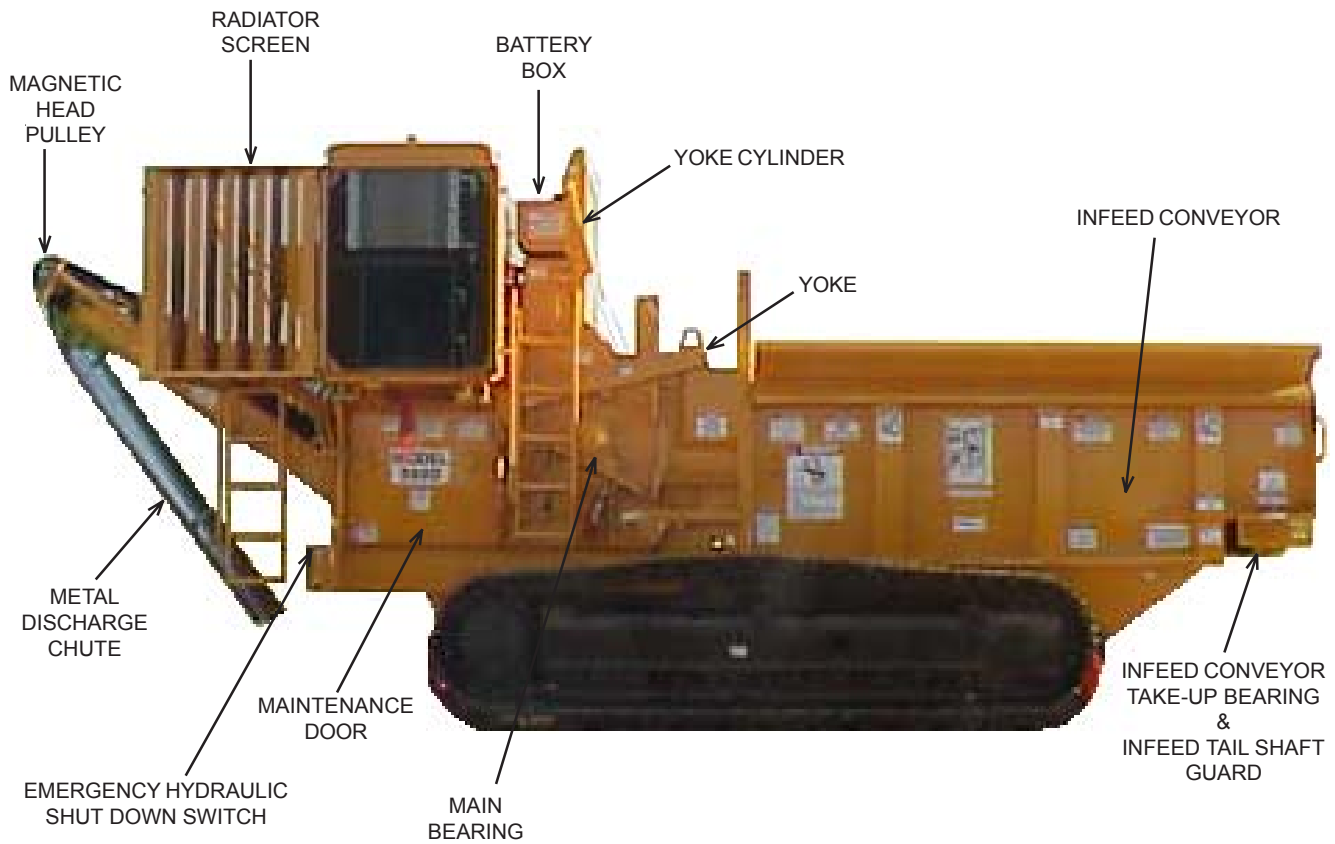
Engine	Maximum RPM	Magnetic Pickup PPR (CAL)	Off RPM	On RPM	Reverse Time
Caterpillar C-10**	2100	118	1700	2000	.5 Seconds
Caterpillar C-15**	2100	136	1700	2000	.5 Seconds
Caterpillar C-16**	2100	136	1700	2000	.5 Seconds
Cummins M-11	2100	118	1700	2000	.5 Seconds
Cummins N-14	2100	118	1700	2000	.5 Seconds
Cummins QSK-19	2100	142	1700	2000	.5 Seconds
John Deere 6125A	2100	147	1700	2000	.5 Seconds
John Deere 6125H	2100	147	1700	2000	.5 Seconds

**With PT Tech Clutches 395 HP and above use a PPR value of 113

Smoracy, LLC

COMPONENT PARTS MODEL 3680 "CURBSIDE" VIEW

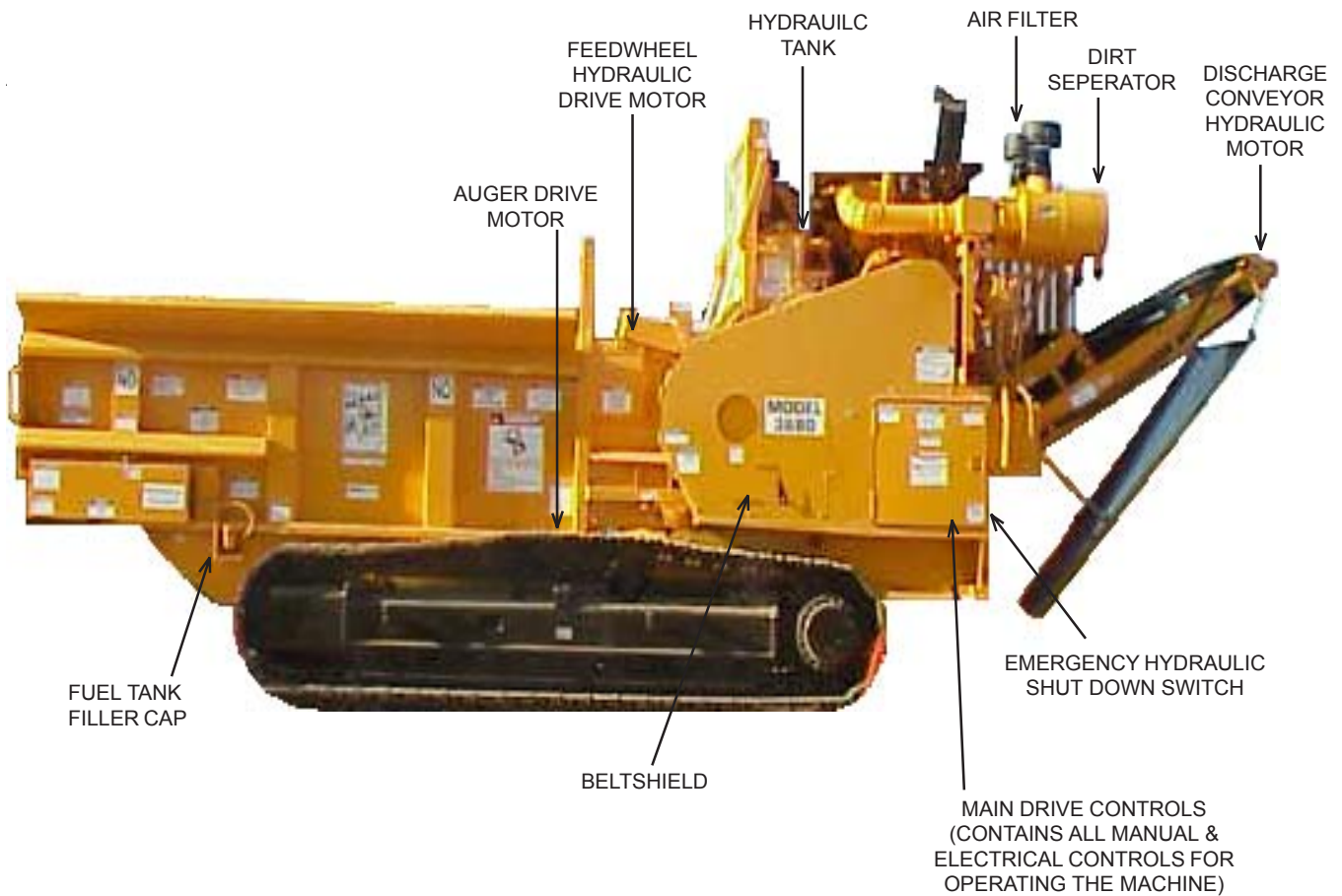
Picture shown is typical, your machine may have other options



Smoracy, LLC

COMPONENT PARTS MODEL 3680 "ROADSIDE" VIEW

Picture shown is typical, your machine may have other options



Smoracy, LLC

EQUIPMENT SPECIFICATIONS

The Smoracy, LLC Recycler is a track machine designed to reduce wood and all organic products into mulch. The unit is powered by one of several optional engines. Power is transmitted through a V-Belt system to the cutter head. Applicable service manuals should be consulted concerning power units and clutches for proper maintenance. Any available manuals pertaining to these component parts are also shipped with the unit. Additional copies can be purchased through their respective manufacturers.

SPECIFICATIONS - FOR MODEL 3680 TRACK BEAST

FRAME:	Made from 20" (508 mm) deep formed section steel plate, with 18" (457 mm) deep formed section cross-bracing.
TRACK SUB FRAME:	Made from 1/2" (12.7 mm) x 6" (152 mm) x 6" (152 mm) tube reinforced by crossbraces.
HYDRAULIC TANK:	140 gallon (530 liter) capacity with in-tank element filter on return line, strainer on tank inlet, baffle, sight gauge, shut-off valves, and oil temperature gauge, rubber mounted.
FUEL TANK:	300 gallon (1136 liter) minimum with sight gauge, lockable cap and shock mounted.
FEED SYSTEM:	Horizontal feed, hydraulically powered 13 feet (4.0 m) long x 5 feet (1.5 m) wide angle type slat conveyor, assisted with a 24 inch (610 mm) diameter by 5 feet (1.5 m) wide floating feedwheel mounted over the conveyor. Total pulling capacity: 7-1/2 tons (6804 kg).
DISCHARGE CONVEYOR:	4 feet (1.2 m) wide x 12 feet (3.7 m) long, belt conveyor with vee-style cleats, troughing rolls, hydraulic direct drive and optional magnetic head. Discharge height: 9 feet (2.7 m) Operating speed: 280 feet per minute (85.3 meters per minute)

Smoracy, LLC

SPECIFICATIONS - FOR MODEL 3680 TRACK BEAST (Continued)

CUTTER MILL: Consists of 60 cutters mounted between supports welded to 24" (610 mm) diameter drum. Tip to tip diameter is 42 inches (1067 mm). Head width is 5 feet (1.5 m). Cutters consists of body, plus bolt and lock nut, and cutter insert and nut.

MAIN CUTTER HEAD BEARING: (2) - 4 15/16" (125 mm) diameter spherical roller pillow block bearings.

SCREENS: Various different screen options available. See pages 49 and 75 for options.

INFEED CONVEYOR SPEED RATE: Adjustable infeed conveyor speed rate from 0-22 feet per minute (0-6.1 meters per minute).

CUTTER HEAD SHAFT: 6" (152 mm) diameter, coaxillay mounted inside 24" (610 mm) diameter by 3/4" (19.1 mm) wall pipe connected by end plates.

CUTTER MILL OPENING: 30" (762 mm) high x 60" (1524 mm) wide

GUARDS: All rotating parts covered by heavy-duty guards.

OVERALL DIMENSIONS: Approximately 30' (9.1 m) long x 10' 4" (3.1 m) wide x 11' 6" (3.5 m) high.

WEIGHT: Approximately 55,000 pounds (24,948 kg). (Depending on engine options.)

DUAL SYSTEM MACHINE CONTROLS: Primary control is a radio remote control. Secondary control is an electric cable remote.

HYDRAULIC HOSES: Protected by hose guards in all wear areas.

RADIATOR SCREEN: High capacity radiator debris screen.

ENGINES: Optional engines available between 500 and 680 H.P. range.

SPECIFICATIONS - FOR MODEL 3680 TRACK BEAST (Continued)

BATTERY BOX: Lockable, steel fabricated construction.

HYDRAULIC PUMPS: Hydraulic pumps will vary depending on engine options.
Track proportional pumps.
Gear style pumps to run rest of machine operations.

All welding is done by an experienced labor force, using gas MIG welders. They are inspected and reinspected to assure secure, solid welds. Many fabricated components such as drive guards, cutter head base, etc. are not only externally welded but internally welded as well. This type of quality work insures good looks as well as security.

The CLUTCH is a relatively expensive wear item on the recycler. This decal is installed on each machine shipped as a reminder to the operator to save money and down time by proper maintenance and usage. Refer to your clutch manuals for proper maintenance procedures.

Please remember, if it ISN'T taking most of your strength to engage the clutch, IT ISN'T ADJUSTED PROPERLY.

SMORACY, LLC DOES NOT warranty clutch failures. Warranty must be handled through the respective manufacturers.

New clutches require several adjustments in the first few hours of operation. This is the time period they are wearing in. Failure to adjust will cause the entire clutch to burn up.

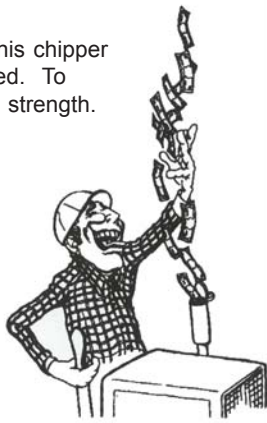
NOTICE

THE CLUTCH HANDLE SHOULD NOT BE ENGAGED OR DISENGAGED AT SPEEDS ABOVE 1000 RPM'S.

If the clutch handle engages easily DO NOT operate this chipper until the clutch plate tension has been properly adjusted. To properly engage the clutch it should take most of your strength. A new clutch requires frequent adjustment.

GOOD OPERATORS DON'T WASTE MONEY!

Clutches will fail, glaze over, and burn up from improper adjustment. This will cost the owner of this machine over \$2,000 to repair. A well maintained, correctly adjusted clutch should function properly for over three years.



Smoracy, LLC

CONTROLS



DANGER!

EMERGENCY HYDRAULIC SHUT DOWN SWITCH



WARNING!

Before engaging the infeed system the auger drive must be started by pushing the auger hydraulic control valve handle to the forward position. Never reverse the augers for more than two seconds. Failure to comply will result in material build up and possible damage to the infeed Chain.

NOTICE

IMPORTANT INFORMATION

You will cause expensive damage to your machine if you don't properly prepare BEFORE welding!

Be sure to disconnect the wiring harness from the (ECU) ELECTRONIC CONTROL UNIT on engine, and be sure to disconnect battery by using the battery disconnect switch.

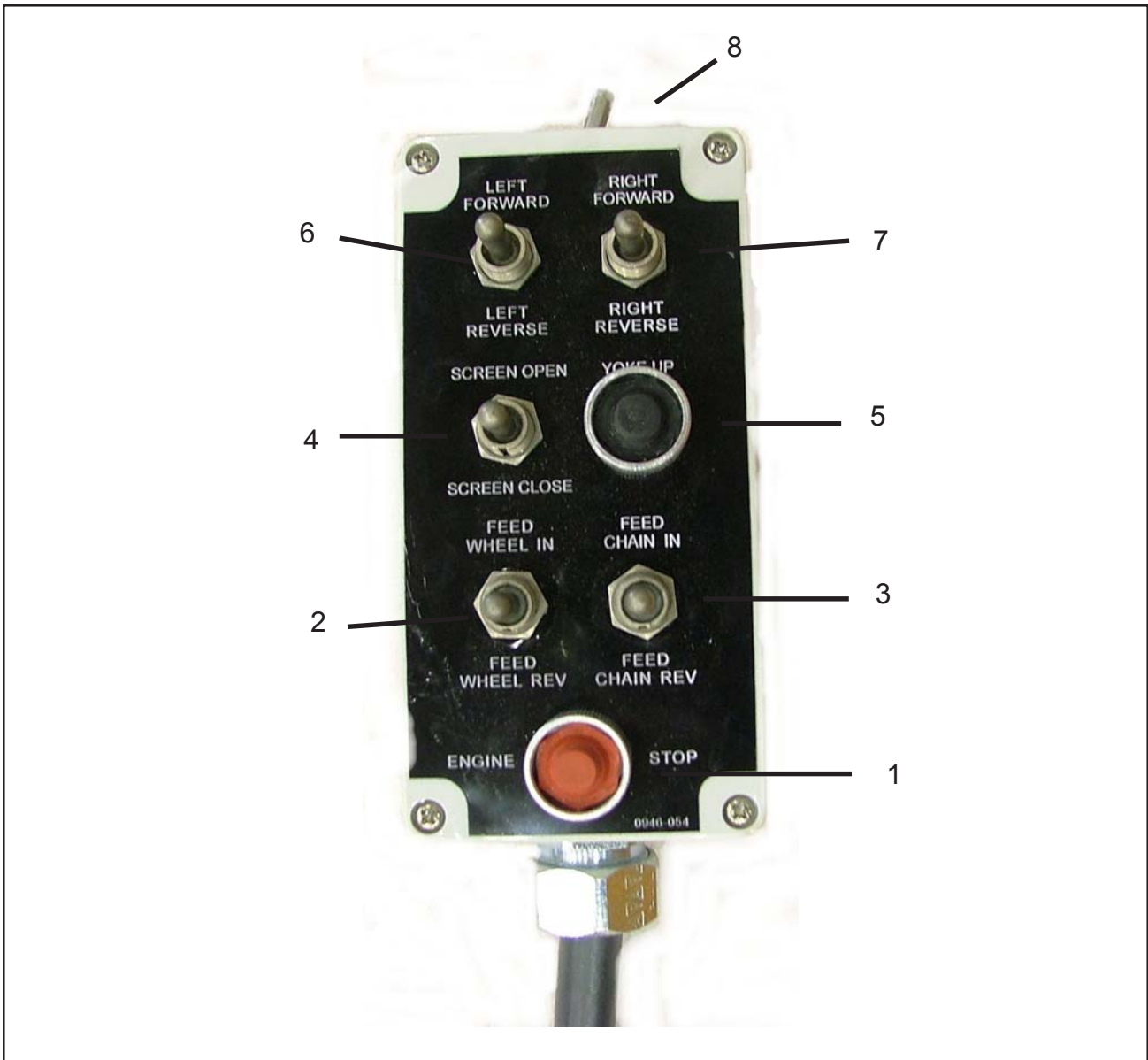
Follow the specific Engine MFG instructions for proper welding and grounding procedures, before attempting to weld on machine.

Smoracy, LLC

CONTROLS

MODEL 3680 TRACK BASIC LOCATION OF TETHER REMOTE CONTROL

- | | |
|----------------------------------|-----------------------------------|
| 1. Engine Shut Down Switch | 5. Yoke Up Button |
| 2. Feed Wheel In/Reverse Switch | 6. Left Track Fwd/Reverse Switch |
| 3. Feed Chain In/Reverse Switch | 7. Right Track Fwd/Reverse Switch |
| 4. Screen Gate Open/Close Switch | 8. Throttle Up/Down Switch |



Smoracy, LLC

OPERATING THE TETHER REMOTE

The Tether Remote control comes standard with every machine. The system works by means of electric solenoids on the manual control valves operated through a push button station, at the end of an umbilical cord which is approximately 50 ft. (15.2 m) long. The Tether Remote control connection is via a deutsch socket. Insert plug into socket located on the side of the engine gauge panel and tighten. Make sure it is secure. On the engine gauge panel move the first switch from manual to Radio/Tether and second switch to Tether Remote which will allow you to control the machine from the Tether Remote. For the Tether Remote control to function properly the manual control valves for the Infeed Conveyor Chain, Feed wheel, and Feed wheel Yoke must be in the off position.

Engine Shut Down Switch: (1)

The engine will immediately shut down and all functions will come to a stop. Cuttermill may continue to turn until momentum slow down.

Feed Wheel In/Reverse Switch: (2)

Feed Wheel will rotate in a position to feed material into the cuttermill or may be reversed to force material back from cuttermill.

Feed Chain In/Reverse Switch: (3)

The infeed chain will bring material into the cuttermill or may be reversed to bring material back out of cuttermill area.

Screen Gate Open/Close Switch: (4)

The screen gate may be opened or closed. Check indicator on side of the machine for position.

Yoke Up Button: (5)

The Yoke can be raised move feed wheel up when needed.

Left Track Forward/Reverse Switch: (6)

When moving the machine this switch will move the left (road side) track forward or reverse.

Right Track Forward/Reverse Switch: (7)

When moving the machine this switch will move the right (curb side) track forward or reverse.

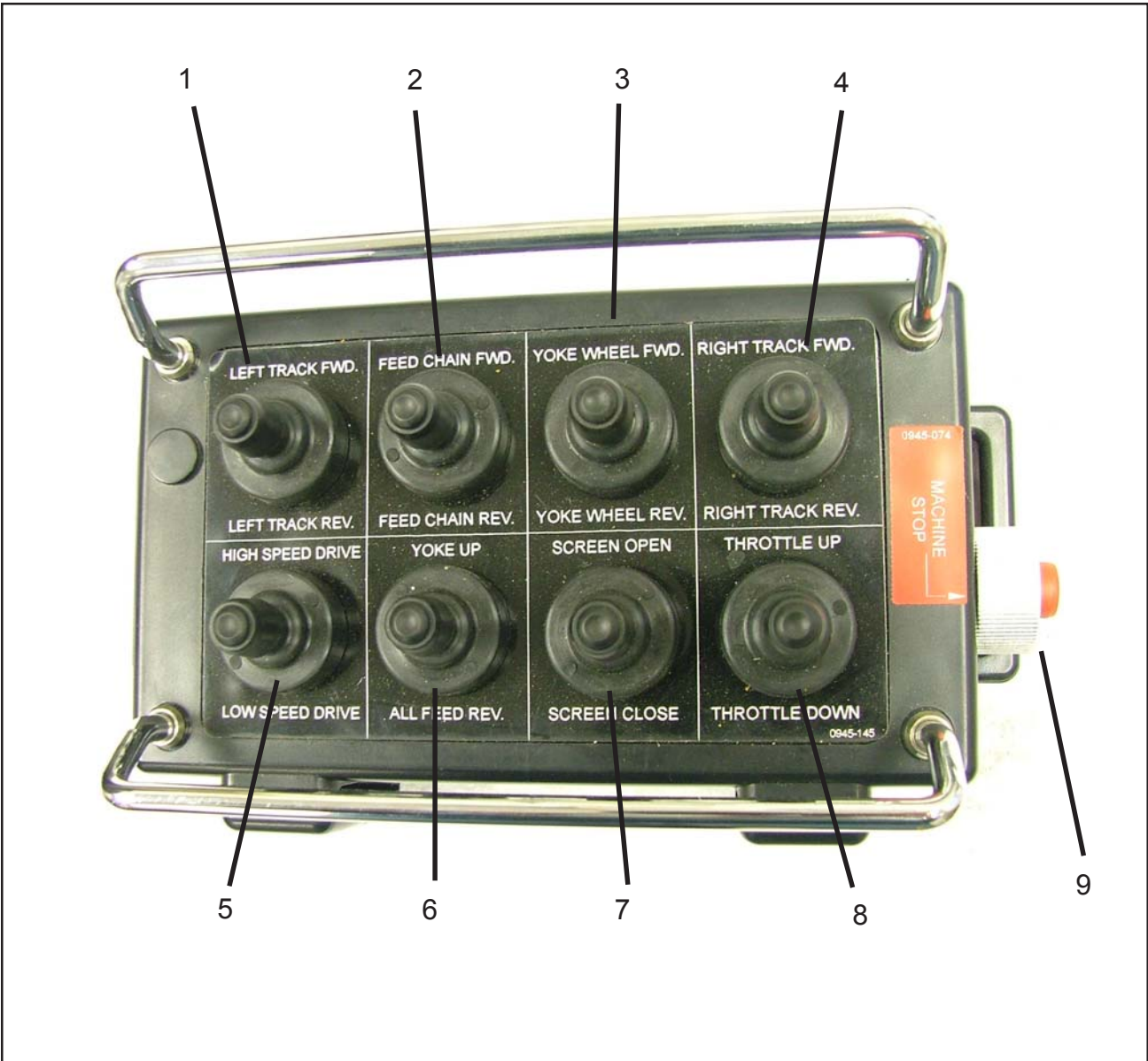
Throttle Up/Down Switch: (8)

This switch will bring machine RPM's up (full throttle) or down (idle).

CONTROLS

MODEL 3680 TRACK BASIC LOCATION OF RADIO REMOTE CONTROL

- | | |
|-------------------------------|------------------------------------|
| 1. Left Track Fwd/Rev Switch | 5. High Speed/Low Speed Switch |
| 2. Feed Chain Fwd/Rev Switch | 6. Yoke Up/All Feed Reverse Switch |
| 3. Yoke Wheel Fwd/Rev Switch | 7. Screen Open/Close Switch |
| 4. Right Track Fwd/Rev Switch | 8. Throttle Up/Down Switch |
| | 9. Machine Stop (engine shut down) |



Smoracy, LLC

OPERATING THE RADIO REMOTE

In order to operate the Recycler using the Radio Remote controls, the manual control valves **must** all be placed in the off position. Toggle switch on engine control box must be in radio position. Transmitter will power up when any toggle switch on the transmitter is activated.

Left Track Fwd/Rev Switch (1)

Will power the left (Road Side) track either forward or reverse.

Feed Chain Fwd/Rev Switch (2)

Will power the infeed chain either forward into the machine or reverse to back chain out.

Yoke Wheel Fwd/Rev Switch (3)

Will power the feed wheel to pull material into or back out of cuttermill.

Right Track Fwd/Rev Switch (4)

Will power the right (Curb Side) track either forward or reverse.

High Speed/Low Speed Switch (5)

Will increase or decrease track speed. Flip switch up for high speed or flip switch down for low speed. Switch will return to center but will tracks will move at last speed chosen.

Yoke Up/All Feed Reverse Switch (6)

Will raise yoke and reverse all material from the cuttermill.

Screen Open/Close Switch (7)

Will open or close screen gate. Indicator pointer on side of machine will show gate position.

Throttle Up/Throttle Down Switch (8)

Will increase or decrease engine RPM's.

Machine Stop Switch (9)

Pushing this button will immediately stop engine and bring all functions to a complete stop. Be aware cuttermill will continue to turn until momentum stops turning the mill.

CONTROLS

Model 3680 Track Beast Basic Location of Controls

PRIMARY CONTROLS

Controls for the Recycler are located in the control cabinet on the road side of the machine. The Recycler is operated by means of a dual control system. All valves function manually and some of these same valves are controlled electrically by the Tether Remote Control or the optional Radio Remote Control.

DEUTSCH SOCKET

Attachment of the tether remote umbilical cord is via a Deutsch Socket. The cord and push button station can be removed by unscrewing the Deutsch plug from its socket.

When using the tether remote as the main control, the manual control valves must be placed in the off position.

REMOTE RADIO CONTROL

In addition to the primary and tether remote, the machine can also be controlled by an optional radio control up to a distance of two hundred feet. The radio receiver is mounted inside the control panel for machines ordered with this option.

ENGINE START

Before starting the engine make sure that the clutch is not engaged. 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.

NOTE: 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 there is oil pressure the override button may be released.



Deutsch Socket



Engine Start

Smoracy, LLC

Model 3680 Beast Basic Location of Controls and Adjustments

CLUTCH ENGAGEMENT

The engine must be running at low idle when engaging the clutch. The clutch is engaged by bumping-in. Bumping-in involves several partial engagements using the clutch handle. Each bump establishes rotation to the Cutterhead assembly progressively increasing speed. After two or three “bumps”, the clutch handle is moved to the fully engaged over-center position. It will take most of your strength to engage the clutch fully. If it engages easily, do not operate the Recycler until the clutch has been properly adjusted. **Remember; it must take most of your strength to lock the clutch in place.** The engine is now ready to be brought up to full RPM with the throttle control. Reduce to 1,000 RPM to disengage PTO.



PTO Engagement

NOTICE: DO NOT ATTEMPT TO ENGAGE THE ENGINE PTO (POWER TAKE OFF) SYSTEM ON THIS MACHINE IF THE CUTTER HEAD IS JAMMED OR FROZEN IN PLACE. THIS WILL CAUSE DAMAGE TO THE DRIVE BELTS AND/OR PTO WHICH WILL NOT BE COVERED UNDER WARRANTY.

HYDRAULIC CLUTCH ENGAGEMENT (PT TECH)

With the engine turned on and running at 900 RPM, push and hold the start button on the hydraulic clutch control box for 3 seconds. When the LED light turns green, clutch is engaging. The engine is now ready to be brought up to full RPM with the throttle control. Reduce to 1,000 RPM to disengage PTO.



Start Button

Hydraulic PTO Engagement

CONSULT THE ENGINE MANUFACTURER’S MANUAL FOR SPECIFIC CONTROLS FOR TYPICAL DIESEL ENGINES

1) Throttle Adjustment:

The engine throttle adjustment is located on the engine gauge panel inside the control cabinet. To increase engine speed, toggle the switch up. To decrease engine speed, toggle the switch down.

2) Oil Pressure Gauge:

The oil pressure is monitored on the diagnostic gauge located on the engine panel inside the control cabinet. The engine shut down system is wired through this gauge. If the oil pressure is lost, the engine will shut down and all moving components will coast to a stop.

3) Engine Temperature Gauge:

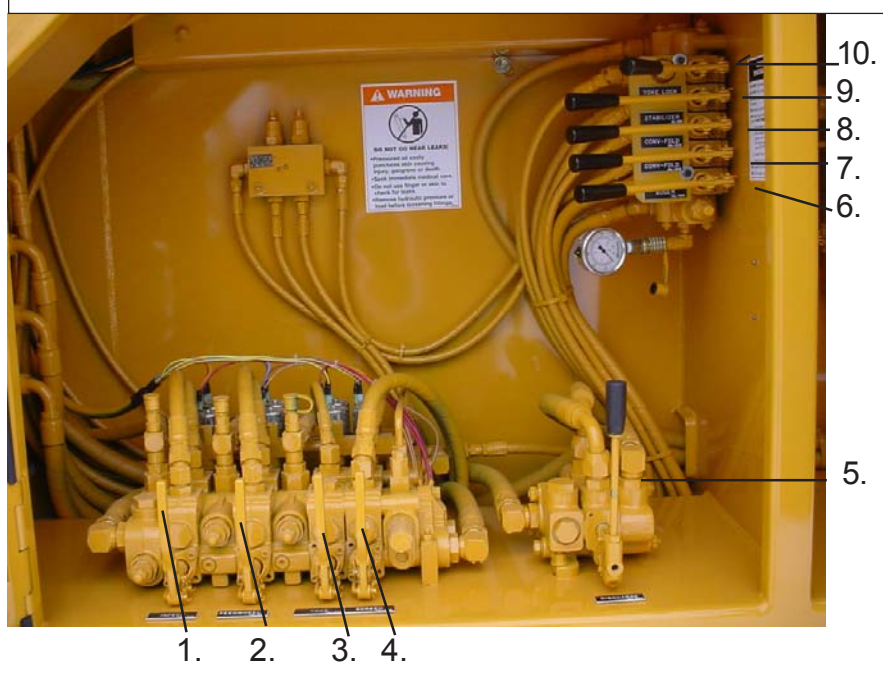
The engine temperature is monitored on the diagnostic gauge panel inside the control cabinet. The engine is equipped with a temperature overheat strobe light. This will alert the operator that an overheat condition is about to occur and before an automatic shutdown happens.

The engine shut down system is also through this gauge. If the coolant temperature gets too high, the engine will shut down and all moving components will coast to a stop.

CONTROLS

BASIC LOCATION OF CONTROLS

- | | |
|---|---|
| 1. Infeed Conveyor Control | 10. Yoke Lock Bars Control Valve |
| 2. Feedwheel Rotation Control Valve | 11. Digital Autofeed/Tach |
| 3. Yoke Control Valve | 12. Powerview Gauge |
| 4. Concave Door Control Valve | 13. Module Controls |
| 5. Discharge Belt Conveyor Control Valve | 14. Ignition Switch |
| 6. Auger Control Valve | 15. Radio/Tether or Manual Control Switch |
| 7. Discharge Belt Conveyor Fold Control Valve | 16. Radio or Tether Switch |
| 8. Discharge Belt Conveyor Fold Control Valve | 17. Throttle Control (Increase/Decrease) |
| 9. Stabilizer Control Valve | 18. Throttle Control (Idle/Run) |



Smoracy, LLC

CONTROLS

STABILIZER ADJUSTMENT (9)

The Stabilizer directional control valve is located in the block of valves on the right hand side of the control cabinet. To raise the front of the machine pull the control handle toward you. To lower the front of the machine push the control handle away from you.

CONCAVE DOOR CONTROL (4)

The Concave Door, also referred to as lower screen, control valve is located in the valve bank column on the right side of the control cabinet. To open the Concave Door, pull the control handle toward you. To close the Concave Door push the control handle away from you.

CAUTION

AUGER CONTROL (6)

Never operate the Auger in reverse for more than one or two seconds at a time. Leaving the Augers in reverse will cause material buildup against the rear Auger pan.

The Auger manual control valve is located in the valve bank column on the right hand side of the control cabinet. To operate the Augers in the normal forward direction, push the control handle forward. Always engage augers before engaging feed system.

FEEDWHEEL YOKE (3)

Operation of the Feedwheel Yoke lift is accomplished by operating the Feedwheel Yoke control valve. In the off position the Feedwheel Yoke is hydraulically locked.

WARNING

NEVER use the off position of the Feedwheel Yoke lift control valve to lock the Feedwheel Yoke up if work is to be done under or around the Feedwheel. Use the hydraulic Yoke Lock Bars provided by the manufacturer. For added safety chain the Feedwheel Yoke to the Discharge Belt Conveyor rest using the Safety Chain attached to the Discharge Belt Conveyor rest.

To lift the Feedwheel Yoke pull the control handle toward you. To lower the yoke push the control handle away from you. The Feedwheel yoke and Feedwheel assembly will float on the incoming material in this position.

HYDRAULIC YOKE LOCK (10)

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. Then pull the hydraulic Yoke Lock Bars control handle which is located on the valve bank column on the right side of the control cabinet. The Yoke Lock Bars located on top of the Cutterhead housing will then extend or engage. Now use the Safety Chain attached to the Discharge Belt Conveyor rest and secure it to the lug located on the right side of the Feedwheel Yoke. With the safety devices in place lower the Feedwheel Yoke until it contacts the Yoke Lock Bars and the Safety Chain pulls tight. Finally do not attempt any type of maintenance without turning off engine, making sure the Cutterhead has come to a complete stop, turning Battery Disconnect Switch off, and you must have the ignition key in **YOUR** possession.

For added safety it is a good practice to use an additional log chain to help support the Feedwheel Yoke to the conveyor rest. When all safety devices are in place you may start performing maintenance to the machine.

WARNING

Never use the cable or radio remote button to hold the Feedwheel Yoke in the raised position if work is to be done under or around the Feedwheel. Use all safety devices as explained above.

FEEDWHEEL MOTION (2)

Forward motion of the Feedwheel is accomplished by pushing the Feedwheel control valve handle forward away from you. To stop the Feedwheel place the handle in the middle or off position. To reverse the Feedwheel pull the handle toward you.

INFEEED CONVEYOR MOTION (1)

Forward motion of the Infeed Conveyor is accomplished by pushing the Infeed Conveyor control valve handle forward away from you. To stop the Infeed Conveyor place the control handle in the middle or off position. To reverse the Infeed Conveyor pull the control handle toward you.

Continued on next page

Smoracy, LLC

CONTROLS

⚠ CAUTION**DISCHARGE BELT CONVEYOR MOTION (5)**

Forward motion of the Discharge Belt Conveyor is accomplished by pushing the Discharge Belt Conveyor control handle away from you. To stop the Discharge Belt Conveyor place the control handle in the middle or off position. To reverse the Discharge Belt Conveyor pull the control handle toward you.

DISCHARGE BELT CONVEYOR FOLD (If Equipped) (7 & 8)

The Discharge Belt Conveyor must be stowed in the folded position when moving the machine. Before folding or unfolding the Discharge Belt Conveyor, make sure the engine is at idle and everyone is clear from the Recycler area. Remember, never slam the Discharge Belt Conveyor to a rest, always feather the controls to allow a smooth stop.

Before unfolding, with the Discharge Belt Conveyor in the transport position, push the Discharge Belt Conveyor fold control handles in one at a time for 4-5 seconds until the pressure gauge reaches 1800 PSI (124 bar). This will purge the hydraulic system of any air.

To unfold the Discharge Belt Conveyor to its normal operating position pull the mid section Discharge Belt Conveyor fold control handle until the mid section is fully extended. To unfold the upper section pull the upper section Discharge Belt Conveyor fold control handle until the upper section is fully extended. Again remember, just feather the controls, do not slam the Discharge Belt Conveyor to a stop.

Before folding, with the Discharge Belt Conveyor in the operating position, pull the Discharge Belt Conveyor fold control handles out one at a time for 4-5 seconds until the pressure gauge reaches 1800 PSI (124 bar). This will purge the hydraulic system of any air.

When folding the Discharge Belt Conveyor the upper section must be folded first, followed by the mid section. Failure to follow these procedures may result in the belt becoming too tight and this could cause damage to the machine. To fold the Discharge Belt Conveyor to its folded or transport position push the Discharge Belt Conveyor upper section fold control handle away from you until the upper section Discharge Belt Conveyor is fully raised. Then push the Discharge Belt Conveyor mid section fold control handle away from you until the Discharge Belt Conveyor comes to rest on the Discharge Belt Conveyor support. Again, just feather the controls, do not slam the Discharge Belt Conveyor to a stop. Slamming the Discharge Belt Conveyor could cause extensive damage to your Recycler or cause serious injury or even death.

HYDRAULIC SHUT DOWN SWITCHES

There are four hydraulic shutdown switches located at the corners of the Recycler. When any of these switches are pushed in, all hydraulic systems will stop. Be aware that the engine and Cutterhead will continue to run; these switches only stop the hydraulic systems. All switches must be pulled back out for the hydraulic systems to work again.

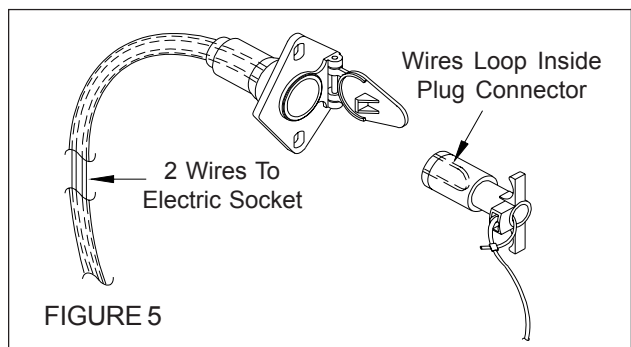
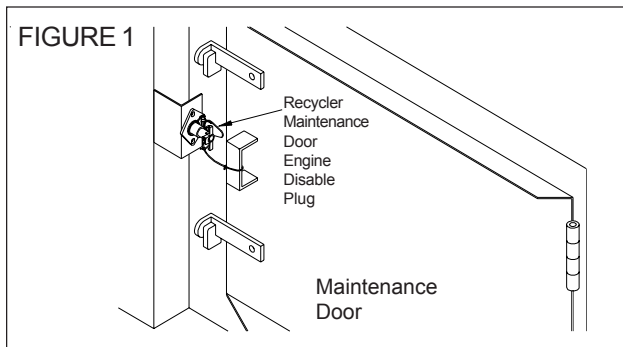
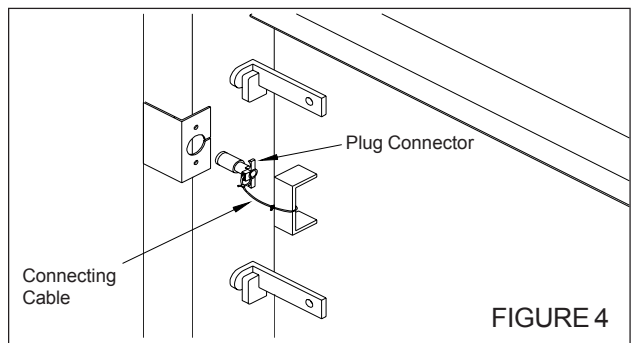
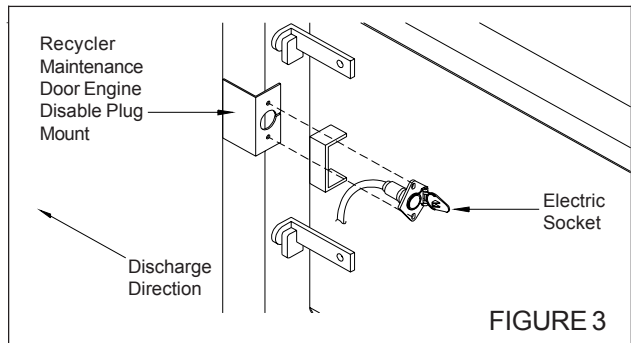
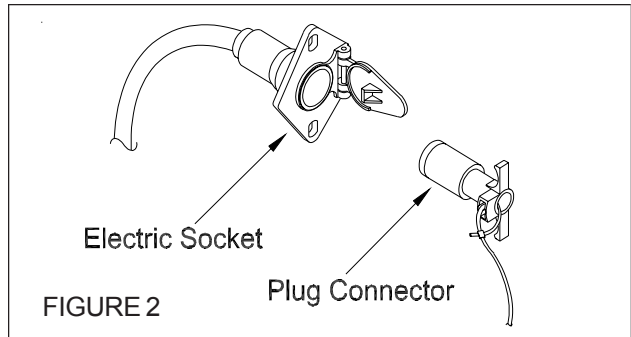
RECYCLER MAINTENANCE DOOR ENGINE DISABLE PLUG OPERATION

The recycler maintenance door engine disable plug is installed for safety purposes. It is designed to shut down the engine if the plug is not properly in place holding the maintenance door in the closed position. Correctly installed and maintained, the engine will not start or it will shut off if the plug connector is removed.

The recycler maintenance door engine disable plug is located on the maintenance door of the recycler (see figure 1). The maintenance door engine disable plug is made up of two parts: an electric socket and a plug connector (see figure 2). The electric socket is bolted to the recycler engine disable plug mount bracket (see figure 3) and the plug connector is attached by a cable to the maintenance door handle (see figure 4).

If the recycler maintenance door engine disable plug is not properly installed then the engine will not start or run. If the recycler maintenance door engine disable plug becomes disconnected while the recycler engine is running the engine will be shut down or be disabled from running. This is for safety purposes, to ensure that the maintenance door is not opened while the engine is running.

The recycler maintenance door engine disable plug is wired to shut down the recycler engine. There are two wires connected into the electric socket which are tied into the engine electronics. There is a wire loop installed inside the plug connector so when the two are connected the electric circuit is complete. When the plug connector is pulled out of the electric socket the electric circuit is broken, disabling the engine (see figure 5).



START-UP PROCEDURES

⚠ DANGER

Do not let anyone operate or maintain this machine until they have thoroughly read this manual, viewed the decals and video tape, and follow all instructions. You can purchase additional Smoracy, LLC manuals & video tapes for a nominal fee.

⚠ WARNING

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.

⚠ WARNING

Failure to properly break-in your engine will result in poor bearing and piston ring surfaces. See Engine Manual for proper break-in procedures.

⚠ WARNING

The machine has only been run for a short time to test proper hydraulic pressures, possible leaks, etc.

STARTING THE RECYCLER

(See following page for pre start-up procedures)

Before starting the engine make sure that the clutch is not engaged. 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.

NOTE: 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.



Ignition Switch

Smoracy, LLC

START-UP PROCEDURES

BEFORE STARTING ENGINE

- 1) Wear all applicable personal protective equipment; hard hat, gloves, eye protection, ear protection, etc.
- 2) Observe all safety procedures on decals, in video tape and from manual.
- 3) Check inserts and Cutterbody bolts. Change if necessary.
- 4) Check the entire machine for any loose parts or components. Check for loose nuts or bolts, torque, tighten or replace.
- 5) Check hydraulic pump and motor shaft for fit and tightness.
- 6) Check the Infeed Conveyor for any foreign objects.
- 7) Daily grease all related bearings and oil all roller chains.
- 8) Check radiator, debris screen. Clean as necessary.
- 9) Check the fuel level, check the fuel lines, fuel tank, and fittings for fuel leaks.
- 10) Check and/or adjust belt tension on recycler belt drives.
- 11) Check engine oil and coolant levels, make sure they are at the proper level for operation.
- 12) Check hydraulic oil level, this should always be 7/8 full. Remember to check DAILY to avoid excessive heat build up.
- 13) Check the air cleaner and pre-cleaner. Clean as necessary.
- 14) Make sure all guards and shields are tight and securely in place.
- 15) Check around the machine for tools, cans, saws, etc.
- 16) Make sure Discharge Belt Conveyor is located in a safe direction.
- 17) Check clutch for proper engagement tension and lubrication, frequently adjust and grease, per PTO manufacturers manual recommendations.
- 18) Check Infeed Conveyor chain tension, keep chain tight and lubricated.
- 19) Fasten debris screen in front of radiator.
- 20) Confirm that all manual hydraulic control valves are in the off position.
- 21) Fold clutch handle out from its transport position and pin into place.
- 22) Make sure clutch is disengaged.
- 23) Check to ensure Hydraulic Shut Off Valve is open.
- 24) Check to ensure cutting teeth and cutter bodies are in good running condition.
- 25) Check tooth clearance between chain (min 3/4" or 19.1 mm), anvil (min 1/4" or 6.4 mm), concave gate (min 1/4" or 6.4 mm), and screen (min 1/4" or 6.4 mm)
- 26) Turn the Battery Disconnect Switch on.
- 27) Check to ensure remote control switch on engine gauge panel is on manual.
- 28) Make sure throttle switch is in the idle position.
- 29) Remove all potential fire hazards.
- 30) Remember to check EVERYTHING on the checklist.

TRANSPORTING THE RECYCLER

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 without further loading.
- 2) From the remote control stop the Infeed Conveyor Chain and the Feedwheel rotation.
- 3) Idle engine and disengage clutch.
- 4) Place the Auger manual control valve handle in the off or middle position to stop the Augers from operating.
- 5) Place the Discharge Belt Conveyor manual control handle in the off or middle position to stop the Discharge Belt Conveyor from operating.
- 6) Make sure the Feedwheel is in the lowered position.
- 7) On the engine gauge panel turn the throttle control switch to the idle position and move switch from remote control to manual.
- 8) 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.
- 9) Disconnect and stow tether remote control in the tool box.
- 10) Radio remote control can be stored inside control cabinet on the left side or road side of the Recycler.
- 11) Remove all potential fire hazards. Remove hazards such as wood debris, fuel, oil, etc. The top of the engine, around the exhaust system and turbo are areas to be kept especially clean. Clean beside and around the engine, around and under fuel and hydraulic tank, inside belt shield, inside 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 unattended 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 Cutterhead, Infeed, and Discharge Belt Conveyor bearings 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 area around clean from debris.
- 12) Restart engine and fold the Discharge Belt Conveyor to transport position (if so equipped).
Make sure to follow the proper folding procedures.
- 13) Make sure all manual hydraulic control valve are in the off or middle positions.
- 14) Once again 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.
- 15) Lock control cabinet doors.
- 16) Pull pin on the clutch handle and fold up out of the way.
- 17) Lock radiator debris screen in the transport position.
- 18) Fold and secure swing ladder on the right side or curb side of the machine.
- 19) Walk around Recycler to confirm that everything is secure and that there isn't anything loose that could fall off the machine while transporting. Look under Recycler to ensure nothing is dragging. Look down both sides of the Recycler checking for anything sticking out that may become damaged during transporting.
- 20) The Recycler is now ready for transport. Make sure to obey all local regulations and laws regarding transporting a machine of this size.

MAINTENANCE SECTION

NOTICE

Before engaging infeed system, auger drive must be started by pushing auger hydraulic control valve handle to the forward position.

Continue to run engine discharge conveyor and augers for at least three minutes or longer at end of the day. Failure to do this could cause the system to lock up



NEVER REVERSE THE AUGER SYSTEM FOR MORE THAN 2-3 SECONDS AT A TIME. THE RESULTING MATERIAL BUILD UP AGAINST THE BULKHEAD CAN CAUSE SYSTEM TO LOCK UP AND POSSIBLE DAMAGE TO THE INFEED CHAIN.

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 starting 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

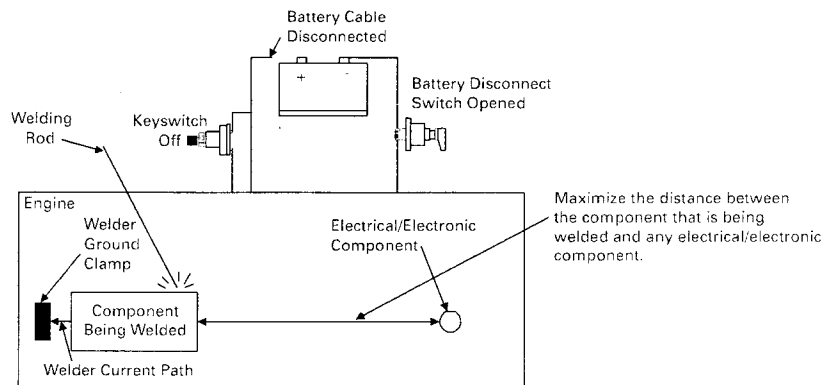
DO NOT work on the Recycler if the engine is running. A clutch can self-engage if either the pilot or throw-out bearing happens to seize to the main output shaft. Make sure that you are wearing all of your personal protective equipment and you have the key to the Recycler in YOUR pocket. It is your responsibility 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 fry the ECU (Electronic Control Unit), which is the computer that controls your engine and is very costly to replace. The ECU must be disconnected and the Battery Disconnect Switch turned off.

Example from Caterpillar engine manual: Welding on Engine Guideline Diagram

The current flow from the welder to the welder ground will not cause damage to any of the associated components.



⚠ WARNING

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. Then extend or engage the Yoke Lock Bars located on top of the Cutterhead housing. Now use the Safety Chain attached to the Discharge Belt Conveyor rest and secure it to the lug located on the right side of the Feedwheel Yoke. With the safety devices in place lower the Feedwheel Yoke until it contacts the Yoke Lock Bars and the Safety Chain pulls tight. Finally 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.

For added safety it is a good practice to use an additional log chain to help support the Feedwheel Yoke to the conveyor rest. When all safety devices are in place you may start maintenance to the machine.

Smoracy, LLC

MAINTENANCE CHECK SHEET

DAILY

- 1) Check the safety decals, replace if damaged.
- 2) Check all guards and shields.
- 3) Check entire machine for loose nuts and bolts.
- 4) Check Cutterhead assembly.
- 5) Check condition and clearances of Cutterbody, Cutterteeth, and Raker Inserts.
- 6) Check and/or adjust Cutterhead drive belt tension.
- 7) Check hydraulic pump and motor drives.
- 8) Check air cleaner, pre-cleaner.
- 9) Check radiator, debris screen.
- 10) Check engine oil and coolant levels.
Follow ENGINE MFG. manual specifications.
- 11) Check hydraulic oil level.
It is highly recommended that after initial start-up of the recycler and after any replacement of hydraulic components, that fittings and hoses be re-checked for leaks and clearances.
- 12) Check for oil, fuel, hydraulic oil, or engine coolant leaks.
- 13) Grease all bearings (except Cutterhead bearings).
- 14) Check clutch engagement, tension and lubrication.
Frequently adjust and grease, per PTO manufacturers manual.
- 15) Check Infeed Conveyor chain tension and tracking.
- 16) Check the drive chains for the Infeed Conveyor and Augers.
- 17) Check the Screen and Concave Door assemblies.
- 18) Check Screen and Concave Door bolts.
- 19) Check Discharge Belt Conveyor.
- 20) Remove all potential fire hazards (wood debris, fuel, oil, etc.)
- 21) Engine Air Intake and Exhaust Components for missing or loose nuts, bolts or clamps.

WEEKLY

- 1) Check alternator and fan belts on engine.
- 2) Check, retighten hydraulic, fuel tank mount bolts.
- 3) Check Auger assemblies, and Auger chain.

MONTHLY

- 1) Check hydraulic pressures.
- 2) Replace hydraulic oil filters.
- 3) Check and retighten all bearing lock collars.
- 4) Grease cutterhead bearings with 16 pumps of synthetic grease.

Smoracy, LLC

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.



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.

DAILY MAINTENANCE

1) Check the safety decals and engine gauges:

Replace if missing or damaged. Check the engine manufacturer's manual to make sure your engine is running properly.

2) Check all shields and guards:

Check to ensure all shields and guards are securely in place.

3) Check entire machine for loose bolts, nuts, parts, or components:

Look for, find and tighten anything that has loosened up.

4) Check Cutterhead Assembly:

Check for any damage and excessive wear. Check entire Assembly for loose nuts and bolts

5) Check Cutterbody, Cutterteeth, and Raker Inserts:

Look for, find and tighten anything that has loosened up.

Check tooth clearances (3/4" or 19.1mm min. on infeed chain) (1/4" or 6.4mm min. on screen, gate, and anvil)

6) Check and/or adjust the Cutterhead drive belt tension:

The belts will need to be tightened several times in the first few days of operation. A loose belt will slip and then glaze over. Once they slip you must replace them. See "Belt/Chain Section" for the specified deflection and load per belt. Check hydraulic pump drive belts also. (If equipped).

7) Check the hydraulic pump and motor drives:

They should be fully inserted, and fit tight on the pump motor shaft. If the set screws are loose. Remove them and apply RC-609 Loc-tite then retighten to the Proper Torque.

8) Check air cleaner and pre-cleaner, clean or replace as necessary:

Clean or replace element following engine manual recommendations. Check and clean Vacuator Valve.

9) Check radiator, debris screen:

Check radiator and debris screen for contamination. Thoroughly clean radiator and debris screen (if equipped).

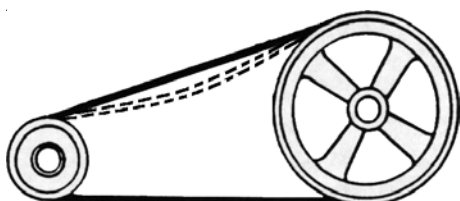
10) Check engine oil and coolant levels:

Follow the engine manufacturer manual recommendations for fluid levels. You **MUST** follow specific ENGINE MFG. manual recommendations for radiator coolant, additives, correct engine speed, ETC.

11) Check hydraulic oil level:

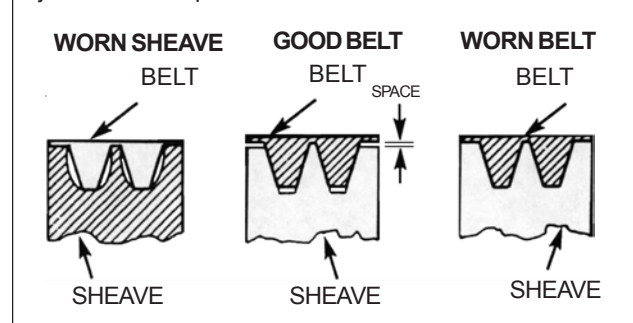
In the hydraulic oil reservoir tank the level should always remain at 7/8 full.

See "Belt/Chain Section" for the correct specified amount of deflection and load per belt.



RECYCLER BELTS

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.



MAINTENANCE SECTION

DAILY MAINTENANCE (cont.)

12) Check for any oil, fuel, hydraulic oil, or Engine coolant leaks:

Inspect for any oil, fuel, hydraulic oil, or engine coolant leaks. Check all hoses, fittings, lines, tanks, repair or replace.

13) Grease all bearings daily (except Cutterhead bearings - see monthly maintenance):

Use an EP-2 Lithium type grease only for all bearings (except cutterhead bearings). Oil all drive chains.

14) Check clutch for proper engagement tension adjustment, and lubrication:

Frequently adjust and grease per PTO Manufacturers manual.

15) Check Infeed Conveyor chain tension and tracking:

Keep Infeed Conveyor chain tight and lubricated. Keep Infeed Chain 3/4" (19.1 mm) min from a new tooth.

16) Check the drive chains for the Infeed Conveyor and Augers.

Check the tension on the drive chains.

17) Check the Screen and Concave Door assemblies:

Check for wear or damage. Repair or replace as necessary.

18) Check Screen and Concave Door bolts:

Check the bolts holding the Screen and Concave Door in place to ensure tightness and fit.

19) Check Discharge Belt Conveyor:

Check Discharge Belt Conveyor for proper tension and tracking.

20) Remove all potential fire hazards:

Remove hazards such as wood debris, fuel, oil, etc.

21) Check all engine air intake and exhaust components:

Including pre-cleaner, turbo clamps, muffler clamps, etc. for missing or loose nuts and bolts. Tighten or replace as necessary.

WEEKLY MAINTENANCE

1) Check alternator and fan belts on engine (as applicable):

Adjust and maintain per the engine manufacturer's manual.

2) Check and retighten tank mount bolts:

Check the hydraulic, fuel tank mount bolts.

3) Check Auger assemblies, and Auger chain.

Check and tighten or replace if necessary. Check timing of the augers.

MONTHLY MAINTENANCE

1) Check hydraulic pressures:

See hydraulic system pressure chart.

2) Hydraulic oil filters:

Must be replaced after FIRST 10 HOURS OF OPERATION, then every 400 hours afterwards. Change hydraulic suction strainer quarterly or every 400 hours.

3) Check and retighten all bearing lock collars:

Check the tightness of all the set screws on the Feedwheel bearings, Feedwheel yoke pivot bearings, Cutterhead bearings, hydraulic pump and motor couplers.

4) Grease Cutterhead bearings:

Grease cutterhead bearings monthly with 16 pumps of synthetic grease. Use Mobil 1 Universal Synthetic Grease, Mobil SHC 220 Synthetic Grease, Mobil AW2 Synthetic Grease, or Amsoil Multi-Purpose Grease NLGI#2.

Smoracy, LLC

CLUTCH MAINTENANCE

The new clutch will require a break-in period and will need to be adjusted several times during this period. To adjust the clutch, remove the cover plate and turn the plate until the adjusting pin comes to the top. Pull the pin and rotate the yoke clockwise, one notch at a time, until proper pressure is required to engage the clutch. Some adjustments differ, always consult your clutch manual.

The inspection cover plate on the clutch is stamped with correct adjustment procedures. Grease the throw out bearing with one shot of lithium based grease weekly. DO NOT over grease, this will cause clutch plate failure. The rear outboard bearing must be greased according to clutch MFG's specifications.

The clutch is a relatively expensive wear item. A decal is installed on the machine as a reminder to the operator to save money and down time by proper maintenance and usage. Refer to your clutch manual for proper maintenance procedures. Please remember, if it isn't taking most of your strength to engage the clutch, **IT ISN'T ADJUSTED PROPERLY.**

Smoracy, LLC DOES NOT warranty clutch failures. Warranty must be handled through the respective manufacturers. New clutches require several adjustments in the first few hours of operation. This is the time period they are wearing in. Failure to properly adjust will cause the entire clutch to burn up.

AUGER MAINTENANCE

Access to the augers is accomplished by sliding the infeed conveyor assembly back. Remove the six bolts holding the conveyor to the cutter head housing. Find the two lock blocks located on the sides of the frame behind the tongue. Slide the two blocks until they snap in place between the links of the infeed conveyor in the reverse direction. The conveyor assembly will slide back three feet exposing the augers.

CAUTION!

Do not allow the conveyor assembly to move back more than three feet so as not to stretch the hydraulic motor supply lines.

Remove the auger drive chain. Remove the bolts holding the augers to the auger shaft. Remove the bolts from the auger bearings and slide the auger shafts back.

WARNING!

It is vital that when working below the raised feedwheel yoke that the safety locks are in place. The following safety procedure must be followed.

Raise the yoke to the full extent and operate hydraulic yoke locking bars. SEE HYDRAULIC YOKE LOCK in the "Controls Section" for instructions. Now use the log chain attached to the conveyor rest and secure it to the lug located on the side of the feedwheel yoke. With the safety devices in place lower the yoke until it contacts the safety locks and the chain pulls tight. Remove the ignition key and have it in your possession before beginning work. For added safety it is a good practice to use an additional log chain to hold the yoke up.

INFEED CHAIN TENSION

The chain tensioning screws are located at the front end of the machine on each side of the conveyor. To tighten the chain, first loosen the bolts holding down the pillow block conveyor bearings before turning the chain tension screws.

Check both sides of the conveyor and adjust the tension accordingly. With the pins in the correct position on each side, retighten the bolts on the pillow block bearings.

CUTTER HEAD ACCESS

There are two locations for access to the cutter head for maintenance. Access for changing the cutter bodies and inserts is beneath the raised feedwheel. A second access is provided through the service door located on the rear left-hand side of the machine. Maintenance for the lower rear part of the cutter head, screen and rear belt conveyor pulley assembly is through this door. Removal of the entire cutter head is done by removing the feedwheel yoke assembly and sliding the cutter head forward.

TROUBLE SHOOTING GUIDE

TROUBLE SHOOTING GUIDE

PROBLEM - ENGINE WILL NOT START:

Possible Cause

Battery Disconnect Switch off.
 Battery cables cut or corroded terminals.

 Dead or low battery.
 No power to ignition switch.
 Circuit breaker tripped.

 No power to engine gauge panel.
 Main fuse blown.

Possible Solutions

Turn switch on.

 Inspect battery cables for damage, repair or replace as necessary. Clean battery terminals.

 Charge or replace battery.

 Reset circuit breaker in engine gauge panel.

 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

Engine disable plug removed.

 No fuel.

 Problem with the engine or the engine control panel.

Possible Solutions

Check the maintenance door engine disable plug to ensure that it is installed and operating correctly.

 Fill fuel tank and prime engine fuel system.

 Consult engine Manufacturer’s manual.

PROBLEM - NONE OF THE HYDRAULIC SYSTEMS ARE WORKING:

Possible Cause

Hydraulic Shut Down Switch

 Shut-Off Valve on hydraulic oil tank not on.
 Blown fuse for solenoids of Hydraulic Shut Down system. These solenoids valves need to be energized or the oil is pumped back to tank.

 Loss of power to Hydraulic Shut Down circuit.

 Low oil in hydraulic tank
 Pump belts missing if so equipped.
 Broken pump shaft.
 Oil strainer in Hydraulic Oil Tank is plugged.

Possible Solutions

Make sure all Hydraulic Shut Down Switches are pulled out.

 Turn Shut-Off Valve on.

 Replace in-line fuse near engine gauge panel if powered by Cat or Cummins. John Deere units have the fuse near the starter.

 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.

 Keep oil level at 7/8 full.

 Replace pump belts.

 Repair or replace pump.

 Remove and clean or replace strainer.

TROUBLE SHOOTING GUIDE

PROBLEM - INFEED CONVEYOR CHAIN NOT OPERATING USING THE MANUAL CONTROLS:

(All other hydraulic systems are working)

Possible Cause

Infeed Conveyor chain lock blocks engaged.

Material wedged or stuck preventing the Infeed Conveyor chain from turning.

Broken drive or idler sprocket assemblies.

Check roller chain on drive motor to make sure it's still in places.

Check to see if the drive key in the infeed drive sprocket or infeed hydraulic motor shaft has sheared.

Check the flow controls to see if they are open.

Low hydraulic system pressure.

No hydraulic system pressure.

Possible Solutions

Lower lock blocks.

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.

Check both drive and idler sprockets to make sure they are all right as well as the bearings that support them.

Repair or replace roller chain.

Check shafts for damage and replace key.

If the flow controls are opened up too far the Infeed Conveyor chain can stop under heavy load.

A quick 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. A 1200 PSI (83 bar) reading would indicate that the Infeed Conveyor is mechanically stalled by some obstructing material. 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.

Trace 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 volt reading (12 volt on some models) 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 GUIDE

PROBLEM - INFEED CONVEYOR NOT OPERATING USING THE RADIO OR TETHER CONTROLS:

(All other functions are working)

Possible Cause

No electrical signal to the solenoid control valve.

Faulty switch in Remote Control.

Possible Solutions

Check for electrical power at the solenoid while Engaging the switch on the remote used to operate the Infeed Conveyor. If you have electrical power at the solenoid on the control valve then you will need to refer the electrical schematic supplied with the machine to trace the problem. A wire may be broken or have a faulty relay inside the engine control panel.

If using the Radio Remote, switch to the Tether Remote and vice versa to determine if the problem may be in the remote.

PROBLEM - FEEDWHEEL WILL NOT TURN USING THE MANUAL CONTROLS:

(All other hydraulic systems are working)

Possible Cause

Material wedged or stuck preventing the Feedwheel from turning.

Check to see if the drive key in the Feedwheel hydraulic motor shaft has sheared.

Feedwheel bearing failure.

Check the flow controls to see if they are on.

Low hydraulic system pressure.

Possible Solutions

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.

Check shaft for damage and replace key.

Raise and secure Feedwheel following all safety procedures and check bearing. Replace if necessary.

If the flow controls are opened up too far the Feedwheel can stop under heavy load.

A quick 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. A 1200 PSI reading would indicate that the Feedwheel is mechanically stalled by some obstructing material. 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.

TROUBLE SHOOTING GUIDE

PROBLEM - FEEDWHEEL WILL NOT TURN USING THE MANUAL CONTROLS: (cont.)

(All other hydraulic systems are working)

Possible Cause

No hydraulic system pressure.

Possible Solutions

Trace 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 volt reading (12 volt on some models) 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.

PROBLEM - FEEDWHEEL WILL NOT TURN USING THE RADIO OR TETHER CONTROLS:

(All other functions are working)

Possible Cause

No electrical signal to the solenoid on the control valve.

Possible Solutions

Check for electrical power at the solenoid while engaging the switch on the remote used to operate the Feedwheel. If you have electrical power at the solenoid on the control valve then that means that the solenoid is faulty. If there isn't any electrical power than you will need to refer to the electrical schematic supplied with the machine to trace the problem. Could be a broken wire or a faulty relay inside the engine control panel.

Faulty switch in Remote Control.

If using the radio remote, switch to the tether remote and vice versa to determine if the problem may be in the remote.

PROBLEM - FEEDWHEEL YOKE WILL NOT RAISE USING THE MANUAL CONTROLS:

(All other hydraulic systems are working)

Possible Cause

Material wedged or bound up around Feedwheel Yoke.

Possible Solutions

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.

TROUBLE SHOOTING GUIDE

PROBLEM - FEEDWHEEL YOKE WILL NOT RAISE USING THE MANUAL CONTROLS: (cont.)

(All other hydraulic systems are working)

Possible Cause

Possible Solutions

Low hydraulic system pressure.

A quick check of the hydraulic pressure can be done by placing the pressure gauge into the diagnostic port provided on the control valve. Pull the Feedwheel Yoke manual control handle towards you to check the working hydraulic pressure. A 2050 PSI (141 bar) reading would indicate that the Feedwheel Yoke is mechanically stalled by some obstructing material. 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.

No hydraulic system pressure.

Trace 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 volt reading (12 volt on some models) 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.

Broken piston or bad seals in lift cylinders.

Oil coming out of the vent plug at the top of the cylinder would indicate a problem. Repair or replace cylinder.

PROBLEM - FEEDWHEEL YOKE WILL NOT LOWER USING THE MANUAL CONTROLS:

(All other hydraulic systems are working)

Possible Cause

Possible Solutions

Yoke Lock Bars engaged or Safety Chain attached.

Raise Feedwheel and release Safety Chain and disengage Yoke Lock Bars.

Material wedged or bound up around Feedwheel Yoke.

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. Raise Feedwheel Yoke and install all safety devices, then check around Feedwheel Yoke to determine what might be restricting it from coming down.

Bent lift cylinder rod.

Repair or replace lift cylinder.

TROUBLE SHOOTING GUIDE

PROBLEM - FEEDWHEEL YOKE WILL NOT RAISE USING THE RADIO OR TETHER REMOTE CONTROLS:

(All other functions are working)

Possible Cause

No electrical signal to the solenoid on the control valve.

Faulty switch in Remote Control.

Possible Solutions

Check for electrical power at the solenoid while engaging the switch on the remote used to operate the Feedwheel. If you have electrical power at the solenoid on the control valve then that means that the solenoid is faulty. If there isn't any electrical power than you will need to refer to the electrical schematic supplied with the machine to trace the problem. Could be a broken wire or a faulty relay inside the engine control panel.

If using the Radio Remote, Switch to the Tether Remote and vice versa to determine if the problem may be in the remote.

PROBLEM - FEEDWHEEL YOKE WILL NOT LOWER USING THE RADIO OR TETHER REMOTE CONTROLS:

(All other functions are working)

Possible Cause

Manual control valve in the off position. The yoke can not lower in this position.

Possible Solutions

When switching from Manual to Radio/Tether mode the Feedwheel Yoke valve should immediately move forward to the float position. If you have electrical power at the solenoid on the control valve then that means the solenoid is faulty. If there isn't any electrical power than you will need to refer to the electrical schematic supplied with the machine to trace the problem. This could be a broken wire or a faulty relay inside engine control panel.

PROBLEM - AUGER WILL NOT TURN USING THE MANUAL CONTROLS:

(All other hydraulic systems are working)

Possible Cause

Material wedged or stuck preventing the augers from turning.

Check roller chain on drive motor to make sure it's still in place.

Check to see if the drive key in the hydraulic motor shaft has sheared.

Bad bearing or chain sprocket.

Possible Solutions

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. Raise Feedwheel Yoke and install all safety devices, then check around Augers looking for anything that may have them bound up. Clean out all debris to free Augers so they may turn.

Repair or replace roller chain.

Check motor shaft for damage and replace key.

Move the Infeed Conveyor forward and remove the access cover. Inspect all bearings and chain sprockets. Repair or replace as necessary.

Smoracy, LLC

TROUBLE SHOOTING GUIDE

PROBLEM - AUGER WILL NOT TURN USING THE MANUAL CONTROLS: (cont.)

(All other hydraulic systems are working)

Possible Cause

Low hydraulic system pressure.

Possible Solutions

A quick check of the hydraulic pressure can be done by placing the pressure gauge into the diagnostic port provided on the control valve. Put the Auger manual control valve into forward position to check the Auger working hydraulic pressure. An 1800 PSI (124 bar) reading would indicate that the Auger is mechanically stalled by some obstructing material. 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.

No hydraulic system pressure.

Trace 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 volt reading (12 volt on some models) 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.

PROBLEM - MATERIAL BUILDING UP UNDER THE INFEED CONVEYOR:

Possible Cause

Augers not turning controls.

Possible Solutions

Refer to Augers will not turn using the manual

Augers turning but covered by debris.

Sometimes doing house demolition a piece of plywood or similar material can be pulled in and cover the augers so they are unable to do their job. Raise and secure the Feedwheel following all safety procedures and clean debris from augers.

PROBLEM - DISCHARGE CONVEYOR BELT NOT RUNNING:

(All other hydraulic systems are working)

Possible Cause

Material wedged or stuck preventing the Discharge Belt Conveyor from turning. Discharge Belt Conveyor bound up.

Possible Solutions

With the Recycler shut down, check around Discharge Belt Conveyor looking for anything that may have the

Discharge Belt Conveyor running off track. centered.

Make adjustments to conveyor so that belt is running

Discharge Belt Conveyor drive roller spinning inside of belt.

Check Discharge Belt Conveyor for proper tension.

TROUBLE SHOOTING GUIDE

PROBLEM - DISCHARGE CONVEYOR BELT NOT RUNNING: (cont.)

(All other hydraulic systems are working)

Possible Cause

Check to see if the key in the hydraulic drive has sheared.

Broken drive or idler drum assemblies.

Low hydraulic system pressure.

No hydraulic system pressure.

Possible Solutions

Check shaft for damage and replace key.

Check both drive and idler drums to make sure they are all right as well as the bearings that support them.

A quick check of the hydraulic pressure can be done by placing the pressure gauge into the diagnostic port provided on the control valve. Put the Discharge Belt Conveyor manual control valve into forward position to check the Discharge Belt Conveyor working hydraulic pressure. An 1800 PSI (124 bar) reading would indicate that the Discharge Belt Conveyor is mechanically stalled by some obstructing material. 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.

Trace 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 volt reading (12 volt on some models) 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.

PROBLEM - DISCHARGE CONVEYOR BELT BOUNCING OR JERKING:

(All other hydraulic systems are working)

Possible Cause

Material wedged in idler drum causing a high spot.

Bent shaft on drive or idler drum rollers.

Possible Solutions

With machine shut down, remove any debris trapped in the idler drum roll.

Check both drum rollers and replace if damaged.

TROUBLE SHOOTING GUIDE

PROBLEM - CONCAVE DOOR WILL NOT MOVE USING THE MANUAL CONTROLS:

(All other hydraulic systems are working)

Possible Cause

Material wedged in and around
Concave Door.

Concave Door assembly.

Hydraulic cylinder damage,
(bent rod, broken piston, end cap etc.)

Feedwheel Yoke lift valve engaged.

Low hydraulic system pressure.

No hydraulic system pressure.

Possible Solutions

Shut down the machine and with the ignition key in your possession, check around the Concave Door to determine what might be restricting it from moving. Access is through the maintenance door on right side of machine. Clear any debris that may be causing the problem.

It's possible to bend the Concave Door and the hinge area when a large piece of steel or some other foreign material is allowed to get into the machine. Repair or replace the Concave Door as necessary.

It's possible for the cylinders to become damaged if foreign material forces it's way through the Concave Door.

The Concave Door shares a hydraulic circuit with the Feedwheel Yoke lift. If the Feedwheel Yoke lift valve is engaged to raise the Feedwheel there will not be any oil passing through the control valve for the Concave Door. Check to make sure the Feedwheel Yoke lift valve is not stuck in the raise position.

A quick check of the hydraulic pressure can be done by placing the pressure gauge into the diagnostic port provided on the control valve. Put the Concave Door manual control valve into the open or close position to check the Concave Door working hydraulic pressure. An 2050 PSI reading would indicate that the Concave Door is mechanically stalled by some obstructing material. 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.

Trace 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 volt reading (12 volt on some models) 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 GUIDE

PROBLEM - CONCAVE DOOR WILL NOT MOVE USING THE RADIO OR TETHER CONTROLS:

(All other functions are working)

Possible Cause

No electrical signal to the solenoid on the control valve.

Faulty switch in Remote Control.

Possible Solutions

Check for electrical power at the solenoid while engaging the switch on the remote used to operate the Feedwheel. If you have electrical power at the solenoid on the control valve then that means that the solenoid is faulty. If there isn't any electrical power than you will need to refer to the electrical schematic supplied with the machine to trace the problem. Could be a broken wire or a faulty relay inside the engine control panel.

If using the Radio Remote, Switch to the Tether Remote and vice versa to determine if the problem may be in the remote.

PROBLEM - NONE OF THE TETHER REMOTE CONTROLS ARE WORKING:

Possible Cause

Also refer to: None of the hydraulic systems are working.

Switches in gauge panel in wrong position.

Poor connection at Deutsch plug.

Tripped circuit breaker or blown fuse.

Tether Remote Control cable damaged.

No pilot pressure to electric solenoid valves.

Possible Solutions

Check switches to make sure they are positioned correctly.

Check connection to make sure it is secure.

This electrical circuit is protected by either a circuit breaker in the face of the gauge panel or a bar fuse located in a fuse holder on the side. Reset the circuit breaker or replace the bar fuse as necessary.

Inspect cable for any cut or damaged wire. Try using the Radio Remote Control and if everything works than the problem lies with the Cable Remote Control.

The recycler is equipped with electric solenoid controlled valves to be able to control certain functions from the remote control. These valves are controlled by the solenoids but shifted by pilot pressure from the hydraulic system. The pilot pressure is picked up from the hydraulic circuit that supplies oil to the Feedwheel Yoke up and down. If there is no pressure in that system than there is not any pilot pressure to shift any of the electric valves. Refer to the Feedwheel Yoke will not raise using the manual control.

TROUBLE SHOOTING GUIDE

PROBLEM - NONE OF THE RADIO REMOTE CONTROLS ARE WORKING:

(Functions are working)

Possible Cause

Possible Solutions

Also refer to: None of the hydraulic systems are working.

Switches in gauge panel in wrong position.

Check switches to make sure they are positioned correctly.

Switch on remote not ON.

Check to make sure switch in remote is ON.

Battery inside Radio Remote is dead.

Replace battery.

Tripped circuit breaker or blown fuse.

This electrical circuit is protected by either a circuit breaker in the face of the gauge panel or a bar fuse located in a fuse holder on the side. Reset the circuit breaker or replace the bar fuse as necessary.

No radio signal.

Too far away from machine. Also check antenna and coaxial cable connections.

Radio Remote damaged from being dropped or left in the weather.

Connect the Tether Remote to the machine and if everything works fine than the Radio Remote is to blame.

No pilot pressure to electric solenoid valves.

The recycler is equipped with electric solenoid controlled valves to be able to control certain functions from the remote control. These valves are controlled by the solenoids but shifted by pilot pressure from the hydraulic system. The pilot pressure is picked up from the hydraulic circuit that supplies oil to the Feedwheel Yoke up and down. If there is not pressure in that system than there is not any pilot pressure to shift any of the electric valves. Refer to the Feedwheel Yoke will not raise using the manual control.

TROUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE
Infeed Conveyor Will Not Work Using Remote Cable Controls.	<p>Make sure all Emergency Hydraulic Shut-Down Switches are pulled out. Check to see if the duetsch plug on the end of the cable remote is properly installed in its socket. Check to see if the solenoid control valve is operating properly. Insert a screw driver into the hole at the end of the solenoid and operate the solenoid valve manually. If the conveyor will operate with this procedure check the voltage going to the solenoid. If voltage exists replace the solenoid. If a voltage does not exist, see “cable remote diagnostics” in the Electrical Section.</p> <p>Check to see if flow controls are on.</p>
Infeed Conveyor Will Not Work Using Radio Remote Controls.	<p>Make sure all Emergency Hydraulic Shut-Down Switches are pulled out. Check the solenoid valve as laid out in the procedure for remote cable controls above. If the supply voltage does not exist call Smoracy, LLC or your local dealer.</p> <p>Check to see if flow controls are on.</p>
Feedwheel Will Not Turn Using Mechanical Controls.	<p>Make sure all Emergency Hydraulic Shut-Down Switches are pulled out. Check around feedwheel to make sure there is no mechanical obstruction.</p> <p>Check to see if flow controls are on.</p> <p>Check to see if the drive key in the feedwheel drive sprocket or hydraulic motor is not sheared.</p> <p>Check the hydraulic pressure going to the hydraulic motor.</p> <p>Check feedwheel hydraulic working pressure. To do this, start the engine.</p> <ol style="list-style-type: none"> 1. Place all hydraulic functions in their off position. 2. Insert a pressure gauge into the diagnostic port provided on the control valve. 3. Put the manual feedwheel control valve into forward or reverse position to check the feedwheel conveyor working hydraulic pressure. This should be approximately 500 PSI (34 bar). A 1200 PSI (83 bar) reading would indicate that the feedwheel is mechanically stalled by some obstructing material. 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.

TROUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE
Feedwheel Yoke Will Not Raise Using Mechanical Controls.	<p>Make sure all Emergency Hydraulic Shut-Down Switches are pulled out. Check that the controls on the cable remote are all set to off or the remote is disconnected. Insert a pressure gauge into the control valve.</p> <p>A high pressure would indicate a mechanical obstruction.</p> <p>Low pressure would indicate yoke cylinder piston seal leakage or a relief valve or hydraulic pump problem. See "Procedure for checking hydraulic pump and relief valve setting" in Hydraulic Section.</p> <p>Oil coming out the vent plug would indicate bad cylinder seals.</p>
Feedwheel Yoke Will Not Raise Using Cable Remote Controls.	<p>Make sure all Emergency Hydraulic Shut-down Switches are pulled out. Check that the manual control valves are all set to off.</p> <p>Check to see if the Amphenol plug on the end of the cable remote is properly installed in its socket. Check voltage at yoke lift solenoid valve. To do this locate the yoke control solenoid valve. Hydraulic pressure going to the vertical valve bank inside the hydraulic control cabinet is fed by the yoke control solenoid valve. Find this pressure line and trace back to the yoke solenoid valve. With the yoke switch held in the raised position the yoke control solenoid should be energized. Voltage reading 24 volts DC. A voltage reading would indicate a bad solenoid or a stuck solenoid valve. A no voltage reading would indicate an electrical problem with wiring connections or a faulty control switch. See "Cable remote diagnostics" in the Electrical Section.</p>
Yoke Will Not Raise Using Radio Remote Controls.	<p>Make sure all Emergency Hydraulic Shut-Down Switches are pulled out. Check the solenoid valve as laid out in the procedure for remote cable controls above. If the supply voltage does not exist call Smoracy, LLC or your local dealer.</p>

TROUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE
Yoke Will Not Lower Using Cable Remote Controls.	<p>Make sure all Emergency Hydraulic Shut-Down Switches are pulled out. Check for any mechanical obstruction to prevent the Yoke from lowering. Make sure all manual and hydraulic yoke safety locks have been removed or released.</p> <p>Make sure that all mechanical control valves are in the off position.</p> <p>Check voltage at yoke float solenoid valve. The float solenoid valve is used to dump the oil back to tank from the pressure line going to the yoke cylinders. Locate this line in the hydraulic control cabinet and follow it through the tee connection back to the float position, the solenoid valve should be energized. A 24 volt DC reading would indicate a stuck solenoid valve or a bad solenoid. A no voltage reading would indicate an electrical problem with wiring connections or a faulty control switch. See "Cable remote diagnostics" in the Electrical Section.</p>
Yoke Will Not Lower Using Radio Remote Controls.	<p>Make sure all Emergency Hydraulic Shut-Down Switches are pulled out. Check the solenoid valve as laid out in the procedure for remote cable controls above. If the supply voltage does not exist call Smoracy, LLC or your local dealer.</p>
Augers Are Not Turning.	<p>Make sure all Emergency Hydraulic Shut-Down Switches are pulled out. Check drive chains for breakage, check for sheared keyways in sprockets, check for any mechanical lock up due to tramp metal being caught in the augers. Insert a pressure gauge in the diagnostic port on the control valve and check the pressure by operating the valve. Consult hydraulic chart in maintenance section for relief valve setting. Maximum relief valve setting can be checked by removing the hose going to the forward side of the motor and plugging the line. Operating the control valve with the line plug will produce the relief valve pressure at the gauge.</p> <p>Chain may be froze up do to lack of lubrication.</p>
Discharge Conveyor Belt Jerks Or Will Not Turn At All.	<p>Make sure all Emergency Hydraulic Shut-Down Switches are pulled out. Check to see if an obstruction is caught in or around the lower pulley. Check that the belt is sandwiched between the lower guide plates. Check the hydraulic pressures for belt using this same procedure as described above for the augers.</p>

CUTTERHEAD SECTION

Your model 3680 will give you many hours of production time with inexpensive repairs if you follow the proper maintenance instructions in this manual. The following section is one of the most important parts to keep a preventative maintenance schedule on. 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 holder arm to crack. (See Figure 1)

Replace holder arms if the mounting holes measure more than 1.042" (26.5 mm). (See Figure 2)

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

ALWAYS keep Cutterteeth tight. Torque to 500 ft.-lbs. (678 Nm).

NEVER allow the Cuttertooth to fall below 1/8" of carbide or wear material. Replace immediately. (See Figure 3)

ALWAYS keep the optional Raker Inserts tight. Torque to 376 ft.-lbs..

The Cutterbody holder bolts should be 1/8" (3.2 mm) from the edge of the arm. When clamping the Cutterbody be sure the nut does not bottom out.

NOTE: 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.

Adjust the Infeed Conveyor Chain tension daily. Incorrect adjustments will cause expensive Cutterhead and Infeed Conveyor Chain damage. Always keep chain tension so the chain link runs in the center of the inspection window. The Infeed Conveyor Chain location must be 3/4 inch (19.1 mm) from the tip of a new tooth. Measure from the end sprockets of the chain head shaft as shown (Figure 4).

Figure 1

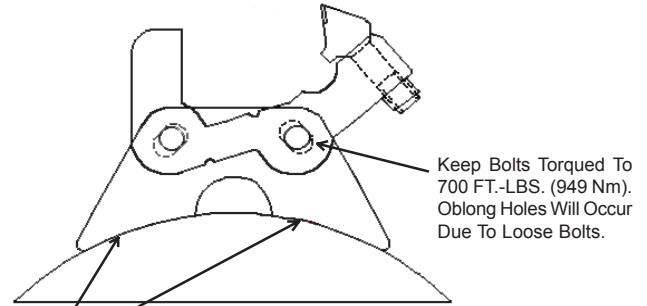


Figure 2

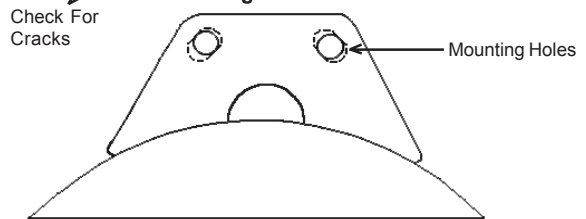


Figure 3

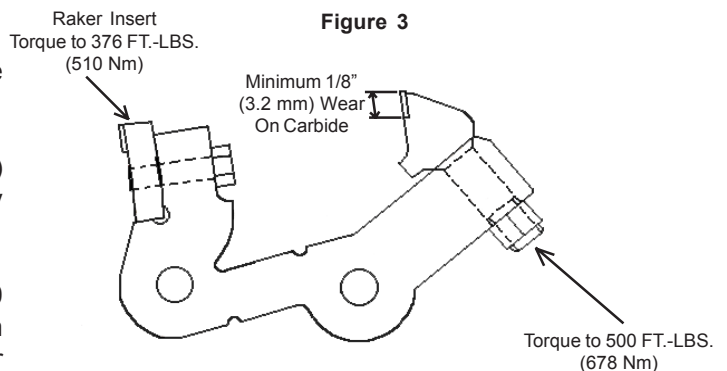
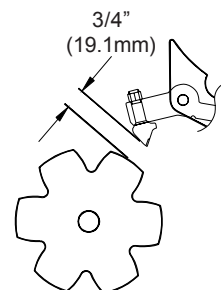


Figure 4



Smoracy, LLC

CUTTERBODY

CUTTERBODY BOLTS

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 Cuttertooth will take. As the Raker wear it allows the Cuttertooth to take larger and larger cuts. 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 Cuttertooth. Also, taking bigger cuts puts undue stress on the Cutterhead shaft leading to possible shaft failure.

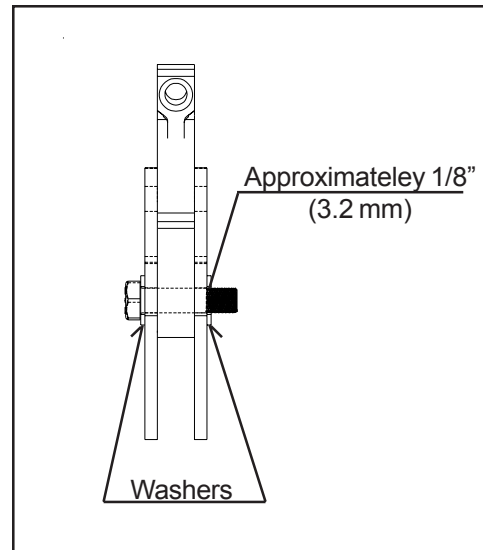
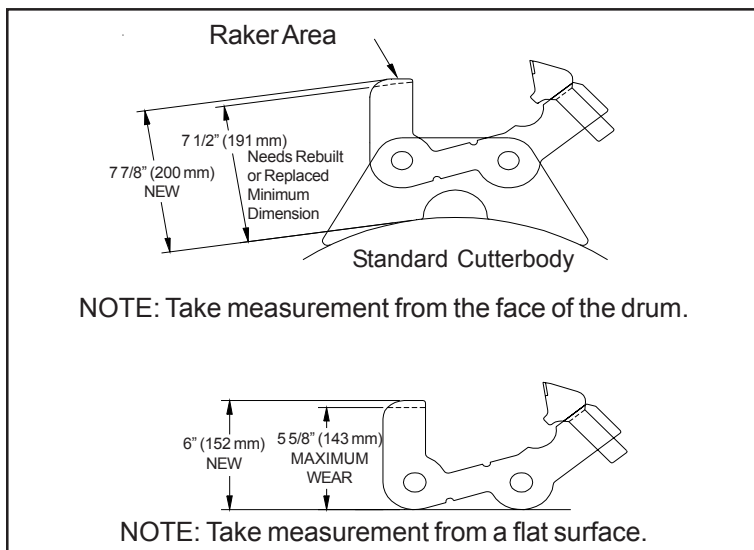
When new, the Cutterbody has a hard surface weld applied to the raker area. It is imperative that this area be maintained. The diagrams below show the height of the raker area when new and the maximum allowable wear. While in the machine these measurements are taken from the face of the Cutterhead drum. 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 the amount of buildup necessary. If using a wire feed welder it is suggested using a Lincoln Lincore 60-0 or a Stoddy 101HC wire. In a stick rod try the Lincoln Wearshield 60 or the Stoddy Stoodite 2134. If you have excessive wear it is recommended that the Cutterbody be replaced with a new one. Be careful not to buildup above the height as when it was new as 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.

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. Other wise the bolt will never be able to keep tight again. If using an air wrench, check it 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. Order extra to have on hand for future use.



Smoracy, LLC

CUTTER TEETH SECTION

DANGER

Access to the Cutterbodies and inserts is below the raised Feedwheel. Refer to page 11 for proper procedure to raise and safely secure the Feedwheel in position. 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.

TEETH REPLACEMENT

1. 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. Block the Cutterhead so it will not turn on you when working on the Cutterbody.
3. Remove the 7/8" nut from the Cuttertooth then remove tooth.
4. Clean countersink surface free of burrs or debris.
5. Replace with a new Cuttertooth. Tighten to 500 ft-lbs (678 Nm).
6. Check all Screen and Infeed clearances. (3/4" or 19.1mm min. on infeed chain) (1/4" or 6.4mm min. on anvil, concave gate, and screen).

TOOTH LIFE

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

Figuring 150 to 200 cubic yards (115 to 153 cubic meters) of finished product per hour, most operations are getting 80 to 100 hours per set. A number of land clearers are using 30 splitter and 30 splitter fans. They are getting in excess of 250 hours per set. More detailed information on teeth maintenance is available at any time upon request.

APPLICATION FOR CUTTERTEETH

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 our service department for further questions.

NOTICE

It is highly recommended to use at least 1 spiral of a fan combination tooth. The fan combination tooth is designed to help get the ground material through the screen. Tests show that the fan combination teeth have increased production and tooth life.

CUTTERTEETH APPLICATIONS



Your Cutterhead is fabricated with 2 spirals of tool holders. The spirals wrap the Cutterhead like the red and white ribbons on a barber pole. Each spiral must contain a complete set (30) of the same tools. Mixing tool types on the same spiral is not recommended. Improperly installed teeth will not grind properly and may damage the Cuttermill. Because all applications differ it is important to determine what tooth combinations perform best under different situations. We encourage you to experiment with different combinations of tools and screens to obtain production, product and economic goals. We have found the following teeth combinations to work best in these situations:

NOTE: These suggestions are based on our previous experience. Applications vary due to the material being processed.

TOOTH STYLES

APPLICATIONS

- | | |
|-------------------------------------|---|
| 1. Logs and Stumps | All 1" forged (clean wood)
1/2 splitters and 1/2 splitter fans
1/2 splitter fans and 1/2 1" forged carbide
1/2 splitter fans and 1/2 shingles |
| 2. Green Waste | 1/2 splitters and 1/2 splitter fans
1/2 splitters and 1/2 1" fans
1/2 shingles and 1/2 splitter fans
1/2 splitter fans and 1/2 1" forged carbide |
| 3. Pallets | 1/2 splitter fans and 1/2 G-55
1/2 splitter and 1/2 pointed shingle fans |
| 4. Shingles/Asphalt | 1/2 shingle teeth and 1/2 pointed shingle fans
1/2 square shingle fans and 1/2 pointed fans
1/2 square shingle fans and 1/2 splitter fans |
| 5. Stringy Material/Palm Fronds | All 1" carbide teeth
1/2 1" carbide teeth and 1/2 pointed shingle fans
1/2 shingles and 1/2 pointed shingle fans |
| 6. Wet leaves/Wet bark | All 1" fan teeth
1/2 splitter fans and 1/2 1" fans
1/2 shingle fans and 1/2 splitter fans |
| 7. Construction/Demolition Material | All splitter fans
1/2 splitter fans and 1/2 G-55
1/2 splitter fans and 1/2 Study |
| 8. Fluffy Mulch/Animal Bedding | All splitters
1/2 splitter fans and 1/2 shingles
1/2 shingle fans and 1/2 splitters |

The G-55 impregnated carbide teeth will work for most all of the above applications and is recommended if the material contains contaminates. Smoracy, LLC recommends replacing the 6 worst worn teeth per day. DO NOT discard any teeth still capable of grinding. They can be used to replace broken teeth or can be used in demolition. This process will keep your Cuttermill running at optimum performance. When using a combination of two different teeth make sure they are properly installed. Each spiral must contain the same type of tooth. Improperly installed teeth will not grind properly and may damage the Cuttermill.

TEETH STYLES

CARBIDE INSERT TOOTH

Part Number #900-9902-15 YELLOW

- Good aggressive “IN”
- Good aggressive “OUT”
- Most ideal tool for green material.
- Will not tolerate ungrindable materials larger than nails: carbide tends to shatter when coming in contact with solid steel or larger rocks.
- End product tends to look more cut, like saw dust.
- Recommended for larger pieces of wood such as stumps, logs, etc.
- Provides more of a cutting action.
- Carbide teeth of varying hardness offered.



FORGED SPLITTER FAN TOOTH - Part Number #900-9904-62

- Good aggressive “IN”
- Excellent aggressive “OUT”
- Will not tolerate ungrindable materials larger than nails, bolts, small pieces of thin steel and stones, etc.
- Acts as a splitter that cuts the material entering the grinding chamber. Often used with shingle or carbide insert tooth.
- Works well on most materials.
- A good all-around tooth.
- Forged fan area increases production of tooth by pushing material through screen



POINTED SHINGLE FAN TOOTH - Part Number #976-000665

- Usually works with other teeth.
- Used 100% when running shingles.
- Diverse high production.
- Will tolerate light metal and stone.
- Is being used in nearly all applications including demolition, so long as the larger contaminants have been removed.
- Trimay fan block increases production of tooth by pushing material through screen.



Smoracy, LLC

TEETH STYLES

SPLITTER TOOTH - Part Number #900-9904-61

- Good aggressive “IN”
- Good aggressive “OUT”
- Will not tolerate ungrindable materials larger than nails, bolts, small pieces of thin steel and stones, etc.
- Acts as a splitter that cuts the material entering the grinding chamber.
- Works well on most materials.
- A good all-around tooth.



SHINGLE TOOTH - Part Number #900-9902-89

- Usually works with other teeth.
- Used 100% when running shingles.
- Diverse high production.
- Will tolerate light metal and stone.
- Is being used in nearly all applications including demolition, so long as the larger contaminants have been removed.



G-55 - Part Number #976-000660

- Good aggressive “IN”
- Good aggressive “OUT”
- Ideal for demolition.
- Will tolerate some ungrindable material: nails, small stones. Not for solid steel or large rock.
- End product is more shredded.



TEETH STYLES

HELMET HEAD - Part Number #900-9903-62

- Great performance and durability
- Applications include pallets, construction waste, green waste sawmill waste and logging slash
- Holds up well in dirty materials
- Works well with splitter teeth for initial breakdown
- Works well for regrind



OVERSIZED SPLITTER - Part Number #900-9903-68

- Great performance and durability
- Stumps
- Can be used in the same application as splitter teeth
- Works well at breaking down similar material as splitters' and Helmut Heads
- Holds up well in dirty material



SCREEN MAINTENANCE

OPERATION

Various Screens are available for sizing the product. If it is known that the material being processed is free of metal or other destructive materials the machine can be operated with the Concave Door in the closed position. **IF THERE IS ANY DOUBT, THE CONCAVE DOOR SHOULD BE SET IN THE OPEN POSITION.** The metal can be removed upon discharge from the Discharge Belt Conveyor. The material can then be reprocessed with the Concave Door closed. Screens are a very high wear item on your machine and should be checked frequently. When maintaining the Screens, ALWAYS adjust the Screen at least 1/8" (3.2 mm) from the longest tooth on the Cutterhead. (This will tend to be a brand new tooth or a fan tooth). Also check to see if the Screen holder bolts are at 376 ft.-lbs. (510 Nm). **IF SCREENS ARE BENT OR BROKEN, REPLACE IMMEDIATELY. FAILURE TO DO SO WILL CAUSE COSTLY DAMAGE TO YOUR MACHINE.**

SCREEN REPLACEMENT

Replacing the Screen is a two man operation, an operator working on the inside and an assistant on the outside. The Discharge Belt Conveyor must be folded down to its normal operating position and the Concave Door in the closed position. 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.

At the maintenance door on the right side of machine, pull the Engine Disable electrical plug, release the door latches and swing door open. Retrieve the electric winch control cable from the tool box and plug into receptacle under engine. Battery Disconnect switch must be turned ON for winch to work. Lower winch and connect it to the lug on the back of Screen and bring up snug. Remove the eight mounting bolts that hold the screen in place. Remove Screen out through the maintenance door opening with the assistants help. Install new Screen using winch to move it into place. Lightly snug up the bolts to hold Screen in place. Move Screen up from Concave Door about 1/8" (3.2 mm) so Concave Door will open and close. With a new Cuttertooth on each end of the Cutterhead, set Screen to be no closer than 1/8" (3.2 mm) from Cutterteeth. When final adjustment is completed torque bolt to 376 ft.-lbs. (510 Nm). Roll Cutterhead several times by hand to make sure there is no contact between Cutterteeth and Screen. Reinstall winch stop block before reeling in winch cable. Stop block must pull tightly to engine base when complete. Turn Battery Disconnect switch off, disconnect winch control cable and stow in tool box. Close and secure maintenance door and finally reinsert safety plug or the engine will not start.

CONCAVE DOOR REPLACEMENT

Replacing the Concave Door, also known as the Lower Gate or Lower Screen is a two man operation. The Discharge Belt Conveyor must be folded down to its normal operating position and the Concave Door in the closed position. 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.

Remove the indicators on each side of the machine that show the Concave Door position. At the maintenance door on the curb side of machine, pull the Engine Disable electrical plug, release the door latches and swing door open. Remove the pin(s) connecting the hydraulic cylinder(s) to the Concave Door. Starting on the curbside, remove the four bolts holding the hinge pin access door, then pull the hinge pin out. Go to roadside and repeat. Once the hinge pins are out, the Concave Door can be pulled free and slid out through the maintenance door opening. Slide the new Concave Door into place. Start the hinge pin from the curbside and drive it through until it stops. Be sure to align keystone with gate bushing slot. Go to roadside and repeat. Install access doors and tighten bolts. Reconnect hydraulic cylinder(s) to the Concave Door. Check the clearance between the Concave Door and new Cuttertooth. It should be no closer than 1/8" (3.2 mm). If adjustment is necessary, pull the cylinder pin and turn the hydraulic cylinder clevis in or out to achieve proper clearance. Reinstall the indicators on each side of machine. Close the maintenance door and insert safety plug. Start engine and operate manual valve to open and close the Concave Door checking for proper operation.

Smoracy, LLC

AUGER SECTION

ACCESSING AUGERS

1. Start with the Feedwheel secured in the raised position. Follow all safety procedures in securing the Feedwheel.
2. Remove dust suppression system water lines and tie them back out of the way so as not to be damaged.
3. Remove the bolts holding the Infeed Conveyor to the Cutterhead housing. There are two bolts on each side of the machine.
4. Remove the bolt from the Infeed Conveyor drive chain guard at the fender mount.
5. Remove the two bolts and nuts holding the Infeed Conveyor to the Recycler's frame, one on either side near the hitch end of the Infeed Conveyor.
6. Find the two lock blocks located on the sides of the frame behind the tongue. Slide each block up until they snap in place between the slats of the Infeed Conveyor chain.
7. Start the engine and feather the Infeed Conveyor chain manual control valve in the reverse direction. The Infeed Conveyor assembly will slide back about three feet. Be careful not to stretch hydraulic hoses connected to Infeed Conveyor drive motor.
8. Turn off engine, turn Battery Disconnect Switch off, and you must have the ignition key in **YOUR** possession.
9. Now that the Infeed Conveyor assembly is slid back you can access the Augers below the Cutterhead.
10. Remove the cover over the auger drives and bearings. The auger chain and sprockets will be revealed.

NOTICE

The auger chain needs to be oiled Daily. New auger chain is installed fairly tight and will loosen up slightly as the joints set themselves. After the first few weeks of operation the chain drive should be adjusted to have a small amount of slack. Adjustment is made by loosening the hydraulic motor mount bolts and turning the adjuster bolt to achieve desired tension. Retighten motor mount bolts.

Check alignment of the sprockets and chain Daily for the first 100 hours of running. New bolts may loosen up and cause sprockets to move. Once the bolts are retightened they will generally not come loose again. After 100 hours check alignment monthly.

Check auger bearings for any free play. Replace if needed.

Check the timing on the augers weekly. The timing of the augers is especially crucial when running pallets or stringy types of materials. Timing of the augers refers to each auger and the one next to it should never have flights next to each other. The flighting of the augers should stagger the auger next to it. See below.



See the following pages for removal instructions and timing of augers

Smoracy, LLC

AUGER REMOVAL PROCEDURE



The Augers located next to the Frame Sides can be removed without cutting off the Auger, Auger Shaft, or Bearings.



Remove 2 bolts which hold the Auger onto the Auger Shaft.



Slide the Auger up the Auger Shaft until the Auger contacts the Anvil Front Plate



Remove bottom Bearing bolts and slide bearing up to Drive Sprocket. If Bearing will not move, remove Bearing bolts from the top and bottom Bearings.

Tip Auger and Auger Shaft up to gain clearance to slide Auger from Auger Shaft.

Smoracy, LLC

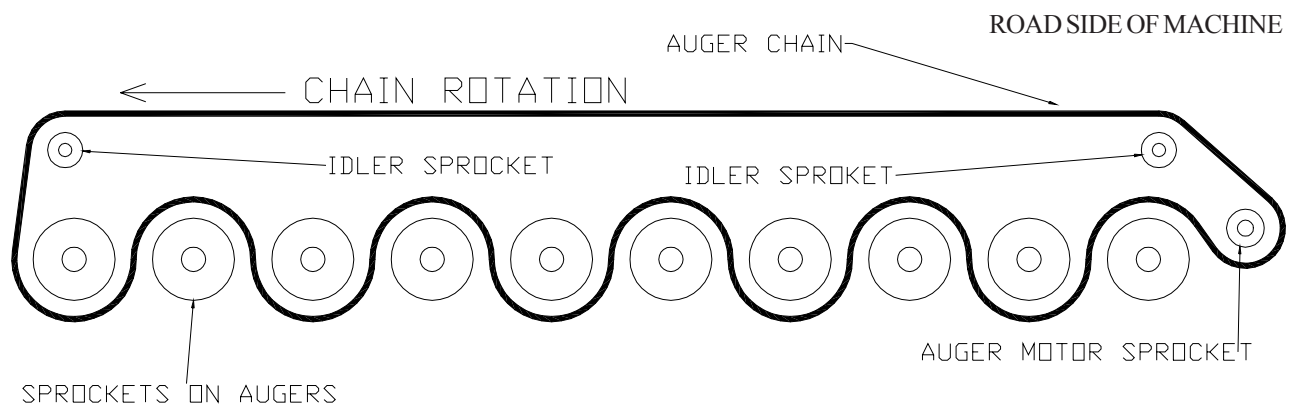
AUGER TIMING PROCEDURE

The following will instruct on the proper procedure for timing the Augers. Augers which are not timed correctly will not move material properly and will interfere with each other during operation. This interference will cause Auger damage and premature wear.

1. Rotate the Augers to “time” each one so that the flighting is centered between the flighting of the Auger on each side. See Example.



2. Install the Auger Chain by threading it over the Auger Sprockets. See Example.



3. Install chain master link, remove excess slack in chain and align Auger Sprockets, Idler Sprockets, and Auger Motor Sprocket.
4. Tighten the Auger Chain.
5. Remove tools and equipment from the Auger area and verify that all persons are clear of the machine.
6. Start engine and operate Augers to verify timing, sprocket alignment, and chain rotation.
7. Check chain tension after several hours of operation and adjust as necessary.

BELT TENSION

GENERAL RULES FOR TENSIONING

1. Check tensioning during the first 2-48 hours of run-in operation.
2. Over 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.

TENSIONING PROCEDURE

Main Drive Belts (8V or 5V Kevlar Banded Belts)

Locate the center of the belt span between the sheaves. Push or pull on the belt until the belt has deflected 7/8" (22.2mm) to 1" (25.4mm). Record the push or pull force. For a new belt the force should be 19-22 lbs./belt (8.6-10.0 kg/belt) for the 5V belts, and 35-39 lbs./belt (15.9-17.7 kg/belt) for the 8V belts. After the break in period the normal force should be 14-20 lbs./belt (6.4-9.1 kg/belt) for the 5V belts, and 25-32 lbs./belt (11.3-14.5 kg/belt) for the 8V belts.

NOTE: lbs./belt (kg/belt) is per 1 belt. For a 5 groove banded belt lbs./belt must be multiplied by 5.

Pump Drive Belts (If Equipped)

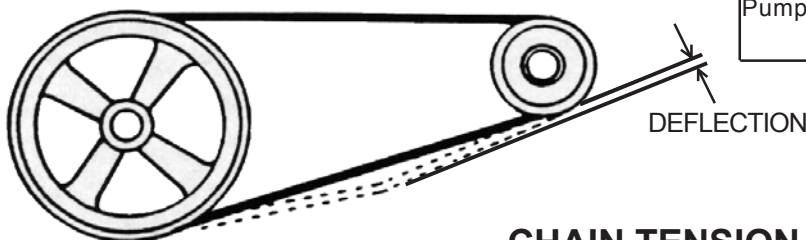
Locate the center of the span between sheaves. Push or pull down on the belt until the belt has deflected 1/4" (6.4 mm). Record the push or pull down force. For a new belt the force should be 14-17 lbs (6.4-7.7 kg). After the break-in period the normal force should be 10-15 lbs (4.5-6.8 kg). Adjust the belt tension if the force falls outside of this range.

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!**

Location	Deflection	Load
Main Drive (Kevlar Banded)	7/8"-1" (22.2-25.4mm)	5V 19-22 lbs. (8.6-10.0 kg)
		8V 35-39 lbs. (15.9-17.7 kg)
Pump	1/4" (6.4mm)	14-17 lbs. (6.4-7.7 kg)



CHAIN TENSION

Chains should be installed fairly tight with only a small amount of slack. New chains will loosen up slightly as the joints seat themselves. After the first several weeks of operation, adjust the centers to give a small amount of slack. With adequate lubrication the chains should not need any further adjustment.

Smoracy, LLC

HYDRAULIC SECTION

THE BEAST RECYCLER HYDRAULIC SYSTEM

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

If you follow the simple rules mentioned below, the hydraulic components will last for years:

- Do not operate the machine if the hydraulic oil level is low. This will cause the pump to cavitate and over heat. Keep tank minimum 7/8 full.
- Do not increase the relief valve settings beyond its specified PSI (bar). This will cause damage to hydraulic or mechanical components.
- Keep your oil clean, dirty oil will cause excessive wear and loss of feedwheel power. Replace filters per maintenance chart.
- Replace the hydraulic oil suction screen & oil filter with each 400 hours of operation or 3 months.
- Replace your hydraulic oil once yearly. This is also a very good time to flush and clean the tank.
- If you keep the recycler's hydraulic system clean and do not increase the hydraulic pressure beyond specified PSI (bar), you will get the maximum use and life out of your recycler.
- If you encounter a problem, it will more than likely be located in the relief valves or something as simple as pump belts slipping. Make sure all Emergency Hydraulic Shut-Down Switches are pulled out. Always check these areas first.

HYDRAULIC SECTION

HYDRAULIC RELIEF PRESSURE SETTINGS

DESCRIPTION	SINGLE SPEED	THREE SPEED
Infeed Conveyor	1200 PSI (83 bar)	1800 PSI (124 bar)
Internal Drive Feedwheel	1500 PSI (103 bar)	1500 PSI (103 bar)
Augers	2100 PSI (145 bar)	1800 PSI (124 bar)
Yoke Cylinders	2500 PSI (172 bar)	1500 PSI (103 bar)
Discharge Conveyor	1800 PSI (124 bar)	1800 PSI (124 bar)
Discharge Conveyor Fold	1800 PSI (124 bar)	1800 PSI (124 bar)
Concave Door: "A" Port	600 PSI (41 bar)	600 PSI (41 bar)
"B" Port	1200 PSI (83 bar)	1200 PSI (83 bar)

It is highly recommended that after initial start-up of the recycler and after any replacement of hydraulic components, that fittings and hoses be re-checked for leaks and clearances.

CONSTANT SPEED DISCHARGE CONVEYOR (if equipped)

Compensator	2600 PSI (179 bar)
High Speed	2000 PSI @ 18 GPM (138 bar @ 68.1 LPM)
Low Speed	2000 PSI @ 6.5 GPM (138 bar @ 24.6 LPM)



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

APPROXIMATE PUMP FLOW INFORMATION FOR REFERENCE ONLY
(Will vary depending on engine options and pump efficiency)

PROCEDURE FOR CHECKING HYDRAULIC PUMP AND RELIEF VALVE SETTING

Locate the control valve for the circuit being checked and plug in a pressure gauge at the diagnostic port provided. Remove one of the hose lines, at the control valve, going to the actuator (motor, cylinder) and cap the end. Plug the port in the control valve. Refer to the hydraulic circuit being checked. Start the engine and open throttle to full RPM. Note: Oil should be at operating temperature.

With the control valve set to off the pressure reading should be less than 150 PSI (10.3 bar). Set the control valve handle to a forward position and observe the pressure reading. The pressure reading should be the maximum for that circuit.

If the pressure is less than the maximum, adjust the relief valve by loosening the lock nut and screwing the adjustment in slowly. If the valve fails to adjust the pressure the problem may be either with the relief or the pump.

First check the relief valve by unscrewing the relief valve cartridge from the body and check for foreign material trapped inside that may prevent the valve from operating. Check for broken valve springs or damaged parts. Thoroughly flush the cartridge in a solvent bath and reinstall in the valve body. Unscrew the valve adjustment and start the engine. Attempt to adjust the pressure using the same procedure as before.

Continued on Next Page

PROCEDURE FOR CHECKING HYDRAULIC PUMP AND RELIEF VALVE SETTING

If the pressure fails to come up to specification, stop the engine, remove the plug from the control valve port and reinstall the hose. Place the control valve in the off position. Install a hydraulic flow meter, shut off valve (with fine adjustment) and pressure gauge in the pressure line coming from the pump, up stream from the relief valve. Make sure that the shut off valve at the flow meter is wide open. Refer to the pump flow information chart listing below.

With the engine running at full RPM, the flow meter reading should confirm the hydraulic pump flow within +/- 1/2 GPM (1.9 LPM). Slowly screw the shut off valve in and watch the pressure gauge that has been mounted up stream from the shut off valve.

WARNING, THE PUMP IS NO LONGER PROTECTED BY THE RELIEF VALVE. DO NOT ALLOW THE PRESSURE TO RAISE TO MORE THAN 90% OF THE MAXIMUM PRESSURE. If the pump maintains its maximum flow rate to this point then the problem lies with the pressure relief valve. Replace the valve. If the pump flow rate is considerably reduced and will only show full flow at a low pressure then the pump is at fault. Replace the pump.

APPROXIMATE PUMP FLOW INFORMATION FOR REFERENCE ONLY (Will vary depending on engine options and pump efficiency)	
Feedwheel: 8 GPM (30.3 LPM)	Yoke Up/Down: 5 GPM (18.9 LPM)
Infeed Conveyor: 8 GPM (30.3 LPM)	Discharge Conveyor: 12 GPM (45.43 LPM)

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 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

Smoracy, LLC

LUBRICATION

1) Engine:

Follow original equipment manufacturers requirements for changing oils and filters.

2) Clutch:

Follow original equipment manufacturers requirements for both greasing and adjusting. Frequently adjust, and grease per PTO manufacturers manual.

PT Tech Hydraulic Clutch (if equipped)

Must use “Mobil” Brand Fluid #424 in Hydraulic Clutch. See clutch manual for additional lubricating instructions.

Twin Disc Hydraulic Clutch (if equipped)

Clutch comes filled with Petro-Canada Duron SAE-30 oil. See clutch manual for instructions.

3) Hydraulic Reservoir Tank:

Completely change hydraulic oil, suction screen, and flush the tank annually.

Change hydraulic oil filter AFTER FIRST 10 HOURS OF OPERATION. Then change hydraulic oil filter every 400 hours or 3 months thereafter. Maintain hydraulic oil level 7/8 full. See hydraulic oil requirements below.

Check hydraulic oil level in tank daily.

4) Hydraulic Oil Requirements:

This machine is equipped with “Petro-Canada Hydrex XV” hydraulic fluid. Replace with the same or equivalent. “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.

5) Lubrication of Cutterhead Bearings

Use Mobil 1 Universal Synthetic Grease, Mobil SHC 220 Synthetic Grease, Mobil AW2 Synthetic Grease or Amsoil Synthetic Multi-Purpose Grease NLGI#2

It is recommended that synthetic grease is used, however, EP-2 Lithium grease is approved for monthly greasing. Give each bearing sixteen (16) pumps once each month. Annually, remove the cap from the bearing housing and spoon out most of the grease from the bearing housing. It is not necessary to purge out all the grease. Refill the bottom housing to about 2/3 full with new synthetic grease. IMPORTANT: Each bearing cap is matched to the bottom housing; replace each to its original bearing assembly. See the “Bolt Torque Charts” section for tightening the bearing cap bolts. It is recommended that the cutterhead be turned manually if it is sitting idle for more than one month at a time. This will recirculate grease to the bearings. In cold temperatures (below 32° F or 0° C) allow the cutterhead to turn at a slow speed for about five minutes to allow the grease to warm up and circulate.

6) All Other Shaft Bearings

Use an EP-2 Lithium type grease only for all bearings. Purge recycler bearings with grease you can not over grease these bearings. These bearing 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.

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

Especially important is proper lubrication when the recycler is stored. 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.

Continued on the next page
Smoracy, LLC

LUBRICATION

Then fully purge again before the machine is put back into operation. Failure to do this will ruin the bearings. Bearings may 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 for tightness each 30 days. A loose lock collar allows the sleeve to turn on the shaft. Failed bearings diagnosed as contamination or cold starts at high speed are not covered by warranty or by the bearing manufacturer.

7) Infeed Gear Box

Fill half full (20 oz. or .59 L) with EP 90 petroleum based gear oil. This oil should be changed after the first 50 hours of operation and every 1000 hours thereafter. Change immediately if oil exceeds 200° F (93° C).

8) Feedwheel Gear Box

Fill half full (23 oz. or .68 L) with EP 90 petroleum based gear oil. This oil should be changed after the first 50 hours of operation and every 1000 hours thereafter. Change immediately if oil exceeds 200° F (93° C).

BOLT TORQUE CHARTS

(THESE TORQUES ARE BASED ON DRY, CLEAN THREADS)

DESCRIPTION	BOLT SIZE	FT.-LBS. TORQUE	Nm TORQUE
Cutter Body Holders Bolts	1"-14 TPI	700	949
Tooth Inserts	7/8"-14 TPI	500	678
Raker Wear Pad Bolts	3/4"-10 TPI	346	510
Cutter Head Shaft Bearing Bolts	1"-8 TPI	900	1220
Cutter Head Bearing Cap Bolts	1"-8 TPI	375 (approx.)	508 (approx.)
Infeed Conveyor, Head Shaft Bolts	3/4"-10 TPI	376	510
Screen Mount Bolts	3/4"-10 TPI	376	510
Discharge Conveyor Brg. Bolts	5/8"-11 TPI	160	217
Engine Hold Down Bolts	3/4"-10 TPI	376	510
Infeed Tail Shaft and Feedwheel Brg. Bolts	3/4"-10 TPI	376	510
Engine Sheave Bushing Bolts	3/4"-10 TPI	376	510
Cutterhead Sheave Bushing Bolts	1 1/8"-7 TPI	600	813

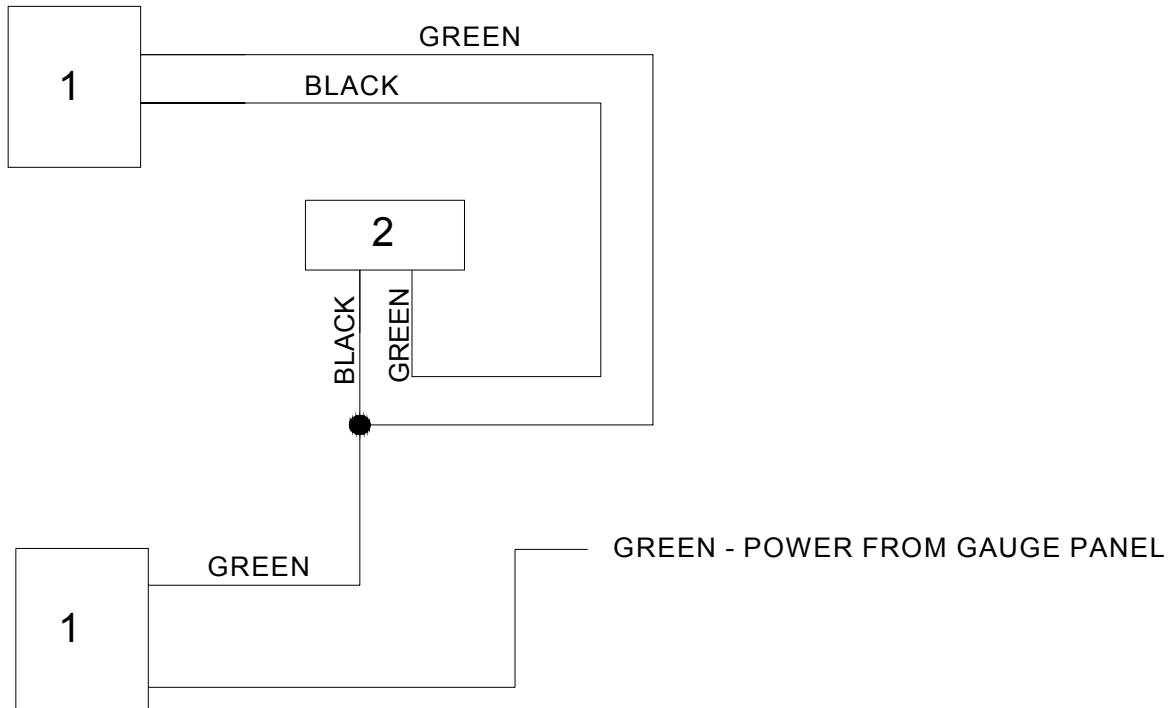
Before tightening bolts be sure you have the correct size bolt for the correct amount of torque.
Use only factory approved cutterhead components.

ELECTRICAL SECTION

NOTE:

Wiring diagram for the control panel box and autofeed is supplied with your manual package.

EMERGENCY HYDRAULIC SHUT-DOWN



LOCATION	PART NUMBER	DESCRIPTION
1.	900-2904-98	EMERGENCY HYDRAULIC SHUT-DOWN SWITCH
a.	900-2901-05	Contact Block
b.	900-2901-03	Push Button
c.	900-2901-06	Hydraulic Shut-down Box
2 a.	900-3910-31	Hydraulic Solenoid Block
b.	900-3910-32	Solenoids On Block

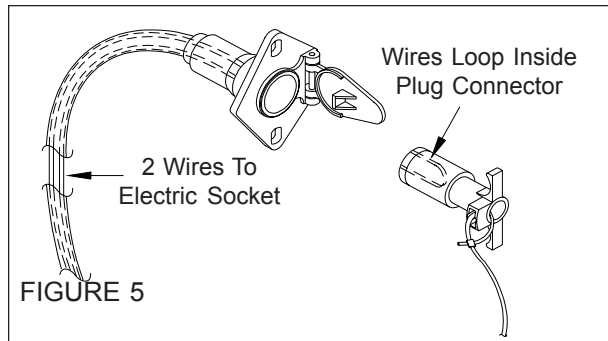
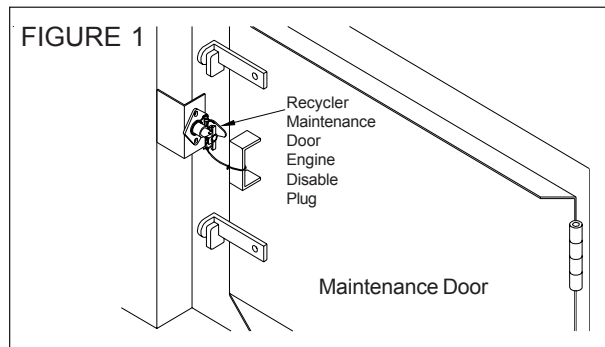
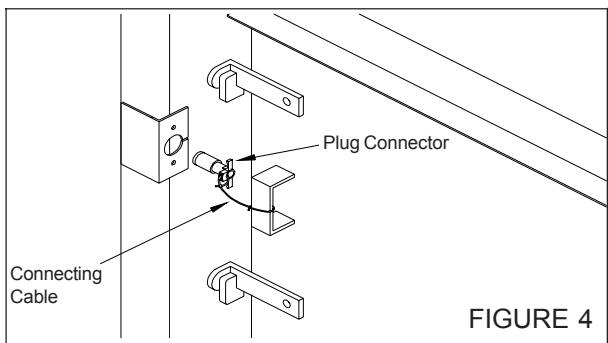
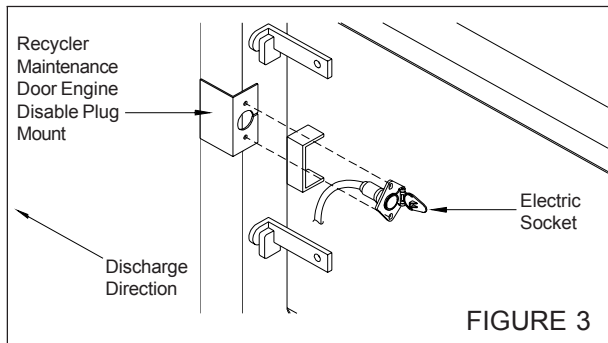
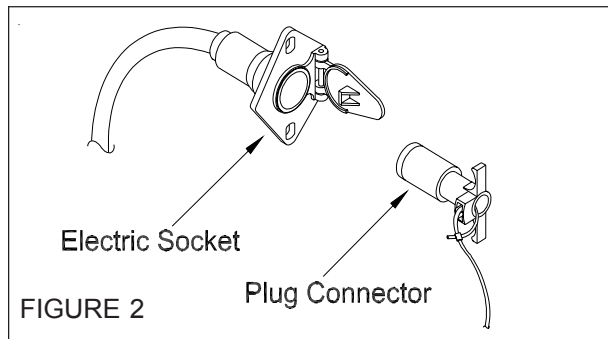
RECYCLER MAINTENANCE DOOR ENGINE DISABLE PLUG OPERATION

This recycler maintenance door engine disable plug is installed for safety purposes. It is designed to shut down the engine if the plug is not properly in place holding the maintenance door in the closed position. Correctly installed and maintained, the engine will not start or it will shut off if the plug connector is removed.

The recycler maintenance door engine disable plug is located on the maintenance door of the recycler (see figure 1). The maintenance door engine disable plug is made up of two parts: an electric socket and a plug connector (see figure 2). The electric socket is bolted to the recycler engine disable plug mount bracket (see figure 3) and the plug connector is attached by a cable to the maintenance door handle (see figure 4).

If the recycler maintenance door engine disable plug is not properly installed then the engine will not start or run. If the recycler maintenance door engine disable plug becomes disconnected while the recycler engine is running the engine will be shut down or be disabled from running. This is for safety purposes, to ensure that the maintenance door is not opened while the engine is running.

The recycler maintenance door engine disable plug is wired to shut down the recycler engine. There are two wires connected into the electric socket which are tied into the engine electronics. There is a wire loop installed inside the plug connector so when the two are connected the electric circuit is complete. When the plug connector is pulled out of the electric socket the electric circuit is broken, disabling the engine (see figure 5).



TWIN DISC “DRY” CLUTCH

A clutch that engages easily is out of adjustment. It will take most of your strength to lock the clutch in place. Clutches are a high maintenance item and expensive to repair. New or rebuilt clutches require several adjustments in the first few hours of operation. During this time the clutch plates are wearing in. Burned clutch plates are never covered under warranty. Failure to properly adjust will cause the entire clutch to burn up.

To check clutch engagement, attach a torque wrench to the cast-in hex on the hand lever. Measure the effort needed to force the clutch engaging linkage over center to lock up the clutch.

Engaging torque must be:

Between a minimum of 510 ft.-lbs. (691 Nm) and a maximum of 676 ft.-lbs. (917 Nm) for the Model SP318SBO and, a minimum of 194 ft.-lbs (263 Nm) and a maximum of 257 ft.-lbs (348 Nm) for the Model 314SB1.

Frequently adjust and grease per the clutch manufactures manual.

ADJUSTING THE TWIN DISC CLUTCH

1. Shut down engine, disengage clutch and observe all safety procedures.
2. Open up the inspection plate on top of the clutch housing.
3. Turn the clutch so that the adjusting lock pin can be reached through the cover plate opening.
4. Press the adjusting lock pin and turn the adjusting ring clockwise one or two notches to tighten.
5. Release the lock pin and continue turning clockwise to the nearest notch.
6. Make sure the lock pin snaps out in the notch.
7. Reinstall the clutch plate and recheck engagement torque.
8. If engagement torque is not within the limits, re-adjust starting at step one.

PAINT AND APPEARANCE

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.

2) If 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 add a primer and paint to the dry clean 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 #2 process.

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

REPLACEMENT PARTS SECTION

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

RECYCLER COMPONENTS

Serial Number
Model Number of Recycler

ENGINE COMPONENTS

Engine Size
Engine Serial Number
Engine Spec. Number

CLUTCH COMPONENTS

Name of Manufacturer
Serial Number
Assembly Number of Clutch

NOTE

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

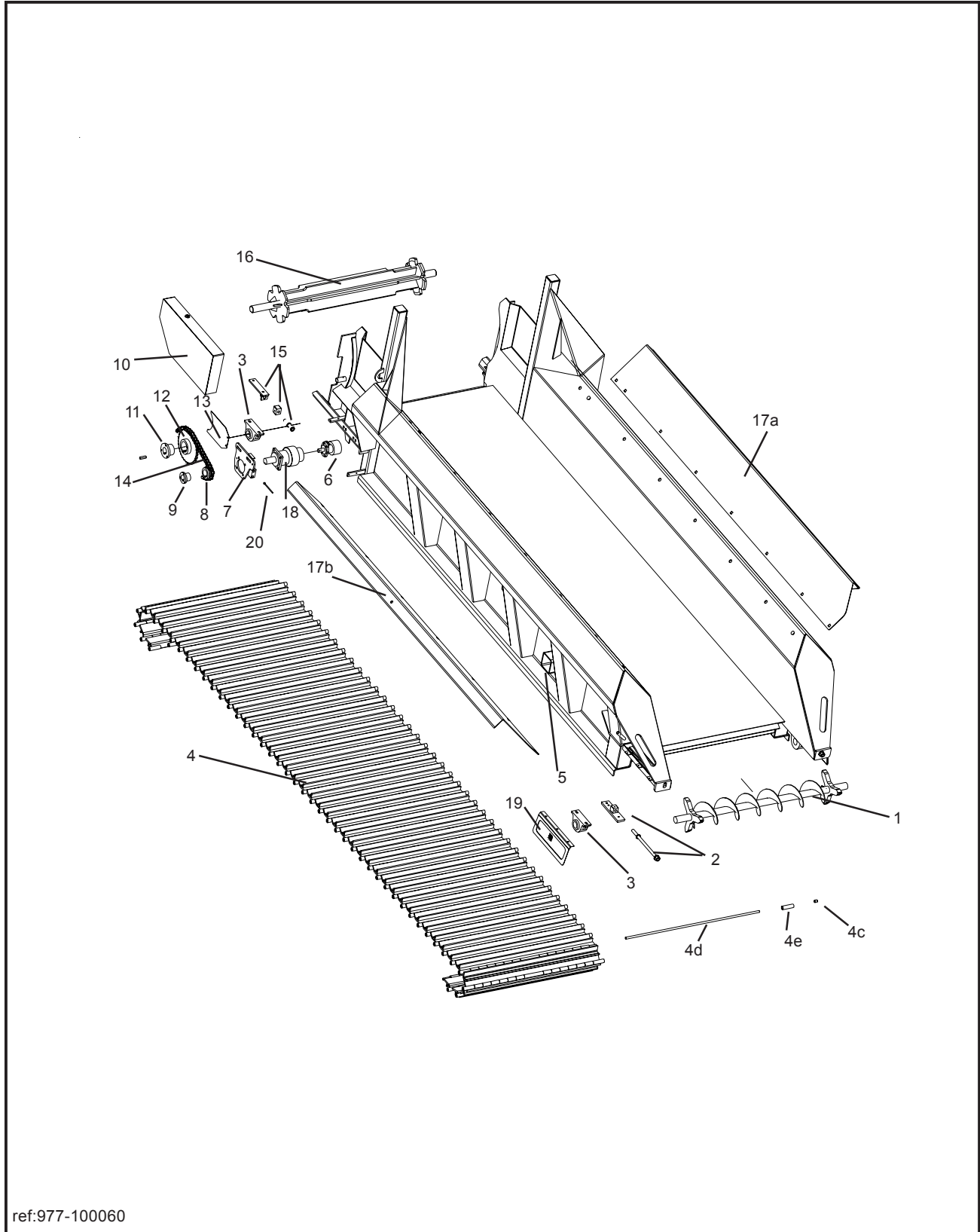
NOTE

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

NOTE

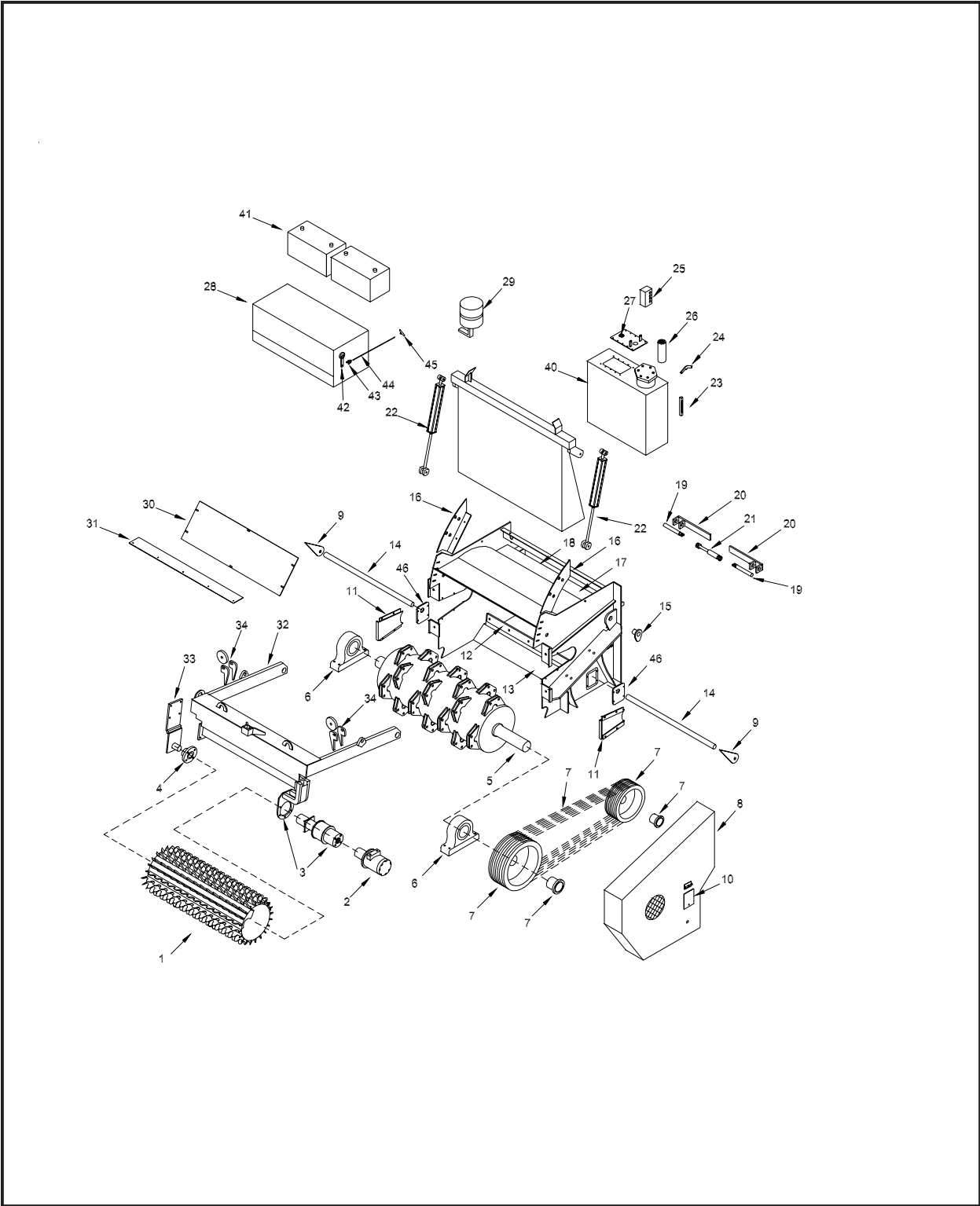
Some of the components shown in this section are for optional equipment and may not apply to every machine.

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



Smoracy, LLC

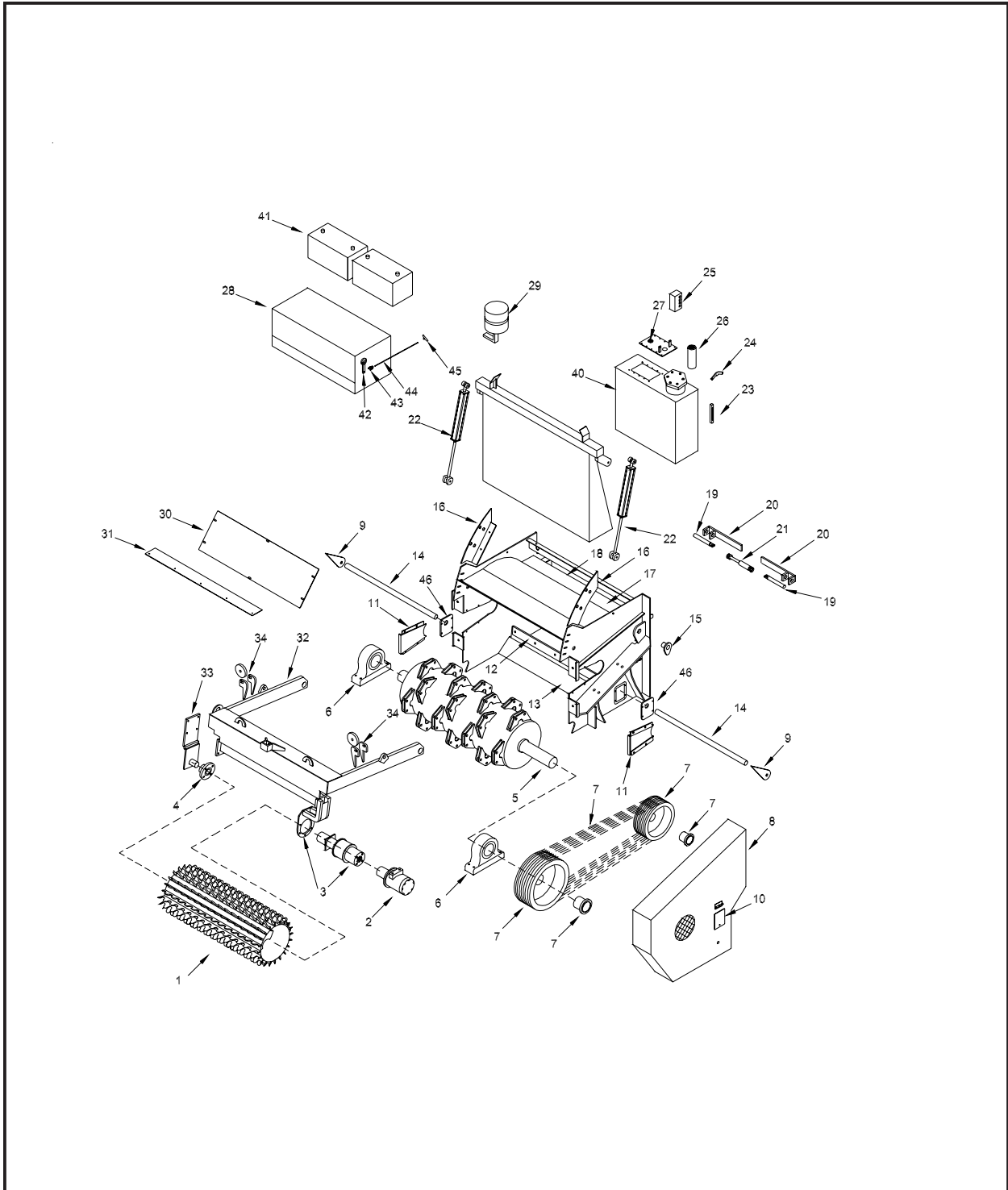
LOCATION	PART NUMBER	DESCRIPTION
1.	977-100036	Tail Shaft Assembly
2.	977-100038	Infeed Tail Shaft Adjustment Assembly (includes a.,b.)
a.	977-100049	Infeed Tailshaft Take Up Screw Weldment
b.	977-200231	Infeed Tailshaft Take Up Bearing Pad Weldment
3.	900-1906-33	Tail Shaft Bearing
4. a.	977-100041	Complete Chain Assembly
b.	977-100040	Single Chain Link Assembly
c.	900-4904-51	Set Screw
d.	977-300534	Pin
e.	977-300532	Slat Bushing
5.	977-100018	Hydraulic Shutdown Assembly (See Emergency Hydraulic Shutdown diagram for list of parts in Electrical Section)
6.	900-3913-70	3 Speed Infeed Conveyor Hydraulic Motor
7.	977-300459	Hydraulic Motor Mount
8.	900-1905-21	Bushed Sprocket For Infeed Conveyor
9.	900-1903-43	Bushing
10.	977-200196	Infeed Conveyor Chain Guard
11.	900-1900-08	Bushing
12.	900-1907-65	Bushed Sprocket
13.	977-300233	Rear Infeed Drive Filler
14.	901-100010	Infeed Conveyor Drive Chain Kit - 5'
a.	900-1910-15	Roller Chain Half Link (not shown)
b.	900-1910-16	Roller Chain Master Link (not shown)
15.	977-100039	Infeed Head Shaft Adjusting Assembly
a.	977-100052	Infeed Head Shaft Bearing Adjustment Bolt
b.	977-301031	Infeed Head Shaft Adjustment Block
c.	977-200267	Infeed Head Shaft Bearing Pad
16.	977-100035	Infeed Head Shaft Weldment
17 a.	977-301013	Wing, Roadside
b.	977-301014	Wing, Curbside
18.	900-3901-54	Gear Box
19.	977-000224	Infeed Tail Shaft Guard
20.	900-4908-55	Hydraulic Motor Adjuster Eyebolt



Smoracy, LLC

LOCATION	PART NUMBER	DESCRIPTION
1.	977-200169	Feedwheel Assembly
2.	900-3919-99	3 Speed Hydraulic Motor
3.	900-3916-83	Gear Box
a.	977-200150	Gear Box Mount Assembly
4.	900-1900-15	Feedwheel Bearing
5. x.	977-050001	Cutterhead Assembly 6" B-loc Shaft For 4 15/16" Bearings
x.	977-050002	Cutterhead Assembly 7" B-loc Shaft For 4 15/16" Bearings
b.	901-100000	Cuttehead Wiper Insert (not shown)
6. a.	977-100178	Cutterhead Bearings - Road Side
b.	977-100179	Cutterhead Bearings - Curb Side
7. X	900-1909-00	Engine Drive Sheave
X	900-1906-88	Engine Drive Sheave Bushing
X	900-1906-86	Cutterhead Sheave
X	900-1906-87	Cutterhead Sheave Bushing
X	900-1908-99	Drive Belts
8.	977-200152	Belt Shield Assembly

Continued on next page.



Smoracy, LLC

LOCATION	PART NUMBER	DESCRIPTION
9.	977-200153	Screen Location Indicator
10.	977-100007	Beltshield Tension Check Door Assembly
11.	977-200154	Base Side Cover Plate
12.	976-003422	Anvil
13.	977-200128	Anvil Mount Assembly
14 a.	977-200143	Concave Door Pin Curb Side
14 b.	977-200146	Concave Door Pin Road Side (25K Axles)
15.	977-200155	Yoke Pivot Pin Assembly
16.	976A-004468	Yoke Slide Guide
17.	977-200156	Replaceable Roll Top Weldment
18.	976-000181	Crash Bar
19.	977-200200	Yoke Lock Pin Assembly
20.	977-200199	Yoke Lock Base Assembly
21. X	900-3927-26	Yoke Lock Cylinder
22 a. X	900-3927-27	Yoke Lift Cylinder
b.	900-3911-49	Breather Fitting For Lift Cylinder (not shown)
23.	900-3901-78	Sight Gauge
24 a.	976-012584	Hydraulic Tank Filler Cap Lock
b.	900-3907-66	Hydraulic Tank Fill Cap
c.	900-3901-73	Service Filter Gauge (not shown)
25 a.	900-3921-72	3 Speed Hydraulic Stop Block
b.	900-3921-77	24 Volt Solenoid On Stop Block
26.	900-3925-54	In Tank Hydraulic Filter
27.	900-3913-68	Moisture Control Insert
28.	977-200243	8D Battery Box Weldment
29.	900-9902-45	Automatic Fire Extinguisher
30.	976A-004075	Yoke Lock Cover
31 a.	976-000176	Base Top Rubber Flap
b.	976-000194	Base Top Rubber Flap Mount
32.	977-200157	Feedwheel Yoke Weldment
33.	977-200158	Feedwheel Idler Shaft Weldment
34.	983-100000	Yoke Roller Guide Assembly
35.	977-000278	Yoke Lift Safety Chain And Hook (Not Shown)
36 a.	977-000281	Beltshield Catwalk Assembly Only (Not Shown)
b.	977-000280	Beltshield Catwalk Assembly And Ladder (Not Shown)
37.	977-200159	Beltshield Fold Up Ladder Assembly Only (Not Shown)
38.	976-001579	Beltshield Catwalk Hand Rail Assembly (Not Shown)
39.	900-2906-56	24v Screen Assist Winch Kit (Not Shown)
40.	977-100009	140 Gallon Hydraulic Tank Assembly
41.	900-6907-88	8D 1400 CCA Battery
42.	900-2908-56	Disconnect Lever
43.	900-6901-70	1/4" Clevis Kit
44.	900-4907-93	Push/Pull Cable (1/4")
45.	900-4907-92	Cable Knob
46.	976A-004252	Anvil Access Door
Not Shown	977-200168	Air Compressor Battery Box (if equipped)

DUST SUPPRESSION SYSTEM

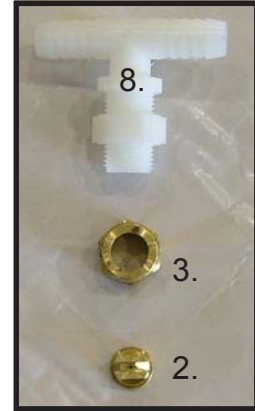
Discharge Sprayer



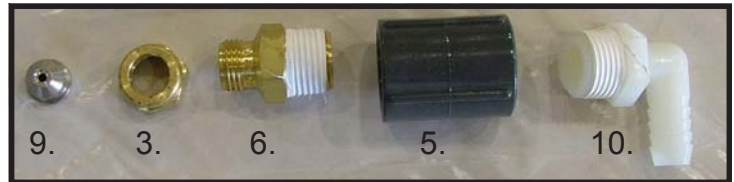
Center Yoke Sprayer



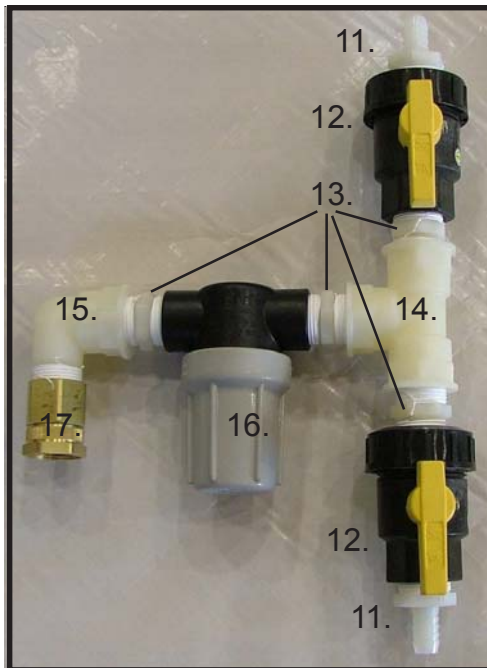
Discharge Sprayer



Curb Side and Road Side Sprayer



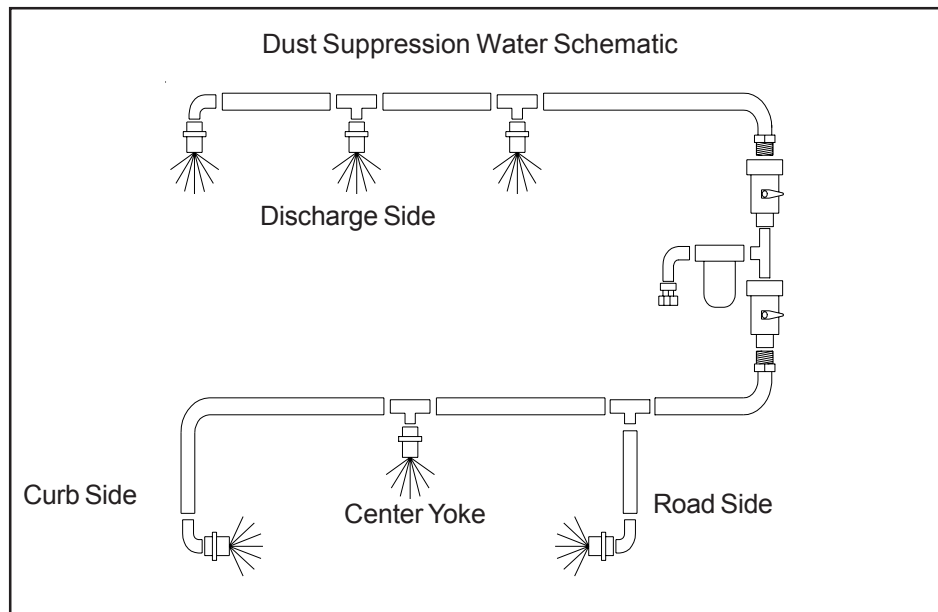
Filter and Shut Off Assembly

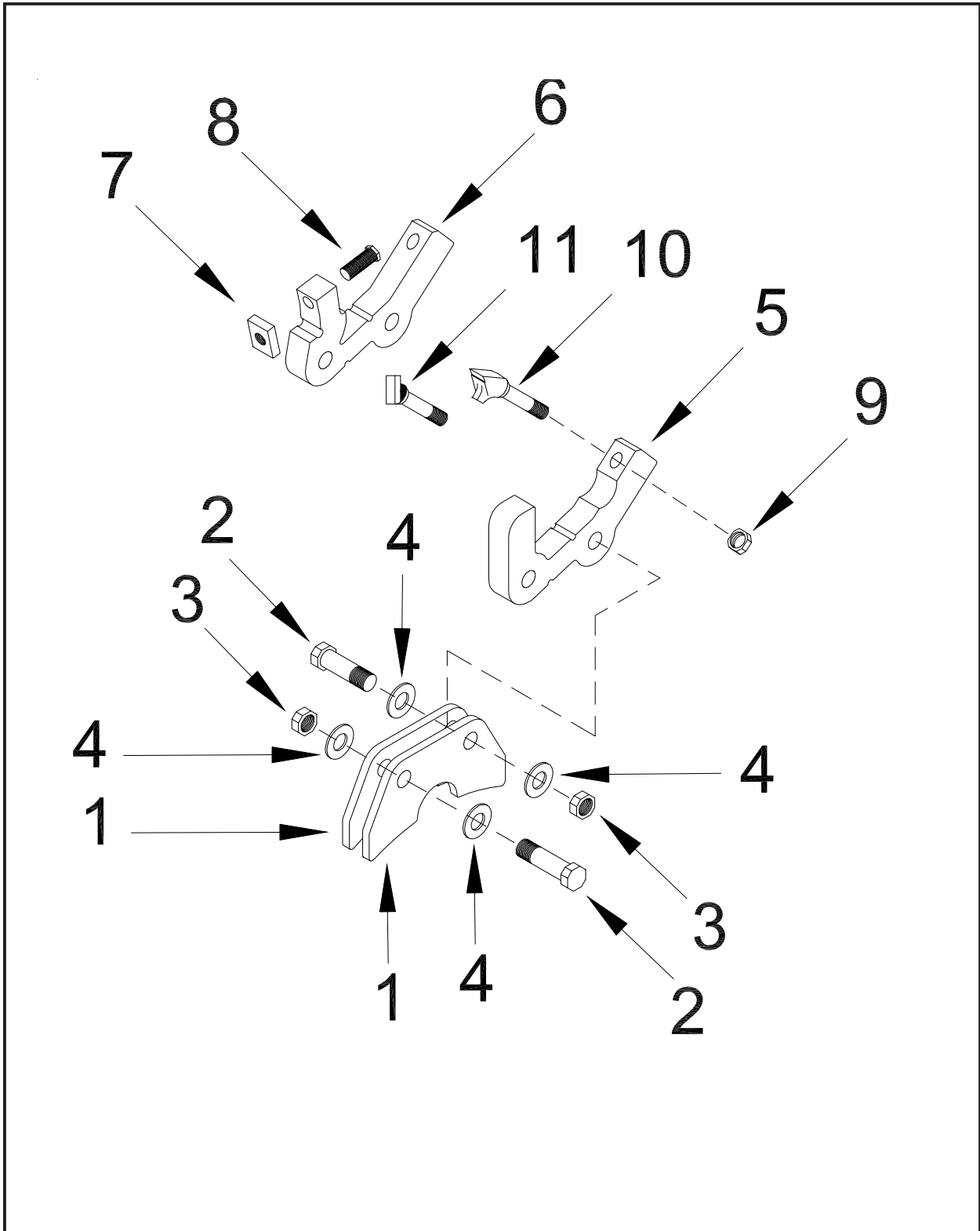


Smoracy, LLC

DUST SUPPRESSION SYSTEM

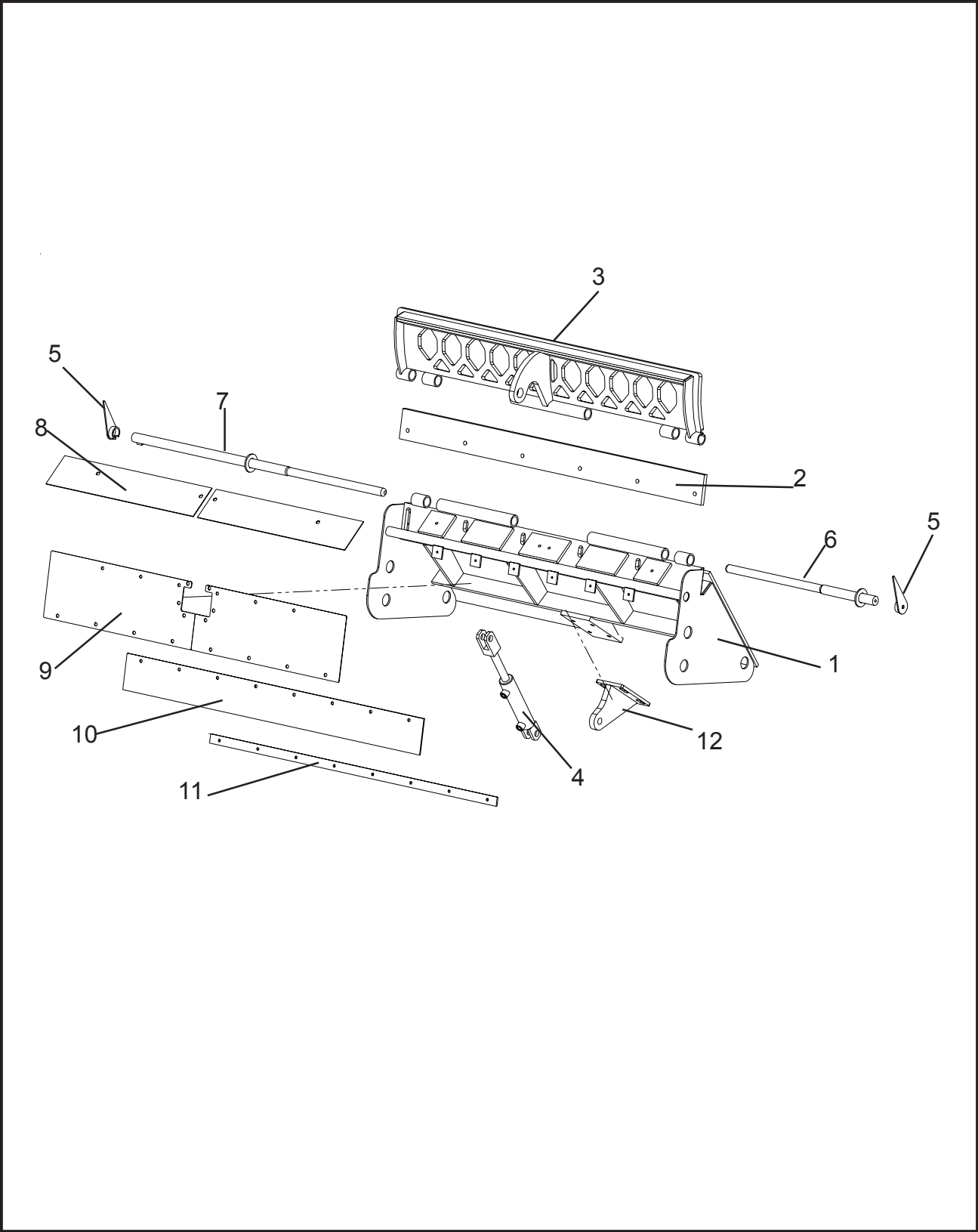
LOCATION	PART NUMBER	DESCRIPTION
1.	900-9902-52	Plastic 90 Elbow with Nut
2.	900-9902-55	Nozzel Tip (Discharge Side Sprayer)
3.	900-9902-57	Nozzel Cap
4.	900-9902-62	Male to Hose Barb
5.	900-3917-76	Coupling
6.	900-9902-58	Nozzel Body
7.	900-9902-59	Nozzel Tip (Center over Yoke)
8.	900-9902-53	Plastic "T" with Nut
9.	900-9902-56	Nozzel Tip (Road Side & Curb Side)
10.	900-9902-50	Plastic Elbow
11.	900-9902-93	Male to Hose Barb
12.	900-9902-60	Shut Off Valve
13.	900-9902-48	Nipple
14.	900-9902-51	Plastic "T"
15.	900-9902-49	Plastic 90 Elbow
16.	900-9902-54	Filter
17.	900-3913-00	Hose Connector
18.	900-9902-78	Clear Hose (priced per foot) Not Shown





Smoracy, LLC

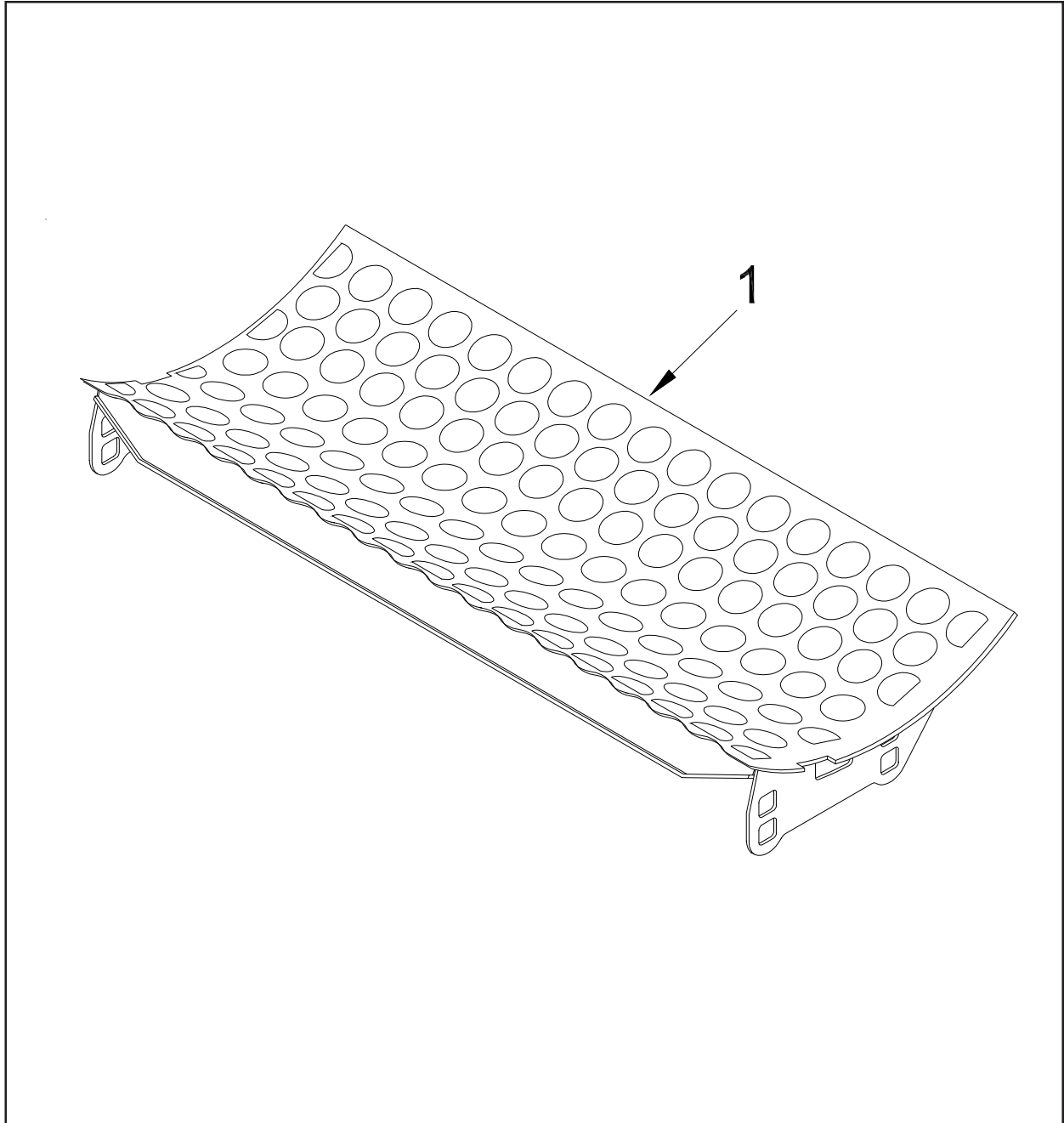
LOCATION	PART NUMBER	DESCRIPTION
1.	977-301087	Cutterbody Support Arm
2.	900-4908-78	Cutterbody Bolt
3.	900-4904-92	1" Stover Lock Nut For Cutterbody Bolt
4.	900-6907-68	Steel Washers
5.	977-200195	Non-Replaceable Raker Cutterbody
6.	977-301434	Replaceable Raker Cutterbody Only (option)
7.	977-100056	Replaceable Raker 45° (option)
	977-100057	Replaceable Raker Square Cut (option)
	977-200122	Replaceable Raker Square Cut with four welds (option)
8.	900-4902-78	Replaceable Raker Bolt
9.	900-4901-66	7/8" Grade 8 Nut
10.	*	See Cutterteeth Section for descriptions
11.	*	See Cutterteeth Section for description



Smoracy, LLC

ANVIL ASSEMBLY W/10" GATE

LOCATION	PART NUMBER	DESCRIPTION
1.	977-200240	Bolt In Anvil Assembly
2.	977-300774	Replaceable Anvil Lock Washers (not shown)
CONCAVE GATES AVAILABLE FOR YOUR BEAST		
3 a.	977-200092	1" Modified Diamond
b.	977-200093	1-1/2" Modified Diamond
c.	977-200094	2" Modified Diamond
d.	977-200095	3" Modified Diamond
e.	977-200096	4" Modified Diamond
f.	977-200097	5" Modified Diamond
g.	977-200098	1" Round
h.	977-200099	2" Round
i.	977-200100	3" Round
j.	977-200102	1" Square
k.	977-200103	2" Square
l.	977-200104	3" Square
4. X	900-3927-32	Hydraulic Cylinder for Concave Gate
5.	977-200153	Gate Indicator
6.	977-200143	Curb Side Hinge Pin
7.	977-200144	Road Side Hinge Pin
8.	977-300413	Top Half Chip Slide Plate
9.	977-301768	Chip Slide Plate Bottom
10.	977-301844	Anvil Rubber Skirt
11.	977-300782	Anvil Flat Mounting Strip
12.	977-200241	Gate Cylinder Lug Assembly

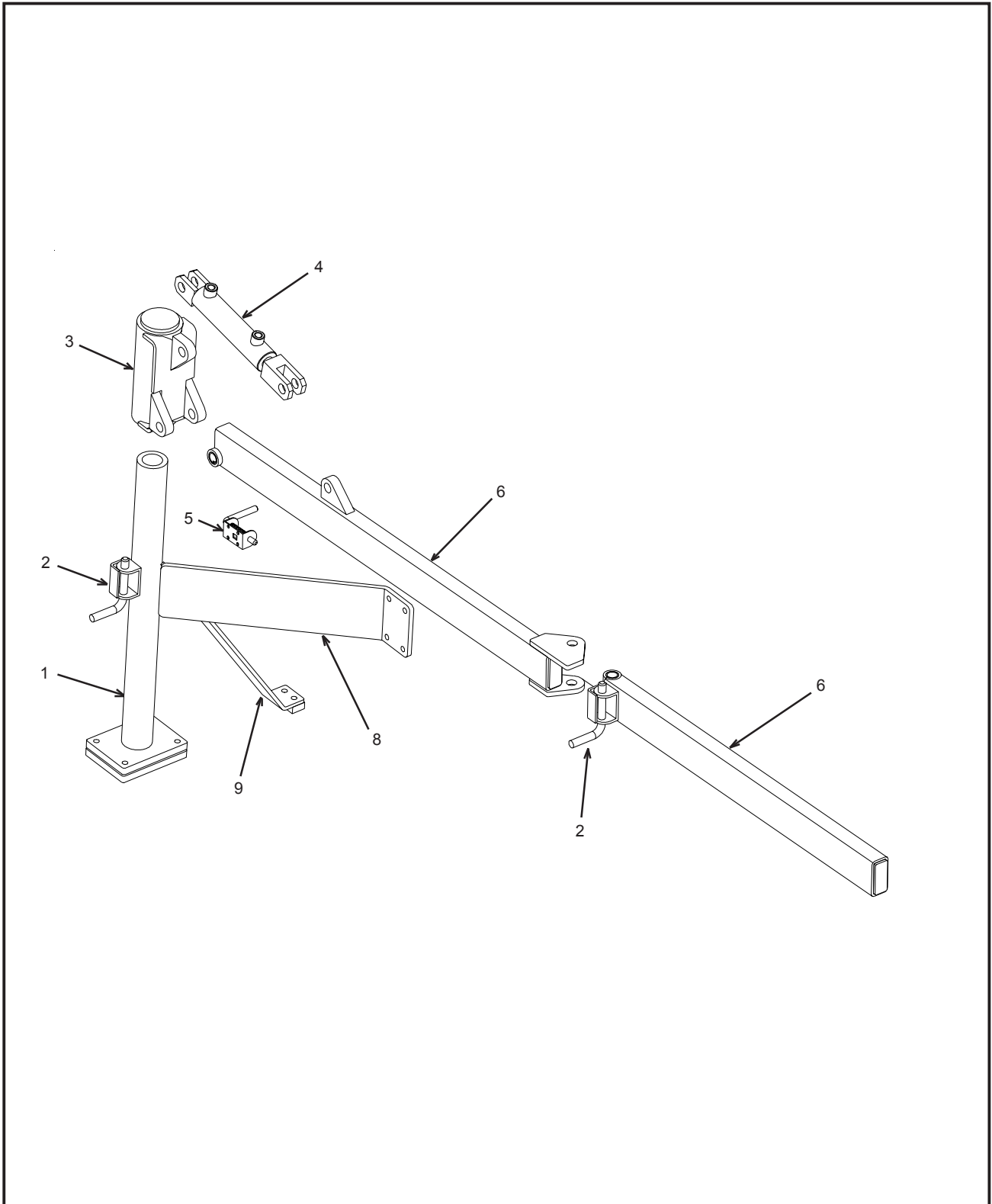


Smoracy, LLC

LOCATION	PART NUMBER	DESCRIPTION
1.		ROUND SCREENS (SHOWN)
a.	977-200009	1" Round
b.	977-200010	2" Round**
c.	977-200011	3" Round**
d.	977-200012	4" Round
e.	977-200013	5" Round
f.	977-200014	6" Round
		MODIFIED DIAMOND SCREENS (NOT SHOWN)
a.	977-200001	1" Modified Diamond**
b.	977-200002	1 1/2" Modified Diamond
c.	977-200003	2" Modified Diamond**
d.	977-200004	3" Modified Diamond**
d.	977-200005	4" Modified Diamond**
e.	977-200006	5" Modified Diamond**
f.	977-200008	6" Modified Diamond**
g.	977-200007	7" Modified Diamond
		SQUARE SCREENS (NOT SHOWN)
a.	977-200015	1" Square
b.	977-200016	2" Square
c.	977-200017	3" Square
d.	977-200018	4" Square
e.	977-200019	5" Square
f.	977-200020	6" Square

**These are all stock screens, all others are special order and will take a minimum of two weeks to produce.

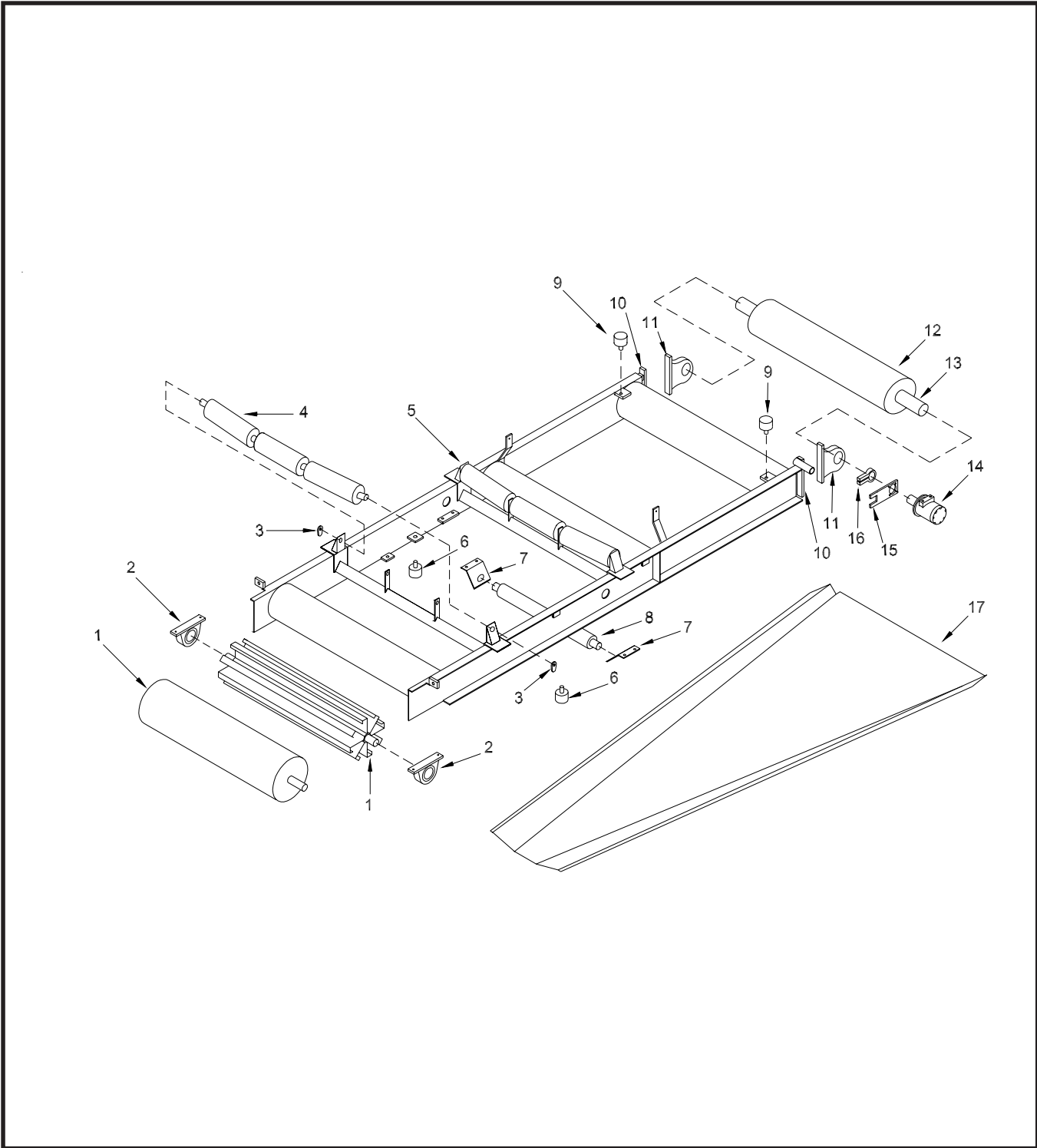
SCREEN HOIST COMPONENTS



Smoracy, LLC

SCREEN HOIST COMPONENTS

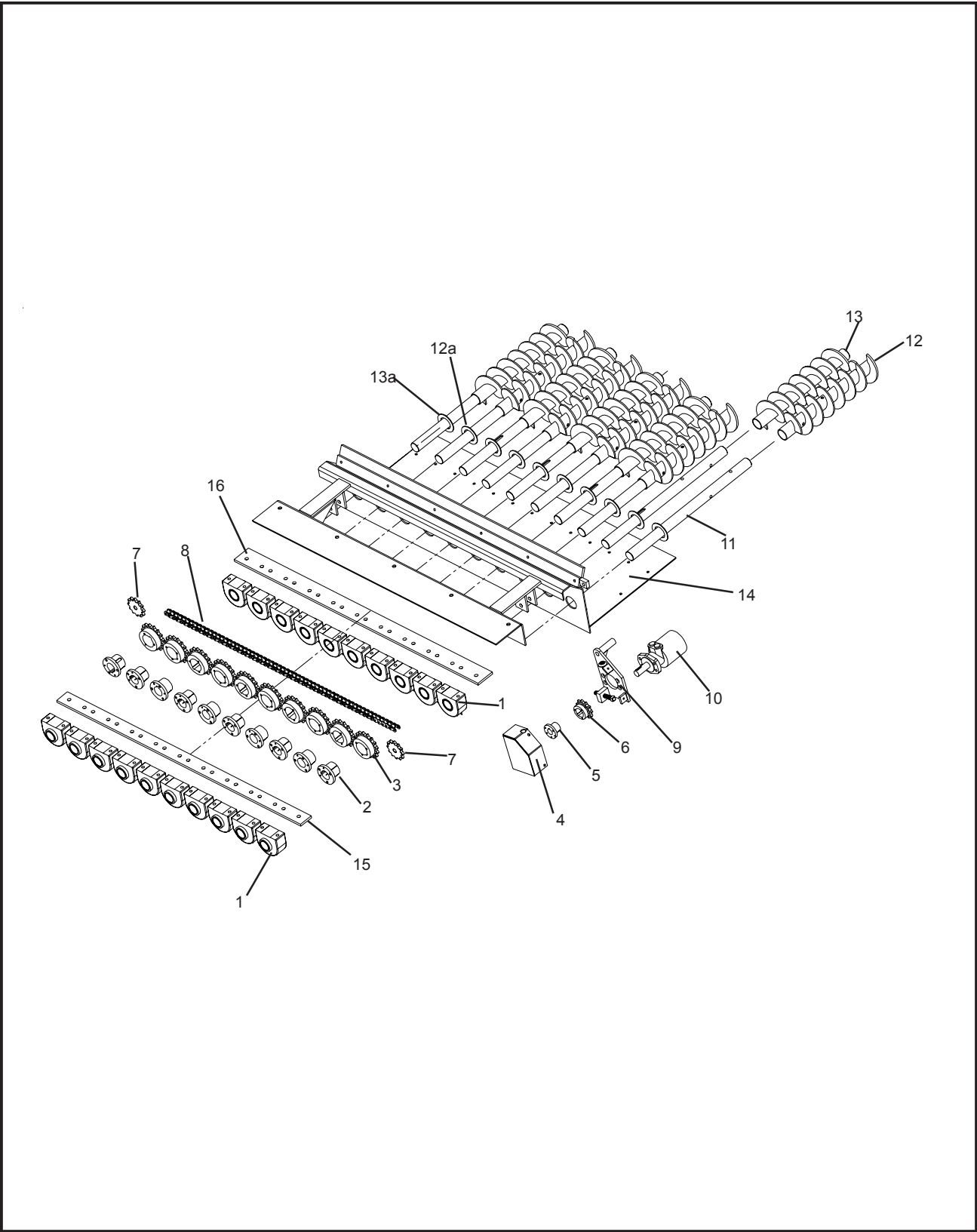
LOCATION	PART NUMBER	DESCRIPTION
1.	977-200426	Screen Hoist Pole Assembly
2.	900-4904-90	3/4" Spring Latch
3.	977-200425	Screen Hoist Pivot Head Assembly
4 a.	900-3920-77	Screen Hoist Cylinder
b.	901-100031	Flow Restrictor Only (Not Shown)
5.	900-4901-83	1/2" Spring Latch
6 a.	977-200423	Screen Hoist Long Arm Assembly
b.	900-1911-59	Split Steel Bushing
7 a.	977-200424	Screen Hoist Long Arm Assembly
b.	900-1911-59	Split Steel Bushing
8.	977-302391	Screen Hoist Pole Support
9.	977-302388	Screen Hoist Pole Support
10.	901-100032	Chain Assembly With Slip Hook (Not Shown)
11.	900-9905-86	Forged Grab Hook (Not Shown)
12.	977-302398	Electric Pump & Reservoir Cover (Not Shown)
13.	900-6907-66	Disconnect Switch
14 a.	900-9905-85	Electric Pump With Controller & Reservoir (Not Shown)
b.	900-2915-56	Electric Motor Only (Not Shown)
c.	900-2915-57	Controller Only (Not Shown)
d.	900-2915-58	Controller Cord Only (Not Shown)
16.	977-100158	Screen Hoist Assembly (Includes 1-14a)



Smoracy, LLC

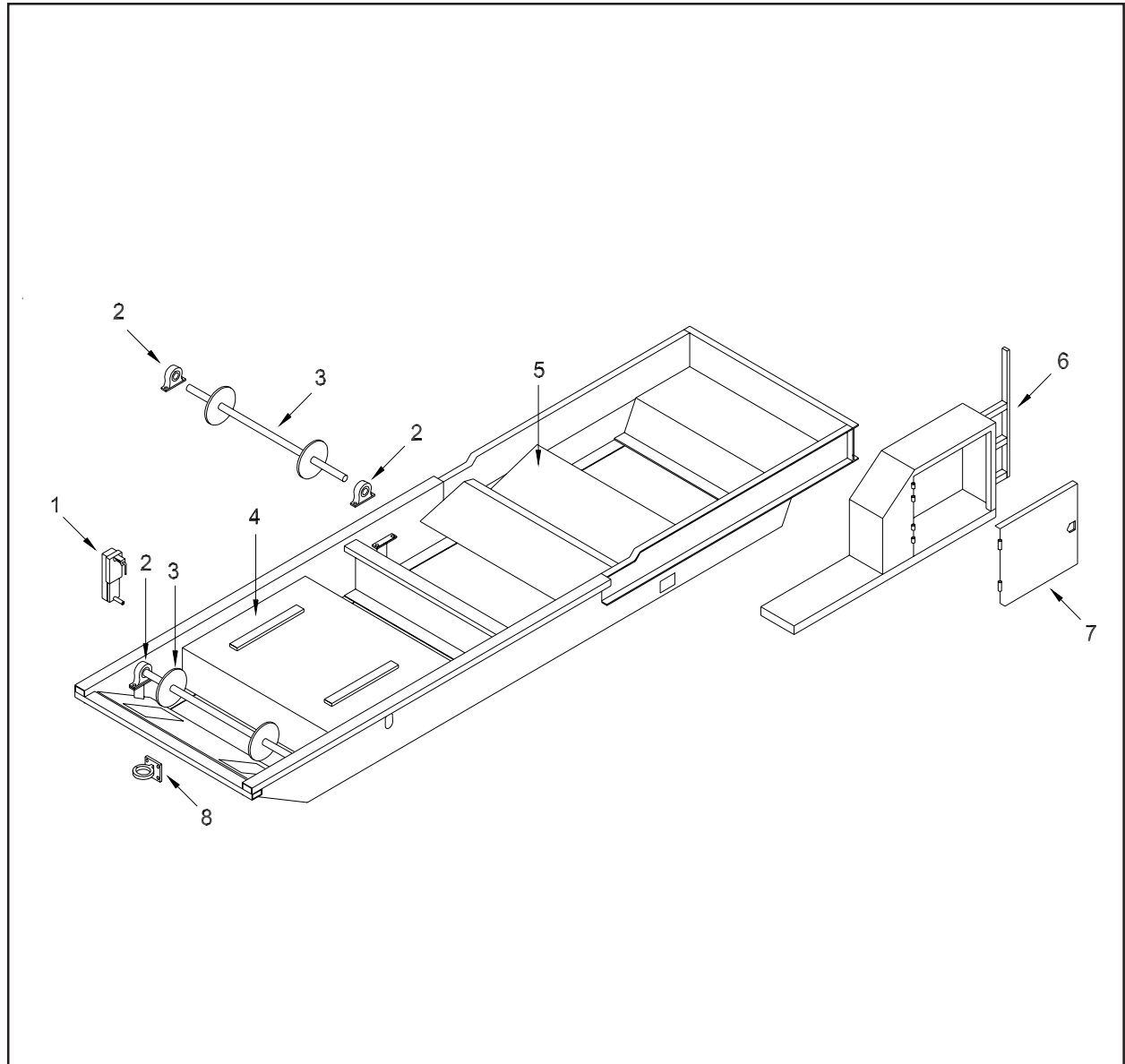
LOCATION	PART NUMBER	DESCRIPTION
1 a.	977-100029	Solid Bottom Idler Wheel Assembly
b.	977-100001	Fanned Bottom Idler Wheel Assembly
2.	900-1905-10	Bottom Idler Wheel Bearing
3.	900-1906-53	Troughing Roll Clip
4.	900-1909-06	Single Troughing Roll
5.	900-1905-31	Troughing Roll Assembly
6.	900-1910-17	Side Guide Roller
7.	976-001620	Return Roller Mount
8.	900-1905-32	Frame Mounted Return Roller
9.	900-1910-17	Side Guide Roller
10.	977-200188	Drive Side Magnetic Roller Head Mount
	977-200189	Idler Side Magnetic Roller Head Mount
11.	900-1905-10	Magnetic Roller Head Bearing
12 a.	900-1906-71	Magnetic Roller Head
b.	977-000102	Non-Magnetic Roller Head
13.	976-030426	Shaft For Magnetic Roller Head
14. X	900-3923-12	Magnetic Roller Head Hydraulic Motor
15.	977-301337	Torque Arm
16 a.	977-301338	Lee-Tight Coupler
b.	977-301339	Key For Lee-Tight Coupler (Not Shown)
17.	977-301153	Steel Chute (8')
X	900-1910-53	Discharge Belt for 18' Conveyor (Not Shown)
	977-301157	Replaceable Belt Conveyor Plastic Slides (Not Shown)

NOTE: Nuts, bolts, washers, and all other components can be ordered by physical description.



Smoracy, LLC

LOCATION	PART NUMBER	DESCRIPTION
1.	900-1909-01	Auger Bearing
2.	900-1904-85	Bushing
3.	900-1905-25	Auger Sprocket
4.	977-200270	Auger Chain Guard
5.	900-1912-49	Bushing
6.	900-1905-26	Sprocket
7.	900-1905-22	Idler Sprocket With Bearing
8.	901-100006	Auger Chain Kit - 15'
a.	900-1908-29	Roller Chain Half Link (not shown)
b.	900-1908-28	Roller Chain Master Link (not shown)
9.	977-200271	Auger Hydraulic Motor Mount
10.	900-3924-31	Auger Hydraulic Motor
11.	977-300875	Auger Shaft
12.	900-9902-47	Left Hand Auger Assembly
x	977-000106	Left Hand Auger Assembly for Shingle Application
a.	977-300790	Auger Dust Ring
13.	900-9902-46	Right Hand Auger Assembly
x	977-000107	Right Hand Auger Assembly for Shingle Application
a.	977-300790	Auger Dust Ring
14.	900-7900-88	Auger Plastic Bed Sheet (1/2 x 24 x 63) for 10" Concave Door
15.	977-300745	Auger Bearing Pad, Bottom
16.	977-300755	Auger Bearing Pad, Top
17.	901-100030	Auger Motor Chain Kit - 3' (Not Shown)



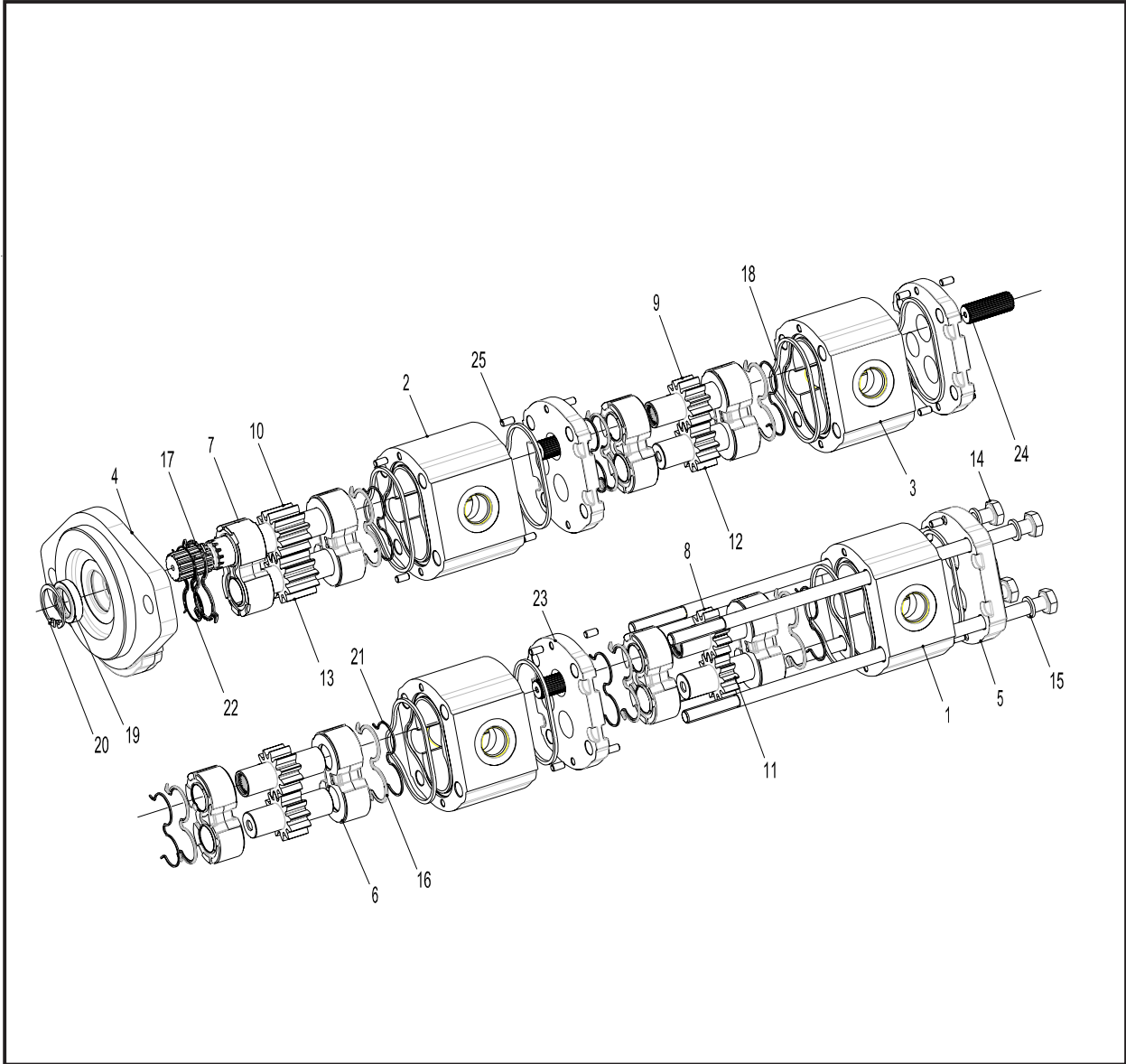
Smoracy, LLC

LOCATION	PART NUMBER	DESCRIPTION
1.	977-100061	Infeed Chain Stop Assembly
2.	900-1905-10	Idler Roller Bearing
3.	977-100062	Idler Roller Assembly
4.	977-000223	300 Gallon Fuel Tank
a.	900-3926-56	Fuel Filter Head (not shown)
b.	900-3925-68	Fuel Filter for 900-3926-56
5.	See Auger Components	Auger Assembly
6.	977-000222	Curb Side Ladder Assembly
7.	977-000085	Cabinet Door Assembly
a.	900-4908-19	Cabinet Door "T" Handle Latch (not shown)
b.	977-100028	Cabinet Door Closer Assembly (not shown)
8.	900-5900-71	Pintle Ring

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

QUAD PUMP

(900-3916-88)



Smoracy, LLC

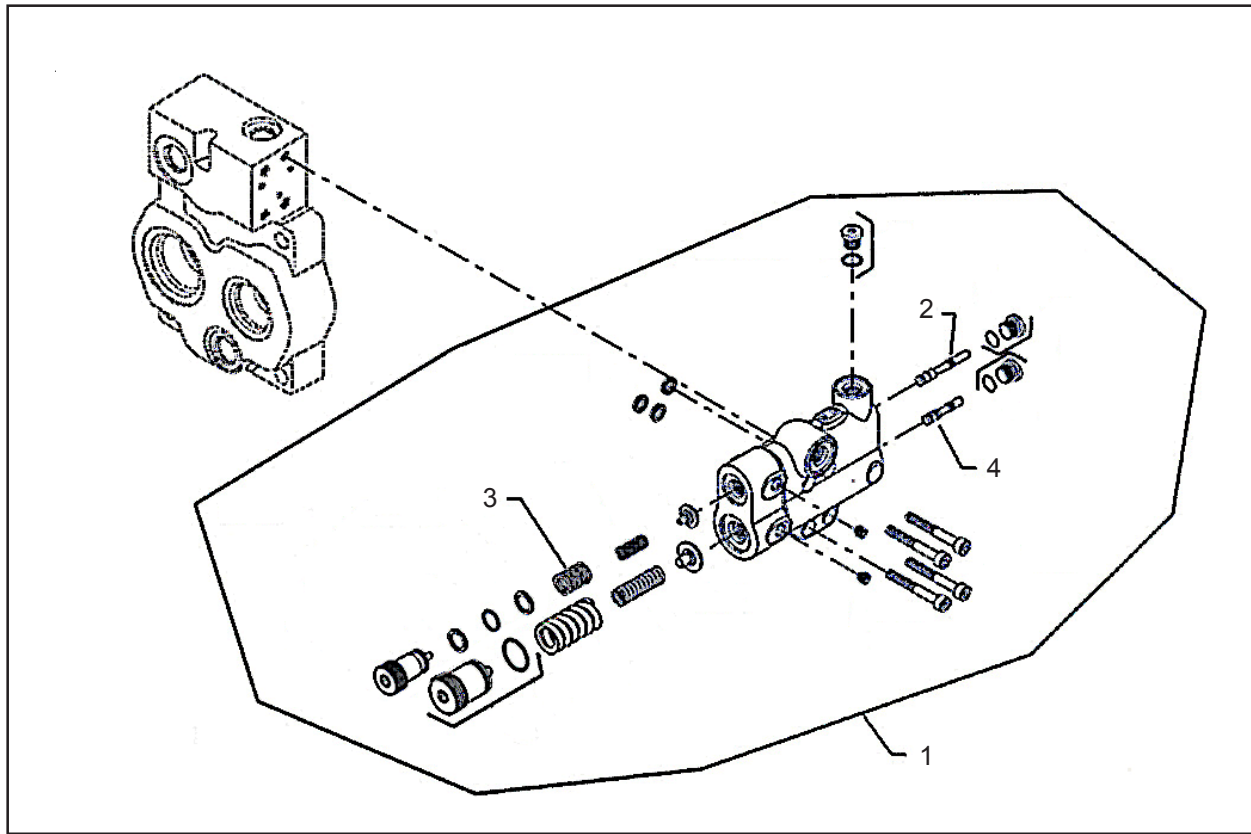
QUAD PUMP

(900-3916-88)

LOCATION	PART NUMBER	DESCRIPTION
1.	17676294	Body
2.	17676297	Body
3.	17677072	Body
4.	21911750	Front Cover
5.	21915751	Thrust Plate
6.	25930292	Upper Thrust Plate
7.	25930400	Upper Thrust Plate
8.	27720824	Drive Gear
9.	27720826	Drive Gear
10.	27721496	Drive Shaft
11.	27750020	Driven Gear
12.	27750030	Driven Gear
13.	27750050	Driven Gear
14.	36596900	Screw
15.	37583700	Washer
16.	39656100	Seal
17.	39656115	Seal
18.	39666200	Seal
19.	39701000	Shaft Seal
20.	40665100	Ring
21.	41387100	Backup Ring
22.	41387115	Anti-extrusion
23.	43388056	Flange
24.	44297900	Splined Connecting Shaft
25.	49270000	Dowel Pin

Constant Speed Pressure Compensated Pump

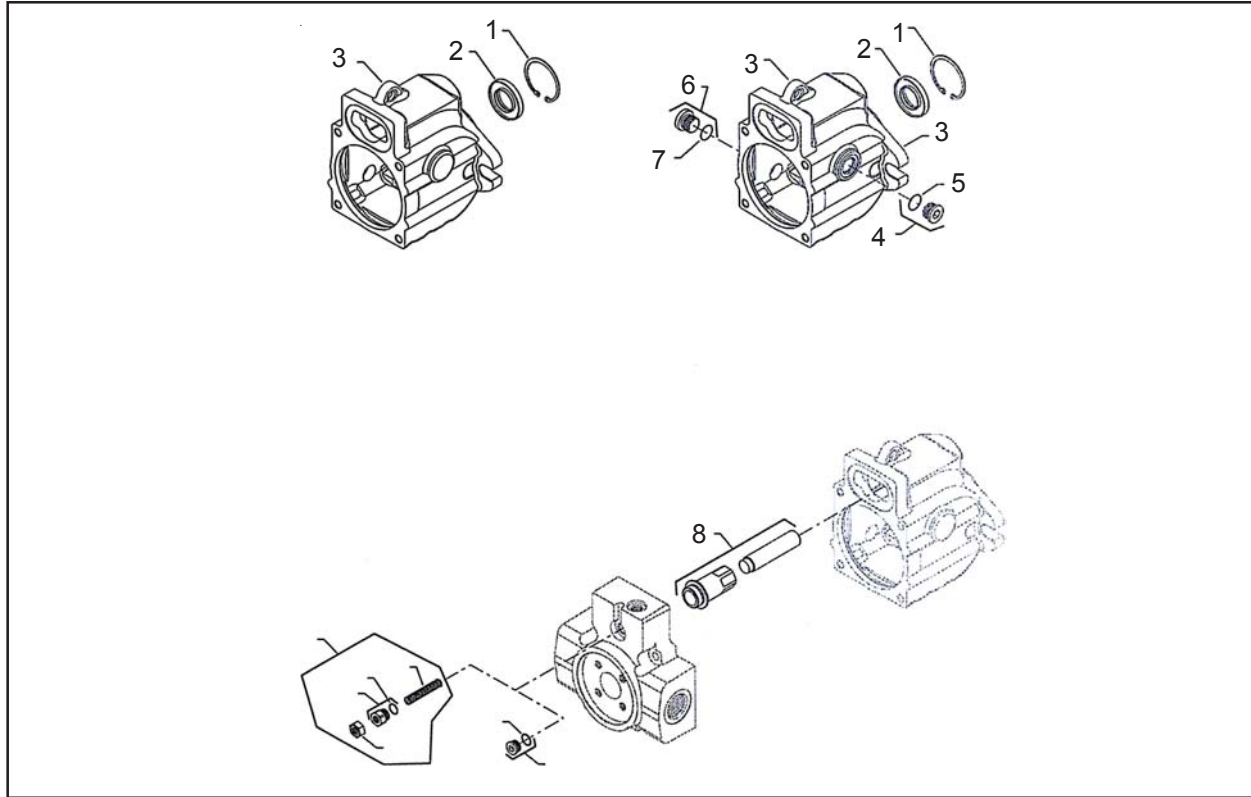
P/N 900-3923-11 (Controls)



LOCATION	PART NUMBER	DESCRIPTION
1.	4510358	Control Kit (SB-2001-004)
2.	1700216	Spool
3.	1700190	Spring, Outer
4.	1700217	Spool

Constant Speed Pressure Compensated Pump

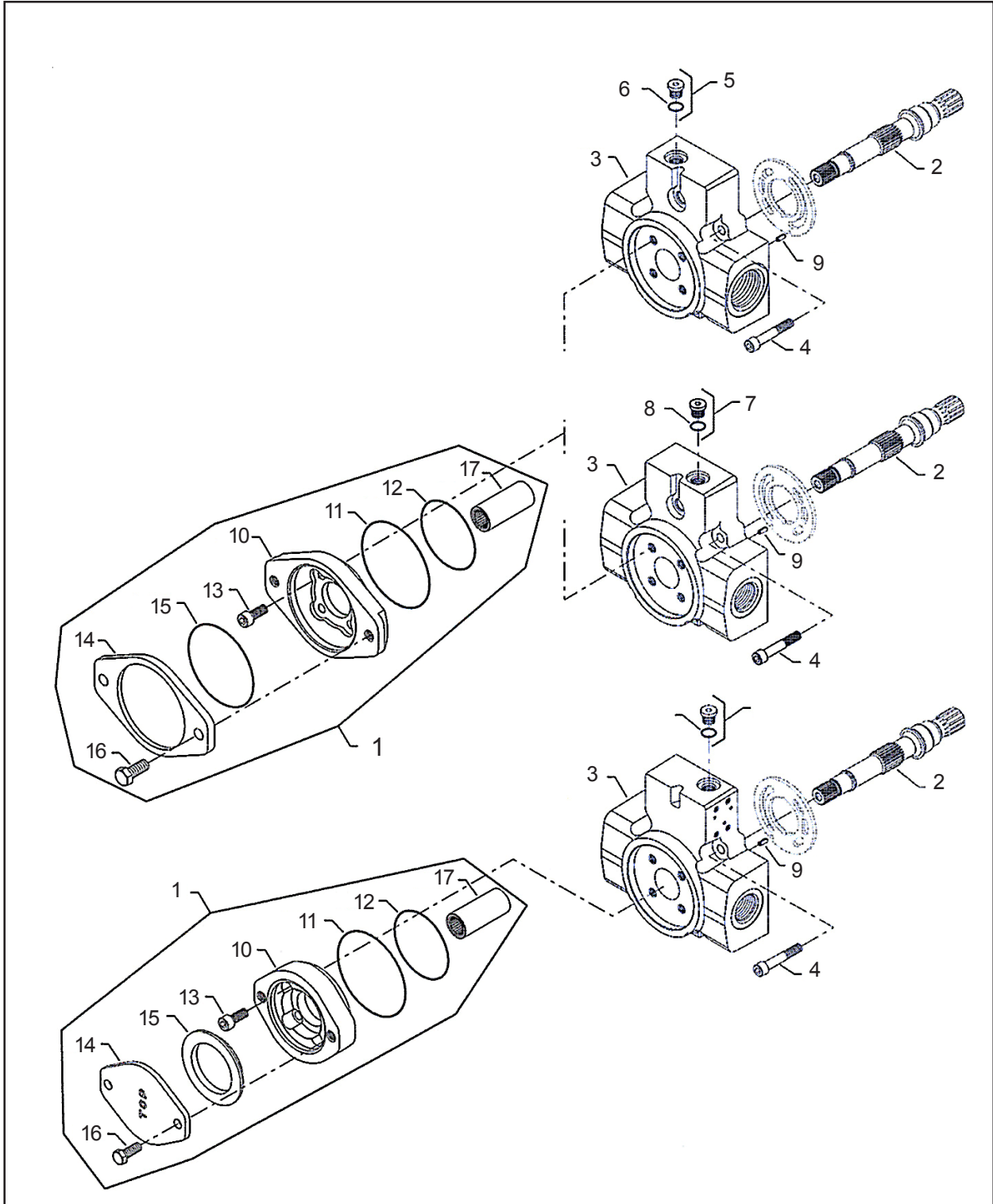
P/N 900-3923-11 (Housing, Shaft Seal, and Displacement Limiter)



LOCATION	PART NUMBER	DESCRIPTION
1.	016014	Retaining Ring
2.	5000555	Lip Seal
3.	1700164	Housing
4.	315325	Plug
5.	001149	O-Ring
6.	315325	Plug
7.	001149	O-Ring
8.	4510352	Servo Piston Kit .45CC, Small

Constant Speed Pressure Compensated Pump

P/N 900-3923-11 (Shaft, Auxiliary Flange, and End Cap)



Smoracy, LLC

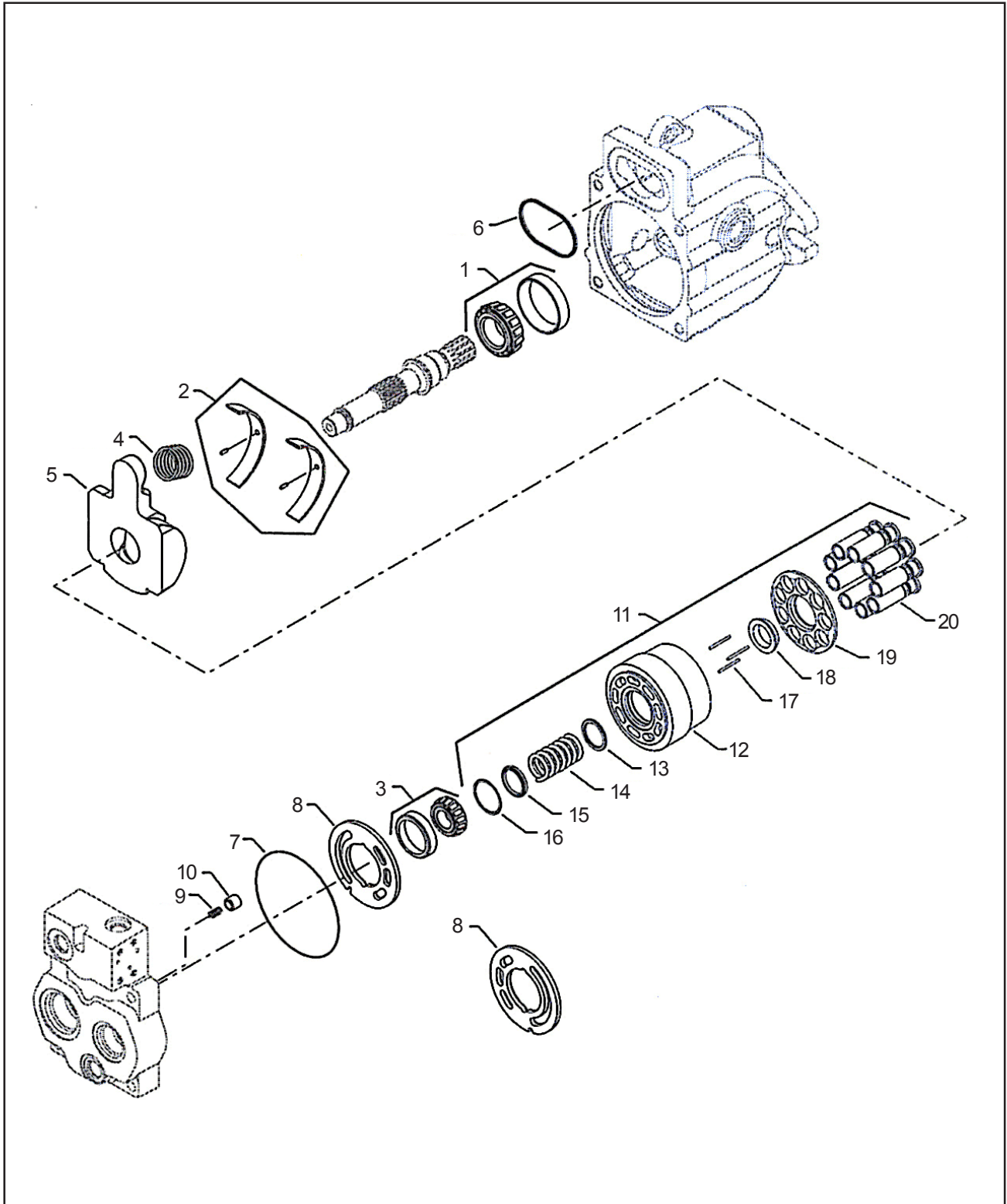
Constant Speed Pressure Compensated Pump

P/N 900-3923-11 (Shaft, Auxiliary Flange, and End Cap)

LOCATION	PART NUMBER	DESCRIPTION
1.	4510378	Auxiliary Mounting Kit
2.	1700178	Shaft, 13-Tooth Spline W/Auxiliary Drive
3 a.	1700763	End Cap, Radial, Control On Right, KRR (SB-2002-042)
b.	1700774	End Cap, Radial, Control On Right, KRL (SB-2002-042)
4.	672295	Screw
5 a.	515965	Plug, KRL
b.	5000438	Plug, KRL
6 a.	085043	O-Ring, KRL
b.	5000463	O-Ring, KRL
7 a.	515965	Plug, KRR
b.	5000438	Plug, KRR
8 a.	085043	O-Ring, KRR
b.	5000463	O-Ring, KRR
9.	688622	Pin
10.	4570210	Adapter Flange, SAE B
11.	5000099	O-Ring
12.	545434	O-ring
13.	294611	Screw
14.	689091	Cover Plate
15.	680892	O-Ring
16.	647248	Screw
17.	1700181	Coupling, 13-Tooth

Constant Speed Pressure Compensated Pump

P/N 900-3923-11 (Housing, Shaft Seal, and Displacement Limiter)



Smoracy, LLC

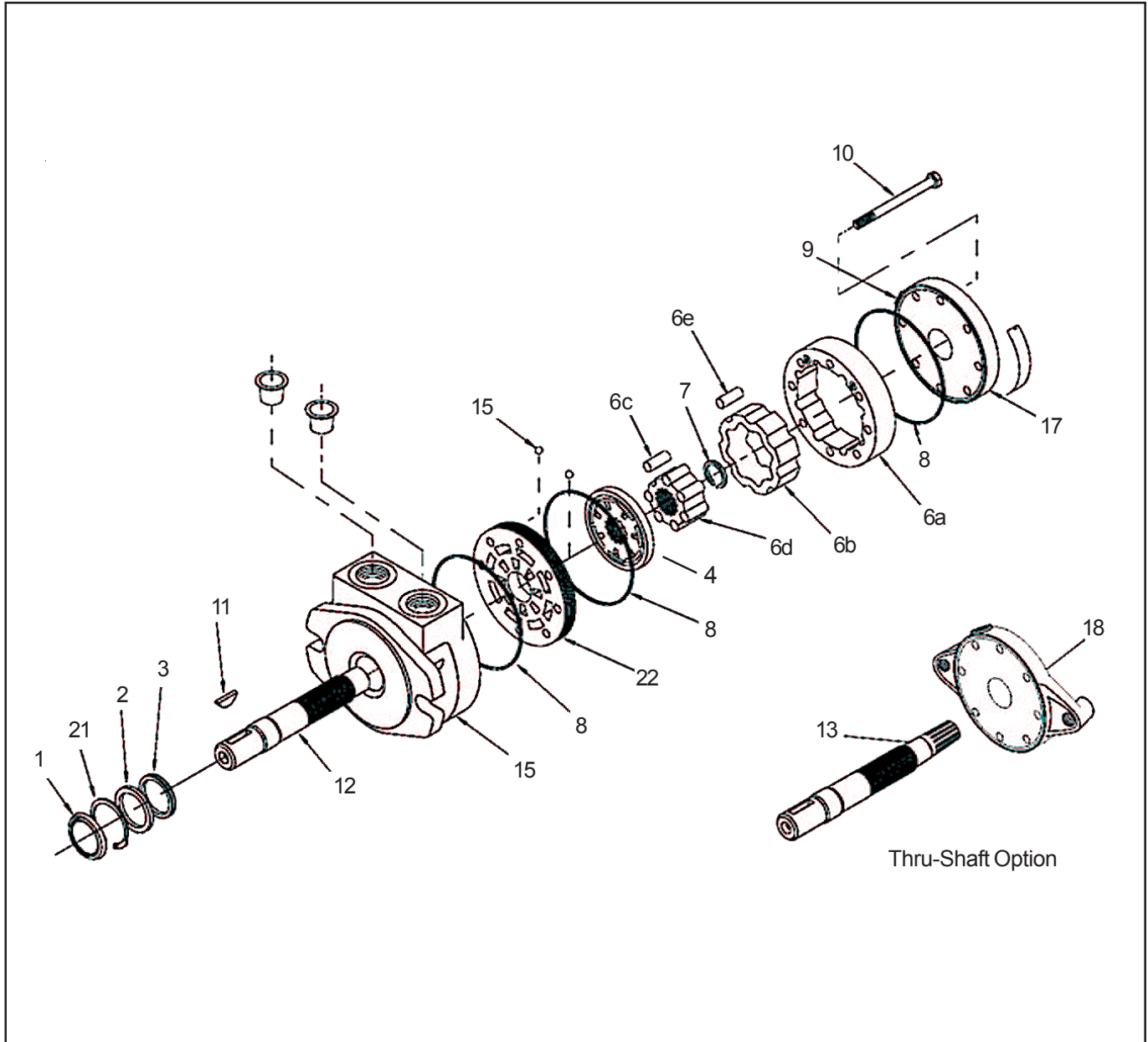
Constant Speed Pressure Compensated Pump

P/N 900-3923-11 (Housing, Shaft Seal, and Displacement Limiter)

LOCATION	PART NUMBER	DESCRIPTION
1.	4510326	Bearing Kit, Front
2.	4510327	Swashplate Bearing Kit
3.	4510330	Bearing Kit, Rear
4.	1700050	Dias Spring
5.	1700890	Swashplate
6.	5000569	Servo Piston Seal
7.	5000581	O-Ring
8 a.	1700542	Valve Plate, CW, KRR (SB-2001-023)
b.	1700202	Valve Plate, CW, KRR
c.	1700210	Valve Plate, CCW, KRL
9.	1700257	Check Valve Spring (SB-2001-020)
10.	1700256	Check Valve Spring (SB-2001-020)
11.	1700259	Cylinder Block Kit, 41/45cc
12.	1700551	Cylinder Block
13.	3104095	Washer
14.	3103486	Spring
15.	3103485	Spring Retainer
16.	019026	Retaining Ring
17.	4700091	Slipper Hold Down Pin
18.	3103487	Slipper Retainer Guide
19.	3103488	Slipper Retainer
20.	3104068	Piston Assembly

FEEDWHEEL HYDRAULIC MOTOR

900-3919-99



Smoracy, LLC

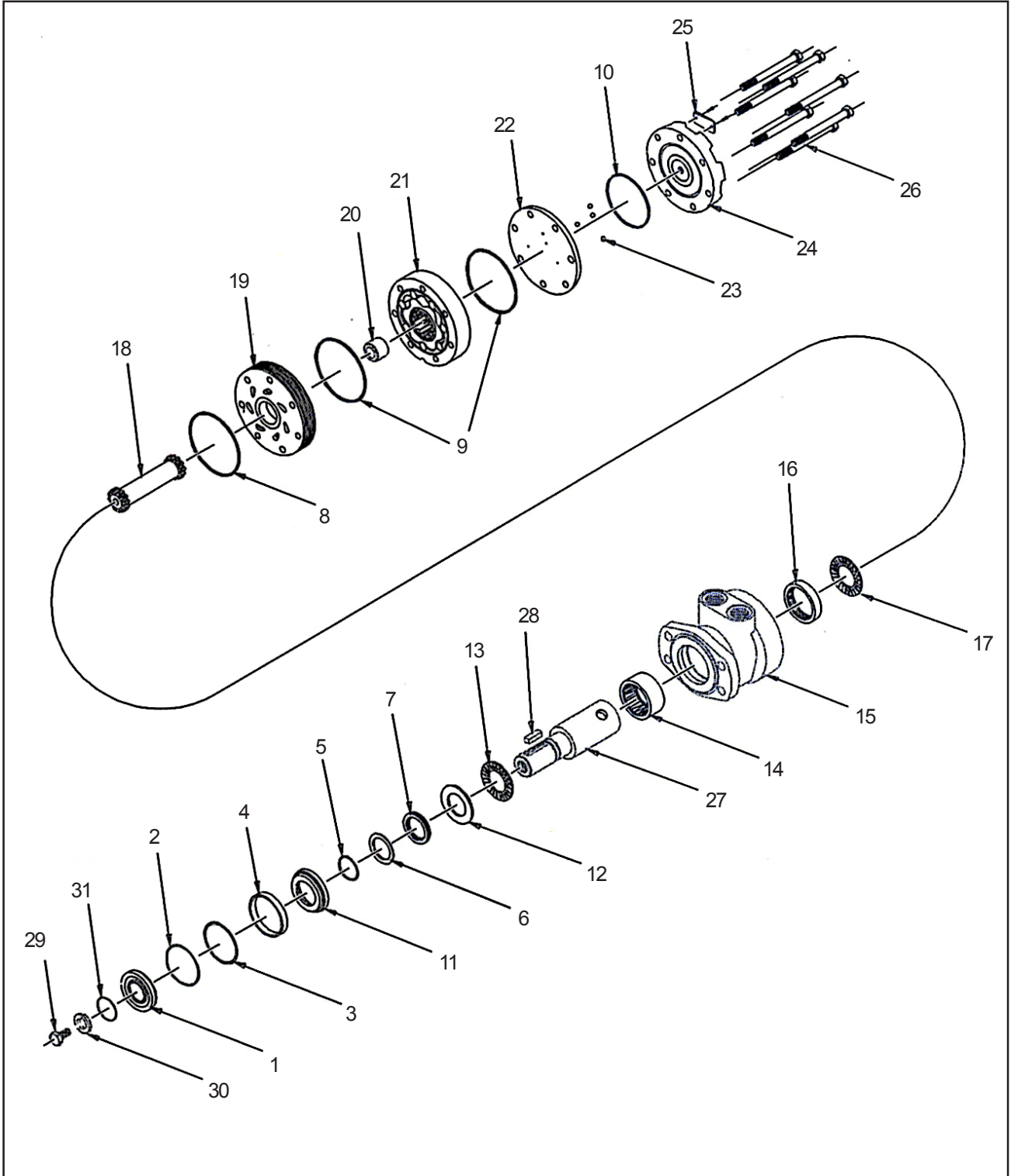
FEEDWHEEL HYDRAULIC MOTOR

900-3919-99

LOCATION	PART NUMBER	DESCRIPTION
1.	2183	Seal, Dust
2.	2177	Back Up Ring
3.	2175	Seal, Lip
4.	SM014010	Valve Plate
5.	1021	Check Valve Ball (.25 Dia.)
6.	SM016407004-A1	3 Speed IGR Assembly
7.	1296	Snap Ring, .109 Thick (Extra Heavy Duty)
8.	1046	Square Ring Seal (7/16")
9.	036297	Case Drain Plug w/O-ring
10.	021438	3 Speed Hex Bolt
11.	1655	Key, Woodruff 1.0 X .25"
12.	2109-X	Shaft, 1" keyed
13.	Not applicable	
14.	1157	Snap Ring Valve (Thru Shaft)
15.	PA-2328-5	SAE "B" 2 bolt O-ring
17.	M110C-1	Cover/Bearing Assembly
18.	Not applicable	
19.	2263	Seal Kit/ Body
21.	2180	Snap Ring (.05 Thick)
22.	1865	Commutator Plate

AUGER MOTOR

900-3924-31



Smoracy, LLC

AUGER MOTOR

900-3924-31

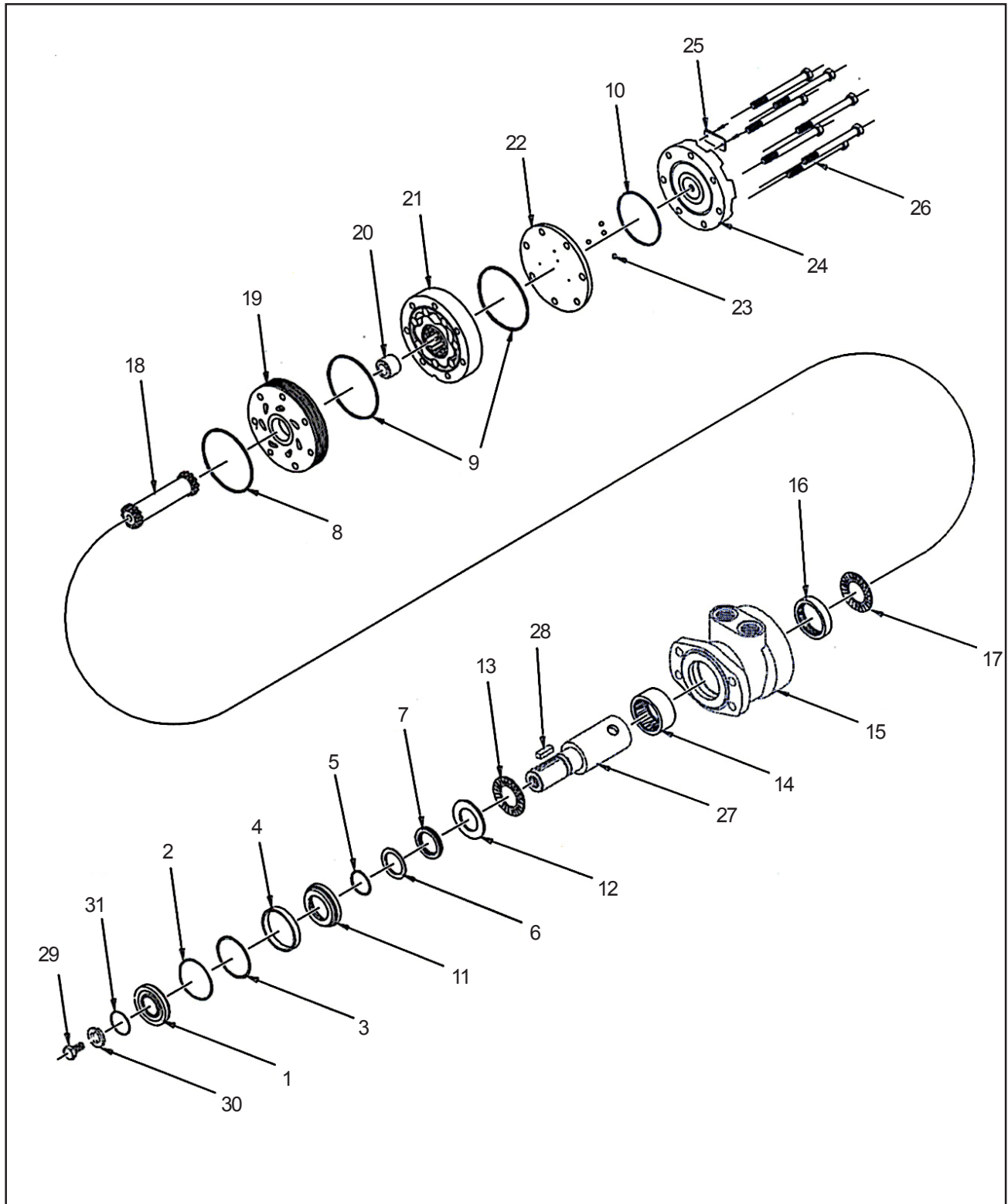
LOCATION	PART NUMBER	DESCRIPTION
1.	**	Dust Seal
2.	**	Housing Seal
3.	**	Metal Backup Shim
4.	**	High Pressure Seal
5.	**	Metal Backup Shim
6.	**	Polyamide Seal
7.	**	Shaft Seal
8.	**	Rear Housing Seal
9.	**	Body Seals (2)
10.	**	End Cover Seal
11.	**	Seal Carrier
12.	**	Thrust Washer
13.	500018252	Front Thrust Bearing
14.	500018003	Front Housing Bearing (1" Wide)
15.	500130823	Housing
16.	500018002	Rear Housing Bearing (1/2" Wide)
17.	500018059	Rear Thrust Bearing
18.	500014008	Drive Link Kit
19.	500015006	Forward Manifold
20.	500018178	Drive Link Spacer
21 a.	----	Rotor
b.	500607005	Standard Rotor Kit
c.	500607011	Freeturn Rotor Kit
22.	500012001	Balance Plate (3 Balls Included)
23.	500018048	Steel Ball
24.	500016001	End Cover
25.	----	Tag
26.	500445045	Bolt Set
27.	Long 1 1/4"	Shaft
28.	500449102	Key
29.	500449301	Bolt
30.	500449302	Washer
31.	500449201	Wire Ring
32.	500444001	Seal Kit

NOTE: Items 1-12 are included in the seal kits.

Smoracy, LLC

INFEEED MOTOR, THREE SPEED

900-3913-70



Smoracy, LLC

INFEED MOTOR, THREE SPEED

900-3913-70

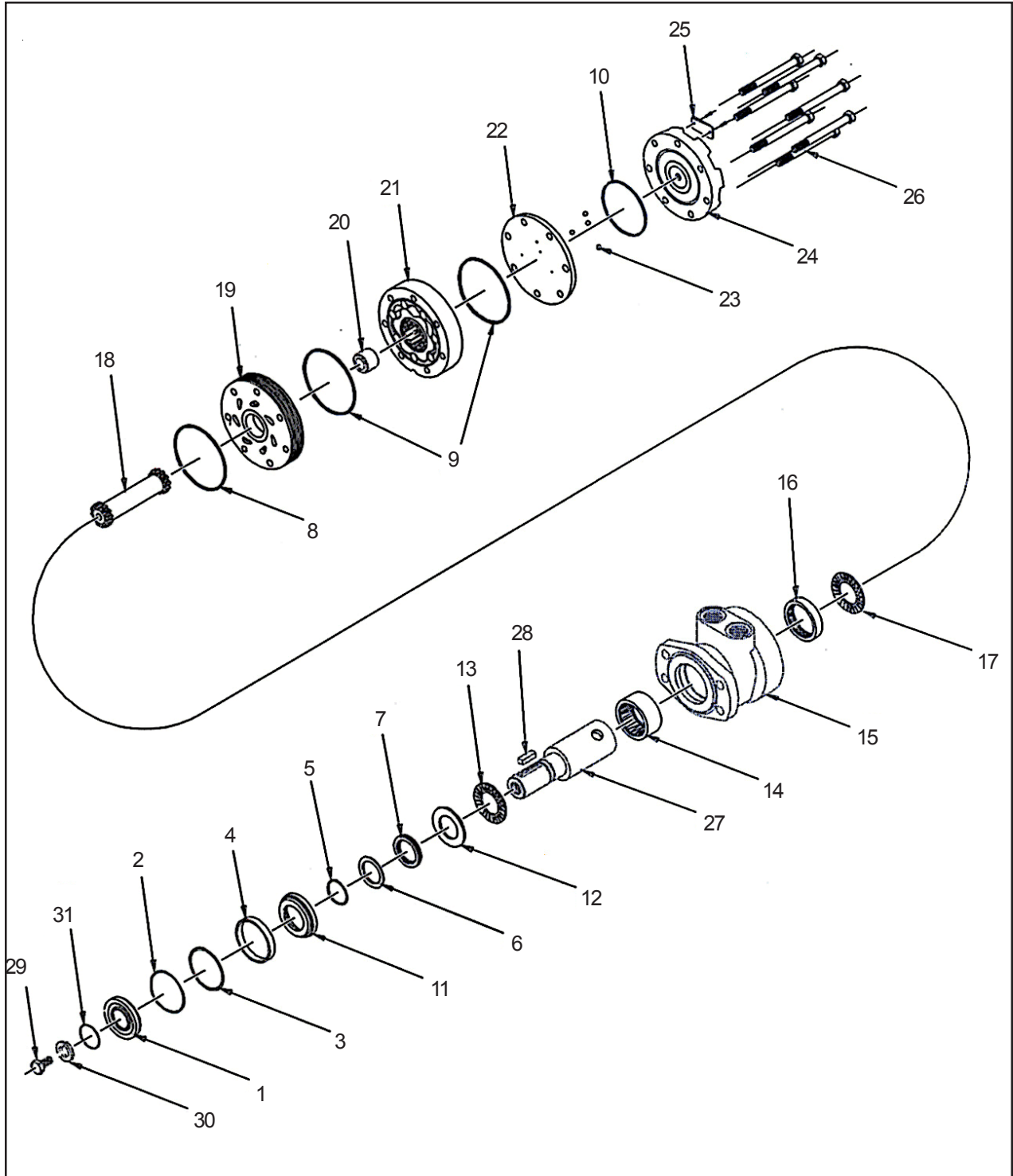
LOCATION	PART NUMBER	DESCRIPTION
1.	**	Dust Seal
2.	**	Housing Seal
3.	**	Metal Backup Shim
4.	**	High Pressure Seal
5.	**	Metal Backup Shim
6.	**	Polyamide Seal
7.	**	Shaft Seal
8.	**	Rear Housing Seal
9.	**	Body Seals (2)
10.	**	End Cover Seal
11.	**	Seal Carrier
12.	**	Thrust Washer
13.	500018252	Front Thrust Bearing
14.	500018003	Front Housing Bearing (1" Wide)
15.	500130823	Housing
16.	500018002	Rear Housing Bearing (1/2" Wide)
17.	500018059	Rear Thrust Bearing
18.	500014007	Drive Link Kit
19.	500015006	Forward Manifold
20.	Not applicable	
21 a.	----	Rotor
b.	500247005	Standard Rotor Kit
c.	500247011	Freeturn Rotor Kit
22.	500012001	Balance Plate (3 Balls Included)
23.	500018048	Steel Ball
24.	500016001	End Cover
25.	----	Tag
26.	500445018	Bolt Set
27.	500011200	Shaft
28.	500449102	Key
29.	500449301	Bolt
30.	500449302	Washer
31.	500449201	Wire Ring
32.	500444003	Seal Kit

NOTE: Items 1-12 are included in the seal kits.

Smoracy, LLC

SINGLE SPEED DISCHARGE MOTOR

900-3901-39



Smoracy, LLC

SINGLE SPEED DISCHARGE MOTOR

900-3901-39

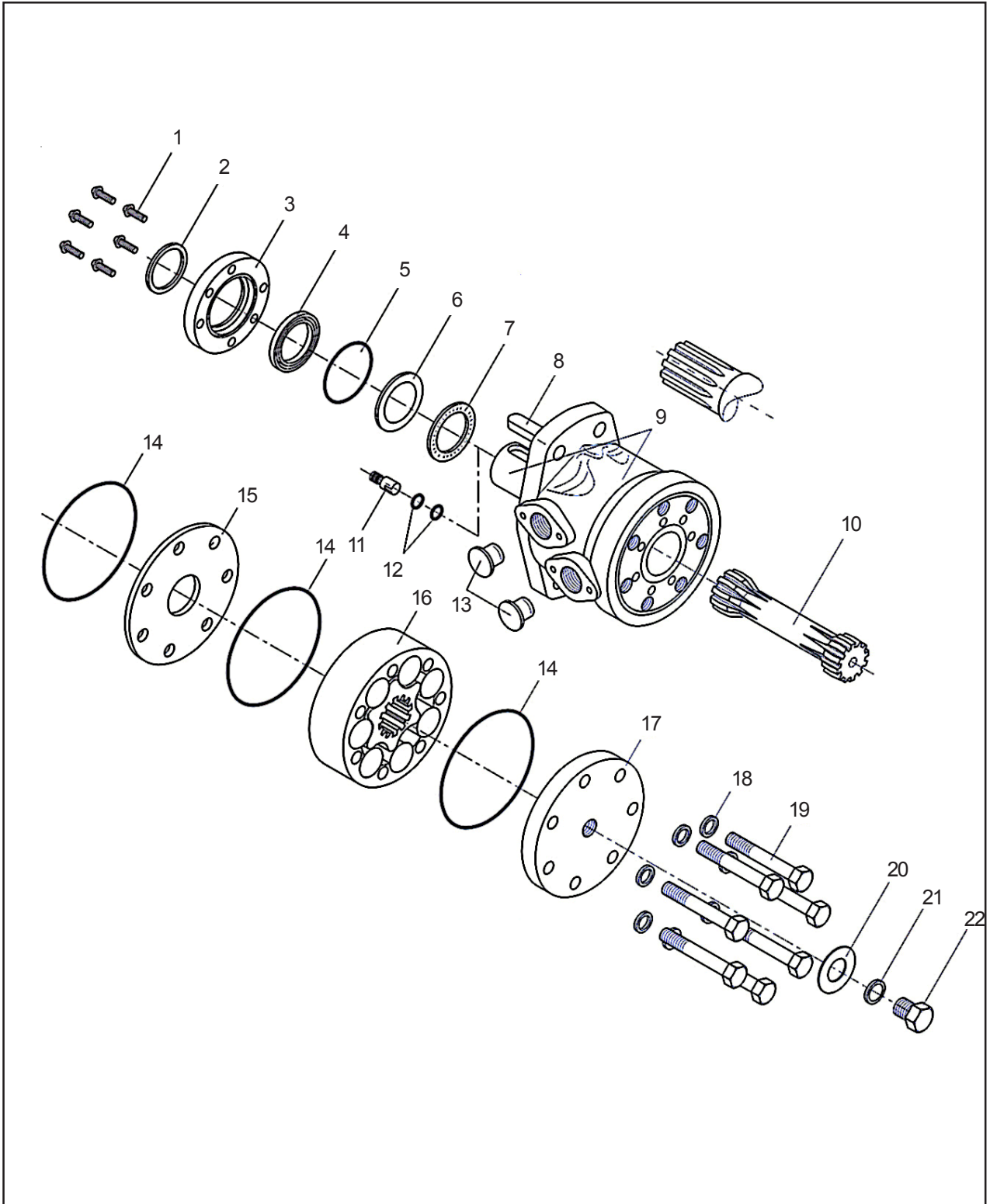
LOCATION	PART NUMBER	DESCRIPTION
1.	**	Dust Seal
2.	**	Housing Seal
3.	**	Metal Backup Shim
4.	**	High Pressure Seal
5.	**	Metal Backup Shim
6.	**	Polyamide Seal
7.	**	Shaft Seal
8.	**	Rear Housing Seal
9.	**	Body Seals (2)
10.	**	End Cover Seal
11.	**	Seal Carrier
12.	**	Thrust Washer
13.	500018252	Front Thrust Bearing
14.	500018003	Front Housing Bearing (1" Wide)
15.	500130823	Housing
16.	500018002	Rear Housing Bearing (1/2" Wide)
17.	500018059	Rear Thrust Bearing
18.	500014008	Drive Link Kit
19.	500015006	Forward Manifold
20.	Not Applicable	
21	----	Rotor
a.	500307005	Standard Rotor Kit
b.	500307011	Freeturn Rotor Kit
22.	500012001	Balance Plate (3 Balls Included)
23.	500018048	Steel Ball
24.	500016001	End Cover
25.	----	Tag
26.	500445024	Bolt Set
27	500011200	Shaft
28.	500449102	Key
29.	500449301	Bolt
30.	500449302	Washer
31.	500449201	Wire Ring
32.	500444002	Seal Kit

NOTE: Items 1-12 are included in the seal kits.

Smoracy, LLC

CONSTANT SPEED MOTOR

900-3923-12



Smoracy, LLC

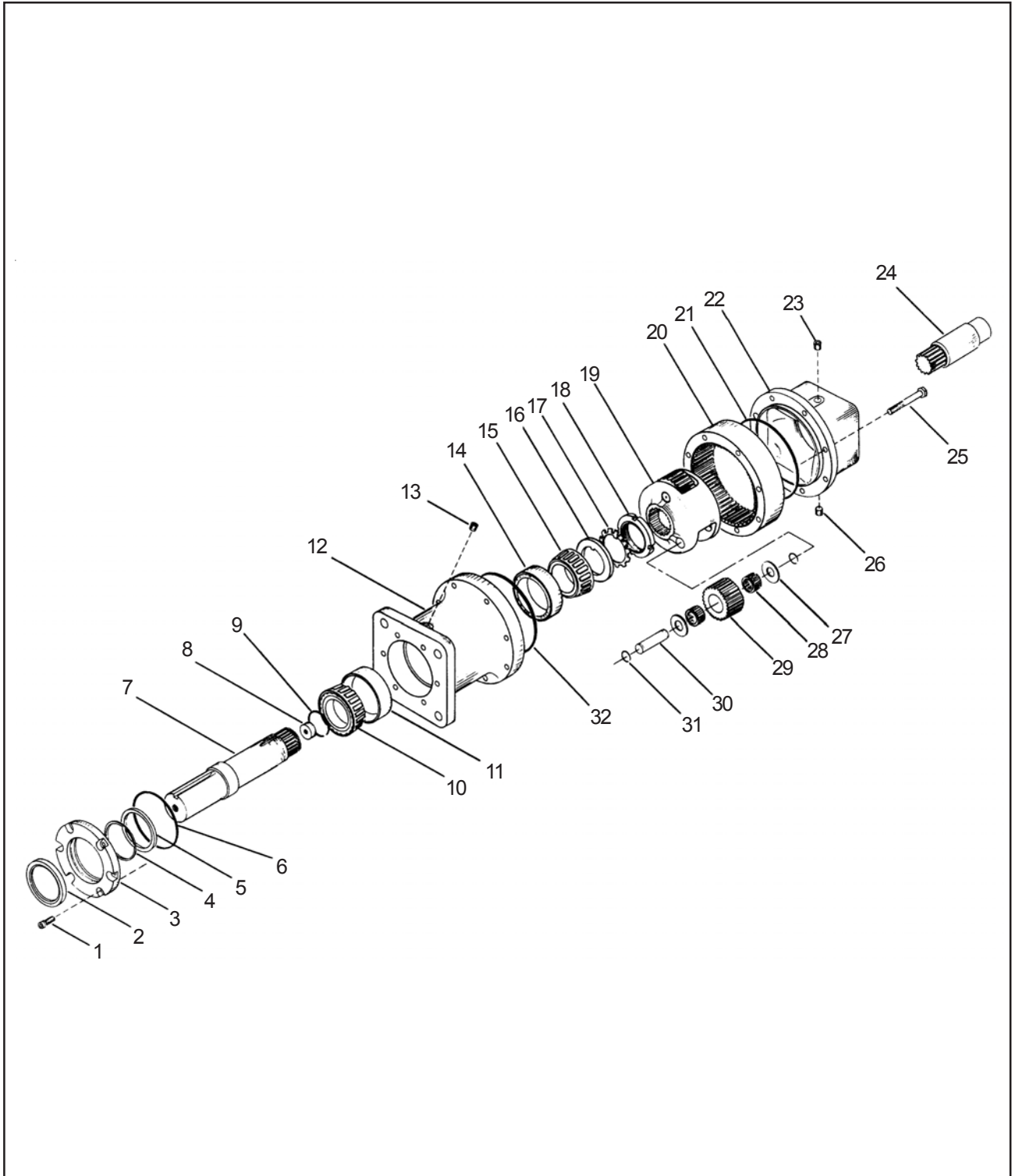
CONSTANT SPEED MOTOR

900-3923-12

LOCATION	PART NUMBER	DESCRIPTION
1.	681X1989	Screw (M6; 1 = 16mm, Torx T30)
2 a.	633B3396	Dust Seal Ring (1 1/4" Dia., 1 1/4" Spl. Shaft 36 x 42 x 3.5)
b.	151-1313	Dust Seal Ring (1" SAE 6B Spline Shaft 28.5 x 35 x 4)
3 a.	151H0301	Spigot Flange (1 1/4" Dia., 1 1/4" Spl. Shaft 36 x 42 x 3.5)
b.	151H0386	Spigot Flange (1" SAE 6B Spline Shaft 28.5 x 35 x 4)
4 a.	633B3395	Shaft Seal (1 1/4" Dia., 1 1/4" Spl. Shaft 36 x 48 x 5.5)
b.	633B3385	Shaft Seal (1" SAE 6B Spline Shaft 28.56 x 42 x 5.5)
5.	633B1528	O-Ring (53 x 2mm)
6.	981X9224	Bearing Race (37 x 52 x 3.5mm)
7.	981X9223	Axial Needle Bearing (36 x 52 x 3mm)
8.	151-4109	Parallel Key (32 Dia. x 35 Dia. mm shaft)
9.	Not Sold Separately	Housing And Output Shaft
10.	151H0338	Cardan Shaft (OMH 200)
11.	151-1076	Check Valve (Includes Item 12)
12.	633B1324	O-Ring (5 x 1.5mm)
13.	633X0017	Seal Plug
14.	633B1807	O-Ring (105 x 2mm)
15.	151H0305	Distributor Plate
16.	151H1253	Gearwheel Set (OMH 200)
17.	151H0311	End Cover
18.	684X2152	Washer (10 x 15 x 1mm)
19.	681X1501	Screw M10 X 1.5 (OMH 200)
20.	151A0411	Name Plate, Aluminum
21.	684X2120	Washer (13.5 x 1mm)
22.	151-5439	Drain Plug

INFEEED CONVEYOR GEAR BOX

900-3901-54



Smoracy, LLC

INFEED CONVEYOR GEAR BOX

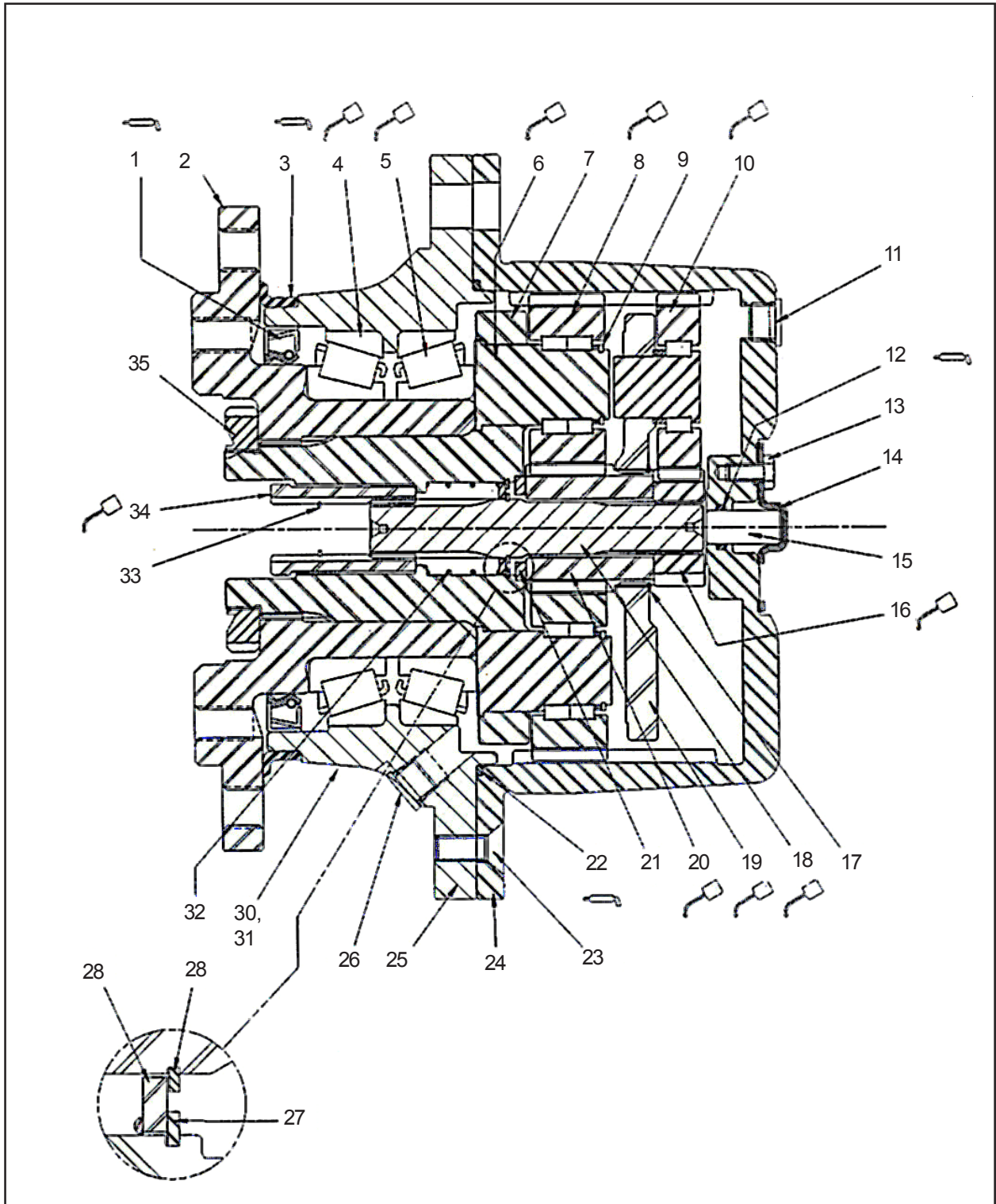
900-3901-54

LOCATION	PART NUMBER	DESCRIPTION
1.	15111	Cap Screw
2.	15106	Shaft Seal
3.	15056	Seal Carrier
4.	15105	Backup Ring
5.	15301	Quad Ring
6.	15133	O-Ring
7.		Output Shaft
8.	150152	Thrust Washer
9.	15011	Retaining Washer
10.	15118	Cone
11.	15128	Cup
12 a.	15052	Front Flange
b.	15055	Center Flange
13.	15129	Pipe Plug
14.	15128	Cup
15.	15118	Cone
16.	15163	Keyed Washer
17.	15162	Lock Washer
18.	15138	Lock Nut
19.	15004	Planet Carrier
20.	15003	Internal Gear
21.	15102	O-ring
22.		Motor Adapter
23.	15129	Pipe Plug
24.		Sun Gear Kit
25.	15110	Bolt
26.	15129	Pipe Plug
27.	15112	Thrust Washer
28.	15115	Planet Bearing
29.	15006	Planet Gear
30.	15008	Planet Pin
31.	15107	Retaining Ring
32.	15102	O-Ring

Smoracy, LLC

FEEDWHEEL GEARBOX

900-3916-83



Smoracy, LLC

FEEDWHEEL GEARBOX

900-3916-83

LOCATION	PART NUMBER	DESCRIPTION
1.	9013176	Seal, Lip
2.	R2400703	Spindle
3.	9013140	Seal, Boot
4.	7500807	BRG, Tapered - Cup
5.	7500808	BRG, Tapered - Cone
6.	R2220102A	BRG, Cylinder Roller
7.	R2230503	Carrier (Output)
8.	R2320001	Gear, Planet
9.	9100235	RET, Ring - EXT
10.	R2310002A	Gear, Planet Assembly
11.	951009	Pipe Plug, O-Ring
12.	940001	O-Ring
13.	930003	Bolt, HEX 1/4-20UNC X 1/2 Grade 5
14.	1900401	Disengage, Cap
15.	R2920101	Disengage, Rod
16.	R2110002	Gear, Sun
17.	9100221	RET, Ring - EXT
18.	R2100108	Shaft, Input
19.	R2220512	Carrier
20.	R2130001	Gear, Sun
21.	901043	Washer, Thrust
22.	9165000262	O-Ring
23.	930904	Bolt, Flat HD - Hex SKT (3/8-16)
24.	R2500006	Gear, Ring
25.	R2500605	Housing
26.	951009	Pipe Plug, O-Ring
27.	910059	RET, Ring-INT
28.	1901009	Washer, Thrust
29.	910014	RET, Ring-EXT
30.	901202	Plate, ID
31.	930301	Screw, Drive
32.	901522	Spring
33.	910043	RET, Ring-INT
34.	R2100205	Coupling
35.	9800150	Nut, BRG

Smoracy, LLC

SEAL KITS FOR GRESEN VALVES



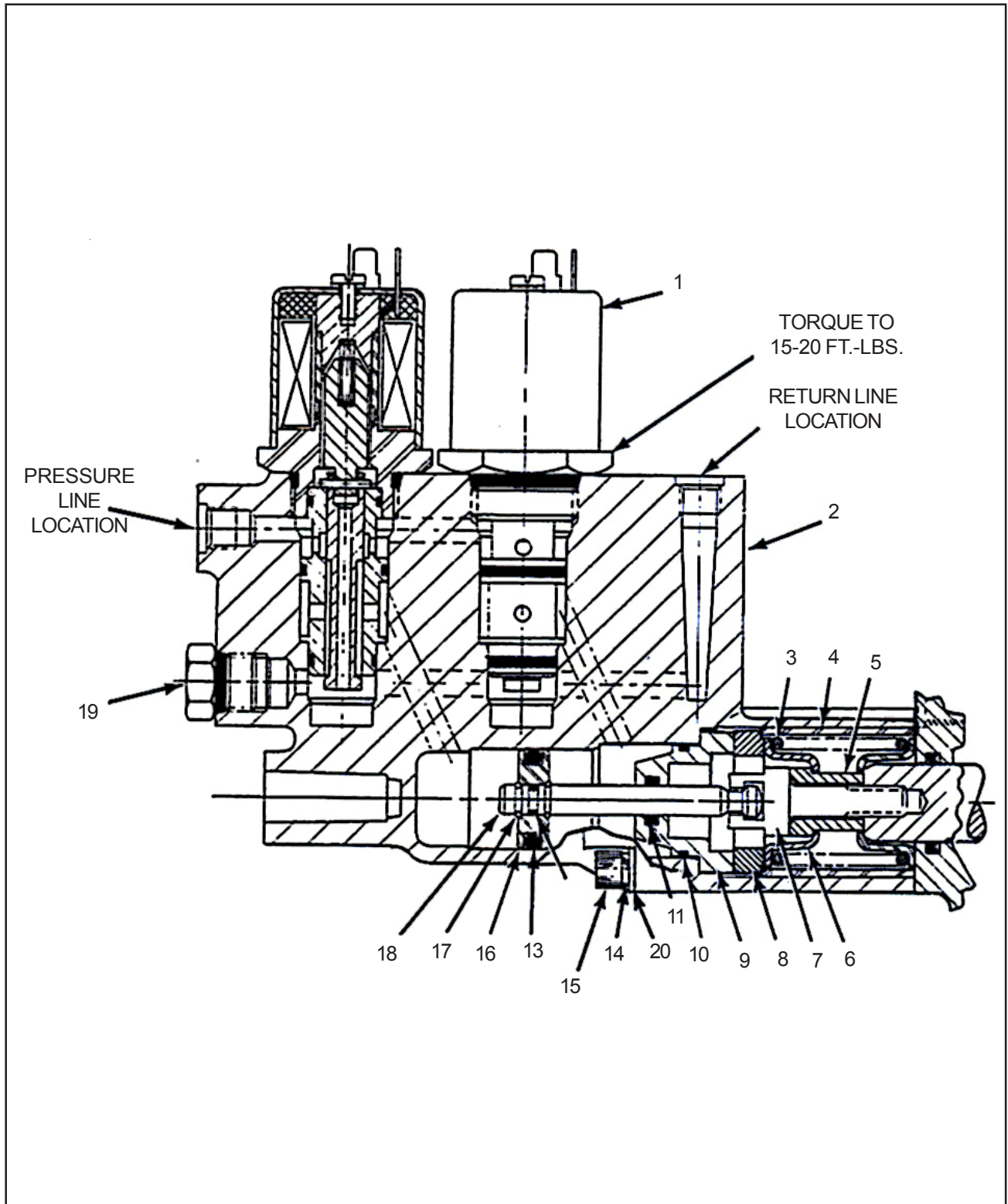
Complete Valve Assembly (24 Volt) 900-3916-72

Smoracy, LLC

SEAL KITS FOR GRESEN VALVES

LOCATION	PART NUMBER	DESCRIPTION
1.	4K-6027	Work Section Kit
2 a.		Inlet Cover Kit
b.		Mid inlet Cover Kit
c.		Utility Section Kit
3 a.	5K-6072	Fitting Kit
b.	5K-6073	Fitting Kit
4 a.	0-2709001	Power Beyond (O-Ring)
b.	0-1910001	Power Beyond (O-Ring)
5. a.	K-6077	Solenoid Cartridge O-Ring Seal Kit
b.	900-3915-71	Solenoid Valve Cartridge Replacement Assembly (24 Volt)
6.	1K-28078	PRV Seal Kit
7.	2K-6005	RC Relief Kit
8.	3K-19005	RP51A KIT

PILOT CONTROL

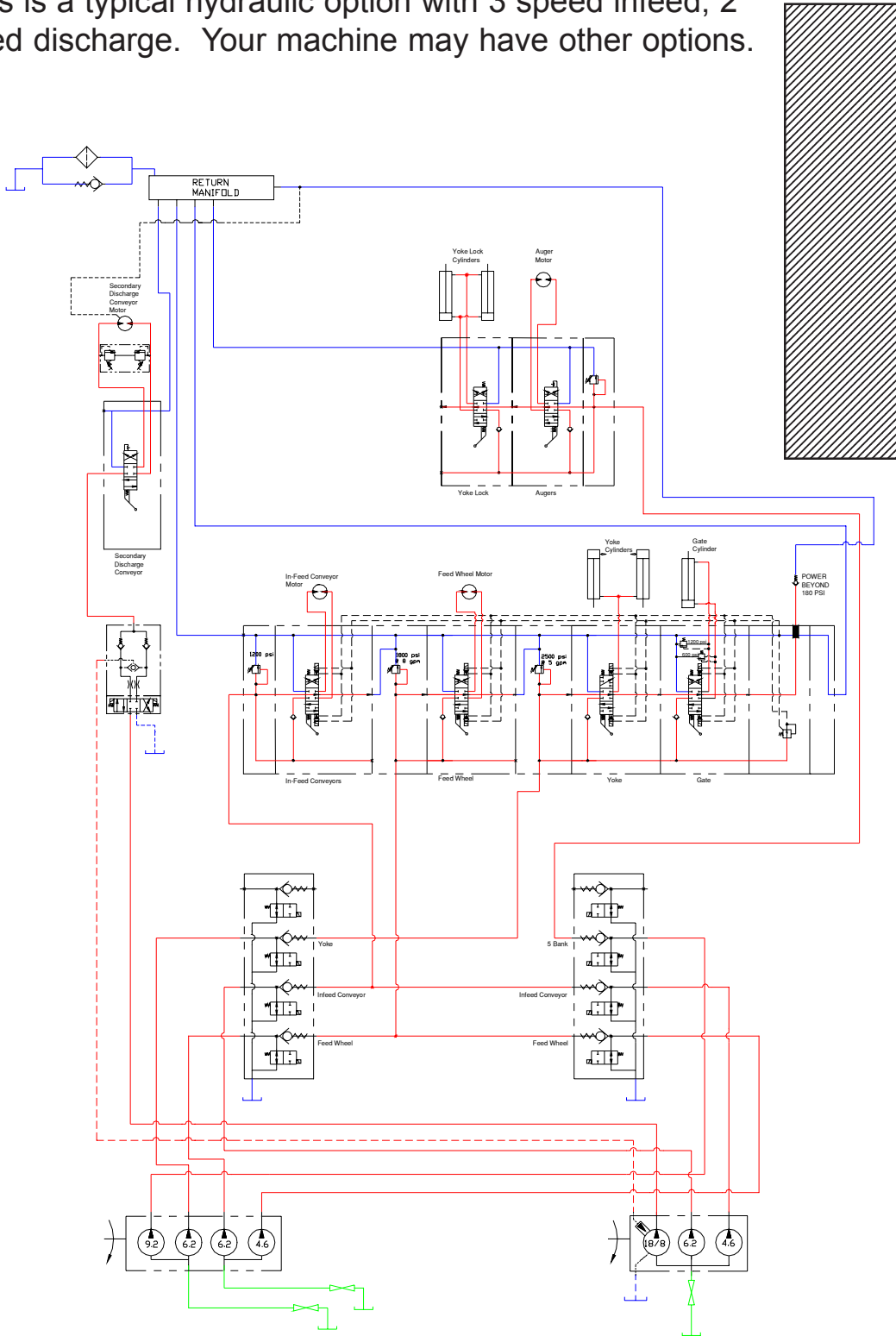


Smoracy, LLC

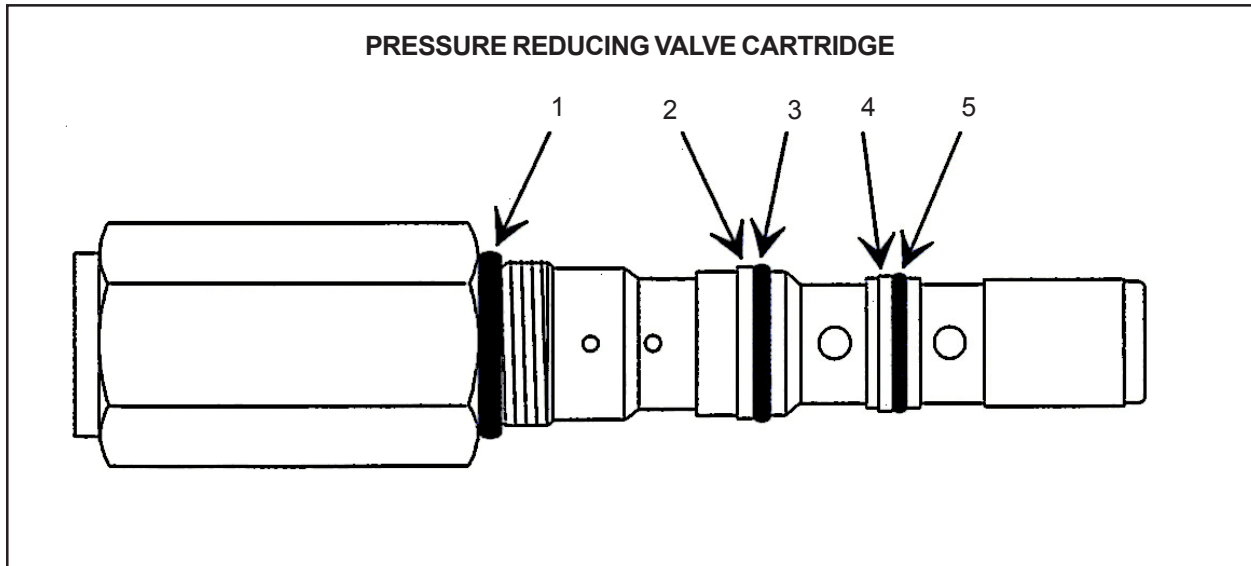
PILOT CONTROL

LOCATION	PART NUMBER	DESCRIPTION
1.	900-3915-71	Cartridge, Solenoid Valve, 24 VDC
2.	7850-001	Housing Actuator
3.	8300-001	Spring
4.	8298-001	Spacer
5.	10818-001	Spacer
6.	10819-001	Collar, Spring
7.	8297-001	Screw, Spool
8.	8293-001	Spacer
9.	7858-001	Guide, Piston Rod
10.	7028-002	Seal, O-Ring
11.	7854-001	Seal, O-Ring
12.	3191-001	Seal, O-Ring
13.	7700-001	Seal, O-Ring
14.	0563-001	Washer, Lock
15.	3731-111	Screw, Socket Head Cap, 1/4-20 x 3.50
16.	7856-001	Piston
17.	7855-001	Ring, Retaining
18.	7857-001	Rod, Piston
19.	3637-001	Plug, SAE 6 (With O-Ring)
20.	7904-001	Plate, Bearing

This is a typical hydraulic option with 3 speed infeed, 2 speed discharge. Your machine may have other options.



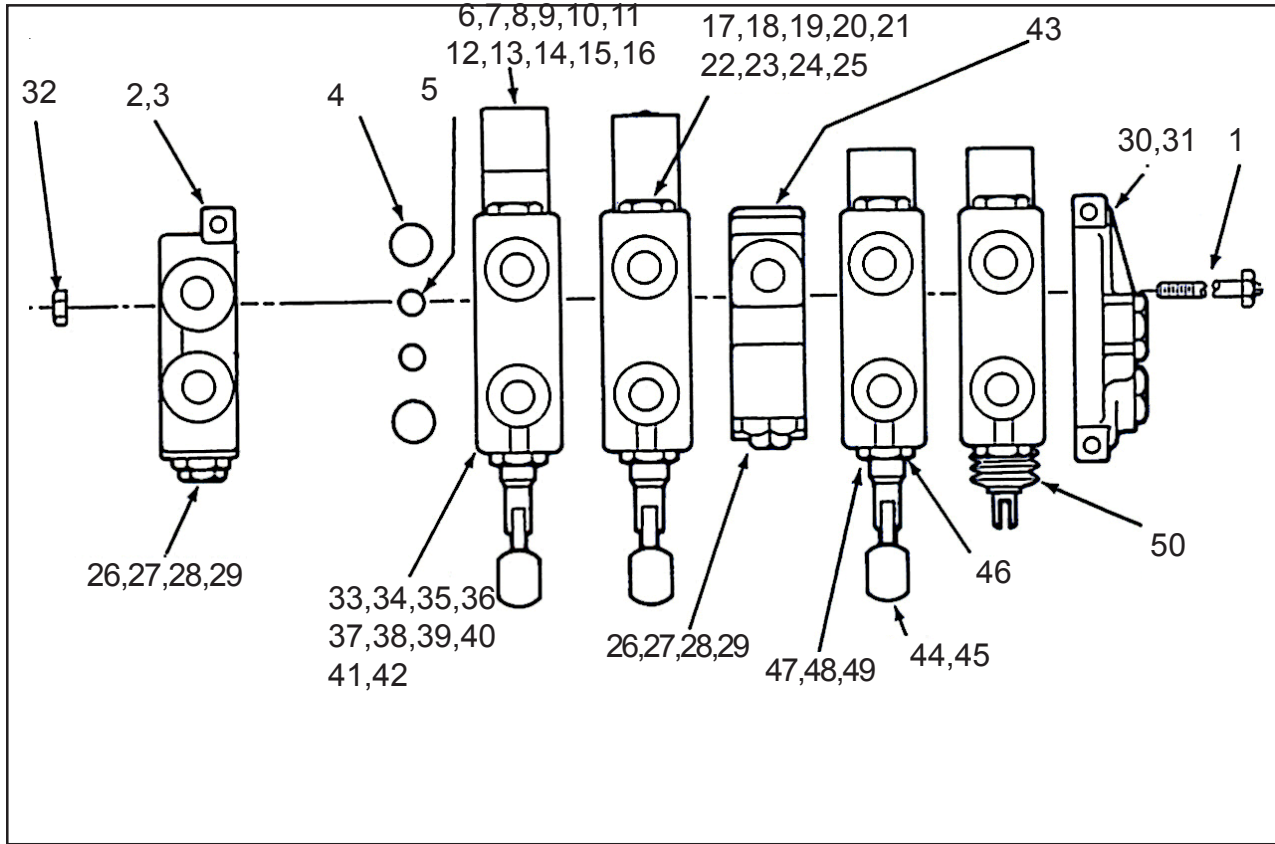
GRESEN VALVE PILOT FEED SECTION



PRESSURE REDUCING VALVE CARTRIDGE

LOCATION	PART NUMBER	DESCRIPTION
	12956001	Pressure Reducing Valve Cartridge
1.	02707001	O-Ring Seal
2.	03092001	Backup Ring
3.	07829001	O-Ring Seal
4.	00682001	Backup Ring
5.	01091001	O-Ring Seal
6.	08569001	Cartridge Seal Kit (contains 1-5)

GRESEN DIRECTIONAL CONTROL VALVE



LOCATION	PART NUMBER	DESCRIPTION
1.	K-6111-C	Stud Kit, 8- section
2.	8398-	Cover
3.	7736-	Cover, with flow control
4.	21733-001	O-ring, Exhaust, Large
5.	21857-00	O-ring, Pressure, Small
	21866-001	O-ring, Load Sensing
6.		Positioner, Standard Spool
7.		Positioner, Manual Spool
8.		Positioner, Float Detent, 4 way, 4 position
9.		Detent, Option R, w/spring return to neutral
10.		Detent, Option D, 3 position
11.		Spring Extended Spool
12.		Electro-Magnetic Spool Release
13.		Positioner, Pressure Detent Release
14.		Positioner, Rotary
15.		Positioner, Standard Spool
16.		Positioner, Float Detent, 4 way, 4 position
17.		Check, Lockout
18.		Check, Anti-Cavitation
19.		Check, Anti-Cavitation, V20S
20.		Plug, Load Check
21.		Plug, Load Check, V20S

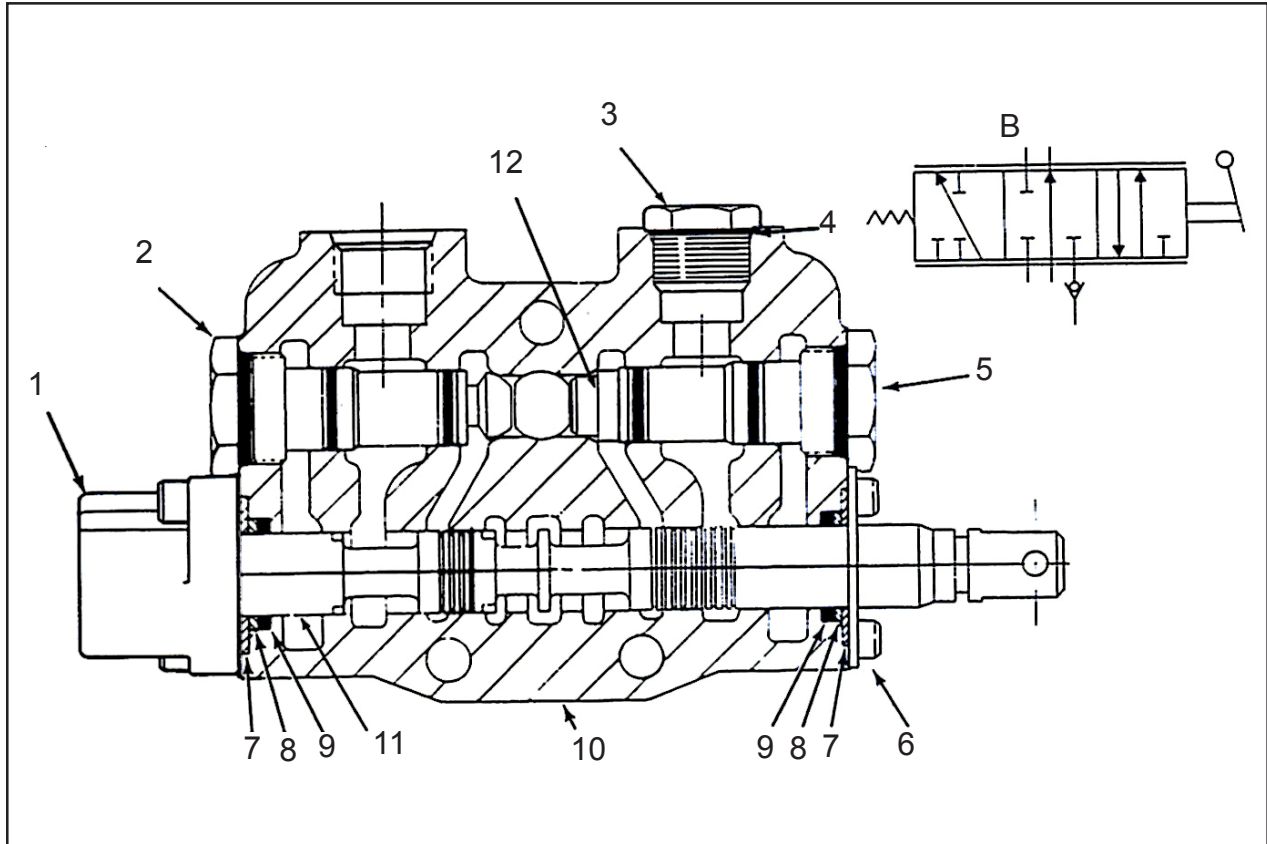
Smoracy, LLC

GRESEN DIRECTIONAL CONTROL VALVE

LOCATION	PART NUMBER	DESCRIPTION
22.		Relief, Work Port, Model RC
23.		Relief, Work Port, Model RCA
24.		Relief, Anti-Cavitation Check, Work Port, Model CRA
25.		Relief, Work Port, Model RCS
26.		Relief, Main, Model WH
27.		Relief, Main, Model WHA
28.		Relief, Main, Model RP51
29.		Plug, No Main Relief (NR)
30.	6770-	Cover, Right
31.	8644-	Cover, Right
32.	9310-006	Nut, Stud
33.	8072-	Valve Section, 4 way, 3 position
34.	8072-	Valve Section, 3 way, 3 position
43.	6825-007	Mid-Inlet Section, Split Flow, Top Inlet SAE 12
44.		Handle Assembly, Vertical
46.		Bracket, Standard Handle
47.	K-6033-B	Retainer, Seal, Standard
50.	K-6056-B	Boot Assembly, Spool Protective

3 WAY - 3 POSITION VALVE

GRESEN YOKE LIFT

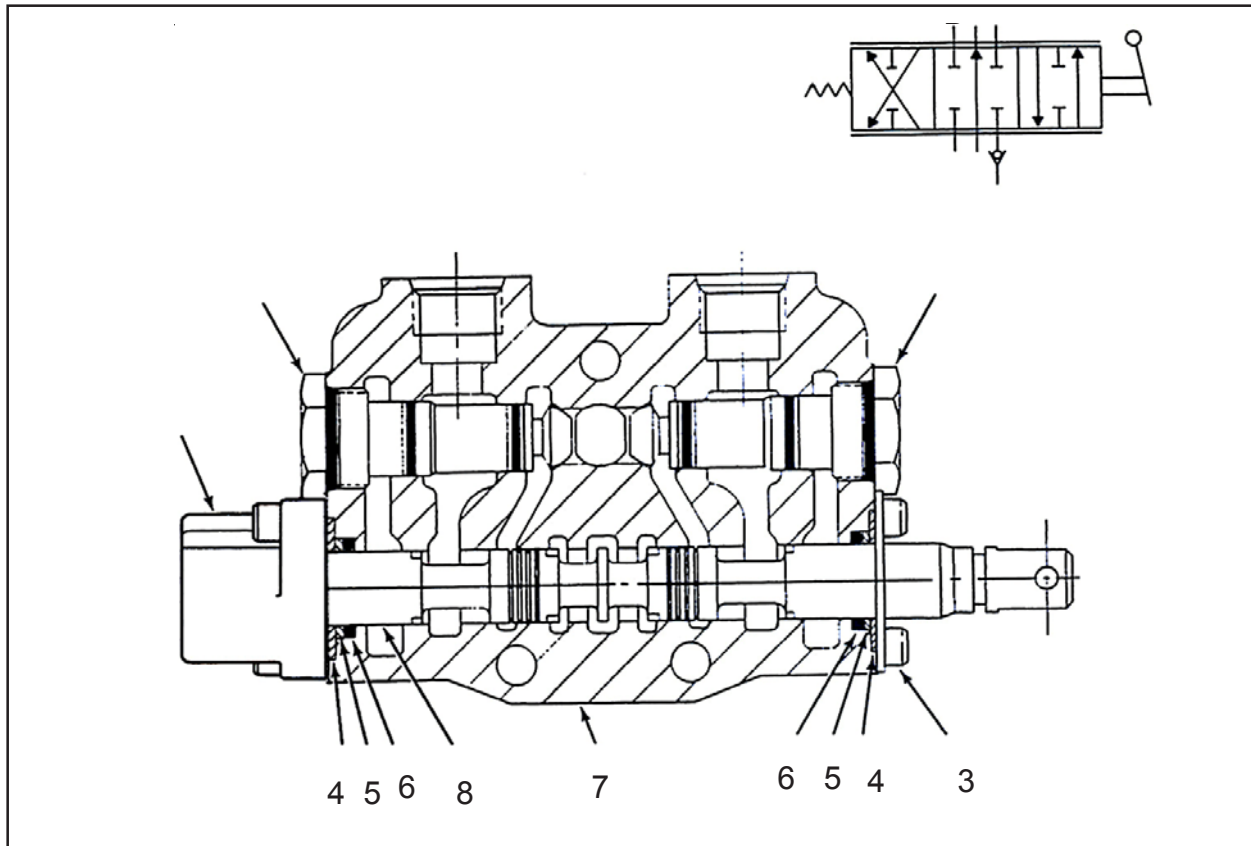


LOCATION	PART NUMBER	DESCRIPTION
1.	K-6125-B	Positioner, Spool, Standard
2.	K-6030-C	Check, Load
3.	1458-001	Plug, 3 way Conversion, SAE 10
4.	2707-001	Seal, O-ring, SAE10 Plug
5.	K-6030-C	Plug, Check (Load Check and Spring are not used)
6.	K-6033-B	Retainer Assembly
7.	6752-001	Retainer, Plate Washer
8.	3265-001	Washer, Back up
9.	7700-001	Seal, O-ring
10.	8072-	Housing
11.	8083-001	Spool, 3 way
12.	6754-001	Plug, 3 way

Smoracy, LLC

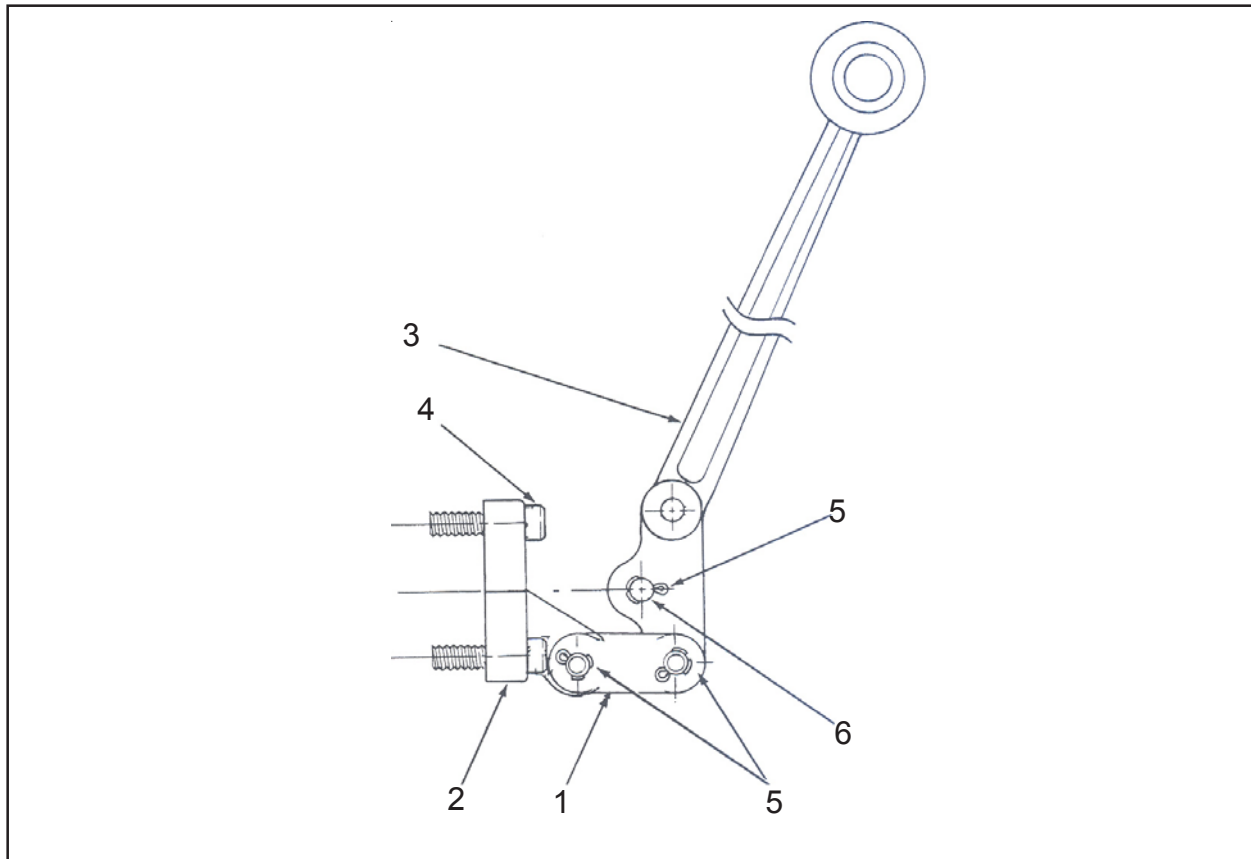
4 WAY - 3 POSITION VALVE

GRESEN INFEEED, FEEDWHEEL, GATE CYLINDER



LOCATION	PART NUMBER	DESCRIPTION
1.	K-6125-B	Positioner, Spool, Standard
2.	K-6030-C	Check, Load
3.	K-6033-B	Retainer Assembly, Standard
4.	6752-001	Retainer, Plate Washer
5.	3265-001	Washer, Back up
6.	7700-001	Seal, O-ring
7.	8072-	Housing, Standard
8.	8084-001	Spool, 4 way

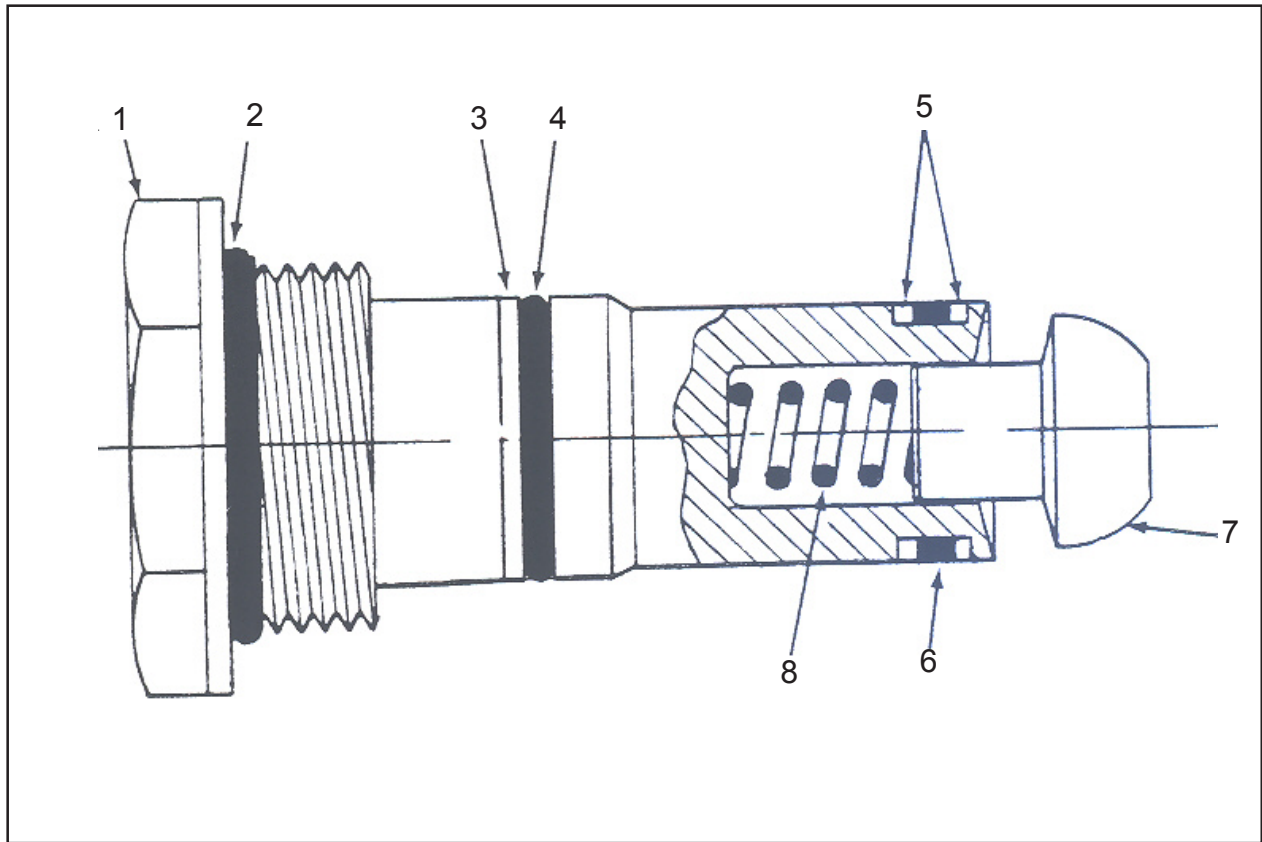
VERTICAL HANDLE & BRACKET ASSEMBLY



LOCATION	PART NUMBER	DESCRIPTION
1 a.	11393-001	Link
1 b.	11392-001	Plate, Link
2.	1801-001	Bracket, Die Cast
3.	1802-003	Handle, Plain (actual Beast handle cut off to accomodate cabinet door on four bank valve assembly).
4.	9161-407	Screw, HSHC
5.	0086-001	Pin, Cotter
6.	1857-001	Pin
7.	1800-001	Seal, Wiper (Not Shown)
8.	K-6137-A	Replacement Kit*

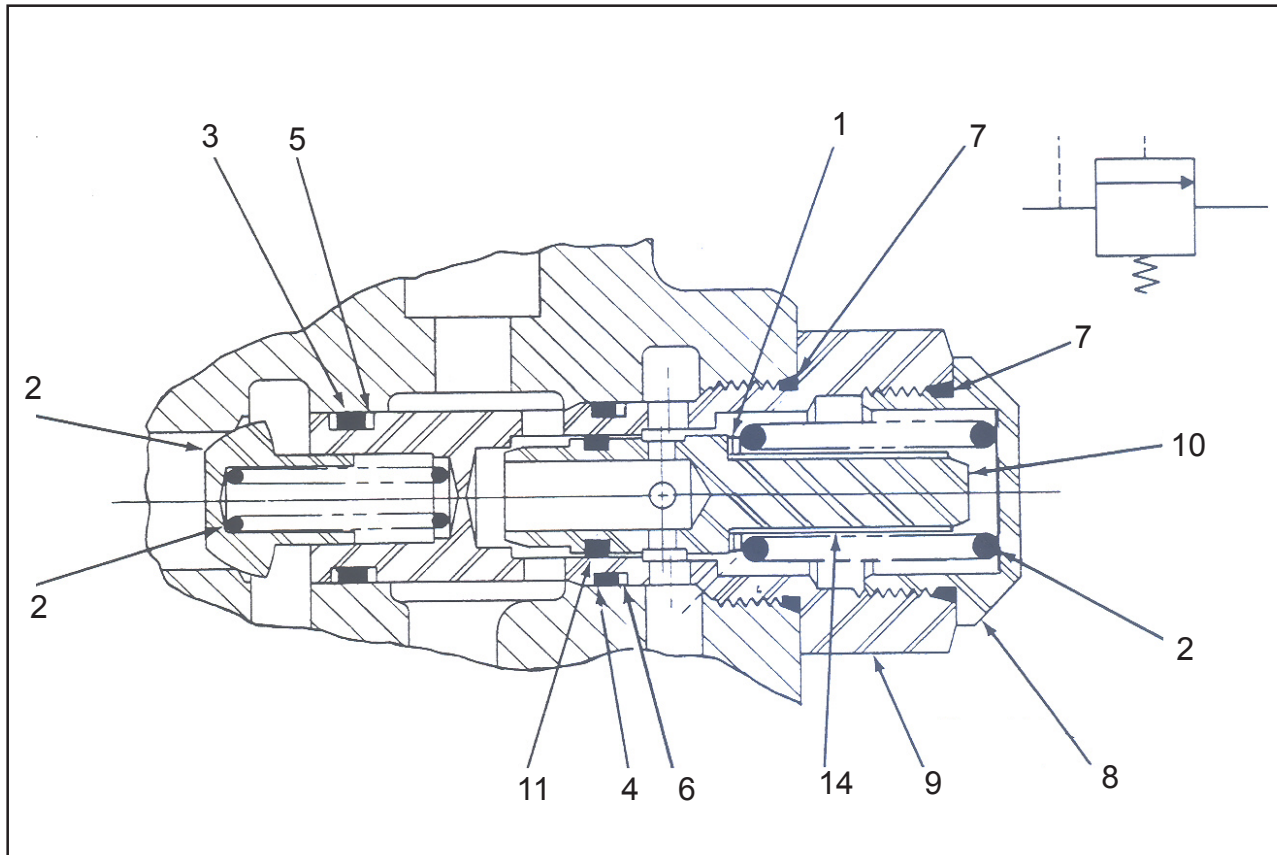
*Contains Items 2 and 4

GRESEN LOAD CHECK PLUG ASSEMBLY



LOCATION	PART NUMBER	DESCRIPTION
1.	3411-001	Plug, Lift Check, Steel
2.	2707-001	Seal, O ring
3.	1821-001	Washer, Back Up, Outer
4.	1819-001	Seal, O ring, Outer
5.	1820-001	Washer, Back up, Inner
6.	1818-001	Seal, O ring
7.	2781-001	Poppet, Lift Check
8.	1868-001	Spring, Lift Check
9.	K-6030-A	Replacement Load Check Plug Assembly

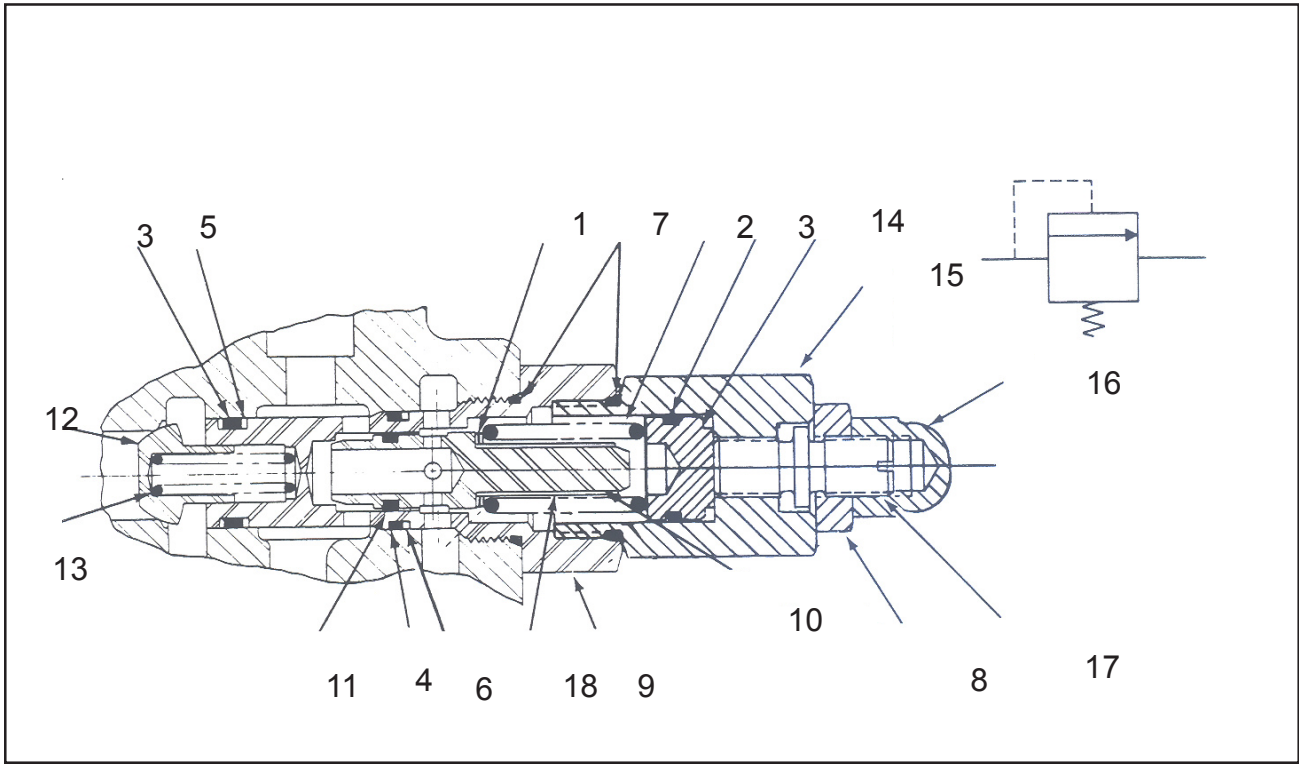
GATE CYLINDER PORT RELIEF



LOCATION	PART NUMBER	DESCRIPTION
1 a.	0458-001	Shim (.040 inch thick)
b.	0459-001	Shim (.020 inch thick)
c.	0462-001	Shim (.010 inch thick)
2	1869-001	Spring (500-1249 psi Crack)
3.	1818-001	Seal, O ring
4.	1819-001	Seal, O ring
5.	1820-001	Washer, Back up, Inner, Check Plug
6.	1821-001	Washer, Back up, Outer, Check Plug
7.	2707-001	Seal, O ring
8.	1880-001	Cap, Relief
9.	1884-001	Body, Relief
10.	1881-001	Poppet, Relief
11.	1883-001	Ring, Piston
12.	2781-001	Check, Steel
13.	1868-001	Spring, Check
14.	7874-001	Sleeve, Dampening
15.	K-19002	Service Kit

Smoracy, LLC

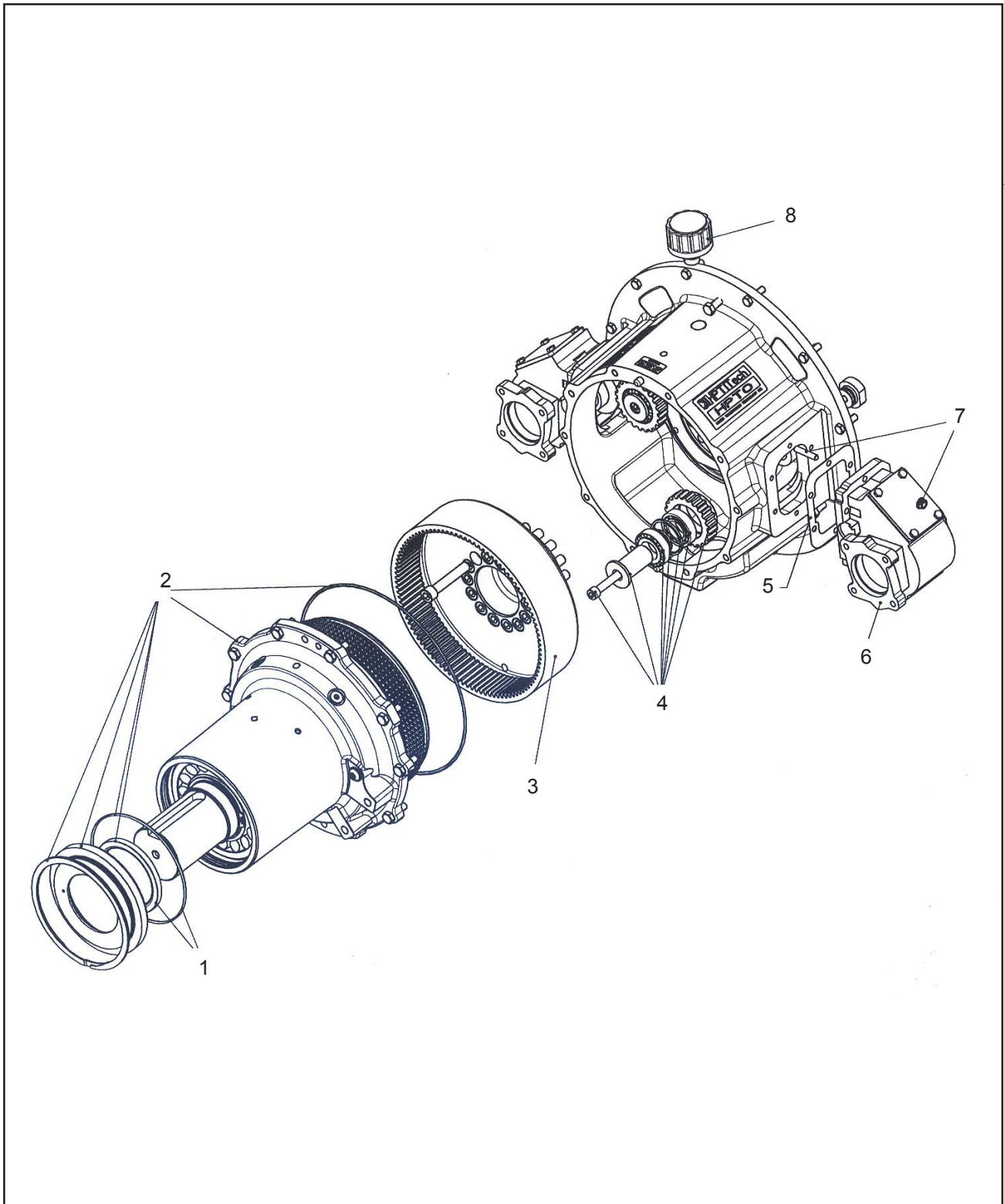
INFEEED, FEEDWHEEL, YOKE LIFT RELIEF



LOCATION	PART NUMBER	DESCRIPTION
1 a.	0458-001	Shim (.040 inch thick)
b.	0459-001	Shim (.020 inch thick)
c.	0462-001	Shim (.010 inch thick)
2. a.	7638-001	Spring, SS, 750-1500 psi
b.	7078-001	Spring, SS, 1250-2000 psi
c.	1870-001	Spring, SS, 1500-2500 psi
d.	7497-001	Spring, SS, 2000-3000 psi
3.	1818-001	Seal, O ring
4.	1819-001	Seal, O ring
5.	1820-001	Washer, Back up, Inner
6.	1821-001	Washer, Backup, Outer
7.	2707-001	Seal, O ring
8.	3500-001	Nut, Jam
9.	1884-001	Body, Relief
10.	1881-001	Poppet, Relief
11.	1883-001	Ring, Piston
12.	2781-001	Check, Steel
13.	1868-001	Spring, Check
14.	11481-001	Piston
15.	3498-001	Cap, Adjustable Relief
16.	3497-001	Nut, Acorn
17.	3496-001	Stem, Adjustable
18.	7874-001	Sleeve, Dampening
19.	K-19002	Service Kit

Smoracy, LLC

PT TECH CLUTCH



Smoracy, LLC

PT TECH CLUTCH

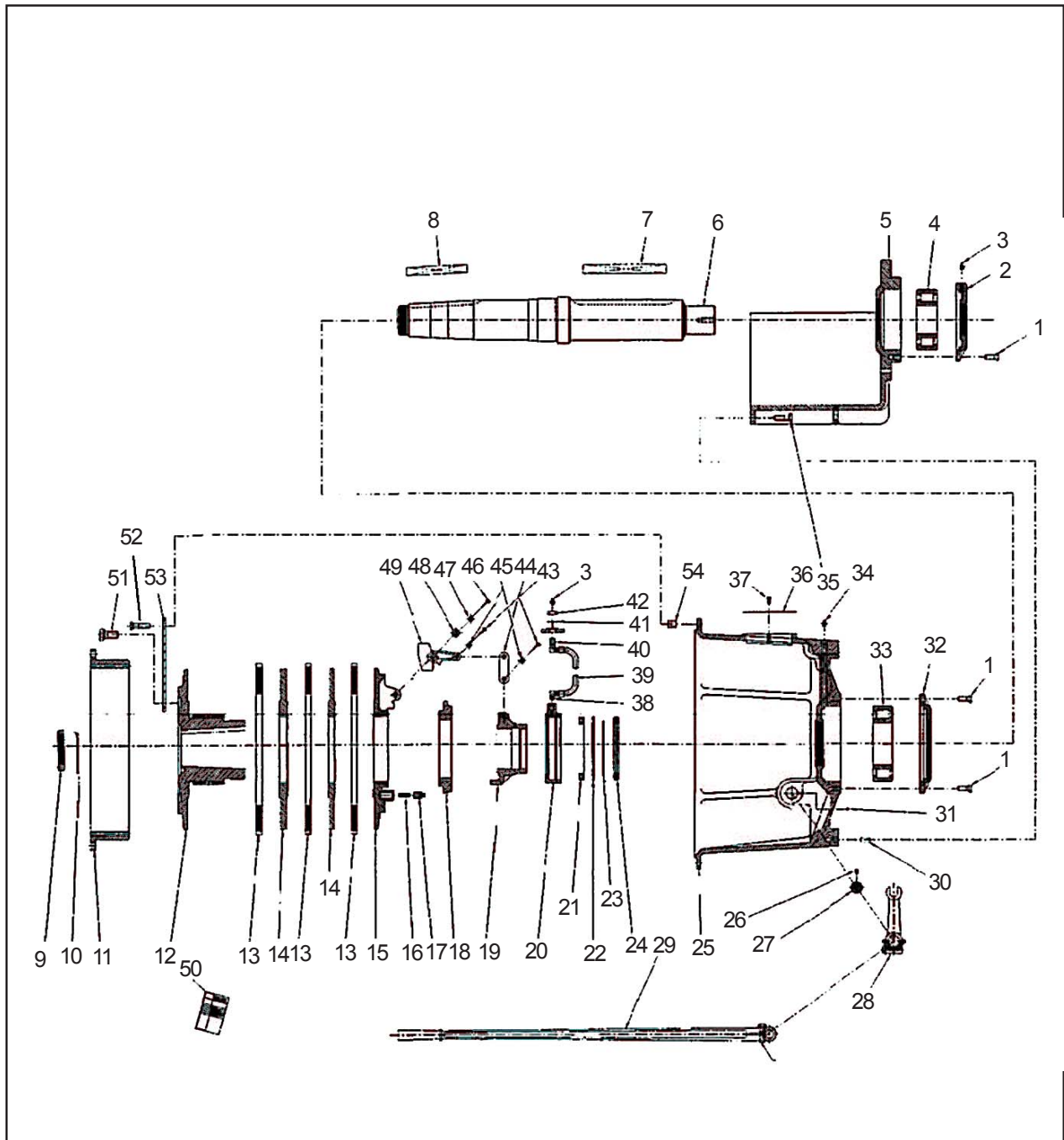
LOCATION	PART NUMBER	DESCRIPTION
1.	HPT014TD-60-100	Shaft Seal Kit
2.	HPT014TD	End Cover Sub Assembly
3.	HPT014DD	Clutch Body
4.	HPT014DD	Idler Gear Sub Assembly
5.	CHYGA-001	Gasket Pack
6.	CHYPD-RH-001	Pump Drive**
7.	CHYSK-001	Stud Kit
8.	SHFOB-012-002	Breather
9.	CHYOC-002	Oil Change Kit (Includes Breather)
10.	CECCL-001	12 Volt Coil
	CECCL-002	24 Volt Coil
11.	CHYPS-20S-001	Pressure Switch
12.	CHYTS-200-001	Temperature Switch
13.	CHYRV-220-001	Pressure Reducing Valve
	900-6908-12	Oil Filter (not shown)
	900-2910-27	Blue Flashing Strobe Light Assembly (not shown)
	900-2910-28	Strobe Light Flash Tube (not shown)

**Please see the pump drive maintenance section for proper lubrication of the pto driving the hydraulic pump. This drive requires periodic maintenance or costly repairs could be encountered.

If you have the Chelsea drive this would be Bulletin HY25-1135-M1/US

If you have the Muncie drive this would be IN84-03

TWIN DISC CLUTCH



MODEL SP318SBO POWER TAKE OFF

Smoracy, LLC

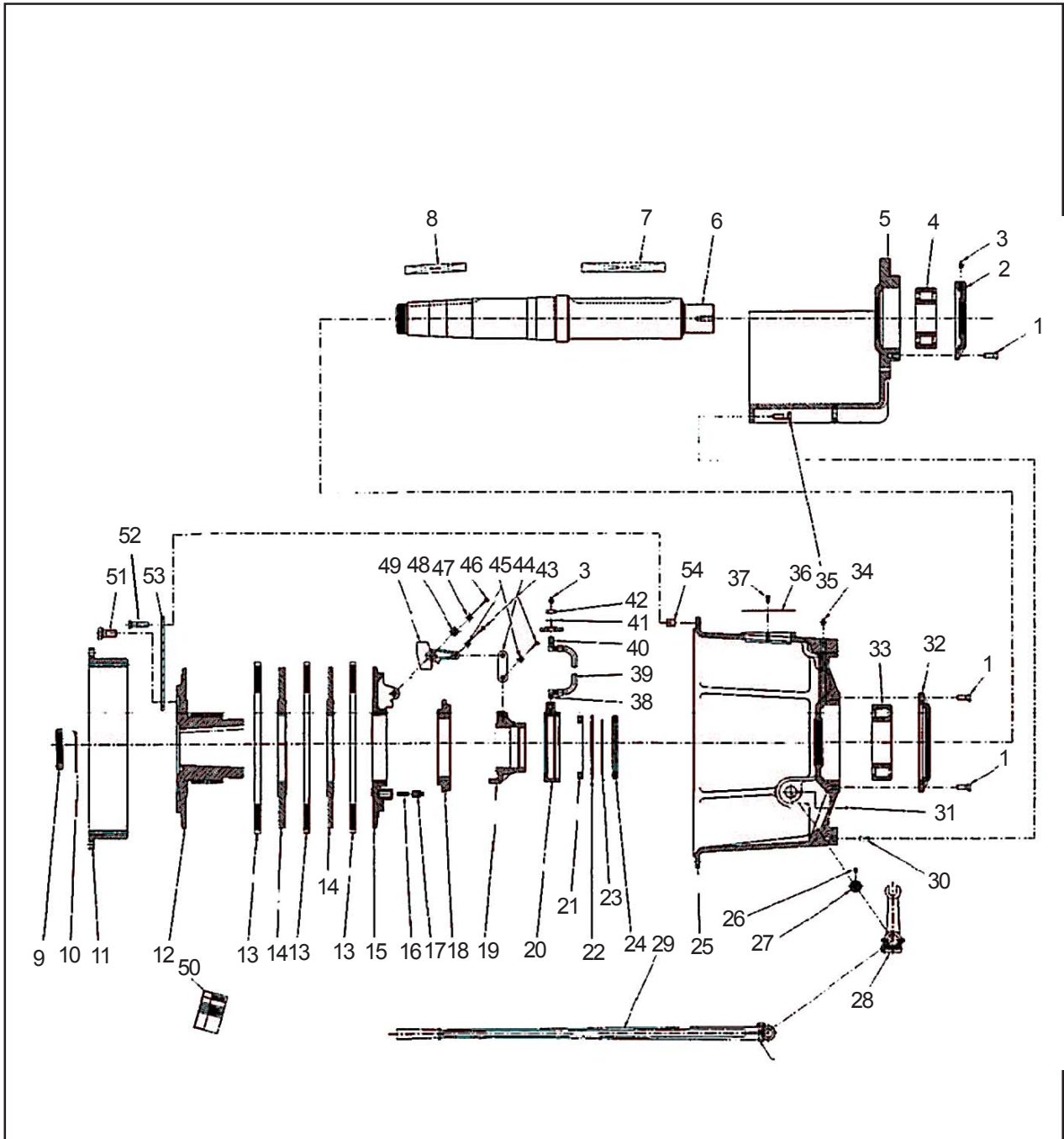
TWIN DISC CLUTCH

MODEL SP318SBO POWER TAKE OFF

LOCATION	PART NUMBER	DESCRIPTION
1.	M2004F	Screw, Hex HD
2.	B6366	Retainer, Bearing
3.	M268	Fitting
4.	MA1017	Bearing
5.	A7576	Housing, Sleeve
6.	A7577A	Shaft, Clutch
7.	M2034CO	Key
8.	M2034AJ	Key
9.	B1509L	Nut
10.	B1511J	Washer
11.	6926E	Ring, Driving
12.	Z9678A	Hub And Back Plate
13.	5658G	Plate, Friction
14.	9676	Plate, Center
15.	9677B	Plate, Pressure
16.	A2702BE	Spring, Compression
17.	B2341	Pin
18.	A6681	Ring, Adjusting
19.	B5913A	Sleeve, Sliding
20.	B5916	Collar
21.	MA542	Bearing, Ball
22.	A2669DV	Ring, Snap
23.	A2903CH	Ring, Snap
24.	B2339	Shield, Grease
25.	A7574	Housing
26.	M2022AC	Key, Woodruff
27.	A3633E	Shaft, Operating
28.	XA5486	Shaft, Operating
29.	X8377C	Hand Lever Assembly

Continued on following page.

TWIN DISC CLUTCH



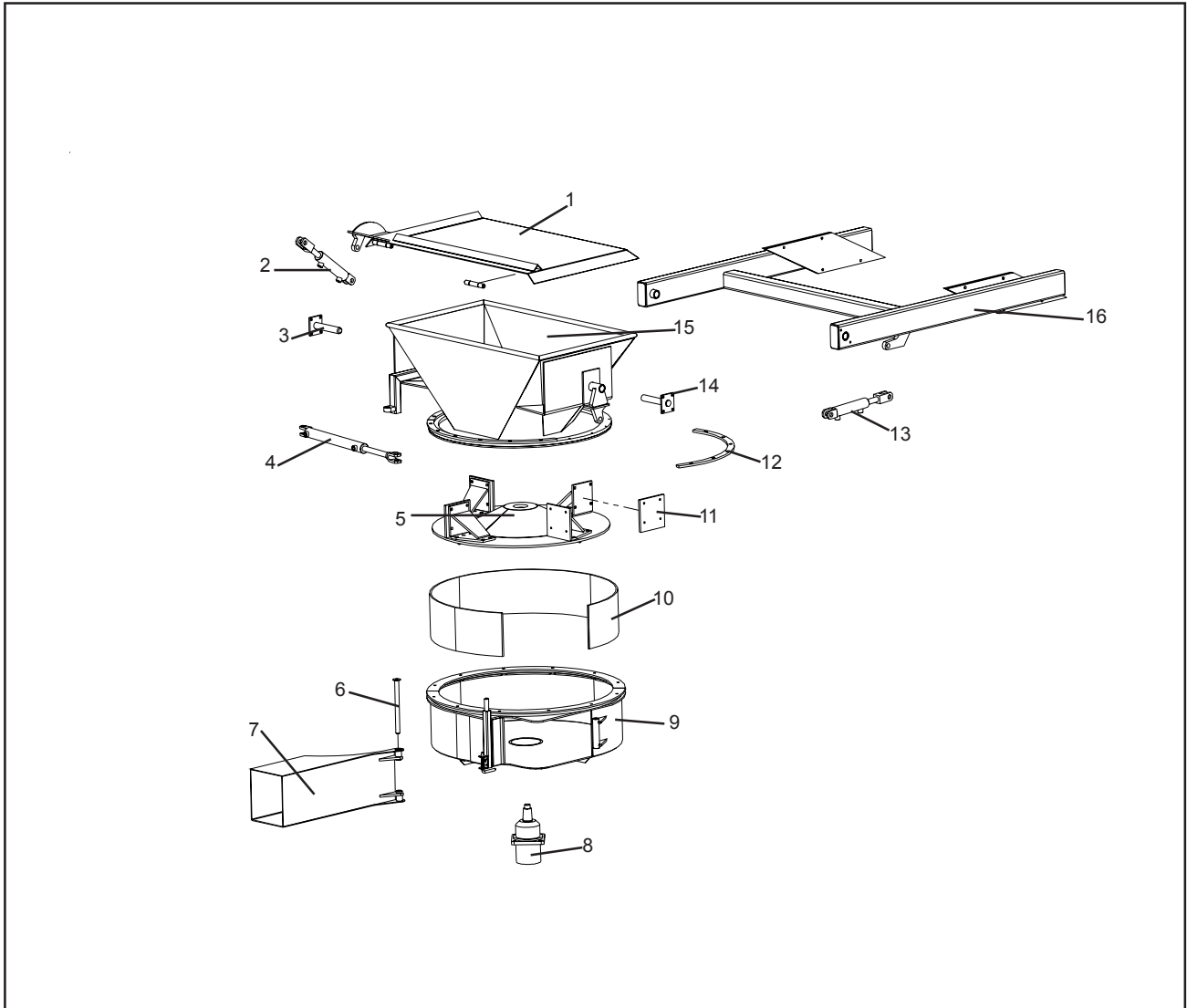
MODEL SP318SBO POWER TAKE OFF

Smoracy, LLC

TWIN DISC CLUTCH**MODEL SP318SBO POWER TAKE OFF**

LOCATION	PART NUMBER	DESCRIPTION
30.	A2711L	Pin, Dowel
31.	M503	Fitting
32.	B6366	Retainer, Bearing
33.	MA1016	Bearing
34.	M287	Fitting
35.	M2004K	Screw, Hex HD
36.	A4836X	Fitting
37.	02006092	Plate, Instruction
38.	M1284	Screw, Hex HD
39.	M1292A	Hose
40.	M1283	Fitting
41.	M2046AF	Washer
42.	M2027AN	Nut
43.	B1535E	Pin, Cotter
44.	1345	Link
45.	B1539A	Pin, Head
46.	B1535F	Pin, Cotter
47.	B1541A	Pin, Head
48.	M2115E	Washer
49.	A4419	Lever
50.	1016992	Manual
51.	M2007B	Screw, Hex HD
52.	M2004W	Screw, Hex HD
53.	1018220	Strap
54.	1018219	Spacer

THROWER ASSEMBLY

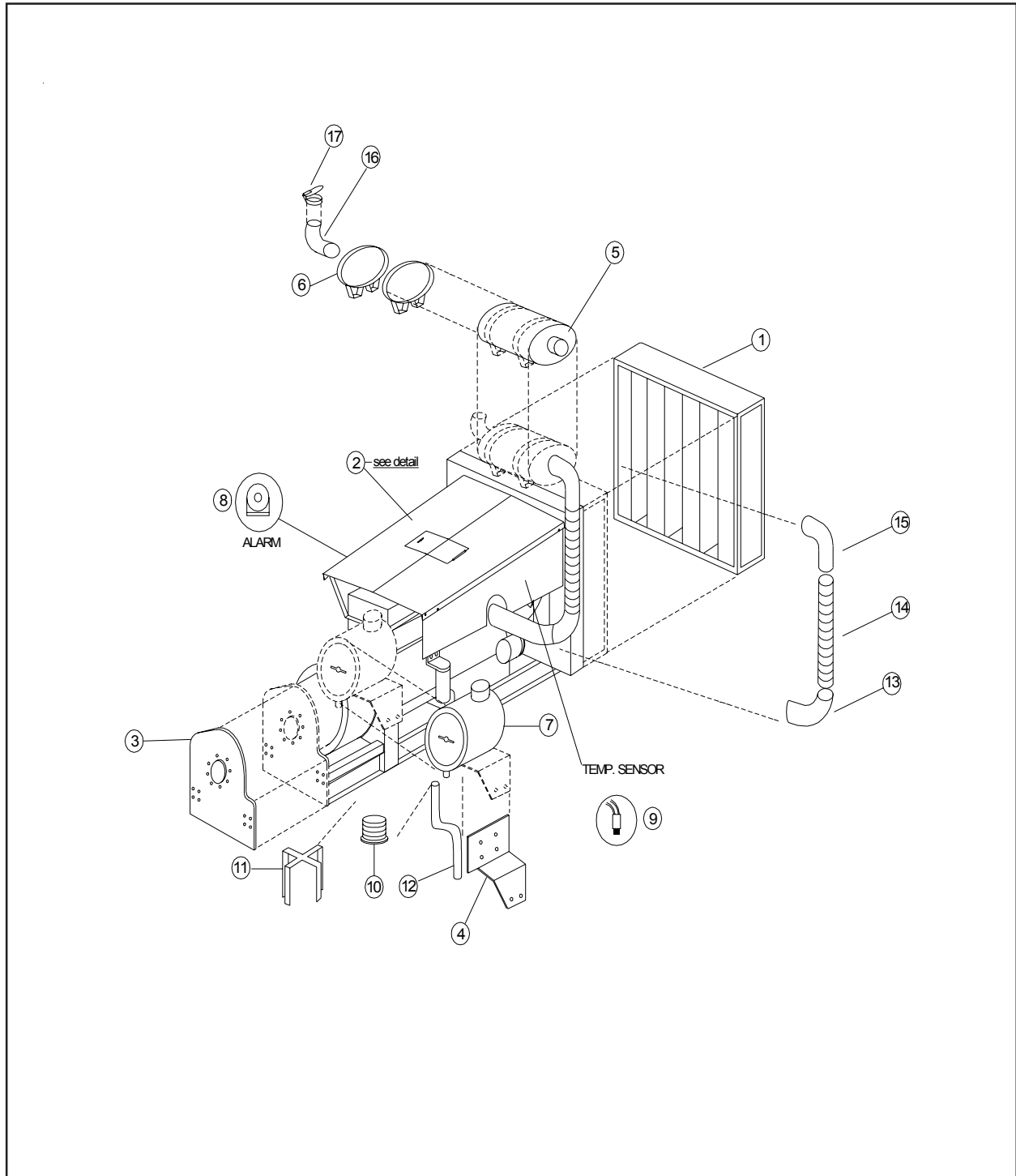


Smoracy, LLC

THROWER ASSEMBLY

LOCATION	PART NUMBER	DESCRIPTION
1 a.	967-200014	Thrower Lid Assembly
b.	977-200274	Hinge Assembly
2.	900-3920-77	Lid Cylinder
3.	967-200005	Support Arm Pivot Pin Assembly
4.	900-3926-64	Side to Side Cylinder
5.	967-200013	Impeller Plate Assembly
6.	967-300045	Spout Hinge Pin
7.	967-200011	Spout Assembly
8.	900-3927-17	Impeller Drive Motor
9.	967-200010	Impeller Housing Assembly
10.	967-300108	Inner Ring
11.	967-300115	Impeller Paddle
12.	967-300022	Hopper Rotation Wear Strip (3 required)
13.	900-3920-77	Tilt Up/Down Cylinder
14.	967-200005	Support Arm Pivot Pin Assembly
15.	967-200012	Hopper Assembly
16.	967-200000	Thrower Support Arm Assembly
17.	977-300553	18' Discharge Sides For Thrower Option (Not Shown)

Caterpillar C-15

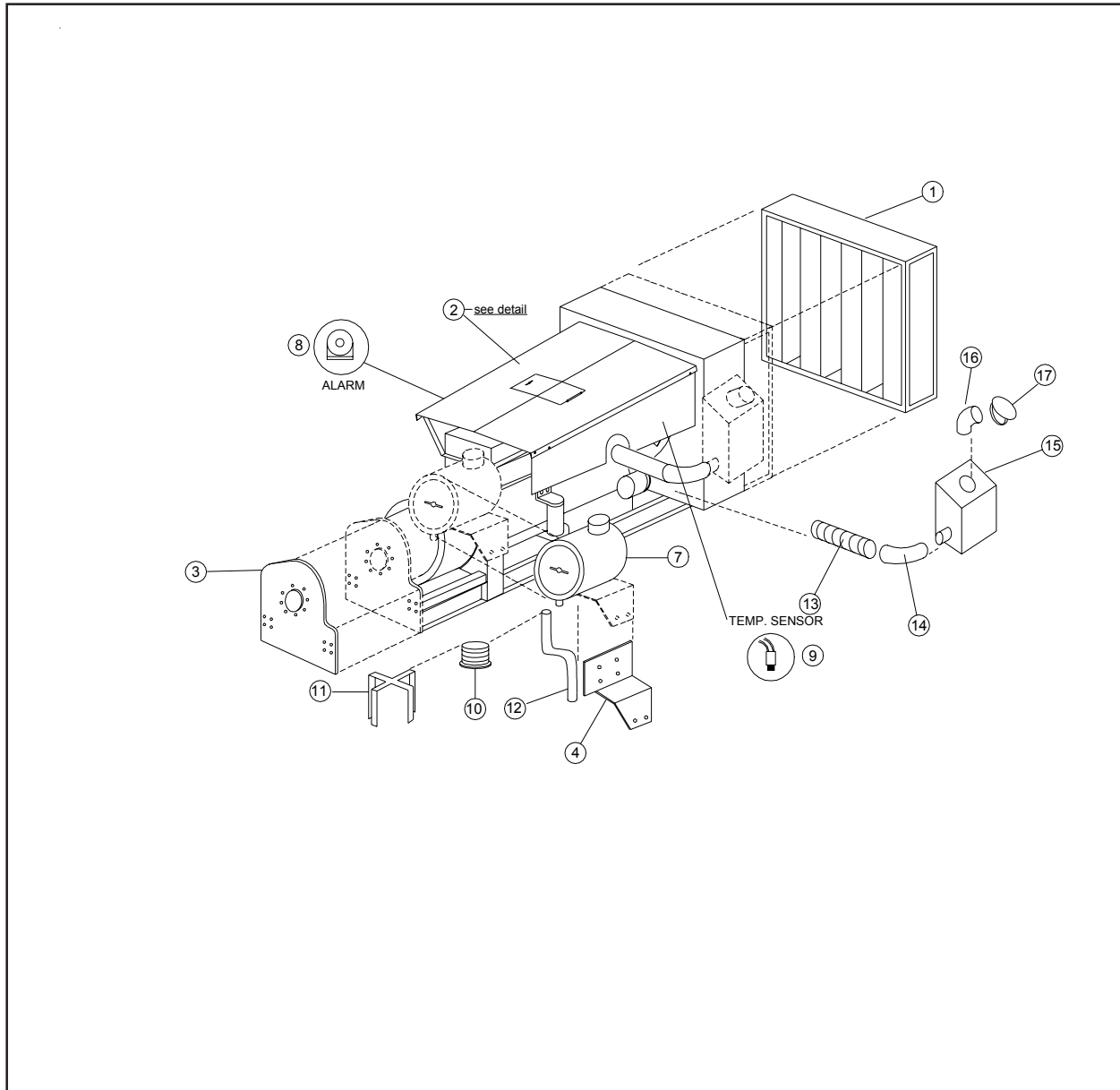


Smoracy, LLC

Caterpillar C-15

LOCATION	PART NUMBER	DESCRIPTION
1.	977-200198	Debris Screen Assembly
2.	977-200197	Engine Canopy Assembly
3.	976-012103	Clutch Plate
4.	976-011924	Air Cleaner Mount
x	901-100004	C-15 Complete Exhaust System Kit
x	901-100005	C-10/3126E Complete Exhaust System Kit
5.	900-6907-90	Muffler
6.	977-050077	Muffler Mount
7. a.	900-6907-91	Air Cleaner
b.	900-6907-62	Pre Cleaner (not shown)
8.	900-2908-04	Start Alarm Beeper
9.	900-2909-12	Temperature Sensor
10.	900-2909-10	Strobe Light (overheat condition)
a.	900-2912-32	Strobe Light replacement flash tube (not shown)
11.	900-2909-11	Strobe Light Branch Guard
12.	977-300004	Branch Guard Mount Tube
13.	900-6908-14	6" Male to Female Elbow
14.	900-6907-65	6" Flex (20" Length)
15.	900-6907-57	6" Short Elbow
16.	900-6908-15	6" Male to Male
17.	900-6908-16	6" Rain Cap
	977-100002	Optional Cold Weather Kit (not shown)
	Includes:	1500 Watt Immersion Heater for hydraulic tank
		12' Cord for heater
x		Caterpillar C-10 C15 Engine Block Heater

Caterpillar C-16

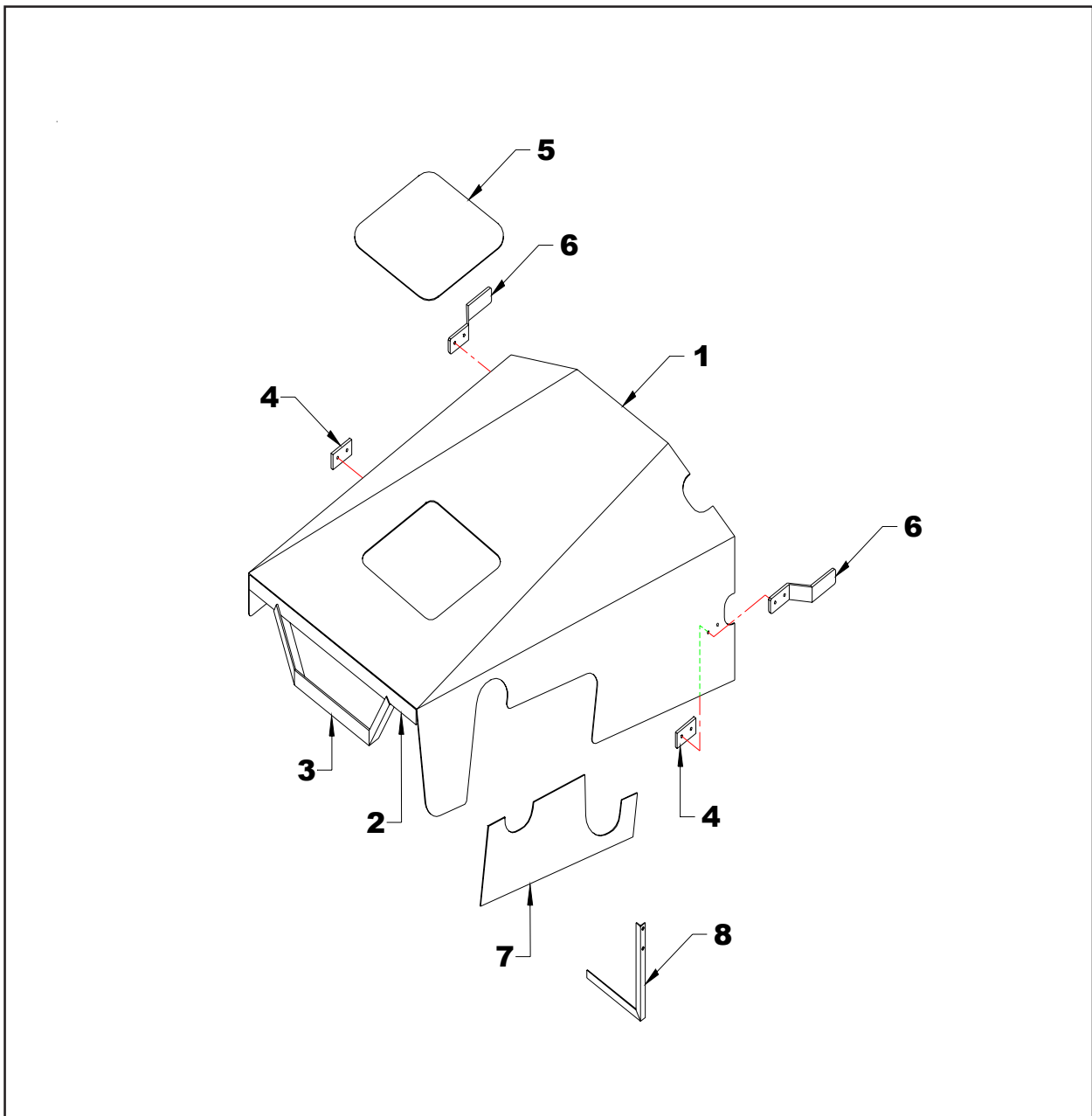


Smoracy, LLC

Caterpillar C-16

LOCATION	PART NUMBER	DESCRIPTION
1.	977-200228	Debris Screen Assembly
2.	977-200197	Engine Canopy Assembly
3.	976-012103	Clutch Plate
4.	976-011924	Air Cleaner Mount
	901-100003	C-16 Complete Exhaust System Kit
5.		No Illustration
6.		No Illustration
7. a.	900-6907-91	Air Cleaner
b.	900-6907-84	Pre Cleaner (not shown)
8.	900-2908-04	Start Alarm Beeper
9.	900-2909-12	Temperature Sensor
10.	900-2909-10	Strobe Light (overheat condition)
a.	900-2909-53	Strobe Light replacement flash tube (not shown)
11.	900-2909-11	Strobe Light Branch Guard
12.	977-300004	Branch Guard Mount Tube
13.	900-6907-65	6" Flex (about 20")
14.	900-6908-14	6" Male to Female Elbow
15.	900-6907-90	Muffler
16.	900-6908-18	6" Male to Male Elbow
17.	900-6908-16	6" Rain Cap
	977-100002	Optional Cold Weather Kit (not shown)
	Includes:	1500 Watt Immersion Heater for hydraulic tank 12' Cord for heater Caterpillar C-16 Engine Block Heater

Engine Canopy for Caterpillar Models C-15 & C-16



Smoracy, LLC

Engine Canopy for Caterpillar Models C-15 & C-16

LOCATION	PART NUMBER	DESCRIPTION
1.	976A-004205	Engine Canopy
2.	976A-004206	Canopy Support-Front
3.	976-011990	Canopy Mount
4.	976A-004203	Canopy Mount Block
5.	976A-004201	Canopy Access Door
6.	976A-004202	Canopy Mount Arms
7.	976A-004204	Canopy Side
8.	976-002110	Canopy Side Support

Note: To Order Entire Assembly with the above parts 977-200197

Control Box Components with Options Modules



RADIO & TETHER CONTROL COMPONENTS

1.



2.



Smoracy, LLC

CONTROL BOX COMPONENTS

(Picture shown is typical, your control box may have other options)

LOCATION	PART NUMBER	DESCRIPTION
1.	900-2911-01	Control and Receiver Box
b.	900-2906-83	Autofeed Tach
c.	900-2906-88	Autofeed Relay

RADIO & TETHER CONTROL COMPONENTS

(Picture shown is typical, your controls may have other options)

LOCATION	PART NUMBER	DESCRIPTION
1.	900-2906-85	Radio Transmitter
2.	900-2911-17	Tether Remote Control

INDEX

A

ACCESSORIES 5

AUGER,

 Accessing Augers 76

 Removal 77

 Timing 78

AUGER CONTROL 41

AUGER MOTOR 122

AUTOFEED SYSTEM 21

 Programming Sequence 23

 Trouble Shooting

 Digital Autofeed Settings 27

B

BELT TENSION 79

BOLT TORQUE CHARTS 85

C

CLUTCH ENGAGEMENT 39

CLUTCH MAINTENANCE 52

COMPONENT PARTS MODEL 3680

 “CURBSIDE” VIEW 28

COMPONENT PARTS MODEL 3680

 “ROADSIDE” VIEW 29

CONCAVE DOOR CONTROL 41

CONSTANT SPEED PRESSURE COMPEN-
SATED PUMP 114

CONTROL BOX COMPONENTS 163

CONTROLS 38

CUTTER TEETH 70

CUTTERBODY 69

CUTTERBODY BOLTS 69

CUTTERTOOTH APPLICATIONS 71

D

DECAL LOCATIONS 16

DISABLE PLUG 43, 87

DISCHARGE CONSTANT SPEED MOTOR
128

DISCHARGE MOTOR 126

DISCHARGE BELT CONVEYOR FOLD 42

DISCHARGE BELT CONVEYOR MOTION
42

DUST SUPPRESSION SYSTEM 97

E

EMERGENCY HYDRAULIC SHUT-DOWN
86

ENGINE

 Electronic Control Unit 48

ENGINE START 38

F

FEEDWHEEL GEARBOX 132

FEEDWHEEL HYDRAULIC MOTOR 120

FEEDWHEEL MOTION 41

FEEDWHEEL YOKE 41

G

GRESEN VALVES

 3 Way 142

 4 Way 143

 Adjustable Relief 147

 Gate Cylinder Relief 146

 Handle & Bracket Assy. 144

 Pilot Control 136

 Seal Kits 134

H

HYDRAULIC CLUTCH 148

HYDRAULIC CLUTCH ENGAGEMENT 39

HYDRAULIC CLUTCH ENGAGEMENT (PT
TECH) 39

HYDRAULIC PUMP FLOW 83

HYDRAULIC PUMP AND RELIEF VALVE
SETTING 82

HYDRAULIC RELIEF PRESSURE SET-
TINGS 81

HYDRAULIC SCHEMATIC 138

HYDRAULIC SHUT DOWN SWITCHES 42

HYDRAULIC YOKE LOCK 41

INDEX

I

INFEED CONVEYOR GEAR BOX 130
INFEED CONVEYOR MOTION 41
INFEED MOTOR 124
INSERT, RAKER 68

L

LIMITED WARRANTY 3
LUBRICATION 84, 85

M

MAINTENANCE CHECK SHEET 49

P

PT TECH CLUTCH 148

Q

QUAD PUMP 112

R

RADIO & TETHER CONTROL COMPO-
NENTS 163
RADIO REMOTE 37
RAKER AREA 69
RAKER INSERT 68

S

SAFETY CHAIN 11
SCREEN REPLACEMENT 75
SERIAL NUMBER 6
STABILIZER ADJUSTMENT 41
STARTING THE RECYCLER 44

T

TABLE OF CONTENTS 1
TETHER REMOTE 35
TRANSPORTING THE RECYCLER 46
TWIN DISC CLUTCH
 Model SP318SBO 150
TWIN DISC CLUTCH,
 Adjusting 88

Y

YOKE LOCK BARS 11